

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 gained a valuable experience in providing innovative and cost effective piping solutions. The Company has been a trend setter and a torch bearer in the transition from conventional to advanced plastic piping products in the country. The Company's objective is to meet the growing needs of its clientele in water and waste management and in infrastructure sector through a specially designed high performance range of piping products. The innovative product portfolio offered by Supreme is extensive in nature and applications. With its range of over 7500 products, the most comprehensive in the piping industry, Supreme caters to almost every conceivable need and application in piping.

The System

It has been seen that in majority of the cases, tube wells fail due to corrosion and encrustation associated with conventional pipes. Corrosion damages the strainer screens allowing the sand particles to enter along with water while the encrustation reduces the pipe diameter and as well as the effective area of 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 them a preferred choice of the customers.

Supreme offers a variety of pipes for bore-well applications to cater to every need of bore-well sector which 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 our own standards and plain pipes as well as screen (slotted) pipes are available in every category of casing pipes. Slotted pipes can also be used for rainwater harvesting. Column pipes for submersible pumps are also offered to lift water from the bore-wells.

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

The advantages of Supreme uPVC water well casing and ribbed screen casing pipes are as given below.

Excellent corrosion resistant - Unlike steel 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 easy and cheaper than conventional materials. These advantages particularly manifest themselves in rural areas where they are most needed but due to poor roads, transportation is difficult.

Quick and convenient installation - These pipes are provided with good quality threaded joints due to which they can be easily assembled and installed 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.

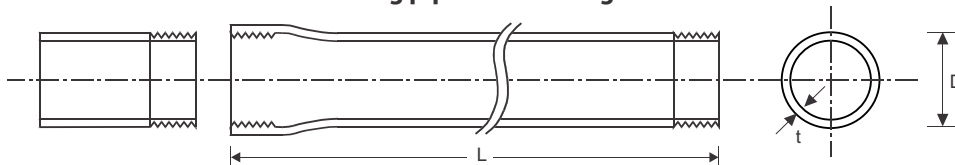
Physical Properties

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

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 metres and medium well pipes can be used up to 250 metres of depth.

Dimensions of casing pipes conforming to IS 12818:1992



Shallow Well - C. S. (Suitable upto 80 metres depth)

Nominal Sizes	Outer Diameter (D) in mm		Wall Thickness (t) in mm		Length L (m)
	Min	Max	Min	Max	
#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 250 metres 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

Recently we have introduced heavy duty casing pipes as per ASTM D-1785 specifications to cater to the market needs. 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 available in the market.



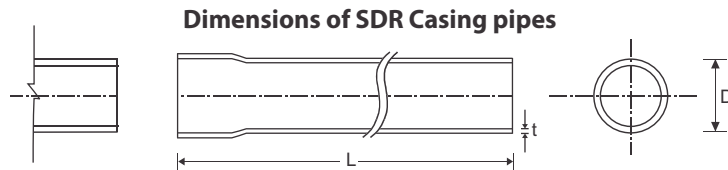
Casing Pipes as per ASTM D - 1785

Nominal Sizes	Outer Diameter (mm)		Wall Thickness (mm)				Length (m)	Thread Type
			Schedule 40		Schedule 80			
	Min	Max	Min	Max	Min	Max		
40 mm (1½")	48.11	48.41	3.68	4.19	5.08	5.69	3/6	Fine
50 mm (2")	60.17	60.47	3.91	4.42	5.54	6.20	3/6	Fine
80 mm (3")	88.70	89.10	5.49	6.15	7.01	7.49	3/6	Fine
100 mm (4")	114.07	114.53	6.02	6.73	8.56	9.58	3/5	Fine
150 mm (6")	168.00	168.56	7.11	7.97	10.97	12.29	5/3	Square
200 mm (8")	218.70	219.40	8.18	9.17	12.70	14.22	5/3	Square
250 mm (10")	272.67	273.43	-	-	15.06	16.86	3	Square
300 mm (12")	323.47	324.23	-	-	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, 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 end where as other end is socketed for solvent weld joint. These pipes are available in blue colour.



