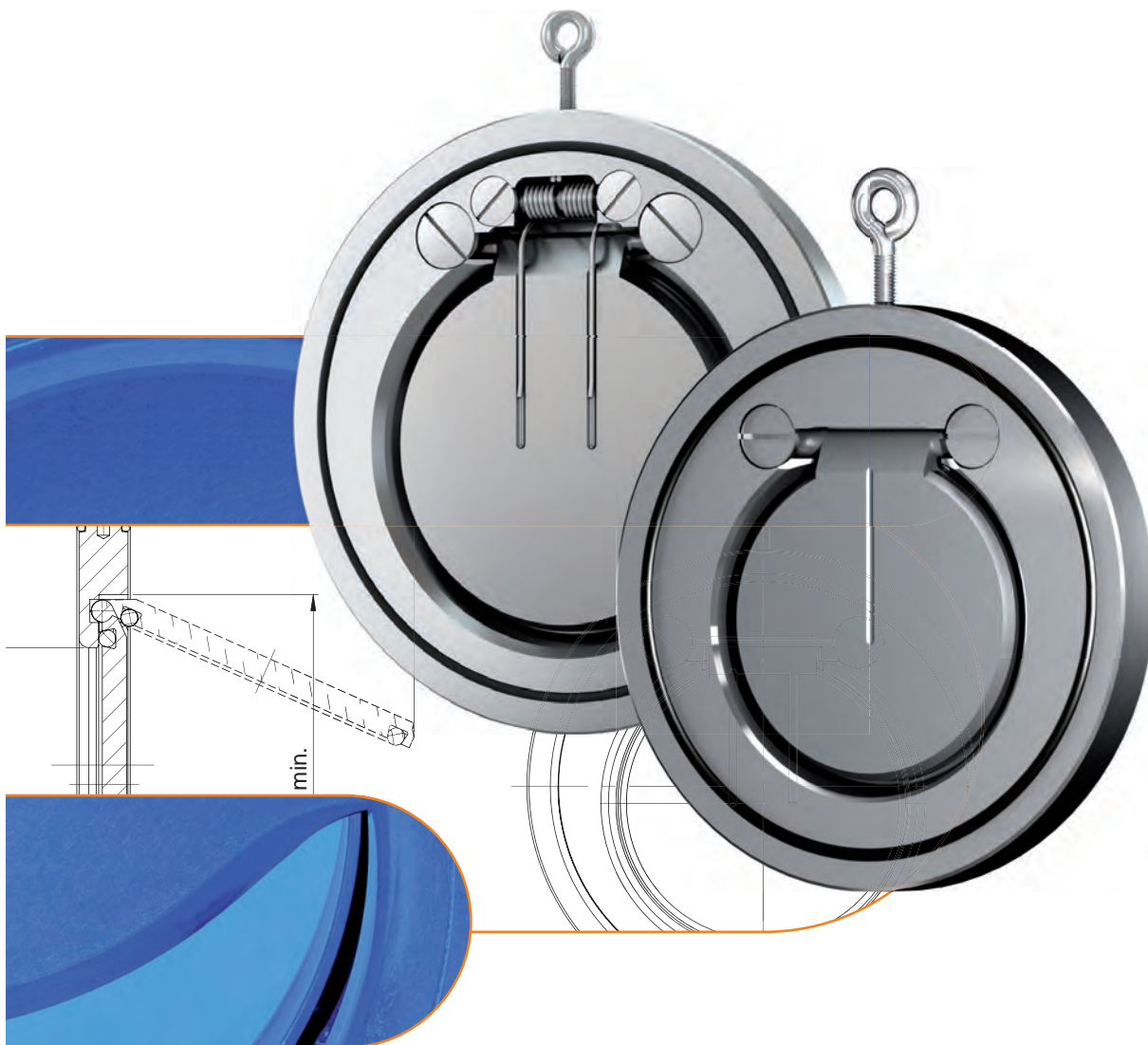


# Swing Check Valves

## Type ZRK / ZRKF



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## General description

### Description and intended purpose

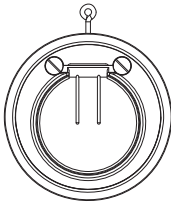
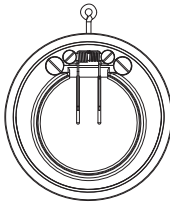
Swing check valves wafer type are characterized by their simple and robust design. A key feature is their particular narrow FTF length – a major advantage compared to other designs in many installation situations in piping systems in industrial and building services. They can be installed directly between flanges (PN 6 – PN 40 or Class 150 – Class 399).

Swing check valves wafer type are maintenance-free.

