Complete piping solution for Borewell application

The Supreme Industries Ltd., is an acknowledged leader of India's plastic industry. It is credited with pioneering several path breaking products and has valuable experience in providing innovative and cost effective piping solutions. Company's objective is to meet the growing needs of its clientele in water, waste management and infrastructure sector through specially developed high performance range of piping products. The innovative product portfolio offered by Supreme is extensive in range and application and comprises a variety of pipes and a vast spectrum of fittings totaling around 7000 diverse products. Together these constitute the most comprehensive range in the industry that caters almost every conceivable need and application. Company has been a torch bearer in transition from conventional products to advance plastics piping products in the country and has been termed as the "Trend Setters of Plastic Piping Products".

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The System

Tube wells generally fails due to problems like corrosion and encrustation associated with conventional pipes. Due to corrosion the strainer screens get damaged and the sand particles enters along with the water. Due to encrustation, pipe diameter as well as effective area of screen get reduces and hence tube well becomes unserviceable in short period. These problems are totally eliminated in Supreme casing pipes made from specially developed PVC compound. Supreme casing pipes offer superior performance at a lower cost and becomes the prime choice of the customer.

Supreme offers varieties of pipes for bore-well applications to cater every need of bore-well sector which includes Casing pipes as per IS 12818, Casing pipes as per ASTM D : 1785, Ribbed screen casing pipes for tube wells, SDR casing pipe series for shallow depth applications as per company standard. Besides these plain pipes we also offer screen (slotted) pipes in every category. Casing pipes made as per IS and ASTM standard are available in deep blue colour and are provided with male threads on one end and female threaded socket on other end. In addition to casing pipe, Column pipes for submersible pumps are also offered to lift the water from the bore-wells.

Users:

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

Features and Benefits

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

Excellent corrosion resistance : Unlike steel pipes, uPVC casing pipes are totally immune to corrosion and offer good resistance to aggressive elements in the soil and normal chemical reaction, which could cause encrustation of well screens.

Light in weight : These pipes are light in weight and hence transportation and installation becomes much easier. This is a major advantage particularly in remote rural areas where road commutation are not satisfactory and well construction is a one-time exercise.

Quick and convenient installation : These pipes are equipped with good quality threaded joint, thus 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 Stiffness : These pipes have excellent stiffness and meet all the mechanical properties as per the IS 12818 specifications. These pipes have excellent hydrostatic collapse pressure i.e. capable of withstanding the hydraulic pressure they would be subjected to during well construction.

Non-toxic : The material of the pipe is non-toxic and hence does not impart any taste, odour or colour. It does not release any harmful substances to water from well, which could pose health problem. It is free from bacteria and hence absolutely safe for carrying drinking water.

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

Longer Lasting : Being free from rusting, weathering and chemical reaction and due to excellent mechanical properties, Supreme casing pipes lasts for lifetime.

Economical : Apart from all the advantages listed above , Supreme uPVC casing pipes and screens provide the best cost benefit ratio when compared to other materials or even alternative uPVC casing pipes available in the market.

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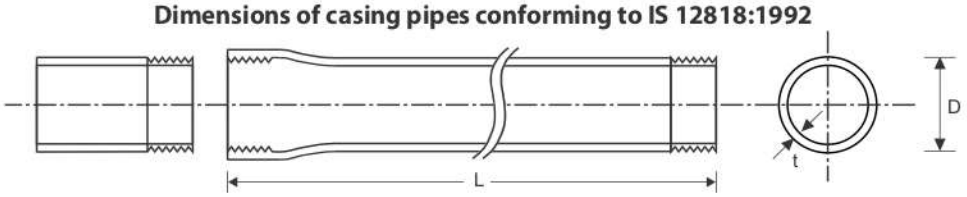
Physical Properties

Properties	Units	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 conforming to IS 12818:1992

These pipes are manufactured as per BIS standard and are available in deep blue colour. One end of the pipe is male threaded where as other end is 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 i.e. Shallow Well (C.S.) and Medium Well (C.M.) are available. Shallow Well pipes can be used for depths upto 80 meters and Medium Well pipes can be used upto 250 meters.

Dimensions of casing pipes conforming to IS 12818:1992



Nominal Sizes	Outer Diameter (D) in mm		Wall Thickness (t) in mm		Length L (meter)
	Min.	Max.	Min.	Max.	
Shallow Well - C. S. (Suitable upto 80 meters 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 250 meters 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 standard.

