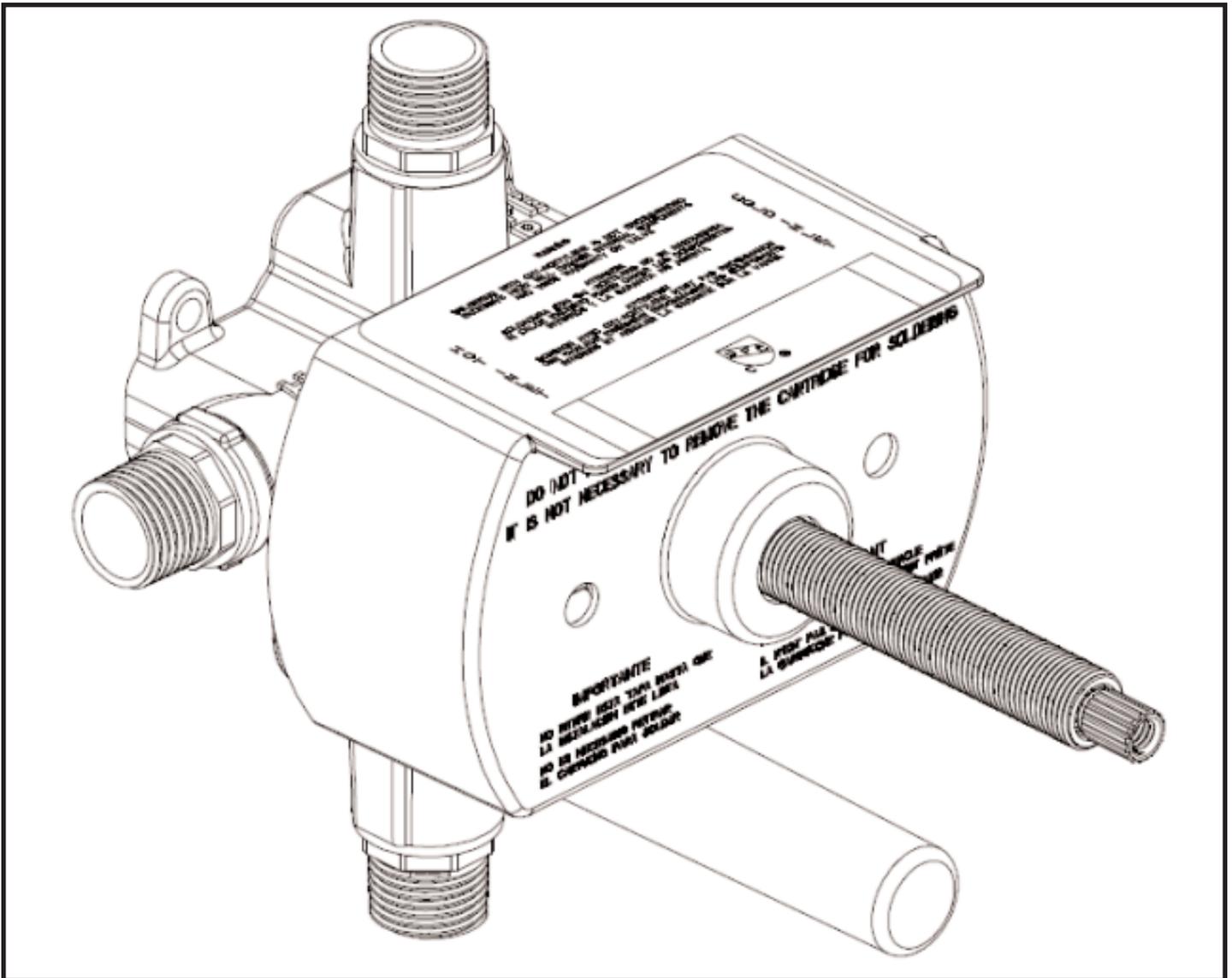


INSTALLATION INSTRUCTIONS

ROUGH INSTALL



Congratulations on the purchase of your Brasstech product, an excellent choice that will give you years of quality service and enhance the look and style of your home.

