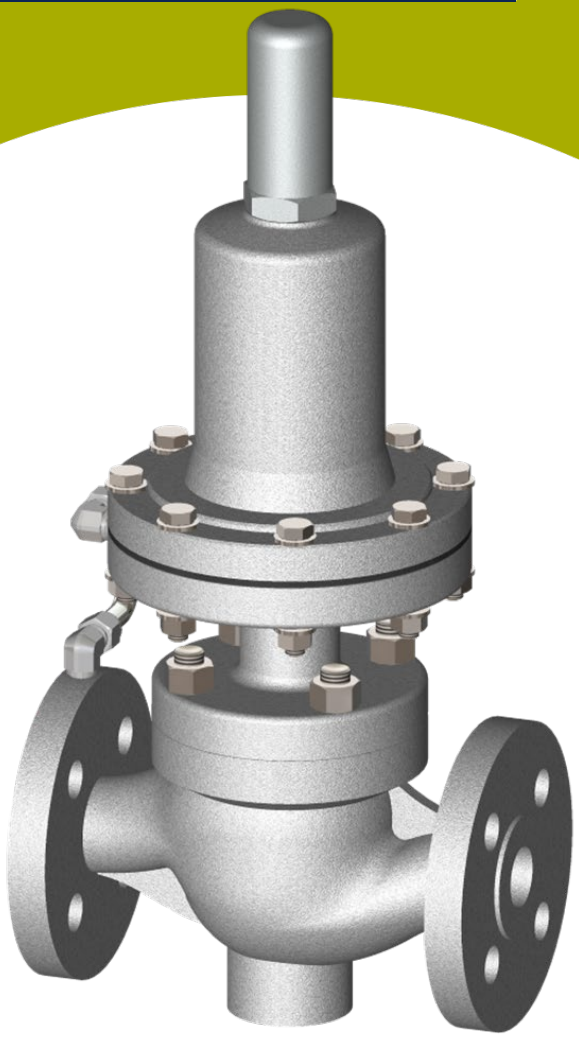
CELEROS™ FLOW TECHNOLOGY

CVK-PRDB 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 contains many energy efficient products, including valves, pumps, and closures.

CVK-PRDB VALVE

PRODUCT INFORMATION

The Copes-Vulcan CVK-PRDB valve from Celeros FT provides direct-operated downstream pressure regulation for general service applications. It maintains downstream pressure at a preset value and delivers a fast, stable response to pressure fluctuations.

Based on a proven regulator platform and optimized for capacity, control accuracy, and ease of maintenance, the CVK-PRDB valve offers reliable performance and is tested and qualified to Celeros performance and quality standards.

DESIGN HIGHLIGHTS:

- **Top-entry design** – Allows direct access to internal components for easier and faster maintenance
- **Variable actuator sizes** – Supports all pressure control ranges to match diverse operating conditions.
- **Balanced diaphragm construction** – Provides increased sensitivity and improved 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.

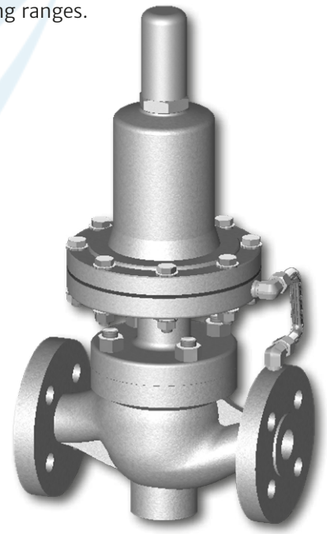
CONTROL RANGE:
- 0.005 TO 45 BARG (0.0725 ~ 652.671 PSI)

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

SIZE:
- 1/2" ~ 2" (12.7 ~ 50.8 MM)

PERFORMANCE BENEFITS:

- **Fast, stable regulation** - Responsive control minimizes pressure swings and maintains steady downstream conditions even under sudden load changes.
- **High-flow efficiency** - Optimized internal geometry delivers strong capacity with reduced energy loss, supporting demanding system throughput.
- **Reliable sealing performance** - Consistent shut-off integrity reduces leakage, enhances efficiency, and supports trouble-free operation over time.
- **Compact operational strength** - A lightweight, space-efficient design simplifies installation while providing dependable performance across wide operating ranges.



