

Type 2104
Pneumatically operated diaphragm valve with ELEMENT actuator





T-diaphragm valve with pneumatic actuator in stainless steel (Type ELEMENT) for decentralised automation

- Valve body and diaphragm are available in various materials and variants
- Product wetted surfaces in $Ra \leq 0.38 \mu\text{m} \dots 1.6 \mu\text{m}$ (optionally electropolished)
- Available in all common connection sizes and variants

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

Can be combined with

	Type 2034 ▶ Multifunction block and weld solution
	Type 8691 ▶ Control head for decentralised automation of ELEMENT process valves
	Type 8695 ▶ Control head for decentralised automation of ELEMENT process valves
	Type 8692 ▶ Digital electropneumatic Positioner for the integrated mounting on process control valves
	Type 8696 ▶ Digital electropneumatic positioner for the integrated mounting on process control valves
	Type 8098 ▶ FLOWave SAW flow-meter

Type description

The externally controlled diaphragm valve Type 2104 consists of a pneumatically operated piston actuator, a diaphragm and a T-valve body. The proven and robust actuator with stainless steel housing ensures use in hygienic or aggressive ambient conditions. The flow-efficient valve bodies with little dead space enable high flow rates and a wide range of possible uses. The valve body and the diaphragm are available in all common materials and variants. The actuator has a compact, autoclavable design with a large stainless steel housing and gap-free seals. The integration of automation units Type ELEMENT is possible in all configuration levels (can be retrofitted); a fieldbus interface can also be integrated. An explosion-proof ATEX / IECEx device variant is available. It is a compact, smooth-surfaced and highly integrated system consisting of a valve and an automation unit with integrated pilot air ducts (no intake of ambient air). The add-on body is optionally available in plastic or stainless steel (can be rotated 360°). The valve offers the degrees of protection IP65/67 and NEMA Type 4X and displays high chemical resistance.

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1. General technical data

Product properties	
Dimensions	Detailed information can be found in chapter "4. Dimensions" on page 6.
Material^{1.)}	
Block body (VH) ^{1.)}	Stainless steel 1.4435/316 L
Block body (VI) ^{1.)}	Stainless steel 1.4435/BN2/ASME BPE; Fe <0.5 %/C ≤0.03 %
Diaphragm	EPDM (AD) ^{1.)} , PTFE/EPDM (EA) ^{1.)} , advanced PTFE/EPDM (EU) ^{1.)} , Gylon®/EPDM laminated (ER) ^{1.)}
Actuator	PPS
Actuator cover	Stainless steel 1.4561 (316Ti)
Diaphragm size	8...65
Standard surface quality^{2.)}	
Block body (VH/VI) ^{1.)}	Internal electrically polished : Ra ≤0.38 µm (NO17) ^{1.)} (ASME BPE SF4/DIN HE4) (external Ra ≤1.6 µm) Internal mechanically polished : Ra ≤0.5 µm (NO14) ^{1.)} (ASME BPE SF1) (external Ra ≤1.6 µm)
Performance data	
Max. pilot pressure (SF: A)	10 bar 7 bar for actuator size 130 See "5.1. Medium pressure" on page 12
Pilot air ports	Push-in connector for external, Ø6 mm or ¼" (Standard); thread G ½
Medium data	
Medium	Neutral gases and fluids, highly purified, sterile, aggressive or abrasive medium (see Resistance Chart ▶)
Medium temperature	
EPDM (AD) ^{1.)}	-10...+143 °C (steam sterilisation +150 °C for 60 min)
PTFE/EPDM (EA) ^{1.)}	-10...+130 °C (steam sterilisation +140 °C for 60 min)
Advanced PTFE/EPDM (EU) ^{1.)}	-5...+143 °C (steam sterilisation +150 °C for 60 min)
GYLON®/EPDM laminated (ER) ^{1.)}	-5...+130 °C (steam sterilisation +140 °C for 60 min)
Control medium	Neutral gases, air
Process/Port connection & communication	
Nominal diameter	DN06...DN100 (⅛"...4")
Port connections ^{2.)}	
For stainless steel body^{2.)}	
Welded connection ^{2.)}	DIN EN ISO 1127/ISO 4200/DIN 11866 series B DIN 11850 series 2/DIN 11866 series A/DIN EN 10357 series A ASME BPE/DIN 11866 series C
Clamp connection ^{2.)}	DIN 32676 series A (DIN pipe) DIN 32676 series B (ISO pipe) ASME BPE
Environment and installation	
Installation position	See operating manual ▶
Ambient temperature	-10...+60 C autoclaveable

1.) This information is part of the product key (see product enquiry form at the end of this data sheet)

2.) Further versions on request

2. Approvals

Note:

If you need one of these certificates, please contact your Bürkert partner.

Approvals/ Conformity/ Certificate ^{1.)}	Description
	ATEX/IECEx ^{2.)} EPS 18 ATEX 2 008 X II 2G Ex h IIC T4 Gb/II 2D Ex h IIIC T135 °C Db IECEx EPS 18.0007X Ex h IIC T4 Gb/Ex h IIIC T135 °C Db
TA-air	TA-air ^{3.)}
	3-A (3-A Sanitary Standards Symbol Administrative Council) ^{4.)}
	The diaphragms made of EPDM (AD), PTFE/EPDM (EA), advanced PTFE/EPDM (EU) and GYLON®/EPDM laminated (ER) are suitable for use with food and beverages (acc. to EC Regulation 1935/2004/EC).
	Diaphragms made of EPDM (AD), PTFE/EPDM (EA), advanced PTFE/EPDM (EU) and GYLON®/EPDM laminated (ER) are acc. to USP Class VI tested.
FDA	Diaphragms made of EPDM (AD), PTFE/EPDM (EA), advanced PTFE/EPDM (EU) and GYLON®/EPDM laminated (ER) comply with the Code of Federal Regulations published by the FDA (Food and Drug Administration, USA).

1.) Further approvals/conformity clarification on request

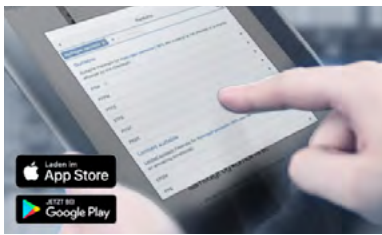
2.) Only in combination with variable code «PX51» (see product enquiry form at the end of this data sheet)

3.) Only in combination with variable code «PM01» (see product enquiry form at the end of this data sheet)

4.) Only in combination with variable code «PE05» (see product enquiry form at the end of this data sheet)

3. Materials

3.1. Chemical Resistance Chart – Bürkert resistApp



Bürkert resistApp – Chemical Resistance Chart

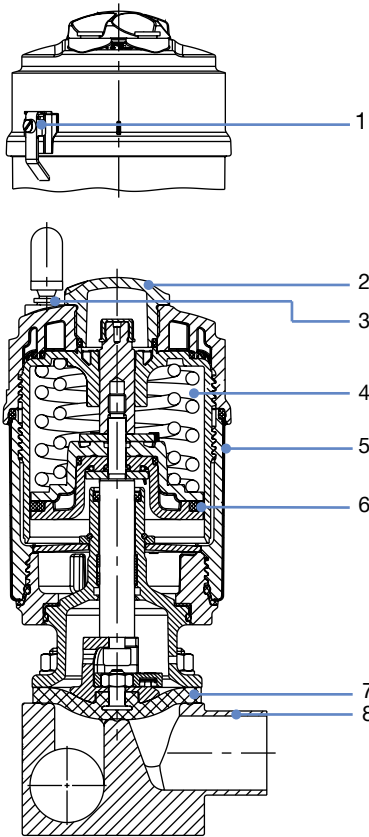
You want to ensure the reliability and durability of the materials in your individual application case? Verify your combination of media and materials on our website or in our resistApp.

