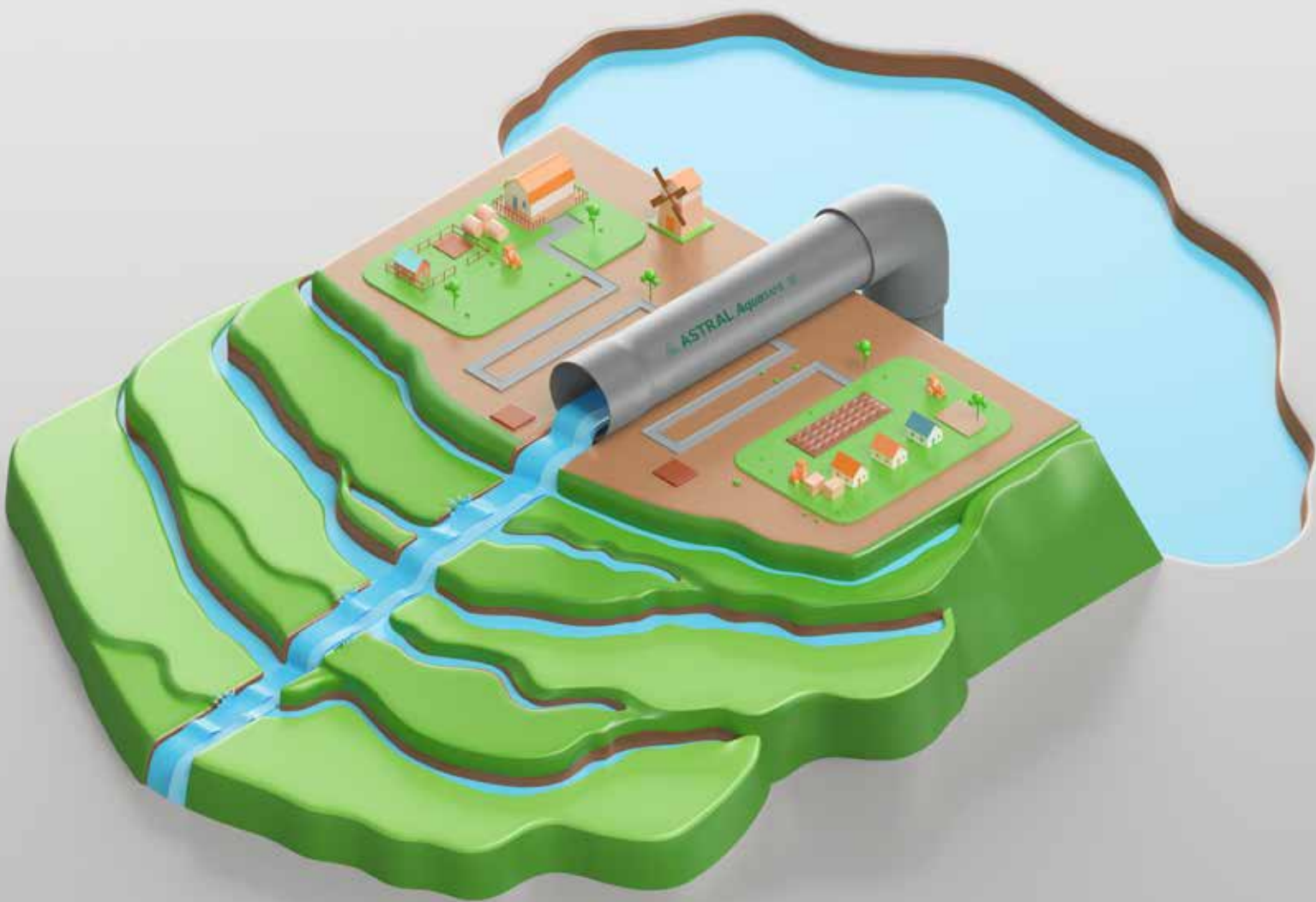


AquasAFE[®]

uPVC PRESSURE PIPING
SYSTEM FOR POTABLE
WATER TRANSPORT AND
AGRICULTURE

PRODUCT CATALOGUE



IS:4985

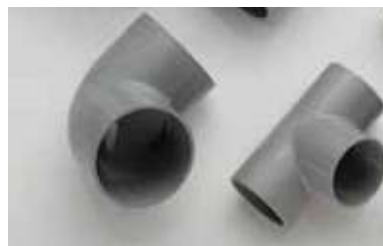


IS:7834



ONLY THOSE PRODUCTS BEARING
THE ABOVE MARKS ARE CERTIFIED

CONTENTS



03

ABOUT ASTRAL

04

INNOVATION &
RECOGNITIONS

05

MARKETING
NETWORK

06

ABOUT
AQUASAFE

07

WHY ASTRAL
AQUASAFE,
APPLICATIONS &
FEATURES

08

KEY PROPERTIES

09

TECHNICAL
SPECIFICATION

11

AVAILABILITY
OF PIPES

12

PRODUCT
RANGE

37

SYSTEM SELECTION
AND INSTALLATION
GUIDE

39

AIR VALVE SELECTION
AND INSTALLATION

40

TRENCH
PREPARATION

41

SELFIT & RINGFIT
INSTALLATION
PROCEDURE

42

APPROX. NO. OF
JOINTS &
TESTING PRESSURE
SYSTEM

43

HANDLING
INSTRUCTIONS

44

DO'S & DON'TS

45

CLIENT LIST

**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**



DHOLKA, GUJARAT

GHILOTH, RAJASTHAN

HOSUR, TAMIL NADU

SANTEJ, GUJARAT

**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, 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 Rex 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 will manufacture water tanks from its Santej manufacturing facility in early 2021. The new addition in the product offering will help Astral author a next chapter of success and will establish it as a prominent player in building materials industry.