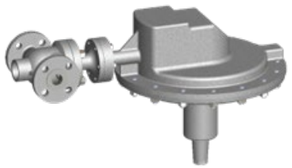
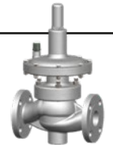
P BACK PRESSURE REGULATORS

Pressure Reducing Regulators maintain a constant upstream pressure throughout the flow range.
Direct-Operated Regulators are the simplest type of regulators. It senses upstream pressure and control it by the force of a spring in the actuator.

SPECIFICATIONS:

Valve Type	Pressure Regulating Valve (Direct Type)				
Valve Model	CVK-PRDB Valve				
Trim Type	Balanced, Anti-Cavitation, Low-Noise, Optional Special Trim				
Valve Size (inch)	1/2	3/4	1	1.1/2	2
(mm)	15	20	25	40	50
Valve Cv (150Lb ~ 600 Lb)	1.6	2.7	3.8	8.1	14.4
Pressure Rating	ANSI 150 ~ 900 (PN ratings available)				
End Connection	RF, FF, SW, BW, RTJ				
Body Materials	WCB, WCC, WC6, WC9, CF8				
Bonnet Type	Standard (-17°C to 230°C)				
Packing	Graphite, Carbon Fiber, PTFE				
Gasket	Spiral Wound Metal Gasket				
Guiding	Top / Cage				
Seat Type	Metal / Soft				
Plug Characteristic	Equal Percentage / Linear / Modified-Parabolic / Quick Opening				
Trim Materials	316 SS, 410 Alloy Steel, Stellite Overlays				

BACK PRESSURE REGULATORS INLET PRESSURE CONTROL RANGE

PRV Type		Outlet Pressure Range BAR G / psi					Spring Type
		BAR G	PSI		BAR G	PSI	
	EP	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	5.801	~	1.8	26.107	Yellow Type 1
		1.2	17.405	~	4.2	60.916	Yellow Type 2
		2.8	40.611	~	7.2	104.428	Blue
		4.8	69.620	~	10.8	156.449	Red
		7.2	104.428	~	15.6	226.262	Green Type 1
	HP & HT	10.4	150.842	~	20.4	295.375	Green Type 2
		17.6	255.064	~	36	522.137	Green Type 3
		24	348.091	~	44.4	644.799	Green Type 4
		29.6	429.297		54	783.205	Green Type 5

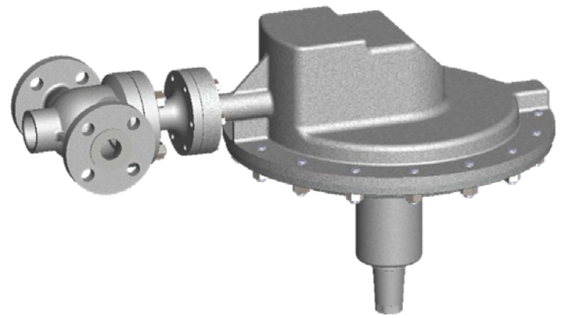
MODEL SELECTION GUIDE

Model	Code	Type	Set Pressure Range	
CVK - PRDB	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 ~ 145.038
	HP	High Pressure	10 ~ 45	145.038 ~ 652.671
	LT	Low Pressure & High Temperature	0.05 ~ 0.5	0.725 ~ 7.252
	HT	High Pressure & High Temperature	0.5 ~ 45	7.252 ~ 652.671

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

CVK-PRDB EP tank blanketing back pressure regulators are used for accurate pressure control on very low pressure of gas blanketing systems.

Tank blanketing back pressure regulators maintain positive pressure in a tank which is slightly higher than atmospheric pressure by relieving the pressure of gas. By maintaining the pressure, they reduce possibility of tank explosion while the liquid in the tank is being filled in.



