CELEBRATING 25 YEARS OF TRUST & INNOVATION

ASTRAL PIPES

FIREPRO®

CPVC PIPING FOR AUTOMATIC FIRE SPRINKLERS

PRODUCT CATALOGUE

IS : 16088
CM/L - 2865777

c UL us LISTED
CPVC FIRE SPRINKLER PIPE
EX15300

Only Those Products Bearing
The Above Marks Are Certified



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1st TO INTRODUCE CPVC IN INDIA

1st TO INTRODUCE UPVC LEAD FREE PIPES IN INDIA

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 and Sitarganj in Uttarakhand 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 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
CPVC, PVC & PEX
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

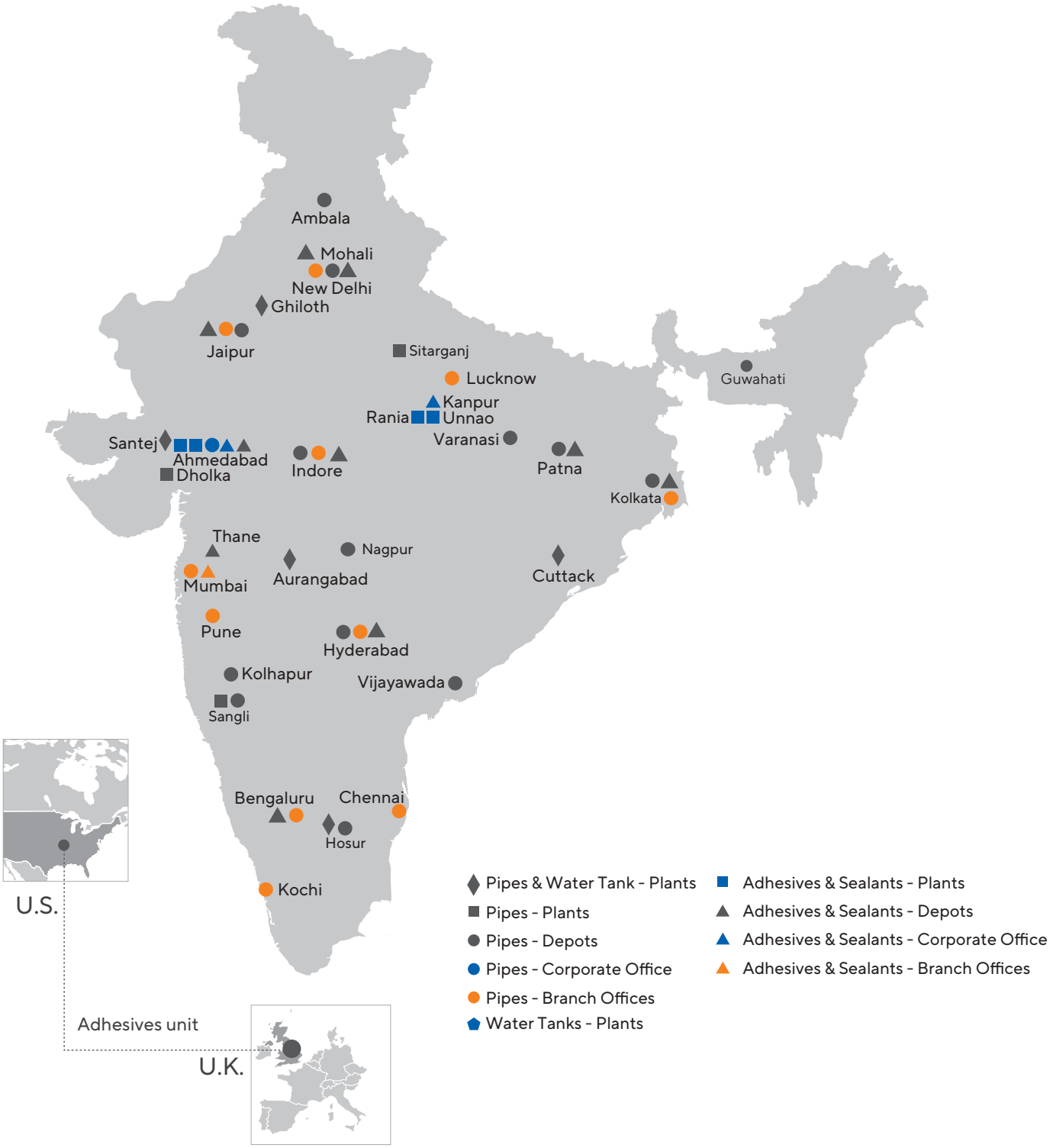


INNOVATION & RECOGNITIONS

- 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)
- 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 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.





