

APPLICATIONS:

For discharge of liquid or gas from vessels, separators, treaters, knockouts and other similar liquid accumulators.






For back pressure or pressure reducing applications with pressure pilots.

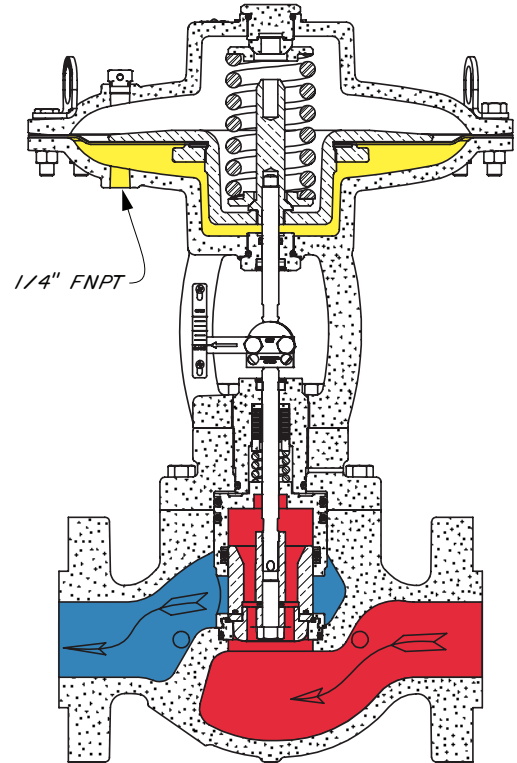
FEATURES:

- Compact design
- Soft seat with metal-to-metal backup
- Valve travel indicator
- Field-reversible topworks
- Teflon-packed stuffing box
- Bubble-tight shut-off
- Piston balanced seat assembly

CERTIFICATIONS:

Canadian Registration Number (CRN):
0C15019.24567890NTY
Kimray is an ISO 9001- certified manufacturer.

-  Control Valve Piston Assembly
-  Control Valve Diaphragm Assembly
-  Control Valve Diaphragm Pressure
-  Upstream Pressure
-  Downstream Pressure



Order Code **	Line Size	Flow Characteristic	Inner Valve	Stem Travel	Max. W.P. psig ***	Cv	Cf	
See page 01:300.2	2"	EP	1 1/2"	3/4"	4000	28.6	0.75	
			2"			57.0	0.76	
			1 1/2"	3/4"		6000	28.6	0.75
			2"				57.0	0.76
	3"		2"	1 3/8"	1480		52.6	0.75
			3"				107	0.76
	4"		3"	1 3/4"		1480	115	0.75
			4 3/8"				222	0.75
	6"	4 3/8"	2 1/2"	1480	222		0.75	
		6 3/4"			431		0.75	
	8"	Reduced EP	6"		1480	453	0.75	
		Refined EP	8 1/2"			630	0.75	
Modified EP		8 1/2"	810	0.75				
10"	Reduced EP	6"	1480	655		0.75		
	Refined EP	8 1/2"		884	0.75			
	Modified EP	8 1/2"		1091	0.75			

NOTES:

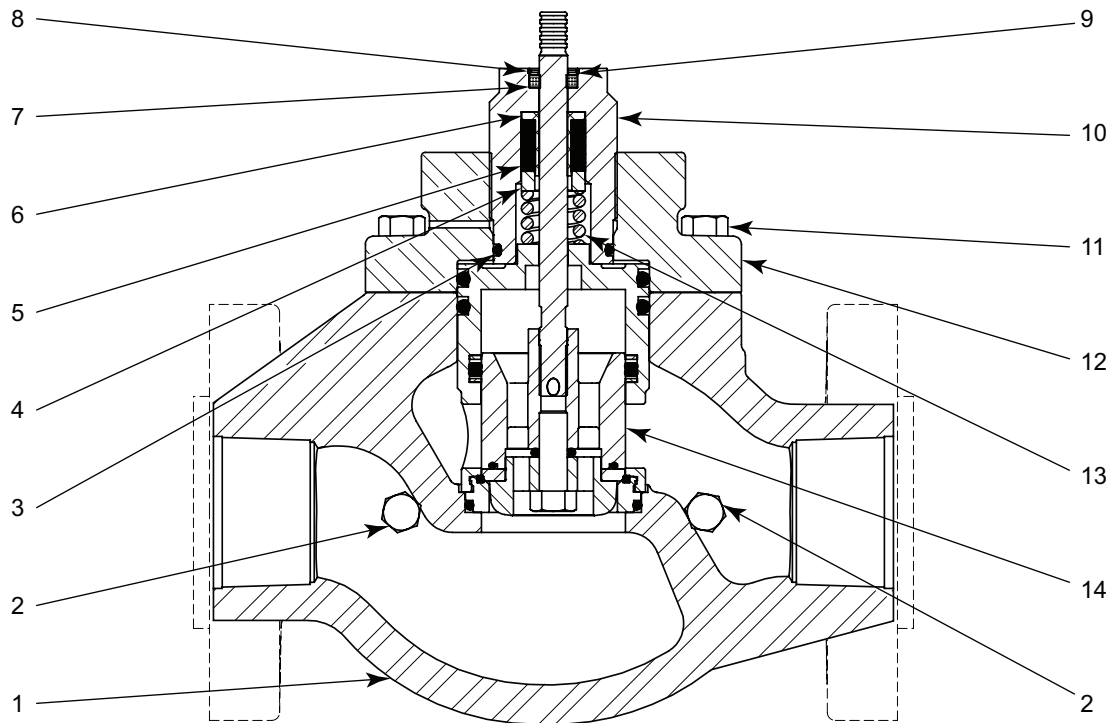
For standard & optional seals, metals, Cf Cv values, material specifications & dimensions see technical data on pages 01:1 - 01:XI

** For complete valve codes see pages 01:300.2

*** Max W.P. values based on -20°F to 100°F.

HIGH PRESSURE CONTROL VALVES

PISTON BALANCED / CAGE GUIDED BOTTOM WORKS
MODEL CVC PARTS DRAWING



ITEM	QTY.	DESCRIPTION	PART NO.					
			STANDARD					
			2 INCH	3 INCH	4 INCH	6 INCH	8 INCH	10 INCH
1	1	Body	Coated Bodies available with "K" & "E" service types					
		1500 psig NPT Thru	4813	----	----	----	----	----
		4000 psig NPT Thru	4764	----	----	----	----	----
		150RF Thru	5071	6427	6428	6429	7040RF	7173
		300RF Thru	5051	5070	5249	5302	6661RF	6888RF
		600RF Thru	4712	4950	5146	5322	6567RF	6572RF
		600RTJ Thru	4713	4951	----	----	6567RTJ	----
		1500RF Thru	4714	----	----	----	----	----
		1500RTJ Thru	4715	----	----	----	----	----
		3 INCH 600RF Thru	4871	----	----	----	----	----
3 INCH 600RTJ Thru	4872	----	----	----	----	----		
2	2	Plug	699			292SS6		
3	1	O-Ring *	520	2081				
4	1	Packing Follower *	531SS6	4978SS6		5340SS6		
5	(QTY)	Packing Ring *	533 (6)	4977 (8)		5339 (8)		
6	1	Packing Sleeve *	534	4979		5341		
5&6	1	Optional VEE Packing 450°F max	5118	----	----	----	----	
		Optional Grafoil Packing 450°F max	5118GF	----	----	----	----	
7	(QTY)	Wiper *	527 (1)	4969 (2)		5337 (2)		
8	1	Snap Ring *	940	4968		5311		
9	1	Retainer	528	4970		5338		
10	1	Stuffing Box	526	4976		5346SS6		
11	(QTY)	Bolt	524 (8)	4991 (8)	5134 (12)	5323 (12)		
12	1	Upper Housing	4724	4958	5133	5301	6637	
13	1	Spring	509	4980		5347		
14	1	Plug Assembly	See Table On Page 01:20.3					
Repair Kits			RUR	RUT	RUU	RWD	RWF	

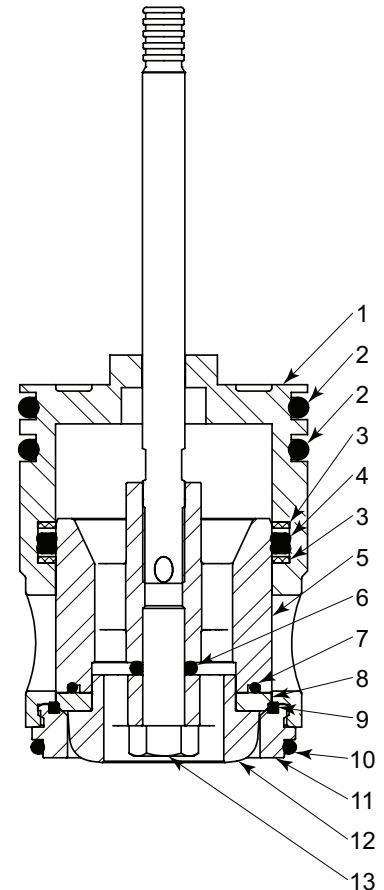
* These parts are recommended spare parts and are stocked as repair kits.

All Pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.

PISTON BALANCED / CAGE GUIDED PLUG ASSEMBLY MODEL CVC PLUG ASSEMBLY PARTS DRAWING

ITEM	QTY.	DESCRIPTION	PART NO.					
			2 INCH	3 INCH	4 INCH	6 INCH	8 & 10 INCH	
STANDARD								
1	1	Cage	6459SS6	6460SS6	5544SS6	5430SS6	6568SS6	
2	2	O-Ring *	4768	2745	5144	2353	6640	
3	2	Back Up *	4771T	4988T	5145T	5321T	6635T	
4	1	Quad Ring *	4769Q	4992Q	5142Q	5318Q	6634Q	
5	1	Piston Assembly	6466ASS6	6467ASS6	6721ASS6	6723ASS6	6569ASS6	
6	1	O-Ring *	4773	807		1151		
7	1	O-Ring *	4086	2099	6724	6725	6642	
8	1	Seat Disc	6641	6673	6720	6722	6643	
9	1	Seal Ring *	6468P	6469P	5584P	5387P	6571P	
10	1	O-Ring *	2099	4983	5143	5319	6636	
11	1	Seat	6464	6465	5583	5375SS6	6570S6	
12	1	Ratio Plug	Equal Percentage	4720	4985	5139	5313	6609
			Reduced E.P.	4927	5123	5255	6425	6647
			Modified E.P.	----	----	----	----	6648
			Quick Open	6672	7094	----	----	----
13	1	Bolt	4767SS6	4986SS6		5354SS6		
Equal Percentage Plug Assembly			EFB	EFC	EFF	EFQ	EIC	
Reduced E.P. Plug Assembly			EFR	EHZ	EVK	MGE	MGI	
Modified E.P. Assembly			----	----	----	----	MGJ	
Quick Open Plug Assembly			EFBQO	EFCQO	----	----	----	
CORROSIVE								
1	1	Cage	6459SS6	6460SS6	5544SS6	5430SS6	6568SS6	
2	2	O-Ring *	4768	2745	5144	2353	6640	
3	2	Back Up *	4771T	4988T	5145T	5321T	6635T	
4	1	Quad Ring *	4769Q	4992Q	5142Q	5318Q	6634Q	
5	1	Piston Assembly	6466ASS6	6467ASS6	6721ASS6	6723ASS6	6569ASS6	
6	1	O-Ring *	4773	807		1151		
7	1	O-Ring *	4086	2099	6724	6725	6642	
8	1	Seat Disc	6641SS6	6673SS6	6720SS6	6722SS6	6643SS6	
9	1	Seal Ring *	6468P	6469P	5584P	5387P	6571P	
10	1	O-Ring *	2099	4983	5143	5319	6636	
11	1	Seat	6464SS6	6465SS6	5583SS6	5375SS6	6570S6	
12	1	Ratio Plug	Equal Percentage	4720SS6	4985SS6	5139SS6	5313SS6	6609SS6
			Reduced E.P.	4927SS6	5123SS6	5255SS6	6425SS6	6647SS6
			Modified E.P.	----	----	----	----	6648SS6
			Quick Open	6672SS6	7094SS6	----	----	----
13	1	Bolt	4767SS6	4986SS6		5354SS6		
Equal Percentage Plug Assembly			EFBSS6	EFCSS6	EFFSS6	EFQSS6	EICSS6	
Reduced E.P. Plug Assembly			EFRSS6	EHZSS6	EVKSS6	MGESS6	MGISS6	
Modified E.P. Assembly			----	----	----	----	MGJSS6	
Quick Open Plug Assembly			EFBQOSS6	EFCQOSS6	----	----	----	
EROSIVE								
1	1	Cage	6459SS6	6460SS6	5544SS6	5430SS6	6568SS6	
2	2	O-Ring *	4768	2745	5144	2353	6640	
3	2	Back Up *	4771T	4988T	5145T	5321T	6635T	
4	1	Quad Ring *	4769Q	4992Q	5142Q	5318Q	6634Q	
5	1	Piston Assembly	6466A	6467ASS6	6721ASS6	6723ASS6	6569ASS6	
6	1	O-Ring *	4773	807		1151		
7	1	O-Ring *	4086	2099	6724	6725	6642	
8	1	Seat Disc	6641ZR	6673ZR	6720ZR	6722ZR	6643ZR	
9	1	Seal Ring *	6468P	6469P	5584P	5387P	6571P	
10	1	O-Ring *	2099	4983	5143	5319	6636	
11	1	Seat	6464	6465	5583	5375SS6	6570S6	
12	1	Ratio Plug	Equal Percentage	4720	4985	5139	5313	6609
			Reduced E.P.	4927	5123	5255	6425	6647
			Modified E.P.	----	----	----	----	6648
			Quick Open	6672	7094	----	----	----
13	1	Bolt	4767SS6	4986SS6		5354SS6		
Equal Percentage Plug Assembly			EFBZR	EFCZR	EFFZR	EFQZR	EICZR	
Reduced E.P. Plug Assembly			EFRZR	EHZZR	EVKZR	MGEZR	MGIZR	
Modified E.P. Assembly			----	----	----	----	MGJZR	
Quick Open Plug Assembly			EFBQOZR	EFCQOZR	----	----	----	

* These parts are recommended spare parts and are stocked as repair kits.



All Pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.

APPLICATIONS:



Used for actuating HPCV Control Valves.

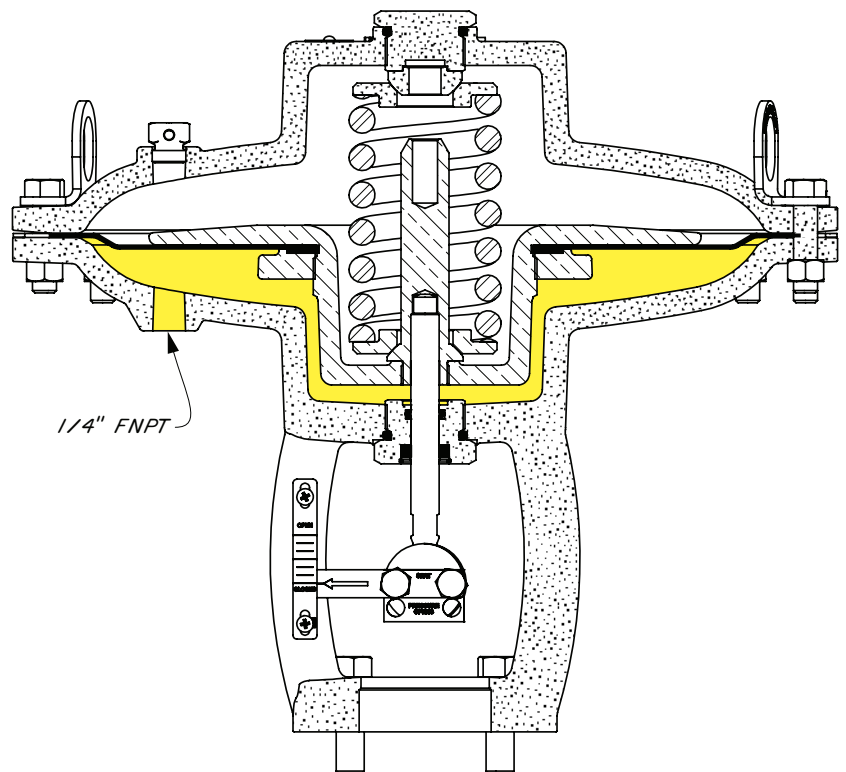
FEATURES:

- Compact design
- Valve travel indicator
- Field-reversible topworks
- Top Adjusting Screw may be adjusted to vary the spring tension slightly; this affects pressure required to actuate valve.

CERTIFICATIONS:

Kimray is an ISO 9001- certified manufacturer.

 Control Valve Diaphragm Assembly
 Control Valve Diaphragm Pressure



Order Code †	Body Size	Effective Diaphragm Area	Normal Actuator. W.P. psig ††	MAX. Actuator. W.P. psig ††	Stem Travel		
EAT	1"	30 square inches	10 - 30 (see spring ranges)	45	1/2"		
EBT	2"	65 square inches			3/4"		
EFX	3"	100 square inches			1 3/8"		
EEY	4"				1 3/4"		
EEZ	6"	120 square inches					2 1/2"
	8"						
	10"						

NOTES:

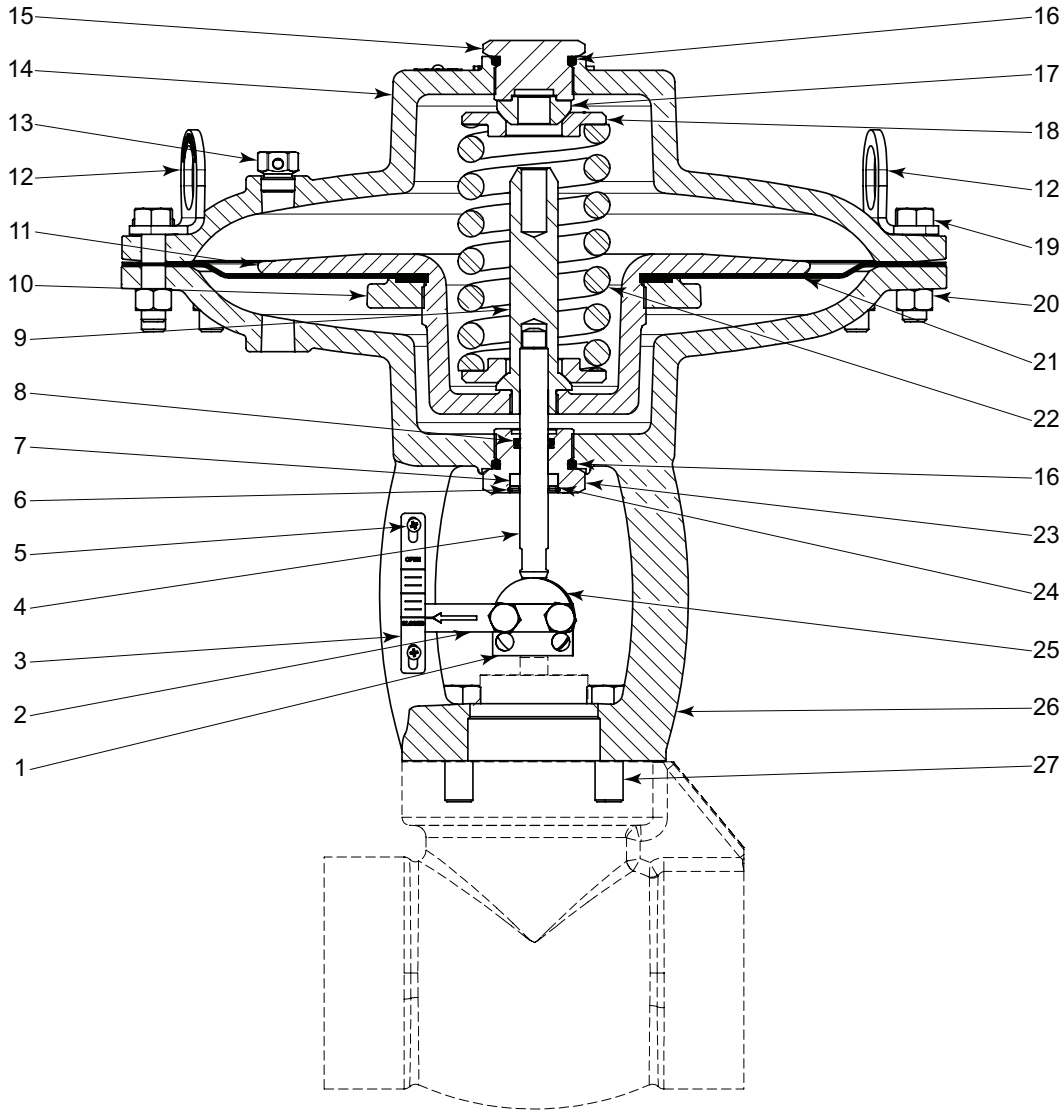
For standard & optional seals, metals, Cf Cv values, material specifications & dimensions see technical data on pages 01:1 - 01:XI

† Top Works only. For complete valve codes see pages 01:300.1 - 01:300.4

†† Max W.P. values based on -20°F to 100°F.

HIGH PRESSURE CONTROL VALVES

STANDARD PISTON BALANCED / CAGE GUIDED ACTUATORS PARTS DRAWING



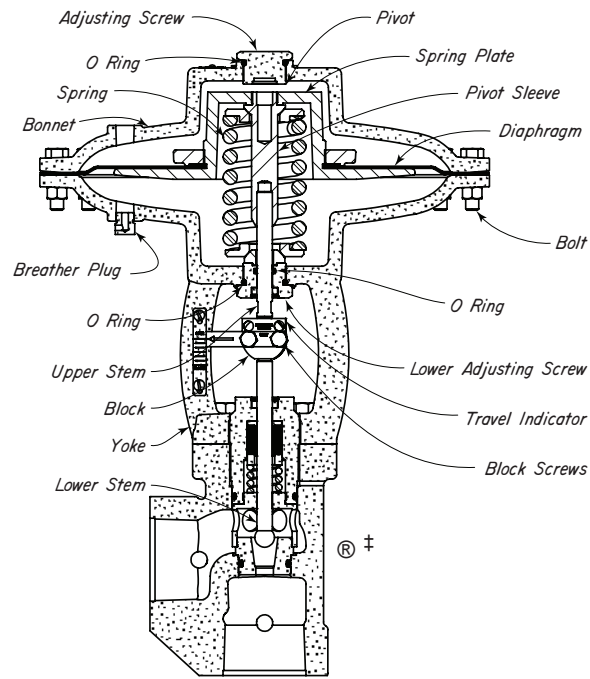
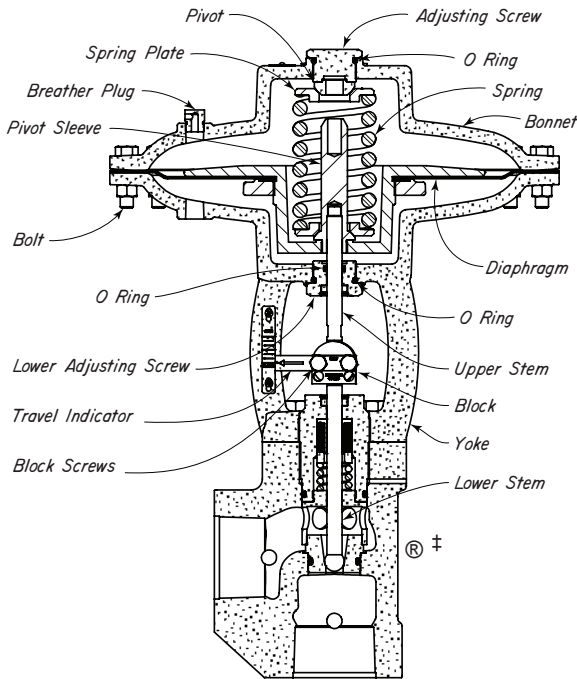


HIGH PRESSURE CONTROL VALVES

STANDARD PISTON BALANCED / CAGE GUIDED ACTUATORS PARTS LIST

ITEM	QTY.	DESCRIPTION	STANDARD PART NO.					
			1 INCH	2 INCH	3 INCH	4 INCH	6 INCH	8 & 10 INCH
1	1	Tag	----	677	4975		5352	
2	1	Travel Indicator	1659A	535	4974		5317	
3	1	Indicator Scale	488	536	4973	5131	5316	
4	1	Upper Stem	1643	522	4971	5171	5310	
5	2	Screw	7534					
6	1	Snap Ring *	938	940	4968		5311	
7	(QTY)	Felt Wiper *	480	527 (1)	4969 (2)		5337 (2)	
8	1	O-Ring *	153	530	155		5355	
9	1	Pivot Sleeve	466	510	4963	5179	5309	
10	1	Retainer Ring	476	4356	4965		5344	
11	1	Diaphragm Plate	469	4357	4964		5343	
12	2	Lifting Ring	----	7559	----			
13	1	Breather Plug	147				5559SS6	
14	1	Bonnet	461	506	4956		5299	
15	1	Upper Adjusting Screw	457	502	4959	6560	5348	
16	2	O-Ring *	491	537	808		2632	
17	1	Pivot	459	504	4960		5349	
18	2	Spring Plate	462	507	4961		5350	
19	(Qty)	Bolt	247 (10)	430 (16)	236 (24)		191 (24)	
20	(Qty)	Nut	241 (10)	241 (16)	241 (24)			
21	1	Diaphragm	475	519	5169		5315	
22	1	Spring 2-10 lb	621 (silver)	----	----	----	----	
		Spring 3-15 lb	7659 (blue)	1245 (silver)	----	----	----	
		Spring 4-20 lb	463 (red)	538 (red)	----	----	----	
		Spring 6-30 lb	464 (green)	508 (yellow)	4962	5130 (red)	5353 / 5314 ‡	
		Spring 9-45 lb	----	6848 (blue)	----	----	----	----
23	1	Lower Adjusting Screw	458	503	4967		5351	
24	1	Retainer	486	528	4970		5338	
25	1	Coupling Block	1659	511	4972		5345	
26	1	Yoke	460	505	4957		5300	
27	4	Bolt	694	524	4991		5406	
Repair Kits			RHV	RHW	RYB		RWDTW	
Actuator Assembly	Fail Close	2-10 lb Spring	EASPO10	----	----	----	----	
		3-15 lb Spring	EASPO15	EBTPO15	----	----	----	
		4-20 lb Spring	EASPO20	EBTPO20	----	----	----	
		6-30 lb Spring	EASPO30	EBTPO30	EFXPO30	EEYPO30	EEZPO30	
		9-45 lb Spring	----	EBTPO45	----	----	----	
	Fail Open	2-10 lb Spring	EASPC10	----	----	----	----	
		3-15 lb Spring	EASPC15	EBTPC15	----	----	----	
		4-20 lb Spring	EASPC20	EBTPC20	----	----	----	
		6-30 lb Spring	EASPC30	EBTPC30	EFXPC30	EEYPC30	EEZPC30	
		9-45 lb Spring	----	EBTPC45	----	----		
			* These parts are recommended spare parts and are stocked as repair kits.					
			‡ 5314 on Pressure Open only					

STANDARD STEM GUIDED / CAGE GUIDED ACTUATOR CONVERSION INSTRUCTIONS



PRESSURE CLOSING to PRESSURE OPENING:

Remove BLOCK SCREWS, TRAVEL INDICATOR and COUPLING BLOCK. Remove UPPER ADJUSTING SCREW, BOLTS, and BONNET. Lift out Diaphragm Assembly (Crosshatched). Remove SPRING, SPRING PLATES and PIVOT. Unscrew UPPER STEM and insert in opposite end of PIVOT SLEEVE.

