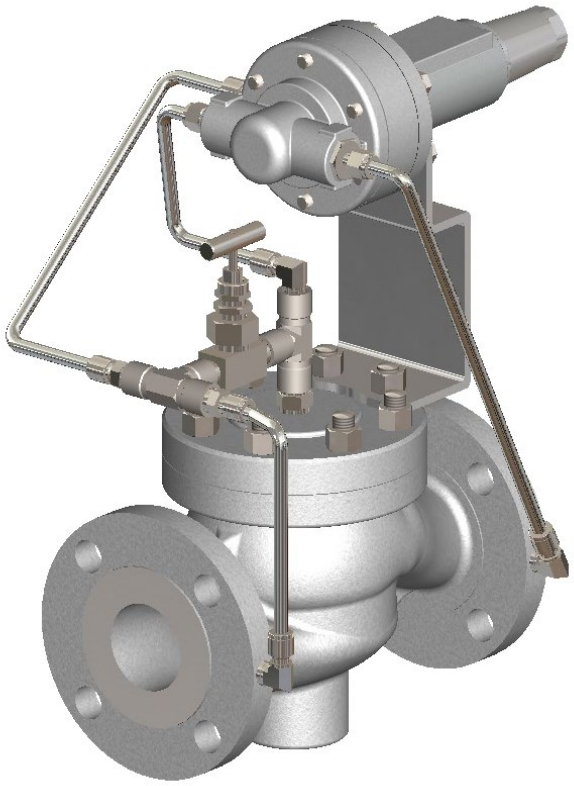
CELEROS™ FLOW TECHNOLOGY

CVK-PRPB VALVE

COPES-VULCAN®

RELIABLE, EFFICIENT FLOW CONTROL FOR GENERAL SERVICE APPLICATIONS



CELEROS FLOW TECHNOLOGY - AN INTRODUCTION

Celeros Flow Technology (Celeros FT) is a full lifecycle partner for sustainable flow technology solutions, from initial design and installation of equipment to after sales support. Celeros FT's products and technologies support many different industries including power generation, oil & gas, defense, water, chemical processing and energy transition. The company's innovative product portfolio, containing many energy efficient products, includes valves, pumps and closures.

CVK-PRD VALVE

PRODUCT INFORMATION

The CVK-PRPB back pressure regulators provide precise control of upstream pressure at a predetermined set point. Their advanced design ensures rapid response to sudden pressure fluctuations.

The CVK-PRPB valve delivers high capacity, fast response, and accurate pressure regulation. The pilot's amplifying effect enhances control performance, ensuring stable and reliable operation.

DESIGN HIGHLIGHTS:

- **Top-entry design:** Allows direct access to internal components for easier and faster maintenance.
- **Full port design:** Ensures high capacity and efficient flow performance.
- **Guided piston design:** Provides stable and reliable operation across the pressure range.
- **Soft-seat shut-off:** Achieves tight shut-off at all pressure differentials.
- **Wide control rangeability:** Maintains accurate pressure control over varying operating conditions.
- **Lightweight and compact design:** Simplifies installation and reduces space requirements.
- **EN-334 compliant:** Designed and manufactured in accordance with PRV industry standards.
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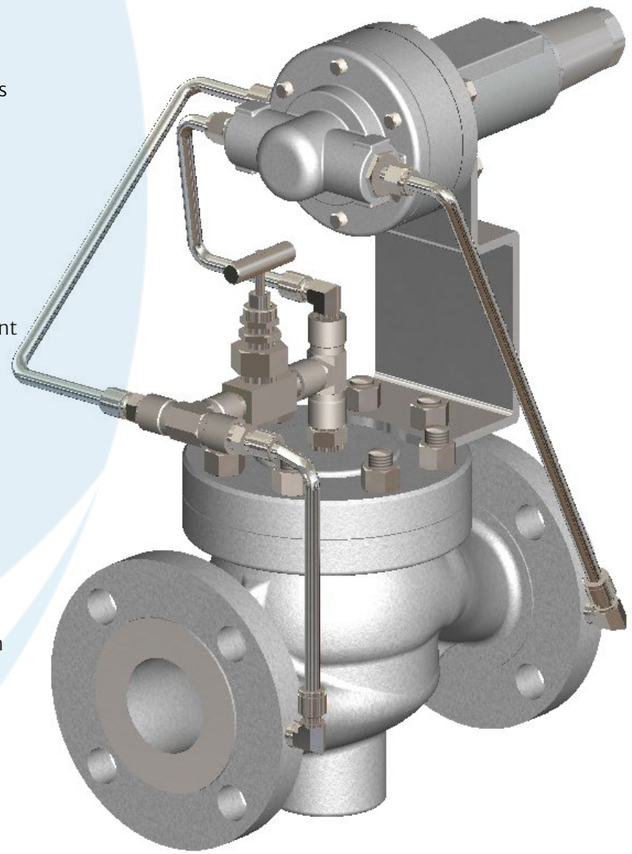