ABOUT FIREPRO®

IS : 16088
CM/L - 2865777

1st in India

c UL us
LISTED
CPVC FIRE SPRINKLER PIPE
EX15300

Only Those Products Bearing The Above Marks Are Certified

Astral Fire Pro pipes and fittings are designed specifically for fire sprinkler system. They are made from a special thermoplastic known chemically as Chlorinated Polyvinyl Chloride (CPVC).

Astral Fire Pro pipes and fittings provide unique advantages in sprinkler installations including superior hydraulics, ease of joining, increased hanger spacing in comparison to other thermoplastics and ease of assembly.

Astral Fire Pro is the new industry standard in automtatic fire sprinkler piping system. Astral Fire Pro CPVC pipes and fittings are fully approved for use in all light and ordinary hazardous rooms or otherwise light hazardous applications as per NFPA 13, in both new and retrofit construction, such as:

• High-rise buildings (including residential and commercial) • Schools and Institutions • One and Two family dwellings • Hotels and Hospitals

SYSTEM ADVANTAGES:

- No pre-cutting and expensive fabrication required
- Can be easily connected to the convectional piping systems
- Flexibility in the piping for greater ease of installation
- Resistant to Corrosion and foreign contaminant build up
- Inexpensive tools required for installation
- Easy repairing or modification on site
- Designed for a 50 year life expectancy

KEY PROPERTIES



HIGH FLASH IGNITION TEMPERATURE

Astral Fire Pro CPVC has a flash ignition temperature of 480°C which is the lowest temperature at which sufficient combustible gas is evolved that can be ignited by a small external flame. Many other ordinary combustibles, such as wood, ignite at 260°C or less. Accordingly, Astral Fire Pro system cannot be the ignition source of a fire.



SUPERIOR HYDRAULIC CAPABILITIES

With a Hazen-Williams friction coefficient of C=150, Astral Fire Pro's smooth interior surface offers lower friction loss than metal systems, enables to use smaller pipe diameters and save on material costs.



CORROSION RESISTANCE

Astral Fire Pro pipe gives excellent resistance under the harshest environmental condition. This is due to their high degree of inertness and resistance to corrosion.



NO FLAME SPREAD & LOW SMOKE GENERATION

Astral Firepro CPVC pipe and fittings has no flame spread as well as low Smoke Generation in the case of Fire.



HIGH LOI

Astral Fire Pro CPVC will not sustain burning. It must be forced to burn due to its very high Limiting Oxygen Index (LOI) of 60. Limiting Oxygen Index is a minimum concentration of oxygen that will support combustion of a polymer. LOI is the percentage of oxygen needed in an atmosphere to support combustion. Since earth's atmosphere is only 21% oxygen, Astral Fire Pro CPVC will not burn unless a flame is constantly applied and will stop burning when the ignition source is removed.



TEMPERATURE / PRESSURE RATING

Astral Fire Pro pipes and fittings (¾" - 3" (20 - 80 mm)) are rated for continuous service of 175 psi (1207 KPa) at 150°F (65°C). Astral Fire Pro pipes and fittings are suitable for use in areas where ambient temperatures are within the range of 35°F (2°C) to 150° F (66°C).



HEAT OF COMBUSTION

Astral Fire Pro CPVC has a significantly lower heat of combustion at 7,700 BTU's/lb, compared to Douglas fir at 9,040 BTU's/lb, and polypropylene at nearly 20,000 BTU's/lb. Materials with a high heat of combustion perpetuate a combustible mixture which ignites creating more heat and the burning process becomes self-sustaining.

