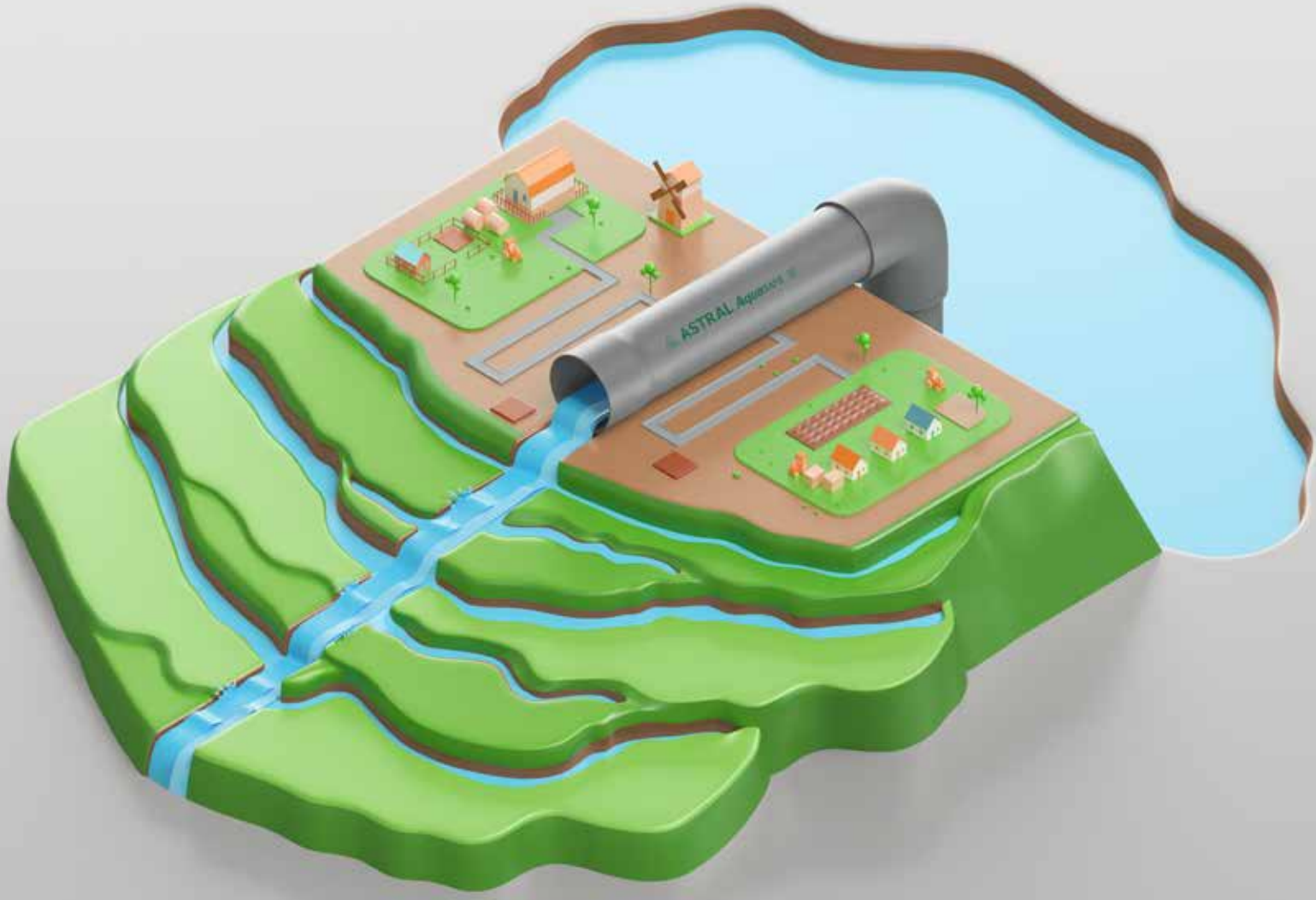
CELEBRATING 25 YEARS OF TRUST & INNOVATION

ASTRAL® PIPES

AquaSAFE®

uPVC PRESSURE PIPING SYSTEM FOR POTABLE WATER TRANSPORT AND AGRICULTURE

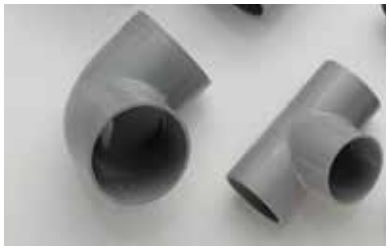
PRODUCT CATALOGUE



IS:4985 IS:7834 IS:10124

ONLY THOSE PRODUCTS BEARING THE ABOVE MARKS ARE CERTIFIED

CONTENTS



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

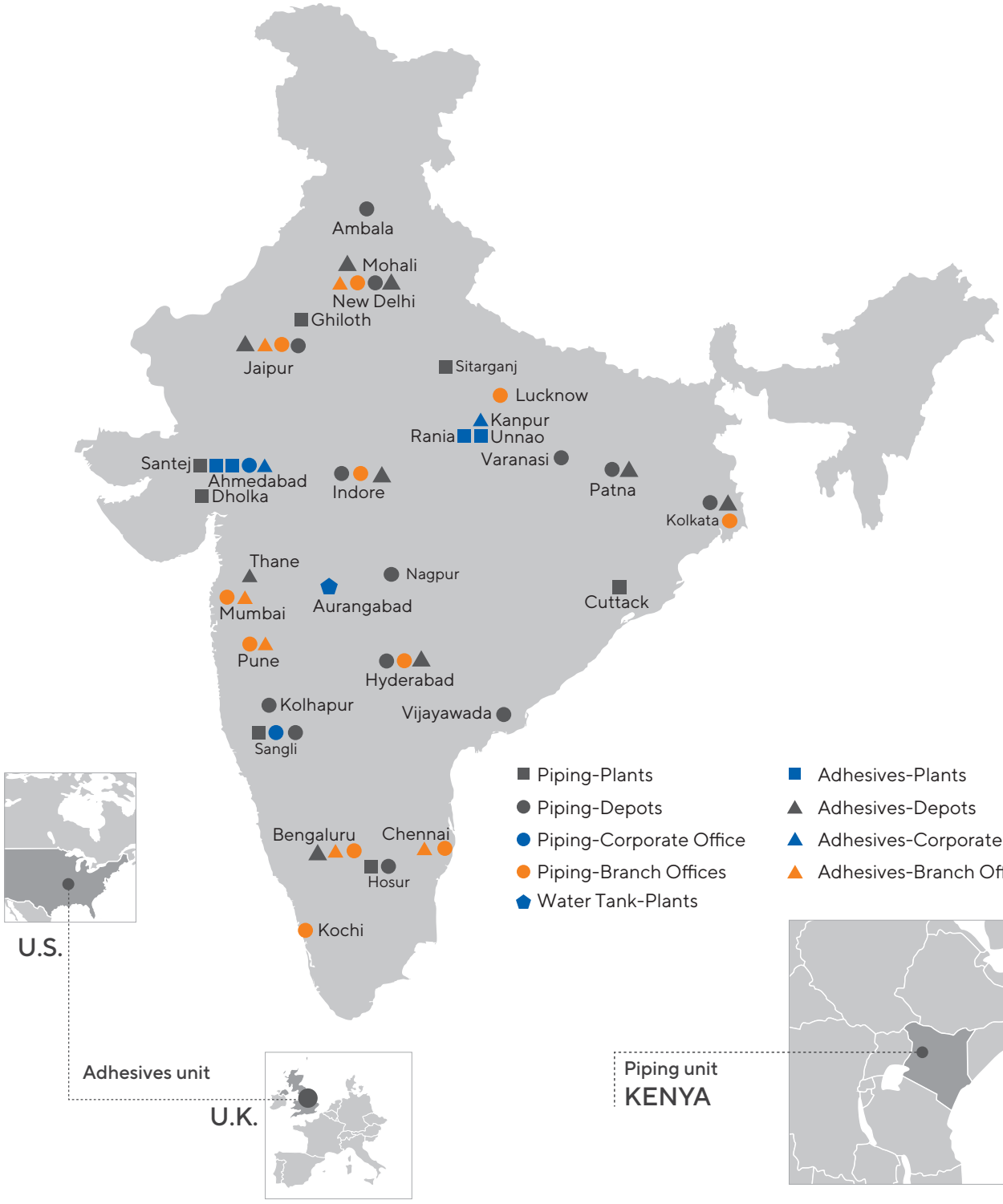
SANITARYWARE

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)
- 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)

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.



IS:4985 IS:7834 IS:10124

ONLY THOSE PRODUCTS BEARING
THE ABOVE MARKS ARE CERTIFIED

ABOUT ASTRAL AquaSAFE®

Astral Aquasafe system offers wide range of uPVC pressure pipes and fittings. Astral Aquasafe uPVC pressure pipes are manufactured in accordance with IS : 4985 as well as company's standard covering complete range from 20 mm to 400 mm. They are available in various pressure ratings as defined in IS : 4985. The pipes are provided with plain socket and ring socket (elestomeric seal ring). Astral Aquasafe pipes and fittings can be joined together by Astral uPVC solvent cement or elestomeric seal ring.

Astral Aquasafe fittings are manufactured as per IS : 7834 and fabricated fittings as per IS:10124(Part-2) as well as company's standards. Both pipes and fittings are grey in colour manufactured from uPVC raw material and hence they are corrosion free forever.

WHY ASTRAL AQUASAFE

1. Introduced many new products for the first time in India

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.

2. State of the art manufacturing

Astral Pipes is equipped with production facilities at Dholka in Gujarat, Hosur in Tamil Nadu, Ghiloth in Rajasthan to manufacture agriculture systems with all kinds of necessary fittings.

3. Widest product range

Astral Pipes offers a wide range of Aquasafe piping solutions from 20 mm OD to 400 mm OD and from Class 1 (2.5 kgf/cm^2) to Class 6 (12.5 kgf/cm^2). Also offers 20 mm to 50 mm Plumbing pipes.

4. Pipe, fittings and adhesives in Astral only

Astral Pipes offers world class solvent cement to join Pipes and Fittings. Weld-on is quality product from Astral that joins pipes and fittings.

5. Best Dimensional Accuracy

Astral Pipes follows international quality standards and parameters to ensure dimensional accuracy across our product range.

6. Rigorous quality control

All of our product range is tested right from raw material stage to finished product stage. Astral Pipes conducts many traditional and non-traditional tests to ensure that we put the best product in the market.

FIELDS OF APPLICATIONS

Astral Aquasafe pipes and fittings are used for variety of applications like agriculture, irrigation, water supply, industrial process lines, swimming pools etc.

Astral Aquasafe pipes are superior to CI, GI, R.C.C. and offers multiple advantages like light weight, easy and fast installation, excellent corrosion and chemical resistance, high flow rates, long life and economical.

FEATURES

- Manufactured from quality raw material.
- Easy handling, transportation & installation.
- Excellent chemical resistance.
- Non conductive.
- Long life cycle.
- Ease of use.
- Better flow for optimum yields.
- Selfit jointing ensures leak proof jointing system for optimum results.
- Manufactured on most sophisticated machines to ensure a superior product every time.
- High strength & durability.
- Non reactive with acidic and alkali substances in water. They are ideal for drain water discharge as well as most of the chemicals.
- UV stabilized and hence suitable for outdoor applications.
- Manufactured under highest quality standards which ensures reliability of the product.

KEY PROPERTIES

HIGH CORROSION RESISTANCE

Astral Aquasafe pipes and fittings are Non reactive with acidic and alkali substances in water with excellent chemical resistance, making it ideal for drain water discharge as well as most of the chemicals. Aquasafe pipes and fittings are UV stabilized, hence compatible with outdoor use .

NO MAINTENANCE

Selfit jointing ensures leak proof jointing system for optimum results while maintaining better flow and maintenance free usage for years.

CONDUCTIVITY

Astral Aquasafe is non-conductor of electricity and thus prevents electrical shocks.

STRENGTH & QUALITY

High strength & durability. Manufactured from quality raw materials under highest quality standards which ensures reliability of the product. This results in long life cycle

UV STABILIZED

Aquasafe pipes and fittings are UV stabilized, hence compatible with outdoor use

EASY TO INSTALL

Easy handling, transportation & installation. It's lightweight and strong material ensures ease of use

Aquasafe pipes being installed at one of the farms of Halvad, Gujarat.

TECHNICAL SPECIFICATION

BASIC PHYSICAL PROPERTIES OF PVC MATERIAL

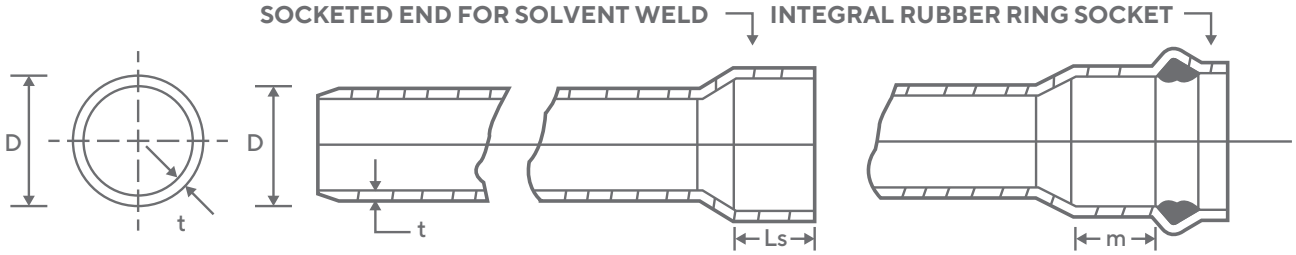
PROPERTY	PVC	ASTM NO.
MECHANICAL PROPERTIES		
Density	1.41 - 1.46 gm/cc	D 792
Tensile Strength (23 °C)	48 N/mm^2	D 638
Flexural Strength (23 °C)	104 N/mm^2	D 790
Compressive Strength (23 °C)	62 N/mm^2	D 695
Izod Impact (Notched at 23 °C)	60 J/m	D 256
Hardness (Durometer D)	80 ± 3	
Hardness (Rockwell R)	110 -120	
Hydrostatic Design Stress	140.6 Kg/cm^2	D 1598
Elongation at Break	50 - 80%	
Modulus of Elastisity in Tension (23 °C)	2500 N/mm^2	D 638
THERMAL PROPERTIES		
Coefficient of Linear Expansion	$6.3x10^{-5}$ m/m/°K	D 696
Vicat Softening Temp.	80 °C	
Heat Deflection Temparature at 66 PSI	80 °C	D 648
Flame Resistance	Self extingushing. uPVC does not support combution when the source of ignition is removed	
Limiting Oxygen Index	43%	D 2863
ELECTRICAL PROPERTIES		
Electrical Resistance	≥ 100 Ω	ASTM D876
Dielectric Strength	1100	ASTM D147
Dielectric Constant (60Hz, 23 °C/-1°C)	3.7	ASTM D150

Above data is based upon information provided by the raw material manufacturers. It should be used only as a recommendation and not as a guarantee of performance.

Astral Aquasafe pipes and fittings are go through the stringent quality test from raw material to production and at the final product.

- Raw Material Test
- Stress Relief Test
- Dimension & Visual Appearance Test (Dia., Wall Thickness etc.)
- Reversion Test
- Density Test
- Effect on Water Test
- Opacity Test
- Hydrostatic Pressure Test
- Drop Impact Test
- Sulphated Ash Content Test
- Vicat Softening Temperature Test

TECHNICAL SPECIFICATION



DIMENSIONS OF SOCKETS FOR SOLVENT CEMENT JOINTING

NOMINAL SIZE (D) (mm)	SOCKET LENGTH (L_s) (mm)
20	16.0
25	19.0
32	22.0
40	26.0
50	31.0
63	37.5
75	43.5
90	51.0
110	61.0
125	68.5
140	76.0
160	86.0
180	96.0
200	106.0
225	118.5
250	131.0
280	146.0
315	163.5
355	183.5
400	206.0

MINIMUM DEPTH OF ENGAGMENT FOR ELASTOMERIC RING SOCKET

NOMINAL SIZE (D) (mm)	MINIMUM DEPTH OF ENGAGMENT (m) (mm)
63	64
75	67
90	70
110	75
125	78
140	81
160	86
180	90
200	94
225	100
250	105
280	112
315	118
355	124
400	130

DIMENSIONS OF uPVC PRESSURE PIPES CONFORMING TO IS:4985

Nominal Outside Diameter		Tolerance on Mean Outside Diameter	WALL THICKNESS													
			Class 1 (PN) 2.5 kgf/cm²		Class 2 (PN) 4 kgf/cm²		Class 3 (PN) 6 kgf/cm²		Class 4 (PN) 8 kgf/cm²		Class 5 (PN) 10 kgf/cm²		Class 6 (PN) 12.5 kgf/cm²		Plumbing	
cm	mm		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
2.0	20	+0.3	-	-	-	-	-	-	-	-	1.1	1.5	1.4	1.8	2.8	3.3
2.5	25	+0.3	-	-	-	-	-	-	1.2	1.6	1.4	1.8	1.7	2.1	2.9	3.4
3.2	32	+0.3	-	-	-	-	-	-	1.5	1.9	1.8	2.2	2.2	2.7	3.4	3.9
4.0	40	+0.3	-	-	-	-	1.4	1.8	1.8	2.2	2.2	2.7	2.8	3.3	3.6	4.2
5.0	50	+0.3	-	-	-	-	1.7	2.1	2.3	2.8	2.8	3.3	3.4	4.0	3.7	4.3
6.3	63	+0.3	-	-	1.5	1.9	2.2	2.7	2.8	3.3	3.5	4.1	4.3	5.0	-	-
7.5	75	+0.3	-	-	1.8	2.2	2.6	3.1	3.4	4.0	4.2	4.9	5.1	5.9	-	-
9.0	90	+0.3	1.3	1.7	2.1	2.6	3.1	3.7	4.0	4.6	5.0	5.7	6.1	7.1	-	-
11.0	110	+0.4	1.6	2.0	2.5	3.0	3.7	4.3	4.9	5.6	6.1	7.1	7.5	8.7	-	-
12.5	125	+0.4	1.8	2.2	2.9	3.4	4.3	5.0	5.6	6.4	6.5	8.0	8.5	9.8	-	-
14.0	140	+0.5	2.0	2.4	3.2	3.8	4.8	5.5	6.3	8.0	7.7	8.9	9.5	11.0	-	-
16.0	160	+0.5	2.3	2.8	3.7	4.3	5.4	6.2	7.2	8.3	8.8	10.2	10.9	12.6	-	-
18.0	180	+0.6	2.6	3.1	4.2	4.9	6.1	7.1	8.0	9.2	9.9	11.4	12.2	14.1	-	-
20.0	20	+0.6	2.9	3.4	4.6	5.3	6.8	7.9	8.9	10.3	11.0	12.7	13.6	15.7	-	-
22.5	0	+0.7	3.3	3.9	5.2	6.0	7.6	8.8	10.0	11.5	12.4	14.3	15.3	17.6	-	-
25.0	225	+0.8	3.6	4.2	5.7	6.5	8.5	9.8	11.2	12.9	13.8	15.9	17.0	19.6	-	-
28.0	25	+0.9	4.1	4.8	6.4	7.4	9.5	11.0	12.5	14.4	15.4	17.8	19.0	21.9	-	-
31.5	0	+1.0	4.6	5.3	7.2	8.3	10.7	12.4	14.0	16.1	17.3	19.9	21.4	24.7	-	-
35.5	280	+1.1	5.1	5.9	8.1	9.4	12.0	13.8	15.8	18.2	19.6	22.6	24.1	27.8	-	-
40.0	315	+1.2	5.8	6.7	9.1	10.5	13.5	15.6	17.8	20.5	22.0	25.3	27.2	31.3	-	-

Note: All dimensions are in mm

AVAILABILITY OF PIPES

uPVC SOLVENT FITTED PRESSURE PIPES CONFIRMING TO IS:4985

PRESSURE	20	25	32	40	50	63	75	90	110	125	140	160	180	200	225	250	280	315	355	400
AQUASAFE  **PIPE**																				
2.5 kgf/cm²								●	●	●	●	●	●	●	●	●	●	●	●	●
4 kgf/cm²						●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
6 kgf/cm²				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
8 kgf/cm²		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
10 kgf/cm²	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
12.5 kgf/cm²	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
16 kgf/cm² (Plumbing)	●	●	●	●	●															

● Confirm to IS:4985

AQUASAFE ELASTOMERIC SEALING RING PIPES CONFIRMING TO IS:4985

SOCKET	SIZE (mm)	PRESSURE	AVAILABLE
GR	63	4/6/10 kgf/cm²	3/5/6 mtr
GR	75	4/6/10 kgf/cm²	3/5/6 mtr
GR	90	4/6/10 kgf/cm²	3/5/6 mtr
GR	110	4/6/10 kgf/cm²	3/5/6 mtr
GR	125	4/6/10 kgf/cm²	3/5/6 mtr
GR	140	4/6/10 kgf/cm²	3/5/6 mtr
GR	160	4/6/10 kgf/cm²	3/5/6 mtr
GR	180	4/6/10 kgf/cm²	3/5/6 mtr
GR	200	4/6/10 kgf/cm²	3/5/6 mtr
GR	225	4/6/10 kgf/cm²	3/5/6 mtr
GR	250	4/6/10 kgf/cm²	3/5/6 mtr
GR	280	4/6/10 kgf/cm²	3/5/6 mtr
GR	315	4/6/10 kgf/cm²	3/5/6 mtr
GR	355	4/6/kgf/cm²	3/5/6 mtr
GR	400	4/6/kgf/cm²	3/5/6 mtr

PRODUCT

ASTRAL AquaSAFE®

IS:4985 IS:7834 IS:10124

ONLY THOSE PRODUCTS BEARING
THE ABOVE MARKS ARE CERTIFIED

RANGE

AQUASAFE SOLVENT FITTED PIPES

FOR AGRICULTURE & WATER SUPPLY, CONFORMING TO IS:4985

3 METRE PIPE

HSN CODE: 39172390

Size (cm)	Size (inch)	Product Code (2.5 kgf/cm²)	Product Code (4 kgf/cm²)	Product Code (6 kgf/cm²)	Product Code (8 kgf/cm²)	Product Code (10 kgf/cm²)	Product Code (12.5 kgf/cm²)	Product Code (Plumbing)
2.0	½	-	-	-	-	M081100301	M081125301	M081160301
2.5	¾	-	-	-	M081080302	M081100302	M081125302	M081160302
3.2	1	-	-	-	M081080303	M081100303	M081125303	M081160303
4.0	1¼	-	-	M081060304	M081080304	M081100304	M081125304	M081160304
5.0	1½	-	-	M081060305	M081080305	M081100305	M081125305	M081160305
6.3	2	-	M081040306	M081060306	M081080306	M081100306	M081125306	-
7.5	2½	-	M081040307	M081060307	M081080307	M081100307	M081125307#	-
9.0	3	M081250308	M081040308	M081060308	M081080308	M081100308	M081125308	-
11.0	4	M081250309	M081040309	M081060309	M081080309	M081100309	M081125309	-
12.5	4½	M081250310	M081040310	M081060310	M081080310	M081100310	M081125310	-
14.0	5	M081250311	M081040311	M081060311	M081080311	M081100311	M081125311	-
16.0	6	M081250312	M081040312	M081060312	M081080312	M081100312	M081125312	-
18.0	7	M081250313	M081040313	M081060313	M081080313	M081100313	M081125313	-
20.0	8	M081250314	M081040314	M081060314	M081080314	M081100314	M081125314	-
22.5	9	M081250315	M081040315	M081060315	M081080315	M081100315	M081125315	-
25.0	10	M081250316	M081040316	M081060316	M081080316	M081100316	M081125316	-
28.0	11	M081250317	M081040317	M081060317	M081080317	M081100317	M081125317	-
31.5	12	M081250318	M081040318	M081060318	M081080318	M081100318	M081125318	-
35.5	14	M081250319	M081040319	M081060319	M081080319	M081100319	M081125319#	
40.0	16	M081250320	M081040320	M081060320	M081080320#	M081100320	M081125320#	-

AQUASAFE SOLVENT FITTED PIPES

FOR AGRICULTURE & WATER SUPPLY, CONFORMING TO IS:4985

5 METRE PIPE

HSN CODE: 39172390

Size (cm)	Size (inch)	Product Code (2.5 kgf/cm²)	Product Code (4 kgf/cm²)	Product Code (6 kgf/cm²)	Product Code (8 kgf/cm²)	Product Code (10 kgf/cm²)	Product Code (12.5 kgf/cm²)	Product Code (Plumbing)
2.0	½	-	-	-	-	M081100501	M081125501	M081160501
2.5	¾	-	-	-	M081080502	M081100502	M081125502	M081160502
3.2	1	-	-	-	M081080503	M081100503	M081125503	M081160503
4.0	1¼	-	-	M081060504	M081080504	M081100504	M081125504	M081160504
5.0	1½	-	-	M081060505	M081080505	M081100505	M081125505	M081160505
6.3	2	-	M081040506	M081060506	M081080506	M081100506	M081125506	-
7.5	2½	-	M081040507	M081060507	M081080507	M081100507	M081125507#	-
9.0	3	M081250508	M081040508	M081060508	M081080508	M081100508	M081125508	-
11.0	4	M081250509	M081040509	M081060509	M081080509	M081100509	M081125509	-
12.5	4½	M081250510	M081040510	M081060510	M081080510	M081100510	M081125510	-
14.0	5	M081250511	M081040511	M081060511	M081080511	M081100511	M081125511	-
16.0	6	M081250512	M081040512	M081060512	M081080512	M081100512	M081125512	-
18.0	7	M081250513	M081040513	M081060513	M081080513	M081100513	M081125513	-
20.0	8	M081250514	M081040514	M081060514	M081080514	M081100514	M081125514	-
22.5	9	M081250515	M081040515	M081060515	M081080515	M081100515	M081125515	-
25.0	10	M081250516	M081040516	M081060516	M081080516	M081100516	M081125516	-
28.0	11	M081250517	M081040517	M081060517	M081080517	M081100517	M081125517	-
31.5	12	M081250518	M081040518	M081060518	M081080518	M081100518	M081125518	-
35.5	14	M081250519	M081040519	M081060519	M081080519	M081100519	M081125519#	-
40.0	16	M081250520	M081040520	M081060520	M081080520	M081100520	M081125520#	-

6 METRE PIPE

HSN CODE: 39172390

Size (cm)	Size (inch)	Product Code (2.5 kgf/cm²)	Product Code (4 kgf/cm²)	Product Code (6 kgf/cm²)	Product Code (8 kgf/cm²)	Product Code (10 kgf/cm²)	Product Code (12.5 kgf/cm²)	Product Code (Plumbing)
2.0	½	-	-	-	-	M081100601	M081125601	M081160601
2.5	¾	-	-	-	M081080602	M081100602	M081125602	M081160602
3.2	1	-	-	-	M081080603	M081100603	M081125603	M081160603
4.0	1¼	-	-	M081060604	M081080604	M081100604	M081125604	M081160604
5.0	1½	-	-	M081060605	M081080605	M081100605	M081125605	M081160605
6.3	2	-	M081040606	M081060606	M081080606	M081100606	M081125606	-
7.5	2½	-	M081040607	M081060607	M081080607	M081100607	M081125607	-
9.0	3	M081250608	M081040608	M081060608	M081080608	M081100608	M081125608	-
11.0	4	M081250609	M081040609	M081060609	M081080609	M081100609	M081125609	-
12.5	4½	M081250610	M081040610	M081060610	M081080610	M081100610	M081125610	-
14.0	5	M081250611	M081040611	M081060611	M081080611	M081100611	M081125611	-
16.0	6	M081250612	M081040612	M081060612	M081080612	M081100612	M081125612	-
18.0	7	M081250613	M081040613	M081060613	M081080613	M081100613	M081125613	-
20.0	8	M081250614	M081040614	M081060614	M081080614	M081100614	M081125614	-
22.5	9	M081250615	M081040615	M081060615	M081080615	M081100615	M081125615	-
25.0	10	M081250616	M081040616	M081060616	M081080616	M081100616	M081125616	-
28.0	11	M081250617	M081040617	M081060617	M081080617	M081100617	M081125617	-
31.5	12	M081250618	M081040618	M081060618	M081080618	M081100618	M081125618	-
35.5	14	M081250619	M081040619	M081060619	M081080619	M081100619	M081125619#	-
40.0	16	M081250620	M081040620	M081060620	M081080620	M081100620	M081125620#	

6 M STRAINER PIPE (6 kg)

HSN CODE: 39172390

Size (cm)	Size (inch)	Product Code
12.5	4½	M081060610TS
14.0	5	M081060611TS
16.0	6	M081060612TS
18.0	7	M081060613TS
20.0	8	M081060614TS
22.5	9	M081060615TS
25.0	10	M081060616TS

6 M STRAINER PIPE (8 kg)

HSN CODE: 39172390

Size (cm)	**Size (inch)**	**Product Code**
16.0	**6**	**M081080612TS**

6 M STRAINER PIPE (10 kg)

HSN CODE: 39172390

Size (cm)	Size (inch)	Product Code
12.5	4½	M081100610TS
16.0	6	M081100612TS

AQUASAFE SOLVENT FITTED
MOULDED FITTINGS

TEE (LW)

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3	2	M092040106	-	96
7.5	2½	M092040107	-	60
9.0	3	M092040108	-	36
11.0	4	M092040109	-	20
16.0	6	M092040112	-	05
20.0	8	M092040114	-	03

ELBOW 90° (LW)

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3	2	M092040506	-	100
7.5	2½	M092040507	-	65
9.0	3	M092040508	-	48
11.0	4	M092040509	-	20
16.0	6	M092040512	-	06
20.0	8	M092040514	-	03

AQUASAFE SOLVENT FITTED MOULDED FITTINGS (4 KGF/CM²)

ELBOW 90°

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
5.0	1½	M092040505	15	105
6.3	2	M092040506I	-	100
7.5	2½	M092040507I	-	60
9.0	3	M092040508I	-	38
11.0	4	M092040509I	-	20
14.0	5	M092040511	-	12
16.0	6	M092040512I	-	06

ELBOW 45°

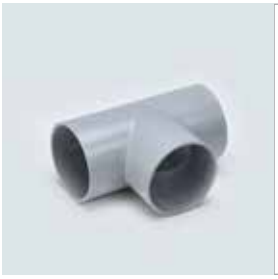
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
11.0	4	M092042309	-	24
14.0	5	M092042311	-	12
16.0	6	M092042312	-	08
20.0	8	M092042314	-	03

REDUCER COUPLER

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
14.0 x 7.5	5 x 2½	M092044197	-	22
14.0 x 9.0	5 X 3	M092044198	-	22
14.0 x 11.0	5 x 4	M092044160	-	20
16.0 x 9.0	6 x 3	M092044172	-	12
16.0 x 11.0	6 x 4	M092044131	-	12
16.0 x 14.0	6 x 5	M092044159	-	12
20.0 x 11.0	8 x 4	M092044146	-	08
20.0 x 16.0	8 x 6	M092044147	-	08



TEE

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
5.0	1½	M092040105	10	70
6.3	2	M092040106I	-	80
7.5	2½	M092040107I	-	60
9.0	3	M092040108I	-	36
11.0	4	M092040109I	-	20
14.0	5	M092040111	-	08
16.0	6	M092040112I	-	06

REDUCER TEE

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
7.5 x 6.3	2½ x 2	M092040236	-	60
9.0 x 6.3	3 x 2	M092040261	-	46
9.0 x 7.5	3 x 2½	M092040230	-	40
11.0 x 7.5	4 x 2½	M092040229	-	24
11.0 x 9.0	4 x 3	M092040243	-	18
16.0 x 7.5	6 x 2½	M092040235	-	10
16.0 x 11.0	6 x 4	M092040231	-	08

END CAP

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3	2	M092042906	-	115
7.5	2½	M092042907	-	136
9.0	3	M092042908	-	75
11.0	4	M092042909	-	75
14.0	5	M092042911	-	32
18.0	7	M092042913	-	18

For ISI marked fittings, kindly consult Astral Representative.

AQUASAFE SOLVENT FITTED
MOULDED FITTINGS (6 KGF/CM²)

COUPLER

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
4.0	1¼	M092061004	35	280
5.0	1½	M092061005	25	150
6.3	2	M092061006	-	112
7.5	2½	M092061007	-	96
9.0	3	M092061008	-	60
11.0	4	M092061009	-	36
14.0	5	M092061011	-	16
16.0	6	M092061012	-	10
20.0	8	M092061014	-	12
25.0	10	M092061016	-	02

ELBOW 90°

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
4.0	1¼	M092060504	30	180
5.0	1½	M092060505	15	105
6.3	2	M092060506	-	63
7.5	2½	M092060507	-	60
9.0	3	M092060508	-	38
11.0	4	M092060509	-	20
14.0	5	M092060511	-	12
16.0	6	M092060512	-	06
18.0	7	M092060513	-	04
20.0	8	M092060514	-	03
25.0	10	M092060516	-	02
31.5	12	M092060518	-	01

ELBOW 45°

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
4.0	1¼	M092062304	30	150
5.0	1½	M092062305	15	120
6.3	2	M092062306	-	70
7.5	2½	M092062307	-	80
9.0	3	M092062308	-	42
11.0	4	M092062309	-	24
16.0	6	M092062312	-	08
20.0	8	M092062314	-	03
25.0	10	M092062316	-	02

REDUCER ELBOW

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
7.5 x 6.3	2½ x 2	M092060636	-	32
9.0 x 5.0	3 x 1½	M092060662	-	24
9.0 x 6.3	3 x 2	M092060661	-	42
11.0 x 6.3	4 x 2	M092060632	-	24
11.0 x 7.5	4 x 2½	M092060629	-	20
11.0 x 9.0	4 x 3	M092060643	-	10

THREADED ELBOW 90°

HSN CODE: 39174000

Size (cm x inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3 x 2	M092060806	-	64
7.5 x 2	M092060807	-	36
7.5 x 2½	M092060815	-	24
9.0 x 3	M092060808	-	14
11.0 x 4	M092060809	-	08

TEE

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
4.0	1¼	M092060104	15	120
5.0	1½	M092060105	10	70
6.3	2	M092060106	-	80
7.5	2½	M092060107	-	60
9.0	3	M092060108	-	36
11.0	4	M092060109	-	20
14.0	5	M092060111	-	08
16.0	6	M092060112	-	05
18.0	7	M092060113	-	04
20.0	8	M092060114	-	03
25.0	10	M092060116	-	01
31.5	12	M092060118	-	01

ENLARGE TEE

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3 x 7.5	2 x 2½	M092065036	-	51

CROSS TEE

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
4.0	1¼	M092062404	-	65
6.3	2	M092062406	-	55
7.5	2½	M092062407	-	28
9.0	3	M092062408	-	18
11.0	4	M092062409	-	13

REDUCER CROSS TEE

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
4.0 x 2.0	1¼ x ½	M092064793	-	75
4.0 x 2.5	1¼ x ¾	M092064792	-	75
4.0 x 3.2	1¼ x 1	M092064791	-	75
6.3 x 2.0	2 x ½	M092064763	-	84
6.3 x 2.5	2 x ¾	M092064764	-	105
6.3 x 3.2	2 x 1	M092064765	-	100
6.3 x 4.0	2 x 1¼	M092064740	-	75
6.3 x 5.0	2 x 1½	M092064739	-	60
7.5 x 5.0	2½ x 1½	M092064737	-	43
7.5 x 6.3	2½ x 2	M092064736	-	40

AQUASAFE SOLVENT FITTED
MOULDED FITTINGS (6 KGF/CM²)

SINGLE 'Y' (TEE 45°)

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
4.0	1¼	M092063804	-	65
5.0	1½	M092063805	-	66
6.3	2	M092063806	-	36
7.5	2½	M092063807	-	33
9.0	3	M092063808	-	24
11.0	4	M092063809	-	14
14.0	5	M092063811	-	06
16.0	6	M092063812	-	04
20.0	8	M092063814	-	02
25.0	10	M092063816	-	01

REDUCER Y

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
11.0 x 6.3	4 x 2	M092064032	-	21
16.0 x 11.0	6 x 4	M092064031	-	06

REDUCER MAPT

HSN CODE: 39174000

Size (cm x inch)	Product Code	Pkg.(Nos.) Std.	Mast.
7.5 x 1½	M092064837	-	70
9.0 x 2	M092064861	-	40
9.0 x 2½	M092064830	-	40

MAPT

HSN CODE: 39174000

Size (cm x inch)	Product Code	Pkg.(Nos.) Std.	Mast.
4.0 x 1¼	M092061304	50	350
5.0 x 1½	M092061305	30	210
6.3 x 2	M092061306	-	192
7.5 x 2½	M092061307	-	120
9.0 x 3	M092061308	-	72
11.0 x 4	M092061309	-	45
14.0 x 5	M092061311	-	26
16.0 x 6	M092061312	-	16

FAPT

HSN CODE: 39174000

Size (cm x inch)	Product Code	Pkg.(Nos.) Std.	Mast.
4.0 x 1¼	M092061604	40	280
5.0 x 1½	M092061605	30	180
6.3 x 2	M092061606	-	70
7.5 x 2½	M092061607	-	112
9.0 x 3	M092061608	-	72
11.0 x 4	M092061609	-	42
14.0 x 5	M092061611	-	18
16.0 x 6	M092061612	-	14

REDUCER FAPT

HSN CODE: 39174000

Size (cm x inch)	Product Code	Pkg.(Nos.) Std.	Mast.
4.0 x ¾	M092064692	25	250
4.0 x 1	M092064691	50	300
5.0 x 1	M092064605	25	125
6.3 x 1¼	M092064640	-	100
7.5 x 1½	M092064637	-	120
7.5 x 2	M092064636	-	60
9.0 x 1½	M092064662	-	44
9.0 x 2	M092064661	-	40
9.0 x 2½	M092064630	-	45
11.0 x 1½	M092064644	-	24
11.0 x 3	M092064643	-	33

END CAP

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
4.0	1¼	M092062904	70	560
5.0	1½	M092062905	50	350
6.3	2	M092062906	-	240
7.5	2½	M092062907	-	136
9.0	3	M092062908	-	75
11.0	4	M092062909	-	75
14.0	5	M092062911	-	32
16.0	6	M092062912	-	28
18.0	7	M092062913	-	15
20.0	8	M092062914	-	11
25.0	10	M092062916	-	02
31.5	12	M092062918	-	03

THREADED END CAP

HSN CODE: 39174000

Size (cm x inch)	Product Code	Pkg.(Nos.) Std.	Mast.
4.0 x 1¼	M092064504	50	300
5.0 x 1½	M092064505	50	250
6.3 x 2	M092064506	-	168
7.5 x 2½	M092064507	-	84
9.0 x 3	M092064508	-	55
11.0 x 4	M092064509	-	66

REDUCER TEE

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
5.0 x 2.5	1½ x ¾	M092060295	15	105
5.0 x 3.2	1½ x 1	M092060294	-	65
6.3 x 4.0	2 x 1¼	M092060240	-	60
6.3 x 5.0	2 x 1½	M092060239	-	30
7.5 x 5.0	2½ x 1½	M092060237	-	80
7.5 x 6.3	2½ x 2	M092060236	-	60
9.0 x 6.3	3 x 2	M092060261	-	36
9.0 x 7.5	3 x 2½	M092060230	-	40
11.0 x 5.0	4 x 1½	M092060244	-	33
11.0 x 6.3	4 x 2	M092060232	-	24
11.0 x 7.5	4 x 2½	M092060229	-	24
11.0 x 9.0	4 x 3	M092060243	-	18
14.0 x 11.0	5 x 4	M092060260	-	12
16.0 x 7.5	6 x 2½	M092060235	-	05
16.0 x 9.0	6 x 3	M092060272	-	08
16.0 x 11.0	6 x 4	M092060231	-	08
20.0x16.0	8 x 6	M092060247	-	04

AQUASAFE SOLVENT FITTED
MOULDED FITTINGS (6 KGF/CM²)

THREADED TEE

HSN CODE: 39174000

Size (cm x inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3 x 2	M092060406	-	25
7.5 x 2½	M092060415	-	18
9.0 x 3	M092060408	-	10
11.0 x 2	M092060409	-	09
11.0 x 2½	M092060417	-	21
11.0 x 3	M092060418	-	18
11.0 x 4	M092060419	-	10

REDUCER BUSH (SPG X SOC)

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
4.0 x 2.5	1¼ x ¾	M092061992	100	400
4.0 x 3.2	1¼ x 1	M092061991	100	700
5.0 x 3.2	1½ x 1	M092061994	50	400
5.0 x 4.0	1½ x 1¼	M092061941	50	350
6.3 x 4.0	2 x 1¼	M092061940	-	150
6.3 x 5.0	2 x 1½	M092061939	-	150
7.5 x 4.0	2½ x 1¼	M092061938	-	90
7.5 x 5.0	2½ x 1½	M092061937	-	90
7.5 x 6.3	2½ x 2	M092061936	-	170
9.0 x 5.0	3 x 1½	M092061962	-	48
9.0 x 6.3	3 x 2	M092061961	-	48
9.0 x 7.5	3 x 2½	M092061930	-	48
11.0 x 6.3	4 x 2	M092061932	-	60
11.0 x 7.5	4 x 2½	M092061929	-	60
11.0 x 9.0	4 x 3	M092061943	-	60
14.0 x 11.0	5 x 4	M092061960	-	28
16.0 x 11.0	6 x 4	M092061931	-	18
20.0 x 16.0	8 x 6	M092061947	-	04
25.0 x 16.0	10 x 6	M092061949	-	04
25.0 x 20.0	10 x 8	M092061950	-	03

THREADED REDUCER BUSH

HSN CODE: 39174000

Size (cm x inch)	Product Code	Pkg.(Nos.) Std.	Mast.
7.5 x 2	M092065207	-	88
9.0 x 2½	M092065216	-	52

REDUCER COUPLER

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
4.0 x 2.5	1¼ x ¾	M092061192	50	300
4.0 x 3.2	1¼ x 1	M092061191	50	350
5.0 x 3.2	1½ x 1	M092061194	30	210
5.0 x 4.0	1½ x 1¼	M092061141	25	150
6.3 x 3.2	2 x 1	M092061165	-	140
6.3 x 4.0	2 x 1¼	M092061140	-	120
6.3 x 5.0	2 x 1½	M092061139	-	125
7.5 x 4.0	2½ x 1¼	M092061138	-	70
7.5 x 5.0	2½ x 1½	M092061137	-	154
7.5 x 6.3	2½ x 2	M092061136	-	70
9.0 x 5.0	3 x 1½	M092061162	-	80
9.0 x 6.3	3 x 2	M092061161	-	84
9.0 x 7.5	3 x 2½	M092061130	-	80
11.0 x 5.0	4 x 1½	M092061144	-	60
11.0 x 6.3	4 x 2	M092061132	-	60
11.0 x 7.5	4 x 2½	M092061129	-	42
11.0 x 9.0	4 x 3	M092061143	-	42
14.0 x 11.0	5 x 4	M092064160	-	18
16.0 x 11.0	6 x 4	M092061131	-	10
16.0 x 14.0	6 x 5	M092064159	-	12
18.0 x 11.0	7 x 4	M092064185	-	12
20.0 x 11.0	8 x 4	M092064146	-	08
20.0 x 16.0	8 x 6	M092064147	-	10
20.0 x 18.0	8 x 7	M092064148	-	08
25.0 x 20.0	10 x 8	M092061150	-	02

SERVICE SADDLE

HSN CODE: 39174000

Size (cm x inch)	Product Code	Pkg.(Nos.) Std.	Mast.
5.0 x ½	M092064296	-	60
5.0 x ¾	M092064295	-	60
5.0 x 1	M092064294	-	60
6.3 x ½	M092064263	-	52
6.3 x ¾	M092064264	-	52
6.3 x 1	M092064265	-	52
7.5 x ½	M092064266	-	36
7.5 x ¾	M092064267	-	36
7.5 x 1	M092064268	-	36
9.0 x ½	M092064269	-	32
9.0 x ¾	M092064270	-	26
9.0 x 1	M092064271	-	26
11.0 x ½	M092064273	-	24
11.0 x ¾	M092064274	-	24
11.0 x 1	M092064275	-	24
14.0 x ½	M092064276	-	18
14.0 x ¾	M092064277	-	18
14.0 x 1	M092064278	-	18
16.0 x ½	M092064279	-	14
16.0 x ¾	M092064280	-	14
16.0 x 1	M092064281	-	14
20.0 x 1	M092064286	-	08
20.0 x 1¼	M092064287	-	08
20.0 x 1½	M092064288	-	08
20.0 x 2	M092064289	-	08

