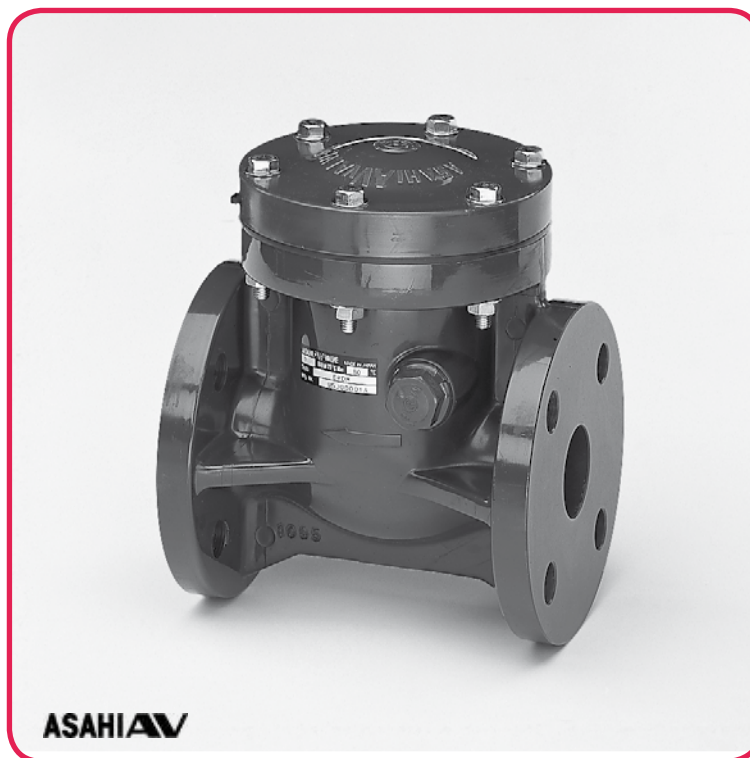


Swing check valve type 33



Body material	HI-PVC	PP	PVDF
Sealing material (optionally)	• EPDM	• CSM • PTFE	• PFA • FKM-F
Working temperature ¹⁾	0 °C up to 50 °C ²⁾	-20 °C up to 80 °C ²⁾	-20 °C up to 100 °C ²⁾
Nominal size	DN 15 up to DN 200		
Connection with pipe	Flange connection acc. to DIN EN 1092-1 (replaces DIN 2501) - PN 10 ³⁾		
Length	DIN EN 558 - 1 series FTF 48 (DIN 3202 - series F 6)		
Accessories	Adjustable weight ⁴⁾		

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

³⁾ Flange connection also acc. to ANSI available

⁴⁾ Special version on request

²⁾ Working temperatures for sealing materials:

EPDM: -20 up to 80 °C

CSM: -20 up to 80 °C

PTFE: -20 up to 100 °C

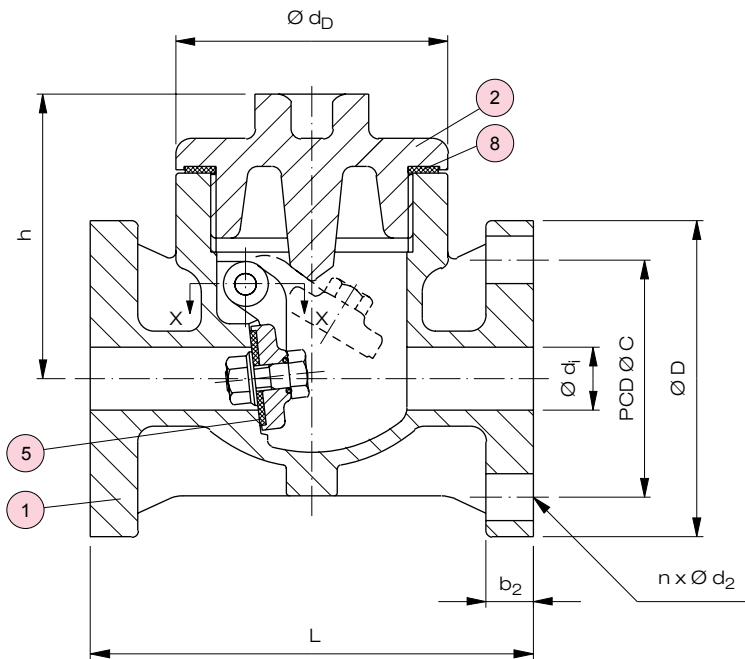
Example for an invitation to tender text:

Swing check valve type 33, DN 80, PN 7, PP / EPDM, flange connection acc. to DIN EN 1092-1 - PN 10, length acc. to DIN EN 558-1 series FTF 48, with removable bonnet lid for on-site-maintenance

