MV · MVP

Richter Diaphragm Shut-off and Control Valves

- **PFA/PTFE lining**
  (e.g. Teflon®, Dyneon®)
- **Hermetically tight**

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Fields of application

Diaphragm valves are easy to use and reliable. They are reasonably priced and are therefore some of the most widely used shut-off, control and throttling valves.

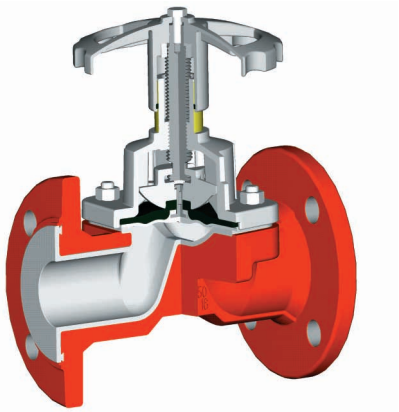
- PFA/PTFE-lined diaphragm valves are used for corrosive, pure and high-purity liquids, gases and vapours in chemical, pharmaceutical, food and industrial processes.
- They are hermetically tight.
- The wetted materials are FDA-compliant.

The Richter diaphragm valves MV/MVP are soft-sealing and gas-tight. They can be used

- at operating temperatures of -30 to +150 °C (- 20 to +300 °F).
- for pressure ratings PN16 (up to DN50/2'') and PN10 (DN80/3'' and larger), for operating pressure and vacuum, see page 4.
- for solids-free and slightly solids-laden media

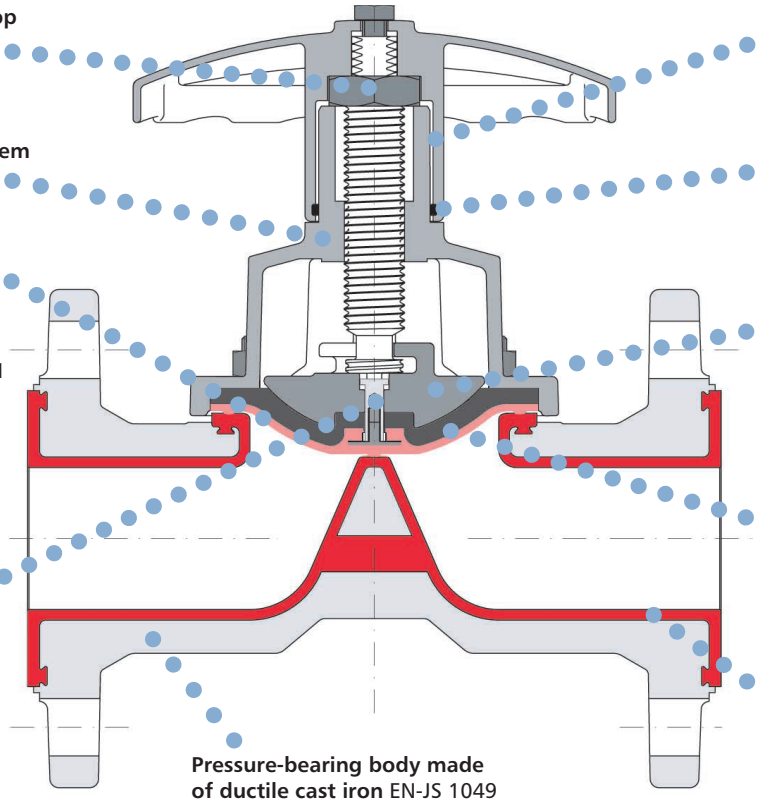
Product features

- Leakage rate in the seat to DIN 3230 Part 3, leakage rate 1: gas-tight, 0 bubbles
- Face to face, optionally
  - ISO 5752 Series 1 (DIN 3202F1) with flanges to ISO 7005-2, on request drilled to ANSI B 16.5 Cl. 150, BS or JIS
  - MSS SP-88 with flanges to ANSI B 16.5 Cl. 150
- Anti-adhesive wetted PFA/PTFE surfaces
- External corrosion protection: body with epoxy coating; bonnet, nuts and bolts made of stainless steel
- Top-entry design: maintenance possible without dismantling
- Actuation:
  - handwheel
  - pneumatic/electric actuators
- Identification of the valve to DIN EN 19, ANSI B16.34



