ASTRAL PIPES

CELEBRATING 25 YEARS OF TRUST & INNOVATION

MULTIPEX

PEX-AL-PEX 3 Layer Composite Piping System
For Hot And Cold Water Plumbing Application

COLD

HOT



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1st TO INTRODUCE LOW NOISE PP DRAINAGE PIPES IN INDIA

1st TO INTRODUCE FOAMED PVC DRAINAGE PIPES IN INDIA



1st TO INTRODUCE LEAD FREE COLUMN PIPES IN INDIA

1st TO INTRODUCE POLYMER BASED INDUSTRIAL PIPING SYSTEM IN INDIA

1st TO INTRODUCE NSF APPROVED SOLVENT CEMENT IN INDIA

1st TO INTRODUCE CPVC PIPING FOR AUTOMATIC FIRE SPRINKLER SYSTEM IN INDIA

ASTRAL, INDIA'S PROGRESSIVE BUILDING MATERIALS COMPANY

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 the 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 its highest quality enabled it to obtain NSF approval for its CPVC pipes and fittings. Astral went beyond the 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, Ghiloth in Rajasthan, Sangli & Aurangabad in Maharashtra, Cuttack in Odisha, Sitarganj in Uttarakhand and Guwahati in Assam 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' Infrastructure division offers a comprehensive product range including corrugated piping for drainage and cables, polyolefin cable channels, sewage treatment plants, plastic sheathing ducts, suction hoses, 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.

In 2014, Astral forayed into the adhesives category by acquiring UK-based Seal It Services Ltd. and Kanpur based Resinova Chemie Ltd., which manufacture 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.

In the year 2020, Astral has expanded its product portfolio and entered into the Water Tanks Segment. The water tank segment is an expanded domain of plumbing and water supply with a huge nationwide potential. Astral Pipes manufactures water tanks from its Santej, Aurangabad, Cuttack, Hosur, Ghiloth & Guwahati manufacturing facilities. A wide range of water storage tanks has helped Astral to become a versatile player in the industry.

Extending the product portfolio further, in the year 2022 Astral forayed into the categories of Faucets and Sanitaryware, followed by acquisition of Bangalore based Gem Paints to enter in the Paints category. This expansion will help Astral march firmly towards becoming a holistic building materials company.

ADHESIVES

- EPOXY ADHESIVES & PUTTY
- SILICONE SEALANTS
- CONSTRUCTION CHEMICALS
- PVA
- CYANOACRYLATE
- SOLVENT CEMENTS
- TAPES
- POLYMERIC FILLING COMPOUND
- ANAEROBIC ADHESIVES
- INDUSTRIAL ADHESIVES
- INSTANT HAND SANITIZER
- SURFACE CLEANING PRODUCTS

PIPING

- PLUMBING PIPES & FITTINGS
- SEWERAGE DRAINAGE PIPES & FITTINGS
- AGRICULTURE PIPES & FITTINGS
- INDUSTRIAL PIPES & FITTINGS
- FIRE SPRINKLERS PIPES & FITTINGS
- CONDUIT & CABLE PROTECTION
- ANCILLARY PRODUCTS
- URBAN INFRASTRUCTURE
- DUCTING

