chemvalve-schmid.com

ChemValve®
Valve Technology



PrimeDisc S | CSD-CVD

Standard Disc Check Valve

Product Brochure

Company Overview

ChemValve-Schmid AG develops and manufactures high quality valves which are sold and distributed through a carefully developed network of long-standing partners in more than 50 countries all over the world.

We have been developing Check Valves and PTFE Lined Butterfly Valves in close cooperation with the most important European PTFE manufacturers since the 1980s. As a result, we have over 30 years of expertise in valve production. Our private and therefore independent company has shown consistent and healthy growth since then.

„Innovative – proficient – reliable", that's our motto. Thanks to years of investment in state-of-the-art production technologies and highly qualified employees, we offer unprecedented product and service quality in this sector. We creatively develop on-time solutions that are focused on our customers' needs. Thanks to our process reliability, which covers the entire value chain through to warehousing and has evolved over many years, standard products are delivered within only a few days in line with customer-controlled assembly requirements. Existing products are continuously improved and new products are developed based on customer requirements.



Zertifiziertes Managementsystem SQS ISO 9001

CE 1250

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PrimeDisc S | CSD-CVD

Features



The PrimeDisc S | CSD-CVD Standard Disc Check Valve — Robust, economical and reliable.

Excellent Price & Performance

- Solid construction delivers long-lasting performance for a low total cost of ownership
- Designed for efficient performance and economical plant operation
- The design, focused on functionality and optimised production, allows for competitive pricing

Interlocking Spring Cap

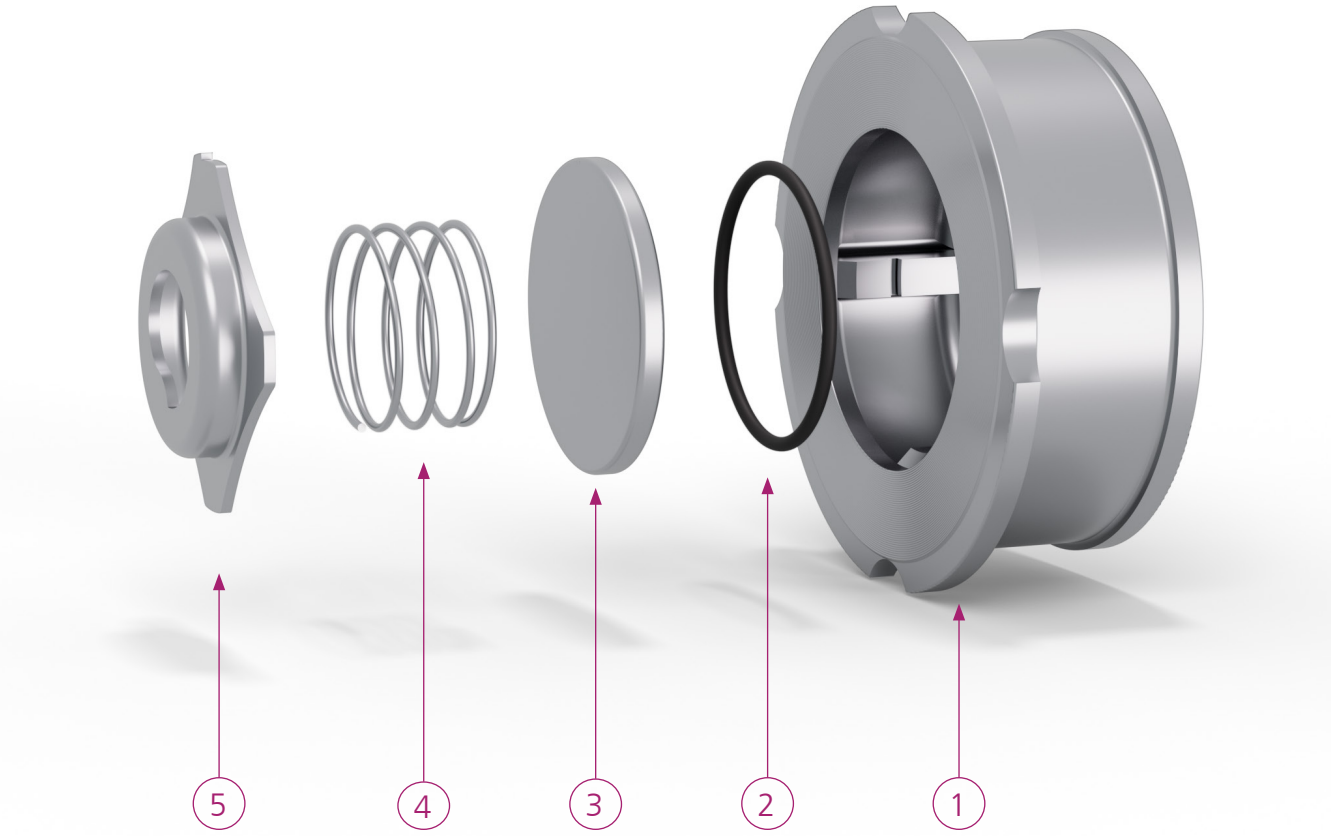
- The interlocking connection between spring cap and body permanently secures all moving parts, eliminating the possibility of loose parts damaging pipeline systems
- The spring cap is designed to prevent full compression of the spring, reducing material stress and extending the lifespan
- The valve plate is guided within a defined track for smooth operation, helping to reduce cavitation and minimise flow disruption

