

PRO-FIT® POLYBUTYLENE PLUMBING SYSTEM

INSTALLATION

Installation should be carried out in accordance with the guidelines detailed in this manual. However, the installer should also be aware of Local Authority codes and by-laws relevant to plumbing, which take precedence over these guidelines in any area where they are at variance. The requirements of the National Plumbing and Drainage Standard (AS/NZS 3500) must also be adhered to (AS/NZS3500 Parts 2, 4 & 5). The Iplex Pro-fit® system may also be installed below ground in accordance with AS/NZS 3500 Parts 1 & 4, and Local Authority codes and by-laws.

BEFORE INSTALLATION

1. Store PB pipe under cover where it will not be exposed to direct sunlight.
2. Do not use pipe which has:
 - Cuts, deep scratches or gouges.
 - Kinks or crushed sections.
 - Evidence of grease, oil, tar etc.
 - Noticeable colour fading of pipe.

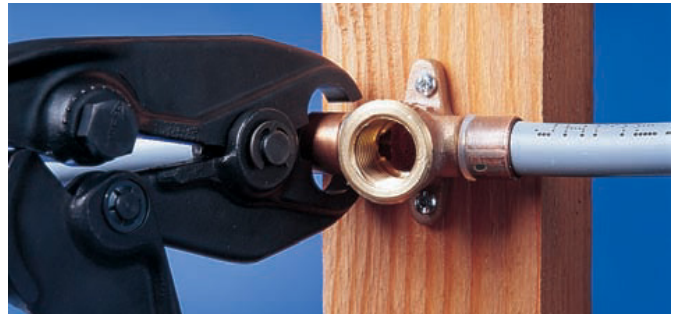
All damaged sections should be cut out and replaced.

JOINTING INSTRUCTIONS - CRIMPED CONNECTIONS



STEP 1

Cut pipe squarely with the Iplex pipe cutter, Iplex Part No. REMSPIPECUTTER, PBCUTTER or FK203064700. Do not use a hack saw.



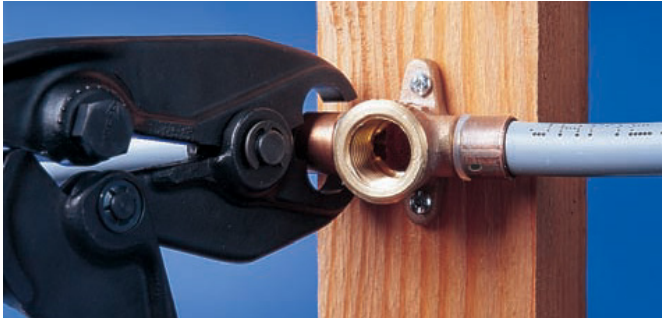
STEP 2

Slide the pipe onto the fitting until it stops. If fitted correctly, the pipe should be visible through both the copper crimp sleeve windows (arrowed below). Ensure that the copper crimp sleeve is firmly attached to the plastic retainer ring. If the copper crimp sleeve has moved away from the plastic retainer ring, push it back onto the plastic retainer ring by hand before crimping.

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STEP 3

Open crimp jaws all the way apart. Position crimp jaws squarely over the copper crimp sleeve. i.e at 90° to the pipeline. For hand tools ensure that the full jaw width of the tool makes contact with the copper crimp sleeve when crimping. For power tools crimp the jaws over the full width of the copper crimp sleeve. Avoid crimping the plastic retainer ring. Close the crimp tool jaws fully over the copper crimp sleeve. Open the crimp tool jaws and remove the crimp tool from the crimped fitting.



STEP 4

Use the Iplex caliper gauge supplied with the tool to check each and every joint. Gauge tips must fit over the crimped copper sleeve at 90° to the tool jaw split line. Permanently tight connections can only be guaranteed with Iplex approved tools. The tools have to be protected against dirt and damage, and should be cleaned regularly.

JOINTING INSTRUCTIONS - UNDER-CRIMPING

Under-crimping (i.e. when the gauge will not pass over copper ring) can occur when:

1. The crimping tool has not been completely closed.
2. The crimping tool is out of adjustment (readjustment should be made in accordance with the instructions supplied with the tool).

HOW TO AVOID A FAULTY CONNECTION

The Iplex Pro-fit® pipes and fittings system is simple and effective to use when executed in accordance with the jointing procedures. However, if sufficient care is not taken, the consequences can be improper sealing, and a potential for leaks.

