



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

- For mixing or distributing of mediums
- Decentralized automation with control head
- Flow optimized body in stainless steel
- Long service life and maintenance-free operation
- Control Head is connected w/o external tubing

Product variants described in the data sheet may differ from the product presentation and description.

Can be combined with

	Type 8695 ▶ Control head for de-centralised automation of ELEMENT process valves
	Type 8691 ▶ Control head for de-centralised automation of ELEMENT process valves
	Type 8690 ▶ Pneumatic control for decentralised automation of ELEMENT process valves
	Type 8697 ▶ Pneumatic control for decentralised automation of ELEMENT process valves
	Type 8801 ▶ ELEMENT On/Off Valve Systems with decentralized automation - overview
	Type 8840 ▶ Modular process valve cluster - distribution and collecting

Type description

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

Table of contents

1. General technical data	3
2. Circuit functions	4
2.1. Control function	4
2.2. Port configuration for fluidic circuit functions C, D, E and F	4
3. Approvals	5
4. Materials	6
4.1. Chemical Resistance Chart – Bürkert resistApp	6
4.2. Material specifications	6
5. Dimensions	7
5.1. Dimensions	7
6. Performance specifications	8
6.1. Pilot pressure diagram	8
7. Product accessories	9
8. Networking and combination with other Bürkert products	10
9. Ordering information	11
9.1. Bürkert eShop – Easy ordering and quick delivery	11
9.2. Bürkert product filter	11
9.3. Ordering chart	12

1. General technical data

Product properties	
Dimensions	Detailed information can be found in chapter "5. Dimensions" on page 7.
Material	
Body	Cast stainless steel 316L
Actuator	PPS
Seal	PTFE
Cover	Stainless steel 1.4561 (316Ti)
Spindle packing	PTFE seal with spring compensation
Nominal diameter	DN 15...DN 50
Performance data	
Nominal pressure	PN 16 (body)
Pilot pressure	Max. 10 bar; actuator size 130 mm, 7 bar
Medium data	
Medium	Water, alcohols, oils, fuels, hydraulic fluid, salt solutions, alkalis, organic solvents, steam
Medium temperature	-10...+185 °C
Viscosity	Max. 600 mm ² /s
Control medium	Neutral gases, air
Process/Port connection & communication	
Port connection	
Threaded connection	G (EN ISO 228 - 1) NPT (ANSI B 1.20.1) (Rc on request)
Pilot air port	Push-in connector (external Ø 6 mm or ¼") or thread G ⅛" (on request)
Approvals and certificates	
Conformity	Food contact 1935/2004(EG), FDA Drinking water Pressure equipment directive Gas Appliances Regulation Machinery Directive, see
Explosion proof	Explosion proof ATEX / IECex, see "3. Approvals" on page 5
Material certificate	2.2, 3.1
Environment and installation	
Ambient temperature	-10...+60 °C (integrated control unit) -10...+100 °C (push-in air ports)
Installation position	As required, preferably with actuator in upright position

2. Circuit functions

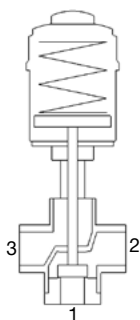
2.1. Control function

Control function	Description
	CF: C, Pneumatically actuated process valve 3/2 way When de-energised, pressure port 1 closed, service port 2 exhausted
	CF: D, Pneumatically actuated process valve 3/2 way When de-energised, pressure port 3 connected to service port 2, exhaust port 1 closed
	CF: E, Pneumatically actuated mixer valve 3/2 way When de-energised, pressure port 3 connected to service port 2, pressure port 1 closed
	CF: F, Pneumatically actuated distributor valve 3/2 way When de-energised, pressure port 2 connected to service port 3 service port 1 closed

2.2. Port configuration for fluidic circuit functions C, D, E and F

Note:








- Actuator with control function A
- When de-energised port connection 1 is closed with spring



Fluidic circuit function	Connection - port		
	1	2	3
C	P	A	R
D	R	A	P
E	P1	A	P2
F	A	P	B

