



Process Valves Chapter Overview



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Overview for Process Valves – Diaphragm Valves

Note: The following product overview does not show the complete product range of this catalogue. A complete overview can be found [here](#) ►

Overview Diaphragm Valves	Species	Type	Process connection	Max. operating pressure ¹⁾ [in bar]	Medium temperature ²⁾ [°C]	Max. control pressure ³⁾ [in bar]	Body shape ⁴⁾	Surface product contacted Ra value mech. polished/ e-polished
	Diaphragm valve manually-operated	3232 ►	DN15...DN100	0...10	-10...+150 acc. to diaphragm material	–	D	–
		3233 ►	DN08...DN50	0...10		–	D	0.76...0.38 (SF1 - SF6)
	Diaphragm valve pneumatic actuator CLASSIC ON / OFF	2030 ►	DN15...DN100	0...10	-10...+150 acc. to diaphragm material	Max. 7.0	D	–
		2031 ►	DN08...DN50	0...10		Max. 7.0	D	0.76...0.38 (SF1 - SF6)
		2033 ►	DN08...DN100	0...10		Max. 7.0	B	0.76...0.38 (SF1 - SF6)
	Diaphragm valve pneumatic actuator ELEMENT ON/Off	2103 ►	DN08...DN50	0...10	-10...+150 acc. to diaphragm material	Max. 10	D	–
		2104 ►	DN08...DN65	0...10		Max. 10	T	0.76...0.38 (SF1 - SF6)
		2105 ►	DN08...DN65	0...10		Max. 10	B	0.76...0.38 (SF1 - SF6)
	Diaphragm valve pneumatic actuator	2063 ►	DN15...DN50	0...10	-10...+150 acc. to diaphragm material	Max. 10	D	0.76...0.38 (SF1 - SF6)
	Diaphragm valve electric actuator ON / OFF	3323 ►	DN08...DN40	0...10	-10...+150 acc. to diaphragm material	Max. 10	D	–
	Diaphragm valve electric actuator Control valve	3363 ►	DN04...DN40	0...10	-10...+150 acc. to diaphragm material	–	D	–
	Robolux Systems pneumatic actuator	2036 ►	RV 50...110	0...10	-10...+150 acc. to diaphragm material	Max. 10	M	0.76...0.38 (SF1 - SF6)

1) Operating pressure depending on the actuator specification and diaphragm material

2) Max. operating temperature depending on the diaphragm/body material

3) Max. control pressure depending on the actuator size

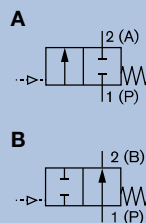
4) D = Bore body | T = T-Form | B = Tank bottom | M = Multi-way body

Material valve body			Material actuator		Diaphragm material			Overview Diaphragm Valves
Stainless steel	Special materials	Plastic	Stainless steel	Plastic	EPDM AD	PTFE EA/EU	Gylon ER	
–	–	PVC/PU/PVDF	1.4404	PPS	Diaphragm material selection according to the resistance table			
1.4435/316L	on request	–	1.4404	PPS				
–	–	PVC/PU/PVDF	Inox at DN08	PA/PPS	Diaphragm material selection according to the resistance table			
1.4435/316L	on request	–	Inox at DN08	PA/PPS				
1.4435/316L	on request	–	Inox at DN08	PA/PPS				
1.4435/316L	on request	PVC/PU/PVDF	1.4561/316TI	–	Diaphragm material selection according to the resistance table			
1.4435/316L	on request	–	1.4561/316TI	–				
1.4435/316L	on request	–	1.4561/316TI	–				
1.4435/316L	on request	–	1.4404/1.4308	–	Diaphragm material selection according to the resistance table			
1.4435/316L	on request	PVC/PU/PVDF	–	PPS	Diaphragm material selection according to the resistance table			
1.4435/316L	on request	PVC/PU/PVDF	–	PPS	Diaphragm material selection according to the resistance table			
1.4435/316L	on request	–	INOX	–	Diaphragm material selection according to the resistance table			

Pneumatically operated 2/2 way diaphragm valve CLASSIC with plastic body

2030

- Flow optimised and deadleg free bodies
- Hermetical separation of fluids from the operating mechanism by diaphragm
- Robust actuators with modular accessory program
- Self-draining plastic bodies with true union, solvent socket, weld ends or flanges
- Applicable for aggressive and corrosive media



Pilot controlled diaphragm valve with piston actuator and diaphragm seal. As standard, actuator from PA. The flow optimised and zero dead volume valve body makes high flow rates possible.

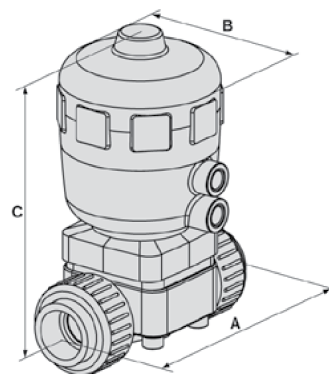
Technical data

Orifice (diaphragm size)	DN15...DN100
Body materials	PVC-U, PP, PVDF
Actuator material	PA polyamide (PPS on request)
Seal material	EPDM, PTFE/EPDM
Media	Neutral gases and liquids, aggressive or abrasive media
Viscosity	Up to viscous
Media temperature	See diagram
Ambient temperature	- 10 °C...+ 60 °C (PA) Actuator size ≥ 175 mm: - 10 °C...+ 50 °C
Control medium	Neutral gases, air
Port connections	DN15...DN50: True union and spigot connections DN65: Loose flanges DN80...DN100: Fixed flanges
Installation	As required, preferably with actuator in upright position

Options

- Actuator made from PPS
- Double-acting actuator
- Feedback unit **Type 8697** ▶
- Stroke limiter

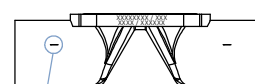
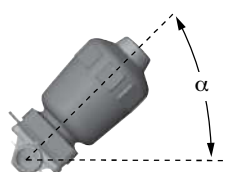
Dimensions [mm]



Drawing shows dimensions for true union connection. For dimensions of other versions see data sheet **Type 2030** ▶.

DN	Actuator size	A	B	C
15	50	128	64	123
	63	128	80	139
20	63	152	80	148
	80	152	101	173
25	80	166	101	176
32	100	192	127	231
40	100	222	127	239
	125	222	153	277
50	125	266	153	284

Installation for self-draining operation



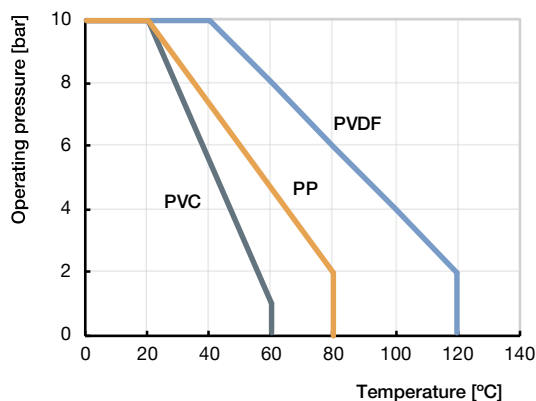
markings for self-drain angle

$\alpha = 15^\circ$ up to 30° plus 3° to 5° inclination to the pipe axis.
Drain marks indicate the correct mounting position to optimise self-draining.

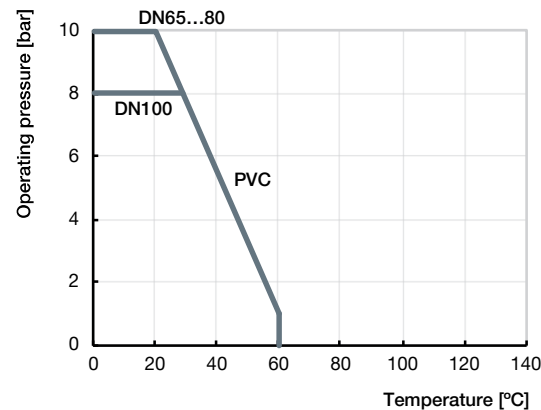
Mediums temperature

Pressure temperature compatibility charts

DN15...50



DN65...100



Important for the material selection!

Note that the permissible operating pressure is dependent on the media temperature.

Pilot pressure charts for control function B

Seal material EPDM

Chart 1 – orifice 15...25

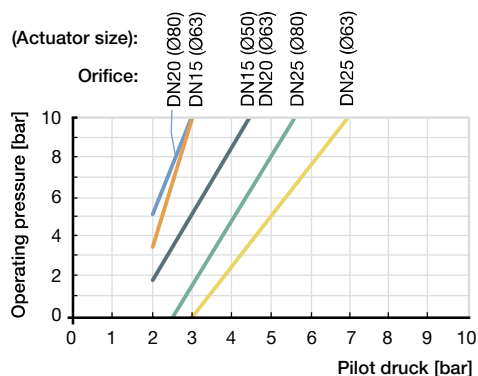
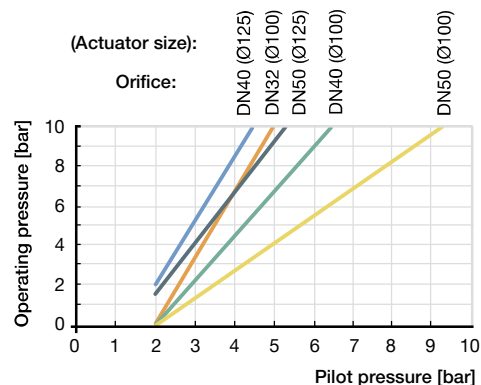


Chart 2 – orifice 32...50



Seal material PTFE/EPDM (EA)

Chart 3 – orifice 15...25

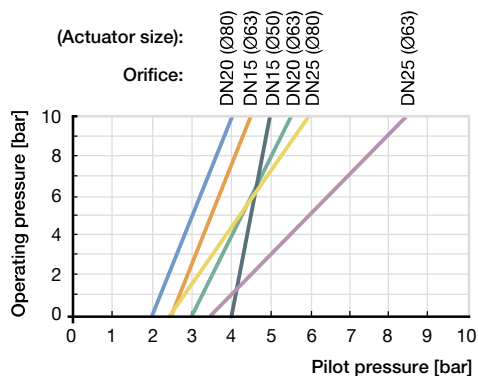
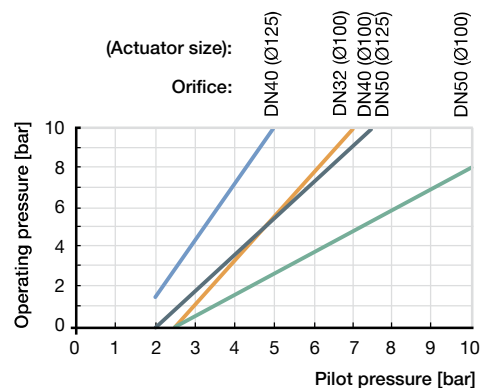


Chart 4 – orifice 32...50





























































Ordering chart

2030

Control function	Port connection [mm]	Orifice Dia-phragm size [mm]	Actuator size Ø [mm]	K _v value water [m³/h]	Minimum pilot pressure [bar]	Operating pressure [bar]	Article no. true union
Body in PVC-U with true union or spigot connections DN15...DN50							
Seal material EPDM							
A Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	20	15	50	3	5	8.5	317273
			63	3.5	5	10	317274
	25	20	63	7	5.5	10	317276
	32	25	80	11	5.5	10	317277
	40	32	100	18	5.5	10	317278
	50	40	100	24	5.5	6.5	317279
	–	–	125	26	5.5	10	317280
		63	50	125	43	5.5	8
B Single-acting actuator for pneumatically activated open/closed valve, normally opened by spring force.	20	15	50	3	see pilot pressure chart 1	10	317275
	25	20	63	7		10	317282
	32	25	80	11		10	317284
	40	32	100	18	see pilot pressure chart 2	10	317285
	50	40	100	24		10	317286
	63	50	125	43		10	317287
Seal material PTFE/EPDM							
A Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	20	15	50	3	5	5	262237
			63	3.5	5	10	262245
	25	20	63	7	5.5	5	262760
			80	7	5	10	262742
	32	25	80	11	5.5	7.5	262744
	40	32	100	18	5.5	8	262746
	50	40	100	24	5.5	6	262761
			125	26	5.5	10	262749
	63	50	125	43	5.5	7	262751
B Single-acting actuator for pneumatically activated open/closed valve, normally opened by spring force.	20	15	63	3.5	see pilot pressure chart 3	10	262306
	25	20	80	7		10	262753
	32	25	80	11		10	262755
	40	32	100	18	see pilot pressure chart 4	10	on request
	50	40	125	26		10	262758
	63	50	125	43		10	274572

Ordering chart continued

Control function	Port connection [mm]	Orifice Diaphragm size [mm]	Actuator size Ø [mm]	K _v value water [m³/h]	Minimum pilot pressure [bar]	Operating pressure [bar]	Article no.	
							true union	spigot
Body in PP with true union or spigot connections DN15...50								
Seal material EPDM								
A Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	20	15	50	3	5	8.5	317258 	317235 
			63	3.5	5	10	317259 	317237 
	25	20	63	7	5.5	10	317260 	317250 
	32	25	80	11	5.5	10	317261 	317238 
	40	32	100	18	5.5	10	317262 	317240 
			100	24	5.5	6.5	317263 	317241 
	63	50	125	43	5.5	8	317266 	317243 
B Single-acting actuator for pneumatically activated open/closed valve, normally opened by spring force.	20	15	50	3	see pilot pressure chart 1	10	317267 	317244 
	25	20	63	7		10	317268 	317245 
	32	25	80	11		10	317269 	317251 
	40	32	100	18	see pilot pressure chart 2	10	317270 	317246 
	50	40	100	24		10	317271 	317247 
	63	50	125	43		10	317272 	317249 
Seal material PTFE/EPDM								
A Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	20	15	50	3	5	5	154770 	144295 
			63	3.5	5	10	154781 	141454 
	25	20	63	7	5.5	5	154784 	144299 
			80	7	5	10	154785 	141464 
	32	25	80	11	5.5	7.5	154787 	141471 
	40	32	100	18	5.5	8	154789 	141477 
	50	40	100	24	5.5	6	154792 	144303 
			125	26	5.5	10	154793 	141486 
63	50	125	43	5.5	7	154795 	141492 	
B Single-acting actuator for pneumatically activated open/closed valve, normally opened by spring force.	20	15	63	3.5	see pilot pressure chart 3	10	154807 	141502 
	25	20	80	7		10	154810 	141513 
	32	25	80	11		10	154812 	141520 
	40	32	100	18	see pilot pressure chart 4	10	154814 	141526 
	50	40	125	26		10	154817 	141535 
	63	50	125	43		10	154819 	141541 



Ordering chart continued

2030

Control function	Port connection [mm]	Orifice Diaphragm size [mm]	Actuator size Ø [mm]	K _v value water [m³/h]	Minimum pilot pressure [bar]	Operating pressure [bar]	Article no.	
							true union	spigot
Body in PVDF with true union or spigot connections DN15...50								
Seal material PTFE/EPDM								
A Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	20	15	50	3	5	5	154796	144296
			63	3.5	5	10	154797	141453
	25	20	63	7	5.5	5	154798	144300
			80	7	5	10	154799	141463
	32	25	80	11	5.5	7.5	154800	141470
	40	32	100	18	5.5	8	154801	141476
	50	40	100	24	5.5	6	154802	144337
			125	26	5.5	10	154803	141485
	63	50	125	43	5.5	7	154804	141491
B Single-acting actuator for pneumatically activated open/closed valve, normally opened by spring force.	20	15	63	3.5	see pilot pressure chart 3	10	154820	141501
	25	20	80	7		10	154821	141512
	32	25	80	11		10	154822	141519
	40	32	100	18	see pilot pressure chart 4	10	154823	141525
	50	40	125	24		10	154824	141534
	63	50	125	43		10	154825	141540

Control function	Port connection [mm]	Orifice Diaphragm size [mm]	Actuator size Ø [mm]	K _v value water [m³/h]	Minimum pilot pressure [bar]	Operating pressure [bar]	Article no. flanges
Body in PVC-U with flange connection DN65...100							
Seal material EPDM							
A Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	Loose flanges	65	125	55	5.5	7	317257
			175	60	4.5	8	317252
	Fixed flanges	80	175	100	5	5	317253
			225	100	5	10	317254
	Fixed flanges	100	225	160	5	8	317255
Seal material PTFE/EPDM							
A Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	Loose flanges	65	125	55	5.5	4.5	149296
			175	60	4.5	5	147845
	Fixed flanges	80	175	100	5	4.5	147847
			225	100	5	10	147849
	Fixed flanges	100	225	160	5	4	147850

Accessories

Valve for actuator size [Ø mm]	Type	Pressure inlet P (valve body)	Service port A (banjo bolt)	Orifice [mm]	Q _{Nr} value air [l/min]	Pressure range [bar]	Electrical coil connection Ind. Std.	Power consumption [W]	Article no. Voltage/frequency [V/Hz]	
									024/DC	230/50
3/2 way pilot valves with banjo bolts										
Seal material valve FKM, seal material banjo bolt NBR										
50	6012P	G ¼	G ½	1.2	48	0...10	Form B	4	552295	552298
63	6012P	Tube fitting Ø 6 mm	G ¼	1.2	48	0...10	Form B	4	552283	552286
63...125	6014P	G ¼	G ¼	2	120	0...10	Form A	8	424103	424107
175...225	6014P	G ½	G ¼	2.5	174	0...6	Form A	8	786014	786015
175...225	0331P	G ¼	G ¼	3	194	0...10	Form A	8	–	041233

Description	Voltage	Article no.
Cable plug Type 2507 acc. to industry standard Form B - see Type 2507 ▶		
without circuitry (standard)	0...250 V AC/DC	423845
Cable plug Type 2508 (will be replaced with Type 2518) acc. to DIN 175301-803 Form A - see Type 2508 ▶		
without circuitry (standard), without cable	0...250 V AC/DC	008376

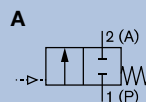
For further accessories see **Type 1062 ▶** or **Type 2XXX ▶**, for the full options programme.

Note: For design reasons, some of the accessories cannot be supplied for actuator size Ø 40, 175 and 225 mm. Please request the accessories datasheet, see **Type 2XXX ▶**.

2/2 way Diaphragm Valve, forged valve body, weld end and clamp connection

2031
forged

- Hermetical separation of fluids from the operating mechanism by diaphragm
- Zero dead volume
- Various surface finishes available
- Quality certifications / USP FDA

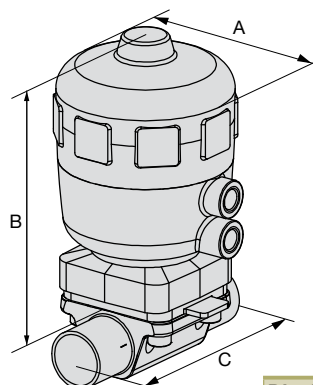


The externally piloted diaphragm valve consists of a pneumatically operated piston actuator, a diaphragm and a 2 way valve housing made of forged stainless steel. The standard material of the actuator is PPS. The flow optimised and zero dead volume valve body makes high flow rates possible and a variety of applications to be realised.

Technical data

Orifice	DN8...DN100 (1/8"-4")
Body material	Forged stainless steel 316L/1.4435 / BN2 Fe < 0.5 % / C ≤ 0.03 %
Pilot air ports	Stainless steel 1.4305
Seal materials	PTFE/EPDM (EA), EPDM (AD), advanced PTFE/EPDM (EU), GYLON®/EPDM laminated (ER) and FKM (FF) on request
Medium temperatures	
PTFE/EPDM (EA)	-10 °C...+130 °C (steam sterilisation +140 °C for 60 min)
EPDM (AD)	-10 °C...+143 °C (steam sterilisation +150 °C for 60 min)
advanced PTFE/EPDM (EU)	-5 °C...+143 °C (steam sterilisation +150 °C for 60 min)
GYLON®/EPDM laminated (ER)	-5 °C...+130 °C (steam sterilisation +140 °C for 60 min)
FKM (FF)	0 °C...+130 °C (not recommended for steam)
Actuator materials	PPS for actuator size ≥ 40...125 mm PA polyamide for actuator size ≥ 175 mm
Media	Neutral gases and liquids, high purity, aseptic, aggressive or abrasive fluids
Control medium	Neutral gases; air
Ambient temperature	
PPS actuator size ≤ 80 mm	+5 °C...+140 °C
PPS actuator size 100 mm, 125 mm	+5 °C...+90 °C (briefly up to +140 °C)
PA actuator size ≤ 125 mm (on request)	-10 °C...+60 °C
PA actuator size ≥ 175 mm	-10 °C...+50 °C
Port connections	
Weld ends	DIN EN ISO 1127 / ISO 4200 / DIN 11866 B DIN 11850 2 / DIN 11866 A ASME BPE / DIN 11866 C BS4825 SMS 3008 DIN 11850 0
Clamps	DIN 32676 B (with pipe ISO 4200) DIN 32676 A (with pipe DIN 11850 2) ASME BPE further port connections on request
Viscosity	Up to viscous

Dimensions [mm]



Pilot air port
Actuator 40 & 50 = 1/8"
Actuator 63...225 = 1/4"

















































Drawing shows dimensions for forged body/weld end
For dimensions of other versions see datasheet
Type 2031 ▶

Diaphragm size	Actuator size	A	B	C
8	40	53	89	90
15	50	64	108	110
	63	80	125	110
20	63	80	130	119
	80	101	151	119
25	80	101	155	129
40	100	127	205	161
	125	153	243	161
50	125	153	243	192
80	225	261	345	250
100	225	261	345	295

Options

- Seal material FKM
- Feedback
- Stroke limitation

Ordering chart

Control function	Port Connection DN		Diaphragm size	Actuator size Ø [mm]	K _v value [m³/h]	Pilot pressure [bar]	Max. operating pressure [bar]	Article no.	
	[mm]	[inch]						mechanically polished Ra ≤0.5 µm	electro polished Ra ≤0.38 µm
Welded connection acc. DIN EN ISO 1127 / ISO 4200 / DIN11866 B									
A	Diaphragm material EPDM (AD)								
Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	8	¼	8	40	1.5	5.0...7	10	319780 	319781 
	10	⅜	8	40	1.6	5.0...7	10	319782 	319492 
	10	⅜	15	50	5.5	5.0...7	8.5	319783 	319784 
	15	½	15	50	6.5	5.0...7	8.5	319785 	291162 
	20	¾	20	63	12.5	5.5...7	10	319786 	291178 
	25	1	25	80	18	5.5...7	10	319787 	291218 
	40	1 ½	40	100	41	5.0...7	6.5	319788 	319789 
	50	2	50	125	66	5.0...7	8	319790 	319791 
	65	2 ½	80	225	160	5.0...6	10	on request	on request
	80	3	80	225	160	5.0...6	10	on request	on request
	100	4	100	225	235	5.0...6	8	on request	on request
	Diaphragm material PTFE/EPDM (EA)								
	8	¼	8	40	2	5.0...7	10	445003 	445004 
	10	⅜	8	40	2	5.0...7	10	445008 	445009 
	10	⅜	15	63	5.2	5.0...7	10	299523 	299495 
	15	½	15	63	6	5.0...7	10	445013 	445014 
	20	¾	20	80	12	5.0...7	10	445018 	445019 
	25	1	25	80	16	5.5...7	7.5	445023 	445024 
	40	1 ½	40	125	40	5.0...7	10	445027 	445028 
	50	2	50	125	67	5.0...7	7	445032 	445033 
	65	2 ½	80	225	160	5.0...6	10	on request	on request
	80	3	80	225	160	5.0...6	10	on request	on request
	100	4	100	225	235	5.0...6	4	on request	on request
Welded connection acc. DIN 11850 2 / DIN 11860 A									
A	Diaphragm material EPDM (AD)								
Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	10	⅜	8	40	1.5	5.0...7	10	319810 	291122 
	10	⅜	15	50	3.5	5.0...7	8.5	319811 	319812 
	15	½	15	50	6.5	5.0...7	8.5	293915 	319813 
	20	¾	20	63	12.4	5.5...7	10	319814 	319815 
	25	1	25	80	20	5.5...7	10	291220 	319816 
	32	1 ¼	40	100	34	5.0...7	6.5	319817 	319818 
	40	1 ½	40	100	40	5.0...7	6.5	319819 	319820 
	50	2	50	125	66	5.0...7	8	319821 	319822 
	65	2 ½	80	225	160	5.0...6	10	on request	on request
	80	3	80	225	160	5.0...6	10	on request	on request
	100	4	100	225	235	5.0...6	8	on request	on request





































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Ordering chart

Control function	Port Connection DN		Diaphragm size	Actuator size Ø [mm]	K _v value [m³/h]	Pilot pressure [bar]	Max. operating pressure [bar]	Article no.	
	[mm]	[inch]						mechanically polished Ra ≤0.5 µm	electro polished Ra ≤0.38 µm
A	Diaphragm material PTFE/EPDM (EA)								
Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	10	¾	8	40	1.9	5.0...7	10	445137	445138
	10	¾	15	63	3.4	5.0...7	10	299521	299492
	15	½	15	63	6	5.0...7	10	445142	445143
	20	¾	20	80	12	5.0...7	10	445147	445148
	25	1	25	80	17	5.5...7	7.5	445152	445153
	32	1 ¼	40	125	34	5.0...7	10	554976	554977
	40	1 ½	40	125	40	5.0...7	10	445157	445158
	50	2	50	125	66	5.0...7	7	445162	445163
	65	2 ½	80	225	160	5.0...6	10	on request	on request
	80	3	80	225	160	5.0...6	10	on request	on request
	100	4	100	225	235	5.0...6	4	on request	on request
Welded connection acc. ASME BPE / DIN 11866 C									
A	Diaphragm material EPDM (AD)								
Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	8	¼	8	40	0.7	5.0...7	10	291108	319800
	10	¾	8	40	1.6	5.0...7	10	319802	291121
	15	½	8	40	1.5	5.0...7	10	291109	319803
	15	½	15	50	3.1	5.0...7	8.5	274226	255243
	20	¾	15	50	6.5	5.0...7	8.5	318103	319804
	20	¾	20	63	8.4	5.5...7	10	274227	319805
	25	1	25	80	15.5	5.5...7	10	274228	255244
	40	1 ½	40	100	37	5.0...7	6.5	274231	291243
	50	2	50	125	66	5.0...7	8	274232	255246
	65	2 ½	50	125	66	5.0...7	8	319830	319831
	65	2 ½	80	225	160	5.0...6	10	on request	on request
	80	3	80	225	160	5.0...6	10	on request	on request
	100	4	100	225	235	5.0...6	8	on request	on request

Ordering chart

Control function	Port Connection DN		Diaphragm size	Actuator size Ø [mm]	K _v value [m³/h]	Pilot pressure [bar]	Max. operating pressure [bar]	Article no.	
	[mm]	[inch]						mechanically polished Ra ≤0.5 µm	electro polished Ra ≤0.38 µm
A	Diaphragm material PTFE/EPDM (EA)								
Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	8	¼	8	40	0.7	5.0...7	10	447915 	447916 
	10	⅜	8	40	1.8	5.0...7	10	447920 	447921 
	15	½	8	40	1.9	5.0...7	10	250491 	218537 
	15	½	15	63	3.1	5.0...7	10	445082 	445083 
	20	¾	15	63	6	5.0...7	10	250492 	299489 
	20	¾	20	80	8.5	5.0...7	10	445087 	445088 
	25	1	25	80	14.5	5.5...7	7.5	445092 	445093 
	40	1 ½	40	125	37.5	5.0...7	10	445097 	445098 
	50	2	50	125	66	5.0...7	7	445102 	445103 
	65	2 ½	50	125	66	5.0...7	7	299536 	276355 
	65	2 ½	80	225	160	5.0...6	10	on request	on request
	80	3	80	225	160	5.0...6	10	on request	on request
100	4	100	225	235	5.0...6	4	on request	on request	
Welded connection acc. SMS 3008									
A	Diaphragm material EPDM (AD)								
Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	25	1	25	80	16	5.5...7	10	319792 	319793 
	40	1 ½	40	100	37.8	5.0...7	6.5	319794 	319796 
	50	2	50	125	66	5.0...7	8	319797 	319798 
	65	2 ½	50	125	66	5.0...7	8	260734 	319799 
	80	3	80	225	160	5.0...6	10	on request	on request
	Diaphragm material PTFE/EPDM (EA)								
	25	1	25	80	14.8	5.5...7	7.5	445182 	445183 
	40	1 ½	40	125	38	5.0...7	10	445187 	445188 
	50	2	50	125	66	5.0...7	7	445192 	445193 
	65	2 ½	50	125	66	5.0...7	7	449521 	551469 
	80	3	80	225	160	5.0...6	10	on request	on request

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Ordering chart

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forged

Control function	Port Connection DN		Diaphragm size	Actuator size Ø [mm]	K _v value [m³/h]	Pilot pressure [bar]	Max. operating pressure [bar]	Article no.	
	[mm]	[inch]						mechanically polished Ra ≤0.5 µm	electro polished Ra ≤0.38 µm
Welded connection acc. BS4825									
A	Diaphragm material EPDM (AD)								
Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	8	¼	8	40	0.5	5.0...7	10	319823	319824
	10	⅜	8	40	1.4	5.0...7	10	319825	319826
	15	½	15	50	3.7	5.0...7	8.5	319827	319828
	20	¾	20	63	8.9	5.5...7	10	291180	319829
	25	1	25	80	15.5	5.5...7	10	274228	255244
	40	1 ½	40	100	37	5.0...7	6.5	274231	291243
	50	2	50	125	66	5.0...7	8	274232	255246
	65	2 ½	50	125	66	5.0...7	8	319830	319831
	65	2 ½	80	225	160	5.0...6	10	on request	on request
	80	3	80	225	160	5.0...6	10	on request	on request
	100	4	100	225	235	5.0...6	8	on request	on request
	Diaphragm material PTFE/EPDM (EA)								
	8	¼	8	40	0.5	5.0...7	10	445072	445073
	10	⅜	8	40	1.6	5.0...7	10	445077	445078
	15	½	15	63	3.6	5.0...7	10	447905	447906
	20	¾	20	80	8.8	5.0...7	10	447910	447911
	25	1	25	80	14.5	5.5...7	7.5	445092	445093
	40	1 ½	40	125	37.5	5.0...7	10	445097	445098
	50	2	50	125	66	5.0...7	7	445102	445103
	65	2 ½	50	125	66	5.0...7	7	299536	276355
	65	2 ½	80	225	160	5.0...6	10	on request	on request
	80	3	80	225	160	5.0...6	10	on request	on request
	100	4	100	225	235	5.0...6	4	on request	on request
Welded connection acc. DIN 11850 0									
A	Diaphragm material EPDM (AD)								
Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	8	¼	8	40	1.1	5.0...7	10	319806	319807
	10	⅜	8	40	1.7	5.0...7	10	319808	319809
	Diaphragm material PTFE/EPDM (EA)								
	8	¼	8	40	1.1	5.0...7	10	299511	448288
	10	⅜	8	40	1.9	5.0...7	10	299515	448289

Ordering chart

Control function	Port Connection DN		Diaphragm size	Actuator size Ø [mm]	K _v value [m³/h]	Pilot pressure [bar]	Max. operating pressure [bar]	Article no.	
	[mm]	[inch]						mechanically polished Ra ≤0.5 µm	electro polished Ra ≤0.38 µm
Clamp connection acc. DIN 32676 B (with pipe ISO 4200)									
A	Diaphragm material EPDM (AD)								
Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	15	½	15	50	6.5	5.0...7	8.5	319840	319841
	20	¾	20	63	12.5	5.5...7	10	319832	319833
	25	1	25	80	18	5.5...7	10	319834	319835
	40	1 ½	40	100	41	5.0...7	6.5	319836	319837
	50	2	50	125	66	5.0...7	8	319838	319839
	Diaphragm material PTFE/EPDM (EA)								
	15	½	15	63	6	5.0...7	10	299526	299494
	20	¾	20	80	12	5.0...7	10	299530	299500
	25	1	25	80	16	5.5...7	7.5	299531	299501
	40	1 ½	40	125	40	5.0...7	10	299534	299504
	50	2	50	125	67	5.0...7	7	299539	299508
	Clamp connection acc. DIN 32676 A (with pipe DIN 11850 2)								
A	Diaphragm material EPDM (AD)								
Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	10	⅜	15	50	3.5	5.0...7	8.5	319842	319843
	15	½	15	50	6.5	5.0...7	8.5	319844	319845
	20	¾	20	63	12.4	5.5...7	10	319846	319847
	25	1	25	80	20	5.5...7	10	319848	319849
	40	1 ½	40	100	34	5.0...7	6.5	319850	319851
	50	2	50	125	40	5.0...7	8	319852	319853
	Diaphragm material PTFE/EPDM (EA)								
	10	⅜	15	63	3.4	5.0...7	10	299518	299487
	15	½	15	63	6	5.0...7	10	445361	445362
	20	¾	20	80	12	5.0...7	10	445366	445367
	25	1	25	80	17	5.5...7	7.5	445371	445372
	40	1 ½	40	125	34	5.0...7	10	445376	445377
50	2	50	125	40	5.0...7	7	445381	445382	

2031
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Ordering chart

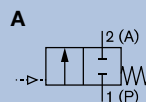
Control function	Port Connection DN		Diaphragm size	Actuator size Ø [mm]	K _v value [m³/h]	Pilot pressure [bar]	Max. operating pressure [bar]	Article no.	
	[mm]	[inch]						mechanically polished Ra ≤0.5 µm	electro polished Ra ≤0.38 µm
Clamp connection acc. ASME BPE									
A	Diaphragm material EPDM (AD)								
Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	8	¼	8	40	0.7	5.0...7	10	291111	319863
	10	⅜	8	40	1.6	5.0...7	10	319854	319855
	15	½	8	40	1.5	5.0...7	10	282107	319856
	15	½	15	50	3.1	5.0...7	8.5	291167	255242
	20	¾	20	63	8.4	5.5...7	10	291181	319857
	25	1	25	80	15.5	5.5...7	10	282110	319858
	40	1 ½	40	100	37	5.0...7	6.5	274655	319859
	50	2	50	125	66	5.0...7	8	282111	319860
	65	2 ½	50	125	66	5.0...7	8	291266	319861
	65	2 ½	80	225	160	5.0...6	10	on request	on request
	80	3	80	225	160	5.0...6	10	on request	on request
	100	4	100	225	235	5.0...6	8	on request	on request
	Diaphragm material PTFE/EPDM (EA)								
8	¼	8	40	0.7	5.0...7	10	445301	445302	
10	⅜	8	40	1.8	5.0...7	10	445306	445307	
15	½	8	40	1.9	5.0...7	10	250487	252214	
15	½	15	63	3.1	5.0...7	10	445311	445312	
20	¾	20	80	8.5	5.0...7	10	445316	445317	
25	1	25	80	14.5	5.5...7	7.5	445321	445322	
40	1 ½	40	125	37.5	5.0...7	10	445326	445327	
50	2	50	125	66	5.0...7	7	445331	445332	
65	2 ½	50	125	66	5.0...7	7	551473	551474	
65	2 ½	80	225	160	5.0...6	10	on request	on request	
80	3	80	225	160	5.0...6	10	on request	on request	
100	4	100	225	235	5.0...6	4	on request	on request	



2/2 way Diaphragm Valve, tube valve body, weld end connection

2031
Tube Valve Body

- Light tube valve body
- Flow optimised body in stainless steel
- Zero dead volume
- Easy to weld



The externally piloted light weight diaphragm valve consists of a pneumatically operated piston actuator, a diaphragm and a 2 way tube valve body, which assures high flow rates and the highest quality.

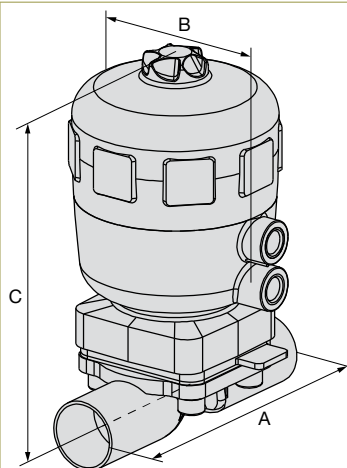
Technical data

Pressure range	See ordering chart
Media temperature	
EPDM (AD), PTFE/EPDM (EA)	-10 °C...+130 °C (steam sterilisation +140 °C for 60 min)
EPDM (AD), advanced PTFE/EPDM (EU)	-5 °C...+143 °C (steam sterilisation +150 °C for 60 min)
GYLON®/EPDM laminated (ER)	-5 °C...+130 °C (steam sterilisation +140 °C for 60 min)
FKM (FF)	0 °C...+130 °C (not recommended for steam)
Ambient temperature	
PPS actuator	+5 °C...+140 °C for actuator size < 100 mm +5 °C...+90 °C for actuator size ≥ 100 mm (briefly up to +140 °C)
PA actuator (on request)	-10 °C...+60 °C
Port connections	
Weld ends	ASME BPE/DIN 11866 Series C DIN EN ISO 1127/ISO 4200/DIN11866 Series B DIN 11850 2/DIN 11866 Series A
Medium	Neutral gases and liquids, high purity, sterile, aggressive or abrasive fluids
Viscosity	Up to viscous
Body material	Stainless steel 316L / 1.4435 / BN2
Diaphragm materials	EPDM (AD), PTFE/EPDM (EA) EPDM (AD), advanced PTFE/EPDM (EU), GYLON®/EPDM laminated (ER) and FKM (FF) on request
Actuator material	PPS (PA on request)
Pilot air ports material	Stainless steel 1.4305
Control fluid	Neutral gases, air
Installation	As required, preferably with actuator in upright position

Options/Accessories

- Actuator normally open
- Actuator with reduced spring force
- Electrical position feedback see **Type 8697** ▶
- Valve islands see **Type 8640** ▶ / **Type 8644** ▶
- Pilot valve see **Type 6012/6014 P** ▶
- Stroke limitation

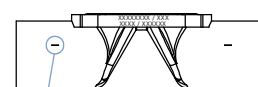
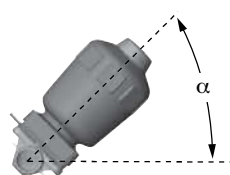
Dimensions [mm]



Dimensions for DIN EN ISO 1127/ISO 4200/DIN11866 B.
For further dimensions see data sheet **Type 2031** ▶.

DN	Actuator size	A	B	C
8	40	90	53	94
15	50	110	64	122
	63	110	80	139
20	63	119	80	147
	80	119	101w	1678
25	80	129	101	176
32	100	148	127	227
40	100	161	127	234
	125	161	153	272
50	125	192	153	277

Installation for self-draining operation







markings for self-drain angle











$\alpha = 13^\circ$ up to 24° plus 3° to 5° inclination to the pipe axis.
Drain marks indicate the correct mounting position to optimise self-draining.

Approvals

Suitability for foodstuffs / sterile applications

Approvals	Description
	Approval according to TA-air (Port size DN4...50)
Conformity	Description
	The composition of the EPDM (AB), EPDM (AD), PTFE/EPDM (EA), advanced PTFE (EU) and GYLON®/EPDM laminated (ER) diaphragms corresponds to the Code of Federal Regulations, published by the FDA (Food and Drug Administration, USA)
Conformity	Description
	The composition of the EPDM (AB), EPDM (AD), PTFE/EPDM (EA), advanced PTFE (EU) and GYLON®/EPDM laminated (ER) diaphragms is suitable for the application with food and beverage (acc. to EC-Regulation 1935/2004/EC)
Conformity	Description
	The composition of the EPDM (AB), EPDM (AD), PTFE/EPDM (EA), advanced PTFE (EU) and GYLON®/EPDM laminated (ER) diaphragms are approved acc. USP Class VI
Conformity	Description
	The diaphragm valve with tube valve body and EPDM or PTFE has been evaluated for compliance with the Hygienic Equipment Design Criteria of the EHEDG

Ordering chart

Control function	Orifice		Diaphragm size	Actuator size Ø [mm]	K _v value water [m³/h]	Pilot pressure [bar]	Max. operating pressure [bar]	Article no. EPDM (AD) seal material	Article no. PTFE/EPDM (EA) seal material
	[mm]	[inch]							
Welded connection ASME BPE/DIN 11866 C electropolished Ra ≤0.38 micrometer and Certification of Conformity for Raw Material EN-ISO 10204 3.1 (included in delivery)									
A Single-acting ac- tuator for pneu- matically activated open/closed valve, normally closed by spring force.	15	½	8	40	2	5.0...7	10	275388 	275390 
	20	¾	15	50	6.5	5.0...7	8.5	275391 	–
				63	6.5	5.0...7	10	–	275392 
	25	1	20	63	12.5	5.5...7	10	278879 	–
				80	12.5	5.0...7	10	–	278880 
	40	1 ½	32	100	30	5.5...7	10	278881 	–
					30	5.5...7	8	–	278882 
	50	2	40	100	40	5.5...7	6.5	278883 	–
125				40	5.5...7	10	–	278884 	



Ordering chart continued

2031
Tube Valve Body

Control function	Orifice		Diaphragm size	Actuator size Ø [mm]	K _v value water [m³/h]	Pilot pressure [bar]	Max. operating pressure [bar]	Article no. EPDM (AD) seal material	Article no. PTFE/EPDM (EA) seal material
	[mm]	[inch]							
Welded connection acc. DIN EN ISO 1127/ISO 4200/DIN11866 B electropolished Ra ≤0.38 micrometer and Certification of Conformity for Raw Material EN-ISO 10204 3.1 (included in delivery)									
A Single-acting ac- tuator for pneu- matically activated open/closed valve, normally closed by spring force.	8	¼	8	40	2.1	5.0...7	10	290447	290448
	15	½	15	50	6.7	5.0...7	8.5	290452	–
				63	6.7	5.0...7	10	–	290454
	20	¾	20	63	13	5.5...7	10	290455	–
				80	13	5.0...7	10	–	290457
	25	1	25	80	17.5	5.5...7	10	290458	–
					17.5	5.5...7	7.5	–	290460
	32	1 ¼	32	100	36	5.5...7	10	290461	–
					36	5.5...7	8	–	290462
	40	1 ½	40	100	47	5.5...7	6.5	290463	–
				125	47	5.5...7	10	–	290465
	50	2	50	125	70	5.5...7	8	290466	–
					70	5.5...7	7	–	290467

Control function	Orifice		Diaphragm size	Actuator size Ø [mm]	K _v value water [m³/h]	Pilot pressure [bar]	Max. operating pressure [bar]	Article no. EPDM (AD) seal material	Article no. PTFE/EPDM (EA) seal material
	[mm]	[inch]							
Welded connection DIN 11850 2/DIN 11866 A									
electropolished Ra ≤0.38 micrometer and Certification of Conformity for Raw Material EN-ISO 10204 3.1 (included in delivery)									
A Single-acting ac- tuator for pneu- matically activated open/closed valve, normally closed by spring force.	10	⅜	8	40	2.1	5.0...7	10	290433	290434
	15	½	15	50	6.5	5.0...7	8.5	290435	–
				63	6.5	5.5...7	10	–	290436
	20	¾	15	50	6.5	5.0...7	8.5	290437	–
				63	6.5	5.5...7	10	–	290438
	25	1	20	63	14	5.5...7	10	290439	–
				80	14	5.0...7	10	–	290440
	32	1 ¼	25	80	20	5.5...7	10	290441	–
					20	5.5...7	7.5	–	290442
	40	1 ½	32	100	35	5.5...7	10	290443	–
					35	5.5...7	8	–	290444
	50	2	40	100	44	5.5...7	6.5	290445	–
				125	44	5.5...7	10	–	290446

Accessories

Valve for actuator size [Ø mm]	Type	Pressure inlet P (valve body)	Service port A (banjo bolt)	Orifice [mm]	Q _{Nn} value air [l/min]	Pres- sure range [bar]	Electrical coil con- nection Ind. Std.	Power con- sumption [W]	Article no. per voltage/frequency [V/Hz]	
									024/DC	230/50
3/2 way pilot valves with banjo bolts										
Seal material valve FKM, seal material banjo bolt NBR										
40...50	6012P	G ¼	G ⅝	1.2	48	0...10	Form B	4	552295	552298
63	6012P	Tube fitting Ø 6 mm	G ¼	1.2	48	0...10	Form B	4	552283	552286
80...125	6014P	G ¼	G ¼	2	120	0...10	Form A	8	424103	424107

Description	Voltage	Article no.
Cable plug Type 2507 acc. to industry standard Form B - see Type 2507 ▶		
without circuitry (standard)	0...250 V AC/DC	423845
Cable plug Type 2508 (will be replaced with Type 2518) acc. to DIN 175301-803 Form A - see Type 2508 ▶		
without circuitry (standard), without cable	0...250 V AC/DC	008376

For further accessories see data sheet **Type 2XXX ▶** for the full options programme.

Pneumatically operated tank bottom valve CLASSIC

2033

- Zero dead volume body - no welds
- Hermetical separation of fluids from the operating mechanism by diaphragm
- Universal and robust actuators with modular accessory range
- Stainless steel body with welded connection
- Quality certifications FDA/3 A



The Bürkert Tank Bottom Valve is designed for control of ultra pure, sterile, aggressive or abrasive fluids. Enables especially optimal filling and emptying vessels with less dead leg.

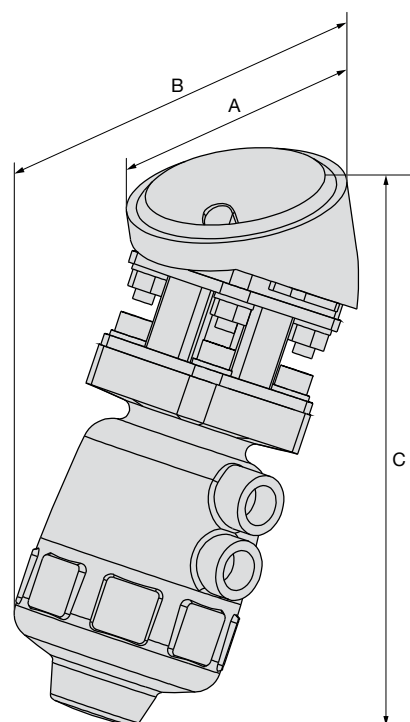
The valve body consists of a block with no weld seam, machined out of high quality stainless steel. The Tank Bottom Valve has two welding bevels to ease the welding and valve positioning operations. The high quality diaphragms separate hermetically critical fluids from the actuator.

The pneumatic actuator can be controlled by pneumatic pilot valves (single pilot valves, valve islands and control heads). Control function A, normally closed by spring return.

Technical data

Orifice	DN08...DN100
Body material	Stainless steel 1.4435 acc. to BN2 / ASME BPE Fe < 0.5 % / C ≤ 0.03 %
Port connections	
Weld end	<ul style="list-style-type: none"> • DIN EN ISO 1127 / ISO 4200 / DIN 11866 Series B • DIN 11850 Series 2 / DIN 11866 Series A • ASME BPE / DIN 11866 Series C • DIN 32676 Series A (DIN tube) • DIN 32676 Series B (ISO tube) • ASME BPE
Clamp	
Surface finish (others on request)	
inside mechanical	Ra ≤ 0.5 µm (ASME BPE SF1)
polished	(external Ra ≤ 1.6 µm) ¹⁾
inside electro	Ra ≤ 0.38 µm (ASME BPE SF4 / DIN HE4)
polished	(external Ra ≤ 1.6 µm) ¹⁾
Diaphragm materials	EPDM (AD), PTFE/EPDM (EA), advanced PTFE/EPDM (EU), Gylon®/EPDM laminated (ER), FKM (FF)
Actuator material	PPS (PA for actuator sizes Ø 175/225 mm)
Medium temperature	
EPDM (AD)	-10 °C...+143 °C (steam sterilisation +150 °C for 60 min)
PTFE/EPDM (EA)	-10 °C...+130 °C (steam sterilisation +140 °C for 60 min)
PTFE/EPDM (EU)	-5 °C...+143 °C (steam sterilisation +150 °C for 60 min)
GYLON®/EPDM laminated (ER)	-5 °C to +130 °C (steam sterilisation +140 °C for 60 min)
FKM (FF)	0 °C...+130 °C (not recommended for steam)

Dimensions [mm]



Orifice	Port connection	Actuator size	A	C	B
08	08	40	50	107	100
15	15	50	65	146	134
		63	85	160	147
20	20	63	85	171	160
		80		190	179
25	25	80	120	183	174
		100		200	192
40	32	100	150	258	260
	40	100		258	260
		125		293	291
50	50	125	180	306	304
80	65	175	225	388	422
	80			388	422
100	100	225	298	436	481

Technical data continued

Ambient temperature

Actuator size < 100 mm	+ 5 °C...+ 140 °C
Actuator size ≥ 100 mm	+ 5 °C...+ 90 °C (briefly up to + 140 °C, - 10 °C...+ 60 °C with PA actuator)




Control medium Neutral gases, air

Pilot pressure max. Max. 7 bar

1) Internal Ra < 0.1 µm/4 µlnch/500 Grit: on request

Approvals

Suitability for foodstuffs / sterile applications

Approvals	Description
	Approval according to TA-air (Port size DN4...DN50)
Conformity	Description
	The composition of the EPDM (AD), PTFE/EPDM (EA), advanced PTFE/EPDM (EU) and GYLON®/EPDM laminated (ER) diaphragms corresponds to the Code of Federal Regulations, published by the FDA (Food and Drug Administration, USA)
Conformity	Description
	The composition of the EPDM (AD), PTFE/EPDM (EA), advanced PTFE/EPDM (EU) and GYLON®/EPDM laminated (ER) diaphragms is suitable for the application with food and beverage (acc. to EC-Regulation 1935/2004/EC)
Conformity	Description
	The composition of the EPDM (AD), PTFE/EPDM (EA), advanced PTFE/EPDM (EU) and GYLON®/EPDM laminated (ER) diaphragms are approved acc. USP Class VI

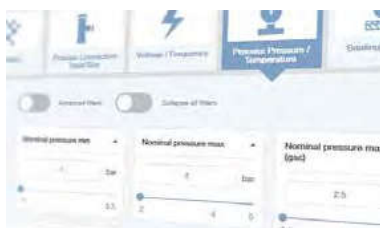
Ordering information



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Robolux Multiway Multiport Diaphragm Valve, Pneumatically operated

2036

- Allows optimized processes designs
- Reduced installation costs
- Reduced number of valves and welds
- Stainless steel bodies in different configurations
- Approvals FDA, CE, USP VI, ATEX, 3.1



This Multiway-Multiport Diaphragm Valve system is designed for control of ultra pure, sterile, aseptic and steam/CIP fluid paths. It enables optimal sampling, draining or diverting of critical process fluids.

The valve range is based on the patented Robolux technology, where two seats are placed under one diaphragm. This design eliminates dead legs and will minimize the flow system volume.

The valve body is machined from a single piece of bar stock stainless steel. The high quality diaphragms are available in several different USP class VI approved materials. The valve is operated with compressed air.

With the Feedback and Control Heads the Robolux fits perfectly into Bürkert's decentralized automation concept.

All valves will be delivered with 3.1 certificate, installation drawing and manual instruction.

Technical data

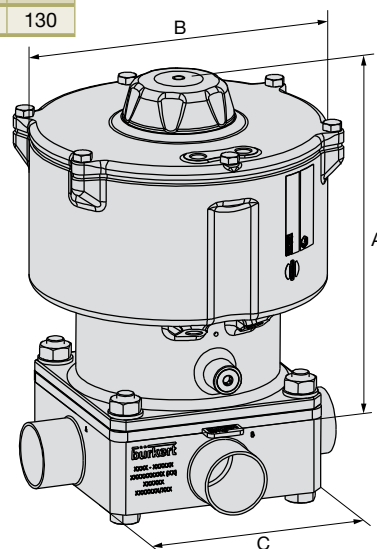
Port connection size	1/4" ... 2", DN4...DN50
Materials	
Valve body	1.4435 stainless steel (316L)
Diaphragm	EPDM (AD), advanced PTFE/EPDM laminated (EK), GYLON®/EPDM laminated (ER) on request
Actuator	1.4308 stainless steel (CF8)
End connections	
Weld end	DIN EN ISO 1127 / ISO 4200 / DIN 11866 series B DIN 11850 series 2 / DIN 11866 series A ASME BPE / DIN 11866 series C
Clamp	DIN 32676 series A (DIN Tube) DIN 32676 series B (ISO Tube) ASME BPE
Surface quality	
internally mechanically polished	Ra ≤ 0.5 µm (ASME BPE SF1) (external Ra ≤ 1.6 µm)
internally electro-polished	Ra ≤ 0.38 µm (ASME BPE SF4 / DIN HE4) (external Ra ≤ 1.6 µm) (others on request)
Medium pressure	Max. 8 bar ¹⁾ (depending on actuator and diaphragm)
Pilot pressure	6...10 bar for RV50/70 6...7 bar for RV110
Pilot air ports	Thread G 1/8

Dimensions [mm]

Orifice	A	B	C
50	193	171	130

Dimensions for other orifices see data sheet

Type 2036 ▶



Temperature

EPDM (AD)	+ 5 °C...+ 130 °C (steam sterilisation + 140 °C for 60 min)
advanced PTFE/EPDM laminated (EK)	+ 5 °C...+ 90 °C (not recommended for steam)
GYLON®/EPDM laminated (ER)	on request
Ambience	0...+ 60 °C

Approval²⁾

Valve bodies	EN ISO 10204 3.1
ATEX Certification	PTB 13 ATEX D103 X II 2G c IIC T4 II 2D c T135 °C
Diaphragms	FDA CFR 177.2600; FDA CFR 177.1550 USP VI (121 °C, EPDM, advanced PTFE / EPDM)

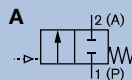
1) Pressure data [bar]: Overpressure with respect to atmospheric pressure

2) Certificates are delivered together with the valves.

Pneumatically operated 2/2 way diaphragm valve with stainless steel actuator

2063

- Flow optimized and deadleg free stainless steel cast or forged bodies
- Media separation with different diaphragm materials
- Trusted inner parts for long cycle life
- Actuator in stainless steel for demanding environments
- Large accessory program with stroke limitation and feedback



The pneumatically operated diaphragm valve with stainless steel actuators fulfils the demands of tough process environments. Forged or casted bodies in high quality stainless steel have excellent cleanability and surface qualities that are required in pharma, biopharma, cosmetic or food and beverage industry.

The stainless steel actuator is designed to withstand tough process environments. Laser welding allows a design without seals and smooth surfaces that is both cleanable and robust. With a ducted exhaust air port the actuator can be isolated from the environment an optimum from a lifetime and hygienic point of view.

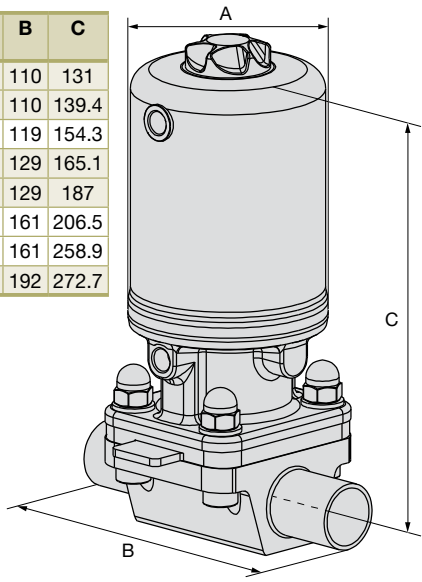
The trusted diaphragm materials are optimized for a long cycle life and comply to USP Class IV, FDA and EC-Regulation 1935/2004. Placed within the Bürkert diaphragm valve program various port connections, and a large accessory program are available, also explosion proof variants.

Technical data

Port connection	DN15...DN50
Body material	
Forged version	Forged stainless steel 316L/1.4435/BN2
Cast version	Cast stainless steel 316L /1.4435
Port connections	
Welded acc. to	EN ISO 1127/ISO 4200, DIN 11866 RB, DIN 11850 R2, DIN 11866 RA, DIN EN 10357 RB, ASME BPE, DIN 11866 RC on request: SMS 3008, BS 4825
Clamp and threaded	on request
Actuator material	
Cover	1.4404 (316L)
Diaphragm cover	1.4308
Diaphragm materials	EPDM (AD), PTFE/EPDM (EA), advanced PTFE/EPDM (EU), GYLON®/EPDM laminated (ER) on request
Medium	Neutral gases and liquids, high purity, sterile, aggressive or abrasive fluids
Viscosity	Up to viscous
Surface finishes – forged version	(average surface finish)
internal mechanically polished	Ra ≤ 0.5 µm (ASME BPE SF1) on request
(with external forged surface)	
internal electropolished	Ra ≤ 0.38 µm (ASME BPE SF4)
(with external forged surface electropolished)	

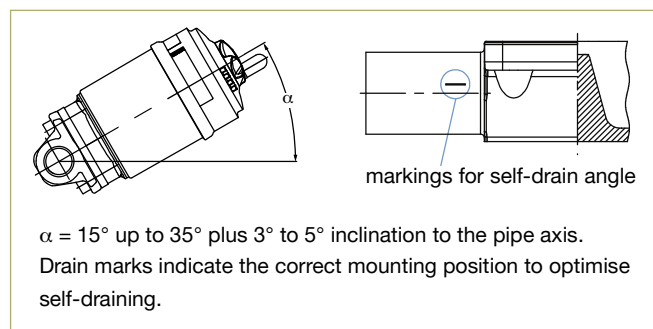
Dimensions [mm]

Orifice	Actuator size	A	B	C
15	50	55	110	131
	70	75	110	139.4
20	70	75	119	154.3
25	70	75	129	165.1
	90	96	129	187
40	90	96	161	206.5
	130	137	161	258.9
50	130	137	192	272.7






Surface finishes – cast version	(average surface finish)
internal mechanically polished	Ra ≤ 0.76 µm (ASME BPE SF3)
(with external cast surface)	
internal electropolished	Ra ≤ 0.6 µm (ASME BPE SF6) on request
(with external cast surface electropolished)	
Medium temperature	
EPDM (AD)	-10 °C...+143 °C (steam sterilisation + 150 °C for 60 min)
PTFE/EPDM (EA)	-10 °C...+130 °C (steam sterilisation + 140 °C for 60 min)
PTFE/EPDM (EU)	-5 °C...+143 °C (steam sterilisation + 150 °C for 60 min)
GYLON®/EPDM laminated (ER)	-5 °C...+130 °C (steam sterilisation + 140 °C for 60 min)
Ambient temperature	0 °C...+60 °C, autoclavable
Control medium	Neutral gases, air
Max. pilot pressure	Max. 10.5 bar (with actuator size 130 mm (P) max. 7.5 bar)
Pilot air ports	Thread G 1/8
Installation	As required, preferably with actuator in upright position

Installation for self-draining operation











Approvals

Suitability for foodstuffs / sterile applications

Approvals	Description
	Approval according to TA-air (Port size DN4...DN50)
Conformity	Description
	The composition of the EPDM (AD), PTFE/EPDM (EA), advanced PTFE/EPDM (EU) and GYLON®/EPDM laminated (ER) diaphragms corresponds to the Code of Federal Regulations, published by the FDA (Food and Drug Administration, USA)
Conformity	Description
	The composition of the EPDM (AD), PTFE/EPDM (EA), advanced PTFE/EPDM (EU) and GYLON®/EPDM laminated (ER) diaphragms is suitable for the application with food and beverage (acc. to EC-Regulation 1935/2004/EC)
Conformity	Description
	The composition of the EPDM (AD), PTFE/EPDM (EA), advanced PTFE/EPDM (EU) and GYLON®/EPDM laminated (ER) diaphragms are approved acc. USP Class VI

Ordering chart forged diaphragm valve

Control function	Orifice		Diaphragm size	Port connection tube Ø x wall thickness [mm]	K _v value water [m³/h]	Actuator size Ø [mm]	Pilot pressure [bar]	Max. operating pressure [bar]	Article no. electropolished, Ra ≤ 0.38 µm, incl. 3.1 certificate
	[mm]	[inch]							
A Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	Acc. to EN ISO 1127/ISO 4200/DIN 11866 series B								
	Diaphragm material EPDM (AD)								
	15	½	15	213 × 16	6.5	50 (D)	5...10.5	8.5	285310 
						70 (M)	5...10.5	10	285311 
	20	¾	20	26.9 × 1.6	12.5	70 (M)	5...10.5	10	285312 
	25	1	25	33.7 × 2.0	18	70 (M)	5...10.5	6.5	285313 
						90 (N)	5.5...10.5	10	285314 
	40	1½	40	48.3 × 2.0	41	90 (N)	5.5...10.5	10	285315 
						130 (P)	5...7.5	10	285316 
	50	2	50	60.3 × 2.0	66	130 (P)	5...7.5	8	285317 



















Ordering chart forged diaphragm valve continued








2063

Control function	Orifice		Diaphragm size	Port connection tube Ø x wall thickness [mm]	K _v value water [m³/h]	Actuator size Ø [mm]	Pilot pressure [bar]	Max. operating pressure [bar]	Article no. electropolished, Ra ≤0.38 µm, incl. 3.1 certificate
	[mm]	[inch]							
A Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	Acc. to EN ISO 1127/ISO 4200/DIN 11866 series B								
	Diaphragm material PTFE/EPDM (EU)								
	15	½	15	21.3 × 1.6	6.5	50 (D)	5...10.5	5	285335
						70 (M)	5...10.5	10	285336
	20	¾	20	26.9 × 1.6	12.5	70 (M)	5...10.5	10	285337
	25	1	25	33.7 × 2.0	18	70 (M)	5...10.5	6	282091
						90 (N)	5.5...10.5	8	285338
	40	1½	40	48.3 × 2.0	41	90 (N)	5.5...10.5	10	285339
						130 (P)	5...7.5	10	285340
	50	2	50	60.3 × 2.0	66	130 (P)	5...7.5	7	285341
	Acc. to DIN 11850 series 2/DIN 11866 series A/DIN EN 10357 series B								
	Diaphragm material EPDM (AD)								
	15	½	15	19.0 × 1.5	6.5	50 (D)	5...10.5	8.5	285301
						70 (M)	5...10.5	10	285302
	20	¾	20	23.0 × 1.5	12.4	70 (M)	5...10.5	10	285304
	25	1	25	29.0 × 1.5	20	70 (M)	5...10.5	6.5	285305
						90 (N)	5.5...10.5	10	285306
	40	1½	40	41.0 × 1.5	40	90 (N)	5.5...10.5	10	285307
						130 (P)	5...7.5	10	285308
	50	2	50	53.0 × 1.5	66	130 (P)	5...7.5	8	285309
	Diaphragm material PTFE/EPDM (EU)								
	15	½	15	19.0 × 1.5	6.5	50 (D)	5...10.5	5	285326
						70 (M)	5...10.5	10	285327
	20	¾	20	23.0 × 1.5	12.4	70 (M)	5...10.5	10	285328
	25	1	25	29.0 × 1.5	20	70 (M)	5...10.5	6	285329
						90 (N)	5.5...10.5	8	285330
	40	1½	40	41.0 × 1.5	40	90 (N)	5.5...10.5	10	285331
						130 (P)	5...7.5	10	285333
	50	2	50	53.0 × 1.5	66	130 (P)	5...7.5	7	285334

Ordering chart forged diaphragm valve continued

Control function	Orifice		Diaphragm size	Port connection tube Ø x wall thickness [mm]	K _v value water [m³/h]	Actuator size Ø [mm]	Pilot pressure [bar]	Max. operating pressure [bar]	Article no. electropolished, Ra ≤0.38 µm, incl. 3.1 certificate
	[mm]	[inch]							
A Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	Acc. to ASME BPE/DIN 11866 series C								
	Diaphragm material EPDM (AD)								
	15	½	15	12.7 × 1.65	3.1	50 (D)	5...10.5	8.5	285292 
						70 (M)	5...10.5	10	285294 
	20	¾	20	19.05 × 1.65	8.4	70 (M)	5...10.5	10	285295 
	25	1	25	25.4 × 1.65	15.5	70 (M)	5...10.5	6.5	285296 
						90 (N)	5.5...10.5	10	285297 
	40	1 ½	40	38.1 × 1.65	37	90 (N)	5.5...10.5	10	285298 
						130 (P)	5...7.5	10	285299 
	50	2	50	50.8 × 1.65	66	130 (P)	5...7.5	8	285300 
	Diaphragm material PTFE/EPDM (EU)								
	15	½	15	12.7 × 1.65	3.1	50 (D)	5...10.5	5	285318 
						70 (M)	5...10.5	10	285319 
	20	¾	20	19.05 × 1.65	8.4	70 (M)	5...10.5	10	285320 
	25	1	25	25.4 × 1.65	15.5	70 (M)	5...10.5	6	285321 
						90 (N)	5.5...10.5	8	285322 
	40	1 ½	40	38.1 × 1.65	37	90 (N)	5.5...10.5	10	285323 
						130 (P)	5...7.5	10	285324 
	50	2	50	50.8 × 1.65	66	130 (P)	5...7.5	7	285325 

Ordering chart cast version

Control function	Orifice		Diaphragm size	Port connection tube Ø x wall thickness [mm]	K _v value water [m³/h]	Actuator size Ø [mm]	Pilot pressure [bar]	Max. operating pressure [bar]	Article no. mechanical polished, Ra ≤ 0.8 µm
	[mm]	[inch]							
A Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	Acc. to EN ISO 1127/ISO 4200/DIN 11866 series B								
	Diaphragm material EPDM (AD)								
	15	½	15	21.3×1.6	5.5	50 (D)	5...10.5	8.5	285259 
						70 (M)	5...10.5	10	285260 
	20	¾	20	26.9×1.6	10	70 (M)	5...10.5	10	285262 
						25	1	25	33.7×2.0
	90 (N)	5.5...10.5	10	285264 					
	40	1½	40	48.3×2.0	30	90 (N)	5.5...10.5	10	285267 
						130 (P)	5...7.5	10	285268 
	50	2	50	60.3×2.0	51.5	130 (P)	5...7.5	8	285269 



Ordering chart cast version continued

2063

Control function	Orifice		Diaphragm size	Port connection tube Ø x wall thickness [mm]	K _v value water [m³/h]	Actuator size Ø [mm]	Pilot pressure [bar]	Max. operating pressure [bar]	Article no. mechanical polished, Ra ≤ 0.8 µm
	[mm]	[inch]							
A Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	Acc. to EN ISO 1127/ISO 4200/DIN 11866 series B								
	Diaphragm material PTFE/EPDM (EA)								
	15	½	15	21.3×1.6	5.5	50 (D)	5...10.5	5	285284
						70 (M)	5...10.5	10	285285
	20	¾	20	26.9×1.6	10	70 (M)	5...10.5	10	285286
						25	1	25	33.7×2.0
	90 (N)	5.5...10.5	8	285288					
	40	1 ½	40	48.3×2.0	30	90 (N)	5.5...10.5	10	285289
						130 (P)	5...7.5	10	285290
	50	2	50	60.3×2.0	51.5	130 (P)	5...7.5	7	285291
	Acc. to DIN 11850 series 2/DIN 11866 series A/DIN EN 10357 series B								
	Diaphragm material EPDM (AD)								
	15	½	15	19.0×1.5	5.5	50 (D)	5...10.5	8.5	285250
						70 (M)	5...10.5	10	285252
	20	¾	20	23.0×1.5	10	70 (M)	5...10.5	10	285253
						25	1	25	29.0×1.5
	90 (N)	5.5...10.5	10	285255					
	40	1½	40	41.0×1.5	30	90 (N)	5.5...10.5	10	285256
						130 (P)	5...7.5	10	285257
	50	2	50	53.0×1.5	51.5	130 (P)	5...7.5	8	285258
	Diaphragm material PTFE/EPDM (EA)								
	15	½	15	19.0×1.5	5.5	50 (D)	5...10.5	5	285276
						70 (M)	5...10.5	10	285277
	20	¾	20	23.0×1.5	10	70 (M)	5...10.5	10	285278
						25	1	25	29.0×1.5
	90 (N)	5.5...10.5	8	285280					
	40	1½	40	41.0×1.5	30	90 (N)	5.5...10.5	10	285281
						130 (P)	5...7.5	10	285282
	50	2	50	53.0×1.5	51.5	130 (P)	5...7.5	7	285283

Ordering chart cast version continued

Control function	Orifice		Diaphragm size	Port connection tube Ø x wall thickness [mm]	K _v value water [m³/h]	Actuator size Ø [mm]	Pilot pressure [bar]	Max. operating pressure [bar]	Article no. mechanical polished, Ra ≤ 0.8 µm
	[mm]	[inch]							
A Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	Acc. to ASME BPE/DIN 11866 series C								
	Diaphragm material EPDM (AD)								
	20	¾	20	19.05 × 1.65	10	70 (M)	5...10.5	10	285243
	25	1	25	25.4 × 1.65	14	70 (M)	5...10.5	6.5	285244
						90 (N)	5.5...10.5	10	285246
	40	1½	40	38.1 × 1.65	30	90 (N)	5.5...10.5	10	285247
						130 (P)	5...7.5	10	285248
	50	2	50	50.8 × 1.65	51.5	130 (P)	5...7.5	8	285249
	Diaphragm material PTFE/EPDM (EA)								
	20	¾	20	19.05 × 1.65	10	70 (M)	5...10.5	10	285270
	25	1	25	25.4 × 1.65	14	70 (M)	5...10.5	6	285271
						90 (N)	5.5...10.5	8	285272
	40	1½	40	38.1 × 1.65	30	90 (N)	5.5...10.5	10	285273
						130 (P)	5...7.5	10	285274
	50	2	50	50.8 × 1.65	51.5	130 (P)	5...7.5	7	285275

2063

Accessories

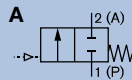
Accessory	for actuator size	Article no.
Stainless steel silencer set (VA-Silencer incl. PTFE sealing ring)	universal	696931
Max. stroke limitation	D (Ø50), M (Ø70)	699550
	N (Ø90), P (Ø130)	699994
Min.-/Max. stroke limitation	D (Ø50), M (Ø70)	699986
	N (Ø90), P (Ø130)	699998
Proximity switch (single)	D (Ø50), M (Ø70)	699989
	N (Ø90), P (Ø130)	699991
Proximity switch (double)	D (Ø50), M (Ø70)	699990
	N (Ø90), P (Ø130)	699992
Adaptionsset 8697	D (Ø50), M (Ø70)	699551
	N (Ø90), P (Ø130)	580000
Type 8697	universal	depending on version



On-Off Pneumatically Operated 2/2 way Forged Diaphragm Valve

2103
forged

- Hygienic stainless steel design
- Optical display as standard in series
- Interface to feedback and control options
- For highly pure and aseptic materials
- Certification acc. to FDA
- Silencer included



The externally piloted diaphragm valve, Type 2103, consists of a pneumatically operated piston actuator, a diaphragm and a 2 way valve body made of forged steel. The high-quality drive with stainless steel casing ensures its suitable use in hygienic or aggressive environments. The streamlined and zero dead volume valve body allows high flow rates and versatility.

Technical data

Port connection size	DN6...DN65 (1/8" ... 2 1/2")
Diaphragm size	8...50
Port connections	
Weld ends	ASME BPE / DIN 11866 C DIN EN ISO 1127/ISO 4200/DIN11866 B DIN 11850 2/DIN11866 A BS4825 SMS 3008 DIN 11850 0
Clamps	ASME BPE DIN 32676 A (with pipe DIN 11850 2) DIN 32676 B (with pipe ISO 4200) Further port connections on request

Materials

Body	Stainless steel 316L/1.4435/BN2
Diaphragm materials	EPDM (AB), PTFE/EPDM (EA) EPDM (AD), advanced PTFE/EPDM (EU), Gylon®/ EPDM laminated (ER) and FKM (FF) on request PPS / Stainless steel 1.4561 (316Ti)
Actuator / Cover	

Media

	Neutral gases and liquids, high-purity, sterile, aggressive or abrasive fluids
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Viscosity

	Up to viscous
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Surface finish

internally electropolished	Ra ≤ 0.38 µm (ASME BPE SF4)
internally mechanically polished	Ra ≤ 0.5 µm (ASME BPE SF1)

Medium temperature

EPDM (AB), PTFE/EPDM (EA)	- 10 °C...+ 130 °C (steam sterilisation + 140 °C for 60 min)
EPDM (AD), advanced PTFE/EPDM (EU)	- 5 °C...+ 143 °C (steam sterilisation + 150 °C for 60 min)
Gylon®/EPDM laminated (ER)	- 5 °C...+ 130 °C (steam sterilisation + 140 °C for 60 min)
FKM (FF)	0 °C...+ 130 °C (not recommended for steam)

Ambient temperature

	+ 5 °C...+ 60 °C
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Control medium

	Neutral gases; air
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Max. pilot pressure

	Max. 10 bar, 7 bar with actuator size 130 mm
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Pilot air ports

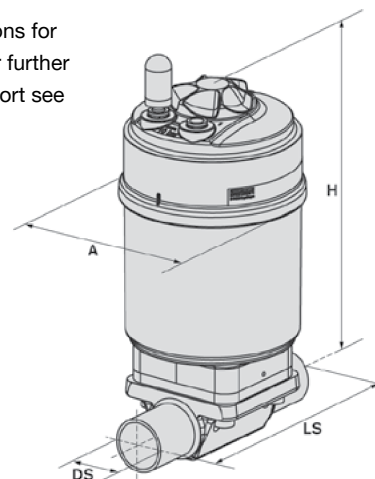
	Push-in connector for external Ø 6 mm or 1/4" tube, thread G 1/8" (on request)
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Installation

	As required, preferably with actuator in upright position
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Dimensions

Drawing shows dimensions for weld end connection, for further versions with threaded port see data sheet **Type 2103** ▶

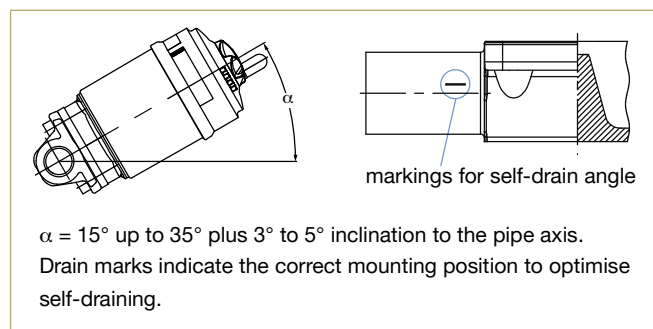


Orifice	Actuator size	A	H	LS	DS Ø		
					EN ISO 1127/ ISO 4200	DIN 11850 R2	
[inch]							
8	¼	50	64.5	129	90	13.5	–
10	⅜	50	64.5	144	110	17.2	13
15	½	70	91	161	110	21.3	19
20	¾	70	91	171	119	26.9	23
25	1	70	91	174	129	33.7	29
25	1	90	120	207	129	33.7	29
40	1 ½	130	159	288	161	48.3	41
50	2	130	159	311	192	60.3	53

Options

- Any standard surface finish
- Classic actuator for sizes above 2" see **Type 2031** ▶
- Control heads/Positioner
- Advanced PTFE/EPDM
- Control function B (normally open) and I (double-acting)

Installation for self-draining operation



Ordering chart

Circuit function	Orifice		K _v value [m³/h]	Actuator size Ø [mm]	Pilot pressure range [bar]	Max. operating pressure [bar] EPDM	Article no. mech. polished Ra ≤0.6 µm EPDM	Max. operat- ing pressure [bar] PTFE / EPDM	Article no. mech. polished Ra ≤0.6 µm PTFE / EPDM
	[mm]	[inch]							
Body with weld end connection									
Acc. to EN ISO 1127 / ISO 4200									
A Single-acting actuator for pneumati- cally activated open/closed valve, nor- mally closed by spring force.	8	¼	1	50	5...10	10	218005	10	218012
	15	½	5.5	70	5...10	10	218006	10	218013
	20	¾	10	70	5...10	10	218007	10	218014
	25	1	14	70	5...10	6.5	218008	6	218015
				90	5.5...10	10	218009	8	218016
	40	1 ½	30	130	5...7	10	218010	10	218017
50	2	51.5	130	5...7	8	218011	7	218018	
Acc. to DIN 11850 Series 2									
A Single-acting actuator for pneumati- cally activated open/closed valve, nor- mally closed by spring force.	10	¾	1	50	5...10	10	218019	10	218026
	15	½	5.5	70	5...10	10	218020	10	218027
	20	¾	10	70	5...10	10	218021	10	218028
	25	1	14	70	5...10	6.5	218022	6	218029
				90	5.5...10	10	218023	8	218030
	40	1 ½	30	130	5...7	10	218024	10	218031
50	2	51.5	130	5...7	8	218025	7	218032	
Acc. to ASME BPE									
A Single-acting actuator for pneumati- cally activated open/closed valve, nor- mally closed by spring force.	8	¼	1.0	50	5...10	10	218033	10	218041
	10	¾	1.0	50	5...10	10	218034	10	218042
	15	½	5.5	70	5...10	10	218035	10	218043
	20	¾	10.0	70	5...10	10	218036	10	218044
	25	1	14.0	70	5...10	6.5	218037	6	218045
				90	5.5...10	10	218038	8	218046
	40	1 ½	30	130	5...7	10	218039	10	218047
50	2	51.5	130	5...7	8	218040	7	218048	



Ordering chart

2103
forged

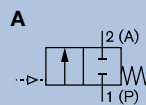
Circuit function	Orifice		K _v value [m³/h]	Actuator size Ø [mm]	Pilot pressure range [bar]	Max. operating pressure [bar] EPDM	Article no. mech. polished Ra ≤ 0.6 µm EPDM	Max. operat- ing pressure [bar] PTFE / EPDM	Article no. mech. polished Ra ≤ 0.6 µm PTFE / EPDM
	[mm]	[inch]							
Acc. to BS 4825									
A Single-acting actuator for pneumati- cally activated open/closed valve, nor- mally closed by spring force.	8	¼	1.0	50	5...10	10	218049	10	218053
	10	⅜	1.0	50	5...10	10	218050	10	218054
	15	½	5.5	70	5...10	10	218051	10	218055
	20	¾	10.0	70	5...10	10	218052	10	218056
Body with clamp connection									
Acc. to DIN 32676									
A Single-acting actuator for pneumati- cally activated open/closed valve, nor- mally closed by spring force.	15	½	5.5	70	5...10	10	218057	10	218063
	20	¾	10.0	70	5...10	10	218058	10	218064
	25	1	14.0	70	5...10	6.5	218059	6	218065
				90	5.5...10	10	218060	8	218066
	40	1 ½	30.0	130	5...7	10	218061	10	218067
	50	2	51.5	130	5...7	8	218062	7	218068
Acc. to ASME BPE – short dimension									
A Single-acting actuator for pneumati- cally activated open/closed valve, nor- mally closed by spring force.	8	¼	1.0	50	4.4...10	10	266683	10	266685
	10	⅜	1.0	50	5...10	10	218070	10	218078
	15	½	5.5	70	5...10	10	218071	10	218079
	20	¾	10.0	70	5...10	10	218072	10	218080
	25	1	14.0	70	5...10	6.5	218073	6	218081
				90	5.5...10	10	218074	8	218082
	40	1 ½	30.0	130	5...7	10	218075	10	218083
	50	2	51.5	130	5...7	8	218076	7	218084
Acc. to ASME BPE – long dimension									
A Single-acting actuator for pneumati- cally activated open/closed valve, nor- mally closed by spring force.	8	¼	1.0	50	5...10	10	218085	10	218092
	15	½	5.5	70	5...10	10	218086	10	218093
	20	¾	10.0	70	5...10	10	218087	10	218094
	25	1	14.0	70	5...10	6.5	218088	6	218095
				90	5.5...10	10	218089	8	218096
	40	1 ½	30.0	130	5...7	10	218090	10	218097
	50	2	51.5	130	5...7	8	218091	7	218098

2/2 way diaphragm valve ELEMENT

pneumatically operated, tube valve body

2103
Tube Valve Body

- Light tube valve body
- Hermetical separation of fluids from the operating mechanism
- Optimal design for hygienic environments
- Easy integration of automation units with ELEMENT



The externally piloted diaphragm valve Type 2103 consists of a pneumatically operated piston actuator, a diaphragm and a 2 way tube valve body. The flow optimized body is hydroformed from a stainless steel pipe and combines hygienic design with low weight. The high-quality actuator with a stainless steel cover is designed for usage in hygienic or aggressive environments.

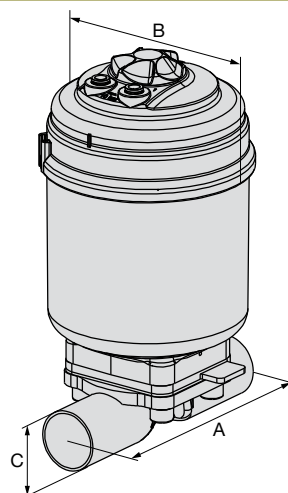
Technical data

Port connection size	DN15...50 (½"...2")
Diaphragm size	08...50
Port connections	
Weld ends	ASME BPE / DIN 11866 Series C DIN EN ISO 1127/ISO 4200/DIN11866 Series B DIN 11850 2/DIN 11866 Series A
Materials	
Body	Stainless steel 316L / 1.4435 / BN2
Diaphragm materials	EPDM (AB), PTFE/EPDM (EA), EPDM (AD), advanced PTFE/EPDM (EU), GYLON®/EPDM laminated (ER) and FKM (FF) on request
Actuator / Cover	PPS / Stainless steel 1.4561 (316Ti)
Media	Neutral gases and liquids, high-purity, sterile, aggressive or abrasive fluids
Viscosity	Up to viscous
Surface finish	
Internally electro polished	Ra ≤ 0.38 µm (ASME BPE SF4)
Medium temperature	
EPDM (AB), PTFE/EPDM (EA)	-10 °C...+ 130 °C (steam sterilisation + 140 °C for 60 min)
EPDM (AD), advanced PTFE/EPDM (EU)	-5 °C...+ 143 °C (steam sterilisation + 150 °C for 60 min)
GYLON®/EPDM laminated (ER)	-5 °C...+ 130 °C (steam sterilisation + 140 °C for 60 min)
FKM (FF)	0 °C...+ 130 °C (not recommended for steam)
Ambient temperature	+5 °C...+ 60 °C
Control medium	Neutral gases; air
Max. pilot pressure	Max. 10 bar, 7 bar with actuator size 130 mm
Pilot air ports	Push-in connector for external Ø 6 mm or ¼" tube, thread G ½ (on request)
Installation	As required, preferably with actuator in upright position

Options/Accessories

- Actuator normally open
- Actuator with reduced spring force
- pneumatic Control Unit see **Type 8697** ▶ / **Type 8690** ▶
- Control Head see **Type 8695** ▶ / **Type 8691** ▶
- Positioner see **Type 8696** ▶ / **Type 8692** ▶

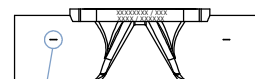
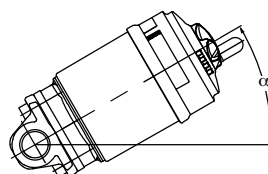
Dimensions [mm]



Port connection
DN DIN EN ISO 1127/
ISO 4200/DIN 11866 RB

DN	Actuator size	A	B	C
8	50	90	65	13.5
15	70	110	91	21.3
20	70	119	91	26.6
25	90	129	120	33.7
32	90	148	120	42.4
40	90	161	120	48.3
	130	161	159	48.3
50	130	192	159	60.3

Installation for self-draining operation



markings for self-drain angle

$\alpha = 13^\circ$ up to 24° plus 3° to 5° inclination to the pipe axis.
Drain marks indicate the correct mounting position to optimise self-draining.

Ordering chart

Control function	Port connection DN		Diaphragm size	Actuator size Ø [mm]	K _v value water [m³/h]	Pilot pressure [bar]	Max. operating pressure [bar]	Article no. interface plastic, PPS	Article no. interface 360° rotatable, stainless steel
	[mm]	[inch]							
Welded connection ASME BPE/DIN 11866 C electropolished Ra ≤0.38 µm and Inspection certificate 3.1 acc. to EN ISO 10204 (included in delivery)									
A	Diaphragm material EPDM (AB)								
Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	15	½	8	50	2	5...10	10	290501	290513
	20	¾	15	70	6.5	5...10	10	290503	290515
	25	1	20	70	12.5	5...10	10	290505	290517
	40	1 ½	32	90	30	5...10	8	290507	290519
	50	2	40		40	5...10	5.5	290509	290521
				130		5...7	10	290511	290524
	Diaphragm material PTFE/EPDM (EA)								
	15	½	8	50	2	5...10	10	290502	290514
	20	¾	15	70	6.5	5...10	10	290504	290516
	25	1	20	70	12.5	5...10	10	290506	290518
40	1 ½	32	90	30	5...10	6	290508	290520	
50	2	40	90	40	5...10	5	290510	290523	
			130		5...7	10	290512	290525	



Ordering chart

2103
Tube Valve Body

Control function	Port connection DN		Diaphragm size	Actuator size Ø [mm]	K _v value water [m³/h]	Pilot pressure [bar]	Max. operating pressure [bar]	Article no. interface plastic, PPS	Article no. interface 360° rotatable, stainless steel
	[mm]	[inch]							
Welded connection acc. DIN EN ISO 1127/ISO 4200/DIN11866 B electropolished Ra ≤0.38 micrometer and Certification of Conformity for Raw Material EN ISO 10204 3.1 (included in delivery)									
A	Diaphragm material EPDM (AB)								
2/2 way valve, pilot operated, normally closed (NC)	8	¼	8	50	2.1	5...10	10	290575	290594
	15	½	15	70	6.7	5...10	10	290579	290598
	20	¾	20	70	13	5...10	10	290582	290600
	25	1	25	90	17.5	5...10	10	290584	290602
	32	1 ¼	32	90	36	5...10	8	290586	290604
	40	1 ½	40	90	47	5...10	5.5	290588	290608
				130		5...7	10	290590	290610
	50	2	50	130	70	5...7	8	290592	290612
Diaphragm material PTFE/EPDM (EA)									
	8	¼	8	50	2.1	5...10	10	290576	290595
	15	½	15	70	6.7	5...10	10	290580	290599
	20	¾	20	70	13	5...10	10	290583	290601
	25	1	25	90	17.5	5...10	8	290585	290603
	32	1 ¼	32	90	36	5...10	6	290587	290606
	40	1 ½	40	90	47	5...10	5	290589	290609
				130		5...7	10	290591	290611
	50	2	50	130	70	5...7	7	290593	290613

Ordering chart continued

Control function	Port connection DN		Diaphragm size	Actuator size Ø [mm]	K _v value water [m³/h]	Pilot pressure [bar]	Max. operating pressure [bar]	Article no. interface plastic, PPS	Article no. interface 360° rotatable, stainless steel	
	[mm]	[inch]								
Welded connection acc. DIN 118502 / DIN 11866 A electropolished Ra ≤0.38 micrometer and Certification of Conformity for Raw Material EN ISO 10204 3.1 (included in delivery)										
A	Diaphragm material EPDM (AB)									
2/2 way valve, pilot operated, normally closed (NC)	10	¾	8	50	2.1	5...10	10	290527	290550	
	15	½	15	70	6.5	5...10	10	290531	290553	
	20	¾	15	70	6.5	5...10	10	290535	290556	
	25	1	20	70	14	5...10	10	290537	290559	
	32	1 ¼	25	90	20	5...10	10	290539	290562	
	40	1 ½	32	90	35	5...10	8	290541	290566	
	50	2	40	90	44	5...10	5.5	290544	290569	
				130		5...7	10	290547	290572	
	Diaphragm material PTFE/EPDM (EA)									
		10	¾	8	50	2.1	5...10	10	290528	290552
15		½	15	70	6.5	5...10	10	290533	290554	
20		¾	15	70	6.5	5...10	10	290536	290558	
25		1	20	70	14	5...10	10	290538	290561	
32		1 ¼	25	90	20	5...10	8	290540	290564	
40		1 ½	32	90	35	5...10	6	290543	290568	
50		2	40	90	44	5...10	5	290546	290571	
				130		5...7	10	290549	290573	



Pneumatically operated zero dead volume T-valve ELEMENT for decentralized automation

2104

- Zero deadleg monoblock without welds
- Diaphragm hermetically separates the fluids from the operating mechanism
- Easy integration of ELEMENT automation units
- Stainless steel body with clamp or weld ends
- FDA/3A quality certifications



The Bürkert Zero dead volume T-Valve Type 2104 is designed for control of ultra pure, sterile, aggressive or abrasive fluids. It enables especially optimal sampling, draining or diverting of critical process fluids. The valve body is machined from a single piece of block material (monoblock, no weld seam). The high quality diaphragms separate hermetically critical fluids from the actuator.

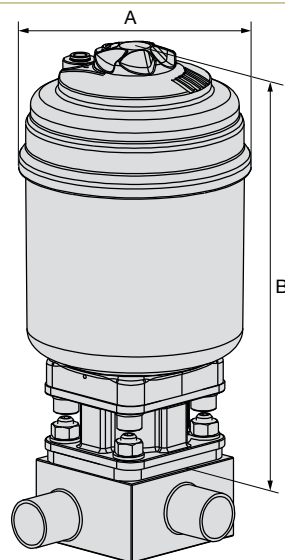
The pneumatic actuator is optimized for decentralized automation through ELEMENT pneumatic automation units. The fully integrated system has a compact and smooth design, integrated pneumatic lines, IP65/67, NEMA Type 4x protection class and superior chemical resistance.

Technical data

Orifice	DN8...DN50
Body material	<ul style="list-style-type: none"> • Stainless steel 1.4435/316 L • Stainless steel 1.4435BN2/ASME BPE Fe <0.5 %/C ≤ 0.03 %
Diaphragm materials	EPDM (AD), PTFE/EPDM (EA), advanced PTFE/EPDM (EU), GYLON®/EPDM laminated (ER), FKM (FF)
Actuator material	
Actuator	PPS
Cover	Stainless steel 1.4561 (316Ti)
Pilot air ports	Stainless steel 1.4305
Surface finish (others on request)	
inside mechanical	Ra ≤ 0.5 µm (ASME BPE SF1)
polished	(external Ra ≤ 1.6 µm)
inside electro polished	Ra ≤ 0.38 µm (ASME BPE SF4/DIN HE4) (external Ra ≤ 1.6 µm)
Media temperature	
EPDM (AD)	-10 °C...+143 °C (steam sterilisation +150 °C for 60 min)
PTFE/EPDM (EA)	-10 °C...+130 °C (steam sterilisation +140 °C for 60 min)
PTFE/EPDM (EU)	-5 °C...+143 °C (steam sterilisation +150 °C for 60 min)
GYLON®/EPDM laminated (ER)	-5 °C...+130 °C (steam sterilisation +140 °C for 60 min)
FKM (FF)	0 °C...+130 °C (not recommended for steam)
Ambient temperature	+5 °C...+60 °C
Control medium	Neutral gases, air
Max. pilot pressure	Max. 10 bar; Actuator size 130 mm 7 bar

Dimensions [mm]

Orifice	Actuator size	A	B
8	50	64.5	137.5
15	50	64.5	145.5
	70	91	164.5
20	70	91	165
25	70	91	171
	90	120	204
40	90	120	220.5
	130	159	273
50	130	159	281.5



Body with weld end

acc. to DIN EN ISO 1127 / ISO 4200 / DIN 11866 Series B

Port connections

Weld end

- DIN EN ISO 1127/ISO 4200/DIN 11866 Series B
- DIN 11850 Series 2/DIN 11866 Series A
- ASME BPE/DIN 11866 Series C
- DIN 32676 Series A (DIN tube)
- DIN 32676 Series B (ISO tube)
- ASME BPE

Clamp

Installation for self-draining

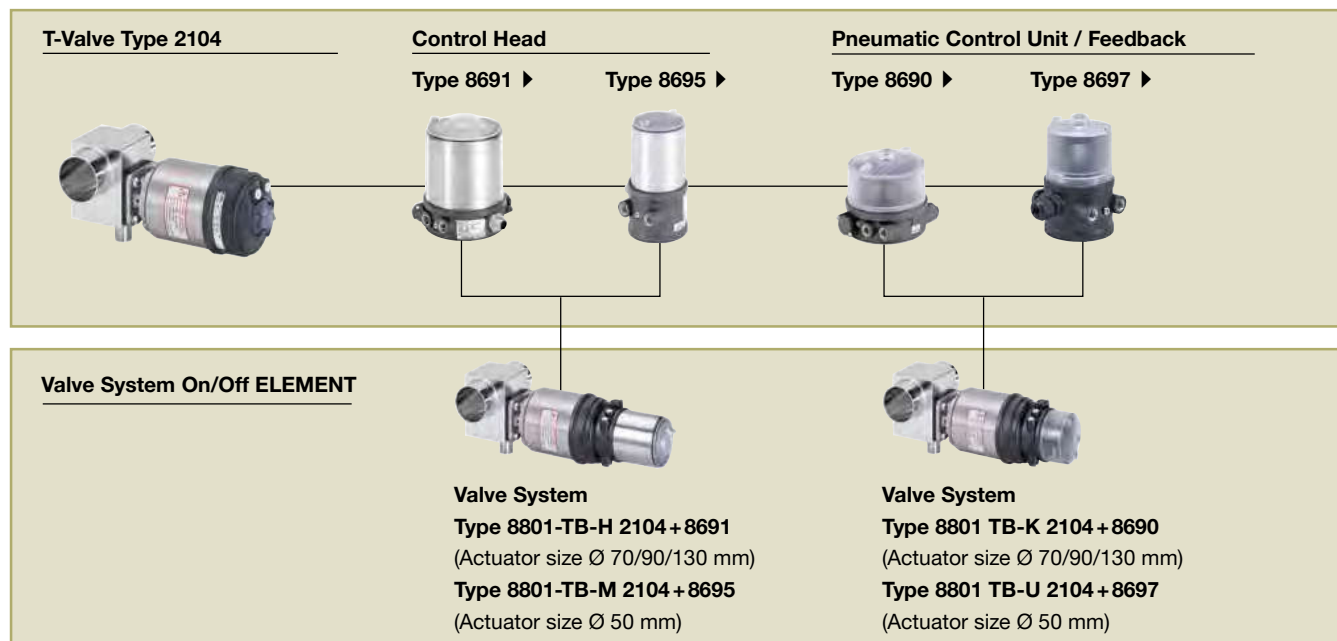
Inclined 3°...5° downwards

Ordering information for decentralized automation of On/Off ELEMENT valve system Typ 8801-TB

A decentralized, automated On/Off ELEMENT valve system Type 8801-TB consists of a T-valve Type 2104 and a valve actuation system control head Type 8691/8695 or a pneumatic control unit Type 8690/8697 (see separate datasheets).

For the configuration of further valve systems please use the "Request for quotation" on separate datasheet.

You order two components and receive a complete assembled and certified valve.





Pneumatically operated tank bottom valve ELEMENT for decentralized automation

2105

- Zero deadleg monoblock without welds
- Diaphragm hermetically separates the fluids from the operating mechanism
- Easy integration of ELEMENT automation units
- Stainless steel body with weld ends
- FDA/3A quality certifications



The Bürkert Tank Bottom Valve Type 2105 is designed for control of ultra pure, sterile, aggressive or abrasive fluids. Enables especially optimal filling and emptying vessels with less dead leg.

The valve body consists of a block with with no weld seam, machined out of high quality stainless steel. The Tank Bottom Valve has two welding bevels to ease the welding and valve positioning operations.

The high quality diaphragms separate hermetically critical fluids from the actuator. The pneumatic actuator is optimized for decentralized automation through ELEMENT pneumatic automation units. The fully integrated system has a compact and smooth design, integrated pneumatic lines, IP65/67, NEMA Type 4X protection class and superior chemical resistance.

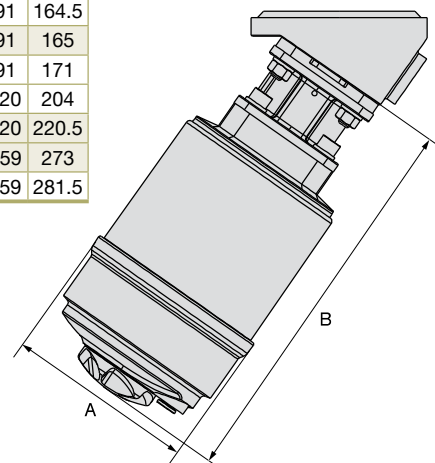
Technical data

Orifice	DN8...DN50
Body material	<ul style="list-style-type: none"> • Stainless steel 1.4435/316 L • Stainless steel 1.4435BN2/ASME BPE Fe < 0.5 %/C ≤ 0.03 %
Diaphragm materials	EPDM (AD), PTFE/EPDM (EA), advanced PTFE/EPDM (EU), Gylon®/EPDM laminated (ER), FKM (FF)
Actuator material	
Actuator	PPS
Cover	Stainless steel 1.4561 (316Ti)
Pilot air ports	Stainless steel 1.4305
Surface finish (others on request)	
inside mechanical	Ra ≤ 0.5 µm (ASME BPE SF1)
polished	(external Ra ≤ 1.6 µm)
inside electro polished	Ra ≤ 0.38 µm (ASME BPE SF4/DIN HE4) (external Ra ≤ 1.6 µm)
Media temperature	
EPDM (AD)	-10 °C...+143 °C (steam sterilisation +150 °C for 60 min)
PTFE/EPDM (EA)	-10 °C...+130 °C (steam sterilisation +140 °C for 60 min)
PTFE/EPDM (EU)	-5 °C...+143 °C (steam sterilisation +150 °C for 60 min)
GYLON®/EPDM laminated (ER)	-5 °C...+130 °C (steam sterilisation +140 °C for 60 min)
FKM (FF)	0 °C...+130 °C (not recommended for steam)
Ambient temperature	+5 °C...+60 °C
Control medium	Neutral gases, air
Max. pilot pressure	Max. 10 bar; Actuator size 130 mm 7 bar

Dimensions [mm]

Orifice	Actuator size	A	B
8	50	64.5	137.5
15	50	64.5	145.5
	70	91	164.5
20	70	91	165
25	70	91	171
	90	120	204
40	90	120	220.5
	130	159	273
50	130	159	281.5

**Welded body acc. to
DIN EN ISO 1127/ISO 4200/
DIN 11866 Series B and
ASME BPE**



Port connections

Weld end

- DIN EN ISO 1127/ISO 4200/DIN 11866 Series B
- DIN 11850 Series 2/DIN 11866 Series A
- ASME BPE/DIN 11866 Series C
- DIN 32676 Series A (DIN tube)
- DIN 32676 Series B (ISO tube)
- ASME BPE

Clamp

Installation

for self-draining

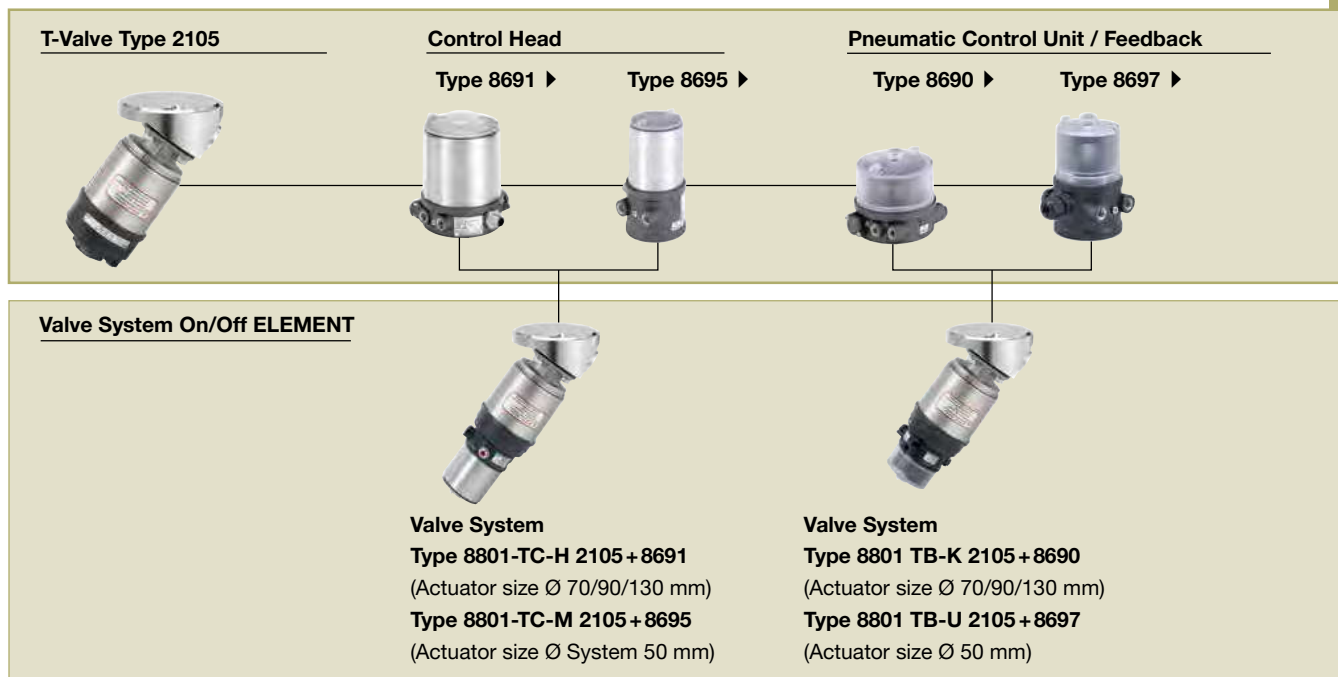
Inclined 3°...5° downwards

Ordering information for decentralized automation of On/Off ELEMENT valve system Typ 8801-TC

A decentralized, automated On/Off ELEMENT valve system Type 8801-TB consists of a T-valve Type 2105 and a valve actuation system control head Type 8691/8695 or a pneumatic control unit Type 8690/8697 (see separate datasheets).

For the configuration of further valve systems please use the "Request for quotation" on separate datasheet.

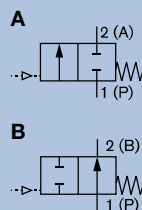
You order two components and receive a complete assembled and certified valve.



2/2 way diaphragm valve with plastic body, pneumatically operated

3230

- Use with aggressive and contaminate mediums
- Threaded port version
- Compact design
- Optical position indicator



2/2 way plastic diaphragm valve, pilot operated with pneumatic actuator and spring return. Used for polluted medium in process and water technology.

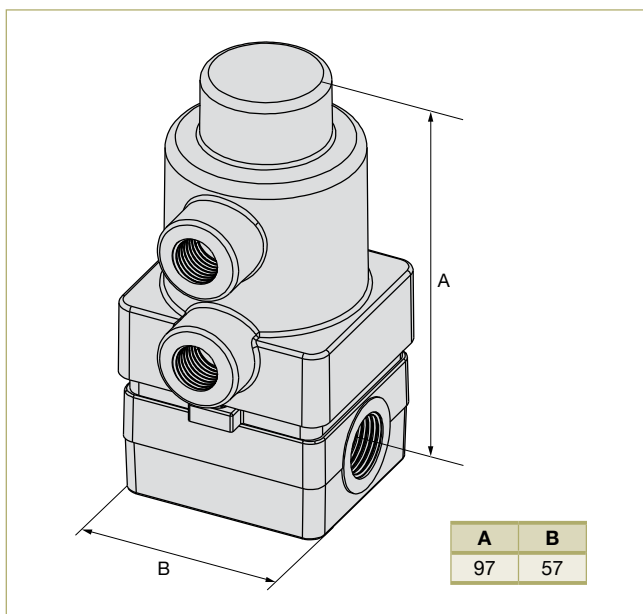
Technical data

Orifice	DN12 and DN15
Body material	PVC-U, PP
Seal material	EPDM
Actuator material	PP, glass-fibre reinforced
Medium	Neutral or aggressive medium that do not attack the body and seal materials
Medium temperature	See pressure temperature chart
Ambient temperature	0 °C...+60 °C
Control medium	Lubricated/non-lubricated compressed air and other neutral medium (e.g., water)
Pilot pressure	Max. 7 bar
Port connections	Threaded port Ø 16 mm, Ø 20 mm and G 3/8 Threaded port Ø 20 mm radially expandable
Installation	As required, preferably with actuator in upright position

Options

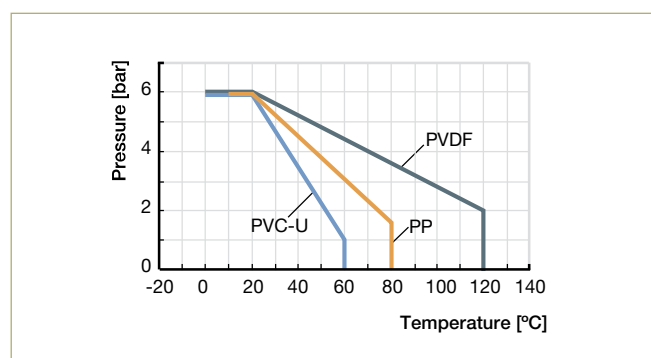
- Double-acting actuator (circuit function I)
- Body material, PVDF

Dimensions [mm]



Pressure temperature chart

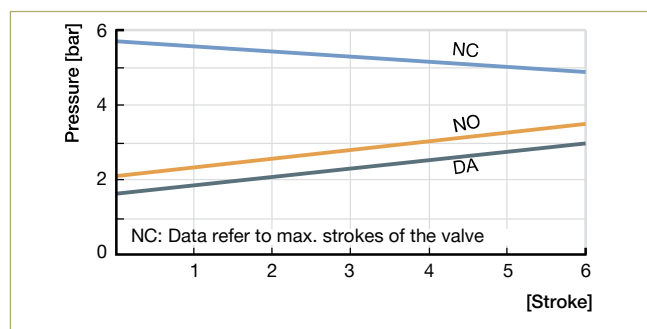
depending on the body materials



Pilot-pressure chart

NC = Control function A, NO = Control function B,



DA = Control function I



Ordering chart

Control function	Orifice [mm]	K _v value water [m³/h]	Pressure range +20 °C [bar]	Body material	Port connections	Article no.
A 2/2 way valve, operated by external air, normally closed	12	2.8	0...6	PVC-U	True union Ø 16	784822
					G ¾	784824
				PP	True union Ø 16	784828
					G ¾	784830
	15	3.5	0...6	PVC-U	True union Ø 20	784826
				PP	True union Ø 20	784832
B 2/2 way valve, operated by external air, normally open	12	2.8	0...6	PVC-U	True union Ø 16	784823
					G ¾	784825
				PP	True union Ø 16	784829
					G ¾	784831
	15	3.5	0...6	PVC-U	True union Ø 20	784827
				PP	True union Ø 20	784833

Accessories

Type	Pressure inlet P (valve body)	Service port A (banjo bolt)	Orifice [mm]	Q _{Nn} value air [l/min]	Pressure range [bar]	Electrical connection	Power consumption [W]	Article no. voltage/frequency [V/Hz]	
								024/DC	230/50
3/2 way pilot valves with banjo bolts									
Seal material valve FKM, seal material banjo bolt NBR									
6012 P	Tube fitting Ø 6 mm	G ¼	1.2	48	0...10	Form B	4	552283 	552286 

Description	Voltage	Article no.
Cable plug Type 2507 acc. to industry standard Form B - see Type 2507 ▶		
without circuitry (standard)	0...250 V AC/DC	423845

Manually Operated 2/2 way Diaphragm Valve

3232

- Flow optimized and deadleg free bodies
- Hermetical separation of fluids from the operating mechanism by diaphragm
- Manual actuator in plastic
- Plastic bodies with true union, solvent socket, weld ends or flanges
- Suitable for aggressive and corrosive media



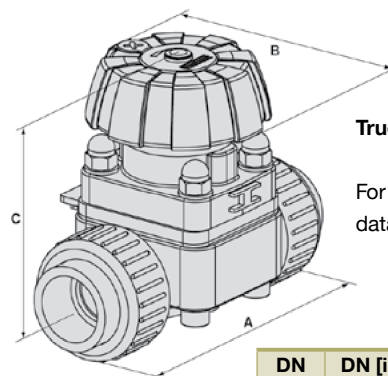
Manually-operated diaphragm valves in compact model consisting of plastic bodies, diaphragm seal, PPS bonnet and PPS handwheel. The diaphragm is both a switching element and a seal element towards the outside, and is easily replaced. The flow can be continually adjusted with the handwheel. The valves have no dead volume and can be mounted to be self-draining.

Technical data

Orifice (diaphragm size)	DN15...DN50 (DN65...DN100 on request)
Body materials	PVC-U, PP, PVDF
Actuator material	PPS manual actuator and bonnet
Seal material	EPDM, PTFE/EPDM (FKM on request)
Medium	Neutral or aggressive medium
Viscosity	Up to viscous
Medium temperature¹⁾	See diagram
Ambient temperature	-10 °C...+60 °C
Port connections	DN15...DN50: True union and spigot connections
Installation	As required
Installation for self draining	Tilted 5°...30° to the horizontal and Inclined 3°...5° to the flow direction (see drawing)
Options (on request)	Locking function

1) The permissible nominal pressure falls with increasing medium temperature

Dimensions [mm]

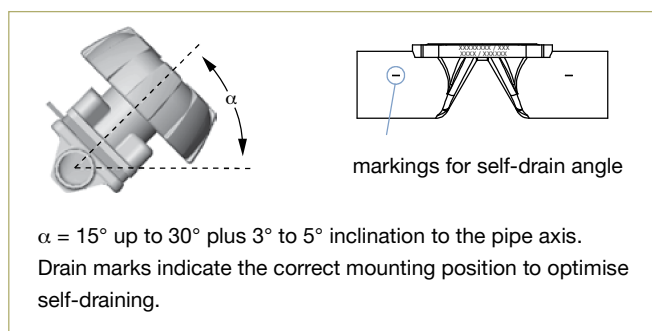


True union connection.

For other connections see datasheet **Type 3232** ▶

DN	DN [inch]	A	B	C
15	½	128	86	92
20	¾	152	86	102
25	1	166	86	108
32	1¼	192	114	139
40	1½	222	114	149
50	2	266	114	170

Installation for self-draining operation

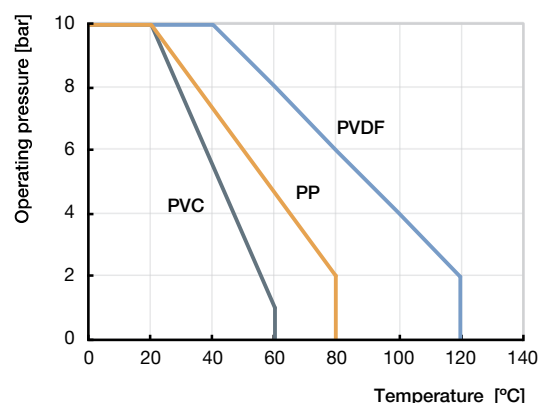


Options





























































- Pneumatic actuation
- Safety lock

Pressure-Temperature diagram

DN15...50




Ordering chart

Port connection [mm]	Orifice Diaphragm size [mm]	Orifice Diaphragm size [inch]	K _v value water [m³/h]	Pressure range at + 20 °C [bar]	Article no. EPDM diaphragm	Article no. EPDM/PTFE diaphragm
Body in PVC						
True union connection						
20	15	½	3.5	0...10	296103 	144764 
25	20	¾	7.2	0...10	317230 	144765 
32	25	1	12.5	0...10	317231 	144766 
40	32	1¼	19	0...10	317232 	144767 
50	40	1½	28	0...10	317233 	144768 
63	50	2	40	0...7	317234 	144769 
Body in PP						
True union connection						
20	15	½	3.5	0...10	317218 	144788 
25	20	¾	7.2	0...10	317219 	144789 
32	25	1	12.5	0...10	317220 	144790 
40	32	1¼	19	0...10	317221 	144791 
50	40	1½	28	0...10	317222 	144792 
63	50	2	40	0...7	317223 	144793 
Spigot connection						
20	15	½	3.5	0...10	317224 	144800 
25	20	¾	7.2	0...10	317225 	144801 
32	25	1	12.5	0...10	317226 	144802 
40	32	1¼	19	0...10	317227 	144803 
50	40	1½	28	0...10	317228 	144804 
63	50	2	40	0...7	317229 	144805 
Body in PVDF						
True union connection						
20	15	½	3.5	0...10	317206 	144812 
25	20	¾	7.2	0...10	317207 	144813 
32	25	1	12.5	0...10	317208 	144814 
40	32	1¼	19	0...10	317209 	144815 
50	40	1½	28	0...10	317210 	144816 
63	50	2	40	0...7	317211 	144817 
Spigot connection						
20	15	½	3.5	0...10	317212 	144824 
25	20	¾	7.2	0...10	317213 	144825 
32	25	1	12.5	0...10	317214 	144826 
40	32	1¼	19	0...10	317215 	144827 
50	40	1½	28	0...10	317216 	144828 
63	50	2	40	0...7	317217 	144829 

2/2 way Diaphragm Valve, manually operated, forged valve body, weld end and clamp connection

3233

- Hermetical separation of fluids from the operating mechanism by diaphragm
- Zero dead volume
- Various surface finishes
- Quality certifications 



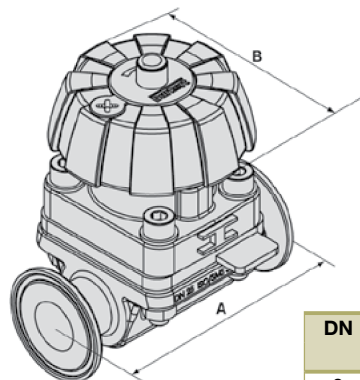
Hand operated diaphragm valve designed specifically for 3 A/FDA compliant bioprocessing tasks. The forged 316L stainless steel body can be delivered with your specific surface finish with a range of diaphragm materials to suit positive control of ultra-pure, abrasive and aggressive fluids.

The flow is continuously adjustable with the hand wheel. The valves are zero dead volume and can be mounted to self-draining. The valves are autoclavable.

Technical data

Port connection size	DN8...DN80 (¼"...3"), DN6, DN100 (½", 4") on request
Diaphragm size	8...80 (100 on request)
Port connections	
Weld ends acc.	DIN EN ISO 1127/ISO 4200/DIN11866 B DIN 11850 2/DIN11866 A ASME BPE / DIN 11866 C BS4825 SMS 3008
Clamps acc.	DIN 11850 0 (on request) DIN 32676 B (with pipe ISO 4200) DIN 32676 A (with pipe DIN 11850 2) ASME BPE ISO 2852 further port connections on request
Materials	
Body	Stainless steel 316L / 1.4435 / BN2
Actuator	Handwheel / Bonnet
Diaphragm size 8	PPS (Stainless steel on request)/Stainless steel
Diaphragm size 15...50	PPS (Stainless steel on request) / PPS (Stainless steel on request)
Diaphragm size 80...100	Stainless steel / Stainless steel
Diaphragm materials	EPDM (AB), PTFE/EPDM (EA) EPDM (AD), advanced PTFE/EPDM (EU), GYLON®/EPDM laminated (ER) and FKM (FF) on request
Media	Neutral gases and liquids, high-purity, sterile, aggressive or abrasive fluids
Viscosity	Up to viscous
Surface finish	
internally electropolished (external surface forged electropolished)	Ra ≤ 0.38 µm (ASME BPE SF4)
internally mechanically polished (external surface forged)	Ra ≤ 0.5 µm (ASME BPE SF1)

Dimensions [mm]



True union connection.

For dimensions of other versions see datasheet

Type 3233. ▶

DN	DN [inch]	A	B
8	¼	90	35
15	½	110	86
20	¾	119	86
25	1	129	86
40	1½	161	114
50	2	192	114
80	3	250	272
100	4	295	272

Medium temperature

EPDM (AB), PTFE/EPDM (EA)	-10 °C...+130 °C (steam sterilisation + 140 °C for 60 min)
EPDM (AD), advanced PTFE/EPDM (EU)	-5 °C...+143 °C (steam sterilisation + 150 °C for 60 min)
GYLON®/EPDM laminated (ER)	-5 °C...+130 °C (steam sterilisation + 140 °C for 60 min)
FKM (FF)	0 °C...+130 °C (not recommended for steam)

Ambient temperature

Up to +130 °C (briefly up to +150 °C)

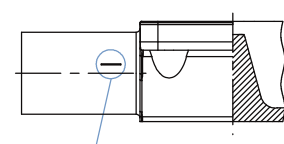
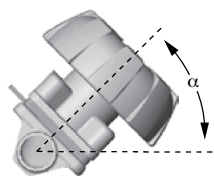
Installation

As required, preferably with actuator in upright position

Options

- All mechanical and electropolished finishes a standard
- Locking function

Installation for self-draining operation



markings for self-drain angle

$\alpha = 15^\circ$ up to 35° plus 3° to 5° inclination to the pipe axis.

Drain marks indicate the correct mounting position to optimise self-draining.

Ordering chart

Port Connection DN		Diaphragm size [mm]	Actuator material Handwheel / Bonnet	K _v value [m³/h]	Max. operating pressure [bar]	Article no.	
[mm]	[inch]					mechanically polished Ra ≤0.5 µm	electropolished Ra ≤0.38 µm
Welded connection acc. EN ISO 1127 / ISO 4200 / DIN11866 B							
Certification of Conformity for Raw Material EN-ISO 10204 3.1 (included in delivery)							
diaphragm material EPDM (AB)							
8	¼	8	PPS / Stainless steel	1.5	10	446182	446183
10	⅜	8	PPS / Stainless steel	1.5	10	446187	446188
10	⅜	15	PPS / PPS	5.5	10	449930	554176
15	½	15	PPS / PPS	6.5	10	445503	445504
20	¾	20	PPS / PPS	12.5	10	445508	445509
25	1	25	PPS / PPS	18	10	445513	445514
40	1½	40	PPS / PPS	41	10	445518	445519
50	2	50	PPS / PPS	66	10	445523	445524
65	2½	80	Stainless steel / Stainless steel	160	10	254349	273309
80	3	80	Stainless steel / Stainless steel	160	10	on request	273310
100	4	100	Stainless steel / Stainless steel	235	6	on request	on request
diaphragm material PTFE/EPDM (EA)							
8	¼	8	PPS / Stainless steel	2	10	446217	446218
10	⅜	8	PPS / Stainless steel	2	10	446222	446223
10	⅜	15	PPS / PPS	5.2	10	299713	299688
15	½	15	PPS / PPS	6	10	445538	445539
20	¾	20	PPS / PPS	12	10	445543	445544
25	1	25	PPS / PPS	16	10	445548	445549
40	1½	40	PPS / PPS	40	10	445553	445554
50	2	50	PPS / PPS	67	10	445558	445559
65	2½	80	Stainless steel / Stainless steel	160	10	on request	273312
80	3	80	Stainless steel / Stainless steel	160	10	on request	270877
100	4	100	Stainless steel / Stainless steel	235	6	on request	on request



Ordering chart continued

3233

Port Connection DN		Diaphragm size [mm]	Actuator material Handwheel / Bonnet	K _v value [m³/h]	Max. operating pressure [bar]	Article no.	
[mm]	[inch]					mechanically polished Ra ≤0.5 µm	electropolished Ra ≤0.38 µm
Welded connection acc. DIN 11866 A / DIN 11850 2							
Certification of Conformity for Raw Material EN-ISO 10204 3.1 (included in delivery)							
diaphragm material EPDM (AB)							
10	3⁄8	8	PPS / Stainless steel	1.5	10	445462	446322
10	3⁄8	15	PPS / PPS	3.5	10	299708	299686
15	1⁄2	15	PPS / PPS	6.5	10	445638	445639
20	3⁄4	20	PPS / PPS	12.4	10	445643	445644
25	1	25	PPS / PPS	20	10	445648	445649
32	1¼	40	PPS / PPS	34	10	554981	554982
40	1½	40	PPS / PPS	40	10	445653	445654
50	2	50	PPS / PPS	66	10	445658	445659
65	2½	80	Stainless steel / Stainless steel	160	10	on request	273315
80	3	80	Stainless steel / Stainless steel	160	10	on request	273316
100	4	100	Stainless steel / Stainless steel	235	6	on request	on request
diaphragm material PTFE/EPDM (EA)							
10	3⁄8	8	PPS / Stainless steel	1.9	10	447340	446351
10	3⁄8	15	PPS / PPS	3.4	10	299709	299687
15	1⁄2	15	PPS / PPS	6	10	445668	445669
20	3⁄4	20	PPS / PPS	12	10	445673	445674
25	1	25	PPS / PPS	17	10	445678	445679
32	1¼	40	PPS / PPS	34	10	554991	554992
40	1½	40	PPS / PPS	40	10	445683	445684
50	2	50	PPS / PPS	66	10	445688	445689
65	2½	80	Stainless steel / Stainless steel	160	10	on request	273321
80	3	80	Stainless steel / Stainless steel	160	10	258261	273322
100	4	100	Stainless steel / Stainless steel	235	6	on request	on request
Welded connection acc. ASME BPE							
Certification of Conformity for Raw Material EN-ISO 10204 3.1 (included in delivery)							
diaphragm material EPDM (AB)							
8	1⁄4	8	PPS / Stainless steel	0.7	10	447975	447976
10	3⁄8	8	PPS / Stainless steel	1.6	10	447980	447981
15	1⁄2	8	PPS / Stainless steel	1.5	10	299699	299672
15	1⁄2	15	PPS / PPS	3.1	10	445573	445574
20	3⁄4	15	PPS / PPS	6.5	10	250478	299683
20	3⁄4	20	PPS / PPS	8.4	10	445578	445579
25	1	25	PPS / PPS	15.5	10	445583	445584
40	1½	40	PPS / PPS	37	10	445588	445589
50	2	50	PPS / PPS	66	10	445593	445594
65	2½	50	PPS / PPS	66	10	299722	266030
65	2½	80	Stainless steel / Stainless steel	160	10	271331	on request
80	3	80	Stainless steel / Stainless steel	160	10	on request	on request
100	4	100	Stainless steel / Stainless steel	235	6	on request	on request
diaphragm material PTFE/EPDM (EA)							
8	1⁄4	8	PPS / Stainless steel	0.7	10	447995	447996
10	3⁄8	8	PPS / Stainless steel	1.8	10	448000	448001
15	1⁄2	8	PPS / Stainless steel	1.9	10	558789	299673
15	1⁄2	15	PPS / PPS	3.1	10	445608	445609
20	3⁄4	15	PPS / PPS	6	10	250482	299684
20	3⁄4	20	PPS / PPS	8.5	10	445613	445614
25	1	25	PPS / PPS	14.5	10	445618	445619
40	1½	40	PPS / PPS	37.5	10	445623	445624
50	2	50	PPS / PPS	66	10	445628	445629
65	2½	50	PPS / PPS	66	10	551115	246098
65	2½	80	Stainless steel / Stainless steel	160	10	276777	on request
80	3	80	Stainless steel / Stainless steel	160	10	274778	260493
100	4	100	Stainless steel / Stainless steel	235	6	on request	on request

Ordering chart continued

Port Connection DN		Diaphragm size [mm]	Actuator material Handwheel / Bonnet	K _v value [m³/h]	Max. operating pressure [bar]	Article no.	
[mm]	[inch]					mechanically polished Ra ≤0.5 µm	electropolished Ra ≤0.38 µm
Welded connection acc. BS4825							
Certification of Conformity for Raw Material EN-ISO 10204 3.1 (included in delivery)							
diaphragm material EPDM (AB)							
8	¼	8	PPS / Stainless steel	0.5	10	446252	446253
10	⅜	8	PPS / Stainless steel	1.4	10	446257	446258
15	½	15	PPS / PPS	3.7	10	447925	447926
20	¾	20	PPS / PPS	8.9	10	447930	447931
25	1	25	PPS / PPS	15.5	10	445583	445584
40	1½	40	PPS / PPS	37	10	445588	445589
50	2	50	PPS / PPS	66	10	445593	445594
65	2½	50	PPS / PPS	66	10	299722	266030
65	2½	80	Stainless steel / Stainless steel	160	10	271331	on request
80	3	80	Stainless steel / Stainless steel	160	10	on request	on request
100	4	100	Stainless steel / Stainless steel	235	6	on request	on request
diaphragm material PTFE/EPDM (EA)							
8	¼	8	PPS / Stainless steel	0.5	10	446287	446288
10	⅜	8	PPS / Stainless steel	1.6	10	446292	446293
15	½	15	PPS / PPS	3.6	10	447945	447946
20	¾	20	PPS / PPS	8.8	10	447950	447951
25	1	25	PPS / PPS	14.5	10	445618	445619
40	1½	40	PPS / PPS	37.5	10	445623	445624
50	2	50	PPS / PPS	66	10	445628	445629
65	2½	50	PPS / PPS	66	10	551115	246098
65	2½	80	Stainless steel / Stainless steel	160	10	276777	on request
80	3	80	Stainless steel / Stainless steel	160	10	274778	260493
100	4	100	Stainless steel / Stainless steel	235	6	on request	on request
Welded connection acc. SMS 3008							
Certification of Conformity for Raw Material EN-ISO 10204 3.1 (included in delivery)							
diaphragm material EPDM (AB)							
25	1	25	PPS / PPS	16	10	445693	445694
40	1½	40	PPS / PPS	37.8	10	445698	445699
50	2	50	PPS / PPS	66	10	445703	445704
65	2½	50	PPS / PPS	66	10	449820	551557
80	3	80	Stainless steel / Stainless steel	160	10	on request	273326
diaphragm material PTFE/EPDM (EA)							
25	1	25	PPS / PPS	14.8	10	445708	445709
40	1½	40	PPS / PPS	38	10	445713	445714
50	2	50	PPS / PPS	66	10	445718	445719
65	2½	50	PPS / PPS	66	10	551561	551562
80	3	80	Stainless steel / Stainless steel	160	10	on request	273328
Welded connection acc. DIN 11850 0							
Certification of Conformity for Raw Material EN-ISO 10204 3.1 (included in delivery)							
diaphragm material EPDM (AB)							
8	¼	8	PPS / Stainless steel	1.1	10	299701	299678
10	⅜	8	PPS / Stainless steel	1.7	10	299703	181775
diaphragm material PTFE/EPDM (EA)							
8	¼	8	PPS / Stainless steel	1.1	10	299702	299679
10	⅜	8	PPS / Stainless steel	1.9	10	299704	299680



Ordering chart continued

3233

Port Connection DN		Diaphragm size [mm]	Actuator material Handwheel / Bonnet	K _v value [m³/h]	Max. operating pressure [bar]	Article no.	
[mm]	[inch]					mechanically polished Ra ≤0.5 µm	electropolished Ra ≤0.38 µm
Clamp connection acc. DIN 32676 B (with pipe ISO 4200)							
Certification of Conformity for Raw Material EN-ISO 10204 3.1 (included in delivery)							
diaphragm material EPDM (AB)							
15	½	15	PPS / PPS	6.5	10	299710	299689
20	¾	20	PPS / PPS	12.5	10	299714	299691
25	1	25	PPS / PPS	18	10	299718	553714
40	1½	40	PPS / PPS	41	10	299720	299695
50	2	50	PPS / PPS	66	10	299723	299697
diaphragm material PTFE/EPDM (EA)							
15	½	15	PPS / PPS	6	10	299712	299690
20	¾	20	PPS / PPS	12	10	299716	299692
25	1	25	PPS / PPS	16	10	299719	299693
40	1½	40	PPS / PPS	40	10	299721	299696
50	2	50	PPS / PPS	67	10	299724	299698
Clamp connection acc. DIN 32676 A (with pipe DIN 11850 2)							
Certification of Conformity for Raw Material EN-ISO 10204 3.1 (included in delivery)							
diaphragm material EPDM (AB)							
10	⅜	15	PPS / PPS	3.5	10	299705	299681
15	½	15	PPS / PPS	6.5	10	445893	445894
20	¾	20	PPS / PPS	12.4	10	445898	445899
25	1	25	PPS / PPS	20	10	445903	445904
40	1½	40	PPS / PPS	34	10	445908	445909
50	2	50	PPS / PPS	40	10	445913	445914
diaphragm material PTFE/EPDM (EA)							
10	⅜	15	PPS / PPS	3.4	10	299706	299682
15	½	15	PPS / PPS	6	10	445918	445919
20	¾	20	PPS / PPS	12	10	445923	445924
25	1	25	PPS / PPS	17	10	445928	445929
40	1½	40	PPS / PPS	34	10	445933	445934
50	2	50	PPS / PPS	40	10	445938	445939
Clamp connection acc. ASME BPE							
Certification of Conformity for Raw Material EN-ISO 10204 3.1 (included in delivery)							
diaphragm material EPDM (AB)							
8	¼	8	PPS / Stainless steel	0.7	10	446510	446511
10	⅜	8	PPS / Stainless steel	1.6	10	446515	446516
15	½	8	PPS / Stainless steel	1.5	10	299700	299674
15	½	15	PPS / PPS	3.1	10	445868	445869
20	¾	20	PPS / PPS	8.4	10	445873	445874
25	1	25	PPS / PPS	15.5	10	445878	445879
40	1½	40	PPS / PPS	37	10	445883	445884
50	2	50	PPS / PPS	66	10	445888	445889
65	2½	50	PPS / PPS	66	10	551454	551455
65	2½	80	Stainless steel / Stainless steel	160	10	292835	on request
80	3	80	Stainless steel / Stainless steel	160	10	269347	252571
100	4	100	Stainless steel / Stainless steel	235	6	on request	on request
diaphragm material PTFE/EPDM (EA)							
8	¼	8	PPS / Stainless steel	0.7	10	446545	446546
10	⅜	8	PPS / Stainless steel	1.8	10	446550	446551
15	½	8	PPS / Stainless steel	1.9	10	553269	299677
15	½	15	PPS / PPS	3.1	10	445833	445834
20	¾	20	PPS / PPS	8.5	10	445838	445839
25	1	25	PPS / PPS	14.5	10	445843	445844
40	1½	40	PPS / PPS	37.5	10	445848	445849
50	2	50	PPS / PPS	66	10	445853	445854
65	2½	50	PPS / PPS	66	10	551460	551461
65	2½	80	Stainless steel / Stainless steel	160	10	279251	on request
80	3	80	Stainless steel / Stainless steel	160	10	254131	257108
100	4	100	Stainless steel / Stainless steel	235	6	on request	on request

Manually operated 2 way Diaphragm Valve

3233
Tube Valve Body

- Light tube valve body
- Flow optimised body in stainless steel
- Zero dead volume
- Easy to weld



Hand operated diaphragm valve designed specifically for 3 A/FDA compliant bioprocessing tasks. The forged 316L stainless steel body can be delivered with your specific surface finish with a range of diaphragm materials to suit positive control of ultra-pure, abrasive and aggressive fluids.

The flow is continuously adjustable with the hand wheel. The valves are zero dead volume and can be mounted to self-draining. The valves are autoclavable.

Technical data

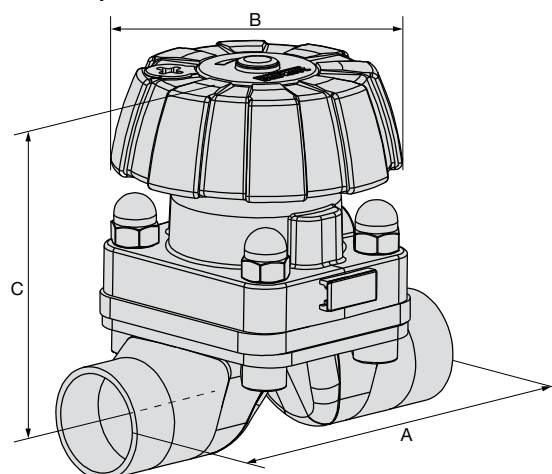
Pressure range	DN08...DN50 (1/4"...2")
Port connections	
Weld ends	ASME BPE/DIN 11866 Series C DIN EN ISO 1127/ISO 4200/DIN11866 Series B DIN 11850 2/DIN 11866 Series A
Media temperature	
EPDM (AD), PTFE/EPDM (EA)	-10 °C...+130 °C (steam sterilisation +140 °C for 60 min)
EPDM (AD), advanced PTFE/EPDM (EU)	-5 °C...+143 °C (steam sterilisation +150 °C for 60 min)
GYLON®/EPDM laminated (ER)	-5 °C...+130 °C (steam sterilisation +140 °C for 60 min)
FKM (FF)	0 °C...+130 °C (not recommended for steam)
Ambient temperature	Up to +130 °C (briefly up to +150 °C)
Fluid	Neutral gases and liquids, high purity, sterile, aggressive or abrasive fluids
Body material	Stainless steel 316L/1.4435/BN2
Seal material	EPDM (AD), PTFE/EPDM (EA), EPDM (AD); advanced PTFE/EPDM (EU), GYLON®/EPDM laminated (ER) and FKM (FF) on request
Actuator material	PPS (Stainless steel on request)
Viscosity	Up to viscous
Surface	
Electropolished inside	Ra ≤ 0.38 µm (ASME BPE SF4)
Installation	As required, preferably with actuator in upright position

Options

- Locking function

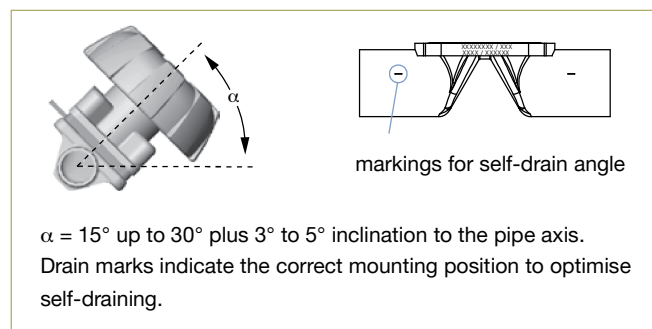
Dimensions [mm]

Weld ends port connection







Diaphragm size	A	B	C
ASME BPE / DIN 11866 C			
8	90	35	56
15	110	80	83
20	119	80	91
32	148	114	116
40	161	114	117
DIN EN ISO 1127 / ISO 4200 / DIN11866 B			
8	90	35	56
15	110	80	83
20	119	80	91
25	129	80	96
32	148	114	116
40	161	114	117
50	192	114	133
DIN 11850 2 / DIN 11866 A			
8	90	35	56
15	110	80	83
15	119	80	85
20	129	80	95
25	148	80	96
32	161	114	115
40	192	114	120

Installation for self-draining operation



Approvals

Suitability for foodstuffs / sterile applications

Conformity	Description
	The composition of the EPDM, PTFE/EPDM and advanced PTFE/EPDM diaphragms corresponds to the Code of Federal Regulations, published by the FDA (Food and Drug Administration, USA).
	The composition of the EPDM, PTFE/EPDM and advanced PTFE/EPDM diaphragms is suitable for the application with food and beverage (acc. to EC-Regulation 1935/2004/EC).
	The diaphragm valve with tube valve body and EPDM or PTFE has been evaluated for compliance with the Hygienic Equipment Design Criteria of the EHEDG.
	The Diaphragm valve according to 3-A approved on request (3-A Sanitary Standards Symbol Administrative Council).



Ordering chart

3233
Tube Valve Body

Port connection DN		Diaphragm size	K _v value water [m³/h]	Max. operating pressure [bar]	Article no. EPDM (AD) seal material	Article no. PTFE/EPDM (EA) seal material
[mm]	[inch]					
Welded connection ASME BPE/DIN 11866 Series C PPS Handwheel, electropolished Ra ≤0.38 µm and Inspection certificate 3.1 acc. to EN-ISO 10204 (included in delivery)						
15	½	8	2	10	275864	275865
20	¾	15	6.5	10	275866	275867
25	1	20	12.5	10	278887	278888
40	1½	32	30	10	278889	278890
50	2	40	40	7	278891	278892

Port connection DN		Diaphragm size	K _v value water [m³/h]	Max. operating pressure [bar]	Article no. EPDM (AD) seal material	Article no. PTFE/EPDM (EA) seal material
[mm]	[inch]					
Welded connection EN ISO 1127 / ISO 4200 / DIN 11866 Series B PPS Handwheel, electropolished Ra ≤0.38 µm and Inspection certificate 3.1 acc. to EN-ISO 10204 (included in delivery)						
8	¼	8	2.1	10	290482	290483
15	½	15	6.7	10	290487	290488
20	¾	20	13	10	290489	290490
25	1	25	17.5	10	290491	290492
32	1¼	32	36	10	290493	290494
40	1½	40	47	10	290495	290497
50	2	50	70	7	290498	290499

Port connection DN		Diaphragm size	K _v value water [m³/h]	Max. operating pressure [bar]	Article no. EPDM (AD) seal material	Article no. PTFE/EPDM (EA) seal material
[mm]	[inch]					
Welded connection DIN 11866 A / DIN 11850 2 PPS Handwheel, electropolished Ra ≤0.38 µm and Inspection certificate 3.1 acc. to EN-ISO 10204 (included in delivery)						
10	⅜	8	2.1	10	290468	290469
15	½	15	6.5	10	290470	290471
20	¾	15	6.5	10	290472	290473
25	1	20	14	10	290474	290475
32	1¼	25	20	10	290476	290477
40	1½	32	35	10	290478	290479
50	2	40	44	7	290480	290481

Electromotive 2 way diaphragm on/off valve

3323

- Safety position with energy pack
- Fast shut off
- Adjustable force for increased diaphragm lifetime
- Various diaphragms, stainless steel and plastic bodies available
- Diagnostic functions and fieldbus integration

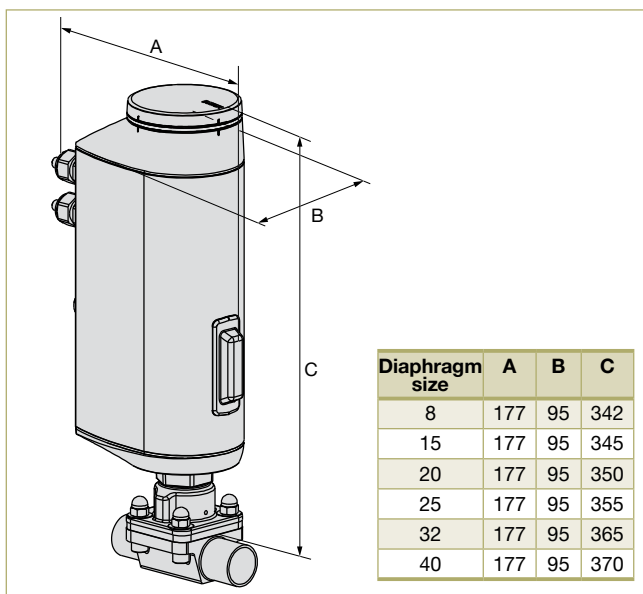


The innovative diaphragm on/off valve Type 3323 is the solution when it comes to on/off control in areas with media contact such as the Food and Beverage, Cosmetic, Pharma and Biopharma Industry. The electromotive actuator with ball screw shuts the diaphragm valve quasi delay free with – for electromotive valves – unique speed of 4 mm/s within 1.5...4.5 seconds. If necessary, the safety position can be realized with optional energy storage in case of power failure. Pressure variations or shocks in the medium aren't transferred to the valve position. Many helpful functions for process monitoring, valve diagnostics and predictive maintenance can be used. Beside the mechanical position indication a 360°- LED illuminated ring displays valve position and information about warnings or errors. Various communication standards up to modern fieldbus systems are available. Trusted valve bodies and diaphragms ensure media separation with minimum dead leg and are easy to clean. Demanding environments are no problem for Type 3323 with its high IP-protection and high resistance to vibration and shocks. Hygienic design allows a fast and residue-free exterior cleaning. The actuator force can be exactly adjusted for the operating conditions to optimize diaphragm life.

Technical data

General data	
Port connection size	DN8...DN50 (1/4"...2")
Diaphragm size	8...40
Body material	
Stainless steel	Forged 316L/1.4435/BN2 Tube 316L/1.4435/BN2 Cast, tank bottom and T-body on request
Plastic	PVC (Polyvinyl chloride) PP (Polypropylene) PVDF (Polyvinylidene fluoride)
Port connections stainless steel	
Weld ends	ASME BPE / DIN 11866 C DIN EN ISO 1127/ISO 4200/DIN11866 B DIN 11850 2/DIN11866 A BS4825, SMS 3008 DIN 11850 0 ASME BPE
Clamps	DIN 32676 A (with pipe DIN 11850 2) DIN 32676 B (with pipe ISO 4200) further port connections on request
Port connections plastic	True union (solvent), true union (weld), weld ends and solvent sockets
Surface finish: forged	
internally electropolished	Ra ≤ 0.38 µm (ASME BPE SF4)
internally mechanically polished	Ra ≤ 0.5 µm (ASME BPE SF1)

Dimensions [mm]



Surface finish: tube body

internally electropolished Ra ≤ 0.38 µm (ASME BPE SF4)

Materials

Diaphragm materials EPDM (AB), PTFE/EPDM (EA), EPDM (AD), advanced PTFE/EPDM (EU), Gylon®/EPDM laminated (ER), FKM (FF)

Medium temperature

EPDM (AD) -10 °C...+143 °C (steam sterilisation +150 °C for 60 min)
PTFE/EPDM (EA) -10 °C...+130 °C (steam sterilisation +140 °C for 60 min)
PTFE/EPDM (EU) -5 °C...+143 °C (steam sterilisation +150 °C for 60 min)
Gylon®/EPDM laminated (ER) -5 °C...+130 °C (steam sterilisation +140 °C for 60 min)
FKM (FF) 0 °C...+130 °C (not recommended for steam)

Media

Neutral gases and liquids, high-purity, sterile, aggressive or abrasive fluids

Viscosity

Up to viscous

Installation

As required, preferably with actuator in upright position

Ambient temperature

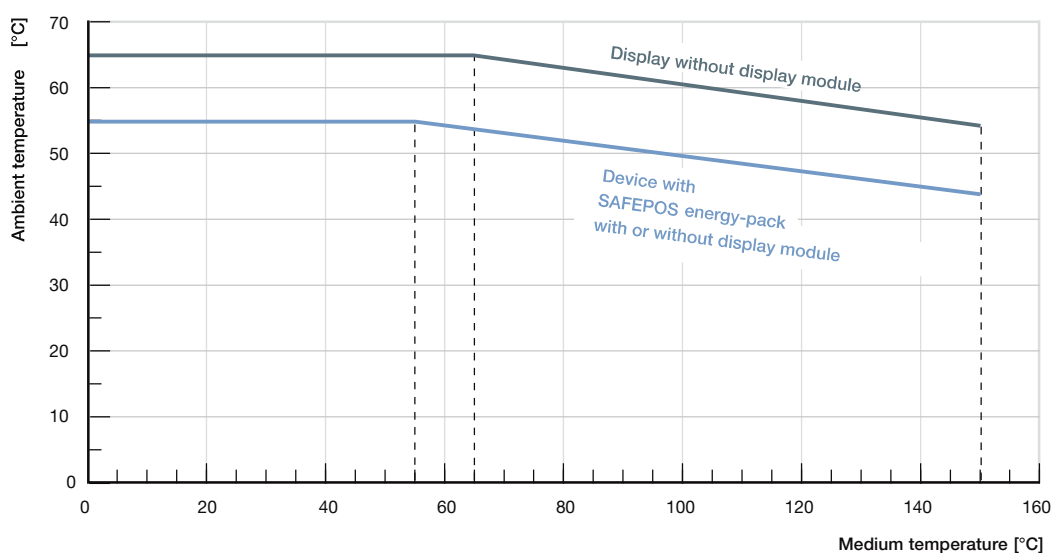
-10 °C...+65 °C (without SAFEPOS energy storage)
-10 °C...+55 °C (with SAFEPOS energy storage)
Depends on media temperature see temperature chart

Technical data continued

Safety position at power failure	With SAFEPOS energy-pack: opened, closed or free programmable without SAFEPOS energy-pack: blocked in last position
Power supply	24 V DC $\pm 10\%$ (max. residual ripple 10 %)
Closure time	<1.5...4.5 sec. depending on diaphragm size
Travel speed	4 mm/s
Duty cycle	100 %
Protection class	IP65/IP67
Binary control	0...5 V (log. 0) 10...30 V (log.1)
Vibration, sinusoidal	5 g according to IEC 60068-2-6 Test Fc
Shock, mechanical	50 g according to IEC 60068-2-27 Test Ea
Digital control (fieldbus)	EtherNet/IP, Modbus/TCP, PROFINET (on request)
Approval and Conformity	ATEX II Cat 3G/D / IECEx (optional) cULus Cert. No. 238179 (optional)
Ignition protection class	II 3G Ex ec IIC T4 Gc II 3D Ex tc IIIC T135 °C Dc

Electrical data	
Protection class	3 acc. to DIN EN 61140
Electrical connections	Cable gland, 2 x M20 or 2 circular plug-in connector M12, 5 pin and 8 pin
Operating voltage	24 V DC $\pm 10\%$ max. residual ripple 10 %
Operating current [A]	Max. 3 A including actuator at max. load and charging current of the optional SAFEPOS energy-pack (charging current approx. 1 A)
Lifelong energy storage SAFEPOS energy-pack	Up to 10 years (depending on operating conditions)
Electronic without actuator [W]	Min. 2 W, max. 4 W
Control	
Output digital	Current limit 100 mA
Input digital	0...5 V = log "0", 10...30 V = log "1" inverted input reversed accordingly
Communication interface	Connection to PC via USB bÜS interface set
Communication Software	Bürkert communicator

Temperature chart



The maximum allowable ambient temperature and media temperature influence each other. The maximum allowable temperature curves of different device variants can be seen in the temperature chart.

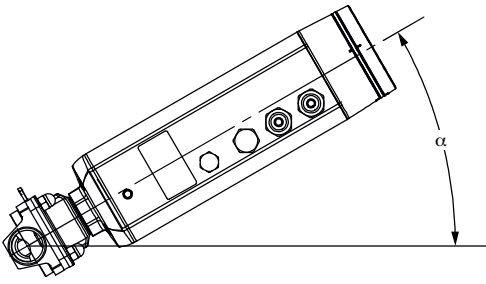
Pressure values

Diaphragm size	Max. operating pressure [bar]	
	EPDM, FKM	PTFE, advanced PTFE, Gylon®
8	10	10
15	10	10
20	10	10
25	10	10
32	8	5,5
40	4	2,5

Pressure values: K_v value water [m³/h]: Measured at +20 °C, 1 bar pressure at valve inlet and free outlet.



Installation for self-draining operation



$\alpha = 15^\circ$ up to 35° plus 3° to 5° inclination to the pipe axis.
Drain marks indicate the correct mounting position to optimise self-draining.

Electromotive 2 way diaphragm control valve

3363

- Precise and fast control
- Safety position with energy pack
- Adjustable force for increased diaphragm lifetime
- Various diaphragms, stainless steel and plastic bodies available
- Diagnostic functions and fieldbus integration

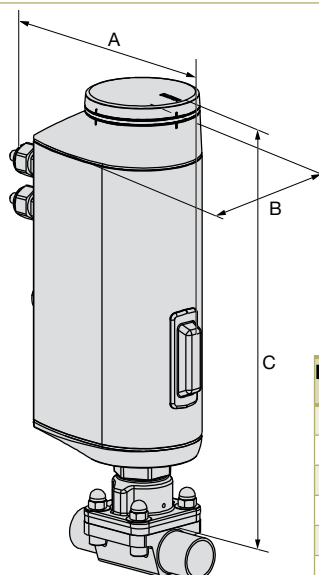


The innovative diaphragm control valve Type 3363 is the solution when it comes to demanding control tasks in areas with media contact such as the Food and Beverage, Cosmetic, Pharma and Biopharma Industry. The electromotive actuator with ball screw positions the diaphragm with quasi delay free with highest precision and – for electromotive valves – unique speed of 4 mm/s that can be varied acc. to plant design.

Pressure variations or shocks in the medium aren't transferred to the valve position. If necessary, the safety position can be realized with optional energy storage in case of power failure. Many helpful functions for process monitoring, valve diagnostics and predictive maintenance can be used. Beside the mechanical position indication a 360°- LED illuminated ring displays valve position and information about warnings or errors. Communication is possible with both analogue signals and modern fieldbus systems.

Trusted valve bodies and diaphragms ensure media separation with minimum dead leg and are easy to clean. Demanding environments are no problem for Type 3363 with its high IP-protection and high resistance to vibration and shocks. Hygienic design allows a fast and residue-free exterior cleaning. The actuator force can be exactly adjusted for the operating conditions to optimize diaphragm life.

Dimensions [mm]



Diaphragm size	A	B	C
8	177	95	342
15	177	95	345
20	177	95	350
25	177	95	355
32	177	95	365
40	177	95	370

Technical data

General data	
Port connection size	DN8...DN50 (1/4" ... 2")
Diaphragm size	8...40 mm
Body material	
Stainless steel	Forged 316L/1.4435/BN2 Tube 316L/1.4435/BN2 Cast, tank bottom and T-body on request
Plastic	PVC (Polyvinyl chloride) PP (Polypropylene) PVDF (Polyvinylidene fluoride)
Port connections, stainless steel	
Weld ends	ASME BPE / DIN 11866 C DIN EN ISO 1127/ISO 4200/DIN11866 B DIN 11850 2/DIN11866 A BS4825 SMS 3008 DIN 11850 0
Clamps	ASME BPE DIN 32676 A (with pipe DIN 11850 2) DIN 32676 B (with pipe ISO 4200) further port connections on request
Port connections plastic	
	True union (solvent), true union (weld), weld ends and solvent sockets

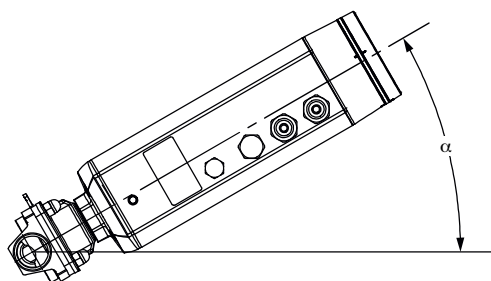
Surface finish, forged	
{internally electropolished	Ra ≤ 0.38 µm (ASME BPE SF4)
internally mechanically polished	Ra ≤ 0.5 µm (ASME BPE SF1)
Surface finish, tube body	
internally electropolished	Ra ≤ 0.38 µm (ASME BPE SF4)
Materials	
Diaphragm materials	EPDM (AD), PTFE/EPDM (EA), advanced PTFE/EPDM (EU), GYLON®/EPDM laminated (ER) , FKM (FF)
Medium temperature	
EPDM (AD)	-10 °C...+143 °C (steam sterilisation +150 °C for 60 min)
PTFE/EPDM (EA)	-10 °C...+130 °C (steam sterilisation +140 °C for 60 min)
PTFE/EPDM (EU)	-5 °C...+143 °C (steam sterilisation +150 °C for 60 min)
GYLON®/EPDM laminated (ER)	-5 °C...+130 °C (steam sterilisation +140 °C for 60 min)
FKM (FF)	0 °C...+130 °C (not recommended for steam)
Media	Neutral gases and liquids, high-purity, sterile, aggressive or abrasive fluids
Viscosity	Up to viscous
Installation	As required, preferably with actuator in upright position

Technical data continued

Ambient temperature	-10 °C...+65 °C (without display) -10 °C...+60 °C (with display) -10 °C...+55 °C (with SAFEPOS energy storage) depends on media temperature, see temperature chart
Safety position at power failure	With SAFEPOS energy-pack: opened, closed or free programmable without SAFEPOS energy-pack: blocked in last position
Power supply	24 V DC \pm 10 % (max. residual ripple 10 %)
Closure time	< 1.5...4.5 sec. depending on diaphragm size
Travel speed	4 mm/s
Deadband (min.)	0.4 %
Duty cycle	100 %
Protection class	IP65/IP67
Analogue control	Setpoint: 0...20 mA, 4...20 mA, 0...5 V, 0...10 V Actual value optional
Vibration, sinusoidal	5 g according to IEC 60068-2-6 Test Fc
Shock, mechanical	50 g according to IEC 60068-2-27 Test Ea
Digital control (fieldbus)	EtherNet/IP, Modbus/TCP, PROFINET (optional)
Approval and Conformity	ATEX II Cat 3G/D / IECEx (optional) cULus Cert. No. 238179 (optional)
Ignition protection class	II 3G Ex ec IIC T4 Gc II 3D Ex tc IIIC T135 °C Dc
Electrical data	
Protection class	3 acc. to DIN EN 61140
Electrical connections	Cable gland, 2 x M20 or 2 circular plug-in connector M12, 5 pin and 8 pin, 1 circular plug-in connector M12, 5 pin (only by process controller)
Operating voltage	24 V DC \pm 10 % max. residual ripple 10 %

Operating current [A]	Max. 3 A including actuator at max. load and charging current of the optional SAFEPOSenergy-pack(chargingcurrentapprox. 1A)
Lifelong energy storage SAFEPOS energy-pack	Up to 10 years (depending on operating conditions)
Electronic without actuator [W]	Min. 2 W, max. 5 W
Control	
Analogue input setpoint	Galvanically isolated from the supply voltage and analog output 0/4...20 mA (input resistance 60 Ω) 0...5/10 V (input resistance 22 k Ω)
Analogue actual value input	Input resistance: 60 Ω Resolution: 12 bits Measurement range: 0 Hz...1000 Hz Input resistance: > 30 k Ω Resolution: 1 ‰ of measurement value Input signal: > 300 mVss Waveform: Sine wave, rectangle wave, triangle wave Measurement range: -20 °C...+220 °C Resolution: < 0.1 °C Measurement current: 1 mA
Output analogue	Max. current 10 mA (for voltage output 0...5/10 V) Bürde (Last) 0...560 Ω (for current output 0/4...20 mA)
Output digital	Current limit 100 mA
Input digital	0...5 V = log "0", 10...30 V = log "1" inverted input reversed accordingly
Communication interface	Connection to PC via USB bÜS interface set
Communication software	Bürkert communicator

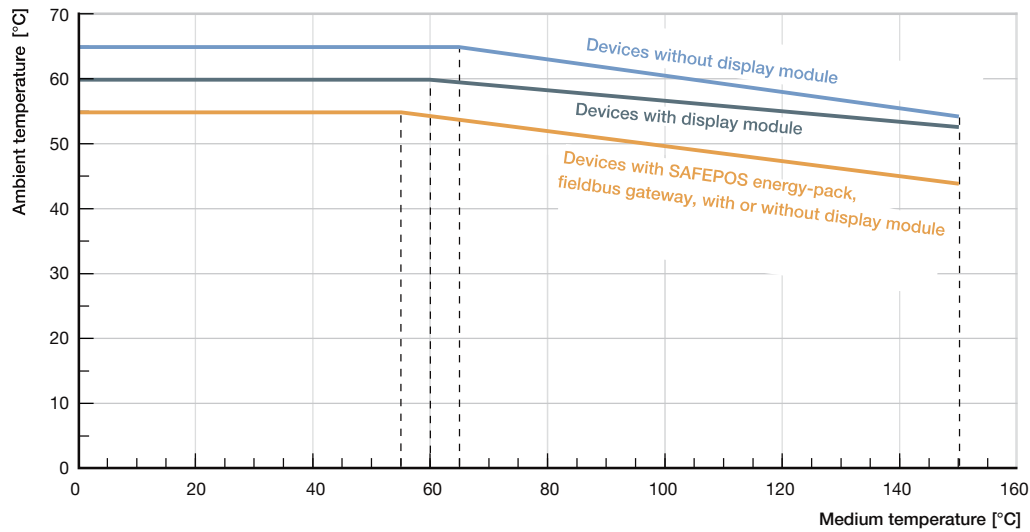
Installation for self-draining operation



$\alpha = 15^\circ$ up to 35° plus 3° to 5° inclination to the pipe axis.
Drain marks indicate the correct mounting position to optimise self-draining.



Temperature chart



The maximum allowable ambient temperature and media temperature influence each other.
The maximum allowable temperature curves of different device variants can be seen in the temperature chart.

Ordering information



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Overview for Process Valves – Seat Valves

Note: The following product overview does not show the complete product range of this catalogue. A complete overview can be found [here](#) ▶

Overview Seat Valves	Species	Type	Valve version	Orifice	Max. operating pressure ¹⁾ [in bar]	Medium temperature ²⁾ [°C]
	Seat valve pneumatic CLASSIC On/Off	2000 ▶	2/2 way angle seat	DN15...DN65	0...16	-10...+180
		2006 ▶	3/2 way globe valve	DN15...DN50		
		2012 ▶	2/2 way globe valve	DN15...DN100		
	Seat valve pneumatic ELEMENT On/Off	2100 ▶	2/2 way angle seat	DN15...DN65	0...16	-10...+185
		2101 ▶	2/2 way globe valve	DN10...DN100		
		2106 ▶	3/2 way globe valve	DN15...DN50		
	Seat valve pneumatic ELEMENT Regel	2300 ▶	2 way angle seat	DN15...DN65	0...16	-10...+185
		2301 ▶	2 way globe valve	DN15...DN100		
	Seat valve electromotive On/Off	3320 ▶	2/2 way angle seat	DN15...DN50	0...16	-10...+185
		3321 ▶	2/2 way globe valve	DN10...DN50		
	Seat valve electromotive control	3360 ▶	2 way angle seat	DN15...DN50	0...16	-10...+185
		3361 ▶	2 way globe valve	DN10...DN50		

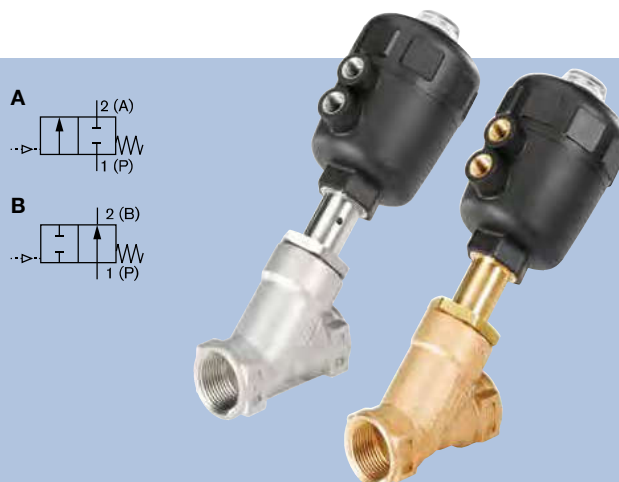
1) Operating pressure depends on the actuator specification
2) Medium temperature depends on the seat seal material
3) S = Standard | V = Variant | N = Not available

Material valve body ³⁾		Material actuator		Material seat seal ³⁾			Overview Seat Valves
Stainless steel	Gunmetal	Stainless steel / metal	Plastic	PTFE	Steel	PEEK	
S	S	-	PA / PPS	S	N	N	
	-	-	PA / PPS				
	-	-	PA / PPS				
S	-	1.4561/316Ti	PPS	S	N	N	
S	-	1.4561/316Ti	PPS	S	S	V	
S	-	Aluminum coated	PPS	S	N	N	
S	-	Aluminum coated	PPS	S	S	V	

On-Off Pneumatically Operated 2/2 way Angle Valve for Liquids

2000
for Liquids

- Waterhammer-free
- High flow rates
- Self adjusting double packing
- Optical position indicator is standard
- Rotating power head to orient air control connections



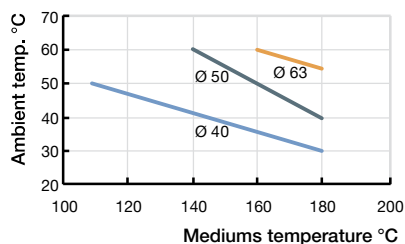
The angle seat valve consists of a pneumatically actuated piston-drive and a 2 way valve body. Depending on the ambient temperature the drive is available in two different materials, PA and PPS. The self reliable gland packing ensures a good seal. The 2/2 way flow valve body made of bronze or stainless steel precision casting allows high flow rates. These durable and robust valves can be retrofitted with a comprehensive range of accessories for position indication, stroke limitation or manual override.

Technical data

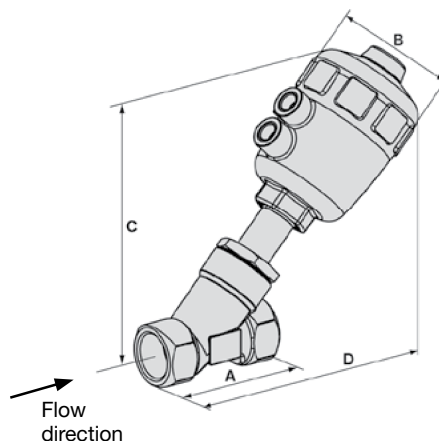
Pressure range	See Ordering Chart
Viscosity	Max. 600 mm ² /s
Stuffing socket (with silicone grease)	PTFE V-Rings with spring compensation
Temperature media	-10 °C...+180 °C
Ambient temperature for PA-Actuator ¹⁾	-10 °C...+60 °C
for PPS-Actuator ¹⁾ Ø 40...80	+5 °C...+140 °C
for PPS-Actuator ¹⁾ Ø 100...125	+5 °C...+90 °C, temporary up to +140 °C
Body material	Gunmetal or stainless steel 316L
Seal material	PTFE
Actuator material	Polyamide or PPS
Control medium	Instrument air at 6 bar
Flow direction	Under seat
Safe position	Normally closed or normally open
Pilot air port	1/4" (Actuator Ø 40 = 1/8")

1) For PA actuators in the sizes 40, 50 and 63, the combination of max. medium temperature and max. ambient temperature is as shown in the following chart.

Temperature diagram



Dimensions [mm]

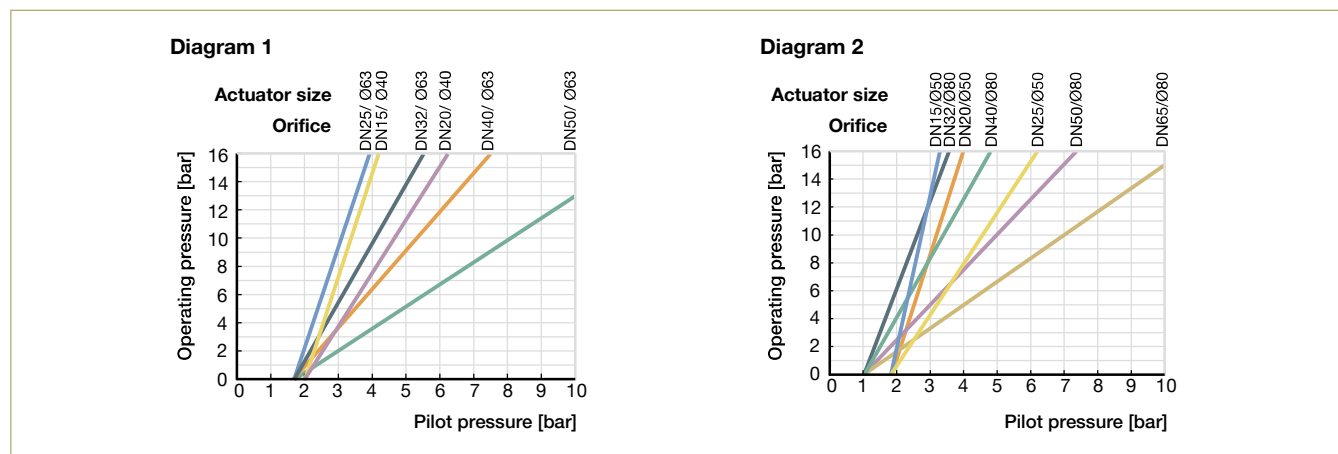


Port connection	Actuator	A	B	C	D
G 1/2	40	65	53	115	139
G 1/2	50	65	64	140	163
G 3/4	50	75	64	144	171
G 3/4	63	75	80	171	198
G 1	50	90	64	152	181
G 1	63	90	80	177	206
G 1	80	90	101	198	228
G 1 1/4	63	110	80	183	219
G 1 1/4	80	110	101	205	240
G 1 1/2	63	120	80	188	222
G 1 1/2	100	120	127	260	295
G 1 1/2	125	120	158	289	324
G 2	80	150	101	225	270
G 2	100	150	127	272	317
G 2	125	150	158	302	347
G 2 1/2	80	185	127	239	296
G 2 1/2	125	185	158	317	374

Options

- Double acting
- Solenoid pilot valves
- Vacuum version
- Feedback switches
- Cleaned for oxygen service
- Seal material NBR, FKM, EPDM
- SIL approvals
- Stroke limiter

Pilot pressure diagram for normally open and flow direction below seat



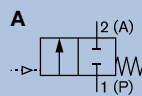
Ordering chart

Circuit function	Port connection	Orifice [mm]	Actuator size Ø [mm]	K _v value [m³/h]	Pressure range [bar]	Article no. Gunmetal body		Article no. Cast st. st. body	
						PA actuator	PPS actuator	PA actuator	PPS actuator
A Pneumatically operated on / off valve, normally closed by spring force, flow direction below seat	G ½	13	40	3.7	0...15	178608	178607	178606	178605
			50	4.2	0...16	178684	178683	178682	178681
	G ¾	20	50	8.5	0...11	178680	178679	178678	178677
			63	9	0...16	178666	178665	178664	178663
	G 1	25	63	18	0...11	178676	178675	178674	178667
			80	18	0...16	186489	187565	186488	187844
	G 1¼	32	80	27	0...14	178699	178698	178697	178696
			100	42	0...12.5	185072	187829	185073	235380
	G 1½	40	125	42	0...16	186487	-	187840	-
			100	55	0...7.2	001134	002170	001140	001239
B Pneumatically operated on / off valve, normally open by spring force, flow direction below seat	G ½	13	40	3.8	0...16	178601	178602	178603	178604
			50	4.2	0...16	178691	178690	178689	178688
	G ¾	20	50	8.5	0...16	178687	179020	178686	178685
	G 1	25	50	10	0...16	178850	178849	178848	178847
	G 1¼	32	63	25	0...16	178845	178853	178852	178851
	G 1½	40	63	35	0...16	178864	178863	178862	178861
	G 2	50	80	49	0...16	001595	002180	001603	002164
	G 2½	65	80	77	0...16	001372	002181	001377	001710
	G 2	50	100	55	0...10	001593	002171	001601	002162
			125	90	0...5.2	001368	002172	001373	001703

On-Off Pneumatically Operated 2/2 way Angle Valve for Steam and Gases

2000
for Steam & Gases

- Flow direction above seat
- PPS actuator for hot environments
- Optical position indicator is standard
- Self adjusting double packing
- High flow rates
- Rotating power head to orient air control connections



Bürkert's classic angle seat valve for steam applications. With this product and its longevity is it world wide dependable. These valves with flow direction above the seat for steam and gas are equipped with maintenance-free gland packing.

