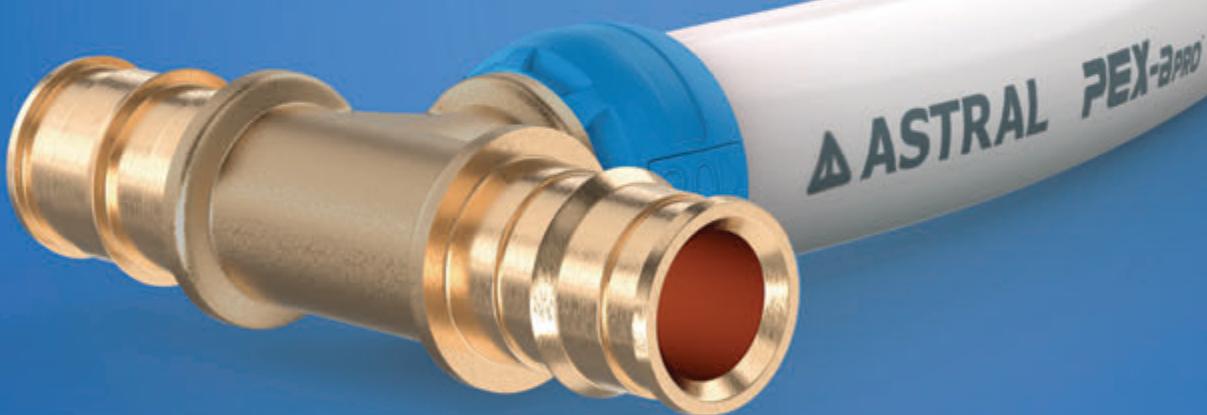




△ ASTRAL PEX-aPRO®

AN ERA THAT'S
FUTURISTIC AND
FLEXIBLE



ASTRAL
PEX-aPROTM
NEXT GEN HOT & COLD WATER PLUMBING SYSTEM

A REVOLUTIONARY PIPING SYSTEM WITH
EXPANSION RING TECHNOLOGY



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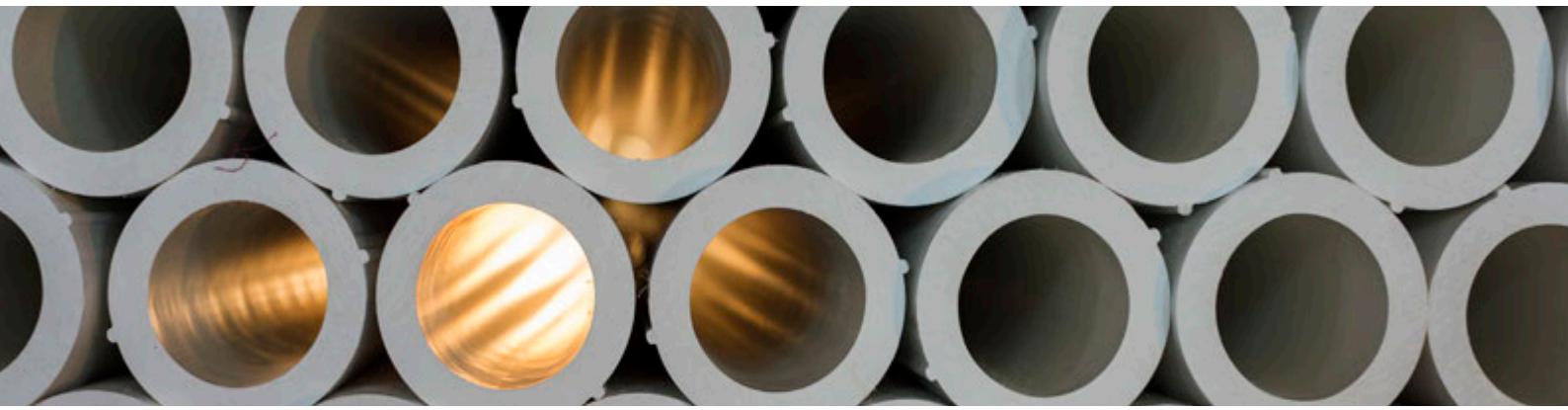
PIPING

AGRICULTURE
DRAINAGE INDUSTRIAL
PLUMBING
FIRE PROTECTION
CONDUIT
ANCILLARY

ADHESIVES

ANAEROBIC ADHESIVES
SILICONE SEALANTS
CONSTRUCTION CHEMICALS
PVA **CYANOACRYLATE**
SOLVENT CEMENTS TAPES
POLYMERIC FILLING COMPOUND
EPOXY ADHESIVES & PUTTY
INDUSTRIAL ADHESIVES





ABOUT ASTRAL

Established in 1996 with the aim to manufacture best-in-globe plastic piping systems, Astral Pipes fulfils emerging piping needs of millions of houses and adds extra mileage to India's developing real estate fraternity with the hallmark of unbeaten quality and innovative piping solutions. Keeping itself ahead of technology curve, Astral has always been a front runner in the piping category by bringing innovation and getting rid of old, primitive and ineffective plumbing methods. Bringing CPVC in India and pioneering in this technology, have set Astral apart and enabled it to obtain NSF approval for its CPVC pipes and fittings. Astral went beyond category codes by launching many industry firsts, like launching India's first lead-free uPVC pipes for plumbing as well as for stream water, just to name a few.

