Stainless Steel Air Actuated Ball Valves

3-Way L-Port, Stainless Steel, Full Port

1/4" to 2" NPT

SERIES
5332
5333

Features

- Full port design, functions as diverter or selector valve
- 316SS CF8M investment cast body
- 316SS ball and stem
- RTFE (reinforced Teflon) ball seats
- Triple PTFE/Viton live loaded stem seals, adjustable
- Silicone free
- Valves tested accordance with 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 2 seconds per 90° rotation. Steam service up to 25 PSI with optional high temperature mounting bracket and vacuum service up 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" - 2") + Stem to Body (1-1/2" - 2")
Actuator Seals	NBR (Buna-N)
Actuator Body	ASTM 316 Stainless Steel
Position Indicator	Plastic
Fasteners	ASTM 304 Stainless Steel

L- Flow Path

Position 1 **Position 2**

As Shipped

Description

Heavy duty stainless steel quarter turn rack & pinion actuators designed for long life and tested for a minimum 1 million operations. Three-way L-port flow path for diverter or selector applications. L-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:

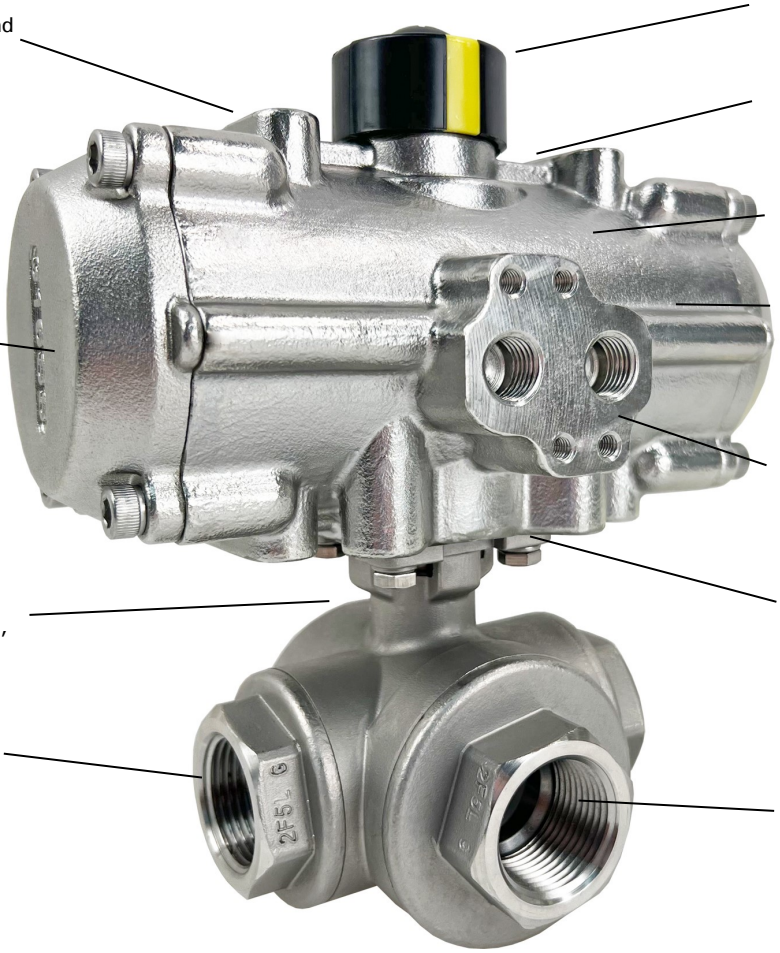
ASME B1.20.1 (NPT)/ ISO 228-1/ BS21

- Pressure/Temperature Rating:

ASME B16.34

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

Features



Heavy duty rugged rack and pinion design

Spring return models use multiple pre-compressed spring cartridges with polyester coating

