

**BORE-WELL**  
LEAD FREE UPVC COLUMN PIPES

**CASE - WELL**  
CASING FOR BOREWELL

# uPVC BORE-WELL

## COLUMN PIPES FOR SUBMERSIBLE PUMPS

### PRODUCT CATALOGUE



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**1<sup>st</sup> TO  
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IN INDIA**

**1<sup>st</sup> TO  
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**1<sup>st</sup> TO  
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**1<sup>st</sup> 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

## WATER TANKS

## PAINTS

## 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

## FAUCETS

## SANITARYWARE





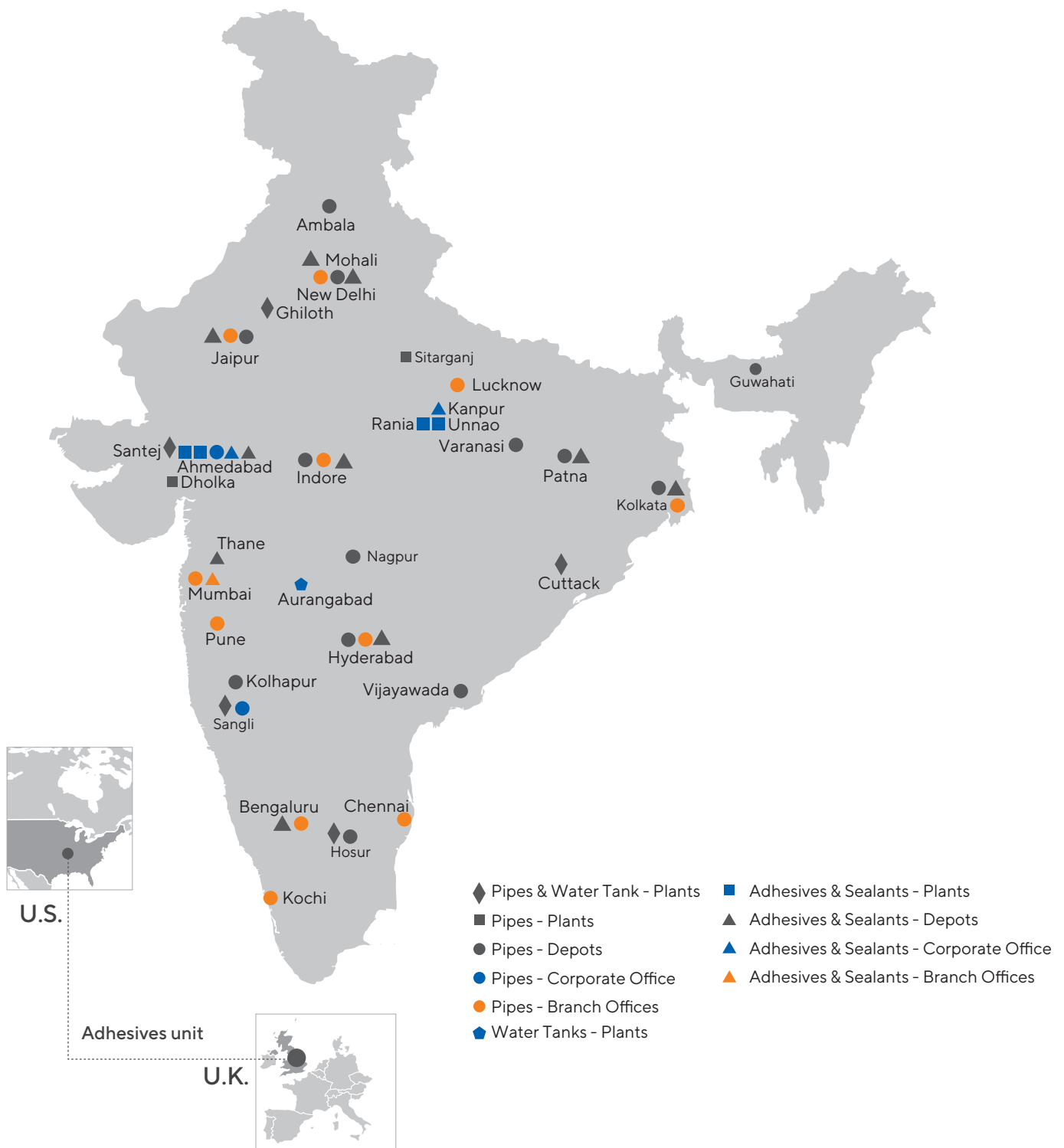
