Complete Piping Solutions for Borewell Applications

The Supreme Industries ltd., is an acknowledged leader of India's plastic industry. It is credited with pioneering several path breaking products and has been a torch bearer in the transition from conventional to advanced plastic piping products in the country. Its customer centric approach fuels its research for designing unmatched quality products to meet the aspirations of its quality conscious customers. The innovative product portfolio offered by Supreme is extensive in range and application and comprises variety of pipes and vast spectrum of fittings totaling over 8000 diverse products.

Supreme offers variety of casing and column pipes along with the required accessories to complete the bore well system requirements in all respect. Manufactured using latest material and technology, these pipes are completely free from the problems associated with the conventional metal pipes. These pipes are rigorously tested to suit the specific application requirements. Supreme casing and column pipes offers superior performance at a lower cost which makes them the preferred choice of the quality conscious customers across the country.

Borewell

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The System

It has been observed in majority of the cases, that tube well fails due to the corrosion and encrustation problems associated with the conventional pipes. Corrosion damages the strainer screens allowing the sand particles to enter along with water while the encrustation reduces the pipe diameter as well as the effective area of the screen; making the tube well unserviceable in a short period of time. Supreme has totally eliminated these problems with its casing pipes made from specially developed PVC compounds. Additionally, Supreme casing pipes offer superior performance at a lower cost which has made these pipes a preferred choice of the customers across the country.

Supreme offers variety of pipes for bore-well applications to cater to every need of bore-well sector. The variety of pipes includes casing pipes as per IS:12818 and ASTM D:1785, ribbed screen casing pipes for tube wells, SDR casing pipe series for shallow depth applications as per company standards and plain pipes as well as screen (slotted) pipes.

Users:

Excellent results given by our products have made the Supreme uPVC casing pipes well accepted by civil engineers, drilling contractors and government/semi-government departments. They are ideal for domestic use, irrigation, industrial, public and mining wells.

Features and Benefits

Excellent corrosion resistant - Unlike metal pipes, uPVC casing pipes are completely immune to corrosion and offer good resistance to aggressive elements in the soil which could cause encrustation of well screens.

Light in weight - These pipes are light in weight which makes their transportation and installation very easy and cheaper than conventional materials.

Quick and convenient installation - These pipes can be easily assembled and installed using threaded joints. These pipes are suitable where drilling is done by hand, with light weight drilling rig or even with large capacity drilling machines.

Excellent strength and stiffness - These pipes have excellent stiffness and meet all the mechanical properties as per IS:12818. They have excellent hydrostatic collapse pressure that is capable of withstanding the external hydraulic pressure which these pipes would be subjected to during construction of the well.

Non-toxic - The material of the pipe is non-toxic and hence does not impart any taste, odour or colour to water. It also does not release any harmful substance in the water which could pose health problems. It also resists bacteria, making it completely safe for drinking water.

Non-conductive - uPVC is a non-conductor of electricity eliminating any electro chemical reaction with ground water which could cause encrustation of screens.

Long lasting – As the material is free from rusting, weathering and chemical reactions and with excellent mechanical properties, Supreme casing pipes last a lifetime.

Economical - Apart from all the advantages listed above, Supreme uPVC casing pipes and screens are the most economical bore-well solution as compared to other materials or even alternative uPVC casing pipes available in the market.

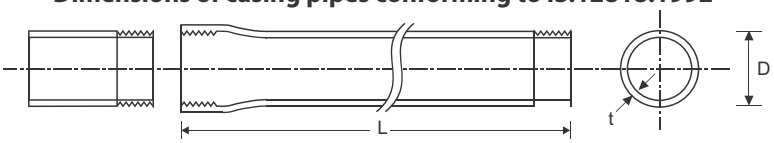
Physical Properties

Properties	Unit	Value	Method of testing
Specific gravity	g/cm^3	1.4 - 1.45	IS:13360/Part 3/Sec. 1
Compressive strength	kg/cm^2	600 - 700	ASTM D 695
Flexural strength	kg/cm^2	900 - 913	ASTM D 790
Maximum bending stress	kg/cm^2	21	----
Modulus of elasticity	kg/cm^2	2800 + 200	IS:8543 part 4/sec. 1 19840
Tensile strength	N/mm^2	50 + 5	ASTM-D 1708/DIN 534555
Vicat softening temp	0° C	76	IS:6307-1985