### Function

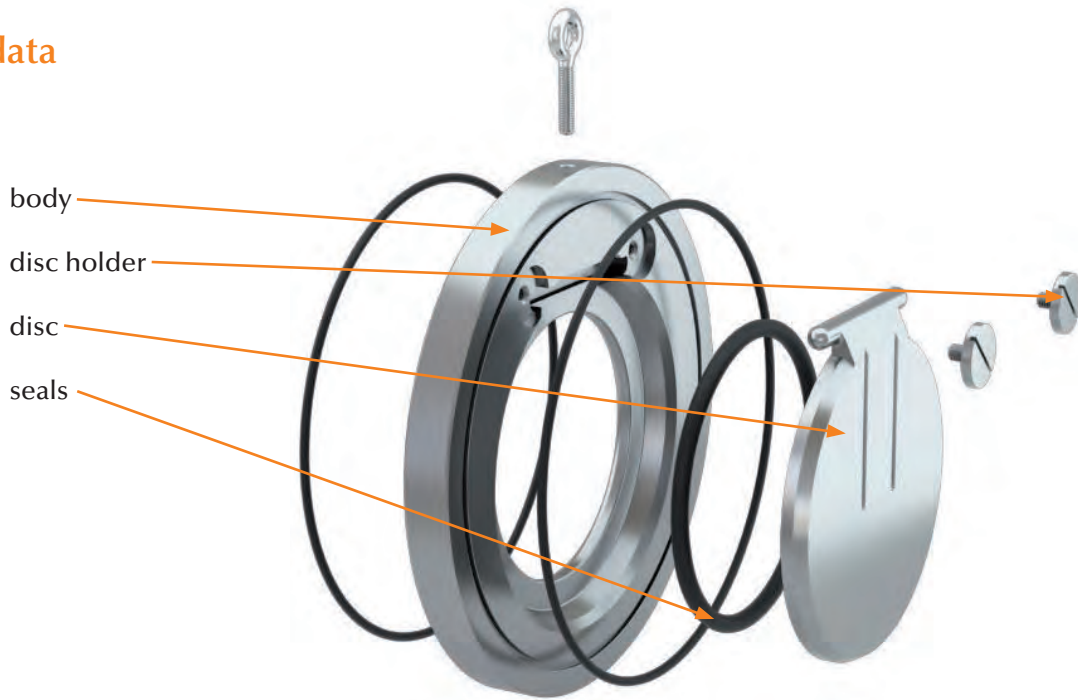
Swing check valves wafer type require a low opening pressure. The resulting opening force pushes the disc against its self-weight and, if necessary, also an additional spring, so that the medium can flow. If the pressure drops or if the backpressure exceeds the inlet pressure, the valve closes and seals against the medium by means of the soft seat or the metal seat.

## Overview matrix

	ZRK	ZRKF
		
nominal sizes <sup>*1</sup>	DN 32 –DN 1000	DN 32 – DN 400
flange connection <sup>*2</sup>	PN 6 / PN 10 / PN 16 / PN 25 / PN 40 Class 150 / Class 300 JIS 10K	
max. pressure	16 to 50 bar <sup>*3</sup>	
temperature ranges	-273 °C to +500 °C	-200 °C to +450 °C
materials available <sup>*4</sup>	steel / stainless steel / alu-bronze / superduplex	
seals available	metal / NBR / EPDM / FKM / PTFE	

<sup>\*1</sup> other nominal sizes on request  
<sup>\*2</sup> other flange connections on request  
<sup>\*3</sup> depending on nominal size and design  
<sup>\*4</sup> other materials on request

Technical data



Design	Body	Disc	Max. allowable pressure*1				
ST-ST	1.0460, zinc plated	1.0619 / 1.0460, zinc plated	DN 32 - 40 40 bar		DN 50 25 bar	DN 65 - 1000 16 bar	
ST-VA	1.0460, zinc plated	1.4408	DN 32 - 40 40 bar		DN 50 25 bar	DN 65 - 1000 16 bar	
VA-VA	1.4408	1.4408	DN 32 - 50 40 bar	DN 65 30 bar	DN 80 -100 20 bar	DN 125 - 1000 16 bar	
VA1-VA1	1.4571	1.4571	DN 32 - 50 50 bar	DN 65 40 bar	DN 80 30 bar	DN 100 -150 25 bar	DN 200 - 1000 20 bar
AB-DU	CC333G (2.0975)	1.4469 (Superduplex)	DN 32 - 50 40 bar	DN 65 - 125 30 bar	DN 150 - 300 20 bar	DN 350 - 1000 10 bar	
DU-DU	1.4469 (Superduplex)	1.4469 (Superduplex)	DN 32 - 65 50 bar	DN 80 - 100 40 bar	DN 125 - 150 30 bar	DN 200 - 1000 20 bar	