Variable Opening Pressure

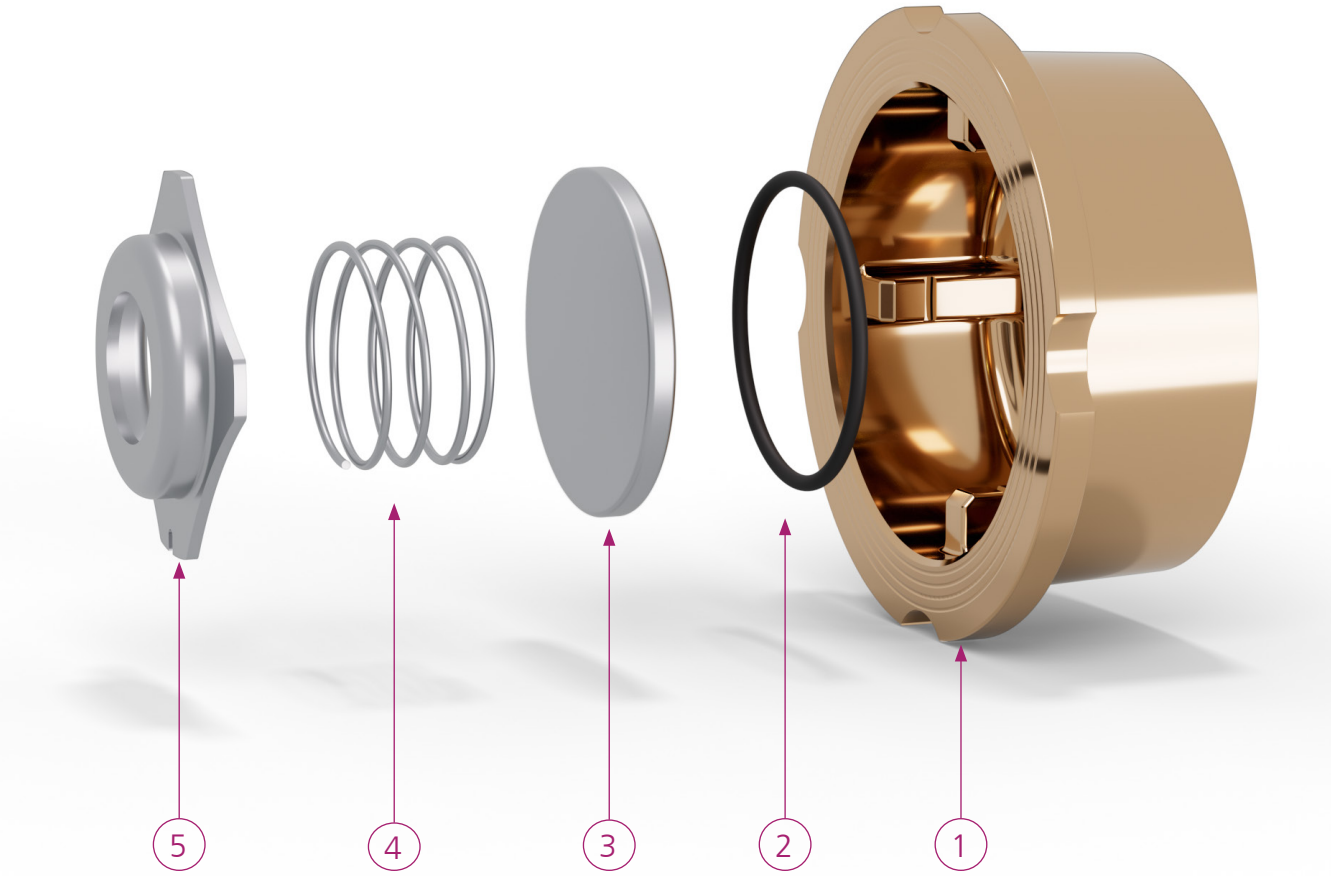
- PrimeDisc S | CSD offers maximum installation flexibility and delivers reliable performance under all common pressure conditions
- By customising the spring strength, the valve can be modified to suit even low flow rate operation
- Hastelloy and Nimonic springs can be used for high temperatures or more corrosive liquids and gases.

Additional features

+ Streamlined production for quick delivery
+ Wide range of metals available to suit different media types and operating environments
+ Suitable for high pressure applications up to 40 bar



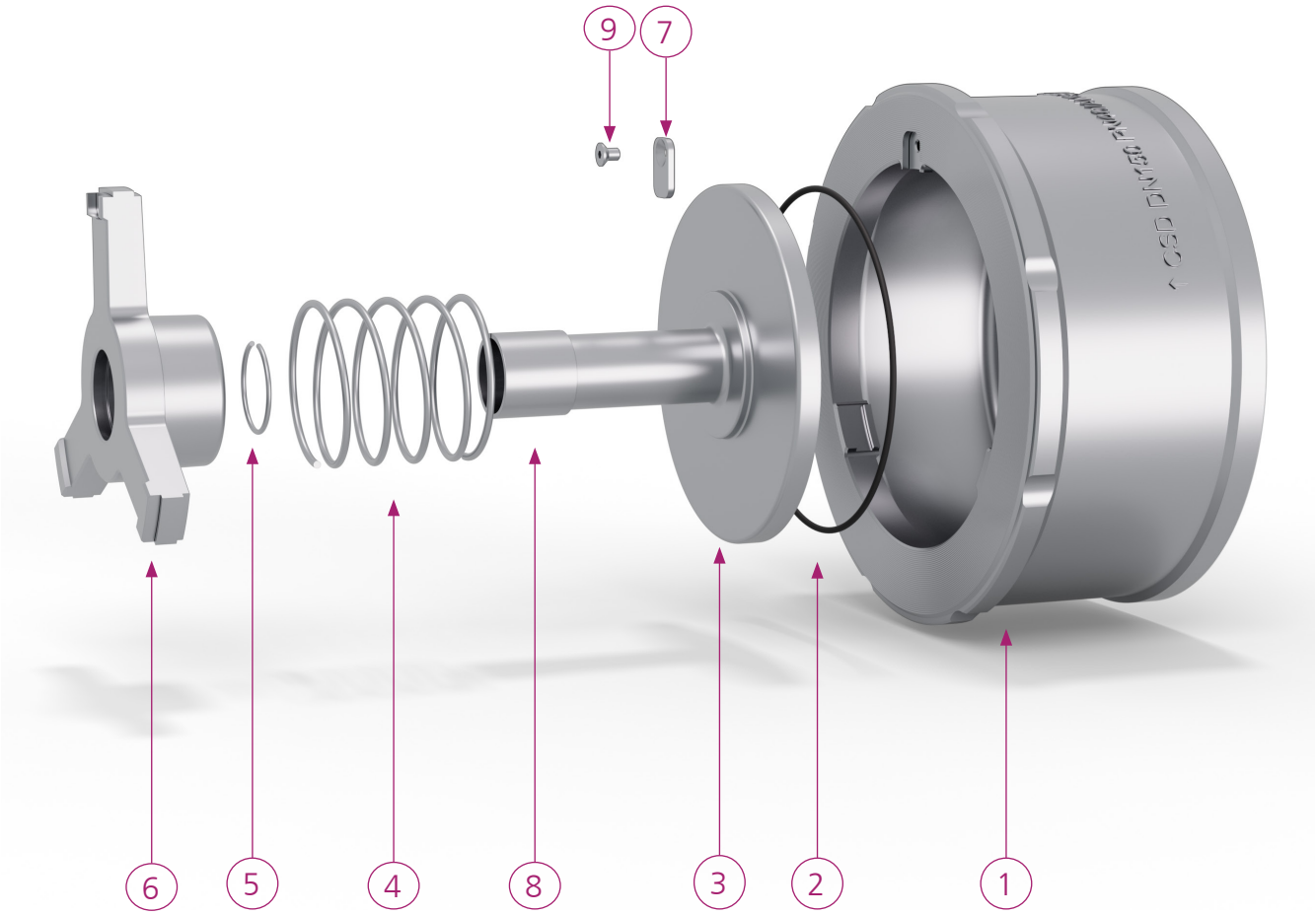
Item #	Description	Materials
1	Body	1.0619 1.4408
2	Seal	None EPDM NBR FKM PTFE
3	Disc	1.4404
4	Spring	1.4401 2.4819 2.4969/2.4632
5	Spring Cap	1.4401



