

### Features

- Full Port Lead Free Brass Diverter/ Mixing Valve
- Valve certified NSF372 & NSF/ANSI/CAN 61-2020 for potable/drinking water
- High strength glass lens valve position indicator
- Rugged aluminum Type 4X weatherproof enclosure
- Heavy duty motor with overload protection
- Manual override with end of travel mechanical stops
- Two auxiliary limit switches included with on-off units
- Actuators CSA Listed per UL429 and CSA C22.2 and Explosion ratings per Approvals section
- Electrical interface: Two 1/2" NPT threaded ports with temporary plugs. Remove and replace with corresponding explosion proof cable connectors, pipe or plugs (Not Included)

### Applications

Electric actuated flow diverter or selector valves are typically used to control the flow of water, air, oil and other media compatible with the materials of construction. Ideal where lead free and NSF approved construction are required for potable drinking water as well as general industrial applications in hazardous environments. Suitable vacuum service to 29"Hg. Actuator designed for 70% duty cycle.

### Operation

Electric actuated valve uses power-to-open (Pos. 2) and power-to-close (Pos.1), stays in the last known position with power failure. On receipt of a continuous voltage signal, the motor runs and via a rugged all metal gear drive rotates the ball 90°. The motor is automatically stopped by internal cams striking limit switches. On receipt of a reversing continuous signal, the motor turns in the opposite direction reversing the valve position. Standard manual override can be used for setup and power failure situations.

### Construction

|  |  |
|--|--|
| <b>Valve Body</b>                      | Lead free brass C69300                                       |
| <b>Ball/Stem</b>                       | 316 stainless steel  |
| <b>Ball Seats</b>                      | (4) PTFE (Teflon) energized with FKM (Viton)                 |
| <b>Stem Seals</b>                      | PTFE (Teflon) with (2) additional FKM (Viton) seals          |
| <b>Gear Drive</b>                      | Heavy duty alloy steel /aluminium bronze, self locking       |
| <b>Actuator Enclosure</b>              | Anti-corrosive durable painted aluminum alloy, Type 4X/ IP67 |
| <b>Visual Valve Position Indicator</b> | High strength glass lens                                     |
| <b>Fasteners</b>                       | Stainless Steel  |
| <b>Auxiliary Limit Switches</b>        | 2 x SPDT (5A/125VAC), on-off actuators only                  |



### Description

Electrically operated Full Port 3-way T-type flow pattern ball valve has four energized PTFE ball seats allowing for full pressure at any port. Leak free triple PTFE/FKM stem seal design. Rugged Type 4X explosion proof electric actuator includes a manual override, valve position confirmation switches (on-off models), over-torque protection.

### Approvals

#### Actuators

#### ANTI EXPLOSION GRADE

- The anti-explosion grade of these actuators is
- ◆ Class 1, Division 1, Groups C & D T5
  - ◆ Ex db IIC T5 Gb Class 1 Zone 1
  - ◆ AEx db IIC T5 Gb

Where:

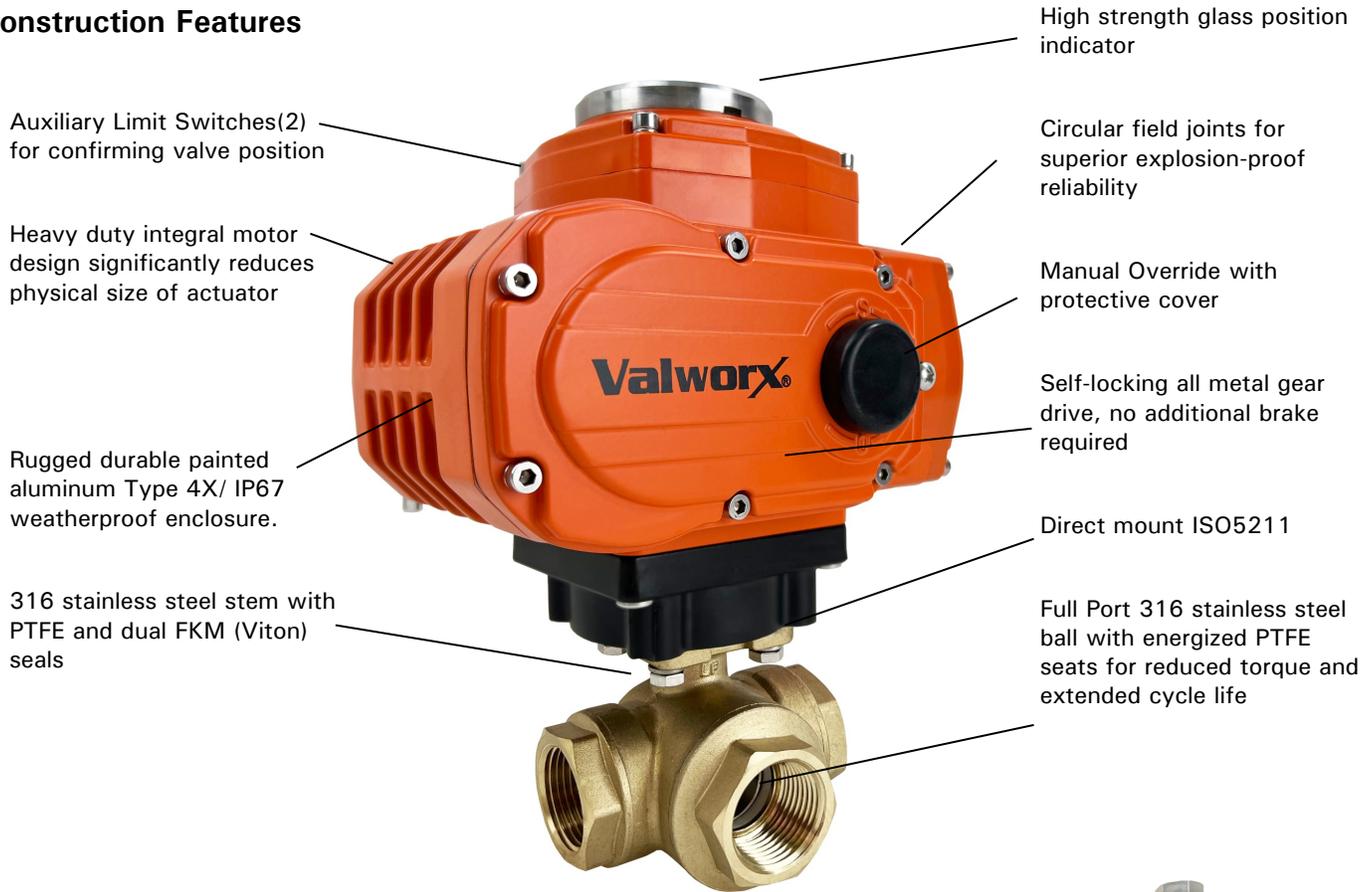
Class I – Hazard Class  
Division I/ Zone 1 – Area Classification  
db – Explosion Proof Type  
II – Electrical Equipment design for explosive atmospheres (except colliery)  
C – Magnitude of the explosion  
T5 - Highest allowed surface temperature of the actuator (+ 55C)  
Gb – Protection Grade  
The grades of combustible gas, steam and temperature group are listed in CSA 22.2 No 60079-0-2019, CSA 22.2 No 60079-1-2016, CSA 22.2 No 30-M1986(R2016), CSA 22.2 No 145-11(R2015), ANSI/UL 60079-2:2020, ANSI/UL 1203-2013, ANSI/UL 674 Fifth Edition. It is the user's responsibility to ensure compatibility with the applicable regulations.

#### Valves

- IAPMO RT certified to:
  - NSF/ANSI 372 - 2011 Drinking Water
  - NSF/ANSI/CAN 61-2020
  - Weighted average lead content <= 0.25%
- Meets design MSS-SP-110



### Construction Features



### Pressure-Temperature\*

Pressure Rating: 400 PSI CWP (27 Bar) non-shock  
29" Hg vacuum, 25 PSI steam with high temp. kit

Ball Valve Temperature Rating: 0 to 344° F (-18 to 173° C)

Actuator Temperature Rating: -13 to 131° F (-25 to 55° C)

\*See P/T chart

**Installation Requires-Two 1/2" NPT threaded explosion-proof connectors or pipe for electrical interface**

**(\*\*Not included\*\*)**



Visual Valve Position Indicator

### Pressure/Temperature Chart (PSI/°F)

| P/T Chart |     |     |     |     |     |     |
|-----------|-----|-----|-----|-----|-----|-----|
| PSI       | 400 | 400 | 400 | 400 | 375 | 275 |
| °F        | 0   | 50  | 100 | 176 | 200 | 266 |

