

How to Install Lawton Press Fittings

Installing copper and stainless steel press fittings.



Lawton Press Fittings	Joined to tube by deforming the fitting onto the tube against an elastomeric seal. No heat or flux is used.
Seals	The seal is specified for the fitting and for the service for which it is supplied. Water and gas fittings do not take the same seal and must not be substituted.
Further Detail	Specification and performance characteristics not covered here are given in the relevant fitting datasheet or technical guide. The standards, the project specification and the pressing tool manufacturer's instructions take precedence over this guide.

Safety

- A pressing tool closes with several tonnes of force. Fingers, gloves, and clothing must be kept clear of the jaw, collar, and sling throughout the cycle. The fitting must not be held, nor the tube steadied, inside the jaw while pressing.
- Cut and deburred tube throws metal slivers. Gloves must be worn when handling cut tube and swarf.
- Eye protection must be worn when a pressing tool is operated.
- A pressing tool must not be operated without a fitting and the matching jaw or press collar in place.
- Jaws, press collars and adaptors are wearing parts. They shall be examined for cracks and wear before each use, and any showing a crack shall be withdrawn from service. A cracked tool may break under load and eject fragments.

These are general precautions. Site rules and any permit to work may differ and shall be followed.

Fittings and seals

- The O-ring is pre-lubricated and additional lubricant is not required. Fittings must be kept in their packaging until use so that the lubrication does not dry out.
- The press indicator shows that a joint has not yet been pressed. It is removed once the joint is made.

Pressing tools

- The tool manufacturer's instructions shall be observed before pressing.
- Jaws must match the press profile "M" of the fitting, and matching components from a single manufacturer must be used. Approved tools, jaws, adaptors, and slings are listed in the fitting datasheet.
- Small sizes are pressed with a fixed jaw. Larger sizes are pressed with a press collar driven through an adaptor jaw. The size at which a jaw gives way to a collar is set by the tool and not by the fitting, so the sizes in the headings below are typical.
- Tools, jaws, collars, and adaptors must be within their servicing and calibration schedule.

Using a press collar

- The sliding segments must be free to move. With the collar in its starting position, the marking lines on the segments and on the shells must be in alignment. A collar whose segments do not return to the starting position shall be withdrawn for repair.
- The collar must be closed fully on the fitting and the catch engaged before the adaptor jaw is offered up.
- The claws of the adaptor jaw must be pushed fully into the grooves of the collar so that they grip the pins. An adaptor jaw that is not fully engaged may break under load.
- The collar must close completely during pressing, with no gap between the segments.
- The pressing profile of the collar shall be kept clean and lubricated at the interval stated by the tool manufacturer, which differs by size. Excess lubricant shall be wiped off. Lubricant must not be allowed to reach the O-ring.

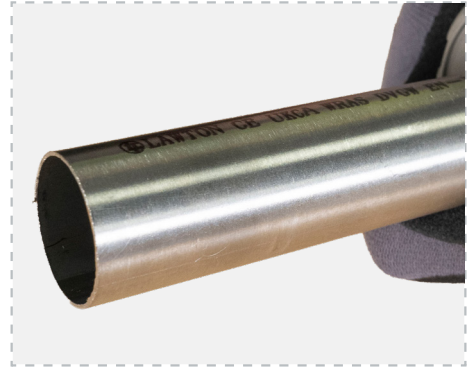
Preparation

- Ensure the O-ring is present and is seated correctly (not loose in the fitting).
- Cut the tube square with a rotary tube cutter. Large diameter and stainless tube may be cut with a fine tooth power saw.
- A minimum clearance shall be maintained between adjacent fittings to allow for deformation of the tube profile when pressed. The clearances are given in the fitting datasheet.



Tube preparation

- Check the tube ends are not damaged.
- Deburr the tube end internally and externally. The deburring tool must be clean and free from contamination.
- Ensure no sharp edges or swarf are present. The tube must be round, undamaged, and free from scores over the insertion length.



Insertion and depth marking

- Take the insertion depth from the fitting itself: hold the fitting alongside the tube end and mark the tube at the mouth of the socket.
- Insert the tube into the fitting using a twisting motion, up to the tube stop. The tube must not be prised into the fitting; this damages the seal and the joint will leak.
- Check the mark sits at the mouth of the fitting. The joint shall be pressed only when the tube has reached the tube stop.
- Pen marks must not breach the O-ring location, so that no contamination enters the system.
- When all tubes are inserted, double check the depth marks are in the correct position.