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





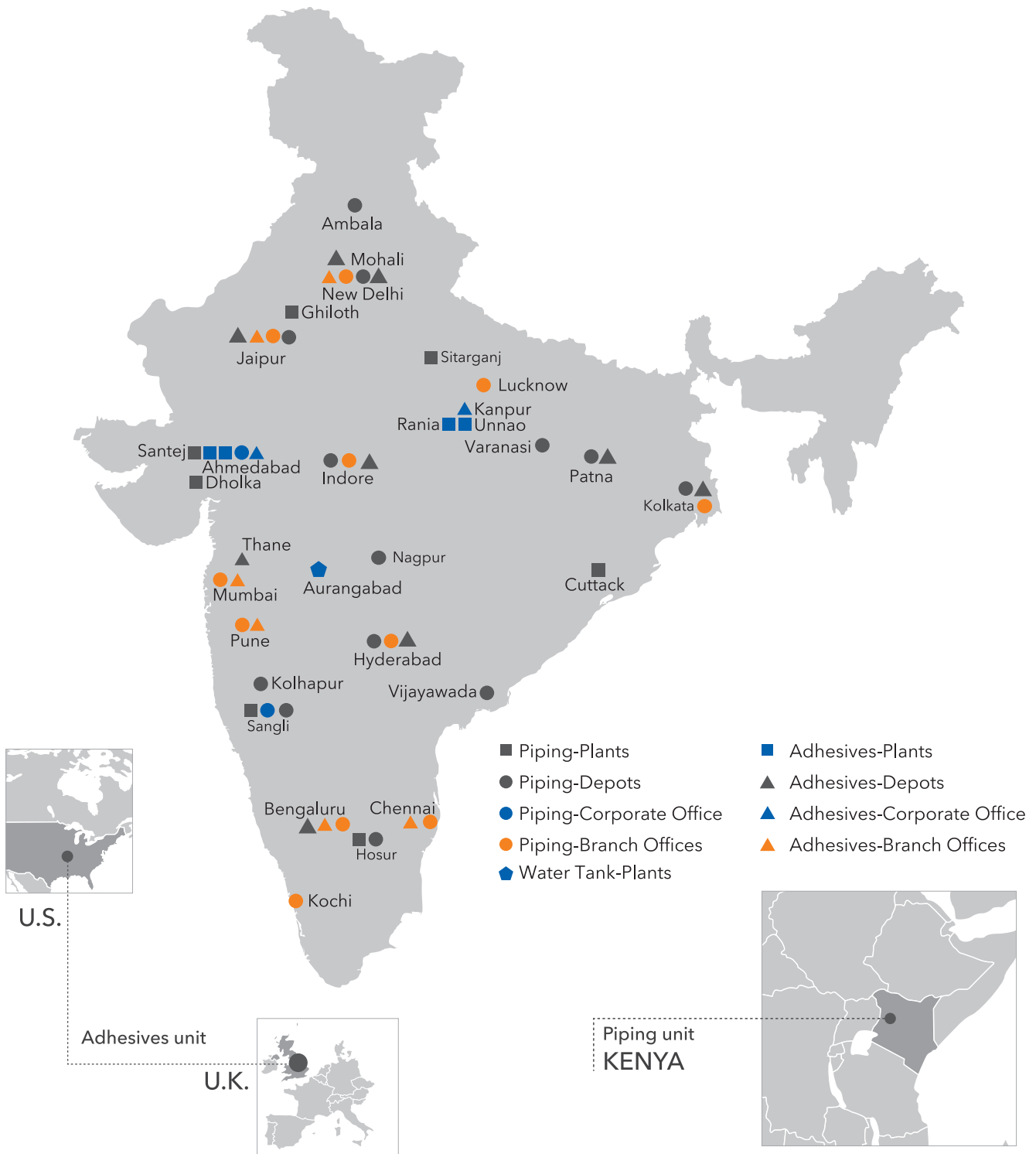
INNOVATION & RECOGNITIONS

- 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.





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 (elastomeric seal ring). ASTRAL Aquasafe[®] pipes and fittings can be joined together by ASTRAL uPVC solvent cement or elastomeric seal ring.