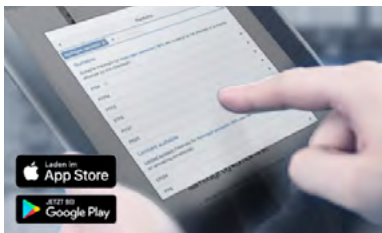
A, B Service ports
 P, P1, P2 Pressure ports
 R Exhaust port

3. Approvals

Approvals	Description
FDA 	Food contact Materials in contact with the medium conform to EC Regulation 1935/2004 Materials in contact with the medium conform to FDA (option)
	Drinking water Suitable for use with drinking water for medium temperatures up to 85 °C in accordance with the Drinking Water Ordinance §17 and the assessment principles of the Federal Environment Agency (option).
	Oxygen Suitable for use with gaseous oxygen with medium temperature up to 60 °C and operating pressure up to 20 bar(g) (option)
 	Explosion proof As category 2 device suitable for zone 1/21 and zone 2/22 (option) ATEX: II 2G Ex h IIC T4 Gb II 2D Ex h IIIC T135 °C Db IECEX: Ex h IIC T4 Gb Ex h IIIC T135 °C Db
	Fuel gases Approval according to the European Gas Appliance Regulation (EU) 2016/426, DVGW DIN EN 161 and DIN EN 16678, Class A or Class D, suitable for medium temperature 0...60 °C, ambient temperature -10...100 °C and operating pressure 0...16 bar(g) (option)
	Safety requirements Evaluation of functional safety according to IEC 61508 (on request)

4. Materials

4.1. Chemical Resistance Chart – Bürkert resistApp



Bürkert resistApp – Chemical Resistance Chart

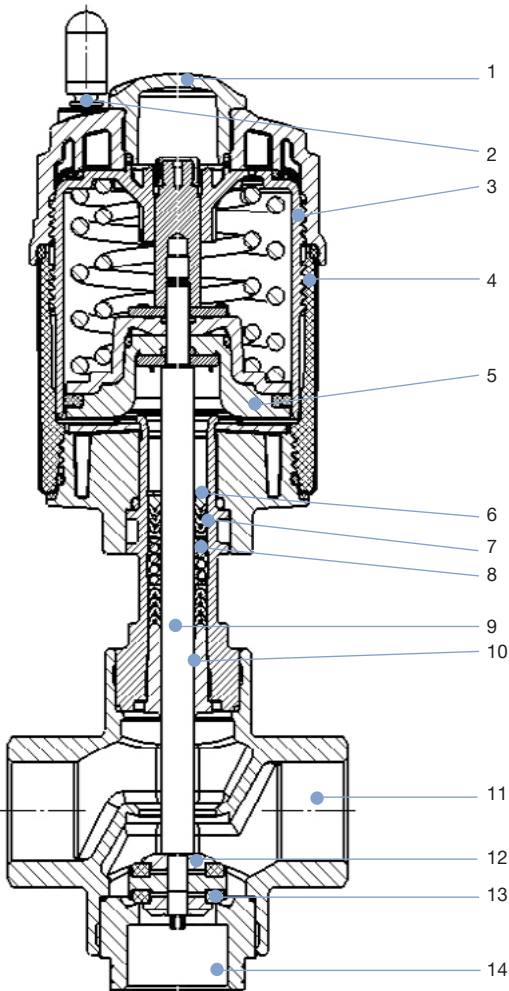
You want to ensure the reliability and durability of the materials in your individual application case? Verify your combination of media and materials on our website or in our resistApp.

[Start Chemical Resistance Check](#)

4.2. Material specifications

Note:

The lubricants for stem packing and driving are classified according to NSF H1.