\*1 max. allowable pressure is dependent on the temperature

Seal	Design	Temperature	Leakage rate*2
Metal seated*3	ST-VA VA-VA VA1-VA1 AB-DU DU-DU	-10 °C to +400 °C -196 °C to +400 °C -273 °C to +500 °C -10 °C to +250 °C -10 °C to +250 °C	G
NBR*4	-	-30 °C to +100 °C	A
EPDM*4	-	-65 °C to +150 °C	A
FKM*4	-	-30 °C to +230 °C	A
PTFE*4	-	-200 °C to +250 °C	A

\*2 acc. to EN 12266-1

\*3 metal seated valves are supplied without O-rings in body as standard

\*4 for some designs, the temperature range is additionally limited by the temperature range of the metallic parts (see temperature range for metal seated)

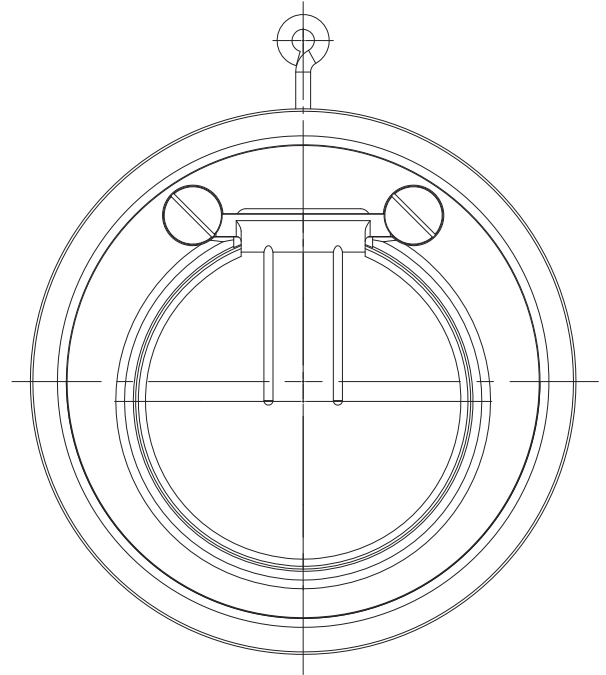
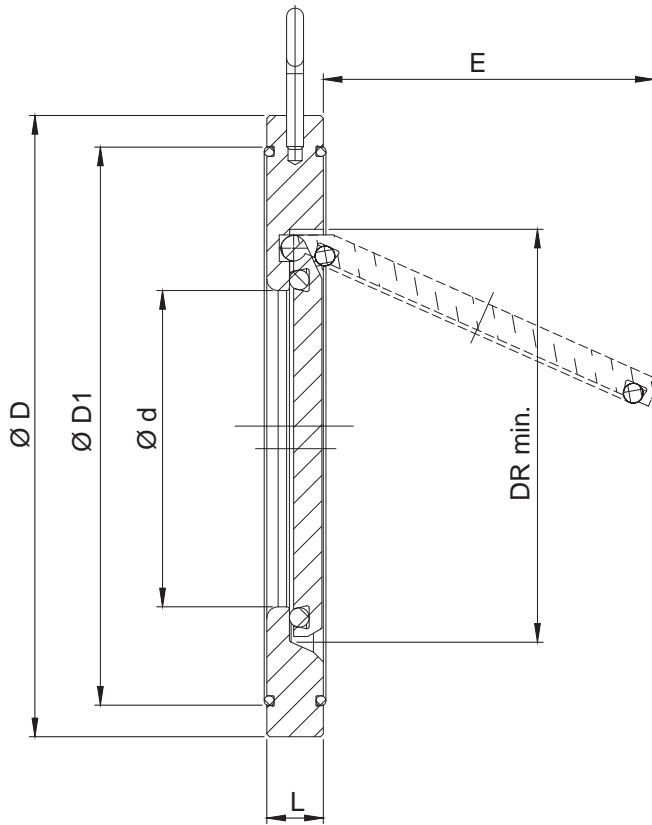
**Seals for valves up to and including DN 300 comply with the following approvals / conformities:**

NBR: DIN EN 549, BAM, REACH, RoHS etc.

EPDM: KTW UBA, DVGW W 270, WRAS, NSF, FDA, BfR XXI Kat. 4, ADI-free, 3A, USP Cl. 6, BAM, REACH, RohS etc.

FKM: DIN EN 549, ADI-free, REACH, RoHS etc.

PTFE: KTW UBA, DVGW W 270, WRAS, FDA, BfR, ADI-free, EU 10/2011, 3A, USP Cl. 6, REACH, RoHS etc.

