

Diaphragm valve type 14 EL-PVDF



Body material	EL-PVDF
Material of diaphragm	EL-PTFE with EPDM cushion and PVDF diffusion stop inlay
Working temperature ¹⁾	-40 °C up to 120 °C
Nominal size	DN 15 up to DN 100
Connection with pipe	• Flange connection acc. to DIN EN 1092-1 (replaces DIN 2501) - PN 10 ²⁾
Length	• DIN EN 558 - 1 series FTF 1 (DIN 3202 - series F 1)
Actuator	Handwheel, optionally pneumatic or electric actuator
Accessories	Limit switches, stem extension

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

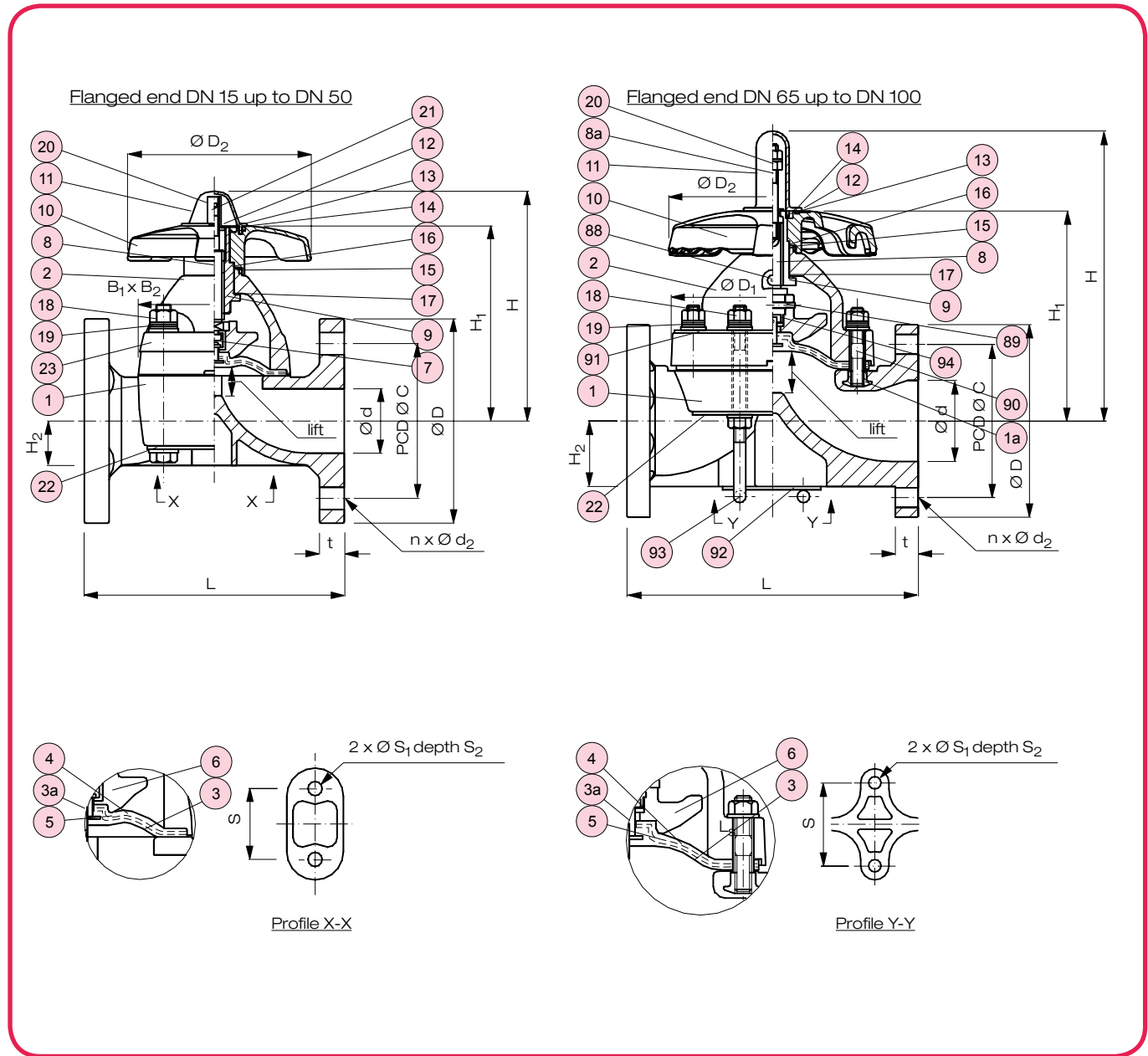
²⁾ Flange connection also acc. to ANSI available