CONTROL RANGE:
- 0.005 TO 20 BARG (0.0725 ~ 290.1 PSI)

TEMPERATURE RANGE:
- -25 ~ 200 °C (-13 ~ 392°F)

SIZE:
- 1" ~ 8"

PRESSURE REDUCING REGULATORS

Backpressure Regulators maintain a constant upstream pressure throughout the flow range rather than control outlet pressure.
Pilot-Operated Regulators are designed for high flow rates and precision control. Pilot valves sense small changes of upstream pressure and amplify movement of main regulating valves.

SPECIFICATIONS:

Valve Type	Back Pressure Regulating Valve (Pilot Type)								
Valve Model	CVK - PRPB Valve								
Trim Type	Balanced								
Valve Size (inch)	1	1.1/2	2	2.1/2	3	4	5	6	8
(mm)	25	40	50	65	80	100	125	150	200
Valve Cv	7.6	16.2	28.8	45	81	126.6	176.4	262.8	414
Diaphragm Type Actuator Minimum Differential Pressure (BarG)	2.22	1.69	1.45	1.3	1.12	1.05	1	0.95	0.9
Diaphragm Type Actuator Minimum Differential Pressure (PSI)	32.20	24.51	21.03	18.86	16.24	15.23	14.50	13.78	13.05
Piston Type Actuator Minimum Differential Pressure (BarG)	2.34	1.85	1.84	1.68	1.56	1.28	1.19	0.99	0.89
Piston Type Actuator Minimum Differential Pressure (PSI)	33.94	26.83	26.69	24.37	22.62	18.56	17.26	14.36	12.91
Pressure Rating	ANSI 150 ~ 900 (PN ratings available)								
End Connection	RF, FF, SW, BW, RTJ								
Body Materials	WCB, WCC, WC6, WC9, CF8								
Trim Materials	Stainless steel, Monel® and Hastelloy ® C								
Diaphragm Materials	Nitrile (NBR), Fluorocarbon (FKM) and Ethylenepropylene (EPDM)								
Disk/Seat Material	Nitrile (NBR), Fluorocarbon (FKM) and PTFE								

Table 1. CVK-BPRP Valve Specifications

PRESSURE REDUCING REGULATORS OUTLET PRESSURE CONTROL RANGE

PRV Type		Outlet Pressure Range BAR G / psi					Spring Type
	EP	BAR G	PSI		BAR G	PSI	
		0.004	0.058	~	**0.0072**	**0.105**	Silver Type 1
		0.0048	**0.070**	~	**0.018**	**0.261**	Silver Type 2
		0.012	**0.174**	~	**0.036**	**0.522**	Silver Type 3
		0.024	**0.348**	~	**0.06**	**0.870**	Silver Type 4
	LP & LT	0.04	0.580	~	0.12	1.740	Silver Type 5
		0.08	1.160	~	0.3	4.351	Silver Type 6
		0.2	2.901	~	0.6	8.702	Silver Type 7
	MP & HT	0.4	5.8	~	1.2	17.4	White Type 1
		0.8	11.6	~	3	43.51	White Type 2
		2	29.01	~	6	87.02	Yellow
		4	58.02	~	10.8	156.64	Blue
		7.2	104.43	~	15	217.56	Red
	HP & HT	10	145.04	~	24	348.09	Green
		16	232.06	~	36	522.14	Brown Type 1
		24	348.09	~	48	696.18	Brown Type 2

