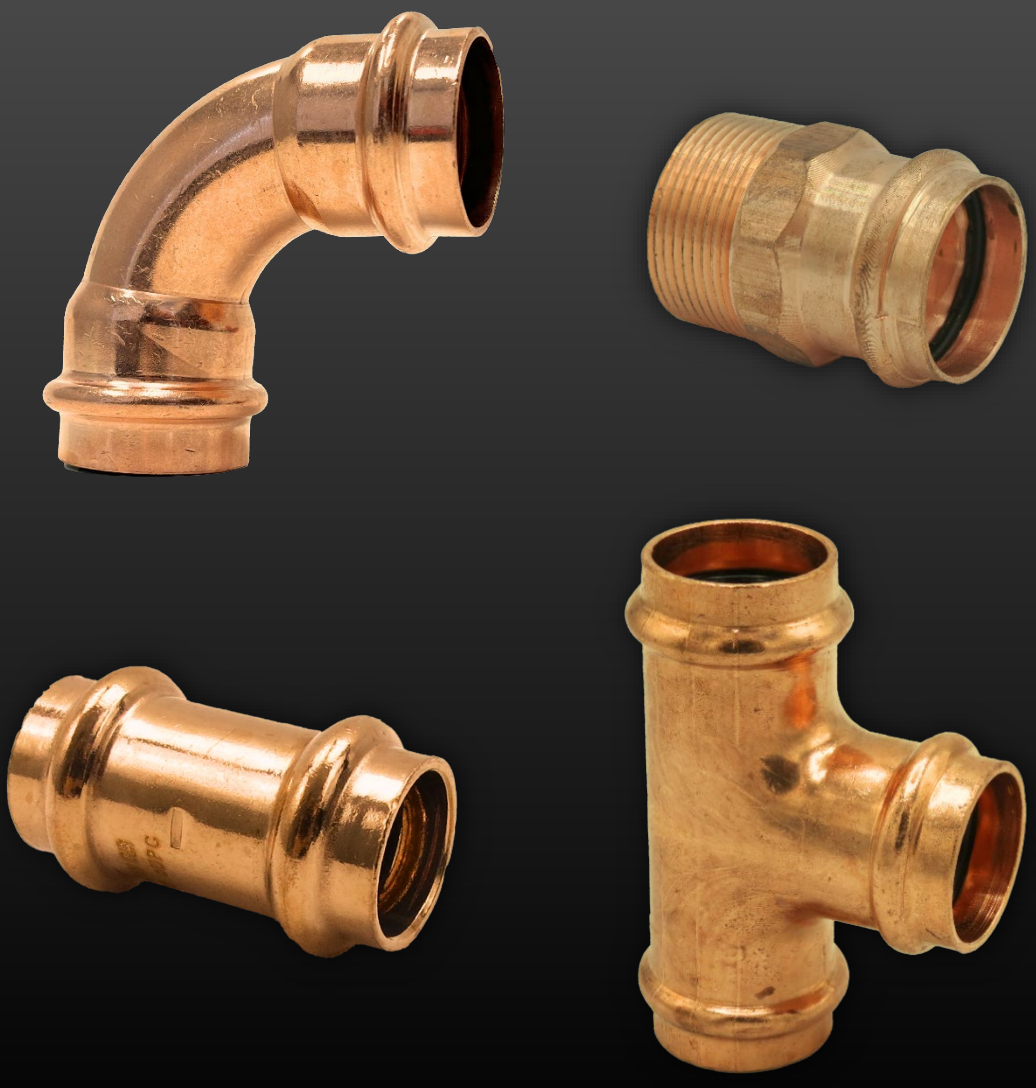
COPPER & BRASS PRESS FITTINGS INSTALLATION GUIDELINES



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CB SUPPLIES

GENERAL INFORMATION

Description:

The copper & brass fittings are manufactured by *Zhejiang Hailiang Co., Ltd.* as follows:

- Nominal sizes 1/2 to 4
- Materials of manufacture:
  - Brass UNS C46500
  - Copper UNS C12200
- Press fittings include adapters, caps, cross overs, couplings, elbows, flanges, manifolds, reducers, tees, reducing tees, unions, and accessories.