Casing Pipes as per IS:12818-1992

These pipes are manufactured as per BIS standards (IS:12818-1992) and are available in deep blue colour. One end of the pipe is male threaded where as other end is a female threaded socket. Threads are either 'V' type or trapezoid type and protection caps are provided on the threads to protect the threads in transit. Two types of pipes viz. Shallow Well (C.S.) and Medium Well (C.M.) are available. Shallow well pipes can be used for depths up to 80 m and medium well pipes can be used up to 250 m of depth.

Dimensions of casing pipes conforming to IS:12818:1992



Nominal Sizes	Outer Diameter (D) in mm		Wall Thickness (t) in mm		Length L (m)
	Min	Max	Min	Max	
Shallow Well - C.S. (Suitable upto 80m depth)					
#125 mm (5")	140	140.4	5.0	5.6	3
150 mm (6")	165	165.4	5.7	6.5	3
175 mm (7")	200	200.5	7.0	7.8	3
200 mm (8")	225	225.5	7.6	8.8	3
250 mm (10")	280	280.5	9.6	11.0	3
Medium Well - C.M. (Suitable upto 250m depth)					
35 mm (1¼")	42	42.2	3.5	4.0	3
40 mm (1½")	48	48.2	3.5	4.0	3/6
50 mm (2")	60	60.2	4.0	4.6	3
80 mm (3")	88	88.3	4.0	4.6	3/6
100 mm (4")	113	113.3	5.0	5.7	3/5
115 mm	125	125.3	5.0	5.7	3
125 mm (5")	140	140.4	6.5	7.3	3
150 mm (6")	165	165.4	7.5	8.5	3
175 mm (7")	200	200.5	8.8	9.8	3
200 mm (8")	225	225.5	10.0	11.2	3
#240 mm	240	240.8	11.0	12.0	3
250 mm (10")	280	280.5	12.5	14.0	3

Note: # marked pipe dimensions are as per company standards.

Casing Pipes as per ASTM D - 1785

Recently we have introduced heavy duty casing pipes as per ASTM D-1785 specifications. These pipes are available in SCH 40 and SCH 80 varieties. These pipes are strong and durable with higher stiffness as compared to IS:12818 pipes.

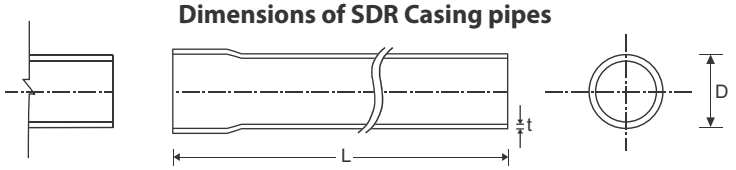
Nominal Sizes mm (inch)	Outer Diameter (mm)		Wall Thickness (mm)				Length (m)	Thread Type
			Schedule 40		Schedule 80			
	Min	Max	Min	Max	Min	Max		
40 (1½")	48.11	48.41	3.68	4.19	5.08	5.69	3/6	Fine
50 (2")	60.17	60.47	3.91	4.42	5.54	6.20	3/6	Fine
80 (3")	88.70	89.10	5.49	6.15	7.01	7.49	3/6	Fine
100 (4")	114.07	114.53	6.02	6.73	8.56	9.58	3/5	Fine
150 (6")	168.00	168.56	7.11	7.97	10.97	12.29	5/3	Square
200 (8")	218.70	219.40	8.18	9.17	12.70	14.22	5/3	Square
250 (10")	272.67	273.43	9.27	10.39	15.06	16.86	3	Square
300 (12")	323.47	324.23	10.31	11.55	17.45	19.53	3	Square

Note: Pipe length is inclusive of socket length.

SDR Casing Pipes

These economical pipes, manufactured as per company standards and are suitable for shallow depths where soil formation is favorable. Use of these pipes for a particular application needs to be examined on case to case basis. One end of the pipe is plain where as other end is socketed for solvent weld joint. These pipes are available in blue colour.