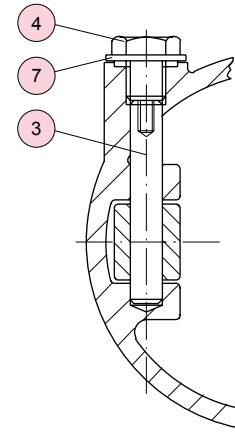
Document: FRANK_DB_L5_Rückschlagklappe Typ 33_05-2020_EN

Swing check valve type 33

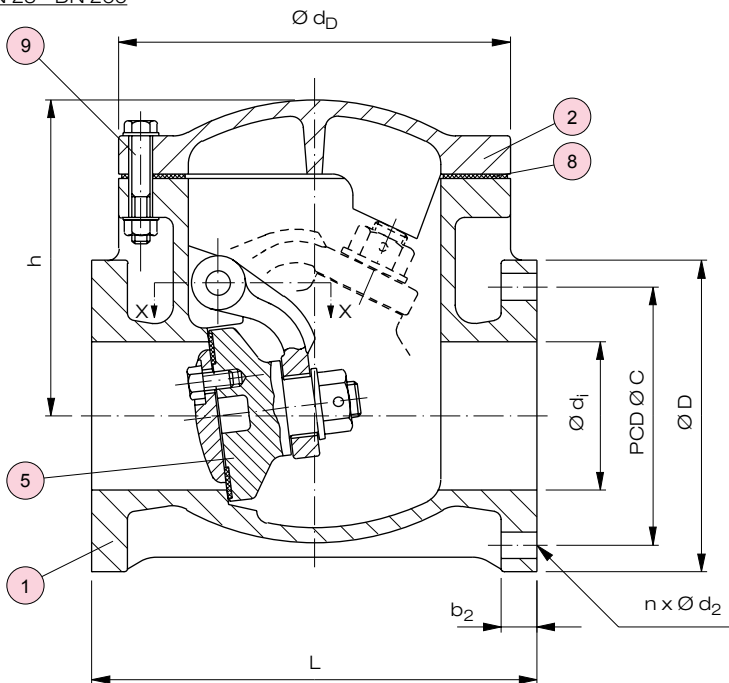
DN 15 - DN 20



Section X-X

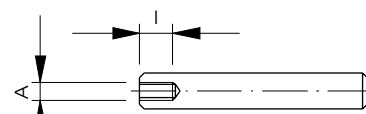


DN 25 - DN 200



Quantity of bonnet bolts pos. 9

DN	Bolt Nut	Washer
25 - 40	6	12
50 - 80	8	16
100 - 150	12	24
200	16	32



Thread for shaft pos. 3

DN	A	I
15 - 40	M 4	8
50	M 5	10
65 - 80	M 6	10
100	M 8	15
125 - 200	M 8	20

No.	Description	Number	Material
1	Body	1	HI-PVC, PP, PVDF
2	Bonnet	1	HI-PVC, PP, PVDF
3	Shaft ^{*)}	1	HI-PVC, PP, PVDF
4	Plug	1	HI-PVC, PP, PVDF

No.	Description	Number	Material
5	Arm ^{*,1)}	1	HI-PVC, PVDF
7	Seat holder ^{*)}	1	EPDM, CSM, PTFE, FKM-F
8	O-ring ^{*, 2)}	1	EPDM, CSM, PFA, FKM-F
9	Bolt, nut, washer	as above	A2 - 1.4301 (SUS 304)

^{*)} Wearing parts

¹⁾ with EPDM, CSM, or PTFE sealings

²⁾ PFA O-ring double piece at bolt, nut and washer

Swing check valve type 33

Dimensions and weights

Dimensions in mm											Weight in kg / pc.		
DN	d _i	C	D	d _D	L	h	b ₂			n x d ₂	HI-PVC	PP	PVDF
							HI-PVC	PP	PVDF				
15	20	65	95	86	140	90	15	15	15	4 x 14	0,9	0,7	1,1
20	20	75	105	86	140	90	15	15	15	4 x 14	1,0	0,7	1,1
25	25	85	115	130	160	120	16	16	16	4 x 14	1,8	1,3	2,1
32	40	100	140	145	180	138	18	18	18	4 x 18	3,1	2,2	3,5
40	40	110	150	145	180	138	18	18	18	4 x 18	3,1	2,2	3,5
50	50	125	165	180	200	164	20	20	21	4 x 18	4,5	3,2	5,1
65	65	145	185	200	240	168	22	23	23	4 x 18	6,0	4,0	7,0
80	80	160	200	205	260	171	22	25	25	8 x 18	6,5	4,5	8,0
100	100	180	220	265	300	213	24	26	26	8 x 18	11,5	8,0	13,0
125	125	210	250	330	350	248	24	27	27	8 x 18	17,0	13,0	21,0
150	150	240	285	370	400	283	25	27	27	8 x 22	23,0	17,0	28,0
200	200	295	340	425	500	336	30	34	34	8 x 22	36,5	26,5	44,0