### Pressure/Temperature Chart (Bar/°C)

| P/T Chart |     |    |    |    |    |     |
|-----------|-----|----|----|----|----|-----|
| Bar       | 27  | 27 | 27 | 27 | 26 | 19  |
| °C        | -18 | 10 | 38 | 80 | 93 | 130 |

**Specifications (English units)**

| Stock Number   | Pipe Size (NPT) | Orifice Size (inch) | Cv Flow Factor | Pressure Max.(PSI)* | Cycle Time/90° (seconds) | Voltage          | Current (amps) | Duty Cycle | Electrical Dwg. |
|--|-----------------|---------------------|----------------|---------------------|--------------------------|------------------|----------------|------------|-----------------|
| <b>120 VAC ELECTRIC ACTUATED 3-WAY LF BRASS BALL VALVE: T-PORT</b> |                 |                     |                |                     |                          |                  |                |            |                 |
| 583602   | 1/4             | 0.4                 | 3.2            | 400                 | 20                       | 110 VAC, 50/60Hz | 0.27           | 70%        | B               |
| 583603   | 3/8             | 0.4                 | 3.5            | 400                 | 20                       | 110 VAC, 50/60Hz | 0.27           | 70%        | B               |
| 583604   | 1/2             | 0.6                 | 4.5            | 400                 | 20                       | 110 VAC, 50/60Hz | 0.27           | 70%        | B               |
| 583606   | 3/4             | 0.8                 | 10.0           | 400                 | 20                       | 110 VAC, 50/60Hz | 0.27           | 70%        | B               |
| 583608   | 1               | 1.0                 | 16.0           | 400                 | 20                       | 110 VAC, 50/60Hz | 0.27           | 70%        | B               |
| 583610   | 1-1/4           | 1.2                 | 31.0           | 400                 | 20                       | 110 VAC, 50/60Hz | 0.27           | 70%        | B               |
| 583612   | 1-1/2           | 1.5                 | 49.0           | 400                 | 20                       | 110 VAC, 50/60Hz | 0.27           | 70%        | B               |
| 583616   | 2               | 2.0                 | 82.0           | 400                 | 30                       | 110 VAC, 50/60Hz | 0.63           | 70%        | B               |
| <b>24 VDC ELECTRIC ACTUATED 3-WAY LF BRASS BALL VALVE: T-PORT</b>  |                 |                     |                |                     |                          |                  |                |            |                 |
| 583700   | 1/4             | 0.4                 | 3.2            | 400                 | 20                       | DC24             | 1.8            | 70%        | G               |
| 583703   | 3/8             | 0.4                 | 3.5            | 400                 | 20                       | DC24             | 1.8            | 70%        | G               |
| 583704   | 1/2             | 0.6                 | 4.5            | 400                 | 20                       | DC24             | 1.8            | 70%        | G               |
| 583706   | 3/4             | 0.8                 | 10.0           | 400                 | 20                       | DC24             | 1.8            | 70%        | G               |
| 583708   | 1               | 1.0                 | 16.0           | 400                 | 20                       | DC24             | 1.8            | 70%        | G               |
| 583710   | 1-1/4           | 1.2                 | 31.0           | 400                 | 20                       | DC24             | 1.8            | 70%        | G               |
| 583712   | 1-1/2           | 1.5                 | 49.0           | 400                 | 20                       | DC24             | 1.8            | 70%        | G               |
| 583716   | 2               | 2.0                 | 82.0           | 400                 | 30                       | DC24             | 2.4            | 70%        | G               |

\* Pressure at 176° F (reduce pressure for higher temperatures, see P/T chart)