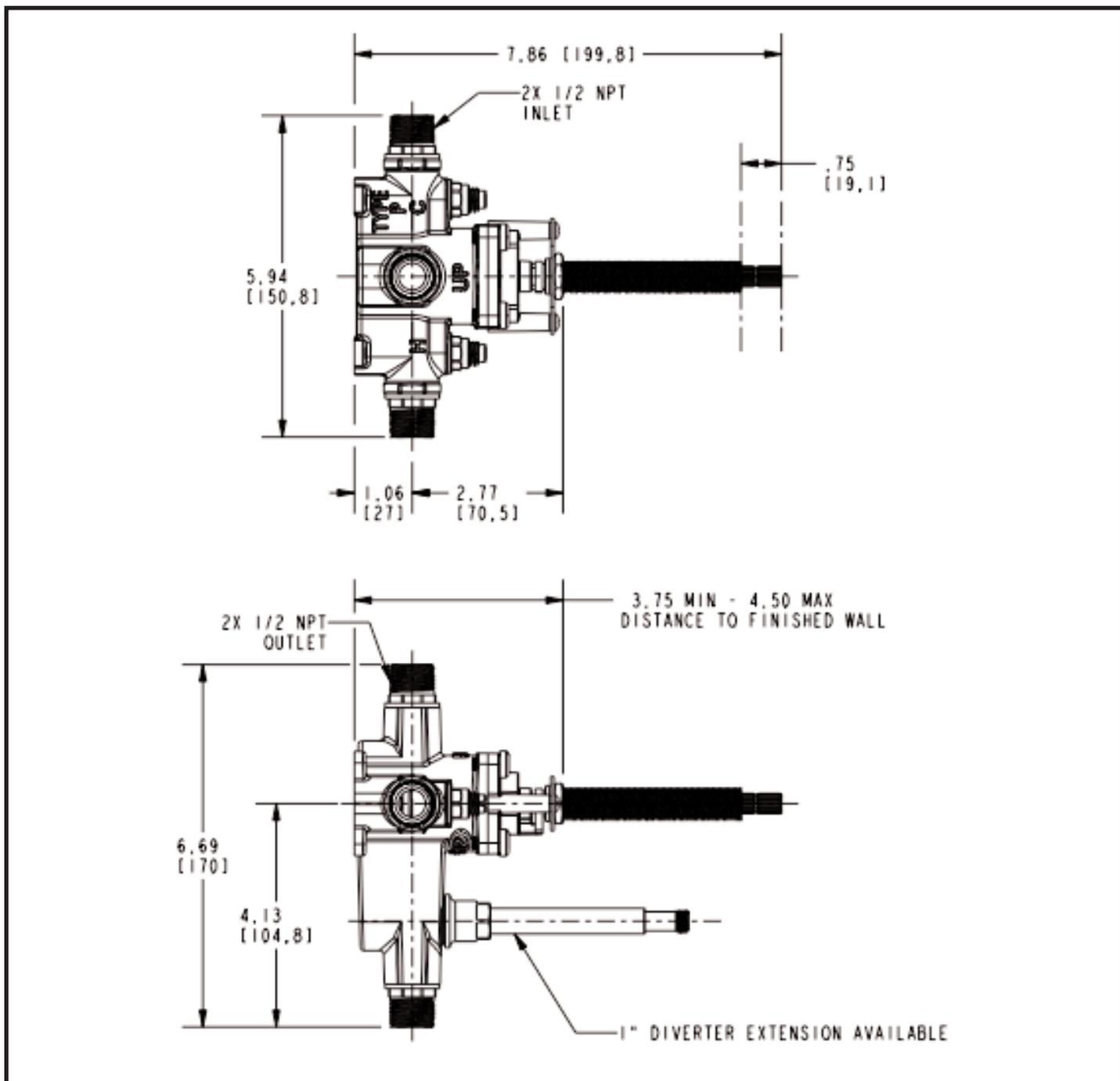
Balanced Pressure Tub / Shower Set Specification Diagram

Note: This valve is designed to fit in a 2" X 4" stud wall (or thicker) installation. Use stem extension kit #1-249 (sold separately) if valve installed is too far away from finished wall.