Type code

manually operated	MV/...
remote-actuated	MVP/...
lining	
PFA/PTFE	.../F
antistatic lining	.../F-L



Adjustable manual travel stop limits the seating thrust and thus prevents damage to the diaphragm

Bonnet, handwheel, valve stem and compressor made of stainless steel

PTFE diaphragm with EPDM diaphragm support
- high-quality, time-tested design, see page 3
- enclosed diaphragm (ISO/DIN version): prevents PTFE flowing due to pressure/temperature loading and ensures permanent tightness

Floating tube nut diaphragm attachment (see page 3)

Yellow travel indicator high visibility even from a distance

Optional **secondary O-ring sealing** made of FKM (e.g. Viton®), protects interior against
- corrosive atmosphere
- splash water, cleaning agents, dust

Compressor with T-groove easy assembly and dismantling

Hermetic sealing against the bonnet internals and the atmosphere optional safety packing, also with monitoring connection, see page 3

Thick-walled PFA lining of the valve body
- homogeneous thermoplastic lining
- thickness 3 - 3.5 mm
- high permeation resistance
- vacuum-proof anchored
- almost completely transparent, thus optimum quality assurance
- optional antistatic lining

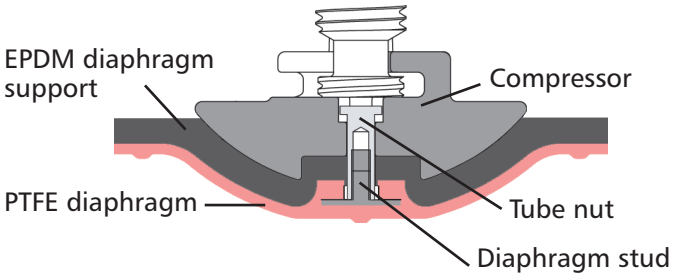
Pressure-bearing body made of ductile cast iron EN-JS 1049 (0.7043)/ASTM A395, absorbs system and pipe forces.
DN 15 + 20: Stainless steel body

Dyneon® = TM Dyneon
Teflon® = TM DuPont
Tefzel® = TM DuPont
Viton® = TM DuPont
Hypalon® = TM DuPont
Richter® = TM ITT Industries
ITT Industries® = TM ITT Industries

Diaphragm made of modified TFM-PTFE
The quality and functionality of the diaphragm are crucial for a reliable and durable valve function. Top priority is given to these aspects in Richter diaphragm valves.

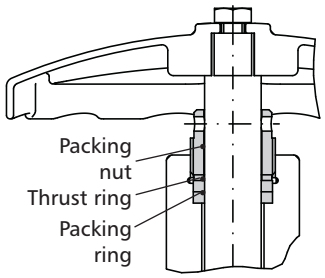
- **greater fatigue strength under reversed bending stresses** and dimensional stability even after many switching cycles and at fluctuating temperatures
- higher density and **lower permeability**
- **all-round sealing bead** delimits the medium chamber exactly and thus prevents residues in sealing gaps which are difficult to rinse
- thick-walled, thus more permeation-resistant than diaphragms made of laminated PTFE
- proven in chemical, pharmaceutical and biotechnology industries

Fig.: EPDM diaphragm support, TFM-PTFE diaphragm.



