



A-T Controls, Inc.

V Series

V-Port Segment Control Valve



V Series

V-Port Segment Control Valve

The A-T Controls V Series rotary valve is a throttling control segment-ball valve that provides high flow capacity with optimum characteristics for industrial markets including Pulp and Paper, Refinery, Chemical, and Petrochemical Industries.



Product Features

1. 1-pc body design reduces leakage paths.
2. V-ball provides large dynamic pass of fluid, including solid particles.
3. V-ball with top and bottom bearings reduces operational torque.
4. Rotary-valve design allows the cutting of solids between the v-ball and the seats enabling the fluid to pass smoothly without obstructions.
5. Spring live-loaded metal seats with Viton or graphite backing.
6. Interchangeable soft seats and metal seats to satisfy various applications. Seats can be easily changed in a few simple steps.
7. Automatic pressure relief design.
8. Nearly equal percentage flow characteristic.
9. Available in flangeless or flange connection.
10. ISO 5211 mounting pad.
11. Anti-static device.
12. Easy to remove cap design simplifies seat changes and installation of repair kits.



AT Controls, Inc.

Applications

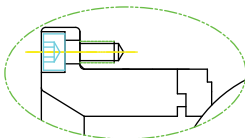
- Slurry and Viscous Fluid
- Powder and Particles in Fluid
- Chips and Fibers in Pulp and Paper Process
- Flow Control
- Pressure Control
- Steam, Gas and Liquid



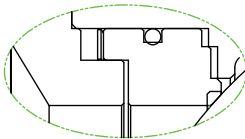
Design and Structures

Feature 6

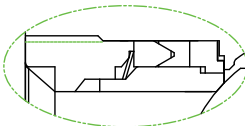
Interchangeable Seats



VS



VV



VM

Optional Flangeless or Flange Connections

Feature 1

1-pc body design

Feature 12

Easy to remove cap design



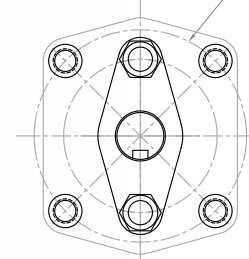
Feature 2

"V" cut segment ball design offers excellent flow control

Feature 10

Integral mounting pad

ISO 5211 Mounting Pad



Feature 3

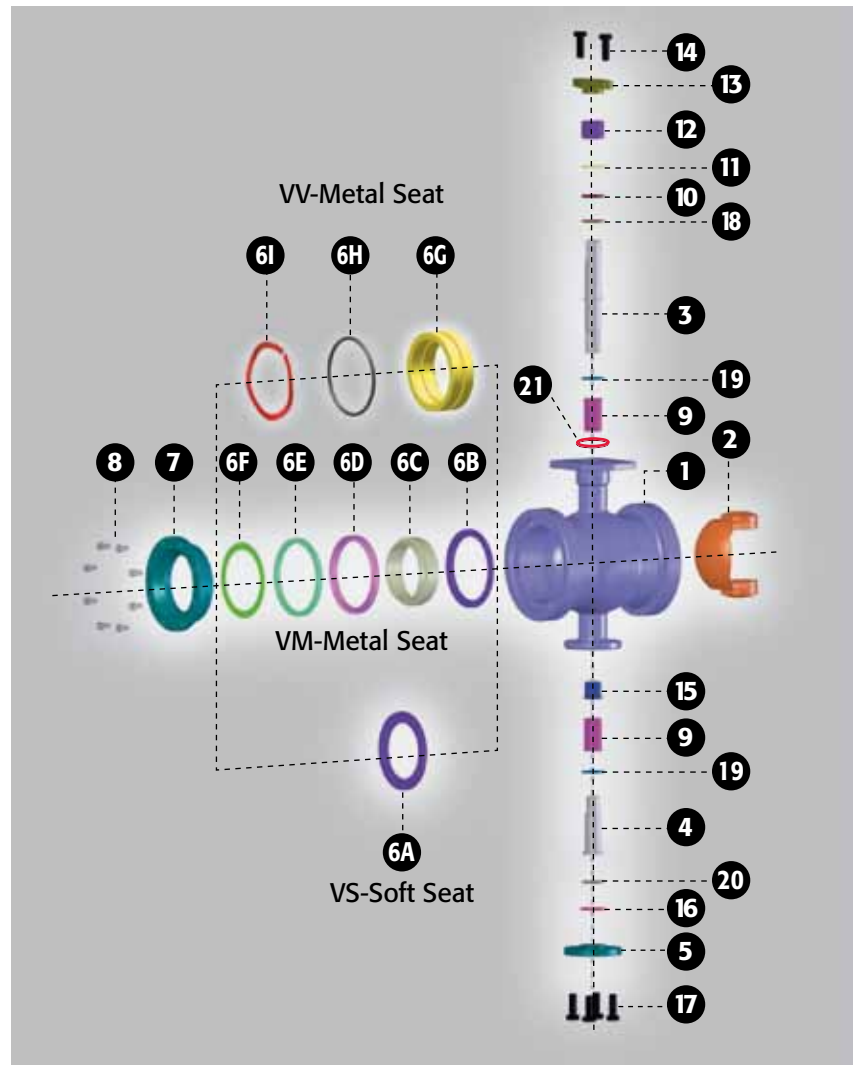
Segment ball design with bearings on top and bottom reducing operational torque.

