Stainless Steel Air Actuated Ball Valves

2-Piece Stainless Steel, Full Port
1/4" to 4" NPT

SERIES
5335
5336

Features

- Full port design for unrestricted flow
- 316SS 2-piece investment casting body
- 316SS ball and stem
- RTFE (reinforced Teflon) ball seats
- Triple PTFE/Viton live loaded stem seals, adjustable
- Silicone free
- Valves tested accordance API 598
- Quarter turn rack and pinion design
- Electro-polished exterior surfaces
- Spring Return or Double Acting Actuators
- Corrosion resistant 316 stainless steel body, pistons & rack
- NEMA 4/4X (IP66) enclosure for washdown applications
- Coated springs for additional corrosion resistance (for spring return models)
- Externally adjustable stroke
- Pre-lubricated and tested to minimum 1 million operations
- Highly visible valve position indicator

Applications

On-off control of water, air, oil and other media compatible with the materials of construction. All-stainless construction for superior corrosion resistance. Cycle times approx. 1 to 3 seconds per 90° rotation. Steam service up to 25 PSI with optional high temperature mounting bracket. Suitable for vacuum service to 29"Hg.

Operation

Double acting actuators use air pressure to open and air pressure to close the ball valve (4-way pilot). Spring return actuators use air pressure to open and springs to close the ball valve (3-way pilot). Actuator will work with filtered dry or lubricated compressed air. Air supply pilot pressure should be between 80 and 120 PSI. Easy to read visual valve position indicator located on top of actuator.

Construction

Valve Body	316 stainless steel ASTM A351 CF8M
Ball/Stem	316 stainless steel
Ball Seats/ Cavity Filler	RTFE (reinforced Teflon)
Stem Seals	PTFE/Viton
Anti-static Device	Ball to Stem (1/4" - 3") + Stem to Body (1-1/2" - 3")
Actuator Seals	NBR (Buna-N)
Actuator Body	ASTM 316 Stainless Steel
Position Indicator	Plastic
Fasteners	ASTM 304 Stainless Steel

Description

Heavy duty stainless steel quarter turn rack & pinion actuators designed for long life and tested for a minimum 1 million operations. Investment cast 2-piece full port stainless steel body and end caps for unrestricted flow and minimum pressure loss. Self adjusting live loaded stem seal packing helps compensate for wear, pressure or temperature fluctuations, extending the cycle life of the valve. Blow-out proof stem. Standard Namur mounting pads for optional accessory confirmation switches, pilot valves and valve positioners.

Approvals– Actuators

- CE conformance– MD 2006/42/CE
- ISO5211/ DIN3337 valve mounting
- Namur VDI/VDE 3845 accessory mounting

Standard- Valves

- Design: API 608
- Testing: API 598
- Threaded Connection:

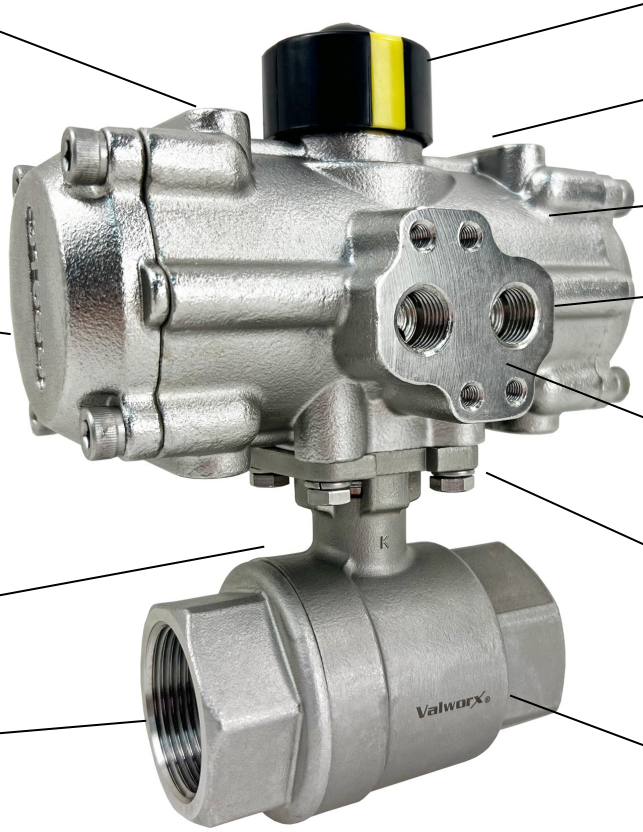
ASME B1.20.1 (NPT)/ ISO 228-1/ BS21

- Pressure/Temperature Rating:

ASME B16.34

- Marking: MSS SP-25
- CE conformance- PED 2014/68/UE

Features



Pressure-Temperature

Pressure Rating*: 1000 PSI (69 Bar) (1/4"-2")
800 PSI (55 Bar) (2-1/2"-4") CWP non-shock,
25 PSI saturated steam with high temp kit,
Vacuum 29inHg

Air Pilot Pressure Required: 80-120 PSI (5.5-8.3 Bar)

Temperature Rating: -4° to 392°F (-20 to 200°C)

*See P/T Chart

Actuator Temperature Rating: -4 to 176°F (-20 to 80°C)

*See P/T chart

Optional Accessories

DMS: Direct Mount Solenoid
- pilot to electrically operate the ball valve
VPS: Valve Position Switches
- limit switches to confirm valve position
HTB: High Temperature Bracket
- increases media working temperature

Specifications (English units)

Stock Number	Pipe Size (NPT)	Orifice Size (inch)	Cv Flow Factor	Max Pressure (PSI)*	Cycle Time /90° (open-close)	Pilot Air Port (NPT)	Air Volume/ 90° (cubic inches)
STAINLESS BALL VALVE WITH SPRING RETURN ACTUATOR							
533602	1/4	0.5	6.9	1000	1-1	1/4	12.2
533603	3/8	0.5	6.9	1000	1-1	1/4	12.2
533604	1/2	0.6	9.7	1000	1-1	1/4	12.2
533606	3/4	0.8	18.4	1000	1-1	1/4	12.2
533608	1	1.0	55.4	1000	1-1	1/4	12.2
533610	1-1/4	1.3	89.7	1000	1-1	1/4	12.2
533612	1-1/2	1.5	144.2	1000	1-1	1/4	24.4
533616	2	2.0	226.0	1000	1-1	1/4	24.4
533620	2-1/2	2.6	289.0	800	3-1	1/4	54.9
533624	3	3.1	454.0	800	3-1	1/4	97.6
533632	4	3.9	710.0	800	3-1	1/4	97.6
STAINLESS BALL VALVE WITH DOUBLE ACTING ACTUATOR							
533502	1/4	0.5	6.9	1000	1-1	1/4	12.2
533503	3/8	0.5	6.9	1000	1-1	1/4	12.2
533504	1/2	0.6	9.7	1000	1-1	1/4	12.2
533506	3/4	0.8	18.4	1000	1-1	1/4	12.2
533508	1	1.0	55.4	1000	1-1	1/4	12.2
533510	1-1/4	1.3	89.7	1000	1-1	1/4	12.2
533512	1-1/2	1.5	144.2	1000	1-1	1/4	24.4
533516	2	2.0	226.0	1000	1-1	1/4	24.4
533520	2-1/2	2.6	289.0	800	1-1	1/4	54.9
533524	3	3.1	454.0	800	1-1	1/4	54.9
533532	4	3.9	710.0	800	2-1	1/4	97.6

Cv = The GPM of water at 60° F that will pass through the valve with 1 PSI pressure drop

*Maximum Pressure @ -4° to 392°F (reduced pressure at higher temperatures—see P/T chart)

• Torque at 0 PSI and 75°F

Specifications (Metric units)