Astral Pipes offers the widest product range across this category when it comes to product applications. Astral Pipes is equipped with production facilities at Santej and Dholka in Gujarat, Hosur in Tamil Nadu and Ghilot in Rajasthan to manufacture plumbing systems, drainage systems, agriculture systems, fire sprinkler piping systems, industrial piping and electrical conduit pipes with all kinds of necessary fittings.

Astral Pipes has recently acquired Rex Polyextrusion Pvt. Ltd. which enables to expand its product range in terms of offering corrugated piping for drainage and cables, polyolefin cable channels, sewage treatment plants, plastic sheathing ducts, suction hoses, telecommunications PLB duct and sub-surface drainage systems. This range helps Astral to establish a strong foothold in infrastructure and agriculture sector in the constantly evolving business of piping. Rex has production facilities at Sangli in Maharashtra and Sitarganj in Uttarakhand

In 2014 Astral forayed into the adhesives category by acquiring UK-based Seal It Services Ltd. and Kanpur based Resinova Chemie Ltd. which manufactures adhesives, sealants and construction chemicals. With five manufacturing facilities now in this business segment, Astral has strengthened its presence in the category and made rapid inroads.

Brand Astral stands for innovation and for setting new trends in the piping industry. Bringing newer piping technologies and continuous innovation in existing as well as new products has been the focal point at Astral. This special emphasis helps the brand set the bar higher and lead amongst others by example. Astral is also known for its compromise-free quality and exceeds consumer's expectations. Right from introducing new piping technologies to innovative brand communications in the category, Astral's brand mission has been to maintain and grow a commanding presence in the minds of customers and to deliver promised values consistently.

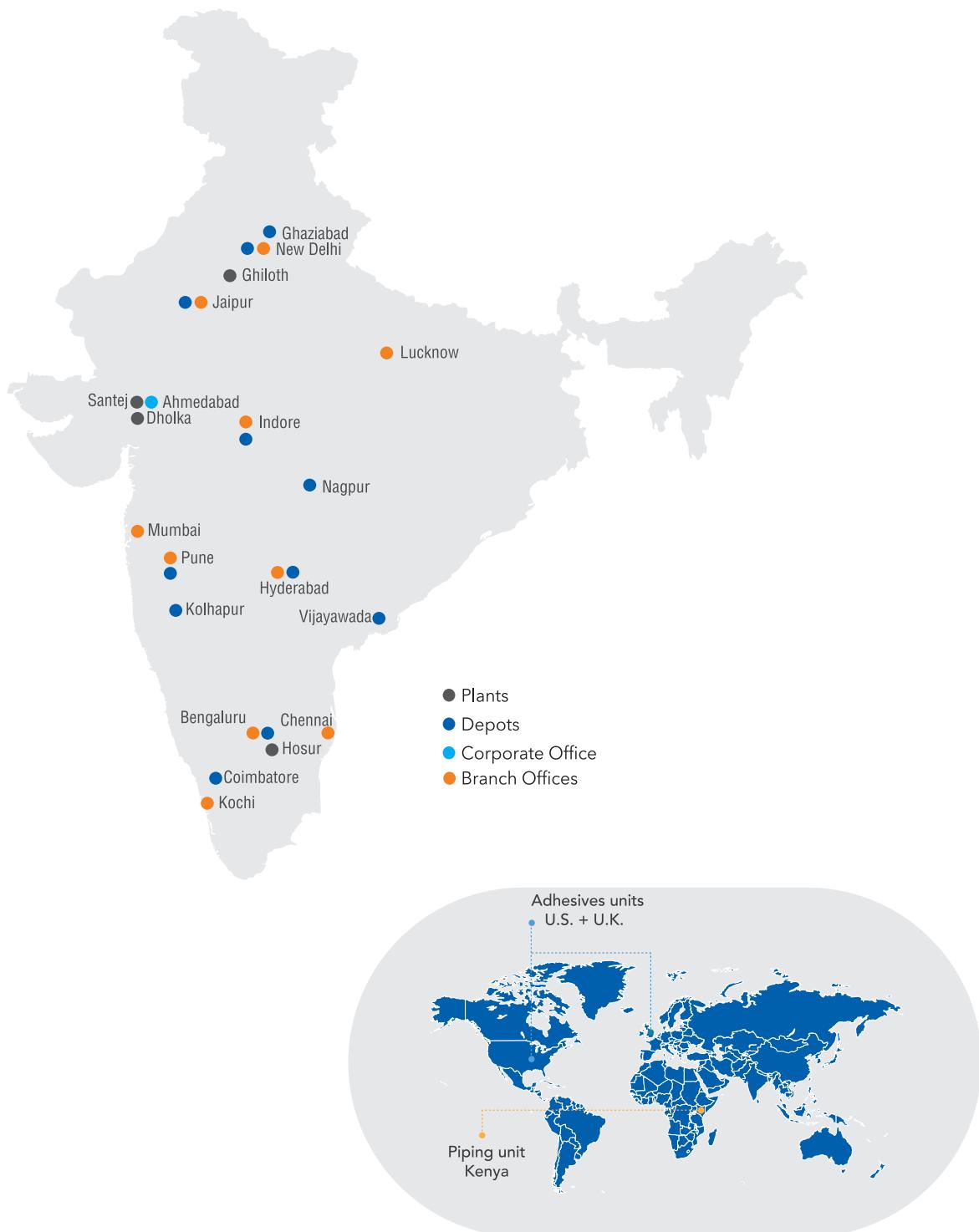
INNOVATION & RECOGNITIONS



- First to introduce CPVC piping system in India (1999)
- First to launch lead free uPVC piping system in India (2004)
- First to get NSF Certification for CPVC piping system in India (2007)
- First to launch lead free uPVC column pipes in India (2012)
- India's Most Promising Brand Award (2014)
- India's Most Trusted Brand Award (2015)
- India's Most Trusted Pipe Brand Award (2016)
- ET Inspiring Business Leaders of India Award (2016)
- India's Most Attractive Pipe Brand Award (2016)
- Fortune India 500 Company (2016)
- Consumer Validated Superbrands India (2017)