# INNOVATION & RECOGNITIONS

- 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.





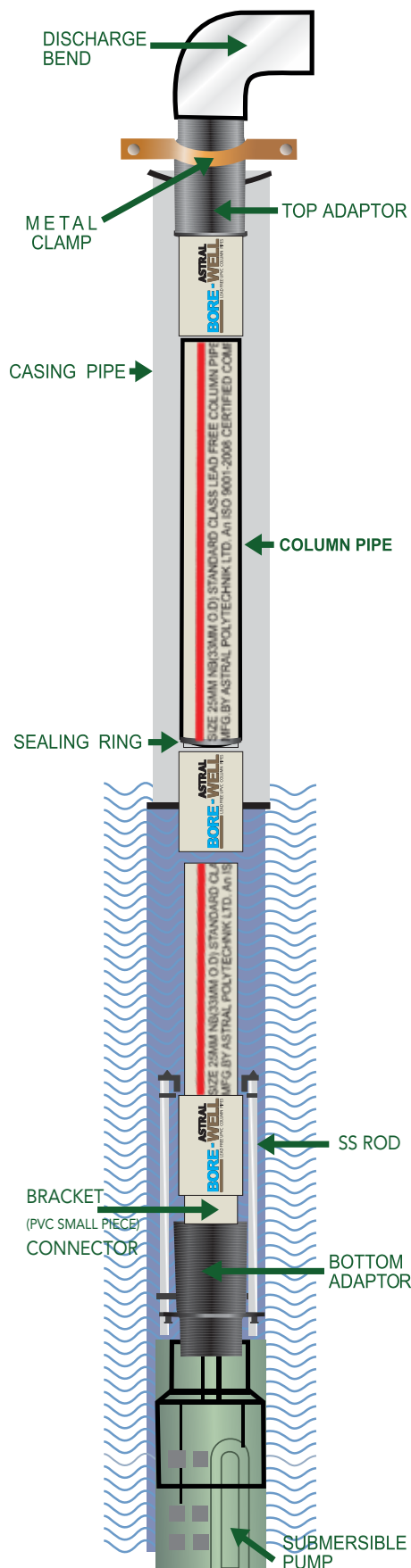
## **ABOUT** **ASTRAL** **BORE-WELL®** LEAD FREE UPVC COLUMN PIPES

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

Eco Medium, V4, V4 Bell End  
V4 Cub, V4 Eco  
Medium Bell End, Medium  
Eco Medium Plus, Standard Plus  
Crystal  
Standard  
Eco Std  
Heavy  
Super Heavy  
Heavy Plus

## PRINTING COLOR

Violet  
Grey  
Green  
Brown  
Orange  
Red  
Signal Red  
Blue  
Black  
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.