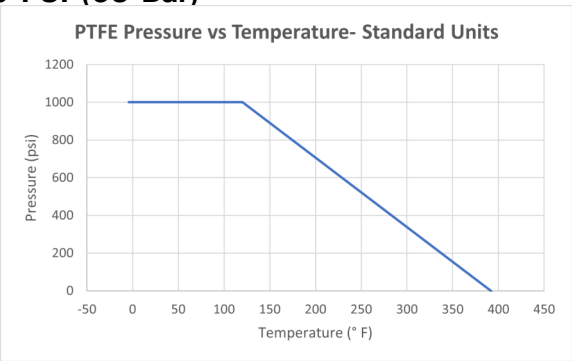
Stock Number	Pipe Size (NPT)	Orifice Size (mm)	Kv Flow Factor	Max Pressure (Bar)*	Cycle Time/90° (open-close)	Pilot Air Port (NPT)	Air Volume/ 90° (liters)
STAINLESS BALL VALVE WITH SPRING RETURN ACTUATOR							
533602	1/4	11.5	5.9	69	1-1	1/4	0.2
533603	3/8	12.5	5.9	69	1-1	1/4	0.2
533604	1/2	15	8.4	69	1-1	1/4	0.2
533606	3/4	20	15.9	69	1-1	1/4	0.2
533608	1	25	47.9	69	1-1	1/4	0.2
533610	1-1/4	32	77.6	69	1-1	1/4	0.2
533612	1-1/2	38	124.7	69	1-1	1/4	0.4
533616	2	50	195.5	69	1-1	1/4	0.4
533620	2-1/2	65	250.0	55	3-1	1/4	0.9
533624	3	80	392.7	55	3-1	1/4	1.6
533632	4	100	614.2	55	3-1	1/4	1.6
STAINLESS BALL VALVE WITH DOUBLE ACTING ACTUATOR							
533502	1/4	11.5	5.9	69	1-1	1/4	0.2
533503	3/8	12.5	5.9	69	1-1	1/4	0.2
533504	1/2	15	8.4	69	1-1	1/4	0.2
533506	3/4	20	15.9	69	1-1	1/4	0.2
533508	1	25	47.9	69	1-1	1/4	0.2
533510	1-1/4	32	77.6	69	1-1	1/4	0.2
533512	1-1/2	38	124.7	69	1-1	1/4	0.2
533516	2	50	195.5	69	1-1	1/4	0.4
533520	2-1/2	65	250.0	55	1-1	1/4	0.9
533524	3	80	392.7	55	1-1	1/4	0.9
533532	4	100	614.2	55	2-1	1/4	1.6

* Maximum Shell Pressure range @ -20° to 150° C (reduced pressure for higher temperatures—see P/T chart)

Pressure/Temperature Chart

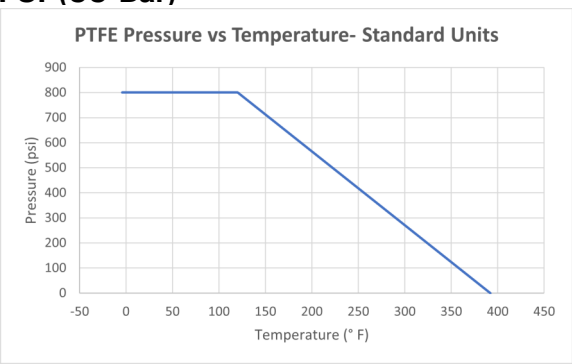
Pressure/Temp. Chart - 1000 PSI (69 Bar)