The most likely causes of faulty connections are:

1. Copper crimp sleeve has moved away from the body of the fitting.
2. The crimping tool has not been centred over the copper crimp sleeve, and thus the sleeve has only been partially crimped.
3. The pipe has not been pushed fully home on to the fitting when the crimp was made.
4. Pipe has not been cut squarely.
5. Tools are poorly maintained or damaged.

IF AN INCORRECT JOINT IS DETECTED

- Cut out the defective joint and replace with new Iplex Pro-fit® fitting.

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IF THE PIPE IS KINKED OR DAMAGED

The faulty section of the pipe should be replaced.

IPLEX PRO-FIT® PB PIPE TO COPPER PIPE, STEEL PIPE SYSTEMS OR APPLIANCES

Threaded fittings – brass or copper threaded fittings should not be used with other non-metallic threaded fittings. Use an approved sealant to seal all threaded fittings.

- When using brazing tails to connect copper pipe or metal fittings to Iplex Pro-fit® PB pipe, always braze the brazing tail to the copper pipe or metal fittings first and allow it to cool before assembling the Iplex Pro-fit® PB pipe.

At least four ribs should be shown on the brazing tails to allow for an effective joint to be made. It is recommended that silver brazing alloys be used and that all flux deposits are removed once the joint has been made. Excessive heat can damage Iplex Pro-fit® PB pipes. When brazing copper pipes or fittings near Iplex Pro-fit® PB pipes it is recommended a damp rag be used to protect the pipes.

PIPE BENDING

Due to the pipe's inherent flexibility and its availability in 50m coils for 18mm and 22mm pipe, polybutylene can be bent easily around obstructions or through studs and plates with minimum use of fittings. Care should be taken not to kink or damage the pipe. It is recommended that the minimum bending radius be 10 times the outside diameter of the pipe. If this is not possible an Iplex Pro-fit® elbow should be used. If for any reason the pipe is kinked or damaged, the faulty section should be replaced.

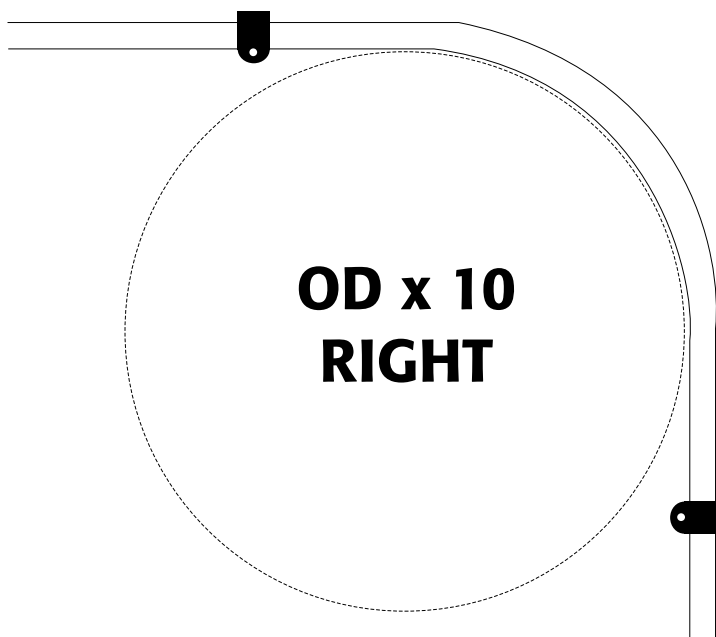


Fig 1.1 Minimum bending radius

TABLE 1.1 MINIMUM BENDING RADIUS

18mm Pipe	180mm min. radius
22mm pipe	220mm min. radius

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HOT WATER INSTALLATION

1. It is recommended that the Iplex Pro-fit® system be installed in accordance with the manufacturers installation requirements, AS/NZS 3500 Part 4 and any local by-laws with particular reference to the pressure and temperature relationship as described in AS / NZS 2642 and detailed in Table 1.2.

TABLE 1.2 PRESSURE RATING OF PIPES ACCORDING TO PIPE MATERIAL TEMPERATURE (AS/NZS 2642)

Working temp	20°C	40°C	50°C	60°C	70°C	80°C (25 YEARS)	95°C (10 YEARS)
Max working pressure	1600 kPa	1370 kPa	1200 kPa	1050 kPa	880 kPa	740 kPa	490 kPa

2. The valves used in the installation of water heaters should comply with the requirements as laid out in AS/NZS 3500 Part 4, Tables 1.1 & 1.2.

