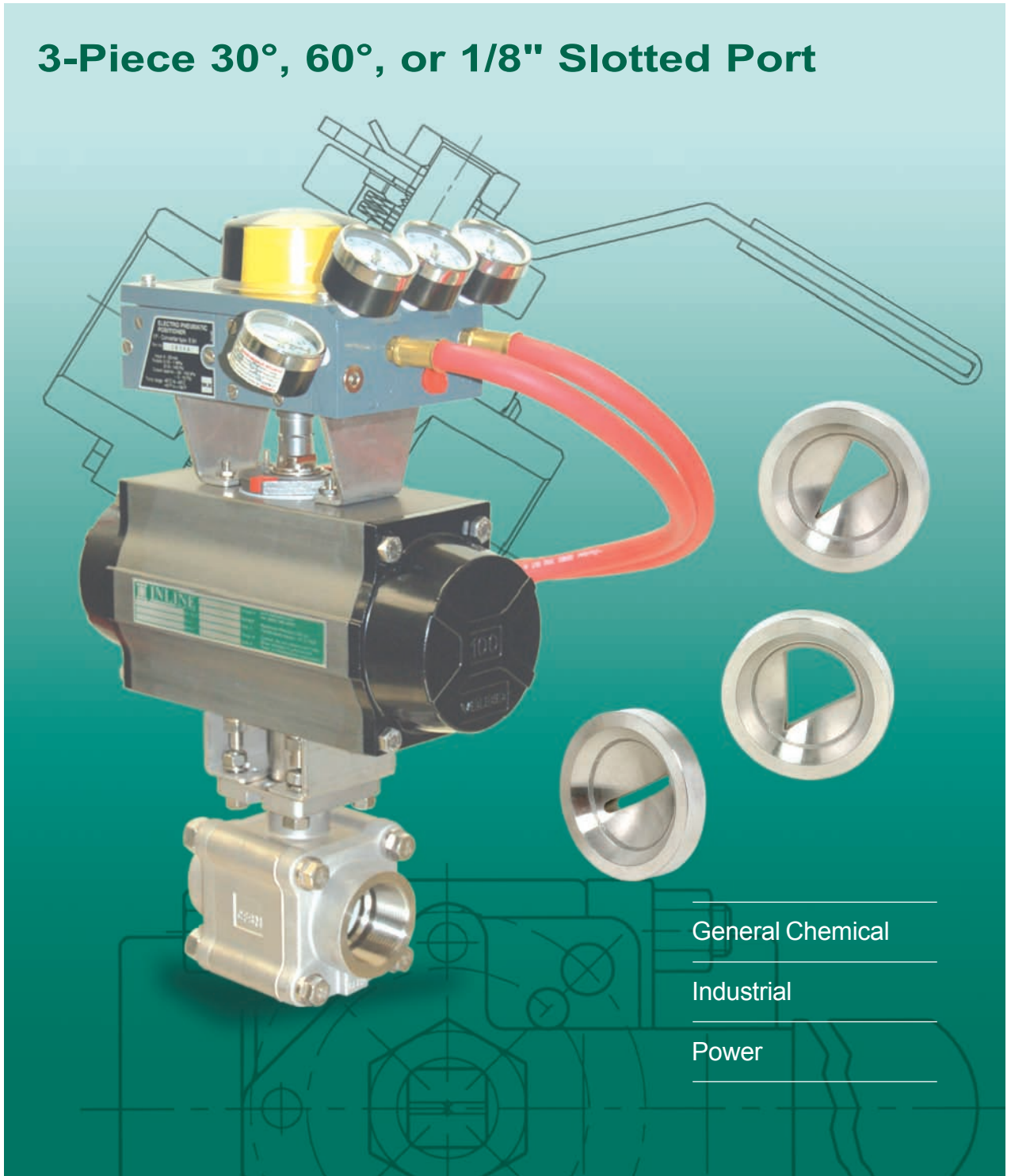


324 Control Valve

3-Piece 30°, 60°, or 1/8" Slotted Port



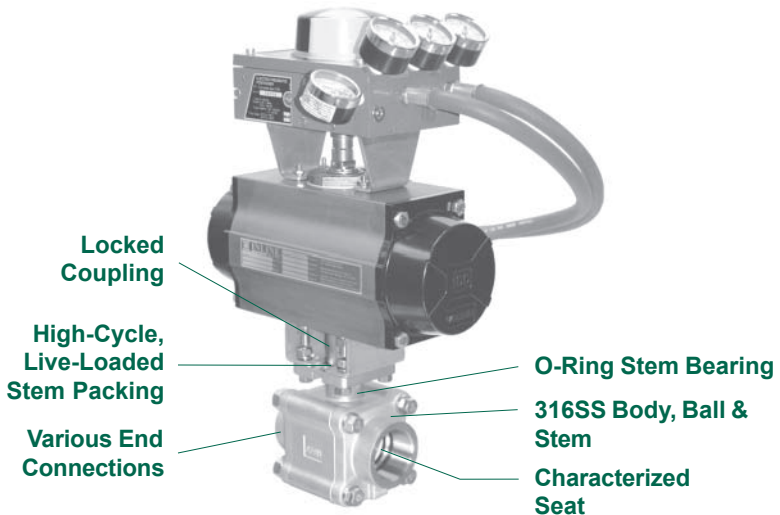
General Chemical

Industrial

Power

The 324 Series Control Valve

The 324 series control valve incorporates several innovative design features for improved process performance. A locked coupling eliminates hysteresis between the valve and the actuator. With our high-cycle, live-loaded stem packing system and various seat options, the 324 series control valve provides an ideal choice for multiple control applications.

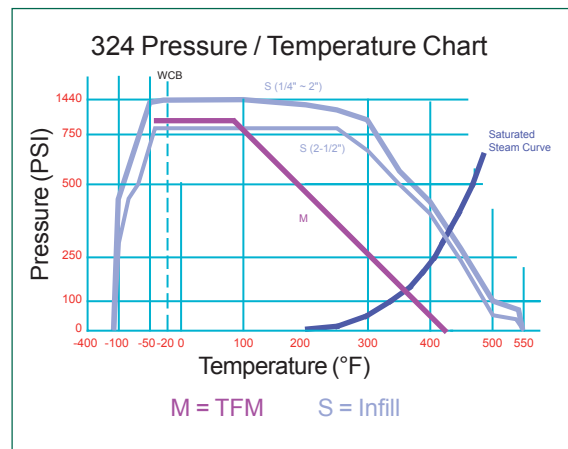


Standard Features and Benefits

- **Matched Ball, Stem and Seat**
Reduces hysteresis and improves control performance
Lapped seat and ball reduce torque and friction
- **Bracket and Locked Coupling Assembly**
Eliminates hysteresis between valve and actuator
- **Resilient Seat Downstream**
Provides tight shut-off
- **30°, 60°, or 1/8" Slotted Characterized Seat**
Allows for a wide range of control
- **High-Cycle, Live-Loaded Stem Packing**
Dynamic loading of stem packing ensures a tight seal through varying pressure and temperature conditions, reducing maintenance costs and extending service life
- **O-Ring Stem Bearing**
Maintains stem alignment
Reduces packing side-loading and wear
Enhances stem seal performance
- **Blow-Out-Proof Stem**
Stem is bottom loaded to prevent removal when valve is in service
- **Anti-Static Stem**
Grounds ball and stem to valve body
- **Investment Cast**
High quality investment castings improve dimensional control and reduce porosity
- **Heat Treated Ball**
Reduces galling and extends service life

Options

- Direct Mount Actuation
- Modulating electric actuation
- Various end connections available
- Certified material test reports are available upon request
- CE marking (applies to valves >1")
- Fire safe to API 607 Rev 5

