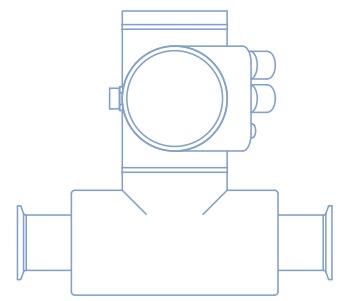
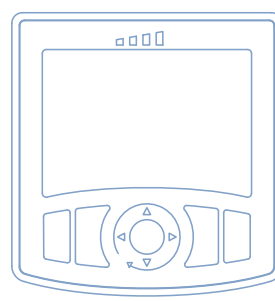
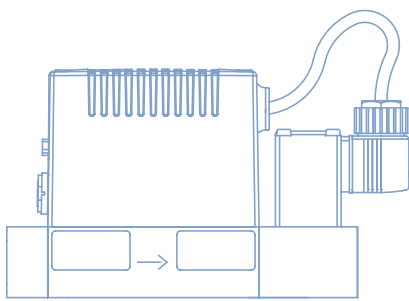
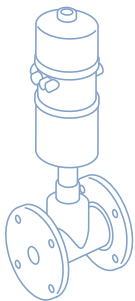
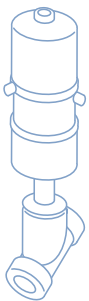


**bürkert**  
FLUID CONTROL SYSTEMS

short form  
**CATALOG**



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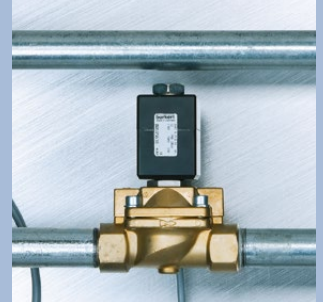


Part numbers included in this program are highlighted in this catalog for easy identification.

# USA Select

## SOLENOID VALVES

0290 p.6, 0330 p.7-8, 0340 p.9, 5282 p.10, 6011 p.11, 6013 p.12,  
6014 p.13, 6027 p.14, 6213 p.16-17, 6281 p.18, 6407 p.19



p. 6

## PROCESS VALVES & CONTROL HEADS

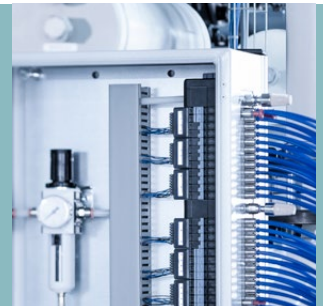
2000 p.20-23, 2100 p.24-25, 2101 & 2012 p.26-27, 2103 p.28-31,  
2106 p.33, 3233 p.34-37, 8186 p.38-39, 8792 & 8793 p.40,  
8801 2100+2101 p.42-43, 8802 2300+2301 p.44-45



p. 20

## PNEUMATIC ACTUATION

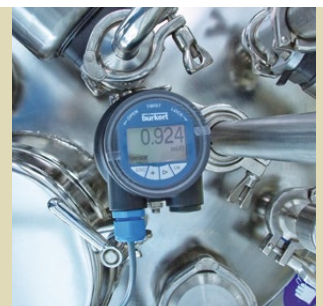
6012 p.46, 6014 p.46-47, 6519 p.48, 8640 p.49, 8644 p.50-51,  
8652 p.52



p. 46

## SENSORS, TRANSMITTERS & CONTROLLERS

8022 p.53, 8025 p.54, 8026 p.55, 8030 p.56, 8036 p.57, 8041 p.58,  
8045 p.59, 8051+8055+8056 p.60, S077 p.61, 8098 p.62-63,  
8110+8111 p.64, 8737+8738 p.65, 8177 p.66, 8188+8189 p.67,  
8202 p.68, 8203 p.69, 8222 p.70, 8228 p.71, 8311 p.72, 8316 p.73,  
8400 p.74, 8619 p.75, S020+S030 p.76, S022 p.77



p. 53

## MASS FLOW

8626 p.79, 8711 p.80, 8713 p.81, 8741 p.82, 8742 p.83,  
8745 p.84, 8746 p.85



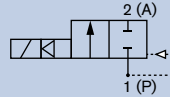
p. 79

# 2/2-way hard-coupled Solenoid Valve

0290

## NPT 1/2" - NPT 2"

- Switches without differential pressure
- Operates on vacuum
- Process proven rugged and reliable design



One of the ever reliable workhorses of the Burkert solenoid range this hard-coupled solenoid valve with plunger piloted rugged diaphragm seal is perfect for vacuum, neutral gases and liquids. The high-performance design is available in brass and stainless steel with a range of diaphragm and seal materials.

### Technical Data

<b>Medium temperature</b> <sup>1)</sup>	NBR	14 °F to 176 °F (-10 °C to +80 °C)
	FKM	32 °F to 248 °F (0 °C to +120 °C)
	EPDM	-22 °F to 248 °F (-30 °C to +120 °C)
<b>Ambient temperature</b>	131 °F (+55 °C), max.	
<b>Voltage tolerance</b>	±10%	
<b>Duty cycle</b>	100% continuous rating	
<b>Body material</b>	Brass, stainless steel 1.4581	
<b>Seal material</b>	FKM (NBR or EPDM on request)	
<b>Coil material</b>	Epoxy (Class H)	
<b>Protection class</b>	IP65 (with cable plug)	
<b>Electrical connection</b>	Cable plug acc. to DIN EN 175301-803, Form A (included)	
<b>Accreditations</b>	UL Listed	

<sup>1)</sup> Max. medium temperature for versions with high power electronics (with coding... /UC) withstands 194 °F (90 °C)

Orifice [mm]	Power consumption		Response times <sup>2)</sup>	
	UC [W]	UC [W]	Opening [ms]	Closing [ms]
12	120	8,5	100	700
20	145	10	to	
25	145	10	250	2000

<sup>2)</sup> Measured at valve outlet at 87 PSI (6 bar) and 68 °F (+20 °C), pressure rise 0 to 90%, pressure drop 100 to 10%

### Envelope Dimensions [inch] (see datasheet for details)

2509 cable plug  
Form A included

Size	A	B	C
NPT 1/2"	2.93	2.75	3.75
NPT 3/4"	3.93	2.75	4.80
NPT 1"	4.52	2.75	5.15
NPT 1 1/4"	4.96	2.75	5.70
NPT 1 1/2"	4.96	2.75	6.06
NPT 2"	6.45	2.75	8.30

### Options

- Cable plug with LED and varistor
- Oxygen version
- UR/cURus approval
- Flange connection acc. to DIN 2501 (DN25-50 mm)
- 24V/60 Hz, 240V/60 Hz

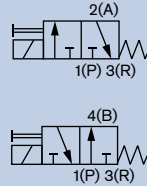
### Ordering Chart

Port connection [inch]	Orifice [mm]	Cv	Pressure range [PSI]	Power consumption		Item no. Voltage/Frequency [V/Hz]	
				Inrush [W]	Hold [W]	24 V AC/DC	120 V AC/DC
<b>Brass</b>							
NPT 1/2	12	2.1	0-232	100	25	298 109	298 110
NPT 3/4	20	5.8	0-232	120	32	298 115	298 116
NPT 1	25	11.7	0-232	120	32	298 119	298 120
<b>Stainless steel</b>							
NPT 1/2	12	2.1	0-232	100	25	298 112	298 113
NPT 3/4	20	5.8	0-232	120	32	298 117	298 118
NPT 1	25	11.7	0-232	120	32	298 122	298 123

# Pivot Operated 3/2-way Solenoid Valve in brass or stainless steel

## NPT 1/4"

- Isolating separating diaphragm design
- Long service life
- Handles slightly contaminated fluids with ease
- Manual override as standard



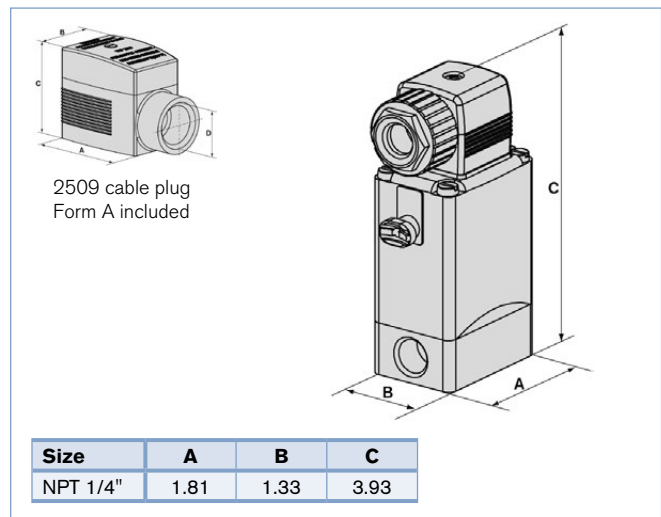
0330

Direct-acting 3/2-way normally closed and normally open solenoid valves with pivoted armature and isolating diaphragm. This flexible valve series includes many options, various body materials, diaphragm and sealing materials and a range of electrical connections to suit many applications.

## Technical Data

<b>Temperature media</b>	32 °F to 176 °F (0 °C to +80 °C)
<b>Ambient temperature</b>	131 °F (+55 °C), max.
<b>Viscosity</b>	Max. 37 mm <sup>2</sup> /s
<b>Voltage tolerance</b>	±10%
<b>Duty cycle</b>	100% continuous rating
<b>Body material</b>	Brass (stainless steel on request)
<b>Seal material</b>	FKM
<b>Coil material</b>	Epoxy (Class H)
<b>Power consumption</b>	DC: 8 W, AC: 30 VA (inrush), 15 VA (hold)
<b>Protection class</b>	IP65, NEMA 4X for stainless steel only (with cable plug)
<b>Electrical connection</b>	Cable plug acc. to DIN EN 175301-803, Form A (included)
<b>Accreditations</b>	UL Listed

## Envelope Dimensions [inch] (see datasheet for details)



Orifice [mm]	Response times			
	AC		DC	
	Opening [ms]	Closing [ms]	Opening [ms]	Closing [ms]
2-4	8-15	8-15	10-20	10-20

**Response times [ms]:** Measured at valve outlet at 87 PSI (6 bar) and 68 °F (+20 °C)  
Opening: pressure relief 0 to 90%, Closing: pressure relief 100 to 10%

## Options

- Electrical position feedback
- Impulse coil
- Vacuum version
- Cable plug with LED and varistor
- Flange version Type 0331 with manifold mounting
- ATEX approval
- Version with higher purity and tightness (analysis model)
- CSA and FM approval
- Buna, EPDM, FFKM on request
- PVDF or Polypropylene on request
- 24V/60 Hz, 240/60 Hz

## Ordering Chart

Port connection [inch]	Orifice [mm]	Cv	Pressure range <sup>1)</sup>		Voltage/Frequency [V/Hz]			
			AC [PSI]	DC [PSI]	Brass		Stainless steel	
					24/DC	120/60	24V/DC	120V60
<b>3-way normally closed configuration</b>								
NPT 1/4	2	0.13	0-174	0-174	341 670	327 520	327 518	327 522
NPT 1/4	3	0.27	0-145	0-145	327 249	327 244	327 532	327 599
<b>3-way normally open configuration</b>								
NPT 1/4	2	0.13	0-174	0-174	327 739	327 739	328 196	328 016
NPT 1/4	3	0.27	0-145	0-145	327 504	327 251	-	-

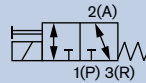
<sup>1)</sup> Pressure range for DC valves is 25% less than stated in the table.

# Pivot Operated 3/2-way Universal Solenoid Valve in brass or stainless steel

0330

**NPT 1/4", 0-174 PSI max.**

- Universal flow function
- Isolating separating diaphragm design
- Handles slightly contaminated fluids with ease
- Manual override as standard
- Long lifetime



Direct-acting 3/2-way universal function (E) solenoid valves with pivoted armature and isolating diaphragm. This flexible valve series includes many options, various body materials, diaphragm and sealing materials and a range of electrical connections to suit many applications.

## Technical Data

<b>Temperature media</b>	32 °F to 176 °F (0 °C to +80 °C)
<b>Ambient temperature</b>	131 °F (+55 °C), max.
<b>Viscosity</b>	Max. 37 mm <sup>2</sup> /s
<b>Voltage tolerance</b>	±10%
<b>Duty cycle</b>	100% continuous rating
<b>Body material</b>	Brass or Stainless steel 1.4401
<b>Seal material</b>	FKM (FFKM, NBR and EPDM on request)
<b>Coil material</b>	Epoxy (Class H)
<b>Power consumption</b>	DC: 8 W, AC: 30 VA (inrush), 15 VA (hold)
<b>Protection class</b>	IP65, NEMA 4X for stainless steel only (with cable plug)
<b>Electrical connection</b>	Cable plug acc. to DIN EN 175301-803, Form A (included)
<b>Accreditations</b>	UL Listed

Orifice [mm]	Response times			
	AC		DC	
	Opening [ms]	Closing [ms]	Opening [ms]	Closing [ms]
2-4	8-15	8-15	10-20	10-20

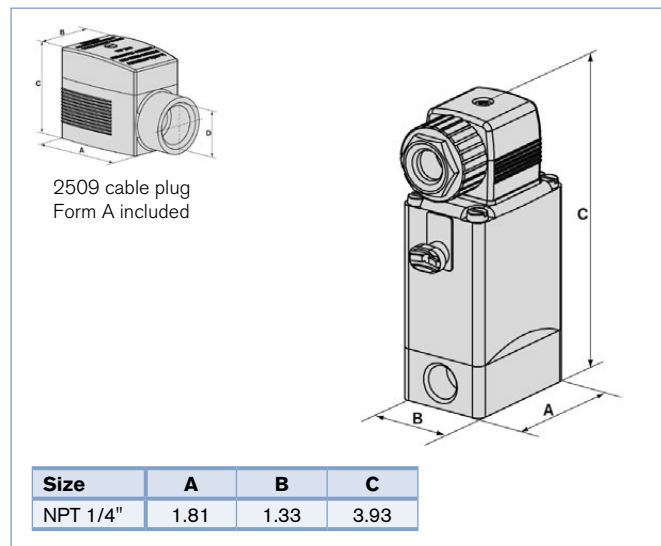
**Response times [ms]:** Measured at valve outlet at 87 PSI (6 bar) and 68 °F (+20 °C)  
*Opening:* pressure relief 0 to 90%, *Closing:* pressure relief 100 to 10%

## Ordering Chart

Port connection [inch]	Orifice [mm]	Cv	Pressure range <sup>1)</sup>		Voltage/Frequency [V/Hz]	
			AC [PSI]	DC [PSI]	24/DC	120/60
<b>Brass valve body</b>						
NPT 1/4	3	0.27	0-85	0-85	327 514	327 509
NPT 1/4	4	0.33	0-42	0-42	327 895	341 669
<b>Stainless steel valve body</b>						
NPT 1/4	3	0.27	0-85	0-85	327 927	327 816
NPT 1/4	4	0.33	0-42	0-42	341 668	327 820

<sup>1)</sup> Pressure range for DC valves is 25% less than stated in the table.

## Envelope Dimensions [inch] (see datasheet for details)



## Options

- Electrical position feedback
- Impulse coil
- Vacuum version
- Cable plug with LED and varistor
- Flange version Type 0331 with manifold mounting
- ATEX approval
- Version with higher purity and tightness (analysis model)
- CSA and FM approval
- Buna, EPDM, FFKM on request
- PVDF or Polypropylene on request
- 24V/60 Hz, 240/60 Hz

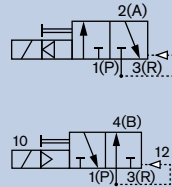


# 3/2-way Solenoid Valve with pivoted armature pilot drive

0340

## NPT 1/4" - NPT 1 1/2"

- Servo-Piston for large flow rates
- Pivoted armature isolated pilot
- Manual override as standard
- Fast ventilation function

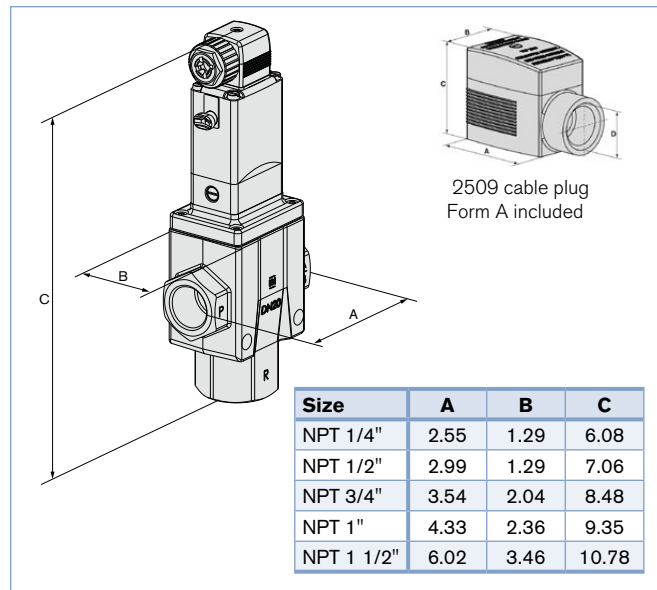


Servo-assisted 3/2-way normally closed and normally open solenoid valve with a pivoted armature and isolating diaphragm. This series encompasses a range of diaphragms, sealing materials and electrical connections. Perfect for pneumatic actuation of very large process valves. For the complete opening and closing a differential pressure of 7.25 PSI is required.

### Technical Data

<b>Temperature media</b>	32 °F to 194 °F (0 °C to +90 °C)
<b>Ambient temperature</b>	131 °F (+55 °C), max.
<b>Viscosity</b>	Max. 21 mm <sup>2</sup> /s
<b>Voltage tolerance</b>	±10%
<b>Duty cycle</b>	100% continuous rating
<b>Body material</b>	Brass
<b>Seal material</b>	NBR
<b>Coil material</b>	Epoxy (Class H)
<b>Power consumption</b>	DC: 8 W, AC: 30 VA (inrush), 15 VA (hold)
<b>Protection class</b>	IP65, NEMA 4 (with cable plug)
<b>Electrical connection</b>	Cable plug acc. to DIN EN 175301-803, Form A (included)
<b>Response times [ms]</b>	Measured at valve outlet at 6 bar and +20 °C Opening: Pressure build-up 0 to 90% Closing: Pressure decay 100 to 10% (see Ordering Chart)
<b>Accreditations</b>	UL Listed

### Envelope Dimensions [inch] (see datasheet for details)



### Options

- Electrical position feedback
- Impulse coil
- Range of diaphragm seals to suit difficult media
- Cable plug with LED and varistor
- 24V/60 Hz, 240/60 Hz

### Ordering Chart

Port connection [inch]	Orifice [mm]	Cv	Pressure range [PSI]	Item no. Voltage/Frequency [V/Hz]	
				24 V DC	120 V/60 Hz
<b>Circuit function C</b>					
NPT 1/4	8	1.1	7-232	331 022	341 978
NPT 3/8	12	2.7	7-232	331 053	331 048
NPT 1/2	12	3.0	7-232	331 025	331 029
NPT 3/4	20	7.7	7-232	341 977	331 040
NPT 1	25	11.7	7-232	331 055	331 042
<b>Circuit function D</b>					
NPT 3/8	12	2.7	7-232	-	341 980
NPT 1/2	12	3.0	7-232	331 044	341 981

Orifice [mm]	Response times <sup>1)</sup>	
	Opening [ms]	Closing [ms]
8	25	25
12	30	30
20	40	40
25	70	70
40	120	120

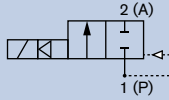
<sup>1)</sup> Measured at valve outlet at 87 PSI (6 bar) and 68 °F (+20 °C)  
Opening: pressure rise 0 to 90%, Closing: pressure drop 100 to 10%

# 2/2-way Servo-Assisted Solenoid Valve with Isolated Pilot

5282

## NPT 1/2" - NPT 2"

- Unique isolated technology for slightly contaminated fluids
- Independently adjustable open / close rate
- Easily configurable for normally open
- Manual override



Completely unique servo-assisted solenoid valve with isolated pivoted armature pilot. This valve design is much less sensitive to fluid contamination than plunger operated valves and therefore offers many advantages in the process environment. The pilot section can be rotated in the field to make the valve normally open.

### Technical Data

<b>Pressure range</b>	2.9 -145 PSI (0.2-10 bar)
<b>Temperature media</b>	32 °F to 194 °F (0 °C to +90 °C)
<b>Ambient temperature</b>	131 °F (+55 °C), max.
<b>Body material</b>	Brass or Stainless steel
<b>Seal material</b>	NBR with brass, FKM with Stainless
<b>Coil material</b>	Epoxy (Class H)
<b>Power consumption</b>	DC: 8 W, AC: 21 VA (inrush), 12 VA (hold)
<b>Protection class</b>	IP65 (with cable plug)
<b>Electrical connection</b>	Cable plug acc. to DIN EN 175301-803 Form A (included)
<b>Accreditations</b>	UL Listed

To open the full cross-section a pressure difference of 7.2 PSI (0.5 bar) is required. The switching times can be changed by turning the flow control screw (on the cover).

Response times <sup>1)</sup>	
Opening [s]	Closing [s]
0.1-0.8	1.0-4.0

<sup>1)</sup> Measured at valve outlet at 87 PSI (6 bar) and 68 °F (+20 °C)  
Opening: pressure rise 0 to 90%, Closing: pressure drop 100 to 10%

### Envelope Dimensions [inch] (see datasheet for details)

2509 cable plug Form A included

Size	A	B	C
1/2"	2.56	1.57	4.84
3/4"	3.94	2.36	5.16
1"	4.53	2.76	5.55
1 1/4"	4.96	3.35	5.79
1 1/2"	4.96	3.35	6.14
2"	6.46	4.53	6.97
2 1/2"	7.09	4.53	7.28

### Ordering Chart

Port connection [inch]	Orifice [mm]	Cv	Pressure range [PSI]	Item no. Voltage/Frequency [V/Hz]	
				24 V DC	120 V/50-60 Hz
<b>Brass</b>					
NPT 1/2	13	4.66	2.9-145	329 291	329 285
NPT 3/4	20	5.83	2.9-145	329 299	329 293
NPT 1	25	11.65	2.9-145	329 288	329 286
NPT 1 1/4	32	23.30	2.9-145	341 697	329 333
NPT 1 1/2	40	23.30	2.9-145	329 303	329 311
NPT 2	50	46.60	2.9-145	329 298	329 284
<b>Stainless steel</b>					
NPT 1/2	13	4.66	2.8-145	329 304	329 282
NPT 3/4	20	5.83	2.8-145	329 294	329 314
NPT 1	25	11.65	2.8-145	329 310	329 290
NPT 1 1/4	32	23.30	2.8-145	329 337	329 328
NPT 1 1/2	40	23.30	2.8-145	329 305	329 292
NPT 2	50	46.60	2.8-145	329 323	329 324

### Options

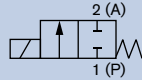
- Normally open
- Electrical position feedback
- Impulse coil
- Cables plug with LED
- Cable plug with varistor
- FM Class 1, Div 1&2, CSA
- Ex-version available
- Atex version available
- Range of diaphragm seals to suit aggressive media
- 24V/60 Hz, 240V/60 Hz

# Plunger Operated 2/2-way Solenoid Valve

6011

## NPT 1/8" or manifold mounting

- Brass or Stainless steel
- FKM seal as standard
- Slip over coil can be rotated in 4 x 90 degrees



Shown without plug

Direct-acting miniature solenoid valve which is plunger operated for neutral gases, liquids and technical vacuum. Available in standalone or manifold mount versions, there is also an "analysis" version which is manufactured under cleanroom conditions.

## Technical Data

<b>Body material</b>	Type 6011 Type 6011 A	Brass, polyamide (PA), SS 1.4305 Brass, SS 1.4305
<b>Sealing material</b>		FKM
<b>Temperature media</b>		14 °F to 212 °F (-10 °C to +100 °C)
<b>Ambient temperature</b>		131 °F (+55 °C), max.
<b>Body material</b>		Brass or stainless steel 1.4305
<b>Seal material</b>		FKM
<b>Coil material</b>		Epoxy (Class H)
<b>Viscosity</b>		max. 21 mm <sup>2</sup> /s
<b>Port connection</b>	Type 6011	NPT 1/8
<b>Voltage tolerance</b>		±10%
<b>Duty cycle</b>	Single valve	100% continuous rating
<b>Power consumption</b>		DC: 6.5 W, AC: 4.5 W
<b>Protection class</b>		IP65 (with cable plug)
<b>Electrical connection</b>		Cable plug Type 2507 Form B Industry standard (included)
<b>Accreditations</b>		UL Recognized

## Envelope Dimensions [inch] (see datasheet for details)

2507 cable plug  
Form B included

Size	A	B	C
1/8"	.98	.78	1.98

Orifice [mm]	Response times <sup>1)</sup>	
	Opening [ms]	Closing [ms]
1.2	8-12	14-16
1.6		
2.0	8-12	14-16
2.4		

<sup>1)</sup> Measured at valve outlet at 87 PSI (6 bar) and 68 °F (+20 °C)  
Opening: pressure rise 0 to 90%, Closing: pressure drop 100 to 10%

## Ordering Chart

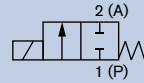
Port connection [inch]	Orifice [mm]	Cv	Pressure range [PSI]		Item no. Voltage/Frequency [V/Hz]	
			[AC]	[DC]	24 V DC	120 V/60 Hz
<b>Brass</b>						
NPT 1/8	1.6	0.07	0-174	0-87	461 767	461 769
NPT 1/8	2.0	0.13	0-116	0-65	461 771	461 773
NPT 1/8	2.4	0.15	0-87	0-43	461 775	461 777
<b>Stainless steel</b>						
NPT 1/8	1.6	0.07	0-174	0-87	461 779	461 781
NPT 1/8	2.0	0.13	0-116	0-65	461 783	461 785
NPT 1/8	2.4	0.15	0-87	0-43	461 787	461 789

# Plunger Operated 2/2-way Solenoid Valve

6013

## NPT 1/8" - NPT 1/4"

- Normally close
- With threaded body in brass or stainless steel
- Slip over coil can be rotated in 4 x 90 degrees
- FKM seal material with high quality standard



Supplied as shown

Direct-acting small solenoid valve which is plunger operated for neutral gases, liquids and technical vacuum. Special versions are also available for use with steam.

### Technical Data

<b>Body material</b>	Type 6013	Brass, Stainless steel 1.4305
<b>Seal material</b>		FKM, (PTFE/Graphite EPDM on request)
<b>Temperature media</b>		14 °F to 212 °F (-10 °C to +100 °C)
<b>Ambient temperature</b>		131 °F (+55 °C), max.
<b>Viscosity</b>		Max. 21 mm <sup>2</sup> /s
<b>Voltage tolerance</b>		±10%
<b>Duty cycle</b>		Single valve 100% ED
<b>Body material</b>		Brass or Stainless steel 1.4305
<b>Seal material</b>		FKM
<b>Coil insulation class</b>		Epoxy (class H)
<b>Power consumption</b>		AC: 24 VA (inrush), 17 VA (hold) DC: 8 W
<b>Protection class</b>		IP65
<b>Electrical connection</b>		Cable plug acc. to DIN EN 175301-803, Form A (included)
<b>Response times<sup>1)</sup></b>		
	Opening	20 ms
	Closing	30 ms
<b>Accreditations</b>		UL Listed

<sup>1)</sup> Measured at valve outlet at 87 PSI (6 bar) and 68 °F (+20 °C)  
Opening: pressure rise 0 to 90%, Closing: pressure drop 100 to 10%

### Envelope Dimensions [inch] (see datasheet for details)

Size	A	B	C
1/8"	1.28	1.37	2.59
1/4"	1.92	1.37	2.82

### Options

- Normally open
- Impulse version
- Cable plug with LED and varistor
- PTFE/graphite seal to 356 °F
- SIL certificate
- UL / UR
- ATEX version
- 24V/60 Hz, 240V/60 Hz

### Ordering Chart

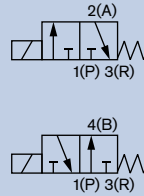
Port connection [inch]	Orifice [mm]	Cv	Pressure range [PSI]		Item no. Voltage/Frequency [V/Hz]	
			[AC]	[DC]	24 V DC	120 V/60 Hz
<b>Brass</b>						
NPT 1/8	2	0.14	0-362	0-174	332 772	341 755
NPT 1/8	2.5	0.19	0-232	0-145	332 761	341 756
NPT 1/8	3	0.27	0-145	0-87	332 775	332 762
NPT 1/4	3	0.27	0-145	0-87	332 773	332 758
NPT 1/4	4	0.35	0-58	0-22	332 750	332 757
<b>Stainless steel</b>						
NPT 1/8	2	0.14	0-362	0-174	332 768	332 753
NPT 1/8	3	0.27	0-145	0-87	341 751	332 755
NPT 1/4	3	0.27	0-145	0-87	332 770	332 769
NPT 1/4	4	0.35	0-58	0-22	341 753	341 757

# Compact Plunger Operated 3/2-way Valve

6014

## NPT 1/8" & NPT 1/4"

- Reliable double seated, plunger operation
- Threaded or flange version
- High quality FKM seal as standard
- Slip over coil can be rotated in 4 x 90 degrees



Shown with 2508 plug

Direct-acting 3/2-way, normally closed or normally open solenoid valve. It is for neutral gases and liquids and it is also suitable for technical vacuum.

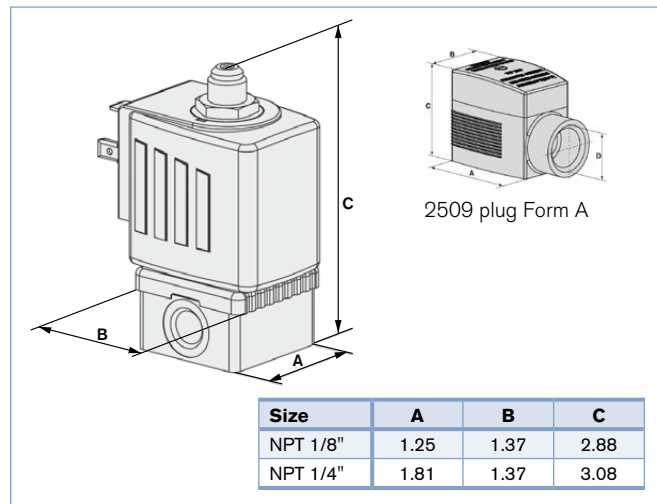
### Technical Data

<b>Temperature media</b>	14 °F to 212 °F (-10 °C to +100 °C)
<b>Ambient temperature</b>	14 °F to 131 °F (-10 °C to +55 °C)
<b>Viscosity</b>	Max. 21 mm <sup>2</sup> /s
<b>Voltage tolerance</b>	+10%
<b>Duty cycle</b>	
Single valve	100% continuous rating
for block mounting on sub-base	Intermittent 60% (30 min)
<b>Body material</b>	Brass, Polyamide (Flange), (SS optional)
<b>Seal material</b>	FKM (EPDM on request)
<b>Coil insulation class</b>	Polyamide class B (Epoxy class H on request)
<b>Coil material</b>	Polyamide (Class B)
<b>Protection class</b>	IP65, NEMA 4 (with cable plug)
<b>Electrical connection</b>	Cable plug acc. to DIN EN 175301-803 Form A (included)
<b>Accreditations</b>	UL Listed

Orifice [mm]	Power consumption		Response times	
	Inrush AC	Hold AC	Opening [ms]	Closing [ms]
1.5	24 VA	17 VA (8 W)	10-15	15-20
2.0	24 VA	17 VA (8 W)	10-15	15-20
2.5	24 VA	17 VA (8 W)	15-20	10-22

**Response times [ms]:** Measured at valve outlet at 87 PSI (6 bar) and 68 °F (+20 °C)  
*Opening:* pressure build-up 0 to 90%, *Closing:* pressure relief 100 to 10%

### Envelope Dimensions [inch] (see datasheet for details)



### Options

- Cable plug with LED and varistor
- Impulse version
- Oxygen version
- Vacuum version
- Analysis version
- 24V/60 Hz, 240/60 Hz
- Hazardous area approvals
- Explosion-proof version
- Further circuit functions
- SIL - certificated
- UL and CSA approvals

### Ordering Chart

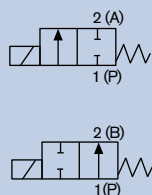
Port connection [inch]	Circuit function	Orifice [mm]	Cv	Pressure range [PSI]	Item no. Voltage/Frequency [V/Hz]	
					24 V DC	120 V/60 Hz
<b>Brass</b>						
NPT 1/8	C (3/2-way normally closed)	1.5	0.08	0-232	332 738	332 733
NPT 1/8		2.0	0.13	0-145	332 727	332 724
NPT 1/4		2.0	0.13	0-145	332 737	332 739
NPT 1/4		2.5	0.18	0-87	332 722	-
NPT 1/8	D (3/2-way normally open)	1.5	0.08	0-232	332 742	-
NPT 1/8		2.0	0.13	0-145	332 732	-
NPT 1/4		2.0	0.13	0-145	332 721	-
NPT 1/4		2.5	0.18	0-87	332 723	-
<b>Stainless steel</b>						
NPT 1/8	C (3/2-way NC)	1.5	0.08	0-232	332 720	-
NPT 1/4		2.0	0.13	0-145	332 741	332 728
NPT 1/8	T (universal)	1.5	0.08	0-101	332 729	-

# Direct-acting 2/2-way plunger valve

6027

## NPT 1/4"

- Direct-acting, powerful valve with diameter of up to DN 12
- Vibration-proof, bolted coil system
- Increased leak-tightness with welded plunger guiding tube
- Explosion proof versions



Direct-acting plunger valve. The stopper and plunger guiding tube are welded together to enhance pressure resistance and leak-tightness.

### Technical Data

<b>Medium temperature</b>	
normally closed	-10 °C to +140 °C
normally open	-10 °C to +100 °C
<b>Ambient temperature</b>	-10 °C to +55 °C
<b>Viscosity</b>	Max. 21 mm <sup>2</sup> /s
<b>Voltage tolerance</b>	±10%
<b>Duty cycle</b>	Single valve 100% ED
<b>Body material</b>	Brass or stainless steel 1.4404 (316L)
<b>Coil material</b>	Epoxy (Class H)
<b>Seal material</b>	FKM, (PTFE/FKM and PTFE/graphite for high temperature versions, EPDM on request)
<b>Electrical connection</b>	According to DIN EN 175301-803 Form A for cable plug Type 2508 (not included)
<b>Protection class</b>	IP65 with Cable Plug
<b>Accreditations</b>	UL Listed

### Envelope Dimensions [inch] (see datasheet for details)

2509 cable plug Form A included

Size	A	B	C
1/4"	2.20	2.22	3.92
3/8"	2.20	2.22	4.05
1/2"	2.36	2.22	4.12

### Options

- Vacuum version
- Analysis version
- 24V/60 Hz, 240/60 Hz
- ATEX, UL Recognized

### Ordering Chart

Port connection [inch]	Circuit function	Orifice [mm]	Cv	Pressure range [PSI]		Item no. Voltage/Frequency [V/Hz]	
				DC	AC	24 V DC	120 V/60 Hz
<b>Brass</b>							
NPT 1/4	normally closed	3.0	0.32	0-435	0-406	307 748	307 780
NPT 1/4		4.0	0.62	0-174	0-188.5	307 749	307 781
NPT 1/4		6.0	1.09	0-44	0-79.7	307 750	307 782
NPT 3/8		3.0	0.32	0-435	0-406	307 751	307 783
NPT 3/8		4.0	0.62	0-174	0-188.5	307 752	307 784
NPT 3/8		6.0	1.09	0-44	0-79.7	307 753	307 785
NPT 3/8		8.0	1.84	0-15	0-33	307 754	307 786
NPT 1/2		6.0	1.09	0-44	0-87	307 755	307 787
NPT 1/2		8.0	1.84	0-15	0-43.5	307 756	307 788
NPT 1/2	10.0	2.08	0-6	0-18.85	307 757	307 789	
<b>Stainless steel</b>							
NPT 1/4	normally closed	3.0	0.32	0-435	0-406	307 764	307 796
NPT 1/4		4.0	0.62	0-174	0-188.5	307 765	307 797
NPT 1/4		6.0	1.09	0-44	0-79.7	307 766	307 798
NPT 3/8		3.0	0.32	0-435	0-406	307 767	307 799
NPT 3/8		4.0	0.62	0-174	0-188.5	307 768	307 800
NPT 3/8		6.0	1.09	0-44	0-79.7	307 769	307 801
NPT 3/8		8.0	1.84	0-15	0-33	307 770	307 802
NPT 1/2		6.0	1.09	0-44	0-87	307 771	307 803
NPT 1/2		8.0	1.84	0-15	0-43.5	307 772	307 804
NPT 1/2	10.0	2.08	0-6	0-18.85	307 773	307 805	
NPT 1/2	12.0	2.31	-	0-14.5	307 774	307 806	



When safety and hygiene are at stake, you can count on us.

For applications with very strict hygiene requirements, Cleaning-in-Place (CIP) plays a particularly important role. Processes that run reliably and efficiently as well as the dependable dosing and delivery of cleaning media are the key factors in food safety. In this context, we offer a comprehensive product portfolio backed by in-depth consulting expertise for your CIP plant.

#### Our solutions enable

- **dependable fluid delivery,**  
using a variety of valve types such as diaphragm valves, solenoid valves and dosing pumps as well as complete valve block solutions.
- **reliable process automation**  
with rapid switching and direct feedback.
- **seamless quality control,**  
with analysis, level, pressure or temperature sensors that can detect deviations at an early stage, to prevent faults. This delivers lasting improvements in process reliability.

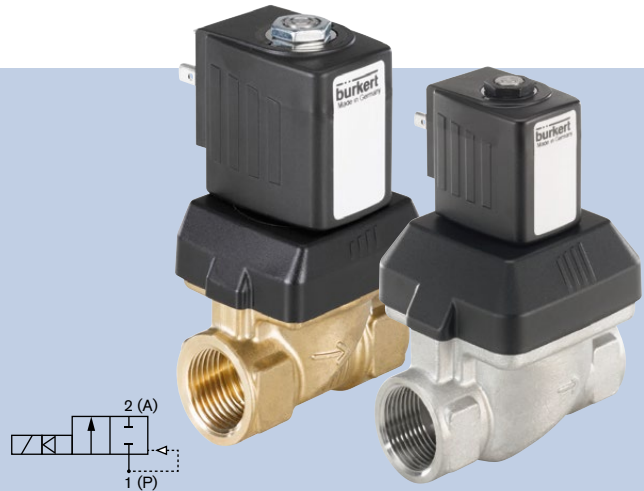
We would be delighted to develop a bespoke system solution for you – feel free to contact us.