P/T Chart (PSI/°F)				
PSI	1000	1000	100	0
°F	-4	50	330	392



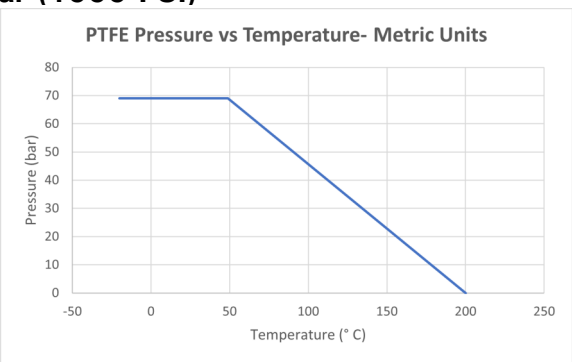
Pressure/Temp. Chart - 800 PSI (55 Bar)

P/T Chart (PSI/°F)				
PSI	800	800	100	0
°F	-4	50	330	392



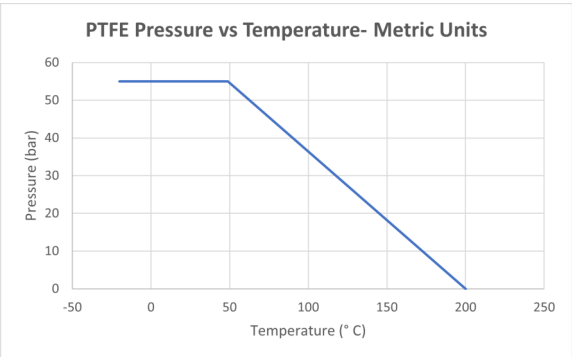
Pressure/Temp. Chart - 69 Bar (1000 PSI)