[Start Chemical Resistance Check](#)

3.2. Material specifications

Note:

Exemplary representation may differ from the actual product.



No.	Element	Material
1	Ground terminal	Stainless steel 1.4301/1.4305 (only for ATEX/IECEX version)
2	Optical position indicator	Polysulfone PSU
3	Pilot air ports	Push-in connector PP (Standard); Thread G 1/8" Stainless steel 1.4305
4	Actuator	Polyphenylene sulphide PPS
5	Cover	Stainless steel 1.4561 (316Ti)
6	Piston seal	FKM
7	Diaphragm	EPDM (AD), PTFE/EPDM (EA), advanced PTFE/EPDM (EU), Gylon®/EPDM laminated (ER)
8	Valve body	See "1. General technical data" on page 3

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Pneumatically operated diaphragm
valve with ELEMENT actuator

3.3. Example of available membrane materials

The diaphragms have been developed to meet the unique challenges of hygienic and sterile requirements. Bürkert offers diaphragms with precise material composition and high accuracy. Bürkert diaphragms are available in a wide range of materials which have been tested and proven in applications in the food and beverage, biotechnology, pharmaceutical and cosmetics industries. The diaphragms are tested during development and production to ensure reliability under difficult process conditions.



- EPDM (AD)
- PTFE/EPDM (EA)
- advanced PTFE/EPDM (EU)
- Gylon®/EPDM laminated (ER)

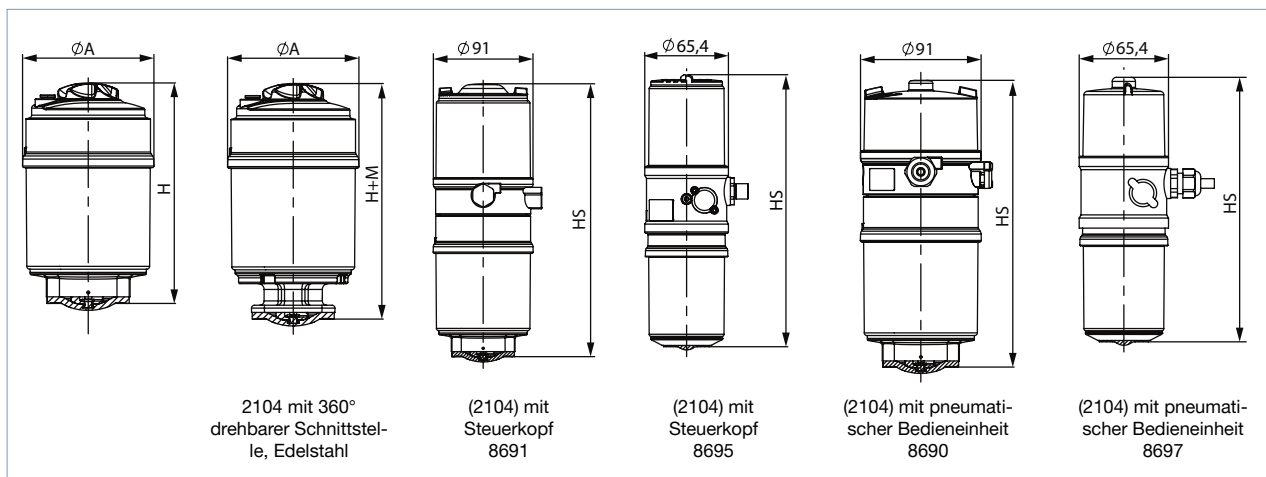
For further information please refer to our flyer “Diaphragm competence for hygienic applications” on our [website](#) ▶.

4. Dimensions

4.1. Actuator

ELEMENT actuator

Note:
 Dimensions in mm, unless otherwise stated



Diaphragm size	Actuator size Ø	ØA	H	HS with		H+M (MT86)
				8691/8695	8690/8697	
8	50(D)	65	119	207	194	141
15	50(D)	65	132	220	206	146
	70(M)	–	–	242	209	–
20	70(M)	92	153	248	215	165
25	70(M)	92	154	248	215	171
	90(N)	120	187	282	249	204
32	90(N)	120	202	297	264	215
	130(P)	159	259	353	320	273
50	130(P)	159	275	369	336	281
65	130(P)	–	–	–	–	285

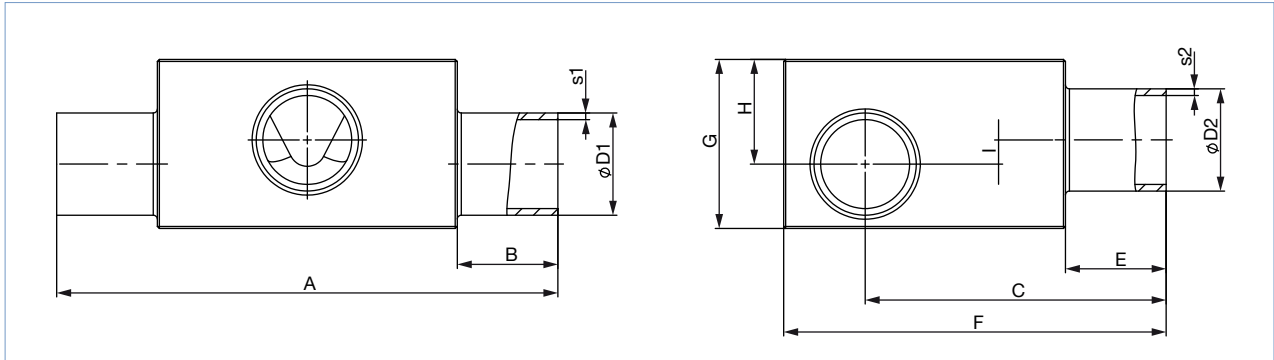
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Pneumatically operated diaphragm
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4.2. T-Body with welded connection

Note:

Dimensions in mm, unless otherwise stated



Dia- phragm size	Port 1 - Port 2 DN	ØD1	s1	ØD2	s2	A	B	C	E	F	G	H	I	Product key ^{1,2} (Port 1 - Port 2)	
DIN EN ISO 1127/ISO 4200/DIN 11866 series B															
8	8...8	13.5	1.6	13.5	1.6	78.0	20	47.2	20	60	24	15	5.0	SA40-SA40	
	10...8	17.2		13.5		78.0		49.00		60	29	18	8.0	SA41-SA40	
	10...10	17.2		17.2		78.0		49.00		60	29	18	8.0	SA41-SA41	
	15...8	21.3		13.5		78.0		51.1		64	34	21	11.0	SA42-SA40	
	15...10	21.3		17.2		78.0		51.1		64	34	21	11.0	SA42-SA41	
	20...8	26.9		13.5		88.0		25		53.9	70	38	23	13.0	SA43-SA40
	20...10	26.9		17.2		88.0				53.9	70	38	23	13.0	SA43-SA41
	25...8	33.7		2.0		13.5		88.0		53.9	76	45	26	16.0	SA44-SA40
	25...10	33.7				17.2		88.0		53.9	76	45	26	16.0	SA44-SA41
	32...8	42.4				13.5		88.0		60.50	84	52	29	19.0	SA45-SA40
	32...10	42.4				17.2		88.0		61.20	84	52	29	19.0	SA45-SA41
	40...8	48.3				13.5		88.0		64.2	90	57	31	21.0	SA46-SA40
	40...10	48.3				17.2		88.0		64.2	90	57	31	20.0	SA46-SA41
	50...8	60.3				13.5		98.0		30	70.2	102	66	34	24.0
	50...10	60.3	17.2		98.0	70.2	102	66	34		24.0	SA47-SA41			
	65...8	76.1	13.5		98.0	78.1	118	80	40		30.0	SA48-SA40			
	80...8	88.9	2.3		13.5	98.0	84.2	131	92		46	36.0	SA49-SA40		
	80...10	88.9		17.2	98.0	84.2	131	92	46	35.0	SA49-SA41				

