Diaphragm valve MV 310

Print-No.: 330 027 01/99

The optimum check and control valves

- **Sizes DN 15 to DN 100, working pressure up to 10.0 bar (PN10)!**
- **High flow rate or K_v values, low flow resistance!**
- **Optional flow direction and installation position!**
- **Excellent control characteristics of the manual or automatic valve!**
- **Integrated value position indicator, standardised body mounting!**

Highly efficient design features

- **Environmentally sound: Hermetically sealed for pressure or vacuum!**
- **Gas and diffusion sealed, solid, thick wall valve body!**
- **Highly elastic form diaphragm with vulcanised tear resistant fabric inlay!**
- **Standard length as per DIN 3202, with sockets, screw fittings and flange connection!**
- **Encapsulated valve actuator, low actuation forces, with non-rising hand wheel!**

High quality materials for long operating life

- **PVC-U, PP and PVDF bodies!**
- **Fabric reinforced EPDM and PTFE form diaphragm!**
- **Reliable diaphragm clamping with standard high grade steel bolts!**
- **Material with high impact strength and increased creep strength!**

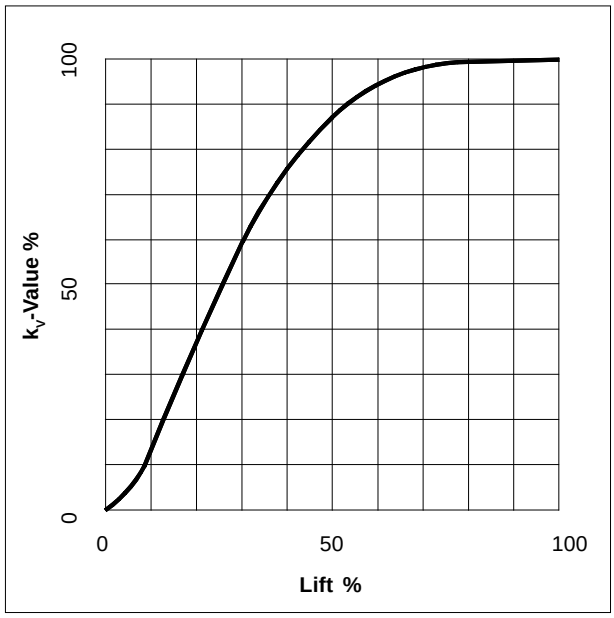
Thousands of ASV diaphragm valves have been in industrial use for many years. The design as diaphragm valves provides these check and control valves with a wide range of applications combined with a long operating life.

The further developed diaphragm valve MV 310, in accordance with the high standards set for processing technology, are manufactured and tested using future orientated technology. The MV310 offers particular advantages:

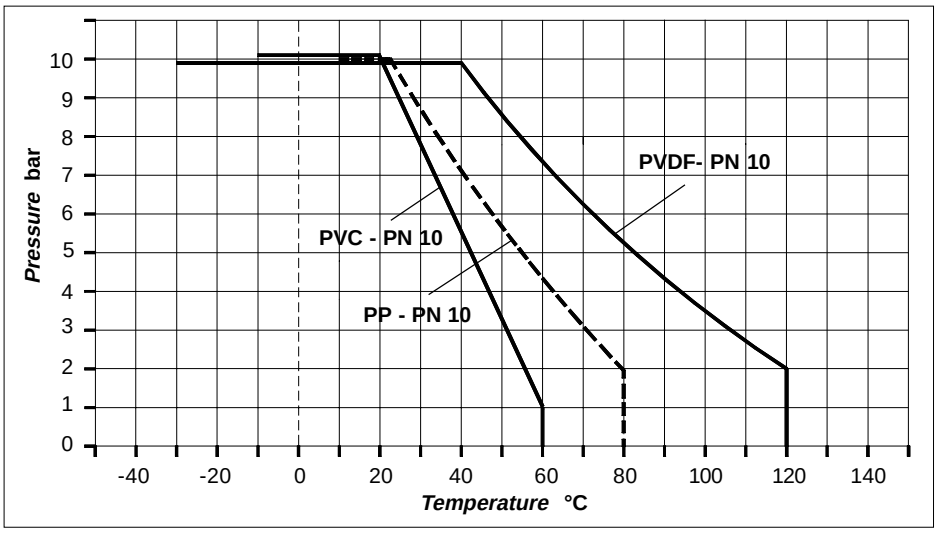
- Almost universal applications for liquid and gaseous media, even with suspended solids
- Fluidic optimised valve bodies and form diaphragm for a large clearance cross sections and low wear
- High density, medium elasticity, pre-formed diaphragm, secured over a large area with rigid, torsion resistant bonnet
- Low operating force or torque with high closing force, positively guided pressure piece. large spindle drive - from DN ≥ 65, including axial bearing - with non-rising hand wheel.
- Pipe connection using standardised screw fittings, flange sleeves and loose flange. Valve mounting with dimensions meeting industrial standards.
- Hand wheel operation with optical position indicator - also for remote monitoring - as well as pneumatic actuating drives.