SERVICE SADDLE BOTH SIDE THREADED

HSN CODE: 39174000

Size (cm x inch)	Product Code	Pkg.(Nos.) Std.	Mast.
9.0 x ¾	M092064970	-	26
9.0 x 1	M092064971	-	26

FLANGE WITH FIX ADAPTOR

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3	2	M092063206	-	30
7.5	2½	M092063207	-	20
9.0	3	M092063208	-	14
11.0	4	M092063209	-	10

FLANGE

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3	2	M092063506	-	100
7.5	2½	M092063507	-	72
9.0	3	M092063508	-	63
11.0	4	M092063509	-	35

TAIL PIECE

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3	2	M092064206	-	105
7.5	2½	M092063607	-	60
9.0	3	M092063608	-	70
11.0	4	M092063609	-	42
14.0	5	M092063611	-	12
16.0	6	M092063612	-	14
20.0	8	M092063614	-	06

AQUASAFE SOLVENT FITTED
MOULDED FITTINGS (10 KGF/CM²)

COUPLER

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	½	M092101001	100	800
2.5	¾	M092101002	100	500
3.2	1	M092101003	50	450
4.0	1¼	M092101004	35	280
5.0	1½	M092101005	25	150
6.3	2	M092101006	-	112
7.5	2½	M092101007	-	96
9.0	3	M092101008	-	60
11.0	4	M092101009	-	36
16.0	6	M092101012	-	10

ELBOW 90°

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	½	M092100501	100	700
2.5	¾	M092100502	100	400
3.2	1	M092100503	50	350
4.0	1¼	M092100504	25	200
5.0	1½	M092100505	15	105
6.3	2	M092100506	-	84
7.5	2½	M092100507	-	60
9.0	3	M092100508	-	32
11.0	4	M092100509	-	20
16.0	6	M092100512	-	06

REDUCER COUPLER

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.5 x 2.0	¾ x ½	M092101142	150	750
3.2 x 2.0	1 x ½	M092101157	100	700
3.2 x 2.5	1 x ¾	M092101158	100	600

THREADED ELBOW

HSN CODE: 39174000

Size (cm x inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0 x ½	M092100811	100	600
2.5 x ½	M092100812	100	400
2.5 x ¾	M092100814	50	600
3.2 x ½	M092100813	50	450

REDUCER ELBOW

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
3.2 x 2.5	1 x ¾	M092100658	50	400

ELBOW 45°

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	½	M092102301	100	700
2.5	¾	M092102302	100	400
3.2	1	M092102303	50	350

TEE

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	½	M092100101	100	700
2.5	¾	M092100102	50	400
3.2	1	M092100103	25	200
4.0	1¼	M092100104	15	120
5.0	1½	M092100105	10	70
6.3	2	M092100106	-	48
7.5	2½	M092100107	-	42
9.0	3	M092100108	-	25
11.0	4	M092100109	-	15
16.0	6	M092100112	-	05

REDUCER TEE

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.5 x 2.0	¾ x ½	M092100242	60	420
3.2 x 2.0	1 x ½	M092100257	30	270
3.2 x 2.5	1 x ¾	M092100258	30	240
4.0 x 2.5	1¼ x ¾	M092100292	25	150
4.0 x 3.2	1¼ x 1	M092100291	20	140
6.3 x 2.5	2 x ¾	M092100264	-	75
6.3 x 3.2	2 x 1	M092100265	-	70
6.3 x 5.0	2 x 1½	M092100239	-	56

THREADED TEE

HSN CODE: 39174000

Size (cm x inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0 x ½	M092100411	100	400
2.5 x ½	M092100412	50	400
2.5 x ¾	M092100414	50	250
3.2 x ½	M092100413	30	270

MAPT

HSN CODE: 39174000

Size (cm x inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0 x ½	M092101301	150	1050
2.5 x ¾	M092101302	150	600
3.2 x 1	M092101303	50	550
6.3 x 2	M092101306	-	100
7.5 x 2½	M092101307	-	80
9.0 x 3	M092101308	-	60
11.0 x 4	M092101309	-	42

REDUCER FAPT

HSN CODE: 39174000

Size (cm x inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.5 x ½	M092104642	100	600
3.2 x ½	M092104657	60	540
3.2 x ¾	M092104658	60	540
4.0 x ¾	M092104692	50	250
4.0 x 1	M092104691	50	250

AQUASAFE SOLVENT FITTED
MOULDED FITTINGS (10 KGF/CM²)

FAPT

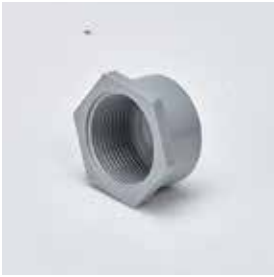
HSN CODE: 39174000

Size (cm x inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0 x ½	M092101601	100	1200
2.5 x ¾	M092101602	125	500
3.2 x 1	M092101603	50	500
6.3 x 2	M092101606	-	112
7.5 x 2½	M092101607	-	48
9.0 x 3	M092101608	-	45
11.0 x 4	M092101609	-	39

END CAP

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	½	M092102901	150	1200
2.5	¾	M092102902	100	1500
3.2	1	M092102903	100	800



THREADED END CAP

HSN CODE: 39174000

Size (cm x inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0 x ½	M092104501	200	1400
2.5 x ¾	M092104502	200	1000
3.2 x 1	M092104503	125	875

REDUCER BUSH

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.5 x 2.0	¾ x ½	M092101942	200	1600
3.2 x 2.0	1 x ½	M092101957	100	1100
3.2 x 2.5	1 x ¾	M092101958	100	1200

FLANGE WITH FIX ADAPTOR

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
16.0	6	M092103212	-	08

AQUASAFE SOLVENT FITTED
MOULDED FITTINGS (16 KGF/CM²)

REDUCER BRASS TEE

HSN CODE: 39174000

Size (cm x inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.5 x ½	M062160369	25	75
3.2 x ½	M0621603109	25	75

REDUCER BRASS COUPLER

HSN CODE: 39174000

Size (cm x inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.5 x ½	M062161269	-	150
3.2 x ½	M0621612109	-	150

REDUCER BRASS ELBOW

HSN CODE: 39174000

Size (cm x inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.5 x ½	M062160769	-	100
3.2 x ½	M0621607109	-	100

AQUASAFE SOLVENT FITTED
FABRICATED FITTINGS (2.5 KGF/CM²)

FABRICATED SINGLE 'Y'

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
31.5	12	F092002518Y	-	01

Fabricated fittings of other sizes, types and pressure rating are also available upon request.

AQUASAFE SOLVENT FITTED
FABRICATED FITTINGS (4 KGF/CM²)

FABRICATED COUPLER
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3	2	F092041006	-	70
7.5	2½	F092041007	-	40
9.0	3	F092041008	-	30
11.0	4	F092041009	-	15
14.0	5	F092041011	-	08
16.0	6	F092041012	-	06
18.0	7	F092041013	-	01
20.0	8	F092041014	-	01
22.5	9	F092041015	-	01
25.0	10	F092041016	-	01
31.5	12	F092041018	-	01
40.0	16	F092041020	-	01

FABRICATED REPAIR COUPLER (ESR)
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3	2	F092041006E	-	01
7.5	2½	F092041007E	-	01
9.0	3	F092041008E	-	01
11.0	4	F092041009E	-	01
18.0	7	F092041013E	-	01
20.0	8	F092041014E	-	01
22.5	9	F092041015E	-	01
25.0	10	F092041016E	-	01

FABRICATED END CAP
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
31.5	12	F092042914	-	01

FABRICATED BEND 90°
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3	2	F092040506	-	23
7.5	2½	F092040507	-	13
9.0	3	F092040508	-	06
11.0	4	F092040509	-	04
14.0	5	F092040511	-	01
16.0	6	F092040512	-	01
18.0	7	F092040513	-	01
20.0	8	F092040514	-	01
22.5	9	F092040515	-	01
25.0	10	F092040516	-	01
28.0	11	F092040517	-	01
31.5	12	F092040518		01

FABRICATED BEND 45°
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3	2	F092044306	-	25
7.5	2½	F092044307	-	15
9.0	3	F092044308	-	13
11.0	4	F092044309	-	08
14.0	5	F092044311	-	04
16.0	6	F092044312	-	01
18.0	7	F092044313	-	01
20.0	8	F092044314	-	01
22.5	9	F092044315	-	01
25.0	10	F092044316	-	01
31.5	12	F092044318	-	01

Fabricated fittings of other sizes, types and pressure rating are also available upon request.

FABRICATED SINGLE 'Y'

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
31.5	12	F092000418Y	-	01

FABRICATED REDUCER TEE

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
20.0 x 11.0	8 x 4	F092040914T	-	01
20.0 x 16.0	8 x 6	F092041214T	-	01

FABRICATED REDUCER COUPLER

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
14.0x12.5	4	F092041011R	-	01

FABRICATED DOUBLE 'Y'

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
16.0	6	F092041212Y	-	01

FABRICATED ADAPTOR (ESRXPSS-SOC)

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
20.0 x 20.0	8 x 8	F092041414EA	-	01
25.0 x 25.0	10 x 10	F092041616EA	-	01
31.5 x 31.5	12 x 12	F092041818EA	-	01

FABRICATED TEE

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
12.5	4½	F09200410T	-	01
18.0	7	F09200413T	-	01
25.0	10	F09200416T	-	01
28.0	11	F09200417T	-	01
31.5	12	F09200418T	-	01

Fabricated fittings of other sizes, types and pressure rating are also available upon request.

AQUASAFE SOLVENT FITTED
FABRICATED FITTINGS (6 KGF/CM²)

FABRICATED COUPLER
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3	2	F092061006	-	70
7.5	2½	F092061007	-	40
9.0	3	F092061008	-	30
11.0	4	F092061009	-	15
12.5	4½	F092061010#	-	01
14.0	5	F092061011	-	08
16.0	6	F092061012	-	06
18.0	7	F092061013	-	01
20.0	8	F092061014	-	01
22.5	9	F092061015	-	01
25.0	10	F092061016	-	01
28.0	11	F092061017	-	01
31.5	12	F092061018	-	01
40.0	16	F092061020#	-	01

FABRICATED CROSS TEE
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
14.0	5	F092060011CT	-	01
16.0	6	F092060012CT	-	01
20.0	8	F092060014CT#	-	01

FABRICATED TEE
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
12.5	4½	F09200610T	-	01
14.0	5	F092060111	-	01
18.0	7	F09200613T	-	01
22.5	9	F09200615T	-	01
25.0	10	F09200616T	-	01
28.0	11	F09200617T	-	01

FABRICATED LONG BEND 90°
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
4.0	1¼	F092060504	-	50
5.0	1½	F092060505	-	40
6.3	2	F092060506	-	23
7.5	2½	F092060507	-	13
9.0	3	F092060508	-	06
11.0	4	F092060509	-	04
12.5	4½	F092060510	-	01
14.0	5	F092060511	-	01
16.0	6	F092060512	-	01
18.0	7	F092060513	-	01
20.0	8	F092060514	-	01
22.5	9	F092060515	-	01
25.0	10	F092060516	-	01
28.0	11	F092060517	-	01
31.5	12	F092060518	-	01

FABRICATED BEND 22.5°
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
9.0	3	F092560508	-	01

FABRICATED BEND 30°
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
16.0	6	F092064212	-	01

FABRICATED TAIL PIECE
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
5.0	1½	F092060505TP#	-	01
12.5	4½	F092061010TP	-	01
18.0	7	F092061013TP	-	01
22.5	9	F092061015TP	-	01
25.0	10	F092061016TP	-	01
28.0	11	F092061017TP	-	01
31.5	12	F092061018TP	-	01

Fabricated fittings of other sizes, types and pressure rating are also available upon request.

FABRICATED REDUCER TEE
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
11.0x5.0	4x1½	F091060244	-	01
12.5x5.0	4½x1½	F092060510T	-	01
12.5x11.0	4½x4	F092060910T#	-	01
14.0x5.0	5x1½	F092060511T	-	01
14.0x9.0	5x3	F092060811T	-	01
14.0x12.5	5x4½	F092061011T	-	01
16.0x5.0	6x1½	F092060512T	-	01
16.0x12.5	6x4½	F092061012T	-	01
16.0x14.0	6x5	F092061112T	-	01
18.0x5.0	7x1½	F092060513T	-	01
18.0x11.0	7x4	F092060913T	-	01
18.0x12.5	7x4½	F092061013T	-	01
18.0x14.0	7x5	F092061113T	-	01
18.0x16.0	7x6	F092061213T	-	01
20.0x5.0	8x1½	F092060514T	-	01
20.0x11.0	8x4	F092060914T	-	01
20.0x12.5	8x4½	F092061014T	-	01
20.0x14.0	8x5	F092061114T	-	01
20.0x16.0	8x6	F092061214T	-	01
20.0x18.0	8x7	F092061314T	-	01
22.5x5.0	9x1½	F092060515T	-	01
22.5x9.0	9x3	F092060815T	-	01
22.5x11.0	9x4	F092060915T	-	01
22.5x12.5	9x4½	F092061015T	-	01
22.5x14.0	9x5	F092061115T	-	01
22.5x16.0	9x6	F092061215T	-	01
22.5x18.0	9x7	F092061315T	-	01
22.5x20.0	9x8	F092061415T	-	01
25.0x5.0	10x1½	F092060516T	-	01
25.0x9.0	10x3	F092060816T	-	01
25.0x11.0	10x4	F092060916T	-	01
25.0x12.5	10x4½	F092061016T	-	01
25.0x14.0	10x5	F092061116T	-	01
25.0x18.0	10x7	F092061316T	-	01
25.0x16.0	10x6	F092061216T	-	01
25.0x20.0	10x8	F092061416T	-	01
25.0x22.5	10x9	F092061516T	-	01
28.0x5.0	11x1½	F092060517T	-	01
28.0x9.0	11x3	F092060817T	-	01
28.0x11.0	11x4	F092060917T	-	01
28.0x12.5	11x4½	F092061017T	-	01

FABRICATED REDUCER TEE
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
28.0x14.0	11x5	F092061117T	-	01
28.0x16.0	11x6	F092061217T	-	01
28.0x18.0	11x7	F092061317T	-	01
28.0x20.0	11x8	F092061417T	-	01
28.0x22.5	11x9	F092061517T	-	01
28.0x25.0	11x10	F092061617T	-	01
31.5x5.0	12x1½	F092060518T	-	01
31.5x9.0	12x3	F092060818T	-	01
31.5x11.0	12x4	F092060918T	-	01
31.5x12.5	12x1½	F092061018T	-	01
31.5x14.0	12x5	F092061118T	-	01
31.5x16.0	12x6	F092061218T	-	01
31.5x18.0	12x7	F092061318T	-	01
31.5x20.0	12x8	F092061418T	-	01
31.5x22.5	12x9	F092061518T	-	01
31.5x25.0	12x10	F092061618T	-	01
31.5x28.0	12x11	F092061718T	-	01

FABRICATED BEND 45°
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3	2	F092064306	-	25
7.5	2½	F092064307	-	15
9.0	3	F092064308	-	13
11.0	4	F092064309	-	08
12.5	4½	F092064310	-	01
14.0	5	F092064311	-	04
16.0	6	F092064312	-	01
18.0	7	F092064313	-	01
20.0	8	F092064314	-	01
22.5	9	F092064315	-	01
25.0	10	F092064316	-	01
28.0	11	F092064317	-	01
31.5	12	F092064318	-	01

Fabricated fittings of other sizes, types and pressure rating are also available upon request.

FABRICATED REDUCER COUPLER

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
12.5x9.0	4½x3	F092060910R	-	01
12.5x11.0	4½x4	F092060810R	-	01
14.0x 6.3	5x2	F092060611R	-	01
14.0x7.5	5x2½	F092060711R	-	01
14.0x9.0	5x3	F092060811R	-	01
14.0x12.5	5x4½	F092061011R	-	01
16.0x9.0	6x3	F092060812R	-	01
16.0x12.5	6x4½	F092061012R	-	01
18.0x6.3	7x2	F092060613R	-	01
18.0x14.0	7x5	F092061113R	-	01
18.0x16.0	7x6	F092061213R	-	01
20.0x6.3	8x2	F092060614R	-	01
20.0x7.5	8x2½	F092060714R	-	01
20.0x12.5	8x4	F092060914R	-	01
20.0x18.0	8x7	F092061014R	-	01
22.5x14.0	9x5	F092061314R	-	01
20.0x11.0	8x4	F092061115R	-	01
25.0x14.0	10x5	F092061116R	-	01
22.5x16.0	9x6	F092061215R	-	01
22.5x18.0	9x7	F092061315R	-	01
22.5x20.0	9x8	F092061415R	-	01
25.0x11.0	10x4	F092060916R	-	01
25.0x16.0	10x6	F092061216R	-	01
25.0x18.0	10x7	F092061316R	-	01
25.0x22.5	10x9	F092061516R	-	01
28.0X16.0	11x6	F092061217R	-	01
28.0x16.0	11x6	F092061317R	-	01
25.0x20.0	10x8	F092061416R	-	01
28.0x20.0	11x8	F092061417R	-	01
28.0x22.5	11x9	F092061517R	-	01
28.0x25.0	11x10	F092061617R	-	01
31.5x12.5	12x1½	F092061018R	-	01
31.5x140	12x5	F092061118R	-	01
31.5x18.0	12x7	F092061318R	-	01
31.5x22.5	12x9	F092061518R	-	01
31.5x16.0	12x6	F092061218R	-	01
31.5x20.0	12x8	F092061418R	-	01
31.5x25.0	12x9	F092061618R	-	01
31.5x28.0	12x11	F092061718R	-	01

FABRICATED ADAPTOR

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
11.0 x 4.0	4 x 1¼	F092060409A	-	01

FABRICATED REDUCER 'Y'

HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
7.5x6.3	2½x2	F092060607Y#	-	01
14.0x11.0	5x4	F092060911Y	-	01
16.0x11.0	6x4	F092060912Y	-	01
16.0x12.5	6x4½	F092061012Y	-	01
16.0x14.0	6x5	F092061112Y	-	01
18.0x11.0	7x4	F092060913Y	-	01
18.0x12.5	7x4½	F092061013Y	-	01
18.0x14.0	7x5	F092061113Y	-	01
20.0x7.5	8x2½	F092060714Y	-	01
20.0x11.0	8x4	F092060914Y	-	01
20.0x12.5	8x4½	F092061014Y	-	01
20.0x14.0	8x5	F092061114Y	-	01
20.0x16.0	8x6	F092061214Y	-	01
22.5x11.0	9x4	F092060915Y	-	01
22.5x12.5	9x4½	F092061015Y#	-	01
22.5x14.0	9x5	F092061115Y	-	01
22.5x16.0	9x6	F092061215Y#	-	01
22.5x18.0	9x7	F092061315Y#	-	01
25.0x11.0	10x4	F092060916Y	-	01
25.0x12.5	10x4½	F092061016Y#	-	01
25.0x14.0	10x5	F092061116Y	-	01
25.0x16.0	10x6	F092061216Y	-	01
25.0x18.0	10x7	F092061316Y	-	01
25.0x20.0	10x8	F092061416Y	-	01
25.0x22.5	10x9	F092061516Y	-	01
28.0x11.0	11x4	F092060917Y	-	01
28.0x12.5	11x4½	F092061017Y	-	01
28.0x14.0	11x5	F092061117Y	-	01
28.0x 16.0	11x6	F092061217Y	-	01
28.0x20.0	11x8	F092061417Y	-	01
31.5x11.0	12x4	F092060918Y	-	01
31.5x12.5	12x4½	F092061018Y	-	01
31.5x14.0	12x5	F092061118Y	-	01
31.5x16.0	12x6	F092061218Y	-	01
31.5x18.0	12x7	F092061318Y	-	01
31.5x20.0	12x8	F092061418Y	-	01
31.5x22.5	12x9	F092061518Y	-	01
31.5x25.0	12x10	F092061618Y	-	01
31.5x28.0	12x11	F092061718Y	-	01

Fabricated fittings of other sizes, types and pressure rating are also available upon request.

AQUASAFE SOLVENT FITTED
FABRICATED FITTINGS (6 KGF/CM²)

FABRICATED DOUBLE 'Y'
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
11.0	4	F092060009DY	-	01
14.0	5	F092060011DY	-	01
16.0	6	F092061212Y	-	01
20.0	8	F092060014DY#	-	01

FABRICATED COUPLER (ESR)
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3	2	F092061006E	-	01
7.5	2½	F092061007E	-	01
9.0	3	F092061008E	-	01
11.0	4	F092061009E	-	01
22.5	9	F092061015E	-	01
25.0	10	F092061016E	-	01
31.5	12	F092061018E	-	01
35.5	14	F092061019E	-	01
40.0	16	F092061020E	-	01

FABRICATED SINGLE 'Y'
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
12.5	4½	F092060010Y	-	01
16.0	6	F092060012Y#	-	01
20.0	8	F092060014Y	-	01
22.5	9	F092060015Y	-	01
25.0	10	F092060016Y	-	01
28.0	11	F092060017Y	-	01
31.5	12	F092060018Y	-	01

FABRICATED END CAP
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
28.0	11	F092062917	-	01

FABRICATED HEIGHT RISER
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
7.5 x 4.0	2½ x 1¼	F092060407HR	-	01

AQUASAFE SOLVENT FITTED
FABRICATED FITTINGS (8 KGF/CM²)

FABRICATED LONG BEND 90°
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
5.0	1½	F092080505	-	01
22.5	9	F092080515	-	01

FABRICATED TEE
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
5.0	1½	F09200805T	-	01
11.0	4	F09200809T	-	01
22.5	9	F09200815T	-	01

FABRICATED COUPLER
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
5.0	1½	F092081005	-	01
11.0	4	F092081009	-	01
22.5	9	F092081015	-	01

Fabricated fittings of other sizes, types and pressure rating are also available upon request.

AQUASAFE SOLVENT FITTED
FABRICATED FITTINGS (10 KGF/CM²)

FABRICATED COUPLER
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
4.0	1¼	F092101004	-	50
5.0	1½	F092101005	-	40
6.3	2	F092101006	-	70
7.5	2½	F092101007	-	40
9.0	3	F092101008	-	30
11.0	4	F092101009	-	15
14.0	5	F092101011	-	08
16.0	6	F092101012	-	06
18.0	7	F092101013	-	01
20.0	8	F092101014	-	01
22.5	9	F092101015	-	01
25.0	10	F092101016	-	01
31.5	12	F092101018	-	01
40.0	16	F182105220	-	01

FABRICATED BEND 45°
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3	2	F092104306	-	25
7.5	2½	F092104307	-	15
9.0	3	F092104308	-	13
11.0	4	F092104309	-	08

FABRICATED REDUCER 'Y'
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
16.0 x 11.0	6 x 4	F092100912Y	-	25
16.0 x16.0	6 x 6	F092101212Y	-	15
20.0 x 16.0	8 x 6	F092101214Y	-	13

FABRICATED ADAPTOR
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
16.8 x 16.0	6 x 6	F0921016812A	-	01

FABRICATED COUPLER
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3	2	F092101006E	-	01
7.5	2½	F092101007E	-	01
9.0	3	F092101008E	-	01
11.0	4	F092101009E	-	01
12.5	4½	F092101010E	-	01
14.0	5	F092101011E	-	01
16.0	6	F092101012E	-	01
20.0	8	F092101014E	-	01
22.5	9	F092101015E	-	01
25.0	10	F092101016E	-	01
28.0	11	F092101017E	-	01
31.5	12	F092101018E#	-	01
40.0	16	F092101020E	-	01

Fabricated fittings of other sizes, types and pressure rating are also available upon request.

6 M PIPE

HSN CODE: 39172390

Size (cm)	Size (inch)	Product Code (4 kgf/cm²)	Product Code (6 kgf/cm²)	Product Code (8 kgf/cm²)	Product Code (10 kgf/cm²)	Product Code (12.5 kgf/cm²)
6.3	2	M261040606	M261060606	M261080606	M261100606	M261125606
7.5	2½	M261040607	M261060607	M261080607	M261100607	M261125607
9.0	3	M261040608	M261060608	M261080608	M261100608	M261125608
11.0	4	M261040609	M261060609	M261080609	M261100609	M261125609
12.5	4½	M261040610	M261060610	M261080610	M261100610	M261125610
14.0	5	M261040611	M261060611	M261080611	M261100611	M261125611
16.0	6	M261040612	M261060612	M261080612	M261100612	M261125612
18.0	7	M261040613	M261060613	M261080613	M261100613	M261125613
20.0	8	M261040614	M261060614	M261080614	M261100614	M261125614
22.5	9	M261040615	M261060615	M261080615	M261100615	M261125615
25.0	10	M261040616	M261060616	M261080616	M261100616	M261125616
28.0	11	M261040617	M261060617	M261080617	M261100617	M261125617
31.5	12	M261040618	M261060618	M261080618	M261100618	M261125618
35.5	14	M261040619	M261060619	-	-	-
40.0	16	M261040620	M261060620	-	-	-

AQUASAFE SOLVENT
ADHESIVE SOLUTION & PIPE JOINT LUBRICANT

IPS WELD-ON PVC 100™ SOLVENT CEMENT

(Suitable for 2.0 cm to 11.0 cm pipes)

HSN CODE: 35069999

Qty. (ml)	Product Code	Pkg.(Nos.) Std.	Mast.
50	TMIPS100U050	-	48
118	TMIPS100U118	-	24
237	TMIPS100U237	-	24
473	TMIPS100U437	-	12
946	TMIPS100U946	-	12

uPVC 717 HEAVY BODIED

(Suitable for 12.5 cm pipes and above)

HSN CODE: 35069999

Qty. (ml)	Product Code	Pkg.(Nos.) Std.	Mast.
473	TIPS473P717	-	12
946	TIPS946P717	-	12

IPS WELD-ON PRIMER P70

(Suitable for 12.5 cm pipes and above)

HSN CODE: 35069999

Qty. (ml)	Product Code	Pkg.(Nos.) Std.	Mast.
473	TEZ-221	-	12
946	TEZ-220	-	12

BONDSET FAST SETTING

HSN CODE: 32141000

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

PIPE JOINT LUBRICANT

HSN CODE: 34031900

Qty. (gm)	Product Code	Pkg.(Nos.) Std.	Mast.
100	STINS-100	-	100
250	STINS-250	-	40
500	STINS-500	-	20

PTFE TAPE (12 MM WIDTH)

HSN CODE: 39199090

Size (m)	Product Code	Pkg.(Nos.) Std.	Mast.
5	PTFE-1205	-	01
10	PTFE-1210	-	01
20	PTFE-1220	-	01

RESCUE TAPE

HSN CODE: 39191000

Size (Ft.)	Product Code	Pkg.(Nos.) Std.	Mast.
5	RSCU-TAPE-05-CLR	-	120
5	RSCU-TAPE-05-RED	-	120
5	RSCU-TAPE-05-BLK	-	120
10	RSCU-TAPE-10-CLR	-	120
10	RSCU-TAPE-10-RED	-	120
10	RSCU-TAPE-10-BLK	-	120
15	RSCU-TAPE-15-CLR	-	120
15	RSCU-TAPE-15-RED	-	120
15	RSCU-TAPE-15-BLK	-	120

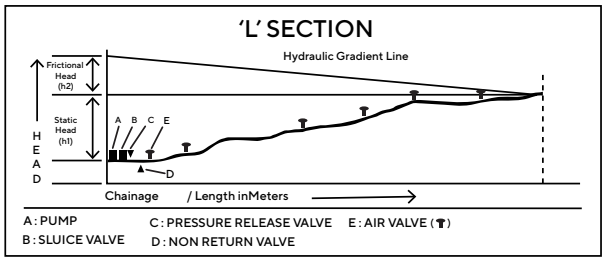
PIPEFIX PVC 101

Qty. (ml)	Product Code	Pkg.(Nos.) Std.	Mast.
50	T003606005A	-	48
118	T003606010A	-	24
237	T003606015A	-	24
473	T003606020A	-	12
946	T003606025A	-	12

SYSTEM SELECTION AND INSTALLATION GUIDE

SELECTION OF PIPE DIAMETER:

For an ideal design, the velocity of fluid passing through the pipe is taken as 1 m/sec. Select the pipe size at an intersection of the velocity of 1 m/s and discharge in lps using below flow diagram based on Hazen Williams formula. For given pipe size, frictions losses are to be calculated.



FRICTION LOSS CALCULATION

Flow of fluid through a pipe is resisted by viscous shear stresses within the fluid and the turbulence that occurs along the internal pipe wall which is dependent on the roughness of the pipe material.

This resistance is termed pipe friction and is usually measured in feet or metres head of the fluid which is why it is also refered to as the head loss due to pipe friction.

Overall head loss in a pipe is affected by a number of factors which include the viscosity of the fluid, the size of the internal pipe diameter, the internal roughness of the inner surface of the pipe, the change in elevation between the ends of the pipe and the length of the pipe along which the fluid travels.

Following Hazen Williams formula should be used for friction loss calculation.

Where

$$\frac{hf}{L} = \frac{1.213 \times 10^{10} \times Q^{1.852}}{D^{4.87} \times C^{1.852}}$$

hf : Head loss in m

L : Length of pipe section in m

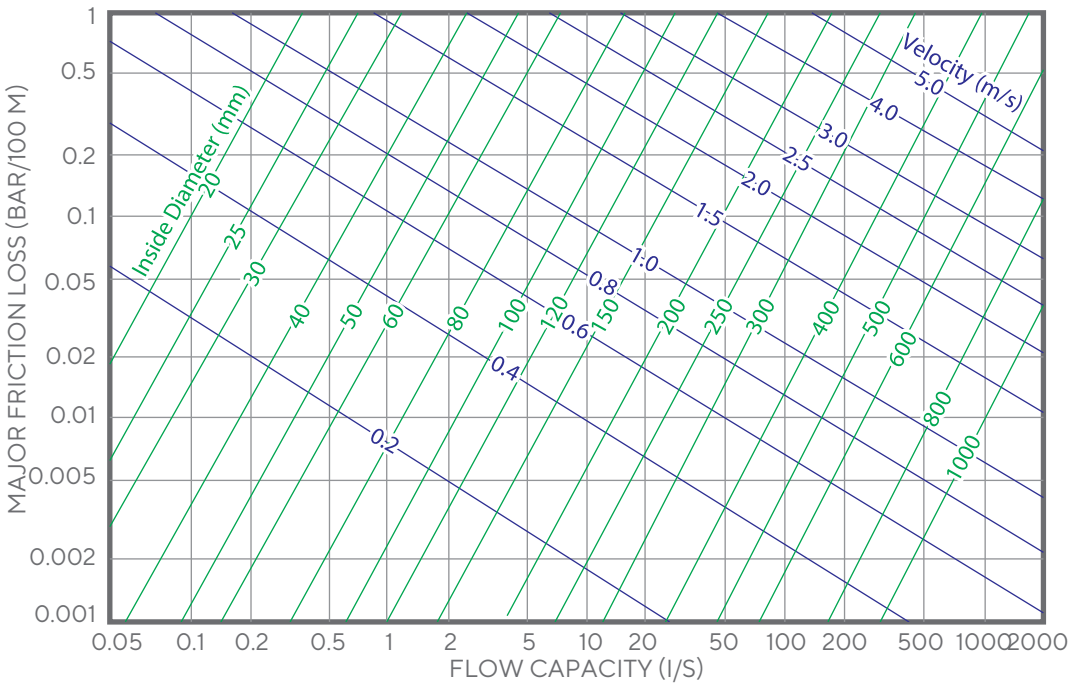
Q : Discharge in liters / sec

D : Internal diameter of pipe in mm

C : Hazen William constant 150

(For design purpose consider 140)

FLOW DIAGRAM OF ASTRAL uPVC PIPES (BASED ON HAZEN WILLIAMS FORMULA)



Note : Above graph is the schematic representation of friction loss for specific value of friction loss using Hazen Williams formula

SELECTION OF PRESSURE CLASS

For the selection of pressure class of a pipeline, total head acting on the pipe at that particular point is calculated as under:

Total Head = Frictional head + Static head + 10% sum of frictional head & static head

Additional 10% is taken to cover head losses in valves and fittings.

Total head value should be multiplied by the corresponding length.

The total head, pipe pressure class, can be selected as per the table below:

PRESSURE CLASS (MPa)	0.25	0.4	0.6	0.8	1.0	1.25
TOTAL HEAD (METERS)*	up to 25	up to 40	up to 60	up to 80	up to 100	up to 125

* as per thumb rule, considered 0.1 MPa = 100 meters of water column

PUMP SELECTION

The pump can be selected by using the formula:

HP of pump = Discharge X Head / 75 X n

Where, n= Efficiency of the pump i.e. 65%.

After acquiring the Pump HP, select the model with specification nearest to that of the manufacturers.

It is recommended to recheck the pressure class of the pipe by recalculating the selection of the pump.

WATER HAMMER

Whenever the flow rate of fluid in a pipe changes, there is a surge in pressure known as the Water Hammer. The longer the line and the faster the fluid moves, the greater the hydraulic shock will be. Water Hammer may be caused by opening or closing of a valve, starting or stopping a pump or by the movement of entrapped air through the pipe. Generally for design calculations, water hammer pressure is to be neglected considering high modulus of elasticity of PVC material.

AIR VALVE SELECTION AND INSTALLATION

Though there is correct calculation of pipe size and pressure class selection, air valve selection and proper installation is most important for proper functioning.

The combined use of air and water is very harmful to PVC pipes. The air tends to accumulate in the pipeline if air valves are not functioning due to its compressible nature. This is caused by a transient change in the localised velocity which leads to the generation of high localised pressure which can not be detected on a conventional gauge. To avoid this, good quality air valves should be installed. Air valves are available in Single acting and double acting types.

SOME IMPORTANT INFORMATION ABOUT AIR VALVES:

1. Generally, air valves should be provided at all peak points in the pipeline in between a distance of 300 - 400 meters.

2. The size and the location of the air valves should be decided by consulting an engineer.

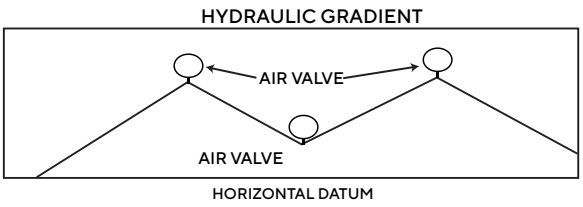
3. The size of the air valve should be from ¼ th to ⅛ th of the diameter of the pipe for a smooth admission as well as the release of air.

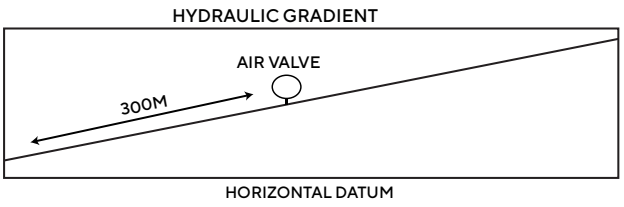
4. Only double-acting air valves should be used at peak levels.

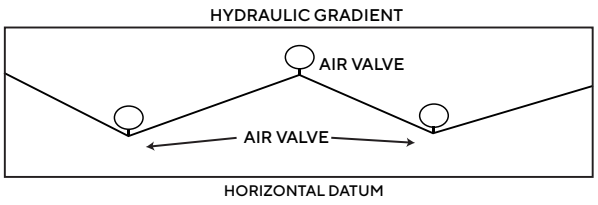
5. It is recommended to construct a chamber around air valves, to protect them.

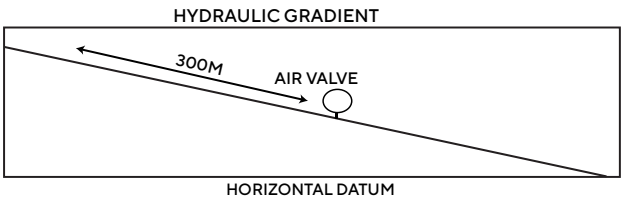
6. Air valves are also required at places where direction or velocity of flow changes.

7. Given below are the elevation diagrams indicating the use of air valves.









TRENCH PREPARATION

The following trenching and burial procedures should be used to protect the system:

1. The trench should be excavated to ensure that the sides remain stable under all working conditions.

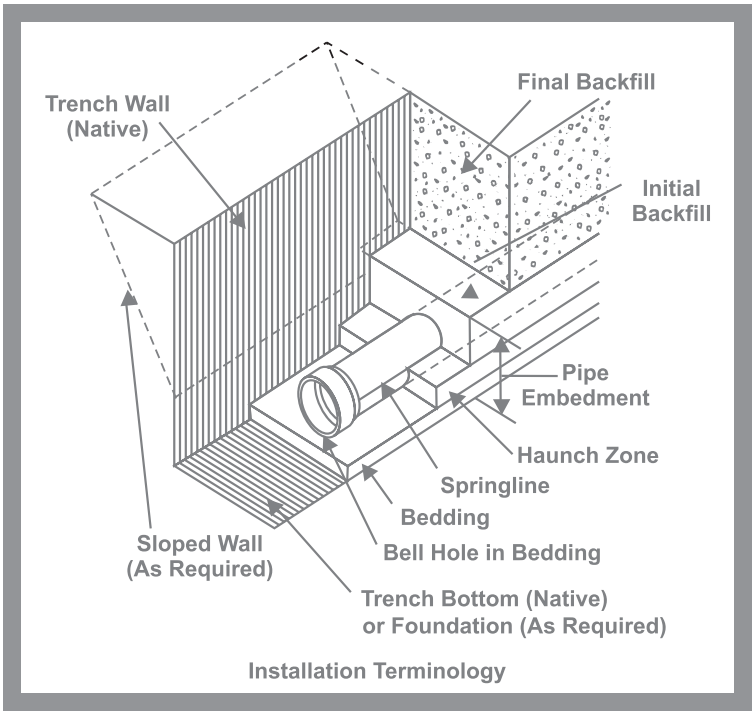
a. The trench should be wide enough to provide an adequate room. The space between the pipe and trench wall must be wider than the compaction equipment used in the compaction of the backfill. Minimum trench width should be 350-400 mm over the pipe diameter. Minimum trench height depends on pipe dia. and min. cover requirement. Optimally, pipe diameter plus 1 metre require.

2. The trench bottom should be smooth, free of rocks and debris, continuous and provide uniform support. If ledge rock, hardpan or large boulders are encountered, the trench bottom should be padded with the bedding of compacted granular material to a thickness of at least 4 inches. Foundation bedding should be installed as required by the engineer.

3. A smooth trench bottom is necessary to support the pipe over its entire length on firm stable material. Blocking should not be used to change pipe gradient or to intermittently support pipe over low sections in the trench.

uPVC pipes and fittings can be installed underground. Since these Piping systems are flexible systems, proper attention should be given to burial conditions. The stiffness of the piping system is affected by sidewall support, soil compaction, and the condition of the trench. Trench bottoms should be smooth and regular in either Undisturbed soil or a layer of compacted backfill. The pipe must lie evenly on this surface throughout the entire length of its barrel.

BEDDING AND BACKFILLING/SIDEFILLING:



1. Even though sub-soil conditions vary widely from place to place, the pipe backfill should be stable and provide protection for the pipe.
2. The pipe should be surrounded with a granular material which is easily worked around the sides of the pipe. Backfilling should be performed in a layer of 6 inches with each layer being sufficiently compacted to 85% to 95% compaction.
3. A mechanical tamper is recommended for compacting sand and gravel backfill which contain a significant proportion of offline grained material, such as silt and clay. If a tamper is not available compacting should be done by hand.
4. The trench should be completely filled. The backfill should be placed and spread in fairly uniform layers to prevent any unfilled spaces or voids.

SELFIT
INSTALLATION PROCEDURE

1. CUT PIPE

Cut pipe square. As joints are sealed at the base of the fitting socket. An angled cut may result in joint failure.

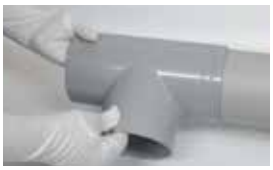
5. JOIN PIPE AND FITTINGS

Assemble pipe and fitting socket till it contacts socket bottom. Hold pipe and fitting together until the pipe does not back out. Remove excessive cement from the exterior. A perect made joint will show a continuous bead of cement around the perimeter.

2. REMOVE BURR AND BEVEL

Remove all burr from inside and outside of pipe with a knife-edge file, or deburring tool. Chamfer (bevel) the end of the pipe at 10° -15°

CLEAN : Remove surface dirt, grease, or moisture with a clean dry cloth.



3. DRY FIT

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.

4. APPLY PRIMER AND SOLVENT CEMENT

Purpose of primer is to penetrate and soften surfaces. So they can fuse together. Apply primer if heavy bodied solvent cement is to be used. Then apply a full even layer of cement to the outside of a pipe and medium layer of cement to the inside of a fitting.

ADHESIVE SOLUTIONS

IPS WELD-ON uPVC 100™ SOLVENT CEMENT

IPS WELD-ON 717 PVC SOLVENT CEMENT

IPS WELD-ON PRIMER P70

Always use Astral Aquasafe Solvent Fitted Pipes with fittings & for joining, use Astral uPVC Adhesive Solution

- Quality of solvent cement plays an important role and hence it is recommended to use good quality solvent cement only
- Very old, hard, semi-fluid solvent cement should not be used
- For 125 mm diameter and above size and for all classes, always use heavy bodied solvent cement uPVC 717
- Always use Primer P70 with heavy bodied solvent cement uPVC 717

RINGFIT INSTALLATION PROCEDURE

1. CUT PIPE

Cut pipe square. As joints are sealed at the base of the fitting socket. An angled cut may result in joint failure.

5. APPLY LUBRICANT

Apply jointing lubricant to the chamfered end of the pipe & on rubber ring up to the mark made on spigot or to the socket end of fitting.

2. REMOVE BURR AND BEVEL

Remove all burr from inside and outside of pipe with a knife-edge file, or deburring tool. Chamfer (bevel) the end of the pipe at 10° -15°

CLEAN : Remove surface dirt, grease, or moisture with a clean dry cloth.

3. INSERT PIPE

Insert the pipe in to the socket without the seal ring and mark along the pipe, when it is fully inserted.

6. JOIN PIPE AND FITTINGS

Push the pipe firmly into the socket till the gap between the mark on the spigot and the socket is about 10 mm to allow thermal expansion.

4. FIX RUBBER RING

Fix the rubber ring in the groove without twisting it.

APPROX. NO. OF JOINTS FROM 1 LTR SOLVENT CEMENT

SIZE (mm)	APPROX NO. OF JOINTS
20	354
25	270
32	225
40	180
50	130
63	125
75	103
90	79
110	54
125	45

SIZE (mm)	APPROX NO. OF JOINTS
140	36
160	27
180	25
200	15
225	12
250	09
280	07
315	05
355	03
400	02

TESTING PRESSURE SYSTEM

- Before testing, the safety precautions should be instituted to protect personnel and property in case of failure. Also system shall be visually inspected to ensure correct installation procedure has been followed including for fittings, valves & accessories/appliances.
- Solvent cement jointed pipelines to be tested at least after 24 hrs after last solvent cement joint has been made.
- Conduct pressure testing with water. Do not use air or other gases for pressure testing.
- The piping system should be adequately anchored to limit movement. Water under pressure exerts thrust forces in piping systems. Thrust blocking should be provided at changes of direction, change in size and at dead ends.
- The piping systems should be slowly filled with water, taking care to prevent surge and air entrapment. The flow velocity should not exceed 5 feet per second.
- All trapped air must be slowly released. Vents must be provided at all high points of the piping system. All valves and air relief mechanisms should be opened so that the air can be vented while the system is extremely dangerous and it must be slowly and completely vented before testing. The piping system can be pressurised to 150% of its designed working pressure. However, ensure that the pressure does not exceed the working pressure of the lowest-rated component in the system (valves, unions, flanges, threaded parts, etc.)
- The pressure test should not exceed one hour. Any leaking joints or pipes must be cut out and replaced, while the line recharged and retested using the same procedure.