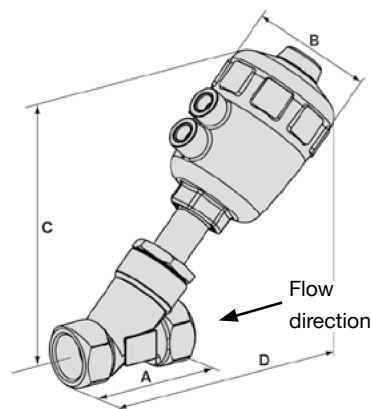
Technical data

Pressure range	See Ordering Chart	
Temperature media	-10 °C...+180 °C	
Viscosity	Max. 600 mm ² /s	
Stuffing socket (with silicone grease)	PTFE V-Rings with spring compensation	
Ambient temperature max.		
PA actuator	-10 °C...+60 °C	
PPS actuator Ø 40...80	+140 °C	
PPS actuator Ø 100...125	+90 °C	
Body material	Gunmetal or stainless steel 316L	
Seal material	PTFE	
Actuator material	Polyamide or PPS	
Control medium	Instrument air at 6 bar	
Flow direction	Over seat to minimise actuator size	
Safe position	Normally closed	
Max. pilot pressure		
Actuator size Ø 40...80	PA and PPS	10 bar
Actuator size Ø 100	PA	10 bar
Actuator size Ø 100	PPS	7 bar
Actuator size Ø 125	PA and PPS	7 bar
Pilot air port	¼" (Actuator Ø 40 = ⅜")	

Options

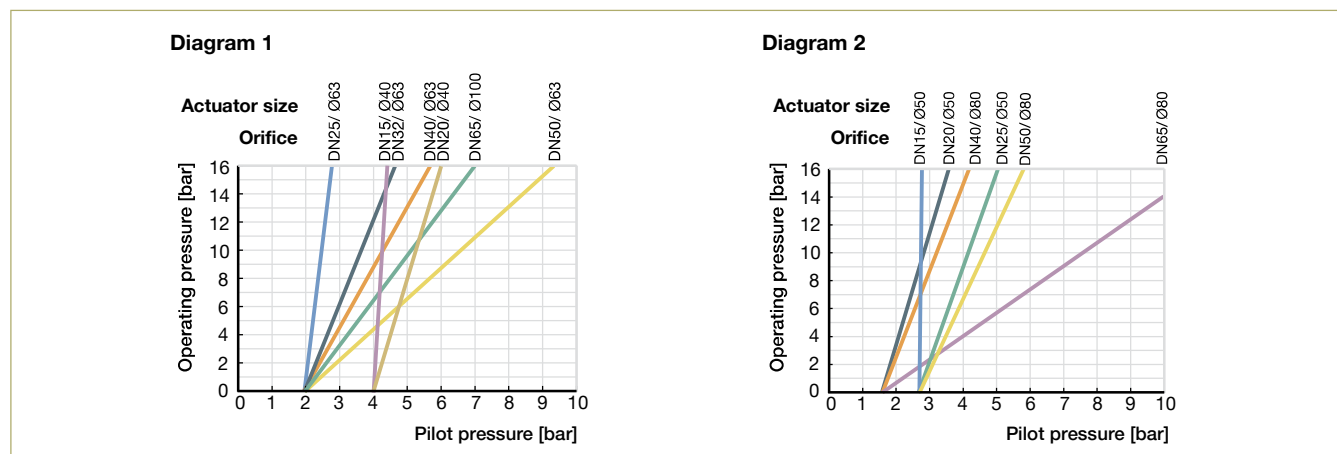
- Normally open
- Double acting
- Solenoid pilot valves
- Vacuum version
- Feedback switches
- Cleaned for oxygen service
- Stroke limiter
- Seal material NBR, FKM, EPDM

Dimensions [mm]



Port connection	Actuator	A	B	C	D
G ½	50	65	64	140	163
G ¾	40	75	53	120	147
G ¾	50	75	64	144	171
G 1	50	90	64	152	181
G 1	63	90	80	177	206
G 1¼	63	110	80	183	219
G 1½	63	120	80	188	222
G 2	63	150	80	204	249
G 2½	80	185	101	239	296
G 2½	100	185	127	287	344

Pilot pressure diagram for normally closed and flow direction below seat



Ordering chart

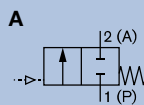
Circuit function	Port connection	Orifice [mm]	Actuator [mm]	K _v value [m³/h]	Pressure range [bar]	Article no. PA	Article no. PPS
Gunmetal body							
A Pneumatically operated on / off valve, normally closed by spring force, flow direction above seat	G ½	13	50	4.2	0...16	183939	186106
	G ¾	20	40	7	0...16	186822	–
			50	8.5	0...16	185356	180374
	G 1	25	50	10	0...16	186380	187556
			63	18	0...16	178860	178859
	G 1 ¼	32	63	25	0...16	178855	178854
	G 1½	40	63	35	0...16	178896	178897
	G 2	50	63	49	0...16	001251	002149
			80	77	0...14	001398	002151
	G 2½	65	100	90	0...15	130332	186344
Stainless steel body							
A Pneumatically operated on / off valve, normally closed by spring force, flow direction above seat	G ½	13	50	4.2	0...16	186376	186467
	G ¾	20	40	7	0...16	187672	–
			50	8.5	0...16	185304	180375
	G 1	25	50	10	0...16	186729	187872
			63	18	0...16	178857	178856
	G 1 ¼	32	63	25	0...16	178893	178892
	G 1½	40	63	35	0...16	178895	178894
	G 2	50	63	49	0...16	001401	002158
			80	77	0...14	001402	002160
	G 2½	65	100	90	0...15	130333	–



Pneumatically operated 3/2 way seat valve CLASSIC

2006

- For mixing or distributing mediums
- Controlled by a pilot valve or centrally by a valve island
- Flow optimized body in stainless steel
- Long service life and maintenance-free operation

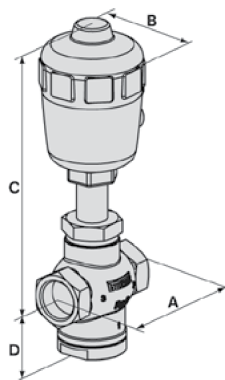


The Bürkert 3 way seat valve, Type 2006, consists of a pneumatically operated CLASSIC actuator and a 3 way valve body. The actuator is available in two different materials, PA or PPS, depending on the ambient temperature. Interchanging of pressure and service ports enables different fluidic circuit functions, such as the mixing or distributing of mediums. The flow-optimized valve body of Type 2006 allows excellent flow rates. The tried and tested self-adjusting gland secures a high level of tightness and thus ensures reliable operation over years. The 3 way valve Type 2006 is controlled by a pilot valve, or by centralized automation using a valve island. It can be equipped easily with an electrical position indicator. For the user, the compact Type 2006 is thus often an economic alternative instead of two single shut-off valves.

Technical data

Orifice	DN15...DN50
Body materials	Stainless steel 316L
Nominal pressure	PN16 (body)
Actuator material	PA (PPS on request)
Seal material	PTFE
Media	Water, alcohol, oils, fuels, hydraulic fluid, alkaline solutions, salt solution, organic solutions, hot water, steam
Viscosity	Max. 600 mm ² /s
Packing gland (with silicone grease)	PTFE V-rings with spring compensation
Media temperature	-10 °C...+180 °C
Ambient temperature	-10 °C...+60 °C
PA actuator	
PPS actuator	
Actuator sizes Ø 50...80	+5 °C...+140 °C
Actuator sizes Ø 125	+5 °C...+90 °C, (up to 140 °C for a short period)
Installation	As required, preferably with actuator in upright position
Control medium	Neutral gases, air
Max. pilot pressure	10 bar 7 bar with actuator Ø 125
Port connections	G thread acc. to EN ISO 228-1 NPT thread acc. to ANSI B 1.20.1 (Rc thread on request)
Approval and Conformity	EGV 1935/2004 (optional) FDA (optional)

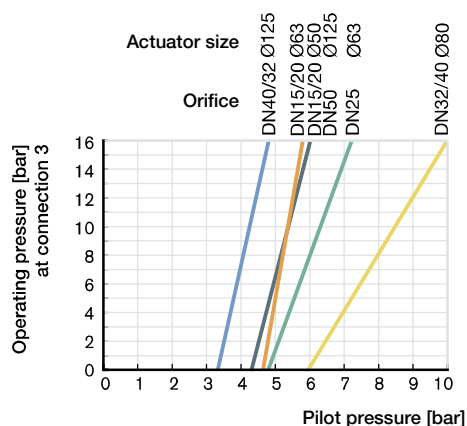
Dimensions [mm]



Control air connection 1/4"

Port connection	A	B	C	D
G 1/2	85	80	220	54
G 3/4	85	80	220	54
G 1	105	80	220	54
G 1 1/4	130	158	345	68
G 1 1/2	130	158	345	68
G 2	150	158	352	72

Pilot pressure chart (CFA, flow direction 3 → 2)



Ordering chart

Control function	Port connection	Orifice [mm]	Actuator size Ø [mm]	K _v value water [m³/h]		Min. pilot pressure [bar]	Max. operating pressure to 180 °C [bar]		Weight [kg]	Article no. PA actuator	Article no. PPS actuator
				1→2	2→3		1→2	2→3 2→1			
Threaded connection acc. to EN ISO 228-1											
A Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	G ½	15	50	7	4.5	4.4	11	16	1.3	287191	287202
			63	8	4.5	4.7	16	16	1.6	287192	287203
	G ¾	20	50	9	6.2	4.4	11	16	1.3	287193	287204
			63	11	5.6	4.7	16	16	1.6	287194	287205
	G 1	25	63	17	11	4.9	10	16	2.1	287195	287206
	G 1¼	32	80	32	21	6	9	16	4.3	287196	287207
			125	35	24	3.4	14	16	8.1	287197	287208
	G 1½	40	80	35	24	6	9	16	4.3	287199	287210
			125	35	24	3.4	14	16	8.1	287200	287211
	G 2	50	125	51	35	4.3	10	16	9.5	287201	287212

Control function	Port connection	Orifice [mm]	Actuator size Ø [mm]	K _v value water [m³/h]		Min. pilot pressure [bar]	Max. operating pressure to 180 °C [bar]		Weight [kg]	Article no. PA actuator	Article no. PPS actuator
				1→2	2→3		1→2	2→3 2→1			
Threaded connection with NPT thread acc. to ANSI B 1.20.1											
A Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	NPT ½	15	50	7	4.5	4.4	11	16	1.3	292542	292553
		15	63	8	4.5	4.7	16	16	1.6	292543	292554
	NPT ¾	20	50	9	6.2	4.4	11	16	1.3	292544	292555
		20	63	11	5.6	4.7	16	16	1.6	292545	292556
	NPT 1	25	63	17	11	4.9	10	16	2.1	292546	292557
	NPT 1¼	32	80	32	21	6	9	16	4.3	292547	292558
		32	125	35	24	3.4	14	16	8.1	292548	292559
	NPT 1½	40	80	35	24	6	9	16	4.3	292550	292560
		40	125	35	24	3.4	14	16	8.1	292551	292561
	NPT 2	50	125	51	35	4.3	10	16	9.5	292552	292562

Accessories

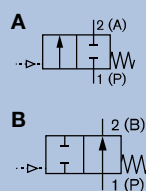
Valve for actuator size [Ø mm]	Type	Pressure inlet P (valve body)	Service port A (banjo bolt)	Orifice [mm]	Q _{Nn} value air [l/min]	Pressure range [bar]	Electrical coil connection Ind. Std.	Power consumption [W]	Article no. Voltage/frequency [V/Hz]	
									024/DC	230/50
50...63	6012P	Tube fitting Ø6 mm	G ¼	1.2	48	0...10	Form B	4	552283	552286
50...125	6014P	G ¼	G ¼	2	120	0...10	Form A	8	424103	424107

Please note that the cable plug has to be ordered separately.

On-Off Pneumatically Operated 2/2 way ELEMENT Angle Valve

2100 ELEMENT

- High flow rate
- Long service life
- Easy integration of automation units with ELEMENT
- Flow-optimized stainless steel housing with threaded, clamp or weld connection
- Suitable for 10 bar(g) steam



The angle seat valve, Type 2100, is specially optimized for decentralized process automation and fulfils tough criteria for process environments. The design enables the easy integration of automation units whether they are electrical/optical position feedback, pneumatic control units or an integrated fieldbus interface. Unrivalled cycle life and sealing integrity is guaranteed by the proven self adjusting spindle packing with V-seals.

The fully integrated system has a compact and smooth design, integrated pneumatic lines, IP65/67, NEMA Type 4X protection class and superior chemical resistance.

Technical data

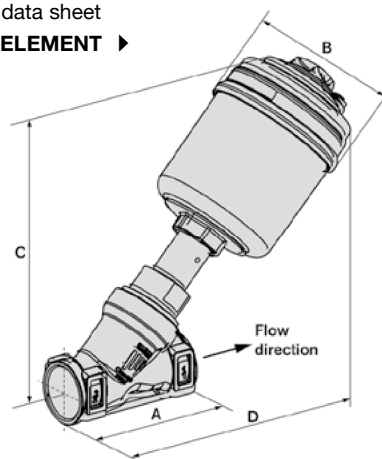
Pressure range	See Ordering Chart
Viscosity	Max. 600 mm ² /s
Temperature media	-10 °C...+185 °C
Ambient temperature	0 °C...+55 °C (with integrated control) 0 °C...+60 °C (connector hose air supply) 0 °C...+100 °C (threaded piping)
Body material	316L stainless steel
Seal material	PTFE
Actuator material	Actuator PPS Cover stainless steel 1.4561 (316Ti)
Control medium	Instrument air at 6 bar
Flow direction	Flow under seat
Port connection	G-thread, weld end, clamp
Spindle packing	PTFE seal with spring compensation
Safe position	Normally closed, normally open

Dimensions [mm]

Dimensions shown for threaded version for others please see data sheet

Type 2100 ELEMENT ▶

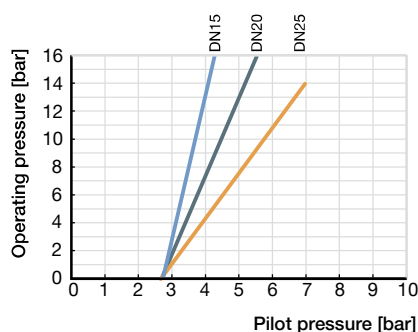
Pilot air ports for 6/4 mm tubing



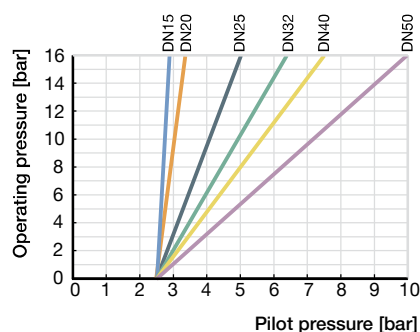
Port connection	Actuator size	A	B	C	D
G ½	50	65	64.5	158	185
G ½	70	65	91	173	201
G ¾	50	75	64.5	166	195
G ¾	70	75	91	181	211
G 1	50	90	64.5	172	204
G 1	70	90	91	187	220
G 1¼	70	110	91	195	235
G 1¼	90	110	120	240	277
G 1½	70	120	91	197	236
G 1½	90	120	120	242	278
G 2	70	150	91	214	262
G 2	90	150	120	255	301
G 2	130	150	159	306	351

Pilot pressure diagram, normally open

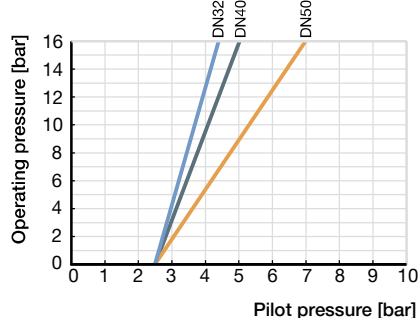
Actuator size 50 mm



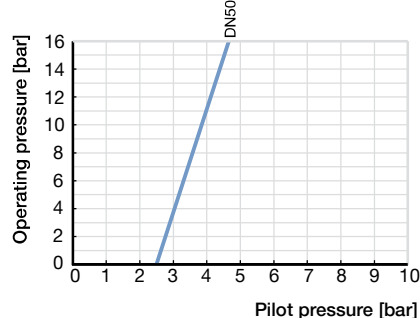
Actuator size 70 mm



Actuator size 90 mm



Actuator size 130 mm



Ordering information for decentralized automation of On/Off ELEMENT valve system Type 8801-YE

A decentralized, automated On/Off ELEMENT valve system Type 8801-YE consists of an angle seat valve Type 2100 and a valve control head Type 8691/8695 or a pneumatic control unit Type 8690/8697 (see separate datasheets).

You order two components and receive a complete assembled and certified valve.

Angle seat valve Type 2100
Threaded



Control Head

Type 8691 ▶



Type 8695 ▶



Control Head / Feedback

Type 8690 ▶



Type 8697 ▶



Valve System On/Off ELEMENT



**Valve System
Type 8801-YE-H**
2100 + 8691
(Actuator size
Ø 70/90/130 mm)



**Valve System
Type 8801-YE-M**
2100 + 8695
(Actuator size
Ø 50 mm)



**Valve System
Type 8801-YE-K**
2100 + 8690
(Actuator size
Ø 70/90/130 mm)



**Valve System
Type 8801-YE-U**
2100 + 8697
(Actuator size
Ø 50 mm)

A detailed description of the control heads and pneumatic control units, see the separate datasheets.























Ordering chart

	Circuit function	Port connection	Orifice Ø [mm]	K _v value [m³/h]	Actuator size [mm]	Minimum pilot pressure [bar]	Max. operating pressure [bar]	Article no.
2100 ELEMENT	Angle seat valve G Thread							
	A 2/2 way solenoid valve, operated by external air, normally closed	G ½	15	5	50	5.2	25	213619
				5	70	5.0	25	213620
		G ¾	20	10	50	5.2	16	227616
				11	70	5.0	20	213621
		G 1	25	15	50	5.2	9	227617
				18	70	5.0	16	213622
		G 1¼	32	27	70	5.0	8-May	213623
				28	90	5.0	16	213624
		G 1½	40	38	70	5.0	6	213625
				40	90	5.0	16	213627
		G 2	50	55	90	5.0	10	175108
				62	130	5.0	16	188610
		G 2½	65	85	90	5.0	5	239456
				95	130	5.6	16 (15")	239472
	B 2/2 way solenoid valve, operated by external air, normally open	G ½	15	5	50	see diagram	16	213637
				5	70		16	213638
		G ¾	20	10	50		16	213639
				11	70		16	213640
		G 1	25	18	70		16	213641
		G 1¼	32	27	70		16	213642
		G 1½	40	38	70		16	213643
		G 2	50	52	70		16	175123
		G 2½	65	85	90		14	239464
				95	130		16 (15")	239479

1) acc. to the Pressure Equipment Directive 97/23 / EC for compressible fluids in Group 1 (hazardous gases and vapors in accordance with Article 3, Section 1.3, letter a, first dash)

Ordering chart

Circuit function	Orifice [mm]	Actuator size Ø [mm]	K _v value [m³/h]	Port clamp external Ø [mm]	Minimum pilot pressure [mm]	Max. operating pressure [bar]	Article no.
Clamp acc. to ISO 2852							
A 2/2 way solenoid valve, operated by external air, normally closed	15	50	5	34	5.2	25	187097 
		70	5	34	5.0	25	188783 
	20	50	10	50.5	5.2	16	209437 
		70	11	50.5	5.0	20	188784 
	25	50	15	50	5.2	9	227613 
		70	18	50.5	5.0	16	188785 
	32	70	27	50.5	5.0	8.5	188786 
		90	28	50.5	5.0	16	188787 
	40	70	38	64	5.0	6	188788 
		90	40	64	5.0	16	188789 
	50	90	55	77.5	5.0	10	188790 
		130	62	77.5	5.0	16	188791 
B 2/2 way solenoid valve, operated by external air, normally open	15	50	5	34	see diagram	16	187101 
		70	5	34		16	188800 
	20	50	10	50.5		16	187102 
		70	11	50.5		16	188801 
	25	70	18	50.5		16	188802 
	32	70	27	50.5		16	188803 
	40	70	38	64		16	188804 
	50	70	52	77.5		16	188805 

2100 ELEMENT



Ordering chart

	Circuit function	Orifice [mm]	Actuator size Ø [mm]	K _v value [m³/h]	Port clamp external Ø [mm]	Minimum pilot pressure [mm]	Max. operating pressure [bar]	Article no.
2100 ELEMENT	Clamp acc. to ASME BPE							
	A 2/2 way solenoid valve, operated by external air, normally closed	15	50	5	25	5.0	25	187103
			70	5	25	5.0	25	188806
		20	50	10	25	5.0	16	227614
			70	11	25	5.0	20	188807
		25	50	15	50.5	5.0	9	227615
			70	18	50.5	5.0	16	188808
		40	70	38	50.5	5.0	6	188809
			90	40	50.5	5.0	16	188810
		50	90	55	64	5.0	10	188811
			130	62	64	5.0	16	188812
	B 2/2 way solenoid valve, operated by external air, normally open	15	50	5	25	see diagram	16	187107
			70	5	25		16	188820
		20	50	10	25		16	187108
			70	11	50.5		16	188821
		25	70	18	50.5		16	188822
			70	38	50.5		16	188823
		50	70	52	64		16	188824

Ordering chart

Circuit function	Orifice [mm]	Actuator size Ø [mm]	K _v value [m³/h]	Port connection tube Ø [mm]	Minimum pilot pressure [mm]	Max. operating pressure [bar]	Article no.
Weld end acc. To EN ISO 1227							
A 2/2 way solenoid valve, operated by external air, normally closed	15	50	5	21.3 × 1.6	5.2	25	187065
		70	5	21.3 × 1.6	5.0	25	188680
	20	50	10	26.9 × 1.6	5.2	16	210399
		70	11	26.9 × 1.6	5.0	20	188681
	25	50	15	33.7 × 2	5.2	9	235519
		70	18	33.7 × 2	5.0	16	188682
	32	70	27	42.4 × 2	5.0	8.5	188683
		90	28	42.4 × 2	5.0	16	188684
	40	70	38	48.3 × 2	5.0	6	188685
		90	40	48.3 × 2	5.0	16	188686
	50	90	55	60.3 × 2.6	5.0	10	283500
		130	62	60.3 × 2	5.0	16	283501
	65	90	85	76.1 × 2.3	5.0	5	239459
		130	95	76.1 × 2.3	5.6	16 (15 ¹⁾)	239475
	B 2/2 way solenoid valve, operated by external air, normally open	15	50	21.3 × 1.6	see diagram	16	187069
			70	21.3 × 1.6		16	188697
		20	50	26.9 × 1.6		16	187070
			70	26.9 × 1.6		16	188698
		25	70	33.7 × 2		16	188699
		32	70	42.4 × 2		16	188700
		40	70	48.3 × 2		16	188701
		50	70	60.3 × 2.6		16	283504
		65	90	76.1 × 2.3		14	239467
			130	76.1 × 2.3		16 (15 ¹⁾)	239482

2100 ELEMENT

1) acc. to the Pressure Equipment Directive 97/23 / EC for compressible fluids in Group 1 (hazardous gases and vapors in accordance with Article 3, Section 1.3, letter a, first dash)



Ordering chart

	Circuit function	Orifice [mm]	Actuator size Ø [mm]	K _v value [m³/h]	Port connection tube Ø [mm]	Minimum pilot pressure [mm]	Max. operating pressure [bar]	Article no.
2100 ELEMENT	Weld end acc. to DIN 11850 S2							
	A 2/2 way solenoid valve, operated by external air, normally closed	15	50	5	19 × 1.5	5.2	25	187071
			70	5	19 × 1.5	5.0	25	188703
		20	50	10	23 × 1.5	5.2	16	227605
			70	11	23 × 1.5	5.0	20	188704
		25	50	15	29 × 1.5	5.2	9	227606
			70	18	29 × 1.5	5.0	16	188705
		32	70	27	35 × 1.5	5.0	8.5	188706
			90	28	35 × 1.5	5.0	16	188707
		40	70	38	41 × 1.5	5.0	6	188708
			90	40	41 × 1.5	5.0	16	188709
		50	90	55	53 × 1.5	5.0	10	188710
			130	62	53 × 1.5	5.0	16	188711
		65	90	85	70.0 × 2.0	5.0	5	239460
			130	95	70.0 × 2.0	5.6	16 (15 ¹⁾)	237020
	B 2/2 way solenoid valve, operated by external air, normally open	15	50	5	19 × 1.5	see diagram	16	187075
			70	5	19 × 1.5		16	188720
		20	50	10	23 × 1.5		16	187076
			70	11	23 × 1.5		16	188721
		25	70	18	29 × 1.5		16	188722
		32	70	27	35 × 1.5		16	188723
		40	70	38	41 × 1.5		16	188724
		50	70	52	53 × 1.5		16	188725
		65	90	85	70.0 × 2.0		14	239468
			130	95	70.0 × 2.0		16 (15 ¹⁾)	239483

1) acc. to the Pressure Equipment Directive 97/23 / EC for compressible fluids in Group 1 (hazardous gases and vapors in accordance with Article 3, Section 1.3, letter a, first dash)

Ordering chart

Circuit function	Orifice [mm]	Actuator size Ø [mm]	K _v value [m³/h]	Port connection tube Ø [mm]	Minimum pilot pressure [mm]	Max. operating pressure [bar]	Article no.
Weld end acc. To ASME BPE							
A 2/2 way solenoid valve, operated by external air, normally closed	15	50	5	12.7 × 1.65	5.2	25	187077
		70	5	12.7 × 1.65	5.0	25	188726
	20	50	10	19.05 × 1.65	5.2	16	227607
		70	11	19.05 × 1.65	5.0	20	188727
	25	50	15	25.4 × 1.65	5.2	9	227608
		70	18	25.4 × 1.65	5.0	16	188728
	40	70	38	38.1 × 1.65	5.0	6	188729
		90	40	38.1 × 1.65	5.0	16	188730
	50	90	55	50.8 × 1.65	5.0	10	188731
		130	62	50.8 × 1.65	5.0	16	188732
	65	90	85	63.5 × 1.65	5.0	5	239461
		130	95	63.5 × 1.65	5.6	16 (15 ¹⁾)	239478
B 2/2 way solenoid valve, operated by external air, normally open	15	50	5	12.7 × 1.65	see diagram	16	187082
		70	5	12.7 × 1.65		16	188740
	20	50	10	19.05 × 1.65		16	187083
		70	11	19.05 × 1.65		16	188741
	25	70	18	25.4 × 1.65		16	188742
	40	70	38	38.1 × 1.65		16	188781
	50	70	52	50.8 × 1.65		16	188744
	65	90	85	63.5 × 1.65		14	239469
		130	95	63.5 × 1.65		16 (15 ¹⁾)	239484

2100 ELEMENT

1) acc. to the Pressure Equipment Directive 97/23 / EC for compressible fluids in Group 1 (hazardous gases and vapors in accordance with Article 3, Section 1.3, letter a, first dash)






















Ordering chart

	Circuit function	Orifice [mm]	Actuator size Ø [mm]	K _v value [m³/h]	Port connection tube Ø [mm]	Minimum pilot pressure [mm]	Max. operating pressure [bar]	Article no.
2100 ELEMENT	Weld end acc. to SMS 3008							
	A 2/2 way solenoid valve, operated by external air, normally closed	15	50	5	12 × 1.0	5.2	25	187084
			70	5	12 × 1.0	5.0	25	188745
		20	50	10	18 × 1.0	5.2	16	227609
			70	11	18 × 1.0	5.0	20	188746
		25	50	15	25 × 1.2	5.2	9	227610
			70	18	25 × 1.2	5.0	16	188747
		40	70	38	38 × 1.2	5.0	6	188748
			90	40	38 × 1.2	5.0	16	188749
		50	90	55	51 × 1.2	5.0	10	188750
			130	62	51 × 1.2	5.0	16	188751
		65	90	85	63.5 × 1.65	5.0	5	239462
			130	95	63.5 × 1.65	5.6	16 (15 ¹⁾)	239477
	B 2/2 way solenoid valve, operated by external air, normally open	15	50	5	12 × 1.0	see digramm	16	187089
			70	5	12 × 1.0		16	188759
		20	50	10	18 × 1.0		16	187090
			70	11	18 × 1.0		16	188760
		25	70	18	25 × 1.2		16	188761
		40	70	38	38 × 1.2		16	188762
		50	70	52	51 × 1.2		16	188763
		65	90	85	63.5 × 1.65		14	239470
			130	95	63.5 × 1.65		16 (15 ¹⁾)	239485

1) acc. to the Pressure Equipment Directive 97/23 / EC for compressible fluids in Group 1 (hazardous gases and vapors in accordance with Article 3, Section 1.3, letter a, first dash)

Ordering chart

Circuit function	Orifice [mm]	Actuator size Ø [mm]	K _v value [m³/h]	Port connection tube Ø [mm]	Minimum pilot pressure [mm]	Max. operating pressure [bar]	Article no.
Weld end acc. to BS 4825							
A 2/2 way solenoid valve, operated by external air, normally closed	15	50	5	12.7 × 1.2	5.2	25	187091 
		70	5	12.7 × 1.2	5.0	25	188764 
	20	70	11	19.05 × 1.65	5.0	20	188765 
	25	70	18	25.4 × 1.65	5.0	16	188728 
	40	70	38	38.1 × 1.65	5.0	6	188729 
		90	40	38.1 × 1.65	5.0	16	188730 
	50	90	55	50.8 × 1.65	5.0	10	188731 
		130	62	50.8 × 1.65	5.0	16	188732 
	65	90	85	63.5 × 1.65	5.0	5	239461 
		130	95	63.5 × 1.65	5.6	16 (15 ¹⁾)	239478 
B 2/2 way solenoid valve, operated by external air, normally open	15	50	5	12.7 × 1.2	see diagram	16	187095 
		70	5	12.7 × 1.2		16	188778 
	20	50	10	19.05 × 1.65		16	187096 
		70	11	19.05 × 1.65		16	188779 
	25	70	18	25.4 × 1.65		16	188742 
	40	70	38	38.1 × 1.65		16	188781 
	50	70	52	50.8 × 1.65		16	188744 
	65	90	85	63.5 × 1.65		14	239469 
		130	95	63.5 × 1.65		16 (15 ¹⁾)	239484 

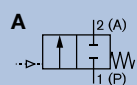
2100 ELEMENT

1) acc. to the Pressure Equipment Directive 97/23 / EC for compressible fluids in Group 1 (hazardous gases and vapors in accordance with Article 3, Section 1.3, letter a, first dash)

Pneumatically operated 2/2 way globe valves with flange connection acc. to DIN EN 1092-1

2101 / 2012

- Flow direction below seat
- Long life
- Flow optimised stainless steel body 316L
- Silencer, Type 2101 included



**Type 2101
ELEMENT
DN15...50**



**Type 2012
Classic
DN65...100**

The externally piloted globe valve consists of a pneumatically operated piston actuator and a 2 way angle valve body. Sealing integrity is guaranteed by the proven self adjusting gland. These maintenance-free and robust valves can be retrofitted with a comprehensive range of accessories for position indication, stroke limitation or manual override.

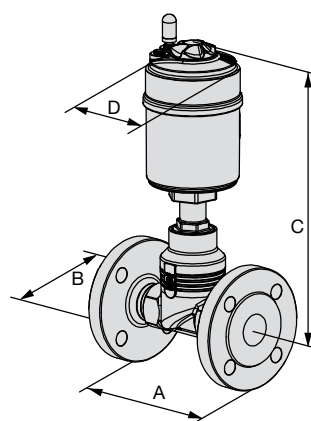
Technical data

Pressure range	See ordering chart
Nominal pressure	PN25 (body)
Temperature media	-10 °C...+180 °C (CLASSIC) / +185 °C (ELEMENT)
Ambient temperature	
Actuator size up to Ø 125	-10 °C...+60 °C
Actuator size Ø 175...225	-10 °C...+50 °C
ELEMENT	0 °C...+55 °C (with integrated control) 0 °C...+60 °C (connector hose air supply)
CLASSIC	-10 °C...+60 °C
Body material	Cast stainless steel 316L
Viscosity	Max. 600 mm ² /s
Seal material	PTFE
Actuator material	PPS and St.st. 316L (ELEMENT), PA (Classic)
Control medium	Neutral gases, air
Flow direction	Under seat anti water-hammer
Port connection	Flange DIN EN 1092-1
Pilot air port	For ELEMENT connector hose For plastic hose, 6/4 mm For Classic, G 1/4

Options

- Normally open
- Double acting
- Solenoid pilot valves
- Vacuum version
- Feedback switches
- High temperature actuator
- Chemically resistant actuator
- Stroke limiter
- JIS and ANSI flanges
- See **Type 2101** ► with threaded air connection for ambient temperature up to +100 °C

Dimensions [mm]



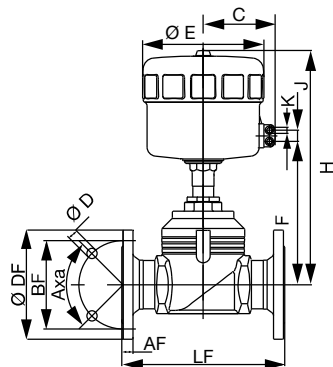
Dimensions shown for 2101.
For 2012 see **Type 2012** ►.

DN	Actuator	A	B	C	D
15	50	130	95	236	64.5
20	50	150	105	242	64.5
20	70	150	105	256	91
25	50	160	115	245	64.5
25	70	160	115	259	91
32	70	180	140	280	91
32	90	180	140	340	120
40	70	200	150	285	91
40	90	200	150	345	120
50	90	230	165	351	120
50	130	230	165	403	159

Dimensions [mm]

DN65...DN100

Actuator size 125 mm...225 mm



All bodies								ANSI flange						
DN	Actuator	C	ØE	F	H	K	J	ØDF	LF	ØBF	AF	ØD	Axa	ØM
1½"	125	86	157	220	397	G ¼	30	127	222	98.6	17.5	15.7	4×90°	41
2"	125	86	157	225	402	G ¼	30	152	254	120.7	19.1	19.1	4×90°	53
2½"	125	86	157	254	430	G ¼	30	178	276	139.7	22.3	19.1	4×90°	63
	175	130	211	289	491	G ¼	24	178	276	139.7	22.3	19.1	4×90°	63
3"	125	86	157	264	440	G ¼	30	190	298	152.4	23.9	19.1	4×90°	78
	175	130	211	296	498	G ¼	24	190	298	152.4	23.9	19.1	4×90°	78
	225	155	261	299	494	G ¼	24	190	298	152.4	23.9	19.1	4×90°	78
4"	125	86	157	274	450	G ¼	30	229	352	190.5	23.9	19.1	8×45°	102
	175	130	211	306	508	G ¼	24	229	352	190.5	23.9	19.1	8×45°	102
	225	155	261	309	504	G ¼	24	229	352	190.5	23.9	19.1	8×45°	102

Ordering chart

Circuit function	Orifice [mm]	Actuator size Ø [mm]	K _v value [m³/h]	Minimum pilot pressure [bar]	Max. operating pressure up to +185 °C [bar]	Article no.
Type 2101 ELEMENT – Flange connection acc. to DIN EN 1092-1						
A 2/2 way solenoid valve, operated by external air, normally closed	15	50	4.7	4.8...10	25	203076
	20	50	8.1	4.8...10	16	203077
		70	8.1	4.8...10	20	203078
	25	50	13	4.8...10	9	203079
		70	13	4.8...10	16	189700
	32	70	19.5	4.8...10	8.5	203080
		90	19.5	5.0...10	16	203081
	40	70	31	4.8...10	6	203082
		90	31	4.8...10	16	203083
	50	90	45	4.8...10	10	203084
		130	45	5.0...7	16	218418

Circuit function	Orifice [mm]	Actuator size Ø [mm]	K _v value [m³/h]	Pilot pressure [bar]	Max. operating pressure up to +180 °C [bar]	Article no.
Type 2012 CLASSIC – Flange connection acc. to DIN EN 1092-1						
PA-actuator						
A 2/2 way solenoid valve, operated by external air, normally closed	65	125	73	5.6...7	12	152743
		175	73	4.5...6	16 (15 ¹⁾)	152761
	80	125	110	5.6...7	7.5	155527
		175	110	4.5...6	10	152779
		225	110	3.3...6	16 (12.5 ¹⁾)	152797
	100	125	165	5.6...7	5	155546
		175	155	4.5...6	7	152815
		225	155	4.8...6	16 (10 ¹⁾)	152833

1) acc. to the Pressure Equipment Directive 97/23 / EC for compressible fluids in Group 1 (hazardous gases and vapors in accordance with Article 3, Section 1.3, letter a, first dash)

Pneumatically operated 3/2 way seat valve ELEMENT for decentralized automation

2106

- For mixing or distributing mediums
- Decentralized automation with control head
- Flow optimized body in stainless steel
- Long service life and maintenance-free operation
- Control Head is connected without external tubing

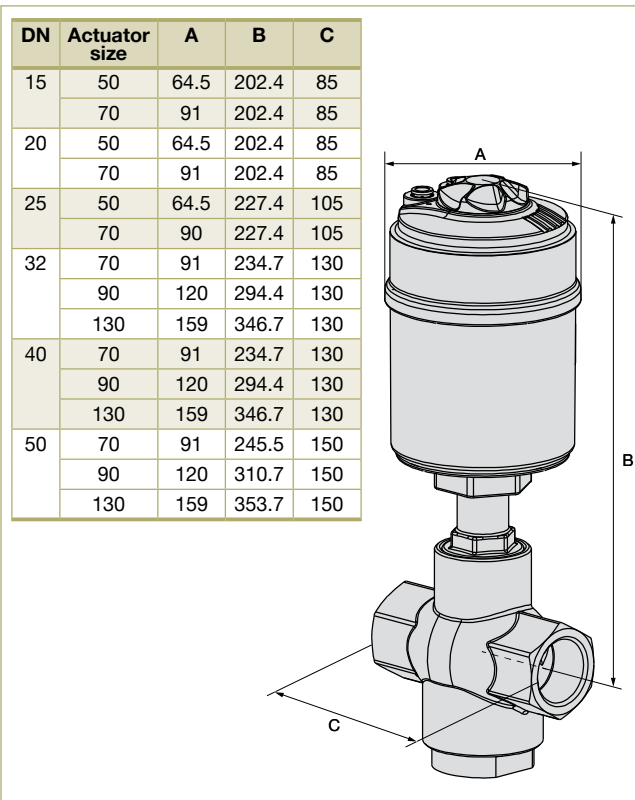


The Bürkert 3/2 way seat valve, Type 2106, consists of a pneumatically operated ELEMENT actuator and a 3 way stainless steel valve body. Interchanging of pressure and service ports enables different fluidic circuit functions, such as the mixing or distributing of mediums. The flow-optimized valve body of Type 2106 allows excellent flow rates. The tried and tested self-adjusting gland secures a high level of tightness and thus ensures reliable operation over years. The design of the 3/2 way valve, Type 2106, offers all the advantages of a modern, decentralized automation: The directly connected control head and actuator provide a compact and smooth design, integrated pneumatic lines, protection class IP65/67/NEMA Type 4X, and a high chemical resistance. An optionally integrated fieldbus interface or even explosion proof device versions are further advantages of the 3 way shut-off valve. For the user, the compact Type 2106 is thus often an economical alternative to two single valves.

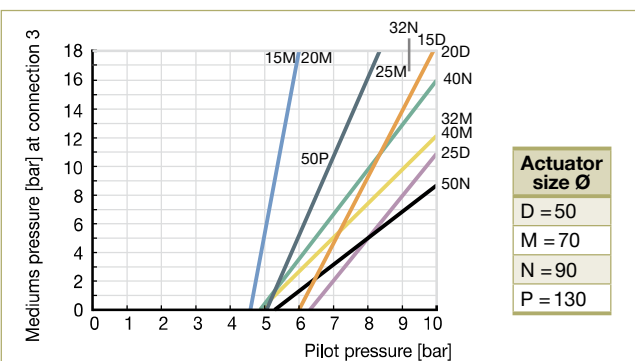
Technical data

Orifice	DN15...DN50
Port connections	G thread acc. to EN ISO 228-1 NPT acc. to ANSI B 1.20.1 (Rc thread on request)
Body material	Cast stainless steel 316L
Nominal pressure	PN16 (Body)
Actuator material	PPS/Stainless steel 1.4561 (316Ti)
Sealing material	PTFE
Medium	Water, alcohol, oils, fuels, hydraulic fluids, salt solution, alkali solutions, organic solvents, steam
Viscosity	Max. 600 mm ² /s
Spindle packing	PTFE V-rings with spring compensation
Medium temperature	- 10 °C...+ 185 °C
Ambient temperature	- 10 °C...+ 60 °C (integrated control head) - 10 °C...+ 100 °C (push-in air ports)
Control medium	Neutral gases, air
Max. pilot pressure	Max. 10 bar; actuator size 130 mm, 7 bar
Pilot air ports	Push-in connector (for external Ø 6 mm or ¼" tube) thread G ½ (on request)
Installation	As required, preferably with actuator in upright position
Approval and Conformity	EGV 1935/2004 (standard) FDA (optional)

Dimensions [mm]



Pilot pressure chart



Ordering chart

Control function	Port connection	Orifice [mm]	Actuator size Ø [mm]	K _v value water [m³/h]		Min. pilot pressure [bar]	Max. operating pressure to 180 °C [bar]		Weight [kg]	Article no.
				1 → 2	2 → 3		1 → 2	2 → 3 2 → 1		
G thread acc. to EN ISO 228-1										
A 3/2 way, normally closed (NC) (port1)	G ½	15	50	7	4.5	5.5	16	16	1.5	282698
			70	7	4.5	4.5	16	16	2.2	282701
	G ¾	20	50	9	6.2	5.5	16	16	1.4	282702
			70	9	6.2	4.5	16	16	2.1	282704
	G 1	25	50	17	11	5.5	9	11	1.9	282705
			70	17	11	4.5	16	16	2.6	282706
	G 1¼	32	70	32	21	4.5	8	11	3.9	282707
			90	32	21	5.1	11	16	5.4	282709
	G 1½	40	70	35	24	4.5	7	11	3.7	282711
			90	35	24	5.1	12	16	5.2	282712
	G 2	50	90	51	35	5.1	9	8	7.3	282715
			130	51	35	4.9	16	16	10.4	282716

Control function	Port connection	Orifice [mm]	Actuator size Ø [mm]	K _v value water [m³/h]		Min. pilot pressure [bar]	Max. operating pressure to 180 °C [bar]		Weight [kg]	Article no.
				1 → 2	2 → 3		1 → 2	2 → 3 2 → 1		
NPT thread acc. to ANSI B 1.20.1										
A 3/2 way, normally closed (NC) (port1)	NPT ½	15	50	7	4.5	5.5	16	16	1.5	292478
			70	7	4.5	4.5	16	16	2.2	292531
	NPT ¾	20	50	9	6.2	5.5	16	16	1.4	292532
			70	9	6.2	4.5	16	16	2.1	292533
	NPT 1	25	50	17	11	5.5	9	11	1.9	292534
			70	17	11	4.5	16	16	2.6	292535
	NPT 1¼	32	70	32	21	4.5	8	11	3.9	292536
			90	32	21	5.1	11	16	5.4	292537
	NPT 1½	40	70	35	24	4.5	7	11	3.7	292538
			90	35	24	5.1	12	16	5.2	292539
	NPT 2	50	90	51	35	5.1	9	8	7.3	292540
			130	51	35	4.9	16	16	10.4	292541

2/2 way Angle-Seat Control Valve ELEMENT for medium up to +185 °C

2300

- Control valve component for the valve system Continuous ELEMENT 8802
- Excellent combination of good control characteristic and high flow rates
- High cycle life
- Clean design for optimal use in hygienic environment



In line with Bürkert's philosophy for modular valves and sensors the construction of the 2300 angle-seat valve fulfils tough criteria for process environments. Unrivalled cycle life and sealing integrity is guaranteed by the proven self adjusting spindle packing with V-seals.

The parabolic trim results in a flow characteristic approximately 35 % larger than conventional control valves. It is available in either stainless steel on stainless steel or with a durable PTFE seal for tight shut-off.

The design enables the easy integration of automation modules whether they are digital electropneumatic positioner or process controller.

The fully integrated system has a compact and smooth design, integrated pneumatic lines, IP65/67 protection class and superior chemical resistance.

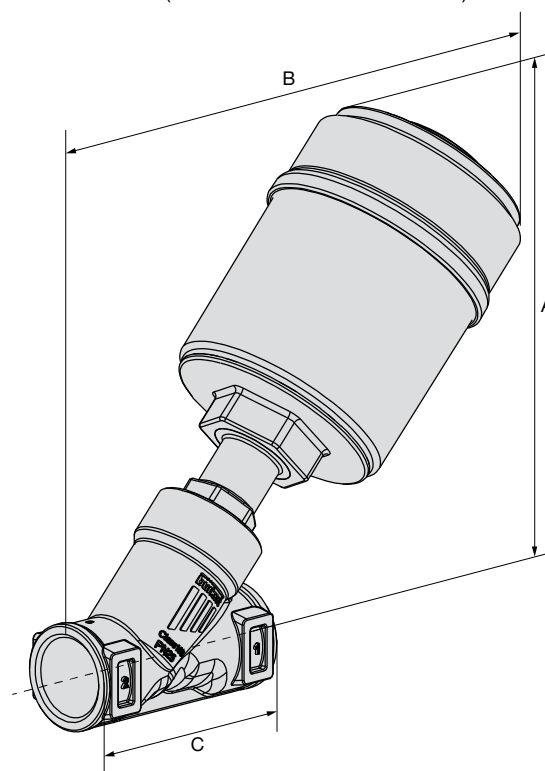
This system has been engineered for reliable accurate control in applications where high flow rate is an advantage.

Technical data

Orifice	DN15...DN65
Port connections	
Weld acc. to	EN ISO 1127, DIN 11850 R2, ASME BPE, SMS 3008, BS 4825
Threaded port	G ½...G 2½, NPT ½...NPT 2½, Rc ½...Rc 2½
Clamp	ISO 2852, ASME BPE (DIN 32676, BS4825 on request)
Body material	Stainless steel 316L
Nominal pressure	PN25 (Body)
Actuator material	
Actuator	PPS
Cover	Stainless steel 1.4561 (316Ti)
Plug sealing	PTFE/St.st. (PTFE/stainless steel) and St.st./St.st. (stainless steel/stainless steel)
Seat leakage	Shut-off class III and IV for St.st./St.st.
IEC 534-4/EN 1349	Shut-off class VI for PTFE/St.st.
Medium	Water, alcohol, oils, fuels, hydraulic fluids, salt solution, alkali solutions, organic solvents, steam, optional fuel gas (EC Gas Appliances Directive 2009/142/EG)
Viscosity	Max. 600 mm²/s
Spindle packing	PTFE V-seals with spring compensation
Medium temperature	-10 °C...+185 °C (max. +130 °C for PTFE/St.st. sealing)

Dimensions [mm]

Thread version (further versions see data sheet)



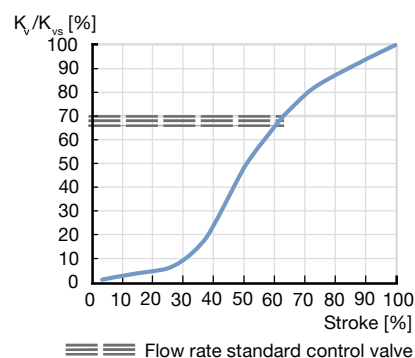
Orifice	Actuator size	A	B	C
15	70	251	279	65
20	70	259	289	75
25	70	265	298	90
	90	302	333	90
32	70	273	313	110
	90	316	353	110
40	90	318	354	120
	130	355	390	120
50	90	331	377	150
	130	368	413	150
65	130	401	458	185

Technical data continued

Ambient temperature	0 °C...+55 °C (when used with positioner or process controllers) 0 °C...+80 °C (remote version)	
Control medium	Compressed air	
Relevant pilot pressure for circuit function A	Port size DN15...DN50	5.5 bar...7 bar
	Port size DN65	5.6 bar...7 bar
Pilot air ports	Push-in connector for external Ø 6 mm or ¼" tube	
Installation	As required, preferably with actuator in upright position	
Surface Finish On request	Standard Ra, internal ≤3.2 µm	
	Internal connection area ¹⁾ Ra ≤0.6 µm mechanical polished (cast iron external surface) Internal connection area ¹⁾ Ra ≤0.6 µm electro polished (cast iron external surface)	

1) In the seat area the Ra ≤0.6 µm surface finish can be higher.

Flow characteristic

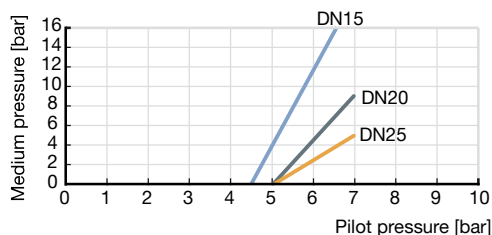


Remarks on the flow characteristic

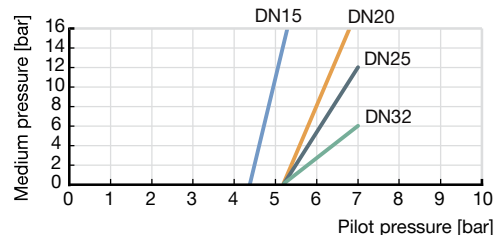
Modified equi-percentile flow characteristic. engineered for a quick response during peak flow demand (an advantage for many processes like heating/cooling with heat exchangers) and fine control at lower flow.

Pressure Charts with control function B (normally open, NO)

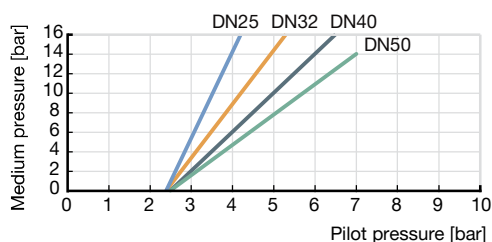
Ø 50



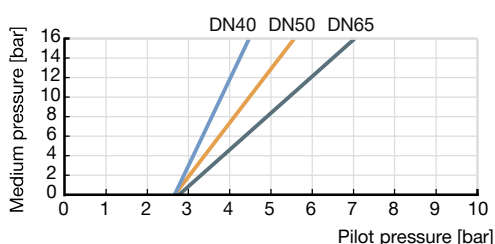
Ø 70



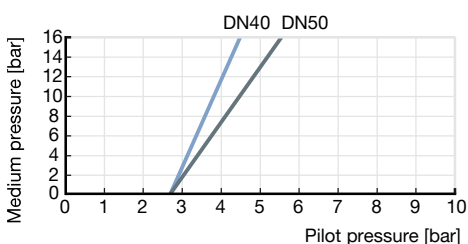
Ø 90



Ø 130



Ø 130 clamp





Ordering chart

2300

Control function	Orifice [mm]	Actuator size Ø [mm]	Port connection thread	K _{vs} value water [m³/h]	Operating pressure up to + 185 °C [bar]	Article no. plug sealing PTFE/St. st.	Leakage class	Article no. plug sealing St. st./St. st.	Leakage class
G threaded port									
A Pneumatically operated control valve, normally closed by spring force, flow direc- tion below seat	15	50	G ½	5	16	213712	VI	213763	IV
		70	G ½	5	16	213713	VI	213764	IV
	20	50	G ¾	10	10	213714	VI	213765	III
		70	G ¾	10	16	213715	VI	213766	IV
	25	50	G 1	16	5	213716	VI	213767	III
		70	G 1	16	12	213718	VI	213768	IV
		90	G 1	16	16	245405	VI	229276	IV
	32	70	G 1¼	23	6	213719	VI	213769	III
		90	G 1¼	23	16	245406	VI	225395	IV
	40	90	G 1½	34	12	213720	VI	213770	III
		130	G 1½	36	16	223307	VI	223310	IV
	50	90	G 2	49	7	203500	VI	206230	III
		130	G 2	53	16	213697	VI	213708	IV
	65	130	G 2½	90	16 (15 ¹⁾)	239487	VI	239503	IV
B Pneumatically operated control valve, normally open by spring force, flow direc- tion below seat	15	50	G ½	5	see charts	213722	VI	223313	IV
		70	G ½	5		213721	VI	223314	IV
	20	50	G ¾	10		213723	VI	223315	III
		70	G ¾	10		213724	VI	223316	IV
	25	50	G 1	16		213725	VI	223317	III
		70	G 1	16		213726	VI	223318	III
	32	70	G 1¼	23		213727	VI	223319	III
	40	90	G 1½	34		213728	VI	223320	IV
	50	90	G 2	49		203510	VI	223321	III
	65	130	G 2½	90		239495	VI	239511	IV

1) acc. to the Pressure Equipment Directive 97/23 / EC for compressible fluids in Group 1 (hazardous gases and vapors in accordance with Article 3, Section 1.3, letter a, first dash)

Ordering chart

Control function	Orifice [mm]	Actuator size Ø [mm]	Port connection thread	K _{vs} value water [m³/h]	Operating pressure up to +185 °C [bar]	Article no. plug sealing PTFE/St. st.	Leakage class	Article no. plug sealing St. st./St. st.	Leakage class
NPT threaded port									
A Pneumatically operated control valve, normally closed by spring force, flow direction below seat	15	50	NPT ½	5	16	213729	VI	213771	IV
		70	NPT ½	5	16	213730	VI	213772	IV
	20	50	NPT ¾	10	10	213731	VI	213773	III
		70	NPT ¾	10	16	213732	VI	213774	IV
	25	50	NPT 1	16	5	213733	VI	213775	III
		70	NPT 1	16	12	213734	VI	213776	IV
		90	NPT 1	16	16	465032	VI	464364	IV
	32	70	NPT 1 ¼	23	6	213736	VI	213777	III
		90	NPT 1 ¼	23	16	465033	VI	464365	IV
	40	90	NPT 1 ½	34	12	213737	VI	213778	III
		130	NPT 1 ½	36	16	223308	VI	223311	IV
	50	90	NPT 2	49	7	203537	VI	206239	III
		130	NPT 2	53	16	213699	VI	213709	IV
	65	130	NPT 2½	90	16 (15 ¹⁾)	239488	VI	239504	IV
B Pneumatically operated control valve, normally open by spring force, flow direction below seat	15	50	NPT ½	5	see charts	213738	VI	223322	IV
		70	NPT ½	5		213739	VI	223323	IV
	20	50	NPT ¾	10		213740	VI	223324	III
		70	NPT ¾	10		213741	VI	223325	IV
	25	50	NPT 1	16		213742	VI	223326	III
		70	NPT 1	16		213743	VI	223327	III
	32	70	NPT 1 ¼	23		213744	VI	223328	III
	40	90	NPT 1 ½	34		213745	VI	223329	IV
	50	90	NPT 2	49		203546	VI	223330	III
	65	130	NPT 2½	90		239486	VI	239512	IV

1) acc. to the Pressure Equipment Directive 97/23 / EC for compressible fluids in Group 1 (hazardous gases and vapors in accordance with Article 3, Section 1.3, letter a, first dash)



Ordering chart

2300

Control function	Orifice [mm]	Actuator size Ø [mm]	Port connection thread	K _{vs} value water [m³/h]	Operating pressure up to + 185 °C [bar]	Article no. plug sealing PTFE/St. st.	Leakage class	Article no. plug sealing St. st./St. st.	Leakage class
Rc threaded port									
A Pneumatically operated control valve, normally closed by spring force, flow direction below seat	15	50	Rc ½	5	16	213746	VI	213779	IV
		70	Rc ½	5	16	213747	VI	213780	IV
	20	50	Rc ¾	10	10	213748	VI	213781	III
		70	Rc ¾	10	16	213749	VI	213782	IV
	25	50	Rc 1	16	5	213750	VI	213783	III
		70	Rc 1	16	12	213751	VI	213784	IV
		90	Rc 1	16	16	245407	VI	245438	IV
	32	70	Rc 1 ¼	23	6	213752	VI	213785	III
		90	Rc 1 ¼	23	16	245408	VI	245439	IV
	40	90	Rc 1 ½	34	12	213753	VI	213786	III
		130	Rc 1 ½	36	16	223309	VI	223312	IV
	50	90	Rc 2	49	7	203555	VI	206249	III
		130	Rc 2	53	16	213700	VI	213710	IV
	65	130	Rc 2 ½	90	16 (15 ¹⁾)	239489	VI	239506	IV
B Pneumatically operated control valve, normally open by spring force, flow direction below seat	15	50	Rc ½	5	see charts	213755	VI	223331	IV
		70	Rc ½	5		213756	VI	223332	IV
	20	50	Rc ¾	10		213757	VI	223333	III
		70	Rc ¾	10		213758	VI	223334	IV
	25	50	Rc 1	16		213759	VI	223335	III
		70	Rc 1	16		213760	VI	223336	III
	32	70	Rc 1 ¼	23		213761	VI	223337	III
	40	90	Rc 1 ½	34		213762	VI	223338	IV
	50	90	Rc 2	49		203564	VI	223339	III
	65	130	Rc 2 ½	90		239497	VI	239513	IV

1) acc. to the Pressure Equipment Directive 97/23 / EC for compressible fluids in Group 1 (hazardous gases and vapors in accordance with Article 3, Section 1.3, letter a, first dash)

Ordering chart

Control function	Orifice [mm]	Actuator size Ø [mm]	Port connection tube Ø [mm]	K _{vs} value water [m³/h]	Operating pressure up to +185 °C [bar]	Article no. plug sealing PTFE/St. st.	Leakage class	Article no. plug sealing St. st./St. st.	Leakage class
Welded connection acc. to EN ISO 1127									
A Pneumatically operated control valve, normally closed by spring force, flow direc- tion below seat	15	50	21.3 × 1.6	5	16	203565	VI	206250	IV
		70	21.3 × 1.6	5	16	203566	VI	206252	IV
	20	50	26.9 × 1.6	10	10	203567	VI	206253	III
		70	26.9 × 1.6	10	16	203568	VI	206254	IV
	25	50	33.7 × 2	16	5	203569	VI	206255	III
		70	33.7 × 2	16	12	203570	VI	206256	III
		90	33.7 × 2	16	16	245395	VI	245403	IV
	32	70	42.4 × 2	23	6	203571	VI	206257	III
		90	42.4 × 2	23	16	204766	VI	245404	IV
	40	90	48.3 × 2	34	12	203572	VI	206258	III
		130	48.3 × 2	36	16	223299	VI	223306	IV
	50	90	60.3 × 2.0	49	7	274669	VI	274670	III
		130	60.3 × 2.0	53	16	274672	VI	274673	IV
	65	130	76.1 × 2.3	90	16 (15 ¹⁾)	239490	VI	217770	IV
B pneumatisch betätigtes Regelventil, in Ruhestellung durch Federkraft geöffnet, Anströ- mung unter Sitz	15	50	21.3 × 1.6	5	see charts	203574	VI	223340	IV
		70	21.3 × 1.6	5		203575	VI	223341	IV
	20	50	26.9 × 1.6	10		203576	VI	223342	III
			26.9 × 1.6	10		203577	VI	223343	IV
	25	50	33.7 × 2	16		203578	VI	223344	III
		70	33.7 × 2	16		203579	VI	223345	III
	32	70	42.4 × 2	23		203580	VI	223346	III
	40	90	48.3 × 2	34		203581	VI	223347	IV
	50	90	60.3 × 2.0	49		274674	VI	274675	III
	65	130	76.1 × 2.3	90		239498	VI	239515	IV

1) acc. to the Pressure Equipment Directive 97/23 / EC for compressible fluids in Group 1 (hazardous gases and vapors in accordance with Article 3, Section 1.3, letter a, first dash)



Ordering chart

2300

Control function	Orifice [mm]	Actuator size Ø [mm]	Port connection tube Ø [mm]	K _{vs} value water [m³/h]	Operating pressure up to + 185 °C [bar]	Article no. plug sealing PTFE/St. st.	Leakage class	Article no. plug sealing St. st./St. st.	Leakage class
Welded connection acc. to DIN 11850 S2									
A Pneumatically operated control valve, normally closed by spring force, flow direc- tion below seat	15	50	19 × 1.5	5	16	203583	VI	223349	IV
		70	19 × 1.5	5	16	203584	VI	223350	IV
	20	50	23 × 1.5	10	10	203585	VI	223351	III
		70	23 × 1.5	10	16	203586	VI	223352	IV
	25	50	29 × 1.5	16	5	203587	VI	223353	III
		70	29 × 1.5	16	12	203588	VI	223354	III
		90	29 × 1.5	16	16	245396	VI	245409	IV
	32	70	35 × 1.5	23	6	203589	VI	223355	III
		90	35 × 1.5	23	16	204767	VI	245410	IV
	40	90	41 × 1.5	34	12	203590	VI	223356	III
		130	41 × 1.5	36	16	223300	VI	223357	IV
	50	90	53 × 1.5	49	7	203591	VI	223358	III
		130	53 × 1.5	53	16	213702	VI	223359	IV
	65	130	70 × 2	90	16 (15")	239491	VI	239507	IV
B pneumatisch betätigtes Regelventil, in Ruhestellung durch Federkraft geöffnet, Anströ- mung unter Sitz	15	50	19 × 1.5	5	see charts	203592	VI	223360	IV
		70	19 × 1.5	5		203593	VI	223361	IV
	20	50	23 × 1.5	10		203594	VI	223362	III
		70	23 × 1.5	10		203595	VI	223363	IV
	25	50	29 × 1.5	16		203596	VI	223364	III
		70	29 × 1.5	16		203597	VI	223365	III
	32	70	35 × 1.5	23		203598	VI	223366	III
	40	90	41 × 1.5	34		203599	VI	223367	IV
	50	90	53 × 1.5	49		203600	VI	223368	III
	65	130	70 × 2	90		239499	VI	239516	IV

1) acc. to the Pressure Equipment Directive 97/23 / EC for compressible fluids in Group 1 (hazardous gases and vapors in accordance with Article 3, Section 1.3, letter a, first dash)

Ordering chart

Control function	Orifice [mm]	Actuator size Ø [mm]	Port connection tube Ø [mm]	K _{vs} value water [m³/h]	Operating pressure up to + 185 °C [bar]	Article no. plug sealing PTFE/St. st.	Leakage class	Article no. plug sealing St. st./St. st.	Leakage class
Welded connection acc. to ASME BPE									
A Pneumatically operated control valve, normally closed by spring force, flow direc- tion below seat	15	50	12.7 × 1.65	5	16	203601	VI	223369	IV
		70	12.7 × 1.65	5	16	203602	VI	223370	IV
	20	50	19.05 × 1.65	10	10	203603	VI	223371	III
		70	19.05 × 1.65	10	16	203604	VI	223372	IV
	25	50	25.4 × 1.65	16	5	203637	VI	223373	III
		70	25.4 × 1.65	16	12	203606	VI	223374	III
	40	90	25.4 × 1.65	16	16	245397	VI	245411	IV
		90	38.1 × 1.65	34	12	203607	VI	212906	III
	50	130	38.1 × 1.65	36	16	223303	VI	223376	IV
		90	50.8 × 1.65	49	7	203608	VI	223377	III
	65	130	50.8 × 1.65	53	16	213703	VI	223378	IV
		130	63.5 × 1.65	90	16 (15 ¹⁾)	239492	VI	239508	IV
B pneumatisch betätigtes Regelventil, in Ruhestellung durch Federkraft geöffnet, Anströ- mung unter Sitz	15	50	12.7 × 1.65	5	see charts	203609	VI	223379	IV
		70	12.7 × 1.65	5		203610	VI	223380	IV
	20	50	19.05 × 1.65	10		203611	VI	223381	III
		70	19.05 × 1.65	10		203612	VI	223382	IV
	25	50	25.4 × 1.65	16		203645	VI	223383	III
		70	25.4 × 1.65	16		203614	VI	223384	III
	40	90	38.1 × 1.65	34		203615	VI	223385	IV
	50	90	50.8 × 1.65	49		203616	VI	223386	III
	65	130	63.5 × 1.65	90		239500	VI	239517	IV

1) acc. to the Pressure Equipment Directive 97/23 / EC for compressible fluids in Group 1 (hazardous gases and vapors in accordance with Article 3, Section 1.3, letter a, first dash)



Ordering chart

2300

Control function	Orifice [mm]	Actuator size Ø [mm]	Port connection tube Ø [mm]	K _{vs} value water [m³/h]	Operating pressure up to + 185 °C [bar]	Article no. plug sealing PTFE/St. st.	Leakage class	Article no. plug sealing St. st./St. st.	Leakage class
Welded connection acc. to SMS 3008									
A Pneumatically operated control valve, normally closed by spring force, flow direc- tion below seat	15	50	12 × 1.0	5	16	203617	VI	223387	IV
		70	12 × 1.0	5	16	203618	VI	223388	IV
	20	50	18 × 1.0	10	10	203619	VI	223389	III
		70	18 × 1.0	10	16	203620	VI	223390	IV
	25	50	25 × 1.2	16	5	203621	VI	223391	III
		70	25 × 1.2	16	12	203622	VI	223392	III
		90	25 × 1.2	16	16	245398	VI	245412	IV
	40	90	38 × 1.2	34	12	203623	VI	223393	III
		130	38 × 1.2	36	16	223302	VI	223394	IV
	50	90	51 × 1.2	49	7	203624	VI	223395	III
		130	51 × 1.2	53	16	213704	VI	223396	IV
	65	130	63.5 × 1.65	90	16 (15 ¹⁾)	239493	VI	239509	IV
B Pneumatisch betätigtes Regelventil, in Ruhestellung durch Federkraft geöffnet, Anströ- mung unter Sitz	15	50	12 × 1.0	5	see charts	203625	VI	223397	IV
		70	12 × 1.0	5		203626	VI	223398	IV
	20	50	18 × 1.0	10		203627	VI	223399	III
		70	18 × 1.0	10		203628	VI	223400	IV
	25	50	25 × 1.2	16		203629	VI	223401	III
		70	25 × 1.2	16		203630	VI	223402	III
	40	90	38 × 1.2	34		203631	VI	223403	IV
	50	90	51 × 1.2	49		203632	VI	223404	III
	65	130	63.5 × 1.65	90		239501	VI	239518	IV

1) acc. to the Pressure Equipment Directive 97/23 / EC for compressible fluids in Group 1 (hazardous gases and vapors in accordance with Article 3, Section 1.3, letter a, first dash)

Ordering chart

Control function	Orifice [mm]	Actuator size Ø [mm]	Port connection tube Ø [mm]	K _{vs} value water [m³/h]	Operating pressure up to + 185 °C [bar]	Article no. plug sealing PTFE/St. st.	Leakage class	Article no. plug sealing St. st./St. st.	Leakage class
Welded connection acc. to BS 4825									
A Pneumatically operated control valve, normally closed by spring force, flow direc- tion below seat	15	50	12.7 × 1.2	5	16	203633	VI	223405	IV
		70	12.7 × 1.2	5	16	203634	VI	223406	IV
	20	50	19.05 × 1.65	10	10	203635	VI	223407	III
		70	19.05 × 1.65	10	16	203636	VI	223408	IV
	25	50	25.4 × 1.65	16	5	203637	VI	223373	III
		70	25.4 × 1.65	16	12	203606	VI	212907	III
		90	25.4 × 1.65	16	16	245397	VI	245413	IV
	40	90	38.1 × 1.65	34	12	203607	VI	212906	III
		130	38.1 × 1.65	36	16	223303	VI	223412	IV
	50	90	50.8 × 1.65	49	7	203608	VI	212904	III
		130	50.8 × 1.65	53	16	213703	VI	223414	IV
	65	130	63.5 × 1.65	90	16	239492	VI	239508	IV
B Pneumatisch betätigtes Regelventil, in Ruhestellung durch Federkraft geöffnet, Anströ- mung unter Sitz	15	50	12.7 × 1.2	5	see charts	203641	VI	223415	IV
		70	12.7 × 1.2	5		203642	VI	223416	IV
	20	50	19.05 × 1.65	10		203643	VI	223417	III
		70	19.05 × 1.65	10		203644	VI	223418	IV
	25	50	25.4 × 1.65	16		203645	VI	223383	III
		70	25.4 × 1.65	16		203614	VI	223384	III
	40	90	38.1 × 1.65	34		203615	VI	223385	IV
	50	90	50.8 × 1.65	49		203616	VI	223386	III
	65	130	63.5 × 1.65	90		239500	VI	239517	IV

2300



Ordering chart

2300

Control function	Orifice [mm]	Actuator size Ø [mm]	Port connection clamp external Ø [mm]	K _{vs} value water [m³/h]	Operating pressure up to +185 °C [bar]	Article no. plug sealing PTFE/St. st.	Leakage class	Article no. plug sealing St. st./St. st.	Leakage class
Clamp acc. to ISO 2852									
A Pneumatically operated control valve, normally closed by spring force, flow direc- tion below seat	15	50	34	5	16	203649	VI	223423	IV
		70	34	5	16	203650	VI	223424	IV
	20	50	50.5	10	10	203651	VI	223425	III
		70	50.5	10	16	203652	VI	223426	IV
	25	50	50.5	16	5	203653	VI	223427	III
		70	50.5	16	12	203654	VI	223428	III
		90	50.5	16	16	245401	VI	245414	IV
	32	70	50.5	23	6	203655	VI	223429	III
		90	50.5	23	16	204768	VI	245415	IV
	40	90	64	34	12	203656	VI	223430	III
		130	64	36	16	223304	VI	223431	IV
	50	90	77.5	49	7	203657	VI	223433	III
		130	77.5	53	16	213706	VI	223434	IV
B Pneumatically operated control valve, normally open by spring force, flow direc- tion below seat	15	50	34	5	see charts	203658	VI	223435	IV
		70	34	5		203659	VI	223436	IV
	20	50	50.5	10		203660	VI	223437	III
		70	50.5	10		203661	VI	223438	IV
	25	50	50.5	16		203662	VI	223439	III
		70	50.5	16		203663	VI	223440	III
	32	70	50.5	23		203664	VI	223441	III
	40	90	64	34		203665	VI	223442	IV
	50	90	77.5	49		203666	VI	223443	III

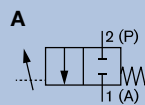
Ordering chart

Control function	Orifice [mm]	Actuator size Ø [mm]	Port connection clamp external Ø [mm]	K _{vs} value water [m³/h]	Operating pressure up to +185 °C [bar]	Article no. plug sealing PTFE/St. st.	Leakage class	Article no. plug sealing St. st./St. st.	Leakage class
Clamp acc. to ASME BPE									
A Pneumatically operated control valve, normally closed by spring force, flow direc- tion below seat	15	50	25	5	16	203667	VI	223444	IV
		70	25	5	16	203668	VI	223445	IV
	20	50	25	10	10	203669	VI	223446	III
		70	25	10	16	203670	VI	223447	IV
	25	50	50.5	16	5	203671	VI	223448	III
		70	50.5	16	12	203672	VI	223449	III
		90	50.5	16	16	245402	VI	245416	IV
	40	90	50.5	34	12	203673	VI	223450	III
		130	50.5	36	16	223305	VI	223451	IV
	50	90	64	49	7	203674	VI	223452	III
		130	64	53	16	213707	VI	223453	IV
B Pneumatically operated control valve, normally open by spring force, flow direc- tion below seat	15	50	25	5	see charts	203675	VI	223454	III
		70	25	5		203677	VI	223455	IV
	20	50	25	10		203678	VI	223456	III
		70	25	10		203679	VI	223457	IV
	25	50	50.5	16		203680	VI	223458	III
		70	50.5	16		203681	VI	223459	III
	40	90	50.5	34		203682	VI	223460	IV
	50	90	64	49		203683	VI	223461	III

Pneumatic operated 2 way Globe Control Valve ELEMENT

2301

- Control valve component for the valve system Continuous ELEMENT 8802
- Excellent control characteristics
- High cycle life and maintenance-free operation
- Flow optimised body in stainless steel
- Several K_{vs} value per port size due to removable trim kit



In line with Bürkert's philosophy the construction of the 2301 globe valve fulfils tough criteria for process environments. Unrivalled cycle life and sealing integrity is guaranteed by the proven self adjusting spindle packing with exchangeable V-seals.

Each globe valve body can be fitted with up to five sizes of trim sets. These parabolic trims provide a reliable and repeatable characteristic to vary the flow. The control cones are available in either stainless steel or with a durable PTFE seal or PEEK seal for tight shut-off. Leakage class III, IV or VI are available.

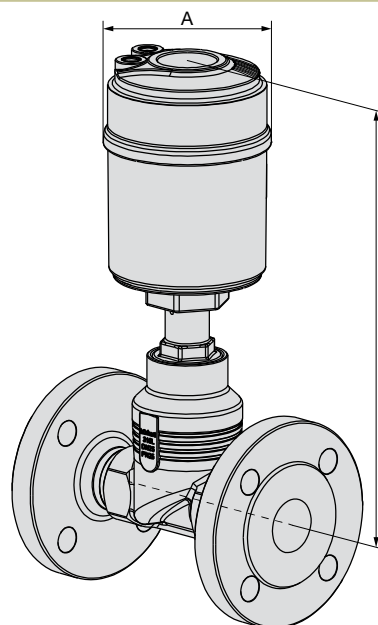
The design enables the easy integration of automation modules whether they are digital electropneumatic positioner or process controller.

The fully integrated system has a compact and smooth design, integrated pneumatic lines, IP65/67 protection class and superior chemical resistance.

Technical data

K_{vs} values	0.1...140 m³/h
Port size/Seat size (orifice)	DN10...DN100 / 3...100 mm
Pressure stage	PN25
Port connections	
Flange	DIN EN 1092-1, ANSI B 16.5, JIS 10K
Thread	G, Rc, NPT
Weld ends	EN ISO 1127 Series 1/ISO 4200/DIN 11866 Series B, DIN 11850 Series 2/DIN 11866 Series A/ DIN EN 10357 Series A, ASME BPE/DIN 11866 Series C, BS 4825-1, SMS 3008
Clamp	ISO 2852, DIN 32676 Series A and Series B, ASME BPE/DIN 32676 Series C, BS 4825-3
Medium	Neutral gases, water, alcohol, oils, fuel, hydraulic mediums, salt solution, alkali solutions, organic solvents, steam, oxygen, optional fuel gas (EC Gas Appliances Directive 2009/142/EG)
Viscosity	Max. 600 mm²/s
Medium temperature	- 10 °C...+ 185 °C (Stainless Steel seal / Stainless Steel cone) - 10 °C...+ 185 °C (PEEK seal / Stainless Steel cone) - 10 °C...+ 130 °C (PTFE seal / Stainless Steel cone)
Ambient temperature	- 10 °C...+ 80 °C (remote version) - 10 °C...+ 55 °C (when used with positioner or process controllers)
Seat leakage acc. to DIN EN 60534-4:2006	Shut-off class III and IV for Stainless steel Shut-off class VI for PTFE/St.st. and PEEK/St. st. (see details in ordering chart)

Dimensions [mm]



Flange version without TopControl and SideControl

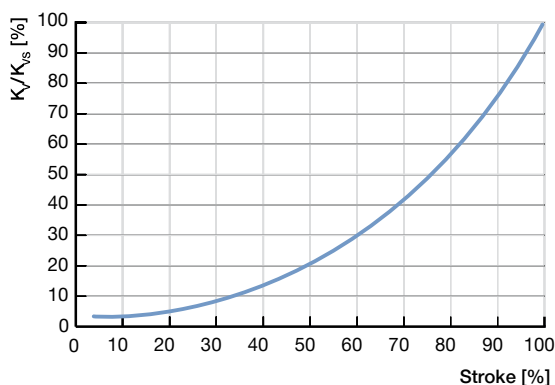
The dimensions of other versions can be found in the datasheet.

Port size (tube)	Actuator size	A	B
10	50	64.5	226
	70	91	239
15	50	64.2	226
	70	91	239
20	50	64.5	232
	70	91	245
25	50	64.5	235
	70	91	248
	90	120	301
32	90	120	329
	130	159	381
40	90	120	334
	130	159	386
50	90	120	340
	130	159	392
65	130	159	446
80	130	159	454
100	130	159	464

Technical data continued

Safety position	A: normally closed by spring action (NC) B: normally open by spring action (NO)
Control medium	neutral gases, air
Approval and Con- formity	FDA, EGV 1935/2004; (ATEX, FDA and EC Gas Appliances Directive 2009/142/EG on request)

Flow curve and description




















































Remarks on the flow characteristic

- Linear cone for seat size 3...6
- Equal percentage cone for seat size 8...100 (seat size 6 optional with equal percentage cone)
- Flow characteristic runs within DIN EN 60534-2-4
- Theoretical control ratio (K_{vs}/K_{vo}) for drive size 70/90/130:
50:1 for the seat size 8...100
25:1 for the seat size 6
10:1 for the seat size 3...4
- KVR value at 5 % of stroke for DN > 10 mm
KVR value at 10 % of stroke for DN ≤ 10 mm
- The drive size 70 has relative to the drive size 50 better control quality and is therefore preferable to use

(KVR value = smallest K_v value at which the gradient tolerance to DIN EN 60534-2-4 is still complied with)





























































































































Ordering chart

Circuit function	Port size (tube)		Seat size		Ac- tuator size Ø	K _{vs} value	Article no. DIN EN 1092-1 Seal/cone		Article no. ANSI B 16.5 Seal/cone		Article no. JIS 10K Seal/cone	
	[mm]	[inch]	[mm]	[inch]			[mm]	[m³/h]	PTFE/St. St.	St. St./St. St.	PTFE/St. St.	St. St./St. St.
Flange connection, Flow direction below the seat												
A Pneumati- cally oper- ated control valve, nor- mally closed by spring force, flow direction below seat	10	¾	3	0.12	70	0.1	–	on request	–	–	–	–
			4	0.16	70	0.5	–	215207 	–	–	–	–
			6	0.24	70	1.25	–	215209 	–	–	–	–
			8	0.31	70	2	213985 	215212 	–	–	–	–
			10	0.39	70	2.7	213989 	215215 	–	–	–	–
	15	½	3	0.12	70	0.1	–	233165 	–	on request	–	on request
			4	0.16	70	0.5	–	210529 	–	215219 	–	215226 
			6	0.24	70	1.25	–	215211 	–	215220 	–	215227 
			8	0.31	70	2.1	213987 	215214 	215198 	215221 	215203 	215228 
			10	0.39	70	3.1	213991 	215217 	215199 	215222 	213913 	213911 
			15	0.59	70	4.3	204932 	205010 	204944 	205021 	204953 	205030 
	20	¾	10	0.39	70	3.2	210530 	215218 	215200 	215223 	215204 	215229 
			15	0.59	70	5.2	213993 	214030 	214009 	214046 	213936 	213933 
			20	0.79	70	7.1	204935 	205012 	204946 	205023 	204955 	205032 















































































































































































Ordering chart

2301

Circuit function	Port size (tube)		Seat size		Ac- tuator size Ø	K _{vs} value	Article no. DIN EN 1092-1 Seal/cone		Article no. ANSI B 16.5 Seal/cone		Article no. JIS 10K Seal/cone		
	[mm]	[inch]	[mm]	[inch]			[mm]	[m³/h]	PTFE/St. St.	St. St./St. St.	PTFE/St. St.	St. St./St. St.	PTFE/St. St.
Flange connection, Flow direction below the seat													
A Pneumati- cally oper- ated control valve, nor- mally closed by spring force, flow direction below seat	25	1	15	0.59	70	5.3	213994 	214031 	214010 	214047 	214020 	214059 	
			20	0.79	70	7.2	213995 	214032 	214011 	214048 	213930 	213914 	
			25	0.98	70	12	204937 	205014 	204948 	205025 	204957 	205034 	
					90	12	242054 	229421 	464851 	464367 	242165 	242199 	
	32	1 ¼	25	0.98	90	9.9	213997 	210446 	–	–	213939 	213937 	
					130	13	222634 	222655 	–	–	222643 	222665 	
			32	1.3	90	13.4	204939 	205016 	–	–	213177 	213178 	
					130	17.8	223597 	223598 	–	–	222645 	222667 	
	40	1 ½	32	1.3	90	14.4	213999 	214035 	215201 	215224 	213932 	213931 	
					130	20.2	222636 	222657 	463905 	463913 	222647 	222668 	
			40	1.6	90	17.5	204941 	205018 	204950 	205027 	204959 	205037 	
					130	23.8	219791 	222659 	463907 	463915 	222649 	222670 	
	50	2	40	1.6	90	18	214001 	214037 	214013 	214050 	213941 	213940 	
					130	24.6	222638 	222660 	463908 	463916 	222650 	222671 	
			50	2	90	28	204942 	205019 	204951 	205028 	204960 	205038 	
					130	37	214003 	214039 	214015 	214052 	214023 	214062 	
	65	2 ½	50	2	130	45	214005 	214040 	239537 	239573 	214024 	214063 	
			65	2.6	130	65	217772 	219618 	239535 	239572 	219617 	219620 	
	80	3	65	2.6	130	73	239545 	239581 	239546 	239582 	239547 	239584 	
			80	3.2	130	100	239540 	239576 	239541 	239577 	239542 	239578 	
	100	4	80	3.2	130	110	239561 	239597 	239562 	239598 	239563 	239599 	
			100	3.9	130	140	239556 	239592 	239557 	239593 	239558 	239594 	








































































































Ordering chart

Circuit function	Port size (tube)		Seat size		Actuator size Ø	K _{vs} value	Article no. G (EN ISO 228-1) Seal/cone		Article no. NPT (ISO 7/1/DIN EN 10226-2) Seal/cone		Article no. Rc (ASME B 1.20.1) Seal/cone	
	[mm]	[inch]	[mm]	[inch]			[mm]	[m³/h]	PTFE/St. St.	St. St./St. St.	PTFE/St. St.	St. St./St. St.
Thread connection, Flow direction below the seat												
A Pneumatically operated control valve, normally closed by spring force, flow direction below seat	10	¾	3	0.12	70	0.1	–	284168 	–	on request	–	on request
			4	0.16	70	0.5	–	215238 	–	220447 	–	220513 
			6	0.24	70	1.25	–	215240 	–	220450 	–	220516 
			8	0.31	70	2.0	215233 	215242 	220418 	220453 	220484 	220519 
			10	0.39	70	2.7	215235 	215245 	220421 	220457 	220487 	220523 
	15	½	3	0.12	70	0.1	–	227784 	–	466159 	–	233369 
			4	0.16	70	0.5	–	208843 	–	220884 	–	220891 
			6	0.24	70	1.25	–	215241 	–	220452 	–	220518 
			8	0.31	70	2.1	212964 	215243 	220881 	220455 	220888 	220521 
			10	0.39	70	3.1	215236 	215246 	220423 	220459 	220489 	220525 
	20	¾	15	0.59	70	4.3	206432 	213955 	220882 	220886 	220889 	220894 
			10	0.39	70	3.2	215237 	215247 	220425 	220461 	220491 	220527 
			15	0.59	70	5.2	214067 	215248 	220427 	220463 	220493 	220529 
	25	1	20	0.79	70	7.1	206584 	211239 	220430 	220466 	220496 	220532 
			15	0.59	70	5.3	206588 	210460 	220428 	220464 	220494 	220530 
			20	0.79	70	7.2	206586 	210721 	220431 	220467 	220497 	220533 
			25	0.98	70	12.0	189145 	210485 	220434 	220470 	220500 	220536 
	32	1 ¼			90	12.0	242203 	242207 	464864 	464867 	242257 	242380 
			25	0.98	90	9.9	214070 	210407 	220435 	220471 	220501 	220537 
					130	13.0	222677 	222687 	463921 	463931 	222740 	222777 
			32	1.3	90	13.4	210097 	210458 	220437 	220473 	220503 	220539 
	40	1 ½			130	17.8	223599 	223600 	463956 	463957 	223605 	223606 
			32	1.3	90	14.4	214072 	214084 	220438 	220474 	220504 	220540 
					130	20.2	222679 	222689 	463923 	463933 	222742 	222763 
			40	1.6	90	17.5	210098 	207800 	220440 	220476 	220506 	220542 
	50	2			130	23.8	222681 	222691 	463925 	463935 	222767 	222765 
			40	1.6	90	18.0	214074 	214086 	220441 	220477 	220507 	220543 
					130	24.6	222682 	222692 	463926 	463936 	222768 	222766 
			50	2.0	90	28.0	210099 	203693 	220443 	220479 	220509 	220545 
	65	2 ½			130	37.0	214076 	214088 	220444 	220480 	220510 	220546 
			50	2.0	130	45.0	214077 	214089 	239536 	239620 	220511 	220547 
			65	2.6	130	65.0	219621 	219622 	239534 	239571 	220512 	220548 

































Ordering chart

2301

Circuit function	Port size (tube)		Seat size		Actu- ator size Ø	K _{vs} value	Article no. EN ISO 1127 series 1 / ISO 4200 / DIN 11866 Series B		Article no. DIN 11850 Series 2 / DIN 11866 Series A / DIN EN 10357 Series A		Article no. ASME BPE / DIN 11866 Series C	
							Seal/cone		Seal/cone		Seal/cone	
	[mm]	[inch]	[mm]	[inch]	[mm]	[m³/h]	PTFE/St. St.	St. St./St. St.	PTFE/St. St.	St. St./St. St.	PTFE/St. St.	St. St./St. St.
Weld ends connection, Flow direction below the seat												
A Pneumati- cally oper- ated control valve, nor- mally closed by spring force, flow direction below seat	10	¾					17.2x1.6		13.0x1.5		—	
			3	0.12	70	0.1	—	on request	—	250658 	—	—
			4	0.16	70	0.5	—	on request	—	284171 	—	—
			6	0.24	70	1.25	—	on request	—	284177 	—	—
			8	0.31	70	2.0	on request	on request	on request	284179 	—	—
			10	0.39	70	2.7	on request	on request	257412 	208553 	—	—
	15	½					21.3x1.6		19.0x1.5		12.7x1.65	
			3	0.12	70	0.1	—	259240 	—	225130 	—	466160 
			4	0.16	70	0.5	—	215254 	—	215257 	—	464905 
			6	0.24	70	1.25	—	215255 	—	215258 	—	464907 
			8	0.31	70	2.1	212392 	215872 	215250 	215911 	464878 	464909 
			10	0.39	70	3.1	212393 	215873 	215251 	215913 	464882 	222997 
			15	0.59	70	4.3	209571 	215909 	215253 	209173 	—	—
	20	¾					26.9x1.6		23.0x1.5		19.05x1.65	
			15	0.59	70	5.2	214094 	214132 	214113 	208555 	464455 	211017 
			20	0.79	70	7.1	214096 	210696 	211937 	211953 	—	—
	25	1					33.7x2.0		29.0x1.5		25.4x1.65	
			20	0.79	70	7.2	214097 	214135 	214116 	214154 	464891 	464920 
			25	0.98	70	12.0	209572 	214138 	209384 	209089 	—	—
	32	1 ¼					42.4x2.0		35.0x1.5		—	
			25	0.98	90	9.9	214101 	214139 	214119 	214156 	—	—
			32	1.3	90	13.4	214103 	214141 	211965 	209181 	—	—
	40	1 ½					48.3x2.0		41.0x1.5		38.1x1.65	
			32	1.3	90	14.4	214104 	214142 	214121 	213487 	464898 	464927 
					130	20.2	222700 	222721 	222711 	222732 	464899 	464928 
			40	1.6	90	17.5	209440 	214144 	211967 	209110 	—	—
					130	23.8	222702 	222723 	222713 	222734 	—	—
	50	2					60.3x2.0		53.0x1.5		50.8x1.65	
			40	1.6	90	18.0	210756 	213561 	214123 	213411 	464902 	464931 
					130	24.6	222703 	222724 	222714 	222735 	464903 	464932 
			50	2.0	90	28.0	214107 	214146 	211968 	209185 	—	—
					130	37.0	214108 	214147 	214125 	214159 	—	—
	65	2 ½					76.1x2.3		70.0x2.0		—	
			65	2.6	130	65.0	219623 	219626 	219625 	219628 	—	—

Ordering chart

Circuit function	Port size (tube)		Seat size		Actuator size Ø	K _{vs} value	Article no. EN ISO 1127 series 1 / ISO 4200 / DIN 11866 Series B		Article no. DIN 11850 Series 2 / DIN 11866 Series A / DIN EN 10357 Series A		Article no. ASME BPE / DIN 11866 Series C		
							Seal/cone		Seal/cone		Seal/cone		
	[mm]	[inch]	[mm]	[inch]	[mm]	[m³/h]	PTFE/St. St.	St. St./St. St.	PTFE/St. St.	St. St./St. St.	PTFE/St. St.	St. St./St. St.	
Weld ends connection, Flow direction below the seat													
A Pneumatically operated control valve, normally closed by spring force, flow direction below seat	80	3					88.9x2.3		85.0x2.0		-		
			80	3.2	130	100.0	239543 	239579 	239544 	239580 	-	-	
	100	4					114.3x2.6		104.0x2.0		-		
			100	3.9	130	140.0	239559 	239595 	239560 	239596 	-	-	

Circuit function	Port size (tube)		Seat size		Ac-tuator size Ø	K _{vs} value	Article no. DIN 32676 series A		Article no. DIN 32676 series B		
	[mm]	[inch]	[mm]	[inch]			Seal/cone		Seal/cone		
							PTFE/St. St. Connection	St. St./St. St. MC x TC, TC	PTFE/St. St. Connection	St. St./St. St. MC x TC, TC	
Clamp connection, Flow direction below the seat											
A Pneumatically operated control valve, normally closed by spring force, flow direction below seat	15	½					19x1.5, 34		21.3x1.6, 50.5		
			15	0.59	70	4.3	222593 	282208 	273974 	282213 	
	20	¾					23x1.5, 34		26.9x1.6, 50.5		
			20	0.79	70	7.1	225647 	282209 	209438 	282214 	
	25	1					29x1.5, 50.5		33.7x2.0, 50.5		
			25	0.98	90	12.0	222594 	282210 	241115 	282215 	
	32	1 ¼					35x1.5, 50.5		-		
			32	1.3	90	13.4	240415 	282211 	-	-	
	40	1 ½					41x1.5, 50.5		48.3x2.0, 64.0		
			40	1.6	130	23.8	240351 	282212 	209880 	284181 	
	50	2					53x1.5, 64		60.3x2.0, 77.5		
			50	2.0	130	37.0	282258 	282259 	282261 	282263 	



Electromotive process valve – 2 way angle-seat shut-off valve

3320

- Fail-safe position by energy storage
- Rapid flow shut off
- Weather and impact resistant design
- Designed according to hygienic demands
- Many diagnostic functions

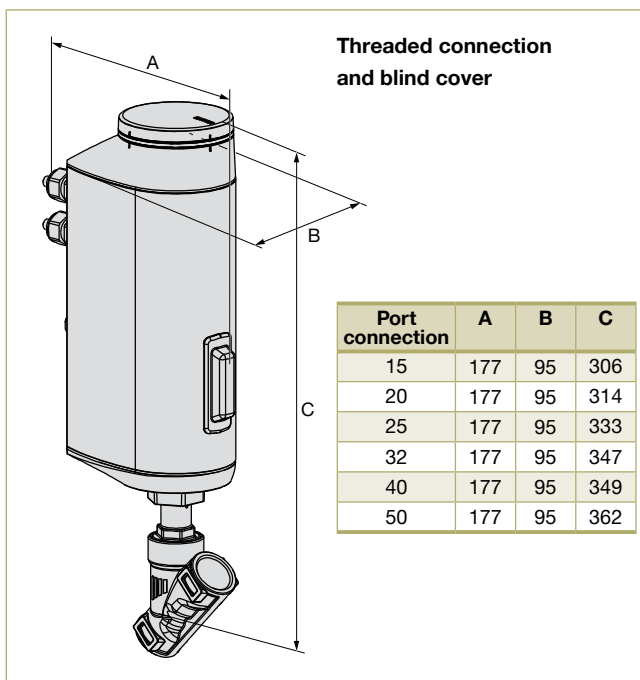


The innovative Bürkert On/Off process valve Type 3320 is the solution when it comes to shut-off tasks under demanding operating conditions. The electromotive actuator with ball screw moves the swivel plate at a particularly high rate of 6 mm/s to its end position. Thereby it reacts almost instantaneously to process signals. If necessary, the safety position can be approached by an optional energy storage in case of power failure. The actuator and shut-off valve are adapted perfectly to each other with closed design and robust surface. This ensures the hygienic requirements of a fast and residue-free cleaning. Harsh environments are no problem for the Type 3320 because of the protection class IP65 / IP67 and its high impact and vibration resistance. Unrivalled cycle life and sealing integrity is guaranteed by the proven self adjusting spindle packing with exchangeable V-seals. The fieldbus suitable for Type 3320 provides many helpful functions for process monitoring, valve diagnostics and predictive maintenance and thus offers the decisive advantage of a modern process automation.

Technical data

Port size	DN15...DN50
Nominal pressure (max.)	PN25 (valve body)
Port connections	
Thread	G, Rc, NPT (EN ISO 228-1, ISO 7/1 / DIN EN 10226-2, ASME B 1.20.1)
Weld ends	EN ISO 1127 / ISO 4200, DIN 11850 R2, ASME BPE, BS 4825-1, SMS 3008
Clamp	DIN 32676 A, DIN 32676 B, ASME BPE, BS 4825
Medium	Neutral gases, water, alcohol, oils, fuel, hydraulic mediums, salt solution, alkali solutions, organic solvents, steam
Viscosity	Max. 600 mm ² /s
Medium temperature	-10 °C...+185 °C (seat seal PEEK) -10 °C...+130 °C (seat sea PTFE)
Ambient temperature	-25 °C...+65 °C ¹⁾ (without SAFEPOS energy storage) 25 °C...+55 °C ¹⁾ (with SAFEPOS energy storage)
Safety position at power failure	With SAFEPOS energy-pack: opened, closed or free programmable Without SAFEPOS energy-pack: blocked in last position
Power supply	24 V DC ± 10 % (max. residual ripple 10 %)
Closure time	< 2.3 sec....4.3 sec.(depending on stroke)
Travel speed	6 mm/s
Duty cycle	100 %
Protection class	IP65 / IP67

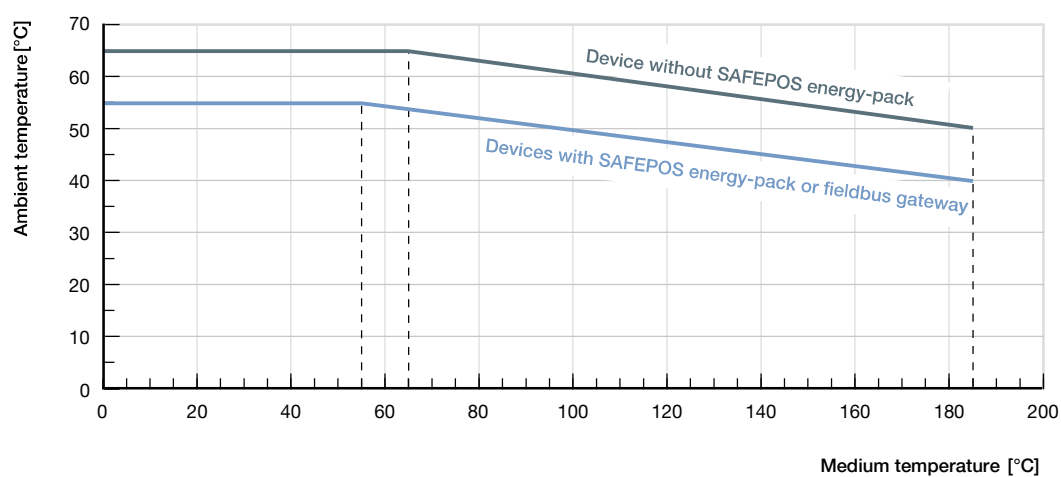
Dimensions [mm]



Ignition protection class	II 3G Ex ec IIC T4 Gc II 3D Ex tc IIIC T135 °C Dc
Binary control	0...5 V (log. 0) 10...30 V (log. 1)
Fieldbus communication	büS (Bürkert-System-Bus) (Standard) CANopen, EtherNet/IP, Modbus/TCP, PROFINET (optional)
Vibration, sinusoidal	5 g according to IEC 60068-2-6 Test Fc
Shock, mechanical	50 g according to IEC 60068-2-27 Test Ea
Approval and Conformity	EGV 1935/2004 (standard) FDA (optional) ATEX / IECEx (optional) cULus Cert. No. 238179 (optional)
Ignition protection class	II 3G Ex ec IIC T4 Gc II 3D Ex tc IIIC T135 °C Dc

1) The maximum value is reduced with increasing media temperature.

Temperature chart



The maximum allowable ambient temperature and media temperature influence each other. The maximum allowable temperature curves of different device variants can be seen in the temperature chart. The curves were determined for maximum operating conditions (max. operating pressure and motor power). For deviating operating conditions an individual verification can be performed. Please contact your Bürkert office for more information.

Electromotive process valve – 2 way shut-off globe valve

3321

- Fail-safe position by energy storage
- Rapid flow shut off
- Weather and impact resistant design
- Designed according to hygienic demands
- Many diagnostic functions

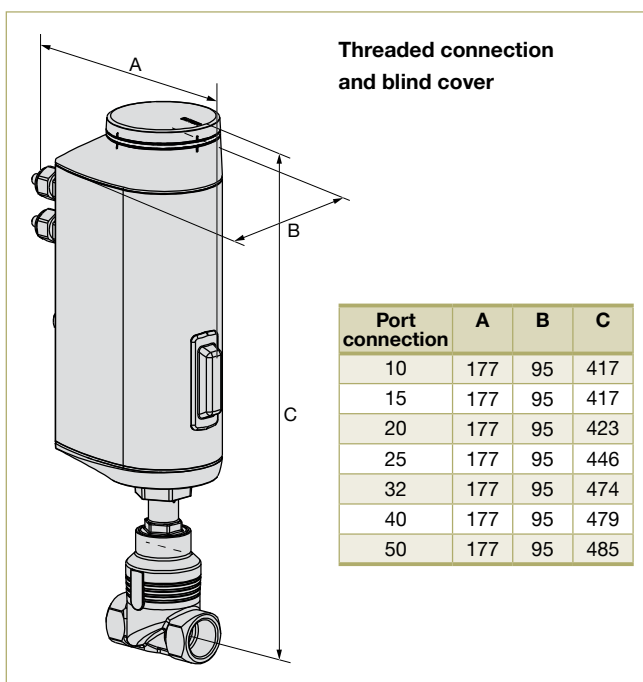


The innovative Bürkert process On/Off valve Type 3321 is the solution when it comes to shut-off tasks under demanding operating conditions. The electromotive actuator with ball screw moves the swivel plate at a particularly high rate of 6 mm/s to its end position. Thereby it reacts almost instantaneously to process signals. If necessary, the safety position can be approached by an optional energy storage in case of power failure. The actuator and shut-off globe valve are adapted perfectly to each other with closed design and robust surface. This ensures the hygienic requirements of a fast and residue-free cleaning. Harsh environments are no problem for the Type 3321 because of the protection class IP65 / IP67 and its high impact and vibration resistance. Unrivalled cycle life and sealing integrity is guaranteed by the proven self adjusting spindle packing with exchangeable V-seals. The fieldbus suitable for Type 3321 provides many helpful functions for process monitoring, valve diagnostics and predictive maintenance and thus offers the decisive advantage of a modern process automation.

Technical data

Port size	DN15...DN50
Nominal pressure (max.)	PN25 (valve body)
Port connections	
Thread	G, Rc, NPT (EN ISO 228-1, ISO 7/1 / DIN EN 10226-2, ASME B 1.20.1)
Weld ends	EN ISO 1127 / ISO 4200, DIN 11850 R2, ASME BPE, BS 4825-1, SMS 3008
Clamp	DIN 32676 A, DIN 32676 B, ASME BPE, BS 4825
Medium	Neutral gases, water, alcohol, oils, fuel, hydraulic mediums, salt solution, alkali solutions, organic solvents, steam
Viscosity	Max. 600 mm ² /s
Medium temperature	-10 °C...+185 °C (seat seal PEEK) -10 °C...+130 °C (seat seal PTFE)
Ambient temperature	-25 °C...+65 °C ¹⁾ (without SAFEPOS energy-pack) -25 °C...+55 °C ¹⁾ (with SAFEPOS energy-pack)
Safety position at power failure	With SAFEPOS energy-pack: opened, closed or free programmable Without SAFEPOS energy-pack: blocked in last position
Power supply	24 V DC ± 10 % (max. residual ripple 10 %)
Closure time	<2.3...4.3 sec. (depending on stroke)
Travel speed	6 mm/s
Duty cycle	100 %

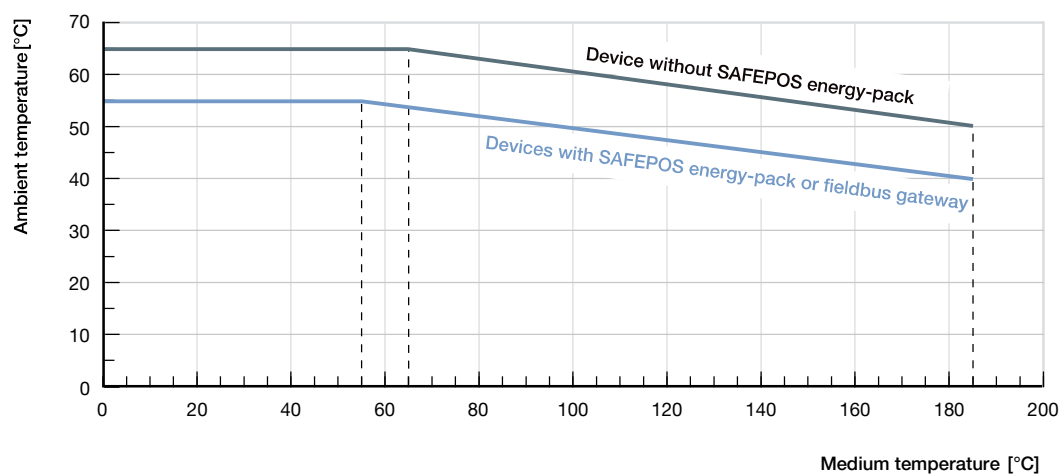
Dimensions [mm]



Protection class	IP65 / IP67
Binary control	0...5 V (log. 0) 10...30 V (log. 1)
Fieldbus communication	büS (Bürkert-System-Bus) (Standard) CANopen, EtherNet/IP, Modbus/TCP, PROFINET (optional)
Vibration, sinusoidal	5 g according to IEC 60068-2-6 Test Fc
Shock, mechanical	50 g according to IEC 60068-2-27 Test Ea
Approval and Conformity	EGV 1935/2004 (standard) FDA (optional) ATEX / IECEx (optional) cULus Cert. No. 238179 (optional)
Ignition protection class	II 3G Ex ec IIC T4 Gc II 3D Ex tc IIIC T135 °C Dc

1) Derating see temperature chart

Temperature chart



The maximum allowable ambient temperature and media temperature influence each other. The maximum allowable temperature curves of different device variants can be seen in the temperature chart. The curves were determined for maximum operating conditions (max. operating pressure and motor power). For deviating operating conditions an individual verification can be performed. Please contact your Bürkert office for more information.



Electromotive process valve – 2 way angle-seat control valve

3360

- Good and fast control
- Weather, impact and vibration resistant design
- Easy cleaning by its design according hygienic demands
- Position controller and process controller available

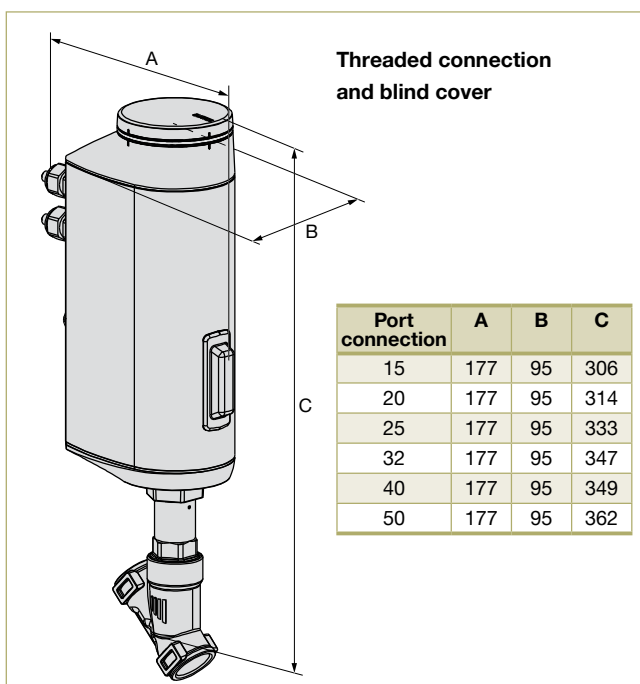


The innovative process controller Bürkert valve Type 3360 is the solution when it comes to control tasks under demanding operating conditions. The electromotive actuator with ball screw positions the control come with highest precision. A unique feature is its high positioning speed of 6 mm/s, that reacts quasi delay-free to process signals, and can be varied according to customer demands. Pressure variations or shocks in the medium aren't transferred to the valve position. If necessary, the safety position can be approached by an optional energy storage in case of power failure. Actuator and valve are adapted perfectly to each other with closed design and robust surface. This ensures the hygienic requirements of a fast and residue-free cleaning. Harsh environment are no problem for the Type 3360 because of the protection class IP65 / IP67 and its high impact and vibration resistance. Unrivalled cycle life and sealing integrity is guaranteed by the proven self adjusting spindle packing with exchangeable V-seals. The fieldbus suitable Type 3360 provides many helpful functions for process monitoring, valve diagnostics and predictive maintenance and thus offers the decisive advantage of a modern process automation.

Technical data

K_v values	5...53 m ³ /h
Port size	DN15...DN50
Operating pressure	16 bar / 1600 kPa / 232 psi
Port connections	
Thread	G, Rc, NPT (EN ISO 228-1, ISO 7/1 / DIN EN 10226-2, ASME B 1.20.1)
Welded	EN ISO 1127 / ISO 4200, DIN 11850 R2, ASME BPE, BS 4825-1, SMS 3008
Clamp	ISO 2852, DIN 32676, ASME BPE, BS 4825
Medium	Neutral gases, water, alcohol, oils, fuel, hydraulic mediums, salt solution, alkali solutions, organic solvents, steam
Viscosity	Max. 600 mm ² /s
Medium temperature	- 10...+ 185 °C (seat seal metallic or PEEK) - 10...+ 130 °C (seat seal PTFE)
Ambient temperature	- 25 °C...+ 65 °C ¹⁾ (without touch display) - 25 °C...+ 60 °C ¹⁾ (with touch display) - 25 °C...+ 55 °C ¹⁾ (with SAFEPOS energy storage)
Seat leakage acc. to DIN EN 60534-4:2006	Shut-off class III and IV for metallic seat seal Shut-off class VI for PTFE and PEEK
Safety position at power failure	With SAFEPOS energy-pack: opened, closed or free programmable Without SAFEPOS energy-pack: blocked in last position

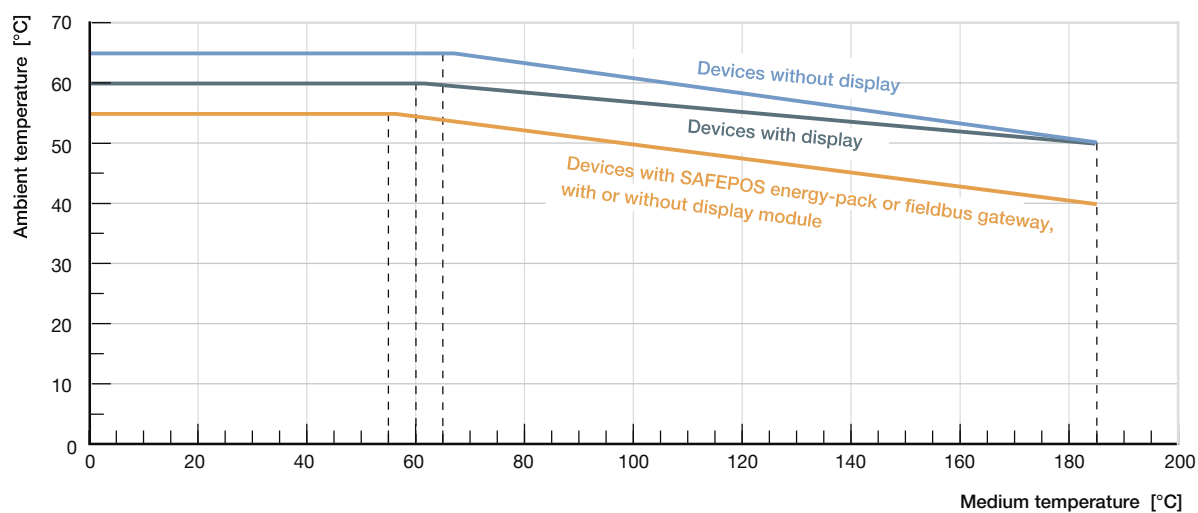
Dimensions [mm]



Power supply	24 V DC ± 10 % (max. residual ripple 10 %)
Closing time	2.3...4.3 sec. (depending on stroke)
Travel speed	6 mm/s
Deadband (min.)	0.1 %
Duty cycle	100 %
Protection class	IP65/IP67
Ignition protection class	II 3G Ex ec IIC T4 Gc II 3D Ex tc IIIC T135 °C Dc
Controller type	Position controller or process controller
Analogue control	Setpoint: 0/4 - 20mA, 0 - 5/10 V and Binary input (other inputs and outputs optional)
Fieldbus communication	büS (Bürkert-System-Bus) (Standard) CANopen, EtherNet/IP, Modbus/TCP, PROFINET (optional)
Vibration, sinusoidal	5 g according to IEC 60068-2-6 Test Fc
Shock, mechanical	50 g according to IEC 60068-2-27 Test Ea
Approval and Conformity	EGV 1935/2004 (standard) FDA (optional) ATEX / IECEx (optional) cULus Cert. No. 238179 (optional)

1) Derating see temperature chart

Temperature chart



The maximum allowable ambient temperature and media temperature influence each other. The maximum allowable temperature curves of different device variants can be seen in the temperature chart. The curves were determined for maximum operating conditions (max. operating pressure and motor power). For deviating operating conditions an individual verification can be performed. Please contact your Bürkert office for more information.



Electromotive process valve - 2 way globe control valve

3361

- High precise and fast flow control
- Several K_{vs} value per port size due to removable trim kit
- Weather, impact and vibration resistant design
- Easy cleaning by its design according hygienic demands
- Position controller and process controller available

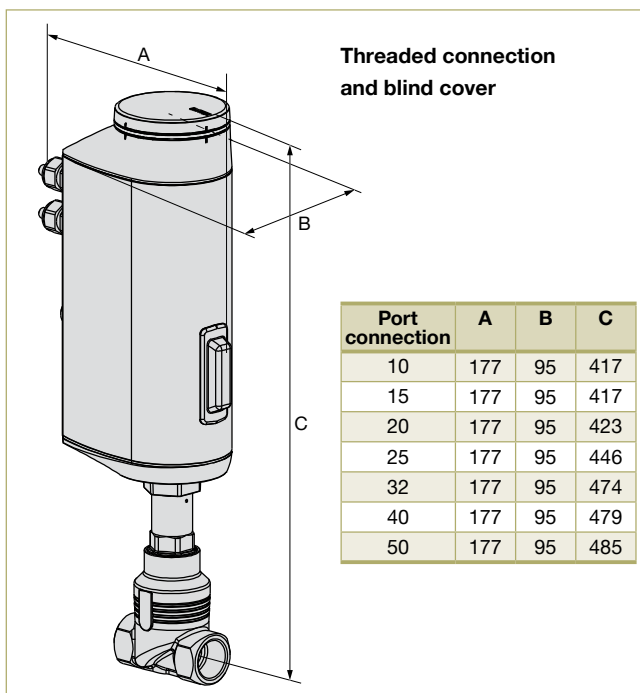


The innovative process controller Bürkert valve Type 3361 is the solution when it comes to demanding control tasks and operating conditions. The electromotive actuator with ball screw positions the control cone with highest precision. A unique feature is its high positioning speed of 6 mm/s, that reacts quasi delay-free to process signals, and can be varied according to customer demands. Pressure variations or shocks in the medium aren't transferred to the valve position. Each flow optimized valve housing can be equipped with up to 5 different valve seats for a precise adaptation according to customer needs. If necessary, the safety position can be approached by an optional energy storage in case of power failure. Actuator and valve are adapted perfectly to each other with closed design and robust surface. This ensures the hygienic requirements of a fast and residue-free cleaning. Harsh environment are no problem for the Type 3361 because of the protection class IP65 / IP67 and its high impact and vibration resistance. Unrivalled cycle life and sealing integrity is guaranteed by the proven self adjusting spindle packing with exchangeable V-seals. The fieldbus suitable Type 3361 provides many helpful functions for process monitoring, valve diagnostics and predictive maintenance and thus offers the decisive advantage of a modern process automation.

Technical data

K_{vs} values	0.1...37 m³/h
Port and seat size	DN10...DN50 / 3...50
Operating pressure	16 bar / 1600 kPa / 232 psi
Port connections	
Flange	DIN EN 1092-1, ANSI B 16.5, JIS 10K
Thread	G, Rc, NPT (EN ISO 228-1, ISO 7/1 / DIN EN 10226-2, ASME B 1.20.1)
Welded	EN ISO 1127 / ISO 4200, DIN 11850 R2, ASME BPE, BS 4825-1, SMS 3008
Clamp	ISO 2852, DIN 32676, ASME BPE, BS 4825
Medium	Neutral gases, water, alcohol, oils, fuel, hydraulic mediums, salt solution, alkali solutions, organic solvents, steam
Viscosity	Max. 600 mm²/s
Medium temperature	- 10...+ 185 °C (seat seal metallic or PEEK) - 10...+ 130 °C (seat seal PTFE)
Ambient temperature	- 25 °C...+ 65 °C ¹⁾ (without touch display) - 25 °C...+ 60 °C ¹⁾ (with touch display) - 25 °C...+ 55 °C ¹⁾ (with SAFEPOS energy storage)

Dimensions [mm]



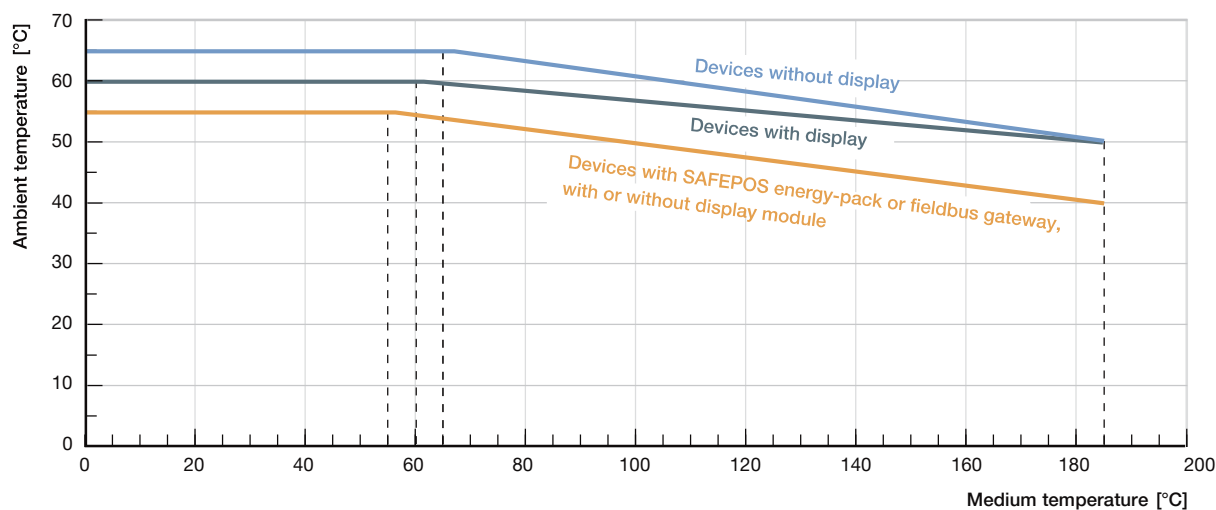
Seat leakage according to DIN EN 60534-4:2006	Shut-off class III and IV for metallic seat seal Shut-off class VI for PTFE and PEEK
Safety position at power failure	With SAFEPOS energy-pack: opened, closed or free programmable Without SAFEPOS energy-pack: blocked in last position
Power supply	24 V DC ± 10 % (max. residual ripple 10 %)
Closing time (100 % stroke)	3.3...4.5 sec. (depending on stroke)
Travel speed	6 mm/s
Deadband (min.)	0.1 %
Duty cycle	100 %
Protection class	IP65 / IP67
Controller type	Position controller or process controller
Analogue control	Setpoint: 0/4 - 20 mA, 0 - 5/10 V and binary input (further inputs and outputs optional)
Fieldbus interface	büS (Bürkert-System-Bus) (Standard) CANopen, EtherNet/IP, Modbus/TCP, PROFINET (optional)
Vibration, sinusoidal	5 g according to IEC 60068-2-6 Test Fc

Technical data continued

Shock, mechanical	50 g according to IEC 60068-2-27 Test Ea
Approval and Conformity	EGV 1935/2004 (standard) FDA (optional) ATEX / IECEx (optional) cULus Cert. No. 238179 (optional)
Ignition protection class	II 3G Ex ec IIC T4 Gc II 3D Ex tc IIIC T135 °C Dc

1) Derating see temperature chart

Temperature chart



The maximum allowable ambient temperature and media temperature influence each other. The maximum allowable temperature curves of different device variants can be seen in the temperature chart. The curves were determined for maximum operating conditions (max. operating pressure and motor power). For deviating operating conditions an individual verification can be performed. Please contact your Bürkert office for more information.



Overview for 2/2 Way Control Systems

Note: The following product overview does not show the complete product range of this catalogue. A complete overview can be found [here](#) ▶

Overview Control Systems	Species	Type	Process connection [mm]	Max. operating pressure [bar]	Note
	Electromotive diaphragm valve	3363 ▶	DN04...DN40	0...10	–
	Electromotive angle seat valve	3360 ▶	DN15...DN50	0...16	–
	Electromotive globe valve	3361 ▶	DN10...DN50	0...16	–
	Electromotive globe valve	3280 ▶	DN01...DN10	0...22	General product information in the catalogue, inquiry via data sheet possible
	Electromotive disc control valve	3285 ▶	DN08...DN25	0...6	General product information in the catalogue, inquiry via data sheet possible
	Pneumatic globe valve flange version	8802-GD-I/ GD-J ▶	DN03...DN100	0...25	General product information in the catalogue, inquiry via data sheet possible
	Pneumatic angle seat valve threaded port	8802 YG-I / YG-J ▶	DN15...DN50	0...25	General product information in the catalogue, inquiry via data sheet possible

2/2 way ELEMENT globe control valve with positioner or process controller, flange version

8802 GD-I/GD-J
ELEMENT

- High control accuracy
- Stainless steel IP65 and IP67 protection
- Easy to install



The fully integrated system with control valve, Type 2301, and automation unit, Type 8692 or Type 8693, is characterized by compact and smooth design, integrated air channels, IP65/67/NEMA 4X protection class and a high chemical resistance.

Technical data

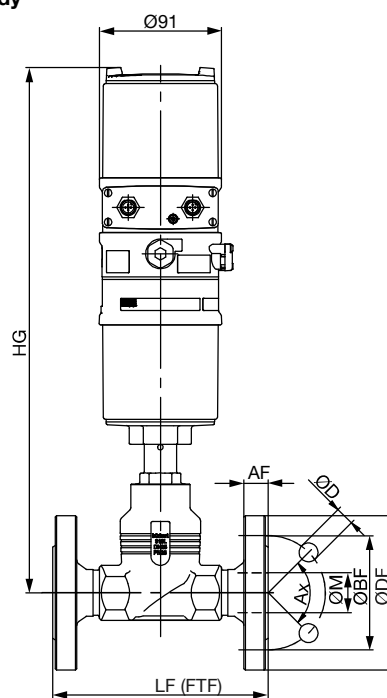
Orifice (seat orifice)	DN10...DN50 (DN4...DN50)
Port connection	
Flange conn. acc. to	DIN EN 1092-1
Welded and threaded connection	See separate datasheet
Body material	Cast stainless steel 316L
Actuator material	
Actuator	PPS
Case	Stainless steel 1.4561 (316Ti)
Plug seal	PTFE/steel (PTFE/stainless steel) and Steel/steel (Stainless steel/stainless steel)
Seat leakage acc. to . IEC 534-4/EN 1349	Shut-off class III and IV for steel/steel. Shut-off class VI for PTFE/steel (see details in ordering chart)
Medium	Neutral gases, water, alcohol, oil, fuels, hydraulic fluid, salt solutions, alkalis, organic solvents, steam
Viscosity	Max. 600 mm ² /s
Packing spindle	PTFE seal with spring compensation
Mediums temperature	-10 °C...+185 °C (max. +130 °C for sealing PTFE/steel)
Ambient temperature	0 °C...+55 °C (in conjunction with positioners - respectively process controllers) 0 °C...+80 °C (remote version)
Control medium	Compressed air
Required pilot pressure for control function A	Orifice DN10...DN50: 5.5...7 bar Orifice DN65...DN100: 5.6...7 bar
Operating voltage	24 V DC ± 10 %
Setpoint	0/4...20 mA and 0...5/10 V
Installation	As required, preferably with actuator upright

Note: For more technical data, see **Types 2301** ►, **8692** ► or **8693** ►

Dimensions [mm]

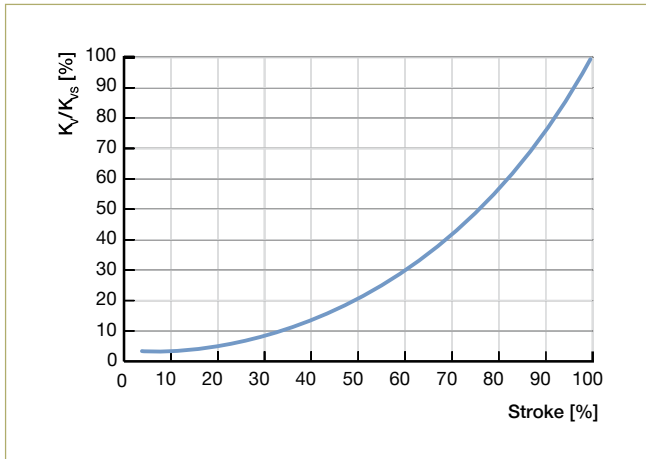
**Continuous ELEMENT valve system,
Type 8802 GD-I and 8802 GD-J**

Flange body



Orifice	Actuator size	DIN EN 1092 FTF acc. to EN558 Series 1						
		HG	ØDF	LF	ØBF	AF	ØD	ØM
10	70	383	90	130	60	16	14	13.6
15	70	383	95	130	65	16	14	18.1
20	70	389	105	150	75	18	14	23.7
25	70	392	115	160	85	18	14	29.7
	90	445	115	160	85	18	14	29.7
32	90	473	140	180	100	18	18	38.4
	130	525	140	180	100	18	18	38.4
40	90	478	150	200	110	18	18	44.3
	130	530	150	200	110	18	18	44.3
50	90	484	165	230	125	20	18	56.3
	130	536	165	230	125	20	18	56.3

Flow curve and description



Remarks on the flow characteristic

- Equipercentile parabolic plug for the orifices DN8...DN50
- Linear plug for the orifices DN4 and DN6
- Flow characteristic runs within DIN/IEC 534-2-4
- Theoretical control ratio (K_{vs}/K_{vo}):
 - 50:1 for the orifices DN8...DN50
 - 25:1 for the orifice DN6
 - 10:1 for the orifice DN4
- K_{vr} value at 5 % of stroke for DN > 10 mm
 K_{vr} value at 10 % of stroke for DN ≤ 10 mm

(K_{vr} value = smallest K_v value at which the gradient tolerance to DIN/IEC 534-2-4 is still complied with)

Ordering chart

Control function	Orifice [mm]	Port connection thread	Actuator size Ø [mm]	K_v value water [m³/h]	Pressure range to + 185 °C [bar]	Article no. 8802-GD-I with positioner 8692 steel/steel	Article no. 8802-GD-J with positioner and Process controller 8693 steel/steel	Article no. 8802-GD-I with positioner 8692 steel/PTFE	Article no. 8802-GD-J with positioner and Process controller 8693 steel/PTFE
8802 GD-I and 8802 GD-J									
A 2/2 way valve normally closed (NC)	15	Flange DIN EN 1092-1	70	4.3	16	225353	232010	229667	232217
	20	Flange DIN EN 1092-1	70	7.1	16	219164	229461	232262	232342
	25	Flange DIN EN 1092-1	90	12	16	229422	229462	266884	–
	32	Flange DIN EN 1092-1	90	13.6	16	219166	229464	236168	276578
	40	Flange DIN EN 1092-1	130	23.8	16	229423	229465	260905	277569
	50	Flange DIN EN 1092-1	130	37	16	229424	229467	232750	238259



2/2 way ELEMENT angle seat control valve with positioner or process controller, flange version

8802 YG-I/YG-J
ELEMENT

- High control accuracy
- Stainless steel IP65 and IP67 protection
- Easy to install



The fully integrated system with control valve type 2300 and automation unit Type 8692 or Type 8693 has a compact and smooth design, integrated pneumatic lines, IP65/67/NEMA 4X protection class and a high chemical resistance.

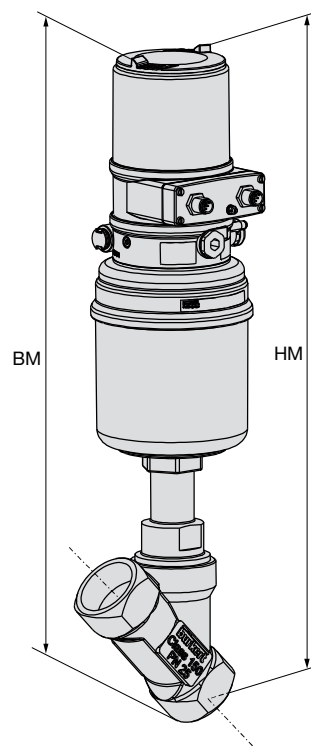
Technical data

Orifice	DN15...DN50
Port connection	G ½...G 2
Body material	Stainless steel 316L
Actuator material	
Actuator	PPS
Case	Stainless steel 1.4561 (316Ti)
Plug seal	PTFE/steel (PTFE/stainless steel) and Steel/steel (Stainless steel/stainless steel)
Seat leakage acc. to IEC 534-4/EN 1349	Shut-off class III and IV for steel/steel. Shut-off class VI for PTFE/steel
Medium	Water, alcohol, oil, fuels, hydraulic fluid, salt solutions, alkalis, organic solvents, steam
Viscosity	Max. 600 mm²/s
Packing spindle	PTFE seal with spring compensation
Mediums temperature	-10 °C...+185 °C (max. +130 °C for sealing PTFE/steel)
Ambient temperature	0 °C...+55 °C (in conjunction with positioners - respectively process controllers) 0 °C...+80 °C (remote version)
Control medium	Compressed air
Required pilot pressure for control function A	Orifice DN15...DN50: 5.5...7 bar Orifice DN65: 5.6...7 bar
Control air connections	Push-in connector (external Ø 6 mm or ¼")
Installation	As required, preferably with actuator upright

Note: For more technical data, see **Types 2301** ►, **8692** ► or **8693** ►

Dimensions [mm]

Valve system Continuous ELEMENT Type 8802 YG-I and 8802 YG-J

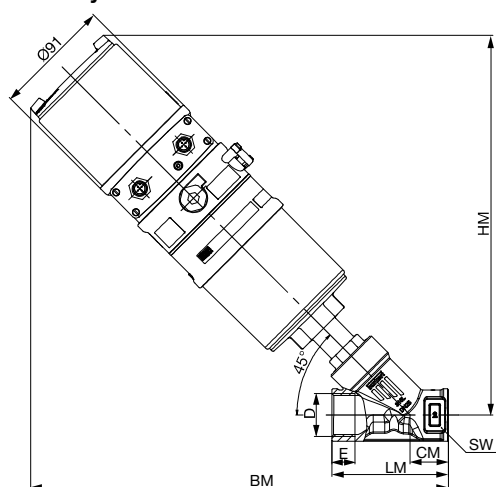


Orifice	Actuator size	HM	BM
15	70	280	308
20	70	288	318
25	70	294	327
	90	331	362
32	70	302	342
	90	345	382
40	90	347	383
	130	384	419
50	90	360	406
	130	397	442

Dimensions [mm]

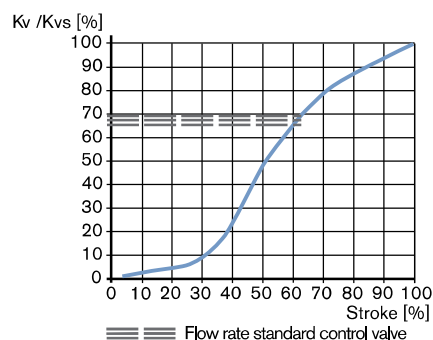
Valve system Continuous ELEMENT Type 8802 YG-I and 8802 YG-J

Threaded body



Orifice	Actuator size	HM	BM	CM	LM	SW	G	
15	70	280	308	24	65	27	G ½	14
20	70	288	318	27	75	34	G ¾	16
25	70	294	327	29.5	90	41	G 1	18
	90	331	362	29.5	90	41	G 1	18
32	70	302	342	36	110	50	G 1¼	16
	90	345	382	36	110	50	G 1¼	16
40	90	347	383	35	120	55	G 1½	18
	130	384	419	35	120	55	G 1½	18
50	90	360	406	45	150	70	G 2	24
	130	397	442	45	150	70	G 2	24

Flow characteristic



Remarks on the flow characteristic

Modified equipercentile flow characteristic, engineered for a quick response during peak flow demand (an advantage for many processes like heating/cooling with heat exchangers) and fine control at lower flow.

8802 YG-I/YG-J
ELEMENT

Ordering chart

Control function	Orifice [mm]	Port connection thread	Actuator size Ø [mm]	K _v value water [m³/h]	Pressure range to +185 °C [bar]	Article no. 8802-YG-I with positioner 8692 steel/steel	Article no. 8802-YG-J with positioner and Process controller 8693 steel/steel	Article no. 8802-YG-I with positioner 8692 steel/PTFE	Article no. 8802-YG-J with positioner and process controller 8693 steel/PTFE
8802 YG-I and 8802 YG-J									
A 2/2 way valve normally closed (NC)	15	G ½	70	5	16	229270	228611	232164	259464
	20	G ¾	70	10	16	229272	229415	240343	249255
	25	G 1	90	16	16	229279	249829	267356	256739
	32	G 1¼	90	23	16	229275	229417	273975	273104
	40	G 1½	130	36	16	229280	229419	267374	-
	50	G 2	130	53	16	229281	229420	267362	247460



Overview for Controls

Note: The following product overview does not show the complete product range of this catalogue. A complete overview can be found [here](#) ►

Overview Controls	Mounting	Function	Description	Type	Valve lift / rotation range	Position sensor/ feedback end position	Optical position indicator
Direct mounting on linear and rotary drives		regulate	Positioner	8692 ►	3...45 mm 0...352°	Inductive	Display
			Process controller	8693 ►	3...45 mm 0...352°	Inductive	Display
			Positioner BASIC	8694 ►	3...45 mm 0...352°	Inductive	LEDs
			Positioner BASIC	8696 ►	3...32 mm	Inductive	LEDs
		switch (on/off)	Control head	8681 ►	0...80 mm	Inductive	High performance LEDs
			Control head	8691 ►	2.5...45 mm 0...352°	Inductive	High performance LEDs
			Control head	8695 ►	2.5...32 mm	Inductive	LEDs
			Control head Robolux	8686 ►	6...13.5 mm	Reed sensors	LEDs
			Feedback head Robolux	8685 ►	6...13.5 mm	Reed sensors	LEDs
			Pneumatic control / feedback unit	8690 ►	3...28 mm	Micro switches / Initiators	LEDs / mechanically
			Pneumatic control / feedback unit	8697 ►	2...36 mm	Micro switches / Initiators	LEDs / mechanically
Direct mounting on push and part-turn actuators according to IEC 534-6 or VDI / VDE 3845 (NAMUR) or remote		regulate	Positioner SideControl	8792 ►	3...130 mm 30...180°	Conductive plastic rotative	Display / mechanically
			Process controller SideControl	8793 ►	3...130 mm 30...180°	Conductive plastic rotative	Display / mechanically
			Positioner SideControl BASIC	8791 ►	3...130 mm 30...180°	Conductive plastic rotative	LEDs / mechanically
			Positioner/process controller SideControl	8635 ►	3...130 mm 30...120°	Conductive plastic rotative	Display / mechanically
Direct mounting on Classic actuators 2XXX, as an option from factory for 0330/0331		Electrical positioner feedback	Accessories for pivoted armature valve and pneumatic linear actuators	1060 ►	–	Micro switch, plunger	Mechanical for Type 2XXX
Direct mounting on 2051 / 2052 / 8805		Electrical positioner feedback	Accessories for pneumatic rotary actuator	1061 ►	–	Electromechanical, inductive, inductive ATEX	Optical mechanical

1) EtherNet/IP; PROFINET; Modbus TCP

2) Bürkert System Bus (based on CANopen)

Automatic setup function	Diagnosis	Graphic display	Fieldbus communications						Electrical connection		Pilot valve system operation		Overview Controls
			PROFIBUS DP	DeviceNet	Industrial Ethernet ¹⁾	AS-Interface	IO-Link	büS ²⁾	Multipole	Cable gland	Single acting	Double acting	
Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	
Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	
Yes	Yes	No	No	No	No	Yes	No	No	Yes	Yes	Yes	Yes	
Yes	No	No	No	No	No	No	No	No	Yes	No	Yes	No	
Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	Yes	Yes	Yes	
Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Yes	No	No	No	Yes	No	Yes	No	No	Yes	Yes	Yes	Yes	
No	No	No	No	No	No	Yes	No	No	Yes	Yes	Yes	Yes	
No	No	No	No	No	No	Yes	No	No	No	Yes	Yes	Yes	
No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	
Yes	No	No	No	No	No	No	No	No	Yes	Yes	Yes	No	
Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	
Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	
Yes	No	No	No	No	No	Yes	No	No	Yes	Yes	Yes	Yes	
Yes	Yes	Yes	No	No	No	No	No	No	No	Yes	Yes	Yes	
No	No	No	No	No	No	No	No	No	No	Yes	No	No	
No	No	No	No	No	No	Yes	No	No	Yes	Yes	No	No	

Electrical position feedback for pneumatically operated process valves

1060

- Fast and easy installation
- Compact design
- High electrical and mechanical lifetime



Figure shows Type 1060 mounted on actuator cover

The electrical position feedback Type 1060 is designed for integrated mounting on CLASSIC Series process valves. The electrical position feedback is screwed in, instead of the visual position indicator. While the valve is opening, the piston of the actuator lifts a palm-button. This button actuates a micro switch with change-over contact, which gives the electrical feedback of the valve position. The palm-button also acts as an optical position indicator.

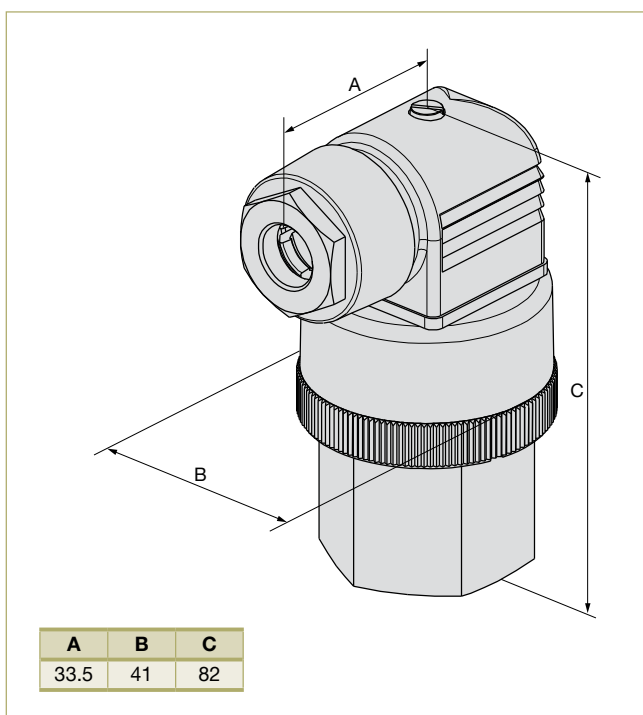
Technical data

Micro switch	1 switch over contact
Contact rating	Till 250 V AC – maximum 5 A ohmic or inductive contact load – filament load 0.5 A Till 250 V DC – maximum 0.25 A ohmic contact load – maximum 0.02 A inductive load – maximum 0.02 A filament load
Protection class	IP65 acc. to DIN 40050
Connection	Solder terminals
Cable outlet	Can be rotated through 4 × 90°
Cable diameter	5...9 mm
Continuous temperature	+ 125 °C
Material	Housing and micro switch made of plastic

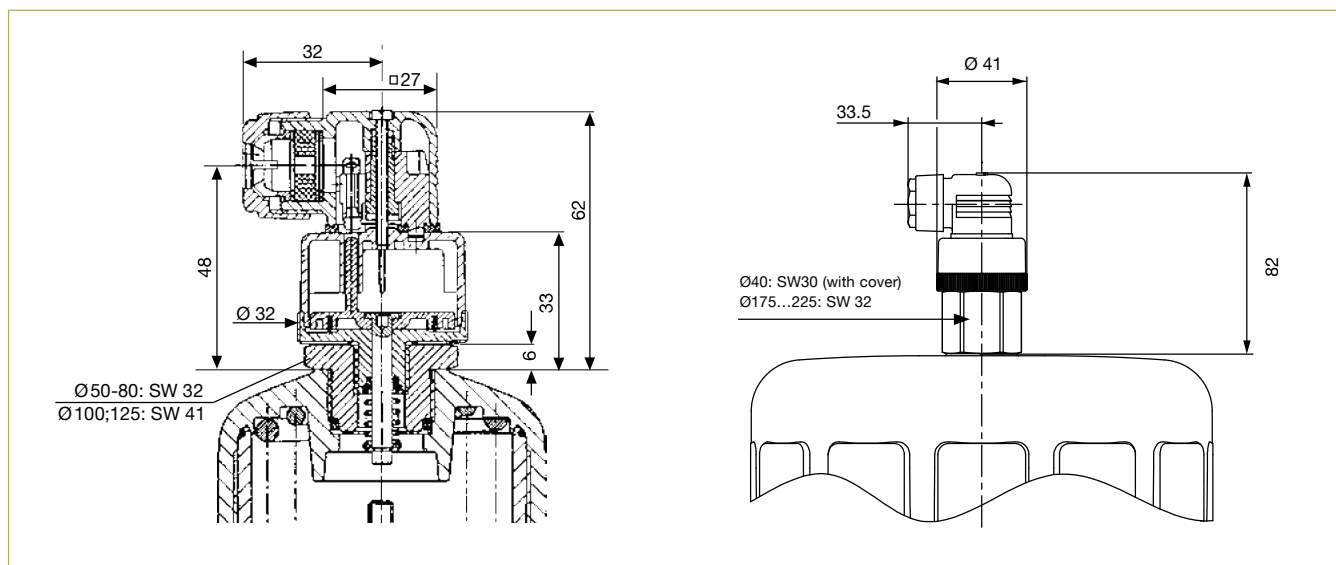
Options

- Further versions see data sheet or on request



Dimensions [mm]



Dimensions [mm]



Ordering chart

For Actuator size \varnothing [mm]	Article no.
40	293113 
50...80	701515 
100, 125	701516 
175, 225	655696 

Accessory for pneumatic rotary actuators

1061

- Combines the functions of a position feedback and a solenoid valve in one
- Available with 3/2 way, 5/2 way or without solenoid valve
- ATEX versions available
- Perfectly suited for pneumatic rotary actuators: 2051 ▶ and 2052 ▶
- Adjustable bracket allows the combination with actuators in different sizes



Type 1061 combines the function of a position feedback and an optional solenoid valve in one box. It is designed to standardisation acc. VDI/VDE 3845 for assembly with pneumatic rotary actuators. So it can be used with actuators of type 2051 and 2052, which are part of the system type 8805.

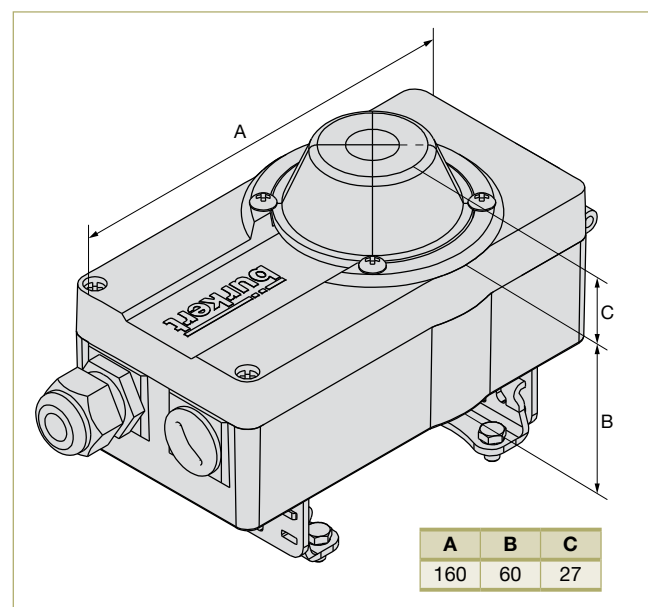
Type 1061 is available with different of limit switches (micro switches, inductive sensors) and solenoid valves (3/2 way, 5/2 way or without solenoid valve). Next to this, an ATEX version is also available.

Because of the several available variations, it perfectly meets the requirements of different applications and processes.

Technical data

Housing	Aluminium
Base (powder-coated)	RAL9005
Cover (powder-coated)	RAL7016
Protection class	IP65
Seal	PUR
Bracket	Adjustable Hole gauge: 80/130 mm x 30 mm Height: 20/30 mm
Temperature	-25 °C...-10 °C up to 55 °C...85 °C
Limit Switches	
Micro Switches	Crouzet 83.161.3 Crouzet 83.161.8
Inductive Sensors	Pepperl+Fuchs NBB2-V3-E2 Pepperl+Fuchs NJ2-V3-N
Switching precision	< 1.5°
System connection	Cable gland M20 x 1.5 ASi Cable connector M12-connector, male, 4 pin
Solenoid valves	Without solenoid valve 3/2 way (type 6524) 5/2 way (type 6525)






Dimensions [mm]








Options

- Further versions see data sheet or on request

Ordering chart

Technical Data	Electromechanical Feedback without Solenoid Valve	Electromechanical Feedback + 3/2 way Solenoid Valve	Electromechanical Feedback + 5/2 way Solenoid Valve
Housing and Seal			
Housing material	Aluminium	Aluminium	Aluminium
Base (powder-coated)	RAL9005	RAL9005	RAL9005
Cover (powder-coated)	RAL7016	RAL7016	RAL7016
Seal	PUR	PUR	PUR
Dome	Polycarbonate	Polycarbonate	Polycarbonate
Protection class	IP65	IP65	IP65
Limit Switch			
Manufacturer	Crouzet	Crouzet	Couzet
Type	83.161.3 Micro switch	83.161.3 Micro switch	83.161.3 Micro switch
Switching capacity	4 A, 230 V AC	4 A, 230 V AC	4 A, 230 V AC
Contacts	silver nickel	silver nickel	silver nickel
Switching precision	< 1.5°	< 1.5°	< 1.5°
System connection	Cable gland M20 × 1.5 Clamp range 8 up to 13 mm	Cable gland M20 × 1.5 Clamp range 8 up to 13 mm	Cable gland M20 × 1.5 Clamp range 8 up to 13 mm
Terminals	Screw terminal up to 2.5 mm²	Screw terminal up to 2.5 mm²	Screw terminal up to 2.5 mm²
Temperature	-25 °C up to 85 °C	-10 °C up to 55 °C	-10 °C up to 55 °C
Solenoid Valve			
Bürkert Type	–	6524 (ID-No. 207505 )	6525 (ID-No. 207485 )
Ways	–	3/2	5/2
Operating Voltage	–	24 V DC	24 V DC
Nominal Power	–	0.8 W	0.8 W
Nominal width	–	4 mm	4 mm
Supply / Exhaust air	–	G ¼, G ⅜	G ¼, G ⅜
Article no.	773151 	773139 	773140 

Technical Data	Inductive Feedback without Solenoid Valve	Inductive Feedback + 3/2 way Solenoid Valve	Inductive Feedback + 5/2 way Solenoid Valve
Housing and Seal			
Housing material	Aluminium	Aluminium	Aluminium
Base (powder-coated)	RAL9005	RAL9005	RAL9005
Cover (powder-coated)	RAL7016	RAL7016	RAL7016
Seal	PUR	PUR	PUR
Dome	Polycarbonate	Polycarbonate	Polycarbonate
Protection class (Housing)	IP65	IP65	IP65
Limit Switch			
Manufacturer	Pepperl + Fuchs	Pepperl + Fuchs	Pepperl + Fuchs
Type	NBB2-V3-E2 Inductive sensor	NBB2-V3-E2 Inductive sensor	NBB2-V3-E2 Inductive sensor
Voltage	10...30 V DC	10...30 V DC	10...30 V DC
Operating current	0 up to 100 mA	0 up to 100 mA	0 up to 100 mA
Output	Short-circuit and pole protected	Short-circuit and pole protected	Short-circuit and pole protected
Switching precision	< 1.5°	< 1.5°	< 1.5°
System connection	Cable gland M20 × 1.5 Clamp range 8 up to 13 mm	Cable gland M20 × 1.5 Clamp range 8 up to 13 mm	Cable gland M20 × 1.5 Clamp range 8 up to 13 mm
Terminals	Screw terminal up to 2.5 mm²	Screw terminal up to 2.5 mm²	Screw terminal up to 2.5 mm²
Temperature	-25 °C up to 70 °C	-10 °C up to 55 °C	-10 °C up to 55 °C
Solenoid Valve			
Bürkert Type	–	6524 (ID-No. 207505 )	6525 (ID-No. 207485 )
Ways	–	3/2	5/2
Operating Voltage	–	24 V DC	24 V DC
Nominal Power	–	0.8 W	0.8 W
Nominal width	–	4 mm	4 mm
Supply / Exhaust air	–	G ¼, G ⅜	G ¼, G ⅜
Article no.	773152 	773141 	773142 



Ordering chart

Technical Data		Inductive Feedback without Solenoid Valve	Inductive Feedback + 3/2 way Solenoid Valve	Inductive Feedback + 5/2 way Solenoid Valve
Housing and Seal				
1061	Housing material	Aluminium	Aluminium	Aluminium
	Base (powder-coated)	RAL9005	RAL9005	RAL9005
	Cover (powder-coated)	RAL7016	RAL7016	RAL7016
	Seal	PUR	PUR	PUR
	Dome	Polycarbonate	Polycarbonate	Polycarbonate
	Protection class (Housing)	IP65	IP65	IP65
Limit Switch				
1061	Manufacturer	Pepperl + Fuchs	Pepperl + Fuchs	Pepperl + Fuchs
	Type	P+F NJ2-V3-N Inductive sensor	P+F NJ2-V3-N Inductive sensor	P+F NJ2-V3-N Inductive sensor
	Voltage	8.2 V DC (1000 Ω)	8.2 V DC (1000 Ω)	8.2 V DC (1000 Ω)
	Current consumption	≥ 3 mA (not activated)	≥ 3 mA (not activated)	≥ 3 mA (not activated)
		≤ 1 mA (activated)	≤ 1 mA (activated)	≤ 1 mA (activated)
	Output	Short-circuit and pole protected	Short-circuit and pole protected	Short-circuit and pole protected
	Switching precision	< 1.5°	< 1.5°	< 1.5°
	System connection	Cable gland M20 × 1.5	Cable gland M20 × 1.5	Cable gland M20 × 1.5
		Clamp range 8 up to 13 mm	Clamp range 8 up to 13 mm	Clamp range 8 up to 13 mm
	Terminals	Screw terminal up to 2.5 mm ²	Screw terminal up to 2.5 mm ²	Screw terminal up to 2.5 mm ²
	Temperature	-25 °C up to 70 °C	-10 °C up to 55 °C	-10 °C up to 55 °C
	Solenoid Valve			
	Bürkert Type	–	6524 (ID-No.184560 ☞)	6525 (ID-No. 184564 ☞)
	Ways	–	3/2	5/2
	Electrical resistance	–	320 Ω	320 Ω
	Min. Operating current	–	29 mA	29 mA
	Power consumption	–	0.3 W	0.3 W
	Nominal width	–	4 mm	4 mm
	Supply / Exhaust air	–	G ¼, G ⅝	G ¼, G ⅝
ATEX Classification				
1061		☞ II 2G Ex e ia IIC T6 Gb EC-type examination certificate PTB 10 ATEX 1061 X	☞ II 2G Ex ia IIC T6 Gb EC-type examination certificate PTB 00 ATEX 2032 X (Sensor) PTB 07 ATEX 2048 (Solenoid Valve)	
	Article no.	773153 ☞	773143 ☞	773144 ☞

Ordering chart

Technical Data	ASi + Electromechanical Feedback without Solenoid Valve		ASi + Electromechanical Feed-back + 3/2 way Solenoid Valve		ASi + Electromechanical Feed-back + 5/2 way Solenoid Valve	
Housing and Seal						
Housing material	Aluminium		Aluminium		Aluminium	
Base (powder-coated)	RAL9005		RAL9005		RAL9005	
Cover (powder-coated)	RAL7016		RAL7016		RAL7016	
Seal	PUR		PUR		PUR	
Dome	Polycarbonate		Polycarbonate		Polycarbonate	
Protection class	IP65		IP65		IP65	
Limit Switch & AS-Interface						
Manufacturer	Crouzet		Crouzet		Couzet	
Type	83.161.8 Micro switch		83.161.8 Micro switch		83.161.8 Micro switch	
Contacts	gold		gold		gold	
Plug-in Card	ASi – 2 Inputs, 1 Output		ASi – 2 Inputs, 1 Output		ASi – 2 Inputs, 1 Output	
Voltage	26.5...31. V DC		26.5...31. V DC		26.5...31. V DC	
Switching precision	< 1.5°		< 1.5°		< 1.5°	
System connection	ASi cable connector	M12-connector, male, 4 pin	ASi cable connector	M12-connector, male, 4 pin	ASi cable connector	M12-connector, male, 4 pin
Terminals	Screw terminal up to 1.5 mm²		Screw terminal up to 1.5 mm²		Screw terminal up to 1.5 mm²	
Temperature	- 10 °C up to 60 °C		- 10 °C up to 55 °C		- 10 °C up to 55 °C	
Solenoid Valve						
Bürkert Type	–		6524 (ID-No. 207505 ☒)		6525 (ID-No. 207485 ☒)	
Ways	–		3/2		5/2	
Operating Voltage	24 V DC ¹⁾		24 V DC		24 V DC	
Nominal Power	max. 2.4 W ¹⁾		0.8 W		0.8 W	
Nominal width	–		4 mm		4 mm	
Supply / Exhaust air	–		G ¼, G ½		G ¼, G ½	
Article no. ASi cable connector	773149 ☒		773145 ☒		773146 ☒	
Article no. M12-connector	773292 ☒		773288 ☒		773298 ☒	

1061

Technical Data	ASi + Inductive Feedback without Solenoid Valve		ASi + Inductive Feedback + 3/2 way Solenoid Valve		ASi + Inductive Feedback + 5/2 way Solenoid Valve	
Housing and Seal						
Housing material	Aluminium		Aluminium		Aluminium	
Base (powder-coated)	RAL9005		RAL9005		RAL9005	
Cover (powder-coated)	RAL7016		RAL7016		RAL7016	
Seal	PUR		PUR		PUR	
Dome	Polycarbonate		Polycarbonate		Polycarbonate	
Protection class	IP65		IP65		IP65	
Limit Switch & AS-Interface						
Manufacturer	Pepperl + Fuchs		Pepperl + Fuchs		Pepperl + Fuchs	
Type	NBB2-V3-E2 Inductive sensor		NBB2-V3-E2 Inductive sensor		NBB2-V3-E2 Inductive sensor	
Plug-in Card	ASi – 2 Inputs, 1 Output		ASi – 2 Inputs, 1 Output		ASi – 2 Inputs, 1 Output	
Voltage	26.5...31 V DC		26.5...31 V DC		26.5...31 V DC	
Switching precision	< 1.5°		< 1.5°		< 1.5°	
System connection	ASi cable connector	M12-connector, male, 4 pin	ASi cable connector	M12-connector, male, 4 pin	ASi cable connector	M12-connector, male, 4 pin
Terminals	Screw terminal up to 1.5 mm²		Screw terminal up to 1.5 mm²		Screw terminal up to 1.5 mm²	
Temperature	- 25 °C up to 60 °C		- 10 °C up to 55 °C		- 10 °C up to 55 °C	
Solenoid Valve						
Bürkert Type	–		6524 (ID-No. 207505 ☒)		6525 (ID-No. 207485 ☒)	
Ways	–		3/2		5/2	
Operating Voltage	24 V DC ¹⁾		24 V DC		24 V DC	
Nominal Power	max. 2.4 W ¹⁾		0.8 W		0.8 W	
Nominal width	–		4 mm		4 mm	
Supply / Exhaust air	–		G ¼, G ½		G ¼, G ½	
Article no. ASi cable connector	773150 ☒		773147 ☒		773148 ☒	
Article no. M12-connector	773293 ☒		773290 ☒		773291 ☒	

1) If an extern solenoid valve should be connected.

Digital electropneumatic Positioner SideControl

8635

- Compact and robust design
- Easy to start using tune function
- Dynamic positioning system with no air consumption in controlled state
- Intrinsically safe according to ATEX II 2 (1) G Ex ia IIC T6 Gb
- Optionally with integrated process controller

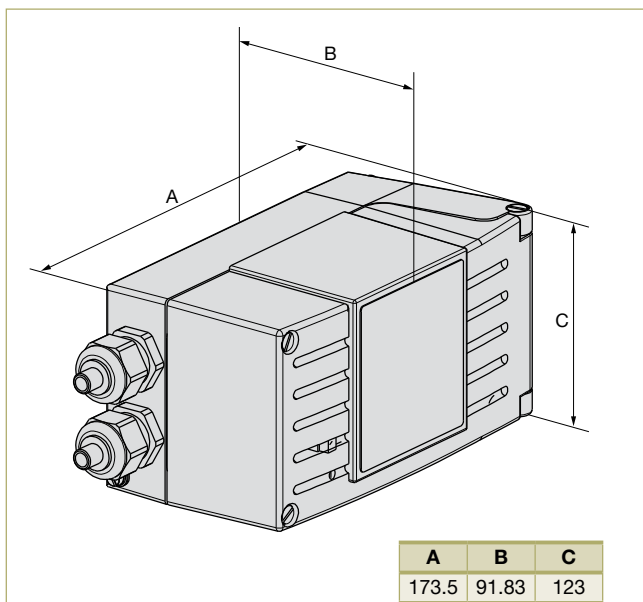


The SideControl Positioner Type 8635 is an electropneumatic positioner for pneumatically actuated process valves with linear or part-turn actuators. It is executed in two conductor technology. Signal processing, control and actuation of the internal positioning system are accomplished with microprocessor controlled electronics. The software function Autotune implemented therein enables automatic adaptation of the positioner to the control valve in use. The positioner is parametrized and operated comfortably via three operating keys and a plain text display. It is possible to set up a decentralized control system if a process controller with PID characteristics is used. As an option, the SideControl Positioner Type 8635 can be supplied with approval for use in the Ex area (Zone1) according to ATEX. Due to its compact and robust design, the housing is suitable for use in chemical and process engineering.

Technical data

Body material	Aluminium, hard anodized and plastic coated
Other external parts	Stainless steel V4 A
Seal material	NBR, Neoprene
Control medium	Neutral gases, air, quality class acc. to ISO 8573-1
Dust content	Class 7 (< 40 µm particle size)
Particle density	Class 5 (< 10 mg/m ³)
Pressure dew point	Class 3 (< -20 °C)
Oil concentration	Class X (< 25 mg/ m ³)
Control air temperature	-25 °C...+60 °C ¹⁾
Ambient temperature	-25 °C...+60 °C ¹⁾
Supply pressure	1.4...6 bar ³⁾
Air flow capacity²⁾	55 l/min at 1.4 bar ³⁾
Control valve	170 l/min at 6 bar ³⁾ for pressurizing and venting
Intrinsic air consumption	0 l/min
Positioning range	
Linear actuator	3 mm...130 mm
Part-turn actuator	0...120°
Position sensor system	High resolution conductive plastic rotary potentiometer
Operation	Operating keys and plain text display
Electrical connection	2 x M20 x 1.5 bushing Clamping range 6...12 mm Screw terminals for 0.14...1.5 mm ² Pre-assembled cable for position measuring system for control valves Type 27xx: Length 0.3 m Pre-assembled cable for remote position sensor for control valves Type 23xx: Length 2.5 m
Electrical data Type	
Current supply for electronics	Via setpoint signal 4...20 mA
Burden voltage	< 10.2 V DC
Setpoint setting	4...20 mA

Dimensions [mm]



Control air sockets	G ¼ NPT ¼; Rc ¼ on request
Mounting kits	NAMUR recommendation
for linear actuator	Acc. to DIN IEC 534 T6
for part-turn actuator	Acc. to VDI/VDE 3845
Weight	Ca. 1.5 kg
Protection class	IP65 acc. to EN 60529
Ignition protection class	II 2 (1) G Ex ia IIC T6 Gb acc. to EN 60079-0:2012 and EN 60079-11:2012
Certification	PTB 04 ATEX 2027 / IECEx PTB 04.0016
Conformity	EMC 2004/108/EC

1) Up to +65 °C temperature class T4/T5 or without EEx i approval.

2) May be adapted to actuator size with throttle screw.

3) Pressure data in bar; overpressure to ambient pressure.

Options

- Universal integrated attachment (air conduction without piping)
- Manometer VA (supply and drive chamber),
- Switches according to NAMUR as limit switches (optional)

Other electrical data

Function value			Permissible maximal as per certificate of conformity	
Power Supply	U I	10.2 V 4 mA	U _i I _i P _i	30 V 100 mA 1 W
Process value input (only for version with process controller)	Burden Burden voltage U	10 Ω <200 mV	U _i I _i C _i P _i	30 V 100 mA 14.3 nF 1 W
Binary input	Make/break contact (conf.)	–	Co Lo	5.5 μF 1000 mH
Binary output	U I switching status OPEN I switching status CLOSED	5...11 V DC <1.2 mA >2.1 mA	U _i I _i P _i	30 V 100 mA 1 W
Analogue feedback (option)	U I	12...30 V 4...20 mA	U _o I _o P _o	30 V 100 mA 1 W

Recommendations for isolation transformers/DC transformers input 4...20 mA/output 4...20 mA

Company	Model	Burden	Ex	active/passive
Pepperl+Fuchs	KFD2-CD-Ex 1.32	850 Ω	x	A
Foxboro Eckardt	TV228-S-EGX	700 Ω	x	A
Foxboro Eckardt	MT228-S-EGX	750 Ω	x	A
Foxboro Eckardt	II949-S1 ZZZ	750 Ω	-	A
Steel	9318/16-22-10	700 Ω	x	A
Steel	M318/12-11-00	1000 Ω	x	A
PhoenixContact	PI/EX-ID-I/I	800 Ω	x	A

- Data given without guarantee of accuracy.
- For dimensioning and operation of intrinsically safe circuits, the user/owner is responsible.

Software functions (depending on the device configuration chosen)

Type 8635

- Automatic commissioning of control system
- Parametrization of the positioner
- Automatic or manual entry of characteristic curve for correction of operating characteristic
- Setting of the tight-closure or maximum stroke threshold
- Stroke limitation
- Limitation of positioning speed
- Dead band
- Direction of action of the controller setpoint
- Signal range splitting (split range up to 4 times)
- Setting of direction of movement
- Definition of a safety position
- Calibration of input and display
- Configuration of binary input
- Code protection for settings/operation
- RESET of factory settings
- Optional built-in process controller (PID)
- Automatic parametrization of the process controller
- Setting of the parameters of the process controller
- Calibration of the setpoint input and display
- Configuration of the analog input
- Configuration of the binary input and binary outputs



Ordering chart

8635

Assembly variations	Electrical connection	Analogue feedback with 2 binary outputs	ATEX Approvals EEx ia II C T6	Article no.
Positioner / Process controller SideControl Type 8635 NAMUR Pneumatic control system single-acting				
Positioner SideControl 8635				
NAMUR IEC 60534-6 - 1 VDI/VDE 3845 (IEC 60534-6-2)	Cable gland	no	yes	147263
	Cable gland	no	yes	on request
	Cable gland	yes	yes	155371
	Cable gland	yes	no	on request
	Cable gland	no	no	147265
Process controller SideControl 8635				
NAMUR IEC 60534-6-1 VDI/VDE 3845 (IEC 60534-6-2)	Cable gland	no	yes	147264
	Cable gland	yes	yes	155375
	Cable gland	no	no	147266









Assembly variations	Electrical connection	Analogue feedback with 2 binary outputs	ATEX Approvals EEx ia II C T6	Article no.
Positioner / Process controller SideControl Type 8635 for remote and direct mounting on control valves Pneumatic control system single-acting				
Positioner SideControl 8635				
Remote mounting in combination with Typ 23xx control valves (Actuator size Ø 70/90/130 mm)	Cable gland	yes	yes	322841
	Cable gland	yes	no	322847
	Cable gland	no	no	322845
	Cable gland	no	yes	322840
Direct mounting on Type 27xx control valves (Actuator size Ø 175/225 mm)	Cable gland	no	yes	150347
	Cable gland	yes	yes	155369
	Cable gland	no	no	147267
Process controller SideControl 8635				
Remote mounting in combination with Typ 23xx control valves (Actuator size Ø 70/90/130 mm)	Cable gland	yes	yes	322839
	Cable gland	yes	no	322844
	Cable gland	no	no	322842
	Cable gland	no	yes	322837

Assembly variations	Actuator size	Electrical connection	ATEX Approvals EEx ia II C T6	Article no.
Remote position sensor for SideControl Type 8635 remote resp. position sensor system for 8635 version with direct mounting on 27xx control valves				
Type 23xx control valves	Ø 70/90/130 mm	Cable gland	yes	689162
Type 27xx control valves	Ø 175/225 mm	Cable gland	yes	655535

Further options:

- Universal integrated attachment (air duct without piping)

Accessories

Description	Article no.
Accessories for SideControl NAMUR	
Assembly bridge VDI/VDE 3845 VA, bracket for attachment to pneumatic actuator of ball valve Type 8805	770294 
Adapter kit acc. to VDI/VDE 3845 VA, without bracket	787338 
Adapter kit linear actuators acc. to IEC 534...6 VA	787215 
Accessories for SideControl remote / direct mounting	
Bracket for wall mounting, stainless steel (replacement part)	675715 
Adapter kit remote position sensor for Type 23xx control valves, actuator sizes Ø 70/90/130 mm	584363 
Adapter kit for piston actuators Type 27xx, Ø 175/225 mm	655567 
Position measuring system for piston drives Type 27xx, Ø 175/225 mm	655535 
Standard accessories	
Silencer G 1/4 (replacement part)	780780 

Ordering note

When mounted on a Bürkert control valve, the SideControl positioner Type 8635 is only supplied as part of a complete control valve (positioner, position measuring system, associated add-on parts and control valve).

Use the data sheets of Types 23xx and 27xx to select a suitable control valve.

For ordering a complete control valve, specify the following article numbers:

- Article no. of the SideControl positioner Type 8635
- the article no. of the position measuring system,
- the article no. of the selected control valve and
- the article no. of the corresponding attachment parts with the SideControl positioner reference

Bürkert supplies a fully assembled and tested control valve.

Control head for hygienic process valves

8681 Control head

- Universal attachment for hygienic process valves
- Contactless position measurement _ system with 3 switching points (Teach-In function)
- Coloured status display
- Manual override operative with closed housing
- Communication AS-Interface, DeviceNet (option)



Type 8681 control head is optimised for decentralised automation of hygienic process valves. Thanks to its universal adapter it can be combined with all normal commercial butterfly valves, ball valves, single and double seated valves. With a decentralised automation concept, the control head takes over all pneumatic actuation, feed-back and diagnostic functions up to and including field bus communication. The housing is easy to clean and features proven electrical IP protection and chemically resistant materials for use in hygienic processing in food, beverage and pharmaceutical industries.

