

## CV3000 Series

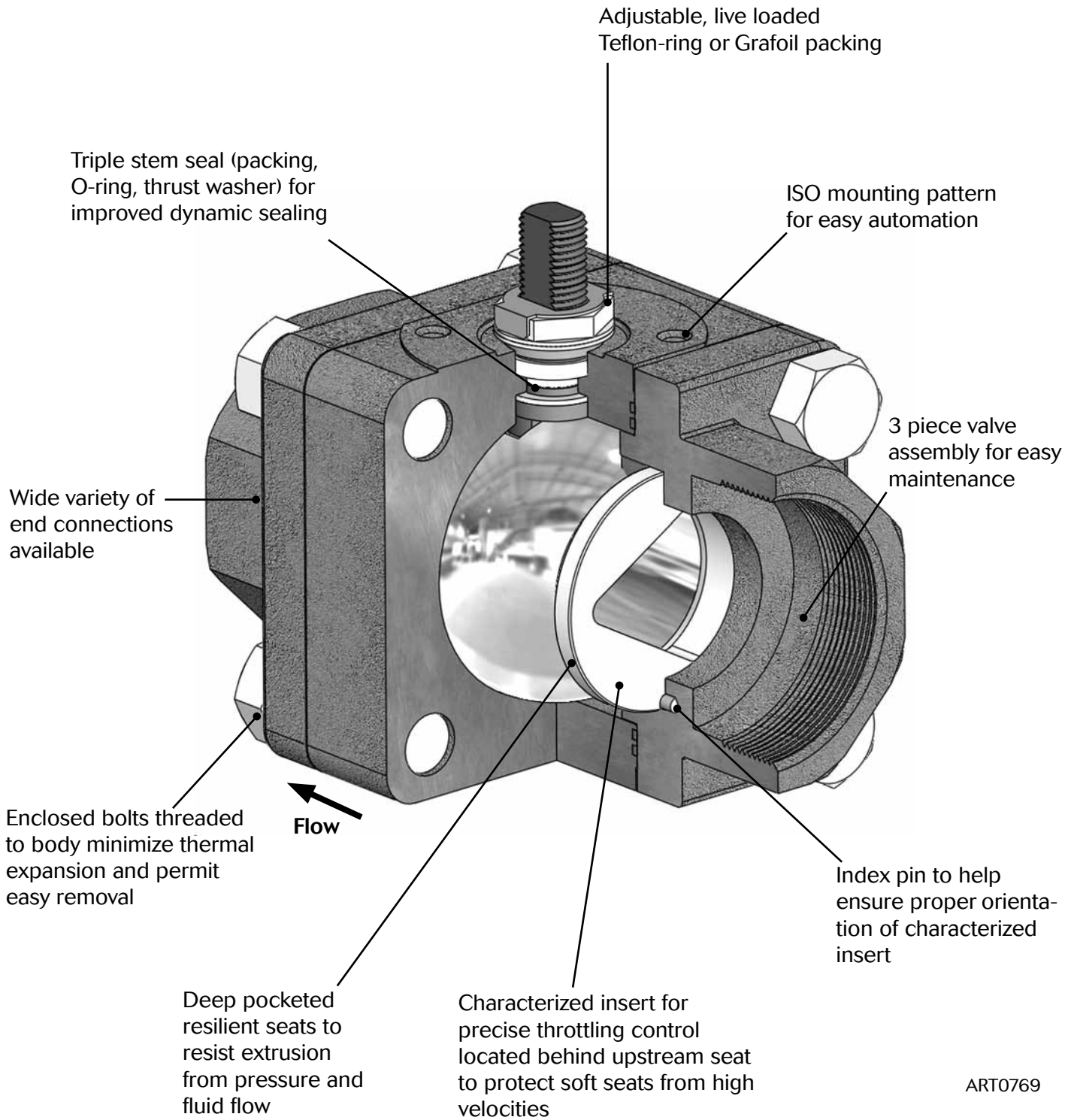
### Characterized Insert Control Valves

The CV3000 Series is a v-type control valve for precise control allowing high pressure drop capability with straight-through flow and bubble-tight shut off.

- State-of-the-art modulating ball valve for control offering high capacity with increased rangeability
- The throttling element of the valve is a v-control metal insert located behind the upstream seat. This protects the soft seats from high velocities and ensures bubble-tight shut off when required.
- The soft seats and/or the v-style insert can be changed in the field with no need for lapping ball, seats or insert
- The valve offers metal encapsulated soft seats to prevent cold-flowing under adverse temperature, pressure, or modulating service conditions
- V-Control insert and metal encapsulated seats provide lower operating torque with less hysteresis
- Available in sizes 1/2" through 4" standard port and 1/4" through 3" full port design
- Materials of construction for the valve or insert include Hastelloy B, Alloy 20, Hastelloy C, Bronze, Monel, Carbon Steel, Stainless Steel, and other special materials such as Duplex, 254 SMO, and Titanium
- A variety of soft seat materials are available including PTFE, Carbon or Stainless filled PTFE, Delrin® or PEEK



# Marwin Valve CV3000 Series – Features



ART0769

## Description

The CV3000 Series can be fitted with a wide range of v-style inserts for precise throttling control. The inserts are placed in the end cap behind the upstream seat to characterize the flow. The v-style insert is placed on the inlet side of the valve to protect the seat from high velocities, which can occur while controlling flow.

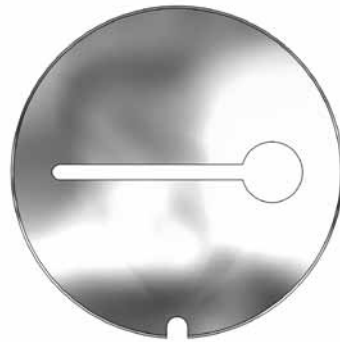
The ball sits between two soft seats, ensuring low torque with a bubble-tight shut off. The insert is designed to change flow characteristics of the valve and is offered in different standard or custom configurations to meet a variety of modulating applications.

The characterized insert control valve gives accurate control through the valve stroke to meet flow conditions. Different insert shapes will affect the flow rate, capacity, and inherent flow curves.

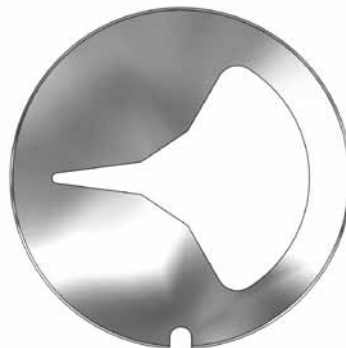
## Operation

The Marwin characterized inserts make throttling control valves that are both flexible and accommodating. If the valve is located in a process, the characterized insert can be replaced to meet the Cv and/or the control characteristics. We offer the option of a full flow insert in the CV3000 valve with additional V-control inserts to be installed later to meet changing flow conditions.

