

2/2 way Bellow Control Valve



- For neutral and aggressive media
- Media separation by PTFE bellow
- Hygienic design

The Type 2380 consists of the bellow valve and one of the controllers below:



Type 8696 Positioner Basic



Positioner Basic



Type 8692 Positioner



Type 8693 Positioner and Process Controller



as system (e.g.) Customized block variant

The bellow control valve is a pneumatically operated process valve with a single-acting diaphragm actuator.

A PTFE bellow ensures the separation between medium and actuator.

The materials used and the design of the media space allow the use under hygienic or aggressive conditions. It has a good cleanability. The combination with a controller (Type 869x) and the control cone integrated into the bellow enable the valve to handle demanding control tasks.

The space-saving actuator with low internal volume not only results in a very compact size but also in remarkably low response times. The valve is characterized by a good control performance due to the low-friction design and has a linear characteristic.

A certain variety of body and block system solutions are deliverable.

Main fields of application:

- Food & Beverage industry
- Pharmaceutical & Biopharmaceutical industry
- Cosmetic industry

Technical Data	
K _{vs} values	0.4 to 2 m ³ /h
Orifice	DN3 to DN10
Port connections (for media) Thread Weld ends	• G (DIN EN ISO 228-1) • DIN 11850 Series 0, DIN 11866 S. A / DIN 11850 S. 2, DIN 11866 S. B / DIN ISO 4200, DIN 11866 S. C / ASME BPE • on request
Media	gases and liquids (ultrapure, sterile, dirty, aggressive, abrasive or even highly viscous), steam (for sterilization)
Media temperature	0 to +80 °C (-10 °C to +150 °C at limited operating conditions¹))
Media pressure	vacuum to 6 bar ²⁾
Ambient temperature	-10 to +55 °C
Seat leakage	< 0.01 % of full open valve capacity (ANSI class IV)
Control media pilot pressure pilot ports	air acc. to DIN ISO 8573-1 or neutral gases • 5.5 to 7 $\rm bar^{2)}$ • threaded ports (G $1/6$)
Materials, media contacting valve body bellow surface quality for threaded ports surface quality for weld-end and clamp connections	 stainless steel 316L ASME BPE (1.4435 BN2) advanced PTFE Ra 1.6 μm Ra 0.6 μm (mechanically polished) or Ra 0.4 μm (electropolished)
Materials, not media contact. • actuator • positioner (controller) • sealing	• 304 (1.4301) or CF-8 (1.4308) • PPS, stainless steel • EPDM, FKM

up to +134 °C: max. 4 bar up to +134 °C: max. 60 min, ambient temperature max. +40 °C, up to +150 °C: max. 30 min, ambient temperature max. +35 °C 2) all pressure values are listed as **overpressure** relating to atmospheric pressure in bar

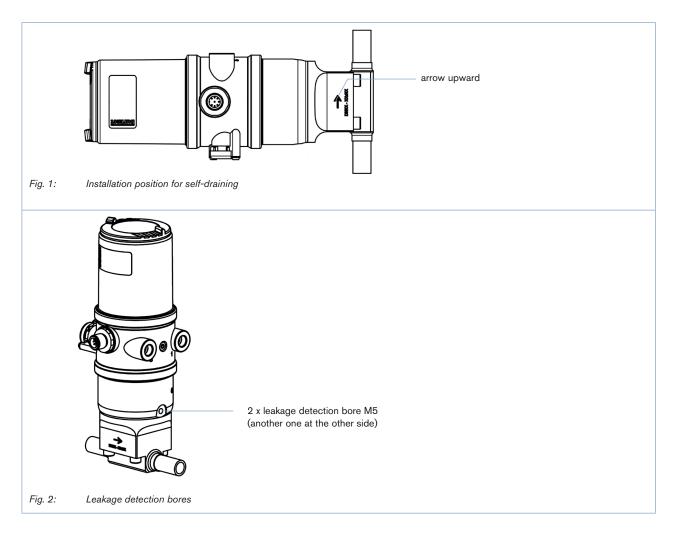


Technical Data (continued)	
Electrical Data / Settings	defined by the Type 869x used
Electrical connections	multipole connector cable gland (in dependence of the Type 869x used)
Electrical signals / communication	analogue standard signals bus communication (AS-i, DeviceNet, Profibus-DP) (in dependence of the Type 869x used)
Reaction / switching time	typical regulating time < 1 sec.
Protection class	IP65/67 acc. to EN 60529
Installation for self-draining	see Fig. 1 below
Certifications / approvals	CE acc. to EC Declaration of Conformity (2014/30/EU EMC) FDA EC Regulation No 1935/2004 USP class VI – 121 °C ATEX II Kat. 3 G/D (on request)