Triple PTFE/Viton live loaded stem seal design, adjustable

316SS ball and stem, RTFE ball seats

Visual valve position indicator

Standard Namur top mounting for optional limit switches and positioners

316 stainless actuator body, pistons & pinion

Electro-polished external actuator surfaces

NPT pilot air ports and additional Namur VDI/ VDE-3845 solenoid mounting pad

Direct mount ISO5211

Full port 316 stainless steel ball valve, repairable and easily removed from pipe line

Pressure-Temperature

Pressure Rating*: 1000 PSI* (69 Bar*) CWP non-shock 1/4"to 2" sizes

25 PSI saturated steam with high temp kit
Vacuum to 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

Specifications (English units)

Stock Number	Pipe Size (NPT)	Orifice Size (inch)	Cv Flow Factor	Max Pressure (PSI)*	Cycle Time /90° (seconds)	Pilot Air Port (NPT)	Air Volume/ 90° (cubic inches)
3-WAY L-PORT STAINLESS BALL VALVE WITH SPRING RETURN ACTUATOR							
533302	1/4	0.4	5.0	1000	1	1/4	12.2
533303	3/8	0.4	7.3	1000	1	1/4	12.2
533304	1/2	0.6	8.9	1000	1	1/4	12.2
533306	3/4	0.8	18.9	1000	1	1/4	12.2
533308	1	1.0	32.0	1000	1	1/4	12.2
533310	1-1/4	1.3	41.2	1000	2	1/4	24.4
533312	1-1/2	1.5	52.1	1000	2	1/4	24.4
533316	2	2.0	79.3	1000	2	1/4	54.9
3-WAY L-PORT STAINLESS BALL VALVE WITH DOUBLE ACTING ACTUATOR							
533202	1/4	0.4	5.0	1000	1	1/4	12.2
533203	3/8	0.4	7.3	1000	1	1/4	12.2
533204	1/2	0.6	8.9	1000	1	1/4	12.2
533206	3/4	0.8	18.9	1000	1	1/4	12.2
533208	1	1.0	32.0	1000	1	1/4	12.2
533210	1-1/4	1.3	41.2	1000	2	1/4	12.2
533212	1-1/2	1.5	52.1	1000	2	1/4	24.4
533216	2	2.0	79.3	1000	2	1/4	24.4

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)

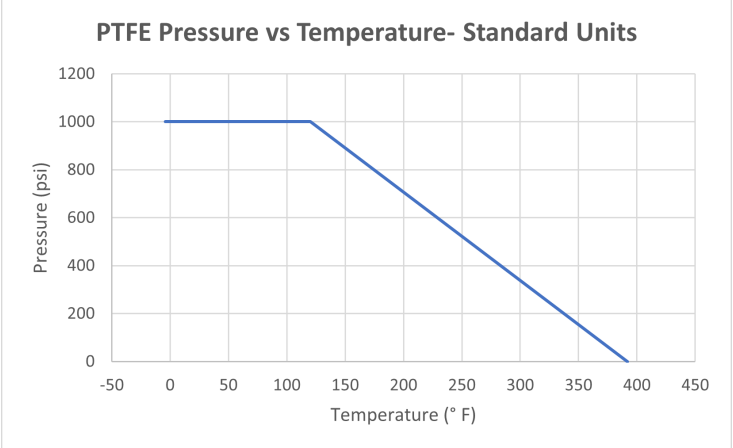
• Torque at 0 PSI and 75°F

Pressure/Temperature Chart (PSI/°F)

Standard Units

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

P/T Chart (PSI/°F)					
PSI	1000	1000	900	700	0
°F	-4	104	167	212	392



Specifications (Metric units)