ASTRAL Aquasafe[®] fittings are manufactured as per IS : 7834 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/cm²) to Class 6 (12.5 kgf/cm²). 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., HDPE pipes 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 Elasticity 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 Temperature at 66 PSI	80 °C	D 648
Flame Resistance	Self extinguishing. uPVC does not support combustion 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

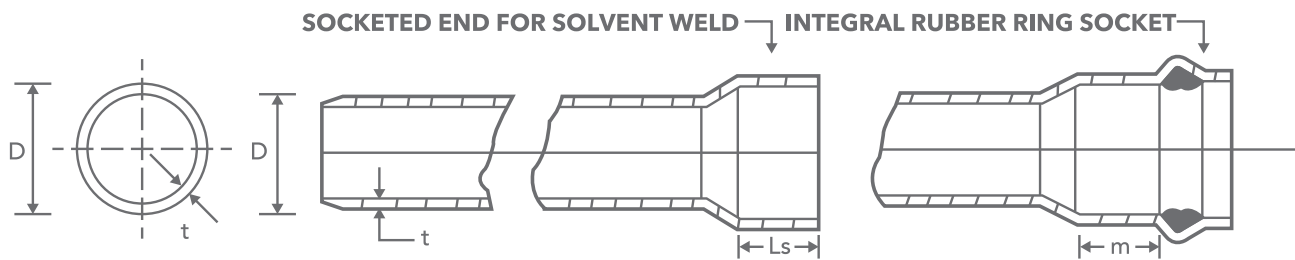
Above data is based upon information provided by the raw material manufacturers. It should be used only as a recommendation and not as a guarantee of performance.

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 ENGAGEMENT FOR ELASTOMERIC RING SOCKET

NOMINAL SIZE (D) (mm)	MINIMUM DEPTH OF ENGAGEMENT (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/cm ²		Class 2 (PN) 4 kgf/cm ²		Class 3 (PN) 6 kgf/cm ²		Class 4 (PN) 8 kgf/cm ²		Class 5 (PN) 10 kgf/cm ²		Class 6 (PN) 12.5 kgf/cm ²		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	200	+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	225	+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	250	+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	280	+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	315	+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	355	+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	400	+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	
																					
2.5 kgf/cm ²								●	●	●	●	●	●	●	●	●	●	●	●	●	●
4 kgf/cm ²						●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
6 kgf/cm ²				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
8 kgf/cm ²		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
10 kgf/cm ²	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
12.5 kgf/cm ²	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
16 kgf/cm ² (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/cm ²	3 / 5 / 6 mtr
GR	75	4 / 6 / 10 kgf/cm ²	3 / 5 / 6 mtr
GR	90	4 / 6 / 10 kgf/cm ²	3 / 5 / 6 mtr
GR	110	4 / 6 / 10 kgf/cm ²	3 / 5 / 6 mtr
GR	125	4 / 6 / 10 kgf/cm ²	3 / 5 / 6 mtr
GR	140	4 / 6 / 10 kgf/cm ²	3 / 5 / 6 mtr
GR	160	4 / 6 / 10 kgf/cm ²	3 / 5 / 6 mtr
GR	180	4 / 6 / 10 kgf/cm ²	3 / 5 / 6 mtr
GR	200	4 / 6 / 10 kgf/cm ²	3 / 5 / 6 mtr
GR	225	4 / 6 / 10 kgf/cm ²	3 / 5 / 6 mtr
GR	250	4 / 6 / 10 kgf/cm ²	3 / 5 / 6 mtr
GR	280	4 / 6 / 10 kgf/cm ²	3 / 5 / 6 mtr
GR	315	4 / 6 / 10 kgf/cm ²	3 / 5 / 6 mtr
GR	355	4 / 6 / kgf/cm ²	3 / 5 / 6 mtr
GR	400	4 / 6 / kgf/cm ²	3 / 5 / 6 mtr

PRODUCT



ASTRAL
AquaSAFE[®]



ONLY THOSE PRODUCTS BEARING
THE ABOVE MARKS ARE CERTIFIED

RANGE

AQUASAFE SOLVENT FITTED PIPES

FOR AGRICULTURE & WATER SUPPLY, CONFORMING TO IS:4985



3 MTR. PIPE

Size (cm)	Size (inch)	Product Code (2.5 kgf/cm ²)	Product Code (4 kgf/cm ²)	Product Code (6 kgf/cm ²)	Product Code (8 kgf/cm ²)	Product Code (10 kgf/cm ²)	Product Code (12.5 kgf/cm ²)	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 MTR. PIPE

Size (cm)	Size (inch)	Product Code (2.5 kgf/cm ²)	Product Code (4 kgf/cm ²)	Product Code (6 kgf/cm ²)	Product Code (8 kgf/cm ²)	Product Code (10 kgf/cm ²)	Product Code (12.5 kgf/cm ²)	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 MTR. PIPE

Size (cm)	Size (inch)	Product Code (2.5 kgf/cm ²)	Product Code (4 kgf/cm ²)	Product Code (6 kgf/cm ²)	Product Code (8 kgf/cm ²)	Product Code (10 kgf/cm ²)	Product Code (12.5 kgf/cm ²)	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	-



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



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

AQUASAFE SOLVENT FITTED MOULDED FITTINGS



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
6.3	2	M092040106	60
7.5	2½	M092040107	60
9.0	3	M092040108	25
11.0	4	M092040109	20
16.0	6	M092040112	05
20.0	8	M092040114	03