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Diaphragm size	Port 1 - Port 2 DN	ØD1	s1	ØD2	s2	A	B	C	E	F	G	H	I	Product key ^{1,2)} (Port 1 - Port 2)		
15	8...8	13.5	1.6	13.5	1.6	93.0	20	52.05	20	70	27	17	4.5	SA40-SA40		
	10...8	17.2		13.5		93.0		53.9		70	31	18	4.5	SA41-SA40		
	10...10	17.2		17.2		93.0		54.9		70	28	16	2.5	SA41-SA41		
	15...8	21.3		13.5		93.0		57		71	34.5	21	7.5	SA42-SA40		
	15...15	21.3		21.3		93.0		56		71	35	21	6.5	SA42-SA42		
	20...8	26.9		13.5		103.0		25		59.8	76	41	25	11.5	SA43-SA40	
	20...10	26.9		17.2		103.0				59.8	78	42	25	11.5	SA43-SA41	
	20...15	26.9		21.3		103.0				59.8	78	42	25	11.5	SA43-SA42	
	25...10	33.7		2.0		17.2				103.0	63	83	48	28	14.5	SA44-SA41
	25...15	33.7				21.3				103.0	62.8	83	47	28	14.5	SA44-SA42
	32...8	42.4	13.5		103.0	67.1	91		56	32	18.5	SA45-SA40				
	32...10	42.4	17.2		103.0	67.1	91	56	32	18.5	SA45-SA41					
	32...15	42.4	21.3		103.0	67.1	91	56	32	18.5	SA45-SA42					
	40...8	48.3	13.5		103.0	70.1	97	63	35	21.5	SA46-SA40					
	40...10	48.3	17.2	103.0	70.1	97	63	35	21.5	SA46-SA41						
	40...15	48.3	21.3	103.0	70.1	97	63	35	21.5	SA46-SA42						
	50...8	60.3	13.5	113.0	30	76.1	109	72	38	24.5	SA47-SA40					
	50...10	60.3	17.2	113.0		76.1	109	72	38	24.5	SA47-SA41					
	50...15	60.3	21.3	113.0		76.1	109	72	38	24.5	SA47-SA42					
	65...8	76.1	13.5	113.0		84	125	85	44	30.5	SA48-SA40					
	65...15	76.1	21.3	113.0		84	125	85	44	30.5	SA48-SA42					
	80...8	88.9	2.3	13.5		113.0	90.1	140	99	52	38.5	SA49-SA40				
	80...10	88.9		17.2	113.0	90.1	137	94	47	33.5	SA49-SA41					
	80...15	88.9		21.3	113.0	90.1	137	94	47	33.5	SA49-SA42					
	100...15	114.3		21.3	113.0	102.8	163	120	60	46.5	SA39-SA42					
	20	20...20		26.9	1.6	26.9	1.6	114.0	25	70.3	25	87	40	24	6.0	SA43-SA43
25...20		33.7		2.0	26.9	114.0		73.3		94		48	28	10.0	SA44-SA43	
32...20		42.4	26.9	114.0	78.6	102		57		33		15.0	SA45-SA43			
40...20		48.3	26.9	114.0	80.6	108		63		35		17.0	SA46-SA43			
50...20		60.3	26.9	124.0	30	87		120.8	72	39		21.0	SA47-SA43			
65...20		76.1	26.9	124.0		94.5		136	86	45		27.0	SA48-SA43			
80...20		88.9	2.3	26.9		124.0		100.6	148	94		47	29.0	SA49-SA43		
100...20		114.3	26.9	124.0		113.3		173	120	60		42.0	SA39-SA43			
25	25...25	33.7	2.0	33.7	2.0	124.5	25	78.6	25	98	53	33	13.0	SA44-SA44		
	32...25	42.4		33.7		124.5		82.9		107	62	38	18.0	SA45-SA44		
	40...25	48.3		33.7		124.5		85.9		114	69	41	21.0	SA46-SA44		
	50...25	60.3		33.7		134.5	30	81.9		125	78	45	25.0	SA47-SA44		
	65...25	76.1		33.7		134.5		99.8		142	94	52	32.0	SA48-SA44		
	80...25	88.9		2.3		33.7		134.5		105.9	153	101	54	34.0	SA49-SA44	
	150...25	168.3		2.6		33.7		134.5		145.3	232	174	87	67.0	SA69-SA44	
40	32...32	42.4	2.0	42.4	2.0	152.0	25	98.00	25	122	62	38	9.4	SA45-SA45		
	40...32	48.3		42.4		152.0		100		128	68	41	12.4	SA46-SA45		
	40...40	48.3		48.3		152.0		100		128	68	41	12.4	SA46-SA46		
	50...32	60.3		42.4		162.0	30	106		140	82	48	19.4	SA47-SA45		
	50...40	60.3		48.3		162.0		106		140	82	48	19.4	SA47-SA46		
	65...40	76.1		48.3		162.0		113.9		155	97	55	26.4	SA48-SA46		
	80...32	88.9		2.3		42.4		162.0		120	168	108	60	31.4	SA49-SA45	
	80...40	88.9				48.3	162.0	120		168	108	60	31.4	SA49-SA46		
	100...32	114.3				42.4	162.0	132.7		193	129	68	39.4	SA39-SA45		
	100...40	114.3				48.3	162.0	132.7		193	129	68	39.4	SA39-SA46		
	50	50...50				60.3	2.0	60.3		2.0	188.0	30	120.2	30	154	82
65...50		76.1	60.3	188.0	128.1	170		100	56		20.5		SA48-SA47			
80...50		88.9	2.3	60.3	188.0	134.2		183	110		61		25.5		SA49-SA47	
100...50		114.3	60.3	188.0	146.9	208		131	70		34.5	SA39-SA47				
150...50		168.3	2.6	60.3	188.0	173.6		261	176		88	52.5	SA69-SA47			

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Pneumatically operated diaphragm
valve with ELEMENT actuator



