

Diaphragm valve type 15/72



material of body	PVC-U	PVC-C	PP	PVDF
material of diaphragm	• NBR	• EPDM	• CSM	• PTFE with EPDM cushion
working temperature ¹⁾	0 °C to 60 °C ³⁾	0 °C to 90 °C ³⁾	-20 °C to 90 °C ³⁾	-40 °C to 120 °C ³⁾
nominal size	• Type 15: DN 125 and DN 150		• Type 72: DN 200 and DN 250	
connection with pipe	• flange acc. to DIN 2501 - PN 10 ²⁾			
length	• EN 558-1 series FTF 1 / DIN 3202 - F1			
actuator	handwheel, optionally pneumatic or electric actuator			
accessories	limit switches			

¹⁾ designed for 10 years of use with a neutral medium (water)

²⁾ also available acc. to ANSI

³⁾ material of diaphragm:

CSM: -20 to 80 °C

EPDM: -40 to 90 °C

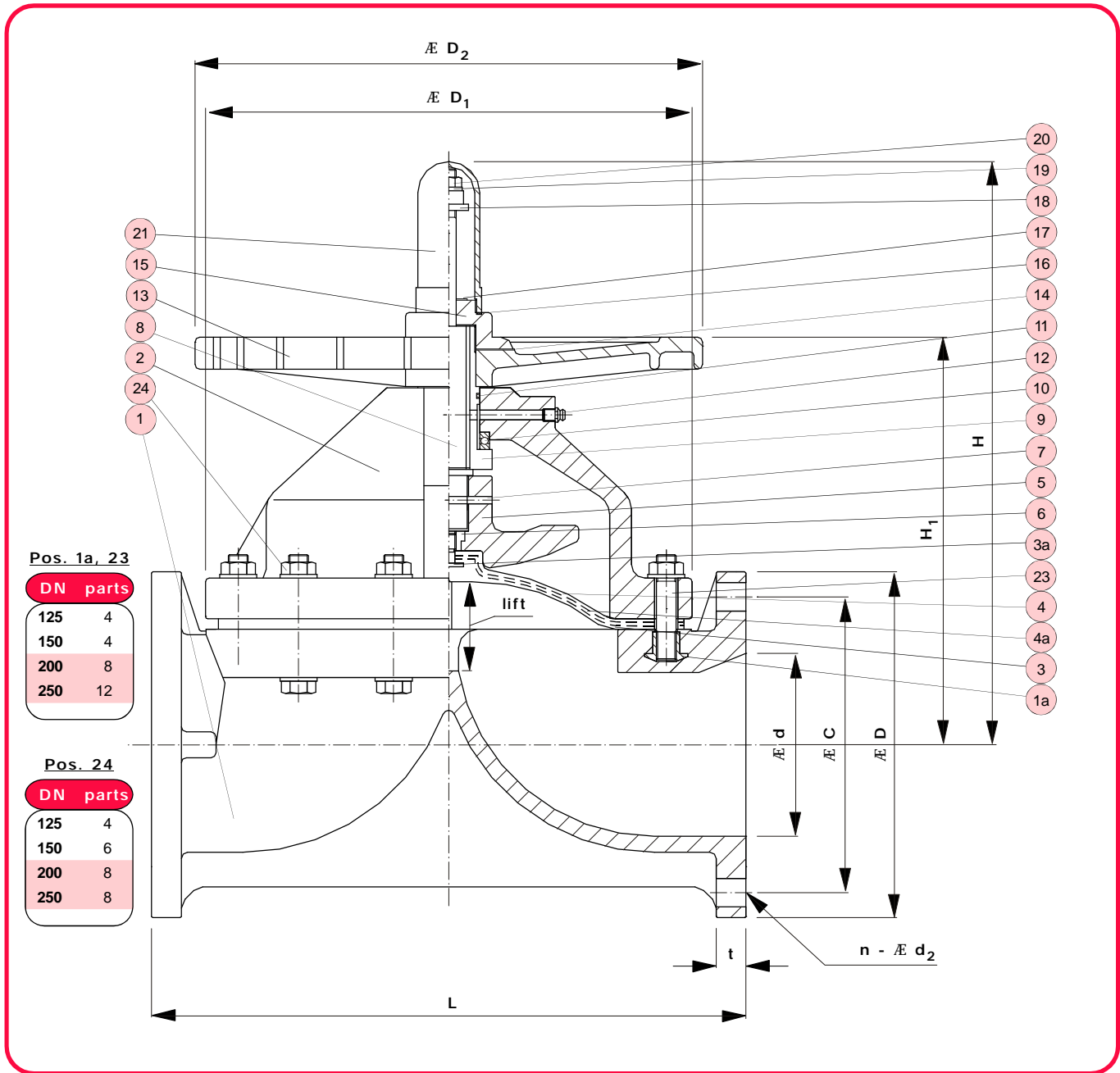
NBR: -30 to 100 °C

PTFE: -40 to 120 °C

example for an advertised bidding:

Diaphragm valve type 15/72 DN 125, PN 10, PVC-U/PTFE, flanged connection acc. to DIN 2501-PN 10, length acc. to EN 558-1 series FTF 1, optical position indicator, adjustable stopper

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Pos. 1a, 23

DN	parts
125	4
150	4
200	8
250	12

Pos. 24

DN	parts
125	4
150	6
200	8
250	8

no.	name	parts	material
1	body	1	PVC-U/PVC-U, PP/PP, PVDF/PP-G, PVDF/PVDF
2	bonnet	1	
1a	inserted nut	s.o.	m.-nr. C 3604 ¹⁾
3	diaphragm ^{*,2)}	1	NBR, EPDM, CSM, PTFE ^{**)}
3a	inserted metal	1	m.-nr. 1.4301
4	cushion ³⁾	1	EPDM
4a	cushion cover	1	PTFE
5	compressor	1	m.-nr. 0.6020 ⁴⁾
6	compressor nut	1	m.-nr. C 3604
7	compressor pin	1	m.-nr. 1.4301
8	stem	1	m.-nr. C 3604
9	sleeve	1	m.-nr. C 3604
10	thrust ring	1	m.-nr. 1.1133

^{*)} wearing parts
^{**)} with EPDM cushion

¹⁾ PVDF: W.-Nr. 1.4301
²⁾ with pin of 1.4301

no.	name	parts	material
11	O-ring (A)	1	NBR
12	grease nipple	1	m.-nr. C 3604
13	handwheel	1	PP
14	name plate	1	PVC
15	cap	1	PP
16	seat gasket (A)	1	EPDM
17	seat ring	1	m.-nr. 1.4301
18	stopper	1	m.-nr. 1.0050
19	spring washer	1	m.-nr. 1.4301
20	set nut	1	m.-nr. 1.4301
21	gage cover	1	PC
23	stud bolt, nut, washer	see above	m.-nr. 1.4301
24	bolt, nut, washer	see above	m.-nr. 1.4301

³⁾ with PTFE -diaphragm only
⁴⁾ DN 125 and DN 150: PVDF

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Dimensions and weights

dimensions in mm										weight in kg/pc.					
DN	d	k	D	D ₁	D ₂	L	H	H ₁	t		lift	n x d ₂	PVC-U	PP	PVDF
									PVC-U	PP, PVDF					
125	125	210	250	320	300	400	420	308	22	23	60	8 x 18	22,0	19,5	26,5
150	148	240	285	385	410	480	476	334	24	27	70	8 x 22	34,7	30,5	40,5
200	196	295	340	430	410	600	627	419	30	34	95	8 x 22	52,5	45,0	62,5
250	247	350	395	540	560	730	778	510	34	36	128	12 x 22	93,5	77,5	110,0

Operating torque¹⁾ M_O in Nm for stem movement

DN	rot./lift	M _A A ²⁾	M _A B ³⁾
125	12	40	90
150	14	55	120
200	19	55	130
250	25	130	230

1) referring to maximum working pressure

2) Elastomer diaphragm

3) PTFE-diaphragm

Capacity coefficient k_v⁴⁾ in m³/h

DN	lift of stem			
	25 %	50 %	75 %	100 %
125	115	208	244	256
150	154	277	325	342
200	269	485	568	598
250	385	692	812	855

4) Definition of k_v-value: T2 / technical information

Working pressure⁶⁾ in bar⁵⁾

DN	Type I	Type II	Type III	Type IV
125	0,507	0,507	1,013	1,013
150	0,507	0,507	1,013	1,013
200	0,133	0,253	1,013	1,013
250	0,067	0,253	1,013	1,013