Pressure-temperature diagram
Reference values for non-hazardous media non-impairing the valve material! The pressure/temperature limits are applicable for a computed operating life factor of 20 (PVC and PVDF) or 10 years (PP).
Please contact us for working temperatures below 0° C (PP < + 10 °C) with details of the precise application conditions.

Flow and regulating characteristics



Pressure-temperature diagram



Article and order No. for diaphragm valve MV 310

Size			PVC-U				PP				PVDF			
			Socket		Flange		Socket		Flange		Socket		Flange	
			Diaphragm				Diaphragm				Diaphragm			
d mm	DN mm	DN inch	EPDM	PTFE	EPDM	PTFE	EPDM	PTFE	EPDM	PTFE	EPDM	PTFE	EPDM	PTFE
20	15	1/2	62275	65992	65021	69896	62281	67000	65039	69902	64668	67006	62301	67726
25	20	3/4	62276	65993	65022	69897	62282	67001	65040	69903	64669	67007	62302	67727
32	25	1	62277	65994	65023	69898	62283	67002	65041	69904	64670	67008	62303	67728
40	32	1 1/4	62278	65995	65024	69899	62284	67003	65042	69905	64671	67009	62304	67729
50	40	1 1/2	62279	65996	65025	69900	62285	67004	65043	69906	64672	67010	62305	67730
63	50	2	62280	65997	65026	69901	62286	67005	65044	69907	64673	67011	62306	67731
75	65	2 1/2	45176	45194	46422	46428	45212	45230	46434	46440	45248	45266	46446	46449
90	80	3	45177	45195	46423	46429	45213	45231	46435	46441	45249	45267	46447	46453
110	100	4	45178	45196	46424	46430	45214	45232	46436	46442	45250	45268	46448	46454