SPECIFICATIONS

Min. Operating Pressure : 20 psi [140 KPa]
 Max. Operating Pressure : 125 psi [860 KPa]
 Max. Burst pressure : 500 psi [3450 KPa]
 Max. Hot water temp : 180 °F [80 °C]
 Flow rate in USGPM [l/min] @ 50 psi [345 KPa]

	Tub	Shower
1-685(Automatic)	5.8 [22]	5.8 [22]



All Threaded Connections are 1/2" NPT

Dimensions are in Inches and Approximation of a Typical Installation

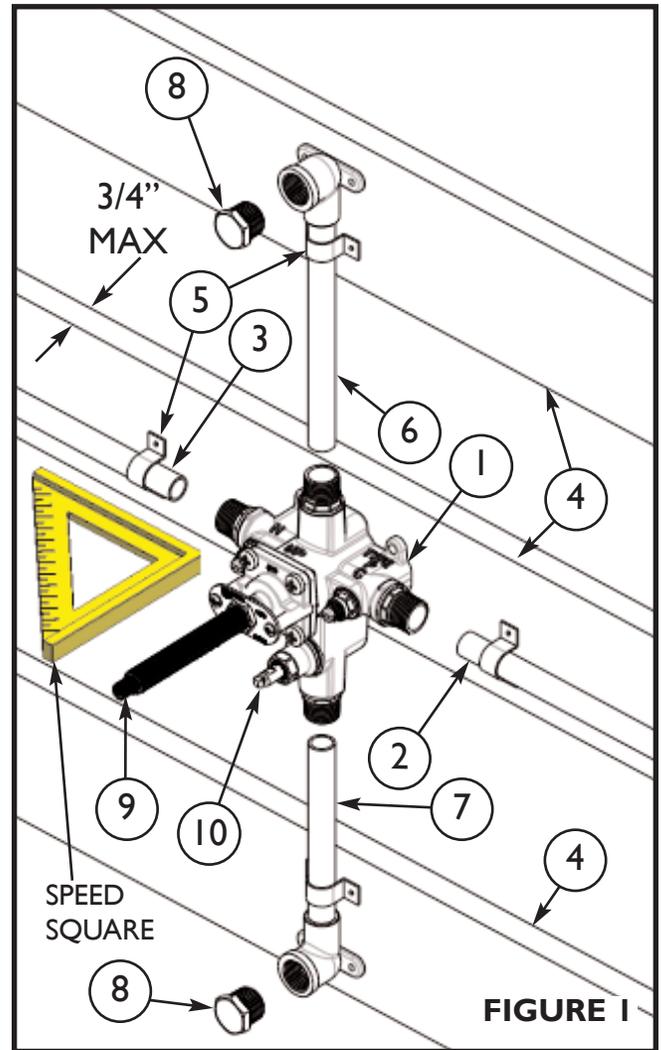
Recommended Installation by Professional Plumbing Contractor

Valve Assembly

1. Construct a 3/4" MAX thick CROSS BRACE (4) with its front side 3.75" to 4.5" away from the finished wall. Use screws (not provided) to position and secure VALVE (1) as shown in **FIGURE 1**.