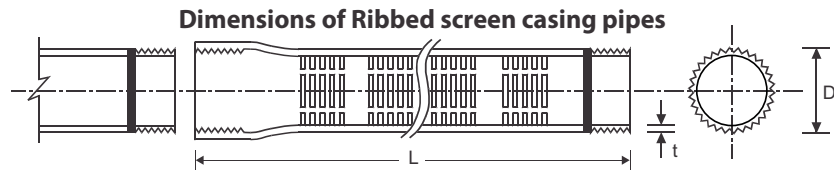
Dimensions of SDR Casing pipes



Diameter of Pipe D (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.



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

All dimension are in mm

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

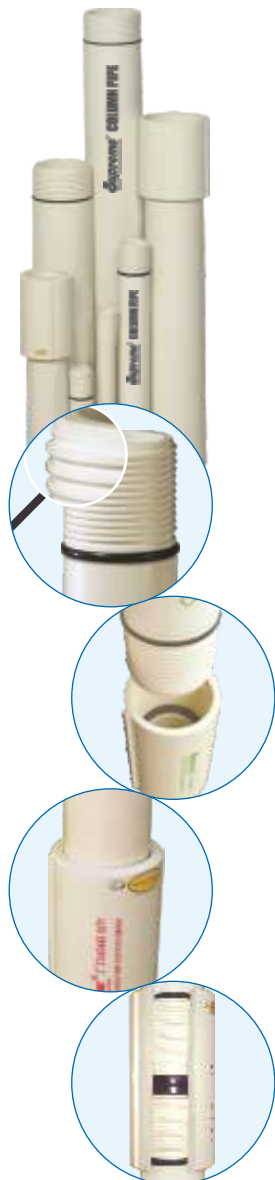
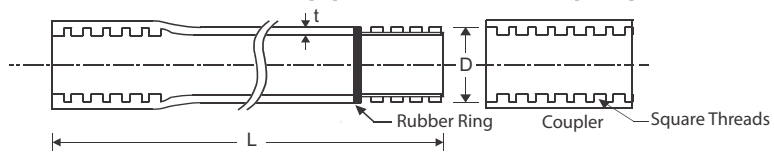
Size	No of Rows	Slot Width	Distance between slots	Slot Length
110	3	1.5	10	70
140	5	1.5	10	50
160	5	1.5	10	55
180	5	1.5	10	80
200	5	1.5	10	90
225	5	1.5	10	90
250	6	1.5	10	95
315	8	1.5	10	90
400	8	1.5	10	90

Column Pipes for Submersible Pumps

These pipes have been specially designed and are manufactured under stringent quality checks. They are tested to withstand system loads comprising the weight of the pump, water and pipe weight with adequate factor of safety. Due to unique design of square threads, they can withstand considerable shock and jerk loads during operation. Pipes supplied with separate couplers are integrally locked with the pipes. Couplers are locked with the pipes using wire lock or using special adhesives.

Supreme column pipes for submersible pump offer many advantages like light weight, high tensile load capacity, leak proof joints and long life making them very economical. These provide a much better option over the conventional metal pipes. These pipes are available in 25 to 100mm (1" to 4") dia in different classes. Pipes have female belled threads at one end and male threads on the other end and/or with separate coupler as per the details given in the table. Pipes are available in 2 and 3m lengths with square threads fitted with rubber sealing ring at male threaded end. These pipes are available in light, medium, super medium, standard, heavy and super heavy duty variants as per requirement based on installation depths from 100 to 450 mtrs.