Special flow conditions can be met with custom inserts. An example is a low flow slot insert with the addition of a solids removed hole. This type insert provides ideal low flow, linear throttling characteristics but allow solids to move when needed through the larger opening at the end of the stroke. Linear conditions can be modified by changing the width and/or length of the slot.

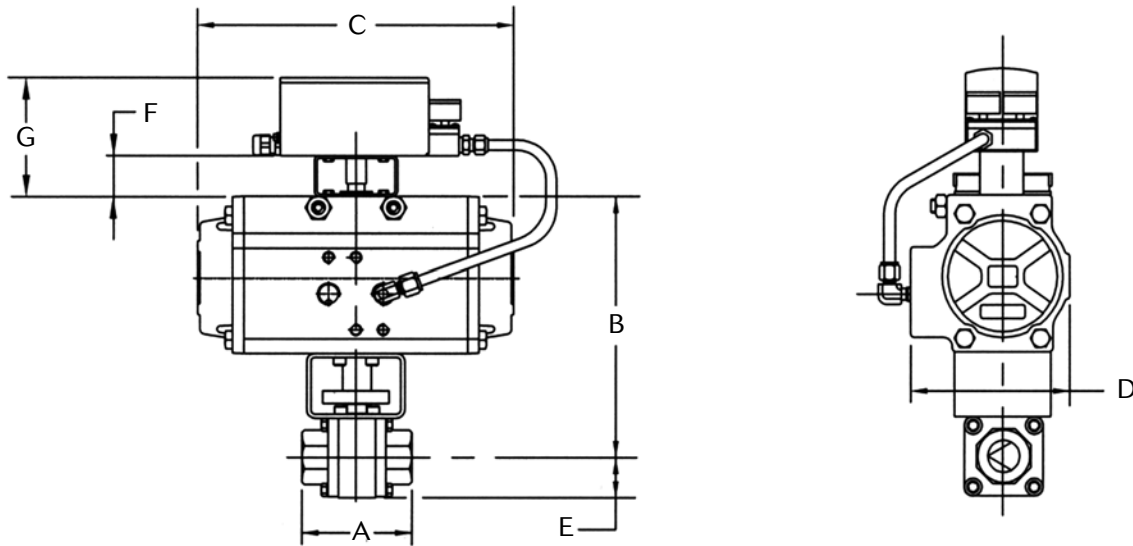


Another example is a high turn-down insert combining low flow initial openings with larger V-shaped final openings. This characterized insert results in smooth stable equal percentage throttling control, and can achieve turn downs of 100:1.



# Marwin Valve CV3000 Series – Dimensions

## CV3000 Series Full Port with UT Series Pneumatic Actuator and 2IQ Positioner



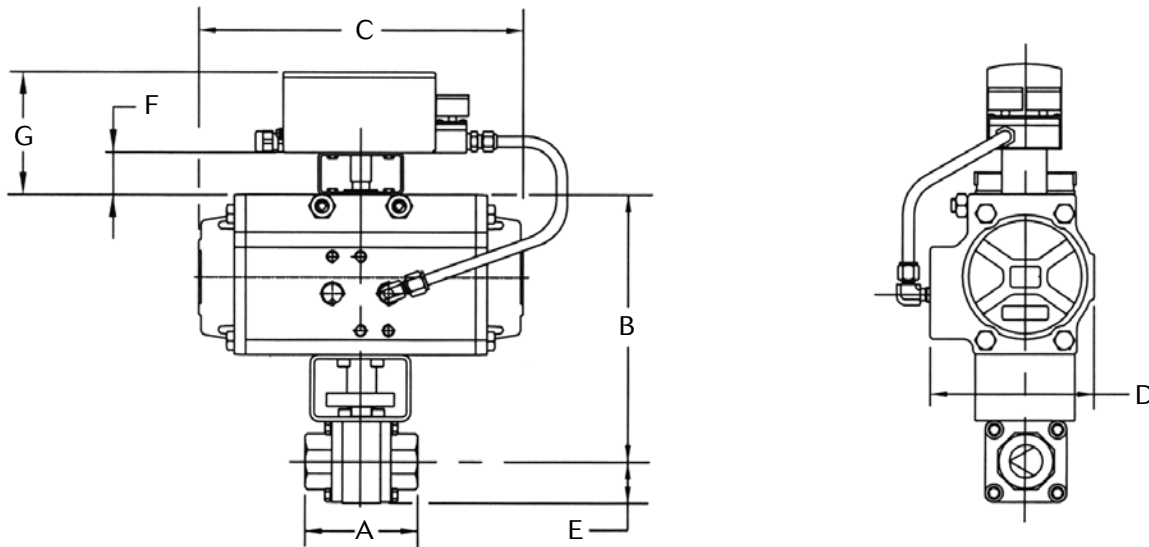
MD03157

Valve Size	Actuator Size*	Max Press. psi	Dimensions (inches)							Weight (lb)	Max Press. bar	Dimensions (mm)							Weight (kg)
			A	B	C	D	E	F	G			A	B	C	D	E	F	G	
1/4", 3/8" DN8, DN12	UT-0-DA	1500	2.91	5.9	5.5	2.8	1.0	1.8	5.6	9.7	103,4	73,9	151	140	71	25	45	141	4,4
	UT-1-SR	1500		6.4	6.4	3.2		1.8	5.6	11.4	103,4		163	163	81		45	141	5,2
1/2" DN15	UT0-DA	1500	3.17	6.0	5.5	2.8	1.1	1.8	5.6	10.2	103,4	80,5	153	140	71	27	45	141	4,6
	UT-2-SR	1500		7.1	8.2	3.7		1.8	5.6	14.8	103,4		181	208	94		45	141	6,7
3/4" DN20	UT-1-DA	1500	3.87	6.7	6.4	3.2	1.3	1.8	5.6	13.4	103,4	98,2	171	163	81	33	45	141	6,1
	UT-2-SR	1500		7.3	8.2	3.7		1.8	5.6	17.0	103,4		186	208	94		45	141	7,7
1" DN25	UT-2-DA	1500	4.36	7.3	8.2	3.7	1.5	1.8	5.6	17.7	103,4	110,7	185	208	94	37	45	141	8,0
	UT-3-SR	1500		8.3	10.7	4.8		1.8	5.6	26.5	103,4		210	272	122		45	141	12,0
1-1/4" DN32	UT-2-DA	1500	4.68	7.5	8.2	3.7	1.7	1.8	5.6	20.1	103,4	118,7	191	208	94	37	45	141	9,1
	UT-3-SR	800		8.5	10.7	4.8		1.8	5.6	28.9	55,2		216	272	122		45	141	13,1
	UT-3.5-SR	1500		9.3	12.9	5.4		2.2	6.0	39.5	103,4		236	328	137		55	151	17,9
1-1/2" DN40	UT-2-DA	950	5.50	7.7	8.2	3.7	1.8	1.8	5.6	23.5	65,5	139,7	195	208	94	46	45	141	10,7
	UT-2.5-DA	1500		8.2	9.4	4.2		1.8	5.6	25.1	103,4		207	239	107		45	141	11,4
	UT-3-SR	350		8.7	10.7	4.8		1.8	5.6	32.3	24,1		220	272	122		45	141	14,6
	UT-3.5-SR	1500		9.5	12.9	5.4		2.2	6.0	42.8	103,4		240	328	137		55	151	19,4
2" DN50	UT-3-DA	300	5.59	9.1	10.7	4.8	2.6	1.8	5.6	38.2	20,7	141,9	231	272	122	67	45	141	17,3
	UT-3.5-DA	1000		9.9	12.9	5.4		2.2	6.0	46.0	69,0		251	328	137		55	151	20,9
	UT-4.5-SR	300		11.2	16.9	6.5		2.2	6.0	73.9	20,7		284	429	165		55	151	33,5
	UT-5-SR	1000		11.7	20.6	7.4		2.2	6.0	93.6	69,0		297	523	188		55	151	42,4
2-1/2" DN65	UT-4-DA	400	8.98	10.7	14.4	5.8	3.0	2.2	6.0	58.1	27,6	228,0	272	366	147	75	55	151	26,4
	UT-4.5-DA	1000		11.6	16.9	6.5		2.2	6.0	70.3	69,0		295	429	165		55	151	31,9
	UT-5-SR	275		12.1	20.6	7.4		2.2	6.0	101	19,0		307	523	188		55	151	46,0
	UT-6-SR	1000		14.1	22.6	8.6		2.2	6.0	151	69,0		358	574	218		55	151	68,4
3" DN80	UT-4.5-DA	425	8.78	12.3	16.9	6.5	3.7	2.2	6.0	78.8	29,3	222,9	313	429	165	94	55	151	35,7
	UT-5-DA	1000		12.8	20.6	7.4		2.2	6.0	88.1	69,0		326	523	188		55	151	39,9
	UT-6-SR	625		14.9	22.6	8.6		2.2	6.0	159	43,1		377	574	218		55	151	72,3
	UT-7-SR	1000		18.5	26.5	11.4		2.2	6.0	241	69,0		469	673	290		55	151	109

