Air Actuated PVC Ball Valves

PVC Body, Teflon/ EPDM Seals, Full Port
1/2" to 4" NPT

SERIES
5441
5442

Features

- Full port with True Union design
- Energized ball seats for lower torque and extended cycle life
- Dual leak free stem seals
- Union nut locking device prevents back-off
- Valve NSF certified for use with potable/drinking water
- Spring Return or Double Acting Actuators
- Type IP66 & IP68 weatherproof actuator
- Rugged scotch yoke construction tested for 1 million+ cycles
- Anodized aluminum body with epoxy-polyester end covers
- Namur and ISO mounting standards
- Highly visible valve position indicator
- Actuator factory lubricated for normal lifetime

Description

Heavy duty quarter turn scotch yoke actuators designed for long life and tested for a minimum 1 million+ operations. Industrial quality PVC ball valve with a unique union nut locking system preventing back-off due to vibration or thermal cycling. Features include a patented seat stop carrier for inline micro-adjustment of the ball seats, high quality machined stem/ball system and energized Teflon ball seats for lower torque and extended life. Valves are NSF certified for potable (drinking) water. Standard Namur mounting pads for optional accessory confirmation switches and pilot valves.

Applications

On-off control of water and other liquid media compatible with the materials of construction (not suitable for compressed air or gas). Cycle times 0.3 to 1.2 seconds per 90° rotation. Valve can be mounted in any orientation. Typical applications include industrial/process piping systems, pulp and paper, food processing, potable water and irrigation.

Scotch Yoke actuators should not be used for positioning applications.

Operation

Double acting scotch yoke actuators use air pressure to open and air pressure to close the ball valve (4-way pilot). Spring return scotch yoke 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. Recommended air supply pilot pressure should be between 58 and 87 PSI. Easy to read visual valve position indicator located on top of actuator.

Construction

Valve Body	PVC cell class 12454 per ASTM D1784 (dark gray)
Ball/Stem	PVC cell class 12454 per ASTM D1784
Ball Seats	PTFE (Teflon) energized with EPDM seals
Stem Seals	Dual EPDM seals
End Connectors and Lock Nuts	PVC cell class 12454 per ASTM D1784
Actuator Seals	NBR
Actuator Body/ End Covers	Hard anodized aluminium/ Polyester coasted aluminium
Position Indicator	Glass filled Polyamide
Fasteners	ASTM 304 Stainless Steel

Approvals– Actuators

- CE Declaration of conformity
- EN ISO 12100:2010
- EN ISO 4414:2010
- ISO5211/ DIN3337 valve mounting
- Namur VDI/VDE 3845 accessory mounting

Standards– Valves

- NSF International certified to:
  - NSF/ANSI 372 Drinking Water
  - NSF/ANSI 61 G
- ANSI B1.20.1
- ASTM D1784, cell class 12454

Certified to NSF/ANSI/CAN 61 & NSF/ANSI 372

Optional Accessories

DMS: Direct Mount Solenoid
- pilot to electrically operate the ball valve
VPS: Valve Position Switches
- limit switches to confirm valve position
Actuator Mounting Kits

Features

Heavy duty rugged scotch yoke design

Anodized aluminum alloy covers with 40 micron polyester powder coating

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

Leak free dual stem seal design

Energized Teflon ball seats for lower torque and extended cycle life

Union nut locking device prevents back-off

1/2″ to 2″ sizes

Visual valve position indicator

Standard Namur top mounting for optional limit switches

Extruded aluminum body with 35 micron hard anodzing

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

Full port True Union PVC ball valve, NSF certified for use with potable/drinking water

2-1/2″ to 4″ sizes

International standard ISO5211 valve mounting pad

Pressure Rating*: 232 PSI at 73 °F (16 Bar at 23 °C*), Vacuum 29inHg

Valve Temperature Rating: 32 to 140° F (0 to 60° C)

*See P/T Chart

Recommended Air Pilot Pressure: 58-87 PSI (4-6 Bar)

Max Air Pilot Pressure: 120 PSI

Actuator Temperature Rating: -4 to 167° F (-20 to 75° C)

