pexPlus™

manual

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Overview

The Pex Plus system has been developed to deliver plumbers, builders and home owners a high quality yet cost effective pipe system for use with hot and cold water, rainwater, hydronic heating and recycled water distribution.

The Pex Plus product range is based on a premium quality cross-linked polyethylene pipe which is used in conjunction with either of the two available ranges of DZR brass fittings.

When installed in accordance with the Pex Plus installation guidelines and the relevant Australian standards the Pex Plus system will provide years of trouble free service.

Pipe

Pex Plus pipe is a high quality Pex-a cross linked pipe. Pex is an industry accepted name for cross linked polyethylene pipe. In general terms polyethylene in its normal state is not capable of handling high pressure or temperature loads. However once subjected to the cross-linking process, its ability to handle these conditions is increased substantially.

Pex Plus pipe consists of an inner section of Pex-a material encased in an outer layer of tough HDPE.

Pex Plus also offers a pipe specifically for use in hydronic heating. This pipe is identified by its bright pink colour. Pex Plus pink is a similar construction to the standard Pex Plus pipes. However it also incorporates a layer of EVOH material which acts as an oxygen barrier, thus preventing the entry of additional oxygen into the sealed heating system.

Pex Plus pipe is available in sizes 16, 20, 25 & 32mm, in either coils or straight lengths.

Pex Plus pipe dimensions

Nom size	Mean OD (mm)	Mean ID (mm)
16mm	16.15	11.45
20mm	20.15	14.15
25mm	25.15	17.75
32mm	32.15	22.85

Pex Plus pipe—standard supply units

Nom pipe size	Straight lengths (all)	Coil length (black)	Coil length (green, lilac)	Coil length (pink)
16mm	5m	100m	50m	200m
20mm	5m	100m	50m	100m
25mm	5m	50m	50m	
32mm	5m	25m		
16mm black + conduit		50m		
20mm black + conduit		50m		

The Pex Plus pipe is colour coded to assist the installer in avoiding cross connections.

BLACK	Hot & cold potable water
GREEN	Rainwater
LILAC	Recycled water (non-potable)
PINK	Hydronic heating
CONDUIT	In/under slab hot & cold water

Performance

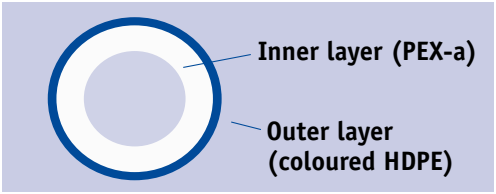
The use of Pex Plus pipe provides users with many advantages over traditional piping materials. It has excellent flexibility, is not adversely affected by freezing, offers excellent pressure and temperature resistance, is lightweight and also has low noise and heat transmission qualities. The Pex Plus pipe provides very low levels of friction loss and therefore can often save users needing to upsize piping when installing long runs. As jointing methods are mechanical it does not require the use of solvents. Nor does it require soldering, welding or brazing.

Pex Plus pipe heat & pressure performance

Recommended working pressure relative to pipe material temperature				
Temp (°C)	20	40	60	80
Pressure (Kpa)	2000	1800	1500	1330

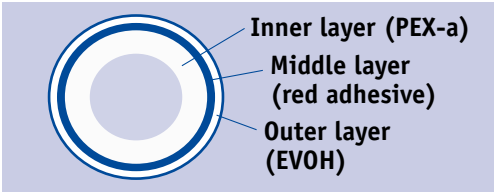
Cross-section

Black, green, lilac pipe



1. Inner layer: combination of HDPE & crosslinking agent.
2. Outer layer: HDPE compound.

Pink pipe



1. Inner layer: the same Pex layer as standard Pex Plus™ pipe.
2. Middle layer: adhesive to bind internal PEX-a layer to the external EVOH layer(<0.01mm)
3. Oxygen barrier (<0.01mm). Clear outer layer which prevents oxygen from entering the pipe system from the outside atmosphere.

Fittings

The Pex Plus system offers two ranges of fittings. Pex Plus is an axial crimp system (more commonly known as a compression system) which involves drawing a sleeve along the pipe and over a barbed fitting to form a reliable and leak-proof joint. Crimp Plus is a radial crimp system which has a similar barbed fitting but is secured by crimping or squeezing a copper sleeve which in turn compresses the pipe over the barbed fitting to produce a secure joint.

Further information and descriptions of the jointing methods for Pex Plus can be found later in this guide. Both ranges of fittings are manufactured from high quality dezincification resistant (DZR) brass (In the case of Crimp Plus it also incorporates a solid copper crimp ring).