Replace LOWER ADJUSTING SCREW and tighten against YOKE. O RING 491 - 1", 537 - 2", provides the necessary pressure seal. Invert Diaphragm Assembly and replace. Care should

be taken when threading the UPPER STEM through the LOWER ADJUSTING SCREW so as not to damage O RING, 153Q - 1", 530Q - 2". Replace SPRING with a SPRING PLATE in each end. UPPER ADJUSTING SCREW opening Thread UPPER ADJUSTING SCREW into BONNET until contact is made with the PIVOT, then tighten two turns. The UPPER ADJUSTING SCREW now becomes the SPRING adjustment. With BLOCK SCREWS through INDICATOR, replace COUPLING BLOCK matching match marks. Move BREATHER PLUG to BONNET (upper Diaphragm Housing). Connect Diaphragm Pressure from PILOT to YOKE (Lower Diaphragm Housing).

PRESSURE OPENING to PRESSURE CLOSING:

Remove BLOCK SCREWS, TRAVEL INDICATOR and COUPLING BLOCK. Remove UPPER ADJUSTING SCREW, BOLTS, and BONNET. Lift out Diaphragm Assembly (Crosshatched). Remove SPRING, SPRING PLATES and PIVOT. Rotate Diaphragm Assembly when pulling UPPER STEM through LOWER ADJUSTING SCREW so as not to damage O-Ring, 153Q - 1", and 530Q - 2".

Unscrew UPPER STEM and replace in opposite end of PIVOT SLEEVE.

Using COUPLING BLOCK, pull LOWER STEM up to open position. Thread LOWER ADJUSTING SCREW in YOKE until end is flush with inside surface of YOKE. Set PIVOT on top of LOWER ADJUSTING SCREW with the beveled surface up. Replace SPRING with a SPRING PLATE in each end.

Invert Diaphragm Assembly from its original position and replace. Be sure UPPER STEM and LOWER STEM meet. With BLOCK SCREWS through INDICATOR, replace COUPLING BLOCK matching match marks. Replace BONNET and BOLTS and INDICATOR is in "Open" position, then tighten one turn. Move BREATHER PLUG to YOKE (Lower Diaphragm Housing). Connect Diaphragm Pressure from PILOT to BONNET (Upper Diaphragm Housing).

APPLICATIONS:

Allows a wider spring adjustment range for discharge of liquid or gas from vessels, separators, treaters, knockouts and similar liquid accumulators.

Allows a finer control when used with back pressure and pressure reducing controllers.

Used as an operator on 1" HPCV, 2" HPCV or 1" SMS.

FEATURES:

Compact design

Valve travel indicator

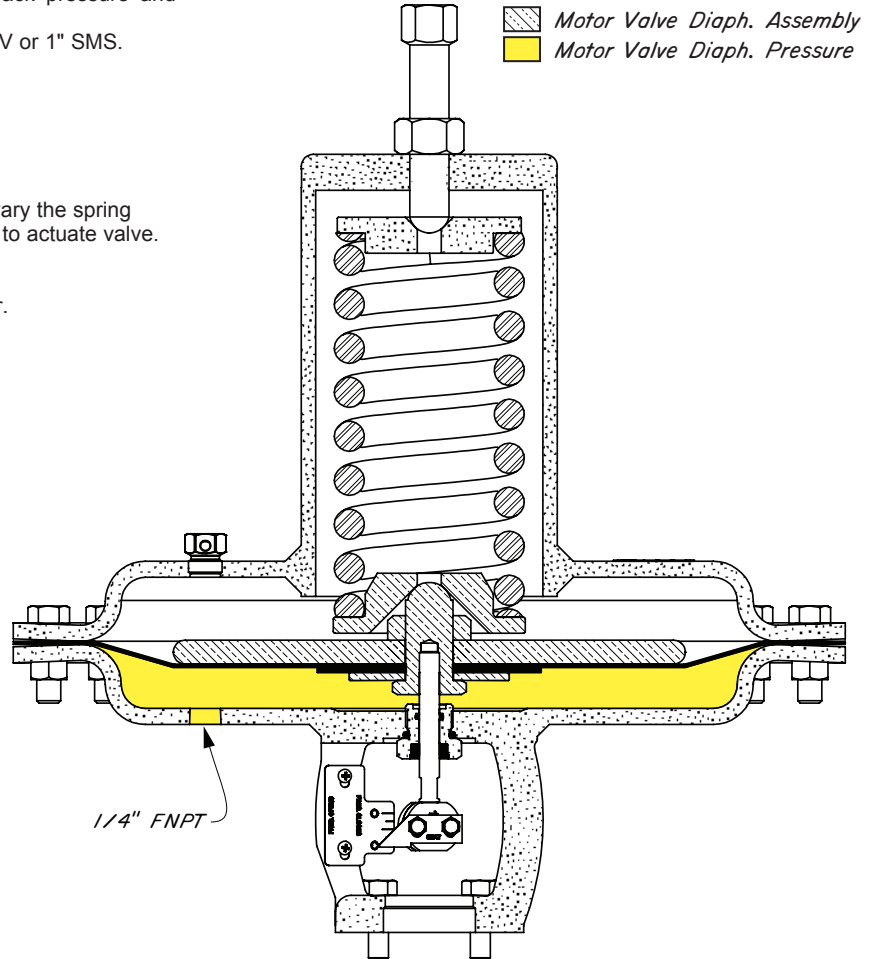
All steel

Adjustable topworks

Top Adjusting Screw may be adjusted to vary the spring tension slightly; this affects pressure required to actuate valve.

CERTIFICATIONS:

Kimray is an ISO 9001- certified manufacturer.



Order Code †	Body Size	Effective Diaphragm Area	Spring Diaphragm Pressure psig ††	Normal Actuator. W.P. psig ††	MAX. Actuator. W.P. psig ††	Stem Travel
EAU	1"	65 square inches	10 - 30	25	45	3/4" MAX
EBW	2"					

NOTES:

For standard & optional seals, metals, Cf Cv values, material specifications & dimensions see technical data on pages 01:I - 01:X1

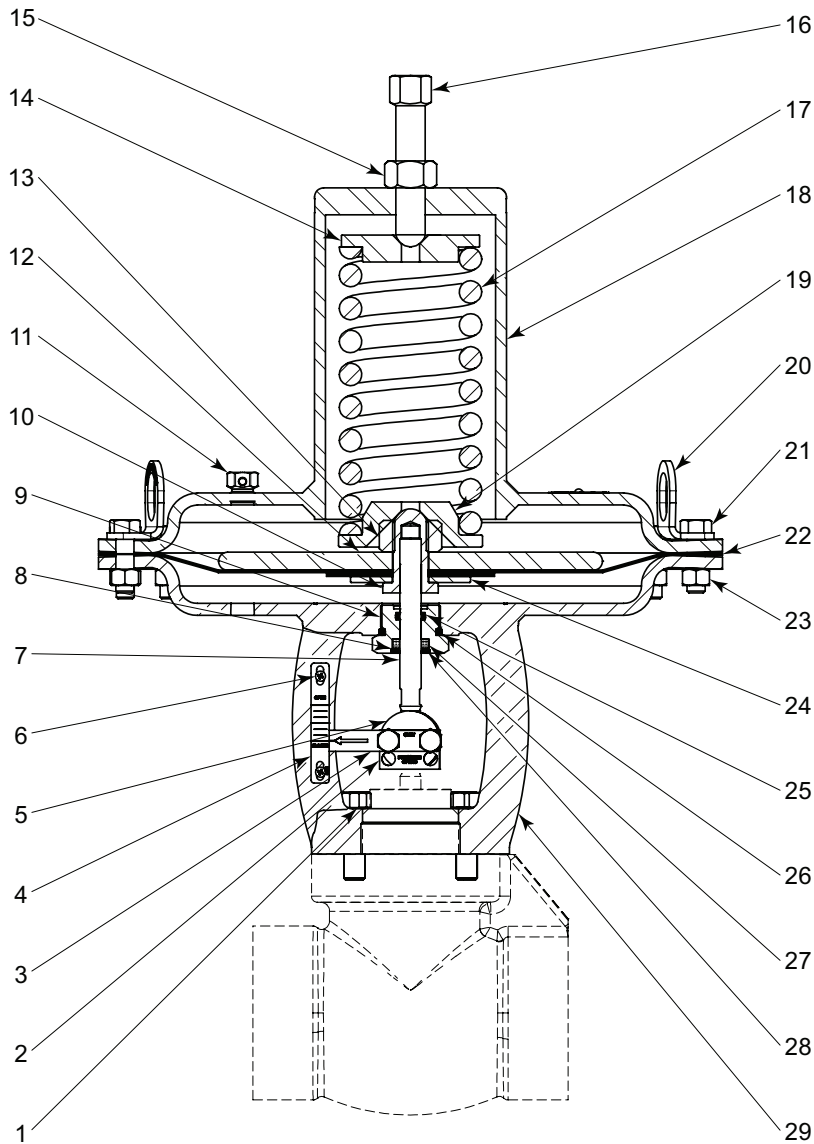
† Top Works only. For complete valve codes see page 01:300.4

†† Max W.P. values based on -20°F to 100°F.

HIGH PRESSURE CONTROL VALVES



-65 ACTUATORS MODEL CVS PARTS DRAWING



ITEM	QTY.	DESCRIPTION	STANDARD PART NO.	
			1 INCH	2 INCH
1	4	Bolt	845	524
2	1	Tag	----	677
3	1	Travel Indicator	1659A	535
4	1	Indicator Scale	488	536
5	1	Coupling Block	1659	511
6	2	Screw	7534	
7	1	Upper Stem	1643	522
8	1	Retainer	486	528
9	1	Lower Adjusting Screw	458	503
10	1	Pivot Screw	2237	1986
11	1	Breather Plug	147	
12	1	Diaphragm Plate	1890	
13	1	Lock Nut	175	
14	1	Upper Spring Guide	1888	
15	1	Nut	1897	

ITEM	QTY.	DESCRIPTION	STANDARD PART NO.	
			1 INCH	2 INCH
16	1	Adjusting Screw	1987	
17	1	Spring	1848	
18	1	Bonnet	1886	
19	1	Lower Spring Guide	1889	
20	2	Lifting Ring	----	7559
21	16	Bolt	247	
22	1	Diaphragm	1892	
23	16	Nut	241	
24	1	Lower Diaphragm Plate	1893	
25	1	O-Ring	*	153
26	1	O-Ring	*	491
27	(QTY)	Felt Wiper	*	480
28	1	Snap Ring	*	938
29	1	Yoke	1887	1989
Repair Kits			RHV	RHW

* These parts are recommended spare parts and are stocked as repair kits.

All Pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.

Equal Percentage Trim

The Equal Percentage Trim is designed with a ratio plug shaped to produce an equal percentage of increased flow when the Equal Percentage Trim is moved in equal increments of distance. With equal percentage trim, an equal increment of change in stem position will produce an equal percent of change in Cv. For every 10% increase in valve position, the flow coefficient changes 154%, see Figure 1.

Modified Percentage Trim

Modified percentage trim is designed to achieve maximum flow at full open and precise control at the lower end. This type of characteristic is particularly useful in suction controller applications, see Figure 2.

Reduced Trim

An optional reduced trim can be installed to reduce the flow area. The valve will maintain the line size connection, but keep the flow conditions inside the rangability of the valve. The reduced trim follows the equal percentage trim flow characteristics.