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

Temperature Range

- -25 ~ 80 ℃ (-13 ~ 176 °F)

Diaphragm Material

- Nitrile (NBR), Fluorocarbon (FKM)

Disk & Elastomer Seal Material

- Nitrile (NBR), Fluorocarbon (FKM)

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

Temperature Range

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

Diaphragm Material

- Nitrile (NBR), Fluorocarbon (FKM)

Disk & Elastomer Seal Material

- Nitrile (NBR), Fluorocarbon (FKM)

CVK PRDB LP/MP direct-operated, spring-loaded, diaphragm type back pressure regulators provide precise upstream pressure control at low and medium set pressures. The large diaphragm area of CVK PRDB LP provides more accurate control at low-pressure settings.

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

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

1. PISTON TYPE CVK-PRDB HP — HIGH PRESSURE

CVK-PRDB HP Series direct-operated, spring-loaded, piston type back pressure regulators provide precise upstream pressure control at high set pressures.

Temperature Range

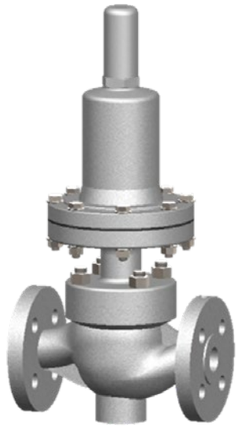
- -25 ~ 120 °c (-13 ~ 248 °F)

Piston Elastomer Seal Material

- Nitrile (NBR), Fluorocarbon (FKM)

Disk & Elastomer Seal Material

- Nitrile (NBR), Fluorocarbon (FKM)



CVK-PRDB HP
Set Pressure Range (BarG) : 10 ~ 45
Set Pressure Range (psi) : 145.038 ~ 652.671

2. PISTON TYPE
CVK-PRDB LT — LOW PRESSURE & HIGH TEMPERATURE
CVK-PRDB HT — HIGH PRESSURE & HIGH TEMPERATURE

Temperature Range

- -25 ~ 200 °c (-13 ~ 392 °F)

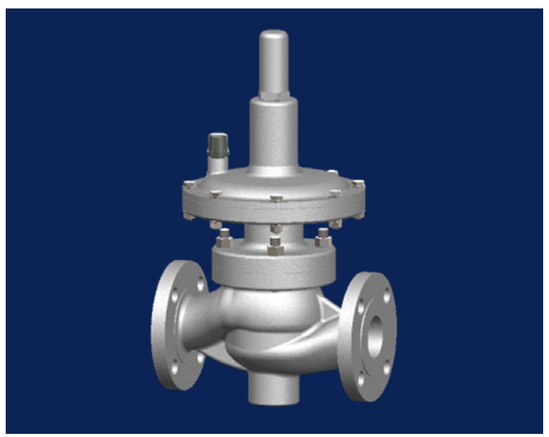
Piston Elastomer Seal Material

- Fluorocarbon (FKM)

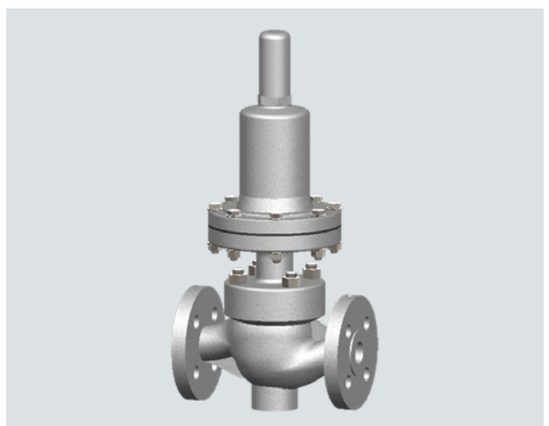
Disk & Elastomer Seal Material

- Fluorocarbon (FKM)