V Series

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Applicable Standards

- **Body material:**
Standard in WCB, CF8M
(Special material is available on request)
- **Nominal size:**
1" to 12"
- **Pressure rating:**
ANSI 150/300LB
- **End connections:**
Raised face Flanged & Flangeless
- **Rangeability:**
Greater than 150:1
- **Seat leakage:**
According to FCI 70-2(B16.104)
a) Type: Soft seat : ANSI class VI
b) Type: Metal seat : ANSI class IV
- **Temperature Range:**
-20 Deg F to 600 Deg F
- **Face to face dimension:**
According to ISA S75.04



Technical Specifications Material Reference

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VM Metal Seat - Graphite Seat Packing - 600 Deg F	7

Technical Specifications - MATERIAL

VS SERIES - 50/50 SEAT - 400 Deg F

NO	PART NAME	MATERIAL	
1	Body	A216-WCB	A351-CF8M
2.1	Segment- Soft Seat	A351-CF8M	A351-CF8M
3	Stem	A276-316	A276-316
4	Shaft	A276-316	A276-316
5	End Cover	AISI-1045	A276-316
6A	Soft Seat	STFE	
7	Cap	A351-CF8M	A351-CF8M
8	Bolt	304SS	
9	Thrust Bearing	TFE COMP	
10	Washer	RTFE	
11	Washer	A240-316 + HARDEN FACE	
12	Gland Packing	RTFE	
13	Gland	A351-CF8	
14	Gland Bolt	304SS	
15	Support	A276-316	
16	Cover Gasket	RTFE	
17	Cover Bolt	304SS	
18	Stem O-Ring	VITON	
19	Washer	TFE COMP	
20	Washer	TFE COMP	
21	C-Clip	316SS	

V Series

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Technical Specifications - MATERIAL

VV Metal Seat - VITON Seat Packing - 500 Deg F

NO	PART NAME	MATERIAL	
1	Body	A216-WCB	A351-CF8M
2	Segment-Metal Seat	A351-CF8M + HCr	A351-CF8M + HCr
3	Stem	A276-316	A276-316
4	Shaft	A276-316	A276-316
5	End Cover	AISI-1045	A276-316
6G	Seat	A351-CF8M + ST-6	A351-CF8M + ST-6
6H	O-Ring	Viton	
6I	Spring	INCONEL X-750	
7	Cap	A351-CF8M	A351-CF8M
8	Bolt	304SS	
9	Thrust Bearing	TFE COMP	
10	Washer	RTFE	
11	Washer	A240-316 + HARDEN FACE	
12	Gland Packing	RTFE	
13	Gland	A351-CF8	
14	Gland Bolt	304SS	
15	Support	A276-316	
16	Cover Gasket	RTFE	
17	Cover Bolt	304SS	
18	Stem O-Ring	VITON	
19	Washer	TFE COMP	
20	Washer	TFE COMP	
21	C-Clip	316SS	