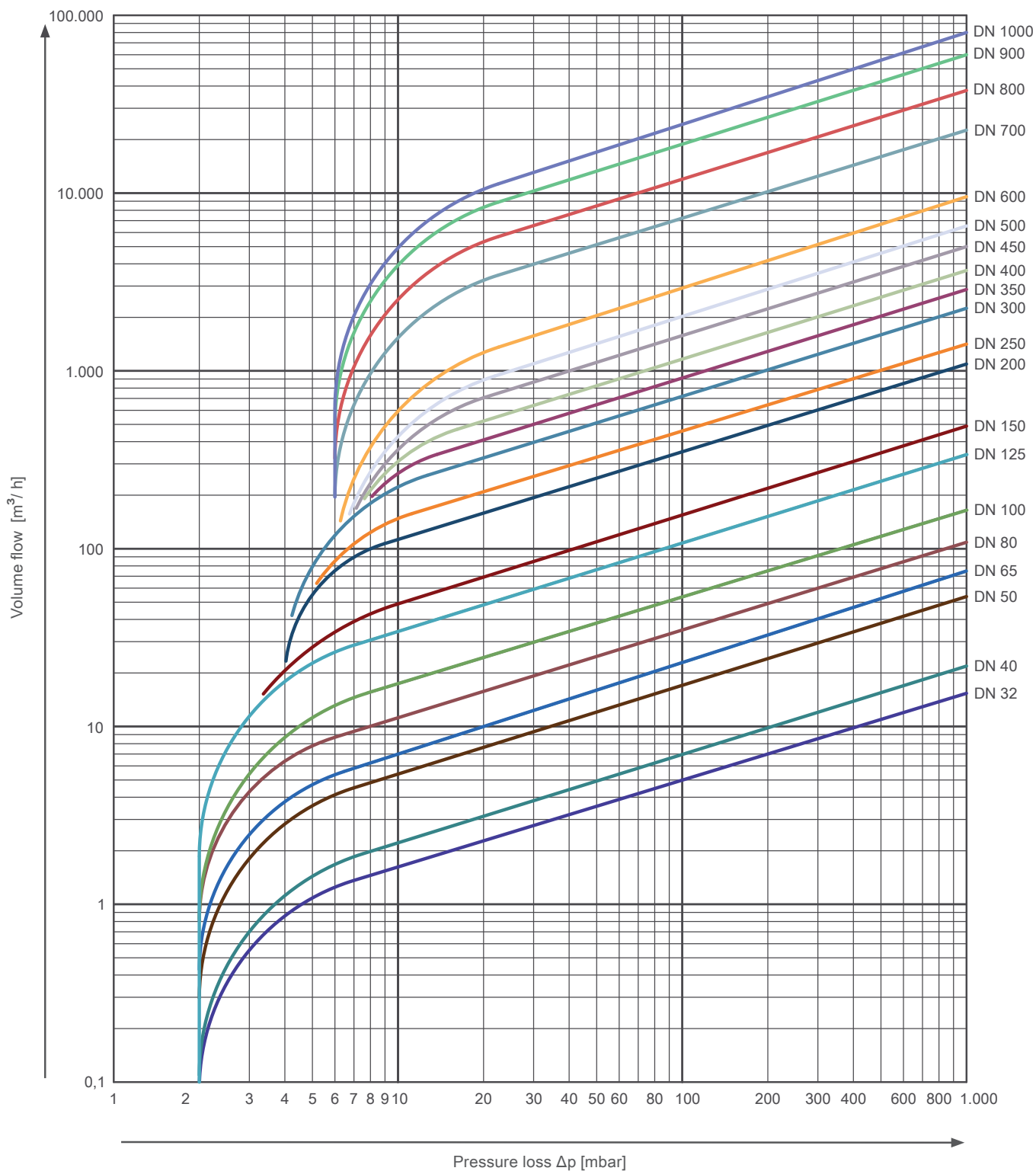


Nominal size	Ø D*5								L	Ø d	Ø D1	E	DR	Kv value [m³/h]	Opening pressure [mbar]		Weight** [kg]
	PN 6	PN 10	PN 16	PN 25	PN 40	ANSI 150	ANSI 300	JIS 10K							↔	↑	
DN 32	79	85	85	85	85	74	85	85	15	18	59	22	37	16,2	~ 2	~ 10	0,67
DN 40	89	95	95	95	95	83	95	91	16	22	72	25	43	22,2	~ 2	~ 10	0,85
DN 50	98	109	109	109	109	105	112	105	14	32	86	37	54	54	~ 2	~ 10	0,91
DN 65	118	129	129	129	129	124	129	124	14	40	109	50	70	75	~ 2	~ 10	1,2
DN 80	134	144	144	144	144	137	150	135	14	54	119	61	82	112	~ 2	~ 10	1,5
DN 100	154	164	164	170	170	175	181,5	160	18	70	146	77	106	172	~ 2	~ 10	2,4
DN 125	184	195	195	196	196	197	216,5	191	18	92	173	98	131	342	~ 2	~ 10	3,4
DN 150	209	220	220	226	226	222	251,5	220	20	112	197	120	159	490	~ 2	~ 10	4,7
DN 200	264	275	275	286	294	279	308	271	22	154	255	160	207	1128	~ 4	~ 14	7,7
DN 250	319	330	331	344	356	340	362	330	26	192	312	190	260	1500	~ 4	~ 14	13
DN 300	375	380	386	404	421	410	423	380	32	227	363	220	309	2290	~ 4	~ 14	21
DN 350	425	440	446	461	478	451	487	424	38	266	416	250	341	2890	~ 6	~ 18	33
DN 400	475	491	499	518	550	514	541	487	44	310	467	290	392	3700	~ 6	~ 18	46