\* RPTFE Seats, 80 psi air supply, 1.5 service factor for throttling

# Marwin Valve CV3000 Series – Dimensions

## CV3000 Series Standard Port with UT Series Pneumatic Actuator with 2IQ Positioner



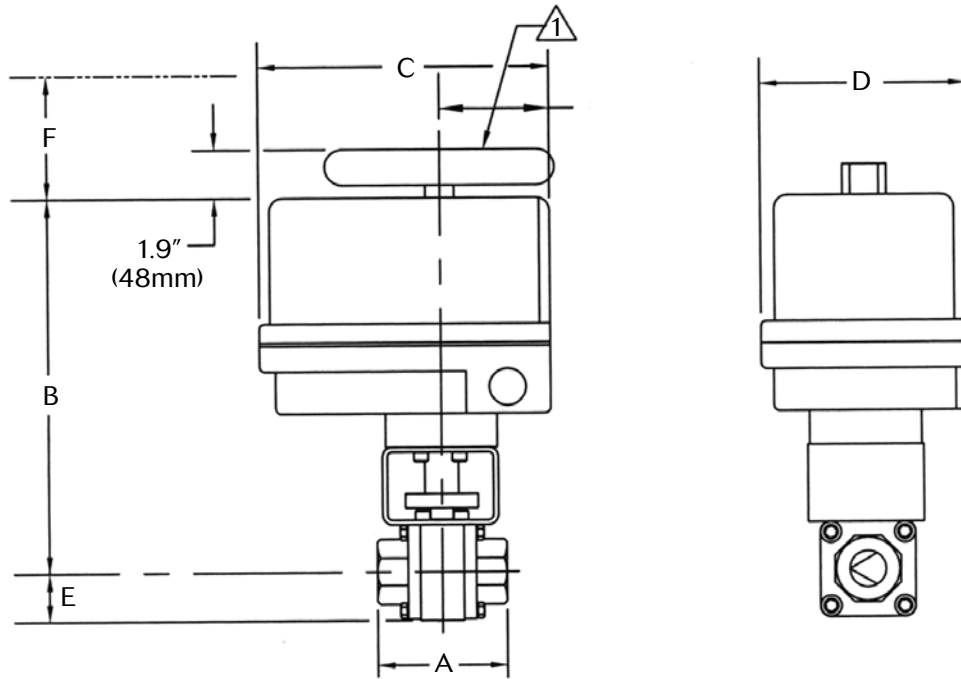
MD03156

Valve Size	Actuator Size*	Max Press. psi	Dimensions (inches)							Weight (lb)	Max Press. bar	Dimensions (mm)							Weight (kg)
			A	B	C	D	E	F	G			A	B	C	D	E	F	G	
1/2" DN15	UT-0-DA	1500	2.91	5.9	5.5	2.8	1.0	1.8	5.6	9.5	103,4	73,9	151	140	71	25	45	141	4,3
	UT-1-SR	1500		6.4	6.4	3.2		1.8	5.6	11.2	103,4		163	163	81		45	141	5,1
3/4" DN20	UT0-DA	1500	3.17	6.0	5.5	2.8	1.1	1.8	5.6	10.0	103,4	80,5	153	140	71	27	45	141	4,5
	UT-2-SR	1500		7.1	8.2	3.7		1.8	5.6	14.6	103,4		181	208	94		45	141	6,6
1" DN25	UT-1-DA	1500	3.87	6.7	6.4	3.2	1.3	1.8	5.6	13.2	103,4	98,2	171	163	81	33	45	141	6,0
	UT-2-SR	1500		7.3	8.2	3.7		1.8	5.6	16.8	103,4		186	208	94		45	141	7,6
1-1/4" DN32	UT-2-DA	1500	4.36	7.3	8.2	3.7	1.5	1.8	5.6	17.5	103,4	110,7	185	208	94	37	45	141	7,9
	UT-3-SR	1500		8.3	10.7	4.8		1.8	5.6	26.3	103,4		210	272	122		45	141	11,9
1-1/2" DN40	UT-2-DA	1500	4.68	7.5	8.2	3.7	1.7	1.8	5.6	19.9	103,4	118,7	191	208	94	37	45	141	9,0
	UT-3-SR	800		8.5	10.7	4.8		1.8	5.6	28.7	55,2		216	272	122		45	141	13,0
	UT-3.5-SR	1500		9.3	12.9	5.4		2.2	6.0	39.3	103,4		236	328	137		55	151	17,8
2" DN50	UT-3-DA	950	5.50	7.7	8.2	3.7	1.8	1.8	5.6	22.8	65,5	139,7	195	208	94	46	45	141	10,3
	UT-3.5-DA	1500		8.2	9.4	4.2		1.8	5.6	24.4	103,4		207	239	107		45	141	11,1
	UT-4.5-SR	350		8.7	10.7	4.8		1.8	5.6	31.6	24,1		220	272	122		45	141	14,3
	UT-5-SR	1500		9.5	12.9	5.4		2.2	6.0	42.1	103,4		240	328	137		55	151	19,1
2-1/2" DN65	UT-3-DA	300	5.59	9.1	10.7	4.8	2.6	1.8	5.6	36.0	20,7	141,9	231	272	122	67	45	141	16,3
	UT-3.5-DA	1000		9.9	12.9	5.4		2.2	6.0	43.8	69,0		251	328	137		55	151	19,9
	UT-4.5-SR	300		11.2	16.9	6.5		2.2	6.0	71.7	20,7		284	429	165		55	151	32,5
	UT-5-SR	1000		11.7	20.6	7.4		2.2	6.0	91.4	69,0		297	523	188		55	151	41,4
3" DN80	UT-4-DA	400	5.98	10.7	14.4	5.8	3.0	2.2	6.0	54.8	27,6	228,0	272	366	147	75	55	151	24,9
	UT-4.5-DA	1000		11.6	16.9	6.5		2.2	6.0	67.0	69,0		295	429	165		55	151	30,4
	UT-5-SR	275		12.1	20.6	7.4		2.2	6.0	98.1	19,0		307	523	188		55	151	44,5
	UT-6-SR	1000		14.1	22.6	8.6		2.2	6.0	148	69,0		358	574	218		55	151	66,9
4" DN100	UT-4.5-DA	425	8.78	12.3	16.9	6.5	3.7	2.2	6.0	75.9	29,3	222,9	313	429	165	94	55	151	34,4
	UT-5-DA	1000		12.8	20.6	7.4		2.2	6.0	85.2	69,0		326	523	188		55	151	38,6
	UT-6-SR	625		14.9	22.6	8.6		2.2	6.0	156	43,1		377	574	218		55	151	71,0
	UT-7-SR	1000		18.5	26.5	11.4		2.2	6.0	238	69,0		469	673	290		55	151	108,1