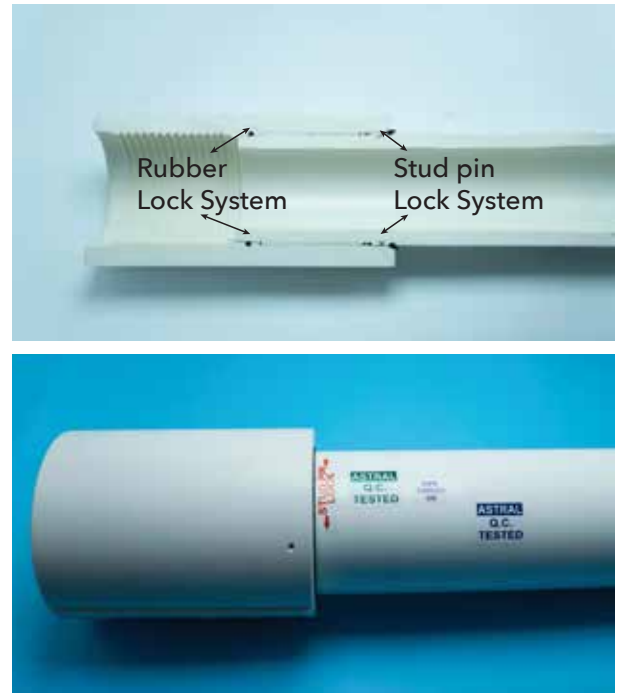
# WHY UPVC FOR COLUMN PIPES?

## 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.







# LEADING THE LEAD-FREE PIPE MOVEMENT

Lead (Pb on the Periodic Table) is one of the most naturally occurring 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 transportation 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

**LEAD WALE PANI  
SE BACHEIN LAGAEIN  
LEAD-FREE ASTRAL BORE-WELL**  
LEAD FREE UPVC COLUMN PIPES



# 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	: As per IS:4985
Hydrostatic Pressure Test	
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 <sup>3</sup>
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
<b>Long life</b>	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.
<b>Light weight</b>	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.
<b>Smooth Internal Surface</b>	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.
<b>Power Saver</b>	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.
<b>Leak proof joints</b>	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.
<b>Strong threaded joints</b>	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

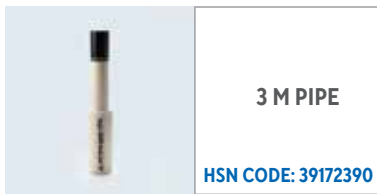


### PUMP GUARD SET 1" TO 5"



# LEAD-FREE uPVC COLUMN PIPES

## FOR SUBMERSIBLE PUMP



Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Class	Type	Product Code	Pressure (kgf/cm <sup>2</sup> )	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+	2½	*Super Heavy	Coupler	M071150314	35	07	Black

\* Pipes need to install with super heavy adaptor set only



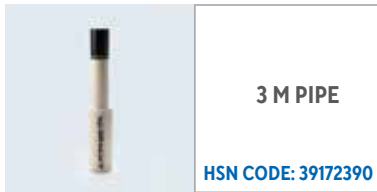
# TECHNICAL CHART

## FOR ASTRAL BORE-WELL COLUMN PIPES

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



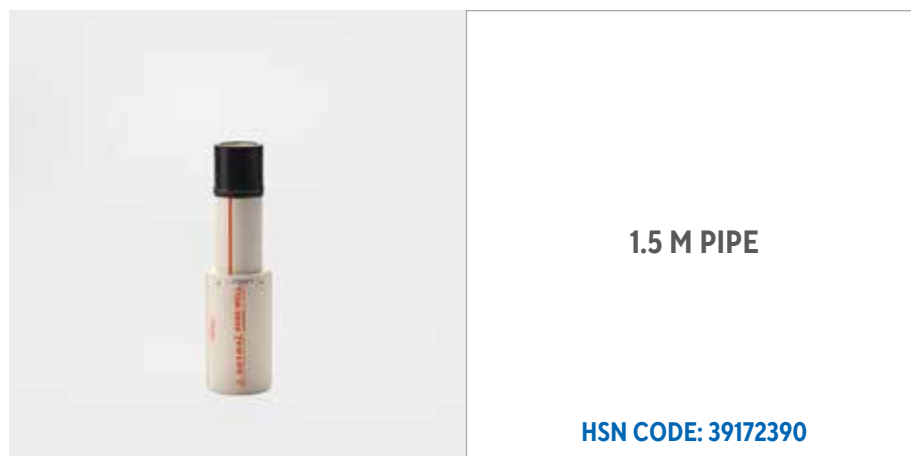
Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Class	Type	Product Code	Pressure (kgf/cm <sup>2</sup> )	Std. Pkg. (Nos.)	Stripe Colour
6.5	65	2½	Medium	Coupler	M071120307	10	10	Green
6.5	65	2½	Eco std.	Coupler	M071580307	13	10	Signal Red
6.5	65	2½	Standard	Coupler	M071130307	16	10	Red
6.5	65	2½	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