WATER TANKS

PAINTS

FAUCETS

SANITARYWARE



Astral Multipex

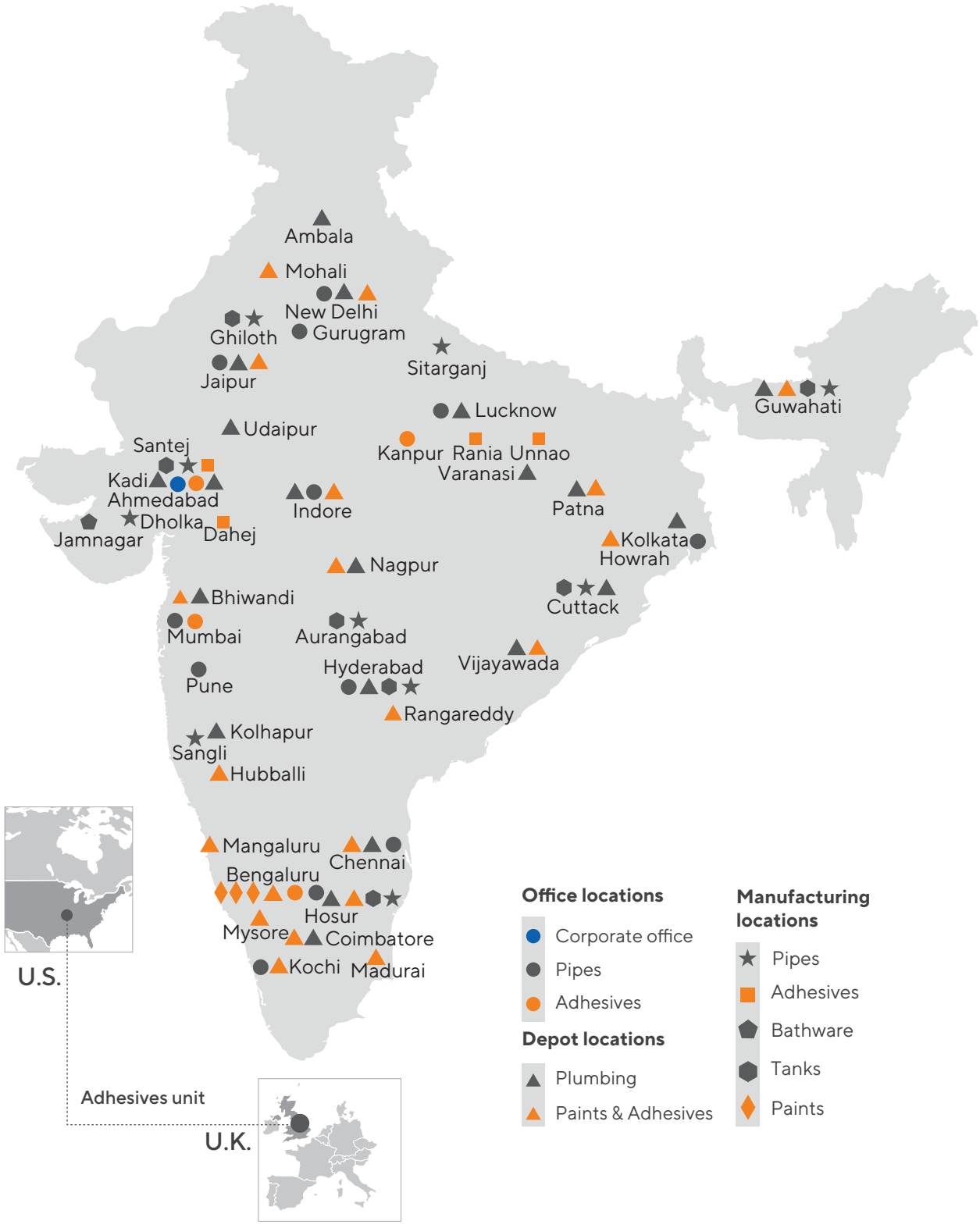


INNOVATION & RECOGNITIONS

- First to introduce CPVC piping system in India (1999)
- First to launch lead free uPVC piping system in India (2004)
- Corp Excel- National SME Excellence Award (2006)
- First to get NSF Certification for CPVC piping system in India (2007)
- First to launch lead-free uPVC column pipes in India (2012)
- Enterprising Entrepreneur of the year (2012-13)
- Business Standard Star SME of the year (2013)
- Inc. India Innovative 100 for Smart Innovation under category of 'Technology' (2013)
- India's Most Promising Brand Award (2014)
- Value Creator Award during the first ever Fortune India Next 500 (2015)
- India's Most Trusted Pipe Brand Award (2016, 2019, 2020 & 2022)
- ET Inspiring Business Leaders of India Award (2016)
- India's Most Attractive Pipe Brand Award (2016)
- Fortune India 500 Company (2016)
- India's Most Desired Pipe Brand Award (2022)
- Consumer Validated Superbrands India (2017, 2019 & 2021-2022)

MARKETING NETWORK

Astral has a marketing network of more than 800 distributors and 30,000 dealers spread all over India with branch offices at Mumbai, Pune, Delhi, Bengaluru, Chennai, Hyderabad, Jaipur, Lucknow and Kochi. Apart from that Astral has its own warehouses at Vijaywada, Hyderabad, Delhi, Kolhapur, Kolkata, Nagpur, Indore, Patna, Varanasi, Jaipur, Hosur & Guwahati to deliver the material as quick as possible. More than 400 techno marketing professionals and administrative personnel are on the board to coordinate with architects, plumbing contractors and plumbers to utilize the best plumbing techniques and to get the best from the products.

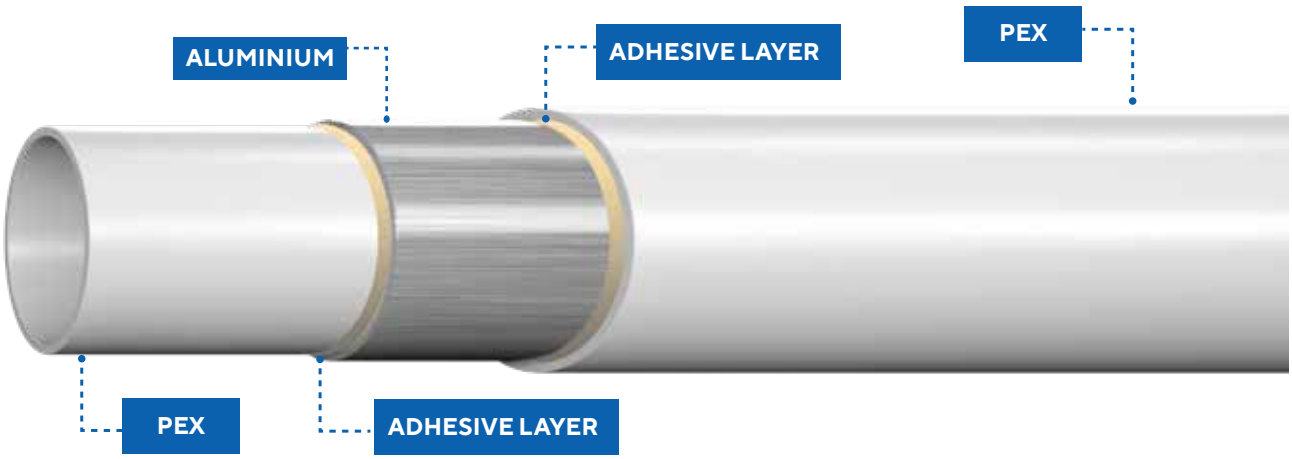


MULTIPEX

ABOUT **MULTIPEX**

Astral's MultiPex pipe represents an advanced multilayer (PEX-AL-PEX) composite piping solution that seamlessly amalgamates the strengths of PEX (Cross-Linked Polyethylene) and aluminum while mitigating inherent drawbacks. Comprising a cross-linked polyethylene inner and outer layer with an aluminum middle layer, this innovative pipe offers enhanced strength, rigidity, and durability. The aluminum layer acts as a robust barrier against oxygen diffusion, preventing corrosion and algae growth, making it suitable for continuous operation at temperatures up to 95°C. The preferred and professional choice for joining this pipe is through the efficient crimping method, using specialized tools and fittings, ensuring a secure, leak-proof connection that meets rigorous industry standards. Overall, Astral's MultiPex pipe, coupled with the crimping process, stands as a reliable, durable, and efficient solution for various applications.

CONSTRUCTION OF MULTIPEX PIPE:



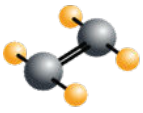
Astral Multipex pipes, crafted through the Silane cross-linking method, are recognized and widely accepted for their quality. This proven manufacturing technique adheres to industry standards, ensuring the reliability and superior performance of the plumbing system.

Inner layer of pipe: Cross-linked polyethylene (PEX) for flexibility, heat resistance, and corrosion resistance
Adhesive layers: Bonds the inner PEX layer to the aluminum layer
Aluminum layer: The aluminum layer provides multiple benefits like helps to reduce thermal expansion and contraction, Oxygen barrier, Improved dimensional stability, increased pressure resistance & improved strength and durability
Adhesive layer: Bonds the aluminum layer to the outer PEX layer
Outer layer: PEX layer provides flexibility and abrasion resistance

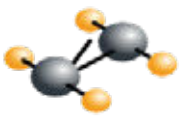
CROSS-LINKED POLYETHYLENE (PE-X)

Cross-linked polyethylene (PE-X) was first used in Europe in the 1960s, primarily for cable insulation. Polyethylene (PE) is a plastic material made by polymerizing ethylene gas. Regular polyethylene consists of simple ethylene chains without cross-linking, held together by weak forces. At high temperatures, these weak forces fail, causing the material to soften, deform, and melt.

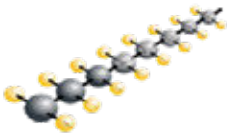
Cross-linking is a process that creates strong bonds between polyethylene chains, enhancing resistance to pressure and temperature. This process partially transforms polyethylene from a thermoplastic into a thermoset, measured by its degree of cross-linking or gelling. This makes cross-linked polyethylene ideal for pipes handling water at high pressures and temperatures.



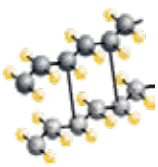
Ethylene



Polymerization



Polyethylene (PE)



Cross-linked polyethylene (PE-X)

ADVANTAGES OF MULTILAYER SYSTEMS

Superior pressure and temperature resistance: Compared to single-layer plastic pipes, Multipex pipes can withstand higher pressures and temperatures, making them suitable for demanding applications like hot water systems and hydronic heating.

Bending without kinking: Unlike rigid metal pipes, Multipex pipes are flexible and can easily bend around corners and obstacles without kinking or cracking. This simplifies installation and reduces the need for elbows and fittings, saving time and labor costs. (**Note:** Bending by help of spring only.)