Notes: 1. HCr = Hard Chrome Plated

Technical Specifications - MATERIAL

VM Metal Seat - Graphite Seat Packing - 600 Deg F

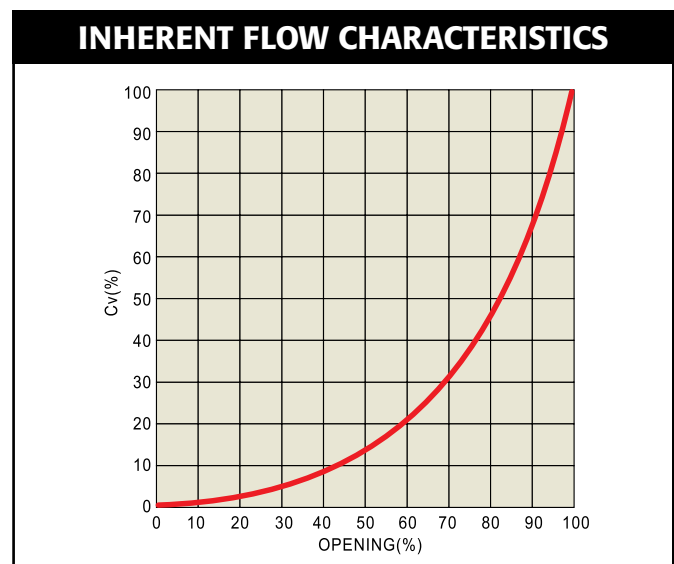
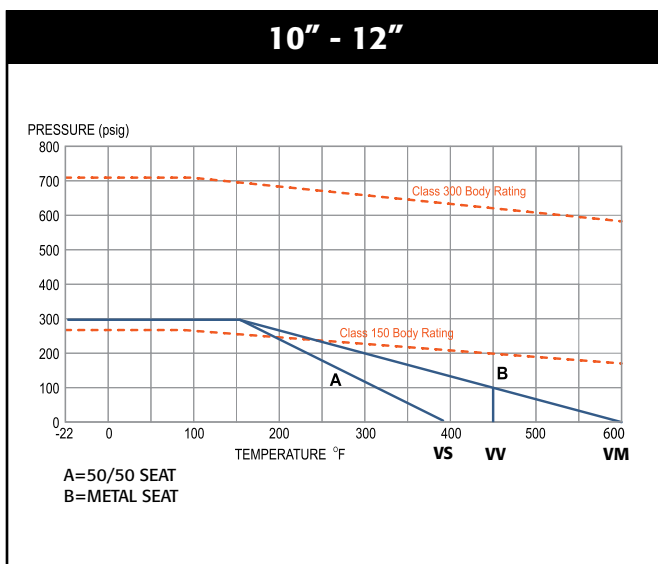
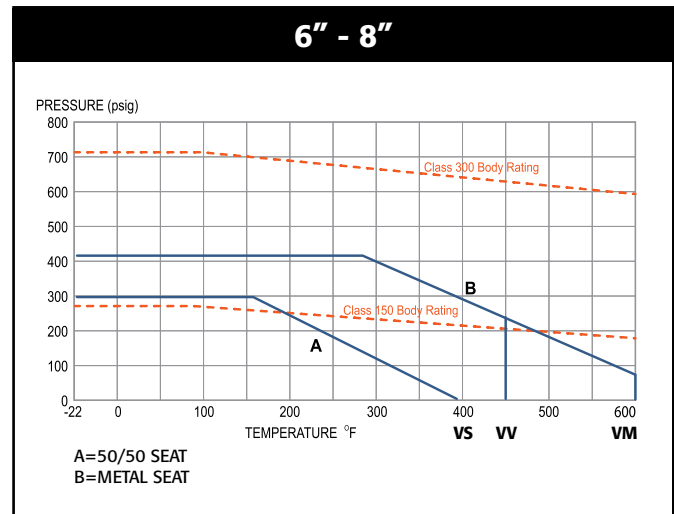
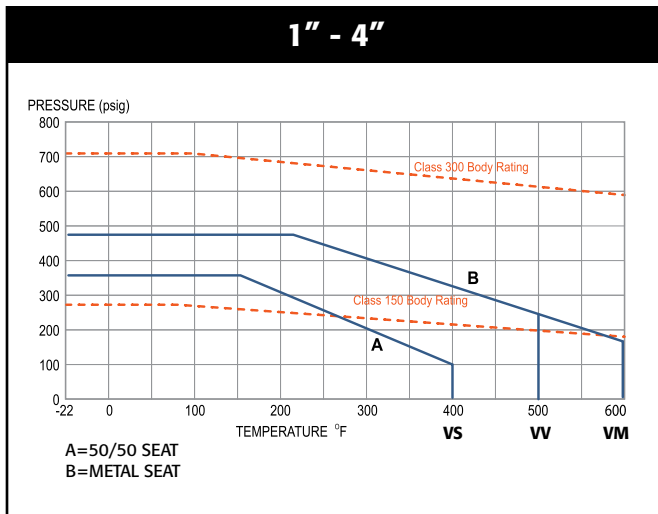
NO	PART NAME	MATERIAL	
1	Body	A216-WCB	A351-CF8M
2.2	Segment-Metal Seat	A351-CF8M + HCr	A351-CF8M + HCr
3	Stem	17-4PH + HCr	17-4PH + HCr
4	Shaft	17-4PH + HCr	17-4PH + HCr
5	End Cover	AISI-1045	A276-316
6B	Seat Support	A351-CF8M	A351-CF8M
6C	Seat	A351-CF8M + ST-6	A351-CF8M + ST-6
6D	Packing	GRAPHITE	
6E	Seat Gland	A351-CF8M	A351-CF8M
6F	Spring	INCONEL X-750	
7	Cap	A351-CF8M	A351-CF8M
8	Bolt	304SS	
9	Thrust Bearing	A240-316 + HARDEN FACE	
10	Washer	GRAPHITE	
11	Washer	A240-316 + HARDEN FACE	
12	Gland Packing	GRAPHITE	
13	Gland	A351-CF8	
14	Gland Bolt	304SS	
15	Support	A276-304/A276-316	
16	Cover Gasket	GRAPHITE	
17	Cover Bolt	304SS	
19	Washer	A240-316 + HARDEN FACE	
20	Washer	TFE COMP	
21	C-Clip	316SS	