Technical data

General data

Material

Body	PA, PPO, VA
Cover	PC
Seal	CR, EPDM

Control medium

	Neutral gases, air DIN ISO 8573-1 (filter 5 µm recommended)
Dust concentration	Class 7 (< 40 µm particle size)
Particle density	Class 7 (< 10 mg/m³)
Pressure condensation point	Class 3 (< -20 °C)
Oil concentration	Class X (< 25 mg/m³)

Supply pressure

2.5...8 bar

Air capacity solenoid valve¹⁾

(supply and exhaust air per solenoid valve adjustable)	110 l _N /min - for pressurization and exhaust, lifting device
	110 l _N /min - delivery condition
	200 l _N /min - max. typical flow rate (throttle)

Pilot air ports

Air inlet and outlet	G ¼
Service ports	G ½

Position sensor

	Non-contact Position Sensor, 3 self-regulated switching points PNP (Teach-In-function) closer (normally open), PNP-output short-circuit proof, with clocking short-circuit protection
Outlet current	Max. 100 mA per feedback signal
Stroke range	0...80 mm
Resolution	≤ 0.1 mm
Total error	± 0.5 mm - when using a target for the dimensional drawing, material 1.4021 and a piston rod (Ø 22 mm, material 1.4301) (error refers to the reproducibility of a teach-position)

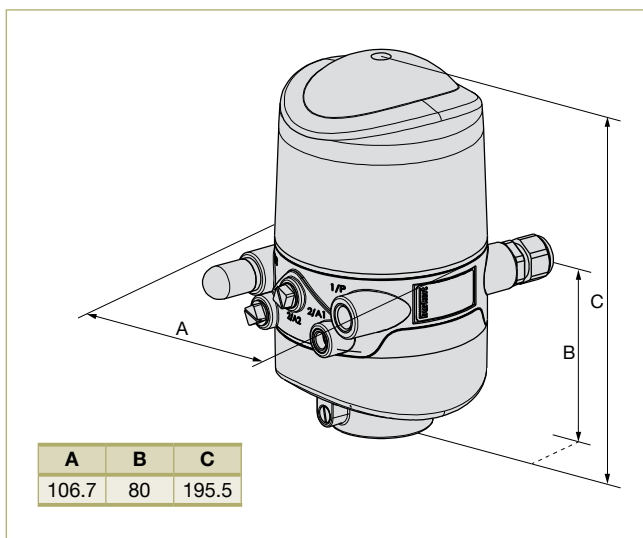
Ambient temperature

-10 °C...+55 °C
+5 °C...+55 °C (ATEX II 3G Ex nA IIC T4; ATEX II 3G Ex tD A22 T135 °C)

Installation

As required, preferably with actuator in upright position

Dimensions [mm]



Protection class IP65/67 acc. to EN 60529

Protection class 3 (AS-Interface, 24 V DC, DeviceNet); 1 (120 V AC) acc. to DIN EN 61140

Fieldbus communication AS-Interface, DeviceNet

EG-Conformity EMV2004/108/EG; ATEX 94/9/EG

Ignition protection class ATEX II 3G Ex nA IIC T4
ATEX II 3D Ex tD A22 T135 °C

¹⁾ Q_N-value acc. to the definition with decrease in pressure from 7...6 bar absolute with 20 °C.

Technical data continued

Without fieldbus communication; 24 V DC	
Power supply	12...28 V DC
Residual ripple with DC	Max. 10 %
Power consumption	< 5 W (acc. to version and operating status see instruction manual)
Valve control inputs (Y1 - Y3)	
Signal level - active	$U > 10 \text{ V}$, max. 24 V DC + 10 %
Signal level - inactive	$U < 5 \text{ V}$
Impedance	$U > 30 \text{ k}\Omega$
Outputs / binary feedback signals	
Design	S1 out - S4 out
Switchable output current	Normally open contact, PNP output short-circuit proof with self-locking short circuit protection
Output voltage -active	Max. 100 mA per feedback signal
Output voltage -inactive	\geq (operating voltage - 2 V)
	Max. 1 V in unloaded state
Input / proximity switches (external initiator: S4 in)	
Operating voltages	Voltage present at control head - 10 %
Current carrying capacity, sensor power supply	Max. 90 mA short-circuit protection
Design	DC 2- and 3-conductor, NO or NC (factory setting NO), PNP output
Input current 1 signal	$I_{\text{Sensor}} > 6.5 \text{ mA}$, limited internally to 10 mA
Input voltage 1 signal	$U_{\text{Sensor}} > 10 \text{ V}$
Input current 0 signal	$I_{\text{Sensor}} < 4 \text{ mA}$
Input voltage 0 signal	$U_{\text{Sensor}} < 5 \text{ V}$
Electrical connection	
Multipole	M12 12 pin with cable 8 cm, 1 x M16 x 1.5 cable glands for external initiator (clamping range 3...6 mm)
Cable gland	M16 x 1.5 (cable-Ø 5...10 mm, screw terminals 0.14...1.5 mm ²), 1 x M16 x 1.5 cable glands for external initiator (clamping range 3...6 mm)
With Fieldbus communication; AS-Interface	
Profil	S- 7.A.E (A/B slave max. 62 slaves/master) S- 7.F.F (max. 31 slaves/master)
Power supply	
above bus line	As Specification
from bus signal separated	Reversible (Jumper)
Power consumption equipment without external power supply	
Max. Current consumption	240 mA (incl. external initiator with 90 mA)
Current consumption in normal operation	$\leq 150 \text{ mA}$
(acc. to reduction of electric current; valve + 1 end position achieved)	3 valves activated, 1 position feedback with LED display, no external initiator
Power consumption equipment with external power supply	
The power supply unit must include a secure disconnect in accordance with IEC 364-4-41. It must conform to the SELV standard. The ground potential may not have an earth connection.	19.2 V DC...31.6 V DC $\leq 110 \text{ mA}$ 24 V DC $\leq 150 \text{ mA}$ type.
Output (from master perspective) / solenoid valves	
Max. switching capacity	0.9 W (per solenoid valve)
Typ. continuous output	0.6 W (per solenoid valve)
Watchdog function	Integrated
Pull-in current	30 mA or 0.9 W / 200 ms (at 30.5 AS-i-voltage)
Holding current	20 mA or 0.6 W / 200 ms (at 30.5 AS-i-voltage)
Operating mode	Long-term operation (100 % operation)
Valve type	6524
Input / proximity switches (external Initiator: S4 in)	
Operating voltages	AS interface voltage present at control head - 10 %
Current carrying capacity, sensor power supply	Max. 30 mA short-circuit protection
Design	DC 2- and 3-conductor, NO or NC (factory setting NO), PNP output
Input current 1 signal	$I_{\text{Sensor}} > 6.5 \text{ mA}$, limited internally to 10 mA
Input voltage 1 signal	$U_{\text{Sensor}} > 10 \text{ V}$
Input current 0 signal	$I_{\text{Sensor}} < 4 \text{ mA}$
Input voltage 0 signal	$U_{\text{Sensor}} < 5 \text{ V}$
Electrical connection	
(ASI flat cable clip at cable 80 cm as standard)	M12 4 pin at cable 8 cm (acc. 0.3 m cable length acc. to AS-Interface Specification) 1 x M16 x 1.5 cable glands for external initiator clamping range 3...6 mm. M12 4 pin at cable 80 cm (acc. 1.0 m cable length acc. to AS-Interface Specification) 1 x M16 x 1.5 cable glands for external initiator clamping range 3...6 mm.

Bit configuration

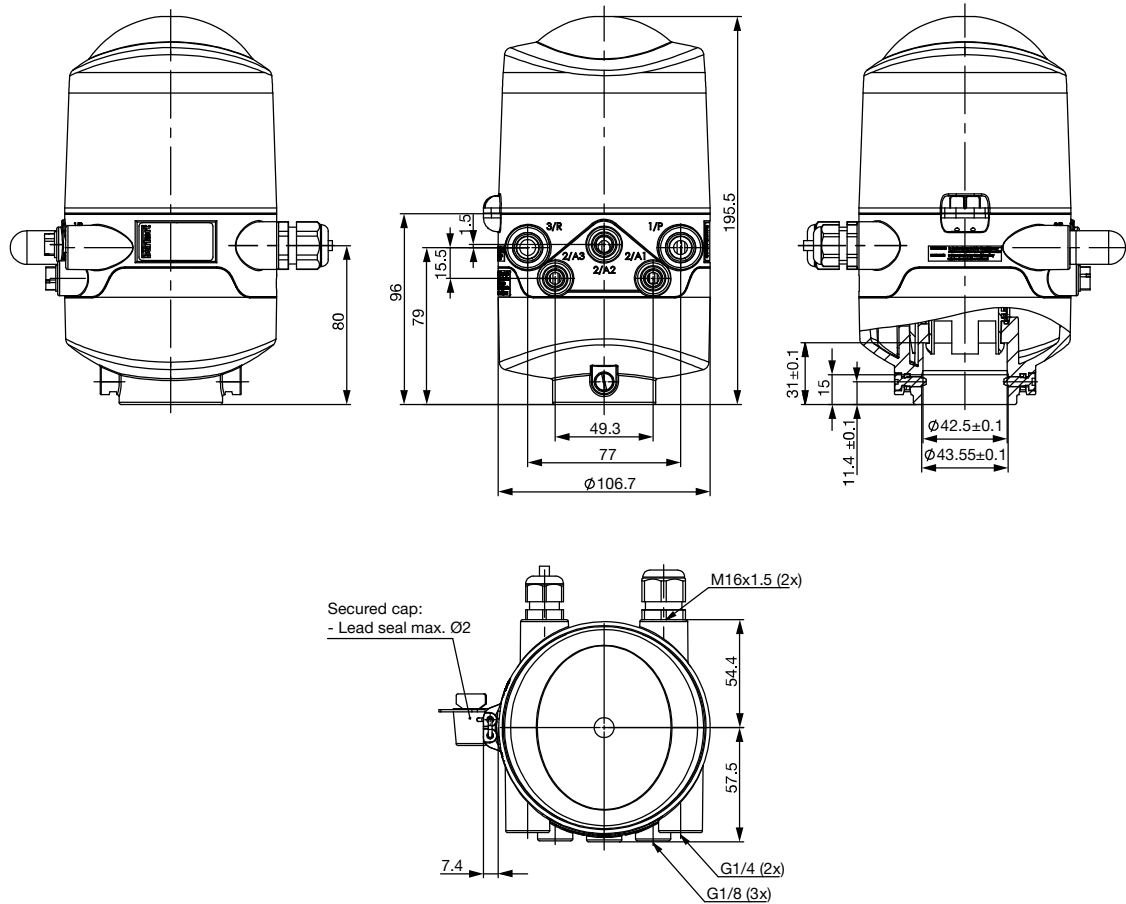
Databit	D3	D2	D1	D0
Input	external initiator S4	position 3	position 2	position 1
Output	not configured	solenoid valve 3	solenoid valve 2	solenoid valve 1
Parameterbit	D3	D2	D1	D0
Output	not configured	not configured	not configured	not configured




























Programming data

Databit	Programming data with 62 Slaves AS-Interface - device for A/B-Slave-addressing (standard device)	Programming data with 31 Slaves AS-Interface (optional)
E/A - configuration	7 hex (4 Inputs / 4 Outputs) see bit configuration chart	7 hex (4 Inputs / 4 Outputs) see bit configuration chart
ID-code	A hex	F hex
combinative ID-code 1	7 hex	(F hex)
combinative ID-code 2	E hex	(F hex)
profile	S-7.A.E	S-7.F.F

Dimensions [mm]



Ordering chart

Communication	Voltage	Connection	ATEX Zone 2/22 cat. 3	Quantity of solenoid valves	Feedback	Article no.
without	12...28 V DC	Cable glands	without	0	3 int. + 1 ext.	196410 
			without	1	3 int. + 1 ext.	196411 
			without	2	3 int. + 1 ext.	196412 
			without	3	3 int. + 1 ext.	196413 
			with	1	3 int. + 1 ext.	196415 
without	12...28 V DC	M12, 12 pin, cable 8 cm	without	0	3 int. + 1 ext.	196420 
			without	1	3 int. + 1 ext.	196421 
			without	2	3 int. + 1 ext.	196422 
			without	3	3 int. + 1 ext.	196423 
			with	1	3 int. + 1 ext.	196425 
	120 V AC	Cable glands	without	0	3 int. + 1 ext.	196470 
			without	1	3 int. + 1 ext.	196471 
			without	2	3 int. + 1 ext.	196472 
			without	3	3 int. + 1 ext.	196473 
			with	1	3 int. + 1 ext.	196475 
AS-Interface (62 slaves)	29.5...31.6 V DC	Version with ASI flat cable terminal and 80 cm cable	without	0	3 int. + 1 ext.	196430 
			without	1	3 int. + 1 ext.	196431 
			without	2	3 int. + 1 ext.	196432 
			without	3	3 int. + 1 ext.	196433 
			with	1	3 int. + 1 ext.	196435 
DeviceNet	via Bus	M12, 5 pin, cable 80 cm	without	0	3 int. + 1 ext.	196450 
			without	1	3 int. + 1 ext.	196451 
			without	2	3 int. + 1 ext.	196452 
			without	3	3 int. + 1 ext.	196453 
			with	1	3 int. + 1 ext.	196455 

8681
Control head



Accessories

8681
Control head

Version	Article no.
Silencer PE G ¼	780780
Blind plug PP G ⅜	770901
Banjo fitting brass nickel-plated G ¼ for Ø tube 8/6 mm	780084
Banjo fitting brass nickel-plated G ⅜ for Ø tube 6/4 mm	780082
Universal VA-flange with O-ring	196495
Target for type 8681 from 1.4021	196494
Magnet-manual control tool	196490
Cable 27 cm (8 cm outside) with 12 pin M12 plug for 24 V DC	217574
Cable 99 cm (80 cm outside) with 4 pin M12 plug for ASi	217572
Cable 27 cm (8 cm outside) with 4 pin M12 plug for ASi	217573
ASi-flat cable terminal with M12 with stainless steel female connector	799646
Cable 99 cm (80 cm outside) with 5 pin M12 plug for DeviceNet	218187
USB adaptation kit PC-communicator	227093
Set with 20 lead seals, to avoid tool-free opening of the cover (spare part)	257100

Control- and feedback head for integrated mounting on Robolux valves Type 2036

8685 / 8686

- Compact stainless steel design
- Contactless valve position registration
- Fieldbus AS- Interface (optional)
- Version for NAMUR circuits (optional)
- Version according to ATEX/IECEx



Type 8685

Type 8686

Feedback, Type 8685, and control head, Type 8686, are optimised for integrated mounting on pneumatically operated actuator, Type 2036 Robolux. The adjustment to the individual actuator size is done through DIP-switches.

As a compact unit the devices provide the complete automation functionality for the two individually operated actuator pistons. Depending on the configuration the electrical and visual position feedback is done by non-contact switches and high-power LEDs. Integrated pilot valves control the actuator pistons and AS-interface communication is available. Using appropriate barriers both types feature intrinsic safety acc. to ATEX.

In this way a complete concept for decentralized automation is feasible for the process technique.

The compact body is especially distinguished by its hygienic design, with resistance to cleaning agents and a proven electrical IP protection.

In addition the control head, Type 8686, features an integrated compressed air filter to protect the pilot valve function against particles through the compressed air supply.

Technical data

General data	
Material:	
Body	PPS, stainless steel
Cover	PC
Seal	EPDM
Power supply	
Limit switches	24 V DC $\pm 10\%$ 8.2 V DC (Ex i NAMUR switch amplifier) U < 12 V, Ii < 20 mA, Pi < 60 mW (Ex Barrier)
Pilot valve	24 V DC $\pm 10\%$ Max. voltage see footnote no. 3
Pilot valve	Residual ripple 10 %; Power consumption 0.8 W every valve for Ex i variants: acc datasheet II 2G Ex ia IIC T4 T5 T6 PTB01 ATEX 2048
Control medium	Neutral gases, air DIN ISO 8573-1
Dust content	Class 5 (< 40 μm particle size)
Particle density	Class 5 (< 10 mg/m^3)
Pressure dew point	Class 3 (< -20 °C)
Oil concentration	Class 5 (< 25 mg/m^3)
Supply pressure	3...7 bar ¹⁾
Air supply filter	Exchangeable
Mesh aperture	~0.1 mm
Pilot air ports	Threaded ports G 1/8
Position feedback	Reed sensors (no contact)

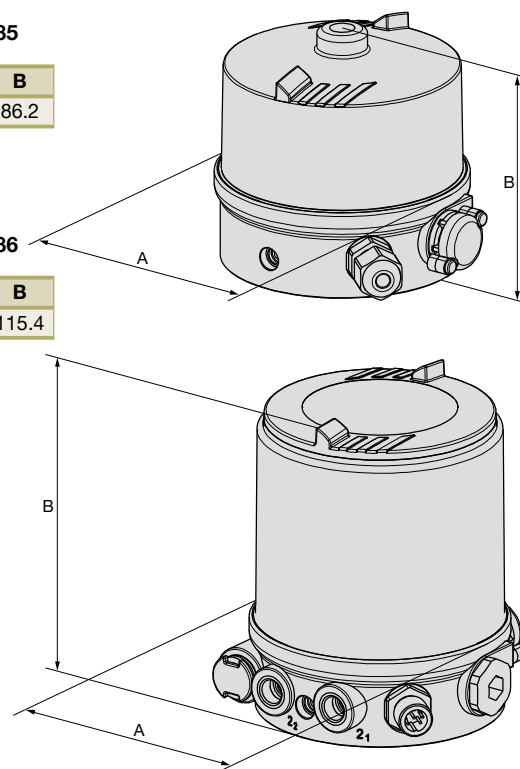
Dimensions [mm]

Type 8685

A	B
90.8	86.2

Type 8686

A	B
90.8	115.4



Stroke range valve spindle	RV50=6.0 mm, RV70=9.5 mm, RV110=13.5 mm
Ambient temperature	0 °C...+55 °C
Installation	As required, preferably with actuator in upright position
Protection class	IP65/67 according to EN 60529
Protection class	3 acc. to VDE 0580
Fieldbus communication	AS-Interface
Conformity	CE acc. to EMV2004/108/EG
Electrical connection	
Multipole	M12 (8 pin), M12 (4 pin) with 1 m cable (AS-Interface)
Cable gland	M16 x 1.5 (Cable Ø 6.5 mm), screw terminals (1.0 mm ²)

¹⁾ The supply pressure must be 0.5...1 bar above the minimum required control pressure of the valve actuator.

Technical data continued

Without Fieldbus communication	
Power supply	24 V DC
Residual ripple with DC	10 %
Voltage tolerance	± 10 %
Power consumption	< 2 W
Output	Max. 100 mA per output/ short-circuit protected
Electrical connection	
Multipole	M12 (8 pin)
Cable gland	M12 × 1.5 (cable Ø 6.5 mm), screw terminals (1.0 mm ² / max. port cross-section 0.25 mm ²)
Type 8685 / 8686 2G II Ex ia IIC T4 Gb	
Ignition protection class	IIG Ex ia IIC T4 Gb (BVS 13 ATEX E 039 X) Ex ia IIC T4 Gb (IECEX BVS 13.0047 X)
Operating conditions	Medium temperature of adapted process valve Type 2036 T(media) : 0 °C to 130 °C (safety requirement value)
Power supply	
Limit switches	Operates with Ex i NAMUR switch amplifier: 8.2 V DC Operates with Ex barrier ¹⁾ : max. input voltage Ui < 12 V DC
Pilot valve	Control valve component for Ex valve coils ²⁾
Limit switches- Status	Only electrical feedback
Power consumption	Operates with Ex i NAMUR- switch amplifier: < 1.2 mA (terminal position reached) > 2.1 mA (terminal position not reached) Operates with Ex barrier ¹⁾ : max. input voltage li < 50 mA
Electrical connection	Cable gland M12 × 1.5 (cable-Ø 6.5 mm), screw terminals 1.0 mm ² /max. port cross-section: 8685: 0.25 mm ² ; 8686: 0.14 mm ²

1) Electrical feed-in through intrinsically safe electric circuit of type of protection Ex ia IIC
Each circuit (end position) has the following safety related max data:
Max. input voltage Ui = 12 V DC / max. input circuit li = 50 mA
Max. input power Pi = 60 mW
Internal capacity and inductance negligible

2) Feed-in valves
Max. input power Pi = 1.1 mW
Max input voltage and max. input circuit acc. following table:
Ui [V] 15 18 20 22 25 28 30 35
li [mA] 900440 309224 158120 101 73
Internal capacity and inductance negligible

With Fieldbus communication; AS-Interface Type 8685	
Profile	S-O.A.E (A/B slave, max 62 slaves/master)
Power supply	29.5...31.6 V DC
via bus lines	Acc. to specification
separated from bus signal	On request
Max. power consumption (2 terminal position reached)	35 mA
Electrical connection	M12 4 pin with 1 m cable on flat cable clip
Programming data	See operating manual
With Fieldbus communication; AS-Interface Type 8686	
Profile	S-O.A.E (A/B slave, max 62 slaves/master)
Power supply	29.5...31.6 V DC
via bus lines	Acc. to specification
separated from bus signal	On request
Max. power consumption Max. power consumption (2 valves activated and 2 feedback active)	≤ 120 mA
Outputs	
Contact rating	≤ 2 × 0.8 W (above AS-Interface)
Watch-dog function	Integrated
Inputs	
Sensor operating voltage	24 V ± 10 % (above AS-Interface)
Acceptable current load	≤ 50 mA short circuit protected
Switching level High	10 V
Input current High	≤ 1.5 mA
Input current Low	≤ 0.1 mA
Electrical connection	M12 4 pin with 1 m cable on flat cable clip
Programming data	See operating instruction

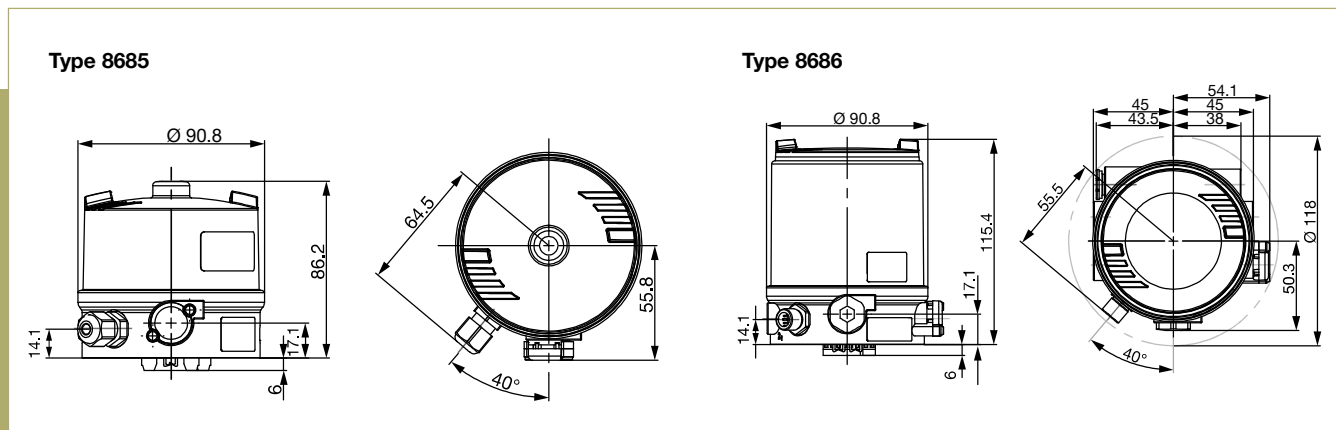
Options

- Type 8686 ASI version with external power supply
- Type 8686 24 V DC version with cable gland



Dimensions [mm]

8685 / 8686



Ordering chart

Type	Communication	Electrical connection	Pneumatic function	Position feedback	Pilot air ports	Article no.
8685	without	Cable gland	without	2 switching points	Threaded ports G 1/8	231306 🛒
	AS-Interface A/B	cable glands with 1 m cable on flat cable clip	without	2 switching points	Threaded ports G 1/8	231307 🛒
	Ex i (NAMUR)	Cable gland	without	2 switching points	Threaded ports G 1/8	242249 🛒
8686	without	M12 (8 pin)	2 x single-acting DN3.0	2 switching points	Threaded ports G 1/8	231292 🛒
	AS-Interface A/B	cable glands with 1 m cable on flat cable clip	2 x single-acting DN3.0	2 switching points	Threaded ports G 1/8	231293 🛒
	Ex i (NAMUR)	Cable gland	2 x single-acting DN3.0	2 switching points	Threaded ports G 1/8	242250 🛒

Accessories

Specifications	for actuator size	Article no.
Adapter set for Type 8685	RV50, RV70, RV110	684267 🛒
Adapter set for Type 8686	RV50, RV70, RV110	684268 🛒

Specifications	Article no.
M12 socket, 8 pin, 5 m assembled cable	919267 🛒
M12 socket, 8 pin, 2 m assembled cable	919061 🛒
ASI-fl at cable clip with VA-socket M12 (replacement part)	799646 🛒
Silencer G 1/8 threaded ports	780779 🛒
Pilot tool for cover mounting	674077 🛒

Control head and pneumatic control unit for decentralized automation of ELEMENT process valves

8690/8691

- Spring chamber vent
- Flushing function
- Optical position indicator
- Integrated air supply
- With ATEX II Cat. 3G/D and Cat. 2D/G approval



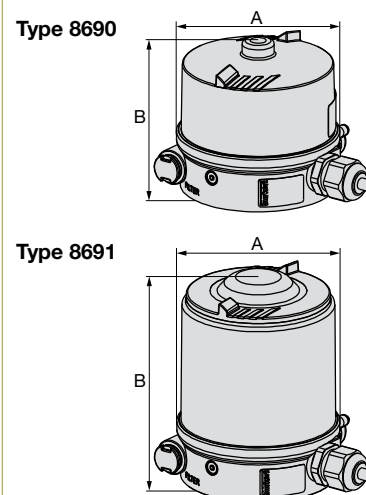
The pneumatic control units, Type 8690 and Type 8691, are optimised for the integrated mounting on process valves series 21XX. At the 8691 bright coloured LEDs indicate the current status of the process valves (visible from a distance). Chemically resistant PPS housing is designed in accordance with EHEDG guidelines for use in hygienic environments. Especially for the system cleaning the IP protection of the housing is supported by overpressure in the control head.

Technical data

	8690	8691
Materials		
Body	PPS	PPS, Stainless steel
Cover	PC	PC
Seal	EPDM	EPDM
Pilot valve	24 V DC $\pm 10\%$, residual ripple 10 % (no technical direct current); 1 W	24 V DC $\pm 10\%$, residual ripple 10 % (no technical direct current); 2 W
Micro switch	Max. 24 V DC, max. 2 A	
Initiator	10...24 V DC, max. 100 mA ext. load per initiator	PNP, 10...24 V DC, max. 100 mA
Electrical connection		
Multipole	M12, 8 pin	M12, 8-pins, M12 4-pins (AS-Interface, IO-Link)
Cable gland	M16 \times 1.5 (cable- \varnothing 10 mm), Screw terminals (1.5 mm ²)	M12 5-pins (DeviceNet, bÜS) M16 \times 1.5 (clamping area 5...10 mm) With screw-type terminals for cable cross-sections 0.14...1.5 mm ²
Buses available	–	DeviceNet, AS-i
Optical feedback	–	SuperBRIGHT LED
Media	Instrument air	Instrument air
Push in connector	(external \varnothing 6 mm or 1/4") or threaded ports G 1/8	
Integrated filter	0.1 mm (exchangeable)	0.1 mm (exchangeable)
Supply pressure	3...7 bar ¹⁾	3...7 bar ¹⁾
Ambient temperature	With pilot valve -10 °C...+55 °C Without pilot valve -20 °C...+60 °C	With pilot valve -10 °C...+55 °C Without pilot valve -20 °C...+60 °C
Protection class	IP65/IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard	IP65/IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard
Protection class	3 acc. to DIN EN 61140	3 acc. to DIN EN 61140
Conformity	EMC Directive 2014/30/EU	EMC Directive 2014/30/EU

¹⁾ The supply pressure has to be 0.5...1 bar above the minimum required pilot pressure for the valve actuator.

Dimensions [mm]



Type	A	B
8690	91	86.2
8691	91	119

Technische Daten, Fortsetzung

	8690	8691
Approvals		
ATEX	Ⓢ II 3D Ex tc IIIC T135 °C Dc / Ⓢ II 3G Ex ec IIC T4 Gc Certificate; BVS 14 ATEX E 008 X Ⓢ II 2D Ex ia IIIC T135°C IP64 / Ⓢ II 2G Ex ia IIC T* Gb Certificate; BVS 14 ATEX E052 X	Ⓢ II 3D Ex tc IIIC T135 °C Dc / Ⓢ II 3G Ex ec IIC T4 Gc Certificate; BVS 14 ATEX E 008 X
IECEX	Ex tc IIIC T135 °C Dc / Ex ec IIC T4 Gc Certificate; IECEX BVS 14.0009 X Ex ia IIIC T135°C IP64 / Ex ia IIC T* Gb Certificate; IECEX BVS 14.0035 X	Ex tc IIIC T135 °C Dc / Ex ec IIC T4 Gc Certificate; IECEX BVS 14.0009 X
UL	cULus Certificate; E238179	cULus Certificate; E238179
Ignition protection class	II 3D Ex tc IIIC T135 °C Dc II 3G Ex ec IIC T4 Gc II 2G Ex ia IIC T* Gb II 2D Ex ia IIIC T135 °C Db IP64	II 3D Ex tc IIIC T135 °C Dc II 3G Ex ec IIC T4 Gc

Ordering chart Type 8690

Pneumatic control unit Type 8690								
End position feedback			Electrical connection	Control function	Pilot air ports threaded ports	Article no.		
Inductive switch 24 V DC PNP	Inductive switch NAMUR 2-wire 8 V DC Ex ia IIC T6	Micro switch 24 V DC				Standard	ATEX II cat. 3G/D	ATEX II cat. 2G/D
2	–	–	M12 multipole	single-acting	G 1/8	227222	264968	–
2	–	–		double-acting	G 1/8	264939	264957	–
2	–	–			G 1/8	227190	264949	–
2	–	–	Cable gland	single-acting	G 1/8	227220	264967	–
2	–	–		double-acting	G 1/8	264941	264956	–
2	–	–			G 1/8	227189	264948	–
1	–	–	M12 multipole	single-acting	G 1/8	227218	264964	–
1	–	–		double-acting	G 1/8	264940	264953	–
1	–	–			G 1/8	265151	264945	–
1	–	–	Cable gland	single-acting	G 1/8	227216	264963	–
1	–	–		double-acting	G 1/8	264942	264952	–
1	–	–			G 1/8	265154	264944	–
–	2	–		single-acting	G 1/8	–	–	265143
–	2	–		double-acting	G 1/8	–	–	265144
–	2	–			G 1/8	–	–	265142
–	–	2	M12 multipole	single-acting	G 1/8	227234	–	–
–	–	1			G 1/8	227230	–	–

8690/8691



Ordering chart Type 8691 continued

8690/8691

Pneumatic control unit Type 8690								
End position feedback			Electrical connection	Control function	Pilot air ports threaded ports	Standard	Article no.	
Inductive switch 24 V DC PNP	Inductive switch NAMUR 2-wire 8 V DC Ex ia IIC T6	Micro switch 24 V DC					ATEX II cat. 3G/D	ATEX II cat. 2G/D
–	–	2	Cable gland	single-acting	G 1/8	227232	–	–
–	–	2		–	G 1/8	227195	–	–
without end position feedback			Cable gland	single-acting	G 1/8	225883	264961	–
				double-acting	G 1/8	265156	265935	–





Note: All non-ATEX versions are UL approved.

Control head Type 8691					
Communication	Electrical connection	Control function pilot valve system	Pilot air ports threaded ports	Article no.	
				Standard	ATEX II cat. 3G/D, IECEx
AS-Interface Slave profile: S-B.A.E (A/B slave, max. 62 slaves)	M12 multipole connector	single-acting	G 1/8	227254	264988
		double-acting	G 1/8	227240	264975
	M12 multipole connector /Flat cable clip / 80 cm cable	single-acting	G 1/8	227258	264990
		double-acting	G 1/8	227244	264977
DeviceNet	M12 multipole connector	single-acting	G 1/8	227255	264989
		double-acting	G 1/8	227241	264976
IO-Link	M12 multipole connector	single-acting	G 1/8	307371	321927
		double-acting	G 1/8	307368	321925
		without	G 1/8	307377	321933
bÜS - Bürkert System Bus	M12 multipole connector	single-acting	G 1/8	307375	321931
		double-acting	G 1/8	307373	321929
		without	G 1/8	307379	321935
Without fieldbus communication	M12 multipole connector	single-acting	G 1/8	227262	264992
		double-acting	G 1/8	227248	264979
		without	G 1/8	246211	264972
	Cable gland	single-acting	G 1/8	227260	264991
		double-acting	G 1/8	227246	264978
		without	G 1/8	264943	264971

Note: Standard versions are UL approved (UL approval IO-Link and bÜS - Bürkert System Bus in preparation)

Accessories for Type 8690










Description	Actuator size	Control function	Article no.
Adapter kit ELEMENT Type 21xx	Ø 70/90/130 mm	Universal	665720 

Description	Article no.
M12 socket 8 pin with 5 m cable for power supply and input/output signals	919267 
ASI flat cable clip with stainless steel socket M12 (spare part)	799646 
Silencer G 1/8	780779 
Silencer, push-in connector	902662 

Accessories for Type 8691

Description	Actuator size	Control function	Article no.
Adapter kit ELEMENT Type 21xx	Ø 70 / 90 / 130 mm	universal	679917 

For installation kits to 3rd party process valves please see data sheet **Type KK01** ▶ adapter kits for hygienic process valves or contact your sales office for related drawings or individual engineering support

Description	Article no.
M12 socket 8 pin with 5 m cable for power supply and input/output signals	919267 
ASI flat cable clip with stainless steel socket M12 (spare part)	799646 
USB bÜS-Interface Set (bÜS Stick + connecting cable with M12 connector + connecting cable M12 to micro USB for bÜS service interface) for connecting to the PC tool Bürkert Communicator	772551 
bÜS cable extension M12, length 1 m	772404 
bÜS cable extension M12, length 3 m	772405 
bÜS cable extension M12, length 5 m	772406 
bÜS cable extension M12, length 10 m	772407 
Silencer G 1/8	780779 
Sensor puck (spare part)	682240 
Bürkert Communicator Software	http://www.burkert.com/en/type/8920



Digital electropneumatic positioner for the integrated mounting on process control valves

8692

- PROFIBUS DP-V1, DeviceNet, EtherNet/IP, PROFINET, Modbus TCP or bÜS (Bürkert System Bus)
- Compact, robust stainless steel design
- Easy start-up by automatic X-Tune function
- Contact-free position sensor
- Integrated control air routing with spring chamber aeration



The compact positioner Type 8692 is optimized for integrated mounting on the pneumatic actuators in the process valve series Type 23xx/2103 and is specially designed for the requirements of a hygienic process environment. The control air channel is integrated in the actuator without external tubings. The easy handling and the selection of additional software functions are done either on a big graphic display with backlight and keypad or over COMMUNICATOR. The positioner registers the valve position without deterioration through a contact-free, analog position sensor. The control of single or double-acting actuators is done without internal air consumption. With integrated diagnostic functions operation conditions of the control valve can be monitored. Through status signals, valve diagnostic messages are transmitted according to NAMUR NE107 and recorded as history entries. The housing is easy to clean and features proven IP protection and chemically resistant materials for use in hygienic processing, in food, beverage and pharmaceutical industries. Combined with Bürkert ELEMENT actuators the unique pilot valve system enables a compressed air recycling that avoids actuator chambers contamination from the environment.

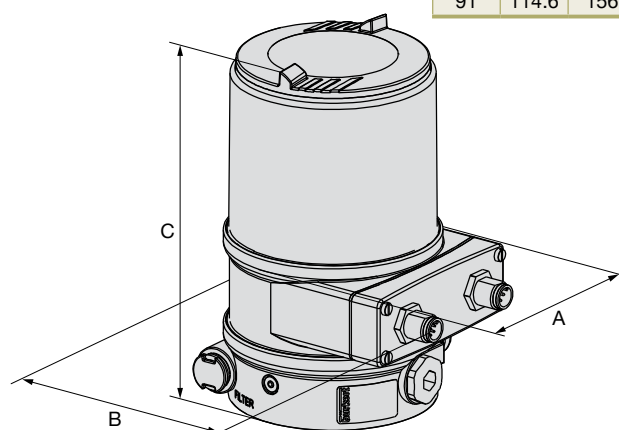
Technical data

Material	
Body	PPS, stainless steel
Cover	PC
Sealing	EPDM
Power supply	24 V DC $\pm 10\%$, UL: NEC Class 2
Residual ripple	Max. 10 %
Setpoint setting	0/4...20 mA and 0...5/10 V
Input resistance	0/4...20 mA: 180 Ω
	0...5/10 V: 19 k Ω
Control medium	Neutral gases, air, quality classes acc. to ISO 8573-1
Dust concentration	Class 7: (< 40 μm particle size)
Particle density	Class 5 (< 10 mg/m ³)
Pressure condensation point	Class 3 (< -20 °C)
Oil concentration	Class X (< 25 mg/m ³)
Ambient temperature	-10 °C...+55 °C
Control air ports	Threaded ports G 1/8 stainless steel
Supply pressure	Low air flow rate: 0...7 bar ¹⁾
	High air flow rate: 3...7 bar
Air input filter	Exchangeable (mesh aperture ~0.1 mm)
Actuator system	
Actuator series Type 23xx	Low air flow rate: Ø Actuator 70/90 mm
	High air flow rate: Ø Actuator 130 mm
Actuator series Type 27xx	High air flow rate: Ø Actuator 175/225 mm

Dimensions [mm]

Version Multipole connector

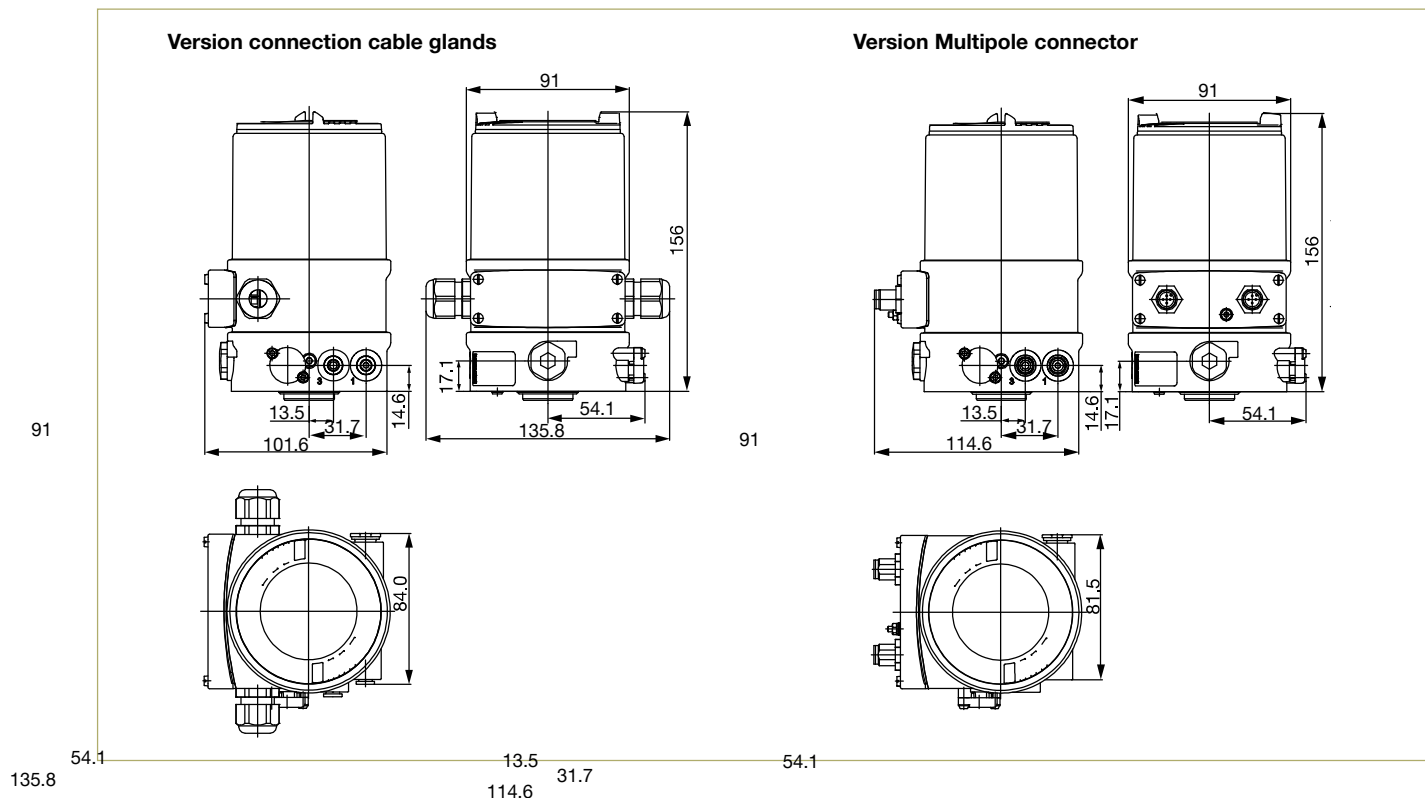
A	B	C
91	114.6	156



Position detection module	Contact-free, wear-free
Stroke range valve spindle	3...28 mm (3...45 mm on request)
Installation	As required, preferably with actuator in upright position
Protection class	IP65/IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard
Protection class	3 acc. to DIN EN 61140
Power consumption	<5 W
Electrical connection	
Multipole connection	M12, 8 pin or 4 pin
Cable gland	2xM16 x 1.5 (cable Ø 5...10 mm) with connection terminals for cable cross-sections 0.14...1.5 mm ²
Bus communication	PROFIBUS DP-V1, DeviceNet, EtherNet/IP, PROFINET, Modbus TCP, bÜS - Bürkert System Bus (based on CANopen)
Approvals	
ATEX	⊕ II 3D Ex tc IIIC T135 °C Dc / ⊕ II 3G Ex ec IIC T4 Gc Certificate; BVS 14 ATEX E 008 X
IECEx	Ex tc IIIC T135 °C Dc / Ex ec IIC T4 Gc Certificate; IECEx BVS 14.0009 X
UL	cULus Certificate; E238179
Ignition protection class	II 3D Ex tc IIIC T135 °C Dc II 3G Ex ec IIC T4 Gc
Conformity	EMC directive 2014/30/EU

1) The supply pressure has to be 0.5...1 bar above the minimum required pilot pressure for the valve actuator.

Dimensions [mm]



Ordering chart

Control function Pilot valve system	Communi- cation	Electrical connection	Analogue feedback 0/4...20 mA	Analogue feedback 0/4...20 mA + 2 binary outputs	Diagnostic function ¹⁾	Binary inputs	Pilot air ports threaded ports	Article no.	
StandardATEX II cat. 3G/D, IECEx									
Actuator series Type 23xx, size Ø 70/90 mm									
Low air capacity single-acting	without fieldbus com- munication	cable gland	–	–	–	yes	G 1/8	306913	306982
			–	yes	yes	yes	G 1/8	307005	306983
		M12 multipole connector	–	–	–	yes	G 1/8	307012	307095
			–	yes	yes	yes	G 1/8	307123	307096
	PROFIBUS DP-V1	via Bus	–	–	–	G 1/8	233348	265019	
	DeviceNet	via Bus	–	–	–	G 1/8	265168	265017	
	EtherNet/IP	via Bus	–	yes	–	G 1/8	306849	306847	
	PROFINET	via Bus	–	yes	–	G 1/8	306854	306851	
	Modbus TCP	via Bus	–	yes	–	G 1/8	306859	306856	
	büS - Bürkert System Bus	via Bus	–	yes	–	G 1/8	306863	306861	
Low air capacity double-acting	without fieldbus com- munication	cable gland	–	–	–	yes	G 1/8	306905	306977
			–	yes	yes	yes	G 1/8	307006	306978
	M12 multipole connector	–	–	–	yes	G 1/8	307124	307091	
		–	yes	yes	yes	G 1/8	307125	307092	
	PROFIBUS DP-V1	via Bus	–	–	–	G 1/8	265172	265004	
	DeviceNet	via Bus	–	–	–	G 1/8	265173	265002	



Ordering chart



8692

Control function Pilot valve system	Communi- cation	Electrical connection	Analogue feedback 0/4...20 mA	Analogue feedback 0/4...20 mA + 2 binary outputs	Diagnostic function ¹⁾	Binary inputs	Pilot air ports threaded ports	Article no.	
								Standard	ATEX II cat. 3G/D, IECEx
Actuator series Type 23xx, size Ø 130 mm									
High air capacity single-acting	without fieldbus com- munication	Cable gland	–	–	–	yes	G 1/8	306922	306986
			–	yes	yes	yes	G 1/8	307007	306987
		M12 multipole connector	–	–	–	yes	G 1/8	307084	307099
			–	yes	yes	yes	G 1/8	307126	307100
	PROFIBUS DP-V1	via Bus	–	–	–	G 1/8	233349	265033	
	DeviceNet	via Bus	–	–	–	G 1/8	265176	265031	
	EtherNet/IP	via Bus	–	yes	–	G 1/8	306850	306848	
	PROFINET	via Bus	–	yes	–	G 1/8	306855	306853	
	Modbus TCP	via Bus	–	yes	–	G 1/8	306860	306857	
	büS - Bürkert System Bus	via Bus	–	yes	–	G 1/8	306864	306862	
Actuator series Type 27xx, size Ø 175/225 mm									
High air capacity single-acting	without fieldbus com- munication	Cable gland	–	–	–	yes	G 1/8	306925	306988
			–	yes	yes	yes	G 1/8	306927	306989
		M12 multipole connector	–	–	–	yes	G 1/8	307041	307101
			–	yes	yes	yes	G 1/8	307043	307102
	PROFIBUS DP-V1	via Bus	–	–	–	G 1/8	233350	265041	
	DeviceNet	via Bus	–	–	–	G 1/8	239114	265039	
	EtherNet/IP	via Bus	–	yes	–	G 1/8	313266	313265	
	PROFINET	via Bus	–	yes	–	G 1/8	313269	313268	
	Modbus TCP	via Bus	–	yes	–	G 1/8	313271	313270	
	büS - Bürkert System büS	via Bus	–	yes	–	G 1/8	313274	313272	












¹⁾ See additional software functions parametrisable diagnostic functions / binary outputs on separate datasheet

Note: Standard versions are UL approved.

Accessories

Description	Actuator size	Control function	Article no.
Adapter kit actuator series Type 23xx/2103	Ø 70 / 90 / 130 mm	universal	679917 
Adapter kit actuator series Type 27xx	Ø 175 / 225 mm	A (NO), B (NC)	679935 

For installation kits to 3rd party process valves please see data sheet **Type KK01** ► adapter kits for hygienic process valves or contact your sales office for related drawings or individual engineering support

Description	Article no.
M12 socket 8 pin with 5 m cable input/output signals	919267 
M12 socket 4 pin with 5 m cable for power supply	918038 
USB bÜS-Interface Set (bÜS Stick + connecting cable with M12 connector + connecting cable M12 to micro USB for bÜS service interface) for connecting to the PC tool Bürkert Communicator (only for device versions with EtherNet/IP, PROFINET, Modbus TCP and bÜS - Bürkert System Bus)	772551 
bÜS cable extension M12, length 1 m	772404 
bÜS cable extension M12, length 3 m	772405 
bÜS cable extension M12, length 5 m	772406 
bÜS cable extension M12, length 10 m	772407 
SIM Card	291773 
Silencer G 1/8	780779 
Sensor puck (spare part)	682240 
USB interface for serial communication (only for device versions with PROFIBUS / DeviceNet or with fluid flow controller Type 8750)	227093 
Bürkert Communicator Software	http://www.buerkert.com/en/type/8920



Digital electropneumatic process controller for the integrated mounting on process control valves

8693

- Compact, robust stainless Steel design
- Easy start-up by Tune function for position and process controller
- Contact-free position sensor
- Integrated control air routing with spring chamber aeration
- PROFIBUS DP-V1, DeviceNet, EtherNet/IP, PROFINET, Modbus TCP or bUS (Bürkert System Bus)



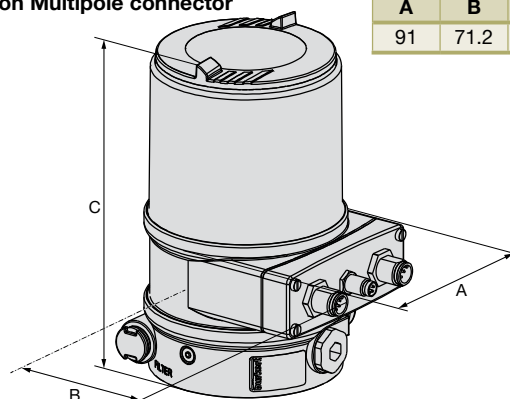
The compact process controller Type 8693 is optimized for integrated mounting on the pneumatic actuators in the process valve series Type 23xx/2103 and is specially designed for the requirements of a hygienic process environment. The actual value of the process factor is directly supplied to the device as 4...20 mA, PT100 or a frequency signal. The process controller calculates the setpoint for the subordinated positioner through the variance comparison. Due to the analogue feedback all analogue values on the controlling level can be transferred. With integrated diagnostic functions operation conditions of the control valve can be monitored. Through status signals, valve diagnostic messages are transmitted according to NAMUR NE107 and recorded as history entries. The parameterization of process controller and positioner can be carried out automatically. The easy handling and the selection of additional software functions are done either on a big graphic display with backlight and keypad or over a PC interface. The positioner registers the valve position without deterioration through a contact-free, analog position sensor. The control of single or double-acting actuators is done without internal air consumption. Optionally available are PROFIBUS DP-V1, DeviceNet, EtherNet/IP, PROFINET, Modbus TCP, bUS (based on CANopen) communication interfaces as well as analogue and binary feedback.

Technical data

Material	
Body	PPS, stainless steel
Cover	PC
Sealing	EPDM
Power supply	24 V DC \pm 10 %, UL: NEC Class 2
Residual ripple	10 %, no technical direct current!
Setpoint setting	0/4...20 mA and 0...5/10 V
Input resistance	0/4...20 mA: 180 Ω 0...5/10 V: 19 k Ω
Sensor input	4...20 mA (180 Ω input resistance) Frequency 0...1000 Hz (17 k Ω input resistance) PT100...20 to +220 °C (resolution <0.1 °C)
Control medium	Neutral gases, air, quality classes acc. to ISO 8573-1
Dust concentration	Class 7: (< 40 μ m particle size)
Particle density	Class 5 (< 10 mg/m ³)
Pressure condensation point	Class 3 (< -20 °C)
Oil concentration	Class X (< 25 mg/m ³)
Ambient temperature	-10 °C to +55 °C
Control air ports	Threaded ports G 1/8 stainless steel
Supply pressure	Low air flow rate: 0...7 bar ¹⁾ High air flow rate: 3...7 bar

Dimensions [mm]

Version Multipole connector

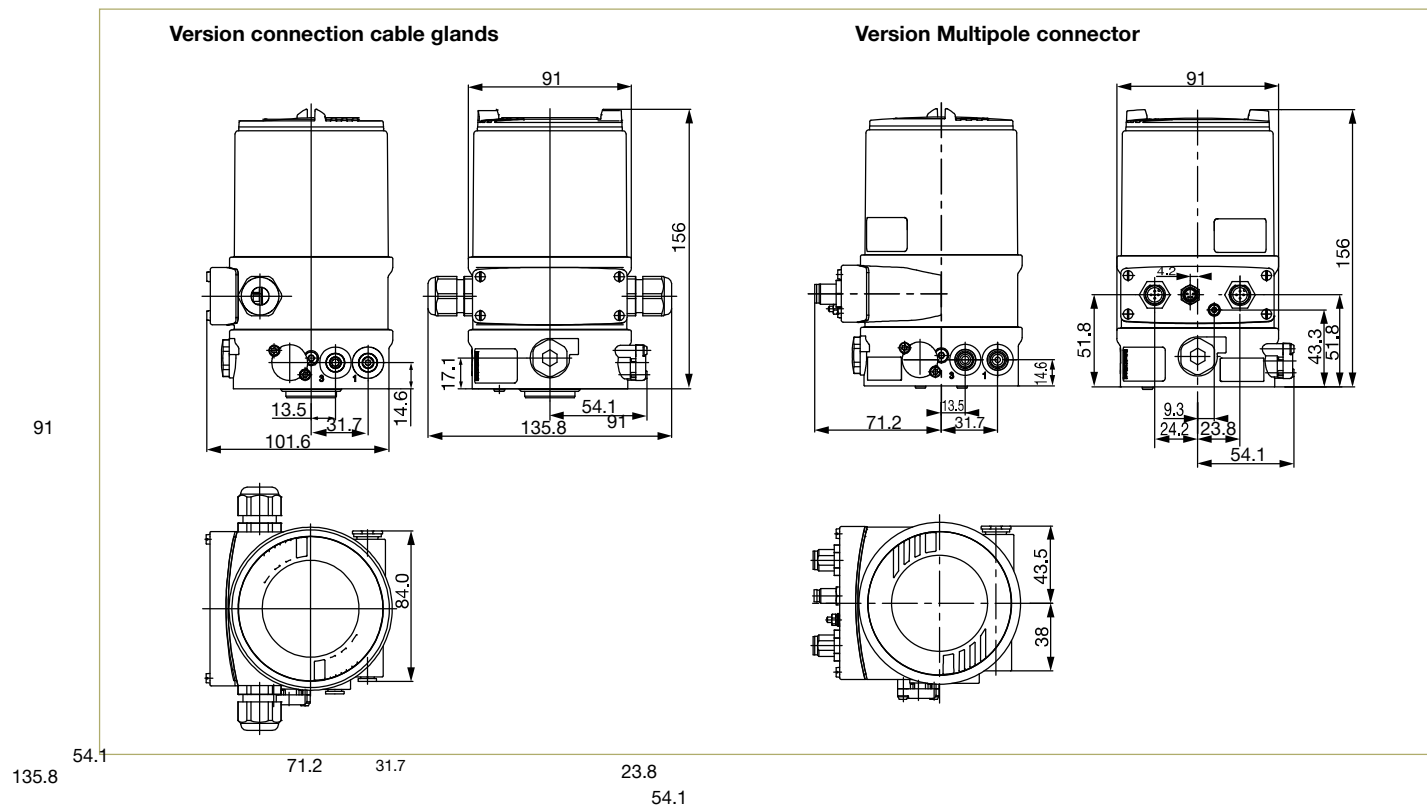


A	B	C
91	71.2	156

Air input filter	Exchangeable (mesh aperture ~0.1 mm)
Actuator system	Actuator series Type 23xx Low air flow rate: \varnothing Actuator 70/90 mm High air flow rate: \varnothing Actuator 130 mm Actuator series Type 27xx High air flow rate: \varnothing Actuator 175/225 mm
Position detection module	Contact-free, wear-free
Stroke range valve spindle	3...45 mm
Installation	As required, preferably with actuator in upright position
Protection class	IP65/IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard
Power consumption	<5 W
Electrical connection	Multipole connection M12, 8 pin or 4 pin Cable gland 2xM16 \times 1.5 (Cable \varnothing 5...10 mm) with connection terminals for cable cross-sections 0.14...1.5 mm ²
Fieldbus communication	PROFIBUS DP-V1, DeviceNet, EtherNet/IP, PROFINET, Modbus TCP, bUS - Bürkert System Bus (based on CANopen)
Approval	ATEX $\text{II 3D Ex tc IIIC T135 } ^\circ\text{C Dc / II 3G Ex ec IIC T4 Gc}$ Certificate; BVS 14 ATEX E 008 X IECEX Ex tc IIIC T135 $^\circ\text{C Dc / Ex ec IIC T4 Gc}$ Certificate; IECEX BVS 14.0009 X UL cULus Certificate; E238179
Ignition protection class	II 3D Ex tc IIIC T135 $^\circ\text{C Dc}$ II 3G Ex ec IIC T4 Gc
Protection class	3 acc. to DIN EN 61140 (VDE 0140-1)
Conformity	EMC directive 2014/30/EU

1) The supply pressure has to be 0.5...1 bar above the minimum required pilot pressure for the valve actuator.

Dimensions [mm]



Ordering chart

Control function Pilot valve system	Communi- cation	Electrical connection	Analogue feedback 0/4...20 mA	Analogue feedback 0/4...20 mA + 2 binary outputs	Diagnostic function ¹⁾	Binary input	Pilot air ports threaded ports	Article no.	
								Standard	ATEX II cat. 3G/D
Actuator series Type 23xx, size Ø 70/90 mm									
Low air capacity single-acting	without fieldbus-com- munication	Cable gland	–	–	–	yes	G 1/8	306936	306990
			–	yes	yes	yes	G 1/8	306965	306991
		M12 Multipole connector	–	–	–	yes	G 1/8	307082	307103
			–	yes	yes	yes	G 1/8	307105	307104
	PROFIBUS DP-V1	via Bus	–	–	–	G 1/8	311800	311801	
	DeviceNet	via Bus	–	–	–	G 1/8	265092	265094	
	EtherNet/IP	via Bus	yes	yes	–	G 1/8	306867	306865	
	PROFINET	via Bus	yes	yes	–	G 1/8	306871	306869	
	Modbus TCP	via Bus	yes	yes	–	G 1/8	306876	306874	
	büS -Bürkert System Bus	M12 Multipole connector	via Bus	–	yes	–	G 1/8	306881	306878
Low air capacity double-acting	without fieldbus-com- munication	Cable gland	–	–	–	yes	G 1/8	306931	306992
			–	yes	yes	yes	G 1/8	306994	306993
		M12 Multipole connector	–	–	–	yes	G 1/8	307107	307109
			–	yes	yes	yes	G 1/8	307108	307110
	PROFIBUS DP-V1	via Bus	–	–	–	G 1/8	311802	311803	
	DeviceNet	via Bus	–	–	–	G 1/8	265104	265106	



Ordering chart



8693

Control function Pilot valve system	Communi- cation	Electrical connection	Analogue feedback 0/4...20 mA	Analogue feedback 0/4...20 mA + 2 binary outputs	Diagnostic function ¹⁾	Binary input	Pilot air ports threaded ports	Article no.	
								Standard	ATEX II cat. 3G/D
Actuators series Type 23xx, size Ø 130 mm									
High air capacity single-acting	without fieldbus-com- munication	Cable gland	–	–	–	yes	G 1/8	306946	306995
			–	yes	yes	yes	G 1/8	306973	306997
		M12 Multipole connector	–	–	–	yes	G 1/8	307112	307114
			–	yes	yes	yes	G 1/8	307113	307115
	PROFIBUS DP-V1	via Bus	–	–	–	G 1/8	311804	311805	
	DeviceNet	via Bus	–	–	–	G 1/8	265113	265115	
	EtherNet/IP	via Bus	–	yes	–	G 1/8	306868	306866	
	PROFINET	via Bus	–	yes	–	G 1/8	306872	306870	
	Modbus TCP	via Bus	–	yes	–	G 1/8	306877	306875	
	büS - Bürkert System Bus	–	via Bus	–	yes	–	G 1/8	306882	306880
Actuator series Type 27xx, size Ø 175 / 225 mm									
High air capacity single-acting	without fieldbus-com- munication	Cable gland	–	–	–	yes	G 1/8	306950	307003
			–	yes	yes	yes	G 1/8	306952	307004
		M12 Multipole connector	–	–	–	yes	G 1/8	307068	307121
			–	yes	yes	yes	G 1/8	307070	307122
	PROFIBUS DP-V1	via Bus	–	–	–	G 1/8	233356	265138	
	DeviceNet	via Bus	–	–	–	G 1/8	265141	265140	
	EtherNet/IP	via Bus	–	yes	–	G 1/8	313276	313275	
	PROFINET	via Bus	–	yes	–	G 1/8	313269	313268	
	Modbus TCP	via Bus	–	yes	–	G 1/8	313271	313270	
	büS - Bürkert System Bus	–	via Bus	–	yes	–	G 1/8	313283	313282













¹⁾ See additional software functions Parametrisable diagnostic functions / binary outputs on

Note: Standard versions are UL approved.

Accessories

Description	Actuator size	Control function	Article no.
Adapter kit actuator series Type 23xx/2103	Ø 70 / 90 / 130 mm	universal	679917 
Adapter kit actuator series Type 27xx	Ø 175 / 225 mm	A (NO), B (NC)	679935 

For installation kits to 3rd party process valves please see data sheet **Type KK01** ► adapter kits for hygienic process valves or contact your sales office for related drawings or individual engineering support.

Description	Article no.
M12 socket 8 pin with 5 m cable for input and output signals	919267 
M12 socket 4 pin with 5 m cable for power supply	918038 
M8 socket 4 pin with 5 m cable for process actual value from sensor	264602 
USB bÜS-Interface Set (bÜS Stick + connecting cable with M12 connector + connecting cable M12 to micro USB for bÜS service interface) for connecting to the PC tool Bürkert Communicator (only for device versions with EtherNet/IP, PROFINET, Modbus TCP and bÜS - Bürkert System Bus)	772551 
bÜS cable extension M12, length 1 m	772404 
bÜS cable extension M12, length 3 m	772405 
bÜS cable extension M12, length 5 m	772406 
bÜS cable extension M12, length 10 m	772407 
SIM Card	291773 
Silencer G 1/8	780779 
Sensor puck (spare part)	682240 
USB interface for serial communication (only for device versions with PROFIBUS / DeviceNet or with fluid flow controller Type 8750)	227093 
Bürkert Communicator Software	https://www.burkert.com/en/type/8920

Digital electropneumatic positioner for the integrated mounting on process control valves

8694

- Fieldbus interface AS-Interface (option)
- Compact, robust stainless steel design
- Start-up by automatic Tune function
- Contact-free position sensor
- Integrated control air routing



Compact positioner for integrated mounting on pneumatically operated process valves. Remote setpoint adjustment via a 4...20 mA signal or through AS-Interface. A contact-free analog position sensor measures the position of the valve spindle. Simple installation through automatic tune function and setting through DIP-switch: DIP-switch:

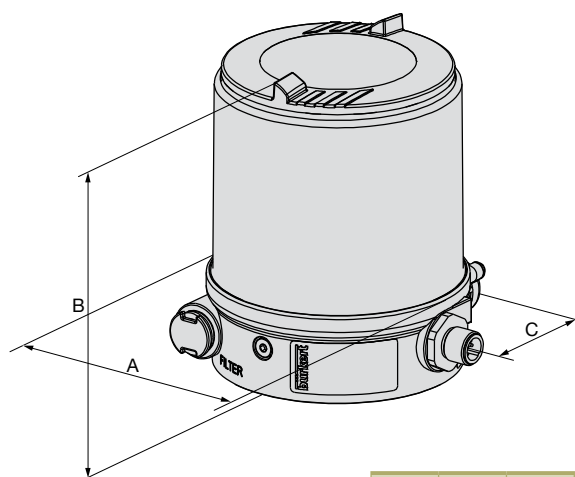
- Close tight function
- Characteristic curves selection
- Reversal of effective direction
- Switching manual /automatic operation
- Binary input

Additional parametrisation options are possible through DTM devices. A software interface can be used for, amongst others, linearisation of the operation characteristics by using free programmable fixed points. The valve position indication is shown through LED components. As an option an analogue position feedback can be integrated.

Technical data

General data	
Material	
Body	PPS, stainless steel
Cover	PC
Sealing	EPDM
Power supply	24 V DC \pm 10 %
Residual ripple	Max. 10 %
Setpoint setting	4...20 mA (0...20 mA adjustable via communication interface)
Output resistance	180 Ω
Control medium	Neutral gases, air ISO 8573-1
Dust concentration	Class 7: (< 40 μ m particle size)
Particle density	Class 5 (< 10 mg/m ³)
Pressure condensation point	Class 3 (< -20 °C)
Oil concentration	Class X (< 25 mg/m ³)
Ambient temperature	0 °C...+60 °C
Pilot air ports	Threaded ports G 1/8 stainless steel or Push-in connectors (Ø 6 mm and 1/4" tube)
Supply pressure	Low air flow rate: 0...7 bar ¹⁾ High air flow rate: 3...7 bar (in preparation)
Air input filter	Exchangeable (mesh aperture ~0.1 mm)

Dimensions [mm]



A	B	C
91	115.4	54

Actuator system	
Actuator series	Low air flow rate: Ø Actuator 70/90 mm
ELEMENT 23xx	High air flow rate: Ø Actuator 130 mm
Position detection module	Contact-free, wear-free
Stroke range valve spindle	3...45 mm
Installation	As required, preferably with actuator in upright position
Protection class	IP65/IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard
Protection class	3 acc. to DIN EN 61140
Approvals	
ATEX	⊕ II 3D Ex tc IIIC T135 °C Dc / ⊕ II 3G Ex ec IIC T4 Gc Certificate; BVS 14 ATEX E 008 X
IECEx	Ex tc IIIC T135 °C Dc / Ex ec IIC T4 Gc Certificate; IECEx BVS 14.0009 X
UL	cULus Certificate; E238179
Ignition protection class	II 3D Ex tc IIIC T135 °C Dc II 3G Ex ec IIC T4 Gc
Conformity	EMC directive 2014/30/EU
Options	Analogue position feedback, 4...20 mA
Fieldbus communication	AS-Interface, IO-Link, b5S-Bürkert System Bus (based on CANopen)

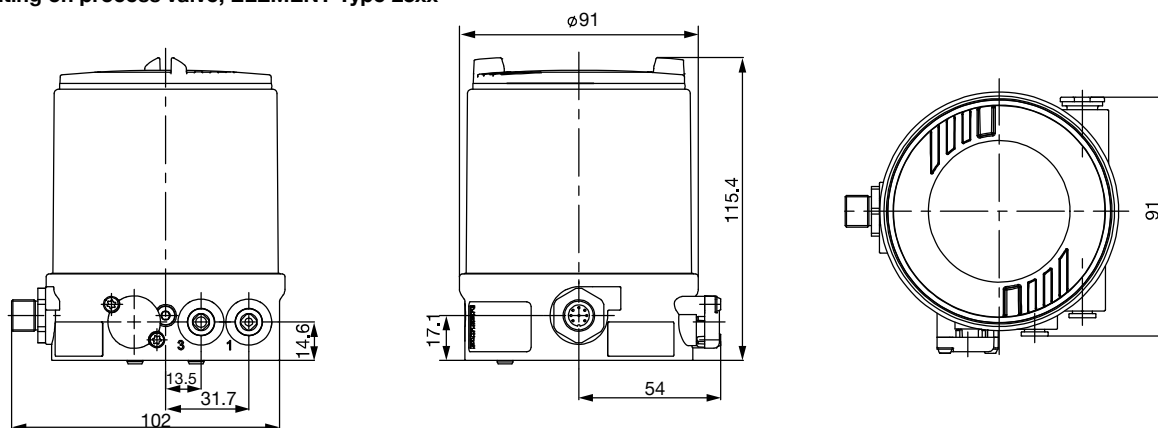
¹⁾ The supply pressure has to be 0.5...1 bar above the minimum required pilot pressure for the valve actuator.

Technical data continued

Without filed bus communication	
Power supply	24 V DC \pm 10 %
Residual ripple	10 %
Power consumption	<3.5 W
Electrical connection	
Multipole	M12 (8 pins), stainless steel
Cable gland	M16 x 1.5 (cable \varnothing 5...10 mm) with screw terminals for cable cross-sections 0.14...1.5 mm ²
Technical data AS-interface - (Option)	
Profile	S-7.3.4 Output: 16 Bit setpoint / Certificate no. 87301 acc. to Version 3.0-7.A S.5 Output: 16 Bit setpoint; Input: 16 Bit feedback / Certificate no. 95401 acc. to version 3.0
Programmed Information	See operating instructions
Power supply through bus line	29.5...31.6 V DC acc. to specification
Max. Current consumption	150 mA
Electrical connection	M12 x 1, 4 pin stainless steel plug assembled to 80 cm cable and flat cable clip

Dimensions [mm]

Mounting on process valve, ELEMENT Type 23xx



Ordering chart

91

Control function Pilot valve system	Communication	Electrical connection	Analogue feedback	Pilot air ports threaded ports	Article no.	
					Standard	ATEX II cat. 3G/D
Actuator series ELEMENT Type 23xx, size Ø 70/90 mm						
Low air capacity single-acting	–	M12 multipole	–	G 1⁄8	227405	265046
			yes	G 1⁄8	227406	265047
		Cable gland	–	G 1⁄8	227401	265044
			yes	G 1⁄8	227402	265045
	AS-Interface S-102 7.A.5 ^{13.5 31.7}	M12 connector/ flat cable clip/ 80 cm cable	16 Bit via Bus	G 1⁄8	239615	265043
Actuator series ELEMENT Type 23xx, size Ø 130 mm						
High air capacity single-acting	–	M12 multipole	–	G 1⁄8	227426	265059
			yes	G 1⁄8	227427	265060
		Cable gland	–	G 1⁄8	227422	265057
			yes	G 1⁄8	227423	265058
	AS-Interface S-7.A.5	M12 connector/ flat cable clip/ 80 cm cable	16 Bit via Bus	G 1⁄8	239616	265056



Accessories

Description	Actuator size	Control function	Article no.
Adapter kit actuator series Type 23xx/2103	Ø 70 / 90 / 130 mm	universal	679917

For installation kits to 3rd party process valves please see data sheet **Type KK01** ► adapter kits for hygienic process valves or contact your sales office for related drawings or individual engineering support.

Description	Article no.
M12 socket 8 pin with 5 m cable for power supply and input/output signals	919267
Silencer G 1/8	780779
Silencer, push-in connector	902662
Sensor puck (spare part)	682240
USB interface for serial communication	227093

8694

Control head for decentralized automation of ELEMENT process valves

8695

- Contact-free inductive valve position registration (Teach function)
- Coloured illuminated status display
- Internal control air routing
- Fieldbus AS-Interface or DeviceNet (option)
- With ATEX II cat. 3G/D approval

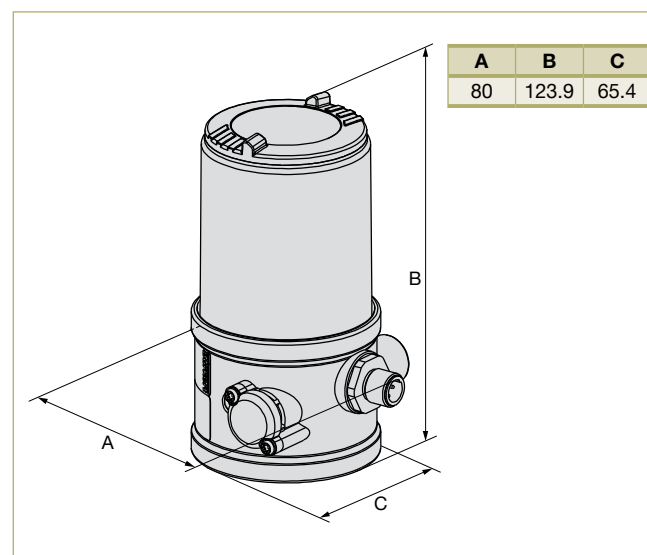


The control head Type 8695 is designed for decentralized automation of ELEMENT Type 21xx pneumatic process valves with smaller nominal size. The registration of the valve position is done through a contact-free analog position sensor, which automatically recognises and saves the valve end position through the teach function when starting up. The integrated pilot valve controls single or double-acting actuators. The design of the control unit and the actuator is specially designed for the requirements of a hygienic process environment and enables an internal control air channel without external tubings. Besides the electrical position feedback signal the status of the device is shown directly on the control head itself through coloured LEDs showing a clear visible valve position status. As an option a fieldbus interface, AS-Interface, can be chosen. The housing is easy to clean and features proven IP protection and chemically resistant materials for use in hygienic processing in the food, beverage and pharmaceutical industries. Combined with Bürkert ELEMENT actuators the unique pilot valve system enables a compressed air recycling that avoids contamination from the environment in the actuator chambers.

Technical data

General data	
Material	
Body	PPS, Stainless steel
Cover	PC
Sealing	EPDM
Control medium	Neutral gases, air ISO 8573-1
Dust concentration	Class 7: (< 40 µm particle size)
Particle density	Class 5 (< 10 mg/m ³)
Pressure condensation point	Class 3 (< -20 °C)
Oil concentration	Class X (< 25 mg/m ³)
Supply pressure	0...7 bar ¹⁾
Actuator system	For single or double-acting actuators
Actuator series 21xx	Actuator Ø 50 mm
Pilot air ports	Threaded ports G 1/8 stainless steel or Push-in connectors (Ø 6 mm and 1/4" tube)
Position feedback	Analog position sensor (contact-free) with autotune switchpoint (PNP) (NPN on request)
Stroke range valve spindle	2.5...32 mm
Ambient temperature	0 °C...+55 °C
Installation	As required, preferably with actuator in upright position
Protection class	IP65/IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard

Envelope Dimensions [mm]



Protection class	3 according to DIN EN 61140
Approvals	
ATEX	⊕ II 3D Ex tc IIIC T135 °C Dc / ⊕ II 3G Ex ec IIC T4 Gc
IECEX	Certificate; BVS 14 ATEX E 008 X Ex tc IIIC T135 °C Dc / Ex ec IIC T4 Gc
UL	Certificate; IECEX BVS 14.0009 X cULus Certificate; E238179
Ignition protection class	II 3D Ex tc IIIC T135 °C Dc II 3G Ex ec IIC T4 Gc
Fieldbus communication	AS-Interface, DeviceNet
Conformity	EMC directive 2014/30/EU
Power supply	24 V DC ± 10 %
Residual ripple with DC	10 %
Power consumption	<2 W
Electrical connection	Multipole
	M12, 8 pin
Output	Max. 100 mA per output

1) The supply pressure has to be 0.5 bar...1 bar above the minimum required pilot pressure for the valve actuator.

Technical data continued

With Fieldbus communication; AS-Interface

Profile S-B.A.E. (A/B slave, max. 62 slaves/master)
Certificate No. 87301 acc. to version 3.0

Power supply;
through bus line 29.5...31.6 V DC
separated from bus signal According to specification
On request

Power consumption

Units without external power supply
Max. power consumption 120 mA
Power consumption in normal operation 90 mA
(after current reduction; Valve +1 end position achieved)

Output
Contact rating ≤ 1 W over AS-Interface
Watchdog function Integrated

Electrical connection M12 4-pins

Programming data See operating instructions

With Fieldbus communication; DeviceNet

Profile Group 2 Only Slave Device; MAC-ID and transfer rate adjustable through DIP-switch

Power supply 11...25 V DC
UL: NEC Class 2

Power consumption ≤ 80 mA

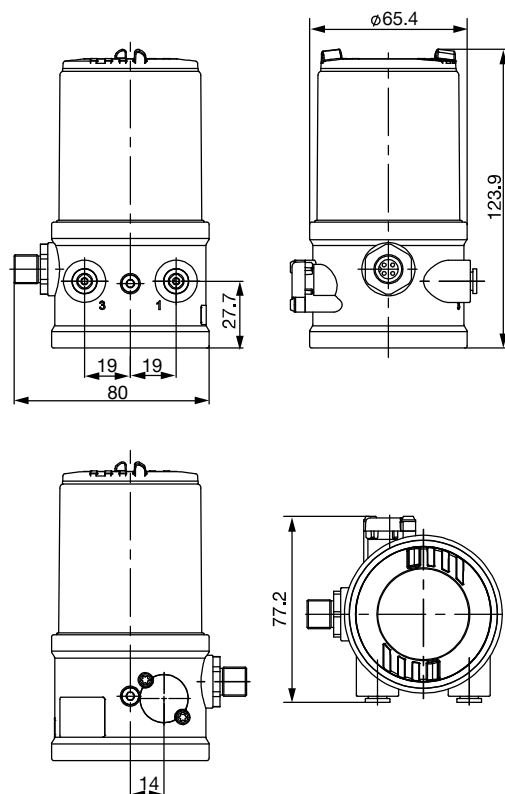
Output
Inrush current ≤ 50 mA
Hold current ≤ 30 mA

Input
"0" 0...1.5 V
"1" ≥ 8 V

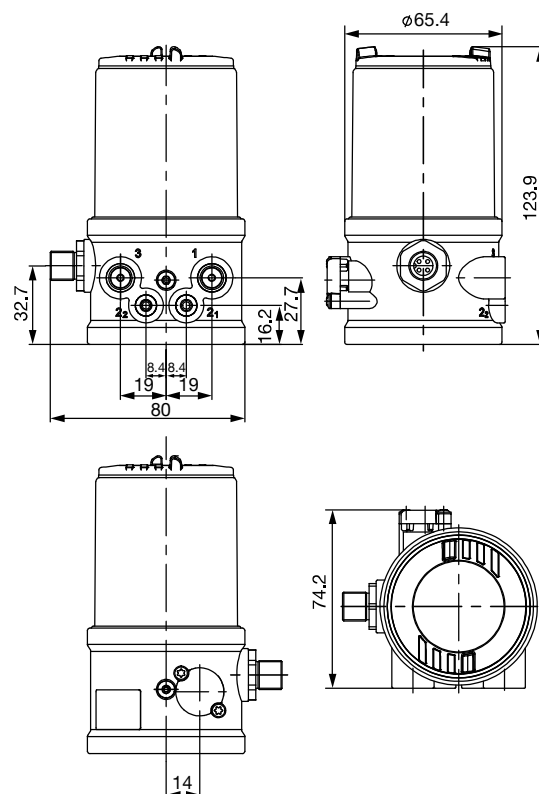
Electrical connection M12-Micro Style flange connector 5-pins (configuration according DeviceNet specification)

Dimensions [mm]

Mounting on process valve ELEMENT Type 21xx



Mounting on process valve CLASSIC Type 20XX





Ordering chart

8695

Electrical connection	Communication	Control function	Pilot air ports threaded ports	Article no.	
				Standard	ATEX II cat. 3G/D
M12 multipole	AS-Interface S-B.A.E	single-acting	G 1/8	227444	265075
		double-acting	G 1/8	227440	265069
	DeviceNet	single-acting	G 1/8	238724	265076
		double-acting	G 1/8	265081	265070
		single-acting	G 1/8	227446	265077
		double-acting	G 1/8	227442	265071
			G 1/8	234246	265067

Accessories

Specifications	Actuator size [mm]	Control function	Article no.
Adapter kit ELEMENT Types 21xx	Ø 50	universal	679918

For installation kits to 3rd party process valves please see data sheet **Type KK01** ► adapter kits for hygienic process valves or contact your sales office for related drawings or individual engineering support.

Specifications	Article no.
M12 socket 8 pin with 5 m cable for power supply and input/output signals	919267
Silencer with G 1/8	780779
Silencer with push-in connector	902662
Sensor puck (spare part)	677245

Digital electropneumatic positioner for the integrated mounting on process control valves

8699

- Compact, robust stainless steel design
- Start-up by automatic Tune function
- Contact-free position sensor
- Integrated control air routing
- Analogue Feedback (option)



Compact positioner for integrated mounting on pneumatically operated process valves. Remote setpoint adjustment via a 4...20 mA signal. A contact-free continuous sensor measures the position of the valve spindle. Simple installation through automatic tune function and setting through DIP-switch

- Close tight function,
- Characteristic curves selection
- Reversal of effective direction
- Switching manual /automatic operation
- Binary input

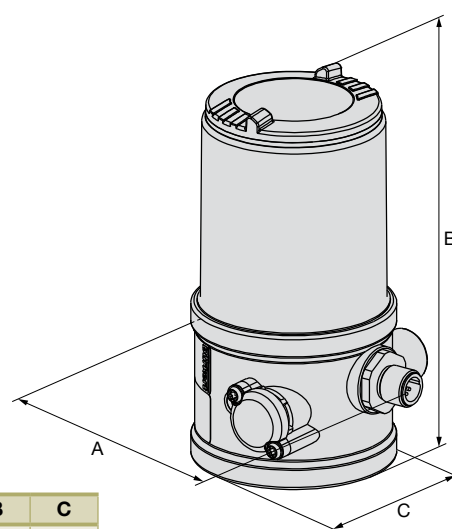
A software interface can be used for, amongst others, linearisation of the operation characteristics by using free programmable fixed points. The valve position indication is shown through LED components. As an option an analogue position feedback can be integrated.

Technical data

Material	
Body	PPS, Stainless steel
Cover	PC
Sealing	EPDM
Power supply	24 V DC \pm 10 %
Residual ripple	10 %
Setpoint setting	4...20 mA (default setting)/0...20 mA
Output resistance	180 Ω
Control medium	Neutral gases, air ISO 8573-1
Dust concentration	Class 7: (< 40 μ m particle size)
Particle density	Class 5 (< 10 mg/m ³)
Pressure condensation point	Class 3 (< -20 °C)
Oil concentration	Class X (< 25 mg/m ³)
Ambient temperature	0 °C...+55 °C
Pilot air ports	Threaded ports G 1/8 stainless steel or push-in connector (tube \varnothing 6 mm / 1/4")
Supply pressure	0...7 bar ¹⁾
Actuator system	For single-acting actuators
Actuator series 23xx/2103	Actuator \varnothing 50 mm
Position detection module	Contact-free, wear-free
Stroke range valve spindle	3...32 mm
Installation	As required, preferably with actuator in upright position
Protection class	IP65/IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard

Dimensions [mm]

Element



A	B	C
80.7	65.4	123.9

Approvals

ATEX	<ul style="list-style-type: none"> II 3D Ex tc IIIC T135 °C Dc / II 3G Ex ec IIC T4 Gc
IECEx	Certificate; BVS 14 ATEX E 008 X
UL	Ex tc IIIC T135 °C Dc / Ex ec IIC T4 Gc
	Certificate; IECEx BVS 14.0009 X
	cULus Certificate; E238179

Ignition protection class

II 3D Ex tc IIIC T135 °C Dc

II 3G Ex ec IIC T4 Gc

Power consumption

<3.5 W

Electrical connection

Multipole connection M12 (8-pins), Stainless steel

Protection class

3 acc. to DIN EN 61140

Conformity

EMC directive 2014/30/EU

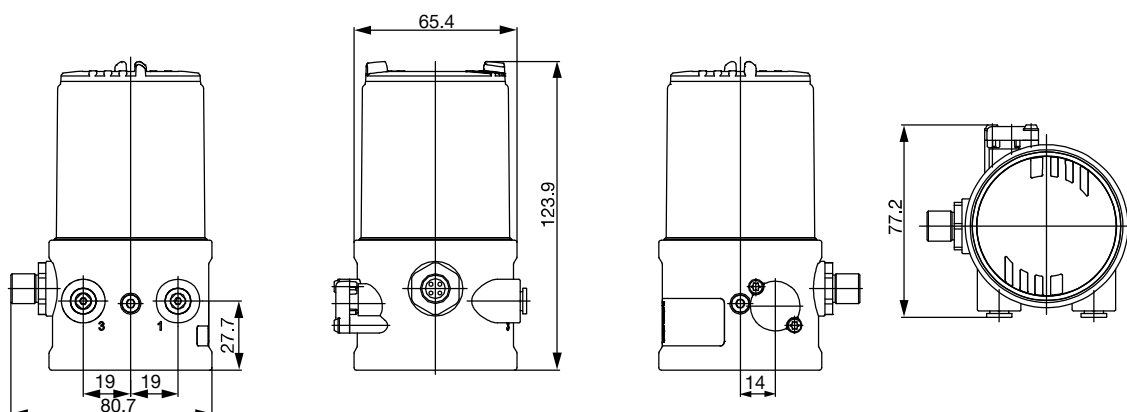
Options

Analogue position feedback, 4...20 mA

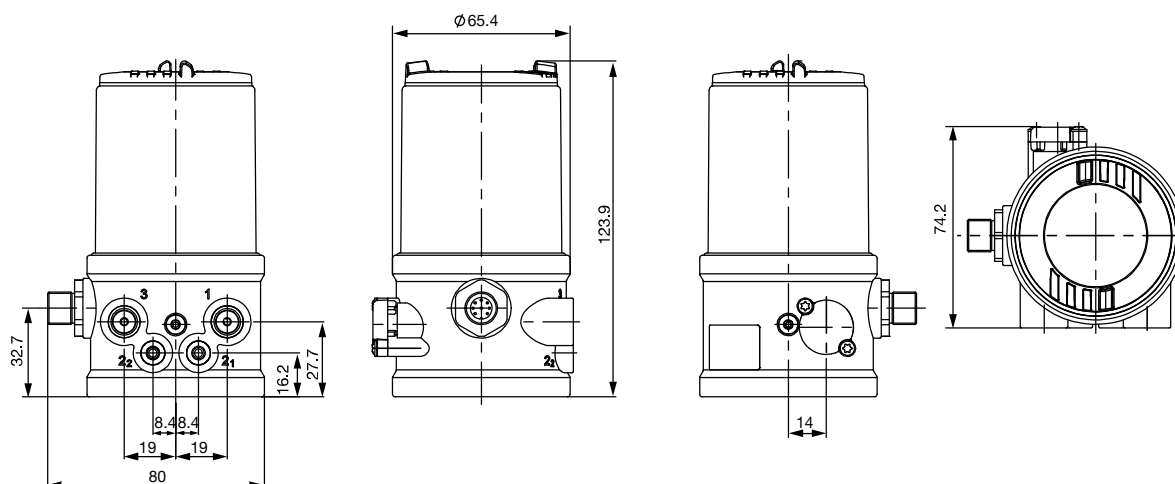
¹⁾ The supply pressure has to be 0.5...1 bar above the minimum required pilot pressure for the valve actuator.

Dimensions [mm]









Mounting on ELEMENT process control valves, Type 27XX (external control air routing)



Mounting on hygienic process valves with external air routing



Ordering chart

Control function	Electrical connection	Analogue feedback	1 Binary input	Pilot air ports threaded ports	Article no. Standard	Article no. ATEX II cat. 3G/D
Actuator series ELEMENT Types 23xx actuator size Ø 50 mm (internal control air routing)						
Single acting	M12 multipole	–	yes	G ⅛	227448 	265082 
		Yes	yes	G ⅛	227449 	265083 
Mounting on 3rd party actuators (external control air routing)						
Single acting	M12 multipole	–	yes	G ⅛	223897 	265084 
		Yes	yes	G ⅛	223898 	265085 



Accessories

Specifications	Actuator size [mm]	Control function	Article no.
Adapter kit ELEMENT Types 21xx	Ø 50	universal	679918

For installation kits to 3rd party process valves please see data sheet **Type KK01** ► adapter kits for hygienic process valves or contact your sales office for related drawings or individual engineering support.

Specifications	Article no.
M12 socket 8 pin with 5 m cable for power supply and input/output signals	919267
Silencer with G 1/8	780779
Silencer with push-in connector 6 mm	902662
USB interface for serial communication	227093

8696



Pneumatic control unit for decentralized automation of ELEMENT process valves

8697

- Compact design
- Integrated pilot valve with manual override
- Internal control air routing
- Automatic end position adjustment
- With ATEX II cat. 3G/D and cat. 2D/G approval

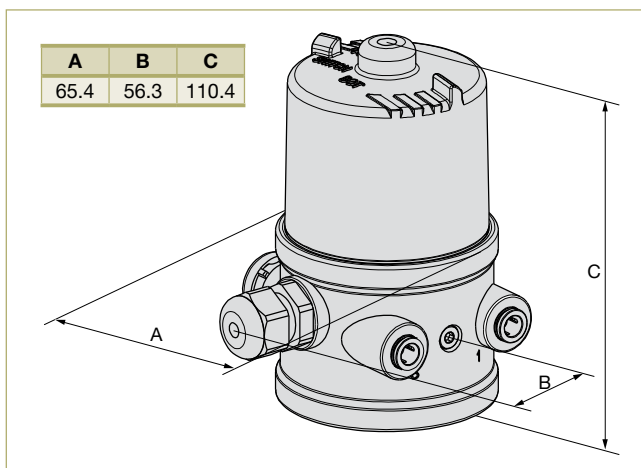


The pneumatic control unit Type 8697 is designed for decentralized automation of process valves ELEMENT Type 21xx. Mechanical or inductive limit switches register the position of the valve. The integrated pilot valve controls single-acting actuators. The design of the control unit and the actuator enables an internal control air routing without external tubings. Besides the electrical position feedback signal the status of the device is shown directly on the control unit itself via LEDs. The housing is easy to clean and features proven IP protection and chemically resistant materials for use in hygienic processing, in food, beverage and pharmaceutical industries. Combined with Bürkert ELEMENT actuators the unique pilot valve system enables a compressed air recycling that avoids actuator chambers contamination from the environment.

Technical data

Materials	
Body	PPS
Cover	PC
Sealing	EPDM
Operating voltage	
Pilot valve	24 V DC $\pm 10\%$ - residual ripple 10 %, consumption 1 W
Micro switch	24 V-Version: 0...48 V AC/DC, max. 2 A 230 V-Version: 50...250 V AC/DC, max. 2 A
Initiator	10...30 V DC - max. 100 mA per initiator
Control medium	
Dust concentration	Class 7: max. particle size 40 μm
Particle density	Class 5: max. particle size 10 mg/m^3
Pressure condensation	Class 3: max. -20 °C or min. 10 °C below the point
Oil concentration	lowest operating temperature Class X: max. 25 mg/m^3
Supply pressure	3...7 bar ¹⁾
Pilot air ports	Threaded ports G 1/8 or push-in connector (tube \varnothing 6 mm / 1/4")
Position feedback	2x micro switch (0...48 V AC/DC, max. 2 A) 2x micro switch (50...250 V AC/DC, max. 2 A) 2x initiator (24 V DC), PNP shutter 3-wire with LEDs 2x initiator NAMUR (8.2 V DC) (2-wire) with LEDs 2x initiator (24 V DC), shutter (2-wire) with LEDs
Stroke range valve spindle	2...36 mm

Dimensions [mm]



Ambient temperature

with/without pilot valve	0 °C...+55 °C (II 3D Ex tc IIIC T135 °C Dc, II 3G Ex nA IIC T4 Gc)
with/without pilot valve	0 °C...+55 °C (II 2D Ex IIIC ia T135 °C Db, II 2G Ex ia IIC T4 Gb)
with pilot valve	-10...+55 °C (without ATEX or for II 2G Ex ia IIC T4 Gb)
without pilot valve	-20...+60 °C (without ATEX or for II 2G Ex ia IIC T4 Gb)

Installation

As required, preferably with actuator in upright position

Protection class

IP65 / IP67 acc. to EN 60529, 4X acc. to NEMA 250 Standard

Protection class

3 acc. to DIN EN 61140

Conformity

EMC directive 2014/30/EU

Ignition protection class

II 3D Ex tc IIIC T135 °C Dc
II 3G Ex ec IIC T4 Gc
II 3D Ex ia IIIC T135 °C Dc Db IP64
II 2G Ex ia IIC T4 Gb

Zulassung

ATEX	<ul style="list-style-type: none"> II 3D Ex tc IIIC T135 °C Dc / II 3G Ex ec IIC T4 Gc Certificate; BVS 14 ATEX E 008 X II 2D Ex ia IIIC T135 °C IP64 / II 2G Ex ia IIC T4 Gb Certificate; BVS 13 ATEX E104 X
IECEx	<ul style="list-style-type: none"> Ex tc IIIC T135 °C Dc / Ex ec IIC T4 Gc Certificate; IECEx BVS 14.0009 X
UL	<ul style="list-style-type: none"> Ex tc IIIC T135 °C Dc / Ex ec IIC T4 Gc Certificate; IECEx BVS 14.0009 X cULus Certificate; E238179

Technical data continued

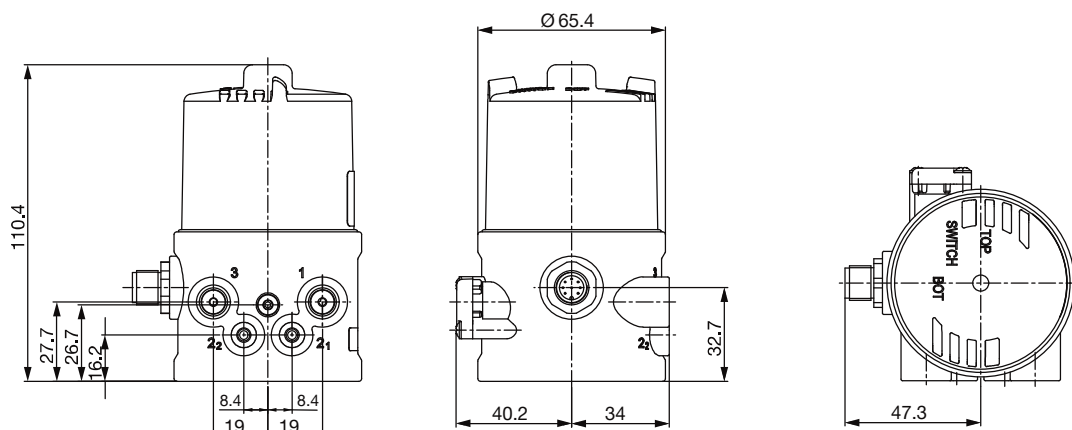
Electrical connection

Multipole	M12, 8 pin
Cable gland	M16 × 1.5 SW22 (cable diameter 5...10 mm), terminal screws 0.14...1.5 mm ²

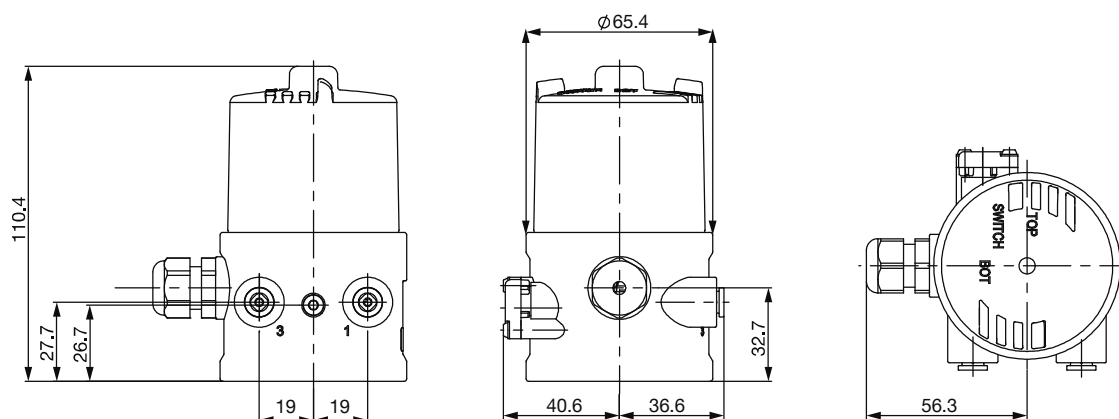
1) The supply pressure has to be 0.5...1 bar above the minimum required pilot pressure for the valve actuator.

Dimensions [mm]

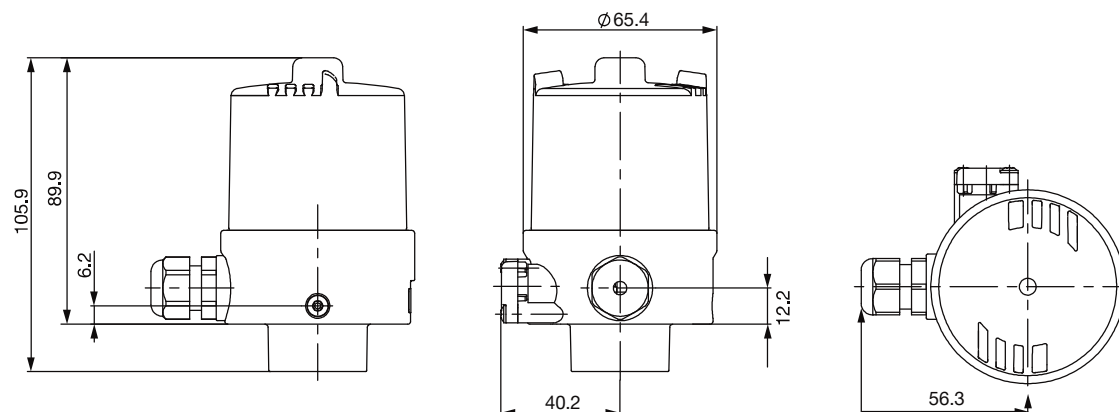
Control Unit for mounting on process valve CLASSIC Types 20XX



For ELEMENT valves



Feedback for mounting on process valve CLASSIC Types 20XX





Ordering chart

8697

End position feedback						Electrical connection	ATEX/IECEX Cat. 3D/G Zone 22/2 ¹⁾	ATEX/IECEX Cat. 2D/G Zone 21/1 ²⁾	ATEX/IECEX Cat. 2G Zone 1 ³⁾	cULus	Pilot air ports threaded ports	Article no.
Inductive Switch 3-wire PNP	Inductive Switch 2-wire NAMUR	Inductive Switch 2-wire 24 V DC	Micro Switch 24 V DC	Micro Switch 50...250 V AC/DC	Feedback status LEDs							
Pneumatic control unit for decentralized automation of ELEMENT On/Off process valves Type 21xx												
Pneumatic control unit (pilot valve 3/2 way, single acting NO/NC)												
2	–	–	–	–	yes	Cable gland	–	–	–	yes	G 1/8	248816
2	–	–	–	–	yes		yes	–	–	–	–	G 1/8
2	–	–	–	–	yes	M12 multipole	yes	–	–	–	G 1/8	255849
2	–	–	–	–	yes		–	–	–	yes	G 1/8	248818
–	2	–	–	–	yes	Cable gland	–	yes	–	–	G 1/8	248822
–	2	–	–	–	yes		–	–	yes	–	G 1/8	255862
–	–	2	–	–	yes		–	–	–	yes	G 1/8	248814
–	–	2	–	–	yes		yes	–	–	–	G 1/8	255845
Without end position feedback						M12 multipole	–	–	–	yes	G 1/8	260278
						Cable gland	–	–	–	yes	G 1/8	260279
						yes	–	–	–	G 1/8	260280	
Feedback (without pilot valve)												
2	–	–	–	–	yes	Cable gland	–	–	–	yes	G 1/8	248812
2	–	–	–	–	yes		yes	–	–	–	–	G 1/8
2	–	–	–	–	yes	M12 multipole	yes	–	–	–	G 1/8	255857
2	–	–	–	–	yes		–	–	–	yes	G 1/8	250471
–	2	–	–	–	yes	Cable gland	–	yes	–	–	G 1/8	248820
–	2	–	–	–	yes		–	–	yes	–	G 1/8	255860
–	–	2	–	–	yes		–	–	–	yes	G 1/8	248810
–	–	2	–	–	yes		yes	–	–	–	G 1/8	255841
–	–	–	2	–	–	–	–	–	–	yes	G 1/8	248824
				2	–	–	–	–	–	yes	G 1/8	248808

Ordering chart

End position feedback						Electrical connection	ATEX/IECEX Cat. 3D/G Zone 22/2 ¹⁾	ATEX/IECEX Cat. 2D/G Zone 21/1 ²⁾	ATEX/IECEX Cat. 2G Zone 1 ³⁾	cULus	Pilot air ports threaded ports	Article no.	
Inductive Switch 3-wire PNP	Inductive Switch 2-wire NAMUR	Inductive Switch 2-wire 24 V DC	Micro Switch 24 V DC	Micro Switch 50...250 V AC/DC	Feed-back status LEDs								
Electrical position feedback for combination for central automation of On/Off CLASSIC valve systems Type 20xx													
Feedback (without pilot valve)													
2	–	–	–	–	yes	Cable gland	–	–	–	yes	without	248827	
2	–	–	–	–	yes		yes	–	–	–	–	without	255851
2	–	–	–	–	yes	M12 Multipole	yes	–	–	–	without	255858	
2	–	–	–	–	yes		–	–	–	yes	without	250472	
–	2	–	–	–	yes	Cable gland	–	yes	–	–	without	248831	
–	2	–	–	–	yes		–	–	yes	–	without	255863	
–	–	2	–	–	yes		–	–	–	yes	without	248826	
–	–	2	–	–	yes		yes	–	–	–	–	without	255850
–	–	–	2	–	–		–	–	–	yes	without	248833	
–	–	–	–	2	–		–	–	–	yes	without	248825	

1) II 3D Ex tc IIIC T135 / II 3G Ex nA IIC T4 Gc

2) II 2D Ex ia IIIC T135 °C Db IP64 / II 2G Ex ia IIC T4 Gb

3) II 2G Ex ia IIC T4 Gb

Note: cULus only valid for versions without ATEX approval

Accessories

Adapter kit			
Specifications	Actuator size	Control function	Article no.
Adapter kit ELEMENT Types 21xx	Ø 50 mm	single-acting / universal	682259
Adapter kit CLASSIC Types 20xx	Ø 40 mm	universal	682263
	Ø 50/63/80 mm	universal	682264
	Ø 100/125/80 mm	universal	682265
	Ø 175/225 mm	universal	684944
Retrofit kit CLASSIC Type 20xx	Ø 40 mm	universal	698573

4) Retrofit kit for retrofitting old CLASSIC drives without clear hood on the drive cover or as a replacement for Type 1062 (phase out).

Please note the general installation instructions in the manual.

For installation kits to 3rd party process valves please see data sheet **Type KK01** ► adapter kits for hygienic process valves or contact your sales office for related drawings or individual engineering support.

Accessories for ELEMENT

Specifications	Article no.
M12 socket, 8-pins, 5 m assembled cable	919267
Silencer G 1/8	780779
Silencer, push-in connector	902662

Digital electropneumatic positioner SideControl

8791

- Compact and robust design
- Easy to start using tune function
- Dynamic positioning system with no air consumption in controlled state
- AS-Interface Fieldbus (optional)
- Mounting acc. to IEC 60534-6-1/ VDI VDE 3845 or Remote



The robust and compact positioner is designed to a standardisation acc. to IEC 534-6 or VDI/ VDE 3845 for assembly with linear and rotary actuators. In addition, the remote version with the displacement position sensor can be combined with Bürkert process control valves. The setpoint setting for the electropneumatic digital positioner SideControl BASIC occurs using a standard signal 4...20 mA or with AS-Interface as an option. In addition there is a binary input and an optional analogue feedback available. The valve opening is signalled by a mechanical indicator element and the device status is shown on three coloured LEDs. All the operational elements are found in the housing. The start-up happens automatically, and directly at the device the following functions can be activated through DIP switches:

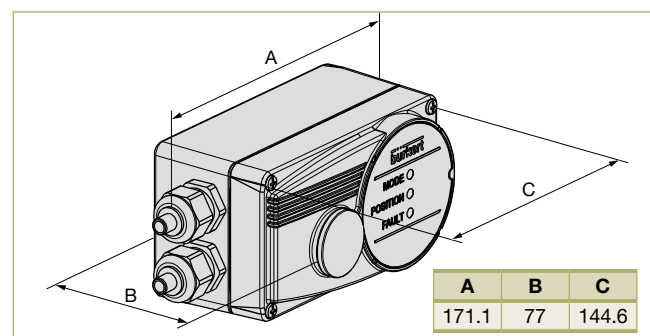
- Close tight function
- Inversion of the operating direction of the setpoint signal
- Characteristic curves selection
- Switching - manual and automatic operation

Additional possibilities on configuration and parameter setting, for example, linearisation of the operation characteristics by using communications software which allows customised programming. The pilot valve system can be used equally for single and double-acting drives. It is characterised by a defined safety feature in case of failure of the electrical or pneumatic power supply and possesses an enormous air capacity range with pressure supply up to 7 bar.

Technical data

General data	
Material	
Body	Aluminium plastic-coated
Seal	EPDM, NBR, FKM
Operating voltages	24 V DC $\pm 10\%$
Residual ripple	Max. 10 %
Setpoint setting	4...20 mA (0...20 mA adjustable using configurations software)
Input resistance	0/4...20 mA: 180 Ω
Analogue feedback	4...20 mA (0...20 mA adjustable using configurations software, max. Burden 560 Ω)
Binary input	0...5 V = log "0", 10...30 V = log "1"

Dimensions [mm]




Control medium	Neutral gases, air DIN ISO 8573-1
Dust concentration	Class 7 (< 40 μm particle size)
Particle density	Class 5 (< 10 mg/m^3)
Pressure condensation point	Class 3 (< -20 $^{\circ}\text{C}$)
Oil concentration	Class X (< 25 mg/m^3)
Ambient temperature	-10 $^{\circ}\text{C}$...+60 $^{\circ}\text{C}$ (without Ex-Approval) 0 $^{\circ}\text{C}$...+60 $^{\circ}\text{C}$ (with ATEXIECEx-Approval)
Pilot air ports	Threaded ports G $\frac{1}{4}$
Supply pressure	1.4...7 bar ^{1) 2)}
Air supply filter	Exchangeable (mesh aperture ~0.1 mm)
Actuator system	Single and double-acting up to 150 IN/min. 95 IN/min (with 1.4 bar ²⁾) for aeration and ventilation 150 IN/min (with 6 bar ²⁾) for aeration and ventilation ($Q_{Nn} = 100 \text{ l}_N/\text{min}$ (acc. to the definition with decrease in pressure from 7...6 bar absolute)
Position detection module	Potentiometer max. angle 180 $^{\circ}$
Stroke range valve spindle	Min. 30 $^{\circ}$ on the rotary shaft, depending on lever
Installation	As required, LEDs above or sideways
Protection class	IP65/IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard
Power consumption	<3.5 W
Electrical connection	
Multipole connection	M12, 8 pin
Cable gland	2x M20 \times 1.5 (cable \varnothing 6...12 mm) on screw terminals (0.14...1.5 mm^2)
Remote Version	1x M12 \times 1.5 (cable \varnothing 3...6.5 mm)

1) The supply pressure has to be 0.5...1 bar above the minimum required pilot pressure for the valve actuator

2) Pressure values [bar]: Overpressure with respect to atmospheric pressure

Technical data continued

Technical data	
Protection class	III acc. to DIN EN 61140
Conformity	EMC directive 2014/30/EU
CSA approval information	
Product category code	Class 3221 82-VALVES - Actuators - Certified to US standards Class 3221 02-VALVES - Actuators
Ex approvals	
ATEX	⊕ II 3G Ex ec ic IIC T4 Gc / ⊕ II 3D Ex tc IIIC T135 °C Dc
IECEx	Certificate; BVS 16 ATEX E 118 X Ex ec ic IIC T4 Gc / Ex tc IIIC T135 °C Dc Certificate; IECEx BVS 16.0091 X
Considered standards	CAN/CSA-C22 2 No. 139 UL 429
CSA trademark	 C US
Technical data - AS-interface (Option)	
Profile	S- 7.3.4 Output: 16 Bit Set point/Certificate No. 87301 acc. to Version 3.0 S- 7.A.5 Output: 16 Bit set point; Input: 16 Bit feedback/certificate No. 95401 acc. to Version 3.0
Programmed data	See instruction manual
Operating voltage	over Bus connection 29.5...31.6 V DC acc. to AS-Interface specification
Max. current consumption	150 mA
Electrical connection	M12 x 1, 4 pin stainless steel connection assembled with 80 cm cable and fl at cable clamp
Technical data - Linear Remote Position Sensor (ELEMENT, CLASSIC)	
Electrical connection	
Cable gland	1xM16 x 1.5 (cable Ø 5...10 mm) on terminal screws
Connection cable length	(0.14...1.5 mm²) 10 m
Operating voltage	24 V DC ± 10 %
Power consumption	< 0.3 W
Sensor measurement range	3...45 mm (Stroke range valve spindle)
Actual position signal	Digital (RS485)
Ambient temperature	- 25 °C...+ 80 °C
Protection class	III acc. to DIN EN 61140
Protection class	IP65 and IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard
Ignition protection class	II 3D Ex tc IIIC T135 °C Dc II 3G Ex nA IIC T4 Gc
Conformity	EMC directive 2014/30/EU
Approvals	cCSAus

Technical data	
Technical data - rotative Remote position Sensor (NAMUR)	
Electrical connection	2 m round cable (shielded)
Operating voltage	10...30 V DC
Power consumption	< 0.8 W
Sensor measurement range	0°...360°
Actual position signal	Digital (RS485)
Ambient temperature	- 25 °C...+ 80 °C
Protection class	III acc. to DIN EN 61140
Protection class	IP65 acc. to EN 60529
Conformity	EMC directive 2014/30/EU
Approvals	UL (cULus) Certificate no. E226909
Technical data - Position feedback with proximity switches (Accessory)	
Electrical connection	M12, 4 pin
Output function	3-wire, normally open contact, PNP
Operating voltage	10...30 V DC
Residual ripple	≤ 10 % Uss
DC rated current	≤ 100 mA
Protection class	IP65 and IP67
Protection class	III acc. to DIN EN 61140
Conformity	EMC directive 2014/30/EU
Approvals	cCSAus

Note: The position feedback has two proximity switches which are independently adjustable via switch lugs.

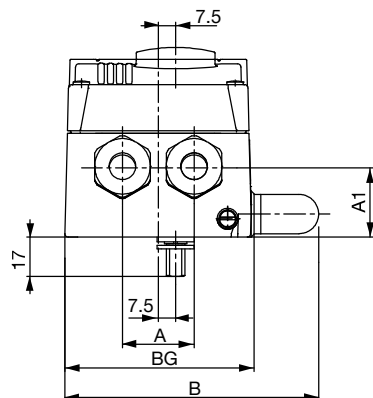
Using a remote positioner the length of the control air pipes influences the dynamics and attainable accuracy of the position control loop. The length of the control air pipes therefore should be as short as possible.



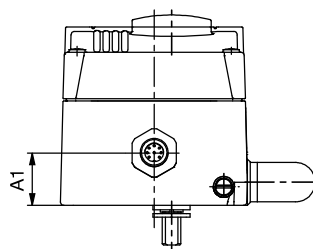
8791

Dimensions [mm]

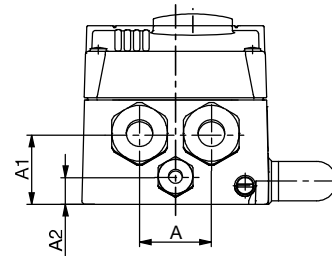
Standard version



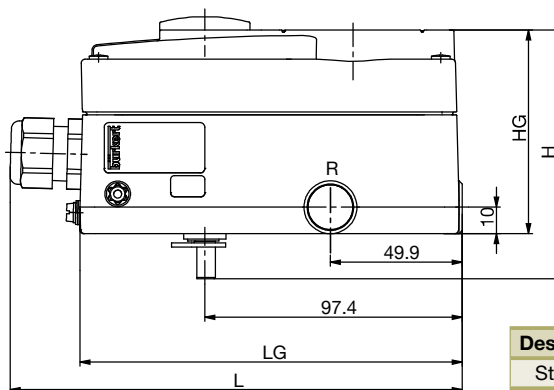
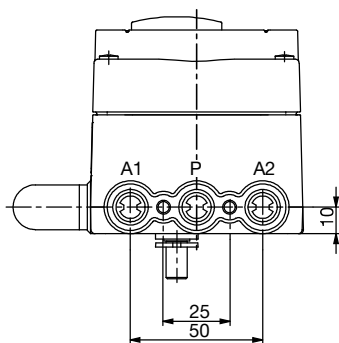
Multiple version



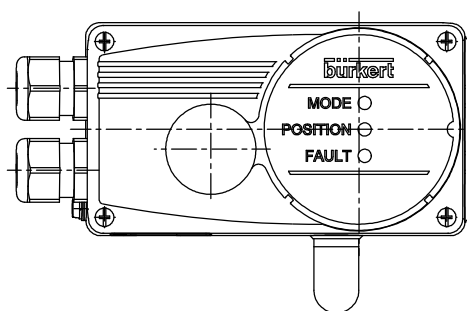
Remote version



Description	BG	B	A	A1	A2
Standard	81.8	109.8	31	30	–
Remote	81.8	109.8	31	30	11.5
Multipole	81.8	109.8	–	22.5	–

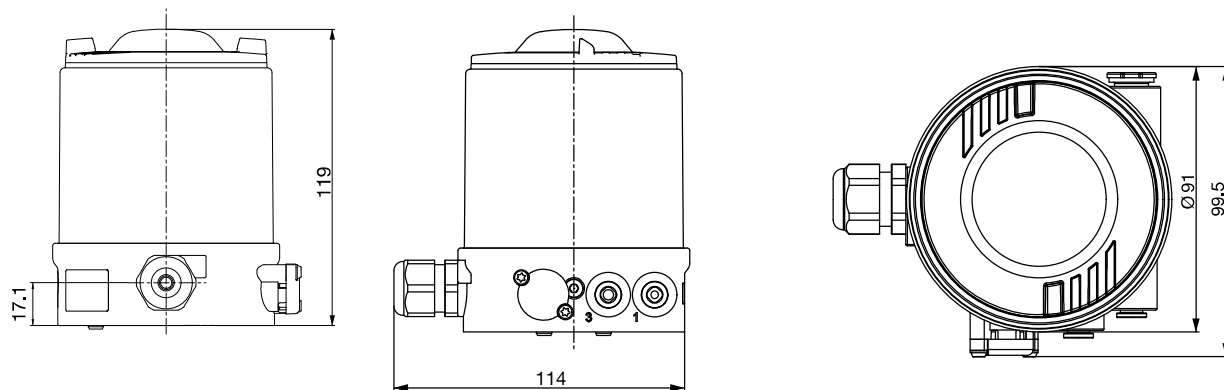


Description	LG	L	HG	H
Standard	144.6	171.1	77	94.1



















Dimensions [mm]

Control valve ELEMENT Types 23xx



Ordering chart

Assembly variations	ELEMENT Actuator size	Control function	Pilot valve system/Air capacity	Communi-cation	Electrical connection	Binary input	Analogue feedback	ATEX II 3GD/IECEx	Article no.
NAMUR IEC 60534-6-1 VDI/VDE 3845 (IEC 60534-6-2)	–	single and double-acting	universal	no	Cable gland	yes	no	–	211521 
						yes	yes	–	211522 
						yes	no	yes	310303 
						yes	yes	yes	310304 
					Multipole	yes	no	–	211523 
						yes	yes	–	211524 
				AS-Interface	no	yes/16 bit	–	239617 	
					no	yes/16 bit	yes	310305 	
Remote	Ø 70/90 mm	single-acting	low	no	Cable gland	yes	no	–	224868 
						yes	yes	–	224869 
	Ø 130 mm	single and double-acting	universal			yes	no	–	211531 
						yes	yes	–	211532 
Remote IP20	Ø 70/90 mm	single-acting	low			yes	no	–	234576 
						yes	yes	–	234578 
	Ø 130 mm	single and double-acting	universal			yes	no	–	211533 
						yes	yes	–	211534 

Assembly variations	Electrical connection	Article no.	
Remote Position Sensor		Standard	ATEX II 3 GD/ IECEx
ELEMENT Type 23xx	Cable gland - 10 m round cable	212360	226860
NAMUR (rotative)	Cable gland - 2 m round cable (max. extension 10 m)	211536	–



Accessories

8791

Description	Article no.
Accessories for SideControl BASIC NAMUR	
Assembly bridge VDI/VDE 3845 (IEC 60534-6-2), stainless steel	770294
Adapter kit VDI/VDE 3845 (IEC 60534-6-2), stainless steel	787338
Adapter kit linear actuators IEC 60534-6-1, stainless steel	787215
Position feedback with proximity switches (optional upgrade feature) ¹⁾	677218
Accessories for SideControl BASIC Remote	
Bracket for wall mounting, stainless steel	675715
DIN rail assembly kit, Aluminium/stainless steel	675702
Adapter kit - remote sensor, ELEMENT Type 23xx control valves	
Actuator size Ø 70/90/130 mm	679917
Sensor Puck (replacement part)	682240
Standard Accessories	
USB Interface for serial communication	227093
M12 socket 8 pin with 5 m cable for power supply and input/output signals	919267
Silencer G ¼ (spare part)	780780

¹⁾ External end position feedback for upgrading SideControl NAMUR

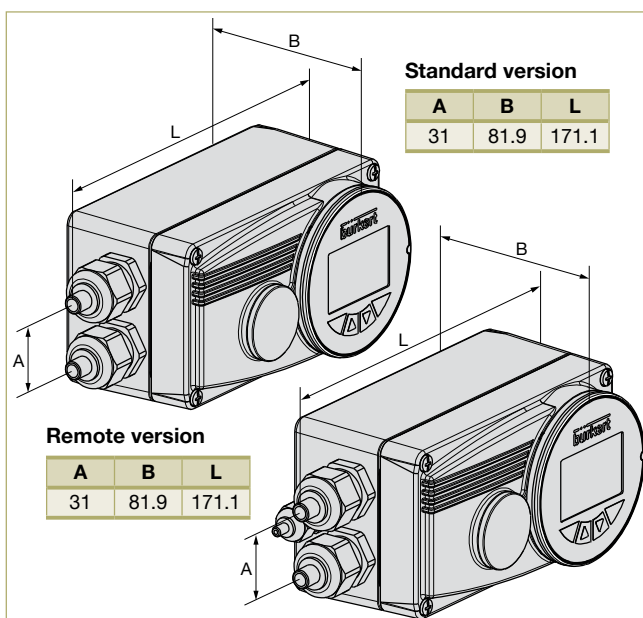
Digital electropneumatic positioner SideControl

- Compact and robust design
- Easy to start using Tune function
- Integrated diagnostic functions for valve monitoring
- Dynamic positioning system with no air consumption in controlled state
- PROFIBUS DP-V1, DeviceNet, EtherNet/IP, PROFINET, Modbus TCP or bûS (Bürkert System Bus)



The robust and compact positioner is designed to standardisation acc. to IEC 60534-6-1 or VDI/VDE 3845 (IEC 60534-6-2) for assembly with linear and rotary actuators. In addition, the remote version with the displacement position sensor can be combined with Bürkert process control valves. The digital electropneumatic positioner SideControl can be operated with the usual current and voltage standard signals and can also be equipped with the fieldbus interface. The Positioner is equipped with additional diagnostic functions to monitor the state of the valve. Through status signals, valve diagnostic messages are transmitted according to NAMUR NE 107 recommendations and recorded as history. With the diagnosis, the operating conditions of the control valve can be monitored. This allows planned maintenance and optimises plant availability. Operation occurs via the external operation and display module with a backlit graphical display. The user operation is very simple and clear, identical to the Bürkert positioner or process controller TopControl, Type 8692/8693. The pilot valve system can be used equally for single and double-acting actuators. It is characterised by a defined safety feature in case of failure of the electrical or pneumatic power supply and possesses an enormous air capacity range with pressure supply up to 7 bar.

Dimensions [mm]



Technical data




General data	
Material	
Body	Aluminium plastic-coated
Seal	EPDM, NBR, FKM
Operating voltages	24 V DC \pm 10 %
Residual ripple	Max. 10 %
Setpoint setting	0/4...20 mA and 0...5/10 V
Input resistance	0/4...20 mA: 180 Ω 0...5/10 V: 19 k Ω
Analogue feedback	4...20 mA, 0...20 mA 0...10 V, 0...5 V
Binary input	Galvanically isolated, 0...5 V = log "0", 10...30 V = log "1"
Binary output	2 Outputs (optional), galvanically separated 100 mA, Output will be synchronised when Current limit overloaded
Control medium	Neutral gases, air DIN ISO 8573-1
Dust concentration	Class 7 (< 40 μ m particle size)
Particle density	Class 5 (< 10 mg/m ³)
Pressure condensation point	Class 3 (< -20 °C)
Oil concentration	Class X (< 25 mg/m ³)

Ambient temperature	- 10 °C...+ 60 °C (without Ex-Approval) 0 °C...+ 60 °C (with ATEX/IECEx-Approval)
Pilot air ports	Threaded ports G 1/4
Supply pressure	1.4...7 bar ¹⁾²⁾
Air supply filter	Exchangeable (aperture size ~0.1 mm)
Actuator system	Single and double-acting to 150 IN/min.
Air capacity	50 IN/min (with 1.4 bar ²⁾) for aeration and ventilation 150 IN/min (with 6 bar ²⁾) for aeration and ventilation (QNn = 100 IN/min (acc. to the definition with decrease in pressure from 7...6 bar absolute))
Position detection module	Potentiometer, max. angle 180°
Stroke range valve spindle	Min. 30° on the rotary shaft, depending on lever
Installation	As required, display above or sideways
Protection class	IP65/IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard
Power consumption	< 5 W

1) The supply pressure has to be 0.5...1 bar above the minimum required pilot pressure for the valve actuator

2) Pressure specifications: Overpressure with respect to atmospheric pressure

Technical data continued

Electrical connection	
Multipole connection	M12, 8 pin/4 pin; M8, 4 pin
Cable gland	2xM20 x 1.5 (cable Ø 10 mm) on screw terminals (0.14...1.5 mm ²)
Remote version	1xM12 x 1.5 (cable Ø 3...6.5 mm)
Bus communication	
	PROFIBUS DP-V1, DeviceNet, EtherNet/IP, PROFINET, Modbus TCP or bUS (based on CANopen)
Protection class	
	III acc. to DIN EN 61140
Conformity	
	EMC directive 2014/30/EU
CSA approval information	
Product category code	Class 3221 82-VALVES - Actuators - Certified to US standards Class 3221 02-VALVES - Actuators
Considered standards	
	CAN/CSA-C22 2 No. 139, UL 429
CSA trademark	
	
Ex-Approval	
ATEX	 II 3G Ex ec ic IIC T4 Gc /  II 3D Ex tc IIIC T135 °C Dc
IECEX	Certificate; BVS 16 ATEX E 118 X Ex ec ic IIC T4 Gc / Ex tc IIIC T135 °C Dc Certificate; IECEX BVS 16,0091 X
Technical data - Linear Remote Position Sensor (ELEMENT)	
Electrical connection	
Cable gland	1xM16 x 1.5 (cable Ø 5...10 mm) on terminal screws (0.14...1.5 mm ²)
Connection cable length	10 m
Operating voltage	
	24 V DC ± 10 %
Power consumption	
	< 0.3 W
Sensor measurement range	
	3...45 mm (Stroke range valve spindle)
Actual position signal	
	Digital (RS485)
Ambient temperature	
	-25 °C...+80 °C
Protection class	
	III acc. to DIN EN 61140
Protection class	
	IP65/IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard
Ignition protection class	
	II 3D Ex tc IIIC T135 °C Dc II 3G Ex nA IIC T4 Gc
Conformity	
	EMC directive 2014/30/EU
Approvals	
	cULus Certificate no. 238179

Technical data - rotative Remote Position Sensor (NAMUR)	
Electrical connection	
	2 m round cable (shielded)
Operating voltage	
	10...30 V DC
Residual ripple	
	< 0.8 W
Sensor measurement range	
	0°...360°
Actual position signal	
	Digital (RS485)
Ambient temperature	
	-25 °C...+80 °C
Protection class	
	III acc. to DIN EN 61140
Protection class	
	IP65 acc. to EN 60529
Conformity	
	EMC directive 2014/30/EU
Approvals	
	UL (cULus) Certificate no. E226909
Technical data - Position feedback with proximity switches (Accessory)	
Electrical connection	
	M12, 4 pin
Output function	
	3-wire, normally open contact, PNP
Operating voltage	
	10...30 V DC
Residual ripple	
	≤ 10 % Uss
DC rated current	
	≤ 100 mA
Protection class	
	IP65 and IP67
Protection class	
	III acc. to DIN EN 61140
Conformity	
	EMC directive 2014/30/EU
Approvals	
	cCSAus

Note: The position feedback has two proximity switches which are independently adjustable via switch lugs.

Using a remote positioner the length of the control air pipes influences the dynamics and attainable accuracy of the position control loop. The length of the control air pipes therefore should be as short as possible.



Ordering chart

Communication		Electrical connection	Analogue feedback	2 Binary outputs	Diagnostic functions ¹⁾	cCSAus	ATEX II 3 GD / IECEx	Article no.
Positioner SideControl Type 8792 NAMUR version								
NAMUR IEC 60534-6-1 VDI/VDE 3845 (IEC 60534-6-2)								
Single and double-acting, universal air capacity								
8792 Positioner SideControl	without fieldbus communication	Cable gland	no	no	–	yes	–	206610
			no	yes	yes	yes	–	206612
			yes	yes	yes	yes	–	206611
			yes	yes	yes	–	yes	310306
		Multipole	no	no	–	yes	–	206613
			no	yes	yes	yes	–	206615
			yes	yes	yes	yes	–	206614
	PROFIBUS DP-V1	Multipole	via Bus	no	–	yes	–	206616
			via Bus	no	–	–	yes	310308
			via Bus	yes	yes	–	yes	310309
			via Bus	yes	yes	yes	–	206617
	DeviceNet	Multipole	no	no	–	yes	–	239094
			no	yes	yes	–	yes	239095
	EtherNet/IP	Multipole	via Bus	no	yes	–	–	317932
			via Bus	yes	yes	–	–	317933
			via Bus	no	yes	–	yes	317938
			via Bus	yes	yes	–	yes	317939
	PROFINET	Multipole	via Bus	no	yes	–	–	317942
			via Bus	yes	yes	–	–	317943
			via Bus	no	yes	–	yes	317948
			via Bus	yes	yes	–	yes	317949
	Modbus TCP	Multipole	via Bus	no	yes	–	–	317952
			via Bus	yes	yes	–	–	317953
			via Bus	no	yes	–	yes	317958
			via Bus	yes	yes	–	yes	317959
	bÜS - Bürkert System Bus	Multipole	via Bus	no	yes	–	–	317962
			via Bus	yes	yes	–	–	317963
			via Bus	no	yes	–	yes	317968
			via Bus	yes	yes	–	yes	317969

Ordering chart continued

Communication	Electrical connection	Analogue feedback	2 Binary outputs	Diagnostic functions ¹⁾	cCSAus	ATEX II 3 GD / IECEx	Article no.
Positioner SideControl Type 8792 remote version							
Single-acting with low air capacity for actuator series Type 23xx (Ø 70/90 mm)							
without fieldbus communication	Cable gland	yes	yes	yes	yes	–	224870
		no	yes	yes	yes	–	224871
EtherNet/IP	Multipole	via Bus	yes	yes	–	–	317936
PROFINET		via Bus	yes	yes	–	–	317946
Modbus TCP		via Bus	yes	yes	–	–	317956
büS - Bürkert System Bus		via Bus	yes	yes	–	–	317966
Single and double-acting with universal air capacity for actuator series Type 23xx (Ø 130 mm) and 27xx (Ø 175/225 mm)							
without fieldbus communication	Cable gland	no	no		yes	–	206623
		yes	yes	yes	yes	–	206624
		no	yes	yes	yes	–	206625
		yes	yes	yes	–	yes	310310
EtherNet/IP	Multipole	via Bus	yes	yes	–	–	317935
PROFINET		via Bus	yes	yes	–	–	317945
Modbus TCP		via Bus	yes	yes	–	–	317955
büS - Bürkert System Bus		via Bus	yes	yes	–	–	317965

1) See additional software functions parametrisable diagnostic functions in datasheet **Type 8792** ►.

Note: cCSAus approval in preparation for device versions with EtherNet/IP, PROFINET, Modbus TCP and büS

Assembly variations	Electrical connection	cULus	ATEX II 3 GD / IECEx	Article no.
Remote Position Sensor for SideControl Type 8792 remote version				
Control valve Type 23xx	Cable gland - 10 m round cable	yes	no	212360
	Cable gland - 10 m round cable	no	yes	226860
Control valve Type 27xx	Cable gland - 10 m round cable	yes	no	211535
	Cable gland - 10 m round cable	no	yes	226859
NAMUR (rotative)	Cable gland - 2 m round cable (max. extension 10 m)	yes	no	211536

**8792 Positioner
SideControl**



Accessories

8792 Positioner
SideControl

Description	Article no.
Accessories for SideControl NAMUR	
Assembly bridge VDI/VDE 3845 (IEC 60534-6-2), stainless steel	770294
Adapter kit VDI/VDE 3845 (IEC 60534-6-2), stainless steel	787338
Adapter kit linear actuators IEC 60534-6-1, stainless steel	787215
Position feedback with proximity switches (optional upgrade feature) ¹⁾	677218
Accessories for SideControl Remote	
Bracket for wall mounting, stainless steel	675715
DIN rail assembly kit, Aluminium/stainless steel	675702
Adapter kit - remote sensor control valves Type 23xx Actuator size Ø 70/90/130 mm	679917
Adapter kit - remote sensor control valves Type 27xx Actuator size Ø 175 / 225 mm	679945
Sensor Puck (replacement part)	682240
Standard Accessories	
M12 socket 8 pin with 5 m cable for power supply and input/output signals	919267
M8 plug 4 pin for binary outputs, with solder joints	917131
USB bÜS-Interface Set (bÜS-Stick + connection cable with M12 plug + connection cable M12 on micro USB for the bÜS service interface) to connect with PC-Tool Bürkert Communicator (only for device versions with Ethernet/IP, PROFINET, Modbus TCP and bÜS - Bürkert System Bus)	772551
bÜS cable extension M12, length 1 m	772404
bÜS cable extension M12, length 3 m	772405
bÜS cable extension M12, length 5 m	772406
bÜS cable extension M12, length 10 m	772407
SIM card	291773
Silencer G ¼ (replacement part)	780780
Sensor puck (replacement part)	682240
USB interface for serial communication (only for device versions with PROFIBUS / DeviceNet or without fieldbus communication)	227093
Software Bürkert Communicator	http://www.buerkert.com/en/type/8920

¹⁾ External end position feedback for upgrading SideControl NAMUR

Digital electropneumatic process controller SideControl

8793

- Compact and robust design
- Easy Start-up using Tune function of the Positioner and Process controller
- Integrated diagnostic functions for valve monitoring
- Dynamic positioning system with no air consumption in controlled state
- PROFIBUS DP-V1, DeviceNet, EtherNet/IP, PROFINET, Modbus TCP or bûS (Bürkert System Bus)

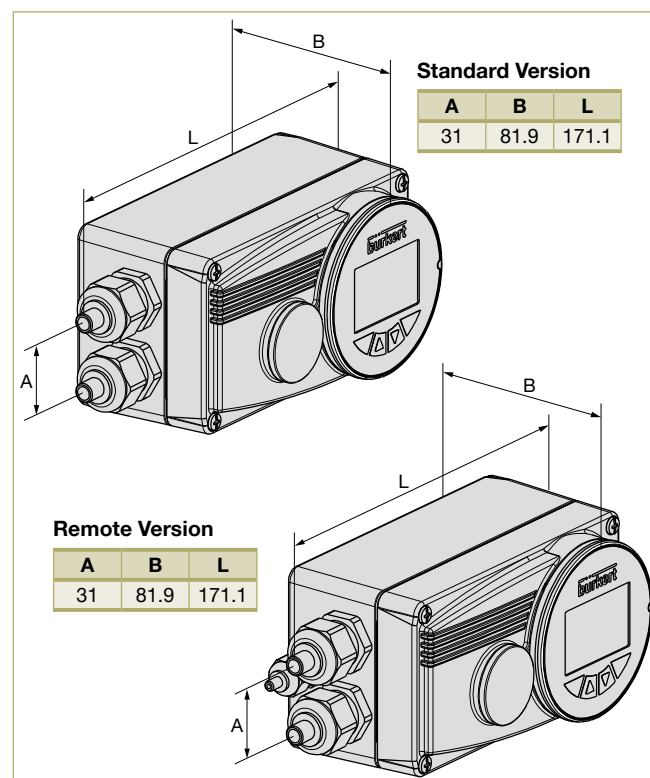


The digital process controller Type 8793 is designed to standardization acc. to IEC 60534-6-1 or VDI/VDE 3845 (IEC 60534-6-2) for assembly with linear and rotary actuators. In addition, the remote version can be combined with Bürkert process control valves. The process controller can be operated by the usual current and voltage standard signals and can also be equipped with the fieldbus interface. The actual process value is directly supplied to the device as 4...20 mA, PT100 or as frequency signal. The process controller calculates the position setpoint for the subordinated positioner through variance comparison. The parameterization of process controller can be carried out automatically via Tune function. The handling is easily done either on a graphic display with keypad or via COMMUNICATOR. The process controller is equipped with diagnostic functions to monitor the state of the valve. With the diagnostics, the operating conditions of the control valve can be monitored. This allows planned maintenance and optimizes plant availability. The pilot valve system can be used equally for single and double acting actuators. It is characterized by a defined safety feature in case of failure of the electrical or pneumatic power and possesses an enormous air capacity range with pressure supply up to 7 bar.

Technical data


General data	
Material:	
Body	Aluminium plastic-coated
Seal	EPDM, NBR, FKM
Operating voltages	24 V DC $\pm 10\%$
Residual ripple	Max. 10 %
Setpoint setting	0/4...20 mA and 0...5/10 V
Input resistance	0/4...20 mA: 180 Ω 0...5/10 V: 19 k Ω
Input data for actual value signal	
Setting 4...20 mA	180 Ω Input resistance / Resolution 12 bit
Frequency setting	17 k Ω Input resistance, 0...1000 Hz/1 % o.R. measuring range, Input signal > 300 mV ₈₈
Setting Pt 100	Signal form Sine, rectangle, triangle Measuring range -20 °C...+220 °C, Resolution < 0.1 °C, M
Analogue feedback	4...20 mA, 0...20 mA 0...10 V, 0...5 V

Dimensions [mm]



Binary input	Galvanically isolated, 0...5 V = log "0", 10...30 V = log "1"
Binary Output	2 Outputs (optional), galvanically isolated
Current limit	100 mA, Output will be synchronised when overloaded
Control medium	Neutral gases, air DIN ISO 8573-1
Dust concentration	Class 7 (< 40 μm particle size)
Particle density	Class 5 (< 10 mg/m ³)
Pressure condensation point	Class 3 (< -20 °C)
Oil concentration	Class X (< 25 mg/m ³)
Ambient temperature	0 °C...+60 °C
Pilot air ports	Threaded port G 1/4
Supply pressure	1.4...7 bar ^{1) 2)}
Air input filter	Exchangeable (aperture size ~0.1 mm)

Technical data continued

Pilot valve system	Single and double-acting up to 150 l _v /min.
Air capacity	95 l _v /min (with 1.4 bar ²) for aeration and ventilation 150 l _v /min (with 6 bar ²) for aeration and ventilation (Q _{Nn} = 100 lN/min (acc. to the definition with decrease in pressure from 7...6 bar absolute)
Position detection module	Potentiometer, max. angle 180°
Stroke range valve spindle	Min. 30° on the rotary shaft, independent of lever
Technical data	
Installation	As required, display above or sideways
Protection class	IP65/IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard
Power consumption	<5 W
Electrical connection	
Multi-pin connection	M12, 8 pin / 4 pin; M8, 4 pin
Cable gland	2xM20×1.5 (cable Ø 6...12 mm) on screw terminals (0.14...1.5 mm ²)
Remote Version	1x M12×1.5 (cable Ø 3...6.5 mm)
Bus communication	PROFIBUS DP-V1, DeviceNet, EtherNet/IP, PROFINET, Modbus TCP or bÜS (based on CANopen)
Inductive proximity switch	On request
Protection class	III acc. to DIN EN 61140
Ignition protection class	II 3 G nA II B T4 II 3 D tD A22 T135°
Conformity	EMC directive 2014/30/EU
CSA approval information	Class 3221 82-VALVES - Actuators - Certified to US standards Class 3221 02-VALVES - Actuators
Considered standards	CAN/CSA-C22 2 No. 139 UL 429
CSA trademark	
Ex-Approval	
ATEX	⊕ II 3G Ex ec ic IIC T4 Gc / ⊕ II 3D Ex tc IIIC T135 °C Dc Certificate; BVS 16 ATEX E 118 X
IECEx	Ex ec ic IIC T4 Gc / Ex tc IIIC T135 °C Dc Certificate; IECEx BVS 16.0091 X

Technical data – Linear Remote Position Sensor (ELEMENT)	
Electrical connection	
Cable gland	1xM16×1.5 (cable Ø 5...10 mm) on terminal screws (0.14...1.5 mm ²)
Connection cable length	10 m
Operating voltage	24 V DC ± 10 %
Power consumption	<0.3 W
Sensor measurement range	3...45 mm (Stroke range valve spindle)
Actual position signal	digital (RS485)
Ambient temperature	-25 °C...+80 °C
Protection class	III acc. to DIN EN 61140
Protection class	IP65 and IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard
Ignition protection class	II 3D Ex tc IIIC T135 °C Dc II 3G Ex nA IIC T4 Gc
Conformity	EMC directive 2014/30/EU
Approvals	cULus Certificate no. 238179

Technical data – rotative Remote Position Sensor (NAMUR)	
Electrical connection	2 m round cable (shielded)
Operating voltage	10...30 V DC
Residual ripple	<0.8 W
Sensor measurement range	0°...360°
Actual position signal	Digital (RS485)
Ambient temperature	-25 °C...+80 °C
Protection class	III acc. to DIN EN 61140
Protection class	IP65 acc. to EN 60529
Conformity	EMC directive 2014/30/EU
Approvals	UL (cULus) Certificate no. E226909
Technical data – Position feedback with proximity switches (Accessory)	
Electrical connection	M12, 4 pin
Output function	3-wire, normally open contact, PNP
Operating voltage	10...30 V DC
Residual ripple	≤ 10 % U _{ss}
DC rated current	≤ 100 mA
Protection class	IP65 and IP67
Protection class	III acc. to DIN EN 61140
Conformity	EMC directive 2014/30/EU
Approvals	cCSAus

1) The supply pressure has to be 0.5...1 bar above the minimum required pilot pressure for the valve actuator

2) Pressure specifications: Overpressure with respect to atmospheric pressure

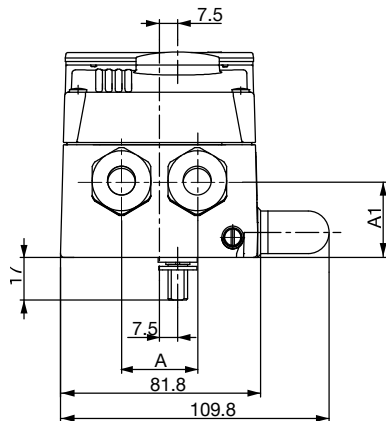
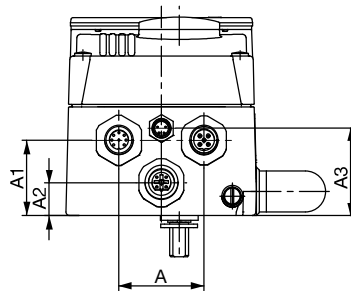
Note: The position feedback has two proximity switches which are independently adjustable via switch lugs.

Using a remote positioner the length of the control air pipes influences the dynamics and attainable accuracy of the position control loop. The length of the control air pipes therefore should be as short as possible.

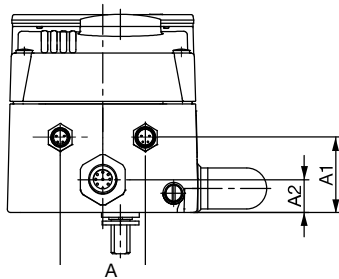
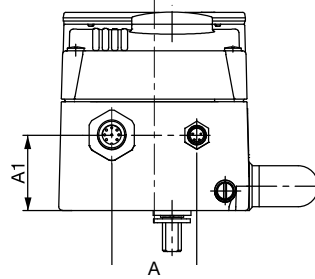


Dimensions [mm]

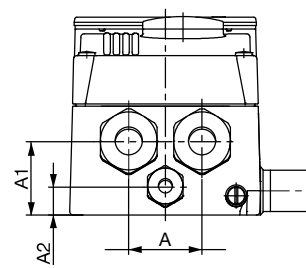
Standard version

NAMUR Profibus
Multipol version

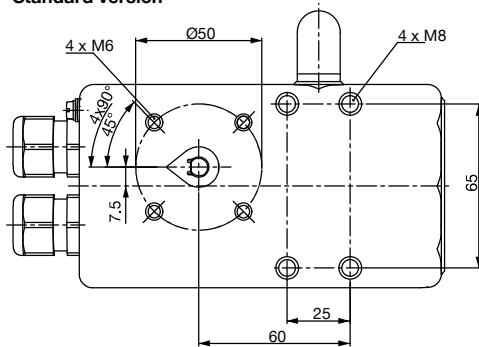
Description	A	A1	A2	A3
NAMUR version	31	30	–	–
NAMUR PROFIBUS Multi-pin	36	31	13.5	36.1
NAMUR Multi-pin with binary output	36	31	13.5	–
NAMUR Multi-pin	36	31	–	–
Remote version	31	30	11.5	–

NAMUR Multi-pin
with binary outputNAMUR
Multi-pin version

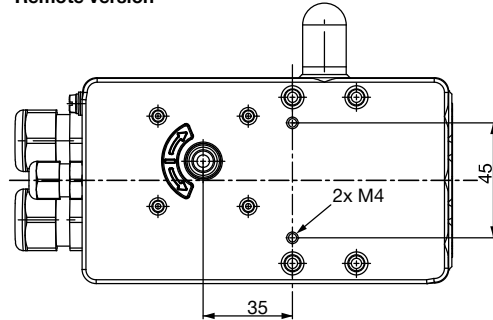
Remote version



Standard version



Remote version



Ordering chart

Communication	Electrical connection	Analogue feedback	2 Binary outputs	Diagnostic functions ¹⁾	cCSAus	ATEX II 3 GD / IECEx	Article no.
Process controller SideControl Type 8793 NAMUR version NAMUR IEC 534-6 VDI/VDE 3845							
Single and double-acting with universal air capacity							
without fieldbus communication	Cable gland	no	no	–	yes	–	206593
		no	yes	yes	yes	–	206595
		yes	yes	yes	yes	–	206594
		yes	yes	yes	–	yes	310312
		no	yes	yes	–	yes	310313
	Multipole	no	no	–	yes	–	206596
		no	yes	yes	yes	–	206599
		yes	yes	yes	yes	–	206598
	Multipole	via Bus	no	–	yes	–	206600
		via Bus	yes	yes	yes	–	206601
DeviceNet	Multipole	no	no	–	yes	–	239097
		no	yes	yes	yes	–	239098
EtherNet/IP	Multipole	via Bus	no	yes	–	–	317930
		via Bus	yes	yes	–	–	317931
PROFINET	Multipole	via Bus	no	yes	–	–	317940
		via Bus	yes	yes	–	–	317941
Modbus TCP	Multipole	via Bus	no	yes	–	–	317950
		via Bus	yes	yes	–	–	317951
bÜS - Bürkert System Bus	Multipole	via Bus	no	yes	–	–	317960
		via Bus	yes	yes	–	–	317961

1) See additional software functions parametrisable diagnostic functions

8793



Ordering chart continued

8793	Communication	Electrical connection	Analogue feedback	2 Binary outputs	Diagnostic functions ¹⁾	cCSAus	ATEX II 3 GD / IECEx	Article no.
	Process controller SideControl Type 8793 remote version							
	Single-acting with low air capacity for actuator series Type 23xx (Ø 70/90 mm)							
	without fieldbus communication	Cable gland	no	no	–	yes	–	226828
			no	yes	yes	yes	–	224873
			yes	yes	yes	yes	–	224872
	EtherNet/IP	Multipole	via Bus	yes	yes	–	–	317937
	PROFINET		via Bus	yes	yes	–	–	317947
	Modbus TCP		via Bus	yes	yes	–	–	317957
	büS - Bürkert System Bus		via Bus	yes	yes	–	–	317967
	Single and double-acting with universal air capacity for actuator series Type 23xx (Ø 130 mm) and 27xx (Ø 175/225 mm)							
	without fieldbus communication	Cable gland	no	no		yes	–	206607
			yes	yes	yes	yes	–	206608
			no	yes	yes	yes	–	206609
			yes	yes	yes	–	yes	310314
EtherNet/IP	Multipole	via Bus	yes	yes	–	–	317934	
PROFINET		via Bus	yes	yes	–	–	317944	
Modbus TCP		via Bus	yes	yes	–	–	317954	
büS - Bürkert System Bus		via Bus	yes	yes	–	–	317964	

1) See additional software functions parametrisable diagnostic functions

Note: cCSAus approval in preparation for device versions with EtherNet/IP, PROFINET, Modbus TCP und büS

Assembly variations	Electrical connection	cULus	ATEX II 3 GD / IECEx	Article no.
Remote Position Sensor for SideControl Type 8793 remote version				
Remote Position Sensor				
Control valve Type 23xx	Cable gland - 10 m round cable	yes	no	212360
	Cable gland - 10 m round cable	no	yes	226860
Control valve Type 27xx	Cable gland - 10 m round cable	yes	no	211535
	Cable gland - 10 m round cable	no	yes	226859
NAMUR (rotative)	Cable gland - 2 m round cable (max. extension 10 m)	yes	no	211536

Accessories

Description	Article no.
Accessories for SideControl BASIC NAMUR	
Assembly bridge VDI/VDE 3845 (IEC 60534-6-2), stainless steel	770294 
Adapter kit VDI/VDE 3845 (IEC 60534-6-2) stainless steel	787338 
Adapter kit linear actuators IEC 60534-6-1 stainless steel	787215 
Position feedback with proximity switches (optional upgrade feature) ¹⁾	677218 
Accessories for SideControl BASIC Remote	
Bracket for wall mounting, stainless steel	675715 
DIN rail assembly kit Aluminium/stainless steel	675702 
Adapter kit - remote sensor, control valves Type 23xx Actuator size Ø 70/90/130 mm	679917 
Adapter kit - remote sensor, control valves Type 27xx Actuator size Ø 175 / 225 mm	679945 
Sensor Puck (replacement part)	682240 
Standard Accessories	
M12 socket 8 pin with 5 m cable for power supply and input/output signals	919267 
M8 plug 4 pin for binary outputs, with solder joints	917131 
M8 socket 4 pin with 5 m cable for process actual value from sensor	264602 
M8 plug 4 pin for binary outputs, with solder joints	917131 
USB bÜS-Interface Set (bÜS-Stick + connection cable with M12 plug + connection cable M12 on micro USB for the bÜS service interface) to connect with PC-Tool Bürkert Communicator (only for device versions with EtherNet/IP, PROFINET, Modbus TCP and bÜS - Bürkert System Bus)	772551 
bÜS cable extension M12, length 1 m	772404 
bÜS cable extension M12, length 3 m	772405 
bÜS cable extension M12, length 5 m	772406 
bÜS cable extension M12, length 10 m	772407 
SIM card	291773 
Silencer G ¼ (replacement part)	780780 
Sensor puck (replacement part)	682240 
USB interface for serial communication (only for device versions with PROFIBUS / DeviceNet or without fieldbus communication)	227093 
Software Bürkert Communicator ²⁾	http://www.buerkert.de/de/type/8920

1) External end position feedback for upgrading SideControl NAMUR

2) Related Communication software can be downloaded from **Type 8793** ►



Overview for Ball Valves

Note: The following product overview does not show the complete product range of this catalogue. A complete overview can be found [here](#) ►

Overview Ball Valves	Species	Type	Valve design	Orifice
	2-piece socket ball valve with flange head ISO 5211	2651 ►	2/2 or 3/2 way	DN10...DN50 (2/2 way) DN10...DN40 (3/2 way)
	2-piece socket ball valve with flange head ISO 5211	2654 ►	2/2 way	DN10...DN100
	3-piece socket ball valve with flange head ISO 5211 and hand lever	2654 Hygienic ►	2/2 way	DN08...DN100
	Plastic ball valve with flange head and hand lever	2657 ►	2/2 or 3/2 way	DN10...DN100
	Stainless steel ball valve with electric motor drive	8804 ►	2/2 or 3/2 way	DN10...DN65
	Plastic ball valve with electric motor drive	8804 ►	2/2 way	DN10...DN50
	2- and 3-piece stainless steel socket ball valve with pneumatic rotary actuator	2652 / 2655¹⁾ ►	2/2 way	DN10...DN50
	2- and 3-piece stainless steel socket ball valve with pneumatic part-turn actuator	8805 ►	2/2 or 3/2 way	DN10...DN100
	Butterfly valve in intermediate flange design with hand lever or free shaft	2671 ►	2/2 way	DN40...DN300
	Plastic butterfly valve in intermediate flange design with hand lever or free shaft	2674 ►	2/2 way	DN40...DN200

¹⁾ available until 01.11.2020

Overview Ball Valves

2/2 or 3/2 way ball valve, 2-Piece

2651

- Stainless steel ball valve
- High flow rate
- High medium pressure
- Long lifespan
- ISO 5211 Top flange

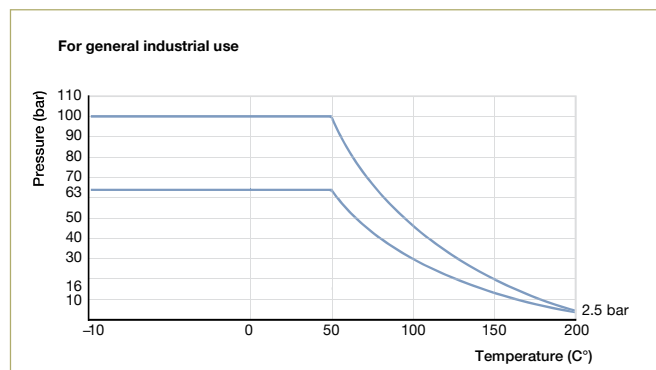


2/2 and 3/2 way stainless steel ball valve used to shut off and distributing medium flows. The ball valves can be connected via the mechanical interface to ISO 5211 with a pneumatic (for example, Type 2051 or 2052) or electrical rotary actuator (eg, Types 3003, 3004 or 3005). 3/2 way Version with L- or T-boring

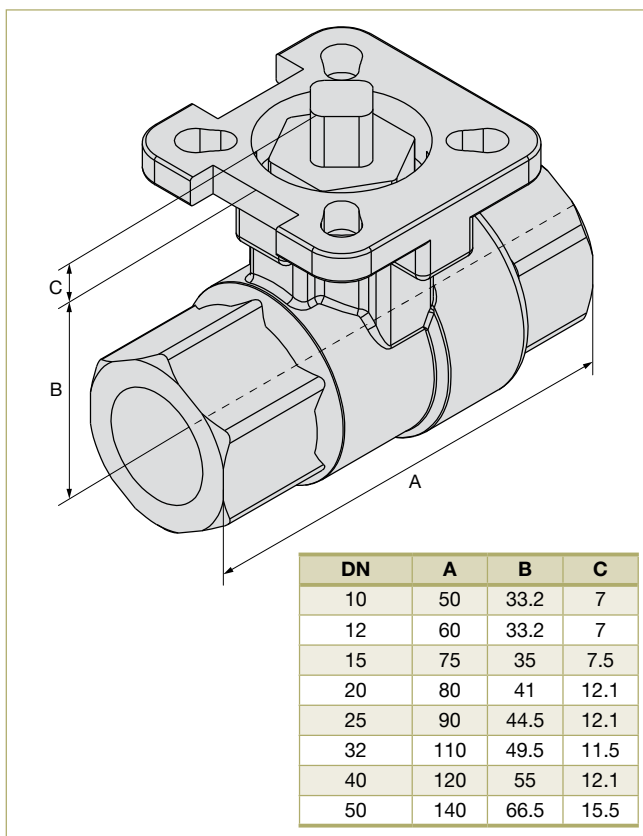
Technical data

Orifice	DN10...DN50 (2/2 way) DN10...DN40 (3/2 way)
Ball bore (3/2- Wege)	L-Boring T-Boring
Body material	Stainless steel 1.4408
Ball material	Stainless steel 1.4401
Selector shaft material	Stainless steel 1.4401
Seal material	PTFE (Ball seal) FKM (Stem Seal)
Medium temperature (see pressure temperature diagram)	-10 °C...200 °C
Medium pressure (see pressure temperature diagram)	Max. 100 bar (2/2 way) Max. 63 bar (3/2 way)
Medium	Stainless steel body: aggressive mediums, which do not affect the body or seal materials
Port connection	Rp 1/4...Rp 2 Whitworth Thread acc. DIN EN 10226-1 (old DIN 2999)
ISO Top flange	EN ISO 5211

Pressure/temperature chart



Dimensions [mm]



Torques

2/2 way

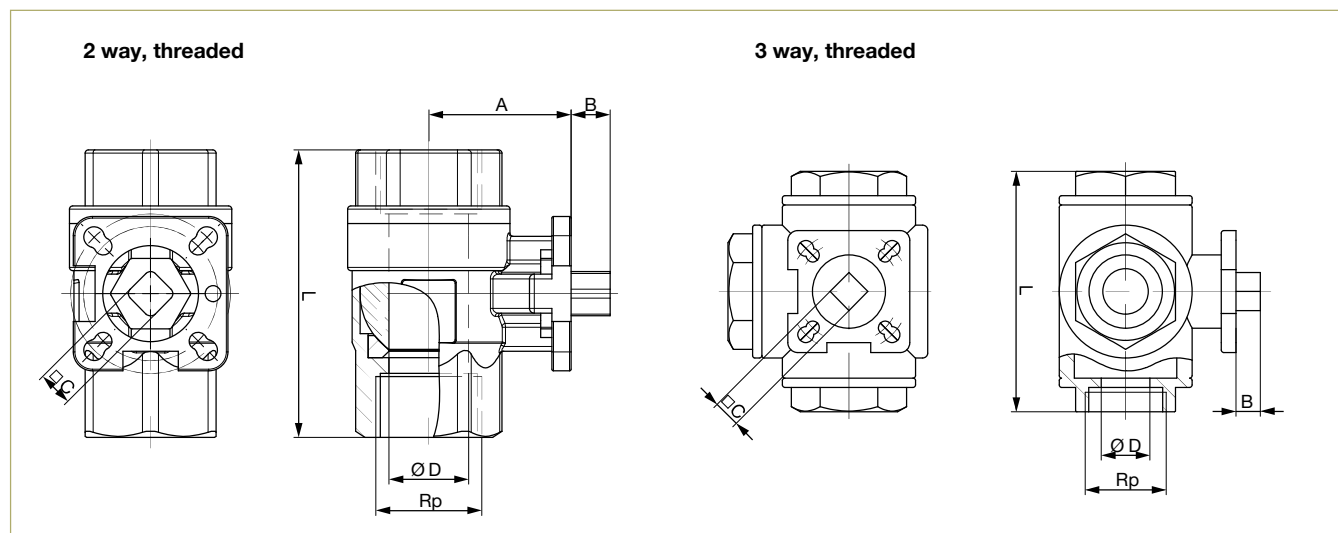
DN	10	12	15	20	25	32	40	50
Breakaway torque [Nm]	13	13	16	25	31	53	76	99
Running torque [Nm]	10	10	13	20	24	43	60	80

3/2 way

DN	10	12	15	20	25	32	40
Breakaway torque [Nm]	13	13	18	22	35	42	68
Running torque [Nm]	9	9	12	14	23	28	45

The given values were measured at max. delta P with water at ambient temperature.

Dimensions [mm]



Ordering chart

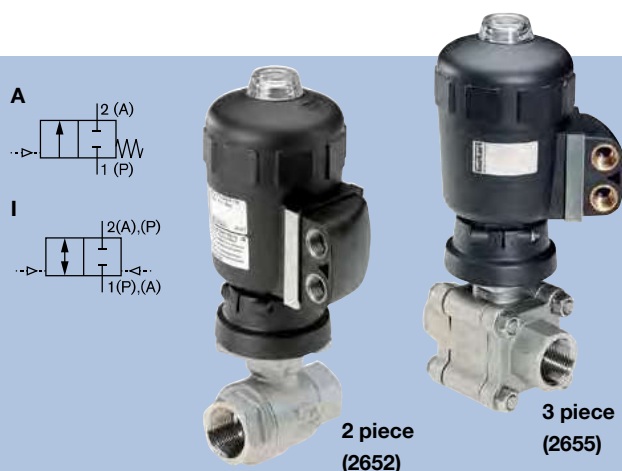
DN [mm]	Rp	D	L	A	B	C	ISO 5211	Article no.
2 way, threaded								
10	¼	11.6	50	33.2	7	9	F03	185972
12	⅜	12.7	60	33.2	7	9	F03 / F04	185973
15	½	15	75	35	7.5	9	F03 / F04	185974
20	¾	20	80	41	12.1	11	F03 / F04	185975
25	1	25	90	44.5	12.1	11	F04 / F05	185976
32	1¼	31.8	110	49.5	11.5	11	F04 / F05	185977
40	1½	38	120	55	12.1	11	F04 / F05	185978
50	2	50.8	140	66.5	15.5	14	F05 / F07	185979

DN [mm]	Rp	D	L	B	C	ISO 5211	Article no.	
							L-Boring	T-Boring
3 way, threaded								
10	¼	10	80	7.4	9	F03 / F04	172844	185984
12	½	12	80	7.4	9	F03 / F04	185853	185987
15	¾	15	87.5	7.4	9	F03 / F04	172845	185988
20	1	20	100	12.8	11	F04 / F05	172847	185989
25	1¼	25	123	11.4	11	F04 / F05	172848	185990
32	1½	32	142.2	12.4	11	F04 / F05	172849	185992
40	2	40	170.6	9.8	11	F04 / F05	172851	185993

2/2 way Ball Valve with Pneumatic Rotary Actuator

2652 / 2655

- 2 or 3 piece ball valve
- Pneumatic actuator
- Compact design
- Optical position indicator
- Pilot valve connection NAMUR



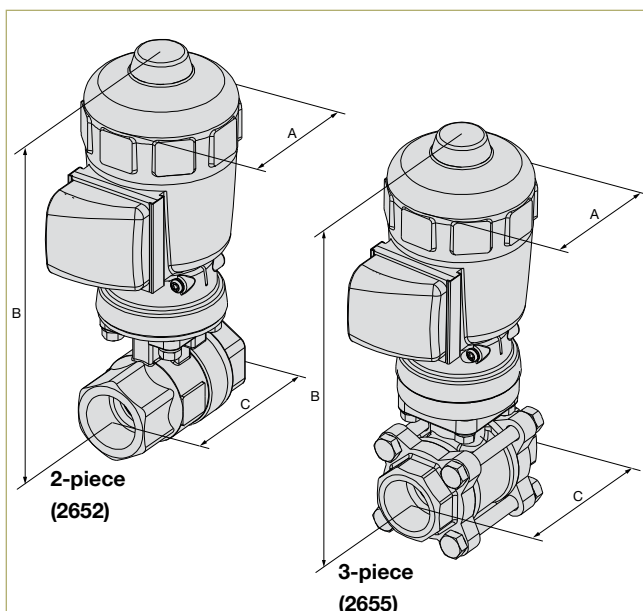
Complete ball valves of Types 2652 and 2655 consist of a pneumatic rotary actuator (Type 2050) and a 2/2 way ball valve. The ball valve body is 2 piece (Type 2652) or 3 piece (Type 2655). The connection between the actuator and the ball valve takes place via a standard interface (flange connection).

The rotary movement in the drive is produced by a linear piston with quick-acting screw thread coupling. The rotary actuator moves the ball valve through 90° and thus opens or closes the line cross-section. The actuator has an optical display of the piston position. The compact, pneumatically actuated ball valve can be employed for a wide range of applications, even under heavy-duty, slightly aggressive conditions.

Technical data

Orifice	DN10...DN50
Body material	Stainless steel 1.4408
Actuator material	PA (polyamide, glass-fibre reinforced)
Control air connection material	Stainless steel 1.4305
Seal material	PTFE
Medium	Gaseous and liquid medium, which do not attack the body and seal materials
Medium temperature	-10...+120 °C
Ambient temperature	-10...+60 °C
Control medium	Neutral gases; air
Port connection	Rp 1/4 to Rp 2 Whitworth threaded port acc. to DIN EN 10226-1 (old DIN 2999)
Pilot pressure	
Double acting actuator	2...10 bar (Ø 63 mm), 2...6 bar (Ø 100 mm)
Single acting actuator	5...10 bar (Ø 63 mm), 5...6 bar (Ø 100 mm)
Connection between actuator and ball valve	Flange acc. to ISO 5211 or DIN 3337
Rotation	90° ±3°
Rotation time for 90°	1...3.5 sec. (depending on load and pilot pressure)
Installation	As required, preferably with actuator in upright position

Dimensions [mm]



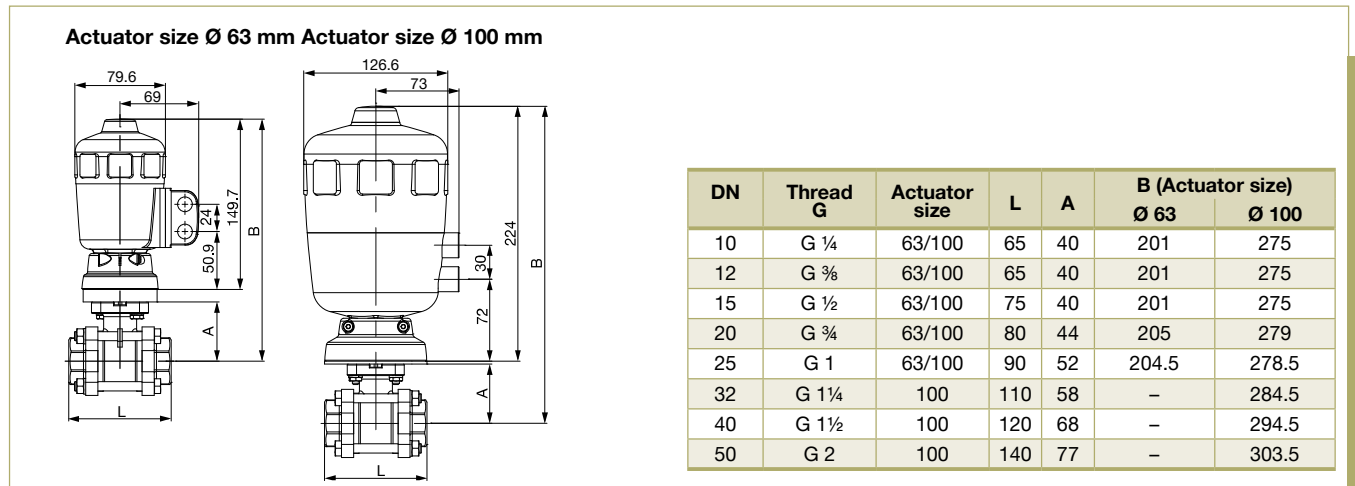
DN	A (Actuator size)		B (Actuator size)		C
	Ø 63	Ø 100	Ø 63	Ø 100	
10	79.6	126.6	201	275	65
12	79.6	126.6	201	275	65
15	79.6	126.6	201	275	75
20	79.6	126.6	205	279	80
25	79.6	126.6	204.5	278.5	90
32	–	126.6	–	284.5	110
40	–	126.6	–	294.5	120
50	–	126.6	–	303.5	140

Options

- Control head **Type 8631** ▶
- Electrical position feedback **Type 1062** ▶

Dimensions [mm]

(Dimensions for Type 2652 see data sheet)



Ordering chart

Control function	Orifice [mm]	Port connection	K _v value water [m³/h]	Pressure range [bar]	Single-acting actuator			Double-acting actuator		
					Actuator size Ø [mm]	Article no. Type 2652 2 piece	Article no. Type 2655 3 piece	Actuator size Ø [mm]	Article no. Type 2652 2 piece	Article no. Type 2655 3 piece
A Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	10	G ¼	7	0...63	63	435172	435175	63	429203	431195
	12	G ¾	9	0...63	63	435173	435176	63	429204	431196
	15	G ½	35	0...63	63	435174	435177	63	429205	431197
	20	G ¾	46	0...63	100	431109	431205	63	429206	431198
or	25	G 1	72	0...63	100	431110	431206	63	429207	431199
I Open/close operation on either side without spring, bidirectional	32	G 1 ¼	105	0...63	–	–	–	100	429208	431200
	40	G 1 ½	170	0...63	–	–	–	100	429209	176177
	50	G 2	275	0...63	–	–	–	100	429210	–

Accessories

Actuator size Ø [mm]	Material	Article no.
NAMUR adapter for connections with NAMUR pilot valve		
63	Plastic (PA)	427405
100	Brass	637114
	Stainless steel	634275

Valve for actuator size Ø [mm]	Type	Pressure inlet P	Service port A	Orifice [mm]	Q _{Nn} value air [l/min]	Pressure range [bar]	Electrical connection	Power consumption [W]	Article no. voltage/frequency [V/Hz]	
									024/DC	230/50
3/2 way Pilot valve with banjo bolt										
Seal material valve FKM, seal material banjo bolt NBR										
63...100	6014P	G ¼	G ¼	2	120	0...10	Form A	8	424103	424107

Description	Voltage	Article no.
Cable plug Type 2508 (will be replaced with Type 2518) acc. to DIN 175301-803 Form A - see Type 2508 ▶		
without circuitry (standard), without cable	0...250 V AC/DC	008376

2/2 way Ball valve, 3 pieces

2654

- Stainless steel ball valve
- High flow rates
- High medium pressure
- Long life
- ISO 5211 top flange



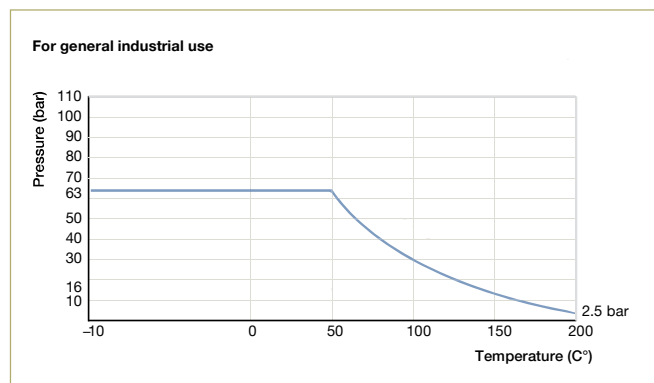
2/2 way Ball valve in stainless steel for separating medium flow. The ball valves can be connected via the mechanical interface to ISO 5211 with a pneumatic (e.g. type 2051 or type 2052) or electrical rotary actuator (e.g. types 3003, 3004 or 3005).