**Specifications (Metric units)**

| Stock Number   | Pipe Size (NPT) | Orifice Size (mm) | Kv Flow Factor | Pressure Max.(Bar)* | Cycle Time/90° (seconds) | Voltage         | Current (amps) | Duty Cycle | Electrical Dwg. |
|--|-----------------|-------------------|----------------|---------------------|--------------------------|-----------------|----------------|------------|-----------------|
| <b>120 VAC ELECTRIC ACTUATED 3-WAY LF BRASS BALL VALVE: T-PORT</b> |                 |                   |                |                     |                          |                 |                |            |                 |
| 583602   | 1/4             | 10.0              | 2.8            | 27                  | 20                       | 110 VAC,50/60Hz | 0.27           | 70%        | B               |
| 583603   | 3/8             | 10.0              | 3.0            | 27                  | 20                       | 110 VAC,50/60Hz | 0.27           | 70%        | B               |
| 583604   | 1/2             | 15.0              | 3.9            | 27                  | 20                       | 110 VAC,50/60Hz | 0.27           | 70%        | B               |
| 583606   | 3/4             | 19.0              | 8.6            | 27                  | 20                       | 110 VAC,50/60Hz | 0.27           | 70%        | B               |
| 583608   | 1               | 25.0              | 14.0           | 27                  | 20                       | 110 VAC,50/60Hz | 0.27           | 70%        | B               |
| 583610   | 1-1/4           | 31.0              | 27.0           | 27                  | 20                       | 110 VAC,50/60Hz | 0.27           | 70%        | B               |
| 583612   | 1-1/2           | 38.0              | 42.0           | 27                  | 20                       | 110 VAC,50/60Hz | 0.27           | 70%        | B               |
| 583616   | 2               | 50.0              | 70.0           | 27                  | 30                       | 110 VAC,50/60Hz | 0.63           | 70%        | B               |
| <b>24 VDC ELECTRIC ACTUATED 3-WAY LF BRASS BALL VALVE: T-PORT</b>  |                 |                   |                |                     |                          |                 |                |            |                 |
| 583700   | 1/4             | 10.0              | 2.8            | 27                  | 20                       | DC24            | 1.8            | 70%        | G               |
| 583703   | 3/8             | 10.0              | 3.0            | 27                  | 20                       | DC24            | 1.8            | 70%        | G               |
| 583704   | 1/2             | 15.0              | 3.9            | 27                  | 20                       | DC24            | 1.8            | 70%        | G               |
| 583706   | 3/4             | 19.0              | 8.6            | 27                  | 20                       | DC24            | 1.8            | 70%        | G               |
| 583708   | 1               | 25.0              | 14.0           | 27                  | 20                       | DC24            | 1.8            | 70%        | G               |
| 583710   | 1-1/4           | 31.0              | 27.0           | 27                  | 20                       | DC24            | 1.8            | 70%        | G               |
| 583712   | 1-1/2           | 38.0              | 42.0           | 27                  | 20                       | DC24            | 1.8            | 70%        | G               |
| 583716   | 2               | 50.0              | 70.0           | 27                  | 30                       | DC24            | 2.4            | 70%        | G               |

\* Pressure at 80° C (reduce pressure for higher temperatures, see P/T chart)

## Electrical Wiring Diagram

Confirm the actuator VOLTAGE is correct, then remove the terminal box cover and connect wiring to terminal strip according to appropriate wiring diagram.

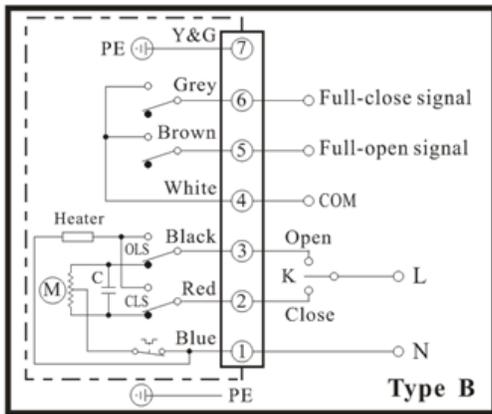
Wiring diagrams for each actuator are attached to the inside of the terminal box cover.

Input control signal type is 4-20mA. Actuator should have its own fused and isolated circuit. Do not connect actuators in parallel. Power to actuator should be maintained to activate the internal heater. This heater will help prevent condensation build-up inside the actuator.



**Before connecting power, confirm correct VOLTAGE is being applied. Incorrect voltage may damage actuator and void the warranty.**

### AC Voltage Wiring Diagram



FOR SUPPLY CONNECTIONS, USE WIRES SUITABLE FOR AT LEAST 90°C (194°F) Employer Des Fils D'alimentation Qui Conviennent Pour Au Moins 90°C

#### AC Voltage Wiring:

[User/Installer to Supply Relay or 3-way Switch (K)]

Terminal 1: Power Neutral (N)