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

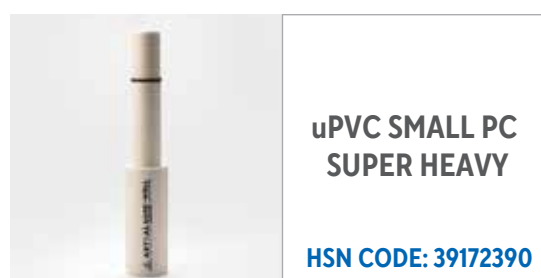


Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Class	Type	Product Code	Pressure (kgf/cm <sup>2</sup> )	Std. Pkg. (Nos.)	Stripe Colour
2.5	25	1	V4	Coupler	M071111503	12.5	25	Violet
3.2	32	1¼	V4	Coupler	M071111504	12.5	25	Violet
3.2	32	1¼	Heavy	Coupler	M071141504	35.0	15	Blue
4.0	40	1½	Standard	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 <sup>#</sup>	16.0	02	Red
12.5	125	5	Heavy	Coupler	M071141516 <sup>#</sup>	26.0	02	Blue

## ACCESSORIES FOR BORE-WELL PIPES



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



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



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



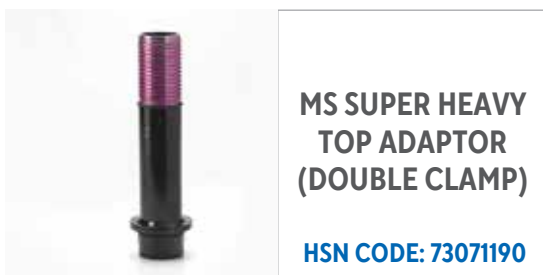
Nominal Dia (cm)	Nominal Dia (mm)	Nominal Size (inch)	Product Code
3.2	32	1¼	M071730004#
4.0	40	1½	M071730005#
5.0	50	2	M071730006#
6.5	65	2½	M071730007#
8.0	80	3	M071730008#



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



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



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



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



# 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





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	40x32	1½ x 1¼	BAR-112-114-SS
5.0x4.0	50x40	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



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



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



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



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



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



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



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



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



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



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



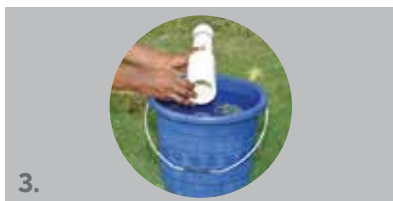
## 1. INSERT MS FLANGE

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.



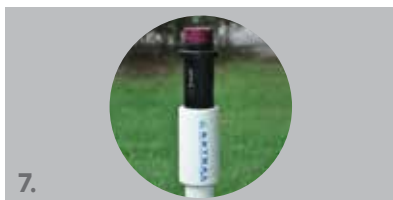
## 5. INSERT PIPES

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.