P/T Chart (BAR/°C)				
Bar	69	69	7	0
°C	-20	10	166	200

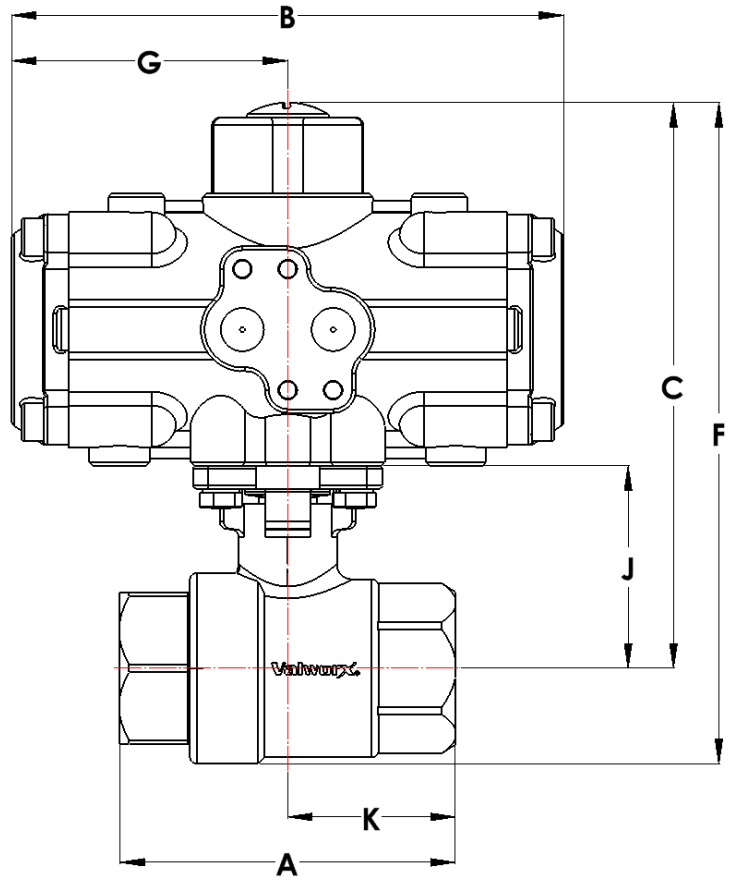


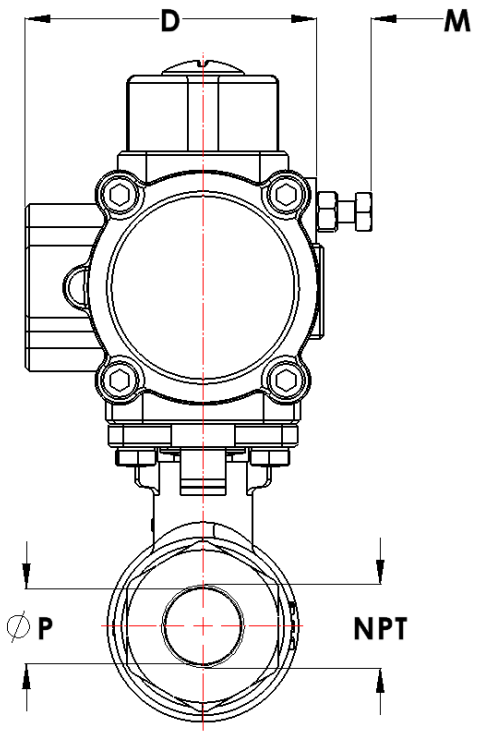
Pressure/Temp. Chart - 55 Bar (800 PSI)