Example for an invitation to tender text:

Diaphragm valve type 14, DN 50, PN 10, EL-PVDF / EL-PTFE / PVDF, flange connection acc. to DIN EN 1092-1 - PN 10, length acc. to DIN EN 558-1 series FTF 1, optical position indicator, adjustable stopper

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No.	Description	Number	Material
1	Base body	1	EL-PVDF
2	Bonnet	1	PP-G (PVDF on request)
1a	Thread insert ¹⁾	1	Brass CW615N (C 3604)
3	Diaphragm*	1	EL-PTFE
3a	Inserted metal of diaphragm	1	Special alloy
4	Cushion	1	EPDM
5	Diffusion stop inlay	1	PVDF
6	Compressor	1	PVDF
7	Joint ²⁾	1	Special alloy
8	Stem	1	Brass C 3604
8a	Indicator rod	1	A2 - 1.4301 (SUS 304)
9	Sleeve	1	Brass CW615N (C 3604)
10	Hand wheel	1	PP
11	Gauge cover	1	PC
12	Name plate	1	PVC
13	Retaining ring	1	A2 - 1.4301 (SUS 304)
14	O-ring (A)	1	EPDM

No.	Description	Number	Material
15	O-ring (B)	1	EPDM
16	Thrust ring (A)	1	UHMWPE
17	Thrust ring (B)	1	UHMWPE
18	Bolt, nut, washer	4	A2 - 1.4301 (SUS 304)
19	Disk spring package	4	A2 - 1.4301 (SUS 304)
20	Stopper	1	Brass C 3604 ²⁾ / 1.4301 ¹⁾
21	Screw ²⁾	1	A2 - 1.4301 (SUS 304)
22	Body liner	2	A2 - 1.4301 (SUS 304)
23	Bonnet liner ^{2,3)}	1	A2 - 1.4301 (SUS 304)
89	Compressor pin ¹⁾	1	Special alloy
90	Stud bolt, nut, washer ¹⁾	4	A2 - 1.4301 (SUS 304)
91	Upper bonnet liner ¹⁾	1	A2 - 1.4301 (SUS 304)
92	Bridge liner ¹⁾	1	A2 - 1.4301 (SUS 304)
93	U-bolt, nut, washer ¹⁾	2/4/4	A2 - 1.4301 (SUS 304)
94	Inserted metal of diaphragm ¹⁾	1	Special alloy

¹⁾ Wearing parts ¹⁾DN 65 - DN 100 only ²⁾DN 15 - DN 50 only
³⁾ PVDF-Bonnet only

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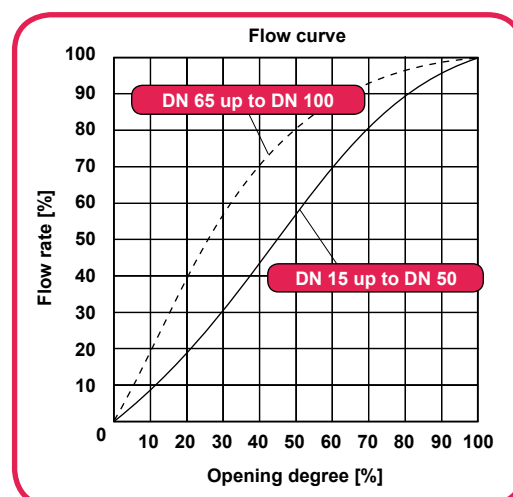
Dimensions and weights - flange connection