Minimum required shut and opening pressures in bar

DN	Sealing material	Vertical installation		Horizontal installation	
		Open	Close	Open	Close
15	EPDM, CSM	0,1	0,2	0,1	0,2
	PTFE	0,1	0,3	0,1	0,3
20	EPDM, CSM	0,1	0,2	0,1	0,2
	PTFE	0,1	0,35	0,1	0,35
25	EPDM, CSM	0,1	0,3	0,1	0,35
	PTFE	0,1	0,5	0,1	0,6
32	EPDM, CSM	0,1	0,3	0,1	0,35
	PTFE	0,1	0,5	0,1	0,6
40	EPDM, CSM	0,1	0,3	0,1	0,35
	PTFE	0,1	0,5	0,1	0,6
50	EPDM, CSM	0,1	0,3	0,1	0,35
	PTFE	0,1	0,5	0,1	0,6
65	EPDM, CSM	0,1	0,3	0,1	0,35
	PTFE	0,1	0,5	0,1	0,6
80	EPDM, CSM	0,1	0,35	0,1	0,4
	PTFE	0,1	0,55	0,1	0,6
100	EPDM, CSM	0,1	0,35	0,1	0,4
	PTFE	0,1	0,6	0,1	0,65
125	EPDM, CSM	0,1	0,35	0,1	0,4
	PTFE	0,1	0,6	0,1	0,65
150	EPDM, CSM	0,15	0,4	0,1	0,45
	PTFE	0,15	0,65	0,1	0,7
200	EPDM, CSM	0,2	0,4	0,15	0,45
	PTFE	0,2	0,7	0,15	0,7

Swing check valve type 33

Flow rate characteristic value¹⁾ k_{VS} in m^3/h

DN	15	20	25	32	40	50	65	80	100	125	150	200
k_{VS} [m^3/h]	12,1	12,1	20,8	70,1	70,1	121,2	216,5	242,5	441,7	643	942	1600

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

Vacuum resistance²⁾ in bar
for HI-PVC, PP, PVDF

DN 15 - 200
1,0

²⁾ Valid within the range of working temperatures

Working pressure³⁾ p_B in bar

Body-material	Sealing material	T_B in °C	DN		
			15 - 80	100 - 150	200
HI-PVC	EPDM, CSM, NBR, PTFE	0 up to 20	10	7	5
		50	7	5	4
PP	EPDM, CSM, NBR, PTFE	-20 up to 30	10	7	5
		60	7	5	3
		80	6	4	2
PVDF	PTFE	-20 up to 30	10	7	5
		80	7	5	3,5
		100	6	4	3

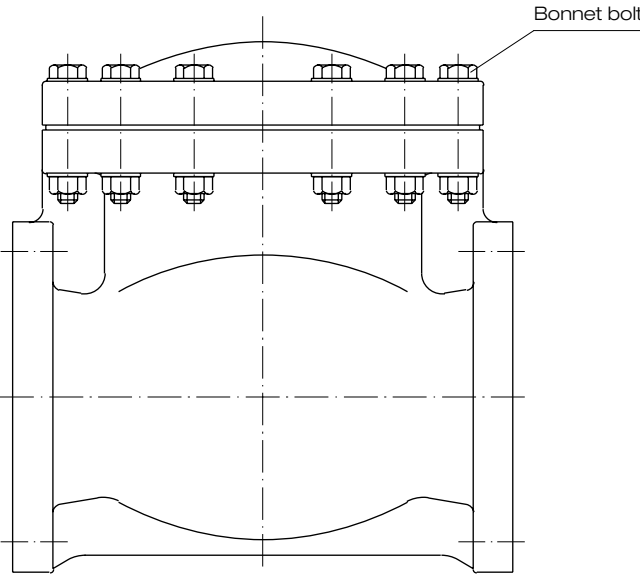
³⁾ Definition see chapter T2 / technical information

