

## For Commercial and Industrial Applications

Job Name \_\_\_\_\_

Contractor \_\_\_\_\_

Job Location \_\_\_\_\_

Approval \_\_\_\_\_

Engineer \_\_\_\_\_

Contractor's P.O. No. \_\_\_\_\_

Approval \_\_\_\_\_

Representative \_\_\_\_\_

# Series B6780, B6781

## 2-Piece, Full Port, Bronze Diverter Ball Valves

Sizes: 1/4" – 2" (8 – 50mm)

Series B6780, B6781 2-Piece, Full Port, Bronze Diverter Ball Valves are designed to divert liquids and gases in commercial and industrial applications. The B6780, B6781's full port orifice ensures minimal pressure drop, while PTFE seats and chrome plated brass ball provide lasting service.

### Features

- Suitable for a full range of liquids and gases.
- Minimal pressure drop due to full size ports
- Blowout proof pressure retaining stem
- Pressure rated at 400psi (28 bars) WOG non-shock @ 100°F (38°C); 125psi (8.6 bars) WSP
- Virgin PTFE stem packing seal and thrust bearing
- Vinyl insulator on heavy duty, zinc-plated carbon steel handles
- Low operating torque
- Adjustable stem packing gland
- Each valve factory tested

### Models

B6780 1/4" – 2" (8 – 50mm) threaded NPT end connections

B6781 1/2" – 1" (15 – 25mm) solder end connections

### Specifications

A 2-piece full port bronze diverter ball valve to be installed as indicated on the plans. The valve must have a blowout proof pressure retaining stem, chrome plated brass ball, PTFE seats, virgin PTFE stem packing seal and adjustable packing. Pressure rating no less than 400psi (28 bars) WOG non-shock, 125psi (8.6 bars) WSP. Valve shall be a Watts Regulator Company Series B6780 (threaded) or B6781 (solder).

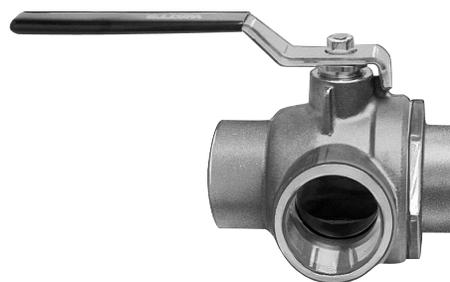
### Pressure – Temperature

Temperature Range: 0°F - 350°F (-18°C – 177°C) @ 50psi (3.5 bars)

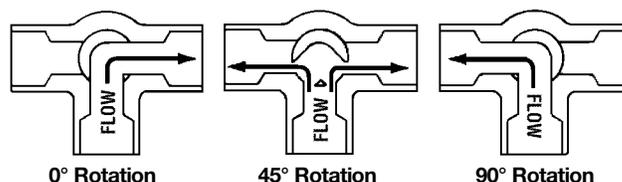
Maximum Working Pressure: 400psi (28 bars) WOG non-shock @ 100°F (38°C); 125psi (8.6 bars) WSP



B6780



B6781



0° Rotation

45° Rotation

90° Rotation

### Options

Suffix

OV – High profile safety oval handle

RH – Round handle

SH – Stainless steel handle & nut

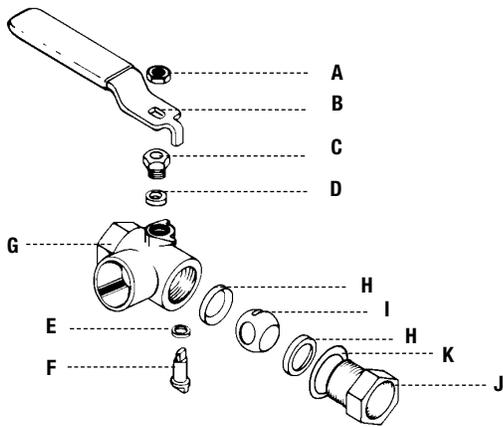
SS – Stainless steel ball and stem

\*This valve is designed to be soft soldered into lines without disassembly, using a low temperature solder 420°F (216°C). Other solders such as 95/5 tin antimony 460°F (238°C) or 96/4 tin silver 420°F (216°C) can be used, however extreme caution must be used to prevent seat damage. Higher temperature solders will damage the seat material. ANSI B.16.18 states that the maximum operating pressure of 50-50 solder connections is 200 psi (14 bars) at 100°F (38°C) and decreases with higher temperatures.

Apply heat with the flame directed **AWAY** from the center of the valve body. Excessive heat can harm the seats. After soldering, the packing nut may have to be tightened.