Dimensions in mm																	Weight in kg / pc.	
DN	d	C	D	B ₁	B ₂	D ₁	D ₂	L	H	H ₁	H ₂	t	S	S ₁	S ₂	Lift	n x d ₂	EL-PVDF
15	16	65	95	54	66	-	100	130	104	86	19,5	12	25	7	13	10	4 x 14	0,9
20	20	75	105	54	66	-	100	150	106	88	17,5	13	25	7	13	10	4 x 14	1,0
25	25	85	115	67	80	-	100	160	111	93	18,5	13	25	7	13	12	4 x 14	1,3
32	32	100	140	67	80	-	100	180	116	97	22,5	16	25	7	13	12	4 x 18	1,7
40	40	110	150	108	108	-	156	200	177	144	27,5	20	45	9	15	21	4 x 18	3,2
50	52	125	165	123	123	-	156	230	191	158	36	22	45	9	15	25	4 x 18	4,3
65	67	145	185	-	-	175	220	290	266	188	61	22	85	11	20	34	4 x 18	6,6
80	78	160	200	-	-	201	220	310	280	202	63	24	100	15	28	42	8 x 18	8,1
100	100	180	220	-	-	241	257	350	329	241	78	26	120	15	28	50	8 x 18	11,9

Flow rate characteristic value¹⁾ k_{VS} in m³/h

DN	Lift of stem			
	25 %	50 %	75 %	100 %
15	0,98	2,34	3,53	4,10
20	1,09	2,58	3,90	4,53
25	1,74	4,14	6,25	7,26
32	2,26	5,36	8,09	9,40
40	5,33	12,67	19,11	22,22
50	8,82	20,95	31,61	36,75
65	34,51	58,12	68,29	72,65
80	46,69	78,63	92,39	98,29
100	75,11	126,50	148,63	158,12

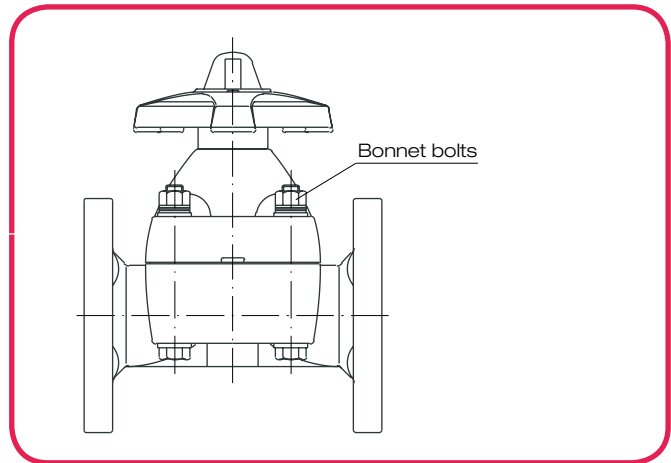
¹⁾ Definition k_{VS} -value see chapter T2 / technical information



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

DN	EL-PTFE-diaphragm with EPDM cushion cover	
	$M_{d_{min}}$	$M_{d_{max}}$
15 - 20	5	7
25 - 32	8	10
40	15	17
50	20	23
65	15	17
80	20	22
100	40	43



Drive torque¹⁾ M_A in Nm
for stem movement

DN	rot / lift	M_A
15	5	4
20	5	4
25	6	5
32	6	5
40	5	12
50	6	12
65	8	23
80	10	31
100	10	38