Hydrostatic bursting pressure⁴⁾ in bar
for HI-PVC at 22 °C

DN	15	20	25	32	40	50	65	80	100	125	150	200
	110	110	110	95	95	95	90	85	80	65	45	45

⁴⁾ Definition see chapter T2 / technical information

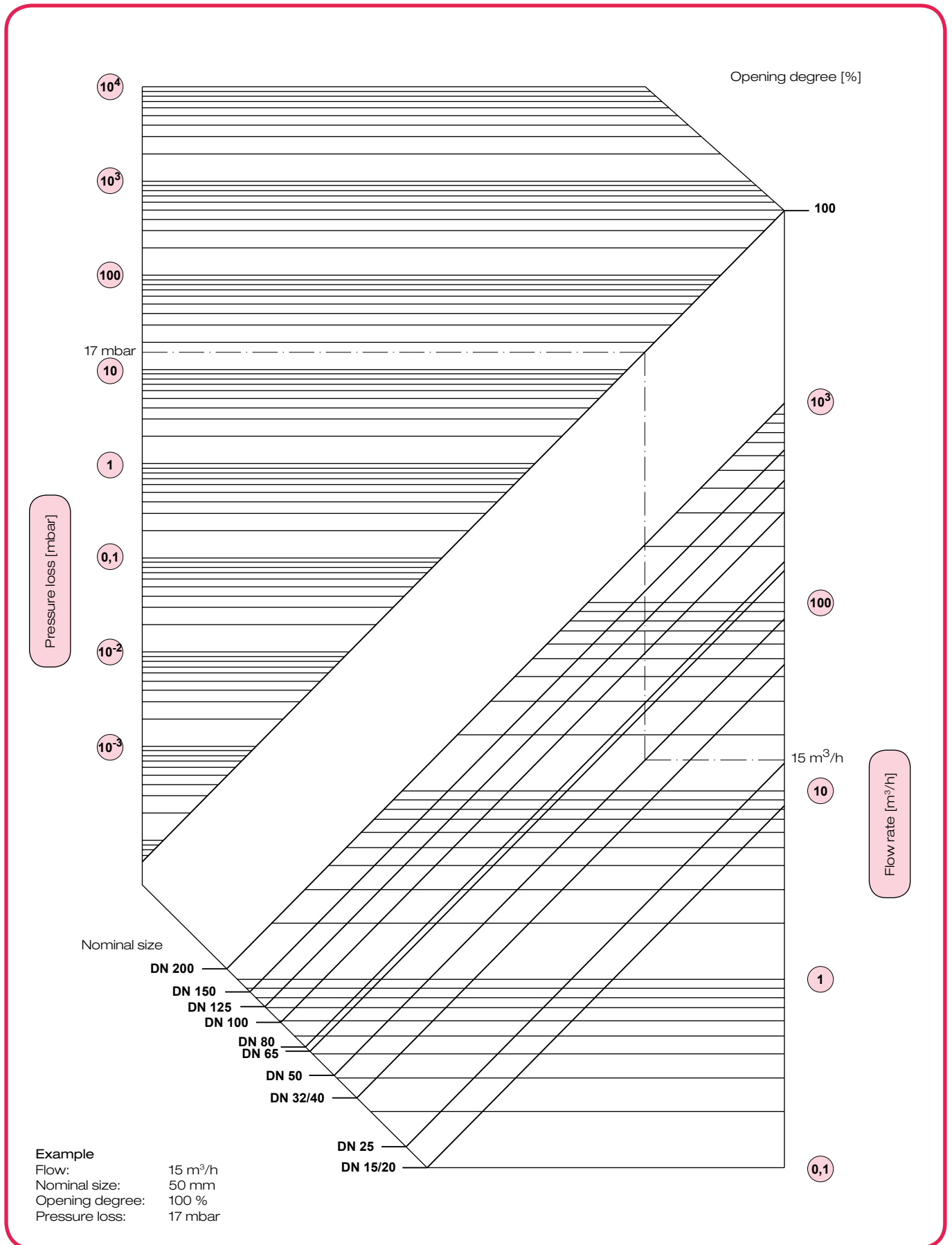
Tightening torque $M_{d_{min/max}}$ in Nm for bonnet bolts



DN	Bonnet gasket EPDM, CSM		Bonnet gasket PVDF	
	$M_{d_{min}}$	$M_{d_{max}}$	$M_{d_{min}}$	$M_{d_{max}}$
15	4	5	7	8
20	4	5	7	8
25	6	7	10	11
32	8	9	13	14
40	8	9	13	14
50	10	11	15	15
65	10	11	15	16
80	15	17	20	22
100	20	22	25	27
125	20	22	25	27
150	25	27	30	33
200	25	27	30	33