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
6.3	2	M092040506	100
7.5	2½	M092040507	65
9.0	3	M092040508	40
11.0	4	M092040509	20
16.0	6	M092040512	08
20.0	8	M092040514	04

AQUASAFE SOLVENT FITTED MOULDED FITTINGS (4 KGF/CM²)

ASTRAL
AquaSAFE[®]



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
5.0	1½	M092040505	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



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
5.0	1½	M092040105	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



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



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
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



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
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



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
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

AQUASAFE SOLVENT FITTED MOULDED FITTINGS (6 KGF/CM²)



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
4.0	1¼	M092061004	280
5.0	1½	M092061005	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



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
4.0	1¼	M092062304	150
5.0	1½	M092062305	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



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
4.0	1¼	M092060504	180
5.0	1½	M092060505	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



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
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



Size (cm x inch)	Product Code	Std. Pkg. (Nos.)
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



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
4.0	1¼	M092060104	120
5.0	1½	M092060105	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



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
6.3 x 7.5	2 x 2½	M092065036	60



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
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



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
4.0 x 2.0	1¼ x ½	M092064793	100
4.0 x 2.5	1¼ x ¾	M092064792	77
4.0 x 3.2	1¼ x 1	M092064791	73
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	36
7.5 x 6.3	2½ x 2	M092064736	40

AQUASAFE SOLVENT FITTED MOULDED FITTINGS (6 KGF/CM²)



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
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



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



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



Size (cm x inch)	Product Code	Std. Pkg. (Nos.)
4.0 x 1¼	M092061304	350
5.0 x 1½	M092061305	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



Size (cm x inch)	Product Code	Std. Pkg. (Nos.)
4.0 x 1¼	M092061604	280
5.0 x 1½	M092061605	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



Size (cm x inch)	Product Code	Std. Pkg. (Nos.)
4.0 x ¾	M092064692	250
4.0 x 1	M092064691	300
5.0 x 1	M092064605	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



Size (cm x inch)	Product Code	Std. Pkg. (Nos.)
4.0 x 1¼	M092064504	300
5.0 x 1½	M092064505	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



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
4.0	1¼	M092062904	560
5.0	1½	M092062905	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



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
5.0 x 2.5	1½ x ¾	M092060295	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
20.0 x 16.0	8 x 6	M092060247	04

AQUASAFE SOLVENT FITTED MOULDED FITTINGS (6 KGF/CM²)



Size (cm x inch)	Product Code	Std. Pkg. (Nos.)
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	09
11.0 x 4	M092060419	14



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



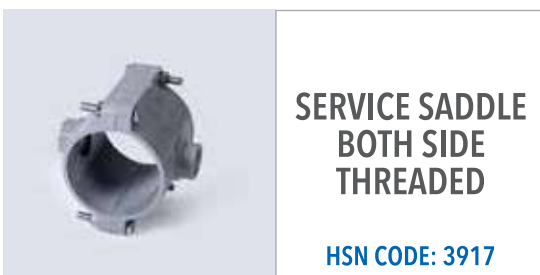
Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
4.0 x 2.5	1½ x ¾	M092061992	400
4.0 x 3.2	1½ x 1	M092061991	700
5.0 x 3.2	1½ x 1	M092061994	400
5.0 x 4.0	1½ x 1½	M092061941	350
6.3 x 4.0	2 x 1½	M092061940	150
6.3 x 5.0	2 x 1½	M092061939	150
7.5 x 4.0	2½ x 1½	M092061938	90
7.5 x 5.0	2½ x 1½	M092061937	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



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
4.0 x 2.5	1½ x ¾	M092061192	300
4.0 x 3.2	1½ x 1	M092061191	350
5.0 x 3.2	1½ x 1	M092061194	210
5.0 x 4.0	1½ x 1½	M092061141	150
6.3 x 3.2	2 x 1	M092061165	140
6.3 x 4.0	2 x 1½	M092061140	120
6.3 x 5.0	2 x 1½	M092061139	125
7.5 x 4.0	2½ x 1½	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



Size (cm x inch)	Product Code	Std. Pkg. (Nos.)
5.0 x 1/2	M092064296	64
5.0 x 3/4	M092064295	60
5.0 x 1	M092064294	64
6.3 x 1/2	M092064263	52
6.3 x 3/4	M092064264	52
6.3 x 1	M092064265	52
7.5 x 1/2	M092064266	36
7.5 x 3/4	M092064267	36
7.5 x 1	M092064268	36
9.0 x 1/2	M092064269	32
9.0 x 3/4	M092064270	26
9.0 x 1	M092064271	26
11.0 x 1/2	M092064273	24
11.0 x 3/4	M092064274	24
11.0 x 1	M092064275	24
14.0 x 1/2	M092064276	18
14.0 x 3/4	M092064277	18
14.0 x 1	M092064278	18
16.0 x 1/2	M092064279	14
16.0 x 3/4	M092064280	14
16.0 x 1	M092064281	14
20.0 x 1	M092064286	08
20.0 x 1 1/4	M092064287	08
20.0 x 1 1/2	M092064288	08
20.0 x 2	M092064289	08