¹⁾ Referring to maximum working pressure

Working pressure²⁾ p_B in bar

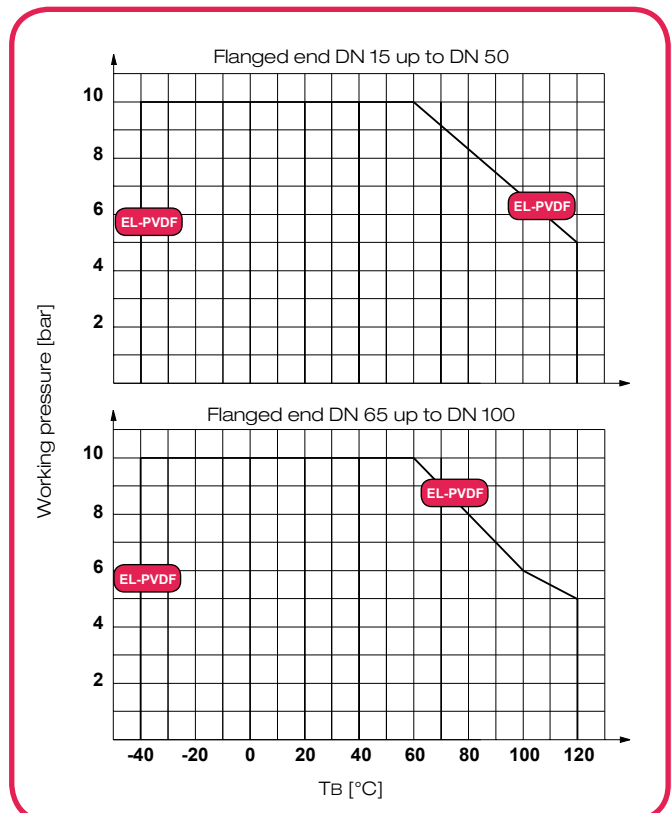
Body material	T_B in °C	DN 15 - 50	DN 65 - 100
EL-PVDF	-40 up to 60	10	10
	80	8,3	8
	100	6,7	6
	120	5	5

