

# IPLEX K2® PE-X PLUMBING SYSTEM

## INSTALLATION

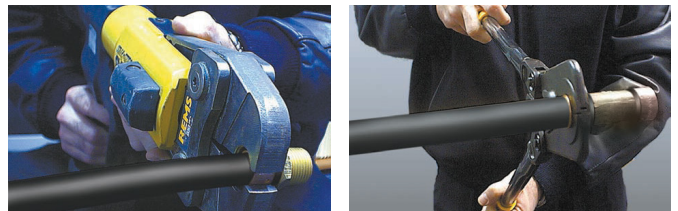
Installation of Iplex K2® PE-X pipes and fittings system must be carried out by a qualified, licensed trades-person in accordance with Iplex's guidelines. However, the installer should follow the requirements of the National Plumbing Standard (AS/NZS 3500 parts 1, 4 & 5) as well as Local Authority or Regulatory codes and by-laws that are relevant to plumbing, which take precedence over these guidelines in any area where they are at variance.

### JOINTING PROCEDURES – CRIMPED CONNECTIONS

**01** Cut pipe squarely with the Iplex K2® pipe cutter, Iplex Part No. REMSPIECUTTER or FK203064700. Do not use a hack saw.



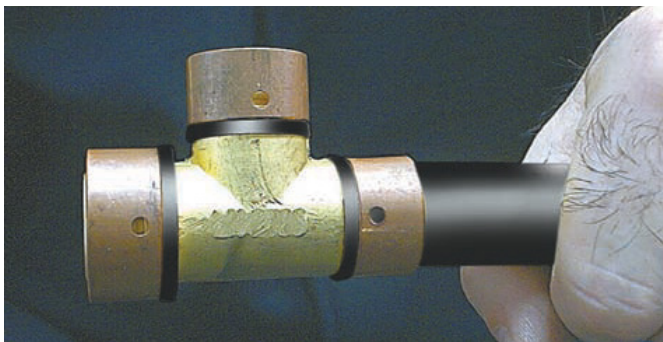
**03** Open crimp jaws all the way apart. Position crimp jaws squarely over the copper crimp sleeve. i.e at 90° to the pipeline. For hand tools ensure that the full jaw width of the tool makes contact with the copper crimp sleeve when crimping. For power tools crimp the jaws over the full width of the 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.



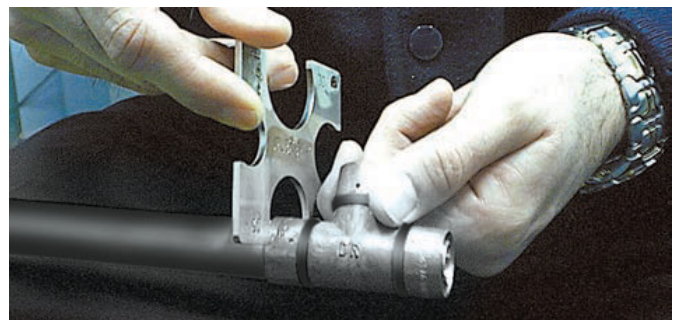
**02** Slide the pipe onto the fitting until it stops. If fitted correctly, the pipe should be visible through both the copper crimp sleeve windows (arrowed below).

The fitting must be assembled with the copper crimp sleeve attached to the plastic retainer ring.

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.



**04** Use the Iplex calliper gauges 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.



*The information contained in this document should serve as a guide only and is subject to change without notice. For more information please contact Iplex Pipelines Australia Pty Ltd.*

# IPLEX K2<sup>®</sup> PE-X PLUMBING SYSTEM

## INSTALLATION

### 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 K2<sup>®</sup> PE-X 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. The 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 K2<sup>®</sup> fitting.

### IF THE PIPE IS KINKED OR DAMAGED:

- The faulty section of the pipe should be replaced.

### IPLEX K2<sup>®</sup> PE-X PIPE TO COPPER PIPE, STEEL PIPE SYSTEMS OR APPLIANCES.

Threaded fitting – 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 K2<sup>®</sup> PE-X pipe, always braze the brazing tail to the copper pipe or metal fittings first and allow it to cool before assembling the Iplex K2<sup>®</sup> PE-X 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 K2<sup>®</sup> PE-X pipes. When brazing copper pipes or fittings near Iplex K2<sup>®</sup> PE-X pipes it is recommended a damp rag be used to protect the pipes.

*The information contained in this document should serve as a guide only and is subject to change without notice. For more information please contact Iplex Pipelines Australia Pty Ltd.*



## INSTALLATION

### TESTING AND 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 K2<sup>®</sup> PE-X pipe installation instructions.

### INSTALLATION PROCEDURES

#### PIPE BENDING

Due to the pipe’s inherent flexibility Iplex K2<sup>®</sup> PE-X pipes can be easily bent around obstructions or through studs and plates with minimum use of fittings. Care should be taken not to kink or damage the pipe. Never apply bending forces to a crimped fitting. Pipe must always be bent prior to crimping the fitting.

It is recommended that the minimum bending radius be at least 8 times the outside diameter of the pipe.

