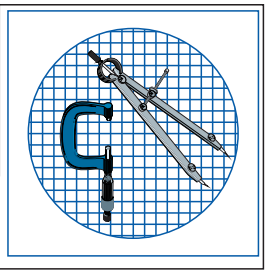
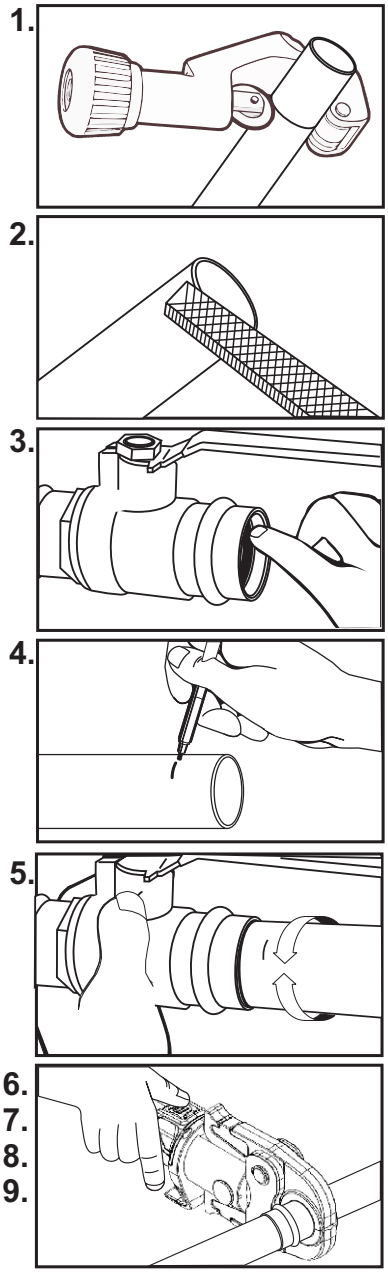
BRASS PRESS BALL VALVE INSTALLATION INSTRUCTIONS



These press to connect brass ball valves are made to be installed exclusively on ASME/ASTM B88 seamless water tubes types K, L and M hard copper (½" to 4") and soft copper (½" to 1¼").

INSTRUCTIONS FOR BALL VALVES 1/2" TO 2"



Step 1: Cut the copper tubing at a square angle using a rotary pipe cutter or fine-toothed metal handsaw.

Step 2: Remove any burr from inside and outside of the tubing to prevent damage to the sealing rubber o-ring.

Step 3: Check the seal for correct fit. Do not use any oils or lubricants since it could damage the rubber o-ring. If necessary the end connexion can be dipped in soap and water solution before insertion.

Step 4: Mark the proper insertion depth on the tube as indicated by the depth chart below. It's important to reach the recommended depth mark to get a properly sealed joint.

Step 5: While turning slightly left & right, insert the tube up to the mark.
Note: The depth mark should be near the edge of the fitting when the tube hit the stop inside the connexion.

Step 6: On the tool, insert and fix the appropriate jaw for the size of fitting you want to press.

Step 7: Open the jaw and place at a right angle on the connexion centered on the o-ring.

Step 8: Start the pressing process and hold the trigger until the jaw has engaged and pressed the connection completely.

Step 9: When the pressing is done, open the jaw to release it.

Nominal Tube Size	Tube Insertion Depth	
	Inches	mm
1/2"	0.807	20.5
3/4"	0.984	25.9
1"	1.063	27.6
1 1/4"	1.102	28.6
1 1/2"	1.417	36.0
2"	1.772	45.0

Recommended Tools
Brass ball valves press connections can be pressed with following pressing tool brands:

Milwaukee® ½" to 2"
Nibco® ½" to 2"
REMS® ½" to 2"
Ridgid® ½" to 2"
Rothenberger® ½" to 2"
Stanley® Virax ½" to 2"

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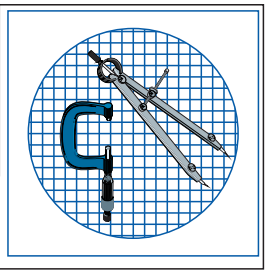
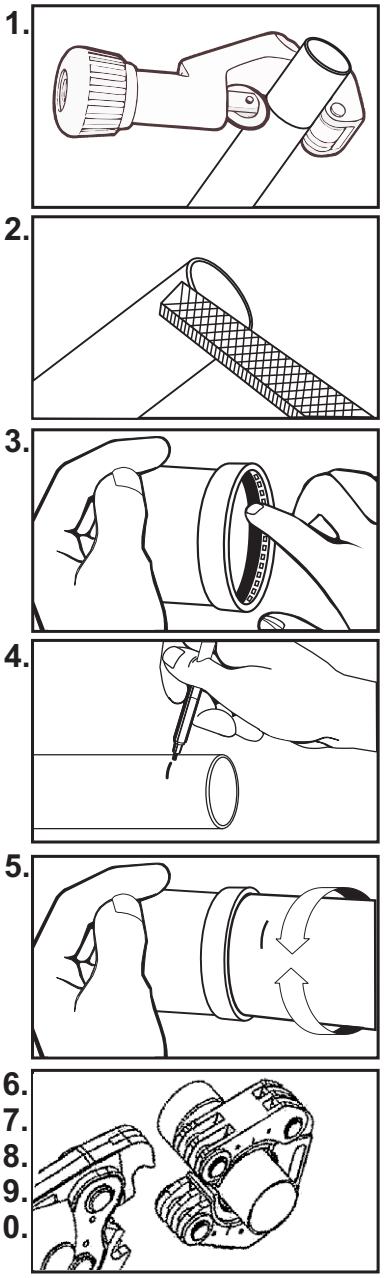


These press to connect brass ball valves are made to be installed exclusively on ASME/ASTM B88 seamless water tubes types K, L and M hard copper (½" to 4") and soft copper (½" to 1¼").