MODEL SELECTION GUIDE

Model	Code	Type	Set Pressure Range	
CVK - PRPB	EP	Very Low Pressure	BAR	psi
			0.005 ~ 0.05	0.0725 ~ 0.725
	LP	Low Pressure	0.05 ~ 0.5	0.725 ~ 7.252
	MP	Medium Pressure	0.5 ~ 10	7.252 ~ 145
	HP	High Pressure	10 ~ 20	145 ~ 290.1
	LT	Low Pressure & High Temperature	0.05 ~ 0.5	0.725 ~ 7.252
	HT	High Pressure & High Temperature	0.5 ~ 20	7.252 ~ 290.1

1. CVK - PRPB EP — VERY LOW PRESSURE (EXTERNAL AIR SUPPLY IS REQUIRED)

CVK-PRPB EP tank blanketing back pressure regulators provide precise control for very low-pressure gas blanketing systems. These regulators maintain a slight positive pressure in the tank by safely relieving excess gas pressure, minimizing the risk of tank overpressure or explosion during liquid filling.

Due to limited internal actuating force, an external instrument air supply is required for proper operation.

CVK - PRPB EP
Set Pressure Range (BarG) : 0.005 ~ 0.05
Set Pressure Range (psi) : 0.0725 ~ 0.725

Temperature Range

- -25 ~ 80 °C (-13 ~ 176 °F)

Diaphragm Material

- Nitrile (NBR), Fluorocarbon (FKM)

Disk & Elastomer Seal Material

- Nitrile (NBR), Fluorocarbon (FKM)

2. DIAPHRAGM TYPE
CVK PRPB LP — LOW PRESSURE, CVK PRPB MP — MEDIUM PRESSURE

CVK-PRPB LP/LT pilot-operated, spring-loaded back pressure regulators provide precise upstream pressure control at low set pressures. The CVK-PRPB LT model is specifically designed for high-temperature applications.

Due to limited internal actuating force, an external instrument air supply is required for proper operation.

Temperature Range

- -25 ~ 120 °C (-13 ~ 248 °F) Nitrile (NBR)
- -25 ~ 200 °C (-13 ~ 392 °F) Fluorocarbon (FKM)

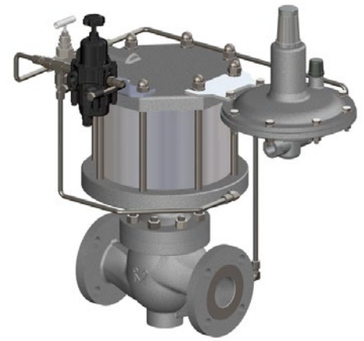
Diaphragm Material

- Nitrile (NBR), Fluorocarbon (FKM)

Disk & Elastomer Seal Material

- Nitrile (NBR), Fluorocarbon (FKM)

CVK PRPB LP
Set Pressure Range (BarG) : 0.05 ~ 0.5
Set Pressure Range (psi) : 0.73~ 7.3



CVK PRPB MP
Set Pressure Range (BarG) : 0.05 ~ 0.5
Set Pressure Range (psi) : 0.73 ~ 7.3

3. CVK PRPB MP — MEDIUM PRESSURE
CVK PRPB HP — HIGH PRESSURE
CVK PRPB HT — HIGH PRESSURE & HIGH TEMPERATURE

CVK-PRPB-MP/HP/HT back pressure regulators are unloading-type, pilot-operated pressure regulating valves.

The CVK-PRPB-MP model is a spring-loaded, diaphragm-type pilot regulator that provides precise upstream pressure control for medium-range set pressures.

The CVK-PRPB-HP model is a spring-loaded, piston-type pilot regulator designed for high set pressure control applications.

The CVK-PRPB-HT model is a pilot-operated, spring-loaded, piston-type regulator designed to provide reliable upstream pressure control for high-pressure and high-temperature services.