MARKETING NETWORK

Astral has marketing network of more than 750 distributors and 28,000 dealers spread all over India with branch offices at Mumbai, Pune, Delhi, Bengaluru, Chennai, Hyderabad, Jaipur, Lucknow, Indore and Kochi. Apart from that Astral has its own warehouses at Bengaluru, Chennai, Coimbatore, Delhi, Indore, Nagpur, Pune, Jaipur, Hyderabad, Vijaywada, Ghaziabad and Kolhapur to deliver the material as quickly as possible. More than 300 techno-marketing professionals and administrative personnel are on board to coordinate with architects, plumbing contractors and plumbers to utilize the best plumbing techniques and to get the best from the product.



AN ERA THAT'S FUTURISTIC & FLEXIBLE

THE PEX-a PRO EXPANSION RING SYSTEM

Astral Pipes introduces its new PEX-a Pro System, based on the well-known expansion ring technology (Shrink-Fit) which is meant for distribution of hot and cold water plumbing applications. This piping system consists of cross-linked polyethylene pipes (PEX-a) in combination with brass / PPSU fittings which can be joined with expansion ring technology. This system is one of the most advanced systems available globally for hot and cold water plumbing.

The cross linking technology in generic way means a process through which Polyethylene molecules get some links between the polyethylene chains that provide high resistance to pressure and temperature. This makes polyethylene reticulate a material especially suitable for making pipes which can handle water circulation at high pressures and high temperatures up to 95°C.

The unique and innovative expansion ring technology makes use of the shrink-back property which is effective only with PEX-a pipes enabling a quick and easy installation. In this process, due to shrinking property of the material, the pipe presses over the body of the fitting with substantial force which makes a reliable and lasting joint - without any need of o' rings. This system offers much better water flow compared to other alternative fittings and a wide range of tools and accessories help establish safe and trouble-free installation.

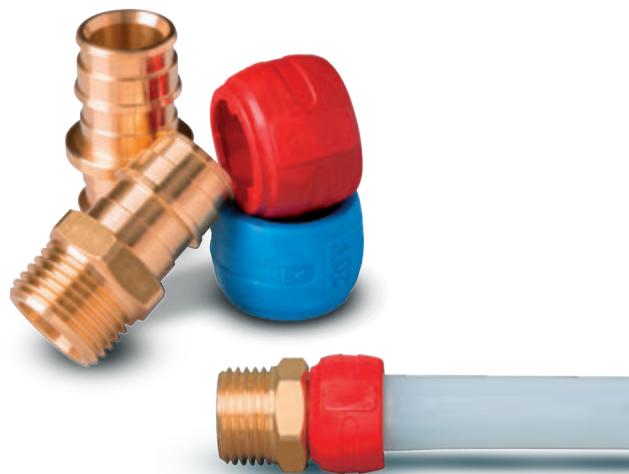
COMPONENTS OF THE PEX-a PRO SYSTEM

PEX-a PIPES

Astral Pipes uses the best high density polyethylene (HDPE) and the most advanced peroxide cross-linking technology in order to offer high performing PEX-a pipes. Astral's modern technology is based on the well-known peroxide cross-linking process (PEX-a), while using the latest high power infrared ray ovens.

Our PEX-a pipes offer :

1. The highest flexibility
2. Enduring pressure resistance
3. Long working life
4. Effective anti-kinking properties



PLASTIC RINGS

The use of plastic rings, manufactured by injection moulding using special high-tech polymers, enables to offer better dimensional precision in the rings that, together with a pipe stopping system, facilitates the assembly process. The rings are available in three different colours (red, blue and white) so you can make the pipelines easily identifiable.



BRASS / PPSU FITTINGS

The Astral PEX-a Pro system exclusively uses high quality brass (CW617N alloy), which complies with the most demanding EU sanitary standards.



The PEX-a Pro system is also available with PPSU (Poly Phenyl Sulfone) fittings, which are one of the highest quality plastic fittings for hot & cold water plumbing system. By using PPSU fittings, full plastic piping system is possible, without compromising any hydraulic properties.

Astral PEX-a pipes have a thermal memory, the so-called 'memory effect'. This results in a strong resilience that we use specifically for the expansion ring technology. When an Astral PEX-a pipe is expanded with a suitable tool, it strives to return to its original form within a short time. We make use of this characteristic in the expansion ring technology. The pipe material serves as the seal material & the PEX-a pipe connects with the brass or PPSU fitting. Joining itself is very fast & a 100% reliable connection between the fitting and the pipe is produced without making use of O-rings.

Elaborate work such as welding or soldering is now a thing of the past.



FEATURES & ADVANTAGES

RESISTANCE TO HIGH TEMPERATURES & PRESSURES

Astral PEX-a Pro pipes are suitable for use in working temperatures up to 95°C, being able to withstand accidental spikes of up to 110°C. Also, given its manufacturing quality and process, it offers much more pressure resistance than any other cross-linked systems.

