

CVK-TW THREE WAY GENERAL SERVICE CONTROL VALVE

RELIABLE, EFFICIENT FLOW CONTROL FOR
GENERAL SERVICE APPLICATIONS

COPEX-VULCAN®



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-GS THREE WAY GLOBE CONTROL VALVE

PRODUCT INFORMATION

The CVK-TW control valves are designed to be used for controlling the fluids mutually to three directional piping. These can be used for mixing service and for diverting service.

The CVK-TW control valves can be mounted with different types of actuators including diaphragm actuators, piston actuators, and motor actuators.

DESIGN HIGHLIGHTS:

- Modular construction design is available with a range of different connections and styles.
- All trim components are removable from the top for ease of maintenance.
- Wide range of supplementary noise control options.
- Inherently characterized trim offered in equal percentage, linear, quick opening and modified -parabolic (options).
- Multi trim sizes available.
- Full range of body and trim material options.
- Fully rationalized and interchangeable features.
- Full range of bonnet and packing designs to suit various temperatures and fluids.

PERFORMANCE BENEFITS

- High Cv to body size ratio.
- Streamlined flow passages to optimize capacity.
- High Cv to valve weight ratio.
- Excellent flow control rangeability.



Series CVK_TW mounted with Pneumatic diaphragm actuator

SPECIFICATIONS:

Valve Type	3-way Control Valve											
Valve Model	CVK three-way											
Body Type	Mixing / Diverting											
Valve Size (inch)	1/2	3/4	1	1.5	2	2.5	3	4	5	6	8	
(mm)	15	20	25	40	50	65	80	100	125	150	200	
Pressure Rating	ANSI 150 - 900 (JIS 10K - 40K, PN 10- 100)											
End Connection	RF, FF, SW, BW, RTJ											
Body Materials	A216WCB, A351CF8/CF8M, A351CF3/CF3M, H-C, H-B, and so on											
Bonnet Type	Plain(-17°C to 230°C), Extension (-45°C to -17°C, over 230°C)											
Packing	Graphite, PTFE, VOC, others											
Gasket	Spiral Wound Metal gasket											
Guiding	Top/Cage											
Seat Type	Metal/Soft											
Valve Plug Shape	Contoured / Cage / Pilot											
Plug type	Linear											
Trim Materials	A351CF8/CF8M, A351CF3/CF3M, H-C, H-B, and so on											

Table 1. Three Way Globe Control Valve Specifications

FEATURES

Modular Design

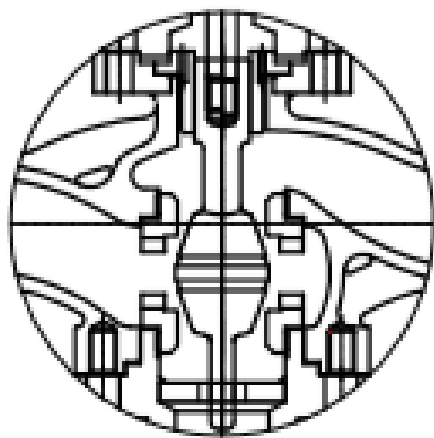
Series CVK-TW valves have been designed around a modular manufacturing concept. Using this philosophy, a center body module selected to most suit the specified flow conditions and operating data, is combined with end connection size/rating, selected to support that module. This design feature allows not only the selection of full-size ends, to offer oversize end connections to suit a particular requirement.

Unbalance Trim

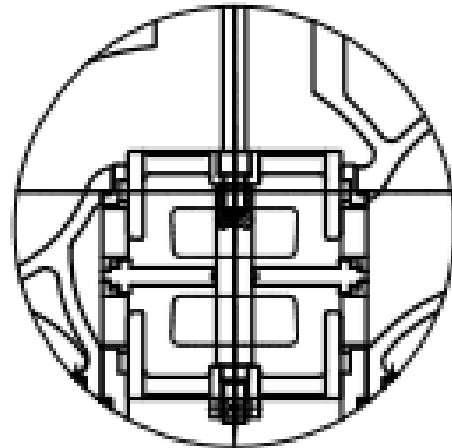
Single Contoured Unbalance Port (CVK-U) are up to 3". Ports are guided

Balance Trim

Pressure balanced cage port is used to reduce the thrust on the port. Balanced Cage Port (CVK-B) over 4" is standard and under 4" are available for specific applications. Soft seat is used in application requirement ANSI Class VI 'BUBBLE-TIGHT' shutoff and FIRE SAFE design. Its design consists of an elastomer sandwiched between two metal pieces, retainer (or cage) and metal seat. The installation can be done by inserting soft seat between retainer (or cage) and metal seat. Therefore it can be used for fire safe function.