- low torques
- maintenance friendly

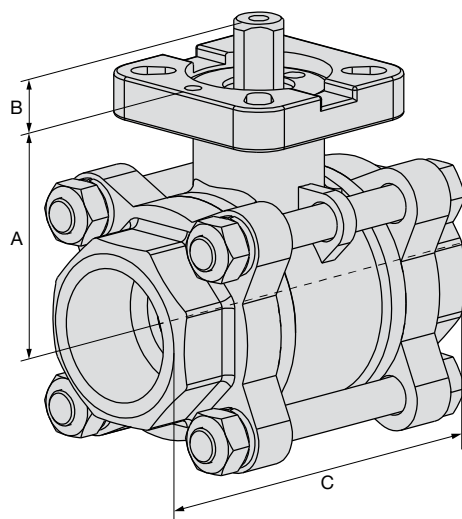
Technical data

Orifice	DN10...DN100
Body material	Stainless steel 1.4408
Ball material	Stainless steel 1.4401
Selector shaft material	Stainless steel 1.4401
Seal material	PTFE (Ball seal) FKM (stem seal)
Medium temperature	-10 °C...200 °C (see pressure temperature diagram)
Medium pressure	Max. 63 bar (see pressure temperature diagram)
Medium	Stainless steel body: aggressive fluids, which will not attack the body and seal
Port connections	Rp 1/4...Rp 2 Whitworth Thread acc. to DIN EN 10226-1 (alt DIN 2999) weld end
ISO head flange	EN ISO 5211

Pressure Temperature Chart



Dimensions [mm]



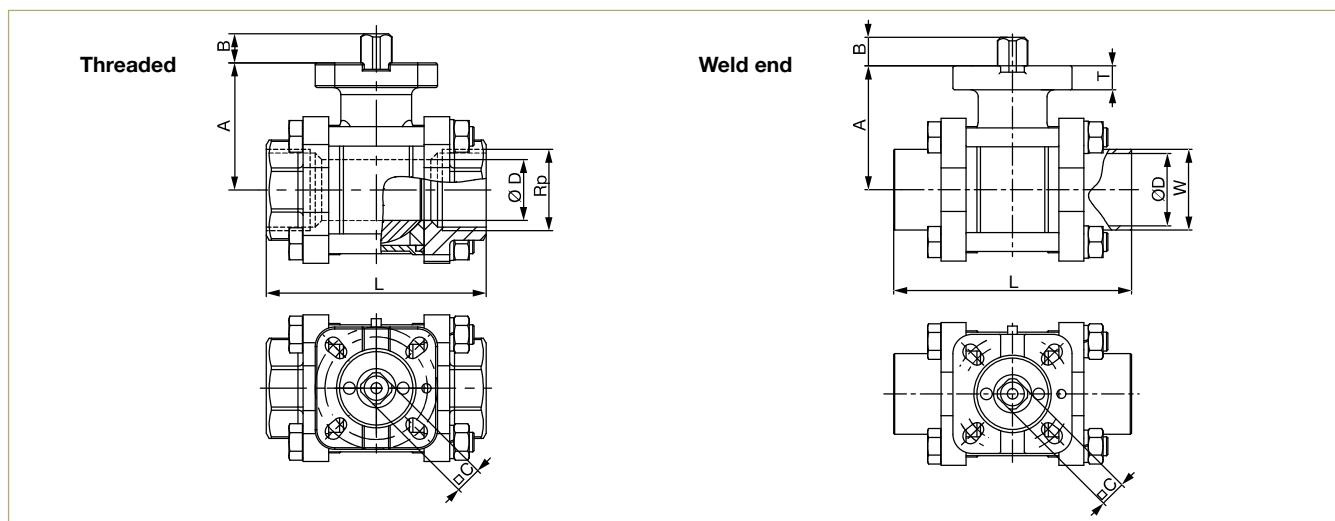
DN	A	B	C
10	40	7	65
12	40	7	65
15	40	7	75
20	44	7	80
25	52	12	90
32	58	12	110
40	68	16	120
50	77	16	140
65	98	19	185
80	110	19	205
100	138	24	240

Torques

DN	8	10	15	20	25	32	40	50	65	80	100
Breakaway torque [Nm]	6	6	10	14	17	24	29	44	78	112	140
Running torque [Nm]	4	4	7	9	11	16	19	30	52	89	112

The given values were measured at max. delta P with water at ambient temperature.

Dimensions [mm]



2654

Ordering chart

Orifice [mm]	Rp	D	L	A	B	C	ISO 5211	Article no.
Threaded								
10	¼	10	65	40	7	9	F03 / F04	185994
12	⅜	12	65	40	7	9	F03 / F04	185995
15	½	16	75	40	7	9	F03 / F04	185996
20	¾	20	80	44	7	9	F03 / F04	185997
25	1	25	90	52	12	11	F04 / F05	185998
32	1¼	32	110	58	12	11	F04 / F05	185999
40	1½	40	120	68	16	14	F05 / F07	186000
50	2	50	140	77	16	14	F05 / F07	186001
65	2½	65	185	98	19	17	F07 / F10	186002
80	3	80	205	110	19	17	F07 / F10	186003
100	4	100	240	138	24	22	F10	217975
Weld end								
Orifice [mm]	W	D	L	A	B	C	ISO 5211	Article no.
12	19.3	12	75	40	9	9	F03 / F04	186004
15	23.3	16	75	40	9	9	F03 / F04	186005
20	28.2	20	90	44	9	9	F03 / F04	186006
25	33.8	25	100	52	12	11	F04 / F05	186007
32	41.1	32	110	58	12	11	F04 / F05	186008
40	49	40	125	68	16	14	F05 / F07	186009
50	62	50	150	77	16	14	F05 / F07	186010
65	78	65	190	98	19	17	F07 / F10	205429
80	94.3	80	220	110	19	17	F07 / F10	203221
100	125.2	100	270	138	24	22	F10	203222

2/2 way Ball Valve with Pneumatic Rotary Actuator

2654
Hygienic

- High performance and low maintenance
- Suitable for CIP and SIP (cleaning in process)
- PTFE Seal: conform to EC Regulation 1935/2004/EC, Regulation (EU) No. 10/2011, FDA, USP Class VI
- ISO 5211 head flange



The ball valves are manufactured using high quality materials and fulfill the requirements of many international standards. They offer maximum flow performance for hygienic duties.

They boast a high quality finish and are available in different variations.

Through their simple construction the ball valves are very low-maintenance.

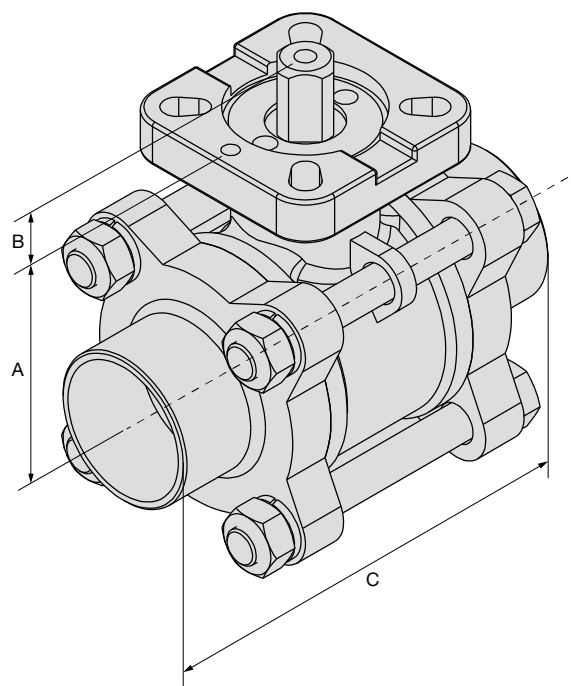
They are available with and without manual lever. Next to this, they can be connected via the mechanical interface (acc. to ISO 5211) with pneumatic (for example, type 2051, 2052) and electrical rotary actuators (for example, type 3003, 3004, 3005).

Technical data

Available standard sizes	Orbital welded end versions acc. DIN 11850 R2 ISO 1127/ISO 4200 ASME BPE
Material medium contact	Stainless steel 1.4435 (316L)
Material medium separated	1.4435
Seals	Seat, body gasket, thrust-washer and stem packing in PTFE (FDA conform)
Surface quality	Wetted surface RA < Ra 0.8 µm Body surface electropolished
Medium temperature	-10 °C...200 °C Max. 6 bar for steam with sealing PTFE/ stainless steel reinforced (optionally)
Medium pressure	Max. 63 bar (see pressure temperature diagram)
Conformity (PTFE seal)	1935/2004/EC, FDA, USP Class VI
Lever	Electropolished, CFM8 (1.4408)
ISO head flange	EN ISO 5211

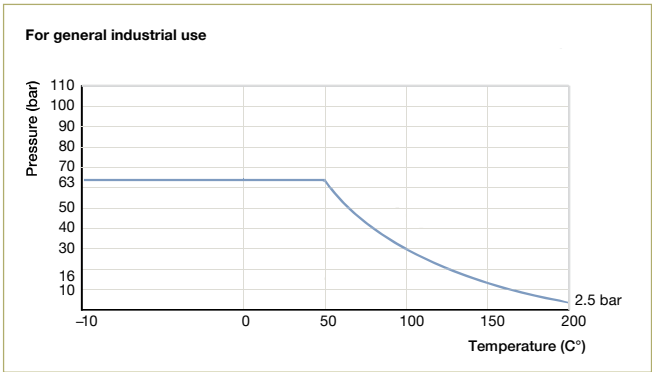
Dimensions [mm]

See ordering chart for complete dimensions.



Orifice	A	B	C
10	40	9	100
15	40	9	100
20	44	9	105
25	52	12	115
32	58	12	140
40	68	12	150
50	77	16	170
65	98	19	220
80	110	19	300
100	138	24	325

Pressure Temperature Chart

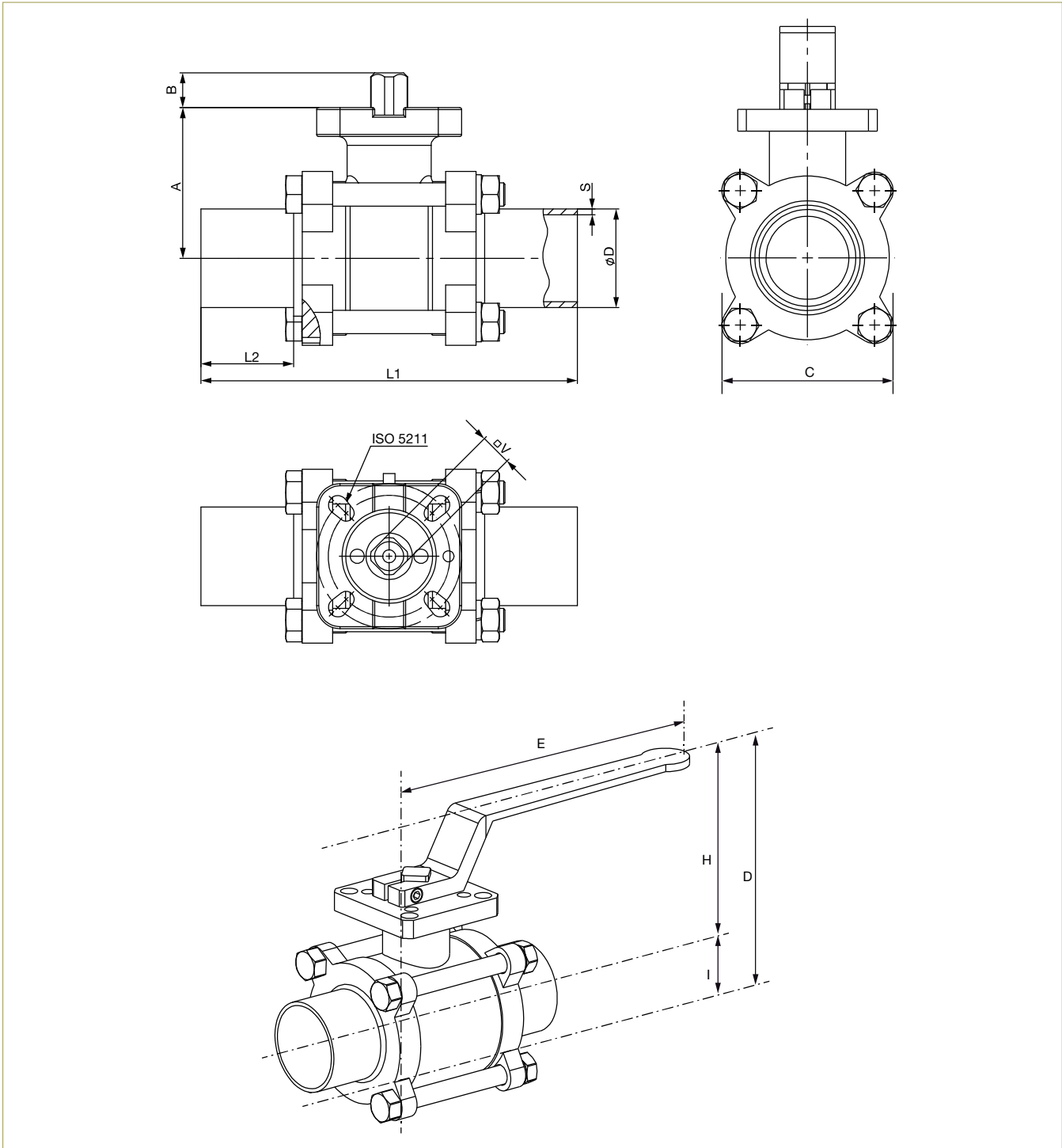


Torques

DN	8	10	15	20	25	32	40	50	65	80	100
Breakaway torque [Nm]	6	6	10	14	17	24	29	44	78	112	140
Running torque [Nm]	4	4	7	9	11	16	19	30	52	89	112





















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



















Dimensions [mm]





Ordering chart

Orifice [mm]	A	B	C	D	E	H	I	L1	L2	Ø D	S	V	ISO 5211	Article no. manual operated	Article no. bare shaft
Ball valve with weld end, DIN 11850 R2															
10	40	9	47.5	90	125	64	26	100	23	13	1.5	9	F03/F04	772642 	772592 
15	40	9	47.5	90	125	64	26	100	25	19	1.5	9	F03/F04	772643 	772593 
20	44	9	52.5	96	125	68	28	105	25	23	1.5	9	F03/F04	772644 	772594 
25	52	12	58	123	189	91	32	115	25	29	1.5	11	F04/F05	772645 	772595 
32	58	12	71	134.5	189	97	37.5	140	33	35	1.5	11	F04/F05	772646 	772596 
40	68	12	78.5	149	221	107	42	150	33	41	1.5	14	F05/F07	772647 	772597 
50	77	16	94.5	167	221	116.5	50.5	170	33	53	1.5	14	F05/F07	772648 	772598 
65	98	19	122	218.5	302	154.5	64	220	40	70	2	17	F07/F10	772649 	772599 
80	110	19	186	252	302	166.5	85.5	300	65	85	2	17	F07/F10	772650 	772600 
100	138	24	217.5	316.5	350	219.5	97	325	65	104	2	22	F10	772651 	772601 

Orifice [mm]	A	B	C	D	E	H	I	L1	L2	Ø D	S	V	ISO 5211	Article no. manual operated	Article no. bare shaft
Ball valve with weld end, ISO 1127/ISO 4200															
10	40	9	47.5	90	125	64	26	100	23	17.2	1.6	9	F03/F04	772653 	772604 
15	40	9	47.5	90	125	64	26	100	25	21.3	1.6	9	F03/F04	772654 	772605 
20	44	9	52.5	96	125	68	28	105	25	26.9	1.6	9	F03/F04	772655 	772606 
25	52	12	58	123	189	91	32	115	25	33.7	2	11	F04/F05	772656 	772607 
32	58	12	71	134.5	189	97	37.5	140	33	42.4	2	11	F04/F05	772657 	772608 
40	68	12	78.5	149	221	107	42	150	33	48.3	2	14	F05/F07	772658 	772609 
50	77	16	94.5	167	221	116.5	50.5	170	33	60.3	2	14	F05/F07	772659 	772610 
65	98	19	122	218.5	302	154.5	64	220	40	76.1	2	17	F07/F10	772660 	772611 
80	110	19	186	252	302	166.5	85.5	300	65	88.9	2.3	17	F07/F10	772661 	772612 
100	138	24	217.5	316.5	350	219.5	97	325	65	114.3	2.3	22	F10	772662 	772613 

Ordering chart continued

Orifice [inch]	A	B	C	D	E	H	I	L1	L2	Ø D	S	V	ISO 5211	Article no. manual operated	Article no. bare shaft
Ball valve with weld end, ASME BPE															
3/8	40	9	47.5	90	125	64	26	100	23	9.53	0.89	9	F03/F04	772633	772579
1/2	40	9	47.5	90	125	64	26	90	20	12.7	1.65	9	F03/F04	772634	772580
3/4	44	9	52.5	96	125	68	28	105	25	19.05	1.65	9	F03/F04	772635	772581
1	52	12	58	123	189	91	32	115	25	25.4	1.65	11	F04/F05	772636	772582
1 1/2	68	12	78.5	149	221	107	42	150	33	38.1	1.65	14	F05/F07	772637	772583
2	77	16	94.5	167	221	116.5	50.5	170	33	50.8	1.65	14	F05/F07	772638	772584
2 1/2	98	19	122	218.5	302	154.5	64	220	40	63.5	1.65	17	F07/F10	772639	772585
3 1/4	110	19	186	252	302	166.5	85.5	300	65	76.2	1.65	17	F07/F10	772640	772586
4	138	24	217.5	316.5	350	219.5	97	325	65	101.6	2.11	22	F10	772641	772587

2654
Hygienic

2/2 and 3/2 way Ball Valve with manual override, plastic body, DN10...DN100

2657

- Application for aggressive media
- High flow-rate
- Safe blocked union nuts with Dual Block® Technology¹⁾



2/2 and 3/2 way ball valves with manual override in plastic for separating medium flow. There are different body versions and materials can be ordered to suit various applications.

Special feature

The ball valves are equipped with the so-called Dual Block® Technology. This system serves as a safety device for the union nuts. It prevents these separating during operation.

Technical data

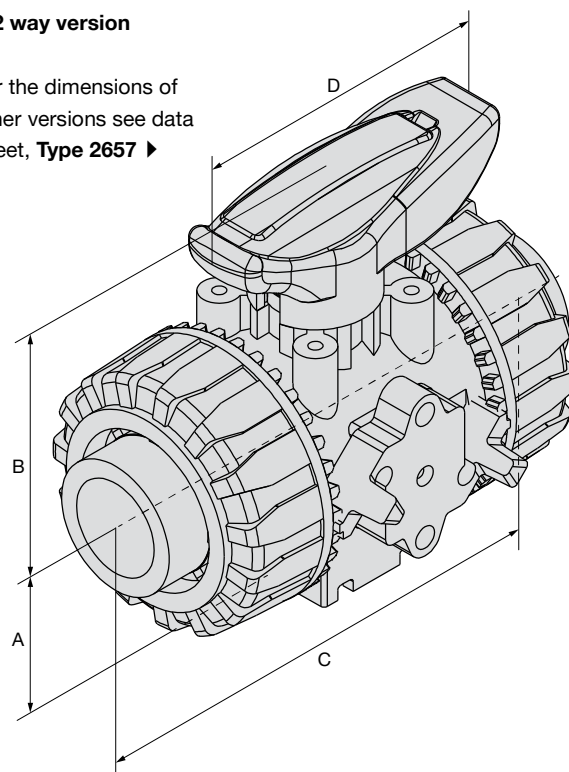
Body material	PVC-U, PP (PVDF, PVC-C on request)
Seal material	PTFE/EPDM, PTFE/FKM
Media temperature	
PVC-U	0 °C...+60 °C
PP	+10 °C...+80 °C
PVDF	0 °C...+120 °C
Port connection	
PVC-U	True union
PP, (PVDF on request)	Fusion spigot
Operating pressure	0...10 bar; 0...16 bar

¹⁾ Dual Block® Technology is a registered trademark of FIP – Formatura Iniezione Polimeri S.p.A

Dimensions [mm]

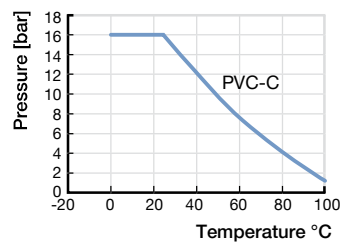
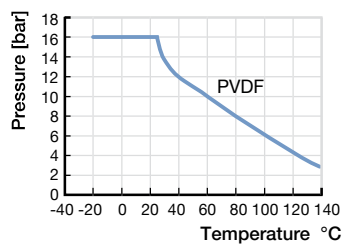
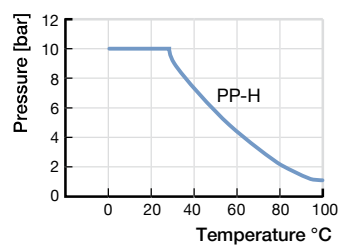
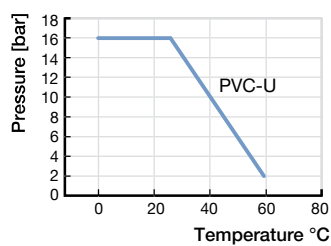
2/2 way version

For the dimensions of other versions see data sheet, **Type 2657** ▶



DN	A	B	C	D
10	29	54	103	67
15	29	54	103	67
20	34.5	65	115	85
25	39	69.5	128	85
32	46	82.5	146	108
40	52	89	164	108
50	62	108	199	134
65	87	164	235	225
80	105	177	270	327
100	129	195	308	385

Pressure Temperature chart



Ordering chart

Orifice [mm]	Port connection Ø [mm]	K _{vs} value for water [m³/h]	Pressure range PVC-U [bar]	Pressure range PP [bar]	Article no. true union PVC	Article no. fusion spigot PP
2/2 way Ball Valve (further versions on request)						
Seal material PTFE/EPDM						
10	16	4.8	0...16	0...10	176462	176469
15	20	12	0...16	0...10	176463	176470
20	25	23	0...16	0...10	176464	176471
25	32	46	0...16	0...10	176465	176472
32	40	66	0...16	0...10	176466	176473
40	50	105	0...16	0...10	176467	176474
50	63	204	0...16	0...10	176468	176475
65	75	315	0...16	0...10	202660	252587
80	90	426	0...16	0...10	185991	238514
100	110	570	0...16	0...10	202750	254604



Ordering chart

2657

Orifice [mm]	Port connection Ø [mm]	K _{vs} value for water [m³/h]	Pressure range PVC-U [bar]	Pressure range PP [bar]	Article no. true union PVC	Article no. fusion spigot PP
Seal material PTFE/FKM						
10	16	4.8	0...16	0...10	176476	176483
15	20	12	0...16	0...10	176477	176484
20	25	23	0...16	0...10	176478	176485
25	32	46	0...16	0...10	176479	176486
32	40	66	0...16	0...10	176480	176487
40	50	105	0...16	0...10	176481	176488
50	63	204	0...16	0...10	176482	176489
65	75	315	0...16	0...10	182519	on request
80	90	426	0...16	0...10	185855	on request
100	110	570	0...16	0...10	205537	on request

Switched position	Orifice [mm]	Port connection Ø [mm]	K _{vs} value for water [m³/h]	Pressure range PP [bar]	Article no. seal material EPDM	Article no. seal material FKM
3/2 way Ball Valve, PVC (further versions on request)						
T1 	10	16	1.5	0...16	209890	186022
	15	20	2.1	0...16	209891	186023
	20	25	5.7	0...16	209892	186024
	25	32	8.4	0...16	209893	186025
	32	40	16.2	0...16	209894	186026
	40	50	19.8	0...16	209895	186027
	50	63	37.2	0...16	209896	186028
L4 	10	16	2.8	0...16	209897	186015
	15	20	4.3	0...16	209898	186016
	20	25	9	0...16	209899	186017
	25	32	15.9	0...16	209900	186018
	32	40	28.5	0...16	202689	186019
	40	50	37.2	0...16	209901	186020
	50	63	67.2	0...16	209902	186021

Butterfly valve (wafer and lug)

2671

- Manually operated / automatable
- High flow rate
- Shaft and housing: non-wetted parts
- Low torque through self-lubricating bearing bush
- Zero leakage



Metal butterfly valves are used for control and on/off operations. Due to the fact, that the valves are available with different body designs (wafer or lug type) and materials, they perfectly meet the requirements of diverse applications and processes. Usually they are used in application fields such as the metal industry, power generation, pulp and paper, mining, shipbuilding, environmental and mechanical engineering.

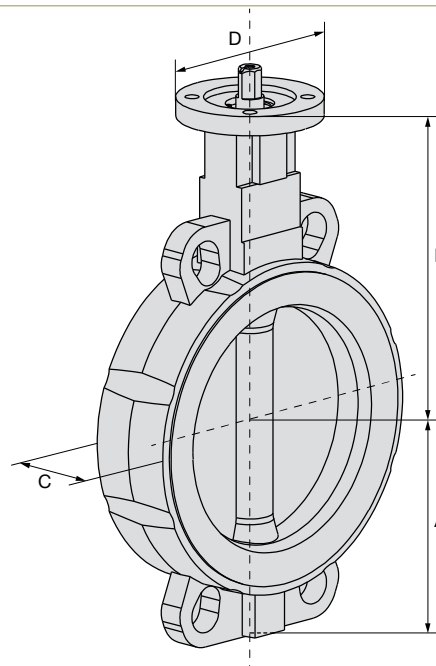
Further features and benefits are:

- Through shaft for self centering disc --> even wear and low torques
- Blow-out proof shaft seal
- Spherically shaped disc
- Sturdy notched handle in ductile iron: lockable in 10 adjustable positions

Technical data

Orifice	DN40...DN300
Body	Wafer, lug
Body material	GG25 - Cast Iron, GGG50 - Ductile Iron (other materials on request)
Disc material	CF8M (other materials or coatings on request)
Seal material	EPT (W-EPT, FKM, EPDM, NBR, CSM, Silicone on request)
Medium temperature	-20 °C...140 °C (for EPT, see pressure/temperature chart) Butterfly valves with different maximum pressure ratings on request
Max. medium pressure	Max. 16 bar for lubricating media & 10 bar for dry media (see pressure/temperature chart)
Port connections	EN1092-1 & EN1092-2 ASME/ANSI B16.1 Class 125 ASME/ANSI B16.5 Class 150
ISO top flange	EN ISO 5211
Considered standards	ISO 5208 ASME B16.34 API 609

Dimensions [mm]

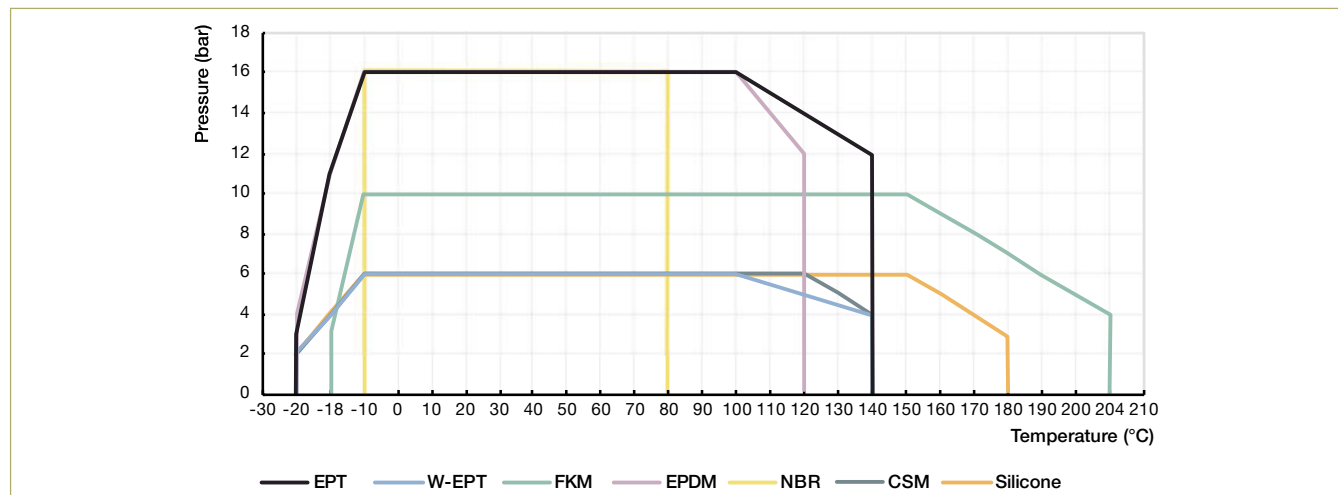


Orifice	A	B	C	G
40	57	130	32	65
50	62	136	43	65
65	84	145	46	65
80	89	151	46	65
100	106	175	52	65
125	120	190	56	90
150	131	203	56	90
200 ¹⁾	166	225	60	90
200 ²⁾	164	245.5	60	125
250	200	271	68	125
300	235	296	78	150

1) Standard butterfly valve (Body material: GG 25, Liner: EPDM, Disc: 316)

2) Butterfly valves - beyond the defined standard ones (for example with ductile iron body material)

Pressure/Temperature diagram



Torque [Nm]

Size		Differential pressure (kg/cm ²) Lubricating (non corrosive)		
mm	inch	6	10	16
40	1½	4.5	4.5	4.5
50	2	10	10	11.5
65	2½	13	13.5	15
80	3	19.6	19.6	19.6
100	4	29.4	29.4	34.3
125	5	44.1	44.1	54
150	6	58	72	80
200	8	120	125	130
250	10	170	185	200
300	12	352	357	450

To use torque chart, note the following:

1. Seating / unseating torque values above included friction bearing torque for stated Δp
2. For actuator dimensioning we recommend considering a safety factor of minimum 30 %.
3. Test medium: water / room temperature

Flow rate C_v [m³/h]

Size		C_v FLOW COEFFICIENT / Opening angle								
mm	inch	10°	20°	30°	40°	50°	60°	70°	80°	90°
40	1½	0.8	2.8	8.1	16.6	25.7	42.1	69.0	94.8	132.2
50	2	1.3	4.4	11.9	25.7	44.5	70.2	117.0	154.4	225.8
65	2½	2.3	8.8	21.3	41.0	71.4	111.2	218.8	280.8	368.6
80	3	2.9	11.5	30.4	56.2	97.1	147.4	250.4	395.5	497.3
100	4	4.4	17.1	45.6	84.2	139.2	258.6	422.4	709.0	845.9
125	5	7.6	28.1	72.5	138.1	253.9	461.0	700.8	1214.5	1454.3
150	6	11.7	48.0	111.2	204.8	381.4	634.1	1021.4	1474.2	2175.0
200	8	22.2	74.9	193.1	358.0	670.4	1164.2	1833.4	2702.7	3655.1
250	10	32.8	118.2	286.7	527.7	978.1	1710.5	2636.0	3809.5	5565.7
300	12	39.8	150.9	365.0	719.6	1330.3	2486.3	3800.2	5839.5	8257.9

When require $C_v = 1.17KV$

Butterfly valves can be used as a control valve at an opening angle between 30° and 90°. A regulation to an opening angle below 30° is not recommended due to high flow rates and cavitation, which results in early damage of the valve.

The max. flow rate of the medium through the butterfly valve must not be exceeded:











- 3 m/s for liquid media. The use between 3 and 5 m/s is possible. However, this increases the risk of cavitation, noise, vibrations and pressure surges
- 20 m/s for gas. The use between 20 and 25 m/s is possible. However, this increases the risk of cavitation, noise, vibrations and pressure surges



Ordering chart

	Orifice	Body	Body material	Disc material	Liner	Max. pressure [bar]	C _v [m³/h]	Weight - bare shaft [kg]	Article no. bare shaft	Article no. with hand lever
2671	Wafer version									
	40	Wafer	GGG 50	CF8M	EPT	16	132.2	2	773687	773649
	50	Wafer	GG 25	CF8M	EPT	16	225.8	3	773688	773650
	65	Wafer	GG 25	CF8M	EPT	16	368.6	4	773669	773651
	80	Wafer	GG 25	CF8M	EPT	16	497.3	4	773670	773652
	100	Wafer	GG 25	CF8M	EPT	16	845.9	6	773671	773653
	125	Wafer	GG 25	CF8M	EPT	16	1454.3	8	309094	773654
	150	Wafer	GG 25	CF8M	EPT	16	2175.0	9	773673	773655
	200	Wafer	GGG 50	CF8M	EPT	16	3655.1	14	773674	773656
	250	Wafer	GGG 50	CF8M	EPT	16	5565.7	22	773675	773657
	300	Wafer	GGG 50	CF8M	EPT	16	8257.9	33	773676	773658
	Lug version									
	40	Lug	GGG 50	CF8M	EPT	16	132.2	3	773689	773686
	50	Lug	GGG 50	CF8M	EPT	16	225.8	4	773677	773659
	65	Lug	GGG 50	CF8M	EPT	16	368.6	4	773678	773660
	80	Lug	GGG 50	CF8M	EPT	16	497.3	5	309102	773661
	100	Lug	GGG 50	CF8M	EPT	16	845.9	8	773680	773662
	125	Lug	GGG 50	CF8M	EPT	16	1454.3	10	773681	773663
	150	Lug	GGG 50	CF8M	EPT	16	2175.0	11	773682	773664
	200	Lug	GGG 50	CF8M	EPT	16	3655.1	18	773683	773665
	250	Lug	GGG 50	CF8M	EPT	16	5565.7	27	773684	773666
	300	Lug	GGG 50	CF8M	EPT	16	8257.9	44	773685	773667

Ordering chart

Orifice	Article no.
EPT replacement liners	
40	773949 
50	773950 
65	773951 
80	773952 
100	773953 
125	773954 
150	773955 
200	773956 
250	773957 
300	773958 

Plastic butterfly valve

2674

- Manually operated/automatable
- For aggressive media
- Low torques
- Long lifespan
- Maintenance friendly

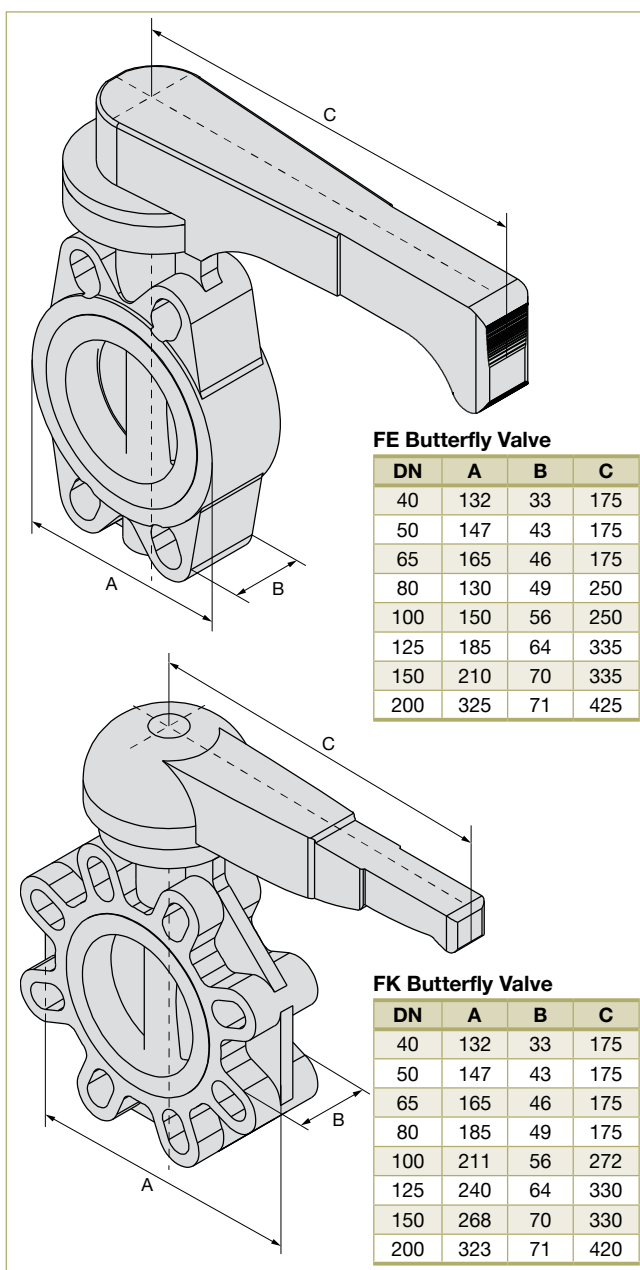


2/2 way plastic butterfly valves used for control and on/off operations. Type 2674 can be connected via the mechanical interface (acc. to ISO 5211) with pneumatic (for example, type 2052 or 2051) and electrical rotary actuators (for example, type 3003, 3004 or 3005). Next to this, the valve is available with different kinds of liner (EPDM, FPM), housing (PVC-U, PP-GR) and disc (PVC-U, PP-H, PVDF, PVC-C) materials. Consequently, type 2674 is suited for various aggressive media and meets the requirements of different applications and processes.

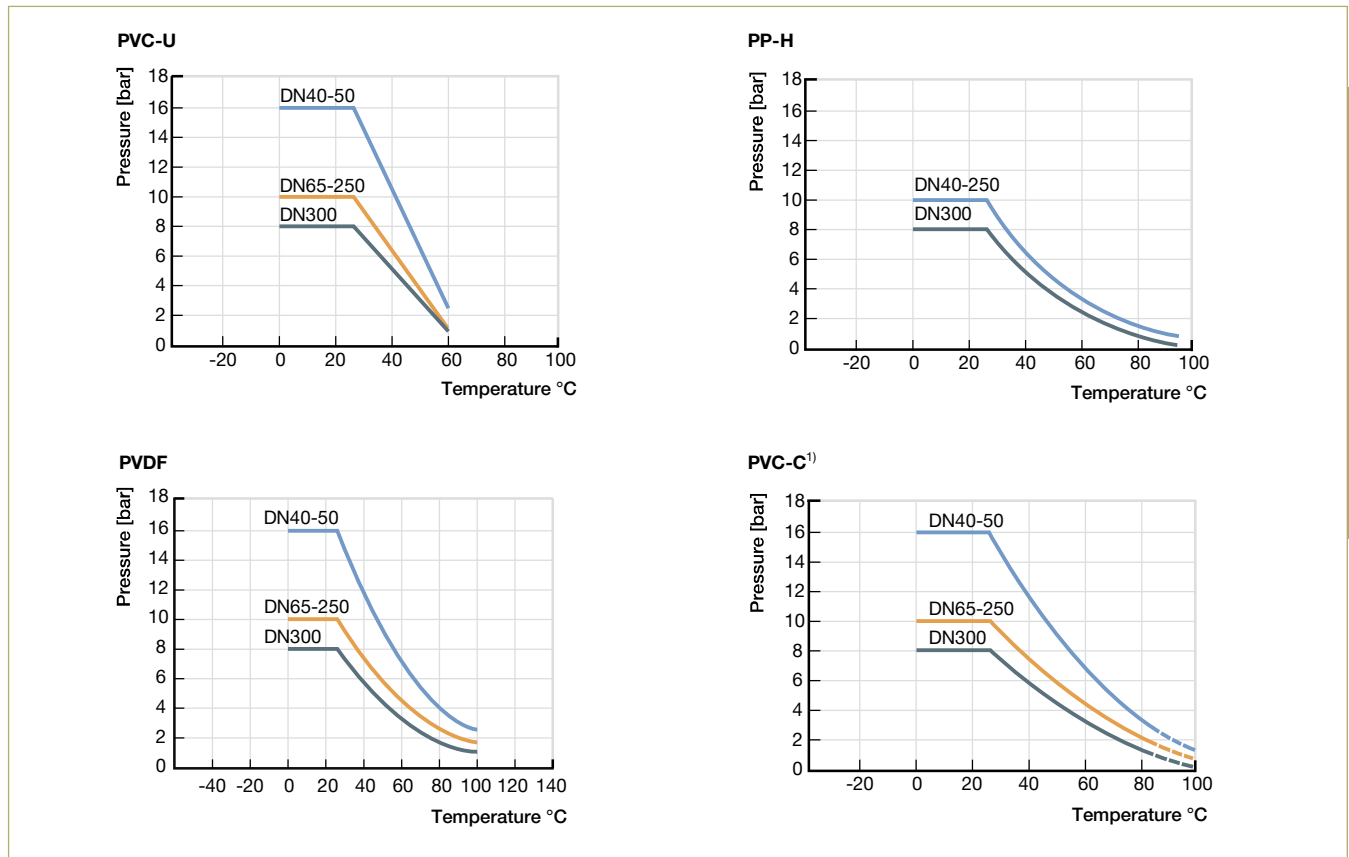
Technical data

Body	Wafer Lug (on request)
Body material	PVC-U (FE version) PP-GR (FK version)
Disc material	PVC-U (FE and FK version) PP-H (FK version) PVDF (FK version) PVC-C (on request)
Seal material	EPDM, FPM
Temperature range	
PVC-U	0 °C...+60 °C
PP	0 °C...+90 °C
PVDF	0 °C...+100 °C
PVC-C	0 °C...+100 °C
Port connection	DIN 2501, ISO DIS 9624, UNI 2223 BS 10 table D/E ASA B16.5 class 150 JIS 2212 (K10 except for DN200 / DN300), JIS 2212 (K5 except for DN50)
Medium pressure	See pressure temperature chart
ISO top flanges	EN ISO 5211

Dimensions [mm]

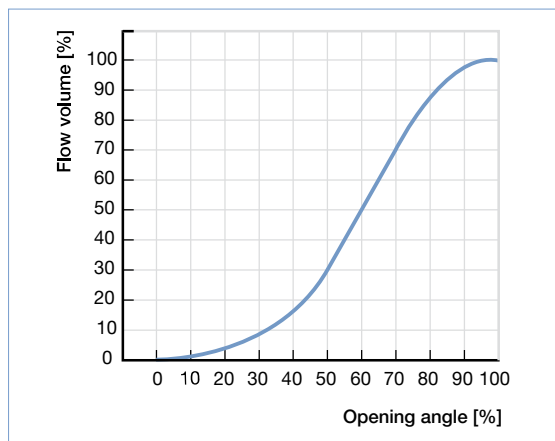


Pressure temperature chart



1) PVC-C on request

Flow rate



Torque chart

Ø Leitungsanschluss [mm]	50	63	75	90	110	140	160	225	280	315
DN	40	50	65	80	100	125	150	200	250	300
Drehmoment [Nm] FE-Absperrklappe	9	10	14	25	43	58	91	142	-	-
Drehmoment [Nm] FK-Absperrklappe	11	17	23	34	45	64	89	138	306	336

K_{VS} values (for water)

Ø Leitungsanschluss [mm]	50	63	75	90	110	140	160	225	280	315
DN	40	50	65	80	100	125	150	200	250	300
K _{VS} [m³/h]	60	77.1	102	213	354	591	1122	1830	3192	4896



Ordering chart

















2674

Orifice DN	Port connection [mm]	Pressure range [bar]	Weight – bare shaft [kg]	Weight – with lever [kg]	Article no. bare shaft		Article no. with lever (DN40...DN200); with manual gear box (DN250...DN300)	
					EPDM liner	FPM liner	EPDM liner	FPM liner
FK Butterfly Valve								
Body: PP-GR / Disc: PVC-U								
40	50	16	0.57	0.9	293953	293966	293957	293974
50	63	16	0.75	1.08	293954	208206	282059	293975
65	75	10	1	1.47	266067	293967	282061	293976
80	90	10	1.4	1.87	265713	277934	282062	277933
100	110	10	1.75	2.22	268247	293968	282063	293977
125	140	10	2.55	3.1	293955	293969	270796	293978
150	160	10	3.3	3.85	264866	293970	265983	293979
200	225	10	6	6.75	264864	293971	282064	293980
250 ¹⁾	280	10	12	18.6	293956	293972	293964	293987
300 ¹⁾	315	8	19	25.6	284675	293973	293965	293988
Body: PP-GR / Disc: PP-H								
40	50	10	0.47	0.8	293989	208209	293998	294020
50	63	10	0.65	0.98	293990	208210	293999	294021
65	75	10	0.9	1.37	273125	208211	294000	294022
80	90	10	1.3	1.77	293991	208212	294002	294023
100	110	10	1.65	2.12	293992	209928	294003	294024
125	140	10	2.45	3	293993	294015	294004	294025
150	160	10	3.2	3.75	293994	294016	294005	294026
200	225	10	5.9	6.65	293995	294017	294006	294027
250 ¹⁾	280	10	11.8	18.4	293996	294018	294013	294034
300 ¹⁾	315	8	18.7	25.45	293997	294019	294014	294035

Ordering chart continued

Orifice DN	Port connection [mm]	Pressure range [bar]	Weight – bare shaft [kg]	Weight – with lever [kg]	Article no. bare shaft		Article no. with lever (DN40...DN200); with manual gear box (DN250...DN300)	
					EPDM liner	FPM liner	EPDM liner	FPM liner
Body: PP-GR / Disc: PVDF								
40	50	16	0.67	1	294216	294036	294229	294044
50	63	16	0.85	1.18	294218	294037	294230	294045
65	75	10	1.1	1.57	294219	294038	294232	277324
80	90	10	1.55	2.02	294220	294039	294233	277325
100	110	10	1.9	2.37	294221	267777	294234	277326
125	140	10	2.75	3.3	294222	294040	294236	294046
150	160	10	3.55	4.1	294224	289253	294237	294047
200	225	10	6.3	7.05	294225	294041	294238	294048
250 ¹⁾	280	10	13	19.6	294227	294042	294249	294055
300 ¹⁾	315	8	21	27.6	294228	294043	294250	294056

1) acc. ISO-DIN ASA B.16.5 150 (on request)

Orifice	Port connection [mm]	Pressure range [bar]	Weight [kg]	Article no	
				EPDM liner	FPM liner
FE Butterfly Valve					
Body: PVC-U / Disc: PVC-U					
40	50	16	0.83	254375 	208205 
50	63	16	1.01	254376 	293948 
65	75	10	1.42	254378 	208207 
80	90	10	1.64	254379 	208208 
100	110	10	1.99	212081 	293949 
125	140	10	3.03	254384 	293950 
150	160	10	3.73	254385 	293951 
200	225	10	8.24	254386 	293952 

2/2 or 3/2 way ball valve with electric rotary actuator

8804

- High flow rate value
- Actuator with adjustable limit switches
- Visual position indicator



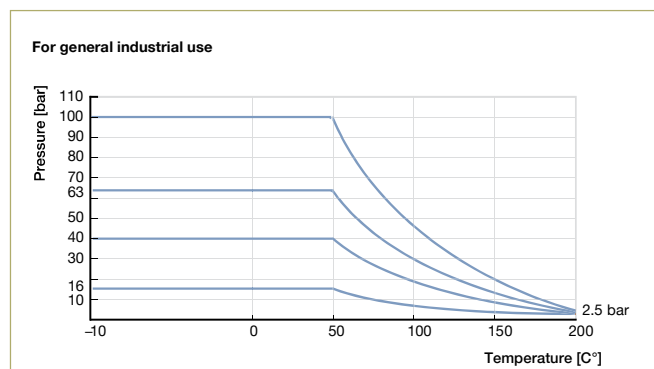
The electric ball valve Type 8804 consists of an electrical rotary actuator and a 2/2 or 3/2 way ball valve made of stainless steel. 2 way variants are available with a 2-piece or 3-piece ball valve for various applications. The 3-way version is offered with L or T bore holes (on request).

The rotary actuator is compactly built. It can be used also as single device for the operation of other control elements (see datasheet Type 3003). Heat resistor and torque limiter are standard. The body is made of low inflammable material, classified acc. to UL 94 V0.

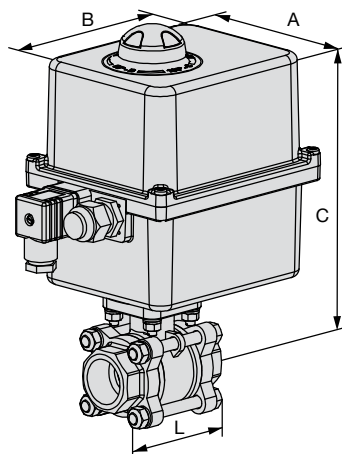
Technical data

Pressure range	0...63 bar
Medium temperature	-10 °C...+130 °C, depending on the medium pressure - see diagram
Ambient temperature	-10 °C...+55 °C
Body material	Stainless steel 1.4408
Seal material	PTFE
Duty rating acc. to IEC34 S4	50 %
Operating voltage	15...30 V AC 50/60 Hz/12...48 V DC 100...240 V AC 50/60 Hz/100...350 V DC
Voltage tolerance	± 10 %; from 12...48 V DC the operating voltage should not go below 11.5 V
Protection class	IP66 with cable plug installed
Limit switches	4 adjustable (2 for motor and 2 additional for feedback) max. 230 V/5 A
Electrical connection	Cable plug acc. to EN175301-803 (supply voltage) Cable glands ISO M20 (included)

Pressure/temperature diagram



Dimensions [mm]





















Actuator [Nm]	Port connection [inch]	A	B	C	L
20	1/4	91.7	136.5	163.7	65
20	3/8	91.7	136.5	163.7	65
20	1/2	91.7	136.5	163.7	75
20	3/4	91.7	136.5	167.7	80
35...100	1/4	127.7	150.3	190.8	65
35...100	3/8	127.7	150.3	190.8	65
35...100	1/2	127.7	150.3	190.8	75
35...100	3/4	127.7	150.3	194.8	80
35...100	1	127.7	150.3	202.8	90
35...100	1 1/4	127.7	150.3	208.8	110
35...100	1 1/2	127.7	150.3	218.8	120
35...100	2	127.7	150.3	227.8	140
35...100	2 1/2	127.7	150.3	248.8	185

Options

- Also available as 2-piece ball valve
- Also available as a 3/2 way ball valve
- With weld ends
- Ball valve in plastic version

Ordering chart

Orifice [mm]	Port connection [inch]	Actuator [Nm]	Rotation time for 90° (s)	K _v value [m³/h]	Voltage	Article no.
Type 8804, 3-piece globe valve with thread, pressure range 0...63 bar						
10.0	¼	20	12	7	100...240 V, 50/60 Hz and 100...350 V DC	226483 
12.7	⅜	20	12	9		226484 
15.0	½	20	12	19		226485 
20.0	¾	35	12	46		226486 
25.0	1	35	7	72		226487 
32.0	1¼	60	7	105		226488 
40.0	1½	100	12	170		241107 
50.0	2	100	12	275		226490 
65.0	2½	100	23	507		226491 
10.0	¼	20	12	7	15...30 V, 50/60 Hz and 12...48 V DC	226496 
12.7	⅜	20	12	9		226497 
15.0	½	20	12	19		226498 
20.0	¾	35	12	46		226499 
25.0	1	35	7	72		226500 
32.0	1¼	35	7	105		225945 
40.0	1½	100	12	170		241109 
50.0	2	100	12	275		226502 
65.0	2½	100	23	507		226503 

8804



2/2 way ball valve with electric rotary actuator, ball valve in plastic, DN10...DN50

8804 plastic

- Suitable for aggressive media
- High flow rate value
- Actuator with adjustable limit switches
- Visual position indicator
- Safe blocked union nuts with Dual Block® Technology¹⁾
- Multivoltage



The electric ball valve Type 8804 consists of an electrical rotary actuator and a 2/2 or 3/2 way ball valve made of plastic. Different housings and materials are available for various applications. The rotary actuator is compactly built. It can be used also as single device for the operation of other control elements (see datasheet Type 3003).

Special features

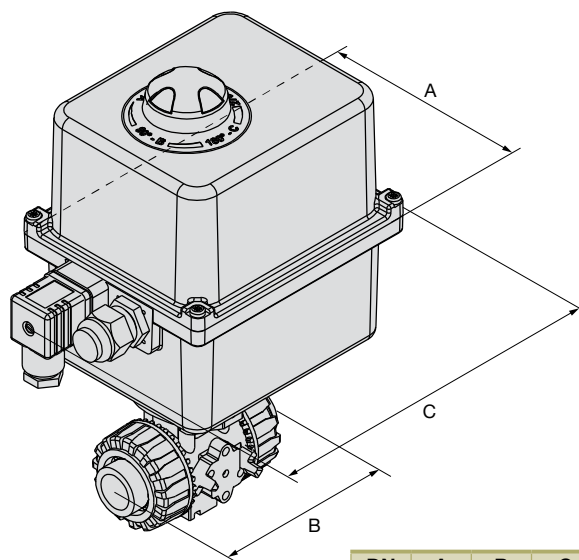
The ball valves are equipped with the so-called Dual Block® Technology. This system allows you to lock the union nuts in the preset position. It prevents them separating during operation.

Heat resistor and torque limiter are standard. The body is made of low inflammable material, classified acc. to UL 94 V0.

Technical data

Body material	PVC-U, (PP, PVDF, PVC-C on request)
Seal material	PTFE/EPDM, (PTFE/FKM)
Media	Gaseous and liquid media, which do not attack the housing and sealing materials
Media temperature	(See pressure temperature chart)
PVC-U	0 °C...+60 °C
PP	+10 °C...+80 °C
PVDF	0 °C...+120 °C
Ambient temperature	-10 °C...+55 °C
Port connections	
PVC-U	True union
(PP, PVDF on request)	(weld end coupling)
Operating pressure	0...10 bar; 0...16 bar
Connection between actuator and ball valve	Flange acc. to ISO 5211
Operating voltage	15...30 V AC 50/60 Hz / 12...48 V DC 100...240 V AC 50/60 Hz / 100...350 V DC
Voltage tolerance	± 10 %; for 12...48 V DC the operating voltage should not go below 11.5 V
Duty rating	acc. to IEC34 S4 = 50 %
Electrical connection	Cable Plug acc. to EN175301-803 (supply voltage) Cable glands ISO M20
Protection class	IP66 with cable plug installed
Rotation angle	90° (±5°)
Rotation time	See ordering chart

Dimensions [mm]



DN	A	B	C
10	92	103	180
15	92	103	180
20	92	115	180
25	92	128	180
32	92	146	180
40	92	164	180
50	92	199	180

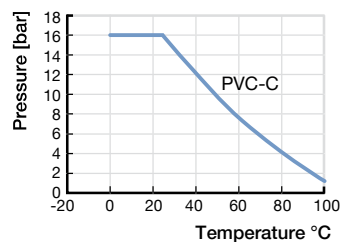
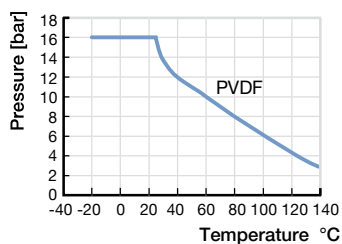
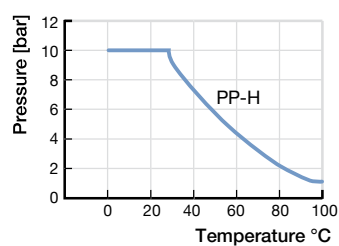
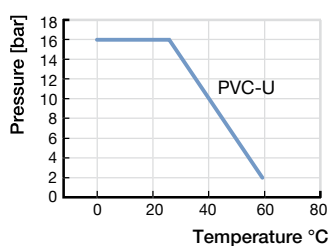
Limit switches	4 adjustable (2 for motor and 2 additional for feedback) Max. 250 V AC/1.5 A
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Material (Actuator)	
Cover/Body	Nylon/PA 6.6
Axis/Screws	Stainless steel
gearbox	stainless steel and PC

Installation	Don't mount the actuator upside down
---------------------	--------------------------------------

¹⁾ Dual Block® Technology is a registered trademark of FIP –
Formatura Iniezione Polimeri S.p.A

Pressure Temperature chart



Ordering chart

Orifice (mm)	Port connection Ø (mm)	K _v value water (m³/h)	Pressure range PVC-U, PVDF (bar)	Pressure range PP (bar)	Rotation time for 90° (s)	Actuator (Nm)	Voltage ¹⁾	Article no. True union PVC-U
Seal material PTFE/EPDM								
10	16	4.8	0...16	0...10	12	20	100...240 V AC 50/60 Hz 100...350 V DC	226440
15	20	12	0...16	0...10	12	20		226453
20	25	23	0...16	0...10	12	20		226454
25	32	46	0...16	0...10	12	20		226455
32	40	66	0...16	0...10	12	20		226456
40	50	105	0...16	0...10	12	20		226457
50	63	204	0...16	0...10	12	20		226178
10	16	4.8	0...16	0...10	12	20	15...30 V AC 50/60 Hz 12...48 V DC	226459
15	20	12	0...16	0...10	12	20		226460
20	25	23	0...16	0...10	12	20		226461
25	32	46	0...16	0...10	12	20		226462
32	40	66	0...16	0...10	12	20		226463
40	50	105	0...16	0...10	12	20		226464
50	63	204	0...16	0...10	12	20		226465

1) For 12...48 V DC the operating voltage should not go below 11.5 V

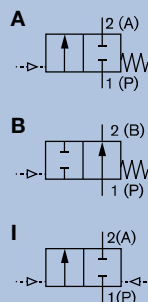
Accessories

Description	Article no.
Key for adjustment of limit switches	665296

2/2 or 3/2 way ball valve with pneumatic rotary actuator

8805

- Pneumatic rotary actuator
- Stainless steel ball valve
- External regulation of the pistons
- Full bore
- Favourable flow rate



Bürkert's range of precision activated ball valves fulfil a wide variety of on-off process applications. Available in 2 or 3 way and both single acting and spring return they exhibit high flow rates by virtue of their reliable fullbore design.

Technical data

Orifice

2/2 way ball valve	10...100 mm
3/2 way ball valve	10...40 mm

Body material

2/2 way ball valve	Stainless steel 1.4408
3/2 way ball valve	Stainless steel 1.4408

Actuator material

Aluminium

Ball material

2/2 way ball valve	Stainless steel 1.4401
3/2 way ball valve	Stainless steel 1.4401

Selector shaft material

2/2 way ball valve	Stainless steel 1.4401
3/2 way ball valve	Stainless steel 1.4401

Seal materials

Ball seal	PTFE
Actuating shaft seal	FKM

Pressure range

See ordering charts

Medium

Stainless steel body: aggressive fluids, which will not attack the body and seal

Medium temperature

-10 °C...+100 °C
(see pressure temperature diagram)

Ambient temperature

-10 °C...+80 °C
(see pressure temperature diagram)

Control medium

Compressed air, filtered, dry or oiled

Pilot pressure

6...8 bar¹⁾

Port connection

2/2 way ball valve	2/2 way ball valve: Rp 1/4-Rp 4 Whitworth Thread acc. DIN EN 10226-1 (old DIN 2999) Weld end Flange
3/2 way ball valve	3/2 way ball valve: Rp 1/4-Rp 2 Whitworth Thread acc. DIN EN 10226-1 (old DIN 2999)

Installation

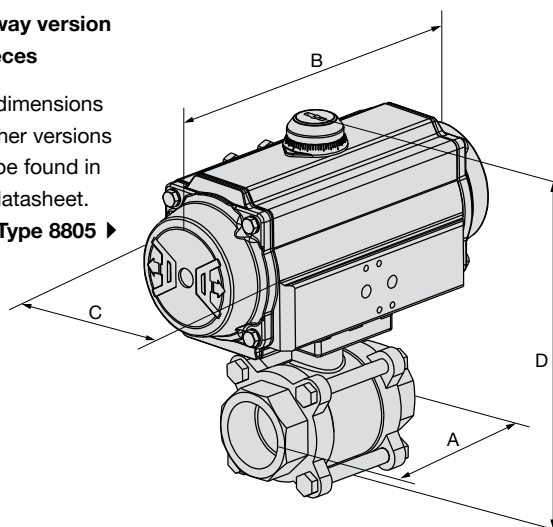
As required, preferably with actuator upright

¹⁾ Pressure values [bar]: Measured as overpressure with respect to the atmospheric pressure

Dimensions [mm]

2/2 way version 3 pieces

The dimensions of other versions can be found in the datasheet.
See **Type 8805** ▶

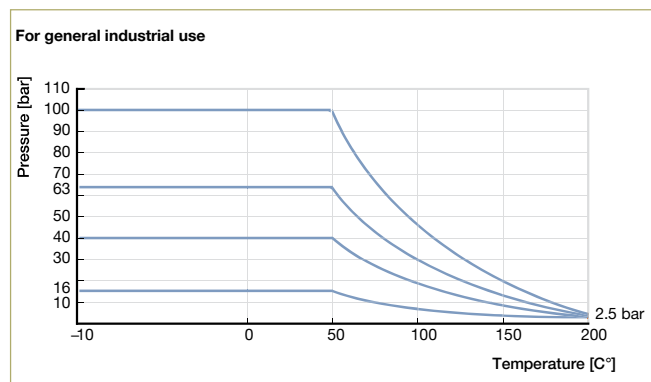


Port connection	A	B	C	D
G 1/4	65	136	72	129
G 3/8	65	136	72	129
G 1/2	75	154	85	145
G 3/4	80	154	85	145
G 1	90	204	93	174
G 1 1/4	110	204	93	174
G 1 1/2	120	241	106	203
G 2	140	241	106	203
G 2 1/2	185	259	119	245
G 3	205	304	136	285
G 4	240	333	147	325

Options

- Actuator normally opened or double acting
- Feedback
- NAMUR Pilot valve






































Pressure temperature diagram



Switching position

Ball configuration	T			L
Position	0°	90°	180°	270°
Switching position	T1	T2	T3	L4

Ordering chart

Control function	Orifice DN [mm]	Port connection	K _v value water [m³//h]		Nominal pressure ¹⁾ [bar]		Actuator		Article no.			
			StSt 2 pieces	StSt 3 pieces	StSt 2 pieces	StSt 3 pieces	StSt 2 pieces	StSt 3 pieces	StSt 3 pieces weld end port connection	StSt 2 pieces threaded port connection	StSt 3 pieces threaded port connection	
2/2 way ball valve, brass and stainless steel (StSt) (Minimum pilot pressure 6 bar)												
A Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	10	¼"	9	9	100	63	15	15	–	217232 	217250 	
	12	⅜"	13	13	100	63	15	15	217261 	217233 	217251 	
	15	½"	19	19	100	63	30	30	217262 	217234 	217252 	
	20	¾"	46	46	100	63	60	30	217263 	217235 	217253 	
	25	1"	72	72	100	63	60	60	217264 	217236 	217254 	
	32	1¼"	105	105	100	63	100	60	217265 	217237 	217255 	
	40	1½"	170	170	100	63	150	100	217266 	217238 	217256 	
	50	2"	275	275	100	63	220	100	217267 	217239 	217257 	
	65	2½"	–	507	–	63	–	150	217268 	–	217258 	
	80	3"	–	905	–	63	–	220	217269 	–	217259 	
	100	4"	–	1414	–	63	–	300	217270 	–	217260 	
B Single-acting actuator for pneumatically activated open/closed valve, normally opened by spring force.	10	¼"	–	9	–	63	–	15	on request	on request	217292 	
	12	⅜"	9	9	–	63	–	15	on request	on request	217293 	
	15	½"	19	19	–	63	–	30	on request	on request	217294 	
	20	¾"	46	46	–	63	–	30	on request	on request	217295 	
	25	1"	72	72	–	63	–	60	on request	on request	217296 	
	32	1¼"	105	105	–	63	–	60	on request	on request	217297 	
	40	1½"	170	170	–	63	–	100	on request	on request	217298 	
	50	2"	275	275	–	63	–	100	on request	on request	217299 	
	65	2½"	–	507	–	63	–	150	on request	–	217300	
	80	3"	–	905	–	63	–	220	on request	–	217301	
		100	4"	–	1414	–	63	–	300	on request	–	217302



Ordering chart continued

8805

Control function	Orifice DN [mm]	Port connection	K _v value water [m³/h]		Nominal pressure ¹⁾ [bar]		Actuator		Article no.		
			StSt 2 pieces	StSt 3 pieces	StSt 2 pieces	StSt 3 pieces	StSt 2 pieces	StSt 3 pieces	StSt 3 pieces weld end port connection	StSt 2 pieces threaded port connection	StSt 3 pieces threaded port connection
2/2 way ball valve, brass and stainless steel (StSt) (Minimum pilot pressure 6 bar)											
I Open/close operation on either side without spring, flow direction above seat	10	¼"	9	9	100	63	15	15	–	217240	217271
	12	⅜"	9	9	100	63	15	15	217282	217241	217272
	15	½"	19	19	100	63	15	15	217283	217242	217273
	20	¾"	46	46	100	63	30	15	217284	217243	217274
	25	1"	72	72	100	63	30	15	217285	217244	217275
	32	1¼"	105	105	100	63	60	30	217286	217245	217276
	40	1½"	170	170	100	63	100	30	217287	217246	217277
	50	2"	275	275	100	63	100	60	217288	217247	217278
	65	2½"	–	507	–	63	–	100	217289	–	217279
	80	3"	–	905	–	63	–	150	217290	–	217280
100	4"	–	1414	–	63	–	150	217291	–	217281	

Control function	Orifice [mm]	K _v value water [m³/h]	Nominal pressure ¹⁾ [bar]	Actuator	Weight [kg]	Article no.
2/2 way compact flange ball valve						
A Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	20	46	40	30	3.8	217306
	25	72	40	60	6.0	217307
	32	105	40	60	7.7	217308
	40	170	40	100	9.8	217309
	50	275	40	150	12.8	217310
	65	507	16	220	20	217311
	80	905	16	300	26.3	217312
	100	1414	16	300	29.0	217313
I Open/close operation on either side without spring, flow direction above seat	20	46	40	15	2.1	217314
	25	72	40	30	4.4	217315
	32	105	40	30	6.2	217316
	40	170	40	60	8.1	217317
	50	275	40	60	9.0	217318
	65	507	16	100	14.0	217319
	80	905	16	100	17.3	217320
	100	1414	16	150	21.8	217321

¹⁾ Operating pressure: see pressure temperature chart

Ordering chart continued

Switching position	Orifice [mm]	Port connection	K _v value water [m³/h]	Nominal pressure ¹⁾ [bar]	Actuator single acting CFA	Article no. single acting CFA	Actuator double acting CFI	Article no. double acting CFI
3/2 way stainless steel, (reduced orifice) Minimum pilot pressure 6 bar, T2 and T3 on request								
T1	10	¼"	4.7 / 6.9 ²⁾	63	30	217342	15	217352
0° 	12	⅜"	4.7 / 6.9 ²⁾	63	30	217343	15	217353
	12	½"	6.9 / 11.2 ²⁾	63	30	217344	15	217354
	15	¾"	6.9 / 11.2 ²⁾	63	60	217345	15	217355
90° 	20	1"	18.9 / 29.2 ²⁾	63	60	217346	30	217356
	25	1¼"	35.3 / 46.4 ²⁾	63	100	217347	60	217357
	32	1½"	46.4 / 72.2 ²⁾	63	100	217348	60	217358
	40	2"	83.4 / 135.6 ²⁾	63	150	217349	100	217359
L4	10	¼"	5.6	63	30	217325	15	217333
0° 	12	⅜"	5.6	63	30	217326	15	217334
	12	½"	9.5	63	30	217327	15	217335
	15	¾"	9.5	63	60	217328	15	217336
90° 	20	1"	25.8	63	60	217329	30	217337
	25	1¼"	40.4	63	100	217330	60	217338
	32	1½"	60.2	63	100	217331	60	217339
	40	2"	114.4	63	150	217332	100	217340

1) Operating pressure: see pressure temperature chart

2) Switching position 0° / 90°

8805



Accessories



8805

Circuit function	Orifice [mm]	Q _{Nn} value air [l/min]	Pressure range [bar]	Power consumption (1 and 3 / 2 and 4)	Voltage/frequency [V/Hz]	Power consumption [W]	Article no.
5470 Namur (only recommended up to actuator size 220, see also datasheet type 5470)							
<div></div> <div>3/2 way servo-controlled solenoid valve, normally closed, with manual override</div>	4.0	300	2...10	1/8 (connections 1 and 3) Namur flange (conn. 2 and 4)	24/DC	2	136761
					110...120/DC	3	136762
					220...240/DC	3	136763
				Push-in connection Ø 6 mm (connections 1 and 3) Namur flange (Anschl. 2 and 4)	24/DC	2	136764
					110...120/DC	3	136765
					220...240/DC	3	136766
<div></div> <div>4/2 way servo-controlled solenoid valve, with manual override</div>	4.0	300	2...10	1/8 (connections 1 and 3) Namur flange (Anschl. 2 and 4)	24/DC	2	136767
					110...120/DC	3	136768
					220...240/DC	3	136769
				Push-in connection Ø 6 mm (connections 1 and 3) Namur flange (conn. 2 and 4)	24/DC	2	136770
					110...120/DC	3	136771
					220...240/DC	3	136772
				1/8 (connections 1 and 3) Namur flange with oneway flow restrictor (conn. 2 and 4)	24/DC	2	136773
					110...120/DC	3	136774
					220...240/DC	3	136775



Circuit function	Orifice [mm]	Seal material body	Thread insert material ¹⁾	Port connection threaded port	Q _{Nn} value air ²⁾ [l/min]	Pressure range ³⁾ [bar]	Weight [g]	Power consumption [W]	Voltage/frequency [V/Hz]	Article no.
6519 Namur (see also datasheet Type 6519)										
C 3/2 way servo-controlled solenoid valve, normally closed, with manual override	6.0	NBR and PUR	stainless steel	1/4	900	2...8	460	2	24/DC	131425
									24/50...60	131426
									110/50...60	131427
									230/50...60	131428
H 5/2 way servo-controlled solenoid valve, with manual override	6.0	NBR and PUR	brass, nickel-plated	1/4	900	2...8	460	2	24/DC	131421
									24/50...60	131422
									110/50...60	131423
									230/50...60	131424

- 1) If the connectors are from stainless steel, the mounting screws will also be from stainless steel
 2) Flow rate: Q_{Nn} value air [l/min]: Measured at +20 °C, 6 bar pressure at valve inlet, 1 bar pressure difference
 3) Pressure values [bar]: Gauge pressures with respect to the prevailing atmospheric pressure

Accessories continued

Description	Voltage	Article no.
Cable plug Type 2516 acc. to DIN 43650 Form C - see Type 2516 ▶		
without circuitry (standard)	0...250 V AC/DC	008353 
Cable plug Type 2508 (will be replaced with Type 2518)¹⁾ acc. to DIN 175301-803 Form A - see Type 2508 ▶		
without circuitry (standard), without cable	0...250 V AC/DC	008376 

1) For standard version 6518/19 fixing screw in steel (zinc plated and chromatised)

Description	Article no.
Accessories for mounting Positioner	
Universal adapter for wave	787338 
Universal assembly bridge	770294 



Overview for Rotary Actuators

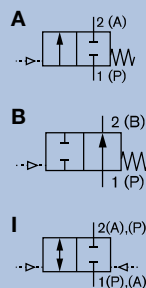
Note: The following product overview does not show the complete product range of this catalogue. A complete overview can be found [here](#) ▶

Overview Rotary Actuators	Species	Type	Function	Torque
	Electromotive rotary actuator	3003 ▶	On/Off or regulation	20...100 Nm
	Electromotive rotary actuator	3005 ▶	On/Off	25...300 Nm
	Pneumatic rotary actuator	2051 ▶	On/Off	10...433 Nm
	Pneumatic rotary actuator	2052 ▶	On/Off	7.9...631 Nm

Pneumatic rotary drive

2051

- Modular program for mounting of quarter turn valves such as ball valves and butterfly valves
- NAMUR and ISO 5211 interfaces
- Position feedback (including Ex-Versions)
- SideControl Positioner ready

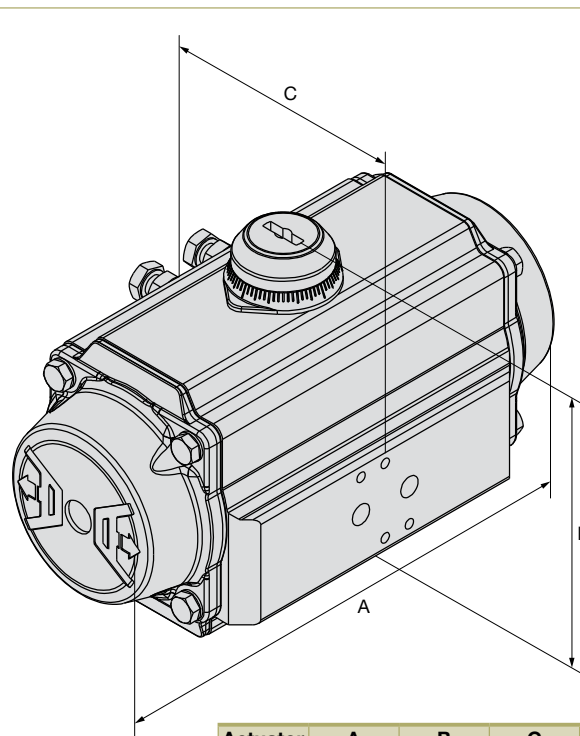


The 2051 pneumatic rotary drives are low maintenance single or double-acting pneumatic linear piston actuators where linear movement of the piston due to the pilot air causes a 90° rotation of the connected valve. Actuator-valve coupling is made via a universal ISO 5211 mechanical interface and the status of ball or butterfly valve can be monitored at a control system through a range of rugged feedback switches. The drives can also be used as modulating control actuators by the addition of Bürkert's range of SideControl positioners.

Technical data








Materials	
Actuator	Aluminium alloy
Piston	Aluminium
Seal	Special NBR
Control medium	
Filtered compressed air with or without oil	
Control pressure	
3...8 bar single-acting	
2.5...8 bar double-acting	
Max. 8 bar	
Ambient temperature	
-40 °C...+80 °C (FKM: -15 °C...+150 °C)	
Rotation	
90°, adjustable before -5°...95°	
Adjustable angle	
Every 20°	
Interface	
Pilot air ports	NAMUR Flange interface VDE/VDI 3845 Size 10...100: G 1/8, Size 150...450: G 1/4
Feedback signal	NAMUR VDE/VDI 3845
Fittings	ISO 5211

Dimensions [mm]



















Actuator size	A	B	C
15	136	69	72
30	153.5	85	84.5
60	203.5	102	93
100	241	115	106
150	259	127	118.5
220	304	145	136
300	333	157	146.5
450	394.5	177	166

Ordering chart

Circuit function	Actuator size	Torque (Nm) dependent on control pressure							Air volume (l)		Weight [kg]	Article no.
		Control pressure (bar)							opening	closing		
		3	4	5	5.5	6	7	8				
Double-acting actuator												
I	15	10	13.3	16.6	18.3	19.9	23.3	26.6	0.09	0.15	1	214520 
Open/close operation on either side without spring, bi-directional	30	17.6	23.5	29.3	32	35.2	41	46.9	0.16	0.26	1.6	214522 
	60	34.9	46.5	58.2	64	69.8	81.4	93.1	0.31	0.49	2.7	214524 
	100	54.9	7.2	91.5	101	110	128	146	0.51	0.78	3.7	214525 
	150	79.8	106	133	146	160	186	213	0.71	1.11	5.2	214526 
	220	129	172	215	236	258	301	344	1.19	1.8	8	214527 
	300	166	222	277	305	332	388	433	1.54	2.34	9.8	214528 

2051

Circuit function	Actuator size	Torque (Nm) dependent on control pressure								Air volume (l)		Weight	Article no.	Article no.
		Control pressure (bar)								opening	closing	[kg]	(Control function A)	(Control function B)
		5.5		6		8		spring force						
		0°	90°	0°	90°	0°	90°	90°	0°					
Single-acting actuator (6 spring packages per side)														
A Single-act- ing actuator for pneu- matically activated open/closed valve, nor- mally closed by spring orce.	15	10.2	6.6	11.9	8.2	18.5	14.9	11.7	8.1	0.09	0.15	1.1	214529 	214537 
	30	18.9	12	21.9	14.9	33.6	26.7	20.2	13.3	0.16	0.26	1.7	214530 	214538 
	60	37.5	22.4	43.3	28.3	66.5	51.5	41.5	26.5	0.31	0.49	3.1	214531 	214539 
	100	56.7	31.4	65.8	40.5	102	77.1	69.3	44	0.51	0.78	4.3	214532 	214540 
	150	85.4	51.7	99	65	152	118	94.5	60.8	0.71	1.11	6.1	214533 	214541 
	220	138	79	159	101	245	187	157	98.4	1.19	1.8	9.3	214534 	214542 
	300	179	107	206	135	317	245	198	126	1.54	2.34	12	214535 	214543 
B Single-act- ing actuator for pneu- matically activated open/closed valve, normally opened by spring force.	450	281	169	324	213	498	386	309	198	2.41	3.78	17	214536 	214545 

Accessories

Specifications	Article no.
Universal adapter for shaft	787338 
Universal assembly bridge	770294 

Pneumatic rotary drive

2052

- Modular program for mounting of quarter turn valves such as ball valves and butterfly valves
- NAMUR and ISO 5211 interfaces
- Position feedback (including Ex-Versions)
- SideControl Positioner ready



The 2052 pneumatic rotary drives are single or double-acting pneumatic linear piston actuators where linear movement of the piston due to the pilot air causes a 90° rotation of the connected valve. Actuator-valve coupling is made via a universal ISO 5211 mechanical interface and the status of ball or butterfly valve can be monitored at a control system through a range of rugged feedback switches. The drives can also be used as modulating control actuators by the addition of Bürkert's range of SideControl positioners. The actuators are available in an aluminium and in a polyamide version. Both kinds of actuators have the advantage, that they are maintenance free and highly resistant to corrosion.

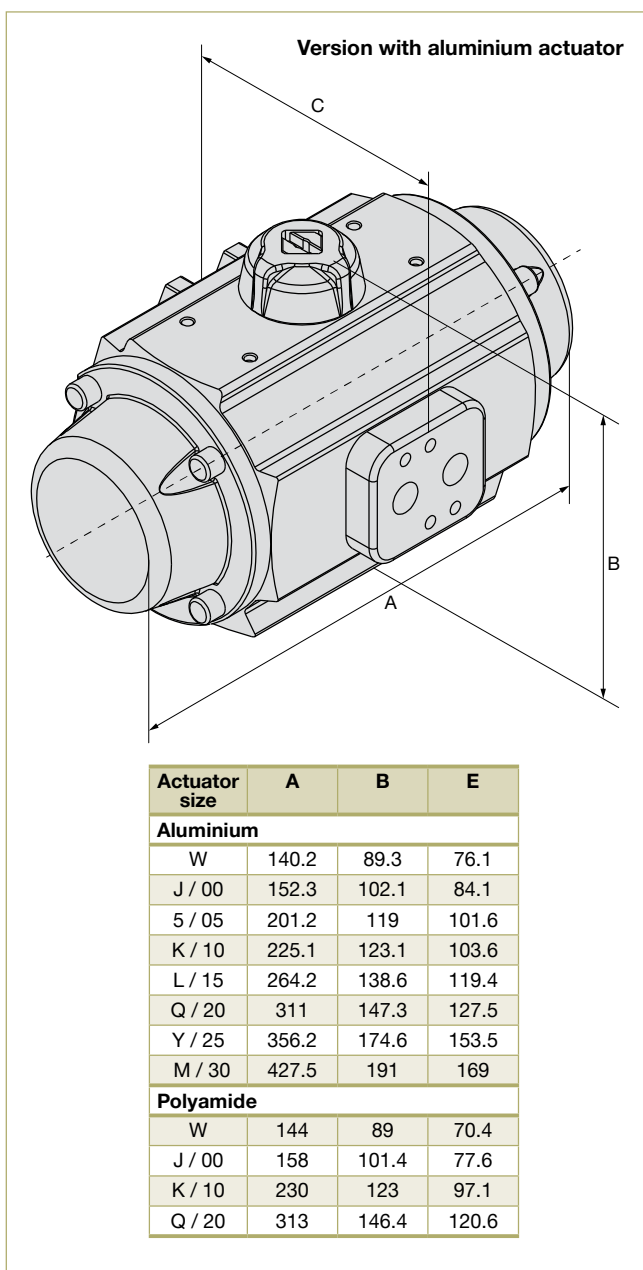
Technical data

	Aluminium Actuator	Polyamide Actuator
Materials		
Actuator	Aluminium (cataphoresis/polyamide coating)	Polyamide + glass fibre
Piston	Aluminium (cataphoresis coating); polyarylamid ¹⁾	Polyarylamide
Seal	NBR	NBR
Control medium	Filtered compressed air with or without oil; water	Filtered compressed air with or without oil; water
Control pressure	3...8 bar	3...8 bar
Ambient temperature	-32 °C...+90 °C	-32 °C...+90 °C
Rotation	90° (optional 180°)	90°
Adjustable angle	-2°...5° / 85°...92°	–
Interface		
Pilot air ports	NAMUR flange interface VDI/VDE 3845 G 1/4	NAMUR flange interface VDI/VDE 3845 G 1/4
Feedback signal	NAMUR VDI/VDE 3845	NAMUR VDI/VDE 3845
Fittings	ISO 5211	ISO 5211
Certifications		
	ATEX 94/9/EC Pressure Equipment Directive 97/23/EC (PED) IEC 61508 SIL3 ²⁾ Det Norske Veritas (DNV)	ATEX 94/9/EC Pressure Equipment Directive 97/23/EC (PED) IEC 61508 SIL3 Det Norske Veritas (DNV)









1) Only for actuator in size W

2) Exceptions are marked in ordering chart







Dimensions [mm]



Ordering chart

Circuit function	Actuator size	Torque [Nm] dependent on control pressure							Air volume [l]		Weight	Article no.
		Control pressure [bar]							Opening	Closing	[kg]	
		3	4	5	5.5	6	7	8				
Aluminium actuator, double-acting actuator												
I Open/close operation on either side without spring, bi- directional	W	7.9	11.3	14.1	15.5	17	19.8	22.9	0.075	0.11	0.92	254851 
	J / 00	11.6	16.1	20.5	22.7	25	29.5	33.9	0.15	0.18	1.4	254852 
	5 / 05	23.5	32.3	41	45.3	49.7	58.4	67.1	0.28	0.37	2.57	254853 
	K / 10	32.9	45.6	58.3	65	71	83.7	96.4	0.35	0.45	3.08	254854 
	L / 15	55.2	75.6	96	106.2	116.5	136.9	157.4	0.65	0.82	4.2	254855 
	Q / 20	77.7	107	136.3	151	165.5	194.8	224	0.8	1.15	5.61	254856 
	Y / 25	140.1	190.1	240	264.9	290	339.9	393.9	1.5	2.02	9.3	254857 
	M / 30	226.5	307.4	388	428.7	469	550.1	631	2.05	3	11.6	254858 





2052

Circuit function	Actuator size	Torque [Nm] dependent on control pressure								Air volume [l]		Weight [kg]	Article no.
		Control pressure [bar]						Spring force		Opening	Closing		
		5		6		8							
		0°	90°	0°	90°	0°	90°	90°	0°				
Aluminium actuator, single-acting actuator (6 spring packages per side)													
A Single-acting actuator for pneumatically activated open/closed valve, normally closed by spring force.	W	7.4	4.1	10.3	7	16.2	12.9	10	6.7	0.075	0.11	1	254859 
	J / 00	9.4	4	13.9	8.5	22.8	17.4	16.5	11.1	0.15	0.18	1.63	254860 
	5 / 05	20.1	9.6	28.8	18.3	46.2	35.7	31.4	20.9	0.28	0.37	2.94	254861 
	K / 10	27.5	12.7	40.2	25.4	65.6	50.8	45.6	30.8	0.35	0.45	3.48	254862 
	L / 15	47	24.5	67.5	45	108.4	85.9	71.5	49	0.65	0.82	5.04	254863 
	Q / 20	70.5	31.6	99.7	60.8	158.2	119.3	104.7	65.8	0.8	1.15	6.63	254864 



Ordering chart

2052

Actuator size	Torque [Nm] dependent on control pressure							Air volume [l]		Weight [kg]	Article no.
	Control pressure [bar]							Opening	Closing		
	3	4	5	5.5	6	7	8				
Polyamide actuator, double-acting actuator (Control function I)											
W	7.9	11.3	14.1	15.5	17	19.8	22.9	0.075	0.05	0.47	276763 
J / 00	13.3	18.3	23.4	26	28.5	33.6	38.7	0.15	0.18	0.83	276764 
K / 10	32.9	45.6	58.3	65	71	83.7	96.4	0.35	0.45	1.65	276765 
Q / 20	77.7	107	136.3	150.9	165.4	194.8	224	0.8	1.15	3.22	276766 

Actuator size	Torque [Nm] dependent on control pressure								Air volume [l]		Weight [kg]	Article no.
	Control pressure [bar]						Spring force		Opening	Closing		
	5		6		8							
	0°	90°	0°	90°	0°	90°	90°	0°				
Polyamide actuator, single-acting actuator (Control function A, 6 spring packages per side)												
W	7.4	4.1	10.3	7	16.2	12.9	10	6.7	0.075	0.05	0.55	276767
J / 00	10.7	4.6	15.8	9.7	26	19.9	18.8	12.7	0.15	0.18	1	276768
K / 10	27.5	12.7	40.2	25.4	65.6	50.8	45.6	30.8	0.35	0.45	2.03	260114
Q / 20	70.5	31.6	99.7	60.8	158.2	119.3	104.7	65.8	0.8	1.15	4.22	276769

Accessories

Specifications	Article no.
universal adapter for shaft	787338
universal assembly bridge	770294

Electrical Rotary Actuator - On/Off

3003

- Direct mounting on quarter-turn valves
- Manual override standard
- Adjustable limit switches
- Multi-voltage



The electrical rotary actuator, Type 3003, is a compact and powerful actuator system which provides a long service life. Materials and components have been chosen for maintenance-free operation even in aggressive environments and ensure low thermal loading on the actuator. The modular design offers many additional features to be added to the basic device such as extra limit switches, potentiometers and emergency power.

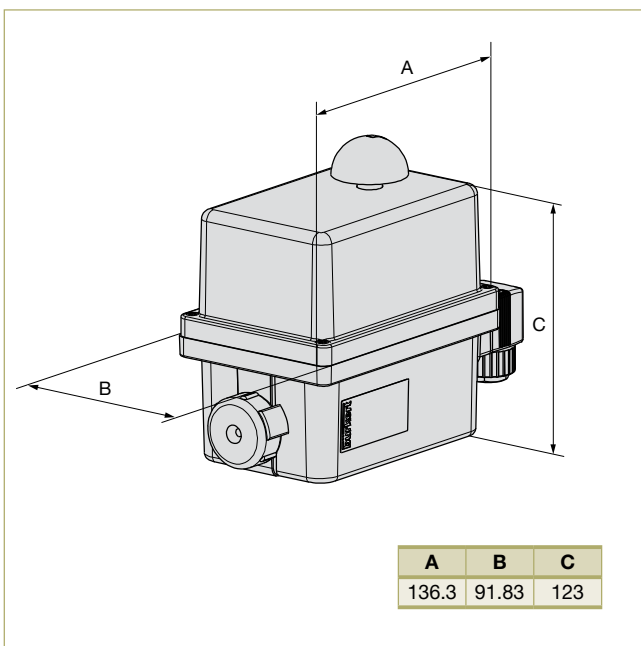
With the control actuator version the input signals (e.g. 4...20 mA, 0...20 mA, 0...10 V) as well as the output signals can be programmed.

Heating resistor and torque limiter are in standard, the housing is made of flame resistant material classified according to UL 94 V0

Technical data

Materials	Cover/body: Nylon / PA 6.6, Axis screws: stainless steel Transmission: stainless steel and PC
Torque	20, 35, 60 and 100 Nm (see ordering chart)
Angle of rotation	90° (±5°) (extra angle on request)
90° rotation time	See ordering chart
Duty rating	According to IEC34 S4=50 %
Power supply	15...30 V AC 50/60 Hz/12...48 V DC 100...240 V AC 50/60 Hz/100...350 V DC
Power consumption	15...45 W (see ordering chart)
Motor protection	Torque limiter
Standard signal (programmable)	Input: 0...10 V, 4...20 mA, 0...20 mA Output: 0...10 V, 4...20 mA, 0...20 mA
Mechanical limit	Standard
Electrical connection	Cable plug acc. to EN175301-803 (supply voltage) (included) Cable glands ISO M20
Mounting	Acc. ISO 5211 Motor 20 Nm F05 (removable fixation plate F03/F04/F05) Motor 35, 60, 100 Nm F05/F07
Drive	Motor 20 Nm Female star 14 mm; conversion sleeve 14/11 mm and 14/9 mm enclosed Motor 35, 60 Nm Female star 22 mm; conversion sleeve star 22/14 mm enclosed Motor 100 Nm Female star 22 mm; conversion sleeve star 22/17 mm enclosed
Ambient temperature	-10 °C...+55 °C (emergency power version -10 °C...+40 °C)

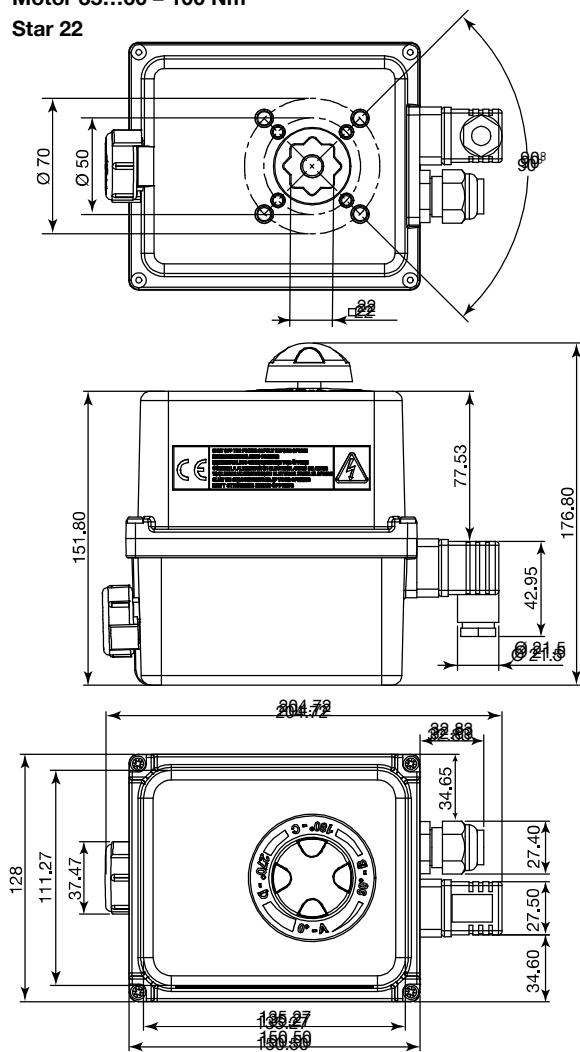
Dimensions [mm]



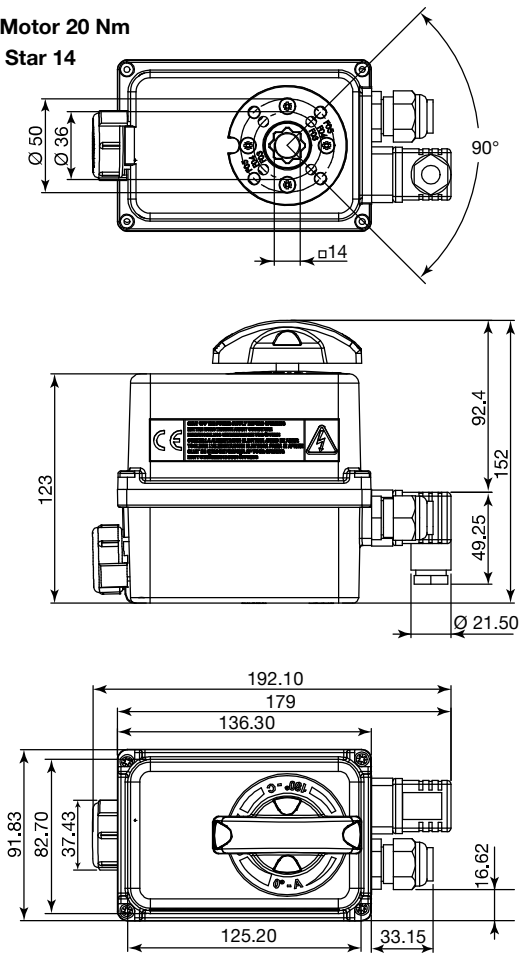
Limit switches	4 adjustable (2 for the motor and 2 additional for feedback), max. 250 V AC/5 A
Protection class	IP66 with mounted cable plug
Installation	Do not mount the actuator upside down!
Installation site	Up to 2000 m high

Dimensions [mm]

Motor 35...60 – 100 Nm
Star 22



Motor 20 Nm
Star 14



Square / Star	Depth
14	16
17	19
22	24

ISO F fixation	Diameter	M threaded	Depth	Screws quantity
F03	Ø 36	M5	14.2	4
F04	Ø 42	M5	14.2	4
F05	Ø 50	M6	14.2/16.4	4
F07	Ø 70	M8	16.4	4



Ordering chart

3003










Drive stars [mm]	Conversion sleeve star [mm]	Connection flange	Torque	90° rotation time ¹⁾ ± 1 sec. (Information on load)	Power consumption	Voltage / frequency	Article no.
Multi-voltage version without analogue signal input							
14	14/11 and 14/9	F05 (F03-F04)	20 Nm	12 sec.	15 W	15...30 V AC, 50/60 Hz / 12...48 V DC ²⁾	225192
						100...240 V AC, 50/60 Hz / 100...350 V DC	225193
22	22/14	F05-F07	35 Nm	7 sec.	45 W	15...30 V AC, 50/60 Hz / 12...48 V DC ²⁾	225194
						100...240 V AC, 50/60 Hz / 100...350 V DC	225195
			60 Nm	12 sec.	45 W	15...30 V AC, 50/60 Hz / 12...48 V DC ²⁾	225196
						100...240 V AC, 50/60 Hz / 100...350 V DC	225197
	22/17	F05-F07	100 Nm	23 sec.	45 W	15...30 V AC, 50/60 Hz / 12...48 V DC ²⁾	225198
						100...240 V AC, 50/60 Hz / 100...350 V DC	225225
Multi-voltage version with emergency reset switch							
14	14/11 and 14/9	F05 (F03-F04)	20 Nm	12 sec.	15 W	15...30 V AC, 50/60 Hz / 12...48 V DC ²⁾	225207
						100...240 V AC, 50/60 Hz / 100...350 V DC	225208
22	22/14	F05-F07	35 Nm	7 sec.	45 W	15...30 V AC, 50/60 Hz / 12...48 V DC ²⁾	225209
						100...240 V AC, 50/60 Hz / 100...350 V DC	225210
			80 Nm	12 sec.	45 W	15...30 V AC, 50/60 Hz / 12...48 V DC ²⁾	225211
						100...240 V AC, 50/60 Hz / 100...350 V DC	225212
	22/17	F05-F07	100 Nm	23 sec.	45 W	15...30 V AC, 50/60 Hz / 12...48 V DC ²⁾	225213
						100...240 V AC, 50/60 Hz / 100...350 V DC	225214
Multi-voltage version with analogue signal input							
14	14/11 and 14/9	F05 (F03-F04)	20 Nm	25 sec.	15 W	15...30 V AC, 50/60 Hz / 12...48 V DC ²⁾	225199
						100...240 V AC, 50/60 Hz / 100...350 V DC	225200
22	22/14	F05-F07	35 Nm	40 sec.	45 W	15...30 V AC, 50/60 Hz / 12...48 V DC ²⁾	225201
			35 Nm	40 sec.	45 W	100...240 V AC, 50/60 Hz / 100...350 V DC	225202
			60 Nm	79 sec.	45 W	15...30 V AC, 50/60 Hz / 12...48 V DC ²⁾	225203
						100...240 V AC, 50/60 Hz / 100...350 V DC	225204
	22/17	F05-F07	100 Nm	119 sec.	45 W	15...30 V AC, 50/60 Hz / 12...48 V DC ²⁾	225205
						100...240 V AC, 50/60 Hz / 100...350 V DC ²⁾	225206

1) Other rotation time and rotation angle on request

2) The operating voltage must not fall below 11.5 V

Remark: For the actuator choice, we recommend a safety torque equal to 1.5 times of the valve maximal torque (2 times for the control version).

Accessories

Description	Article no.
Removable flange plate F04 for actuators with torque 10 and 20 Nm	665293 
Key to adjust the limit switches	679946 
Conversion sleeve star/square 14/9 mm	665288 
Conversion sleeve star/square 14/11 mm	665289 
Conversion sleeve star/star 22/14 mm	666684 
Conversion sleeve star/square 22/17 mm	684858 
Conversion sleeve square/square 17/14 mm	665290 
Adapter external square 14/10 mm (for actuators with torque 10 and 20 Nm)	668234 
Adapter external square 14/10 mm (for actuators with torque from 35 Nm)	677877 

3003

Electrical Rotary Actuator – On/Off and control

3003 PS

- Direct mounting on ball & butterfly valves
- Manual override standard
- Adjustable limit switches
- Robust housing



The electrical rotary actuator type 3003 PS is a compact and powerful actuator system, which provides a long lifetime.

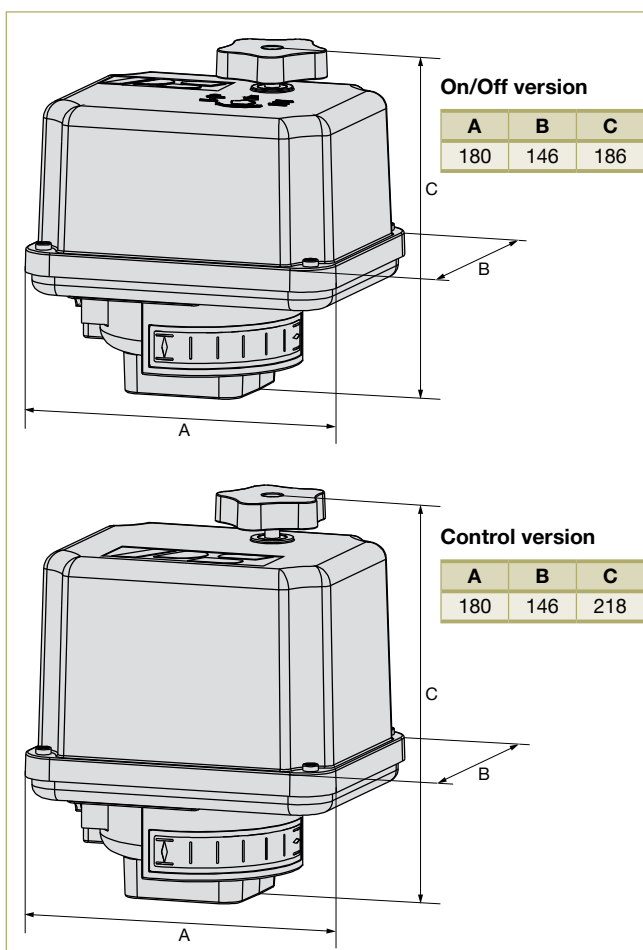
Materials and components have been chosen for maintenance-free operation even in aggressive environments and ensure low thermal loading on the actuator.

The robust housing protects the actuator against environmental influences and impacts. Moreover the modular design offers to add many additional features such as heating resistors and potentiometers.

Technical data

Torque	
On/Off version	25, 50 Nm
Control version	25, 45 Nm
Angle of rotation	
90° (adjustable)	
90° rotation time	
5...80 sec. (see ordering chart)	
Power supply	
Synchronous motor	24 V AC / 115 V AC 1~ / 230 V AC 1~ / 400 V 3~
DC motor	24 V DC
Power consumption	
8...55 W	
Motor protection	
Thermo switch	
Multifuse for On/Off version with 24 V DC	
Electrical connection	
Cable glands M20 x 1.5	
Mounting (acc. ISO 5211)	
F05/07 or F04/07 optional	
Drive	
Double square 17 mm	
Installation	
Do not mount the actuator upside down!	
Limit switches	
4 adjustable (2 for the motor & 2 for the position feedback)	
max. 250 V AC	
1 A inductive load	
3 A ohmic load	
Standard signal (programmable)	
Input	0/4...20mA & 0/2...10 V
Output	0...10 V
Optical position indicator	
Standard	
Material	
Cover	Polycarbonate (Lexan 943 A)
Body	Aluminium-silicon alloy (AlSi12)
Duty cycle acc. to IEC60034-1.8:	
S2 short-term operation (on/off) 20 min;	
S3/S4 control operation 1200 cycles/hour	
- 25 % ED at 25 °C	
Protection class	
IP65 according to EN 60529	

Dimensions [mm]



Ambient temperature range

On/Off version	-25 °C...+70 °C (S2)
Control version	-20 °C...+60 °C (S4)

Overvoltage Category

II

Weight

2.5 kg - On/Off version (without accessories)
4 kg - Control version (without accessories)

Options

Heating resistor (except at 400 V 3~)

Potentiometer (100/200/500/1000/2000 Ohm)

Ordering chart

Torque [Nm]	Rotation Time [s]		DC	Flange	Double Square [mm]	Article no. Voltage				
	AC 50 Hz	60 Hz				230 V AC 1~	115 V AC 1~	24 V AC 1~	400 V 3~	24 V DC
On/Off actuator										
25	17	14	–	F05/07	17	329988	329989	329990	–	–
			–	F04/07		329991	329992	329993	–	–
	–	–	9	F05/07		–	–	–	329994	
	–	–		F04/07		–	–	–	329995	
50	6	5	–	F05/07		329996	329997	329998	329999	
			–			–	16	–	–	–
	33	28	–			330001	330002	330003	–	–
	80	67	–			330004	330005	330006	–	–
Control actuator with analogue signal input										
25	17	14	–	F05/07	17	330007	330008	330010	–	–
			–	F04/07		330011	330012	330013	–	–
45	17	14	–	F05/07		330014	330015	330016	–	–
			–	F04/07		330017	330018	330019	–	–

Remark:

On/Off actuator: For the actuator choice we recommend a safety torque equal to 1.5 times of the valve maximum torque.

Control actuator: For the actuator choice we recommend a safety torque equal to 2 times of the valve maximum torque.

Accessories

Description	Article no.
Heating resistor (for 230 V AC and 115 V AC actuators)	774106
Heating resistor (for 24 V AC/DC actuators)	774210
Position transmitter - 2-wire technology	774107
Position transmitter - 3-wire technology	774108
Potentiometer 100 Ω (for On/Off version)	774109
Potentiometer 200 Ω (for On/Off version)	774110
Potentiometer 500 Ω (for On/Off version)	774111
Potentiometer 1000 Ω (for On/Off version)	774112
Potentiometer 2000 Ω (for On/Off version)	774113
for conversion sleeves	
Conversion sleeve square/square 11/9 mm	666575
Conversion sleeve star/square 14/9 mm	665288
Conversion sleeve star/square 14/11 mm	665289
Conversion sleeve square/square 17/14 mm	665290
Conversion sleeve square/square 17/11 mm	665369

Electric Rotary Actuator – On/Off or programmable control actuator

3005

- Direct mounting on quarter-turn valves
- Manual override standard
- Corrosion resistant
- Adjustable limit switches
- Multi-voltage version
- Protection class IP68

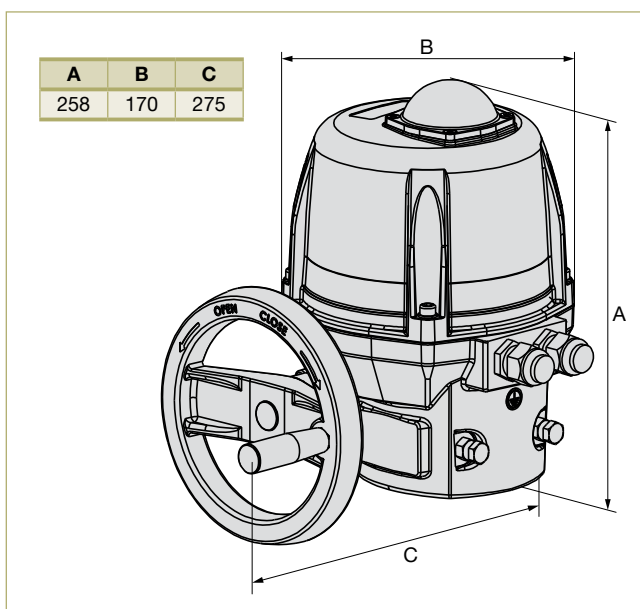


The rotary actuator type 3005 is a compact and powerful actuator system which provides a long service life. Materials and components have been chosen for maintenance-free operation and ensure low thermal loading on the actuator. The modular design offers many options such as extra limit switches or potentiometers to be added to the basic unit.

Technical data

Torque	25 and 300 Nm (see ordering chart) (600 and 1000 Nm on request)
Angle of rotation	90° (±5°)
90° rotation time	7...60 sec. (see ordering chart)
Duty rating	At max. torque: 50 % of the time Control actuator: 50 % of max. torque
Power supply	15...30 V AC 50/60 Hz / 12...48 V DC 100...240 V AC 50/60 Hz / 100...350 V DC
Tolerance	±10 %
Power consumption	45 W
Motor protection	Electronic torque limitation
Electrical connection	2 cable glands ISO 20 (Cable plug acc. EN 175301-803 on request)
Mounting	Acc. ISO 5211 F05/F07 F07/F10v
Drive	Motor 25 Nm Female star 17 mm; Conversion sleeve star 17/11 mm enclosed Motor 45, 75 Nm Female star 17 mm; Conversion sleeve star 17/14 mm enclosed Motor 100, 150, 300 Nm Female star 22 mm; conversion sleeve star 22/17 mm enclosed
Installation	Do not mount the actuator upside down!
Limit switches	4 adjustable (2 for motor and 2 additional for feedback) Max. 250 V AC/5 A
Analogue signals control version (programmable)	
Input	– 0...10 V – 4...20 mA – 0...20 mA
Output	– 0...10 V – 4...20 mA – 0...20 mA
Manual override	By hand wheel (from 100 Nm)

Dimensions [mm]



Mechanical limit stops	Standard
Optical position indicator	Standard
Material	
Cover, Housing	Nylon / Epoxy coated aluminium
Axis, screw	Stainless steel
Gear	Zinc-plated Steel
Protection class	IP68
Ambient temperature	–20 °C up to +70 °C –20 °C up to +40 °C (emergency reset)
Weight	5.6 kg
Heating resistor	10 W
Options	Three position actuator (180°) Rotation 180° or 270° Feedback On/Off actuators: – Potentiometer 0.1K, 1K, 5K or 10K – Analogue signal 4...20 mA Fail safe option 2 extra limit switches

Note: Electrical connections see operating instructions.

Ordering chart

Drive stars [mm]	Conversion sleeve star [mm]	Connection flange	Torque [Nm]	90° travel [s] ¹⁾	Power consumption [W]	Voltage / Frequency [V / Hz]	Article no.
Standard version without analogue signal input							
17	17/11	F05/F07	25	7	45	100...240 V AC, / 50/60 Hz / 100...350 V DC	207170
						15...30 V AC, 50/60 Hz / 12...48 V DC	180864
	17/14	F05/F07	45	15	45	100...240 V AC, / 50/60 Hz / 100...350 V DC	189194
						15...30 V AC, 50/60 Hz / 12...48 V DC	189199
			75	20	45	100...240 V AC, / 50/60 Hz / 100...350 V DC	203454
						15...30 V AC, 50/60 Hz / 12...48 V DC	216012
22	22/17	F07/F10	100	15	45	100...240 V AC, / 50/60 Hz / 100...350 V DC	205547
						15...30 V AC, 50/60 Hz / 12...48 V DC	224608
			150	30	45	100...240 V AC, / 50/60 Hz / 100...350 V DC	181303
						15...30 V AC, 50/60 Hz / 12...48 V DC ²⁾	181304
			300	60	45	100...240 V AC, / 50/60 Hz / 100...350 V DC	181305
						15...30 V AC, 50/60 Hz / 12...48 V DC ²⁾	181306

3005

Drive stars [mm]	Conversion sleeve star [mm]	Connection flange	Torque [Nm]	90° travel [s] ¹⁾	Power consumption [W]	Voltage / Frequency [V / Hz]	Article no.
Control version with 4...20 mA, 0...20 mA or 0...10 V, analogue signal input or output							
22	22/17	F07-F10	150	30	45	100...240 V AC, / 50/60 Hz / 100...350 V DC	181293
						15...30 V AC, 50/60 Hz / 12...48 V DC ²⁾	228177
			300	60	45	100...240 V AC, / 50/60 Hz / 100...350 V DC	181307
						15...30 V AC, 50/60 Hz / 12...48 V DC ²⁾	179726

1) Other regulating times and delay angles on request

2) The operating voltage mustn't to fall below 11.5 V

Remark: For the actuator choice, we recommend a safety torque equal to 1.5 times of the valve maximal torque (2 times for the control version).

Accessories

Description	Article no.
Key to adjust limit switches	679946
Conversion sleeve star/square 14/9 mm	665288
Conversion sleeve star/square 14/11 mm	665289
Conversion sleeve star/star 22/14 mm	666684
Conversion sleeve star/square 22/17 mm	684858
Conversion sleeve square/square 17/14 mm	665290



Sensors Chapter Overview



Overview for Flow Sensors ▶

Overview for Level Sensors ▶

Overview for Analysis Sensors ▶

Overview for Pressure and Temperature Sensors ▶

Overview for Mass Flow Controller (MFC) / Meter (MFM) ▶

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Overview for Flow Sensors

Note: The following product overview does not show the complete product range of this catalogue. A complete overview can be found [here](#) ►

Overview Flow Sensors	Category	Type	Basic functions	Operating principle	Flow range [l/min] [GPM]	Fluid pressure max. ¹⁾	Fluid temperature ¹⁾ [°C]	Nominal diameter ¹⁾	Sensor armature
Sensor with paddle-wheel		8011 ►	Sensor, measuring device	Hall effect	0.5...1000 0.13...265	PN10 PN16	-15...+100	DN06...DN50 (DN65 on request)	PVDF
		8012 ►	Sensor, switch, measuring device	Hall effect or optical	0.5...1000 0.13...265	PN10 PN16	-15...+100	DN06...DN50 (DN65 on request)	PVDF
		8020 ►	Sensor, measuring device	Hall effect	0.5...75000 0.13...19.813	PN10	-15...+80	DN20...DN400	PVDF
		8025 ►	Sensor, switch, measuring device, batch controller, totalizers	Hall effect	0.5...75000 0.13...19.813	PN10	-15...+80	DN20...DN400	PVDF
		8026 ►	Sensor, switch, measuring device, totalizers	Hall effect	0.5...75000 0.13...19.813	PN10	-15...+100	DN20...DN400	PVDF
		8030 ►	Sensor, measuring device	Hall effect	0.5...1000 0.13...265	PN10 or PN16 (PN40 on request)	-15...+100	DN06...DN65	PVDF
		8032 ►	Sensor, switch, measuring device	Hall effect	0.5...1000 0.13...265	PN10 or PN16 (PN40 on request)	-15...+100	DN06...DN65	PVDF
		8035 ►	Sensor, switch, measuring device, batch controller, totalizers	Hall effect	0.5...1000 0.13...265	PN10 or PN16 (PN40 on request)	-15...+100	DN06...DN65	PVDF
		8036 ►	Sensor, switch, measuring device, totalizers	Hall effect	0.5...1000 0.13...265	PN10 or PN16 (PN40 on request)	-15...+100	DN06...DN65	PVDF
		8030/ SE30 Ex ►	Sensor, measuring device	Hall effect	0.5...1000 0.13...265	PN10 or PN16 (PN40 on request)	-15...+80	DN06...DN65	PVDF
Sensor with oval rotors		8077 ►	Sensor	Hall effect	0.008...8.33 0.002...2.2	55 bar	-20...+120	Thread ⅜"; ¼" (G or NPT)	SS
		SE30 ► +S077 ►	Sensor, measuring device	Hall effect	2...1200 0.5...320	up to 55 bar (de- pending on DN)	-20...+120	DN15...DN100	PPS, Al, SS
		SE32 ► +S077 ►	Sensor, switch, measuring device	Hall effect	2...1200 0.5...320	up to 55 bar (de- pending on DN)	-20...+120	DN15...DN100	PPS, Al, SS
		SE35 ► +S077 ►	Sensor, switch, measuring device, batch controller, totalizers	Hall effect	2...1200 0.5...320	up to 55 bar (de- pending on DN)	-20...+120	DN15...DN100	PPS, Al, SS
		SE36 ► +S077 ►	switch, measuring device, totalizers	Hall effect	2...1200 0.5...320	up to 55 bar (de- pending on DN)	-20...+120	DN15...DN100	PPS, Al, SS
		SE30Ex ► +S077 ►	Sensor, measuring device	Hall effect	2...1200 0.5...320	up to 55 bar (de- pending on DN)	-20...+120	DN15...DN100	SS

1) Depending on the material of the fitting used

2) On request

Wetted parts material			Fluid properties	Viscosity [cSt]	Conductivity [µS/cm]	Measuring span	Construction: Electron-ics and Fitting/Sensor-fitting Type	Signal output	Display	Special features and versions	Overview Flow Sensors
Electrodes	Seal	Fitting/ Sensor-fitting									
Ceramics	FKM, EPDM	PVC, PP, brass, SS	No fibres, no metallic particles. Max. 1 % solids (particle size 0.5 mm max.)	<300	n/a	1:33	SE11 S012	Pulse	No	Compact	
Ceramics	FKM, EPDM	PVC, PP, brass, SS		<300	n/a	1:33	SE12 S012	Pulse, 4...20 mA,	No	Compact	
Ceramics	FKM, EPDM	Depending on the used S020 fitting PVC, PP, PVDF, brass, SS		<300	n/a	1:33	8020 S020	Pulse	No	Insertion compact	
Ceramics	FKM, EPDM			<300	n/a	1:33	8025 S020	Pulse, 4...20 mA, relay	Yes	Insertion com- pact, panel or wall mounting, universal remote	
Ceramics	FKM, EPDM			<300	n/a	1:33	8026 S020	Pulse, 4...20 mA,	Yes, removable	Compact	
Ceramics	FKM, EPDM	Depending on the used S030 sensor-fitting PVC, PP, PVDF, brass, SS		<300	n/a	1:33	SE30 S030	Pulse	No	Inline compact	
Ceramics	FKM, EPDM			<300	n/a	1:33	SE32 S030	Pulse, 4...20 mA, relay	Yes	Inline compact, panel or wall mounting	
Ceramics	FKM, EPDM			<300	n/a	1:33	SE35 S030	Pulse, 4...20 mA, relay	Yes	Inline compact	
Ceramics	FKM, EPDM			<300	n/a	1:33	SE36 S030	Pulse, 4...20 mA,	Yes, removable	Inline compact	
Ceramics	FKM, EPDM			<300	n/a	1:33	SE30Ex S030	Pulse, NAMUR	No	Inline compact	
SS	FEP/PTFE	Aluminium, SS	No fibres, no ferromagnetic parts. Fluid filtered.	<1000 <1 Mio ²⁾	n/a	1:50	8077	Pulse	No	Compact	
SS	FKM, FEP/PTFE	Aluminium, SS		<1000 <1 Mio ²⁾	n/a	1:25	SE30 S077	Pulse	No	Inline compact	
SS	FKM, FEP/PTFE	Aluminium, SS		<1000 <1 Mio ²⁾	n/a	1:25	SE32 S077	Pulse, 4...20 mA, relay	Yes	Inline compact	
SS	FKM, FEP/PTFE	Aluminium, SS		<1000 <1 Mio ²⁾	n/a	1:25	SE35 S077	Pulse, 4...20 mA, Relay	Yes	Inline compact	
SS	FKM, FEP/PTFE	Aluminium, SS		<1000 <1 Mio ²⁾	n/a	1:25	SE36 S077	Pulse, 4...20 mA,	Yes, removable	Inline compact	
SS	FKM, FEP/PTFE	Aluminium, SS		<1000 <1 Mio ²⁾	n/a	1:25	SE30Ex S077	Pulse, NAMUR	No	Inline compact	



Overview for Flow Sensors

Note: The following product overview does not show the complete product range of this catalogue. A complete overview can be found [here](#) ►

Overview Flow Sensors	Category	Type	Basic functions	Operating principle	Flow range [l/min] [GPM]	Fluid pressure max. ¹⁾	Fluid temperature ¹⁾ [°C]	Nominal diameter ¹⁾	Sensor armature
Magnetic		8041 ►	Sensor, measuring device	Insertion magmeter	0.3...75000 0.8...19.813	PN10 PN16	-15...+150	DN06...DN400	PVDF, SS
		8045 ►	Sensor, switch, measuring device, totalizers	Insertion magmeter	0.3...75000 0.8...19.813	PN10 PN16	-15...+110	DN06...DN400	PVDF, SS
		8051 ►	Sensor, switch, measuring device, batch controller, totalizers	Full bore magmeter	0.02...208 0.005...55	PN16	-20...+130 (display dependent)	DN03...DN20	–
		8055 ►	Sensor, switch, measuring device, batch controller, totalizers	Full bore magmeter	0.02...4666 0.005...1.233	PN16	-20...+130 (display dependent)	DN25...DN200	–
		8056 ►	Sensor, switch, measuring device, batch controller, totalizers	Full bore magmeter	0.02...4666 0.005...1.233	PN16	-20...+130 (display dependent)	DN03...DN100	–
Ultrasonic		8081 ►	Sensor, measuring device	Ultrasound	0.06...200 0.016...53	PN16	+5...+90	Thread ¾", 1" or 1¼" (G or NPT)	PES (meas- uring tube)
Acoustic waves surface		8098 ►	Switch, sensor, measur- ing device, 2 volume flow totalizers	SAW (Surface Acoustic Waves)	0...7 m³/h to 0...90 m³/h	PN16 PN25	-20...+110	¾", 1", 1½", 2", DN15, DN25, DN40, DN50	–

¹⁾ Depending on the material of the fitting used

²⁾ On request

Wetted parts material			Fluid properties	Viscosity [cSt]	Conductivity [μS/cm]	Measuring span	Construction: Electronics and Fitting/Sensor-fitting Type	Signal output	Display	Special features and versions	Overview Flow Sensors
Electrodes	Seal	Fitting/Sensor-fitting									
SS	FKM, EPDM, FEP	Depending on the S020 fitting used -	Clean and contaminated media, ferromagnetic parts < 1 %	< 1000	>20	1:50	8041 S020	Pulse, 4...20 mA, relay	No	Compact	
SS, Alloy	FKM, EPDM, FEP	PVC, PP, PVDF, brass, SS	Ferromagnetic parts < 1 %	< 1000	>20	1:50	8045 S020	Pulse, 4...20 mA, relay	Yes	Compact	
SS	FKM, EPDM, FFKm	SS	Contaminated or sterile fluids	<2000 ¹⁾	> 5	1:500	SE56 S051	Pulse, 4...20 mA, relay	Yes/No	Compact, wall mounting	
SS	FKM, EPDM	SS	Contaminated or sterile fluids	<2000 ¹⁾	> 5	1:500	SE56 S054 S055	Pulse, 4...20 mA, relay	Yes/No	Compact, wall mounting	
SS	FKM, EPDM	SS	Contaminated or sterile fluids	<2000 ¹⁾	> 5	1:500	SE56 S056	Pulse, 4...20 mA, relay	Yes/No	Compact, wall mounting	
–	EPDM	Brass	Liquids similar to water and less than 1 % solid particles	< 4	No effect	1:250	8081	Pulse, 4...20 mA	No	5 different flow ranges	
–	–	SS 316L / 1.4435 BN2	To realize the special uncertainty factor: No gas bubbles or particles, no gas, no steam	<2	No effect	1:100	S097 SE98	2 AO, 1 DO or 1 AO, 2 DO (selectable according to configuration)	Yes/No	Compact	

Flowmeter for continuous flow measurement

8011

- Economic integration in pipe systems without any additional piping
- Magnetic measuring principle (paddle wheel with hall sensor)
- Output: transistor output (frequency signal)



The paddle wheel flowmeter for continuous flow measurement is especially designed for use in neutral, slightly aggressive, solid free liquids. Type 8011 consists of a fitting (S012) and an electronic module (SE11) connected together with screws. The Bürkert designed fitting system ensures simple installation into all pipes from DN06... DN65. It can also be installed in fluid block systems. Type 8011 produces a frequency signal, proportional to the flow rate, which can be processed by a Bürkert remote transmitter/controller.

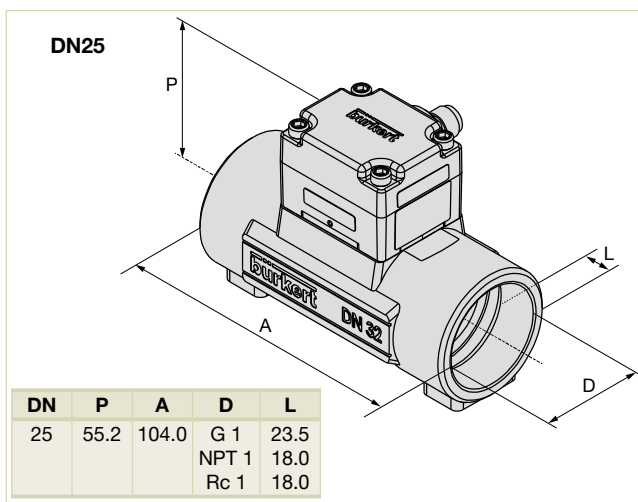
Type 8011 is available in two versions:

- with one pulse output: transistor NPN
- with two pulse outputs: transistor NPN and PNP

Technical data

General data	
Compatibility	With fittings S012
Fitting process connections	
Metal	Internal or external thread (weld ends, clamp or flange on request)
Plastic	True union or external thread (spigot on request)
Materials	
Housing / Seal	PPS / EPDM
Fixed connector M12, cable gland	PA
1 meter cable	PVC
Wetted parts materials	
Fitting	Brass, stainless steel 1.4404/316L, PVC, PP
Paddle wheel / Holder	PVDF blue / PVDF
Axis and bearing / Seal	Ceramics (Al ₂ O ₃) / FKM (EPDM option)
Electrical connection	Fixed connector 5 pin M12 (or with 1 m cable via cable gland, on request)
Connection cable	1.5 mm ² max. cross-section
Complete device data (fitting + electronic module)	
Pipe diameter	DN06...DN50 (DN65 on request)
Measuring range	0.3...10 m/s
Measuring element	Magnetic hall sensor
Fluid temperature with	
PVC fitting	0...+60 °C
PP fitting	0...+80 °C
Stainless steel, brass fitting	-15...+100 °C (if T [°] ambient ≤ 45 °C) or -15...+90 °C (if 45 °C ≤ T [°] ambient ≤ 60 °C)
Fluid pressure max. (see pressure/temperature diagram)	PN10 (with plastic fitting) PN16 (with metal fitting)
Viscosity / Pollution	Max. 300 cSt. / max. 1 % (size of particles 0.5 mm max.)

Dimensions [mm]



Measurement deviation	with standard K-factor ±(0.5 % of FS. ¹⁾ + 2.5 % of Reading ²⁾
Linearity	± 0.5 % of FS. ¹⁾
Repeatability	± 0.4 % of Reading ²⁾
Electrical data	
Operating voltage (V+)	
One pulse output version	4.5...24 V DC, filtered and regulated
Two pulse outputs version	6...36 V DC, filtered and regulated
Current consumption	< 5 mA (without load)
Reversed polarity of DC	Protected
Voltage peak	Protected
Short circuit	Protected for transistor output
Output	
One pulse output version	Transistor NPN open collector, max. 20 mA, NPN output: 0.2...24 V DC, frequency up to 300 Hz (Frequency [Hz] = K factor [pulse/litre] x flow rate [l/s])
Two pulse outputs version	Transistor NPN and PNP open collector, max. 700 mA, NPN output: 0.2...36 V DC, PNP output: operating voltage, frequency up to 300 Hz (Frequency [Hz] = K factor [pulse/litre] x flow rate [l/s])

1) FS. = Full scale (10 m/s)

2) Under reference conditions i.e. measuring fluid = water, ambient and water temperature = 20 °C, applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions.

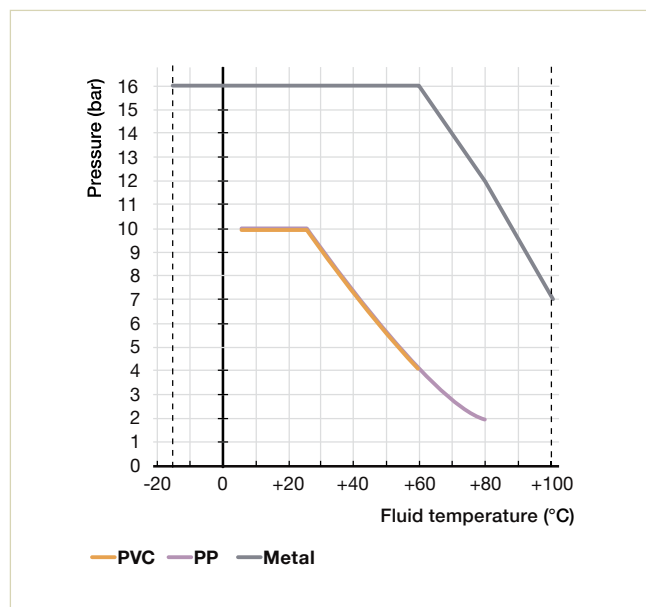
Technical data continued

Environment	
Ambient temperature	-15...+60 °C (operating and storage)
Relative humidity	≤80 %, without condensation
Standards, directives and certification	
Protection class	IP67 with multipin M12 (IP65 with cable)
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Pressure	Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ¹⁾
Certification/Certificate on request	Inspection certificate 3.1 (acc. to EN-ISO 10204); Test report 2.2 (acc. to EN-ISO 10204); Certification of Conformity for the surface Quality (DIN4762-DIN4768-ISO/4287/1); 3 points Flow calibration certificate

1) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤25
Fluid group 2, article 4, §1.c.i	DN ≤32, or PS*DN ≤1000
Fluid group 1, article 4, §1.c.ii	DN ≤25 or PS*DN ≤2000
Fluid group 2, article 4, §1.c.ii	DN ≤200 or PS ≤10 or PS*DN ≤5000

Pressure/Temperature diagram



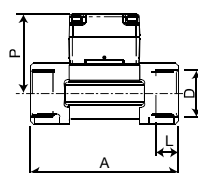
Dimensions [mm]

8011 with internal thread connection

G, NPT or Rc

in stainless steel (316L – 1.4404) or

brass (CuZn₃₉Pb₂)



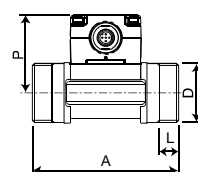
DN	P	A	D	L
15	57.5	84.0	G ½ NPT ½ Rc ½	16.0 17.0 15.0
20	55.0	94.0	G ¾ NPT ¾ Rc ¾	17.0 18.3 16.3
25	55.2	104.0	G 1 NPT 1 Rc 1	23.5 18.0 18.0
32	58.8	119.0	G 1 ¼ NPT 1 ¼ Rc 1 ¼	23.5 21.0 21.0
40	62.6	129.0	G 1 ½ NPT 1 ½ Rc 1 ½	23.5 20.0 19.0
50	68.7	148.5	G 2 NPT 2 Rc 2	27.5 24.0 24.0

8011 with external thread connection

G, NPT or Rc

in stainless steel (316L – 1.4404),

brass (CuZn₃₉Pb₂) or PVC



DN	P	A	D	–	L
06	52.5	90.0	G ½	–	14.0
08	52.5	90.0	½ ²⁾	M16x1.5	14.0

2) G, NPT, Rc according to fitting version



Ordering chart

For Type 8011, 4.5...24 V DC, 5 pin M12, NPN output

Process connection	Standard	Output	Article no. DN06 - 1/4"	Article no. DN06 - 1/2"	Article no. DN08 - 1/2"	Article no. DN15	Article no. DN20	Article no. DN25	Article no. DN32	Article no. DN40	Article no. DN50
8011	Brass - Fluid temperature max. 100 °C, PN16										
	Internal thread	G (ISO 228) NPN-Pulse	—	—	—	559918	559919	559920	559921	559922	559923
	External thread	G (ISO 228) NPN-Pulse	559915	559916	559917	—	—	—	—	—	—
	Stainless steel - Fluid temperature max. 100 °C, PN16										
	Internal thread	G (ISO 228) NPN-Pulse	—	—	—	559939	559940	559941	559942	559943	559944
	External thread	G (ISO 228) NPN-Pulse	559936	559937	559938	—	—	—	—	—	—

Accessories

Specification	Article no.
4 short screws (M4 x 35 - A4) + 4 long screws (M4 x 60 - A4)	555775
5 pin M12 female straight cable plug moulded on cable (2 m, shielded)	438680
5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917116
O-ring set for metal fitting - FKM - DN06...DN50	426340



Flowmeter with paddle wheel for continuous flow measurement

8012

- Economic integration in pipe systems without any additional piping
- Optic or magnetic measuring principle
- Configurable output: 1 analog 4...20 mA and/or 1 transistor output (frequency or switch)
- Outputs configurable (through interface on USB port with PC)



The paddle wheel flowmeter for continuous flow measurement is especially designed for use with neutral, slightly aggressive, solid free liquids in its magnetic measuring version and for use with liquids which let pass the infra-reds in its optic measuring version.

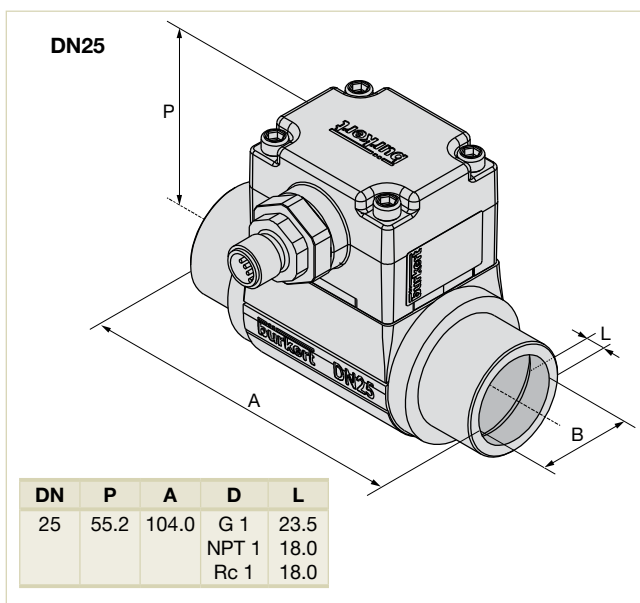
The 8012 is made up of a fitting (S012) and an electronic module (SE12) which are connected together with screws. The Bürkert designed fitting system ensures simple installation into all pipes from DN06...DN65. It can also be installed in fluid block systems.

The 8012 produces a configurable frequency pulse signal, proportional to the flow rate, which can easily be transmitted and processed by a Bürkert remote transmitter/controller, or a configurable switch output or a 4...20 mA signal.

Technical data

General data	
Compatibility	With Bürkert S012 fitting (see ordering chart)
Fitting process connections	
Metal	Internal or external thread (weld ends, clamp or flange on request)
Plastic	True union or external thread (spigot on request)
Materials	
Housing / Seal	PPS / EPDM
M12 fixed connector, (gland on request)	PA
1 meter cable	PVC
Wetted parts materials	
Fitting	Brass, stainless steel 1.4404/316L, PVC, PP
Paddle wheel, holder	PVDF
Axis and bearing / Seal	Ceramics (Al ₂ O ₃) / FKM (EPDM option)
Electrical connections	
	Free positionable 5 pin M12 male fixed connector (or with 1 m cable via cable gland, on request)
Connection cable	1.5 mm ² max. cross-section
Complete device data (fitting + electronic module)	
Pipe diameter	DN06...DN50 (DN65 on request)
Measuring range	0.3...10 m/s
Measuring element	Optical – infra-reds (or magnetic paddle wheel, on request)
Fluid temperature with	
PVC fitting	0...+60 °C
PP fitting	0...+80 °C
Stainless steel, brass fitting	-15...+100 °C (if T°ambient ≤ 45 °C) or -15...+90 °C (if 45 °C ≤ T°ambient ≤ 60 °C)

Dimensions [mm]



Fluid pressure max. (see pressure/temperature diagram)	PN10 (with plastic fitting) PN16 (with metal fitting)
Viscosity / Pollution	max. 300 cSt./max. 1 % (size of particles 0.5 mm max.)
Measurement deviation	
Teach-In	± 1 % of Reading ²⁾ (at the teach flow rate value)
Standard K-factor	± 2.5 % of Reading ²⁾
Linearity	± 0.5 % of FS. ¹⁾
Repeatability	± 0.4 % of Reading ²⁾

1) FS. = Full scale (10 m/s)

2) Under reference conditions i.e. measuring fluid = water, ambient and water temperature = 20 °C, applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions.

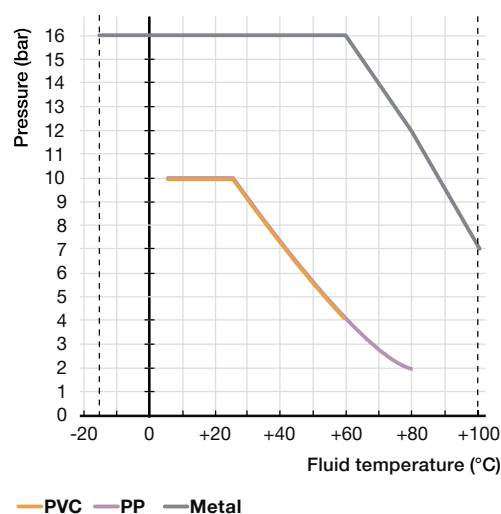
Technical data continued

Electrical data	
Power supply (V+)	12...36 V DC, filtered and regulated
Current consumption	<60 mA (at 12 V DC for current version - without load)
Reversed polarity of DC	Protected
Voltage peak	Protected
Short circuit	Protected for transistor output
Output	
Transistor version	Transistor NPN (default setting) / PNP (configurable on request), open collector, max. 700 mA, NPN output: 0.2...36 V DC (default setting) PNP output: operating voltage frequency or switching mode
Current version	4...20 mA, sinking (default setting), image of flow velocity (default setting), configurable on request (sourcing mode); Loop impedance max.: 1125 Ω at 36 V DC; 650 Ω at 24 V DC; 140 Ω at 12 V DC
4...20 mA output uncertainty	± 1 % of range
Environment	
Ambient temperature	-15...+60 °C (operating and storage)
Relative humidity	≤ 80 %, without condensation
Standards, directives and certifications	
Protection class	IP67 with device wired and M12 cable plug mounted and tightened IP65 (with cable gland)
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable) Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ¹⁾
Pressure	
Certification/Certificate on request	Inspection certificate 3.1 (acc. to EN-ISO 10204); Test report 2.2 (acc. to EN-ISO 10204); Certification of Conformity for the surface Quality (DIN4762-DIN4768-ISO/4287/1); 3 points Flow calibration certificate; FDA (only for device with EPDM seal and stainless steel fitting)

1) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

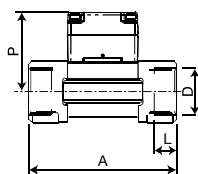
Pressure/Temperature diagram



Dimensions [mm]

8012 with internal thread connection

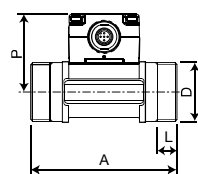
G, NPT or Rc
in stainless steel (316L - 1.4404) or
brass (CuZn₃₉Pb₂)



DN	P	A	D	L
15	57.5	84.0	G ½	16.0
			NPT ½	17.0
			Rc ½	15.0
20	55.0	94.0	G ¾	17.0
			NPT ¾	18.3
			Rc ¾	16.3
25	55.2	104.0	G 1	23.5
			NPT 1	18.0
			Rc 1	18.0
32	58.8	119.0	G 1 ¼	23.5
			NPT 1 ¼	21.0
			Rc 1 ¼	21.0
40	62.6	129.0	G 1 ½	23.5
			NPT 1 ½	20.0
			Rc 1 ½	19.0
50	68.7	148.5	G 2	27.5
			NPT 2	24.0
			Rc 2	24.0

8012 with external thread connection

G, NPT or Rc
in stainless steel (316L - 1.4404),
brass (CuZn₃₉Pb₂) or PVC



DN	P	A	D	-	L
06	52.5	90.0	G ½	-	14.0
08	52.5	90.0	½ ⁴⁾	M16 x 1.5	14.0

4) G, NPT, Rc according to fitting version



Ordering chart

For Type 8012 with optical measuring method, 12...36 V DC, 5 pin M12											
Process connection	Stand-ard	Output ¹⁾	Article no.								
			DN06-¼"	DN06-½"	DN08-½"	DN15	DN20	DN25	DN32	DN40	DN50
Brass – Fluid temperature max. 100 °C, PN16											
Internal thread	G	Pulse	–	–	–	556003	556004	556005	556006	556007	556008
		Pulse + 4...20 mA	–	–	–	556012	556013	556014	556015	556016	556017
	NPT	Pulse	–	–	–	556018	556019	556020	556021	556022	556023
		Pulse + 4...20 mA	–	–	–	556024	556025	556026	556027	556028	556029
	Rc	Pulse	–	–	–	556030	556031	556032	556033	556034	556035
		Pulse + 4...20 mA	–	–	–	556036	556037	556038	556039	556040	556041
External thread	G	Pulse	556000	556001	556002	–	–	–	–	–	–
		Pulse + 4...20 mA	556009	556010	556011	–	–	–	–	–	–
Stainless steel – Fluid temperature max. 100 °C, PN16											
Internal thread	G	Pulse	–	–	–	556045	556046	556047	556048	556049	556050
		Pulse + 4...20 mA	–	–	–	556054	556055	556056	556057	556058	556059
	NPT	Pulse	–	–	–	556061	556062	556063	556064	556065	556066
		Pulse + 4...20 mA	–	–	–	556068	556069	556070	556071	556072	556073
	Rc	Pulse	–	–	–	556074	556075	556076	556077	556078	556079
		Pulse + 4...20 mA	–	–	–	556080	556081	556082	556083	556084	556085
External thread	G	Pulse	556042	556043	556044	–	–	–	–	–	–
		Pulse + 4...20 mA	556051	556052	556053	–	–	–	–	–	–
	NPT	Pulse	–	–	556060	–	–	–	–	–	–
		Pulse + 4...20 mA	–	–	556067	–	–	–	–	–	–
PVC – Fluid temperature max. 60 °C, PN10											
True union	DIN 8063	Pulse	–	–	–	556088	556089	556090	556091	556092	556093
		Pulse + 4...20 mA	–	–	–	556094	556095	556096	556097	556098	556099
	ASTM	Pulse	–	–	–	556100	556101	556102	556103	556104	556105
		Pulse + 4...20 mA	–	–	–	556106	556107	556108	556109	556110	556111
	JIS	Pulse	–	–	–	556112	556113	556114	556115	556116	556117
		Pulse + 4...20 mA	–	–	–	556118	556119	556120	556121	556122	556123
External thread	G	Pulse	–	556086	556124	–	–	–	–	–	–
		Pulse + 4...20 mA	–	556087	556125	–	–	–	–	–	–

1) Factory setting: – pulse NPN (raw frequency)
 – pulse NPN (raw frequency) + 4...20 mA (sinking mode, 0...250 Hz)
 – other configurations on request

Accessories

Specification	Article no.
4 short screws (M4 x35 – A4) + 4 long screws (M4 x60 – A4)	555775
5 pin M12 female straight cable plug moulded on cable (2 m, shielded)	438680
5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917116
Configuration tool TACTIC (1 m length USB cable + 1 TACTIC cable with M12 connection + 1 TACTIC electronic housing + 1 configuration CD)	556500
Connecting cables: 8012-TACTIC and TACTIC-PC (1 m length USB cable + 1 TACTIC cable with M12 connection)	556160

Specification	Article no.							
	DN06	DN08	DN15	DN20	DN25	DN32	DN40	DN50
For metal fitting – FKM	426340	426340	426340	426340	426340	426340	426340	426340
For metal fitting – EPDM	426341	426341	426341	426341	426341	426341	426341	426341
For plastic fitting – FKM	–	448679	431555	431556	431557	431558	431559	431560
For plastic fitting – EPDM	–	448680	431561	431562	431563	431564	431565	431566

8012



Insertion flowmeter with paddle wheel for continuous flow measurement

8020

- Economic integration in pipe systems without any additional piping
- 3-wire frequency pulse version to directly interface with PLC's (both PNP and NPN)
- Connection to Bürkert devices in remote versions



Suitable fitting:
see Type S020 ►

The paddle wheel flowmeter for continuous flow measurement is especially designed for use in neutral, slightly aggressive, solid free liquids.

The Bürkert designed fitting system ensures simple installation of the devices into all pipes from DN20...DN400 mm. The flowmeter produces a frequency pulse signal, proportional to the flow rate, which can easily be transmitted and processed by a Bürkert transmitter/controller.

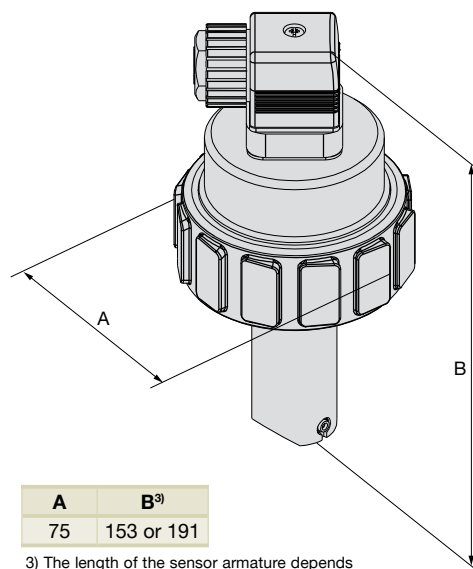
Technical data

General data	
Compatibility	With fittings S020 (data sheet; see Type S020 ►)
Materials	
Housing / Union nut	PE / PC
Cable plug	PA
Wetted parts materials	
Fitting	Brass, stainless steel 1.4404/316L, PVC, PP, PVDF
Sensor armature, paddle wheel	PVDF
Axis, bearing / Seal	Ceramics / FKM (EPDM option)
Electrical connection	Cable plug EN 175301-803 (included)
Connection cable	1.5 mm ² cross section; Max. 50 m length, shielded
Complete device data (fitting + electronic module)	
Pipe diameter	DN20...DN400
Measuring range	0.3...10 m/s
Fluid temp. with fitting in	
PVC	0...+50 °C
PP	0...+80 °C
Stainless steel, brass, PVDF	-15...+80 °C
Fluid pressure max.	PN10 (see pressure/temperature diagram)
Viscosity / Pollution	300 cSt. max. / max. 1 % (size of particles 0.5 mm max.)
Measurement deviation	
Teach-In	±0.5 % of F.S. ¹⁾ (at 10 m/s) ²⁾
Standard K-factor	±(0.5 % of F.S. ¹⁾ + 2.5 % of Reading ²⁾
Linearity	±0.5 % of F.S. ¹⁾ (at 10 m/s) ²⁾
Repeatability	≤0.4 % of Reading ²⁾
Environment	
Ambient temperature	-15...60 °C (operating and storage)
Relative humidity	≤80 %, without condensation

1) FS. = Full scale (10 m/s)

2) Under reference conditions i.e. measuring fluid = water, ambient and water temperature = 20 °C, applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions.

Dimensions [mm]



3) The length of the sensor armature depends on the nominal size of the fitting used.
Data sheet; see **Type S020** ►

Electrical data


Operating voltage	12...36 V DC (via Bürkert transmitter for "Low Power" version)
Current consumption	With sensor
Pulse version	≤50 mA
Pulse "Low power" version	≤0.8 mA
Output: Frequency	
Pulse version	Transistor NPN/PNP, open collector, max. 100 mA, frequency: 0...300 Hz; duty cycle ½
Pulse "Low Power" version	Transistor NPN, open collector, max. 10 mA, frequency: 0...300 Hz; duty cycle ½
Reversed polarity of DC	Protected



If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

Technical data continued

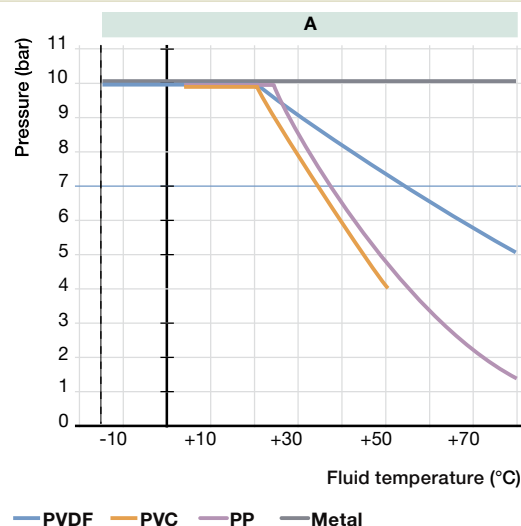
Standards and certifications

Protection class	IP65 with connector plugged-in and tightened
Standard and directives 	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Pressure	Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ¹⁾

1) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

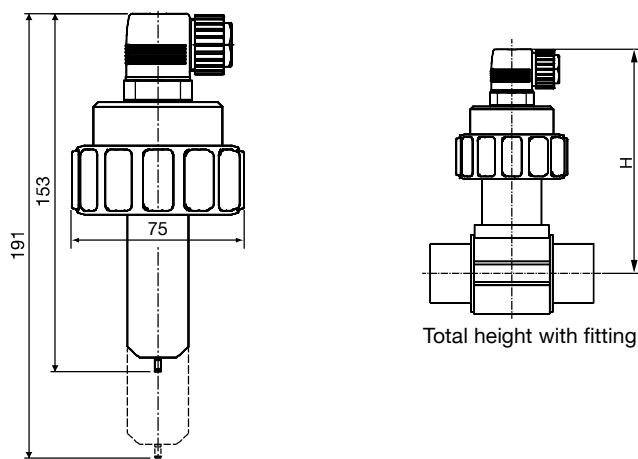
Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Pressure/Temperature diagram



A: Application range for complete device (fitting + flowmeter)

Dimensions [mm]







Note: The Type 8020 can easily be installed into any Bürkert Insertion fitting system (S020) by just fixing the main nut. The length of the sensor armature depends on the nominal size of the fitting used. Data sheet; see **Type S020** ►

DN	H with S020 fitting			
	T-Fitting	Saddle	Plastic spigot	Metal spigot
20	153.5	—	—	—
25	153.5	—	—	—
32	157.0	—	—	—
40	161.0	—	—	—
50	167.0	191.5	—	162.5
65	167.0	190.5	172.5	167.0
80	—	194.5	177.5	173.0
100	—	199.5	184.0	183.5
110	—	195.5	—	—
125	—	202.5	—	194.5
150	—	212.5	230.0	205.5
180	—	236.5	—	—
200	—	248.5	251.0	226.0
250	—	—	269.0	286.0
300	—	—	280.5	305.5
350	—	—	294.0	317.5
400	—	—	308.5	—

Ordering chart

8020

Description	Operating voltage	Output	Sensor version	Electrical connection	Article no.
Pulse version flowmeter (pluggable to Types 8025 Universal transmitter, batch controller; 8032; PLC)	12...36 V DC	Frequency with PNP or NPN	short	Cable plug DIN EN 175301-803	419587 
			long	Cable plug DIN EN 175301-803	419589 
Pulse "Low Power" version flowmeter (pluggable to Types 8025, 8032 transmitter)	from Transmitter	Frequency with NPN Pulse	short	Cable plug DIN EN 175301-803	419591 
			long	Cable plug DIN EN 175301-803	419593 






Note regarding the ordering of a complete flowmeter:

The complete 8020 flowmeter consists of the Type S020 Insertion fitting and the Type 8020 flowmeter.






FKM seal in standard; 1 Kit including a black EPDM seal and a green FKM seal is supplied with each flowmeter.

Please enter the appropriate flowmeter according to the table "Compatible and recommended combinations with Bürkert Insertion Fitting" and order the respective Insertion Fitting and the selected flowmeter separately.

Compatible and recommended combinations with Bürkert Insertion Fitting

Available S020 fitting DN		DN20	DN50	DN65	DN100	DN200	DN350 DN400
		Short sensor					
	T-fitting 				Short sensor	Long sensor	
	Weld-in socket 						
	Fusion spigot 			Short sensor		Long sensor	
	Screw-on S020 					Long sensor	
	Saddle 			Long sensor			

Accessories

Description	Article no.
Set with 1 green FKM and 1 black EPDM gasket	552111 
Ring	619205 
Union nut	619204 
Cable plug EN 175301-803 with cable gland - see Type 2508 ▶ (will be replaced with Type 2518)	438811 
Cable plug EN 175301-803 with NPT ½ reduction without cable gland - see Type 2509 ▶	162673 

Insertion batch controller with paddle wheel compact

- DN06...DN400
- 4...20 mA output
- On-site calibration by TEACH-IN
- Check of input/output signals
- Total and daily totalizers for batch quantity and number of batches, volume or mass totalizers displayed



Suitable fitting:
see Type S020 ►

The compact batch controller combines a paddle-wheel flow sensor and an electronic module with a display in an IP65 enclosure. The electrical connection is provided via two cable glands.

Bürkert designed fitting S020 ensures simple installation of the Bürkert sensor into pipes from DN20...DN400.

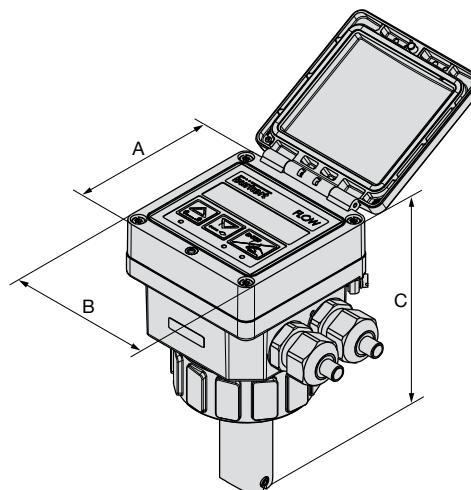
Technical data

General data	
Display	15x60 mm, 8 digit LCD, alphanumeric, 15 segments, 9 mm high
Compatibility	With fittings S020 (see Type S020 ►) or corresponding data sheet Type S020 ►
Materials	
Housing, cover, lid, nut	PC
Front panel foil/Screws	Polyester/Stainless steel
Cable glands	PA
Wetted parts materials	
Fitting	Brass, stainless steel 1.4404/316L, PVC, PP or PVDF
Sensor holder, paddle-wheel	PVDF
Axis and bearing/Seal	Ceramics/FKM (EPDM included, but not mounted)
Electrical connections	Cable glands M20x1.5
Recommended cable	Cable with maximum operating temperature greater than 80 °C Max. 50 m, shielded, 0.2...1.5 mm ² max. cross-section
Device data (Fitting S020 + batch controller)	
Pipe diameter	DN20...DN400
Measuring range	0.3...10 m/s (Hall transducer version)
Fluid temperature with fitting in	
PVC / PP	0...+50 °C / 0...+80 °C
PVDF, brass or stainless steel	-15...+80 °C
Fluid pressure max.	PN10 (see pressure/temperature diagram)
Viscosity/Pollution	300 cSt. max./1 % max.
Measurement deviation	
Teach-In	±1 % of Reading ¹⁾ (at the teach flow rate value)
Standard K-factor	±2.5 % of Reading ¹⁾
Linearity	±0.5 % of F.S. ¹⁾²⁾
Repeatability	±0.4 % of Reading ¹⁾

1) Under reference conditions i.e. measuring fluid = water, ambient and water temperature = 20 °C, applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions.

2) FS. = Full scale (10 m/s)

Dimensions [mm]



A	B	C ³⁾
88	88	164.50 or 203

3) The length of the sensor armature depends on the nominal size of the fitting used.
Data sheet; see **Type S020** ►

Electrical data

Power supply (V+)	12...36 V DC (max tolerance: -5 % or +10 % at 12 V DC; ±10 % at 36 V DC), filtered and regulated, SELV (safety extra low voltage), circuit with a non dangerous energy level or 115/230 V AC 50/60 Hz (see technical specifications 115/230 V AC)
Reversed polarity of DC	Protected
Current consumption with sensor	Without consumption of digital input and pulse output
with relay	≤100 mA at 12 V DC; ≤50 mA at 26 V DC; ≤55 mA at 115/230 V AC
without relay	≤70 mA at 12 V DC; ≤35 mA at 26 V DC; ≤40 mA at 115/230 V AC
Inputs DI (1...4)	Switching threshold V_{on} : 5...36 V DC; Switching threshold V_{off} max: 2 V DC; Input impedance: 9.4 kΩ; Galvanic insulation, protected against polarity reversals and voltage spike

Technical data continued

Outputs

Transistors (DO1 and DO4)	NPN or PNP (wiring dependent), potential free; function: pulse output (by default for DO1), batch state (by default for DO4), configurable and parameterizable 0.6...2200 Hz, 5...36 V DC, 100 mA max., line drop 2.7 V DC at 100 mA Duty cycle: ■ > 0.45 if 0.6 < frequency < 300 Hz ■ > 0.4 if 300 < frequency < 1500 Hz ■ < 0.4 if 1500 < frequency < 2200 Hz Galvanic insulation, protected against over-voltage, polarity reversals and short-circuits
Relays (DO2 and DO3)	2 relays (normally open), parameterizable (by default: DO2 always configured to control the valve, parameterized of 100 % of the batch quantity and DO3 configured as alarm), 230 V AC/3 A or 40 V DC/3 A (resistive load), max. cutting power of 750 VA (resistive load)

Environment


Ambient temperature (operation and storage)	-10...+60 °C (version 12...36 V DC) -10...+50 °C (version 115/230 V AC)
Height above sea level	Max. 2000 m
Relative humidity	Max. 80 %, without condensation

Technical specifications 115/230 V AC


Voltage supply (available inside the device)	27 V DC regulated, max. current: 125 mA Integrated protection: fuse 125 mA temporised Power: 3 VA
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Standards, directives and certifications

Protection class (according to EN60529)	IP65 with cable gland mounted and tightened or with obturator locked if not used.
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Standard and directives 	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Pressure	Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ¹⁾

Certifications

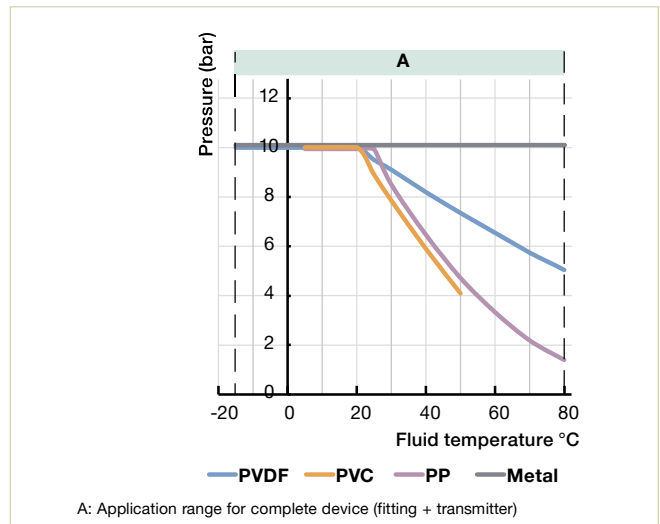
CE; UL-Recognized for US and Canada (61010-1 + CAN/CSA-C22.2 No.61010-1)


1) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

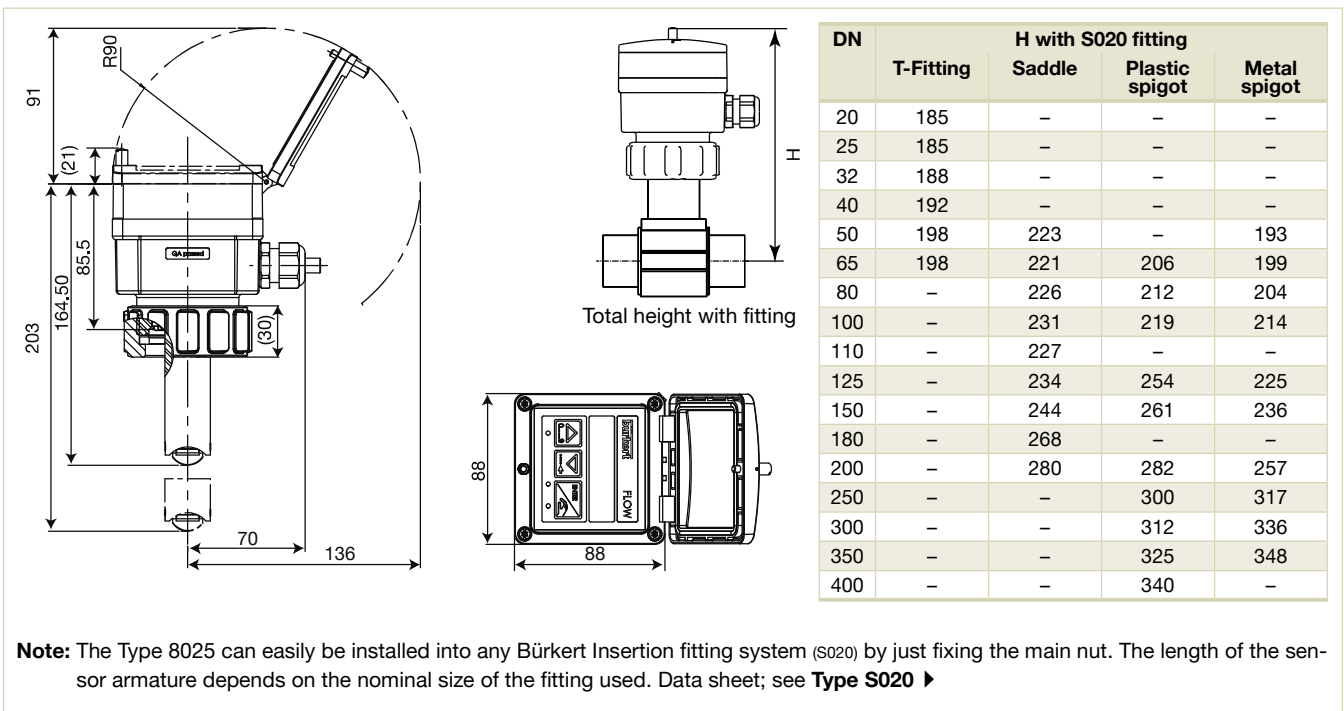
Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

Pressure/Temperature diagram



Dimensions [mm]





Operation and display (common to the various versions)

When mounted in a pipe (compact version) or connected to a flowmeter (remote version) in series with one or two valves, the 8025 batch controller makes it possible to carry out a dosing of one or several quantities of liquids. The unit controls the opening of the valves and measures the quantity of the fluid which flows. The unit also closes the valves when the preset quantity has been delivered.

The electronic component needs a voltage supply of 12...36 V DC or 115/230 V AC.

The device is equipped with 4 digital inputs (DI1 up to DI4), 2 transistor outputs (DO1 configured as a pulse output and DO4 configured as state output, by default), 2 relay outputs (DO2 always configured to control the valve and by default parameterize of 100 % of the batch quantity and DO3 configured as alarm output by default), two volume or mass totalizers and two batch totalizers.

The second relay output can be used to activate another valve, to initiate alarms or to generate warnings.

The following dosing modes are possible:

- Locally started dosing of free quantity:

the user enters the quantity to be filled and starts the dosing from the keypad.

- Locally started dosing of preset quantity:

the user selects a quantity which has been preset and starts the dosing from the keypad.

- Locally started dosing of free/preset quantity

the user enters the quantity to be filled or selects a quantity which has been preset and starts the dosing from the keypad.

- Dosing controlled by a PLC unit

the user selects a quantity which has been preset and starts the dosing using binary inputs.

- Locally/remote selection of preset quantity and dosing controlled by a PLC unit:

the user selects a quantity which has been preset from the keypad or using binary inputs and starts the dosing using binary inputs.

- Automatic dosing controlled by variation of pulse duration:

the quantity of the dosing is directly proportional to the duration of a pulse.

- Remote dosing determined by Teach-In:

Teach-In of the dosing quantity using binary inputs.

- Local dosing determined by Teach-In:

Teach-In of the dosing quantity from the keypads.

The device is calibrated by means of the K-factor which is either entered or determined via the Teach-In functions.

User adjustments, such as measuring range, engineering units, pulse output, etc. are carried out via the device operators interface.

The operation is specified according to five levels:

Indication in operating mode/display	Parameter definition	Test	Information	History
<ul style="list-style-type: none">• Dosing amount• Dosing mode• Main quantity totalizer• Daily quantity totalizer with reset function• Main batch totalizer• Maily batch totalizer with reset function	<ul style="list-style-type: none">• Language• Engineering units• K-factor/Teach-In function• Selection of dosing mode• Over run correction• Alarm• Outputs configuration• Reset both quantity/batch totalizers (main and daily)• Brightness of the display (backlight)	<ul style="list-style-type: none">• Input test• Output test• Frequency test• Warning and fault messages generating• Configuration mode	<ul style="list-style-type: none">• Display of error, alarm and/or warning messages	<ul style="list-style-type: none">• Display of the 10 latest batches

Ordering chart

Description	Voltage supply	Relay	Sensor version	Electrical connection	Article no.
Compact batch controller Type 8025					
2 totalizers	12...30 V DC	2	Hall, short	2 cable glands	419520
			Hall, long	2 cable glands	419522
	115/230 V AC	2	Hall, short	2 cable glands	419521
			Hall, long	2 cable glands	419529

Note regarding the ordering of a complete batch controller:

The complete 8025 batch controller consists of the Type S020 Insertion fitting and the Type 8025 batch controller FKM seal in standard; 1 Kit including a black EPDM seal and a green FKM seal is supplied with each batch controller.

Please enter the appropriate batch controller according to the table "Compatible and recommended combinations with Bürkert Insertion Fitting" and order the respective Insertion Fitting and the selected batch controller separately.

Compatible and recommended combinations with Bürkert Insertion Fitting

Available S020 fitting DN		DN20	DN50	DN65	DN100	DN200	DN350 DN400
	T-fitting	Short sensor					
	Weld-in socket			Short sensor		Long sensor	
	Fusion spigot			Short sensor		Long sensor	
	Screw-on S020					Long sensor	
	Saddle			Long sensor			

Accessories

Description	Article no.
Set with 2 cable glands M20 x 1.5 + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 x 1.5 + 2 multiway seals 2 x 6 mm	449755
Set with 2 reductions M20 x 1.5 /NPT 1/2 + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 x 1.5	551782
Set with 1 stopper for unused cable gland M20 x 1.5 + 1 multiway seal 2 x 6 mm for cable gland + 1 black EPDM seal for the sensor + 1 mounting instruction sheet	551775
Ring	619205
Union nut	619204
Set with 1 green FKM and 1 black EPDM seal	552111

Batch controller for panel or wall mounting

7 batch sizes, 2 relay outputs

- Controls 7 batches automatically
- Fast fill and fine control for accuracy
- Shows both flow rate and volume

Suitable flow sensor:
see Type 8020 ►, 8030 ►, 8070 ►



The remote 8025 batch controller can be connected (with pulse output signal) with Bürkert flowmeters Type 8020, 8030, 8070 or other flow sensor devices which emit a frequency signal.

The remote 8025 is a batch controller with display, available in wall-mounted and panel versions:

The panel version

is made up of an electronics integrated in an open housing with display. The electrical connection is carried out on the terminal blocks of the electronics board

The wall-mounted version

is made up of an electronics board which is integrated in a housing with a cover and display. The electrical connection is made via the terminal blocks of the electronic board via 5 cable glands.

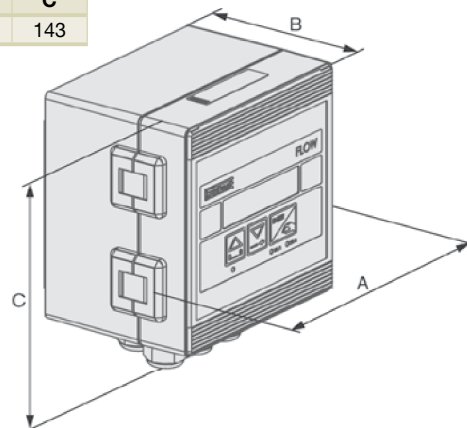
Technical data

General data	
Display	15x60 mm, 8-digit LCD, alphanumeric, 15 segments, 9 mm high
Compatibility with Bürkert sensors	Any Bürkert flow sensor with frequency output (8020, 8030, 8030HT, 8041, 8031, SE30+S077, 8071)
Compatibility with other sensors	Any open collector NPN, coil, TTL, CMOS
Materials	
Housing, cover	PC (panel-mounted version); ABS (wall-mounted version)
Front panel foil	Polyester
Screws	Stainless steel
Cable glands	PA (wall-mounted version)
Cable clips	PA (panel-mounted version)
Electrical connections	Terminal (panel-mounted version) or terminal via gland (wall-mounted version)
Recommended cable	Cable with maximum operating temperature greater than 80 °C, Max. 50 m, shielded, 0.2...1.5 mm ² max. cross-section, 5...8 mm external diameter (for the cable glands of the wall-mounted version)

Dimensions [mm]

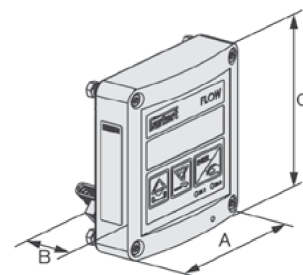
Wall Mount

A	B	C
126	90	143



Panel Mount

A	B	C
88	40	88





Option

- Compact Inline mount

Technical data continued

Electrical data	
Power supply (V+)	
Panel- and wall-mounted version	12...36 V DC (max tolerance: -5 % or +10 % at 12 V DC; ±10 % at 36 V DC), filtered and regulated, SELV (safety extra low voltage) circuit with a non dangerous energy level,
Wall-mounted version	115/230 V AC 50/60 Hz (see technical specifications 115/230 V AC)
Reversal polarity of DC	Protected
Current consumption with sensor	Without consumption of 4...20 mA output of the flowmeter
with relay	≤70 mA at 12 V DC; ≤45 mA at 26 V DC; ≤55 mA at 115/230 V AC (wall-mounted version)
without relay	≤50 mA at 12 V DC; ≤30 mA at 26 V DC; ≤35 mA at 115/230 V AC (wall-mounted version)
Controller input (from sensor)	Frequency range: 0.6...2.2 kHz, max. voltage: 36 V DC Open collector NPN (with 470 Ω or 2.2 kΩ resistance) or PNP, Coil, TTL, CMOS (with 39 kΩ resistance)
Controller output (to sensor)	
Voltage supply	- With a 12...36 V DC powered controller: ■ 10.5...34.5 V DC [= (V+) - 1.5 V DC], 140 mA max. ■ 0...23.5 V DC [= (V+) - 12.5 V DC], 80 mA max. non regulated ■ 5 V DC, 30 mA max. - With a 115/230 V AC powered controller: ■ +27 V DC, 80 mA max. ■ +14.5 V DC [= (V+) - 12.5 V DC] 80 mA max. non regulated ■ 5 V DC, 30 mA max.
Inputs DI (1...4)	Switching threshold V_{on} : 5...36 V DC; Switching threshold V_{off} max: 2 V DC; Input impedance: 9.4 KΩ; Galvanic insulation, protected against polarity reversals and voltage spike
Outputs	
Transistors (DO1 and DO4)	NPN or PNP (wiring dependent), potential free; function: pulse output (by default for DO1), state (by default for DO4), configurable and parameterizable 0.6...2200 Hz, 5...36 V DC, 100 mA max., line drop 2.7 V DC at 100 mA Duty cycle: ■ >0.45 if 0.6 < frequency < 300 Hz ■ >0.4 if 300 < frequency < 1500 Hz ■ <0.4 if 1500 < frequency < 2200 Hz Galvanic insulation, protected against overvoltage, polarity reversals and short-circuits
Relays (DO2 and DO3)	2 relays (normally open), parameterizable (by default: DO2 always configured to control the valve, parameterized of 100 % of the batch quantity and DO3 configured as alarm), 230 V AC/3 A or 40 V DC/3 A (resistive load), max. cutting power of 750 VA (resistive load)

Environment	
Ambient temperature	-10...+60 °C (operation and storage)
Height above sea level	Max. 2000 m
Relative humidity	Max. 80 %, without condensation
Technical specifications 115/230 V AC	
Supply voltage (available inside the device)	Wall-mounted version: Voltage supply: 27 V DC regulated, Max. current: 250 mA Integrated protection: fuse 250 mA temporised Power: 6 VA
Standards, directives and certifications	
Protection class (according to EN60529)	IP65 (panel-mounted and wall-mounted version) device wired and cable glands tightened screwed tight IP20 (panel-mounted version, inside the cabinet)
Standard and directives 	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Certifications	CE; UL-Recognized for US and Canada (61010-1 + CAN/CSA-C22.2 No.61010-1) 

Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of



Operation and display (common to the various versions)

When mounted in a pipe (compact version) or connected to a flowmeter (remote version) in series with one or two valves, the 8025 batch controller makes it possible to carry out a dosing of one or several quantities of liquids. The unit controls the opening of the valves and measures the quantity of the fluid which flows. The unit also closes the valves when the preset quantity has been delivered.