\* RPTFE Seats, 80 psi air supply, 1.5 service factor for throttling

# Marwin Valve CV3000 Series – Dimensions

## CV3000 Series Full Port with ER Series Electric Actuator



MD03159

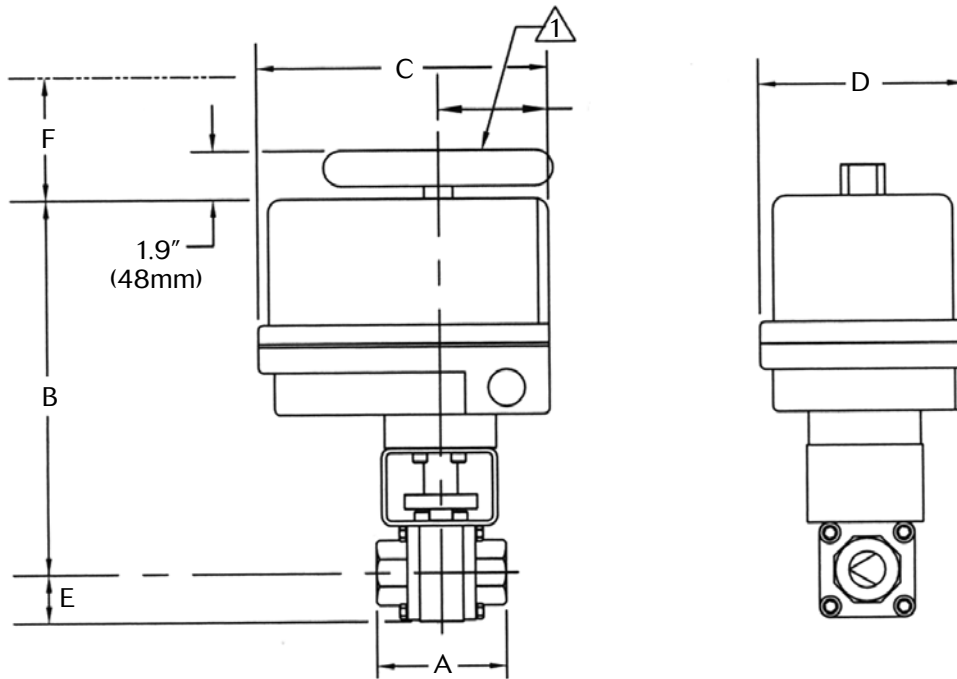
Valve Size	Actuator Size*	Max Press. psi	Dimensions (inches)							Wt (lb)	Max Press. bar	Dimensions (mm)							Weight (kgs)
			A	B	C	D	E	F	G			A	B	C	D	E	F	G	
1/4", 3/8" DN8, DN12	ER-2-10-4	1500	2.91	8.6	6.9	4.3	1.0	3.0	3.1	9.7	103,4	73,9	219	175	108	25	76	79	4,4
1/2" DN15	ER-2-10-4	1500	3.17	8.7	6.9	4.3	1.1	3.0	3.1	10.2	103,4	80,5	221	175	108	27	76	79	4,6
3/4" DN20	ER-2-10-4	1500	3.87	8.9	6.9	4.3	1.3	3.0	3.1	12.4	103,4	98,2	227	175	108	33	76	79	5,6
1" DN25	ER-4-20-4	1500	4.36	10.6	7.0	7.0	1.5	4.0	3.1	21.4	103,4	110,7	268	178	178	37	102	79	9,7
1-1/4" DN32	ER-6-30-4	1500	4.68	10.8	7.0	7.0	1.7	4.0	4.4	23.8	103,4	118,7	275	178	178	37	102	111	10,8
1-1/2" DN40	ER-6-30-4	1500	5.50	11.0	7.0	7.0	1.8	4.0	4.4	27.2	103,4	139,7	278	178	178	46	102	111	12,3
2" DN50	ER-15-60-4	650	5.59	11.4	8.5	8.5	2.6	4.0	5.8	41.4	44,8	141,9	290	216	216	67	102	146	18,8
	ER-20-12-4	1000		14.3	10.0	10.0		6.0	6.3	57.1	69,0		362	254	254		152	159	25,9
2-1/2" DN65	ER-38-14-4	1000	8.98	14.7	10.0	10.0	3.0	6.0	6.3	64.9	69,0	228,0	372	254	254	75	152	159	29,4
3" DN80	ER-38-14-4	350	8.78	15.4	10.0	10.0	3.7	6.0	6.3	73.4	24,1	222,9	391	254	254	94	152	159	33,0
	ER-50-68-4	1000		19.0	12.9	14.0		7.0	5.4	143	69,0		482	327	356		178	138	65,0

\* RPTFE Seats, NEMA 4 enclosure, extended duty motor, 1.5 service factor for throttling.