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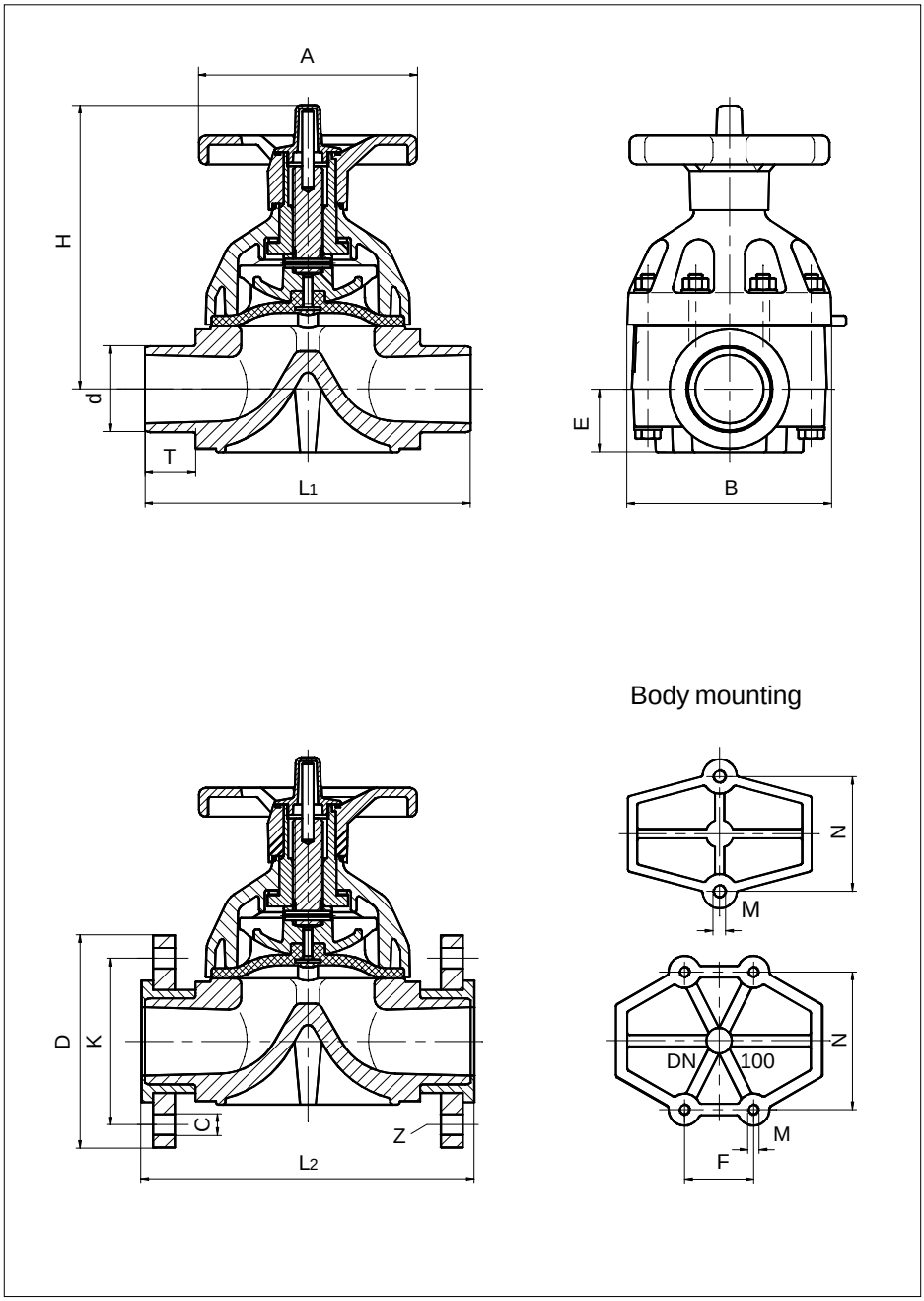
Dimensions and sectional drawings for diaphragm MV 310



Design

- **Socket**
  Diaphragm valve MV310 with injection moulded solvent cement spigots (PVC) or fusion socket (PP, PVDF), matching all standard pipeline elements.
  Valve length L1 as per DIN 3441/3442

- **Flange**
  Diaphragm valve MV310 with flange sleeve and loose flange as per DIN 2501 (PN 10/16) for connecting corresponding mating flange.
  Valve length L2 as per DIN 3441/3442

Materials

Body:
- PVC-U
- PP (polypropylene)
- PVDF (polyvinylidenefluoride)

Bonnet:
- GF-PP

Form diaphragm
- EPDM (ethylene-propylene rubber) PTFE (media side, e.g. Teflon) with extreme tear resistant fabric inlay, vulcanised threaded stem, sealing ribs and formed identification section.
- FPM (Viton) upon request

Pressure piece, spindle:
- GF-PBTP - DN ≤ 50
- Grey cast iron and steel - DN ≥ 65

Spindle nut
- ≤ 50 GF-PA
- ≥ 65 GG

Indicator cap:
- PA, transparent

Indicator pin:
- PVC red

RB sealing ring (indicator cap):
- NBR

Connection screws:
- Special steel, material No. 1.4301 (V2A)

Hand wheel:
- GF-PA

Flanges:
- GFK, body PVC-U, PP
- PP/St., body PVDF

Other materials or material combinations available upon request!