# 2/2-way Solenoid Valve for liquids and gases

6213 EV

- Coupled spring diaphragm system opened
- Waterhammer free and low noise
- Flow-optimized housing and diaphragm geometry for high flow



Type 6213 EV is a 2/2-way normally closed solenoid valve with a spring coupled diaphragm system. It is universally used for liquids. A minimum differential pressure of 1.5 PSI is required for full opening.

## Technical Data

<b>Orifice</b>	Standard DN10-40 mm
<b>Body material</b>	Brass acc. to DIN EN 50930-6, stainless steel 1.4408 (316)
<b>Inner part of valve</b>	Brass body Stainless steel body
<b>Seal material</b>	NBR, FKM, (EPDM on request)
<b>Medium</b>	NBR FKM EPDM
	Neutral fluids, water, hydraulic oil, oil without additives Per-solutions, hot oils with additives Oil and fat-free fluids and gases
<b>Ambient temperature</b>	131 °F (+55 °C), max.
<b>Medium temperature</b>	NBR FKM EPDM
	14 °F to 176 °F (-10 °C to +80 °C) 32 °F to 194 °F (0 °C to +90 °C) with polyamide coil 32 °F to 248 °F (0 °C to +120 °C) with epoxy coil -22 °F to 194 °F (-30 °C to +90 °C) with polyamide coil -22 °F to 212 °F (-30 °C to +100 °C) with epoxy coil
<b>Voltages</b>	24V/DC, 120/60, ( 24/60, 240/60 on request)
<b>Voltage tolerance</b>	±10%
<b>Duty cycle</b>	100% continuous rating
<b>Electrical connection</b>	Cable plug acc. to DIN EN 175301-803, Form A (included)
<b>Protection class</b>	IP65 with cable plug
<b>Installation</b>	As required, preferably with actuator upright
<b>Response times<sup>1)</sup></b>	0.1-4 seconds (depending on orifice and differential pressure)
<b>Accreditations</b>	UL Listed

<sup>1)</sup> Measured at valve outlet at 87 PSI (6 bar) and 68 °F (+20 °C)  
Opening: pressure build-up 0 to 90%, Closing: pressure drop 100 to 10%



## Ordering Chart

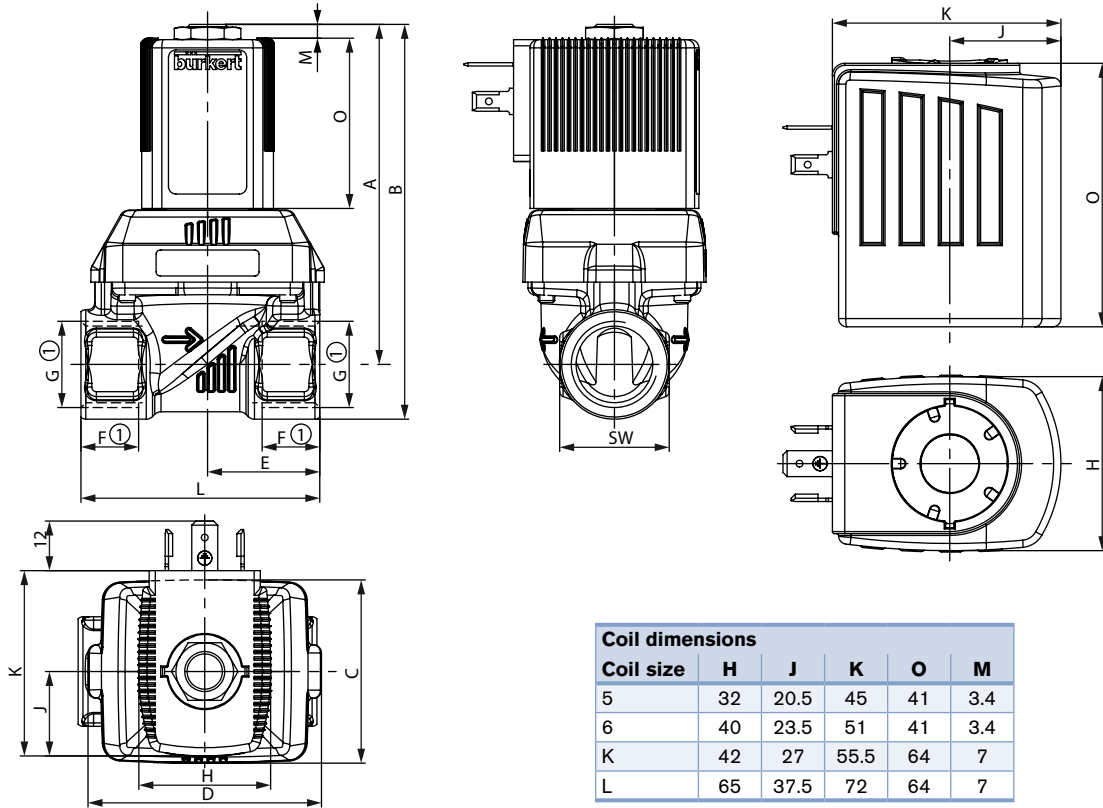
Port connection [inch]	Orifice [mm]	Cv	Pressure range [PSI]	Power consumption			Item no. Voltage/Frequency [V/Hz]	
				Inrush [VA]	Hold [VA]	Hold [W]	24 V DC	120 V/60 Hz
<b>Brass</b>								
NPT 3/8	10	2.4	1.5 – 145	34	14	8	280 512	280 511
NPT 1/2	13	4.2	1.5 – 145	36	14	8	280 508	280 506
NPT 3/4	20	9.8	1.5 – 145	38	14	8	280 502	280 500
NPT 1	20	9.8	1.5 – 145	160	38	18	280 486	276 442
NPT 1 1/4	25	12.9	1.5 – 145	160	14	8	-	-
NPT 1 1/2	40	35.1	1.5 – 145	202	38	18	-	-
NPT 2	40	35.1	1.5 – 145	202	38	18	-	-
<b>Stainless steel</b>								
NPT 1/4	10	2.4	1.5 – 145	34	14	8	280 432	280 431
NPT 3/8	10	2.4	1.5 – 145	34	14	8	280 426	280 425
NPT 1/2	13	4.2	1.5 – 145	36	14	8	280 420	280 418
NPT 3/4	20	9.8	1.5 – 145	38	14	8	280 415	280 413
NPT 1	20	9.8	1.5 – 145	38	14	8	280 411	280 409

## Options

- Cables plug with LED
- Cables plug with varistor
- UL Recognized version



Dimensions [inch] (see datasheet for details)

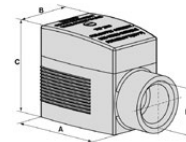


Coil dimensions					
Coil size	H	J	K	O	M
5	32	20.5	45	41	3.4
6	40	23.5	51	41	3.4
K	42	27	55.5	64	7
L	65	37.5	72	64	7

① The dimensions F1 and G 1 apply to G-threads  
 The dimensions F2 and G 2 apply to NPT-threads  
 The dimensions F3 and G 3 apply to RC-threads

② only as brass - thread port version

③ only as stainless steel - thread port version



2509 plug Form A  
included

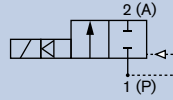
DN	A	B	C	D	E (MS/VA)	* NPT		L		coil size			
						F2 ①	G 2 ①	(MS/VA)	SW				
10	2.84	3.28	1.44	1.84	.88	.40	NPT 1/4	2	.88	5 and 6			
10 ②	2.92	3.46			.41	NPT 3/8	2	1.0					
10 ③					.98	.52	NPT 1/2		2.2				
13 ②	3.30	3.83	1.78	2.27	1.10	.54	NPT 1/2	2.32	1.08	5 and 6			
13 ③	3.38	4.02			1.3			2.6					
13					1.3	.56	NPT 3/4	2.6	1.28				
20	3.88	4.52	2.6	3.06	37	.56	NPT 3/4	3.06	1.28	5 and 6			
20	3.98	4.80			1.5			.67			NPT 1	3.2	1.64
13 ②	4.37	4.91	1.9	2.2	1.09	.54	NPT 1/2	2.32	1.08	K and L			
13 ③					1.3			2.6					
13	4.45	5.09	2.6	3.06	1.3	.56	NPT 3/4	2.6	1.28				
20	4.95	5.59			1.4			.56		NPT 3/4	3.06	1.28	
20	5.06	5.87	3.08	3.52	1.5	.67	NPT 1	3.2	1.6	K and L			
25	5.73	6.53			1.8			.67			NPT 1	3.8	1.6
25	5.93	6.93			1.8	.69	NPT 1 1/4	3.8	2				
40 ②	6.15	7.15	4.18	4.7	2.44	.69	NPT 1 1/4	5.04	2	K and L			
40	6.37	7.57			2.44			.69			NPT 1 1/2	5.04	2.4
40	6.61	8.01			2.56			.70			NPT 2	5.28	2.8

# Servo-Assisted Solenoid Valve with Plunger Pilot

6281 EV

## NPT 1/2" - NPT 2", 2.9-232 PSI

- Waterhammer-free
- Rugged molded diaphragm
- Compact design with high flow rates



Supplied as shown

Servo-assisted brass plunger piloted solenoid valve with un-coupled rugged diaphragm. This valve is designed for neutral gases and liquids where a rugged and reliable solution is required.

### Technical Data

<b>Pressure range</b>	2.9-232 PSI max.
<b>Temperature media</b>	+14 °F to +176 °F
<b>Ambient temperature</b>	131 °F, max.
<b>Body material</b>	Brass, Stainless steel
<b>Seal material</b>	FKM
<b>Coil material</b>	Epoxy (Class H)
<b>Power consumption</b>	DC: 8 W, AC: 21 VA (inrush), 12 VA (hold)
<b>Protection class</b>	IP65 (with cable plug)
<b>Electrical connection</b>	Cable plug acc. to DIN EN 175301-803, Form A (included)
<b>Accreditations</b>	UL Listed

### Options

- Normally open
- Cable plug with LED
- Cable plug with varistor
- UL Recognized version
- BUNA and EPDM seal materials on request

### Envelope Dimensions [inch] (see datasheet for details)

Size	A	B	C
1/2"	2.6	1.68	4.18
3/4"	3.2	2.4	4.62
1"	3.8	2.8	5.08
1-1/4"	3.8	2.8	5.46
1-1/2"	5.04	4	6.22
2"	6.56	4.6	6.19

### Ordering Chart

Port connection [inch]	Orifice [mm]	Cv	Pressure range [PSI]	Item no. Voltage/Frequency [V/Hz]	
				24 V DC	120 V/60 Hz
<b>Brass</b>					
NPT 1/2	13	4.66	2.9-232	306 547	306 617
NPT 3/4	20	10.00	2.9-232	306 548	306 618
NPT 1	25	14.11	2.9-232	306 552	306 619
NPT 1 1/4	25	14.11	2.9-232	306 560	306 620
NPT 1 1/2	40	23.30	2.9-232	306 561	306 621
NPT 2	50	46.60	2.9-232	306 562	306 622
<b>Stainless steel</b>					
NPT 1/2	13	4.66	2.9-232	306 563	306 623
NPT 3/4	20	10.00	2.9-232	306 564	306 624
NPT 1	25	14.11	2.9-232	306 566	306 625
NPT 1 1/4	25	14.11	2.9-232	306 567	306 626
NPT 1 1/2	40	23.30	2.9-232	306 568	306 627
NPT 2	50	46.60	2.9-232	306 569	306 629

# Servo-Assisted 2/2-way Steam Piston Valve

## NPT 1/2" - NPT 1 1/2", 0-145 PSI

- Up to diameter DN50
- Vibration-resistant, push-over coil
- Energy-saving double coil technology with Kick and Drop electronics



Servo-assisted piston valve. The fix coupling between pilot valve and piston provides an opening of the valve without pressure difference. This valve is suitable for media such as gas and steam. As well as liquids with low operating temperature below 32 °F.

### Technical Data

<b>Orifice</b>	DN13-DN50
<b>Pressure range</b>	0-145 PSI max.
<b>Temperature media</b>	32 °F to 302 °F (0 to 150°C)
<b>Ambient temperature</b>	32 °F to 113 °F (0 to 45°C)
<b>Body material</b>	Brass
<b>Seal material</b>	PTFE/graphite
<b>Coil material</b>	Epoxy (Class H)
<b>Switch function</b>	On/Off
<b>Flow</b>	Above seat
<b>Viscosity</b>	Max. 21 mm <sup>2</sup> /s
<b>Protection class</b>	IP65 (with cable plug)
<b>Electrical connection</b>	Cable plug acc. to DIN EN 175301-803, Form A

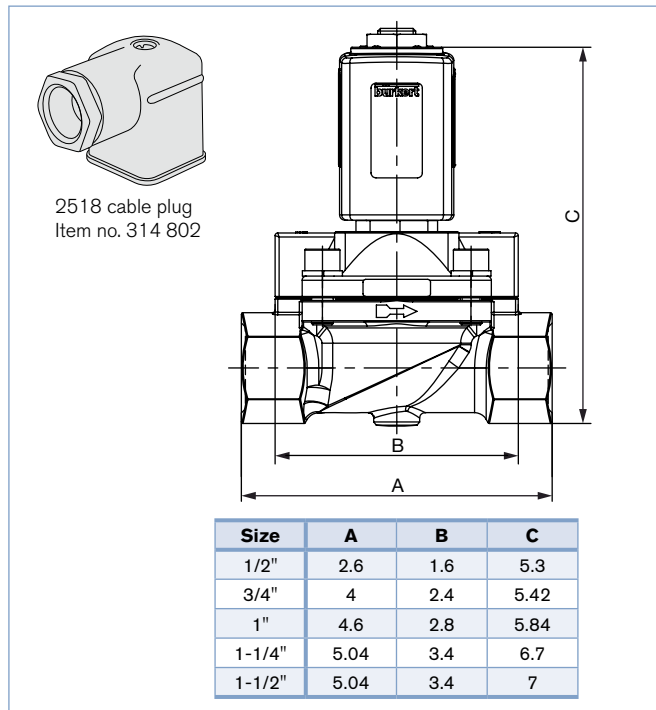
Orifice [mm]	Response times	
	Opening [ms]	Closing [ms]
13	30	250
20	30	250
25	60	700
32	80	900
50	500	2000

Measured with water at valve outlet at 87.02 PSI and 68 °F  
 Opening: pressure build-up 0 to 90 %, closing: pressure relief 100 to 10 %  
 (depending on the application conditions, deviations are possible)

### Ordering Chart

Port connection [inch]	Circuit function	Orifice [mm]	Kv value water [m <sup>3</sup> /h] <sup>1)</sup>	Pressure range [PSI]	Item no. Voltage/Frequency [V/Hz]	
					24 V AC/DC	110-120 V AC <sup>2)</sup>
<b>Brass body, seal combination PTFE/Graphite</b>						
NPT 1/2	A NC, normally closed	13	3.7	0-145	320 874	320 863
NPT 3/4		20	5.6	0-145	320 875	320 864
NPT 1		25	10.0	0-145	320 876	320 865
NPT 1 1/4		32	16.0	0-145	330 421	330 425
NPT 1 1/2		32	16.0	0-145	330 442	330 443

### Dimensions [inch] (see datasheet for details)

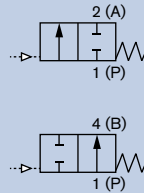


# On-Off Pneumatically Operated 2/2-way Angle Valve for Liquids

2000

## NPT 1/2" - NPT 2 1/2"

- 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

<b>Pressure range</b>	See Ordering Chart
<b>Viscosity</b>	max. 600 mm <sup>2</sup> /s
<b>Stuffing socket</b> (with silicone grease)	PTFE V-Rings with spring compensation
<b>Temperature media</b>	14 °F to 356 °F (-10 °C to +180 °C)
<b>Ambient temperature</b>	
for PA-Actuator <sup>1)</sup>	14 °F to 140 °F (-10 °C to +60 °C)
for PPS-Actuator <sup>1)</sup> Ø 40-80	41 °F to 284 °F (+5 °C to +140 °C)
for PPS-Actuator <sup>1)</sup> Ø 100-125	41 °F to 194 °F (+5 °C to +90 °C), temporary up to 284 °F (+140 °C)
<b>Body material</b>	Gunmetal or stainless steel 316L
<b>Seal material</b>	PTFE
<b>Actuator material</b>	Polyamide or PPS
<b>Control medium</b>	Instrument air at 87 PSI
<b>Flow direction</b>	Under seat
<b>Safe position</b>	Normally closed or normally open
<b>Pilot air port</b>	1/4" (Actuator Ø 40 = 1/8")

<sup>1)</sup> **Note:** For PA actuators in the sizes 1 1/2", 2" and 2 1/2", the combination of max. medium temperature and max. ambient temperature is as shown in the following chart

### Options

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

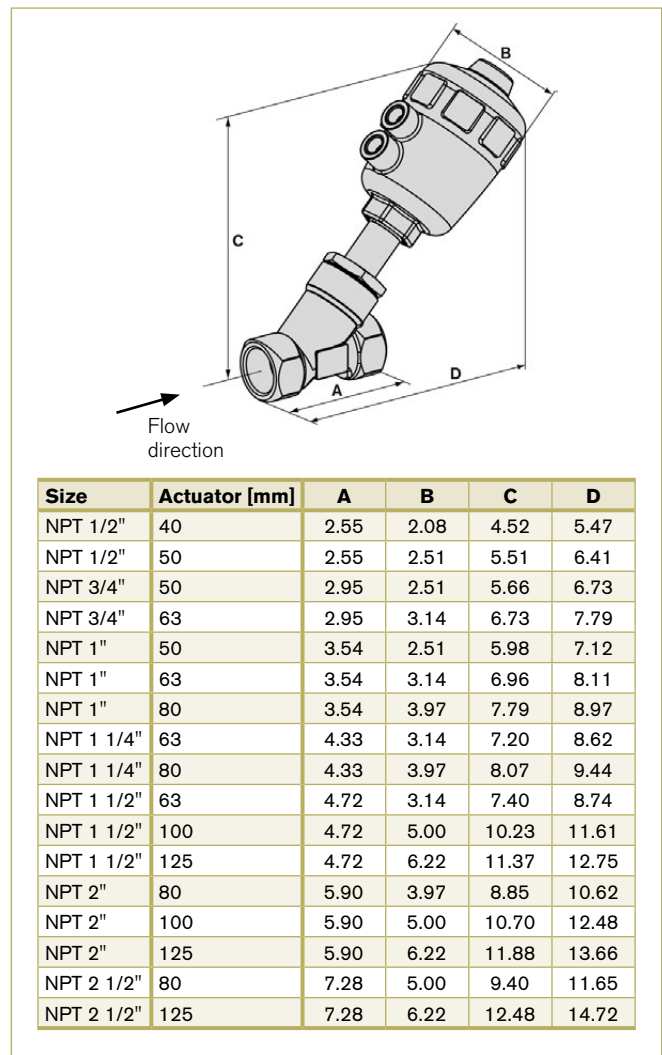
### Accessories for 2100



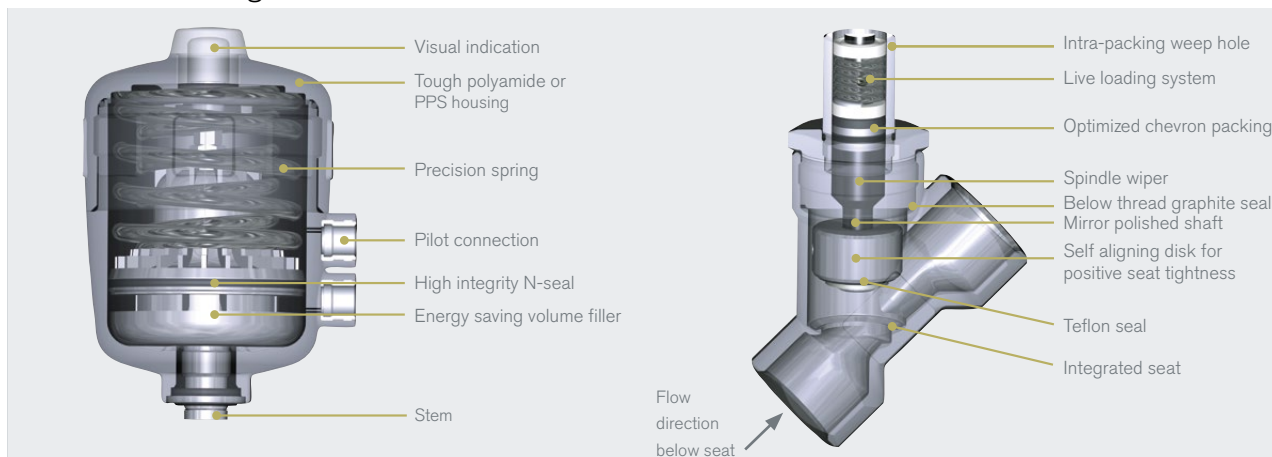
8697 feedback for classic actuators

6012P pilot valve

### Envelope Dimensions [inch] (see datasheet for details)



## Sectional Drawings



## Ordering Charts

### Standard PA Actuator

2000 for liquids	Actuator [mm]	Cv	Pressure	Bronze	Stainless Steel
<b>Normally Closed</b>					
1/2"	40	4.3	-	463 570	463 612
1/2"	50	4.9	232	463 571	463 613
3/4"	50	9.3	160	463 572	463 614
3/4"	63	11.6	232	463 573	463 615
1"	63	22.0	160	463 574	463 616
1"	80	23.2	232	463 575	463 617
1 1/4"	80	31.3	218	463 576	463 618
1 1/2"	80	32.5	150	463 577	463 619
1 1/2"	100	44.1	181	464 014	464 015
1 1/2"	125	44.1	232	463 578	463 620
2"	100	63.8	104	454 610	454 624
2"	125	63.8	150	454 785	454 789
2 1/2"	125	104.4	75	454 611	454 625
2 1/2"	125	104.4	102	462 656	462 657
<b>Normally Open</b>					
1/2"	40	4.4	-	463 579	463 621
1/2"	50	4.9	232	463 580	463 622
3/4"	50	9.3	232	463 581	463 623
1"	50	11.6	232	463 582	463 624
1 1/4"	63	22.0	232	463 583	463 625
1 1/2"	63	23.2	232	463 584	463 626
1 1/2"	80	31.3	232	464 016	464 017
2"	63	32.5	188	454 617	454 602
2"	80	63.8	232	454 787	454 791
2 1/2"	80	63.8	217	454 618	454 603

### PPS Actuator for high temperatures and severe washdown environment

2000 for liquids	Actuator [mm]	Cv	Pressure	Bronze	Stainless Steel
<b>Normally Closed</b>					
1/2" NPT	40	4.3	218	463 592	463 634
1/2" NPT	50	4.9	232	463 593	463 635
3/4" NPT	50	9.3	160	463 594	463 636
3/4" NPT	63	16.8	232	463 595	463 637
1" NPT	63	31.3	160	463 596	463 638
1" NPT	80	40.6	232	463 597	463 639
1 1/4" NPT	80	40.6	203	463 598	463 640
1 1/2" NPT	80	56.8	145	463 599	463 641
2" NPT	100	60.3	105	464 018	464 019
2" NPT	125	89.3	145	457 285	464 020
<b>Normally Open</b>					
1/2" NPT	40	4.3	232	463 600	463 642
1/2" NPT	50	4.9	232	463 601	463 643
3/4" NPT	50	9.3	232	463 602	463 644
1" NPT	50	16.8	232	463 603	463 645
1 1/4" NPT	63	31.3	232	463 604	463 646
1 1/2" NPT	63	40.6	232	463 605	463 647
2" NPT	63	56.8	188	464 021	464 022
2" NPT	80	60.3	218	464 023	464 024

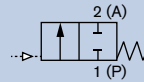
 = Quick Delivery Items

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

2000

## NPT 1/2" - NPT 2 1/2"

- 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



Burkert'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.

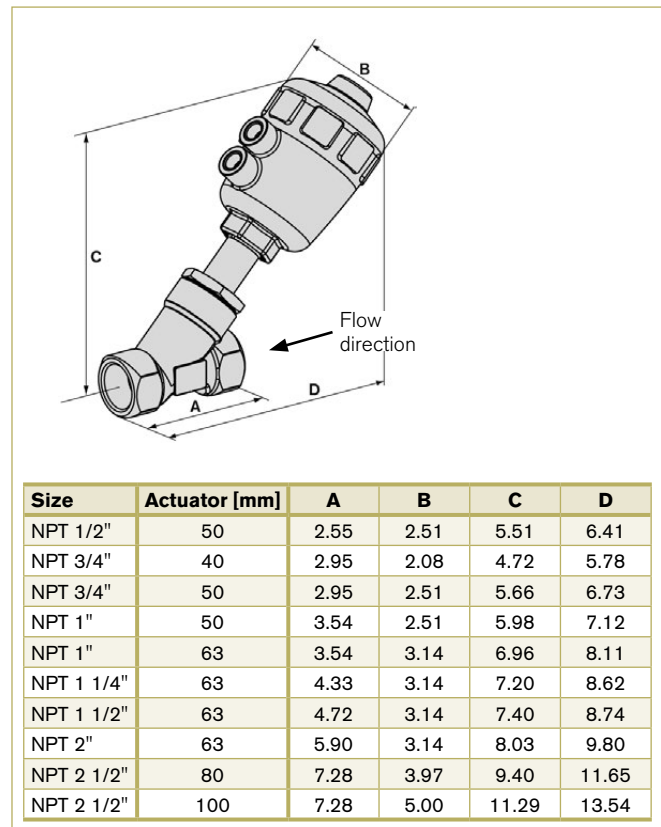
### Technical Data

<b>Pressure range</b>	See Ordering Chart		
<b>Temperature media</b>	14 °F to 356 °F (-10 °C to +180 °C)		
<b>Viscosity</b>	max. 600 mm <sup>2</sup> /s		
<b>Stuffing socket</b> (with silicone grease)	PTFE V-Rings with spring compensation		
<b>Ambient temperature max.</b>			
PA actuator	14 °F to 140 °F (-10 °C to +60 °C)		
PPS actuator Ø 40-80	284 °F (+140 °C)		
PPS actuator Ø 100-125	194 °F (+90 °C)		
<b>Body material</b>	Gunmetal or stainless steel 316L		
<b>Seal material</b>	PTFE		
<b>Actuator material</b>	Polyamide or PPS		
<b>Control medium</b>	Instrument air at 87 PSI		
<b>Flow direction</b>	Over seat to minimise actuator size		
<b>Safe position</b>	Normally closed		
<b>Max. pilot pressure</b>			
Actuator size Ø 40-80	PA and PPS	145 PSI	
Actuator size Ø 100	PA	145 PSI	
Actuator size Ø 100	PPS	101 PSI	
Actuator size Ø 125	PA and PPS	101 PSI	
<b>Pilot air port</b>	1/4" (Actuator Ø 40 = 1/8")		

### Ordering Chart

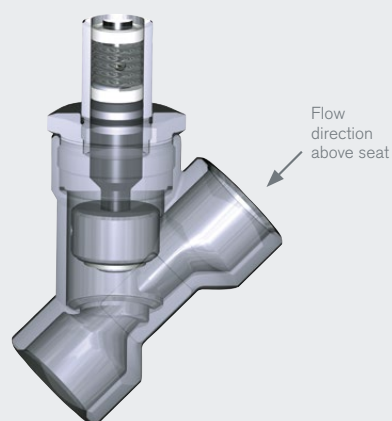
Connection	Actuator [mm]	Cv	Bronze	Stainless Steel
<b>Normally closed polyamide head</b>				
1/2" NPT	50	4.9	463 585	463 627
3/4" NPT	40	8.1	463 586	463 628
3/4" NPT	50	9.8	463 587	463 629
1" NPT	50	11.6	463 588	463 630
1" NPT	63	20.8	463 589	463 631
1 1/4" NPT	63	28.9	463 590	463 632
1 1/2" NPT	63	40.5	463 591	463 633
<b>Normally closed, high ambient temperature PPS actuator</b>				
1/2" NPT	50	4.9	463 606	463 648
3/4" NPT	50	9.3	463 607	463 649
1" NPT	50	22.0	463 608	463 650
1" NPT	63	20.8	463 609	463 651
1 1/4" NPT	63	31.3	463 610	463 652
1 1/2" NPT	63	40.6	463 611	463 653

### Envelope Dimensions [inch] (see datasheet for details)



### Options

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



## Ordering Charts

<b>Stainless Steel 316L, NPT Threaded</b>						
Size	Orifice [mm]	Actuator [mm]	Pressure [PSI]	Cv	Item no.	
1/2"	15	50	232	5.6	213 652	
1/2"	15	70	232	5.8	213 653*	
3/4"	20	70	232	12.7	213 655*	
1"	25	70	232	20.8	213 657*	
1 1/4"	32	70	232	31.2	213 658	
1 1/2"	40	70	232	44.0	213 659	
1 1/2"	40	90	232	46.3	213 660*	
2"	50	70	174	60.2	188 649	
2"	50	90	232	63.6	188 650*	
2 1/2"	65	90	116	98.3	463 893*	
<b>Stainless Steel 316L, Weld End OD Tube</b>						
Size	Orifice [mm]	Actuator [mm]	Pressure [PSI]	Cv	Item no.	
1/2"	15	50	232	5.6	187 078	
1/2"	15	70	232	5.8	188 733*	
3/4"	20	70	232	12.7	188 734*	
1"	25	70	232	20.8	188 735*	
1 1/2"	40	70	232	44.0	188 736	
1 1/2"	40	90	232	46.3	188 737*	
2"	50	70	174	60.2	188 738	
2"	50	90	232	63.6	188 739*	
2 1/2"	65	90	116	98.3	463 543	
<b>Stainless Steel 316L, Clamp acc. to ASME BPE</b>						
Size	[clamp Ø]	Orifice [mm]	Actuator [mm]	Pressure [PSI]	Cv	Item no.
1/2"	1"	15	50	232	5.6	187 104
1/2"	1"	15	70	232	5.8	188 813
3/4"	1"	20	70	232	12.7	188 814
1"	2"	25	70	232	20.8	188 815
1 1/2"	2"	40	70	232	44.0	188 816
1 1/2"	2"	40	90	232	46.3	188 817
2"	2 1/2"	50	70	174	60.2	188 818
2"	2 1/2"	50	90	232	63.6	188 819

\*part of US standard stocking program

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

2100

## NPT 1/2" to 2-1/2"

- Perfect for clean applications
- Wide range of accessories
- Compressed air recycling control function with ELEMENT Control Tops
- With flow direction below or above seat
- High flow rates
- High cycle life



2100 ELEMENT angle seat valves are designed for unmatched life cycle performance. Shown on this page in a normally closed configuration, with underseat flow for liquids, these valves exhibit live loaded packing with all of the advantages of the ELEMENT platform: Intelligent, Integrated and Beautiful.

### Technical Data

<b>Pressure range</b>	See Ordering Chart
<b>Viscosity</b>	max. 600 mm <sup>2</sup> /s
<b>Temperature media</b>	14 °F to 365 °F (-10 °C to +185 °C)
<b>Ambient temperature</b>	32 °F to 131 °F (0 °C to +55 °C) (with integrated control) 32 °F to 140 °F (0 °C to +60 °C) (connector hose air supply) 32 °F to 212 °F (0 °C to +100 °C) (threaded piping)
<b>Body material</b>	316L stainless steel
<b>Seal material</b>	PTFE
<b>Medium</b>	Water, alcohol, oils, fuels, hydraulic fluids, salt solution, alkali solutions, organic solvents, steam, optional fuel gas, (EC Gas Appliances Directive 2009/142/EG)
<b>Actuator material</b>	Actuator PPS Cover stainless steel 1.4561 (316Ti)
<b>Control medium</b>	Neutral gases, air
<b>Max. pilot pressure</b>	max. 145 PSI; actuator size 130 mm, 101 PSI
<b>Pilot air ports</b>	Threaded ports G1/8 stainless steel
<b>Port connection</b>	Threaded, weld end, clamp
<b>Spindle packing</b>	PTFE seal with spring compensation
<b>Safe position</b>	Normally closed, normally open

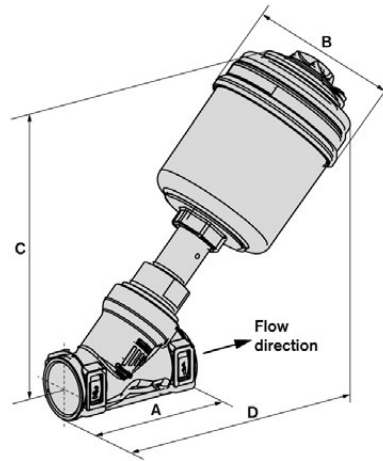
### Ordering Chart

Stainless Steel 316L, NPT Threaded					
Size	Orifice [mm]	Actuator [mm]	Pressure [PSI]	Cv	Item no.
1/2"	15	50	362	5.6	213 644
1/2"	15	70	362	5.8	213 645*
3/4"	20	70	290	12.7	213 646*
1"	25	70	232	20.8	213 647*
1 1/4"	32	70	123	31.2	213 648
1 1/4"	32	90	232	32.4	213 649
1 1/2"	40	70	87	44.0	213 650
1 1/2"	40	90	232	46.3	213 651*
2"	50	90	145	63.6	188 641
2"	50	130	232	71.7	188 642*
2 1/2"	65	90	73	98.3	239 457
2 1/2"	65	130	232	109.9	239 473*

### Envelope Dimensions [inch] (see datasheet for details)

Dimensions shown for threaded version for others please see datasheet

Pilot air ports for 6/4 mm tubing



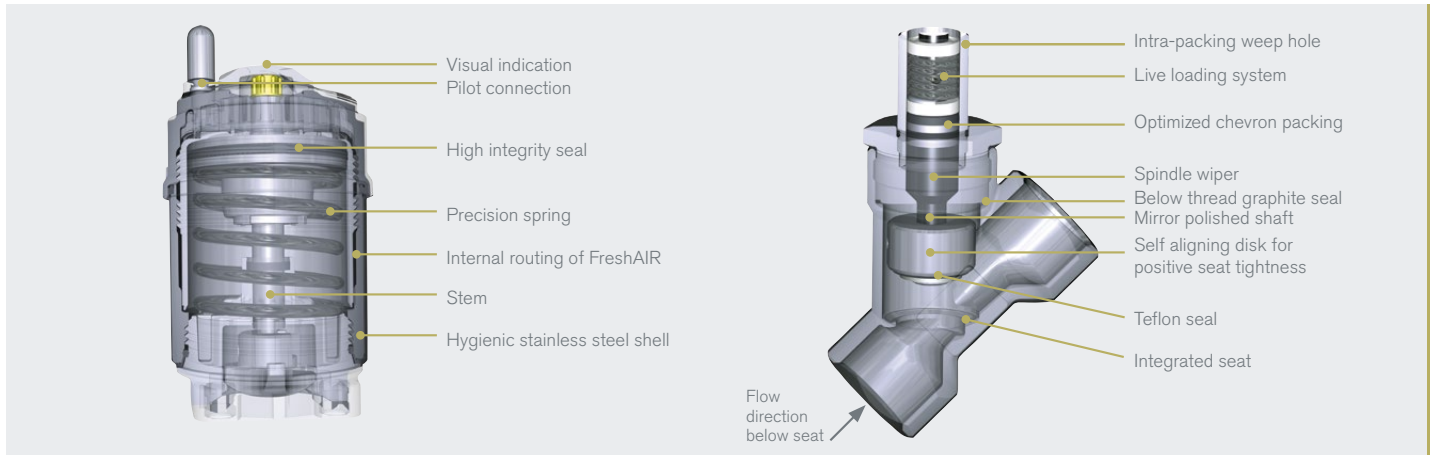
Port connection	Actuator [mm]	A	B	C	D
NPT 1/2"	50	2.55	2.53	6.22	7.28
NPT 1/2"	70	2.55	3.58	6.81	7.91
NPT 3/4"	50	2.95	2.53	6.53	7.67
NPT 3/4"	70	2.95	3.58	7.12	8.30
NPT 1"	50	3.54	2.53	6.77	8.03
NPT 1"	70	3.54	3.58	7.36	8.66
NPT 1 1/4"	70	4.33	3.58	7.67	9.25
NPT 1 1/4"	90	4.33	4.72	9.44	10.90
NPT 1 1/2"	70	4.72	3.58	7.75	9.29
NPT 1 1/2"	90	4.72	4.72	9.52	10.94
NPT 2"	70	5.90	3.58	8.42	10.31
NPT 2"	90	5.90	4.72	10.03	11.85
NPT 2"	130	5.90	6.25	12.04	13.81

### Options

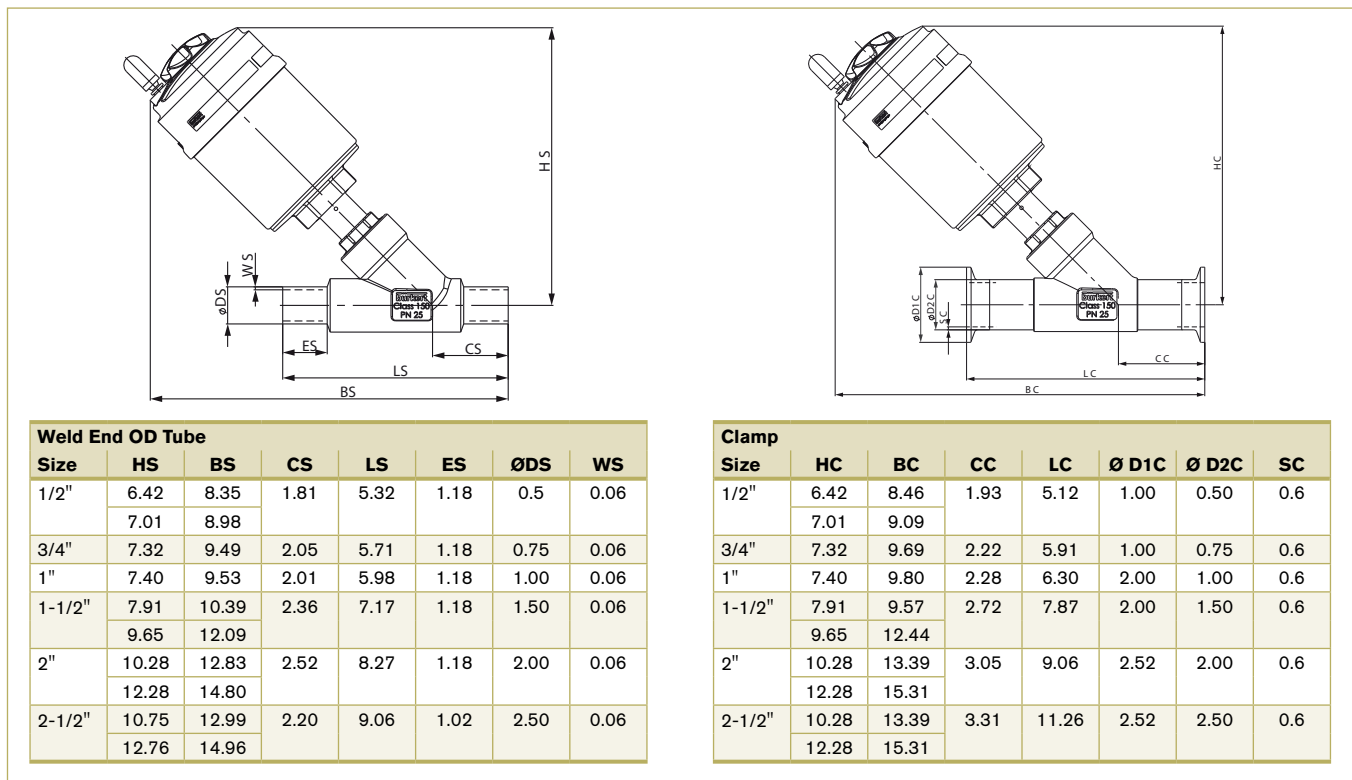
- Double acting
- Solenoid pilot valves
- Vacuum version
- Feedback switches



## Sectional Drawings



## Dimensions [inch] (see datasheet for further details)



## Ordering Charts

Stainless Steel 316L, Weld End OD Tube					
Size	Orifice [mm]	Actuator [mm]	Pressure [PSI]	Cv	Item no.
1/2"	15	50	362	5.6	187 077
1/2"	15	70	362	5.8	188 726*
3/4"	20	70	290	12.7	188 727*
1"	25	70	232	20.8	188 728*
1 1/2"	40	70	87	44.0	188 729
1 1/2"	40	90	232	46.3	188 730*
2"	50	90	145	63.6	188 731
2"	50	130	232	71.7	188 732*
2 1/2"	65	90	73	98.3	239 461
2 1/2"	65	130	232	109.9	239 478*

Stainless Steel 316L, Clamp acc. to ASME BPE						
Size	[clamp Ø]	Orifice [mm]	Actuator [mm]	Pressure [PSI]	Cv	Item no.
1/2"	1"	15	50	362	5.6	187 103
1/2"	1"	15	70	362	5.8	188 806*
3/4"	1"	20	70	290	12.7	188 807*
1"	2"	25	70	232	20.8	188 808*
1 1/2"	2"	40	70	87	44.0	188 809
1 1/2"	2"	40	90	232	46.3	188 810*
2"	2 1/2"	50	90	145	63.6	188 811
2"	2 1/2"	50	130	232	71.1	188 812*
2 1/2"	2 1/2"	65	90	73	98.3	293 842
2 1/2"	2 1/2"	65	130	232	109.9	329 535*

\*part of US standard stocking program

# Pneumatically Operated 2/2-way Globe Valves with Flange connection acc. to DIN EN 1092-1

2101 / 2012

1/2" - 4"

- Flow direction below seat
- Long life
- Flow optimized stainless steel body 316L
- Silencer, Type 2101 included
- Perfect replacement for flanged ball valves



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.