LOW THERMAL CONDUCTIVITY

Its low conductivity coefficient (0.38 W/mK) provides energy savings by reducing heat losses. Cross-linked polyethylene pipes, being bad heat conductors, are excellent thermal insulators.

ABSENCE OF CONDENSATIONS

The condensations, very routine in metal pipes, occur rarely in Astral PEX-a Pro pipes, due to its low thermal conductivity.

LIGHTNESS

Astral PEX-a Pro pipes are 4 times lighter than metal pipes which facilitates their handling and transport.

FLEXIBILITY

The flexibility of Astral PEX-a Pro pipes saves money, joints and reduces installation times.



PLASTIC MEMORY

Astral PEX-a Pro pipes have plastic memory which means that if the pipe is blocked/impacted during the installation, it can be reused easily, since it recovers its original form with an application of hot air.

NONCONDUCTIVE - NON CORROSIVE

Astral PEX-a Pro pipes do not produce galvanic corrosion. Also, they do not get affected by harsh water and are completely free of any kind of corrosion. Thanks to its extremely smooth surface, inlays are avoided of lime rust which are so frequent in metallic pipes. The Astral PEX-a Pro pipes ensure that the initial flow will keep for life.

LESS NOISE

Thanks to its manufacturing material - Polyethylene - and the resulting flexibility, PEX-a Pro attenuates the problem of noise and offers higher water circulation speeds. The metal pipes are very noisy at water speeds above 1m/sec, while the PEX-a Pro pipes do not produce noise upto the speeds of 2.5m/sec.



HIGHER FLOWS

Thanks to its smooth surface, Astral PEX-a Pro pipes have lower losses of loading than the metal pipes, and with that, higher flows are achieved at equal inner diameters.

LONG LIFE

The life of Astral PEX-a Pro pipes under normal conditions can exceed 50 years of service even at elevated temperatures and pressures. In any case, the Astral PEX-a Pro pipes guarantee a life superior to any other metal or plastic pipe.

SUITABLE FOR DRINKING WATER

Astral PEX-a Pro pipes respect the organoleptic properties of water. Its use is authorized by the health authorities of the European Union. With PEX-a Pro, one can be assured of the purity of water and avoid the problems of salt / rust formation which is so frequent in metal pipes.

ADVANTAGES OF ASTRAL PEX-a PRO SYSTEM

- Quick and easy assembly
- Better water flow and, smaller pressure loss
- Watertight without using o' rings and irrespective of the condition of the assembly tool
- Even compression force throughout the ring length
- A 20-year safety record



JOINING SYSTEM

1. CUT THE PIPE

Cut the pipe using a pipe cutter, making a perpendicular cut and cleaning the pipe end from grease and pipe chips. Fit the plastic ring on the pipe and make sure the pipe is flushed with the upper edge of the ring.



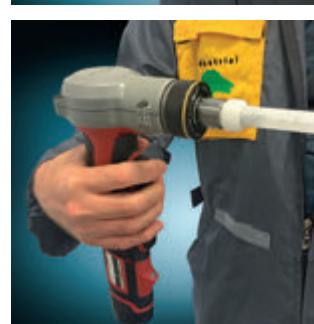
2. PLACE THE RING OVER THE PIPE

Insert the pipe into the ring until the pipe reaches the safety stop which exists inside the ring.



3. EXPAND THE PIPE

Open the expander handles so the expansion head segments remain closed. Then insert the expansion head inside the pipe-end and start expanding the pipe by bringing together the expander handles up to the end, maintaining this position for a few seconds. Manually rotate the pipe or expander by a minimum of 10° - maximum of 45° and push it further into the pipe. Repeat this process, turning the tool between expansions (*), until the pipe reaches the extreme of the expansion head closer to the tool.



(*) this turning of the expansion head is only necessary while using manual expanders without rotating expanding heads (for expanders equipped with rotating expansion heads, this turning of the expansion heads is not necessary).

NUMBER OF EXPANSIONS RECOMMENDED:

DIMENSION	16x1.8	20x1.9	25x2.3	32x2.9
NO. OF EXPANSIONS	4	5	7	13

4. INSERT THE FITTING BODY INSIDE THE PIPE

Release the pipe from the expander and insert the body of the fitting into the pipe-end immediately, pressing the body of the fitting for a few seconds until the pipe shrinks enough to hold the fitting properly, making sure that the plastic ring is in contact with the end of the fitting.



PRESSURE TEST

As requested by the building standards, it is compulsory to pressure test the water pipelines before covering them. Since the expansion technology is based on the plastic memory of the PEX-a Pro pipes, the contraction increases with the time passed since the expansion was made, it is important to observe a minimum waiting time before doing a pressure test. Under normal weather conditions, Astral PEX-a Pro system joints can be tested 30 minutes after the assembly. Under severe winter conditions, we recommend to increase the waiting time.

UNIQUE BENEFITS OF JOINING SYSTEM

WATERTIGHT

The Astral PEX-a Pro joining system guarantees an absolute watertight joint, without the need to perform reviews. During the manufacturing process, it goes through multiple tests using advanced laboratory equipments such as one used for the test of temperature cycles, in which the joint is subjected to cycles of cold water and hot water that simulate working conditions throughout its life. These tests guarantee the absolute tightness of the joints made with Astral PEX-a Pro pipes and fittings. The strength and duration of the joint is even greater than the pipe itself.



COMPACT

Astral PEX-a Pro accessories don't protrude from the pipe, making it ideal for use in narrow partitions or pladur type partitions.