Diaphragm size	Port 1 - Port 2 DN	ØD1	s1	ØD2	s2	A	B	C	E	F	G	H	I	Product key ¹⁻⁾ (Port 1 - Port 2)
DIN 11850 series 2/DIN 11866 series A/DIN EN 10357 series A														
8	10...10	13.0	1.5	13.0	1.5	78.0	20	47.0	20	60	24	15	5.0	SD40-SD40
	20...10	23.0		13.0		88.0	25	52.0		66	36	22	12.0	SD43-SD40
15	15...15	19.0	1.5	19.0	1.5	93.0	20	55.9	20	70	33	20	6.5	SD42-SD42
	20...15	23.0		19.0		103.0		57.9		72	37	22.5	9	SD43-SD42
	25...15	29.0		19.0		103.0	25	60.9		78	43	26	12.5	SD44-SD42
	32...15	35.0		19.0		103.0		63.9		84	49	29	15.5	SD45-SD42
	40...15	41.0		19.0		103.0		66.9		91	56	31	17.5	SD46-SD42
	50...15	53.0		19.0		113.0	30	72.9		102	65	36	22.5	SD47-SD42
20	20...20	23.0	1.5	23.0	1.5	114.0	25	68.7	25	85	36	21	-	SD43-SD43
	32...20	35.0		23.0		114.0		74.4		95	50	29	11.0	SD45-SD43
	40...20	41.0		23.0		114.0		77.4		101	56	32	14.0	SD46-SD43
25	25...25	29.0	1.5	29.0	1.5	124.5	25	76.7	25	98	48	30	10.0	SD44-SD44
	40...25	41.0		29.0		124.5		82.7		106	61	38	18.0	SD46-SD44
	50...25	53.0		29.0		134.5	30	88.7		120	73	44	24.0	SD47-SD44
40	32...32	35.0	1.5	35.0	1.5	152.0	25	95	25	119	52	32	9	SD45-SD45
	40...40	41.0		41.0		152.0		97.3		121	62	37	8.4	SD46-SD46
	50...40	53.0		41.0		162.0	30	102.8		133	75	45	16.4	SD47-SD46
50	50...50	53.0	1.5	53.0	1.5	188.0	30	117.0	30	147	74	44	8.5	SD47-SD47
ASME BPE/DIN 11866 series C														
8	20...8	19.05	1.65	6.35	0.89	88.0	25	49.90	20	61	32	20	10.0	SA93-SA90
	25...10	25.40		9.53		78.0	20	53.00		68	38	23	13.0	SODF-SA91
	40...8	38.10		6.35		88.0	25	59.40		80	49	28	18.0	SODH-SA90
	50...8	50.80		6.35		98.0	30	65.80		93	59	32	22.0	SODI-SA90
	65...8	63.50		6.35		98.0		72.10		106	70	36	26.0	SODJ-SA90
15	15...15	12.70	1.65	12.70	1.65	93.0	20	53.20	20	70	27	13.5	-	SA92-SA92
	20...15	19.05		12.70		103.0		55.80		70	31	18.5	5.0	SA93-SA92
	25...15	25.40		12.70		103.0		59.00		75	40	24	10.5	SODF-SA92
	40...15	38.10		12.70		103.0	25	65.30		88	54	31	17.5	SODH-SA92
	50...15	50.80		12.70		113.0	30	71.70		100	64	35	21.5	SODI-SA92
	65...15	63.50		12.70		113.0		78.00		113	73	38	24.5	SODJ-SA92
	80...15	76.20		12.70		113.0		84.40		125	84	43	29.5	SODK-SA92
20	20...20	19.05	1.65	19.05	1.65	114	25	66.30	25	85	36	18	-	SA93-SA93
	25...20	25.40		19.05		114		69.20		88	40	24	6.0	SODF-SA93
	40...20	38.10		19.05		114		75.80		98	53	31	13.0	SODH-SA93
	50...20	50.80		19.05		124	30	82.20		111	66	37	19.0	SODI-SA93
	65...20	63.50		19.05		124		88.50		123	75	40	22.0	SODJ-SA93
	80...20	76.20		19.05		124		94.90		136	85	44	26.0	SODK-SA93
	100...20	101.60	2.11	19.05		124		107.10		161	108	54	36.0	SODL-SA93
25	25...25	25.40	1.65	25.40	1.65	124.5	25	74.8	25	95	42	26	6.0	SODF-SODF
	40...25	38.10		25.40		124.5		81.1		103	58	36	16.0	SODH-SODF
	50...25	50.80		25.40		134.5	30	87.5		120	75	44	24.0	SODI-SODF
	65...25	63.50		25.40		134.5		93.8		129	82	47	27.0	SODJ-SODF
	80...25	76.20		25.40		134.5		100.15		142	94	52	32.0	SODK-SODF
40	40...40	38.10	1.65	38.10	1.65	152.0	25	99.60	25	121	58	35	6.4	SODH-SODH
	50...40	50.80		38.10		162.0	30	101.6		131	72	43	14.4	SODI-SODH
	65...40	63.50		38.10		162.0		107.90		143	85	50	21.4	SODJ-SODH
	80...40	76.20		38.10		162.0		114.3		156	98	56	27.4	SODK-SODH
50	50...50	50.80	1.65	50.80	1.65	188.0	30	115.8	30	145	71	42	6.5	SODI-SODI
	65...50	63.50		50.80		188.0		122.10		157	85	50	14.5	SODJ-SODI
	65...65	63.50		63.50		188.0		122.10		158	86	50	14.5	SODJ-SODJ
	80...50	76.20		50.80		188.0		128.5		169	98	56	20.5	SODK-SODI
	100...65	101.60	2.11	63.50		188.0		140.7		195	120	66	30.5	SODL-SODJ

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Type 2104
Pneumatically operated diaphragm
valve with ELEMENT actuator



Dia- phragm size	Port 1 - Port 2 DN	ØD1	s1	ØD2	s2	A	B	C	E	F	G	H	I	Product key ^{1.)} (Port 1 - Port 2)	
SMS 3008															
25	25...25	25.0	1.2	25.0	1.2	124.5	25	75.0	25	95	43	27	7.0	SA60-SA60	
	40...25	38.0		25.0		124.5		81.5		103	58	36		16.0	SA62-SA60
	50...25	51.0	25.0	134.5	30	88.0	118	72	42	22.0	SA63-SA60				
40	40...40	38.0	1.2	38.0	1.2	152.0	25	95.6	25	121	58	35	6.4	SA62-SA62	
	50...40	51.0		38.0		162.0		30		102.1	131	73		44	15.4
50	50...50	51.0	1.2	51.0	1.2	188.0	30	120.2	30	154	82	48	2.5	SA63-SA63	
DIN 11850 series 0															
8	04...04	6.0	1.0	6.0	1.0	78.0	20	44.0	20	60	15	6.5	0.0	SC40-SC40	
	06...06	8.0		8.0		75.0		17.5		46.5	60	13		7	0.0
	40...04	40.0	1.5	6.0	1.5	88.0	25	60.5	25	83	51	29	19.0	SC47-SC40	
	40...8	40.0		10.0		88.0		60.5		83	51	29		19.0	SC47-SC42
	50...04	52.0		6.0		98.0		30		66.5	95	60		32	22.0
15	50...15	52.0	1.5	18.0	1.5	113.0	30	72.4	20	101	65	36	22.5	SC48-SC43	
25	25...25	28.0	1.5	28.0	1.5	124.5	25	76.2	25	95	46	29	9.0	SC45-SC45	
	50...25	52.0		28.0		134.5		30		91.2	120	71		42	22.0
40	25...32	28.0	1.5	34.0	1.5	152.0	25	90.3	25	122	58	32	3.4	SC45-SC46	
	50...32	52.0		34.0		162.0		30		102.3	132	75		45	16.4
50	50...50	52.0	1.5	52.0	1.5	188.0	30	116.5	30	147	73	43	7.5	SC48-SC48	

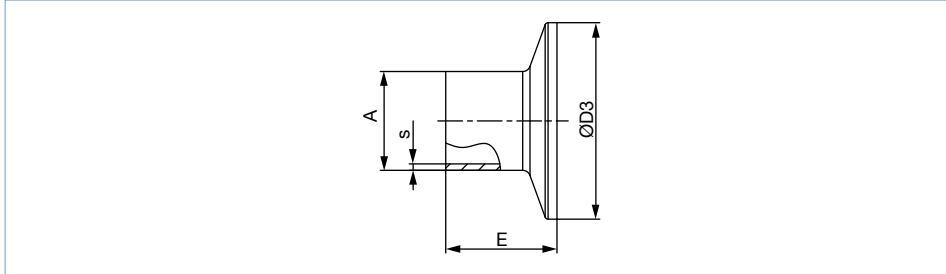
1.) This information is part of the product key (see product enquiry form at the end of this data sheet)

Type 2104
Pneumatically operated diaphragm
valve with ELEMENT actuator

4.3. T-Body with Clamp-connection

Note:

- Dimensions in mm, unless otherwise stated
- Clamp dimensions must be added to the welded connection dimensions.