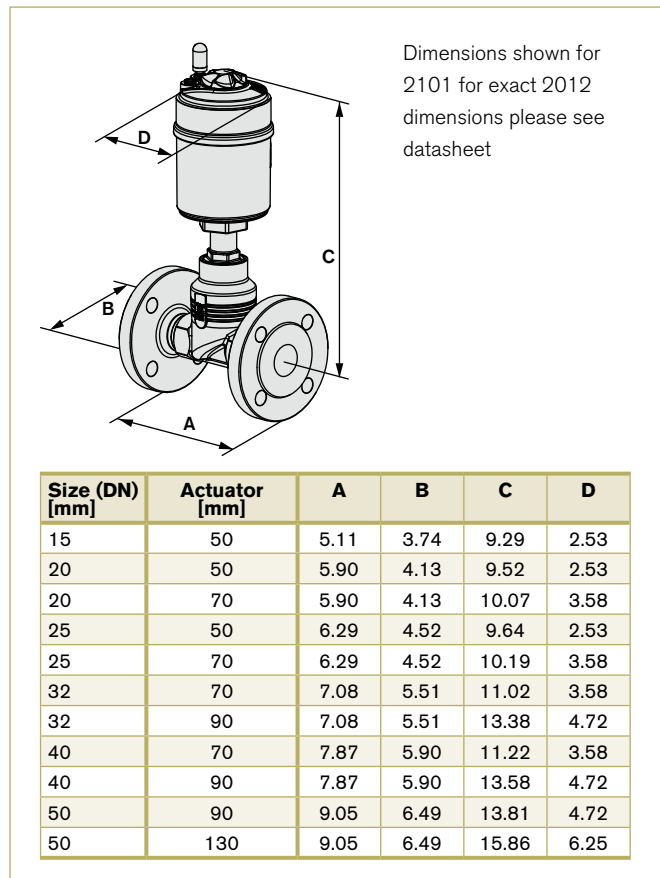
## Technical Data

<b>Pressure range</b>	see Ordering Chart
<b>Nominal pressure</b>	PN25 (body)
<b>Temperature media</b>	14 °F to 356 °F (-10 °C to +180 °C) (CLASSIC) / 365 °F (+185 °C) (ELEMENT)
<b>Ambient temperature</b>	
Actuator size up to Ø 125	14 °F to 140 °F (-10 °C to +60 °C)
Actuator size Ø 175-225	14 °F to 122 °F (-10 °C to +50 °C)
ELEMENT	32 °F to 131 °F (0 °C to +55 °C) (with integrated control) 32 °F to 140 °F (0 °C to +60 °C) (connector hose air supply)
CLASSIC	14 °F to 140 °F (-10 °C to +60 °C)
<b>Body material</b>	Cast stainless steel 316L
<b>Viscosity</b>	Max. 600 mm <sup>2</sup> /s
<b>Seal material</b>	PTFE
<b>Actuator material</b>	PPS and St.st. 316L (ELEMENT), PA (Classic)
<b>Control medium</b>	Neutral gases, air
<b>Flow direction</b>	Under seat anti water-hammer
<b>Port connection</b>	Flange DIN EN 1092-1
<b>Pilot air port</b>	for ELEMENT connector hose for plastic hose, 6/4 mm for Classic, NPT 1/4"

## Options

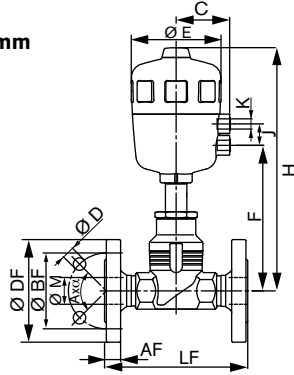
- Normally open
- Double acting
- Solenoid pilot valves
- Vacuum version
- Feedback switches
- High temperature actuator
- Chemically resistant actuator
- Stroke limiter
- JIS and ANSI flanges
- Type 2101 with threaded air connection for ambient temperature up to 212 °F (+100 °C)

## Envelope Dimensions [inch] (see datasheet for details)

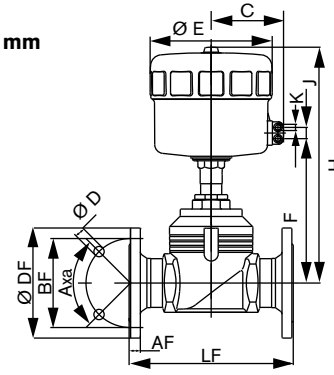


2012 Dimensions [inch] (see datasheet for further details)

**DN 10-65**  
Actuator size 40-125 mm



**DN 65-100**  
Actuator size 175 and 225 mm



ANSI flange														
DN	Actuator [mm]	C	OE	F	H	K	J	ODF	LF	OBF	AF	OD	AxD	OM
1/2"	50	1.73	2.52	5.16	8.31	G1/4	0.95	3.50	7.24	2.38	0.44	0.62	4x90°	0.63
3/4"	63	2.05	3.15	6.10	9.72	G1/4	0.95	3.90	7.24	2.75	0.50	0.62	4x90°	0.83
1"	80	2.36	3.98	6.46	10.75	G1/4	0.95	4.25	7.24	3.12	0.56	0.62	4x90°	1.06
1 1/2"	125	3.39	6.18	8.66	15.63	G1/4	1.18	5.00	8.74	3.82	0.69	0.62	4x90°	1.61
2"	125	3.39	6.18	10.00	16.93	G1/4	1.18	7.01	10.87	5.50	0.88	0.75	4x90°	2.48
	175	5.12	8.31	11.38	19.33									
2 1/2"	125	3.39	6.18	10.00	16.93	G1/4	1.18	7.01	10.87	5.50	0.88	0.75	4x90°	2.48
	175	5.12	8.31	11.65	19.61									
3"	175	5.12	8.31	11.65	19.61	G1/4	0.95	7.48	11.73	6.00	0.94	0.75	4x90°	3.07
	225	6.10	10.28	11.77	19.45									
4"	175	5.12	8.31	12.05	20.00	G1/4	0.95	9.02	13.86	7.50	0.94	0.75	8x45°	4.02
	225	6.10	10.28	12.17	19.84									

Ordering Charts

Port Connection flange [inch]	Actuator [mm]	Cv	Minimum pilot pressure CFA [PSI]	Maximum operating pressure (PSI)	Item no. ELEMENT, Type 2101
<b>Type 2101 ELEMENT</b>					
1/2"	50	5.4	75	363	203 095
1/2"	70	5.4	70	363	466 863*
3/4"	70	9.4	70	290	203 097*
1"	70	15.0	70	232	203 099*
1 1/2"	70	35.9	70	87	203 100
1 1/2"	90	35.9	73	232	203 101*
2"	90	52.1	73	145	203 102
2"	130	52.1	73	232	218 419*
2 1/2"	90	75.2	73	73	239 525
2 1/2"	130	75.2	81	232	219 535*
3"	130	127.3	81	145	239 529*
4"	130	190.9	81	87	239 532*

Port Connection flange [inch]	Actuator [mm]	Cv	Minimum pilot pressure CFA [PSI]	Maximum operating pressure (PSI)	Item no. CLASSIC, Type 2012
<b>Type 2012 CLASSIC</b>					
1/2"	50	5.4	57	232	146 258
3/4"	63	9.4	65	232	146 294
1"	80	15.0	73	232	146 572
1 1/2"	125	35.9	46	232	146 338
2"	125	52.1	46	145	146 356
2 1/2"	125	84.5	81	174	152 742
2 1/2"	175	84.5	65	232	152 760
3"	175	127.3	65	145	152 778
3"	225	127.3	48	232	152 796
4"	175	179.3	65	102	152 814
4"	225	179.3	70	232	152 832

\*part of US standard stocking program

# Pneumatically Operated 2/2-way Diaphragm Valve ELEMENT for Decentralized Automation

- Optimized flow and zero deadleg
- Diaphragm hermetically separates the fluids from the operating mechanism
- Easy integration of ELEMENT automation units
- SS body with clamp or weld ends
- FDA/3A quality certifications



The externally piloted diaphragm valve type 2103 consists of a pneumatically operated piston actuator, a diaphragm and a 2-way valve housing made of forged stainless steel. The high quality actuator with a stainless steel cover is designed for usage in hygienic or aggressive environments. The flow optimized and zero dead volume valve body makes high flow rates possible and a variety of applications to be realized.

The design enables the easy integration of automation modules whether they are electrical/optical position feedback, pneumatic control units or an integrated fieldbus interface. 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

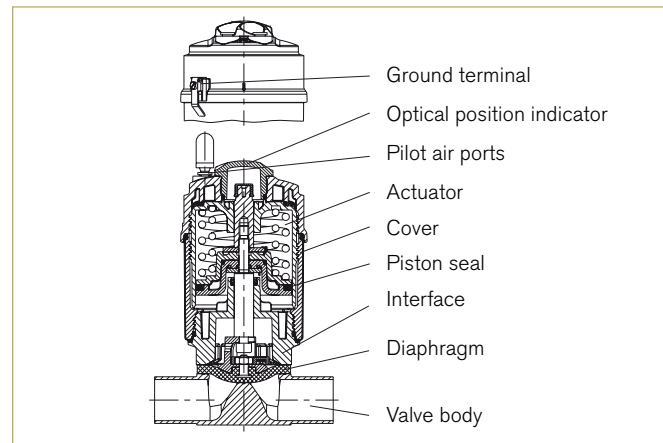
<b>Port connection</b>	1/2" to 2 1/2" available (port connection only)
<b>Diaphragm size</b>	1/2" to 2" (DN15 to DN50; DN08 available on request)
<b>Port connections</b>	
Weld ends	ASME BPE
Clamps	ASME BPE (other piping standards available on request)
<b>Materials</b>	
Body	Stainless Steel 316L / 1.4435 / BN2
Diaphragm materials	PTFE/EPDM (EA), EPDM (AD), Gylon®/ EPDM Laminated (ER) on request: advanced PTFE/EPDM (EU), FKM (FF) PPS / Stainless Steel 1.4561 (316Ti)
Actuator / Cover	
<b>Media</b>	Neutral gases and liquids, high-purity, sterile, aggressive or abrasive fluids
<b>Viscosity</b>	Up to viscous
<b>Surface finish</b>	Wetted surfaces: Ra <= 0.5µm (ASME BPE SF1) & External surfaces (fluidic body): Ra <= 1.6µm
Electro polished:	Wetted surfaces: Ra <= 0.38µm (ASME BPE SF4) & External surfaces (fluidic body): Ra <= 0.76µm
(more available on request)	
<b>Medium temperature</b>	
PTFE/EPDM (EA)	14 to 266°F (steam sterilization 284°F for 60 min)
EPDM (AD), advanced PTFE/EPDM (EU)	23 to 289°F (steam sterilization 302°F for 60 min)
GYLON®/EPDM laminated (ER) FKM (FF)	23 to 266°F (steam sterilization 140°C for 60 min) 32 to 266°F (not recommended for steam)
<b>Ambient temperature</b>	+41°F to +140°F
<b>Control medium</b>	Neutral gases; air
<b>Max. pilot pressure</b>	max. 145 PSI (101 PSI with actuator size 130mm)

## Dimensions [inch]

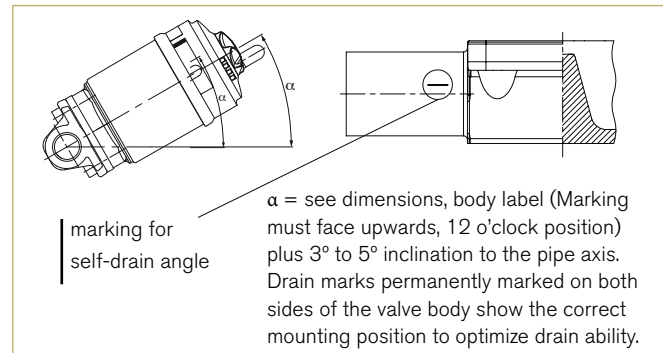
Diaphragm size	Actuator size Ø [mm]	ØA	H
1/2"	70	3.58	6.26
3/4"	70	3.58	6.26
1"	90	4.72	7.78
1-1/2"	130	6.26	10.51
2"	130	6.26	10.81

2103 with 360° rotatable interface, stainless steel

## Materials



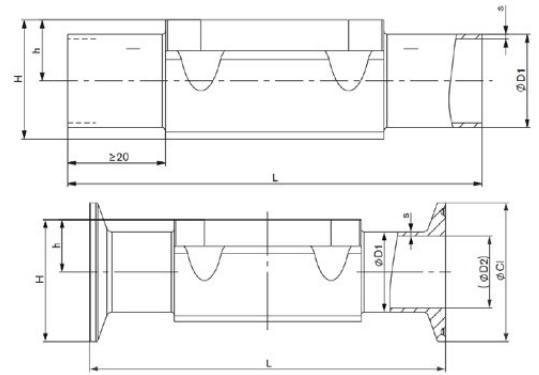
## Installation for self-draining operation



Technical data (continued)

Port connection DN		Diaphragm size	Actuator size Ø [mm]	Pilot pressure [PSI]	Max. media pressure [PSI]		Cv [gpm]
[mm]	[inch]				EPDM FKM	PTFE, advanced PTFE, GYLON®	
15	1/2"	1/2"	70	73-145	145	145	3.59
20	3/4"	3/4"	70	73-145	145	145	9.83
25	1"	1"	90	73-145	145	116	16.77
40	1-1/2"	1-1/2"	130	73-102	145	102	42.79
50	2"	2"	130	73-102	145	102	76.34

Flow rate: Cv value [gpm] for elastomer diaphragms measured at +68°F and 1 PSI pressure drop at mean operating pressure | Pressure valves: Overpressure to the atmospheric pressure, valve closes dynamical against max. operating pressure



Forged body - weld end

Port connection DN		Diaphragm size	ØD1	s	h	H	L	Self-drain angle [°]
[mm]	[inch]							
<b>ASME BPE</b>								
15	1/2"	1/2"	0.5	0.065	0.315	0.787	4.252	41
20	3/4"	3/4"	0.75	0.065	0.63	1.181	4.606	29
25	1"	1"	1	0.065	0.748	1.157	5.0	27
40	1-1/2"	1-1/2"	1.5	0.065	1.102	2.047	6.26	24
50	2"	2"	2	0.065	1.417	2.677	7.48	20

Forged body - clamp

Port connection DN		Diaphragm size	ØD1	s	Cl	ØD2	h	H	L	Self-drain angle [°]
[mm]	[inch]									
<b>ASME BPE</b>										
15	1/2"	1/2"	0.5	0.065	0.984	0.37	0.315	0.827	3.504	41
20	3/4"	3/4"	0.75	0.065	0.984	0.62	0.63	1.142	4.016	29
25	1"	1"	1	0.065	1.988	0.87	0.748	1.732	4.488	27
40	1-1/2"	1-1/2"	1.5	0.065	1.988	1.37	1.102	2.087	5.512	24
50	2"	2"	2	0.065	2.52	1.87	1.417	2.677	6.26	20

Welded connection acc. ASME BPE

Inspection Certificate 3.1 acc. to EN 10204 - Material Test Report (included in delivery)

Port connection DN		Diaphragm size	Actuator size Ø [mm]	Cv [gpm]	Pilot pressure [PSI]	Max. operating pressure [PSI]	Item no. mechanically polished Ra ≤ 0.5 µm	Item no. electropolished Ra ≤ 0.38 µm
[mm]	[inch]							
<b>Diaphragm material EPDM (AD)</b>								
15	1/2"	1/2"	70	3.59	70-145	145	325 900	325 905
20	3/4"	3/4"	70	9.83	70-145	145	325 901	325 906
25	1"	1"	90	17.93	73-145	145	325 902	325 907
40	1-1/2"	1-1/2"	130	42.79	73-102	145	328 459	328 460
50	2"	2"	130	76.34	73-102	145	325 904	325 909
<b>Diaphragm material PTFE/EPDM (EA)</b>								
15	1/2"	1/2"	70	3.59	70-145	145	295 873	325 911
20	3/4"	3/4"	70	9.83	70-145	145	295 875	325 912
25	1"	1"	90	16.77	73-145	116	325 910	325 913
40	1-1/2"	1-1/2"	130	43.37	73-102	145	295 878	325 914
50	2"	2"	130	76.34	73-102	102	295 880	325 915
<b>Diaphragm material Gylon®/EPDM Laminated (ER)</b>								
15	1/2"	1/2"	70	3.59	70-145	145	325 916	325 922
20	3/4"	3/4"	70	9.83	70-145	145	325 917	325 923
25	1"	1"	90	16.77	73-145	116	325 918	325 924
40	1-1/2"	1-1/2"	130	43.37	73-102	145	325 920	325 925
50	2"	2"	130	76.34	73-102	102	325 921	325 926

Clamp connection acc. ASME BPE

Inspection Certificate 3.1 acc. to EN 10204 - Material Test Report (included in delivery)

Port connection DN		Diaphragm size	Actuator size Ø [mm]	Cv [gpm]	Pilot pressure [PSI]	Max. operating pressure [PSI]	Item no. mechanically polished Ra ≤ 0.5 µm	Item no. electropolished Ra ≤ 0.38 µm
[mm]	[inch]							
<b>Diaphragm material EPDM (AD)</b>								
15	1/2"	1/2"	70	3.59	70-145	145	325 932	325 938
20	3/4"	3/4"	70	9.83	70-145	145	325 933	325 939
25	1"	1"	90	17.93	73-145	145	325 935	325 940
40	1-1/2"	1-1/2"	130	42.79	73-102	145	328 461	328 462
50	2"	2"	130	76.34	73-107	145	325 937	325 942
<b>Diaphragm material PTFE/EPDM (EA)</b>								
15	1/2"	1/2"	70	3.59	70-145	145	325 943	325 947
20	3/4"	3/4"	70	9.83	70-145	145	325 944	325 948
25	1"	1"	90	16.77	73-145	116	266 735	325 949
40	1-1/2"	1-1/2"	130	43.37	73-102	145	266 734	325 950
50	2"	2"	130	76.34	73-107	102	325 946	325 951
<b>Diaphragm material Gylon®/EPDM Laminated (ER)</b>								
15	1/2"	1/2"	70	3.59	70-145	145	325 952	325 957
20	3/4"	3/4"	70	9.83	70-145	145	325 953	325 958
25	1"	1"	90	16.77	73-145	116	325 954	325 960
40	1-1/2"	1-1/2"	130	43.37	73-102	145	325 955	325 961
50	2"	2"	130	76.34	73-102	102	325 956	325 962

# Pneumatically Operated 2/2-way Diaphragm Valve ELEMENT for Decentralized Automation

2103 TVB

- Hydroformed pharmaceutical grade tube valve body
- Optimal design for hygienic environments
- Easy integration of automation units with ELEMENT
- Reduced mass up to 75% allows for optimized heating and cooling cycles



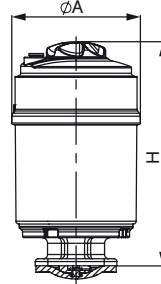
The externally piloted diaphragm valve consists of a pneumatically operated piston actuator, a diaphragm and a 2-way tube valve body. Burkert's patented hydroforming technology allows the manufacturing of a flow optimized stainless steel valve body with high surface quality. A laser-welded mounting interface ensures robustness and hygienic design. The actuator design enables the easy integration of automation units whether they are electrical/optical position feedback, pneumatic control units, an integrated fieldbus interface or even explosion proof device versions. The fully integrated system has a compact and smooth design, integrated pneumatic lines, IP65/67, NEMA Type 4X protection class and superior chemical resistance. The diaphragm valve with tube body is perfect for hygienic applications in the food and beverage, pharma, and cosmetic industries. It is designed in accordance with ASME BPE 2016 guidelines and is certified by EHEDG.

## Technical Data

<b>Port connection</b>	1/2" to 2"
<b>Diaphragm size</b>	1/4" to 1-1/2"
<b>Port connections</b>	
Weld ends	ASME BPE
<b>Materials</b>	
Body	Stainless Steel 316L /1.4435 / BN2
Diaphragm materials	PTFE/EPDM (EA), EPDM (AD), Gylon/ EPDM Laminated (ER) on request: advanced PTFE/EPDM (EU), FKM (FF) PPS / Stainless Steel 1.4561 (316Ti)
Actuator / Cover	
<b>Media</b>	Neutral gases and liquids, high-purity, sterile, aggressive or abrasive fluids
<b>Viscosity</b>	Up to viscous
<b>Surface finish</b>	
Internally electropolished	Ra ≤ 15 Ra (ASME BPE SF4)
<b>Medium temperature</b>	
PTFE/EPDM (EA)	14 to 266°F (steam sterilization 284°F for 60 min)
EPDM (AD), advanced PTFE/ EPDM (EU)	23 to 289°F (steam sterilization 302°F for 60 min)
GYLON®/EPDM laminated (ER)	23 to 266°F (steam sterilization 284°F for 60 min)
<b>Ambient temperature</b>	+41°F to +140°F
<b>Control medium</b>	Neutral gases; air
<b>Max. pilot pressure</b>	max. 145 PSI, 100 PSI with actuator size 130mm
<b>Pilot air ports</b>	Push-in connector for external Ø 6 mm or 1/4" tube, thread G1/8 (on request)

## Dimensions [inch]

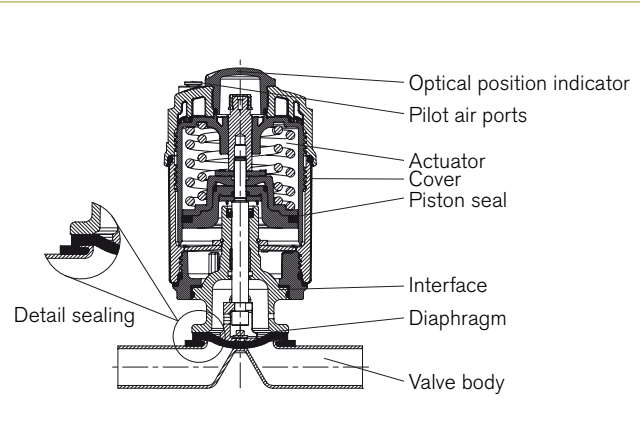
### Actuator



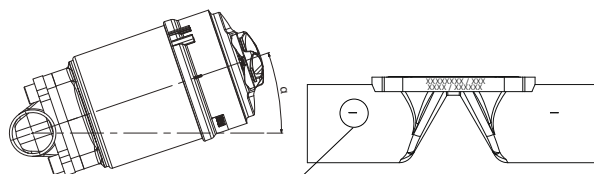
Diaphragm size	Actuator size Ø [mm]	ØA	H
1/4"	50	2.54	5.35
1/2"	70	3.58	6.26
3/4"	70	3.58	6.26
1-1/4"	90	4.72	8.89
1-1/2"	130	6.26	10.81

2103 with 360° rotatable interface,  
stainless steel

## Materials



## Installation for self-draining operation



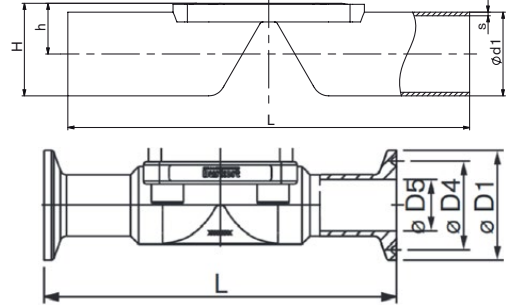
marking for  
self-drain angle

$\alpha = 15$  up to  $35^\circ$  plus  $3^\circ$  to  $5^\circ$  inclination  
to the pipe axis. Drain marks permanently  
marked on both sides of the valve body  
show the correct mounting position to  
optimize drainability.

## Technical data (continued)

Port connection DN		Diaphragm size	Actuator size Ø	Pilot pressure	Max. operating pressure for seal material [PSI]		Cv [gpm]
[mm]	[inch]				EPDM	PTFE, advanced PTFE, GYLON®	
8	1/2"	1/4"	50	73-145	145	145	2.54
15	3/4"	1/2"	70	73-145	145	145	7.52
20	1"	3/4"	70	73-145	145	145	14.69
32	1-1/2"	1-1/2"	90	73-145	116	87	37.01
40	2"	2"	130	73-145	145	145	53.20

Flow rate: Cv value [gpm] measured at +60°F, 1 PSI pressure at valve inlet and free outlet



### Weld end port connections

Port connection DN		Diaphragm size	ØD1	s	h	H	L
[mm]	[inch]						
<b>ASME BPE</b>							
15	1/2"	1/4"	0.5	0.06	0.35	0.63	3.54
20	3/4"	1/2"	0.75	0.06	0.51	0.91	4.61
25	1"	3/4"	1.0	0.06	0.63	1.14	5.0
40	1-1/2"	1-1/4"	1.5	0.06	0.91	1.65	6.26
50	2"	1-1/2"	2.0	0.06	1.22	2.20	7.48

### Clamp port connections

Port connection DN		Diaphragm size	ØD1	ØD4	ØD5	L
[mm]	[inch]					
<b>ASME BPE</b>						
15	1/2"	1/4"	0.98	0.81	0.37	3.50
20	3/4"	1/2"	0.98	0.81	0.62	4.02
25	1"	3/4"	1.99	1.71	0.87	4.49
40	1-1/2"	1-1/4"	1.99	1.71	1.36	5.51
50	2"	1-1/2"	2.52	2.22	1.87	6.26

### Welded connection ASME BPE

electropolished Ra ≤ 15 Ra and Inspection certificate 3.1 acc. to EN-ISO 10204 (included in delivery)

Port connection DN		Diaphragm size	Actuator size [mm]	Cv [gpm]	Pilot pressure [PSI]	Max. operating pressure [PSI]	Item no. interface 360° rotatable, stainless steel
[mm]	[inch]						
<b>Diaphragm material EPDM (AD)</b>							
5	1/2"	1/4"	50	2.54	54-145	145	321 038
20	3/4"	1/2"	70	7.52	70-145	145	324 754
25	1"	3/4"	70	14.69	70-145	145	321 066
40	1-1/2"	1-1/4"	90	37.01	73-145	116	321 082
50	2"	1-1/2"	130	53.20	73-102	145	324 809
<b>Diaphragm material PTFE/EPDM (EA)</b>							
15	1/2"	1/4"	50	2.54	64-145	145	290 514
20	3/4"	1/2"	70	7.52	70-145	145	290 516
25	1"	3/4"	70	14.69	70-145	145	290 518
40	1-1/2"	1-1/4"	90	37.01	73-145	87	290 520
50	2"	1-1/2"	130	53.20	73-102	145	290 525
<b>Diaphragm material Gylon ®/EPDM Laminated (ER)</b>							
15	1/2"	1/4"	50	2.54	64-145	145	325 896
20	3/4"	1/2"	70	7.52	70-145	145	325 897
25	1"	3/4"	70	14.69	70-145	145	325 898
40	1-1/2"	1-1/4"	90	37.01	73-145	87	291 907
50	2"	1-1/2"	130	53.20	73-102	145	325 899

### Clamp connection ASME BPE

electropolished Ra ≤ 15 Ra micrometer and Certification of Conformity for Raw Material EN-ISO 10204 3.1 (included in delivery)

Port connection DN		Diaphragm size	Actuator size [mm]	Cv [gpm]	Pilot pressure [PSI]	Max. operating pressure [PSI]	Item no. interface 360° rotatable, stainless steel
[mm]	[inch]						
<b>Diaphragm material EPDM (AD)</b>							
15	1/2"	1/4"	50	2.54	54-145	145	317 717
20	3/4"	1/2"	70	7.52	70-145	145	317 719
25	1"	3/4"	70	14.69	70-145	145	317 721
40	1-1/2"	1-1/4"	90	37.01	73-145	116	317 723
50	2"	1-1/2"	130	53.20	73-102	145	317 727
<b>Diaphragm material PTFE/EPDM (EA)</b>							
15	1/2"	1/4"	50	2.54	64-145	145	317 718
20	3/4"	1/2"	70	7.52	70-145	145	317 720
25	1"	3/4"	70	14.69	70-145	145	317 722
40	1-1/2"	1-1/4"	90	37.01	73-145	87	317 724
50	2"	1-1/2"	130	53.20	73-102	145	317 728
<b>Diaphragm material Gylon ®/EPDM Laminated (ER)</b>							
15	1/2"	1/4"	50	2.54	64-145	145	325 927
20	3/4"	1/2"	70	7.52	70-145	145	325 928
25	1"	3/4"	70	14.69	70-145	145	325 929
40	1-1/2"	1-1/4"	90	37.01	73-145	87	325 930
50	2"	1-1/2"	130	53.20	73-102	145	325 931



# Millions of operations

The seat and seal materials in a Bürkert angle seat valve are designed to complete millions of operations with total consistency and reliability.

**The ESTS compact range of autoclaves, that are designed to provide sterilization for medical and lab equipment use only Bürkert Type 2000 steam control valves to ensure reliability and guarantee that many more operations can go ahead as planned. Bürkert valves are manufactured and tested to the very highest standards of quality performing millions of operations, so that you can have total trust in their performance and reliability in any application.**

*Bürkert Type 2000 Angle Seat valves  
Used exclusively on the innovative  
ESTS compact range of autoclaves for  
totally dependable steam control.*



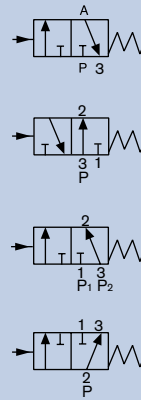
*ESTS 300L Autoclave*



# 3/2-way Globe Valve, pneumatically operated

## NPT 1/2" - NPT 2"

- Different flow circuit functions and control functions
- Long life actuator
- Optical display as standard in series
- Rotary actuator aligns the pilot air ports



The externally piloted globe valve consists of a pneumatically operated piston actuator and a 3-way valve body. The drive is manufactured as standard in PPS. High flow rates are attained with the self proven stainless steel body. A reliable self-adjusting packing gland provides high sealing integrity. Various fluidic circuit functions can be obtained by a simple exchange of the pressure and service ports. 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

<b>Pressure range</b>	See Ordering Chart
<b>Temperature media</b>	14 °F to 365 °F (-10 °C to +185 °C)
<b>Ambient temperature</b>	14 °F to 212 °F (-10 °C to +100 °C)
<b>Viscosity</b>	Max. 600 mm <sup>2</sup> /s
<b>Body material</b>	Stainless steel
<b>Seal material</b>	PTFE
<b>Actuator material</b>	PPS
<b>Stuffing socket (with silicone grease)</b>	PTFE V-Rings with spring compensation
<b>Max. pilot pressure</b>	145 PSI, 101 PSI with actuator size Ø 130
<b>Control medium</b>	Instrument air at 87 PSI
<b>Safe position</b>	Normally closed or normally open

### Ordering Chart

#### Stainless Steel NPT Threaded A 3/2-way, normally closed (NC) (port 1)

Size	Orifice [mm]	Actuator Size Ø [mm]	Cv		Max. operating pressure [PSI]		Item no.
			1 to 2	2 to 3	1 to 2	2 to 3 3 to 1	
1/2"	15	50	8.1	5.2	232	232	292 478
1/2"	15	70	8.1	5.2	232	232	292 531
3/4"	20	50	10.4	7.2	232	232	292 532
3/4"	20	70	10.4	7.2	232	232	292 533
1"	25	50	19.7	12.7	131	160	292 534
1"	25	70	19.7	12.7	232	232	292 535
1 1/4"	32	70	37.0	24.3	116	160	292 536
1 1/4"	32	90	37.0	24.3	160	232	292 537
1 1/2"	40	70	40.5	27.7	101	160	292 538
1 1/2"	40	90	40.5	27.7	174	232	292 539
2"	50	90	59.0	40.5	131	116	292 540
2"	50	130	59.0	40.5	232	232	292 541

### Options

- Double acting
- Feedback switches
- Stroke limiter

### Dimensions [inch] (see datasheet for details)

**Pilot air ports 6mm or 1/4" push-in-tube**


Actuator [mm]	K
D (50)	9.7
M (70)	11
N (90)	
P (130)	

G 1	Actuator Size Ø [mm]	Ø A	B	C	R	H	NPT C1/C2
NPT 1/2"	D (50)	2.54	0.24	0.78	0.78	7.97	0.54
NPT 1/2"	M (70)	3.58	0.33	0.92	1.20	7.97	0.54
NPT 3/4"	D (50)	2.54	0.24	0.78	0.78	7.97	0.55
NPT 3/4"	M (70)	3.58	0.33	0.92	1.20	7.97	0.55
NPT 1"	D (50)	2.54	0.24	0.78	0.78	8.95	0.66
NPT 1"	M (70)	3.54	0.33	0.92	1.20	8.95	0.66
NPT 1 1/4"	M (70)	3.58	0.33	0.92	1.20	9.24	0.68
NPT 1 1/4"	N (90)	4.72	0.33	0.92	1.20	11.59	0.68
NPT 1 1/2"	M (70)	3.58	0.33	0.92	1.20	9.24	0.68
NPT 1 1/2"	N (90)	4.72	0.33	0.92	1.20	11.59	0.68
NPT 2"	N (90)	4.72	0.33	0.92	1.20	12.23	0.69
NPT 2"	P (130)	6.26	0.33	0.92	1.20	13.93	0.69

# 2/2-way Diaphragm Valve, Manually Operated, Forged Valve Body

3233

## OD Tube Butt Weld and Clamp Port Connections 1/4"-2"

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



The manually-operated diaphragm valve in compact form of the Type 3233 consists of a flow-optimized stainless steel body and a manual actuator. The material combinations are selectable. The diaphragm is both a switch element and a sealing element to the outside. It can be 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. This enables high flow capacities and a variety of applications to be realized. The valves are autoclavable.

