CELEROS™ FLOW TECHNOLOGY

CVK-PRP 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

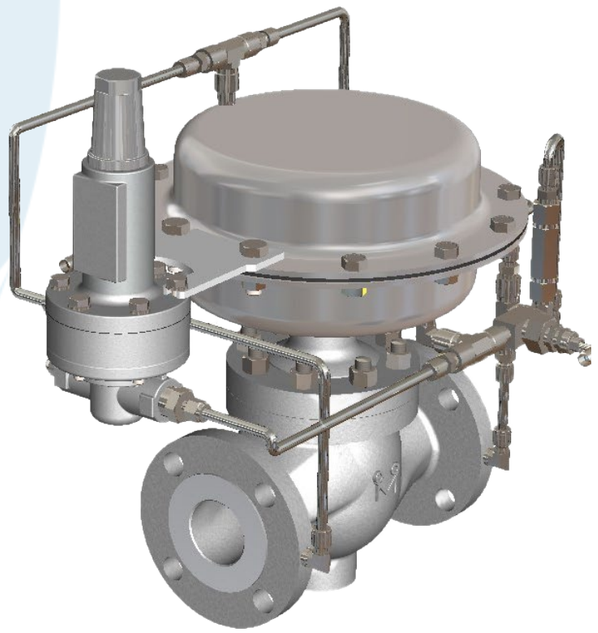
The CVK - PRP pressure reducing valves are advanced two-path pilot-type pressure regulators. Pilot-type regulators offer higher accuracy and greater capacity compared to conventional direct-acting regulators. Additionally, the two-path control design enables faster response times and more precise control than other pilot-operated regulators.

The CVK - PRP valves maintain downstream pressure at a precise, predetermined set point. Their superior performance is due to the amplifying effect of the pilot combined with the two-path control system. Changes in outlet pressure are quickly transmitted to the actuator diaphragm, ensuring rapid response to system fluctuations.

CONTROL RANGE:
- 0.005 TO 45 BARG (0.0725 ~ 652.671 PSI)

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

SIZE:
- 1/2" ~ 8" (12.7 ~ 203.2 MM)



DESIGN HIGHLIGHTS:

- **Quick-acting two-path pilot control system:** Provides rapid response for precise pressure regulation.
- **Top-entry design:** Allows direct access to internal components for easier and faster maintenance.
- **Variable actuator sizes:** Supports all pressure control ranges to accommodate diverse operating conditions.
- **Balanced diaphragm construction:** Increases sensitivity and improves pressure stability.
- **Full port design:** Ensures high capacity and efficient flow performance.
- **Guided piston design:** Delivers stable operation across the full pressure range.
- **Soft-seat shut-off:** Achieves tight shut-off even at high pressure differentials.
- **Wide control rangeability:** Maintains excellent pressure control across varying flow demands.
- **Lightweight and compact:** Reduces installation effort and fits easily into constrained spaces.
- **EN-334 compliant:** Designed and manufactured to meet PRV industry standards.ds.

PRESSURE REDUCING REGULATORS

Pressure Reducing Regulatorsmaintain designed pressure of downstream while providing the required fluid flow. **Pilot-Operated Regulators** are designed for high flow rates and precision control. Pilot valves sense small changes of downstream pressure and amplify movement of main regulating valves.

SPECIFICATIONS:

Valve Type	Pressure Regulating Valve (Pilot Type)								
Valve Model	CVK - PRP 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)	0.2	0.3	0.3	0.35	0.35	0.35	0.4	0.4	0.5
Diaphragm Type Actuator Minimum Differential Pressure (PSI)	2.90	4.35	4.35	5.08	5.08	5.08	5.80	5.80	7.25
Piston Type Actuator Minimum Differential Pressure (BarG)	0.35	0.35	0.35	0.4	0.4	0.4	0.45	0.45	0.5
Piston Type Actuator Minimum Differential Pressure (PSI)	5.08	5.08	5.08	5.80	5.80	5.80	6.53	6.53	7.25
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-PRP 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 (HT only)
	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 - PRP	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 ~ 7	7.252 ~ 101.53
	HP	High Pressure	7 ~ 40	101.53 ~ 580.15
	LT	Low Pressure & High Temperature	0.05 ~ 0.5	0.725 ~ 7.252
	HT	High Pressure & High Temperature	0.5 ~ 40	7.252 ~ 580.15

1. CVK - PRP EP — VERY LOW PRESSURE (TANK BLANKETING VALVE)

CVK - PRP tank blanketing pressure regulators are used for precise pressure control in low-pressure gas blanketing systems, which introduce an inert gas into a storage tank.

