



# Twistloc Push-fit Plumbing System

## Twistloc Range of Fittings

The Twistloc range of fittings is fully WRAS certified, and the WRAS certificate is available to on the download section of this site. Twistloc products undergo long-term test programmes and meet strict quality standards. When correctly installed using Pipelife pipe we offer a 25 year warranty against defects in materials or manufacturing across our standard Twistloc Fittings range from the date of delivery. Twistloc Plumbing & Heating Products are designed for use on normal UK domestic plumbing and heating systems and are supplied in accordance with our conditions of sale. The system must be designed, installed and operated within the temperature and pressure ratings as defined in BS7291 Class S while taking into account all other exclusions and limitations as defined in our various product support literature.

Note: The term 'Twistloc' refers to all white fittings which have the Twistloc cap safety mechanism and excludes all valves, black fittings and flexi hoses.

### INSTALLATION GUIDE

#### PIPE CUTTING

Pipe stops / Insertion depths are located at the following distances from the fitting end:

##### Black Products

15mm - 29.3mm

22mm - 34.3mm

28mm - 38.5mm

##### Twistloc White Products

10mm - 22mm

15mm – 33mm (Union Connector is 39mm)

22mm - 36mm

28mm - 42mm

All Twistloc fittings will be delivered in the unlocked position. This is evident by the green ring located between the screw cap and the body being visible. Ensure that all pipe and fittings are free from scores and scratch marks and kept free from dirt and debris prior to installation. When cutting tube, ensure that the ends are cut squarely and free of burrs.

#### CONNECTING TO COPPER PIPE

Twistloc fittings are designed for use on metric copper pipe which conforms to BS EN 1057-R520. When installing with copper pipe cut the copper pipe with an appropriate pipe cutter designed for use with copper pipe. Pipe ends should be inspected carefully and remove all burrs or swarf. Push the pipe firmly into the fitting until the pipe passes both the collets (gripper) and the 'O' ring and is engaged properly. Twist the screw cap until the green coloured ring is no longer visible. This locks the collet in place and at the same time increases the pressure on the O ring seal around the pipe for greater security.

#### CONNECTING NEAR A SOLDERED JOINT

Soldering work should always be carried out before Twistloc fittings are installed. If this is not



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possible you must observe the following precautions. Don't allow flux to come into contact with Twistloc fittings. Do not use excessive amounts of Flux, as Flux runs can occur inside the pipe during soldering. Only apply Flux to the copper pipe end only. Solder must not come into contact with Twistloc. Twistloc fittings can become excessively hot with soldering taking place nearby. To minimise the effects of this the copper pipe should be wrapped in a damp cloth. This should reduce the opportunity for any heat transfer around the copper or minimise any likely heat transfer. Systems should be flushed with water to remove any internal Flux residues. If any plastic pipework or fittings have been damaged during the soldering process it should be replaced immediately.

### **CONNECTING TO NON-PIPELIFE BRANDS OF PIPE**

Pipelife / Twistloc insist on rigorous testing to ensure that all of our pipes and fittings are manufactured within certain tolerances. As we are unable to guarantee those tolerances used by other manufacturers, we cannot guarantee our fittings when used with any other plastic pipe.

### **CONNECTING TO CHROME PLATED OR STAINLESS STEEL PIPE**

Due to the relative surface hardness of these materials Twistloc fittings cannot be connected directly to chrome plated or stainless steel pipe.

### **CONNECTION TO BOILERS**

Twistloc fittings and valves should never be connected directly to a boiler. Although most modern boilers have a high limit thermostat, residual heat can be conducted by the heat exchanger. Therefore Twistloc recommend a minimum of 1 metre from the boiler casing should be run in copper pipe unless otherwise stated in the boiler manufacturer's installation literature. A gravity primary circuit operating on an uncontrolled cooking range or solid fuel boiler should be done entirely in copper and the heating circuit run in copper for the first metre. Refer to BS5955: Part 8 for further clarification. All appliances should have safety devices to make sure they cannot operate above the working temperature and pressure range. If safety devices are not incorporated within the appliance then external controls will be needed. Water meters (and other devices) can contain check valves that prevent the expansion of heated water back down the main supply from a combi-boiler. If plastic pipe is to be used, a suitable expansion vessel must be fitted. This is especially important to consider if a water meter is fitted retrospectively. Twistloc do not recommend the use of plastic pipe on the main supply between a water meter and a combi boiler if an expansion vessel is not fitted. Twistloc products should not be fitted to a sealed system, oil boiler, a back fired boiler or other uncontrolled heat source.