5) 1,0 atm = 1013,25 hPa = 1,01325 bar

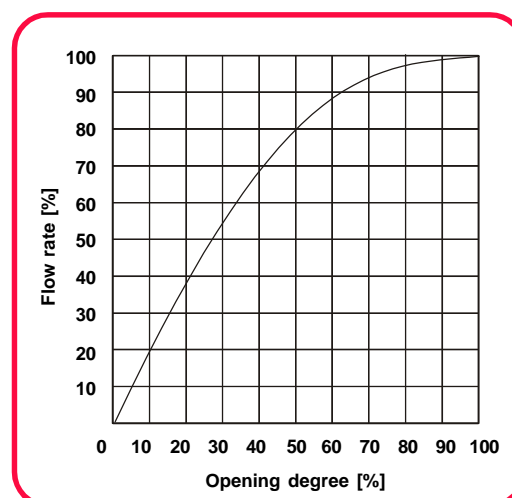
Versions: (to be specified by order):

I = standard, with elastomer diaphragm (EPDM, CSM oder NBR)

II = standard, with PTFE-diaphragm

III = reinforced, mit Elastomer-diaphragm (vacuum-type)

IV = reinforced, mit PTFE-diaphragm (vacuum-type)



Hydrostatic bursting pressure⁶⁾ in bar for PVC-U at 20 °C

DN	125	150	200	250
PVC-U	65	60	50	40

6) referring to maximum working temperature

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Allowable working pressure p_w ¹⁾ in bar

material			working temperature °C ²⁾	DN, specification A				DN, spec. B ³⁾	
body	bonnet	diaphragm		125	150	200	250	200	250
PVC-U	PVC-U	PTFE	0 to 40 60	7 6	5 4	2 2	2 2	4 3	4 3
		EPDM, CSM, NBR	0 to 40 60	8 7	8 5	3 2,5	3 2,5	5 4	4,5 3,5
PP	PP	PTFE	-20 to 40 60	7 5,8	5 4,1	4 3	4 3	4 3	4 3
			90	4	3	2	2	3	3
		EPDM, CSM, NBR	-20 to 40 60	8 6,8	8 6,3	5 4	4,5 3,5	5 3,5	4,5 3,5
			90	5	4	2,5	2,5	3,5	3,5
PVDF	PP-G (PVDF)	PTFE	-40 to 60 80	7 6	5 4,2	4 3	4 3	4 3	4 3
			100	5	3,6	2,5	2,5	3	3
			120	4	3	2	2	3	3

¹⁾ designed for 10 years of use with a neutral medium (water)

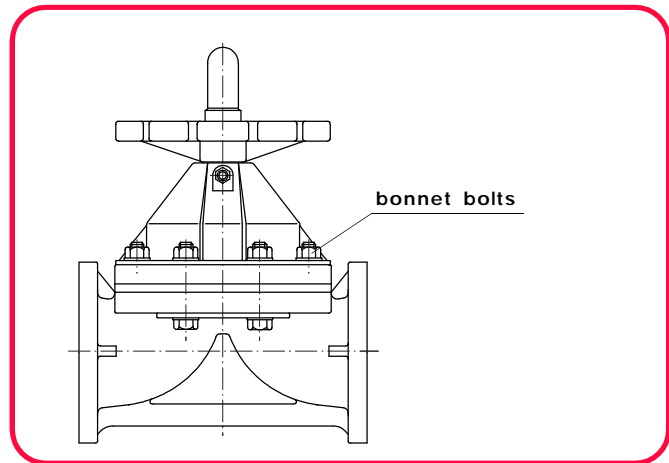
²⁾ working temperatures of diaphragm materials:

- CSM: -20 to 80 °C
- EPDM: -40 to 90 °C
- NBR: -30 to 100 °C
- PTFE: -40 to 120 °C