Dimensions of SDR Casing pipes

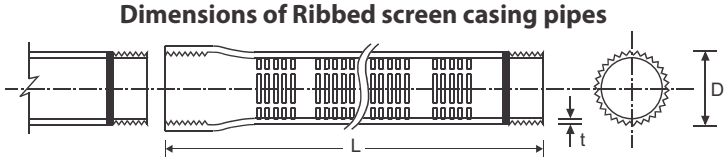


Diameter of Pipe (D) in mm	Tolerance on Outer Diameter (mm)	Wall Thickness (t) in mm		Length L (m)
		Min	Max	
SDR-35				
110	+0.4	3.10	3.50	6
140	+0.5	4.00	4.60	6
160	+0.5	4.50	4.90	6
180	+0.6	5.10	5.60	6
200	+0.6	5.70	6.30	6
SDR-52				
110	+0.4	2.10	2.40	6
140	+0.5	2.70	3.20	6
160	+0.5	3.10	3.50	6
180	+0.6	3.50	3.90	6
200	+0.6	3.80	4.30	6

Ribbed Screen Casing Pipes

These pipes are provided with 'V' shape ribs on its exterior surface. The special design of this structure with fine slots provided on the pipes, prevent entry of even small particles and hence permeability of the screen is maintained. These pipes are generally used in combined wells or used for specific soil formation where normal screen pipes do not work e.g. fine sand. These pipes are provided with male and female threaded ends.

Dimensions of Ribbed screen casing pipes

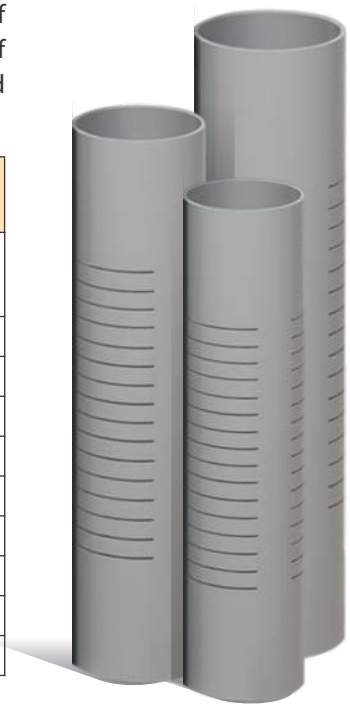


Nominal Size (mm)	Outer Diameter (D) in mm		Wall Thickness (t) in mm		Length L (m)
	Min	Max	Min	Max	
40 (1½")	52	52.2	3.5	4.0	2/3
50 (2")	64	64.2	4.0	4.6	2/3
80 (3")	92	92.3	4.0	4.6	2/3
100 (4")	117	117.3	5.0	5.7	2/3
125 (5")	144	144.4	6.5	7.3	3
150 (6")	169	169.4	7.5	8.5	2/3
175 (7")	204	204.5	8.8	9.8	3
200 (8")	229	229.5	10.0	11.2	3

Note: Ribbed screen pipes as per IS:12818 are available in blue colour.

Screen/Slotted Pipes

Screen or slotted pipes are used for casing in ground water section to allow water to enter inside the well. These pipes can also be used to provide soak-ways for the storm water/rain water to infiltrate it back into surrounding areas. Thus we can recharge the ground water and prevent run off of rain water. These percolation pipes can also used in roof top rain water harvesting in the form of percolation pit, to recharge the ground water. These pipes can also be used for controlled and reduced volume of discharge of rain water into existing main sewer systems and water courses.