HANDLING INSTRUCTIONS

HANDLING

The pipe should be handled with reasonable care. Because thermoplastic pipe is much lighter in weight than metal pipe. There is sometimes a tendency to throw it around. This should be avoided.

The pipe should never be dragged or pushed from a truck bed. Pallets for pipe should be removed with a fork lift. Loose pipe can be rolled down timbers, as long as the pieces do not fall on each other or on any hard or uneven surface. In all cases, severe contact with any sharp objects (rocks, iron angles, forks on forklifts, etc.) should be avoided.

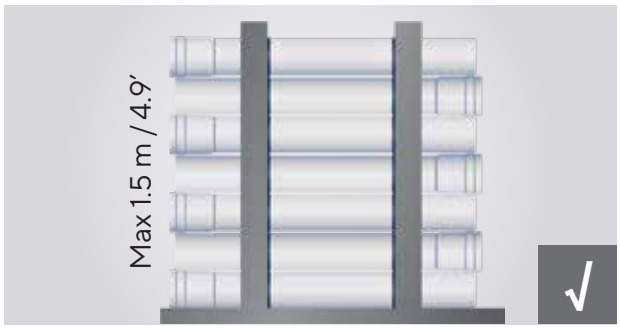
STORAGE

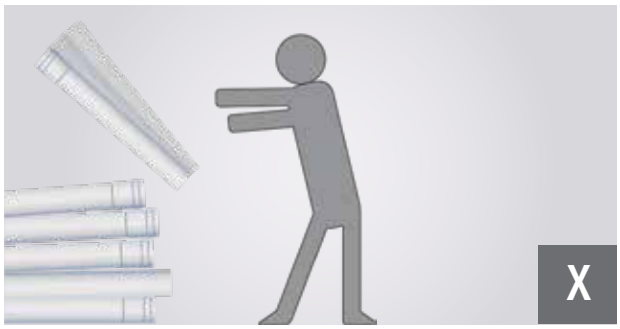
If possible, pipe should be stored inside. When this is not possible, the pipe should be stored on level ground which is dry and free from sharp objects. If different schedules of pipes are stacked together, the pipe with the thickest walls should be at the bottom.

The pipe should be protected from the sun and be in an area with proper ventilation. This will lessen the effects of ultraviolet rays and help prevent heat built-up.

If the pipe is stored in racks, it should be continuously supported along its length. If this is not possible, the spacing of the supports should not exceed three feet (3').

When storage temperatures are below 0°C (32°F), extra care should be taken when handling the pipe. This will help prevent any problem which could be caused by the slightly lower impact strength of uPVC pipe at temperature below freezing.





DO'S & DON'TS

DO'S

1. Install product according to Astral's Installation instructions manual and follow recommended safe work practices.
2. Keep Pipe and fittings in original packaging until needed and store pipes in covered areas.
3. Use tools designed for use with plastic pipe and fittings.
4. Cut-off minimum 25 mm beyond the edge of the crack in case any crack is discovered on the pipe.
5. Pipe may be cut quickly and efficiently by several methods. Wheel – type plastic tubing cutters are preferred. Ratchet type cutters or fine tooth saws are another option. However, when using the ratchet cutter, be certain to score the exterior wall by rotating the cutter blade in a circular motion around the pipe. Do this before applying significant downward pressure to finalise the cut. This step leads to a square cut. In addition, make sure ratchet cutter blades are sharp. Cutting pipe as squarely as possible provides optimal bonding area within a joint.
6. Burrs and filings can prevent proper contact between the tube and fittings during assembly and should be removed from the outside and inside of the pipe. A chamfering tool is preferred, but a pocket knife or file is also suitable for this purpose.
7. Use only uPVC solvent cement PVC 100 & uPVC 717 otherwise it may result in joint failure.
8. Always conduct hydraulic pressure testing after installation to detect any leaks and faults. Wait for appropriate cure time before pressure testing. Fill lines slowly and remove air from the system prior to pressure testing.
9. Rotate the pipe ¼ to ½ turn to spread the uPVC solvent cement evenly in the joint while pushing the pipe into Fitting.
10. Use Teflon tapes with threaded fittings.
11. Ensure that there are no sharp edges in contact with the pipes while embedding the pipes on the walls or in the floors.
12. Visually inspect all joints for proper cementing at the end of shift or day. A visual inspection of the complete system is also recommended during pressure testing.

DON'TS

1. Do not use Metal Hooks or Nails to support/ hold or put pressure on the pipes. Do not use straps & hangers with rough or sharp edges. Do not tighten the straps over the pipes.
2. Never expose the pipe to open flame while trying to bend it.
3. Do not drop pipes on edges from heights. Do not drop heavy objects on pipes or walk on pipes.
4. Do not dilute Solvent Cement with thinner/ MTO or any other liquid etc.
5. Do not use any other petroleum or solvent – based sealant, adhesive, lubricant or fire hazard material on uPVC pipes and fittings.

CLIENT LIST &
GOVERNMENT APPROVALS

- Border Security Force, Govt. of India - Bikaner.
- Gram Panchayat Karyalaya -Ahmednagar.
- Sardar Sarovar Narmada Nigam Limited - Gujarat.
- Gujarat Water Supply & Sewerage Board - Gandhinagar
- Gujarat Narmada Valley Fertilizers & Chemicals Limited - Bharuch
- Bharat Heavy Electricals Limited, - Ranipet.
- Rajasthan Rajya Vidyut Utpadan Nigam Ltd. - Rajasthan.
- Government of West Bengal, Directorate of Public Health Engineering - West Bengal.
- Raipur Development Authority - Chhatisgarh.
- Karnataka Rural Infrastructure Development Ltd (KRIDL) - Karnataka.
- Central Public Works Department - Raipur.
- Karnataka Power Corporation Limited - Raichur.
- Gujarat Mineral Development Corporation Limited. - Kutch
- Larsen & Toubro Ltd. -Chennai.
- Government of Andhra Pradesh, Panchayati Raj Engineering Department - Vijayawada.
- Government of Rajasthan, Commissionrate of Agriculture - Jaipur.
- Punjab Irrigation and Farm Solutions - Ludhiana.
- The Indian Hume Pipe Co. Ltd. - Mumbai.
- Water and Sanitation Management Organisation - Rajkot.
- Farmer Welfare & Agriculture Development Department - Madhya Pradesh.
- NTPC Limited - Angul
- Reliance Sasan Power Ltd. - Madhya Pradesh.
- Sembcorp Energy India Limited. - Telengana.
- Lalitpur Power Generation Co. Ltd., (Group of Bajaj Energy) - Uttar Pradesh.
- Various Reputed Drip irrigation Companies of India

AQUASAFE SOLVENT FITTED
FABRICATED FITTINGS (10 KGF/CM²)

FABRICATED COUPLER
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
4.0	1¼	F092101004	-	50
5.0	1½	F092101005	-	40
6.3	2	F092101006	-	70
7.5	2½	F092101007	-	40
9.0	3	F092101008	-	30
11.0	4	F092101009	-	15
14.0	5	F092101011	-	08
16.0	6	F092101012	-	06
18.0	7	F092101013	-	01
20.0	8	F092101014	-	01
22.5	9	F092101015	-	01
25.0	10	F092101016	-	01
31.5	12	F092101018	-	01
40.0	16	F182105220	-	01

FABRICATED BEND 45°
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3	2	F092104306	-	25
7.5	2½	F092104307	-	15
9.0	3	F092104308	-	13
11.0	4	F092104309	-	08

FABRICATED REDUCER 'Y'
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
16.0 x 11.0	6 x 4	F092100912Y	-	25
16.0 x16.0	6 x 6	F092101212Y	-	15
20.0 x 16.0	8 x 6	F092101214Y	-	13

FABRICATED ADAPTOR
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
16.8 x 16.0	6 x 6	F0921016812A	-	01

FABRICATED COUPLER
HSN CODE: 39174000

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3	2	F092101006E	-	01
7.5	2½	F092101007E	-	01
9.0	3	F092101008E	-	01
11.0	4	F092101009E	-	01
12.5	4½	F092101010E	-	01
14.0	5	F092101011E	-	01
16.0	6	F092101012E	-	01
20.0	8	F092101014E	-	01
22.5	9	F092101015E	-	01
25.0	10	F092101016E	-	01
28.0	11	F092101017E	-	01
31.5	12	F092101018E#	-	01
40.0	16	F092101020E	-	01

Fabricated fittings of other sizes, types and pressure rating are also available upon request.

AQUASAFE SOLVENT FITTED
FABRICATED FITTINGS (10 KGF/CM²)

ASTRAL AquaSAFE®

FABRICATED TEE
HSN CODE: 40169320

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
20.0	8	F09201014T	-	01

FABRICATED REDUCER TEE
HSN CODE: 40169320

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
5.0x 2.5	1½x¾	F092010205T	-	01
2.0x6.3	½x2	F092010614T	-	01
2.5x3.2	¾x1	F092010316T	-	01
2.5x5.0	¾x1½	F092010516T	-	01
2.5x2.0	¾x½	F092011416T	-	01

FABRICATED END CAP
HSN CODE: 40169320

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
5.0	1½	F092102905	-	01
2.0	½	F092102914	-	01

FABRICATED TEE
HSN CODE: 40169320

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
16.0X14.0	6 x 5	F092011112R	-	01
18.0X11.0	7 x 4	F092010913R	-	01

RUBBER WASHER FOR SERVICE SADDLE
HSN CODE: 40169320

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
5.0-11.0	1½-4	RM06490003	-	01
14.0-20.0	5-8	RM06490002	-	01

ELASTOMERIC SEALING RUBBER RING
HSN CODE: 40169320

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.3	2	RM06400063#	-	01
7.5	2½	RM06400075#	-	01
9.0	3	RM06400090	-	01
11.0	4	RM06400110	-	01
12.5	4½	RM06400125	-	01
14.0	5	RM06400140	-	01
16.0	6	RM06400160	-	01
18.0	7	RM06400180	-	01
20.0	8	RM06400200	-	01
22.5	9	RM06400225	-	01
25.0	10	RM06400250	-	01
28.0	11	RM06400280	-	01
31.5	12	RM06400315	-	01
35.5	14	RM06400355	-	01
40.0	16	RM06400400	-	01

FABRICATED BEND 90°
HSN CODE: 40169320

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	½	F092060501	-	200
2.5	¾	F092060502	-	120
3.2	1	F092060503	-	70
4.0	1¼	F092100504	-	50
4.0	1¼	F092100504S	-	50
5.0	1½	F092100505	-	40
6.3	2	F092100506	-	23
7.5	2½	F092100507	-	13
9.0	3	F092100508	-	06
11.0	4	F092100509	-	04
20.0	8	F092100514	-	01

S - Short length bend

Fabricated fittings of other sizes, types and pressure rating are also available upon request.

AQUASAFE PIPES
ELASTOMERIC SEALING RING PIPE

3 M PIPE

HSN CODE: 39172390

Size (cm)	Size (inch)	Product Code (4 kgf/cm²)	Product Code (6 kgf/cm²)	Product Code (8 kgf/cm²)	Product Code (10 kgf/cm²)	Product Code (12.5 kgf/cm²)
6.3	2	M261040306	M261060306	M261080306	M261100306	M261125306
7.5	2½	M261040307	M261060307	M261080307	M261100307	M261125307
9.0	3	M261040308	M261060308	M261080308	M261100308	M261125308
11.0	4	M261040309	M261060309	M261080309	M261100309	M261125309
12.5	4½	M261040310	M261060310	M261080310	M261100310	M261125310
14.0	5	M261040311	M261060311	M261080311	M261100311	M261125311
16.0	6	M261040312	M261060312	M261080312	M261100312	M261125312
18.0	7	M261040313	M261060313	M261080313	M261100313	M261125313
20.0	8	M261040314	M261060314	M261080314	M261100314	M261125314
22.5	9	M261040315	M261060315	M261080315	M261100315	M261125315
25.0	10	M261040316	M261060316	M261080316	M261100316	M261125316
28.0	11	M261040317	M261060317	M261080317	M261100317	M261125317
31.5	12	M261040318	M261060318	M261080318	M261100318	M261125318
35.5	14	M261040319	M261060319	-	-	-
40.0	16	M261040320	M261060320	-	-	-

5 M PIPE

HSN CODE: 39172390

Size (cm)	Size (inch)	Product Code (4 kgf/cm²)	Product Code (6 kgf/cm²)	Product Code (8 kgf/cm²)	Product Code (10 kgf/cm²)	Product Code (12.5 kgf/cm²)
6.3	2	M261040506	M261060506	M261080506	M261100506	M261125506
7.5	2½	M261040507	M261060507	M261080507	M261100507	M261125507
9.0	3	M261040508	M261060508	M261080508	M261100508	M261125508
11.0	4	M261040509	M261060509	M261080509	M261100509	M261125509
12.5	4½	M261040510	M261060510	M261080510	M261100510	M261125510
14.0	5	M261040511	M261060511	M261080511	M261100511	M261125511
16.0	6	M261040512	M261060512	M261080512	M261100512	M261125512
18.0	7	M261040513	M261060513	M261080513	M261100513	M261125513
20.0	8	M261040514	M261060514	M261080514	M261100514	M261125514
22.5	9	M261040515	M261060515	M261080515	M261100515	M261125515
25.0	10	M261040516	M261060516	M261080516	M261100516	M261125516
28.0	11	M261040517	M261060517	M261080517	M261100517	M261125517
31.5	12	M261040518	M261060518	M261080518	M261100518	M261125518
35.5	14	M261040519	M261060519	-	-	-
40.0	16	M261040520	M261060520	-	-	-

ASTRAL®
PIPES

A consumer validated ***Superbrand in piping*** *category for* ***consecutive 4 years***

India's Most Trusted *Pipe Brand based on* ***TRA's Brand Trust Report for the 5th time***

Power of Desire

India's Most Desired *Brand based on* ***TRA's Brand Trust Report 2022***

ASTRAL®
PIPES

CIN NO: L25200GJ1996PLC029134
Registered & Corporate Office: Astral Limited
207/1, 'Astral House', B/h Rajpath Club, Off S. G. Highway, Ahmedabad - 380059.
Ph: +91-79 6621 2000 | Fax: +91-79 6621 2121 | E-mail: info@astralltd.com | Website: www.astralpipes.com
For Export Inquiries: export@astralltd.com

ISO 9001 • 14001 • 45001 CERTIFIED COMPANY
By Bureau Veritas (India) Pvt.Ltd.

ASTRAL TOLL FREE
1800 233 7957
Please get in touch with us between 10 AM to 6 PM between Monday to Friday and the last Saturday of the month. We will remain closed on Public Holidays.

SC: PR07000040
AAS/PC/003
REV:07/22

CELEBRATING 25 YEARS OF TRUST & INNOVATION

ASTRAL® PIPES

BORE-WELL® LEAD FREE UPVC COLUMN PIPES | CASE-WELL® CASING FOR BOREWELL

uPVC BORE-WELL
COLUMN PIPES FOR SUBMERSIBLE PUMPS

PRODUCT CATALOGUE

CONTENTS

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

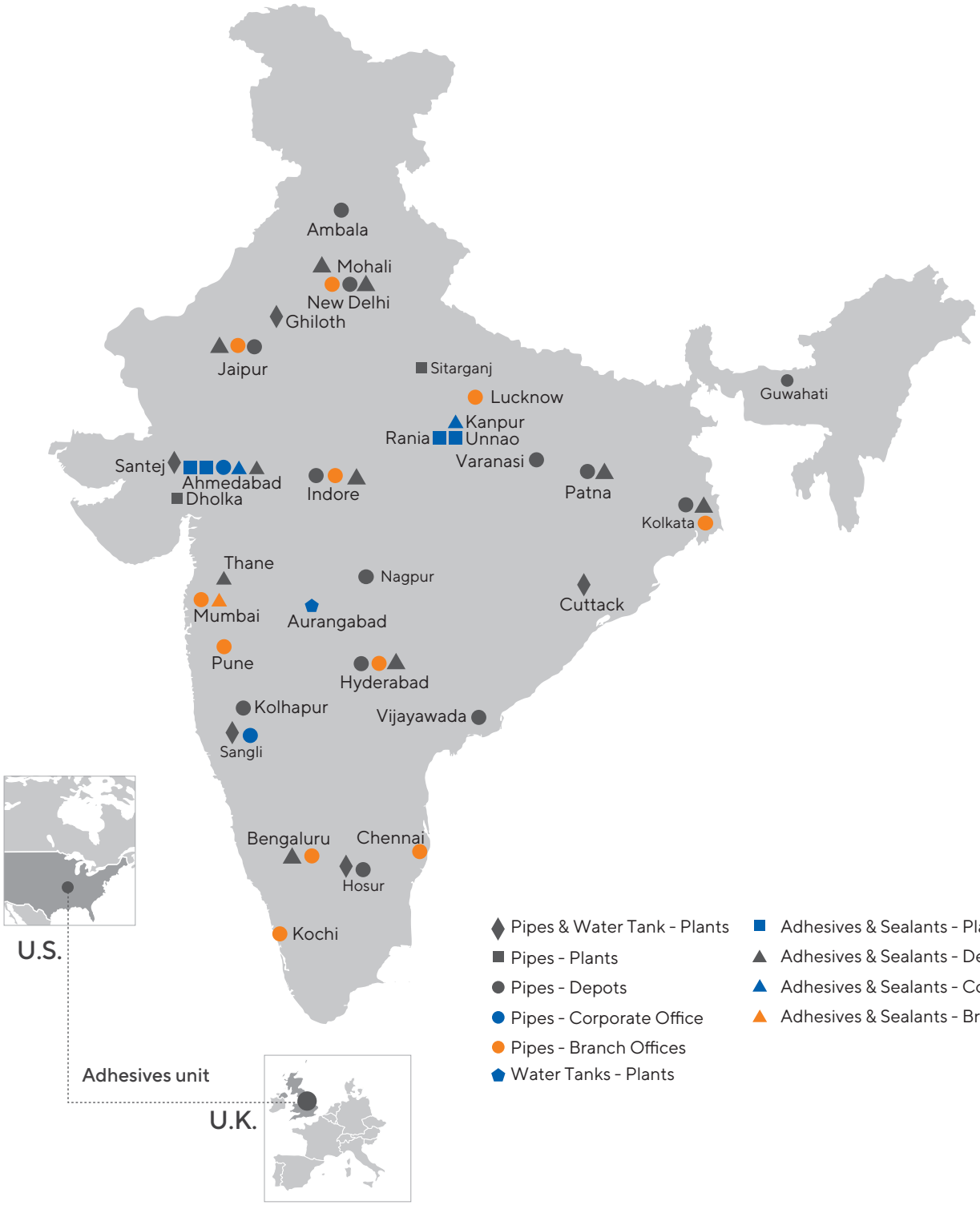
SANITARYWARE

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, 2019-21, 2022 & 2023)

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.



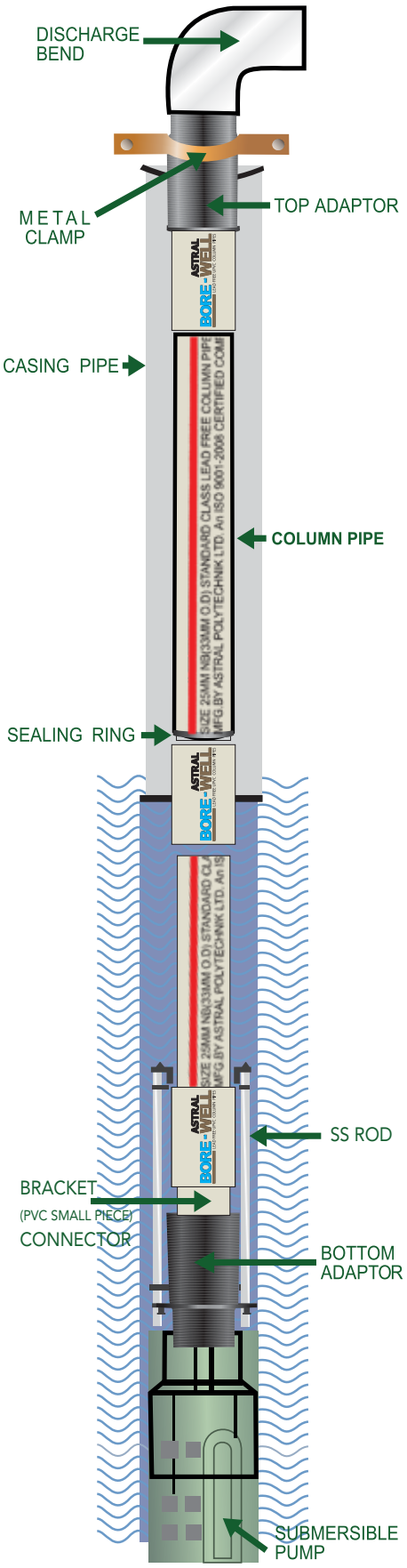
ABOUT ASTRAL BORE-WELL®

LEAD FREE UPVC COLUMN PIPES

We are proud to introduce Astral Bore-Well; the "Lead Free" and "Heavy Metal free" uPVC Column pipes in Indian Market which is 100% safe for drinking water, commercial and agricultural applications.

This 'Lead-free' attribute of Astral Bore-Wellcolumn Pipes help in delivering clean and non-toxic water from the source. Astral Bore-Wellcolumn Pipes are available in 1" (33 mm OD) to 5" (140 mm OD) with different class like V4 Cub, V4 Bell End, V4 ECO, V4 ECO Bell End, ECO Medium, ECO Medium Plus, Medium Bell End, Medium, Crystal, Standard, Standard Plus, Heavy, Double Heavy, Heavy Plus and Super Heavy with all standard accessories like Top-Bottom Adaptor Sets, Pump Guards, Lowering Jigs, Belt Spanner etc. As the full line manufacturer of CPVC, uPVC, PP, HDPE piping system for agriculture, residential and industrial applications, Astral can be your one stop source for all the plastic piping required for lifetime piping solutions.

COLUMN PIPES SIZES



AVAILABLE SIZE:

1" (25 mm)	:	V4 Cub, V4 Bell End, V4, Medium Bell End, Medium, Crystal bell end, Crystal, Standard
1 ¼" (32 mm)	:	V4 Eco, V4 Eco Bell End, V4 Cub, V4 Bell End, V4, Medium Bell End, Medium, Crystal bell end, Crystal, Standard, Standard Plus Heavy Plus, Super Heavy
1 ½" (40 mm)	:	V4 Bell End, V4, Medium, Crystal, Standard, Heavy, Super Heavy
2" (50 mm)	:	Eco Medium, Eco Medium Plus, Medium, Crystal, Standard, Heavy, Super Heavy
2 ¼" (50 mm)	:	Super Heavy
2 ½" (65 mm)	:	Medium,Eco Std, Standard, Standard Plus, Heavy, Super Heavy
3" (80 mm)	:	Medium, Eco Std, Standard, Standard Plus, Heavy, Super Heavy
3 ½" (90 mm)	:	Heavy Plus
4" (100mm)	:	Eco Medium, Medium, Standard, Standard Plus, Heavy, Super Heavy
5" (140 mm)	:	Standard, Heavy, Super Heavy

SHORTLY INTRODUCING:

6" (165 mm)

FIELD OF APPLICATIONS

Water rising for submersible pump, domestic and industrial applications. Ideally suitable for long term use in salty, sandy and chemically aggressive water.Color coding of pipes

CLASS OF PIPE	PRINTING COLOR
Eco Medium, V4, V4 Bell End	Violet
V4 Cub, V4 Eco	Grey
Medium Bell End, Medium	Green
Eco Medium Plus, Standard Plus	Brown
Crystal	Orange
Standard	Red
Eco Std	Signal Red
Heavy	Blue
Super Heavy	Black
Heavy Plus	Dark Grey

WHY UPVC FOR COLUMN PIPES?

For many years, Metal pipes have been used with submersible pumps to get the water from ground. These pipes are corroded and scaled in their life span and giving troubles to the owner in terms of quantity of water and also the pumping cost. PVC has excellent chemical and corrosion resistance to a broad range of fluids. So PVC can give trouble free service for many years. Secondly, among all thermoplastics also, PVC is the material which can be compounded and modify keeping in the mind of special characteristics required for pipes to be used with submersible pumps. This versatility is not observed with other thermoplastics like Polyethylene (PE). Hence PVC contributes to major usage as piping material globally.

WHY ASTRAL BOREWELL COLUMN PIPES ?

Astral Bore-Wellcolumn pipes have been developed as a result of Astral's constant endeavor to develop superior yet economical piping solution for submersible pumps. The compound has been developed at Astral's R & D lab after many trials and research with the help of Japanese technology. Astral's expertise in introducing better compound in Indian Market, comes handy yet another time while introducing completely Eco Friendly – lead and heavy metal free – uPVC column pipes.

The raw materials for the pipe get processed in state of the art machinery contributing to the finest pipe quality with most accurate dimensions. The Pipes then are threaded in high tech CNC machines which are very essential for better performance of column pipes. The thread geometry is designed in such a way that it gives highest strength against vertical column load as well as the pressure developed due to pump operation.

AUTOMIZED OPERATIONS

The dimensions of the column pipes are very important parameter which need to be monitored and controlled to give trouble free performance. At the same time, accuracy of threading and its repeatability is also very important. Keeping all these factors in mind, we have started automizing our operations with robotics control – especially our threading operations. Such robotic operations will improve our consistency and efficiency in threading which will help us to provide highly accurate and trouble free product. This will also help us to eliminate or reduce our in-process wastage due to rejection occurring in manual operations / errors. This will also boost the confidence of our customer in market.

SQUARE THREADS

Unique square threads made on CNC machines provide sufficient grip and additional strength against tensile load. Thus the joint becomes fairly strong with sufficient factor of safety to take care of load of entire assembly with pump weight. These specially designed threads also lead to easy fitment.

THICK AND THIN PROCESS

The pipe ends are given special effect of additional wall thickness by using Thin & Thick process to compensate the strength and load bearing capacity caused due to threading of pipes. The effect of Thin & Thick is given to all sizes considering the working conditions & load factor.

EPDM 'O' RING

Specially designed 'O' rings provided on the threads make the joints watertight and absorb pump vibrations. These rings are made from EPDM (Ethylene Propylene Diene Monomer) rubber which is the most suitable for drinking water option.

LEAD-FREE & HEAVY-METAL FREE COMPOUND

Astral Bore-Wellcolumn pipes have been manufactured using Lead-free and Heavy Metal-free compound – in other words, Astral Bore-Wellcolumn pipes are completely Eco Friendly. Pipes will not pollute the ground water and will keep it safe from leaching of carcinogenic material like Lead.

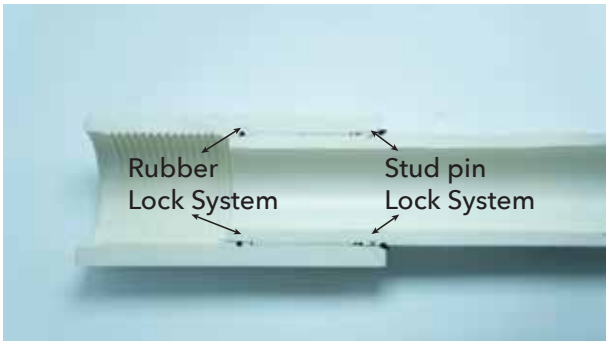
WHY UPVC FOR COLUMN PIPES?

SPECIAL COMPOUND

Astral Bore-Wellcolumn pipes are manufactured from "HEAVY METAL FREE" uPVC compound which especially developed by using "JAPANESE TECHNOLOGY" to sustain best column loads, pressure and also can withstand the high impacts during handling, storage and installation. Due to this special compound the TENSILE property of pipe increases which is being tested rigorously using modern testing equipment.

DOUBLE S.S STUD PIN LOCKING SYSTEM

Astral column pipe was developed with double S.S stud pin locking system. Now on top of these locking, with our strong R & D and market feedback, we have added one Rubber Ring at the Coupler and Pipe Junction. This rubber ring is going to give double benefit to our column pipes. First and Major benefit is to provide 100% ensured locking of the coupler with pipe and another benefit is to absorb the jerk/ impact which is likely to occur to the pipe during transportation/ handling and In installed condition when initial starting / stopping of Pump/Motor. This improvement will help our customers to overcome some installation issues as well overcome some errors during lowering/lifting. Hence, this value engineering will keep the integrity of locking system very much intact.



STRIPE PATTERN

We have provided the Stripe across the wall thickness of the pipe. This Stripe has been provided through Extrusion Process and this is not printed Or embossed. Colour of the stripe is as per the SCHEDULE/ CATEGORY of the Pipes. This also improves the Aesthetic looks of the Product as well as gives marking permanency for many years together. The major benefit of this process is that it provides unique identity and customer can be assured of original product.

PIPES & COUPLERS JOINT WITH SPECIAL COMPOUND

Apart from stud pin lock system, pipes and couplers are joined with special joining compound which makes lifetime permanent joint without affecting the thread dimensional stability in longer service life.

ANNEALING ON PIPES

Every pipe is annealed during manufacturing which is a very special technique developed by Astral. This really enhances the mechanical properties of pipes making sure that the pipes will perform best during application.

100% HYGIENIC / SAFE FOR DRINKING WATER

Supply of drinking water is 100% hygienic and safe as being pumped through Astral uPVC Column pipes manufactured from special HEAVY METAL FREE compound right from the origin of water source beneath under the earth at maximum depth.

STRINGENT QUALITY CHECKS

Over the years, we have learned that column pipes are not simple piping solutions but they are more like engineering product and hence, the quality assurance plans also need to be modified in line with these requirements. Keeping this in mind, we have increased our team of Quality Control as well as Quality Assurance to ensure additional checking of the pipe during the manufacturing and before dispatch. Also QA has been performed during all stages of operations like Extrusion of Column Pipe, Coupler Pipes, threading and assembly. During the Threading of the Pipe and Couplers, each and every pipe is checked with Calibrated Thread Gauges, fitment with physical pipe and coupler at defined time interval and sample sizes specified as per Quality Assurance Plan. Apart from this, dimensions of the threaded coupler and pipes are measured and recorded for the predefined frequency. Assembled pipes are checked for performance characteristics like Ultimate Breaking Load, Joint Leakage Test etc. After threading and assembly, finished pipes are checked for fitment with Calibrated Gauge and Couplers/pipes before final Packing in Woven Sacks. This inspection is carried out on 100% Quantities. We had started to print/mark the Batch No on Coupler also for the traceability of Production and QC Records.

LEAD-FREE

LEADING THE LEAD-FREE PIPE MOVEMENT

Lead (Pb on the Periodic Table) is one of the most naturally occuring elements on the planet. With little or no known biological benefit to humans, Lead causes a lot of damage and leads to poisoning when imbibed.

The lead can easily leach or dissolve into the water from transportaion pipes and can be fatal. High blood lead levels in children can cause consequences which may be irreversible including learning disabilities, behavioural problems and mental retardation.

The world over, Lead-free piping is the way forward to transport potable water. Something we've been doing at Astral Pipes for over many years now. Our lead-free pipes have exceeded all quality benchmarks and continue to be one of our bestselling products.

ADVANTAGES OF
LEAD FREE COLUMN PIPES

Lead is a metal with no known biological benefit to humans. Too much lead can damage various systems of the body including the nerves and reproductive systems and the kidneys and it can cause high blood pressure and anemia. Lead accumulates in the bones and lead poisoning may be diagnosed from a blue line around the gums. Lead is especially harmful to the developing brains of fetuses and young children and to pregnant women. Lead interferes with the metabolism of calcium and Vitamin D. High blood lead levels in children can cause consequences which may be irreversible including learning disabilities, behavioral problems and mental retardation. At very high levels, lead can cause convulsion, coma and death. Lead can be dissolved in water when lead pipes are used for transportation of water. So use of such pipes may be harmful to human being. Hence lead free piping system is most favoured for potable water transportation.

EFFECTS OF LEAD

- Exposure to lead during childhood can cause intellectual disabilities
- Lead exposure is estimated to account for 1,43,000 deaths per year
- Lead stored in bones may be remobilized into the blood during pregnancy, thus exposing the fetus
- At high levels of exposure, lead attacks the brain & central nervous system causing coma, convulsion and even death

QUALITY CONTROL PROCEDURE AT ASTRAL

The pipe and couplers manufactured at Astral, follow a stringent quality control process before being rolled out to the market, in order to supply a defect free system to its users.

Test	:	Standard
Short Term Hydrostatic Pressure Test	:	As per IS:4985
Impact Strength	:	As per IS:4985 Testing done at 6 to 20 times greater than specifications
Tensile Strength	:	As per IS:12818
Joint Pressure Test	:	As per IS:12235 should be one or two times of working pressure (Depending on size)
Density	:	As per IS:12818 between 1.40 -1.43 g/cm^3
Ultimate Breaking Load on Complete Assembly	:	As Per Astral SPECIFICATION
Flattening Test	:	As per IS:12235
Izod Impact Test	:	As per ASTM D256
Resistance to Dichloromethane	:	As per IS:12235
Adequacy of Fusion of Extruded Pipe	:	As per ASTM D2152

COMPARISON WITH OTHER MATERIALS

Astral Bore-WelluPVC column pipes are perfect replacement to conventional Galvanized Iron pipes used in bore wells and hold several critical advantages over conventional Mild steel or Galvanized Iron pipes, as well as HDPE Pipes also which are

Property Requirement for Column Pipes	ASTRAL BORE-WELL uPVC COLUMN Pipes	Mild Steel or Galvanized Iron Pipes	HDPE Pipes
Long life	Astral Bore-WelluPVC Column pipes do not react with acidic or alkaline water and have a long life in the bore wells.	MS/GI pipes are prone to rust, corrosion & ultimately get damaged and need to be replaced quickly.	Strength of material very less, so thick pipes are required for high pressure application, reducing the internal area for water flow considerably.
Light weight	Pipes are Light in weight and are easy to handle, install and remove.	Pipes are heavy and a great effort is required for installation or maintenance. Difficult to handle.	Becomes hard and cannot be rolled back during removal. Pulling with tractor disturbs the crop.
Smooth Internal Surface	Internal surface is smooth, so low head loss due to friction & results in higher discharge of water.	Rough internal surface and head loss is high resulting in less discharge of water.	Internal surface not as smooth as Astral uPVC Borewell column pipes.
Power Saver	As the friction losses are less, the pump require less power to lift the water. Resulting in power saving.	Friction losses are high. So pump requires more power to discharge the water for the same head. Results in more power consumption.	Comparatively less power saver than Astral uPVC Borewell column pipes.
Leak proof joints	Rubber seals are provided with the thread at every joint ensuring 100% leak proof.	Not pressure tight, No rubber seal & hence NOT Leak proof.	No joint is there but temperature withstanding capacity is less compared to other material.
Strong threaded joints	Specially designed square Threads, which DO NOT corrode, rust or deteriorate.	Threads are prone to rust and corrosion easily.	The threads cannot be formed and therefore the jointing of the pipe with the pump or at the top with any fixture is simple push type joint.

AUTOMIZED OPERATIONS

The dimensions of the column pipes are very important parameter which need to be monitored and controlled to give trouble free performance. At the same time, accuracy of threading and its repeatability is also very important. Keeping all these factors in mind, we have started automizing our operations with robotics control – especially our threading operations. Such robotic operations will improve our consistency and efficiency in threading which will help us to provide highly accurate and trouble free product. This will also help us to eliminate or reduce our in-process wastage due to rejection occurring in manual operations / errors. This will also boost the confidence of our customer in market.

ACCESSORIES

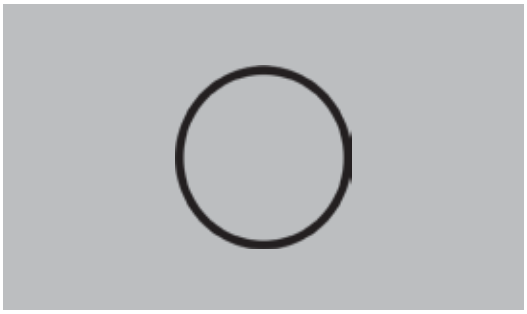
uPVC COLUMN PIPE 1" to 5"

- Eco Medium
- Eco Medium Plus
- V4 Eco
- V4 Cub
- V4 Bell End
- V4
- Medium Bell End
- Medium
- Crystal
- Standard
- Standard Plus
- Heavy
- Double Heavy
- Super Heavy

TOP & BOTTOM ADAPTOR SET 1" TO 5" CI & SS BOTH

SIGRI (LOWERING JIG) 1" TO 5"

'O' RING 1" TO 5" ALL SIZE



PUMP GUARD SET 1" TO 5"

LEAD-FREE uPVC COLUMN PIPES
FOR SUBMERSIBLE PUMP

3 M PIPE

HSN CODE: 39172390

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Class	Type	Product Code	Pressure (kgf/cm²)	Std. Pkg. (Nos.)	Stripe Colour
2.5	25	1	V4 Cub	Coupler	M071500303	12.5	25	Grey
2.5	25	1	V4	Bell End	M071260303	12.5	25	Violet
2.5	25	1	V4	Coupler	M071110303	12.5	25	Violet
2.5	25	1	Medium	Bell End	M071330303	15	25	Green
2.5	25	1	Medium	Coupler	M071120303	16	25	Green
2.5	25	1	Crystal	Bell End	M071600303	21	25	Orange
2.5	25	1	Crystal	Coupler	M071300303	21	25	Orange
2.5	25	1	Standard	Coupler	M071130303	30	25	Red
3.2	32	1¼	V4 Eco	Bell End	M071550304	10	25	Grey
3.2	32	1¼	V4 Eco	Coupler	M071480304	10	25	Grey
3.2	32	1¼	V4 Cub	Coupler	M071500304	12.5	25	Grey
3.2	32	1¼	V4	Bell End	M071260304	12.5	25	Violet
3.2	32	1¼	V4	Coupler	M071110304	12.5	25	Violet
3.2	32	1¼	Medium	Bell End	M071330304	15	25	Green
3.2	32	1¼	Medium	Coupler	M071120304	15	25	Green
3.2	32	1¼	Crystal	Bell End	M071600304	21	25	Orange
3.2	32	1¼	Crystal	Coupler	M071300304	21	25	Orange
3.2	32	1¼	Standard	Coupler	M071130304	25	20	Red
3.2	32	1¼	Standard Plus	Coupler	M071440304	30	20	Brown
3.2	32	1¼	Heavy	Coupler	M071140304	35	15	Blue
3.2	32	1¼	Heavy Plus	Coupler	M071540304	38	15	Dark Grey
3.2	32	1¼	*Super Heavy	Coupler	M071150304	40	15	Black
4.0	40	1½	V4	Bell End	M071260305	12.5	25	Violet
4.0	40	1½	V4	Coupler	M071110305	12.5	25	Violet
4.0	40	1½	Medium	Coupler	M071120305	15	25	Green
4.0	40	1½	Crystal	Coupler	M071300305	21	20	Orange
4.0	40	1½	Standard	Coupler	M071130305	26	20	Red
4.0	40	1½	Heavy	Coupler	M071140305	35	15	Blue
4.0	40	1½	*Super Heavy	Coupler	M071150305	40	15	Black
5.0	50	2	Eco Medium	Coupler	M071110306	8	15	Violet
5.0	50	2	Eco Medium Plus	Coupler	M071430306	10	15	Brown
5.0	50	2	Medium	Coupler	M071120306	13	15	Green
5.0	50	2	Crystal	Coupler	M071300306	17	15	Orange
5.0	50	2	Standard	Coupler	M071130306	20	15	Red
5.0	50	2	Heavy	Coupler	M071140306	27	10	Blue
5.0	50	2	*Super Heavy	Coupler	M071150306	35	10	Black
5.0+	50+	2¼	*Super Heavy	Coupler	M071150314	35	07	Black

* Pipes need to install with super heavy adaptor set only

TECHNICAL CHART
FOR ASTRAL BORE-WELL COLUMN PIPES

ASTRAL BORE-WELL®

Nominal Dia (cm)	Nominal Size (inch)	Type	Wall Thickness (mm)				Average Outside Diameter (OD)(mm)	Length of Thick Portion at Both Side (mm)	Nominal Effective Length (tolerance) (mm)	Ultimate Breaking Load (kg)	Safe Pulling Load with Chain Pulley (kg)	Safe Allowable Hydrostatic Pressure (kgf/cm²)	Safe Total Pump Delivery Head (M)
			End Side		Middle/Barrel Side								
			Min	Max	Min	Max							
2.5	1	V4 Cub (12.5 kgf/cm²)	3.30	3.80	1.60	2.11	33.0 ± 0.10	150-150	3000 (+10)	750	360	12.5	125
2.5	1	V4 Bell End (12.5 kgf/cm²)	3.30	3.81	1.60	2.11		150-150	3000 (+10)	800	400	12.5	125
2.5	1	V4 (12.5 kgf/cm²)	3.30	3.81	1.60	2.11		150-150	3000 (+10)	800	400	12.5	125
2.5	1	Medium Bell End (15 kgf/cm²)	3.70	4.21	1.90	2.41		170-170	3000 (+10)	1050	620	15	150
2.5	1	Medium (16 kgf/cm²)	3.90	4.41	1.90	2.41		170-170	3000 (+10)	1050	620	16	160
2.5	1	Crystal Bell End (21 kgf/cm²)	3.80	4.33	2.25	2.76		170-170	3000 (+10)	1250	740	21	210
2.5	1	Crystal (21 kgf/cm²)	3.60	4.11	2.50	3.01		170-170	3000 (+10)	1250	740	21	210
2.5	1	Standard (30 kgf/cm²)	5.00	5.61	3.20	3.71		170-170	3000 (+10)	1700	1250	30	300
3.2	1¼	V4 Eco Bell End (10 kgf/cm²)	3.65	4.16	1.65	2.16	42.0 ± 0.10	110-110	3000 (+10)	960	565	10	100
3.2	1¼	V4 Eco (10 kgf/cm²)	3.65	4.16	1.65	2.16		110-110	3000 (+10)	960	565	10	100
3.2	1¼	V4 Cub (12.5 kgf/cm²)	4.10	4.61	1.90	2.40		150-150	3000 (+10)	1250	700	12.5	125
3.2	1¼	V4 Bell End (12.5 kgf/cm²)	4.10	4.61	1.90	2.40		150-150	3000 (+10)	1300	740	12.5	125
3.2	1¼	V4 (12.5 kgf/cm²)	4.10	4.61	1.90	2.40		150-150	3000 (+10)	1300	740	12.5	125
3.2	1¼	Medium Bell End (15 kgf/cm²)	4.50	5.00	2.30	2.80		170-170	3000 (+10)	1550	900	15	150
3.2	1¼	Medium (15 kgf/cm²)	4.50	5.00	2.30	2.80		170-170	3000 (+10)	1550	900	15	150
3.2	1¼	Crystal Bell End (21 kgf/cm²)	4.55	5.06	2.85	3.36		170-170	3000 (+10)	1800	1050	21	210
3.2	1¼	Crystal (21 kgf/cm²)	5.20	5.81	2.90	3.41		170-170	3000 (+10)	1800	1050	21	210
3.2	1¼	Standard (25 kgf/cm²)	5.80	6.31	3.50	4.01		170-170	3000 (+10)	2150	1250	25	250
3.2	1¼	Standard Plus (30 kgf/cm²)	6.30	7.01	4.10	4.71		170-170	3000 (+10)	2550	1450	30	300
3.2	1¼	Heavy (35 kgf/cm²)	6.50	7.29	4.70	5.31		170-170	3000 (+10)	3100	1550	35	350
3.2	1¼	Heavy Plus (38 kgf/cm²)	7.10	7.61	5.10	5.61		170-170	3000 (+10)	3250	1650	38	380
3.2	1¼	Super Heavy (40 kgf/cm²)	7.60	8.59	5.50	6.16		250-250	3000 (+10)	3500	1850	40	400
4.0	1½	V4 Bell End (12.5 kgf/cm²)	4.10	4.60	2.20	2.70	48.0 ± 0.10	150-150	3000 (+10)	1700	970	12.5	125
4.0	1½	V4 (12.5 kgf/cm²)	4.10	4.60	2.20	2.70		150-150	3000 (+10)	1700	970	12.5	125
4.0	1½	Medium (15 kgf/cm²)	4.65	5.15	2.65	3.15		170-170	3000 (+10)	2000	1250	15	150
4.0	1½	Crystal (21 kgf/cm²)	5.20	5.70	3.50	4.00		170-170	3000 (+10)	2400	1500	21	210
4.0	1½	Standard (26 kgf/cm²)	6.10	6.81	4.00	4.61		170-170	3000 (+10)	3000	1700	26	260
4.0	1½	Heavy (35 kgf/cm²)	7.40	8.39	5.20	5.81		170-170	3000 (+10)	4000	2000	35	350
4.0	1½	Super Heavy (40 kgf/cm²)	8.50	9.62	6.00	6.71		250-250	3000 (+10)	4100	2350	40	400
5.0	2	Eco Medium (8 kgf/cm²)	4.00	4.51	1.90	2.41	60.0 ± 0.13	150-150	3000 (+10)	2150	1180	8	80
5.0	2	Eco Medium Plus (10 kgf/cm²)	4.20	4.71	2.10	2.61		150-150	3000 (+10)	2250	1225	10	100
5.0	2	Medium (13 kgf/cm²)	5.20	5.86	2.60	3.11		200-200	3000 (+10)	2900	1550	13	130
5.0	2	Crystal (17 kgf/cm²)	5.60	6.28	3.40	3.91		200-200	3000 (+10)	3200	1870	17	170
5.0	2	Standard (20 kgf/cm²)	6.40	7.19	3.90	4.41		200-200	3000 (+10)	3800	2100	20	200
5.0	2	Heavy (27 kgf/cm²)	7.80	8.79	5.30	5.96		200-200	3000 (+10)	5000	3030	27	270
5.0	2	Super Heavy (35 kgf/cm²)	9.30	10.42	6.80	7.66		250-250	3000 (+10)	5600	3500	35	350
5.0	2¼	Super Heavy (35 kgf/cm²)	8.70	9.82	6.40	7.19	62.85 ± 0.15	250-250	3000 (+10)	7600	4200	35	350