### Technical Data

<b>Port connection</b>	1/4" to 2 1/2" (stock program) or up to 4" (generally)
<b>Diaphragm size</b>	8-50 and 1/4" to 2 1/2" (stock) or 8-100 and 1/4" to 4" (generally)
<b>Port connections</b>	Weld ends acc. ASME BPE Clamps acc. ASME BPE (further port connections on request)
<b>Materials</b>	Body Stainless Steel 316L / 1.4435 / BN2 Actuator Hand wheel / bonnet PPS / Stainless steel
<b>Diaphragm materials</b>	PTFE/EPDM (EA), EPDM (AD), GYLON®/EPDM Laminated (ER) on request: advanced PTFE/EPDM (EU), FKM (FF)
<b>Media</b>	Neutral gases and liquids, high-purity, sterile, aggressive or abrasive fluids
<b>Viscosity</b>	Up to viscous
<b>Surface finish</b>	Mechanically polished: Wetted surfaces: Ra <= 0.5µm (ASME BPE SF1) & External surfaces (fluidic body): Ra <= 1.6µm Electro polished: Wetted surfaces: Ra <= 0.38µm (ASME BPE SF4) & External surfaces (fluidic body): Ra <= 0.76µm (more available on request)
<b>Medium temperature</b>	PTFE/EPDM (EA) 14° to 266°F (steam sterilization 284°F for 60 min) EPDM (AD), advanced PTFE/EPDM (EU) 23° to 289°F (steam sterilization 302°F for 60 min) GYLON®/EPDM Laminated (ER) 23° to 266°F (steam sterilization 284°F for 60 min) FKM (FF) 32° to 266°F (not recommended for steam)
<b>Ambient temperature</b>	Up to +266°F (briefly up to +302°F)
<b>Installation</b>	As required, preferably with actuator in upright position

### Applications

- Pharma
- Biotechnology
- Food industry

### Technical data, pressure

Port connection DN	Diaphragm size	Max. media pressure	Cv [gpm]
[mm]	[inch]	[PSI]	ASME BPE
8	1/4"	145	0.8
10	3/8"	145	2.1
15	1/2"	145	3.6
20	3/4"	145	9.8
25	1"	145	16.8
40	1-1/2"	145	43.4
50	2"	145	76.3

**Flow rate:** Cv value [gpm] for elastomer diaphragms measured at +60°F and 1 PSI pressure drop at mean operating pressure | **Pressure values:** Overpressure to the atmospheric pressure. valve closes dynamically against max. operating pressure

### Dimensions [inch]

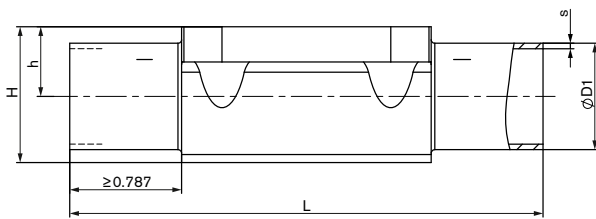
**Diaphragm size 1/4"- 2"**

Diaphragm size	H1	H2	ØA
1/4"	1.83	-	1.38
1/2"	2.76	0.28	3.39
3/4"	2.87	0.43	3.39
1"	2.95	0.47	3.39
1-1/2"	3.46	0.75	4.49
2"	3.82	0.98	4.49

## Dimensions [inch]

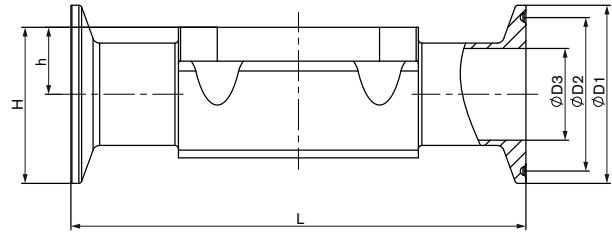
### Forged body - weld end

Port connection		DIAPH size	ØD1	s	h	H	L	Self-drain angle
[mm]	[inch]							
<b>DIN EN ISO 1127 / ISO 4200 / DIN 11866 B</b>								
8	1/4"	1/4"	0.250	0.035	0.236	0.591	3.071	48
10	3/8"	1/4"	0.375	0.035	0.236	0.591	3.504	39
15	1/2"	1/2"	0.500	0.065	0.315	0.787	4.252	41
20	3/4"	3/4"	0.750	0.065	0.630	1.181	4.606	29
25	1"	1"	1.000	0.065	0.748	1.457	5.000	27
40	1 1/2"	1 1/2"	1.500	0.065	1.102	2.047	6.260	24
50	2"	2"	2.000	0.065	1.417	2.677	7.480	20



### Forged body - clamp

Port connection		DIAPH size	ØD1	s	Cl	ØD2	h	H	L	Self-drain angle
[mm]	[inch]									
<b>ASME BPE</b>										
8	1/4"	1/4"	0.250	0.035	0.984	0.180	0.236	0.709	2.520	48
10	3/8"	1/4"	0.368	0.035	0.984	0.305	0.236	0.709	3.504	39
15	1/2"	1/2"	0.500	0.065	0.984	0.370	0.315	0.827	3.504	41
20	3/4"	3/4"	0.750	0.065	0.984	0.620	0.630	1.142	4.016	29
25	1"	1"	1.000	0.065	1.988	0.870	0.748	1.732	4.488	27
40	1 1/2"	1 1/2"	1.500	0.065	1.988	1.370	1.102	2.087	5.512	24
50	2"	2"	2.000	0.065	2.520	1.870	1.417	2.677	6.260	20



### Welded connection acc. ASME BPE

(Actuator material handwheel / bonnet: PPS / Stainless steel)

Port connection DN		Diaphragm size	Cv [gpm]	Max. operating pressure [bar]	Item no.	
[mm]	[inch]				Mechanical polished, Ra ≤ 0.5µm	Electropolished Ra ≤ 0.38 µm
<b>Diaphragm material EPDM (AD)</b>						
8	1/4"	1/4"	0.9	145	325 820	325 827
10	3/8"	1/4"	1.9	145	325 821	325 828
15	1/2"	1/2"	3.6	145	325 822	325 829
20	3/4"	3/4"	9.8	145	325 823	325 830
25	1"	1"	17.9	145	325 824	325 831
40	1 1/2"	1 1/2"	42.8	145	325 825	325 670
50	2"	2"	76.3	145	325 826	325 832
<b>Diaphragm material PTFE/EPDM (EA)</b>						
8	1/4"	1/4"	0.9	145	447 997	447 998
10	3/8"	1/4"	2.1	145	448 002	448 003
15	1/2"	1/2"	3.6	145	446 299	446 300
20	3/4"	3/4"	9.8	145	446 304	446 305
25	1"	1"	16.8	145	446 309	446 610
40	1 1/2"	1 1/2"	43.4	145	446 314	446 315
50	2"	2"	76.3	145	446 319	446 320
<b>Diaphragm material EPDM (ER)</b>						
8	1/4"	1/4"	0.9	145	325 833	325 840
10	3/8"	1/4"	2.1	145	325 834	325 841
15	1/2"	1/2"	3.6	145	325 835	325 842
20	3/4"	3/4"	9.8	145	325 836	325 843
25	1"	1"	16.8	145	325 837	325 844
40	1 1/2"	1 1/2"	43.4	145	325 838	325 845
50	2"	2"	76.3	145	325 839	325 846

### Clamp connection acc. ASME BPE

(Actuator material handwheel / bonnet: PPS / Stainless steel)

Port connection DN		Diaphragm size	Cv [gpm]	Max. operating pressure [bar]	Item no.	
[mm]	[inch]				Mechanical polished, Ra ≤ 0.5µm	Electropolished Ra ≤ 0.38 µm
<b>Diaphragm material EPDM (AD)</b>						
8	1/4"	1/4"	0.9	145	318 870	325 864
10	3/8"	1/4"	1.9	145	325 859	325 865
15	1/2"	1/2"	3.6	145	318 923	325 866
20	3/4"	3/4"	9.8	145	325 860	325 867
25	1"	1"	17.9	145	325 861	325 868
40	1 1/2"	1 1/2"	42.8	145	325 862	325 869
50	2"	2"	76.3	145	325 863	325 870
<b>Diaphragm material PTFE/EPDM (EA)</b>						
8	1/4"	1/4"	0.9	145	446 547	446 548
10	3/8"	1/4"	2.1	145	446 552	325 871
15	1/2"	1/2"	3.6	145	446 557	446 558
20	3/4"	3/4"	9.8	145	446 562	446 563
25	1"	1"	16.8	145	446 567	446 568
40	1 1/2"	1 1/2"	43.4	145	446 572	446 573
50	2"	2"	76.3	145	446 577	446 578
<b>Diaphragm material PTFE/EPDM (ER)</b>						
8	1/4"	1/4"	0.9	145	325 872	325 878
10	3/8"	1/4"	2.1	145	325 873	325 879
15	1/2"	1/2"	3.6	145	325 874	325 880
20	3/4"	3/4"	9.8	145	325 875	325 881
25	1"	1"	16.8	145	298 091	325 883
40	1 1/2"	1 1/2"	43.4	145	325 876	325 884
50	2"	2"	76.3	145	325 877	325 885

# Manually operated 2-way Diaphragm Valve, Tube Valve Body

3233

## OD Tube Butt Weld and Clamp Port Connections 1/2"-2"

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



One of the most common necessities for manufacturing pharmaceuticals, cosmetics, food and beverages are diaphragm valves. What used to be a dull two-way race between forged and cast body variants is now being challenged by an exciting, ground-breaking technology. The hydroformed, light-weight diaphragm tube valve body will change the way you think about plant design and operation – as it helps you create more sustainable processes while meeting the industry's demanding regulations. And during operation, it can increase overall productivity of your plant. The diaphragm valve with tube body is perfect for hygienic application in the food and beverage, pharma, and cosmetic industries. It is designed with zero dead leg and a high cleanability certified by EHEDG.

### Technical Data

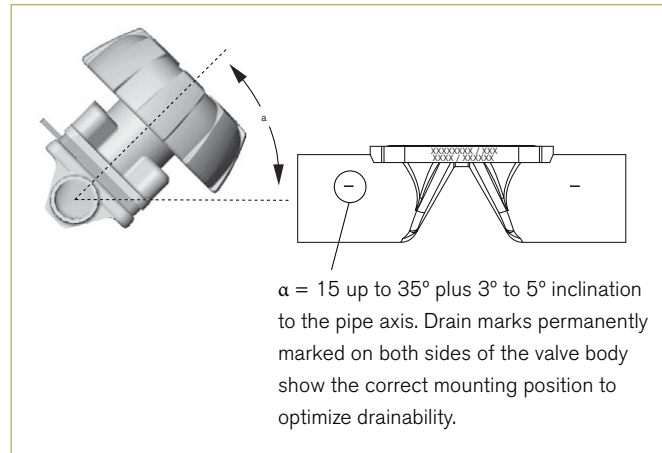
<b>Port connection</b>	1/2" - 2"
<b>Diaphragm size</b>	1/4" to 1-1/2"
<b>Port connections</b>	
Weld ends acc.	ASME BPE
Clamps acc.	ASME BPE
	(further port connections on request)
<b>Materials</b>	
Body	Stainless Steel 316L
Actuator	PPS hand wheel and stainless steel bonnet
Seal	PTFE/EPDM (EA), EPDM (AD), GYLON®/EPDM laminated (ER) on request: advanced PTFE/EPDM (EU), FKM (FF)
<b>Fluid</b>	Natural gases and liquids, high-purity, sterile, aggressive or abrasive fluids
<b>Viscosity</b>	Up to viscous
<b>Viscosity</b>	Up to viscous
<b>Surface finish (inner surface)</b>	
Electro polished	Ra ≤ 0.38 µm (ASME BPE SF4)
<b>Medium temperature</b>	
PTFE/EPDM (EA)	14° to 266°F (steam sterilization 284°F for 60 min)
EPDM (AD), advanced PTFE/EPDM (EU)	23° to 289°F (steam sterilization 302°F for 60 min)
GYLON®/EPDM Laminated (ER)	23° to 266°F (steam sterilization 284°F for 60 min)
FKM (FF)	32° to 266°F (not recommended for steam)
<b>Ambient temperature</b>	Up to 266°F (briefly up to 302°F)
<b>Options</b>	Locking function

### Technical data, pressure

Port connection DN		Diaphragm size	Max. media pressure	Cv [gpm]
[mm]	[inch]		[PSI]	ASME BPE
15	1/2"	1/4"	145	2.3
20	3/4"	1/2"	145	7.5
25	1"	3/4"	145	14.5
40	1-1/2"	1-1/4"	145	34.7
50	2"	1-1/2"	145	46.3

**Flow rate:** Cv value [gpm] measured at +60°F, 1 PSI pressure at valve inlet and free outlet  
**Pressure values [bar]:** Overpressure to the atmospheric pressure

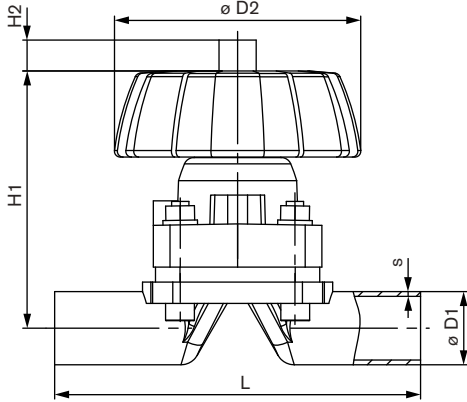
### Installation for self-draining operation



## Dimensions [inch]

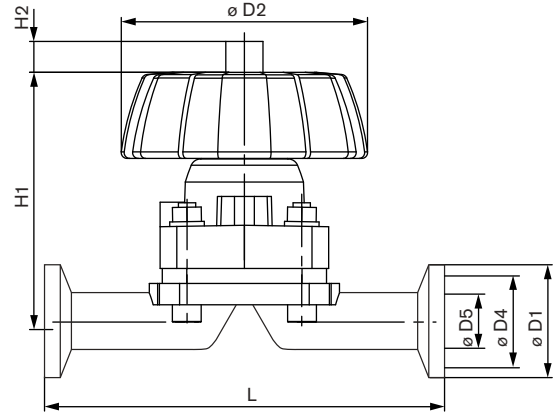
### Weld ends port connection

Port connection		DIAPH size	L	H1	H2	ØD2	ØD1	s
[mm]	[inch]							
<b>ASME BPE</b>								
15	1/2"	1/4"	3.54	2.20	-	1.38	0.50	0.06
20	3/4"	1/2"	4.61	3.27	0.28	3.15	0.75	0.06
25	1"	3/4"	5.00	3.50	0.43	3.15	1.00	0.06
40	1 1/2"	1 1/4"	6.26	4.45	0.75	4.49	1.50	0.06
50	2"	1 1/2"	7.48	4.65	0.75	4.49	2.00	0.06



### Clamp port connection

Port connection		DIAPH size	L	H1	H2	ØD2	ØD1	ØD4	ØD5
[mm]	[inch]								
<b>ASME BPE</b>									
15	1/2"	1/4"	3.50	2.20	-	1.38	0.98	0.81	0.37
20	3/4"	1/2"	4.02	3.27	0.28	3.15	0.98	0.81	0.62
25	1"	3/4"	4.49	3.50	0.43	3.15	1.99	1.71	0.87
40	1 1/2"	1 1/4"	5.51	4.45	0.75	4.49	1.99	1.71	1.36
50	2"	1 1/2"	6.26	4.65	0.75	6.26	2.52	2.22	1.87



## Ordering charts

### Welded connection ASME BPE

(PPS Handwheel & Stainless steel bonnet, electropolished Ra ≤ 0.38 µm and Inspection certificate 3.1 acc. to EN-ISO 10204 (included in delivery))

Port connection DN		Diaphragm size	Cv [gpm]	Max. operating pressure [PSI]	Item no. EPDM (AD) seal material	Item no. PTFE/EPDM (EA) seal material	Item no. Gylon®/EPDM Laminated (ER), seal material
[mm]	[inch]						
15	1/2"	1/4"	2.31	145	295 770	275 865	325 817
20	3/4"	1/2"	7.52	145	295 772	299 776	313 447
25	1"	3/4"	14.46	145	295 778	299 777	325 818
40	1-1/2"	1-1/4"	34.70	145	295 782	299 778	325 819
50	2"	1-1/2"	46.26	145	295 773	299 779	325 360

### Clamp connection ASME BPE

(PPS Handwheel & Stainless steel bonnet, electropolished Ra ≤ 0.38 µm and Inspection certificate 3.1 acc. to EN-ISO 10204 (included in delivery))

Port connection DN		Diaphragm size	Cv [gpm]	Max. operating pressure [PSI]	Item no. EPDM (AD) seal material	Item no. PTFE/EPDM (EA) seal material	Item no. Gylon®/EPDM Laminated (ER), seal material
[mm]	[inch]						
15	1/2"	1/4"	2.31	145	317 523	317 524	325 855
20	3/4"	1/2"	7.52	145	325 847	325 851	325 856
25	1"	3/4"	14.46	145	325 848	325 852	325 857
40	1-1/2"	1-1/4"	34.70	145	325 849	325 853	325 611
50	2"	1-1/2"	46.26	145	325 850	325 854	325 858

## Universal attachment for hygienic process valves

- 3 switching points
- Color status display
- Manual override to be used with closed housing
- Communication interface AS-Interface (option)



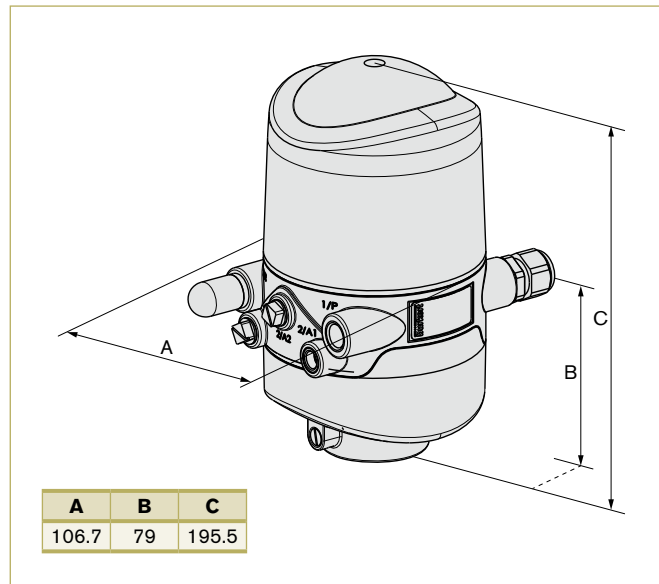
Type 8681 control head is optimized for decentralised automation of hygienic process valves. Thanks to its universal adapter it can be combined with all normal commercial butterfly valves, ball valves, single and double seated valves. With a decentralised automation concept, the control head takes over all pneumatic actuation, feedback 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

<b>Material</b>	
Body	PA, PPO, VA
Cover	PC
Seal	CR, EPDM
<b>Control medium</b>	neutral gases, air DIN ISO 8573-1 (filter 5 µm recommended)
Dust concentration	class 5 (< 40 µm particle size)
Particle density	class 5 (< 10 mg/m³)
Pressure condensation point	class 3 (< -4 °F (-20°C))
Oil concentration	class 5 (< 25 mg/m³)
<b>Supply pressure</b>	36.25 to 116 PSI
<b>Air capacity solenoid valve<sup>1)</sup></b> (supply and exhaust air per solenoid valve adjustable)	110 l <sub>N</sub> /min - for pressurization and exhaust, lifting device 110 l <sub>N</sub> /min - delivery condition 200 l <sub>N</sub> /min - max. typical flow rate (throttle)
<b>Pilot air ports</b>	
Air inlet and outlet	G 1/4"
Service ports	G 1/8"
<b>Position sensor</b>	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 to 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)
<b>Ambient temperature</b>	14 °F to 131 °F 41 °F to 131 °F (ATEX II 3G Ex nA IIC T4; ATEX II 3G Ex tD A22 T135°C)
<b>Installation</b>	As required, preferably with actuator in upright position

<sup>1)</sup> QNn-value acc. to the definition with decrease in pressure from 7 to 6 bar absolute with 68°C.

### Envelope Dimensions [mm] (see datasheet for details)



### Technical Data (continued)

<b>Type of protection</b>	IP 65/67 acc. to EN 60529
<b>Protection class</b>	3 acc. to VDE 0580
<b>Fieldbus communication</b>	AS-Interface, DeviceNet (in preparation)
<b>EG-Conformity</b>	EMV2004/108/EG; ATEX 94/9/EG
<b>Ignition protection</b>	ATEX II 3G Ex nA IIC T4 ATEX II 3G Ex tD A22 T135°C

 = Quick Delivery Items

## Technical data (continued)

<b>Without fieldbus communication; 24V DC</b>	
<b>Power consumption</b>	< 5 W (acc. to version and operating status see instruction manual)
<b>Valve control inputs (Y1 - Y3)</b>	
Signal level - active	U < 5 V, max. 24 V DC + 10%
Signal level - inactive	U < 5 V
Impedance	U > 30 kOhm
<b>Outputs / binary feedback signals</b>	S1 out - S4 out
Design	Normally open contact, PNP output short-circuit proof with self-locking short circuit protection
Switchable output current	max. 100 mA per feedback signal
Output voltage -active	≥ (operating voltage - 2 V)
Output voltage -inactive	max. 1 V in unloaded state
<b>Input / proximity switches (external initiator: S4 in)</b>	
Power supply	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	$U_{\text{Sensor}} < 5 \text{ V}$
<b>Electrical connection</b>	
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 <sup>2</sup> ), 1 x M16 x 1.5 cable glands for external initiator (clamping range 3 ... 6 mm)
<b>With Fieldbus communication; AS-Interface</b>	
<b>Power consumption equipment without external power supply</b>	
Max. Current consumption	240 mA (incl. external initiator with 90 mA)
Current consumption in normal operation	≤ 150 mA
(acc. to reduction of electric current; valve + 1 end position achieved)	3 valves activated, 1 position feedback with LED display, no external initiator
<b>Power consumption equipment with external power supply</b>	
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 up to 31.6 V DC ≤ 100 mA 24 V DC ≤ 150 mA type.
<b>Output</b>	
Contact rating	0.8 W with AS-Interface, per Solenoid Valve (0.9 W Switch-on power)
Watch-dog function	integrated
<b>Input / proximity switches (external Initiator: S4 in)</b>	
Power supply	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	$U_{\text{Sensor}} < 5 \text{ V}$
<b>Electrical connection</b>	
(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 M 16 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 M 16 x 1.5 cable glands for external initiator clamping range 3 ... 6 mm.

## Ordering Chart

Communication	Supply voltage	Connection	ATEX zone 2/22 cat. 3	Quantity of solenoid valves	Feedback	Item no.
without	12 to 28 V DC	cable gland	without	0	3 int. + 1 ext.	196 410
			without	1	3 int. + 1 ext.	196 411
			without	2	3 int. + 1 ext.	196 412
			without	3	3 int. + 1 ext.	196 413
			with	1	3 int. + 1 ext.	196 415
without	12 to 28 V DC	M12, 12-pin, cable 8 cm	without	0	3 int. + 1 ext.	196 420
			without	1	3 int. + 1 ext.	196 421
			without	2	3 int. + 1 ext.	196 422
			without	3	3 int. + 1 ext.	196 423
			with	1	3 int. + 1 ext.	196 425
AS-Interface (62 slaves)	29.5 to 31.6 V DC	version with ASI flat cable clip and cable 80 cm	without	0	3 int. + 1 ext.	196 430
			without	1	3 int. + 1 ext.	196 431
			without	2	3 int. + 1 ext.	196 432
			without	3	3 int. + 1 ext.	196 433
			with	1	3 int. + 1 ext.	196 435
DeviceNet	via Bus	M12, 5-pin, cable 80 cm	without	1	3 int. + 1 ext.	196 451
			without	2	3 int. + 1 ext.	196 452
			without	3	3 int. + 1 ext.	196 453
bùS/CANopen	via Bus	M12, 5-pin, cable 80 cm	without	1	3 int. + 1 ext.	298 715
			without	2	3 int. + 1 ext.	300 866
			without	3	3 int. + 1 ext.	300 867

For PMO configurations please contact the valve manufacturer or a Burkert representative.

# Digital Electropneumatic Positioner SideControl and Digital Electropneumatic Process Controller SideControl

8792 / 8793

- Compact and robust design
- Easy Start-up 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 bÜS (Bürkert System Bus)

8792



8793

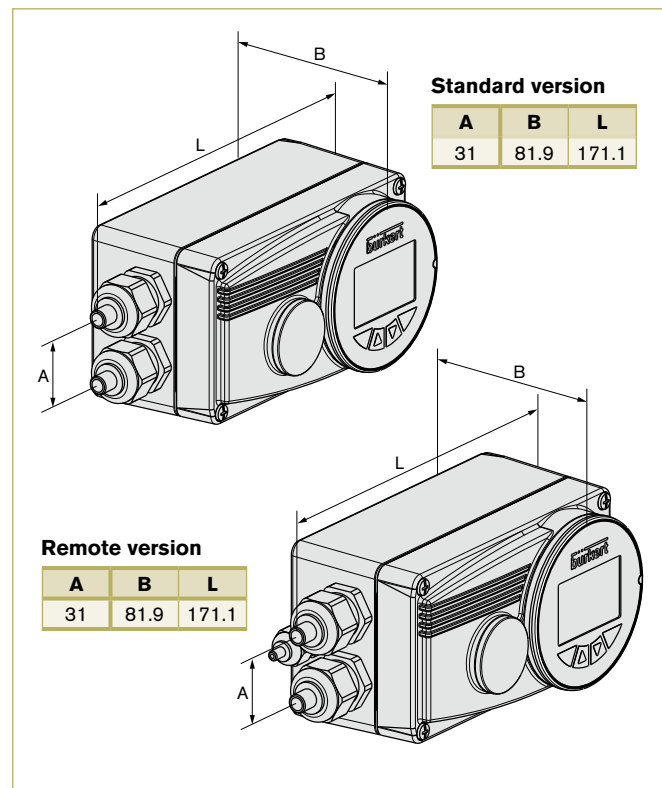
The type 8792 and 8793 are designed to standardization acc. to IEC 60534-6-1 or VDI/VDE 3845 (IEC 60534-6-2) for assembly with linear and rotary actuators. In addition, the remote versions can be combined with Bürkert process control valves. They can be operated with the usual current and voltage standard signals and can also be equipped with the fieldbus interface. Type 8792 and 8793 are equipped with additional diagnostic functions to monitor the state of the valve. With the diagnosis, the operating conditions of the control valves can be monitored. This allows planned maintenance and optimizes plant availability. Operation occurs via the external operation and display module with a backlit graphical display. 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 supply and possesses an enormous air capacity range with pressure supply up to 101.526 PSI.

## Technical Data

<b>Material</b>	
Body	Aluminium plastic-coated
Seal	EPDM, NBR, FKM
<b>Operating voltages</b>	24 V DC $\pm$ 10 %
<b>Residual ripple</b>	Max. 10%
<b>Setpoint setting</b>	0/4-20 mA and 0-5/10 V
<b>Input resistance</b>	0/4-20 mA: 180 $\Omega$ 0-5/10 V: 19 k $\Omega$
<b>Analogue feedback</b>	4-20 mA, 0-20 mA 0-10 V, 0-5 V
<b>Binary input</b>	Galvanically isolated, 0-5 V = log "0", 10-30 V = log "1"
<b>Binary output</b>	2 Outputs (optional), galvanically separated
Current limit	100 mA, Output will be synchronised when overloaded
<b>Control medium</b>	Neutral gases, air quality classes acc. to ISO 8573-1
Dust concentration	Class 7 (< 40 $\mu$ m particle size)
Particle density	Class 5 (< 10 mg/m <sup>3</sup> )
Pressure condensation point	Class 3 (< -20 °C)
Oil concentration	Class X (< 25 mg/m <sup>3</sup> )
<b>Ambient temperature</b>	14 °F to 140 °F; -10 °C...+60 °C (no Ex-Approval)
	32 °F to 140 °F; 0 °C...+60 °C (with ATEX/IECEx-Approval)
<b>Pilot air ports</b>	Threaded ports G 1/4
<b>Supply pressure</b>	7.25-14.50 PSI (1.4...7 bar) <sup>1)2)</sup>

<sup>1)</sup> The supply pressure has to be 7.25-14.50 PSI above the minimum required pilot pressure for the valve actuator <sup>2)</sup> Pressure specifications: Overpressure with respect to atmospheric pressure

## Envelope Dimensions [mm] (see datasheets for details)





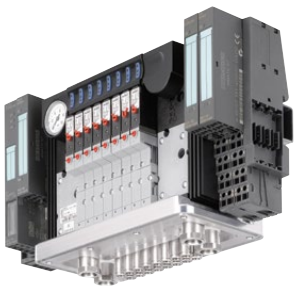


# Clean up your Cabinet!

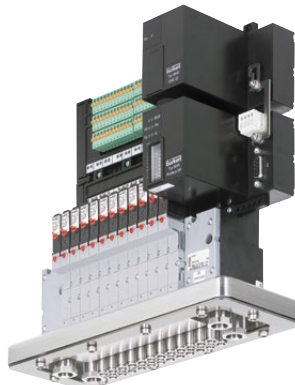
Smart solutions for flexible automation

**Pneumatic control of processes can be so easy! Whether low or high flow rate for controlling of pneumatically driven valves, our AirLINE valve islands match your flow rate specifications. Be it for direct wiring or interface modules like Multipol, Profibus, DeviceNet, CANopen, Profinet, Ethernet or Modbus, any kind of communications are available.**

**Furthermore - with AirLINE Quick for example – our new adapter for valve islands and automation systems significantly reduces the need for components in the control cabinet like pneumatic hoses and cables – without any bulkhead connections! This cleans up your control cabinet and even allows for smaller ones. AirLINE Quick is available as a component or individually designed in a control cabinet – it's your choice!**



*AirLINE Quick automation system type 8644 with interface module and I/O modules from cooperation partner Siemens ET 200S, 16 valve functions*



*AirLINE Quick valve island type 8640 with Profibus DPV1, 24 valve functions and 24 digital inputs*

# Angle Seat Valve System for on/off Control and Globe Valve System for on/off Control

- Long service life
- Easy integration of automation units with ELEMENT
- Stainless steel housing
- Suitable for 10 bar(g)/145.038 PSI steam



The design of the System Type 8801 On/Off ELEMENT enables the easy integration of automation units whether they are electrical/ optical position feedback, pneumatic control units or an optional integrated fieldbus interface. The fully integrated system with valve and automation system has a compact and smooth design, integrated pneumatic lines, IP65/67/NEMA4X protection class and superior chemical resistance.

**2100** - In line with Burkert's philosophy for modular valves and sensors the construction of the 2100 angle-seat valve fulfills tough criteria for process environments. Unrivalled cycle life and sealing integrity is guaranteed by the proven self adjusting spindle packing with V-seals.

**2101** - The globe valve Type 2101 is specially optimized for decentralized process automation and fulfills 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 service life and sealing integrity is guaranteed by the proven self-adjusting spindle packing with chevron seals.

**8691** - The Control Head Type 8691 is optimized for integrated mounting on the 21XX process valve series. The registration of the valve end position is done through a contact-free analog position sensor, which automatically recognizes and saves the valve end position through the Teach function when starting up. The integrated pilot valve controls single acting actuators and provides two position feedback via two PNP transistors.

## Technical Data

	2100 Angle Seat	2101 Globe
<b>Orifice</b>	0.5" (DN15) to 2.5" (DN65)	0.5" (DN15) to 4" (DN100)
<b>Medium temperature</b>	-10°C to +185°C; 14°F to 365°F	
<b>Ambient temperature</b>	-10°C to +60°C; 14°F to 140°F (push-in air ports) -10°C to +100°C; 14°F to 212°F (threaded air ports)	
<b>Body material</b>	316L stainless steel	
<b>Sealing material</b>	PTFE	
<b>Actuator material</b>		
Actuator	PPS	
Cover	Stainless steel 1.4561 (316Ti)	
<b>Control medium</b>	Instrument air at 75-100 PSI	
<b>Flow direction</b>	Under seat anti water-hammer/ above seat for steam and gases	
<b>Port connection</b>	2100 NPT/OD Tube/Clamp and 2301ANSI Flanged*	
<b>Safe position</b>	Normally closed	

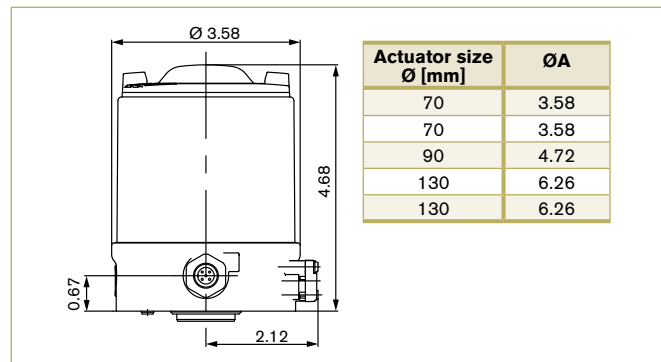
\*other options available

 = Quick Delivery Items

## 8691 Technical Data

<b>Material</b>	
Body	0.5" (DN15) to 2.5" (DN65)
Cover	PC
Sealing	EPDM
<b>Control medium</b>	neutral gases, air, quality classes acc. to ISO 8573-1
<b>Dust concentration</b>	Class 7 (<40µm particle size)
<b>Particle density</b>	Class 5 (<10mg/m³)
<b>Pressure condensation</b>	Class 3 (<-20°C)
<b>Oil concentration</b>	Class X (<25mg/m³)
<b>Supply pressure</b>	43.5-101.5 PSI
<b>Pilot air ports</b>	316L stainless steel
<b>Seal material</b>	PTFE
<b>Position feedback</b>	Analogue position sensor (contact-free) with teach function; switchport (PNP)
<b>Ambient temperature</b>	
with pilot valve	14°F to 131°F; -10°C to 55°C
<b>Protection type</b>	IP65 and IP67 according to EN 60529, Type 4X
<b>Approvals</b>	cULus Cert. No 238179

## 8691 Dimensions [inch] (see datasheet for more details)





# Angle Control Valve and Globe Control Valve

8802 / 2300 / 2301

## 2/2-way Continuous Control, 1/2" to 4"

- High cycle life and maintenance-free operation
- Stainless IP65 and 67, NEMA4 protection
- Excellent control characteristics and impact resistance
- Simple to install and commission



## ELEMENT Control Valves

As part of a remarkable range of attractive and process control components our hardworking angle control valves offer high flows for large capacity heat exchange operations while our globe valves offer extreme precision and quiet operation. Both can be incorporated in the superlative 8802 control valve system. The 8802 Continuous ELEMENT architecture enables the easy integration of three levels of automation modules: a simple blind Positioner; a positioner with display; and a fully functional process controller. A range of fieldbus interfaces (AS-i, Profibus or DeviceNET) can be added with ease.

Simple, intuitive, multilingual menu driven HMI allows you to control your loop with the minimum time investment.

Threaded, OD tube weld ends, clamp, and flanged connections make this an easily installed part of your control loop. These control valves offer unmatched life cycle performance. Truly Intelligent, Integrated and Beautiful.

## Technical Data

	2300 Angle Seat	2301 Globe
<b>Orifice</b>	1/2" (DN15) to 2 1/2" (DN65)	3/8" (DN10) to 4" (DN100)
<b>Medium temperature</b>	14°F to 365°F; -10°C to +185°C	
<b>Ambient temperature</b>	Max. 55°C; 131°F	
<b>Body material</b>	316L stainless steel	
<b>Sealing material</b>	PTFE/stainless steel	
<b>Actuator material</b>	PPS/stainless steel band	
<b>Control medium</b>	Instrument air at 85-100 PSI	
<b>Flow direction</b>	Under seat anti water-hammer	
<b>Port connection</b>	2300/2301 NPT/OD Tube/Clamp and 2301 ANSI Flanged	
<b>Safe position</b>	Normally closed	



## 8692 Technical Data

<b>Material</b>	
Body	PPS, stainless steel
Cover	PC
Sealing	EPDM
<b>Control medium</b>	
Dust concentration	neutral gases, air, quality classes acc. to ISO 8573-1 Class 7 (<40µm particle size)
Particle density	Class 5 (<10mg/m³)
Pressure condensation	Class 3 (<-20°C)
Oil concentration	Class X (<25mg/m³)
<b>Supply pressure</b>	
	Low air flow rate 0-101.52 PSI (0 to 7 bar <sup>1)</sup> ) High air flow rate 43.5-101.52 PSI (3 to 7 bar)
<b>Pilot air ports</b>	
	Threaded ports G1/8 stainless steel
<b>Seal material</b>	
	EPDM
<b>Electrical Connection</b>	
Multipole connection	M12, 8-pins or 4-pins
Cable gland	2xM16 x 1.5 (cable-Ø 5 – 10 mm) with connection terminals for cable cross-sections 0.14 – 1.5 mm²
<b>Ambient temperature</b>	
	-10°C to 55°C; 14°F to 131°F
<b>Protection type</b>	
	IP65/IP67 acc. to EN 60529, Type 4X acc. to NEMA 250 standard

<sup>1</sup> The supply pressure has to be 7.25-14.05 bar above the minimum required pilot pressure for the valve actuator.

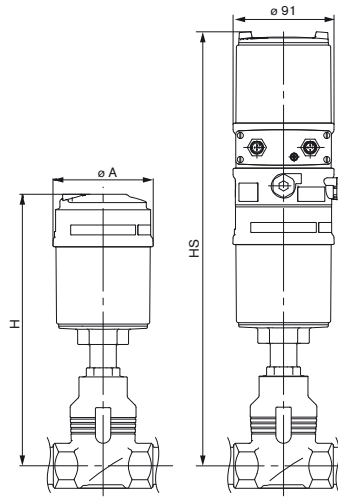
## Dimensions [inch] (see datasheet for more details)

8802 NPT end	Connection	Actuator [mm]	HM	BM	LM
	1/2"	70	11.02	12.13	2.56
	3/4"	70	11.34	12.52	2.95
	1"	70	13.03	14.25	3.54
	1 1/2"	130	15.12	15.08	4.72
	2"	130	15.63	17.40	5.91
	2 1/2"	130	16.93	19.17	7.28

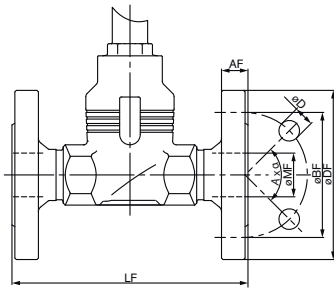
Dimensions [inch] (see datasheet for more details)

**2301 without and with TopControl Type 8692**

Size	Actuator [mm]	ØA	H	HS with 8692
1/2"	70	3.58	9.40	15.07
3/4"	70	3.58	9.64	15.31
1"	90	4.72	11.85	17.52
1 1/2"	130	6.26	15.19	20.86
2"	130	6.26	15.43	21.10
2 1/2"	130	6.26	17.55	23.22
3"	130	6.26	17.87	23.54
4"	130	6.26	18.26	23.93



**2301 flanged body**



Port size (tube) [inch]	Actuator size [mm]	Actuator [mm]					
		ØDF	LF	ØBF	AF	ØD	ØMF
1/2	70	3.50	7.24	2.38	0.41	0.61	0.61
3/4	70	3.89	7.24	2.75	0.50	0.61	0.81
1	70	4.25	7.24	3.11	0.55	0.61	1.05
1-1/2	90	5.00	8.74	3.88	0.68	0.61	1.05
2	130	5.98	10.00	4.75	0.75	0.75	2.07
2 1/2	130	7.00	10.86	5.50	0.87	0.75	2.48
3	130	7.48	11.73	6.00	0.94	0.75	3.07
4	130	9.01	13.85	7.50	0.94	0.75	4.01

Ordering charts

**Angle Control Valve (2300 + 8692)**

Size	Orifice [mm]	Cv	Pressure	NPT		Tube		Clamp	
				PTFE/St.st.	St.st./St.st.	PTFE/St.st.	St.st./St.st.	PTFE/St.st.	St.st./St.st.
1/2"	15	5.8	232	336 492	337 376	336 509	337 391	337 343	336 461
3/4"	20	11.6	232	336 494	467 877	336 511	337 395	337 344	337 420
1"	25	18.5	232	336 495	337 378	336 512	337 402	337 346	338 033
1 1/2"	40	41.6	232	336 496	467 878	337 313	337 408	337 373	338 034
2"	50	61.3	232	336 504	467 874	337 314	336 458	333 086	338 036
2 1/2"	65	104.1	232	336 508	337 287	337 315	337 412	337 375	333 091

**Globe Control Valve (2301 + 8692)**

Size	Orifice [mm]	Cv	Pressure	Flange		NPT	
				PTFE/St.st.	St.st./St.st.	PTFE/St.st.	St.st./St.st.
1/2"	15	5	232	338 037	337 323	337 384	467 880
3/4"	20	8.3	232	338 038	337 324	338 073	337 413
1"	25	13.9	232	338 039	337 338	467 881	337 134
1 1/2"	40	27.7	232	338 042	337 339	338 075	337 414
2"	50	43	232	338 045	467 872	338 124	337 416
2 1/2"	65	75.6	232	338 049	333 067	338 216	337 419
3"	80	116.3	145	338 070	333 059	-	-
4"	100	162.8	87	338 072	337 340	-	-

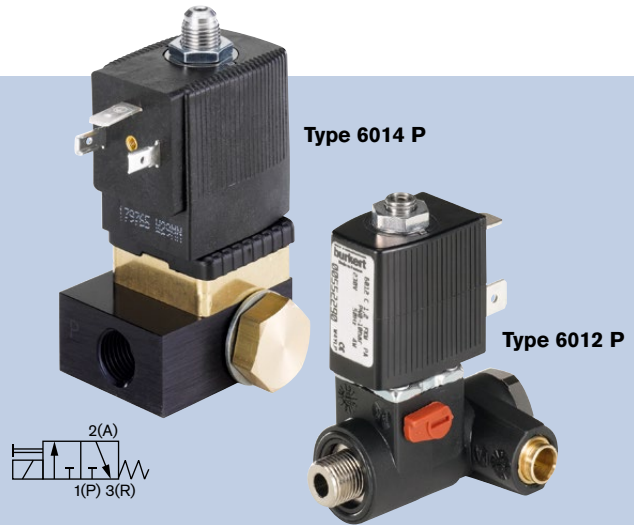
Size	Orifice [mm]	Cv	Pressure	Tube		Clamp	
				PTFE/St.st.	St.st./St.st.	PTFE/St.st.	St.st./St.st.
1/2"	10	3.1	232	338 227	337 316	-	-
	15	5	232	-	-	338 255	333 093
3/4"	15	5	232	338 234	337 317	337 288	338 257
1"	20	8.3	232	338 239	336 479	337 289	338 249
1 1/2"	32	20.7	232	338 242	336 459	337 290	338 259
2"	40	27.7	232	336 462	336 474	338 256	338 253
2 1/2"	50	43	232	338 244	338 223	-	-
3"	65	75.58	232	338 246	337 320	-	-
4"	100	162.8	87	338 248	336 350	-	-

# Direct mounting pilot valve for pneumatic actuators

6012 / 6014 Pilot

## NPT 1/8" or NPT 1/4"

- Simple to connect to valve and air supply
- Low power
- Tough and reliable
- Manual override as standard



Direct-acting, 3/2-way, normally closed solenoid valve is plunger operated and designed to fit simply and securely to process valves. Type 6012 P has a compact design and a 1.2 mm orifice. Type 6014 P with a higher air capacity because of the 2 mm orifice.