These regulators reduce high-pressure gas, such as Nitrogen, and maintain a positive pressure in the tank slightly above atmospheric pressure. By keeping the pressure stable, they minimize the risk of tank collapse while the liquid inside is being pumped out.

CVK - PRP 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 PRP LP — LOW PRESSURE, CVK PRD MP — MEDIUM PRESSURE

CVK PRP-LP/MP series pilot-operated, spring-loaded, diaphragm-type regulators provide precise downstream pressure control at low and medium set pressures. The large pilot diaphragm area of CVK PRP-LP provides more accurate control at low-pressure settings.

Temperature Range

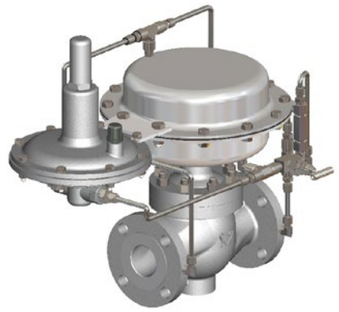
- -25 ~ 80 °C (-13 ~ 176 °F) Nitrile (NBR)
- -25 ~ 120 °C (-13 ~ 248 °F) Fluorocarbon (FKM)

Diaphragm Material

- Nitrile (NBR), Fluorocarbon (FKM)

Disk & Elastomer Seal Material

- Nitrile (NBR), Fluorocarbon (FKM)



CVK PRD LP
Set Pressure Range (BarG) : 0.05 ~ 0.5
Set Pressure Range (psi) : 0.725 ~ 7.252

CVK PRD MP
Set Pressure Range (BarG) : 0.5 ~ 10
Set Pressure Range (psi) : 7.252 ~ 145.038

3. PISTON TYPE CVK PRP HP — HIGH PRESSURE

CVK PRP-HP series pilot-operated, spring-loaded, piston-type regulators provide precise downstream pressure control at high set pressures.

Temperature Range

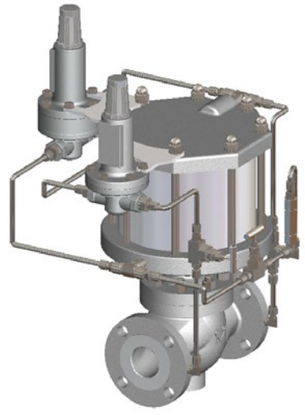
- -25 ~ 80 °c (-13 ~ 176 °F)

Piston Elastomer Seal Material

- Nitrile (NBR), Fluorocarbon (FKM)

Disk & Elastomer Seal Material

- Nitrile (NBR), Fluorocarbon (FKM)



CVK - PRP HP
Set Pressure Range (BarG) : 1 ~ 40
Set Pressure Range (psi) : 14.50 ~ 580.15

4. PISTON TYPE - CVK PRP LT — LOW PRESSURE & HIGH TEMPERATURE
- CVK PRP HT — HIGH PRESSURE & HIGH TEMPERATURE

Temperature Range

- -25 ~ 200 °c (-13 ~ 392 °F)

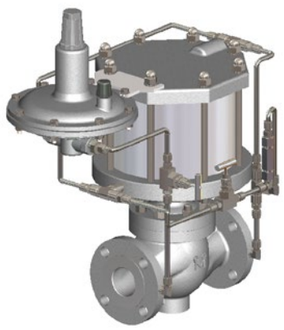
Piston Elastomer Seal Material

- Fluorocarbon (FKM)

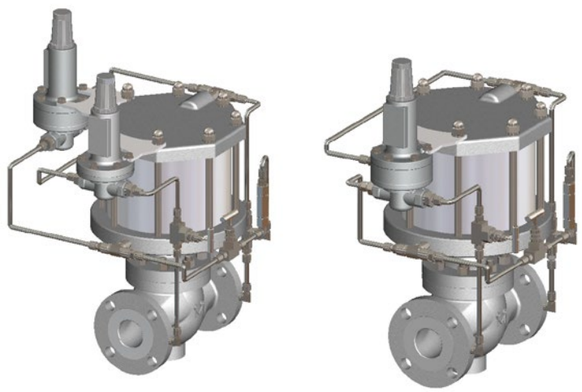
Disk & Elastomer Seal Material

- Fluorocarbon (FKM)

CVK PRP-LT/HT series pilot-operated, spring-loaded, piston-type regulators are designed for high-temperature services. The large pressure sensing area of CVK PRP-LT provides more accurate control at low-pressure settings.