Terminal 2: Power (L) to terminal 2 - Actuator OFF or CLOSED

Terminal 3: Power (L) to terminal 3 - Actuator ON or OPEN

#### Auxiliary Position Confirmation Limit Switches

Terminal 4: Common

Terminal 5: Open status confirmation signal

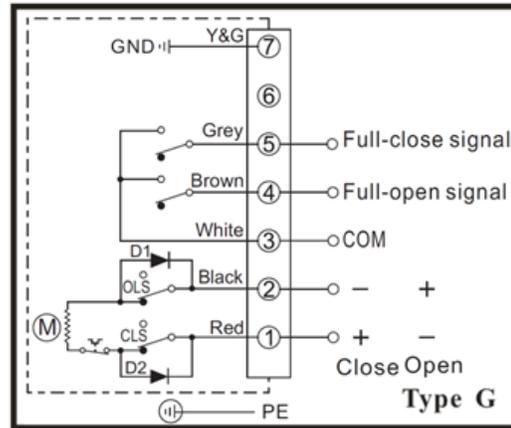
Terminal 6: Closed status confirmation signal

#### Ground PE

Terminal 7: Earth Ground

**NOTES:** 1. Auxiliary limit switches are rated 3A@125/250VAC, 30VDC resistive load. 2. Actuator should have its own fused and isolated circuit. Do not wire actuators in parallel.

### DC Voltage Wiring Diagram



FOR SUPPLY CONNECTIONS, USE WIRES SUITABLE FOR AT LEAST 90°C (194°F) Employer Des Fils D'alimentation Qui Conviennent Pour Au Moins 90°C

#### DC Voltage Wiring:

[User/Installer to Supply Reversing Relay or Switch]

Terminal 1: Power Positive (+) to close, power Negative (-) to open

Terminal 2: Power Negative (-) to close, power Positive (+) to open

#### Auxiliary Position Confirmation Limit Switches

Terminal 3: Common

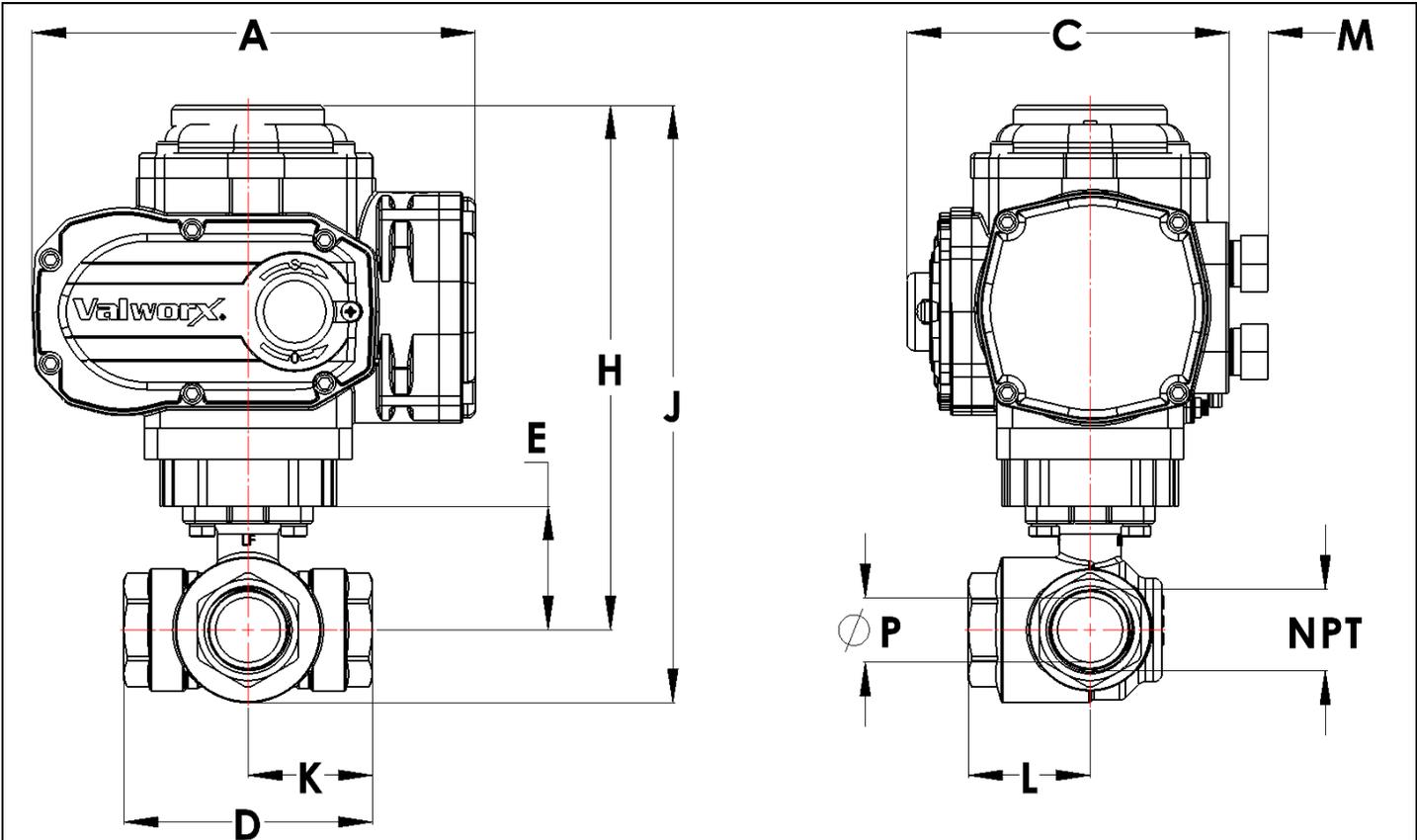
Terminal 4: Open status confirmation signal