TYPICAL PHYSICAL PROPERTIES

Sr No.	Parameter	Unit	Typical Value
1	Density	g/cm^3	1.51
2	Tensile Strength	MPa	55
3	Modulus of Elasticity	MPa	2700
4	Compressive Strength, ps	MPa	62
5	Coefficient of Linear Expansion	in./(in. °F)	3.2×10^{-5}
6	Flame Spread Index	--	0
7	Smoke Development Index	--	5-20
8	Limiting Oxygen Index	%	60
9	Flash Ignition Temperature	°C	482
10	Flammability	--	Flame Retardant, V0

ASTRAL FIRE PRO PIPE DIMENSIONS

Conforming to IS:16088 & As per ASTM F442

Nominal Size			Outside Diameter, in. (mm)				Wall Thickness, in. (mm) mm			
			Average		Tolerance		Minimum		Tolerance	
cm	mm	inch	inch	mm	inch	mm	inch	mm	inch	
2.0	20	¾"	1.050	26.7	±0.004	±0.10	0.078	1.98	+0.020	+0.51
2.5	25	1"	1.315	33.4	±0.005	+0.10	0.097	2.46	+0.020	+0.51
3.2	32	1-¼"	1.660	42.2	±0.005	+0.10	0.123	3.12	+0.020	+0.51
4.0	40	1-½"	1.900	48.2	±0.006	+0.10	0.141	3.58	+0.020	+0.51
5.0	50	2"	2.375	60.3	±0.006	+0.10	0.176	4.47	+0.021	+0.53
6.5	65	2-½"	2.875	73.0	±0.007	+0.10	0.213	5.41	+0.026	+0.66
8.0	80	3"	3.500	88.9	±0.008	+0.20	0.259	6.58	+0.031	+0.79

FITTINGS: Astral Fire Pro CPVC Sprinkler fittings conform to the requirement of ASTM F439 (Schedule 80). Female threaded adapters for sprinkler head connections will contain brass inserts or other suitable metallic inserts.

SOLVENT CEMENT: Astral Fire Pro CPVC socket connections should be joined with IPS weld-on solvent cement which meets ASTM F493. No other solvent cements are recommended for use with Astral Fire Pro products and use of such non-approved welding agents will invalidate the manufacturer's warranty.

Pressure Rating: FIRE PRO CPVC pipe manufactured by Astral of nominal sizes 3/4" - 3" (20 - 80 mm) are rated for continuous service of 175 psi (12.3 kg/cm^2) at 150°F (65°C). FIRE PRO pipe is produced in SDR 13.5 dimensions. SDR, or standard dimensional ratio, means the pipe wall thickness is directly proportional to the outside diameter. This results in all diameters carrying the same pressure capability. FIRE PRO pipe is produced to the specifications of ASTM F 442.

ASTRAL FIRE PRO PIPES & FITTINGS GO THROUGH STRINGENT QUALITY TESTS FROM RAW MATERIAL TO PRODUCTION AND THE FINAL PRODUCT.

- Raw Material Test
- Dimensions & Visual Appearance
- Opacity Test
- Reversion Test
- Vicat Softening Temperature Test
- Density Test
- Fire Exposure Test
- Flammability Test
- Short Term & Long Term Hydraulic Pressure Test
- Impact Test
- Flattening Test
- Tensile Strength Test
- Kinking Resistance Test

ASTRAL FIRE PRO CPVC SYSTEM FOR BUILDERS AND DEVELOPERS:

Astral Fire Pro pipes and fittings significantly reduce labour and transportation costs on typical installations because CPVC pipe is easily handled, stored, cut and joined. Prices for Astral Fire Pro CPVC pipes and fittings are more stable than metal system. Plus, heavy equipment needed to install metal and other piping systems is not required with Astral Fire Pro pipes and fittings; As a result, installation cost of Astral Fire Pro CPVC system is significantly lower than metal and other system. Astral fire pro can be directly installed on under side of concert or along the wall.

The inherent immunity to Microbiologically Influenced Corrosion (MIC) of Astral Fire Pro pipes and fittings means this system provides a long-term trouble-free installation. Also there is significantly less inconvenience for occupants during retrofit construction.

ASTRAL FIRE PRO CPVC SYSTEM FOR DESIGNERS, ARCHITECTS AND ENGINEERS:

Astral Fire Pro pipes and fittings offer greatly enhanced design flexibility. With a Hazen-Williams C factor of 150, its smooth inner surface results in lower friction loss than metal system. This means you can use smaller pipe diameters which lowers material cost and provides additional design flexibility in retrofit applications.

Astral Fire Pro pipes and fittings have a 50 years life expectancy with a safety factor of two. Properly selected and correctly installed, Astral Fire Pro pipes and fittings provide years of maintenance-free service.