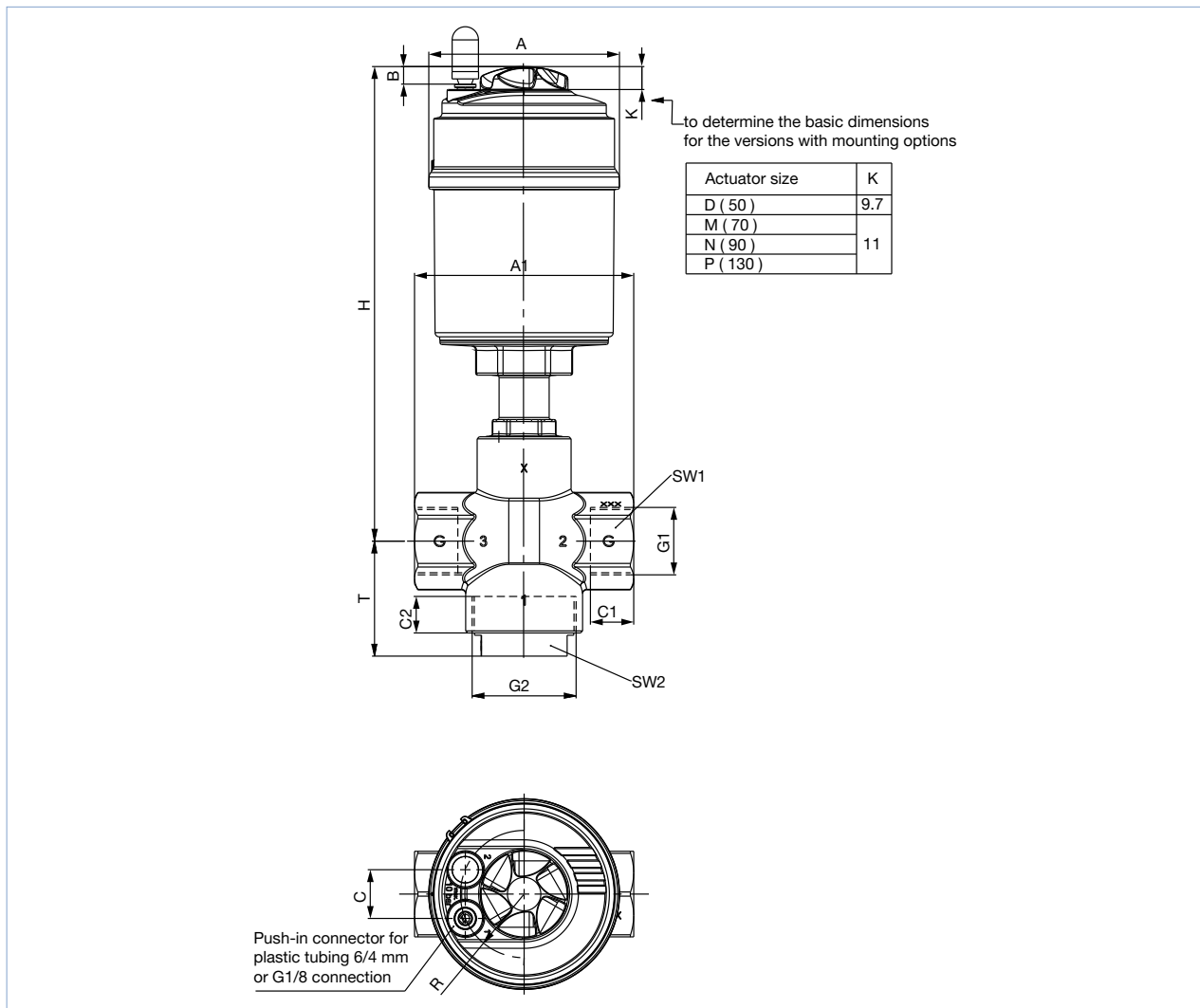
No.	Element	Material
1	Transparent cap	Polysulfone PSU
2	Pilot air ports	Push-in connector PP (standard) on request: thread G 1/8" stainless steel 1.4305
3	Actuator	PPS
4	Case	Stainless steel 1.4561 (316Ti)
5	Piston seal	FKM
6	Spring	Stainless steel 1.4310
7	Tube	Stainless steel 1.4401 (316)/1.4404 (316L)
8	Spindle seal	PTFE
9	Spindle	Stainless steel 1.4401 (316)/1.4404 (316L)
10	Spindle guide	PEEK
11	Valve body	Stainless steel 1.4404 (316L)
12	Body closer	Stainless steel 1.4404 (316L)
13	Seal	PTFE
14	Seat nipple	Stainless steel 1.4404 (316L)