Notes: 1. HCr = Hard Chrome Plated

V Series

V-Port Segment Control Valve

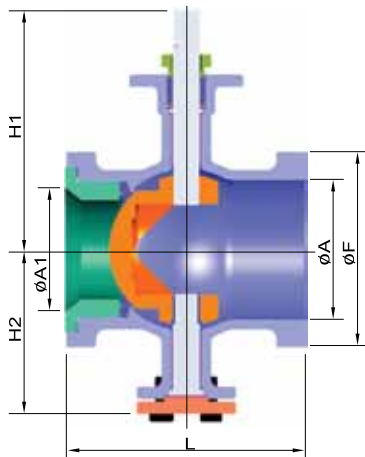
Temperature & Pressure Curves



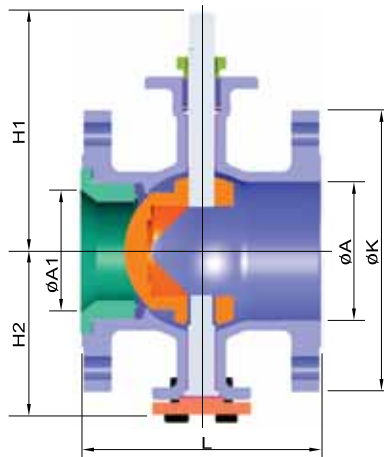
Cv Values

Size	Opening %									
	10	20	30	40	50	60	70	80	90	100
1"	0.01	0.52	1.66	3.44	5.87	9.11	13.36	18.83	27.54	40.5
1-1/2"	0.02	1.06	3.35	6.95	11.85	18.38	26.96	38	55.55	81.7
2"	0.04	1.68	5.3	11	18.75	29.1	42.67	60.12	87.9	129.3
3"	0.1	4.54	14.3	29.67	50.62	78.5	115.2	162.3	237.4	349.1
4"	0.15	6.57	20.7	43	73.3	113.7	166.8	235	343.7	505.5
6"	0.38	16.7	52.7	109.3	186.5	289.5	424.54	598.2	874.8	1286.5
8"	0.5	21.9	69	143	244	379	556	783	1145	1684
10"	0.93	39.58	125	259	442	685	1005	1416	2040	3045
12"	1.29	55.96	177	366	625	970	1420	2002	2927	4300
F _L	0.93	0.93	0.91	0.9	0.85	0.81	0.75	0.75	0.61	0.51
X _T	0.66	0.65	0.63	0.6	0.57	0.55	0.51	0.4	0.33	0.3

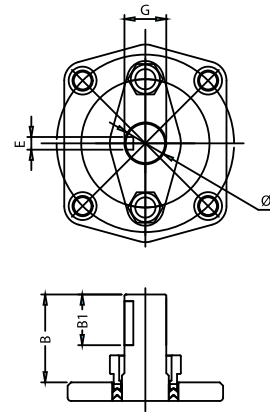
Flangeless Type



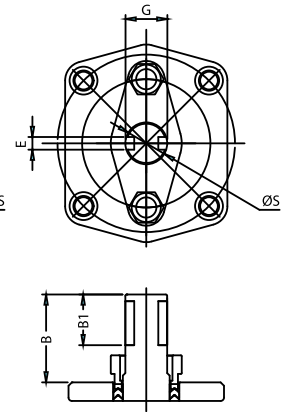
Flanged Type



1"~4"



6"~12"



Dimensions (IN) V Series Segmented V-Port

Size	A	A1	F	K-150 RFF	K-300 RFF	L	H1	H2	B	B1	E	G	S	ISO 5211
1"	1.3	0.98	2.52	4.25	4.88	4.01	4.25	2.75	1.3	0.79	0.197	0.69	0.61	F05
1-1/2"	1.93	1.57	3.23	5	6.14	4.49	5.28	3.31	1.77	1.18	0.197	0.69	0.61	F07
2"	2.36	1.97	3.94	5.98	6.5	4.88	5.59	3.62	1.77	1.18	0.197	0.69	0.61	F07
3"	3.5	3.15	5.16	7.48	8.27	6.5	6.46	4.41	1.77	1.18	0.315	0.98	0.87	F07
4"	4.45	3.94	6.22	9.01	10	7.64	7.6	5.28	2	1.18	0.315	0.98	0.87	F10
6"	6.3	5.2	8.5	10.98	12.52	9.01	9.13	6.73	2	1.18	0.315	1.22	0.98	F10
8"	8	7.87	10.51	13.5	15	9.57	10.98	7.8	2.76	1.77	0.315	1.42	1.18	F14
10"	9.92	9.84	12.83	15.98	17.48	11.69	12.83	9.21	2.97	2.17	0.551	1.82	1.43	F14
12"	11.81	11.22	14.76	19.01	20.51	13.31	15.2	10.71	3.37	2.64	0.551	2.4	1.89	F16

Face to Face dimension L according to ISA S75.04

Dimensions subject to change.