Dimensions mm

d mm	DN mm	DN Inch	A	B	C	D	E	F	H	K	L_1	L_2	M	N	T PVC	T PP	T PVDF	Z
20	15	1/2	87	72	14	95	25	-	98	65	124	130	M 6	26	16,0	16,5	16,5	4
25	20	3/4	87	72	14	105	25	-	102	75	144	150	M 6	26	19,0	19,0	19,0	4
32	25	1	96	92	14	115	25	-	131	85	154	160	M 6	26	22,0	21,0	21,0	4
40	32	1 1/4	96	92	18	140	40	-	135	100	174	180	M 8	45	26,0	23,0	23,0	4
50	40	1 1/2	130	119	18	150	40	-	169	110	194	200	M 8	45	31,0	26,5	30,5	4
63	50	2	130	119	18	165	40	-	175	125	224	230	M 8	45	28,5	30,0	30,0	4
75	65	2 1/2	190	177	18	185	54	-	245	145	284	290	M 12	100	44,0	33,5	33,5	4
90	80	3	190	177	18	200	54	-	245	160	301	310	M 12	100	52,0	38,0	38,0	8
110	100	4	240	217	18	200	64	60	285	180	340	350	M 10	120	61,0	45,0	45,0	8

Technical data

Flow media:
Inert or aggressive media, in as much as the selected materials are resistant to the operating temperature.
Also refer to the ASV resistance table.
The media may contain suspended solid matter, provided the concentration and grit size does not exceed the values normal for material processing.

Installation position:
Optional

Pressure stage:
PN 10 at 20° C, valve marking in accordance with DIN EN 19.

Operating pressure:
Please refer to material dependent pressure-temperature diagram on page 2.

Media temperature:
Matched to the application conditions (system pressure, load etc.), the following approx. temperatures are applicable taking the creep strength into consideration

- PVC-U: + 60 °C
- PP : + 80 °C
- PVDF: + 120 °C

Applicable for the diagram are:

- EPDM: -40 °C to + 90 °C*
- PTFE: -40 °C to +120 °C*

* Temperature limits are in accordance with the body material selected!

Connections:

- PVC solvent cement spigots as per DIN 8063, Pt. 8, PP, PVDF fusion socket as per DIN 16962.
- Flange connections with loose flange as per DIN 2501 (PN 10/16) and smooth flange sleeve as per DIN 8063, TI. 4 (PVC) or analogue to DIN 16962 (PP, PVDF) matching pipeline flanges and flange sleeves meeting the given standards. **RD seals should be given preference as flange seals!**
- Standard screw fittings as per DIN 8063, TI. 3 (PVC or in accordance with DIN 16962 (PP, PVDF for DN ≤ 50).

Actuation:

- By ergonomically designed, non-rising hand wheel via a sealed spindle drive with valve position indicator.
- By pneumatic actuating drive
  - normally open or normally closed
  - double acting
  and equipment with valve position indicator, a low air loss electronic pneumatic control system as special accessories as well as with electric actuating drives.