Kimray inherent flow characteristics conform to ANSI/ISA 75.11.01 -1985

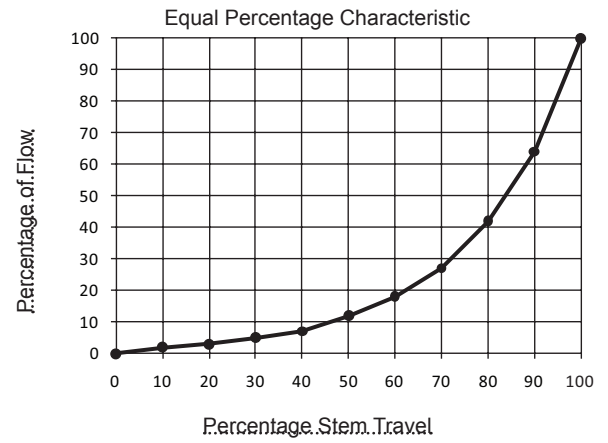


Figure 2

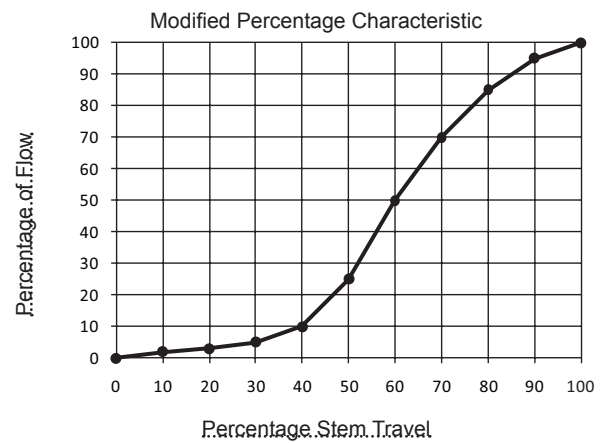


Figure 3

HIGH PRESSURE CONTROL VALVES



CAGE GUIDED INNER VALVES MODEL CVC

VALVE LINE SIZE	INNER VALVE SIZE	MATERIAL	ELASTOMERS	SEAT	RATIO PLUG	CATALOG CODE
2"	2"	D-2 STEEL	BUNA-N	6464	4720	EFB
		D-2 STEEL	AFLAS	6464	4720	EFBAF
		D-2 STEEL	VITON	6464	4720	EFBV
		S6	BUNA-N	6464SS6	4720SS6	EFBSS6
		S6	AFLAS	6464SS6	4720SS6	EFBS6AF
		S6	VITON	6464SS6	4720SS6	EFBS6V
		17-4PH	BUNA-N	6464PH	4720PH	EFBPH
		S6	HSN	6464SS6	4720SS6	EFBS6HSN
	2" QUICK OPENING	D-2 STEEL / S6	BUNA-N	6464	6672SS6	EFBQOV
		D-2 STEEL / ZIRCONIA	BUNA-N	6464	6641ZR	EFBQOZR
	1 1/2"	D-2 STEEL	BUNA-N	6464	4927	EFR
		S6	BUNA-N	6464SS6	4927SS6	EFRSS6
		S6	AFLAS	6464SS6	4927SS6	EFRS6AF
		S6	HSN	6464SS6	4927SS6	EFRS6HSN
		ZIRCONIA	BUNA-N	6464	4927	EFRZR
	3"	3"	D-2 STEEL	BUNA-N	6465	4985
S6			BUNA-N	6465SS6	4985SS6	EFCSS6
S6			VITON	6465SS6	4985SS6	EFC6V
17-4PH			BUNA-N	6465PH	4985PH	EFCPH
S6			AFLAS	6465SS6	4985SS6	EFC6AF
S6			HSN	6465SS6	4985SS6	EFC6HSN
ZIRCONIA			BUNA-N	6465	4985	EFCZR
3" QUICK OPENING		17-4PH / D2	BUNA-N	6465PH	7094	EFCQOPH
2"		D-2 STEEL	BUNA-N	6465	5123	EHZ
		D-2 STEEL	VITON	6465	5123	EHZV
		S6	BUNA-N	6465SS6	5123SS6	EHZS6
		S6	HSN	6465SS6	5123SS6	EHZS6HSN
		S6	VITON	6465SS6	5123SS6	EHZS6V
4"	4"	D-2 STEEL	BUNA-N	5583	5139	EFF
		D-2 STEEL	VITON	5583	5139	EFFV
		S6	BUNA-N	5583SS6	5139SS6	EFFSS6
		S6	VITON	5583SS6	5139SS6	EFFS6V
		S6	HSN	5583SS6	5139SS6	EFFS6HSN
	3"	ZIRCONIA	BUNA-N	5583	5139	EFFZR
		D-2 STEEL	BUNA-N	5583	5255	EVK
		D-2 STEEL	VITON	5583	5255	EVKV
		S6	BUNA-N	5583SS6	5255SS6	EVKS6
		S6	VITON	5583SS6	5255SS6	EVKS6V
6"	6"	D-2 STEEL	BUNA-N	5375SS6	5313	EFQ
		S6	BUNA-N	5375SS6	5313	EFQS6
		S6	AFLAS	5375SS6	5313SS6	EFQS6AF
	4"	S6 / D-2 STEEL	BUNA-N	5375SS6	6425	MGE
		S6 / D-2 STEEL	AFLAS	5375SS6	6425	MGEAF
		S6 / D-2 STEEL	HSN	5375SS6	6425	MGEHSN
		S6 / D-2 STEEL	VITON	5375SS6	6425	MGEV
		S6	BUNA-N	5375SS6	6425SS6	MGES6
S6	AFLAS	5375SS6	6425SS6	MGES6AF		
8" & 10"	8"	S6 / D-2 STEEL	BUNA-N	6570S6	6609	EIC
		S6	BUNA-N	6570S6	6609SS6	EICS6
		S6	HSN	6570S6	6609SS6	EICS6HSN
	6"	S6 / D-2 STEEL	BUNA-N	6570S6	6647	MGI
		S6	BUNA-N	6570S6	6647SS6	MGIS6
S6	HSN	6570S6	6647SS6	HGIS6HSN		

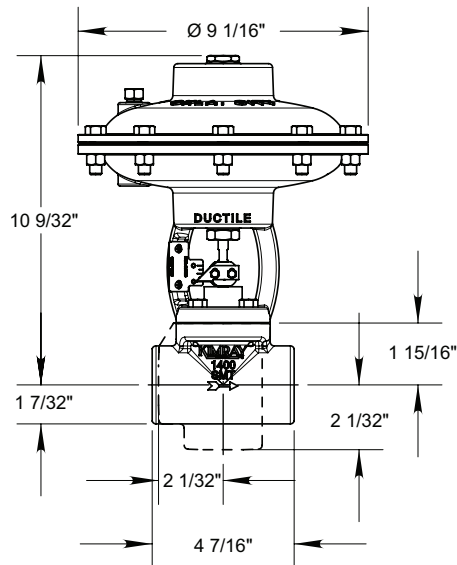
Table 1 - Flow Coefficient(Cv)														
Line Size	Trim Size in. (mm)	Trim Type	Cf	Valve Opening Percentage										
				10	20	30	40	50	60	70	80	90	100	
Stem Guided														
1"	1/8 in (3.17 mm)	Linear (Nominal)	0.58	0.10	0.40	0.50	0.70	0.90	1.00	1.00	1.00	1.10	1.10	
	3/16 in (4.74 mm)		0.59	0.20	0.50	0.77	1.00	1.30	1.40	1.50	1.50	1.50	1.50	
	1/4 in (6.35 mm)		0.78	0.28	0.72	1.11	1.50	1.80	1.95	2.08	2.13	2.15	2.17	
	3/8 in (9.52 mm)		0.91	0.40	1.10	1.60	2.20	2.70	2.90	3.10	3.20	3.20	3.20	
	1/2 in (12.7 mm)		0.94	0.70	1.90	2.90	4.00	4.80	5.20	5.50	5.60	5.70	5.70	
2"	1/4 in (6.35 mm)		0.55	0.40	1.00	1.50	2.00	2.50	2.70	2.80	2.90	2.90	3.00	
	3/8 in (9.52 mm)		0.77	0.53	1.33	2.06	2.80	3.40	3.60	3.90	4.00	4.00	4.00	
	1/2 in (12.7 mm)		0.78	0.94	2.38	3.67	4.97	5.98	6.48	6.91	7.06	7.13	7.20	
	3/4 in (19.0 mm)		0.80	1.60	4.00	6.20	8.40	10.10	11.00	12.00	12.00	12.00	12.00	
	1 in (25.4 mm)		0.77	2.80	7.00	11.00	15.00	18.00	19.00	20.00	21.00	21.00	21.00	
1"	1/8 in (3.17 mm)		Quick Opening (Carbide)	0.73	0.39	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
	3/16 in (4.74 mm)			0.74	0.77	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
	1/4 in (6.35 mm)			0.68	0.88	1.51	1.67	1.71	1.73	1.73	1.74	1.74	1.74	1.74
	3/8 in (9.52 mm)	0.74		1.02	2.40	3.36	3.64	3.73	3.78	3.82	3.83	3.83	3.86	
	1/2 in (12.7 mm)	0.90		1.09	2.46	4.17	5.03	5.27	5.45	5.60	5.72	5.85	5.93	
2"	1/4 in (6.35 mm)	0.65		1.23	1.82	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	
	3/8 in (9.52 mm)	0.76		1.65	3.41	3.77	3.83	3.84	3.84	3.84	3.84	3.84	3.84	
	1/2 in (12.7 mm)	0.80		2.26	4.35	5.87	6.36	6.51	6.58	6.61	6.63	6.63	6.63	
	3/4 in (19.0 mm)	0.78		2.16	4.61	7.23	9.19	10.2	10.6	10.9	10.9	10.9	10.9	
	1 in (25.4 mm)	0.70		2.54	5.58	9.30	12.3	14.2	15.1	15.5	15.6	15.6	15.8	
1"	1/8 in (3.17 mm)	Equal Percentage		0.73	0.01	0.02	0.03	0.04	0.06	0.09	0.15	0.26	0.32	0.34
	1/4 in (6.35 mm)			0.66	0.05	0.10	0.14	0.19	0.29	0.58	0.93	1.27	1.63	1.99
	1/2 in (12.7 mm)			0.78	0.16	0.32	0.47	0.60	0.93	1.74	2.99	4.41	5.65	6.49
2"	1/4 in (6.35 mm)		0.65	0.10	0.14	0.19	0.23	0.27	0.55	0.82	1.12	1.62	1.72	
	7/16 in (11.1 mm)		0.60	0.10	0.30	0.50	0.70	1.00	1.50	2.60	3.80	4.80	5.40	
	5/8 in (15.8 mm)		0.58	0.30	0.50	0.90	1.10	1.40	2.30	3.90	6.40	8.70	10.80	
	7/8 in (22.2 mm)		0.66	0.40	0.90	1.57	2.10	3.00	4.20	6.30	9.60	13.00	17.00	
Cage Guided														
2"	1 1/2 in (38mm)		Equal Percentage	0.75	0.60	1.30	2.20	3.40	5.00	8.60	14.0	21.0	26.0	28.6
	2 in (51 mm)	0.76		2.00	4.00	6.00	8.00	11.0	20.0	33.0	45.0	51.0	57.0	
3"	2 in (51 mm)	0.75		2.90	4.90	7.40	9.50	12.0	17.4	28.9	40.8	48.1	52.6	
	3 in (76 mm)	0.76		4.00	6.00	10.0	13.0	16.0	26.0	54.0	83.0	97.0	107	
4"	3 in (76 mm)	0.75		4.00	6.00	9.00	12.0	16.0	25.0	52.0	81.0	95.0	115	
	4 in (102 mm)	0.75		9.00	13.0	18.0	26.0	36.0	64.0	104	148	197	222	
6"	4 in (102 mm)	0.75		9.00	13.0	18.0	26.0	36.0	64.0	104	148	197	222	
	6 in (152 mm)	0.75		7.00	20.0	45.0	78.0	108	140	222	318	399	431	
8"	6 in (152 mm)	0.75		47.0	60.0	90.0	106	119	139	173	243	294	453	
	8 in (203 mm)	0.75		51.0	53.0	235	362	485	584	665	699	745	810	
10"	6 in (152 mm)	0.75		26.0	37.0	46.0	53.0	56.0	58.0	104	146	655	655	
	8.5 in (216 mm)	0.75		28.0	72.0	420	509	632	678	769	814	832	1091	
8"	8 in (203 mm)	Modified E.P.		0.75	51.0	55.0	64.0	134	162	330	452	527	571	630
10"	8.5 in (216 mm)		0.75	21.0	22.0	27.0	103	209	429	596	663	695	884	
2"	2 in (51 mm)	Quick Open	0.76	0.80	1.50	6.10	13.0	20.2	27.6	35.6	42.4	48.8	53.0	
3"	3 in (76 mm)		0.76	5.10	21.3	42.4	63.8	83.0	97.7	105	111	113	115	
4"	4 in (102 mm)		0.75	8.20	43.8	80.0	119	170	211	237	247	252	253	