Lower thermal expansion: Unlike metal pipes, Multipex pipes have a lower coefficient of thermal expansion, meaning they expand and contract less with temperature changes. This reduces stress on the pipes and fittings and minimizes the risk of leaks.

Corrosion resistance: Multipex pipes are resistant to corrosion from both internal water and external elements, extending their lifespan and reducing maintenance needs.

Lightweight and compact: Compared to metal pipes, Multipex pipes are lightweight and easier to handle, making them ideal for retrofitting or tight spaces.

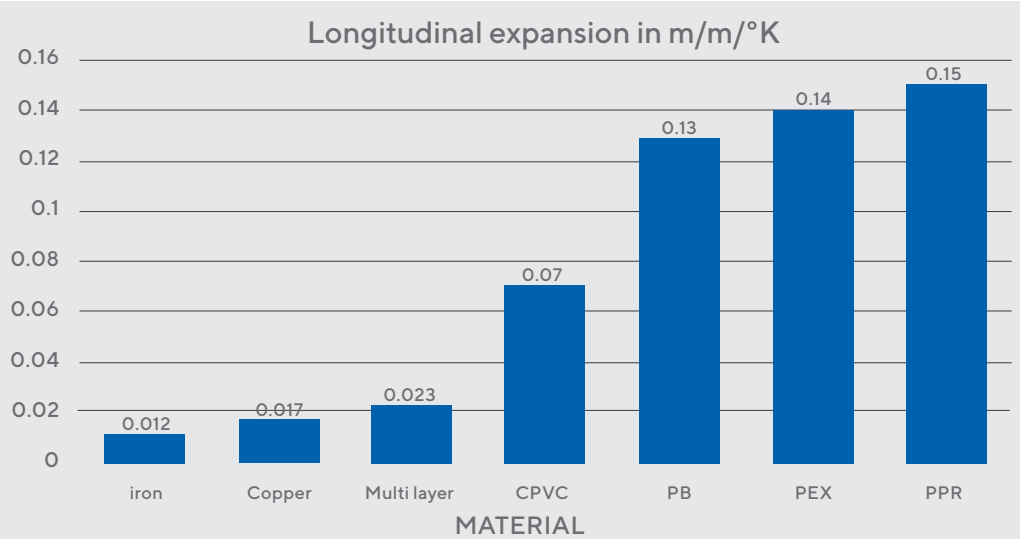
Noise reduction: The Multipex construction helps dampen the sound of water flowing through the pipes, creating a quieter plumbing system.

Hygienic: The inner PEX layer of Multipex pipe is smooth and non-porous, preventing the build-up of bacteria and ensuring safe drinking water.

No waiting times: The Astral Multipex system with crimping joints, eliminates settling time of joints.

LONGITUDINAL EXPANSION

Thanks to its aluminum core, Multipex pipes provide superior advantages over regular plastic pipes. They have higher strength to withstand internal pressure and act as an effective oxygen barrier. With lower expansion,they requirefewer supports and offer a longer lifespan as the aluminum layer handles stress better than plastic. Their stable shape reduces the need for accessories and simplifies installation, especially in underfloor heating systems.



APPLICABLE STANDARD

EN ISO 21003: Multilayer piping systems for hot & cold-water installations inside buildings

PHYSICAL AND MECHANICAL PROPERTIES

Properties	Unit	Value
Linear Expansion	m/m/°K	0.025
Thermal conductivity	W/mk	R=0.4
Maximum working temperature	°C	95
Maximum punctual temperature	°C	110
Maximum working pressure@ 95° C	Kg/cm2	10
Roughness	mm	E=0.0004
Density	gr/cm3	1.47
Oxygen permeability	mg/l*d	0
Degree of cross-linking	%	> 65%

TECHNICAL SPECIFICATION
PIPES

Pipe Size (mm)	Outer Diameter (mm)	Tolerance on OD (mm)	Pipe Thickness (mm)	Pipe (Coils)(m)	Pipes (Straight Length) (m)
16	16	0.2	2.0	100	5
20	20	0.2	2.0	100	4
25	25	0.2	2.5	100	4
32	32	0.2	3.0	50	4
40	40	0.2	3.5	-	4
50	50	0.3	04	-	4

KEY PROPERTIES AND BENEFITS



RESISTANCE TO HIGH TEMPERATURES

Multipex pipes are designed to operate at standard working temperatures of up to 95°C and can handle occasional spikes up to 110°C.



FROST RESISTANCE

Multipex pipes are resistant to damage caused by water freezing within the circuit during frost conditions.



RESISTANCE TO HIGH PRESSURES

Due to their superior manufacturing process, Multipex pipes provide significantly higher resistance to high pressures compared to pipes made with other crosslinking systems. Their internal and tensile pressure resistance exceeds other systems by more than 35%.



LOW THERMAL CONDUCTIVITY

With a low thermal conductivity coefficient of 0.4 m/m/°K, cross-linked polyethylene pipes help reduce heat loss, leading to energy savings. Their poor heat conductivity makes them excellent thermal insulators.



NON-CONDUCTIVE OF ELECTRICITY

Multipex pipes do not produce any galvanic corrosion.



ABSENCE OF CONDENSATION

The low thermal conductivity of Multipex pipes significantly reduces the formation of condensation and its related issues. This makes them ideal for various applications, including plumbing in humid environments, air conditioning systems, and industrial settings where controlling condensation is essential.



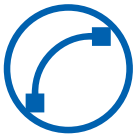
LIGHTWEIGHT

Multipex pipes are lightweight, making them easier to handle and transport.



FLEXIBILITY

The flexibility of Multipex pipes saves number of joints and reduces installation times.



CLOSED RADII OF CURVATURE

The maximum radius of curvature for Multipex pipes is four times the pipe diameter when bent using a curved spring.



NOISE REDUCTION

Due to their polyethylene composition and flexibility, Multipex pipes effectively reduce noise transmission and support higher water flow speeds. Cross-linked polyethylene pipes remain silent at flow speeds of up to 2.5 m/sec.



CORROSION RESISTANCE

Multipex pipes are resistant to most chemical agents, including acids, bases, and antifreeze, and are immune to all types of corrosion.



HIGHER FLOW RATES

Thanks to their smooth surface. Multipex pipes have lower pressure losses than metal pipes. with them higher flows are achieved at equal internal diameters.



RESISTANCE TO LIMESCALE AND DEPOSITS

Thanks to their extremely smooth surfaces, Multipex pipes prevent the buildup of limescale and other deposits commonly found in metal pipes. This ensures that the flow rate remains consistent throughout the pipe's lifespan.



LONGEVITY

Under normal conditions, Multipex pipes can last over 50 years, even at high temperatures and pressures. In any case, they offer a longer lifespan than any metal pipe.



SUITABLE FOR DRINKING WATER

Multipex pipes maintain the organoleptic properties of water, ensuring its taste, smell, and appearance remain unaffected. Approved by health authorities in the European Union, they preserve water purity and prevent the scaling issues often seen in copper pipes.