RECESSED

The Astral PEX-a Pro system is one of the few systems authorized by the European Union authorities for wall embedment use.

NO WAITING TIME

The Astral PEX-a Pro system eliminates the time of waiting before you can perform the pressure test, and put the installation to work immediately.

LEAK PROTECTION

Although a properly installed Astral PEX-a Pro system is secured from leakage, there may be occasions when extra precautions against damage to the construction of a building from leakage are needed. Astral's Pipe-in-Pipe allows the pipe to be withdrawn and replaced, especially in solid floors or walls. Any leakage is retained within the conduit and can be detected.



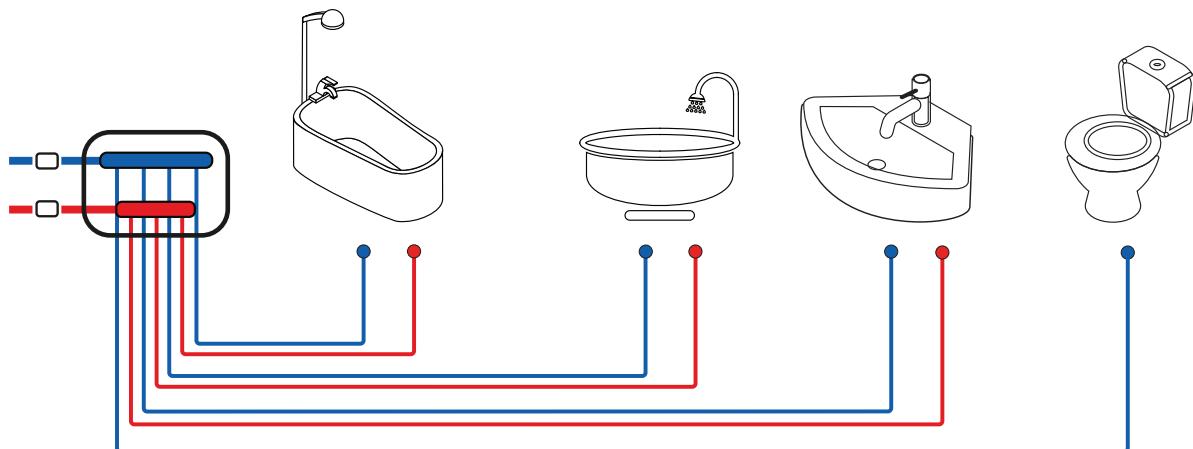
EASY RENOVATION

In addition, in a concealed pipe run without any T-joints, an accidentally damaged section of pipe can be withdrawn and replaced, whilst minimising structural damage.

- Expansion ring technology with stop edge for accurate positioning on pipe
- No O' rings or other movable parts, reducing chances of leakages
- Visual connection and possibility of full plastic system

TYPES OF INSTALLATION

Astral PEX-a Pro flexible plumbing systems can be designed and installed using conventional T-fitting, serial or manifold installation method. The choice of system and design is up to the user, but no matter the installation method, with Astral's extensive range of products and fittings, we always provide the best solutions to save on installation time and costs.



DISTRIBUTION WITH SINGLE CONNECTIONS

This system has single individual piping with manifold for hot and cold water as shown in picture. In this case, water flows through the single pipe only and the draw-off point collects it.

LARGE FLOW DISTRIBUTION

This system has double hot water terminals with two pipe connections and is used wherever large water flow is required. In this case large quantity of water can be achieved with low pressure loss.

The major benefits of these systems are as under:

- Reduced circuit length
- High comfort with reduced hot water availability times
- Possibility of easily intercepting draw-off points on the manifold

DISTRIBUTION WITH CLOSED CIRCUIT

This system has draw-off points through double inlet terminals. In this system, no supply pipes are connected individually to the manifold. Only one pipe for hot water and one for cold water go through all the connections creating a closed circuit. The major benefits of this type of installation are:

- Hygienically ideal due to free of dead sections
- Manifold with a reduced number of outputs
- Requires less units of pipes
- Having pressure balance and allowing large flow rates

TECHNICAL CHARACTERISTICS

NOMINAL SIZE (mm)	OUTER DIAMETER (mm)	TOLERANCE FOR OD (mm)	MINIMUM WALL THICKNESS (mm)
16	16.0	+0.3	1.8
20	20.0	+0.3	1.9
25	25.0	+0.3	2.3
32	32.0	+0.3	2.9

STANDARDS AND SPECIFICATIONS

- ISO 15875-1

Plastic piping systems for hot and cold water installations-Crosslinked Polyethylene (PE-X)–Part 1: General

- ISO 15875-2

Plastic piping systems for hot and cold water installations-Crosslinked Polyethylene (PE-X)–Part 2: Pipes

TECHNICAL CHARACTERISTICS

PROPERTIES	ABBREVIATION	VALUE	UNITS
Linear expansion	l	1.4x10 ⁻⁴	K ⁻¹
Thermal conductivity	R _l	0.38	W/mK
Maximum working temperature	T	95	°C
Maximum temperature point	T	110	°C
Maximum working pressure at 95°C	P	6	Bar
Roughness	E	0,007	mm
Density	r	0.945	gm/cm ³



THERMAL EXPANSION

Like all piping material, Astral PEX-a PRO Pipes expand when heated and contract when cooled. Astral PEX-a PRO Pipes (regardless of pipe diameter) will expand as mentioned in table, therefore, allowances must be made for this resulting movement. However, laboratory testing and installation experience have demonstrated that the practical issues are much smaller than the coefficient of thermal expansion would suggest. The stresses developed in Astral PEX-a PRO Pipes are generally much smaller than those developed in metal pipe for equal temperature changes because of the difference in elastic modulus. Required loops are smaller than those recommended by the Copper Development Association for copper systems.