HIGH PRESSURE CONTROL VALVES

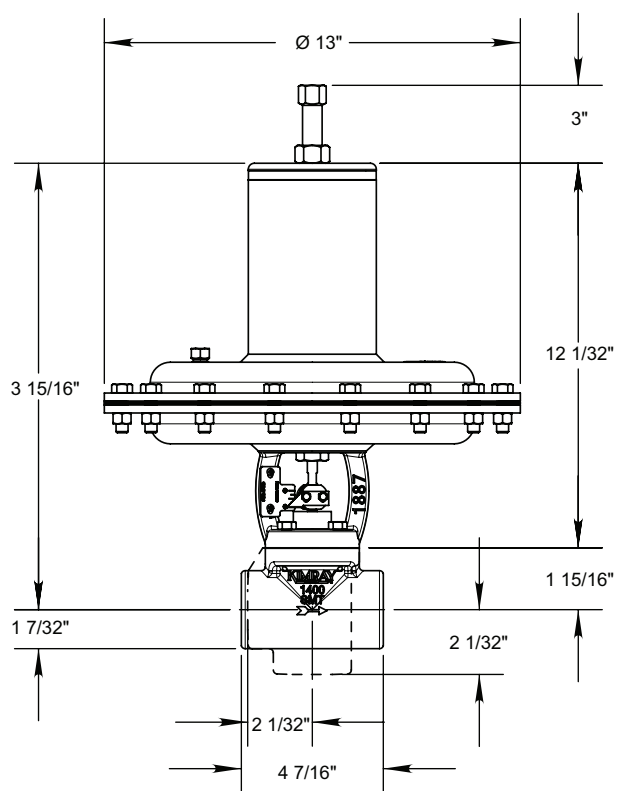


DIMENSIONS 1" MODEL CVS

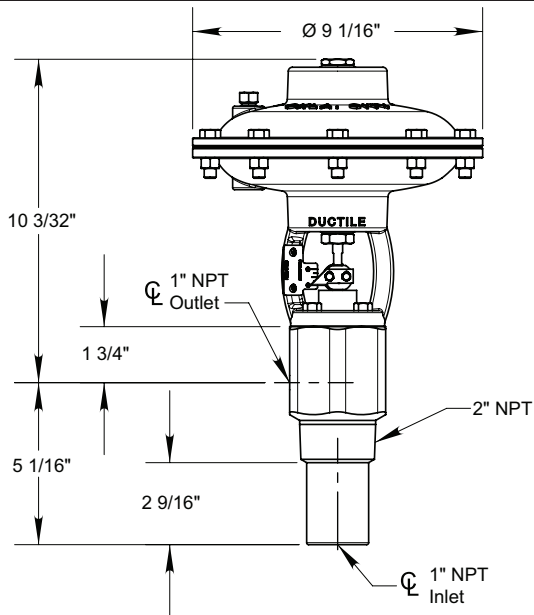
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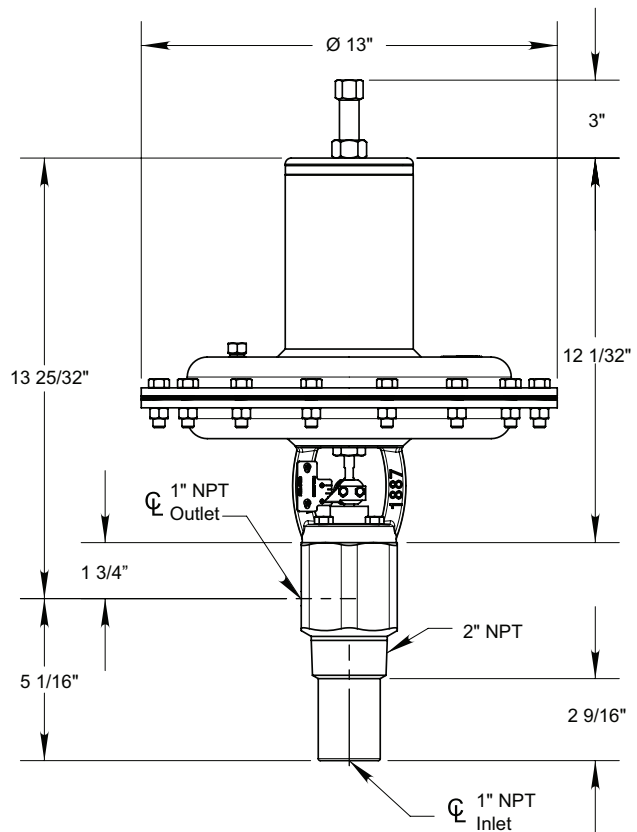
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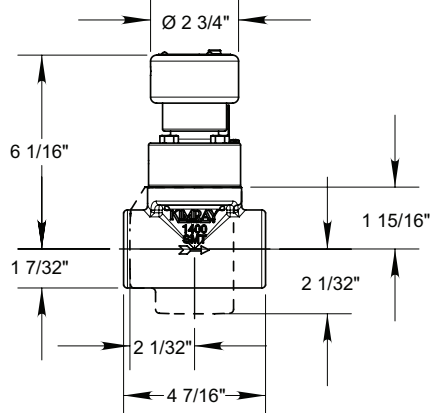
1" SMS



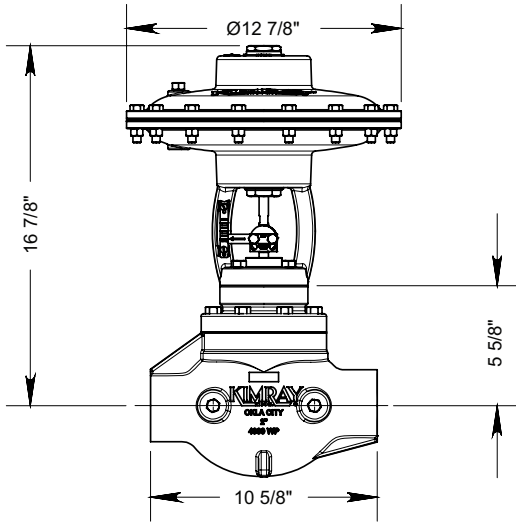
1" SMS -65 TOPWORKS



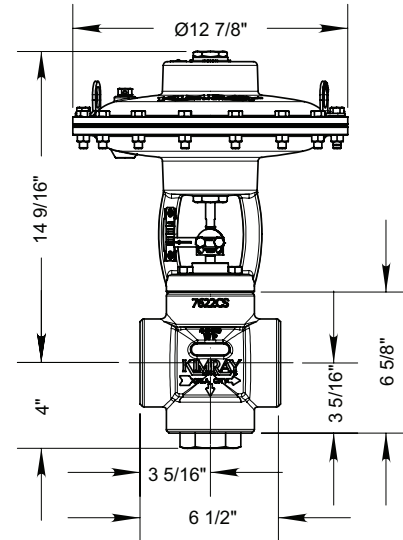
1" SMVA/T



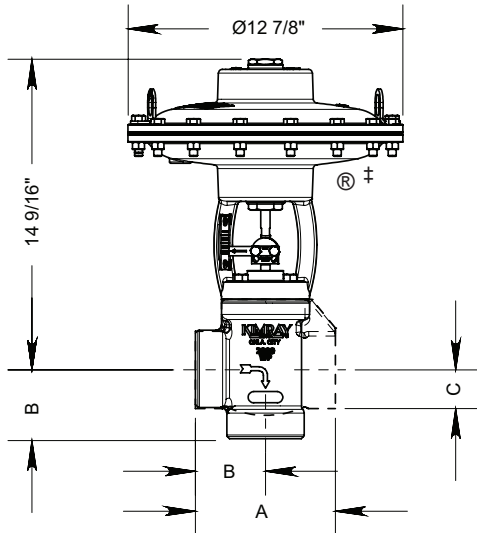
2" HPCV PB



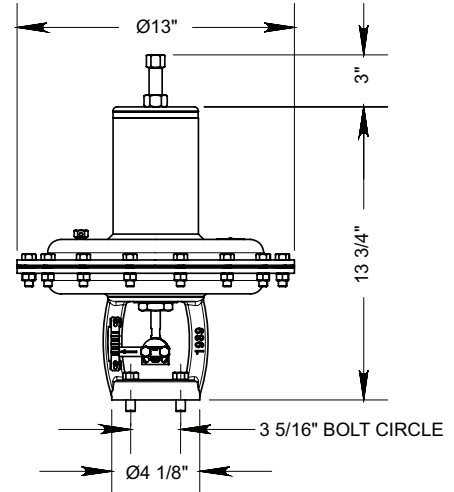
2" SMD



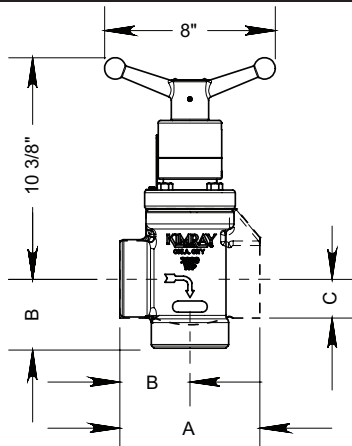
2" HPCV



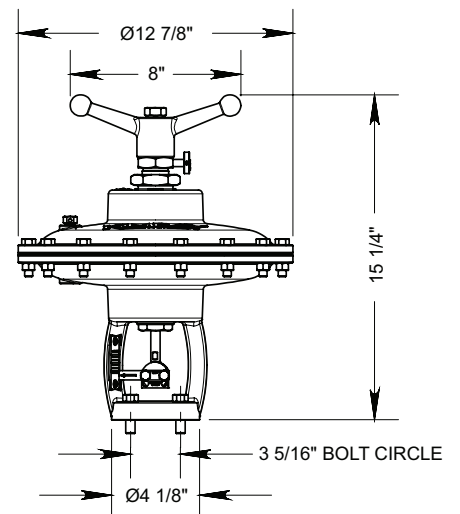
2" -65 TOPWORKS



2" SMVA/T TOPWORKS



2" MVP TOPWORKS



MODEL NO.	A	B	C
2200	6 9/16"	3 9/32"	1 13/16"
2400	6 9/16"	3 9/32"	2 1/16"

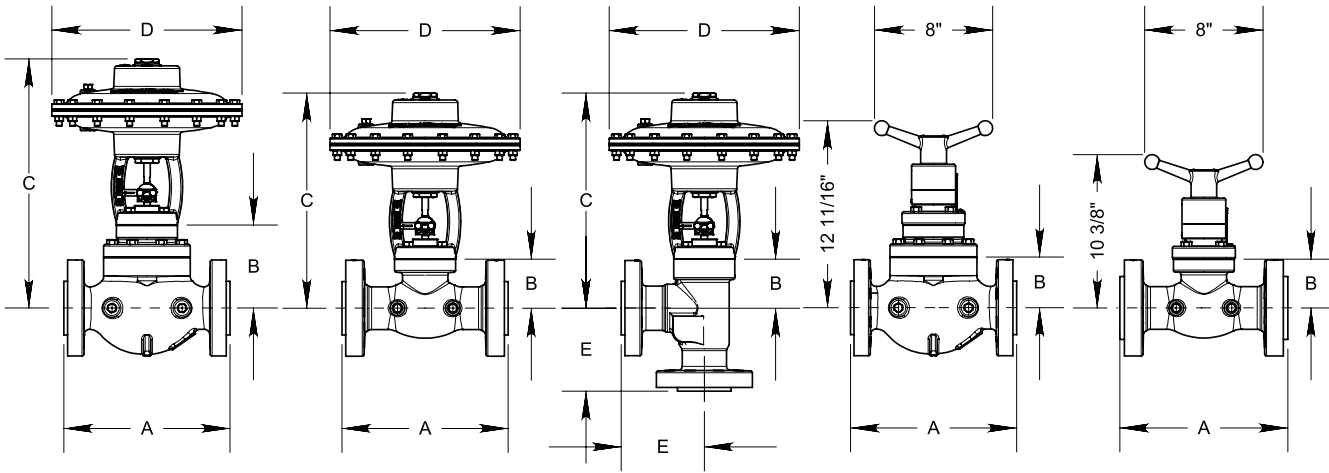
All dimensions are in inches
Flanged body dimensions available on request.