Temperature Range

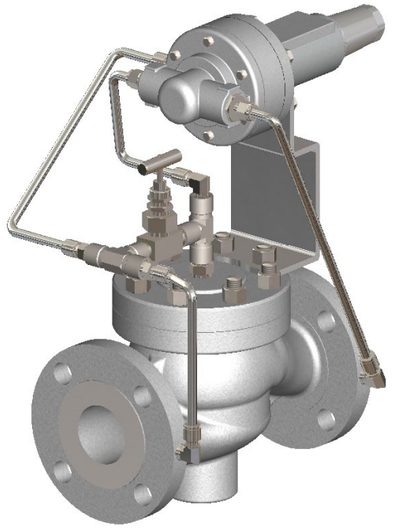
- -25 ~ 120 °C (-13 ~ 248 °F)
- -25 ~ 200 °C (-13 ~ 392 °F)

Piston Elastomer Seal Material

- Nitrile (NBR), Fluorocarbon (FKM)

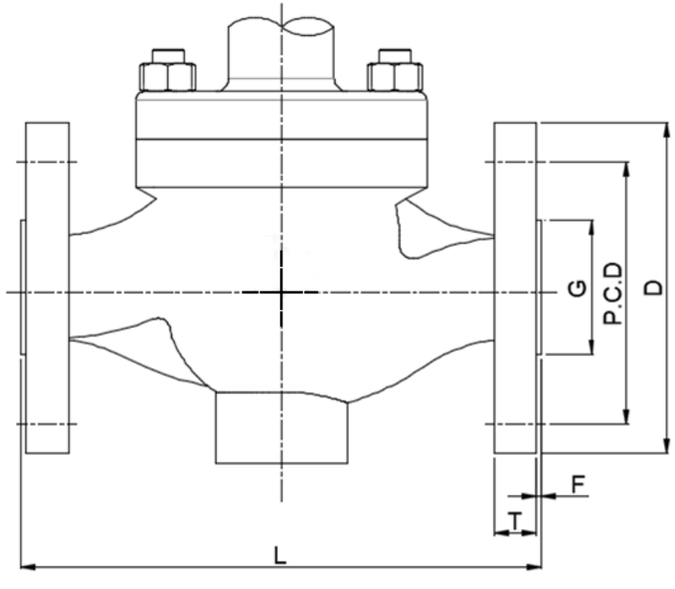
Disk & Elastomer Seal Material

- Nitrile (NBR), Fluorocarbon (FKM)



CVK - PRPB MP/HP/HT
Set Pressure Range (BarG) : Max 20
Pressure Range (psi) : Max 290

DIMENSION LIST



DIMENSION LIST METRIC

ANSI 150

Valve Size	L*	T	F	I.D	G	P.C.D	D	Diameter of bolt Holes	Number of Bolts	Diameter of Bolts
In.								In.		In.
1	184	12.7	2	25.4	50.8	79.4	110	5/8	4	1/2
1 1/2	222	15.9	2	38.1	73	98.4	125	5/8	4	1/2
2	254	17.5	2	50.8	92.1	120.7	150	3/4	4	5/8
2 1/2	276	20.7	2	63.5	104.8	139.7	180	3/4	4	5/8
3	298	22.3	2	76.2	127	152.4	190	3/4	4	5/8
4	352	22.3	2	101.6	157.2	190.5	230	3/4	8	5/8
5	403	22.3	2	127	185.7	215.9	255	7/8	8	7/8
6	451	23.9	2	152.4	215.9	241.3	280	7/8	8	7/8
8	543	27	2	203.2	269.9	298.5	345	7/8	8	7/8

ANSI 300

Valve Size	L*	T	F	I.D	G	P.C.D	D	Diameter of bolt Holes	Number of Bolts	Diameter of Bolts
In.								In.		In.
1	197	15.9	2	25.4	50.8	88.9	125	3/4	4	5/8
1 1/2	235	19.1	2	38.1	73	114.3	155	7/8	4	3/4
2	267	20.7	2	50.8	92.1	127	165	3/4	8	5/8
2 1/2	292	23.9	2	63.5	104.8	149.2	190	7/8	8	3/4
3	318	27	2	76.2	127	168.3	210	7/8	8	3/4
4	368	30.2	2	101.6	157.2	200	255	7/8	8	3/4
5	425	33.4	2	127	185.7	235	280	7/8	8	3/4
6	473	35	2	152.4	215.9	269.9	320	7/8	12	3/4
8	568	39.7	2	203.2	269.9	330.2	380	1	12	7/8