5. Dimensions

5.1. Dimensions

Note:

Dimensions in mm



DN	Actuator size Ø	Ø A	B	C	R	H	All threaded bodies					G			NPT			Rc		
							A1	T	G 2	SW1	SW2	G 1	C1/ C2	LTA	G 1	C1/ C2	LTA	G 1	C1/ C2	LTA
15	50(D)	64.5	6.0	19.8	19.8	202.4	85	58.3	M40 × 1.5	32	30	½	14	GM84	½	13.7	NM84	½	13.2	RC84
	70(M)	91	8.5	23.3	30.5	202.4	85	58.3	M40 × 1.5	32	30	½	14	GM84	½	13.7	NM84	½	13.2	RC84
20	50(D)	64.5	6.0	19.8	19.8	202.4	85	58.3	M40 × 1.5	32	30	¾	16	GM85	¾	14.0	NM85	¾	14.5	RC85
	70(M)	91	8.5	23.3	30.5	202.4	85	58.3	M40 × 1.5	32	30	¾	16	GM85	¾	14.0	NM85	¾	14.5	RC85
25	50(D)	64.5	6.0	19.8	19.8	227.4	105	54.9	M50 × 2	41	41	1	18	GM86	1	16.8	NM86	1	16.8	RC86
	70(M)	90	8.5	23.3	30.5	227.4	105	54.9	M50 × 2	41	41	1	18	GM86	1	16.8	NM86	1	16.8	RC86
32	70(M)	91	8.5	23.3	30.5	234.7	130	67.8	M70 × 2	55	55	1¼	20	GM87	1¼	17.3	NM87	1¼	19.1	RC87
	90(N)	120				294.4	130	78.1	M70 × 2	55	55	1¼	20	GM87	1¼	17.3	NM87	1¼	19.1	RC87
	130(P)	159				346.7	130	68.0	M70 × 2	55	55	1¼	20	GM87	1¼	17.3	NM87	1¼	19.1	RC87
40	70(M)	91	8.5	23.3	30.5	234.7	130	68.0	M70 × 2	55	55	1½	22	GM88	1½	17.3	NM88	1½	19.1	RC88
	90(N)	120				294.4	130	68.3	M70 × 2	55	55	1½	22	GM88	1½	17.3	NM88	1½	19.1	RC88
	130(P)	159				346.7	130	68.0	M70 × 2	55	55	1½	22	GM88	1½	17.3	NM88	1½	19.1	RC88
50	70(M)	91	8.5	23.3	30.5	245.5	150	72.0	M84 × 2	70	70	2	24	GM89	2	17.6	NM89	2	23.4	RC89
	90(N)	120				310.7	150	72.0	M84 × 2	70	70	2	24	GM89	2	17.6	NM89	2	23.4	RC89
	130(P)	159				353.7	150	72.0	M84 × 2	70	70	2	24	GM89	2	17.6	NM89	2	23.4	RC89

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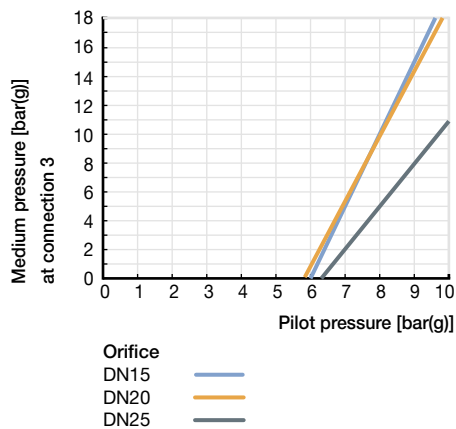
6. Performance specifications