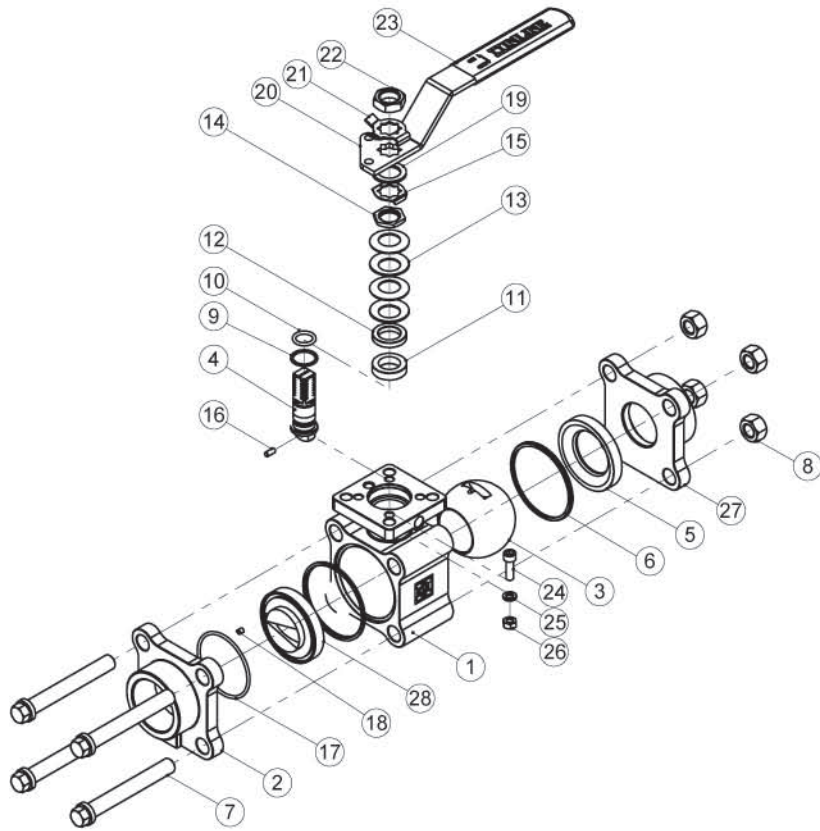


Operating Conditions

- Temperature range:
-40°F ~ 550°F (depending on seats)
- Maximum pressure:
1440 PSI (Class 600)
- Maximum pressure drop of 300 PSI for saturated steam applications, or 500 PSI for liquid applications

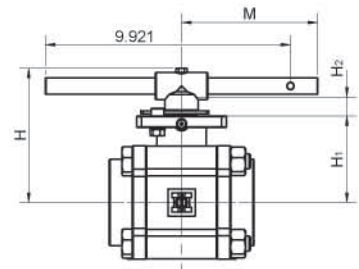
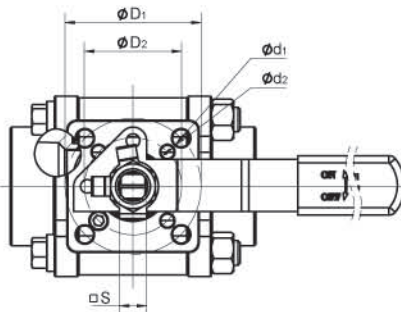
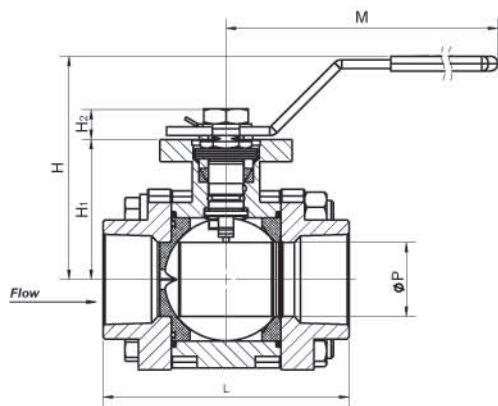
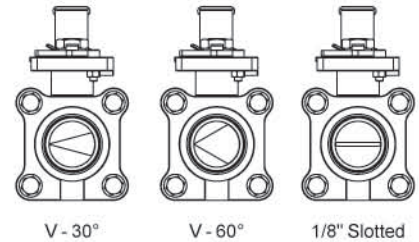
Specifications

- All valves designed and pressure tested in accordance with ASME B16.34, MSS-SP-110 and API 598
- All materials comply with applicable ASTM material specifications
- End connections: All to B16.34; NPT to B1.20.1; socket weld to B16.11; butt weld to B16.25; flanged to B16.5