UNBALANCED CONTOURED SINGLE PORT (CVK-U)



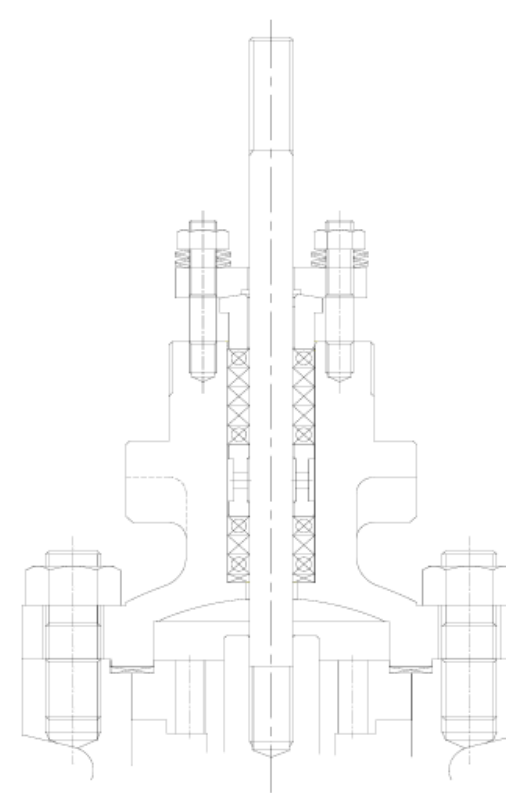
BALANCED CAGE SINGLE PORT (CVK-B)

TRIM OPTIONS

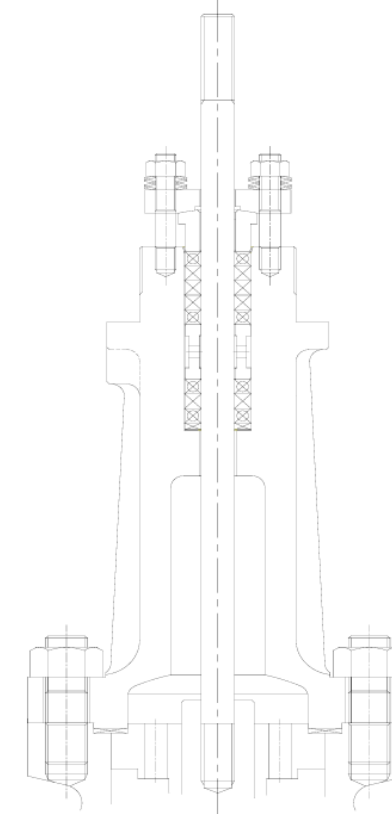
Series CVK three-way valves have been designed around a modular manufacturing concept. Using this philosophy, a center body module selected to most suit the specified flow conditions and operating data, is combined with end connection size/rating, selected to support that module. This design feature allows not only the selection of full-size ends, to offer oversize end connections to suit a particular requirement.

3-WAY VALVE BONNET TYPE

Bonnet Type	Standard Bonnet	Bonnet Type	Extended Bonnet
Allowable Temperature	-25°C / -13°F ~ 230°C / 446°F	Allowable Temperature	Over 230°C / 446 °F -25°C / -13 °F ~ -45°C / -49 °F