Controllers Type 869x that can be used with the bellow valve:

Туре	Function	Communication	Display
8696	positioner	analogue	LEDs
8694	positioner	analogue or bus (AS-i)	LEDs
8692	positioner	analogue or bus (Profibus / DVN)	graphic display
8693	positioner and process controller	analogue or bus (Profibus / DVN)	graphic display

For more details see datasheets (DS) and user manuals (MA) of Type 869x on our homepage: www.burkert.com



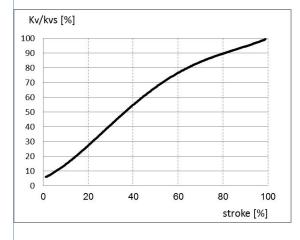
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Control functions



Flow characteristics and K_{ν} values [m³/h]

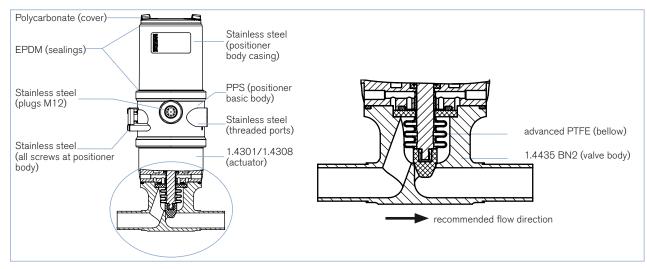
Port : (tub		Orifice						Stroke [%	b]				
[mm]	ASME size	[mm]	5	10	20	30	40	50	60	70	80	90	100 (K _{vs})
6.35 × 0.89	1/4"	DN3	0.08	0.11	0.15	0.23	0.29	0.32	0.36	0.37	0.38	0.39	0.41
6.35 × 0.89	1/4"	DN4	0.11	0.14	0.23	0.27	0.3	0.34	0.39	0.43	0.45	0.47	0.49
8.0 × 1.0	-	DN6	0.12	0.22	0.41	0.5	0.61	0.69	0.77	0.84	0.9	0.93	0.95
12.7 × 1.65	1/2"	DN6	0.07	0.16	0.28	0.40	0.51	0.61	0.75	0.88	1.02	1.12	1.19
12.7 × 1.65	1/2"	DN8	0.25	0.35	0.63	0.91	1.1	1.22	1.36	1.44	1.52	1.57	1.64
12.7 × 1.65	1/2"	DN10	0.18	0.29	0.54	0.83	1.04	1.25	1.39	1.5	1.6	1.66	1.74
19.0 × 1.5	-	DN10	0.18	0.29	0.52	0.76	0.99	1.31	1.5	1.64	1.74	1.83	1.97



Remarks on the flow characteristic

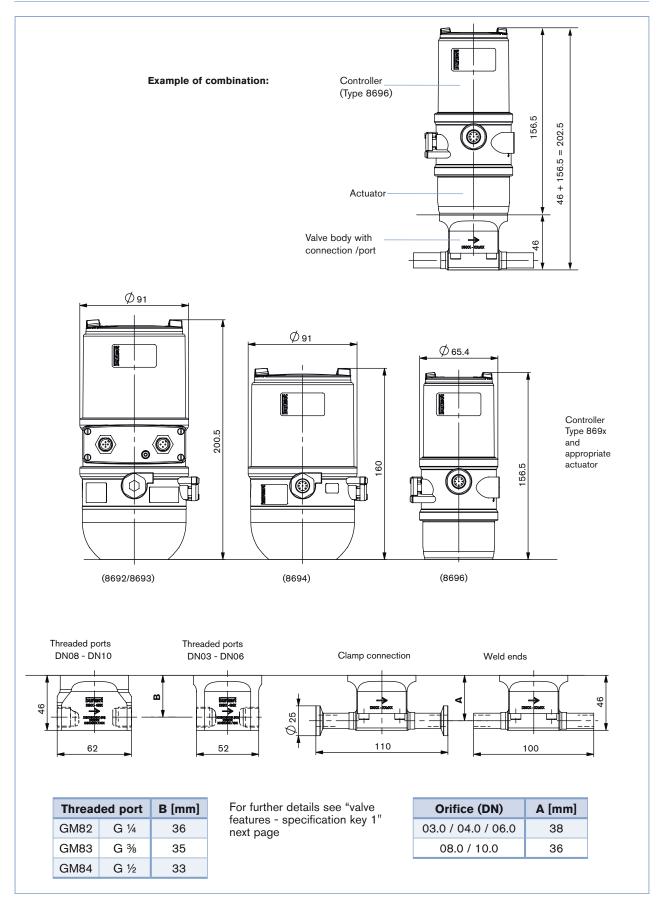
Theoretical control ratio (K_{VS}/K_{V}) : 40 : 1 for the orifices DN8 to DN10 20 : 1 for the orifices DN6 10 : 1 for the orifices DN3 to DN4

