

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

2103 forged On/Off

- Optimized flow and zero deadleg
- Diaphragm hermetically separates the fluids from the operating mechanism
- Easy integration of ELEMENT automation units
- SS body with clamp or weld ends
- Internationally certified for pharmaceutical, aseptic, sterile and sanitary food applications



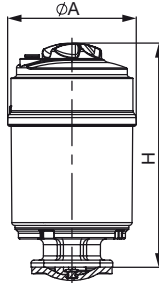
The externally piloted diaphragm valve type 2103 consists of a pneumatically operated piston actuator, a diaphragm and a 2-way valve housing made of forged stainless steel. The high quality actuator with a stainless steel cover is designed for usage in hygienic or aggressive environments. The flow optimized and zero dead volume valve body makes high flow rates possible and a variety of applications to be realized.

The design enables the easy integration of automation modules whether they are electrical/optical position feedback, pneumatic control units or an integrated fieldbus interface. The fully integrated system has a compact and smooth design, integrated pneumatic lines, IP65/67, NEMA Type 4X protection class and superior chemical resistance.

Technical Data

Port connection	1/2" to 2 1/2" available (port connection only)
Diaphragm size	1/2" to 2" (DN15 to DN50; DN08 available on request)
Port connections	
Weld ends	ASME BPE
Clamps	ASME BPE (other piping standards available on request)
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)
Actuator / Cover	
Media	Neutral gases and liquids, high-purity, sterile, aggressive or abrasive fluids
Viscosity	Up to viscous
Surface finish	Wetted surfaces: Ra <= 0.5µm (ASME BPE SF1) & External surfaces (fluidic body): Ra <= 1.6µm
Electro polished:	Wetted surfaces: Ra <= 0.38µm (ASME BPE SF4) & External surfaces (fluidic body): Ra <= 0.76µm
(more available on request)	
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) FKM (FF)	23 to 266°F (steam sterilization 140°C for 60 min) 32 to 266°F (not recommended for steam)
Ambient temperature	+41°F to +140°F
Control medium	Neutral gases; air
Max. pilot pressure	max. 145 PSI (101 PSI with actuator size 130mm)

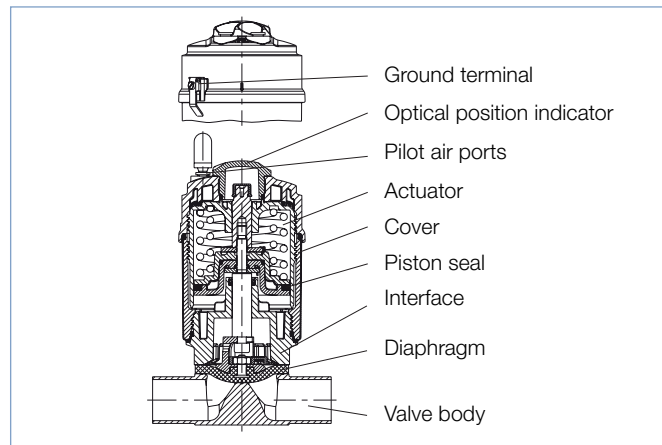
Dimensions [inch]



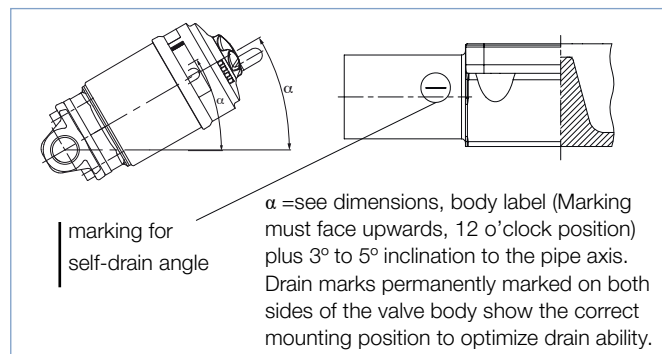
Diaphragm size	Actuator size Ø [mm]	ØA	H
1/2"	70	3.58	6.26
3/4"	70	3.58	6.26
1"	90	4.72	7.78
1-1/2"	130	6.26	10.51
2"	130	6.26	10.81

2103 with 360° rotatable interface, stainless steel

Materials



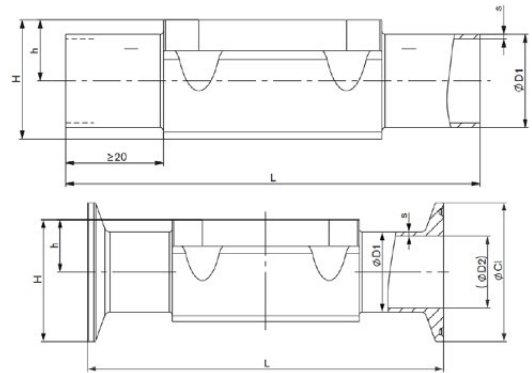
Installation for self-draining operation



Technical data (continued)

Port connection DN		Diaphragm size	Actuator size Ø	Pilot pressure	Max. media pressure [PSI]		Cv [gpm]
[mm]	[inch]				[mm]	[PSI]	
15	1/2"	1/2"	70	73-145	145	145	3.59
20	3/4"	3/4"	70	73-145	145	145	9.83
25	1"	1"	90	73-145	145	116	16.77
40	1-1/2"	1-1/2"	130	73-102	145	102	42.79
50	2"	2"	130	73-102	145	102	76.34