Dimension details of screen/slots of casing pipes conforming to IS:12818-1992

Size	No of Rows	Slot Width	Distance between slots	Slot Width	Distance between slots	Slot Length
35	3	0.5	6	1.5	9.5	25
40	3	0.5	6	1.5	9.5	28
50	3	0.5	6	1.5	9.5	36
80	3	0.5	6	1.5	9.5	56
100	5	0.5	6	1.5	9.5	43
115	5	0.5	5.5	1.5	8.5	48
125	5	0.5	5.5	1.5	8.5	48
150	5	0.5	5.5	1.5	8.5	57
175	5	0.5	5.5	1.5	8.5	56
200	6	0.5	5.5	1.5	8.5	65

Dimension details of screen/slots of SDR pipes/ pipes conforming to IS:4985 used as casing

Size	No of Rows	Slot Width	Distance between slots	Slot Length
110	3	1.5	10	70
140	5	1.5	10	50
160	5	1.5	10	55
180	5	1.5	10	80
200	5	1.5	10	90
225	5	1.5	10	90
250	6	1.5	10	95
315	8	1.5	10	90
400	8	1.5	10	90

(All dimensions are in mm)

Column Pipes for Submersible Pumps

Supreme column pipes are specially designed and manufactured using latest material and technology under stringent quality checks. They are tested to withstand system loads comprising the weight of the pump, water and pipe with adequate factor of safety. Unique design of square threads makes the pipes strong enough to withstand shock and jerk loads during operation. Supreme column pipes offer many advantages like light in weight, high tensile load capacity, leak proof joints and long life making them very economical. These features makes them superior option as compared to the metal or other similar pipes available in the market.

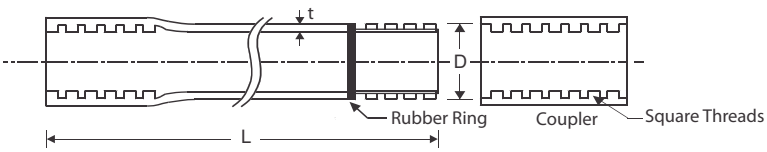
Unique Features:

Special compound - Manufactured from especially designed uPVC compound to make it sufficiently strong against loads and pressure that it may encounter during installation and use.

Square threads - Unique square thread design makes the joints fairly strong with sufficient safety factor to take care of load of entire assembly along with weight of the pump. These specially designed threads also make them suitable for easy joining and re-joining several times.

Sealing ring - Specially designed D type and flat rubber sealing rings provided on the threads make the joints watertight and help absorb pump vibrations.

Dimensions of column pipes for submersible pumps



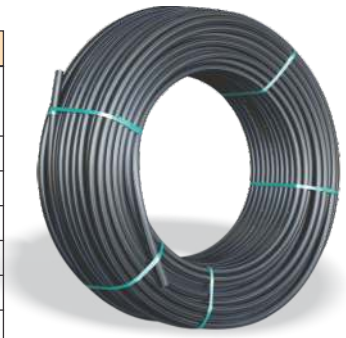
Dimensions of Column Pipes for Submersible Pumps