²⁾ Definition see chapter T2 / technical information

Vacuum resistance³⁾ in bar

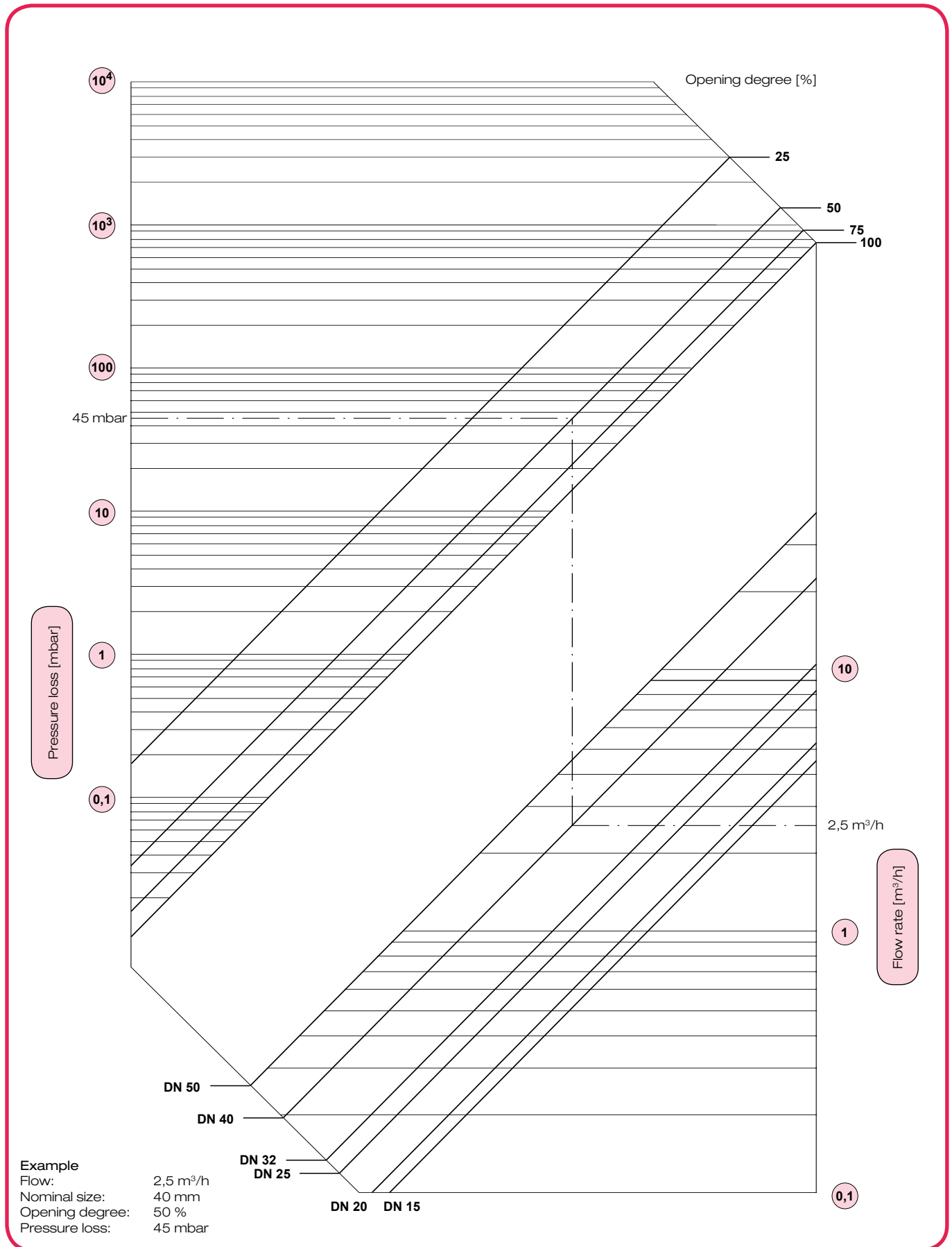
DN	Vacuum resistance
15 - 50	1,0
65 - 100	0,5

