

**COMPRESSED AIR SYSTEMS CONTAINS SUBSTANTIAL STORED ENERGY, WHICH, IF RELEASED SUDDENLY, COULD CAUSE INJURY. IT IS RECOMMENDED THAT PIPE SYSTEM DESIGN, INSTALLATION AND MAINTENANCE BE CONDUCTED BY THOSE WITH APPROPRIATE KNOWLEDGE AND EXPERIENCE.**

**CONDENSATE DRAINAGE**

Ideally, condensate should be removed as soon as possible in the system. A suitably sized compressed air dryer after the Air Receiver is the recommended method for removing condensate from the air supply. If high, short term peaks of dry air are required, then the dryer would be better installed prior to the Receiver. The good thermal characteristics of Maxair® are a further advantage.

The system should be designed to minimise or eliminate harmful condensate from being discharged into air tools and equipment when dryers are not fitted. Various methods are suitable for this purpose.

- Sloping of horizontal pipe at a slight gradient to strategically positioned drainlegs.
- Outlet droppers to come off the top of the pipework to avoid precipitated condensate being discharged in the airstream.
- In most instances however the recommended method is to install the dropper from the bottom of the branch or mainline with a short extra length of pipe extending below the outlet with a drain valve.



**UNDERGROUND PIPEWORK**

Maxair® pipe is ideal for underground installation with its high strength characteristics and ability to absorb ground movement.

It is recommended to lay pipework in sand and grade to avoid low points. A drain valve with a purge line should be installed in strategic positions to trap and purge any condensate that may accumulate.

**HAZARDOUS AREAS**

**A. Corrosive Chemicals** - Maxair® has excellent resistance to a broad range of chemicals and is ideal for use in many areas where corrosive liquids or atmosphere may contact the pipe. Compression fittings come standard in polypropylene construction with O-Rings of nitrile rubber and Split Grip Rings in Polyacetal. The Nitrile gives excellent resistance to oils in the compressed air.

**Fusion welded fittings provide a further degree of safety in these areas. User should verify compatibility of components with their application. Extensive compatibility charts are available. Resistance to specific chemicals should be checked with Technical Department.**

**B. Explosive or ignitable atmosphere.** Compressed air can carry static charges which may accumulate. The user/customer/purchaser is responsible to identify any potential hazardous areas and to take necessary measures or precautions for complete safety. Information on protective measures is available with advice on your specific application.



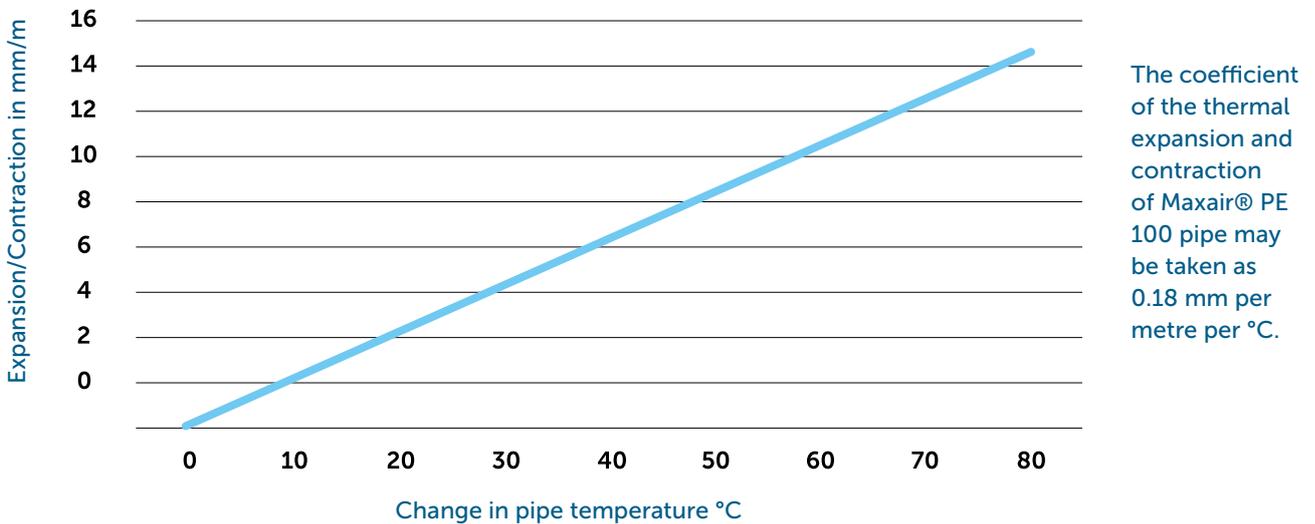
**HEAT SOURCES AND EXTERIOR PIPEWORK**

Care is needed to avoid unplanned overheating of the system. Air compressors will produce air which may be considerably above ambient temperature. For air-cooled compressors without dryers, conveyed air averages 15°C above ambient temperatures.

Industry best practice of shielding equipment and pipework from direct heat sources should be adopted to prevent excessive heat buildup. In the event that pipe is exposed to direct sunlight a surface layer forms overtime, creating a barrier which impedes further effects. As with all plastic pipe systems exposed to direct UV there may be some reduction of impact resistance over time; however longevity and pressure rating of the pipe system are not affected by UV rays.

In addition, compounds used in the manufacture of Maxair® pipes and fittings meet the UV exposure requirements of AS/NZS 4131 and ISO Standards applicable to gas and water pipes. These requirements, whilst having only temporary exposure in mind, ensure that UV protection is optimised for Maxair® pipes and fittings.