Expansion is mainly a concern in hot water lines. Generally thermal expansion can be accommodated with changes in direction.

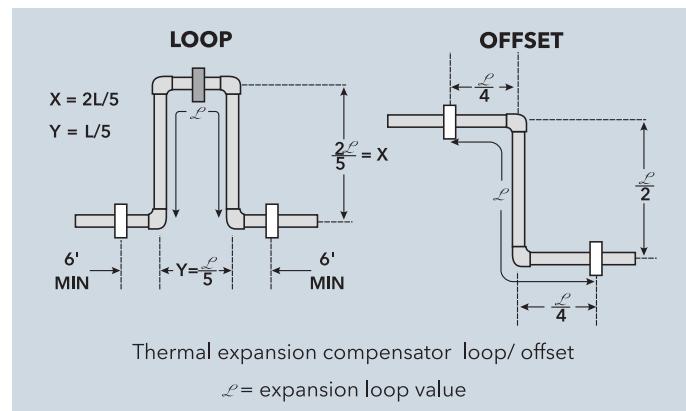
TABLE OF THERMAL EXPANSION OF THE ASTRAL PEX-a PRO PIPES:

Pipe section (in mtrs)	Difference of temperatures (°C)							
	10	20	30	40	50	60	70	80
1.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00
2.0	4.00	8.00	12.00	16.00	20.00	24.00	28.00	32.00
3.0	6.00	12.00	18.00	24.00	30.00	36.00	42.00	48.00
4.0	8.00	16.00	24.00	32.00	40.00	48.00	56.00	64.00
5.0	10.00	20.00	30.00	40.00	60.00	60.00	70.00	80.00
6.0	12.00	24.00	36.00	48.00	70.00	72.00	84.00	96.00
7.0	14.00	28.00	42.00	56.00	80.00	84.00	98.00	112.00
8.0	16.00	32.00	48.00	64.00	90.00	96.00	112.00	128.00
9.0	18.00	36.00	54.00	72.00	100.00	108.00	126.00	160.00
10.0	20.00	40.00	60.00	80.00		120.00	140.00	

Values of expansion expressed in mm

CALCULATION OF EXPANSION

For piping systems having long straight run may require an offset or loop. Only one expansion loop, properly sized is required in any single straight run, regardless of its total length. If more convenient, two or more smaller expansion loops, properly sized, can be utilized in a single run of pipe to accommodate the thermal movement. Be sure to hang pipe with smooth straps that will not restrict movement.



For convenience, loop (or offset) length have been calculated for different pipe sizes and different run length with a temperature. The results, shown in tables, are presented simply as handy guide for quick and easy determinations of acceptable loop length for the approximate conditions. Loop length for other temperatures and run length can be kept as per given table herewith:

PIPE DIAMETER	LONGITUDINAL EXPANSION (mm)													
	10	20	30	40	50	60	70	80	90	100	110	120	130	140
16	17.71	25.04	30.67	35.42	39.60	43.38	46.85	50.09	53.13	56.00	58.73	61.34	63.85	66.26
20	19.80	28.00	34.29	39.60	44.27	48.50	52.38	56.00	59.40	62.61	65.67	68.59	71.39	74.08
25	22.14	31.30	38.34	44.27	49.50	54.22	58.57	62.61	66.41	70.00	73.42	76.68	79.81	82.83
32	25.04	35.42	43.38	50.09	56.00	61.34	66.26	70.84	75.13	79.20	83.06	86.75	90.30	93.71

\mathcal{L} = expansion loop value

SUPPORTS

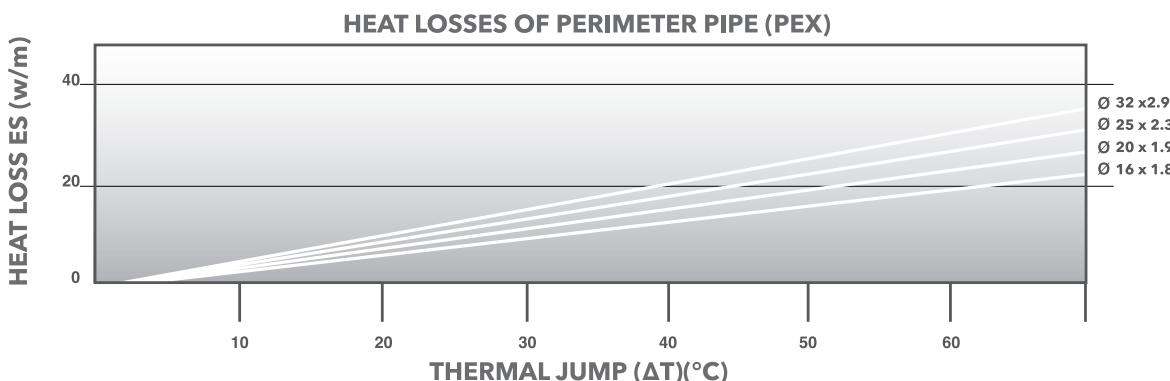
Horizontal & Vertical runs of Astral PEX-a Pro Pipes should be supported by pipe clamps or by hangers located on the horizontal connection close to the Riser. Hangers should not have rough or sharp edges, which can come in contact with the pipe.