The electronic component needs a voltage supply of 12...36 V DC or 115/230 V AC.

The device is equipped with 4 digital inputs (DI1 up to DI4), 2 transistor outputs (DO1 configured as a pulse output and DO4 configured as state output, by default), 2 relay outputs (DO2 always configured to control the valve and by default parameterize of 100 % of the batch quantity and DO3 configured as alarm output by default), two volume or mass totalizers and two batch totalizers.

The second relay output can be used to activate another valve, to initiate alarms or to generate warnings.

The following dosing modes are possible:

- Locally started dosing of free quantity:

the user enters the quantity to be filled and starts the dosing from the keypad.

- Locally started dosing of preset quantity:

the user selects a quantity which has been preset and starts the dosing from the keypad.

- Locally started dosing of free/preset quantity

the user enters the quantity to be filled or selects a quantity which has been preset and starts the dosing from the keypad.

- Dosing controlled by a PLC unit

the user selects a quantity which has been preset and starts the dosing using binary inputs.

- Locally/remote selection of preset quantity and dosing controlled by a PLC unit:

the user selects a quantity which has been preset from the keypad or using binary inputs and starts the dosing using binary inputs.

- Automatic dosing controlled by variation of pulse duration:

the quantity of the dosing is directly proportional to the duration of a pulse.

- Remote dosing determined by Teach-In:

Teach-In of the dosing quantity using binary inputs.

- Local dosing determined by Teach-In:

Teach-In of the dosing quantity from the keypads.

The device is calibrated by means of the K-factor which is either entered or determined via the Teach-In functions.

User adjustments, such as measuring range, engineering units, pulse output, etc. are carried out via the device operators interface.

The operation is specified according to five levels:

Indication in operating mode/display	Parameter definition	Test	Information	History
<ul style="list-style-type: none">• Dosing amount• Dosing mode• Main quantity totalizer• Daily quantity totalizer with reset function• Main batch totalizer• Daily batch totalizer with reset function	<ul style="list-style-type: none">• Language• Engineering units• K-factor/Teach-In function• Selection of dosing mode• Over run correction• Alarm• Outputs configuration• Reset both quantity/batch totalizers (main and daily)• Brightness of the display (backlight)	<ul style="list-style-type: none">• Input test• Output test• Frequency test• Warning and fault messages generating• Configuration mode	<ul style="list-style-type: none">• Display of error, alarm and/or warning messages	<ul style="list-style-type: none">• Display of the 10 latest batches

Ordering chart

Specifications	Voltage supply	Sensor version	Electrical connection	Article no.
Batch controller, panel mounted	12...36 V DC	see note	Terminal strip	419536
Batch controller, panel mounted UL-Recognized for US and Canada	12...36 V DC	see note	Terminal strip	564415
Batch controller, wall-mounted	12...36 V DC	see note	3 cable glands	433740
	115/230 V AC	see note	3 cable glands	433741

Note: See the chart below about compatible and recommended interconnection possibilities with Bürkert flowmeters.

Interconnection possibilities with Bürkert flowmeter

Sensor Type	Remote batch controller	
	Panel-mounted	Wall-mounted
8020 Hall version (short or long) - Frequency output with pulse signal (NPN, PNP, Open Collector)	X	X
8020 Hall "Low Power" version (short or long) - Frequency output with pulse signal (NPN, Open Collector)	X	X
8030/8070 Hall version - Frequency output with pulse signal (NPN, PNP, Open Collector)	X	X
8030/8070 Hall "Low Power" version - Frequency output with pulse signal (NPN, Open Collector)	X	X
8030 High temperature - Frequency output with pulse signal (NPN, PNP, Open Collector)	X	X
SE30 Ex	X	X
8031 – Frequency output with pulse signal (NPN)	X	X
8041 – Frequency output with pulse signal (NPN)	X	X ¹⁾
8071 – Frequency output with pulse signal (NPN)	X	X
8077 – Frequency output with pulse signal (NPN)	X	X

X = Compatible or recommended interconnection possibilities

1) except sensor with article no. 419543

Accessories

Specifications	Article no.
Spare part, panel version	
Mounting set (screws, washer, nuts, cable clips)	554807
Seal	419350
Set with 8 FLOW foils	553191
Spare part, wall version	
Power supply board 115/230 V AC + mounting instruction sheet	555722

Insertion Flowmeter with paddle wheel and flow transmitter

8025 Flowmeter
compact version

- Up to PN10, size of measurement pipes: DN06...DN400
- Display for indication of flow rate and volume with two flow totalizers
- Automatic calibration using Teach-In
- All outputs can be checked without the need of actual flow



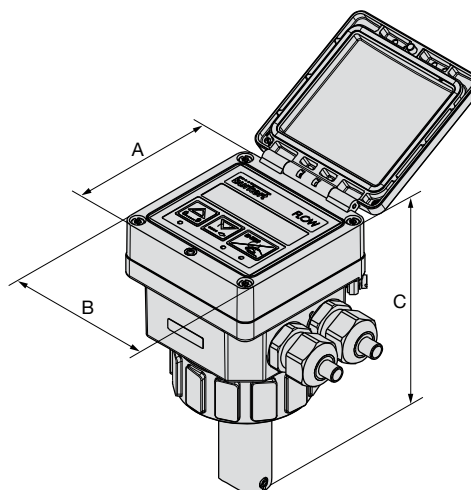
Suitable fitting:
see Type 8020 ►

The 8025 flowmeter is specially designed for measuring the flow rate in neutral, slightly aggressive, solid-free liquids.

Technical data

General Data	
Display	15x60 mm, 8 digit LCD, alphanumeric, 15 segments, 9 mm high
Compatibility	With fittings S020 (see Type S020 ►) or corresponding data sheet Type S020 ►
Materials	
Housing, cover, lid, nut	PC
Front panel foil	Polyester
Screws	Stainless steel
Cable plug or glands	PA
Wetted parts materials	
Fitting	Brass, stainless steel 1.4404/316L, PVC, PP or PVDF
Sensor holder, paddle-wheel	PVDF
Axis and bearing	Ceramics
Seal	FKM (EPDM included, but not mounted)
Electrical connections	Cable plug or cable glands M20 x 1.5 or none (for battery version)
Recommended cable	Cable with maximum operating temperature greater than 80 °C, max. 50 m, shielded, 0.2...1.5 mm ² wires cross-section
External diameter (cable)	5...8 mm (with cable plug), 6...12 mm or 3...5 mm when using a multiway seal (with cable glands)
Cross-section (local earthing wire)	0.75 mm ²
Device data (fitting S020 + flowmeter)	
Pipe diameter	DN20...DN400
Measuring range	0.3...10 m/s
Fluid temperature with fitting in	
PVC	0...+50 °C
PP	0...+80 °C
PVDF, brass or stainless steel	-15...+80 °C ¹⁾
Fluid pressure max.	PN10 (see pressure/temperature diagram)
Viscosity/Pollution	300 cSt. max./1 % max.
Measurement deviation	
Teach-In	±1 % of Reading ²⁾ (at the teach flow rate value)
Standard K-factor	±2.5 % of Reading ²⁾
Linearity	±0.5 % of F.S. ³⁾
Repeatability	±0.4 % of Reading ²⁾

Dimensions [mm]



A	B	C ⁴⁾
88	88	164.50 or 203

4) The length of the sensor armature depends on the nominal size of the fitting used. Data sheet; see **Type S020** ►

Electrical data

Power supply (V+)	
Standard signal version	12...36 V DC ± 10 %, filtered and regulated, safety extra low voltage (SELV) circuit with a non dangerous energy level or 115/230 V AC 50/60 Hz (see technical specifications 115/230 V AC)
Battery indicator/totalizer version	4 x 1.5 V DC non rechargeable alkaline AA batteries, lifetime min. 4 years at 20 °C
Reversed polarity of DC	protected
Current consumption with sensor	Without consumption of pulse output ≤ 70 mA at 12 V DC - flowmeter with relays ≤ 25 mA at 12 V DC - flowmeter without relay

1) with Battery version = 100 °C



2) Under reference conditions i.e. measuring fluid = water, ambient and water temperature = 20 °C, applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions.

3) FS. = Full scale (10 m/s)

Technical data continued

Output	
Standard signal version	
Signal current	4...20 mA (3-wire with relays; 2-wire without relay), sourcing or sinking (wiring dependant), max. loop impedance: 900 Ω at 30 V DC, 600 Ω at 24 V DC, 50 Ω at 12 V DC, 800 Ω with a 115/230 V AC voltage supply
Pulse	Polarized, NPN or PNP (wiring dependant); function: pulse output, adjustable pulse value, 2.5...400 Hz; 5...36 V DC; 100 mA, line drop at 100 mA: 2.5 V DC; Duty cycle: 0.5
Relay	Galvanic insulation and protected against overvoltage, polarity reversals and short circuit 2 relays, hysteresis, adjustable thresholds, normally open, 230 V AC/3 A or 40 V DC/3 A (resistive load)
Battery indicator/totalizer version	None
4...20 mA output uncertainty	± 1 % of range

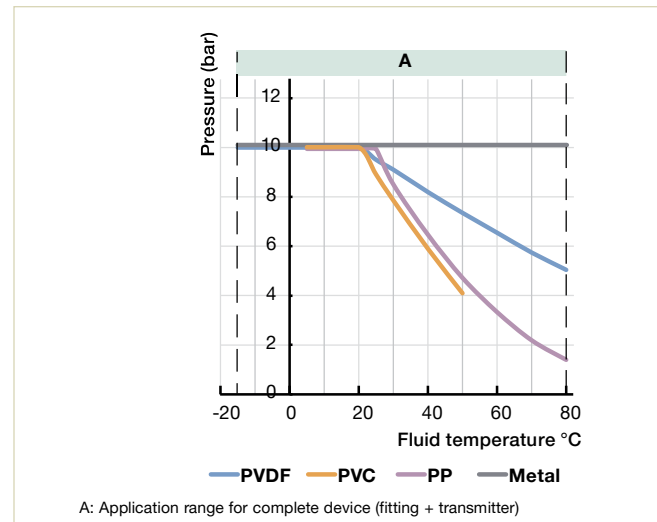
Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

Environment	
Height above sea level	Max. 2000 m
Relative humidity	Max. 80 %, without condensation
Ambient temperature (operation and storage)	-10...+60 °C (version 12...36 V DC) -10...+50 °C (version 115/230 V AC) -10...+55 °C (version batteries)
Technical specifications 115/230 V AC	
Voltage supply available inside the device	27 V DC regulated, max. current: 125 mA Integrated protection: fuse 125 mA temporised Power: 3 VA
Standards, directives and certifications	
Protection class (according to EN60529)	IP65 with cable plug or gland mounted and tightened or with obturator locked if not used
Standard and directives 	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Pressure	Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ¹⁾
Certifications	CE; UL-Recognized for US and Canada (61010-1 + CAN/CSA-C22.2 No.61010-1) 

¹⁾ The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN \leq 25
Fluid group 2, article 4, §1.c.i	DN \leq 32, or PS*DN \leq 1000
Fluid group 1, article 4, §1.c.ii	DN \leq 25 or PS*DN \leq 2000
Fluid group 2, article 4, §1.c.ii	DN \leq 200 or PS \leq 10 or PS*DN \leq 5000

Pressure/Temperature diagram

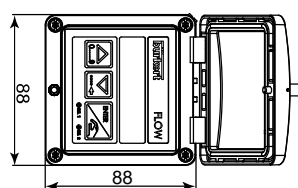
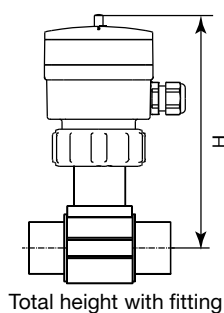
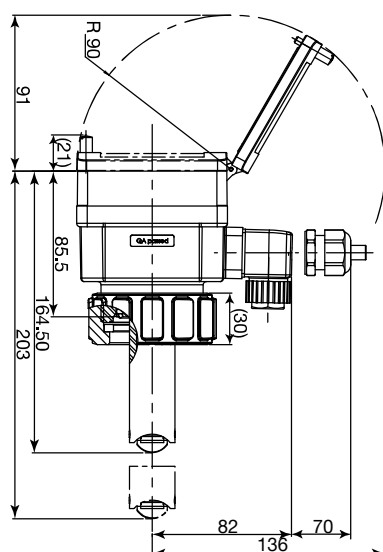


8025 Flowmeter
compact version



Dimensions [mm]

8025 Flowmeter compact version



DN	T-Fitting	H with S020 fitting		
		Saddle	Plastic spigot	Metal spigot
20	185	–	–	–
25	185	–	–	–
32	188	–	–	–
40	192	–	–	–
50	198	223	–	193
65	198	221	206	199
80	–	226	212	204
100	–	231	219	214
110	–	227	–	–
125	–	234	254	225
150	–	244	261	236
180	–	268	–	–
200	–	280	282	257
250	–	–	300	317
300	–	–	312	336
350	–	–	325	348
400	–	–	340	–

Note: The Type 8025 can easily be installed into any Bürkert Insertion fitting system (S020) by just fixing the main nut. The length of the sensor armature depends on the nominal size of the fitting used. Data sheet; see **Type S020** ▶

Ordering chart

Description	Voltage supply	Output	Relay	Sensor version	Electrical connection	Article no.
Compact Flowmeter Type 8025						
Standard output signal flowmeter, 2 totalizers	12...30 V DC	4...20 mA (2-wire) + pulse	none	Hall, short	Cable plug	418762
					2 cable glands	418802
				Hall, long	Cable plug	418763
					2 cable glands	418803
		4...20 mA (3-wire) + pulse	2	Hall, short	2 cable glands	418778
				Hall, long	2 cable glands	418779
	115/230 V AC	4...20 mA (2-wire) + pulse	none	Hall, short	2 cable glands	418423
				Hall, long	2 cable glands	418424
		4...20 mA (3-wire) + pulse	2	Hall, short	2 cable glands	418431
				Hall, long	2 cable glands	418432
Indicator, 2 totalizers	4 × 1.5 V DC AA AA batteries	none	none	Coil, short	none	418403
				Coil, long	none	418405






Note regarding the ordering of a complete flowmeter:

The complete 8025 flowmeter consists of the Type S020 Insertion fitting and the Type 8025 flowmeter

FKM seal in standard; 1 Kit including a black EPDM seal and a green FKM seal is supplied with each flowmeter.









Please enter the appropriate flowmeter according to the table "Compatible and recommended combinations with Bürkert Insertion Fitting" and order the respective Insertion Fitting and the selected flowmeter separately.

Compatible and recommended combinations with Bürkert Insertion Fitting

Available S020 fitting DN		DN20	DN50	DN65	DN100	DN200	DN350	DN400
	T-fitting 	Short sensor						
	Weld-in socket 			Short sensor		Long sensor		
	Fusion spigot 			Short sensor		Long sensor		
	Screw-on S020 					Long sensor		
	Saddle 			Long sensor				

8025 Flowmeter
compact version

Accessories

Description	Article no.
Set with 2 cable glands M20 x 1.5 + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 x 1.5 + 2 multiway seals 2 x 6 mm	449755 
Set with 2 reductions M20 x 1.5 / NPT 1/2 + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 x 1.5	551782 
Set with 1 stopper for unused cable gland M20 x 1.5 + 1 multiway seal 2 x 6 mm for cable gland + 1 black EPDM seal for the sensor + 1 mounting instruction sheet	551775 
Ring	619205 
Union nut	619204 
Set with 1 green FKM and 1 black EPDM seal	552111 
Cable plug EN 175301-803 with cable gland - see Type 2508 ▶ (will be replaced with Type 2518)	438811 
Cable plug EN 175301-803 with NPT 1/2 reduction without cable gland - see Type 2509 ▶	162673 

Transmitter, remote Version

- Only for Bürkert flowmeters in „Low Power“ version
- Displays both flow rate and volume (with two totalizers)
- On site calibration by Teach-In
- Simulation of all output signals

Suitable flow sensor:
see Type 8020 ►, 8030 ►, 8070 ►



The 8025 flow transmitter with display, is available in wall-mounted and panel versions:

The panel version

is made up of an electronics integrated in an open housing with display. The electrical connection is carried out on the terminal blocks of the electronic board.

The wall-mounted version

is made up of an electronics integrated in a housing with cover, display. The electrical connection is carried out on the terminal blocks of the electronic board via 3 cable glands.

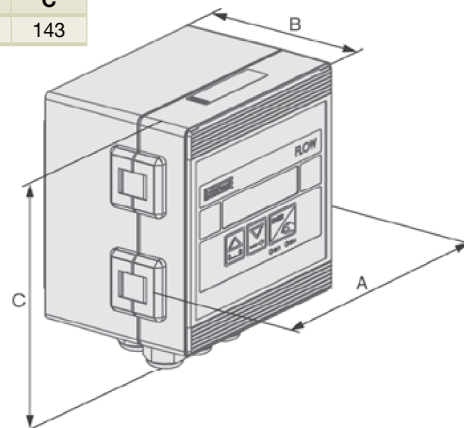
Technical data

General data	
Display	15x60 mm, 8 digit LCD, alphanumeric, 15 segments, 9 mm high
Compatibility	Bürkert flow sensor with frequency output 8020, 8030 or SE30+S077 (pulse "Low Power" version).
Materials	
Housing, cover	PC (panel-mounted version); ABS (wall-mounted version)
Front panel foil	Polyester
Screws	Stainless steel
Cable glands	PA (wall-mounted version)
Cable clips	PA (panel-mounted version)
Electrical connections	Terminals (panel-mounted version) or terminals via cable gland (wall-mounted version)
Recommended cable	Cable with maximum operating temperature greater than 80 °C, max. 50 m, shielded, 0.2...1.5 mm ² wires cross-section, 4...8 mm diameter (for the cable glands of the wall-mounted version)
Electrical data	
Power supply (V+)	
Panel-mounted version	12...36 V DC \pm 10 %, filtered and regulated, safety extra low voltage (SELV) circuit with a non dangerous energy level
Wall-mounted version	12...36 V DC \pm 10 %, filtered and regulated, safety extra low voltage (SELV) circuit with a non dangerous energy level or 15/230 V AC 50/60 Hz (see technical specifications 115/230 V AC)
Reversal polarity of DC	Protected
Current consumption with sensor	Without consumption of pulse output
Version 12...36 V DC	\leq 70 mA (with relays) \leq 25 mA (without relays)

Dimensions [mm]

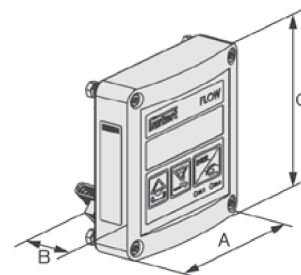
Wall Mount

A	B	C
126	90	143



Panel Mount

A	B	C
88	38	88



Transmitter input (from sensor)


Frequency range	2.5...400 Hz,
Pulse signal (Hall)	pulse "Low Power" (open collector NPN)

Transmitter output (to sensor)

Voltage supply	10...34 V DC (= (V+) - 2 V DC),
Current consumption	max. current available from transmitter: 1 mA

Technical data continued





Outputs	
Pulse (Transistor)	Polarized, potential free, NPN or PNP (wiring dependant), function: pulse output, adjustable pulse value, 2.5...400 Hz, 5...36 V DC; 100 mA, line drop at 100 mA: 2.5 V DC, duty cycle: 0.5 Galvanic insulation and protected against over-voltage, polarity reversals and short circuit
Relay	2 relays, hysteresis, adjustable thresholds, normally open; 230 V AC/3 A or 40 V DC/3 A (resistive load)
Current	4...20 mA (3-wire with relays; 2-wire without relay), sourcing or sinking (wiring dependant) Max. loop impedance: 900 Ω at 30 V DC, 600 Ω at 24 V DC, 50 Ω at 12 V DC, 800 Ω with a 115/230 V AC voltage supply
4...20 mA output uncertainty	± 1 % of range
Environment	
Ambient temperature	-10...+60 °C (operation and storage)
Height above sea level	Max. 2000 m
Relative humidity	Max. 80 %, without condensation

Technical specifications 115/230 V AC	
Supply voltage (available inside the device)	Wall-mounted version: Voltage supply: 27 V DC regulated, Max. current: 250 mA Integrated protection: fuse 250 mA temporised Power: 6 VA
Standards, directives and certifications	
Protection class	IP65 (panel-mounted and wall-mounted version) device wired and cable glands tightened screwed tight IP20 (panel-mounted version, inside the cabinet)
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Certifications	CE; UL-Recognized for US and Canada (61010-1 + CAN/CSA-C22.2 No.61010-1) 

Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.





8025 Transmitter
remote version

Ordering chart

Description	Voltage supply	Output	Relays	Sensor version	Electrical connection	Article no.
Transmitter, panel mounted, 2 totalizers	12...36 V DC	4...20 mA (2 wires) + pulse	None	8020/8030 ¹⁾ /8070 ²⁾	Terminal strip	418992 
		4...20 mA (3 wires) + pulse	2	8020/8030 ¹⁾ /8070 ²⁾	Terminal strip	418994 
Transmitter, wall-mounted, 2 totalizers	12...36 V DC	4...20 mA (2 wires) + pulse	None	8020/8030 ¹⁾ /8070 ²⁾	3 cable glands	418397 
	115/230 V AC	4...20 mA (3-wires) + pulse	None	8020/8030 ¹⁾ /8070 ²⁾	3 cable glands	418400 

1) 8030 = SE30 + S030
2) 8070 = SE30 + S070

Accessories for remote transmitter Type 8025 (has to be ordered separately)

Description	Article no.
Spare part, panel version	
Mounting set (screws, washer, nuts, cable clips)	554807 
Seal	419350 
Set with 8 FLOW foils	553191 
Spare part, wall version	
Power supply board 115/230 V AC + mounting instruction sheet	555722 

Transmitter UNIVERSAL, remote version

8025
Transmitter UNIVERSAL,
remote version

- Displays both flow rate and volume (with two totalizers)
- On site calibration by Teach-In
- Simulation of all output signals

Suitable flow sensor:
see Type 8020 ►, 8030 ►, 8070 ►



The 8025 universal flow transmitter with display, is available in wall-mounted and panel versions:

The panel version

is made up of an electronics integrated in an open housing with display. The electrical connection is carried out on the terminal blocks of the electronic board

The wall-mounted version

is made up of an electronics integrated in a housing with cover, display. The electrical connection is carried out on the terminal blocks of the electronic board via 3 cable glands.

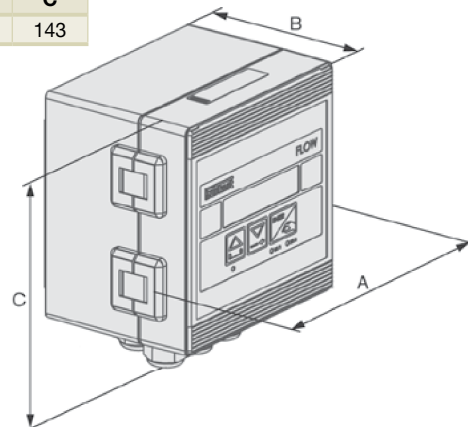
Technical data

General data	
Display	15x60 mm, 8 digit LCD, alphanumeric, 15 segments, 9 mm high
Compatibility	Bürkert flow sensor with frequency output (8020, 8030, 8030HT, 8041, 8031, SE30+S77, 8071) or other sensors with compatible electrical data.
Materials	
Housing, cover	PC (panel-mounted version); ABS (wall-mounted version)
Front panel foil	Polyester
Screws	Stainless steel
Cable glands	PA (wall-mounted version)
Cable clips	PA (panel-mounted version)
Electrical connections	Terminals (panel-mounted version) or terminals via gland (wall-mounted version)
Recommended cable	Cable with maximum operating temperature greater than 80 °C, max. 50 m, shielded, 0.2...1.5 mm ² wires cross-section, 4...8 mm external cable diameter (for the cable glands of the wall-mounted version)
Electrical data	
Power supply (V+)	
Panel- and wall-mounted version	12...36 V DC (max tolerance: -5 % or +10 % at 12 V DC; ±10 % at 36 V DC), filtered and regulated, safety extra low voltage (SELV) circuit with a non dangerous energy level,
Wall-mounted version	115/230 V AC 50/60 Hz (see technical specifications 115/230 V AC)
Reversal polarity of DC	Protected

Dimensions [mm]

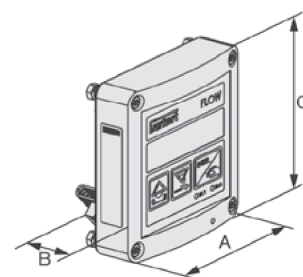
Wall Mount

A	B	C
126	90	143



Panel Mount


A	B	C
88	40.2	88



Current consumption	Without consumption of current output of the flowmeter
with sensor	
Version with relay	≤ 70 mA (at 12 V DC); ≤ 45 mA (at 36 V DC) ≤ 50 mA (115/230 V AC wall-mounted version) ≤ 50 mA (at 12 V DC); ≤ 30 mA (at 36 V DC); ≤ 35 mA (115/230 V AC wall-mounted version)
Version without relays	
Transmitter input (from sensor)	
Frequency range	0.6...2.2 kHz, can be adjusted -
Voltage	Max. 36 V DC
Type of the signal	– Pulse: open collector NPN (with 470 Ω or 2.2 kΩ resistance) or PNP, TTL, CMOS (with 39 kΩ resistance) – Sine-wave, coil (with 39 kΩ resistance – with minimum sensitivity of 50 mV peak to peak)

Technical data continued







Transmitter output (to sensor)	
Voltage supply	<ul style="list-style-type: none"> - With a 12...36 V DC powered transmitter: <ul style="list-style-type: none"> ■ 10.5...34.5 V DC [= (V+) - 1.5 V DC], 140 mA max. ■ 0...23.5 V DC [= (V+) - 12.5 V DC], 80 mA max. non regulated ■ 5 V DC, 30 mA max. - With a 115/230 V AC powered transmitter: <ul style="list-style-type: none"> ■ +27 V DC, 80 mA max. ■ +14.5 V DC [= (V+) - 12.5 V DC] 80 mA max. non regulated ■ 5 V DC, 30 mA max.
Digital outputs	
Transistor (DO1)	Polarized, potential free, NPN or PNP (wiring dependant) Function: pulse output, adjustable pulse value, 0.6...2200 Hz, 5...36 V DC; 100 mA, line drop at 100 mA: 2.7 V DC, Duty cycle: <ul style="list-style-type: none"> • >0.45 if 0.6 < frequency <300 Hz • >0.4 if 300 < frequency <1500 Hz • <0.4 if 1500 < frequency <2200 Hz Galvanic insulation, protected against polarity reversals and short-circuits
Relay (DO2 and DO3)	2 relays, hysteresis, adjustable thresholds, normally open; 230 V AC/3 A or 40 V DC/3 A (resistive load) Max. cutting power of 750 VA (resistive load) Life span of min. 100000 cycles
Current (AO1)	4...20 mA, sourcing or sinking (wiring dependant), 22 mA to indicate a fault (can be activated); Max. loop impedance: 1300 Ω at 36 V DC, 1000 Ω at 30 V DC, 750 Ω at 24 V DC, 300 Ω at 15 V DC, 200 Ω at 12 V DC; 900 Ω with a 115/230 V AC voltage supply
4...20 mA output uncertainty	± 1 % of range

Environment	
Ambient temperature	- 10...+60 °C (operation and storage)
Height above sea level	Max. 2000 m
Relative humidity	Max. 80 %, without condensation
Technical specifications 115/230 V AC	
Supply voltage available inside the device	Wall-mounted version: Voltage supply: 27 V DC regulated, Max. current: 250 mA Integrated protection: fuse 250 mA temporised Power: 6 VA
Standards, directives and certifications	
Protection class (according to EN60529)	IP65 (panel-mounted and wall-mounted version) device wired and cable glands tightened screwed tight IP20 (panel-mounted version, inside the cabinet)
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Certifications	CE; UL-Recognized for US and Canada (61010-1 + CAN/CSA-C22.2 No.61010-1) 





Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

8025
Transmitter UNIVERSAL,
remote version

Ordering chart

Version	Description	Voltage supply	Output	Relay	Electrical Connection	Article no.
Remote Transmitter Type 8025						
Panel mounting	Universal transmitter, 2 totalizers	12...30 V DC	4...20 mA (3-wire) + pulse	None	Terminal strip	419538 
				2	Terminal strip	419537 
Wall mounting	Universal Transmitter, 2 totalizers	12...30 V DC	4...20 mA (3-wire) + pulse	None	3 cable glands	419541 
				2	3 cable glands	419540 
		115/230 V AC	4...20 mA (3-wire) + pulse	None	3 cable glands	419544 
				2	3 cable glands	419543 

Accessories

Description	Article no.
Spare part, panel version	
Mounting set (screws, washer, nuts, cable clips)	554807 
Seal	419350 
Set with 8 FLOW foils	553191 
Spare part, wall version	
Power supply board 115/230 V AC + mounting instruction sheet	555722 

Insertion flowmeter with paddle wheel, ELEMENT design

8026

- Up to PN10, size of measurement pipes: DN20...DN400
- Configurable outputs: one or two transistor output(s) and one or two 4...20 mA analog output(s)
- Removable backlit display/configuration module for indication of flow rate and volume with two flow totalizers
- Automatic calibration using Teach-In, all outputs can be checked without the need of actual flow

Suitable fitting:
see Type S020 ►



The 8026 flowmeter is a compact device, specially designed for measuring the flow rate in solid-free liquids, in a variety of applications (water, waste water monitoring, chemical processing etc.). Type 8026 converts the measured signal, displays different values in different units (if display/configuration module mounted) and computes the output signals, which are provided via one or two M12 fixed connectors. Thanks to 1 or 2 transistor outputs, the flowmeter can be used to switch a solenoid valve, activate an alarm and, thanks to 1 or 2 current outputs, establish one or two control loops.

Technical data

General data

Compatibility Any pipe from DN20¹⁾...DN400 which are fitted out with Bürkert Insertion Fitting S020 (see **Type S020** ► or corresponding data sheet **Type S020** ►)

Materials

Housing	Stainless steel 1.4404, PPS
Cover	PC
Gaskets	EPDM, silicone
Screws	Stainless steel
Fixed connector mounting plate	Stainless steel 1.4404 (316L)
Fixed connector	Brass nickel plated (stainless steel on request)
Display/configuration module	PC
Navigation key	PBT
Nut	PC

Wetted part materials

Sensor finger	PVDF
Seal	FKM standard (EPDM included, but not mounted)
Axis and bearings	Ceramic (Al ₂ O ₃)
Paddle wheel	PVDF

Display/configuration module (accessories) Grey dot matrix 128 × 64 with backlighting

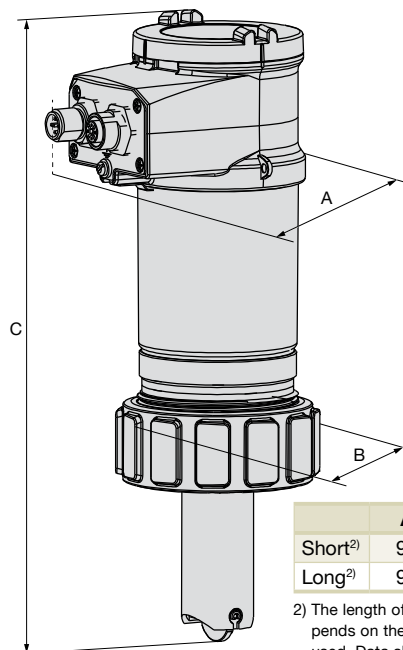
Electrical connections

2 or 3 outputs transmitter	1 × 5 pin M12 male fixed connector
4 outputs transmitter	1 × 5 pin M12 male and 1 × 5 pin M12 female fixed connectors

Connection cable

Shielded cable

Dimensions [mm]



	A	B	C
Short ²⁾	97	76	230
Long ²⁾	97	76	268.5

²⁾ The length of the sensor armature depends on the nominal size of the fitting used. Data sheet; see **Type S020** ►

Options

- PVC, PVDF and PP, Stainless steel and brass fitting
- Various sealing materials
- Individual calibration certificate
- Pre-wired connection ports, M12 plug and cable


¹⁾ Restricted to some fitting process connections

Complete device data (pipe + flowmeter)

Pipe diameter	DN20...DN400
Measuring range	0.3...10 m/s
Fluid temperature with fitting in	
PVC	0...+50 °C
PP	0...+80 °C)
PVDF, brass or stainless steel	-15...+100 °C
Fluid pressure max.	PN10 (see pressure/temperature diagram)
Viscosity / Particles rate	300 cSt max. / 1 % max.

Technical data continued

Measurement deviation	
Teach-In	± 1 % of the Reading (at Teach-In flow rate value) ¹⁾
Standard K-factor	± 2.5 % of the Reading ¹⁾
Linearity	± 0.5 % of F.S. ^{1) 2)}
Repeatability	± 0.4 % of the Reading ¹⁾
Electrical data	
Power supply	
2 or 3 outputs transmitter (2-wire)	14...36 V DC, filtered and regulated
4 outputs transmitter (3-wire)	12...36 V DC, filtered and regulated
Characteristics of the power source (not provided) of UL recognized devices	Limited power source (according to § 9.4 of the UL61010-1 standard) or Class 2 type power source (according to the 1310/1585 and 60950-1 standards)
Reversed polarity of DC	Protected
Current consumption with sensor	≤ 1 A (with transistors load)
2 or 3 outputs transmitter (2-wire)	≤ 25 mA (at 14 V DC without transistors load, with current loop)
4 outputs transmitter (3-wire)	≤ 5 mA (at 12 V DC without transistors load, without current loop)
Power consumption	Max. 40 W
Output	
Transistor	Galvanic insulation and protected against overvoltage, polarity reversals and short circuit
1 Transistor output (Transmitter 2-wire)	NPN, open collector, 1...36 V DC, max. 700 mA
2 Transistor outputs (Transmitter 2 or 3-wire)	Adjustable as sourcing or sinking (respectively both as PNP or NPN), open collector, max. 700 mA, 0.5 A max. per transistor if the 2 transistor outputs are wired
	NPN-output: 1...36 V DC
	PNP-output: power supply
Current	4...20 mA adjustable as sourcing or sinking (in the same mode as transistor),
1 Current output (Transmitter 2-wire)	Max. loop impedance: 1100 Ω at 36 V DC ; 610 Ω at 24 V DC; 180 Ω at 14 V DC
2 Current outputs (Transmitter 3-wire)	Max. loop impedance: 1100 Ω at 36 V DC; 610 Ω at 24 V DC; 100 Ω at 12 V DC
4...20 mA output uncertainty	± 1 % of range

Environment	
Ambient temperature	- 10...+60 °C (operating and storage)
Relative humidity	≤ 85 %, without condensation
Standards, directives and certifications	
Protection class	IP65, IP67 (according to EN60529), NEMA 4X (according to NEMA250) with device wired and M12 cable plug mounted and tightened and cover fully screwed down
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable) Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ³⁾
Pressure	
Certification	CE; UL-Recognized for US and Canada (61010-1 + CAN/CSA-C22.2 No.61010-1) 

1) Under reference conditions i.e. measuring fluid = water, ambient and water temperature = 20 °C, applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions.

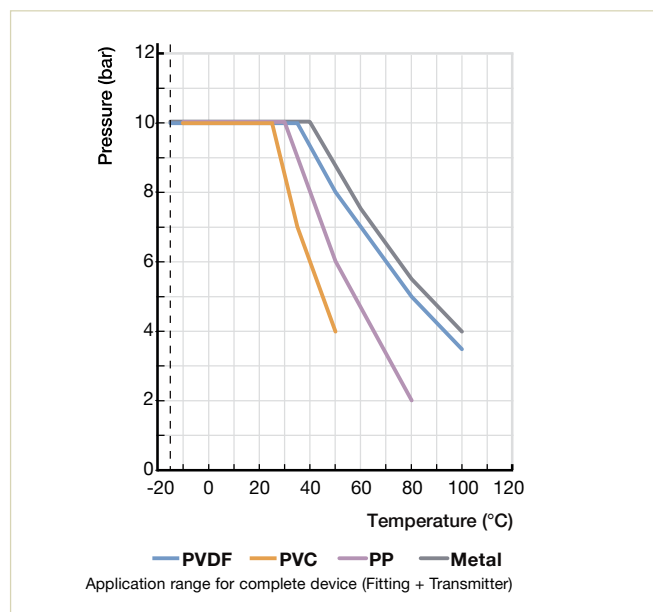
2) F.S. = Full scale (10 m/s)

3) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

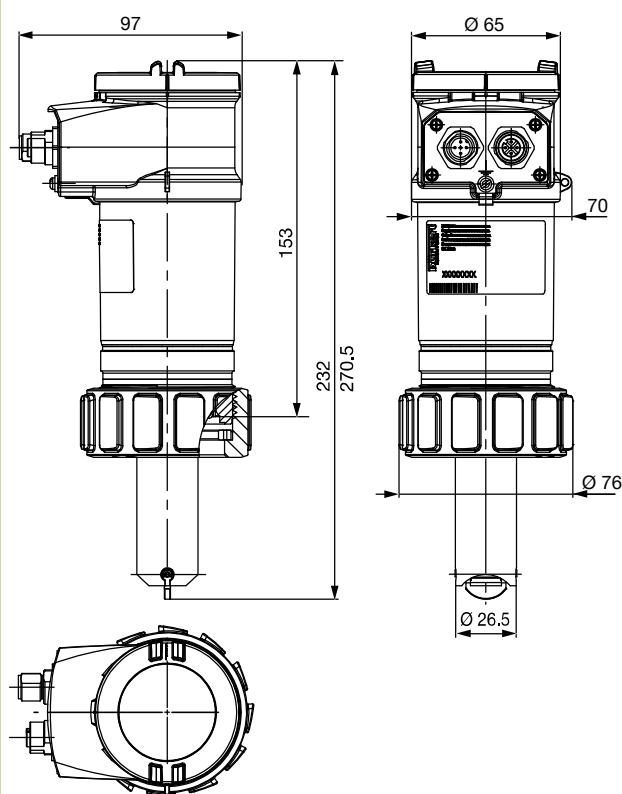
Pressure/Temperature diagram





Dimensions [mm]

8026



DN	H with S020 fitting			
	T-Fitting	Saddle	Plastic spigot	Metal spigot
20	231.5	–	–	–
25	231.5	–	–	–
32	234.5	–	–	–
40	238.5	–	–	–
50	244.5	269.5	–	239.5
65	244.5	267.5	252.5	245.5
80	–	272.5	258.5	250.5
100	–	277.5	265.5	260.5
110	–	273.5	–	–
125	–	280.5	300.5	271.5
150	–	250.5	307.5	282.5
180	–	314.5	–	–
200	–	326.5	328.5	303.5
250	–	–	346.5	363.5
300	–	–	358.5	382.5
350	–	–	371.5	394.5
400	–	–	386.5	–

Note: The Type 8026 can easily be installed into any Bürkert Insertion fitting system (S020) by just fixing the main nut. The length of the sensor armature depends on the nominal size of the fitting used. Data sheet see **Type S020** ▶

Ordering chart

Description	Voltage supply	Output	Sensor version	Electrical connection	UL certification	Article no.	
						without display/ configuration module	with display/ configuration module
2 outputs	14...36 V DC	1 x transistor NPN + 1 x 4...20 mA (2 wires)	Short	5 pin M12 male fixed connector	No	560860	561860
					UL-Recognized	560863	561863
			Long	5 pin M12 male fixed connector	No	560870	561870
					UL-Recognized	560873	561873
3 outputs	14...36 V DC	2 x transistors NPN/PNP + 1 x 4...20 mA (2 wires)	Short	5 pin M12 male fixed connector	No	560861	561861
					UL-Recognized	560864	561864
			Long	5 pin M12 male fixed connector	No	560871	561871
					UL-Recognized	560874	561874
4 outputs	12...36 V DC	2 x transistors NPN/PNP + 2 x 4...20 mA (2 wires)	Short	5 pin M12 male and 5 pin M12 female fixed connectors	No	560862	561862
					UL-Recognized	560865	561865
			Long	5 pin M12 male and 5 pin M12 female fixed connectors	No	560872	561872
					UL-Recognized	560875	561875

Note regarding the ordering of a complete flowmeter:

A complete 8026 flowmeter with integrated paddle wheel sensor consists of a compact 8026 flow ELEMENT flowmeter, a removable display/configuration module and a Bürkert S020 Insertion fitting.






FKM seal in standard; 1 Kit including a black EPDM seal and a green FKM seal is supplied with each flowmeter.

Please enter the appropriate flowmeter according to the table “Compatible and recommended combinations with Bürkert Insertion Fitting” and order the respective Insertion Fitting and the selected flowmeter separately.











Attention!

When you order devices without the display/configuration module, please take care that you also order at least one display/configuration module for the operation. Article no. of the removable display/configuration module (see ordering chart).

Compatible and recommended combinations with Bürkert Insertion Fitting

Available S020 fitting DN		DN20	DN50	DN65	DN100	DN200	DN350	DN400
	T-fitting 	Short sensor						
	Weld-in socket 			Short sensor		Long sensor		
	Fusion spigot 			Short sensor	Long sensor			
	Screw-on S020 				Long sensor			
	Saddle 			Long sensor				

Accessories

Description	Article no.
Removable display/configuration module (with instruction sheet)	559168 
Blind cover with seal (1 screw cover with EPDM seal + 1 quarter turn closing cover with silicone seal)	560948 
Transparent cover with seal (1 screw cover with EPDM seal + 1 quarter turn closing cover with silicone seal)	561843 
Ring	619205 
Nut	619204 
Set with 1 green FKM and 1 black EPDM seal	552111 
5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917116 
5 pin M12 male straight cable plug with plastic threaded locking ring, to be wired	560946 
5 pin M12 female straight cable plug moulded on cable (2 m, shielded)	438680 
5 pin M12 male straight cable plug moulded on cable (2 m, shielded)	559177 

Note: M12 cable plugs must be ordered separately (only female for one 4...20 mA output, 1 male + 1 female for two 4...20 mA outputs flowmeter)

Inline Flowmeter for continuous flow measurement

8030 / SE30

- Economic integration in pipe systems
- 3-wire frequency pulse version to directly interface with PLC's (both PNP and NPN)
- Connection to Bürkert devices in remote versions



Suitable fitting:
see Type S030 ►

The 8030 flowmeter consists of an SE30 transmitter and an S030 sensor-fitting with paddle wheel. Perfect for neutral, solid free liquids. A hall-effect sensor produces a square wave frequency proportional to the flow rate.

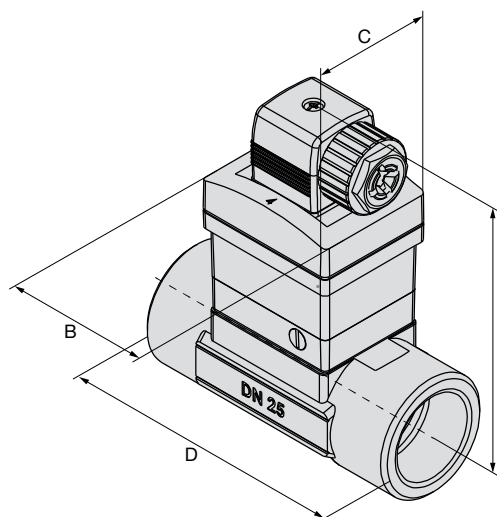
Technical data Standard

General data	
Compatibility	With sensor-fittings S030 (see Type S030 ► or corresponding data sheet Type S030 ►)
Materials	
Housing, cover, male conn.	PC
Cable plug / Seal / Screws	PA / NBR / Stainless steel
Wetted parts materials	
Fitting, sensor armature	Brass, stainless steel 1.4404/316L, PVC, PP, PVDF
Paddle wheel	PVDF
Axis, bearing	Ceramics
Seal	FKM or EPDM (depending on Sensor-Fitting version)
Electrical connection	Cable plug EN 175301-803 (Type 2508 will be replaced with Type 2518 – included in delivery)
Connection cable	Max. 1.5 mm ² cross section; max. 50 m length, shielded
Complete device data (sensor-fitting + transmitter)	
Pipe diameter	DN06...DN65
Measuring range	0.3...10 m/s
Fluid temp. with sensor-fitting in	
PVC / PP	0...+50 °C / 0...+80 °C
Stainless steel, brass, PVDF	-15...+100 °C
Fluid pressure max. (see pressure/temperature diagram)	PN10 (with plastic sensor-fitting) PN16 (with metal sensor-fitting) (PN40 on request. Data sheet; see Type S030 ►)
Viscosity / Pollution	300 cSt. max. / max. 1 % (size of particles 0.5 mm max.)
Measurement deviation	
Teach-In	± 1 % of Reading ¹⁾ (at the teach flow rate value)
Standard K-factor	± 2.5 % of Reading ¹⁾
Linearity	± 0.5 % of F.S. ¹⁾²⁾
Repeatability	± 0.4 % of Reading ¹⁾
Environment	
Ambient temperature	-15...+60 °C (operating and storage)
Relative humidity	≤ 80 %, without condensation

1) Under reference conditions i.e. measuring fluid = water, ambient and water temperature = 20 °C, applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions.

2) F.S. = Full scale (10 m/s)

Dimensions [mm]



DN	A	B	C	D
06	95.5	54	44	³⁾
08	95.5	54	44	³⁾
15	100.5	54	44	³⁾
20	98.0	54	44	³⁾
25	98.0	54	44	³⁾
32	102.0	54	44	³⁾
40	105.5	54	44	³⁾
50	112.0	54	44	³⁾
65	112.0	54	44	³⁾

³⁾ Depend on the sensor-fitting used. See **Type S030** ► or corresponding data sheet **Type S030** ►


Options

- Measuring device SE30 for high temperatures
- AS-i Connection
- Hygienic clamp and ASME weld end connections
- ANSI flange connection
- PVDF and PP sensor-fittings.
- High flow sensor-fittings up to DN350 (see **Type 8020** ►)
- Various sealing materials
- Individual calibration certificate

Technical data continued

Electrical data	
Operating voltage	12...36 V DC filtered and regulated (via Bürkert transmitter the device is connected for "Low Power" version)
Reversed polarity of DC	Protected
Current consumption	With sensor
Hall version	≤ 30 mA
Hall "Low power" version	≤ 0.8 mA
Output: Frequency	
Hall version	2 transistors NPN and PNP, open collector, max. 100 mA, frequency: 0...300 Hz; duty cycle ½ ± 10 % NPN output: 0.2...36 V DC PNP output: supply voltage
Hall "Low Power" version	1 transistor NPN, open collector, max. 10 mA, frequency: 0...300 Hz; duty cycle ½ ± 10 %

Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

Standards, directives and certifications	
Protection class	IP65 with connector plugged-in and tightened
Standard and directives 	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Pressure	Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ¹⁾

1) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Ordering chart

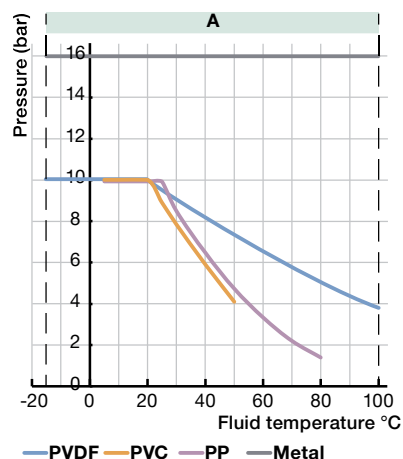
Note regarding the ordering of a complete flowmeter:

A complete 8030 flowmeter with integrated paddle wheel sensor consists of a SE30 transmitter and a Bürkert S030 Inline sensor-fitting, combined by means of a bayonet fitting.

The SE30 transmitter and the S030 sensor-fitting must be ordered separately. Please refer to the corresponding ordering tables in the catalogue;

- ordering chart transmitter, see **Type SE30** ►
- ordering chart sensor-fitting, see **Type S030** ►

Pressure/Temperature diagram



A : Application range for complete device
(Sensor-fitting + Transmitter)

Transmitter for continuous flow measurement

SE30

For use with sensor-fitting

- S030 ▶ with paddle wheel or
- S077 ▶ with oval gears

- Economic integration in pipe systems
- 3-wire frequency version for direct connection to PLC (PNP and NPN)
- Connection to Bürkert evaluators in remote versions



Suitable fitting:
see Type S030 ▶
or Type S077 ▶

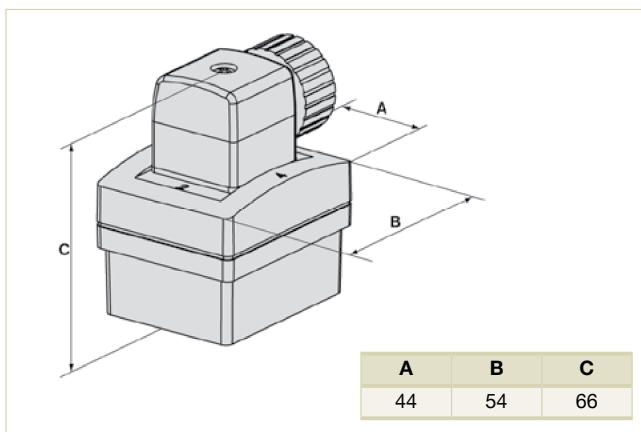
The SE30 electronic module is a flow transmitter. It must be combined with sensor-fitting S030 or S077. It is designed for use with clean, neutral or aggressive liquids (S030) or with highly viscous fluid like glue, honey or oil (S077). A hall effect sensor produces a square wave frequency proportional to the flow rate.

Technical data

General data	
Compatibility	With sensor-fittings S030 (see Type S030 ▶) or corresponding data sheet Type S030 ▶ or S077 (see Type S077 ▶ or corresponding data sheet Type S077 ▶)
Materials	
Housing, cover, male conn.	PC
Cable plug / Seal	PA / NBR
Screws	Stainless steel
Wetted parts materials	
Fitting, sensor armature	Brass, stainless steel 1.4404/316L, PVC, PP, PVDF
Paddle wheel	PVDF
Axis, bearing	Ceramics
Seal	FKM or EPDM (depending on sensor-fitting version)
Electrical connection	Cable plug EN 175301-803 (Type 2508 will be replaced with Type 2518 – included in delivery)
Connection cable	Max. 1.5 mm ² cross section; max. 50 m length, shielded
Electrical data	
Operating voltage	12...36 V DC filtered and regulated (via Bürkert transmitter the device is connected for "Low Power" version)
Reversed polarity of DC	Protected
Current consumption	With sensor
Hall version	≤ 30 mA
Hall "Low power" version	≤ 0.8 mA
Output: Frequency	
Hall version	2 transistors NPN and PNP, open collector, max. 100 mA, frequency: 0...300 Hz; duty cycle ½ ± 10 % NPN output: 0.2...36 V DC PNP output: supply voltage
Hall "Low Power" version	1 transistor NPN, open collector, max. 10 mA, frequency: 0...300 Hz; duty cycle ½ ± 10 %


Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

Dimensions [mm]





Options

- AS-i Connection



Environment	
Ambient temperature	- 15...+60 °C (operating and storage)
Relative humidity	≤ 80 %, without condensation
Standards, directives and certifications	
Protection class	IP65 with connector plugged-in and tightened
Standard and directives 	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)

Ordering chart

Description	Voltage supply	Output	Electrical connection	Article no.
Hall version flowmeter (connectable to Type 8025 universal transmitter, batch controller; 8032; 8619; PLC)	12...36 V DC	Frequency, 2 transistors NPN and PNP	Cable plug EN 175301-803	423913 
Hall "Low Power" version flowmeter (connectable to Types 8025, 8032 transmitter)	from associated transmitter	Frequency, 1 transistor NPN	Cable plug EN 175301-803	423914 

Note: The SE30 transmitter and the S030 or S077 sensor-fitting must be ordered separately. See **Type S030 ▶** or **Type S077 ▶**

Accessories

Specifications	Artikel-Nr.
Cable plug EN 175301-803 with cable gland - see Type 2508 ▶ (will be replaced with Type 2518)	438811 
Cable plug EN 175301-803 with NPT ½ reduction without cable gland - see Type 2509 ▶	162673 

Inline Flowmeter with paddle wheel for monitoring, switching and display

8032 / SE32

- Indication, monitoring, transmitting and On/Off control in one device
- Selectable outputs (transistor or relay)
- Automatic calibration using Teach-In
- Process value output: 4...20 mA
- Flow threshold detector



Suitable fitting:
see Type S030 ▶

The 8032 flowmeter/flow threshold detector consists of a SE32 transmitter and a S030 sensor-fitting. It is used for measuring clean, neutral or aggressive liquids. It is available with freely configurable switching outputs (transistor or relay) or 4...20 mA process output value.

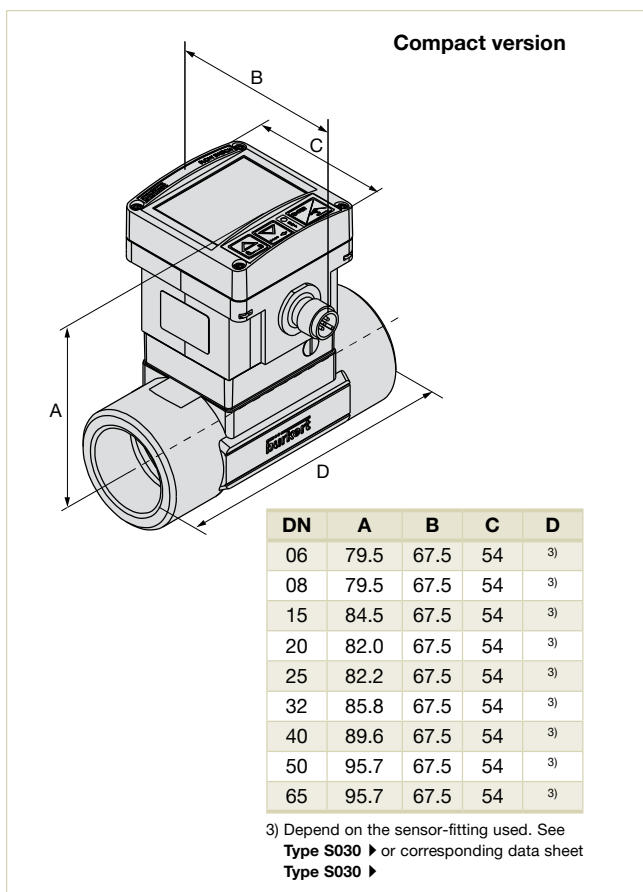
Technical data

General data	
Compatibility	With sensor-fittings S030 (see Type S030 ▶ or corresponding data sheet Type S030 ▶)
Materials	
Housing, cover	PC, glass fibre reinforced
Front panel folio / Screws	Polyester / Stainless steel
Cable plug / Connector M12	PA / PA or CuZn, nickel-plated
Wetted parts materials:	
Sensor-fitting, sensor armature	Brass, stainless steel, PVC, PP or PVDF
Seal	FKM or EPDM (depends on S030 version)
Paddle-wheel	PVDF
Axis, bearings	Ceramics
Display	8-digit LCD with backlighting
Electrical connections	Cable plug acc. to EN 175301-803, free positionable male M12 fixed connector, 5 pins or male M12 connector, 8 pins
Voltage supply cable	Max. 100 m long, shielded
Complete device data (sensor-fitting S030 + transmitter SE32)	
Pipe diameter	DN06...DN65
Measuring range	0.3...10 m/s
Fluid temperature with sensor-fitting in	
PVC / PP	0...+50 °C / 0...+80 °C
Stainless steel, brass, PVDF	-15...+100 °C
Fluid pressure max. (see pressure/temperature diagram)	PN10 (with plastic sensor-fitting) PN16 (with metal sensor-fitting)
Viscosity / Pollution	300 cSt. max. / 1 % max. (particle size 0.5 mm max.)
Measurement deviation	
Teach-In	± 1 % of the Reading ¹⁾ (at the Teach-In flow rate value)
Standard K-factor	± 3 % of the Reading ¹⁾
Operating mode	Threshold: window or hysteresis
Linearity	± 0.5 % of F.S. ¹⁾²⁾
Repeatability	± 0.4 % of the Reading ¹⁾


1) Under reference conditions i.e. measuring fluid = water, ambient and water temperature = 20 °C, while maintaining the minimum inlet and outlet distances and the appropriate internal diameters of the pipes.

2) F.S. = Full scale (10 m/s)

Dimensions [mm]




Options

- AS-i Connection (on request)
 - Hygienic clamp and ASME weld end connections
 - ANSI flange connection
 - PVDF and PP fittings
 - Various sealing materials
 - Individual calibration certificate
 - UL-Recognized for US and Canada 
- (UL61010-1 + CAN/CSA-C22.2 No.61010-1)

Technical data continued

Electrical data	
Operating voltage	12...36 V DC \pm 10 %, filtered and regulated
Reversed polarity of DC	Protected
Current consumption	\leq 80 mA (without load)
Outputs	
Transistor	NPN and/or PNP (configurable), open collector, 700 mA max., 500 mA max. per transistor if both transistor outputs are wired, 0...300 Hz NPN-output: 0.2...36 V DC PNP-output: Power supply Protected against short circuit.
Relay	3 A/250 V AC or 3 A/30 V DC; [3 A/48 V AC or 3 A/30 V DC] ¹⁾
Process value	4...20 mA, galvanic insulation Loop resistance: 1300 Ω at 36 V DC, 1000 Ω at 30 V DC, 700 Ω at 24 V DC, 450 Ω at 18 V DC, 200 Ω at 12 V DC
4...20 mA output uncertainty	\pm 1 % of range

Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

Environment	
Ambient temperature	-10...+60 °C (operating and storage)
Relative humidity	\leq 80 %, without condensation
Standards, directives and certifications	
Protection class	IP65 (according to EN 60529) with device wired and connectors mounted and tightened or sealed
Standards and directives 	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Pressure	Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ²⁾

1) If 4... 20 mA and relay

2) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN \leq 25
Fluid group 2, article 4, §1.c.i	DN \leq 32, or PS*DN \leq 1000
Fluid group 1, article 4, §1.c.ii	DN \leq 25 or PS*DN \leq 2000
Fluid group 2, article 4, §1.c.ii	DN \leq 200 or PS \leq 10 or PS*DN \leq 5000

Ordering chart

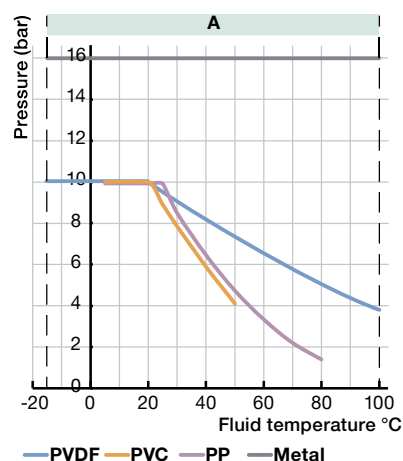
Note regarding the ordering of a complete flowmeter:

A complete 8032 flowmeter with integrated paddle wheel sensor consists of a SE32 transmitter and a Bürkert S030 Inline sensor-fitting, combined by means of a bayonet fitting.

The SE32 transmitter and the S030 sensor-fitting must be ordered separately. Please refer to the corresponding ordering tables in the catalogue:

- ordering chart transmitter, see **Type SE32** ►
- ordering chart sensor-fitting, see **Type S030** ►

Pressure/Temperature diagram



A : Application range for complete device
(Sensor-fitting + Transmitter)



Transmitter/threshold detector for Inline sensor-fitting for flow measurement

SE32

For use with sensor-fitting

- S030 ▶ with paddle wheel or
- S077 ▶ with oval gears

- Monitor, switch and transmit functions
- Large display
- Free configurable switching point

Suitable fitting:
see Type S030 ▶
or Type S077 ▶



The SE32 electronic module is flow transmitter or flow threshold detector with display. It must be combined with sensor-fitting S030 or S077. It is designed for use with clean, neutral or aggressive liquids (with S030) or with highly viscous fluid like glue, honey or oil (with S077). It is available with freely configurable switching outputs (transistor or relay) and/or 4...20 mA process output value.

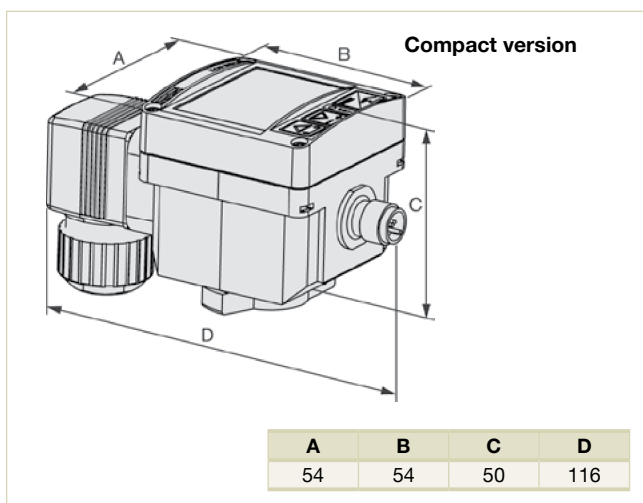
Technical data

General data	
Compatibility	With sensor-fittings S030 (see Type S030 ▶ or corresponding data sheet Type S030 ▶) or S077 (see Type S077 ▶ or corresponding data sheet Type S077 ▶)
Materials	
Housing, cover	PC, glass fibre reinforced
Front panel folio	Polyester
Screws	Stainless steel
Cable plug	PA
Connector M12	PA or CuZn, nickel-plated
Display	8-digit LCD with backlighting
Electrical connections	Cable plug acc. to EN 175301-803, free positionable male M12 fixed connector, 5 pins or male M12 fixed connector, 8 pins
Voltage supply cable	Max. 100 m long, shielded
Electrical Data	
Operating voltage	12...36 V DC $\pm 10\%$, filtered and regulated
Reversed polarity of DC	Protected
Current consumption	≤ 80 mA (without load)
Outputs	
Transistor	NPN and/or PNP (configurable), open collector, 700 mA max., 500 mA max. per transistor if both transistor outputs are wired, 0...300 Hz NPN-output: 0.2...36 V DC PNP-output: Power supply protected against short circuit.
Relay	3 A/250 V AC or 3 A/30 V DC; [3 A/48 V AC or 3 A/30 V DC] ¹⁾
Process value	4...20 mA, galvanic insulation Loop resistance: 1300 Ω at 36 V DC, 1000 Ω at 30 V DC, 700 Ω at 24 V DC, 450 Ω at 18 V DC, 200 Ω at 12 V DC
4...20 mA output uncertainty	$\pm 1\%$ of range


1) If 4... 20 mA and relay

Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

Dimensions [mm]








Options

- AS-i Connection (on request)
- UL-Recognized for US and Canada 
(UL61010-1 + CAN/CSA-C22.2 No.61010-1)







Environment	
Ambient temperature	- 15...+ 60 °C (operating and storage)
Relative humidity	$\leq 80\%$, without condensation
Standards, directives and certifications	
Protection class	IP65 (according to EN 60529) with device wired and connectors mounted and tightened
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)

Ordering charts

Specification	Output	Connection	Article no.
Flow threshold detector	NPN	Cable plug	436474 
	PNP	Cable plug	434871 
	NPN & PNP	Free positionable 5 pin M12 fixed male connector	436473 
	Relay	Cable plug & free positionable 5 pin M12 male fixed connector	436475 
Flow transmitter	4...20 mA + relay	Cable plug & 8 pin M12 male fixed connector	560547 

Note: The SE30 transmitter and the S030 or S077 sensor-fitting must be ordered separately. See **Type S030** ► or **Type S077** ►

Accessories

Connection	Article no.
For NPN/PNP: 5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917116 
For NPN/PNP: 5 pin M12 plug - 5 m, prewired	560365 
For 4...20 mA: 8 pin M12 plug, to be wired	444799 
For 4...20 mA: 8 pin M12 plug - 10 m, prewired	555675 
Cable plug EN 175301-803 with cable gland - see Type 2508 ► (will be replaced with Type 2518)	438811 
Cable plug EN 175301-803 with NPT ½ reduction without cable gland - see Type 2509 ►	162673 

Note: Other cable lengths on request

Digital batch controller Inline

DN06...DN65

- Dosing
- On site calibration by Teach-In
- Check of input/output signals
- Total and daily totalizers for batch quantity and number of batches, volume or mass totalizers displayed



Suitable fitting:
see Type S030 ►

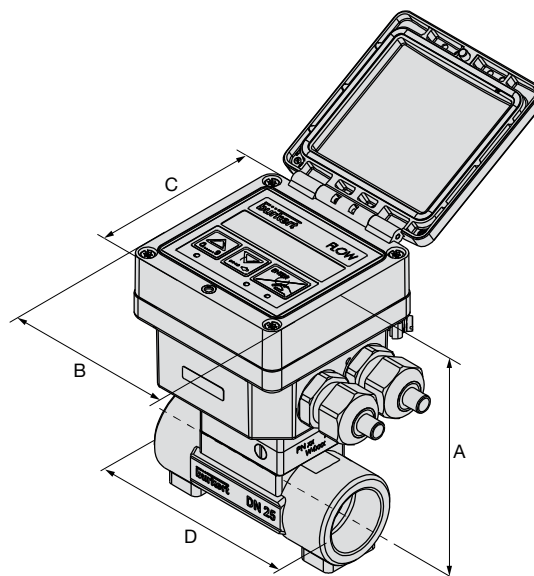
The 8035 batch controller is specially designed for use in neutral, slightly aggressive, solid-free liquids. The batch controller is made up of a compact sensor-fitting with paddle-wheel (S030) and a transmitter (SE35) quickly and easily connected together by a Quarter-Turn.

The Bürkert designed sensor-fitting system ensures simple installation of the sensors into all pipes from DN06...DN65.

Technical data

General data	
Compatibility	With sensor-fittings S030 (see Type S030 ► or corresponding data sheet Type S030 ►)
Materials	
Housing, cover, lid, nut	PC
Front panel foil	Polyester
Screws / Cable glands	Stainless steel / PA
Wetted parts materials	
Sensor-fitting, sensor armature	Brass, stainless, steel 1.4404/316L, PVC, PP or PVDF
Paddle-wheel	PVDF
Axis and bearing	Ceramics
Seal	FKM (EPDM included, but not mounted)
Display	15x60 mm, 8 digit LCD, alphanumeric, 15 segments, 9 mm high
Electrical connections	Cable glands M20x1.5
Recommended cable	Cable with maximum operating temperature greater than 80 °C; max. 50 m, shielded, 0.2...1.5 mm ² wires cross-section, 6...12 mm or 4 mm when using a multiway seal
Device data (sensor-Fitting S030 + transmitter)	
Pipe diameter	DN06...DN65 mm
Measuring range	0.3...10 m/s (Hall transducer version)
Fluid temperature with sensor-fitting in	
PVC / PP	0...+50 °C / 0...+80 °C
PVDF, brass or st. st.	-15...+100 °C
Fluid pressure max. (see pressure/temperature diagram)	PN10 (with plastic sensor-fitting) - PN16 (with metal sensor-fitting) (PN40 on request. Data sheet; see Type S030 ►)
Viscosity / Pollution	300 cSt. max. / 1 % max. (size: max. 0.5 mm)
Measurement deviation	
Teach-In	± 1 % of Reading ¹⁾ (at the teach flow rate value)
Standard K-factor	± 2.5 % of Reading ¹⁾

Dimensions [mm]



DN	A ³⁾	B	C	D
06	113	88	88	⁴⁾
08	113	88	88	⁴⁾
15	118	88	88	⁴⁾
20	116	54	44	⁴⁾
25	116	54	44	⁴⁾
32	119	54	44	⁴⁾
40	123	54	44	⁴⁾
50	130	54	44	⁴⁾
65	130	54	44	⁴⁾

3) The dimension of A is increased by 21 mm when the cover is closed.

4) Depend on the sensor-fitting used.

See **Type S030** ► or corresponding data sheet **Type S030** ►

Linearity	±0.5 % of F.S. ¹²⁾
Repeatability	±0.4 % of Reading ¹⁾

1) Under reference conditions i.e. measuring fluid = water, ambient and water temperature = 20 °C, applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions.

2) F.S. = Full scale (10 m/s)

Technical data (continued)

Electrical data	
Power supply (V+)	12...36 V DC (max tolerance: -5 % or +10 % at 12 V DC; ± 10 % at 36 V DC), filtered and regulated, safety extra low voltage (SELV) circuit with a non dangerous energy level or 115/230 V AC 50/60 Hz (see technical specifications 115/230 V AC)
Reversed polarity of DC	Protected
Current consumption with sensor	Without consumption of digital input and pulse output
Version with relay	≤ 100 mA (at 12 V DC); ≤ 50 mA (at 36 V DC); ≤ 55 mA (115/230 V AC)
Version without relays	≤ 70 mA (at 12 V DC); ≤ 35 mA (at 36 V DC); ≤ 40 mA (115/230 V AC)
Inputs DI (1...4)	Switching threshold V_{on} : 5...36 V DC; Switching threshold V_{off} max: 2 V DC; Input impedance: 9.4 k Ω ; Galvanic insulation, protected against polarity reversals and voltage spike
Outputs	
Transistors (DO1 and DO4)	NPN or PNP (wiring dependent), potential free; function: pulse output (by default for DO1), batch state (by default for DO4), configurable and parameterizable 0.6...2200 Hz, 5...36 V DC, 100 mA max., line drop 2.7 V DC at 100 mA Duty cycle: ■ > 0.45 if $0.6 < \text{frequency} < 300$ Hz ■ > 0.4 if $300 < \text{frequency} < 1500$ Hz ■ < 0.4 if $1500 < \text{frequency} < 2200$ Hz Galvanic insulation, protected against overvoltage, polarity reversals and short-circuits
Relays (DO2 and DO3)	2 relays (normally open), parameterizable (by default: DO2 always configured to control the valve, parameterized of 100 % of the batch quantity and DO3 configured as alarm), 230 V AC/3 A or 40 V DC/3 A (resistive load), max. cutting power of 750 VA (resistive load)

Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

Technical specifications 115/230 V AC	
Voltage supply available inside the device	27 V DC regulated Max. current: 125 mA Integrated protection: fuse 125 mA temporised Power: 3 VA
Environment	
Ambient temperature (operation and storage)	-10...+60 °C (version 12...36 V DC) -10...+50 °C (version 115/230 V AC)
Height above sea level	Max. 2000 m
Relative humidity	≤ 80 %, without condensation


Ordering chart

Note regarding the ordering of a complete flowmeter:

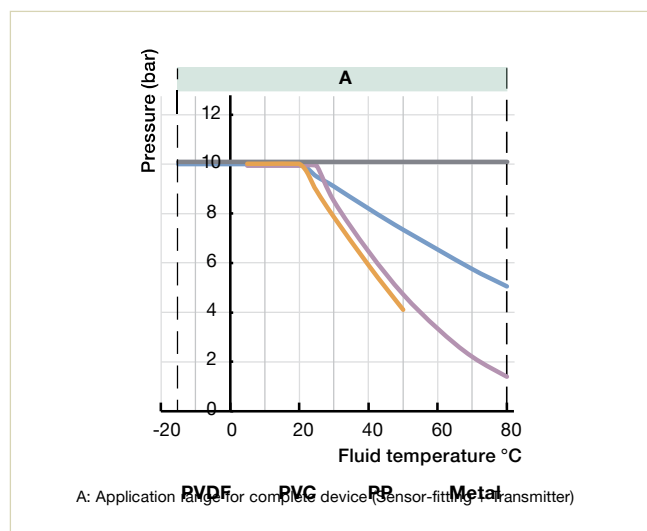
A complete 8035 batch controller with integrated paddle wheel sensor consists of a SE35 batch controller and a Bürkert S030 Inline sensor-fitting, combined by means of a bayonet fitting.

The SE35 batch controller and the S030 sensor-fitting must be ordered separately. Please refer to the corresponding ordering tables in the catalogue;

- ordering chart batch controller, see **Type SE35** ►
- ordering chart sensor-fitting, see **Type S030** ►

Standards, directives and certifications	
Protection class (according to EN60529)	IP65 with device wired, cover and lid screwed tight and cable plug or glands mounted and tightened or with blind plug if not used.
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable) Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ¹⁾
Certifications	CE; UL-Recognized for US and Canada (61010-1 + CAN/CSA-C22.2 No.61010-1) 
1) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).	
Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32 , or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Pressure/Temperature diagram



Digital batch controller Inline

For use with sensor-fitting

- S030 ▶ with paddle wheel or
- S077 ▶ with oval gears

- Dosing
- On site calibration by Teach-In
- Check of input/output signals
- Total and daily totalizers for batch quantity and number of batches, volume or mass totalizers displayed



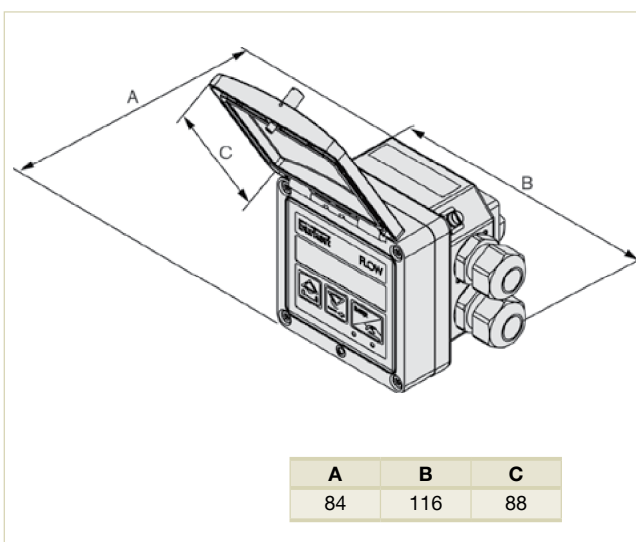
Suitable fitting:
see Type S030 ▶
or Type S077 ▶

The SE35 electronic module is a batch controller. It must be combined with sensor-fitting S030 or S077. It is designed for use with clean, neutral or aggressive liquids (S030) or with highly viscous fluid like glue, honey or oil (S077). A hall effect sensor produces a square wave frequency proportional to the flow rate.

Technical data

General data	
Compatibility	With sensor-fittings S030 (see Type S030 ▶) or corresponding data sheet Type S030 ▶) or S077 (see Type S077 ▶) or corresponding data sheet Type S077 ▶)
Materials	
Housing, cover, lid, nut	PC
Front panel foil	Polyester
Screws	Stainless steel
Cable glands	PA
Display	15x60 mm, 8 digit LCD, alphanumeric, 15 segments, 9 mm high
Electrical connections	Cable glands M20 x 1.5
Recommended cable	Cable with maximum operating temperature greater than 80 °C; max. 50 m, shielded, 0.2...1.5 mm ² wires cross-section, 6...12 mm or 4 mm when using a multiway seal
Electrical data	
Power supply (V+)	12...36 V DC (max tolerance: -5 % or +10 % at 12 V DC; ±10 % at 36 V DC), filtered and regulated, safety extra low voltage (SELV) circuit with a non dangerous energy level or 115/230 V AC 50/60 Hz (see technical specifications 115/230 V AC)
Reversed polarity of DC	Protected
Current consumption with sensor	Without consumption of digital input and pulse output
Version with relay	≤ 100 mA (at 12 V DC); ≤ 50 mA (at 36 V DC); ≤ 55 mA (115/230 V AC)
Version without relays	≤ 70 mA (at 12 V DC); ≤ 35 mA (at 36 V DC); ≤ 40 mA (115/230 V AC)
Inputs DI (1...4)	Switching threshold V_{on} : 5...36 V DC; Switching threshold V_{off} max: 2 V DC; Input impedance: 9.4 kΩ; Galvanic insulation, protected against polarity reversals and voltage spike

Dimensions [mm]



Options


- UL-Recognized for US and Canada 
(UL61010-1 + CAN/CSA-C22.2 No.61010-1)

Technical data (continued)

Outputs

Transistors (DO1 and DO4)	<p>NPN or PNP (wiring dependent), potential free; function: pulse output (by default for DO1), batch state (by default for DO4), configurable and parameterizable 0.6...2200 Hz, 5...36 V DC, 100 mA max., line drop 2.7 V DC at 100 mA Duty cycle: ■ > 0.45 if 0.6 < frequency < 300 Hz ■ > 0.4 if 300 < frequency < 1500 Hz ■ < 0.4 if 1500 < frequency < 2200 Hz Galvanic insulation, protected against overvolt- age, polarity reversals and short-circuits</p>
Relays (DO2 and DO3)	<p>2 relays (normally open), parameterizable (by default: DO2 always configured to control the valve, parameterized of 100 % of the batch quantity and DO3 configured as alarm), 230 V AC/3 A or 40 V DC/3 A (resistive load), max. cutting power of 750 VA (resistive load)</p>

Note: If the device is mounted in a humid environment or outside,
then the maximum voltage allowed is **35 V DC** instead of
36 V DC.

Technical specifications 115/230 V AC	
Voltage supply available inside the device	<p>27 V DC regulated Max. current: 125 mA Integrated protection: fuse 125 mA temporised Power: 3 VA</p>
Environment	
Ambient temperature (operation and storage)	<p>-10...+60 °C (version 12...36 V DC) -10...+50 °C (version 115/230 V AC)</p>
Height above sea level	Max. 2000 m
Relative humidity	≤ 80 %, without condensation
Standards, directives and certifications	
Protection class (according to EN60529)	IP65 with device wired, cover and lid screwed tight and cable plug or glands mounted and tightened or with blind plug if not used.
Standard and directives CE	The applied standards, which verify conform- ity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Certifications	<p>CE; UL-Recognized for US and Canada (61010-1 + CAN/CSA-C22.2 No.61010-1)</p> 



Operation and display

When the device (electronic module + sensor-fitting) is mounted in a pipe in series with one or two valves, the SE35 batch controller makes it possible to carry out a dosing of one or several quantities of liquids. The unit controls the opening of the valves and measures the quantity of the fluid which flows. The unit also closes the valves when the preset quantity has been delivered.

The electronic component needs a voltage supply of 12...36 V DC or 115/230 V AC.

The device is equipped with 4 digital inputs (DI1 up to DI4), 2 transistor outputs (DO1 configured as a pulse output and DO4 configured as state output, by default), 2 relay outputs (DO2 always configured to control the valve and by default parameterize of 100 % of the batch quantity and DO3 configured as alarm output by default), two volume or mass totalizers and two batch totalizers.

The second relay output can be used to activate another valve, to initiate alarms or to generate warnings.

The following dosing modes are possible:

- Locally started dosing of free quantity:

the user enters the quantity to be filled and starts the dosing from the keypad.

- Locally started dosing of preset quantity:

the user selects a quantity which has been preset and starts the dosing from the keypad.

- Locally started dosing of free/preset quantity

the user enters the q uantity to be filled or selects a quantity which has been preset and starts the dosing from the keypad.

- Dosing controlled by a PLC unit

the user selects a quantity which has been preset and starts the dosing using binary inputs.

- Locally/remote selection of preset quantity and dosing controlled by a PLC unit:

the user selects a quantity which has been preset from the keypad or using binary inputs and starts the dosing using binary inputs.

- Automatic dosing controlled by variation of pulse duration:

the quantity of the dosing is directly proportional to the duration of a pulse.

- Remote dosing determined by Teach-In:

Teach-In of the dosing quantity using binary inputs.

- Local dosing determined by Teach-In:

Teach-In of the dosing quantity from the keypads.



The device is calibrated by means of the K-factor which is either entered or determined via the Teach-In functions.

User adjustments, such as measuring range, engineering units, pulse output, etc. are carried out via the device operators interface.

The operation is specified according to five levels:




Indication in operating mode/display	Parameter definition	Test	Information	History
<ul style="list-style-type: none"> Dosing amount Dosing mode Main quantity totalizer Daily quantity totalizer with reset function Main batch totalizer Daily batch totalizer with reset function 	<ul style="list-style-type: none"> Language Engineering units K-factor/Teach-In function Selection of dosing mode Over run correction Alarm Outputs configuration Reset both quantity/batch totalizers (main and daily) Brightness of the display (backlight) 	<ul style="list-style-type: none"> Input test Output test Frequency test Warning and fault messages generating Configuration mode 	<ul style="list-style-type: none"> Display of error, alarm and/or warning messages 	<ul style="list-style-type: none"> Display of the 10 latest batches

Ordering chart

Description	Voltage supply	Relay	Sensor version	Electrical connection	Article no.
Electronic module Type SE35 for batch controller					
Batch controller, compact version	12...30 V DC	2	Hall	2 Cable glands	443360 
	115/230 V AC	2	Hall	2 Cable glands	423926 

Note: The SE35 batch controller and the S030 or S077 sensor-fitting must be ordered separately. See **Type S030** ► or **Type S077** ►

Accessories

Description	Article no.
Set with 2 cable glands M20 × 1.5 + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 × 1.5 + 2 multiway seals 2 × 6 mm	449755 
Set with 2 reductions M20 × 1.5 /NPT ½ + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 × 1.5	551782 
Set with 1 stopper for unused cable gland M20 × 1.5 + 1 multiway seal 2 × 6 mm for cable gland + 1 black EPDM seal for the sensor + 1 mounting instruction sheet	551775 



Inline flowmeter with paddle wheel for continuous flow measurement

8035 / SE35
Flowmeter

- Up to PN16, size of measurement pipes: DN06 to DN65
- Display both flow rate and volume (with two totalizers)
- Automatic calibration using Teach-In
- Simulation: all outputs signals



Suitable fitting:
see Type S030 ►

The flowmeter is specially designed for measuring the flow rate in neutral, slightly aggressive, solid free liquids. The 8035 flowmeter consists of an SE35 transmitter and an S030 sensor-fitting with paddle wheel. It is available as a flowmeter with standard output signal or as a battery powered indicator without output.

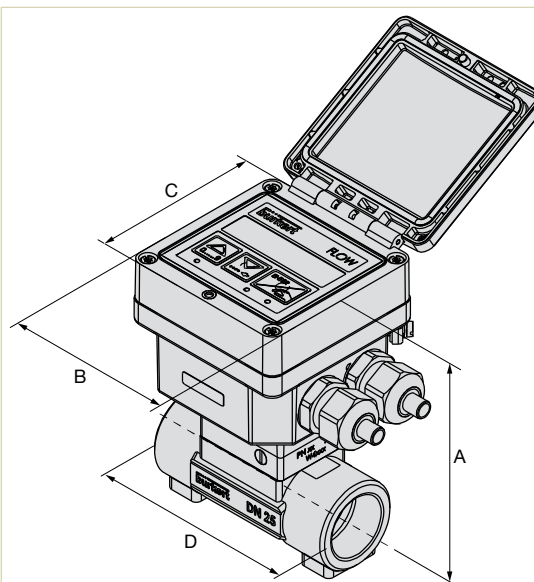
Technical data

General data	
Compatibility	With sensor-fittings S030 (see Type S030 ► or corresponding data sheet Type S030 ►)
Materials	
Housing, cover, lid, nut	PC
Front panel foil / Screws	Polyester / Stainless steel
Cable plug or glands	PA
Wetted parts materials:	
Sensor-fitting, armature	Brass, stainless steel, PVC, PP or PVDF
Seal / Paddle-wheel	FKM (EPDM included but non-mounted) / PVDF
Axis, bearings	Ceramics
Display	15x60 mm, 8-digit LCD, alphanumeric, 15 segments, 9 mm high
Electrical connections	Cable plug acc. to EN 175301-803 or cable glands M20 x 1.5 or none (for battery version)
Recommended cable	Cable with maximum operating temperature greater than 80 °C, max. 50 m, shielded, 0.2...1.5 mm ² wires cross-section
External diameter (cable)	5...8 mm (with cable plug), 6...12 mm or 3...5 mm when using a multiway seal (with cable glands)
Cross-section (local earthing wire)	0.75 mm ²
Complete device data (sensor-fitting S030 + transmitter SE35)	
Pipe diameter	DN06...DN65
Measuring range	0.3...10 m/s
Fluid temperature	0...+50 °C (with PVC sensor-fitting); 0...+80 °C (with PP sensor-fitting); -15...+100 °C (with stainless steel, brass or PVDF sensor-fitting)
Fluid pressure max.	PN10 (145.1 PSI) (with plastic sensor-fitting) PN16 (232.16 PSI) (with metal sensor-fitting) (PN40 on request. Data sheet; see Type S030 ►)
Viscosity / Pollution	300 cSt. max. / 1 % max. (particle size 0.5 mm max.)
Measurement deviation	
Teach-In	± 1 % of the Reading ¹⁾ (at the Teach-In flow rate value)
Standard K-factor	± 2.5 % of the Reading ¹⁾
Linearity	± 0.5 % of F.S. ¹⁾²⁾
Repeatability¹⁾	± 0.4 % of the Reading ²⁾

1) Under reference conditions i.e. measuring fluid = water, ambient and water temperature = 20 °C, applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions.

2) F.S. = Full scale (10 m/s)

Dimensions [mm]




DN	A ³⁾	B	C	D
06	113	88	88	⁴⁾
08	113	88	88	⁴⁾
15	118	88	88	⁴⁾
20	116	54	44	⁴⁾
25	116	54	44	⁴⁾
32	119	54	44	⁴⁾
40	123	54	44	⁴⁾
50	130	54	44	⁴⁾
65	130	54	44	⁴⁾

3) The dimension of A is increased by 21 mm when the cover is closed.

4) Depend on the sensor-fitting used.

See **Type S030** ► or corresponding data sheet **Type S030** ►

Options

- Electrical connection acc. to EN 75301-803 Type 2508 (article no. 438811) or Type 2509 (article no. 162673)
- High flow rates up to DN350 (see **Type 8025** ►)
- Various seal materials
- Special calibration certificate
- UL-Recognized for US and Canada  (UL61010-1 + CAN/CSA-C22.2 No. 61010-1)

Technical data continued

Electrical Data	
Power supply (V+)	
Standard signal version	12...36 V DC $\pm 10\%$, filtered and regulated, extra low safety voltage (SELV) circuit with a non dangerous energy level or 115/230 V AC 50/60 Hz (see tech. spec. 115/230 V AC)
Battery indicator/totalizer version	4 x 1.5 V DC non-rechargeable alkaline AA-batteries, lifetime min. 4 years at 20 °C
Reversed polarity of DC	protected
Current consumption with sensor (without consumption of pulse output)	≤ 70 mA at 12 V DC - transmitter with relays ≤ 25 mA at 12 V DC - transmitter without relay
Outputs	
Standard signal version	
Pulse (potential free transistor)	Polarized, NPN or PNP (wiring dependant); Function: pulse output, adjustable pulse value, 2.5...400 Hz; 5...36 V DC; 100 mA, line drop at 100 mA: 2.5 V DC; duty cycle: 0.5 Galvanic insulation and protected against overvoltage, polarity reversals and short circuit 2 relays, hysteresis, adjustable thresholds, normally open, 230 V AC/3 A or 40 V DC/3 A (resistive load)
Relay	
Current	4...20 mA (3-wire with relays; 2-wire without relay), sourcing or sinking (wiring dependant), Max. loop impedance: 900 Ω at 30 V DC, 600 Ω at 24 V DC, 50 Ω at 12 V DC, 800 Ω with a 115/230 V AC voltage supply
Response time (10 %...90 %)	6 sec. (default)
Battery indicator version	None
4...20 mA output uncertainty	$\pm 1\%$ of range

Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

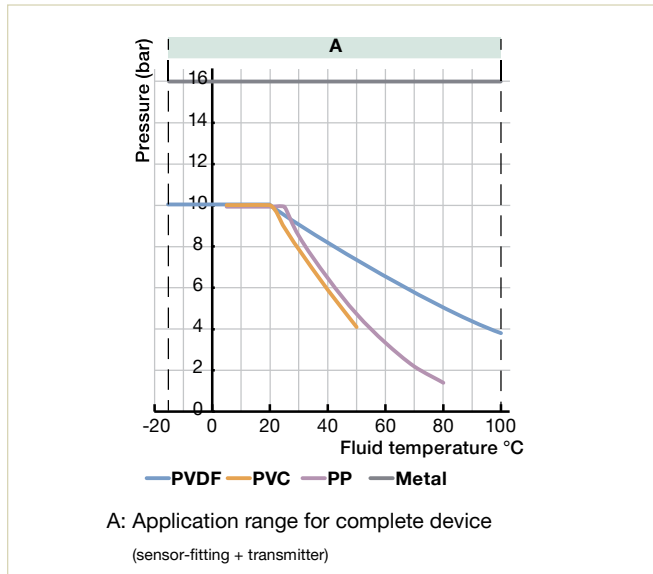
Environment	
Height above sea level	Max. 2000 m
Ambient temperature (operation and storage)	- 10...+60 °C (12...36 V DC version) - 10...+50 °C (115/230 V AC version) - 10...+55 °C (batteries version)
Relative humidity	$\leq 80\%$, without condensation
Technical specifications 115/230 V AC	
Voltage supply (available inside the device)	27 V DC regulated, Max. current: 125 mA Integrated protection: fuse 125 mA temporised, Power: 3 VA

Standard, directives and certifications	
Protection class (according to EN60529)	IP65 with device wired, cover and lid screwed tight and cable plug or glands mounted and tightened or with blind plug if not used.
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable) Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ¹⁾
Pressure	
Certifications	CE; UL-Recognized for US and Canada (61010-1 + CAN/CSA-C22.2 No.61010-1)

1) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32 , or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Pressure/Temperature diagram



Ordering chart

Note regarding the ordering of a complete flowmeter:

A complete 8035 flowmeter with integrated paddle wheel sensor consists of a SE35 transmitter and a Bürkert S030 Inline sensor-fitting, combined by means of a bayonet fitting.

The SE35 transmitter and the S030 sensor-fitting must be ordered separately. Please refer to the corresponding ordering tables in the catalogue:

- ordering chart transmitter, see **Type SE35** ▶
- ordering chart sensor-fitting, see **Type S030** ▶

Transmitter for continuous flow measurement

For use with sensor-fitting

- **S030** ▶ with paddle wheel or
- **S077** ▶ with oval gears

- Display both flow rate and volume (with two totalizers)
- Automatic calibration using Teach-In
- Simulation: all outputs signals



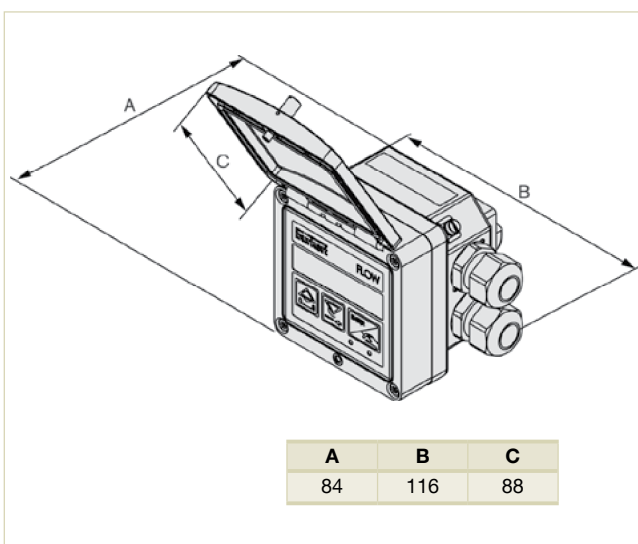
Suitable fitting:
see Type S030 ▶
or Type S077 ▶

The SE35 electronic module is a flow transmitter or an indicator with display. It must be combined with sensor-fitting S030 or S077. It is designed for use with neutral, slightly aggressive, solid free liquids (with S030) or with highly viscous fluid like glue, honey or oil (with S077). It is available as a flowmeter with standard output signal or as a battery powered indicator without output.

Technical data

General data	
Compatibility	With sensor-fittings S030 (see Type S030 ▶) or corresponding data sheet Typ S030 ▶) or S077 (see Type S077 ▶) or corresponding data sheet Typ S077 ▶)
Materials	
Housing, cover, lid, nut	PC
Front panel foil / Screws	Polyester / Stainless steel
Cable plug or glands	PA
Display	15 x 60 mm, 8-digit LCD, alphanumeric, 15 segments, 9 mm high
Electrical connections	Cable plug acc. to EN 175301-803 or cable glands M20 x 1.5 or none (for battery version)
Recommended cable	Cable with maximum operating temperature greater than 80 °C, max. 50 m, shielded, 0.2...1.5 mm ² wires cross-section
External diameter (cable)	5...8 mm (with cable plug), 6...12 mm or 3...5 mm when using a multiway seal (with cable glands)
Cross-section (local earthing wire)	0.75 mm ²
Electrical Data	
Power supply (V+)	
Standard signal version	12...36 V DC ± 10 %, filtered and regulated, extra low safety voltage (SELV) circuit with a non dangerous energy level or 115/230 V AC 50/60 Hz (see tech. spec. 115/230 V AC)
Battery indicator/totalizer version	4 x 1.5 V DC non-rechargeable alkaline AA-batteries, lifetime min. 4 years at 20 °C
Reversed polarity of DC	protected
Current consumption with sensor (without consumption of pulse output)	≤ 70 mA at 12 V DC - transmitter with relays ≤ 25 mA at 12 V DC - transmitter without relay

Dimension [mm]




Outputs

Standard signal version	
Pulse (potential free transistor)	Polarized, NPN or PNP (wiring dependant); Function: pulse output, adjustable pulse value, 2.5...400 Hz; 5...36 V DC; 100 mA, line drop at 100 mA: 2.5 V DC; duty cycle: 0.5
Relay	Galvanic insulation and protected against over-voltage, polarity reversals and short circuit 2 relays, hysteresis, adjustable thresholds, normally open, 230 V AC/3 A or 40 V DC/3 A (resistive load)
Current	4...20 mA (3-wire with relays; 2-wire without relay), sourcing or sinking (wiring dependant), Max. loop impedance: 900 Ω at 30 V DC, 600 Ω at 24 V DC, 50 Ω at 12 V DC, 800 Ω with a 115/230 V AC voltage supply
Response time (10 %...90 %)	6 sec. (default)
Battery indicator version	None
4...20 mA output uncertainty	± 1 % of range


Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

Technical data continued

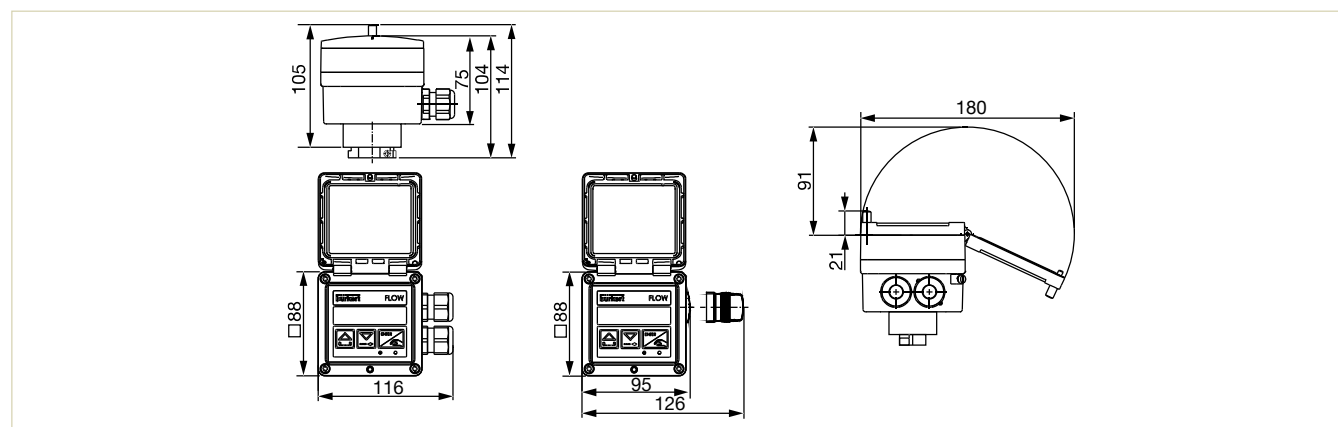
Environment	
Height above sea level	Max. 2000 m
Ambient temperature (operation and storage)	-10...+60 °C (12...36 V DC version) -10...+50 °C (115/230 V AC version) -10...+55 °C (batteries version)
Relative humidity	≤80 %, without condensation
Technical specifications 115/230 V AC	
Voltage supply (available inside the device)	27 V DC regulated, Max. current: 125 mA Integrated protection: fuse 125 mA temporised, Power: 3 VA

Standard, directives and certifications	
Protection class (according to EN60529)	IP65 with device wired, cover and lid screwed tight and cable plug or glands mounted and tightened or with blind plug if not used.
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Certifications	CE; UL-Recognized for US and Canada (61010-1 + CAN/CSA-C22.2 No.61010-1) 







Options

- Electrical connection acc. to EN 75301-803 Type 2508
(Article no. 438 811) or Type 2509 (Article no. 162 673)
- High flow rates up to DN350 (see **Type 8025** ►)
- UL-Recognized for US and Canada 
(UL61010-1 + CAN/CSA-C22.2 No. 61010-1)

Dimensions [mm]







Ordering chart

Supply voltage	Outputs	Electrical connection	Article no.
12...36 V DC	4...20 mA (2-wire) + Pulse	Cable plug	444005 
		2 cable glands	444006 
	4...20 mA (3-wire) + Pulse + Relays	2 cable glands	444007 
115/230 V AC	4...20 mA (2-wire) + Pulse	2 cable glands	423922 
	4...20 mA (3-wire) + Pulse + Relays	2 cable glands	423924 
4 × 1.5 V DC AA-Batteries	–	None	423921 

Note: The SE35 transmitter and the S030 or S077 sensor-fitting must be ordered separately. See **Type S030** ► or **Type S077** ►

Accessories

Specifications	Article no.
Set with 2 cable glands M20 × 1.5 + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 × 1.5 + 2 multiway seals 2 × 6 mm	449755 
Set with 1 stopper for unused cable gland M20 × 1.5 + 1 multiway seal 2 × 6 mm for cable gland + 1 black EPDM seal for the sensor + 1 mounting instruction sheet	551775 
Cable plug EN 175301-803 with cable gland - see Type 2508 ► (will be replaced with Type 2518)	438811 
Cable plug EN 175301-803 with NPT ½ reduction without cable gland - see Type 2509 ►	162673 

Inline flowmeter with paddle wheel, ELEMENT design

8036 / SE36

- Size of measurement pipes: DN06...DN65
- Configurable outputs: one or two transistor output(s) and single or dual 4...20 mA analog output(s)
- Removable backlit display/configuration module for indication of flow rate and volume with two flow totalizers
- Automatic calibration using Teach-In, all outputs can be checked without the need of actual flow



Suitable fitting:
see Type S030 ►

The Bürkert flowmeter Type 8036 is a compact device, specially designed for measuring the flow rate in solid-free liquids, in a variety of applications (water, waste water monitoring, chemical processing etc.). The 8036 flowmeter consists of an SE36 transmitter and an S030 sensor-fitting with paddle wheel.

The device Type 8036 is available with:

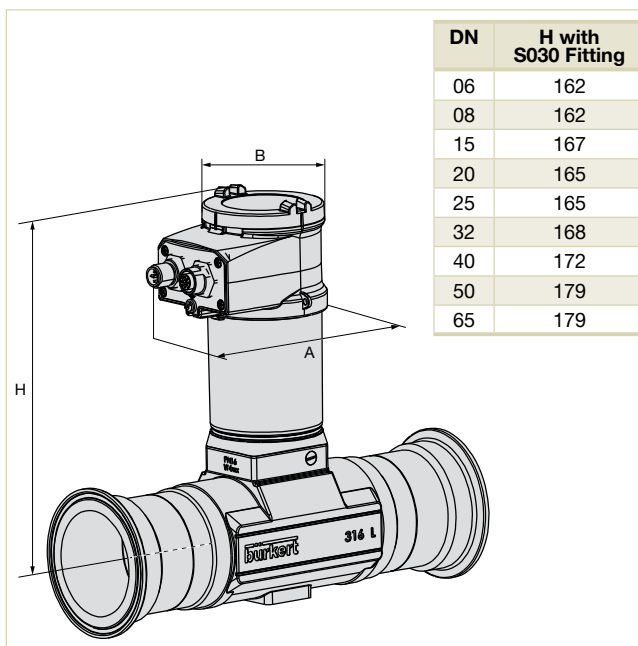
- 2 configurable outputs: one transistor output (NPN) and one 4...20 mA current output (2-wire)
- 3 configurable outputs: two transistor outputs (NPN/PNP) and one 4...20 mA current output (2-wire)
- 4 configurable outputs: two transistor outputs (NPN/PNP) and two 4...20 mA current outputs (3-wire)

The device Type 8036 converts the measured signal, displays different values in different units (if display/configuration module mounted) and computes the output signals, which are provided via one or two M12 fixed connectors. Thanks to 1 or 2 transistor outputs, the flowmeter can be used to switch a solenoid valve, activate an alarm and, thanks to 1 or 2 current outputs, establish one or two control loops.

Technical data

General data	
Compatibility	With sensor-fittings S030 (see Type S030 ►) or corresponding data sheet Type S030 ►
Materials	
Housing	Stainless steel 1.4404, PPS
Cover	PC
Seals	EPDM, silicone
Screws	Stainless steel
Fixed connector mounting plate	Stainless steel 1.4404 (316L)
Fixed connector	Brass nickel plated (stainless steel on request)
Display	PC
Navigation key	PBT
Bayonet locking system	PC
Wetted parts	
Sensor-fitting, sensor armature	Brass, stainless steel 1.4404/316L, PVC, PP or PVDF
Seal	FKM or EPDM (depending on S030 version)
Axis and bearings	Ceramics (Al ₂ O ₃)
Paddle wheel	PVDF
Display/configuration module (accessories)	Grey dot matrix 128×64 with backlighting

Dimensions [mm]



Options

- High flow rate to DN350 (see **Type 8026** ►)
- Hygienic clamp and weld end connections
- ANSI/DIN flange connection
- Various sealing materials
- Individual calibration certificate

Electrical connections

2 or 3 outputs transmitter (2-wire)	1 × 5 pin M12 male fixed connector,
4 outputs transmitters (3-wire)	1 × 5 pin M12 male and 1 × 5 pin M12 female fixed connectors

Connection cable

Shielded cable

Technical data continued

Complete device data (sensor-fitting S030 + transmitter SE36)	
Pipe diameter	DN06...DN65
Measuring range	0.3...10 m/s
Fluid temperature	
with sensor-fitting in	
PVC / PP	0 °C...+50 °C / 0 °C...+80 °C
PVDF, brass or stainless steel	-15 °C...+100 °C
Fluid pressure max. (see pressure/temperature diagram)	PN10 (with plastic sensor-fitting) PN16 (with metal sensor-fitting) (PN40 on request. Data sheet; see Type S030 ▶)
Viscosity / Particles rate	300 cSt. max. / 1 % max. (particle size 0.5 mm max.)
Measurement deviation	
Teach-In	± 1 % of Reading ¹⁾ (at Teach-In flow rate value)
Standard K-factor	± 2.5 % of Reading ¹⁾
Linearity	± 0.5 % of F.S. ^{1/2)}
Repeatability	± 0.4 % of Reading ¹⁾
Electrical data	
Power supply	
2 or 3 outputs transmitter (2-wire)	14...36 V DC, filtered and regulated
4 outputs transmitter (3-wire)	12...36 V DC, filtered and regulated
Reversed polarity of DC	Protected
Characteristics of the power source (not provided) of UL recognized devices	Limited power source (according to § 9.4 of the UL61010-1 standard) or, Class 2 type power source (according to the 1310/1585 and 60950-1 standards)
Current consumption with sensor	
2 or 3 outputs transmitter (2-wire)	≤ 1 A (with transistors load) ≤ 25 mA (at 14 V DC without transistors load, with current loop)
4 outputs transmitter (3-wire)	≤ 5 mA (at 12 V DC without transistors load, without current loop)
Power consumption	Max. 40 W.
Output	
Transistor	Protected against voltage peak, polarity reversals and short circuit
1 transistor output (transmitter 2-wire)	NPN, open collector, 1...36 V DC, max. 700 mA
2 transistor outputs (transmitter 2 or 3-wire)	Adjustable as sourcing or sinking (respectively both as PNP or NPN), open collector, max. 700 mA, 500 mA max. per transistor if the 2 transistor outputs are wired NPN-output: 1...36 V DC PNP-output: Power supply
Current	4...20 mA adjustable as sourcing or sinking (in the same mode as transistors)
1 current output (transmitter 2-wire)	Max. loop impedance: 1100 Ω at 36 V DC; 610 Ω at 24 V DC; 180 Ω at 14 V DC
2 current outputs (transmitter 3-wire)	Max. loop impedance: 1100 Ω at 36 V DC; 610 Ω at 24 V DC; 100 Ω at 12 V DC
4...20 mA output uncertainty	± 1 % of range

Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.


Ordering chart

Note regarding the ordering of a complete flowmeter:

A complete 8036 flowmeter with integrated paddle wheel sensor consists of a SE36 transmitter and a Bürkert S030 Inline sensor-fitting, combined by means of a bayonet fitting.

The SE36 transmitter and the S030 sensor-fitting must be ordered separately. Please refer to the corresponding ordering tables in the catalogue:

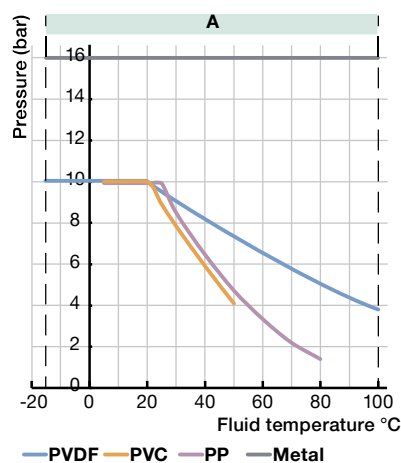
- ordering chart transmitter, see **Type SE36** ▶
- ordering chart sensor-fitting, see **Type S030** ▶

Environment	
Ambient temperature	-10 °C...+60 °C (operating and storage)
Relative humidity	≤ 85 %, without condensation
Standards, directives and certifications	
Protection class (according to EN60529)	IP65, IP67 with device wired and M12 cable plug mounted and tightened and cover fully screwed down
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable) Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ³⁾
Certifications	CE; UL-Recognized for US and Canada (61010-1 + CAN/CSA-C22.2 No.61010-1) 

- 1) Under reference conditions i.e. measuring fluid = water, ambient and water temperature = 20 °C, applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions.
- 2) F.S. = Full scale (10 m/s)
- 3) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Pressure/Temperature diagram



A : Application range for complete device

(Sensor-fitting + Transmitter)



Flow transmitter to use on Inline sensor-fitting for hazardous areas II 1 G/D - II 3 GD

SE30 Ex

For use with sensor-fitting

- S030 ▶ with paddle wheel or
- S077 ▶ with oval gears

- Flowmeter with NAMUR or NPN/PNP output signal
- Mounting, dismounting of electronics by a quarter-turn
- Intrinsic safety approvals (see ordering chart)



Example with S030 sensor-fitting

Suitable fitting:
see Type S030 ▶
or Type S077 ▶

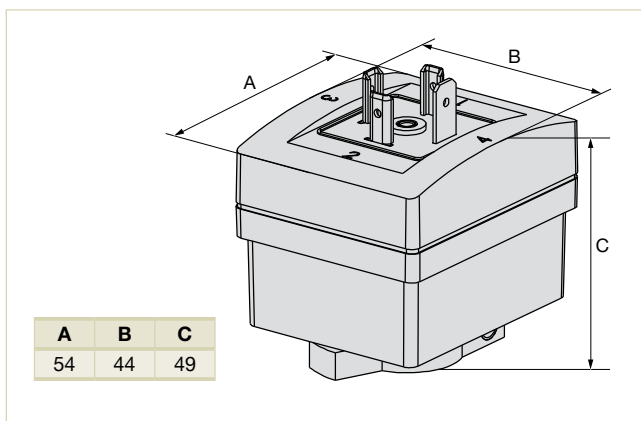
The flowmeter, SE30 Ex, for continuous flow measurement is especially designed for use in neutral, slightly aggressive, solid-free liquids, in hazardous environments.

The complete flowmeter SE30 Ex is made up of an electronic module and a measuring element, either a sensor-fitting S030 with PVDF paddle-wheel or a sensor-fitting S077 and is quickly and easily connected by a bayonet locking system.

Technical data

General data	
Compatibility¹⁾	With sensor-fittings S030 (see Type S030 ▶) or corresponding data sheet Type S030 ▶) or S077 (see Type S077 ▶) or corresponding data sheet Type S077 ▶)
Materials	
Body, cover	PPS (NAMUR version) glass fibre reinforced PC (NPN/PNP version)
Cable plug	PA with silicon seal (NAMUR version) or with NBR seal (NPN/PNP version)
Wetted parts	Selection of the appropriate sensor-fittings (see Type S030 ▶ or Type S077 ▶)
Sensor-Fitting S030¹⁾	
Body	Brass, Stainless steel, PVDF
Paddle wheel	PVDF
Axis and bearings	Ceramic
Seal	FKM
Sensor-Fitting S077¹⁾	
Body	Aluminium, stainless steel
Rotor	PPS, aluminium, stainless steel
Shaft	Stainless steel
Seal	FKM (EPDM or PTFE on request)
Electrical connection	
Namur version	Cable plug Form A according to EN 175301-803 (supplied)
NPN/PNP version	Cable plug Form A acc. to EN 175301-803 with 5 or 12 m cable (not supplied)
Voltage supply cable	0.5...1.5 mm ² cross section, 5...8 mm diameter; shielded, max. 50 m length; line impedance < 50 Ω; (not included in delivery)
Environment	
Ambient temperature	0...+60 °C (operating and storage)
Relative humidity	≤ 80 %, without condensation
Electrical data	
Power supply¹⁾	8...15 V DC (NAMUR version, from connected intrinsic safety barrier) 12...36 V DC (NPN/PNP version)
Current consumption (with sensor)	max. 7 mA (NAMUR version) 30 mA (NPN/PNP version)

Dimensions [mm]



Output (depends on the device model and application area)	- 2-wire current modulation acc. to Namur (0.5 or 2.5 mA) - NPN/PNP (I _{max} < 100 mA max., 0...300 Hz, duty cycle ½)
Reversed polarity (of DC)	Protected
Complete device data (sensor-fitting + electronic module)	
Pipe diameter	
S030 sensor-fitting	DN06...DN65
S077 sensor-fitting	DN15...DN50
Measuring range	
S030 sensor-fitting	0.5...1200 l/min (velocity 0.3...10 m/s)
S077 sensor-fitting	2...350 l/min (viscosity > 5 cps) 3...300 l/min (viscosity < 5 cps)
Fluid temperature	Max. 80 °C
Fluid pressure max.	
S030 sensor-fitting	PN10 (PVDF), PN16 (stainless steel, brass - PN40 on request)
S077 sensor-fitting	55 bar (for DN15...DN25) / 18 bar (for DN40...DN50) / 10 bar (for flange version)
Viscosity	
S030 sensor-fitting	300 cSt. max. – 1 % max. pollution
S077 sensor-fitting	1 Pa.s max (higher on request)
Measurement deviation	
S030 + SE30 Ex Teach-In (via remote transmitter)	± 1 % of Reading ²⁾ (at the teach flow rate value)
Standard K-factor	± 2.5 % of Reading ²⁾
S077 + SE30 Ex	± 0.5 % of Reading
Linearity	± 0.5 % of F.S. ³⁾

Technical data continued

Repeatability

S030 sensor-fitting	±0.4 % of Reading ²⁾
S077 sensor-fitting	±0.3 % of Reading

Standards, directives and certifications

Protection class (according to EN 60529) IP67 with connector plugged-in and tightened

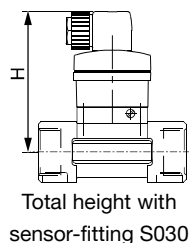
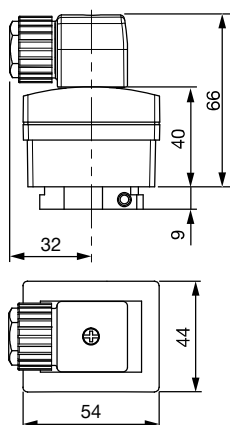
Standard and directives **CE** The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU⁴⁾

Certifications
ATEX "Safety instructions - Notice of ATEX instructions" in the data sheet, see **Type SE30 Ex** ▶
NAMUR EN 60947-5-6

- 1) See data sheet overview: "SAFETY INSTRUCTIONS - NOTICE OF ATEX INSTRUCTIONS", to choose the appropriate sensor-fitting for the area of application
- 2) Under reference conditions i.e. measuring fluid = water, ambient and water temperature = 20 °C, while maintaining the minimum inlet and outlet distances and the appropriate internal diameter of the pipes.
- 3) F.S. = Full scale (10 m/s)
- 4) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

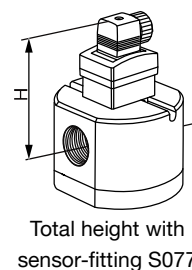
Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Dimensions [mm]



Total height with sensor-fitting S030

DN	H
06	96
08	96
15	101
20	98
25	98
32	102
40	106
50	112
65	112



Total height with sensor-fitting S077

DN	H
15	87
25	96
40	108
50	118
80	168
100	184

Note: The SE30 Ex electronics can easily be installed into

- any Bürkert Inline sensor-fitting system S030 with integrated PVDF paddle wheel. See **Type S030** ▶ or
- any Bürkert Inline sensor-fitting system S077. See **Type S077** ▶

Overview of hazardous areas depending on SE30 Ex flowmeter models (according to ATEX)

	Equipment for explosive atmospheres (surface industries) - GROUP II					
	Very high level of protection		High level of protection		Normal level of protection	
	Gas Zone 0	Dust Zone 20	Gas Zone 1	Dust Zone 21	Gas Zone 2	Dust Zone 22
CATEGORY 1 SE30 Ex -NAMUR II 1 G/D EEx ia IIC T6 - IP6X T80 °C associated with PVDF, brass, stainless steel or aluminium sensor fittings	to use with intrinsic safety barrier with NAMUR input (with open circuit voltage included between 8...15 V)					
CATEGORY 3 SE30 Ex -II 3 GD - NPN/PNP Ex nA IIC T4 Gc Ex tc IIIC T135 °C Dc IP6X associated with PVDF, brass, stainless steel or aluminium sensor fittings	Not to be used		Not to be used		to use with a 12...36 V supply source	





Safety Barrier

SE30 Ex



- 2 or 4 channels, intrinsic safety digital inputs: proximity detectors NAMUR, contacts...
- Rail mount on hat profile 35 mm
- All connections by removable screw terminals



Specifications

Digital inputs	Each of the 4 x intrinsic safety inputs can be configured independently for a contact or a proximity detector NAMUR as per DIN 19234
Intrinsic safety inputs	Proximity detector NAMUR as per DIN 19234 or free potential contacts, relays, pressure or temperature switches or push buttons in hazardous area.
Non intrinsic safety recopy outputs	According to the type of sensor and the chosen logic: a green LED on the front panel displays a free-potential contact for each channel without common wire.
Collector cut-off power	15 V, 60 mA, 0.9 VA, 350 Hz
Selection of the sensor type	Inductive or capacitive intrinsic safety certified NAMUR proximity detector or free-potential contacts.
Selection of the logic	By a mini-DIP choice of active proximity switches or when contact is NO (Normally Open) or NC (Normally Closed).
Fault detector	For all inputs configured as NAMUR, all models are provided with fault detector (broken line or short-circuit). In faulty case, the green front LED switches off, the contact of the defective channel opens and the red LED corresponding to the defective channel switches on. Other channels are not affected.
Power supply	24 V DC $\pm 10\%$ 230 V AC $\pm 10\%$ 1 front panel yellow LED is "ON" when supply is active
Consumption	5 VA
Connections	All connections by removable screw terminals. Supply distribution by means of a flat cable from one unit to the next one.

Specifications (continued)

Classification for explosive areas	Intrinsic safety associated apparatus. It must be installed in safe area and connected to materials installed in zone 0, 1 or 2 - Gas (G) or in zone 20, 21 or 22 - Dust (D) Classification according to 2014/34/EU ATEX Directive: (Ex) I/II (M1)/(1) G/D [Ex ia] IIC Safety parameters see EC-type certificate LCIE 00ATEX 6034X
Ambient Temperature	
Operating	-20...+60 °C -20...+50 °C (recommended)
Storage	-40 ...+ 80 °C
Dimensional & mechanical	Housing for symmetrical DIN rail (hat profile 35 mm as per standard NFC63015/EN50022) - Depth:120 mm ; - Height: 90 mm - 145 mm overall including space for cables ; Width on rail 29.5 mm. Minimal distance between rails: 180 mm.
Installations conditions	
Mounting on DIN rail:	Must take into account thermal dissipation and risk of overheating generated by housings installed side by side. In case of a high concentration inherent safety barrier, we recommend to leave a free space of 10 mm between each group of 8 units (horizontal rail) and between each group of 4 units (vertical rail).
Mounting inside a cabinet:	It is recommended to close the electrical cabinet and to ensure a circulation of fresh air even by means of an air conditioner to keep the inside temperature at the level compatible with the recommended operating temperature among the units.

Ordering chart

Description	Voltage supply	Output	Electrical connection	Article no.
Flowmeter Type SE30 Ex for sensor-fitting S030 or S077				
SE30 Ex - NAMUR II 1 G/D for explosive gas and dust environments: zones 0, 1 or 2 and 20, 21 or 22	8...15 V DC - via an intrinsic safety barrier with NAMUR input ¹⁾	NAMUR current modulation - 2-wire	1 cable plug EN 175301-803	552901 
SE30 Ex - II 3 GD for explosive gas and dust environments: zones 2 or 22	12...36 V DC	NPN/PNP	1 cable plug EN 175301-803	552353 




1) The open circuit voltage for the NAMUR input must be included between 8 and 15 V.





Note regarding the ordering of a complete flowmeter:

A SE30 Ex flowmeter consists of the Type SE30 Ex electronic module and the Inline sensor-fitting Type S030 (see **Type S030** ►) or Type S077 (see **Type S077** ►).

Please order the relevant Inline sensor-fitting and the electronics separately!

Accessories

Description	Article no.
For Namur version: cable plug EN 175301-803 with blue cable gland and silicone seal - see Type 2508 ► (will be replaced with Type 2518)	167526 
For NPN/PNP version: cable plug EN 175301-803 with 5 m cable and NBR seal - see Type 2513 ► (The cable output is always oriented perpendicularly to the pipe.)	565558 
For NPN/PNP version: cable plug EN 175301-803 with 12 m cable and NBR seal - see Type 2513 ► (The cable output is always oriented perpendicularly to the pipe.)	565559 

Classifications for explosive areas	Voltage supply	Output	Number of channels	Article no.
Intrinsic safety barrier				
2014/34/EU ATEX Directive I/II (M1)/(1) G/D [Ex ia] IIC	24 V DC	open collector, 15 V, 60 mA	2, with NAMUR input	553456 
		open collector, 15 V, 60 mA	4, with NAMUR input	553457 
	230 V AC	open collector, 15 V, 60 mA	2, with NAMUR input	553458 
		open collector, 15 V, 60 mA	4, with NAMUR input	553459 

Transmitter for continuous flow measurement

SE36

For use with sensor-fitting

- S030 ▶ with paddle wheel or
- S077 ▶ with oval gears

- Up and download of the data through removable display
- Automatic calibration using Teach-In
- All output signals without presence of flow

Suitable fitting:
see Type S030 ▶
or Type S077 ▶



The SE36 electronic module is a flow transmitter. It must be combined with sensor-fitting S030 or S077. This two-wire 4...20 mA transmitter is manufactured to provide true, reliable flow for neutral, solid free liquids. A backlit removable display allows the system to be flexible and adds more value.

Technical data

General data

Compatibility With sensor-fittings S030 (see **Type S030 ▶** or corresponding data sheet **Type S030 ▶**) or S077 (see **Type S077 ▶** or corresponding data sheet **Type S077 ▶**)

Materials

Housing	Stainless steel 1.4404, PPS
Cover	PC
Seals	EPDM, silicone
Screws	Stainless steel
Fixed connector mounting plate	Stainless steel 1.4404 (316L)
Fixed connector	Brass nickel plated (stainless steel on request)
Display	PC
Navigation key	PBT
Bayonet locking system	PC

Display/configuration module (accessories) Grey dot matrix 128×64 with backlighting

Electrical connections

2 or 3 outputs transmitter (2-wire)	1×5 pin M12 male fixed connector,
4 outputs transmitters (3-wire)	1×5 pin M12 male and 1×5 pin M12 female fixed connectors

Connection cable Shielded cable

Electrical data

Power supply

2 or 3 outputs transmitter (2-wire)	14...36 V DC, filtered and regulated
4 outputs transmitter (3-wire)	12...36 V DC, filtered and regulated

Reversed polarity of DC Protected

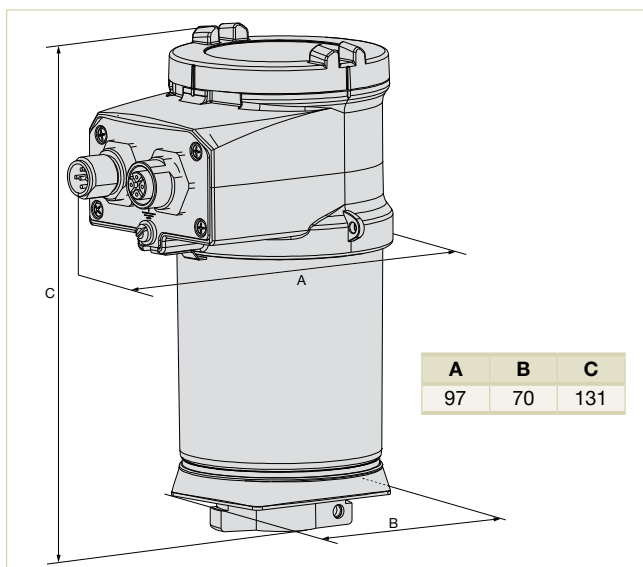
Characteristics of the power source (not provided) of UL recognized devices Limited power source (according to § 9.4 of the UL61010-1 standard) or, Class 2 type power source (according to the 1310/1585 and 60950-1 standards)

Current consumption with sensor

2 or 3 outputs transmitter (2-wire)	≤ 1 A (with transistors load) ≤ 25 mA (at 14 V DC without transistors load, with current loop)
4 outputs transmitter (3-wire)	≤ 5 mA (at 12 V DC without transistors load, without current loop)

Power consumption Max. 40 W.

Dimensions [mm]



Options

- High flow rate to DN350 (see **Type 8026 ▶**)

Technical data continued

Output	
Transistor	Protected against voltage peak, polarity reversals and short circuit
1 transistor output (transmitter 2-wire)	NPN, open collector, 1...36 V DC, max. 700 mA
2 transistor outputs (transmitter 2 or 3-wire)	Adjustable as sourcing or sinking (respectively both as PNP or NPN), open collector, max. 700 mA, 500 mA max. per transistor if the 2 transistor outputs are wired
	NPN-output: 1...36 V DC
	PNP-output: Power supply
Current	4...20 mA adjustable as sourcing or sinking (in the same mode as transistors)
1 current output (transmitter 2-wire)	Max. loop impedance: 1100 Ω at 36 V DC; 610 Ω at 24 V DC; 180 Ω at 14 V DC
2 current outputs (transmitter 3-wire)	Max. loop impedance: 1100 Ω at 36 V DC; 610 Ω at 24 V DC; 100 Ω at 12 V DC
4...20 mA output uncertainty	
± 1 % of range	

Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

Environment	
Ambient temperature	- 10 °C...+ 60 °C (operating and storage)
Relative humidity	≤ 85 %, without condensation
Standards, directives and certifications	
Protection class (according to EN60529)	IP65, IP67 with device wired and M12 cable plug mounted and tightened and cover fully screwed down
	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Certifications	CE; UL-Recognized for US and Canada (61010-1 + CAN/CSA-C22.2 No.61010-1)

SE36

Ordering chart

Description	Voltage supply	Output	Electrical connection	UL certification	Article no.	
					without display/configuration module	with display/configuration module
2 outputs	14...36 V DC	1 x Transistor NPN + 1 x 4...20 mA (2-wire)	5 pin M12 male fixed connector male fixed connector	No	560880	561880
				Recognized	560883	561883
3 outputs	14...36 V DC	2 x Transistor NPN/PNP + 1 x 4...20 mA (2-wire)	5 pin M12 male fixed connector male fixed connector	No	560881	561881
				Recognized	560884	561884
4 outputs	12...36 V DC	2 x Transistor NPN/PNP + 2 x 4...20 mA (3-wire)	1 x 5 pin M12 male +	No	560882	561882
			1 x 5 pin M12 female fixed connector	Recognized	560885	561885

Note: The SE36 transmitter and the S030 or S077 sensor-fitting must be ordered separately. See **Type S030** ► or **Type S077** ►

Accessories

Specification	Article no.
Removable display/configuration module (with instruction sheet)	559168
Blind cover with seal (1 screw cover with EPDM seal + 1 quarter turn closing cover with silicone seal)	560948
Transparent cover with seal (1 screw cover with EPDM seal + 1 quarter turn closing cover with silicone seal)	561843
5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917116
5 pin M12 male straight cable plug with plastic threaded locking ring, to be wired	560946
5 pin M12 female straight cable plug moulded on cable (2 m, shielded)	438680
5 pin M12 male straight cable plug moulded on cable (2 m, shielded)	559177

Important note: Please be careful when ordering devices without a display, that you purchase at least one display module.

Insertion magnetic inductive flowmeter

8041

- Sensor without moving parts
- Flowmeter with On/Off control
- Application related calibration by Teach-In function
- Clean in place (CIP)
- FDA-compliant materials



Suitable fitting:
see Type S020 ▶

The electromagnetic flowmeter 8041 is made up of an electronic module and a sensor consisting of PVDF or stainless steel material. It has been designed to measure a flow rate of neutral and slightly aggressive fluids with a conductivity of more than 20 $\mu\text{S}/\text{cm}$ in DN06...DN400 pipes.

It is fitted with a 4...20 mA output, a pulse output and a relay output. The different parameters can be set by means of 5 DIP switches, a push-button and a 10- field LED bargraph.

It is available:

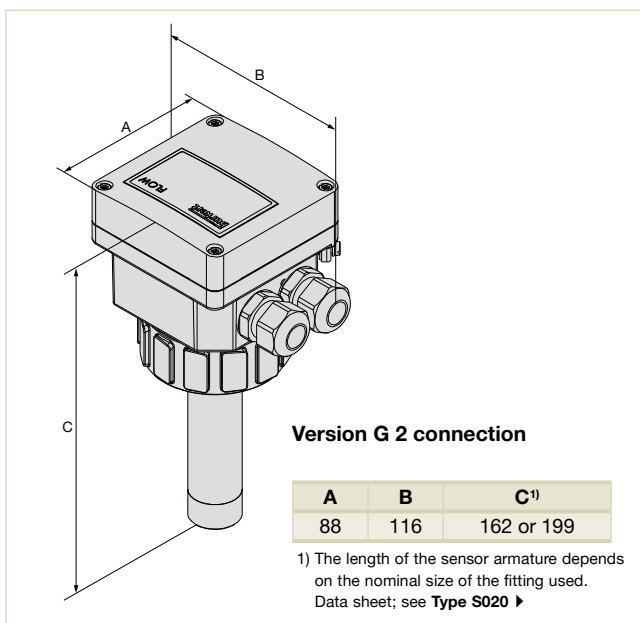
- with G 2 connection for the version with a PVDF sensor
- with G 2 or clamp connection for the version with a stainless steel sensor.

The version with a stainless steel sensor can be used in applications with higher pressures (PN16) and higher temperatures (150 °C).

Technical data

General data	
Compatibility	With fittings S020 (Data sheet; see Type S020 ▶)
Materials	
Housing, cover, nut	PC (glass fibre reinforced for housing)
PVDF sensor version	PPA (glass fibre reinforced)
Stainless steel sensor version	
Screws / Seal	Stainless steel / NBR
Cable glands	PA with neoprene seal
Wetted parts materials	
Sensor holder	PVDF or Stainless steel 1.4404/316L
Electrodes	Stainless steel 1.4404/316L
Seals	G 2 connection: FKM or EPDM (conform to FDA), Clamp connection: EPDM or FEP (to be ordered separately)
Earth ring (PVDF sensor version)	Stainless steel 1.4404/316L
Electrode holder (Stainless steel sensor version)	PEEK (conform to FDA)
Surface finishing quality	Ra < 0.8 mm (Clamp connection)
Electrical connections	2 cable glands M20 x 1.5
Recommended cable	0.5...1.5 mm ² cross-section, shielded cable, 6...12 mm diameter (if only one cable is used per cable gland) or 4 mm diameter (if two cables are used per cable gland with using the supplied multi-way seal)

Dimensions [mm]



Options

- Stainless steel finger for + 150 °C and 16 bar with PPA housing
- FDA approved wetted materials, - Hastelloy C Electrodes

Complete device data (fitting S020 + flowmeter)

Pipe diameter	
G 2 connection	DN06...DN400
Clamp connection	DN32...DN100
Measuring range	0.2...10 m/s
Sensor element	Electrodes
Fluid temperature	
PVDF sensor version	0...+ 80 °C (depends on fitting)
Stainless steel sensor version	- 15...+ 150 °C (depends on fitting)
Fluid pressure max.	
PVDF sensor version	See pressure/temperature diagram
Stainless steel sensor version	PN10 (with plastic fitting) - PN16 (with metal fitting)
Conductivity	Min. 20 mS/cm
Viscosity	< 1000 mPa.s

Technical data continued

Measurement deviation	
Teach-In	±0.5 % of Reading ¹⁾ (at the teach flow rate value)
Standard K-factor	±3.5 % of Reading ¹⁾
Linearity	±0.5 % of F.S. ¹⁾²⁾
Repeatability	±0.25 % of Reading ¹⁾
1) Under reference conditions i.e. measuring fluid = water, ambient and water temperature = 20 °C, applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions.	
2) FS. = Full scale (10 m/s)	
Electrical data	
Power supply	18...36 V DC filtered and regulated (3 wires)
Reversed polarity of DC	Protected
Current consumption	≤220 mA (at 18 V DC)
Output	
Signal current	4...20 mA (sink or source by wiring), 100 ms refresh time; Max. loop impedance: 1100 Ω at 36 V DC; 330 Ω at 18 V DC
Frequency	0... 240 Hz, duty cycle = 50 % ± 1 %; 100 mA max., protected against short-circuits and polarity reversals.
Relay	Normally open or normally closed (depending on wiring), 250 V AC/3 A or 40 V DC/2 A (resistive load)
4... 20 mA output uncertainty	± 1 % of range
Alarm	
Full scale exceeding	22 mA and 256 Hz
Fault signalling	22 mA and 0 Hz
User parameter	Saved in EEPROM

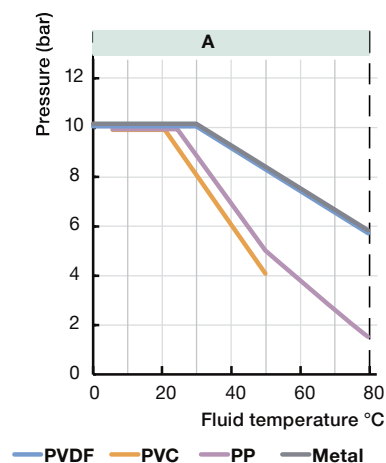
Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

Pressure/Temperature diagrams

Please be aware of the fluid pressure/temperature dependence according to the respective fitting+flowmeter material as shown in the diagrams.

8041 with a PVDF sensor

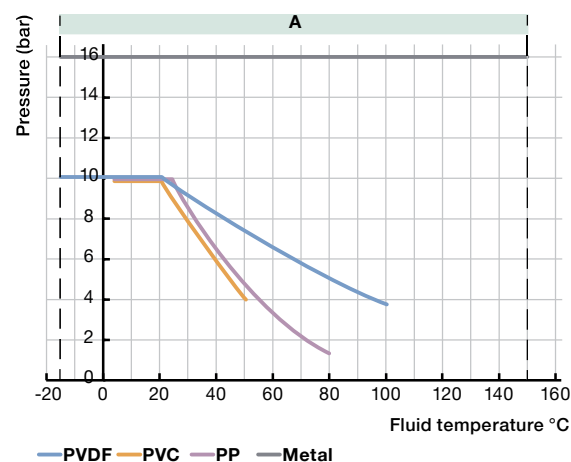
(depending on the fitting material)



A: Application range for complete device
(fitting + flowmeter)

8041 with a stainless steel sensor

(depending on the fitting material)





Main features and programming

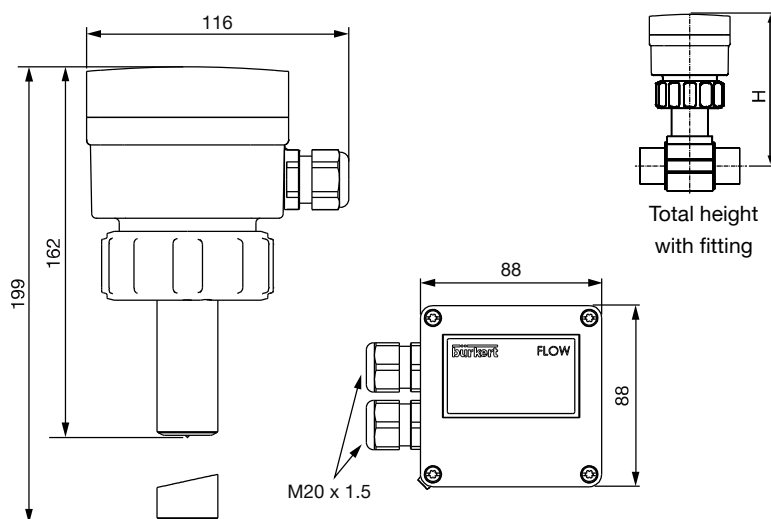
Using as a flowmeter

- Programming of the full scale
 - selection of a predefined measuring range: 0...2, 0...5 or 0...10 m/s
 - selection by Teach-In: with the actual max. flow velocity of the application
- 4...20 mA current output
- 0...240 Hz frequency output
- Relay output: switching mode either window or hysteresis, on low or high switching threshold
- Relay Time delay before switching
- Filter
- Alarm:
 - for full scale exceeding with 22 mA and 256 Hz
 - for fault signalling with 22 mA and 0 Hz

Using as an ON/OFF control

- Flow detection with switching thresholds, defined as a percentage of max. flow rate.
- Adjustment of the full scale of the device accordingly to the customer process full scale.








Dimensions [mm]



Note: The Type 8041 can easily be installed into any Bürkert Insertion fitting system (S020) by just fixing the main nut. The length of the sensor armature depends on the nominal size of the fitting used.
Data sheet; see **Type S020** ►

DN	T-Fitting	H with S020 fitting		
		Saddle	Plastic spigot	Metal spigot
06	163	–	–	–
08	163	–	–	–
15	168	–	–	–
20	166	–	–	–
25	166	–	–	–
32	169	–	–	–
40	173	–	–	169
50	179	204	–	174
65	179	203	187	180
80	–	207	193	185
100	–	212	200	195
110	–	208	–	–
125	–	215	235	206
150	–	225	242	217
180	–	248	–	–
200	–	261	263	238
250	–	–	281	298
300	–	–	293	317
350	–	–	306	329
400	–	–	321	–

Ordering chart

Voltage supply	Output	Relay	Housing material	Seals	Sensor version	Certificates		 Certifications	Electrical connection	Article no.
						FDA	ECR1935/2004 ¹⁾			
G 2 connection to use with S020 Fitting for flowmeter with G 2 connection										
18...36 V DC	4...20 mA, frequency	1	PC	FKM	short, PVDF	✓	✗	✗	2 cable glands	558064 
					long, PVDF	✓	✗	✗	2 cable glands	558065 
			PPA	FKM	short, stainless steel)	✓	✓	✗	2 cable glands	552779 
					long, stainless steel	✓	✓	✗	2 cable glands	552780 
			PPA	FKM	short, stainless steel	✓	✓	✓	2 cable glands	561606 
					long, stainless steel	✓	✓	✓	2 cable glands	561607 

1) If FKM seal mounted as standard at factory is replaced with the EPDM seal included in the delivery.






Note regarding the ordering of a complete flowmeter:

The complete 8041 flowmeter consists of the Type S020 Insertion fitting and the Type 8041 flowmeter.

FKM seal in standard; 1 EPDM seal contained in the kit 551775, 1 relay connection kit 552812 are supplied with each flowmeter.











Please enter the appropriate flowmeter according to the table "Compatible and recommended combinations with Bürkert Insertion Fitting" and order the respective Insertion Fitting and the selected flowmeter separately.

Compatible and recommended combinations with Bürkert Insertion Fitting

Available S020 fitting DN		DN06	DN08	DN20	DN50	DN65	DN100	DN200	DN350	DN400
	T-fitting 		(1)	Short sensor						
	Weld-in socket 					Short sensor		Long sensor		
	Fusion spigot 					Short sensor		Long sensor		
	Screw-on S020 							Long sensor		
	Saddle 					Long sensor				

(1) DN06 and DN08 in stainless steel S020 only, 8041 with stainless steel sensor recommended

Accessories

Specifications	Article no.
Set with 2 cable glands M20x1.5+2 neoprene flat seals for cable gland or plug +2 screw-plugs M20x1.5+2 multiway seals 2x6 mm	449755 
Set with 2 reductions M20x1.5 /NPT 1/2 +2 neoprene flat seals for cable gland or plug +2 screw-plugs M20x1.5	551782 
Relay connection kit with 1 screw terminal strip +1 protection cap +1 rilsan +1 mounting instruction sheet	552812 
3 points calibration certificate (device combined with a S020 fitting, only for DN ≤200)	550676 
FDA declaration of conformity (for stainless steel or PVDF sensor with FKM or EPDM seal)	803724 
For G 2 connection version	
Set with 1 stopper for unused cable gland M20x1.5+1 multiway seal 2x6 mm for cable gland +1 green FKM seal for the sensor +1 mounting instruction sheet	558102 
Snap ring	619205 
PC union nut	619204 
PPA union nut	440229 
Set with 1 green FKM and 1 black EPDM seal	552111 

Insertion magnetic inductive flowmeter

8045

- Sensor without moving parts
- Indicates both flow rate and volume
- Simulation of all output signals
- Clean in place (CIP), FDA-compliant materials



Suitable fitting:
see Type S020 ►

The electromagnetic flowmeter 8045 is made up of an electronic module including a backlit display, operating keys for configurations and a sensor consisting of PVDF or stainless steel material. It has been designed to measure a flow rate of neutral and slightly aggressive fluids with a conductivity of more than 20 $\mu\text{S}/\text{cm}$ in DN06... DN400 pipes.

It is equipped with a 4...20 mA output, a digital output (pulse output by default). Some versions are equipped with two relay outputs and one digital input. Two independent totalizers allow counting the flow rate.

The available process connections are:

- G 2 connection for the version with a PVDF sensor
- G 2 or clamp connection for the version with a stainless steel sensor.

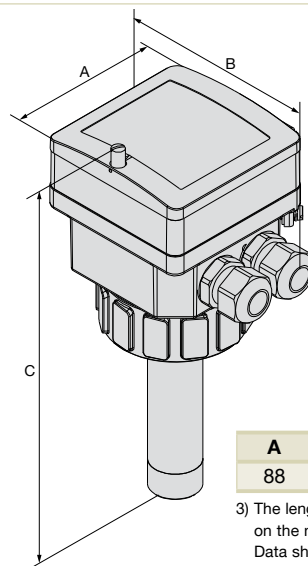
The version with a stainless steel sensor can be used in applications with higher pressures (PN16) and higher temperatures (110 °C).

The version with Alloy C22 electrodes has been designed for applications with aggressive fluids (chemicals) and especially sea water applications.

Technical data

General data	
Compatibility	With fittings S020 (Data sheet; siehe Type S020 ►)
Materials	
Housing, cover, nut / seal	
PVDF sensor version	PC (glass fibre reinforced for housing) / NBR
Stainless steel sensor version	Black PPA (glass fibre reinforced) / NBR
Front panel foil	Polyester
Protection lid / seal	
PVDF sensor version	PC / Silicone
Stainless steel sensor version	PSU / Silicone
Screws / Seal	Stainless steel / NBR
Cable glands	PA with neoprene seal
Wetted parts material	
Sensor holder	PVDF or Stainless steel 1.4404/316L
Electrodes	Stainless steel 1.4404/316L or Alloy C22
Seals	G 2 connection: FKM or EPDM (conform to FDA) Clamp connection: EPDM or FEP (to be ordered separately)
Earth ring (PVDF sensor version)	Stainless steel 1.4404/316L or Alloy C22
Electrode holder (St. Steel sensor version)	PEEK (conform to FDA)
Surface finishing quality	Ra < 0.8 μm (clamp connection)
Electrical connections	2 cable glands M20 x 1.5

Dimensions [mm]



A	B	C ³⁾
88	116	181 or 218

³⁾ The length of the sensor armature depends on the nominal size of the fitting used.
Data sheet: see Type S020 ►

Recommended cable	0.5...1.5 mm ² cross-section, shielded cable, 6...12 mm diameter (if only one cable is used per cable gland) or 4 mm diameter (if two cables are used per cable gland with using the supplied multi-way seal)
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Complete device data (fitting S020 + flowmeter)	
Pipe diameter	
G 2 connection	DN06...DN400
Clamp connection	DN32...DN100
Measuring range	0.2...10 m/s
Sensor element	Electrodes
Fluid temperature	
PVDF sensor version	0...+ 80 °C (depends on fitting)
Stainless steel sensor version	- 15...+ 110 °C (depends on fitting)
Fluid pressure max.	See pressure/temperature diagram
PVDF sensor version	PN10
Stainless steel sensor version	PN10 (with plastic fitting); PN16 (with metal fitting)
Conductivity	Min. 20 mS/cm
Viscosity	< 1000 mPa.s
Measurement deviation	
Teach-In	± 0.5 % of Reading ¹⁾ (at the teach flow rate value)
Standard K-factor	± 3.5 % of Reading ¹⁾

Technical data continued

Linearity	±0.5 % of F.S. ^{1/2)}
Repeatability	±0.25 % of Reading ¹⁾
Electrical data	
Operating voltage	18...36 V DC filtered and regulated (3 wires) Tolerance: ±0.5 %
Reversed polarity of DC	Protected
Current consumption	≤300 mA (at 18 V DC)
Digital input DI1	Supply voltage: 18...36 V DC, Input impedance 15 kΩ Min. pulse duration: 200 ms Galvanic insulation, protected against polarity reversals of DC and voltage spikes
Digital outputs	
Transistor (DO1)	Type: NPN or PNP (wiring dependent), open collector; Function: pulse output (by default), user configurable; 0...250 Hz, 5...36 V DC, 100 mA max.; Duty cycle if frequency > 2 Hz: ½; Min. pulse duration if frequency < 2 Hz: 250 ms Galvanic insulation, protected against polarity reversals of DC and short-circuits
Relay (DO2 and DO3)	2 normally open relays, freely adjustable (hysteresis by default), 250 V AC/3 A or 40 V DC/3 A (resistive load), max. cutting power of 750 VA (resistive load); life span of min. 100000 cycles
Analogue output	
Current (AO1)	4...20 mA, sink or source (wiring dependent), 22 mA to indicate a fault Max. loop impedance: 1300 Ω at 36 V DC, 1000 Ω at 30 V DC, 700 Ω at 24 V DC, 450 Ω at 18 V DC
4...20 mA output accuracy	±1 % of range

Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

Environment	
Ambient temperature	-10...+60 °C (operating) -20...+60 °C (storage)
Relative humidity	<85 %, without condensation
Height above sea level	Max. 2000 m
Standards, directives and certifications	
Protection class	IP65, device wired and cable glands tightened and lid screwed tight
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable) Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ³⁾
Pressure	
Certificates	FDA declaration of conformity (for stainless steel or PVDF sensor with FKM or EPDM seal) ECR1935/2004 declaration (only for stainless steel sensor with EPDM seal)

1) Under reference conditions i.e. measuring fluid=water, ambient and water temperature =20 °C (68 °F), applying the minimum inlet and outlet straight pipe lengths, matched inside pipe dimensions.

2) F.S.= of Full scale (10 m/s)

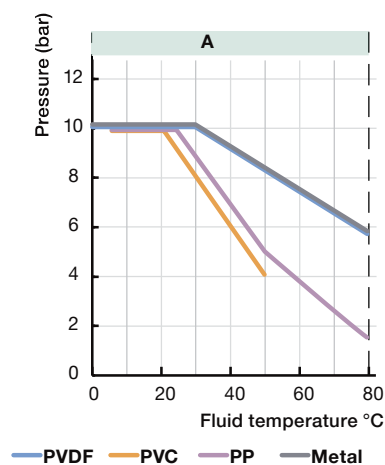
3) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Pressure/Temperature diagrams

8045 with a PVDF sensor

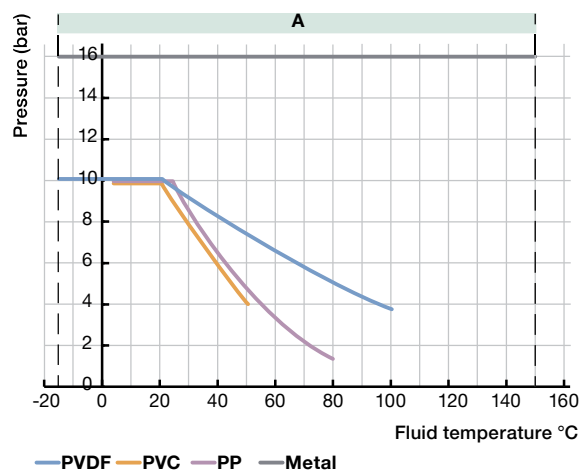
(depending on the fitting material)



A : Application range for complete device
(fitting + flowmeter)

8045 with a stainless steel sensor

(depending on the fitting material)

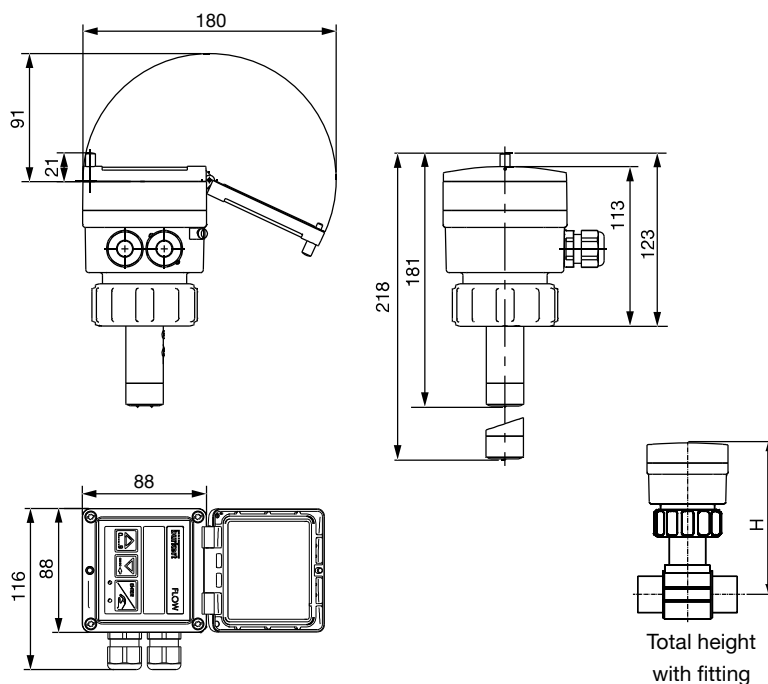




Software main features

- Choice of the display language
- International measuring units
- Teach-In for a better accuracy, or K-factor setting
- 4...20 mA current output (AO1)
- Transistor output (DO1)
- 2 relays (DO2 and DO3 - if equipped)
- Detection of flow direction possible
- ON/OFF digital input (DI1 - if equipped)
- Filter function
- Reset both totalizers (main and daily)
- Low flow "Cut-Off"
- Brightness of the display
- Password for parameter settings
- Warning and fault messages generating
- Simulation mode to adjust Zero and Span and simulate flow in dry-run condition

Dimensions [mm]











DN	H with S020 fitting			
	T-Fitting	Saddle	Plastic spigot	Metal spigot
06	182	–	–	–
08	182	–	–	–
15	187	–	–	–
20	185	–	–	–
25	185	–	–	–
32	188	–	–	–
40	192	–	–	188
50	198	223	–	193
65	198	222	206	199
80	–	226	212	204
100	–	231	219	214
110	–	227	–	–
125	–	234	254	225
150	–	244	261	236
180	–	268	–	–
200	–	280	282	257
250	–	–	300	317
300	–	–	312	336
350	–	–	325	348
400	–	–	340	–



Note: The Type 8041 can easily be installed into any Bürkert Insertion fitting system (S020) by just fixing the main nut. The length of the sensor armature depends on the nominal size of the fitting used.

Data sheet; see **Type S020** ►

Ordering chart

Operating voltage	Digital input	Relay output	Housing material	Seal	Sensor version	Electrode material	Certificates		Electrical connection	Article no.
							FDA	ECR1935/2004 ¹⁾		
G 2 connection to use with S020 Fitting for flowmeter with G 2 connection										
18...36 V DC	No	No	PC	FKM	Short, PVDF	Stainless steel	✓	✖	2 cable glands M20 x 1.5	426498 
					Long, PVDF	Stainless steel	✓	✖	2 cable glands M20 x 1.5	426499 
	1 (DI1)	2 (DO2, DO3)	PC	FKM	Short, PVDF	Stainless steel	✓	✖	2 cable glands M20 x 1.5	426506 
					Long, PVDF	Stainless steel	✓	✖	2 cable glands M20 x 1.5	426507 
	No	No	PPA	FKM	Short, st. steel	Stainless steel	✓	✓	2 cable glands M20 x 1.5	449670 
					Long, st. steel	Stainless steel	✓	✓	2 cable glands M20 x 1.5	449672 
	1 (DI1)	2 (DO2, DO3)	PPA	FKM	Short, st. steel	Stainless steel	✓	✓	2 cable glands M20 x 1.5	449671 
					Long, st. steel	Stainless steel	✓	✓	2 cable glands M20 x 1.5	449673 

Ordering chart continued

Operating voltage	Digital input	Relay output	Housing material	Seal	Sensor version	Electrode material	Certificates		Electrical connection	Article no.
							FDA	ECR1935/2004 ¹⁾		
G 2 connection to use with S020 Fitting for flowmeter with G 2 connection										
18...36 V DC	No	No	PC	FKM	Short, PVDF	Alloy C22	✖	✖	2 cable glands M20 x 1.5	558675 
					Long, PVDF	Alloy C22	✖	✖	2 cable glands M20 x 1.5	558676 

1) if FKM seal mounted as standard at factory is replaced with the EPDM seal included in the delivery.

Note regarding the ordering of a complete flowmeter:

The complete 8045 flowmeter consists of the Type S020 Insertion fitting and the Type 8045 flowmeter.

FKM seal in standard; 1 EPDM seal contained in the kit 551775 is supplied with each flowmeter.

Please enter the appropriate flowmeter according to the table "Compatible and recommended combinations with Bürkert Insertion Fitting" and order the respective Insertion Fitting and the selected flowmeter separately.

Compatible and recommended combinations with Bürkert Insertion Fitting

	Available S020 fitting DN	T-fitting	Weld-in socket	Fusion spigot	Screw-on S020	Saddle	DN06	DN08	DN20	DN50	DN65	DN100	DN200	DN350	DN400
							(1)		Short sensor						
												Short sensor	Long sensor		
											Short sensor		Long sensor		
											Short sensor		Long sensor		
													Long sensor		
											Long sensor				

(1) DN06 and DN08 in stainless steel S020 only, 8045 with stainless steel sensor recommended

Accessories

Specifications	Article no.
Set with 2 cable glands M20 x 1.5 + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 x 1.5 + 2 multiway seals 2 x 6 mm	449755
Set with 2 reductions M20 x 1.5 /NPT ½ + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 x 1.5	551782
3 points calibration certificate (device combined with a S020 fitting, only for DN ≤ 200)	550676
FDA declaration of conformity (for stainless steel or PVDF sensor with FKM or EPDM seal)	803724
For G 2 connection version	
Set with 1 stopper for unused cable gland M20 x 1.5 + 1 multiway seal 2 x 6 mm for cable gland + 1 green FKM seal for the sensor + 1 mounting instruction sheet	558102
Snap ring	619205
PC union nut	619204
PPA union nut	440229
Set with 1 green FKM and 1 black EPDM seal	552111

Full bore Inline Magmeter

8051 / 8055 / 8056

DN03...DN150

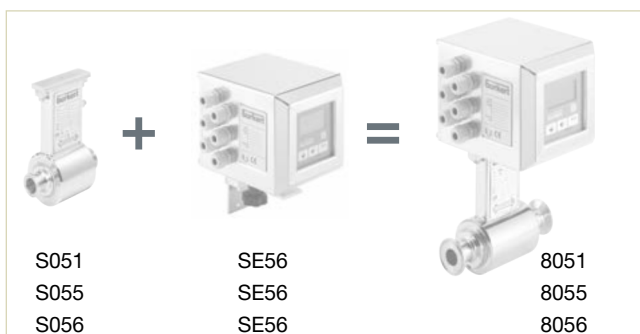
- High frequency sampling
- Flow or Batch Control
- Compact or remote version
- 3 different electronics can be connected to 3 different types of sensor fittings



Shown is the remote flanged sensor fitting and the hygienic clamp compact version

These full bore magflowmeters accurately measure the flow of liquids with conductivities as low as 5 $\mu\text{S}/\text{cm}$ with or without solids. Varied application environments such as water, wastewater, sludge, slurries, pastes, acids, alkalis, juices, fruit pulp can easily be handled. This extremely robust, time tested design incorporates the latest electronics and when combined with a valve as the actuating element they can control high-precision dosing operations.

System Architecture



Technical data

	8051	8055	8056
Pipe diameter	DN03...DN20	DN25...DN200 (to DN2000 on request)	DN03...DN100
Measuring range	0...10 l/h to 0...12500 l/h	0...0.72 m³/h to 0...1130 m³/h	0...10 l/h to 0...280 m³/h
Process connection	Thread ISO 228-1, NPT (DIN 11851, SMS 1145, Clamp ISO 2852 or BS 4825, Flanges DIN 2501, ANSI on request)	S054: wafer - S055: Flange EN1092-1, ANSI B16.5, (JIS on request)	DIN11851, Clamp ISO2852 or Clamp BS4825 (SMS1146 (from DN10) on request)
Fluid temperature	Data sheet; see Type 8051 ▶	Data sheet; see Type 8055 ▶	Data sheet; see Type 8056 ▶
Fluid pressure max.	PN16 or (PN40, on request)	PN16 (with PP lining) or (up to PN64 (with Ebonite or PTFE lining) on request)	PN16
Vacuum resistance	200 mbar absolute at 100 °C	200 mbar absolute at 100 °C	200 mbar absolute at 100 °C
Measurement deviation¹⁾	± 0.2 % of reading (SE56 standard; SE56 blind) ± 0.8 % of reading (SE56 basic)	± 0.2 % of reading (SE56 standard; SE56 blind) ± 0.8 % of reading (SE56 basic)	± 0.2 % of reading (SE56 standard; SE56 blind) ± 0.8 % of reading (SE56 basic)
Repeatability	± 0.1 % (SE56 standard; SE56 blind) ± 0.2 % (SE56 basic)	± 0.1 % (SE56 standard; SE56 blind) ± 0.2 % (SE56 basic)	± 0.1 % (SE56 standard; SE56 blind) ± 0.2 % (SE56 basic)
Minimum conductivity	5 $\mu\text{S}/\text{cm}$ (or 20 $\mu\text{S}/\text{cm}$ with demineralized water)	5 $\mu\text{S}/\text{cm}$ (or 20 $\mu\text{S}/\text{cm}$ with demineralized water)	5 $\mu\text{S}/\text{cm}$ (or 20 $\mu\text{S}/\text{cm}$ with demineralized water)
Environment			
Ambient temperature with			
SE56 standard	-20...60 °C (operating and storage)	-20...60 °C (operating and storage)	-20...60 °C (operating and storage)
SE56 basic	-10...50 °C (operating), -20...50 °C (storage)	-10...50 °C (operating), -20...+50 °C (storage)	-10...50 °C (operating), -20...50 °C (storage)
SE56 blind	-20...40 °C (operating and storage)	-20...40 °C (operating and storage)	-20...40 °C (operating and storage)
Standards, directives and certifications			
Protection class	IP65 and IP67 (compact version, SE56 standard or SE56 blind) IP65 (remote version, SE56 standard) IP68 (remote version and junction box filled with resin, SE56 standard) IP65 (compact version, SE56 basic)		
Standards and directives	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)		
CE			

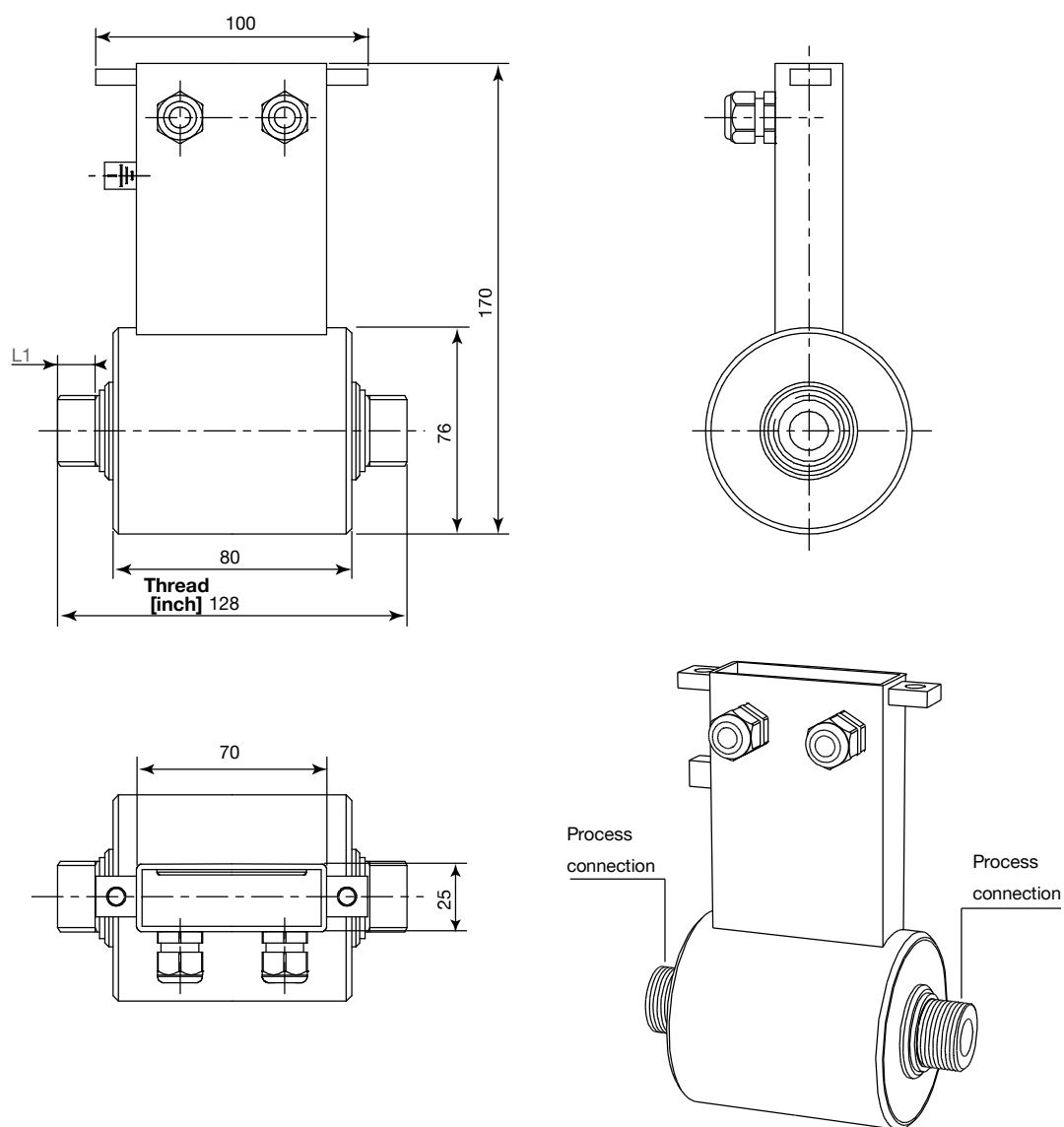
1) under reference conditions: water temperature = 20 °C, ambient temperature = 25 °C, constant flow rate during the test, liquid speed > 1 m/s

Options

- Various sealing materials
- Larger sizes are available as standard
- Individual calibration certificate
- Remote versions (10/20 m cable, IP68), blind version
- Stainless steel body and EN or ANSI/DIN flanges for S055
- PTFE lining and PN40 pressure class for S054 and S055
- 2 relay outputs NO/NC 2A-250V AC, 60W 125V AC
- Hart, Profibus, RS232, RS485

Dimensions [mm] of Type S051 sensor fitting (without full lining) – compact version

NOTE: Dimensions of SE56 electronics

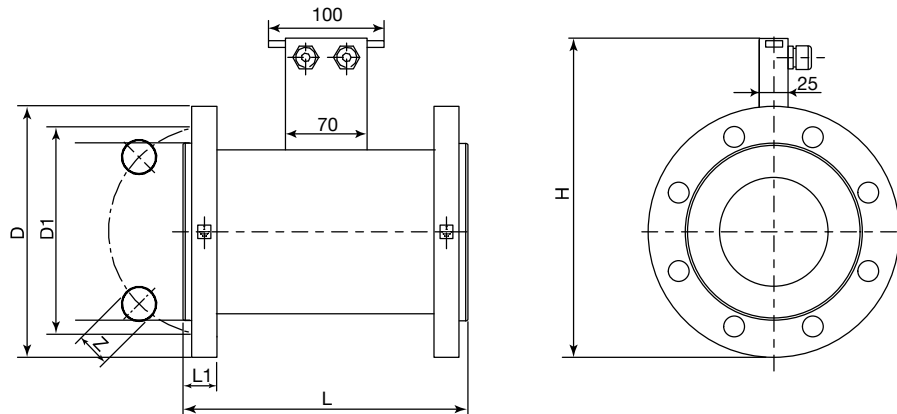


DN	Thread	L1
03	G or NPT ¼	16.4
06	G or NPT ⅜	16.4
10	G or NPT ½	17.4
15	G or NPT ¾	20.0
20	G or NPT 1	20.0



Dimensions [mm] of Type S055 sensor fitting – compact flanges version

NOTE: Dimensions of SE56 electronics

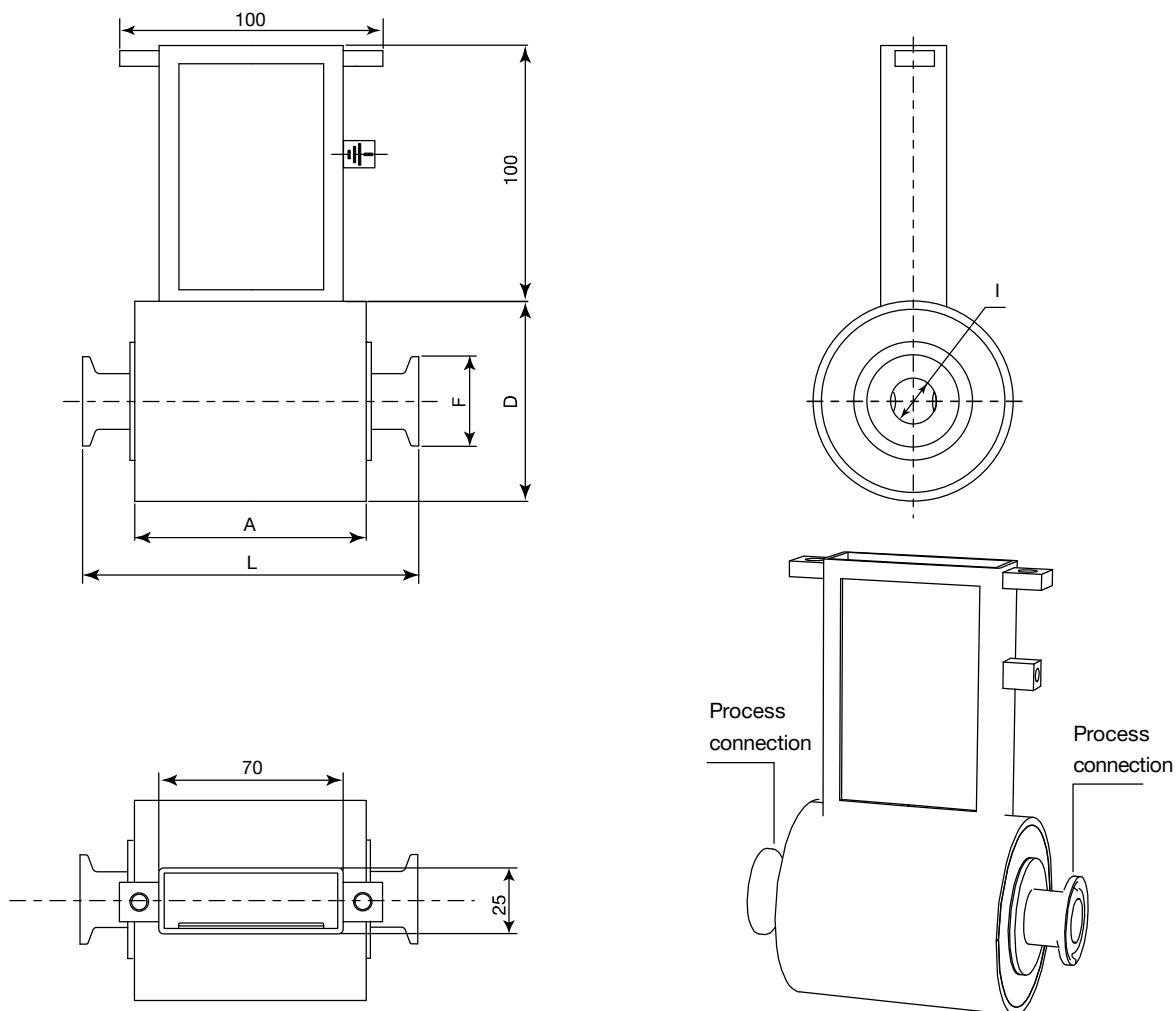


S055 compact or remote, with flanges PN16

DN	H	L	Standard	L1	Z	D1	D
25	185	200	EN1092-1	18	4x14	85	115
	182		ANSI 150 RF	16,3	4x15,9	79,4	107,9
32	203	200	EN1092-1	18	4x18	100	140
	192		ANSI 150 RF	17,9	4x15,9	88,9	117,5
40	213	200	EN1092-1	18	4x18	110	150
	202		ANSI 150 RF	19,5	4x15,9	98,4	127
50	228	200	EN1092-1	18	4x18	125	165
	222		ANSI 150 RF	21,1	4x19	120,7	152,4
65	248	200	EN1092-1	18	4x18	145	185
	245		ANSI 150 RF	24,3	4x19	139,7	177,8
80	263	200	EN1092-1	20	8x18	160	200
	258		ANSI 150 RF	25,9	4x19	152,4	190,5
100	283	250	EN1092-1	20	8x18	180	220
	287		ANSI 150 RF	25,9	8x19	190,5	228,6
125	313	250	EN1092-1	22	8x18	210	250
	315		ANSI 150 RF	25,9	8x22,2	215,9	254
150	344	300	EN1092-1	22	8x22	240	285
	341		ANSI 150 RF	27,4	8x22,2	241,3	279,4
200	399	350	EN1092-1	24	12x22	295	340
	401		ANSI 150 RF	30,6	8x22,2	298,5	342,9

Dimensions [mm] of Type S056 sensor fitting – compact version –
Process connection according to Clamp ISO2852 or BS4825

NOTE: Dimensions of SE56 electronics



DN	A	L	D	Standard	F	I
03	77	128	76	Clamp ISO2852 Clamp BS4825	34 25.4	12.7 9.5
06	77	128	76	Clamp ISO2852 Clamp BS4825	34 25.4	12.7 9.5
10	77	128	76	Clamp ISO2852 Clamp BS4825	34 25.4	12.7 9.5
15	77	128	76	Clamp ISO2852 Clamp BS4825	34 25.4	17.2 15.85
20	77	128	76	Clamp ISO2852 Clamp BS4825	34 50.5	21.3 22.2
25	100	180	76	Clamp ISO2852 Clamp BS4825	50.5 50.5	22.6 22.2
40	100	180	89	Clamp ISO2852 Clamp BS4825	50.5 50.5	35.6 34.9
50	100	180	114	Clamp ISO2852 Clamp BS4825	64 64	48.6 47.6
65	100	180	140	Clamp ISO2852 Clamp BS4825	77.5 77.5	60.3 60.3
80	100	200	140	Clamp ISO2852 Clamp BS4825	91 91	72.9 72.9



Ordering chart

8051 / 8055 / 8056

Electronics for electromagnetic flowmeters - SE56				Item no.
Stainless steel				558 306
Aluminium				558 747
Inline Flow Meter				
Connection [inch]	Orifice [mm]	Flow Range	Lining	Item no.
ISO 228-1 Inline sensor fitting - S051 - Stainless steel body				
1/4	3	0...250 l/h	PTFE	554 321
3/8	6	0...1000 l/h	PTFE	553 065
1/2	10	0...3000 l/h	PTFE	553 374
3/4	15	0...6000 l/h	PTFE	553 481
1	20	0...12500 l/h	PTFE	553 539
DIN 2501 Inline sensor fitting - S055 - Carbon steel body				
1	25	0...18 m³/h	PP	553 540
1 1/2	40	0...45 m³/h	PP	553 542
2	50	0...72 m³/h	PP	553 485
2 1/2	65	0...120 m³/h	PP	553 393
3	80	0...180 m³/h	PP	553 394
4	100	0...280 m³/h	PP	553 489
6	150	0...640 m³/h	PP	557 512
BS 4825 Hygienic clamp Inline sensor fitting - S056 - Stainless steel body				
1/8	3	0...250 l/h	PTFE	559 786
1/4	6	0...1000 l/h	PTFE	553 325
3/8	10	0...3000 l/h	PTFE	554 350
1/2	15	0...6000 l/h	PTFE	553 533
3/4	20	0...12500 l/h	PTFE	553 534
1	25	0...18 m³/h	PTFE	553 535
1 1/2	40	0...45 m³/h	PTFE	553 536
2	50	0...72 m³/h	PTFE	553 537
2 1/2	65	0...120 m³/h	PTFE	553 538
3	80	0...180 m³/h	PTFE	559 791

Transmitter for electromagnetic-inductive flow sensor fittings

SE56

- Must be equipped with sensor fitting S051, S055 or S056 (see **Type 8051, 8055 and 8056** ►)
- Continuous measurement or batch control
- High accuracy
- PROFIBUS DP, HART available



The electronics Type SE56 (blind in compact version or with display in compact or remote version) connected to the magnetic flow sensor fitting Type S051, S054, S055 or S056 is designed for applications with liquids with a minimum conductivity of 5 µS/cm.