### Technical Data

	6012 P	6014 P
<b>Pressure range</b>	0-145 PSI max.	0-145 PSI max.
<b>Temperature media</b>	14 °F to 140 °F (-10 °C to +60 °C)	14 °F to 140 °F (-10 °C to +60 °C)
<b>Ambient temperature</b>	14 °F to 104 °F (-10 °C to +40 °C)	14 °F to 104 °F (-10 °C to +40 °C)
<b>Body material</b>	Polyamide	Brass and aluminium
<b>Banjo bolt material</b>	Brass, nickel plated	Brass, nickel plated
<b>Seal material</b>	Banjo screw: NBR Valve: FKM	FKM
<b>Coil material</b>	Epoxy (Class H)	Polyamide
<b>Voltage tolerance</b>	±10%	±10%
<b>Power consumption</b>	DC: 4 W, AC: 9 VA (inrush), 6 VA (hold)	DC: 8 W, AC: 24 VA (inrush), 17 VA (hold)
<b>Protection class</b>	IP65 (with cable plug)	IP65, NEMA 4 (with cable plug)
<b>Electrical connection</b>	Cable plug, Type 2507, Form B acc. to industry standard (not included)	Cable plug, Type 2508, Form A acc. to DIN EN 175301-803 (not included)
<b>Response times <sup>1)</sup></b>		
DC opening	7-12 ms	ca. 18 ms
DC closing	7-12 ms	ca. 22 ms
AC opening	7-10 ms	ca. 18 ms
AC closing	9-12 ms	ca. 22 ms

<sup>1)</sup> Measured at valve outlet at 87 PSI (6 bar) and 68 °F (+20 °C)  
Opening: pressure rise 0 to 90%, Closing: pressure drop 100 to 10%

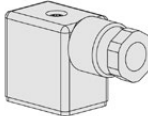
### Options

- |  |   |
|--|---|
| <b>6012 P</b> <ul style="list-style-type: none"> <li>▪ Normally open</li> <li>▪ Cable plug with LED and varistor</li> <li>▪ Other voltages on request</li> </ul> | <b>6014 P</b> <ul style="list-style-type: none"> <li>▪ Normally open</li> <li>▪ Cable plug with LED and varistor</li> <li>▪ Hazardous area approvals</li> </ul> |
|--|---|

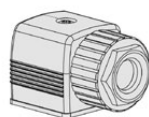
### Ordering Chart

Connection Actuator/Air	Orifice [mm]	Cv	Pressure range [PSI]	Item no. Voltage/Frequency [V/Hz]	
				24 V DC	120 V/60 Hz
<b>6012 P</b>					
1/8" BSP / 1/4" NPT	1.2	1.7	0-145	552 275	552 277
1/4" BSP / 1/4" NPT				552 279	552 281
<b>6014 P</b>					
1/8" BSP / 1/4" NPT	1.6	0.08	0-230	429 142	429 144
1/4" BSP / 1/4" NPT				429 130	429 132
1/8" BSP / 1/4" NPT	2.0	0.13	0-140	429 146	429 148
1/4" BSP / 1/4" NPT				429 134	429 136

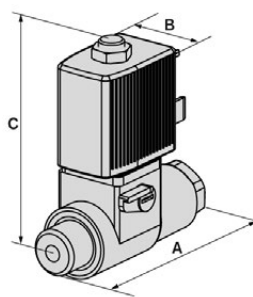
### Envelope Dimensions [inch] (see datasheet for details)



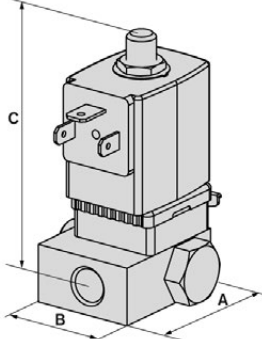
2507 cable plug  
Form B  
(not included)



2508 cable plug  
Form A  
(not included)



**Type 6012 P**



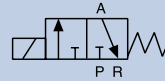
**Type 6014 P**

Type	A	B	C
6012 P	1.85	0.78	2.04
6014 P	1.77	1.41	3.11

# Heavy Duty 3/2-way Pilot Valve Blocks

## NPT 1/4", 0-145 PSI

- Extremely rugged
- Slip over coil design
- Manual override



Shown with 2508 plugs

6014 Manifold

Plug and play, pre-assembled and tested manifold solutions featuring our direct-acting 3/2-way normally closed solenoid valve. The valves are plunger operated and designed to work in process environments with double FKM seals and a strong 32mm coil. These small flexible systems are engineered specifically for process compressed air however Burkert specializes in custom manifolds to suit any fluid purpose from 0.05mm to 4".

### Technical Data

<b>Pressure range</b>	0-145 PSI, max.
<b>Temperature media</b>	14 °F to +212 °F
<b>Ambient temperature</b>	131 °F, max.
<b>Manual override</b>	Yes
<b>Body material</b>	Brass
<b>Manifold material</b>	Anodized aluminum
<b>Connections</b>	NPT 1/4"
<b>Valves</b>	24 VDC (456 634) or 120 VAC (456 636)
<b>Orifice</b>	2 mm
<b>Cv</b>	0.13
<b>Seal material</b>	FKM
<b>Coil material</b>	Epoxy
<b>Power consumption</b>	DC: 8 W, AC: 24 VA (inrush), 17 VA (hold)
<b>Protection class</b>	IP65, NEMA 4
<b>Electrical Connection</b>	2509 Cable plug Form A (included)
<b>Accreditations</b>	UL Listed, FM Class 1, Div 2, CSA, CE

### Options

- Manifolds of many engineering materials
- Intrinsically safe range (1 option shown in table as example)

### Ordering Chart for manifold mount valves

Voltage	Item no. standard	Item no. with manual override
24 VDC	125 375	289 548
120 VAC	467 127	465 592

### Envelope Dimensions [inch] (see datasheet for details)

2509 cable plug  
Form A included

No. of blocks	A	B	C
2	2.56	1.77	3.30
3	3.86	1.77	3.30
4	5.16	1.77	3.30
5	6.46	1.77	3.30
6	7.76	1.77	3.30
7	9.06	1.77	3.30
8	10.35	1.77	3.30
9	11.65	1.77	3.30
10	12.95	1.77	3.30

### Ordering Chart for manifold

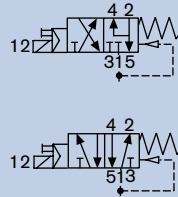
Positions	Item no.
2	006 104
3	613 828
4	006 106
5	613 829
6	613 598
8	613 831
10	613 833

# 5/2 on 3/2-way Convertible Solenoid Valve for pneumatics, NAMUR version

6519 NAMUR

## NPT 1/4", NAMUR

- High flow rate
- Low power consumption
- High switching reliability
- Manual override as standard
- Corrosion-resistant construction



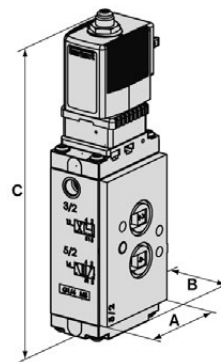
The solenoid valve, Type 6519 NAMUR, is provided with a NAMUR standard flange for easy, direct mounting to pneumatic actuators. It is manufactured from high-quality man-made materials.

### Technical Data

<b>Orifice</b>	DN6.0 mm
<b>Body Materials</b>	
Pilot valve and main valve	Polyamide (PA)
<b>Thread insert material</b>	Brass, nickel-plated or stainless steel
<b>Seal material</b>	NBR and PUR
<b>Pneumatic connection</b>	
Supply ports 1, 3, 5	Threaded port NPT 1/4"
Service ports 2 and 4	NAMUR flange
<b>Electrical connection</b>	Tag connector acc. to DIN EN 175301-803 Form A, Type 2508 (not included)
<b>Power consumption</b>	AC 11 VA (inrush), 6 VA (hold), DC 2 W
<b>Protection</b>	IP65 with cable plug
<b>Operating voltage</b>	024/DC, 024/230 V, 50-60 Hz
<b>Voltage tolerance</b>	± 10%
<b>Duty cycle</b>	100 % continuous rating
<b>Ambient temperature</b>	-13 °F to 131 °F (-25 °C to +55 °C)
<b>Mediums</b>	Compressed air, nitrogen, instrument air
<b>Environmental conditions</b>	Slightly aggressive, also open air
<b>Response times <sup>1)</sup></b>	
Opening	20 ms
Closing	40 ms

<sup>1)</sup> Measured at valve outlet at 87 PSI (6 bar) and 68 °F (+20 °C) acc. to ISO 12238.  
Opening: pressure rise 0 to 90%, Closing: pressure drop 100 to 10%

### Envelope Dimensions [mm] (see datasheet for details)



For plug details please see datasheet and table below. Class 1 Div I valves are supplied with flying leads and conduit connector.

Size	A	B	C
1/8"	1.26	1.38	2.89
1/4"	1.81	1.38	3.12

### Ordering Chart

Type	Connections mechanical / electrical	Approvals	Item nos.	
			24/DC	120/60
Standard	NPT1/4" Nickel-plated / 2508 plug	UR	296 425	296 428
Standard	NPT1/4" Nickel-plated / 2509 conduit plug	UL	296 478	296 488
HazEx™	NPT1/4" Stainless / conduit with 18" flying leads	FM, CSA Class I, Div 1	459 232	459 233



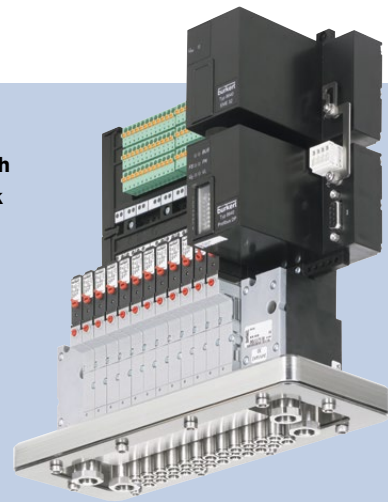
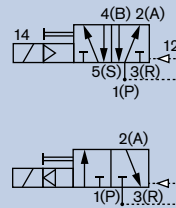
# Modular pneumatic valve unit

## AirLINE and AirLINE Quick

- Compact design
- Modular configuration
- Cost savings in the control cabinet with AirLINE Quick
- Simple exchange of valves



Type 8640 with AirLINE Quick



8640

The versatile operational capability of the valve terminal, Type 8640, in the food and beverage industry will push in extended connections for hygienic applications by AirLINE Quick adapter plate with stainless steel and stainless steel. Installation and commissioning times are reduced to a minimum. For general applications AirLINE Quick is available in aluminum.

## Technical Data

<b>Body material</b>	PA (Polyamide)
<b>Seal material</b>	FKM, NBR
<b>Medium</b>	Lubricated and non-lubricated dry air; neutral gases (5 µm filter)
<b>Manual override</b>	Yes
<b>Voltage</b>	24 V DC
<b>Voltage tolerance</b>	±10%
<b>Nominal power</b>	1 W per valve
<b>Duty cycle</b>	Continuous operation (100% ED)
<b>QNn</b>	300 l/min
<b>Pilot method</b>	Flipper pilot valve
<b>Circuit function</b>	3/2-way, normally closed, 5/2-way
<b>Pressure range</b>	36.2-145 PSI
<b>Width/station</b>	11 mm
<b>Ambient temperature</b>	32 °F to 131 °F
<b>Protection class</b>	3 acc. to VDE 0580
<b>Type of protection</b>	IP20 with terminal
<b>Orifice</b>	4 mm
<b>Pneumatic connection</b>	6 mm Push-in

Our fieldbus modules (Profinet IO, Profibus DP, Modbus TCP) can be combined under a bus address each with up to 7 RIO slave modules. Valve terminals with Modbus TCP on request.



## Ordering Chart

Communication	Item no. 16 valves (8 x (2 x 3/2-way))	Item no. 24 valves (12 x (2 x 3/2-way))
Individually wired (common ground)	217 928	217 934
Multipole 25 pin connector	217 930	217 935
DeviceNet	217 931	217 936
Profibus DPV 1	217 932	217 937

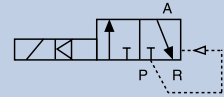
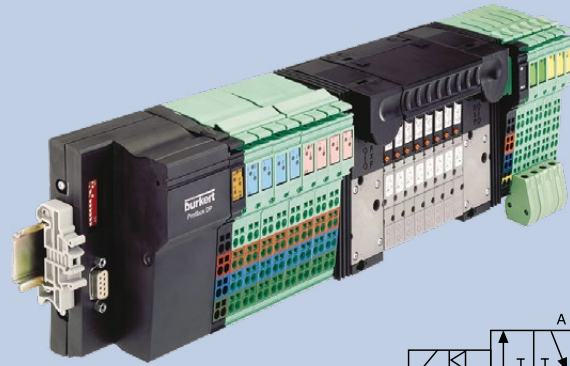
This chart shows only 8 simple configurations. The 8640 can be configured in a vast array of possibilities. Please visit the website for the configurators or call our experienced technical support.

# AirLINE Modular Process Actuation and Networking System

8644

## 3/2-way or 5/2-way valves plus analog and digital I/O, bus or conventional communication

- Combines fieldbus, I/O and pneumatic pilots
- Extreme application flexibility



Stemming from our expertise in the supervision and control of complete loops AirLINE is more than a valve island. It accepts a wide array of digital and analogue field inputs and sends digital and analogue outputs for exact control where it matters.

This unique device marries virtually any combination of valve island functionality and electronic signals to the widest range of fieldbus connectivity.

AirLINE leaves the freedom to choose between electronic modules as it creates a fully integrated fieldbus communication, process valve actuation and control platform.

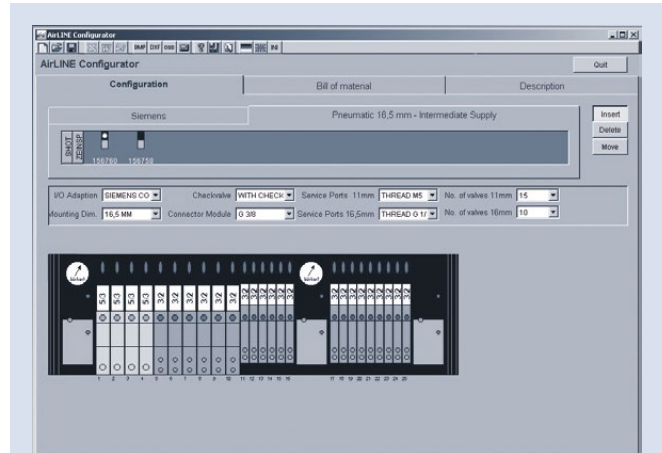
Special features make Burkert AirLINE unique:

- Burkert's exceptional process pneumatics designed and manufactured in Germany for valve actuation in the process environment
- Our ground-breaking modular system fit in your world and in your cabinet
- AirLINE with WAGO I/O System 750 and AirLINE with Siemens ET 200S can be used in hazardous applications in Zone 2
- With integrated P shut-off you are able to replace a valve even during operation
- Additional integrated check valves give a better protection for your installation
- Perfect process pneumatics with multiple communication possibilities

## Technical Data

<b>Body material</b>	PA (polyamide)
<b>Seal material</b>	FKM, NBR
<b>Media</b>	Lubricated and non-lubricated dry air, neutral gases (5 µm-Filter)
<b>Manual override</b>	Yes
<b>Voltage 24 V DC</b>	24 V DC
<b>Nominal power</b>	2 x 1 W
<b>Duty cycle</b>	Continuous operation (100% ED)
<b>Cv</b>	0.28 / QNn = 300l/min
<b>Pilot method</b>	Flipper pilot
<b>Circuit function</b>	C 3/2-way normally closed
<b>Pressure range</b>	36.25-145 PSI
<b>Orifice size</b>	4 mm
<b>Pneumatic outlet</b>	Push in 1/4" tube

## Configuration Software



AirLINE is a system of modular design which is precisely adapted to the specific requirements of the customer. Burkert offers a software programme, the simple, precise generation of the required configuration of each AirLINE system.

The Burkert Configurator defines

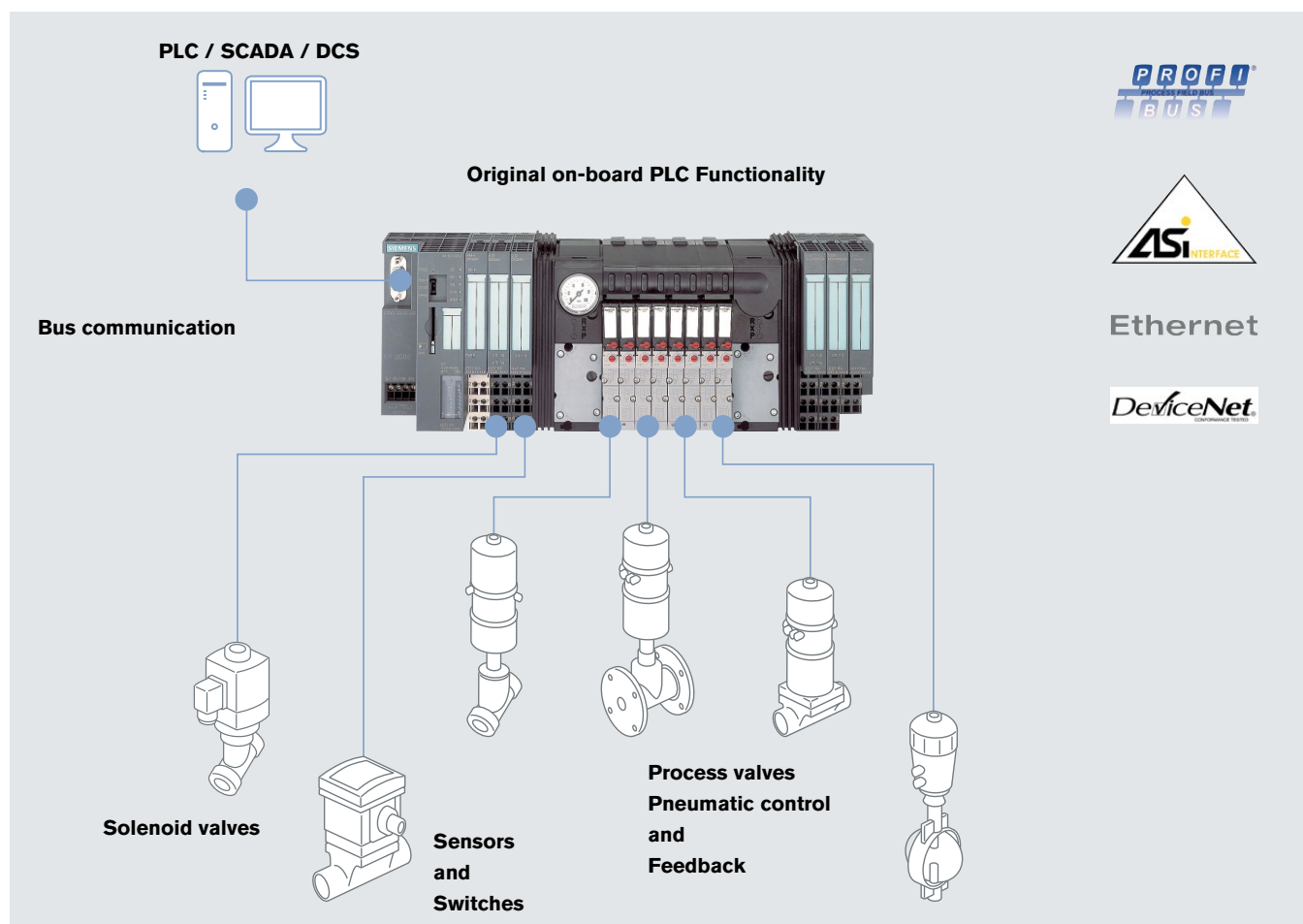
- Number and types of valves
- Type of (intermediate) supplies
- Combination of Fieldbus, pilot valves and I/O modules

The results supplied by the Configurator

- Bill of materials, incl. list prices
- Illustration
- Drawings

## Options

- Further valves
- Allen Bradley, Wago, Phoenix Contact, Siemens compatible islands
- Circuit function D (normally open 3/2-way valves)
- Circuit function H (5/2-way valves)
- 16mm wide valves with Cv of 0.64 / 600l/min
- Cover plates for open slots
- Fully installed in one piece cabinet



### Ordering Chart

Communication	Item no. 16 valves (8 x (2 x 3/2-way))	Item no. 24 valves (12 x (2 x 3/2-way))
AB	98127373	98123841
Siemens	98130353	
Wago	98125290	

This chart shows only 4 simple configurations. The 8644 can be configured in a vast array of possibilities. Please visit the website for the configurators or call our experienced technical support

# Standard Panel

8652

## 16, 24 and 48 station manifolds double 3/2-way NC

- Process reliability with pneumatics functions
- Pressure regulator
- LC-Display - clear text diagnosis



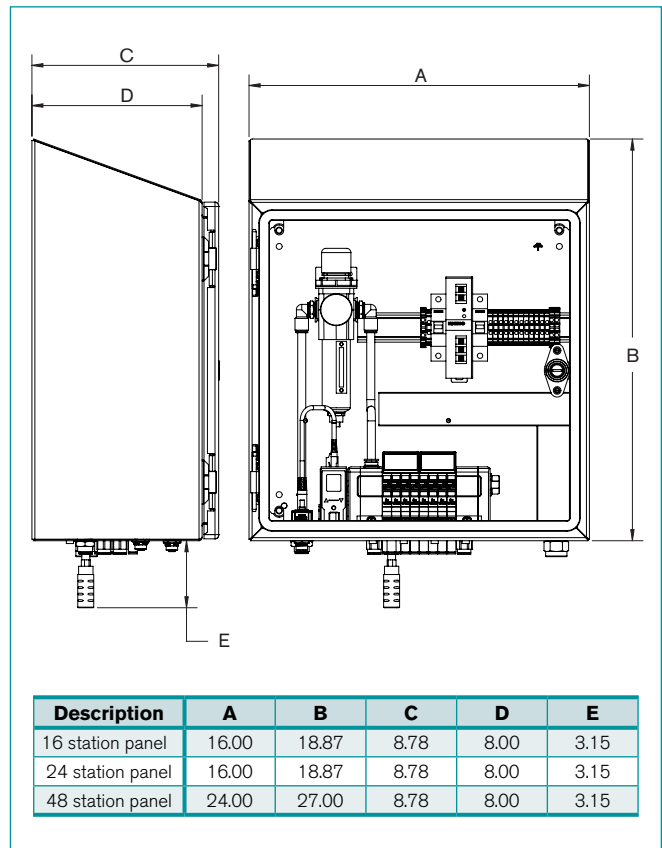
The Type 8652 AirLINE PANEL has been especially developed for applications in process automation. New diagnostic functions can be visualized at the LC display, both in clear text as well as symbols. This makes it easy to relate to the shown messages and helps to save time during startup and maintenance. Furthermore the diagnostic message is also available in the control. This therefore enables a fast overview of the plant status. The hardware is optimized for installation at the bottom of the control cabinet. Of course it is also possible to fix the Air-LINE to top hat rail. Moreover, key pneumatic functions ensure increased process reliability. For instance, the non-return valves in the exhaust air ducts make sure there is no unplanned actuation due to pressure peaks.

### Technical Data

<b>Width/station</b>	11 mm
<b>Circuit functions</b>	C 2 x 3/2-way (NC/NC)
<b>Flow rate</b>	310 l/min <sup>1)</sup>
<b>Pressure range</b>	Vac. up to 145.03 PSI
<b>Outlet port</b>	Plug-in coupling diameter 6 mm, D1/4"
<b>Connection air supply</b>	Plug-in coupling diameter 10 mm, D3/8"
<b>Max. number of modules</b>	Up to 6 modules possible
<b>Valve positions per module</b>	4 valve positions (max. 8 valve functions)
<b>Max. number valve functions</b>	24 (later up to 48 valve functions possible)
<b>Communication interfaces</b>	PROFIBUS DP Industrial Ethernet (PROFINET I/O, EtherNet IP, Modbus TCP, EtherCAT)
<b>Electrical modules</b>	Type ME43
<b>Operating voltage</b>	24 V DC
<b>Voltage tolerance</b>	±10%
<b>Nominal power per valve</b>	0.7 W (0.1 W after power reduction)
<b>Rated current per valve</b>	29 mA (10 mA after power reduction)
<b>Ambient temperature</b>	14 °F to 131 °F; -10 °C to +55 °C
<b>Storage temperature</b>	14 °F to 140 °F; -10 °C to +60 °C
<b>Protection class</b>	NEMA 4x
<b>Enclosure</b>	316 stainless steel slope top

<sup>1)</sup> Maximum flow depending on the valve function

Dimensions [inch] (see datasheet for details)



### Ordering Chart

Description	Item no.
16 station panel	98134761
24 station panel	98134800
48 station panel	98134993

 = Quick Delivery Items

# Flow Transmitter/Pulse Divider

8022



- Microprocessor-controlled electronics
- 2-wire (4-20 mA) / 3-wire (NPN/ PNP) - operation
- Removable display unit
- Pluggable to flow sensor 8020 and 8030

The electronic module Type 8022 operates either as a flow transmitter (only with sensors pulse "Low Power" version Type 8020 and 8030) or as a pulse divider (with all versions of sensors of Type 8020 and 8030). The module operates the output of the sensors, displays the flow value and converts it to the signal output in mA or pulse. In operation as a flow transmitter, the frequency signal of the sensor is converted in a 4-20 mA signal (2-wire operation). In operation as a pulse divider, the input frequency is converted into an adjustable output frequency. The use of the display unit allows the switching between the two modes.

## Technical Data

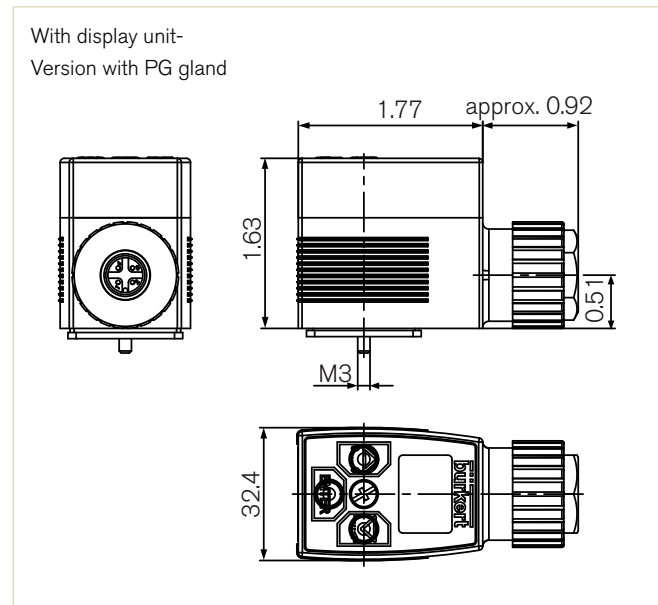
<b>Power supply</b>	12-30 V DC, filtered and regulated, SELV (safety extra low voltage) circuit with a non dangerous energy level
<b>Voltage tolerance</b>	± 10 %
<b>Residual ripple</b>	< 5 %
<b>Power consumption max.</b>	
Flow transmitter (4-20 mA output, 2-wire operation)	0.6 W
Pulse divider (NPN/PNP output, 3-wire operation)	3.2 W with <ul style="list-style-type: none"> <li>▪ 0.2 W from the device</li> <li>▪ 1.5 W max. from the flow sensor*</li> <li>▪ 1.5 W max. from the PNP/NPN output*</li> </ul>
<b>Ambient temperature</b>	14 °F to 140 °F (-10 to +60 °C)
<b>Frequency input</b>	1-600 Hz
<b>4-20 mA output</b>	Accuracy ± 1.5 % of full scale max. loop impedance: 1000 W at 30 V DC ; 700 W at 24 V DC; 100 W at 12 V DC
<b>NPN/PNP output</b>	Accuracy ± 1 % of measured value 1-600 Hz, "open collector", max. 50 mA
<b>Electrical connection</b>	Terminal strip 4 pins or male M12 connector
<b>Housing material</b>	Polyamide / PC

\* depending on the customer configuration

## Ordering Chart

Description	UL certification	*Item no.
Flow transmitter / pulse divider Type 8022 without display unit, PG connection	No	215 644
Flow transmitter / pulse divider Type 8022 with display unit, PG connection	No	215 645
Flow transmitter / pulse divider Type 8022 without display unit, PG connection	Recognized	563 223
Flow transmitter / pulse divider Type 8022 with display unit, PG connection	Recognized	563 224
Flow transmitter / pulse divider Type 8022 without display unit, male M12 connector	No	215 646
Flow transmitter / pulse divider Type 8022 with display unit, male M12 connector	No	215 647
Display unit for Type 8022	No	562 876
Cover set (for operating without display unit)	No	670 549
Right-angle female M12 connector, 4 pins	No	784 301
Straight female M12 connector, 4 pins, with 5 m cable	No	918 038

## Dimensions [inch] (see datasheet for details)



## Functions

- Microprocessor-controlled electronics
- Scalable 4-20 mA signal
- Pulse divider operation: Transforms the input to an adjustable output frequency (3-wire operation)
- Displays the flow in a selectable unit
- Removable display unit (is only required to configure or to display)
- Transmitter operation: conversion of the input frequency into a 4-20 mA signal (2-wire operation)

# 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

See flow sensor 8020, 8030, 8070

 (Panel version)



The remote 8025 batch controller can be connected (with pulse output signal) with Burkert flowmeters Type 8020, 8030, 8070 or other flow sensor devices which emit a frequency signal. The 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.

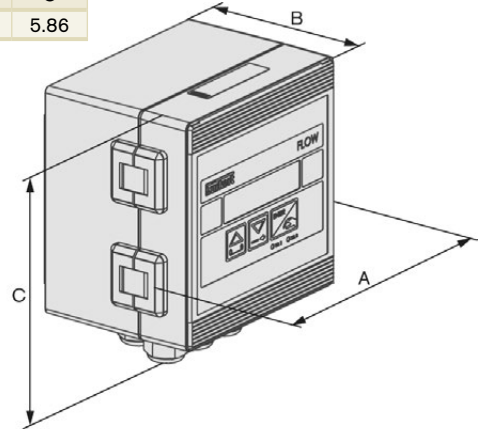
### Technical data 8025

<b>Housing material</b>	ABS, PC* (* Panel mount version)
<b>Front panel foil</b>	Polyester
<b>Screws</b>	Stainless Steel
<b>Cable plug / gland</b>	PA
<b>Ambient temperature</b>	32 °F to 140 °F
<b>Display</b>	15 x 60mm, 8-digit LCD, alphanumeric, 15 segments, 9mm high
<b>Voltage supply</b>	12–30 VDC or 115/230 VAC, 50-60 Hz
<b>Current consumption Max.</b>	≤ 70 mA without consumption of inputs/outputs
<b>Electrical Protection</b>	Reversed polarity of DC protected
<b>Compatibility with Burkert sensors</b>	Any Burkert flow sensor with frequency output (8020, 8030, 8030HT, 8041, 8031, 8070, 8071)
<b>Compatibility with other sensors</b>	Any open collector NPN, coil, TTL, CMOS
<b>Electrical connections</b>	PG Cable glands
<b>Outputs</b>	2 relays, freely programmable, 3A, 230V
<b>Flow input frequency</b>	2.5 Hz up to 700 Hz
<b>Sensor power supply</b>	12...30, or 0...18 VDC, 100 mA Max. (24V Version); +15 V or +27V, 25 mA Max. (115V version)
<b>Ingress protection</b>	IP65

### Envelope Dimensions [mm] (see datasheet for details)

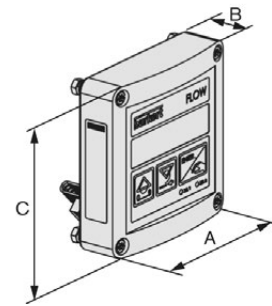
#### Wall Mount

A	B	C
4.96	3.54	5.86



#### Panel Mount

A	B	C
3.46	0.98	3.46



### Ordering Chart Type 8025 Remote Batch Controller

Description	Totalizers	Relays	Connection	Item no. 12-30 V DC	Item no. 115-230 V AC
Wall mount	2	2 x 3 A	5 x PG 13.5 cable gland	433 740	433 741
Panel mount (CSA)	2	2 x 3 A	Terminal strip	419 536	-

### Type SE35 Compact Batch Controller Electronic (requires S030 fitting)

Specifications	Voltage supply	Sensor version	Certification	Electrical connection	Item no.
Transmitter - batch controller	12...36 V DC	Hall	-	2 cable glands	443 360
		Hall	UL Recognized for US and Canada	2 cable glands	564 398
	115/230 V AC	Hall	-	2 cable glands	423 926

# Insertion Flow Transmitter for continuous measurement

8026

## 2" plus, 0-145 PSI

- Up and download of the data through removable display
- Pipe sizes 2 1/2" to 14"
- Preferably, for pipe diameter greater than 2 1/2"

Please see fitting S020

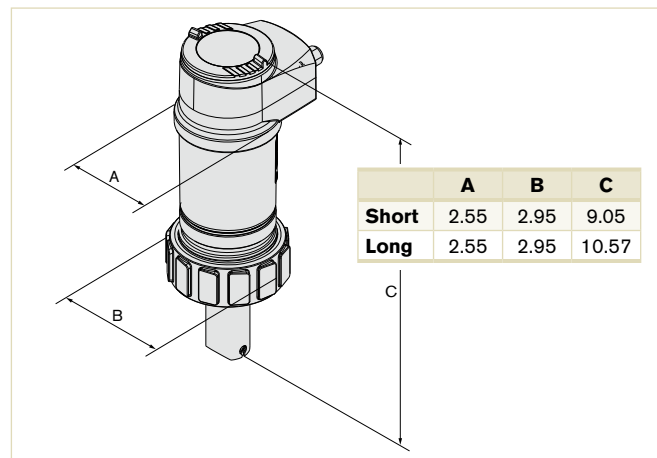


The insertion style flow meter provides a 4-20 mA output directly proportional to flow. A range of fittings from weld-o-lets to saddles makes these ELEMENT style transmitters perfect for neutral, solid free liquids. A backlit removable display with joystick programming makes commissioning a breeze.

### Technical Data

Insertion Flow Meter	
Size range	2" - 16"
Display	Removable dot matrix 128 x 64 with backlight
Measuring ranges	1 to 33 fps
Measuring error (teach in)	≤ ± 1% o.FS (at 33fps)
Measuring error (std. k-factor)	≤ ±(0.5% o.FS + 2.5% o.R)
Linearity	≤ ± 0.5% o.FS (at 33fps)
Repeatability	0.4% o.R.
Housing material	Stainless steel, PPS, PC
Paddle wheel	PVDF
Axis and bearing	Ceramic
O-rings	FKM as standard
Max. Fluid Temperature	212 °F (also depends on piping material)
Ambient temperature range	14 °F to 140 °F
Max. fluid pressure	145 PSI
Voltage supply	14...36 VDC for 2-wire models
Electrical Protection	Short circuit protection Reversed polarity of DC protected
Electrical connections	M12
Outputs	4-20 mA for flow rate Transistor output NPN and PNP, 700 mA
Output Load	< 1100 Ω at 36 V < 610 Ω at 24 V < 180 Ω at 14 V
Ingress protection	IP65 and 67, NEMA4X Accreditations CE, CSA, UR

### Envelope Dimensions [inch] (see datasheet for details)



### Accessories

Description	Item No
Display/programming module	559 168
Electrical connector, 5-pin M12 male, plug only	560 946
Electrical connector, 5-pin M12 male, 2 m prewired	559 177
Electrical connector, 5-pin M12 female, plug only	917 116
Electrical connector, 5-pin M12 female, 2 m prewired	438 680

### Options

- Various sealing materials
- Individual calibration certificate
- Pre-wired connection ports, M12 plug and cable

**Note:** Type 8026, a complete flow transmitter with integrated paddle, consists of Type 8026 which is a compact ELEMENT Flow Transmitter, a removable display/programming module and Type S020, an INSERTION fitting (the latter must be ordered separately)

### Ordering Chart

Output	Electrical connection	Item no. (UR approved)	
		Short	Long
<b>with display</b>			
1 x transistor NPN + 1 x 4-20 mA (2-wire)	5-pin M12 male	561 863	561 873
2 x transistor NPN / PNP + 1 x 4-20 mA (2-wire)	5-pin M12 male	561 864	561 874
2 x transistor NPN / PNP + 2 x 4-20 mA (3-wire)	5-pin M12 male and 5-pin M12 female	561 865	561 875
<b>without display</b>			
1 x transistor NPN + 1 x 4-20 mA (2-wire)	5-pin M12 male	560 863	560 873
2 x transistor NPN / PNP + 1 x 4-20 mA (2-wire)	5-pin M12 male	560 864	560 874
2 x transistor NPN / PNP + 2 x 4-20 mA (3-wire)	5-pin M12 male and 5-pin M12 female	560 865	560 875

# INLINE Flowmeter for continuous flow measurement

SE30 / 8030

## For use with fitting S030, 1/2" to 2"

- Turn & Lock bayonet fitting isolates sensor from media
- Economic integration in pipe systems
- 3-wire frequency version for direct connection to PLC (PNP and NPN)
- Connection to Burkert remote electronics



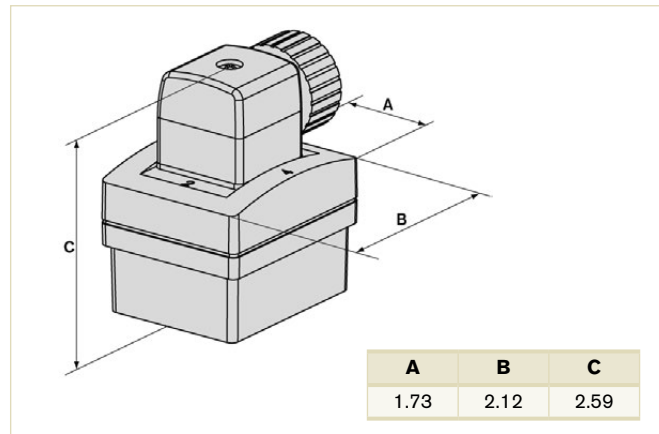
Please see fitting S030

Unique bayonet style flow meter constructed from an SE30 sensor and an S030 flow fitting. Perfect for neutral, solid free liquids. A hall-effect sensor produces a square wave frequency proportional to the flow rate.