Item #	Description	Materials
1	Body	1.4404 2.1050 2.4819
2	Seal	None EPDM NBR FKM PTFE
3	Disc	1.4404 2.4819
4	Spring	1.4401 2.4819 2.4969/2.4632
5	Spring Cap	1.4404 2.4819

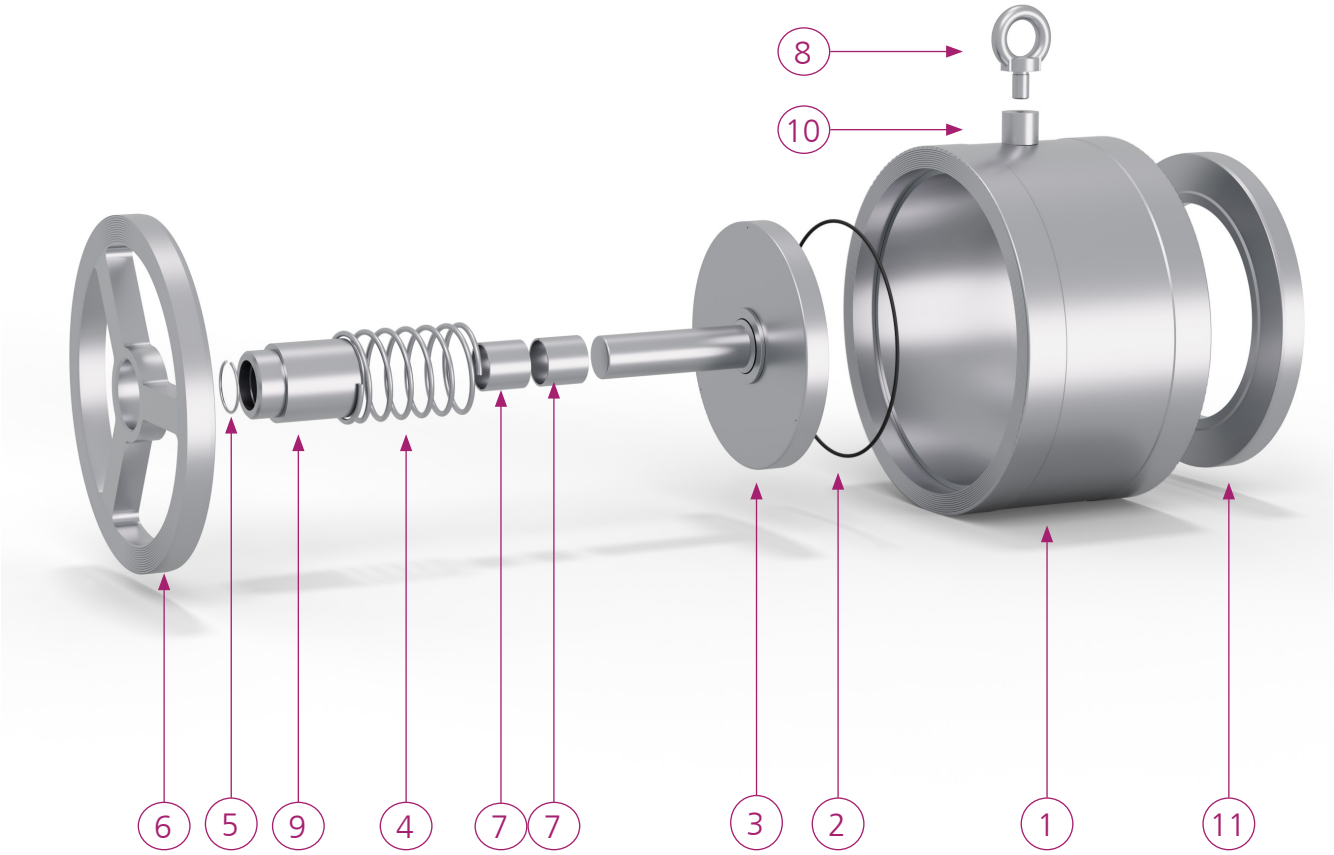
PrimeDisc S | CSD-CVD

Components | DN125–200



Item #	Description	Materials
1	Body	1.0619 2.1090 1.4408
2	Seal	None EPDM NBR FKM PTFE
3	Valve Plate	1.0619 2.1090 1.4408
4	Spring	1.4401 2.4819 2.4969/2.4632

Item #	Description	Materials
5	Safety Ring	1.4401
6	Star	1.0619 2.1090 1.4408
7	Retaining Plate	1.4408
8	Sleeve	PTFE/Steel PTFE/1.4401 PTFE
9	Screw	A4



Item #	Description	Materials
1	Body	S355J2 2.1090 1.4404
2	Seal	None EPDM NBR FKM PTFE
3	Valve Plate	S355J2 2.1090 1.4404
4	Spring	1.4401 2.4819 2.4969/2.4632
5	Safety Ring*	1.4401

