



1) me

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

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<sub>s</sub> values	0.4 to 2 m <sup>3</sup> /h
ifice	DN3 to DN10
ort connections (for media) Thread Weld ends Clamp	<ul> <li>G (DIN EN ISO 228-1)</li> <li>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</li> <li>on request</li> </ul>
edia	gases and liquids (ultrapure, sterile, dirty, aggressive, abrasive or even highly viscous), steam (for sterilization)
edia temperature	0 to + 80 °C (- 10 °C to + 150 °C at limited operating conditions <sup>1)</sup> )
edia pressure	vacuum to 6 bar <sup>2)</sup>
nbient temperature	-10 to +55 °C
eat leakage	< 0.01 % of full open valve capacity (ANSI class IV)
pilot pressure pilot ports	air acc. to DIN ISO 8573-1 or neutral gases • 5.5 to 7 bar <sup>2)</sup> • threaded ports (G 1⁄%)
aterials, media contacting valve body bellow surface quality for threaded ports surface quality for weld-end and clamp connections	<ul> <li>stainless steel 316L ASME BPE (1.4435 BN2)</li> <li>advanced PTFE</li> <li>Ra 1.6 μm</li> <li>Ra 0.6 μm (mechanically polished) or Ra 0.4 μm (electropolished)</li> </ul>
aterials, not media contact. actuator positioner (controller) sealing	• 304 (1.4301) or CF-8 (1.4308) • PPS, stainless steel • EPDM, FKM
edia pressure max. 4 bar	

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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





# **Control functions**



in resting postion by spring force



**B:** 2/2 way valve, normally open (NO) in resting postion by spring force

# Flow characteristics and K<sub>v</sub> values [m<sup>3</sup>/h]

Port s (tub		Orifice		Stroke [%]									
[mm]	ASME size	[mm]	5	10	20	30	40	50	60	70	80	90	100 (K <sub>vs</sub> )
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



# 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 (go to page)

as well as the "Request for quotation" on page 10. go to page



### 2380 Bellow Control Valve



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



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 Type 8692



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 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 & Process Controller TopControl Type 8693





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:

- 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
- Outstanding price/performance ratio

### 2380 Bellow Control Valve



### Example of a system solution





# Valve features, specification key 1

mple		2380	Ν	Α	10.0	EE	VI	SA41	E	I	0 0	
mpic												
		2380	N	A	] [	EE	VI	1		1.	0 0	
ecificat	tion key 1	2380	Ν	A			VI		E		0 0	
se make a	a choice)	_										
TYPE	OF CONTROL (+ a	atuatar)										
N	Type 8696	cluator)										
L	Туре 8694											
I	Type 8692											
J	Туре 8693											
CONT	ROL FUNCTION									APPR	OVAL	
A	NC - normally closed									0	without	
в	NO - normally open									1	with (select the re	levant
											"Variable code" at key 2" at next pag	: "specifica e)
ODIE	CE [mm]											-,
03.0												
04.0	-									COM	MUNICATION	
06.0										0	no bus communic	
08.0										D	DeviceNet	only for Type 86
10.0										Y	Profibus DP-V1	or 8693
0000	without bellow for device	ces without								С	AS-i	only for
	valve body										(62 slaves, analogue profile)	Type 86
SEALI	NG MATERIAL											
00	without bellow for device	ces without							additi	onal IN	PUTS/OUTPUT	S
EE	valve body PTFE								0	no addi	tional in-/output	、 、
	1.112								н	1 binar	r bus communication	)
										-	/ input +	
VALVE										1 analo	gue output	
	for devices without valve								F	1 binar	/ input +	
VI	1.4435 acc. to BN									2 binar	gue output + / outputs	
	(others on request)									(only fo	r Types 8692 and 869	
									к	16-bit f	eedback via bus (onl	y AS-i)
									POW		DIY	
									POWE	<b>ER SUP</b> 24 V D		