The required set pressure of valves i.e. expansion control valves and inlet pressure control valves shall be:-

- a. as specified by the water heater manufacturer; or
- b. determined from the set pressure of the temperature and pressure relief valve supplied by the water heater manufacturer, with reference to AS/NZS 3500 Part 4, Table 1.2.

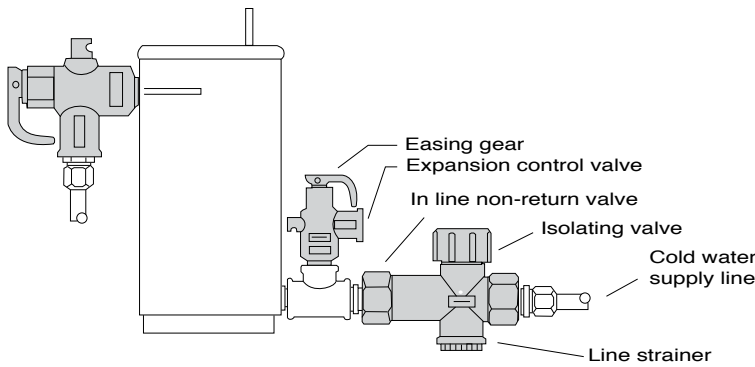


Fig 1.2 Typical installation mains pressure storage water heater with expansion control valve

3. The use of tempering valves is required in some capital cities and provincial areas. Check with your Local Authority.

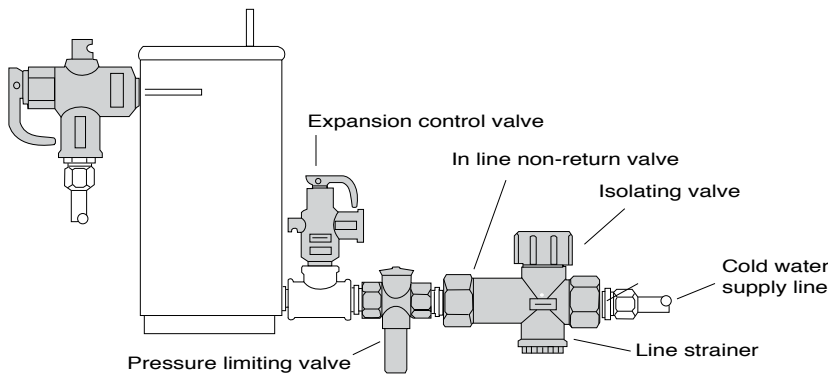


Fig 1.3 Typical installation of mains pressure storage water heater expansion control valve and pressure limiting valve

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4. The water heater thermostat must be set to supply hot water at temperatures less than 80°C.

PLEASE NOTE:

In accordance with AS/NZS 3500 Parts 1 & 4, copper pipe should be used within one metre of the outlet of a hot water heater. Before connecting PB to instantaneous gas hot water systems, check with the hot water heater manufacturer for any specific additional requirements. PB should not be used in continuously circulating hot water plumbing loops operating above 60°C.

CONCEALED PIPE WORK

All concealed pipe work should be installed in accordance with AS/NZS 3500 Parts 1 & 4 or Local Authority requirements.

TIMBER FRAMEWORK

Holes drilled in studs or plates etc. shall be accurately sized to allow longitudinal movement of the pipe through the hole with a minimum clearance of 2mm on the pipe's diameter. A 25mm splade bit is suitable for both sizes of pipe. Please note that the use of silicon in the holes is not required.

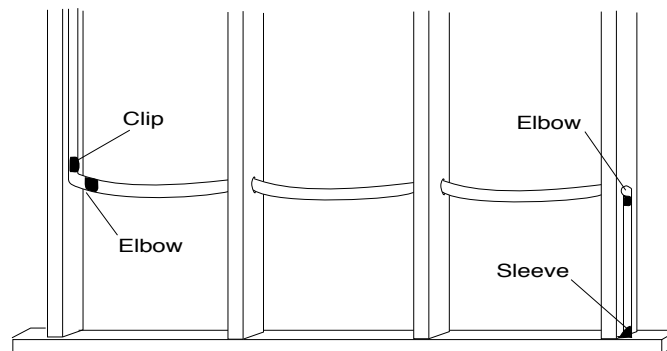


Fig 1.4 Indicates fixed point

Allow 10mm slack per metre of PB pipe for thermal movement

METAL FRAMEWORK

Holes drilled in metal studs or plates etc shall be accurately sized to enable suitable grommets, lagging or a short sleeve of oversized pipe to be firmly secured in the framework. This is to allow free movement of the pipe through the grommet, lagging or sleeve without any direct contacts between the pipe and the framework.