*See P/T chart

Specifications (English units)

Stock Number	Pipe Size (inch)	End Connections	Cv Flow Factor	Pressure Max. (PSI)*	Seals	Cycle Time /90° (seconds)	Pilot Air Port (NPT)
VALVE WITH SPRING RETURN ACTUATOR							
544204	1/2	Socket, NPT	14.0	232	PTFE, EPDM	0.3-0.5	1/4
544206	3/4	Socket, NPT	27.0	232	PTFE, EPDM	0.3-0.5	1/4
544208	1	Socket, NPT	54.0	232	PTFE, EPDM	0.3-0.5	1/4
544210	1-1/4	Socket, NPT	77.0	232	PTFE, EPDM	0.3-0.5	1/4
544212	1-1/2	Socket, NPT	123.0	232	PTFE, EPDM	0.4-0.6	1/4
544216	2	Socket, NPT	238.0	232	PTFE, EPDM	0.4-0.6	1/4
544220	2-1/2	Socket	368.0	232	PTFE, EPDM	0.6-0.9	1/4
544224	3	Socket	497.0	232	PTFE, EPDM	0.6-0.9	1/4
544232	4	Socket	665.0	232	PTFE, EPDM	0.7-1.2	1/4
VALVE WITH DOUBLE ACTING ACTUATOR							
544104	1/2	Socket, NPT	14.0	232	PTFE, EPDM	0.3	1/4
544106	3/4	Socket, NPT	27.0	232	PTFE, EPDM	0.3	1/4
544108	1	Socket, NPT	54.0	232	PTFE, EPDM	0.3	1/4
544110	1-1/4	Socket, NPT	77.0	232	PTFE, EPDM	0.3	1/4
544112	1-1/2	Socket, NPT	123.0	232	PTFE, EPDM	0.3	1/4
544116	2	Socket, NPT	238.0	232	PTFE, EPDM	0.3	1/4
544120	2-1/2	Socket	368.0	232	PTFE, EPDM	0.4	1/4
544124	3	Socket	497.0	232	PTFE, EPDM	0.4	1/4
544132	4	Socket	665.0	232	PTFE, EPDM	0.6	1/4

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

* Pressure at 73° F, reduced pressure for higher temperatures (see P/T chart)

Note: Both socket and threaded NPT end connectors included with sizes 1/2" to 2", socket only for sizes 2-1/2", 3" and 4"

Pressure/Temperature Chart (PSI/°F)

P/T Chart							
PSI	232	232	232	180	150	100	35
°F	32	50	70	90	110	120	140

Specifications (Metric units)

Stock Number	Pipe Size (NPT)	End Connecttions	Kv Flow Factor	Pressure Max.(Bar)*	Seals	Cycle Time/90° (seconds)	Pilot Air Port (NPT)
VALVE WITH SPRING RETURN ACTUATOR							
544204	1/2	Socket, NPT	12.0	16.0	PTFE, EPDM	0.3-0.5	1/4
544206	3/4	Socket, NPT	23.0	16.0	PTFE, EPDM	0.3-0.5	1/4
544208	1	Socket, NPT	46.0	16.0	PTFE, EPDM	0.3-0.5	1/4
544210	1-1/4	Socket, NPT	66.0	16.0	PTFE, EPDM	0.3-0.5	1/4
544212	1-1/2	Socket, NPT	106.0	16.0	PTFE, EPDM	0.4-0.6	1/4
544216	2	Socket, NPT	205.0	16.0	PTFE, EPDM	0.4-0.6	1/4
544220	2-1/2	Socket	317.0	16.0	PTFE, EPDM	0.6-0.9	1/4
544224	3	Socket	427.0	16.0	PTFE, EPDM	0.6-0.9	1/4
544232	4	Socket	572.0	16.0	PTFE, EPDM	0.7-1.2	1/4
VALVE WITH DOUBLE ACTING ACTUATOR							
544104	1/2	Socket, NPT	12.0	16.0	PTFE, EPDM	0.3	1/4
544106	3/4	Socket, NPT	23.0	16.0	PTFE, EPDM	0.3	1/4
544108	1	Socket, NPT	46.0	16.0	PTFE, EPDM	0.3	1/4
544110	1-1/4	Socket, NPT	66.0	16.0	PTFE, EPDM	0.3	1/4
544112	1-1/2	Socket, NPT	106.0	16.0	PTFE, EPDM	0.3	1/4
544116	2	Socket, NPT	205.0	16.0	PTFE, EPDM	0.3	1/4
544120	2-1/2	Socket	317.0	16.0	PTFE, EPDM	0.4	1/4
544124	3	Socket	427.0	16.0	PTFE, EPDM	0.4	1/4
544132	4	Socket	572.0	16.0	PTFE, EPDM	0.6	1/4