ASTRAL FIRE PRO CPVC SYSTEM FOR CONTRACTORS

Installation of Astral Fire Pro pipes and fittings is fast and easy. No special rigging or heavy equipment is required to move the pipe into a building. Pipe can be cut on-site with simple hand tools. A one-step joining system makes installations fast, keeping labor costs to a minimum. Because no heavy equipment is involved in moving and installing pipes and fittings on-site, there is less conflict with other trades. Work can be done quickly and easily around dry wallers, framers and other mechanical contractors.

Most hangers designed for metal pipe are suitable for Astral Fire Pro CPVC system. Because Astral Fire Pro pipe is rigid and inherently strong, it requires fewer hangers and supports than other thermoplastic pipe, reducing material and labor costs.

SPECIFICATIONS AND STANDARDS :

ASTM F442	Standard Specification for Chlorinated Poly Vinyl Chloride (CPVC) Plastic Pipe (SDR–PR)
ASTM F439	Standard Specification for Chlorinated Poly Vinyl Chloride (CPVC) Plastic Pipe Fittings, Schedule 80
ASTM D1784	Standard Specification for Rigid Poly Vinyl Chloride (PVC) Compounds and Chlorinated Poly Vinyl Chloride (CPVC) Compounds
IS:16088	Chlorinated Polyvinyl Chloride (CPVC) Pipes For Automatic Sprinkler Fire Extinguishing System - Specification
IS:15225	Chlorinated Polyvinyl Chloride Compounds Used for Pipes and Fittings - Specification
IS:15105	Design And Installation Of Fixed Automatic Sprinkler Fire Extinguishing Systems – Code Of Practice



PRODUCT



ASTRAL FIREPRO®

RANGE

FIRE PRO CPVC PIPES
CONFORMING TO IS:16088 & AS PER ASTM F442



FP CPVC SDR 13.5 PIPE (3 MTR. LENGTH)

Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
2.0	¾	M541130302	30
2.5	1	M541130303	20
3.2	1¼	M541130304	15
4.0	1½	M541130305	10
5.0	2	M541130306	8
6.5	2½	M541130307	5
8.0	3	M541130308	3

FIRE PRO CPVC FITTINGS
AS PER ASTM F439



COUPLER

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	¾	M542801002	50	300
2.5	1	M542801003	25	175
3.2	1¼	M542801004	10	100
4.0	1½	M542801005	10	80
5.0	2	M542801006	10	50
6.5	2½	M542801007	-	33
8.0	3	M542801008	05	15



ELBOW 90°

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	¾	M542800502	50	200
2.5	1	M542800503	25	125
3.2	1¼	M542800504	10	60
4.0	1½	M542800505	10	50
5.0	2	M542800506	05	25
6.5	2½	M542800507	-	18
8.0	3	M542800508	-	12

FIRE PRO CPVC FITTINGS
AS PER ASTM F439



REDUCER COUPLER

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.5 x 2.0	1 x ¾	M542801116	50	200
3.2 x 2.0	1¼ x ¾	M542801118	20	140
3.2 x 2.5	1¼ x 1	M542801119	25	125
4.0 x 2.0	1½ x ¾	M542801121	25	100
4.0 x 2.5	1½ x 1	M542801122	25	100
4.0 x 3.2	1½ x 1¼	M542801123	10	80
5.0 x 2.0	2 x ¾	M542801125	10	70
5.0 x 2.5	2 x 1	M542801126	15	75
5.0 x 3.2	2 x 1¼	M542801127	15	75
5.0 x 4.0	2 x 1½	M542801128	15	75
6.5 x 2.0	2½ x ¾	A542801130	-	01
6.5 x 2.5	2½ x 1	A542801131	-	01
6.5 x 3.2	2½ x 1¼	M542801132	08	48
6.5 x 4.0	2½ x 1½	M542801133	05	40
6.5 x 5.0	2½ x 2	M542801134	05	40
8.0 x 2.0	3 x ¾	A542801136	-	01
8.0 x 2.5	3 x 1	A542801137	-	01
8.0 x 3.2	3 x 1¼	M542801138	-	30
8.0 x 4.0	3 x 1½	M542801139	-	30
8.0 x 5.0	3 x 2	M542801140	-	30
8.0 x 6.5	3 x 2½	M542801141	-	30



SPRINKLER HD ADAPTOR

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0 x 1.5	¾ x ½	M542801214	50	150
2.5 x 1.5	1 x ½	M542801215	50	100
2.5 x 2.0	1 x ¾	M542801216	25	100



