

Pneumatically Operated 2/2-way Diaphragm Valve ELEMENT for Decentralized Automation

2103 TVB

- Hydroformed pharmaceutical grade tube valve body
- Optimal design for hygienic environments
- Easy integration of automation units with ELEMENT
- Reduced mass up to 75% allows for optimized heating and cooling cycles



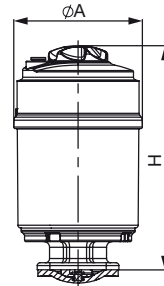
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 FOR DATA SHEET

The externally piloted diaphragm valve consists of a pneumatically operated piston actuator, a diaphragm and a 2-way tube valve body. Burkert's patented hydroforming technology allows the manufacturing of a flow optimized stainless steel valve body with high surface quality. A laser-welded mounting interface ensures robustness and hygienic design. The actuator design enables the easy integration of automation units whether they are electrical/optical position feedback, pneumatic control units, an integrated fieldbus interface or even explosion proof device versions. The fully integrated system has a compact and smooth design, integrated pneumatic lines, IP65/67, NEMA Type 4X protection class and superior chemical resistance. The diaphragm valve with tube body is perfect for hygienic applications in the food and beverage, pharma, and cosmetic industries. It is designed in accordance with ASME BPE 2016 guidelines and is certified by EHEDG.

Dimensions [inch]

Actuator



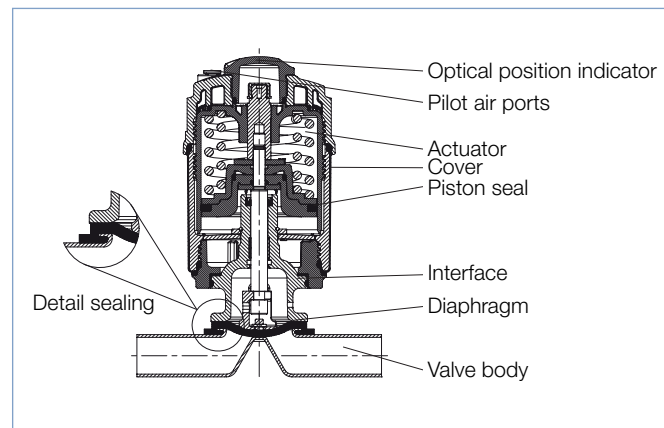
Diaphragm size	Actuator size Ø [mm]	ØA	H
1/4"	50	2.54	5.35
1/2"	70	3.58	6.26
3/4"	70	3.58	6.26
1-1/4"	90	4.72	8.89
1-1/2"	130	6.26	10.81

2103 with 360° rotatable interface, stainless steel

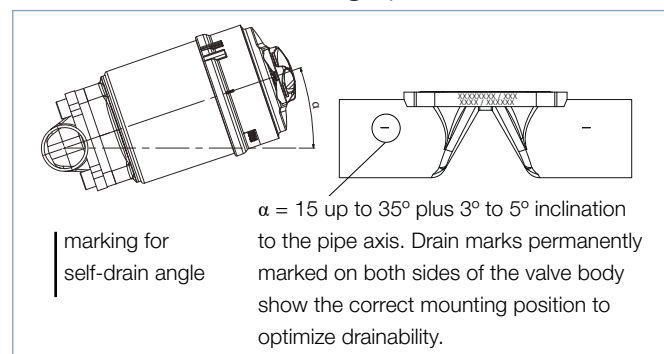
Technical Data

Port connection	1/2" to 2"
Diaphragm size	1/4" to 1-1/2"
Port connections	Weld ends ASME BPE
Materials	Body: Stainless Steel 316L /1.4435 / BN2 Diaphragm materials: PTFE/EPDM (EA), EPDM (AD), Gylon/ EPDM Laminated (ER) on request: advanced PTFE/EPDM (EU), FKM (FF) PPS / Stainless Steel 1.4561 (316Ti)
Media	Neutral gases and liquids, high-purity, sterile, aggressive or abrasive fluids
Viscosity	Up to viscous
Surface finish	Internally electropolished Ra ≤ 15 Ra (ASME BPE SF4)
Medium temperature	PTFE/EPDM (EA) 14 to 266°F (steam sterilization 284°F for 60 min) EPDM (AD), advanced PTFE/EPDM (EU) 23 to 289°F (steam sterilization 302°F for 60 min) GYLON®/EPDM laminated (ER) 23 to 266°F (steam sterilization 284°F for 60 min)
Ambient temperature	+41°F to +140°F
Control medium	Neutral gases; air
Max. pilot pressure	max. 145 PSI, 100 PSI with actuator size 130mm
Pilot air ports	Push-in connector for external Ø 6 mm or ¼" tube, thread G1/8 (on request)

Materials



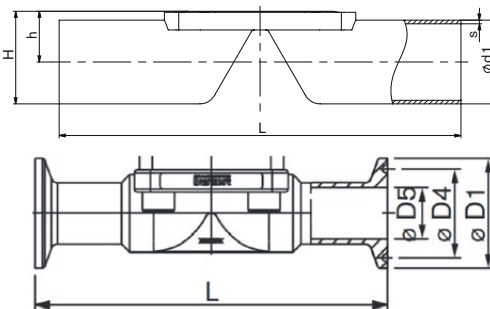
Installation for self-draining operation