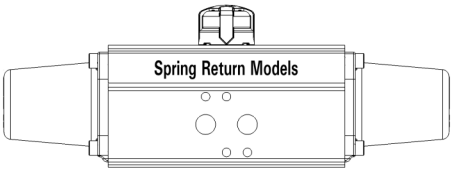
* Pressure at 23° C, reduced pressure for higher temperatures (see P/T chart)

Note: Both socket and threaded NPT end connectors included with sizes 1/2 to 2 inch, socket only for sizes 3 and 4 inch

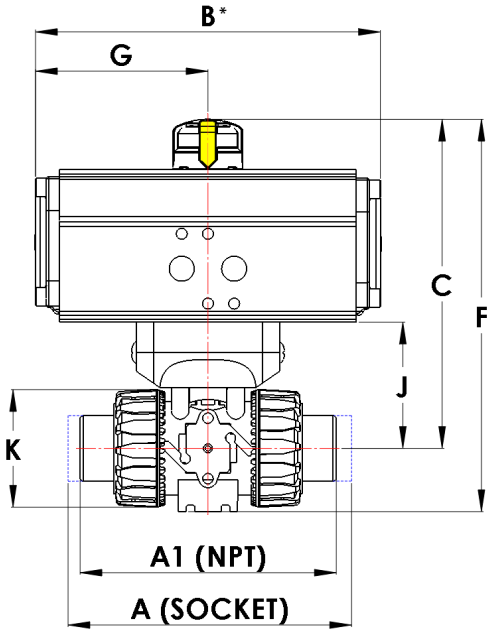
Pressure/Temperature Chart (Bar/°C)

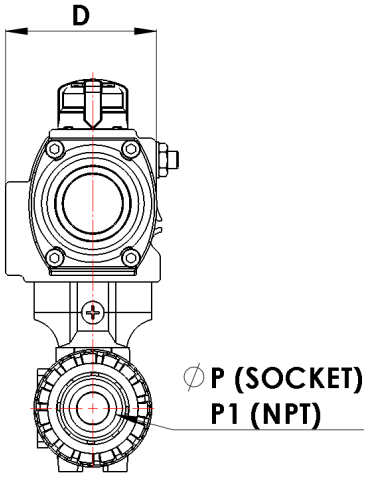
P/T Chart							
Bar	16	16	16	12	10	7	2.4
°C	0	10	21	32	43	49	60