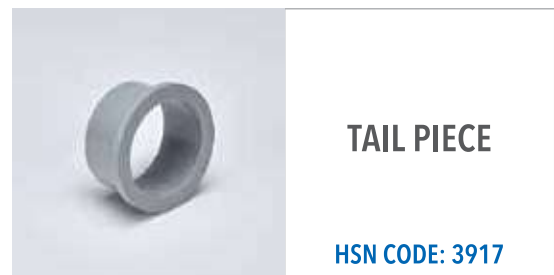
Size (cm x inch)	Product Code	Std. Pkg. (Nos.)
9.0 x 3/4	M092064970	16
9.0 x 1	M092064971	16



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
6.3	2	M092063206	30
7.5	2 1/2	M092063207	20
9.0	3	M092063208	14
11.0	4	M092063209	10



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
6.3	2	M092063506	100
7.5	2 1/2	M092063507	72
9.0	3	M092063508	63
11.0	4	M092063509	35



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
6.3	2	M092064206	105
7.5	2 1/2	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)



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
2.0	½	M092101001	800
2.5	¾	M092101002	500
3.2	1	M092101003	450
4.0	1¼	M092101004	280
5.0	1½	M092101005	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	12



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
2.0	½	M092100501	700
2.5	¾	M092100502	400
3.2	1	M092100503	350
4.0	1¼	M092100504	200
5.0	1½	M092100505	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



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



Size (cm x inch)	Product Code	Std. Pkg. (Nos.)
2.0 x ½	M092100811	600
2.5 x ½	M092100812	400
2.5 x ¾	M092100814	500
3.2 x ½	M092100813	450



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



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



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
2.0	½	M092100101	700
2.5	¾	M092100102	400
3.2	1	M092100103	200
4.0	1¼	M092100104	120
5.0	1½	M092100105	75
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



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
2.5 x 2.0	¾ x ½	M092100242	420
3.2 x 2.0	1 x ½	M092100257	270
3.2 x 2.5	1 x ¾	M092100258	240
4.0 x 2.5	1¼ x ¾	M092100292	150
4.0 x 3.2	1¼ x 1	M092100291	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



Size (cm x inch)	Product Code	Std. Pkg. (Nos.)
2.0 x ½	M092100411	400
2.5 x ½	M092100412	400
2.5 x ¾	M092100414	350
3.2 x ½	M092100413	270



Size (cm x inch)	Product Code	Std. Pkg. (Nos.)
2.0 x ½	M092101301	1050
2.5 x ¾	M092101302	600
3.2 x 1	M092101303	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



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

AQUASAFE SOLVENT FITTED MOULDED FITTINGS (10 KGF/CM²)



Size (cm x inch)	Product Code	Std. Pkg. (Nos.)
2.0 x ½	M092101601	1200
2.5 x ¾	M092101602	500
3.2 x 1	M092101603	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



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



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



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

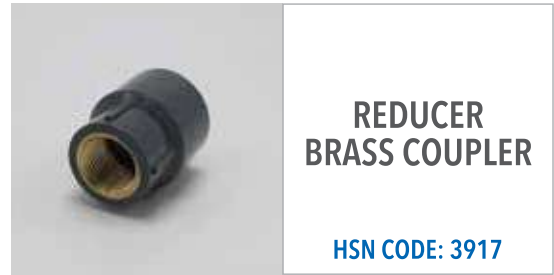


Size (cm x inch)	Product Code	Std. Pkg. (Nos.)
2.0 x ½	M092104501	1400
2.5 x ¾	M092104502	1000
3.2 x 1	M092104503	875

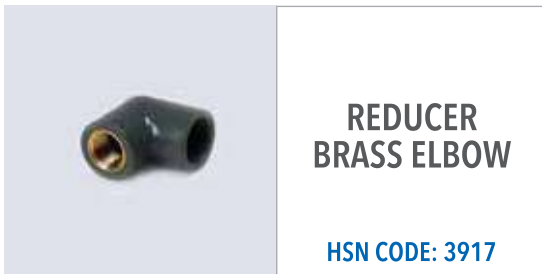
AQUASAFE SOLVENT FITTED MOULDED FITTINGS (16 KGF/CM²)



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



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



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

AQUASAFE SOLVENT FITTED FABRICATED FITTINGS (2.5 KGF/CM²)



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
31.5	12	F092002518Y	As Req.

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

AQUASAFE SOLVENT FITTED FABRICATED FITTINGS (4 KGF/CM²)



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
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	As Req.
20.0	8	F092041014	As Req.
22.5	9	F092041015	As Req.
25.0	10	F092041016	As Req.
31.5	12	F092041018	As Req.
40.0	16	F092041020	As Req.



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



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
6.3	2	F092041006E	As Req.
7.5	2½	F092041007E	As Req.
9.0	3	F092041008E	As Req.
11.0	4	F092041009E	As Req.



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
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	As Req.
18.0	7	F092044313	As Req.
20.0	8	F092044314	As Req.
22.5	9	F092044315	As Req.
25.0	10	F092044316	As Req.
31.5	12	F092044318	As Req.



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
31.5	12	F092000418Y	As Req.



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
16.0	6	F092041212Y	As Req.