Item #	Description	Materials
6	Star	S355J2 2.1090 1.4404
7	Sleeve*	PTFE/Steel PTFE/1.4401 PTFE
8	Screw	A4
9	Trunnion	S355J2 2.1090 1.4404
10	Nut*	1.4404
11	Flange	S355J2 2.1090 1.4404

*Not used for bodies made from 2.1090

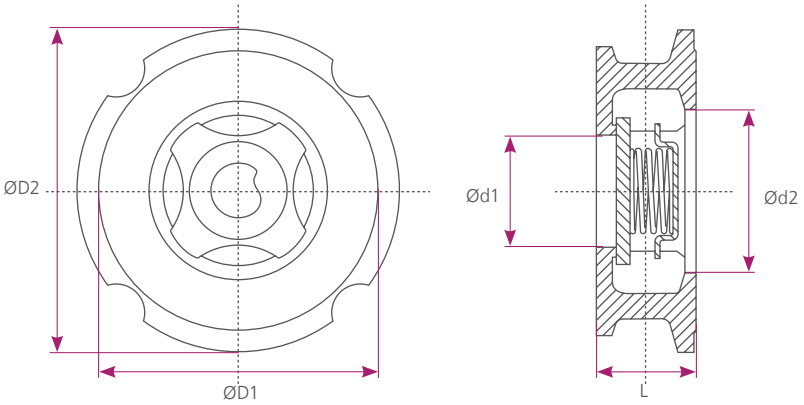
PrimeDisc S | CSD-CVD

Specifications & Standards

Nominal Diameter	• DN 15–350 • ½"–14"
Flange Connection	• EN 1092–1, PN 6–40 • ASME B16.5, Class 150-300 • JIS10K available on request
Maximum Working Pressure	• 40bar
Operating Temperature	• -200°C to 450°C
Face-to-Face Length	• DN15–200: EN 558, Series 49 • DN250–350: EN 558, Series 52
Conformity	• PED 2014/68/EU • ATEX 2014/34/EU • Food (EC) Nr. 1935/2004, FDA
Pressure and Seat Tightness Test: EN 12266-1	• Soft Sealing: Leakage Rate A • Metallic & PTFE Sealing: Leakage Rate D

PrimeDisc S | CSD-CVD

Dimensions & Opening Pressures | DN15–100 | CSD



Materials



- 1.0619
- 1.4408/1.4404

Flange Connection



- EN 1092–1, PN 6–40
- ASME B16.5, Class 150-300

Face-to-Face Length



- EN 558, Series 49

DN [mm]	15	20	25	32	40	50	65	80	100
DN [inch]	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"
L	16	19	22	28	31.5	40	46	50	60
ØD1	44	54	63.5	73	82.5	96	116	132	152
ØD2	51	61	71	79.5	92	107	127	142	168
$Ød1_{Inlet}$	15	20	25	32	39	48	62	72.5	89
$Ød2_{Outlet}$	26	31	36	44	51.5	62	77.5	92	107
Weight [kg] $_{1.0619}$	0.13	0.20	0.31	0.50	0.73	1.17	1.86	2.59	3.92
Weight [kg] $_{1.4408/1.4404}$	0.13	0.20	0.31	0.50	0.73	1.17	1.86	2.59	3.92

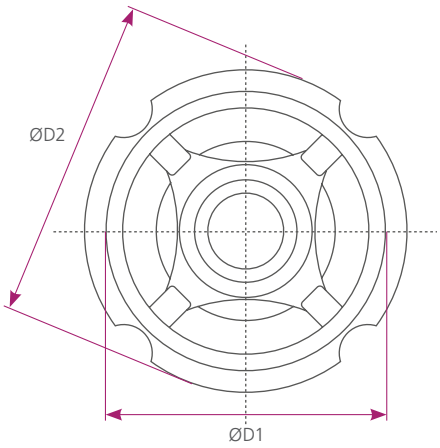
Face-to-Face length acc. to EN558 Row 49

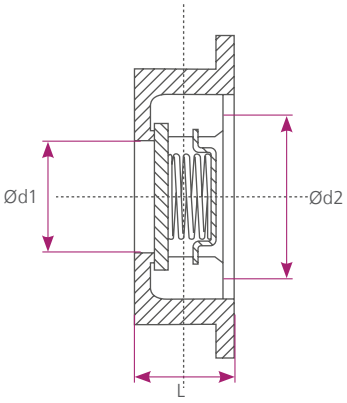
Opening Pressure

DN [mm]	15	20	25	32	40	50	65	80	100
DN [inch]	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"
P_A ↓ [mbar]	16	17	17	17	16	16	15	13	13
P_A → [mbar]	20	20	20	20	20	20	20	20	20
P_A ↑ [mbar]	24	23	23	23	24	24	25	27	27
P_A ↓ $_{No\ Spring}$ [mbar]	Not suitable for this flow direction								
P_A → $_{No\ Spring}$ [mbar]	Not suitable for this flow direction								
P_A ↑ $_{No\ Spring}$ [mbar]	4	3	3	3	4	4	5	7	7
kv [m3/h]	4	7	12	19	27	45	68	88	133
Zeta	5.05	5.21	4.33	4.64	5.61	4.93	6.16	8.45	9.03