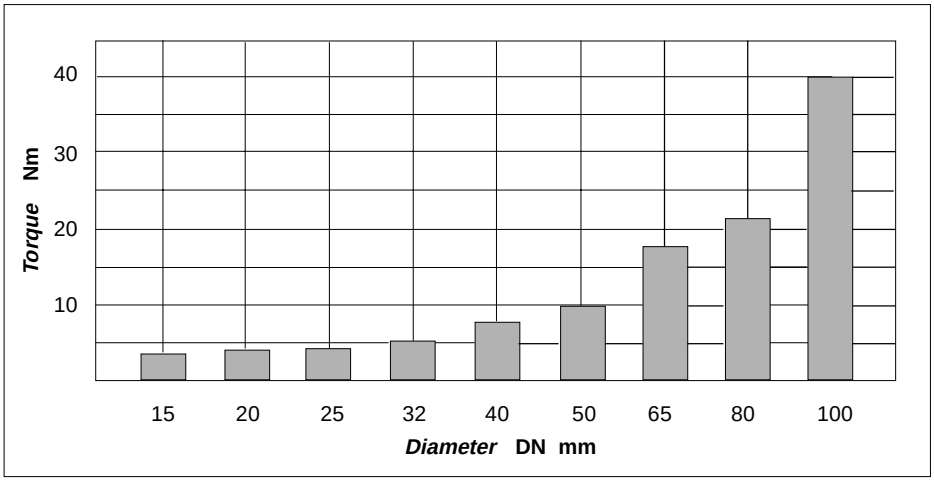
Mounting:
Body with threaded inserts - dimensions in accordance with industrial standards - for mounting on a supporting element.

Weight kg (guide values)

DN =		15	20	25	32	40	50	65	80	100
PVC	S	0,38	0,40	0,83	0,90	1,8	1,9	6,1	6,5	9,51
	F	0,82	1,06	1,63	2,20	3,2	3,5	8,6	9,4	12,7
PP	S	0,32	0,34	0,70	0,77	1,5	1,6	5,2	5,6	8,2
	F	0,76	1,00	1,50	2,10	2,9	3,2	7,7	8,6	11,4
PVDF	S	0,44	0,47	0,97	1,10	2,2	2,3	6,9	7,2	10,7
	F	0,88	1,13	1,77	2,40	3,6	3,9	9,4	10,2	13,9

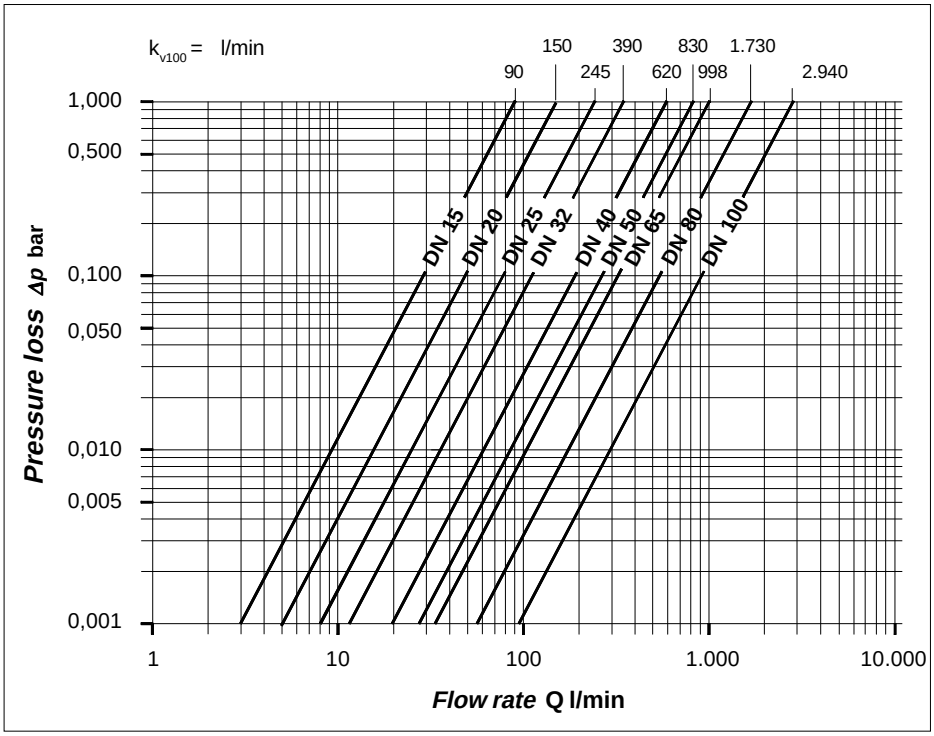
S = socket F = flange

Operating force or torque at p = 10 bar (guide value)



Pressure loss and K_v value

The diagram shows the pressure loss Δp via the flow rate Q.
The k_v value (k_v = Q l/,im. at Δp = 1.0 bar) is shown.
To convert: k_v = 14.28 C_v = 17.09 fv



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- If possible fit valves in the pipeline system to act as a fixed point so that forces from the line or valve actuation will always be taken up by the support construction.