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



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

AQUASAFE SOLVENT FITTED FABRICATED FITTINGS (6 KGF/CM²)



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



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
11.0 x 5.0	4 x 1½	F091060244	As Req.
18.0 x 11.0	7 x 4	F092060913T	As Req.
20.0 x 11.0	8 x 4	F092060914T	As Req.
20.0 x 16.0	8 x 6	F092061214T#	As Req.
22.5 x 11.0	9 x 4	F092060915T	As Req.
25.0 x 11.0	10 x 4	F092060916T	As Req.
28.0 x 5.0	11 x 1½	F092060517T	As Req.
28.0 x 11.0	11 x 4	F092060917T	As Req.
31.5 x 11.0	12 x 4	F092060918T	As Req.



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
16.0	6	F092060012CT	As Req.
20.0	8	F092060014CT#	As Req.



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



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
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
14.0	5	F092060511	As Req.
16.0	6	F092060512	As Req.
18.0	7	F092060513	As Req.
20.0	8	F092060514	As Req.
22.5	9	F092060515	As Req.
25.0	10	F092060516	As Req.
28.0	11	F092060517	As Req.
31.5	12	F092060518	As Req.



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
16.0	6	F092061212Y	As Req.
20.0	8	F092060014DY	As Req.



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
11.0 x 4.0	4 x 1¼	F092060409A	As Req.



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



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
7.5 x 4.0	2½ x 1¼	F092060407HR	As Req.



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
16.0	6	F092060012Y	As Req.
20.0	8	F092060014Y	As Req.
25.0	10	F092060016Y	As Req.
31.5	12	F092060018Y	As Req.

AQUASAFE SOLVENT FITTED FABRICATED FITTINGS (6 KGF/CM²)



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
7.5 x 6.3	2½ x 2	F092060607Y	As Req.
20.0 x 7.5	8 x 2½	F092060714Y	As Req.
20.0 x 11.0	8 x 4	F092060914Y	As Req.
20.0 x 16.0	8 x 6	F092061214Y	As Req.
25.0 x 11.0	10 x 4	F092060916Y	As Req.
25.0 x 20.0	10 x 8	F092061416Y	As Req.
25.0 x 16.0	10 x 6	F092061216Y	As Req.
31.5 x 16.0	12 x 6	F092061218Y	As Req.
31.5 x 20.0	12 x 8	F092061418Y	As Req.
31.5 x 25.0	12 x 10	F092061618Y	As Req.



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
20.0 x 11.0	8 x 4	F092060914R	As Req.
25.0 x 11.0	10 x 4	F092060916R	As Req.
25.0 x 20.0	10 x 8	F092061416R	As Req.
28.0 x 20.0	11 x 8	F092061417R	As Req.
28.0 x 25.0	11 x 10	F092061617R	As Req.
31.5 x 20.0	12 x 8	F092061418R	As Req.

FABRICATED FITTINGS (10 KGF/CM²)



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
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	As Req.
20.0	8	F092101014	As Req.
22.5	9	F092101015	As Req.
25.0	10	F092101016	As Req.
28.0	11	F092101017	As Req.
31.5	12	F092101018	As Req.
40.0	16	F182105220	As Req.



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
16.0 x 11.0	6 x 4	F092100912Y	As Req.
16.0 x 16.0	6 x 6	F092101212Y	As Req.
20.0 x 16.0	8 x 6	F092101214Y	As Req.



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
16.8 x 16.0	6 x 6	F0921016812A	As Req.

AQUASAFE SOLVENT FITTED FABRICATED FITTINGS (10 KGF/CM²)



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



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
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

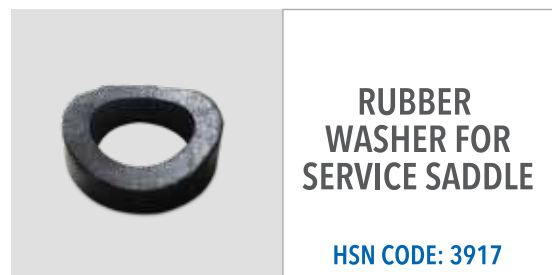
S - Short length bend



Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
20.0	8	F09201014T	As Req.



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



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

AQUASAFE PIPES

ELASTOMERIC SEALING RING PIPE



3 MTR. PIPE

Size (cm)	Size (inch)	Product Code (4 kgf/cm ²)	Product Code (6 kgf/cm ²)	Product Code (8 kgf/cm ²)	Product Code (10 kgf/cm ²)	Product Code (12.5 kgf/cm ²)
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 MTR. PIPE

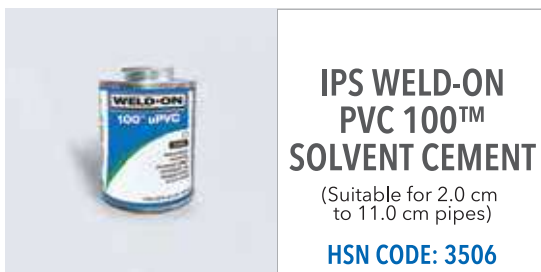
Size (cm)	Size (inch)	Product Code (4 kgf/cm ²)	Product Code (6 kgf/cm ²)	Product Code (8 kgf/cm ²)	Product Code (10 kgf/cm ²)	Product Code (12.5 kgf/cm ²)
6.3	2	M261040506	M261060506	M261080506	M261100506	M261125506
7.5	2½	M261040507	M261060507	M261080507	M261100507	M261125507
9.0	3	M261040508	M261060508	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	-	-	-