³⁾ Referring to maximum working temperature



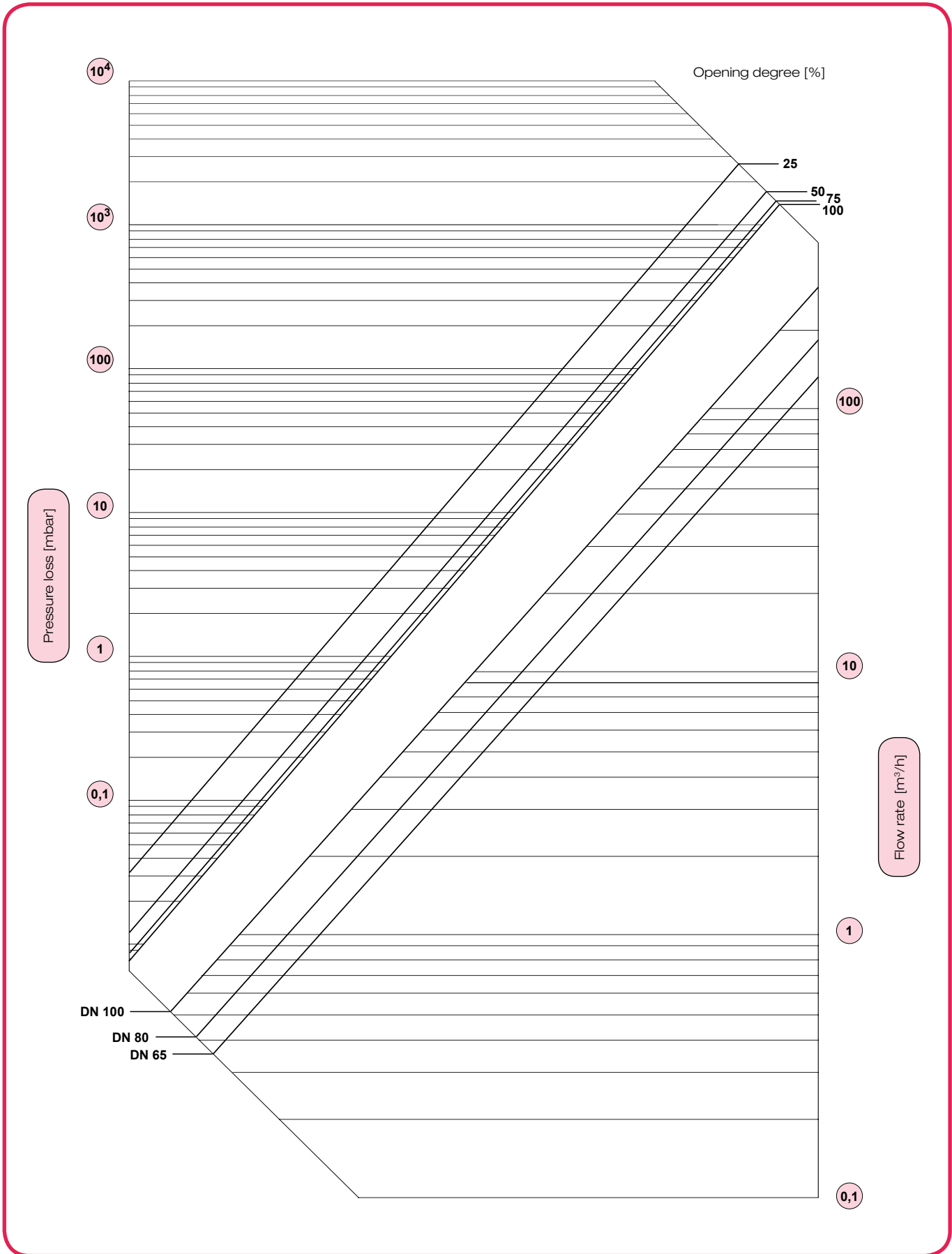
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Pressure loss diagram for DN 15 up to DN 50