CROSS TEE

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	¾	M542802402	10	50
2.5	1	M542802403	10	50
3.2	1¼	M542802404	10	30
4.0	1½	M542802405	05	25
5.0	2	M542802406	-	15
6.5	2½	M542802407	-	09
8.0	3	M542802408	-	06



TEE

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	¾	M542800102	25	125
2.5	1	M542800103	10	80
3.2	1¼	M542800104	05	45
4.0	1½	M542800105	05	30
5.0	2	M542800106	06	18
6.5	2½	M542800107	-	12
8.0	3	M542800108	-	07



ONE PIECE FLANGE

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
8.0	3	M542803208	-	12

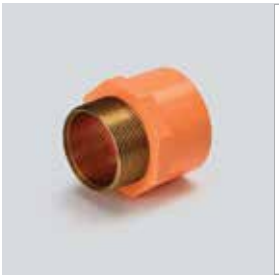
Note:All the items where product code starts with "A" are assembled items. # Shortly Introducing Reducer fittings are professionally assembled using ASTRAL fittings and bushings. Quantity as per order. Assembled fittings of other sizes and types are also available upon request.

CPVC FIRE PRO FITTINGS
AS PER ASTM F439



FEMALE ADAPTOR BRASS THREAD

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	¾	M542801702	25	100
2.5	1	M542801703	25	75
3.2	1¼	M542801704	10	40
4.0	1½	M542801705	10	30
5.0	2	M542801706	05	20
6.5	2½	M542801707	-	09
8.0	3	M542801708	-	07



MALE ADAPTOR BRASS THREAD

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	¾	M542801402	25	100
2.5	1	M542801403	10	60
3.2	1¼	M542801404	10	50
4.0	1½	M542801405	10	40
5.0	2	M542801406	05	20
6.5	2½	M542801407	-	09
8.0	3	M542801408	-	08



ELBOW 45°

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	¾	M542802302	50	200
2.5	1	M542802303	25	150
3.2	1¼	M542802304	10	80
4.0	1½	M542802305	10	60
5.0	2	M542802306	05	35
6.5	2½	M542802307	05	20
8.0	3	M542802308	-	12



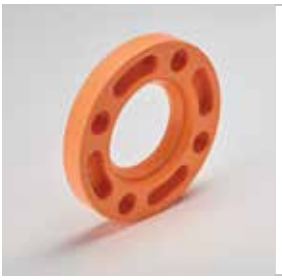
REDUCER MABT

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0x1.5	¾ x ½	M542801514	12	25



SPRINKLER HD ELBOW 90°

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0 x 1.5	¾ x ½	M542800714	25	75
2.5 x 1.5	1 x ½	M542800715	25	40
2.5 x 2.5	1x1	M542800703	10	50



FLANGE RING

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	¾	M542804202	-	01
2.5	1	M542804203	-	01
3.2	1¼	M542804204	-	01
4.0	1½	M542804205	-	01
5.0	2	M542804206	-	01
6.5	2½	M542804207	-	01
8.0	3	M542804208	-	01



FLANGE HUB-SOC

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	¾	M542803602	-	01
2.5	1	M542803603	-	01
3.2	1¼	M542803604	-	01
4.0	1½	M542803605	-	01
5.0	2	M542803606	-	01
6.5	2½	M542803607	-	01
8.0	3	M542803608	-	01



VANSTONE FLANGE

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	¾	M542803402	10	80
2.5	1	M542803403	10	60
3.2	1¼	M542803404	5	50
4.0	1½	M542803405	5	35
5.0	2	M542803406	5	30
6.5	2½	M542803407	-	18
8.0	3	M542803408	-	12



SPRINKLER HD BUSH (SPIGOT)

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.5 x 1.5	1 x ½	M542802015	50	250



UNION

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	¾	M542802602	10	120
2.5	1	M542802603	10	80
3.2	1¼	M542802604	10	50
4.0	1½	M542802605	10	40
5.0	2	M542802606	05	30
6.5	2½	M542802607	15	15
8.0	3	M542802608	10	10



END CAP

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	¾	M542804102	50	550
2.5	1	M542804103	50	300
3.2	1¼	M542804104	10	200
4.0	1½	M542804105	10	120
5.0	2	M542804106	10	70
6.5	2½	M542804107	-	40
8.0	3	M542804108	-	25



SPRINKLER HD TEE

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.5 x 2.0 x 1.5	1 x ¾ x ½	M5428003101	10	50
2.5 x 1.5 x 2.5	1 x ½ x 1	M542800399	10	40
2.5 x 2.5 x 2.5	1 x 1 x 1	M542800303	10	30

Note:All the items where product code starts with "A" are assembled items. # Shortly Introducing
Reducer fittings are professionally assembled using ASTRAL fittings and bushings. Quantity as per order.
Assembled fittings of other sizes and types are also available upon request.