PREVENTION OF FUNGAL GROWTH

Multipex pipes are specifically designed to prevent the growth of fungi in the water, ensuring clean and safe water circulation.

FIELDS OF APPLICATION:



RADIANT HEATING SYSTEMS



UNDERFLOOR HEATING AND COOLING SYSTEMS



PLUMBING WATER SYSTEMS



INDUSTRIAL APPLICATIONS

DESCRIPTION OF THE MULTIPEX ACCESSORY

MULTIPEX fittings are offered in two distinct types of joining systems to meet various installation needs:
Compression Fitting (Crimping) | Press Fitting (Push-Fit) System
These fittings are crafted from high-quality materials, including zinc-plated brass and PPSU, ensuring exceptional strength and resistance to corrosion. The design of MULTIPEX fittings guarantees a secure, leakage-free connection, providing reliable performance over time. Whether using the compression fitting (crimping) method or the press fitting (push-fit) system, these fittings are engineered for long-lasting durability and dependability, making them ideal for both residential and commercial applications.

ADVANTAGES OF THE MULTIPEX ACCESSORY

1 The bushing has a device for positioning the clamp in relation to the shape of the accessory, significantly improving its resistance to tensile forces.

2 Double anti-corrosion chamber. A special rubber gasket housed in the bushing prevents contact between the three metals of the system (stainless steel, nickel-plated brass and aluminum) completely eliminating the possibility of water both inside and outside the tube (condensation by temperature change, humidity of the plaster, etc.) can come into contact with aluminum beginning its corrosion.

3 Safety locking system/Auto-interlock. It facilitates the tightening of the case-quill preventing the accessory from coming out of the tube during the pressing operation.

4 MULTIPEX accessory complies with the most demanding regulations, which guarantees its stability and sanitary qualities.





CRIMPING JOINING METHOD

Crimping is a mechanical joining method used to connect pipes and fittings in plumbing systems. It is a popular choice for both residential and commercial applications due to its ease of use. reliability. and affordability. Crimping involves using a specialized tool to compress a metal ring around the pipe and fitting. This compression creates a tight seal that prevents leaks.

BENEFITS OF CRIMPING FITTING

Ease of use: Crimping is a relatively simple process that can be learned with minimal training.

Affordability: Making it a cost-effective solution for plumbing projects.

No waiting time: The Astral Multipex system eliminates the time of waiting before you can perform the pressure test, and put the installation to work immediately.

Strength and durability: Crimped joints are extremely strong and durable, and they can withstand high pressure and temperatures.

Leak-proof: Crimped joints are leak-proof, and they are less likely to fail than other types of joints. This is because the crimping process creates a tight seal between the pipe and the fitting.

Ease of use: Crimping is a relatively easy method to use, and it does not require any specialized skills or training. This makes it a good choice for plumbing professionals& contractors.

Quick & Fast Installation: Crimping is a fast method of joining pipes, and it can be completed in a matter of minutes. This can save time and labor cost on plumbing projects.

Safe for Environment & Human Bing: This method does not require the use of any solvent cement or other adhesive to join the pipe and fitting.

MULTIPEX PUSH-FIT FITTINGS

The Push-fit fittings stand out as the tool-free push fittings suitable for Multipex pipes. The patented technology of the Push-fit fittings is centred around its unique metal pipe clamping bushing, making it toolless push-fitting available in the market. This bushing is crafted from a special steel and undergoes heat treatments to provide a spring effect, a technology derived from the Japanese automobile industry. This innovative fitting allows for completely safe & leakproof connections without the need for any tools or solvents.

PUSH FIT JOINING METHOD

The push-fit joining method is a convenient and efficient technique for connecting Multipex pipe & fittings without the need for additional tools, adhesives, or specialized equipment. It is widely used in various applications, including plumbing, heating, and industrial systems. The push-fit joining method helps to complete projects by reducing installation time, quick & fast installation.





BENEFITS

Conic design of the final part of the body of the fitting: This design improves the safety of the union when the union is working under stresses and flexion efforts.

Sealing gasket much wider than traditional O-rings: This greater width reduces the risk of joint displacement when fitting the pipe in the fitting.

Higher sealing gasket on the nipple level: This increased lift increases the safety of the fitting as it absorbs the dimensional tolerances of the pipe.

Cap with swivel capacity: It allows to orient the fitting according to the needs of the installer.

Maximum pipe length inserted into the external cap of the fitting: The design of the fitting allows the pipe to be introduced till the end of the fitting. This improves the safety of the union.

Ensuring Proper fitment with a Visual Inspection: The external transparent cap of the fittings will let you check visually that the pipe has been correctly inserted.

Design of retainer: The retainer ring is designed so that the force of insertion of the pipe is minimal and, instead, so that the force necessary for the extraction of the pipe is very high.

PRODUCT RANGE



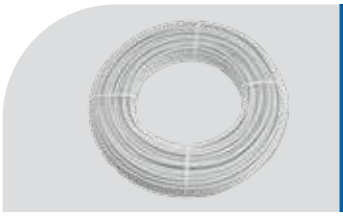






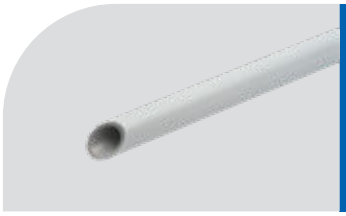
PEX-AL-PEX 3 LAYER COMPOSITE PIPING SYSTEM

MULTIPEX



PIPES - (COIL)

Size (cm)	Size (mm)	Length (m)	Product Code	Std. Pkg. (Nos.)
1.6	16	100	MULPTB1620100	01
2.0	20	100	MULPTB2020100	01
2.5	25	100	MULPTB2525100	01
3.2	32	50	MULPTB3230050	01



PIPES (STRAIGHT LENGTH)

Size (cm)	Size (mm)	Length (m)	Product Code	Std. Pkg. (Nos.)
1.6	16	4	MULPTB1620004	40
2.0	20	4	MULPTB2020004	30
2.5	25	4	MULPTB2525004	20
3.2	32	4	MULPTB3230004	12
4.0	40	4	MULPTB4035004	10
5.0	50	4	MULPTB5040004	07

MULTIPEX FITTINGS-CRIMP FIT & ACCESSORIES



TEE (PPSU)

Size (cm)	Size (mm)	Product Code	Std. Pkg. (Nos.)
1.6	16	MULPPLKT16	40
2.0	20	MULPPLKT2X	35
2.5	25	MULPPLKT25	20
3.2	32	MULPPLKT32	20



REDUCER TEE (PPSU)

Size (cm)	Size (mm)	Product Code	Std. Pkg. (Nos.)
2.0x1.6x1.6	20x16x16	MULPPLKT2X166	35
2.0x1.6x2.0	20x16x20	MULPPLKT2X16X	35
2.0x2.0x1.6	20x20x16	MULPPLKT2X2X6	35
2.5x1.6x2.5	25x16x25	MULPPLKT25165	20
2.5x2.0x2.0	25x20x20	MULPPLKT252XX	20
2.5x2.0x2.5	25x20x25	MULPPLKT252X5	20
2.5x2.5x2.0	25x25x20	MULPPLKT2525X	20
3.2x2.0x3.2	32x20x32	MULPPLKT322X2	20
3.2x2.5x3.2	32x25x32	MULPPLKT32252	20