³⁾ specification B: version with U-bolts

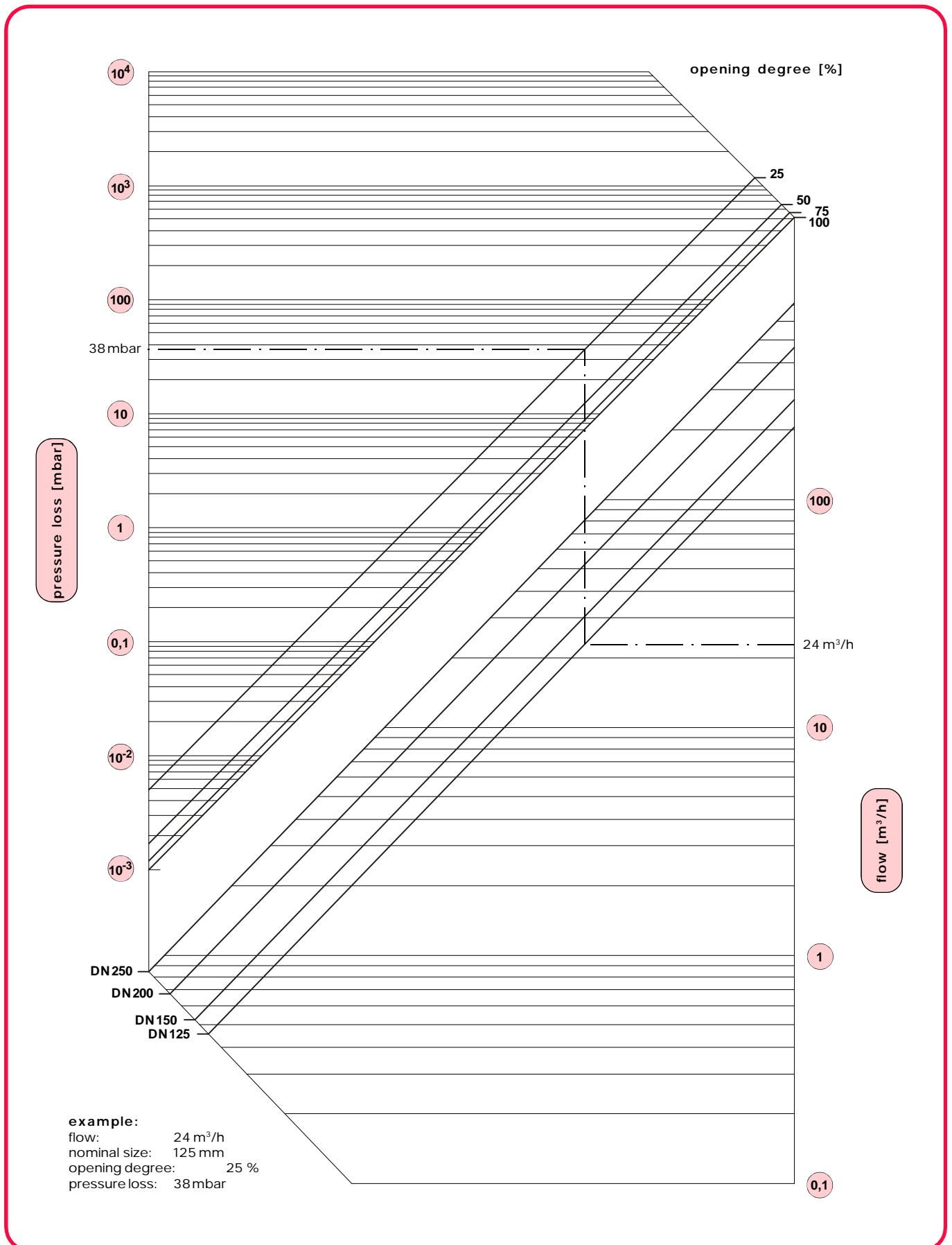
Tightening torque $M_{d_{min/max}}$ in Nm for bonnet bolts

DN	Elastomer diaphragm • EPDM • CSM • NBR		PTFE diaphragm with EPDM cushion	
	$M_{d_{min}}$	$M_{d_{max}}$	$M_{d_{min}}$	$M_{d_{max}}$
125	20	25	25	30
150	25	30	26	33
200, 250	25	30	28	33