6.1. Pilot pressure diagram

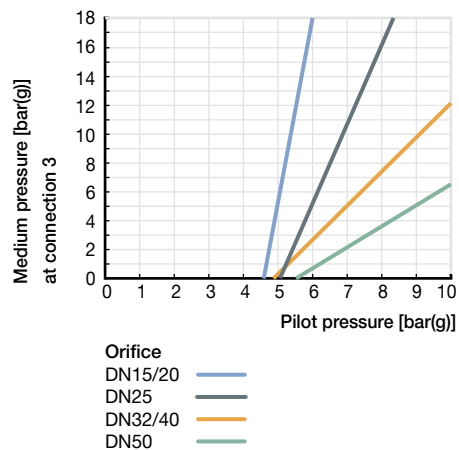
Note:

Legend for actuator size D, M, N, P, see “5. Dimensions” on page 7

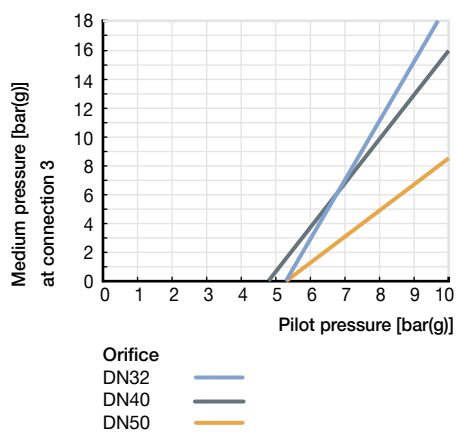
Actuator size Ø50



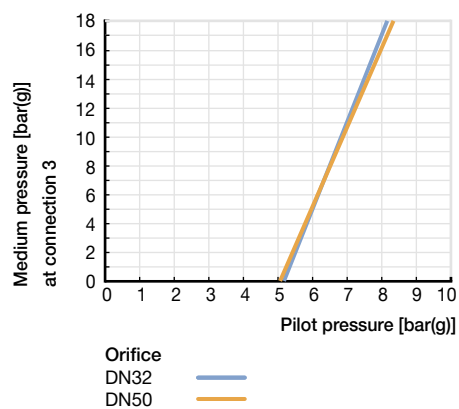
Actuator size Ø70



Actuator size Ø90



Actuator size Ø130



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7. Product accessories

Control head	
Type 8691 ▶ Actuator size Ø 70/90/130 mm	Description The control heads, Type 8691 and 8695, are optimized for integrated mounting on process valves of the 21XX series. The valve position is detected without contact via an analogue sensor element, which automatically detects and stores the valve end positions during commissioning using the Teach-In function. The integrated pilot valve controls single or double-acting actuators. The switching status of the valve is indicated by coloured high-performance LEDs.
	Features <ul style="list-style-type: none"> • Status indication via coloured high-power LEDs • Non-wearing inductive position sensor
Type 8695 ▶ Actuator size Ø 50 mm	<ul style="list-style-type: none"> • Pilot valve with manual override • Teach-In function for automatic recognition of the valve end positions • Hygienic stainless steel design • Easy to clean chemical resistant housing according to IP65/67, 4X rating • AS-Interface, IO-Link, Bürkert system bus (büS)
	Customer benefits <ul style="list-style-type: none"> • Simple and safe commissioning by means of Teach-In function • Easy process monitoring and fault detection through visible coloured high-power LEDs • High degree of system availability due to increased actuator service life by means of spring chamber ventilation • Minimal space requirement in the plant piping for more flexibility in plant design
Pneumatic Control unit/Position feedback	
Type 8690 ▶ Actuator size Ø 70/90/130 mm	Description The pneumatic control units, Type 8690 and 8697, are optimized for integrated mounting on process valves of the 21XX series. Mechanical or inductive limit switches detect the valve position. The integrated pilot valve controls single or double-acting (Type 8690) actuators.
	Features <ul style="list-style-type: none"> • Optical position indicator
Type 8697 ▶ Actuator size Ø 50 mm	<ul style="list-style-type: none"> • Mechanical or inductive proximity switches for end position detection • Pilot valve with manual override • Compact design • Easy to clean, chemical resistant housing according to IP65/67, 4X rating • Optional intrinsically safe design according to ATEX/IECEX
	Customer benefits <ul style="list-style-type: none"> • Simple and safe commissioning using the Teach-In function (Type 8697) • Signal reliability due to the automatic adjustment of the limit position switches • Minimal space requirement in the plant piping for more flexibility in plant design