Colour:
Flow body:
- PVC-U = Grey, RAL 7011
- PP = Grey, RAL 7032
- PVDF = Opaque, (yellow-white)

Bonnet - RAL 3005
Hand wheel = Black, RAL 9011

Weight: See table

Operating instructions

Prerequisite for the safe operation of the diaphragm valve MV310 is that it is correctly installed, operated and/or maintained by qualified personnel taking into consideration all safety regulations (UVV etc.) as well as the standard technical directives.

- **Any use which does not conform to the intended use or incorrect installation, operation or maintenance can lead to injury to persons and/or damage to property.**
- The intended use includes the adherence to the stated pressure and temperature limit values as well as the media composition, known to be tolerated by all selected materials; the owner bears full responsibility in the case of non-observance and its consequences!

Dismantling and assembly

- **Close the** pipeline valves upstream and downstream of the diaphragm valve prior to commencing any work!
- **Ensure** a safe over-pressure reduction in the pipeline!
- Fully **drain off** the line taking the safety instructions (UVV) into consideration.
- **Avoid** all leakages, in particular when handling dangerous media and/or fluids which may contaminate the ground water (emissions)!
  The owner of the plant or the person ordering dismantling work bears the responsibility for:
- The observance of working protection regulations (UVV)
- Instructing the employees to adhere to safe methods of working in line with plastic requirements and informing them of the potential danger of the media/plant (refer to ChemG safety data sheet as per DIN 52900 etc.)
- Ensure that all waste is disposed of in accordance with the regulations (WHG, UVV etc.)!

Diaphragm valve dismantling:

- Fully loosen the hexagonal screws (Pos. 16+18). Remove bonnet (3) with diaphragm (2) and hand wheel (8).
- **The body bottom section (Pos. 1) remains in the pipeline!**
- Unscrew the diaphragm (2) or the vulcanised threaded stem from the pressure piece (4)
- Unscrew the display cap (9)
- Remove the hand wheel (8) and take out the RD sealing rings (14 and 15)
- Carefully push the spindle nut (7) down out of the bonnet (3).
- DN ≥ 65: remove the axial bearing and axial bearing ring (12).
- Unscrew the spindle nut (7) from the spindle (5).
- DN ≥ 65: Remove the securing pin (13) using a drift.

Assembly:

Proceed in the reverse order to that described above.