### **CONNECTING TO A MAINS WATER SUPPLY**

A stop tap should be used when connecting to a mains water supply.

### **CONNECTING TO APPLIANCES**

Twistloc manufacture a number of items for connecting to appliances such as washing machines, dishwashers and even small bore water filters. Pipe clipping distances should always be adhered to when installing valves.

### **WHERE TO USE TWISTLOC**

Twistloc has been designed for use in most domestic and commercial hot & cold water and heating applications. Installation work should be carried out using good plumbing practice.



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## WHERE NOT TO USE TWISTLOC

Twistloc should not be used in the following applications:

Twistloc should not be installed in continuously operated re-circulating systems (secondary hot water circulation / ring main installations).

Carrying gas, compressed air or fuel oil.

Direct sunlight and ultra violet light - we recommend that if pipework and fittings are used externally that they are either covered or painted to avoid direct UV exposure.

Areas contaminated with petroleum and oil derivatives

The conveyance of water with a high concentration of chlorine - this can sometimes be found in swimming pools, hot tubs or decorative water features.

In a solar heating system as a primary circuit - Temperatures cannot be thermostatically controlled.

## HANDLING & STORAGE

### CABLING THROUGH JOISTS

The introduction of plastic pipe and fittings allows pipe to be easily curved and cabled through drilled joists or I-beams. This offers the plumber the following benefits:

Floorboards can be laid allowing the plumber to work from below before the ceiling is installed.

Site safety is greatly increased as the plumber no longer needs to worry about items falling on him or having to work on his knees.

The risk of falling objects is greatly reduced.

Fewer chances of piercing the pipe when nailing floorboards into place.

### DRILLING THROUGH THE JOISTS

Drilled holes in joists should be large enough to allow for thermal movement of pipe. Hole diameters should be no greater than 0.25 of the depth of the joist and should be drilled on the neutral axis. The minimum distance between a hole and a notch in the same joist should not be less than 100mm.

They should be not less than 3 diameters (centre to centre) apart and should be located between 0.25 and 0.4 times the span from the support. For engineered joists piping can be properly installed through holes in the web section without damaging flange members even when the preformed holes do not align on the plan. Please note that The Building Regulations Approved Document A gives exact instructions on the drilling of floor joists. Please refer to this document for full instructions.

## SITWORK

### PIPE SUPPORT - For Surface Mounted Pipe

<u>Nominal Diameter mm</u>	<u>Horizontal Runs m</u>	<u>Vertical Runs m</u>
10	0.3	0.5
15	0.3	0.5
22	0.5	0.8
28	0.8	1.0



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## **CLIPPING DISTANCES - For surface mounted pipes**

To allow for expansion you must allow for a minimum of 60mm of pipework before fitting pipe clips. To reduce side-load or stress on the fittings pipes should be adequately supported.

<b><u>Pipe Diameter</u></b>	<b><u>Clip Spacing</u></b>	
	<b><u>Horizontal Run</u></b>	<b><u>Vertical Run</u></b>
10mm	300mm	500mm
15mm	300mm	500mm
22mm	500mm	800mm
28mm	800mm	1,000mm

## **BEND RADIUS**

For sharp bends, standard elbow fittings can be used. For slower bends it is possible to use the flexibility of the pipe to produce a bend which can be clipped into shape, or tighter still with a 15mm cold forming bend, subject to the following limits.

Pipe Size	10/15/22/28mm
Min Radius with Clips	100/75/225/300mm
Min Radius with Cold Forming Bend	90mm

## **USING A CONDUIT SYSTEM**

### **CONCEALED PIPEWORK**

When installing the Twistloc system in concrete and masonry the pipe should be run in conduit pipe with access boxes for the fittings so that all pipe can be removable for replacement and maintenance and therefore complying with the requirements of the Water Regulations.

### **PIPES THROUGH WALLS AND FLOORS**

To protect the installation, always sleeve in conduit when passing through walls and floors. Do not use expanding foam in its initial wet state as the chemicals in the foam can cause a chemical reaction. To reduce noise and to act as a fire stop the annular gap between the pipe and the conduit should be filled with a resilient material. It is also suggested that pipework should be run in a conduit when laying it next to metalwork. This will protect the pipe from any sharp edges due to thermal movement.