Stock Number	Pipe Size (NPT)	Orifice Size (mm)	Kv Flow Factor	Max Pressure (Bar)*	Cycle Time/90° (seconds)	Pilot Air Port (NPT)	Air Volume/ 90° (liters)
3-WAY L-PORT STAINLESS BALL VALVE WITH SPRING RETURN ACTUATOR							
533302	1/4	11.0	4.3	69	1	1/4	0.2
533303	3/8	11.0	6.3	69	1	1/4	0.2
533304	1/2	16.0	7.7	69	1	1/4	0.2
533306	3/4	20.0	16.3	69	1	1/4	0.2
533308	1	25.0	27.7	69	1	1/4	0.2
533310	1-1/4	32.0	35.6	69	2	1/4	0.4
533312	1-1/2	38.0	45.1	69	2	1/4	0.4
533316	2	50.0	68.6	69	2	1/4	0.9
3-WAY L-PORT STAINLESS BALL VALVE WITH DOUBLE ACTING ACTUATOR							
533202	1/4	11.0	4.3	69	1	1/4	0.2
533203	3/8	11.0	6.3	69	1	1/4	0.2
533204	1/2	16.0	7.7	69	1	1/4	0.2
533206	3/4	20.0	16.3	69	1	1/4	0.2
533208	1	25.0	27.7	69	1	1/4	0.2
533210	1-1/4	32.0	35.6	69	2	1/4	0.2
533212	1-1/2	38.0	45.1	69	2	1/4	0.4
533216	2	50.0	68.6	69	2	1/4	0.4

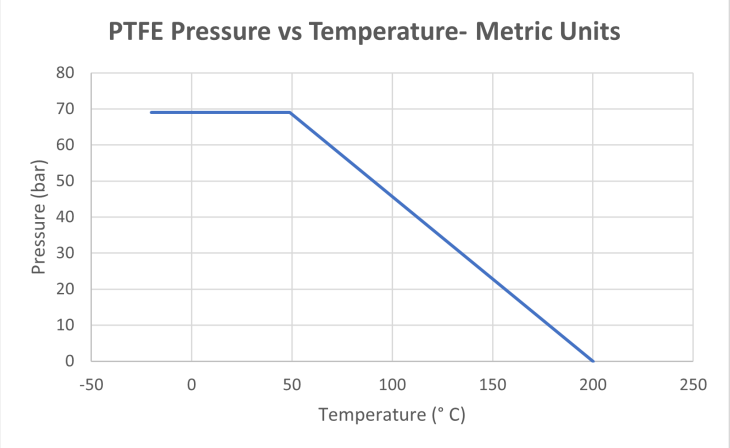
* Maximum Shell Pressure range @ -20° to 150° C (reduced pressure for higher temperatures—see P/T chart)

Pressure/Temperature Chart (Bar/°C)