SPRINKLER HD TEE

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0 x 2.0 x 1.5	¾ x ¾ x ½	M5428003100	25	75
2.5 x 2.5 x 1.5	1 x 1 x ½	M542800315	25	50
3.2 x 1.5	1¼ x ½	M542800317	20	20



REDUCING TEE

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.5 x 2.0	1 x ¾	M542800216	25	100
3.2 x 2.0	1¼ x ¾	M542800218	10	50
3.2 x 2.5	1¼ x 1	M542800219	10	50
4.0 x 2.0	1½ x ¾	M542800221	10	40
4.0 x 2.5	1½ x 1	M542800222	10	40
4.0 x 3.2	1½ x 1¼	M542800223	10	30
5.0 x 2.0	2 x ¾	M542800225	05	25
5.0 x 2.5	2 x 1	M542800226	05	20
5.0 x 3.2	2 x 1¼	M542800227	05	20
5.0 x 4.0	2 x 1½	M542800228	05	20
6.5 x 2.0	2½ x ¾	A542800230	-	01
6.5 x 2.5	2½ x 1	M542800231	-	15
6.5 x 3.2	2½ x 1¼	M542800232	-	15
6.5 x 4.0	2½ x 1½	M542800233	-	15
6.5 x 5.0	2½ x 2	M542800234	-	12
8.0 x 2.0	3 x ¾	A542800236	-	01
8.0 x 2.5	3 x 1	M542800237	-	10
8.0 x 3.2	3 x 1¼	M542800238	-	12
8.0 x 4.0	3 x 1½	M542800239	-	10
8.0 x 5.0	3 x 2	M542800240	-	09
8.0 x 6.5	3 x 2½	M542800241	-	09
2.5 x 2.0 x 2.0	1 x ¾ x ¾	A542800295	-	01
3.2 x 2.5 x 2.0	1¼ x 1 x ¾	A542800296	-	01
3.2 x 2.5 x 2.5	1¼ x 1 x 1	A542800297	-	01
4.0 x 3.2 x 2.0	1½ x 1¼ x ¾	A542800298	-	01
4.0 x 3.2 x 2.5	1½ x 1¼ x 1	A5428002108	-	01



SPRINKLER HD ADAPTOR (SPIGOT)

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0 x 1.5	¾ x ½	M542809914	50	150
2.5 x 1.5	1 x ½	M542809915	25	125



REDUCER BUSH

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.5 x 2.0	1 x ¾	M542801916	50	400
3.2 x 2.0	1¼ x ¾	M542801918	25	275
3.2 x 2.5	1¼ x 1	M542801919	25	250
4.0 x 2.0	1½ x ¾	M542801921	25	175
4.0 x 2.5	1½ x 1	M542801922	25	175
4.0 x 3.2	1½ x 1¼	M542801923	25	150
5.0 x 2.0	2 x ¾	M542801925	10	100
5.0 x 2.5	2 x 1	M542801926	10	100
5.0 x 3.2	2 x 1¼	M542801927	10	100
5.0 x 4.0	2 x 1½	M542801928	10	100
6.5 x 3.2	2½ x 1¼	M542801932	05	55
6.5 x 4.0	2½ x 1½	M542801933	05	55
6.5 x 5.0	2½ x 2	M542801934	10	70
	3 X 1¼	M542801938	35	35
8.0 x 4.0	3 x 1½	M542801939	05	35
8.0 x 5.0	3 x 2	M542801940	-	52
8.0 x 6.5	3 x 2½	M542801941	-	52

CPVC FIRE PRO FITTINGS
AS PER ASTM F439



CPVC 550 SOLVENT CEMENT

Qty. (ml)	Product Code	Pkg.(Nos.) Std.	Mast.
237	M008501005	-	24
473	M008501010	-	12
946	M008501015	-	12



