VINYL

Vinyl Tubes Pvt Ltd

Reg. Office

8/33 kirti nagar Ind. Area. New Delhi 110015 • Phone: +91-11-65676883

Sales. office

N-29, Green Park Extn. New Delhi 110016

Phone: +91-11-65153724 • Fax: +91-11-41026273 • Email us: sales@vinylpipes.com

Factory:

C-19 UPSICD Ind. Area, Nandgaon Road, Kosi Kalan, (Disit. Mathura) U.P.

www.vinylpipes.com

column / drop / riser pipe for submersible pumps

Pipes for Life!

TECHNICAL GUIDE

company profile

Vinyl Tubes Pvt. Ltd, one of the first few company to envisage the future of Plastic and invest in the future. The Group started by Mr. Jaychand Jain in 1941 was developed and nurtured Mr. Vitul Jain who had taken an active role in helping India Agri. Irrigation during the period Green revolution.

Vinyl Tubes Pvt. Ltd, was incorporated as a separate company in 1987 where in it was the pioneer in setting up the PVC pipe factory in North India. This ISO 9001 Certified factory has been a part of 300Mio USD Group who have been diversified interests in Textile, Chemical and Mining.

The Company has been spread over 65,000 Sqmt area and have annual capacity to process 12,000 MT of PVC in to various product like uPVC Column pipe, Casing Pipes, Pressure pipe, SWR Pipe and Plumbing pipes. The Computerize Control CNC machines are capable of producing pipes of Diameter from 20mm to 315mm in various specification and standards.

Vinyl Tubes Pvt. Ltd, has been one step ahead of on the Quality Assurance. It has been certified by Bureau of Indian Standards (BIS) apart from the CE for European market. The products are regularly inspected by third party inspection agency like SGS, RITES, CIEPT etc. The Company is also in final stage.

Today, Vinyl is a leading brand in India with its own Branch office / Stock points more than 15 different cities in India Exports to More than 10 Counties in Europe along with Africa, Australia and Middle East.

Vinyl has achieved this distinctive position across the world due to its ability to provide reliable and cost effective solution. Vinyl is committed to continuos improvement in its Quality of product and services by implementing new and advanced technology.

It has been regularly investing in Design, Engineering and R&D for product improvement. Investing in dedicated manpower has also been a key factory in Vinyl. They have employed external Trainers and consultants to improvise service to Customer and develop new business model based on needs.

OUR VISION

To emerge as global leader in Water Pipe industry by being Emerging market centric, and adopting new technology and innovating the processes thus providing Value for Money. Expanding globally networked and thus placed alongst the top 5 private sector players by 2020".

OUR MISSION

To demonstrate our leadership in our chosen field of business by focusing all our actions towards customer's satisfaction and make significant contributions to his success. We shall continue to innovate our processes, products and services to provide value for money in all our efforts.

what is upvc riser pipe and its advantages

Every Bore Well / Deep Well Submersible pump, require a Delivery pipe to bring water out of Well. This Delivery pipe is called Riser pipe or Column pipe or Drop Pipe. This is important pipe, because complete pump is hanging on this pipe and also delivering water. uPVC Riser Pipes are best alternative to Galvanised pipe or Steel pipe as they are 100% Corrosion resistant and Bacteria free.

Material Attribute & Benefit	 uPVC Riser/Column	 Galvanised Iron	 HDEP PIPES
Strong Threaded Joints (Required to effectively hold the column and withstand the load of submersible pump. Leak-proof joints to save every drop of water)	Specially designed 'Square Threads' can withstand high load and do not corrode or rust even after a prolonged usage of 50 years. Special rubber seals provide 100% protection against leakage.	Threads are prone to corrosion and rusting. In absence of multi layered galvanization, after 2-3 years' of usage, the threads wear out due to rusting and new threads are to be engraved. This involves extra effort and money & results in shorter pipes. These pipes are neither pressure tight nor have rubber seals.	Threads cannot be formed as these pipes are very soft. Only 'Push – type' joints are allowed which are not very strong and easily open up during usage.
Head Loss (Due to internal friction)	Smooth internal surface results in very low Head Loss. Water discharge is more by 10% - 30%.	Rough internal surface results in high Head Loss.	Internal surface is not as smooth as that of Vinyl pipes.
Weight of pipes (ease of handling)	Light weight. Come in standard size of 3 mts. Easy to fit and remove.	Heavy. Great effort is needed to fit and remove. In deeper bore wells, heavy pipes are prone to accidents.	Become hard and cannot be rolled back during removal. Pulling them with tractors destroys the crops.
Longevity (Life span)	Do not react with acidic or alkaline water. Have a very long life inside the bore well.	Prone to rusting and corrosion. Need frequent replacement.	Strength of material being low, very thick pipes are needed for high pressure application. This considerably reduces the internal area for water flow. Thin pipes used for high pressure application lasts for only 2-3 years.