DN 450	530	541	558	568	575	549	598	541	52	350	520	340	442	5000	~ 6	~ 18	67
DN 500	580	596	621	628	632	606	655	596	58	400	550	390	493	6550	~ 6	~ 24	89
DN 600	681	698	738	735	751	718	775	698	62	486	660	470	594	9550	~ 6	~ 26	128
DN 700	785	813	807	836	-	-	-	-	67	588	770	563	693	23000	~ 6	~ 26	190
DN 800	893	920	914	945	-	-	-	-	78	622	-	680	795	38000	~ 6	~ 30	292
DN 900	993	1020	1014	1045	-	-	-	-	95	720	-	750	889	60000	~ 6	~ 32	412
DN 1000	1093	1127	1131	1159	-	-	-	-	105	810	-	840	991	80000	~ 6	~ 36	550

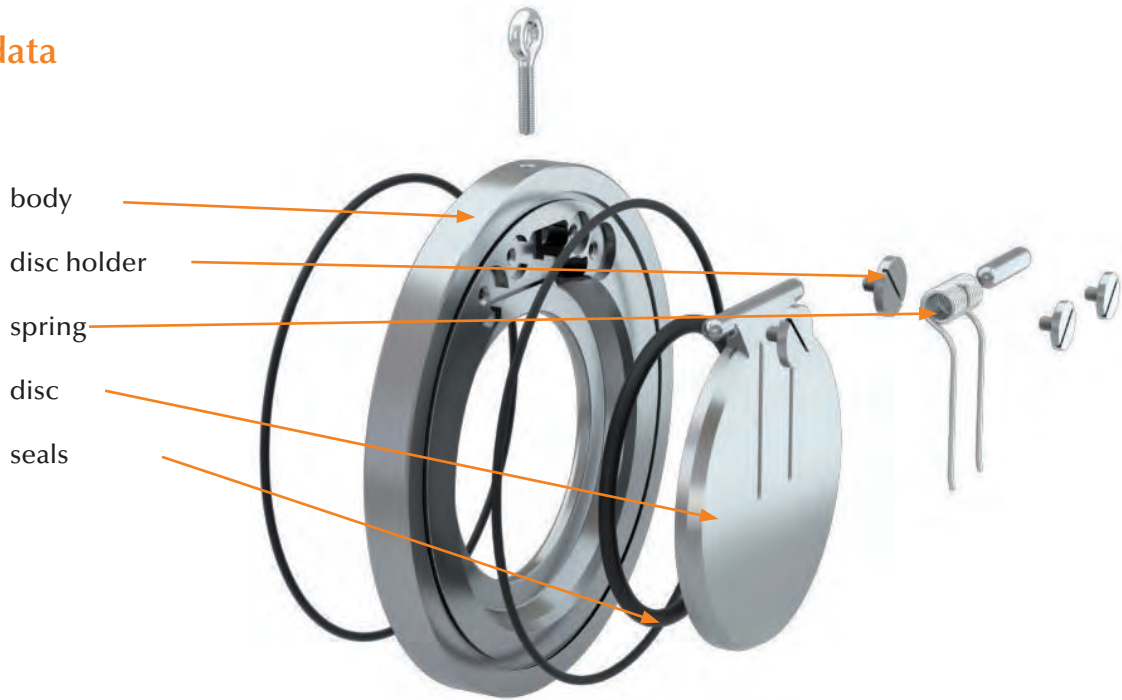
\*5 in order to realise the flange connection diameters, flange center-rings may be used

\*\* weight refers to valve suitable for PN 10 flanges and may vary slightly, depending on the design

**Pressure-loss diagram** The diagram values are valid for water at a temperature of 20 °C and for valves with face-to-face dimensions in accordance with DIN EN 558, suitable for flanges in accordance with PN 10 – PN 40. At the opening of the valve, the curves apply to operation in horizontal pipelines. For calculation for other fluids or temperatures, please contact us.