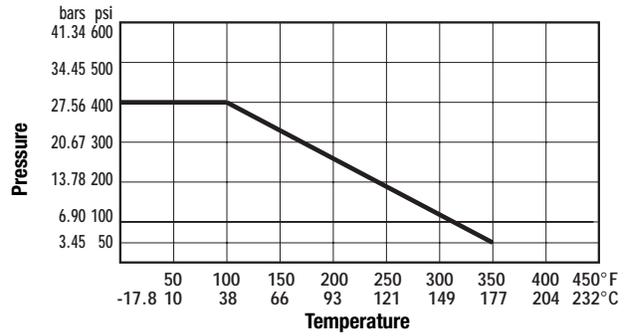
Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

## Materials



<b>A</b>	<b>Handle Nut</b>	Zinc Plated Carbon Steel
<b>B</b>	<b>Handle</b>	Zinc Plated Carbon Steel with Vinyl Insulator
<b>C</b>	<b>Packing Nut</b>	Brass ASTM B16, C36000
<b>D</b>	<b>Stem Packing</b>	PTFE
<b>E</b>	<b>Thrust Bearing</b>	PTFE
<b>F</b>	<b>Stem</b>	Brass ASTM B16, C36000
<b>G</b>	<b>Body</b>	Bronze ASTM B584, C84400
<b>H</b>	<b>Seats</b>	PTFE
<b>I</b>	<b>Ball</b>	Brass ASTM B16, C36000
<b>J</b>	<b>Adapter</b>	Brass
<b>K</b>	<b>Body Seal</b>	PTFE (1 1/4" - 2")

## Valve Seat Rating

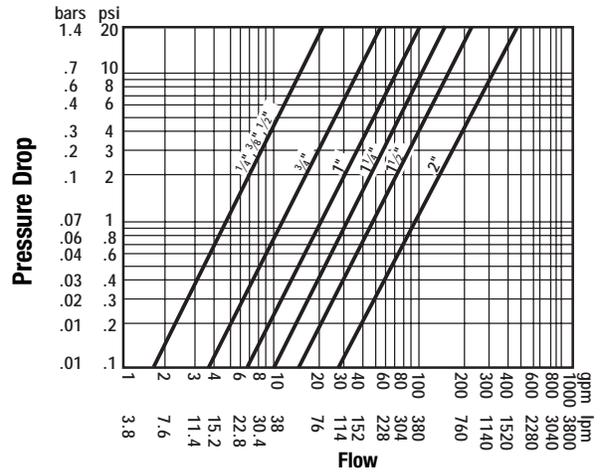


## Valve Torque Rating

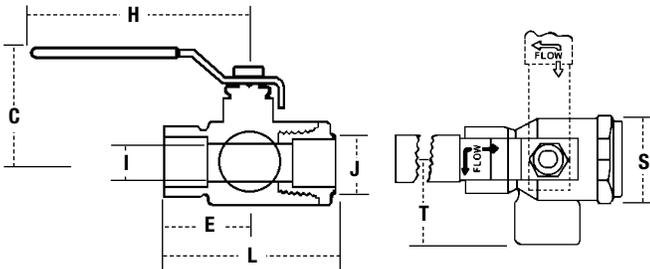
SIZE DN		RATING	OPERATING TORQUE	
in.	mm	Cv	in./lbs.	N-m
*1/4, 3/8	8-10	4.8	60	6.8
1/2	15	4.8	60	6.8
3/4	20	11	150	16.9
1	25	21	200	22.6
1 1/4	32	33	250	28.2
1 1/2	40	49	320	36.2
2	50	91	500	56.5

\* Threaded only

## Pressure Drop vs. Flow



## Dimensions — Weights



### B6780

SIZE (DN)		DIMENSIONS								WEIGHT									
in.	mm	C Center to Handle		E Center to End		H Radius of Handle		I Ball Orifice		J Dia. Solder Connection		L End to End		S Diameter		T Center to Side		lbs.	kg.
1/4, 3/8, 1/2	8,10,15	1 5/8	41.3	1 1/4	31.7	3 3/4	95.3	1/2	12.7	-	-	2 5/8	57.9	1 1/4	31.7	1 1/4	31.7	.66	.30
3/4	20	1 3/4	44.5	1 9/16	39.7	3 3/4	95.3	3/4	19.1	-	-	2 13/16	71.4	1 19/32	40.5	1 9/16	39.7	1.00	.45
1	25	2 1/16	52.4	1 7/8	47.6	3 3/4	95.3	1	25.4	-	-	3 9/16	90.5	2 1/8	54.0	1 7/8	47.6	1.88	.85
1 1/4	32	2 13/16	71.4	2 1/16	52.4	5 1/2	139.7	1 1/4	31.8	-	-	4 1/8	104.7	2 3/4	69.8	2 1/16	52.4	4.00	1.81
1 1/2	40	3	76.2	2 7/32	56.3	5 1/2	139.7	1 1/2	38.1	-	-	4 7/16	112.7	2 3/16	55.5	2 7/32	56.3	5.50	2.49
2	50	4	101.6	2 1/16	68.2	8	203.2	2	50.8	-	-	5 3/8	136.5	4 1/16	103.2	2 1 1/16	68.2	10.00	4.54

### \*B6781

1/2	15	1 5/8	41.3	1 1/8	28.6	3 3/4	95.3	1/2	12.7	5/8	15.8	2 5/16	58.7	1 1/4	31.7	1 1/8	28.6	.66	.30
3/4	20	1 3/4	44.5	1 9/16	39.7	3 3/4	95.3	3/4	19.1	7/8	22.2	3 9/16	80.9	1 19/32	40.5	1 9/16	39.7	1.00	.45
1	25	2 1/16	52.4	1 5/16	49.1	3 3/4	95.3	1	25.4	1 1/8	28.6	3 7/8	98.4	2 1/8	54.0	1 15/16	49.1	1.88	.85

\*See Solder Instructions on front.

NOTE: Seat rating based on pressure entering side port.



USA: 815 Chestnut St., No. Andover, MA 01845-6098; www.wattsreg.com  
 Canada: 5435 North Service Rd., Burlington, ONT. L7L 5H7; www.wattscanada.ca