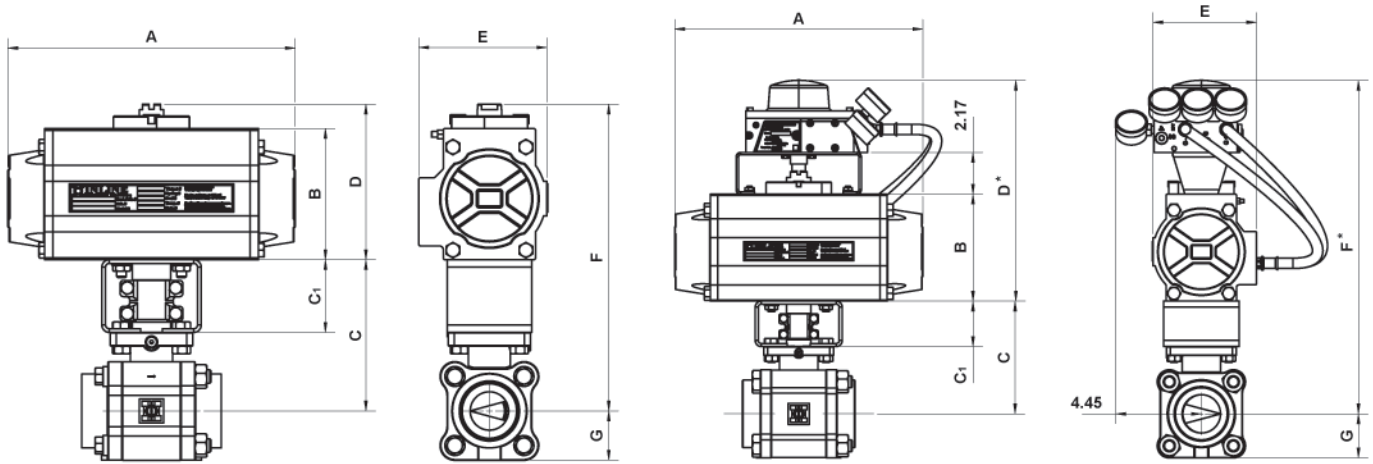
Valve Components			
#	Part Name	Material	Qty.
1	Body	A351 Gr. CF8M	1
2	End Cap (A)	A351 Gr. CF8M	1
3	Ball	316SS Heat Treated	1
4	Stem	316SS	1
5	Seat	Infill*	1
6	Body Seal	S Gasket TFE	2
7	Body Bolt	304SS	4
8	Body Nut	304SS	4
9	Thrust Washer	PEEK	1
10	Stem O-Ring	Viton 90	1
11	Stem Packing Set	TFM*	1
12	Packing Gland	304SS	1
13	Belleville Washer	301SS	4
14	Gland Nut	304SS	1
15	Gland Nut Lock Washer	304SS	1
16	Stem Set Pin	316SS	1
17	Seat O-Ring	Viton 90	1
18	Positioning Pin	316SS	1
19	Stem Spacer	304SS	1
20	Handle	304SS	1
21	Handle Nut Lock Washer	304SS	1
22	Handle Nut	304SS	1
23	Handle Cover	Vinyl	1
24	Stop Pin	304SS	1
25	Split Washer	301SS	1
26	Stop Pin Nut	304SS	1
27	End Cap (B)	A351 Gr. CF8M	1
28	V-Seat	A351 Gr. CF8M	1