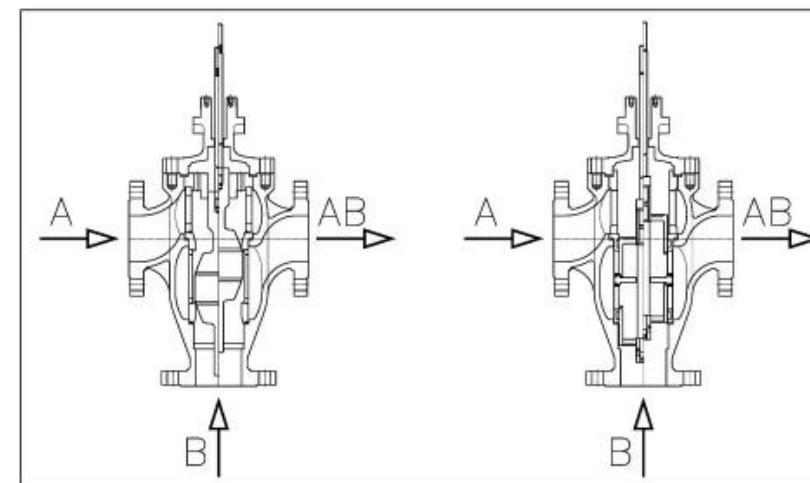


Standard Bonnet

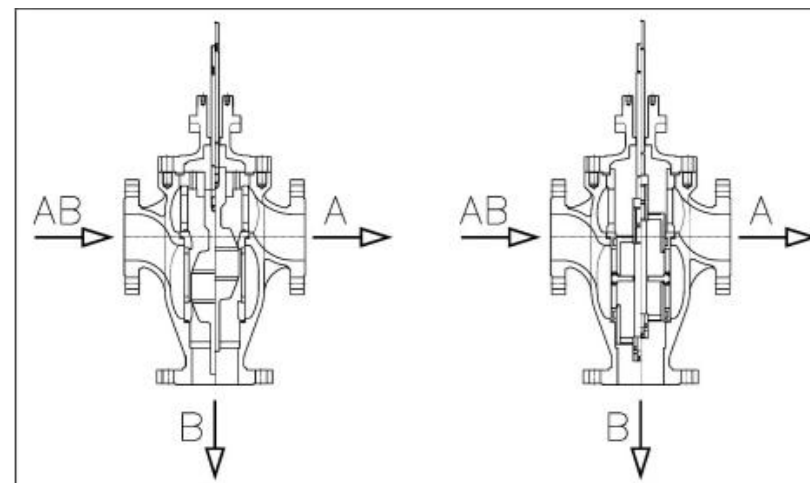


Extended Bonnet

HOW TO USE

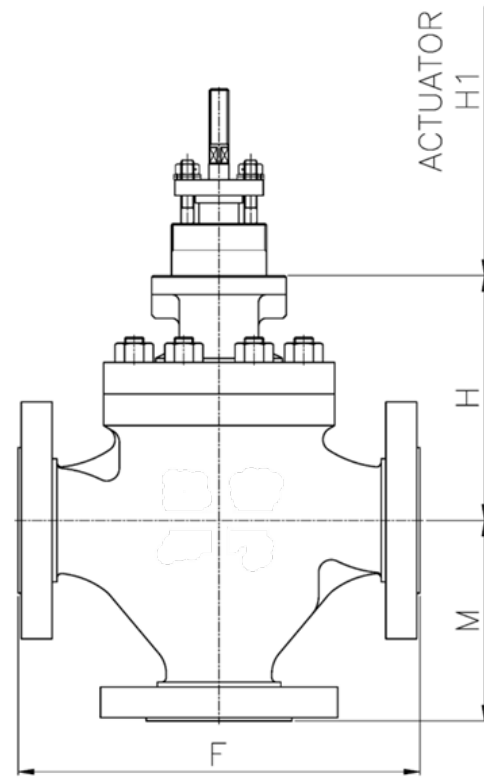


Actuator Action	Mixing Control
Direct (Air Fail Open)	$A + B = AB$
Reverse (Air Fail Close)	$A - B = AB$



Actuator Action	Divert Control
Direct (Air Fail Open)	$AB = A$
Reverse (Air Fail Close)	$AB = B$