	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 ¼)	<b>SC40</b> 6.0 × 1.0			<b>SA90</b> ¼" (6.35 × 0.89)				
DN4	GM82 (G ¼)	<b>SC40</b> 6.0 × 1.0			<b>SA90</b> ¼" (6.35 × 0.89)				
DN6	GM83 (G ¾)	SC41 8.0 × 1.0		SA78 10.2 × 1.6	<b>SA91</b> %" (9.53 × 0.89)				
DN8	GM83 (G %)	SC42 10.0 × 1.0	<b>SD40</b> 13.0 × 1.5	SA40 13.5 × 1.6	<b>SA92</b> 1⁄2" (12.7 × 1.65)				
	GM84 (G ½)		<b>SD42</b> 19.0 × 1.5	SA41 17.2 × 1.6	<b>SA93</b> ¾" (19.05 × 1.65)				
DN10	GM83 (G %)		<b>SD40</b> 13.0 × 1.5	<b>SA40</b> 13.5 × 1.6	<b>SA92 ½</b> " (12.7 × 1.65)				
	<b>GM84</b> (G ½)		<b>SD42</b> 19.0 × 1.5	SA41 17.2 × 1.6	<b>SA93</b> ¾" (19.05 × 1.65)				
		0000 - code for devices without valve body; other connections (e.g. clamp connection) / port sizes on request							

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### Valve features, specification key 2

mple		PL02			MP	NO	17
ecificat	ion key 2	PL02			MP	NO17	
se make a	choice)						
	BLE CODE as many as required)						
PL02	suitable for food (conform to FDA and EC regulation 1935/2004)						
<b>MK</b> 04	customer specific software settings						
PX03	with approval / certification for ATEX II 3 GD						
	others on request	1					
KD	RICAL CONNECTION with cable gland (not for Type 8696 and not for bus communication)		 	 			
MP	with multipole connection (not for Type 8694 with AS-i)						
SK	flat cable clip with 1 m cable (only for AS-i)						
SK	flat cable clip with 1 m cable						
NO13	without further surface finish $(Ra = 1.6 \mu m)$						
NO17	inner surface electropolished (Ra = 0.4 $\mu$ m - for weld-end)						
NO23	inner surface mechanically polished (Ra = $0.6 \ \mu m$ - for weld-end)						

## 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

### 2380 Bellow Control Valve

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

Bellow control valve - rec	quest for quotation	l		in the PE before P
Please fill out this form and s	end to your local Bür	kert Sales Centre wi	th your inquiry or order	out the f
Company		Contact person		
Customer no.		Dept.		
Address		Tel./Fax		
Town / Postcode		E-Mail		
= Mandatory fields	Quantity		Desired date of delivery (YYYY	-MM-DD)
Process / operating data				
Type of process medium	Liquid	Gas	Steam (only for sterilisation)	
Process medium				
	min.	standard	max.	unit
Flow rate (Q, Q <sub>N</sub> , W) <sup>1)</sup>				
Temperature at valve inlet				
Pressure <sup>2)</sup> at valve inlet P1				
Pressure <sup>2)</sup> at valve outlet P2				
Steam pressure Pv				
Kinematic viscosity (v)		mm²/s or cSt		
Dynamic viscosity (η)		mPa⋅s or cP		
Standard density		kg/m³		
1) Standard unit: Liquid Q = m <sup>3</sup> /h   Gas Q <sub>N</sub> = 1 2) Note: state all pressure values as overpressu Valve features		n bar		
Specification key 1	<b>2380</b> N A	EE V	1 E I	0 0
(automatically transfered from page 8)				
automatically transfered from page 8)				
Specification key 2	PL02		MP NO17	

(automatically transfered from page 9)

С	Certifications, required									
Х	CE acc. to EC Declaration of Conformity (2014/30/EU EMC)	X	USP class VI – 121 °C							
Х	FDA		ATEX II Kat. 3 G/D							
Х	Regulation (EC) No 1935/2004									

Remarks / comments:		
i Further versions on reques	t	Reset Form
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