LEAD-FREE uPVC COLUMN PIPES
FOR SUBMERSIBLE PUMP

3 M PIPE

HSN CODE: 39172390

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Class	Type	Product Code	Pressure (kgf/cm²)	Std. Pkg. (Nos.)	Stripe Colour
6.5	65	2½	Medium	Coupler	M071120307	10	10	Green
6.5	65	2½	Eco std.	Coupler	M071580307	13	10	Signal Red
6.5	65	2½	Standard	Coupler	M071130307	16	10	Red
6.5	65	2½	Standard Plus	Coupler	M071440307	21	10	Brown
6.5	65	2½	Heavy	Coupler	M071140307	26	07	Blue
6.5	65	2½	*Super Heavy	Coupler	M071150307	35	05	Black
8.0	80	3	Medium	Coupler	M071120308	11	07	Green
8.0	80	3	Eco std.	Coupler	M071580308	14	05	Signal Red
8.0	80	3	Standard	Coupler	M071130308	17	05	Red
8.0	80	3	Standard Plus	Coupler	M071440308	21	05	Brown
8.0	80	3	Heavy	Coupler	M071140308	26	05	Blue
8.0	80	3	*Super Heavy	Coupler	M071150308	35	05	Black
9.0	90	3½	*Heavy Plus	Coupler	M071540315	30	02	Dark Grey
10.0	100	4	Eco Medium	Coupler	M071110309	08	05	Violet
10.0	100	4	Medium	Coupler	M071120309	10	05	Green
10.0	100	4	Standard	Coupler	M071130309	15	05	Red
10.0	100	4	Standard Plus	Coupler	M071440309	21	05	Brown
10.0	100	4	Heavy	Coupler	M071140309	26	03	Blue
10.0	100	4	*Super Heavy	Coupler	M071150309	35	03	Black
12.5	125	5	Standard	Coupler	M071130316	16	01	Red
12.5	125	5	*Heavy	Coupler	M071140316	26	01	Blue
12.5	125	5	*Super Heavy	Coupler	M071150316	35	01	Black

TECHNICAL CHART
FOR ASTRAL BORE-WELL COLUMN PIPES

ASTRAL BORE-WELL

Nominal Dia (cm)	Nominal Size (inch)	Type	Wall Thickness (mm)				Average Outside Diameter (OD) (mm)	Length of Thick Portion at Both Side (mm)	Nominal Effective Length (tolerance) (mm)	Ultimate Breaking Load (kg)	Safe Pulling Load with Chain Pulley (kg)	Safe Allowable Hydrostatic Pressure (kgf/cm²)	Safe Total Pump Delivery Head (M)
			End Side		Middle/Barrel Side								
			Min	Max	Min	Max							
6.5	2½	Medium (10 kgf/cm²)	4.60	5.21	2.70	3.21	75.2 ± 0.13	200-200	3000 (+10)	3550	1930	10	100
6.5	2½	Eco std. (13 kgf/cm²)	5.50	6.01	3.40	3.31		200-200	3000 (+10)	3650	2150	13	130
6.5	2½	Standard (16 kgf/cm²)	6.50	7.29	4.10	4.61		200-200	3000 (+10)	5300	2860	16	160
6.5	2½	Standard Plus (21 kgf/cm²)	7.60	8.59	5.10	5.71		200-200	3000 (+10)	5900	3500	21	210
6.5	2½	Heavy (26 kgf/cm²)	9.00	10.12	6.50	7.29		200-200	3000 (+10)	7000	4200	26	260
6.5	2½	Super Heavy (35 kgf/cm²)	10.80	12.15	8.60	9.72		250-250	3000 (+10)	8600	4800	35	350
8.0	3	Medium (11 kgf/cm²)	5.70	6.38	3.20	3.71	88.0 ± 0.15	200-200	3000 (+10)	4500	2500	11	110
8.0	3	Eco std. (14 kgf/cm2)	6.40	6.91	4.25	4.76		200-200	3000 (+10)	5250	3100	14	140
8.0	3	Standard (17 kgf/cm²)	7.00	7.86	5.00	5.61		200-200	3000 (+10)	7200	4110	17	170
8.0	3	Standard Plus (21 kgf/cm²)	8.00	8.99	6.30	7.09		200-200	3000 (+10)	8200	4850	21	210
8.0	3	Heavy (26 kgf/cm²)	10.00	11.24	7.50	8.49		200-200	3000 (+10)	10600	6350	26	260
8.0	3	Super Heavy (35 kgf/cm²)	12.20	13.72	9.70	10.94		250-250	3000 (+10)	11900	6600	35	350
9.0	3½	*Heavy Plus (30 kgf/cm²)	12.7	14.2	9.9	11.1	100.0 ± 0.15	250-250	3000 (+10)	14100	7900	30	300
10.0	4	Eco Medium (8 kgf/cm²)	5.20	5.70	3.40	3.90	113.0 ± 0.15	200-200	3000 (+10)	4800	2800	08	80
10.0	4	Medium (10 kgf/cm²)	6.50	7.29	4.00	4.51		200-200	3000 (+10)	7500	4100	10	100
10.0	4	Standard (15 kgf/cm²)	7.70	8.69	5.70	6.38		250-250	3000 (+10)	10500	5800	15	150
10.0	4	Standard Plus (21 kgf/cm²)	10.20	11.44	7.60	8.59		250-250	3000 (+10)	13000	7650	21	210
10.0	4	Heavy (26 kgf/cm²)	11.50	13.02	9.50	10.74		250-250	3000 (+10)	16000	9500	26	260
10.0	4	Super Heavy (35 kgf/cm²)	15.50	17.58	13.00	14.70		250-250	3000 (+10)	19800	11000	35	350
12.5	5	Standard (16 kgf/cm²)	10.40	11.75	7.80	8.79	140.0 ± 0.20	250-250	3000 (+10)	16400	9650	16	160
12.5	5	Heavy (26 kgf/cm²)	15.60	17.68	12.50	14.02		250-250	3000 (+10)	24200	14600	26	260
12.5	5	Super Heavy (35 kgf/cm²)	19.20	21.49	15.60	17.68		250-250	3000 (+10)	30500	18600	35	350

LEAD-FREE uPVC COLUMN PIPES
FOR SUBMERSIBLE PUMP

1.5 M PIPE

HSN CODE: 39172390

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Class	Type	Product Code	Pressure (kgf/cm²)	Std. Pkg. (Nos.)	Stripe Colour
2.5	25	1	V4	Coupler	M071111503	12.5	25	Violet
3.2	32	1¼	V4	Coupler	M071111504	12.5	25	Violet
3.2	32	1¼	Heavy	Coupler	M071141504	35.0	15	Blue
4.0	40	1½	Standard	Coupler	M071131505	26.0	20	Red
5.0	50	2	Standard	Coupler	M071131506	20.0	15	Red
6.5	65	2½	Standard	Coupler	M071131507	16.0	10	Red
8.0	80	3	Standard	Coupler	M071131508	17.0	05	Red
10.0	100	4	Standard	Coupler	M071131509	15.0	05	Red
12.5	105	5	Standard	Coupler	M071131516#	16.0	02	Red
12.5	125	5	Heavy	Coupler	M071141516#	26.0	02	Blue

ACCESSORIES
FOR BORE-WELL PIPES

uPVC SMALL PC REGULAR

HSN CODE: 39172390

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
2.5	25	1	M071230003
3.2	32	1¼	M071230004
4.0	40	1½	M071230005
5.0	50	2	M071230006
6.5	65	2½	M071230007
8.0	80	3	M071230008
10.0	100	4	M071230009

uPVC SMALL PC SUPER HEAVY

HSN CODE: 39172390

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
3.2	32	1¼	M071240004
4.0	40	1½	M071240005
5.0	50	2	M071240006
6.3	63	2¼	M071240014
6.5	65	2½	M071240007
8.0	80	3	M071240008
9.0	90	3½	M071590015
10.0	100	4	M071240009

ACCESSORIES
FOR BORE-WELL PIPES

ASTRAL BORE-WELL

uPVC CONNECTOR REGULAR TO SUPER HEAVY (THDxCOUPLER)

HSN CODE: 39172390

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
3.2	32	1¼	M071370004#
4.0	40	1½	M071370005#
5.0	50	2	M071370006#
6.5	65	2½	M071370007#
8.0	80	3	M071370008

uPVC CONNECTOR SUPER HEAVY TO REGULAR (THDxCOUPLER)

HSN CODE: 39172390

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
3.2	32	1¼	M071730004#
4.0	40	1½	M071730005#
5.0	50	2	M071730006#
6.5	65	2½	M071730007#
8.0	80	3	M071730008#

CI TOP ADAPTOR WITH FLANGE (SINGLE CLAMP)

HSN CODE: 73071190

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
2.5	25	1	TA-1-CI
3.2	32	1¼	TA-114-CI
4.0	40	1½	TA-112-CI
5.0	50	2	TA-2-CI
6.5	65	2½	TA-212-CI
8.0	80	3	TA-3-CI
10.0	100	4	TA-4-CI

CI TOP ADAPTOR WITH FLANGE (DOUBLE CLAMP)

HSN CODE: 73071190

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
2.5	25	1	TA-1-H-CI
3.2	32	1¼	TA-114-H-CI
4.0	40	1½	TA-112-H-CI
5.0	50	2	TA-2-H-CI
6.5	65	2½	TA-212-H-CI
8.0	80	3	TA-3-H-CI
10.0	100	4	TA-4-H-CI

MS SUPER HEAVY TOP ADAPTOR (DOUBLE CLAMP)

HSN CODE: 73071190

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
3.2	32	1¼	TA-114-SH-MS
4.0	40	1½	TA-112-SH-MS
5.0	50	2	TA-2-SH-MS
6.3x5.0	63x50	2¼x2	TA-214-SH-MS
6.5	65	2½	TA-212-SH-MS
8.0	80	3	TA-3-SH-MS
9.0	90	3½	TA-312-SH-MS
10.0	100	4	TA-4-SH-MS

SS 304 SUPER HEAVY TOP ADAPTOR (DOUBLE CLAMP)

HSN CODE: 73071190

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
3.2	32	1¼	TA-114-SH-SS304
4.0	40	1½	TA-112-SH-SS304
5.0	50	2	TA-2-SH-SS304
6.3x5.0	63x50	2¼x2	TA-214-SH-SS304
6.5	65	2½	TA-212-SH-SS304
8.0	80	3	TA-3-SH-SS304
9.0	90	3½	TA-312-SH-SS304
10.0	100	4	TA-4-SH-SS304

Shortly Introducing

ACCESSORIES
FOR BORE-WELL PIPES

CI BOTTOM ADAPTOR (SMALL)

HSN CODE: 73071190

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
2.5	25	1	BA-1-CI
3.2	32	1¼	BA-114-CI
4.0	40	1½	BA-112-CI
5.0	50	2	BA-2-CI
6.5	65	2½	BA-212-CI
8.0	80	3	BA-3-CI
10.0	100	4	BA-4-CI

SS 304 SUPER HEAVY BOTTOM ADAPTOR

HSN CODE: 73071190

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
3.2	32	1¼	BA-114-SH-SS304
4.0	40	1½	BA-112-SH-SS304
5.0	50	2	BA-2-SH-SS304
5.0x6.3	50x63	2x2¼	BA-214-SH-SS304
6.5	65	2½	BA-212-SH-SS304
8.0	80	3	BA-3-SH-SS304
9.0	90	3½	BA-312-SH-SS304
10.0	100	4	BA-4-SH-SS304

RUBBER 'O' RING

HSN CODE: 40169320

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
2.5	25	1	RM06610001
3.2	32	1¼	RM06610114
4.0	40	1½	RM06610112
5.0	50	2	RM06610002
6.3	63	2¼	RM06610214
6.5	65	2½	RM06610212
8.0	80	3	RM06610003
9.0	90	3½	RM06610312
10.0	100	4	RM06610004

SS 304 TOP ADAPTOR WITH FLANGE (DOUBLE CLAMP)

HSN CODE: 73071190

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
2.5	25	1	TA-1-H-SS304
3.2	32	1¼	TA-114-H-SS304
4.0	40	1½	TA-112-H-SS304
5.0	50	2	TA-2-H-SS304
6.5	65	2½	TA-212-H-SS304
8.0	80	3	TA-3-H-SS304
10.0	100	4	TA-4-H-SS304

(CI & SS) REDUCER BOTTOM ADAPTOR

HSN CODE: 73071190

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
3.2x2.5	32x25	1¼ x 1	BAR-114-100-CI
4.0x2.5	40x25	1½ x 1	BAR-112-100-CI
4.0x3.2	40x32	1½ x 1¼	BAR-112-114-CI
5.0x4.0	50x40	2 x 1½	BAR-200-112-CI
6.5x5.0	65x50	2½ x 2	BAR-212-200-CI
8.0x6.5	80x65	3 x 2½	BAR-300-212-CI
10.0x8.0	100x80	4 x 3	BAR-400-300-CI
12.5x10.0	125x100	5x4	BAR-500-400-CI
4.0x3.2	40x3.2	1½ x 1¼	BAR-112-114-SS
5.0x4.0	50x4.0	2 x 1½	BAR-200-112-SS
6.5x5.0	65x50	2½ x 2	BAR-212-200-SS
8.0x6.5	80x65	3 x 2½	BAR-300-212-SS
10.0x8.0	100x80	4 x 3	BAR-400-300-SS

MS FLANGE

HSN CODE: 73072900

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
2.5	25	1	FNG-1-MS
3.2	32	1¼	FNG-114-MS
4.0	40	1½	FNG-112-MS
5.0	50	2	FNG-2-MS
6.3	63	2¼	FNG-214-MS
6.5	65	2½	FNG-212-MS
8.0	80	3	FNG-3-MS
10.0	100	4	FNG-4-MS

SS 304 BOTTOM ADAPTOR (LONG)

HSN CODE: 73071190

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
2.5	25	1	BA-1-H-SS304
3.2	32	1¼	BA-114-H-SS304
4.0	40	1½	BA-112-H-SS304
5.0	50	2	BA-2-H-SS304
6.5	65	2½	BA-212-H-SS304
8.0	80	3	BA-3-H-SS304
10.0	100	4	BA-4-H-SS304

(CI & SS) EXPANDER BOTTOM ADAPTOR

HSN CODE: 73071190

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
2.5x3.2	25x32	1x1¼	BAE-100-114-CI
3.2x4.0	32x40	1¼x1½	BAE-114-112-CI
4.0x5.0	40x50	1½x2	BAE-112-200-CI
5.0x6.5	50x65	2x2½	BAE-200-212-CI
6.5x8.0	65x80	2½x3	BAE-212-300-CI
8.0x10.0	80x100	3x4	BAE-300-400-CI
3.2x4.0	32x40	1¼x1½	BAE-114-112-SS
4.0x5.0	40x50	1½x2	BAE-112-200-SS
5.0x6.5	50x65	2x2½	BAE-200-212-SS
6.5x8.0	65x80	2½x3	BAE-212-300-SS
8.0x10.0	80x100	3x4	BAE-300-400-SS
8.0x10.0	80x100	3x4	BAE-300-400-SH-SS

ACCESSORIES
FOR BORE-WELL PIPES

SS FLANGE

HSN CODE: 73072900

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
3.2	32	1¼	FNG-114-SS
4.0	40	1½	FNG-112-SS
5.0	50	2	FNG-2-SS
6.3	63	2¼	FNG-214-SS
6.5	65	2½	FNG-212-SS
8.0	80	3	FNG-3-SS
9.0	90	3½	FNG-3-SS
10.0	100	4	FNG-4-SS

SIGRI - LOWERING JIG (REGULAR)

HSN CODE: 73071190

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
2.5	25	1	LC-1-MS
3.2	32	1¼	LC-114-MS
4.0	40	1½	LC-112-MS
5.0	50	2	LC-2-MS
6.5	65	2½	LC-212-MS
8.0	80	3	LC-3-MS
10.0	100	4	LC-4-MS

BELT SPANNER

HSN CODE: 82041220

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
2.5 to 12.5	25 to 125	1 to 5	BS-3-MS-D

SS ROD

HSN CODE: 73072900

Size (cm)	Size (mm)	Size (in.)	Product Code	Description Regular S.	Heavy
50.8	508	20	BLT-20-SS	1", 1¼", 1½"2", 2½", 3"	1¼", 1½"
60.9	609	24	BLT-24-SS	4"	2",2¼", 2½" 3", 3½", 4"

SIGRI - LOWERING JIG (SUPER HEAVY)

HSN CODE: 73071190

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
3.2	32	1¼	LC-114-MS-SH#
4.0	40	1½	LC-112-MS-SH#
5.0	50	2	LC-2-MS-SH
6.3	63	2¼	LC-214-MS
6.5	65	2½	LC-212-MS-SH
8.0	80	3	LC-3-MS-SH
9.0	90	3½	LC-312-MS
10.0	100	4	LC-4-MS-SH

Shortly Introducing

5" COLUMN PIPE ACCESSORY (STANDARD)

Nominal Dia (cm)	Nominal Size (mm)	Nominal Size (inch)	Product Code	HSN CODE	Description
12.5	125	5	BA-5-H-CI	73071190	C.I. Bottom Adaptor (Long)
12.5	125	5	TA-5-H-CI	73071190	CI Top Adaptor with Flange (Double Clamp)
12.5	125	5	BA-5-H-SS304	73071190	SS 304 Bottom Adaptor (Long)
12.5	125	5	TA-5-H-SS304	73072900	SS 304 Top Adaptor with Flange (Double Clamp)
12.5	125	5	M071380016	39172390	uPVC Regular Small Pc
12.5	125	5	FNG-5-SS	73071190	SS Flange
12.5	125	5	RM06610005	40169320	Rubber 'O' Ring
12.5	125	5	BLT-27-SS	73071190	SS Rod
12.5	125	5	LC-5-MS	73071190	Sigri - Lowering Jig

"5" COLUMN PIPE ACCESSORY (HEAVY/ SUPER HEAVY)"

Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code	HSN CODE	Description
12.5	125	5	BA-5-SH-SS304	73071190	SS 304 Super Heavy Bottom Adaptor
12.5	125	5	TA-5-SH-MS	73071190	MS Super Heavy Top Adaptor (Double Clamp)
12.5	125	5	TA-5-SH-SS304	73071190	SS 304 Super Heavy Top Adaptor (Double Clamp)
12.5	125	5	M071240016	39172390	uPVC Super Heavy Small Pc
12.5	125	5	FNG-5-SS	73071190	SS Flange
12.5	125	5	RM06610005	40169320	Rubber 'O' Ring
12.5	125	5	BLT-27-SS	73071190	SS Rod
12.5	125	5	LC-5-MS	73071190	Sigri - Lowering Jig

INSTALLATION PROCEDURES

1. INSERT MS FLANGE

Insert one MS Flange to Bottom Adaptor from bottom side.

2. FIX THE ADAPTOR

Fix the Adaptor to Pump with wrench support tightly.

3. WASH WITH WASHING POWDER & CLEAN WATER

Wash PVC Small Piece male and female Threads with washing powder water and clean water and insert in Adaptor Square Threads.

4. CONNECT FLANGES WITH SS RODS

Place 2nd MS Flange on top of PVC Small Piece coupler and connect both Flanges with SS RODS. Drop the pump with one after another pipe with a support of LOWERING JIG / ELEVATOR and manpower.

5. INSERT PIPES

Clean the male and female Threads with washing powder water and clean water and insert pipe to pipe till last pipe.

6. FIX WINDING WIRE

Tie the cable to pipe outer walls with a winding wire loosely or PVC sleeve or Cotton thread with an extra length of one foot approximately to each pipe to sustain the Vibration jerks.

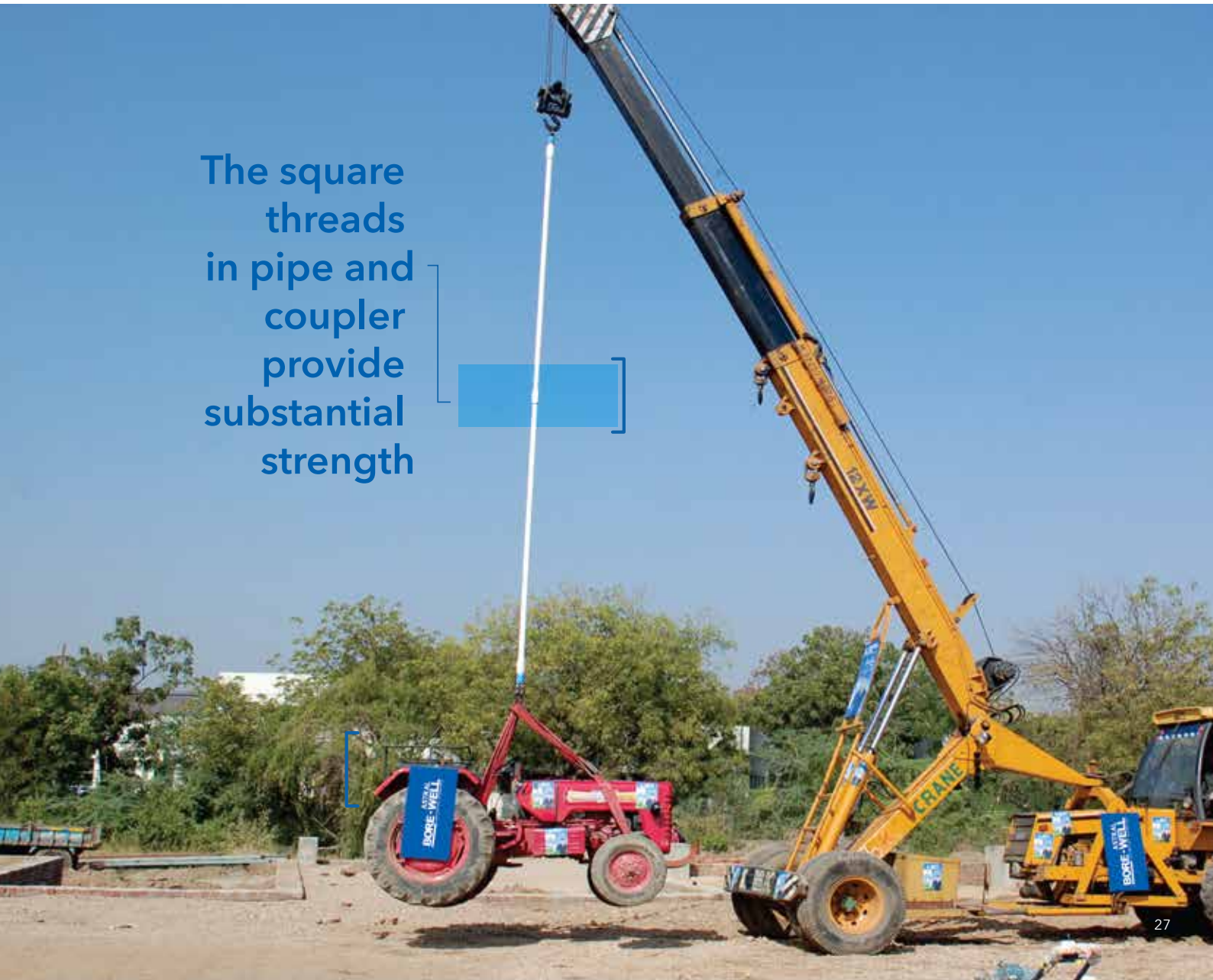
7. FIX TOP ADAPTOR FOR USAGE

Fix TOP ADAPTOR to final pipe coupler, adjust with coupler and bend for regular usage.

Note: Maintain minimum play between both Flanges while tightening the bolts to rods.

PRECAUTIONS

- Do not apply grease, oil or any other oily substance on the threads.
- Use new rubber seals (”O” rings) for every reinstallation of submersible pump.
- In bore wells, without full casing pipes, it is advised that at the time of removal of pumps from bore-wells, if the pump gets stuck up due to silt/sticky mud or entrapped stone, proper flushing of the bore-well should be done and then only pulling load should be applied to the pipes for pump removal.
- Do not over tighten the pipes as it will result in crushing of rubber sealing thereby leading to leakage/pipe failure.
- A safety cable or rope should be used to prevent dropping of pump in the well either during operation or withdrawal. The rope can be of steel or nylon or polypropylene.
- To ease the joint assembly, soapy water (washing powder water) and then plain water can be applied to the threads prior to assembly.
- Use of good quality reflux valves on the delivery side is recommended for preventing water hammer, up thrust and back spin in the pumping system.
- It is advisable to use safety device such as pump protection relay to prevent dry running of pump or pump shut-off head condition.



HANDLING AND STORAGE

HANDLING

The pipes should be handled with reasonable care. Because Column Pipes are much lighter in weight than metal pipe. Plunking of column pipes should be avoided.

The pipes should never be dragged or pushed from a truck bed. Pallets for pipe should be removed with a fork lift. Loose pipe can be rolled down on timbers, as long as the pieces do not fall on each other or on any hard or uneven surface. In all cases, abrupt contact with any sharp object (rocks, iron angles, forks on forklifts, etc.) should be avoided.

STORAGE

If possible, pipes should be stored with indoor storage facility. When this is not possible, the pipes should be stored on ground level which is dry and free from sharp objects.

The pipe should be protected from the sun light and kept in an area with proper ventilation. This will lessen the effects of ultraviolet rays and help prevent heat built-up.

If different types of pipes are stacked together, the pipe with the thickest wall should be placed at the bottom.

If the pipe is stored in racks, it should be continuously supported along its length. If this is not possible, the spacing of the supports should not exceed three feet (3') and maximum stacking height is Seven feet (7').

When storage temperatures are below 0°C (32°F), extra care should be taken when handling the pipe. This will help prevent any problem which could be caused by the slightly lower impact strength of uPVC pipe at temperature below freezing.

SOME OF OUR PRESTIGIOUS CLIENTS

Academic Institutes

IIM, Ahmedabad
SRM University
GRD Academy, Ludhiana
Allen Carrier Institute
Delhi Public School

Commercial Complexes

Crystal Mall
British High Commission, New Delhi
USA Embassy
The Canadian Embassy

Construction Houses

Hiranandani
TATA Housing
Lodha
Kalpataru
Adani
Godrej

Corporate Houses

Wipro
Indian Oil
TCS
Nokia
Infosys
Prestige Group
Sundram Finance Limited – Chennai

Hospitals

Wockhardt Hospitals
Aditya Birla Memorial Hospital
Columbia Asia Hospital, Calicut
Tata Memorial Cancer Hospital
Kailash Cancer Hospital & Research Centre

Hotels

The Oberoi, New Delhi
Taj Hotels, Resorts And Palaces
Le Meridien
Courtyard Marriott
Hayatt Hotel
Hotel Taj – Vijaywada
Imperial - New Delhi
ITC Sonar
J W Marriot

Industries

Cadila Pharmaceuticals
Essar Steel
Grasim - Aditya Birla Group
TISCO
L&T
Reliance
NTPC

Resorts & Clubs

Holiday Inn, Hotel – Resorts
Radhika Beach Resort
KTDC Resorts
Prakruti Resort
Gupta Resort Pvt Ltd
Fort Radison
Rajpath Club - Ahmedabad

ABOUT ASTRAL CASE - WELL® CASING FOR BOREWELL

Through our innovative approach, we are offering an extensive array of durable uPVC Casing Pipes that are used for various underground applications. Developed using qualitative PVC compound, our leak proof Casing Pipes are known for their easy installation and anti- corrosiveness and also offer precise dimensional tolerance. We manufacture these pipes in different sizes and dimensions in accordance with the standard norms.

LEAD-FREE uPVC CASING PIPES FOR BORE-WELL

• Easy to handle • Corrosion free • Durable & maintenance free • Best tensile strength • Best impact strength • Fire resistant • Non-toxic • Light weight & easy installation

FEATURES & BENEFITS

- **Easy to handle & Light weight:** uPVC casing Pipes are light in weight and are easy to handle & install.
- **Corrosion resistance:** Astral uPVC casing pipe gives excellent resistance even under the harshest of water conditions. So, there are none of the purity worries which create from corrosion of metal pipe.
- **Durable, Non Toxic & Maintenance free:** Astral Case-Well pipes are durable and free from rusting, weathering and chemical action and hence last for life time.
- **Quick Installation:** uPVC casing pipe uses a simple joining method. Tools required are very simple and inexpensive and avoid the need for an electrical source.
- **Lead-free Compound**: Astral Case-Well pipes have been manufactured using Lead-free free compound.
- **ECO Friendly:** Astral Case -well pipes are completely Eco Friendly. Pipes will not pollute the ground water or land, it safe for environment.

APPLICATION

- Case-well casing pipes are used in irrigation, domestic, industrial & mining field.

BATCHWISE TESTING BEFORE DESPATCH OF PIPES Astral Case-Well pipes are go through the stringent quality test from raw material to production and the final product:

- Raw material, Composition and Elastomeric Sealing Ring
- Visual Appearance, Colour & Dimensions
- Threading, Socket and Screen Dimensions
- Density
- Tensile Strength
- Impact Strength
- Vicat Softening Temperature
- Effect on Water

IS:12818 | NO CORROSION (CORROSION RESISTANT) | COST EFFECTIVE | EASY TO INSTALL | Pb (LEAD-FREE)

Only those products bearing the above marks are certified

LEAD-FREE uPVC CASING PIPES FOR BOREWELL

ASTRAL CASE - WELL® CASING FOR BOREWELL

IS:12818 — Only those products bearing the above marks are certified

Available in CS, CM, CD & Super Heavy Plus variants, in the sizes of 4.0cm (1.5") to 25.0cm (10"), also available with Strainer/Filter/Slotted

HSN CODE: 39172390

"CS" (Shallow Well)

Nominal Diameter			Pipe Length (M)	OD (mm)		Thickness of Pipe (mm)	Mean OD over connection (mm) (max)	Segmental Length (mm)		Type		Product Code
cm	mm	inch		Min.	Max.			Spigot End (Tolerance)	Socket End (Tolerance)			
11.5	115	4.5	3	125.0	125.3	4.8 - 5.2	130	48 (-7)	48 (+7)	Plain		M39103115CS
										Strainer		M40103115CS
12.5	125	5	3	140.0	140.4	5.4 - 6.4	148	63 (-7)	63 (+7)	Plain		M39103125CS
										Strainer		M40103125CS
15.0	150	6	3	165.0	165.4	5.7 – 6.5	174	63 (-7)	63 (+7)	Plain	*	M39103150CS
										Strainer		M40103150CS
17.5	175	7	3	200.0	200.5	7.0 – 7.8	211	63 (-7)	63 (+7)	Plain	*	M39103175CS
										Strainer		M40103175CS
20.0	200	8	3	225.0	225.5	7.6 – 8.8	238	74 (-7)	74 (+7)	Plain	*	M39103200CS
										Strainer		M40103200CS
25.0	250	10	3	280.0	280.5	9.6 – 11.0	292	90 (-12)	90 (+12)	Plain	*	M39103250CS
										Strainer		M40103250CS

"CM" (Medium Well)

Nominal Diameter			Pipe Length (M)	OD (mm)		Thickness of Pipe (mm)	Mean OD over connection (mm) (max)	Segmental Length (mm)		Type		Product Code
cm	mm	inch		Min.	Max.			Spigot End (Tolerance)	Socket End (Tolerance)			
4.0	40	1.5	3/6	48.0	48.2	3.5 - 4.0	52	25 (-7)	25 (+7)	Plain	*	M39103040CM
										Plain	*	M39106040CM
5.0	50	2	3/6	60.0	60.2	4.0 - 4.6	65	30 (-7)	30 (+7)	Plain	*	M39103050CM
										Plain	*	M39106050CM
8.0	80	3	3/6	88.0	88.3	4.0 - 4.6	94	40 (-7)	40 (+7)	Plain	*	M39103080CM
										Plain	*	M39106080CM
10.0	100	4	3	113.0	113.3	5.0 - 5.7	120	48 (-7)	48 (+7)	Plain	*	M39103100CM
										Strainer		M40103100CM
11.5	115	4.5	3	125.0	125.3	5.0 - 5.7	132	48 (-7)	48 (+7)	Plain	*	M39103115CM
										Strainer		M40103115CM
12.5	125	5	3	140.0	140.4	6.5 - 7.3	150	63 (-7)	63 (+7)	Plain	*	M39103125CM
										Strainer		M40103125CM
15.0	150	6	3	165.0	165.4	7.5 - 8.5	178	63 (-7)	63 (+7)	Plain	*	M39103150CM
										Strainer		M40103150CM
17.5	175	7	3	200.0	200.5	8.8 - 9.8	215	63 (-7)	63 (+7)	Plain	*	M39103175CM
										Strainer		M40103175CM
20.0	200	8	3	225.0	225.5	10.0 - 11.2	243	74 (-7)	74 (+7)	Plain	*	M39103200CM
										Strainer		M40103200CM
25.0	250	10	3	280.0	280.5	12.5 - 14.0	298	90 (-12)	90 (+12)	Plain	*	M39103250CM
										Strainer		M40103250CM

"CD" (Deep Well)

Nominal Diameter			Pipe Length (M)	OD (mm)		Thickness of Pipe (mm)	Mean OD over connection (mm) (max)	Segmental Length (mm)		Type		Product Code
cm	mm	inch		Min.	Max.			Spigot End (Tolerance)	Socket End (Tolerance)			
20.0	200	8	3	225.0	225.5	13.0-14.8	247	74 (-7)	74 (+7)	Plain	*	M39103200CD
										Strainer		M40103200CD
25.0	250	10	3	280.0	280.5	16.0-17.6	304	90 (-12)	90 (+12)	Plain	*	M39103250CD
										Strainer		M40103250CD

Super Heavy Plus

Nominal Diameter			Pipe Length (M)	OD (mm)		Thickness of Pipe (mm)	Mean OD over connection (mm) (max)	Segmental Length (mm)		Type		Product Code
cm	mm	inch		Min.	Max.			Spigot End (Tolerance)	Socket End (Tolerance)			
16.5	165	6.5	3	180.0	180.5	9.7-10.5	196	63 (-7)	63 (+7)	Plain		M39103165CM
										Strainer		M40103165CM

*Marked product covered in IS:12818

Screen / Slotted Pipes Screen or Slotted pipes are used for casing in ground water percolation to allow water to enter inside the well. These pipes can also be used to recharge the ground water level through the rain water harvesting pit.

LEAD-FREE uPVC CASING PIPES FOR BOREWELL

ASTRAL CASE - WELL CASING FOR BOREWELL

Available in SDR series (6 M Plain Selfit type & 3 M Plain & Strainer Threaded type)

SDR SERIES PLAIN SOLVENT CEMENT SOCKETED CASING PIPE (PSS) - SDR 43 (EQUIVALENT TO 4kg)

HSN CODE: 39172390

Nominal Diameter			Pipe Length (M)	OD (mm)		Thickness of Pipe (mm)	Type	Product Code
cm	mm	inch		Min.	Max.			
6.3	63	2	6	63.0	63.3	1.5-1.9	Plain	M391066343P
7.5	75	2½	6	75.0	75.3	1.8-2.2	Plain	M391067543P
9.0	90	3	6	90.0	90.3	2.1-2.6	Plain	M391069043P
11.0	110	4	6	110.0	110.4	2.5-3.0	Plain	M3910611043P
12.5	125	4½	6	125.0	125.4	2.9-3.4	Plain	M3910612543P
14.0	140	5	6	140.0	140.5	3.2-3.8	Plain	M3910614043P
16.0	160	6	6	160.0	160.5	3.7-4.3	Plain	M3910616043P
18.0	180	7	6	180.0	180.6	4.2-4.9	Plain	M3910618043P
20.0	200	8	6	200.0	200.6	4.6-5.3	Plain	M3910620043P
22.5	225	9	6	225.0	225.7	5.2-6.0	Plain	M3910622543P
25.0	250	10	6	250.0	250.8	5.7-6.5	Plain	M3910625043P

SDR SERIES PLAIN SOLVENT CEMENT SOCKETED CASING PIPE (PSS) - SDR 29 (EQUIVALENT TO 6kg)

HSN CODE: 39172390

Nominal Diameter			Pipe Length (M)	OD (mm)		Thickness of Pipe (mm)	Type	Product Code
cm	mm	inch		Min.	Max.			
4.0	40	1¼	6	40.0	40.3	1.4-1.8	Plain	M391064029P
5.0	50	1½	6	50.0	50.3	1.7-2.1	Plain	M391065029P
6.3	63	2	6	63.0	63.3	2.2-2.7	Plain	M391066329P
7.5	75	2½	6	75.0	75.3	2.6-3.1	Plain	M391067529P
9.0	90	3	6	90.0	90.3	3.1-3.7	Plain	M391069029P
11.0	110	4	6	110.0	110.4	3.7-4.3	Plain	M3910611029P
12.5	125	4½	6	125.0	125.4	4.3-5.0	Plain	M3910612529P
14.0	140	5	6	140.0	140.5	4.8-5.5	Plain	M3910614029P
16.0	160	6	6	160.0	160.5	5.4-6.2	Plain	M3910616029P
18.0	180	7	6	180.0	180.6	6.1-7.1	Plain	M3910618029P
20.0	200	8	6	200.0	200.6	6.8-7.9	Plain	M3910620029P
22.5	225	9	6	225.0	225.7	7.6-8.8	Plain	M3910622529P
25.0	250	10	6	250.0	250.8	8.5-9.8	Plain	M3910625029P

SDR SERIES PLAIN SOLVENT CEMENT SOCKETED CASING PIPE (PSS) - SDR 22 (EQUIVALENT TO 8kg)

HSN CODE: 39172390

Nominal Diameter			Pipe Length (M)	OD (mm)		Thickness of Pipe (mm)	Type	Product Code
cm	mm	inch		Min.	Max.			
11.0	110	4	6	110.0	110.4	4.9-5.6	Plain	M3910611022P
12.5	125	4½	6	125.0	125.4	5.6-6.4	Plain	M3910612522P
14.0	140	5	6	140.0	140.5	6.3-8.0	Plain	M3910614022P
16.0	160	6	6	160.0	160.5	7.2-8.3	Plain	M3910616022P
18.0	180	7	6	180.0	180.6	8.0-9.2	Plain	M3910618022P
20.0	200	8	6	200.0	200.6	8.9-10.3	Plain	M3910620022P
22.5	225	9	6	225.0	225.7	10.0-11.5	Plain	M3910622522P
25.0	250	10	6	250.0	250.8	11.2-12.9	Plain	M3910625022P

SDR SERIES PLAIN SOLVENT CEMENT SOCKETED CASING PIPE (PSS) - SDR 18 (EQUIVALENT TO 10kg)

HSN CODE: 39172390

Nominal Diameter			Pipe Length (M)	OD (mm)		Thickness of Pipe (mm)	Type	Product Code
cm	mm	inch		Min.	Max.			
11.0	110	4	6	110.0	110.4	6.1-7.1	Plain	M3910611018P
12.5	125	4½	6	125.0	125.4	6.5-8.0	Plain	M3910612518P
14.0	140	5	6	140.0	140.5	7.7-8.9	Plain	M3910614018P
16.0	160	6	6	160.0	160.5	8.8-10.2	Plain	M3910616018P
18.0	180	7	6	180.0	180.6	9.9-11.4	Plain	M3910618018P
20.0	200	8	6	200.0	200.6	11.0-12.7	Plain	M3910620018P
22.5	225	9	6	225.0	225.7	12.4-14.3	Plain	M3910622518P
25.0	250	10	6	250.0	250.8	13.8-15.9	Plain	M3910625018P

LEAD-FREE uPVC CASING PIPES FOR BOREWELL

ASTRAL CASE - WELL CASING FOR BOREWELL

Available in SDR series (6 M Plain Selfit type & 3 M Plain & Strainer Threaded type)

SDR SERIES-THREADED CASING PIPES

HSN CODE: 39172390

Nominal Diameter			Pipe Length (M)	OD (mm)		Thickness of Pipe (mm)	Mean OD over connection (mm) (max)	Segmental Length (mm)		Type	Product Code
cm	mm	inch		Min.	Max.			Spigot End (Tolerance)	Socket End (Tolerance)		
12.5	125	4½	3	125.0	125.4	4.30-4.50	132	63(-7)	63(+7)	Plain	M3910312529
										Strainer	M4010312529
14.0	140	5	3	140.0	140.5	3.30-3.70	146	63(-7)	63(+7)	Plain	M3910314029
										Strainer	M4010314029
16.0	160	6	3	160.0	160.5	4.40-4.70	167	63(-7)	63(+7)	Plain	M3910316029
										Strainer	M4010316029
18.0	180	7	3	180.0	180.6	4.40-4.70	187	63(-7)	63(+7)	Plain	M3910318029
										Strainer	M4010318029
20.0	200	8	3	200.0	200.6	5.20-5.90	210	74 (-7)	74 (+7)	Plain	M3910320029
										Strainer	M4010320029
22.5	225	9	3	225.0	225.7	6.20-6.90	233	74 (-7)	74 (+7)	Plain	M3910322529
										Strainer	M4010322529
25.0	250	10	3	250.0	250.8	6.70-7.70	260	90 (-12)	90 (+12)	Plain	M3910325029
										Strainer	M4010325029

RMS SERIES-RIBBED THREADED PIPES

HSN CODE: 39172390

Nominal Diameter			Pipe Length (M)	OD (mm)		Thickness of Pipe (mm)	Mean OD over connection (mm) (max)	Segmental Length (mm)		Type	Product Code
cm	mm	inch		Min.	Max.			Spigot End (Tolerance)	Socket End (Tolerance)		
11.0	110	4	3	117.0	117.30	5.0-5.70	123	48(-7)	48(+7)	Plain	#M39103100RMS

Shortly Introducing

FREQUENTLY ASKED QUESTIONS (FAQ)

1. Why Lead Free ASTRAL BORE-WELL Column Pipes?

Lead is a metal with no known biological benefit to humans. Too much lead can damage various systems of the body including the nerves and reproductive systems and the kidneys and it can cause high blood pressure and anemia. Lead accumulates in the bones and lead poisoning may be diagnosed from a blue line around the gums. Lead is especially harmful to the developing brains of fetuses and young children and to pregnant women. Lead interferes with the metabolism of calcium and Vitamin D. High blood lead levels in children can cause consequences which may be irreversible including learning disabilities, behavioral problems, and mental retardation. At very high levels, lead can cause convulsion coma and death. Lead can be dissolved in water when lead pipes are used for transportation of water. So use of such pipes may be harmful to human being. So, lead free column pipes are recommended for drawing pure and safe water from bore wells.