Dimensions: Spring Return



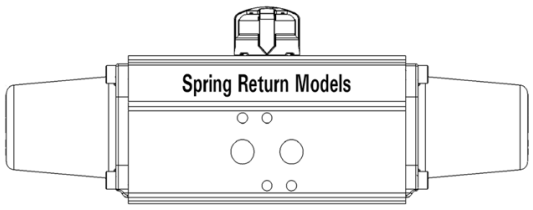
B*- Spring Return Actuator



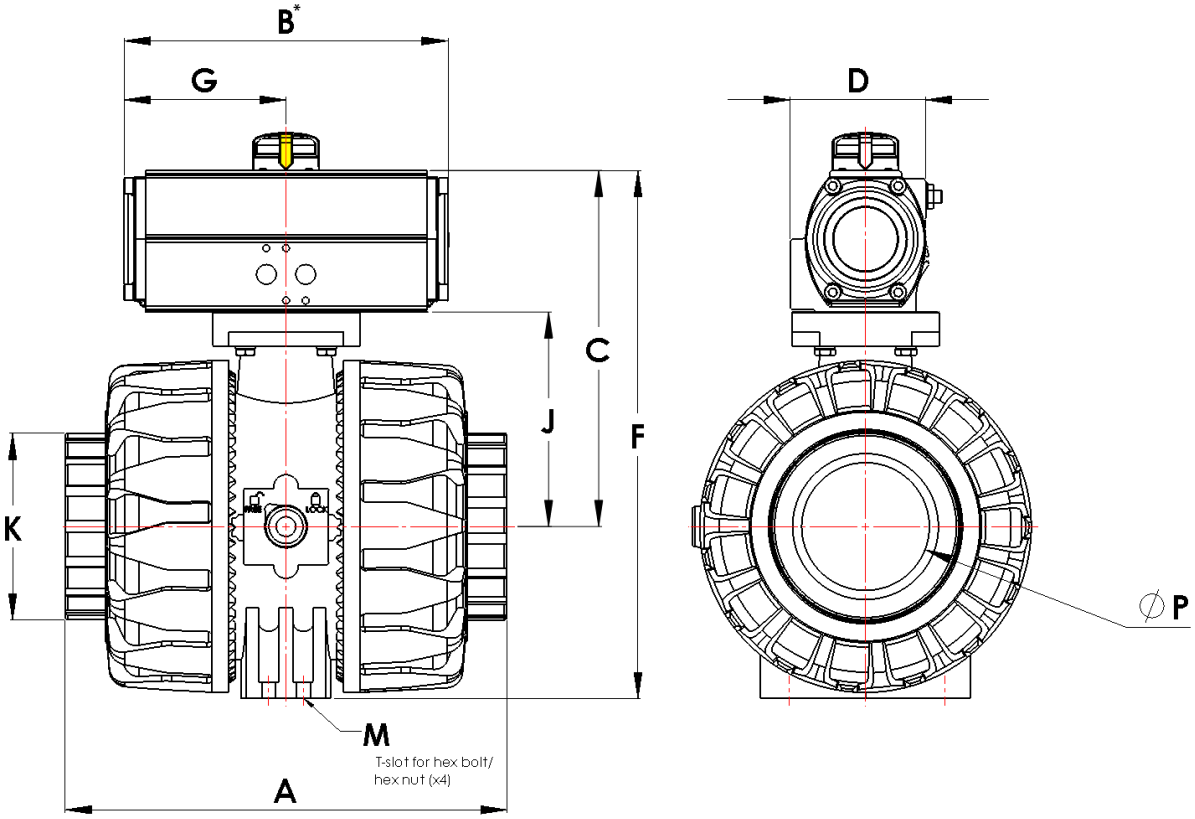


Stock Number	Pipe Size (NPT)		A	A1	B* (SR)	C	D	F	G	J	K	P	P1	A & B Ports (NPT)	Weight
544204	1/2	inch	4.6	4.4	10.1	5.7	2.9	6.7	5.1	2.3	2.1	0.8	1/2	1/4	4.0 lb
		mm	116.8	111.8	256.5	144.8	73.7	170.2	129.5	58.4	53.3	-	-	-	1.8 kg
544206	3/4	inch	5.1	4.6	10.1	6.2	2.9	7.3	5.1	2.8	2.6	1.1	3/4	1/4	4.3 lb
		mm	129.5	116.8	256.5	157.5	73.7	185.4	129.5	71.1	66.0	-	-	-	2.0 kg
544208	1	inch	5.6	5.3	10.1	6.3	2.9	7.7	5.1	2.9	2.9	1.3	1	1/4	4.5 lb
		mm	142.2	134.6	256.5	160.0	73.7	195.6	129.5	73.7	73.7	-	-	-	2.0 kg
544210	1-1/4	inch	6.4	6.0	10.1	7.0	2.9	8.5	5.1	3.6	3.4	1.7	1-1/4	1/4	5.1 lb
		mm	162.6	152.4	256.5	177.8	73.7	215.9	129.5	91.4	86.4	-	-	-	2.3 kg
544212	1-1/2	inch	6.8	6.1	12.3	8.2	3.5	9.7	6.2	4.1	3.9	1.9	1-1/2	1/4	8.8 lb
		mm	172.7	154.9	312.4	208.3	88.9	216.4	157.5	104.1	99.1	-	-	-	4.0 kg
544216	2	inch	7.8	7.3	12.3	8.6	3.5	10.8	6.2	4.5	4.8	2.4	2	1/4	10.0 lb
		mm	198.1	185.4	312.4	218.4	88.9	274.3	157.5	114.3	121.9	-	-	-	4.5 kg