100% METAL FREE PIPES :

Vinyl has developed 100% metals free Column Pipes. Not only the uPVC compound is Lead Free and Heavy Metal Free, but the the Special High Friction Thread developed by Vinyl also avoid the use of Metal pin thus giving Metal Free Leak Proof column Pipe.

BI AXIAL ORIENTATION

This unique orientation technique has been developed in the Research and Development (R&D) Lab of Vinyl. This orientation technique is used during Column pipe extrusion to get higher drop impact and notch impact strength for the column Pipes.

STRESS FREE PIPE

The uPVC undergo various process and high temperate before they reach the customer. So, we ensure they reach you stress free even if it means to take more extra step. But it is to give you trouble free product. Thus every drop pipe undergo an Annealing process where all the material is aligned which improve mechanical property and thus life of product.

Developed with the years of R&D and studying the market demand Vinyl have introduced the latest technology in High impact Upvc Pipe threaded pipes which are popularly known as Column pipe / Riser pipe / Drop Pipe or uPVC pipe for Submersible pump and Bore well application.

WALL THICKNESS

This is another invention of the R&D Lab of Vinyl. According to this technique, the column pipes are made thicker at the 'Threading' end. This is to compensate the material loss due to thread creation. This technique reduces the consumption of the raw material and at the same time provides more strength to the column pipes.

THICK AND THIN

Unique thick & thin construction of riser pipes : This innovative technique for making pipes thicker in the threading end to compensate for material removal due to threads is an innovation made at Vinyl. The residual thickness(t) in the end part after removal of thread is the same as barrel thickness (t), Therefore the riser pipe strength remains the same ,This technique saves on the raw material consumption and at the same time provides much higher strength to the riser pipes.

SOME OTHER FEATURES THAT YOU CAN FIND IN OUR COLUMN PIPE / DROP PIPES / RISER PIPE

- Specially designed High Friction 'Square Threads' Manufactured by imported CNC machines along with 'Rubber Rings' to 100% Fail proof Connection.
- Sophisticated tools used for easy fitment of Drop Pipes.
- 100% leak proof joints with no scope of leakages in Column pipes.
- All threads undergo 100% Quality Check to ensure High friction threads capable of withstanding ZD (Zero Defect) heavy load on Column pipe / Riser pipe.
- Joints with 'Coupler' and 'Permanent Lock' for that lock the uPVC pipe and avoid any Rotation due to vibration or pump movement.

SPECIAL FORMULATION

High tensile, high impact column pipes are made with special design formulation. This design makes the column pipes / Drop pipe capable of handling both, the internal hydrostatic pressure as well as the huge vertical tensile load resulting from column and pump weight. The Special Formulation ensures that the threads do not become brittle/get chip off even after repeated loosening and/or tightening during their life time. Special raw materials are used in a very well defined processing technique to make these column pipes.

Vinyl column pipes have dual function to perform. On one hand, these pipes have to withstand the hydrostatic pressure of the pump delivery. This pressure is maximum in the first pipe connected to the pump and can run as high as 35 Kg/cm 2. And on the other hand, the topmost pipe has to bear the load of the entire column filled with water along with the weight of the pump. The total may be close to 2 tons. This dual load application is a unique feature and requires special manufacturing techniques. These techniques are available only with **Vinyl Tubes Pvt Ltd.**

PROPERTY	UNIT	STANDARD
Specific Gravity	1.4 gms/cm^3	as per ASTM D 1785
Tensile Strength	627 kg/cm^2	as per ASTM D 1785
Flexural Strength	647 kg/cm^2	as per ASTM D 1785
Izod Impact Strength	15 kg - cm/cm^2	as per ASTM D 1785
Charpy Impact Strength	17 kg - cm/cm^2	as per ASTM D 1785
Impact Strength	No Fracture	
Vicat Softening Temperature	87.3˚C	as per ASTM D 1525