THERMAL EXPANSION

As the lineal thermal expansion rate of PB pipe is approximately 13mm for every 10°C temperature change for each 10 metres of pipe, care must be taken with the installation to allow for this potential movement of the pipe. PB pipe should not be pulled tight between fixed points as this will prohibit movement if the pipe contracts, and result in excessive tensile forces on joints and fittings. Allow 10mm slack per metre of pipe. Expansion can usually be accommodated by the pipe's flexibility.

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CHASES, DUCTS OR CONDUITS

As per AS/NZS 3500 Parts 1 & 4 or Local Authority requirements. Pipes in chases shall be continuously wrapped with an impermeable flexible material. Ducts shall be fitted with removable covers. Pipes embedded in walls or floors shall comply with the requirements of the appropriate building authority and/or local regulations.

UNDER CONCRETE SLABS

PB pipe may be installed under concrete slabs in accordance with AS/NZS 3500 Parts 1 & 4, or Local Authority requirements. When PB penetrates the slab it shall be at right angles to the surface of the slab and shall be lagged with an impermeable, flexible plastics material of not less than 6mm thickness for the full depth of the slab penetration ie PVC conduit or pressure pipe.

CLIPPING AND SUPPORTS

The use of pipe clips should be in accordance with AS/NZS 3500 Parts 1 & 4 and in keeping with good plumbing practice. The following table is based on AS/NZS 3500.

CORROSIVE ENVIRONMENT

As per the requirements of AS/NZS 3500 and/or Local Authority or Regulatory requirements, PB pipe and fittings installed in potentially corrosive environment must be protected, i.e. marine environment.

TABLE 1.3 THE USE OF PIPE CLIPS

Nom. pipe diameter	Horizontal or graded pipes	Vertical pipes
18mm	600mm	1200mm
22mm	700mm	1400mm

Clips on fittings should only be required where the fittings are obviously stressed. NOTE – the Iplex Pro-fit® system’s major fixing benefit is that it is flexible and when installed has the ability to move and flex. The installation of pipe clips, brackets etc. is only to give the pipe support and an acceptable appearance. The pipe clip must not constrain the pipe diameter and should allow longitudinal movement of the pipe. We recommend you use the Iplex Pipelines range of clips.