### Technical Data

<b>SE30 Housing material</b>	Polycarbonate
<b>Ambient temperature</b>	5 °F to 140 °F
<b>Voltage supply / Current</b>	12-36 VDC ≤ 30 mA
<b>Max. cable length</b>	164' shielded
<b>Electrical connections</b>	Cable plug
<b>Outputs</b>	Transistor PNP and NPN, Max. 100mA
<b>Protection and Approvals</b>	IP65, CE
<b>Sensor size range</b>	1/2" to 2" with bayonet fitting
<b>Measuring ranges</b>	1 to 33 fps
<b>Measuring error</b> (stand. k-factor)	≤ ±(0.5% o.FS + 2.5% o.R)
<b>Linearity, Repeatability</b>	≤ ± 0.5% o.FS (at 33fps), 0.4% o.R.
<b>Fitting Materials</b>	Brass, Stainless* (NPT), PVC (ASTM Union)
<b>Sensor materials</b>	PVDF paddle wheel with ceramic bearings
<b>O-rings</b>	FKM
<b>Max. Fluid Temperature</b>	212 °F (Metallic), 122 °F (PVC)
<b>Max. fluid pressure</b>	232 PSI (metal), 145 PSI (PVC)

### Envelope Dimensions [inch] (see datasheet for details)



### Options

- High temperature version to 275 °F
- Hygienic clamp and ASME weld end connections
- ANSI flange connection
- PVDF and PP fittings.
- High flow fittings (8020) to DN350 mm
- Various sealing materials
- Individual calibration certificate

### Ordering Chart

Description	Item no.
SE30 Hall Effect	423 913
SE30 Low Power Hall Effect (only for use with Type 8022 xmt or remote 8025 electronics)	423 914

**Note:** The electronic module, SE30 and the fitting, S030 must be ordered separately



# In-Line Flow Transmitter for continuous measurement

SE36 / 8036

## For use with fitting S030, 1/2" to 2"

- Up and download of the data through removable display
- Automatic calibration: TEACH-IN
- All output signals without presence of flow

Please see fitting S030

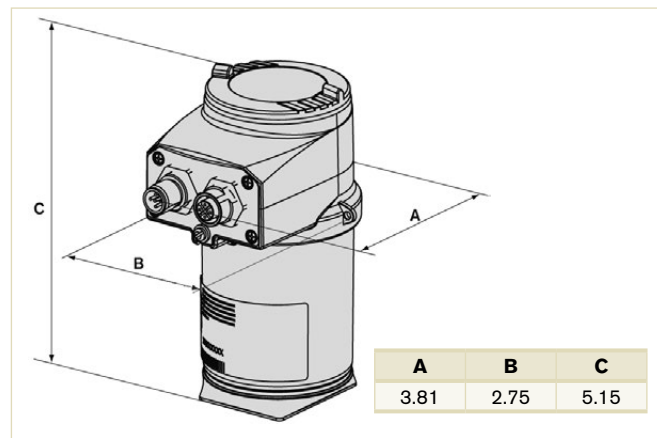


Unique bayonet style flow meter constructed from an SE36 sensor and any of the S030 fittings. This two-wire 4-20 mA INLINE flow meter is manufactured to provide true, reliable flow for neutral, solid free liquids. A backlit removable display allows the system to be flexible and adds more value.

### Technical Data

<b>Electronic module</b>	
<b>Housing material</b>	Stainless steel, PPS, PC
<b>Display</b>	Removable dot matrix 128 x 64 with backlight
<b>Ambient temperature</b>	32 °F to 140 °F
<b>Voltage supply</b>	14...36 VDC for 2-wire models
<b>Electrical Protection</b>	Short circuit protection Reversed polarity of DC protected
<b>Electrical connections</b>	M12
<b>Outputs</b>	4-20 mA for flow rate Transistor output NPN and PNP, 700 mA
<b>Output Load Max.</b>	< 1100 Ω at 36 V < 610 Ω at 24 V < 180 Ω at 14 V
<b>Ingress protection</b>	IP65 and 67, NEMA4X
<b>Approvals</b>	UL Recognized, CSA through cURus, CE
<b>Integrated sensor and fitting module</b>	
<b>Size range</b>	1/2" to 2" with bayonet fitting
<b>Measuring ranges</b>	1 to 33 fps
<b>Measuring error (teach in)</b>	≤ ± 1% o.FS (at 33fps)
<b>Measuring error (Std. k-factor)</b>	≤ ±(0.5% o.FS + 2.5% o.R)
<b>Linearity</b>	≤ ± 0.5% o.FS (at 33fps)
<b>Repeatability</b>	0.4% o.R.
<b>Fitting Materials</b>	PVC, PVDF, PP, Brass, Stainless, Stainless HT
<b>Paddle wheel</b>	PVDF
<b>Axis and bearing</b>	Ceramic
<b>O-rings</b>	FKM
<b>Max. Fluid Temperature</b>	212 °F (metal), 122 °F (PVC)
<b>Ambient temperature range</b>	0 to 140 °F
<b>Max. fluid pressure</b>	232 PSI (metal), 145 PSI (PVC)

### Envelope Dimensions [inch] (see datasheet for details)



### Options

- High flow rate (8026) to DN350 mm
- Hygienic clamp & weld end connections
- Individual calibration certificate
- Various sealing materials
- ANSI/DIN flange connection

### Accessories

Description	Item No
Display/programming module	559 168
Electrical connector, 5-pin M12 male, plug only	560 946
Electrical connector, 5-pin M12 male, 2 m prewired	559 177
Electrical connector, 5-pin M12 female, plug only	917 116
Electrical connector, 5-pin M12 female, 2 m prewired	438 680

### Ordering Chart

Specifications	Output	Electrical connection	Item no. (UR approved)	
			without display	with display
2 outputs	1 x transistor + 1 x 4-20 mA (2 wire)	5-pin M12 male fixed connector	560 883	561 883
3 outputs	2 x transistor + 1 x 4-20 mA (2 wire)	5-pin M12 male fixed connector	560 884	561 884
4 outputs	2 x transistor + 2 x 4-20 mA (3 wire)	5-pin M12 male and 5-pin M12 female	560 885	561 885

**Note:** The following items must be ordered separately  
The SE36 electronic fitting module and the S030 fitting  
M12 cable plugs (only female for single 4-20 mA, 1 male + 1 female for dual 4-20 mA transmitter)

# Blind INSERTION Magmeter

8041

**For use with fitting 1/2" to 14"**

- Solid state technology
- Clean in place (CIP)
- FDA approved

Please see fitting S020



The insertion magmeter constructed from a PVDF finger and high quality blind electronic module. Perfect for contaminated or aggressive fluids it has both 4-20 mA and pulse output, with optional 3A relays, making this a flexible solution for flow control or batching.

## Technical Data

<b>Size range</b>	1/2" - 14"
<b>Measuring ranges</b>	0.7 - 33 ft/s
<b>Measuring error (teach in)</b>	≤ ±2% o.R. (3.28-32.81 ft/s)
<b>Measuring error (standard k-factor)</b>	≤ ±4% o.R. (3.28-32.81 ft/s)
<b>Linearity</b>	≤ ±(1% o.R. + 0.1% o.FS)
<b>Repeatability</b>	±0.25% o.R.
<b>Housing material</b>	PC+20% glass fibre
<b>Electrode Material</b>	316L SS
<b>Mag-sensor Material</b>	PVDF or SS
<b>O-rings</b>	FKM
<b>Max. Fluid Temperature</b>	
PVDF sensor version	176 °F
SS sensor version	302 °F*
<b>Ambient temperature range</b>	14 °F to 140 °F
<b>Max. fluid pressure</b>	145 PSI (PVDF & SS version with S020 plastic fitting) 232 PSI (SS version with S020 metal fitting)
<b>Fluid conductivity</b>	> 20 µS (Micro-Siemens)
<b>Storage temperature</b>	-4 °F to 140 °F
<b>Voltage supply</b>	18-36 VDC
<b>Current consumption Max.</b>	≤ 220 mA
<b>Electrical Protection</b>	Short circuit protection Reversed polarity of DC protected
<b>Electrical connections</b>	M20 cable glands (optional 1/2" conduit)
<b>Outputs</b>	4-20 mA Transistor, Max. 100mA, frequency 0...240 Hz Relay output 3 A/250 VAC
<b>Output Load</b>	Max. 1100 Ω at 36 V Max. 330 Ω at 18 V
<b>Ingress protection</b>	IP65

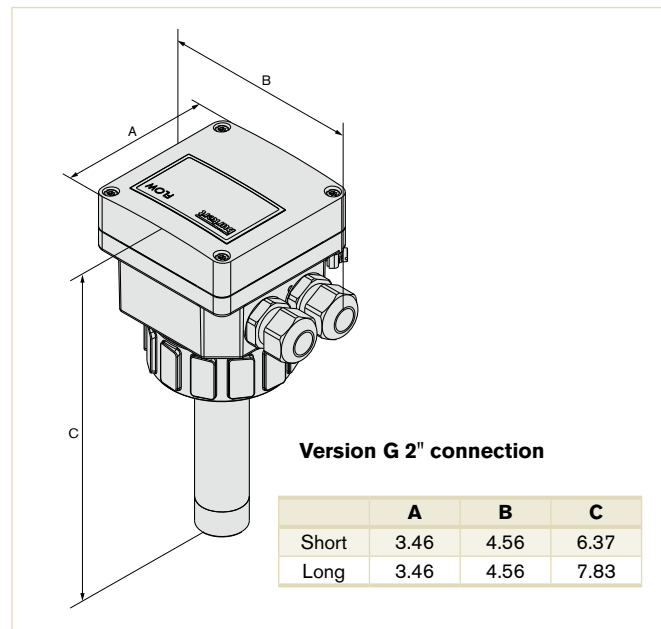
\*302 °F with SS finger and S020 metal fitting

## Ordering Chart Transmitter Type 8041

Voltage supply	Output	Relay	Housing material	Seal material	Sensor version	Electrical connection	Item no.
18...36 V DC	4-20 mA, frequency	1	PC	FKM	short, PVDF	2 cable glands	558 064
					long, PVDF	2 cable glands	558 065
			PPA		short, stainless steel	2 cable glands	552 779
					long, stainless steel	2 cable glands	552 780

**Note:** 1 Kit 558 102, 1 relay connection kit 552 812 and 1 EPDM seal are supplied with each transmitter. | To select a complete device the following items need to be ordered: • Prod. no. of the desired flow meter for Type 8041 • Prod. no. of the Type S020 fitting, for gauges with G 2" connector, must be ordered separately

## Envelope Dimensions [inch] (see datasheet for details)



## Options

- Hastelloy C Electrodes
- Tri-Clamp connection

# INSERTION Magmeter with display

8045

**For use with fitting 1/2" to 14"**

- Simple to read display
- Easy push button menu
- Clean in place (CIP)
- FDA approved

Please see fitting S020

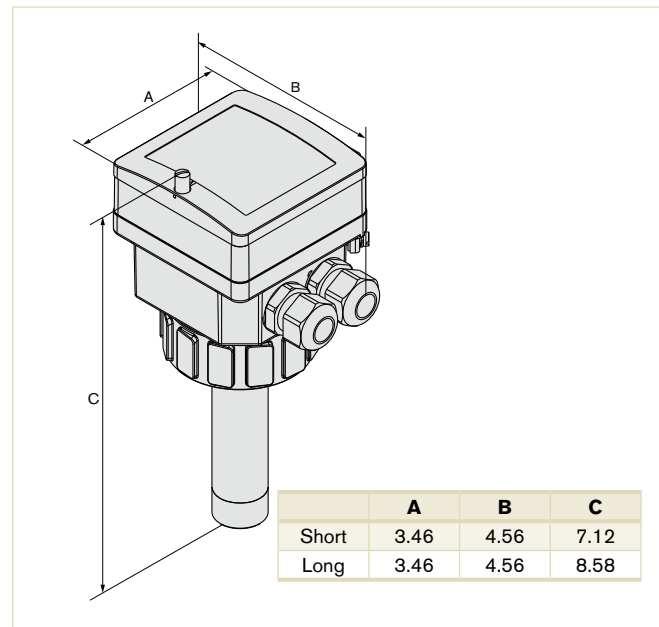


With a stainless steel insertion finger and high quality electronic display module this unit is perfect for contaminated or aggressive fluids. 4-20 mA and pulse output with optional 3A relays makes this a flexible solution for flow control, batching or CIP control in FDA applications.

## Technical Data

<b>Size range</b>	1/2" - 14"
<b>Measuring ranges</b>	0.7 - 33 ft/s
<b>Measuring error (teach in)</b>	≤ ±2% o.R. (3.28-32.81 ft/s)
<b>Measuring error</b>	≤ ±4% o.R. (3.28-32.81 ft/s)
<b>Linearity</b>	≤ ±(1% o.R. + 0.1% o.FS)
<b>Repeatability</b>	±0.25% o.R.
<b>Housing material</b>	PPA
<b>Electrode Material</b>	316L SS
<b>Mag-sensor Material</b>	316L SS (FDA compliant)
<b>O-rings</b>	FKM
<b>Max. Fluid Temperature</b>	212 °F
<b>Ambient temperature range</b>	14 °F to 140 °F
<b>Max. fluid pressure</b>	232 PSI (depending on fitting)
<b>Fluid conductivity</b>	> 20 µS (Micro-Siemens)
<b>Voltage supply</b>	18-36 VDC
<b>Current consumption Max.</b>	≤ 300 mA
<b>Electrical Protection</b>	Short circuit and reversed polarity protected
<b>Electrical connections</b>	M20 cable glands (optional 1/2" conduit)
<b>Outputs</b>	4-20 mA Transistor, Max. 100mA, frequency 0...240 Hz Relay output 3 A/250 VAC
<b>Output Load</b>	Max. 1300 Ω at 36 V Max. 700 Ω at 18 V
<b>Ingress protection</b>	IP65

## Envelope Dimensions [inch] (see datasheet for details)



## Options

- PVDF finger
- Hastelloy electrodes
- Tri-Clamp connection

## Ordering Chart (please order fitting separately)

Voltage supply	Relays	Housing material	Sensor version	Item no.
18...36 V DC	No	PPA	Short, Stainless Steel (FDA)	449 670
			Long, Stainless Steel (FDA)	449 672
	2		Short, Stainless Steel (FDA)	449 671
			Long, Stainless Steel (FDA)	449 673

**Note:** Delivered with 1 set 551 775 and 1 EPDM seal.

To select a complete device the following items need to be ordered:

- Product no. of the desired flow meter for Type 8045
- Product no. of the Type S020 fitting, for gauges with G 2" connector, must be ordered separately

# Full bore INLINE Magmeter

8051 / 8055 / 8056

## 1/2" to 6", Up to 232 PSI

- Full bore section
- High frequency sampling
- Flow or Batch Control



Shown is the remote flanged sensor and the hygienic clamp compact version

These full bore magmeters accurately measure the flow of liquids with conductivities as low as 5 µS/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. A simple HMI and a wide range of materials, measuring tube liners and process connections makes this a simple choice.

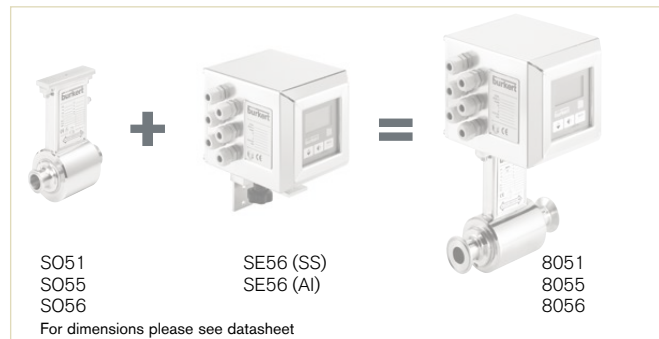
## Technical Data

<b>Housing material</b>	Die cast aluminum or 304 Stainless steel
<b>Ambient temperature</b>	-4 °F to 140 °F
<b>Voltage supply</b>	90-265 VAC
<b>Electrical connections</b>	PG glands
<b>Outputs</b>	1 x 4-20 mA 2 x transistor (40VDC, 100mA, Fmax=1250Hz) Standard input 1 x digital (0 up to 40 VDC)
<b>Ingress protection</b>	IP65 and 67, NEMA4X
<b>Approvals</b>	CE
<b>Size range</b>	1/4" to 6"
<b>Measuring ranges</b>	1 to 33 fps
<b>Measuring error (teach in)</b>	± 0.2% of Reading (for liquid velocity > 3 ft/s)
<b>Measuring error (std. k-factor)</b>	± 0.2% of Reading (for liquid velocity > 3 ft/s)
<b>Linearity</b>	≤ ± 0.5% o.FS (at 33fps)
<b>Repeatability</b>	Repeatability better than 0.1%
<b>Electrode material</b>	SS 316L (optional 3 x SS 316L or 4 x Hastelloy C / Titanium / Tantal / Platinum - Rhodium)
<b>Axis and bearing</b>	Minimum conductivity 5 µS/cm
<b>O-rings</b>	FKM
<b>Max. Fluid Temperature</b>	212 °F (PTFE lining), 140 °F (PP lining)
<b>Ambient temperature range</b>	-4 to 140 °F
<b>Max. fluid pressure</b>	Fluid pressure Max. 232 PSI

## Options

- Various sealing materials
- Larger sizes
- Individual calibration certificate
- Other options Remote versions (10/20m cable, IP68), blind version
- SS body and 300# flanges S055
- PTFE lining and PN40 pressure class for S051 and S055
- 2 relay outputs NO/NC 2A-250VAC, 60W 125VA
- Hart, Profibus, RS232, RS485

## System Architecture



## Ordering Chart

Transmitter / Batch Controller Electronics - SE56	Item no.
Stainless steel	558 306
Aluminum	558 747

INLINE Flow Meter				
Connection	Orifice [mm]	Flow Rate [GPM]	Lining	Item no.
<b>NPT INLINE Meter Fittings - S051</b>				
1/4"	3	0.04 - 1.10	PTFE	554 213
3/8"	6	0.17 - 4.40	PTFE	555 892
1/2"	10	0.53 - 13.20	PTFE	555 111
3/4"	15	1.05 - 26.4	PTFE	557 659
1"	20	2.2 - 55.00	PTFE	553 663
<b>ANSI 150# INLINE Meter Fittings - S055</b>				
1"	25	3.17 - 79.25	PP	554 353
2"	50	12.7 - 317.00	PP	554 354
3"	80	31.7 - 792.52	PP	554 351
4"	100	49.31 - 1232.80	PP	554 352
6"	150	112.7 - 2817.8	PP	561 426

Hygienic Clamp INLINE Meter Fittings - S056				
Connection	Orifice [mm]	Flow Rate [GPM]	Lining	Item no.
1/2"	3	0.04 - 1.10	PTFE	559 786
1/2"	6	0.17 - 4.40	PTFE	553 325
1/2"	10	0.53 - 13.20	PTFE	554 350
3/4"	15	1.05 - 26.4	PTFE	553 533
1"	20	2.2 - 55.00	PTFE	553 534
1"	25	3.17 - 79.25	PTFE	553 535
1 1/2"	40	7.92 - 198.13	PTFE	553 536
2"	50	12.7 - 317.00	PTFE	553 537
2 1/2"	65	21.13 - 528.34	PTFE	553 538
3"	80	31.7 - 792.52	PTFE	559 791

# Positive Displacement Sensor Fitting for continuous flow measurement

## DN15 - DN100

- INLINE Quarter-Turn technology
- Electronics available for indication, monitoring, transmitting, On/Off control and batch control



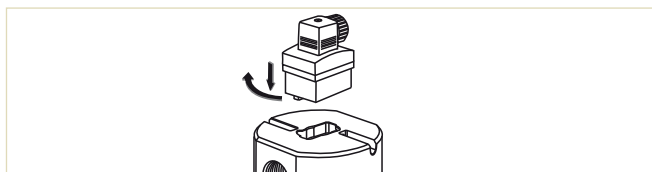
This positive displacement sensor fitting is specially designed for flow measurement and/or batch control of highly viscous fluids like glue, honey or oil. This measuring element must be associated to a transmitter SE30, SE32, SE35, SE36 with hall sensor principle only, quickly and easily connected together 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 flow rates are features of that design. The low pressure drop and high pressure rating make it suitable for both gravity and pump (inline) applications.

### Technical Data

General data	
<b>Compatibility</b>	With transmitter SE30, SE32, SE35, SE36 with Hall sensor principle (see separate data sheet)
<b>Wetted parts materials</b>	
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
Complete device data	
<b>Pipe diameter</b>	DN15 - DN100
Thread connection	1/2"; 1"; 1 1/2"; 2"; 3" (NPT)
Flange connection	1"; 1 1/2"; 2"; 3" or 4" ANSI 150LB flange
<b>Medium temperature max.</b>	
Aluminium body:	-4 °F to 176 °F (-20 to +80 °C)
Stainless steel body:	-4 °F to 248 °F (-20 to +120 °C)
<b>Medium pressure max.</b>	
DN15	798.05 PSI (threaded process connection)
DN25	798.05 PSI*
DN40 or DN50	261.18 PSI
DN80 / DN100	174.12 PSI/10 bar (145.1 PSI)
<b>Viscosity</b>	1 Pa.s max. (higher on request)
<b>Repeatability</b>	± 0.03 % of Reading
<b>Environment</b>	
<b>Ambient temperature</b>	32 °F to 140 °F (0 °C to +60 °C) (operation and storage)

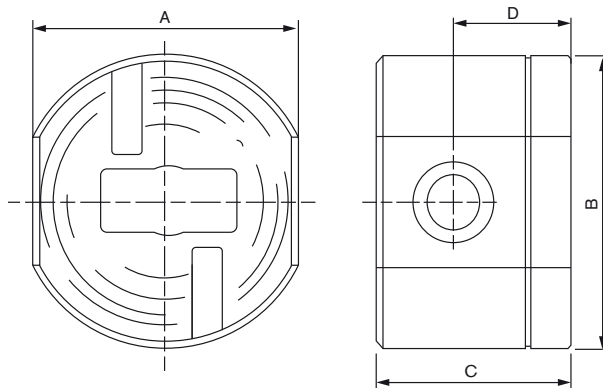
\* or in accordance to the value of the used flanges

### Burkert Quarter-turn Technology



### Dimensions [mm]

Dimensions shown for threaded version for flanged connection please see datasheet



Orifice DN	A	St. St.	Alu	B	C	D
15	81	81	81	87	49	28
25	100	100	100	112	75	45
40	120	120	120	137	103	61
50	140	140	140	163	124	72
80	260	302	302	220	180	80

### Ordering Chart

DN	Connection	Body material	Seal	Item no.
15	NPT 1/2"	Al	FKM	567 225
		SS	FEP/PTFE	567 226
25	NPT 1"	Al	FKM	567 229
		SS	FEP/PTFE	567 230
	1" ANSI 150 LB flange	Al	FKM	567 233
		SS	FEP/PTFE	567 234
40	NPT 1 1/2"	Al	FKM	567 237
		SS	FEP/PTFE	567 238
	1 1/2" ANSI 150 LB flange	Al	FKM	567 241
		SS	FEP/PTFE	567 242
50	NPT 2"	Al	FKM	567 244
	2" ANSI 150 LB flange	Al	FKM	567 247
		SS	FEP/PTFE	567 248
80	NPT 3"	Al	FKM	567 250
		Al	FKM	567 252
	4" ANSI 150 LB flange	Al	FKM	567 254

# FLOWave SAW Flowmeter

8608

- Without any parts in the measuring tube
- Conforms to hygienic requirements, CIP/SIP capable
- Ideal for liquids with low or no conductivity
- Compact, lightweight and low energy consumption
- Digital communication, parameter setting via communicator, display and Wi-Fi

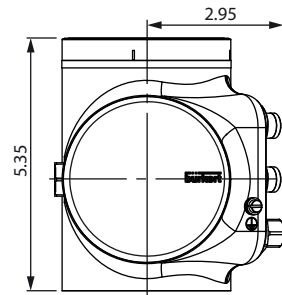


The Type 8098 FLOWave flowmeter from Burkert opens up entirely new possibilities for hygienic and process applications. With its unique SAW technology (Surface Acoustic Waves), the device has no sensor elements in the measuring tube and makes it easy to fulfil very high hygienic requirements. This is achieved by using: - suitable stainless steel materials - a measuring tube free of any wetted parts except for the actual tube - the ideal outer hygienic design. FLOWave offers a range of integrated functions, including the advantages of flexibility, ease of cleaning, compact dimensions, lightweight, easy installation and handling, and is compliant with numerous standards. Optimal measurement results can be achieved with homogeneous, air and solid free liquids. Integrated viscosity compensation can be used for higher viscous liquids. Gas and steam cannot be measured; however, their flow does not have any negative effect on the device or its operation. Other liquids flowing through again afterwards are measured correctly as before. Special functions derived from further process values (density factor, acoustic transmission factor) offer additional information about the particular liquid in use (for details, see data sheet).

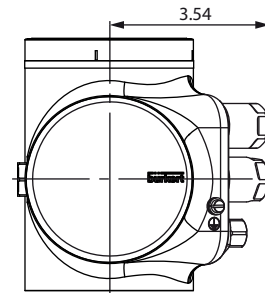
## Technical Data

<b>Fluids</b>	Non dangerous liquids complying with article 4 §1 of 2014/68/EU directive
<b>Ambient temperature</b>	-4 °F to 140 °F
<b>Process connection/pipe size acc. to</b>	DIN 32676 series C (ASME BPE) 3/4", 1", 1 1/2", 2"
<b>Electrical connections</b>	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)
<b>Sensor housing</b>	Stainless steel 304/1.4301
<b>Blind cover</b>	Stainless steel 304/1.4301
<b>Seal</b>	VMQ silicone
<b>Surface finish<sup>4)</sup></b>	
Measurement tube (inner surface)	Ra < 0.8 µm (32 µin.) or Ra < 0.4 µm (15 µin.) (electro-polished)
Meas. tube (outer surface), housing	Ra < 1.6 µm (excluding welding seams)
<b>Display module</b>	2.4", monochrome graphic (240 x 160 pixels) German, English, French languages
<b>Temperature measurement</b>	
Measurement range	-4 to 284 °F (-20 to +140 °C)
Measurement deviation for	
T° ≤ 100 °C	±1 °C
100 °C < T° < 140 °C	±1.5 %
Refresh time	1 s

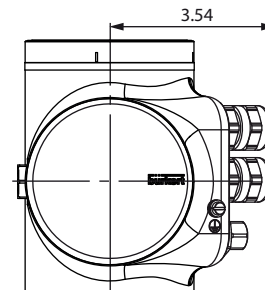
## Transmitter SE98 Dimensions [inch]



Ethernet version with 2 x 4 pin M12 female connectors and 1 x 5 pin M12 male connector



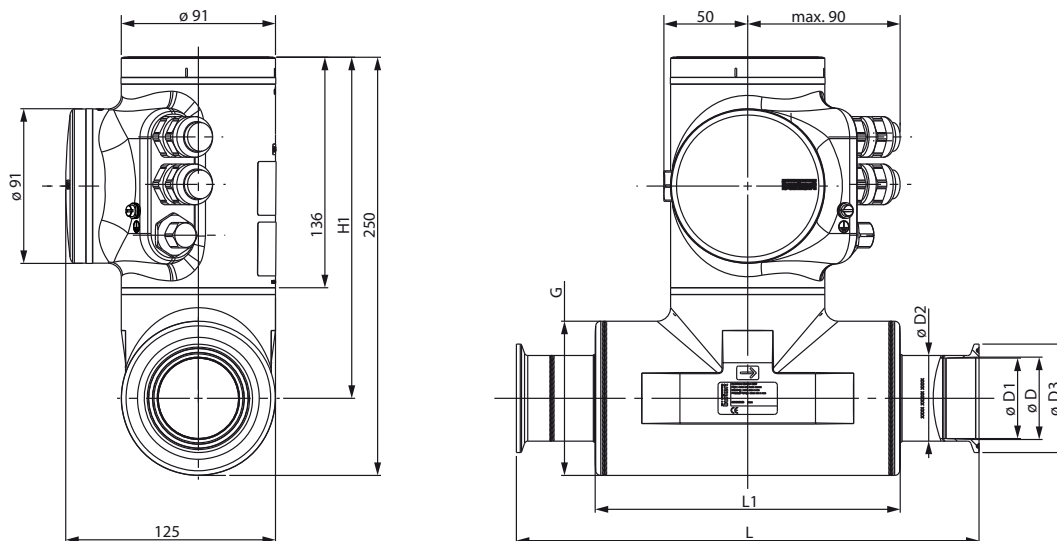
with 2 x M20 x 1.5 cable glands in stainless steel and 1 x 5 pin M12 male connector



with 2 x M20 x 1.5 cable glands in nickel plated brass and 1 x 5 pin M12 male connector

Dimensions [inch] (see datasheet for details)

Flowmeter 8098 with clamp according to DIN 32676 series



Clamp/pipe size	Standard		H1	D1	D	D2	D3	G	L1	L
	Clamp	Process pipe								
3/4"	DIN 32676 series C (ASME BPE)	DIN 11866 series C (ASME BPE)	8.66	0.62	0.62	0.75	0.98	2.37	4.13	5.62
1"	DIN 32676 series C (ASME BPE)	DIN 11866 series C (ASME BPE)	8.66	0.87	0.87	1	1.98	2.37	4.13	5.62
1 1/2"	DIN 32676 series C (ASME BPE)	DIN 11866 series C (ASME BPE)	7.87	1.37	1.37	1.5	1.98	3.58	7.08	10.74
2"	DIN 32676 series C (ASME BPE)	DIN 11866 series C (ASME BPE)	7.87	1.87	1.87	2	2.51	3.58	7.08	10.74

## Ordering Chart

**NOTE:** To set up a device without a display, please use the USB-bùS interface, Type 8920 (has to be ordered separately). Device with Wi-Fi interface available on request.

**Clamp acc. to DIN 32676 series C (ASME BPE) process connection for pipe acc. to DIN 11866 series C (ASME BPE)**

All these versions are 3A and EHEDG certified and equipped with the special functions ATF (acoustic transmission factor) and DF (density factor)

Clamp and pipe size	Measurement tube (inner surface)	Operating voltage	Maximal flow rate	Electrical connection	Display	Item no.
3/4"	0.8 µm	12-35 V DC	7 m³/h	2 cable glands* M20 × 1.5 + 1 × 5 pin M12 male connector	Yes	566 203
	0.8 µm				No	566 207
	0.4 µm				Yes	566 211
	0.4 µm				No	566 215
	0.4 µm				Yes	569 675**
	0.4 µm				Yes	569 679
1"	0.8 µm	12-35 V DC	14 m³/h	2 cable glands* M20 × 1.5 + 1 × 5 pin M12 male connector	Yes	566 204
	0.8 µm				No	566 208
	0.4 µm				Yes	566 212
	0.4 µm				No	566 216
	0.4 µm				Yes	569 676**
	0.4 µm				Yes	569 680
1 1/2"	0.8 µm	12-35 V DC	35 m³/h	2 cable glands* M20 × 1.5 + 1 × 5 pin M12 male connector	Yes	566 205
	0.8 µm				No	566 209
	0.4 µm				Yes	566 213
	0.4 µm				No	566 217
	0.4 µm				Yes	569 677**
	0.4 µm				Yes	569 681
2"	0.8 µm	12-35 V DC	64 m³/h	2 cable glands* M20 × 1.5 + 1 × 5 pin M12 male connector	Yes	566 206
	0.8 µm				No	566 210
	0.4 µm				Yes	566 214
	0.4 µm				No	566 218
	0.4 µm				Yes	569 678**
	0.4 µm				Yes	569 682

\*Cable gland in nickel plated brass

\*\*UL Listed

# Tuning-Fork Level Switch

8110 / 8111

## 1/2", 3/4" or 1" NPT and clamp 2"

- 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
<b>Process Connection</b>	1/2" NPT, 3/4" NPT, 1" NPT or 2" hygienic clamp	3/4" NPT, 1" NPT or 2" hygienic clamp
<b>Max. Fluid Temperature</b>	212 °F NPT 302 °F clamp	302 °F NPT 302 °F clamp
<b>Materials</b>	Stainless / PBT housing Stainless steel forks Klingersil seal	Stainless / PEI housing Stainless steel forks Klingersil seal
<b>Max. fluid pressure</b>	928 PSI	928 PSI
<b>Voltage supply</b>	10-55 VDC / Max. 0.5 W	20-253 VAC (5 A), 50-60 Hz, or 20-72 VDC
<b>Electrical connections</b>	M12	M20 cable glands (optional 1/2" conduit)
<b>Outputs</b>	Transistor output PNP, 250 mA	Relay (DPDT), 2 floating SPDTs
<b>Ingress protection</b>	IP66 and 67, NEMA 4X	IP66 and 67, NEMA4X

### Options

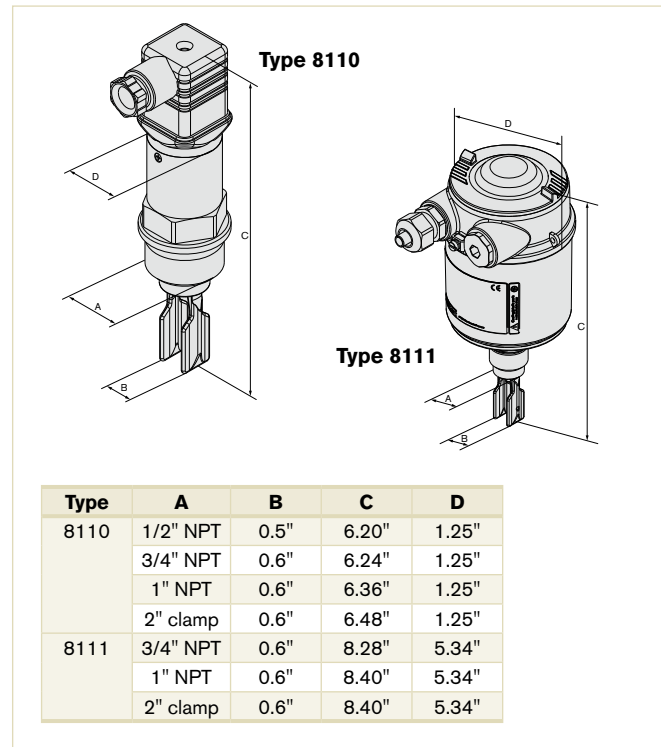
#### 8110

- DIN 11851, Flange, SMS
- Higher temperatures on request

#### 8111

- ATEX approvals
- DIN 11851, Flange, SMS
- ECTFE, enamel, Hastelloy C4 or PFA
- Higher temperatures on request

### Envelope Dimensions [inch] (see datasheet for details)



### Ordering Chart

Process connection	Electrical connection	Item no.
<b>8110</b>		
NPT 1/2"	Multipin M12	563 555
NPT 3/4"	Multipin M12	557 154
NPT 1"	Multipin M12	557 155
Clamp 2"	Multipin M12	555 294

Process connection	Electrical connection	Item no.
<b>8111</b>		
NPT 3/4"	2 x M20 glands	558 111
NPT 1"	2 x M20 glands	558 113
Clamp 2"	2 x M20 glands	558 114

Extension tubes are available (see datasheet Type 8112).