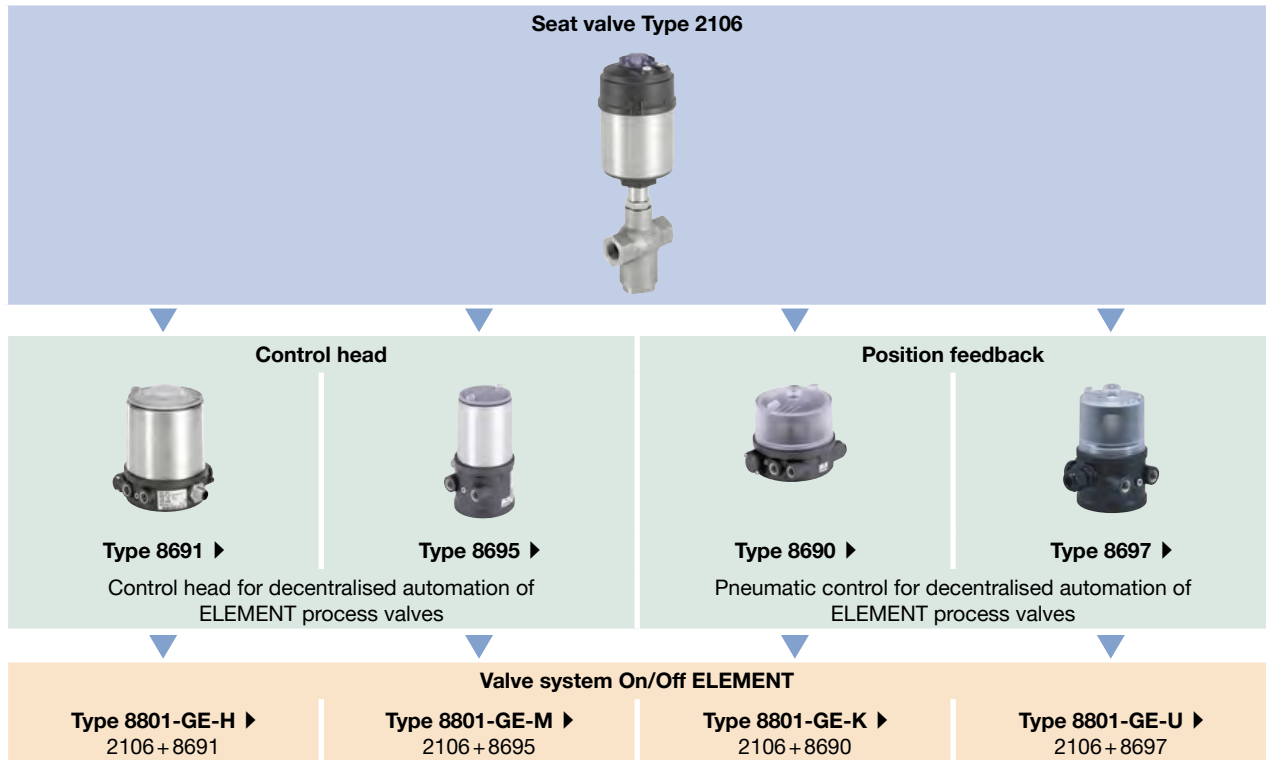
8. Networking and combination with other Bürkert products

The seat valve Type 2106 can be combined with the position feedback Type 8690/8697 and the control head Type 8691/8695 to valve system On/Off ELEMENT Type 8801-GE.

Note:

- For the configuration of further valve systems please use the **product enquiry form** at the end of this data sheet.
- You order two components and receive a completely assembled and tested valve.