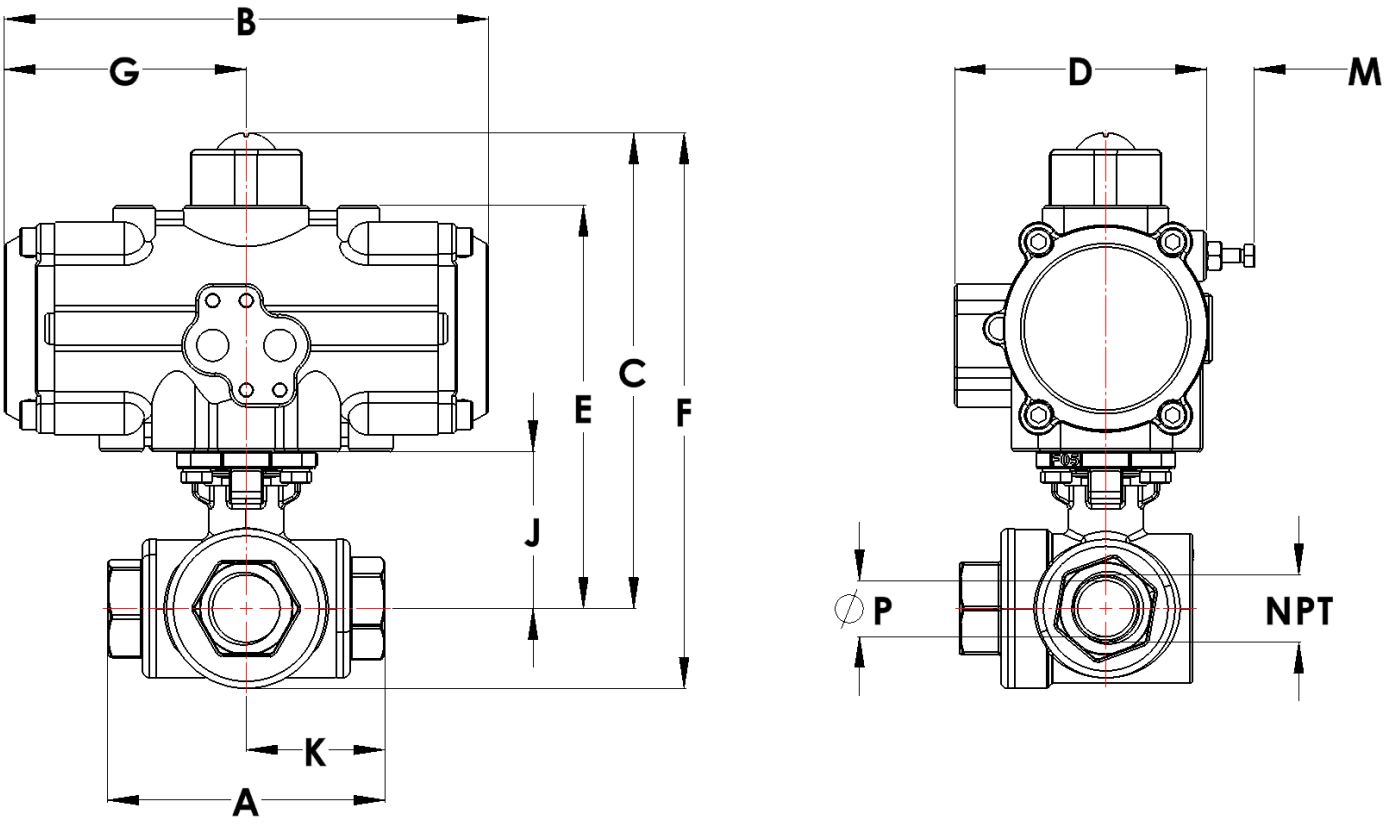
Metric Units

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

P/T Chart (BAR/°C)					
BAR	69	69	62	48	0
°C	-20	40	75	100	200

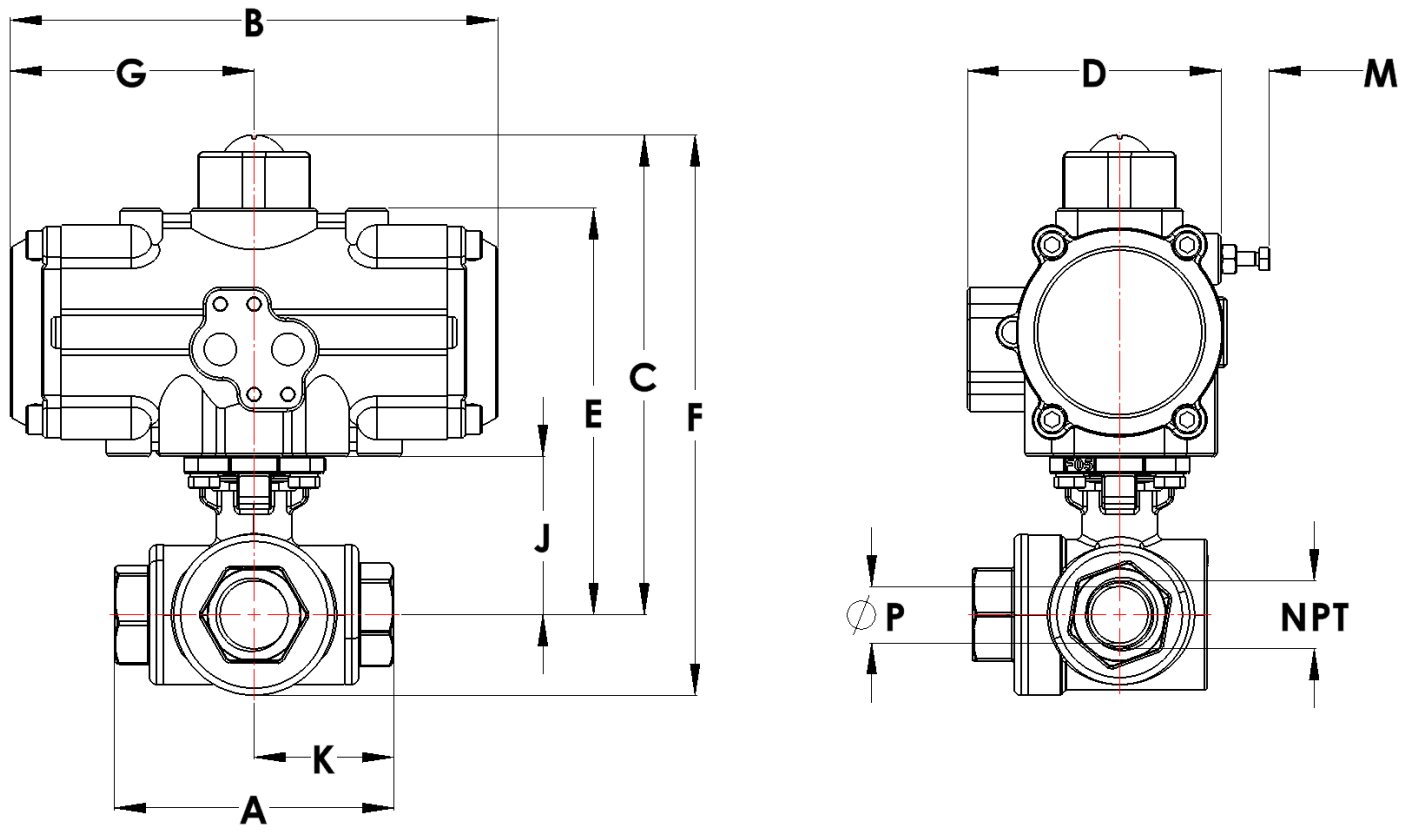


Dimensions: Spring Return



Pipe Size (NPT)	A	B	C	D	E	F	G	J	K	M	P	Ports (NPT)	Weight lbs (kg)
1/4	2.9 (76.0)	5.7 (146)	5.8 (147.3)	3.0 (77.0)	5.1 (129.5)	5.9 (149.9)	2.9 (73.7)	1.5 (38.2)	1.5 (38.0)	0.6 (16)	0.4 (11.0)	1/4	7.1 (3.2)
3/8	2.9 (76.0)	5.7 (146)	5.8 (147.3)	3.0 (77.0)	5.1 (129.5)	5.9 (149.9)	2.9 (73.7)	1.5 (38.2)	1.5 (38.0)	0.6 (16)	0.4 (11.0)	1/4	7.1 (3.2)
1/2	3.3 (85.0)	5.7 (146)	6.1 (154.9)	3.0 (77.0)	5.4 (137.2)	6.3 (160.0)	2.9 (73.7)	1.8 (45.2)	1.7 (42.5)	0.6 (16)	0.6 (16.0)	1/4	7.8 (3.5)