ANSI 600

Valve Size	L*	T	F	I.D	G	P.C.D	D	Diameter of bolt Holes	Number of Bolts	Diameter of Bolts
In.								In.		In.
1	210	17.5	7	25.4	50.8	88.9	125	3/4	4	5/8
1 1/2	251	22.3	7	38.1	73	114.3	155	7/8	4	3/4
2	286	25.4	7	50.8	92.1	127	165	3/4	8	5/8
2 1/2	311	28.6	7	63.5	104.8	149.2	190	7/8	8	3/4
3	337	31.8	7	76.2	127	168.3	210	7/8	8	3/4
4	394	38.1	7	101.6	157.2	215.9	275	1	8	7/8
5	457	44.5	7	127	185.7	266.7	330	1 1/8	8	1
6	508	47.7	7	152.4	215.9	292.1	355	1 1/8	12	1
8	610	55.6	7	199.9	269.9	349.2	420	1 1/4	12	1 1/8

DIMENSION LIST IMPERIAL

ANSI 150

Valve Size	L*	T	F	I.D	G	P.C.D	D	Diameter of bolt Holes	Number of Bolts	Diameter of Bolts
In.								In.		In.
1	7.2	0.5	0.1	1	2	3.1	4.3	5/8	4	1/2
1 1/2	8.7	0.6	0.1	1.5	2.9	3.9	4.9	5/8	4	1/2
2	10	0.7	0.1	2	3.6	4.8	5.9	3/4	4	5/8
2 1/2	10.9	0.8	0.1	2.5	4.1	5.5	7.1	3/4	4	5/8
3	11.7	0.9	0.1	3	5	6	7.5	3/4	4	5/8
4	13.9	0.9	0.1	4	6.2	7.5	9.1	3/4	8	5/8
5	15.9	0.9	0.1	5	7.3	8.5	10	7/8	8	7/8
6	17.8	0.9	0.1	6	8.5	9.5	11	7/8	8	7/8
8	21.3	1.1	0.1	8	10.6	11.7	13.6	7/8	8	7/8