Size		Outer diameter (D) in mm		Wall thickness (t) in mm		Length L (m)	End type	Recommended installation depth (feet)
mm	inch	Min	Max	Min	Max			
Light Duty (Blue coloured marking)								
25	1"	33.0	33.3	1.9	2.1	3	Male/Female or with Coupler	426
32	1¼"	42.0	42.3	2.4	2.7	3	Male/Female or with Coupler	492
40	1½"	48.0	48.3	2.5	2.9	3	Male/Female or with Coupler	426
50	2"	60.0	60.3	2.6	3.0	3	Coupler	361
Medium Duty (Orange coloured marking)								
25	1"	33.0	33.3	2.0	2.3	2/3	Male/Female or with Coupler	492
32	1¼"	42.0	42.3	2.8	3.2	3	Male/Female or with Coupler	656
40	1½"	48.0	48.3	2.8	3.2	3	Male/Female or with Coupler	525
50	2"	60.0	60.3	2.8	3.2	3	Coupler	426
65	2½"	75.0	75.3	2.9	3.3	3	Coupler	328
80	3"	88.0	88.3	3.2	3.5	3	Coupler	361
80 (RE)	3"	88.0	88.3	3.2	3.5	3	Coupler	361
100	4"	113.0	113.3	3.8	4.1	3	Coupler	328
100 (RE)	4"	113.0	113.3	3.6	4.0	3	Coupler	328
Super Medium Duty (Orange coloured marking)								
25	1"	33.0	33.3	2.6	2.9	3	Male/Female or with Coupler	722
40	1½"	48.0	48.3	3.6	4.2	3	Male/Female or with Coupler	689
Eco Standard Duty (Red coloured marking)								
50	2"	60.0	60.3	3.7	4.1	3	Coupler	656
Standard Duty (Red coloured marking)								
25	1"	33.0	33.3	4.2	4.7	3	Male/Female or with Coupler	984
32	1¼"	42.0	42.3	4.1	4.6	2/3	Male/Female or with Coupler	886
32 (RE)	1¼"	42.0	42.3	3.7	4.0	3	Male/Female or with Coupler	886
40	1½"	48.0	48.3	4.1	4.6	3	Male/Female or with Coupler	886
50	2"	60.0	60.3	4.1	4.6	2/3	Coupler	754
65	2½"	75.0	75.3	4.2	4.8	3	Coupler	525
65 (RE)	2½"	75.0	75.3	4.0	4.3	3	Coupler	525
80	3"	88.0	88.3	5.0	5.6	3	Coupler	558
80 (RE)	3"	88.0	88.3	4.6	5.0	3	Coupler	558
100	4"	113.0	113.3	5.7	6.2	3	Coupler	492
100 (RE)	4"	113.0	113.3	5.3	5.8	3	Coupler	492
Super Standard Duty (Red coloured marking)								
65	2½"	75.0	75.3	5.5	6.1	3	Coupler	689
Heavy Duty (Green coloured marking)								
32	1¼"	42.0	42.3	5.2	5.8	3	Coupler	1148
32 (RE)	1¼"	42.0	42.3	4.7	5.0	3	Coupler	1148
40	1½"	48.0	48.3	5.9	6.5	3	Coupler	1148
40 (RE)	1½"	48.0	48.3	5.5	5.8	3	Coupler	1148
50	2"	60.0	60.3	5.4	6.0	3	Coupler	886
50 (RE)	2"	60.0	60.3	4.9	5.3	3	Coupler	886
65	2½"	75.0	75.3	6.4	7.1	3	Coupler	820
65 (RE)	2½"	75.0	75.3	6.0	6.3	3	Coupler	820
80	3"	88.0	88.3	7.3	8.0	3	Coupler	820
100	4"	113.0	113.4	9.4	10.2	3	Coupler	820
Super Heavy Duty (Green coloured marking)								
32	1¼"	42.0	42.3	6.0	6.5	3	Coupler	1476
40	1½"	48.0	48.3	6.2	6.6	3	Coupler	1378
40 (RE)	1½"	48.0	48.3	6.1	6.4	3	Coupler	1378
50	2"	60.0	60.3	6.5	7.2	3	Coupler	1148
50 (RE)	2"	60.0	60.3	6.0	6.3	3	Coupler	1148
80	3"	88.0	88.3	9.8	10.7	3	Coupler	1148

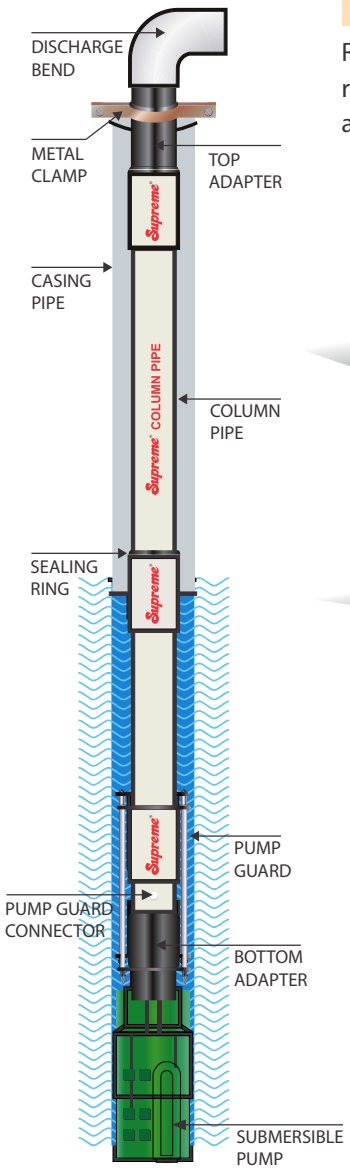
PE Column Pipes

We also offer PE pipes for lowering submersible pumps. As they are free of any joints, the installation becomes very easy and quick. These pipes are made as per IS:4984. The product details are given below: -