Example with welded connection



DTS 1000257617 EN Version: J Status: RL (released | freigegeben | validé) printed: 11.01.2023

9. Ordering information

9.1. Bürkert eShop – Easy ordering and quick delivery



Bürkert eShop – Easy ordering and fast delivery

You want to find your desired Bürkert product or spare part quickly and order directly? Our online shop is available for you 24/7. Sign up and enjoy all the benefits.

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9.2. Bürkert product filter



Bürkert product filter – Get quickly to the right product

You want to select products comfortably based on your technical requirements? Use the Bürkert product filter and find suitable articles for your application quickly and easily.

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9.3. Ordering chart

Note:

- Valves in rest position, pressure port 1 closed
- Further versions on request

Control function	Nominal diameter	Port connection	Actuator size Ø [mm]	K _v value water		Min. pilot pressure	Max. operating pressure bis 180 °C		Weight	Article no.	
				1 → 2	2 → 3		1 → 2	2 → 3 2 → 1			
	[mm]		[mm]	[m³/h]	[m³/h]	[bar]	[bar]	[bar]	[kg]		
G thread acc. to EN ISO 228 - 1											
CF: A, see "2.2. Port configuration for fluidic circuit functions C, D, E and F" on page 4 ¹⁾	15	G ½	50(D)	7	4.5	5.5	16	16	1.5	282698	
			70(M)	7	4.5	4.5	16	16	2.2	282701	
	20	G ¾	50(D)	9	6.2	5.5	16	16	1.4	282702	
			70(M)	9	6.2	4.5	16	16	2.1	282704	
	25	G 1	50(D)	17	11	5.5	9	11	1.9	282705	
			70(M)	17	11	4.5	16	16	2.6	282706	
	32	G 1¼	70(M)	32	21	4.5	8	11	3.9	282707	
			90(N)	32	21	5.1	11	16	5.4	282708	
	40	G 1½	70(M)	35	24	4.5	7	11	3.7	282711	
			90(N)	35	24	5.1	12	16	5.2	282712	
	50	G 2	90(N)	51	35	5.1	9	8	7.3	282715	
			130(P)	51	35	4.9	16	16	10.4	282716	
	NPT thread acc. to ANSI B 1.20.1										
	CF: A, see "2.2. Port configuration for fluidic circuit functions C, D, E and F" on page 4 ¹⁾	15	NPT ½	50(D)	7	4.5	5.5	16	16	1.5	292478
70(M)				7	4.5	4.5	16	16	2.2	292531	
20		NPT ¾	50(D)	9	6.2	5.5	16	16	1.4	292532	
			70(M)	9	6.2	4.5	16	16	2.1	292533	
25		NPT 1	50(D)	17	11	5.5	9	11	1.9	292534	
			70(M)	17	11	4.5	16	16	2.6	292535	
32		NPT 1¼	70(M)	32	21	4.5	8	11	3.9	292536	
			90(N)	32	21	5.1	11	16	5.4	292537	
40		NPT 1½	70(M)	35	24	4.5	7	11	3.7	292538	
			90(N)	35	24	5.1	12	16	5.2	292539	
50		NPT 2	90(N)	51	35	5.1	9	8	7.3	292540	
			130(P)	51	35	4.9	16	16	10.4	292541	

1.) Further information in chapter "2. Circuit functions" on page 4.

Further versions on request



Process connection
Rc thread

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www.burkert.com

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Product Enquiry Form - Pneumatic Shut-off Valves ELEMENT

Thank you for your interest in our products! In order to provide you with optimum advice, please fill out the following form and send it to your **Bürkert representative** or e-mail address: info@burkert.com. All information submitted will of course be kept strictly confidential.

Please fill in the **required fields!** *

*Note: The interactive functions of this PDF may be restricted depending on the PDF reader used.