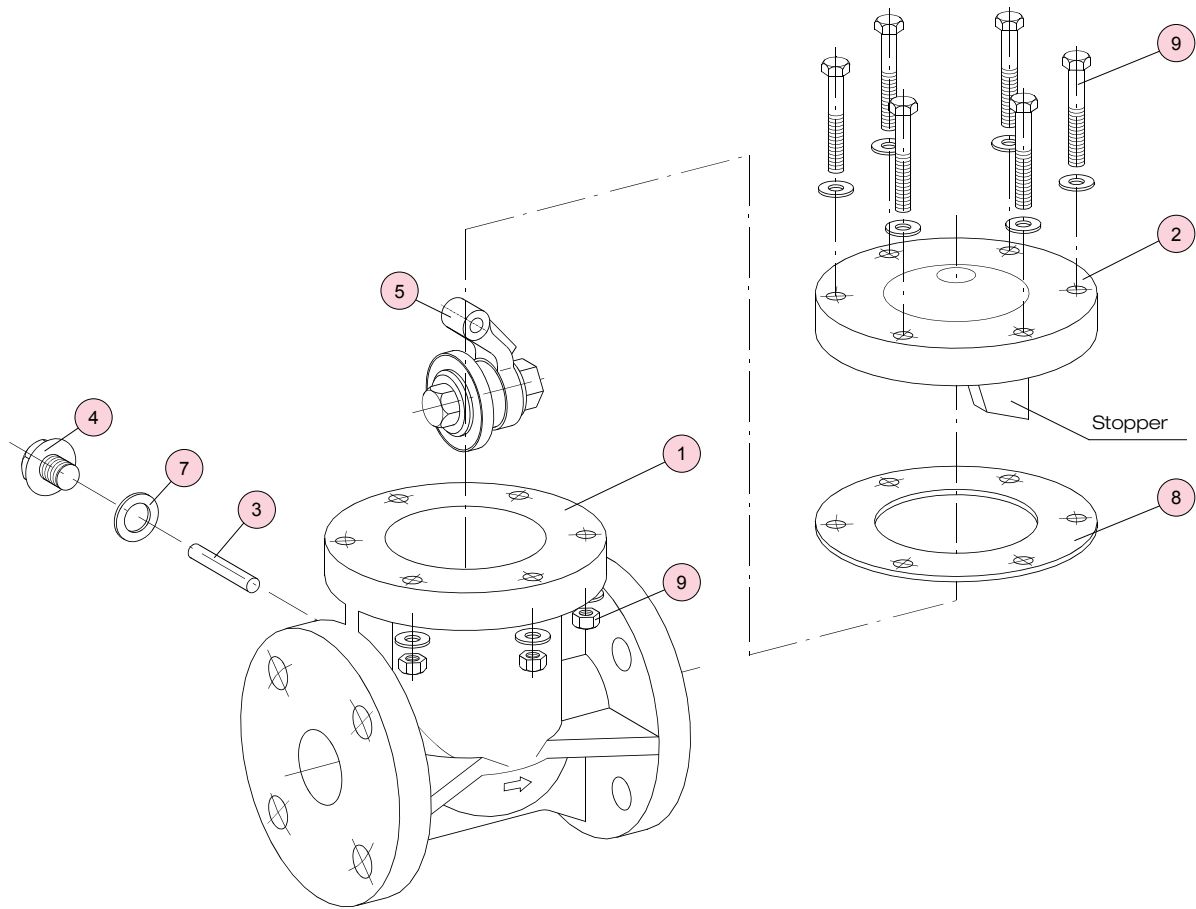
Swing check valve type 33

Pressure loss diagram



Swing check valve type 33

Assembly and disassembly



all sizes

Disassembly of the valve

Attention: *Never dismantle the valve when the pipe is under pressure.*

- Dismantle the valve from the piping by loosening the flange bolts.
- Loosen the bonnet bolts 9 and remove the bonnet 2 from the body (DN 20: screw bonnet 2 off body 1).
- Loosen plug 4 and seat holder 7.
- Pull shaft 3 with a suitable tool out of the body. Prevent arm 5 from falling into the body.
- Check all parts for wearout and replace them if necessary.

Assembly of the valve

- 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.
- The bonnet 2 has to be positioned with the stopper pointing to flow direction.

- Tighten the bonnet bolts 9 equally with a torque wrench acc. to the table on page L5-10.
- After assembly carry out a pressure test acc. to DIN EN 12266-1.

Notes for correct installation

- The valve must be installed stress-free in the pipe (plane parallelism, axial, overall length).
- The valve has to be installed with direction indicator pointing in flow direction.
- The flange bolts have to be tightened equally (tightening torques look at T2 - 10). In general, use washers for the nuts and bolts in plastic flanges.
- Avoid direct assembly on a flange of a pump.