COUPLER (PPSU)

Size (cm)	Size (mm)	Product Code	Std. Pkg. (Nos.)
1.6	16	MULPPLKMU16	50
2.0	20	MULPPLKMU2X	50
2.5	25	MULPPLKMU25	40
3.2	32	MULPPLKMU32	20



REDUCER COUPLER (PPSU)

Size (cm)	Size (mm)	Product Code	Std. Pkg. (Nos.)
2.0X1.6	20X16	MULPPLKMR2X16	50
2.5X2.0	25X20	MULPPLKMR252X	40
3.2X2.5	32X25	MULPPLKMR3225	20

MULTIPEX FITTINGS-CRIMP FIT & ACCESSORIES



ELBOW (PPSU)

Size (cm)	Size (mm)	Product Code	Std. Pkg. (Nos.)
1.6	16	MULPPLKC16	50
2.0	20	MULPPLKC2X	40
2.5	25	MULPPLKC25	30
3.2	32	MULPPLKC32	20



MALE ADAPTER (BRASS)

Size (cm)	Size (mmxinch)	Product Code	Std. Pkg. (Nos.)
1.6 x ½"	16 x ½	MULPTHKRC1612	50
1.6 x ¾"	16 x ¾	MULPTHKRC1634	50
2.0 x ½"	20 x ½	MULPTHKRC2X12	50
2.0 x ¾"	20 x ¾	MULPTHKRC2X34	30
2.5 x ¾"	25 x ¾	MULPTHKRC2534	40
2.5 x 1"	25 x 1	MULPTHKRC251	20
3.2 x 1"	32 x 1	MULPTHKRC321	20



FEMALE ADAPTER (BRASS)

Size (cm)	Size (mmxinch)	Product Code	Std. Pkg. (Nos.)
1.6 x ½"	16 x ½	MULPTHKRH1612	50
2.0 x ¾"	20 x ¾	MULPTHKRH2X34	50
2.0 x ½"	20 x ½	MULPTHKRH2X12	50
2.5 x ¾"	25 x ¾	MULPTHKRH2534	40
2.5 x 1"	25 x 1	MULPTHKRH251	20
3.2 x 1"	32 x 1	MULPTHKRH321	20



ELBOW WITH FIXING BASE (BRASS)

Size (cm)	Size (mm)	Product Code	Std. Pkg. (Nos.)
1.6 x½"	16 x½"	MULPTHKCBF162	25
2.0 x ½"	20 x ½"	MULPTHKCBF2X2	25



SHUT OFF VALVE (BRASS)

Size (cm)	Size (mm)	Product Code	Std. Pkg. (Nos.)
1.6	16	MULPTHCUVSO16	20
2.0	20	MULPTHCUVSO2X	20
2.5	25	MULPTHCUVSO25	20



REDUCER COUPLER (BRASS)

Size (cm)	Size (mmxmm)	Product Code	Std. Pkg. (Nos.)
4.0x3.2	40x32	MULPAIKMU40	20
5.0x4.0	50x40	MULPAIKMU50	10



BALL VALVE (BRASS)

Size (cm)	Size (mm)	Product Code	Std. Pkg. (Nos.)
2.0	20	MULPTHVABVI2X	20
2.5	25	MULPTHVABVI25	20
3.2	32	MULPTHVABVI32	10



END CAP -MALE (BRASS)

Size (cm)	Size (mmxmm)	Product Code	Std. Pkg. (Nos.)
1.6	16	RPERALAEM16	150
2.0	20	RPERALAEM20	100
2.5	20	RPERALAEM25	50
3.2	25	RPERALAEM32	30



END CAP -FEMALE (BRASS)

Size (cm)	Size (mm)	Product Code	Std. Pkg. (Nos.)
1.6	16	RPERALAEH16	50
2.0	20	RPERALAEH20	50
2.5	25	RPERALAEH25	50
3.2	32	RPERALAEH32	40



TEE (BRASS)

Size (cm)	Size (mmxmm)	Product Code	Std. Pkg. (Nos.)
4.0	40	MULPAIKT40	10
5.0	50	MULPAIKT50	05



TEE FEMALE THREADED (BRASS)

Size (cmxinch)	Size (mmxinch)	Product Code	Std. Pkg. (Nos.)
1.6 x ½	16 x ½	MULPTHKSH1612	40
2.0 x ½	20 x ½	MULPTHKSH2X12	35
40 x 1	40 x 1	MULPAIKSH401	10
50 x 1½	50 x 1½	MULPAIKSH5012	05



REDUCER TEE (BRASS)

Size (cm)	Size (mmxmm)	Product Code	Std. Pkg. (Nos.)
4.0x3.2x3.2	40x32x32	MULPAIKT40322	10
4.0x3.2x4.0	40x32x40	MULPAIKT40320	10



THREADED ELBOW FIXING BASE SHORT (BRASS)

Size (cmxinch)	Size (mmxinch)	Product Code	Std. Pkg. (Nos.)
2.0 x ¾	20 x ¾	MULPTHKTC2X34	40



COUPLER (BRASS)

Size (cm)	Size (mmxmm)	Product Code	Std. Pkg. (Nos.)
4.0	40	MULPAIKMU40	20
5.0	50	MULPAIKMU50	10



ELBOW (BRASS)

Size (cm)	Size (mm)	Product Code	Std. Pkg. (Nos.)
4.0	40	MULPAIKC40	10
5.0	50	MULPAIKC50	05

MULTIPEX FITTINGS-CRIMP FIT & ACCESSORIES



SHUT-OFF VALVE HIDDEN REGULATION

Product Code	Std. Pkg. (Nos.)
PRETALMFSOM	20



SHUT-OFF VALVE LEVER HANDLE

Product Code	Std. Pkg. (Nos.)
PRETALMPAPVAB	20



SHUT-OFF VALVE HANDLE

Product Code	Std. Pkg. (Nos.)
PRETALMPOMVAE	20



CRIMPING TOOL

Size (cm)	Size (mm)	Product Code	Std. Pkg. (Nos.)
1.6-2.0-2.5-3.2	16-20-25-32	MULPACO103	01
4.0	40	JAWPB1U40	01
5.0	50	MULPACO203	01



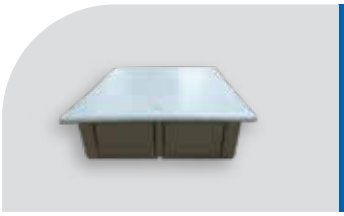
MANIFOLD WITH THROTTLING VALVE

Size (inch - nobs)	Product Code	Std. Pkg. (Nos.)
¾ - 2	C522N00TV	30
¾ - 3	C523N00TV	20
¾ - 4	C524N00TV	15