* Standard Configuration. Other Materials Available



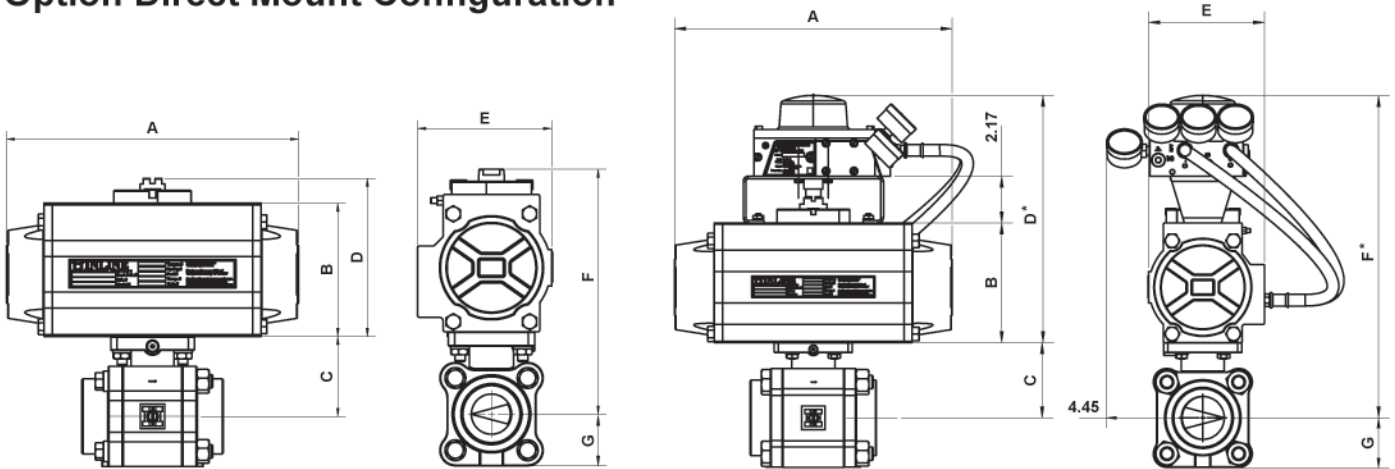
Size		Dimensions (Inches)												
324F	324S	L	P	H	H ₁	H ₂	D ₁	D ₂	d ₁	d ₂	S	M	ISO 5211 Pattern	Wt. (lbs)
1/4	—	2.57	0.44	3.02	1.80	0.38	1.97	1.42	0.27	0.22	0.35	5.41	F03 / F05	1.71
3/8	1/2	2.57	0.44	3.02	1.80	0.38	1.97	1.42	0.27	0.22	0.35	5.41	F03 / F05	1.72
1/2	3/4	2.80	0.57	3.11	1.89	0.38	1.97	1.42	0.27	0.22	0.35	5.41	F03 / F05	2.21
3/4	1	3.69	0.81	3.21	1.99	0.43	1.97	1.65	0.27	0.22	0.43	6.37	F04 / F05	3.73
1	1 1/4	4.19	1.00	3.41	2.19	0.44	1.97	1.65	0.27	0.22	0.43	6.37	F04 / F05	5.31
1 1/4	1 1/2	4.54	1.25	4.21	2.56	0.61	2.76	1.97	0.35	0.27	0.55	8.02	F05 / F07	8.69
1 1/2	2	4.98	1.50	4.52	2.83	0.61	2.76	1.97	0.35	0.27	0.55	8.02	F05 / F07	11.33
2	2 1/2	5.87	2.00	5.44	3.50	0.77	4.02	2.76	0.44	0.35	0.67	5.51	F07 / F10	23.67

Standard Configuration



Size		Dimensions (Inches)													
324F	324S	A	B	C	C ₁	D	D*	E	F	F*	G	Actuator	Bracket	Clamp Adaptor	Adaptor
1/4 - 3/8	1/2	5.49	2.74	4.16	2.36	3.52	8.67	2.79	7.68	12.83	0.87	DA-52	F05 / F07	09 x 22	11 x 22
1/4 - 3/8	1/2	5.49	2.74	4.16	2.36	3.52	8.67	2.79	7.68	12.83	0.87	SR-52	F05 / F07	09 x 22	11 x 22
1/2	3/4	5.49	2.74	4.25	2.36	3.52	8.67	2.79	7.77	12.92	1.00	DA-52	F05 / F07	09 x 22	11 x 22
1/2	3/4	5.49	2.74	4.25	2.36	3.52	8.67	2.79	7.77	12.92	1.00	SR-52	F05 / F07	09 x 22	11 x 22
3/4	1	5.49	2.74	4.35	2.36	3.52	8.67	2.79	7.87	13.02	1.19	DA-52	F05 / F07	11 x 22	11 x 22
3/4	1	6.38	3.17	4.35	2.36	3.96	9.10	3.17	8.31	13.45	1.19	SR-63	F05 / F07	11 x 22	14 x 22
1	1 1/4	6.38	3.17	4.55	2.36	3.96	9.10	3.17	8.51	13.65	1.35	DA-63	F05 / F07	11 x 22	14 x 22
1	1 1/4	8.15	3.82	4.55	2.36	4.61	9.75	3.72	9.16	14.30	1.35	SR-75	F05 / F07	11 x 22	17 x 22
1 1/4	1 1/2	6.38	3.17	4.92	2.36	3.96	9.10	3.17	8.88	14.02	1.60	DA-63	F05 / F07	14 x 22	14 x 22
1 1/4	1 1/2	9.35	4.27	4.92	2.36	5.06	10.20	4.17	9.98	15.12	1.60	SR-85	F05 / F07	14 x 22	17 x 22
1 1/2	2	8.15	3.82	5.20	2.36	4.61	9.75	3.72	9.81	14.94	1.79	DA-75	F05 / F07	14 x 22	17 x 22
1 1/2	2	10.69	4.78	5.20	2.36	5.57	10.71	4.85	10.77	15.90	1.79	SR-100	F07 / F10	14 x 22	17 x 22
2	2 1/2	9.35	4.27	5.87	2.36	5.06	10.20	4.17	10.93	16.06	2.30	DA-85	F07 / F10	17 x 22	17 x 22
2	2 1/2	12.91	5.57	5.87	2.36	6.75	11.50	5.39	12.61	17.37	2.30	SR-115	F07 / F10	17 x 22	22 x 22