2. Why ASTRAL BORE-WELL Column Pipes?

Astral is pioneer in India for introducing new plumbing system since its inception. Astral Column Pipes comprise of life long trouble free service with its unique features like Lead free, Double S.S Stud Pin Lock, annealing on pipes etc. Astral Column Pipes are most advanced column pipes available in Indian Market today.

3.What is the expected life of ASTRAL BORE-WELL Column Pipes?

Astral Column Pipe system design & standards incorporate significant engineering safety factors which should translate to a long service life. Astral Column Pipe System have a design service life span for more than 50 years. Astral Column Pipe System is not susceptible to corrosion, scale build up or electrolysis in areas where water, solid and / or atmospheric conditions are aggressive. Astral firmly believes that the system will provide a service life as long or longer than alternative materials in the market.

4. What is the benefit of stud pin lock system in ASTRAL BORE-WELL Column Pipes?

Double S.S STUD PIN LOCK SYSTEM will give more grips to pipe and coupler while installing and retrieval time.

By joining the coupler it makes one end male Thread and other end Female Thread. This system is user friendly and provides EXTRA safety in long run.

5. Is THERE ANY unique feature IN ASTRAL BORE-WELL Column Pipe?

Especially designed THICK AND THIN process for more volume of water with pressure. "LEAD AND HEAVY METAL FREE" product made in India for the 1st time, also exporting globally.

6. Why Column Pipe is not made in 6 mtr length?

Depends on gravitational calculations and bendable radius of pipe considered , PVC columns should not be made in 6 mtrs length.

7. How do you say that this is better than the traditional GI pipes?

This is lesser in weight, easy installation, less manpower required, no rust after any number of years, this will give long run and generations will use these pipes, economy, regular availability of raw material, no friction loss. This will support motor, take less load and give expandable life, no electro leakage and finally users can use in full depth also with full confidence.

8. Are you sure that plastic pipe will take a full load of motor and pump including water inside the pipe?

Yes, this uPVC column pipes are made with specially designed square threads, a new technology to sustain the load and pressure at full capacity.

9. What is the capacity on plastic threads?

The threads are designed in square type to give more sustaining capacity, depends on the lowering depth. The breakable load and safe chain pulley load etc. are considered on depth and pressure rating of the pipe.

10. How the selection of the Pipes to be done?

The pipes can be selected based on the depth of the bore well, pump delivery head and maximum allowable pressure of the pipes. Astral manufacture different pressure class pipes for different lowering depths which mostly cater all different requirements worldwide. Astral range of pipes is successfully installed up to 1200 ft. Contact our Sales Team / Technical support team for further details.

11. Will ASTRAL BOREWELL Column Pipes Save my Money?

Yes, Astral Column Pipes are economical than Metal pipes. Also these pipes offer superior performance due to its higher Hazen William Factor (C= 150). It is not susceptible to corrosion, scales build up and hence gives 20-30 % more water even in long service of life. In other terms it also saves money for power consumption on pumps.

12. If situation demands is it advisable rethreading at site?

No, it is not allowed to cut or rethread the pipes on site. These pipes are threaded on highly sophisticated CNC machines with highest dimensional accuracy. This type of perfection is not possible at site. Also Astral has complete range of pipes with 1.5 mtr. & 3 mtr. lengths of pipe. So in most of the cases such operations are not required at site.

13. Is it necessary to provide Full casing in the bore for column pipes?

It is not compulsory to provide the full casing to the Astral Column Pipes in normal conditions. But technically it is always better to provide full casing to Column Pipes which helps the system performed better. Especially in the areas where loose stones or bolders or loose soils are prevalent, full casing will help to prevent the failure of bore.

14. Is it possible to recover water pump from borewell, in case of bore failures?

It is possible to recover the pump and pipes by applying the force equal or less than the ultimate breaking load.

ASTRAL®
PIPES

A consumer validated ***Superbrand in piping*** *category for* ***consecutive 4 years***

India's Most Trusted *Pipe Brand based on* ***TRA's Brand Trust Report for the 5th time***

Power of Desire

India's Most Desired *Brand based on* ***TRA's Brand Trust Report*** *2022*

ASTRAL®
PIPES

CIN NO: L25200GJ1996PLC029134
Registered & Corporate Office: Astral Limited
207/1, 'Astral House', B/h Rajpath Club, Off S. G. Highway, Ahmedabad - 380059.
Ph: +91-79 6621 2000 | Fax: +91-79 6621 2121 | E-mail: info@astralltd.com | Website: www.astralltd.com
For Export Inquiries: export@astralltd.com

ISO 9001 • 14001 • 45001 CERTIFIED COMPANY
By Bureau Veritas (India) Pvt.Ltd.

ASTRAL TOLL FREE 1800 233 7957
Please get in touch with us between 10 AM to 6 PM between Monday to Friday and the last Saturday of the month. We will remain closed on Public Holidays.

SC: PR07000018
ABW-CW/PC/004
REV:05/23

CELEBRATING 25 YEARS OF TRUST & INNOVATION

ASTRAL PIPES

CPVC PRO®

ADVANCED HOT AND COLD WATER PLUMBING SOLUTIONS

PRODUCT CATALOGUE

SOLUTIONS

Contents

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, 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 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

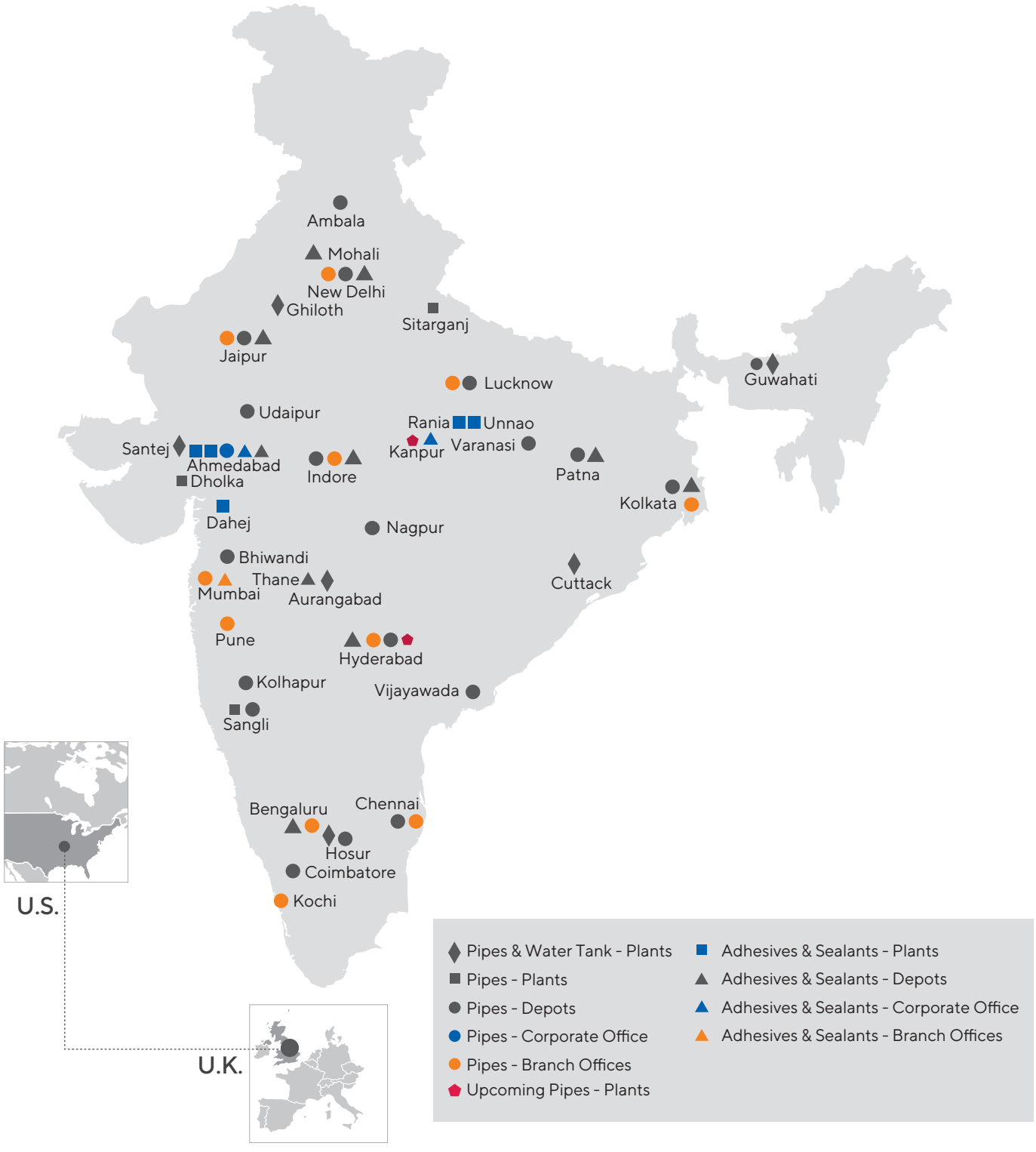
SANITARYWARE

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)
- 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.



ABOUT ASTRAL CPVC PRO®

Astral CPVC PRO is a class apart in the category, it is more than just a hot and cold plumbing system. To us it is an initiative, to deliver a world class plumbing solution.

Astral CPVC PRO are made from the specialty plastic, chemically known as Chlorinated Poly Vinyl Chloride [CPVC]. The CPVC compound shall meet cell class DP 110-2-3-2 as per IS:15778 and a maximum service temperature up to 93°C. The compound is carefully designed in our R & D and backed by our own expertise of manufacturing CPVC piping system from 25 years, which will give excellent results in all applications for CPVC piping system. It is unique combination of highest Impact resistance without any loss in pressure bearing capacity / Tensile strength or Vicat softening temperature. This will ensure best trouble free service and also stood notch above the initial installation issues of cracking / damages due to handling, storage and installation.

Astral CPVC Pro

The pipes are produced in copper tube size (CTS) from 15 mm (½") to 50 mm (2") with two different standard dimensional ratios - SDR 11 and SDR 13.5 (Class 1 & Class 2 respectively as per IS:15778) . The fittings are produced as per SDR 11. The pipes and fittings in SDR 11 class is complies to ASTM IS:15778 & IS:17546 standard. All Astral CPVC SDR 11 and SDR 13.5 pipes are made from identical CPVC compound material having same physical properties. The CPVC fittings are manufactured from compound material which meets all the requirement as per ASTM standard. Apart from having the same physical properties, SDR 11 and SDR 13.5 which are having different wall thickness and therefore, at any given temperature, they have different pressure ratings. For e.g.

Pipe Temperature Pressure Rating (°C)

GRADE	UNIT	23°C	**82°C**
SDR 11	psi	400	100
	kg/cm^2	28.1	7.0
SDR 13.5	psi	320	80
	kg/cm^2	22.5	5.6

Astral also manufacture CPVC PRO pipes in iron pipe size (IPS), available sizes are 65 mm (2½") to 300 mm (12") in SCH 40 and SCH 80 which meets the requirements of ASTM F 441. The pressure ratings varies with schedule pipe size and temperature. CPVC pipes of Copper Tube Size (CTS) dimensions can also be connected to CPVC (IPS) dimensions by using IPS x CTS fittings.

STANDARDS & SPECIFICATIONS

ASTM D1784 Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.

ASTM D2846 Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Hot & Cold water distribution systems.

ASTM F493 Standard Specification for Solvent Cements for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe & Fittings.

ASTM F441 Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe, SCH 40 & 80.

ASTM F438 Socket-Type Chlorinated Polyvinyl Chloride Plastic Pipe Fittings. SCH 40.

ASTM F439 Socket-Type Chlorinated Polyvinyl Chloride Plastic Pipe Fittings. SC H 80.

ASTM D2774 Underground installation of Thermoplastic pipes.

IS:15778 Chlorinated poly vinyl chloride (CPVC) pipe for potable hot & cold water distribution supplies.

IS:17546 Chlorinated Polyvinyl Chloride (CPVC) Fittings For Potable Hot And Cold Water Distribution Supplies.

PRODUCT RANGE

Class 1 (SDR 11) & Class 2 (SDR 13.5): 15 mm (½") to 50 mm (2") CTS -Confirming to IS:15778:2007 & IS:17546 As per ASTM D2846

SCH 40: 65 mm (2½") to 150 mm (6") IPS As per ASTM F441 & ASTM F438

SCH 80: 65 mm (2½") to 300 mm (12") IPS As per ASTM F441 & ASTM F439

MARKING & UNIFORMITY

Pipes and fittings made from CPVC compound are clearly marked with the manufacturers trademark, material designation, applicable ASTM standard.

SDR 11 Pipe: Tan coloured with red stripe

SDR 13.5 Pipe: Tan coloured with brown stripe

SDR 11 fittings: Tan colour

SCH 40 Pipe: Tan colour with brown stripe

SCH 40 fittings: Tan colour

SCH 80 Pipe: Tan colour with red stripe

SCH 80 fittings: Tan colour / Grey colour

Astral Cpvc Propiping System is the Best Choice for Hot and Cold Potable Water Distribution

The Raw Material

Astral CPVC Pro pipes and fittings are manufactured with specially designed CPVC Compound formulated by Astral itself. The compound is mixture of imported CPVC Resin and other ingredients like Impact Modifiers, Lubricants, UV stabilizers etc.

The compound for pipes and fittings are carefully designed in our R&D facility and checked for different properties like Dynamic Thermal Stability, Fusion, Torque and all other rheological properties. Thus designed CPVC compound can give highest processibility as well as best Physical and Mechanical properties.

The compound meets or exceed all requirements for cell classification for IS:15778 & IS:17546 ASTM D2846.

The material is also approved by NSF for its safe use with potable water and thus completely safe for drinking water.

About NSF Approval

Astral Limited is proud to announce that Astral CPVC PRO is approved by NSF International, a leading global independent public health and safety organization. To receive certification, Astral Limited submitted product samples to NSF that underwent rigorous testing to recognized standards and agreed to unannounced manufacturing facility audits and periodic retesting to verify continued conformance to the standards. Find us in the NSF water listings by visiting http://www.nsf.org/certified-products-systems.

ABOUT NSF INTERNATIONAL

NSF International is a global independent organization that writes standards and protocols and tests and certifies products for the food, water and consumer goods industries to minimize adverse health effects and protect the environment. NSF operates in over 165 countries. Founded in 1944, NSF is a Pan American Health Organization/World Health Organization Collaborating Center on Food Safety, Water Quality and Indoor Environment.

Why Astral CPVC Pro

Introduced CPVC for the First Time in India

There was a time when CPVC pipes were not accepted by the industry. This was mainly because GI pipes were 30% cheaper than CPVC pipes. So strength of steel and cost were major factors why GI pipes were norms. But Astral introduced CPVC pipes in India for the first time embarking upon anti-corrosion and hot water compatibility. Since then, Astral CPVC has been a flagship CPVC product leading the way in the market.

1st TO INTRODUCE CPVC IN INDIA

Highest Number of Certifications

NSF, BIS and IAPMO Certifications : Astral the only pipe manufacturing company in India having most prestigious quality approval from National Sanitation Foundation (NSF), Bureau of Indian Standards (BIS) and certifications from IAPMO.

'GRIHA' and 'GreenPro' certifications, ensuring a harmonious blend of environmental responsibility and high-quality performance

NSF® Certified to NSF/ANSI 61 | IS : 15778 | IS : 17546 | U PC - I | GRIHA | GreenPro

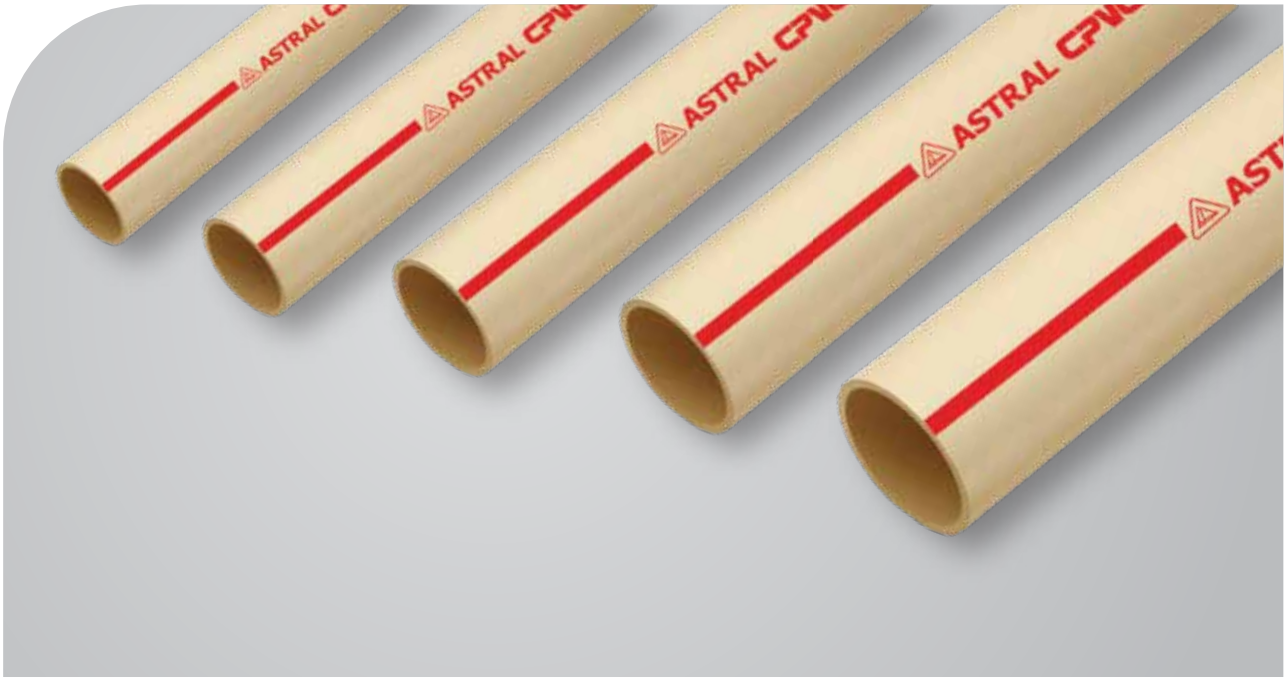
*ONLY THOSE PRODUCTS BEARING THE ABOVE MARKS ARE CERTIFIED.

State of the Art Manufacturing

Astral is equipped with state of art manufacturing facilities at Santej, Hosur, Ghiloth and Cuttack plants. High speed and accurate extruders and injection molding machines including innovative manufacturing techniques being used to manufacture the ultra modern, errorless Astral CPVC PRO pipes and fittings.

Widest Product Range

Astral is the only company that provides the pipes with sizes ranging from 1/2" to 12" diameter. Hence you can meet any requirement with this widest range of CPVC pipes.



Total Backward Integration

All of Astral's CPVC Pipes and Fittings are made from CPVC Compound which is manufactured and controlled by Astral at every stage of the process. This backward integration helps us consistently maintain the highest quality for all pipes and fittings.

Skill Development Initiatives for Plumbers

Astral provides training to plumbers and plumbing contractors throughout the year by updating them about modern plumbing techniques and to do plumbing work more effectively and professionally.

KEY PROPERTIES AND BENEFITS

CORROSION RESISTANCE

Astral CPVC PRO piping system gives excellent resistance even under the harshest of water conditions so there are none of the purity worries from corrosion of metal pipe or soldered joints. Astral CPVC PRO pipe keeps pure water pure.

UNAFFECTED BY CHLORINE IN WATER

Some materials may be adversely affected by chlorine contained in the water supply, which can cause breakdown of the polymer chains and potential leaks. In this respect, Astral CPVC PRO piping system is unaffected by the chlorine present in potable water supply.

LOWER BACTERIAL GROWTH

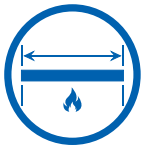
Bacteria build up with CPVC piping system is far lower than with alternative piping materials due to very smooth internal surface. It does not deteriorate quality of water and prevents contamination, unpleasent odour, bad taste and discolouration of water.

HOT WATER COMPATIBLE

Astral CPVC PRO piping system is compatible with both hot and cold water. It withstand very high temperature upto 93°C. Many solar, electric and gas water heaters have CPVC piping system for heat efficiency and lower installation cost.

NO SCALE, PIT OR LEACH FORMATION

Even after years of use in the most aggressive conditions, this pipe won't corrode, standing against low pH water, coastal salt, air exposures and corrosive soils. It stays as solid and reliable as the day it was installed, maintaining full water carrying capacity.



LOW THERMAL EXPANSION

Astral CPVC PRO piping system has a lower coecient of thermal expansion, reducing the amount that the pipe expands when hot water is running, again reducing unsightly 'looping' of the pipe.

EASY PLUMBING PROCESS

CPVC uses a simple, solvent cement jointing method. Tools required are very simple and inexpensive (chamfering tool and pipe cutter only) and avoid the need for an electrical source. Also due to superior insulation properties compare to copper and GI, this system saves installation cost.

FIRE SAFETY

CPVC has a Limiting Oxygen Index (LOI) of 60. Thus in air, Astral CPVC PRO pipe does not support combustion. No flaming drips, does not increase the fire spreading, No flame spread &low smoke generation.

STRONG & DURABLE MATERIAL

Astral CPVC PRO piping system has a much higher strength than other thermoplastics used in plumbing. Hence, it needs less hangers and supports and there is no unsightly looping of the pipe. It has a higher pressure bearing capability, leading to the same flow rate with a smaller size. Also having high UV resistance, life span is more than 50 years.

APPROVED WORLD WIDE

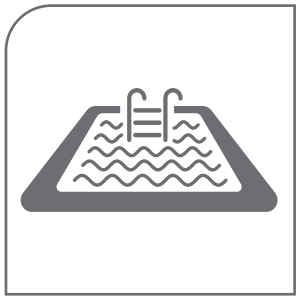
CPVC piping system is approved for contact with potable water in wide range of countries including USA, UK, Canada, Germany, France, The Netherlands, Middle East, Africa etc.

Fields Of Applications

Astral CPVC PRO Pipes are ideal for
Hot and Cold water applications in

- Homes, apartments
- Hotels, resort
- Hospitals
- High and low rise buildings
- Corporate and commercial houses
- Academic institutes

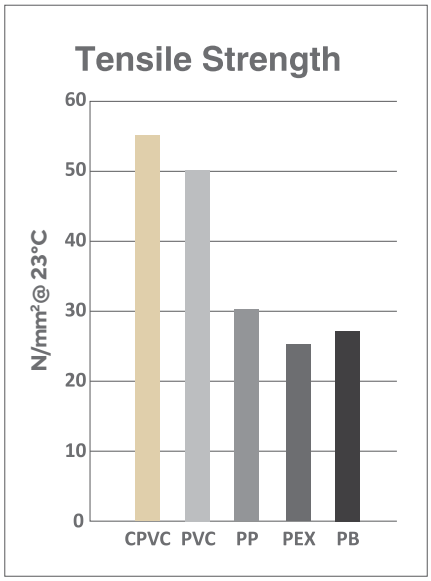
etc. for pure and hygienic water supply.

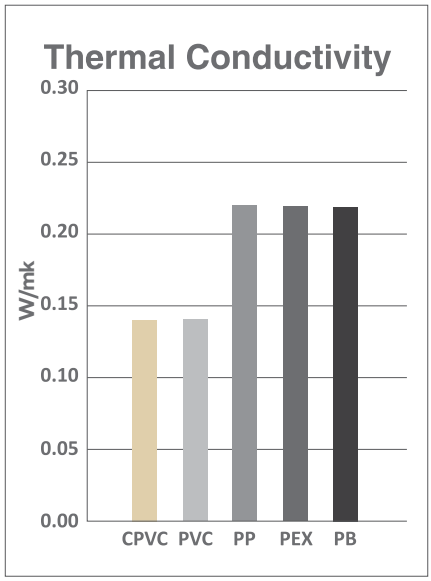


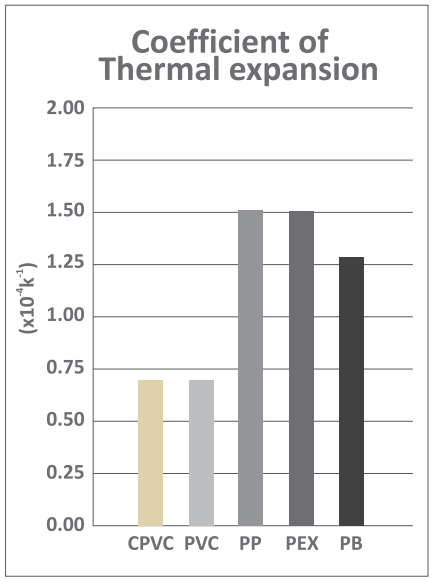
Basic Physical Properties

PROPERTY	TEST METHOD	ENGLISH UNIT	SI UNIT
GENERAL PROPERTIES			
Specific Gravity @ 23°C	ASTM D792	1.50 g/cm^3	1.50 g/cm^3
Specific volume @ 23°C	-	0.666 cm^3/g	0.666 cm^3/g
Water Absorption @ 23°C	ASTM D570	0.02%	0.02%
Water Absorption @ 100°C	ASTM D570	0.50%	0.50%
Cell Class	ASTM D1784	23447-B	D.P.110-2-3-2
Rockwell Hardness @ 23°C	ASTM D785	119	-
MECHANICAL PROPERTIES			
Izod Impact (Notched) @ 23°C	ASTM D256	4.5ft.lbs/in	267 J/m
Tensile Strength @ 23°C	ASTM D638	8000 psi	55 N/mm^2
Tensile Modulus @ 23°C	ASTM D638	3,94,000 psi	2710 N/mm^2
Flexural Strength @ 23°C	ASTM D790	15,100 psi	104N/mm^2
Flexural Modulus @ 23°C	ASTM D790	4,15,100 psi	2860N/mm^2
Compressive Strength @ 23°C	ASTM D695	10,200 psi	71 N/mm^2
Compressive Modulus @ 23°C	ASTM D695	1,97,500 psi	1360 N/mm^2
THERMAL PROPERTIES			
Coefficient of Thermal Expansion	ASTM D696	3.4X10^{-5} in/in/°f	6.3 X10^{-5} m/m/°K
Thermal Conductivity	ASTM C177	0.95 BTU/(hr.ft^2.°F)	0.14 W/mk
Heat Distortion Temperature	ASTM D648	221°F	105°C
Heat Capacity @ 23°C	DSC	0.21 BTU/lb°F	0.90 J/gK
Heat Capacity @ 100°C		0.26 BTU/lb°F	1.10 J/gK
FLAMMABILITY			
Flammability Rating	UL94	0.062 inch/0.157cm	V0, 5VA & 5VB
Burning Rate	ASTM D635	Self Extinguishing	Self Extinguishing
Flame spread	ASTM E84	15	-
Smoke developed	ASTM E84	70-125	-
Limiting oxygen index	ASTM D2863	60%	-
Burning Rate	ASTM D635	Self Extinguishing	
ELECTRICAL			
Dielectric Strength	ASTM D147	1250 V/mil	492,000 V/cm
Dielectric Constant @ 60Hz, -1°C	ASTM D150	3.7	3.7
Power Factor @ 1000 Hz	ASTM D150	0.007%	0.007%
Volume Resistivity @ 23°C	ASTM D257	3.4x10^{15} ohm/cm	3.4x10^{15} ohm/cm

Note: Above values are typical values. It should be used as a general recommendation. Do not consider as a specification







Technical Details

Nominal Size			Outside Diameter, Inch (mm)				Wall Thickness, Inch (mm)				Pipe Pr. R. psi (kg/cm²)			
cm	(mm)	in.	Average		Tolerance		Minimum		Tolerance		73.4°F	(23°C)	180°F	(82°C)
Outside Diameters and Wall Thicknesses For CPVC 4120, SDR 11 Plastic Pipe As Per ASTM D-2846 & conforming to IS: 15778														
1.5	(15)	½*	0.625	(15.9)	± 0.003	(0.08)	0.068	(1.73)	+ 0.020	(0.51)	400	(28.1)	100	(7.0)
2.0	(20)	¾	0.875	(22.2)	± 0.003	(0.08)	0.080	(2.03)	+ 0.020	(0.51)	400	(28.1)	100	(7.0)
2.5	(25)	1	1.125	(28.6)	± 0.003	(0.08)	0.102	(2.59)	+ 0.020	(0.51)	400	(28.1)	100	(7.0)
3.2	(32)	1¼	1.375	(34.9)	± 0.003	(0.08)	0.125	(3.18)	+ 0.020	(0.51)	400	(28.1)	100	(7.0)
4.0	(40)	1½	1.625	(41.3)	± 0.004	(0.10)	0.148	(3.76)	+ 0.020	(0.51)	400	(28.1)	100	(7.0)
5.0	(50)	2	2.125	(54.0)	± 0.004	(0.10)	0.193	(4.90)	+ 0.023	(0.58)	400	(28.1)	100	(7.0)

* For ½" wall thickness minimum is not a function of SDR.

Pr. R. = Pressure Rating

Nominal Size			Outside Diameter, Inch (mm)				Wall Thickness, Inch (mm)				Pipe Pr. R. psi (kg/cm²)			
cm	(mm)	in.	Average		Tolerance		Minimum		Tolerance		73.4°F	(23°C)	180°F	(82°C)
Outside Diameters and Wall Thicknesses For CPVC 4120, SDR 13.5 Plastic Pipe conforming to IS: 15778														
1.5	(15)	½*	0.625	(15.9)	± 0.003	(0.08)	0.055	(1.40)	+ 0.020	(0.51)	320	(22.5)	80	(5.6)
2.0	(20)	¾	0.875	(22.2)	± 0.003	(0.08)	0.065	(1.65)	+ 0.020	(0.51)	320	(22.5)	80	(5.6)
2.5	(25)	1	1.125	(28.6)	± 0.003	(0.08)	0.083	(2.12)	+ 0.020	(0.51)	320	(22.5)	80	(5.6)
3.2	(32)	1¼	1.375	(34.9)	± 0.003	(0.08)	0.102	(2.59)	+ 0.020	(0.51)	320	(22.5)	80	(5.6)
4.0	(40)	1½	1.625	(41.3)	± 0.004	(0.10)	0.120	(3.06)	+ 0.020	(0.51)	320	(22.5)	80	(5.6)
5.0	(50)	2	2.125	(54.0)	± 0.004	(0.10)	0.157	(4.00)	+ 0.023	(0.58)	320	(22.5)	80	(5.6)

* For ½" wall thickness minimum is not a function of SDR.

Pr. R. = Pressure Rating

Nominal Size			Outside Diameter, Inch (mm)				I.D. Inch (mm)		Wall Thickness, Inch (mm)				Pipe Pr. R. psi (kg/cm²)	
cm	(mm)	in.	Average		Tolerance		Average		Minimum		Tolerance		73.4°F	(23°C)
Outside Diameters, Wall Thickness & Pressure Rating For CPVC 4120, Schedule 40 Piping System As per ASTM F 441														
6.5	(65)	2½	2.875	(73.0)	± 0.007	(0.18)	2.444	(62.07)	0.203	(5.16)	+ 0.024	(0.61)	300	(21.10)
8.0	(80)	3	3.500	(88.9)	± 0.008	(0.20)	3.041	(77.26)	0.216	(5.49)	+ 0.026	(0.66)	260	(18.28)
10.0	(100)	4	4.500	(114.3)	± 0.009	(0.23)	3.998	(101.55)	0.237	(6.02)	+ 0.028	(0.71)	220	(15.47)
15.0	(150)	6	6.625	(168.3)	± 0.011	(0.28)	6.03	(153.2)	0.280	(7.11)	+ 0.034	(0.86)	180	(12.66)

Pr. R. = Pressure Rating

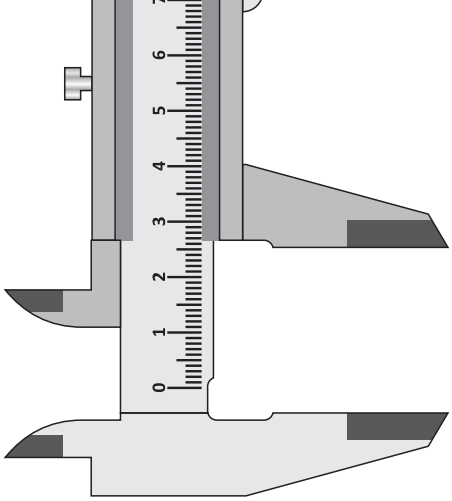
Nominal Size			Outside Diameter, Inch (mm)				I.D. Inch (mm)		Wall Thickness, Inch (mm)				Pipe Pr. R. psi (kg/cm²)	
cm	(mm)	in.	Average		Tolerance		Average		Minimum		Tolerance		73.4°F	(23°C)
Outside Diameters, Wall Thickness & Pressure Rating For CPVC 4120, Schedul 80 Piping System As per ASTM F 441														
6.5	(65)	2½	2.875	(73.0)	± 0.007	(0.18)	2.288	(58.14)	0.276	(7.01)	+ 0.033	(0.84)	420	(29.53)
8.0	(80)	3	3.500	(88.9)	± 0.008	(0.20)	2.864	(72.75)	0.300	(7.62)	+ 0.036	(0.91)	370	(26.01)
10.0	(100)	4	4.500	(114.3)	± 0.009	(0.23)	3.778	(95.97)	0.337	(8.56)	+ 0.040	(1.02)	320	(22.50)
15.0	(150)	6	6.625	(168.3)	±0.011	(0.28)	5.710	(145.04)	0.432	(10.97)	+ 0.052	(1.32)	280	(19.69)
20.0	(200)	8	8.625	(219.1)	±0.015	(0.38)	7.565	(192.15)	0.500	(12.70)	+ 0.060	(1.52)	250	(17.57)
25.0	(250)	10	10.750	(273.1)	±0.015	(0.38)	9.493	(241.12)	0.593	(15.06)	+ 0.071	(1.80)	230	(16.17)
30.0	(300)	12	12.750	(323.90)	±0.015	(0.38)	11.294	(286.87)	0.687	(17.45)	+ 0.082	(2.08)	230	(16.17)

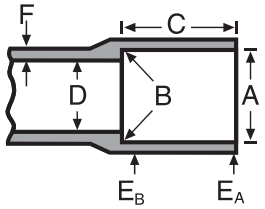
Pr. R. = Pressure Rating

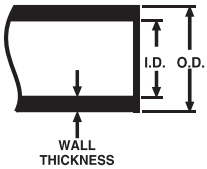
Temperature Derating Factors

Working Temperature (°F)	73-80	90	100	120	140	160	180	200
Working Temperature (°C)	23-25	32	38	49	60	71	82	93
Pipe Derating Factor	1.00	0.91	0.82	0.65	0.50	0.40	0.25	0.20
Valve Derating Factor	1.00	0.95	0.90	0.80	0.70	0.61	0.53	0.45

N.B. : For obtaining working pressure in system, multiply the maximum pressure with derating factor at the working temperature of system.
* Valves, Unions & Speciality Products have different elevates temperature rating than pipe.







Nominal Size		Socket Entrance Diameter inch (mm)		Socket Bottom Diameter inch (mm)		Socket Length inch (mm)	Inside Diameter inch (mm)	Wall Thickness in (mm)		
								Socket Enterance	Socket Bottom	'F' min.
(in.)	(mm)	'A' Average	'A' Tolerance	'B' Average	'B' Tolerance	'C' min.	'D' min.	'E_A' min.	'E_B' min.	

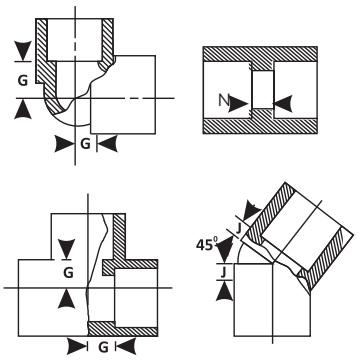
Tapered Socket Dimensions For CPVC 4120, SDR 11, Plastic Pipe Fittings AS PER ASTM D2846

½	(15)	0.633	(16.08)	± 0.003	(0.08)	0.619	(15.72)	± 0.003	(0.08)	0.500	(12.70)	0.489	(12.42)	0.068	(1.73)	0.102	(2.59)	0.128	(3.25)
¾	(20)	0.884	(22.45)	± 0.003	(0.08)	0.870	(22.10)	± 0.003	(0.08)	0.700	(17.78)	0.715	(18.16)	0.080	(2.03)	0.102	(2.59)	0.128	(3.25)
1	(25)	1.135	(28.83)	± 0.003	(0.08)	1.121	(28.47)	± 0.003	(0.08)	0.900	(22.86)	0.921	(23.39)	0.102	(2.59)	0.102	(2.59)	0.128	(3.25)
1¼	(32)	1.386	(35.20)	± 0.003	(0.08)	1.372	(34.85)	± 0.003	(0.08)	1.100	(27.94)	1.125	(28.58)	0.125	(3.18)	0.125	(3.18)	0.156	(3.96)
1½	(40)	1.640	(41.66)	± 0.004	(0.10)	1.622	(41.20)	± 0.004	(0.10)	1.300	(33.02)	1.329	(33.76)	0.148	(3.76)	0.148	(3.76)	0.185	(4.70)
2	(50)	2.141	(54.38)	± 0.004	(0.10)	2.123	(53.92)	± 0.004	(0.10)	1.700	(43.18)	1.739	(44.17)	0.193	(4.90)	0.193	(4.90)	0.241	(6.12)

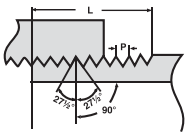
Nominal Size		(G) min. inch	(J) min. inch	(N) min. inch
(mm)	(in.)			

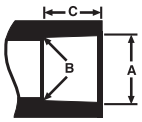
Minimum Dimensions from Center to End of Socket (Laying Length) for CPVC 4120, SDR 11 Plastic Tubing Fittings* Per ASTM D 2846

15	½	0.382	0.183	0.102
20	¾	0.507	0.235	0.102
25	1	0.633	0.287	0.102
32	1¼	0.758	0.339	0.102
40	1½	0.884	0.391	0.102
50	2	1.134	0.495	0.102



BSPT





Nominal Size		Threads (Per Inch)	Effective Thread Length (L) mm	Pitch of Thread (P) mm
(mm)	(in.)			

BSP ISO 7/1 Parallel Threads

15	½	14	13.152	1.8143
20	¾	14	14.514	1.8143
25	1	11	16.714	2.3091
32	1¼	11	19.050	2.3091
40	1½	11	19.050	2.3091
50	2	11	23.378	2.3091
65	2½	11	26.698	2.3091
80	3	11	29.873	2.3091
100	4	11	35.791	2.3091

Nominal Size		Diameter (in)			Socket Length Minimum C (in)	
(mm)	(in.)	Socket Entrance A	Socket Bottom B	Tolerance	SCH 40	SCH 80

Basic Socket Dimensions
Schedule 40 CPVC Fittings As Per ASTM F 438
Schedule 80 CPVC Fittings As Per ASTM F 439

65	2½	2.889	2.868	±0.007	1.750	1.750
80	3	3.516	3.492	±0.008	1.875	1.875
100	4	4.518	4.491	±0.009	2.000	2.250
150	6	6.647	6.614	±0.011	3.000	3.000
200	8	8.655	8.610	±0.015	4.000	4.000
250	10	10.780	10.735	±0.015	5.000	5.000
300	12	12.780	12.735	±0.015	6.000	6.000

Fluid Handling Characteristics of Astral CPVC Pro Pipes

LINEAR FLUID FLOW VELOCITY

The linear velocity of a flowing fluid in a pipe is calculated from :

$$V = \frac{0.4085g}{d^2}$$

Where V = Linear fluid flow velocity in feet per second

g = Flow rate in gallons per minute

d = Inside diameter of pipe in inches

The values in the following tables are based on this formula. These values are accurate for all fluids.

Linear fluids flows velocity in a system should generally be limited to 5 ft/s, particularly for pipe size 6" and grater. Following this guideline will minimize risk of hydraulic shock damage due to water hammer surge pressures.

FRICTION LOSS IN PIPES

A great advantage that Astral CPVC PRO piping system enjoys over its metallic piping system is a smooth inner surface which is resistant to scaling and fouling. This means that friction pressure losses in the fluid flow are minimized from the beginning and do not significantly increase as the system ages, as can be the case with metal pipes subject to scaling and fouling.

The Hazen-Willims formula is the generally accepted method of calculating friction head losses in piping systems. The values in the following fluid tables are based on this formula and a surface roughness constants for other piping materials are given beside:

$$f = 0.2083 \times \left(\frac{100}{C}\right)^{1.852} \frac{g^{1.852}}{d^{4.8655}}$$

Where f = Friction head in feet of water per 100 feet of pipe

d = Inside diameter of pipe in inches

g = Flow rate in gallons per minute

c = pipe surface roughness constant

CONSTANT (C) TYPE OF PIPE

150	-	CPVC pipe, new-40 years old
130-140	-	steel / cast iron pipe, new
125	-	steel pipe, old
120	-	cast iron, 4 - 12 years old galvanized steel
100	-	cast iron, 13 - 20 years old
60 - 80	-	cast iron, worn / pitted

FRICTION LOSS IN FITTINGS

Friction losses through fittings are calculated from the equivalent length of straight pipe which would produce the same friction loss in the fluid. The equivalent lengths of pipe for common fittings are given here.

Nominal Size (in.)	90° Standard Elbow (feet)	45° Standard Elbow (feet)	Standard Tee Run Flow (feet)	Standard Tee Branch Flow (feet)
½	1.55	0.83	1.04	3.11
¾	2.06	1.10	1.37	4.12
1	2.62	1.40	1.75	5.25
1¼	3.45	1.84	2.30	6.90
1½	4.03	2.15	2.68	8.05
2	5.17	2.76	3.45	10.30
2½	6.10	3.30	4.10	12.20
3	7.60	4.10	5.10	15.20
4	10.00	5.30	6.70	20.00
6	15.10	8.00	10.10	30.20
8	19.90	10.60	13.20	39.70
10	24.90	13.30	16.60	49.90
12	29.70	15.90	19.80	59.40

WATER HAMMER SURGE PRESSURE

Whenever the flow rate of fluid in a pipe is changing, there is a surge in pressure known as water hammer, The longer the line and the faster the fluid is moving, the greater the hydraulic shock will be. Water hammer may be caused by opening or closing a valve, starting or stopping a pump, or the movement of entrapped air through the pipe. The maximum water hammer surge pressure may be calculated from :

$$P_{wh} = \frac{p\,\Delta V}{g_c}\left[\frac{p}{g_c}\left(\frac{1}{K} + \frac{d}{bE}\right)\right]^{-1/2}$$

Where Pwh= Maximum surge pressure, psi

p = Fluid density

ΔV = Change in fluid velocity

gc = Gravitational constant

K = Bulk modulus of elasticity of fluid

b = Pipe wall thickness

E = Pipe material bulk modulus of elasticity

d = Pipe inside diameter

The value in the following tables are based on this formula at 73°F and the assumption that water flowing at a given rate of gallons per minute is suddenly completely stopped. At 180°F, the surge pressure is approximately 15% less. The value for fluids other then water may be by multiplying by the square root of the fluid's specific gravity.

THE WATER HAMMER SURGE PRESSURE PLUS THE SYSTEM OPERATING PRESSURE SHOULD NOT EXCEED THE RECOMMENDED WORKING PRESSURE RATING OF THE SYSTEM.