Dimensions: Spring Return

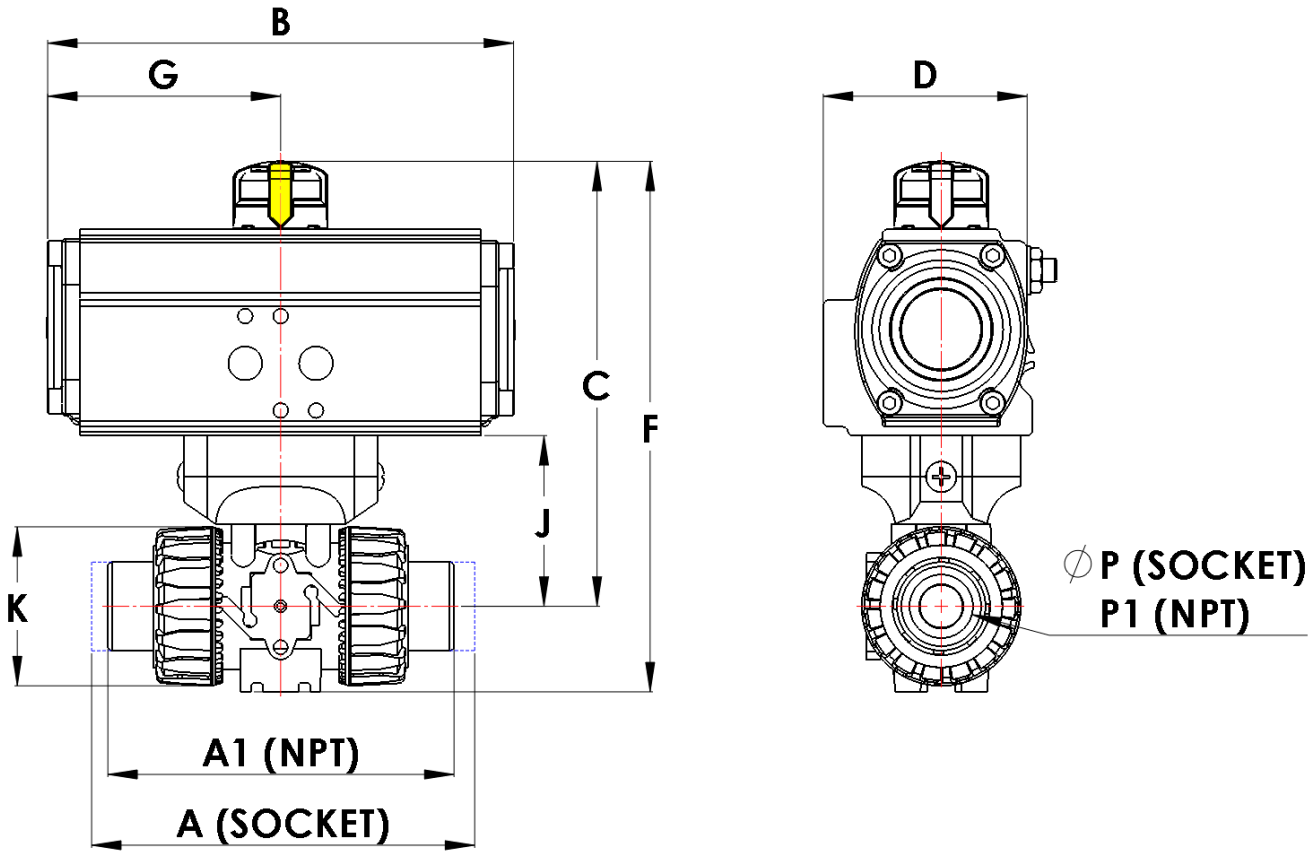


B*- Spring Return Actuator



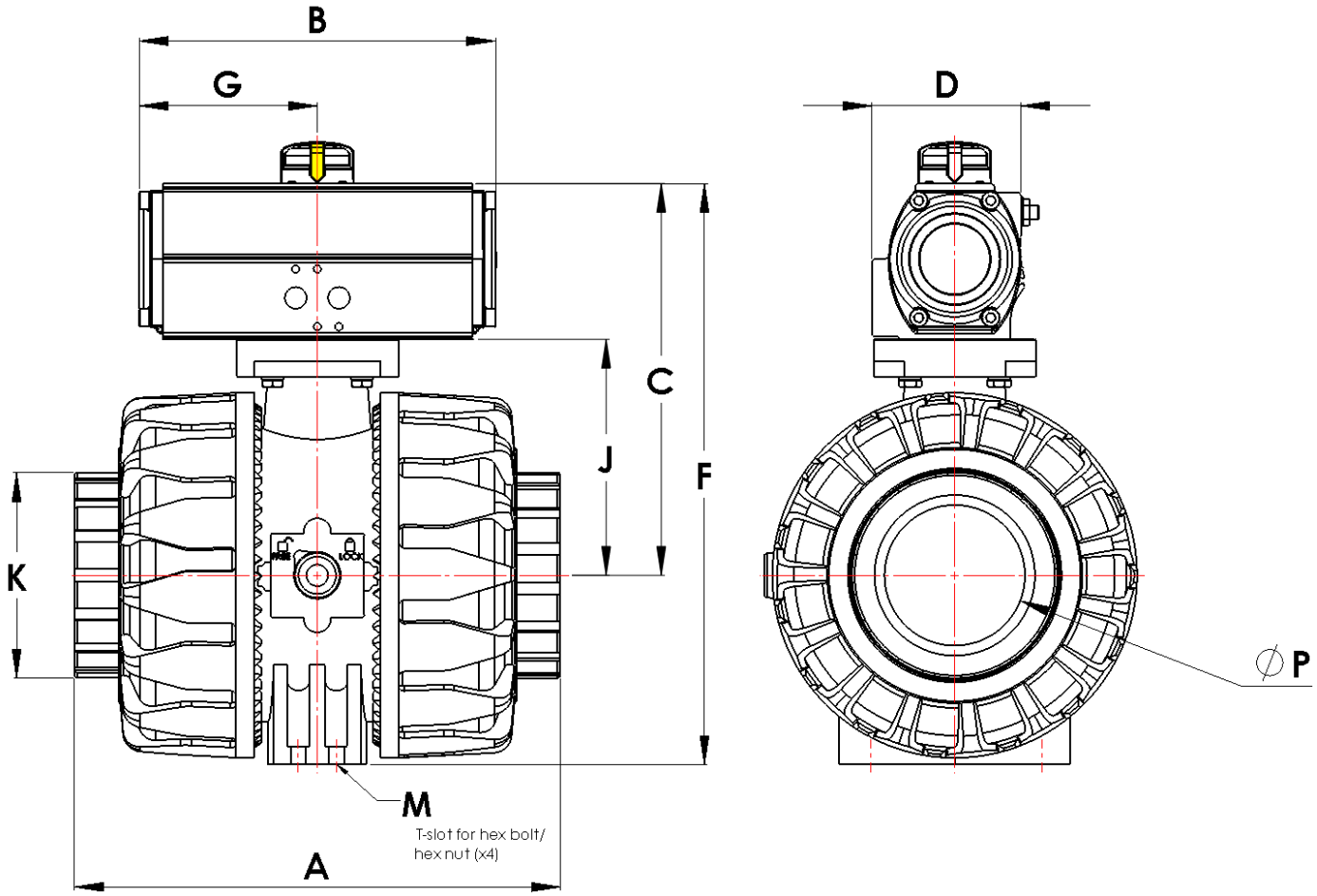
Stock Number	Pipe Size (NPT)		A	B* (SR)	C	D	F	G	J	K	M	P	A & B Ports (NPT)	Weight
544220	2-1/2	inch	9.3	16.5	9.6	3.9	14.7	8.3	4.8	6.5	-	2.9	1/4	21.4 lb
		mm	236.2	419.1	243.8	99.1	373.4	210.8	121.9	165.1	6.5	-	-	9.7 kg
544224	3	inch	10.6	16.5	9.8	3.9	15.9	8.3	5.1	8.0	-	3.5	1/4	27.7 lb
		mm	269.2	419.1	248.9	99.1	403.9	210.8	129.5	203.2	8.0	-	-	12.6 kg
544232	4	inch	12.1	19.6	11.6	5.0	18.5	9.8	5.9	9.4	-	4.5	1/4	45.3 lb
		mm	307.3	497.8	294.6	127.0	469.9	248.9	149.9	238.8	8.0	-	-	20.5 kg