Materials



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Dimensions [mm] (for several combinations of control type and actuator + valve body)





Bellow control valve Type 2380 - possible combinations

The bellow control valve Type 2380 is a combination of a bellow valve and a controller Type 869x.

The range of control unit consists of:

- a digital electropneumatic Positioner Basic Type 8696
- a digital electropneumatic Positioner Basic Type 8694
- a digital electropneumatic Positioner Type 8692
- a digital electropneumatic Positioner/Process Controller Type 8693.

For the configuration of the bellow control valve Type 2380 please fill in the tables "Specification key 1 and 2" on pages 8 and 9 (90 to page) as well as the "Request for quotation" on page 10.





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Bellow control valve Type 2380 - further information about TopControl Type 869x

Positioner TopControl Basic Type 8696





The compact positioner Type 8696 is designed for integrated mounting on pneumatic actuators from the process control valve series Type 23xx/2103 and specifically for the requirements of hygienic process environments. The operation and parameterisation are done via push buttons and DIP switches. Device configuration and parameterisation can be carried out easily by the Bürkert-COMMUNICATOR software tool via a PC interface.

Features:

- Hygienic stainless steel design according to EHEDG guidelines
- · Contact and wearless analogue position sensor
- Universal positioning system for single and double-acting actuators

Customer Benefits:

- Simple design
- Simple and safe start-up by teach function
- High plant availability through increased drive life by spring chamber ventilation
- Little space requirement in the plant piping

Positioner TopControl Basic Type 8694







The compact positioner Type 8694 is designed for integrated mounting on pneumatic actuators from the process control valve series Type 23xx/2103 and specifically for the requirements of hygienic process environments. The operation and parameterisation are done via push buttons and DIP switches. Device configuration and parameterisation can be carried out easily by the Bürkert-COMMUNICATOR software tool via a PC interface.

Features:

- Hygienic stainless steel design according to EHEDG guidelines
- · Contact and wearless analogue position sensor
- Universal positioning system for single and double-acting actuators
- AS-Interface Field bus communication

Customer Benefits:

- Simple design
- Simple and safe start-up by teach function
- High plant availability through increased drive life by spring chamber ventilation
- Little space requirement in the plant piping

Positioner TopControl Type 8692





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Device**Net**™

The intelligent electro-pneumatic positioner Type 8692 is designed for integrated mounting on pneumatic actuators from the process control valve series Type 23xx/2103 and specifically for the requirements of hygienic process environments. The initialisation of the positionners can be automatically performed using Tune-Functions. The easy handling and the selection of additional software functions and parameterisation are done either on a big graphic display and keypad. Device configuration and parameterisation can be carried out easily by the Bürkert-COMMUNICATOR software tool via a PC interface.

Features:

- Hygienic stainless steel design according to EHEDG guidelines
- Contact and wearless analogue position sensor
- Universal positioning system for single and double-acting actuators
- Highly dynamic positioning system without internal control air consumption
- Integrated diagnostic functions for valve monitoring
- Ensuring failure of the electrical or pneumatic power supply
- Profibus DPV1 or DeviceNet Field bus communication (optional)

Customer Benefits:

- Intuitive and easy operation via the large graphic display with backlight and keypad
- Automatic initialisation of positioners and process controllers using TUNE function
- High plant availability through increased drive life by spring chamber ventilation
- Guaranteed reliability and services can be scheduled through valve monitoring and diagnosis

Positioner & Process Controller TopControl Type 8693





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Device**Net**™

The intelligent process controller Type 8693 is designed for integrated mounting on pneumatic actuators from the process control valve series Type 23xx/2103 and specifically for the requirements of hygienic process environments. The initialisation of the process controller and positionners can be automatically performed using Tune-Functions. The easy handling and the selection of additional software functions and parameterisation are done either on a big graphic display and keypad. Device configuration and parameterisation can be carried out easily by the Bürkert-COMMUNICATOR software tool via a PC interface.