HIGH PRESSURE CONTROL VALVES



DIMENSIONS

FLANGED BODY MODEL CVS & CVC



	SIZE	BODY STYLE	A	B	C	D	E
STEM GUIDED	1"	150RF	7 1/4"	1 15/16"	10 1/2"	9 1/8"	
		150RTJ	7 5/8"	1 15/16"	10 1/2"	9 1/8"	
		300RF	7 3/4"	1 15/16"	10 1/2"	9 1/8"	
		300RTJ	8 1/8"	1 15/16"	10 1/2"	9 1/8"	
		600RF	8 1/4"	1 15/16"	10 1/2"	9 1/8"	
		600RTJ	8 1/4"	1 15/16"	10 1/2"	9 1/8"	
		1500RF	10 3/4"	1 15/16"	10 1/2"	9 1/8"	
	1500RTJ	10 3/4"	1 15/16"	10 1/2"	9 1/8"		
	2"	150RF	10"	3 3/16"	14 1/2"	12 7/8"	5"
		150RTJ	10 3/8"	3 3/16"	14 1/2"	12 7/8"	5"
		300RF	10 1/2"	3 3/16"	14 1/2"	12 7/8"	5 1/2"
		300RTJ	11"	3 3/16"	14 1/2"	12 7/8"	5 1/4"
		600RF	11 1/4"	3 3/16"	14 1/2"	12 7/8"	5 5/8"
		600RTJ	11 3/8"	3 3/16"	14 1/2"	12 7/8"	5 5/8"
		1500RF	13 3/8"	3 3/16"	14 1/2"	12 7/8"	7 13/32"
	1500RTJ	13 1/2"	3 3/16"	14 1/2"	12 7/8"	7 13/32"	
	2500RTJ	16 3/8"	3 3/16"	14 1/2"	12 7/8"		
2-1/16 API 5000	14 3/4"	4 1/4"	14 1/2"	12 7/8"	7 3/8"		
CAGE GUIDED	2"	150RF	10"	5 5/8"	17"	12 7/8"	
		300RF	10 1/2"	5 5/8"	17"	12 7/8"	
		600RF	11 1/4"	5 5/8"	17"	12 7/8"	
		1500RF	13 3/8"	5 5/8"	17"	12 7/8"	
		1500RTJ	13 1/2"	5 5/8"	17"	12 7/8"	
	3"	150RF	11 3/4"	7 1/4"	27"	15 3/4"	
		300RF	12 1/2"	7 1/4"	27"	15 3/4"	
		600RF	13 1/4"	7 1/4"	27"	15 3/4"	
		600RTJ	13 3/8"	7 1/4"	27"	15 3/4"	
	4"	150RF	13 7/8"	11"	30"	15 3/4"	
		300RF	14 1/2"	11"	30"	15 3/4"	
		600RF	15 1/2"	11"	30"	15 3/4"	
	6"	150RF	17 3/4"	11 3/16"	34 1/2"	20 7/16"	
		300RF	18 5/8"	11 3/16"	34 1/2"	20 7/16"	
		600RF	20 1/16"	11 3/16"	34 1/2"	20 7/16"	
	8"	150RF	21 3/8"	11 5/16"	34 1/2"	20 1/2"	
		300RF	22 3/8"	11 5/16"	34 1/2"	20 1/2"	
600RF		24"	11 5/16"	34 1/2"	20 1/2"		
10"	150RF	26 1/2"	11 5/16"	34 1/2"	20 1/2"		
	300RF	27 7/8"	11 5/16"	34 1/2"	20 1/2"		
	600RF	29 9/16"	11 5/16"	34 1/2"	20 1/2"		

All Pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.

Table 2 - Seal Options		
Part	Standard Material	Optional Material
Diaphragm	Nitrile	FKM
Packing Rings	Nitrile	FKM, Aflas, HSN, Graphite
Packing Sleeve	Teflon	
O-rings	Nitrile	FKM, Aflas, HSN
Seal Ring	Polyurethane	Aflas

Table 3 - Seal Specifications							
		NITRILE	HIGHLY SATURATED NITRILE	FKM	AFLAS®	TEFLON	GRAPHITE PACKING
	Kimray Suffix	-	HSN	V	AF	T	G
Resistance	Abrasion	G	G-E	G	G	E	PF
	Acid	F	G-E	G-E	E	E	G
	Chemical	F	F	E	E	E	E
	Cold	G	G	P	P	E	E
	Flame	P	P	E	E	P	E
	Heat	G	E	E	E	E	E
	Oil	G-E	E	E	E	E	E
	Ozone	P	G	G-E	E	E	F
	Set	G	G	G-E	P	P	G
	Tear	F	F	F	P	E	P
	Water/Steam	F	E	P	G	E	E
	Weather	F	G	E	E	E	E
	CO2	F-G	G	G	G	E	E
	H2S	P	F	P	E	E	E
Methanol	F	E	P	P	E	E	
Properties	Dynamic	G	G	G	G	P	E
	Electrical	F	F	F	G-E	E	Conductive
	Impermeability	G	G	G	G	E	G
	Tensile Strength	G	G-E	G	F	E	P
Temp. Range		-20° to +250°F	-20° to +300°F	-15° to +400°F	+15° to +450°F	-450° to +500°F	-328° to +850°F
		-29° to +121°C	-29° to +149°C	-26° to +204°C	-9° to +232°C	-268° to +260°C	-200° to +455°C
RATINGS: P-POOR, F-FAIR, G-GOOD, E-EXCELLENT							

Table 5 - Material Options Stem Guided			
Part Description	Standard Material	Erosive Material	Corrosive Material
Body	WCB (ASTM A216)		WCB (ASTM A216) ‡
Actuator	Ductile (ASTM A395)		
Stuffing Box	Carbon Steel (ASTM A105)		316SS (ASTM A479)
Cage	Alloy Steel (ASTM A108)		316SS (ASTM A479)
Stem	303SS (ASTM A582)		316SS (ASTM A479)
Plug*	Chrome Alloy	Tungsten Carbide	316SS (ASTM A479)
Seat	D-2 (ASTM A681)	Zirconia	316SS (ASTM A479)
Cover Bonnet (Metering Valve)	WCB (ASTM A216)		

*Material can vary by trim size. See Page 01:200.2

‡ Coated Parts available with "K" service type

Table 6 - Material Options Cage Guided			
Part Description	Standard Material	Erosive Material	Corrosive Material
Body	WCB (ASTM A216)		WCB (ASTM A216) ‡
Actuator	Ductile (ASTM A395)		
Stuffing Box	2" - 4"	Carbon Steel (ASTM A105)	316SS (ASTM A479)
	6" - 10"	316SS (ASTM A479)	
Cover Bonnet (Upper Housing)	WCB (ASTM A216)		WCB (ASTM A216) ‡
Cage	2 & 3 inch 316SS (ASTM A479)	4-10 inch 316SS (ASTM A351 CF8M)	
Stem	316SS (ASTM A479)	303SS (ASTM A582)	316SS (ASTM A479)
Piston	316SS (ASTM A479)	D-2 (ASTM A597)	316SS (ASTM A479)
Seat Disc	D2 (ASTM A681)	Zirconia	316SS (ASTM A479)
Ratio Plug	D-2 (ASTM A597)		316SS (ASTM A351 CF8M)
Seat	D-2 (ASTM A681)		316SS (ASTM A479)
Bonnet (Metering Valve)	WCB (ASTM A216)		

‡ Coated Parts available with "K" service type

Table 6 - 1" Stem Guided HPCV

Valve Description	ΔP	0 psig (0 bar)		100 psig (6.8 bar)		500 psig (34.4 bar)		1000 psig (68.9 bar)		1500 psig (103.4 bar)	
	Spring	Crack	Full	Crack	Full	Crack	Full	Crack	Full	Crack	Full
1400 SMT PO 1/8" IV	621 (10 lbs)	3 psig (0.21 bar)	9.5 psig (0.66 bar)	3 psig (0.21 bar)	9 psig (0.62 bar)	3 psig (0.21 bar)	8.5 psig (0.59 bar)	2 psig (0.13 bar)	7 psig (0.48 bar)	2 psig (0.13 bar)	6 psig (0.41 bar)
	463 (20 lbs)	6.5 psig (0.44 bar)	20.5 psig (1.41 bar)	6 psig (0.41 bar)	20 psig (1.37 bar)	6 psig (0.41 bar)	19.5 psig (1.34 bar)	5.5 psig (0.37 bar)	18 psig (1.24 bar)	5.5 psig (0.37 bar)	17.5 psig (1.20 bar)
	464 (30 lbs)	9.5 psig (0.65 bar)	34 psig (2.34 bar)	9.5 psig (0.65 bar)	34 psig (2.34 bar)	9 psig (0.62 bar)	33 psig (2.27 bar)	9 psig (0.62 bar)	32 psig (2.20 bar)	8.5 psig (0.58 bar)	31 psig (2.13 bar)
1400 SMT PO 1/8" IV EP	621 (10 lbs)	3.5 psig (0.23 bar)	10 psig (0.68 bar)	3.5 psig (0.23 bar)	10 psig (0.68 bar)	3 psig (0.21 bar)	8.5 psig (0.58 bar)	2.5 psig (0.17 bar)	7.5 psig (0.51 bar)	2 psig (0.13 bar)	6 psig (0.41 bar)
	463 (20 lbs)	7 psig (0.48 bar)	21.5 psig (1.48 bar)	7 psig (0.48 bar)	21 psig (0.44 bar)	6.5 psig (0.44 bar)	19.5 psig (1.34 bar)	6 psig (0.41 bar)	18.5 psig (1.27 bar)	6 psig (0.41 bar)	17.5 psig (1.20 bar)
	464 (30 lbs)	12.5 psig (0.86 bar)	38 psig (2.61 bar)	12.5 psig (0.86 bar)	38 psig (2.61 bar)	11 psig (0.75 bar)	35.5 psig (2.44 bar)	10.5 psig (0.72 bar)	34.5 psig (2.37 bar)	10 psig (0.68 bar)	33 psig (2.27 bar)
1400 SMT PO 3/16" IV	621 (10 lbs)	3.5 psig (0.23 bar)	10.5 psig (0.72 bar)	3.5 psig (0.23 bar)	10 psig (0.68 bar)	3.5 psig (0.23 bar)	9 psig (0.62 bar)	3.5 psig (0.23 bar)	7.5 psig (0.51 bar)	3 psig (0.21 bar)	6.5 psig (0.44 bar)
	463 (20 lbs)	6.5 psig (0.44 bar)	21.5 psig (1.48 bar)	6.5 psig (0.44 bar)	21 psig (1.44 bar)	7.5 psig (0.51 bar)	21 psig (1.44 bar)	7 psig (0.48 bar)	19.5 psig (1.34 bar)	7 psig (0.48 bar)	18.5 psig (1.27 bar)
	464 (30 lbs)	11 psig (0.75 bar)	36 psig (2.48 bar)	10.5 psig (0.72 bar)	36 psig (2.48 bar)	11 psig (0.75 bar)	35 psig (2.41 bar)	11 psig (0.75 bar)	34 psig (2.34 bar)	10.5 psig (0.72 bar)	32.5 psig (2.23 bar)
1400 SMT PO 1/4" IV	621 (10 lbs)	3 psig (0.21 bar)	9.5 psig (0.65 bar)	3 psig (0.21 bar)	9 psig (0.62 bar)	3 psig (0.21 bar)	8.5 psig (0.58 bar)	2.5 psig (0.17 bar)	7.5 psig (0.51 bar)	2.5 psig (0.17 bar)	6.5 psig (0.44 bar)
	463 (20 lbs)	6 psig (0.41 bar)	20.5 psig (1.41 bar)	6 psig (0.41 bar)	20 psig (1.37 bar)	6 psig (0.41 bar)	19.5 psig (1.34 bar)	5.5 psig (0.37 bar)	18 psig (1.24 bar)	5.5 psig (0.37 bar)	17 psig (1.20 bar)
	464 (30 lbs)	10 psig (0.68 bar)	35 psig (2.41 bar)	10 psig (0.68 bar)	35 psig (2.42 bar)	10 psig (0.68 bar)	34 psig (2.34 bar)	9.5 psig (0.65 bar)	33 psig (2.27 bar)	9 psig (0.62 bar)	32 psig (2.20 bar)
1400 SMT PO 1/4" IV EP	621 (10 lbs)	3 psig (0.20 bar)	10 psig (0.68 bar)	3 psig (0.20 bar)	9.5 psig (0.65 bar)	2.5 psig (0.17 bar)	8 psig (0.55 bar)	2.5 psig (0.17 bar)	7 psig (0.48 bar)	2 psig (0.13 bar)	6 psig (0.41 bar)
	463 (20 lbs)	6.5 psig (0.44 bar)	21.5 psig (1.48 bar)	6.5 psig (0.44 bar)	20 psig (1.37 bar)	6 psig (0.41 bar)	20 psig (1.37 bar)	6 psig (0.41 bar)	18.5 psig (1.27 bar)	6 psig (0.41 bar)	17.5 psig (1.20 bar)
	464 (30 lbs)	12 psig (0.83 bar)	40 psig (2.75 bar)	11.5 psig (0.79 bar)	39 psig (2.68 bar)	9.5 psig (0.66 bar)	35 psig (2.42 bar)	9 psig (0.62 bar)	33 psig (2.27 bar)	9 psig (0.62 bar)	32 psig (2.20 bar)
1400 SMT PO 3/8" IV SNAP	621 (10 lbs)	4.5 psig (0.31 bar)	10.5 psig (0.72 bar)	4.5 psig (0.31 bar)	10.5 psig (0.72 bar)	5.5 psig (0.38 bar)	9.5 psig (0.66 bar)	6.5 psig (0.44 bar)	8 psig (0.55 bar)	7.5 psig (0.51 bar)	7 psig (0.48 bar)
	463 (20 lbs)	7 psig (0.48 bar)	21.5 psig (1.48 bar)	7 psig (0.48 bar)	21 psig (1.44 bar)	9.5 psig (0.65 bar)	21 psig (0.44 bar)	10.5 psig (0.72 bar)	20 psig (1.37 bar)	11 psig (0.75 bar)	19 psig (1.31 bar)
	464 (30 lbs)	11 psig (0.75 bar)	35 psig (2.41 bar)	11 psig (0.75 bar)	35 psig (2.41 bar)	13 psig (0.89 bar)	35 psig (2.42 bar)	14 psig (0.97 bar)	33 psig (2.27 bar)	15.5 psig (1.06 bar)	32 psig (2.20 bar)
1400 SMT PO 3/8" IV	621 (10 lbs)	3 psig (0.20 bar)	9 psig (0.62 bar)	3 psig (0.20 bar)	9 psig (0.62 bar)	5 psig (0.34 bar)	9 psig (0.62 bar)	6.5 psig (0.44 bar)	7.5 psig (0.51 bar)	7.5 psig (0.51 bar)	6.5 psig (0.44 bar)
	463 (20 lbs)	6 psig (0.41 bar)	20.5 psig (1.41 bar)	6 psig (0.41 bar)	20 psig (1.37 bar)	8.5 psig (0.58 bar)	21 psig (0.44 bar)	9.5 psig (0.65 bar)	20 psig (1.37 bar)	10.5 psig (0.72 bar)	18.5 psig (1.27 bar)
	464 (30 lbs)	9.5 psig (0.66 bar)	34 psig (2.34 bar)	9.5 psig (0.66 bar)	34 psig (2.34 bar)	11.5 psig (0.79 bar)	33 psig (2.27 bar)	12.5 psig (0.85 bar)	32 psig (2.20 bar)	13.5 psig (0.93 bar)	31 psig (2.14 bar)
1400 SMT PO 1/2" IV	621 (10 lbs)	3 psig (0.20 bar)	10.5 psig (0.72 bar)	3 psig (0.20 bar)	10 psig (0.68 bar)	5.5 psig (0.38 bar)	8.5 psig (0.58 bar)	7 psig (0.48 bar)	7.5 psig (0.51 bar)	9 psig (0.62 bar)	6.5 psig (0.44 bar)
	463 (20 lbs)	6.5 psig (0.44 bar)	21 psig (0.44 bar)	6 psig (0.41 bar)	20.5 psig (1.41 bar)	8.5 psig (0.58 bar)	19.5 psig (1.34 bar)	10 psig (0.68 bar)	18.5 psig (1.27 bar)	12 psig (0.83 bar)	17.5 psig (1.20 bar)
	464 (30 lbs)	11.5 psig (0.79 bar)	37 psig (2.54 bar)	11 psig (0.75 bar)	36 psig (2.48 bar)	13.5 psig (0.93 bar)	35 psig (2.41 bar)	15 psig (1.03 bar)	34 psig (2.34 bar)	17 psig (1.20 bar)	33 psig (2.27 bar)
1400 SMT PO 1/2" IV EP	621 (10 lbs)	3.5 psig (0.24 bar)	10 psig (0.68 bar)	3.5 psig (0.24 bar)	9.5 psig (0.66 bar)	7 psig (0.48 bar)	10 psig (0.68 bar)	7.5 psig (0.52 bar)	7.5 psig (0.51 bar)	9.5 psig (0.65 bar)	6 psig (0.41 bar)
	463 (20 lbs)	7 psig (0.48 bar)	21.5 psig (1.48 bar)	7.5 psig (0.51 bar)	21.5 psig (1.48 bar)	10.5 psig (0.72 bar)	21 psig (0.44 bar)	12.5 psig (0.86 bar)	20.5 psig (1.41 bar)	14 psig (0.97 bar)	19 psig (1.31 bar)
	464 (30 lbs)	11 psig (0.75 bar)	37 psig (2.54 bar)	11 psig (0.75 bar)	37 psig (2.54 bar)	14 psig (0.97 bar)	35 psig (2.41 bar)	16 psig (1.10 bar)	34 psig (2.34 bar)	18 psig (1.24 bar)	33 psig (2.27 bar)