Nominal Size (Inch)	Nominal Size (mm)	Type	Wall Thickness (mm)				Average Outside Diameter (OD) (mm)	Length of Thick Portion at Both Side (mm)	Nominal Effective Length (mm)	Ultimate Breaking Load (Kg)	Safe Pulling Load with Chain Pulley (Kg)	Safe Allowable Hydrostatic Pressure (Kg/cm²)	Safe Total Pump Delivery Head (m)
			End Side		Middle/ Berral Side								
			Min	Max	Min	Max							
25 mm	25 mm	V4 (12.5 kg/cm)	3.9	4.1	1.6	1.7	33.0 ± 0.10	300 ± 20	3000 + 10	800	440	12.5	125
		Medium	4.5	4.9	3.0	3.3		300 ± 20	3000 + 10	1450	800	16	160
		Standard	5.2	5.6	4.2	4.6		300 ± 20	3000 + 10	1700	1250	30	300
32 mm	32 mm	2 V4 (12.5 kg/cm)	4.3	4.5	2.1	2.2	42.0 ± 0.10	300 ± 20	3000 + 10	1340	740	12.5	125
		Medium	5.5	5.9	3.2	3.5		300 ± 20	3000 + 10	2000	1150	15	150
		Standard	6.8	7.2	4.3	4.6		300 ± 20	3000 + 10	2600	1500	25	250
		Heavy	7.9	8.3	5.4	5.9		300 ± 20	3000 + 10	3100	1550	35	350
40 mm	40 mm	2 V4 (12.5 kg/cm)	4.7	4.9	2.4	2.5	48.0 ± 0.10	300 ± 20	3000 + 10	1760	970	12.5	125
		Medium	5.3	5.7	3.8	4.2		300 ± 20	3000 + 10	2400	1250	15	150
		Standard	6.2	6.6	4.3	4.6		300 ± 20	3000 + 10	3000	1700	26	260
		Heavy	8.1	8.5	6.1	6.5		300 ± 20	3000 + 10	4000	2000	35	350
50 mm	50 mm	Medium	4.8	5.3	2.6	2.8	60.0 ± 0.13	300 ± 20	3000 + 10	2900	1550	13	130
		Standard	6.4	6.8	4.1	4.4		300 ± 20	3000 + 10	3800	2100	20	200
		Heavy	7.9	8.4	5.5	5.8		300 ± 20	3000 + 10	5000	3030	27	270
		2 Super Heavy (35 Kg/cm)	9.3	9.5	6.8	7.0		300 ± 20	3000 + 10	5600	3500	35	350
65 mm	65 mm	Medium	5.4	6.0	2.8	3.1	75.2 ± 0.13	300 ± 20	3000 + 10	3550	1930	10	100
		Standard	6.7	7.1	4.2	4.5		300 ± 20	3000 + 10	5300	2860	16	160
		Heavy	9.0	9.5	6.5	6.9		300 ± 20	3000 + 10	7000	4200	26	260
		2 Super Heavy (35 Kg/cm)	10.8	11.1	8.6	8.8		300 ± 20	3000 + 10	8600	4800	35	350
80 mm	80 mm	Medium	5.9	6.3	3.4	3.6	88.0 ± 0.15	300 ± 20	3000 + 10	5100	2800	11	110
		Standard	7.5	8.0	5.2	5.6		300 ± 20	3000 + 10	7200	4110	17	170
		Heavy	10.0	10.5	7.5	7.9		300 ± 20	3000 + 10	10600	6350	26	260
100 mm	100 mm	Medium	6.4	6.9	4.0	4.4	113.0 ± 0.15	300 ± 20	3000 + 10	7500	4100	10	100
		Standard	8.5	9.0	5.9	6.3		300 ± 20	3000 + 10	10500	5800	15	150
		Heavy	12.1	12.6	9.6	10.1		300 ± 20	3000 + 10	16000	9500	26	260

The height to which water is to be pumped has to be estimated very accurately. This is very important specially in long and upwardly inclined terrains. The length of the pipeline and the height to which water is to be thrown, together with the depth of the water level and frictional head loss in pipes determine the total head load on the pumpset.