P/T Chart (BAR/°C)				
Bar	55	55	7	0
°C	-20	10	166	200



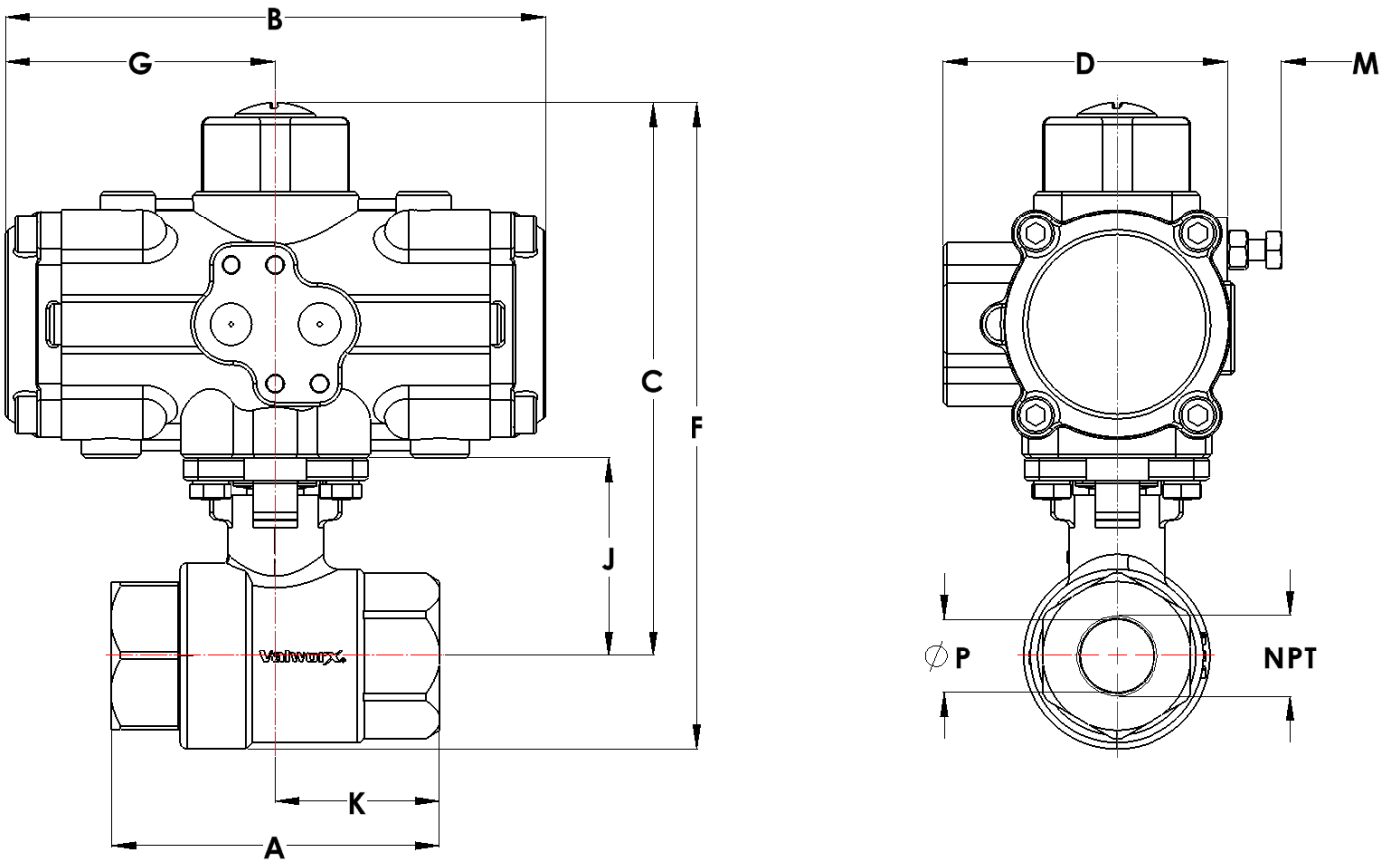
Dimensions: Spring Return





Pipe Size (NPT)	A	B	C	D	F	G	J	K	M	P	Ports (NPT)	Weight lbs (kg)
1/4	2.6 (65.3)	5.7 (146)	5.8 (147.3)	3.0 (77.0)	6.4 (162.6)	2.9 (73.7)	1.5 (37.0)	1.2 (31.0)	0.6 (16)	0.5 (11.5)	1/4	6.5 (2.9)
3/8	2.6 (65.3)	5.7 (146)	5.8 (147.3)	3.0 (77.0)	6.4 (162.6)	2.9 (73.7)	1.5 (37.0)	1.2 (31.0)	0.6 (16)	0.5 (12.5)	1/4	6.4 (2.9)
1/2	2.6 (65.3)	5.7 (146)	5.8 (147.3)	3.0 (77.0)	6.4 (162.6)	2.9 (73.7)	1.5 (37.0)	1.2 (31.0)	0.6 (16)	0.6 (15)	1/4	6.4 (2.9)
3/4	3.0 (77.3)	5.7 (146)	6.1 (154.9)	3.0 (77.0)	6.9 (175.3)	2.9 (73.7)	1.8 (45.0)	1.5 (38.9)	0.6 (16)	0.8 (20)	1/4	6.8 (3.1)
1	3.5 (88.7)	6.8 (173)	7.1 (180.3)	3.5 (90.0)	8.1 (205.7)	3.4 (86.4)	2.1 (53.5)	1.7 (44.3)	0.7 (17.1)	1.0 (25)	1/4	10.6 (4.8)
1-1/4	4.0 (102.4)	6.8 (173)	7.3 (185.4)	3.5 (90.0)	8.6 (218.4)	3.4 (86.4)	2.3 (59.0	2.0 (50.7)	0.7 (17.1)	1.3 (32)	1/4	11.6 (5.3)
1-1/2	4.3 (109.0)	8.0 (204)	8.7 (221.0)	4.5 (113.5)	10.2 (259.1)	4.0 (101.6)	2.9 (74.8)	2.2 (55.0)	0.8 (20.6)	1.5 (38)	1/4	19.5 (8.8)
2	4.9 (125.3)	8.0 (204)	9.1 (231.1)	4.5 (113.5)	10.9 (276.9)	4.0 (101.6)	3.3 (83.5)	2.4 (62.2)	0.8 (20.6)	2.0 (50)	1/4	21.8 (9.9)
2-1/2	6.5 (165.0)	10.6 (269.2)	11.2 (284.5)	5.0 (127.0)	13.2 (335.)	5.3 (134.6)	4.3 (108.8)	3.2 (82.5)	0.8 (20.6)	2.6 (65)	1/4	39.8 (18.1)
3	7.5 (189.5)	11.9 (302.3)	12.5 (317.5)	5.7 (144.8)	15.1 (383.5)	6.0 (152.4)	4.7 (118.3)	3.7 (94.8)	1.1 (27.4)	3.1 (80)	1/4	57.6 (26.1)
4	9.4 (238.0)	11.9 (302.3)	13.9 (353.1)	5.7 (144.8)	17.1 (434.3)	6.0 (152.4)	6.1 (153.8)	4.7 (119.0)	1.1 (27.4)	3.9 (100)	1/4	72.8 (33.0)