The device can be parameterize either with 3 keypads (version with display) or by computer via a serial interface.

As standard, the equipment is supplied with one or two transistor outputs and one digital input. As options, other features are available: such as high frequency output, current output, PROFIBUS DP, HART.

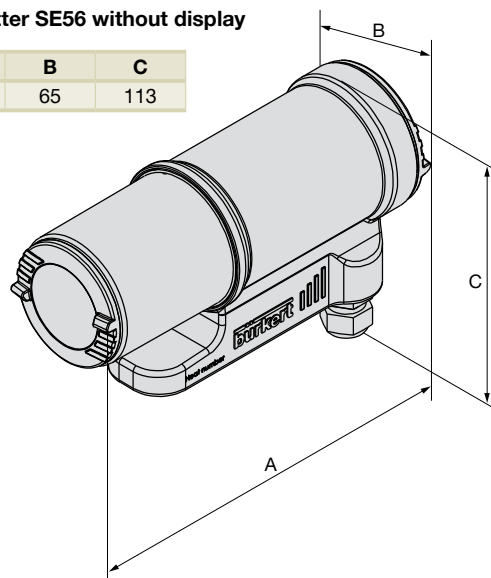
Technical data

General data - transmitter SE56 standard with display	
Housing materials	Die casting aluminium or stainless steel 304 electro-polish
Display	Graphic display 8 lines x 16 Characters, 128x64 pixels with back light
Keyboard	3 membrane keys
Electrical connection	6 cable glands PG11
Electrical data	
Power supply	90...265 V AC - 44 Hz...66 Hz
Power consumption	Max. 25 VA
Cable length	Max. 20 m (distance between sensor fitting and electronics)
Input circuit	1 digital, selectable function
Outputs	
Transistor	2 outputs, selectable open collector as pulse/frequency (1250 Hz, 100 mA, 40 V DC) or alarm (adjustable usage)
Current	1 output, 4...20 mA - RL = 1000 Ω (+ a second output, on request)
Serial interface (on request)	RS 485, RS232, PROFIBUS DP or HART
Velocity range	0.4...10 m/s
Measurements tolerance	
Flow rate (volume) = ±0.05 % of reading	
Out 4/20 mA = ±0.08 % of reading	
Frequency out = ±0.08 % of reading	
Measurement deviation¹⁾	±0.2 % of reading (see diagram)
Repeatability	±0.1 % of reading
Galvanic isolation	All the input/outputs are galvanically isolated from power supply
Data storage	An EEPROM stores the measured values (in case of power failure)

Dimensions [mm]

Transmitter SE56 without display

A	B	C
184	65	113



Special functions	Bidirectional measure; Dual measurement range; Diagnostic function; Empty pipe detection Remote configuration (for connection to PC or hand terminal through remote configuration tool kit); Batch function
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Environment	
Ambient temperature	Operating and storage -20...+60 °C
Relative humidity	≤ 85 %, without condensation
Height above sea level	-200...6000 m
Standards, directives and certifications	
Protection class	Class I, IP67, category of installation II
Standards and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)

¹⁾ under reference conditions: water temperature = 20 °C, ambient temperature = 25 °C, constant flow rate during the test, liquid speed > 1 m/s

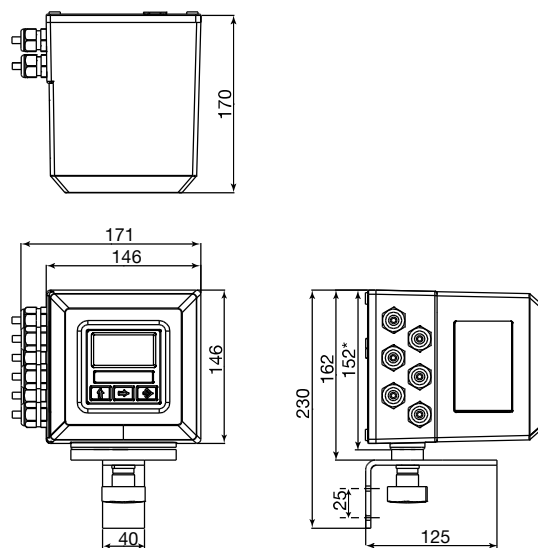
Technical data continued

General data - transmitter SE56 blind	
Materials	
Housing	Stainless steel
Cover	PPS
Seal	EPDM
Display	None
Parameterization	Through remote configuration tool kit (accessories Article no. 559374)
Electrical connection	2 cable glands PG9
Electrical data	
Power supply	20...30 V DC
Power consumption	Max. 10 W
Input	1 digital, selectable function
Outputs	
Transistor	2 outputs, selectable open collector as pulse/frequency (1250 Hz, 100 mA, 40 V DC) or alarm (adjustable usage)
Current	1 output, 4...20 mA - RL = 800 Ω passive
Serial interface (on request)	RS 485 or PROFIBUS DP
Measurement deviation¹⁾	± 0.2 % of reading (see diagram)
Repeatability	± 0.1 % of reading
Galvanic isolation	All the input/outputs are galvanically isolated from power supply
Data storage	An EEPROM stores the measured values (in case of power failure)
Special functions	Bidirectional measure; Diagnostic function; Empty pipe detection; Remote configuration (for connection to PC or hand terminal); Batch function
Velocity range	0.4...10 m/s
Environment	
Ambient temperature	
Operating and storage	-20...40 °C
Relative humidity	≤ 85 %, without condensation
Height above sea level	-200...6000 m
Standard	
Protection	Class I, IP67, category of installation II
Standard	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)

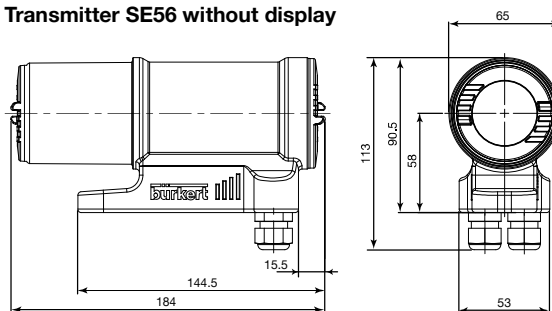
1) under reference conditions: water temperature = 20 °C, ambient temperature = 25 °C, constant flow rate during the test, liquid speed > 1 m/s

Dimensions [mm]

Transmitter SE56 Standard with Display



Transmitter SE56 without display





Ordering chart

SE56

Description	Power supply	Output	Body material	Electrical connection	Article no.
Standard compact version with display	90...265 V AC	2 transistors	Aluminium	6 cable glands	558745
			Stainless steel	6 cable glands	559780
		2 transistors + 4...20 mA	Aluminium	6 cable glands	558747
			Stainless steel	6 cable glands	558306
Standard wall-mounting version with display	90...265 V AC	2 transistors	Aluminium	6 cable glands	559781
			Stainless steel	6 cable glands	558310
		2 transistors + 4...20 mA	Aluminium	6 cable glands	558750
			Stainless steel	6 cable glands	558308
Basic compact version with display	90...265 V AC	2 transistors	Nylon	3 cable glands	562439
		2 transistors + 4...20 mA	Nylon	3 cable glands	562440
	12...60 V DC	2 transistors	Nylon	3 cable glands	562443
		2 transistors + 4...20 mA	Nylon	3 cable glands	562444
Basic compact version without display	90...265 V AC	2 transistors	Nylon	3 cable glands	562441
		2 transistors + 4...20 mA	Nylon	3 cable glands	562442
	12...60 V DC	2 transistors	Nylon	3 cable glands	562445
		2 transistors + 4...20 mA	Nylon	3 cable glands	562446
Blind compact version	20...30 V DC	up to 4 transistors	Stainless steel	2 cable glands	559132
		up to 4 transistors + 4...20 mA	Stainless steel	2 cable glands	559133
		up to 4 transistors + PROFIBUS DP	Stainless steel	2 cable glands	559134

Note:

The SE56 transmitter and the selected S051, S055 or S056 sensor fitting must be ordered separately

Accessories

Description	Article no.
Remote configuration tool kit	559374

Positive displacement low flow sensor

8077

- For highly viscous fluids
- Value indication, monitoring, transmitting, On/Off control and batch control in combination with different transmitters



This positive displacement sensor is specially designed for measurement or batch control of highly viscous fluids like glue, honey or oil. It allows an easy connection to transmitters like type 8025 and 8619 for more functionality.

The design of this low flow sensor is based on the oval rotor principle. This has proven to be a reliable and highly accurate volumetric method of measuring flow. Exceptional repeatability and high accuracy over a wide range of viscosities and flowrates are features of that design. The low pressure drop and high pressure rating make it suitable for both gravity and pump (in-line) applications.

All sensors provide Open Collector NPN frequency output and frequency output on Reed contact via 1 meter 5-wire cable with open ends.

Technical data

General data

Compatibility	With Type 8025 Universal transmitter/batch controller (see Type 8025 ► or corresponding data sheet Type 8025 ►) or Typ 8619 multiCELL transmitter/Controller (see Type 8619 ► or corresponding data sheet Type 8619 ►)
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Materials

Electronic module	PP (20 % glass fiber)
Tag plate	Aluminium
Wetted parts materials	
Body	Aluminium, stainless steel 316L (1.4401)
Rotor	Stainless steel 316L (1.4401)
Shaft	Stainless steel 316L (1.4401)
Seal	FEP/PTFE

Electrical connections	5-wire cable, 1 m length
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Environment

Ambient temperature	- 15...+60 °C (operating and storage)
Relative humidity	≤ 85 %, non condensated

Complete device data

Process connection	Thread 1/8; 1/4 (G or NPT)
Measuring range	0.5...500 l/h (depends on the version)

Fluid temperature max.

Aluminium body	-20...+80 °C
Stainless steel body	-20...+120 °C

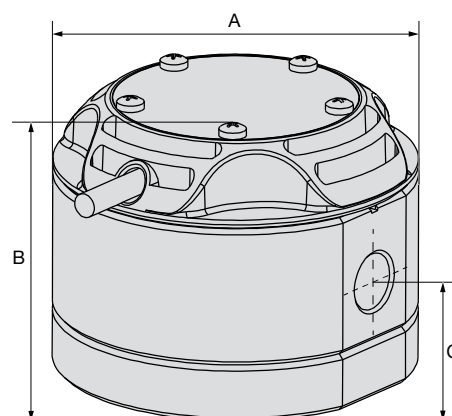
Fluid pressure max.

Aluminium body:	55 bar
Stainless steel body:	55 bar (550 bar on request)

Viscosity

	1 Pa.s. max. (higher on request)
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Dimensions [mm]



A	B	C
74	59	25

Max. particle size	75 mm - To prevent damage from dirt or foreign matter, we strongly recommend the installation of a 75 mm (200 mesh) strainer as close as possible to the inlet side of the meter.
Measurement deviation	± 1 % of Reading (if "standard" K-factor is used) ± 0.5 % of Reading (if "specific" K-factor is used, on label of the product)
Repeatability	≤ 0.03 % of Reading
Electrical data	
Sensor type	Hall effect sensor or Reed contact
Current consumption	≤ 9 mA (Hall effect sensor)
Output frequency	
Hall effect sensor	Open collector, NPN, max. 25 mA, 4.5...24 V DC
Reed contact	Switching voltage 30 V DC, max. current, 0.5 A
Standard K-factor	
0.5...100 l/h	1000 pulses/l
15...500 l/h	400 pulses/l

Technical data continued

Standards, directives and certifications	
Protection class	IP67, IP66, NEMA 6
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable) Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ¹⁾
Pressure	

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

1) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

Ordering chart

Process connection	Flow range		Body material	Max. pressure	Rotor / shaft material	Seal	Article no.
	> 5 mPa.s	< 5 mPa.s					
G 1/8	0.5...100 l/h (0.13...26.4 gph)	2...100 l/h (0.53...26.4 gph)	Aluminium	55 bar	Stainless steel	FEP/PTFE	567202
			Stainless steel	55 bar	Stainless steel	FEP/PTFE	567203
NPT 1/8	0.5...100 l/h (0.53...26.4 gph)	2...100 l/h (0.53...26.4 gph)	Aluminium	55 bar	Stainless steel	FEP/PTFE	567204
			Stainless steel	55 bar	Stainless steel	FEP/PTFE	567205
G 1/4	0.5...100 l/h (0.13...26.4 gph)	2...100 l/h (0.53...26.4 gph)	Stainless steel	55 bar	Stainless steel	FEP/PTFE	567206
	15...500 l/h (4.00...132 gph)	40...500 l/h (10.56...132 gph)	Stainless steel	55 bar	Stainless steel	FEP/PTFE	567207
	15...500 l/h for high viscosity ²⁾		Stainless steel	55 bar	Stainless steel	FEP/PTFE	567208
NPT 1/4	0.5...100 l/h (0.53...26.4 gph)	2...100 l/h (0.53...26.4 gph)	Stainless steel	55 bar	Stainless steel	FEP/PTFE	567209
	15...500 l/h (4.00...132 gph)	40...500 l/h (10.56...132 gph)	Stainless steel	55 bar	Stainless steel	FEP/PTFE	567210
	15...500 l/h for high viscosity ²⁾		Stainless steel	55 bar	Stainless steel	FEP/PTFE	567211

2) > 1 Pa.s.

Accessories

Description	Article no.
Set of two rotors in stainless steel for measuring range 0.5...100 l/h	567766
Set of two rotors in stainless steel for measuring range 15...500 l/h	567767
FEP/PTFE seal for measuring range 0.5...100 l/h	567768
FEP/PTFE seal for measuring range 15...500 l/h	567769
Set of plastic cap with hall sensor and Reed contact	567770

Flowmeter for water continuous measurement

8081

- Ultrasonic flowmeter using transit time method
- Dynamic range $\geq 1:250$
- Low pressure drop
- No flow-settling section necessary in the inlet and/or outlet



The Type 8081 ultrasonic flowmeter is intended for the measurement of water flows which may be slightly charged with contaminants. It consists of an electronic module and a brass fitting with a built-in measuring tube. It enables a control loop to be established. The electrical connection is made via a 5 pin M12 fixed connector.

The flowmeter features, depending on the version:

- A pulse output or
- A pulse output and a 4...20 mA current output.

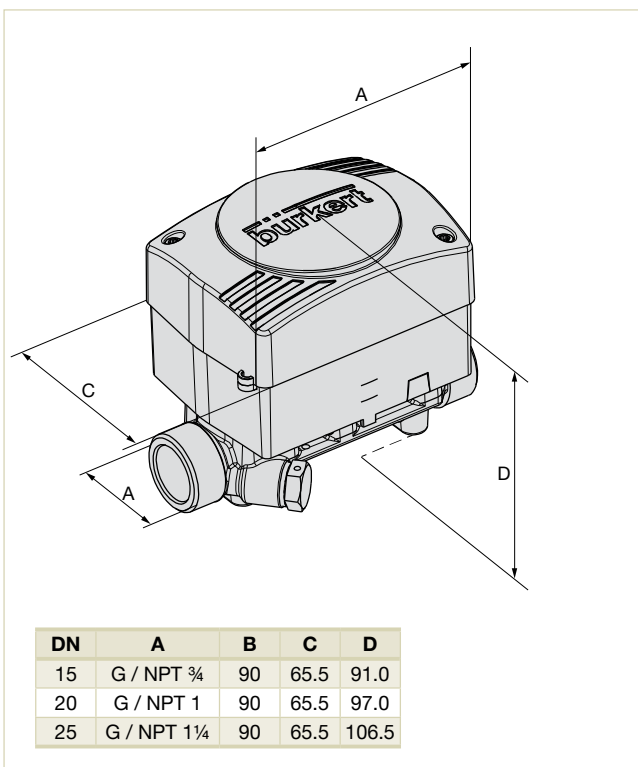
Each version is available for 5 flow ranges:

- Model QN 0.6 DN15: 0.06...20 l/min
(nominal flow rate 0.6 m³/h namely 10 l/min)
- Model QN 1.5 DN15: 0.1...50 l/min
(nominal flow rate 1.5 m³/h namely 25 l/min)
- Model QN 2.5 DN20: 0.16...82 l/min
(nominal flow rate 2.5 m³/h namely 41 l/min)
- Model QN 3.5 DN25: 0.6...116 l/min
(nominal flow rate 3.5 m³/h namely 58 l/min)
- Model QN 6.0 DN25: 1...200 l/min
(nominal flow rate 6.0 m³/h namely 100 l/min)

Technical data

General data	
Process connection	G or NPT External thread; ¾, 1 or 1¼
Materials	
Housing, cover	PPS
Fixed connector M12	PA
Seal	Silicone
Materials wetted parts	
Fitting	Brass
Measuring tube	PES
Seal	EPDM
Electrical connection	5 pin M12 male fixed connector for female 5 pin M12 cable plug (not provided)
Connection cable	1.5 mm ² max. cross-section
Complete device data (fitting + electronic module)	
Pipe diameter	DN15...DN25
Measuring range	0.06...200 l/min
Measuring element	2 ultrasound emitter-receiver cells
Fluid temperature	+5...+90 °C

Dimensions [mm]




Fluid pressure max.	PN16
Accuracy (Flowrate)	≤ 0.01 % of full scale ¹⁾ + 2 % of measuring value ²⁾ (see measurement deviation diagram)
Repeatability	≤ 1 %

1) Full scale, see flow range on measurement deviation diagram

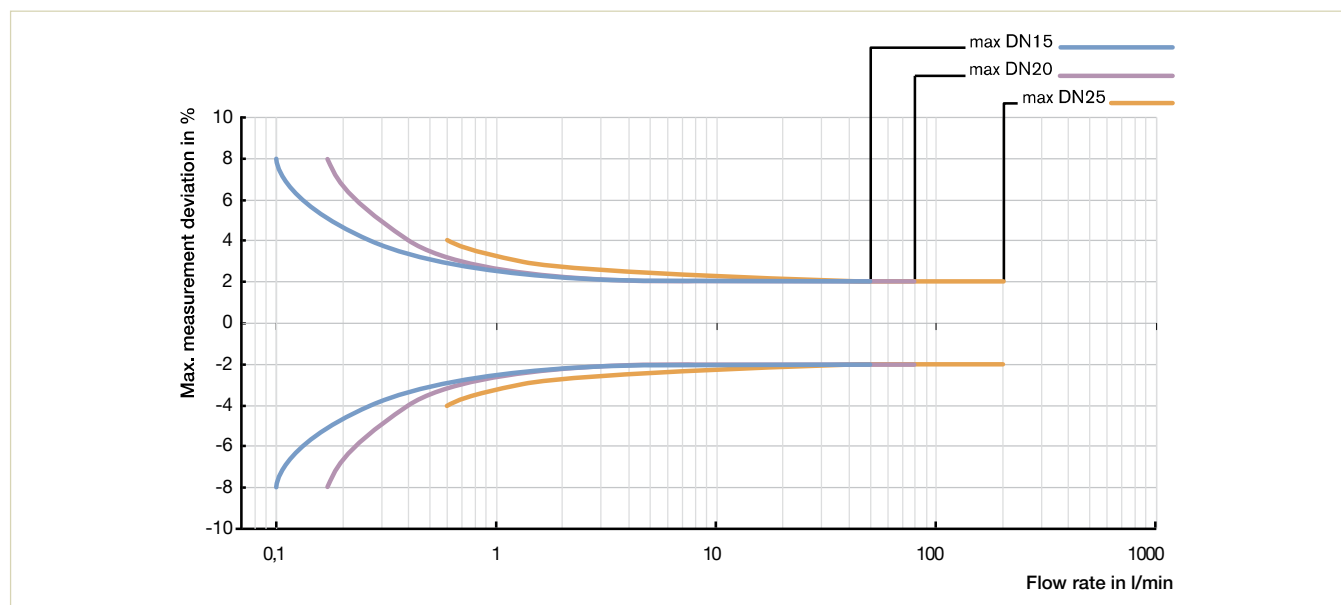
2) Under reference conditions i.e. measuring fluid = water, ambient and water temperature = +20 °C.

Technical data continued

Electrical data	
Power supply (V+)	12...36 V DC
Reversed polarity of DC	Protected
Current consumption	Own consumption: < 4 mA Consumption with load: < 1 A
Output	
Pulse (transistor)	Protected against overvoltage, polarity reversals and short circuit
Version without current output	NPN (as default setting) or PNP (on request), open collector, 700 mA max., 5 mA min., NPN output: 0.2...36 V DC
Version with current output	PNP (as default setting) or NPN (on request), open collector, 700 mA max., 5 mA min., PNP output: supply voltage (V+)
Current	4...20 mA (sourcing mode and PNP transistor as default setting, sinking mode and NPN transistor on request) Loop resistance max. : 1100 Ω at 36 V DC 610 Ω at 24 V DC; 100 Ω at 12 V DC
Scaling	
Pulse (Transistor)	K-factor: 500 Pulse/Litre (QN 0.6 and 1.5) 200 Pulse/Litre (QN 2.5...3.5) 100 Pulse/Litre (QN 6.0)
Current	4 mA correspond to 0 l/min and 20 mA correspond to Q_{max} of flow range (by default)
Environment	
Ambient temperature	+5...+55 °C (operating and storage)
Relative humidity	≤ 80 %, without condensation

Standards, directives and certifications	
Protection class	IP65 with M12 cable plug plugged-in and tightened
Standard and directives 	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Pressure	Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ¹⁾
Certificates (on request)	Test report 2.2; Calibration certificate
1) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).	
Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Measurement deviation diagram





Ordering chart

8081

Model	DN [mm]	Flow range	Process connection	Outputs	Article no.
QN 0.6	15	0.06...20 l/min	External thread G ¾	NPN-Pulse	560131
				PNP-Pulse + 4...20 mA as source	560113
			External thread NPT ¾	NPN-Pulse	560612
				PNP-Pulse + 4...20 mA as source	560617
QN 1.5	15	0.1...50 l/min	External thread G ¾	NPN-Pulse	559865
				PNP-Pulse + 4...20 mA as source	559868
			External thread NPT ¾	NPN-Pulse	560613
				PNP-Pulse + 4...20 mA as source	560618
QN 2.5	20	0.16...82 l/min	External thread G 1	NPN-Pulse	559866
				PNP-Pulse + 4...20 mA as source	559869
			External thread NPT 1	NPN-Pulse	560614
				PNP-Pulse + 4...20 mA as source	560619
QN 3.5	25	0.6...116 l/min	External thread G 1¼	NPN-Pulse	559867
				PNP-Pulse + 4...20 mA as source	559870
			External thread NPT 1¼	NPN-Pulse	560615
				PNP-Pulse + 4...20 mA as source	560620
QN 6.0	25	0.4...200 l/min	External thread G 1¼	NPN-Pulse	560132
				PNP-Pulse + 4...20 mA as source	560114
			External thread NPT 1¼	NPN-Pulse	560616
				PNP-Pulse + 4...20 mA as source	560621

Accessories

Description	Article no.
5 pin M12 female cable plug with plastic threaded locking ring	917116
5 pin M12 female cable plug moulded on cable (2 m, shielded)	438680

FLOWave SAW-Flowmeter

8098
FLOWave

- No parts in the measurement tube
- Conform to hygienic requirements, CIP/SIP capable
- Ideal for low conductivity or non conductive fluids
- Digital communication
- Compact, low weight and energy-efficient



The flowmeter Type 8098 is a product of the FLOWave range. It uses the SAW (Surface Acoustic Waves) technology and is at first designed for the use in applications requiring that all hygienic conditions are fulfilled.

FLOWave offers a range of features, including advantages by flexibility, cleanability (e.g. CIP and SIP), compact size, light weight, easy installation and handling, and is compliant with numerous standards.

Technical data

General data	
Fluids	Non dangerous liquids complying with article 4, §1 of 2014/68/EU directive (see "Standard and directives" on page 575 ▶)
Process connection/pipe size acc. to	
DIN 32676 series B (ISO 1127)	DN15, DN25, DN40 and DN50
DIN 32676 series C (ASME BPE)	¾", 1", 1½", 2"
DIN 32676 series A (DIN 11850)	DN15, DN25, DN40 and DN50
DIN 11864-2 form A series A or B	Aseptic collar flange (BF) ¹⁾ : DN15, DN25, DN40 and DN50
DIN 11864-2 form A series C	Aseptic collar flange (BF) ¹⁾ : ¾", 1", 1½", 2"
DIN 11864-3 form A series A or B	Aseptic collar flange (BKS) ²⁾ : DN25, DN40 and DN50
DIN 11864-3 form A series C	Aseptic collar flange (BKS) ²⁾ : ¾", 1", 1½" and 2"
SMS 3017 (SMS 3008))	DN25, DN40, DN50
Materials	
Wetted parts	
Measurement tube, Clamp	Stainless steel 316L/1.4435 BN2
Unwetted parts	
Transmitter and sensor housings	Stainless steel 304/1.4301
Seal / Display	VMQ ³⁾ silicone / Float glass, st. st. 304/1.4301
Cable glands and blind plugs	Nickel plated brass and black POM ⁴⁾ or stainless steel and PA6
4 pin M12 female connector and screwed plug	Stainless steel
5 pin M12 male connector and screwed plug	Nickel plated brass or stainless steel
Pressure compensating element	Diaphragm in ePTFE, o-ring in silicone 60 Shore A, body in stainless steel
Name plate	Matt white top coated polyester

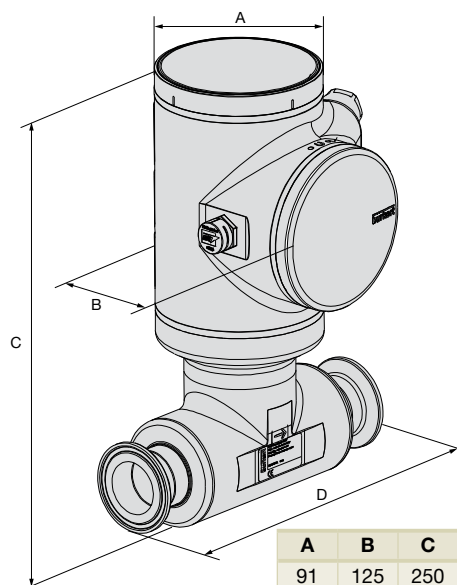
1) BF = Bundflansch

2) BKS= Bundklemmstutzen

3) VMQ= Methyl-Vinyl-Silikon

4) POM= Polyoxymethylen

Dimensions [mm]



A	B	C	D
91	125	250	6)

6) Depend on the process connection used.
Data sheet; see **Type 8098** ▶

Surface finish⁵⁾	
Measurement tube (inner surface)	Ra < 0.8 µm or Ra < 0.4 µm (electro polished)
Measurement tube (outer surface) and housing	Ra < 1.6 µm (excluding welding seams)
Weight [approx. - kg]	
Clamp	DN15/¾" 2 DN25/1" 2.2 DN40/1½" 3 DN50/2" 3.2
Flange	2.4 2.7 3.6 3.8
Display	2.4", monochrome graphic (240 x 160 pixel) German, English, French languages
Wi-Fi module (Can be used in conjunction with the display. Approved for Europe, USA and Canada)	Wi-Fi module (wireless standards 802.11b/g/n) with integrated web server. Offers the same features as the display. Transmission power: approx. 50 mW Radio range limited to approx. 10 m. Integration into existing Wi-Fi infrastructure possible. Requirements: - Windows 7, 8.1 or 10: IE11, Edge, Google Chrome, from version 53 - Android with Google: Chrome, from version 53 - Apple: Safari, from iOS 9.3.5

5) According to ISO 4288

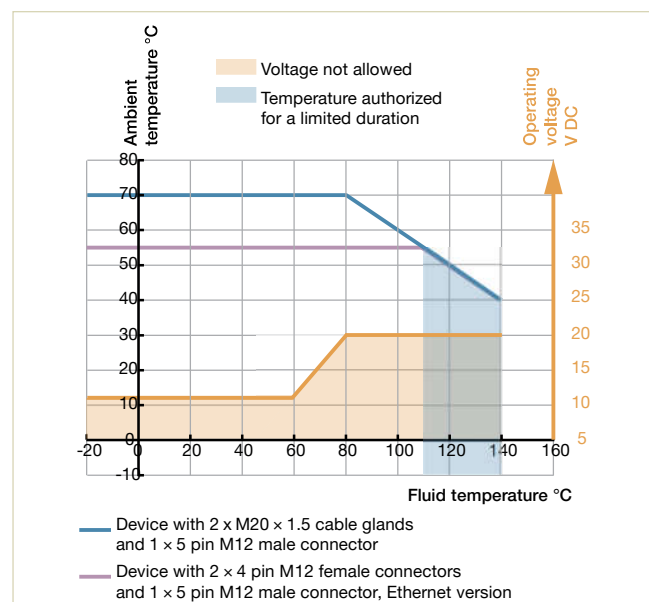
Technical data continued

Electrical connection	2 x M20 x 1.5 cable glands and 1 x 5 pin M12 male fixed connector (A-coded) or 2 x 4 pin M12 female fixed connectors (D-coded) and 1 x 5 pin M12 male fixed connector (A-coded)
Recommended cable for Cable glands	0.2...1.5 mm ² cross-section
-in nickel plated brass	-cable with maximum operating temperature greater than +90 °C; 5...14 mm diameter, shielded cable,
-in stainless steel	-cable with maximum operating temperature greater than +100 °C; 6...12 mm diameter, shielded cable
5 pin M12 male connector (A-coded)	Cable with maximum operating temperature greater than +80 °C; 3...6.5 mm diameter, shielded cable, 0.75 mm ² cross-section to connect to 5 pin M12 female connector (A-coded, not supplied)
4 pin M12 female connector (D-coded)	Cable with maximum operating temperature greater than +90 °C; 5e / CAT-5 min. category, 100 m max. length, shielded conductor with minimum STP
Volume flow rate measurement¹⁾	
Measuring range	0...7 m ³ /h to 0...90 m ³ /h (see ordering chart)
Measurement deviation from 10 % of F.S. ²⁾ up to F.S. ²⁾	±0.4 % of the Reading
from 1 % of F.S. ²⁾ up to 10 % F.S. ²⁾	±0.08 % of F.S. ²⁾
Repeatability from 10 % of F.S. ²⁾ up to F.S. ²⁾	±0.2 % of the Reading
from 1 % of F.S. ²⁾ up to 10 % F.S. ²⁾	±0.04 % of F.S. ²⁾
Refresh time	40 ms; 80 ms; 130 ms selectable
Temperature measurement	
Measuring range	-20...+140 °C
Measurement deviation for T° ≤ 100 °C	±1 °C
100 °C < T° < 140 °C	±1.5 %
Refresh time	1 s
Additional measurement (optional)	- ATF: acoustic transmission factor - DF: density factor
Fluid temperature (The maximum fluid temperature can be restricted by the ambient operating temperature)	-20...+110 °C Max. conditions for sterilisation process: up to +140 °C for 60 min.
Maximum temperature gradient	10 °C/s (measured by the integrated sensor on the device)
Fluid nominal pressure max for DN15, DN25, ¾", 1", 1 ½" DN40	PN25 -PN25 for DIN 11866 series A (DIN 11850)- & SMS 3008 pipe -PN16 DIN 11866 series B (ISO 1127) pipe
DN50, 2"	PN16
Electrical data	
Operating voltage (The minimum voltage to be supplied depends on the fluid temperature and on the ambient operating temperature)	12...35 V DC, filtered and regulated, Tolerance: ±10 % Connection to main supply: permanent (through external SELV (Safety Extra Low Voltage) and LPS (Limited Power Source) power supply)
Reversed polarity of DC	Protected
Power consumption (without any consumption of output)	Max. 5 W (for device with 2 x M20 x 1.5 cable glands and 1 x 5 pin M12 connector) or max. 8 W (for device with 2 x 4 pin M12 connectors and 1 x 5 pin M12 connector, Ethernet version) or max. 9 W (for device with 2 x 4 pin M12 connectors and 1 x 5 pin M12 connector, Ethernet version, with display and Wi-Fi module)
Power Source (not supplied)	Limited power source according to UL/EN 60950-1 standards or limited energy circuit according to UL/EN 61010- §9.4
Outputs	3 (1 digital, 1 analogue and 1 configurable: digital or analogue)

Digital outputs	Overload information (through diagnostic software function) Type: NPN or PNP (wiring dependent), open collector, galvanically isolated; Operating modes: pulse (by default), On/Off, threshold, frequency (user configurable) 0...2 kHz, 5...35 V DC, 700 mA max., Max. pulse duration: 65 ms; Protected against polarity reversals of DC and overloads
Transistor	
Frequency resolution	0.05 Hz over 0...2 kHz range
Analogue output	Open loop detection (through diagnostic software function)
Current	4...20 mA; 3.6 mA or 22 mA to indicate an error (only if 4...20 mA scale selected); Galvanically isolated Max. loop impedance: 1300 Ω at 35 V DC, 1000 Ω at 30 V DC, 700 Ω at 24 V DC, 450 Ω at 18 V DC
4...20 mA output uncertainty	±0.04 mA
4...20 mA output resolution	0.8 µA
Environment conditions	
Ambient temperature	Depends on the fluid temperature (see diagram)
Operation	-10...+70 °C (for device with 2 x M20 x 1.5 cable glands and 1 x 5 pin M12 connector) or -10...+55 °C (for device with 2 x 4 pin M12 female connectors and 1 x 5 pin M12 connector, Ethernet version)
Storage	-20...+70 °C
Relative humidity	<85 %, without condensation
Height above sea level	Max. 2000 m
Operating condition	Continuous
Equipment mobility	Fixed
Use	Indoor and outdoor (Protect the device against electromagnetic interference, ultraviolet rays and, when installed outdoors, against the effects of climatic conditions)
Pollution degree	Degree 2, according to UL/EN 61010-1
Installation category	Category I, according to UL/EN 61010-1




- 1) Under reference conditions i.e. measuring fluid = water free from gas bubbles and solids, ambient and water temperature = 23 °C, and standard refresh time 130 ms, while maintaining the minimum inlet (40 x DN) and outlet (1 x DN) distances and the appropriate internal diameter of the pipes. Deviation from reference conditions can be adjusted through the use of a built-in K factor adjustment or Teach in Procedure.
- 2) F.S. = of full scale (see ordering chart)

Ambient and fluid temperatures





Technical data continued

Standards, directives and certifications	
Protection class ¹⁾	IP65, IP67 (according to IEC/EN 60529), NEMA 4X (according to NEMA250), if the product is wired and if the cable glands are tightened and the covers are screwed tight. Unused cable glands must be sealed with the stopper gaskets provided (mounted upon delivery of the product). An unused M12 fixed connector must be protected by the screwed plug.
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Pressure	Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ²⁾
Certificates	EHEDG (Type EL - CLASS I) ³⁾ ; 3A (28-05); FDA certificate; Inspection certificate 3.1; Certification of compliance ASME BPE; Calibration certificate; On request: ECR1935/2004 declaration; Test report 2.2; Certification of conformity for the surface quality DIN 4762, EN ISO 4287, EN ISO 4288; Certification of conformity for passivating and electropolishing processes
Certification	
UL-Listed for US and Canada	UL 61010-1 + CAN/CSA-C22.2 No.61010-1 
PROFINET	Pending
EtherNet/IP	 (pending)
EtherCAT	 (pending)

1) Not evaluated by UL

2) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

3) The EHEDG compliance is only valid if used in combination with gaskets from Combi-fit International B.V.

Industrial communication (Ethernet version)	
Supported network protocols	Modbus TCP, PROFINET, EtherNet/IP or EtherCAT
LEDs	• 2 Link/Act LEDs (green) • 2 Link LEDs (yellow)
Electrical connection	2 ports 4 pin M12 (D-coded)
Modbus TCP protocol	
Protocol	Internet protocol, version 4 (IPv4)
Network topology	• Tree • Star • Line (open daisy chain)
IP configuration	• Static IP address • Not supported: BOOTP (Bootstrap Protocol); DHCP (Dynamic Host Configuration)
Transmission speed	10 or 100 MBit/s
PROFINET protocol	
PROFINET IO specification	V2.3
Network topology	• Tree • Star • Ring (closed daisy chain) • Line (open daisy chain)
Network management	• LLDP (Link Layer Discovery Protocol) • SNMP V1 (Simple Network Management Protocol) • MIB (Management Information Base)
IP configuration	• DCP (Discovery and Configuration Protocol) • Manual (Device naming and IP setting)
Transmission speed	100 MBit/s full duplex
Maximum supported conformance class	CC-B
Media Redundancy (for ring topology)	MRP client is supported
GSDml file	Available at / Download from: www.burkert.com
EtherNet/IP protocol	
Protocol	Internet protocol, version 4 (IPv4)
Network topology	• Tree • Star • Ring (closed daisy chain) • Line (open daisy chain)
IP configuration	• Static IP address • BOOTP (Bootstrap Protocol) • DHCP (Dynamic Host Configuration Protocol)
Transmission speed	10 or 100 MBit/s
Duplex modes	Half duplex, full duplex, auto-negotiation
MDI modes (Medium Dependant Interface)	Auto-MDIX
Predefined standard objects	Identity, Message Router, Assembly, Connection Manager, DLR, QoS, TCP/IP Interface, Ethernet Link object
EDS file	Available at / Download from: www.burkert.com
EtherCAT protocol ⁴⁾	
Industrial Ethernet interface X1, X2	X1: EtherCAT IN, X2: EtherCAT OUT
Maximum number of cyclic input/output data	512 bytes in total
Maximum number of cyclic input data	1024 bytes
Maximum number of cyclic output data	1024 bytes
Acyclic communication (CoE)	• SDO • SDO master-slave • SDO slave-slave (depends on master capacity)
Type	Complex slave
Fieldbus Memory Management Units (FMMUs)	8
Sync Managers	4
Transmission speed	100 Mbit/s

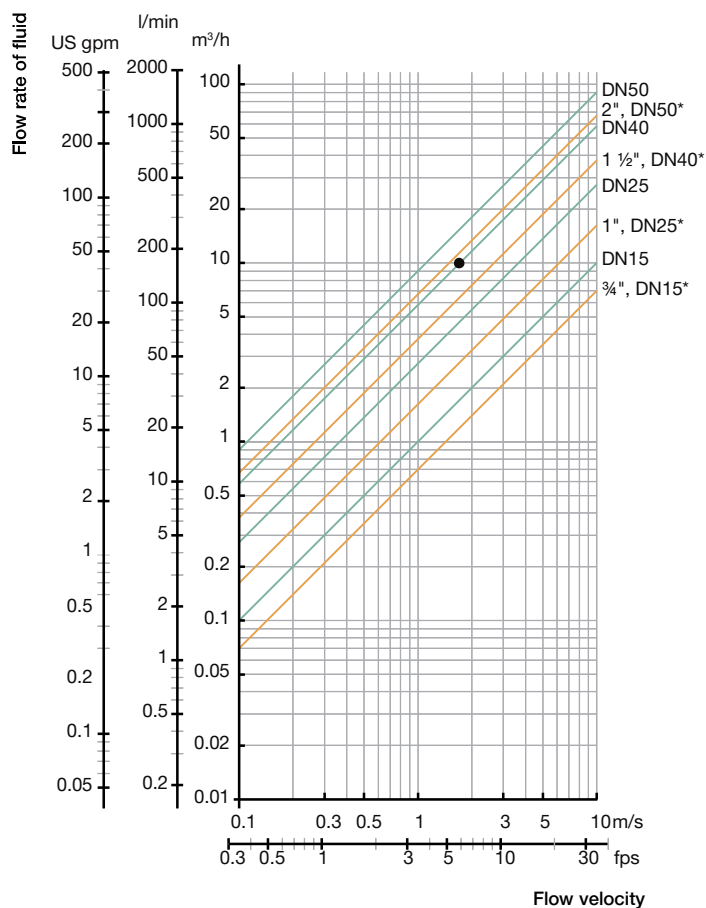
4) EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH..

Diagram flow rate/velocity/DN

Example:

- Flow rate: 10 m³/h
- Ideal flow velocity: 1...3 m/s

For these specifications, the diagram indicates a pipe size of DN40



*for:

DIN 32676 series C (ASME BPE)

DIN 32676 series A (DIN 11850)

SMS 3017

DIN 11864-2 form A series A

DIN 11864-3 form A series A

Measurement deviation per measurement area

DN	Pipe standard	Flow velocity [m/s] in sensor tube	0.1	1	10
3/4" 15	ASME BPE DIN 11850	Volume flow rate range [m ³ /h]	0.07	0.7	7
			< ±0.08 % of F.S. ¹⁾		±0.4 % of the Reading
15	ISO 1127	Volume flow rate range [m ³ /h]	0.10	1.0	10
			< ±0.08 % of F.S. ¹⁾		±0.4 % of the Reading
1" 25 25	ASME BPE DIN 11850 SMS 3008	Volume flow rate range [m ³ /h]	0.14	1.4	14
			< ±0.08 % of F.S. ¹⁾		±0.4 % of the Reading
25	ISO 1127	Volume flow rate range [m ³ /h]	0.25	2.5	25
			< ±0.08 % of F.S. ¹⁾		±0.4 % of the Reading
1 1/2" 40 40	ASME BPE DIN 11850 SMS 3008	Volume flow rate range [m ³ /h]	0.35	3.5	35
			< ±0.08 % of F.S. ¹⁾		±0.4 % of the Reading
40	ISO 1127	Volume flow rate range [m ³ /h]	0.56	5.6	56
			< ±0.08 % of F.S. ¹⁾		±0.4 % of the Reading
2" 50 50	ASME BPE DIN 11850 SMS 3008	Volume flow rate range [m ³ /h]	0.64	6.4	64
			< ±0.08 % of F.S. ¹⁾		±0.4 % of the Reading
50	ISO 1127	Volume flow rate range [m ³ /h]	0.90	9.0	90
			< ±0.08 % of F.S. ¹⁾		±0.4 % of the Reading

1) F.S. = of full scale (see ordering chart)



Ordering chart

8098 FLOWave	Clamp and pipe size [mm]	Meas-urement tube (outer surface), housing	Meas-urement tube (inner surface)	Clamp Dimensions D1 x s-D2 (s = wall thickness)	Operating voltage	Maximal flow rate	Electrical connection	Display	Certifications		Article no.
									3 A (28-04)	EHEDG ¹⁾	
	Clamp acc. to DIN 32676 series B (ISO 1127) process connection for pipe acc. to DIN 11866 series B (ISO 1127)										
	15	1.6 µm	0.8 µm	21.3×1.6...50.5	12...35 V DC	10 m³/h	2 cable glands M20×1.5 + 1 male fixed connector M12	Yes	Yes	Yes	566187
				21.3×1.6...34.0				Yes	Yes	No	566235
				21.3×1.6...50.5				No	Yes	Yes	566191
				21.3×1.6...34.0				No	Yes	No	566236
			0.4 µm	21.3×1.6...50.5				Yes	Yes	Yes	566195
				21.3×1.6...34.0				Yes	Yes	No	566237
				21.3×1.6...50.5				No	Yes	Yes	566199
				21.3×1.6...34.0				No	Yes	No	566238
	25	1.6 µm	0.8 µm	33.7×2.0...50.5	12...35 V DC	25 m³/h	2 cable glands M20×1.5 + 1 male fixed connector M12	Yes	Yes	Yes	566188
								No	Yes	Yes	566192
			0.4 µm					Yes	Yes	Yes	566196
								No	Yes	Yes	566200
	40	1.6 µm	0.8 µm	48.3×2.0...64.0	12...35 V DC	56 m³/h	2 cable glands M20×1.5 + 1 male fixed connector M12	Yes	Yes	Yes	566189
								No	Yes	Yes	566193
			0.4 µm					Yes	Yes	Yes	566197
								No	Yes	Yes	566201
	50	1.6 µm	0.8 µm	60.3×2.0...77.5	12...35 V DC	90 m³/h	2 cable glands M20×1.5 + 1 male fixed connector M12	Yes	Yes	Yes	566190
								No	Yes	Yes	566194
			0.4 µm					Yes	Yes	Yes	566198
								No	Yes	Yes	566202

1) The EHEDG compliance is only valid if used in combination with gaskets from Combifit International B.V.

Ordering chart

Clamp and pipe size [inch]	Meas-urement tube (outer surface), housing	Meas-urement tube (inner surface)	Clamp Dimen-sions D1 x s-D2 (s = wall thickness)	Operating voltage	Maximal flow rate	Electrical connection	Display	Certifications		Article no.
								3 A (28-04)	EHDG ¹⁾	
Clamp acc. to ASME BPE (DIN 32676 series C) process connection for pipe acc. to DIN 11866 series C (ASME BPE)										
¾	1.6 µm	0.8 µm	19.05 x 1.65...25.0	12...35 V DC	7 m³/h	2 cable glands M20 x 1.5 + 1 male fixed connector M12	Yes	Yes	Yes	566203
							No	Yes	Yes	566207
		0.4 µm					Yes	Yes	Yes	566211
							No	Yes	Yes	566215
1	1.6 µm	0.8 µm	25.4 x 1.65...50.5	12...35 V DC	14 m³/h	2 cable glands M20 x 1.5 + 1 male fixed connector M12	Yes	Yes	Yes	566204
							No	Yes	Yes	566208
		0.4 µm					Yes	Yes	Yes	566212
							No	Yes	Yes	566216
1½	1.6 µm	0.8 µm	38.1 x 1.65...50.5	12...35 V DC	35 m³/h	2 cable glands M20 x 1.5 + 1 male fixed connector M12	Yes	Yes	Yes	566205
							No	Yes	Yes	566209
		0.4 µm					Yes	Yes	Yes	566213
							No	Yes	Yes	566217
2	1.6 µm	0.8 µm	50.8 x 1.65...64.0	12...35 V DC	64 m³/h	2 cable glands M20 x 1.5 + 1 male fixed connector M12	Yes	Yes	Yes	566206
							No	Yes	Yes	566210
		0.4 µm					Yes	Yes	Yes	566214
							No	Yes	Yes	566218

1) The EHEDG compliance is only valid if used in combination with gaskets from Combifit International B.V.

Accessories

Description	Article no.
Bürkert system bus (bÜS)-Interface	772426
Unlocking magnetic key	690309
5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917116
5 pin M12 female and male straight cable plug moulded on cable (1 m, shielded)	772404
5 pin M12 female and male straight cable plug moulded on cable (3 m, shielded)	772405

Insertion fitting for flow or analytical measurement

S020 Fittings

- Universal fitting for Insertion measuring device in pure, aggressive or contaminated liquids
- Large range of process connections: DN06 to DN400 in PVC, PP, PVDF, PE, stainless steel, brass
- Transmitter available for:
 - Indication, Monitoring, Transmitting
 - On/Off control, Batch control

Example
S020 PVC



The fitting can be used to connect any Insertion device for a measurement in the pipe. e.g. for flow, pH, oxidation reduction potential (O.R.P) and conductivity measurement.

The fitting is available for paddle wheel and electromagnetic flowmeters and analytical measurement devices having a G 2 or a clamp connection.

Technical data

General data

Pipe diameter

G 2 flowmeter connection	DN06...DN400 ¹⁾
Clamp flowmeter connection	DN32...DN100

Fitting process connections

Metal	Internal or external thread, weld ends, clamp or flange
Plastic	True union, spigot or external thread

Materials

G 2 flowmeter connection	
Seal	FKM or EPDM
Body & adapter	Brass (CuZn ₃₉ Pb ₂) & stainless steel (316L - 1.4404) or all in PVC, PP, PVDF, PE or stainless steel (316L - 1.4404)
Clamp flowmeter connection	Stainless steel 316L

Surface finish

Clamp flowmeter connection	Ra < 0.8 µm
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Fluid data

Fluid temperature ²⁾	0...+50 °C for fitting in PVC 0...+80 °C for fitting in PP -15...+100 °C for fitting in PVDF -15...+160 °C for fitting in stainless steel or brass
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Fluid pressure (max.)²⁾

Metal	PN16
Plastic	PN10

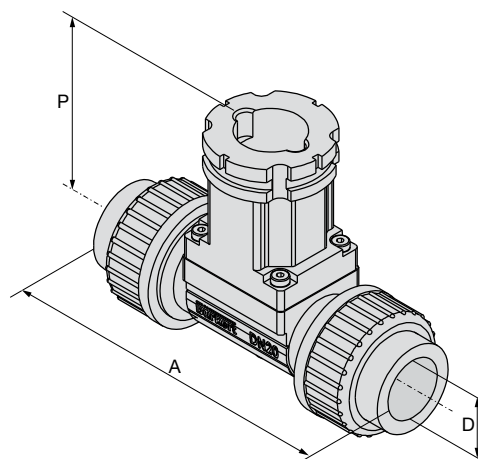
Environment

Ambient temperature	Temperature limits may depend on the inserted device. Refer to the relevant data sheet or instruction manual for more details
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1) Combination between fitting and measuring device is sometimes restricted to some DN.

2) Temperature and pressure limits may depend on the inserted device. Refer to the relevant data sheet or instruction manual and the Pressure/Temperature diagram of the fluid on next page. If the temperature or pressure ranges given for the adapter and the inserted device are different, use the most restrictive range.

Dimensions [mm]



True union process connection

DIN 8063 in PVC, DIN 16962 in PP or ISO 10931 in PVDF

DN	P	A	D
15	80.4	128.0	20.00
20	77.8	144.0	25.00
25	78.0	160.0	32.00
32	81.4	168.0	40.00
40	85.2	188.0	50.00
50	91.5	212.0	63.00

Note: short sensor version

Technical data continued

Standards, directives and certifications	
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Pressure	Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ¹⁾
Certificates	Inspection certificate 3.1 (acc. to EN-ISO 10204); Test report 2.2 (acc. to EN-ISO 10204); Certification of Conformity for the surface Quality (DIN4762-DIN4768-ISO/4287/1); 3 points Flow calibration certificate; FDA (with EPDM seal) - stainless steel fitting only

1) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Pressure/Temperature diagram

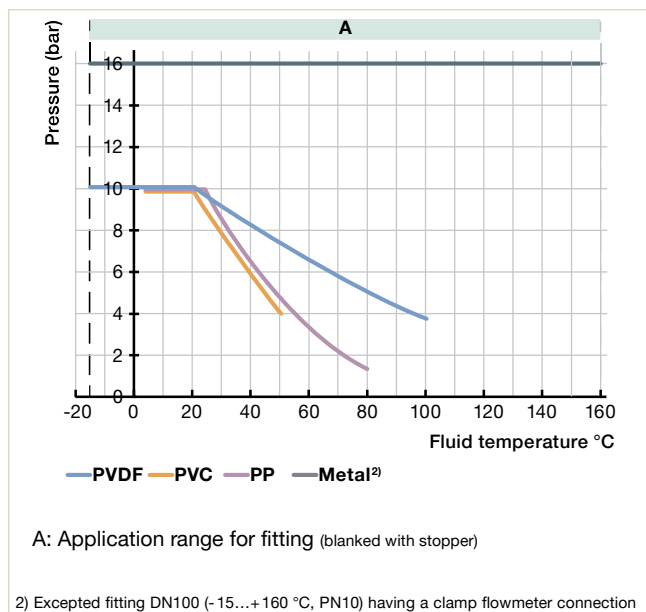


Diagram Flow/Velocity/DN

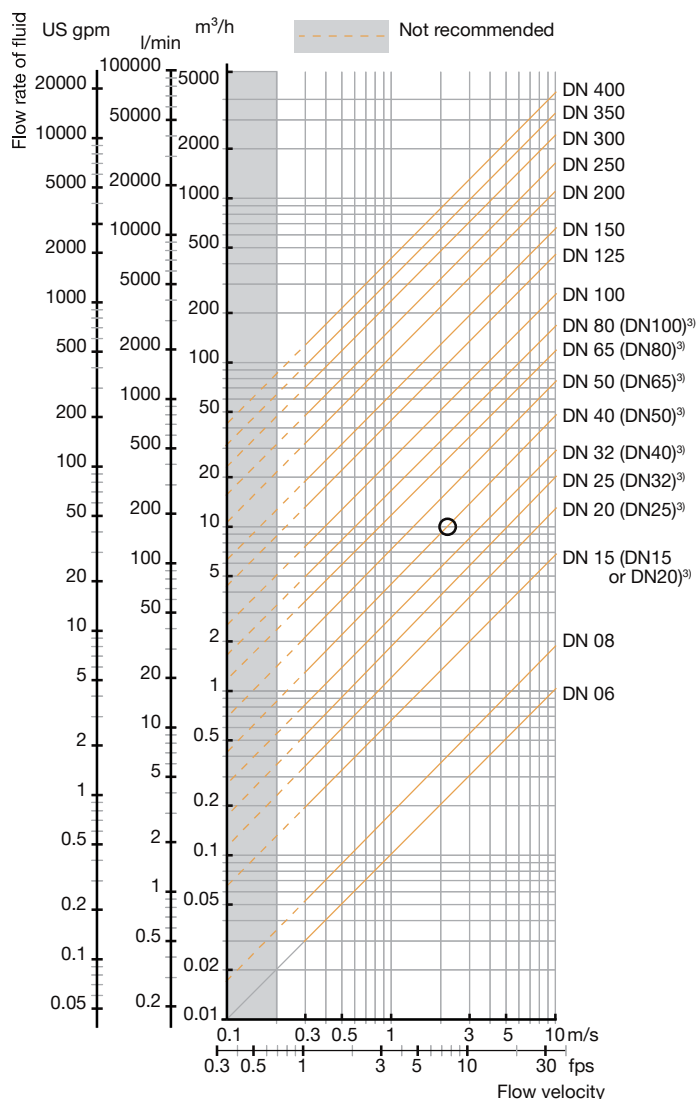
Selection help – flow velocity considerations

Depending on the sensor type, the right flow rate has to be chosen to get the best accuracy. The higher the flow velocity, the lower the measurement error, but the higher the pressure loss. The following chart will help you find the correct fitting diameter for your application depending on flow velocity and sensor technology. Pipes for fluids similar to water are generally designed for an average flow velocity of approx. 2...3 m/s.

Example:

- Flow: 10 m³/h
- Ideal flow velocity: 2...3 m/s

For these specifications, the diagram indicates a pipe size of DN40 [or DN50 for ³⁾ mentioned sensor-fittings]



3) for following sensor-fittings with:

- external threads acc. to SMS 1145
- weld ends acc. to SMS 3008, BS4825-1/ASME BPE/DIN 11866 series C or DIN 11850 series 2/DIN 11866 series A/DIN EN 10357 series A
- Clamp acc. to SMS 3017, BS 4825-3/ASME BPE or DIN 32676 series A

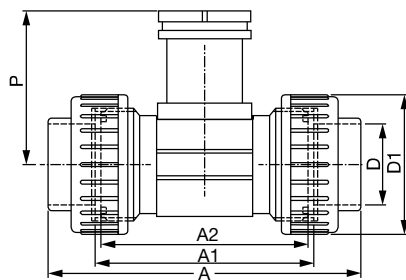
Dimensions [mm]

True union process connection

DIN 8063 in PVC, DIN 16962 in PP or ISO 10931 in PVDF

DN	P	A	A1	A2	D	D1
15	80.4	128.0	96	90	20.00	43
20	77.8	144.0	106	100	25.00	53
25	78.0	160.0	116	110	32.00	60
32	81.4	168.0	116	110	40.00	74
40	85.2	188.0	127	120	50.00	83
50	91.5	212.0	136	130	63.00	103

Note: short sensor version

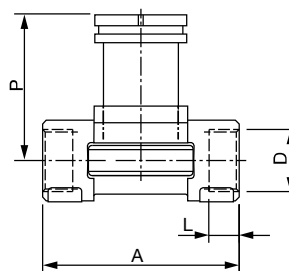


Internal thread process connection

G in stainless steel (316L - 1.4404) or brass (CuZn₃₉Pb₂)

DN	P	A	D	L
15	80.3	84.0	G ½	16.0
20	77.8	94.0	G ¾	17.0
25	78.0	104.0	G 1	23.5
32	81.6	119.0	G 1¼	23.5
40	85.4	129.0	G 1½	23.5
50	91.5	148.5	G 2	27.5

Note: short sensor version



Welding socket with radius

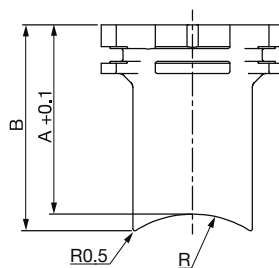
in stainless steel (316L - 1.4404)

DN	A	B	R
50	56.6	61.6	30.2
65	54.5	58.6	36.7
80	53.1	56.4	44.5
100	50.7	53.2	57.2
125	48.2	50.3	70.7
150	45.7	47.4	84.2
200	41.0	42.3	109.6
250	73.6	74.7	136.6
300	67.8	68.7	162.0
350	63.9	64.7	177.8

Note: sensor version:

- short for DN50...DN200

- long for DN250...DN350

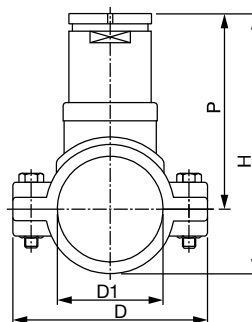


Saddle

in PP & PVC

DN	P	H	D	D1
50	116.0	155	116	63
65	115.0	160	129	75
80	119.0	171	144	90
100	124.0	187	166	110
110	120.0	191	181	125
125	127.0	205	196	140
150	137.0	225	216	160
180	161.0	271	266	200
200	173.0	291	290	225

Note: long sensor version



Body material: PP & PVC adapter

Seal material: EPDM

Ordering chart

Port connection	Seal	Standard	Article no								
			DN06 - ½"	DN08 - ½"	DN15	DN20	DN25	DN32	DN40	DN50	DN65
Fitting DN6...DN65 for flowmeter with G 2 connection											
Brass body & stainless steel adapter – T-fitting – Fluid temperature max. 160 °C, PN16											
Internal thread	FKM	G	–	–	428712	428713	428714	428715	428716	428717	–
		NPT	–	–	428718	428719	428720	428721	428722	428723	–
		Rc	–	–	428724	428725	428726	428727	428728	428729	–
External thread	FKM	G	–	–	428730	428731	428732	428733	428734	428735	–
Stainless steel body & stainless steel adapter – T-fitting – Fluid temperature max. 160 °C, PN16											
Internal thread	FKM	G	–	–	428736	428737	428738	428739	428740	428741	–
		NPT	–	–	428742	428743	428744	428745	428746	428747	–
		Rc	–	–	428748	428749	428750	428751	428752	428753	–
External thread	FKM	G	552434	552432	428754	428755	428756	428757	428758	428759	–
	EPDM	SMS 1145	–	–	–	–	443317	–	443318	443319	–
Weld end	FKM	EN ISO 1127/ ISO 4200/ DIN 11866 series B	–	–	428760	428761	428762	428763	428764	428765	–
	EPDM	SMS 3008	–	–	–	–	443309	–	443310	443311	443944
		BS 4825-1/ ASME BPE/ DIN 11866 series C	–	–	–	443734	443735	443736	443942	443943	443944
Clamp	FKM	DIN 32676 series B	–	–	428766	428767	428768	428769	428770	428771	–
	EPDM	SMS 3017	–	–	–	–	443313	–	443314	443315	443969
		SMS 3017 ⁴⁾	–	–	–	–	443957	–	443958	443959	443974
		BS 4825-3/ ASME BPE	–	–	–	443965	443966	–	443967	443968	443969
		BS 4825-3/ ASME BPE ⁴⁾	–	–	–	443970	443971	–	443972	443973	443974
Flange	FKM	EN 1092-1/B1/ PN16	–	–	428772	428773	428774	428775	428776	428777	–
		ANSI B16-5	–	–	428778	428779	428780	428781	428782	428783	–
PVC & PVC adapter – T-fitting – Fluid temperature max. 50 °C, PN10											
True union	FKM	DIN 8063	–	–	428670	428671	428672	428673	428674	428675	–
		ASTM D 1785/76	–	–	428682	428683	428684	428685	428686	428687	–
		JIS K	–	–	429078	429079	429080	429081	429082	429083	–
Spigot	FKM	DIN 8063	–	–	428676	428677	428678	428679	428680	428681	–
External thread	FKM	G	552561	550062	–	–	–	–	–	–	–
Analytical true union	FKM	DIN 8063	–	–	430837	430838	430839	428673	428674	428675	–

1) Please refer to ASME BPE

2) DN20 only available in ASME BPE

3) Refer to Clamp with D dimensions of 34 mm

4) Internal surface finish Ra = 0.8 µm



Ordering chart continued

S020 Fittings

Port connection	Seal	Standard	Article no								
			DN06 - ½"	DN08 - ½"	DN15	DN20	DN25	DN32	DN40	DN50	DN65
PP & PP adapter – T-fitting – Fluid temperature max. 80 °C, PN10											
True union	FKM	DIN 16962	–	–	428688	428689	428690	428691	428692	428693	–
Spigot	FKM	DIN 16962	–	–	428694	428695	428696	428697	428698	428699	–
Analytical true union	FKM	DIN 16962	–	–	430840	430841	430842	428691	428692	428693	–
PVDF & PVDF adapter – T-fitting – Fluid temperature max. 100 °C, PN10											
True union	FKM	ISO 10931	–	–	428700	428701	428702	428703	428704	428705	–
Spigot	FKM	ISO 10931	–	–	428706	428707	428708	428709	428710	428711	–
Analytical true union	FKM	ISO 10931	–	–	430843	430844	430845	428703	428704	428705	–

Port connection	Article no.										
	DN50	DN65	DN80	DN100	DN125	DN150	DN200	DN250	DN300	DN350	DN400
Fitting DN50...DN400 for flowmeter with G 2 connection											
Stainless steel - welding socket with radius - Fluid temperature max. 160 °C, PN16											
Welding socket	418111	418112	418113	418114	418115	418116	418117	418756	420070	416637	–
PVC - Screw-on fitting - Fluid temperature max. 50 °C, PN10											
Screw-on	–	–	–	418170	418170	418170	418170	–	–	–	–
PVDF - Fusion spigot - Fluid temperature max. 100 °C, PN10											
Fusion spigot	–	418658	418659	418660	–	–	–	–	–	–	–
Analytical fusion spigot	–	418660	418660	418660	–	–	–	–	–	–	–
PE - Fusion spigot or screw-on fitting - Fluid temperature max. 70 °C, PN10											
Fusion spigot	–	418642	418643	418644	418590	418645	418646	418647	418648	418649	418598
Screw-on	–	–	–	436489	436489	436489	436489	436489	436489	436489	436489
Analytical fusion spigot	–	418644	418644	418644	–	–	–	–	–	–	–
PP - Fusion spigot or screw-on fitting - Fluid temperature max. 80 °C, PN10											
Fusion spigot	–	418650	418651	418652	–	418653	418654	418655	418656	418657	–
Screw-on	–	–	–	436488	436488	436488	436488	436488	436488	436488	436488
Analytical fusion spigot	–	418652	418652	418652	–	–	–	–	–	–	–

Port connection	Seal	Article no.								
		DN50	DN65	DN80	DN100	DN110	DN125	DN150	DN180	DN200
PP & PVC adapter - Saddle - Fluid temperature max. 60 °C, PN10 (for PVC or PP pipe)										
Saddle	EPDM	425138	425139	425140	425141	425142	425143	425144	433873	425416

Ordering chart continued

Port connection	Seal	Article no.					
		DN32 PN16	DN40 PN16	DN50 PN16	DN65 PN16	DN80 PN16	DN100 PN10
Fitting DN32...DN100 for flowmeter with clamp connection (Type 8041/8045 clamp version)							
Stainless steel T-fitting - Fluid temperature max. 160 °C							
Weld end	SMS 3008	–	564915	564916	564917	564918	1)
	BS 4825-1/ASME BPE/DIN 11866 series C	–	564920	564921	564922	564923	564924
	DIN 11850 series 2/DIN 11866 series A/ DIN EN 10357 series A	–	564925	564926	564927	564928	564929
Stainless steel socket - Fluid temperature max. 160 °C							
Welding socket	SMS 3008	–	564696	564696	564697	564697	1)
	BS 4825-1/ASME BPE/DIN 11866 series C	–	564698	564698	564699	564699	564699
	DIN 11850 series 2/DIN 11866 series A/ DIN EN 10357 series A	–	565069	565069	565069	565069	565390

1) Please refer to BS 4825-1/ASME BPE/DIN 11866 series C or to DIN 11850 series 2/DIN 11866 series A/DIN EN 10357 series A

S020 Fittings

Accessories

Description	Article no.
Fitting for flowmeter with G 2 connection	
Stopper with ring, union nut and O-ring	
Stainless steel	438755
PVC	438754
PP	627614
Adapter with 4 screws (DN06...DN65)	
Stainless steel	555484
PVC	561175
PP	561176
PVDF	561177
O-Ring set (DN06...DN65)	
FKM - for metal fitting (5 units)	428971
EPDM - for metal fitting (5 units)	428972
FKM - for plastic fitting (1 flat gasket + 1 O-ring)	561043
EPDM - for plastic fitting (1 flat gasket + 1 O-ring)	561044
Measuring chamber	
Stainless steel ²⁾ 316L - 1.4404	553611

Description	Article no.
Fitting for flowmeter with clamp connection	
1 EPDM fitting/flowmeter seal	730837
1 FEP fitting/flowmeter seal	730839
Clamp collar	731164
Stopper for fitting	565200
Approvals/Certificate (for both versions)	
Inspection certificate 3.1 (acc. to EN-ISO 10204)	803723
Test report 2.2 (acc. to EN-ISO 10204)	803722
3 points Flow calibration certificate (S020 combined with the flow device inserted, only for DN ≤ 200)	550676
Certification of Conformity for the surface Quality (DIN4762-DIN4768-ISO/4287/1)	804175
FDA approval	803724

2) Other material on request

Inline sensor-fitting with paddle wheel for flow measurement

- Closed pipe system, sensor inside fitting
- Wide range of materials and process connections
- Metal 0...16 bar
- Plastic 0...10 bar



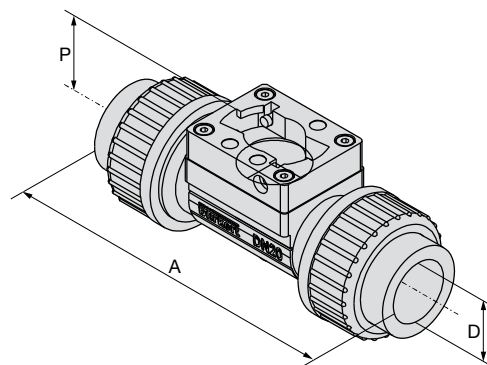
The S030 sensor-fitting has a built-in paddle wheel to measure the flow rate. When liquid flows through the pipe, the paddle wheel is set in rotation producing pulses whose frequency is proportional to the flow rate.

The Bürkert "Inline quarter-turn" technology is a construction ensuring a leakage free operation. The paddle wheel rotation (permanent magnets included in the wheels) is detected contactless through the sensor-fitting wall. The transmitter can be snapped-on or removed without opening the pipe or interrupting the process.

Technical data

General data	
Compatibility	With transmitter SE30, SE32, SE35, SE36 (see separate data sheet)
Pipe diameter	DN06...DN65
Process connections	
Metal	Internal or external thread, weld ends, clamp or flange
Plastic	True union, spigot or external thread
Materials	
Seal	FKM or EPDM (depending on version, see ordering chart)
Body	Stainless steel (316L - 1.4404), brass (CuZn ₃₉ Pb ₂), PVC, PP, PVDF
Screws	Stainless steel (316L - 1.4404)
Paddle wheel	PVDF (PP on request or st. st., see Type 8030HT ▶)
Shaft and bearings	Ceramics (Al ₂ O ₃)
Measurement range	0.5...1200 l/min
Flow velocity	0.3...10 m/s (see flow diagram)
Measurement error	
Teach-In (via a remote transmitter)	± 1 % of Reading ¹⁾ (at the teach flow rate value) ± 2.5 % of Reading ¹⁾
Standard K-factor	
Linearity	± 0.5 % of F.S. ¹⁾²⁾
Repeatability	± 0.4 % of Reading ¹⁾
Fluid data	
Fluid temperature	0...+50 °C for sensor-fitting in PVC; 0...+80 °C for sensor-fitting in PP; -15...+100 °C for sensor-fitting in stainless steel, brass or PVDF
Fluid pressure (max.)	See pressure/temperature chart
Metal	PN16 (PN40 on request)
Plastic	PN10
Fluid properties	Clean, neutral or slightly aggressive, solid-free liquids
Pollution	Max. 1 %, size of particles 0.5 mm max.
Viscosity	300 cSt. max.

Dimensions [mm]



True union connection

DIN 8063 in PVC

DN	P	A	D
15	34.5	128.0	20.00
20	32.0	144.0	25.00
25	32.2	160.0	32.00
32	35.8	168.0	40.00
40	39.6	188.0	50.00
50	45.7	212.0	63.00

Environment

Ambient temperature -15...+60 °C for sensor-fitting in PVC;
(operating and storage) -15...+80 °C for sensor-fitting in PP;
-15...+100 °C for sensor-fitting in stainless steel, brass or PVDF
Depending on associated transmitter

1) Under reference conditions i.e. measuring fluid = water, ambient and water temperature = 20 °C, while maintaining the minimum inlet and outlet distances and the appropriate internal diameter of the pipes.

2) F.S. = Full scale (10 m/s)

Technical data continued

Standards, directives and certifications	
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Pressure	Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ¹⁾
Certification/Certificates on request	Inspection certificate 3.1 (acc. to EN-ISO 10204); Test report 2.2 (acc. to EN-ISO 10204); Certification of Conformity for the surface Quality (DIN4762-DIN4768-ISO/4287/1); 3 points Flow calibration certificate; FDA declaration of conformity (stainless steel fitting only with EPDM seal)
1) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).	
Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Pressure/temperature diagram

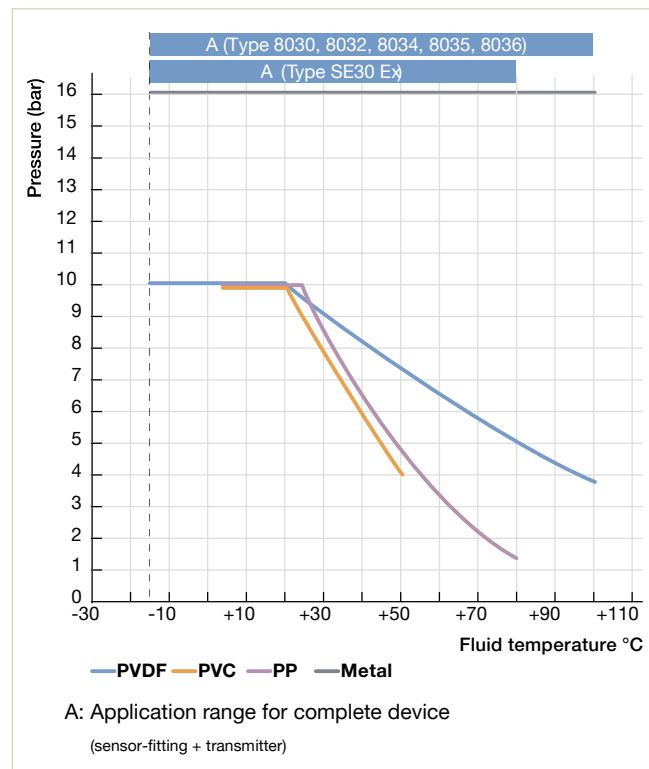


Diagram Flow/Velocity/DN

Selection help – flow velocity considerations

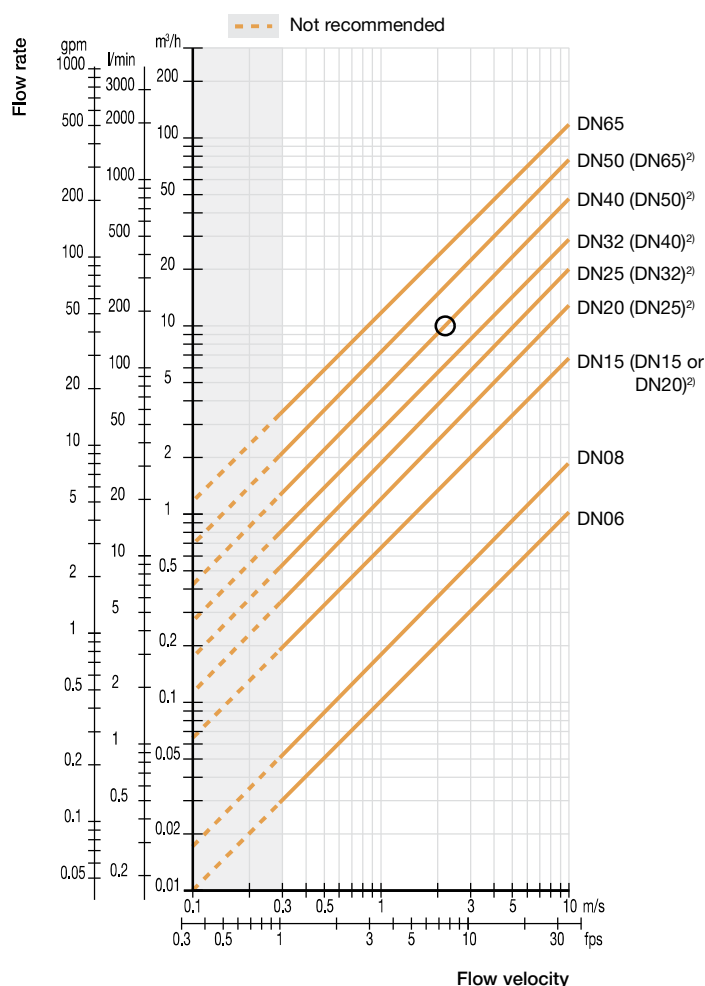
Depending on the sensor type, the right flow rate has to be chosen to get the best accuracy. The higher the flow velocity, the lower the measurement error, but the higher the pressure loss. The following chart will help you find the correct fitting diameter for your application depending on flow velocity and sensor technology. Pipes for fluids similar to water are generally designed for an average flow velocity of approx. 2...3 m/s.

Example:

- Flow: 10 m³/h
- Ideal flow velocity: 2...3 m/s

For these specifications, the diagram indicates a pipe size of DN40 [or DN50 for ⁽²⁾] mentioned sensor-fittings]

- 2) for following sensor-fittings with:
- external threads acc. to SMS 1145
 - weld ends acc. to SMS 3008, BS4825-1/ASME BPE/DIN 11866 series C or DIN 11850 series 2/DIN 11866 series A/DIN EN 10357 series A
 - Clamp acc. to SMS 3017, BS 4825-3/ASME BPE or DIN 32676 series A

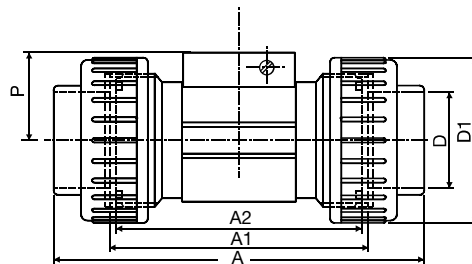


Dimensions [mm]

True union connection

DIN 8063 in PVC

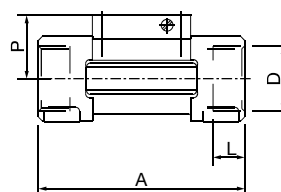
DN	P	A	Norm	A1	A2	D	D1
15	34.5	128.0	DIN/ISO	96	90	20.00	43
20	32.0	144.0	DIN/ISO	106	100	25.00	53
25	32.2	160.0	DIN/ISO	116	110	32.00	60
32	35.8	168.0	DIN/ISO	116	110	40.00	74
40	39.6	188.0	DIN/ISO	127	120	50.00	83
50	45.7	212.0	DIN/ISO	136	130	63.00	103



Internal thread connection

G in stainless steel (316L - 1.4404) or brass (CuZn₃₉Pb₂)

DN	P	A	D	L
15	34.5	84.0	G ½	16.0
20	32.0	94.0	G ¾	17.0
25	32.2	104.0	G 1	23.5
32	35.8	119.0	G 1¼	23.5
40	39.6	129.0	G 1½	23.5
50	45.7	148.5	G 2	27.5

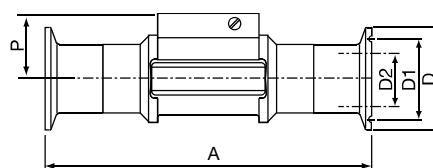


Clamp connection

BS 4825/ASME BPE* in stainless steel (316L - 1.4404)

DN	P	A	Norm	D2	D1	D
20	34.5	119	ASME BPE	15.75	19.6	25.0
25	32.0	129	BS 4825/ASME BPE	22.10	43.5	50.5
40	35.8	161	BS 4825/ASME BPE	34.80	43.5	50.5
50	39.6	192	BS 4825/ASME BPE	47.50	56.5	64.0
65	45.7	216	BS 4825/ASME BPE	60.20	70.5	77.5

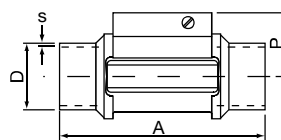
* Available with internal surface finish Ra = 0.8 µm



Weld end connection

BS 4825 in stainless steel (316L - 1.4404)

DN	P	A	Norm	D	s
20	34.5	84.0	BS 4825	19.05	1.20
25	32.0	94.0	BS 4825	25.40	1.65
40	35.8	119.0	BS 4825	38.10	1.65
50	39.6	128.0	BS 4825	50.80	1.65
65	45.7	147.0	BS 4825	63.50	1.65

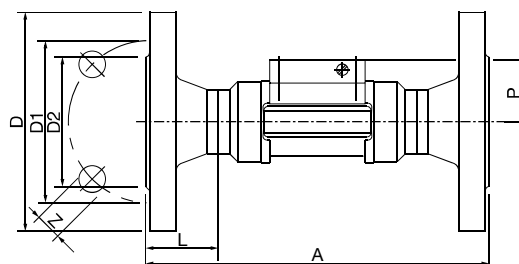


Flange connection

EN1092-1/B1/PN16, ANSI B16-5 or JIS 10 K

in stainless steel (316L - 1.4404)

DN	P	A	Norm	L	Z	D2	D1	D
15	34.5	130	EN	23.5	4x14.0	45.0	65.0	95.0
20	32.0	150	EN	28.5	4x14.0	58.0	75.0	105.0
25	32.2	160	EN	28.5	4x14.0	68.0	85.0	115.0
32	35.8	180	EN	31.0	4x18.0	78.0	100.0	140.0
40	39.6	200	EN	36.0	4x18.0	88.0	110.0	150.0
50	45.7	230	EN	41.0	4x18.0	102.0	125.0	165.0



Ordering chart

Port connection	Seal	Standard	Article no.									
			DN06 ¹⁾ - ¼"	DN06 ¹⁾ - ½"	DN08 ¹⁾ - ½"	DN15	DN20	DN25	DN32	DN40	DN50	DN65
Brass - with PVDF paddle wheel - Fluid temperature max. 100 °C, PN16												
Internal thread	FKM	G	–	–	–	423980 ⅞	423981 ⅞	423982 ⅞	423983 ⅞	423984 ⅞	423985 ⅞	–
		NPT	–	–	–	423986 ⅞	423987 ⅞	423988 ⅞	423989 ⅞	423990 ⅞	423991 ⅞	–
		Rc	–	–	–	423992 ⅞	423993 ⅞	423994 ⅞	423995 ⅞	423996 ⅞	423997 ⅞	–
External thread	FKM	G	552557 ⅞	552527 ⅞	444023 ⅞	423998 ⅞	423999 ⅞	424000 ⅞	424001 ⅞	424002 ⅞	424003 ⅞	–
		NPT	–	–	449182 ⅞	–	–	–	–	–	–	–
		Rc	–	–	448668 ⅞	–	–	–	–	–	–	–
Metric	FKM		–	–	16 × 1.5mm 552526 ⅞	–	–	–	–	–	–	–
Stainless steel - with PVDF paddle wheel - Fluid temperature max. 100 °C, PN16												
Internal thread	FKM	G	–	–	–	424004 ⅞	424005 ⅞	424006 ⅞	424007 ⅞	424008 ⅞	424009 ⅞	–
		NPT	–	–	–	424010 ⅞	424011 ⅞	424012 ⅞	424013 ⅞	424014 ⅞	424015 ⅞	–
		Rc	–	–	–	424016 ⅞	424017 ⅞	424018 ⅞	424019 ⅞	424020 ⅞	424021 ⅞	–
External thread	FKM	G	552733 ⅞	552559 ⅞	444029 ⅞	424022 ⅞	424023 ⅞	424024 ⅞	424025 ⅞	424026 ⅞	424027 ⅞	–
		NPT	–	–	449050 ⅞	–	–	–	–	–	–	–
		Rc	–	–	448669 ⅞	–	–	–	–	–	–	–
	EPDM	SMS 1145	–	–	–	–	–	443306 ⅞	–	443307 ⅞	443308 ⅞	–
Weld end	FKM	EN ISO 1127/ ISO 4200/ DIN 11866 series B	–	–	552845 ⅞ ²⁾	424028 ⅞	424029 ⅞	424030 ⅞	424031 ⅞	424032 ⅞	424033 ⅞	–
		EPDM	SMS 3008	–	–	–	–	–	443298 ⅞	–	443299 ⅞	443300 ⅞
	EPDM	BS 4825-1/ ASME BPE/ DIN 11866 series C	–	–	–	–	443369 ⅞ ⁴⁾	443370 ⅞	443371 ⅞	443372 ⅞	443373 ⅞	443374 ⅞
		DIN 11850 series 2/DIN 11866 series A/ DIN EN 10357 series A	–	–	551788 ⅞	551789 ⅞	551790 ⅞	551791 ⅞	–	551792 ⅞	551793 ⅞	–
Clamp	FKM	DIN 32676 series B	–	–	–	424034 ⅞ ⁵⁾	424035 ⅞	424036 ⅞	424037 ⅞	424038 ⅞	424039 ⅞	–
		EPDM	SMS 3017	–	–	–	–	–	443302 ⅞	–	443303 ⅞	443304 ⅞
	EPDM	SMS 3017 ⁶⁾	–	–	–	–	–	443387 ⅞	–	443388 ⅞	443389 ⅞	443720 ⅞ ³⁾
		BS 4825-3/ ASME BPE	–	–	–	–	443395 ⅞ ⁴⁾	443396 ⅞	–	443397 ⅞	443398 ⅞	443399 ⅞
		BS 4825-3/ ASME BPE ⁶⁾	–	–	–	–	443400 ⅞	443717 ⅞	–	443718 ⅞	443719 ⅞	443720 ⅞
		DIN 32676 series A	–	–	551794 ⅞ ⁵⁾	551795 ⅞ ⁵⁾	551796 ⅞	551797 ⅞	–	551798 ⅞	551799 ⅞	–
Flange	FKM	EN 1092-1/B1/ PN16	–	–	–	424040 ⅞	424041 ⅞	424042 ⅞	424043 ⅞	424044 ⅞	424045 ⅞	–
		ANSI B16-5	–	–	–	424046 ⅞	424047 ⅞	424048 ⅞	424049 ⅞	424050 ⅞	424051 ⅞	–
		JIS 10K	–	–	–	430108 ⅞	430109 ⅞	430110 ⅞	430111 ⅞	430112 ⅞	430113 ⅞	–
Stainless steel - with PVDF paddle wheel - Fluid temperature max. 100 °C, PN40												
Internal thread	FKM	G	–	–	–	427138 ⅞	425737 ⅞	425729 ⅞	427152 ⅞	427153 ⅞	427154 ⅞	–

1) External thread

2) EPDM seal

3) Please refer to ASME BPE

4) DN20 only available in ASME BPE

5) Refer to Clamp with D dimensions of 34 mm

6) internal surface finish Ra = 0,8 µm



Ordering chart continued

S030 Sensor-fittings	Port connection	Seal	Standard	DN06 ¹⁾ - ¼"	DN06 ¹⁾ - ½"	DN08 ¹⁾ - ½"	Article no.						
							DN15	DN20	DN25	DN32	DN40	DN50	DN65
	PVC - with PVDF paddle wheel - Fluid temperature max. 50 °C, PN10												
	True union ²⁾	FKM	DIN 8063	–	–	444022	423938	423939	423940	423941	423942	423943	–
			ASTM D 1785/76	–	–	–	423950	423951	423952	423953	423954	423955	–
			JIS K	–	–	–	429072	429073	429074	429075	429076	429077	–
	Spigot	FKM	DIN 8063	–	–	–	423944	423945	423946	423947	423948	423949	–
	Extern. thr.	FKM	G	–	552560	444025	–	–	–	–	–	–	–
	True union ²⁾ without spigot	FKM		–	–	–	430734	430735	430736	430737	430738	430739	–
		EPDM		–	–	–	430740	430741	430742	430743	430744	430745	–
	PP - with PVDF paddle wheel - Fluid temperature max. 80 °C, PN10												
	True union**	FKM	DIN 16962	–	–	–	423956	423957	423958	423959	423960	423961	–
	Spigot	FKM	DIN 16962	–	–	–	423962	423963	423964	423965	423966	423967	–
	PVDF - with PVDF paddle wheel - Fluid temperature max. 100 °C, PN10												
	True union ²⁾	FKM	ISO 10931	–	–	–	423968	423969	423970	423971	423972	423973	–
	Spigot	FKM	ISO 10931	–	–	–	423974	423975	423976	423977	423978	423979	–
	Extern. thr.	FKM	ISO 10931	–	–	444028	–	–	–	–	–	–	–



























1) external thread

2) with spigot and nut

Accessories

Description	Article no.
Sensor holder	
Stainless steel with paddle wheel (PVDF), seal (FKM), screws and certificate for DN06, DN08, DN15 v2 and DN20 v2	448678
Stainless steel with paddle wheel (PVDF), seal (FKM), screws and certificate for DN15 (except DN15 v2 and DN20 v2)...DN65	432306
Stainless steel with paddle wheel (PVDF), seal (EPDM), screws and certificate for DN15 (except DN15 v2 and DN20 v2)...DN65	432305
Stainless steel with paddle wheel (PVDF), seal (EPDM), screws and certificate, Ra int. = 0.8 µm for DN15 (except DN15 v2 and DN20 v2)...DN65	434149
Stainless steel with paddle wheel (PP), seal (EPDM), screws and certificate for DN06, DN08, DN15 v2 and DN20 v2	554896
Stainless steel with paddle wheel (PP), seal (EPDM), screws and certificate for DN15 (except DN15 v2 and DN20 v2)...DN65	449425
Brass with paddle wheel (PVDF), seal (FKM), screws and certificate for DN06, DN08, DN15 v2 and DN20 v2	448677
Brass with paddle wheel (PVDF), seal (FKM), screws and certificate for DN15 (except DN15 v2 and DN20 v2)...DN65	432304
Brass with paddle wheel (PVDF), seal (EPDM), screws and certificate for DN15 (except DN15 v2 and DN20 v2)...DN65	432303
Brass with paddle wheel (PP), seal (EPDM), screws and certificate for DN15 (except DN15 v2 and DN20 v2)...DN65	449866
PVC with paddle wheel (PVDF), seal (FKM), screws and certificate for DN06, DN08, DN15 v2 and DN20 v2	448674
PVC with paddle wheel (PVDF), seal (FKM), screws and certificate for DN15 (except DN15 v2 and DN20 v2)...DN65	432298
PVC with paddle wheel (PVDF), seal (EPDM), screws and certificate for DN15 (except DN15 v2 and DN20 v2)...DN65	432297
PVC with paddle wheel (PP), seal (EPDM), screws and certificate for DN15 (except DN15 v2 and DN20 v2)...DN65	443982
PP with paddle wheel (PVDF), seal (FKM), screws and certificate for DN15...DN65	432300
PP with paddle wheel (PVDF), seal (EPDM), screws and certificate for DN15...DN65	432299

Accessories continued

Description	Article no.
PP with paddle wheel (PP), seal (FKM), screws and certificate for DN15...DN65	552881 
PP with paddle wheel (PP), seal (EPDM), screws and certificate for DN15...DN65	443983 
PVDF with paddle wheel (PVDF), seal (FKM), screws and certificate for DN06, DN08, DN15 v2 and DN20 v2	448676 
PVDF with paddle wheel (PVDF), seal (FKM), screws and certificate for DN15 (except DN15 v2 and DN20 v2)...DN65	432302 
PVDF with paddle wheel (PVDF), seal (EPDM), screws and certificate for DN15 (except DN15 v2 and DN20 v2)...DN65	432301 
O-ring set	
FKM - for metal sensor-fitting, DN06...DN65	426340 
EPDM - for metal sensor-fitting, DN06...DN65	426341 
FKM - for plastic sensor-fitting, DN08	448679 
FKM - for plastic sensor-fitting, DN15	431555 
FKM - for plastic sensor-fitting, DN20	431556 
FKM - for plastic sensor-fitting, DN25	431557 
FKM - for plastic sensor-fitting, DN32	431558 
FKM - for plastic sensor-fitting, DN40	431559 
FKM - for plastic sensor-fitting, DN50	431560 
EPDM - for plastic sensor-fitting, DN08	448680 
EPDM - for plastic sensor-fitting, DN15	431561 
EPDM - for plastic sensor-fitting, DN20	431562 
EPDM - for plastic sensor-fitting, DN25	431563 
EPDM - for plastic sensor-fitting, DN32	431564 
EPDM - for plastic sensor-fitting, DN40	431565 
EPDM - for plastic sensor-fitting, DN50	431566 
Approvals/Certificates	
Inspection certificate 3.1 (acc. to EN-ISO 10204)	803723 
Test report 2.2 (acc. to EN-ISO 10204)	803722 
Certification of Conformity for the surface Quality (DIN4762-DIN4768-ISO/4287/1)	804175 
3 points Flow calibration certificate (S020 combined with the flow device inserted, only for DN ≤200)	550676 
FDA approval	803724 

Positive displacement sensor-fitting for Inline continuous flow measurement

- DN15...DN100
- Inline quarter-turn technology
- Electronics available for indication, monitoring, transmitting, On/Off control and batch control



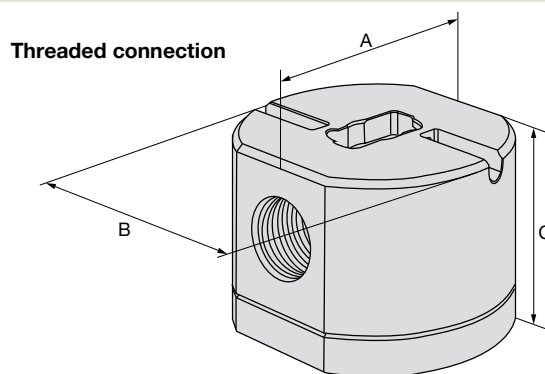
This positive displacement sensor fitting is specially designed for flow measurement and/or batch control of highly viscous fluids like glue, honey or oil.

This measuring element must be associated to a transmitter SE30, SE32, SE35, SE36 with hall sensor principle only, quickly and easily connected together by a quarter-turn. The design of this fitting is based on the oval rotor principle. This has proven to be a reliable and highly accurate volumetric method of measuring flow. Exceptional repeatability and high accuracy over a wide range of viscosities and flowrates are features of that design. The low pressure drop and high pressure rating make it suitable for both gravity and pump (in-line) applications

Technical data

General data	
Compatibility	With transmitter SE30, SE32, SE35, SE36 with Hall sensor principle (see separate data sheet)
Pipe diameter	DN15...DN100
Thread connection	½; 1; 1½; 2; 3 (G or NPT)
Flange connection	25; 40; 50; 80 or 100 mm DIN PN16 flange 1"; 1½; 2"; 3" or 4" ANSI 150LB flange
Wetted parts materials	
Body	Aluminium, stainless steel 316L (1.4401)
Rotor	PPS, aluminium, stainless steel 316L (1.4401)
Shaft	Stainless steel 316L (1.4401)
Seal	FKM or FEP/PTFE encapsulated
Measuring range	
Viscosity > 5 mPa.s	2...1200 l/min
Viscosity < 5 mPa.s	3...616 l/min
Viscosity	1 Pa.s max. (higher on request)
Max. particles size	250 µm - To prevent damage from dirt or foreign matter, we strongly recommend the installation of a 250 µm strainer as close as possible to the inlet side of the meter.
Measurement deviation	± 1 % of the Reading (if "standard" K-factor is used); ± 0.5 % of the Reading (if "specific" K-factor is used, on label of the product)
Repeatability	± 0.03 % of Reading
Fluid data	
Fluid temperature max.	Aluminium body: -20...+80 °C Stainless steel body: -20...+120 °C
Fluid pressure max.	
DN15	55 bar (threaded process connection)
DN25	55 bar ¹⁾
DN40 or DN50	18 bar
DN80 / DN100	12 bar / 10 bar
Environment	
Ambient temperature	0...+60 °C (operation and storage)

Dimensions [mm]



Orifice DN	Stainless steel	Aluminium	B	C	D
15	81	81	87	49	28
25	100	100	112	75	45
40	120	120	137	103	61
50	140	140	163	124	72
80	260	302	220	180	80

Standards, directives and approvals

Standard and directives	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
CE	Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ²⁾
Pressure	

- 1) or in accordance to the value of the used flanges
- 2) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Ordering chart

Orifice DN	Process connection	Flow Range		Body material	Rotor material	Seal	Article no.
		> 5 mPa.s	< 5 mPa.s				
15	G ½	2...30 l/min	3...25 l/min	Aluminium	PPS	FKM	567223 ▼
				Stainless steel	Stainless steel	FEP/PTFE	567224 ▼
	NPT ½	2...30 l/min	3...25 l/min	Aluminium	PPS	FKM	567225 ▼
				Stainless steel	Stainless steel	FEP/PTFE	567226 ▼
25	G 1	6...120 l/min	10...100 l/min	Aluminium	PPS	FKM	567227 ▼
				Stainless steel	Stainless steel	FEP/PTFE	567228 ▼
	NPT 1	6...120 l/min	10...100 l/min	Aluminium	PPS	FKM	567229 ▼
				Stainless steel	Stainless steel	FEP/PTFE	567230 ▼
	25 mm DIN PN16 flange	6...120 l/min	10...100 l/min	Aluminium	PPS	FKM	567231 ▼
				Stainless steel	Stainless steel	FEP/PTFE	567232 ▼
	1" ANSI 150 LB flange	6...120 l/min	10...100 l/min	Aluminium	PPS	FKM	567233 ▼
				Stainless steel	Stainless steel	FEP/PTFE	567234 ▼
40	G 1½	10...250 l/min	15...235 l/min	Aluminium	PPS	FKM	567235 ▼
				Stainless steel	Stainless steel	FEP/PTFE	567236 ▼
	NPT 1½	10...250 l/min	15...235 l/min	Aluminium	PPS	FKM	567237 ▼
				Stainless steel	Stainless steel	FEP/PTFE	567238 ▼
	40 mm DIN PN16 flange	10...250 l/min	15...235 l/min	Aluminium	PPS	FKM	567239 ▼
				Stainless steel	Stainless steel	FEP/PTFE	567240 ▼
	1½" ANSI 150 LB flange	10...250 l/min	15...235 l/min	Aluminium	PPS	FKM	567241 ▼
				Stainless steel	Stainless steel	FEP/PTFE	567242 ▼
50	G 2	15...350 l/min	30...300 l/min	Aluminium	PPS	FKM	567243 ▼
	NPT 2	15...350 l/min	30...300 l/min	Aluminium	PPS	FKM	567244 ▼
	50 mm DIN PN16 flange	15...350 l/min	30...300 l/min	Aluminium	PPS	FKM	567245 ▼
				Stainless steel	Stainless steel	FEP/PTFE	567246 ▼
	2" ANSI 150 LB flange	15...350 l/min	30...300 l/min	Aluminium	PPS	FKM	567247 ▼
				Stainless steel	Stainless steel	FEP/PTFE	567248 ▼
80	G 3	20...733 l/min	66...616 l/min	Aluminium	Aluminium	FKM	567249 ▼
	NPT 3	20...733 l/min	66...616 l/min	Aluminium	Aluminium	FKM	567250 ▼
	80 mm DIN PN16 flange	20...733 l/min	66...616 l/min	Aluminium	Aluminium	FKM	567251 ▼
	3" ANSI 150 LB flange	20...733 l/min	66...616 l/min	Aluminium	Aluminium	FKM	567252 ▼
100	100 mm DIN PN16 flange	120...1200 l/min	---	Aluminium	Aluminium	FKM	567253 ▼
	4" ANSI 150 LB flange	120...1200 l/min	---	Aluminium	Aluminium	FKM	567254 ▼



Accessories

S077 Sensor-fittings

Description	Orifice Size		Materials	Article no.
	[mm]	[inch]		
Rotor	DN15	½	PPS	567741
			Stainless steel	567742
	DN25	1	PPS	567743
			Stainless steel	567744
	DN40	1½	PPS	567745
			Stainless steel	567746
	DN50	2	PPS	567747
			Stainless steel	567748
O-ring	DN15	½	FEP/PTFE	567754
			FKM	567755
	DN25	1	FEP/PTFE	567756
			FKM	567757
	DN40	1½	FEP/PTFE	567758
			FKM	567759
	DN50	2	FEP/PTFE	567760
			FKM	567761

Overview for Level Sensors

Note: The following product overview does not show the complete product range of this catalogue. A complete overview can be found [here](#) ►

Overview Level Sensors	Operating principle	Type	Basic functions	Measuring range [m]	Vessel pressure [bar]	Fluid temperature [°C]	Wetted parts material		Measurement deviation	Process connection
	Oscillation	8110 ▶	Switch	–	-1...64	-40...+150	Klingsil®	Stainless steel	Approx. 2 mm	Thread G or NPT, ½", ¾" or 1"; clamp 2"
		8111 ▶	Switch	–	-1...64	-50...+150	Klingsil®	Stainless steel	Approx. 2 mm	Thread G or NPT, ¾" or 1"; clamp 2"
		8112 ▶	Switch	–	-1...64	-15...+80	Klingsil®	Stainless steel	Approx. 2 mm	Thread G or NPT, ¾" or 1"; clamp 2"
	Radar	8136 ▶	Sensor, transmitter	0.05...20	-1...3	-40...+80	FKM	PVDF	Approx. 2 mm	Thread G or NPT, 1½"; mounting bracket
		8137 ▶	Sensor, transmitter	0.05...30	-1...40	-40...+130	Klingsil® FKM	Stainless steel	Approx. 2 mm	Thread G or NPT, 1½", flange DN50, DN100, 2", 4"
		8138 ▶	Sensor, transmitter	0.05...20	-1...16	-40...+200	EPDM	Stainless steel, TFP, PTFE	Approx. 2 mm	Clamp 2", DN25 connection suit- able for GEA Tuchen- hagen VARINLINE process con- nection, flange DN50, DN100
	Ultrasonic	8177 ▶	Sensor, transmitter	0.4...8	-0.2...2	-40...+80	EPDM	PVDF	Approx. 4 mm	Thread G or NPT, 2"
	Guided microwave	8188 ▶	Sensor, transmitter	0.03...75	-1...40	-40...+150	FKM	Stainless steel	Approx. 2 mm	Thread G or NPT, ¾" or 1"
		8189 ▶	Sensor, transmitter	0.08...4	-1...16	-20...+150	EPDM	Stain- less steel, PEEK	Approx. 2 mm	Clamp 2", DIN 11851 DN50

Influence coating	Influence steam/ condensate	To avoid	Wiring	Signal output	Echo filtration	Display	Special features and versions	Overview Level Sensors
Low	No	–	3 wire	Transistor output PNP or contactless electrical switch	–	LED	Compact	
Low	No	–	2 wire 4 wire	Double relay (DPDT- Double Pole Double Throw), 2 potential-free contacts (SPDT- Single Pole Double Throw) or Namur signal	–	LED	Compact	
Low	No	–	2 wire 4 wire	Double relay (DPDT- Double Pole Double Throw), 2 potential-free contacts (SPDT- Single Pole Double Throw) or Namur signal	–	LED	Compact, available in different sensor lengths	
Low	No	Foam dielectric constant < 1.6	2 wire	4...20 mA HART	Yes	Yes, removable	ATEX compact	
Low	No	Foam dielectric constant < 1.6	2 wire	4...20 mA HART	Yes	Yes, removable	ATEX compact	
Low	No	Foam dielectric constant < 1.6	2 wire	4...20 mA HART	Yes	Yes, removable	ATEX compact	
High	High	Dust, foam, vacuum	2 wire	4...20 mA HART	Yes	Yes, removable	ATEX compact	
Low	No	Dielectric constant < 1.6	2 wire	4...20 mA HART	Yes	Yes, removable	ATEX, IEC compact	
Low	No	Dielectric constant < 1.6	2 wire	4...20 mA HART	Yes	Yes, removable	ATEX, IEC compact	

Tuning-Fork Level Switch

8110 / 8111

- For universal use as overflow or dry run protection system
- Hygienic surface finish
- Extension tubes available



Type 8110

Type 8111

Level switch for liquids with a tuning fork as a sensor element. Simple setup without adjustment makes this perfect for deployment into process environments. This device provides peace of mind from overflow or run dry

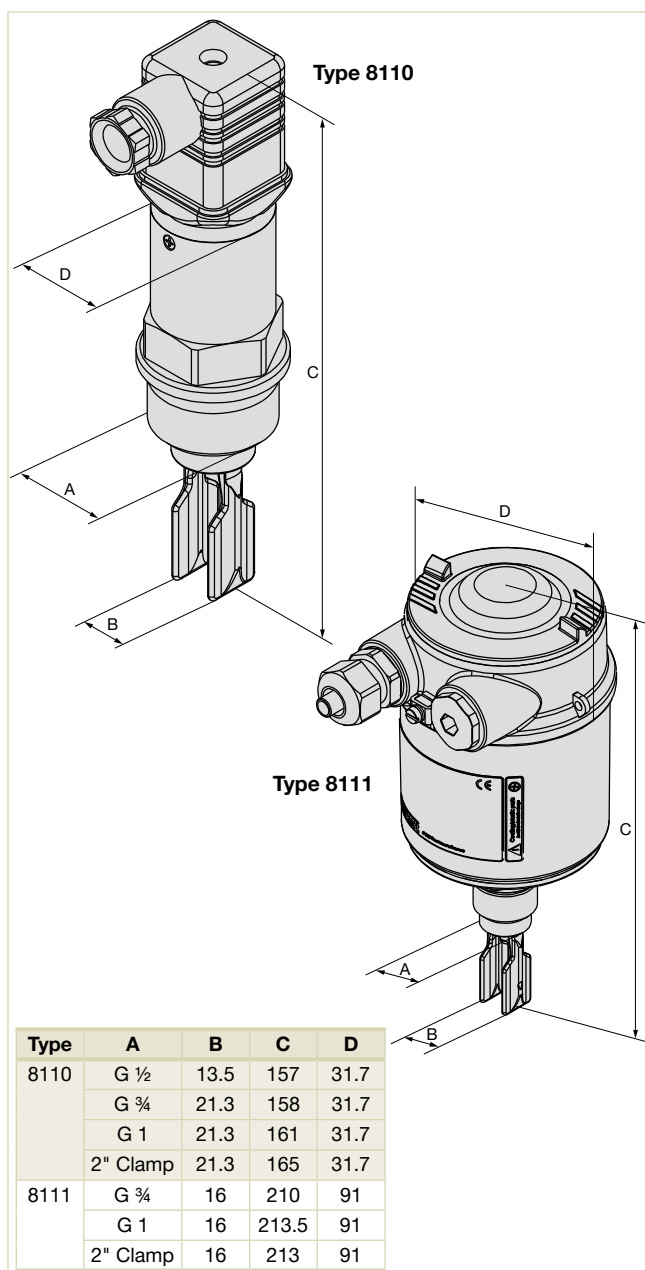
Type 8110 – The small tuning fork (40 mm length) can be used in vessels, tanks or pipes.

Type 8111 – SuperBRIGHT visual output lets the user know the status from a distance.

Technical data

Type	8110	8111
Process fitting	Thread G or NPT, ½, ¾ or 1; clamp 2"	Thread G or NPT, ¾ or 1; clamp 2"
Fluid temperature max.	-40...+100 °C (150 °C for clamp process connection)	-50...+150 °C
Materials		
Housing	Stainless steel 316L and plastic PEI	PBT, Stainless steel 316L (1.4404) / PC / EPDM
Tuning fork and fitting	Stainless steel 316L (1.4435)	Stainless steel 316L (1.4435)
Process seal	Klingsil® C 4400	Klingsil® C 4400
Fluid pressure	-1...64 bar	-1...64 bar
Power supply	10...35 V DC	20...253 V AC, 50/60 Hz or 20...72 V DC (at U > 60 V DC the ambient temperature must be max. +50 °C)
Electrical connections	Cable plug acc. to EN 175301-803 or M12 × 1 male fixed connector	1 or 2 cable glands M20 × 1.5 (depends on output version)
Outputs	Transistor output PNP or contactless electronic switch	Double relay output or NAMUR output
Protection class	IP65 with cable plug EN175301-803 mounted and tightened IP66/IP67 with M12 × 1 plug mounted	IP66/IP67 with M20 × 1.5 gland mounted and tightened II (relay output); II (NAMUR output)
Surface finishing quality	Ra < 3.2 µm (thread) Ra < 0.8 µm (clamp)	Ra < 3.2 µm (thread) Ra < 0.8 µm (clamp)
Dynamic viscosity	0.1...10000 mPa.s	0.1...10000 mPa.s (requirement: with density ¹⁾)
Fluid temperature	-40...+100 °C (150 °C for clamp process connection)	-50...+150 °C
Fluid pressure	-1...64 bar	-1...64 bar

Dimensions [mm]



Technical data continued

Type	8110	8111
Measurement deviation		
Hysteresis	Approx. 2 mm with vertical installation	Approx. 2 mm with vertical installation
Delay time/ Frequency	Approx. 500 ms / Approx. 1200 Hz	Approx. 500 ms / Approx. 1200 Hz
Voltage loss	Max. 3 V DC	—
Turn-on voltage	Max. 34 V DC	Min.: 10 mV; Max.: 253 V AC, 253 V DC
Switching current	—	Min.: 10 mA; Max.: 5 A (AC), 1 A (DC)
Power consumption	Max. 0.5 W	1...8 VA (AC); Approx. 1.3 W (DC)
Switching capacity	—	Max. 1250 VA, 50 W
Delay time	—	When immersed: 0.5 s When laid bare: 1 s
Blocking current	< 10 µA	—
Mode	Min./max changeover by electrical connection Max.: overfill protection - Min.: dry run protection LED indication: green and red	Max. detection or overfill protection Min. detection or dry run protection
Ambient temperature		
Operating	-40...+70 °C	-40...+70 °C
Storage	-40...+80 °C	-40...+80 °C
Standard		
EMC	EN 61326	EN61326
Security	EN 61010-1	EN61010-1
ATEX ¹⁾		EN50014; EN50020; EN50284
NAMUR		IEC 60947-5-6 (EN 50227)

Type	8110	8111
Specifications Ex		
-Protection	—	Categories G ½, G 2
-Certification	—	Ex ia IIC T6
Conformity specifications¹⁾		
Power supply Ui		20 V
Short circuit rating Ii		103 mA
Power limitation Pi		516 mW
Ambient temperature		-40...+85 °C (depends on categories)
Internal capacity Ci		Negligible
Internal inductivity Li		Negligible

¹⁾ Homologation certificate PTB 07 ATEX 2004X

Options

Type 8110

- DIN 11851, Flange, SMS
- Higher temperatures on request

Type 8111

- DIN 11851, Flange, SMS
- ECTFE, enamel, Hastelloy C4 or PFA
- Higher temperatures on request

Ordering chart

Output	Power supply	Process connection	Electrical connection	Article no.
Type 8110				
Transistor PNP	10...35 V DC	G ½	Cable plug EN 175301-803	563554
			Multipin M12 × 1	563474
		NPT ½	Cable plug EN 175301-803	563556
			Multipin M12 × 1	563555
		G ¾	Cable plug EN 175301-803	555291
			Multipin M12 × 1	555290
		NPT ¾	Cable plug EN 175301-803	560986
			Multipin M12 × 1	557154
		G 1	Cable plug EN 175301-803	555293
			Multipin M12 × 1	555292
		NPT 1	Multipin M12 × 1	557155
		Clamp 2"	Multipin M12 × 1	555294
Contactless electronic switch (Not with PLC)	20...253 V AC, 50/60 Hz or 20...253 V DC	G ¾	Cable plug EN 175301-803	555296
		G 1	Cable plug EN 175301-803	555298



Ordering chart continued

8110 / 8111

Output	Power supply	Process connection	Electrical connection	Article no.
Type 8111				
Double relay (DPDT), 2 floating (SPDT)	20...72 V DC / 20...250 V AC (5 A)	G ¾	2 cable glands M20 × 1.5	558110
		NPT ¾	2 cable glands M20 × 1.5	558111
		G 1	2 cable glands M20 × 1.5	558112
		NPT 1	2 cable glands M20 × 1.5	558113
		Clamp 2"	2 cable glands M20 × 1.5	558114
Namur signal - Ex version ATEX approval	8.2 V DC - via an intrinsic safety interface with NAMUR input	G ¾	1 cable gland M20 × 1.5	558115
		G 1	1 cable gland M20 × 1.5	558116

Accessories

Specifications	Article no.
Type 8110	
5 pin M12 female straight cable plug moulded on cable (2 m, shielded)	438680
5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917116
Type 8111	
Set with 2 reductions M20 × 1.5 / NPT ½ + 2 neoprene flat seals for cable gland + 2 screw-plugs M20 × 1.5	551782

Vibrating level switch with extension tube

8112

- For universal use as overflow or dry run protection system
- Setup without adjustment
- For food, beverage and pharmaceutical industry thanks to surface finishing $<0.8 \mu\text{m}$
- ATEX approvals



The 8112 is a vibrating level switch for liquids, using a tuning fork for level detection.

It is designed for industrial use in areas of process technology and can be used in liquids. Typical applications are overflow or dry run protection.

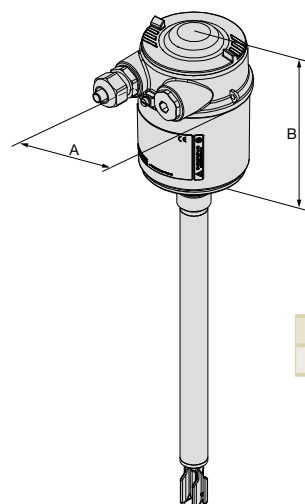
The Type 8112 is available with different sensor length using tube extension. The right length can be adapted thanks to a lock fitting. Due to the simple and rugged measuring system, the Type 8112 is virtually unaffected by the chemical and physical features of the liquid.

It works even under unfavourable conditions such as turbulence, air bubbles, foam generation, buildup or varying products.

Technical data

General data	
Materials	
Housing/Cover/Seal ring	PBT, Stainless steel 316L (1.4435)/PC/EPDM
Wetted parts	
Tuning fork & process fitting	Stainless steel 316L (1.4435)
Extension tube Ø 21.3	Stainless steel 316L (1.4435)
Process seal	Klingsil C 4400
Weight	Approx. 890 g + approx. 110 g/m (tube extension)
Electrical connections	1 or 2 cable glands M20 x 1.5 (depends on output version)
Process fitting	Thread G or NPT, ¾ or 1; clamp 2"
Surface finishing quality	Ra $<3.2 \mu\text{m}$ (thread) / Ra $<0.8 \mu\text{m}$ (Clamp)
Extension tube length	200...1000 mm
Dynamic viscosity	0.1...10000 mPa.s (requirement: with density 1)
Density	0.5...2.5 g/cm ³ (selected by DIP switch) or 0.7...2.5 g/cm ³
Fluid temperature	-50...+150 °C
Fluid pressure	-1...64 bar
Measurement deviation	
Hysteresis	Approx. 2 mm with vertical installation
Delay time/Frequency	Approx. 500 ms/Approx. 1200 Hz
Output	Double relay output or NAMUR output
Ambient temperature	-40...+70 °C (Operating); -40...+80 °C (Storage)

Dimensions [mm]



A	B
91	127

Electrical data - Sensor with relay output

Output	Relay (DPDT), 2 floating spdts
Power supply	20...253 V AC, 50/60 Hz or 20...72 V DC (at U > 60 V DC the ambient temperature must be max. +50 °C)
Power consumption	1...8 VA (AC); approx. 1.3 W (DC)
Turn-on voltage	Min.: 10 mV; max.: 253 V AC, 253 V DC
Switching current	Min.: 10 mA; max.: 5 A (AC), 1 A (DC)
Switching capacity	Max. 1250 VA, 50 W
Modes (adjustable)	A = max. detection or overflow protection B = min. detection or dry run protection
Delay time	When immersed: 0.5 sec. When laid bare: 1 sec.
Standards and certifications	
Protection class	IP66/IP67 with M20 x 1.5 gland mounted and tightened II (relay output); II (NAMUR output)
Overvoltage category	III
Protection class	I (relay output); II (NAMUR output)
Standards	
EMC	EN61326
Security	EN61010-1
ATEX ¹⁾	EN50014; EN50020; EN50284
NAMUR	IEC 60947-5-6 (EN 50227)

¹⁾ Homologation certificate PTB 07 ATEX 2004X

Ordering chart

Output	Power supply	Extension tube length	Process connection	Electrical connection	Article no.
Double relay (DPDT ¹), 2 floating spdts ²)	20...72 V DC / 20...250 V AC (5 A)	300	G ¾	2 cable glands M20 × 1.5	558119
			NPT ¾	2 cable glands M20 × 1.5	558120
		500	G ¾	2 cable glands M20 × 1.5	558121
			NPT ¾	2 cable glands M20 × 1.5	558122
		1000	G ¾	2 cable glands M20 × 1.5	558123
			NPT ¾	2 cable glands M20 × 1.5	558124
		300	G 1	2 cable glands M20 × 1.5	558125
			NPT 1	2 cable glands M20 × 1.5	558126
		500	G 1	2 cable glands M20 × 1.5	558127
			NPT 1	2 cable glands M20 × 1.5	558128
		1000	G 1	2 cable glands M20 × 1.5	558129
			NPT 1	2 cable glands M20 × 1.5	558130
		300	Clamp 2"	2 cable glands M20 × 1.5	558131
		500	Clamp 2"	2 cable glands M20 × 1.5	558132
		1000	Clamp 2"	2 cable glands M20 × 1.5	558133
Namur signal - Ex version ATEX approval	8.2 V DC – via an intrinsic safety interface with NAMUR input	300	G ¾	1 cable gland M20 × 1.5	558134
			G 1	1 cable gland M20 × 1.5	558135
		500	G ¾	1 cable gland M20 × 1.5	558136
			G 1	1 cable gland M20 × 1.5	558137
		1000	G ¾	1 cable gland M20 × 1.5	558138
			G 1	1 cable gland M20 × 1.5	558139

1) Double Pole Double Throw - two simultaneous changeover switches

2) Single Pole Double Throw - single pole changeover switch

Accessories

Description	Article no.
Set with 2 reductions M20 × 1.5 / NPT ½ + 2 neoprene flat seals for cable gland + 2 screw-plugs M20 × 1.5	551782
Lock fitting - only for pressureless handling, -50...150 °C; G 1	558218
Lock fitting - only for pressureless handling, -50...150 °C; NPT 1	558219

8112

OEM radar measuring device for aggressive medium

8136

- For level measurement up to 20 m, 4...20 mA/Hart – 2 wires
- Adjustable via Display, key operation or PC-Tool with DTM
- ATEX certification
- Insensitive to variations of temperature, pressure, medium data of the product and gas layers



Type 8136 is a non-contact radar level measuring device for continuous level measurement.

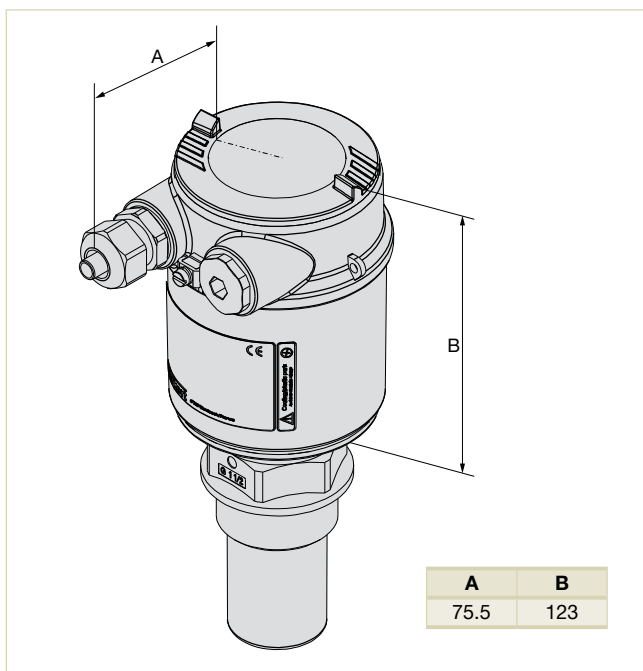
The unit is available in two versions:

- with encapsulated horn antenna particularly suitable for level measurement of aggressive liquids in small vessels.
- with plastic horn antenna particularly suitable for measurement in open flumes or gauge measurement in waters.

Technical data

General data	
Materials	
Housing / Cover	PBT, Stainless steel. 316L / PC
Seal ring / Ground terminal	NBR / St. st. 316Ti/316L (1.4571/1.4435)
Mounting strap / Fixing screws	St. st. 304 (1.4301) / St. st. 316L (1.4435)
Wetted parts	
Encapsulated horn antenna version	
Process connection	PVDF
Antenna / Seal	PVDF (completely encapsulated) / FKM
Plastic horn antenna version	
Process connection	Stainless steel 316L (1.4435)
Horn antenna / Focus lens	PBT-GF30 / PP
Display¹⁾	LCD in full dot matrix (option)
Process connection	Thread G 1½ or NPT 1½ (Encapsulated horn antenna version) Mounting strap 170 mm (Plastic horn antenna version)
Max. torque mounting boss	4 Nm (mounting screws - strap on the sensor housing)
Electrical connection	Cable glands M20 x 1.5
Measuring value	Distance between process connection and product surface
Min. dielectric figure	$\epsilon_r > 1.6$
Dead zone	50 mm ²⁾
Measuring range	0.05...10 m (Encapsulated horn antenna ver.) 0...20 m (Plastic horn antenna version)
Process temperature	-40...+80 °C
Vessel pressure	-1...3 bar (-100...00 kPa)
Vibration resistance	Mechanical vibrations with 4 g and 5...100 Hz
Temperature coefficient	0.03 %/10 K (Average temperature coefficient of the zero signal - temperature error)
Resolution	Max. 1 mm
Frequency	K-band (26 GHz technology)
Interval	Approx. 1 s
Beam angle at 3 dB	22° (Encapsulated horn antenna vers.) 10° (Plastic horn antenna vers.)

Dimensions [mm]



Adjustment time	> 1 s (dependent on the parameter adjustment)
Measurement deviation	± 2 mm
Electrical data	
Operating voltage	14...36 V DC or 14...30 V DC (Ex ia instrument)
Permissible residual ripple	< 100 Hz: $U_{ss} < 1$ V 100 Hz...10 kHz: $U_{ss} < 10$ mV
Output signal	4...20 mA/HART
Resolution	1.6 µA
Fault signal	Current output unchanged 20.5 mA, 22 mA or < 3.6 mA (selectable)
Current limitation	22 mA
Load	See load diagram
Damping (63 % of the input variable)	0...999 s, adjustable

1) to be ordered separately

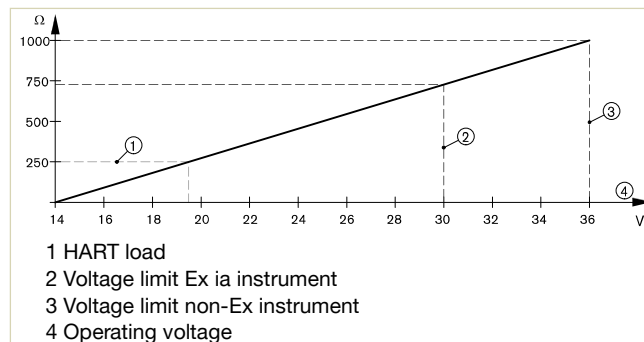
2) Encapsulated horn antenna version. In products with low dielectric value up to 50 cm.

Technical data continued

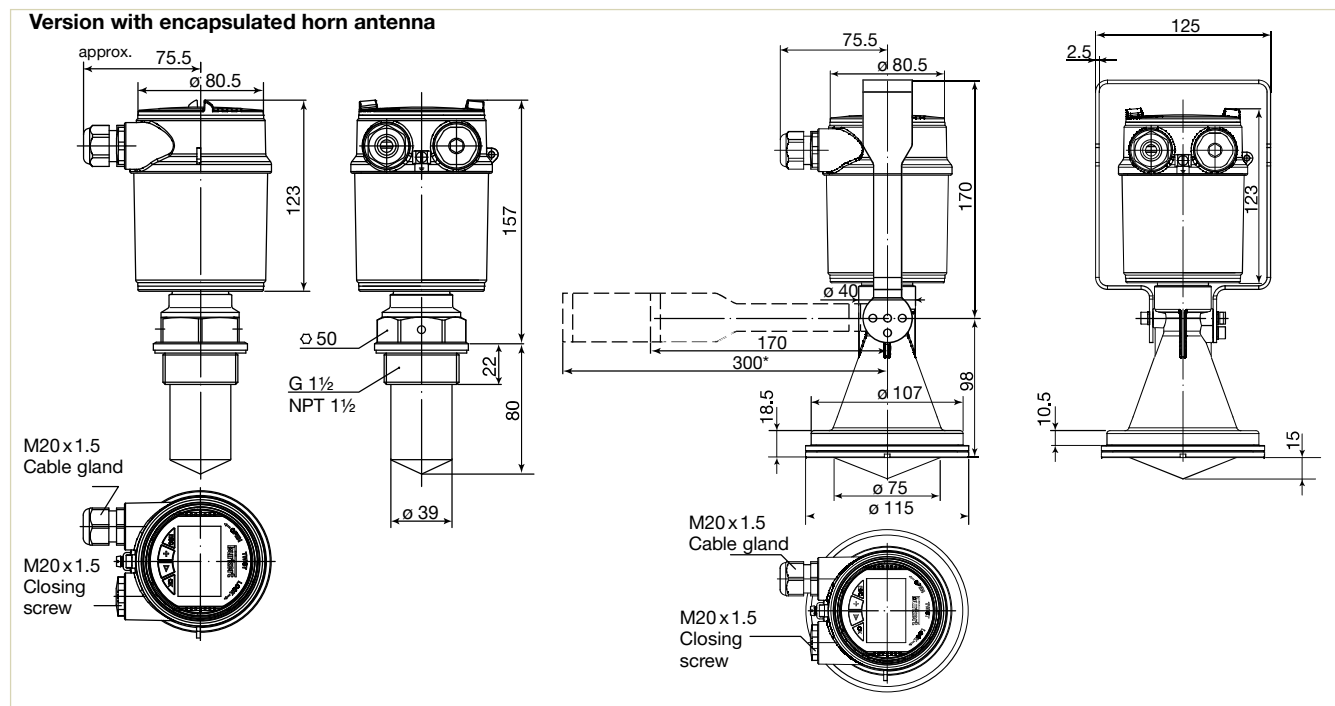
Standards and certifications	
Protection class	IP66/IP67 with M20x1.5 gland mounted and tightened
Overvoltage category	III
Protection class	II
Standard	
EMC	EN61326
Security	EN61010-1
NAMUR	NE 21; NE 43
Certifications	ATEX ¹⁾ : EN60079-0; EN60079-11; EN60079-26

1) Certificate PTB 08 ATEX 2002X

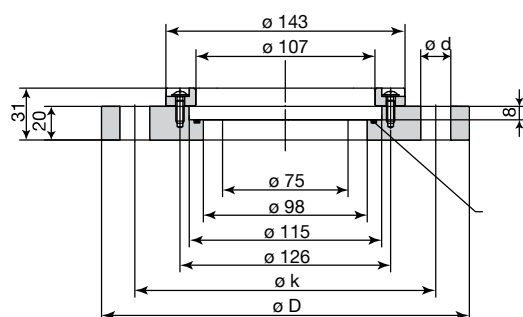
Load diagram



Dimensions [mm]



Adapter flange²⁾ for plastic horn antenna Ø 80 mm version



Flange	Ø D	Ø k	Ø d	Number of hole
DN100 PN16	220	180	18	8 x 45° (=360°)
ASME (ANSI B16.5) 4" 150 psi	228.6	190.5	19.1	8 x 45° (=360°)

2) The 300 mm mounting bracket of the flange adapter must be ordered separately.



Ordering chart

Description	Voltage supply	Output	Sensor	Electrical connection	Article no.
Encapsulated horn – 40 mm	14...36 V DC	4...20 mA/HART (2-wire)	G 1½	Cable gland M20 x 1.5	560146
Plastic horn – 80 mm	14...36 V DC	4...20 mA/HART (2-wire)	Mounting bracket or compression flange	Cable gland M20 x 1.5	560150

Note: Display not included, must be ordered separately (see accessories)

Accessories

Description	Article no.
Set with 2 reductions M20 x 1.5/NPT ½ + 2 neoprene flat seals for cable gland + 2 screw-plugs M20 x 1.5	551782
Set with a display/configuration module, a transparent cover and a seal ring	559279
Hart-USB Modem	560177
Mounting strap 300 mm	559839
Adapter flange DN100 PN16 FKM/PPH	560437
Adapter flange ASME (ANSI B16.5) 4" 150PSI FKM/PPH	560436

Radar Level Transmitter for Liquids

8137 / 8138

G thread or flange connection

- For filling level measurement up to 30 m
- High Pressure Version
- Two-wire version
- Adjustable via display and buttons as well as PC-Tool with DTM



Radar level transmitter for aggressive media and high pressure. A sleek, compact stainless steel design incorporates a 2-wire HART transmitter which is easily PC configurable.

Technical data

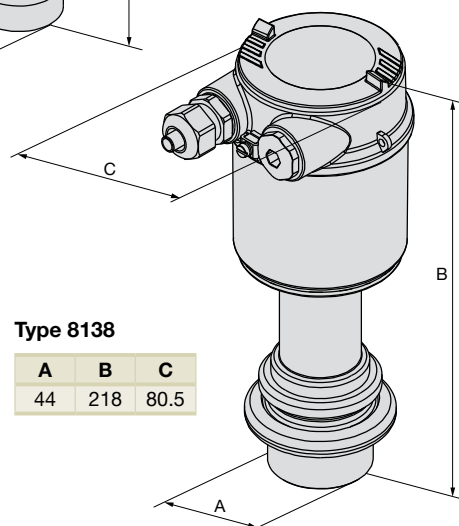
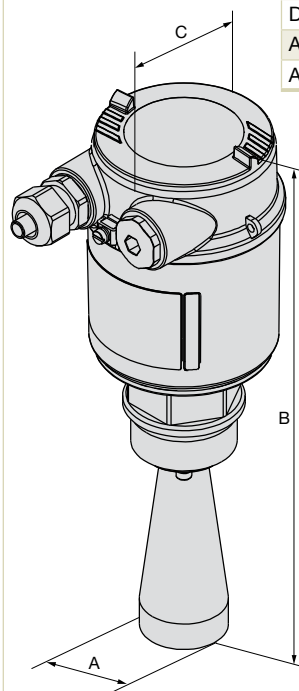
Type	8137	8138
General data		
Materials		
Housing / Cover	PBT, Stainless steel 316L / PC	
Seal ring	NBR	
Ground terminal	Stainless steel 316Ti/316L (1.4571/1.4435)	
Wetted parts		
Process connection	Stainless steel 316L	
Seal (thread version)	KLINGERSIL® C-4400	–
Antenna / Antenna cone	Edelstahl 316L / PTFE (TFM 1600 PTFE)	TFM™ PTFE / –
Seal	FKM (antenna system)	EPDM
Display	LCD in full dot matrix ¹⁾	
Ambient temperature	-40...+80 °C	
Voltage supply	2-wire, 14...36 V DC	
Current consumption max.	22 mA	
Electrical connections	Cable glands M20×1.5	
Outputs	4...20 mA/HART	
Dead zone	50 mm	
Measuring range (40 mm antenna)	50 mm...10 m	
Process temperature	-40...+130 °C	-40...+200 °C
Vessel pressure	-1...40 bar (-100...4000 kPa) or according to flange rules	-1...16 bar (-100...1600 kPa)
Vibration resistance	Mechanical vibrations with 4 g and 5...100 Hz	
Accuracy	±3 mm	
Min. dielectric	εr > 1.6	
Temperature coef-ficient	0.03 %/10K (Average temperature coefficient of the zero signal – temperature error)	
Resolution	max. 1 mm	
Frequency	K-band (26 GHz technology)	
Interval	Approx. 1 s	
Beam angle at 3 dB	22° (antenna with Ø 40 mm)	18° (range 0.05...10 m) 10° (range 0.05...20 m)
Adjustment time	> 1 sec.(dependent on the parameter adjustment)	
Measurement deviation	±2 mm	
Protection class	IP66, IP67	

¹⁾ must be ordered separately.

Dimensions [mm]

Type 8137

Standards	DN	A	B	C
DIN 2501	50	40	279	80.5
DIN 2501	100	75	395	80.5
ANSI B16.5	2"	40	279	80.5
ANSI B16.5	4"	75	395	80.5



Type 8138

A	B	C
44	218	80.5

Technical data continued

Type	8137	8138
Electrical Specifications		
Operating voltage	14...36 V DC or 14...30 V DC (Ex ia instrument)	
Permissible residual ripple	< 100 Hz: Uss < 1 V 100 Hz... 10 kHz: Uss < 10 mV	
Output signal	4... 20 mA/HART	
Resolution	1.6 µA	
Fault signal	Current output unchanged 20.5 mA, 22 mA or < 3.6 mA (selectable)	
Current limitation	22 mA	
Load	See load diagram	
Damping (63 % of the input variable)	0...999 s, adjustable	
Standards and certifications		
Protection class	IP66/IP67 with mounted and tightened cable gland M20 × 1.5	
Overvoltage category	III	
Protection class	II	
Standard		
EMV	EN61326	EN61326
Security	EN61010-1	EN61010-1
NAMUR	NE 21; NE 43	NE 21; NE 43
Certifications	ATEX ¹⁾ : EN60079-0; EN60079-11; EN60079-26	ATEX ¹⁾ : EN60079-0; EN60079-11; EN60079-26 FDA

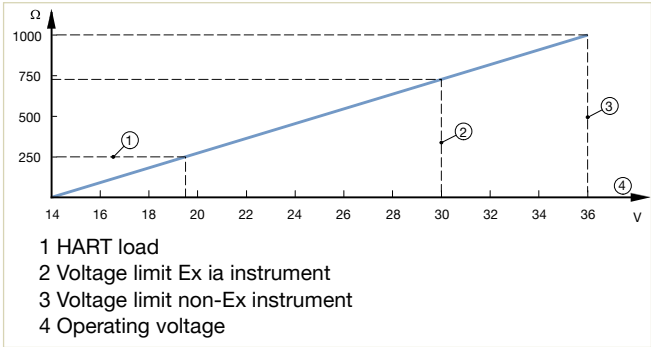
Type	8137	8138
Specifications Ex		
Ex -Protection	Categories G ½ or G 2	
Ex -Certification	EEx ia IIC T6	
Conformity specifications ¹⁾		
Operating voltage Ui	30 V	
Short circuit rating Ii	131 mA	
Power limitation Pi	983 mW	
Ambient temperature	-40...+55 °C (depending on the category)	
Internal capacity Ci	Negligible	
Internal inductivity Li	Negligible	

¹⁾ homologation certificate PTB 08 ATEX 2002X

Option

- Other hygienic fittings

Load diagram

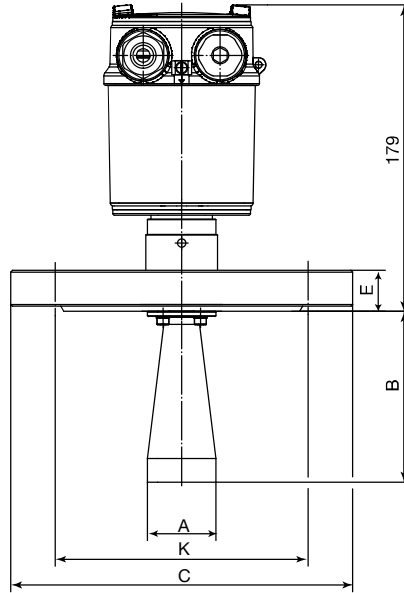
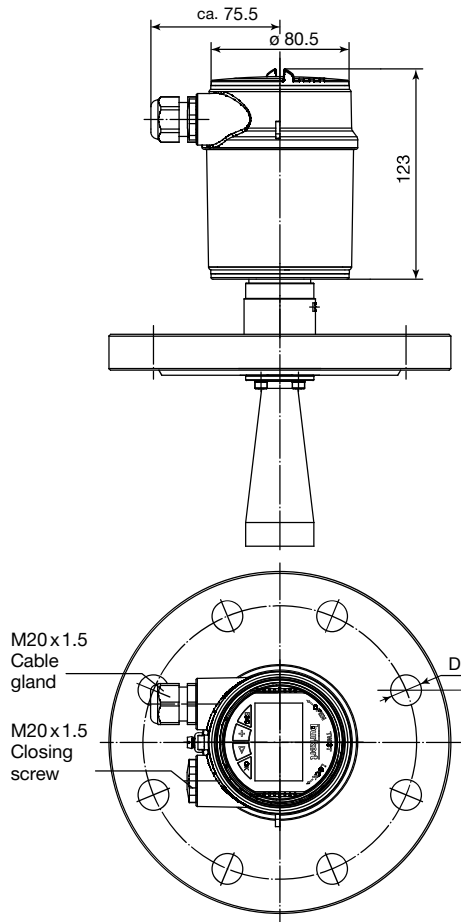




8137/8138





Dimensions [mm]



Flange horn antenna version



Standard	DN	A	B	C	E	D	K
DIN 2501	50	Ø 40	100	Ø 165	20	4 x Ø18	Ø 125
DIN 2501	100	Ø 75	216	Ø 220	20	8 x Ø18	Ø 180
ANSI B16.5	2"	Ø 40	100	Ø 152.4	19.1	4 x Ø19.1	Ø 120.7
ANSI B16.5	4"	Ø 75	216	Ø 228.6	23.9	8 x Ø19.1	Ø 190.5





Ordering chart

Area of application	Process connection	Electrical connection	Article no.
Type 8137			
Without Ex	G 1½ ISO 228	M20 cable gland	560157 
	Flange DIN 2301 DN50	M20 cable gland	560161 
Ex	G 1½ ISO 228	M20 cable gland	560158 
	Flange DIN 2301 DN50	M20 cable gland	560162 

Area of application	Process connection	Electrical connection	Article no.
Type 8138			
Without Ex	Clamp 2"	M20 cable gland	560169 
Ex	Clamp 2"	M20 cable gland	560170 

Note: Display not included, must be ordered separately (see accessories)

Accessories

Description	Article no.
Set with 2 M20 × 1.5 / NPT ½-Reductions + 2 Neoprene gaskets for cable gland M20 × 1.5 + 2 sealing plugs	551782 
HART-USB Modem	560177 
Set with a display/configuration module, a transparent cover and a seal ring	559279 
Set with a transparent cover and a sealing ring	561006 

8137/8138

Ultrasonic Level Transmitter for General Application

8177

G thread process connection

- Two-wire version
- Reliable non-contact measurement
- HART configuration

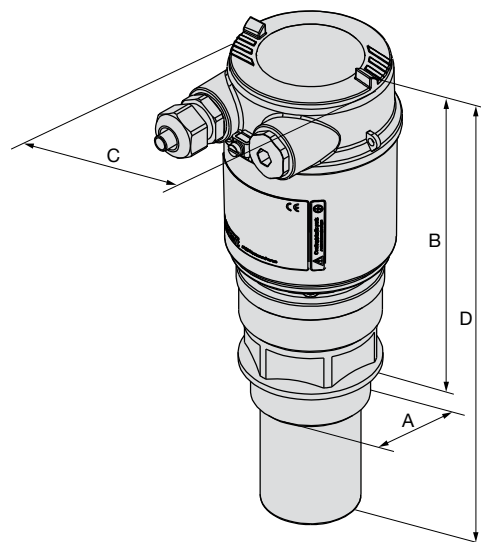


Ultrasonic level transmitters for non-contact measurement of process liquids and solids. Standard HART and 4...20mA HART compatible output.

Technical data

General data	
Materials	
Housing / Cover	PBT, Stainless steel 316L (1.4404) / PC
Seal ring	EPDM
Ground terminal	Stainless steel 316Ti/316L (1.4571/1.4435)
Wetted parts	
Process connection, transducer	PVDF
Process seal	EPDM
Display	LCD in full dot matrix ¹⁾
Process connection	Thread G 2 or NPT 2
Max. torque mounting boss	25 Nm
Electrical connection	Cable glands M20 x 1,5
Measuring value	Distance between lower edge of the transducer and product surface
Dead zone	0.4 m
Measuring range	0.4...8 m (for liquids) 0.4...3.5 m (for solids)
Process temperature	-40...+80 °C
Vessel pressure	-0.2...2 bar (-20...200 kPa)
Vibration resistance	Mechanical vibrations with 4 g and 5...100 Hz
Temperature coefficient	0.06 %/10K (Average temperature coefficient of the zero signal - temperature error)
Resolution	Max. 1 mm
Frequency	55 kHz
Interval	>2 s (dependent on the parameter adjustment)
Beam angle at 3 dB	11°
Adjustment time²⁾	>3 s (dependent on the parameter adjustment)
Measurement deviation	<0.2 % or ± 4 mm (see diagram)
Electrical data	
Operating voltage	14...36 V DC or 14...30 V DC (Ex ia instrument)
Permissible residual ripple	<100 Hz: U _{ss} < 1 V 100 Hz...10 kHz: U _{ss} < 10 mV
Output signal	4...20 mA/HART
Resolution	1.6 µA
Fault signal	Current output unchanged; 20.5 mA; 22 mA <3.6 mA (adjustable)

Dimensions [mm]



A	B	C	D
NPT 2	123	80.5	274
G 2	123	80.5	274

Option

- Process connection clamp 2", 3", 3 1/2", 4"

Current limitation	22 mA
Load	see load diagram
Damping (63 % of the input variable)	0...999 s, adjustable

1) Must be ordered separately

2) Time to output the correct level (with max. 10 % deviation) after a sudden level change.

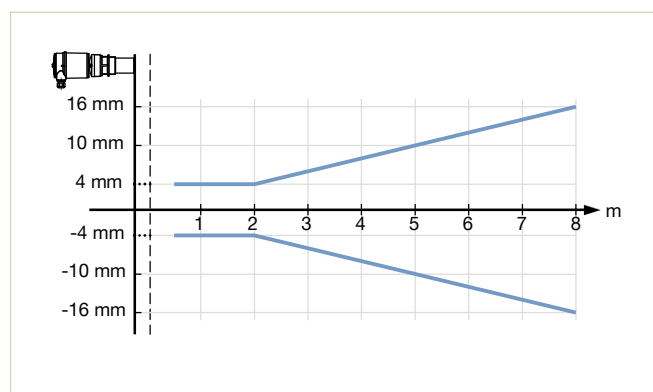
Technical data continued

Environment	
Ambient temperature with display, adjustment elements	-20...+70 °C (operation and storage)
Relative humidity	Max. 75 % (operation), max. 85 % (storage); without condensation
Standards and certifications	
Protection class	IP66/IP67 with M20 x 1.5 gland mounted and tightened
Overvoltage category	III
Protection class	II
Standards and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
NAMUR	NE 21; NE 43
Certifications	ATEX ¹⁾ : EN50014; EN50020; EN50284

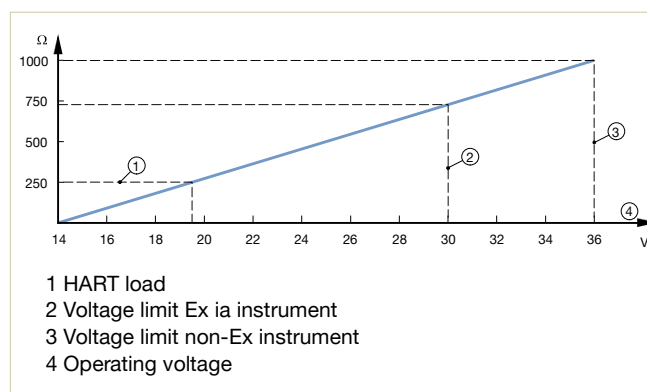
Specifications Ex	
Ex-Protection	Categories G ½ or G 2
Ex-Certification	EEx ia IIC T6
Conformity specifications²⁾	
Operating voltage U _i	30 V
Short circuit rating I _i	131 mA
Power limitation P _i	983 mW
Ambient temperature	-20...+41 °C (dependent on categories)
Internal capacity C _i	Negligible
Internal inductivity L _i	Negligible

1) Homologation certificate PTB 07 ATEX 2003X

Measurement deviation diagram



Load diagram



Ordering chart (versions with display)

Area of application	Process connection	Range (liquids)	Range (solids)	Electrical connection	Article no.
Type 8177					
Without Ex	G 2 ISO 228	0.4...8 m	0.4...3.5 m	M20 cable gland	558224
Ex	G 2 ISO 228	0.4...8 m	0.4...3.5 m	M20 cable gland	558226


Note: Display not included, must be ordered separately (see accessories)

Accessories

Description	Article no.
Set with 2 reductions M20 x 1.5/NPT ½ + 2 neoprene flat seals for cable gland + 2 screw-plugs M20 x 1.5	551782
Set with a display/configuration module, a transparent cover and a seal ring	559279
Set with a transparent cover and a seal ring	561006

Guided microwave level measurement device

8188

- Universal level measurement device for liquids
- Liquid interface measurement
- Insensitive to dust and steam
- 4...20 mA/HART – 2 wires, ATEX/IECEx certification 



The Type 8188 is a level measurement device with cable, rod, both interchangeable probe or with coax probe, designed for continuous level measurement. The unit is suitable for liquids, for industrial use in all areas of process technology. With a measuring range up to 75 m, the 8188 is best suited for tall vessels.

Even process conditions such as strong steam generation, density fluctuations or changes of the dielectric constant do not influence the accuracy of the measurement.

Build-up or condensation on the probe or vessel wall do not influence the measuring result.

A liquid interface measurement is also possible with the Type 8188, typically an oil/water interface.

Technical data

General data

Materials

Housing / Cover	PBT, Stainless steel 316L (1.4404) / PC
Seal ring / Ground terminal	NBR / Stainless steel 316L
Wetted parts	
Process fitting	
Rod and cable	Stainless steel 316L ¹⁾ and PPS (for version up to 6 bar)
	Stainless steel 316L ¹⁾ and PEEK (for version up to 40 bar)
Coax.-Ø 21.3 mm	Stainless steel 316L ¹⁾ and PEEK
Process seal	EPDM
Inner conductor (up to the separation cable/rod)	Stainless steel 316L ¹⁾
Spacers	PFA (only for coax. probe version)
Rod-Ø 8 mm	Stainless steel 316L ¹⁾
Cable-Ø 4 mm with gravity weight	Stainless steel 316L ¹⁾
Coax.-Ø 21.3 mm (tube)	Stainless steel 316L ¹⁾

Display LCD in full dot matrix

Process connection Thread G or NPT ¾ or 1

Weight

Housing	890 g
Rod-Ø 8 mm	Approx. 400 g/m
Cable-Ø 4 mm	Approx. 60 g/m
Coax.-Ø 21.3 mm	Approx. 1110 g/m
Gravity weight (only with cable version)	Approx. 200 g

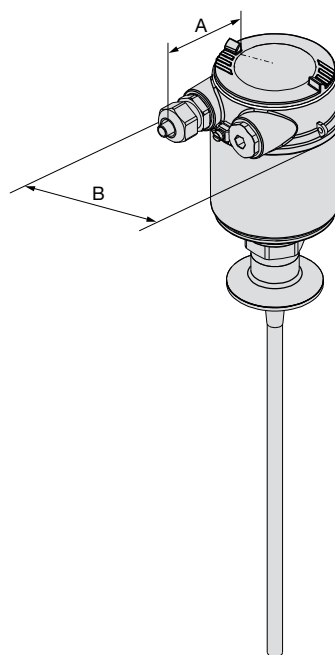
Length

Rod-Ø 8 mm	0.3...6 m - Lateral load: 10 Nm
Cable-Ø 4 mm	0.5...75 m - Max. tensile load: 2.5 KN
Coax.-Ø 21.3 mm	0.3...6 m - Lateral load: 60 Nm

Electrical connection Cable gland M20 x 1.5

Measurement type Level of liquids¹⁾

Dimensions [mm]



A	B
91	75.5

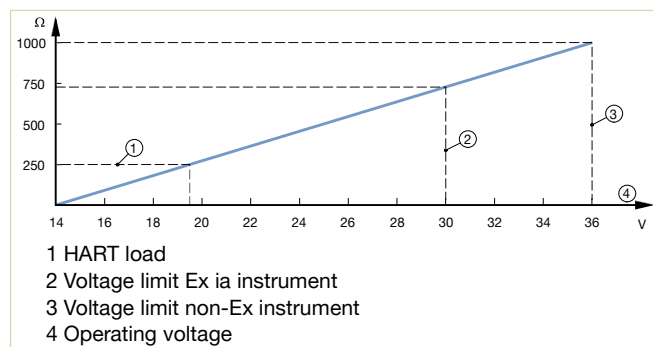
Options

- Other hygienic fittings

Technical data continued

Min. Dielektrizitätszahl	
Stab and Seil	$\epsilon_r > 1.6$
Koax.-Ø 21.3 mm	$\epsilon_r > 1.4$
Dead band	
in water	
Rod-Ø 8 mm	From top of probe: 80 mm - from bottom of probe: 0 mm
Cable-Ø 4 mm	From top of probe: 80 mm - from bottom of probe: 0 mm
Coax.-Ø 21.3 mm	From top of probe: 30 mm - from bottom of probe: 0 mm
in oil	
Rod-Ø 8 mm	From top of probe: 150 mm - from bottom of probe: 50 mm
Cable-Ø 4 mm	From top of probe: 150 mm - from bottom of probe: 150 mm
Coax.-Ø 21.3 mm	From top of probe: 100 mm - from bottom of probe: 50 mm
Measuring range	0.03...6 m or 0.08...75 m (see diagram)
Process temperature	-40...+150 °C (restricted up to 80 °C for rod and cable probe version up to 6 bar)
Process pressure (depends on the fitting)	For process fitting in: Stainless steel 316L ¹⁾ /PPS: -1...+6 bar (-100...+600 kPa) Stainless steel 316L ¹⁾ /PEEK: -1...+40 bar (-100...+4000 kPa)
Temperature drift	0.03 %/10K (Relating to the max. measurement range)
Repeatability	± 1 mm (max.)
Measurement deviation	± 2 mm
Electrical data	
Operating voltage (Un)	9.6...35 V DC or 9.6...30 V DC (Ex ia instrument), filtered and regulated; Connection to main supply: permanent (through external SELV and LPS power supply)
Output signal	4...20 mA/HART (Range of the output signal 3.8...20.5 mA/HART (default setting))
Resolution	0.3 µA
Fault signal (adjustable)	Last valid measured value or ≥ 21 mA; < 3.6 mA
Current limitation	21.5 mA (max. output current)
Load	$(U_n - U_{min})/0.0215 \text{ A}$
Damping (63 % of the input variable)	0...999 s, adjustable
Environment	
Ambient temperature	with display, adjustment elements -40...+80 °C (operation and storage)
Relative humidity	Max. 75 % (operation), max. 85 % (storage); without condensation

Load diagram



Standards, directives and certifications

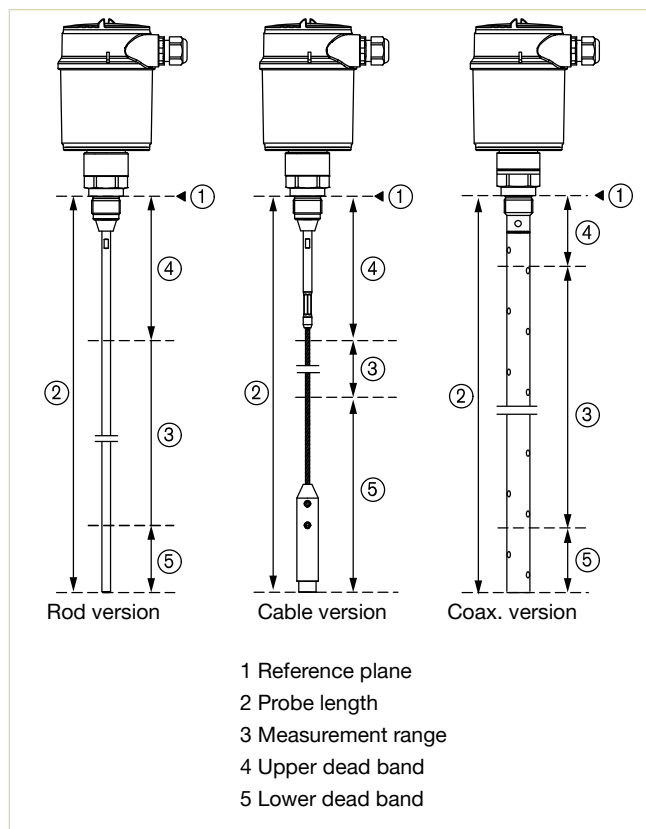
Protection class	IP66/IP67 with M20x1.5 gland mounted and tightened
Overvoltage category	III (IEC 61010-1)
Protection class	III (IEC 61010-1)
Standards and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable) NE 21; NE 43; NE 53; NE 107
NAMUR	
Certification	ATEX ³⁾ : EN60079-0; EN60079-11; EN60079-26
Specifications Ex	
⚡ - Protection	Categories G 1, G 1½ or G 2
⚡ - Certification	EEx ia IIC T6
Conformity specifications ³⁾	
Operating voltage Ui	30 V
Short circuit rating Ii	131 mA
Power limitation Pi	983 mW
Ambient temperature	-50...+46 °C (dependent on category)
Internal capacity Ci	Negligible
Internal inductivity Li	≤ 5 µH

1) (1.4404 or 1.4435)

2) For applications regarding solids, please consult your local Bürkert Sales Centre.

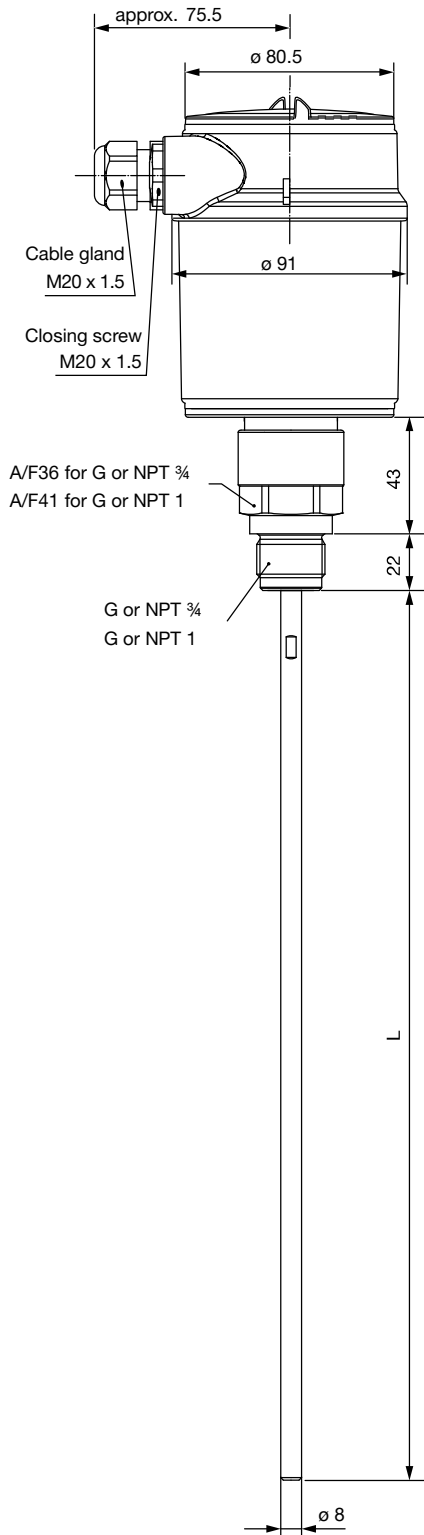
3) Certificate IECEx TUR 14.0014 X / TÜV 14 ATEX 7490 X

Measuring range diagram

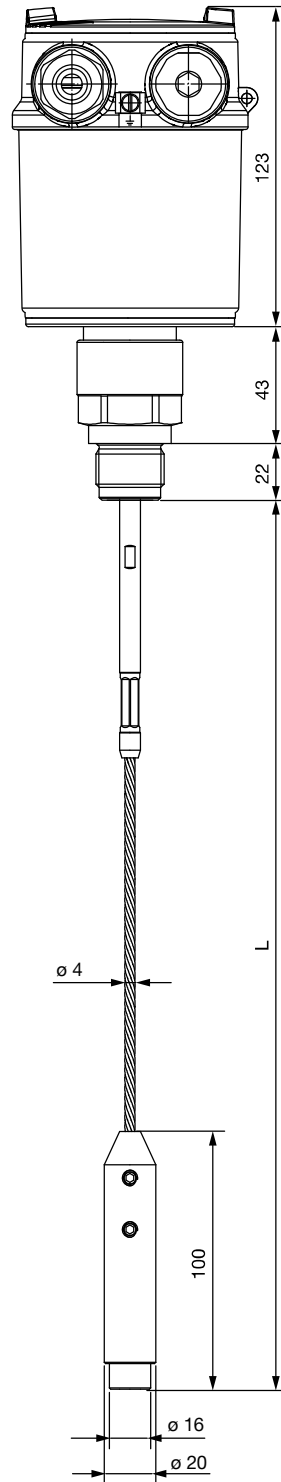




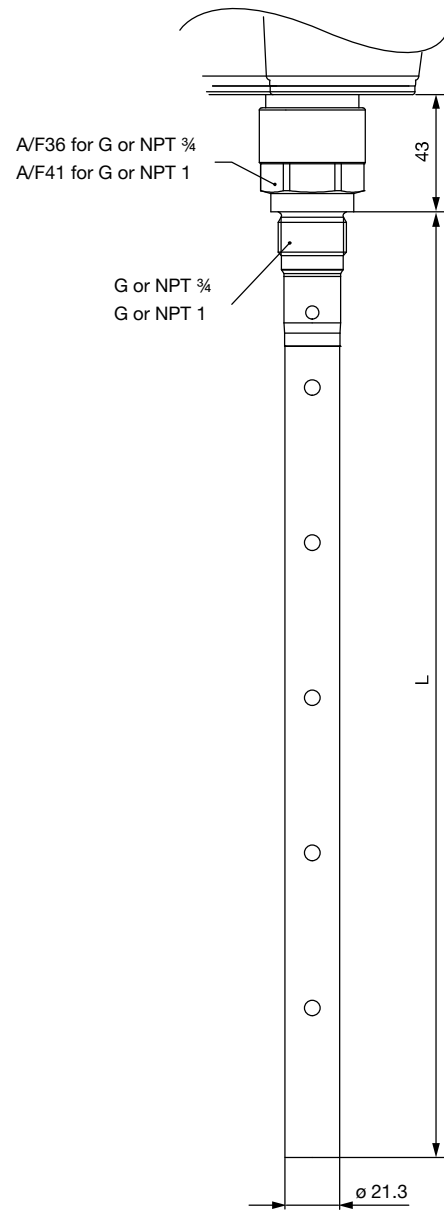
Dimensions [mm]



Rod probe version

Cable probe version
with gravity weight

Version	L
Rod-Ø 8 mm	0.3...6 m
Cable-Ø 8 mm	0.5...75 m
Coax.-Ø 21.3 mm	0.3...6 m



Coax. probe version

Ordering chart

Description	Operating voltage	Output	Probe	Length	Electrical connection	Article no. (with display/ configuration module)
G ¼ mounting thread, PN6, temp. max. 80 °C	9.6...35 V DC	4...20 mA/HART (2 wires)	Rod	1 m	Cable gland M20 x 1.5	565800
				2 m	Cable gland M20 x 1.5	565804
			Cable	5 m	Cable gland M20 x 1.5	565812
				10 m	Cable gland M20 x 1.5	565816
			Coax	1 m	Cable gland M20 x 1.5	565823
				2 m	Cable gland M20 x 1.5	565824
G 1 mounting thread, PN40, temp. max. 150 °C	9.6...35 V DC	4...20 mA/HART (2 wires)	Rod	1 m	Cable gland M20 x 1.5	565802
				2 m	Cable gland M20 x 1.5	565806
			Cable	5 m	Cable gland M20 x 1.5	565814
				10 m	Cable gland M20 x 1.5	565818
			Coax	1 m	Cable gland M20 x 1.5	565825
				2 m	Cable gland M20 x 1.5	565826
NPT ¼ mounting thread, PN6, temp. max. 80 °C	9.6...35 V DC	4...20 mA/HART (2 wires)	Rod	1 m	Cable gland M20 x 1.5	565801
				2 m	Cable gland M20 x 1.5	565805
			Cable	5 m	Cable gland M20 x 1.5	565813
				10 m	Cable gland M20 x 1.5	565817
			Coax	1 m	Cable gland M20 x 1.5	565827
				2 m	Cable gland M20 x 1.5	565828
NPT 1 mounting thread, PN40, temp. max. 150 °C	9.6...35 V DC	4...20 mA/HART (2 wires)	Rod	1 m	Cable gland M20 x 1.5	565803
				2 m	Cable gland M20 x 1.5	565807
			Cable	5 m	Cable gland M20 x 1.5	565815
				10 m	Cable gland M20 x 1.5	565819
			Coax	1 m	Cable gland M20 x 1.5	565829
				2 m	Cable gland M20 x 1.5	565830



Ordering chart continued

8188


Description	Operating voltage	Output	Probe	Length	Electrical connection	Article no. (with display/ configuration module)
Ex version - ATEX certification - G ¾ mounting thread, PN6, temp. max. 80 °C	9.6...30 V DC	4...20 mA/HART (2 wires)	Rod	1 m	Cable gland M20 x 1.5	565808
				2 m	Cable gland M20 x 1.5	565810
			Cable	5 m	Cable gland M20 x 1.5	565820
				1 m	Cable gland M20 x 1.5	565831
			Coax	2 m	Cable gland M20 x 1.5	565832
			Rod	1 m	Cable gland M20 x 1.5	565809
				2 m	Cable gland M20 x 1.5	565811
				5 m	Cable gland M20 x 1.5	565821
				1 m	Cable gland M20 x 1.5	565833
				2 m	Cable gland M20 x 1.5	565834
Ex version - IECEx certification - NPT ¾ mounting thread, PN6, temp. max. 80 °C	9.6...30 V DC	4...20 mA/HART (2 wires)	Rod	1 m	Cable gland M20 x 1.5	565839
				2 m	Cable gland M20 x 1.5	565840
			Cable	5 m	Cable gland M20 x 1.5	565841
				1 m	Cable gland M20 x 1.5	565835
			Coax	2 m	Cable gland M20 x 1.5	565836
			Rod	1 m	Cable gland M20 x 1.5	565842
				2 m	Cable gland M20 x 1.5	565843
				5 m	Cable gland M20 x 1.5	565844
				1 m	Cable gland M20 x 1.5	565837
				2 m	Cable gland M20 x 1.5	565838
Ex version - IECEx certification - NPT 1 mounting thread, PN40, temp. max. 150 °C	9.6...30 V DC	4...20 mA/HART (2 wires)	Rod	1 m	Cable gland M20 x 1.5	565842
				2 m	Cable gland M20 x 1.5	565843
			Cable	5 m	Cable gland M20 x 1.5	565844
				1 m	Cable gland M20 x 1.5	565837
			Coax	2 m	Cable gland M20 x 1.5	565838

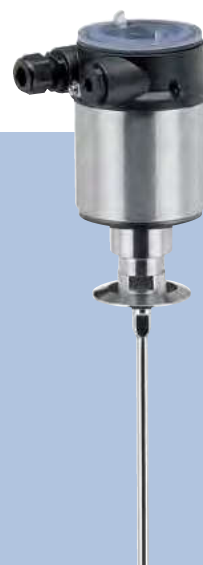
Accessories

Description	Article no.
Set with 2 reductions M20 x 1.5/NPT ½ + 2 neoprene flat seals for cable gland + 2 screw-plugs M20 x 1.5	551782
HART-USB Modem	560177
Set with a display/configuration module, a transparent cover and a seal ring	559279
Set with a transparent cover and a seal ring	561006

Guided microwave level measurement device – sanitary version

8189

- Universal level measurement device for liquids
- Liquid interface measurement
- Insensitive to dust and steam
- 4...20 mA/Hart – 2 wires, ATEX/IECEx certifications 



The Type 8189 is a level measurement device with interchangeable rod probe, designed for continuous level measurement. The unit is suitable for liquids, for industrial use in all areas of process technology. But the main application targets are in Food and Beverage (F&B) and pharmaceutical tanks to the new rod in stainless steel 1.4435 with $R_a < 0.76 \mu\text{m}$.