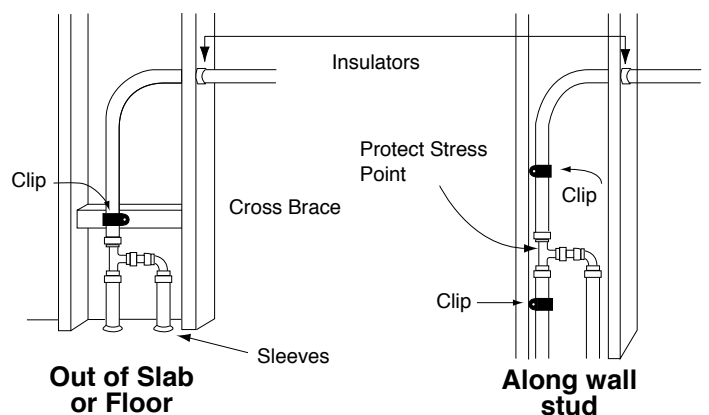


Fig 1.5 Pipe clipping

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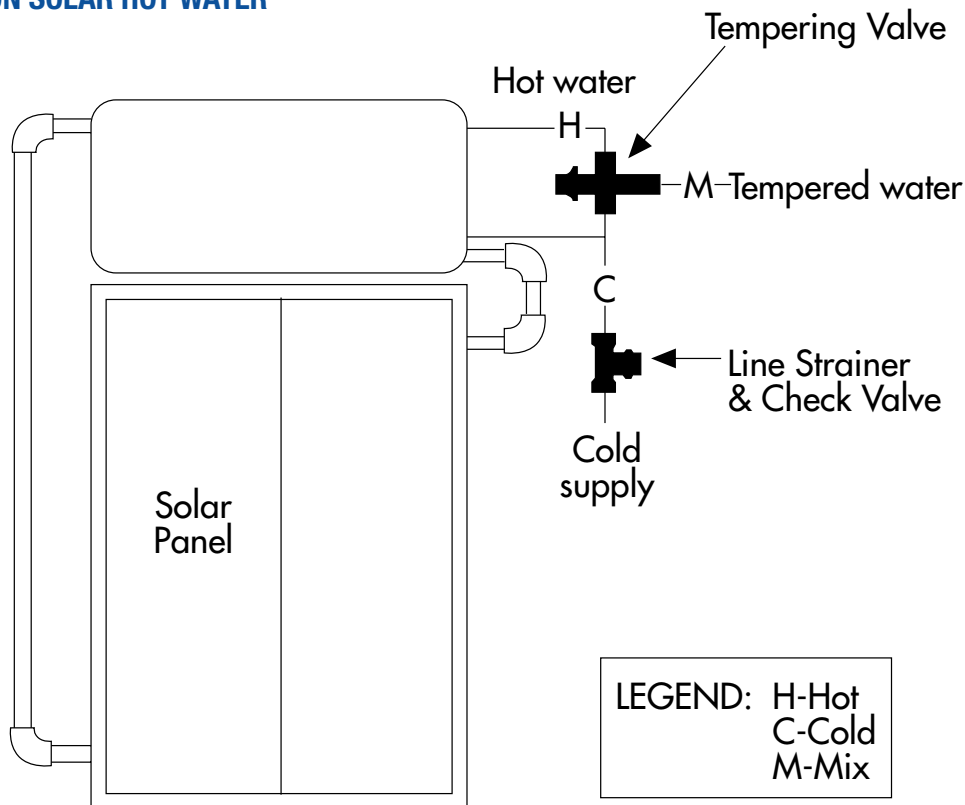
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SOLAR HOT WATER

As solar hot water systems are an uncontrolled heat source, temperatures in excess of 75°C are frequently experienced. To ensure that the supply temperature is maintained well within the normal operating temperatures of polybutylene pipe it is recommended that the following typical installation procedure be adopted.

- 1) In addition to the normal valves required for the system, an adjustable tempering valve (e.g. RMC Heatguard Solar HP or HF or similar) should be installed directly at the solar water heater as per the following diagram.
- 2) As per AS/NZS 3500 Part 4.2, one metre (1mtr) of copper pipe is then required before connecting to polybutylene pipe. The copper pipe can be used to penetrate the roof into the roof cavity.
- 3) The tempering valve can then be adjusted to its maximum temperature (up to 65°C depending on model) by following the manufacturer's instructions. This is typically done by removing the adjusting knob locking device and resetting the temperature.
- 4) Individual tempering valves are then fitted as required to control water supply temperature to the wet areas in accordance with AS/NZS 3500 Part 4.2.

THERMOSYPHON SOLAR HOT WATER



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TESTING & INSPECTION PROCEDURES

Testing procedures should be as per the requirements of AS/NZS 3500 part 1,4 & 5 and/or any Local Authority or Regulatory requirements. While the system is under test, all joints and fittings should be inspected for leaks and to ensure that the pipe has been fitted correctly and crimped in accordance with Iplex Pro-fit® Polybutylene Plumbing System Installation Guidelines.

FIRE & EXCESSIVE HEAT

Keep PB pipe a minimum of 500mm from sources of high heat such as heating appliances, flues, vents etc. Keep PB pipe 1500mm from slow combustion type stoves, vents and flues used to heat domestic hot water, wet back boilers etc.

PB pipe should not be positioned closer than 150mm to gas or central heating vents, nor located in any confined space containing appliance vents or flues.

PB pipe and fittings are designed to meet the normal operating temperatures of domestic hot and cold water, however, in the case of uncontrolled heat input such as slow combustion stoves or room heaters with water heating coils, wet back boilers or the like, and in the interest of safe water temperature to protect the user, tempering valves must be considered. The primary flow and returns on these type of appliances should not be installed in PB pipe and fittings.

Where PB pipe is installed and penetrates fire resistant construction, the fire resistant integrity of the construction must be retained. Refer to the local building code.

PROTECTION

If a system is to be exposed to sunlight beyond normal construction periods, the pipe should be protected from sunlight (UV) damage. Lineal thermal expansion rate for PB pipe is approximately 13mm/10°C temperature change for each 10 metres of pipe. Leave 300mm minimum space between PB pipe and recessed electric light fittings, as light fittings are normally changed on a regular basis.

LIMITATIONS OF PB PIPE

When:

- Used as part of a water meter assembly or vertical riser.
- Used beyond the inlet stop valve to any water heater.
- Used where subject to direct sunlight.
- Used in areas subject to contamination by petroleum products.
- Used within one metre of the outlet of, or between isolation valve and inlet of any water heater.
- Water temperature / pressure combinations should not exceed the limitations as given in Table 1.2.
- Used on continuously circulating hot water loops operating above 60°C.
- Buried underground and subject to flooding with a termite treatment.

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