△ Manual override handwheel provided only on actuator sizes ER-4 and larger

# Marwin Valve CV3000 Series – Dimensions

## CV3000 Series Standard Port with ER Series Electric Actuator



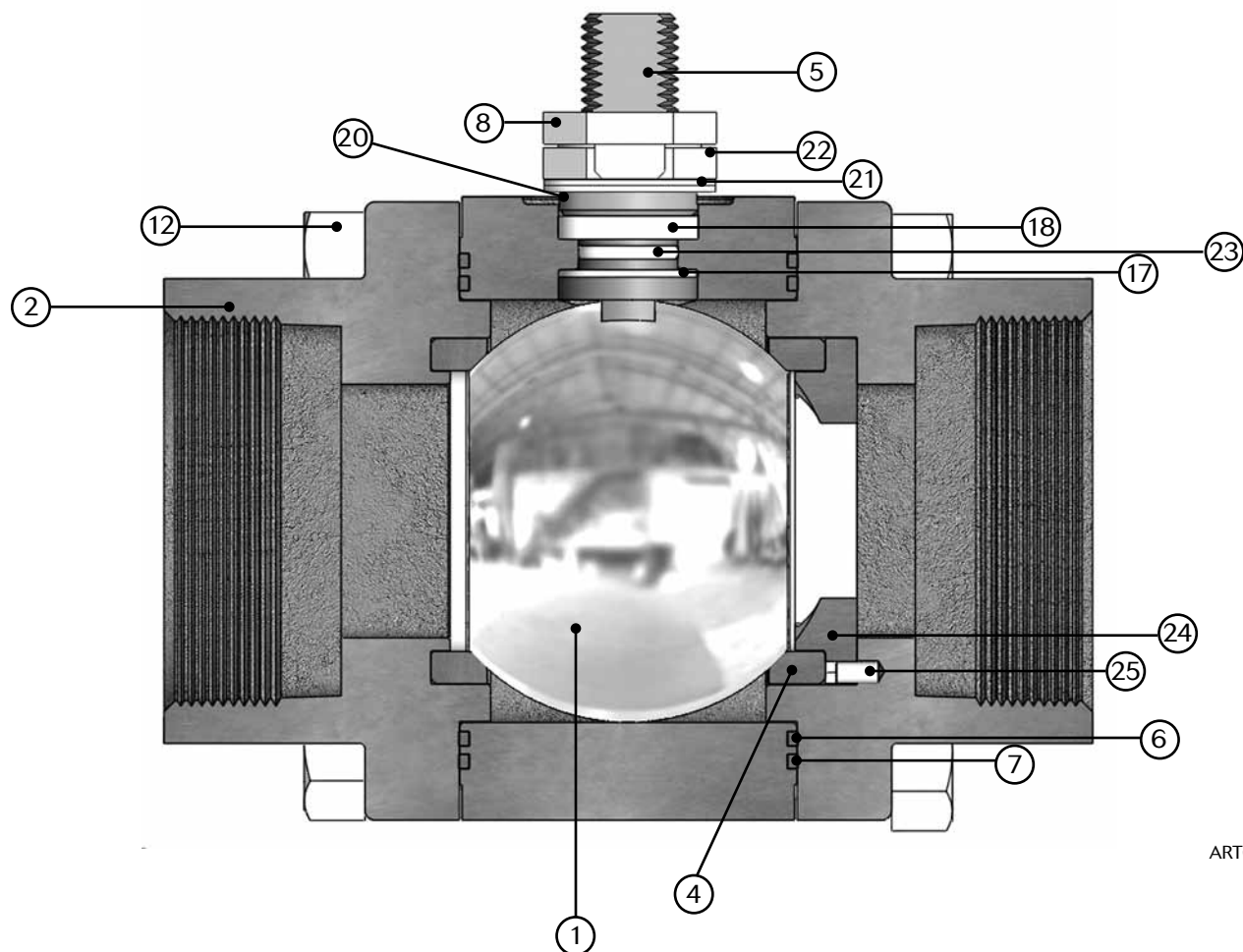
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Valve Size	Actuator Size*	Max Press. psi	Dimensions (inches)							Wt (lb)	Max Press. bar	Dimensions (mm)							Weight (kgs)
			A	B	C	D	E	F	G			A	B	C	D	E	F	G	
1/2" DN15	ER-2-10-4	1500	2.91	8.6	6.9	4.3	1.0	3.0	3.1	9.5	103,4	73,9	219	175	108	25	76	79	4,3
3/4" DN20	ER-2-10-4	1500	3.17	8.7	6.9	4.3	1.1	3.0	3.1	9.9	103,4	80,5	221	175	108	27	76	79	4,5
1" DN25	ER-2-10-4	1500	3.87	8.9	6.9	4.3	1.3	3.0	3.1	12.2	103,4	98,2	227	175	108	33	76	79	5,5
1-1/4" DN32	ER-4-20-4	1500	4.36	10.6	7.0	7.0	1.5	4.0	3.1	21.2	103,4	110,7	268	178	178	37	102	79	9,6
1-1/2" DN40	ER-6-30-4	1500	4.68	10.8	7.0	7.0	1.7	4.0	4.4	23.6	103,4	118,7	275	178	178	37	102	111	10,7
2" DN50	ER-6-30-4	1500	5.50	11.0	7.0	7.0	1.8	4.0	4.4	26.5	103,4	139,7	278	178	178	46	102	111	12,0
2-1/2" DN65	ER-15-60-4	650	5.59	11.4	8.5	8.5	2.6	4.0	5.8	39.2	44,8	141,9	290	216	216	67	102	146	17,8
	ER-20-12-4	1000		14.3	10.0	10.0		6.0	6.3	54.9	69,0		362	254	254		152	159	24,9
3" DN80	ER-38-14-4	1000	5.98	14.7	10.0	10.0	3.0	6.0	6.3	61.6	69,0	228,0	372	254	254	75	152	159	27,9
4" DN100	ER-38-14-4	350	8.78	15.4	10.0	10.0	3.7	6.0	6.3	70.5	24,1	222,9	391	254	254	94	152	159	32,0
	ER-50-68-4	1000		19.0	12.9	14.0		7.0	5.4	140	69,0		482	327	356		178	138	63,7

\* RPTFE Seats, NEMA 4 enclosure, extended duty motor, 1.5 service factor for throttling.