OUTLINE DIMENSIONS



Size (mm)		F			H (Plain)		H (Extension)		M	
		150#	300#	600#	150#,300#	600#	150#,300#	600#	150#,300#	600#
12.7	15A	184	194	206	117	132	217	232	135	140
19.05	20A	184	194	206	117	132	217	232	135	140
25.4	25A	184	197	210	123	128	223	228	133	141
38.1	40A	222	235	251	137	142	237	248	151	157
50.8	50A	254	267	286	155	180	255	280	184	189
63.5	65A	276	292	311	175	201	270	280	193	198
76.2	80A	298	317	337	200.8	210	350.8	368	244	251
101.6	100A	352	368	394	253	263	402.8	405	254	264
127	125A	403	425	457	323	343	472.8	510	315	322
152.4	150A	451	473	508	330	339	480	507	316	326
203.2	200A	543	568	610	430	452.6	620	634.1	380	400

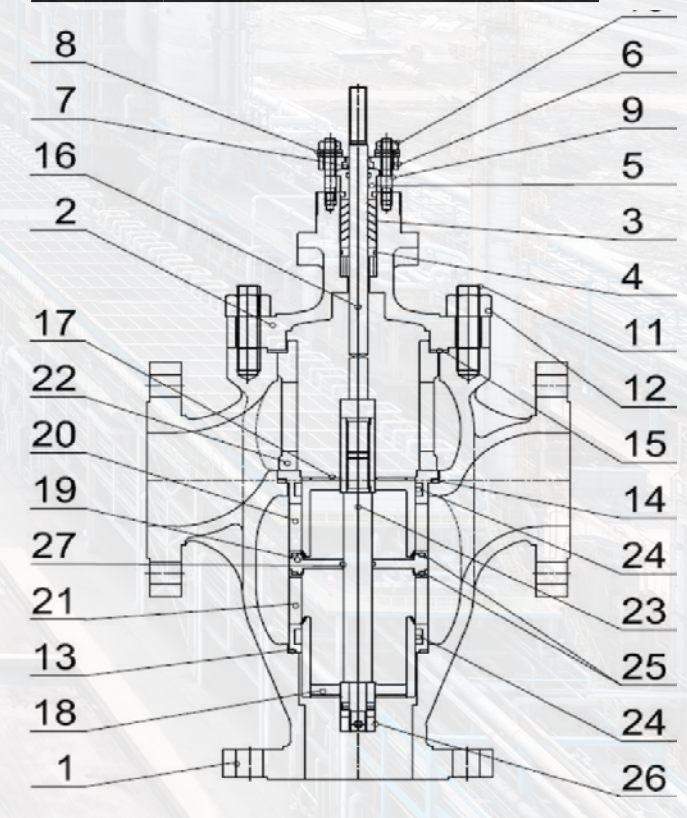
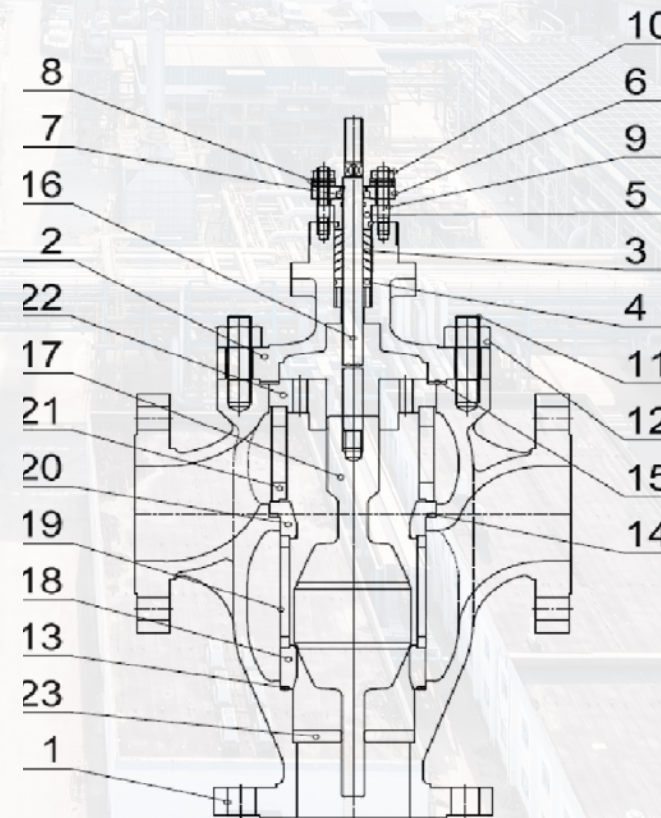
Size (in.)		F			H (Plain)		H (Extension)		M	
		150#	300#	600#	150#,300#	600#	150#,300#	600#	150#,300#	600#
1/2"	15A	7.24	7.64	8.11	4.61	5.2	8.54	9.13	5.31	5.51
3/4"	20A	7.24	7.64	8.11	4.61	5.2	8.54	9.13	5.31	5.51
1"	25A	7.24	7.76	8.27	4.84	5.04	8.78	8.98	5.24	5.55
1 1/2"	40A	8.74	9.25	9.88	5.39	5.59	9.33	9.76	5.94	6.18
2"	50A	10.00	10.51	11.26	6.1	7.09	10.04	11.02	7.24	7.44
2 1/2"	65A	10.87	11.50	12.24	6.89	7.92	10.63	11.02	7.6	7.8
3"	80A	11.73	12.48	13.27	7.91	8.27	13.81	14.49	9.61	9.88
4"	100A	13.86	14.49	15.51	9.96	10.35	15.86	15.94	10	10.39
5"	125A	15.87	16.73	17.99	12.72	13.5	18.61	20.08	12.4	12.68
6"	150A	17.76	18.62	20	12.99	13.35	18.9	19.96	12.44	12.83
8"	200A	21.38	22.36	24.02	16.93	17.82	24.41	24.96	14.96	15.75

