

Swing check valve type ZR01/ZR02/ZR03/ZR04/ZR09/ZR10



description:

Swing check valves allow the medium to flow just in one direction. If the flow of the medium changes the direction, the check valve will close automatically.

features:

- suitable for neutral and not neutral **gaseous & liquid media**
Group 1 & 2
- very short length
- low opening pressure
- mounting between flanges
- integrated sealed by an O-ring

connection:

DN 32, 40, 50, 65, 80, 100, 125, 200, 250, 300, 350, 400, 450, 500, 600

temperature:

-10°C to +400°C
- depending on design

pressure:

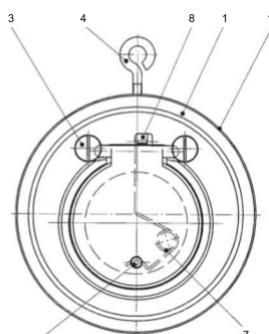
0,0 bar – 16,0 bar
- depending on design

Material:

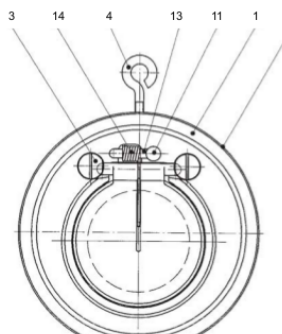
Part	Type ZR01	ZR02	ZR03	ZR04	ZR09	ZR10
Body	Steel C22.8. (zink plated)	Stainless steel 1.4408	Steel C22.8 (zink plated)	Stainless steel 1.4408	Alu-bronze 2.0975/C958	Alu-bronze 2.0975/C958
Disc	Steel C22.8 (zink plated)	Stainless steel 1.4408	Steel C22.8 (zink plated)	Stainless steel 1.4408	Duplex 1.4469 A 890 Grade 5A	Duplex 1.4469 A 890 Grade 5A
Spring	Without spring	Without spring	Stainless steel	Stainless steel	Without spring	Hastelloy C4

Type	Seal	Temperature range
ZR01 / ZR03 – Steel / Steel		
	NBR	-10°C - +90°C
	EPDM	-10°C - +120°C
	FKM	-10°C - +200°C
	PTFE	-10°C - +250°C
ZR02 / ZR04 – Stainless steel / Stainless steel		
	Metal seated	-196°C - +400°C (ZR04 only up to +300°C)
	NBR	-30°C - +90°C
	EPDM	-45°C - +120°C
	FKM	-15°C - +200°C
	PTFE	-196°C - +250°C
ZR09 / ZR10 – Alu-Bronze / Duplex		
	NBR	-10°C - +90°C
	EPDM	-10°C - +120°C
	FKM	-10°C - +200°C
	PTFE	-10°C - + 250°C

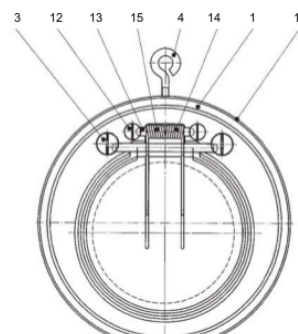
- 1 Body
- 2 Disc
- 3 Screw
- 4 Ring screw
- 5 O-ring
- 6 O-ring
- 7 spring (OPTIONAL)
- 8 Pivot
- 9 Jig
- 10 Plate
- 11 Jig for pin
- 12 Screws
- 13 Pin for spring
- 14 Spring right
- 15 Spring left



DN32 - DN40 optional mit Feder

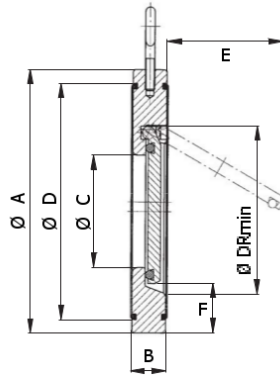


DN50 - DN125 optional mit Feder



ab DN150 optional mit Feder

Dimensions:



DN		A						B		C	D	E	DR
SIZE		PN6	PN10	PN16	PN25	PN40	ANSI 150	Without spring	with spring				
32	1 1/4"	79	85				74	15	15	18	59	22	37
40	1 1/2"	89	95				83	16	16	22	72	25	43
50	2"	98	109				105	14	14	32	86	37	54
65	2 1/2"	118	129				124	14	14	40	109	50	70
80	3"	134	144				137	14	14	54	119	61	82
100	4"	154	164	170			175	18	18	70	146	77	106
125	5"	184	195	196			197	18	18	92	173	98	131
150	6"	209	220	226			222	20	20	112	197	120	159
200	8"	264	275	286	294	279	279	22	22	154	255	160	207
250	10"	319	330	331	344	356	340	26	26	192	312	190	260
300	12"	375	380	386	404	421	410	32	32	227	363	220	309
350	14"	425	440	446	461	478	451	38	38	266	416	250	341
400	16"	475	491	499	518	550	514	44	44	310	467	290	392
450	18"	-	541	588	-	-	549	52	-	350	520	340	442
500	20"	580	596	621	628	632	606	58	-	400	550	390	493
600	24"	681	698	738	735	-	718	62	-	486	660	470	595