Floating tube nut diaphragm attachment
with stainless steel compressor
- ensures even distribution of the stem closing force bypassing the tube nut and
- therefore prevents point loading: The sintered-in diaphragm stud cannot be pushed through

Optional safety packing
- for use with hazardous or environmentally critical media
- can be adjusted from outside by hand
- acts independently
- on request with **monitoring connection**



Other options
- Bonnet and handwheel made of PAS plastic (polyarylsulfone), high chemical and thermal resistance, low weight, scratch-proof, proven in pharmaceutical and biotechnology processes
- Lining ETFE (e.g. Tefzel®), diaphragm EPDM or Hypalon® (only with series Dia-Flo with face to face to MSS and flanges to ANSI Cl. 150, details on request)
- Metallic diaphragm valves to MSS

Remote actuation
with **pneumatic actuators**
- of column/yoke design (e.g. Samson, Kämmer, Arca, von Rohr etc.)
- of compact design with ITT actuator type Advantage (see illustration on cover page), details on request

or with **electric actuators** (e.g. Auma, Kämmer etc.) incl. accessories such as positioners and limit switches

Required shut-off forces in N (p_1 is stated at p_2 = 0 bar)

DN	bar 1 psi 14,5	2 29	3 43,5	4 58	5 72,5	6 87	8 116	10 145	12 174	14 203	16 232
15	1,135	1,217	1,290	1,375	1,452	1,534	1,687	1,849	2,005	2,153	2,312
20	1,370	1,473	1,572	1,676	1,779	1,880	2,085	2,287	2,494	2,697	2,904
25	1,370	1,473	1,572	1,676	1,779	1,880	2,085	2,287	2,494	2,697	2,904
40	1,598	1,863	2,133	2,398	2,663	2,931	3,463	3,997	4,529	5,073	5,616
50	1,598	1,863	2,133	2,398	2,663	2,931	3,463	3,997	4,529	5,073	5,616
80	2,904	3,645	4,383	5,120	5,861	6,598	8,077	9,556			
100	5,019	6,105	7,190	8,273	9,360	10,446	12,616	14,786			
150	6,665	8,744	10,825	12,907	14,985	17,067					

Other nominal sizes on request.
Shut-off forces apply to PFA-lined body and PTFE diaphragm. Other materials require different forces.

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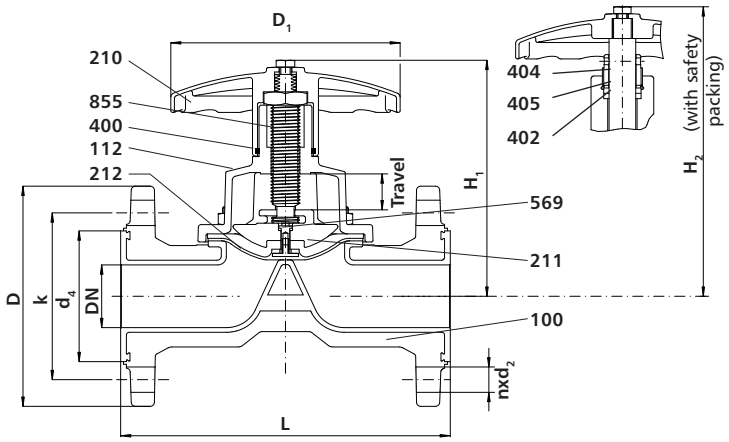
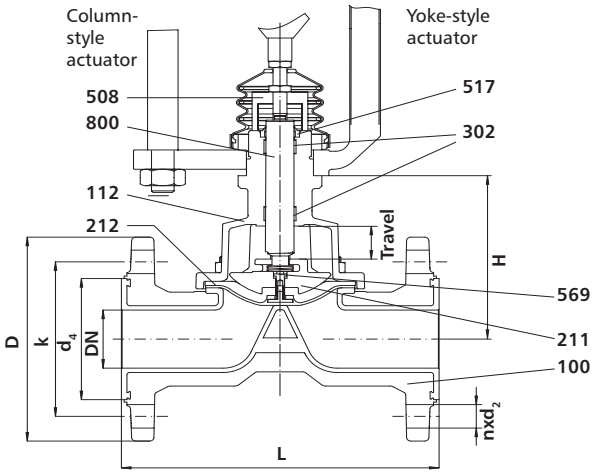
Dimensions, weights, materials, pressure/temperature diagram