Table 7 - 2" Stem Guided HPCV

Valve Description	ΔP	0 psig (0 bar)		100 psig (6.8 bar)		500 psig (34.4 bar)		1000 psig (68.9 bar)		1500 psig (103.4 bar)	
	Spring	Crack	Full	Crack	Full	Crack	Full	Crack	Full	Crack	Full
2400 SMT PO 1/4" EP IV	1245 (15 lbs)	3.5 psig (0.24 bar)	15.5 psig (1.06 bar)	3 psig (0.20 bar)	15 psig (1.03 bar)	2.5 psig (0.17 bar)	15 psig (1.03 bar)	2 psig (0.13 bar)	14.5 psig (1.00 bar)	1.5 psig (0.10 bar)	13 psig (0.89 bar)
	538 (20 lbs)	3.5 psig (0.24 bar)	18 psig (1.24 bar)	3.5 psig (0.24 bar)	17.5 psig (1.20 bar)	3.5 psig (0.24 bar)	17.5 psig (1.20 bar)	2.5 psig (0.17 bar)	16.5 psig (1.13 bar)	1.5 psig (0.10 bar)	15 psig (1.03 bar)
	508 (30 lbs)	7.5 psig (0.52 bar)	32 psig (2.20 bar)	7 psig (0.48 bar)	32 psig (2.20 bar)	6.5 psig (0.44 bar)	31 psig (2.14 bar)	6 psig (0.41 bar)	30 psig (2.07 bar)	5.5 psig (0.38 br)	29 psig (2.00 bar)
2400 SMT PO 1/4" IV	1245 (15 lbs)	3.5 psig (0.24 bar)	16 psig (1.10 bar)	3.5 psig (0.24 bar)	16 psig (1.10 bar)	3 psig (0.20 bar)	14.5 psig (1.00 bar)	3 psig (0.20 bar)	13 psig (0.89 bar)	3 psig (0.20 bar)	12.5 psig (0.85 bar)
	538 (20 lbs)	4 psig (0.27 bar)	18.5 psig (1.27 bar)	3.5 psig (0.24 bar)	18.5 psig (1.27 bar)	3.5 psig (0.24 bar)	18 psig (1.24 bar)	3 psig (0.20 bar)	17.5 psig (1.20 bar)	3 psig (0.20 bar)	16.5 psig (1.13 bar)
	508 (30 lbs)	6.5 psig (0.44 bar)	32 psig (2.20 bar)	6.5 psig (0.44 bar)	33 psig (2.27 bar)	7 psig (0.48 bar)	31 psig (2.14 bar)	6.5 psig (0.44 bar)	30 psig (2.07 bar)	6.5 psig (0.44 bar)	29 psig (2.00 bar)
2400 SMT PO 1/4" IV SNAP	1245 (15 lbs)	3.5 psig (0.23 bar)	15.5 psig (1.06 bar)	4 psig (0.27 bar)	15.5 psig (1.06 bar)	3 psig (0.20 bar)	15 psig (1.03 bar)	2.5 psig (0.17 bar)	14.5 psig (1.00 bar)	2 psig (0.13 bar)	14 psig (0.97 bar)
	538 (20 lbs)	4 psig (0.27 bar)	18 psig (1.24 bar)	4 psig (0.27 bar)	18 psig (1.24 bar)	3 psig (0.20 bar)	17 psig (1.22 bar)	2.5 psig (0.17 bar)	17 psig (1.22 bar)	2 psig (0.13 bar)	16.5 psig (1.13 bar)
	508 (30 lbs)	6.5 psig (0.44 bar)	32 psig (2.20 bar)	7 psig (0.48 bar)	32 psig (2.20 bar)	6 psig (0.41 bar)	31 psig (2.14 bar)	5 psig (0.34 bar)	30 psig (2.07 bar)	4 psig (0.27 bar)	29 psig (2.00 bar)
2400 SMT PO 3/8" IV	1245 (15 lbs)	4 psig (0.27 bar)	16.5 psig (1.13 bar)	4 psig (0.27 bar)	16 psig (1.10 bar)	3.5 psig (0.23 bar)	16 psig (1.10 bar)	3.5 psig (0.23 bar)	15.5 psig (1.06 bar)	3.5 psig (0.23 bar)	15 psig (1.03 bar)
	538 (20 lbs)	4.5 psig (0.31 bar)	18 psig (1.24 bar)	4 psig (0.27 bar)	18 psig (1.24 bar)	4 psig (0.27 bar)	17 psig (1.22 bar)	4 psig (0.27 bar)	16.5 psig (1.13 bar)	4 psig (0.27 bar)	16.5 psig (1.13 bar)
	508 (30 lbs)	8 psig (0.55 bar)	32 psig (2.20 bar)	8 psig (0.55 bar)	32 psig (2.20 bar)	7.5 psig (0.51 bar)	32 psig (2.20 bar)	7.5 psig (0.51 bar)	31 psig (2.13 bar)	7.5 psig (0.51 bar)	30 psig (2.07 bar)
2400 SMT PO 3/8" IV SNAP	1245 (15 lbs)	4 psig (0.27 bar)	14.5 psig (1.00 bar)	3.5 psig (0.23 bar)	14.5 psig (1.00 bar)	4.5 psig (0.31 bar)	14 psig (0.97 bar)	4.5 psig (0.31 bar)	14 psig (0.97 bar)	4.5 psig (0.31 bar)	13.5 psig (0.93 bar)
	538 (20 lbs)	4 psig (0.27 bar)	17.5 psig (1.20 bar)	4 psig (0.27 bar)	17 psig (1.22 bar)	5 psig (0.34 bar)	17 psig (1.22 bar)	5 psig (0.34 bar)	16.5 psig (1.13 bar)	5 psig (0.34 bar)	16 psig (1.10 bar)
	508 (30 lbs)	7.5 psig (0.51 bar)	32 psig (2.20 bar)	7 psig (0.48 bar)	32 psig (2.20 bar)	8 psig (0.55 bar)	31 psig (2.13 bar)	8.5 psig (0.58 bar)	30 psig (2.07 bar)	8.5 psig (0.58 bar)	29 psig (2.00 bar)
2400 SMT PO 7/16" EP IV	1245 (15 lbs)	4 psig (0.27 bar)	15.5 psig (1.06 bar)	4 psig (0.27 bar)	15.5 psig (1.06 bar)	3.5 psig (0.23 bar)	15 psig (1.03 bar)	3.5 psig (0.23 bar)	14.5 psig (1.00 bar)	3.5 psig (0.23 bar)	14 psig (0.97 bar)
	538 (20 lbs)	4.5 psig (0.31 bar)	18.5 psig (1.31 bar)	4.5 psig (0.31 bar)	18.5 psig (1.27 bar)	4.5 psig (0.31 bar)	17.5 psig (1.20 bar)	4 psig (0.27 bar)	16 psig (1.10 bar)	4 psig (0.27 bar)	15 psig (1.03 bar)
	508 (30 lbs)	8 psig (0.55 bar)	32 psig (2.20 bar)	8 psig (0.55 bar)	31 psig (2.13 bar)	7.5 psig (0.51 bar)	30 psig (2.07 bar)	7.5 psig (0.51 bar)	29 psig (2.00 bar)	7.5 psig (0.51 bar)	28 psig (1.93 bar)
2400 SMT PO 1/2" IV	1245 (15 lbs)	4 psig (0.27 bar)	15 psig (1.03 bar)	4 psig (0.27 bar)	15 psig (1.03 bar)	4.5 psig (0.31 bar)	14.5 psig (1.00 bar)	5 psig (0.34 bar)	13.5 psig (0.93 bar)	5 psig (0.34 bar)	12 psig (0.83 bar)
	538 (20 lbs)	4 psig (0.27 bar)	17 psig (1.22 bar)	3.5 psig (0.23 bar)	16.5 psig (1.13 bar)	4.5 psig (0.31 bar)	16.5 psig (1.13 bar)	4.5 psig (0.31 bar)	15.5 psig (1.06 bar)	5 psig (0.34 bar)	14 psig (0.97 bar)
	508 (30 lbs)	7 psig (0.48 bar)	30 psig (2.07 bar)	7 psig (0.48 bar)	30 psig (2.07 bar)	8 psig (0.58 bar)	30 psig (2.07 bar)	8 psig (0.55 bar)	28 psig (1.93 bar)	8.5 psig (0.58 bar)	27 psig (1.86 bar)
2400 SMT 1/2" IV SNAP	1245 (15 lbs)	3 psig (0.20 bar)	16 psig (1.10 bar)	3 psig (0.20 bar)	15 psig (1.03 bar)	4.5 psig (0.31 bar)	14.5 psig (1.00 bar)	5 psig (0.34 bar)	14 psig (0.97 bar)	5 psig (0.34 bar)	13.5 psig (0.93 bar)
	538 (20 lbs)	3.5 psig (0.23 bar)	17 psig (1.22 bar)	3 psig (0.20 bar)	16.5 psig (1.13 bar)	4.5 psig (0.31 bar)	16 psig (1.10 bar)	5 psig (0.34 bar)	15 psig (1.03 bar)	5 psig (0.34 bar)	14.5 psig (1.00 bar)
	508 (30 lbs)	7 psig (0.48 bar)	32 psig (2.20 bar)	7.5 psig (0.51 bar)	32 psig (2.20 bar)	7.5 psig (0.51 bar)	31 psig (2.14 bar)	7.5 psig (0.51 bar)	30 psig (2.07 bar)	8 psig (0.55 bar)	29 psig (2.00 bar)
2400 SMT PO 5/8" EP IV	1245 (15 lbs)	4 psig (0.27 bar)	16 psig (1.10 bar)	4 psig (0.27 bar)	16 psig (1.10 bar)	6 psig (0.41 bar)	16.5 psig (1.13 bar)	7.5 psig (0.51 bar)	16 psig (1.10 bar)	8.5 psig (0.58 bar)	15.5 psig (1.06 bar)
	538 (20 lbs)	4 psig (0.27 bar)	19 psig (1.31 bar)	4 psig (0.27 bar)	19 psig (1.31 bar)	6.5 psig (0.44 bar)	18.5 psig (1.27 bar)	7.5 psig (0.51 bar)	17.5 psig (1.20 bar)	9 psig (0.62 bar)	17 psig (1.22 bar)
	508 (30 lbs)	8 psig (0.55 bar)	32 psig (2.20 bar)	8.5 psig (0.58 bar)	32 psig (2.20 bar)	10 psig (0.68 bar)	31 psig (2.14 bar)	11.5 psig (0.79 bar)	30 psig (2.06 bar)	12.5 psig (1.48 bar)	29 psig (2.00 bar)

