



## 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

	<b>Type 8695</b> ▶ Control head for de-centralised automation of ELEMENT process valves
	<b>Type 8691</b> ▶ Control head for de-centralised automation of ELEMENT process valves
	<b>Type 8690</b> ▶ Pneumatic control for decentralised automation of ELEMENT process valves
	<b>Type 8697</b> ▶ Pneumatic control for decentralised automation of ELEMENT process valves

### 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.

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## 1. General technical data

Product properties	
Dimensions	Detailed information can be found in chapter "4. Dimensions" on page 6.
Material	
Body	Cast stainless steel 316L
Actuator	PPS
Cover	Stainless steel 1.4561 (316Ti)
Seal	PTFE
Spindle packing	PTFE seal with spring compensation
Nominal diameter	DN15...DN50
Performance data	
Nominal pressure	PN16 (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 <sup>2</sup> /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 ports	Push-in connector (external Ø 6 mm or ¼") or thread G ⅛" (on request)
Approvals and certificates	
Conformity	EGV 1935/2004 (standard) FDA (optional)
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

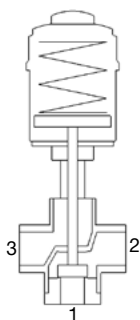
### 2.1. Control function

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

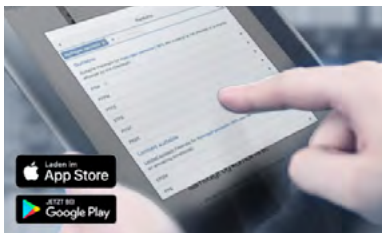


Fluidic circuit function	Connection - port		
	1	2	3
C	P	A	R
D	R	A	P
E	P1	A	P2
F	A	P	B

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

### 3. Materials

#### 3.1. Chemical Resistance Chart – Bürkert resistApp



**Bürkert resistApp – Chemical Resistance Chart**

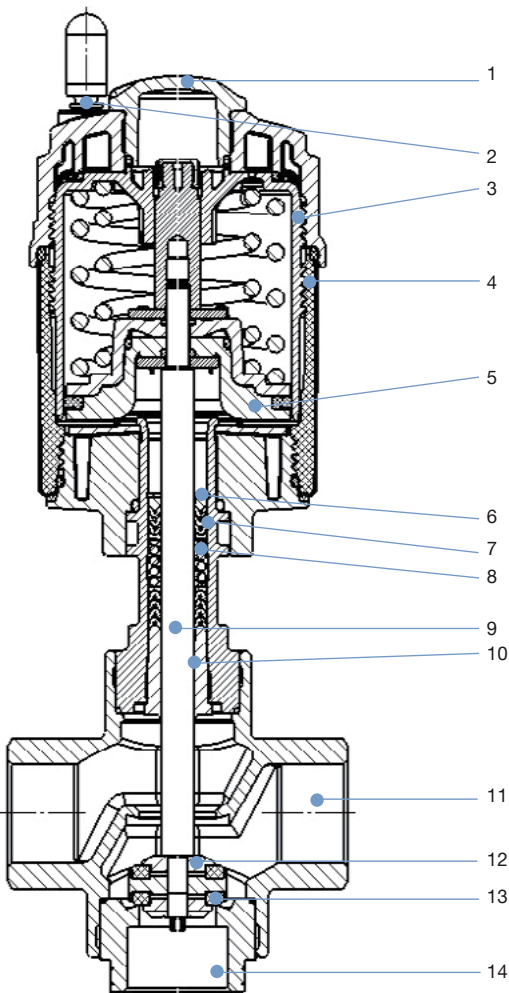
You want to ensure the reliability and durability of the materials in your individual application case? Verify your combination of media and materials on our website or in our resistApp.