Approx frictional head loss in VINYL SUBMERSIBLE COLUMN PIPES In (m) per/100m

DISCHARGE OF PUMP IN LPM

PIPE SIZE

TYPE & SIZE	40	60	80	100	120	150	180	240	300	360	400	500
1" V4 (15 Kg/Cm2)	3.0819	6.5350	11.1257	16.8263	23.5749	35.6441	49.9657	85.1054	128.6754	180.3764	219.2364	331.3869
1"Med	3.7812	8.0121	13.6500	20.6353	28.9237	43.7252	61.2880	104.4148	157.8481	221.2498	268.9217	406.5399
1"Standard	6.4792	13.7388	23.3901	35.3746	49.5625	74.9362	105.0451	178.9207	270.5198	379.5198	460.9101	696.6888
1¼" V4 (15 Kg/Cm2)	0.9302	1.9725	3.3582	5.0788	7.1158	10.7588	15.0816	25.6882	38.8393	54.4447	66.1742	100.0256
1¼"Med	1.0644	2.2555	3.8426	5.8090	8.1422	12.3089	17.2530	29.3934	44.43452	62.2832	75.7032	114.4436
1¼"Standard	1.4774	3.1328	5.3335	8.0662	11.3014	17.0872	23.9527	40.7981	61.6849	86.4695	105.0983	158.8614
1¼"Heavy	2.0714	4.3923	7.4779	11.3093	15.8452	23.9572	33.5831	57.2012	86.4856	121.2349	147.3536	222.7324
1½" V4 (15 Kg/Cm2)	0.4773	1.0121	1.7231	2.6060	3.6512	5.5204	7.7384	13.1807	19.9286	279358	33.9542	51.3235
1½"Med	0.5253	1.1130	1.8962	2.8666	4.0180	6.0741	8.5139	14.5049	21.9276	30.7351	37.3575	56.4749
1½"Standard	0.6625	1.4047	2.3915	3.6169	5.0675	7.6619	10.7403	18.2937	27.6593	38.7726	47.1258	71.2330
1½"Heavy	1.0578	2.2430	3.8186	5.7752	8.0914	12.2339	17.1494	29.2101	44.1643	61.9092	75.2469	113.7394
2" Medium	0.1435	0.3043	0.5181	0.7836	1.0979	1.6600	2.3270	3.9635	5.9927	8.4005	10.2102	15.4333
2" Med	0.1675	0.3549	0.6046	0.9140	1.2811	1.9368	2.7147	4.6249	6.9917	9.8000	11.9115	18.0072
2" Standard	0.1849	0.3921	0.6675	1.0095	1.4144	2.1384	2.9977	5.1058	7.7198	10.8215	13.1529	19.8813
2" Heavy	0.2454	0.5203	0.8857	1.3396	1.8769	2.8377	3.9779	6.774	10.2441	14.3602	17.4539	26.3824
2" SuperHeavy	0.3143	0.6665	1.1347	1.7161	2.4044	3.6354	5.0960	8.6799	13.1237	18.3967	22.3600	33.7983
1½"Medium	0.0440	0.0934	0.1589	0.2404	0.3368	0.5092	0.7138	1.2157	1.8381	2.5776	3.1318	4.7338
2½" Standard	0.0537	0.1138	0.1938	0.2930	0.4106	0.6207	0.8702	1.4821	2.2409	3.1413	3.8180	5.7712
2½" Heavy	0.0768	0.1629	0.2773	0.4194	0.5876	0.884	1.2453	2.1211	3.2071	4.4957	5.4642	8.2594
2½"SuperHeavy (35Kg/Cm2)	0.1061	0.2249	0.3832	0.5793	0.8120	1.2275	1,7205	2.9312	4.4313	6.2111	7.5494	11.4128
2½"SuperHeavy (40Kg/Cm2)	0.1363	0.2888	0.4920	0.7437	1.0425	1.5759	2.2089	3.7633	5.6892	7.9743	9.6925	14.6526
3" Medium	0.0202	0.0429	0.0731	0.1105	0.1548	0.2341	0.3281	0.5589	0.8450	1.1846	1.4398	2.1763
3"standard	0.0252	0.0534	0.0909	0.1375	0.1927	0.2914	0.4084	0.6957	1.0518	14745	1.7921	2.7089
3"Heavy	0.0342	0.0724	0.1233	0.1865	0.2613	0.3951	0.5538	0.9433	1.4262	1.9993	2.4300	3.6731
3"SuperHeavy	0.0480	0.1017	0.1733	0.2619	0.3672	0.550	0.7780	1.3254	2.0037	2.8085	3.4137	5.1606
4"Medium	0.0057	0.0121	0.0207	0.0312	0.0438	0.0662	0.0927	0.1580	0.2389	0.3348	0.4070	0.6151
4"Standard	0.0069	0.0146	0.0248	0.0375	0.0526	0.0795	0.1115	0.1899	0.2871	0.4025	0.4892	0.7395
4"Heavy	0.0099	0.0211	0.0359	0.0543	0.0761	0.1150	0.1613	0.2747	0.4153	0.5822	0.7076	1.0696
4"Super Heavy	0.0141	0.0298	0.0507	0.0767	0.1075	0.1626	0.2278	0.3882	0.5868	0.8225	0.997	1.5113
5"Medium	0,0020	0.0043	0.0073	0.0111	0.0155	0.0235	0.0329	0.0561	0.0848	0.1189	0.1445	0.2184
5"Standard	0.0025	0.0053	0.0091	0.0137	0.0192	0.0290	0.00407	0.0692	0.1047	0.1468	0.1784	0.2696

WHAT ARE THE BENEFITS OF UPVC PIPES ?