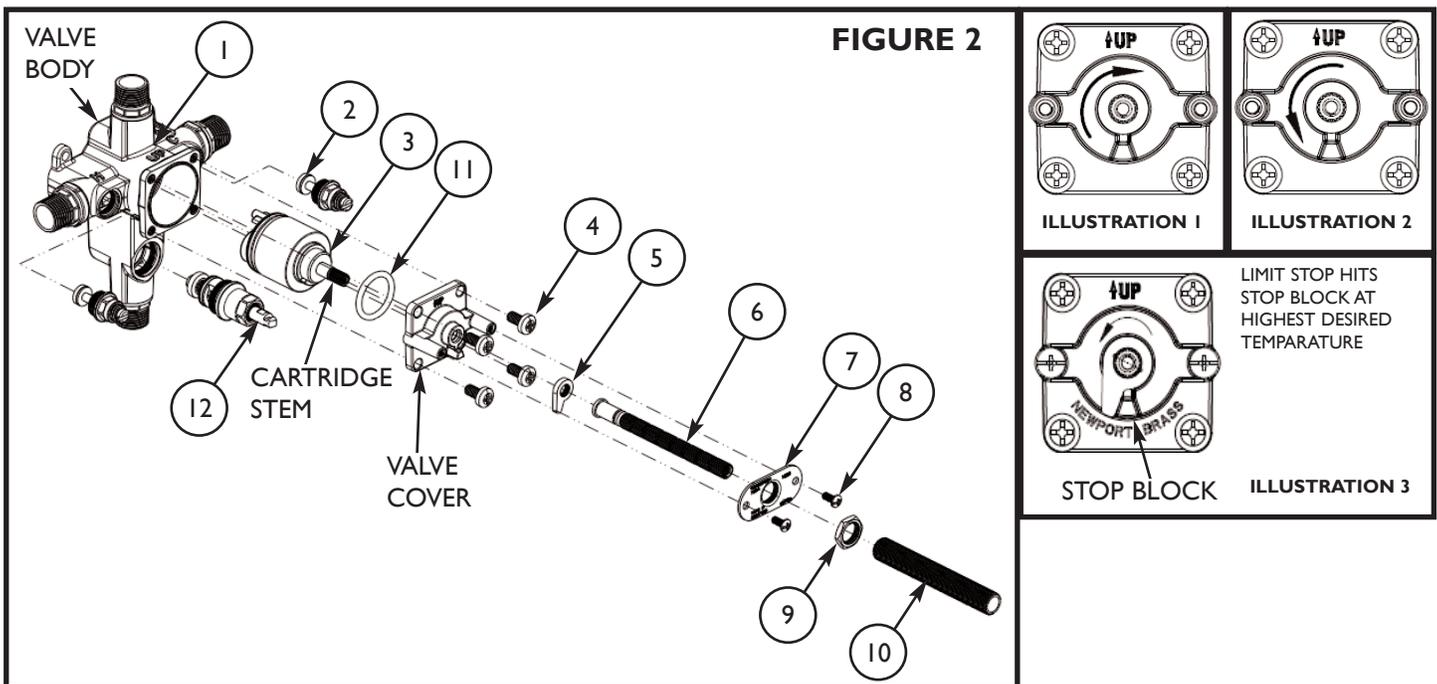
Note: Use a SPEED SQUARE to ensure STEM (8) is perpendicular horizontally and vertically to the stud face/finished wall.

2. Connect valve body to Hot (3) & Cold (2) water supply using proper fittings. Whenever possible, it is best to perform all solder/brazing operations prior to attachment to VALVE (1). **WARNING:** If copper pipe soldered directly to valve inlet/outlet, avoid soldering at high temperature; ensure STOPS and cartridge are fully open (counterclockwise as shown in **FIGURE 4** to prevent overheat and part damage.
3. Use PERFORATED STRAP (5) or equivalent to secure SUPPLY (2,3) to CROSS BRACE (4).
4. Connect valve body to SHOWER RISER (6) top and TUB SUPPLY (7) bottom.
5. Use PERFORATED STRAP (5) to secure SHOWER RISER (6) and TUB SUPPLY (7) to CROSS BRACE (4).
6. Use PLUG (8) to cap the outlets. Turn on both water supplies, turn valve STEM (9) counterclockwise to open, pull out the DIVERTER (10) and check for leaks. Note: Water pressure must be applied to both hot and cold inlet ports for proper valve operation.
7. After inspection turn off water supply.