1 Manual override handwheel provided only on actuator sizes ER-4 and larger

# Marwin Valve CV3000 Series – Material Specifications



ART0770

Item	Part	Quantity	SS	CS
1	Body	1	A351 CF8M	A216 WCB
2	End Cap	2	A351 CF8M	A216 WCB
3	Ball	1	AISI 316 SS	AISI 316 SS
4	Seat	2	CRPTFE	CRPTFE
5	Stem	1	A479 S31600	A479 S31600
6	Body Seal	2	CRPTFE	CRPTFE
7	Secondary Body Seal	2	Non-Asbestos	Non-Asbestos
8	Lock Washer	1	SS	SS
9	Anti-Static Spring (not shown)	1	AISI 316 SS	AISI 316 SS
12	Bolt, Body	8	A 193 B8 CI 1	A 193 B7
17	Thrust Washer	1	CRPTFE	CRPTFE
18	Packing	1	PTFE	PTFE
20	Gland Bushing	1	AISI 316 SS	AISI 316 SS
21	Belleville Washer	2	17-7PH SS	17-7PH SS
22	Nut, Stem	2	AISI 316 SS	AISI 316 SS
23	O-Ring, Stem	1	Viton	Viton
24	Characterized Insert	1	A479 S31600	A479 S31600
25	Index Pin	1	A479 S31600	A479 S31600



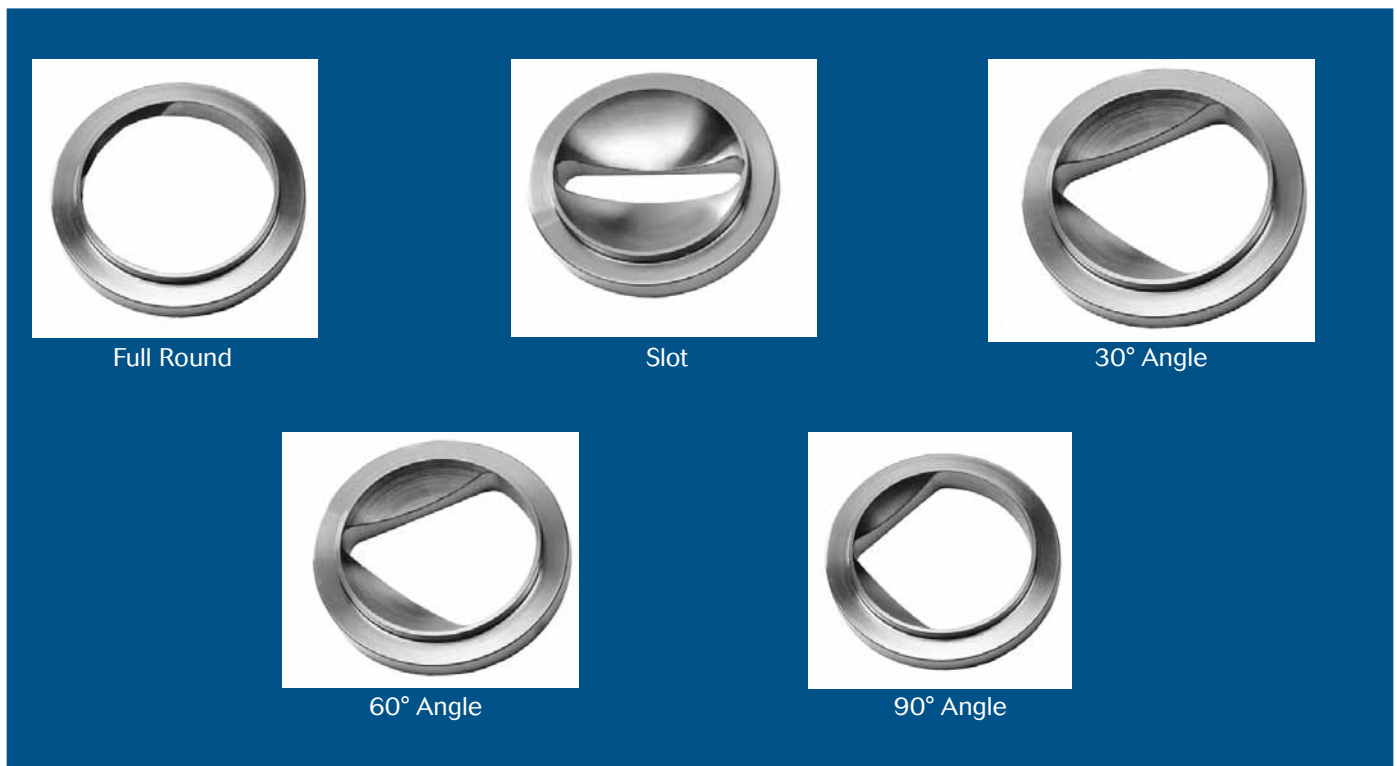
# Marwin Valve CV3000 Series – Technical Information

CV3000 Cv (Max Round Port)			Operating Torque for Actuator Sizing (in-lb) Based on Full Differential Body-Seat Rating		
Valve Size		Cv Max			
Full Port	Standard Port	Round Port	PTFE	RPTFE	CRPTFE
1/4"	—	8	65	72	72
3/8"	1/2"	8	65	72	72
1/2"	3/4"	12	72	96	96
3/4"	1"	32	108	135	135
1"	1-1/4"	50	190	220	220
1-1/4"	1-1/2"	82	250	355	390
1-1/2"	2"	120	350	465	545
2"	2-1/2"	260	570	830	1010
2-1/2"	3"	350	973	1515	1980
3"	4"	720	1545	2360	2815

**Notes:**

The normal service factor to be applied to these torques for actuator sizing for control applications is 1.5. However, it may be more or less depending upon operating conditions. Operating torques are also highly dependent upon seat material, and differential pressure across the closed ball. Consult the Marwin Ball Valve Actuator Sizing (3000 Series) for operating torques for different seat materials, and service factors for different fluids and operating conditions.

Refer to bulletin 3000/MS3000 for seat pressure-temperature ratings and for additional dimensional drawings.