PrimeDisc S | CSD-CVD

Dimensions & Opening Pressures | DN15–100 | CVD





Materials



- 2.1050
- 1.4404
- 2.4819

Flange Connection



- EN 1092–1, PN 6–40

Face-to-Face Length



- EN 558, Series 49

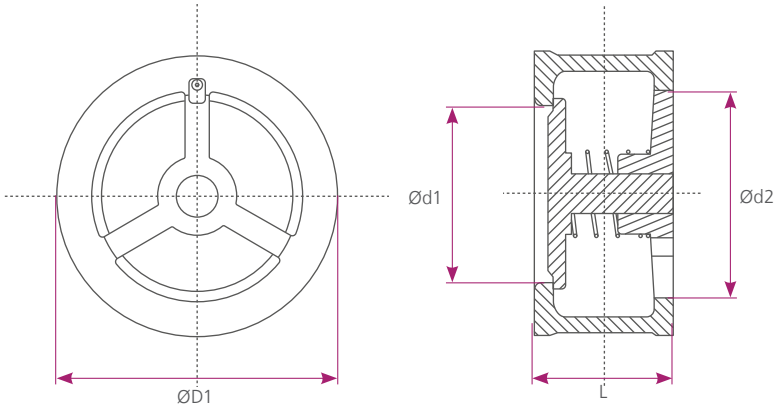
DN [mm]	15	20	25	32	40	50	65	80	100
DN [inch]	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"
L	16	19	22	28	31.5	40	46	50	60
ØD1	43	53	63	75	86	96	116	133	154
ØD2	50	60	70	81	91	105	126	148	168
$Ød1_{Inlet}$	15	20	25	32	39	48	62	72.5	89
$Ød2_{Outlet}$	30	37.2	45	56.2	67.3	78	98.5	113	132
Weight [kg] $_{2.1050}$	0.14	0.20	0.31	0.54	0.79	1.26	1.94	2.74	4.17
Weight [kg] $_{1.4404}$	0.13	0.19	0.29	0.49	0.70	1.14	1.75	2.47	3.76
Weight [kg] $_{1.4462}$	0.13	0.19	0.29	0.49	0.70	1.13	1.74	2.45	3.74
Weight [kg] $_{1.4539}$	0.13	0.19	0.29	0.50	0.72	1.16	1.79	2.52	3.83
Weight [kg] $_{2.4819}$	0.14	0.21	0.33	0.56	0.80	1.29	1.99	2.8	4.26

Opening Pressure

DN [mm]	15	20	25	32	40	50	65	80	100
DN [inch]	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"
P_A ↓ [mbar]	16	17	17	17	16	16	15	13	13
P_A → [mbar]	20	20	20	20	20	20	20	20	20
P_A ↑ [mbar]	24	23	23	23	24	24	25	27	27
P_A ↓ $_{No\ Spring}$ [mbar]	Not suitable for this flow direction								
P_A → $_{No\ Spring}$ [mbar]	Not suitable for this flow direction								
P_A ↑ $_{No\ Spring}$ [mbar]	4	3	3	3	4	4	5	7	7
kv [m3/h]	4	7	12	19	27	45	68	88	133
Zeta	5.05	5.21	4.33	4.64	5.61	4.93	6.16	8.45	9.03

PrimeDisc S | CSD-CVD

Dimensions & Opening Pressures | DN125–350 | CSD



Materials

- 1.0619/S355J2
- 2.1090
- 1.4408/1.4404

Flange Connection

- EN 1092-1, PN 6-40
- ASME B16.5, Class 150-300

Face-to-Face Length

- DN125–200: EN 558, Series 49
- DN250–350: EN 558, Series 52

DN [mm]	125	150	200	250	300	350
DN [inch]	5"	6"	8"	10"	12"	14"
L	90	106	140	200	250	280
$ØD1_{PN10}$	192	218	273	328	378	438
$ØD1_{PN16}$						444
$ØD1_{PN25}$		226	283*	338*	400*	457
$ØD1_{PN40}$			290*	350*	417*	474
$ØD1_{ANSI150}$		218	273	338*	400*	447
$ØD1_{ANSI300}$	212*	247*	304*	352*	417*	482
$Ød1_{Inlet}$	118	134	172	212	236	255
$Ød2_{Outlet}$	132	160	208	260	310	338
Weight [kg] $_{1.0619}$	8.98	12.7	23.1	46.2	70.2	116.4
Weight [kg] $_{2.1050}$	9.95	14.1	25.6	51.2	77.8	129
Weight [kg] $_{1.4408/1.4404}$	8.98	12.7	23.1	46.2	70.2	116.4

*Centring ring required

Opening Pressure

DN [mm]	125	150	200	250	300	350
DN [inch]	5"	6"	8"	10"	12"	14"
P_A ↓ [mbar]	7	11	10	17	17	15
P_A → [mbar]	22	25	28	42	44	44
P_A ↑ [mbar]	33	39	46	67	71	73
kv [m3/h]	180	270	450	700	950	1200
Zeta	8.76	7.61	8.03	7.75	7.42	19.52

Flow Rate & Pressure Loss

Step 1 - Formula

To calculate the pressure loss of a given medium, the equivalent water flow rate Q_W must first be calculated using the following formula:

$$Q_W = Q\sqrt{\frac{\rho}{1000}}$$

Q_W = Equivalent water flow rate [m³/h]

Q = Flow rate of the medium [m³/h]

ρ = Density of the medium [kg/m³]

Step 2 - Pressure Loss Diagram

Cross-reference the equivalent water flow rate with the relevant valve diameter in the pressure loss diagram to find the pressure loss for the given medium.

The graph shows pressure loss values for water at 20°C, measured in horizontally installed valves. When vertically installed, there are insignificant deviations in the partial opening range.