**TABLE 1.1 MINIMUM HAND-BENDING RADIUS**

16mm Pipe	128mm min. radius
20mm pipe	160mm min. radius
25mm pipe	200mm min. radius

#### CLIPPING

In accordance with AS/NZS 3500, Iplex K2<sup>®</sup> PE-X pipes installed above ground shall be retained in position by clips at internals complying with the table below:

**TABLE 1.2 MINIMUM HAND-BENDING RADIUS**

Nom. pipe diameter	Horizontal or graded pipes	Vertical Pipes
16mm	600mm	1,200mm
20mm	750mm	1,400mm
25mm	750mm	1,500mm

### TIMBER AND METAL FRAMEWORK

Holes drilled in studs or plates etc shall be accurately sized to allow for longitudinal movement due to thermal expansion and contraction of the pipe.

In metal framework suitable grommets or a sleeve must be installed to avoid abrasion and physical damage to the pipe.

Note: Use of silicon and other such materials are not required and could be detrimental to the pipe.

*The information contained in this document should serve as a guide only and is subject to change without notice. For more information please contact Iplex Pipelines Australia Pty Ltd.*



# IPLEX K2<sup>®</sup> PE-X PLUMBING SYSTEM

## INSTALLATION

### CORROSIVE ENVIRONMENT

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

### PROTECTION FROM PHYSICAL DAMAGE

As per the requirements of AS/NZS 3500 and/or Local Authority requirements, pipes and fittings must be protected against physical damage. This includes, but is not limited to, physical damage caused by exposure to direct sunlight, human activity, mechanical equipment, rodents or animals.

When Iplex K2<sup>®</sup> PE-X Recycled Water or Iplex K2<sup>®</sup> PE-X Rain Water pipe is installed externally above the ground, it must be protected against degradation from exposure to ultraviolet light. Iplex recommends that the pipe be lagged or sleeved.

Pipe buried underground should be buried to at least the minimum depths nominated in the relevant sections of AS/NZS 3500. Where appropriate, the pipe may be marked with marker tape, approximately 150mm above the pipe. If the pipe is buried under a building, there must be no joints in the pipe.

### CHASES, DUCTS OR CONDUITS

Pipes embedded in walls or floors shall comply with the requirements of the appropriate building authority or local regulations.

### THERMAL EXPANSION

The linear thermal expansion rate of Iplex K2<sup>®</sup> PE-X pipes is approximately 20mm for every 10°C temperature changes for each 10 metres of pipe. Therefore, when pipes are installed in situations when they will be subjected to significant temperature change, provisions must be made for this potential movement of the pipe. Iplex K2<sup>®</sup> PE-X pipes should not be pulled tight between fixed points as this will prohibit movement if the pipe contracts, and results in excessive tensile forces on joints and fittings.

### LIMITATIONS

#### FIRE & EXCESSIVE HEAT

Cross-linked polyethylene will burn when exposed to an open flame and will continue to burn when the fire source is removed. The products of cross-linked polyethylene combustion are primarily carbon monoxide, carbon dioxide and water. These same combustion products are generated when any organic material burns.

Where cross-linked polyethylene pipe is installed and penetrates a fire resistant construction, the fire resistant integrity of the construction must be retained. This can commonly be achieved through the use of fire-stop collars but installers should seek definitive guidance by referring to the local building code.

*The information contained in this document should serve as a guide only and is subject to change without notice. For more information please contact Iplex Pipelines Australia Pty Ltd.*



# IPLEX K2<sup>®</sup> PE-X PLUMBING SYSTEM

## INSTALLATION

### LIGHT TRANSMISSION

The co-extruded outer sheath in Iplex K2<sup>®</sup> PE-X pipes provides opacity, which prevents the transmission of light that would otherwise promote algae growth.

The carbon black in Iplex K2<sup>®</sup> PE-X Hot and Cold Water pipe also protects the pipe from the harmful effects of UV light.

### THERMAL CONDUCTIVITY

The thermal conductivity of plastics is generally lower than that of metals. It is the poor thermal conductivity of cross-linked polyethylene that restricts the heat loss through hot water pipes and reduces the need for lagging. In addition, the rate of heat flow through a body is not just directly proportional to the thermal conductivity but also inversely proportional to the thickness. The wall thickness of the cross-linked polyethylene pipe further restricts heat loss.

Lagging of cross-linked polyethylene water pipes is required where the pipe is installed in chases or where it penetrates a concrete slab or to meet the energy efficiency requirements of the National Plumbing Standard AS/NZS 3500 Part 4 and Building Code of Australia. Also in particularly cold climates lagging is recommended where freezing can occur, for example, where pipe is exposed above ground. Although cross-linked polyethylene pipes have been shown to withstand freezing of water to a greater extent than many other materials, the pipe obviously is not useable if the water inside is frozen.

**TABLE 1.3 THERMAL CONDUCTIVITY – WATT PER METRE KELVIN (W/M.K.)**

Material	PB	PE-X	Copper	Water	Steel
Conductivity	0.14	0.35	401	0.6	47-74

### HEAT AND PRESSURE PERFORMANCES

Iplex K2<sup>®</sup> PE-X pipes and fittings system must be installed in accordance with the manufacturer’s installation requirements, AS / NZS 3500 parts 1, 4 & 5 and any local by-laws with particular reference to the pressure and temperature relationship as described in AS/NZS 2492, pressure derating of pipes according to pipe material temperature:

**TABLE 1.3 WORKING PRESSURE ACCORDING TO PIPE MATERIAL TEMPERATURE (PMT)**

PMT	20°C	60°C	70°C
Pressure	2000kPa	1500kPa	1330kPa

*The information contained in this document should serve as a guide only and is subject to change without notice. For more information please contact Iplex Pipelines Australia Pty Ltd.*