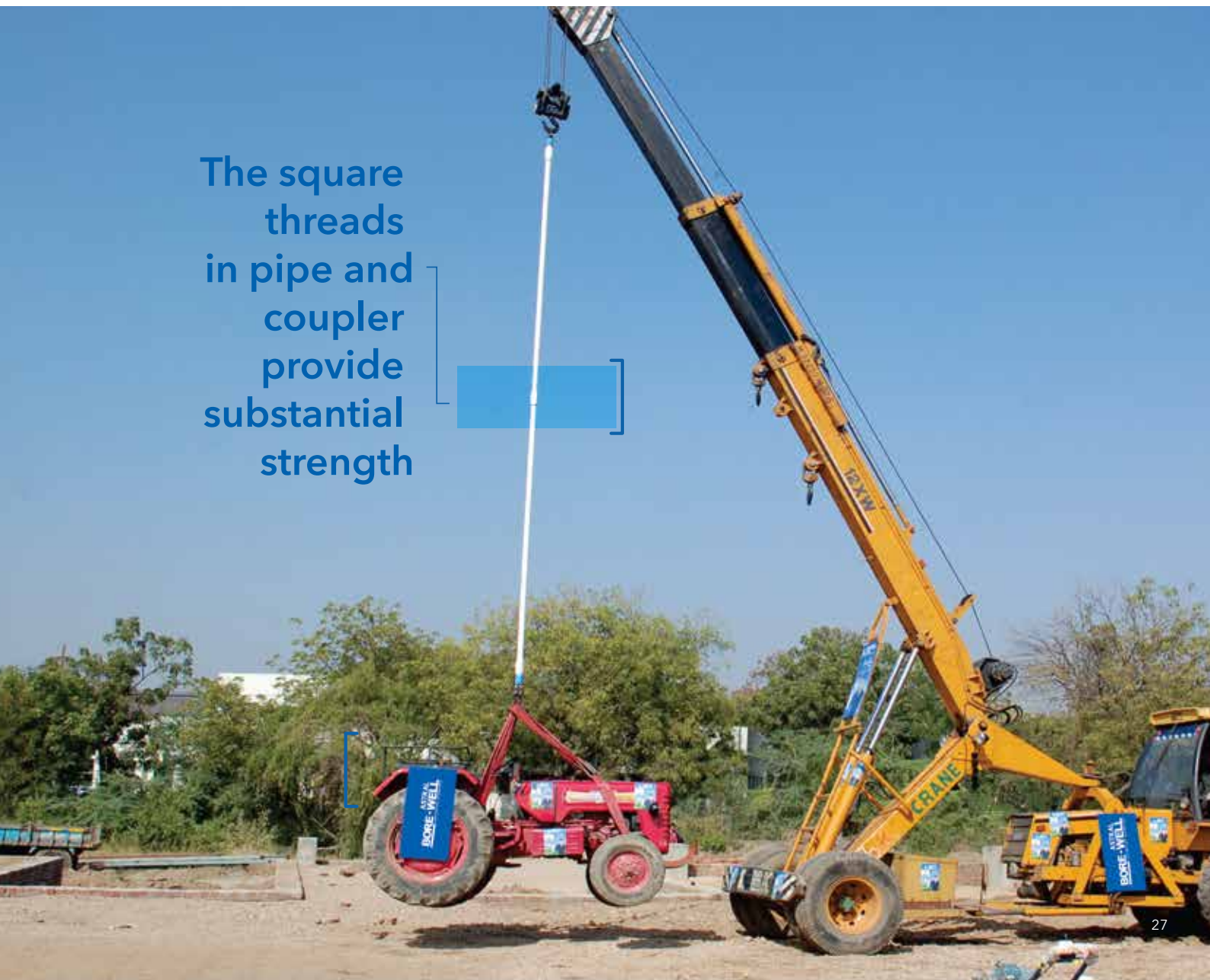
**Note:** Maintain minimum play between both Flanges while tightening the bolts to rods.



# 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.

The square threads in pipe and coupler provide substantial strength



# 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 Career 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

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



Only those products bearing the above marks are certified



# LEAD-FREE uPVC CASING PIPES FOR BOREWELL



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

## "CS" (Shallow Well)

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)		
11.5	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



# LEAD-FREE uPVC CASING PIPES 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



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 boulders 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.



*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 5<sup>th</sup> time*

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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