Technical data



Design	Body	Disc	Spring	Max. allowable pressure*1			
ST-ST	1.0460, zinc plated	1.0619 / 1.0460, zinc plated	1.4571	DN 32 - 40 40 bar	DN 50 25 bar	DN 65 - 400 16 bar	
ST-VA	1.0460, zinc plated	1.4408	1.4571	DN 32 - 40 40 bar	DN 50 25 bar	DN 65 - 400 16 bar	
VA-VA	1.4408	1.4408	1.4571	DN 32 - 50 40 bar	DN 65 30 bar	DN 80 - 100 20 bar	DN 125 - 400 16 bar
VA1-VA1	1.4571	1.4571	1.4571	DN 32 - 50 50 bar	DN 65 40 bar	DN 80 30 bar	DN 100 - 150 25 bar   DN 200 - 400 20 bar
AB-DU	CC333G (2.0975)	1.4469 (Superduplex)	Hastelloy C4 (2.4610)	DN 32 - 50 40 bar	DN 65 - 125 30 bar	DN 150 - 300 20 bar	DN 350 - 400 10 bar
DU-DU	1.4469 (Superduplex)	1.4469 (Superduplex)	Hastelloy C4 (2.4610)	DN 32 - 65 50 bar	DN 80 - 100 40 bar	DN 125 - 150 30 bar	DN 200 - 400 20 bar

\*1 max. allowable pressure is dependent on the temperature

Seal	Design	Temperature	Leakage rate*2
Metal seated*3	ST-VA	-10 °C to +300 °C*4	G
	VA-VA	-196 °C to +300 °C*5	
	VA1-VA1	-200 °C to +300 °C*6	
	AB-DU	-10 °C to +250 °C	
	DU-DU	-10 °C to +250 °C	
NBR*7	-	-30 °C to +100 °C	A
EPDM*7	-	-65 °C to +150 °C	A
FKM*7	-	-30 °C to +230 °C	A
PTFE*7	-	-200 °C to +250 °C	A

\*2 acc. to EN 12266-1

\*3 metal seated valves are supplied without O-rings in body as standard

\*4 optional with spring made of Hastelloy C4: -10 °C to +450 °C

\*5 optional with spring made of Hastelloy C4: -100 °C to +400 °C

\*6 optional with spring made of Hastelloy C4: -100 °C to +450 °C

\*7 for some designs, the temperature range is additionally limited by the temperature range of the metallic parts (see temperature range for metal seated)

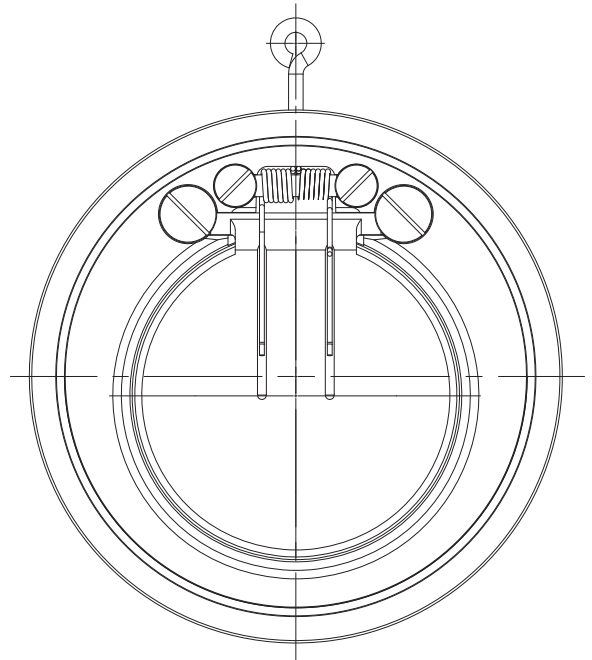
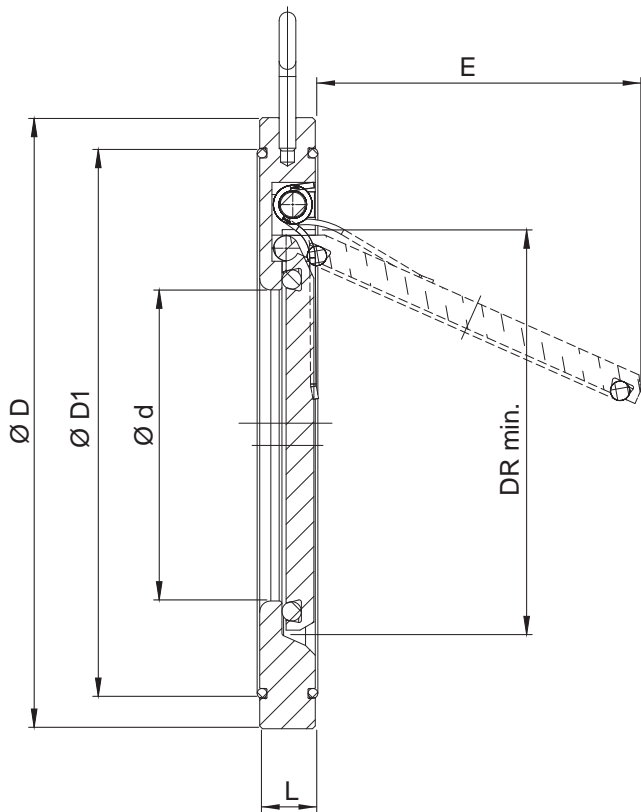
**Seals for valves up to and including DN 300 comply with the following approvals / conformities:**