MANIFOLD - NORMAL

Size (inch - nobs)	Product Code	Std. Pkg. (Nos.)
¾ - 2	PRETALCOL234	30
¾ - 3	PRETALCOL334	20



PLAST BOX + BRAKETS WHITE

Size (cm x inch)	Product Code	Std. Pkg. (Nos.)
29.0x33.0x8.8	A32410A	01



MANUAL CRIMPING TOOL

Size (cm)	Size (mm)	Product Code	Std. Pkg. (Nos.)
1.6	16	JT1632B	01



COUPLER (PPSU)

Size (cm)	Size (mm)	Product Code	Std. Pkg. (Nos.)
1.6	16	IXPRPLKMU16	40
2.0	20	IXPRPLKMU20	40
2.5	25	IXPRPLKMU25	25
3.2	32	IXPRPLKMU32	15



REDUCER COUPLER (PPSU)

Size (cmxcm)	Size (mmxmm)	Product Code	Std. Pkg. (Nos.)
2.0x1.6	20x16	IXPRPLKMR2016	40
2.5x2.0	25x20	IXPRPLKMR2520	25
3.2x2.5	32x25	IXPRPLKMR3225	15



FEMALE TEE (BRASS)

Size (cmxinch)	Size (mmxinch)	Product Code	Std. Pkg. (Nos.)
1.6 x ½	16 x ½	IXPRABKSH1612	30
2.0 x ½	20 x ½	IXPRABKSH2012	25



ELBOW WITH FIXING BASE (BRASS)

Size (cmxinch)	Size (mmxinch)	Product Code	Std. Pkg. (Nos.)
1.6 x ½	16 x ½	IXPRABKCBF162	30
2.0 x ½	20 x ½	IXPRABKCBF202	30



REDUCER TEE (PPSU)

Size (cmxcmxcm)	Size (mmxmmxmm)	Product Code	Std. Pkg. (Nos.)
2.0x1.6x1.6	20x16x16	IXPRPLKT20166	30
2.0x1.6x2.0	20x16x20	IXPRPLKT20160	30
2.0x2.0x1.6	20x20x16	IXPRPLKT20206	30
2.5x1.6x2.5	25x16x25	IXPRPLKT25165	15
2.5x2.0x2.0	25x20x20	IXPRPLKT25200	15
2.5x2.0x2.5	25x20x25	IXPRPLKT25205	15
2.5x2.5x2.0	25x25x20	IXPRPLKT25250	15



ELBOW (PPSU)

Size (cm)	Size (mm)	Product Code	Std. Pkg. (Nos.)
1.6	16	IXPRPLKC16	40
2.0	20	IXPRPLKC20	40
2.5	25	IXPRPLKC25	25
3.2	32	IXPRPLKC32	15



TEE (PPSU)

Size (cm)	Size (mm)	Product Code	Std. Pkg. (Nos.)
1.6	16	IXPRPLKT16	30
2.0	20	IXPRPLKT20	25
2.5	25	IXPRPLKT25	15
3.2	32	IXPRPLKT32	10

MULTIPEX FITTINGS-PUSH FIT & ACCESSORIES



FEMALE ELBOW (BRASS)

Size (cmxinch)	Size (mmxinch)	Product Code	Std. Pkg. (Nos.)
1.6 x ½	16 x ½	IXPRABKTC1612	40
2.0 x ½	20 x ½	IXPRABKTC2012	40
2.5 x ¾	25 x ¾	IXPRABKTC2034	35



FEMALE ADAPTER (BRASS)

Size (cmxinch)	Size (mmxinch)	Product Code	Std. Pkg. (Nos.)
1.6 x ½	16 x ½	IXPRABKRH1612	40
2.0 x ½	20 x ½	IXPRABKRH2012	40
2.5 x ¾	25 x ¾	IXPRABKRH2534	30
3.2 x 1	32 x 1	IXPRABKRH321	20



MALE ADAPTER (BRASS)

Size (cmxinch)	Size (mmxinch)	Product Code	Std. Pkg. (Nos.)
1.6 x ½	16 x ½	IXPRABKRC1612	40
2.0 x ½	20 x ½	IXPRABKRC2012	40
2.0 x ¾	20 x ¾	IXPRABKRC2034	40
2.5 x ¾	25 x ¾	IXPRABKRC2534	30
3.2 x 1	32 x 1	IXPRABKRC321	20



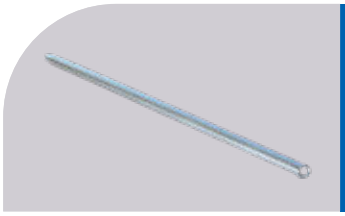
CALIBRATOR TOOL

Size (cm)	Size (mm)	Product Code	Std. Pkg. (Nos.)
1.6-2.0-2.5-3.2	16-20-25-32	IXPRHTCAL1632	01



CHAMFERING& CALIBRATOR TOOL

Size (cm)	Size (mm)	Product Code	Std. Pkg. (Nos.)
2.0/2.5/3.2	20-25-32	IXPRHTK202532	01



BENDING PIPE INNER SPRING

Size (cm)	Size (mm)	Product Code	Std. Pkg. (Nos.)
2.0	20	MULPINRSP20	01
2.5	25	MULPINRSP25	01



EXTERNAL SPRING FOR BENDING

Size (metre)	Product Code	Std. Pkg. (Nos.)
16	MULPEXTSP16	01
20	MULPEXTSP20	01
25	MULPEXTSP25	01
32	MULPEXTSP32	01



PTFE TAPE (12 MM WIDTH)

Size (metre)	Product Code	Std. Pkg. (Nos.)
4	M003302004	01
8	M003302007	01
8	M003302017	01



RATCHET CUTTER

Size (cm)	Size (mm)	Product Code	Std. Pkg. (Nos.)
1.5 - 3.2	½ - 1¼	TTOOLS-1Ø	01



BONDSET FAST SETTING

Qty. (gm)	Product Code	Std. Pkg. (Nos.)
50	M000702051	01
100	M000702050	01

Note: Material is available under scheme only till the stock lasts.

CALCULATION OF DISTANCES BETWEEN SUPPORTS

Longitudinal Expansion

The pipes and fittings in the Multipex system are designed for plumbing and heating installations, offering flexibility in installation methods. The installer or designer must decide on the best installation approach, whether through false ceilings or wall partitions. This section explains the precautions needed to manage the system's thermal expansion.

The key factor is the temperature difference between the pipe's temperature when transporting hot water and the temperature at which the pipe was installed.

Installation of upright columns

For upright columns, which have multiple branches leading to each floor, longitudinal expansion is generally not an issue if the pipes are correctly installed and clamped. The spacing between clamps or fasteners for pipes without leads should not exceed 1.5 meters (for cold-water pipes). It's important that pipe outlet holes in floors are large enough to allow the pipe to move freely.