Weight (Lbs) V Series Segmented V-Port

Size	150 Lb	300 Lb	Wafer
1"	8	13	5.5
1-1/2"	12	20	8.3
2"	16	29	10.6
3"	32	44	20
4"	48	73	33
6"	80	113	63
8"	130	191	100
10"	218	316	166
12"	364	465	276

V Series

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V-Segment Torque Table (50/50 Seat)

VS Series	Torques in In-Lbs @ PSIG						
	75	150	220	285	360	435	500
1"	150	150	160	160	170	170	190
1-1/2"	175	175	175	175	190	200	215
2"	230	230	245	245	260	270	290
3"	675	675	700	700	700	725	725
4"	750	750	800	815	930	930	1000
6"	1680	1720	2000	2200	2750	3000	
8"	2225	2600	3050	3400	3750		
10"	2700	3500	4300	5500			
12"	4400	6500	7900	10300			

V-Segment Torque Table (Metal Seat w/ Viton)

VV Series	Torques in In-Lbs @ PSIG							
	75	150	220	285	360	435	500	580
1"	150	160	175	200	220	235	265	300
1-1/2"	185	200	215	235	265	295	320	340
2"	215	225	235	265	290	330	350	390
3"	490	565	700	840	915	1035	1170	
4"	565	690	800	915	1035	1170	1310	
6"	1220	1700	2225	2750	3160	3960		
8"	1635	2925	3975	4800	5265			
10"	2635	3500	5265	7015				
12"	4690	7015	8775	11700				

V-Segment Torque Table (Metal Seat w/ Graphite)

VM Series	Torques in In-Lbs @ PSIG							
	75	150	220	285	360	435	500	580
1"	190	200	225	250	275	300	335	375
1-1/2"	235	250	275	300	335	375	410	435
2"	275	285	300	335	365	425	450	500
3"	620	720	900	1075	1165	1315	1500	
4"	720	870	1020	1165	1315	1500	1660	
6"	1550	2160	2800	3500	4010	5035		
8"	2100	3720	5060	6100	6700			
10"	3350	4475	6700	8930				
12"	6000	8950	11160	15000				

Notes:

1. Torques are tested by clean water and include 35% safety factor.
2. Torques are based on forward flow. Torque will increase if installed reverse flow.

Manual Ball Valve Part Number Matrix

<p>1 Fire Safe Designation</p> <p>2 Valve Series VS Segment V-port Soft Seat VM Segment V-port Metal Seat, Graphite Packing VV Segment V-port Metal Seat, Viton Packing</p> <p>3 Body Material Blank No Designation = Stainless Steel Body and Trim CF8M-316SS (-450° F to 1100° F) C Carbon Steel Body, A216 Gr WCB (-20° F to 800° F) L Low Carbon 316 Stainless Steel, CF3M-316L (to 800° F) 7 CG8M 317 D CD3MN Duplex SS 5 LCB, A352 (-50° F to 650° F) 8 LCC, A352 (-50° F to 650° F) 6 WC6, A217 (-20° F to 1100° F) 9 WC9, A 217 (-20° F to 1100° F)</p> <p>4 End Connection F1 150# Flanged Ends F3 300# Flanged Ends W1 Flangeless</p> <p>5 Valve Size 0100 1" 0150 1-1/2" 0200 2" 0300 3" 0400 4" 0600 6" 0800 8" 1000 10" 1200 12"</p>	<p>6 Seat, Lining & Trim Materials S 50/50 Seat 3 HCr Coated Ball/Stellite Inlay Seat <i>Other Options Available</i></p> <p>7 Special Designations X No Specials G Gear Operator</p> <p>8 Additional Specials X No Specials Z Special End Configuration</p>
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How To Order

1 - 2 - 3 - 4 - 5 - 678
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- VM - C - F3 - 0150 - 3XX



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6D-0539



ISO 9001



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