INSTRUCTIONS FOR BALL VALVES 2 1/2", 3 & 4"



Step 1: Cut the copper tubing at a square angle using a rotary pipe cutter or fine-toothed metal handsaw.

Step 2: Remove any burr from inside and outside of the tubing to prevent damage to the sealing rubber o-ring.

Step 3: Check the seal for correct fit. Do not use any oils or lubricants since it could damage the rubber o-ring. If necessary the end connexion can be dipped in soap and water solution before insertion.

Step 4: Mark the proper insertion depth on the tube as indicated by the depth chart below. It's important to reach the recommended depth mark to get a properly sealed joint.

Step 5: While turning slightly left & right, insert the tube up to the mark.
Note: The depth mark should be near the edge of the fitting when the tube hits the stop inside the fitting.

Step 6: Select the appropriate press saddle ring for your connection size.

Step 7: Open the saddle ring and place at a right angle on the connection.

Step 8: Select the pinching jaw and install it on the press tool.

Step 9: Start the pressing process and hold the trigger until the jaw has completely closed the press ring around the connection.

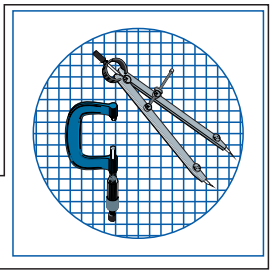
Step 10: When the pressing is done, open the jaw to release the ring.

Nominal Tube Size	Tube Insertion Depth	
	Inches	mm
2 1/2"	1.772	45.0
3"	1.89	48.7
4"	2.205	56.5

Recommended Tools
Brass ball valves press connections can be pressed with following pressing tool brands:

Milwaukee® 2 ½" to 4"
REMS® 2 ½" to 4"
Ridgid® 2 ½" to 4"

BRASS PRESS BALL VALVE INSTALLATION INSTRUCTIONS



Installation Recommendations
Brass ball valves press connections are packed in bulk or individually with protection to keep them clean and free from debris. This will also prevent the possible separation of the o-rings in the handling. It's the installer's responsability to make the final visual inspection of the connection prior to installation.

All connections should be handled with care and the protection removed just prior to the installation to ensure their cleanliness.

To prevent leaks, minimum distances between pressed joints should be as per the adjacent table.

Pressing Near Another Pressed Connection		
Nominal Tube Size	Minimum Distance	
	Inches	mm
1/2 ~ 1 1/4"	1/2	13
1 1/2"	5/8	16
2 ~ 4"	3/4	20

Pressing a Connexion Near a Soldered or Brazed Joint
To ensure proper sealing of both the soldered and press ball valve connections, a minimum spacing between connections must be maintained. Also, make sure there is no residual solder or other debris on the tubing to be inserted into the press connexion.

Minimum clearance requirement when pressing connections near an existing soldered or brazed connection should be as per the adjacent table.

Pressing Near a Soldered Connection		
Nominal Tube Size	Minimum Distance	
	Inches	mm
1/2 ~ 3/4"	1/4	7
1 ~ 1 1/4"	7/16	11
1 1/2"	5/8	16
2"	3/4	19
2 1/2 ~ 4"	1/4	7

Make a Soldered or Brazed Joint Near a Pressed Connexion
To ensure proper sealing of both the soldered/brazed and press connections, a minimum spacing between connections must be maintained. The installer should take the proper precautions to keep the press connection at a cool temperature by wrapping the connection with a cold wet rag while soldering.

Minimum clearance requirement when soldering or brazing near an existing pressed connection should be as per the adjacent table.

Soldering Near a Pressed Connection		
Nominal Tube Size	Minimum Distance	
	Inches	mm
1/2"	1 1/2	39
3/4"	2 1/4	58
1"	3	77
1 1/4"	3 3/4	96
1 1/2"	4 1/2	115
2"	6	153
2 1/2"	7 1/2	191
3"	9	229
4"	12	305

Leak Detection Design
Brass press ball valve connections are made with a leak detection design, providing fast and easy identification of unpressed connections during the pressure testing process at any installation angle possible. The design feature provides a path for liquids or air pressurized in the system to past arround the sealing element of an unpressed connection.

When pressed according to instructions, the leak detection design feature is neutralized, creating a leak proof, permanent connection.

Unpressed connections are located by pressurizing the system with air or water. When testing with water, the suggested pressure is 15 to 85 psi maximum. Testing with air can be dangerous. The manufacturer recommends testing compressed air at 5 to 45 psi maximum. Following a successful test, the system may be pressure tested up to 250 psi maximum for water or air, depending on local code requirements.

Even though ball valves include a leak detection system, it is the installer's responsibility to ensure that all connections have been pressed according to the instructions provided with the tool used. Furthermore, the installer must ensure that the tool is calibrated according to the instructions provided with the tool.

Temperature During Installation
The EPDM sealing o-ring used in brass press connections can be installed in as low as 0 $^{\circ}$F (-18 $^{\circ}$C). Any joint pressed in lower temperature conditions could be improperly sealed.