Personal Information			
Company		Contact person	
Customer no.		Department	
Street		Postcode / Town	
Telephone no.		Email	

Delivery	
Quantity	Required delivery date

Operating data			
Function <small>(Function of the control valve in the process / process description)</small>			
Pipeline	DN	PN	
Operating medium			
Type of medium	Fluid	Steam	Gas
Operating pressure	Unit		
Medium temperature	°C / °F		
Ambient temperature	°C / °F		

Valve body				
Construction	Angle seat valve ^{1.)}		Globe valve	
Actuator material	Stainless steel/PPS		Stainless steel ^{1.)}	PPS PA
Housing material	Stainless steel		Gunmetal ^{1.)}	
Seat seal	PTFE EPDM		NBR Other	PEEK FKM
DN / Nominal pressure	DN		PN	
Flow coefficient	K_v	m ³ /h	C_v	GPM(US)
Connection	Flange ^{1.)}	DIN EN 1092-1		ANSI B16.5 JIS 10K
	Thread	G		NPT RC
	Weld ^{1.)}	DIN EN ISO 1127 / ISO 4200		DIN 11850 2 / DIN 11866 A ASME BPE
	Clamp ^{1.)}	ASME BPE		DIN 32676 A (tube ISO 4200) DIN 32676 B (tube DIN 11850)
	Other			

1.) Not available for Type 2006 and 2106.

Valve data	
Circuit Function	A: Normally closed B: Normally open I: Double acting ^{2.)}
Control pressure	Min. Max.

2.) Not available for Type 2006 and 2106.

DTS 1000257617 EN Version: J Status: RL (released | freigegeben | validé) printed: 11.01.2023

Approvals / Conformities



For use with food (conform to EG regulation no. 1935/2004)
For use with food (conform to FDA)
Explosion protection in accordance with ATEX II 2GD mech. / IECex
European Gas Appliances Directive (EU) 2016/426, DVGW DIN EN 161 and DIN EN 16678
Suitable for drinking water ^{3.)}
Certificate for the fulfilment of the order EN-ISO 10204 2.1 (Article no. 440788)
Test report EN-ISO 10204 2.2 (Article no. 803722)
Conformity certification for raw material EN-ISO 10204 3.1 (included)

3.) For use with drinking water for medium temperatures up to 85 °C in accordance with the Drinking Water Ordinance §17 and the assessment principles of the Federal Environment Agency.



Additional Requirements / Comment

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Control heads / pneumatic control for on/off process valves of the ELEMENT series

For actuator size $\varnothing 70/\varnothing 90/\varnothing 130$ mm			For actuator size $\varnothing 50$ mm		
Control head Type 8691 ▶			Control head Type 8695 ▶		
					
<ul style="list-style-type: none"> Inductive position sensor with automatic Teach function Coloured high power LEDs With/without pilot valve for single or double-acting actuators Fieldbus communication Hygienic stainless steel design 					
Pneumatic function			Electrical connection		
Single-acting	Double-acting	Without pilot valve	Cable gland	M12 connector	
Communication			Approvals		
AS-Interface	IO-Link	Bürkert Systembus (büS) ^{1.)}	ATEX cat. 3GD, IECEx	Without	
Without					

1.) Based on CANopen

For actuator size $\varnothing 70/\varnothing 90/\varnothing 130$ mm			For actuator size $\varnothing 50$ mm		
Pneumatic control unit / feedback Type 8690 ▶			Pneumatic control unit / feedback Type 8697 ▶		
					
<ul style="list-style-type: none"> Visual status indicator Micro- or proximity switches for end position feedback With/without pilot valve for single- or double-acting actuators Optional intrinsically safe version acc. to ATEX / IECEx 					
Pneumatic function			Electrical connection		
Single-acting	Double-acting (Type 8690)		Cable gland	M12 connector	
Without pilot valve					
Number of position feedback switches			Approvals		
1x	2x		ATEX cat. 3GD, IECEx	ATEX cat. 2DG, IECEx	
			Without		
Position feedback switch					
Micro-switch 24 V DC		Micro-switch 50...225 V DC/AC (Type 8690)	Inductive switch 3-wire PNP		
Inductive switch 2-wire NAMUR		Inductive switch 2-wire 24 V DC	Without		