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CASING PIPES conforming to ASTM D - 1785

Recently we introduced casing pipes as per ASTM D - 1785 specification to cater the requirement of borewell sector. These heavy duty pipes are made available in SCH 40 and SCH 80 varieties. These pipes are strong and durable with higher stiffness as compared to IS 12818 pipes prevailing in the market.

Casing Pipes as per ASTM D - 1785

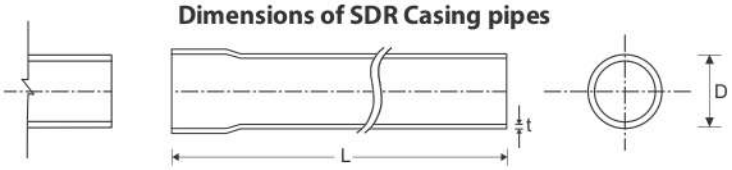
Nominal Sizes	Outer Diameter (D) in mm		Wall Thickness (t) in mm				Length L (meter)	Thread Type
			Schedule 40		Schedule 80			
	Min.	Max.	Min.	Max.	Min.	Max.		
40 mm (1½")	48.11	48.41	3.68	4.19	5.08	5.69	3 / 6	Fine
50 mm (2")	60.17	60.47	3.91	4.42	5.54	6.20	3 / 6	Fine
80 mm (3")	88.70	89.10	5.49	6.15	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 particular application should be examined on case to case basis. One end of 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) in mm	Tolerance in OD in mm	Wall Thickness (t) in mm		Length L (meter)
		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

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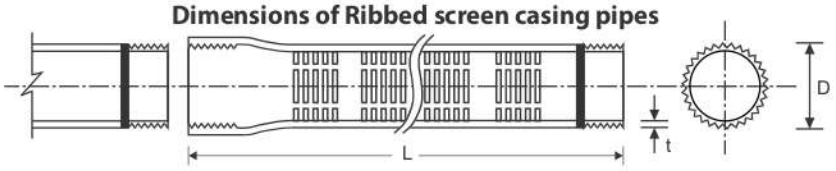
RIBBED SCREEN CASING PIPES

These pipes are provided with V shape ribs on its exterior surface. Special design of this structure with fine slots provided on pipe, prevent entry of even small particles and hence permeability of the screen gets properly maintained. These pipes are generally used in combined wells or used for specific formation where normal screen pipes does not work, e.g. fine sand. These pipes are provided with threaded joints with one end of the pipe is male threaded and another end with female threaded socket.

Dimensions of Ribbed screen casing pipes



Nominal Size	Outer Diameter (D) in mm		Wall Thickness (t) in mm		Length L (meter)
	Min.	Max.	Min.	Max.	
40 mm (1 ½")	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 back into surrounding ground. Thus we can recharge the ground water resource and avoid the wastage of rain water in the form of run off. These percolation pipes can also used in roof top water harvesting in the form of percolation pit, to recharge the ground water.

Screen / Slotted Pipes can also be used for -

- To provide effective soakways for storm water infiltration.
- Effective way for recharging ground water.
- To improve ground water levels and availability.
- To conserve surface water runoff during monsoon.
- Controlled and reduced volume of discharge into existing main sewer systems and water courses.

Dimensions 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

Dimensions 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

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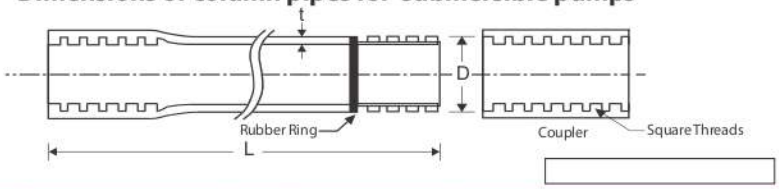
COLUMN PIPES for Submersible Pumps

These pipes have been specially designed and manufactured under stringent quality standards. They are tested to withstand system load comprising of pump, water and pipe weight with adequate factor of safety. Due to unique design of square threads, they can withstand considerable shock and jerk load during operation. Pipes are supplied with separate couplers which are integrally locked with the pipes using cord lock provision for perfect locking.