Port connection		A	s	D3	E	Product key ^{1.)}
[mm]	[inch]					
DIN 32676 series A (DIN pipe)						
10	–	13	1.5	34.0	18	TD41
15	–	19	1.5	34.0	18	TD42
20	–	23	1.5	34.0	18	TD43
25	–	29	1.5	50.5	21.5	TD44
32	–	35	1.5	50.5	21.5	TD45
40	–	41	1.5	50.5	21.5	TD46
50	–	53	1.5	64.0	21.5	TD47
DIN 32676 series B (ISO pipe)						
8	–	13.5	1.6	25.0	28.6	TC40
8	–	13.5	1.6	34.0 ^{2.)}	28.6	TC51 ^{2.)}
10	–	17.2	1.6	34.0 ^{2.)}	28.6	TC41 ^{2.)}
15	–	21.3	1.6	34.0 ^{2.)}	28.6	TC42 ^{2.)}
15	–	21.3	1.6	50.5	28.6	TC52
20	–	26.9	1.6	50.5	28.6	TC43
25	–	33.7	2	50.5	28.6	TC44
32	–	42.4	2	50.5 ^{2.)}	28.6	TC45 ^{2.)}
40	–	48.3	2	64.0	28.6	TC46
50	–	60.3	2	77.5	28.6	TC47
ASME BPE						
8	1/4"	6.35	0.89	25.0	28.6	TG50
10	3/8"	9.53	0.89	25.0	28.6	TG01
15	1/2"	12.7	1.65	25.0	28.6	TG02
20	3/4"	19.05	1.65	25.0	28.6	TG03
25	1"	25.4	1.65	50.5	28.6	TG04
40	1 1/2"	38.1	1.65	50.5	28.6	TG05
50	2"	50.8	1.65	64.0	28.6	TG06

1.) This information is part of the product key (see product enquiry form at the end of this data sheet)

2.) Deviating from the standard, because of different clamp outer diameter.

5. Performance specifications

5.1. Medium pressure

Information for control function A


Note:

- For low operating pressures, optional versions with reduced spring force (**EC04**) are recommended.
- Pressure data [bar]: Overpressure to atmospheric pressure. Valve closes dynamically against max. operating pressure.
- Information for control function B and I on request.

Diaphragm size	Actuator size Ø	Pilot pressure	Max. operating pressure for seal material	
			EPDM, FKM	PTFE/EPDM, advanced PTFE/EPDM, GYLON®/EPDM laminated
DN	[mm]	[bar]	[bar]	[bar]
8	50(D)	5.0...10	10	10
15	50(D)	5.0...10	7.5	–
	70(M)		10	10
20	70(M)	5.0...10	10	10
25	70(M)	5.0...10	6.5	4.5
	90(N)		10	8
40	90(N) ^{1.)}	5.5...10	5.5	5
	130(P)		10	10
50	130(P)	5.0...7	8	7
65	130(P)	5.0...7	5.5	3.5

1.) Gylon version is not available


6. Product accessories

Process controller TopControl	
Type 8693 ▶ Actuator size Ø 70/90/130 mm	Description
	<p>The intelligent process controller Type 8693 is designed for integrated mounting on pneumatic actuators from the process control valve series Type 23xx/2103 and especially for the requirements of hygienic process conditions. Using the TUNE-Functions, the process controller and positioner can be initialized automatically. Easy operation and selection of additional software functions as well as parameterization are carried out via the large graphic display and the keypad. Device configuration and parameterization can also be conveniently carried out by the Bürkert Communicator software tool via a PC interface.</p> <p>Features</p> <ul style="list-style-type: none"> • Contact-free position sensor • Universal positioning system for single and double-acting actuators • Ultra dynamic positioning system without air consumption in steady state • Integrated diagnostic functions for valve monitoring • Automatic initialization of the positioner and process controller using the TUNE-Function • Defined safe position in case of electrical or pneumatic auxiliary power failure • PROFIBUS DP-V1, EtherNet/IP, PROFINET, Modbus TCP, Bürkert system bus (bÜS) • Compact and robust hygienic stainless steel design <p>Customer benefits</p> <ul style="list-style-type: none"> • Quick and easy commissioning • Intuitive and simple operation via graphic display with backlight and keypad • High degree of system availability due to increased actuator service life by means of spring chamber ventilation • Guaranteed reliability and predictable maintenance through valve monitoring and diagnostics • Easy maintenance and process monitoring




Type 2104
Pneumatically operated diaphragm
valve with ELEMENT actuator

Positioner TopControl	
Type 8692 ▶ Actuator size Ø 70/90/130 mm	Description <p>The intelligent electropneumatic positioner Type 8692 is designed for integrated attachment to pneumatic actuators of the process control valve series Type 23xx/2103 and especially for the requirements of hygienic process conditions. The positioner can be initialized automatically using the TUNE-Function. Easy operation and the selection of the extensive additional software functions as well as parameterization are carried out via the large graphic display and keypad. The device configuration and parameterization can also be conveniently carried out using the Bürkert Communicator software tool via a PC interface.</p> <p>Features</p> <ul style="list-style-type: none"> • Contact-free position sensor • Universal positioning system for single and double-acting actuators • Ultra dynamic positioning system without air consumption in steady state • Integrated diagnostic functions for valve monitoring • Automatic initialization of the positioner by means of the TUNE-Function • Defined safe position in case of electrical or pneumatic auxiliary power failure • PROFIBUS DP-V1, EtherNet/IP, PROFINET, Modbus TCP, Bürkert system bus (bÜS) • Compact and robust hygienic stainless steel design <p>Customer benefits</p> <ul style="list-style-type: none"> • Quick and easy commissioning • Intuitive and simple operation via graphic display with backlight and touch keypad • High degree of system availability due to increased actuator service life by means of spring chamber ventilation • Guaranteed reliability and predictable maintenance through valve monitoring and diagnostics
Positioner TopControl BASIC	
Type 8694 ▶ Actuator size Ø 70/90/130 mm	Description <p>The compact positioner Type 8694/8696 is designed for integrated attachment to pneumatic actuators of the Type 23xx/2103 process control valve series and especially for the requirements of hygienic process conditions. Operation and parameterization are performed via push buttons and DIP switches. The device configuration and parameterization can also be conveniently carried out using the Bürkert Communicator software tool via a PC interface.</p> <p>Features</p> <ul style="list-style-type: none"> • Contact-free position sensor • Universal positioning system for single and double-acting actuators • Ultra dynamic positioning system without internal control air consumption • AS-Interface, IO-Link, Bürkert system bus (bÜS) (only 8694) • Compact and robust hygienic stainless steel design <p>Customer benefits</p> <ul style="list-style-type: none"> • Simple and safe commissioning through Teach-In function • Minimum space requirement in the plant pipework for more flexibility in plant design • High degree of system availability due to increased actuator service life by means of spring chamber ventilation
Type 8696 ▶ Actuator size Ø 50 mm	

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Process controller SideControl Remote	
Type 8793 ▶ with Remote Sensor 8798 ▶ Actuator size Ø 70/90/130 mm	Description
	<p>The intelligent digital positioner/process controller Type 8793 is designed for mounting on lift or swivel drives with standardization in accordance with IEC 534 - 6 or VDI/VDE 3845 and is designed for demanding control tasks. The version with remote position sensor Type 8798 is used to control Bürkert process control valves. It is operated via a backlit graphic display. The initialization of process and positioner can be done automatically by means of TUNE-Function. Here the type of controlled system is automatically recognized and the appropriate controller structure with the corresponding optimum parameter set is determined.</p> <p>Features</p> <ul style="list-style-type: none"> • Universal control system for single and double-acting actuators • Integrated diagnostic functions for valve monitoring • Automatic initialization of the position and process controller by means of TUNE-Function • Ultra dynamic actuating system without internal control air consumption. • Illuminated graphic display with keypad • PROFIBUS DP-V1, EtherNet/IP, PROFINET, Modbus TCP, Bürkert system bus (büs) • Compact and robust design • Adaptation acc. to IEC 534 - 6 or VDI/VDE 3845 for lift and swivel drives or as remote version on Bürkert process valves <p>Customer benefits</p> <ul style="list-style-type: none"> • Quick and easy commissioning • Intuitive and simple operation via graphic display with backlight and keypad. • Guaranteed reliability and scheduled maintenance thanks to valve monitoring and diagnostics. • Easy maintenance and process monitoring • Long service life