In order to minimize hydraulic shock due to water hammer, linear fluid flow velocity should generally be limited to 5ft/s. Velocity at system start-up should be limited to 1 ft/s during filling until it is certain that all air has been flushed from the system and pressure has been brought up to operating conditions. Pump should not be allowed to draw in air.

Where necessary, extra protective equipment may be used to prevent water hammer damage, such equipment might include pressure relief valves, shock absorbers, surge arrestors and vacuum air relief valves.

FRICTION LOSS AND FLOW VELOCITY FOR SDR 11 CTC CPVC THERMOPLASTIC PIPE

(Friction head and Friction Loss are per 100 feet of pipe)

Gallons Per Minute	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)
	½ in			¾ in			1 in			1¼ in			1½ in			2 in		
1	1.71	3.19	1.38	0.80	0.50	0.22	0.48	0.15	0.06									
2	3.42	11.53	5.00	1.60	1.82	0.79	0.96	0.53	0.23									
3	5.16	24.43	10.59	2.40	3.85	1.67	1.44	1.12	0.49									
4	6.83	41.62	18.04	3.20	6.55	2.84	1.93	1.91	0.83									
5	8.54	62.91	27.27	4.00	9.91	4.29	2.41	2.89	1.25	1.61	1.09	0.47	1.16	0.49	0.21	0.68	0.13	0.06
6	10.25	88.18	38.23	4.79	13.89	6.02	2.89	4.05	1.76									
7	11.96	117.32	50.86	5.59	18.47	8.01	3.37	5.39	2.34									
8	13.67	150.23	65.13	6.39	23.66	10.26	3.85	6.90	2.99									
9	15.38	186.85	81.00	7.19	29.42	12.76	4.33	8.59	3.72									
10	17.08	227.11	98.45	7.99	35.76	15.50	4.82	10.43	4.52	3.23	3.94	1.71	2.31	1.75	0.76	1.35	0.49	0.21
15				11.99	75.78	32.85	7.22	22.11	9.58	4.84	8.35	3.62	3.47	3.71	1.61	2.03	1.03	0.45
20				15.98	129.11	55.97	9.63	37.67	16.33	6.46	14.23	6.17	4.63	6.33	2.74	2.70	1.76	0.76
25							12.04	56.94	24.69	8.07	21.51	9.33	5.78	9.56	4.15	3.38	2.66	1.15
30							14.45	79.82	34.60	9.68	30.15	13.07	6.94	13.40	5.81	4.05	3.73	1.62
35							16.86	106.19	46.03	11.30	40.11	17.39	8.09	17.83	7.73	4.73	4.96	2.15
40										12.91	51.37	22.27	9.25	22.83	9.90	5.40	6.35	2.75
45										14.52	63.89	27.70	10.41	28.40	12.31	6.08	7.89	3.42
50										16.14	77.66	33.66	11.56	34.52	14.96	6.75	9.60	4.16
55										17.75	92.65	40.16	12.72	41.18	17.85	7.43	11.45	4.96
60													13.88	48.38	20.97	8.10	13.45	5.83
70													16.19	64.37	27.90	9.46	17.89	7.76
80																10.61	22.91	9.93
90																12.16	28.50	12.35
100																13.51	34.64	15.02
125																16.89	52.37	22.70

CAUTION : Flow velocity should not exceed 5 feet per second. Velocities in excess of 5 feet per second may result in system failure and property damage.

CARRYING CAPACITY AND FRICTION LOSS FOR SCHEDULE 40 CPVC THERMOPLASTIC PIPE

(Independent variables : Gallons per minute and nominal pipe size O.D. • Dependent variables : Velocity, Friction head and pressure drop per 100 feet of pipe, interior smooth.)

Gallons Per Minute	3 in Flow Velocity (Feet Per Second)	3 in Friction Head Loss (Ft. of Water Per 100 Ft.)	3 in Friction Pressure Loss (PSI Per 100 Ft.)	3 in Maximum Surge Pressure (PSI)	4 in Flow Velocity (Feet Per Second)	4 in Friction Head Loss (Ft. of Water Per 100 Ft.)	4 in Friction Pressure Loss (PSI Per 100 Ft.)	4 in Maximum Surge Pressure (PSI)
1								
3								
5								
7								
9								
10	0.441	0.031	0.013	7.870				
15	0.662	0.066	0.029	11.805				
20	0.883	0.113	0.049	15.740	0.511	0.030	0.013	8.420
25	1.103	0.170	0.074	19.675	0.639	0.045	0.019	10.525
30	1.324	0.238	0.103	23.610	0.767	0.063	0.027	12.630
35	1.545	0.317	0.137	27.545	0.894	0.084	0.036	14.735
40	1.766	0.406	0.176	31.480	1.022	0.107	0.046	16.840
45	1.986	0.505	0.218	35.415	1.150	0.134	0.058	18.945
50	2.207	0.614	0.265	39.350	1.278	0.162	0.070	21.050
60	2.648	0.861	0.372	47.220	1.533	0.228	0.098	25.260
70	3.090	1.145	0.495	55.090	1.789	0.303	0.131	29.470
80	3.531	1.486	0.634	62.960	2.044	0.388	0.168	33.680
90	3.973	1.824	0.755	70.830	2.300	0.483	0.209	37.890
100	4.414	2.217	0.958	78.700	2.555	0.587	0.254	42.100
125	5.517	3.351	1.449	98.375	3.194	0.887	0.383	52.625
150	6.621	4.699	2.031	118.050	3.833	1.243	0.537	63.150
175	7.724	6.250	2.701	137.725	4.472	1.654	0.715	73.675
200	8.828	8.003	3.459	157.400	5.111	2.117	0.915	84.200
250					6.389	3.201	1.384	105.250
300					7.666	4.487	1.939	126.300
350					8.944	5.969	2.580	147.350
400								
450								
500								
750								
1000								
1250								
1500								
1750								

Gallons Per Minute	6 in Flow Velocity (Feet Per Second)	6 in Friction Head Loss (Ft. of Water Per 100 Ft.)	6 in Friction Pressure Loss (PSI Per 100 Ft.)	6 in Maximum Surge Pressure (PSI)	8 in Flow Velocity (Feet Per Second)	8 in Friction Head Loss (Ft. of Water Per 100 Ft.)	8 in Friction Pressure Loss (PSI Per 100 Ft.)	8 in Maximum Surge Pressure (PSI)	10 in Flow Velocity (Feet Per Second)	10 in Friction Head Loss (Ft. of Water Per 100 Ft.)	10 in Friction Pressure Loss (PSI Per 100 Ft.)	10 in Maximum Surge Pressure (PSI)	12 in Flow Velocity (Feet Per Second)	12 in Friction Head Loss (Ft. of Water Per 100 Ft.)	12 in Friction Pressure Loss (PSI Per 100 Ft.)	12 in Maximum Surge Pressure (PSI)
1																
3																
5																
7																
9																
10																
15																
20																
25																
30																
35																
40																
45																
50																
60																
70																
80																
90																
100																
125																
150																
175																
200																
250																
300																
350																
400																
450																
500																
750																
1000																
1250																
1500																
1750																

Gallons Per Minute	2½ in Flow Velocity (Feet Per Second)	2½ in Friction Head Loss (Ft. of Water Per 100 Ft.)	2½ in Friction Pressure Loss (PSI Per 100 Ft.)	2½ in Maximum Surge Pressure (PSI)
1				
3				
5				
7	0.478	0.014	0.020	9.142
9	0.615	0.074	0.032	11.754
10	0.683	0.090	0.039	13.060
15	1.024	0.191	0.083	19.590
20	1.367	0.326	0.141	26.120
25	1.708	0.492	0.213	32.650
30	2.050	0.690	0.298	39.180
35	2.391	0.918	0.397	45.710
40	2.733	1.176	0.508	52.240
45	3.075	1.463	0.632	58.770
50	3.415	1.778	0.768	65.300
60	4.100	2.492	1.077	78.360
70	4.783	3.315	1.433	91.420
80	5.466	4.245	1.835	104.480
90	6.149	5.280	2.282	117.540
100	6.833	6.418	2.774	130.600
125	8.541	9.702	4.192	163.250
150				
175				
200				
250				
300				
350				
400				
450				
500				
750				
1000				
1250				
1500				
1750				

CAUTION : Flow velocity should not exceed 5 feet per second. • CPVC pipe can not be used for compressed air service.

CARRYING CAPACITY AND FRICTION LOSS FOR SCHEDULE 80 CPVC THERMOPLASTIC PIPE

(Independent variables : Gallons per minute and nominal pipe size O.D. • Dependent variables : Velocity, Friction head and pressure drop per 100 feet of pipe, interior smooth.)

Gallons Per Minute	3 in				4 in			
	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Maximum Surge Pressure (PSI)	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Maximum Surge Pressure (PSI)
1								
3								
5								
7								
9								
10	0.498	0.042	0.018	10.500				
15	0.747	0.089	0.038	15.750				
20	0.996	0.151	0.065	21.000	0.570	0.039	0.017	11.220
25	1.245	0.228	0.099	26.250	0.712	0.059	0.025	14.025
30	1.494	0.320	0.138	31.500	0.855	0.082	0.036	16.830
35	1.743	0.425	0.184	36.750	0.997	0.109	0.047	19.635
40	1.992	0.545	1.235	42.000	1.140	0.140	0.061	22.440
45	2.241	0.678	0.293	47.250	1.282	0.174	0.075	25.245
50	2.490	0.823	0.356	52.500	1.425	0.212	0.092	28.050
60	2.988	1.154	0.499	63.000	1.710	0.297	0.128	33.660
70	3.486	1.536	0.664	73.500	1.995	0.395	0.171	39.270
80	3.984	1.968	0.850	84.000	2.280	0.506	0.219	44.880
90	4.482	2.446	1.057	94.500	2.565	0.629	0.272	50.490
100	4.980	2.973	1.285	105.000	2.850	0.765	0.330	56.100
125	6.225	4.494	1.943	131.250	3.562	1.156	0.500	70.125
150	7.469	6.299	2.723	157.500	4.274	1.620	0.700	84.150
175	8.714	8.381	3.622	183.750	4.987	2.155	0.932	98.175
200	9.959	10.732	4.639	210.000	5.699	2.760	1.193	112.200
250					7.124	4.173	1.804	140.250
300					8.549	5.849	2.528	168.300
350					9.974	7.781	3.363	196.350
400								
450								
500								
750								
1000								
1250								
1500								
1750								
2000								

Gallons Per Minute	6 in				8 in			
	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Maximum Surge Pressure (PSI)	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Maximum Surge Pressure (PSI)
1								
3								
5								
7								
9								
10								
15								
20								
25								
30								
35								
40								
45								
50	0.627	0.029	0.012	11.500				
60	0.752	0.040	0.017	13.800				
70	0.877	0.054	0.023	16.100				
80	1.003	0.069	0.030	18.400				
90	1.128	0.085	0.037	20.700				
100	1.253	0.104	0.045	23.000				
125	1.567	0.157	0.068	28.750	0.892	0.040	0.017	15.375
150	1.880	0.220	0.095	34.500	1.071	0.056	0.024	18.450
175	2.193	0.292	0.126	40.250	1.249	0.074	0.032	21.525
200	2.560	0.374	0.162	46.000	1.427	0.095	0.041	24.600
250	3.133	0.566	0.244	57.500	1.784	0.144	0.062	30.750
300	3.760	0.793	0.343	69.000	2.141	0.202	0.087	36.900
350	4.386	1.055	0.456	80.500	2.498	0.268	0.116	43.050
400	5.013	1.351	0.584	92.000	2.855	0.343	0.148	49.200
450	5.639	1.680	0.728	103.500	3.212	0.427	0.185	55.350
500	6.266	2.042	0.883	115.000	3.589	0.519	0.224	61.500
750	9.399	4.327	1.870	172.500	5.353	1.100	0.475	92.250
1000					7.137	1.874	0.810	123.000
1250					8.921	2.833	1.224	153.750
1500					10.706	3.970	1.716	184.500
1750								
2000								

Gallons Per Minute	10 in				12 in			
	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Maximum Surge Pressure (PSI)	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Maximum Surge Pressure (PSI)
1								
3								
5								
7								
9								
10								
15								
20								
25								
30								
35								
40								
45								
50								
60								
70								
80								
90								
100								
125								
150								
175								
200	0.907	0.032	0.014	15.200				
250	1.133	0.048	0.021	19.000				
300	1.360	0.067	0.029	22.800				
350	1.587	0.089	0.038	26.600	1.121	0.038	0.016	18.550
400	1.813	0.114	0.049	30.400	1.281	0.049	0.021	21.200
450	2.040	0.142	0.061	34.200	1.441	0.061	0.026	23.850
500	2.267	0.172	0.074	38.000	1.601	0.074	0.032	26.500
750	3.400	0.365	0.158	57.000	2.402	0.157	0.068	39.750
1000	4.533	0.621	0.269	76.000	3.202	0.267	0.115	53.000
1250	5.667	0.939	0.406	95.000	4.003	0.403	0.174	66.250
1500	6.800	1.316	0.569	114.000	4.803	0.585	0.244	79.500
1750	7.934	1.751	0.757	133.000	5.604	0.752	0.325	92.750
2000	9.067	2.243	0.969	152.000	6.404	0.963	0.416	106.000

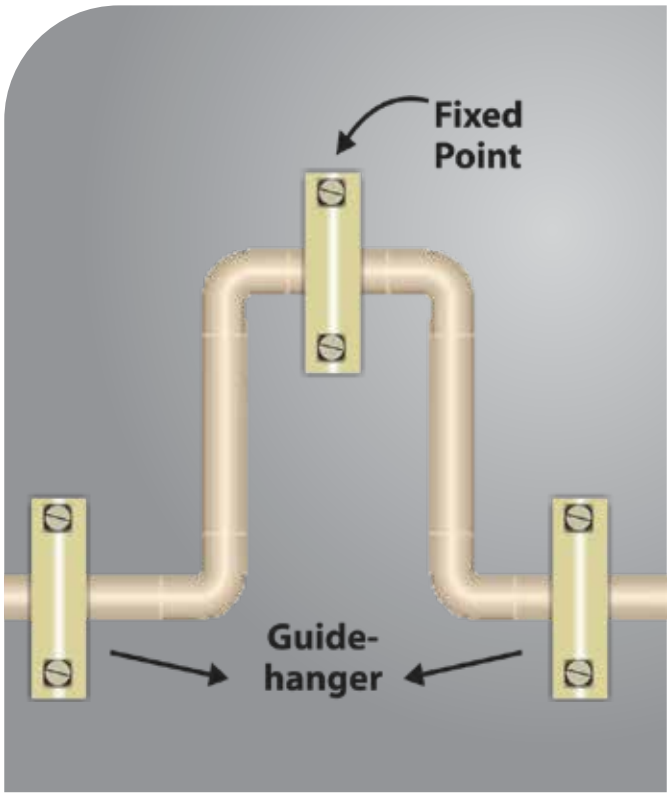
Gallons Per Minute	2½ in			
	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Maximum Surge Pressure (PSI)
1				
3				
5				
7	0.546	0.064	0.028	12.173
9	0.702	0.102	0.044	15.651
10	0.780	0.124	0.054	17.390
15	1.169	0.264	0.114	26.085
20	1.559	0.449	0.194	34.780
25	1.949	0.679	0.293	43.475
30	2.339	0.951	0.411	52.170
35	2.728	1.266	0.547	60.865
40	3.118	1.621	0.701	69.560
45	3.508	2.016	0.871	78.255
50	3.898	2.450	1.059	86.950
60	4.667	3.434	1.484	104.340
70	5.457	4.569	1.975	121.730
80	6.237	5.851	2.529	139.120
90	7.016	7.277	3.146	156.510
100	7.796	8.845	3.823	173.900
125	9.745	13.372	5.780	217.375
150				
175				
200				
250				
300				
350				
400				
450				
500				
750				
1000				
1250				
1500				
1750				
2000				

CAUTION : Flow velocity should not exceed 5 feet per second. • CPVC pipe can not be used for compressed air service.

Thermal Expansion and Contraction

Like all piping material, Astral CPVC PRO expands when heated and contracts when cooled. CPVC piping (regardless of pipe diameter) will expand about 1 inch per 50 feet of length when subjected to a 50° F temperature increase, 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 CPVC pipe 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.

However, a 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 increase (DT) of about 80°F. The results, shown in Tables A and B, are presented simply as a 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 calculated utilizing the following equations :



EXPANSION LOOP FORMULA

$$L = \sqrt{\frac{3\,ED\,(\Delta L)}{2S}}$$

Where:

L = Loop Length (in.)

E = Moduls of elasticity at maximum temperature (psi)

S = Working stress at maximum temperature (psi)

D = Outside diameter of pipe (in.)

ΔL = Change in length due to change in temperature (in.)

THERMAL EXPANSION FORMULA

$$\Delta L = L_p C \Delta T$$

Where:

ΔL = Change in length due to change temperature (in.)

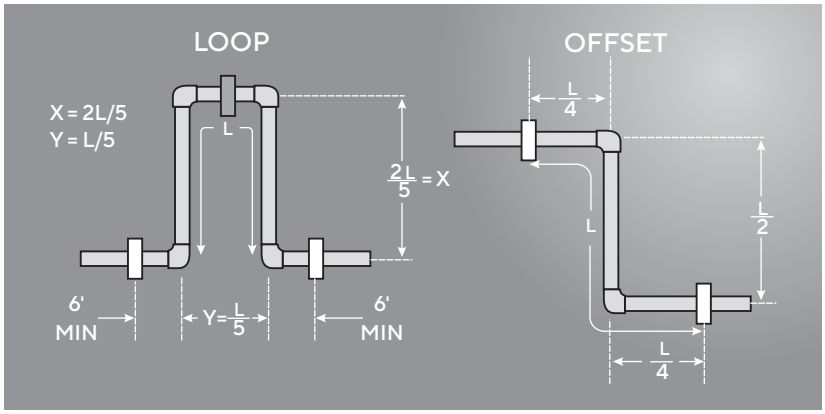
Lp = Length of pipe (in.)

C = Coefficient of thermal expansion (in./ in./°F)

= 3.4×10^{-5} in./ in./°F for CPVC

ΔT = Change in temperature (°F)

Thermal Expansion and Contraction



Modulus of Elasticity and Working Stress For CPVC

Temperature °F	Temperature °C	Modulus, E(psi)	Stress, S(psi)
73	(27)	423,000	2000
90	(32)	403,000	1800
110	(43)	371,000	1500
120	(49)	355,000	1300
140	(60)	323,000	1000
160	(71)	291,000	750
180	(82)	269,000	500

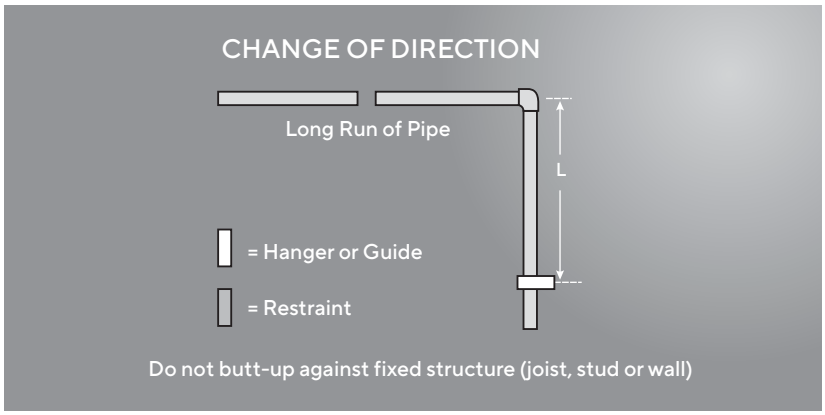


TABLE A

ASTRAL CPVC PRO pipe CTS PIPES
(ASTM D 2846)
Calculated Loop (Offset) Length with
ΔT of approx. 80°F in inches

Nominal Size mm	Nominal Size in.	Length of Run Feet 40	60	80	100
15	½	22	27	31	34
20	¾	26	32	36	41
25	1	29	36	41	46
32	1¼	32	40	46	51
40	1½	35	43	50	56
50	2	40	49	57	64

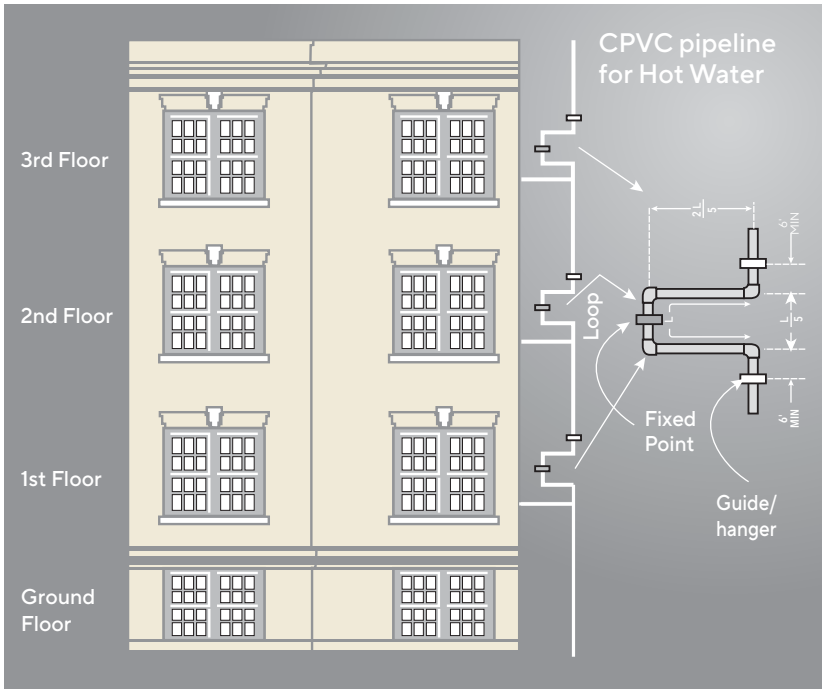


TABLE B

ASTRAL CPVC PRO IPS PIPES
(ASTM F 441)
Calculated Loop (Offset) Length with
ΔT of approx. 80°F in inches

Nominal Size cm	Nominal Size in.	Length of Run Feet 40	60	80	100
65	2½	47	57	66	74
75	3	52	63	73	82
100	4	58	72	83	92
150	6	71	87	100	112
200	8	81	99	114	128
250	10	90	111	128	143
300	12	98	121	139	156

Horizontal & Vertical Supports

Horizontal & Vertical runs of Astral CPVC PRO Pipe 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 come in contact with the pipe.

SPACING									
Nominal Pipe Size		21°C (70°F)		49°C (120°F)		71°C (160°F)		82°C (180°F)	
mm	in.	Ft.	(cm)	Ft.	(cm)	Ft.	(cm)	Ft.	(cm)
15	½	5.5	(167.70)	4.5	(137.16)	3.0	(91.44)	2.5	(76.20)
20	¾	5.5	(167.70)	5.0	(152.40)	3.0	(91.44)	2.5	(76.20)
25	1	6.0	(182.88)	5.5	(167.70)	3.5	(106.68)	3.5	(91.44)
32	1¼	6.5	(198.12)	6.0	(182.88)	3.5	(106.68)	3.5	(106.68)
40	1½	7.0	(213.36)	6.0	(182.88)	3.5	(106.68)	3.5	(106.68)
50	2	7.0	(213.36)	6.5	(198.12)	4.0	(121.92)	3.5	(106.68)
65	2½	8.0	(244.00)	7.5	(228.60)	4.5	(137.16)	4.0	(121.92)
80	3	8.0	(244.00)	7.5	(228.60)	4.5	(137.16)	4.0	(121.92)
100	4	9.0	(274.32)	8.5	(259.08)	5.0	(152.40)	4.5	(137.16)
150	6	10.0	(304.80)	9.0	(274.32)	5.5	(167.07)	5.0	(152.40)
200	8	11.0	(335.28)	10.0	(304.80)	6.0	(182.88)	5.5	(167.07)
250	10	11.5	(350.52)	10.5	(320.04)	6.5	(198.12)	6.0	(182.88)
300	12	12.5	(381.00)	11.0	(335.28)	7.5	(228.60)	6.5	(198.12)

Note: Above values are typical values.It should be used as a general recommendation. Do not consider as a specification.

BAND HANGER

ANCHOR STRAP

PIPE CLAMP

U-BOLT

Underground Installation

TRENCHING

The following trenching and burial procedures should be used to protect the piping system.

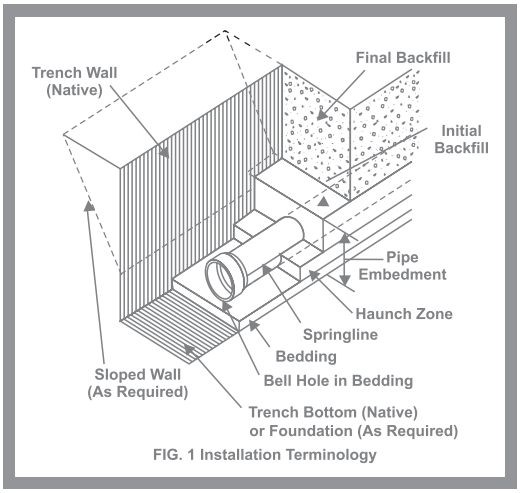


FIG. 1 Installation Terminology

1. The trench should be excavated to ensure the sides will be stable under all working conditions.
2. The trench should be wide enough to provide adequate room for the following :
   A. Joining the pipe in the trench.
   B. Snaking the pipe from side or side to compensate for expansion and contraction.
   C. Filling and compacting the side fills. The space between the pipe and trench wall must be wider than the compaction equipment used in the compaction of the back fill. Minimum width shall not be less than the greater of either the pipe outside diameter plus 16 inches or the pipe outside diameter times 1.25 plus 12 inches. Trench width may be different if approved by the design engineer.
3. The trench bottom should be smooth, free of rocks and debris, continuous and provide uniform support. If ledge rock, hardpan or large boulders are encountered, the trench bottom should be padded with bedding of compacted granular material to a thickness of at least 4 inches. Foundation bedding should be installed as required by the engineer.
4. Trench depth is determined by the pipe's service requirements. Plastic pipe should always be installed at least below the frost level. The minimum cover for lines subject to heavy overhead traffic is 24 inches.
5. A smooth trench bottom is necessary to support the pipe over its entire length on firm stable material. Blocking should not be used to change pipe grade or to intermittently support pipe over low sections in the trench.

CPVC pipes and fittings can be installed underground. Since these piping systems are flexible systems, proper attention should be given to burial conditions. The stiffness of the piping system is affected by sidewall support, soil compaction, and the condition of the trench. Trench bottoms should be smooth and regular in either undisturbed soil or a layer of compacted backfill. Pipe must lie evenly on this surface throughout the entire length of its barrel. Excavation, bedding and backfill should be in accordance with the provision of the local Plumbing Code having jurisdiction.

BEDDING AND BACKFILLING

1. Even though sub-soil conditions vary widely from place to place, the pipe backfill should be stable and provide protection for the pipe.
2. The pipe should be surrounded with a granular material which is easily worked around the sides of the pipe. Backfilling should be performed in layer of 6 inch with each layer being sufficiently compacted to 85% to 95% compaction.
3. A mechanical tamper is recommended for compacting sand and gravel backfill which contain a significant proportion of fine grained material, such as silt and clay. If a tamper is not available, compacting should be done by hand.
4. The trench should be completely filled. The backfill should be placed and spread in fairly uniform layers to prevent any unfilled spaces or voids.

Requirement of Thermally Insulated CPVC Pipe

CPVC has much lower thermal conductivity then metals used in piping systems (0.14W / mk for CPVC verus > 400 W / mk for copper).

For this reason in most cases it is not necessary to thermally insulate CPVC piping. However the equation below can be used to calculat the approximate heat loss from CPVC pipes 1 meter length of pipe.

$$Q = \frac{\lambda}{e}\,\pi\left[\frac{di + do}{2}\right].\Delta T$$

Where
- Q = Heat loss per meter of pipe, W/m
- λ = Thermal conductivity. [W/mk] for CPVC, λ = 0.14 w/mk
- e = Thickness of pipe, mm
- π =3.1416
- di = Inside diameter, mm
- do = Outside diameter, mm
- ΔT = Temperature differential between inner and outer surface of pipe. This can be approximated to: T water. T ambient (K)

EXAMPLE

What is the heat loss/meter from a 20mm outside diameter CPVC pipe. wall thickness 2,3mm, with water flowing inside at 80°C and an ambient air temperature of 25°C?

$$Q = \frac{0.14}{2.3}\ 3.1416\ \left[\frac{15.4 + 20}{2}\right].(80\text{-}25)$$

$$= 186\ W/m$$

$$Q = K\Delta T$$

Equation (1) can be simplified for standard pipe dimensions to:

Where K is a conductivity of CPVC and the pipe geometry in the previous example. do = 20mm, and e = 2.3mm

$$Q = \frac{0.14}{2.3}\ 3.1416\ \left[\frac{15.4 + 20}{2}\right]. = 3.38\ (W/m)$$

HANDLING

The pipe should be handled with reasonable care because thermoplastic pipe is much lighter in weight than metal pipe, there is sometimes a tendency to throw it around. This should be avoided.

The pipe should never be dragged or pushed from a truck bed. Pallets for pipe should be removed with a fork lift. Loose pipe can be rolled down timbers as long as the pieces do not fall on each other or on any hard or uneven surface. In all cases, severe contact with any sharp objects (rocks, angle irons, forks on forklifts, etc.) should be avoided.

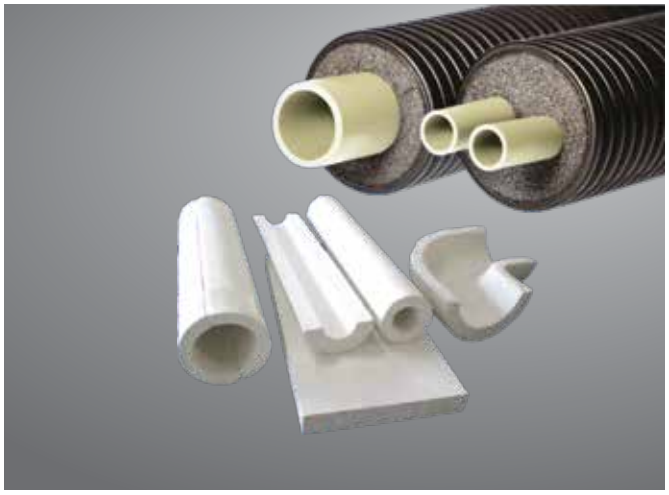
STORAGE

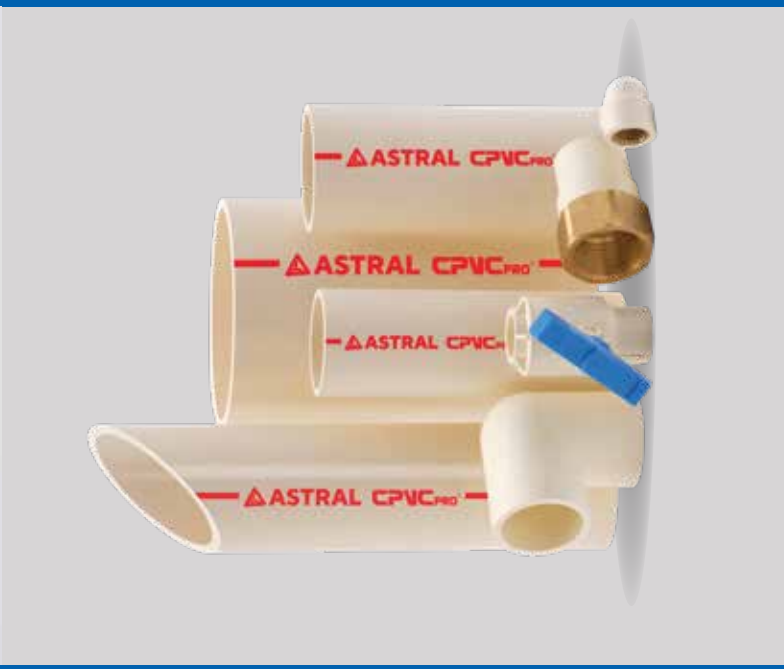
If possible, pipe should be stored inside. When this is not possible, the pipe should be stored on level ground which is dry and free from sharp objects. If different schedules of pipes are stacked together, the pipes with the thickest walls should be at the bottom.

The pipes should be protected from the sun and be in an area with proper ventilation. This will lessen the effects of ultraviolet rays and help prevent heat built-up.

If the pipes are stored in racks, it should be continuously supported along its length. If this is not possible, the spacing of the supports should not exceed three feet (3').

When storage temperatures are below 0°C (32°F), extra care should be taken when handling the pipe. This will help prevent any problems which could be caused by the slightly lower impact strength of PVC pipes at temperature below freezing.





PRODUCT RANGE

CPVC Pro Pipe
CTS - as per ASTM D2846

IS:15778

Only those products bearing the above marks are certified

PIPE SDR-11
(3 METRE LENGTH)

Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
1.5	½	M511110301*	100
2.0	¾	M511110302*	50
2.5	1	M511110303*	30
3.2	1¼	M511110304*	20
4.0	1½	M511110305*	15
5.0	2	M511110306*	08

PIPE SDR -13.5
(3 METRE LENGTH)

Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
1.5	½	M511130301*	100
2.0	¾	M511130302*	50
2.5	1	M511130303*	30
3.2	1¼	M511130304*	20
4.0	1½	M511130305*	15
5.0	2	M511130306*	08

PIPE SDR-11
(5 METRE LENGTH)

Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
1.5	½	M511110501*	60
2.0	¾	M511110502*	40
2.5	1	M511110503*	25
3.2	1¼	M511110504*	15
4.0	1½	M511110505*	10
5.0	2	M511110506*	06

PIPE SDR -13.5
(5 METRE LENGTH)

Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
1.5	½	M511130501*	60
2.0	¾	M511130502*	40
2.5	1	M511130503*	25
3.2	1¼	M511130504*	15
4.0	1½	M511130505*	10
5.0	2	M511130506*	06

* Manufactured as per IS Standard

CPVC Pro Pipe
IPS - as per ASTM F441

PIPE SCHEDULE 40 (3 METRE LENGTH)

Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
6.5	2½	M511400307	05
8.0	3	M511400308	03
10.0	4	M511400309	02
15.0	6	M511400310	01

PIPE SCHEDULE 40 (5 METRE LENGTH)

Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
6.5	2½	M511400507	05
8.0	3	M511400508	03
10.0	4	M511400509	02
15.0	6	M511400510	01

PIPE SCHEDULE 80 (3 METRE LENGTH)

Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
6.5	2½	M511800307	05
8.0	3	M511800308	03
10.0	4	M511800309	02
15.0	6	M511800310	01
20.0	8	M511800311	01

10" and 12" pipe sizes are available on request

PIPE SCHEDULE 80 (5 METRE LENGTH)

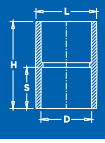
Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
6.5	2½	M511800507	05
8.0	3	M511800508	03
10.0	4	M511800509	02
15.0	6	M511800510	01
20.0	8	M511800511	01

10" and 12" pipe sizes are available on request

CPVC Pro Fittings
CTS - as per ASTM D2846

Only those products bearing the above marks are certified

COUPLER

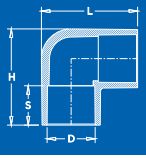


Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
1.5	½	M512111001*	29.5	20.84	13.23	16.08	100	1500
2.0	¾	M512111002*	38.6	28	18	22.45	100	600
2.5	1	M512111003*	49.5	35	23.4	28.83	50	600
3.2	1¼	M512111004*	59.1	41.6	28	35.2	10	300
4.0	1½	M512111005*	69	49.3	33.1	41.66	10	200
5.0	2	M512111006*	90	64.2	43.2	54.38	10	50

ELBOW 45°-SOC

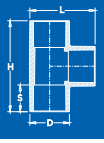
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
1.5	½	M512112301*	38.88	31.09	13.4	16.08	100	500
2.0	¾	M512112302*	51	40.76	18.8	22.45	100	200
2.5	1	M512112303*	66.33	51.94	24	28.83	50	250
3.2	1¼	M512112304*	78	62.12	29.1	35.2	10	60
4.0	1½	M512112305*	91.93	73.18	33.6	41.66	10	40
5.0	2	M512112306*	118.89	64.38	43.56	54.38	05	15

ELBOW 90°-SOC



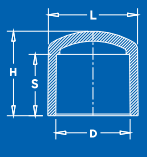
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
1.5	½	M512110501*	33.9	33.9	13.2	16.08	100	1000
2.0	¾	M512110502*	45.58	45.58	18.4	22.45	50	800
2.5	1	M512110503*	57.4	57.4	23.5	28.83	50	400
3.2	1¼	M512110504*	58.59	58.59	28.7	35.2	10	200
4.0	1½	M512110505*	80.77	80.77	33.7	41.66	10	120
5.0	2	M512110506*	104.85	104.85	43.6	54.38	05	50

TEE-SOC



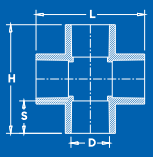
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
1.5	½	M512110101*	38.88	31.09	13.4	16.08	100	800
2.0	¾	M512110102*	51	40.76	18.8	22.45	50	500
2.5	1	M512110103*	66.33	51.94	24	28.83	25	300
3.2	1¼	M512110104*	78	62.12	29.1	35.2	10	150
4.0	1½	M512110105*	91.93	73.18	33.6	41.66	10	90
5.0	2	M512110106*	118.89	64.38	43.56	54.38	05	40

END CAP-SOC



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
1.5	½	M512114101*	33.9	33.9	13.2	16.08	100	1000
2.0	¾	M512114102*	45.58	45.58	18.4	22.45	100	500
2.5	1	M512114103*	57.4	57.4	23.5	28.83	100	200
3.2	1¼	M512114104*	58.59	58.59	28.7	35.2	10	120
4.0	1½	M512114105*	80.77	80.77	33.7	41.66	10	100
5.0	2	M512114106*	104.85	104.85	43.6	54.38	10	40

CROSS-SOC



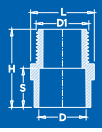
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
1.5	½	M512112401*	45.6	45.6	13.6	16.08	100	200
2.0	¾	M512112402*	62	62	18.5	22.45	25	100
2.5	1	M512112403*	79	79	23.36	28.83	25	100
3.2	1¼	M512112404	96.5	96.5	28.4	35.2	10	60
4.0	1½	M512112405	112.48	112.48	33.5	41.66	05	40
5.0	2	M512112406	144.85	144.85	43.9	54.38	15	15

Note: SOC - SOCKET

* Manufactured as per IS Standard

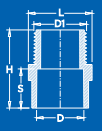
CPVC Pro Fittings
CTS - as per ASTM D2846

MALE ADAPTOR (CPVC THDXSOC)



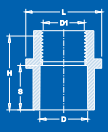
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
1.5	½	M512111301^	31.9	24.5	14.2	16.08	1/2	100	600
2.0	¾	M512111302^	41.75	31.2	18.75	22.45	3/4	100	600
2.5	1	M512111303^	47.6	38.8	23.84	28.83	1	50	300
3.2	1¼	M512111304^	54.9	47.7	28.47	35.2	1-1/4	10	200
4.0	1½	M512111305^	62.2	56.6	33.5	41.66	1-1/2	10	100
5.0	2	M512111306^	74.8	73.7	43.5	54.38	2	10	50

REDUCER MALE ADAPTOR (CPVC THDXSOC)



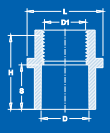
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
2.0x1.5	¾ x ½	M512111314^	42	30.9	18.3	22.45	1/2	100	500
2.5x2.0	1 x ¾	M512111316^	46	38.8	23.84	28.83	3/4	50	450

FEMALE ADAPTOR (CPVC THDXSOC)



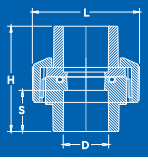
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
1.5	½	M512111601^	34.8	30.2	13.2	16.08	1/2	100	800
2.0	¾	M512111602^	42	36.5	18.1	22.45	3/4	50	500
2.5	1	M512111603^	49.1	44.6	23.3	28.83	1	50	250
3.2	1¼	M512111604^	56.3	55	29.2	35.2	1-1/4	10	150
4.0	1½	M512111605^	64.2	62.5	33.5	41.66	1-1/2	10	100
5.0	2	M512111606^	75.5	78.4	43.3	54.38	2	05	50

REDUCER FEMALE ADAPTOR (CPVC THDXSOC)



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
2.0x1.5	¾ x ½	M512111614^	37.5	31.0	18.0	22.45	1/2	50	600

UNION-SOC



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
1.5	½	M512112601	36.3	38.5	15.2	16.08	1/2	30	210
2.0	¾	M512112602	52.1	53	20.4	22.45	3/4	20	180
2.5	1	M512112603	56.8	65	23.8	28.83	1	15	120
3.2	1¼	M512112604	63.44	66.2	28.1	35.2	1-1/4	10	90
4.0	1½	M512112605	76.4	75	33.3	41.66	1-1/2	10	60
5.0	2	M512112606	96.12	87.58	43.3	54.38	2	05	30

TANK ADAPTOR (THDXTHD)

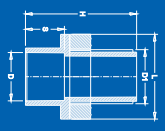
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
1.5	½	M512112501	36.3	38.5	15.2	16.08	1/2	10	80
2.0	¾	M512112502	52.1	53	20.4	22.45	3/4	10	60
2.5	1	M512112503	56.8	65	23.8	28.83	1	10	40
3.2	1¼	M512112504	63.44	66.2	28.1	35.2	1-1/4	10	30
4.0	1½	M512112505	76.4	75	33.3	41.66	1-1/2	10	20
5.0	2	M512112506	96.12	87.58	43.3	54.38	2	05	15

Note: SOC - SOCKET, THD - THREADED, ^ Manufactured as per IS Standard.