# Marwin Valve CV3000 Series – Flow Coefficient

## Cv vs Travel (Full Port Valve)

Size	Type	Characterized Insert	0-10% (0-9°)	20% (18°)	30% (27°)	40% (36°)	50% (45°)	60% (54°)	70% (63°)	80% (72°)	90% (81°)	100% (90°)
0.25F	1/32	SA	0.00	0.033	0.074	0.12	0.16	0.20	0.24	0.28	0.32	0.40
	1/16" Slot	S1	0.00	0.07	0.20	0.33	0.46	0.60	0.73	0.86	0.99	1.10
	30°V	A1	0.00	0.10	0.20	0.34	0.55	0.83	1.11	1.59	2.08	2.50
	60°V	A2	0.00	0.12	0.33	0.49	0.84	1.35	1.95	3.10	4.37	5.92
	Round Port	R1	0.00	0.29	0.46	0.70	1.09	1.76	2.60	2.24	6.40	8.00
0.38F	1/32	SA	0.00	0.033	0.074	0.12	0.16	0.20	0.24	0.28	0.32	0.40
	1/16" Slot	S1	0.00	0.07	0.20	0.33	0.46	0.60	0.73	0.86	0.99	1.10
	30°V	A1	0.00	0.10	0.20	0.34	0.55	0.83	1.11	1.59	2.08	2.50
	60°V	A2	0.00	0.12	0.33	0.49	0.84	1.35	1.95	3.10	4.37	5.92
	Round Port	R1	0.00	0.29	0.46	0.70	1.09	1.76	2.60	2.24	6.40	8.00
0.50F	1/16" Slot	S1	0.00	0.06	0.24	0.40	0.56	0.73	0.90	1.00	1.20	1.30
	1/8" Slot	S3	0.00	0.14	0.39	0.65	0.90	1.20	1.40	1.70	1.90	2.90
	30°V	A1	0.00	0.11	0.24	0.41	0.67	1.00	1.40	1.90	2.60	3.00
	60°V	A2	0.00	0.13	0.36	0.55	1.00	1.50	2.30	3.60	5.00	6.70
	Round Port	R1	0.00	0.43	0.70	1.10	1.60	2.60	4.00	6.40	9.60	12.00
0.75F	1/16" Slot	S1	0.00	0.10	0.40	0.67	0.94	1.20	1.50	1.70	1.90	2.10
	3/16" Slot	S4	0.00	0.22	0.82	1.40	1.90	2.50	3.10	3.50	4.00	4.30
	30°V	A1	0.00	0.21	0.56	1.00	1.60	2.40	3.40	4.60	6.20	7.30
	60°V	A2	0.00	0.30	0.78	1.20	2.30	3.60	5.30	8.30	11.60	15.50
	90° V	A4	0.00	0.48	1.20	2.30	3.50	5.40	7.70	10.80	12.10	19.70
1.00F	Round Port	R1	0.00	1.20	1.90	2.80	4.30	7.00	10.50	17.00	26.00	32.00
	3/16" Slot	S4	0.00	0.38	1.40	2.40	3.40	4.40	5.40	6.20	6.90	7.50
	30°V	A1	0.00	0.39	1.00	1.80	2.90	4.40	6.40	8.60	11.40	13.50
	60°V	A2	0.00	0.48	1.30	2.00	3.70	5.80	8.50	13.40	18.70	25.00
	90° V	A3	0.00	0.78	2.00	3.70	5.70	8.80	12.50	17.50	19.70	32.00
1.25F	Round Port	R1	0.00	1.80	3.00	4.40	6.70	10.90	16.40	26.60	40.60	50.00
	3/16" Slot	S4	0.00	0.47	1.80	3.00	4.20	5.40	6.80	7.70	8.60	9.40
	30°V	A1	0.00	0.41	1.20	2.10	3.50	5.20	7.60	10.30	13.70	16.30
	60°V	A2	0.00	0.57	1.70	3.00	5.60	9.10	13.20	19.80	28.40	37.50
	90° V	A3	0.00	1.00	2.80	4.50	8.10	13.40	19.70	30.90	47.10	71.70
1.50F	Round Port	R1	0.00	3.00	4.8	7.20	11.00	18.00	27.00	44.00	65.50	82.00
	1/4" Slot	S5	0.00	0.75	2.90	4.80	6.80	8.70	10.80	12.30	13.80	15.00
	30°V	A1	0.00	0.55	1.70	3.40	5.70	8.30	12.10	16.60	22.20	26.50
	60°V	A2	0.00	0.70	2.60	4.90	9.30	15.50	22.20	32.10	47.20	61.60
	90° V	A3	0.00	0.88	3.30	6.10	11.70	19.40	27.50	40.10	59.00	77.00
2.00F	Round Port	R1	0.00	4.30	7.00	10.50	16.20	26.40	39.60	64.00	96.00	120.00
	3/8" Slot	S6	0.00	1.00	3.80	6.40	9.00	11.60	14.40	16.40	18.40	20.00
	30°V	A1	0.00	1.00	3.20	6.40	10.60	15.40	22.60	31.00	41.50	49.50
	60°V	A2	0.00	1.00	3.80	7.10	13.50	22.50	32.20	46.60	68.50	89.40
	90° V	A3	0.00	1.90	7.10	13.10	25.00	41.60	58.90	85.90	126.40	165.00
2.50F	Round Port	R1	0.00	9.40	15.10	22.80	35.10	57.20	85.80	138.70	208.00	260.00
	7/16" Slot	S7	0.00	1.20	4.60	7.80	11.00	14.20	17.60	20.00	22.40	24.40
	30°V	A1	0.00	0.75	2.70	6.00	10.20	16.90	24.50	33.90	44.80	54.20
	60°V	A2	0.00	1.00	4.30	10.10	18.60	29.40	46.30	67.20	94.40	124.60
	90° V	A3	0.00	1.20	8.00	14.00	26.00	44.00	67.00	102.00	151.00	230.00
3.00F	Round Port	R1	0.00	12.60	20.20	31.10	47.40	77.80	115.00	187.00	280.00	350.00
	1/26" Slot	S8	0.00	2.50	9.30	15.70	22.10	28.40	35.3	40.20	45.10	49.00
	30°V	A1	0.00	0.90	3.60	8.50	16.10	26.80	40.20	56.60	72.50	90.00
	60°V	A2	0.00	1.20	5.70	15.40	28.80	48.60	73.40	107.00	150.70	200.00
	90° V	A3	0.00	2.00	9.00	23.00	42.00	72.00	110.00	167.00	250.00	380.00

Cv is defined as flow of liquid in gallons per minute through a valve with a pressure drop of 1 psi across the valve at 60°F. Recommended usage is between 25% and 85% travel. Maximum flowing pressure drop limits: 300 psi steam; 500 psi liquid.