# Radar Level Transmitter for Liquids

## NPT thread or flange connection

- For filling level measurement up to 33 ft.
- High Pressure Version
- Two-wire version
- Adjustable via display and buttons as well as PC-Tool with DTM



Type 8137

Type 8138

8137 / 8138

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

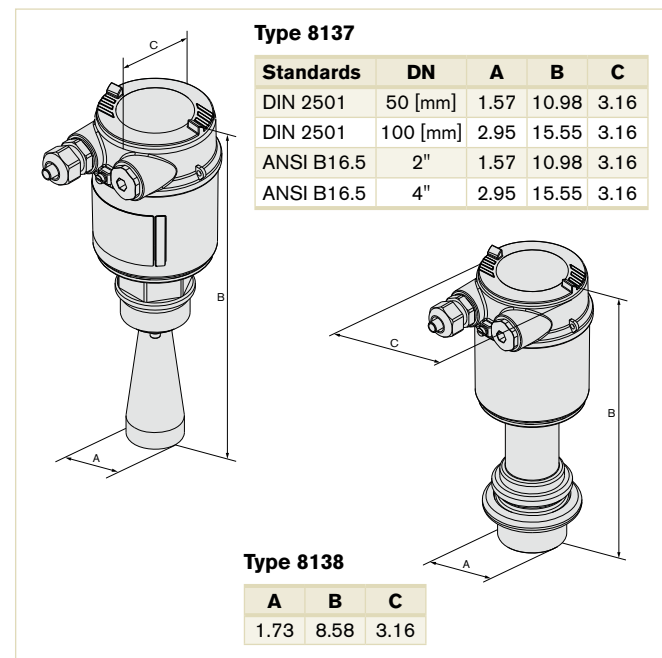
<b>Housing / Cover</b>	PBT, Stainless steel 316L / PC
<b>Seal ring / Ground terminal</b>	NBR / Stainless steel 316Ti/316L (1.4571/1.4435)
<b>Seal</b>	Klingsil C-4400 (8137), EPDM (8138)
<b>Antenna / cone</b>	Stainless steel 316L (8137), Advanced PTFE-PTFE (8138) / PTFE (Advanced PTFE 1600 PTFE) (8137)
<b>Seal (antenna system)</b>	FKM
<b>Display</b>	LCD in full dot matrix
<b>Ambient temperature</b>	-40 °F to 176 °F
<b>Voltage supply</b>	2-wire, 14 to 36 V DC
<b>Current consumption Max.</b>	22 mA
<b>Electrical connections</b>	Cable glands M20 x 1.5
<b>Outputs</b>	4-20 mA/HART
<b>Output Load Max.</b>	See datasheet
<b>Dead zone</b>	2"
<b>Measuring range (40mm antenna)</b>	2" to 30'
<b>Accuracy</b>	± 3 mm
<b>Min. Dielectric</b>	$\epsilon_r > 1.6$
<b>Temperature coefficient</b>	0.03%/10K
<b>Ingress protection</b>	IP66, IP67, NEMA4X
<b>Approvals</b>	CSA, CE, Optional EEx ia IIC T6

## Ordering Chart

Area of application	Process connection	Electrical connection	Item no.
<b>8137</b>			
Standard	NPT 1 1/2"	M20 cable gland	560 159
	Flange 2" ANSI B16.5	M20 cable gland	560 163
<b>8138</b>			
Standard	Clamp 2"	M20 cable gland	560 169

**Note:** Display/programmer (559279) not included, must be ordered separately (see accessories)

## Envelope Dimensions [inch] (see datasheet for details)



## Option

- Other hygienic fittings
- 98 ft. max with 75 mm antenna

## Accessories

Description	Item no.
Set with 2 M20 x 1.5 / NPT 1/2" -Reductions + 2 Neoprene gaskets for cable gland M20 x 1.5 + 2 sealing plugs	551 782
HART-USB Modem	560 177
Set with a display/configuration module, a transparent cover and a seal ring	559 279
Set with a transparent cover and a sealing ring	561 006

# Ultrasonic Level Transmitter for General Application

8177

## NPT and G thread process connection

- Two-wire version
- Reliable non-contact measurement
- HART communication



Ultrasonic level transmitters for non-contact measurement of process liquids and solids. Standard HART and 4-20 mA HART compatible output.

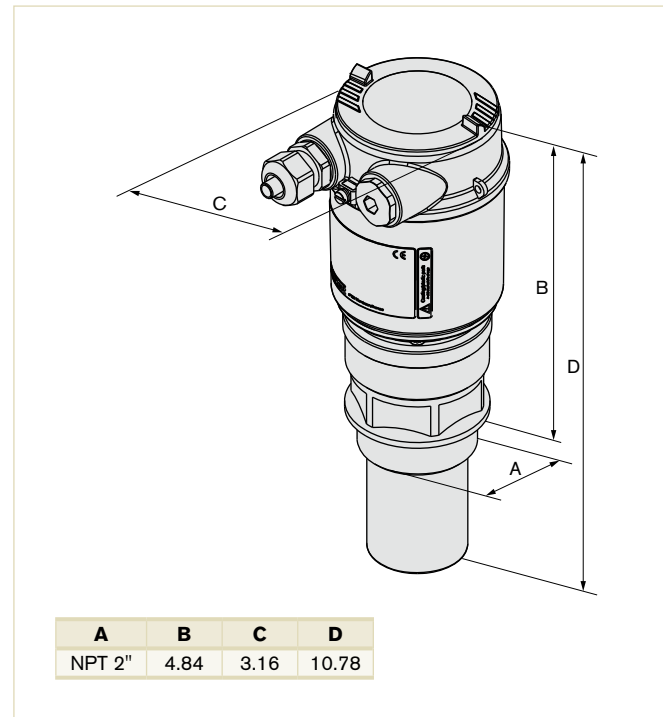
### Technical Data

<b>Housing/Cover</b>	PBT, Stainless steel 316L / PC
<b>Seal ring/Ground terminal</b>	NBR / Stainless steel 316Ti/316L (1.4571/1.4435)
<b>Seal</b>	EPDM
<b>Transducer</b>	PVDF
<b>Display</b>	LCD in full dot matrix
<b>Ambient temperature</b>	-4 °F to 158 °F
<b>Voltage supply</b>	2-wire, 14 to 36 V DC
<b>Current consumption Max.</b>	22 mA
<b>Electrical connections</b>	Cable glands M20 x 1.5
<b>Outputs</b>	4-20 mA/HART
<b>Output Load Max.</b>	See datasheet
<b>Beam angle</b>	11°
<b>Accuracy</b>	< 0.2% or ± 4 mm
<b>Process temperature</b>	-40 °F to 176 °F
<b>Temperature coefficient</b>	0.06%/10K
<b>Ingress protection</b>	IP66, IP67, NEMA4X
<b>Approvals</b>	CSA, CE, Optional EEx ia IIC T6

### Option

- Process connection clamp 2", 3", 4"

### Envelope Dimensions [inch] (see datasheet for details)



### Ordering Chart (versions with display)

Area of application	Process connection [inch]	Range (liquids)	Range (solids)	Electrical connection	Item no.
<b>8177</b>					
Standard	NPT 2"	1.3 ft - 26.2 ft	1.3 ft - 11.5 ft	M20 cable gland	559 244

**Note:** Display/programmer (559279) not included, must be ordered separately (see accessories)

### Accessories for Type 8177

Description	Item no.
Set with 2 reductions M20 x 1.5/NPT1/2" + 2 neoprene flat seals for cable gland + 2 screw-plugs M20 x 1.5	551 782
Set with a display/configuration module, a transparent cover and a seal ring	559 279
Set with a transparent cover and a seal ring	561 006

# Microwave Level Transmitter for General Application

- Universal level measurement device for liquids
- Liquid interface measurement
- Insensitive to dust and steam
- 4-20 mA/HART - 2 wires, ATEX/IECEX approvals Ex



8188 / 8189

Level measurement devices designed for continuous level measurement. The units are suitable to liquids, for industrial use in all areas of process technology.

## Technical Data

<b>Housing / Cover</b>	PBT, Stainless steel 316L / PC
<b>Seal ring / Ground terminal</b>	NBR / Stainless steel 316L
<b>Display</b>	LCD in full dot matrix
<b>Ambient temperature</b>	-4 to 176 °F
<b>Current limitation</b>	21.5 mA (max. output current)
<b>Electrical connections</b>	Cable gland M20 x 1.5
<b>Output signal</b>	4-20 mA/HART
<b>Output Load Max.</b>	See datasheet
<b>Deviation</b>	± 2 mm (See drawing in datasheet)
<b>Min. Dielectric</b>	Rod and cable $\epsilon_r > 1.6$ Coax- $\varnothing$ 21.3 mm $\epsilon_r > 1.4$
<b>Process temperature</b>	-40 to 302 °F
<b>Temperature drift</b>	0.03% /10K
<b>Measurement type</b>	Level of liquids
<b>Protection</b>	IP66/IP67 with M20 x 1.5 gland mounted and tightened

## Options

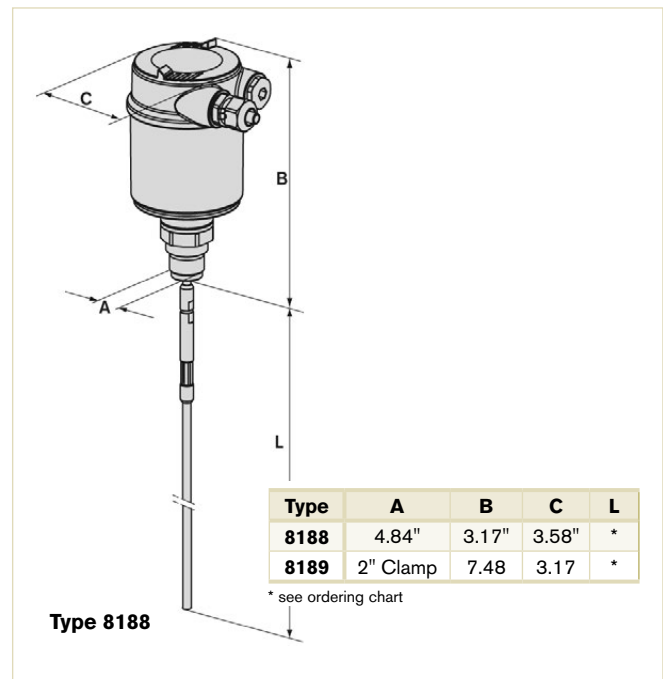
- ATEX/IECEX versions
- Other hygienic fittings

## Ordering Chart

Specification	Operating voltage	Output	Probe	Length	Electrical connection	Item no.
<b>Type 8188</b>						
NPT 3/4" 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	565 801
				2 m	Cable gland M20 x 1.5	565 805
			Cable	5 m	Cable gland M20 x 1.5	565 813
				10 m	Cable gland M20 x 1.5	565 817
			Coax	1 m	Cable gland M20 x 1.5	565 827
				2 m	Cable gland M20 x 1.5	565 828
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	565 803
				2 m	Cable gland M20 x 1.5	565 807
			Cable	5 m	Cable gland M20 x 1.5	565 815
				10 m	Cable gland M20 x 1.5	565 819
			Coax	1 m	Cable gland M20 x 1.5	565 829
				2 m	Cable gland M20 x 1.5	565 830
<b>Type 8189</b>						
<b>Specifications</b>	<b>Voltage supply</b>	<b>Output</b>	<b>Probe</b>	<b>Length</b>	<b>Electrical connection</b>	<b>Item no.</b>
Clamp 2"	9.6-35 V DC	4-20 mA/HART (2 wires)	Rod	1 m	Cable gland M20 x 1.5	565 850
				2 m	Cable gland M20 x 1.5	565 852

Note: Display/programmer (559279) included

## Envelope Dimensions [inch] (see datasheet for details)



# pH Transmitter

8202 ELEMENT

- Accepts all standard pH probes
- Removable programming puck
- Data upload/download via puck
- With temperature compensation
- Diagnostic function



Please see S022 fittings and 8203 pH electrodes



pH transmitter with programmable outputs. pH and temperature output via single or dual analog 4-20 mA. Two transistor outputs 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.

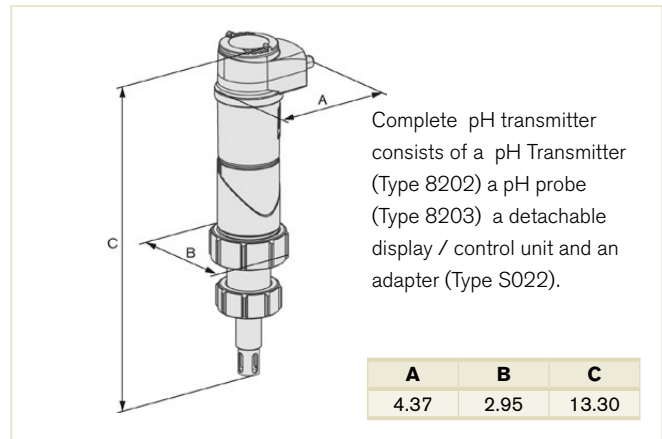
## Technical Data

<b>Measuring range</b>	2 ... 14pH
<b>Measuring error</b>	± 0.02pH
<b>Temperature compensation</b>	Automatic via integrated temperature sensor
<b>Temperature Performance (via integrated Pt1000)</b>	Measuring range -40 °F to 266 °F Measuring error ± 1.8 °F
<b>Available Fitting Materials</b>	Stainless, PP, PVC
<b>Housing material</b>	Stainless steel, PPS, PC
<b>Insertion finger</b>	PVDF
<b>Gasket seal</b>	EPDM
<b>Max. Fluid Temperature</b>	-40 °F to 266 °F (depending on fitting)
<b>Max. fluid pressure</b>	232 PSI
<b>Ambient temperature</b>	14 °F to 140 °F
<b>Storage temperature</b>	14 °F to 140 °F (without probe)
<b>Ingress protection</b>	IP65, IP67, NEMA4X
<b>Voltage supply</b>	14...36 VDC for 2-wire models 12...36 VDC for 3-wire models
<b>Protection</b>	Reversed polarity of DC and peak protected
<b>Current consumption Max.</b>	1 A Max. (with transistor load)
<b>Electrical connections</b>	1 x 5pin M12 male (2-wire) 1 x 5pin M12 male + 1 x 5 pin M12 female (3-wire)
<b>Outputs</b>	4-20 mA configurable temperature or pH 2 Transistors, configurable, open collector, 700 mA Max., 0.5 A Max. per transistor if the 2 transistor output are wired
<b>Output Load</b>	< 1100 Ω at 36 V < 610 Ω at 24 V < 180 Ω at 14 V
<b>Approval</b>	UL-Recognized for US and Canada

## Options

- Blind version (Neutrino)
- ORP: see datasheet 8202

## Envelope Dimensions [inch] (see datasheet for details)



## Ordering Chart

Transmitter				
Wiring	Outputs	Nut	M12	Item no.
2-wire	2 x transistors + 1 x 4-20 mA	PVC	5-pin male	559 634
		PVDF	5-pin male	559 636
3-wire	2 x transistors + 2 x 4-20 mA	PVC	5-pin male + female	559 635
		PVDF	5-pin male + female	559 637

**Note:** Display/programmer (559168) not included. Must be ordered separately.

Probe Type 8203 (additional versions available)	Item no.
pH probe 32 °F to 266 °F, 0-232 PSI, pH 0-14 - UNITRODE PLUS pH 120 mm	560 376
pH probe 32 °F to 176 °F, 0-87 PSI, pH 0-14 - FLATRODE pH 120 mm	561 025

## Accessories

Description	Item no.
Display/programming module	559 168
Electrical connector, 5-pin M12 male, plug only	560 946
Electrical connector, 5-pin M12 male, 2 m prewired	559 177
Electrical connector, 5-pin M12 female, plug only	917 116
Electrical connector, 5-pin M12 female, 2 m prewired	438 680

**Note:** For a complete transmitter the following items must be ordered:

- Transmitter, Type 8202 ELEMENT
- pH or ORP probe, Type 8203
- Display/programmer module
- M12 cable socket, cable connector (only cable socket for a 4-20 mA current output, cable and cable connector for two 4-20 mA current outputs)



## For use with 8202 pH transmitter

- For many different types of installations and applications

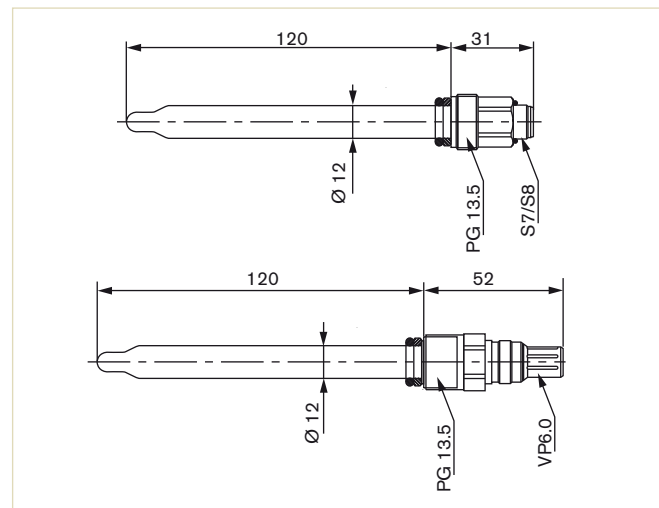
The pH Bürkert meter is a modular device designed for the measurement of: - the pH in clean liquids or liquids containing solids, sulfides or proteins.

### Technical Data

General data	
<b>pH probe Measuring range</b>	0 ... 14 pH
<b>Medium temperature</b>	Temperature limits may depend on the inserted probe. Refer to the relevant instruction manual or technical data. If the temperature ranges given for the holder and the inserted probe are different, use the most restrictive range.
<b>Medium pressure</b>	Pressure limits may depend on the inserted probe. Refer to the relevant instruction manual or technical data. If the pressure ranges given for the holder and the inserted probe are different, use the most restrictive range.
<b>Temperature compensation</b>	Automatic (integrated Pt100 or Pt1000) or manual compensation reference temperature 77 °F (25 °C)
<b>Electrical connection</b>	Coaxial shielded cables with connector for pH/ORP and 4-wire cable for Pt1000/Liquid earth rod
Electrical data	
<b>Output</b>	Analog signal, to be connected to ELEMENT or ELEMENT neutrino pH meter Type 8202 or multi-CELL transmitter/controller Type 8619
Environment	
<b>Ambient temperature</b>	Temperature limits may depend on the inserted probe. Refer to the relevant instruction manual or technical data.

OPR Electrodes also available (see 8203 datasheet for details)

### Dimensions [mm]



### Ordering Chart

Probe	Item no.
PLASTRODE pH 120 mm	560 377
FLATRODE pH 120 mm	561 025
LOGOTRODE pH 120 mm	427 114
UNITRODE PLUS pH 120 mm	560 376
CERATRODE pH 120 mm	418 319
FERMTRODE pH 120 mm	561 727

### pH Probe - Technical Data (see datasheet for details)

Type	PLASTRODE	FLATRODE	LOGOTRODE	UNITRODE PLUS	CERATRODE	FERMTRODE
<b>Medium</b>	Cost effective probe for drinking water, aquarium, swimming-pool...	Contaminated (viscous, suspended solids, paints, cosmetics, foodstuffs)	Clean (drinking water, cooling-water, aquarium, swimming-pool...)	- Contaminated - Containing sulfides/ proteins	- High pressure, high flowrate applications	Biotechnology, pharma, food industry
<b>Medium temperature</b>	14 °F to 104 °F (-10 °C to +40 °C)	32 °F to 176 °F (0 °C to +80 °C)	14 °F to 140 °F (-10 °C to +60 °C)	32 °F to 266 °F (0 °C to +130 °C)	32 °F to 266 °F (0 °C to +130 °C)	32 °F to 284 °F (0 °C to +140 °C)
<b>Minimal conductivity</b>	50 µS/cm	50 µS/cm	2 µS/cm	2 µS/cm	3 µS/cm	1 µS/cm
<b>Max. pressure at max. temperature</b>	87 PSI (6 bar)	58 PSI (4 bar)	87 PSI (6 bar)	145 PSI (10 bar)	87 PSI (6 bar)	87 PSI (6 bar)
<b>No. of diaphragms</b>	1	1	1	2	3	1
<b>Diaphragms</b>	*single pore™	Annular and centered, in High Density Polyethylen	*single pore™	*single pore™	HP ceramics	HP-COATRAMIC

# Conductivity transmitter with removable operating unit

8222 ELEMENT

- Intuitive menu structure
- Removable programming puck
- Data upload / download via puck
- Diagnostic function

Please see S022 fittings + adapters

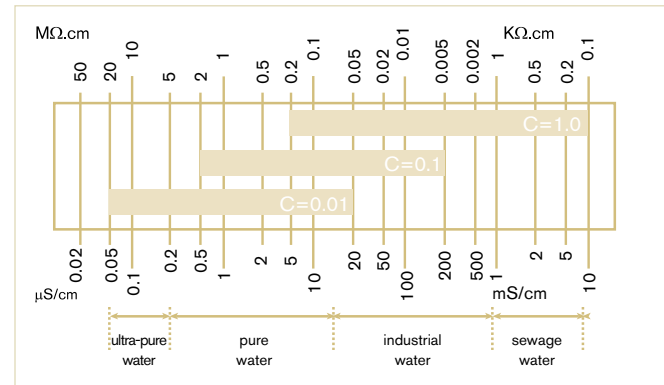
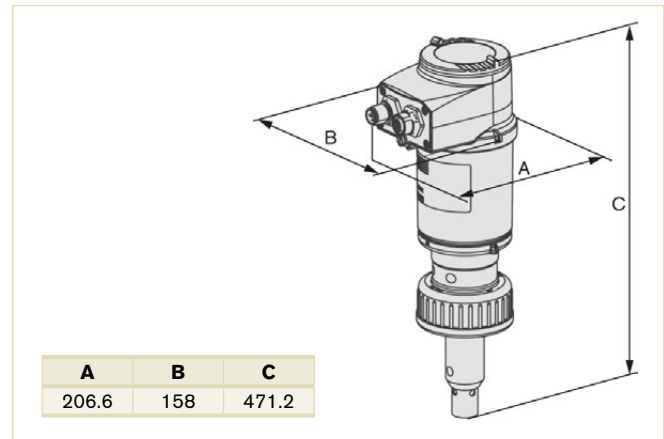


Conductivity transmitter with programmable outputs. Conductivity and temperature output via single or dual analog 4-20 mA. Two transistor outputs are also included. Transmitters are engineered for a wide scope of measuring ranges and can be delivered in 2-wire or 3-wire configurations. Intelligent, integrated, beautiful design fits perfectly with an assortment of easily configured fittings.

## Technical Data

<b>Measuring range</b>	0.05 $\mu\text{S}/\text{cm}$ ... 10 $\text{mS}/\text{cm}$ , -4 °F to 266 °F
<b>Measuring error</b>	$\pm 3\%$ of measured value, $\pm 1.8$ °F
<b>Temperature compensation</b>	Automatic via integrated temperature sensor acc. to a predefined graph (NaCl or ultra-pure water)
<b>Available Fitting Materials</b>	Stainless, PP, PVC
<b>Housing material</b>	Stainless steel, PPS, PC
<b>Insertion finger</b>	PVDF/SS for 0.01 or 0.1; graphite for 1.0
<b>O-rings</b>	EPDM
<b>Fluid Temperature</b>	-4 °F to 212 °F (depending on fitting) (PVC 32 °F to 122 °F)
<b>Max. fluid pressure</b>	232 PSI (depending on fitting)
<b>Ambient temperature</b>	14 °F to 140 °F
<b>Storage temperature</b>	14 °F to 140 °F (without probe)
<b>Ingress protection</b>	IP65, IP67, NEMA4X
<b>Voltage supply</b>	14...36 VDC for 2-wire models 12...36 VDC for 3-wire models
<b>Protection</b>	Reversed polarity of DC and peak protected
<b>Approval</b>	UL-Recognized for US and Canada
<b>Outputs</b>	4-20 mA configurable temperature or conductivity 2 Transistors, configurable, open collector, 700 mA Max., 0.5 A Max. per transistor if the 2 transistor output are wired
<b>Output Load</b>	< 1100 $\Omega$ at 36 V < 610 $\Omega$ at 24 V < 180 $\Omega$ at 14 V

## Envelope Dimensions [inch] (see datasheet for details)



The electrode is selected according to the measuring range and medium by using this table.

## Ordering Chart

Nut material	Cell constant	Electrical connection	Item No
PVC	C = 0.01	5-pin M12 male and 5-pin M12 female	562 394
	C = 0.1	5-pin M12 male and 5-pin M12 female	559 624
	C = 1.0	5-pin M12 male and 5-pin M12 female	559 638
PVDF	C = 0.01	5-pin M12 male and 5-pin M12 female	562 396
	C = 0.1	5-pin M12 male and 5-pin M12 female	559 626
	C = 1.0	5-pin M12 male and 5-pin M12 female	559 622

Note: Display/programmer (559 168) not included. Must be ordered separately.

Accessories (see page 68)

**Note:** For a complete transmitter the following items must be ordered:

- Transmitter, Type 8222 ELEMENT
- Display/programmer module
- INSERTION Adapters (see Type S022)
- M12 cable socket, cable connector (only cable socket for a 4-20 mA current output, cable and cable connector for two 4-20 mA current outputs)

Options: Dual Analog 4-20 mA output

# Inductive conductivity meter

8228

- Configurable outputs: up to 2 transistor and up to 2 analogue 4 - 20 mA outputs
- Removable backlighted display
- Simulation of process values and diagnostic functions
- Sensor-versions available with PEEK, PVDF or PP



Please see fitting S020



The analysis gauge, 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 measured value + 5 µS/cm)
Linearity	±2%
Repeatability	±(0.2% of the measured value + 2 µS/cm)
Response time t90	from 3 s (without filter) to 40 s (with slow filter)

#### Temperature measurement

Measuring range	-40 °C to +150 °C (-40 to 302 °F)
Resolution	0.1 °C (0.18 °F)
Measuring uncertainty	±1 °C (1.8 °F)
Response time t90	< 280 s (without filter)

#### Temperature compensation

- none or
- according to a predefined graph (NaCl, NaOH, HNO3 or H2SO4) or
- according to a graph defined especially for your process

**Approval** UL-Recognized for US and Canada

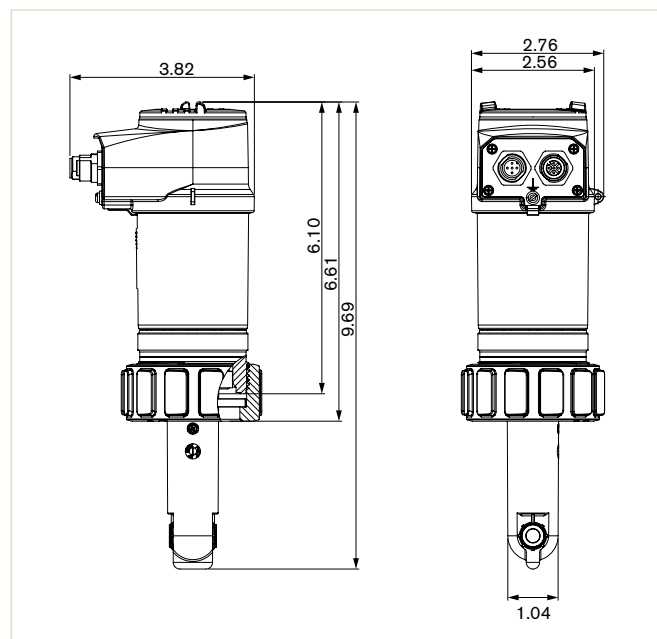
#### Environment

**Ambient temperature** -10 °C to +60°C (14 to 140 °F) (operating and storage)

**Relative humidity** ≤ 85%, without condensation

**Height above sea level** Max. 2000 m

## Envelope Dimensions [inch] (see datasheet for details)



## Options

- UL and CSA approvals
- CIP version
- Preparameterized conductivity meters
- Tri-clamp connection (2")

## Ordering Chart

Specifications	Voltage supply	Output	Material		Electrical connection	Item No	
			sensor holder	sensor seal		without display	with display
Compact conductivity meter	12...36 V DC	1 x transistor NPN/PNP + 1 x 4 to 20 mA	PP	FKM	5-pin M12 male fixed connector	565 611	566 611
			PVDF	FKM	5-pin M12 male fixed connector	565 613	566 613
			PEEK	FKM	5-pin M12 male fixed connector	565 615	566 615
		2 x transistor NPN/PNP + 2 x 4 to 20 mA	PP	FKM	5-pin M12 male and 5-pin M12 female fixed connectors	565 612	566 612
			PVDF	FKM	5-pin M12 male and 5-pin M12 female fixed connectors	565 614	566 614
			PEEK	FKM	5-pin M12 male and 5-pin M12 female fixed connectors	565 616	566 616

**Note for ordering chart:** For a complete conductivity unit the following items must be ordered:  
 - Transmitter Type 8228 - INSERTION Fitting Type S020  
 Further versions and information see datasheet type 8228.

**Note:**  
 Display/programmer (559168) not included. Must be ordered separately.

# Intelligent Sensor/Switch/Display

8311

- Accurate, reliable pressure switching
- Switch for alarm or event logging
- Bar graph display for local monitoring

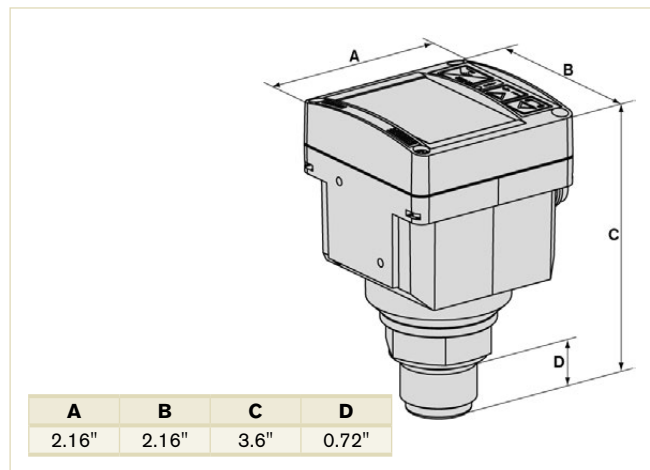


Programmable pressure sensor with switching and transmitting functions. It has a large display with bar graph and simple menu guided controls. Connection to the process with standard stainless steel connection and it can be set up with alarm, control or monitoring functions.

## Technical Data

<b>Measuring range</b>	To 725 PSI
<b>Switching accuracy ±.09 °F (0-176 °F)</b>	± 1.5% FS
<b>Medium temperature</b>	-4 °F to 212 °F (212 °F for an ambient temperature of Max. 104 °F)
<b>Repeatability</b>	0.25% FS
<b>Housing, cover</b>	PC+20% glass fiber
<b>Sensor element</b>	Ceramic
<b>Wetted parts (NPT seal)</b>	316L stainless steel, ceramic/FKM (EPDM optional)
<b>Ambient temperature range</b>	0 °F to 140 °F
<b>Ingress protection</b>	IP65
<b>Voltage supply</b>	12-30 VDC
<b>Protection</b>	Reversed polarity of DC protected
<b>Current consumption Max.</b>	750 mA max (with load - PNP output configuration)
<b>Electrical Protection</b>	Short circuit protection
<b>Max. cable length</b>	164' shielded
<b>Electrical connections</b>	Cable plug Multipin 5 pin, M12
<b>Output</b>	Transistor output NPN and PNP 5-30 VDC, 700 mA

## Envelope Dimensions [inch] (see datasheet for details)



## Options

- Cable plug 2508, DIN 43650A 1/2" conduit
- Outputs: Relay 3 A/250 or 3 A/30 VDC
- 4-20 mA output
- Two-wire loop powered

## Ordering Chart

Pressure range	Electrical connection	Output	Burst Pressure [PSI]	Max. Pressure [PSI]	*Item no.
0-30	M12 plug	NPN/PNP	102	58	98108565
0-73	M12 plug	NPN/PNP	174	145	98108558
0-145	M12 plug	NPN/PNP	363	290	98108551

\*Includes M12 cable plug

Accessories for Type 8311	Item no.
M12 female cable connector with plastic threaded locking ring	917 116
5 pin M12 female connector moulded on cable (2 m, shielded)	438 680

More Versions	Pressure [PSI]	Item no.
Transmitter Version is also available with 4-20 mA output in 8 pin M12 (please see datasheet for details)	0-30	444 640
	0-73	444 641
	0-145	444 642



# Pressure Measuring Device

8316

- Ceramic/thick film measurement cell
- 2-wire version for 4-20 mA output
- Compact, stable construction for the highest operational reliability



The compact Type 8316 pressure measuring device meets the highest requirements with regard to mechanical loading, EMC characteristics and operational reliability. It is particularly suitable for demanding industrial applications. For aggressive media where stainless steel is not resistant, process connections in PVDF are available.

## Technical Data

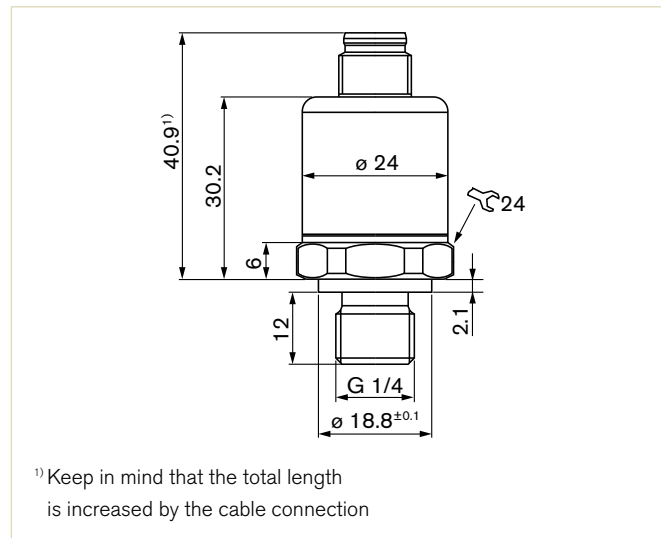
<b>Body material</b>	Stainless Steel (1.4404)
<b>Electrical connection</b>	Round male connector M12 x 1
<b>Process connection</b>	NPT 1/4" external
<b>Measurement procedure</b>	Relative pressure measurement
<b>Measurement range</b>	0 to 14.5, 58, 87, 145, 232, 580, or 1450 PSI (0...1, 4, 6, 10, 16, 40 or 100 bar)
<b>Fluid temperature</b>	5 to 257 °F (-15 to +125 °C)
<b>Seal material</b>	FKM
<b>Voltage</b>	8-33 volts
<b>Accuracy</b>	Sum of linearity, hysteresis and reproducibility, balancing accuracy of zero point and full scale: ≤ 0.5 % of Full Scale.

**Certification**  
UL-Listed for  
USA and Canada



UL 61010-1 + CAN/CSA-C22.2 No.61010-1

## Dimensions [mm]



## Further Versions on Request

- **Pressure:** other measuring ranges
- **Additional:** electrical outputs: 0-10 V DC, 0-5 V DC

## Ordering Chart

Process connection	Pressure range	Operating voltage	Output signal	Electrical connection	Item no.
NPT 1/4"	0 to 60 PSI	7-33 V DC	4-20 mA	M12 male connector	564 466
UL-Listed for	0 to 150 PSI	7-33 V DC	4-20 mA	M12 male connector	564 467
USA and Canada	0 to 300 PSI	7-33 V DC	4-20 mA	M12 male connector	564 468

## Accessories

Description	Item No
5 pin M12 female cable connector with plastic threaded locking ring	917 116
5 pin M12 female connector moulded on cable (2 m, shielded)	438 680

# Temperature Transmitter/Switch with display

8400

- Menu-guided configuration
- Wide choice of connections and outputs
- Large digital display
- Bar graph display for local monitoring
- Continuous on/off control
- 2-wire transmitter

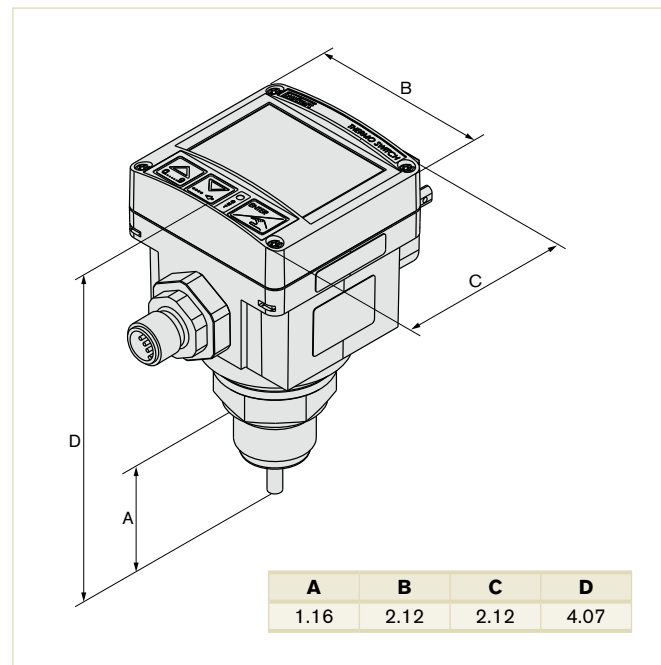


This intelligent sensor / switch with a particularly large display is designed specifically for monitoring limit values or an on/off or continuous control loop. The switching points can be programmed directly via buttons on the display or optionally externally by a PLC via a 4-20 mA standard signal input. In addition, the process value can be transmitted via a 4-20 mA signal to the PLC.

## Technical Data

<b>Measuring range</b> (ambient 32 °F to 104 °F)	-40 °F to 257 °F
<b>Switching accuracy</b>	±0.09 °F (0 to 176 °F)
<b>Switching activity</b>	±2.7 °F
<b>Repeatability</b>	0.40%
<b>Housing material, cover</b>	PC+20% glass fiber
<b>Sensor element</b>	Pt100
<b>Wetted parts (NPT seal)</b>	316L stainless steel, FKM
<b>Ambient temperature range</b>	0 °F to 140 °F
<b>Ingress protection</b>	IP65
<b>Voltage supply</b>	12-30 VDC
<b>Protection</b>	Reversed polarity of DC protected
<b>Current consumption Max.</b>	80 mA (no Load)
<b>Max. cable length</b>	328.1' shielded
<b>Electrical connections</b>	Cable plug Multipin 5 pin, M12
<b>Output</b>	Transistor output NPN and PNP open collector 5-30 VDC, 700 mA

## Envelope Dimensions [inch] (see datasheet for details)



## Option

- 8400: Outputs : Relay 3 A/250 or 3 A/30V DC

## Ordering Chart

8400 Sensor/Switch for sensor connection NPT 1/2"	*Item no.
NPN and PNP, free positionable 5-pin M12	98108577
Transmitter Version with 4-20 mA output and relay with 8-pin M12 and cable plug EN175301-803	98108573
Relay version, free positionable 5-pin M12 and cable plug EN175301-803	98108576

\*Includes electrical plug or moulded cable

## Accessories

ON/OFF Temperature Control System 8400	Item no.
5-pin M12 female connector with moulded on cable (2 m long, shielded)	438 680
5-pin M12 female cable connector with plastic threaded locking ring	917 116

# Multi-channel, multi-functional transmitter/controller

8619

## 1/4" DIN Panel Mount

- Flexible analytical and flow transmitter
- Compatible with most common flow, pH/ORP, chlorine and conductivity sensors
- Intuitive programming
- SD card for data logging and upload/download



Burkert's 8619 transmitter/controller is the latest addition to the process control program. The 1/4DIN panel mounted transmitter/controller incorporates a large backlit LCD display for adding up to 6 boards in a free mix for pH, conductivity incl. temperature, and output boards are connected to the digital inputs of the mainboard.

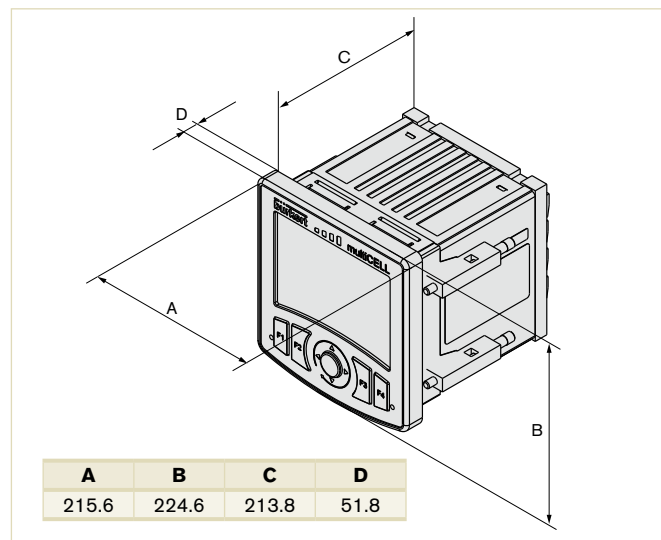
Optional software features can be simply activated when required by the application and an SD card is standard for data logging and up/down loading of parameterization files.