[Start Chemical Resistance Check](#)

#### 3.2. Material specifications

**Note:**

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



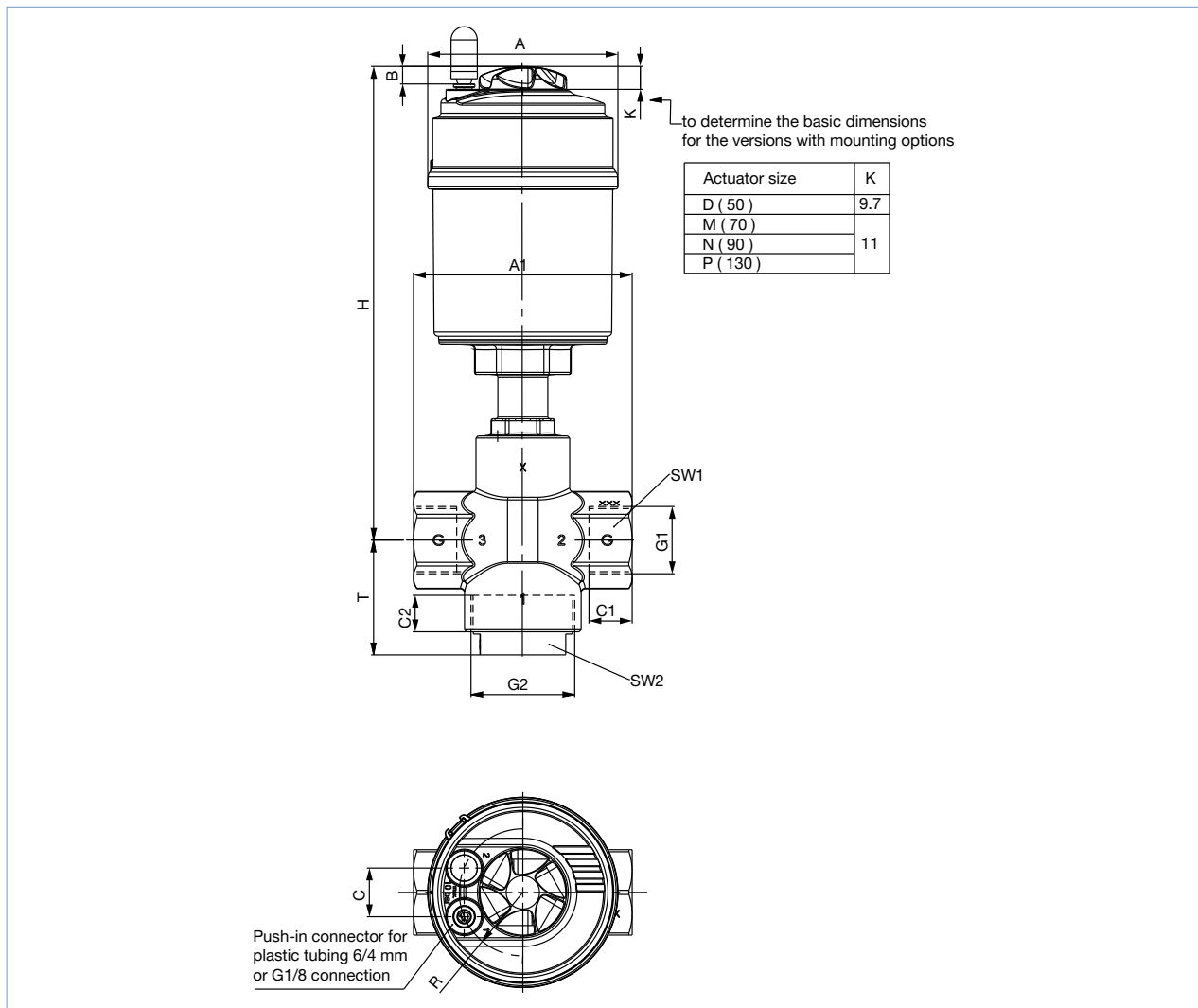
No.	Element	Material
1	Transparent cap	Polysulfone PSU
2	Pilot air ports	Push-in connector PP (standard) on request: thread G 1/8" stainless steel 1.4305
3	Actuator	PPS
4	Case	Stainless steel 1.4561 (316Ti)
5	Piston seal	FKM
6	Spring	Stainless steel 1.4310
7	Tube	Stainless steel 1.4401 (316)/1.4404 (316L)
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)