### **BURYING PIPEWORK IN SCREED, CONCRETE FLOORS OR WALLS**

The Water Regulations state that distribution pipework must be accessible to facilitate its removal after replacement. Pipework must therefore be placed in conduit before being buried. To prevent against frost we also recommend insulating the pipework.



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## **TWISTLOC FOR USE IN TIMBER AND STEEL FRAMED BUILDINGS**

Twistloc is ideal for use in these applications. It is important during the installation process to ensure that the structural integrity of the vapour layer or the property itself is not compromised. Pipework should be installed in the inside of any thermal insulation. If the architect did not allow for a recess to allow this to happen, conduit must be used.

## **METAL TAPE**

Where pipework is in or behind wall surfaces and would otherwise not be detected by a metal detector or similar equipment, a metallic tape should be applied to the pipework. Do not attach tape directly to Twistloc fittings.

## **CONNECTING TO A STORAGE VESSEL**

We offer a range of tank connectors for connection to cold water storage tanks in 15mm, 22mm and 28mm. When installing do not use any jointing compound on the connector. Hand tightening is all that is needed. Further mechanical tightening will damage the fitting.

## **CONNECTING TO BOILERS AND HEATERS**

A minimum length of 1mtr of copper pipe must be installed before connecting to a Twistloc system. All connections should be made in accordance with the requirements of BS5955 part 8. To avoid serious overheating, trapped air must be purged from the heating system before the boiler is operated. Always refer to the boiler manufacturers' installation instructions.

## **TWISTLOC WITHIN INTERNAL DRYWALL SYSTEMS**

One of the benefits of Twistloc is that it can easily be cabled within wall structures during the construction process. This is best seen when using 10mm pipe and elbows as a feed to radiators. By incorporating this method the appearance of pipework on show in the home can be significantly reduced.

## **CONTINUOUSLY OPERATED RE-CIRCULATING SYSTEMS (SECONDARY HOT WATER CIRCULATION / RING MAIN INSTALLATIONS)**

Plastic plumbing systems are not suitable for use on any continuously operated re-circulating systems (secondary hot water circulation / ring main systems). These installations differ greatly from traditional domestic installations and therefore Twistloc fittings may not be used.

## **FREEZING FOR MAINTENANCE / SYSTEM MODIFICATION**

Pipelife pipe can be frozen for maintenance / repairs without damage to the system. When freezing, equipment manufacturers' instructions should be followed. Always freeze at a reasonable distance from where pipe is to be cut.

## **PAINTING TWISTLOC PIPE AND FITTINGS**

Twistloc can be painted with either water based paint or an oil based paint with an undercoat. Cellulose based paints, paint strippers, thinners, flux, acid based descalents or aggressive cleaning products must not be used.

## **CORROSION INHIBITORS**

We have tested Twistloc fittings with Fernox & Sentinel and have approved them for use with our fittings.



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## **ANTIFREEZE**

We only approve antifreezes which are based on Ethylene Glycol mixtures.

## **ELECTRICAL SAFETY**

Please contact a registered electrical contractor or your local Electrical Authority with regards to bonding, continuity and electrical safety.

## **PRECAUTIONS**

### **INSULATING PIPE**

When installing pipe in an unheated area or outside, insulation is required in accordance with BS6700 & BS5422, to protect from frost damage. These requirements are the same as for copper pipe.

### **UV PROTECTION**

Twistloc is suitable for use outdoors. However it should either be painted or covered with insulation to protect against exposure to UV rays.

### **PRESSURE TESTING**

It is essential that a full system check takes place upon completion of an installation. Before carrying out any test you must ensure that all Twistloc fittings are installed correctly. We suggest a test of 2bar for 10minutes followed by 10 bar for 10minutes. Any products that are not manufactured by Twistloc and are unable to withstand the test pressures should be disconnected during the test and capped off using the Twistloc end stop cap. Pressure testing is NOT a substitute for making sure pipe and fittings are correctly installed. For details on how to make a good joint please refer to the beginning of the installation guide.

### **TENSILE STRENGTH TEST**

In strength tests conducted independently by a Government laboratory it has clearly been shown how Twistloc outperforms its competitors.

### **MAXIMUM TORQUE FIGURES**

The Maximum torque values for Twistloc threads are available on request.