3/4	3.9 (98.0)	6.8 (173)	7.2 (182.9)	3.5 (90.0)	6.5 (165.1)	7.6 (193.0)	3.4 (86.4)	2.2 (56.5)	1.9 (49.0)	0.7 (17.1)	0.8 (20.0)	1/4	12.1 (5.5)
1	4.4 (112.5)	6.8 (173)	7.4 (188.0)	3.5 (90.0)	6.7 (170.2)	8.1 (205.7)	3.4 (86.4)	2.4 (61.9)	2.2 (56.3)	0.7 (17.1)	1.0 (25.0)	1/4	13.8 (6.3)
1-1/4	4.9 (125.0)	8.0 (204)	8.9 (226.1)	4.5 (113.5)	8.1 (205.7)	9.6 (243.8)	4.0 (101.6)	3.1 (78.3)	2.5 (62.5)	0.7 (17.1)	1.3 (32.0)	1/4	22.5 (10.2)
1-1/2	5.6 (141.0)	8.0 (204)	9.2 (233.7)	4.5 (113.5)	8.4 (213.4)	10.4 (264.2)	4.0 (101.6)	3.4 (87.4)	2.8 (70.5)	0.7 (17.1)	1.5 (38.0)	1/4	24.7 (11.2)
2	6.7 (171.0)	10.6 (270.0)	10.9 (276.9)	5.0 (127.0)	10.2 (259.1)	12.3 (312.4)	5.3 (134.6)	4.2 (105.8)	3.4 (85.5)	0.8 (20)	2.0 (50.0)	1/4	43.0 (19.5)