## 4. Dimensions

### 4.1. Dimensions

**Note:**

Dimensions in mm



DN	Actuator size Ø	Ø A	B	C	R	H	All threaded bodies					G			NPT			Rc		
							A1	T	G2	SW1	SW2	G1	C1/C2	LTA	G1	C1/C2	LTA	G1	C1/C2	LTA
15	D(50)	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
	M(70)	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	D(50)	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
	M(70)	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	D(50)	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
	M(70)	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	M(70)	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
	N(90)	120				294.4	130	78.1	M70×2	55	55	1¼	20	GM87	1¼	17.3	NM87	1¼	19.1	RC87
	P(130)	159				346.7	130	68.0	M70×2	55	55	1¼	20	GM87	1¼	17.3	NM87	1¼	19.1	RC87
40	M(70)	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
	N(90)	120				294.4	130	68.3	M70×2	55	55	1½	22	GM88	1½	17.3	NM88	1½	19.1	RC88
	P(130)	159				346.7	130	68.0	M70×2	55	55	1½	22	GM88	1½	17.3	NM88	1½	19.1	RC88
50	M(70)	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
	N(90)	120				310.7	150	72.0	M84×2	70	70	2	24	GM89	2	17.6	NM89	2	23.4	RC89
	P(130)	159				353.7	150	72.0	M84×2	70	70	2	24	GM89	2	17.6	NM89	2	23.4	RC89

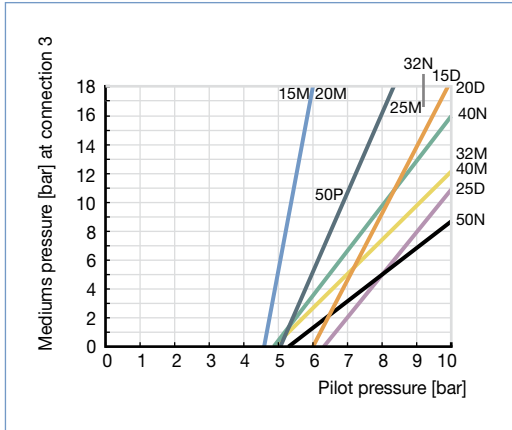
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## 5. Performance specifications

### 5.1. Pilot pressure diagram

**Note:**

Legend for actuator size D, M, N, P, see “4. Dimensions” on page 6



## 6. Product accessories

Control head	
<b>Type 8691 ▶</b> Actuator size Ø 70/90/130 mm	<b>Description</b>  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.
	<b>Features</b> <ul style="list-style-type: none"> <li>• Status indication via coloured high-power LEDs</li> <li>• Non-wearing inductive position sensor</li> </ul>
<b>Type 8695 ▶</b> Actuator size Ø 50 mm	<ul style="list-style-type: none"> <li>• Pilot valve with manual override</li> <li>• Teach-In function for automatic recognition of the valve end positions</li> <li>• Hygienic stainless steel design</li> <li>• Easy to clean chemical resistant housing according to IP65/67, 4X rating</li> <li>• AS-Interface, IO-Link, Bürkert system bus (büS)</li> </ul>
	<b>Customer benefits</b> <ul style="list-style-type: none"> <li>• Simple and safe commissioning by means of Teach-In function</li> <li>• Easy process monitoring and fault detection through visible coloured high-power LEDs</li> <li>• High degree of system availability due to increased actuator service life by means of spring chamber ventilation</li> <li>• Minimal space requirement in the plant piping for more flexibility in plant design</li> </ul>
Pneumatic Control unit/Position feedback	
<b>Type 8690 ▶</b> Actuator size Ø 70/90/130 mm	<b>Description</b>  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.
	<b>Features</b> <ul style="list-style-type: none"> <li>• Optical position indicator</li> </ul>
<b>Type 8697 ▶</b> Actuator size Ø 50 mm	<ul style="list-style-type: none"> <li>• Mechanical or inductive proximity switches for end position detection</li> <li>• Pilot valve with manual override</li> <li>• Compact design</li> <li>• Easy to clean, chemical resistant housing according to IP65/67, 4X rating</li> <li>• Optional intrinsically safe design according to ATEX/IECEX</li> </ul>
	<b>Customer benefits</b> <ul style="list-style-type: none"> <li>• Simple and safe commissioning using the Teach-In function (Type 8697)</li> <li>• Signal reliability due to the automatic adjustment of the limit position switches</li> <li>• Minimal space requirement in the plant piping for more flexibility in plant design</li> </ul>



### 7. Networking and combination with other Bürkert products

The seat valve Type 2106 can be combined with a position feedback or a control head to create valve system On/Off ELEMENT Type 8801-GE.