ANSI 300

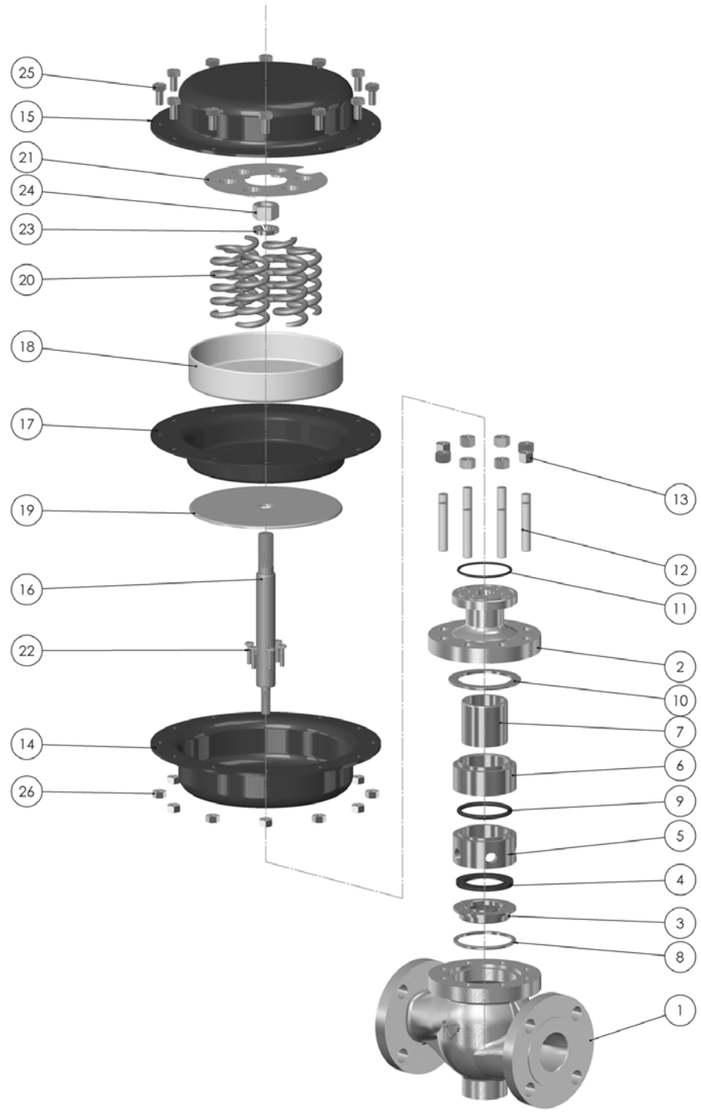
Valve Size	L*	T	F	I.D	G	P.C.D	D	Diameter of bolt Holes	Number of Bolts	Diameter of Bolts
In.								In.		In.
1	7.8	0.6	0.1	1	2	3.5	4.9	3/4	4	5/8
1 1/2	9.3	0.8	0.1	1.5	2.9	4.5	6.1	7/8	4	3/4
2	10.5	0.8	0.1	2	3.6	5	6.5	3/4	8	5/8
2 1/2	11.5	0.9	0.1	2.5	4.1	5.9	7.5	7/8	8	3/4
3	12.5	1.1	0.1	3	5	6.6	8.3	7/8	8	3/4
4	14.5	1.2	0.1	4	6.2	7.9	10	7/8	8	3/4
5	16.7	1.3	0.1	5	7.3	9.3	11	7/8	8	3/4
6	18.6	1.4	0.1	6	8.5	10.6	12.6	7/8	12	3/4
8	22.4	1.6	0.1	8	10.6	13	15	1	12	7/8

ANSI 600

Valve Size	L*	T	F	I.D	G	P.C.D	D	Diameter of bolt Holes	Number of Bolts	Diameter of Bolts
In.								In.		In.
1	8.3	0.7	0.3	1	2	3.5	4.9	3/4	4	5/8
1 1/2	9.9	0.9	0.3	1.5	2.9	4.5	6.1	7/8	4	3/4
2	11.3	1	0.3	2	3.6	5	6.5	3/4	8	5/8
2 1/2	12.2	1.1	0.3	2.5	4.1	5.9	7.5	7/8	8	3/4
3	13.3	1.3	0.3	3	5	6.6	8.3	7/8	8	3/4
4	15.5	1.5	0.3	4	6.2	8.5	10.8	1	8	7/8
5	18	1.8	0.3	5	7.3	10.5	13	1 1/8	8	1
6	20	1.9	0.3	6	8.5	11.5	14	1 1/8	12	1
8	24	2.2	0.3	8	10.6	13.7	16.5	1 1/4	12	1 1/8

GENERAL PARTS LIST

No.	Parts
1	BODY
2	BONNET
3	SEAT RING
4	DISC
5	CAGE BALANCE
6	CAGE CYLINDER
7	PORT
8	SEAT GASKET
9	BALANCE SEAL
10	BONNET GASKET
11	O-RING
12	STUD BOLT
13	HEX. HEAVY NET
14	DIAPHRAGM CASE
15	SPRING CASE
16	STEM
17	DIAPHRAGM
18	DIAPHRAGM PLATE
19	BACK PLATE
20	SPRING
21	SPRING PLATE
22	BOLT
23	SPRING WAHER
24	LOCK NUT
25	BOLT
26	NUT



EUROPE	Glasgow	P: +44 1606 552041	E: copesinquires@celerosft.com
AMERICAS	Houston, TX	P: +1 281 231 3690	E: copesinquires@celerosft.com
APAC	Shanghai	P: +86 21 3258 0298	E: copesinquires@celerosft.com
ME	Dubai	P: +971 4 528 9555	E: copesinquires@celerosft.com
	Saudi Arabia	P: +966 531 816663	E: copesinquires@celerosft.com

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