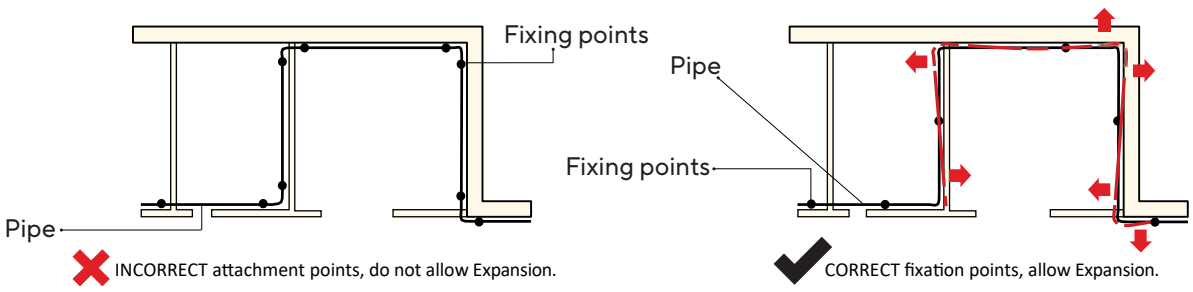
Exposed or Suspended Ceiling Installations

In these cases, longitudinal expansion will occur due to temperature changes. The designer must account for this expansion by using bending arms or expansion loops. However, Multipex pipes' dimensional stability and low coefficient of expansion make them suitable for use without special design or installation precautions related to longitudinal expansion.

Nominal Pipe Size (mm)	Support Spacing			
	20 °C		80 °C	
	Horizontal (cm)	Vertical (cm)	Horizontal (cm)	Vertical (cm)
16	90	117	85	110
20	98	127	93	121
25	117	152	112	145
32	140	182	134	175
40	161	210	155	202
50	185	241	178	231

When it comes to securing or supporting vertical pipes, the concern isn't the water's weight. Instead, the issue is potential pipe buckling caused by the compressive force from the pipe's expansion. In practical terms, this effect necessitates an approximate 30% increase in the distance between clamps or supports.

Pipes should not be clamps or support near the corner, as these areas of the installation need to serve as flexible joints to accommodate network expansions. If the pipe becomes overly rigid and is not allowed to expand, it could lead to breakage in the installation.



FREE LENGTH AND BENDING ARM

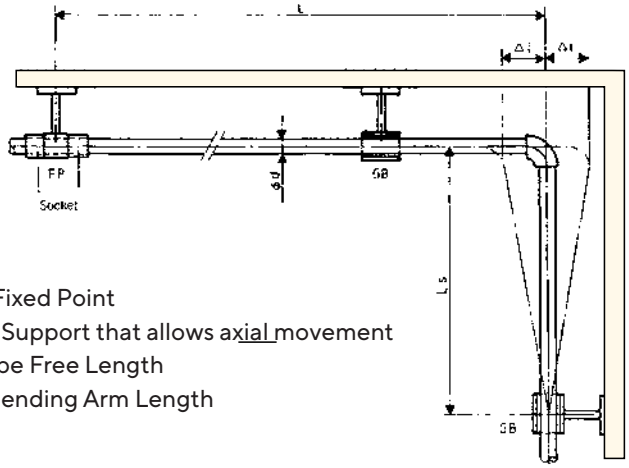
FIXED AND/OR SLIDING SUPPORTS

Fixed supports, or staples, do not allow axial movement of the pipe, whereas sliding supports do. A well-executed installation requires selecting the appropriate type of support based on the situation.

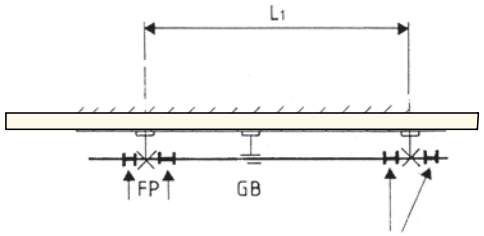
Fixed brackets or clamps: Fixed supports divide the pipe network into sections, and the distance between fixed points must be calculated to account for potential thermal expansion. If the distance between the pipe and the wall or ceiling holding the clip is too large, the clip may not function rigidly and could act as a sliding support. Clamps placed near accessories act as fixed supports.

Sliding brackets or clamps: These supports allow the axial movement of the pipe. Clamps used for this purpose should include rubber inserts to prevent damage to the pipe during sliding motion.

The free length is the length of pipe between two fixed points.



FP = Fixed Point
GB = Support that allows axial movement
L = Pipe Free Length
Ls = Bending Arm Length



CALCULATION OF EXPANSION BEND

When using expansion bends and expansion loops, it is crucial to place the sliding points and fixed points precisely. Use of expansion bends is advised whenever the pipe changes direction. It is always advised that fittings be used to adjust the direction. The minimum length of the expansion bend can be calculated
Using the following formula or you can read it from the diagram below:

$Lb = K \times \sqrt{(D \times \Delta L)}$
with: Lb = length of the expansion bend
K = material constant (=30)
D = outer diameter of the pipe
ΔL = change in length

Outer Diameter (mm)	Longitudinal Expansion (cm) ΔL													
	10	20	30	40	50	60	70	80	90	100	110	120	130	140
16	37.95	53.67	65.73	75.89	84.85	92.95	100.40	107.33	113.84	120.00	125.86	131.45	136.82	141.99
20	42.43	60.00	73.48	84.85	94.87	103.92	112.25	120.00	127.28	134.16	140.71	146.97	152.97	158.75
25	47.43	67.08	82.16	94.87	106.07	116.19	125.50	134.16	142.30	150.00	157.32	164.32	171.03	177.48
32	53.67	75.89	92.95	107.33	120.00	131.45	141.99	151.79	161.00	169.71	177.99	185.90	193.49	200.80
40	60.00	84.85	103.92	120.00	134.16	146.97	158.75	169.71	180.00	189.74	199.00	207.85	216.33	224.50
50	67.08	94.87	116.19	134.16	150.00	164.32	177.48	189.74	201.25	212.13	222.49	232.38	241.87	251.00

Note: Longitudinal Expansion values in expressed in centimetres

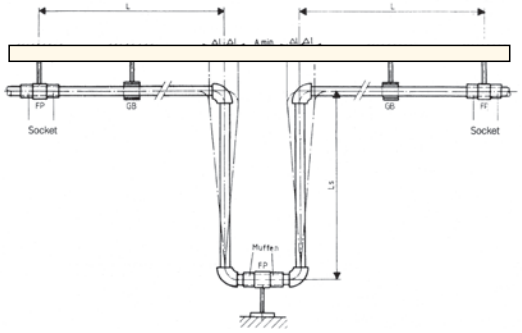
CALCULATION OF EXPANSION LOOP

An expansion loop is used to absorb the expansions and contractions of pipes, especially when the installation path is mostly straight. In such cases, an expansion loop or double bending arms are necessary.

The expansion loop functions similarly to a double bending arm and can be calculated as described earlier. On-site, expansion loops or double bending arms can be created using four 90° elbows.

The tube lengths obtained in the calculation: 2 x Ls + Amin.
The Amin distance shall be considered at least 10 times the outer diameter of the tube.