PTFE TAPE (12 MM WIDTH)

Size (Mtr.)	Product Code	Pkg.(Nos.) Std.	Mast.
4	M003302004	-	01
8	M003302007	-	01
8	M003302017	-	01

Note: PTFE-1205 Available only till the Material lasts



RESCUE TAPE

Size (Ft.)	Product Code	Pkg.(Nos.) Std.	Mast.
5	M005601010	-	120
5	M005601015	-	120
5	M005601005	-	120
10	M005601025	-	120
10	M005601030	-	120
10	M005601020	-	120
15	M005601040	-	120
15	M005601045	-	120
15	M005601035	-	120



BONDSET FAST SETTING

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

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

Note:All the items where product code starts with "A" are assembled items. # Shortly Introducing Reducer fittings are professionally assembled using ASTRAL fittings and bushings. Quantity as per order. Assembled fittings of other sizes and types are also available upon request.

FITTINGS
& FEATURES



1. **PIPE** CUTTING

- Cut pipe square. As joints are sealed at the base of the fitting socket. An angled cut may result in joint failure.
- Acceptable tools include mitre saw, mechanical cut off saw or wheel cutter. Wheel type cutters must employ a blade designed for plastics.



2. **REMOVE** BURR & BEVEL

- Remove all burrs from inside and outside of pipe with a knife-edge, file or deburring tool Chamfer (bevel) the end of the pipe 10°-15°
- Remove surface dirt, grease or moisture with a clean dry cloth.
- With light pressure, pipe should go one third to one half of the way into the fitting socket. Pipes and Fittings that are too tight or too loose should not be used.



3. SOLVENT CEMENT

- Apply Medium Layer Of Cement Inside The Fitting And Apply Full Even Layer Outside Of Pipe

4. APPLICATOR

- Use an applicator that is one half the pipe diameters.
- Too large an applicator will force excessive cement in to the inner side surface of small diameter fittings.
- Too small applicator will not apply sufficient cement to large diameter systems.



5. JOIN PIPE & FITTING

- Assemble pipe and fitting socket till it contacts socket bottom. Give pipe a quarter turn. Hold pipe and fitting together until the pipe dose not back out.
- Remove excessive cement from the exterior. A properly made joint will show a continue bead of cement around the perimeter.
- Observe all safety precautions.
- Systems should be installed in a good and workmanlike manner consistent with normal industry standards and in conformance with all local plumbing, fire and building code requirements. Failure to follow proper installation practices, procedures or techniques can result in system failure, property damage or personal injury.
- Pipes and fittings should be used for their intended purpose as defined by local plumbing and building codes and the applicable ASTM standards.
- Follow manufacturer's instructions for all related products.



EXPANSION
& CONTRACTION

FIRE PRO CPVC Fire sprinkler products, like all piping materials, expand and contract with changes in temperature. If the coefficient of linear expansion is 3.4 x 10^{-5} inch / inch-°F, a 25° F (4°C) change in temperature will cause an expansion of 1 inch (25 mm) for a 100-foot (30 m) straight length. For most operating and installation conditions, expansion and contraction can be accommodated at change of direction.

THERMAL EXPANSION BASED ON FIRE PRO CPVC COMPOUND.

Temp Change ΔT °C	Length of Run in Meter													
	1	2	4	6	8	10	12	14	16	18	20	30	40	50
	Thermal Expansion ΔL (cm)													
10	0.06	0.12	0.24	0.37	0.49	0.61	0.73	0.86	0.98	1.10	1.22	1.84	2.45	3.06
15	0.09	0.18	0.37	0.55	0.73	0.92	1.10	1.29	1.47	1.65	1.84	2.75	3.67	4.59
20	0.12	0.24	0.49	0.73	0.98	1.22	1.47	1.71	1.96	2.20	2.45	3.67	4.90	6.12
25	0.15	0.31	0.61	0.92	1.22	1.53	1.84	2.14	2.45	2.75	3.06	4.59	6.12	7.65
30	0.18	0.37	0.73	1.10	1.47	1.84	2.20	2.57	2.94	3.30	3.67	5.51	7.34	9.18
35	0.21	0.43	0.86	1.29	1.71	2.14	2.57	3.00	3.43	3.86	4.28	6.43	8.57	10.71
40	0.24	0.49	0.98	1.47	1.96	2.45	2.94	3.43	3.92	4.41	4.90	7.34	9.79	12.24
45	0.28	0.55	1.10	1.65	2.20	2.75	3.30	3.86	4.41	4.96	5.51	8.26	11.02	13.77
50	0.31	0.61	1.22	1.84	2.45	3.06	3.67	4.28	4.90	5.51	6.12	9.18	12.24	15.30