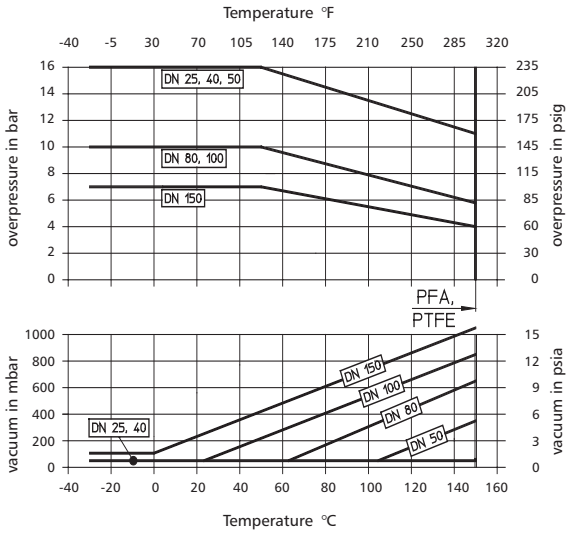
Dimensions (mm) DN		L		D		k		d_4		nxd_2		H_1	H_2	H	D_1	Travel	approx. weight (kg, man. oper.)	
mm	inch	ISO	MSS	ISO	MSS	ISO	MSS	ISO	MSS	ISO	MSS	MV	MV	MVP		(mm)	ISO	MSS
15	½"	130	–	95	–	65	60.3*	41	–	4x14	4x15,9*	100	148	68	95	6.4	4.0	–
20	¾"	150	–	105	–	75	69,8*	54	–	4x14	4x15,9*	127	183	92	95	12	4.0	–
25	1"	160	147.5	115	110	85	79.4	64	51	4x14	4x15.9	127	183	92	95	12	4.6	4.0
40	1½"	200	175	150	127	110	98.4	84	73	4x19	4x15.9	170	229	125.5	160	18	8.9	7.9
50	2"	230	200	165	155	125	120.6	98	92	4x19	4x19	177	231	130	160	27	11.6	11.0
80	3"	310	260	200	190.5	160	152.4	134	127	8x19	4x19	232	310	172	190	40	23.7	23.0
100	4"	350	327	220	155.7	180	190.5	154	157	8x19	8x19	254	322	193	230	40	33.5	30.7
150	6"	480	416	285	279.4	240	241.3	208	212	8x23	8x22	378	438	275	350	60	64.6	59.5

Other nominal sizes on request. * ISO body drilled to ANSI 150





Pressure/Vacuum/Temperature range



Components and materials		
Item	Designation	Material
100	Body	D.c.i. EN-JS 1049 (0.7043)/ASTM A395 DN 15 + 20: Stainless steel.
112	Bonnet	Stainless steel 1.4408 (CF8M)
210	Handwheel	Stainless steel 1.4408 (CF8M)
211	Compressor	Stainless steel 1.4408 (CF8M)
212	Diaphragm	TFM-PTFE (modified PTFE), diaphragm support EPDM
302	Guide ring[3)]	PTFE carbon
400	O-ring[1)]	FKM (e.g. Viton®)
402	Packing ring[2)]	PTFE
404	Packing nut[2)]	Stainless steel
405	Thrust ring[2)]	Stainless steel
508	Travel stop[1)3)]	Stainless steel
517	Scraper ring[3)]	FKM (e.g. Viton®)
569	Tube nut	Stainless steel
800	Valve stem[3)]	Stainless steel 1.4301
855	Stem	Stainless steel
w/o no.	Screws, nuts	Stainless steel

1) optional 2) with optional safety packing 3) remote-actuated design

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