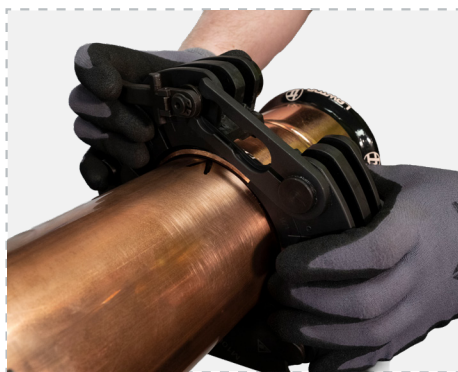
Pressing the joint: sizes pressed with a jaw

- Ensure the correct tool and jaws are selected for the fitting and the size.
- Place the jaw around the bead of the fitting. A 90° angle between the tube and the jaw must be maintained, both for the integrity of the joint and to protect the operator from kickback.
- The tube must be supported by brackets while pressing and must not be left suspended in the fitting socket.
- When correctly located, start the pressing cycle.
- Let the cycle run to completion without moving the tool.
- Remove the pressed assembly from the jaw.



Pressing the joint: sizes pressed with a press collar

- Ensure the nominal size of the collar matches the nominal size of the fitting.
- Open the collar, place it around the bead of the fitting square to the tube, then close the collar and engage the catch.
- Open the adaptor jaw, push the claws fully into the grooves of the collar, and close the adaptor jaw.
- The tube must be supported by brackets while pressing and must not be left suspended in the fitting socket.
- Start the cycle and let it run to completion without moving the tool.
- Open the adaptor jaw and release it from the collar.
 - 15mm - 88.9mm: Open the collar and remove it.
 - 108mm: Leaving the collar closed on the fitting, continue with the second stage in the next step.

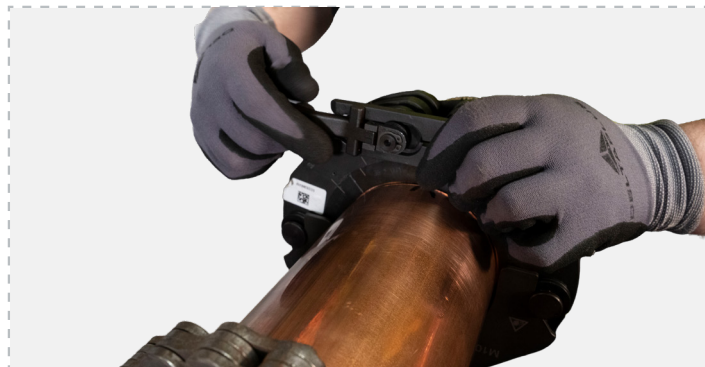


108mm: second stage

On tools that drive the collar through two adaptors, 108mm takes a second stage. Only the adaptor is changed; the catch holds the collar in position, and the lever must lie in line with the catch. The joint is not made until both stages have been pressed.

- Fit the second stage adaptor, engage it on the collar, and let the cycle run to completion.
- Open the adaptor jaw, then open the collar and remove it.

Some tools press 108mm in a single operation. The tool manufacturer's instructions state which applies. Where two stages are required, the adaptor for each stage is identified in the fitting datasheet.



Pressing the joint: 139.7mm and 168.3mm

139.7mm and 168.3mm are supplied in stainless steel for plumbing services. Each joint is pressed twice, in two positions along the fitting. The adaptor jaw on the tool approved for these sizes is integral and cannot be changed, so the collar is moved between the two operations rather than the adaptor. The joint is not made until both operations have been carried out.

- Examine the tool and the collar for damage before use.
- Open the collar and locate it on the bead at the mouth of the fitting.
- Close the collar and engage its lock. Open the adaptor jaw using the handle on the tool, offer the tool up to the collar and secure the catch. The claws must be fully engaged on the collar before the cycle is started.
- Run the first pressing operation to completion.
- Release the catch, withdraw the tool, and open the collar.
- Move the collar along the fitting to the second press position, seated against the end of the socket.
- Close the collar, engage its lock, offer the tool up and secure the catch.
- Run the second pressing operation to completion.
- Release the catch, open the collar, and remove it from the fitting.

The two press positions and the locating features of the collar are shown in the tool manufacturer's instructions. The approved tool and collar are identified in the fitting datasheet.



Inspection

- A correctly pressed joint shows the insertion depth mark at the mouth of the fitting and the press indicator removed.
- The bead must be fully formed all round, with no distortion or slippage off the bead.
- Where a press collar was used, the segments must have closed completely, with no gap between them.
- Witness marks left by the jaw or the collar are normal.
- No damage shall be present.



Completion

- Remove the press indicator.
- Every joint shall be pressed before the system is filled. The system is pressure tested on completion.



For more details, please refer to our website or contact us by e-mail at technical@lawtontubes.co.uk