Supreme column pipes for submersible pump offer many advantages like-light weight, high tensile load capacity, leak proof joints and long life with economy and hence emerges as the best option for conventional metal pipes. These pipes are available in 25 to 100 mm (1" to 4") 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 3 meter length with square threads fitted with rubber sealing ring at male threaded end. These pipes are available in light duty, medium duty, standard duty, heavy duty and super heavy duty for varying needs based on installation depths 100 to 350 mtrs.

Dimensions of column pipes for submersible pumps



Size		Outer diameter (D) in mm		Wall thickness (t) in mm		Length (L) in meter	End type	Recommended installation depth in meter
mm	inch	Min.	Max.	Min.	Max.			
Light Duty (Blue coloured marking)								
25	1"	33.0	33.3	1.8	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
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
Standard Duty (Red coloured marking)								
25	1"	33.0	33.3	4.2	4.7	3		300
32	1¼"	42.0	42.3	4.1	4.6	3		250
40	1½"	48.0	48.3	4.1	4.6	3		250
50	2"	60.0	60.3	4.1	4.6	3		200
65	2½"	75.0	75.3	4.2	4.8	3		160
80	3"	88.0	88.3	5.0	5.6	3		170
100	4"	113.0	113.4	5.7	6.4	3		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 (Violet coloured marking)								
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

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PE COLUMN PIPES

We also offer PE pipes for lowering submersible pumps. As it is free of any joints the installation is very easy and fast. These pipes are made as per IS4984 and the product details are given below.

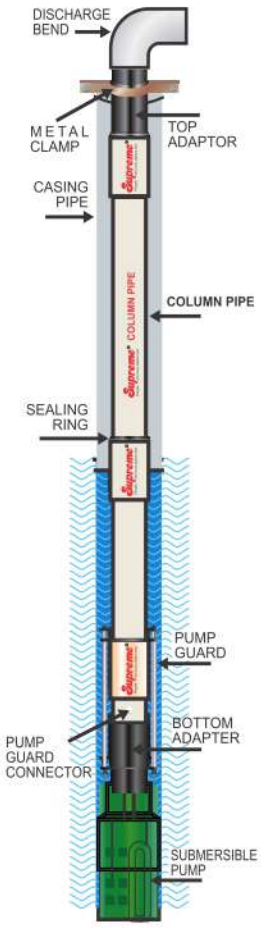
Coil Specifications -

Standard Diameter	Pressure rating	Coil length	Application
32 mm	PN-6	300, 500 Mtrs	For jet pumps
40 mm	PN-4, PN-6	200, 300 & 500 Mtrs	For jet pumps
50 mm	PN-4, PN-6	200, 300 Mtrs	For Submersible pumps
63 mm	PN-4, PN-6	100, 200, 300 Mtrs	For Submersible pumps
75 mm	PN-4, PN-6	100, 200, 300Mtrs	For Submersible pumps
90 mm	PN-4, PN-6	100 Mtrs	For Submersible pumps
110 mm	PN-4, PN-6	50 Mtrs	For 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, various adapters, loop bail, clamps, C.I. adapters are offered which makes the product complete with all respect.




Coupler


End Cap


Adapter


M.T.A.


F.T.A.


Reducer


Pump Guard


Retrieval Kit


Clamp


Loop bail


Top and bottom adapters

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Installation Procedure - Column Pipes

- After completion of borewell installation, errect tripoid above the bore to lower column pipes.
- Take 3 meter long pipe, remove the protection cap from male end. Wipe both male and female threads, clean using piece of cloth.
- Ensure that rubber gaskets supplied with the pipe is properly placed in the groove on the male threads of pipe.
- In case seal is found 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 G.I. pipes in the same Borewell / Tube well is not recommended.
- We recommend use of Supreme pump guard system to make your installation full proof against falling of pump due to excessive vibration / jerks or during pump withdrawal.
- Assemble pipe one 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 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 borewell while using tripod and chain pulley block instead of M.S. clamps.

Precautions :

- Do not over tighten the pipes as it will result in crushing of rubber sealing thereby leading to leakage/pipe failure.
- Use new rubber seals for every reinstallation of submersible pump.
- If lubrication is needed to ease the joint assembly, plain water or soapy water can be applied to the threads prior to assembly.
- 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 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 up due to silt/sticky mud or entrapped stone, proper flushing of the bore well should be done and only then pulling load should be applied to the pipes for pump removal.
- Use of good quality reflux valves on the delivery side is recommended for preventing water hammer, upthrust and back spin in the pumping system.