Diaphragm valve type 14 EL-PVDF

Pressure loss diagram for DN 65 up to DN 100



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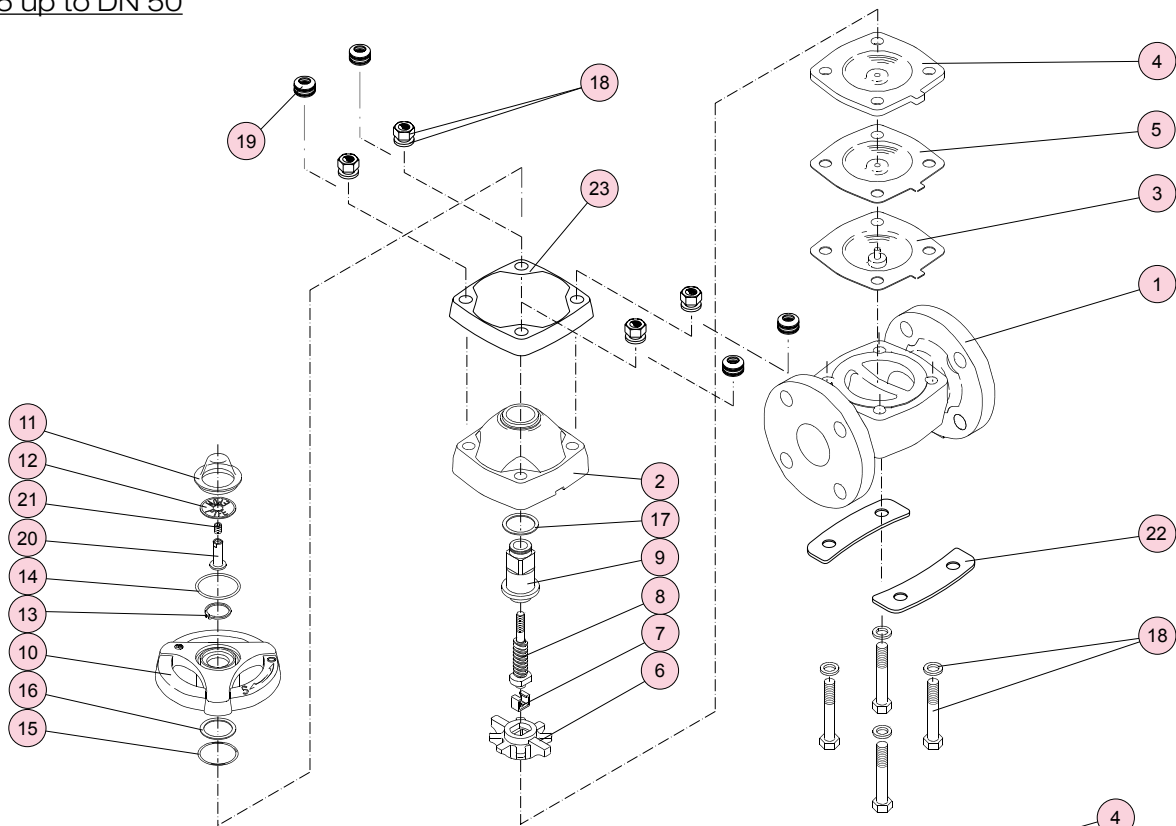
Maintenance and installation

DN 15-50				DN 65-100			
Required tools:				Required tools:			
DN	15-32	40, 50		DN	65	80	100
Allen key	3	4		Allen key	-	-	-
Spanner	8; 2x13	10; 2x19		Spanner	2x17	2x17; 19	2x17; 24
Circlip-pliers	19-60	19-60		Circlip-pliers	19-60	19-60	19-60
Pin driver	-	-		Pin driver	5	5	5
Disassembly of the valve							
<i>Attention: Never dismantle the valve when the pipe is under pressure.</i>							
<ul style="list-style-type: none"> ■ Dismantle the valve from the pipe remove flange bolts ■ Bring the valve in half opened position. Loosen the bonnet bolts 18 and remove the bonnet 2. 				alike DN 15-50			
<ul style="list-style-type: none"> ■ Remove gauge cover 11. 				<ul style="list-style-type: none"> ■ Unscrew gauge cover 11 counter-clockwise. 			
<ul style="list-style-type: none"> ■ Remove o-ring 14 and name plate 12. ■ Turn the hand wheel 10 clockwise to the stopper, then turn it back slightly. ■ Turn the diaphragm 3 of 90°, pull diaphragm 3 and compressor 6 off the stem 8. 				alike DN 15-50			
<ul style="list-style-type: none"> ■ Pull joint 7 off stem 8. ■ Hold stopper 20 with spanner to prevent it from turning and loosen screw 21 with an allen key. Unscrew the stopper from the stem. 				<ul style="list-style-type: none"> ■ Drive compressor pin 89 out of compressor 6, so that the compressor can be removed from stem 8. ■ Remove group of parts 20, consisting of stopper, red washer, nut and blank washer, from the stem. Loosen the nut first. 			
<ul style="list-style-type: none"> ■ Remove the retaining c-type ring 13 with the circlip-pliers from sleeve 9. ■ Pull the hand wheel 10 off the sleeve 9. ■ Remove the thrust rings 16 + 17 and o-ring 14 from the bonnet. 				alike DN 15-50			
Assembly of the valve							
<ul style="list-style-type: none"> ■ The valve assembly is to be performed in reverse order to the disassembly. ■ Before the assembly all parts have to be checked for damages. ■ All parts have to be clean. 							
<ul style="list-style-type: none"> ■ To mount the diaphragm, put the joint 7 on the stem 8. The slot must be in 90° position to the axle between the guiding slots in the inner side of bonnet 2. 				<ul style="list-style-type: none"> ■ To mount the diaphragm, put the compressor 6 on the stem 8. Drive pin 89 into compressor 6 so that it is flush with it. 			
<ul style="list-style-type: none"> ■ The diaphragm flag must be positioned in the clearances of body and bonnet. 							
Stopper adjustment							
<ul style="list-style-type: none"> ■ Close the valve by turning the hand wheel 10 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. 				alike DN 15-50			
<ul style="list-style-type: none"> ■ Tighten the stopper 20 with medium force and hold it with a spanner to prevent it from turning. Tighten screw 21 with an allen key. 				<ul style="list-style-type: none"> ■ Mount group of parts 20: put the blank washer on stem 8, put the red washer between the stopper and the nut and lock it by tightening the nut. 			