Technical data (continued)

Port connection DN		Diaphragm size	Actuator size Ø	Pilot pressure	Max. operating pressure for seal material [PSI]		Cv [gpm]
[mm]	[inch]				EPDM	PTFE, advanced PTFE, GYLON®	
8	1/2"	1/4"	50	73-145	145	145	2.54
15	3/4"	1/2"	70	73-145	145	145	7.52
20	1"	3/4"	70	73-145	145	145	14.69
32	1-1/2"	1-1/2"	90	73-145	116	87	37.01
40	2"	2"	130	73-145	145	145	53.20

Flow rate: Cv value [gpm] measured at +60°F, 1 PSI pressure at valve inlet and free outlet



Weld end port connections

Port connection DN		Diaphragm size	ØD1	s	h	H	L
[mm]	[inch]						
ASME BPE							
15	1/2"	1/4"	0.5	0.06	0.35	0.63	3.54
20	3/4"	1/2"	0.75	0.06	0.51	0.91	4.61
25	1"	3/4"	1.0	0.06	0.63	1.14	5.0
40	1-1/2"	1-1/4"	1.5	0.06	0.91	1.65	6.26
50	2"	1-1/2"	2.0	0.06	1.22	2.20	7.48

Clamp port connections

Port connection DN		Diaphragm size	ØD1	ØD4	ØD5	L
[mm]	[inch]					
ASME BPE						
15	1/2"	1/4"	0.98	0.81	0.37	3.50
20	3/4"	1/2"	0.98	0.81	0.62	4.02
25	1"	3/4"	1.99	1.71	0.87	4.49
40	1-1/2"	1-1/4"	1.99	1.71	1.36	5.51
50	2"	1-1/2"	2.52	2.22	1.87	6.26

Ordering Charts

Welded connection ASME BPE

electropolished Ra ≤ 15 Ra and Inspection certificate 3.1 acc. to EN-ISO 10204 (included in delivery)

Port connection DN	[mm]	[inch]	Diaphragm size	Actuator size [mm]	Cv [gpm]	Pilot pressure [PSI]	Max. operating pressure [PSI]	Item no. interface 360° rotatable, stainless steel
Diaphragm material EPDM (AD)								
15	15	1/2"	1/4"	50	2.54	54-145	145	321 038
20	20	3/4"	1/2"	70	7.52	70-145	145	324 754
25	25	1"	3/4"	70	14.69	70-145	145	321 066
40	40	1-1/2"	1-1/4"	90	37.01	73-145	116	321 082
50	50	2"	1-1/2"	130	53.20	73-102	145	324 809
Diaphragm material PTFE/EPDM (EA)								
15	15	1/2"	1/4"	50	2.54	64-145	145	290 514
20	20	3/4"	1/2"	70	7.52	70-145	145	290 516
25	25	1"	3/4"	70	14.69	70-145	145	290 518
40	40	1-1/2"	1-1/4"	90	37.01	73-145	87	290 520
50	50	2"	1-1/2"	130	53.20	73-102	145	290 525
Diaphragm material Gylon®/EPDM Laminated (ER)								
15	15	1/2"	1/4"	50	2.54	64-145	145	325 896
20	20	3/4"	1/2"	70	7.52	70-145	145	325 897
25	25	1"	3/4"	70	14.69	70-145	145	325 898
40	40	1-1/2"	1-1/4"	90	37.01	73-145	87	291 907
50	50	2"	1-1/2"	130	53.20	73-102	145	325 899

Clamp connection ASME BPE

electropolished Ra ≤ 15 Ra micrometer and Certification of Conformity for Raw Material EN-ISO 10204 3.1 (included in delivery)

Port connection DN	[mm]	[inch]	Diaphragm size	Actuator size [mm]	Cv [gpm]	Pilot pressure [PSI]	Max. operating pressure [PSI]	Item no. interface 360° rotatable, stainless steel
Diaphragm material EPDM (AD)								
15	15	1/2"	1/4"	50	2.54	54-145	145	317 717
20	20	3/4"	1/2"	70	7.52	70-145	145	317 719
25	25	1"	3/4"	70	14.69	70-145	145	317 721
40	40	1-1/2"	1-1/4"	90	37.01	73-145	116	317 723
50	50	2"	1-1/2"	130	53.20	73-102	145	317 727
Diaphragm material PTFE/EPDM (EA)								
15	15	1/2"	1/4"	50	2.54	64-145	145	317 718
20	20	3/4"	1/2"	70	7.52	70-145	145	317 720
25	25	1"	3/4"	70	14.69	70-145	145	317 722
40	40	1-1/2"	1-1/4"	90	37.01	73-145	87	317 724
50	50	2"	1-1/2"	130	53.20	73-102	145	317 728
Diaphragm material Gylon®/EPDM Laminated (ER)								
15	15	1/2"	1/4"	50	2.54	64-145	145	325 927
20	20	3/4"	1/2"	70	7.52	70-145	145	325 928
25	25	1"	3/4"	70	14.69	70-145	145	325 929
40	40	1-1/2"	1-1/4"	90	37.01	73-145	87	325 930
50	50	2"	1-1/2"	130	53.20	73-102	145	325 931