Dimensions of column pipes for submersible pumps



Size mm	inch	Outer diameter (D) in mm		Wall thickness (t) in mm		Length L (m)	End type	Recommended installation depth in metres
		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	130
32	1¼"	42.0	42.3	2.4	2.7	3	Male/Female or with Coupler	150
40	1½"	48.0	48.3	2.5	2.9	3	Male/Female or with Coupler	130
50	2"	60.0	60.3	2.6	3.0	3	Coupler	110
Medium Duty (Orange coloured marking)								
25	1"	33.0	33.3	2.0	2.3	3	Male/Female or with Coupler	150
25	1"	33.0	33.3	2.0	2.3	2	Coupler	150
32	1¼"	42.0	42.3	2.8	3.2	3	Male/Female or with Coupler	200
40	1½"	48.0	48.3	2.8	3.2	3	Male/Female or with Coupler	160
50	2"	60.0	60.3	2.8	3.2	3	Coupler	130
65	2½"	75.0	75.3	2.9	3.3	3	Coupler	100
80	3"	88.0	88.3	3.3	3.8	3	Coupler	110
100	4"	113.0	113.4	3.8	4.3	3	Coupler	100
Super Medium Duty (Orange coloured marking)								
25	1"	33.0	33.3	2.6	2.9	3	Male/Female or with Coupler	220
Standard Duty (Red coloured marking)								
25	1"	33.0	33.3	4.2	4.7	3	Male/Female or with Coupler	300
32	1¼"	42.0	42.3	4.1	4.6	3	Male/Female or with Coupler	250
32	1¼"	42.0	42.3	4.1	4.6	2	Coupler	250
40	1½"	48.0	48.3	4.1	4.6	3	Male/Female or with Coupler	250
50	2"	60.0	60.3	4.1	4.6	3	Coupler	200
50	2"	60.0	60.3	4.1	4.6	2	Coupler	200
65	2½"	75.0	75.3	4.2	4.8	3	Coupler	160
80	3"	88.0	88.3	5.0	5.6	3	Coupler	170
100	4"	113.0	113.4	5.7	6.4	3	Coupler	150
Heavy Duty (Green coloured marking)								
32	1¼"	42.0	42.3	5.2	5.8	3	Coupler	350
40	1½"	48.0	48.3	5.9	6.5	3	Coupler	350
50	2"	60.0	60.3	5.4	6.0	3	Coupler	270
65	2½"	75.0	75.3	6.4	7.1	3	Coupler	250
80	3"	88.0	88.3	7.3	8.0	3	Coupler	250
100	4"	113.0	113.4	9.4	10.2	3	Coupler	250
Super Heavy Duty (Green coloured marking)								
32	1¼"	42.0	42.3	6.0	6.5	3	Coupler	450
40	1½"	48.0	48.3	6.2	6.6	3	Coupler	420
50	2"	60.0	60.3	6.5	7.2	3	Coupler	350
80	3"	88.0	88.3	9.8	10.7	3	Coupler	350

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: -



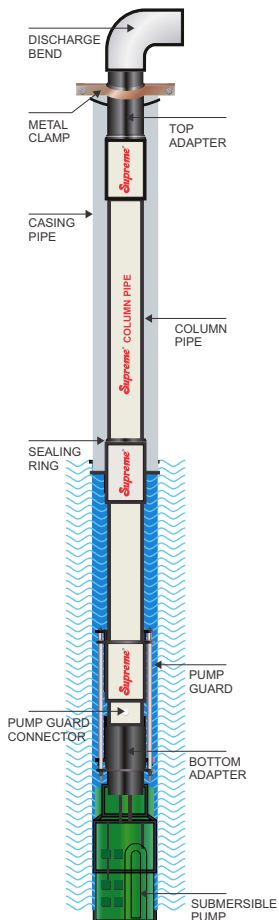
Coil Specifications

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	-do-
50	PN-4 and PN-6	200 and 300	Submersible pumps
63	PN-4 and PN-6	100, 200 and 300	-do-
75	PN-4 and PN-6	100, 200 and 300	-do-
90	PN-4 and PN-6	100	-do-
110	PN-4 and PN-6	50	-do-

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 make the product complete in all respects.



Coupler



End Cap



Adapter



M.T.A.



F.T.A.



Reducer



Pump Guard



Retrieval Kit



Clamp



Loop bail



Top and bottom adapters



Installation Procedure - Column Pipes

- After completion of borewell installation, erect tripod above the bore to lower column pipes.
- Take a column pipe and remove the protection cap from male end. Wipe both male and female threads using piece of clean cloth.
- Ensure that rubber gaskets supplied with the pipe are 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.
- Tighten the bottom adapter on the pump with the help of strap wrench or pipe wrench. Lower the pump in the well using loop bail and M.S. clamps.
- While lowering or extracting the pump set, pipes should be clamped only 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 and loop bail 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 borewell/tube well is not recommended.
- We recommend use of Supreme pump guard system to make your installation fool proof against falling of pump due to excessive vibrations/jerks or during pump withdrawal.
- Join one pipe after the other. Tighten 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 fitting 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.

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.
- 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 made of steel or nylon or polypropylene.
- 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 properly flushed prior to application of pulling load for removal of the pump.
- 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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