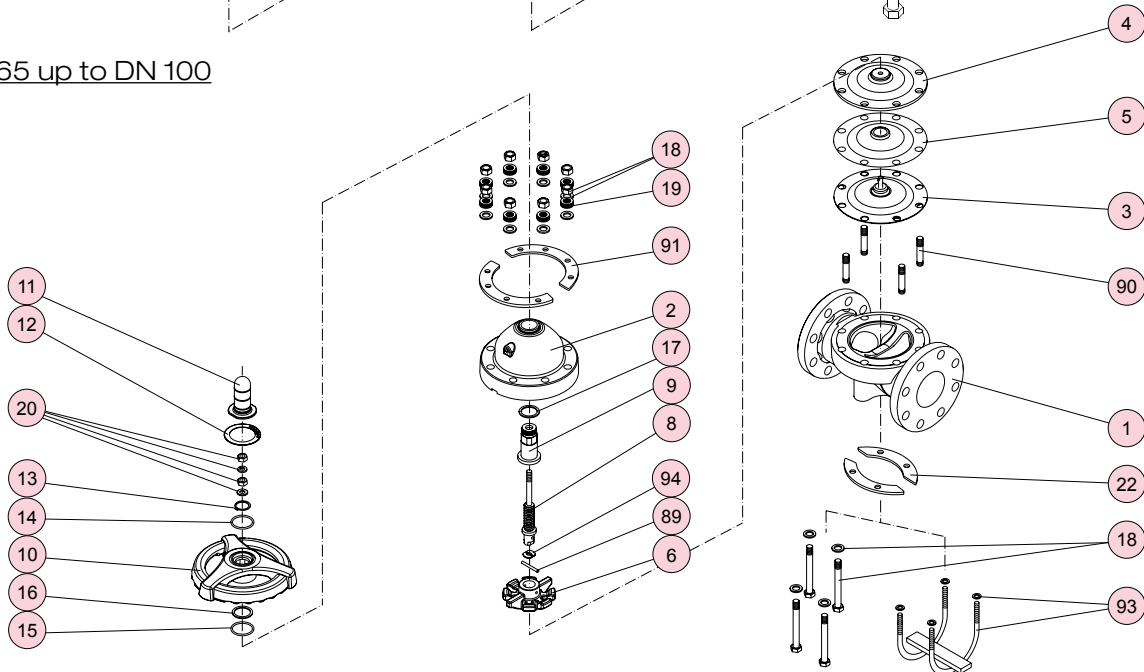
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Assembly and maintenance procedure

DN 15 up to DN 50



DN 65 up to DN 100



all DN

Notes for correct installation

- The valve must be installed stress-free in the pipe (plane parallelism, axial, overall length).
- Flange version:
Tighten the connecting screws evenly and crosswise (observe tightening torques).
In general, use washers for the nuts and bolts in plastic flanges.