FP = Fixed point
GB = Support allowing axial movement



THERMAL EXPANSION

Section of pipe (inmeters)	Temperature in Degree Celsius							
	10	20	30	40	50	60	70	80
0.1	0.03	0.05	0.08	0.10	0.13	0.15	0.18	0.20
0.2	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40
0.3	0.08	0.15	0.23	0.30	0.38	0.45	0.53	0.60
0.4	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80
0.5	0.13	0.25	0.38	0.50	0.63	0.75	0.88	1.00
0.6	0.15	0.30	0.45	0.60	0.75	0.90	1.05	1.20
0.7	0.18	0.35	0.53	0.70	0.88	1.05	1.23	1.40
0.8	0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.60
0.9	0.23	0.45	0.68	0.90	1.13	1.35	1.58	1.80
1	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00
2	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00
3	0.75	1.50	2.25	3.00	3.75	4.50	5.25	6.00
4	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00
5	1.25	2.50	3.75	5.00	6.25	7.50	8.75	10.00
6	1.50	3.00	4.50	6.00	7.50	9.00	10.50	12.00
7	1.75	3.50	5.25	7.00	8.75	10.50	12.25	14.00
8	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00
9	2.25	4.50	6.75	9.00	11.25	13.50	15.75	18.00
10	2.50	5.00	7.50	10.00	12.50	15.00	17.50	20.00

THERMAL EXPANSION VALUES EXPRESSED IN MILLIMETERS.

PRESSURE TEST:

As requested by the building standards, it is compulsory to pressure test the water pipelines before covering them. Since the crimping joining is based on the mechanical joining system of the MultiPex pipes, as it is mechanical crimping joint there is zero waiting time after the installation completed. The system should be hydrostatically pressure tested at design pressure x 1.5 times for one hour. When pressure testing, the system should be filled with water and all air removed from the farthest and highest point in the run. If a leak is found, the joint must be cut out and discarded and a new section should be installed using suitable fittings.

CRIMPING JOINING METHOD



Cut the pipe to the desired length.
Use a pipe cutter to cut the pipe. Be sure to make a clean, square cut.



Calibrate & Chamfer the pipe.
To calibrate the pipe, insert the end of the pipe into the calibration gauge. The gauge will show you how far to insert the pipe.



Insert the pipe into the fitting.
Push the pipe all the way into the fitting until it stops.



Press the fitting.
Use a press tool to press the fitting onto the pipe. The tool will automatically press the fitting onto the pipe at the correct pressure.

PUSH FIT JOINING METHOD



Cut the pipe to the desired length.
Use a pipe cutter to cut the pipe. Be sure to make a clean, square cut.



Calibrate & Chamfer the pipe.
To calibrate the pipe, insert the end of the pipe into the calibration gauge. The gauge will show you how far to insert the pipe.



Insert the pipe into the fitting.
Push the pipe all the way into the fitting until it stops.



Push the pipe up to the transparent section of the fitting, ensuring a secure grip and a leak-proof seal in the push-fit joint.

TYPES OF INSTALLATION:

Astral MultiPex flexible plumbing systems can be installed using conventional T-fitting, serial, or manifold installation methods. The choice of system and design depends on the user's needs. Regardless of the installation method, Astral's extensive range of products and fittings ensures the best solutions, helping to save on installation time and costs.

DISTRIBUTION WITH SINGLE CONNECTIONS

This system uses individual piping for both hot and cold water, as shown in the picture. Water flows through a single pipe to the draw-off point, where it is collected.

LARGE FLOW DISTRIBUTION

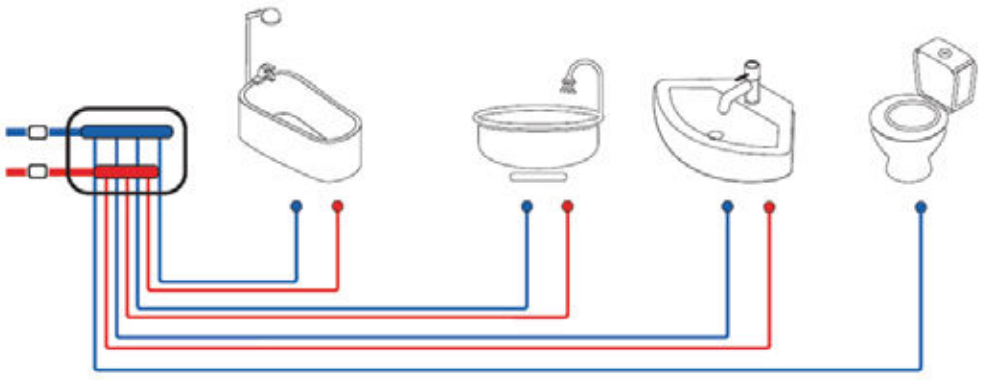
This system uses two pipe connections for hot water, providing larger water flow when needed. It allows a large volume of water to flow with minimal pressure loss. Key benefits of this system include:

- Shorter circuit lengths
- Quick hot water availability for high comfort
- Easy interception of draw-off points on the manifold

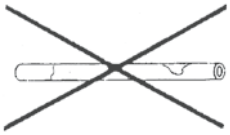
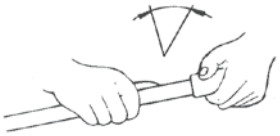
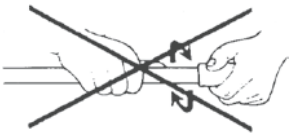
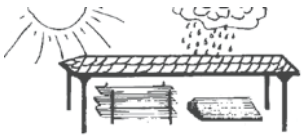
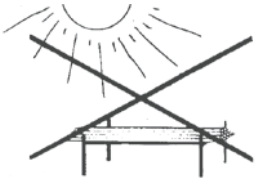
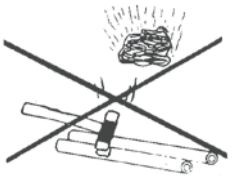
DISTRIBUTION WITH CLOSED CIRCUIT

In this system, draw-off points are connected through double inlet terminals. Instead of individual supply pipes, only one pipe for hot water and one for cold water run through all connections, creating a closed circuit. The benefits of this installation type include:

- A manifold with fewer outputs
- Fewer fittings required
- Pressure balance, allowing for higher flow rates



DO & DON'TS:

Do		Don'ts	
	Unload the pipes carefully.		Impacts and blows should be avoided especially at the extremities of the pipes.
	Cut the pipes with sharp tools so that straight cuts will be obtained without ovulation.		Do not use exposed or surface-cracked tubes.
	Corrections shall be limited to 5° of rotation and shall be made during the time of joint handling.		Do not turn the tube and access it after they are attached.
	Store and transport pipes and fittings protecting from sunlight and rain.		Do not expose pipes and fittings to direct sunlight.
	Cover pipes to prevent the risk of deterioration.		Protect pipes from impacts on the construction site.

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India's Most Trusted *Pipe Brand based on* ***TRA's Brand Trust Report for the 6th time***

ASTRAL PIPES

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