It will generally come down to the installer's individual preference as to which system to use, as both comply fully with the relevant Australian Standards and are Watermark approved.

Pex Plus pipe fitting dimensions

Nom size	Mean bore (mm)
16mm	10
20mm	12.5
25mm	15.3
32mm	20

Features & benefits

- ✓ Secure & easy jointing system– **less time on the job.**
- ✓ Same pipe for Crimp Plus or Pex Plus system–**carry less stock.**
- ✓ Simple hand tool compression method– **less capital outlay on tooling.**
- ✓ Minimal need for brazing– **less outlay on gas and consumables.**
- ✓ Low noise transmission in pex pipe– **quieter, reduced water hammer.**
- ✓ Internal sealing method–**reduced chance of leaks due to scratched/scuffed pipe.**

Installation considerations

Proximity to flame/external heat sources

The Pex Plus system should not be installed in positions where it is likely to be exposed to a naked flame. If it is, there's a danger the pipe could ignite and continue to burn even after the source of the flame is extinguished. In accordance with AS/NZS 3500 all plastic pipes for water supply must be protected from excessive ambient heat.

Thermal expansion

The Pex Plus pipe has an expansion rate of approx. 0.3mm per metre for every 10°C change in temperature. Care should be taken not to pull the pipe tightly between fixed points during installation as this may later contract and apply excessive tensile force to any joints. This could cause a possible joint failure.

Heat & Pressure performance

As with all plastic pipe systems the ability of the pipe to withstand pressure decreases as the pipe temperature increases. *(Refer to table on page 5)*

Protection from physical damage

Due care should be taken to protect pipe and fittings from any physical damage both prior to, during and after installation. Possible causes of physical damage may include (but are not limited to) sharp edges/implements, machinery, rodents, excessive heat, long term UV exposure, radiation, mechanical forces.

Pipe Bending

Pex pipe is very flexible and as such can save the need to use additional fittings. Due care should be taken during bending to ensure that pipe is not kinked or damaged. If you do encounter a kinked section of pipe it should be cut out and replaced as a precaution.

Pex Plus pipe may be subjected to a minimum bending radius of approx. 8 times the OD of the pipe.

Clipping

Clipping requirements are outlined in the relevant Australian standards. The recommended clip spacings for Pex Plus pipe are:

Pipe size	Horizontal pipe work	Vertical pipe work
16mm	0.6m	1.2m
20mm	0.7m	1.4m
25mm	0.75m	1.5m
32mm	0.85m	1.7m

Framework penetrations

Where pipe is required to pass through timber or steel studs/frames, holes should be sized to allow for adequate pipe movement due to thermal expansion or contraction. In all cases, steps should be taken to protect the pipe from any possible physical damage (particularly due to abrasion) where it passes through studs or frames. This can be achieved by installing grommets, sleeves or stud clips as applicable.

UV exposure

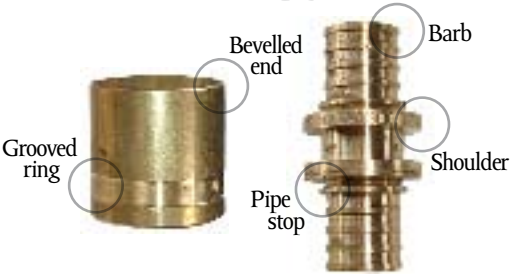
Both Pex Plus black and Pex Plus green pipes are able to be installed in direct sunlight with no degradation likely to occur. Pex Plus lilac should be protected from long term exposure to UV by way of either lagging or enclosing in a conduit.

Note: The above does not completely exclude the need for lagging to protect any of the pipes from temperature extremes.

TESTING
It is essential that appropriate pressure testing (in accordance with AS/NZS 3500 or relevant local requirements) is carried out prior to burying or concealing the Pex Plus system.

Tools

Terminology



Jointing instructions

1. Cut pipe

Ensure that the pipe is cut squarely using universal pipe shears. Ensure that the pipe is deburred if necessary (Pipe shouldn't need deburring if cut using universal shears.) The cut must be clean and square for a leak-proof joint. When cutting pipe for connection to a fitting, measure to the fitting shoulder.

2. Pipe expansion

Pipe must be expanded by using the Pex Plus expander. Ensure that the expander heads are not faulty or broken as this may lead to the joint eventually leaking.

i. Holding the levers of the Expanding Tool fully open, screw on the expander head.