Setting the Temperature Limit Stop

1. Shown in **FIGURE 2**, unscrew two SCREWS (8) to remove all-thread NIPPLE (10), HEX NUT (9) and STEM PLATE (7). Remove STEM (6) and LIMIT STOP (5).
2. Close the valve by turning the CARTRIDGE STEM clockwise until it stops, (**ILLUSTRATION 1**).
3. From the CLOSED position, rotate CARTRIDGE STEM counterclockwise until the desired temperature is achieved. (**ILLUSTRATION 2**).
Note: CARTRIDGE STEM will rotate approx. 150 degrees counterclockwise from CLOSED to full HOT position.
4. Place the LIMIT STOP (5) on the CARTRIDGE STEM against the stop block (**ILLUSTRATION 3**). Rotate several times to make sure the stop is at the desired temperature setting.
5. Re-install the STEM (6) and use SCREWS (8) to re-install the STEM PLATE (7), all thread NIPPLE (10), and HEX NUT (9).



Cartridge Removal And Replacement

1. Shown in **FIGURE 2**, unscrew two SCREWS (8) to remove all-thread NIPPLE (10), HEX NUT (9) and STEM PLATE (7). Remove STEM (6) and LIMIT STOP (5).
2. Remove the four COVER SCREWS (4), VALVE COVER and compression O-RING (11).
3. Grab CARTRIDGE STEM and carefully pull CARTRIDGE (3) out of the VALVE BODY.
4. Replace CARTRIDGE (3) ensuring that the cartridge's O-RINGS (not shown) are in place and lubricated with plumbers (non-petroleum) grease.
5. Once the CARTRIDGE (3) is installed, it is very important to confirm that the cartridge's tabs (backside) is correctly locked into the VALVE BODY mating hole.
6. Re-install the compression O-RING (11), VALVE COVER and tighten COVER SCREWS (4) firmly into place.
7. Re-install LIMIT STOP (5) as described above in **Setting the Temperature Limit Stop**.
8. Re-install the STEM (6) and use SCREWS (8) to re-install the STEM PLATE (7), all thread NIPPLE (10), and HEX NUT (9).

Warning: Do not forcefully close CARTRIDGE STEM.

Troubleshooting

* **WARNING** - Never try to stop dripping by applying extreme force or overtightening the handle.

OBSERVATION	CAUSE	REMEDY
Opening immediately to hot water.	Hot and cold water supplies have been connected in reverse.	Rotate cartridge 180 degrees. (FIGURE 3)
Water drips after shutting off the valve, eventually stops.	Residual water in valve and piping.	Allow a few minutes to fully drain.
Water drips after shutting off the valve, never stop.	O-ring seal on the inlet of the cartridge or seat assembly is damaged.	Check the O-ring and seat for cuts or overheating damage during installation. Replace if necessary.
Water insufficiently hot.	LIMIT STOP (2) incorrectly set	Refer to the instruction on "Setting the Temperature Limit Stop"
Valve stem not long enough to install trim.	Valve installed too deep into wall.	Reposition valve or use Extension Kit# I-249
Diverter will not stay on during shower	Not enough backpressure between shower-head and diverter valve	Ensure a 2.5 GPM Max or lower flow restrictor is used at the showerhead
No or low flow of hot or cold water.	Hot or cold side is not fully pressurized.	Ensure STOPS are fully open
	Debris caught inside the inlet of the cartridge.	Clean or replace CARTRIDGE
Clicking or chattering noise.	Rapid movement of anti-scald mechanism within valve.	Normal operation. Sudden open/close of valve could exacerbate noise. Mitigate by slower handle rotation at on /off