Flow rate: Cv value [gpm] for elastomer diaphragms measured at +68°F and 1 PSI pressure drop at mean operating pressure | Pressure valves: Overpressure to the atmospheric pressure, valve closes dynamical against max. operating pressure



Forged body - weld end

Port connection DN		DIAPH size	ØD1	s	h	H	L	Self-drain angle [°]
[mm]	[inch]							
ASME BPE								
15	1/2"	1/2"	0.5	0.065	0.315	0.787	4.252	41
20	3/4"	3/4"	0.75	0.065	0.63	1.181	4.606	29
25	1"	1"	1	0.065	0.748	1.157	5.0	27
40	1-1/2"	1-1/2"	1.5	0.065	1.102	2.047	6.26	24
50	2"	2"	2	0.065	1.417	2.677	7.48	20

Forged body - clamp

Port connection DN		DIAPH size	ØD1	s	Cl	ØD2	h	H	L	Self-drain angle [°]
[mm]	[inch]									
ASME BPE										
15	1/2"	1/2"	0.5	0.065	0.984	0.37	0.315	0.827	3.504	41
20	3/4"	3/4"	0.75	0.065	0.984	0.62	0.63	1.142	4.016	29
25	1"	1"	1	0.065	1.988	0.87	0.748	1.732	4.488	27
40	1-1/2"	1-1/2"	1.5	0.065	1.988	1.37	1.102	2.087	5.512	24
50	2"	2"	2	0.065	2.52	1.87	1.417	2.677	6.26	20

Ordering Charts

Welded connection acc. ASME BPE

Inspection Certificate 3.1 acc. to EN 10204 - Material Test Report (included in delivery)

Port connection DN		Diaphragm size	Actuator size Ø	Cv	Pilot pressure [PSI]	Max. operating pressure [PSI]	Item no. mechanically polished Ra ≤ 0.5 µm	Item no. electropolished Ra ≤ 0.38 µm
[mm]	[inch]							
Diaphragm material EPDM (AD)								
15	1/2"	1/2"	70	3.59	70-145	145	325 900	325 905
20	3/4"	3/4"	70	9.83	70-145	145	325 901	325 906
25	1"	1"	90	17.93	73-145	145	325 902	325 907
40	1-1/2"	1-1/2"	130	42.79	73-102	145	328 459	328 460
50	2"	2"	130	76.34	73-102	145	325 904	325 909
Diaphragm material PTFE/EPDM (EA)								
15	1/2"	1/2"	70	3.59	70-145	145	295 873	325 911
20	3/4"	3/4"	70	9.83	70-145	145	295 875	325 912
25	1"	1"	90	16.77	73-145	116	325 910	325 913
40	1-1/2"	1-1/2"	130	43.37	73-102	145	295 878	325 914
50	2"	2"	130	76.34	73-102	102	295 880	325 915
Diaphragm material Gylon®/EPDM Laminated (ER)								
15	1/2"	1/2"	70	3.59	70-145	145	325 916	325 922
20	3/4"	3/4"	70	9.83	70-145	145	325 917	325 923
25	1"	1"	90	16.77	73-145	116	325 918	325 924
40	1-1/2"	1-1/2"	130	43.37	73-102	145	325 920	325 925
50	2"	2"	130	76.34	73-102	102	325 921	325 926

Clamp connection acc. ASME BPE

Inspection Certificate 3.1 acc. to EN 10204 - Material Test Report (included in delivery)

Port connection DN		Diaphragm size	Actuator size Ø	Cv	Pilot pressure [PSI]	Max. operating pressure [PSI]	Item no. mechanically polished Ra ≤ 0.5 µm	Item no. electropolished Ra ≤ 0.38 µm
[mm]	[inch]							
Diaphragm material EPDM (AD)								
15	1/2"	1/2"	70	3.59	70-145	145	325 932	325 938
20	3/4"	3/4"	70	9.83	70-145	145	325 933	325 939
25	1"	1"	90	17.93	73-145	145	325 935	325 940
40	1-1/2"	1-1/2"	130	42.79	73-102	145	328 461	328 462
50	2"	2"	130	76.34	73-107	145	325 937	325 942
Diaphragm material PTFE/EPDM (EA)								
15	1/2"	1/2"	70	3.59	70-145	145	325 943	325 947
20	3/4"	3/4"	70	9.83	70-145	145	325 944	325 948
25	1"	1"	90	16.77	73-145	116	266 735	325 949
40	1-1/2"	1-1/2"	130	43.37	73-102	145	266 734	325 950
50	2"	2"	130	76.34	73-107	102	325 946	325 951
Diaphragm material Gylon®/EPDM Laminated (ER)								
15	1/2"	1/2"	70	3.59	70-145	145	325 952	325 957
20	3/4"	3/4"	70	9.83	70-145	145	325 953	325 958
25	1"	1"	90	16.77	73-145	116	325 954	325 960
40	1-1/2"	1-1/2"	130	43.37	73-102	145	325 955	325 961
50	2"	2"	130	76.34	73-102	102	325 956	325 962