Uses:

Copper & brass press fittings

- can be used for the following:
  - hot- and cold-water distribution systems.
  - hydronic heating systems.
  - fire sprinkler systems.
  - compressed air systems; and
  - low-pressure steam systems.
- can be used in above and below ground installations, as allowed by the by the local codes.
- can be used in residential (single-family, multi-family, and high-rise buildings), commercial, industrial, and institutional buildings; and
- must be used with Types K, L, and M, copper water tube compliant with ASTM B88.

Operating Parameters:

Maximum operating pressure:	2,070 kPa (300 psi)
Maximum installation testing pressure:	4,150 kPa (600 psi)
Maximum steam pressure:	100 kPa (15 psi)
Maximum vacuum:	85 kPa @ 20 ºC or 638 mm Hg @ 20 ºC (12.3 psi @ 68 ºF or 25 in Hg @ 68 ºF)
Operating temperatures:	−18 ºC–120 ºC (0 ºF–250 ºF)

Compliance:

The copper & brass press fittings are certified by IAPMO for compliance with

- ASME B16.51 — Materials, elastomers, design, and physical characteristics
- IAPMO/ANSI/CAN Z117 — Materials, O-rings, and physical characteristics
- IAPMO PS 117 — Materials, O-rings, and physical characteristics
- ICC-ES LC1002 — General requirements
- NSF/ANSI/CAN 61 — Toxicity
- NSF/ANSI/CAN 372 — Lead content

Handling and Storage:

Copper & brass press fittings

- must be handled with reasonable care.
- should not be dropped.
- should be stored in the bags in which they come, for protection from moisture and dirt; and
- should only be removed from the bags just prior to installation.

INSTALLATION RECOMMENDATIONS & PRECAUTIONS

General:

Copper & brass press fittings must be installed in accordance with the applicable local codes and following these installation instructions.

Installers:

The installer must be a plumber licensed within the jurisdiction and familiar with the installation of copper & brass press fittings.

Tools:

Copper & brass press fittings must be installed with the proper press tools and corresponding jaws. Milwaukee, NIBCO, REMS, RIDGID, Rothenberger, and Stanley manufacture press tools suitable for copper & brass press fittings.

Preliminary Inspection:

Before installation, each copper & brass press fitting must be.

- examined for apparent or visible defects.
- examined to ensure that the fittings are not damaged.
- examined to ensure that the sealing elements (O-rings) and stainless-steel grip rings (as applicable) are not damaged and are in place; and
- rejected if damage or defects are found.

Warnings:

- Do not use oils or lubricants. If necessary, use a soap and water solution.
- The end of the tube must contact the stop in the fitting before the fitting is pressed. Not inserting the fittings to the stop might result in leaks.

SEPARATION DISTANCES BETWEEN JOINTS

Separation Distances Between Pressed Joints

The minimum separation distances between pressed joints must be in accordance with the following table:

Nominal Size	Minimum Distance	
	mm	in
1/2	13	1/2
3/4	13	1/2
1	13	1/2
1 1/4	13	1/2
1 1/2	16	5/8
2	20	3/4
2 1/2	20	3/4
3	20	3/4
4	20	3/4

Separation Distances Between Pressed and Soldered or Brazed Joints

a) The minimum separation distances from soldered or brazed joints for pressing fittings must be in accordance with the following table:

Nominal Size	Minimum Distance	
	mm	in
1/2	7	1/4
3/4	7	1/4
1	11	7/16
1 1/4	11	7/16
1 1/2	16	5/8
2	20	3/4
2 1/2	7	1/4
3	7	1/4
4	7	1/4

b) The minimum separation distances from pressed joints for soldering or brazing fittings must be in accordance with the following table:

Nominal Size	Minimum Distance	
	mm	in
1/2	40	1 1/2
3/4	58	2 1/4
1	77	3
1 1/4	96	3 3/4
1 1/2	115	4 1/2
2	152	6
2 1/2	190	7 1/2
3	230	9
4	305	12

INSTALLATION PROCEDURE

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Safeguard against potential hazards by wearing Personal Protective Equipment (PPE). Ensure proper selection, use, and maintenance of PPE to promote a secure and healthy environment.