STANDARD
SUPPORT SPACING

Since CPVC fire sprinkler pipe is rigid, it requires fewer supports than flexible, plastic systems. Astral recommends use of hangers that are designed and listed for supporting the CPVC Fire Sprinkler pipe. However, some hangers designed for steel pipe may be used if their suitability is clearly established.
Note: These hangers must have a minimum ½ inch (13 mm), load-bearing surface and they must be selected to accommodate the specific pipe size. In addition, they can not contain rough or sharp edges that contact the pipe and they must not bend the pipe from axial movement. Vertical runs must be supported so that the weight of the run is not on a fitting or a joint.

Nominal Size Inches / (mm)	Max. Support Spacing Feet / (Metres)
¾ (20.0)	5½ (1.67)
1 (25.0)	6 (1.83)
1¼ (32.0)	6½ (1.98)
1½ (40.0)	7 (2.13)
2 (50.0)	8 (2.43)
2½ (65.0)	9 (2.74)
3 (80.0)	10 (3.05)

SET & CURE TIME

Inadequate curing of solvent cement joints may cause pipe failure or leakage.
Solvent cement set and cure time are a function of pipe size, temperature, relative humidity, and tightness of fit. Cure time should be increased when moisture is present such as during cut-ins to live sprinkler lines. The assembly must be allowed to set, without any stress on the joint, for 1 to 5 minutes, depending on pipe size and temperature. Following the initial set period, the assembly can be handled carefully, avoiding significant stresses to the joint. Refer to Tables 1, 2 and 3 for MINIMUM cure time prior to pressure testing.

TABLE 1: AMBIENT TEMPERATURE CURE TIME FOR TEST PRESSURES OF 225 PSi / 15.8 KG/CM² (MAXIMUM)

Nominal Pipe Size (Metric) inch (mm)	60°F to 120°F (16°C to 49°C)	40°F to 59°F (4.4°C to 16°C)	0°F to 39°F (-17.8°C to 4.4°C)
¾" (20)	1 hour	4 hours	48 hours
1" (25)	1½ hours	4 hours	48 hours
1 ¼" & 1 ½" (32 & 40)	3 hours	32 hours	10 days
2" (50)	8 hours	48 hours	Note 1
2 ½" & 3" (65 & 80)	24 hours	96 hours	Note 1

TABLE 2: AMBIENT TEMPERATURE CURE TIME FOR TEST PRESSURES OF 200 PSi / 14.1 KG/CM² (MAXIMUM)

Nominal Pipe Size (Metric) inch (mm)	60°F to 120°F (16°C to 49°C)	40°F to 59°F (4.4°C to 16°C)	0°F to 39°F (-17.8°C to 4.4°C)
¾" (20)	45 minutes	1½ hours	48 hours
1" (25)	45 minutes	1½ hours	48 hours
1 ¼" & 1 ½" (32 & 40)	1½ hours	16 hours	10 days
2" (50)	8 hours	36 hours	Note 1
2 ½" & 3" (65 & 80)	8 hours	72 hours	Note 1

NOTE 1: Solvent cement can be applied at temperatures below 40°F (4.4°C) in all sizes. However, for the 2 inch size & larger, the temperature must be raised to 40°F (4.4°C) or above and allowed to cure as per the recommended times before the system is filled and pressurized.

TABLE 3: AMBIENT TEMPERATURE CURE TIME FOR TEST PRESSURES OF 100 PSi / 7.0 KG/CM² (MAXIMUM)

Nominal Pipe Size (Metric) inch (mm)	60°F to 120°F (16°C to 49°C)	40°F to 59°F (4.4°C to 16°C)	0°F to 39°F (-17.8°C to 4.4°C)
¾" (20)	15 minutes	15 minutes	30 minutes
1" (25)	15 minutes	30 minutes	30 minutes
1 ¼" (32)	15 minutes	30 minutes	2 hours

NOTE: 1-½ inch (40 mm) and larger must be tested ONLY in accordance with Table 1 or Table 2.

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