HORIZONTAL & VERTICAL SUPPORTS

NOMINAL PIPE SIZE (mm)	SUPPORT SPACING (inch)			
	20°C		80°C	
	HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL
16	23	30	18	23
20	25	33	20	26
25	29	38	23	30
32	34	45	27	35

HEAT LOSSES

The heat losses suffered by a pipe depend on its external diameter and thickness, the material with which it is manufactured, its installation (recessed or aerial), if it has a corrugated or insulation sheath and the difference of temperature between the environment and the fluid that it conducts. When a pipe is embedded in an enclosure, the heat losses also depend on the materials of the different layers that make up this enclosure. The following graph shows the heat losses suffered by the crosslinked polyethylene pipes.



In general, we can conclude that its Low thermal conductivity coefficient (0.38 W/mK) provides energy saving by reducing losses of heat. Consequence of its low coefficient of thermal conductivity is that the usual condensations of metal pipes are rare in the cross-linked polyethylene Astral PEX-a Pro piping.

DOS AND DON'TS FOR JOINING SYSTEM

DOS

- Gauge is to be placed at 90° angle only
- Gauge is to be used of concerned pipe size only
- Pipe must touch with the upper edge of the ring at the time of assembly

DON'TS

- Gauge is not to be slide onto the connection
- In case of improper fitment, reconnection is not to be done on same joint
- Never modify gauge opening area

GUARANTEE

Astral PEX-a Pro system is included in the Product Guarantee Program. All products manufactured by Astral, carry a 10-year guarantee for all countries. For this guarantee to come into force it is compulsory that the pressure test has been done correctly before covering the pipelines.





PRODUCT RANGE

All sizes are in mm unless otherwise specified.

PEX-a PIPES (COIL)



Size 16x1.8

Length 100 mtr.

PN. PEXATB161810A



Size 20x1.9

Length 100 mtr.

PN. PEXATB201910A



Size 25x2.3

Length 50 mtr.

PN. PEXATB252350A



Size 32x2.9

Length 50 mtr.

PN. PEXATB322950A

PEX-a PIPES (STRAIGHT LENGTH)



Size 16x1.8

Length 5 mtr.

PN. PEXATB161805A



Size 20x1.9

Length 5 mtr.

PN. PEXATB201905A



Size 25x2.3

Length 5 mtr.

PN. PEXATB252305A



Size 32x2.9

Length 5 mtr.

PN. PEXATB322905A

Q. 50

Q. 40

Q. 25

Q. 15

PEX-a PIPES (IN CONDUITS)



Size 16x1.8

Length 100 mtr.

PN. PEXATGR16181A



Size 16x1.8

Length 100 mtr.

PN. PEXATGA16181A



Size 20x1.9

Length 50 mtr.

PN. PEXATGR20195A



Size 20x1.9

Length 50 mtr.

PN. PEXATGA20195A

EXPANSION RINGS



Size 16 Red

PN. RPERALACA16R



Size 16 Blue

PN. RPERALACA16A



Size 20 Red

PN. RPERALACA20R



Size 20 Blue

PN. RPERALACA20A



Size 25 Red

PN. RPERALACA25R



Size 25 Blue

PN. RPERALACA25A

EXPANSION RINGS



Size 32 White

PN. RPERALACA32B

Q. 50

MALE ADAPTER



Size 16x $\frac{1}{2}$ "

PN. RPERALARC1612

Q. 150



Size 20x $\frac{1}{2}$ "

PN. RPERALARC2012

Q. 125



Size 20x $\frac{3}{4}$ "

PN. RPERALARC2034

Q. 100



Size 20x1"

PN. RPERALARC201

Q. 100



Size 25x $\frac{1}{2}$ "

PN. RPERALARC2512

Q. 75



Size 25x $\frac{3}{4}$ "

PN. RPERALARC2534

Q. 75



Size 25x1"

PN. RPERALARC251

Q. 75



Size 32x $\frac{3}{4}$ "

PN. RPERALARC3234

Q. 40



Size 32x1"

PN. RPERALARC321

Q. 40

FEMALE ADAPTER



Size 16x $\frac{1}{2}$ "

PN. RPERALARH1612

Q. 150



Size 20x $\frac{1}{2}$ "

PN. RPERALARH2012

Q. 125



Size 20x $\frac{3}{4}$ "

PN. RPERALARH2034

Q. 100



Size 25x $\frac{1}{2}$ "

PN. RPERALARH2512

Q. 75



Size 25x $\frac{3}{4}$ "

PN. RPERALARH2534

Q. 75



Size 25x1"

PN. RPERALARH251

Q. 75

FEMALE ADAPTER



Size 32x $\frac{3}{4}$ "

PN. RPERALARH3234

Q. 40



Size 32x1"

PN. RPERALARH321

Q. 40

FEMALE LOOSE FITTING



Size 16x $\frac{1}{2}$ "

PN. RPERALARM1612

Q. 75



Size 20x $\frac{1}{2}$ "

PN. RPERALARM2012

Q. 100



Size 20x $\frac{3}{4}$ "