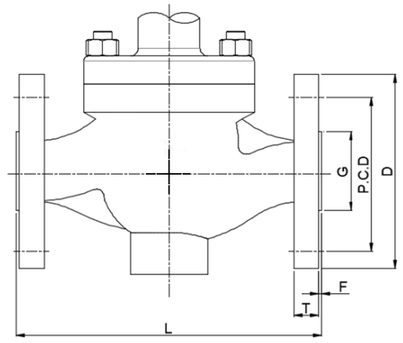


CVK PRD LT
Set Pressure Range (BarG) : 0.05 ~ 0.5
Set Pressure Range (psi) : 0.725 ~ 7.252



CVK PRD HT
Set Pressure Range (BarG) : 0.5 ~ 40
Set Pressure Range (BarG) : 7.252 ~ 580.15

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

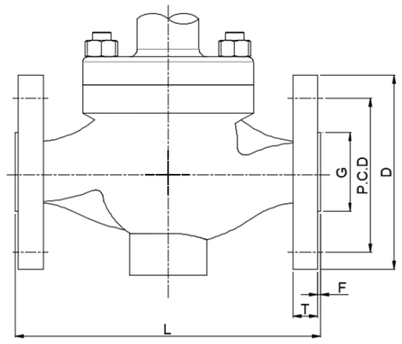
ANSI 300

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

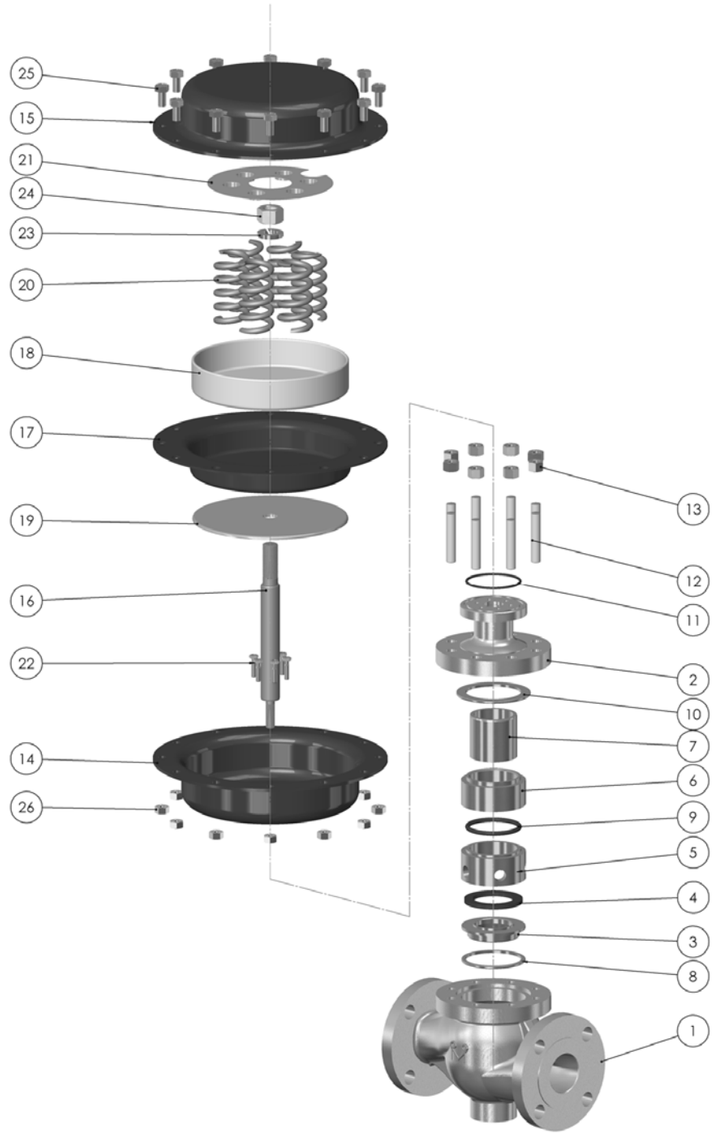
Valve Size	L*	T	F	I.D	G	P.C.D	D	Diameter of bolt Holes	Number of Bolts	Diameter of Bolts
In.								In.		In.
1	7.8	0.6	0.1	1	2	3.5	4.9	3/4	4	5/8
1 1/2	9.3	0.8	0.1	1.5	2.9	4.5	6.1	7/8	4	3/4
2	10.5	0.8	0.1	2	3.6	5	6.5	3/4	8	5/8
2 1/2	11.5	0.9	0.1	2.5	4.1	5.9	7.5	7/8	8	3/4
3	12.5	1.1	0.1	3	5	6.6	8.3	7/8	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



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