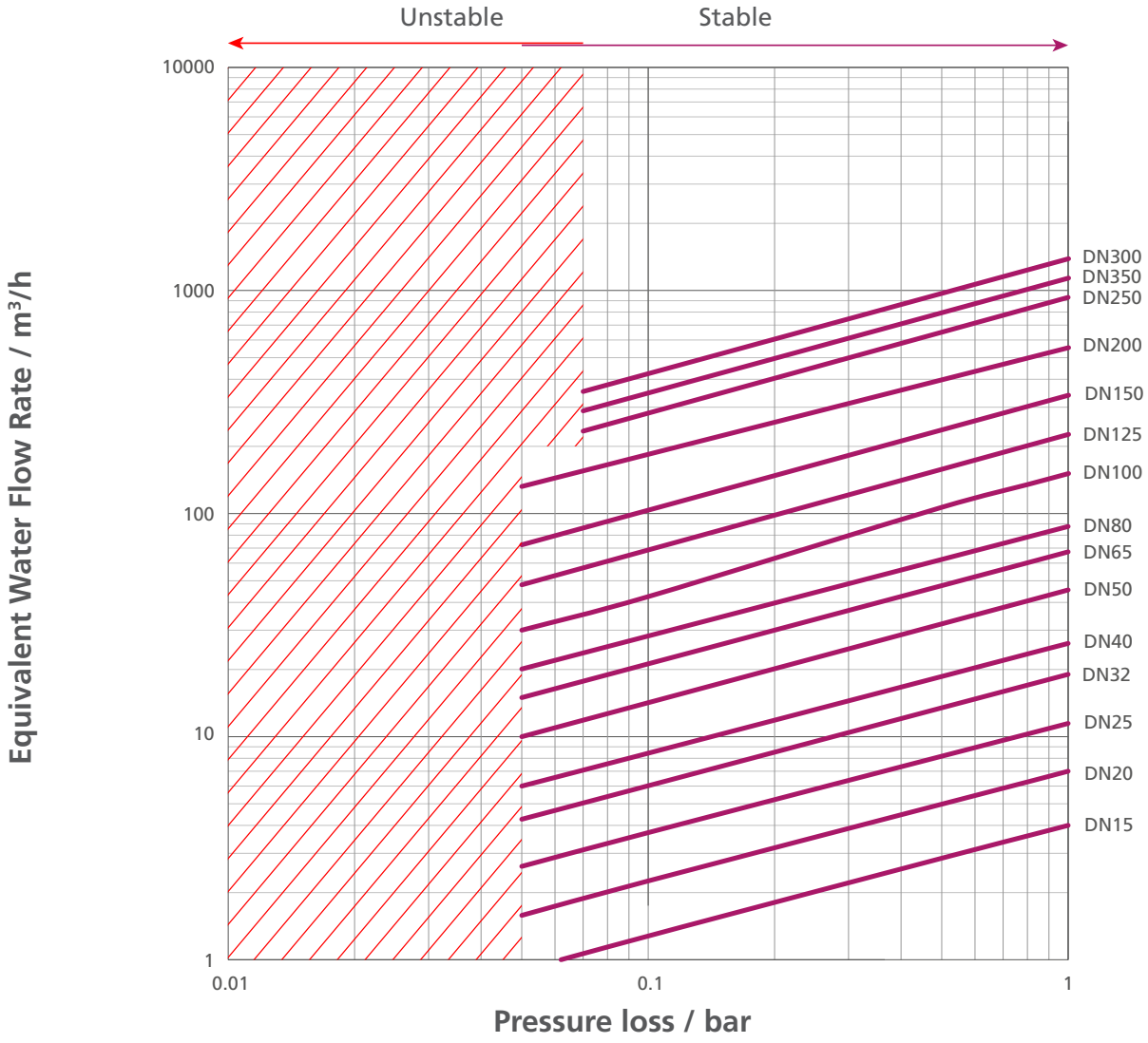
Example

Q_{Honey} = 65 m³/h

ρ_{Honey} = 1100 kg/m³

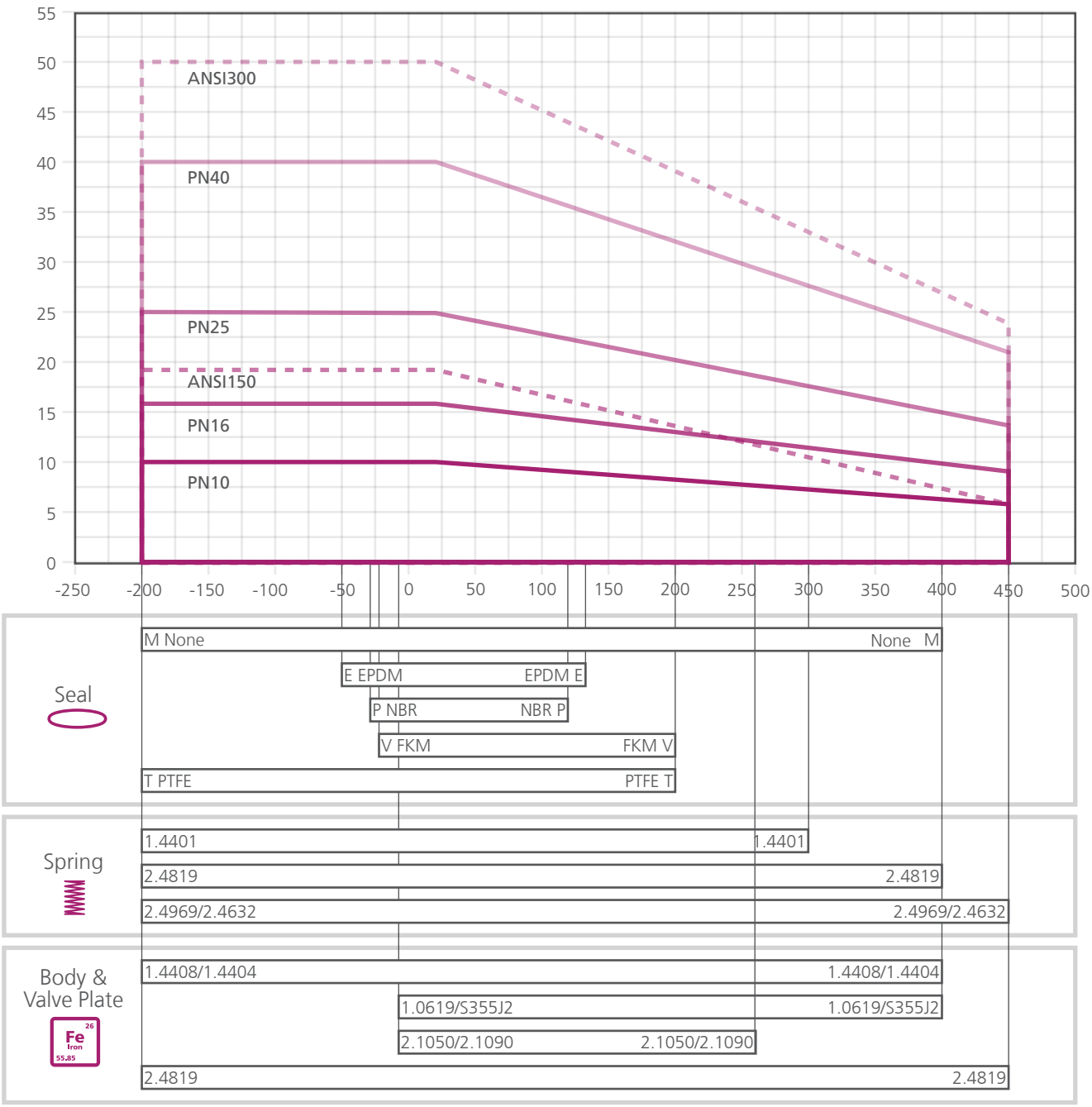
$$Q_W = 65\ m^3/h \cdot \sqrt{\frac{1100\ kg/m^3}{1000}}$$

Q_W = 70 m³/h



PrimeDisc S | CSD-CVD

Application Limits

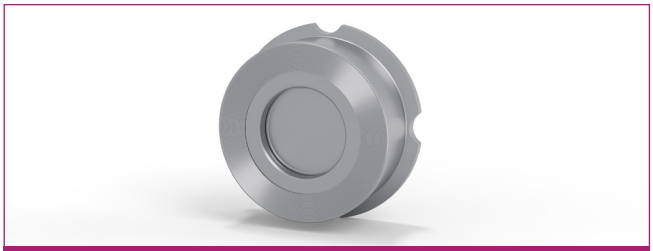


The illustrated pressure limits are approximations for the body materials 1.4408 and 1.4404. Exact limits must be checked by the plant operators or installers before use.