NBR: DIN EN 549, BAM, REACH, RoHS etc.

EPDM: KTW UBA, DVGW W 270, WRAS, NSF, FDA, BfR XXI Kat. 4, ADI-free, 3A, USP Cl. 6, BAM, REACH, RohS etc.

FKM: DIN EN 549, ADI-free, REACH, RoHS etc.

PTFE: KTW UBA, DVGW W 270, WRAS, FDA, BfR, ADI-free, EU 10/2011, 3A, USP Cl. 6, REACH, RoHS etc.



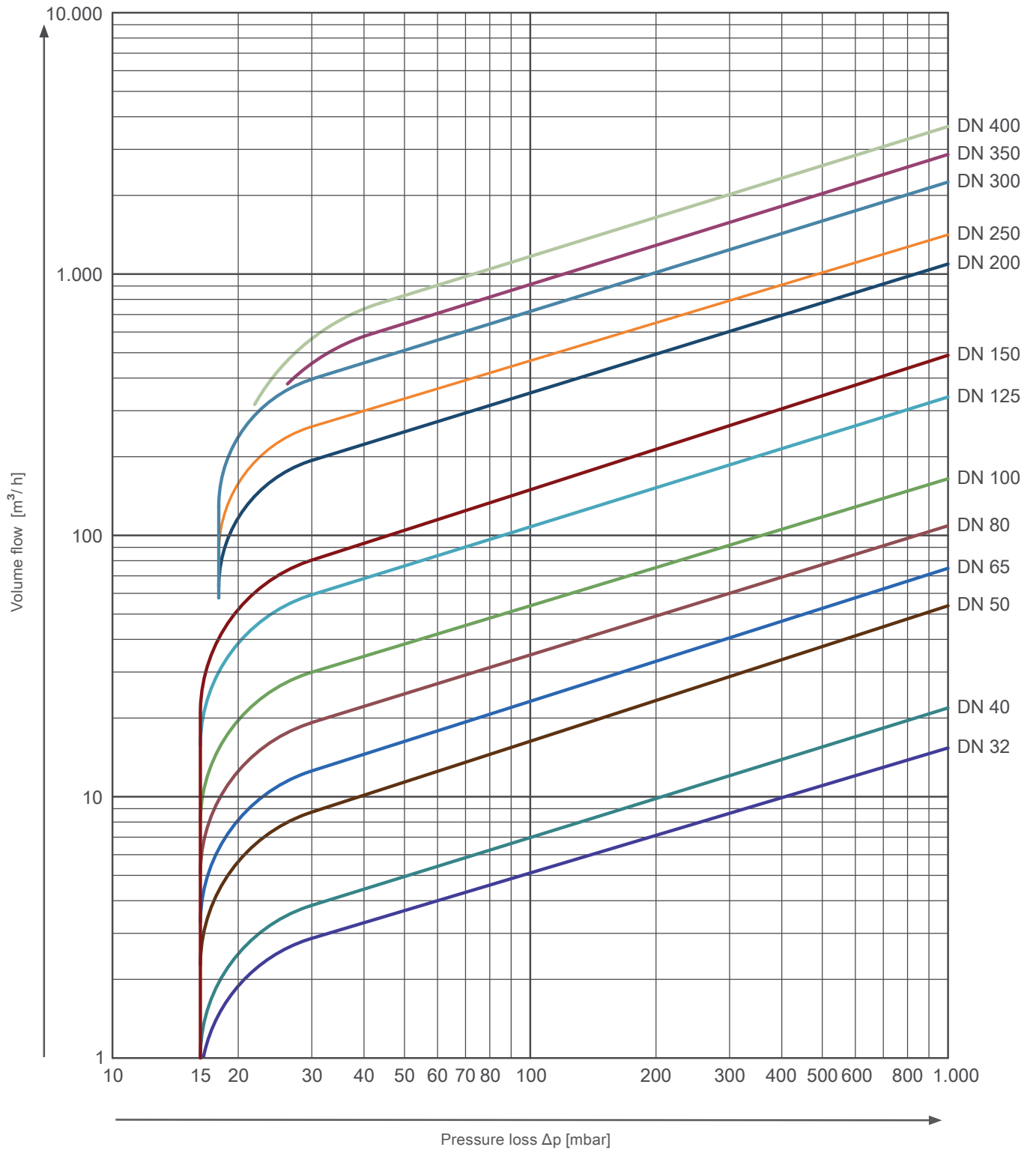
Nominal size	Ø D* <sup>8</sup>								L	Ø d	Ø D1	E	DR	Kv value [m <sup>3</sup> /h]	Opening pressure [mbar]		Weight* <sup>9</sup> [kg]
	PN 6	PN 10	PN 16	PN 25	PN 40	ANSI 150	ANSI 300	JIS 10K							↔	↑	
DN 32	79	85	85	85	85	74	85	85	15	18	59	22	37	16,2	~ 15	~ 25	0,67
DN 40	89	95	95	95	95	83	95	91	16	22	72	25	43	22,2	~ 15	~ 25	0,85
DN 50	98	109	109	109	109	105	112	105	14	32	86	37	54	54	~ 15	~ 25	0,91
DN 65	118	129	129	129	129	124	129	124	14	40	109	50	70	75	~ 15	~ 25	1,2
DN 80	134	144	144	144	144	137	150	135	14	54	119	61	82	112	~ 15	~ 25	1,5
DN 100	154	164	164	170	170	175	181,5	160	18	70	146	77	106	172	~ 15	~ 25	2,4
DN 125	184	195	195	196	196	197	216,5	191	18	92	173	98	131	342	~ 15	~ 25	3,4
DN 150	209	220	220	226	226	222	251,5	220	20	112	197	120	159	490	~ 15	~ 25	4,7
DN 200	264	275	275	286	294	279	308	271	22	154	255	160	207	1128	~ 17	~ 25	7,7
DN 250	319	330	331	344	356	340	362	330	26	192	312	190	260	1500	~ 17	~ 25	13
DN 300	375	380	386	404	421	410	423	380	32	227	363	220	309	2290	~ 17	~ 25	21
DN 350	425	440	446	461	478	451	487	424	38	266	416	250	341	2890	~ 18	~ 27	33
DN 400	475	491	499	518	550	514	541	487	44	310	467	290	392	3700	~ 18	~ 28	46