Only those products bearing the above marks are certified

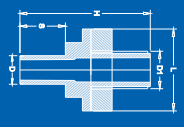
ASTRAL CPVC PRO®

TANK ADAPTOR (SOCKET TYPE) (THDXSOC)



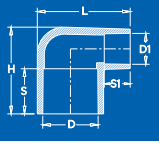
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
2.0	¾	M5128010202	64.5	54.5	25.6	26.87	3/4	25	75
2.5	1	M5128010203	72	50.7	28.8	33.66	1	20	60
3.2	1¼	M5128010204	79.35	64	32.5	42.42	1-1/4	10	70
4.0	1½	M5128010205	87.7	70.52	35.7	48.56	1-1/2	10	60
5.0	2	M5128010206	92	82.4	39	60.63	2	05	35

TANK ADAPTOR (SPIGOT TYPE) (THDXSPG)



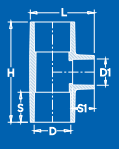
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
1.5	½	M512806501	90	45	40	21.34	1/2	25	200
2.0	¾	M512806502	105	50	50	26.67	3/4	20	140
2.5	1	M512806503	127	55	60	33.4	1	20	80
3.2	1¼	M512806504	167	65	75	42.16	1-1/4	10	40
4.0	1½	M512806505	170	70	75	48.26	1-1/2	05	30
5.0	2	M512806506	175	82	80	60.32	2	05	20

REDUCER ELBOW 90°-SOC



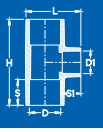
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.) Std.	Mast.
2.0x1.5	¾ x ½	M512110614^	39.54	40.8	18.5	22.45	13.5	16.08	100	500
2.5x1.5	1 x ½	M512110615^	45.14	48.35	23.5	28.83	13.5	16.08	50	350
2.5x2.0	1 x ¾	M512110616^	51.38	53.35	23.5	28.83	18.5	22.45	50	300
3.2x1.5	1¼ x ½	A512110617	68.5	71.8	28.5	35.2	13.2	16.08	-	01
3.2x2.0	1¼ x ¾	M512110618^	61.6	58	28.13	35.2	18	22.45	25	175
3.2x2.5	1¼ x 1	M512110619^	61.6	63.95	28.13	35.2	23	28.83	25	150
5.0x2.5	2 x 1	A512110626	104.9	108.25	43.6	54.38	23.2	28.83	-	01

REDUCER TEE -SOC



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.) Std.	Mast.
1.5x1.5x2.0	½ x ½ x ¾	A512110291	69	44.9	13	16.08	18.4	22.45	-	01
2.0x1.5x2.0	¾ x ½ x ¾	A512110292	65.8	44.9	18.40/13	22.45	18.4	22.45	-	01
2.0x1.5x1.5	¾ x ½ x ½	A512110293	65.8	48.1	18.40/13	22.45	13	16.08	-	01
2.0x2.0x1.5	¾ x ¾ x ½	M512110214^	61.5	39.25	18.4	22.45	13.3	16.08	50	300
2.5 x 2.5x1.5	1 x 1 x ½	M512110215^	67.5	47.1	23.6	28.83	13.3	16.08	25	300
2.5x2.5x2.0	1 x 1 x ¾	M512110216^	78.75	51.36	23.8	28.83	18.5	22.45	25	75
3.2x3.2x1.5	1¼ x 1¼ x ½	M512110217^	76.26	53.65	28.47	34.85	13.2	16.08	10	100
3.2x3.2x2.0	1¼ x 1¼ x ¾	M512110218^	82.6	58.08	28.2	34.85	18.2	22.45	10	120
3.2x3.2x2.5	1¼ x 1¼ x 1	M512110219^	88.9	63.3	28.3	34.85	23.52	28.83	10	80
4.0x4.0x1.5	1½ x 1½ x ½	M512110220^	105.74	59.81	33.48	41.2	13.9	16.08	10	70
4.0x4.0x2.0	1½ x 1½ x ¾	M512110221^	106	65.56	33.2	41.2	18.5	22.45	10	60
4.0x4.0x2.5	1½ x 1½ x 1	M512110222^	99.12	68.7	33.36	41.2	23.31	28.83	10	30
4.0x4.0x3.2	1½ x 1½ x 1¼	M512110223^	105.72	76	33.49	41.2	28	35.2	10	60
5.0x5.0x1.5	2 x 2 x ½	M512110224^	106.5	75	43.47	54.38	13.55	16.08	05	30
5.0x5.0x2.0	2 x 2 x ¾	M512110225^	133.6	78	43.95	54.38	18.45	22.45	05	35
5.0x5.0x2.5	2 x 2 x 1	M512110226^	119	82	43.4	54.38	23.28	28.83	05	15
5.0x5.0x3.2	2 x 2 x 1¼	M512110227^	133.45	89	44.1	54.38	28	35.2	05	30
5.0x5.0x4.0	2 x 2 x 1½	M512110228^	133	93.25	43.2	54.38	33.18	41.66	05	25

REDUCER TEE - SOC (IPS X CTS)

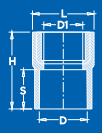


Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (mm)	Pkg.(Nos.) Std.	Mast.
6.5x 2.5	2½ x 1	A5121110031*	166	139	45.7	73.38	28.83	-	01
6.5x4.0	2½ x 1½	M5121110033	174	119	48.6	73.38	41.66	-	15
6.5x5.0	2½ x 2	M5121110034	174	124	48.6	73.38	54.38	-	12
8.0x2.5	3 x 1	A5121110037*	195	161	48.4	89.31	28.83	-	01
8.0x4.0	3 x 1½	M5121110039	196	137.5	50	89.31	41.66	-	10
8.0x5.0	3 x 2	M5121110040	196	140.5	50	89.31	54.38	-	10
10.0x4.0	4 x 1½	M5121110046	240	162.3	58	114.76	41.66	-	05
10.0x5.0	4 x 2	M5121110047	240	165.32	58	114.76	54.38	-	05
15.0x5.0	6 x 2	A5121110055*	350	285	78.2	168.83	54.38	-	01

* Reducer fittings are professionally assembled using Astral fittings and bushings. Quantity as per order.
Note: Fabricated reducer fittings are not eligible for return to the manufacturer. SOC - SOCKET, SPG - SPIGOT, THD - THREADED
All the items where product code starts with "A" are assembled items, ^ Manufactured as per IS Standard.

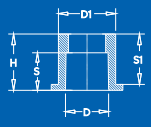
CPVC Pro Fittings
CTS - as per ASTM D2846

REDUCER BUSHING (SPG X SOC)



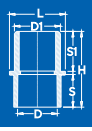
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.) Std.	Mast.
2.0x1.5	¾ x ½	M512111914*	21.5	26.7	13	16.08	18.3	22.2	100	1000
2.5x1.5	1 x ½	M512111915*	26.6	34.5	13.1	16.08	23.3	28.6	100	600
2.5x2.0	1 x ¾	M512111916*	26.6	34.5	18.6	22.45	23.3	28.6	100	800
3.2x1.5	1¼ x ½	M512111917*	31.5	41.8	13.2	16.08	28.2	34.9	10	300
3.2x2.0	1¼ x ¾	M512111918*	31.5	41.8	18	22.45	28.2	34.9	10	300
3.2x2.5	1¼ x 1	M512111919*	31.5	41.8	23.2	28.83	28.2	34.9	10	300
4.0x1.5	1½ x ½	M512111920*	36.4	49.5	13.1	16.08	33.1	41.3	10	200
4.0x2.0	1½ x ¾	M512111921*	36.4	49.5	18	22.45	33.1	41.3	10	200
4.0x2.5	1½ x 1	M512111922*	36.4	49.5	23	28.83	33.1	41.3	10	200
4.0x3.2	1½ x 1¼	M512111923*	36.4	49.5	28.2	35.2	33.1	41.3	10	200
5.0x1.5	2 x ½	M512111924*	46.8	64.6	13.2	16.08	43.5	54	10	100
5.0x2.0	2 x ¾	M512111925*	46.8	64.6	18.2	22.45	43.5	54	10	150
5.0x2.5	2 x 1	M512111926*	46.8	64.6	23.2	28.83	43.5	54	10	100
5.0x3.2	2 x 1¼	M512111927*	46.8	64.6	28.3	35.2	43.5	54	10	100
5.0x4.0	2 x 1½	M512111928*	46.8	64.6	33.5	41.66	43.5	54	10	100

TRANSITION BUSHING - SPG X SOC (IPS X CTS)



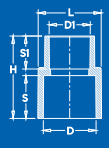
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.) Std.	Mast.
6.5x2.5	2½ x 1	A512112131*	58	79.3	23.2	28.83	45	73	01	01
6.5x4.0	2½ x 1½	M512112133	54	79.3	34	41.66	45	73	05	60
6.5x5.0	2½ x 2	M512112134	54	79.3	43.7	54.38	45	73	05	25
8.0x4.0	3 x 1½	M512112139	57	95.3	34	41.66	48	89	05	40
8.0x5.0	3 x 2	M512112140	57	95.3	43.7	54.38	48	89	05	20
10.0x4.0	4 x 1½	M512112146	67	120.78	34	41.66	58	114.3	01	10
10.0x5.0	4 X 2	M512112147	67	120.78	43.7	54.38	58	114.3	01	10

TRANSITION BUSHING - SPG X SOC (IPS X CTS)



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.) Std.	Mast.
1.5 x 1.5	½ x ½	M512112101	21	26.74	14	16.08	18.8	21.34	100	1500
2.0 x 2.0	¾ x ¾	M512112102	21.8	32.3	18	22.45	18.6	26.67	100	1000
2.5 x 2.5	1 x 1	M512112103	55	40.6	23.7	28.83	29	33.4	50	200
3.2 x 3.2	1¼ x 1¼	M512112104	56	48	29	35.2	24	42.16	25	150
4.0 x 4.0	1½ x 1½	M512112105	73	56.8	34	41.66	36.5	48.26	10	80
5.0 x 5.0	2 x 2	M512112106	86.5	68.5	44	54.38	40	60.32	10	50

REDUCER COUPLER- SOC



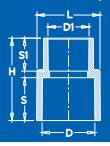
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.) Std.	Mast.
2.0 x 1.5	¾ x ½	M512111114*	33.6	27.8	18.2	22.45	13.1	16.08	100	1000
2.5 x 1.5	1 x ½	M512111115*	40.8	34.3	24	28.83	13	16.08	100	500
2.5 x 2.0	1 x ¾	M512111116*	45	34.8	23.4	28.83	18	22.45	50	450
3.2 x 1.5	1¼ x ½	M512111117*	43.3	41.5	28.1	35.2	13.1	16.08	50	300
3.2 x 2.0	1¼ x ¾	M512111118*	49.5	41.7	28.2	35.2	18.2	22.45	50	300
3.2 x 2.5	1¼ x 1	M512111119*	55	41.7	28.87	35.2	23	28.83	50	200
4.0 x 1.5	1½ x ½	M512111120*	50.5	49.62	33.52	41.66	14.4	16.08	25	75
4.0 x 2.0	1½ x ¾	M512111121*	55	48.98	33.7	41.66	18	22.45	25	75
4.0 x 2.5	1½ x 1	M512111122*	60	48.98	33.7	41.66	23	28.83	25	75
4.0 x 3.2	1½ x 1¼	M512111123*	65.3	48.98	33.87	41.66	28	35.2	25	50
5.0 x 1.5	2 x ½	M512111124*	60	63.97	43.7	54.38	13	16.08	10	40
5.0 x 2.0	2 x ¾	M512111125*	64.58	64.23	43.4	54.38	18.18	22.45	10	90
5.0 x 2.5	2 x 1	M512111126*	70.5	64.16	43.7	54.38	23	28.83	10	30
5.0 x 3.2	2 x 1¼	M512111127*	75	64.58	43.85	54.38	28.4	35.2	10	30
5.0 x 4.0	2 x 1½	M512111128*	77.8	64.32	43.2	54.38	33.14	41.66	10	70

* Reducer fittings are professionally assembled using Astral fittings and bushings. Quantity as per order.
Note: Fabricated reducer fittings are not eligible for return to the manufacturer. SOC - SOCKET, SPG - SPIGOT
All the items where product code starts with "A" are assembled items, , ^ Manufactured as per IS Standard.

Only those products bearing the above marks are certified

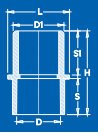
ASTRAL CPVC PRO

TRANSITION REDUCER COUPLER-SOC (IPS X CTS)



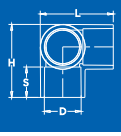
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.) Std.	Mast.
6.5 x 4.0	2½ x 1½	M5121110333	97.1	87.9	45.8	73.38	34	41.66	01	40
6.5 x 5.0	2½ x 2	M5121110334	101.1	87.7	45	73.38	44	54.38	01	40
8.0 x 4.0	3 x 1½	M5121110339	102.6	103.5	48.6	89.28	34.1	41.66	30	30
8.0 x 5.0	3 x 2	M5121110340	108.5	103.3	49	89.28	44.4	54.38	30	30
10.0 x 4.0	4 x 1½	M5121110346	121.4	130.1	58.5	114.73	35	41.66	16	16
10.0 x 5.0	4 x 2	M5121110347	125.73	130.3	58.7	114.73	45	54.38	16	16

TRANSITION COUPLER - SOC (IPS X CTS)



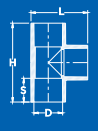
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.) Std.	Mast.
2.5 x 2.5	1 x 1	M512112203	49.6	41	21.8	33.66	23.6	28.83	50	200

ELBOW 90° 3-WAY - SOC



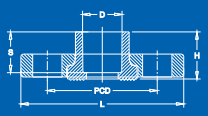
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
2.0	¾	M5121112402	44.4	44.4	18.5	22.45	50	300

ELBOW 90° 4-WAY - SOC



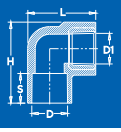
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
2.0	¾	M5121112502	61.5	44.4	18.5	22.45	50	250

VANSTONE FLG -SOC



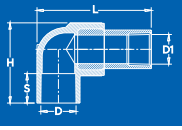
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
2.5	1	M512113403	27.4	107.61	23.78	28.83	10	60
3.2	1 ¼	M512113404	33.72	116.05	29.37	35.2	05	50
4.0	1 ½	M512113405	37.28	125.5	33.88	41.66	05	35
5.0	2	M512113406	47.3	151	42.85	54.38	05	25

BRASS FPT - SOC ELBOW 90°



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
1.5 x 1.5	½ x ½	M512110701*	45.55	36.7	13.5	16.08	1/2	50	200
2.0 x 1.5	¾ x ½	M512110714*	50.72	42.7	18.6	22.45	1/2	50	150
2.0 x 2.0	¾ x ¾	M512110702*	54.2	42	18	22.45	3/4	25	100
2.5 x 1.5	1 x ½	M512110715*	55.45	53.49	22.9	28.83	1/2	25	100
2.5 x 2.0	1 x ¾	M512110716*	60.63	50.3	23.7	28.83	3/4	25	100
2.5 x 2.5	1 x 1	M512110703*	61.1	56	23.3	28.83	1	25	50
3.2 x 1.5	1¼ x ½	M512110517*	67.47	57.85	28.2	35.2	1/2	25	75
3.2 x 2.0	1¼ x ¾	M512110518*	69.98	59.85	28.2	35.2	3/4	30	60
3.2 x 3.2	1¼ x 1¼	M512110704*	76	65.3	28.4	35.2	1-1/4	10	30

FEMALE EXT. BRASS THD X SOC ELBOW 90°

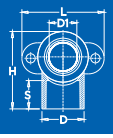


Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
2.0 x 1.5	¾ x ½	M512114723	51.2	73	18.8	22.45	1/2	25	100

* Reducer fittings are professionally assembled using Astral fittings and bushings. Quantity as per order.
Note: Fabricated reducer fittings are not eligible for return to the manufacturer. SOC - SOCKET
All the items where product code starts with "A" are assembled items. # Shortly Introducing., ^ Manufactured as per IS Standard.

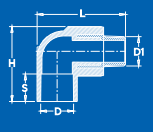
CPVC Pro Fittings
CTS - as per ASTM D2846

BRASS THD X SOC ELBOW WITH CLAMP



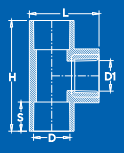
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
2.0 x 1.5	¾ x ½	M5121114114	50	54	18.3	22.45	1/2	100	250

MALE BRASS THD X SOC ELBOW 90°



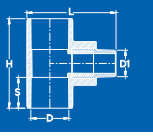
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
2.0 x 1.5	¾ x ½	M512114823	51.2	60.5	18.8	22.45	1/2	10	100

BRASS FPT - SOC TEE



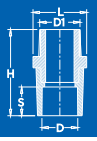
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
1.5x1.5x1.5	½ x ½ x ½	M512110301^	51.66	38	13.7	16.08	1/2	50	200
2.0x2.0x1.5	¾ x ¾ x ½	M512110314^	68.32	43	18	22.45	1/2	25	100
2.0x2.0x2.0	¾ x ¾ x ¾	M512110302^	61.9	47	18.6	22.45	3/4	25	100
2.5x2.5x1.5	1 x 1 x ½	M512110315^	78.86	50.5	23.4	28.83	1/2	25	75
2.5x2.5x2.0	1 x 1 x ¾	M512110316^	77.78	51	24.57	28.83	3/4	25	75
2.5x2.5x2.5	1 x 1 x 1	M512110303^	78	57	24.57	28.83	1	10	50
3.2x3.2x3.2	1¼ x 1¼ x 1¼	M512110304^	94.6	66.9	28.7	35.2	1-1/4	05	30
3.2x3.2x1.5	1¼ x 1¼ x ½	M512110317^	94.7	64.8	28.7	35.2	1/2	10	40

MALE BRASS TEE THD X SOC



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
2.0x2.0x1.5	¾ x ¾ x ½	M512114923	68	60.44	18.8	22.45	1/2	10	100
2.5x2.5x1.5	1 x 1 x ½	M5121115024	68	67.43	23.4	28.83	1/2	01	75

MALE ADAPTOR (BRASS THDXSOC)

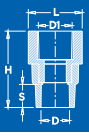


Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
1.5	½	M512111401^	48.56	29.9	12.9	16.08	1/2	50	200
2.0	¾	M512111402^	54	33.6	18	22.45	3/4	25	100
2.5	1	M512111403^	71	41.8	24.8	28.83	1	10	50
3.2	1¼	M512111404^	80.55	56.4	28.5	35.2	1-1/4	5	25
4.0	1½	M512111405^	88.25	63.2	33.5	41.66	1-1/2	5	25
5.0	2	M512111406^	102.25	69.7	43.7	54.38	2	5	15

REDUCER MALE ADAPTOR (BRASS THDXSOC)

Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
2.0x1.5	¾ x ½	M512111514^	52.6	30.1	18.5	22.45	1/2	25	150
2.5x1.5	1 x ½	M512111515^	60.3	37.6	24.5	28.83	1/2	25	100
2.5x2.0	1 x ¾	M512111416^	59.9	37.6	23.5	28.83	3/4	25	125

FEMALE ADAPTOR (BRASS THDXSOC)



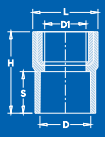
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
1.5	½	M512111701^	43	30.4	13	16.08	1/2	50	200
2.0	¾	M512111702^	50.2	35.5	18	22.45	3/4	25	100
2.5	1	M512111703^	64.6	46	24.2	28.83	1	10	50
3.2	1¼	M512111704^	78.5	57	28.5	35.2	1-1/4	5	25
4.0	1½	M512111705^	84.4	63.2	33.5	41.66	1-1/2	5	25
5.0	2	M512111706^	93.5	77.7	43.7	54.38	2	5	15

^ Manufactured as per IS Standard.

Only those products bearing the above marks are certified

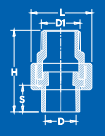
ASTRAL CPVC PRO

REDUCER COUPLER (BRASS THDXSOC)



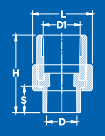
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
2.0x1.5	¾ x ½	M512111214^	39	33.8	18	22.45	1/2	50	200
2.5x1.5	1 x ½	M512111215^	44.4	36.96	23.8	28.83	1/2	25	100
2.5x2.0	1 x ¾	M512111216^	46.2	37	23.6	28.83	3/4	25	125

MALE UNION (BRASS THDXSOC)



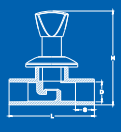
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
1.5	½	M512119801	48.5	33	14	160.8	1/2	25	200
2.0	¾	M512119802	63	43	18.1	22.45	3/4	10	100
2.5	1	M512119803	75	50.4	23.3	28.83	1	10	60
3.2	1¼	M512119804	85	64	29.3	35.2	1-1/4	5	35
4.0	1½	M512119805	91	72	34.1	41.66	1-1/2	5	25
5.0	2	M512119806	107	88	43.5	54.38	2	5	15

FEMALE UNION (BRASS THDXSOC)



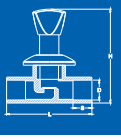
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
1.5	½	M512119901	48.5	33	14	160.8	1/2	25	200
2.0	¾	M512119902	63	43	18.1	22.45	3/4	10	110
2.5	1	M512119903	75	50.4	23.3	28.83	1	10	70
3.2	1¼	M512119904	85	64	29.3	35.2	1-1/4	5	35
4.0	1½	M512119905	91	72	34.1	41.66	1-1/2	5	25
5.0	2	M512119906	107	88	43.5	54.38	2	5	15

CONCEALED VALVE (CHROME PLATED) (TRIANGLE)



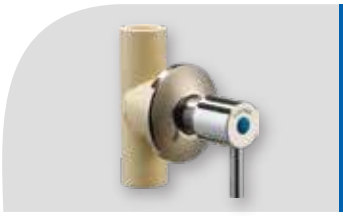
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
1.5	½	M5121118501	117.5	93.6	19.5	16.08	01	20
2.0	¾	M5121118502	125	115	25.5	22.45	02	16
2.5	1	M5121118503	136	130	30.5	28.83	02	14

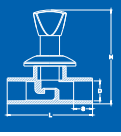
CONCEALED VALVE (CHROME PLATED) (SQUARE)



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
1.5	½	M5121110401	117.5	93.6	19.5	16.08	2	20
2.0	¾	M5121110402	125	115	25.5	22.45	2	16
2.5	1	M5121110403	136	130	30.5	28.83	2	14

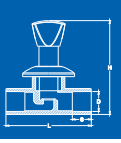
CONCEALED VALVE (CHROME PLATED) (ROUND)





Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
1.5	½	M5121110501	117.5	93.6	19.5	16.08	2	20
2.0	¾	M5121110502	125	115	25.5	22.45	2	16
2.5	1	M5121110503	136	130	30.5	28.83	2	14

CONCEALED VALVE (CHROME PLATED) (FLOWER)



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
1.5	½	M5121110601	117.5	93.6	19.5	16.08	02	20
2.0	¾	M5121110602	125	115	25.5	22.45	02	16
2.5	1	M5121110603	136	130	30.5	28.83	02	14

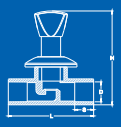
Shortly Introducing, ^ Manufactured as per IS Standard.

CPVC Pro Fittings
Spares for Concealed Valve

STRAINER WHY

Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
2.5	1	M5121115403	117	91.5	29	35.66	10	30
3.2	1¼	M5121115404	148.4	123.5	32.3	42.42	5	10
4.0	1½	M5121115405	168	131.5	35.4	48.56	1	8
5.0	2	M5121115406	197	157.5	38.6	60.63	1	6

CONCEALED VALVE (WHEEL TYPE)



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
1.5	½	M512118601	103.5	93.6	19.5	16.08	02	20
2.0	¾	M512118602	108	115	25.5	22.45	02	16
2.5	1	M512118603#	-	-	-	-	02	14

CONCEALED VALVE SWEPT TYPE(CHROME PLATED) (TRIANGLE)

Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
2.0(Long)	¾	M5121113102	155	81.8	19	22.45	01	20
2.5(Long)	1	M5121113103	155	88.6	23.7	28.83	01	20
2.0(Short)	¾	M5121113202	124	81.8	19	22.45	01	20
2.5(Short)	1	M5121113203	124	88.6	23.7	28.83	01	20

CONCEALED VALVE SWEPT TYPE(CHROME PLATED) (SQUARE)

Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
2.0(Long)	¾	M5121113302	155	81.8	19	22.45	01	20
2.5(Long)	1	M5121113303	155	88.6	23.7	28.83	01	20
2.0(Short)	¾	M5121113402	124	81.8	19	22.45	01	20
2.5(Short)	1	M5121113403	124	88.6	23.7	28.83	01	20

CONCEALED VALVE SWEPT TYPE(CHROME PLATED) (FLOWER)

Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
2.0(Long)	¾	M5121113502	155	81.8	19	22.45	01	20
2.5(Long)	1	M5121113503	155	88.6	23.7	28.83	01	20
2.0(Short)	¾	M5121113602	124	81.8	19	22.45	01	20
2.5(Short)	1	M5121113603	124	88.6	23.7	28.83	01	20

CONCEALED VALVE SWEPT TYPE(CHROME PLATED) (ROUND)

Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
2.0(Long)	¾	M5121113702	155	81.8	19	22.45	01	20
2.5(Long)	1	M5121113703	155	88.6	23.7	28.83	01	20
2.0(Short)	¾	M5121113802	124	81.8	19	22.45	01	20
2.5(Short)	1	M5121113803	124	88.6	23.7	28.83	01	20

Shortly Introducing

FANCY HANDLE (KNOB) WITH RED & BLUE PLASTIC BUTTON (TRIANGLE)

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	¾	RM04159009	-	01

FANCY HANDLE (KNOB) WITH RED & BLUE PLASTIC BUTTON (SQUARE)

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	¾	RM04159006	-	01

FANCY HANDLE (KNOB) WITH RED & BLUE PLASTIC BUTTON (ROUND)

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	¾	RM04159007	-	01

FANCY HANDLE (KNOB) WITH RED & BLUE PLASTIC BUTTON (FLOWER)

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	¾	RM04159008	-	01

S.S. FLANGE WITH RUBBER GROMET

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	¾	RM04159004	-	01

BRASS PIPE (C.P)

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0 (Long)	¾	RM04159005#	-	01
2.0 (short)	¾	RM04159015#	-	01

SPINDLE VALVE PART WITH GASKET

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0(Short)	¾	RM04159010	-	01
2.0(Long)	¾	RM04159011	-	01
2.5(Short)	1	RM04159012	-	01
2.5(Long)	1	RM04159013	-	01

All the items where product code starts with "F" are fabricated items.

CPVC Pro Fittings
CTS – as per ASTM D2846

SPINDLE VALVE PART WITH GASKET

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
1.5	½	RM04159001	-	01
2.0	¾	RM04159002	-	01
2.5	1	RM04159003	-	01

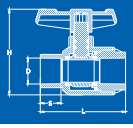
CONCEALED CROME PLATED VALVE

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
1.5	½	RM04151012	-	02
2.0	¾	RM04151034	-	02
2.5	1	RM04151001	-	02

WHEEL TYPE VALVE

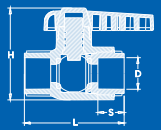
Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
1.5	½	RM04152012	-	01
2.0	¾	RM04152034	-	01
2.5	1	RM04152001#	-	01

BALL VALVES (CTS SOCKETS)



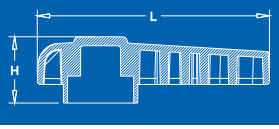
Size (cm)	**DN** (inch)	**Product Code**	**H** (mm)	**L** (mm)	**S** (mm)	**D** (mm)	**Pkg.(Nos.)** Std.	Mast.
1.5	½	M512112701N	68.1	62.5	14.7	16.08	-	80
2.0	¾	M512112702N	81.5	79.7	18	22.45	-	100
2.5	1	M512112703N	96.2	91.5	24.9	28.83	-	60
3.2	1¼	M512112704N	111.71	106.4	29.5	35.2	-	40
4.0	1½	M512112705N	135.5	128.5	34.5	41.66	-	25
5.0	2	M512112706N	159.8	162.8	43.1	54.38	-	14

BALL VALVE LONG HANDLE (CTS SOCKET)



Size (cm)	**DN** (inch)	**Product Code**	**H** (mm)	**L** (mm)	**S** (mm)	**D** (mm)	**Pkg.(Nos.)** Std.	Mast.
1.5	½	M512112701LH	64	69	18	16.08	-	80
2.0	¾	M512112702LH	77.5	79.7	23.3	22.45	-	100
2.5	1	M512112703LH	99	90.8	24	28.83	-	50
3.2	1¼	M512112704LH	112	99.8	28.2	35.2	-	40
4.0	1½	M512112705LH	124.8	119.7	28	41.66	-	30
5.0	2	M512112706LH	154.5	133.3	29.5	54.38	-	15

BALL VALVE LONG HANDLE

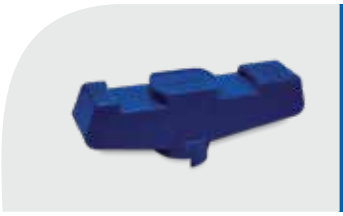


Size (cm)	**DN** (inch)	**Product Code**	**H** (mm)	**L** (mm)	**Pkg.(Nos.)** Std.	Mast.
1.5	½	M512118001	21.5	74	-	01
2.0	¾	M512118002	27	83.8	-	01
2.5	1	M512118003	30.8	108.4	-	01
3.2	1¼	M512118004	35	115	-	01
4.0	1½	M512118005	37.5	129.4	-	01
5.0	2	M512118006	47	159.6	-	01

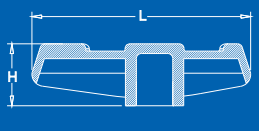
Shortly Introducing

Only those products bearing the above marks are certified

ASTRAL CPVC PRO

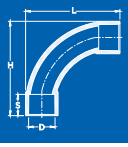


BALL VALVE HANDLE



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	Pkg.(Nos.) Std.	Mast.
1.5	½	M512118001N	22.6	62.3	-	01
2.0	¾	M512118002N	27.5	78	-	01
2.5	1	M512118003N	29.5	89	-	01
3.2	1¼	M512118004N	36.3	103.7	-	01
4.0	1½	M512118005N	44.6	119.6	-	01
5.0	2	M512118006N	49.5	148	-	01

LONG REDIOUS BEND

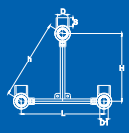


Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
2.0	¾	M512110902	106	106	20.6	22.45	10	140
2.5	1	M512110903	123.8	123.8	23.4	28.83	10	80
3.2	1¼	M512110904	135	135	29.4	35.2	10	50
4.0	1½	M512110905	156.2	156.2	35.2	41.66	05	30
5.0	2	*F512110906	188	188	45	54.38	-	14

STEP OVER BEND

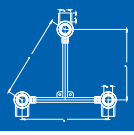
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
1.5	½	M512112801	39.8	150	20.8	16.08	10	150
2.0	¾	M512112802	50	189.5	18	22.45	10	200
2.5	1	M512112803	57.75	200	23	28.83	10	150
3.2	1¼	M512112804	75	360	27	35.2	-	30
4.0	1½	M512112805	80	380	32	41.66	-	20
5.0	2	F512112806	115	530	48	54.38	-	10

ALL TOP ADAPTOR (3 IN 1 WALL MIXER ADAPTOR)



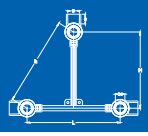
Size (cm)	DN (inch)	Product Code	H (mm)	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
2.0 x 1.5	¾ x ½	M512510614	146.5	171.7	179	18.6	22.45	1/2	-	06
2.5 x 1.5	1 x ½	M512510615	146.5	171.7	179	24	28.83	1/2	-	06

TOP BOTTOM ADAPTOR (3 IN 1 WALL MIXER ADAPTOR)



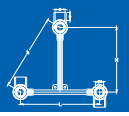
Size (cm)	DN (inch)	Product Code	H (mm)	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
2.0 x 1.5	¾ x ½	M512510714	146.5	171.7	179	18.6	22.45	1/2	-	06
2.5 x 1.5	1 x ½	M512510715	146.5	171.7	179	24	28.83	1/2	-	06

TOP SIDE ADAPTOR (3 IN 1 WALL MIXER ADAPTOR)



Size (cm)	DN (inch)	Product Code	H (mm)	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
2.0 x 1.5	¾ x ½	M512510814	146.5	171.7	179	18.6	22.45	1/2	-	06
2.5 x 1.5	1 x ½	M512510815	146.5	171.7	179	24	28.83	1/2	-	06

HOT UP - COLD DOWN ADAPTOR (3 IN 1 WALL MIXER ADAPTOR)

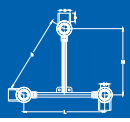


Size (cm)	DN (inch)	Product Code	H (mm)	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
2.0 x 1.5	¾ x ½	M512510914	146.5	171.7	179	18.6	22.45	1/2	-	06
2.5 x 1.5	1 x ½	M512510915	146.5	171.7	179	24	28.83	1/2	-	06

All the items where product code starts with "F" are fabricated items.

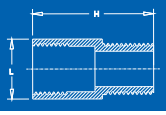
CPVC Pro Fittings
CTS - as per ASTM D2846

HOT SIDE - COLD DOWN ADAPTOR (3 IN 1 WALL MIXER ADAPTOR)



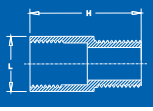
Size (cm)	DN (inch)	Product Code	H (mm)	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
2.0 x 1.5	¾ x ½	M512511014	146.5	171.7	179	18.6	22.45	1/2	-	06
2.5 x 1.5	1 x ½	M512511015	146.5	171.7	179	24	28.83	1/2	-	06

EXTENSION PIECES (CHROME PLATED) (MEDIUM DUTY)



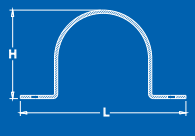
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	Pkg.(Nos.) Std.	Mast.
2.5	1	T143-010M	27	26.7	-	96
4.0	1½	T143-015M	40	26.7	-	64
5.0	2	T143-020M	53	26.7	-	48
6.5	2½	T143-025M	67	26.7	-	40
8.0	3	T143-030M	77	26.7	-	32
10.0	4	T143-040M	99	25.5	-	24
12.5	5	T143-050M	122.8	25.5	-	20
15.0	6	T143-060M	147.5	25.5	-	16

EXTENSION PIECES (CHROME PLATED) (HEAVY DUTY)



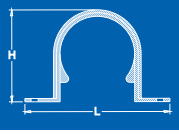
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	Pkg.(Nos.) Std	Mast.
2.5	1	T143-010H	25.5	25.5	-	96
4.0	1½	T143-015H	38.4	25.5	-	64
5.0	2	T143-020H	49.5	25.5	-	48
6.5	2½	T143-025H	62.2	25.5	-	40
8.0	3	T143-030H	73.5	25.5	-	32
10.0	4	T143-040H	99	25.5	-	24
12.5	5	T143-050H	123.8	25.5	-	20
15.0	6	T143-060H	148	25.5	-	16

METAL STRAP



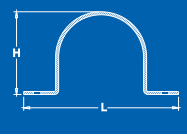
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	Pkg.(Nos.) Std.	Mast.
1.5	½	T9120M	17.8	59.5	-	900
2.0	¾	T9340M	23.5	66.5	-	600
2.5	1	T9100M	30	72	-	500
3.2	1¼	T9105M	36.5	78.5	-	400
4.0	1½	T9106M	43	86.5	-	300
5.0	2	T9200M	55.3	103.5	-	250

PLASTIC STRAP (PP)



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	Pkg.(Nos.) Std.	Mast.
1.5	½	M214006001	45	22	-	1500
2.0	¾	M214006002	46	28	-	2400
2.5	1	M214006003	56	34.7	-	1600
3.2	1¼	M214006004	79.5	42	-	900
4.0	1½	M214006005	89	50.5	-	600
5.0	2	M214006006	101	64	-	400

METAL STRAP (SS)



Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
1.5	½	T9120MSS	150	1500
2.0	¾	T9340MSS	180	1800
2.5	1	T9100MSS	150	1500
3.2	1¼	T9105MSS	100	1000
4.0	1½	T9106MSS	80	800
5.0	2	T9200MSS	50	500

Shortly Introducing

IS : 17546

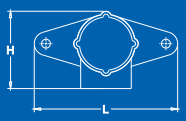
Only those products bearing the above marks are certified

ASTRAL CPVC PRO

PLASTIC STRAP (NYLON)

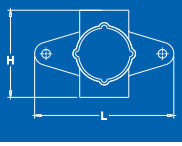
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	Pkg.(Nos.) Std.	Mast.
1.5	½	M214006101	45	22	-	1500
2.0	¾	M214006102	46	28	-	2400
2.5	1	M214006103	56	34.7	-	1600
3.2	1¼	M214006104	79.5	42	-	900
4.0	1½	M214006105	89	50.5	-	600
5.0	2	M214006106	101	64	-	400

ELBOW HOLDER



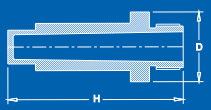
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	Pkg.(Nos.) Std.	Mast.
1.5 x 1.5	½ x ½	M214006701	59.5	78.1	-	500
2.0 x 1.5	¾ x ½	M214006714	47.5	88.5	-	400

TEE HOLDER



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	Pkg.(Nos.) Std.	Mast.
1.5 x 1.5	½ x ½	M214006801	-	-	-	500
2.0 x 1.5	¾ x ½	M214006814	55.54	88.5	-	400

END PLUG THREADED

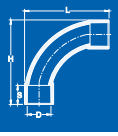


Size (cm)	DN (inch)	Product Code	H (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
1.5	¾ x ½	M214002901	78	31	-	300
2.0	1 x ½	M214002902	80	36	-	200

STEP OVER BEND (L)

Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
2.0	¾	M512112802L	51	245	18.3	22.45	10	160
2.5	1	M512112803L	66	320	23	28.83	10	80

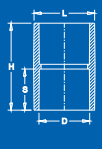
SWEEP BEND (WITH BOTH SIDE SOCKET)



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
2.0	¾	M512110902SL	80	80	18	22.45	15	225
2.5	1	M512110903SL	103	103	23.38	28.83	15	120
3.2	1 ¼	M512110904SL	120	120	28.3	35.2	10	70

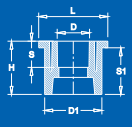
CPVC Pro Fittings
SCH - 40 Fittings as per ASTM F438

COUPLER - SOC



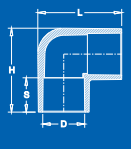
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
6.5	2½	M512401007	106	84.3	50.5	73.38	05	20
8.0	3	M512401008	101	102.48	47.7	89.31	05	15
10.0	4	M512401009	108	127.5	51.5	114.76	-	08

REDUCER BUSHING (SPGXSOC)



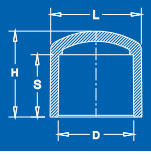
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.) Std.	Mast.
6.5 x 2.5	2½ x 1	A512401931	62.12	79.18	40.46	33.5	44.7	73.4	-	01
6.5 x 3.2	2½ x 1¼	M512401932	54.7	80.1	31.5	42.42	44.8	73.38	05	25
6.5 x 4.0	2½ x 1½	M512401933	54.8	79	33	48.56	45.2	73.38	05	25
6.5 x 5.0	2½ x 2	M512401934	54.2	79	35.5	60.63	44.7	73.38	05	25
8.0 x 2.5	3 x 1	A512401937	75.56	95.14	28.8	33.5	48	89.31	-	01
8.0 x 4.0	3 x 1½	M512401939	56.8	94.3	32.9	48.56	48	89.31	05	20
8.0 x 5.0	3 x 2	M512401940	58.2	95.3	37	60.63	48	89.31	05	20
8.0 x 6.5	3 x 2½	M512401941	57.3	95.3	45	73.38	48	89.31	05	20
10.0 x 5.0	4 x 2	M512401947	65	121.7	36.6	60.63	56.7	114.76	05	10
10.0 x 6.5	4 x 2½	M512401948	64.7	118.2	44.8	73.38	56.7	114.76	05	10
10.0 x 8.0	4 x 3	M512401949	665.1	118.2	52	89.31	56.7	114.76	05	10

ELBOW 90° - SOC



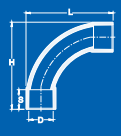
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
6.5	2½	M512400507	125.3	125.3	44.9	73.38	05	15
8.0	3	M512400508	144.68	144.68	48	89.31	-	10
10.0	4	M512400509	174	174	51.2	114.76	-	06

END CAP - SOC



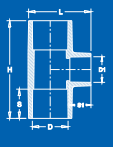
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
6.5	2½	M512404107	61.5	83.5	45.1	73.38	05	10
8.0	3	M512404108	68.1	100.8	48.5	89.31	05	10
10.0	4	M512404109	78	127.5	52.3	114.76	-	10

LONG RADIUS BEND WITH SOCKET



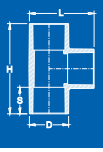
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
6.5	2½	^F512400907	340	340	45.8	73.38	-	06
8.0	3	^F512400908	420	420	59.03	89.31	-	05
10.0	4	^F512400909	450	450	71	114.76	-	04

REDUCER TEE -SOC



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.) Std.	Mast.
8.0x6.5	3 X 2½	M512400241	174.65	142.4	48.5	88.9	45.5	73.1	10	10
10.0x6.5	4 X 2½	M512400248	195.7	168	51.9	114.8	45.5	73.1	06	06
10.0x8.0	4 X 3	M512400249	195.7	175	51.9	114.8	49.17	88.5	06	06

TEE - SOC

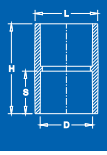


Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
6.5	2½	M512400107	166	125.45	45.7	73.38	-	12
8.0	3	M512400108	195	148	48.4	89.31	-	08
10.0	4	M512400109	224	175	51.5	114.76	-	04

Note: Fabricated reducer fittings are not eligible for return to the manufacturer. SOC-SOCKET, SPG - SPIGOT
All the items where product code starts with "A" are assembled items.

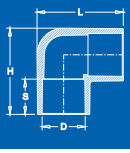
CPVC Pro Fittings
SCH 80 Fittings as per ASTM F439

COUPLER - SOC



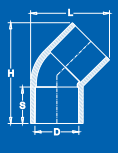
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
6.5	2½	M512801007	101.5	88.7	48.4	73.38	05	20
8.0	3	M512801008	102.4	106.8	48.6	89.31	05	15
10.0	4	M512801009	122.3	134.4	58.4	114.76	-	12
15.0	6	M512801010	106.2	191.3	76.9	168.83	-	02
20.0	8	M512801011	210.4	246	101.7	219.84	-	01
25.0	10	M512801012	260.35	304	127	273.81	-	01
30.0	12	M512801013#	314.4	359.5	152.4	324.61	-	01

ELBOW 90° - SOC



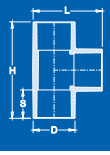
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
6.5	2½	M512800507	130.75	130.75	46.78	73.38	05	15
8.0	3	M512800508	150.55	150.55	50	89.31	-	10
10.0	4	M512800509	195	195	58.33	114.76	-	05
15.0	6	M512800510	260.7	260.7	77	168.83	-	02
20.0	8	M512800511	338.5	338.5	102	219.84	-	01

ELBOW 45° - SOC



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
6.5	2½	M512802307	143.5	121.07	44.45	73.38	05	20
8.0	3	M512802308	163	142.2	49.83	89.31	-	12
10.0	4	M512802309	188	172	57.2	114.76	-	06
15.0	6	M512802310	273	249.48	77	168.83	-	02
20.0	8	M512802311	362.6	324.8	102.3	219.84	-	01

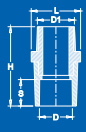
TEE - SOC



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
6.5	2½	M512800107	175.5	131.5	46.7	73.38	05	12
8.0	3	M512800108	197	151	50.3	89.31	-	07
10.0	4	M512800109	256	195	58.5	114.76	-	04
15.0	6	M512800110	350	271	78.2	168.83	-	02
20.0	8	M512800111#	431	339.5	103	219.84	-	01

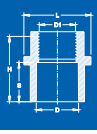
Sizes above 6" will be in Grey colour
* Reducer fittings are professionally assembled using Astral fittings and bushings. Quantity as per order.
Note: Fabricated reducer fittings are not eligible for return to the manufacturer.
SOC - SOCKET
All the items where product code starts with "A" are assembled items.
All the items where product code starts with "F" are fabricated items.