Features:

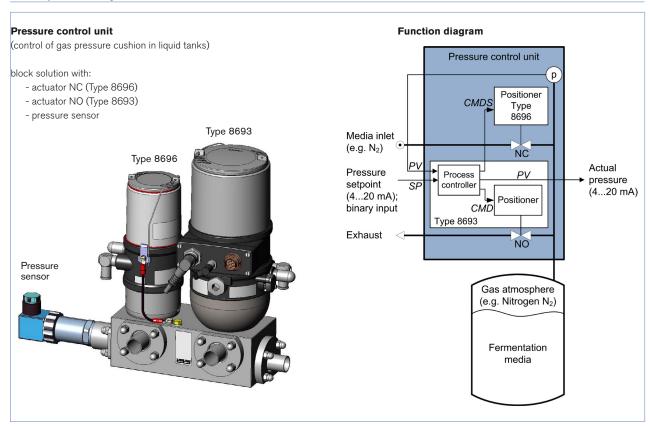
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Customer Benefits:

- Intuitive and easy operation via the large graphic display with backlight and keypad
- Automatic initialisation of positioners and process controllers using TUNE function
- High plant availability through increased drive life by spring chamber ventilation
- Guaranteed reliability and services can be scheduled through valve monitoring and diagnosis
- Outstanding price/performance ratio

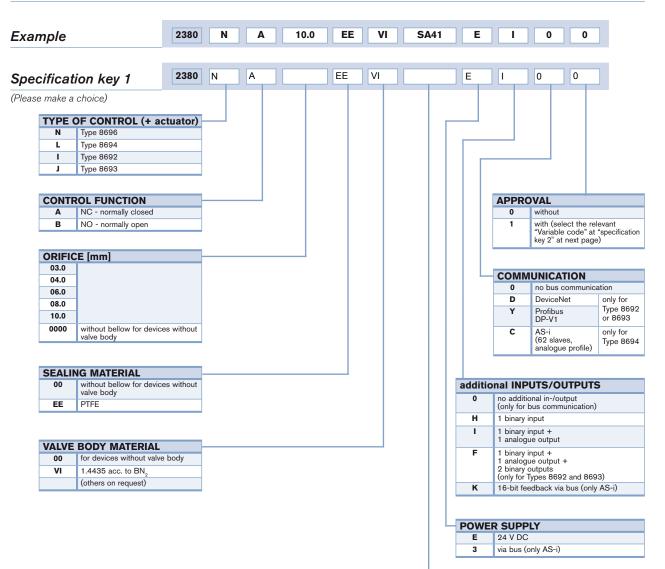


Example of a system solution



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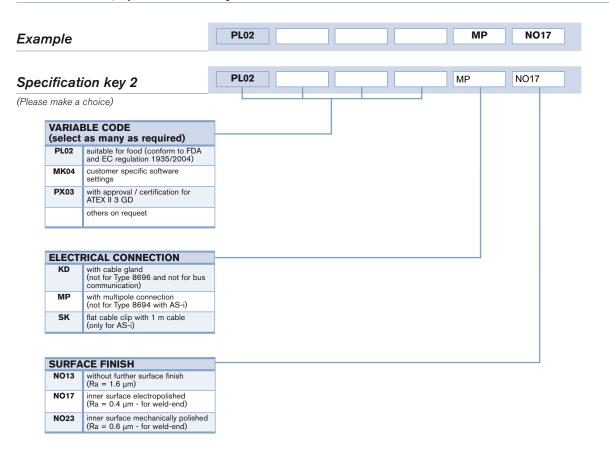
Valve features, specification key 1