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

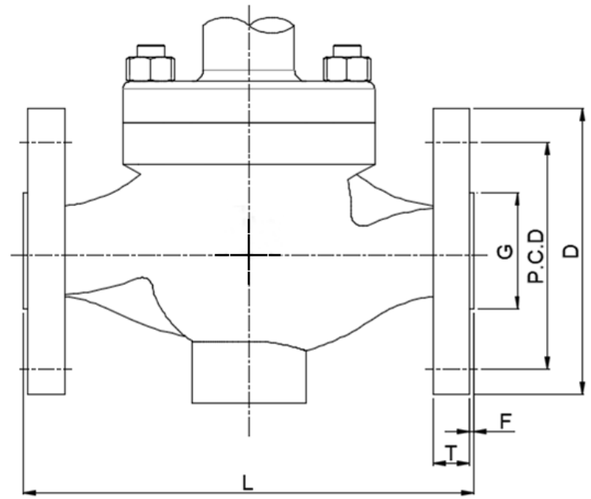


CVK-PRDB LT
Set Pressure Range (BarG) : 0.05 ~ 0.5
Set Pressure Range (psi) : 0.725 ~ 7.252



CVK-PRDB HT
Set Pressure Range (BarG) : 0.5 ~ 45
Set Pressure Range (BarG) : 7.252 ~ 652.671

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.	mm								In.	mm		In.	mm
1/2	12.7	184	9.6	2	15	34.9	60.3	90	5/8	15.875	4	1/2	12.7
3/4	19.05	184	11.2	2	19.1	42.9	69.9	100	5/8	15.875	4	1/2	12.7
1	25.4	184	12.7	2	25.4	50.8	79.4	110	5/8	15.875	4	1/2	12.7
1 1/2	38.1	222	15.9	2	38.1	73	98.4	125	5/8	15.875	4	1/2	12.7
2	50.8	254	17.5	2	50.8	92.1	120.7	150	3/4	19.05	4	5/8	15.875

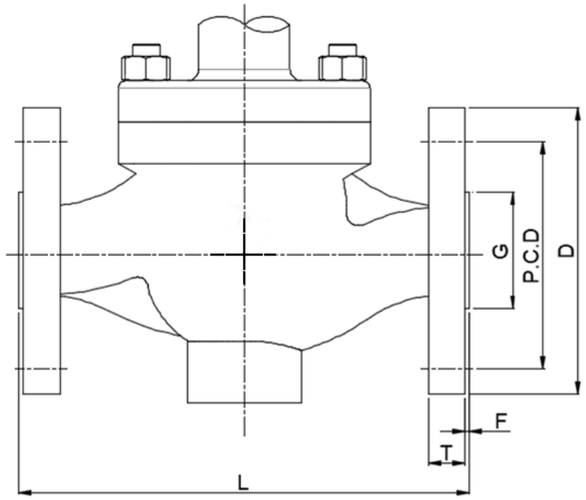
ANSI 300

Valve Size		L*	T	F	I.D	G	P.C.D	D	Diameter of bolt Holes		Number of Bolts	Diameter of Bolts,	
In.	mm								In.	mm		In.	mm
1/2	12.7	194	12.7	2	15	34.9	66.7	95	5/8	15.875	4	1/2	12.7
3/4	19.05	194	14.3	2	19.1	42.9	82.6	115	3/4	19.05	4	5/8	15.875
1	25.4	197	15.9	2	25.4	50.8	88.9	125	3/4	19.05	4	5/8	15.875
1 1/2	38.1	235	19.1	2	38.1	73	114.3	155	7/8	22.225	4	3/4	19.05
2	50.8	267	20.7	2	50.8	92.1	127	165	3/4	19.05	8	5/8	15.875

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.	mm								In.	mm		In.	mm
1/2	12.7	206	14.3	7	15	34.9	66.7	95	5/8	15.875	4	1/2	12.7
3/4	19.05	206	15.9	7	19.1	42.9	82.6	115	3/4	19.05	4	5/8	15.875
1	25.4	210	17.5	7	25.4	50.8	88.9	125	3/4	19.05	4	5/8	15.875
1 1/2	38.1	251	22.3	7	38.1	73	114.3	155	7/8	22.225	4	3/4	19.05
2	50.8	286	25.4	7	50.8	92.1	127	165	3/4	19.05	8	5/8	15.875

DIMENSION LIST IMPERIAL



ANSI 150

Valve Size	L* (in.)	T (in.)	F (in.)	I.D (in.)	G (in.)	P.C.D (in.)	D (in.)	Diameter of bolt Holes	Number of Bolts	Diameter of Bolts
In.								In.		In.
1/2	7.24	0.4	0.1	0.6	1.4	2.4	3.5	5/8	4	1/2
3/4	7.24	0.4	0.1	0.8	1.7	2.8	3.9	5/8	4	1/2
1	7.24	0.5	0.1	1	2	3.1	4.3	5/8	4	1/2
1 1/2	8.74	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