Coil Specifications			
Standard Diameter (mm)	Pressure Rating	Coil length (m)	Application
32	PN-6	300 and 500	Jet pumps
40	PN-4 and PN-6	200, 300 and 500	Jet pumps
50	PN-4 and PN-6	200 and 300	Submersible pumps
63	PN-4 and PN-6	100, 200 and 300	Submersible pumps
75	PN-4 and PN-6	100, 200 and 300	Submersible pumps
90	PN-4 and PN-6	100	Submersible pumps
110	PN-4 and PN-6	50	Submersible pumps

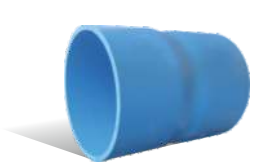


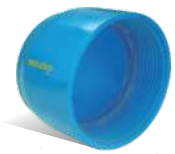
Note: 14mm x 8mm and 20 mm PN-16 pipes in 100 mtrs coil length are also offered for spray pumps for orchards.



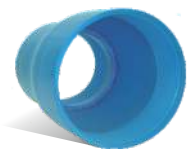
Accessories

Required accessories for casing as well as column pipes for submersible pumps viz. end caps, reducers, adapters, loop bail, clamps, CI adapters are offered which makes the system complete in all respects.


Coupler


End Cap


Bottom Cap


Adapter

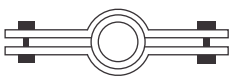

M.T.A.


F.T.A.


Reducer


Pump Guard


Top and bottom adapters


Clamp

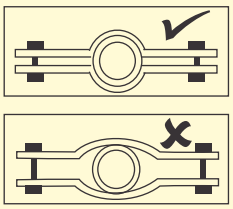

Loop bail

Borewell

Complete Piping Solutions for Borewell Applications

Installation Procedure - Column Pipes

- Tighten the CI bottom adapter on the pump with the help of strap wrench or pipe wrench. Lower the pump in the well using loop bail or M.S. clamps.
- Take a column pipe and remove the protection cap from the male end. Wipe both ends using a clean piece of cloth.
- Ensure that rubber gasket supplied with the pipe is properly placed in the groove on the male threads of pipe.
- In case the seal is found to be damaged, replace it with extra sealing rings supplied in each bag.
- While lowering or extracting the pump set, pipes should be clamped at "CLAMP HERE" location marked on the pipes. Rubber sheet/cushioning between pipe surface and clamp may be used to avoid scratches/ damages to the pipe.
- Clamps to be used with pipe for installation should be of correct size (as shown) to avoid damage to the threads.



- Use of Supreme column pipes for submersible pump in combination with GI pipes in the same bore well/tube well is not recommended.
- Join the pipes one after the other. Tighten the pipes by strap wrench or jerk of a pipe wrench so that 50% of rubber-sealing ring on male thread end gets into the seat of belled/coupler female square threads. Use plain water or soapy water as a thread lubricant. Do not use any oil or grease on threads.
- When the pump is lowered to the desired depth, fit top adapter to the last pipe. Connect required fittings like nipple/bend to the delivery side of top adapter.
- Use Supreme installation tool, i.e., loop bail for lowering the pipes in the bore well while using tripod and chain pulley block instead of M.S. clamps.
- We recommend use of Supreme pump guard system to make your installation foolproof against falling of pump due to excessive vibrations/jerks or during pump withdrawal.

Precautions

- Do not over tighten the pipes as it may result in crushing of rubber sealing leading to leakage/pipe failure.
- Use new rubber seals for every reinstallation of submersible pump.
- Do not apply grease, oil or any other oily substance on the threads.
- It is advisable to use safety device such as pump protection relay to prevent dry running of pump or pump shut-off head condition.
- In bore wells with loose boulders, casing pipes are recommended for entire depth.
- 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 due to silt/ mud or stones, the bore well should be proper flushed prior to application of pulling load.
- Use of good quality reflux valves on the delivery side is recommended for preventing water hammer, upthrust and back spin in the pumping system.

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