Type 2104
Pneumatically operated diaphragm
valve with ELEMENT actuator

Positioner SideControl Remote	
Positioner Type 8792 ▶ with Remote Sensor Type 8798 ▶ Actuator size Ø 70/90/130 mm	Description <p>The intelligent digital position/process controller Type 8792 is designed for attachment to lift and swivel drives with standardization according to IEC 534 - 6 or VDI/VDE 3845 for demanding control tasks. The Type 8798 version with remote position sensor is used to control Bürkert process control valves. It is operated via a backlit graphic display. The initialization of process and positioner can be done automatically by means of TUNE-Function.</p> <p>Features</p> <ul style="list-style-type: none"> • Illuminated graphic display with touch screen • Universal control system for single and double-acting actuators • Ultra dynamic actuating system without internal control air consumption. • Integrated diagnostic functions for valve monitoring • PROFIBUS DP-V1, EtherNet/IP, PROFINET, Modbus TCP, Bürkert system bus (büS) • Compact and robust design • Adaptation acc. to IEC 534 - 6 or VDI/VDE 3845 for lift and swivel drives or as remote version on Bürkert process valves <p>Customer benefits</p> <ul style="list-style-type: none"> • Quick and easy commissioning • Intuitive and simple operation via backlit graphic display and keypad. • Guaranteed reliability and scheduled maintenance thanks to valve monitoring and diagnostics. • Long service life
	
Positioner SideControl BASIC Remote	
Positioner Type 8791 ▶ with Remote Sensor Type 8798 ▶ Actuator size Ø 70/90/130 mm	Description <p>The positioner Type 8791 is designed for mounting on lift or swivel drives with standardization in accordance with IEC 534 - 6 or VDI/VDE 3845 designed for simple control tasks. The variant with the remote sensor Type 8798 is used to control Bürkert process control valves. All operating elements are located inside the housing.</p> <p>Features</p> <ul style="list-style-type: none"> • Simple design • Universal control system for single and double-acting actuators • Ultra dynamic positioning system without air consumption in steady state • Adaptation according to IEC 534 - 6 or VDI/VDE 3845 for lift and swivel drives or as remote version on Bürkert process valves • AS-Interface, IO-Link, Bürkert system bus (büS) (only for Positioner Type 8791 BASIC Remote) <p>Customer benefits</p> <ul style="list-style-type: none"> • Quick and easy commissioning • Simple device for simple control tasks • Low energy consumption
	
Positioner IP20 Type 8791 ▶ with Remote Sensor Type 8798 ▶ Actuator size Ø 70/90/130 mm	
	

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Type 2104
Pneumatically operated diaphragm
valve with ELEMENT actuator

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 • Pilot valve with manual override
Type 8695 ▶ Actuator size Ø 50 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"> • 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 • Mechanical or inductive proximity switches for end position detection • Pilot valve with manual override
Type 8697 ▶ Actuator size Ø 50 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"> • 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

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7. Networking and combination with other Bürkert products

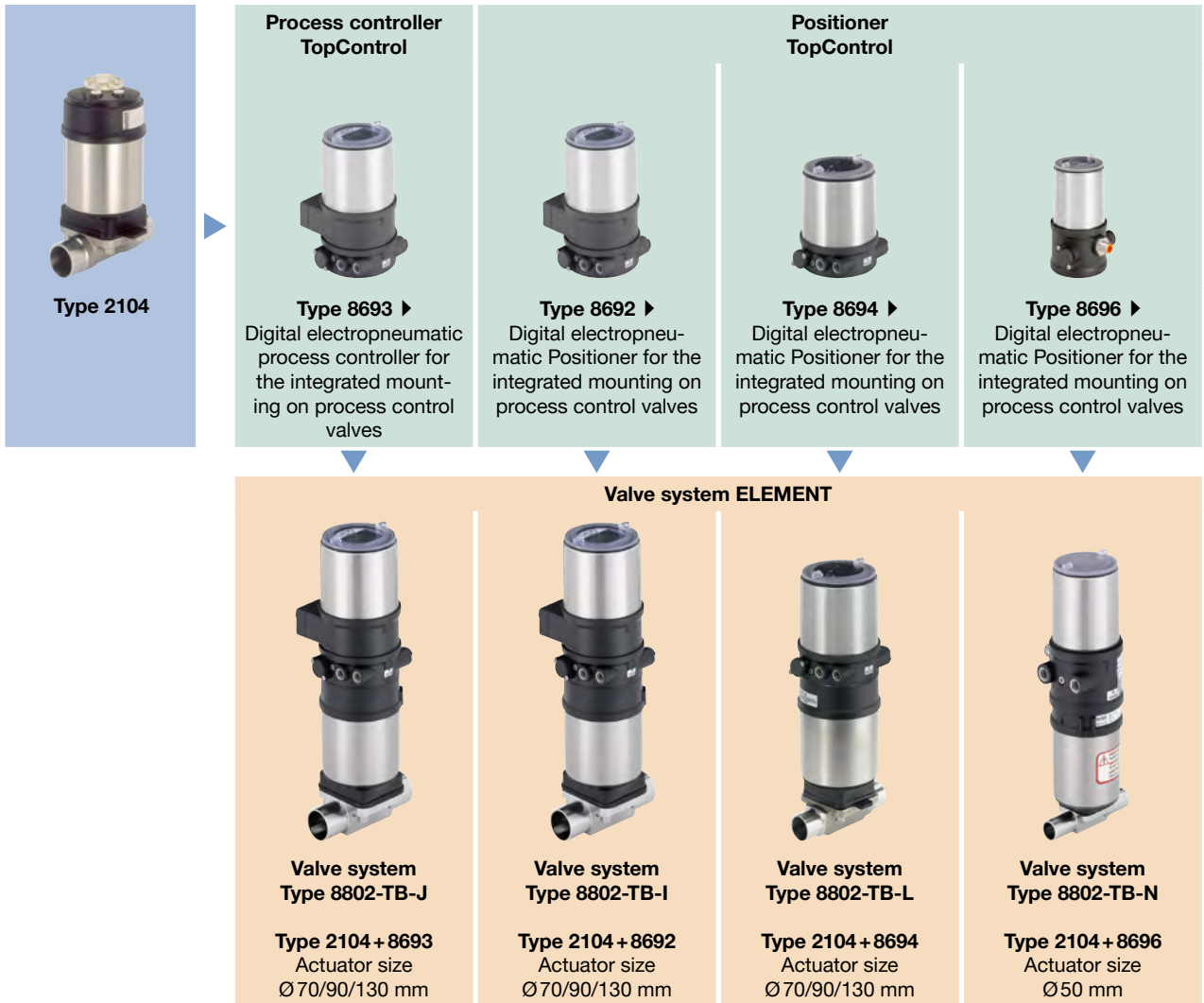
7.1. Possible combinations for ELEMENT control valve system Type 8802-TB with TopControl

The continuous ELEMENT valve system, Type 8802-TB, consists of a diaphragm valve, Type 2104, and a digital electropneumatic positioner, Type 8692 (for valve actuator size Ø 70/90/130 mm), a digital electropneumatic process controller, Type 8693 (for valve actuator size Ø 70/90/130 mm), a basic digital electropneumatic positioner, Type 8694 (for valve actuator size Ø 70/90/130 mm) or a digital electropneumatic positioner, Type 8696 (for valve actuator size Ø 50 mm).

Note:

You order two components and receive a completely assembled and tested valve.