For applications with corrosive liquids a PFA coated version is available.

Even process conditions such as strong steam generation, density fluctuations or changes of the dielectric constant do not influence the accuracy of the measurement.

Build-up or condensation on the probe or vessel wall do not influence the measurement result.

Technical data

General data

Materials

Housing / Cover	PBT, Stainless steel 316L (1.4404) / PC
Seal ring / Ground terminal	NBR / Stainless steel 316L
Wetted parts	
Process fitting	Stainless steel 316L (1.4404 or 1.4435) and PEEK
Process seal	EPDM
Rod-Ø 8 mm, polished	Stainless steel 316L (1.4435)

Rod surface finish $R_a < 0.76 \mu\text{m}$ (BN_2)

Display LCD in full dot matrix

Weight

Housing	890 g
Rod-Ø 8 mm	Approx. 400 g/m

Process fitting Clamp 2" or DIN11851 DN50

Length 0.3...4 m – Lateral load: 10 Nm

Electrical connections Cable gland M20x1.5

Measurement type Level of liquids

Min. dielectric figure $\epsilon_r > 1.6$

Dead band

in water	From top of probe: 80 mm - from bottom of probe: 0 mm
in oil	From top of probe: 150 mm - from bottom of probe: 100 mm

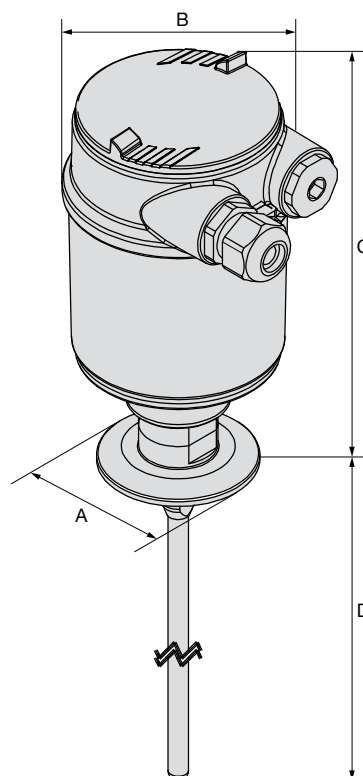
Measurement range 0.08...4 m (see diagram on next page)

Process temperature -20...+50 °C

Process pressure -1...16 bar (-100...+1600 kPa) (depends on the process fitting)

Temperature drift 0.03 %/10K (Relating to the max. measurement range)

Dimensions [mm]



Clamp connection	A Ø	B Ø	C	D [m]
1", 1½"	50.5	91	174.6	0.3...4 (Length see ordering chart)
2"	64.0			
2½"	77.5			
3"	91.0			

Repeatability $< \pm 1 \text{ mm}$

Deviation $\pm 2 \text{ mm}$

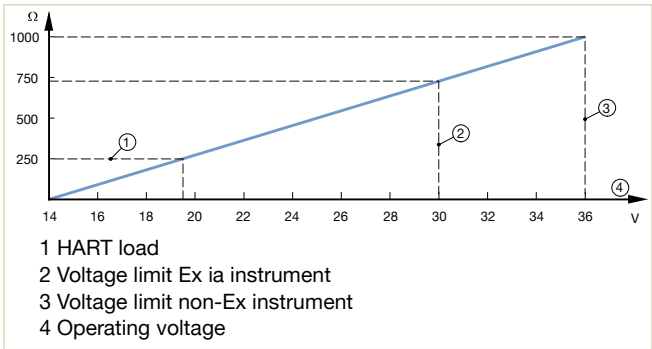
Technical data continued

Electrical data	
Operating voltage (Un)	9.6...35 V DC or 9.6...30 V DC (Ex ia instrument), filtered and regulated; Connection to main supply: permanent (through external SELV and LPS power supply)
Output signal	4...20 mA/HART (Range of the output signal 3.8...20.5 mA/HART (default setting))
Resolution	0.3 µA
Fault signal (adjustable)	Last valid measured value or ≥ 21 mA; < 3.6 mA
Current limitation	21.5 mA (max. output current)
Load	$(U_n - U_{min})/0.0215 \text{ A}$
Damping (63 % of the input variable)	0...999 s, adjustable
Environment	
Ambient temperature with display, adjustment elements	-40...+80 °C (operation and storage)
Relative humidity	Max. 75 % (operation), max. 85 % (storage); without condensation

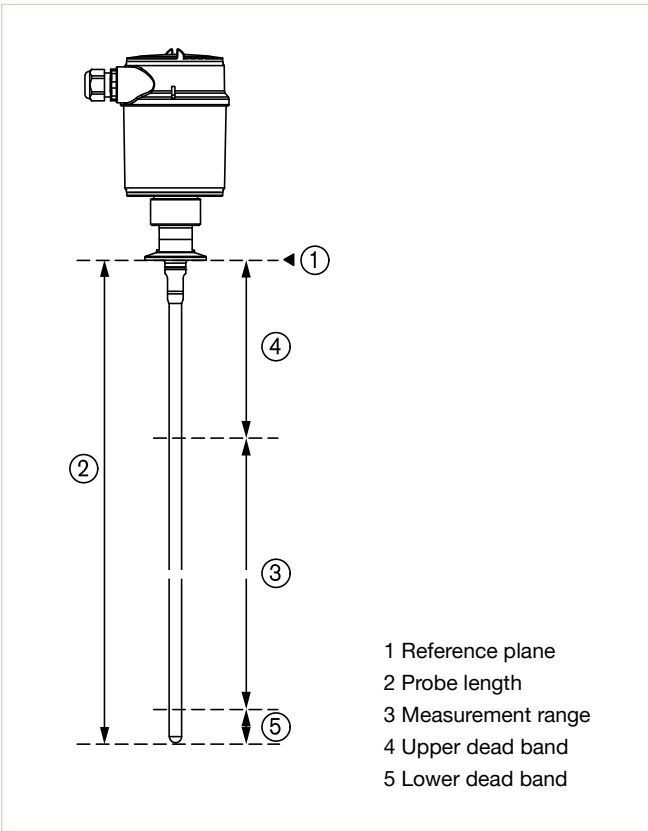
Standards and certifications	
Protection class	IP66/IP67 with M20 x 1.5 gland mounted and tightened
Overvoltage category	III (IEC 61010-1)
Protection class	III (IEC 61010-1)
Standard	EMC / Safety EN61326 / EN61010-1 ATEX ¹⁾ EN60079-0; EN60079-11; EN60079-26 NAMUR NE 21; NE 43
Certifications	FDA
Specifications Ex	
⚡ - Protection	Categories G 1, G ½ or G 2
⚡ - Certification	EEx ia IIC T6
Conformity specifications ¹⁾	30 V Operating voltage Ui 131 mA Short circuit rating Ii 983 mW Power limitation Pi -50...+46 °C (dependent on category) Ambient temperature Negligible Internal capacity Ci ≤ 5 µH Internal inductivity Li

1) Certificate IECEx TUR 14.0014 X / TÜV 14 ATEX 7490 X

Load diagram



Measuring range diagram





Ordering chart

	Specifications	Voltage supply	Output	Probe	Length	Electrical connection	Article no. with display/configuration module
8189	Compact measurement device Type 8189						
	Clamp 2"	9.6...35 V DC	4...20 mA/HART (2 wires)	Rod	1 m	Cable gland M20 x 1.5	565850
					2 m	Cable gland M20 x 1.5	565852
	DIN11851 - DN50	9.6...35 V DC	4...20 mA/HART (2 wires)	Rod	1 m	Cable gland M20 x 1.5	565851
					2 m	Cable gland M20 x 1.5	565853
	Ex version - ATEX approval - Clamp 2"	9.6...30 V DC	4...20 mA/HART (2 wires)	Rod	1 m	Cable gland M20 x 1.5	565854
					2 m	Cable gland M20 x 1.5	565856
	Ex version - ATEX approval - DIN11851 DN50	9.6...30 V DC	4...20 mA/HART (2 wires)	Rod	1 m	Cable gland M20 x 1.5	565855
					2 m	Cable gland M20 x 1.5	565857
	Ex version - IECEx approval - Clamp 2"	9.6...30 V DC	4...20 mA/HART (2 wires)	Rod	1 m	Cable gland M20 x 1.5	565858
					2 m	Cable gland M20 x 1.5	565860
	Ex version - IECEx approval - DIN11851 DN50	9.6...30 V DC	4...20 mA/HART (2 wires)	Rod	1 m	Cable gland M20 x 1.5	565859
					2 m	Cable gland M20 x 1.5	565861

¹⁾ Other lengths on request

Accessories

Specifications	Article no.
Set with 2 reductions M20 x 1.5/NPT ½ + 2 neoprene flat seals for cable gland + 2 screw-plugs M20 x 1.5	551782
Hart-USB Modem	560177
Set with a display/configuration module, a transparent cover and a seal ring	559279
Set with a transparent cover and a seal ring	561006



Overview for Analysis Sensors

Note: The following product overview does not show the complete product range of this catalogue. A complete overview can be found [here](#) ►

Overview Analysis Sensors	Category	Type	Basic functions	Operating principle	Measuring range	Fluid temperature [°C]	Fluid pressure [bar]	Temperature compensation
	pH/redox potential measurement	8202 Standard ►	Transmitter, measuring device	Depends on installed probe, Type 8203	pH: -2...16 ORP: -2000...+2000 mV	-20...+130 restricted by connecting nut or adapter Type S022 or probe Type 8203 used	PN16 (depends on installed probe)	Automatic (integrated Pt1000)
		8202 neutrino ►	Transmitter, measuring device	Depends on installed probe, Type 8203	pH: 0...14 ORP: -2000...+2000 mV	-20...+130 restricted by connecting nut or adapter Type S022 or probe Type 8203 adapter	PN16 (depends on installed probe)	Automatic (integrated Pt1000)
	Conductivity measurement	8220 ►	Sensor	Conductive, 2-pole electrode	0.05 µS/cm...200 mS/cm (depending on the cell constant)	0...+100 (Depending on the S020 fitting used)	PN10	Pt1000
		8221 ►	Sensor	Conductive, 2- or 4-pole electrode	0.05 µS/cm...500 mS/cm (depending on probe version)	-20...+150 (depending on probe version)	Max. 7 (depending on probe version)	Pt1000
		8222 Standard ►	Sensor, transmitter, measuring device	Conductive, 2-pole electrode	0.05 µS/cm...10 mS/cm	-20...+100 restricted by connecting nut or adapter Type S022 used	PN16	Yes (integrated Pt1000), de- pending on a predefined or special curve
		8222 neutrino ►	Sensor, transmitter, measuring device	Conductive, 2-pole electrode	0.05 µS/cm...10 mS/cm	-20...+100 restricted by connecting nut or adapter Type S022 used	PN16	Yes (integrated Pt1000), de- pending on a predefined or special curve
		8228 ►	Sensor, transmitter, measuring device	Inductive	100 µS/cm...2 S/cm	-15 ... +130 restricted by fitting Type S020 used	PN6 PN10	Yes (integrated Pt1000), de- pending on a predefined or special curve

Wetted parts material		Process connection	Fluid properties	Operating voltage	Signal output	Display	Comments	Overview Analysis Sensors
Seal	Sensor/ Sensor holder							
–	Connecting nut PVC: 50 °C connecting nut PVDF: 130 °C	G ½ for Bürkert adaptor/ fitting, Type S022	pH: clean, contaminated, sulphide- or protein-containing liquids ORP: clean, contaminated, liquids containing sulphide or protein and low conductivity liquids	12...36 V DC	2 x transistors + 1 × 4...20 mA or 2 x transistors + 2 × 4...20 mA	Yes, removable	Insertion compact	
–	Connecting nut PVC: 50 °C connecting nut PVDF: 130 °C	G ½ for Bürkert adaptor/ fitting, Type S022	pH: clean, contaminated, sulphide- or protein-containing liquids ORP: clean, contaminated, liquids containing sulphide or protein and low conductivity liquids	12...36 V DC	1 × 4...20 mA	No	Insertion compact	
FKM, EPDM	PVDF	G 2 for Bürkert adaptor/ fitting, Type S022	Pure or slightly concentrated fluids	None	Analogue raw signal	No	Compatible with Type 8619 multiCELL - transmitter/controller Tanks and vessels can be used with extended version and immersion fitting.	
EPDM	Stainless steel, PEEK, PTFE (de- pending on probe version)	Clamp 1½", 2"; G ¼; 2" (DN50/40) Con- nection suitable for GEA Tuchenhausen VARINLINE process connection; PG 13.5	Pure or concentrated fluids	None	Analogue raw signal	No	Compatible with Type 8619 multiCELL - transmitter/controller	
–	Connecting nut PVC: 50 °C connecting nut PVDF: 100 °C	G ½ for Bürkert adaptor/ fitting, Type S022	Pure or slightly concentrated fluids	12...36 V DC	2 x transistors + 1 × 4...20 mA or 2 x Transistors + 2 × 4...20 mA	Yes, removable	Insertion compact	
–	Connecting nut PVC: 50 °C connecting nut PVDF: 100 °C	G ½ for Bürkert adaptor/ fitting, Type S022	Pure or slightly concentrated fluids	12...36 V DC	1 × 4...20 mA	No	Insertion compact	
EPDM FKM	PP, PVDF or PEEK PEEK and SS or PVDF and SS	G 2 for Bürkert Type S020 fitting or pipe from DN32 equipped with a clamp 2".	Concentrated and highly concen- trated fluids	12...36 V DC	1 x transistor + 1 × 4...20 mA or 2 x transistors + 2 × 4...20 mA	Yes, removable	Insertion compact	



pH/ORP meter (with removable control unit)

8202 ELEMENT

- Integral compact measurement device for direct connection to control level (PLC).
- Thanks to the modular HMI, parameterization, calibration, transferring of parameterization data easily possible.
- Usage of 120 mm standard PG 13.5 pH/ORP-probes with S8 connector (Type 8203 recommended)
- Simulation of process value and diagnostic function

Suitable fitting:
see Type S022 ►



pH/ORP meter (switchable; depends on attached probe) with programmable outputs. pH or ORP and temperature output via single or dual analog 4...20 mA. Two digital outputs (transistor) are also included. These devices are engineered for a wide scope of measuring ranges and can be delivered in 2-wire or 3-wire configurations. Compatible to standard fittings thanks to the S022 adaptations.

Technical data

Complete device data (Pipe + meter)

Pipe diameter DN25...DN110 (DN<25 with reduction)

pH measurement

Measuring range -2...16 pH or -580...+580 mV
Resolution 0.001 pH or 0.1 mV
Measurement deviation ± 0.02 pH or 0.5 mV
Minimal pH scale 0.5 pH or 30 mV

ORP measurement

Measurement range -2000...+2000 mV
Resolution 1 mV
Measurement deviation ± 3 mV
Minimal ORP scale 50 mV

Temperature compensation Automatic via integrated temperature sensor Pt1000

Temperature measurement (via integrated Pt1000) Measuring range: -20...+130 °C
Resolution 0.1 °C
Accuracy ± 1 °C

Fluid temperature

with PVC nut connection 0...+50 °C restricted by the used probe
with PVDF nut connection -20...+130 °C restricted by the used adaptor or probe
Restriction with adaptor S022 in:
- PVC: 0...+50 °C
- PP: 0...+80 °C
- Metal: -20...+130 °C

Fluid pressure 0...16 bar (see pressure/temperature diagram)

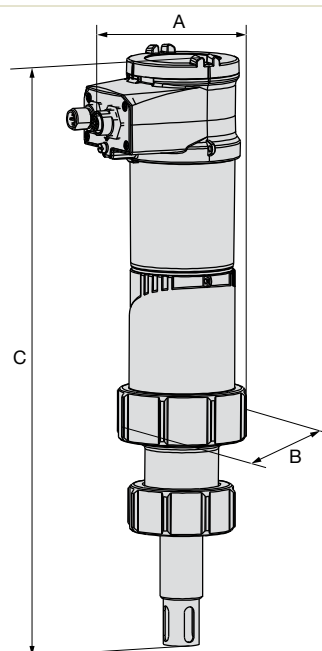
General data

Compatibility Any pipe which are fitted out with Bürkert adaptor S022 (see **Type S022** ► or corresponding data sheet **Type S022** ►)

Materials

Housing / Cover Stainless steel 1.4404, PPS / PC
Seals / Screws / Display EPDM, silicone / Stainless steel / PC
Navigation key PBT
Fixed connector mounting plate Stainless steel 1.4404 (316L)
Fixed connector / Nut Brass nickel plated / PVC or PVDF
Wetted part materials
Probe holder PVDF, Stainless steel 1.4571 (316Ti)
Probe See probe specific technical data

Dimensions [mm]



A complete measuring point consists of a meter type 8202, a pH or ORP probe type 8203, a detachable display/control unit and a adaptor (Type S022).

A	B	C
102	75	342

Options

- Blind version (Neutrino)
- Versions with UR/CSA

Probe

Bürkert pH or ORP probe Type 8203 (recommended) or any other combined 120 mm pH or ORP probe, without temperature sensor, with PG 13.5 head, S7/S8 connector

Temperature sensor

Pt1000 integrated within the holder

Display (accessories)

Grey dot matrix 128×64 with backlighting

Electrical connections

3 outputs meter (2-wire) 1×5 pin M12 male fixed connector,
4 outputs meter (3-wire) 1×5 pin M12 male and
1×5 pin M12 female fixed connectors

Connection cable

Shielded cable

Technical data continued

Electrical data	
Power supply	
3 outputs meter (2-wire)	14...36 V DC, filtered and regulated
4 outputs meter (3-wire)	12...36 V DC, filtered and regulated
Current consumption with sensor	
3 outputs meter (2-wire)	≤ 1 A (with transistor loads) ≤ 25 mA (at 14 V DC without transistor loads, with current loop)
4 outputs meter (3-wire)	≤ 5 mA (at 12 V DC without transistor loads, without current loop)
Electrical protection	
Reversed polarity of DC: protected Voltage peak: protected Short circuit: protected for transistor outputs	
Output	
Transistor	Adjustable as sourcing or sinking (respectively both as PNP or NPN), open collector Max. 700 mA, 0.5 A max. per transistor if the 2 transistor outputs are wired Output NPN: 0.2...36 VDC Output PNP: V+ power supply
Current	4...20 mA,
3 outputs meter (2-wire)	Adjustable as sourcing or sinking, max. loop impedance: 1100 Ω at 36 V DC; 610 Ω at 24 V DC; 180 Ω at 14 V DC
4 outputs meter (3-wire)	Adjustable in the same mode as transistor: sourcing or sinking, max. loop impedance: 1100 Ω at 36 V DC; 610 Ω at 24 V DC; 100 Ω at 12 V DC
Response time (10...90 %)	150 ms (standard)
4...20 mA output uncertainty ± 1 % of the range	

Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

Environment	
Ambient temperature	-10...+60 °C (operating and storage without probe)
Relative humidity	≤ 85 %, without condensation
Standards, directives and certification	
Protection class	IP65 and IP67 with device wired and with M12 cable plug mounted and tightened and cover mounted correctly.
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Pressure	Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ¹⁾
Certificate	FDA declaration of conformity
Certification	
UL-Recognized for US and Canada	UL61010-1 + CAN/CSA-C22.2 No.61010-1

1) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

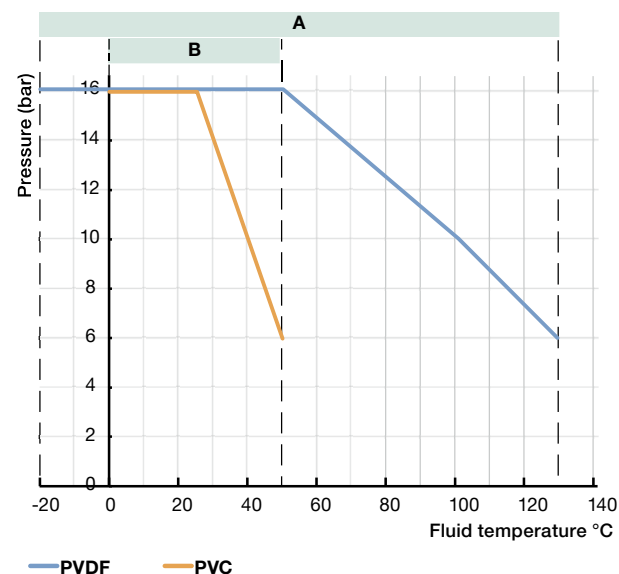
Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Pressure/Temperature diagrams

Application range of a 8202:

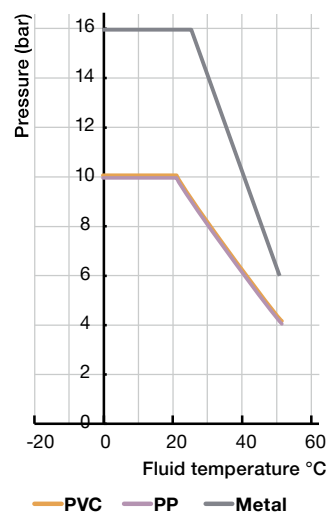
A: with PVDF nut (on request)
B: with PVC nut

The measures have been made at an ambient temperature of 60 °C, without probe.

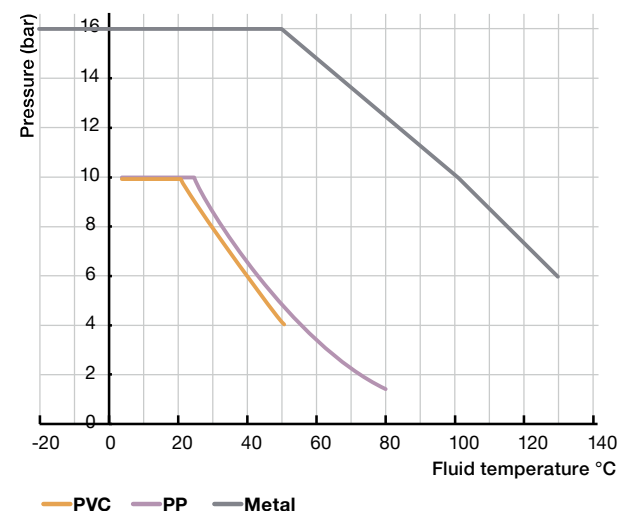


Application range of a 8202 (without probe)

- with PVC nut with S022 adaptor



- with PVDF nut with S022 adaptor





Ordering chart

8202 ELEMENT



Specifications	Voltage supply	Output	Sensor version	Nut material	Electrical connection	UL Certifications	Article no.
Compact meter: probe holder with integrated Pt1000 + electronic module with cover, without display	14...36 V DC	2 x transistors + 1 x 4...20 mA	None	PVC	5 pin M12 male fixed connector	No	559630
						UL-Recognized	559634
				PVDF	5 pin M12 male fixed connector	No	559632
						UL-Recognized	559636
	12...36 V DC	2 x transistors + 2 x 4...20 mA	None	PVC	5 pin M12 male and 5 pin M12 female fixed connectors	No	559631
						UL-Recognized	559635
				PVDF	5 pin M12 male and 5 pin M12 female fixed connectors	No	559633
						UL-Recognized	559637

Note: For a complete measurement point the following items must be ordered separately (see accessories):

- Type 8202 ELEMENT
- pH or redox potential probe Type 8203
- Insertion adaptor Type S022
- Display/configuration module
- M12 cable socket, cable connector (only female for single 4...20 mA, 1 male + 1 female for dual 4...20 mA meter)

Probe Type 8203	Description	Article no.
pH probe		
PLASTRODE pH 120 mm	pH probe - 10...+40 °C, 0...6 bar, pH 0...14	560377
FLATRODE pH 120 mm	pH probe 0...+80 °C, 0...6 bar, pH 0...14	561025
LOGOTRODE pH 120 mm	pH probe - 10...+60 °C, 0...6 bar, pH 0...14	427114
UNITRODE PLUS pH 120 mm	pH probe 0...+130 °C, 0...16 bar, pH 0...14	560376
CERATRODE pH 120 mm	pH probe 0...+130 °C, 0...16 bar, pH 0...14	418319
FERMTRODE pH 120 mm	pH probe 0...+140 °C, 0...6 bar, pH 0...14	561727
ORP probe		
FLATRODE ORP 120 mm	ORP probe 0...+80 °C, 0...6 bar, -2000...+2000 mV	561027
LOGOTRODE ORP 120 mm	ORP probe - 10...+60 °C, 0...6 bar, -2000...+2000 mV	560379
UNITRODE PLUS ORP 120 mm	ORP probe 0...+130 °C, 0...16 bar, -2000...+2000 mV	560378

Accessories

Specifications	Article no.
Removable display/configuration module (with instruction sheet)	559168 
Blind cover with seal	560948 
Transparent cover with seal	561843 
One Ø 46 × 2 mm EPDM seal for 120 mm probe holder (with instruction sheet)	559169 
Probe holder with PVC nut	560947 
Probe holder with PVDF nut	561476 
5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917116 
5 pin M12 male straight cable plug with plastic threaded locking ring, to be wired	560946 
5 pin M12 female straight cable plug moulded on cable (2 m, shielded)	438680 
5 pin M12 male straight cable plug moulded on cable (2 m, shielded)	559177 

8202 ELEMENT

pH/ORP meter (without display and control unit)

8202 ELEMENT neutrino

- Integral blind measurement device for direct connection to a control level (PLC) with standard signal output
- Fast and easy adaptation of the device between pH and ORP measurement
- Usage of 120 mm standard PG 13.5 pH/ORP-probes with S8 connector (Type 8203 recommended)
- Easy one or two point calibration on the device directly



Suitable fitting:
see Type S022 ►

The Bürkert 8202 neutrino pH/ORP meter is a compact device designed for the measurement of:

- the pH in clean liquids or liquids containing solids, sulphides or proteins.
- or the oxidation-reduction potential in clean liquids or liquids containing solids, sulphides or proteins which may present low conductivity.

The pH/ORP meter consists of a replaceable standard 120 mm pH or ORP probe, Type 8203, which is screwed into a probe holder with integrated Pt1000 temperature sensor. This ensemble is plugged-in and screwed with a nut to an enclosure with cover, containing the electronic module. Thus, Bürkert simplifies installation and maintenance work.

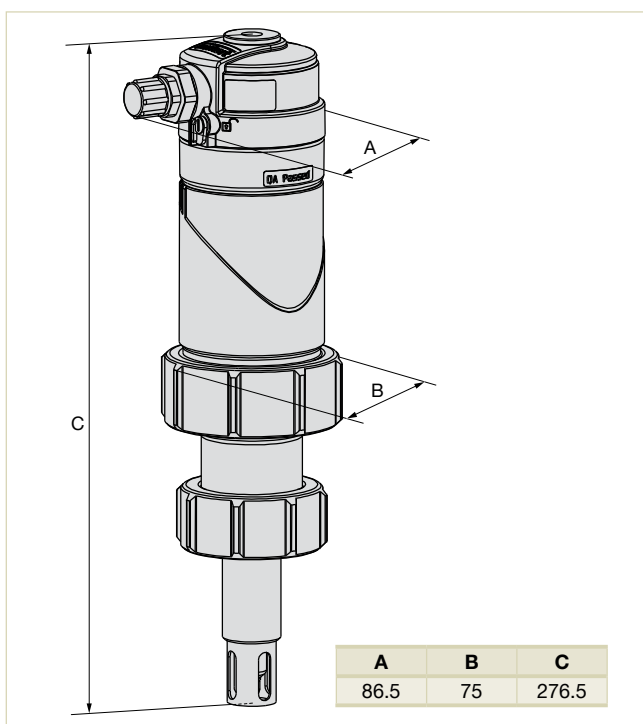
The 8202 neutrino pH/ORP meter is a 2-wire device with a 4...20 mA current output.

The 8202 device converts the measured signal, computes the output signal, which is provided via a free positionable M12 fixed connector or on a terminal strip via a cable gland.

Technical data

Complete device data (Pipe + meter)	
Pipe diameter	DN25...DN110 (DN < 25 with reduction)
pH measurement	
Measuring range	0...14 pH
Measuring deviation	±0.05 pH
ORP measurement	
Measuring range	-2000...+2000 mV
Measuring deviation	≤0.2 % of the full scale
Temp. measurement	
Measuring range	-20...+130 °C
Measuring deviation	±1 °C
Temp. compensation	Automatic (integrated Pt1000) - reference temperature 25 °C
Fluid temperature¹⁾	
With PVC nut connection	0...+50 °C restricted by the used probe
With PVDF nut connection (on request)	-20...+130 °C restricted by the used adaptor or probe
	Restriction with adaptor S022 in:
	- PVC: 0...+50 °C
	- PP: 0...+80 °C
	- Metal: -20...+130 °C
Fluid pressure max	PN16 (see pressure/temperature diagram)

Dimensions [mm]



Options

- Version with display (8202 ELEMENT)

Environment


Ambient temperature	-10...+60 °C (operating and storage without probe)
Relative humidity	≤85 %, without condensation

1) If the specific temperature limits for the probe used and the temperature limits given in the above technical data chart are different, please use the more restrictive range

Technical data continued

General data	
Compatibility	Any pipe from which are fitted out with Bürkert adaptor S022 (see Type S022 ► or corresponding data sheet Type S022 ►)
Materials	
Housing	Stainless steel 1.4404 (316L), PPS
Cover	PPS
Seals	EPDM
Fixed connector/cable gland	PA66
Nut	PVC (PVDF on request)
Wetted part materials	
Sensor holder	PVDF, Stainless steel 1.4571 (316Ti)
Probe	See specific technical data of the used probe
Probe	120 mm Bürkert pH or ORP probe, Type 8203 (recommended) or any combined 120 mm pH or ORP probe, without temperature sensor, with PG 13.5 head, S7/S8 connector
Temperature sensor	Pt1000 integrated within the holder
Electrical connections	1 × 5 pin free positionable M12 male fixed connector, or terminal strip via 1x cable gland M16 × 1.5
Recommended connection cable for terminal strip	Shielded cable (Measuring data acc. to CEI 664-1/VDE 0110 (4.97))
Solid H05(07) V-U	0.25...1.5 mm ²
Flexible H05(07) V-K	0.25...1.5 mm ²
With wire end ferrule	0.25...1.5 mm ²
With plastic collar ferrule	0.25...0.75 mm ²
Diameter	4...8 mm
Electrical data	
Power supply	12...36 V DC, filtered and regulated
Characteristics of the power source (not provided) of UL recognized devices	Limited power source (according to § 9.4 of the UL61010-1 standard, second edition) or low power source (according to UL60950-1 standard) or Class 2 type power source (according to the UL1310/UL1585 standards)
Current consumption with sensor	≤ 25 mA
Reversed polarity of DC	Protected
Voltage peak	Protected
Output	
Current	4...20 mA Max. loop impedance: 1100 Ω at 36 V DC; 610 Ω at 24 V DC; 100 Ω at 12 V DC;
Response time (10...90 %)	5 s. (standard)
4...20 mA output uncertainty	± 1 % of the range

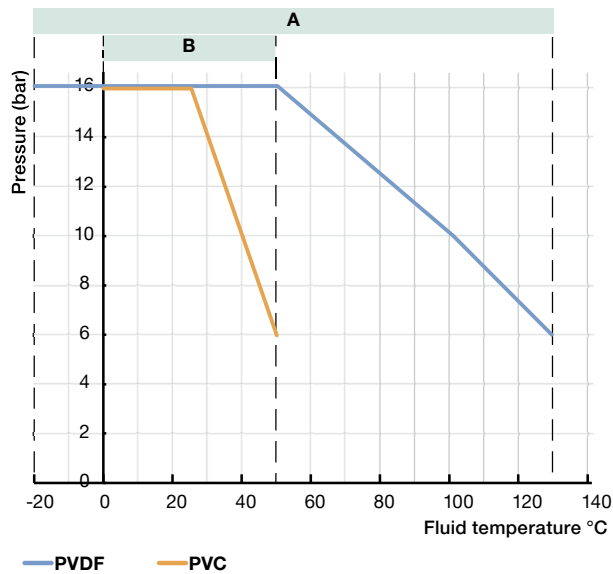
Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

Standards, directives and approvals	
Protection class	IP65, IP67, UL50E 6P, with M12 cable plug or cable gland tightened or obturated and cover properly mounted and secured
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable) Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ¹⁾
Pressure	
Certification	UL-Recognized for US and Canada  UL61010-1 + CAN/CSA-C22.2 No. 61010-1
1) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).	
Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000



Pressure/Temperature diagrams

Application range of a 8202 ELEMENT neutrino meter:



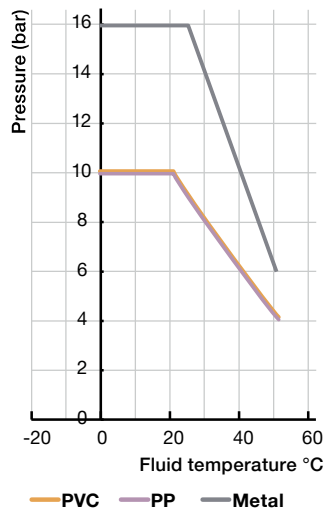
A: application range with PVDF nut (on request)

B: application range with PVC nut

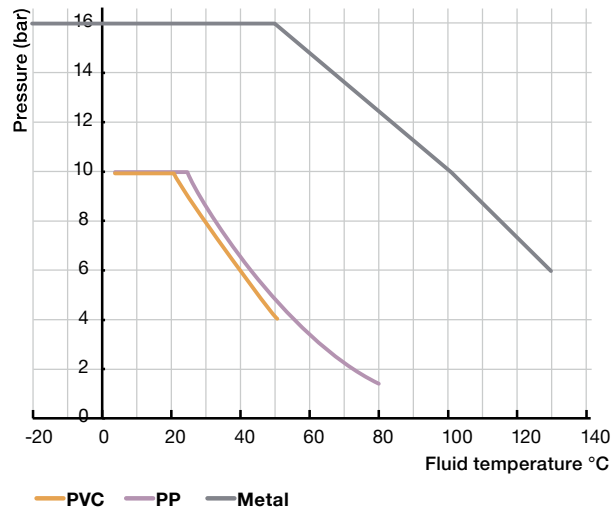
The measures have been made at an ambient temperature of 60 °C, without probe.

Application range of a 8202 ELEMENT neutrino meter (without probe):

• with PVC nut with S022 adaptor



• with PVDF nut with S022 adaptor












Ordering chart

Specifications	Voltage supply	Output	Sensor version	Nut material	Electrical connection	UL Certification	Item no.
Compact meter: sensor holder with integrated Pt1000 + electronic module with cover	12...36 V DC	1 x 4...20 mA	None	PVC	5 pin M12 male fixed connector	No	561 685
						UL-Recognized	562 557
					Cable gland	No	561 686
						UL-Recognized	562 558

Note: For a complete measurement point the following items must be ordered separately (see accessories):

- Type 8202 ELEMENT neutrino
- pH or redox potential probe Type 8203
- Insertion adaptor Type S022
- M12 cable plugs

Probe Type 8203	Description	Article no.
pH probe		
PLASTRODE pH 120 mm	pH probe - 10...+ 40 °C, 0...6 bar, pH 0...14	560377 
FLATRODE pH 120 mm	pH probe 0...+ 80 °C, 0...6 bar, pH 0...14	561025 
LOGOTRODE pH 120 mm	pH probe - 10...+ 60 °C, 0...6 bar, pH 0...14	427114 
UNITRODE PLUS pH 120 mm	pH probe 0...+ 130 °C, 0...16 bar, pH 0...14	560376 
CERATRODE pH 120 mm	pH probe 0...+ 130 °C, 0...16 bar, pH 0...14	418319 
FERMTRODE pH 120 mm	pH probe 0...+ 140 °C, 0...6 bar, pH 0...14	561727 
ORP probe		
FLATRODE ORP 120 mm	ORP probe 0...+ 80 °C, 0...6 bar, -2000...+2000 mV	561027 
LOGOTRODE ORP 120 mm	ORP probe - 10...+ 60 °C, 0...6 bar, -2000...+2000 mV	560379 
UNITRODE PLUS ORP 120 mm	ORP probe 0...+ 130 °C, 0...16 bar, -2000...+2000 mV	560378 

Accessories

Description	Item no.
One Ø 46x2 mm EPDM seal for 120 mm probe holder (with instruction sheet)	559 169
EPDM seal for cover/housing sealing	561 752
Probe holder with PVC nut	560 947
5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917 116
5 pin M12 female straight cable plug moulded on cable (2 m, shielded)	438 680

Conductivity sensor

8220

- Compact version for DN15...DN200
- Large capabilities of conductivity measurement through different cells
- Large range of process connections with various fittings



Suitable fitting:
see Type S020 ►

The conductivity sensor is a compact probe with integrated conductivity electrodes. Four conductivity probes having different cell constants are available and offer a large measurement range. The Pt1000 for automatic temperature compensation is integrated in the sensor housing.

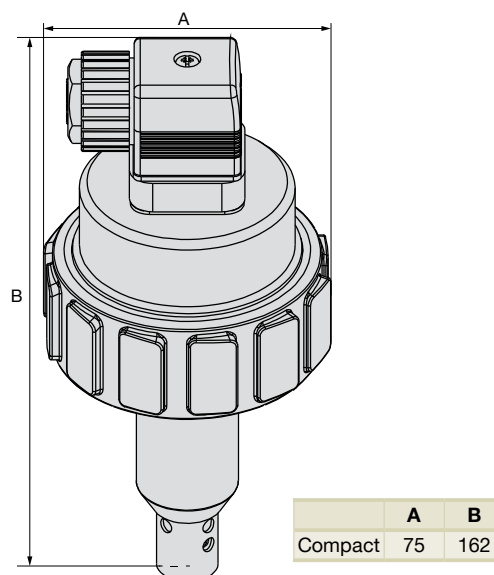
The sensor has to be connected to the Bürkert transmitter/controller Type 8619 multiCELL via a 4 x 1.5 mm² shielded cable (maximal cable length of 10 m).

The conductivity sensor can be installed into a pipe by using Insertion fitting Type S020 which is available in different materials (details see data sheet Type S020). In its longer version it can also be installed in tanks or containers by using an industrial immersion fitting.

Technical data

General data	
Compatibility	With fittings S020 (See Type S020 ► or corresponding data sheet Type S020 ►)
Materials	
Housing	PC
Screws	Stainless steel
Cable plug	PA
Wetted parts materials	
Fitting	Brass, Stainless steel 1.4404/316L, PVC, PP or PVDF
Sensor holder	PVDF
Pt1000	Stainless steel 1.4571 (316Ti)
Seal	FKM (EPDM included in delivery)
Electrode	Stainless steel for cell constant C = 0.01 or 0.1 Graphite for cell constant C = 1.0 or 10
Electrical connection	Cable plug EN 175301-803
Complete device data (fitting + sensor)	
Pipe diameter	DN15...DN200
Conductivity measurement	
Measuring range	0.05 µS/cm...200 mS/cm (depending on cell constant)
Measurement deviation	Typical: 3 % o. Reading - max.: 5 % o. Reading
Temperature measurement	
Measuring range	0...+100 °C
Resolution	0.1 °C
Measurement deviation	±1 °C
For temperature compensation	Automatic (integrated Pt1000) - reference temperature 25 °C
Fluid temperature	With fitting in PVC: 0...+50 °C / PP: 0...+80 °C PVDF, stainless steel, brass: 0...+100 °C
Fluid pressure max.	PN10 (see pressure/temperature diagram)

Dimensions [mm]



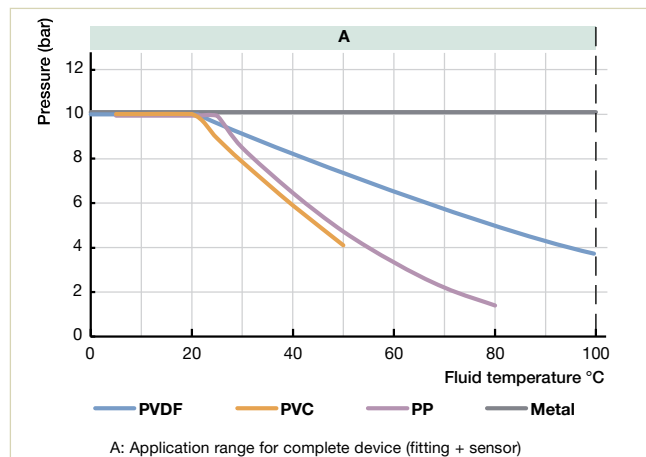
Electrical data	
Power supply	None
Connection cable (between 8220 and 8619)	4 x 0.2...1.5 mm ² shielded, max. length 10 m
Output	Raw signal, to be connected to the multiCELL transmitter/controller Type 8619
Environment	
Ambient temperature	0...+60 °C (Operation and storage)
Relative humidity	≤80 %, without condensation
Standards, directives and certifications	
Protection class	IP65 with cable plug mounted and tightened (according to EN 60529)
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable) Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ¹⁾
Pressure	

1) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

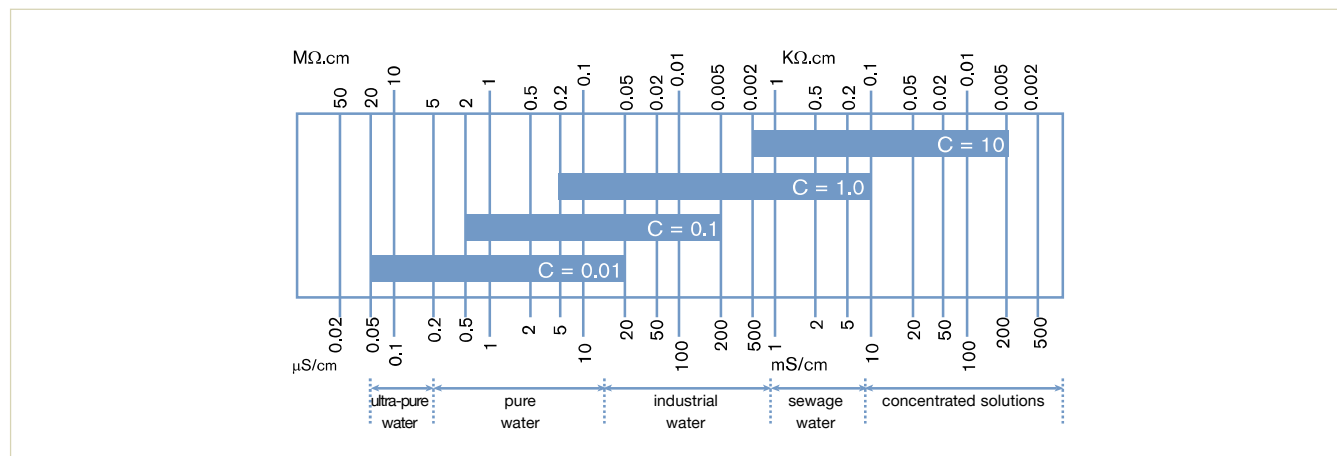
Technical data continued

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Pressure/Temperature diagram



Electrodes measuring range



Ordering chart

Specifications	Measuring range	Cellconstant	Electrode materials	Electrical connection	Article no.
Sensor	0.05 μS/cm...20 μS/cm	C = 0.01	Stainless steel	Cable plug (acc. to EN 175301-803)	426872
	0.5 μS/cm...200 μS/cm	C = 0.1	Stainless steel	Cable plug (acc. to EN 175301-803)	426873
	5 μS/cm...10 mS/cm	C = 1	Graphite	Cable plug (acc. to EN 175301-803)	426874
	0.5 μS/cm...200 mS/cm	C = 10	Graphite	Cable plug (acc. to EN 175301-803)	426875

Ordering information: To select a complete device, the following information is required:

- Article no. of the desired conductivity sensor type 8220 (see ordering chart)
- Article no. of the desired multiCELL Transmitter / Controller Type 8619
- Article no. of the selected Insertion fitting type S020



Accessories

8220

Description	Article no.
Set with 2 cable glands M20 × 1.5+2 neoprene flat seals for cable gland or plug +2 screw-plugs M20 × 1.5 + 2 multiway seals 2 × 6 mm	449755
Cable plug EN 175301-803 with cable gland - see Type 2508 ▶ (will be replaced with Type 2518)	438811
Cable plug EN 175301-803 with NPT ½ reduction without cable gland - see Type 2509 ▶	162673
Mounting ring (open) for S020 fitting	619205
PC - nut for S020 fitting	619204
Set with 1 green FKM +1 black EPDM seal	552111
Conductivity probe C = 0.01 (with stainless steel electrode) for mounting with immersion kit	633367
Conductivity probe C = 0.1 (with stainless steel electrode) for mounting with immersion kit	631647
Conductivity probe C = 1 (with graphite electrode) for mounting with immersion kit	418217
Immersion fitting in PP, L = 0.5 m	419567
Immersion fitting in PP, L = 1.0 m	419568
Immersion fitting in PP, L = 1.5 m	419569
Immersion fitting in PP, L = 2.0 m	419570
Extension cable kit including a 0.7 m cable (for immersion fitting, L ≤ 0.5 m to use with 8619 multiCELL transmitter/controller)	437615
Extension cable kit including a 1.7 m cable (for immersion fitting, L ≤ 1.5 m to use with 8619 multiCELL transmitter/controller)	437617
Extension cable kit including a 2.2 m cable (for immersion fitting, L ≤ 2.0 m to use with with 8619 multiCELL transmitter/controller)	437618
Fixing kit (flange DN65 with stainless steel screws)	413615
Factory 2-point conductivity calibration certificate	550675

Note: Buffer solutions see accessories Type 8221 Hygienic.

Conductivity sensor for hygienic applications

8221
Hygienic

- Perfect for demanding applications in the hygienic industry (CIP and SIP compatible)
- Variants available for usage over a wide conductivity range
- Support of the most important process connections ensures specific customer requests can be implemented
- Fits perfectly with our multipurpose transmitter/controller type 8619




The 8221 hygienic conductivity probes are used to determine electrical conductivity in a wide range of pure or concentrated liquids. Due to their hygienic design and the robust construction, these conductivity probes are suitable for use under demanding conditions in application sectors including food & beverage, pharmaceutical, biotechnology and the general chemical industry.

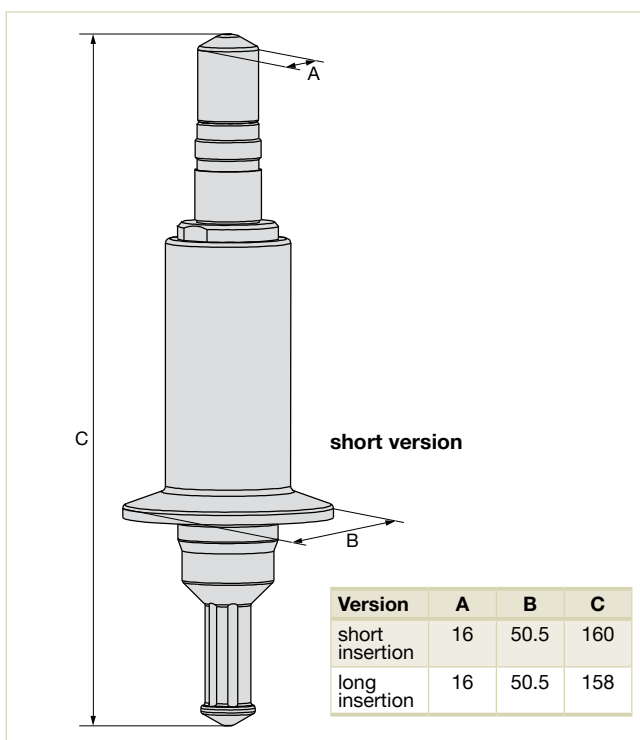
Two technologies of conductivity probes are available:

- probes based on the 2-electrode principle are suited for measurements in liquids, especially (ultra) pure water. Contamination affects the measurements.
- probes based on the 4-electrode principle exclude polarization phenomena and are not sensitive to contamination. This clever design guarantees an excellent linearity over a wide conductivity range.

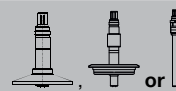
Technical data

4-electrode conductivity probe	
	
short or long insertion version	
Process connection	1½" clamp connection or G 1¼ process connection (on request)
Technology	4-electrode
Measuring range	0.1 µS/cm...500 mS/cm
Linearity ¹⁾ (relative)	±0.5...5 %
Cell constant ²⁾	0.147 cm ⁻¹
Temperature sensor	Pt1000
Materials	
Electrode	Stainless steel 1.4435/316L
Frame	PEEK (conform to FDA)
Seal	Stainless steel 1.4435/316L EPDM (conform to FDA)
Surface quality	0.4 µm, electro-polished
Fluid temperature	-20...+135 °C
Fluid pressure	Max. 6 bar
Electrical connections	VarioPin (VP 6.0)
Certificates	FDA declaration of conformity (only for version with PEEK frame and EPDM seal); ECR1935/2004 declaration, USP class VI declaration; Inspection certificate 3.1; On request: 2-point calibration certificate

Dimensions [mm]



4-electrode conductivity probe

	
Process connection	2" clamp connection 2" (DN50/40) connection adapted for GEA Tuchenhausen VARINLINE PG 13.5 connection
Technology	4-electrode
Measuring range	1 µS/cm...500 mS/cm
Linearity ¹⁾ (relative)	±0.5...5 %
Cell constant ²⁾	0.360 cm ⁻¹
Temperature sensor	Pt1000

Technical data continued

Materials	
Electrode	Stainless steel 1.4435/316L
Frame	PEEK (conform to FDA)
	Stainless steel 1.4435/316L (not for PG 13.5 connection)
Seal	EPDM (conform to FDA)
Surface quality	0.4 µm, electro-polished
Fluid temperature	-20...+150 °C
Fluid pressure	Max. 20 bar for -20...+135 °C and max. 10 bar at 150 °C
Electrical connections	VarioPin (VP 6.0)
Certificates	
All connection versions	FDA declaration of conformity (only for version with PEEK frame and EPDM seal); ECR1935/2004 declaration, USP class VI declaration; Inspection certificate 3.1; On request: 2-point calibration certificate


2-electrode conductivity probe with M12 connector



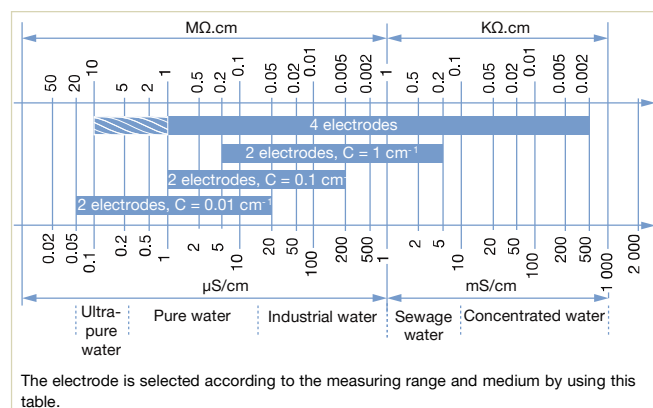
Process connection	1½" clamp connection
Technology	2-electrode
Measuring range	0.05...20 µS/cm
Linearity¹⁾ (relative)	± 0.5...5 %
Cell constant²⁾	0.01 cm ⁻¹
Temperature sensor	Pt1000
Response time (t90)	60 s

Materials	
Electrode	Stainless steel 316L
Frame	Stainless steel 316L and PEEK (conform to FDA - 21CFR 177.2415)
Seal	EPDM (conform to FDA - 21CFR 177.2600)
Surface quality	0.4 µm, electro-polished
Fluid temperature	-20...+150 °C
Fluid pressure	Max. 7 bar
Electrical connections	5 pin M12 male fixed connector

Standards, directives and certifications

Protection class	IP67 (according to EN 60529)
Standard and directives 	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Pressure	Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ³⁾
Certificates	
Inspection certificate 3.1; On request: 2-point calibration certificate; FDA declaration of conformity (only for version with stainless steel and PEEK frame and EPDM seal); Test report 2.2 for surface finish	

Electrodes measuring range



2-electrode conductivity probe with cable



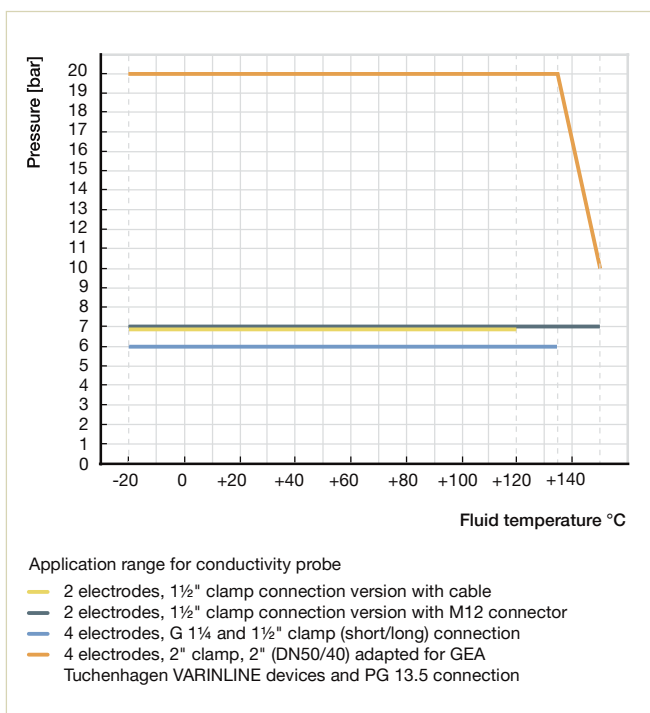
Process connection	1½" clamp connection
Technology	2-electrode
Measuring range	0.05...20 µS/cm 1...200 µS/cm 5...5 000 µS/cm
Linearity¹⁾ (relative)	± 0.5...5 % ± 0.5...5 % ± 0.5...5 %
Cell constant²⁾	0.01 cm ⁻¹ 0.1 cm ⁻¹ 1 cm ⁻¹
Temperature sensor	Pt1000

Materials	
Electrode	Stainless steel
Frame	Stainless steel and PTFE
Seal	EPDM
Surface quality	0.4 µm, electro-polished
Fluid temperature	Max. 120 °C
Fluid pressure	Max. 7 bar
Electrical connections	Cable, length 3 m, instrument side with open wire
Certificates	Inspection certificate 3.1; 2-point calibration certificate (on request)

- 1) Uncertainty of ± 5 % arises when using only one single cell constant for the full range. ± 0.5 % measurement deviation can be achieved when calibration is performed in a conductivity range close to that of the used solution.
- 2) Individual cell constant measured with the Bürkert standard procedure. The cell constant can be influenced by the assembly situation.
- 3) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32 or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Pressure/Temperature diagram

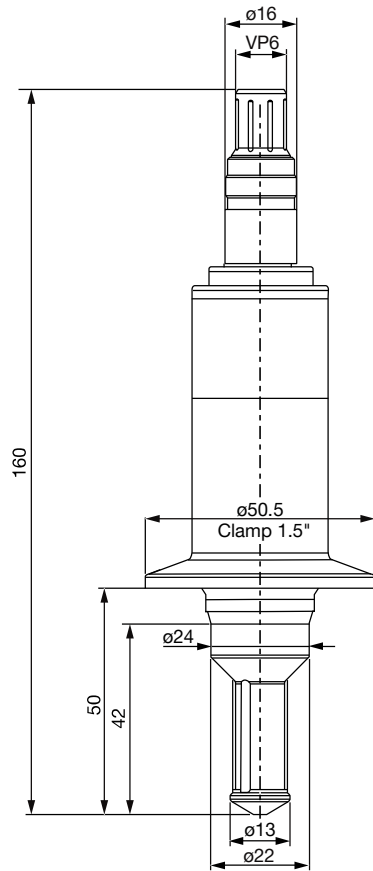




Dimensions [mm]

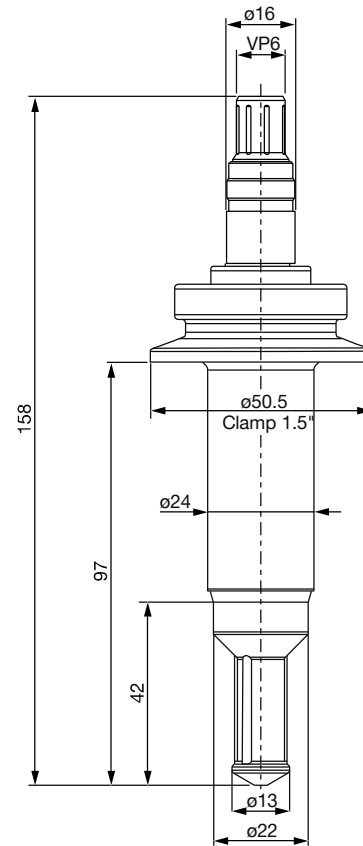
4-electrode probe, short insertion version

with 1½" clamp connection



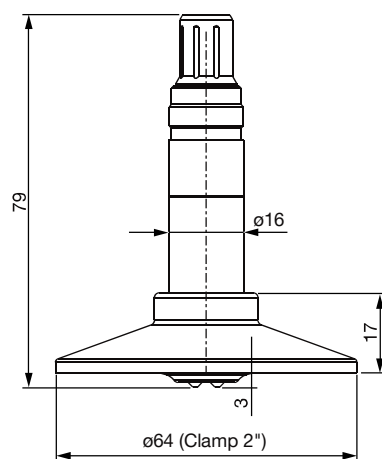
4-electrode probe, long insertion version

with 1½" clamp connection



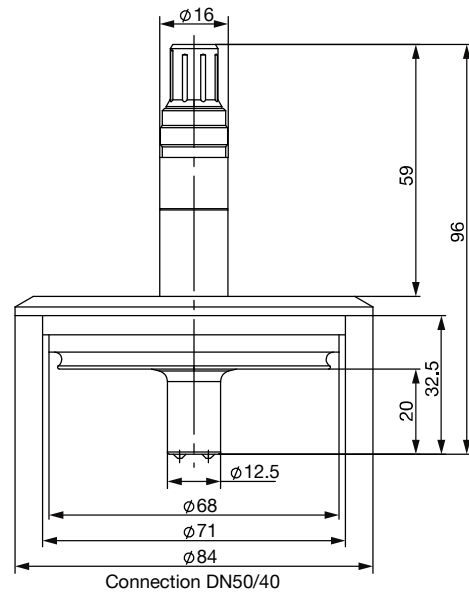
4-electrode probe version

with 2" clamp connection



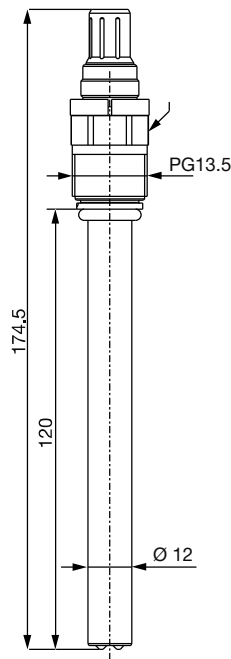
4-electrode probe version

with 2" (DN50/40) connection adapted for GEA Tuchenhagen
VARINLINE process connections



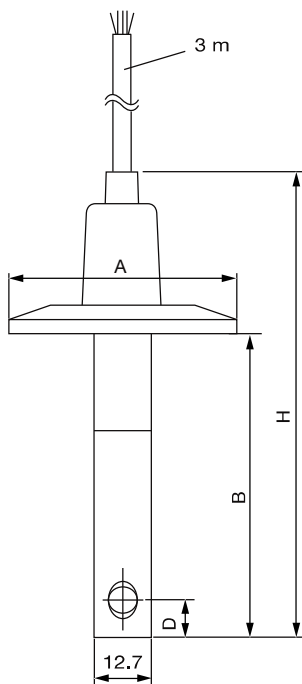
4-electrode probe version

with PG 13.5 connection



2-electrode probe version

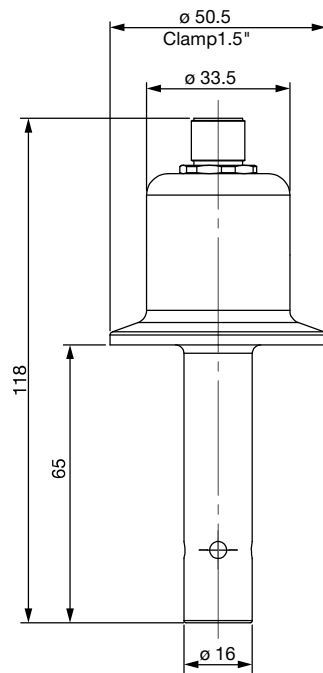
with 1½" clamp connection and with cable 3 m open wire



Probe with	A	H	B	D
C = 0.01	50.5	154	127	50
C = 0.1	50.5	94	67	7.9
C = 1.0	50.5	94	67	7.9

2-electrode probe version

with 1½" clamp connection and with 5 pin M12 male connector





Ordering chart

8221
Hygienic

Specifi- cation	Cell constant/ Probe version	Measuring range	Process connection	Certifications			Electrical connection	Article no.
				FDA	ECR1935/2004	USP class VI		
Conductivity probe 4-electrode	0.147 cm ⁻¹ /short	0.1...500000 µS/cm	1½" clamp	Yes	Yes	Yes	VarioPin male connector	562420
	0.147 cm ⁻¹ /long	0.1...500000 µS/cm	1½" clamp	Yes	Yes	Yes	VarioPin male connector	564064
	0.360 cm ⁻¹	1...500000 µS/cm	2" clamp	Yes	Yes	Yes	VarioPin male connector	559120
		1...500000 µS/cm	2" (DN50/40) adapted for GEA Tuchenhagen VARINLINE	Yes	Yes	Yes	VarioPin male connector	563269
		1...500000 µS/cm	PG 13.5	Yes	Yes	Yes	VarioPin male connector	563186
Conductivity probe 2-electrode	0.01 cm ⁻¹	0.05...20 µS/cm	1½" clamp	Yes	No	No	5 pin M12 male connector	568818
				No	No	No	Cable 3 m open wires	564898
	0.1 cm ⁻¹	1...200 µS/cm	1½" clamp	No	No	No	Cable 3 m open wires	562261
	1.0 cm ⁻¹	5...5 000 µS/cm	1½" clamp	No	No	No	Cable 3 m open wires	564899

Accessories

Description	Article no.
Buffer solution, 5 µS/cm conductivity standard, ± 1 % accuracy, 300 ml	440015
Buffer solution, 15 µS/cm conductivity standard, ± 5 % accuracy, 300 ml	440016
Buffer solution, 100 µS/cm conductivity standard, ± 3 % accuracy, 300 ml	440017
Buffer solution, 706 µS/cm conductivity standard, ± 2 % accuracy, 300 ml	440018
Buffer solution, 1413 µS/cm conductivity standard, ± 1 % accuracy, 300 ml	440019
Buffer solution, 100 mS/cm conductivity standard, ± 1 % accuracy, 300 ml	440020
Connection cable VarioPin (VP 6.0) female connector, 3 meters	554855
Connection cable VarioPin (VP 6.0) female connector, 5 meters	554856
Connection cable VarioPin (VP 6.0) female connector, 10 meters	554857
5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917116
5 pin M12 female straight cable plug moulded on cable (2 m, shielded)	438680
5 pin M12 female straight cable plug moulded on cable (5 m, shielded)	560365
5 pin M12 female straight cable plug moulded on cable (10 m, shielded)	563108

Conductivity meter (with removable control unit)

8222 ELEMENT

- Perfect for clean water and slightly concentrated liquids
- Integral device for direct connection to PLC
- Simulation of process values for diagnostics
- Three cell constants to cover a wide application range e.g. reverse osmosis

Suitable fitting:
see Type S022 ►



Conductivity meter with programmable outputs. Conductivity and temperature output via single or dual analog 4...20 mA. Two digital outputs (transistors) are also included. Transmitters are engineered for a wide scope of measuring ranges and can be delivered in 2-wire or 3-wire configurations. Intelligent, integrated, beautiful design fits perfectly with an assortment of easily configured fittings.

Technical data

Complete device data (pipe + conductivity meter)

Pipe diameter DN25...DN110 (DN < 25 with reduction)

Conductivity measurement

Measuring range 0.05 µS/cm...10 mS/cm
Resolution 1 nS/cm
Measurement deviation ±3 % of Reading

Temperature measurement

Measuring range -20...+100 °C
Internal resolution 0.1 °C
Accuracy ±1 °C

Temperature compensation

None or according to a predefined graph (NaCl or ultra pure water) or according to a graph defined especially for your process

Fluid temperature

with G 1½ PVC nut connection 0...+50 °C
with G 1½ PVDF nut connection -20...+100 °C restricted by the used adaptor;
Restriction with adaptor S022 in:
- PVC: 0...+50 °C / - PP: 0...+80 °C
- Metal: -20...+100 °C

Fluid pressure max PN16 (see pressure/temperature diagram)

Environment

Ambient temperature -10...+60 °C (operating and storage)

Relative humidity ≤85 %, without condensation

Electrical data

Power supply

3 outputs meter (2-wire) 14...36 V DC, filtered and regulated
4 outputs meter (3-wire) 12...36 V DC, filtered and regulated

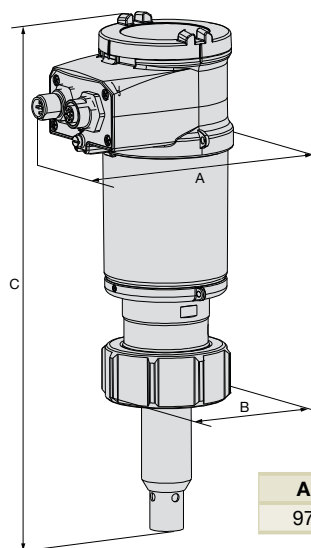
Current consumption with sensor

≤1 A (with the 2 transistors loads)
3 outputs meter (2-wire) ≤25 mA (at 14 V DC without transistors load, with current loop)
4 outputs meter (3-wire) ≤5 mA (at 12 V DC without transistors load, without current loop)

Electrical protection

Reversed polarity of DC: protected
Voltage peak: protected
Short circuit: protected for transistor outputs

Dimensions [mm]



A	B	C
97	70	246

Output

Transistor Configurable as sourcing or sinking (respectively both as PNP or NPN), open collector max. 700 mA, 0.5 A max. per transistor if the 2 transistor outputs are wired
Output NPN: 0.2...36 V DC
Output PNP: V+ power supply

Current 4...20 mA programmable as sourcing or sinking,
Max. loop impedance: 1100 Ω at 36 V DC; 610 Ω at 24 V DC; 180 Ω at 14 V DC

3 outputs meter (2-wire) Configurable in the same mode as transistor: sourcing or sinking,
Max. loop impedance: 1100 Ω at 36 V DC; 610 Ω at 24 V DC; 100 Ω at 12 V DC

4 outputs meter (3-wire) 150 ms (standard)

Response time (10...90 %) 150 ms (standard)

4...20 mA output uncertainty

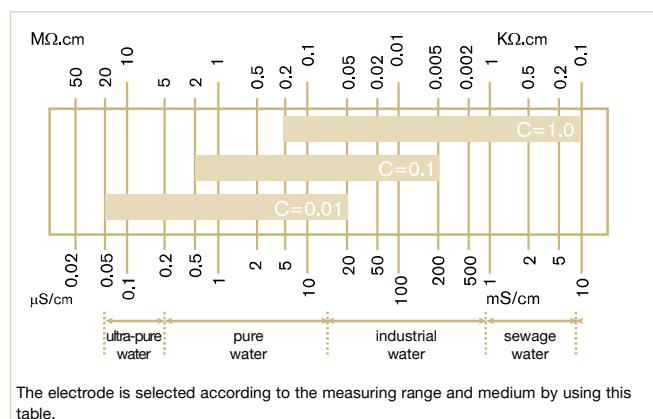
±1 % of range

Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

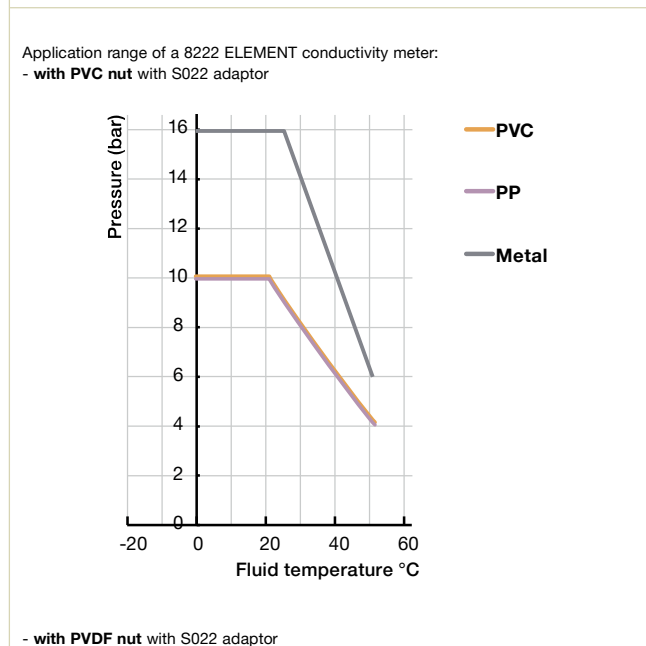
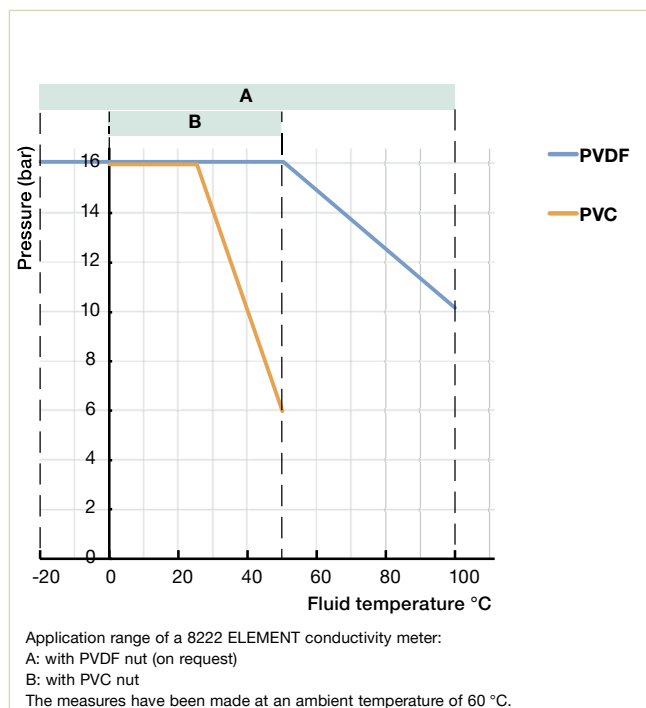
Technical data continued

General data	
Compatibility	Any pipe which are fitted out with Bürkert adaptor S022 (see Type S022 ► or corresponding data sheet Type S022 ►)
Materials	
Housing / cover	Stainless steel 1.4404, PPS / PC
Seals / Screws	EPDM, silicone / Stainless steel
Fixed connector mounting plate	Stainless steel 1.4404
Fixed connector	Brass nickel plated
Display / navigation key	PC / PBT
Nut	PVC or PVDF
Wetted part materials	
Conductivity sensor	PVDF, stainless steel 1.4571 (316Ti), FKM or EPDM
Electrode	Stainless steel 1.4571 (316Ti) for cell constant C=0.01 or C=0.1 or graphite for cell constant C=1.0
Temperature sensor	Pt1000 (316Ti) integrated in the sensor
Display (accessories)	Grey dot matrix 128 × 64 with backlighting
Electrical connections	
3 outputs meter (2-wire)	1 × 5 pin M12 male fixed connector
4 outputs meter (3-wire)	1 × 5 pin M12 male + 1 × 5 pin M12 female fixed connectors
Connection cable	Shielded cable
Standards, directives and certifications	
Protection class	IP65, IP67 (according to EN60529), NEMA 4X (according to NEMA250) with device wired and M12 cable plug mounted and tightened and cover fully screwed down
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable) Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ¹⁾
Pressure	
Certificate	FDA declaration of conformity
Certification	
UL-Recognized for US and Canada	UL61010-1 + CAN/CSA-C22.2 No.61010-1
1) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).	
Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Electrodes measuring range

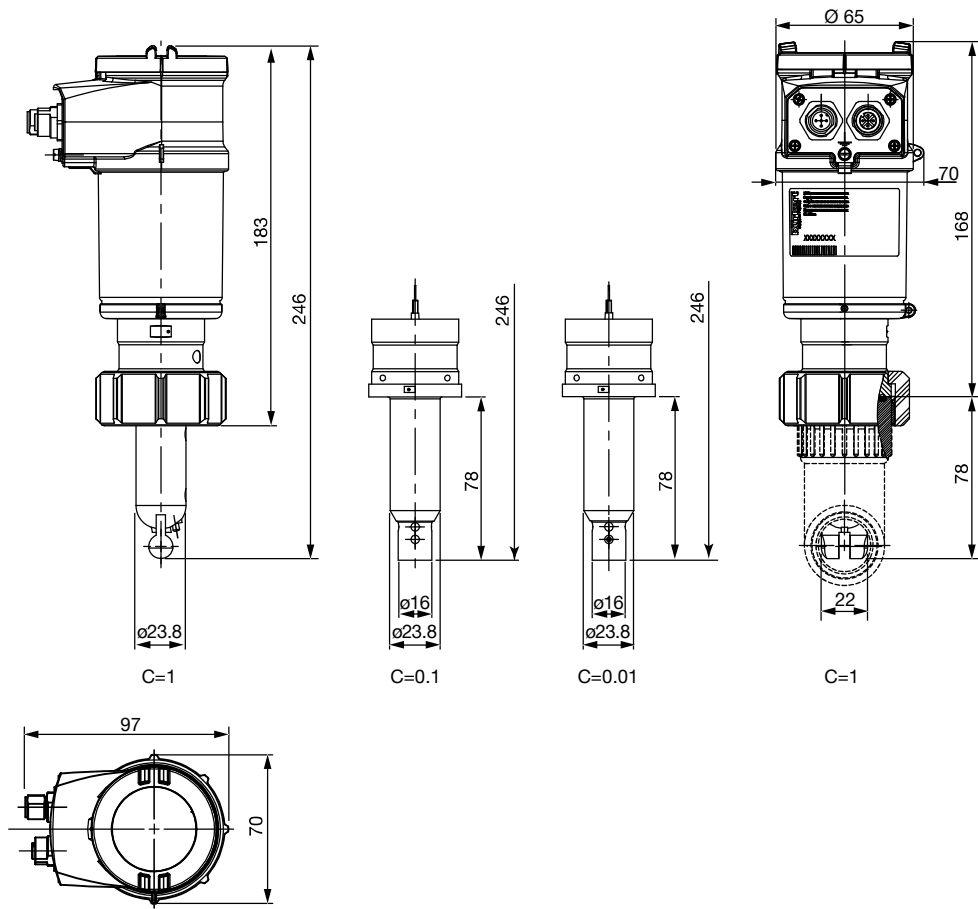


Pressure/Temperature diagrams











Dimensions [mm]













Ordering chart

Nut material	Cell constant	Electrical connection	Article no
PVC	C = 0.01	5 pin M12 male and 5 pin M12 female	559619 
	C = 0.1	5 pin M12 male and 5 pin M12 female	559615 
	C = 1.0	5 pin M12 male and 5 pin M12 female	559611 
PVDF	C = 0.01	5 pin M12 male and 5 pin M12 female	559621 
	C = 0.1	5 pin M12 male and 5 pin M12 female	559617 
	C = 1.0	5 pin M12 male and 5 pin M12 female	559613 

Note: For a complete measurement point the following items must be ordered separately (see accessories):

- Meter Type 8222 ELEMENT
- Display/configuration module
- Insertion adaptor Type S022
- M12 cable socket, cable connector (only female for single 4...20 mA, 1 male + 1 female for dual 4...20 mA meter)

Accessories

Description	Article no
Removable display/configuration module (with instruction sheet)	559168 
Buffer solution, 5 µS/cm conductivity standard, ± 1 % accuracy, 300 ml	440015 
Buffer solution, 15 µS/cm conductivity standard, ± 5 % accuracy, 300 ml	440016 
Buffer solution, 100 µS/cm conductivity standard, ± 3 % accuracy, 300 ml	440017 
Buffer solution, 706 µS/cm conductivity standard, ± 2 % accuracy, 300 ml	440018 
Buffer solution, 1413 µS/cm conductivity standard, ± 1 % accuracy, 300 ml	440019 
5 pin M12 male straight cable plug with plastic threaded locking ring, to be wired	560946 
5 pin M12 male straight cable plug moulded on cable (2 m, shielded)	559177 
5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917116 
5 pin M12 female straight cable plug moulded on cable (2 m, shielded)	438680 

Conductivity meter without display and operating unit

8222 ELEMENT neutrino

- Analog 4...20 mA output
- Universal process connection
- Three cell constants for covering a wide measuring range
- Temperature compensated measurement



Suitable fitting:
see Type S022 ►

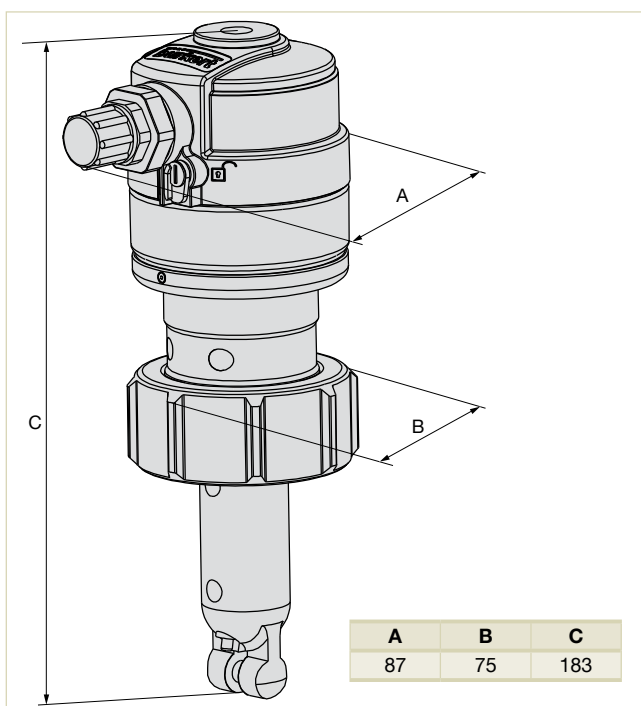
The Bürkert ELEMENT neutrino meter, Type 8222, is a compact device designed for measuring the conductivity of fluids.

Technical data

Complete device data (Pipe + conductivity meter)	
Pipe diameter	DN25...DN110 (DN < 25 with reduction)
Conductivity measurement	
Measuring range	0.05 µS/cm...10 mS/cm
Accuracy	± 3 % of Reading
Temperature measurement	
Measuring range	-20...+100 °C
Accuracy	± 1 °C
Temperature compensation	According to a predefined graph (none, NaCl or ultra pure water), selectable via a switch
Fluid temperature	
with G 1½ PVC connection nut	0...+50 °C
with G 1½ PVDF connection nut (on request)	-20...+100 °C restricted by the used adaptor; Restriction with adaptor S022 in:
	- PVC: 0...+50 °C
	- PP: 0...+80 °C
	- Metal: -20 °C...+100 °C
with G ¾ ext. threaded connection	-20 °C to +100 °C restricted by the used adaptor; r
	Restriction with adaptor S022 in:
	- PVC: 0...+50 °C
	- PVDF: 0...+100 °C
	- metal: -20...+100 °C
Fluid pressure max	PN16 (see pressure/temperature diagram)
Environment	
Ambient temperature	-10...+60 °C (operating and storage)
Relative humidity	≤ 85 %, without condensation
Electrical data	
Power supply	12...36 V DC, filtered and regulated
Current consumption with sensor	≤ 25 mA
Electrical protection	Reversed polarity of DC: protected Voltage peak: protected
Output	
Current	4...20 mA Max. loop impedance: 1100 Ω at 36 V DC; 610 Ω at 24 V DC; 100 Ω at 12 V DC
Response time (10...90 %)	5 s (standard)
4...20 mA output uncertainty	± 1 % of range

Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

Dimensions [mm]



General data	
Compatibility	Any pipe which are fitted out with Bürkert adaptor S022 (see Type S022 ► or corresponding data sheet Type S022 ►)
Materials	
Housing / Cover	Stainless steel 1.4404 (316L), PPS / PPS
Seals	EPDM
Fixed connector	PA66
Nut	PVC (PVDF on request)
Wetted part materials	
Temperature sensor	PVDF, stainless steel 1.4571 (316Ti)
Conductivity electrodes	Stainless steel 1.4571 (316Ti) for cell constant C=0.01 or C=0.1 or graphite for cell constant C=1.0
Temperature sensor	Pt1000 (316Ti) integrated in the sensor
Electrical connections	1 × 5 pin M12 male fixed connector, or terminal strip via 1x cable gland M16 × 1.5

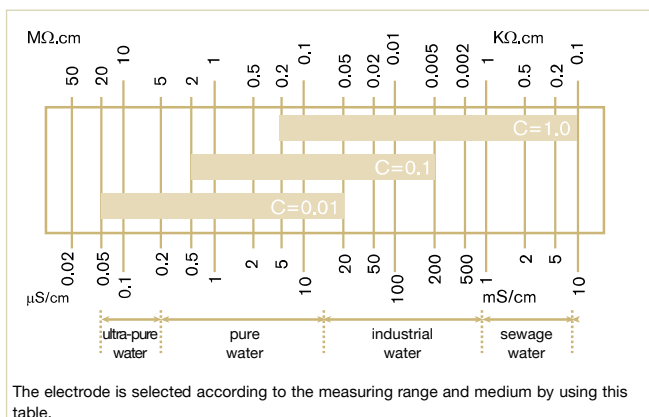
Technical data continued

Recommended connection cable for terminal strip	Shielded cable (Measuring data acc. to CEI 664-1/VDE 0110 (4.97))
Solid H05(07) V-U	0.25...1.5 mm ²
Flexible H05(07) V-K	0.25...1.5 mm ²
With wire end ferrule	0.25...1.5 mm ²
With plastic collar ferrule	0.25...0.75 mm ²
Diameter	4...8 mm
Standards, directives and approvals	
Protection class	IP65, IP67, NEMA 4X and NEMA 6P with M12 cable plug or cable gland tightened or obturated and cover properly mounted and secured
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Pressure	Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ¹⁾

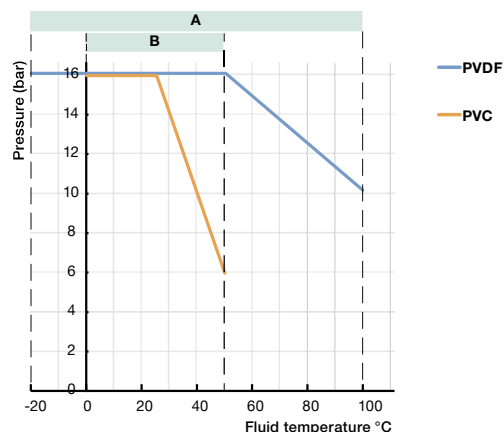
1) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Electrodes measuring range



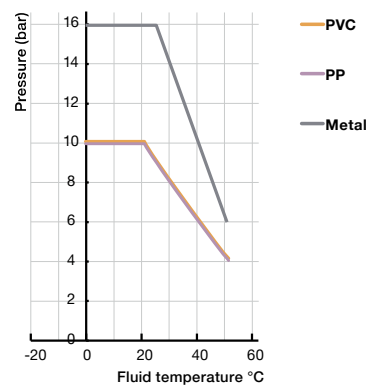
Pressure/Temperature diagrams



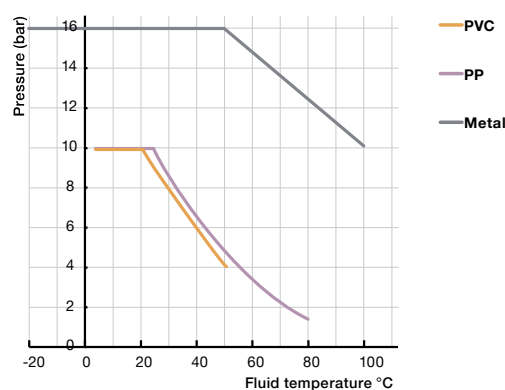
Application range of a 8222 ELEMENT neutrino conductivity meter:
A: with PVDF nut (on request) or G $\frac{1}{4}$ " external threaded connection
B: with PVC nut

The measures have been made at an ambient temperature of 60 °C.

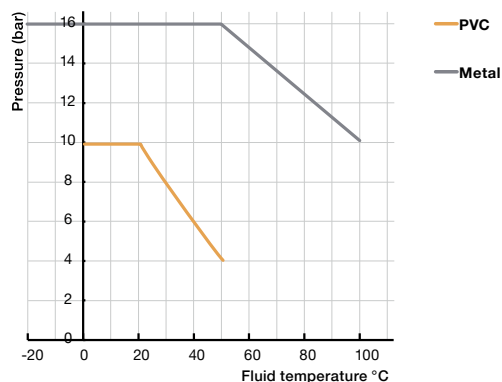
Application range of a 8222 ELEMENT neutrino conductivity meter
- with PVC nut with S022 adaptor



- with PVDF nut (on request) with S022 adaptor



- with G $\frac{1}{4}$ " threaded connection with S022 adaptor











8222 ELEMENT neutrino

56

C=1










Ordering chart

Description	Voltage supply	Output	Sensor version	Nut material	Electrical connection	Article no
Compact conductivity meter with a G 1½ union connection nut	12...36 V DC	4...20 mA	C = 0.01	PVC	5 pin M12 male fixed connector	561661 
					Cable glands	561662 
			C = 0.01	PVC	5 pin M12 male fixed connector	561663 
					Cable glands	561664 
			C = 0.01	PVC	5 pin M12 male fixed connector	561665 
					Cable glands	561666 

Note: For a complete measurement point the following items must be ordered separately (see accessories):

- Meter Type 8222 ELEMENT neutrino
- Insertion adaptor Type S022

Accessories

Description	Article no
EPDM seal for cover/housing sealing	561752 
EPDM seal for conductivity meter with G ¾ external thread / S022 adaptor sealing ¹⁾	561955 
Buffer solution, 5 µS/cm conductivity standard, ± 1 % accuracy, 300 ml	440015 
Buffer solution, 15 µS/cm conductivity standard, ± 5 % accuracy, 300 ml	440016 
Buffer solution, 100 µS/cm conductivity standard, ± 3 % accuracy, 300 ml	440017 
Buffer solution, 706 µS/cm conductivity standard, ± 2 % accuracy, 300 ml	440018 
Buffer solution, 1413 µS/cm conductivity standard, ± 1 % accuracy, 300 ml	440019 
5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917116 
5 pin M12 female straight cable plug moulded on cable (2 m, shielded)	438680 

¹⁾ **Important!** To ensure the tightness between the meter, with G ¾ thread, and the S022 Insertion adapter, only this O-ring should be used.

Insertion adaptor/fitting for ELEMENT analytical measurement devices

- Universal adaptor/fitting for Type 8202 and 8222 ELEMENT measuring devices in pure, aggressive or contaminated liquids
- Adaptation into standard piping systems or conversion of Bürkert S020 fittings into S022 fittings
- Pipe diameters from DN06 (with reduction) up to DN110 (plastic) or bigger (stainless steel)



Fittings to connect the compact analytical transmitters to the media. Materials included are PVC-U, PP, Stainless steel, and PVC thread. For chemical resistance details you can use the Resist app on our website.

Technical data

General data	
Process connection	
Adaptor	Solvent, fusion, welding, threaded and to connect with screws (to S020-fitting body)
Fitting	Metric or ASTM True union or weld ends; saddle
Materials	
Adaptor	PVC, PP, stainless steel (delivered with 2 seals, 1 FKM and EPDM)
Fitting	
Seal	FKM, EPDM
Body & adaptor	PVC & PVC, PP & PVC
Fluid data	
Fluid temperature	Temperature limits may depend on inserted measuring device ¹⁾
Fluid pressure max. (See pressure/temperature diagram)	PN10 (plastic) or PN16 (metal) Pressure limits may depend on inserted measuring device ¹⁾
Environment	
Ambient temperature	Temperature limits may depend on inserted measuring device ¹⁾ .
Standards, directives and certifications	
Standard and directives	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Pressure	Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ²⁾

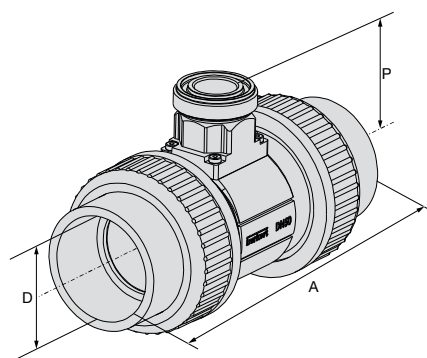
1) Please refer to appropriate instruction manual or data sheet for more details.

2) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions:

- Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Dimensions [mm]

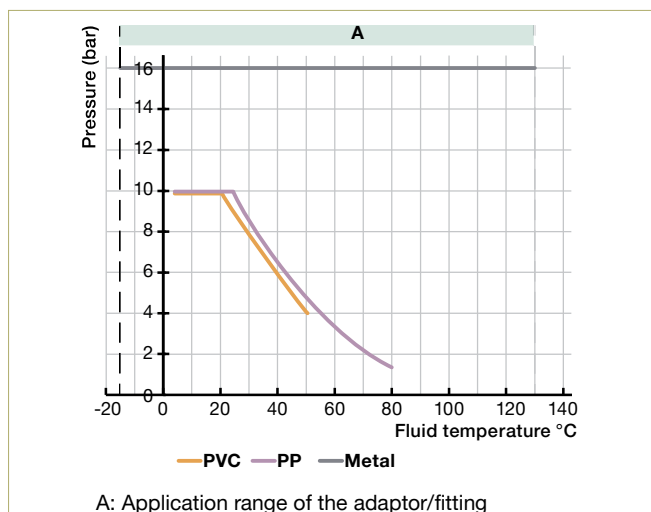


DN	P	Norm	A	D Ø
15	69	Metric	148	20
		ASTM	162	1/2"
20	69	Metric	154	25
		ASTM	168	3/4"
25	69	Metric	160	32
		ASTM	174	1"
32	69	Metric	168	40
		ASTM	170	1 1/4"
40	72	Metric	188	50
		ASTM	190	1 1/2"
50	79	Metric	212	63
		ASTM	214	2"







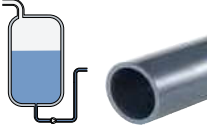


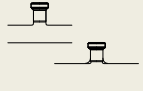
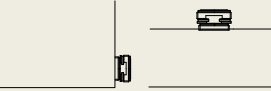

- Device used on a vessel (PS = maximum admissible pressure).

Type of fluid	Conditions
Fluid group 1, article 4, §1.a.i	PS ≤ 200 bar
Fluid group 2, article 4, §1.a.i	PS ≤ 1000 bar
Fluid group 1, article 4, §1.a.ii	PS ≤ 500 bar
Fluid group 2, article 4, §1.a.ii	PS ≤ 1000 bar

Pressure/temperature diagram



Adaptation overview

Adaptor S022				
	PVC-U, PP metric or ASTM	Stainless steel	PVC-U, G or NPT 1 1/4 screw-on	PVC-U, PP, stainless steel
For connection on piping systems	 Fitting and reduction not supplied			 Bürkert fitting body S020
Final products				
DN	32...110 (06...25 with reduction)	Respect recommendations of installation	Respect recommendations of installation	For Bürkert fitting body ≥ DN32 or analytical true union fitting (DN15...DN25)

Fitting S022			
	PVC / FKM, metric or ASTM	PVC / FKM, metric or ASTM	PP Body & PVC adaptor / EPDM
For connection on piping systems			
DN	10...100	15...50	50...110

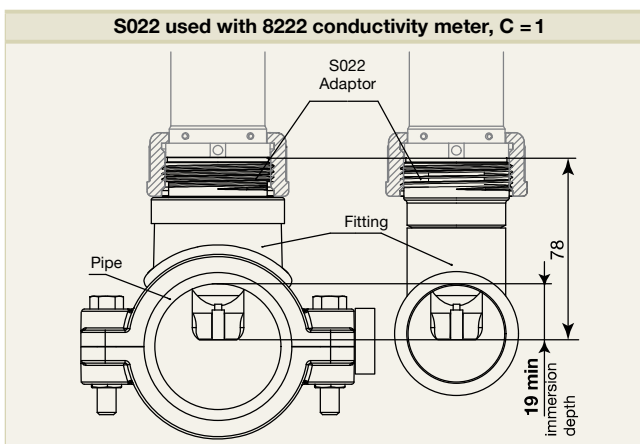
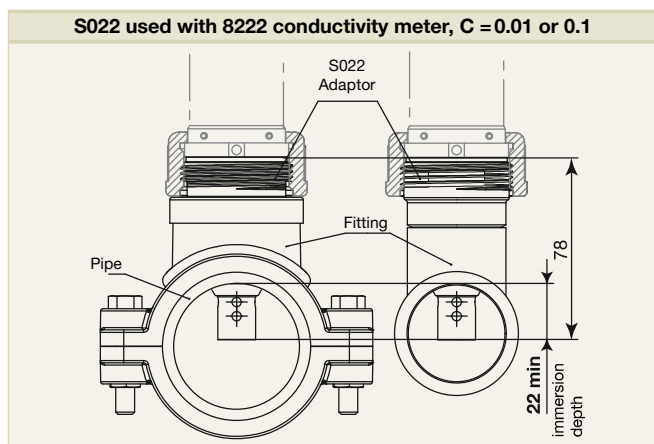
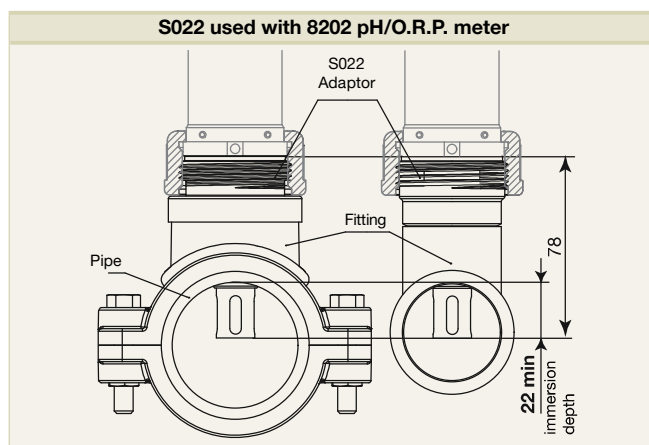
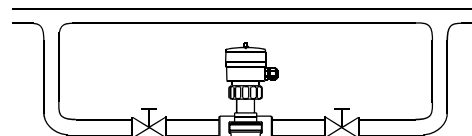
Installation and recommendations

For pH and ORP measurements, we recommend a “U”- form bypass installation to ensure that the electrode is maintained in a wet condition and enable the customer to calibrate the unit without stopping the whole process or to use the special designed measuring chamber.

The specially designed measuring chamber enables to install the measuring device in all pipe systems, either directly in the main stream or in a by-pass line. Additionally it enables to keep the electrode always wet and isolates it easily from the main stream for calibration purposes.

Pressure and temperature ratings must be respected according to the selected adaptor material. Be sure that the sensor element is completely covered with liquid. Avoid dead legs which interfere the local fluid exchange.

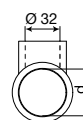
When mounting the adaptor into a T-fitting, a tank or directly into a pipe, please ensure that the minimum immersion depth of the electrode is respected (refer to the under drawing).



Dimensions [mm]

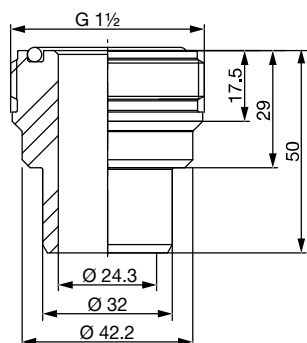
Insertion adaptor for connection into T-fitting or pipe

Note: T-fitting to use for mounting the S022, shown in the opposite drawing

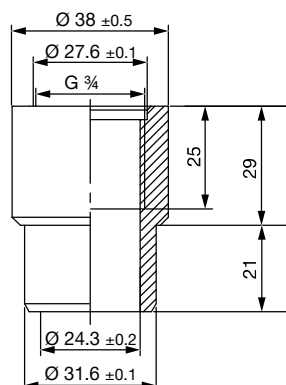


Metric solvent adaptor PVC-U / FKM, EPDM, to stick on Tee fitting d32 × 32 or d40 × 32 with solvent socket

with G 1½ external threaded for ELEMENT analyse device

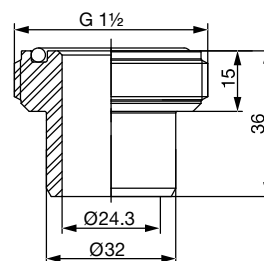


with G ¾ internal thread for ELEMENT neutrino conductivity meter, Type 8222

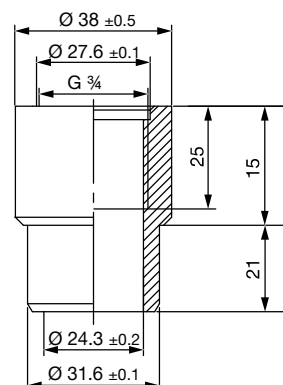


Metric solvent adaptor PVC-U / FKM, EPDM, to stick on Tee fitting d50 × 32 to d110 × 32 with solvent socket

with G 1½ external threaded for ELEMENT analyse device

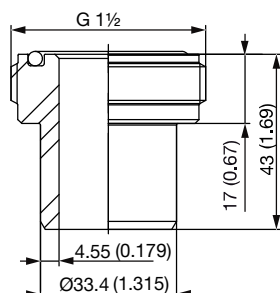


with G ¾ internal thread for ELEMENT neutrino conductivity meter, Type 8222



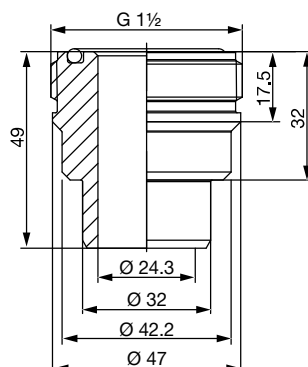
ASTM solvent adaptor PVC-U / FKM, EPDM

To stick on Tee fitting 1" × 1" to 3" × 1" with solvent socket



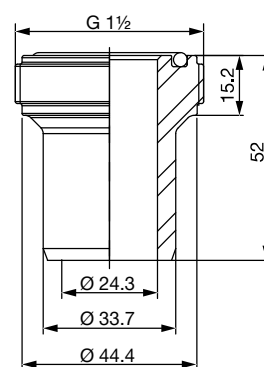
Metric fusion adaptor PP / FKM, EPDM

To weld on Tee fitting d32 × 32 with fusion socket

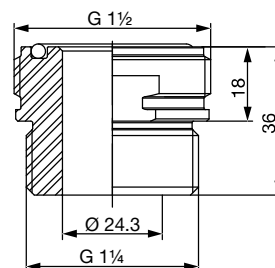


Metric welding

Stainless steel / FKM, EPDM
To weld directly on pipe

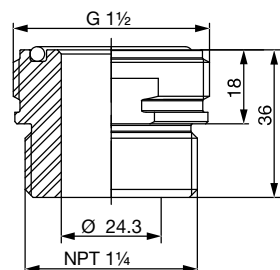


G 1½ screw-on adaptor PVC-U / FKM, EPDM
to screw on tank or pipe



NPT 1¼ screw-on adaptor PVC-U / FKM, EPDM

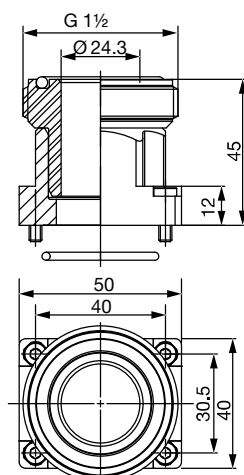
to screw on tank or pipe



Adaptor to convert S020 T-fitting to S022:

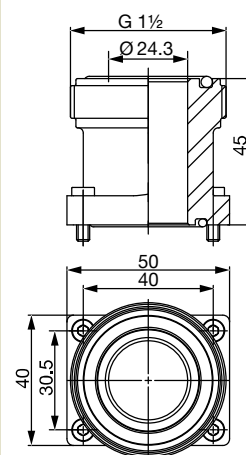
PVC-U or PP/ FKM, EPDM

For Bürkert fitting body - DN32 or bigger





































Stainless steel / FKM, EPDM

For Bürkert fitting body - DN32 or bigger



Note: Dimensions of the complete fitting S022, see data sheet, **Type S022** ▶




Ordering chart

Adaptor S022		Description	Materials Body / Seal ¹⁾	Type of installation or DN	Article no.
S022 Fittings	Insertion adaptor for connection into T-fitting or pipe				
		Metric solvent adaptor with G 1 1/2 external threaded for ELEMENT measuring device connection	PVC-U / FKM, EPDM	To stick on Tee fitting d32 × 32 or d40 × 32 with solvent socket	560705 
		Metric solvent adaptor with G 3/4 internal threaded for ELEMENT neutrino conductivity meter, Type 8222, connection	PVC-U / FKM, EPDM	To stick on Tee fitting d32 × 32 or d40 × 32 with solvent socket	568931 
		Metric solvent adaptor with G 1 1/2 external threaded for ELEMENT measuring device connection	PVC-U / FKM, EPDM	To stick on Tee fitting d50 × 32 to d50...110 × 32 with solvent socket	560706 
		Metric solvent adaptor with G 3/4 internal threaded for ELEMENT neutrino conductivity meter, Type 8222, connection	PVC-U / FKM, EPDM	To stick on Tee fitting d50 × 32 to d50...110 × 32 with solvent socket	568932 
		ASTM solvent adaptor with G 1 1/2 external threaded for ELEMENT measuring device connection	PVC-U / FKM, EPDM	To stick on Tee fitting 1" x 1" to 3" x 1" with solvent socket	561227 
		Metric fusion adaptor with G 1 1/2 external threaded for ELEMENT measuring device connection	PP / FKM, EPDM	To weld on Tee fitting d32 × 32 with fusion socket	561229 
		Metric welding adaptor Ø 33.7 with G 1 1/2 external threaded for ELEMENT measuring device connection	Stainless steel / FKM, EPDM	To weld directly on pipe	561232 
	Insertion adaptor for connection into T-fitting or pipe				
		G 1 1/4 screw-on adaptor with G 1 1/2 external threaded for ELEMENT measuring device connection	PVC-U / FKM, EPDM	To screw on tank or pipe	560707 
	NPT 1 1/4 screw-on adaptor with G 1 1/2 external threaded for ELEMENT measuring device connection	PVC-U / FKM, EPDM	To screw on tank or pipe	561228 	
Adaptor for conversion of S020 T-fitting to S022 T-fitting					
	Adaptor with G 1 1/2 external threaded for ELEMENT measuring device connection	PVC-U / FKM, EPDM	For Bürkert fitting body ≥ DN32 ²⁾	560854 	
	Adaptor with G 1 1/2 external threaded for ELEMENT measuring device connection	PP / FKM, EPDM	For Bürkert fitting body ≥ DN32 ²⁾	561230 	
	Adaptor with G 1 1/2 external threaded for ELEMENT measuring device connection	Stainless steel / FKM, EPDM	For Bürkert fitting body ≥ DN32 ²⁾	561233 	
Insertion fitting for connection on pipe					
	Fitting with metric solvent ends connection with G 1 1/2 external threaded for ELEMENT measuring device connection	PVC / FKM	10	559640 	
			15	559641 	
			20	559642 	
			25	559643 	
			32	559644 	
			40	559645 	
			50	559646 	
			65	559647 	
			80	559648 	
100	559649 				

1) 1 FKM and 1 EPDM seals for the measuring device connection are supplied with each adaptor.

2) or analytical true union fitting (DN15...DN25)

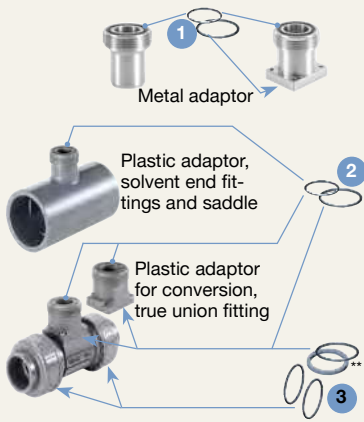












Ordering chart continued

Adaptor S022	Description	Materials Body / Seal ¹⁾	Type of installation or DN	Article no.
	Fitting with ASTM solvent ends connection with G 1½ external threaded for ELEMENT measuring device connection	PVC / FKM	15	560815
			20	560816
			25	560817
			32	560818
			40	560819
			50	560820
			65	560821
			80	560822
Insertion fitting for connection on pipe				
	Fitting with metric true union connection with spigot and nut for pipe connection and with G 1½ external threaded for ELEMENT measuring device connection	PVC / FKM	15	560671
			20	560672
			25	560673
			32	560674
			40	560675
			50	560676
	Fitting with ASTM true union connection with spigot and nut for pipe connection and with G 1½ external threaded for ELEMENT measuring device connection	PVC / FKM	15	560691
			20	560692
			25	560693
			32	560694
			40	560695
			50	560696
	Fitting with saddle with G 1½ external threaded for ELEMENT measuring device connection	PP Body & PVC adaptor / EPDM	50	560700
			65	560701
			80	560702
			100	560703
			110	560704
Measuring chamber				
	Measuring chamber with G 1½external threaded for ELEMENT measuring device connection	Stainless steel 316L - 1.4404	Pipe connection: G ½	563552

1) 1 FKM and 1 EPDM seals for the measuring device connection are supplied with each adaptor.

Accessories

S022 Fittings

	Number on drawing	Description	Article no.
 <p>** O-ring to use for holder with lug, Flat seal to use for holder with groove (old version)</p>		Stopper in stainless steel with union nut and O-ring (EPDM and FKM)	562625 
		Stopper in PVC with union nut and O-ring (EPDM and FKM)	562541 
	1	FKM O-ring set - for metal adaptor	561654 
	1	EPDM O-ring set - for metal adaptor	561653 
	2	FKM O-ring set - for plastic adaptor, solvent end fittings and saddle	561399 
	2	EPDM O-ring set - for plastic adaptor, solvent end fittings and saddle	561398 
	3	FKM O-ring set - for plastic adaptor or true union fitting DN15 up DN32	431558 
	3	FKM O-ring set - for plastic adaptor or true union fitting DN40	431559 
	3	FKM O-ring set - for plastic adaptor or true union fitting DN50	431560 
	3	EPDM O-ring set - for plastic adaptor or true union fitting DN15 up DN32	431564 
	3	EPDM O-ring set - for plastic adaptor or true union fitting DN40	431565 
	3	EPDM O-ring set - for plastic adaptor or true union fitting DN50	431566 

Inductive conductivity meter

8228

- Perfect for concentrated liquids and wide conductivity range
- Pre-parameterized versions available for direct start-up
- Integral device for direct connection to PLC
- Simulation of process values for diagnostics



Suitable fitting:
see Type S020 ►



Bürkert's inductive conductivity meter t Bürkert's inductive conductivity meter type 8228, includes a detachable display module. This is used for setup, configuration and calibration or required as a process value display. For temperature calibration, a temperature sensor is included as standard.

Technical data

Complete device data (fitting + conductivity meter)

Conductivity measurement

Measuring range	100 µS/cm...2 S/cm
Resolution	0.1 µS/cm
Measurement deviation	±(2 % of the Reading + 5 µS/cm)
Linearity	±2 %
Repeatability	±(0.2 % of the Reading + 2 µS/cm)
Response time (t90)	from 3 sec. (without filter) to 40 sec. (with slow filter)

Temperature measurement

Measuring range	-15...+130 °C
Resolution	0.1 °C
Measuring uncertainty	±1 °C

Temperature compensation

None or according to a predefined graph (NaCl, NaOH, HNO₃ or H₂SO₄) or according to a graph defined especially for your process

Fluid temperature with conductivity sensor

in PVDF	-15...+100 °C
in PP	0...+80 °C
in PEEK	-15...+130 °C

Temperature limits may depend on the material the S020 fitting used is made of. Refer to the relevant data sheet or instruction manual and the pressure/temperature diagram of the fluid. If the temperature ranges given for the device and the fitting are different, use the most restrictive range.

Fluid pressure (max.) with conductivity sensor

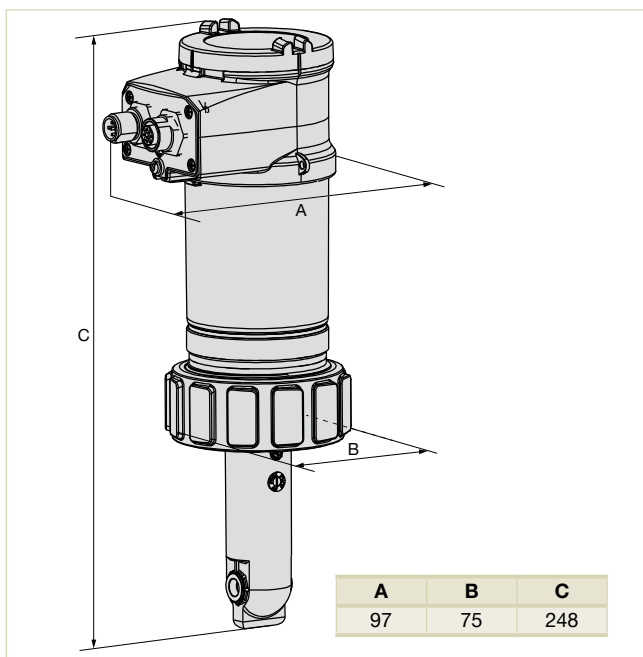
in PVDF, PP	PN6
in PEEK	PN10

Pressure limits may depend on the material the S020 fitting used is made of. Refer to the relevant data sheet or instruction manual and the pressure/temperature diagram of the fluid. If the temperature ranges given for the device and the fitting are different, use the most restrictive range.

Environment

Ambient temperature	-10...+60 °C (operating and storage)
Relative humidity	≤85 %, without condensation
Height above sea level	Max. 2000 m

Dimensions [mm]



Options

- UL and CSA approvals
- Preparameterized conductivity meters

General data

Compatibility

with standard version	Any pipe DN15...DN200 which are fitted out with Bürkert Insertion Fitting S020 (see Type S020 ► or corresponding data sheet Type S020 ►)
with CIP version	Any pipe from DN32 which are fitted out with a Clamp 2" according to ASME BPE as process connection for the device

Materials common all version

Housing / Cover	Stainless steel 316L, PPS / PC
Seal / Screws	EPDM, silicone / Stainless steel
Fixed connector holder	Stainless steel 316L
Display / Navigation key	PC / PBT

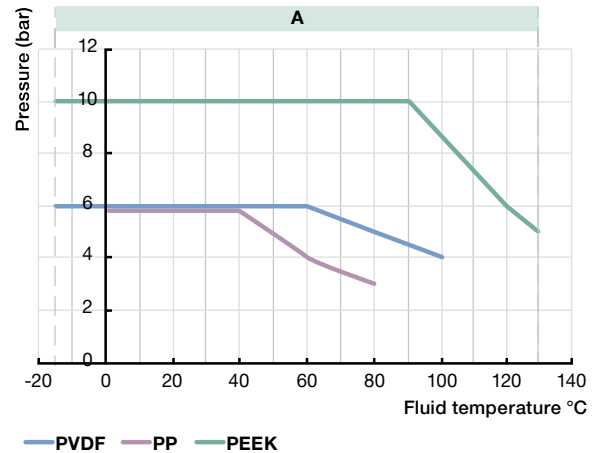
Technical data continued

Materials with standard version	
M12 fixed connectors	Brass nickel plated
Nut	PC or PPA (for PEEK sensor holder)
Wetted part materials	
Sensor holder	PP, PVDF or PEEK
Seal	FKM (standard) or EPDM (option)
Materials with CIP version	
M12 fixed connectors	
Process connection	Stainless steel 316L
Wetted part materials	Stainless steel 316L
Sensor holder	PEEK and Stainless steel 316L (standard) or PVDF and Stainless steel 316L (on request)
Seal	EPDM (standard) or FKM (on request)
Temperature sensor	Integrated in the sensor
Display (accessories)	Grey dot matrix 128 × 64 with backlighting
Electrical connections	
2 outputs meter (3-wire)	1 × 5 pin M12 male fixed connector,
4 outputs meter (3-wire)	1 × 5 pin M12 male + 1 × 5 pin M12 female fixed connectors
Connection cable	Shielded cable, Ø 3... 6.5 mm; Max. 0.75 mm ² cross section
Electrical data	
Supply voltage	12...36 V DC, ± 10 % oscillation rate, filtered and regulated, SELV (safety extra low voltage) circuit with a non dangerous energy level
Current consumption with sensor	- Without the consumption of the current outputs and the transistor outputs: max. 1 W (max. 25 mA at 12 V DC; starting current ~100 mA) - With the consumption of the current outputs and the transistor outputs: max. 40 W (max. 1 for the transistor outputs)
Output	
Transistor	Polarized, galvanically insulated, configurable through wiring and through parameterizing as sourcing (PNP) or sinking (NPN) Output NPN: 1...36 V DC, max. 700 mA (or 500 mA max. per transistor if both transistor outputs are wired) Output PNP: V+ supply voltage, max. 700 mA (or 500 mA max. per transistor if both transistor outputs are wired); galvanically insulated, protected against overvoltages, polarity reversals and short-circuits
Current (3-wire)	4...20 mA configurable through wiring and through parameterizing as sourcing or sinking, 22 mA to indicate a fault (can be parametered) max. loop impedance: 1100 Ω at 36 V DC; 610 Ω at 24 V DC; 100 Ω at 12 V DC
Response time (10...90 %)	150 ms (default value)
4...20 mA output uncertainty	1 % of the range

Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

Standards, directives and certifications	
Protection class (according to EN 60529)	IP65 and IP67 with M12 connectors plugged in and tightened and electronic module cover fully screwed down
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable) Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ¹⁾
Pressure	
Certificates	
FDA declaration of conformity	Only for standard or CIP version with PEEK or PVDF sensor holder and EPDM or FKM seal
ECR1935/2004 Declaration	Only for standard or CIP version with PEEK sensor holder and EPDM seal
1) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).	
Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Pressure/temperature chart



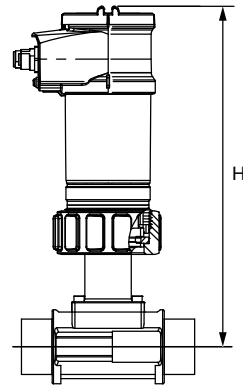
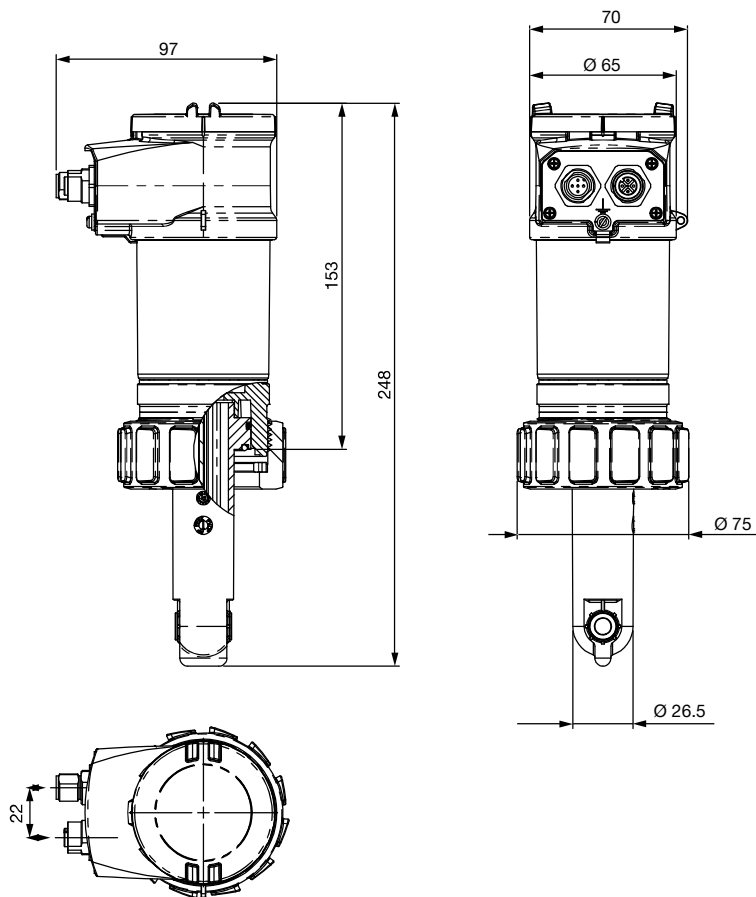
A: Application range for complete device (conductivity meter with either PP, PVDF or PEEK sensor inserted into a Stainless steel S020 fitting)



8228

Dimensions [mm]

Conductivity meter with G 2 process connection (standard version)

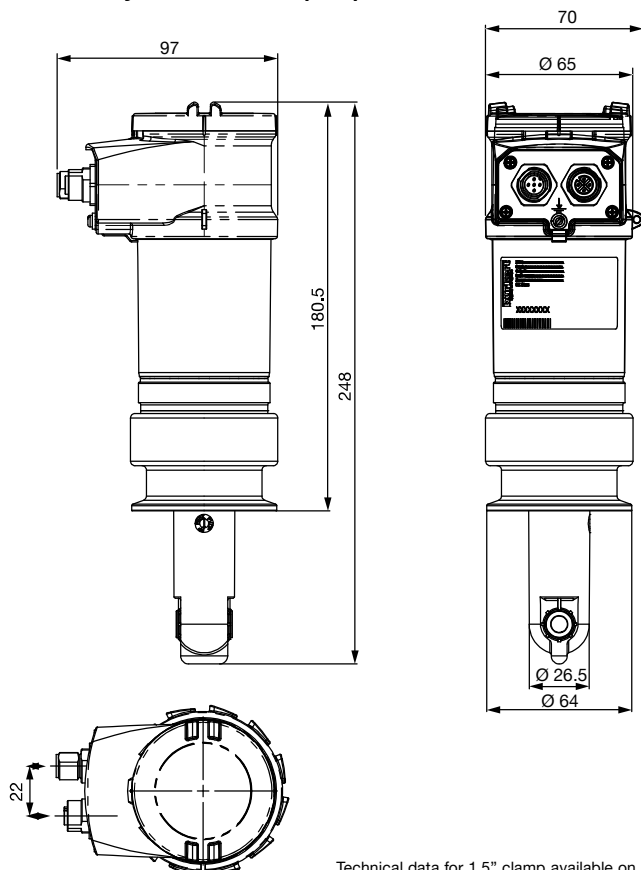


Orifice	T-Fitting	H	
		Plastic spigot	Metal spigot
15	235 ¹⁾		
20	235 ¹⁾		
25	235 ¹⁾		
32	235		
40	239		
50	245		240
65	245	266 ²⁾	246
80		266 ²⁾	251
100		266 ²⁾	261
125		301	272
150		308	283
200		329	304

1) Only use plastic fitting in analytical version with true union acc. to DIN 8063 (PVC), to DIN 16962 (PP) or to ISO 10931 (PVDF)

2) use analytical fusion spigot (Article no. 418652, 418660 or 418644 in PP, PVDF or PE) for orifice DN65...DN100

Conductivity meter with clamp 2" process connection (CIP version)



Technical data for 1.5" clamp available on request

Ordering chart

Holder material	Output	Seal material	Electrical connection	Article no. ¹⁾ without display	Article no. ¹⁾ with display
PP	1 x transistor NPN/PNP + 1 x 4...20 mA	FKM	5 pin M12 male fixed connector	565601	566601
	2 x transistor NPN/PNP + 2 x 4...20 mA	FKM	5 pin M12 male connector + 5 pin M12 female connector	565602	566602
PVDF	1 x transistor NPN/PNP + 1 x 4...20 mA	FKM	5 pin M12 male fixed connector	565603	566603
	2 x transistor NPN/PNP + 2 x 4...20 mA	FKM	5 pin M12 male connector + 5 pin M12 female connector	565604	566604
PEEK	1 x transistor NPN/PNP + 1 x 4...20 mA	FKM	5 pin M12 male fixed connector	565605	566605
	2 x transistor NPN/PNP + 2 x 4...20 mA	FKM	5 pin M12 male connector + 5 pin M12 female connector	565606	566606
Conductivity meter with Clamp 2" process connection according to ASME BPE (CIP version)					
PEEK	1 x transistor NPN/PNP + 1 x 4...20 mA	EPDM	5 pin M12 male fixed connector	567200	567478
PEEK	2 x transistors NPN/PNP + 2 x 4...20 mA	EPDM	5 pin M12 male + 5 pin M12 female fixed connectors	567199	567479

1) Transparent cover as standard

Note for ordering chart:

For a complete conductivity unit the following items must be ordered:

- Transmitter Type 8228
- Insertion Fitting Type S020
- M12 cable socket

Further versions and information in data sheet, see **Type 8228** ►.

Accessories

Description	Artikel-Nr.
Removable display/configuration module (with instruction sheet)	559168
Blind cover with seal (1 screw cover with EPDM seal + 1 quarter turn closing cover with silicone seal)	560948
Transparent cover with seal (1 screw cover with EPDM seal + 1 quarter turn closing cover with silicone seal)	561843
Ring (open) for S020 fitting	619205
Nut in PC for S020 fitting	619204
Buffer solution, 706 µS/cm conductivity standard, ±2 % accuracy, 300 ml	440018
Buffer solution, 1413 µS/cm conductivity standard, ±1 % accuracy, 300 ml	440019
Buffer solution, 12880 µS/cm conductivity standard, 500 ml	565741
Buffer solution, 100 mS/cm conductivity standard, ±1 % accuracy, 300 ml	440020
5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917116
5 pin M12 male straight cable plug with plastic threaded locking ring, to be wired	560946
5 pin M12 female straight cable plug moulded on cable (2 m, shielded)	438680
5 pin M12 male straight cable plug moulded on cable (2 m, shielded)	559177



Overview for Pressure and Temperature Sensors

Note: The following product overview does not show the complete product range of this catalogue. A complete overview can be found [here](#) ►

Overview Pressure and Temperature Sensors	Category	Type	Basic functions	Operating principle	Measuring range	Fluid temperature [°C]	Wetted parts material		Process connection
	Pressure measurement	8311 ►	Switch, transmitter, measuring device	Ceramic measuring cell	0...50 bar	-20...+150 (with cooling section)	FPM	SS	Any pipe with sensor connection ½"
		8316 ►	Transmitter	Ceramic measuring cell	0...100 bar	-15...125	FKM	SS, PVDF	Any pipe with sensor connection ¼"
		8323 ►	Transmitter	Thin film piezoresistive	0...25 bar	-30...+150	FKM, EPDM	SS	Any pipe with sensor connection ½", 1"
	Temperature measurement	8400 ►	Switch, transmitter, measuring device	Pt100	-40...+125 °C	-40...+125	FKM	SS	Any pipe with sensor connection ½"

Fluid properties	Operating voltage	Signal output	Display	Special features and versions	Overview Pressure and Temperature Sensors
Clean, contaminated or hygienic (with diaphragm seal), hot (with cooling section) or aggressive (with diaphragm seal)	12...30 V DC	Transmitter 2-wire version: transistor, 4...20 mA; Switch version: transistor, optional relay	Yes	Compact, keypad, bar graph display, Teach-In calibration, simulation mode, hysteresis mode, window mode	
Clean, contaminated or hygienic	7...33 V DC	4...2 mA	No	Compact, standard version	
Clean, contaminated or hygienic (with flush diaphragm), hot (with cooling section) or aggressive (with diaphragm seal)	10...30 V DC	4...20 mA	No	Compact, standard version Standard flush diaphragm version Hygienic flush diaphragm version	
Clean or contaminated	12...30 V DC	Transistor, 4...20 mA, relay	Yes	Compact, wall-mounted version, keypad, bar graph display, Teach-In calibration, simulation mode, hysteresis mode, window mode	

Pressure transmitter/Switch

8311

- Pressure measurement and switch in one device
- Switch for alarm or event logging
- Bar graph display for local monitoring
- Continuous or on/off control
- 2-wire transmitter



Programmable pressure sensor with switching and transmitting functions. It has a large display with bar graph and simple menu guided controls. Connection to the process with standard stainless steel connection. The process value can be transmitted to a PLC via a 4...20 mA signal.

Technical data

General data

Materials

Housing, cover	PC, + 20 % glass fibre
Front panel folio / Screws	Polyester / Stainless steel
Cable plug, Multipin	PA
Materials wetted parts	Stainless steel
Seal	FKM (EPDM option)

Sensor element Ceramic cell (Al_2O_3)

Service life of pressure cell Min. 100 million cycles

Electrical connections Adjustable 5 pin M12 connector for 5 pin socket (included)

Voltage supply cable 50 m, shielded, 0.14...0.5 mm² max.

Complete device data (pipe + electronic module)

Pipe diameter Any pipe with sensor connection 1/2"

Measuring range 0...1, 2, 5, 10, 20 or 50 bar

Fluid temperature -20...+100 °C (+100 °C for an ambient temperature of max. 40 °C)

Typical measurement deviation

Transmitter 2-wire version	
for 0 °C < T < 70 °C	$\leq \pm 1 \%$ of F.S. ¹⁾
for -20 °C < T < 0 °C	$\leq \pm 1 \%$ $\pm 0.03 \%$ of F.S. ^{1)/°C}
for 70 °C < T < 100 °C	$\leq \pm 1 \%$ $\pm 0.03 \%$ of F.S. ^{1)/°C}
Switch version	$\leq \pm 1.5 \%$ of F.S. ¹⁾

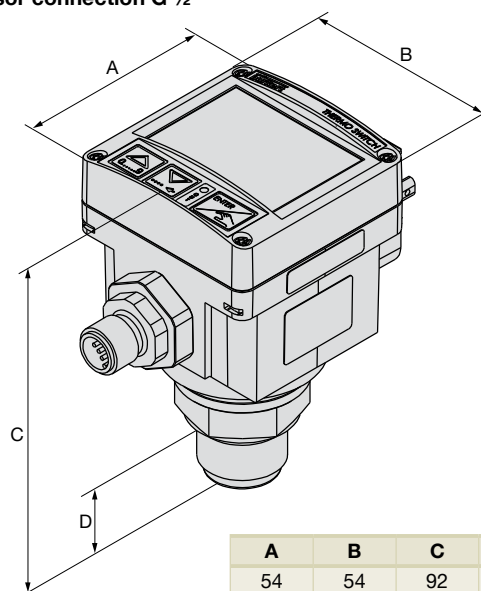
Typical repeatability

Transmitter 2-wire version	$\leq \pm 0.06 \%$
Switch version	$\leq \pm 0.25 \%$

1) F.S. = Full Scale

Dimensions [mm]

Sensor connection G 1/2




A	B	C	D
54	54	92	18

Options

- Cable plug, Type 2508, acc. to EN 175301-803
- Outputs: Relay 3 A/250 or 3 A/30 V DC

Technical data continued

Electrical data	
Power supply	12...30 V DC , filtered and regulated
Overvoltage protection	Yes, for power supply and for transistor outputs
Current consumption	
Transmitter 2-wire version	< 30 mA (+ 700 mA max. per transistor output used)
Switch version	< 750 mA (with load - PNP output configuration) < 80 mA (with load - Relay version)
Output	
Transmitter 2-wire version	
Transistor (programmable)	Open collector, 2 NPN or 2 PNP, 700 mA max., NPN: [(V+) minus 0.5 V DC] - 0 V DC PNP: 0.5 V DC - (V+) Protected against short circuit
Process value	4...20 mA, loop resistance: 800 Ω at 30 V DC, 550 Ω at 24 V DC, 300 Ω at 18 V DC (For more details, see instruction manual)
Switch version	
Transistor (programmable)	Open collector, NPN/PNP, 700 mA max., NPN: 0.2...30 V DC ; PNP: (V+) Protected against short circuit
Optional relay (programmable)	Normally open/normally closed 3 A/250 V AC or 3 A/30 V DC (relay)
Reversed polarity of DC	Protected (for power supply and all outputs)
Environment	
Ambient temperature	0...+ 60 °C (operating and storage)
Relative humidity	≤ 80 %, non condensated
Standards, directives and certifications	
Protection class	IP65 with connector plug-in
Standard and directives 	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Pressure	Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ¹⁾

1) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000



Ordering chart





8311

Nominal pressure range [bar]	Pressure max. [bar]	Burst pressure [bar]	Power supply	Output signal	Electrical connection	Article no. sensor connection G ½	Article no. sensor connection NPT ½	Article no. sensor connection Rc ½
Transmitter version								
0...1	2	4	12...30 V DC	4...20 mA + 2 NPN or 2 PNP ¹⁾	Swivel 5 pin M12 male fixed connector	557934	557935	On request
				4...20 mA	Female cable plug Type 2508 ²⁾	550350	557937	On request
0...2	4	7	12...30 V DC	4...20 mA + 2 NPN or 2 PNP ¹⁾	Swivel 5 pin M12 male fixed connector	444507	444762	551739
				4...20 mA	Female cable plug Type 2508 ²⁾	444635	444640	444768
0...5	10	12	12...30 V DC	4...20 mA + 2 NPN or 2 PNP ¹⁾	Swivel 5 pin M12 male fixed connector	444506	444763	551740
				4...20 mA	Female cable plug Type 2508 ²⁾	444636	444641	444769
0...10	20	25	12...30 V DC	4...20 mA + 2 NPN or 2 PNP ¹⁾	Swivel 5 pin M12 male fixed connector	444503	444764	551741
				4...20 mA	Female cable plug Type 2508 ²⁾	550338	444642	444770
0...20	40	50	12...30 V DC	4...20 mA + 2 NPN or 2 PNP ¹⁾	Swivel 5 pin M12 male fixed connector	444504	444765	551742
				4...20 mA	Female cable plug Type 2508 ²⁾	550339	444760	551737
0...50	100	120	12...30 V DC	4...20 mA + 2 NPN or 2 PNP ¹⁾	Swivel 5 pin M12 male fixed connector	444505	444767	551743
				4...20 mA	Female cable plug Type 2508 ²⁾	444637	444761	551738
Switch version								
0...2	4	7	12...30 V DC	NPN / PNP	Swivel 5 pin M12 male fixed connector	439908	439916	439912
				Relay NO/NC	Swivel 5 pin M12 male fixed connector + Female cable plug Type 2508 ²⁾	439911	439919	439915
0...5	10	12	12...30 V DC	NPN / PNP	Swivel 5 pin M12 male fixed connector	439920	439928	439924
				Relay NO/NC	Swivel 5 pin M12 male fixed connector + Female cable plug Type 2508 ²⁾	439923	439931	439927
0...10	20	25	12...30 V DC	NPN / PNP	Swivel 5 pin M12 male fixed connector	439932	439940	439936
				Relay NO/NC	Swivel 5 pin M12 male fixed connector + Female cable plug Type 2508 ²⁾	439935	439943	439939
0...20	40	50	12...30 V DC	NPN / PNP	Swivel 5 pin M12 male fixed connector	439944	439952	439948
				Relay NO/NC	Swivel 5 pin M12 male fixed connector + Female cable plug Type 2508 ²⁾	439947	439955	439951
0...50	100	120	12...30 V DC	NPN / PNP	Swivel 5 pin M12 male fixed connector	439956	439964	439960
				Relay NO/NC	Swivel 5 pin M12 male fixed connector + Female cable plug Type 2508 ²⁾	439959	439967	439963

1) PNP standard, can be change in NPN with jumpers on electronic board

2) Acc EN175301-803 Europe / Asia (G / Rc) : with cable gland
USA / CDN (NPT) : with NPT ½ reduction

Accessories

Description	Article no.
5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917116 
5 pin M12 female straight cable plug moulded on cable (2 m, shielded)	438680 
Cable plug EN 175301-803 with cable gland - see Type 2508 ▶ (will be replaced with Type 2518)	438811 
Cable plug EN 175301-803 with NPT ½ reduction without cable gland - see Type 2509 ▶	162673 

Pressure measuring device

8316

- Ceramic/thick film measurement cell
- Two-wire version for 4...20 mA output
- Compact, stable construction for the highest operational reliability



The compact Type 8316 pressure transmitter meets the highest requirements with regard to mechanical loading, EMC characteristics and operational reliability and is particularly suitable for demanding industrial applications.

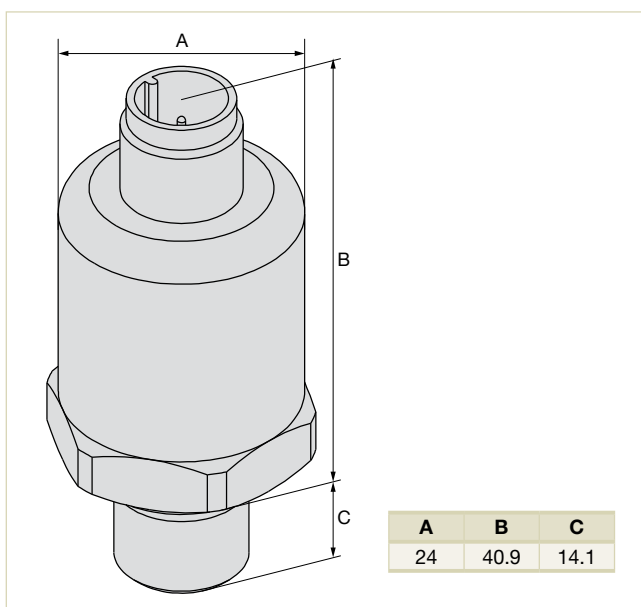
For aggressive fluids against stainless steel the process connection is available in PVDF.

Technical data


General data	
Body material	Stainless steel 1.4404 (316L)
Wetted parts materials	Ceramics (Al ₂ O ₃) stainless steel 1.4404, FKM seal (for pressure 0...100 bar, only stainless steel 1.4404, no FKM seal, no ceramics)
Electrical connection	Round male connector M12 x 1
Process connection	G 1/4 external to DIN 3852 Form E NPT 1/4 external
Installation	As required, preferably with pressure connection in downward position
Measurement technology	Ceramic or thick film
Measurement procedure	Relative pressure measurement
Measuring range	0...1, 4, 6, 10, 16, 40 or 100 bar (0...14.51, 58.04, 87.06, 145.1, 232.16, 580.4, 1451 PSI)
Overload, bursting pressure	3 x full scale at 0...4 bar (0...58.04 PSI) 2.5 x full scale at 6...100 bar (87.06...1451 PSI)
Fluid temperature	-15...+125 °C
Measurement deviation	Sum of linearity, hysteresis and reproducibility, balancing accuracy of zero point and full scale: ≤0.5 % of F.S. ¹⁾
Resolution	0.1 % of F.S. ¹⁾
Dynamic response	Suitable for static and dynamic measurements response time <2 ms, typ. 1 ms
Electrical data	
Operating voltage (U)	7...33 V DC, unregulated
Output signal	Standard 4...20 mA (two-wire) or 0...10 V DC (three-wire) signal
Load in Ω	<(U - 7 V)/0.02 A
Protected connection	Short-circuit proof & protected against reverse polarity
Environment	
Ambient temperature	-15...+85 °C
Temperature coefficient	<0.2 % of F.S. ¹⁾ /10 K

1) F.S. = Full Scale














Dimensions [mm]



Standards, directives and certifications



Protection class	IP67
EMC	EN 61326-2-3
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Certifications	 Process Control Equipment E312665 UL 61010-1 + CAN/CSA-C22.2 No.61010-1
Test/Admissions	
Shock acc. EN 60068-2-27	25 g, 6 ms half sine wave, all three directions.
Drop test acc. EN 60068-2-23	From 1 m on concrete
Vibration acc. EN 60770-1	50 m/s, 10...1000 Hz, 1 Octave/min, 20 constant load per axis

Ordering chart

Process connection	Pressure range	Operating voltage	Output signal	Electrical connection	Article no.
G 1/4 UL-Listed for USA and Canada 	0...1.00 bar	7...33 V DC	4...20 mA	M12 male connector	563777 
	0...4.00 bar	7...33 V DC	4...20 mA	M12 male connector	563778 
	0...6.00 bar	7...33 V DC	4...20 mA	M12 male connector	563779 
	0...10.0 bar	7...33 V DC	4...20 mA	M12 male connector	563780 
			0...10 V DC	M12 male connector	563784 
	0...16.0 bar	7...33 V DC	4...20 mA	M12 male connector	563781 
	0...40.0 bar	7...33 V DC	4...20 mA	M12 male connector	563782 
	0...100.0 bar	7...33 V DC	4...20 mA	M12 male connector	563783 
NPT 1/4 UL-Listed for USA and Canada 	0...60 PSI	7...33 V DC	4...20 mA	M12 male connector	564466 
	0...150 PSI	7...33 V DC	4...20 mA	M12 male connector	564467 
	0...300 PSI	7...33 V DC	4...20 mA	M12 male connector	564468 

8316

Accessories

Specification	Article no.
5 pin M12 female straight cable plug with plastic threaded locking ring, to be wired	917116 
5 pin M12 female straight cable plug moulded on cable (2 m, shielded)	438680 

Pressure transmitter for general applications, 0...25 bar

8323

- Piezoresistive or thin film sensor element
- Available with hygienic flush diaphragm
- Housing and wetted parts in corrosion-resistant stainless steel
- Standard signal 4...20 mA for connection to automation systems
- Plug for quick installation and service

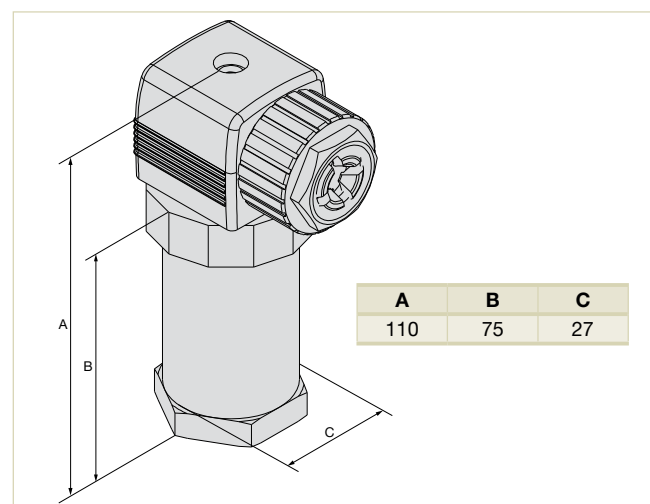


This pressure transmitter is designed to cover the majority of industrial applications in the field of industrial pressure measurement technology. High accuracy, compact design, robust construction and flexibility make this instrument universal and suitable for different measurement functions. For technical reasons the piezoresistive sensor element is used for measuring ranges up to 16 bar and the thin film sensor element for the measuring range of 25 bar. Wetted parts are made of stainless steel and completely welded. Internal seal elements, which could restrict the choice of measuring materials, are excluded.

Technical data

General data	
Pipe diameter	Any pipe with sensor connection:
Standard version	G 1/2 A acc. to DIN 16288
Flush diaphragm version	G 1 B with O-ring (range up to 1.6 bar) G 1/2 B with O-ring (range > 1.6 bar) G 1 B hygienic version (all ranges) (Weld-on socket with connection G 1/2 B, G 1 B)
Material	
Housing	Stainless steel 1.4571
Wetted parts	
Standard version	Stainless steel 1.4571 (and 1.4542 with 25 bar)
Std. flush diaphragm vers.	Stainless steel 1.4571, FKM seal
Hygienic flush diaphragm version	Stainless steel 1.4571, EPDM seal
Internal transmitting liquid	Synthetic oil (only for pressure range up to 16 bar or for flush diaphragm units)
Electrical connection	4 pin cable plug, Type 2508, acc. to DIN EN 175301-803 (included in delivery)
Measurement range (Pressure reference = relative pressure [atmospheric])	0...0.1, 0.16, 0.25, 0.4, 0.6, 1.0, 1.6, 2.5, 4.0, 6.0, 10.0, 16.0 or 25.0 bar
Sensor element	Piezo (≤ 16 bar) / Thin film (≤ 25 bar)
Fluid temperature	
Standard version	-20...+100 °C
Standard flush diaphragm version	-30...+100 °C
Hygienic flush diaphragm version	-20...+150 °C
Compensated T° range	0...+80 °C
Temperature coefficient	In compensated T° range
Average Tc of zero	
Standard version	≤ 0.2 % of F.S. ¹⁾ /10K
Flush diaphragm version	≤ -0.2...+0.3 % of F.S. ¹⁾ /10K
Average Tc of Span	≤ 0.2 % of F.S. ¹⁾ /10K
Measurement deviation	≤ 0.5 % of F.S. ¹⁾ (2-point calibration) ²⁾ ≤ 0.25 % of F.S. ¹⁾ (Best fit calibration, BFSL) ²⁾

Dimensions [mm]



Hysteresis	≤ 0.1 % of F.S. ¹⁾
Repeatability	≤ 0.05 % of F.S. ¹⁾
1-year stability	≤ 0.2 % of F.S. ¹⁾ (at reference condition)
Electrical data	
Power supply [Vs]	10...30 V DC
Reversed polarity of DC	Protected
Overvoltage protection	Yes
Short circuit protection	Yes
Output	Standard 4...20 mA signal, 2 wires
Load in Ω	≤ (Vs [V] - 10 [V])/0.02 [A]
Adjustability: Zero/span	± 10 %
Response time	≤ 1 ms
Environment	
Ambient temperature	
Standard version	-20...+80 °C
Std. flush diaphragm version	-20...+80 °C
Hygienic flush diaphragm version	-20...+80 °C
Storage temperature	
Standard version	-40...+100 °C
Std. flush diaphragm version	-40...+100 °C
Hygienic flush diaphragm version	-20...+100 °C


1) F.S.=Full scale

2) Calibrated in vertical mounting position with pressure connection bottom.

Technical data continued

Standards, directives and certifications

Protection class IP65 with device wired and with cable plug mounted and tightened

Standard and directives  The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)

Pressure Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU¹⁾

1) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions:

- Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

- Device used on a vessel (PS = maximum admissible pressure).

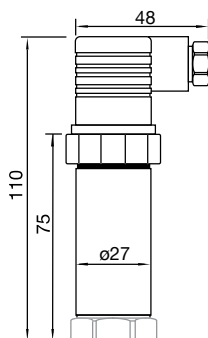
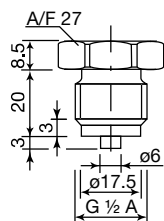
Type of fluid	Conditions
Fluid group 1, article 4, §1.a.i	PS ≤ 200 bar
Fluid group 2, article 4, §1.a.i	PS ≤ 1000 bar
Fluid group 1, article 4, §1.a.ii	PS ≤ 500 bar
Fluid group 2, article 4, §1.a.ii	PS ≤ 1000 bar

Dimensions

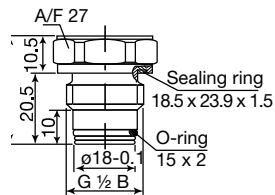
Pressure connection:

Standard version

G ½ A

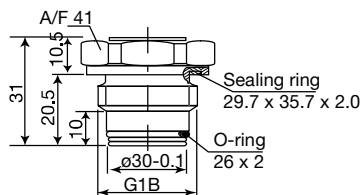


G ½ B

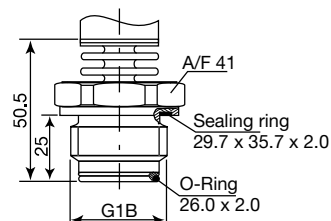


Flush diaphragm version

G 1 B

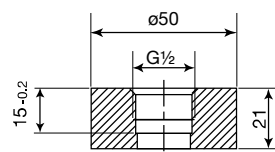


Hygienic G 1 B

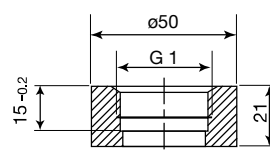


Weld-on socket for pressure connection flush diaphragm version

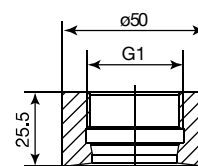
G ½ B



G 1 B



Hygienic G 1 B





Ordering chart

8323	Pressure range [bar]	Max. pressure [bar]	Bursting pressure [bar]	Power supply	Output signal	Article no.			
						Standard	Standard flush diaphragm G ½ B	Standard flush diaphragm G 1 B	Hygienic flush diaphragm G 1 B
	0...0.10	1	2	10...30 V DC	4...20 mA	417692	—	552063	551803
	0...0.16	1.5	2	10...30 V DC	4...20 mA	417693	—	552064	—
	0...0.25	2	2	10...30 V DC	4...20 mA	417694	—	—	—
	0...0.40	2	2	10...30 V DC	4...20 mA	417695	—	552065	551675
	0...0.60	4	4	10...30 V DC	4...20 mA	417696	—	—	551676
	0...1.00	5	5	10...30 V DC	4...20 mA	417697	—	552066	551677
	0...1.60	10	10	10...30 V DC	4...20 mA	417698	—	—	551678
	0...2.50	10	10	10...30 V DC	4...20 mA	417699	—	—	551679
	0...4.00	17	17	10...30 V DC	4...20 mA	417700	—	—	—
	0...6.00	35	35	10...30 V DC	4...20 mA	417701	552067	—	—
	0...10.0	35	35	10...30 V DC	4...20 mA	417702	552068	—	551684
	0...16.0	80	80	10...30 V DC	4...20 mA	417703	552069	—	—
	0...25.0	50	250	10...30 V DC	4...20 mA	417704	—	—	—

Accessories

Description	Article no.
Weld-on socket for Type 8323 with standard flush diaphragm version G ½	443295
Weld-on socket for Type 8323 with standard flush diaphragm version G 1	444137
Weld-on socket for Type 8323 with hygienic flush diaphragm version G 1	443296

Screw-in temperature sensor/switch with display

8400

- Indication, monitoring, transmitting and On/Off control in one device
- Extra-large display
- Menu-guided parametrisation
- Complete control loop with external setpoint



This intelligent sensor/switch with a particularly large display is designed specifically for monitoring limit values or an on/off or continuous control loop. The switching points can be programmed directly via buttons on the display or optionally externally by a PLC via a 4...20 mA standard signal input. In addition, the process value can be transmitted via a 4...20 mA signal to the PLC.

Technical data

General data

Materials

Housing	PC, + 20 % glass fibre
Front panel folio / Screws	Polyester / Stainless steel
Cable plug, Multipin	PA
Material wetted parts	
Sensor element / Seal	Stainless steel / FKM

Sensor element

Pt100

Screw-in thread

G, NPT, Rc ½

Electrical connections

Cable plug: EN 175301-803
Multipin: swivel M12, 5 pin or M12, 4 pin or 8 pin

Voltage supply cable

Max. 100 m, shielded, 0.14...0.5 mm² max.
5 Ω max. cable impedance (Wall-mounted version)

Complete device data (pipe + electronic module)

Pipe diameter

Any pipe with sensor connection ½"

Measuring range

Compact version	-40...+125 °C (with ambient temperature between 0...+40 °C)
Wall-mounted version	-40...+90 °C (with ambient temperature above +40 °C)
	-40...+125 °C

Fluid temperature

+125 °C max.

Fluid pressure max.

PN16

Switching accuracy

±0.5 °C (0...+80 °C)
±1.5 °C (outside of 0...+80 °C)

Repeatability

≤ ±0.4 %

Electrical data

Power supply

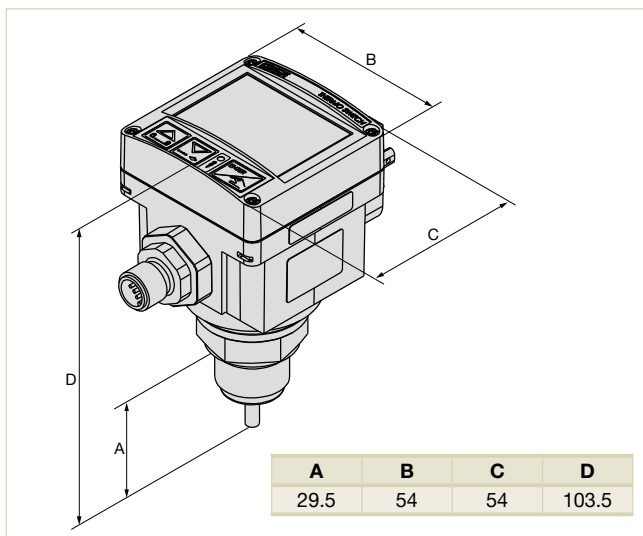
12...30 V DC, filtered and regulated

Outputs

Compact version

Transistor (programmable)	NPN and PNP, open collector, 5...30 V DC, 700 mA max., protected against short circuits
Relay (programmable)	3 A/250 V AC or 3 A/30 V DC 3 A/48 V AC or 3 A/30 V DC ¹⁾

Dimensions [mm]



Input external setpoint

Compact version	4...20 mA, galvanic insulation, Max. input impedance: 250 Ω
-----------------	---

Current consumption

Compact version	Max. 80 mA (no load)
-----------------	----------------------

Response time (10...90 %)

7 sec. (for one step increment from 0...+100 °C)

Reversed polarity of DC

Protected

Environment

Ambient temperature

-20...+60 °C

Relative humidity

≤80 %, without condensation

1) Valid for: external setpoint input and process value output

Technical data continued

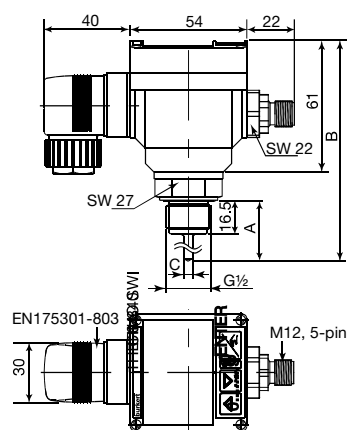
Standards, directives and certifications	
Protection class	IP65 with connector plug-in
Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
Pressure	Complying with article 4, §1 of Pressure Equipment Directive 2014/68/EU ¹⁾

1) The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions: Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe).

Type of fluid	Conditions
Fluid group 1, article 4, §1.c.i	DN ≤ 25
Fluid group 2, article 4, §1.c.i	DN ≤ 32, or PS*DN ≤ 1000
Fluid group 1, article 4, §1.c.ii	DN ≤ 25 or PS*DN ≤ 2000
Fluid group 2, article 4, §1.c.ii	DN ≤ 200 or PS ≤ 10 or PS*DN ≤ 5000

Dimensions [mm]

8400 Standard



Version	A	B	C
Standard	29.5	103.5	Ø 4

Ordering chart

8400 Sensor/Switch for sensor connection G 1/2"	Article no.
NPN and PNP, free positionable 5 pin M12	436501
Transmitter Version is available with 4...20 mA output and relay with 8 pin M12 and cable plug EN175301-803	444696
Relay version is available, free positionable 5 pin M12 and cable plug EN175301-803	436503

Accessories

ON/OFF Temperature Control System 8400	Article no.
5 pin M12 female straight cable plug moulded on cable (2 m, shielded)	438680



Overview for Mass Flow Controller (MFC) / Meter (MFM)

Note: The following product overview does not show the complete product range of this catalogue. A complete overview can be found [here](#) ►

Overview MFC / MFM	Type	Full scale ranges (273.15 K, 1013.25 mbar)	Sensor technology	Body material	Medium	Turn-down ratio
	8626 (MFC) ► 8006 (MFM) ►	20...1500 I _N / min (N ₂), MFM up to 2500 I _N / min (N ₂)	Inline sensor	Stainless steel, aluminium	Neutral, non-contaminated gases	1:50
	8710 (MFC) ► 8700 (MFM) ►	0.005...10 I _N / min (N ₂)	Capillary sensor	Stainless steel	Aggressive, toxic gases	1:50
	8711 (MFC) ► 8701 (MFM) ►	0.01...80 I _N / min (N ₂)	MEMS sensor	Stainless steel, aluminium	Neutral, non-contaminated gases	1:50, optional 1:100
	8712 (MFC) ► 8702 (MFM) ►			Stainless steel		
	8713 (MFC) ► 8703 (MFM) ►			Stainless steel, aluminium		
	8746 (MFC/MFM) ¹⁾ bÜS / CANopen ►	20...2500 I _N / min (N ₂)	Inline sensor	Stainless steel, aluminium	Neutral, non-contaminated gases	1:50
	8741 (MFC/MFM) bÜS / CANopen ►	0.01...80 I _N / min (N ₂)	MEMS sensor			1:50, optional 1:100
	8742 (MFC/MFM) ¹⁾ bÜS / CANopen ►	0.01...80 I _N / min (N ₂)	MEMS sensor			1:50, optional 1:100
	8745 (MFC/MFM) Standard ►	20...2500 I _N / min (N ₂)	Inline sensor			1:50
	8741 (MFC/MFM) Standard ►	0.01...80 I _N / min (N ₂)	MEMS sensor			1:50, optional 1:100

1) Type suitable for ATEX Zone 2, Cat. 3, IIC, T4

2) In bÜS-modus up 32 MFC/MFM can be connected to a system control unit (SCU), e.g. of Type ME2X. The SCU processes and translates the internal bÜS communication to industrial fieldbus / Ethernet standards (PROFIBUS DP, PROFINET, EtherNet/IP, Modbus TCP, EtherCAT).

Furthermore, the SCU can be extended by I/O modules and as an option the graphic programming interface of Type 8922 can be activated.

Max. operating pressure	Medium temperature [°C]	Accuracy	Repeatability	Settling time	Protection class	Communication	Special features	Overview MFC / MFM
10 bar (MFC), optional up to 25 bar (MFM)	-10 to +70	±1.5 % o.R. ±0.3 % F.S.	±0.1 % F.S.	<500 ms	IP65	Standard signal, RS-232 or RS-485, Modbus-RTU (RS485 adapter) PROFIBUS DP, DeviceNet, CANopen	<ul style="list-style-type: none">– Sensor in contact with medium– Real gas calibration– Little sensitivity of the sensor to humidity and particles	
10 bar		±1.5 % o.R. ±0.3 % F.S.		<3000 ms	IP40		<ul style="list-style-type: none">– Sensor not in contact with medium– Real gas calibration or conversion factor	
		±0.8 % o.R. ±0.3 % F.S.		<300 ms	IP40	<ul style="list-style-type: none">– Sensor in contact with medium– Real gas calibration– Little sensitivity of the sensor to humidity and particles		
		±0.8 % o.R. ±0.3 % F.S.			IP65			
		±0.8 % o.R. ±0.3 % F.S.			IP40		RS-232 or RS-485, Modbus RTU	
25 bar	-10 to +70	±1.5 % o.R. ±0.3 % F.S.	±0.1 % F.S.	<500 ms	IP65 and IP67	CANopen or CAN-based bus ²⁾	<ul style="list-style-type: none">– Sensor in contact with medium– Real gas calibration– Little sensitivity of the sensor to humidity and particles	
10 bar		±0.8 % o.R. ±0.3 % F.S.		<300 ms	IP20			
10 bar		±0.8 % o.R. ±0.3 % F.S.		<300 ms	IP65 and IP67			
25 bar		±1.5 % o.R. ±0.3 % F.S.		<500 ms	IP20	Normsignal, PROFINET, EtherNet/IP, EtherCAT, Modbus TCP		
10 bar		±0.8 % o.R. ±0.3 % F.S.		<300 ms	IP20			

Mass Flow Meter (MFM)

8006

- Nominal flow ranges from 20 l_N/min up to 2500 l_N/min
- High accuracy
- Fast response time
- Protection class IP65
- Optional: Fieldbus interface



The mass flow meter (MFM) type 8006 is suited for measuring the mass flow of high gas flows. The thermal inline sensor is located directly in the gas stream and therefore reaches very fast response times.

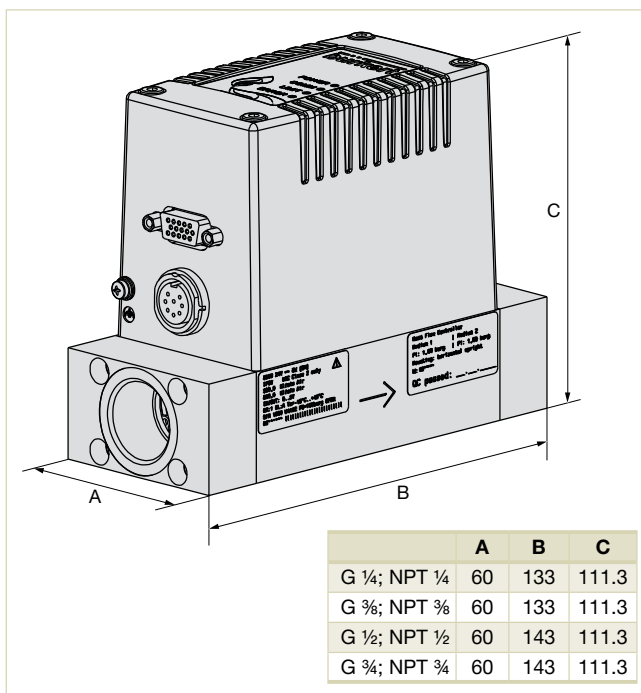
Type 8006 can optionally be calibrated for two different gases; the user can switch between these two gases. As electrical interfaces both, analog standard signals and fieldbuses are available.

The MFM type 8006 is especially designed for use in harsh environments due to a low sensitivity to contamination and the high protection class.

Technical data

Nominal flow range¹⁾ (Q _{nom})	20...2500 l _N /min ²⁾ , N ₂ equivalent see table, higher flows on request
Turn-down ratio	1:50 ³⁾
Operating gas	Neutral, non-contaminated gases, others available on request
Calibration gas	Operating gas or air with correcting function
Max. operating pressure (Inlet pressure)	10 bar, up to 25 bar (N ₂ , air, argon)
Gas temperature	-10...+70 °C (-10...+60 °C with oxygen)
Ambient temperature	-10...+45 °C (higher temperatures on request)
Accuracy (after 15 min warm up time)	±1.5 % o.R. ±0.3 % F.S. (o.R.: of reading; F.S.: of full scale)
Repeatability	±0.1 % F.S.
Response time (t_{95%})	< 500 ms
Materials	
Body	Aluminium (black anodized) or stainless steel
Housing	Aluminium (coated)
Seals	FKM, EPDM
Port connection	G ¼, ¾, ½, ¾, 1 NPT ¼, ¾, ½, ¾, 1 With compression fittings
Electr. connection	Socket M16, round, 8 pin and socket D-Sub HD15, 15 pin
Additionally with – PROFIBUS-DP: – CANopen: with RS485 version only:	Socket M12 5 pin or D-Sub 9 pin Plug M12 5 pin or D-Sub 9 pin Plug D-Sub 9 pin
Operating voltage	24 V DC
Voltage tolerance	±10 %
Residual ripple	<2 %
Power consumption	3.5...10 W, with fieldbus: 4...12.5 W (acc. to the version)

Dimensions [mm]



Protection class (with connected cables)	IP65
Total weight (Example standard block)	1.2 kg (Al) 3.0 kg (VA)
Mounting position	Horizontal or vertical
Light emitting diodes (Default, other functions programmable)	Indication for 1. Power 2. Communication 3. Limit 4. Error

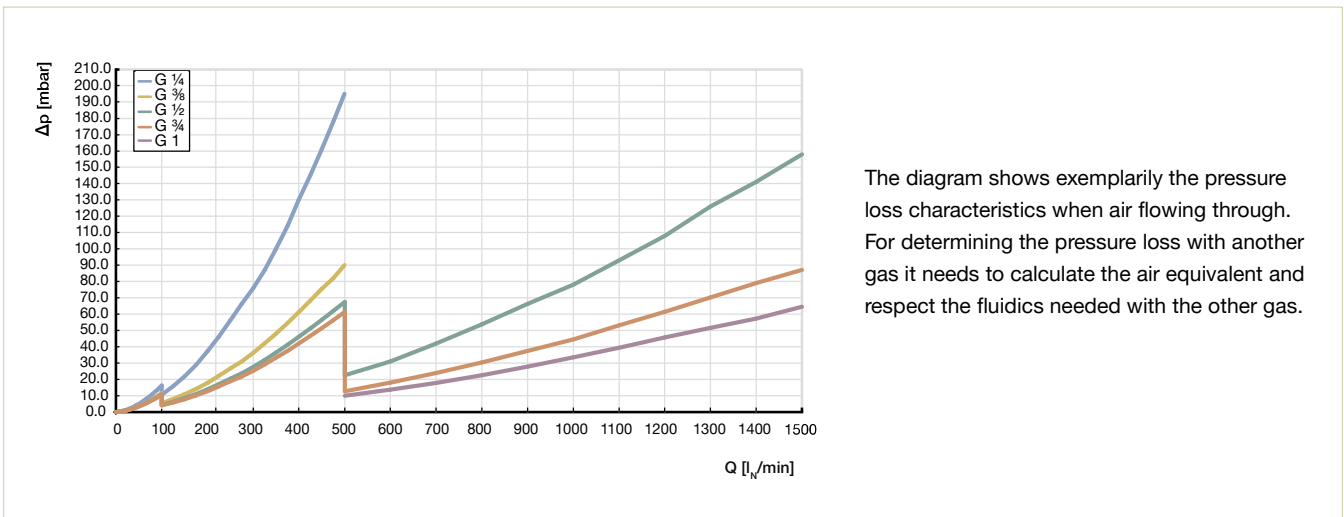
- 1) The nominal flow value is the max. flow value calibrated which can be measured. The nominal flow range defines the range of nominal flow rates (full scale values) possible.
- 2) Index N: Flow rates referred to 1.013 bar and 0 °C.
Alternatively there is an Index S available which refers to 1.013 bar and 20 °C
- 3) With vertical installation and flow downwards the turn-down ratio is 1:10

Technical data continued

Device variant	Analog signal version	Fieldbus version	RS485 version (only D-Sub, 9 pin)
Analog communication Output signal (actual flow) Max. current voltage output Max. load current output	0...5 V, 0...10 V, 0...20 mA or 4...20 mA 10 mA 600 Ω	None	None
Fieldbus option (D-Sub HD15 covered with sealed plate for, pins for analogue inputs/ outputs not connected)	None	PROFIBUS-DP, CANopen	Modbus RTU (via RS interface)
Digital communication via adapter possible:	RS232 (supports Modbus RTU) RS485, RS422 or USB		RS485, RS422 USB
Binary inputs (Default, other functions program-mable)	Three: 1. not assigned 2. not assigned 3. not assigned		One: not assigned
Binary outputs (Default, other functions program-mable)	Two relay outputs 1. Limit (Q_{nom} almost reached) 2. Error (e.g. sensor fault) Load capacity: max. 60 V, 1 A, 60 VA		One relay output 1. Limit (Q_{nom} almost reached) Load capacity: max. 25 V, 1 A, 25 VA

8006

Pressure loss diagram (ref. to air, with 250 µm inlet filter)



Nominal flow range of typical gases

(Other gases on request)

Gas	Min. Q_{nom} [l _N /min]	Max. Q_{nom} [l _N /min]
Acetylene	20	320
Ammonia	20	1000
Argon	20	1600
Carbon dioxide	20	1000
Air	20	2500
Methane	20	500
Propane	20	400
Oxygen	20	2500
Nitrogen	20	2500

All values refer to 1.013 bar(a) und 0°C (Index N)



Accessories

Article		Article no.
Connectors / Cables		
Round plug M16 8 pin (Solder connection)		918299
Round plug M16 8 pin with 5 m cable		787733
Round plug M16 8 pin with 10 m cable		787734
Plug D-Sub HD15 15 pin with 5 m cable		787735
Plug D-Sub HD15 15 pin with 10 m cable		787736
Adapters ¹⁾		
RS232 adapter for connection to a computer, connection with an extension cable (Article no. 917039)		654757
Extension cable for RS232 9 pin socket/plug 2 m		917039
RS422-Adapter (RS485 compatible)		666370
USB-Adapter (Version 1.1, USB socket type B)		670696
USB connection cable 2 m		772299
Adapter for manual bus adresse settings (instad of SW)		667525
Software MassFlowCommunicator		Download from web page Type 8006
Accessories for Fieldbus	PROFIBUS DP (B-coded)	CANopen (A-coded)
M12-Plug ²⁾	918198	917115
M12-socket ²⁾	918447	917116
Y-junction ²⁾	902098	788643
T-junction	918531	On request
Terminating resistor	902553	On request
GSD-File (PROFIBUS), EDS-File (CANopen)	Download from web page Type 8006	

1) The adapters serve mainly for initial operation or diagnosis. Those are not obligatory for continuous operation.

2) The two M12 connectors as listed above cannot be used together on the same side of the Y-junction. At least one of the two M12 connection needs to be an overmoulded cable which uses typically a thinner connector.

Mass Flow Controller for Gases (MFC)

8626

- Nominal flow ranges from 20 l_N/min up to 2500 l_N/min
- High accuracy and repeatability
- Short settling times
- Protection class IP65
- Optional: Fieldbus interface



The mass flow controller (MFC) type 8626 is suited for regulating the mass flow of high gas flows. The thermal inline sensor is located directly in the gas stream and therefore reaches very fast response times. A direct-acting proportional valve from Bürkert guarantees a high sensitivity. The integrated PI controller ensures outstanding control characteristics of the MFC.