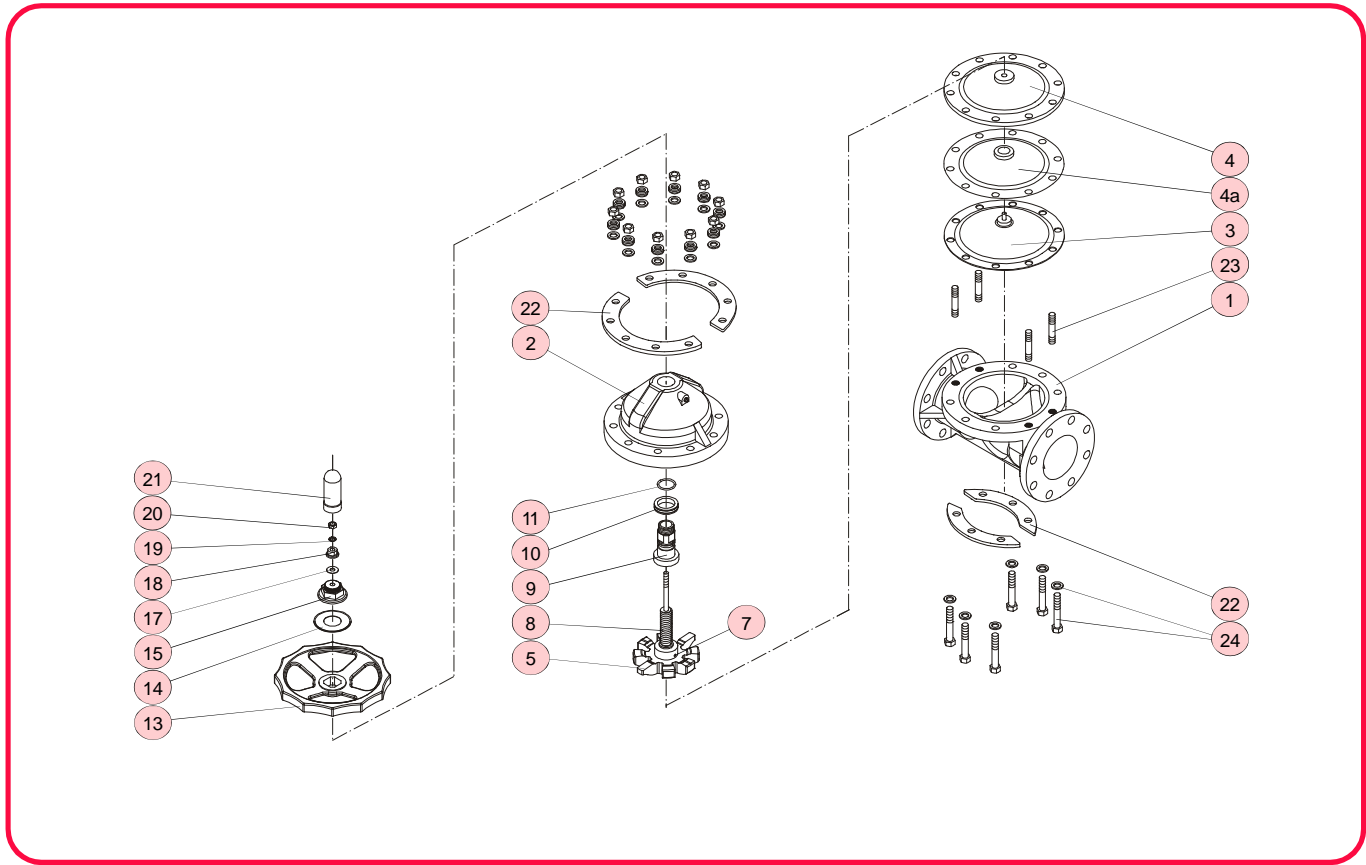
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pressure loss diagram



Diaphragm valve type 15/72

Maintenance and Installation



all DN

required tools:

DN	spanner	pin driver
125	2x19; 24; 51	6
150	2x19; 24; 59,5	6
200	2x24; 32; 30; 69	8
250	2x24; 32; 30; 69	8

Disassembly of the valve

Caution: Never dismantle the valve when the pipe is under pressure.

- Dismantle the valve from the pipe (flanged version: remove flange bolts; true union version: remove union nut 26 (s. L1-10/99)).
- Bring the valve in half opened position. Loosen the bonnet bolts 18 and remove the bonnet 2.
- Unscrew counterclockwise gauge cover 11 and remove O-ring 14 and name 12.
- Turn the handwheel 10 clockwise to the stopper and then turn it back slightly.
- Turn the diaphragm 3 by 90° and remove it from the compressor 5. Drive compressor pin 7 out of the compressor.
- Hold stopper 18 with a spanner and loosen set nut 20.
- Remove spring washer 19 from sleeve 9.
- Remove handwheel 13 from sleeve 9 abziehen and remove sleeve from the spindle 8.
- Remove O-ring 11 and thrust ring 10 from sleeve 9.

Assembly of the valve

- The valve assembly is to be performed in reverse order to the assembly.

- Before the assembly all parts have to be checked for damages.
- All parts have to be clean.
- Drive compressor pin 7 into compressor 5 so that it is flush with it.
- The diaphragm flag must be positioned in the clearances of body and bonnet.

Stopper adjustment

- Close the valve by turning the handwheel 13 clockwise by hand. Check the diaphragm's position in the valve body: In closed position it must completely cover the nose piece of the body.
- Tighten the stopper 18 with medium force and hold it with a spanner to prevent it from turning. Tighten set nut 20.

Installation instructions

- Install the valve without invoking material stress, therefore be aware of flange face parallelism, axial misalignment and valve length.
- Tighten the flange bolts to the specified torque. Using plastic flanges the flange bolts are to be used with washers for both the bolt and the nut.