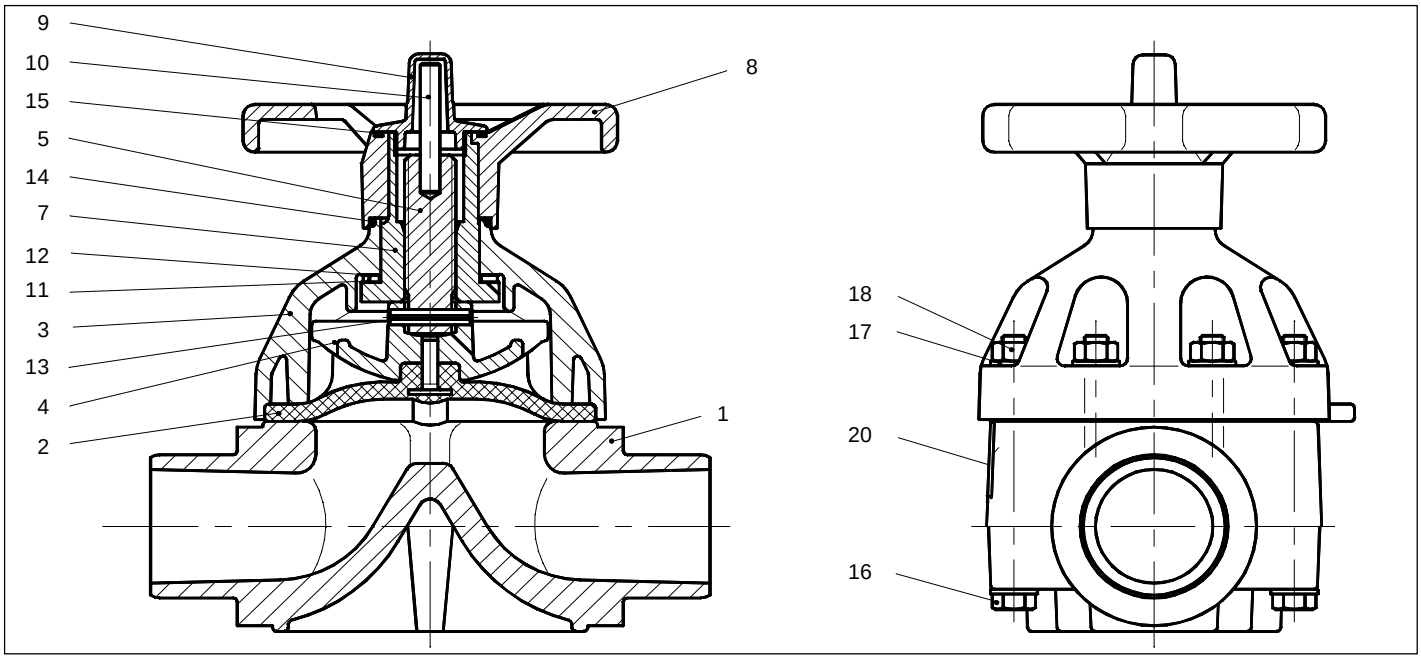
- Check the diaphragm and RD seal for damage, dimensional deviations, changes to hardness etc. Always replace if uncertain!

Attention: Do not coat components made of plastic and elastomer - in particular EPDM sealing elements with synthetic or mineral oils, greases, release agents of cleaning agents or any other chemical products!

Parts list and section drawing

Part	Pieces	Designation		Part	Pieces	Designation
1	1	Body		11[2]	1	Axial bearing
2	1	Diaphragm		12	1	Axial bearing ring
3	1	Bonnet		13[2]	1	Clamping pin
4[2]	1	Pressure piece		14	1	RD sealing ring
5[1]	1	Spindle		15	1	RD sealing ring
6				16	4	Hexagonal screw
7	1	Spindle nut		17	8/12	Washer
8	1	Hand wheel		18	4/8	Hexagonal nut
9	1	Display cap		19		
10[1]	1	Indicator pin		20[3]	1	Name plate

DN ≤ 65: 1) one piece 2) to escape 3) DN ≥ 65



Application in all industrial sectors

- Chemical and pharmaceutical industry!
- Environmental and processing technology!
- Surface technology!
- Water treatment and waste water technology!
- Plant and equipment manufacture!

High operating reliability, practice based design

- Solid, thick walled valve body and torsion resistant GFK bonnet!
- Form diaphragm with vulcanised tear resistant fabric inlay
- Vacuum resistant positive diaphragm guidance
- Encapsulated valve actuator with hand wheel, optional with pneumatic or electric actuators!

Strict ASV quality assurance

- Processing of high quality, tested materials!
- State of the art, rational plastic injection moulding technology ensuring reproducible dimensional stability!
- Function and sealing tested under pressure, with more than 100,000 valve strokes!
- Full application efficiency is consistently guaranteed!

Diaphragm valve MV310 with actuator with low air loss electronic-pneumatic control.

All rights for technical changes withheld

ASV Stübbe GmbH & Co.

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