# Marwin Valve CV3000 Series – Flow Coefficient

## Cv vs Travel (Standard Port Valve)

Size	Type	Characterized Insert	0-10% (0-9°)	20% (18°)	30% (27°)	40% (36°)	50% (45°)	60% (54°)	70% (63°)	80% (72°)	90% (81°)	100% (90°)
0.50R	1/64" Slot	SB	0.00	0.01	0.03	0.40	0.06	0.08	0.09	0.11	0.12	0.14
	1/32" Slot	SA	0.00	0.03	0.07	0.12	0.16	0.20	0.24	0.28	0.32	0.36
	1/16" Slot	S1	0.00	0.07	0.20	0.33	0.46	0.60	0.73	0.86	1.00	1.10
	30°V	A1	0.00	0.11	0.24	0.36	0.56	0.84	1.10	1.60	2.10	2.60
	60°V	A2	0.00	0.12	0.33	0.60	0.84	1.40	2.00	3.10	4.40	5.90
	Round Port	R1	0.00	0.29	0.46	0.70	1.10	1.80	2.60	4.30	6.40	8.00
0.75R	1/16" Slot	S1	0.00	0.06	0.24	0.40	0.56	0.73	0.90	1.00	1.20	1.30
	1/8" Slot	S3	0.00	0.14	0.39	0.65	0.90	1.20	1.40	1.70	1.90	2.90
	30°V	A1	0.00	0.11	0.24	0.41	0.67	1.00	1.40	1.90	2.60	3.00
	60°V	A2	0.00	0.13	0.36	0.55	1.00	1.50	2.30	3.60	5.00	6.70
		Round Port	R1	0.00	0.43	0.70	1.10	1.60	2.60	4.00	6.40	9.60
1.00R	1/16" Slot	S1	0.00	0.10	0.40	0.67	0.94	1.20	1.50	1.70	1.90	2.10
	3/16" Slot	S4	0.00	0.22	0.82	1.40	1.90	2.50	3.10	3.50	4.00	4.30
	30°V	A1	0.00	0.21	0.56	1.00	1.60	2.40	3.40	4.60	6.20	7.30
	60°V	A2	0.00	0.30	0.78	1.20	2.30	3.60	5.30	8.30	11.60	15.50
	90°V	A3	0.00	0.48	1.20	2.30	3.50	5.40	7.70	10.80	12.10	19.70
	Round Port	R1	0.00	1.20	1.90	2.80	4.30	7.00	10.50	17.00	26.00	32.00
1.25R	3/16" Slot	S4	0.00	0.38	1.40	2.40	3.40	4.40	5.40	6.20	6.90	7.50
	30°V	A1	0.00	0.39	1.00	1.80	2.90	4.40	6.40	8.60	11.40	13.50
	60°V	A2	0.00	0.48	1.30	2.00	3.70	5.80	8.50	13.40	18.70	25.00
	90°V	A3	0.00	0.78	2.00	3.70	5.70	8.80	12.50	17.50	19.70	32.00
		Round Port	R1	0.00	1.80	3.00	4.40	6.70	10.90	16.40	26.60	40.60
1.50R	3/16" Slot	S4	0.00	0.47	1.80	3.00	4.20	5.40	6.80	7.70	8.60	9.40
	30°V	A1	0.00	0.41	1.20	2.10	3.50	5.20	7.60	10.30	13.70	16.30
	60°V	A2	0.00	0.57	1.70	3.00	5.60	9.10	13.20	19.80	28.40	37.50
	90°V	A3	0.00	1.00	2.80	4.50	8.10	13.40	19.70	30.90	47.10	71.70
		Round Port	R1	0.00	3.00	4.80	7.20	11.00	18.00	27.00	44.00	65.50
2.00R	1/4" Slot	S5	0.00	0.75	2.90	4.80	6.80	8.70	10.80	12.30	13.80	15.00
	30°V	A1	0.00	0.55	1.70	3.40	5.70	8.30	12.10	16.60	22.20	26.50
	60°V	A2	0.00	0.70	2.60	4.90	9.30	15.50	22.20	32.10	47.20	61.60
	90°V	A3	0.00	0.88	3.30	6.10	11.70	19.40	27.50	40.10	59.00	77.00
		Round Port	R1	0.00	4.30	7.00	10.50	16.20	26.40	39.60	64.00	96.00
2.50R	3/8" Slot	S6	0.00	1.00	3.80	6.40	9.00	11.60	14.40	16.40	18.40	20.00
	30°V	A1	0.00	1.00	3.20	6.40	10.60	15.40	22.60	31.00	41.50	49.50
	60°V	A2	0.00	1.00	3.80	7.10	13.50	22.50	32.20	46.60	68.50	89.40
	90°V	A3	0.00	1.90	7.10	13.10	25.00	41.60	58.90	85.90	126.40	165.00
		Round Port	R1	0.00	9.40	15.10	22.80	35.10	57.20	85.80	138.70	208.00
3.00R	7/16" Slot	S7	0.00	1.20	4.60	7.80	11.00	14.20	17.60	20.00	22.40	24.40
	30°V	A1	0.00	0.75	2.70	6.00	10.20	16.90	24.50	33.90	44.80	54.20
	60°V	A2	0.00	1.00	4.30	10.10	18.60	29.40	46.30	67.20	94.40	124.60
	90°V	A3	0.00	1.20	8.00	14.00	26.00	44.00	67.00	102.00	151.00	230.00
		Round Port	R1	0.00	12.60	20.20	31.10	47.40	77.80	115.00	187.00	280.00
4.00R	1/2" Slot	S8	0.00	2.50	9.30	15.70	22.10	28.40	35.30	40.20	45.10	49.00
	30°V	A1	0.00	0.90	3.60	8.50	16.10	26.80	40.20	56.60	72.50	90.00
	60°V	A2	0.00	1.20	5.70	15.40	28.80	48.60	73.40	107.00	150.70	200.00
	90°V	A3	0.00	2.00	9.00	23.00	42.00	72.00	110.00	167.00	250.00	380.00
		Round Port	R1	0.00	26.00	42.10	63.10	97.20	159.00	238.00	385.00	575.00

Cv is defined as flow of liquid in gallons per minute through a valve with a pressure drop of 1 psi across the valve at 60°F. Recommended usage is between 25% and 85% travel. Maximum flowing pressure drop limits: 300 psi steam; 500 psi liquid.

# Marwin Valve CV3000 Series – Ordering Schematic

CV3000/1010/5K/AB

Prefix	Series	Size	Body Material	1	2	3	4	5	6	7	8	9	10			
Cv	3000F	–	100	–	S6	/	S	E	A	1	D	L	T	V	H	L

Prefix	
Cv	Control Valve

Series	
3000F	Full Port
3000R	Standard Port

Size	
025	1/4" (DN8) (Full Port Only)
038	3/8" (DN12) (Full Port Only)
050	1/2" (DN15)
075	3/4" (DN20)
100	1" (DN25)
125	1-1/4" (DN32)
150	1-1/2" (DN40)
200	2" (DN50)
250	2-1/2" (DN65)
300	3" (DN80)
400	4" (DN100) (Standard Port Only)

Body Material	
CS	Carbon Steel WCB
S6	Stainless Steel CF8M
ZZ	**Other Special Alloy

End Connections	
1&2	
PT	NPT
SW	FSW
SE	FSW Extended
F1	150# FE
F3	300# FE
F6	600# FE
E4	BWE Extended Sch 40
E8	BWE Extended Sch 80
ZZ	Non-Standard

Characterized Insert/Open/Trim Material	
3&4	
A1	30° V / 316 SS
A2	60° V / 316 SS
A3	90° V / 316 SS
R1	Full Round / 316 SS
*SX	Slot / 316 SS
ZZ	**Other Special Alloy

Seat/Body Seals/Thrust Washer	
5&6	
TF	PTFE / PTFE / PTFE
RT	RPTFE / RPTFE / RPTFE
PA	PFA / PFA / PFA
SF	C-RPTFE / C-RPTFE / C-RPTFE
DL	Delrin / Vlon / RPTFE
PK	PEEK / Viton / PEEK
CP	C-PEEK / Graphite / PEEK
UM	UHMWPE / Vlon / UHMWPE
ZZ	Non-Standard

Packing/Stem-O-Ring	
7&8	
TV	PTFE / Viton
TE	PTFE / EPDM
GV	Grafoil / Viton
GE	Grafoil / EPDM
UV	UHMWPE / EPDM
UE	UHMWPE / EPDM
ZZ	Non-Standard

Handle & Gear Operator	
9&10	
NN	None
HL	Handle Lever
HD	Handle Lever with Locking Device
GO	Gear Operator
HT	10 Position Handle 1/4" F – 2-1/2" R only
ZZ	***Non-Standard

Note: ZZ non-standard options must be described on purchase order or inquiry

\* Refer to flow coefficient chart. Page 10 & 11 for slot size No. "X"  
 \*\* Refer to 3000 Series bulletin and specify  
 \*\*\* Specify reverse rotating actuator for automated fail open CV3000 valves



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