	THREADED PORTS		PORT CONNI	ECTION WELD END	
Orifice	DIN ISO 228-1	DIN 11850 S. 0	DIN 11866 S. A / DIN 11850 S. 2	DIN 11866 S. B / ISO 4200	DIN 11866 S. C / ASME BPE
DN3	GM82 (G 1/4)	SC40 6.0 × 1.0			SA90 1/4" (6.35 × 0.89)
DN4	GM82 (G 1/4)	SC40 6.0 × 1.0			SA90 1/4" (6.35 × 0.89)
DN6	GM83 (G %)	SC41 8.0 × 1.0		SA78 10.2 × 1.6	SA91 %" (9.53 × 0.89)
DN8	GM83 (G %)	SC42 10.0 × 1.0	SD40 13.0 × 1.5	SA40 13.5 × 1.6	SA92 ½" (12.7 × 1.65)
	GM84 (G ½)		SD42 19.0 × 1.5	SA41 17.2 × 1.6	SA93 ¾" (19.05 × 1.65)
DN10	GM83 (G %)		SD40 13.0 × 1.5	SA40 13.5 × 1.6	SA92 1/2" (12.7 × 1.65)
	GM84 (G ½)		SD42 19.0 × 1.5	SA41 17.2 × 1.6	SA93 ¾" (19.05 × 1.65)
		other connect	00 - code for devices without vions (e.g. clamp connection) /	alve body; port sizes on request	



Valve features, specification key 2



Spare part sets / order number

Orifice	Article no. of
	spare part set
DN3	796530 📜
DN4	796531 📜
DN6	796532 📜
DN8	796533 📜
DN10	796534 📜

Each set contains:

1 x O-ring 20 × 2.5

1 x O-ring 52 × 2

1 x bellow DNx



Bellow control valve - request for quotation

Please fill out this form and send to your local Bürkert Sales Centre with your inquiry or order

You can fill out the fields directly in the PDF file before printing out the form.

Company Customer no. Address Town / Postcode = Mandatory fields Process / operating data	Quantity	Contact person Dept. Tel./Fax E-Mail	Desired date of delivery (YYYY-N	
Address Town / Postcode = Mandatory fields	Quantity	Tel./Fax	Desired date of delivery (YYYY-N	
Town / Postcode = Mandatory fields	Quantity		Desired date of delivery (YYYY-N	
= Mandatory fields	Quantity	Е-тиан	Desired date of delivery (YYYY-N	
·	Quantity		Desired date of delivery (YYYY-N	
·				MM-DD)
Process / operating data				
Type of process medium	Liquid	Gas	Steam (only for sterilisation)	
Process medium	4		, , , , , , , , , , , , , , , , , , , ,	
Flow rate (O. Ov. M/) 1)	min.	standard	max.	unit
Flow rate (Q, Q _N , W) ¹⁾				
Temperature at valve inlet				
Pressure ²⁾ at valve inlet P1				
Pressure ²⁾ at valve outlet P2				
Steam pressure Pv				
Kinematic viscosity (v)		mm²/s or cSt		
Dynamic viscosity (η)		mPa⋅s or cP		
Standard density		Ī.		
1) Standard unit: Liquid $Q = m^3/h$ Gas $Q_N = 1$ 2) Note: state all pressure values as overpressu		kg/m³ in bar		
1) Standard unit: Liquid Q = m³/h Gas QN = 1 2) Note: state all pressure values as overpressu Valve features				
2) Note: state all pressure values as overpressure Valve features		in bar	VI E I	0 0
2) Note: state all pressure values as overpressi	ure relating to atmospheric pressure	in bar	VI E I	0 0
2) Note: state all pressure values as overpressive Valve features Specification key 1 'automatically transfered from page 8)	ure relating to atmospheric pressure	in bar	VI E I	0 0
2) Note: state all pressure values as overpressive Valve features Specification key 1 Sustaination from page 8) Specification key 2	ure relating to atmospheric pressure	in bar		0 0
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2) Note: state all pressure values as overpressive Valve features Specification key 1 automatically transfered from page 8) Specification key 2 automatically transfered from page 9)	ure relating to atmospheric pressure	in bar		0 0
2) Note: state all pressure values as overpressive Valve features Specification key 1 'automatically transfered from page 8)	2380 N A	in bar		0 0
2) Note: state all pressure values as overpressive Valve features Specification key 1 Yautomatically transfered from page 8) Specification key 2 Yautomatically transfered from page 9) Certifications, required	2380 N A	in bar	MP NO17	0 0
2) Note: state all pressure values as overpressive Valve features Specification key 1 Yautomatically transferred from page 8) Specification key 2 Yautomatically transferred from page 9) Certifications, required X CE acc. to EC Declaration of Con	2380 N A	EE X USP class	MP NO17	0 0