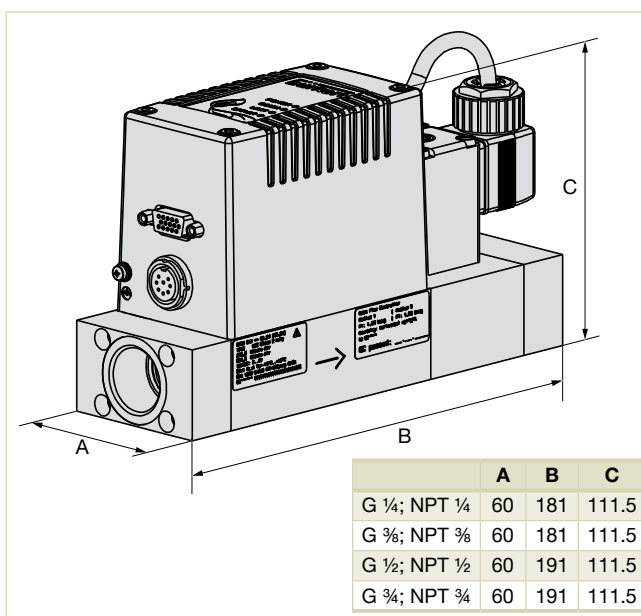
Type 8626 can optionally be calibrated for two different gases; the user can switch between these two gases. As electrical interfaces both, analog standard signals and fieldbuses are available.

The mass flow controller type 8626 is especially designed for use in harsh environments due to a low sensitivity to contamination and the high protection class. The MFC fits for various applications, like e.g. burner controls, heat treatment, metallurgy, food and beverage industry, environmental technology, material coatings, fuel cell technology or test benches.

Technical data

Nominal flow range¹⁾ (Q _{nom})	20...1500 l _N /min ²⁾ , N ₂ equivalent
Turn-down ratio	1:50 ³⁾
Operating gas	Neutral, non-contaminated gases, others available on request
Calibration gas	Operating gas or air with correcting function
Max. operating pressure (inlet pressure)	Up to max. 10 bar, depending on the orifice of the valve
Gas temperature	-10...+70 °C (-10...+60 °C with oxygen)
Ambient temperature	-10...+45 °C (higher temperatures on request)
Accuracy (after 15 min warm up time)	± 1.5 % o.R. ± 0.3 % F.S. (o.R.: of reading; F.S.: of full scale)
Repeatability	± 0.1 % F.S.
Settling time (t_{95%})	< 500 ms
Materials	
Body	Aluminium (black anodized) or stainless steel
Housing	Aluminium (coated)
Seals	FKM, EPDM
Port connection	G ¼, ⅜, ½, ¾, 1 NPT ¼, ⅜, ½, ¾, 1
Control valve	
Valve orifice	Normally closed
K _{vs} value	0.8...12 mm 0.02...2.8 m³/h
Electr. connection	Socket M16, round, 8 pin and socket D-Sub HD15, 15 pin
Additionally with:	
-PROFIBUS-DP	Socket M12 5 pin or D-Sub 9 pin
-CANopen	Plug M12 5 pin or D-Sub 9 pin
with RS485 version only:	Plug D-Sub 9 pin

Dimensions [mm]



Operating voltage	24 V DC
Voltage tolerance	± 10 %
Residual ripple	< 2 %
Power consumption	12.5...37 W (depending on version)
Protection class (with connected cables)	IP65
Total weight (examples)	2.5 kg (Al, 16 W-valve) 4.5 kg (VA, 16 W-valve)
Mounting position	Horizontal or vertical
Light emitting diodes (Default, other functions programmable)	Indication for 1. Power, 3. Limit 2. Communication 4. Error

- 1) The nominal flow value is the max. flow value calibrated which can be controlled. The nominal flow range defines the range of nominal flow rates (full scale values) possible.
2) Index N: Flow rates referred to 1.013 bar(a) and 0 °C.
Alternatively there is an Index S available which refers to 1.013 bar(a) and 20 °C
3) With vertical installation and flow downwards the turn-down ratio is 1:10

Nominal flow range of typical gases

(Other gases on request)

Gas	Min. Q _{nom} [l _N /min]	Max. Q _{nom} [l _N /min]
Acetylene	20	320
Ammonia	20	1000
Argon	20	1500
Carbon dioxide	20	800
Air	20	1500
Methane	20	500
Propane	20	400
Oxygen	20	1500
Nitrogen	20	1500

All values refer to 1.013 bar(a) und 0°C (Index N)



Accessories

8626

Article		Article no.
Connectors/Cables		
Round plug M16 8 pin (solder connection)		918299
Round plug M16 8 pin with 5 m cable		787733
Round plug M16 8 pin with 10 m cable		787734
Plug D-Sub HD15 15 pin with 5 m cable		787735
Plug D-Sub HD15 15 pin with 10 m cable		787736
Adapters ¹⁾		
RS232 adapter for connection to a computer, connection with an extension cable (item no. 917039)		654757
Extension cable for RS232 9 pin socket/plug 2 m		917039
RS422-Adapter (RS485 compatible)		666370
USB-Adapter for D-Sub HD15		670696
USB-Adapter for D-Sub 9 pin (RS485 Version)		670693
USB connection cable 2 m		772299
Adapter for manual bus address settings (instead of SW)		667525
Software MassFlowCommunicator		Download from web page, see Type 8626 ▶
Accessories for Fieldbus	PROFIBUS DP (B-coded)	CANopen (A-coded)
M12-Plug ²⁾	918198	917115
M12-socket (coupling) ²⁾	918447	917116
Y-junction ²⁾	902098	788643
T-junction	918531	On request
Shut-off resistor	902553	On request
GSD-File (PROFIBUS), EDS-File (CANopen)	Download from web page see Type 8626 ▶	

1) The adapters serve mainly for initial operation or diagnosis. Those are not obligatory for continuous operation.

2) The two M12 connectors as listed above cannot be used together on the same side of the Y-junction. At least one of the two M12 connection needs to be a prefabricated cable which uses typically a thinner connector.

Mass Flow Meter for Gases (MFM)

8700

- Nominal flow ranges from 0.005 I_N /min to 15 I_N /min
- High accuracy
- Applicable for aggressive gases
- Optional: Fieldbus interface



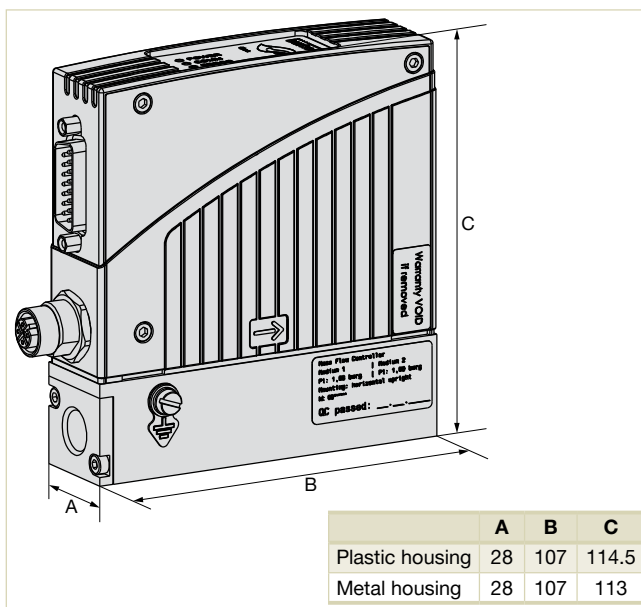
The mass flow meter (MFM) Type 8700 is especially suited for measuring the mass flow of aggressive gases, which need a sensor which is not in direct contact with the gas. The thermal capillary sensor reaches fast response times.

Type 8700 can optionally be calibrated for two different gases; the user can switch between these two gases. As electrical interfaces both, analog standard signals and fieldbuses are available.

Technical data

Full scale ranges¹⁾ (Q_{nom})	5...15000 ml $_N$ /min ²⁾ N ₂ equivalent
Control range	1:50
Operating gases	Neutral, or aggressive gases
Calibration gas	Operating gas or air with conversion factor
Max. operating pressure (inlet pressure)	10 bar (145 psi)
Medium temperature	-10...+70 °C (-10...+60 °C for oxygen)
Ambient temperature	-10...+50 °C, others on request
Accuracy (after 30 min. warm-up time)	± 1.5 % o.R. ± 0.3 % F.S. (o.R.: of reading; F.S.: of full scale)
Repeatability	± 0.1 % F.S.
Response time ($t_{95\%}$)	<3 sec..
Materials	
Body	Stainless steel
Housing	PC (Polycarbonate) or metal
Seals	FKM, EPDM or FFKM
Port connections	NPT 1/4, G 1/4, Screw-in fitting or sub-base, others on request
Electr. connection	D-Sub plug 15 pin With PROFIBUS-DP: Socket M12 5 pin With CANopen: Socket M12 5 pin
Power supply	24 V DC
Voltage tolerance	± 10 %
Residual ripple	<2 %
Power consumption	2.5 W / 5 W (with fieldbus)
Output signal	0...5 V, 0...10 V, 0...20 mA or 4...20 mA
Max. current (voltage output)	10 mA
Max. load (current output)	600 Ω
Digital communication via adapter possible:	RS232, Modbus RTU (via RS adapter) RS485, RS422 or USB (see accessories table)
Fieldbus option	PROFIBUS-DP, CANopen

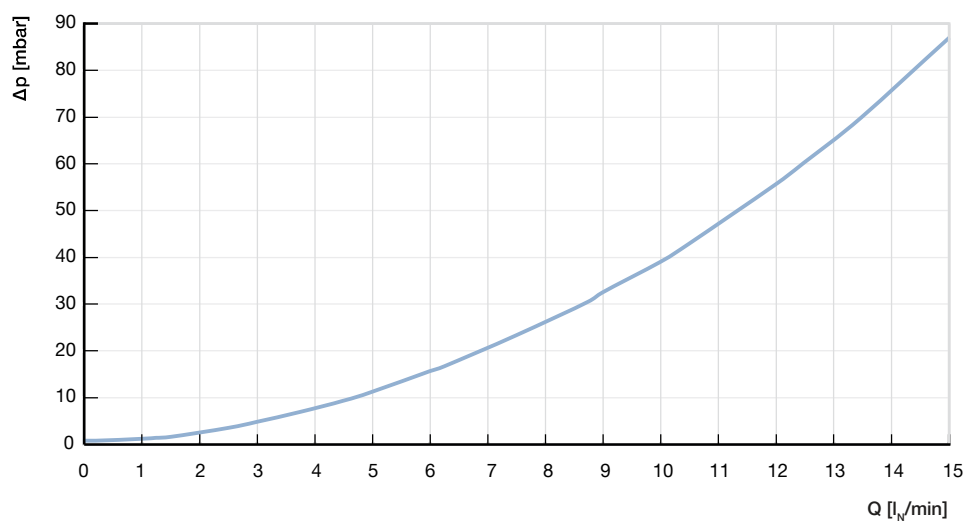
Dimensions [mm]



Protection class	IP40
Total weight	Approx. 850 g (stainless steel)
Mounting position	Horizontal or vertical
Light emitting diode display (default, other allocations possible)	Indication for Power, Limit (only with analog signals)/Communication (only with fieldbus) and Error
Binary input (default, other functions possible)	Two 1. Not assigned 2. Not assigned
Binary output (default, other functions possible)	One relay-output for 1. Limit (process value close to Q_{nom}) Max. load: 25 V, 1 A, 25 VA

- 1) The nominal flow value is the max. flow value calibrated which can be measured. The nominal flow range defines the range of nominal flow rates (full scale values) possible.
- 2) Index N: Flow rates referred to 1.013 bar(a) and 0 °C.
Alternatively there is an Index S available which refers to 1.013 bar(a) and 20 °C

Pressure loss diagram (ref. to air)



The diagram shows exemplarily the pressure loss characteristics when air flows through a flowmeter with 1/4" pipe connection. For determining the pressure loss with another gas it needs to calculate the air equivalent.



Accessories

8700

Article		Article no.
Connections/Cables		
Socket D-Sub 15 pin solder connection		918274
Hood for D-Sub socket, with screw locking		918408
Socket D-Sub 15 pin with 5 m cable		787737
Socket D-Sub 15 pin with 10 m cable		787738
Adapters ¹⁾		
RS232 adapter		654748
PC extension cable for RS232 9 pin socket/plug 2 m		917039
RS422 adapter (RS485 compatible)		666371
USB adapter (Version 1.1, USB socket type B)		670639
USB connection cable 2 m		772299
Communication software MassFlowCommunicator		Download from web page, see Type 8700
Accessories for Fieldbus	PROFIBUS DP (B-coded)	CANopen (A-coded)
Plug M12 ²⁾	918198	917115
Socket M12 (coupling) ²⁾	918447	917116
Y-junction ²⁾	902098	788643
Termination resistor	902553	On request
GSD-File (PROFIBUS), EDS-File (CANopen)	Download from web page, see Type 8700	

1) The adapters serve mainly for initial operation or diagnosis. Those are not obligatory for continuous operation.

2) The two M12 connectors as listed above cannot be used together on the same side of the Y-junction. At least one of the two M12 connections needs to be a prefabricated cable which uses typically a thinner connector.

Mass Flow Meter for Gases (MFM)

8701

- Nominal flow ranges from 0.010 l_N/min to 80 l_N/min
- High accuracy
- Very fast response times
- Optional: Fieldbus interface



Mass flow meters are used in process technology for the direct measurement of the mass flow of gases. In case of volumetric flow meters, it is necessary to measure the temperature and the pressure either the density, because gases change their density or rather their volume depending on the pressure. The measurement of the mass flow, on the other hand, is independent on pressure and the temperature.

The digital mass flow meter, Type 8701, uses a sensor on silicon chip basis located directly in the bypass channel.

Due to the fact that the sensor is directly in the bypass channel a very short response time of the MFM is reached. The actual flow is given as an analog output signal or could be read out over RS communication. Type 8701 can optionally be calibrated for two different gases, the user is able to switch between these two gases. The materials of the parts that come into contact with the medium are selected according to customer specification so that the unit can be operated with the complete range of standard process gases.

Typical application areas are gas flow measurement in

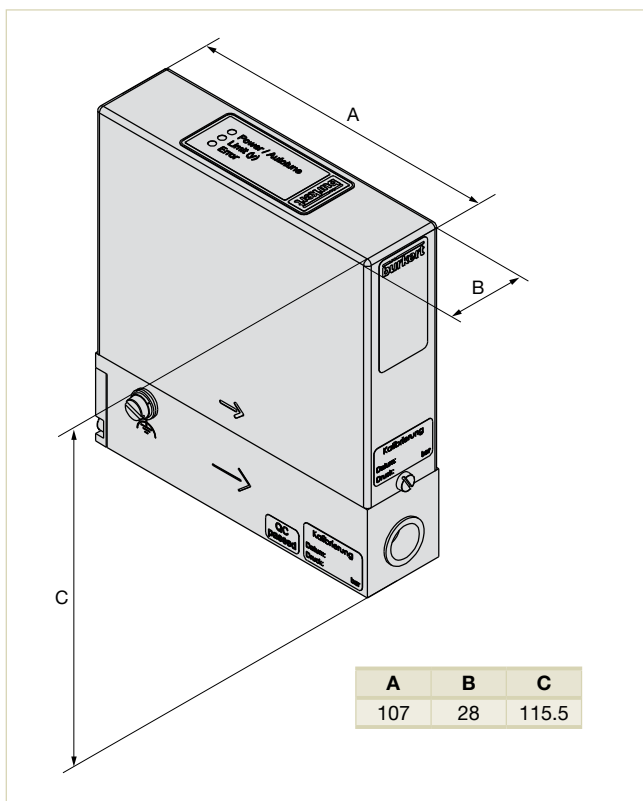
- Test benches
- Environmental technology
- Medical technology and
- Analytical instruments

Note: With the free downloadable communication software, numerous other functions can be programmed. To do this, the MFC / MFM should be connected via an adapter to a computer.

Technical data

Nominal flow range¹⁾ (Q_{nom})	10 ml _N /min ²⁾ ...80 l _N /min (N ₂)
Span	1:50 (2...100 %), (higher span on request)
Operating medium	Neutral, non-contaminated gases, (others on request)
Calibration medium	Operating gas or air with correction function
Max. operating pressure (inlet pressure)	10 bar (145 psi)
Medium temperature	-10...+70 °C (-10...+60 °C with oxygen)
Ambient temperature	-10...+50 °C
Measuring accuracy (after 1 min. warm up time)	±0.8 % of Reading ±0.3 % of Full Scale
Repeatability	±0.1 % of Full Scale
Response time (t_{95%})	<300 ms
Materials	
Body	Aluminium or stainless steel
Housing	PC (Polycarbonate) or metal
Seals	FKM, EPDM
Port connection	G 1/4, others on request

Dimensions [mm]



Electr. connection	Plug D-Sub 15 pin Additionally with Fieldbus: With PROFIBUS DP: Socket M12 5 pin With CANopen: Socket M12 5 pin
Power supply	24 V DC
Voltage tolerance	±10 %
Residual ripple	<2 %
Power consumption	2.5 W
Output signal	0...5 V, 0...10 V, 0...20 mA or 4...20 mA
Max. current (voltage)	10 mA
Max. load (current)	600 Ω
Digital communication via adapter possible:	RS232, Modbus RTU (via RS adapter) RS485, RS422 or USB
Fieldbus option	PROFIBUS DP, CANopen
Protection class	IP40
Total weight	Approx. 500 g (aluminum)

Technical data continued

Installation	Horizontal or vertical
Light emitting diodes (default functions, other functions programmable)	Indication for power, Limit (with analog signals)/ Communication (with Fieldbus) and error
Binary inputs (default functions, other functions programmable)	Two 1. not assigned 2. not assigned
Binary output (default functions, other functions programmable)	A relay output for: 1. Limit (actual value close to Q_{nom}) Max. Load: 25 V, 1 A, 25 VA

- 1) The nominal flow value is the max. flow value calibrated which can be measured.
The nominal flow range defines the range of nominal flow rates (full scale values) possible.
- 2) Index N: Flow rates referred to 1.013 bar(a) and 0 °C.
Alternatively there is an Index S available which refers to 1.013 bar(a) and 20 °C

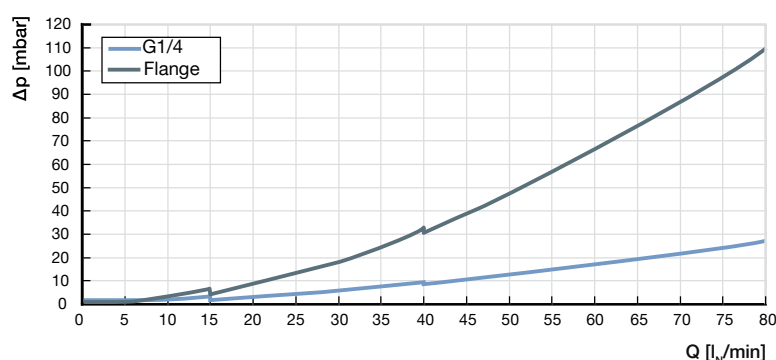
Nominal flow range of typical gases

(Other gases on request)

Gas	Min. Q_{nom} [l _N /min]	Max. Q_{nom} [l _N /min]
Argon	0.01	80
Helium	0.01	500
Carbon dioxide	0.02	40
Air	0.01	80
Methane	0.01	80
Propane	0.03	22
Oxygen	0.01	80
Nitrogen	0.01	80
Hydrogen	0.01	500

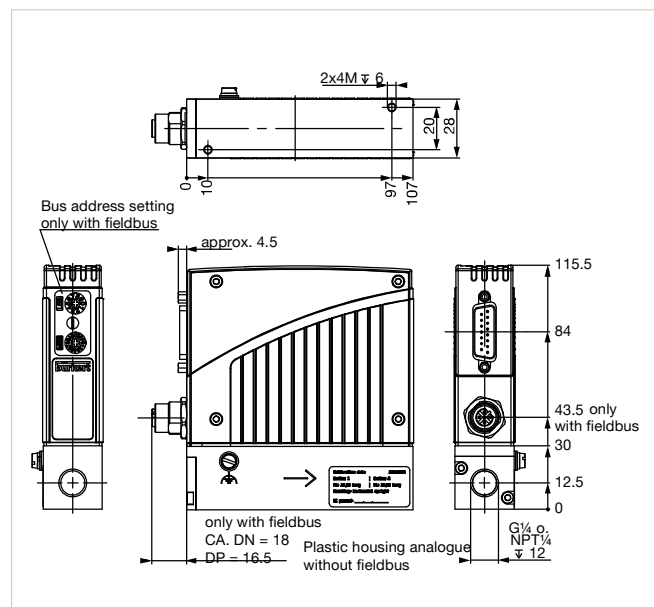
All values refer to 1.013 bar(a) und 0 °C (Index N)

Pressure loss diagram (ref. to air, with 250 µm inlet filter)



The diagram shows exemplarily the pressure loss characteristics when air flowing through. For determining the pressure loss with another gas it needs to calculate the air equivalent and respect the fluidics needed with the other gas.

Dimensions [mm]





Ordering chart

	Operating gas	Flow rate - Full scale	Base block Aluminium	Seal material	Operating pressure [bar(g)]	Signal actual value output	Article no.
8701	Type 8701						
	Air	100 cm ³ N/min	x	FKM	1	4...20 mA	180866
	Air	500 cm ³ N/min	x	FKM	1	4...20 mA	219568
	Air	1 l _N /min	x	FKM	3	0...10 V	226222
	Air	5 l _N /min	x	FKM	1	0...10 V	202858
	Air	10 l _N /min	x	FKM	5	4...20 mA	252074
	Air	25 l _N /min	x	FKM	5	4...20 mA	171006
	Air	50 l _N /min	x	FKM	5	4...20 mA	174412
	Air	80 l _N /min	x	FKM	5	4...20 mA	241884
	Hydrogen	1 l _N /min	x	FKM	5	4...20 mA	251554
	Hydrogen	10 l _N /min	x	FKM	2	0...10 V	235503
	Hydrogen	100 l _N /min	x	FKM	4	4...20 mA	182567
	Hydrogen	200 l _N /min	x	FKM	4	4...20 mA	212355
	Dioxygen	20 l _N /min	x	FKM	4	4...20 mA	253550
	Dioxygen	3 m ³ N/h	x	FKM	4	4...20 mA	181207
	Argon	10 l _N /min	x	FKM	5	4...20 mA	235159
	Argon	30 l _N /min	x	FKM	4	4...20 mA	174419

Notes regarding the selection of the unit

The decisive factors for the perfect functioning of an MFM within the application are the fluid compatibility, the normal inlet pressure and the correct choice of the flow meter range. The pressure drop over the MFM depends on the flow rate and the operating pressure.

Accessories

Article	Article no.	
Connections/Cables		
Socket D-Sub 15 pin solder connection	–	918274
Hood for D-Sub socket, with screw locking	–	918408
Socket D-Sub 15 pin with 5 m cable	–	787737
Socket D-Sub 15 pin with 10 m cable	–	787738
Adapters ¹⁾		
RS232 adapter (for connection of a PC, in combination with the PC cable)	–	654748
PC extension cable for RS232 9 pin socket/plug 2 m	–	917039
RS422 adapter (RS485 compatible)	–	666371
USB adapter (Version 1.1, USB socket type B)	–	670639
Communication software MassFlowCommunicator	–	Download from web page, see Type 8701 ►
Accessories for Fieldbus	PROFIBUS DP (B-coded)	CANopen (A-coded)
Plug M12 ²⁾	918198	917115
Socket M12 ²⁾	918447	917116
Y-junction ²⁾	902098	788643
Terminating resistor	902553	On request
GSD-File (PROFIBUS), EDS-File (CANopen)	Download from web page, see Type 8701 ►	

1) The adapters serve mainly for initial operation or diagnosis. Those are not obligatory for continuous operation.

2) The two M12 connectors as listed above cannot be used together on the same side of the Y-junction. At least one of the two M12 connection needs to be an overmoulded cable which uses typically a thinner connector. A T-junction cannot be used together with this type of MFM.

Mass Flow Meter for Gases (MFM)

8702

- Nominal flow ranges from 0.010 I_N /min to 80 I_N /min
- High accuracy
- Very fast response times
- Protection class IP65
- Optional: Fieldbus interface



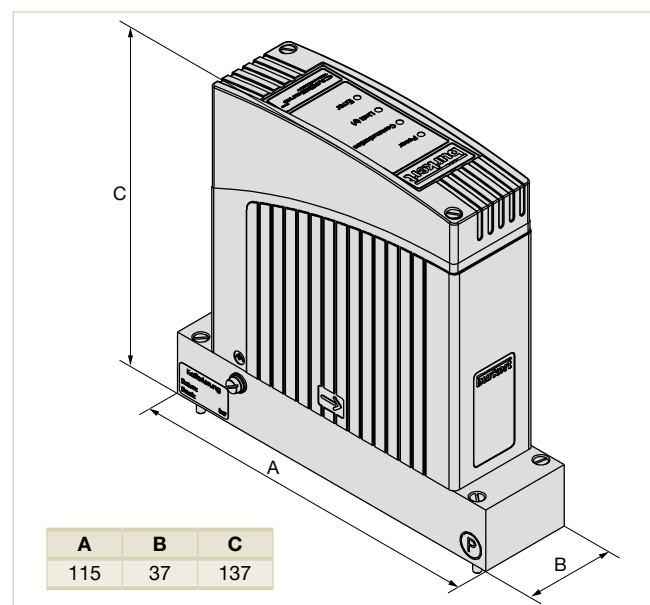
The mass flow meter (MFM) type 8702 is suited for measuring the mass flow of gases over a big flow range. The thermal MEMS sensor is located directly in the gas stream and therefore reaches very fast response times.

Type 8702 can optionally be calibrated for two different gases; the user can switch between these two gases. As electrical interfaces both, analog standard signals and fieldbuses are available. Type 8712 is especially designed for use in harsh environments due to the high protection class.

Technical data

Nominal flow range¹⁾ (Q_{nom})	0.01...80 I_N /min ²⁾ (ref. to N_2)
Turn-down ratio	1:50, wider span on request
Operating gas	Neutral, non-contaminated gases (others on request)
Calibration gas	Operating gas or air with correcting function
Max. operating pressure (inlet pressure)	Up to max. 10 bar (145 psi), depending on the orifice of the valve
Gas temperature	-10...+70 °C (-10...+60 °C with oxygen)
Ambient temperature	-10...+50 °C
Accuracy (after 1 min warm up time)	± 0.8 % o.R. ± 0.3 % F.S. (o.R.: of reading; F.S.: of full scale)
Repeatability	± 0.1 % F.S.
Settling time ($t_{99\%}$)	<300 ms
Materials	
Body	Stainless steel
Housing	PC (Polycarbonate)
Seals	FKM, EPDM (others on request)
Port connection	G 1/4, NPT 1/4 or compression fitting
Electr. connection	Socket M16, round, 8 pin and socket D-Sub HD15, 15 pin
Additionally with fieldbus:	With PROFIBUS-DP: Socket M12 5 pin (for IP65) or D-Sub 9 pin With CANopen: Plug M12 5 pin (for IP65) or D-Sub 9 pin
Operating voltage	24 V DC
Voltage tolerance	± 10 %
Residual ripple	<2 %
Power consumption	Max. 2.5 W (analog communicator) to 5 W (digital communicator)
Output signal (signal output)	0...5 V, 0...10 V, 0...20 mA or 4...20 mA
Max. current, volt. output	10 mA
Max. load, current output	600 Ω
Digital communication via adapter possible:	RS232, Modbus RTU (via RS interface) RS485, RS422 or USB (see accessories table)

Dimensions [mm]



Fieldbus option	Profibus-DP, CANopen (D-Sub HD15 covered with sealed plate with fieldbus MFC)
Protection class (with connected cables)	IP65
Total weight	1000 g
Mounting position	Horizontal or vertical
Light emitting diodes (Default, other functions programmable)	Indication for Power, Communication, Limit, Error
Binary inputs (Default, other functions programmable)	Three various functions programmable
Binary outputs (Default, other functions programmable)	Two relay outputs 1. Limit (Q_{nom} almost reached) 2. Error (i.e. sensor fault) Load capacity: max. 60 V, 1 A, 60 VA

- 1) The nominal flow value is the max. flow value calibrated which can be controlled.
The nominal flow range defines the range of nominal flow rate possible.
- 2) Index N: Flow rates referred to 1.013 bar(a) and 0 °C, alternatively also Index S: Flow rates referred to 1.013 bar(a) and +20 °C.

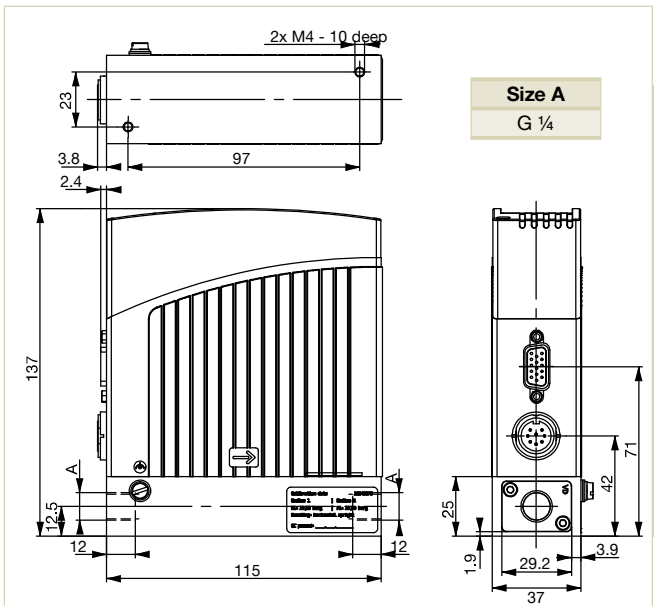
Nominal flow range of typical gases

(Other gases on request)

Gas	Min. Q_{nom} [l _N /min]	Max. Q_{nom} [l _N /min]
Argon	0.01	80
Helium	0.01	500
Carbon dioxide	0.02	40
Air	0.01	80
Methane	0.01	80
Propane	0.03	22
Oxygen	0.01	80
Nitrogen	0.01	80
Hydrogen	0.01	500

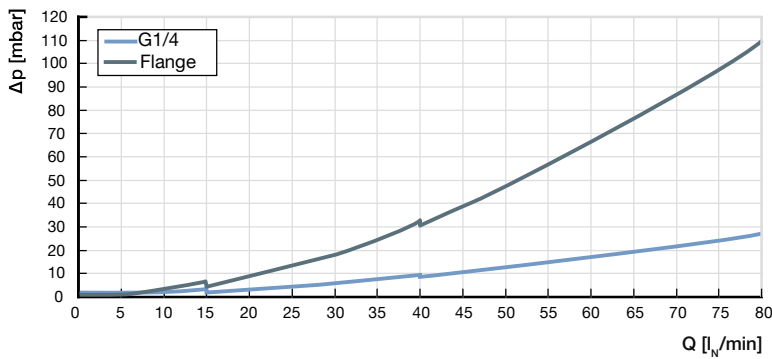
All values refer to 1.013 bar(a) und 0°C (Index N)

Dimensions [mm]



8702

Pressure Loss Diagram (ref. to air, with 250 µm inlet filter)



The diagram shows exemplarily the pressure loss characteristics when air flowing through. For determining the pressure loss with another gas it needs to calculate the air equivalent and respect the fluidics needed with the other gas.

Ordering chart

Operating gas	Flow rate - Full scale	Base block Stainless steel	Seal material	Operating pressure [bar(g)]	Signal actual value output	Article no.
Type 8702						
Air	10 lN/min	yes	FKM	6	4...20 mA	214514 🛒
Air	25 lN/min	yes	FKM	6	4...20 mA	168115 🛒
Air	50 lN/min	yes	FKM	6	4...20 mA	202678 🛒



Accessories

8702

Article		Article no.
Connectors/Cables		
Round plug M16 8 pin (solder connection)		918299
Round plug M16 8 pin with 5 m cable		787733
Round plug M16 8 pin with 10 m cable		787734
Plug D-Sub HD15 15 pin with 5 m cable		787735
Plug D-Sub HD15 15 pin with 10 m cable		787736
Adapters ¹⁾		
RS232 adapter for connection to a computer, connection with an extension cable (item no. 917 039)		654757
Extension cable for RS232 9 pin socket/plug 2 m		917039
RS422-Adapter (RS485 compatible)		666370
USB-Adapter (Version 1.1, USB socket type B)		670696
USB cable 2 m, connection type A to connection type B		772299
Adapter for manual setting of bus address		667525
Software MassFlowCommunicator		Download from web page, see Type 8702 ▶
Accessories for Fieldbus	PROFIBUS DP (B-codiert)	CANopen (A-codiert)
M12-Plug ²⁾	918198	917115
M12-socket (coupling) ²⁾	918447	917116
Y-junction ²⁾	902098	788643
T-junction	918531	On request
Shut-off resistor	902553	On request
GSD-Datei (PROFIBUS), EDS-Datei (CANopen)		Download from web page, see Type 8702 ▶

1) The adapters serve mainly for initial operation or diagnosis. Those are not obligatory for continuous operation.

2) The two M12 connectors as listed above cannot be used together on the same side of the Y-junction. At least one of the two M12 connection needs to be a prefabricated cable which uses typically a thinner connector.

Mass Flow Meter (MFM) for Gases

8703

- Direct flow measurement by MEMS-Technology for nominal flow rates from 10 ml_N/min to 80 l_N/min (N₂)
- High accuracy
- Short response time
- Compact design and digital communication

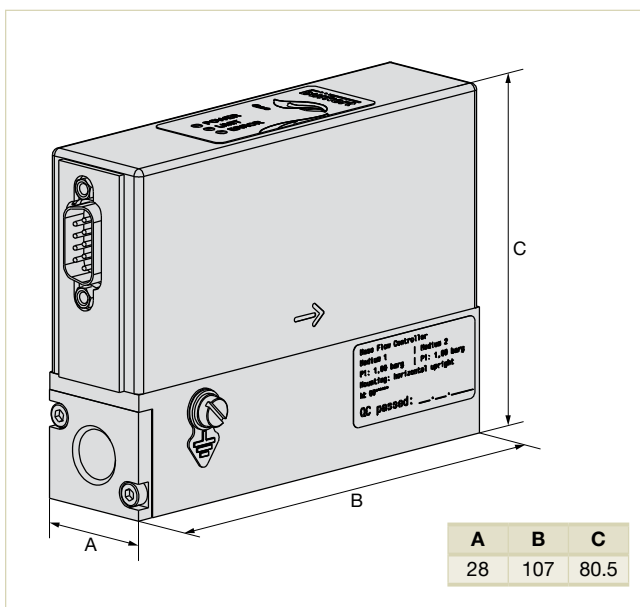


Mass flow meters are used in process technology for the direct measurement of the mass flow of gases. In case of volumetric flow meters, it is necessary to measure the temperature and the pressure or the density, because gases change their density or rather their volume depending on the pressure. The measurement of the mass flow, on the other hand, is independent of the pressure and temperature. The digital mass flow meter type 8703 uses a sensor on silicon chip basis located directly in contact with the gas. Due to the fact that the sensor is directly in the bypass channel a very fast response time of the MFM is reached. The actual flow is given over RS485-communication. Type 8703 can optionally be calibrated for two different gases, the user is able to switch between these two gases. This instrument communicates with master devices digitally, no further A/D conversions needed. The MassFlowCommunicator software can be used for parameterisation and diagnosis.

Technical data

Nominal flow range¹⁾ (Q _{nom})	10 ml _N /min ²⁾ ...80 l _N /min (N ₂)
Turn-down ratio	1:50 (2...100 %), higher turn-down ratio on request
Operating gas	Neutral, non-contaminated gases, on request
Calibration gas	Operating gas or air with conversion factor
Max. operating pressure (inlet pressure)	10 bar (145 psi) depending on the orifice of the valve
Gas temperature	-10...+70 °C (-10...+60 °C with oxygen)
Ambient temperature	-10...+50 °C
Accuracy (after 1 min. warm up time)	±0.8 % o.R. ±0.3 % F.S. (o.R.: of reading; F.S.: of full scale)
Repeatability	±0.1 % F.S.
Response time (t₉₅ %)	<300 ms
Materials	
Body	Aluminium or stainless steel
Housing	Metal
Seals	FKM, EPDM
Port connection	NPT 1/4, G 1/4, screw-in fitting or sub-base, others on request
Electr. connection	Plug D-Sub 9 pin
Power supply	24 V DC
Voltage tolerance	±10 %
Residual ripple	<2 %
Power consumption	5 W
Communication	Digital via RS485 (half-duplex or full-duplex), RS422

Dimensions [mm]



Protection class	IP40
Total weight	Approx. 500 g (aluminium body)
Installation	Horizontal or vertical
Light emitting diodes (default, other functions programmable)	Indication for power, limit and error
Binary Input (default, other functions programmable)	Not assigned
Binary Output (default, other functions programmable)	One relay-output for limit (process value close to full scale value) Max. load: 25 V, 1 A, 25 VA

- 1) The nominal flow value is the max. flow value calibrated which can be controlled. The nominal flow range defines the range of nominal flow rates (full scale values) possible.
- 2) Index N: Flow rates referred to 1.013 bar(a) and 0 °C.
Alternatively Index S which refers to 1.013 bar(a) and 20 °C.

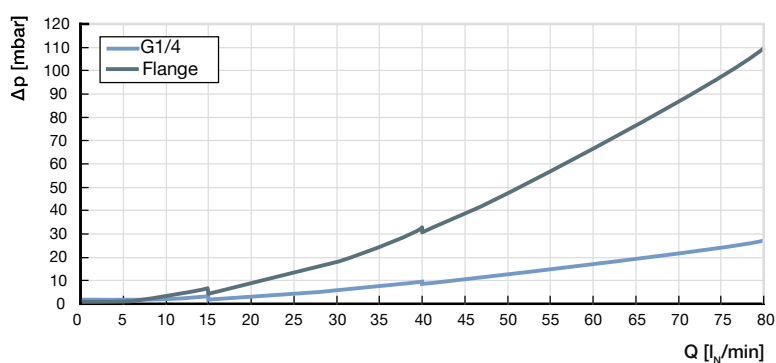
Nominal flow range of typical gases

(Other gases on request)

Gas	Min. Q_{nom} [l _N /min]	Max. Q_{nom} [l _N /min]
Argon	0.01	80
Helium	0.01	500
Carbon dioxide	0.02	40
Air	0.01	80
Methane	0.01	80
Propane	0.03	22
Oxygen	0.01	80
Nitrogen	0.01	80
Hydrogen	0.01	500

All values refer to 1.013 bar(a) und 0°C (Index N)

Pressure Loss Diagram (ref. to air, with 250µm inlet filter)



The diagram shows exemplarily the pressure loss characteristics when air flowing through. For determining the pressure loss with another gas it needs to calculate the air equivalent and respect the fluidics needed with the other gas.

Accessories

Article	Article no.
9 pin electrical connection	
D-Sub socket 9 pin solder connection with housing	917623
Adapters¹⁾	
USB adapter (version 1.1, USB-socket type B)	670693
USB connection cable 2 m	772299
Communication software "MassFlowCommunicator"	Download from web page, see Type 8703

¹⁾ The adapters serve mainly for initial operation or diagnosis. Those are not obligatory for continuous operation.

Mass Flow Controller for Gases (MFC)

8710

- Nominal flow ranges from 0.005 I_N/min to 15 I_N/min
- High accuracy and repeatability
- Applicable for aggressive gases
- Optional: Fieldbus interface

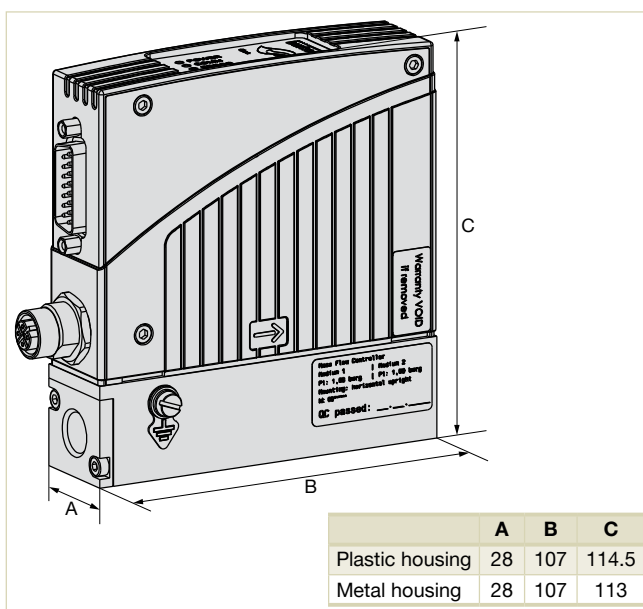


The mass flow controller (MFC) Type 8710 is especially suited for regulating the mass flow of aggressive gases, which need a sensor which is not in direct contact with the gas. The thermal capillary sensor reaches fast response times. A direct-acting proportional valve from Bürkert guarantees a high sensitivity. The integrated PI controller ensures outstanding control characteristics of the MFC. Type 8710 can optionally be calibrated for two different gases; the user can switch between these two gases. As electrical interfaces both, analog standard signals and fieldbuses are available.

Technical data

Full scale ranges¹⁾ (Q_{nom})	5...15000 ml _N /min ²⁾ N ₂ equivalent
Control range	1:50
Operating gases	Neutral, or aggressive gases
Calibration gas	Operating gas or air with conversion factor
Max. operating pressure (inlet pressure)	10 bar (145 psi), depending on the orifice of the valve
Medium temperature	-10...+70 °C (-10...+60 °C for oxygen)
Ambient temperature	-10...+50 °C, others on request
Accuracy (after 30 min. warm-up time)	± 1.5 % o.R. ± 0.3 % F.S. (o.R.: of reading; F.S.: of full scale)
Repeatability	± 0.1 % F.S.
Settling time (t_{95%})	<3 sec.
Materials	
Body	Stainless steel
Housing	PC (Polycarbonate) or metal
Seals	FKM, EPDM, FFKM
Port connections	NPT 1/4, G 1/4, Screw-in fitting or sub-base, others on request
Control valve (proportional valve)	Normally closed
Valve orifice	0.05...2.0 mm
K _{vs} value	0.00006...0.09 m³/h
Electr. connection	D-Sub plug 15 pin With PROFIBUS-DP: Socket M12 5 pin With CANopen: Socket M12 5 pin
Power supply	2 V DC
Voltage tolerance	± 10 %
Residual ripple	<2 %
Power consumption	Max. 3.5...10 W (depends on proportional valve)
Input signal	0...5 V, 0...10 V, 0...20 mA or 4...20 mA
Input impedance	>20 kΩ (voltage), <300 Ω (current)

Dimensions [mm]



Output signal	0...5 V, 0...10 V, 0...20 mA or 4...20 mA
Max. current (voltage output)	10 mA
Max. load (current output)	600 Ω
Digital communication	RS232, Modbus RTU (via RS adapter)
via adapter possible:	RS485, RS422 or USB (see accessories table)
Fieldbus option	PROFIBUS-DP, CANopen
Protection class	IP40
Total weight	Approx. 850 g (stainless steel)
Mounting position	Horizontal or vertical
Light emitting diode display (default, other allocations possible)	Indication for Power, Limit (with analog signals)/ Communication (with fieldbus) and Error
Binary input (default, other functions possible)	Two 1. Start autotune 2. Not assigned
Binary output (default, other functions possible)	One relay-output for 1 setpoint not reached, Max. load: 25 V, 1 A, 25 VA

- 1) The nominal flow value is the max. flow value calibrated which can be controlled. The nominal flow range defines the range of nominal flow rates (full scale values) possible.
- 2) Index N: Flow rates referred to 1.013 bar(a) and 0 °C.
Alternatively there is an Index S available which refers to 1.013 bar(a) and 20 °C

Accessories

Article		Article no.
Connections/Cables		
Socket D-Sub 15 pin solder connection		918274
Hood for D-Sub socket, with screw locking		918408
Socket D-Sub 15 pin with 5 m cable		787737
Socket D-Sub 15 pin with 10 m cable		787738
Adapters ¹⁾		
RS232 adapter		654748
PC extension cable for RS232 9 pin socket/plug 2 m		917039
RS422 adapter (RS485 compatible)		666371
USB adapter (Version 1.1, USB socket type B)		670639
USB connection cable 2 m		772299
Communication software MassFlowCommunicator		Download from web page, see Type 8710 ▶
Accessories for Fieldbus	PROFIBUS DP (B-coded)	CANopen (A-coded)
Plug M12 ²⁾	918198	917115
Socket M12 (coupling) ²⁾	918447	917116
Y-junction ²⁾	902098	788643
Shut-off resistor	902553	On request
GSD-File (PROFIBUS), EDS-File (CANopen)	Download from web page, see Type 8710 ▶	

1) The adapters serve mainly for initial operation or diagnosis. Those are not obligatory for continuous operation.

2) The two M12 connectors as listed above cannot be used together on the same side of the Y-junction. At least one of the two M12 connections needs to be a prefabricated cable which uses typically a thinner connector.

Mass Flow Controller for Gases (MFC)

8711

- Nominal flow ranges from 0.010 I_N /min to 80 I_N /min
- High accuracy and repeatability
- Very fast settling times
- Optional: Fieldbus interface

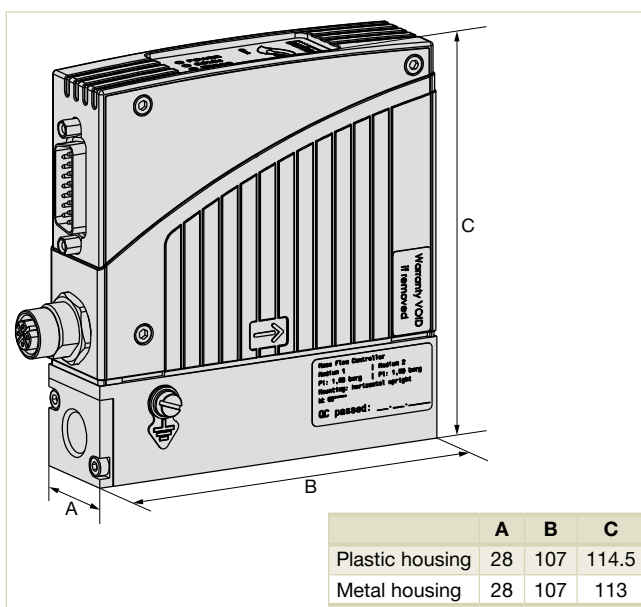


The mass flow controller (MFC) Type 8711 is suited for regulating the mass flow of gases over a big flow range. The thermal MEMS sensor is located directly in the gas stream and therefore reaches very fast response times. A direct-acting proportional valve from Bürkert guarantees a high sensitivity. The integrated PI controller ensures outstanding control characteristics of the MFC. Type 8711 can optionally be calibrated for two different gases; the user can switch between these two gases. As electrical interfaces both, analog standard signals and fieldbuses are available. The mass flow controller type 8711 fits for various applications, like e.g. burner controls, heat treatment, material coatings, bio reactors, fuel cell technology or test benches.

Technical data

Nominal flow range¹⁾ (Q_{nom})	10 ml $_N$ /min ²⁾ ...80 I_N /min (N_2)
Turn-down ratio	1:50, higher turn-down ratio on request
Operating gas	Neutral, non-contaminated gases, on request
Calibration gas	Operating gas or air with conversion factor
Max. operating pressure (inlet pressure)	10 bar (145 psi) depending on the orifice of the valve
Gas temperature	-10...+70 °C (-10...+60 °C with oxygen)
Ambient temperature	-10...+50 °C
Accuracy (after 1 min. warm up time)	±0.8% o.R. ±0.3% F.S. (o.R.: of reading; F.S.: of full scale)
Repeatability	±0.1% F.S.
Settling time ($t_{95\%}$)	<300 ms
Materials	
Body	Aluminium or stainless steel
Housing	PC (Polycarbonate) or metal
Seals	FKM, EPDM
Port connection	NPT 1/4, G 1/4, screw-in fitting or flange, others on request
Regulating unit (Proportional Valve)	
Valve orifice	0.05...4.0 mm
K_{VS} value	0.00006...0.32 m ³ /h
Electr. connection	Plug D-Sub 15 pin
Additionally with fieldbus:	With PROFIBUS-DP: Socket M12 5 pin With CANopen: Socket M12 5 pin
Power supply	24 V DC

Dimensions [mm]



Voltage tolerance	±10%
Residual ripple	<2%
Power consumption	Max. 3.5...14 W (depending on proportional valve used)
Input signal	0...5 V, 0...10 V, 0...20 mA or 4...20 mA
Input impedance	>20 k Ω (voltage), <300 Ω (current)
Output signal	0...5 V, 0...10 V, 0...20 mA or 4...20 mA
Max. current (voltage)	10 mA
Max. load (current)	600 Ω
Digital communication via adapter possible:	RS232, Modbus RTU (via RS adapter) RS485, RS422 or USB (see accessories table)
Fieldbus option	PROFIBUS-DP, CANopen
Protection class	IP40
Total weight	Approx. 500 g (aluminium body)
Installation	Horizontal or vertical
Light emitting diodes (default functions, other functions programmable)	Indication for power, Limit (with analog signals)/ Communication (with fieldbus) and error

Technical data continued

Binary inputs (default functions, other functions programmable)	Two 1. Start Autotune 2. Not assigned
Binary output (default functions, other functions programmable)	A relay output for: 1. Limit (setpoint not reached) Max. Load: 25 V, 1 A, 25 VA

¹⁾ The nominal flow value is the max. flow value calibrated which can be controlled. The nominal flow range defines the range of nominal flow rates (full scale values) possible.
²⁾ Index N: Flow rates referred to 1.013 bar(a) and 0 °C.
Alternatively there is an Index S available which refers to 1.013 bar(a) and 20 °C

Nominal flow range of typical gases

(Other gases on request)

Gas	Min. Q_{nom} [l _N /min]	Max. Q_{nom} [l _N /min]
Argon	0.01	80
Helium	0.01	500
Carbon dioxide	0.02	40
Air	0.01	80
Methane	0.01	80
Propane	0.03	22
Oxygen	0.01	80
Nitrogen	0.01	80
Hydrogen	0.01	500

All values refer to 1.013 bar(a) und 0°C (Index N)



Accessories

8711

Article		Article no.
Connections/Cables		
Socket D-Sub 15 pin solder connection		918274
Hood for D-Sub socket, with screw locking		918408
Socket D-Sub 15 pin with 5 m cable		787737
Socket D-Sub 15 pin with 10 m cable		787738
Adapters¹⁾		
RS232 adapter		654748
PC extension cable for RS232 9 pin socket/plug 2 m		917039
RS422 adapter (RS485 compatible)		666371
USB adapter (Version 1.1, USB socket type B)		670639
USB connection cable 2 m		772299
Communication software MassFlowCommunicator		Download from web page, see Type 8711
Accessories for Fieldbus		PROFIBUS DP (B-coded) CANopen (A-coded)
Plug M12 ²⁾		918198 917115
Socket M12 (coupling) ²⁾		918447 917116
Y-junction ²⁾		902098 788643
Shut-off resistor		902553 On request
GSD-File (PROFIBUS), EDS-File (CANopen)		Download from web page, see Type 8711

1) The adapters serve mainly for initial operation or diagnosis. Those are not obligatory for continuous operation.

2) The two M12 connectors as listed above cannot be used together on the same side of the Y-junction. At least one of the two M12 connection needs to be a prefabricated cable which uses typically a thinner connector.

Mass Flow Controller for Gases (MFC)

8712

- Nominal flow ranges from 0.010 I_N /min to 80 I_N /min
- High accuracy and repeatability
- Very fast settling times
- Protection class IP65
- Optional: Fieldbus interface



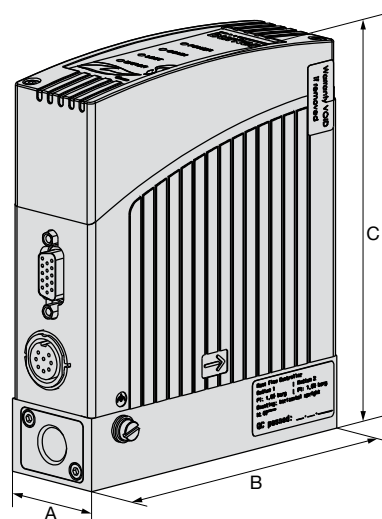
The mass flow controller (MFC) Type 8712 is suited for regulating the mass flow of gases over a big flow range. The thermal MEMS sensor is located directly in the gas stream and therefore reaches very fast response times. A direct-acting proportional valve from Bürkert guarantees a high sensitivity. The integrated PI controller ensures outstanding control characteristics of the MFC. Type 8712 can optionally be calibrated for two different gases; the user can switch between these two gases. As electrical interfaces both, analog standard signals and fieldbuses are available. The mass flow controller type 8712 fits for various applications, like e.g. burner controls, heat treatment, material coatings, bio reactors, fuel cell technology or test benches. This MFC is especially designed for use in harsh environments due to the high protection class.

Technical data

Nominal flow range¹⁾ (Q_{nom})	0.01 ml_N/min ...80 I_N/min (N_2)
Turn-down ratio	1:50, wider span on request
Operating gas	Neutral, non-contaminated gases, others available on request
Calibration gas	Operating gas or air with correcting function
Max. operating pressure (inlet pressure)	Up to max. 10 bar (145 psi), depending on the orifice of the valve
Gas temperature	-10...+70 °C (-10...+60 °C with oxygen)
Ambient temperature	-10...+50 °C
Accuracy (after 1 min warm up time)	±0.8 % o.R. ±0.3 % F.S. (o.R.: of reading; F.S.: of full scale)
Repeatability	±0.1 % F.S.
Settling time ($t_{95\%}$)	<300 ms
Materials	
Body	Stainless steel
Housing	PC (Polycarbonate)
Seals	FKM, EPDM (others on request)
Port connection	G 1/4, NPT 1/4 or compression fitting
Control valve	Normally closed
Valve orifice	0.05...4 mm
KVS value	0.00006...0.32 m^3/h
Electr. connection	Socket M16, round, 8 pin and socket D-Sub HD15, 15 pin
Additionally with fieldbus:	With PROFIBUS-DP: Socket M12 5 pin (for IP65) or D-Sub 9 pin With CANopen: Plug M12 5 pin (for IP65) or D-Sub 9 pin
Operating voltage	24 V DC
Voltage tolerance	±10 %

Dimensions [mm]

Standard version



A	B	C
37	115	137

Residual ripple	<2 %
Power consumption	3.5...14 W (depending on version)
Set point (signal setting)	0...5 V, 0...10 V, 0...20 mA or 4...20 mA
Feed impedance	>20 k Ω (voltage), <300 Ω (current)
Output signal (signal output)	0...5 V, 0...10 V, 0...20 mA or 4...20 mA
Max. current (volt. output)	10 mA
Max. load (current output)	600 Ω
Digital communication via adapter possible:	RS232, Modbus RTU (via RS interface) RS485, RS422 or USB (see accessories table)
Fieldbus option	Profibus-DP, CANopen (D-Sub HD15 covered with sealed plate with fieldbus MFC)
Protection class (with connected cables)	IP65
Total weight	1200 g (Valve internally)
Mounting position	Horizontal or vertical
Light emitting diodes (Default, other functions programmable)	Indication for 1. Power, 2. Communication, 3. Limit, 4. Error

Technical data continued

Binary inputs (Default, other functions programmable)	Three 1. Start Autotune 2. Not assigned, Switch between gases when cal. for two gases 3. Not assigned
Binary outputs (Default, other functions programmable)	Two relay outputs 1. Limit (desired value can not be achieved) 2. Error (e.g. sensor fault) Load capacity: max. 60 V, 1 A, 60 VA

- 1) The nominal flow value is the max. flow value calibrated which can be controlled. The nominal flow range defines the range of nominal flow rates (full scale values) possible.
2) Index N: Flow rates referred to 1.013 bar(a) and 0 °C.
Alternatively there is an Index S available which refers to 1.013 bar(a) and 20 °C.

Nominal flow range of typical gases

(Other gases on request)

Gas	Min. Q_{nom} [l _N /min]	Max. Q_{nom} [l _N /min]
Argon	0.01	80
Helium	0.01	500
Carbon dioxide	0.02	40
Air	0.01	80
Methane	0.01	80
Propane	0.03	22
Oxygen	0.01	80
Nitrogen	0.01	80
Hydrogen	0.01	500

All values refer to 1.013 bar(a) und 0°C (Index N)



Accessories

8712

Article		Article no.
Connectors/Cables		
Round plug M16 8 pin (solder connection)		918299
Round plug M16 8 pin with 5 m cable		787733
Round plug M16 8 pin with 10 m cable		787734
Plug D-Sub HD15 15 pin with 5 m cable		787735
Plug D-Sub HD15 15 pin with 10 m cable		787736
Adapters ¹⁾		
RS232 adapter for connection to a computer, connection with an extension cable (iArticle no. 917039)		654757
Extension cable for RS232 9 pin socket/plug 2 m		917039
RS422-Adapter (RS485 compatible)		666370
USB-Adapter (Version 1.1, USB socket type B)		670696
USB connection cable 2 m		772299
Adapter for manual setting of bus address		667525
Software MassFlowCommunicator		Download from web page, see Type 8712
Accessories for Fieldbus	PROFIBUS DP (B-codiert)	CANopen (A-codiert)
M12-Plug ²⁾	918198	917115
M12-socket (coupling) ²⁾	918447	917116
Y-junction ²⁾	902098	788643
T-junction	918531	On request
Shut-off resistor	902553	On request
GSD-Datei (PROFIBUS), EDS-Datei (CANopen)	Download from web page, see Type 8712	

1) The adapters serve mainly for initial operation or diagnosis. Those are not obligatory for continuous operation.

2) The two M12 connectors as listed above cannot be used together on the same side of the Y-junction. At least one of the two M12 connection needs to be a prefabricated cable which uses typically a thinner connector.

Mass Flow Controller (MFC) for Gases

8713

- Direct flow measurement by MEMS-Technology for nominal flow rates from 10 ml_N/min to 80 l_N/min (N₂)
- High accuracy and repeatability
- Short settling time
- Compact design and digitally communication



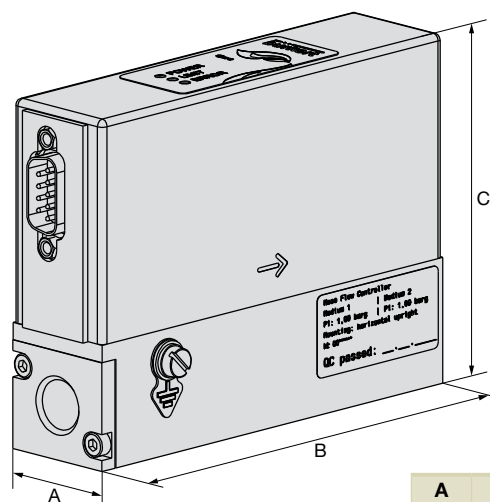
Type 8713 controls the mass flow of gases that is relevant for most applications in process technologies. The measured value will be compared in the digital control electronics with the predefined set point according to the signal; if a control difference is present, the control value output to the proportional valve will be modified using a PI-control algorithm. Due to the fact that the sensor is directly in contact with the gas a very fast response time of the MFC is reached. In this way, the mass flow can be maintained at a fixed value or a predefined profile can be followed, regardless of pressure variations or other changes in the system. Type 8713 can optionally be calibrated for two different gases, the user is able to switch between these two gases. As control element a direct-acting proportional valve guarantees a high sensitivity and a good control characteristics of the MFC. This instrument communicates digitally with master devices, no further A/D conversions needed. The MassFlowCommunicator software can be used for parameterisation and diagnosis.

Technical data

Nominal flow range¹⁾ (Q _{nom})	10 ml _N /min ²⁾ ...80 l _N /min (N ₂)
Turn-down ratio	1:50, higher turn-down ratio on request
Operating gas	Neutral, non-contaminated gases, on request
Calibration gas	Operating gas or air with conversion factor
Max. operating pressure (inlet pressure)	10 bar (145 psi), depending on the orifice of the valve
Gas temperature	-10...+70 °C (-10...+60 °C with oxygen)
Ambient temperature	-10...+50 °C ³⁾
Accuracy (after 1 min. warm up time)	±0.8 % o.R. ±0.3 % F.S. (o.R.: of reading; F.S.: of full scale)
Repeatability	±0.1 % F.S.
Settling time (t_{95%})	<300 ms
Materials	
Body	Aluminium or stainless steel
Housing	Metal
Seals	FKM, EPDM
Port connection	NPT ¼, G ¼, screw-in fitting or sub-base, others on request
Control valve	
Valve orifice	0.05...4.0 mm
KVS value	0.00006...0.32 m³/h
Electr. connection	Plug D-Sub 9 pin
Power supply	24 V DC
Voltage tolerance	±10 %
Residual ripple	<2 %

Dimensions [mm]

Threaded version



A	B	C
28	107	80.5

Power consumption	3.5...11.5 W (depending on control valve used)
Communication	Digital via RS485 (half-duplex or full-duplex), RS422
Protection class	IP40
Total weight	Approx. 500 g (aluminium body)
Installation	Horizontal or vertical
Light emitting diodes (default functions, other functions programmable)	Indication for power, limit and error
Binary inputs (default functions, other functions programmable)	Start Autotune
Binary output (default functions, other functions programmable)	One relay output for: 1. Limit (setpoint not reached) Max. Load: 25 V, 1 A, 25 VA

1) The nominal flow value is the max. flow value calibrated which can be controlled. The nominal flow range defines the range of nominal flow rates (full scale values) possible.

2) Index N: Flow rates referred to 1.013 bar(a) and 0 °C.

Alternatively Index S which refers to 1.013 bar(a) and 20 °C





3) When an internal 5 W valve is used: Max. 40 °C

Nominal flow range of typical gases

(Other gases on request)

Gas	Min. Q_{nom} [l _N /min]	Max. Q_{nom} [l _N /min]
Argon	0.01	80
Helium	0.01	500
Carbon dioxide	0.02	40
Air	0.01	80
Methane	0.01	80
Propane	0.03	22
Oxygen	0.01	80
Nitrogen	0.01	80
Hydrogen	0.01	500

All values refer to 1.013 bar(a) und 0°C (Index N)

Article	Article no.
9 pin electrical connection	
D-Sub socket 9 pin solder connection with housing	917623 
Adapters¹⁾	
USB adapter (version 1.1, USB-socket type B)	670693 
USB connection cable 2 m	772299 
Communication software "MassFlowCommunicator"	Download from web page, see Type 8713 

¹⁾ The adapters serve mainly for initial operation or diagnosis. Those are not obligatory for continuous operation.

Mass Flow Controller (MFC)/ Mass Flow Meter (MFM) for Gases

8741

- Nominal flow ranges from 0.010 lN/min to 160 lN/min
- High accuracy and repeatability
- Very fast response times
- Easy device exchange through configuration memory
- Optional: USP Class VI, FDA, EG 1935 conformity



The mass flow controller (MFC)/meter (MFM) Type 8741 for gases is suitable for a wide range of applications and available with Industrial Ethernet, analogue or fieldbus interfaces. The version with CANopen based Bürkert system bus (bÜS) is suitable for the integration into existing CANopen networks, as well as Industrial Ethernet or fieldbus networks in combination with the fieldbus gateway of Type ME43. The second option is tailor-made for applications with many control loops. Up to 32 MFC/MFM can be connected to one fieldbus gateway. Type ME43 translates the internal CANopen based communication to industry standards for both Industrial Ethernet and fieldbuses. The mass flow controller/meter can always be switched between bÜS and CANopen communication.

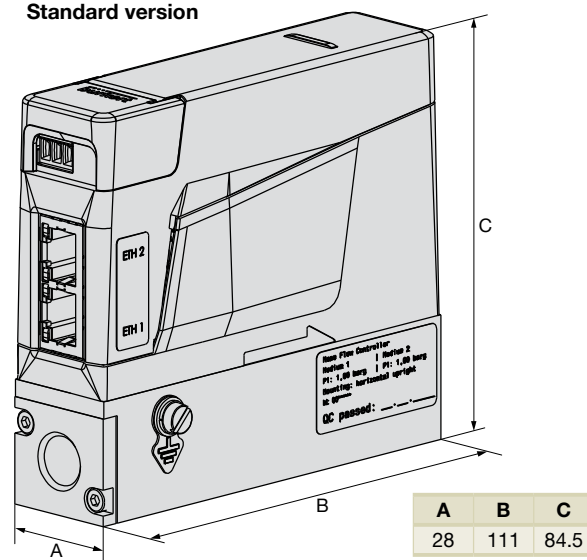
Type 8741 can be configured as MFM or MFC. Optional, up to four different gas calibrations can be stored in the device. The thermal MEMS sensor is located directly in the gas stream and therefore reaches very fast response times. A direct-acting proportional valve as regulating unit guarantees high sensitivity. The integrated PI controller ensures outstanding control characteristics of the MFC/MFM

Technical data

General data	
Nominal flow range (Q_{nom})	10 lN/min...160 lN/min (N ₂)
Turn-down ratio	1:50, optional 1:100
Operating medium	Neutral, non-contaminated gases, others on request
Calibration medium	Operating gas or air
Max. operating pressure (overpressure to the atmospheric pressure)	10 bar (145 psi), for MFCs the max. operating pressure depends on the medium and the nominal valve size
Medium temperature	-10 °C...+70 °C (-10 °C...+60 °C with oxygen)
Ambient temperature	-10 °C...+50 °C (higher temperatures on request)
Measuring accuracy (after 1 min. warm up time)	±0.8 % o.R. ±0.3 % F.S. (o.R.: of reading; F.S.: of full scale)
Repeatability	±0.1 % F.S.
Settling (MFC) / response (MFM) time ($t_{95\%}$)	<300 ms
Materials	
Body	Aluminium or stainless steel
Housing	PC (Polycarbonate)
Seals	FKM or EPDM (dep. on gas)
Port connection	NPT 1/4, G 1/4, flange, clamp ring or vacuum fitting, others on request

Dimensions [mm]

Standard version



Control valve (prop. valve)	Normally closed
Valve orifice range	0.05...8 mm
KVS value range	0.00006...1.1 m³/h
Power Supply	24 V DC
Voltage tolerance	±10 %
Residual ripple	±2 %
Power consumption¹⁾	1...3 W (as MFM), Max. 3...19.5 W (as MFC, depending on type of solenoid control valve)
Configuration memory (included in delivery)	Industrial µSIM card for ease of replacement
Protection class	IP20
Dimensions	Data sheet; see Type 8741 ▶
Total weight	Approx. 500 g (aluminium body)
Installation	Horizontal or vertical
Device status	RGB-LED based on NAMUR NE107

Technical data continued

Electrical connection	
Industrial Ethernet	PROFINET, Ethernet/IP, EtherCAT, Modbus-TCP via 2 x RJ45 (Switch) ²⁾
Fieldbus	büS (CAN-based Bus) / CANopen via terminal block, 4 pin
Analog	4...20 mA, 0...20 mA, 0...10 V or 0...5 V via D-Sub 9 ³⁾ or terminal block 6 pin Input impedance > 20 kΩ (voltage) or < 300 Ω (current) Max. Current: 10 mA (voltage output); Max. Load: 600 Ω (current output)

1) Data refers to the typical power consumption (at 23 °C ambient temperature, nominal flow rate and 30 min control mode). The specifications according to UL 61010-1 can differ (see instruction manual).

2) Supply voltage via separate terminal block

3) The analog version with D-Sub9 features an additional digital input and a relay output

Nominal flow range of typical gases

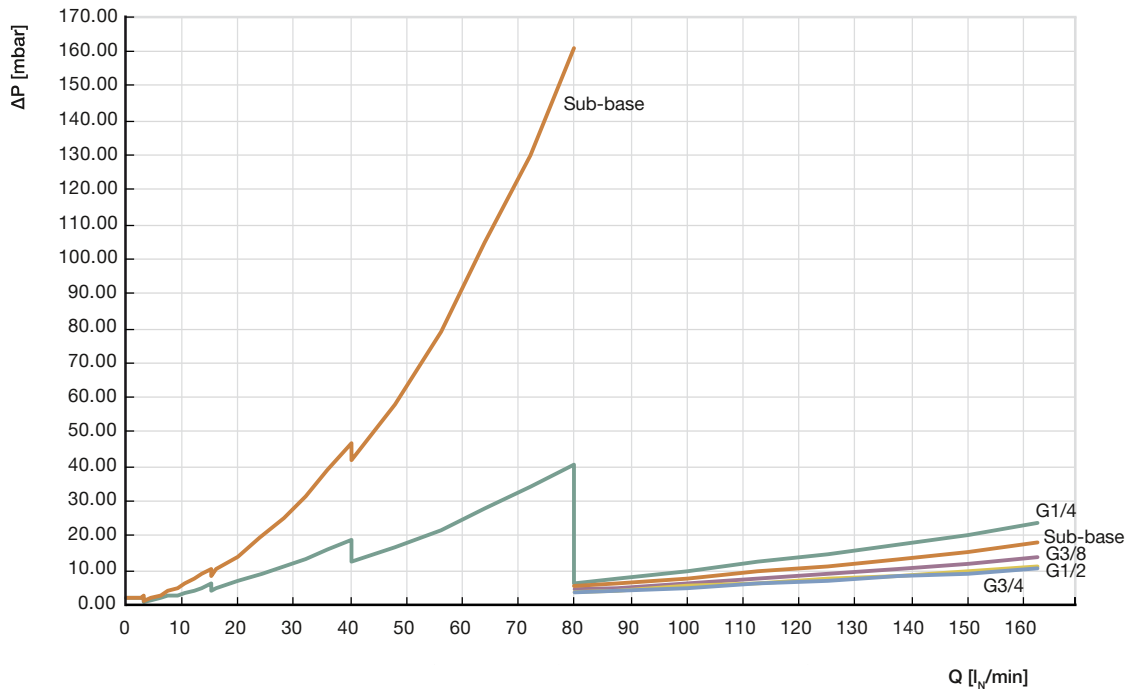
(Other gases on request)

Gas	Min. Q_{nom} [l _N /min]	Max. Q_{nom} [l _N /min]
Acetylene	0.01	65
Argon	0.01	160
Helium	0.01	1000
Carbon dioxide	0.02	80
Air	0.01	160
Methane	0.01	160
Propane	0.03	44
Oxygen	0.01	160
Nitrogen	0.01	160
Hydrogen	0.01	1000

All values refer to 1.013 bar(a) und 0°C (Index N)

Pressure Loss Diagram of a MFM (ref. to air)

Chip Sensor up to 160 l_N/min



The diagram shows exemplarily the pressure loss characteristics when air flowing through.

For determining the pressure loss with another gas it needs to calculate the air equivalent and respect the fluidics needed with the other gas.



8741

Accessories

Article	Article no.
büS-Stick Set 1 (incl. cable (M12 and Micro-USB), büS-Stick with integrated terminating resistor, power supply and other accessories)	772426
büS-Stick Set 2 (incl. cable (M12 and Micro-USB) and büS-Stick with integrated terminating resistor)	772551
Power supply Type 1573 for rail mounting, 100...240 V AC/ 24 V DC, 1.25 A, NEC Class 2 (UL 1310)	772438
Power supply Type 1573 for rail mounting, 100...240 V AC/ 24 V DC, 1 A, NEC Class 2 (UL 1310)	772361
Power supply Type 1573 for rail mounting, 100...240 V AC/ 24 V DC, 2 A, NEC Class 2 (UL 1310)	772362
Power supply Type 1573 for rail mounting, 100...240 V AC/ 24 V DC, 4 A	772363
µSIM-Karte (included in delivery of MFC)	on request
LabVIEW device driver	on request
Device description files for CANopen (EDS), PROFINET (GSDML), Ethernet/IP (EDS), EtherCAT (ESI)	Download from web page, see Type 8741 ▶
Software Bürkert Communicator	Download from web page, see Type 8741 ▶
For 8741 büS / CANopen	
Terminal block 4 pin (included in delivery)	565876
Terminal block 4 pin with integrated 120 Ohm resistance for büS-ending	566066
büS cable, 50 m	772413
büS cable, 100 m	772414
Feldbus Gateway Type ME43 for Industrial Ethernet (PROFINET, Ethernet/IP, Modbus/TCP, EtherCAT)	307390
Feldbus Gateway Type ME43 for PROFIBUS DPV1	307393
For 8741 Analogue	
Terminal block 6 pin (for 8741 Standard; included in delivery of the corresponding analog version)	on request
Connector cable D-Sub 9 to leads, 5 m	580882
Connector cable D-Sub 9 to leads, 10 m	580883

To connect the MFC / MFM with the „Bürkert Communicator“ software tool, you need a büS-stick.

The büS-Stick sets contain the necessary accessories.

For type 8741 büS/CANopen, the connection is made directly via the 4 pin terminal block (büS-Stick Set 1 contains the necessary accessories).

For type 8741 Standard the connection is made via the micro-USB socket on the device (büS-Stick Set 2 contains the necessary accessories).

Attention: The interface to the „Bürkert Communicator“ software tool is based on CANopen (also for type 8741 Standard). The appropriate bus termination is mandatory. Hence, please activate the connectible termination resistor on the büS-Stick for type 8741 Standard.

For type 8741 büS / CANopen, this termination resistor should not be activated, in case the device is already integrated in a properly terminated bus network

Mass Flow Controller (MFC)/ Mass Flow Meter (MFM) for Gases

8742

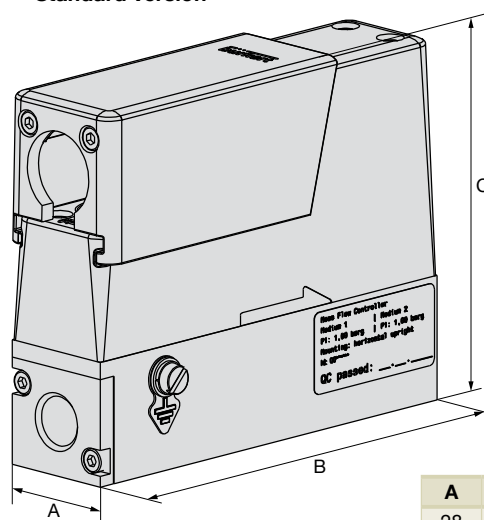
- Nominal flow ranges from 0.010 l_N/min to 160 l_N/min
- High accuracy and repeatability with very fast response times
- Easy device exchange through configuration memory-
- Communication via fieldbus based on CANopen
- Optional: ATEX II Kat. 3G/D or USP Class VI, FDA, EG 1935 conformity



The mass flow controller (MFC) / meter (MFM) Type 8742 for gases is suitable for a wide range of applications. Type 8742 communicates via the Bürkert system bus (bÜS). This CANopen based interface is suitable for the integration into existing CANopen networks, as well as Industrial Ethernet or fieldbus networks in combination with the fieldbus gateway of Type ME43. The second option is tailor-made for applications with many control loops. Up to 32 MFC / MFM can be connected to one fieldbus gateway. Type ME43 translates the internal CANopen based communication to industry standards for both Industrial Ethernet and fieldbuses. The mass flow controller / meter can always be switched between bÜS and CANopen communication. Type 8742 can be configured as MFM or MFC. Optional, up to four different gases calibrations can be stored in the device. The thermal MEMS sensor is located directly in the gas stream and therefore reaches very fast response times. A direct-acting proportional valve as regulating unit guarantees high sensitivity. The integrated PI controller ensures outstanding control characteristics of the MFC / MFM. Type 8742 is especially designed for use in harsh environments due to high protection class and explosion-proof.

Dimensions [mm]

Standard version



A	B	C
28	107	86.5

Technical data

Nominal flow range (Q_{nom})	10 ml _N /min...160 l _N /min (N ₂)
Turn-down ratio	1:50, optional 1:100
Operating medium	Neutral, non-contaminated gases (others on request)
Calibration medium	Operating gas or air
Max. operating pressure	10 bar (145 psi), with MFCs the max. pressure depends on the orifice of the valve
Medium temperature	-10...+70 °C (-10...+60 °C with oxygen)
Ambient temperature	-10...+50 °C (higher temperatures on request)
Accuracy	±0.8 % o.R. ±0.3 % F.S. (after 1 min. warm up time) (o.R.: of reading; F.S.: of full scale)
Repeatability	±0.1 % F.S.
Settling (MFC) / response (MFM) time (t_{95%})	<300 ms
Materials	
Body	Stainless steel or aluminium
Housing	Aluminium die casting (coated)
Seals	FKM or EPDM (depending on gas)

Port connection	NPT 1/4, G 1/4, flange, clamp ring or vacuum fitting, others on request
Control valve (prop. valve)	Normally closed
Valve orifice range	0.05...8 mm
K _{VS} value range	0.00006...1.1 m³/h
Electr. connection	M12 plug, 5 pin
Operating voltage	24 V DC
Voltage tolerance	±10 %
Power consumption¹⁾	Max. 1 W (as MFM), Max. 3...17.5 W (as MFC, independent from Proportional valve Type)
Residual ripple	±2 %
Digital Comm.	CANopen or CAN based bÜS
Removable memory	EEPROM (SIM card: bÜS relevant data and information about spec. control loop in order to ease replacement)
Input-/Output signals	None, communication via bus
Protection class	IP65 and IP67
ATEX compliance	II 3G Ex nA IIC T* Gc X and II 3D Ex tc IIIC T***°C Dc X ²⁾

Technical data continued

Dimensions	Data sheet; see Type 8742 ▶
Total weight	Approx. 950 g (stainless steel body)
Installation	Horizontal or vertical
Device status	RGB-LED based on NAMUR NE107

1) Data refers to the typical power consumption (at 23 °C ambient temperature, nominal flow rate and 30 min. control mode). The specifications according to UL 61010-1 can differ (see instruction manual).

2) Acc. to DIN EN 60079-0 and DIN EN 60079-15, T3/4 and T160 °C/135 °C depending on the device version

Nominal flow range of typical gases

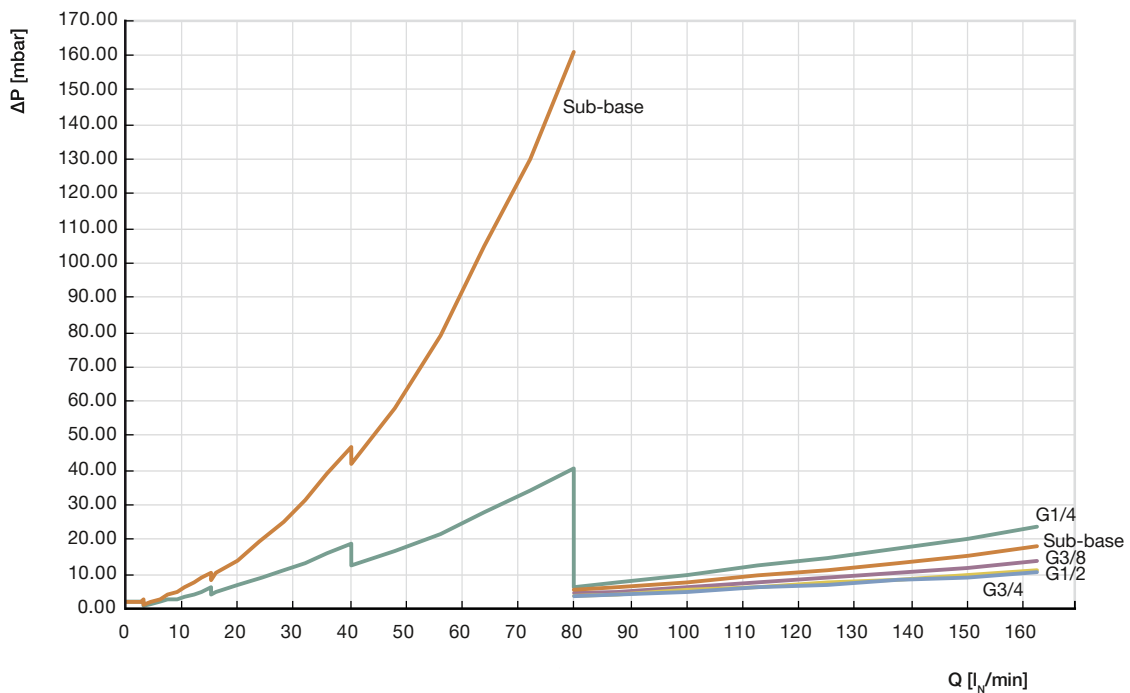
(Other gases on request)

Gas	Min. Q_{nom} [l _N /min]	Max. Q_{nom} [l _N /min]
Acetylene	0.01	65
Argon	0.01	160
Helium	0.01	1000
Carbon dioxide	0.02	80
Air	0.01	160
Methane	0.01	160
Propane	0.03	44
Oxygen	0.01	160
Nitrogen	0.01	160
Hydrogen	0.01	1000

All values refer to 1.013 bar(a) und 0°C (Index N)

Pressure Loss Diagram of a MFM (ref. to air)

Chip Sensor up to 160 l_N/min



The diagram shows exemplarily the pressure loss characteristics when air flowing through.

For determining the pressure loss with another gas it needs to calculate the air equivalent and respect the fluidics needed with the other gas.



8742

Accessories

Article	Article no.
büS cable extension M12 0.1 m	772492
büS cable extension M12 0.2 m	772402
büS cable extension M12 0.5 m	772403
büS cable extension M12 1 m	772404
büS cable extension M12 3 m	772405
Power supply Type 1573 for rail mounting, 100 ... 240 V AC / 24 V DC, 1.25 A, NEC Class 2 (UL 1310)	772438
Power supply Type 1573 for rail mounting, 100 ... 240 V AC / 24 V DC, 1 A, NEC Class 2 (UL 1310)	772361
Power supply Type 1573 for rail mounting, 100 ... 240 V AC / 24 V DC, 2 A, NEC Class 2 (UL 1310)	772362
Power supply Type 1573 for rail mounting, 100 ... 240 V AC / 24 V DC, 4 A	772363
Connector M12, female, straight (A-coded) ¹⁾	772416
Connector M12, male, straight (A-coded) ¹⁾	772417
Connector M12, female, angled (A-coded) ¹⁾	772418
Connector M12, male, angled (A-coded) ¹⁾	772419
Y-junction	772420
Y-junction for connecting two separately powered segments of a büS network	772421
Termination resistor 120 Ohm M12 male	772424
Termination resistor 120 Ohm M12 female	772425
büS-Stick Set 1 (incl. cable (M12 and Micro-USB) Stick with integrated terminating resistor, power supply and software)	772426
büS-Stick Set 2 (incl. cable (M12 and Micro-USB) Stick with integrated terminating resistor)	772551
SIM card	On request
LabVIEW device driver	On request
EDS-File (CANopen)	Download from web page, see Type 8742 ▶
Software Bürkert Communicator	Download from web page, see Type 8742 ▶

1) It is possible that the M12 connectors cannot be used together on the same side of a Y-junction. If that is the case, please use a prefabricated cable which uses typically a thinner connector.

Mass Flow Controller (MFC)/ Mass Flow Meter (MFM) for gases

8745

- Nominal flow ranges from 20 l_N/min up to 2500 l_N/min
- High accuracy and repeatability
- Communication via standard signals or Industrial Ethernet
- Electromagnetic and motor-driven valve actuation available
- Easy device exchange through configuration memory



The MFC / MFM type 8745 is suitable for the mass flow control of high flow rates. Type 8745 can be configured as MFM or MFC. Optional, four different gases can be calibrated.

The thermal inline sensor is located directly in the main gas stream and therefore reaches very fast response times. A direct-acting proportional valve as regulating unit guarantees high sensitivity. The integrated PI controller ensures outstanding control characteristics of the MFC / MFM.

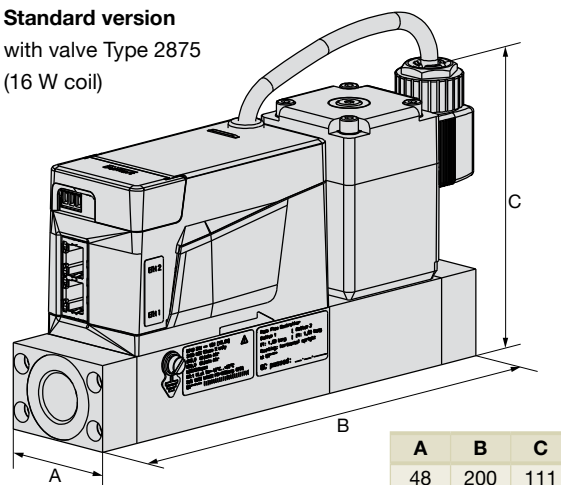
MFC Type 8745 is available in two versions: with electromagnetic proportional valve and with motor-driven proportional valve.

Technical data

General data	
Operating medium	Neutral, non-contaminated gases, others on request
Calibration medium	Operating gas or air with correction function
Medium temperature	-10 °C ¹⁾ ...+70 °C (-10 °C ¹⁾ ...+60 °C with oxygen)
Ambient temperature	-10...+50 °C (higher temperatures on request)
Materials	
Body / Housing	Stainless steel or aluminium / PC (Polycarbonat)
Seals	FKM or EPDM (depending on gas) ²⁾
Port connection	G or NPT ¼, ⅜, ½, ¾, 1, Sub-base
Operating voltage	24 V DC
Voltage tolerance	±10 %
Residual ripple	±2 %
Configuration memory (included in delivery)	EEPROM (µSIM card: bus relevant data and information about spec. control loop in order to ease replacement)
Installation	Horizontal or vertical
Software-Tool	Bürkert Communicator
Electrical connection	
Industrial Ethernet	PROFINET, Ethernet/IP, EtherCAT, Modbus-TCP via 2 x RJ45 (Switch) ³⁾
Analog	4...20 mA, 0...20 mA, 0...10 V or 0...5 V via D-Sub9 ⁴⁾
Input impedance	>20 kΩ (voltage), <300 Ω (current)
Max. current	10 mA (voltage output)
Max. load	600 Ω (current output)
Type 8745 with solenoid proportional valve	
Nominal flow range (Q_{nom})	20...1500 l _N /min (N ₂), MFM up to 2500 l _N /min (N ₂)
Turn-down ratio	50:1 ⁵⁾
Max. operating pressure (Data in overpressure to atmospheric pressure)	10 bar (with MFCs the max. pressure depends on the orifice of the valve) Optional up to 25 bar for MFM

Dimensions [mm]

Standard version
with valve Type 2875
(16 W coil)



Accuracy (after 15 min. warm up time)	±1.5 % o.R. ±0.3 % F.S. (o.R.: of reading; F.S.: of full scale)
Repeatability	±0.1 % F.S.
Settling/Response time (t_{95%})	<500 ms
Proportional valve (solenoid)	Normally closed
Valve orifice range	0.8...12 mm
K _{VS} value range	0.02...2.5 m³/h
Power consumption⁶⁾	Max. 4 W (as MFM), max. 12.5...31.5 W (as MFC, depending on proportional valve type)
Protection class	IP20
Total weight	Approx. 1.8 kg (Al, 16 W-valve), Approx. 3.1 kg (VA, 16 W-valve)
Device status	RGB-LED based on NAMUR NE107
Type 8745 with motor-driven proportional valve	
Nominal flow range (Q_{nom})	20...2500 l _N /min (N ₂)
Turn-down ratio	50:1 ⁷⁾
Max. operating pressure (Data in overpressure to atmospheric pressure)	22 bar (with MFCs the max. pressure depends on the orifice of the valve)
Accuracy (after 15 min. warm up time)	±2 % o.R. ±0.5 % F.S. (o.R.: of reading; F.S.: of full scale)
Repeatability	±0.5 % F.S.
Settling times (t_{95%})	<5 sec.

Technical data continued

Proportional valve (motor-driven)	Normally persisting
Valve orifice range	2...20 mm
K_{vs} value range	0.5...7.8 m ³ /h
Power consumption⁹⁾	Max. 4 W (as MFM) Max. 12 W (as MFC ⁸⁾)
Protection class	IP20
Total weight	Approx. 1.67 kg (AI, standard, valve 3280), Approx. 2.94 kg (VA, standard, valve 3280)
Device status⁹⁾	For MFM: RGB-LED acc. to NAMUR NE107 For valve: RGB-LED to indicate the valve opening

- 1) When using a motor valve the minimum medium temperature is 0 °C.
- 2) When using a motor valve additionally: - Type 3280 DN4: Seat seal in PEEK
- Type 3285: Seat seal in Al₂O₃
- 3) Supply voltage via separate terminal block.
- 4) The analog version with D-Sub9 features an additional digital input and a relay output.
- 5) With vertical installation and flow downwards the turn-down ratio is 10:1
- 6) Referring to the typical power consumption (at 23 °C ambient temperature, nominal flow and 30 min. regular operation) The data according to UL 61010-1 may differ (see manual)

Nominal flow range of typical gases

(Other gases on request)

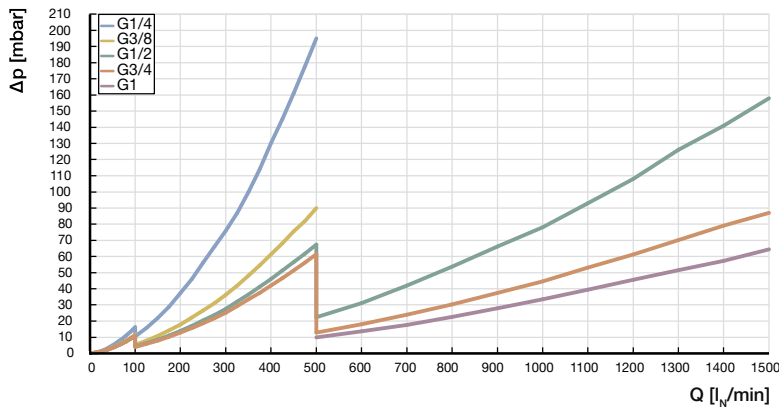
Gas	Min. Q_{nom} [l _N /min]	Max. Q_{nom} [l _N /min]
Acetylene	20	320
Ammonia	8	1000
Argon	20	1600
Carbon dioxide	20	1000
Air	20	2500
Methane	20	500
Propane	20	400
Oxygen	20	2500
Nitrogen	20	2500
Hydrogen	0,01	500

All values refer to 1.013 bar(a) und 0°C (Index N)

- 7) With vertical installation and flow downwards the turn-down ratio is 10:1
- 8) Data during moving of the valve. The power to hold a specific valve opening < 1 W
- 9) Detailed description of the LED colors: see manual
- 10) Other gases on request

8745

Pressure Loss Diagram of a MFM (ref. to air)



The diagram shows exemplarily the pressure loss characteristics when air flowing through. For determining the pressure loss with another gas it needs to calculate the air equivalent and respect the fluidics needed with the other gas.



Accessories

8745

Article	Article no.
büS-Stick Set 2 (incl. cable (M12 and Micro-USB) Stick with integrated terminating resistor)	772551
Power supply Type 1573 for rail mounting, 100 – 240 V AC/ 24 V DC, 1.25 A, NEC Class 2 (UL 1310)	772438
Power supply Type 1573 for rail mounting, 100 – 240 V AC/ 24 V DC, 1 A, NEC Class 2 (UL 1310)	772361
Power supply Type 1573 for rail mounting, 100 – 240 V AC/ 24 V DC, 2 A, NEC Class 2 (UL 1310)	772362
Power supply Type 1573 for rail mounting, 100 – 240 V AC/ 24 V DC, 4 A	772363
µSIM-Card (included in delivery of MFC)	On request
LabVIEW device driver	On request
Device description files for PROFINET (GSDML), Ethernet/IP (EDS), EtherCAT (ESI)	Download from web page, see Type 8745 ▶
Software Bürkert Communicator	Download from web page, see Type 8745 ▶
For 8745 Analogue	
Terminal block 6 pin (for 8745 Standard; included in delivery of the corresponding analog version)	On request
Connector cable D-Sub 9 to leads, 5 m	580882
Connector cable D-Sub 9 to leads, 10 m	580883

To connect the MFC / MFM with the „Bürkert Communicator“ software tool, you need a büS-stick. The connection is made via the micro-USB socket on the device (büS-Stick Set 2 contains the necessary accessories).

Attention: The interface to the „Bürkert Communicator“ software tool is based on CANopen. The appropriate bus termination is mandatory. Hence, please activate the connectible termination resistor on the büS-Stick.

Mass Flow Controller (MFC)/ Mass Flow Meter (MFM) for Gases

8746

- Nominal flow ranges from 20 l_N/min up to 2500 l_N/min
- High accuracy and repeatability
- Communication via fieldbus based on CANopen
- Optional: ATEX II Cat. 3G/D
- Electromagnetic and motor-driven valve actuation available



The mass flow controller/meter Type 8746 for gases is intended for the use in a bÜS or CANopen network. The bÜS network technology is based on CAN physics and was developed by Bürkert especially for Industrial Ethernet or fieldbus communication in applications with multiple control loops. In combination with the system control unit (SCU) Type ME2X, the CANopen based communication can be translated to the customer's fieldbus. The mass flow controller (MFC)/meter (MFM) can always be switched between bÜS and CAN-open communication. Given that, Type 8746 can also be directly integrated into existing CANopen networks.

Type 8746 can be configured as MFM or MFC. Optional, four different gases can be calibrated. The thermal inline sensor is located directly in the main gas stream and therefore reaches very fast response times. A direct-acting proportional valve as regulating unit guarantees high sensitivity. The integrated PI controller ensures outstanding control characteristics of the MFC/MFM.

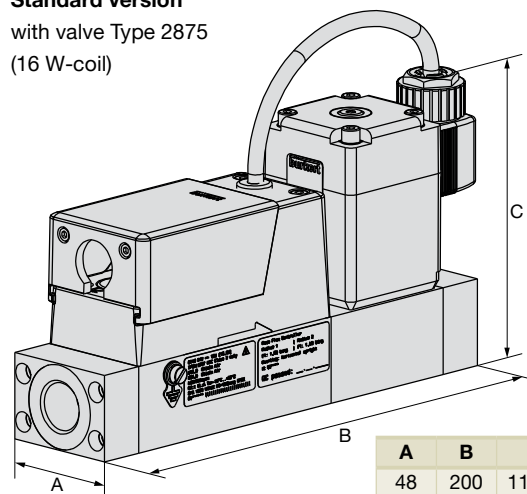
Type 8746 is especially designed for use in harsh environments due to a low sensitivity to contamination, high protection class and explosion-proof.

Technical data

General data	
Operating medium	Neutral, non-contaminated gases (others on request)
Calibration medium	Operating gas or air with correction function
Medium temperature	- 10 °C ¹⁾ ...+ 70 °C (- 10 °C ¹⁾ ...+ 60 °C with oxygen)
Ambient temperature	- 10...+ 50 °C (higher temperatures on request)
Materials	
Body	Stainless steel or aluminium
Housing	Aluminium diecasting (coated)
Seals	FKM or EPDM (depending on gas) ²⁾
Port connection	G ¼, ⅜, ½, ¾, 1, NPT ¼, ⅜, ½, ¾, 1, Sub-base
Electr. connection	M12 plug, 5 pin
Operating voltage	24 V DC
Voltage tolerance	± 10 %
Residual ripple	± 2 %
Digital Comm.	CANopen or CAN based bÜS
Configuration memory (included in delivery)	EEPROM (µSIM card: bÜS relevant data and information about spec. control loop in order to ease replacement)

Dimensions [mm]

Standard version
with valve Type 2875
(16 W-coil)



A	B	C
48	200	111.05

Input/Output signals	None, communication via bus
Installation	Horizontal or vertical

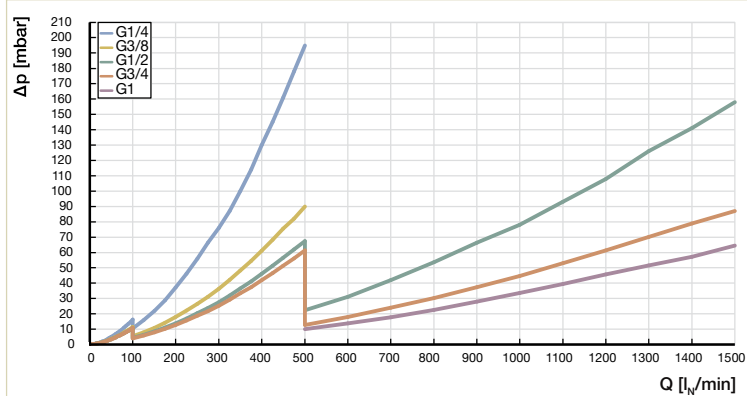
- 1) When using a motor valve the minimum medium temperature is 0 °C.
- 2) When using a motor valve additionally:
 - Type 3280 DN4: Seat seal in PEEK
 - Type 3285: Seat seal in Al₂O₃

Nominal flow range of typical gases (Other gases on request)

Gas	Min. Q _{nom} [l _N /min]	Max. Q _{nom} [l _N /min]
Acetylene	20	320
Ammonia	8	1000
Argon	20	1600
Carbon dioxide	20	1000
Air	20	2500
Methane	20	500
Propane	20	400
Oxygen	20	2500
Nitrogen	20	2500
Hydrogen	0,01	500

All values refer to 1.013 bar(a) und 0°C (Index N)

Pressure Loss Diagram of a MFM (ref. to air)



The diagram shows exemplarily the pressure loss characteristics when air flowing through. For determining the pressure loss with another gas it needs to calculate the air equivalent and respect the fluidics needed with the other gas.



Accessories

8746

Article	Article no.
büS cable extension M12 0.1 m	772492
büS cable extension M12 0.2 m	772402
büS cable extension M12 0.5 m	772403
büS cable extension M12 1 m	772404
büS cable extension M12 3 m	772405
Connector M12, female, straight (A-coded) ¹⁾	772416
Connector M12, male, straight (A-coded) ¹⁾	772417
Connector M12, female, angled (A-coded) ¹⁾	772418
Connector M12, male, angled (A-coded) ¹⁾	772419
Power supply Type 1573 for rail mounting, 100...240 V AC/ 24 V DC, 1.25 A, NEC Class 2 (UL 1310)	772438
Power supply Type 1573 for rail mounting, 100...240 V AC/ 24 V DC, 1 A, NEC Class 2 (UL 1310)	772361
Power supply Type 1573 for rail mounting, 100...240 V AC/ 24 V DC, 2 A, NEC Class 2 (UL 1310)	772362
Power supply Type 1573 for rail mounting, 100...240 V AC/ 24 V DC, 4 A	772363
Y junction	772420
Y junction for connecting two separately powered segments of a büS network	772421
Termination resistor 120 Ohm M12 male	772424
Termination resistor 120 Ohm M12 female	772425
büS-Stick Set 1 (incl. cable (M12), büS termination, power supply, and software)	772426
büS-Stick Set 2 (incl. cable (M12))	772551
SIM card	On request
LabVIEW device driver	On request
EDS-File (CANopen)	Download from web page, see Type 8746 ▶
Software Bürkert Communicator	Download from web page, see Type 8746 ▶

¹⁾ It is possible that the M12 connectors cannot be used together on the same side of a Y-junction. If that is the case, please use a prefabricated cable which uses typically a thinner connector.

Fieldbus Gateway

ME43

- Gateway for industrial Ethernet and fieldbus standards
- Up to 128 input and 128 output variables can be assigned
- Easy integration in the process control level through system-specific device description files
- Graphical programming for automation of sub-systems



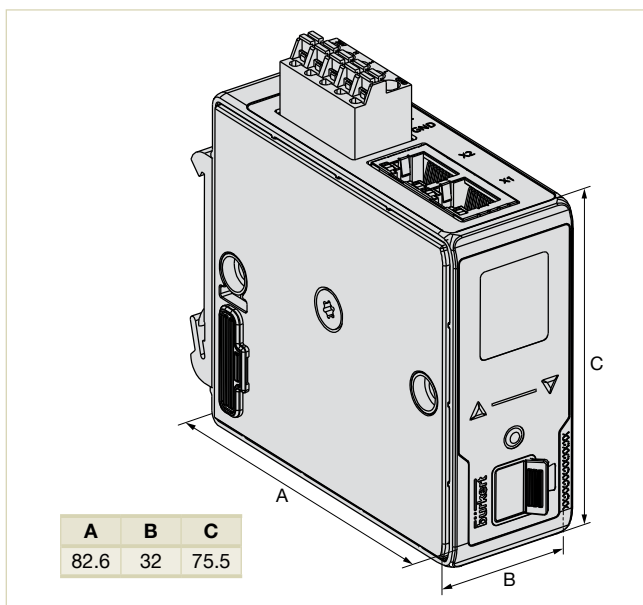
The fieldbus gateway Type ME43 is the central control unit for Bürkert products (valves, sensors, mass flow controllers or displays), which are based on EDIP ("Efficient Device Integration Platform"). The basic version of Type ME43 consists of a fieldbus coupler which transmits the internal CANopen- based communication of the Bürkert field devices to industry standards for industrial Ethernet and fieldbus.

With the help of graphical programming, which the module supports, sub-systems can be automated specifically to the customer's needs (e.g. controlled mixing of gases, error monitoring through limit value switches, time switches).

Technical data

Housing material	PC (Polycarbonate)
Gateway functionality (Integrated switch for Industrial Ethernet)	PROFINET EtherNet/IP Modbus/TCP PROFIBUS DPV1 EtherCAT
Configuration storage	Micro SD Card (not included in delivery) - (for storing device parameters, configuration and easy replacement of a module)
Operating voltage	24 V DC $\pm 10\%$ - residual ripple 10 %
Current limitation at 24 V	3.2 A
Output current at 3.3 V and 5 V (max.)	400 mA
Light diodes Housing (external)	RGB-LED based on NAMUR NE107
Power consumption	2 W
Ambient temperature	-20...+60 °C
Protection class ME43 (Fieldbus Gateway)	IP20
Installation	Horizontal or vertical on DIN rail EN 50022
Certificates PROFINET (PNO) EtherNet/IP (ODVA)	Certificate Z11908 DOC 11648
Approvals UL ATEX IECEX	cULus Listed Certificate: E238179 II 3G Ex ec IIC T4 Gc Certificate: BVS 18 ATEX E 051 X Ex ec IIC T4 Gc Certificate: IECEX BVS 18.0041X

Dimensions [mm]



Note: Pin assignment and further information in data sheet, see **Type ME43** ▶.

Ordering chart

Article	Article no. Standard	Article no. AirLINE Typ 8652
Gateway Industrial Ethernet (PROFINET, EtherNet/IP, Modbus TCP, EtherCAT)	307390	301799
Gateway PROFIBUS DPV1	307393	301803
Gateway CANopen (bÜS)	307391	301802

Important note: Please note that the ME43 Gateway modules are not factory configured. However, these must be configured in order to be used in a system. The device description files for the required protocols must be generated with the Communicator software before commissioning a system. For further details, please refer to the operating instructions for ME43.

Accessories

Article	Article no.
bÜS cable extension M12 0.1 m	772492
bÜS cable extension M12 0.2 m	772402
bÜS cable extension M12 0.5 m	772403
bÜS cable extension M12 1 m	772404
bÜS cable extension M12 3 m	772405
Connector M12, female, straight (A-coded) ¹⁾	772416
Connector M12, male, straight (A-coded) ¹⁾	772417
Connector M12, female, angled (A-coded) ¹⁾	772418
Connector M12, male, angled (A-coded) ¹⁾	772419
Y connector	772420
Y connector for connecting two separately powered segments of a bÜS network	772421
Termination resistor (directly pluggable)	303833
Termination resistor 120 Ohm M12 male	772424
Termination resistor 120 Ohm M12 female	772425
Power supply Type 1573 for rail mounting, 100 – 240 V AC/ 24 V DC, 1.25 A, NEC Class 2 (UL 1310)	772438
Power supply Type 1573 for rail mounting, 100 – 240 V AC/ 24 V DC, 1 A, NEC Class 2 (UL 1310)	772361
Power supply Type 1573 for rail mounting, 100 – 240 V AC/ 24 V DC, 2 A, NEC Class 2 (UL 1310)	772362
Power supply Type 1573 for rail mounting, 100 – 240 V AC/ 24 V DC, 3,8 A, NEC Class 2 (UL 1310)	772898
Power supply Type 1573 for rail mounting, 100 – 240 V AC/ 24 V DC, 10 A	772698
Micro SD Card	774087
bÜS-Stick Set 1 (incl. cable (M12)), stick with integrated termination resistor, power supply and software	772426
bÜS-Stick Set 2 (incl. cable (M12)), stick with integrated termination resistor	772551
License for graphical programming (only required for a running time > 60 minutes)	567713
Software Bürkert Communicator	Download from web page, see Type ME43 ▶

¹⁾ Due to lack of space, the M12 single connectors may not be suitable for their simultaneous use on the same side of the Y connector. Please use the available ready-made assembled cable in this case.

I/O Modules, IP20

ME44

- I/O modules with configuration possibilities for a diverse range of applications
- Integrated diagnosis possibilities like wire break, short circuit
- Assembly and disassembly possible completely without tools
- Color coded connectors reduce the risk of error during wiring
- Removable terminal block with PUSH-I_N spring connection

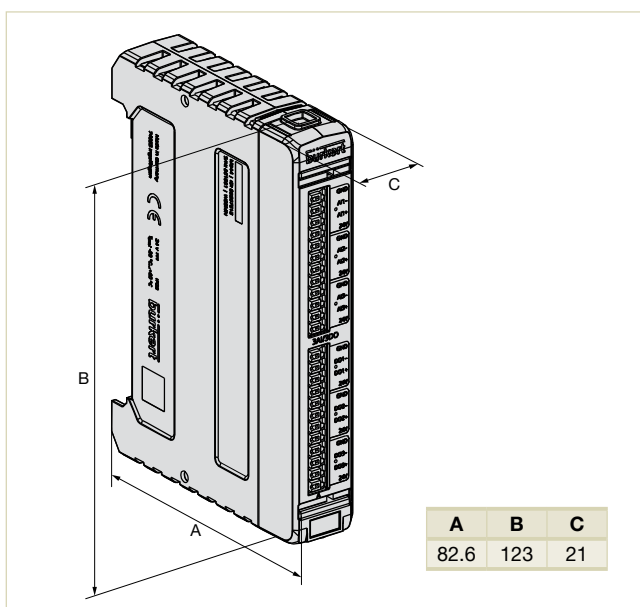


The fieldbus gateway (ME43) is the central control unit and can be expanded with Bürkert I/O modules of Type ME44 to integrate sensors, actuators or valves via standard signals like 4...20 mA, 0...10 V etc. The 8-channel digital input (8DI) module can be used for 2-wire sensors as well as mechanical switches. The module also has 4 channels which can be configured as frequency inputs. The innovative 6-channel module combines 3 analog inputs and 3 digital outputs in one module (3AI-3DO). With the programmable fieldbus gateway and the 3AI-3DO module control functions can be implemented with utmost ease.

Technical data-

General data	
Housing material	Polycarbonate
Ambient temperature	-20...+60 °C
Status indicator	RGB LED based on NAMUR NE107, status LEDs per channel
Wire connection cross-section	0.20...1.5 mm ²
Ambient conditions	
Altitude above sea level (environment)	Max. 2000 m
Storage temperature	-30...+80 °C
Ambient temperature	-20...+60 °C
Electrical specifications	
Operating voltage	24 V DC \pm 10 % via the backplane BPX3
Power input (max.)	
3AI – 3DO (in progress)	<3 W, if the I/Os are supplied via bÜS, the total current is internally limited to 2 A
8DI Module	<2 W
Protection class	IP20 according to EN 60529 / IEC 60529
3AI-3DO Module: Analog input (AI)	
Electrical version	Current input or voltage input
Operating mode	0...20 mA 4...20 mA 0...10 V 0...5 V 0...2 V
Accuracy	0.1 % at 25 °C Temperature coefficient: Current input: \pm 15 ppm/K Voltage input: \pm 20 ppm/K
Input impedance	Current measurement at 25 °C \leq 100 Ohm Voltage measurement at 25 °C \geq 120 kOhm
Galvanic separation	Yes, to the system bus and system voltage

Dimensions [mm]



Configurable input (AI as DI)	AI can also be used as DI (configuration via Software Tool - Communicator)
Diagnosis	Detection of error states (at 3.5 mA and 22 mA according to NAMUR NE43) Open loop detection (only for voltage input)
3AI-3DO Module: Digital output (DO: NPN output/N-switching)	
Electrical version	Transistor output
Operating mode	On-Off Threshold PWM (Pulse Width Modulation) PFM (Pulse Frequency Modulation)
Output current	Max. 750 mA per channel Max. 2 A per module (supplied via the backplane)
Diagnosis	Short circuit detection (channel wise only with external power supply)
8-DI Module (Sinking digital input) – suitable for 2-wire sensors and mechanical limit switches	
Electrical version	24 V DC \pm 10 %
Switching threshold	V _{OFF} = 0...5 V V _{ON} = 10...26.4 V
Input current for V _{ON} , type. 24 V DC	max. 6.8 mA

Technical data continued

Number of frequency inputs	4 (channel 1, 2, 5, 6)
Frequency input	Max. to 2.5 kHz
Diagnosis	Open-loop detection for 2-wire sensors

Note: Electrical layout and wiring diagram 3AI-3DO module in data sheet, see **Type ME44** ►.

Ordering chart

Description	Article no.
3x Analog inputs – 3x Digital outputs 3AI-3DO Module (ME44)	307512
8x Digital inputs 8DI Module (ME44)	307511
Backplane 3-fold (BPX3)	307510

Accessories

Description	Article no.
büS cable extension M12 0.1 m	772492
büS cable extension M12 0.2 m	772402
büS cable extension M12 0.5 m	772403
büS cable extension M12 1 m	772404
büS cable extension M12 3 m	772405
Socket M12 straight (A-coded) ¹⁾	772416
Connector M12 straight (A-coded) ¹⁾	772417
Socket M12 angled (A-coded) ¹⁾	772418
Connector M12 angled (A-coded) ¹⁾	772419
Y distributor	772420
Y distributor for networking two separately supplied segments of a büS network	772421
Terminating resistor (direct pluggable)	303833
Terminating resistor 120 Ohm plug M12	772424
Terminating resistor 120 Ohm socket M12	772425
Power supply unit Type 1573 for top-hat rail, 100...240 V AC / 24 V DC, 1.25 A, NEC Class 2 (UL 1310)	772438
Power supply unit Type 1573 for top-hat rail, 100...240 V AC / 24 V DC, 1 A, NEC Class 2 (UL 1310)	772361
Power supply unit Type 1573 for top-hat rail, 100...240 V AC / 24 V DC, 2 A, NEC Class 2 (UL 1310)	772362
Power supply unit Type 1573 for top-hat rail, 100...240 V AC / 24 V DC, 4 A	772363
Micro SD card	On request
büS-Stick Set 1 (incl. cable (M12), stick with integrated terminating resistor, power supply and software)	772426
büS-Stick Set 2 (incl. cable (M12)), stick with integrated terminating resistor	772551
Software Bürkert Communicator	Download from web page see Type ME44 ►

¹⁾ For space reasons, M12 single connectors may not be suitable for simultaneous use on the same side of a Y-distributor. In this case, please use a commercially available overmolded cable.



Overview for Controller/Transmitter

Note: The following product overview does not show the complete product range of this catalogue. A complete overview can be found [here](#) ►

Overview Controller Fieldbus Gateway	Species	Type	Function	Actual value
	Universal controller eCONTROL	8611 ►	PI control, 2 points and 3 points, cascaded up to 2 binary outputs with window or hysteresis mode	Standard signals (4...20 mA/0...10 V) Frequency or PT100 signal
	Multi-channel and multi-function transmitter/ controller multiCELL	8619 ►	Modular in hardware and software up to 12 autonomous functions + with option PID: 6 functions	0...20 mA, 4...20 mA, 0...2 V, 0...5 V, 0...10 V
	Multifunction Controller mxControl	8620 ►	Maximum 8 active control loops	4...20 mA, Pt100, binary or frequency, depending on version

Controller outputs	Type of mounting	Overview Controller Fieldbus Gateway
1 x PWM, 2 x PTM, 1 x analogue, depending on version	Direct attachment to proportional valve or flow sensor, wall, DIN-rail or switch cabinet mounting	
On/Off, hysteresis, window, PWM, PFM, Pulse (main module), analogue, memory card, industrial Ethernet	Panel or wall mounting	
Binary, PFM, PWM, analogue	Wall mounting	

Universal Process Controller eCONTROL

8611

54x54x50 mm 1/16 DIN Cut out Compact Universal controller

- For flow, pressure, pH, conductivity, level and temperature
- Continuous control: 2-point, 3-point, On/Off, ratio control
- Easy connectable to pneumatically or electrically driven systems



Thanks to its compact design, the universal 8611 controller is specially designed for compact control system applications. It is compatible with a wide range of proportional control valves and connects with an electro-pneumatic servo-system for pneumatically actuated process control valves. The PI process controller is equipped with many additional functions. The actual process value can be supplied as one of three inputs; analogue 4...20 mA/0...10 V, frequency or Pt100 signal directly to the universal controller. The process switching points can be set via a 4...20 mA/0...10 V signal or with the keypad.

Technical data

General data	
Materials	
Housing, cover	PC, +20 % glass fibre
Front panel folio	Polyester
Screws	Stainless steel
Multipin	CuZn, nickel-plated
Wall-mounting holder	PVC
Display	Dual-line 8-digit LCD with backlight
Electrical connections	Multipin: M12...8 pin, M8...3 pin, Terminals Insert for direct connecting to electrical components acc. to EN 175301-803
Voltage supply cable	0.5 mm ² max. cross section, max. 100 m, shielded
Environment	
Ambient temperature	0...+70 °C (operating and storage)
Relative humidity	≤ 80 %, without condensation
Height above sea level	Max. 2000 m
Standards and approvals	
Protection class	IP65
Standard	
EMC, CE	EN 61326

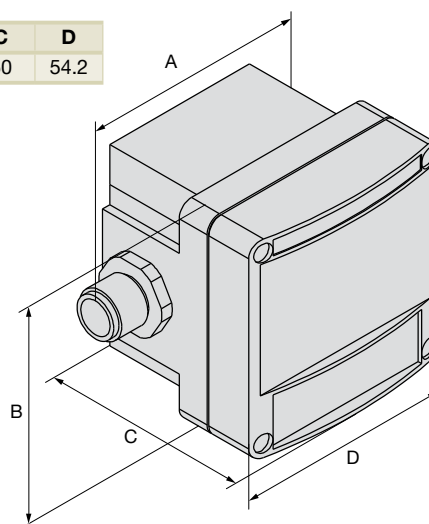
Options

- Mounted on flow sensor fitting
- Mounted on rail or valve

Dimensions [mm]

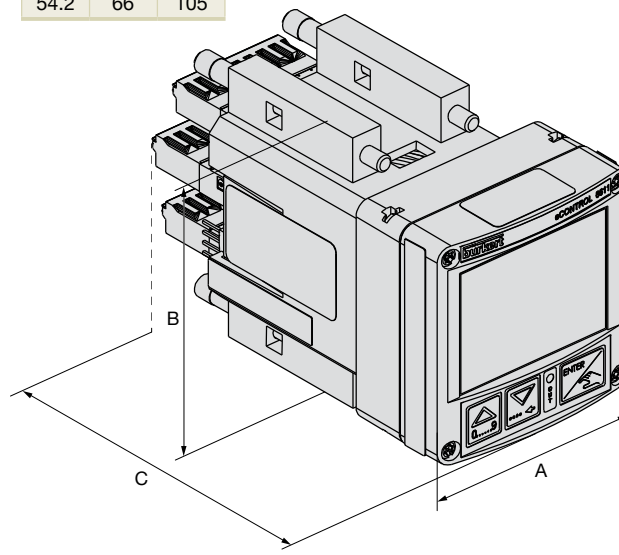
Ventilmontage

A	B	C	D
67.2	54.2	50	54.2



Schaltschrankmontage

A	B	C
54.2	66	105



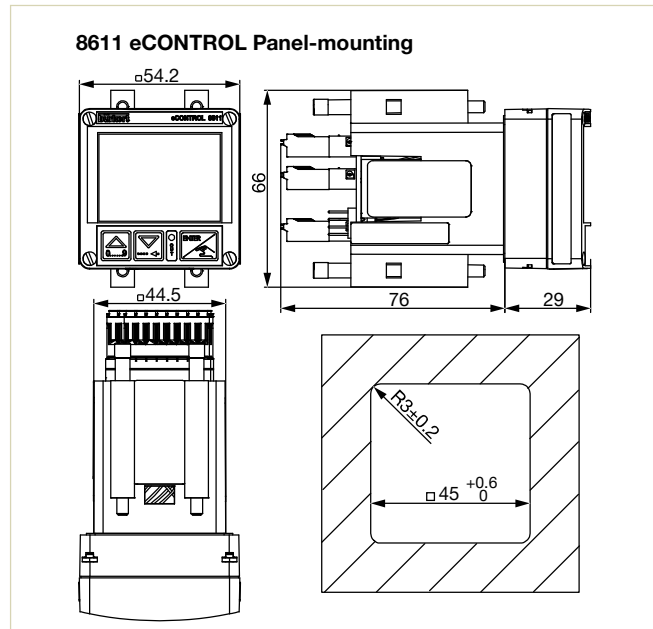
Technical data continued

Electrical data	
Operating voltage	24 V DC \pm 10 %, filtered and regulated
Power consumption	Approx. 2 W (without valve-without sensor input)
Input	
Setpoint	
Standard 4...20 mA	Sourcing mode Max. input impedance: 70 Ω Resolution: 5.5 μ A
Standard 0...10 V	Max. input impedance: 11.5 k Ω Resolution: 2.5 mV
Sensors	
Standard 4...20 mA	Sourcing mode Max. input impedance: 70 Ω Resolution: 5.5 μ A
Standard 0...10 V	Max. input impedance: 11.5 k Ω Resolution: 2.5 mV
Frequency	
Input 1	External sensor Min. 0.25 Hz/max. 1 kHz Input impedance: > 1 k Ω Signal type: Sinus, square, triangle pulse (> 3000 mVpp, max. 30 Vpp)
Input 2	Internal Hall sensor Min. 0.25 Hz/max. 1 kHz (only with Bürkert Type S030 flow sensor-fitting)
Pt100 (2 wires)	Measuring range: 0...+200 °C Measuring current: 1 mA Measuring error: < 0.5 °C
Binary input	
Input impedance: 10 k Ω Operating threshold: 3...30 V Max. frequency: 1 kHz	

Outputs	
Continuous signal	Standard signal 4...20 mA Max. loop resistance: 680 Ω Accuracy: 0.5 % Standard signal 0...10 V Max. current: 20 mA Accuracy: 0.5 %
Discontinuous signal	2 transistor outputs for PWM¹⁾ or PTM¹⁾ signal Control frequency 20 Hz - 9999 Hz Resolution max.: 16 Bit (depend from frequency) Max. current load: 1.5 A Switching voltage: 24 V DC
Binary output	Transistor output (PNP) (configurable) Max. current load: 1.5 A Switching voltage: 24 V DC
Power supply sensor/ actuator	24 V DC, max. 1 A
Total load of all outputs	Max. 1.5 A
Controller modes	PI-Control, 2 point and 3 point, cascaded Up to 2 Binary out with windows and hysteresis mode

1) PWM = pulse width modulation
PTM = pulse time modulation

Dimensions [mm]





Ordering chart

8611

Mounting position	Sensor Input (external)	Controller outputs	Setpoint setting	Process value output	Binary In/Out	Article no.
Proportional valve	Temperature (Pt100)	1 x PWM	4...20 mA 0...10 V	4...20 mA 0...10 V	1 x Bin In 1 x Bin Out	204642
	Flow rate (Frequency - NPN)	1 x PWM	4...20 mA 0...10 V	4...20 mA 0...10 V	1 x Bin In 1 x Bin Out	204639
	All sensors with standard signal (4...20 mA/0...10 V)	1 x PWM	4...20 mA 0...10 V	4...20 mA ¹⁾ 0...10 V	1 x Bin In 1 x Bin Out	186289
Panel	2 x Frequency (NPN/PNP) 1 x 4...20 mA/0...10 V 1 x RTD	1 x PWM 2 x PTM 1 x 4...20 mA/0...10 V	4...20 mA 0...10 V	4...20 mA 0...10 V	1 x Bin In 2 x Bin Out	210206

1) Either PWM/PTM or 4...20 mA/0...10 V selectable as PI-control output. If 4...20 mA/0...10 V selected as PI-output, the process value isn't available.

Accessories (must be ordered separately)

Description	Article no.
Positioning system 8810 for pneumatic actuators with rail-mount adaptor	204458
4 pin M8 female right angle connector with self-locking threaded joint and 2 m molded cable (valve output)	918718
4 pin M8 female right angle connector with self-locking threaded joint and 5 m molded cable (valve output)	919412
3 pin M8 female right angle connector with self-locking threaded joint and 2 m molded cable (sensor input)	918717
3 pin M8 female right angle connector with self-locking threaded joint and 5 m molded cable (sensor input)	919410
4 pin M8 female connector, straight with snap-on connection and 2 m molded cable (valve output)	919060
3 pin M8 female connector, straight with snap-on connection and 2 m molded cable (sensor input)	918039
8 pin M12 female connector, straight with screw connection and 2 m molded cable (PUR) (Power supply)	919061
8 pin M12 female connector, straight with screw connection, to assemble (Power supply)	918998
2 pin female connector, straight with 3 m cable (for connection to Positioning system 8810)	133486
2 pin female connector, straight with 5 m cable (for connection to Positioning system 8810)	167494
2 pin female connector, straight with 0.3 m wire (for connection to Positioning system 8810)	644068
2 pin female connector, straight with 0.6 m wire (for connection to Positioning system 8810)	162144

multiCELL – Multi-channel, multi-function transmitter/controller

8619

- Compatible with most common flow, pH/ORP, chlorine and conductivity sensors
- Simple, intuitive user interface supported by a large adjustable backlit display
(4 user defined views)
- Hardware extension possibilities
(up to 6 free slots)
- Industrial Ethernet (Modbus TCP, PROFINET or EtherNet/IP) option available
- Functionality extendable by software options



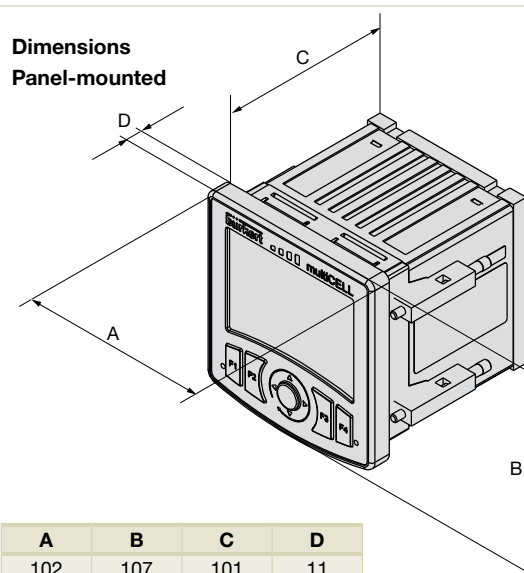
The 8619 multichannel and multifunction transmitter/controller, available in two housing variants for panel or wall mounting, is a microprocessor transmitter/controller for connection of sensors which deliver raw signals for pH, ORP, conductivity and flow via pulses or sensors (like pressure, level, chlorine...) which delivers analogue signals (0...20 mA, 4...20 mA, 0...2 V, 0...5 V, 0...10 V).

Type 8619 is the ideal device for measurement and control and as well dosing processes e.g. in applications of water treatment plants (like boiler, cooling tower or reverse osmosis systems) and food and pharma plants.

Modularity in hardware and software offers high flexibility for adjusting it to the applications resulting in having a very good price to functionality relation.

Sophisticated electronics and state of the art control algorithms ensure that optimum process control is maintained at all times with minimal operator intervention and achieving highest quality. Thanks to full support of the Modbus TCP, PROFINET (Conformance Class B) or EtherNet/IP, the 8619 can be integrated into most Industrial Ethernet environments. Therefore all important process values like measurement data, process diagnostics or device status can be easily integrated into the automation system.

Dimensions [mm]



Technical data

General data	
Mounting	Panel-mounted (stand. ¼ DIN housing for 92x92 mm cutout) Wall-mounted (- mounting plate)
Display	LC graphic display, light blue backlit; 128x168 pixels resolution; German, English, French languages
Keypad	4 soft keys [F1] [F2] [F3] [F4] for dynamic functions 1 central navigation key with [↑] [↓] [→] [←] assignments
Data logger	Up to 16 values
Sensor monitor	Direct display and verification of measured sensor values
Clock	Real-time clock with date
Board slots	6

Materials	
Seal / Screws	Silicone / Stainless steel 316 (A4)
Support plate for terminals	Stainless steel 304
Terminal blocks	PBT, contact in gold-plated copper alloy
Port for an RJ45 connector	Contact in gold-plated copper alloy, thermoplastic
Display	PC
Front panel and keys	Silicone
Housing	
Panel-mounted	PPO (incl. fastening element)
Wall-mounted	PA66 (incl. fastening plate, cable gland, protecting cover (display), protecting cap (free terminal place), stiffener hinge)
Cover screws (wall-mounted version)	PVC
Protective cap (110...240 V AC supplied wall-mounted version)	Stainless steel 304

Technical data continued

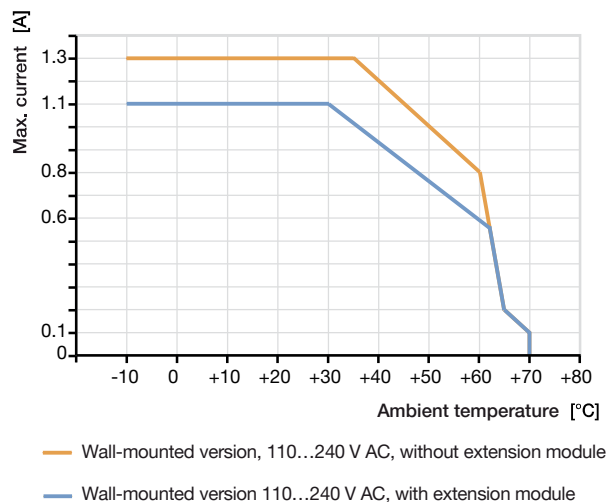
Electrical data		
Device version	Panel-mounted – Mainboard	Wall-mounted – Power supply board
Operating voltage ("SUPPLY")	12...36 V DC, $\pm 10\%$, max. 2 A, filtered and regulated, SELV (safety extra low voltage) circuit with a non dangerous energy level	<ul style="list-style-type: none"> 12...36 V DC $\pm 10\%$, max. 2 A, filtered and regulated, SELV (safety extra low voltage) circuit with a non dangerous energy level 110...240 V AC, 50...60 Hz, max. 500 mA, integrated protection: 3.15 A time delay fuse ground cable cross-section: 1.5 mm²
Power consumption (of multiCELL device - without additional boards and outputs not connected)	Max. 1.5 VA	Max. 2 VA
Power charges ("PWR OUT" or "POWER OUT" acc. to version)	12...36 V DC, max. 1.8 A protected against polarity reversals	<ul style="list-style-type: none"> 12...36 V DC version: 12...36 V DC, max. 1.8 A; protected against polarity reversals 110...240 V AC version: 24 V DC $\pm 2\%$, filtered and regulated, SELV (safety extra low voltage) circuit with a non dangerous energy level, max 1.2 A, protected against polarity reversals The allowed max. current depends on the ambient temperature: see diagram on next page
Device version	Panel-mounted – Main module, pH/ORP, conductivity, input and output modules	Wall-mounted – Main module, pH/ORP, conductivity, input and output modules
Electrical connection	Terminal blocks or hybrid RJ45 connector	Terminal blocks or RJ45 connector
Recommended cable	Cable with maximum operating temperature greater than +90 °C	Cable with maximum operating temperature greater than +90 °C
External diameter	—	6...12 mm (4 mm if using a multiple entry seal)
Cross section of		Min. 1.5 mm ²
• Earth connection conductor	0.75...1.5 mm ²	
• Rigid H05(07) V-U	0.2...1.5 mm ² , stripped over 7 mm, shielded cable	0.2...1.5 mm ² , stripped over 7 mm, shielded cable
• Flexible H05(07) V-K	0.2...1.5 mm ² , stripped over 7 mm, shielded cable	0.2...1.5 mm ² , stripped over 7 mm, shielded cable
• Conductor with non-insulated lug	0.2...1.5 mm ² , stripped over 7 mm, shielded cable	0.2...1.5 mm ² , stripped over 7 mm, shielded cable
• Conductor with an insulated lug	0.2...0.75 mm ² , stripped over 7 mm, shielded cable	0.2...0.75 mm ² , stripped over 7 mm, shielded cable
Device version	Panel-mounted – Mainboard	Wall-mounted – Mainboard
Digital inputs DI1, DI2	Voltage: 0...36 V DC, input impedance 3 k Ω Switching threshold: $V_{on} = 5...36$ V DC, $V_{off} < 2$ V DC; Frequency: 0.5...2500 Hz Galvanic insulation, protected against reversed polarity of DC and voltage spikes	Voltage: 0...36 V DC, input impedance 3 k Ω Switching threshold: $V_{on} = 5...36$ V DC, $V_{off} < 2$ V DC; Frequency: 0.5...2500 Hz Galvanic insulation, protected against reversed polarity of DC and voltage spikes
Digital outputs DO1, DO2	Transistor: can be wired as PNP or NPN, galvanic insulation, protected against short circuit, max. 36 V DC, max. 700 mA if 1 DO per module is activated, max. 1 A if the 2 DO's per module are activated, max. 4 A for an Ethernet version if the device has 4 output modules; Operating modes: On/Off, Hysteresis, Window, PWM, PFM, Pulse; Frequency: max. 2000 Hz	Transistor: can be wired as PNP or NPN, galvanic insulation, protected against short circuit, max. 36 V DC, max. 700 mA if 1 DO per module is activated, max. 1 A if the 2 DO's per module are activated, max. 4 A for an Ethernet version if the device has 4 output modules; Operating modes: On/Off, Hysteresis, Window, PWM, PFM, Pulse; Frequency: max. 2000 Hz
Analogue output AO1, AO2	4...20 mA, can be wired as sourcing or sinking, galvanic insulation, protected against reversed polarity of DC, Max. loop impedance: 860 Ω at 30 V DC, 610 Ω at 24 V DC, 100 Ω at 12 V DC Resolution: 6 μ A	4...20 mA, can be wired as sourcing or sinking, galvanic insulation, protected against reversed polarity of DC, Max. loop impedance: 1100 Ω at 36 V DC, 610 Ω at 24 V DC, 100 Ω at 12 V DC Resolution: 6 μ A
Memory card Type/Capacity	SD (Secure Digital) or SDHC (Secure Digital High Capacity) / max. 8 GB Note: We recommend to use the 8 GB SDHC memory card available at Bürkert (see accessories) because it has been tested with and validated for the 8619 Transmitter/Controller. Another memory card may not operate correctly. With 8 values recorded every 10 sec., the 8 GB card allows continuous recording over 500 days	

Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.



Diagram

Max. allowed current in dependence of the ambient temperature (for wall-mounted version, 110...240 V AC)



Technical data additional modules

Input module	
Power consumption	0.1 VA
Analogue inputs AI1, AI2	Can be wired as sourcing or sinking, galvanic insulation
Current	Range: 0 or 3.5...22 mA Max. voltage: 36 V DC Impedance: 50 Ω Resolution: 1.5 μA
Voltage	Range: 0...2 or 5 or 10 V DC Max. voltage: 36 V DC Impedance: 110 kΩ Resolution: 1 mV
Error	±0.25 % of Reading
Digital inputs DI1, DI2	Voltage: 0...36 V DC, input impedance 3 kΩ Switching threshold : $V_{on} = 5...36$ V DC, $V_{off} < 2$ V DC; Frequency: 0.5...2500 Hz Galvanic insulation, protected against reversed polarity of DC and voltage spikes
Output module	
Power consumption	Max. 0.1 VA
Digital outputs DO1, DO2	Transistor: can be wired as PNP or NPN, galvanic insulation, protected against short circuit, max. 36 V DC, max. 700 mA if 1 DO per module is activated, max. 1 A if the 2 DO's per module are activated, max. 4 A for an Ethernet version if the device has 4 output modules; Operating modes: On/Off, Hysteresis, Window, PWM, PFM; Frequency: max. 2000 Hz
Analogue output AO1, AO2	4...20 mA, can be wired as sourcing or sinking, galvanic insulation, protected against reversed polarity of DC, Max. loop impedance: 1100 Ω at 36 V DC, 610 Ω at 24 V DC, 100 Ω at 12 V DC Resolution: 6 μA
4...20 mA output uncertainty	±0.5 % of the transmitted value

Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

pH/ORP module	
Power consumption	0.1 VA
pH/ORP input	Simultaneous pH and ORP measurement with input for electrochemical pH/ORP
Temperature input	Pt100/Pt1000, 2 or 3 wires
pH measurement	Measuring range -2.0...+16 pH or -600...+600 mV Resolution 0.01 pH or 0.1 mV Measurement deviation ±0.02 pH or 1 mV + error of the pH probe ¹⁾ Probe type Electrochemical
ORP measurement	Measuring range -2000...+2000 mV Resolution 0.1 mV Measurement deviation ±1 mV + error of the ORP probe ¹⁾ Probe type Electrochemical
Temperature measurement	Measuring range -25...+130 °C Resolution 0.1 °C Measurement deviation ±1 °C + error of the temperature probe ¹⁾ Probe type Pt100/Pt1000, 2 or 3 wires
Conductivity module	
Resistance measurement	5.0 Ω...1 MΩ (without conductivity probe connected)
Power consumption	0.25 VA
Conductivity input	Operation with 2 or 4 pin technology sensors
Temperature input	Pt100/Pt1000, 2 or 3 wires
Conductivity measurement	Measuring range 0 μS/cm...2 S/cm (depending on the conductivity cell) Resolution 1 nS/cm Measurement deviation ±0.5 % of Reading + error of the conductivity probe ¹⁾
Resistivity measurement	Measuring range 0.5 Ω.cm...100 MΩ.cm (depending on the conductivity cell) Resolution 0.1 Ω.cm Measurement deviation ±0.5 % of Reading + error of the conductivity probe ¹⁾
Temperature measurement	Measuring range -40...+200 °C Resolution 0.1 °C Measurement deviation ±1 °C + error of the temperature probe ¹⁾ Probe type Pt100/Pt1000, 2 or 3 wires
Ethernet module	
Power consumption	2.2 VA
Supported network protocols	Modbus TCP, PROFINET or EtherNet/IP
LEDs	2 Link/Act LEDs (yellow) 2 Link LEDs (green)
Electrical connection	2 ports for an RJ45 connector (Not provided – Note: to make sure the door of a wall-mounted Ethernet version can be fully closed, use RJ45 male connectors with maximum dimensions of 45 mm, including the bend radius of the Ethernet cable.)
Recommended cable	Shielded cable Minimum category 5e / CAT-5 Length Maximum 100 m
Modbus TCP protocol	Protocol Internet protocol, version 4 (IPv4) Network topology Tree Star Line (open daisy chain)
IP configuration	Fixed IP BOOTP (Bootstrap Protocol) DHCP (Dynamic Host Configuration)
Transmission speed	10 or 100 MBit/s

¹⁾ see related probe data sheet

Technical data additional modules continued

PROFINET protocol	
PROFINET IO specification	V2.3
Network topology	Tree Star Ring (closed daisy chain) Line (open daisy chain)
Network management	LLDP (Link Layer Discovery Protocol) SNMP V1 (Simple Network Management Protocol) MIB (Management Information Base) DCP (Discovery and Configuration Protocol)
IP configuration	Manual (Device naming and IP setting)
Transmission speed	100 MBit/s full duplex
Maximum supported conformance class	CC-B
Media Redundancy (for ring topology)	MRP client is supported
GSDml file	Available at / Download from: www.burkert.com
EtherNet/IP	
Protocol	Internet protocol, version 4 (IPv4)
Network topology	Tree Star Ring (closed daisy chain) Line (open daisy chain)
IP configuration	Fixed IP BOOTP (Bootstrap Protocol) DHCP (Dynamic Host Configuration Protocol)
Transmission speed	10 or 100 MBit/s
Duplex modes	Half duplex, full duplex, auto-negotiation
MDI modes (Medium Dependant Interface)	Auto-MDIX
Predefined standard objects	Identity, Message Router, Assembly, Connection Manager, DLR, QoS, TCP/IP Interface, Ethernet Link object
Device specified objects	I/O main board M0, Functions, Extension modules, Ethernet module
EDS file	Available at / Download from: www.burkert.com
Environment conditions – Main module, pH/ORP, conductivity, input, output and Ethernet modules	
Ambient temperature	
Operation (with/without memory card¹⁾)	
Only Main module	Panel-mounted and 110...240 V AC wall-mounted version: -10...+70 °C 12...36 V DC wall-mounted version: -10...+75 °C All versions: -10...+60 °C
Min. 1 additional module	
Storage	All versions: -20...+70 °C, limited to -10...+70 °C if memory card is inserted
Relative humidity	<85 %, without condensation
Height above sea level	Max. 2000 m

Standards, directives and certifications – Main module, pH/ORP, conductivity, input, output and Ethernet modules

Protection class	
Panel-mounted version	According to EN 60529 IP65 (panel-mounted, cabinet closed) IP20 (panel-mounted, inside the cabinet) NEMA250 4X (panel-mounted, in front of the closed cabinet)
Wall-mounted version	IP65, IP67, if the following conditions are met: - glands body tightened with a tightening torque of 5.5 Nm ±20 %, made at factory - glands blanked off or wired - gland nuts tightened with a tightening torque of 4.5 Nm ±20 % - housing closed - 4 screws of cover cross tightened with a tightening torque of 1.4 Nm ±20 %

Standard and directives CE	The applied standards, which verify conformity with the EU Directives, can be found on the EU Type Examination Certificate and/or the EU Declaration of conformity (if applicable)
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Certifications	
UL-Listed for USA and Canada	 Measuring Equipment E237737 61010-1 + CAN/CSA-C22.2 No. 61010-1

PROFINET



PROFINET Z11949

EtherNet/IP

EtherNet/IP

Specific technical data of UL-Listed products for US and Canada

Intended for an inner pollution input	
V DC version	Pollution degree 2 acc. to EN 61010-1
V AC version	Pollution degree 3 acc. to EN 61010-1 if the following conditions are met: - housing tightly closed. - the 4 screws of the cover are tightened cross-wise at a torque of 1.4 Nm ±20 %

Installation category	
V DC version	Category I according to UL 61010-1
V AC version	Category II according to UL 61010-1

1) If a different memory card is used, observe the operating temperatures specified by its manufacturer



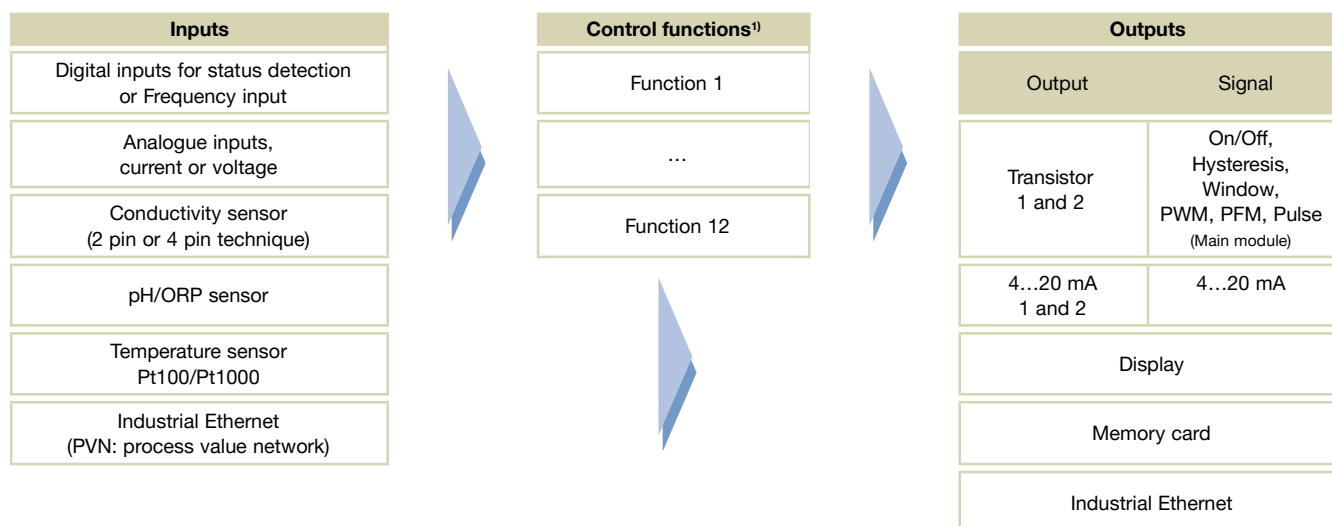
Functions

The transmitter/controller allows to allocate each sensor signal to a function fully configurable by the user (such as dosage, for example). According to the model the following functions are available as standard or as option.

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Functions	Availability	Formula	Example for usage
Arithmetic	Basic for all models	A + B, A - B, A * B, A / B	Arithmetic operation (addition, subtraction, multiplication and division) between 2 values. For addition and subtraction, the 2 values must have the same units, but for multiplication and division not necessarily. A and B can be constants, measured physical parameters, results of other active configured functions, the previous result of the same function, values sent by a PLC (PVN). The multiplication function is available from Software version B.00.01
PASS	Basic for all models	A / B [%]	A and B must have the same units and can be constants, measured physical parameters, results of other active configured functions, the previous result of the same function, values sent by a PLC (PVN) Calculates a flow ratio between 2 values. e.g: reverse osmosis
REJECT	Basic for all models	(1 - A / B) [%]	A and B must have the same units and can be constants, measured physical parameters, results of other active configured functions, the previous result of the same function, values sent by a PLC (PVN) Calculates a reject ratio between 2 values. e.g: reverse osmosis
DEVIAT	Basic for all models	(A / B - 1) [%]	Calculates a deviation ratio between 2 values.
MATH	As option	Permits to enter an equation which respects the following rules: • up to 125 characters; • up to 5 process values (A, B, C, D & E) • with possible operators: () ! ± ^ × ÷ % + - < > ≥	A, B, C, D, E can be constants, measured physical parameters, results of other active configured functions, the previous result of the same function, values sent by a PLC (PVN) e.g: (A*B)+(C*D)-E
PROP	Basic for all models		Calculates an output in proportion to a scaled input
ON/OFF	Basic for all models	On/Off control loop	For any type of input
Flow rate measurement	As base for model item no. 560 205, 560 213, 565 984, 565 985, 565 986, 565 987 for others as option		Allows both digital inputs to be used as frequency inputs for flow measurement (in standard for base unit) or coexistent with analytical modules (in option for others devices)
PID	As option	Continuous control loop	For any type of input and with internal or external setpoint
Time dosing	As option		e.g. for cooling tower application. Dosing of 1 or 2 biocides in the circuits, at fixed time intervals or by defining dosing during one week, with 2 dosings per day. Can be connected to an ON/OFF conductivity function for prebleed.
Special Chemical batch (Volume dosing)	As option		Specifically for cooling tower application. A defined volume of water is counted, then an actuator is energized during a defined time to add a chemical and the water volume being counted is reset.
Concentration	As option		The concentration curves of NaCl, H ₂ SO ₄ , HNO ₃ , NaOH, HCl are implemented for use in complete concentration range and not only in low concentration.
Data logging on memory card	As option		Up to 16 values can be stored at a defined time interval.

Process diagram



1) The 12 functions can be activated simultaneously and independently, and up to 6 PID functions can be set; if this option is selected.

Ordering chart

Description	Inputs				Outputs		Network protocol	UL ²⁾ approvals	Article no.
	Digital (DI) (On/Off or frequency)	Analogue (AI) 0/4...20 mA current and/ or 0...2, 0...5, 0...10 V DC voltage	Number and type of sensor raw signals	Pt100/ Pt1000	Transistor (DO) (PWM or PFM or On/Off or pulse)	Analogue (AO) 4...20 mA			
Panel-mounted version, 12...36 V DC									
Base unit with flow measurement <small>(Main module)</small>	2	–	–	–	2	2	–	No	560205
								Yes	560213
Main module + 1 pH/ORP module	2	–	1 (pH/ORP)	1	2	2	–	No	560200
								Yes	560208
Main module + 2 pH/ORP modules + 1 output module	2	–	2 (pH/ORP)	2	4	4	–	No	560202
								Yes	560210
Main module + 1 conductivity module	2	–	1 (cond.)	1	2	2	–	No	560201
								Yes	560209
Main module + 2 conductivity modules + 1 output module	2	–	2 (cond.)	2	4	4	–	No	560203
								Yes	560211
Main module + 1 pH/ORP module + 1 conductivity module + 1 output module	2	–	1 (pH/ORP) + 1 (cond.)	2	4	4	–	No	560204
								Yes	560212
Main module + 1 input module	4	2	–	–	2	2	–	No	563960
								Yes	563961
Main module + 1 pH/ORP module + 1 input module + 1 output module	4	2	1 (pH/ORP)	1	4	4	–	No	563962
								Yes	563963



Ordering chart continued

8619

Description	Digital (DI) (On/Off or frequency)	Inputs			Outputs			UL ²⁾ approvals	Article no.
		Analogue (AI) 0/4...20 mA current and/ or 0...2, 0...5, 0...10 V DC voltage	Number and type of sensor raw signals	Pt100/ Pt1000	Transistor (DO) (PWM or PFM or On/Off or pulse)	Analogue (AO) 4...20 mA	Network protocol		
Main module + 1 conductivity module + 1 input module + 1 output module	4	2	1 (cond.)	1	4	4	–	No	563964
								Yes	563912
Main module + 1 Ethernet module	2	–	–	–	2	2	Modbus TCP ³⁾	No	569259
							PROFINET ⁴⁾	No	569260
							EtherNet/IP ⁴⁾	Yes	569261
Main module + 1 pH/ORP module + 1 Ethernet module	2	–	1 (pH/ORP)	1	2	2	Modbus TCP ³⁾	No	569265
							PROFINET ⁴⁾	No	569266
							EtherNet/IP ⁴⁾	Yes	569267
Main module + 1 conductivity module + 1 Ethernet module	2	–	1 (cond.)	1	2	2	Modbus TCP ³⁾	No	569262
							PROFINET ⁴⁾	No	569263
							EtherNet/IP ⁴⁾	Yes	569264
Wall-mounted version, 12...36 V DC									
Base unit with flow measurement (Main module)	2	–	–	–	2	2	–	No	565984
								Yes	565986
Main module + 1 pH/ORP module	2	–	1 (pH/ORP)	1	2	2	–	No	565988
								Yes	565990
Main module + 2 pH/ORP modules + 1 output module	2	–	2 (pH/ORP)	2	4	4	–	No	565992
								Yes	565994
Main module + 1 conductivity module	2	–	1 (cond.)	1	2	2	–	No	565996
								Yes	565998
Main module + 2 conductivity modules + 1 output module	2	–	2 (cond.)	2	4	4	–	No	566000
								Yes	566002
Main module + 1 pH/ORP module + 1 conductivity module + 1 output module	2	–	1 (pH/ORP) + 1 (cond.)	2	4	4	–	No	566004
								Yes	566006
Main module + 1 input module	4	2	–	–	2	2	–	No	566008
								Yes	566010
Main module + 1 pH/ORP module + 1 input module + 1 output module	4	2	1 (pH/ORP)	1	4	4	–	No	566012
								Yes	566014
Main module + 1 conductivity module + 1 input module + 1 output module	4	2	1 (cond.)	1	4	4	–	No	566016
								Yes	566018

Ordering chart continued

Description	Digital (DI) (On/Off or frequency)	Inputs			Outputs		Network protocol	UL ²⁾ approvals	Article no.
		Analogue (AI) 0/4...20 mA current and/ or 0...2, 0...5, 0...10 V DC voltage	Number and type of sensor raw signals	Pt100/ Pt1000	Transistor (DO) (PWM or PFM or On/Off or pulse)	Analogue (AO) 4...20 mA			
Main module + 1 Ethernet module	2	–	–	–	2	2	Modbus TCP ³⁾	No	569268
							PROFINET ⁴⁾	No	569269
							EtherNet/IP ⁴⁾	Yes	569270
Main module + 1 pH/ORP module + 1 Ethernet module	2	–	1 (pH/ORP)	1	2	2	Modbus TCP ³⁾	No	569274
							PROFINET ⁴⁾	No	569275
							EtherNet/IP ⁴⁾	Yes	569276
Main module + 1 conductivity module + 1 Ethernet module	2	–	1 (cond.)	1	2	2	Modbus TCP ³⁾	No	569271
							PROFINET ⁴⁾	No	569272
							EtherNet/IP ⁴⁾	Yes	569273
Wall-mounted version, 110...240 V AC									
Base unit with flow measurement (Main module)	2	–	–	–	2	2	–	No	565985
								Yes	565987
pH/ORP (Main module + 1 pH/ORP module)	2	–	1 (pH/ORP)	1	2	2	–	No	565989
								Yes	565991
pH/ORP (Main module + 2 pH/ORP modules + 1 output module)	2	–	2 (pH/ORP)	2	4	4	–	No	565993
								Yes	565995
Conductivity (Main module + 1 conductivity module)	2	–	1 (cond.)	1	2	2	–	No	565997
								Yes	565999
Conductivity (Main module + 2 conductivity modules + 1 output module)	2	–	2 (cond.)	2	4	4	–	No	566001
								Yes	566003
pH/ORP and conduc- tivity (Main module + 1 pH/ ORP module + 1 conductivity module + 1 output module)	2	–	1 (pH/ORP) + 1 (cond.)	2	4	4	–	No	566005
								Yes	566007
Input (Main module + 1 input module)	4	2	–	–	2	2	–	No	566009
								Yes	566011
pH/ORP and input (Main module + 1 pH/ORP module + 1 input module + 1 output module)	4	2	1 (pH/ORP)	1	4	4	–	No	566013
								Yes	566015
Conductivity + Input (Main module + 1 conductivity module + 1 input module + 1 output module)	4	2	1 (cond.)	1	4	4	–	No	566017
								Yes	566019



Ordering chart continued

8619

Description	Digital (DI) (On/Off or frequency)	Inputs			Outputs		Network protocol	UL ²⁾ approvals	Article no.
		Analogue (AI) 0/4...20 mA current and/ or 0...2, 0...5, 0...10 V DC voltage	Number and type of sensor raw signals	Pt100/ Pt1000	Transistor (DO) (PWM or PFM or On/Off or pulse)	Analogue (AO) 4...20 mA			
Ethernet (Main module + 1 Ethernet module)	2	–	–	–	2	2	Modbus TCP ²⁾	No	569277
							PROFINET ³⁾	No	569278
							EtherNet/IP ⁴⁾	Yes	569279
pH/ORP and Ethernet (Main module + 1 pH/ORP module + 1 Ethernet module)	2	–	1 (pH/ORP)	1	2	2	Modbus TCP ²⁾	No	569283
							PROFINET ³⁾	No	569284
							EtherNet/IP ⁴⁾	Yes	569285
Conductivity and Ethernet (Main module + 1 conductivity module + 1 Ethernet module)	2	–	1 (cond.)	1	2	2	Modbus TCP ²⁾	No	569280
							PROFINET ³⁾	No	569281
							EtherNet/IP ⁴⁾	Yes	569282

2) UL-Listed (Measuring Equipment E237737). Pending for device with Ethernet module.

3) If you order a device with a Modbus TCP network protocol, it does not include the other 2. If you would then like to change it with a PROFINET or Ethernet/IP network, the Ethernet protocol must be ordered (see ordering chart for additional software functions).

4) If you order a device with a PROFINET or EtherNet/IP network protocol, it also contains the other two..

Note: If the device is mounted in a humid environment or outside, then the maximum voltage allowed is **35 V DC** instead of 36 V DC.

Accessories

Use the following order codes only in case you already own a 8619 and you like to add one or more functions to your device.

Note: Please don't forget to note down the Article no. and serial number (see the device label) of your multiCELL on your order.

Software option	Remark	Article no.
PID control	–	561836
Data Logger	SD card is not included.	561837
Chemical dosing (e.g. cooling tower)	The “Dosing” option also activates the “Flow” option if it does not exist by default in the device.	561838
Flow measurement	Is already included in the base unit device (560205 and 560213)	561839
Concentration measurement of selected fluids	Requires at least one conductivity hardware module	561840
Protocols Ethernet: Modbus TCP, PROFINET, EtherNet/IP	Ethernet-Module takes 2 slots. (Available only from Software version B.00.01; Already included in the device with a PROFINET or Ethernet/IP network protocol)	569286
MATH function	–	569848

Note: The function upload and download of the complete data set of the 8619 is available as standard and does not need the data logger option

Description	Article no.
SDHC Memory Card - Class 10 - 8 GB	564072
Mounting set for pipe mounting	564596
Adapter for cable glands M20 × 1.5 with interface connector RJ45-M12 code D	569242

mxCONTROL Multifunction Controller

8620

- Data and event logging
- One controller hardware with dozens of configuration possibilities quickly downloaded via SD card (supplied) or via USB interface
- Ethernet or modem communication with email or call event notification & numerous input/output control signals



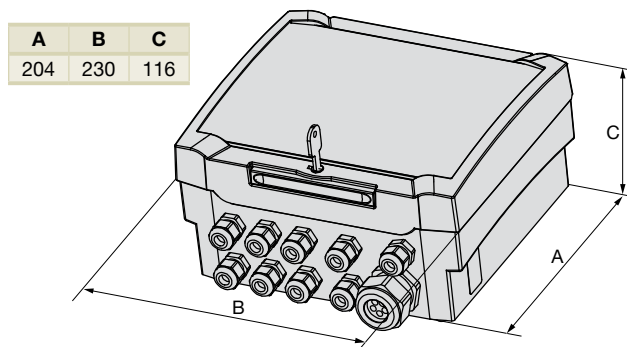
The mxCONTROL multifunction controller, is a microprocessor controller designed to automate the control of process variables within a water treatment system (e.g. boiler, cooling tower or Reverse Osmosis system). wSophisticated electronics and state of the art control algorithms ensure that optimum process control is maintained at all times, with minimal operator intervention.

Note: To ease configuration and parameterization a free PC-Tool is available at www.burkert.com

Technical data

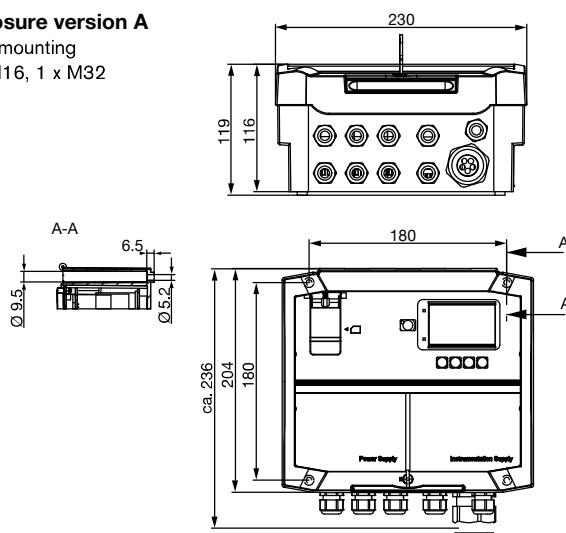
General data	
Enclosure	With sealed keypad and display
Enclosure outer dimensions L x W x H	230 x 204 x 119 mm (without cable glands)
Enclosure material	PC (UL94) with transparent door and key
Weight	1.8 kg
Protection class	IP65 with door closed and properly sealed cable glands, waterproof according to NEMA 4X, additional cover of USB port and SD card slot
Graphic display, large and backlit	128 x 64 dots, two coloured (blue and white)
Keypads for manual operation	5 keys for user inputs
Operating temperature	0...+50 °C
Storage temperature	-20...+60 °C
Electrical details	
Mains voltage (power supply)	100...240 V AC, 50/60 Hz, no adjustment necessary
Power consumption (of mxCONTROL device)	Max. 35 W (incl. sensor supply at Instrumentation Supply part)
Total power consumption (using the internal power distribution)	Max. 2400 W (at 240 V AC) or max. 1100 W (at 110 V AC) incl. connected actuators at Power Supply part
Total input current I_{in} (using internal power distribution)	Max. 10 A
Total output current I_{out} (using internal power distribution)	< 10 A (incl. device power consumption of 35 W)
Instrumentation supply for sensors/transistor outputs	24 V DC (± 5 %), max. 1.04 A (25 W), short circuit and overload protected
Fuse for device protection (Instrumentation)	Internal: electronic fuse, recovers automatically after fault condition is removed
Fuse for relays outputs	Relay outputs to be fused in external installation according to actuators
Inrush current (typ.)	Cold start: 30 A/230 V AC

Dimensions [mm]



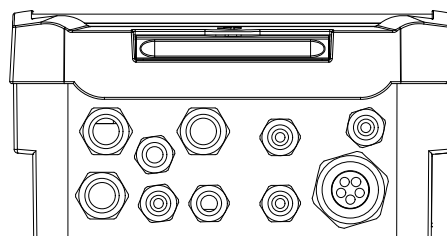
Enclosure version A

Wall mounting
9 x M16, 1 x M32



Enclosure version B

Wall mounting, 6 x M16, 3 x M20, 1 x M32

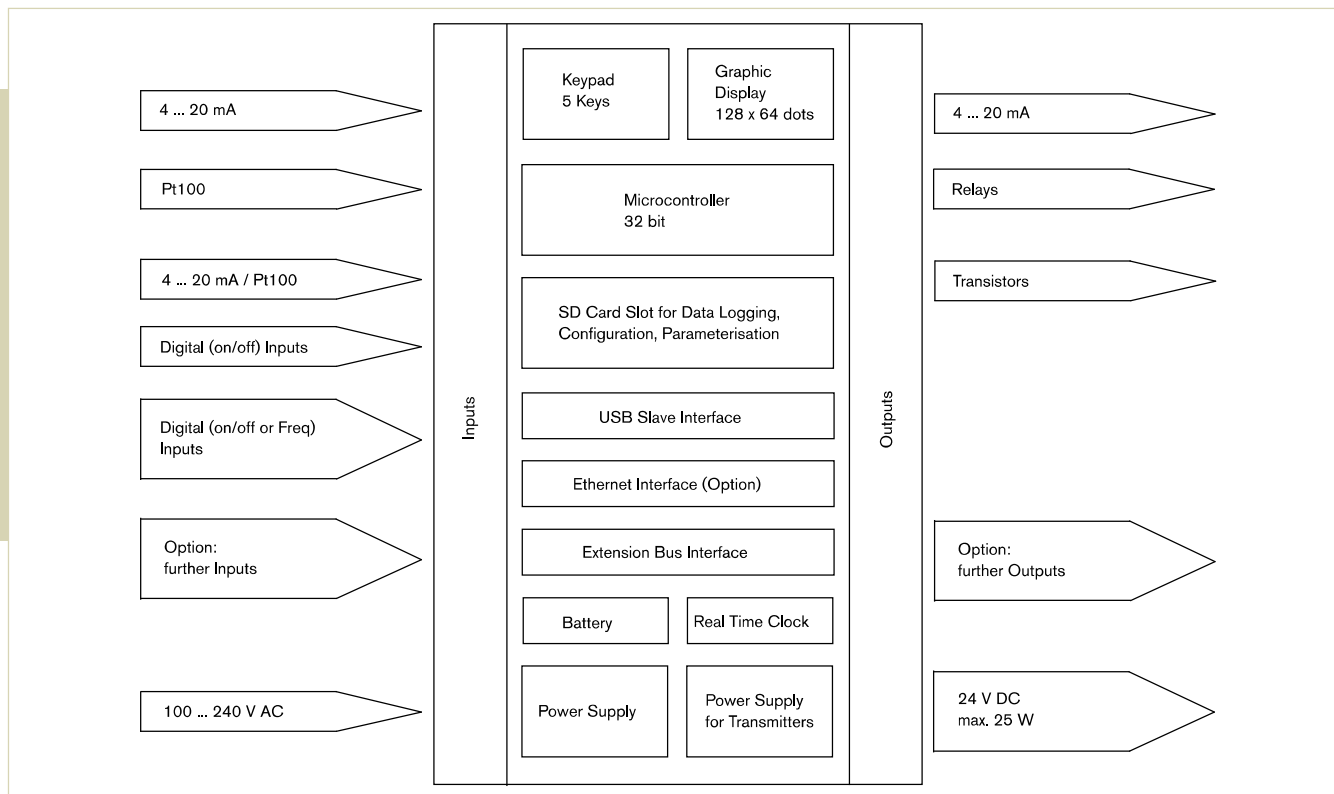


Technical data continued

Electrical connections	
Electrical connection power supply	Hardware version 1: Screw terminals, grid 5.08 mm, for wire gauges 0.14...1.5/2.5 mm ² (AWG 26-14) Hardware version 2: Spring type terminals, grid 5.0 mm, for wire gauges 0.2...2.5/4.0 mm ² (AWG 24-12)
Electrical connection instrumentations supply	Hardware version 1: Screw terminals, grid 3.81 mm, for wire gauges 0.14...1.0/1.5 mm ² (AWG 26-16) Hardware version 2: Spring type terminals, grid 3.5 mm, for wire gauges 0.2...1.5 mm ² (AWG 24-16)
Cable glands and cables	Hardware version 1: 9 x M16 (PG 9) 5...6.5 mm cable 1 x M32 (PG 21) 5...6 mm cable (5x) Hardware version 2: 4 x M16 (PG 9) 5...6.5 mm cable 2 x M16 (PG 9) 6...9.5 mm cable 3 x M20 (PG 13) 9...13.5 mm cable 1 x M32 (PG 21) 5...6 mm cable (5x)
Cable diameters shown above are in reference to the outer diameter. The cable glands of the bottom row are equipped with sealing bolts	
Thermal stability: 105 °C for cables at Power Supply part (cable material) 80 °C for cables at Instrumentation Supply part	
Internal equipment - Inputs	
Inputs	Hardware version 1: 4 analog inputs (4...20 mA or Pt100) (software-configurable) + 4 digital (on/off or Freq) inputs Hardware version 2: 4 analog inputs 4...20 mA + 2 Pt100 + 4 digital (on/off or Freq) inputs + 4 digital (on/off) inputs
Analog inputs - Characteristics	
Input resistance of 4...20 mA inputs	Max. 300 Ω
Measuring error of 4...20 mA inputs	<0.2 % FS
Range of Pt100 inputs	-20...+150 °C
Measuring error Pt100 inputs	Max. ±0.25 K 3 wire connection and software compensated wire resistance required
Digital inputs - Characteristics	
Logical values on/off inputs	1 or HIGH: 13...35 V; 0 or LOW: 0...4.5 V
Input resistance of on/off inputs	≥20 kΩ
Max. frequency	2 kHz
Duty factor frequency	1:1
Measuring error frequency	Max. 0.2 % FS
Input accepts signals from	Open collector; open emitter; push-pull output; hall effect; reed switch; micro switch
Internal Equipment - Outputs	
Outputs	Hardware version 1: 5 Relay outputs + 4 analog outputs 4...20 mA (optional) + 4 Transistor outputs (optional) Hardware version 2: 5 Relay outputs + 2 analog outputs 4...20 mA + 2 Transistor outputs
4...20 mA analog outputs - Characteristics	Max. 500 Ohmic load, output resolution 10 bit (effective >9 bit)
Relay outputs - Characteristics	Max. 250 V AC/DC, max. 10 A, potential-free, two-way SPDT contacts, max. 2500 VA (AC), max. 40 W Ohmic load (DC), 3 million switching cycles at 1 A, 10 million switching cycles at 0 A
Transistor outputs - Characteristics	24 V DC, Switching capacity each max. 16 W, pnp, max. 2200 Hz
Further internal equipment	
Micro-controller core	32 bit with integrated flash memory
Slot for SD card (memory card)	Can be used for data logging, up- and download of configuration and parameter files
Clock	Real-time clock with calendar
Battery back-up for real-time clock	Lithium battery CR2032, exchangeable, approx. 10 years service life
Communication	
SD card	SD card capacity: minimum 64 MB, maximum 2 GB, formatted with FAT16 file system
Up-/download of configuration data and parameters	Via USB or SD card
Data-logging	On SD card
Firmware update	Via USB
USB slave interface	Standard USB interface for PC communication
Ethernet interface	Optional: Ethernet interface for easy diagnosis including Web Server and email option
Extension bus interface	CAN-based bus for connection of extension units (e.g. I/O extensions)
Controller structure	
Number of control loops	Max. 8 active control loops
Controller outputs/Module outputs	1) On/off 2) Pulse frequency modulated (fixed pulse length, variable pauses) 3) Pulse width modulated 4) Analog
Sample period	Approx. 50 ms (with 1...4 active control loops); Approx. 100 ms (more than 4 active control loops)
User configuration	Cascade control possible; inputs, outputs and control function designations can be changed via configuration file
Norms and standards	
Environment standards	IEC 68
EMC standards	EN 61000, EN 55011
CE mark	Applicable tests resulting in CE mark
UL/CSA	UL pending



Hardware structure



Control functions

General PID control

PID process controller for fixed value, subsequent value or cascade control

Conductivity control

On/off or PI control – continuous dosing through pulse frequency modulation (PFM), PWM or 4...20 mA analog output, automatic or manual drain

Corrosion display

No controller function, only display of measuring values; impact on general alarm output

pH control

PI control – continuous dosing through pulse frequency modulation (PFM), PWM or 4...20 mA analog output

Module for dosing of oxygen scavenger media

Proportional dosing for flow and oxygen content depending on flow with or without temperature input

Chlorine/Redox Control

PI control – continuous dosing through pulse frequency modulation (PFM), PWM or 4...20 mA analog output

Batch dosing

Allows batching of a chemical based on volume of water added

Biocide dosing

14-day program, 8 dosing events per channel/per day; Pre-bleed function to optimize biocide kill time





Monitor module

Display of process value

Totalizer function

Single or dual channel flow totalizer (each having two manually resettable totalizers)

Ordering chart

Electrical connection	Hardware version	Input					Output			Communication Ethernet	Body version	Article no.
		Analogue input 4...20 mA	Pt100 - Input	Analogue input 4...20 mA or Pt100	Digital (on/off) input	Digital (on/off or Freq) input	Analogue output 4...20 mA	Relay output	Transistor output			
Screw terminals	1	–	–	4	–	4	–	5	–	–	A	188133 
		–	–	4	–	4	4	5	4	X	A	188136 
Spring type terminals	2	4	2	–	4	4	2	5	2	–	B	188137 
		4	2	–	4	4	2	5	2	X	B	188138 

8620