Dimensions: Double Acting



Stock Number	Pipe Size (NPT)		A	A1	B	C	D	F	G	J	K	P	P1	A & B Ports (NPT)	Weight
544104	1/2	inch	4.6	4.4	6.3	5.7	2.9	6.7	3.2	2.3	2.1	0.8	1/2	1/4	3.6 lb
		mm	116.8	111.8	160.0	144.8	73.7	170.2	81.3	58.4	53.3	-	-	-	1.6 kg
544106	3/4	inch	5.1	4.6	6.3	6.2	2.9	7.3	3.2	2.8	2.6	1.1	3/4	1/4	3.9 lb
		mm	129.5	116.8	160.0	157.5	73.7	185.4	81.3	71.1	66.0	-	-	-	1.8 kg
544108	1	inch	5.6	5.3	6.3	6.3	2.9	7.7	3.2	2.9	2.9	1.3	1	1/4	4.1 lb
		mm	142.2	134.6	160.0	160.0	73.7	195.6	81.3	73.7	73.7	-	-	-	1.9 kg
544110	1-1/4	inch	6.4	6.0	6.3	7.0	2.9	8.5	3.2	3.6	3.4	1.7	1-1/4	1/4	4.7 lb
		mm	162.6	152.4	160.0	177.8	73.7	215.9	81.3	91.4	86.4	-	-	-	2.1 kg
544112	1-1/2	inch	6.8	6.1	6.3	7.5	2.9	9.0	3.2	4.1	3.9	1.9	1-1/2	1/4	5.3 lb
		mm	172.7	154.9	160.0	190.5	73.7	228.6	81.3	104.1	99.1	-	-	-	2.4 kg
544116	2	inch	7.8	7.3	6.3	7.9	2.9	10.1	3.2	4.5	4.8	2.4	2	1/4	6.5 lb
		mm	198.1	185.4	160.0	200.7	73.7	256.5	81.3	114.3	121.9	-	-	-	2.9 kg

Dimensions: Double Acting



Stock Number	Pipe Size (NPT)		A	B	C	D	F	G	J	K	M	P	A & B Ports (NPT)	Weight
544120	2-1/2	inch	9.3	7.9	8.9	3.5	14.0	4.0	4.8	6.5	-	2.9	1/4	14.8 lb
		mm	236.2	200.7	226.1	88.9	355.6	101.6	121.9	165.1	6.5	-	-	6.7 kg
544124	3	inch	10.6	7.9	9.2	3.5	15.2	4.0	5.1	8.0	-	3.5	1/4	21.1 lb
		mm	269.2	200.7	233.7	88.9	386.1	101.6	129.5	203.2	8.0	-	-	9.6 kg
544132	4	inch	12.1	9.9	10.7	3.9	17.6	5.0	5.9	9.4	-	4.5	1/4	33.0 lb
		mm	307.3	251.5	271.8	99.1	447.0	127.0	149.9	238.8	8.0	-	-	15.0 kg