Dimensions: Double Acting



Pipe Size (NPT)	A	B	C	D	F	G	J	K	M	P	Ports (NPT)	Weight lbs (kg)
1/4	2.6 (65.3)	5.7 (146)	5.8 (147.3)	3.0 (77.0)	6.4 (162.6)	2.9 (73.7)	1.5 (37.0)	1.2 (31.0)	0.6 (16)	0.5 (11.5)	1/4	6.5 (2.9)
3/8	2.6 (65.3)	5.7 (146)	5.8 (147.3)	3.0 (77.0)	6.4 (162.6)	2.9 (73.7)	1.5 (37.0)	1.2 (31.0)	0.6 (16)	0.5 (12.5)	1/4	6.4 (2.9)
1/2	2.6 (65.3)	5.7 (146)	5.8 (147.3)	3.0 (77.0)	6.4 (162.6)	2.9 (73.7)	1.5 (37.0)	1.2 (31.0)	0.6 (16)	0.6 (15)	1/4	6.4 (2.9)
3/4	3.0 (77.3)	5.7 (146)	6.1 (154.9)	3.0 (77.0)	6.9 (175.3)	2.9 (73.7)	1.8 (45.0)	1.5 (38.9)	0.6 (16)	0.8 (20)	1/4	6.8 (3.1)
1	3.5 (88.7)	5.7 (146)	6.4 (162.6)	3.0 (77.0)	7.4 (188.0)	2.9 (73.7)	2.1 (53.5)	1.7 (44.3)	0.6 (16)	1.0 (25)	1/4	7.1 (3.2)
1-1/4	4.0 (102.4)	5.7 (146)	6.6 (167.6)	3.0 (77.0)	7.9 (200.7)	2.9 (73.7)	2.3 (59.0)	2.0 (50.7)	0.7 (17.1)	1.3 (32)	1/4	8.1 (3.7)
1-1/2	4.3 (109.0)	8.0 (204)	8.7 (221.0)	4.5 (113.5)	10.2 (259.1)	4.0 (101.6)	2.9 (74.8)	2.2 (55.0)	0.7 (17.1)	1.5 (38)	1/4	19.5 (8.8)
2	4.9 (125.3)	8.0 (204)	9.1 (231.1)	4.5 (113.5)	10.9 (276.9)	4.0 (101.6)	3.3 (83.5)	2.4 (62.2)	0.8 (20.6)	2.0 (50)	1/4	21.8 (9.9)
2-1/2	6.5 (165.0)	10.6 (269.2)	11.2 (284.5)	5.0 (127.0)	13.2 (335.3)	5.3 (134.6)	4.3 (108.8)	3.2 (82.5)	0.8 (20.6)	2.6 (65)	1/4	39.8 (18.1)
3	7.5 (189.5)	10.6 (269.2)	11.6 (294.6)	5.0 (127.0)	14.5 (360.7)	5.3 (134.6)	4.7 (118.3)	3.7 (94.8)	0.8 (20.6)	3.1 (80)	1/4	44.0 (20.0)
4	9.4 (238.0)	11.9 (302.3)	13.9 (353.1)	5.7 (144.8)	17.1 (434.3)	6.0 (152.4)	6.1 (153.8)	4.7 (119.0)	1.1 (27.4)	3.9 (100)	1/4	72.8 (33.0)