2400 SMT PO 3/4" IV	1245 (15 lbs)	5 psig (0.34 bar)	17 psig (1.72 bar)	5 psig (0.34 bar)	17 psig (1.72 bar)	7.5 psig (0.51 bar)	14.5 psig (1.00 bar)	8.5 psig (0.58 bar)	13 psig (0.89 bar)	10 psig (0.68 bar)	12 psig (0.83 bar)
	538 (20 lbs)	5.5 psig (0.37 bar)	19 psig (1.31 bar)	5.5 psig (0.37 bar)	19 psig (1.31 bar)	7 psig (0.48 bar)	17 psig (1.72 bar)	9 psig (0.62 bar)	16 psig (1.10 bar)	11 psig (0.75 bar)	14 psig (0.97 bar)
	508 (30 lbs)	9 psig (0.62 bar)	34 psig (2.34 bar)	9 psig (0.62 bar)	34 psig (2.34 bar)	11 psig (0.75 bar)	33 psig (2.27 bar)	13 psig (0.89 bar)	32 psig (2.20 bar)	15 psig (1.03 bar)	30 psig (2.07 bar)
2400 SMT PO 3/4" IV SNAP	1245 (15 lbs)	4 psig (0.27 bar)	15 psig (1.03 bar)	4 psig (0.27 bar)	15 psig (1.03 bar)	6.5 psig (0.44 bar)	14.5 psig (0.96 bar)	8 psig (0.55 bar)	13.5 psig (0.93 bar)	9 psig (0.62 bar)	12 psig (0.83 bar)
	538 (20 lbs)	5 psig (0.34 bar)	18.5 psig (1.27 bar)	5 psig (0.34 bar)	18.5 psig (1.27 bar)	6.5 psig (0.44 bar)	16.5 psig (1.13 bar)	8 psig (0.55 bar)	15.5 psig (1.06 bar)	9.5 psig (0.66 bar)	14 psig (0.97 bar)
	508 (30 lbs)	9 psig (0.62 bar)	32 psig (2.20 bar)	9 psig (0.62 bar)	32 psig (2.20 bar)	10 psig (0.68 bar)	31 psig (2.14 bar)	11 psig (0.75 bar)	30 psig (2.07 bar)	12.5 psig (0.86 bar)	29 psig (2.00 bar)
2400 SMT PO 7/8" EP IV	1245 (15 lbs)	3.5 psig (0.23 bar)	15 psig (1.03 bar)	4 psig (0.27 bar)	15 psig (1.03 bar)	7 psig (0.48 bar)	14.5 psig (1.00 bar)	11 psig (0.75 bar)	14 psig (0.97 bar)	13.5 psig (0.93 bar)	13.5 psig (0.93 bar)
	538 (20 lbs)	3.5 psig (0.23 bar)	17.5 psig (1.20 bar)	4 psig (0.27 bar)	17.5 psig (1.20 bar)	7.5 psig (0.51 bar)	17 psig (1.72 bar)	10.5 psig (0.72 bar)	16.5 psig (1.13 bar)	13.5 psig (0.93 bar)	16 psig (1.10 bar)
	508 (30 lbs)	7 psig (0.48 bar)	30 psig (2.07 bar)	7.5 psig (0.51 bar)	30 psig (2.07 bar)	10.5 psig (0.72 bar)	29 psig (2.00 bar)	14 psig (0.97 bar)	28 psig (1.93 bar)	17 psig (1.72 bar)	27 psig (1.86 bar)
2400 SMT PO 1" IV	1245 (15 lbs)	4.5 psig (0.31 bar)	14.5 psig (1.00 bar)	5 psig (0.34 bar)	14 psig (0.97 bar)	8.5 psig (0.58 bar)	13 psig (0.89 bar)	12.5 psig (0.86 bar)	11.5 psig (0.79 bar)	16 psig (1.10 bar)	11 psig (0.75 bar)
	538 (20 lbs)	4.5 psig (0.31 bar)	17 psig (1.72 bar)	5 psig (0.34 bar)	17 psig (1.72 bar)	8.5 psig (0.58 bar)	16 psig (1.10 bar)	12.5 psig (0.86 bar)	15 psig (1.03 bar)	17 psig (1.72 bar)	14 psig (0.97 bar)
	508 (30 lbs)	7 psig (0.48 bar)	31 psig (2.14 bar)	7.5 psig (0.51 bar)	31 psig (2.14 bar)	12 psig (0.83 bar)	30 psig (2.07 bar)	16 psig (1.10 bar)	29 psig (2.00 bar)	19.5 psig (1.34 bar)	28 psig (1.93 bar)
2400 SMT PO 1" IV SNAP	1245 (15 lbs)	4.5 psig (0.31 bar)	16.5 psig (1.13 bar)	4.5 psig (0.31 bar)	16.5 psig (1.13 bar)	8.5 psig (0.58 bar)	15.5 psig (1.06 bar)	11.5 psig (0.79 bar)	15 psig (1.03 bar)	15 psig (1.03 bar)	15 psig (1.03 bar)
	538 (20 lbs)	4.5 psig (0.31 bar)	19 psig (1.31 bar)	4.5 psig (0.31 bar)	19 psig (1.31 bar)	8.5 psig (0.58 bar)	16 psig (1.10 bar)	11.5 psig (0.79 bar)	15.5 psig (1.06 bar)	15 psig (1.03 bar)	15 psig (1.03 bar)
	508 (30 lbs)	8 psig (0.55 bar)	32 psig (2.20 bar)	8 psig (0.55 bar)	32 psig (2.20 bar)	12 psig (0.83 bar)	31 psig (2.14 bar)	16 psig (1.10 bar)	30 psig (2.07 bar)	19.5 psig (1.34 bar)	29 psig (2.00 bar)

Table 8 - 2", 3", 4", 6", 8" & 10" Cage Guided HPCV											
Valve Description	ΔP	0 psig (0 bar)		100 psig (6.8 bar)		500 psig (34.4 bar)		1000 psig (68.9 bar)		1500 psig (103.4 bar)	
	Spring	Crack	Full	Crack	Full	Crack	Full	Crack	Full	Crack	Full
2150 SMT PB 2 IN IV	15 lbs	3 psig (0.21bar)	16 psig (1.1bar)	3.5 psig (0.24bar)	16 psig (1.1bar)	5.5 psig (0.38bar)	15 psig (1.03bar)	7.5 psig (0.52bar)	14 psig (0.97bar)	9.5 psig (0.66bar)	12 psig (0.83bar)
	20 lbs	3 psig (0.21bar)	19 psig (1.31bar)	3 psig (0.21bar)	18 psig (1.24bar)	5.5 psig (0.38bar)	17 psig (1.17bar)	8 psig (0.55bar)	16 psig (1.1bar)	8.5 psig (0.59bar)	15 psig (1.03bar)
	30 lbs	6 psig (0.41bar)	32 psig (2.21bar)	7 psig (0.48bar)	31 psig (2.14bar)	8 psig (0.55bar)	30 psig (2.07bar)	10.5 psig (0.72bar)	29 psig (2bar)	12.5 psig (0.86bar)	28 psig (1.93bar)
3150 FMT PB 3" IV	30 lbs	6 psig (0.41bar)	30 psig (2.07bar)	6.5 psig (0.45bar)	27.5 psig (1.9bar)	10.5 psig (0.72bar)	27 psig (1.86bar)	13.5 psig (0.93bar)	25 psig (1.72bar)	17 psig (1.17bar)	22 psig (1.52bar)
3150 FMT PB 3" IV- PC	30 lbs	Shut	27 psig (1.86bar)	Shut	28 psig (1.93bar)	Shut	30.5 psig (2.1bar)	Shut	33 psig (2.28bar)	Shut	36.5 psig (2.52bar)
4150 FMT PB	30 lbs	8.5 psig (0.59bar)	32 psig (2.21bar)	8.5 psig (0.59bar)	32 psig (2.21bar)	8 psig (0.55bar)	29.5 psig (2.03bar)	7.5 psig (0.52bar)	27 psig (1.86bar)	6 psig (0.41bar)	24.5 psig (1.69bar)
4150 FMT PB 4 IN IV PC	30 lbs	Shut	31 psig (2.14bar)	Shut	32.5 psig (2.24bar)	Shut	34.5 psig (2.38bar)	Shut	37 psig (2.55bar)	Shut	39.5 psig (2.72bar)
6150 FMT PB 6 IN IV	30 lbs	8 psig (0.55bar)	29 psig (2bar)	9.5 psig (0.66bar)	28 psig (1.93bar)	10.5 psig (0.72bar)	27 psig (1.86bar)	11 psig (0.76bar)	25 psig (1.72bar)	11.5 psig (0.79bar)	22 psig (1.52bar)
8150 FMT PB 8 IN IV	30 lbs	8 psig (0.55bar)	29 psig (2bar)	8.5 psig (0.59bar)	27.5 psig (1.9bar)	10 psig (0.69bar)	26.5 psig (1.83bar)	10.5 psig (0.72bar)	24 psig (1.65bar)	10.5 psig (0.72bar)	21.5 psig (1.48bar)
10150 FMT PB 8 IN IV	30 lbs	7.5 psig (0.52bar)	28.5 psig (1.97bar)	8.5 psig (0.59bar)	27.5 psig (1.9bar)	9.5 psig (0.66bar)	26 psig (1.79bar)	10 psig (0.69bar)	24 psig (1.65bar)	10.5 psig (0.72bar)	21.5 psig (1.48bar)

Series: **CV = Control Valves**

Model: **C = Cage Guided**

Line Size:
2 = 2 NPS
 3 = 3 NPS
 4 = 4 NPS
 6 = 6 NPS
 8 = 8 NPS
 0 = 10 NPS

End Connection: **3", 4", 6", 8" & 10"**

Body Type: **T = Thru**

Shell Material: **W = WCB Steel ***

Trim Type: **FEP = Equal Percentage**
 FQK = Quick Open
 REP = Reduced E.P.

Actuator:

Service Type:

	Plug	Cage	Seat
S = Standard	D2	S6	D2
C = Corrosive	S6	S6	S6
K = Corrosive with Coating			
E = Erosive	ZR	S6	D2

Options:

- 0 = No Actuator
- 1 = 3 - 15 psi Spring Fail Close
- 2 = 6 - 30 psi Spring Fail Close**
- 3 = 9 - 45 psi Spring Fail Close
- 4 = 3 - 15 psi Spring Fail Open
- 5 = 6 - 30 psi Spring Fail Open
- 6 = 9 - 45 psi Spring Fail Open
- 8 = Metering Valve (2"-4" only)

Pressure Ratings:

- S1 = 1500 psi FNPT**
- S4 = 4000 psi FNPT
- S6 = 6000 psi FNPT
- AR = 150 RF
- BR = 300 RF
- DR = 600 RF
- FR = 900/1500 RF
- GR = 2500 RF
- DJ = 600 RTJ
- FJ = 900/1500 RTJ
- AR = 150 RF
- BR = 300 RF
- DR = 600 RF
- DJ = 600 RTJ

Final Code: **CV C 2 S2 T W FEP 2 S**

Not all selections available on all products listed.
See product pages 01:20.1 - 01:20.3 for available options

Options: Additional cost and lead times will apply
If multiple options required input in sequential order
Leave blank if no options required

- 1 = NACE Certification (Corrosive Option Only)
- 2 = Hydrostatic Test Certification
- 3 = MTR (Shell Components)
- A = AFLAS Elastomers
- E = VEE Packing
- G = Graphite Vee Packing
- H = HSN Elastomers
- V = FKM Elastomers
- X = Export (Hydrostatic test, MTR & 3.1)

* Other materials available upon request