Example:



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Type 2104
Pneumatically operated diaphragm
valve with ELEMENT actuator

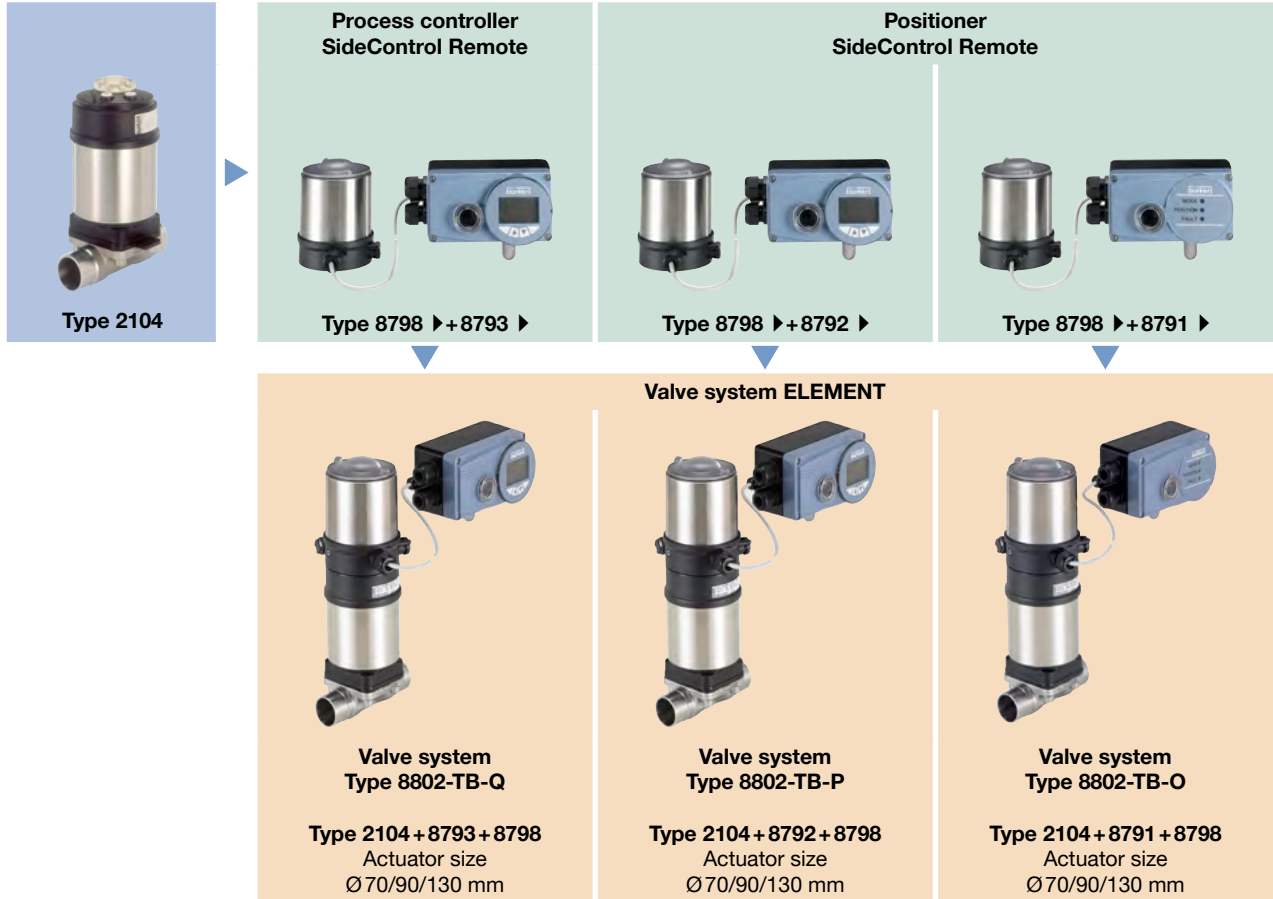
7.2. Possible combinations for control valve system ELEMENT Type 8802-TB with SideControl Remote

The continuous ELEMENT valve system, Type 8802-TB with SideControl, consists of a diaphragm valve, Type 2104 and a digital electropneumatic SideControl process controller Type 8793 (for valve actuator size Ø 70/90/130 mm) or a digital electropneumatic SideControl positioner Type 8792/8791 (for valve actuator size Ø 70/90/130 mm). The SideControls can only be used in combination with the position measuring system Type 8798.

Note:

You order two components and receive a completely assembled and tested valve.

Example:



Type 2104
Pneumatically operated diaphragm
valve with ELEMENT actuator

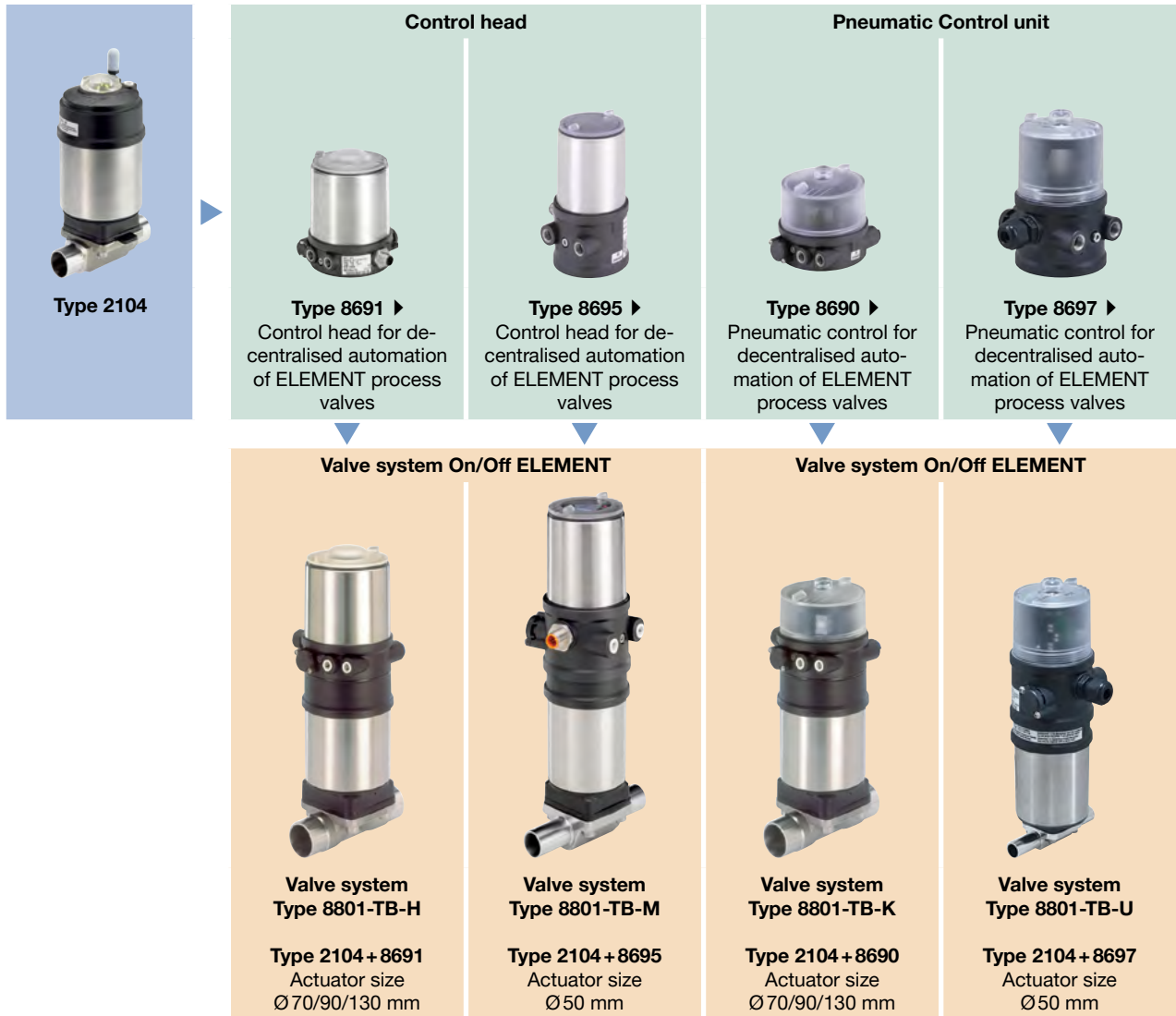
7.3. Possible combinations for ELEMENT control valve system Type 8801-TB with control head or pneumatic control unit/position feedback

A decentralized automated **valve system On/Off ELEMENT, Type 8801-TB**, consists of a **diaphragm valve, Type 2104**, and a **valve control head Type 8691/8695** or a **pneumatic control unit Type 8690/8697**.

