

SINKING THE JAWS INTO PRESS-FIT

Press-fit piping systems have become hugely popular in recent years as a cost-effective means for installing robust piping networks that are aesthetically pleasing to the eye. But they need to pass rigorous test before making it to market. **Frank Iapozzuto** explains the process to ensure systems are fit-for-purpose.

Press-fit piping systems range in size from 15mm-150mm and are offered in a variety of fitting, pipe and tube materials. Most suppliers of press-fit these systems provide fittings that are compatible to copper pipe [AS 1432] as well as variants of stainless-steel pipe complying with ASTM A312] and tube complying with EN 10312:2003. Each of these variants is available as WaterMark certified product.

As part of the WaterMark process, press-fit systems are tested to AS 3688. The manufacturers of press-fit systems will provide laboratories such as PROVE Standards & Engineering with a complete set of branded jaws and driver to be used for the construction of test assemblies.

As you can imagine, the test assemblies fabricated from the nominated jaws and driver are then subject to an arduous testing regime. The press-fit joints fabricated from the jaw and driver are subject to tests such as hydraulic pressure, elevated temperatures, vibration resistance, water hammer, resistance under loads, etc. From this performance testing, the jaw and driver become the foundation in assessing the compatibility and performance of a press-fit piping system.

Each manufacturer designs a jaw, so that a fitting and pipe assembly are 'crimped' in a particular mode that suits the profile and dimension of the fitting. The driver is also strategically selected; it must be capable of applying a controlled load to achieve the required amount of plastic or permanent deformation of a finished pipe and fitting joint. Also, as part of the crimping process the O-ring is forced precisely into position which ultimately creates the water/gas seal. In other words, if a press-fit joint is



quantified by performance to AS 3688 using a particular brand and model of jaw and driver, then the results of this performance testing that are used to WaterMark certify are not easily transferable to an alternate brand, model or variant of jaw and driver.

Suppliers will insist on a particular brand of jaw and driver that are to be used with their press-fit system. The suppliers are not making these claims just because they want to sell you their brand of jaws and driver. They are making these claims as they know that using the nominated brand of jaw and driver is in line with the WaterMark licence and performance testing that was conducted on the press-fit system.

Ultimately, this means the manufacturer has the highest level of confidence that a press-fit joint will stand the test of time. Many brands and supplier of press-fit systems make explicit claims on the terms of warranty based on the jaw and drivers compatible with a system.

Some brands of press-fit system use jaws that are deliberately designed to leave a small impression in the assembled joint acting like a stamp of authenticity. In the event of property damage due to a failed joint, the supplier is able to distinguish if the plumber used a non-approved jaw to complete the crimp.

If this happened to be the case, the

plumber would be liable for any damage as the terms of warranty of the press-fit system are null and void, due to the change of equipment.

Many brands of jaws and drivers claim to be compatible with various press-fit systems. There is also considerable fluctuation in price among these product options. Often, alternate tool kits appear very cost effective in comparison to the Original Equipment Manufacturer (OEM) recommended by the supplier of the press-fit system.

The most important thing here is that plumbers do their homework; be diligent in asking your supplier about suitable jaw and driver kits, and be aware of limitation on warranty in the event of litigation.

Make sure this information is available on a public domain and don't just take anyone's word for it.

Some suppliers will know the exact details of their WaterMark certification and will be able to advise what brand

of jaw and driver were submitted to the laboratory as part of testing. If you are considering selecting a third-party brand of jaw and driver, make sure that they are compatible with your press-fit system and that the supplier of the press-fit fittings acknowledges that there are no compatibility issues or limited warranty.

Asking these simple questions should help in making an informed decision on the pathway that's best for you. Alternatively, if you already own a set of jaws and driver then it is good practice to know where your limitations lie and how to continue confidently pressing away.

Also, it is paramount that you maintain your jaws and driver as per the manufacturers' instruction. Some drivers will show a flashing LED light and some others will physically stop working once the driver exceeds a certain number of 'presses'. At this point you are required to return the tool back to the supplier where it will undergo some

simple checks and a factory reset if the jaw and driver are deemed to be in good working order. It is important that you know the type of tool you have and what maintenance schedule applies.

Overall, press-fit systems have been revolutionary in the plumbing industry in recent years. They are relatively economical when you compare the labour that would go into brazing off a branch of capillary fittings and not to mention the robustness of the joint. Determine which press-fit system is most suited to your needs, or if you already have invested into a jaw and driver kit then simply follow the instructions and advice of the supplier to avoid any nasty surprises.

Happy pressing! ■

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