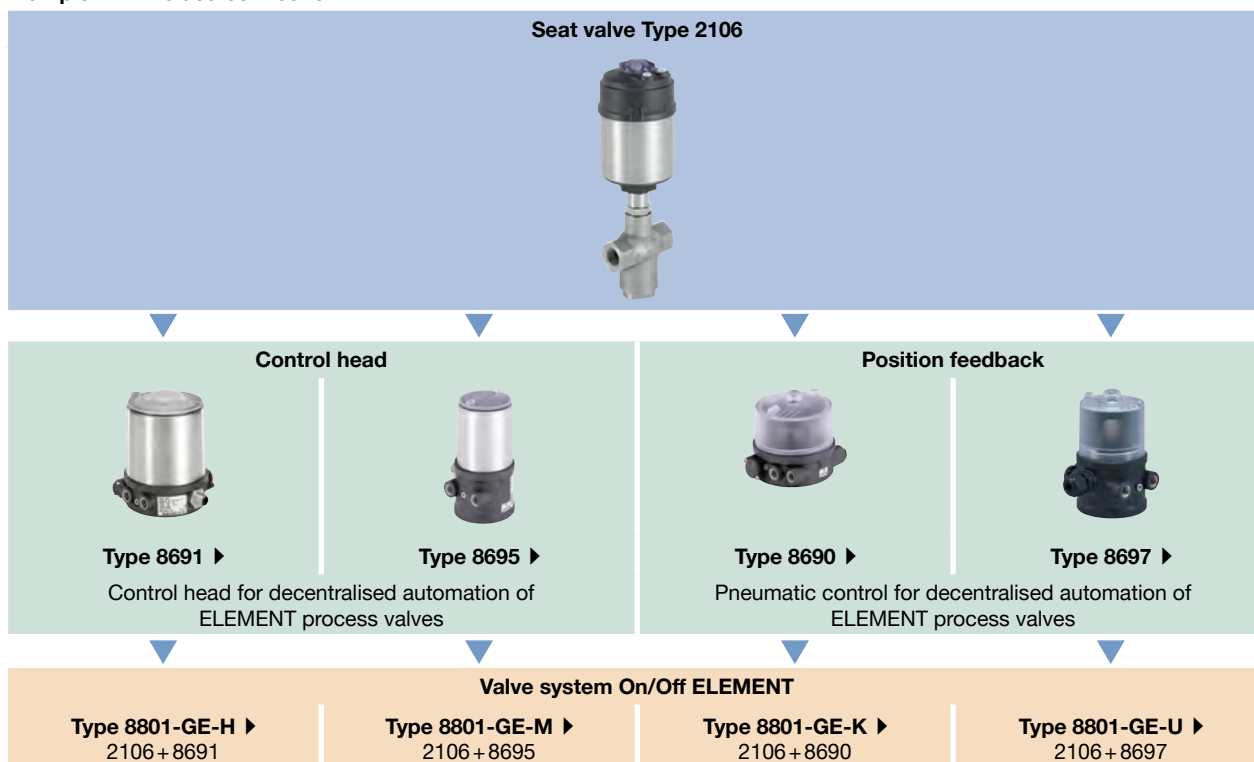
The control unit area consists of:

- A valve control head Type 8691/8695
- A pneumatic control unit Type 8690/8697

**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**



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## 8. Ordering information

### 8.1. 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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### 8.2. Bürkert product filter