**THERMAL EXPANSION AND CONTRACTION**



If pipework is to be subjected to thermal temperature change, expansion and contraction needs to be considered during installation. Generally movement can be absorbed on changes of direction, elbows, etc. but on longer lengths the recommended installation principles as set out below should be adhered to.

This movement is virtually eliminated in constant temperature areas.

Operating Temperature °C	Design life years	Permissible Working Pressure		
		Bar	kpa	psi
-20° to 20°	50	16	1600	235
30°	50	14.1	1410	205
40°	50	12	1200	175
50°	50	10.2	1020	150
60°	50	8.8	880	130
Above ratings are at safety factor of 2:1				
Fluid at 20°	50	25	2500	360
For fluids other than compressed gases, the safety factor is 1.25:1				

**SHORT TERM TEMPERATURE RISES**

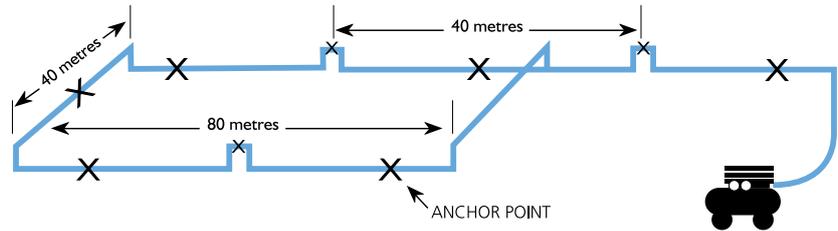
Temperatures quoted relate to constant temperature over a period of 50 years, rather than short term peak temperatures. Maxair® PE 100 can safely handle short term peaks in compressed air temperature up to 95°C.

Circumstances vary and each high temperature application should be checked with the Technical Department.

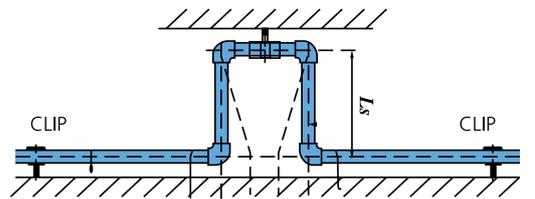
**EXPANSION LOOPS**

Expansion loops are recommended at intervals of approx. 30-40m on long runs. Suggested leg lengths are as per table.

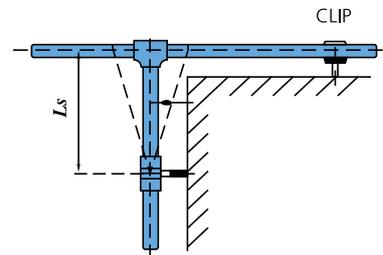
It is general practice for loops up to 63mm to span between purlins. Space constraints may also need to be considered. Please contact our technical department for accurate sizing if required.



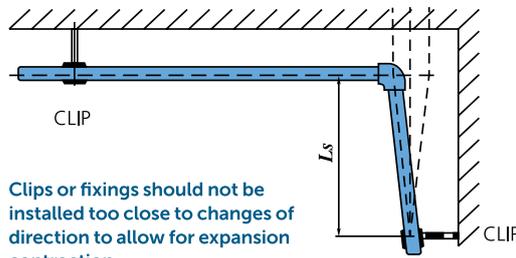
Pipe Diameter	Min Leg $L_s$ (metres)
20	0.5
32	0.6
32	0.7
40	0.9
50	1.0
63	1.2
90	1.8
110	2.0



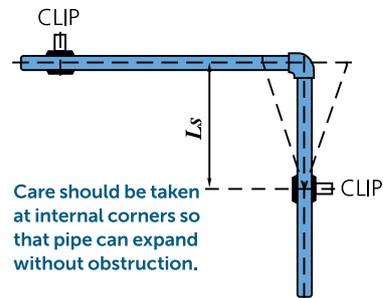
Typical expansion joint. Note fixed anchor point at centre of loop. No clips or fixings on legs. Clips on long run to allow for longitudinal expansion/contraction.



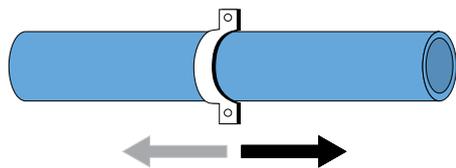
Clip placement for external corner



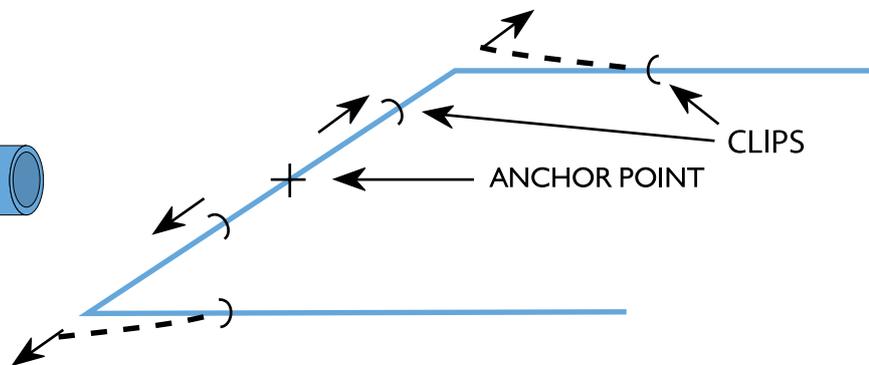
Clips or fixings should not be installed too close to changes of direction to allow for expansion contraction.



Care should be taken at internal corners so that pipe can expand without obstruction.



Free axial movement of pipework should be allowed with any form of support. Pipework should be able to move longitudinally without conflicting with elbows, tees, etc.



Anchor points are clips which don't allow free axial movement. Anchor points can be used as shown to evenly spread the effects of expansion and contraction.