### **TO LOCK THE PIPE CONNECTION**

Ensure the pipe is pushed into the fitting fully past both the collets (gripper) and the 'O' ring and is engaged properly in accordance with the manufacturer's instructions. Twist the screw cap until the green coloured ring is no longer visible. This locks the collet in place and at the same time increases the pressure on the O ring seal around the pipe for greater security. Pull to check it is secure. We recommend pressure testing the system before use. If plastic pipe is used then a tube insert must be used also. The tube insert acts as an internal support for the pipe. Ensure there are no scratches, gouges or any other form of damage to the circumference of the pipe. Damage of this kind could cause leaks. Check fittings for any sign of damage or foreign objects. When fittings have to be disassembled and then reused, ensure that the pipe is removed from the joint and that there is no damage to the pipe within 1" of the end of the pipe. Inspect the pipe and fittings for any signs of damage and ensure they are free of foreign materials. Ensure fittings are kept clean at all times by



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using specially designed re-sealable zip-lock bags. Do not empty Twistloc products onto the floor. Keep pipe clean by keeping it in its original packaging until required.

### **TO SEPARATE THE PIPE CONNECTION**

Before attempting to disconnect any fitting, the system must first be de-pressurized. Unlock the fitting by twisting the screw cap until the green coloured ring is fully visible. Press collets with equal pressure around the collet until it is flush against the body of the fitting. With the collets depressed pull on the pipe to remove it from the fitting.

### **END STOP**

If necessary, Twistloc end-stops provide either a temporary or permanent leak-free seal to a plumbing system. End Stops can also be easily removed to allow for system extensions and re-work.

### **MINI MANIFOLD**

For maximum flexibility, Twistloc fittings can be combined to provide multiple functions.

### **CAUTION**

Do not insert fingers into Twistloc fittings as the stainless steel teeth may cause injury. If PEX or PB pipe is used, then a tube insert must be used. Twistloc fittings should not be used for gas, fuel, oil or compressed air applications. Twistloc fittings should not be buried. All Twistloc fittings and related products should be selected, installed, used and maintained in accordance with these technical specifications. When cutting pipe ensure that the ends are cut square and are free from burrs. Ensure there are no scratches, gouges or any form of damage on the circumference of the pipe within 1" of the cut end. Damage in this area may cause leakage. Check the fitting for any signs of damage or foreign objects. Do not use damaged or scored pipe. Do not use a hacksaw to cut the pipe. Do not leave burrs on the pipe. Ensure that the pipe is pushed into the fitting fully and is engaged properly in accordance with Twistloc instructions. If the pipe is not fully inserted the connection cannot be properly sealed even if the fitting is coupled. You must push the pipe into the fitting and ensure that the pipe passed through the collets (gripper) and the O ring inside the fitting. When a connection has to be disassembled and reused, ensure the pipe has no damage around the circumference of the pipe. Inspect the tube and fitting for any sign of damage and ensure they are free of foreign materials. The connection can then be reassembled.

### **SYSTEM ADVANTAGES AND BENEFITS**

Easy verification of collet in locked or unlocked position at a long distance,  
Installation time reduced by 40%,  
Removable and re-useable without damage to plumbing system or fittings,  
Lightweight for easy handling on site,  
Strong gripping suitable for heating systems,  
Batch tracing of all Twistloc products,  
Flexibility of system enables cabling of the pipe in hard access areas,  
No risk of flame or fire from use of a blowtorch,  
Permanent anti-leak connection,  
No corrosion,  
No scale deposits,  
Low heat diffusion ensures safe surface temperature,



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Plumbing flexibility reduces the risk of burst under freezing temperature,  
No lead, non-toxic,  
No metal scrap value so of no interest to thieves,  
Patented.

### **TUBE INSERT**

When using plastic pipe the pipe manufacturer's insert must be used.

### **REPAIR COUPLINGS & SLIP CONNECTORS**

Twistloc repair couplings are designed to be suitable for use on copper, PEX and PB pipe offering the installer the ability to easily repair damaged pipework.

### **SYSTEM ADVANTAGES & BENEFITS**

Save time and money,  
Push-fit connection,  
Permanent anti-leak connection.

### **INSTALLATION SOLUTIONS**

The Twistloc Stop Valve adaptors and Slip Tee Valves are manufactured in white Polypropylene and Polysulfone. They are designed for use in drinking water systems, American style refrigerators, ice makers, humidifiers & water filtration applications.