Dimensions: Double Acting



Pipe Size (NPT)	A	B	C	D	E	F	G	J	K	M	P	Ports (NPT)	Weight lbs (kg)
1/4	2.9 (76.0)	5.7 (146)	5.8 (147.3)	3.0 (77.0)	5.1 (129.5)	5.9 (149.9)	2.9 (73.7)	1.5 (38.2)	1.5 (38.0)	0.6 (16)	0.4 (11.0)	1/4	7.1 (3.2)
3/8	2.9 (76.0)	5.7 (146)	5.8 (147.3)	3.0 (77.0)	5.1 (129.5)	5.9 (149.9)	2.9 (73.7)	1.5 (38.2)	1.5 (38.0)	0.6 (16)	0.4 (11.0)	1/4	7.1 (3.2)
1/2	3.3 (85.0)	5.7 (146)	6.1 (154.9)	3.0 (77.0)	5.4 (137.2)	6.3 (160.0)	2.9 (73.7)	1.8 (45.2)	1.7 (42.5)	0.6 (16)	0.6 (16.0)	1/4	7.8 (3.5)
3/4	3.9 (98.0)	5.7 (146)	6.5 (165.1)	3.0 (77.0)	5.8 (147.3)	6.9 (175.3)	2.9 (73.7)	2.2 (56.5)	1.9 (49.0)	0.6 (16)	0.8 (20.0)	1/4	9.4 (4.3)
1	4.4 (112.5)	5.7 (146)	6.7 (170.2)	3.0 (77.0)	6.0(152.4)	7.4 (188.0)	2.9 (73.7)	2.4 (61.9)	2.2 (56.3)	0.6 (16)	1.0 (25.0)	1/4	10.3 (4.7)
1-1/4	4.9 (125.0)	6.8 (173)	8.1 (205.7)	3.0 (77.0)	7.4 (188.0)	8.9 (226.1)	3.4 (86.4)	3.1 (78.3)	2.5 (62.5)	0.7 (17.1)	1.3 (32.0)	1/4	16.0 (7.3)
1-1/2	5.6 (141.0)	8.0 (204)	9.2 (233.7)	4.5 (113.5)	8.4 (213.4)	10.4 (264.2)	4.0 (101.6)	3.4 (87.4)	2.8 (70.5)	0.7 (17.1)	1.5 (38.0)	1/4	24.7 (11.2)
2	6.7 (171.0)	8.0 (204)	10.0 (254.0)	4.5 (113.5)	9.2 (233.7)	11.3 (287.0)	4.0 (101.6)	4.2 (105.8)	3.4 (85.5)	0.7 (17.1)	2.0 (50.0)	1/4	31.4 (14.2)