PN. RPERALARM2534

Q. 60

COUPLER



Size 16

PN. RPERALAMU16

Q. 175



Size 20

PN. RPERALAMU20

Q. 150



Size 25

PN. RPERALAMU25

Q. 75



Size 32

PN. RPERALAMU32

Q. 25

COUPLER IN PPSU



Size 16

PN. RPERPLAMU16

Q. 175



Size 20

PN. RPERPLAMU20

Q. 150



Size 25

PN. RPERPLAMU25

Q. 75



Size 32

PN. RPERPLAMU32

Q. 25

REDUCING COUPLER



Size 20x16
PN. RPERALAMR2016
Q. 150



Size 25x20
PN. RPERALAMR2520
Q. 100



Size 32x25
PN. RPERALAMR3225
Q. 25

REDUCING COUPLER IN PPSU



Size 20x16
PN. RPERPLAMR2016
Q. 150



Size 25x20
PN. RPERPLAMR2520
Q. 100



Size 32x25
PN. RPERPLAMR3225
Q. 100

ELBOW



Size 16
PN. RPERALAC16
Q. 100



Size 20
PN. RPERALAC20
Q. 75



Size 25
PN. RPERALAC25
Q. 50



Size 32
PN. RPERALAC32
Q. 20

ELBOW IN PPSU



Size 16
PN. RPERPLAC16
Q. 100



Size 20
PN. RPERPLAC20
Q. 75



Size 25
PN. RPERPLAC25
Q. 50



Size 32
PN. RPERPLAC32
Q. 20

EXTRACTABLE ELBOW



Size 16x $\frac{1}{2}$ "

PN. PEXALACEC161812

Q. 100



Size 20x $\frac{1}{2}$ "

PN. PEXALACEC201912

Q. 75

ELBOW WITH FEMALE THREADED END



Size 16x $\frac{1}{2}$ "

PN. RPERALATC1612

Q. 100



Size 20x $\frac{1}{2}$ "

PN. RPERALATC2012

Q. 75



Size 20x $\frac{3}{4}$ "

PN. RPERALATC2534

Q. 50

ELBOW WITH FIXING BASE



Size 16x $\frac{1}{2}$ "

PN. RPERALACBF162

Q. 75



Size 20x $\frac{1}{2}$ "

PN. RPERALACBF202

Q. 50

TEE



Size 16

PN. RPERALAT16

Q. 75



Size 20

PN. RPERALAT20

Q. 50



Size 25

PN. RPERALAT25

Q. 30



Size 32

PN. RPERALAT32

Q. 15

TEE IN PPSU



Size 16

PN. RPERPLAT16

Q. 75



Size 20

PN. RPERPLAT20

Q. 50



Size 25

PN. RPERPLAT25

Q. 30



Size 32

PN. RPERPLAT32

Q. 15

REDUCING TEE



Size 20x16x16

PN. RPERALAT20166

Q. 50



Size 20x16x20

PN. RPERALAT20160

Q. 50



Size 20x20x16

PN. RPERALAT20206

Q. 50



Size 25x16x25

PN. RPERALAT25165

Q. 30



Size 25x20x20

PN. RPERALAT25200

Q. 30



Size 25x20x25

PN. RPERALAT25205

Q. 30



Size 25x25x20

PN. RPERALAT25250

Q. 30

REDUCING TEE IN PPSU



Size 20x16x16

PN. RPERPLAT20166

Q. 50



Size 20x16x20

PN. RPERPLAT20160

Q. 50



Size 20x20x16

PN. RPERPLAT20206

Q. 50



Size 25x16x25

PN. RPERPLAT25165

Q. 30



Size 25x20x20

PN. RPERPLAT25200

Q. 30



Size 25x20x25

PN. RPERPLAT25205

Q. 30

REDUCING TEE IN PPSU



Size 25x25x20

PN. RPERPLAT25250

Q. 30

TEE WITH FEMALE THREADED END



Size 16x $\frac{1}{2}$ "

PN. RPERALASH1612

Q. 75



Size 20x $\frac{1}{2}$ "

PN. RPERALASH2012

Q. 50

SHUT-OFF BALL VALVE (STRAIGHT)



Size 16

PN. RPERALCUVAB16

Q. 20



Size 20

PN. RPERALCUVAB20

Q. 20



Size 25

PN. RPERALCUVAB25

Q. 20

HANDLE FOR SHUT-OFF VALVE



Handle

PN. PRETALMPOMVAE

Q. 20



Lever Handle

PN. PRETALMPAPVAB

Q. 20



Hidden Regulation

PN. PRETALMFSOM

Q. 20

CEILING MANIFOLD



Size 20-20-16-16
PN. RPERALKZ20066
Q. 25



Size 20-20-16-16-16
PN. RPERALKBD3
Q. 25

MANIFOLD (NORMAL)



Size $\frac{3}{4}'' \times 2''$
PN. PRETALCOL234
Q. 30



Size $\frac{3}{4}'' \times 3''$
PN. PRETALCOL334
Q. 20



Size $\frac{3}{4}'' \times 4''$
PN. PRETALCOL434
Q. 15

MANIFOLD (WITH THROTTLING VALVE)



Size $\frac{3}{4}'' \times 2''$
PN. C522N00TV
Q. 30



Size $\frac{3}{4}'' \times 3''$
PN. C523N00TV
Q. 20



Size $\frac{3}{4}'' \times 4''$
PN. C524N00TV
Q. 15

MANUAL EXPANDER (16-20-25-32)



Size Complete Case
PN. RPERHTKEXPAN
Q. 1

PLAST BOX + BRAKETS WHITE



Size 272 x 332 x 86
PN. A32400A
Q. 1



Size 290x330x88
PN. A32410A
Q. 1



ASTRAL[®] PIPES

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