Special integrated dosing and control functions allow use in a large range of applications without the need of additional devices.

## Technical Data

<b>pH input</b>	-2.00...+16.00 (-600...+6000 mV)
<b>ORP Redox input</b>	-2000...+2000 mV
<b>Conductivity input</b>	0 µS/cm ... 2 S/cm
<b>pH/ORP/cond temp input</b>	Pt100 / Pt1000
<b>Digital input</b>	Voltage: 5-36 V DC, 2 to 2500 Hz
<b>Analog output</b>	4-20 mA 1100 Ω at 36 V DC 610 Ω at 24 V DC 100 Ω at 12 V DC
<b>Digital output</b>	PNP/NPN Max. 700 mA Max. 2000 Hz
<b>Cover, vision panel / Overlay</b>	PC / Silicone rubber
<b>Display</b>	Light blue backlitged; 128 x 168 pixels
<b>Languages</b>	English, French, German
<b>Mounting panel</b>	92mm x 92mm DIN cutout
<b>Ambient temperature range</b>	14 to 140 °F Limited at 32 to 140 °F if memory card is used
<b>Ingress protection</b>	IP65, NEMA 4X
<b>Storage temperature</b>	-4 °F to 140 °F
<b>Voltage supply</b>	12...36 VDC
<b>Protection</b>	Reversed polarity of DC and peak protected
<b>Current consumption</b>	100 mA at 12 V DC 50 mA at 24 V DC
<b>Data logging</b>	SD Card
<b>Data retention</b>	EEPROM, Real time clock

## Envelope Dimensions [inch] (see datasheet for details)



## Options

- Wall mount
- VAC powered
- PID function
- Data logger
- EtherNet, Modbus or PROFINET communication

## Ordering Chart

Description	Digital Inputs	Raw signals	RTD	Digital Outputs	Analog	Item no.
BASE unit	2	-	-	2	2	560 213
pH/ORP transmitter	2	1 (pH/ORP)	1	2	2	560 208
pH/ORP transmitter	2	2 (pH/ORP)	2	4	4	560 210
CONDUCTIVITY transmitter	2	1 (Cond.)	1	2	2	560 209
CONDUCTIVITY transmitter	2	2 (Cond.)	2	4	4	560 211
pH/ORP and CONDUCTIVITY transmitter	2	1 (pH/ORP) + 1 (Cond.)	2	4	4	560 212

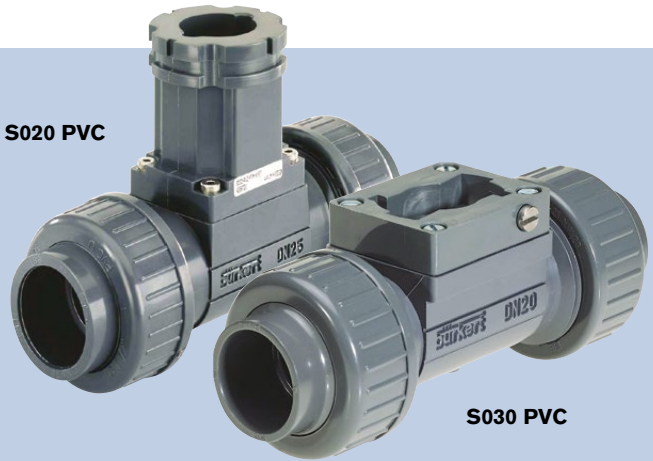
**Note for ordering the above multiCELL Transmitter / Controller:**  
In all the above variations are arithmetic, PASS, REJECT, DEVIAT, PROP, the On/Off function standard features. In the basic model, the flow measurement function is included. When a totalizer function is needed, then a flow meter via a digital input (main or input board) must be connected. Other optional features can be ordered later, see data sheet.

# S030 and S020 flow fittings

**1/2" to 14", 0-232 PSI**

- Straight thru tube assures maximum accuracy
- Wide range of materials and connections
- Unique INLINE version isolates medium from measuring device








S020 PVC



S030 PVC

## Ordering Chart








**S030 (for SE30, SE32, SE35 and SE36)**

Connection	PVC (ASTM)	Brass NPT	Stainless NPT	PVDF	SS Hygienic Clamp	SS OD Tube	ANSI B16-5
1/2"							
1/2"	423 950	423 986	424 010	423 968	-	-	424 046
3/4"	423 951	423 987	424 011	423 969	443 395	443 369	424 047
1"	423 952	423 988	424 012	423 970	443 396	443 370	424 048
1 1/4"	423 953	423 989	424 013	423 971	-	-	424 049
1 1/2"	423 954	423 990	424 014	423 972	443 397	443 372	424 050
2"	423 955	423 991	424 015	423 973	443 398	443 373	424 051
2 1/2"	-	-	-	-	443 399	443 374	-

## Ordering Chart

**S020 (for 8025, 8026, 8041, 8045) - Short sensor** ■

**Long sensor** ■

Connection	PVC (ASTM)	Brass NPT	Stainless NPT	SS weldolet	Steel saddle	Steel weldolet	PVC saddle
1/2"							
1/2"	428 682	428 718	428 742				
3/4"	428 683	428 719	428 743				
1"	428 684	428 720	428 744				
1 1/4"	428 685	428 721	428 745				
1 1/2"	428 686	428 722	428 746				
2"	428 687	428 723	428 747				
2 1/2"				418 111	98146031	98146032	
3"				418 112		98146034	413 469
4"				418 113	98146024	98146035	413 470
5"				418 114	98146025	98146020	98146019
6"				418 115			
8"				418 116	98146026	98146021	98146017
10"				418 117	98146027	98146022	98146030
12"				418 756	98146028	98146023	
14"				420 070	98146029	98146036	
14"				416 637	98109612		

= Quick Delivery Items

# Fittings for 8202 & 8222 pH and Conductivity Sensors

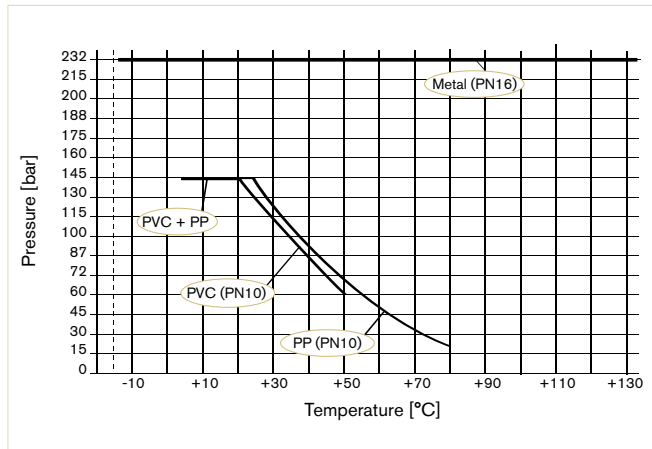
## Tee Fittings and Adaptors

- Simple installation guaranteed
- Range of chemically compatible materials
- Modular concept for pH, ORP and conductivity



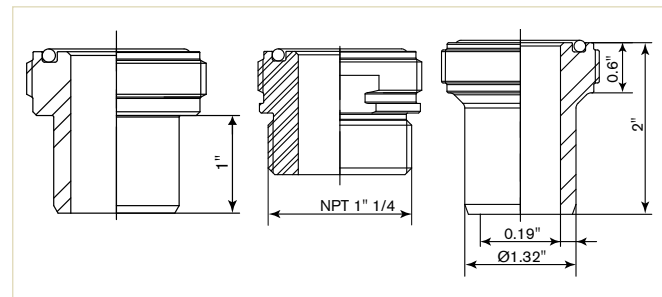
Fittings to connect the compact analytical transmitters to the media. Materials included are PVC-U, PP, Stainless steel, and PVC thread. For chemical resistance details please download our chemical resistance booklet from our website [www.burkert-usa.com](http://www.burkert-usa.com)

## Pressure / temperature chart




**Note:** Always take lowest Max. medium temp. of both adapter and used ELEMENT transmitter.







## Envelope Dimensions [inch] (see datasheet for details)



## Ordering Chart for insertion fitting for connection on pipe (ASTM True Union)

	Materials Body / Seal	Type of Installation or DN	Item no.
	PVC/FKM	15	560 691
20		560 692	
25		560 693	
32		560 694	
40		560 695	
	50	560 696	

## Ordering Chart for insertion adaptor for connection into T-fitting or pipe

Adaptor S022	Piping systems	DN	Description	Materials Body / Seal	Type of Installation	Item no.
 PVC-U, PP metric or ASTM		32 up to 110 (06 up to 25 with reduction)	ASTM solvent adaptor with G1 1/2" external threaded for ELEMENT transmitter connection	PVC-U / FKM, EPDM	Solvent weld on 1"x1" to 3"x1" Tee fitting	561 227
 Stainless steel **		Respect recommendations of installation	Welding adaptor with G 1 1/2" external threaded for ELEMENT transmitter connection	Stainless steel / FKM, EPDM	To weld directly on pipe	561 232
 PVC-U, G or NPT 1 1/4" screw-on		Respect recommendations of installation	NPT 1 1/4" screw-on adaptor with G 1 1/2" external threaded for ELEMENT transmitter connection	PVC-U / FKM, EPDM	To screw on tank or pipe	561 228

\*\* see Type S022 datasheet for Tee Fittings



# The best for your RO-System

Intelligent, modular solutions for monitoring and controlling the reverse osmosis process

Monitoring of your reverse osmosis process can be so easy! With the multichannel controller you can monitor any parameter needed for the process – such as pressure, flow, pH-value, ORP, conductivity or free chlorine. Furthermore, with the mathematical functions it is possible to calculate important process parameters like TMP (trans membrane pressure), rejection rate or recovery rate. The choice is yours.



multiCELL  
8619:  
Multiparameter controller/transmitter with data logging and math functions – wall, pipe or cabinet mounted versions

Sensors for flow monitoring, pressure control and analytical control (pH, ORP, conductivity, chlorine)



# Mass Flow Controller for Gases (MFC)

8626

## Nominal flow ranges from 20 I<sub>N</sub>/min up to 2500 I<sub>N</sub>/min

- High accuracy
- Fast settling times
- Fieldbus option
- Special version for ammonia gas
- Protection class IP65



The mass flow controller 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. 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.

### Technical Data

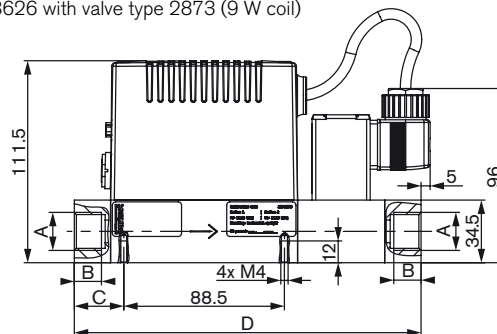
<b>Turn-down ratio</b>	1:50 <sup>9)</sup>
<b>Operating gas</b>	Neutral, non-contaminated gases, others available on request
<b>Calibration gas</b>	Operating gas or air with correcting function
<b>Max operating pressure (inlet pressure)</b>	Up to max. 145 PSI (10 bar), depending on the orifice of the valve
<b>Gas temperature</b>	14°F to 158°F (-10°C to 70°C) (-10°C to 60°C with oxygen)
<b>Ambient temperature</b>	14°F to 113°F (-10°C to 45°C) higher temperatures on request
<b>Accuracy (after 15min warm up time)</b>	± 1.5% of rate ± 0.3% F.S. (o.R.: of reading; F.S.: of full scale)
<b>Repeatability</b>	± 0.1% F.S.
<b>Settling time (t<sub>95%</sub>)</b>	< 500 ms
<b>Body material</b>	Stainless steel, aluminium
<b>Port connection</b>	G 1/4", 3/8", 1/2", 3/4", 1" NPT 1/4", 3/8", 1/2", 3/4", 1"
<b>Communication</b>	Standard signal, RS-232 or RS-485, Profibus DP, DeviceNet, CANopen, Modbus
<b>Operating voltage</b>	24 V DC
<b>Voltage tolerance</b>	± 10%
<b>Power consumption</b>	12.5 W - 37 W (depending on the version)

### Nominal Flow Ranges (other gases on request)

Gas	Min. Q <sub>nom</sub> [I <sub>N</sub> /min]	Max. Q <sub>nom</sub> [I <sub>N</sub> /min]
Ammonia	20	1250
Argon	20	1500
Carbon dioxide	20	800
Air	20	1500
Methane	20	750
Propane	20	400
Oxygen	20	1500
Nitrogen	20	1500

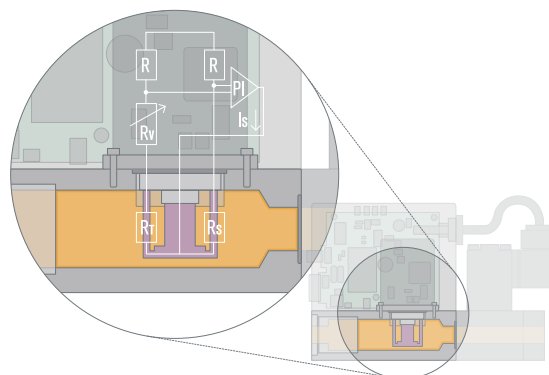
### Dimensions [mm] (see datasheet for more details)

MFC 8626 with valve type 2873 (9 W coil)



	A	B	C	D
NPT 1/4"	10	22.25	181	
NPT 3/8"	11	22.25	181	
NPT 1/2"	14	27.25	191	
NPT 3/4"	15	27.25	191	

### Measuring Principle



The inline sensor works in the CTA operating mode (Constant Temperature Anemometer), whereby an electrical heating resistance (RS) and a measurement resistance (RT) are regulated at a constant temperature difference. Both resistances are directly placed in the flow channel; three more resistances are outside. Together they are all connected into a measurement bridge.

# Mass Flow Controller for Gases (MFC)

8711

## Nominal flow ranges from 0.010 I<sub>N</sub>/min to 80 I<sub>N</sub>/min

- High accuracy and repeatability
- Fast settling time
- Fieldbus option



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.

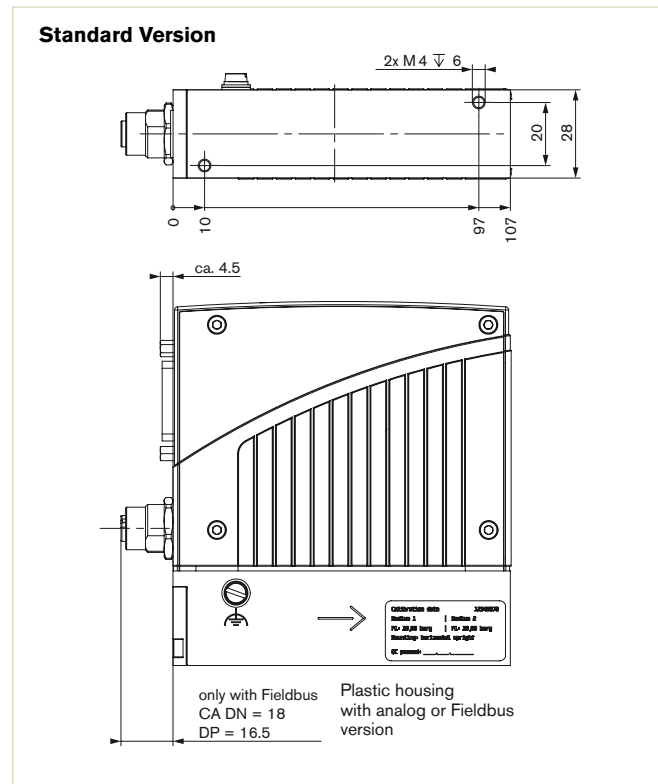
### Technical Data

<b>Turn-down ratio</b>	1:50, higher turn-down ratio on request
<b>Operating gas</b>	Neutral, non-contaminated gases, others available on request
<b>Calibration gas</b>	Operating gas or air with conversion function
<b>Max operating pressure (inlet pressure)</b>	Up to max. 145 PSI (10 bar), depending on the orifice of the valve
<b>Gas temperature</b>	14°F to 158°F (-10°C to 70°C) (-10°C to 60°C with oxygen)
<b>Ambient temperature</b>	14°F to 122°F (-10°C to 50°C)
<b>Accuracy (after 1 min. warm up time)</b>	± 0.8 % o. R. ± 0.3 % of F. S.
<b>Repeatability</b>	±0.1% F.S.
<b>Settling time (t<sub>95%</sub>)</b>	<300 ms
<b>Body material</b>	Stainless steel, aluminium
<b>Port connection</b>	NPT 1/4", G 1/4", screw-in fitting or flange, others on request
<b>Communication</b>	Standard signal, RS-232 or RS-485, Profibus DP, DeviceNet, CANopen, Modbus
<b>Power supply</b>	24 V DC
<b>Voltage tolerance</b>	± 10%
<b>Power consumption</b>	Max. 3.5 W - 14 W (depending on the proportional valve used)

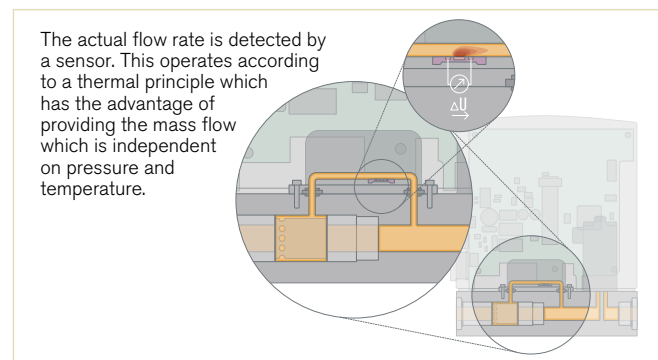
### Nominal Flow Ranges (other gases on request)

Gas	Min. Q <sub>nom</sub> [I <sub>N</sub> /min]	Max. Q <sub>nom</sub> [I <sub>N</sub> /min]
Argon	0.01	80
Helium	0.01	500
Carbon dioxide	0.02	40
Air	0.01	80
Methane	0.01	80
Oxygen	0.01	80
Nitrogen	0.01	80

### Dimensions [mm] (see datasheet for more details)



### Measuring Principle





# Mass Flow Controller for Gases (MFC)

8713

## Direct flow measurement by MEMS - Technology for nominal flow rates from 10 ml<sub>N</sub>/min to 80 l<sub>N</sub>/min (N<sub>2</sub>)

- High accuracy
- Short settling time
- Compact design
- Digital communication via RS485



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 parameterization and diagnosis.

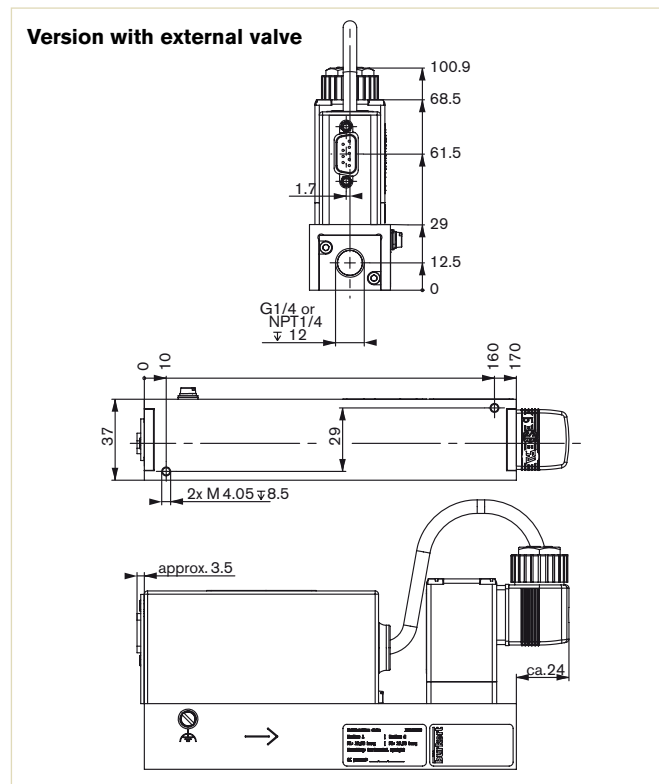
### Technical Data

<b>Turn-down ratio</b>	1:50, higher turn-down ratio on request
<b>Operating gas</b>	Neutral, non-contaminated gases, others available on request
<b>Calibration gas</b>	Operating gas or air with conversion factor
<b>Max operating pressure (inlet pressure)</b>	145 PSI (10 bar) depending on the orifice of the valve
<b>Gas temperature</b>	14°F to 158°F (-10°C to 70°C) (-10°C to 60°C with oxygen)
<b>Ambient temperature</b>	14°F to 122°F (-10°C to 50°C)
<b>Accuracy (after 1 min. warm up time)</b>	±0.8% o. R. ±0.3% F.S.
<b>Repeatability</b>	±0.1% F.S.
<b>Settling time (t<sub>95%</sub>)</b>	<300 ms
<b>Body material</b>	Aluminium or stainless steel
<b>Port connection</b>	NPT 1/4", G 1/4", screw-in fitting or sub-base, others on request
<b>Communication</b>	Digital via RS485 (half-duplex or full duplex), RS422
<b>Power supply</b>	24 V DC
<b>Voltage tolerance</b>	±10%
<b>Power consumption</b>	3.5 W - 11.5 W (depending on control valve used)

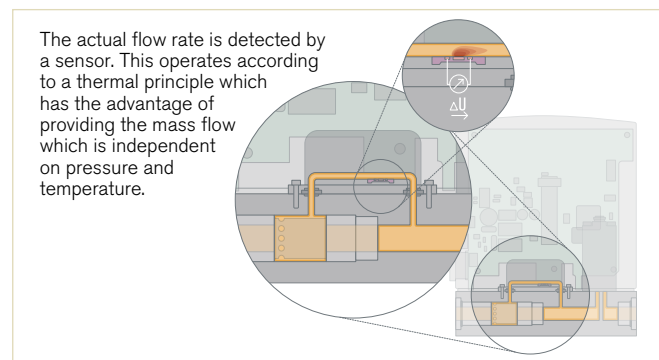
### Nominal Flow Ranges (other gases on request)

Gas	Min. Q <sub>nom</sub> [l <sub>N</sub> /min]	Max. Q <sub>nom</sub> [l <sub>N</sub> /min]
Argon	0.01	80
Helium	0.01	500
Carbon dioxide	0.02	40
Air	0.01	80

### Dimensions [mm] (see datasheet for more details)



### Measuring Principle



# Mass Flow Controller (MFC)/Mass Flow Meter (MFM) for Gases

8741

## Nominal flow ranges from 0.010 I<sub>N</sub>/min to 160 I<sub>N</sub>/min

- High accuracy and repeatability
- Very fast response times
- Easy device exchange through configuration memory
- Available in 2 versions: 8741 Standard and 8741 bÜS / CANopen



The mass flow controller (MFC) / meter (MFM) type 8741 for gases is available in two versions:

**MFC / MFM type 8741 Standard:** with Industrial Ethernet or analog interface, suitable for a wide range of applications.

**MFC / MFM type 8741 bÜS / CANopen:** suitable for the integration in existing CANopen networks, as well as Industrial Ethernet or fieldbus networks in combination with the fieldbus gateway of type ME43.

Type 8741 can be configured as MFM or MFC. Optional, up to four different gases can be calibrated. Type 8741 is especially designed for use in cabinets.

### Technical Data

<b>Turn-down ratio</b>	50:1, optional 100:1
<b>Operating medium</b>	Neutral, non-contaminated gases, others available on request
<b>Calibration gas</b>	Operating gas or air
<b>Max operating pressure (overpressure to the atmospheric pressure)</b>	10 bar (145 PSI), with MFCs the max. pressure depends on the orifice of the valve
<b>Medium temperature</b>	14°F to 158°F (-10°C to 70°C) (-10°C to 60°C with oxygen)
<b>Ambient temperature</b>	14°F to 122°F (-10°C to 50°C) higher temperatures on request
<b>Measuring accuracy (after 1 min. warm up time)</b>	± 0.8 % o. R. ± 0.3 % F. S.
<b>Repeatability</b>	±0.1% F.S.
<b>Settling time (MFC) / response (MFM) time (t<sub>95%</sub>)</b>	<300 ms
<b>Body material</b>	Aluminium or stainless steel
<b>Port connection</b>	NPT 1/4", G 1/4", compression fittings or sub-base, others on request
<b>Power supply</b>	24 V DC
<b>Voltage tolerance</b>	±10%
<b>Voltage tolerance</b>	±10%
<b>Power consumption<sup>1)</sup></b>	1-3 W (as MFM), Max. 3-12 W (as MFC, depending on type of solenoid control valve)

<sup>1)</sup> 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).

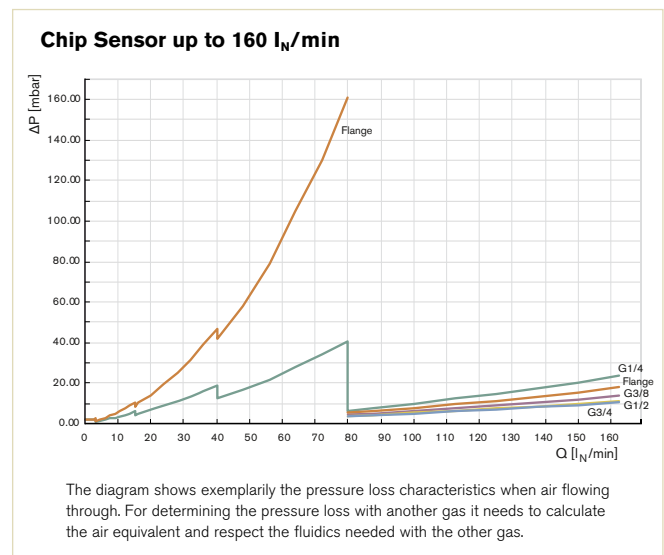
### Technical Data, continued (see datasheet for details)

Elektrischer Anschluss	8741 Standard	8741 bÜS / CANopen
<b>Industrial Ethernet</b>	PROFINET, Ethernet/IP, EtherCAT, Modbus-TCP via 2 x RJ45 (Switch) <sup>1)</sup>	-
<b>Fieldbus</b>	-	bÜS (CAN-based Bus) / CANopen via terminal block, 4 pin
<b>Analog</b>	4-20 mA, 0-20 mA, 0-10 V or 0-5 V via D-Sub9 <sup>2)</sup> or terminal block 6 pin	-
<b>Input impedance</b>	>20 kΩ (voltage), <300 Ω (current)	
<b>Max. current (voltage output) / Max. load (current output)</b>	10 mA 600 Ω	

<sup>1)</sup> Supply voltage via separate terminal block

<sup>2)</sup> The analog version with D-Sub9 features an additional digital input and a relay output

### Pressure Loss Diagram of a MFM (ref. to air)



### Measuring Principle

The actual flow rate is detected by a sensor. This operates according to a thermal principle which has the advantage of providing the mass flow which is independent on pressure and temperature.

# Mass Flow Controller (MFC)/Mass Flow Meter (MFM) for Gases

8742

**Nominal flow ranges from  
0.010 I<sub>N</sub>/min to 160 I<sub>N</sub>/min**

- High accuracy and repeatability
- Protection class IP65 and IP67
- Optional: ATEX II Kat. 3G/D
- Communication via fieldbus based on CANopen



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.

## Technical Data

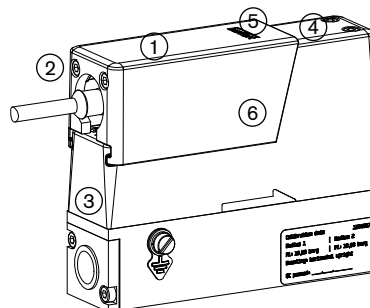
<b>Turn-down ratio</b>	50:1, optional 100:1
<b>Operating medium</b>	Neutral, non-contaminated gases, others on request
<b>Calibration medium</b>	Operating gas or air
<b>Max operating pressure</b>	145 PSI (10 bar), with MFCs the max. pressure depends on the orifice of the valve
<b>Medium temperature</b>	14°F to 158°F (-10°C to 70°C) (-10°C to 60°C with oxygen)
<b>Ambient temperature</b>	14°F to 122°F (-10°C to 50°C) (higher temperatures on request)
<b>Accuracy (after 1 min. warm up time)</b>	±0.8% o. R. ±0.3% F.S.
<b>Repeatability</b>	±0.1% F.S.
<b>Settling(MFC)/ response (MFM) time (t<sub>95%</sub>)</b>	<300 ms
<b>Body material</b>	Aluminium or stainless steel
<b>Port connection</b>	NPT 1/4", G 1/4", screw-in fitting or sub-base, others on request
<b>Electr. connection</b>	M12 plug, 5 pin
<b>Power supply</b>	24 V DC
<b>Voltage tolerance</b>	±10%
<b>Power consumption<sup>1)</sup></b>	1-3 W (as MFM), Max. 3-12 W (as MFC, depending on type of solenoid control valve)

<sup>1)</sup> 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).

## Features to fulfill the ATEX requirements

### Devices with ATEX conformity meet protection class IP65

- ① Impact protection cap prevents damage of the M12 plug and all connected elements if mechanical stress is applied. No particular ATEX sockets are required
- ② Screws prevent uncoupling of the M12 connection under tension
- ③ Diecast housing maintains IP protection under high mechanical stress



- ④ Standard requirements for cable glands are fulfilled for versions with external valve
- ⑤ LED display protected against mechanical stress
- ⑥ M12 plug achieves protection class IP65 and IP67 with and without mounted counterpart

## Nom. Flow Ranges of Typical Gases

(see datasheet for more)

Gas	Min. Q <sub>nom</sub> [I <sub>N</sub> /min]	Max. Q <sub>nom</sub> [I <sub>N</sub> /min]
Carbon dioxide	0.02	80
Air	0.01	160
Oxygen	0.01	160
Nitrogen	0.01	160
Hydrogen	0.01	1000

## Measuring Principle

The actual flow rate is detected by a sensor. This operates according to a thermal principle which has the advantage of providing the mass flow which is independent on pressure and temperature.

# Mass Flow Controller (MFC)/Mass Flow Meter (MFM) for Gases

8745

## Nominal flow ranges from 20 I<sub>N</sub>/min to 2500 I<sub>N</sub>/min

- High accuracy and repeatability
- Communication via standard signals or Industrial Ethernet
- 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. Available in two versions: with electromagnetic proportional valve and with motor-driven proportional valve.

### Technical Data

General data	
<b>Operating medium</b>	Neutral, non-contaminated gases, others on request
<b>Calibration medium</b>	Operating gas or air with correction function
<b>Medium temperature</b>	14°F <sup>1)</sup> to 158°F (-10°C to 70°C) (-10 °C <sup>1)</sup> to +60 °C with oxygen)
<b>Ambient temperature</b>	14°F to 122°F (-10°C to 50°C) higher temperatures on request
<b>Fluidics body materials</b>	Aluminium
<b>Seals materials</b>	FKM or EPDM (depending on gas) <sup>2)</sup>
<b>Port connection</b>	G or NPT 1/4", 3/8", 1/2", 3/4", 1" Sub-base
<b>Operating voltage</b>	24 V DC
<b>Voltage tolerance</b>	±10%
<b>Configuration memory</b> (included in delivery)	EEPROM (µSIM card: bÜS relevant data and information about spec. control loop in order to ease replacement)
Electrical connection	
<b>Industrial Ethernet</b>	PROFINET, Ethernet/IP, EtherCAT, Modbus-TCP via 2 x RJ45 (Switch) <sup>3)</sup>
<b>Analog</b>	4-20 mA, 0-20 mA, 0-10 V or 0-5 V via D-Sub 9 <sup>4)</sup> or terminal block
Input impedance	>20 kΩ (voltage), <300 Ω (current)
Max. current (voltage output)	10 mA
Max. load (current output)	600 Ω

**Type 8745 with solenoid proportional valve:** Type 8745 can be configured as MFM or MFC. For MFCs the direct-acting proportional valves of Types 287x are used. These solenoid proportional valves are normally closed and stand for highest accuracy and repeatability with settling/response times of a few hundred milliseconds.

**Type 8745 with motor-driven proportional valve:** The Type 8745 with motor-driven valves is especially designed for applications with high inlet pressures. The motor's power consumption to hold a specific opening position is nearly zero. This key feature can reduce the energy consumption of a plant dramatically. Without electrical power the valve remains in its current position. The maximum duty cycle of the motor depends on the ambient temperature. The duty cycle does not refer to the duty cycle of the device but to the duty cycle of the motor.

<sup>1)</sup> When using a motor valve the minimum medium temperature is 0 °C.

<sup>2)</sup> When using a motor valve additionally:

- Type 3280 DN4: Seat seal in PEEK

- Type 3285: Seat seal in Al<sub>2</sub>O<sub>3</sub>

<sup>3)</sup> Supply voltage via separate terminal block.

<sup>4)</sup> The analog version with D-Sub9 features an additional digital input and a relay output.

### Technical Data Continued (see datasheet for details)

Type 8745	With solenoid proportional valve	With motor-driven proportional valve
<b>Turndown ratio</b>		50:1 <sup>1)</sup>
<b>Max. operating pressure</b> 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	22 bar (with MFCs the max. pressure depends on the orifice of the valve)
<b>Accuracy</b> (after 15 min. warm up time)	±1.5 % o.R. ±0.3 % F.S.	±2 % o.R. ±0.5 % F.S.
<b>Repeatability</b>	±0.1 % F.S.	±0.5 % F.S.
<b>Settling/Response time (t<sub>95</sub> %)</b>	<500 ms	<5 sec.
<b>Proportional valve</b>	(solenoid) normally closed, valve orifice range: 0.8...12mm, Kvs value range: 0.02...2.5m <sup>3</sup> /h	(motor-driven) normally persisten, valve orifice range: 2...20mm, Kvs value range: 0.5...7.8m <sup>3</sup> /h

<sup>1)</sup> With vertical installation and flow downwards the turndown ratio is 10:1

# Mass Flow Controller (MFC)/Mass Flow Meter (MFM) for Gases

## Nominal flow ranges from 20 I<sub>N</sub>/min to 2500 I<sub>N</sub>/min

- High accuracy and repeatability
- Communication via fieldbus based on CANopen
- Optional: ATEX II Cat. 3G/D
- Electromagnetic and motor-driven valve actuation available



For a pure and flawless melt: The MFC 8746 mass flow controller is designed with a motor valve for regulation of pressures up to 20 bar and reliable operation even under the most stringent conditions. To ensure higher process reliability in the gas supply the valve can be regulated at full differential pressure. And the self-locking drive ensures that the motor valve is not affected by pressure fluctuations. In addition, the MFC 8746 features the latest digital technology – with the integrated bus interface, it is ready for Industry 4.0.

### Technical Data

General data	
<b>Operating medium</b>	Neutral, non-contaminated gases, others on request
<b>Calibration medium</b>	Operating gas or air with correction function
<b>Medium temperature</b>	14°F <sup>1)</sup> to 158°F (-10°C to 70°C) (-10 °C <sup>1)</sup> to +60 °C with oxygen)
<b>Ambient temperature</b>	14°F to 122°F (-10°C to 50°C) higher temperatures on request
Materials	
Body	Stainless steel or aluminium
Housing	Aluminum diecasting (coated)
Seals	FKM or EPDM (depending on the gas) <sup>2)</sup>
<b>Port connection</b>	G or NPT 1/4", 3/8", 1/2", 3/4", 1" Sub-base
<b>Electr. connection</b>	M12 plug, 5 pin
<b>Operating voltage</b>	24 V DC
<b>Voltage tolerance</b>	±10%
<b>Digital Comm.</b>	CANopen or CAN based bÜS
<b>Input-/Output signals</b>	None, communication via bus

<sup>1)</sup> When using a motor valve the minimum medium temperature is 0 °C.

<sup>2)</sup> When using a motor valve additionally:

- Type 3280 DN4: Seat seal in PEEK

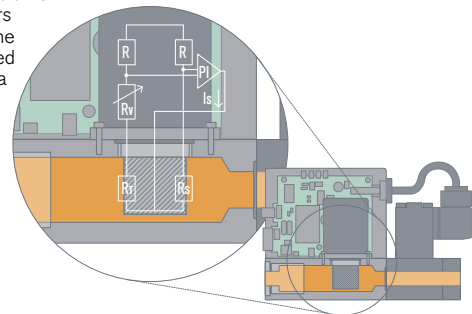
- Type 3285: Seat seal in Al<sub>2</sub>O<sub>3</sub>

**Type 8746 with electromagnetic proportional valve:** Type 8746 can be configured as MFM or MFC. For MFCs the direct-acting proportional valves of Types 287x are used. These solenoid proportional valves are normally closed and stand for highest accuracy and repeatability with settling/response times of a few hundred milliseconds.

**Type 8746 with motor-driven proportional valve:** The Type 8746 with motor-driven valves is especially designed for applications with high inlet pressures up to 22 bars or high flow rates (at a low pressure drop). The motor's power consumption to hold a specific opening position is nearly zero. This key feature can reduce the energy consumption of a plant dramatically. Without electrical power the valve remains in its current position. The maximum duty cycle of the motor depends on the ambient temperature. The duty cycle does not refer to the duty cycle of the device but to the duty cycle of the motor. The motor is not switched on unless the valve is to move. Frequent set-point value changes will drastically increase the duty cycle of the motor.

### Measuring Principle

This sensor works as a hot-film anemometer in the so-called CTA operational mode (Constant Temperature Anemometer). To do this, two resistors with precisely specified temperature coefficients located directly in the media flow and three resistors located outside the flow are connected together to form a bridge.



### Technical Data Continued (see datasheet for details)

Type 8746	With electromagnetic proportional valve	With motor-driven proportional valve
<b>Turndown ratio</b>		50:1 <sup>1)</sup>
<b>Max. operating pressure</b> 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	22 bar (with MFCs the max. pressure depends on the orifice of the valve)
<b>Accuracy</b> (after 15 min. warm up time)	±1.5 % o.R. ±0.3 % F.S.	±2 % o.R. ±0.5 % F.S.
<b>Repeatability</b>	±0.1 % F.S.	±0.5 % F.S.
<b>Settling/Response time (t95 %)</b>	<500 ms	<5 sec.
<b>Proportional valve</b>	(electromagnetic) normally closed, valve orifice range: 0.8...12mm, Kvs value range: 0.02...2.5m³/h	(motor-driven) normally persisting, valve orifice range: 2...20mm, Kvs value range: 0.5...7.8m³/h

<sup>1)</sup> With vertical installation and flow downwards the turndown ratio is 10:1



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