MALE ADAPTOR (BRASS THD X SOC)



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
6.5	2½	M512801407	111.5	110	47.4	73.38	2½	-	09
8.0	3	M512801408	114.2	116	50.5	89.31	3	-	08
10.0	4	M512801409	140	147	58.5	114.76	4	-	04

FEMALE ADAPTOR (CPVC THD X SOC)

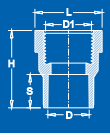


Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
6.5	2½	M512801607	80.6	101.4	45	73.38	2½	05	30
8.0	3	M512801608	86.3	119.6	48.23	89.31	3	05	20
10.0	4	M512801609	101.6	152.6	57.3	114.76	4	-	12

Shortly Introducing, SOC - SOCKET

Only those products bearing the above marks are certified

FEMALE ADAPTOR (BRASS THD X SOC)

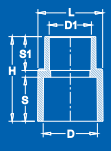


Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
6.5	2½	M512801707	87.4	109	46.8	73.38	2½	-	09
8.0	3	M512801708	90	140	50.5	89.31	3	-	07
10.0	4	M512801709	106	164.9	58.5	114.76	4	-	06

TANK ADAPTOR (LONG) THD X SPG

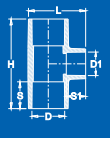
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
6.5	2½	*F512806507	355	73.02	115	73.02	2½	-	15
8.0	3	*F512806508	355	88.9	115	88.9	3	-	09
10.0	4	*F512806509	305	114.2	138	114.7	4	-	08

REDUCER COUPLER - SOC



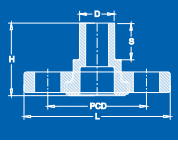
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.) Std.	Mast.
6.5 x3.2	2½ x 1¼	M512801132	94.4	88.9	45.6	73.38	35	42.42	08	48
6.5 x4.0	2½ x 1½	M512801133	102.5	88.2	46.9	73.38	37	48.56	05	40
6.5 x 5.0	2½ x 2	M512801134	92.5	87.54	45	73.38	38.2	60.63	05	40
8.0 x 3.2	3 x 1¼	M512801138	101	105.5	48.5	89.31	32.5	42.42	-	30
8.0 x 4.0	3 x 1½	M512801139	110	105.68	48.5	89.31	36.45	48.56	-	27
8.0 x 5.0	3 x 2	M512801140	104	104.9	48.8	89.31	38.3	60.63	05	25
8.0 x 6.5	3 x 2½	M512801141	106	104.76	48.7	89.31	44.7	73.38	05	25
10.0 x 4.0	4 x 1½	M512801146	140	134.5	57.68	114.76	36.68	48.56	-	16
10.0 x 5.0	4 x 2	M512801147	140	134.5	57.5	114.76	38.3	60.63	-	16
10.0 x 6.5	4 x 2½	M512801148	128.5	132	59.2	114.76	44.8	73.38	-	15
10.0 x 8.0	4 x 3	M512801149	123	132	58	114.76	47.8	89.31	-	15
15.0 x 5.0	6 x 2	M512801155	160	192	77	168.83	39	60.63	-	04
15.0 x 6.5	6 x 2½	M512801156	163	192	77	168.83	45.5	73.38	-	04
15.0 x 8.0	6 x 3	M512801157	166.5	192	77	168.83	48.5	89.31	-	04
15.0 x 10.0	6 x 4	M512801158	168.5	192	77	168.83	58	114.76	-	04
20.0 x 10.0	8 x 4	M5128 01167	215	245	102.7	219.2	58	114.17	02	02
20.0 x15.0	8 x 6	M512801168	204.5	246.2	103.5	219.84	77	168.83	-	02

REDUCER TEE - SOC



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.) Std.	Mast.
6.5x2.5	2½ x 1	M512800231	174.3	112.5	48.2	73.38	30.9	33.66	-	15
6.5x3.2	2½ x 1¼	M512800232	174	116.7	48.2	73.38	34.4	42.42	-	15
6.5x4.0	2½ x 1½	M512800233	174	119	48.6	73.38	37.3	48.56	-	15
6.5x5.0	2½ x 2	M512800234	174	124	48.6	73.38	39	60.63	-	12
8.0x2.5	3 x 1	M512800237	155	134.8	49	89.3	30	33.66	-	12
8.0x3.2	3 x 1¼	M512800238	155	137.8	49	89.3	33	42.42	-	12
8.0x4.0	3 x 1½	M512800239	196	137.5	50	89.3	37.2	48.56	-	10
8.0x5.0	3 x 2	M512800240	196	140.5	50	89.3	40.3	60.63	-	09
8.0x6.5	3 x 2½	M512800241	196	147	50	89.3	47.2	73.38	-	09
10.0x2.5	4 X 1	M512800244	240	155.8	58	114.76	30.5	33.66	-	05
10.0x3.2	4 X 1¼	M512800245	240	158.3	58	114.76	33	42.42	-	05
10.0x4.0	4 X 1½	M512800246	240	162.3	58	114.76	37	48.56	-	05
10.0x5.0	4 X 2	M512800247	240	165.3	58	114.76	40	60.63	-	05
10.0x6.5	4 X 2½	M512800248	240	171.3	58	114.76	46	73.38	-	05
10.0x8.0	4 X 3	M512800249	240	174.8	58	114.76	49.5	89.31	-	05
15.0x5.0	6 x 2	M512800255	235	232.5	77	168.83	39	60.63	-	02
15.0x6.5	6 x 2½	M512800256	235	237.5	77	168.83	45.5	73.38	-	02
15.0x8.0	6 x 3	M512800257	350	244	78.2	168.83	49.5	89.31	-	02
15.0x10.0	6 x 4	M512800258	350	253	78.2	168.83	58.5	114.76	-	02
20.0x10.0	8 x 4	M512800267	380	295	103	219.84	58.2	114.76	-	01
20.0x15.0	8 x 6	M512800268	431	349	103	219.84	76.4	168.83	-	01

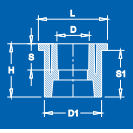
VANSTONE FLANGE SPG



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	PCD (mm)	Pkg.(Nos.) Std.	Mast.
6.5	2½	M512803307	50	177.8	45.4	73.2	139	-	12
8.0	3	M512803308	52.8	189.9	50.6	88.09	152.4	-	10
10.0	4	M512803309	65	229.6	57.5	114.3	190.4	-	06

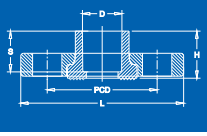
CPVC Pro Fittings
SCH - 80 Fittings as per ASTM F439

REDUCER BUSHING (SPGXSOC)



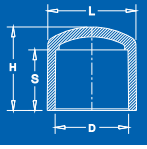
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.) Std.	Mast.
6.5 x3.2	2½ x 1¼	M512801932	54.8	80	31.5	42.42	45.2	73.02	05	50
6.5 x4.0	2½ x 1½	M512801933	54.8	80	35.3	48.56	45.2	73.02	05	50
6.5 x 5.0	2½ x 2	M512801934	49.8	74	38.3	60.63	45.2	73.02	05	50
8.0x3.2	3 x 1¼	M512801938	57	95.3	32	42.42	48	88.9	-	-
8.0 x 4.0	3 x 1½	M512801939	58	95.5	35	48.56	48.2	88.9	05	35
8.0 x 5.0	3 x 2	M512801940	58	95.5	39	60.63	48.2	88.9	05	35
8.0 x 6.5	3 x 2½	M512801941	58	95.5	52.5	73.38	48.2	88.9	05	35
10.0 x 4.0	4 x 1½	M512801946	67.8	121.5	36	48.56	58.3	114.3	20	20
10.0 x 5.0	4 x 2	M512801947	68	121.5	38.5	60.63	58.5	114.3	05	20
10.0 x 6.5	4 x 2½	M512801948	67.8	121.5	45	73.38	58.3	114.3	05	10
10.0 x 8.0	4 x 3	M512801949	68	121.5	48	89.3	58.5	114.3	05	20
15.0 x 8.0	6 x 3	M512801957	85	177.5	48.5	89.3	76.2	168.28	-	06
15.0 x 10.0	6 x 4	M512801958	82.1	177.55	59	114.76	76.2	168.28	-	06
20.0 x 10.0	8 x 4	M512801967	111	229	58	114.76	102	219.08	-	03
20.0 x 15.0	8 x 6	M512801968	111	229	76.4	168.83	102	219.08	-	03

VANSTONE FLANGE - SOC



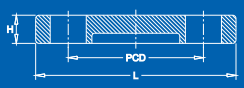
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	PCD (mm)	Pkg.(Nos.) Std.	Mast.
6.5	2½	M512803407	50	177.8	44.45	73.38	139	-	15
8.0	3	M512803408	52.8	189.9	49	89.31	152.4	-	12
10.0	4	M512803409	65	229.6	57.72	114.76	190.4	-	08
15.0	6	M512803410	85	279	77.5	168.83	244	-	03
20.0	8	M512803411	111.8	343	102.2	219.84	302.5	-	01

END CAP - SOC



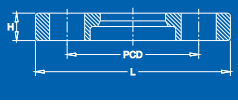
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
6.5	2½	M512804107	67.8	87.97	47.1	73.38	-	55
8.0	3	M512804108	74	104.89	49	89.31	-	39
10.0	4	M512804109	9035	132.5	57.5	114.76	-	18
15.0	6	M512804110	124.5	192.23	77.5	168.83	-	06

BLIND FLANGE



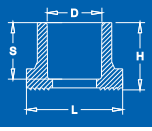
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	PCD	Pkg.(Nos.) Std.	Mast.
8.0	3	M512803108	23.50	189.90	152.40	-	20
10.0	4	M512803109	29.50	228.60	190.40	-	12

FLANGE RING - SOC



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	PCD	Pkg.(Nos.) Std.	Mast.
6.5	2½	M512804207	24.6	177.8	139	-	01
8.0	3	M512804208	26.3	189.9	152.4	-	01
10.0	4	M512804209	29.2	229.6	190.4	-	01
15.0	6	M512804210	31.7	279	244	-	01
20.0	8	M512804211	34	343	302.5	-	01

FLANGE HUB - SOC



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
6.5	2½	M512803607	50	104.5	44.45	73.38	-	01
8.0	3	M512803608	52.8	117.9	49	89.31	-	01
10.0	4	M512803609	65	150.9	57.72	114.76	-	01
15.0	6	M512803610	85	207.5	77.5	168.83	-	01
20.0	8	M512803611	111.8	260.7	102.2	219.84	-	01

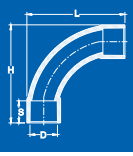
FLANGE - SOC (ONE PIECE)

Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	PCD (mm)	Pkg.(Nos.) Std.	Mast.
8.0	3	M512803208	55.00	189.90	51.5	89.31	152.40	-	12
10.0	4	M512803209	65.00	228.60	57.7	114.76	190.40	-	08

All the items where product code starts with "A" are assembled items. SOC -SOCKET, SPG - SPIGOT
Shortly Introducing

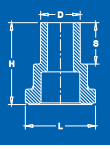
CPVC Pro Fittings
SCH – 80 Fittings as per ASTM F439

LONG RADIUS BEND-SOC



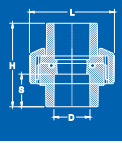
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
6.5	2½	F512800907Ω	360	360	45.7	73.38	-	06
8.0	3	F512800908Ω	405	405	60	89.31	-	05
10.0	4	F512800909Ω	450	450	71	114.76	-	04

FLANGE HUB - SPG



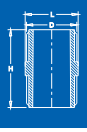
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
6.5	2½	M512803707	50	104.3	45.4	73.2	-	01
8.0	3	M512803708	52.8	118.5	50.6	88.09	-	01
10.0	4	M512803709	65	149.7	56.5	114.3	-	01

UNION - SOC



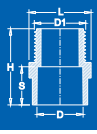
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
6.5	2½	M512802607	102.3	130.3	44.8	73.38	-	15
8.0	3	M512802608	109.2	156	47.7	89.31	-	10
10.0	4	M512802609	130	196.6	57.7	114.76	-	04

HEX NIPPLE (THDXTHD)



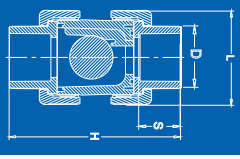
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	D (inch)	Pkg.(Nos.) Std.	Mast.
2.0	¾	M5128012702	44.6	27.6	3/4"	100	600
2.5	1	M5128012703	50.4	34.3	1"	50	350

MALE ADAPTOR (CPVC THD X SOC)



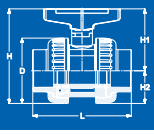
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.) Std.	Mast.
6.5	2½	M512801307	89.5	89.6	45.2	73.38	2-1/2	05	30
8.0	3	M512801308	107.1	95.4	48.2	89.31	3	05	20
10.0	4	M512801309	102	151.8	57.25	114.76	4	-	15

NRV - SOC



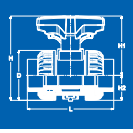
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.) Std.	Mast.
2.0	¾	M5128013902	109	55.6	26.2	26.87	01	60
2.5	1	M5128013903	120.8	66.1	29.1	33.66	01	40

TRUE UNION BALL VALVE (COMPACT SERIES)



Size (cm)	DN (inch)	Product Code	L (mm)	D (mm)	H (mm)	H1 (mm)	H2 (mm)	Pkg.(Nos.) Std.	Mast.
1.5	½	M537151701	104	53	83	57	26	-	33
2	¾	M537151702	114	61	97	66	31	-	20
2.5	1	M537151703	129	70	108	73	35	-	18
3.2	1 ¼	M537151704	141	84	125	83	42	-	10
4	1 ½	M537151705	161	101	146	95	51	-	6
5	2	M537151706	181	120	173	113	60	-	4

TRUE UNION BALL VALVE - INDUSTRIAL SERIES



Size (cm)	DN (inch)	Product Code	L (mm)	D (mm)	H (mm)	H1 (mm)	H2 (mm)	Pkg.(Nos.) Std.	Mast.
6.5	2½	M517150307	229	152	237	160	77	-	1
8	3	M517150308	257	170	267	177	90	-	1
10	4	M517150309	314	208	318	211	107	-	1

Note: SOC - SOCKET, SPG - SPIGOT

Only those products bearing the above marks are certified

ASTRAL CPVC PRO

SINGLE UNION BALL VALVE

Size (cm)	DN (inch)	Product Code	D (mm)	H (mm)	H1 (mm)	H2 (mm)	L (mm)	Pkg.(Nos.) Std.	Mast.
1.5	½	M537150201	53	76	50	26	91	-	33
2	¾	M537150202	61	90	59	31	103	-	20
2.5	1	M537150203	70	105	70	35	115	-	18
3.2	1¼	M537150204	84	122	80	42	130	-	10
4	1½	M537150205	101	149	98	51	149	-	6
5	2	M537150206	120	173	113	60	176	-	4
6.5	2½	M537150207	152	214	138	76	291	-	1
8	3	M537150208	170	240	155	85	243	-	1
10	4	M537150209	208	294	190	104	297	-	1

TRUE UNION BALL VALVE INDUSTRIAL SERIES

Size (cm)	DN (inch)	Product Code	D (mm)	H (mm)	H1 (mm)	H2 (mm)	L (mm)	Pkg.(Nos.) Std.	Mast.
1.5	½	M537150301	53	99	71	28	118	-	20
2	¾	M537150302	61	113	81	32	130	-	18
2.5	1	M537150303	71	127	90	37	147	-	10
3.2	1¼	M537150304	84	149	105	44	165	-	6
4	1½	M537150305	101	175	122	53	181	-	4
5	2	M537150306	120	204	142	62	207	-	3
6.5	2½	M537150307	152	237	160	77	229	-	1
8	3	M537150308	170	267	177	90	257	-	1
10	4	M537150309	208	318	211	107	314	-	1

TRUE UNION IND BALL VALVE SOC (EPDM)

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
15.0	6	1822-060C⌀	-	01
20.0	8	1822-080C⌀	-	01

TRUE UNION IND BALL CHECK SOC (EPDM)

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.5	2½	4522-025C⌀	-	01
8.0	3	4522-030C⌀	-	01
10.0	4	4522-040C⌀	-	01
15.0	6	4522-060C⌀	-	01
20.0	8	4522-080C⌀	-	01

STD. BUTTERFLY VALVE (EPDM) W/HANDLE

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.5	2½	722311-025C⌀	-	01
8.0	3	722311-030C⌀	-	01
10.0	4	722311-040C⌀	-	01
15.0	6	722311-060C⌀	-	01
20.0	8	722311-080C⌀	-	01

WAFER BUTTERFLY VALVE (VITON) W/HANDLE

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
6.5	2½	753311-025C⌀	-	01
8.0	3	753311-030C⌀	-	01
10.0	4	753311-040C⌀	-	01
15.0	6	753311-060C⌀	-	01
20.0	8	753311-080C⌀	-	01

⌀ Trading Item available in Grey colour only.
Note: SOC - SOCKET

CPVC Pro Solvent Cements & Primer

IPS WELD-ON
500 CTS ADHESIVE SOLUTION
(YELLOW)

SUITABLE FOR (1/2"-2")
SDR 11 & SDR 13.5

Qty. (ml)	Product Code	Pkg.(Nos.) Std.	Mast.
50	M001001015	-	48
118	M001001020	-	24
237	M001001025	-	24
473	M001001030	-	12
946	M001001035	-	12

For sizes 65 mm and above use cpvc 724 adhesive solution

PIPEFIX
CPVC 307

Qty. (ml)	Product Code	Pkg.(Nos.) Std.	Mast.
50	M003605005	-	48
118	M003605010	-	24
237	M003605015	-	24
473	M003605020	-	12
946	M003605025	-	12

CPVC 724
(2½"-12")
SCH40 & SCH80

Qty. (ml)	Product Code	Pkg.(Nos.) Std.	Mast.
473	M008301005	-	12
946	M008301010	-	12

N.B. For sizes 65 mm (2½") and above

IPS WELD-ON
PRIMER P 70

(2½"-12")
SCH40 & SCH80

Qty. (ml)	Product Code	Pkg.(Nos.) Std.	Mast.
473	M008401005	-	12
946	M008401010	-	12

N.B. Must use primer for 65 mm (2½") & above

Ancillary Products

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

PTFE TAPE
(12 MM WIDTH)

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

BONDSET FAST SETTING

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

RATCHET CUTTER

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
1.5 - 3.2	½ - 1¼	TTOOLS-1ø	-	01

Installation Procedure

1. CUTTING

In order to make a proper and neat joint, measure the pipe length accurately and make a small mark. Ensure that the pipe and fittings are size compatible. You can easily cut with a wheel type plastic pipe cutter or hacksaw blade. Cutting tubing as squarely as possible provides optimal bonding area within a joint.

2. DEBURRING/ BEVELING

Burrs and filings can prevent proper contact between tube and fitting during assembly and should be removed from the outside and inside of the pipe. Debarking tool, pocket knife or file are suitable for this. A slight bevel on the end of the tubing will ease entry of the tubing into the fitting socket.

3. FITTING PREPARATION

Using a clean, dry rag, wipe dirt and moisture from the fitting sockets and tubing end. The tubing should make contact with the socket wall 1/3 to 2/3 of the way into the fitting socket.

4. SOLVENT CEMENT APPLICATION

Use only CPVC cement or an all - purpose cement conforming to ASTM F-493 or joint failure may result. When making a joint, apply a heavy, even coat of cement to the pipe end. Use the same applicator without additional cement to apply a thin coat inside the fitting socket. Too much cement can cause clogged water ways.

5. ASSEMBLY

Immediately insert the tubing into the fitting socket, rotate the tube ¼ to ½ turn while inserting. This motion ensures an even distribution of cement within the joint. Properly align the fittings. Hold the assembly for approximately 10 seconds, allowing the joint to set-up.

6. SET AND CURE

Solvent cement set and cure times are a function of pipe size, temperature and relative humidity. Curing time is shorter for drier environments, smaller sizes and higher temperatures. It requires 10 to 20 minutes for perfect joint.

Note: For sizes above 65 mm (2½") use IPS 70 primer before applying solvent cement. The purpose of a primer is to penetrate and soften the surfaces so they can stick together. The proper use of a primer ensures that the surfaces are prepared for fusion in a wide variety of weather conditions.

How To Use Solvent Cement Primer & Cleaner

JOINT CURING

Recommended initial set times

Temperature Range	Pipe Size ½" to 1 ¼" (15 mm to 32 mm)	Pipe Size 1½" to 3" (40 mm to 80 mm)	Pipe Size 4" to 8" (100 mm to 200 mm)	Pipe Size 10" to 12" (250 mm to 300 mm)
15.5°C - 37.7°C	15 min.	30 min.	1 hrs.	2 hrs.
4.4°C - 15.5°C	1 hrs.	2 hrs.	4 hrs.	8 hrs.

Recommended initial cure times

Temperature Range	Pipe Size ½" to 1 ¼" (15 mm to 32 mm)	Pipe Size 1½" to 3" (40 mm to 80 mm)	Pipe Size 4" to 8" (100 mm to 200 mm)	Pipe Size 10" to 12" (250 mm to 300 mm)
15.5°C - 37.7°C	6 hrs.	12 hrs.	24 hrs.	48 hrs.
4.4°C - 15.5°C	12 hrs.	24 hrs.	48 hrs.	96 hrs.

CHOOSING SOLVENT CEMENTS & PRIMERS

Solvent cements for Astral CPVC PRO systems must conform to the requirements of ASTM F-493 or equivalent and should carry this identification on the can / tube label. A primer or cleaner must be used. Primers for PVC pipe can be used for CPVC. The National Sanitation Foundation (NSF) mark or other potable water approval should also be located on the container.

Certain code bodies require orange CPVC solvent cement and purple primer to facilitate identification by plumbing inspectors. However, unpigmented (clear) CPVC solvent cement and primer are available and accepted by various jurisdictions. If you decide to use clear products, we strongly recommend contracting the local plumbing inspector prior to beginning a job to determine whether these clear cements and primers are acceptable or not.

CPVC SOLVENT CEMENT'S SHELF LIFE

CPVC solvent cement are formulated to have a Shelf life of two years. Cans are usually marked with manufacturing dates. Good CPVC solvent cement should have the consistency of syrup or honey with no undissolved materials. Aged cement will often change colour or begin to thicken and become gelatinous or jelly-like. When this occurs, the cement must be thrown away.

SOLVENT CEMENT FREEZING

Use the same precautions to protect CPVC solvent cement from freezing as you would with PVC cement. Once cement gels, it can not be recovered and should be discarded.

BEFORE BEGINNING

1. Verify the cement is the same as the pipes and fittings being used.
2. Check the temperature where the cementing will take place.
   - Cement take longer time to set up in cold weather. Be sure to allow extra time for curing. Do not try to speed up the cure by artificial means this could cause porosity and blisters in the cement film.
   - Solvents evaporate faster in warm weather. Work quickly to avoid the cement setting up before the joint is assembled. Keep the cement as cool as possible. Try to stay out of direct sunlight.
3. Keep the lid on cements, cleaner, and primers when not in use Evaporation of the solvent will effect the cement.
4. Stir or shake cement before using.
5. Use 20 mm (¾") dauber on small diameter pipes, 40 mm (1½") dauber, upto 80 mm (3") pipe, and a natural bristle brush, swab, or roller having size of ½ the pipe diameter on pipes from 100 mm (4") and up.
6. Do not mix cleaner or primer with cement.
7. Do not use thickened or lumpy cement. It should be like the consistency of syrup or honey.
8. Do not handle joints immediately after assembly.
9. Do not allow daubers to dry out.
10. Maximum temperature allowable for CPVC pipe is 180°F.
11. All coloured cements, primers, and cleaners will have a permanent stain. There is no known cleaning agent.
12. Use according to the step outline in ASTM D-2846, joining of pipe and fittings.

Pressuring Solvent Adhesive Joints

In order to develop full strength of Solvent Adhesives Joints, adequate care should be taken. Before the joints get exposed to pressuring, many factors will impact the required fixing time.

A. Onsite temperature and humidity

B. Pipe diameter (larger diameter joints require more time to cure)

C. Internal operating pressure

D. Internal operating temperature

In general, the fixing time will allow cold-water lines to be pressurized to the cited levels shown.

As per the standard practices, before operating the hot-water lines additional 50% fixing time required than the cold-water lines. Professionals doing repair or maintenance work should give adequate fixing time to the hot-water lines before pressurizing the system.

Hot Weather Solvent Adhesive Application Above 86°F (30°C)

- Store solvent adhesive, pipes as well as fittings in a dry, cool and shaded area
- Need to make sure that the surface is dry prior applying solvent adhesive
- Make sure surface is dry prior to application of solvent adhesive
- Need to make sure both the surfaces to be joined by solvent are properly coated with the solvent adhesives
- Stir or shake the solvent adhesive properly before use
- System anchoring and final connections should be made during the cooler hours of the day to account for expansion and contraction.

System Acceptance (Hydrostatic Pressure) Test

Once an installation is completed and fixing time is given as per these recommendations. 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 couplings.

Danger: Pressure testing with compressed air is dangerous and can result in injury or death. Do not use air to test CPVC Pro pipe, fittings and accessories.

TESTING OF INSTALLATIONS

1. Prior to a test, a visual inspection of the system shall be conducted to ensure that the recommended installation procedure has been followed and the pipeline, appliances, valves, and fittings have been installed correctly. Upon completion of installation, pipework, fittings, and appliances shall be hydraulically tested and inspected. Pressure tests should not be conducted on solvent-welded pipes until at least 24 hours after the last solvent weld has been completed.
2. During the test, all control valves should be left open and all open ends should be temporarily closed with water-tight fittings. Testing pressure shouldn't be less than one and a half times the expected operating pressure of the pipe. However, it is important to ensure the pressure does not exceed the working pressure of the lowest rated component of the system.
3. Apply pressure either by hand pump or power-driven pump. To ensure that test pressures are not exceeded, pressure gauges must be properly positioned and carefully observed. Slowly and carefully fill the system with water to avoid surge pressure of water hammer. The vents on all high points should be open during filling so that air can be expelled from the system.
4. As soon as the system is fully charged with water and air displaced from the line, air vents need to be closed, and the line should be inspected for seepage at joints and firmness under load. A pressure of one hour may then be applied when the 1.5 x Expected Operating Water Pressure OR Pressure Rating of the Lowest Pressure Rated Part (e.g. valve or flange) is reached. Check each joint for leaks or water seepage again after an hour.

USE OF CPVC PI PES & FITTINGS IN SOLAR APPLICATION

Since the outlet of water heater remains excessive hot due to elevated temperature from the thermal radiation steam, CPVC pipes or fittings should not be connected directly to the outlet as the excessive heat exposure can lead to distortion and deformation of the product.

Need to follow below mentioned guidelines for while using Astral CPVC Pro pipes and fittings in Solar application

DO'S

• Connect GI pipe of 1m length with solar water heater outlet, then use CPVC pipes and fittings • Use expansion loop for exposed pipes on every 9-12 feet pipe run • Always use proper support on specified distance to damp exposed pipes

DON'TS

• Never connect Astral CPVC Pro pipes or fittings directly with solar water heater outlet • Never use CPVC pipes without expansion loop or offset • Don't clamp pipes near loop or offset

Important Notes

NUMBER OF JOINTS PER LITER OF CEMENT BY PIPE SIZE

Dia of Pipe		Appx. Nos of joints*
(mm)	(in.)	
15	½	1200
20	¾	750
25	1	500
32	1¼	450
40	1½	325
50	2	225
65	2½	50
75	3	40
100	4	30
150	6	10
200	8	5
250	10	2-4
300	12	1-2

* Approximate numbers of joints which can be made per ltr. of solvent cement
* For primer, number of joints are approximate double than solvent cement

SAFE HANDLING OF SOLVENT CEMENT

When using solvent cements, primers and cleaners there are some basic safety measures.

ALL USERS SHOULD KEEP IN MIND.

- Avoid prolonged breathing of solvent vapors. When pipes and fittings are being joined in enclosed area, the use of ventilating devices are advised.
- Keep cements, primers and cleaners away from all the sources of ignition, heat, sparks and open flame.
- Keep containers of cements, primers and cleaners tightly closed except when the product is being used.
- Dispose of all rags used with solvents in a proper outdoor waste receptacle.
- Avoid eye & skin contact. In case of eye contact, flush with plenty of water for 15 minutes & call a physician.

THREAD SEALANTS

Threaded CPVC fittings with tapered pipe threads (e.g. male thread adapters) must be used with a suitable thread sealant to insure leak-proof joints. Over the years, PTFE (Teflon® or equivalent) tape has been the preferred thread sealant, it is still the most widely accepted and approved thread sealant. Some paste sealant can affect CPVC fittings; therefore only sealants recommended for use with CPVC by the thread sealant manufacturer must be used.

General Guideline for all Installations

DOS

1. Install product according to Astral's Installation instructions and manual and follow recommended safe work practices.
2. Keep Pipe and Fittings in original packaging until needed and store pipes in covered areas.
3. Use tools designed for use with plastic pipe and fittings.
4. Cut-off minimum 25 mm beyond the edge of the crack in case any crack is discovered on the pipe.

4A. Pipe may be cut quickly and efficiently by several methods. Wheel-type plastic tubing cutters are preferred. Ratchet type cutters or fine tooth saws are another option. However, when using the ratchet cutter, be certain to score the exterior wall by rotating the cutter blade in a circular motion around the pipe. Do this before applying significant downward pressure to finalise the cut. This step leads to a square cut. In addition, make sure ratchet cutter blades are sharp. Cutting pipe as squarely as possible provides optimal bonding area within a joint.

4B. Burrs and filings can prevent proper contact between the tube and fittings during assembly, and should be removed from the outside and inside of the pipe. A chamfering tool is preferred, but a pocket knife or file is also suitable for this purpose.

4C. Use only CPVC Cement or an all purpose solvent cement conforming to ASTM F-493 otherwise it may result in joint failure.

5. Always conduct hydraulic pressure testing after installation to detect any leaks and faults. Wait for appropriate cure time before pressure testing. Fill lines slowly and remove air from the system prior to pressure testing.
6. Rotate the pipe 1/4 to 1/2 to spread the CPVC Solvent Cement evenly in the joint while pushing the Pipe into Fitting.
7. Use Teflon tapes with threaded fittings.
8. Ensure that there are no sharp edges in contact with the pipe while embedding the pipes on the walls or in the floors.

8A. When making a transition connection to metal threads, use a special transition fitting or CPVC male threaded adapter whenever possible. Do not over-torque plastic threaded connections. Head tight plus one-half turn should be adequate.

9. Provide Vertical & Horizontal Supports as recommended using the Plastic Straps only.
10. Apply a water- based paint only on exposed pipes & fittings.
11. Visually inspect all joints for proper cementing at the end of shift or day. A Visual inspection of the complete system is also recommended during pressure testing.
12. When connecting to a gas water heater, duct and CPVC should not be located within 50 cm of the duct. For water heaters lacking reliable temperature control, this distance may be increased up to 1 m. A metal nipple or flexible appliance connector should be utilized. This measure eliminates the potential for damage to plastic piping that might result from excessive radiant heat from the duct.
13. Use of a brass/CPVC transition adapter when connecting CPVC to a water heater will help facilitate water heater replacement in the future.
14. Pressure test CPVC systems in accordance with local code requirements.

DON'TS

1. Do not use Metal Hooks or Nails to support / hold or put pressure on the pipes. Do not use straps & hangers with rough or sharp edges. Do not tighten the straps over the pipes.
2. Never expose the pipe to Open Flame while trying to bend it.
3. Do not drop pipes on edges from heights. Do not drop heavy objects on pipes or walk on pipes.
4. Do not dilute Solvent Cement with Thinner /MTO or any other liquid etc.
5. Do not use air or gases for pressure testings.
6. Do not use any other petroleum or solvent- based sealant, adhesive, lubricant or fire hazard material on CPVC pipes and fittings.
7. Do not use CPVC Pipes & Fittings for air, gas, and pneumatic applications.

NOTE:

The CPVC pipe has a service life of mere than 50 years which is similar to the average age of an apartment. The CPVC pipe after its service life can be recycled as per the general process of pipe recycling. The recycled pipes can be used in CPVC production thereby reduces the demand of virgin material. The pipe can also be sent to the incineration plant or landfills as per the requirement

Notes

Notes

DISCLAIMER:

"*Copyrights & Disclaimer: ASTRAL is a registered trademark of Astral Limited. Information contained in this document is the property of Astral Limited. Any unauthorized use of this information is prohibited. All the images shown are for representation purposes only. Due care and diligence have been taken while editing and printingthe book. Neither the author nor the publishers of the book hold any responsibility for any mistake that may have inadvertently crept in. Publishers shall not be liable for any direct, consequential or incidental damages arising out of the use of the book. Customers and other users should make their own independent determination that the product is suitable for the intended use. They should also ensure that they can use the Astral products safely and legally. Warranty is applicable only for manufacturing defects when the products are installed as per our standard guidelines and usage. In any case, Astral's liability towards any claim is limited to replacement of the defective product, and in no event shall Astral be liable for special, consequential, incidental, punitive or exemplary damages. For any usage of other brand's products in combination with Astral's Products, warranty is not applicable. ISI marked products may be produced at multiple manufacturing plants. Kindly check listing of approved product with local sales representative for specific Plant / Product. The copyright owner reserves all rights and liability to modify, Changes or alter design drawing of the products as and when it deems appropriate and necessary without any prior notice to the user.

A consumer validated ***Superbrand in piping*** *category for* ***consecutive 4 years***

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

India's Most Desired *Brand based on* ***TRA's Brand Trust Report*** *2022*

ASTRAL PIPES

CIN NO: L25200GJ1996PLC029134
Registered & Corporate Office: Astral Limited
207/1, 'Astral House', B/h Rajpath Club, Off S. G. Highway, Ahmedabad - 380059.
Ph: +91-79 6621 2000 | Fax: +91-79 6621 2121 | E-mail: info@astralltd.com | Website: www.astralltd.com
For Export Inquiries: export@astralltd.com

ISO 9001 • 14001 • 45001 CERTIFIED COMPANY By Bureau Veritas (India) Pvt.Ltd.

ASTRAL TOLL FREE 1800 233 7957
Please get in touch with us between 10 AM to 6 PM between Monday to Friday and the last Saturday of the month. We will remain closed on Public Holidays.

SC: PR07000021
ACP/PC/002
REV. 05/24

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

CONTENTS

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

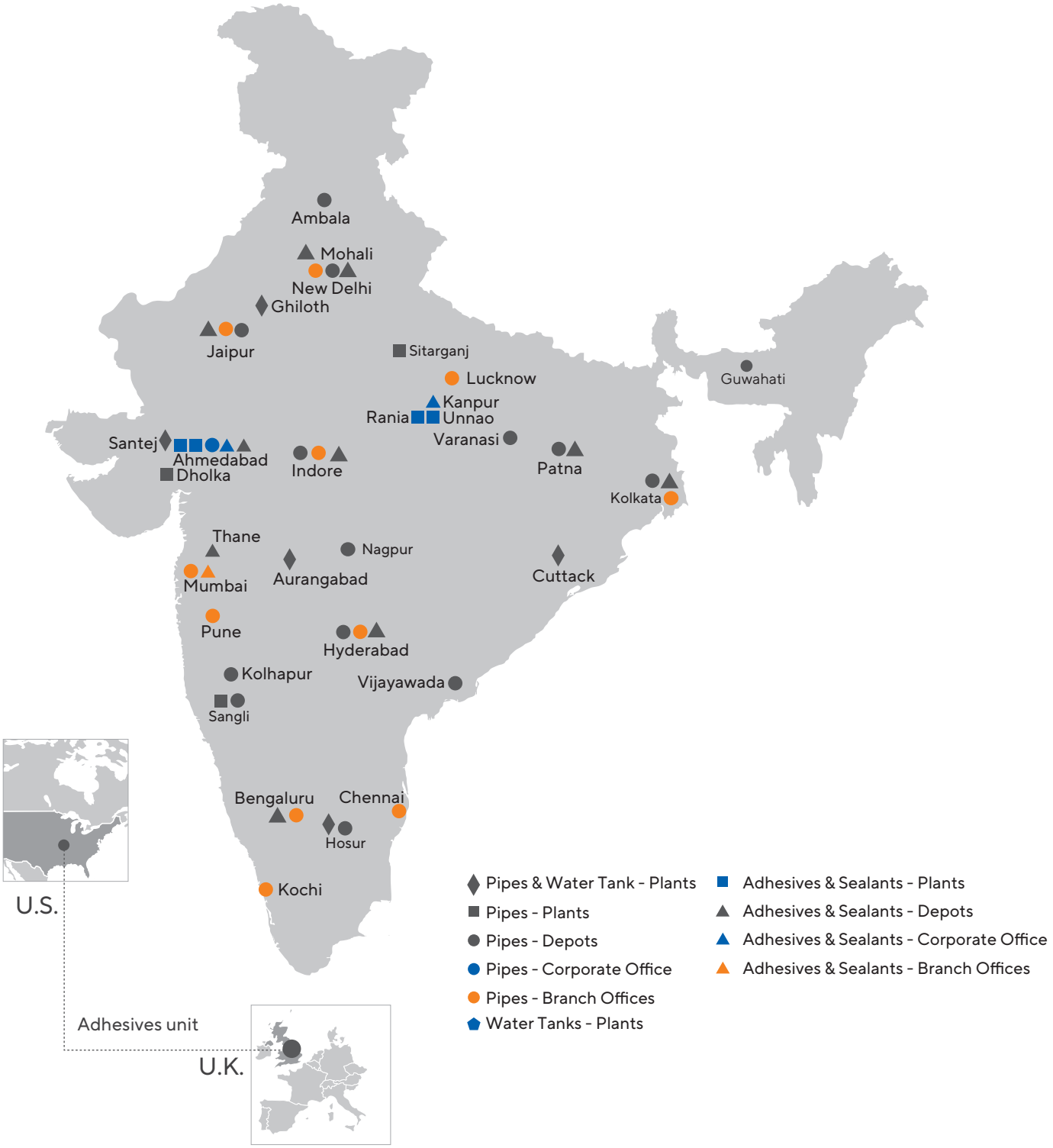
SANITARYWARE

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

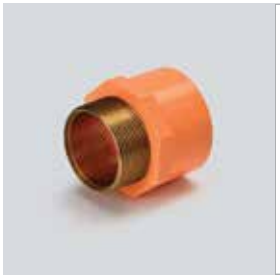
Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
8.0	3	M542803208	-	12

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°

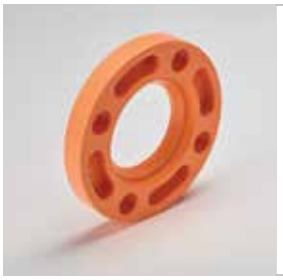
Size (cm)	Size (inch)	Product Code	Pkg.(Nos.) Std.	Mast.
2.0	¾	M542802302	50	200
2.5	1	M542802303	25	150
3.2	1¼	M542802304	10	80
4.0	1½	M542802305	10	60
5.0	2	M542802306	05	35
6.5	2½	M542802307	05	20
8.0	3	M542802308	-	12

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.

ASTRAL®
PIPES

A consumer validated ***Superbrand in piping*** *category for* ***consecutive 4 years***

India's Most Trusted *Pipe Brand based on* ***TRA's Brand Trust Report for the 5th time***

Power of Desire

India's Most Desired *Brand based on* ***TRA's Brand Trust Report*** *2022*

ASTRAL®
PIPES

CIN NO: L25200GJ1996PLC029134
Registered & Corporate Office: Astral Limited
207/1, 'Astral House', B/h Rajpath Club, Off S. G. Highway, Ahmedabad - 380059.
Ph: +91-79 6621 2000 | Fax: +91-79 6621 2121 | E-mail: info@astralltd.com | Website: www.astralltd.com
For Export Inquiries: export@astralltd.com

ISO 9001 • 14001 • 45001 CERTIFIED COMPANY
By Bureau Veritas (India) Pvt.Ltd.

ASTRAL TOLL FREE
1800 233 7957
Please get in touch with us between
10 AM to 6 PM between Monday to Friday
and the last Saturday of the month.
We will remain closed on Public Holidays.

SC: PR07000053
AFP/PC/001
REV:06/23

ASTRAL PIPES

CELEBRATING 25 YEARS OF TRUST & INNOVATION

Foamcore® PVC PIPE

STRONG & LIGHTWEIGHT uPVC DRAINAGE SYSTEM

ASTRAL Foamcore® PVC PIPE
FOR DWV & UNDERGROUND SYSTEMS

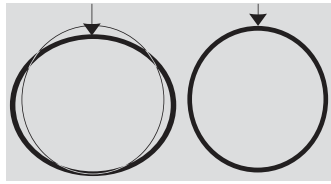
STRONG & LIGHTWEIGHT DRAINAGE SYSTEM WITH A PVC FOAM LAYER

WHAT ARE FOAMCORE PIPES?

Foamcore pipes are multilayer pipes having outer and inner layers of conventional PVC and middle layer of foamed PVC. Outer and inner layers are designed to withstand the load and middle layer of foamed PVC gives rigidity and maintains the shape of the pipe under the load. It reduces the total weight of the pipe and makes it light when compared to solid wall PVC pipes.

WHY FOAMCORE PIPES?

The pipe on the left is typical of solid wall PVC under the load and the type of distortion normally expected. The Foamcore pipe on the right, under equal load, distributes the load more evenly and does not show the same amount of distortion, as it has unique "I-Beam" structure. Due to its ability of absorbing the load, Foamcore pipes are the most suitable for underground drainage systems, where soil exerts a lot of pressure on the pipe surfaces. In solid wall pipes this soil pressure will rupture the pipe after some time where Foamcore pipes give better life as foamed PVC layer will absorb pressure and make pipes "stress free" in working conditions.



Solid Wall PVC Pipe *Foamcore PVC Pipe*

PRODUCT STANDARDS

Astral Foamcore pipes are manufactured as per Indian, European and International standards published under structure wall pipes for drainage as well as sewerage and are mainly based on stiffness classes. These specifications are very well adopted at global levels and are in use for more than 25 years.

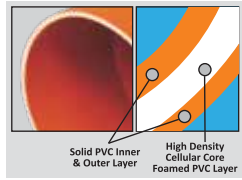
IS:16098 (Part-1)

ONLY THOSE PRODUCTS BEARING THE ABOVE MARKS ARE CERTIFIED

UNIQUE FEATURES AND BENEFITS

"Foamcore" uPVC pipes are suitable for residential and commercial drain, waste & vent piping systems for both underground and above ground applications with top quality raw materials and state-of-the art processing technology, Astral Foamcore pipes meet all industrial standards in addition to our rigorous quality control standards.

- Lightweight & strong • Wide range & compatibility • Easy to install
- Maximum flow rate • Longer service life • Cost saving
- Chemical and corrosion resistance • Non-toxicity • Non-conductor



FIELDS OF APPLICATIONS

Drain and sewer systems in residences, commercial complexes, resorts, hospitals, academic institutes, industries etc.

PRODUCT RANGE

Astral Foamcore pipes are available in 110 mm to 315 mm size, selfit and ringfit types with different stiffness classes mainly categorised as SN2, SN4 & SN8.

SN2 pipes are recommended for above ground applications while SN4 & SN8 pipes are recommended for below ground applications depending on the level at which these pipes have to be installed.

- OD 110 mm (11.0 cm) with stiffness class SN4 (SDR 41) & SN8 (SDR 34)
- OD 160 mm (16.0 cm), 200 mm (20.0 cm), 250 mm (25.0 cm) & 315 mm (31.5 cm) with stiffness class SN2 (SDR 51), SN4 (SDR 41) & SN8 (SDR 34)

RINGFIT PIPES

Ringfit pipes are socketed on the automatic online socketing machine with a very high degree of accuracy. The socket has groove inside for rubber ring. The rubber ring ensures trouble-free watertight joint with allowance to thermal expansion / contraction. One end of the pipe is plain and another is self socketed with an integral groove to hold the rubber ring. When joined with a rubber ring, the joint formed is a trouble-free, watertight, ready to take care of thermal expansion / contraction.

Available Sizes: 110 mm & 160 mm

SELFIT PIPES

Selfit pipes are socketed on the automatic socketing machine with self socket length (without groove). Such pipes are to be joined with solvent cement. One end of the pipe is plain and the another is self socketed on sophisticated automatic machines for a high degree of accurate diameters. When joined using solvent cement, the pipes form a permanent watertight joint.

Available Sizes: 110 mm, 160 mm, 200 mm, 250 mm & 315 mm

NOMINAL RING STIFFNESS (SN) (kN/m2)	2	4	8
DIMENSION RATIO (SDR)	51	41	34
NOMINAL DIAMETER (DN) (mm)	Wall Thickness (mm)		
110	-	2.7 + 0.5	3.2 + 0.5
160	3.2 + 0.5	4.0 + 0.6	4.7 + 0.7
200	3.9 + 0.6	4.9 + 0.7	5.9 + 0.8
250	4.9 + 0.7	6.2 + 0.8	7.3 + 1.0
315	6.2 + 0.8	7.7 + 1.0	9.2 + 1.2

A consumer validated ***Superbrand in piping*** *category for* ***consecutive 4 years***

India's Most Trusted *Pipe Brand based on* ***TRA's Brand Trust Report for the 5th time***

India's Most Desired *Brand based on* ***TRA's Brand Trust Report*** *2022*

ASTRAL PIPES

ASTRAL TOLL FREE
1800 233 7957

Please get in touch with us between
10 AM to 6 PM between Monday to Friday
and the last Saturday of the month.
We will remain closed on Public Holidays.

ISO 9001 CERTIFIED COMPANY

Astral Limited
CIN: L25200GJ1996PLC029134
Registered & Corporate Office:
207/1, 'Astral House', B/h Rajpath Club, off S. G. Highway,
Ahmedabad - 380059, Gujarat, India. P: +91 79 6621 2000
E: sales@astralltd.com | For Export: export@astralltd.com
W: astralltd.com

Authorised Dealer:

AFC/LT/001 | REV:08/2022 | SC: PR07000025