Follow Steps 1 to 7 for installing ALL fittings.

1. Cut the copper tube at a square end using a rotary tube cutter.

2. Remove any burrs from the end of the tube with a file or a deburring tool, making sure that the tube end is smooth and clean (to avoid damaging the O-ring).

3. Determine the insertion depth of the fitting using the following table:

Nominal Size	Insertion Depth	
	mm	in
1/2	20	3/4
3/4	22	7/8
1	22	7/8
1 1/4	25	1
1 1/2	37	1 7/16
2	40	1 9/16
2 1/2	45	1 3/4
3	48	1 7/8
4	54	2 1/8

4.	Measure the insertion depth from the end of the tube and mark it clearly.	
5.	Verify that the sealing elements (O-rings) and stainless-steel grip rings (as applicable) are not damaged and are in place.	
6.	Insert the tube into the press fitting by slightly turning left and right, until the end of the tube contacts the fitting stop. If necessary, a solution of soap and water may be used to help with the insertion process. Note that improperly inserting the fitting might result in leaks.	
7.	Visually verify that the edge of the fitting is at the insertion depth mark made on the tube.	
Follow Steps 8 to 11 for installing fittings in nominal sizes 1/2 to 2. (For Types K, L, and M hard copper tube in nominal sizes 1/2 to 2 and soft copper tube in nominal sizes 1/2 to 1 1/4)		
8.	Insert and fix on the press tool the appropriate jaw for the size of fitting being pressed.	

9.	Open the press tool jaw and place it at right angles on the fitting, centered on the O-ring.	
10.	Start the pressing process and hold the trigger until the jaw has engaged the fitting.	
11.	Upon completion of the pressing, open the jaw to release the fitting.	
Follow Steps 12 to 16 for installing fittings in nominal sizes 2 1/2 to 4. (For Types K, L, and M hard copper tube in nominal sizes 2 1/2 to 4)		
12.	Select the appropriate press saddle ring for the size of fitting being pressed and select and install the appropriate pinching jaw on the press tool.	
13.	Open the saddle press ring and place it on the fitting at a right angle ensuring that the saddle press ring is engaged on the fitting bead.	

14.	Place the pinching jaw onto the saddle press ring and start the pressing process.	
15.	Hold the press tool trigger until the jaw has completely closed the saddle press ring around the fitting.	
16.	Upon completion of the pressing, open the jaw to release the saddle press ring from the fitting.	

FIELD TESTING

General:

Upon completion of the installation of the fittings, the tubing system must be tested to ensure water tightness. There are two methods for testing installations, as follows:

Water testing:

1. Fill the tubing system with water.
2. Pressurize the tubing system to a pressure of 1,000 kPa (145 psi), or the pressure required by the applicable local code.
3. Hold the pressure for at least 1 h, or the time required by the applicable local code.
4. Measure the pressure in the tubing system.
5. There should no pressure drop or leaks in the tubing system.

Air testing:

1. Pressurize the tubing system with air to a pressure of at least 700 kPa (100 psi), or the pressure required by the applicable local code.
2. Hold the pressure for at least 2 h, or the time required by the applicable local code.
3. Measure the pressure in the tubing system and check for leaks.
4. There should no pressure drop in the tubing system.

WARRANTY

The manufacturer warrants that copper & brass press fittings will conform to the designated standard and be free from failure caused by manufacturing defects for a period of fifty (50) years from the date of installation. This warranty shall only be applicable to copper & brass press fittings installed in accordance with the manufacturer's installation instructions.

The manufacturer shall not be responsible for the improper use, handling, or installation of the copper & brass press fittings.