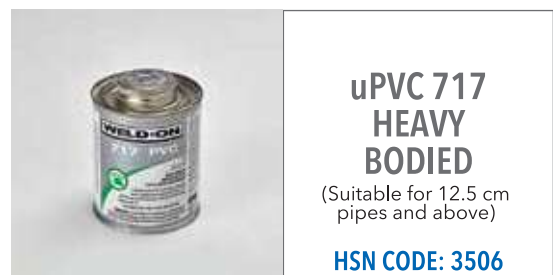
6 MTR. PIPE

Size (cm)	Size (inch)	Product Code (4 kgf/cm ²)	Product Code (6 kgf/cm ²)	Product Code (8 kgf/cm ²)	Product Code (10 kgf/cm ²)	Product Code (12.5 kgf/cm ²)
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



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



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



**IPS WELD-ON
PRIMER P70**

(Suitable for 12.5 cm pipes and above)

HSN CODE: 3506

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



**BONDSET
FAST SETTING**

HSN CODE: 3214

Qty. (gm)	Product Code	Std. Pkg. (Nos.)
50	BONDSETFS-50	As Req.
100	BONDSETFS-100	As Req.



**PIPE JOINT
LUBRICANT**

HSN CODE: 3403

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



**PTFE TAPE
(12 MM WIDTH)**

HSN CODE: 3919

Size (Mtr.)	Product Code	Std. Pkg. (Nos.)
5	PTFE-1205	As Req.
10	PTFE-1210	As Req.
20	PTFE-1220	As Req.



RESCUE TAPE

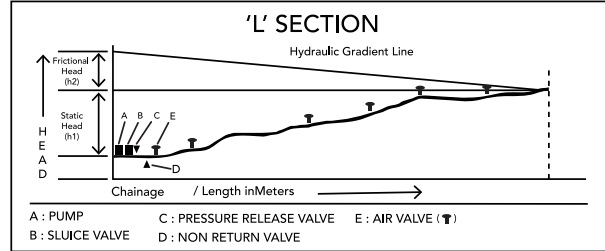
HSN CODE: 3919

Size (Ft.)	Product Code	Std. Pkg. (Nos.)
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

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 referred 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

D : Internal diameter of pipe in mm

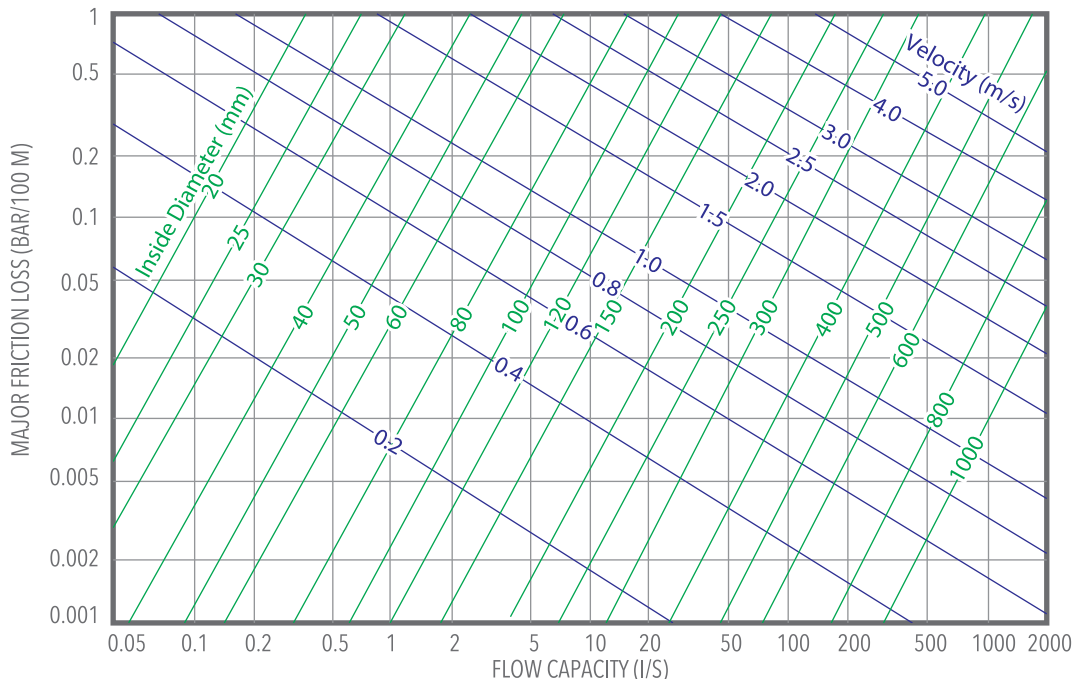
L : Length of pipe section in m

C : Hazen William constant 150

Q : Discharge in liters / sec

(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 η

Where, η = 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.