Option Direct Mount Configuration



Size		Dimensions (Inches)											
324F	324S	A	B	C	D	D*	E	F	F*	G	Actuator	Bushing	
1/4 - 3/8	1/2	5.49	2.74	1.80	3.52	8.67	2.79	5.32	10.47	0.87	DA-52	11 x 9	
1/4 - 3/8	1/2	5.49	2.74	1.80	3.52	8.67	2.79	5.32	10.47	0.87	SR-52	11 x 9	
1/2	3/4	5.49	2.74	1.89	3.52	8.67	2.79	5.41	10.56	1.00	DA-52	11 x 9	
1/2	3/4	5.49	2.74	1.89	3.52	8.67	2.79	5.41	10.56	1.00	SR-52	11 x 9	
3/4	1	5.49	2.74	1.99	3.52	8.67	2.79	5.51	10.64	1.19	DA-52	11 x 9	
3/4	1	6.38	3.17	1.99	3.96	9.10	3.17	5.95	11.07	1.19	SR-63	14 x 11	
1	1 1/4	6.38	3.17	2.19	3.96	9.10	3.17	6.15	11.28	1.35	DA-63	14 x 11	
1	1 1/4	8.15	3.82	2.19	4.61	9.75	3.72	6.80	11.93	1.35	SR-75	17 x 11	
1 1/4	1 1/2	6.38	3.17	2.56	3.96	9.10	3.17	6.52	11.66	1.60	DA-63	—	
1 1/4	1 1/2	9.35	4.27	2.56	5.06	10.20	4.17	7.62	12.76	1.60	SR-85	17 x 14	
1 1/2	2	8.15	3.82	2.83	4.61	9.75	3.72	7.44	12.58	1.79	DA-75	17 x 14	
1 1/2	2	10.69	4.78	2.83	5.57	10.71	4.85	8.40	13.54	1.79	SR-100	17 x 14	
2	2 1/2	9.35	4.27	3.48	5.06	10.20	4.17	8.54	13.68	2.30	DA-85	—	
2	2 1/2	12.91	5.57	3.48	6.75	11.50	5.39	10.23	15.00	2.30	SR-115	22 x 17	