Terminal 5: Closed status confirmation signal

#### Ground PE

Terminal 7: Earth Ground

**Dimensions:**



| Pipe Size (NPT) |      | A     | C     | D     | E    | H     | J     | K    | L    | M    | P    | Weight  |
|-----------------|------|-------|-------|-------|------|-------|-------|------|------|------|------|---------|
| 1/4             | inch | 6.7   | 4.7   | 2.2   | 1.0  | 5.7   | 6.3   | 1.1  | 1.1  | 0.6  | 0.4  | 8.1 lb  |
|                 | mm   | 170.5 | 118.5 | 55.6  | 26.5 | 144.8 | 160.0 | 27.8 | 27.5 | 15.0 | 10.0 | 3.7 kg  |
| 3/8             | inch | 6.7   | 4.7   | 2.2   | 1.0  | 5.7   | 6.3   | 1.1  | 1.1  | 0.6  | 0.4  | 8.1 lb  |
|                 | mm   | 170.5 | 118.5 | 55.6  | 26.5 | 144.8 | 160.0 | 27.8 | 27.5 | 15.0 | 10.0 | 3.7 kg  |
| 1/2             | inch | 6.7   | 4.7   | 2.9   | 1.3  | 6.0   | 6.8   | 1.4  | 1.4  | 0.6  | 0.6  | 8.7 lb  |
|                 | mm   | 170.5 | 118.5 | 73.0  | 33.5 | 152.4 | 172.7 | 36.5 | 36.5 | 15.0 | 15.0 | 3.9 kg  |
| 3/4             | inch | 6.7   | 4.7   | 3.3   | 1.7  | 6.4   | 7.3   | 1.6  | 1.6  | 0.6  | 0.8  | 9.4 lb  |
|                 | mm   | 170.5 | 118.5 | 83.0  | 43.0 | 162.6 | 185.4 | 41.5 | 41.5 | 15.0 | 19.0 | 4.3 kg  |
| 1               | inch | 6.7   | 4.7   | 3.8   | 1.9  | 6.6   | 7.7   | 1.9  | 1.8  | 0.6  | 1.0  | 10.1 lb |
|                 | mm   | 170.5 | 118.5 | 95.6  | 47.6 | 167.6 | 195.6 | 47.8 | 46.8 | 15.0 | 25.0 | 4.6 kg  |
| 1-1/4           | inch | 6.7   | 4.7   | 4.2   | 2.2  | 6.9   | 8.2   | 2.1  | 2.0  | 0.6  | 1.2  | 11.1 lb |
|                 | mm   | 170.5 | 118.5 | 107.0 | 55.0 | 175.3 | 208.3 | 53.5 | 51.0 | 15.0 | 31.0 | 5.0 kg  |
| 1-1/2           | inch | 6.7   | 4.7   | 5.0   | 2.6  | 7.3   | 8.9   | 2.9  | 2.4  | 0.6  | 1.5  | 13.7 lb |
|                 | mm   | 170.5 | 118.5 | 126.0 | 65.5 | 185.4 | 226.1 | 63.0 | 60.0 | 15.0 | 38.0 | 6.2 kg  |
| 2               | inch | 8.6   | 4.5   | 5.9   | 3.0  | 8.9   | 10.9  | 2.9  | 2.7  | 0.6  | 2.0  | 22.5 lb |
|                 | mm   | 217.5 | 114.0 | 149.0 | 77.0 | 226.1 | 276.9 | 74.5 | 69.0 | 15.0 | 50   | 10.2 kg |