ANSI 300

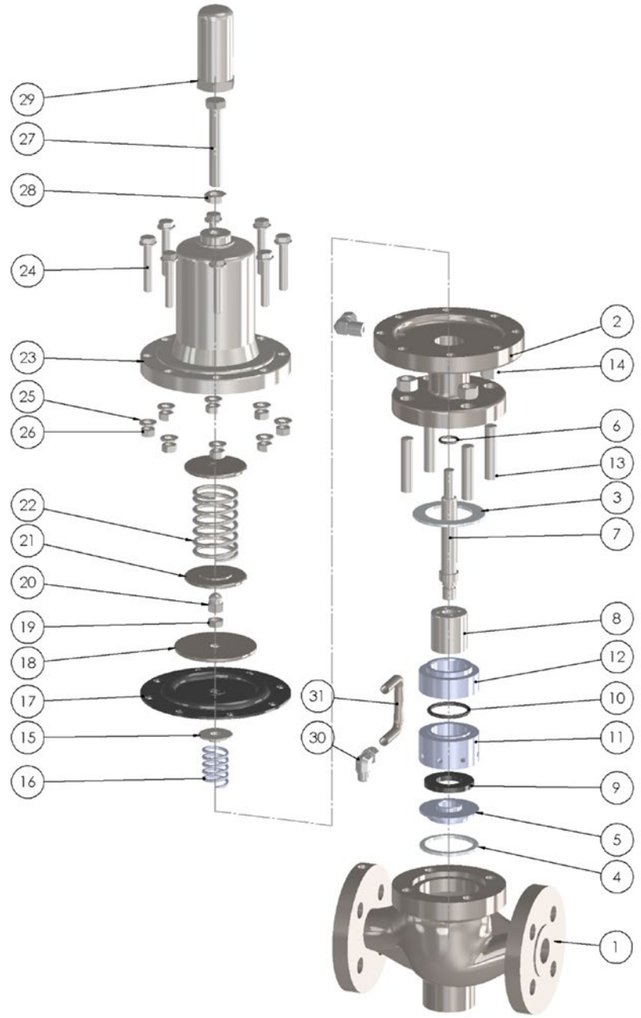
Valve Size	L* (in.)	T (in.)	F (in.)	I.D (in.)	G (in.)	P.C.D (in.)	D (in.)	Diameter of bolt Holes	Number of Bolts	Diameter of Bolts,
In.								In.		In.
1/2	7.6	0.5	0.1	0.6	1.4	2.6	3.7	5/8	4	1/2
3/4	7.6	0.6	0.1	0.8	1.7	3.3	4.5	3/4	4	5/8
1	7.8	0.6	0.1	1	2	3.5	4.9	3/4	4	5/8
1 1/2	9.3	0.8	0.1	1.5	2.9	4.5	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

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.
1/2	8.1	0.6	0.3	0.6	1.4	2.6	3.7	5/8	4	1/2
3/4	8.1	0.6	0.3	0.8	1.7	3.3	4.5	3/4	4	5/8
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

GENERAL PARTS LIST

No.	Parts
1	BODY
2	BONNET
3	BONNET GASKET
4	SEAT GASKET
5	SEAT
6	STEM O-RING
7	STEM
8	PORT
9	DISC
10	BALANCE SEAL
11	CAGE
12	CAGE CYLINDER
13	STUD BOLT
14	HEX. HEAVY NUT
15	BACK PLATE
16	BALANCE SPRING
17	DIAPHRAGM
18	DIAPHRAGM SEAT
19	STEM LOCK NUT
20	CAP NUT
21	SPRING SEAT
22	SPRING
23	SPRING CASE
24	HEX. HEAD BOLT
25	SPRING WASHER
26	NUT
27	SETTING BOLT
28	LOCK NUT
29	CAP
30	TUBE FITTING
31	SUS TUBE



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