Flow Coefficient, Cv - Full Port Percent of Rated Travel (Degree of Rotation)											
Size	Seat	10 (9)	20 (18)	30 (27)	40 (36)	50 (45)	60 (54)	70 (63)	80 (72)	90 (81)	100 (90)
1/4"	1/8" Slotted	0.00	0.12	0.34	0.57	0.83	1.11	1.40	1.67	1.79	1.81
	30 Degree	0.00	0.11	0.28	0.43	0.61	0.88	1.21	1.59	1.91	1.97
	60 Degree	0.00	0.12	0.32	0.53	0.87	1.33	1.97	2.76	3.60	3.77
3/8"	1/8" Slotted	0.00	0.12	0.34	0.58	0.86	1.12	1.44	1.77	1.89	1.89
	30 Degree	0.00	0.12	0.28	0.42	0.64	0.91	1.26	1.74	1.95	2.03
	60 Degree	0.00	0.12	0.31	0.52	0.86	1.31	1.97	2.96	3.69	3.96
1/2"	1/8" Slotted	0.00	0.21	0.51	0.80	1.14	1.48	1.80	2.16	2.29	2.30
	30 Degree	0.00	0.20	0.41	0.61	0.91	1.32	1.87	2.58	2.96	3.05
	60 Degree	0.00	0.21	0.47	0.82	1.31	1.98	3.06	4.60	5.98	6.39
3/4"	1/8" Slotted	0.00	0.26	0.79	1.24	1.61	2.05	2.54	2.99	3.25	3.29
	30 Degree	0.00	0.25	0.64	1.00	1.60	2.34	3.40	4.62	5.70	6.03
	60 Degree	0.00	0.30	0.85	1.53	2.53	4.02	6.10	9.61	12.54	13.64
1"	1/8" Slotted	0.00	0.27	0.79	1.26	1.82	2.47	3.01	3.66	4.03	4.08
	30 Degree	0.00	0.28	0.67	1.12	1.83	2.99	4.61	6.55	8.70	9.27
	60 Degree	0.00	0.30	0.85	1.64	3.09	5.08	8.26	12.87	19.03	21.21
1 1/4"	1/8" Slotted	0.00	0.33	0.87	1.45	2.15	2.87	3.53	4.29	4.77	4.91
	30 Degree	0.00	0.33	0.68	1.41	2.66	4.39	6.68	9.59	12.93	13.82
	60 Degree	0.00	0.33	0.94	2.36	4.49	7.70	12.16	19.00	28.14	31.46
1 1/2"	1/8" Slotted	0.00	0.76	1.48	2.24	3.00	3.91	4.69	5.57	6.21	6.39
	30 Degree	0.00	0.73	1.34	2.43	4.16	6.85	10.06	14.34	20.09	21.75
	60 Degree	0.00	0.84	1.95	3.89	7.10	11.83	18.57	28.65	44.70	51.02
2"	1/8" Slotted	0.00	1.01	1.85	2.70	3.61	4.69	5.71	6.73	7.50	7.78
	30 Degree	0.00	1.09	2.06	3.83	6.81	11.18	16.37	23.73	32.10	35.17
	60 Degree	0.00	1.32	3.17	6.50	12.18	20.38	31.96	49.23	72.50	83.02

Flow Coefficient, Cv - Standard Port Percent of Rated Travel (Degree of Rotation)											
Size	Seat	10 (9)	20 (18)	30 (27)	40 (36)	50 (45)	60 (54)	70 (63)	80 (72)	90 (81)	100 (90)
1/2"	1/8" Slotted	0.00	0.12	0.34	0.58	0.84	1.15	1.50	1.85	1.98	2.08
	30 Degree	0.00	0.19	0.28	0.43	0.64	0.94	1.30	1.70	2.01	2.14
	60 Degree	0.00	0.12	0.31	0.54	0.86	1.32	1.94	2.72	3.69	3.93
3/4"	1/8" Slotted	0.00	0.21	0.51	0.81	1.14	1.42	1.74	2.07	2.20	2.26
	30 Degree	0.00	0.21	0.39	0.59	0.92	1.31	1.81	2.50	2.82	2.90
	60 Degree	0.00	0.22	0.47	0.82	1.27	1.95	2.90	4.32	5.27	5.71
1"	1/8" Slotted	0.00	0.25	0.76	1.15	1.51	2.00	2.44	2.92	3.13	3.19
	30 Degree	0.00	0.25	0.62	1.00	1.53	2.30	3.45	4.53	5.57	5.78
	60 Degree	0.00	0.29	0.79	1.44	2.48	3.92	5.92	8.75	10.92	11.80
1 1/4"	1/8" Slotted	0.00	0.27	0.80	1.28	1.83	2.42	2.93	3.49	3.82	3.86
	30 Degree	0.00	0.27	0.64	1.09	1.87	3.00	4.45	6.50	8.35	8.77
	60 Degree	0.00	0.29	0.81	1.65	2.89	4.87	7.83	12.09	16.18	17.57
1 1/2"	1/8" Slotted	0.00	0.33	0.81	1.41	1.99	2.71	3.42	4.60	4.60	4.73
	30 Degree	0.00	0.32	0.70	1.39	2.67	4.32	6.42	9.48	12.49	13.10
	60 Degree	0.00	0.36	1.01	2.42	4.48	7.58	11.90	18.54	25.66	27.80
2"	1/8" Slotted	0.00	0.72	1.49	2.16	2.93	3.69	4.48	5.38	5.92	6.00
	30 Degree	0.00	0.70	1.32	2.36	4.16	6.49	9.60	13.59	18.32	20.52
	60 Degree	0.00	0.79	1.88	3.87	7.04	11.38	17.30	26.15	36.53	39.83
2 1/2"	1/8" Slotted	0.00	1.01	1.84	2.76	3.69	4.87	5.80	6.84	7.65	7.76
	30 Degree	0.00	1.09	2.01	3.87	6.89	11.10	16.29	23.13	31.58	33.59
	60 Degree	0.00	1.32	3.08	6.53	12.16	19.95	31.02	46.67	66.00	72.42