CVK-U TRIM PARTS LIST

No.	Name of Part
1	BODY
2	BONNET
3	PACKING
4	PACKING RING
5	GLAND FOLLOWER
6	GLAND FLANGE
7	DUST RING
8	CONICAL WASHER
9	GLAND BOLT
10	GLAND NUT
11	STUD BOLT
12	STUD NUT
13	BOTTOM SEAT GASKET
14	SEAT GASKET
15	BONNET GASKET
16	STEM
17	PORT
18	BOTTOM SEAT RING
19	BOTTOM RETAINER
20	SEAT RING
21	RETAINER
22	TOP GUIDE
23	BOTTOM GUIDE

CVK-B TRIM PARTS LIST

No.	Name of Part
1	BODY
2	BONNET
3	PACKING
4	PACKING RING
5	GLAND FOLLOWER
6	GLAND FLANGE
7	DUST RING
8	CONICAL WASHER
9	GLAND BOLT
10	GLAND NUT
11	STUD BOLT
12	STUD NUT
13	BOTTOM SEAT GASKET
14	SEAT GASKET
15	BONNET GASKET
16	STEM
17	UPPER PORT
18	BOTTOM PORT
19	SEAT RING
20	UPPER CAGE
21	BOTTOM CAGE
22	RETAINER
23	SPACER
24	CAGE O-RING
25	SEAT O-RING
26	LOCK NUT
27	SPACER O-RING



CVK-TW THREE WAY GENERAL SERVICE CONTROL VALVE



DESIGN Cv TABLES

CVK-B (BALANCED CONTOURED SINGLE PORT)										
NPS (In.)	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"
NPS (mm)	19.05	25.4	38.1	50.8	63.5	76.2	101.6	127	152.4	203.2
CV (in.)							5.98	10.63	15.75	25.98
(mm)						105	152	270	400	660
Stroke (in.)						1.50	1.57	1.97	1.97	2.95
(mm)						38	40	50	50	75

CVK-U (UNBALANCED CONTOURED SINGLE PORT)										
NPS	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"
NPS (mm)	19.05	25.4	38.1	50.8	63.5	76.2	101.6	127	152.4	203.2
CV (in.)	0.35	0.55	1.18	1.89	2.76	3.94				
(mm)	9	14	30	48	70	100				
Stroke (in.)	0.59	0.59	0.79	0.98	0.98	1.50				
(mm)	15	15	20	25	25	38				

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