Note:

You order two components and receive a completely assembled and tested valve.

Example:



8. Ordering information

8.1. Bürkert eShop – Easy ordering and quick delivery



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8.2. 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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8.3. Bürkert product enquiry form

Bürkert product enquiry form: Would you like to make a specific product enquiry based on your technical requirements? Please use our product enquiry form **at the end of this data sheet**. There you will find all the information relevant to your Bürkert contact person that will help us to process your enquiry in the best possible way.

Bürkert specification key: In our product enquiry form you will find a complete explanation of the composition of our specification key. You will find our product enquiry form **at the end of this data sheet**.

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Product Enquiry Form Solenoid Valves

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

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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 solenoid valve in the process / process description)</small>			
Orifice / Nominal pressure	DN	PN	
Operating medium			
Type of medium	Fluid	Steam	Gas
Voltage supply	AC voltage:	V /	Hz
	DC voltage:	V	
Circuit function	2/2 way 3/2 way Other	NC (normally closed) NO (normally open) Power reduction	
Max. ambient temperature	$t_{u,max} =$	°C /	°F

Fluidic data			
Flow range $Q_{Nenn}/K_{V Nenn}$		Min.	Max. Unit
Input pressure at $Q_{Nenn}/K_{V Nenn}$	$p_1 =$	bar (ü) ^{1.)}	
Differential pressure at $Q_{Nenn}/K_{V Nenn}$	$p_2 =$	bar (ü) ^{1.)}	
Max. input pressure	$p_{1,max} =$	bar (ü) ^{1.)}	
Medium temperature (min./max.)	$t_{m,min} =$	$t_{m,max} =$	°C / °F
Port connection	G (DIN ISO 228/1) Flange/Subbase		NPT (ANSI B1.2) Other



1.) Please indicate all pressure values as overpressure to the atmospheric pressure [bar(g)] ((g) = relative pressure)

Material specifications				
Body	Stainless steel Other	Brass	Cast iron	Synthetics
Seal	FKM Other	EPDM	NBR	



Approvals / Conformity
e. g. UL/UR, Watermark, KTW W270, DVGW Gas, ATEX/IECEX, EAC, etc.

Additional Requirements / Comment

Positioner / process controller TopControl for control valves of the ELEMENT series

For actuator size $\varnothing 70/\varnothing 90/\varnothing 130$ mm			
Process Controller TopControl Type 8693 ▶		Positioner TopControl Type 8692 ▶	
	<ul style="list-style-type: none"> Intelligent digital positioners and process controllers with integrated PID controller for accurate process control Lighted graphic display with membrane keypad Tune function for automatic start-up Field bus communication Diagnostic functions 		<ul style="list-style-type: none"> Digital positioner without sensor input Lighted graphic display with membrane keypad Tune function for automatic start-up Field bus communication Diagnostic functions
Pneumatic function		Electrical connection	
Single-acting	Double-acting	Cable gland Without	M12 Multipole connection
Digital Communication		Approvals	
PROFIBUS DP-V1	EtherNet/IP	ATEX cat. 3GD, IECEx	Without
PROFINET	Bürkert Systembus (būs) ^{1.)}		
Modbus TCP	Without		
Analogue feedback		Digital outputs and diagnostics	
0/4...20 mA	0/4...20 mA + 2 binary outputs	Yes	No

1.) Based on CANopen

For actuator size $\varnothing 70/\varnothing 90/\varnothing 130$ mm			For actuator size $\varnothing 50$ mm	
Positioner TopControl BASIC Type 8694 ▶			Positioner TopControl BASIC Type 8696 ▶	
	<ul style="list-style-type: none"> Status LED and DIP switches Tune-function for automatic start-up Positioning system for single-acting actuators Field bus communication 			<ul style="list-style-type: none"> Status LED and DIP switches Tune-function for automatic start-up Positioning system for single-acting actuators
Pneumatic function			Electrical connection	
Single-acting			Cable gland ^{1.)} Without	M12 Multipole connection
Digital Communication			Approvals	
AS-Interface ^{1.)}	IO-Link	Bürkert Systembus (būs) ^{2.)}	ATEX cat. 3GD, IECEx	Without
Without				
Analogue feedback				
Yes			No	



1.) Only available for Type 8694. Not available for Type 8696.

2.) Based on CANopen

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Positioner / process controller SideControl Remote for control valves of the ELEMENT series



For actuator size $\varnothing 70/\varnothing 90/\varnothing 130$ mm

Process Controller SideControl Type 8793 ▶ with Remote sensor Type 8798 ▶		Positioner SideControl Type 8792 ▶ with Remote sensor Type 8798 ▶	
	<ul style="list-style-type: none"> Intelligent digital positioners and process controllers with integrated PID controller Lighted graphic display with membrane keypad Tune-function for automatic start-up, linearization and optimization of process characteristics Field bus communication Diagnostic functions 		<ul style="list-style-type: none"> Digital positioner without sensor input Lighted graphic display with membrane keypad Tune function for automatic start-up Field bus communication Diagnostic functions
Pneumatic function		Electrical connection	
Single-acting	Single- and double-acting	Cable gland ^{1.)}	M12 Multipole connection
Digital communication		Approvals	
PROFIBUS DP-V1	EtherNet/IP	ATEX cat. 3GD, IECEx	Without
PROFINET	Bürkert Systembus (büS) ^{2.)}		
Modbus TCP	Without		
Analogue feedback		Digital outputs and diagnostics	
0/4...20 mA	0/4...20 mA + 2 binary outputs	Yes	No
0/5...10 V	0/5...20 V + 2 binary outputs		

1.) With a cable gland the selection of a fieldbus communication PROFIBUS, EtherNet etc. is not possible. Only variants with M12 Multipole are offered as standard for fieldbus communication.

2.) Based on CANopen

For actuator size $\varnothing 70/\varnothing 90/\varnothing 130$ mm



Positioner SideControl BASIC Type 8791 ▶ with Remote sensor Type 8798 ▶		Positioner SideControl BASIC IP20 Type 8791 ▶ with Remote sensor Type 8798 ▶	
	<ul style="list-style-type: none"> „simple positioner“ Universal positioning system for single and double acting actuators Tune function for automatic start-up Field bus communication 		<ul style="list-style-type: none"> „simple positioner“ Universal positioning system for single and double acting actuators Tune function for automatic start-up Switchgear cabinet assembly
Pneumatic function		Electrical connection	
Single-acting (actuator size $\varnothing 70/90$)	Single- and double-acting (actuator size $\varnothing 130$)	Cable gland ^{1.)}	M12 Multipole connection
Digital communication		Approvals	
AS-Interface ^{2.)} :		ATEX cat. 3GD, IECEx ^{2.)}	Without
Analogue profile S-7.3.4 (only set point)			
Analogue profile S-7.A.5 (set point and feedback)			
IO-Link	Bürkert Systembus (büS) ^{3.)} Without		
Analogue feedback			
0/4...20 mA	No		

1.) With a cable gland, the selection of a fieldbus communication AS-Interface is not possible. For fieldbus communication, only variants with M12 Multipole are offered as standard.


2.) Only available for Positioner SideControl BASIC Type 8791. Not available for Positioner SideControl BASIC IP20 Type 8791.

3.) Based on CANopen, IO-Link and büS not available for IP20 Type 8791

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		

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