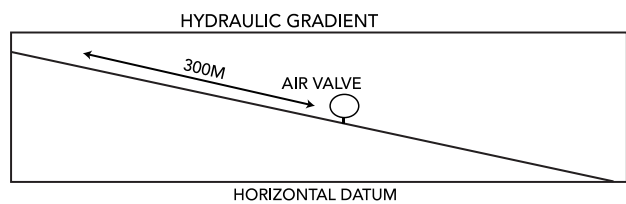
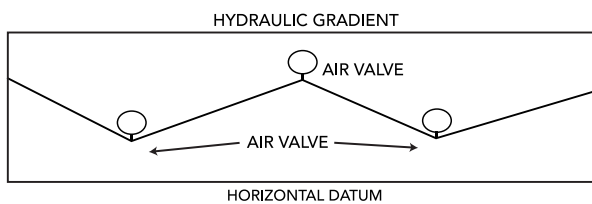
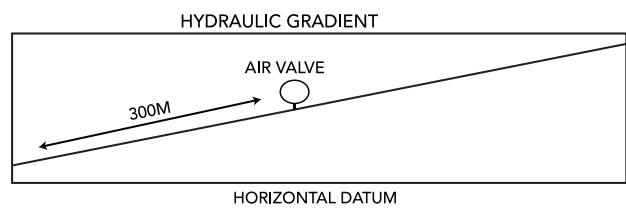
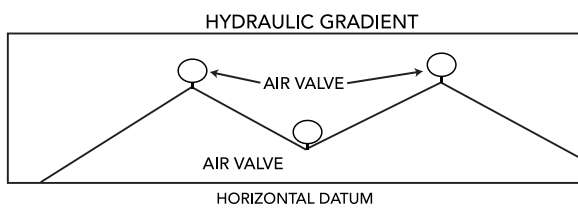
AIR VALVE SELECTION AND INSTALLATION

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 $\frac{1}{4}$ th to $\frac{1}{6}$ 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.



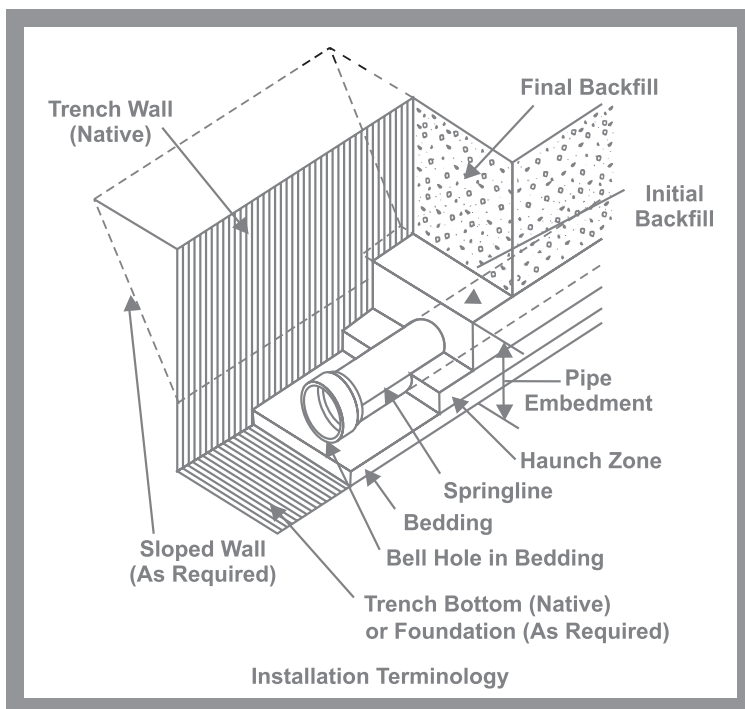
TRENCH PREPARATION

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.

SEFIT 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 perfect 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	SIZE (mm)	APPROX NO. OF JOINTS
20	354	140	36
25	270	160	27
32	225	180	25
40	180	200	15
50	130	225	12
63	125	250	09
75	103	280	07
90	79	315	05
110	54	355	03
125	45	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.

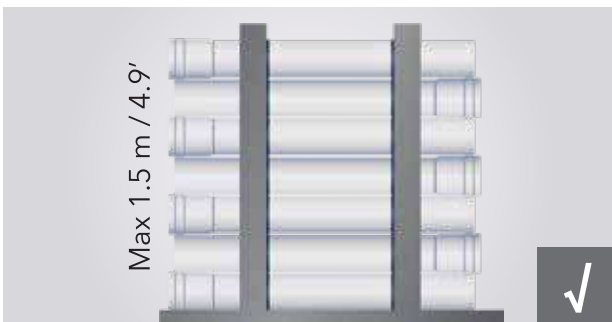
STORAGE

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 $\frac{1}{4}$ to $\frac{1}{2}$ 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

- 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.
- Finolex Plasson Industries Pvt. Ltd. - Maharashtra.
- 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





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category for
consecutive 3 years*



*India's Most Trusted
Pipe Brand based on
TRA's Brand Trust
Report for the 3rd time*

Power of Desire



*India's Most Desired
Brand based on
TRA's Brand Trust
Report 2021*

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1800 233 7957**

Please get in touch with us between
10 AM to 6 PM on Monday to Saturday - except
1st & 3rd Saturday and public holidays

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