\*<sup>8</sup> in order to realise the flange connection diameters, flange center-rings may be used

\*<sup>9</sup> weight refers to valve suitable for PN 10 flanges and may vary slightly, depending on the design



**Pressure-loss diagram** The diagram values are valid for water at a temperature of 20 °C and for valves with face-to-face dimensions in accordance with DIN EN 558, suitable for flanges in accordance with PN 10 – PN 40. At the opening of the valve, the curves apply to operation in horizontal pipelines. For calculation for other fluids or temperatures, please contact us.



## Type code

type	DN		Material			
	DN	design	body	disc	spring	seal
ZRK	32 - 1200	ST-ST	1.0460, galvanized	1.0619 / 1.0460, galvanized		Metal seated (M) NBR (N) EPDM (E) FKM (F) PTFE (Teflon) (T)
		ST-VA	1.0460, galvanized	1.4408		
		VA-VA	1.4408	1.4408		
		VA1-VA1	1.4571	1.4571		
		AB-DU	CC333G (2.0975)	1.4469 (Superduplex)		
		DU-DU	1.4469 (Superduplex)	1.4469 (Superduplex)		
ZRKF	32 - 400	ST-ST	1.0460, galvanized	1.0619 / 1.0460, galvanized	1.4571 (F1)*1	
		ST-VA	1.0460, galvanized	1.4408	1.4571 (F1)*1	
		VA-VA	1.4408	1.4408	1.4571 (F1)*1	
		VA1-VA1	1.4571	1.4571	1.4571 (F1)*1	
		AB-DU	CC333G (2.0975)	1.4469 (Superduplex)	Hastelloy C4 (F2)	
		DU-DU	1.4469 (Superduplex)	1.4469 (Superduplex)	Hastelloy C4 (F2)	

1\* For temperatures above 300 °C, a compression spring made of Hastelloy (F2) is required for metal-seated fittings.

## Order example

## ZRKF - VA - VA - 100 - N - F1

Type of valve	Wafer check valve
Type	ZRKF
Nominal size	DN 100
Body / disc	1.4408
Seal	NBR
Spring	Stainless steel 1.4571 (F1)



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