DN	Flange Combinations
15-100	PN10-40, ANSI150-300
125-150	PN10-40 & ANSI150; ANSI300
200	PN10-16, ANSI150; PN25-40; ANSI300
250	PN10-16; PN25 & ANSI150-300; PN40
300	PN10-16; PN25 & ANSI150; PN40 & ANSI300
350	PN10; PN16; PN25; PN40 & ANSI300; ANSI150

PrimeDisc S | CSD-CVD

CSD-CVD Type Comparison | DN15-100



PrimeDisc S | CSD



PrimeDisc S | CVD

The **PrimeDisc S** Standard Disc Check Valve, available in two models CSD & CVD, is robust, economical and reliable. The extensive range of materials allows for adaptation to specific process requirements.

The optimised cast design for model CSD is available in C-Steel 1.0619 and Stainless Steel 1.4408. Further materials are available in model CVD and are produced from milled or forged parts. Please see the table below for a detailed product comparison.

	Type Comparison PrimeDisc S	CSD	CVD
Materials	1.0619 - C-Steel	✓	✗
	1.4408 - Stainless steel	✓	✗
	1.4301 - Stainless steel, Mo-free	✗	✓
	2.1050 - Bronze	✗	✓
	2.4819 - Hastelloy C	✗	✓
	3.7035 - Titanium Gr. 2	✗	✓
	Further Special Materials	✗	✓
Dimensions	Length according EN 558, Row 49	✓	✓
	EN Flange Connections	✓	✓
	ANSI Flange Connections	✓	✗
Features	Soft Seat	✓	✓
	Wide Flange Sealing Surface	✓	✗
	Variable Opening Pressure	✓	✗
	Interlocking Spring Cap	✓	✓

PrimeDisc S | CSD-CVD

Order Code

DN15-100 | CSD

Type	Body		Disc		Seal		DN	Flange*
	Code	Material	Code	Material	Code	Material		
CSD	**27**	1.0619	**64**	1.4404	**M**	None		**PN 6-40**
	64	1.4408			**E**	EPDM		**ANSI Class 150-300**
					P	NBR	015-100	
					V	FKM		
					T	PTFE		

DN15-100 | CVD

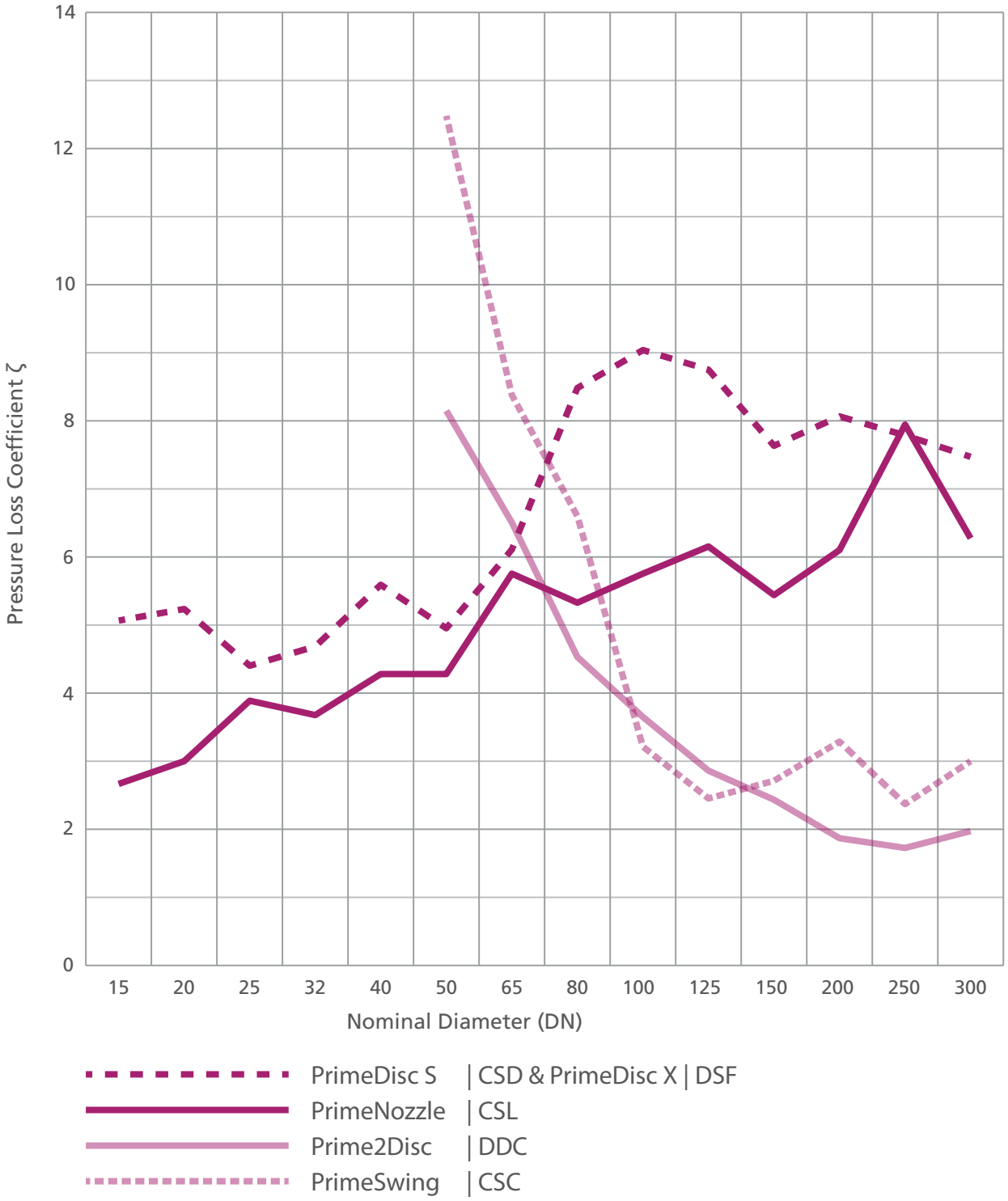
CVD	**64**	1.4404	**64**	1.4404	**M**	None		**PN 6-40**
	33	2.1050	**95**	2.4819	**E**	EPDM		
	95	2.4819			**P**	NBR	015-100	
					V	FKM		
					T	PTFE		