*General Note: Recommended sizing is between 30 and 80 percent of rated travel,
and limited to 300 PSI max. steam, 500 PSI max. liquid pressure drop*

324 Ordering Information

Example: 2" 3-Piece 60° Seat Control Valve, ISO 5211 Direct Mount Pad with Lever Handle and Locking Device, 316SS Body and Trim, Carbon, Carbon Fiber, Ekonol Filled PTFE Downstream Seat, S Gasket TFE Seals, NPT Ends

Valve Series	Valve Size	Body Material	End Material	Ball Material	Stem Material	Seat	Seal	End Connection	Port	Port Config.
324S - Standard Port	2 [†] 1/4" 3 [†] 3/8" 5 1/2"	6 - A351 Gr. CF8M (316)	6 - A351 Gr. CF8M (316)	6 - A351 Gr. CF8M (316)	6 - A351 Gr. CF8M (316)	S - Infill (Carbon, Carbon Fiber, Ekonol Filled PTFE)	Q - S Gasket TFE T - PTFE	T - NPT A - ANSI 150# Flanged	2 - 2 Way	1 - 1/8" Slotted V-Port 3 - 30° V-Port 6 - 60° V-Port
324F - Full Port	7 3/4" A 1" B 1 1/4" C 1 1/2" D 2" E* 2 1/2"	2 - A216 Gr. WCB	2 - A216 Gr. WCB		7 - 17-4	M - TFM J - TFM Cavity Filled	M - TFM G - Graphite (Firesafe)	B - ANSI 300# Flanged X - Other		

[†] Full Port Only

* Standard Port Only

Due to continuous product development, information may change without notice.

A324 Ordering Information

Example: 2" 3-Piece Full Port Ball Valve, 316SS Body and Trim, Infill Downstream Seat, S Gasket TFE Seals, NPT Ends, 30° V-Port Seat, Spring Return Pneumatic Actuator 85, Bracket Assembly, 4-20 mA Positioner

Package A and B

Valve Series	Valve Size	Body Material	End Material	Seat	Seal	End Connection	Characterized Seat	Actuator Type	Actuator Mounting	Actuator Size	Positioner
A324F - Full Port	2 [†] 1/4" 3 [†] 3/8" 5 1/2"	6 - A351 Gr. CF8M (316)	6 - A351 Gr. CF8M (316)	S - Infill (Carbon, Carbon Fiber, Ekonol Filled PTFE)	Q - S Gasket TFE	T - NPT A - ANSI 150# Flanged	1 - 1/8" Slotted Port 3 - 30° V-Port 6 - 60° V-Port	S - Spring Return D - Double Acting L - Lever O - Oval	B - Bracket Assembly D - Direct Mount	05 - 52 06 - 63 07 - 75 08 - 85 10 - 100 11 - 115	E - V100E (4-20 mA) P - V100P (3-15 psi)
324S - Standard Port	7 3/4" A 1" B 1 1/4" C 1 1/2" D 2" E* 2 1/2"	2 - A216 Gr. WCB	2 - A216 Gr. WCB	M - TFM J - TFM Cavity Filled	M - TFM G - Graphite (Firesafe)	B - ANSI 300# Flanged X - Other					

[†] Full Port Only

* Standard Port Only

Due to continuous product development, information may change without notice.



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