#### Bürkert product filter – Get quickly to the right product

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## 8.3. Ordering chart

## Note:

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

Control function	Port connection	Nominal diameter	Actuator size Ø	K <sub>v</sub> 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]		[m <sup>3</sup> /h]	[m <sup>3</sup> /h]			[bar]
<b>G thread acc. to EN ISO 228 - 1</b>											
CFA 3/2 way, normally closed (NC) (port 1)	G ½	15	50	7	4.5	5.5	16	16	1.5	282698	
			70	7	4.5	4.5	16	16	2.2	282701	
	G ¾	20	50	9	6.2	5.5	16	16	1.4	282702	
			70	9	6.2	4.5	16	16	2.1	282704	
	G 1	25	50	17	11	5.5	9	11	1.9	282705	
			70	17	11	4.5	16	16	2.6	282706	
	G 1¼	32	70	32	21	4.5	8	11	3.9	282707	
			90	32	21	5.1	11	16	5.4	282709	
	G 1½	40	70	35	24	4.5	7	11	3.7	282711	
			90	35	24	5.1	12	16	5.2	282712	
	G 2	50	90	51	35	5.1	9	8	7.3	282715	
			130	51	35	4.9	16	16	10.4	282716	
	<b>NPT thread acc. to ANSI B 1.20.1</b>										
	CFA 3/2 way, normally closed (NC) (port 1)	NPT ½	15	50	7	4.5	5.5	16	16	1.5	292478
70				7	4.5	4.5	16	16	2.2	292531	
NPT ¾		20	50	9	6.2	5.5	16	16	1.4	292532	
			70	9	6.2	4.5	16	16	2.1	292533	
NPT 1		25	50	17	11	5.5	9	11	1.9	292534	
			70	17	11	4.5	16	16	2.6	292535	
NPT 1¼		32	70	32	21	4.5	8	11	3.9	292536	
			90	32	21	5.1	11	16	5.4	292537	
NPT 1½		40	70	35	24	4.5	7	11	3.7	292538	
			90	35	24	5.1	12	16	5.2	292539	
NPT 2		50	90	51	35	5.1	9	8	7.3	292540	
			130	51	35	4.9	16	16	10.4	292541	

## Further versions on request



**Process connection**  
Rc thread

# Bürkert – Close to You

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[www.burkert.com](http://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](mailto: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		Globe valve	
Actuator material	Stainless steel/PPS		Stainless steel	PPS PA
Housing material	Stainless steel		Gunmetal	
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	DIN EN 1092-1		ANSI B16.5 JIS 10K
	Thread	G		NPT RC
	Weld	DIN EN ISO 1127 / ISO 4200		DIN 11850 2 / DIN 11866 A ASME BPE
	Clamp	ASME BPE		DIN 32676 A (tube ISO 4200) DIN 32676 B (tube DIN 11850)
	Other			

Valve data	
Circuit Function	A: Normally closed B: Normally open I: Double acting
Control pressure	Min. Max.



## 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"> <li>Inductive position sensor with automatic Teach function</li> <li>Coloured high power LEDs</li> <li>With/without pilot valve for single or double-acting actuators</li> <li>Fieldbus communication</li> <li>Hygienic stainless steel design</li> </ul>					
<b>Pneumatic function</b>			<b>Electrical connection</b>		
Single-acting	Double-acting	Without pilot valve	Cable gland	M12 connector	
<b>Communication</b>			<b>Approvals</b>		
AS-Interface	IO-Link	Bürkert Systembus (büS) <sup>1.)</sup>	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"> <li>Visual status indicator</li> <li>Micro- or proximity switches for end position feedback</li> <li>With/without pilot valve for single- or double-acting actuators</li> <li>Optional intrinsically safe version acc. to ATEX / IECEx</li> </ul>					
<b>Pneumatic function</b>			<b>Electrical connection</b>		
Single-acting	Double-acting (Type 8690)		Cable gland	M12 connector	
Without pilot valve					
<b>Number of position feedback switches</b>			<b>Approvals</b>		
1x	2x		ATEX cat. 3GD, IECEx	ATEX cat. 2DG, IECEx	
			Without		
<b>Position feedback switch</b>					
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		

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