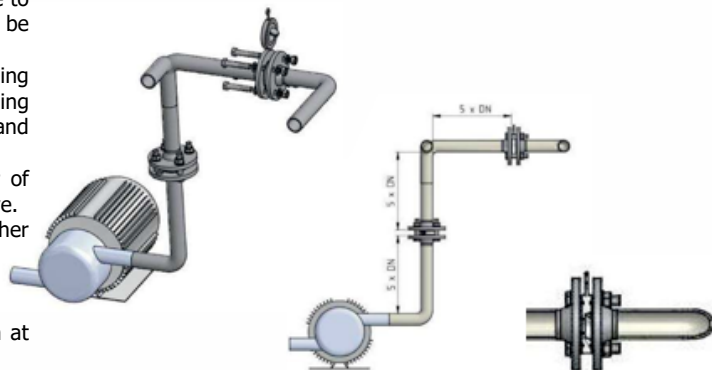
Face to Face: short
 Flange acc. to: DIN EN 1092-1 PN10 / PN16 / PN25 / PN40
 ASME B16.5 ANSI 150

DN	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
Type:	Flange PN10/16/25/40					Flange PN10/16					Flange PN10					

Installation Instruction:

The personnel must pay special attention, when swing check valves are unpacked and transported. The valve is to be held in a horizontal position in a way that it can open at the top only. This is to avoid, that the valve unintentionally drops down and is damaged. The following aspects are to be considered during the installation of swing check valves:

- Possible damages to the swing check valves and O-rings are to be checked prior to installation. Check if the valve can be moved. Damaged parts must not be installed.
- Make sure that only those swing check valves are being installed, that meet the operational requirements regarding pressure category, chemical resistance, connection and dimensions.
- Make sure to install a minimum of 5 x nominal diameter of straight pipeline in front of and behind the swing check valve.
- Exit supports allow a greater opening angle and higher throughput values.
- Do not install the valves directly onto a pump flange.
- Avoid pulsation and pressure impact.
- Vertical throughput is allowable only if the valve can open at the top.
- In case of horizontal throughput, the ring screw must be at the top.
- Watch throughput direction (see arrow on the plate)!
- The swing check valves are placed between the flanges by means of a ring screw. They are put in their central position according to the outer diameter of the case and the flange screw inner side.
- Tighten the flange screws crosswise regarding the torque required.



General safety advices:

The safety advices for the pipe system, in which the valves are to be mounted, are to be followed. The same applies to the dual plate check valves.

In pipe systems, where our dual plate check valves are to be used, the planning/installing person and the operator are responsible for the following issues:

- The dual plate check valves is to be used according to the regulation in p.1
- The pipe system is to be installed correctly and its operation is to be checked regularly
- The dual plate check valves is to be mounted, removed and repaired by qualified personnel only. The staff is to be regularly instructed according to all relevant regulations concerning working safety and environmental protection, especially in the field of pipes under pressure.
- These staff members have to be informed about the manual and the advices included.

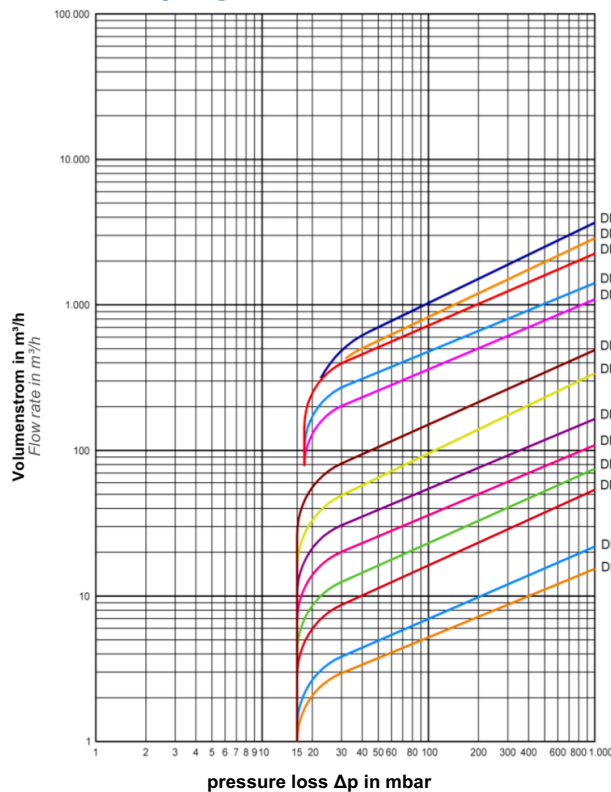
Maximal working pressure / opening pressure:

DN SIZE	Kv-Value m ³ /h	Working pressure in bar	Opening pressure at flow direction			
			Without spring ↔	With spring ↔	Without spring ↑	With spring ↑
32	1 1/4"	16,2	0 - 16	~ 2	~ 15	~ 10
40	1 1/2"	22,2	0 - 16	~ 2	~ 15	~ 10
50	2"	54	0 - 16	~ 2	~ 15	~ 10
65	2 1/2"	75	0 - 16	~ 2	~ 15	~ 10
80	3"	112	0 - 16	~ 2	~ 15	~ 10
100	4"	172	0 - 16	~ 2	~ 15	~ 10
125	5"	342	0 - 16	~ 2	~ 15	~ 10
150	6"	490	0 - 16	~ 2	~ 15	~ 10
200	8"	1.128	0 - 16	~ 4	~ 17	~ 14
250	10"	1.500	0 - 16	~ 4	~ 17	~ 14
300	12"	2.290	0 - 16	~ 4	~ 17	~ 14
350	14"	2.890	0 - 10	~ 6	~ 18	~ 18
400	16"	3.700	0 - 10	~ 6	~ 18	~ 18
450	18"	5.000	0 - 10	~ 6	~ 18	~ 18
500	20"	6.550	0 - 10	~ 6	~ 18	~ 24
600	24"	9.500	0 - 10	~ 6	~ 18	~ 26

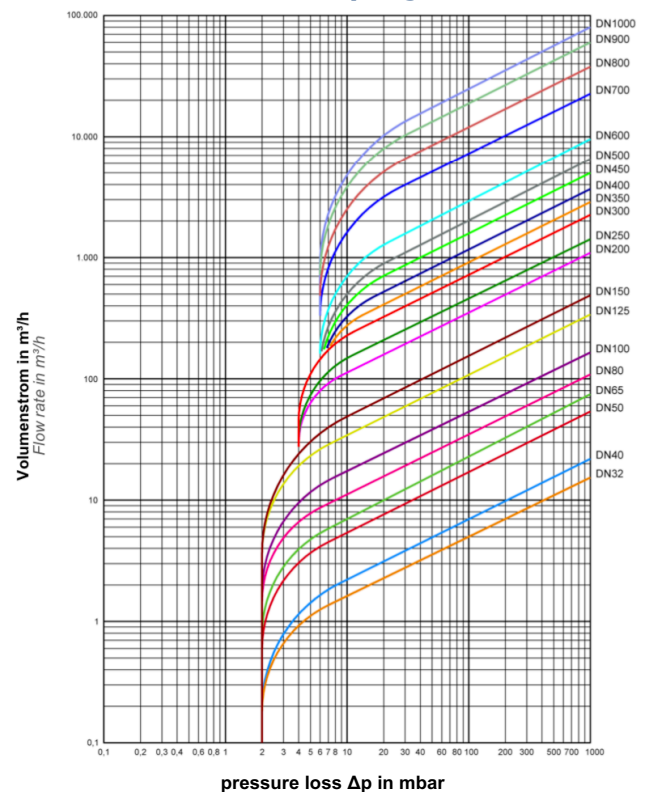
A minimum back pressure of 0,3 bar is required to keep the swing check valves tight.

Pressure loss:

with spring:



without spring:



The values in the diagram refer to water at 20°C. If you need information on other fluids please contact us.
In the area of the valve opening, the characteristics for installation in horizontal pipelines apply.

Test meeting the requirement of PED acc. to DIN EN 12266:

The tightness corresponds to the specified leakage rates.

Type	Soft seat*	Metal seat
ZR01	A	≥ G
ZR02	A	≥ G
ZR03	A	≥ G
ZR04	A	≥ G
ZR09	A	≥ G
ZR10	A	≥ G

* Soft seat: EPDM, FPM/FKM/Viton, PTFE, NBR

Media phase: gasoeus or liquid, if pD > 0,5 bar (steam pressure)

Structure Article number:

Type	design	seal	size
ZR01	00 – DIN	01 – EPDM	06 – DN32
ZR02	10 – ANSI 150	02 – FPM	07 – DN40
ZR03		03 – PTFE	08 – DN50
ZR04		04 – NBR	09 – DN65
ZR09		05 – metal seated	10 – DN80
ZR10			11 – DN100
			12 – DN125
			13 – DN150
			14 – DN200
			15 – DN250
			16 – DN300
			17 – DN350
			18 – DN400
			19 – DN450
			20 – DN500
			21 – DN600

Example no. ZR04100306:

ZR04 | **10** | **03** | **06**

Article no. ZR04100306

Swing check valve

Body: Stainless steel

Disc: Stainless steel

Spring: Stainless steel

Model: ANSI 150

Seal: PTFE

Diameter: DN32

Check valve with spring available up to DN300, larger sizes on request.

Image similar, subject change without notice.