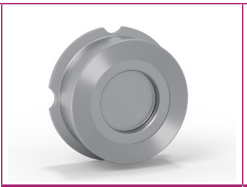
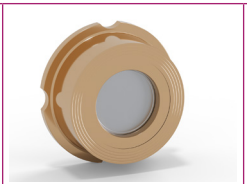
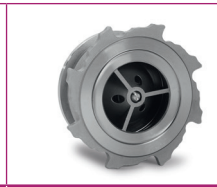
DN125-350 | CSD

CSD	**27**	1.0619 / S355J2	**27**	1.0619 / S355J2	**M**	None		**PN 6-40**
	33	2.1090	**33**	2.1090	**E**	EPDM		**ANSI Class 150-300**
	64	1.4408 / 1.4404	**64**	1.4408 / 1.4404	**P**	NBR	125-350	
					V	FKM		
					T	PTFE		

PrimeDisc S | CSD-CVD

Check Valve Pressure Loss Comparison



								
		PrimeDisc S | CSD	**PrimeDisc S | CVD**	**PrimeDisc X | DSF**	**ChemDisc | DTEF**	**PrimeNozzle | CSL**	**PrimeSwing | CSC**	**Prime2Disc | DDC**
	Nominal Diameter	DN15-350 | 1/2"-14"	DN15-100 | 1/2"-4"	DN15-100 | 1/2"-4"	DN15-150 | 1/2"-6"	DN15-300 | 1/2"-12"	DN50-1000 | 2"-40"	DN50-1000 | 2"-40"
	Flange Connection	PN6-40 | ANSI 150-300	PN6-40	PN10-160 | ASME 150-900 | JIS 10K	PN10-40 | ASME 150 | JIS 10K	PN10-40 | ASME 150-300 | JIS 10K	PN10-40 | ASME 150-300	PN10-40 | ASME 150-300 | JIS 10K
	Max. Pressure	40 bar	40 bar	40 bar | up to 160 bar possible	10 bar	52 bar | up to 160 bar possible	40 bar	40 bar | up to 160 bar possible
p-T	**Temperature**	-200°C to 450°C	-200°C to 450°C	-200°C to 450°C	-200°C to 160°C	-200°C to 300°C	-200°C to 450°C	-200°C to 450°C
L	**FTF Length**	EN 558, Series 49/52	EN 558, Series 49	EN 558, Series 52	EN 558, Series 52	EN 558, Series 52/14	EN 558, Series 97	EN 558, Series 16
26 Fe Iron 55.85	**Materials**	Carbon Steel | Stainless Steel | Bronze	Special Materials	Stainless Steel | Special Materials	PTFE | conductive PTFE	Stainless Steel	Carbon Steel | Stainless Steel | Polypropylene | PTFE | Bronze	Carbon Steel | Stainless Steel
	Seal	None | EPDM | NBR | FKM | PTFE	None | EPDM | NBR | FKM | PTFE	None | EPDM | NBR | FKM | PTFE	None | EPDM | NBR | FKM	None | EPDM | NBR | FKM | PTFE	None | EPDM | NBR | FKM | PTFE	None | EPDM | NBR | FKM | PTFE
	Flow Direction	← → ↑ ↓	← → ↑ ↓	← → ↑ ↓	← → ↑ ↓	← → ↑ ↓	← → ↑	← → ↑
CE 1250	**Conformity**	PED | ATEX | Food | FDA	PED | ATEX | Food | FDA	PED | ATEX | Food | FDA	PED | ATEX | Food | FDA	PED | ATEX | Food | FDA	PED | ATEX | Food | FDA	PED | ATEX | Food | FDA
	Seat Tightness	A | D	A | D	A | D	A | D	A | C | D	A | D	A | G

ChemLine

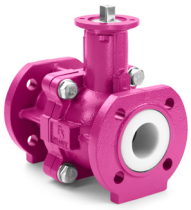
Butterfly valve for advanced chemical applications
DN 25–1200
PN 10, Class 150, JIS 10K
EN 558, Series 20



PTFE Lined Butterfly Valve

ChemFlyer | CST

Patented TrueFloat® Technology
DN 15–200
PN 10–16, Class 150, JIS 10K
EN 558, Series 21
ASME B16.10, Tables 1, A1



PFA Lined Ball Valve

ChemBall | CSB

Wetted parts made from PTFE
DN 15–150
PN 6–40, Class 150–300
EN 558, Series 52 / 49



PTFE Disc Check Valve

ChemDisc | DTEF

PrimeLine

Energy saving design
DN 15–300
PN 10–40, Class 150–2500, JIS 10K
EN 558, Series 52/14



Nozzle Check Valve

PrimeNozzle | CSL

DN 15–350
PN 6–40, Class 150–300
EN 558, Series 49/52



Standard Disc Check Valve

PrimeDisc S | CSD/CVD

DN 15–100
PN 10–400, Class 150–2500
EN 558, Series 52



Xtreme Disc Check Valve

PrimeDisc X | DSF

DN 50–1200
PN 10–160, Class 150–900



Swing Check Valve

PrimeSwing | CSC

DN 50–1200
PN 10–250, Class 150–1500
EN 558, Series 16



Dual Plate Check Valve

Prime2Disc | DDC

DN 15–300
PN 6–40, Class 150–300
EN 558, Series 49/52



Strainer

PrimeFilter | CSF

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