- Strength To Weight Ratio, Light Weight
- Long-term Tensile Strength
- Low Coefficient Of Friction
- High Mpact Strength
- Watertight Joints
- Flexibility

HOW DOES VINYL PIPE AFFECT THE QUANTITY AND QUALITY OF WATER ?

Quantity :
Over years of engineering has enabled us to design PVC PIPES & UPVC PIPES that can offer lower Frictional loss thus offering higher Flow rage / Higher LPM as compared to Steel and HDPE pipes.

Quality :
Vinyl pipes are made from Virgin high grade PVC and uPVC material blended in house.

Open Eye Test : Best way to find good uPVC pipe is to check how much Translucent it is . You will find that good amount of light passes thought All UPVC Column pipe made by us . This will tell you that their are no impurity and just correct portion of Addative to make Excellent pipe for your use.

CAN THE STRENGTH OF UPVC PIPES BE COMPARED WITH THAT OF STEEL PIPES ?

The specific gravity of uPVC ranges between 1.4 gm / cm3 and 1.45 gm / cm3. Whereas, the specific gravity of steel is 8 gm / cm3. Thus, the Weight of uPVC pipe is less than Steel Pipe. But, For same Size of Pipe the Thickness of uPVC Pipe is higher than GI pipe or Steel Pipe. Considering the strength of the material, the uPVC pipes are designed to become lightweight without compromising on the strength requirements.

Thus, PVC pipes offer excellent Weight to Strength Ratio. This do do not compromize the Safety and life of product. Thus, it reduce Manual labor and easy to handle. A 4"/ 3mt pipe can be easily handled by one person while you need min. 2 to 3 people in Steel.

DO COLUMN PIPES NEED FULL CASING IN THE BORE ?

Column pipes give best result in bore wells which have full casing or which are free of loose bolders and stones. In cases where loose bolders and stones are prevalent, either full casing is provided or the bore is made slightly larger so that the pump does not get stuck.

In areas with loose soil and silt, the problem of 'Bore Collapse' is very common. However, such problems can be tackled by providing full casing pipes. Care should also be taken while drilling the bore well. The bore should be vertically straight and free from any bend.

WHAT SHOULD BE THE BORE SIZE WITH RESPECT TO THE OUTER DIAMETER (OD) OF THE PUMP ?

For bore wells without casing pipe and in areas where loose bolders are present in the bore, it is suggested that the size of the bore should be minimum 2" more than the OD of the pipe. This is to prevent the pump from getting stuck up due to loose bolders.

For bore wells with casing pipe, a minimum gap of ½ " between the Internal Diameter (ID) of the casing and OD of the pump is recommended.

WHY IS THERE A VARIATION IN THE THICKNESS OF PIPES ?

The thickness of the pipes is designed taking into consideration weight of the pump, weight of the water column and pump delivery pressure. The end of the pipes are made thicker so that even after cutting the threads and removing the material, the barrel thickness remains same and provide same strength throughout its length.

CAN ANY OTHER METAL ADAPTORS BE USED ?

Vinyl marked adaptors are passed through rigorous Quality Control in the lab for checking (a) Hardness value (b) Quality of casting (c) Blow holes and other casting defects (d) Thickness and (e) Accuracy of threads. Hence it is recommended that only Vinyl marked accessories supplied by Vinyl are used.

WHAT IS THE USE OF PUMP GUARD ?

Areas with excessive sand pumping or defective unbalanced pump fitting, results in vibration at the bottom which may lead to breakage of the pipe near the adaptor. Pump guards are used in such areas so that even after breakage of the column pipes, the pumps are easily retrieved.

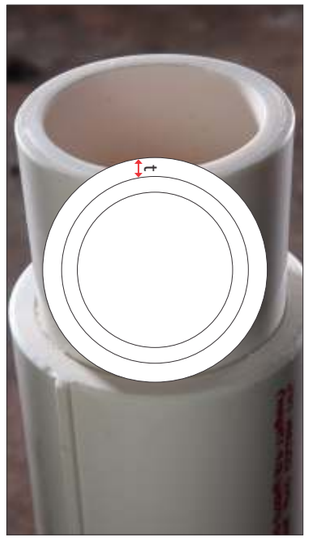
CAN PVC PIPE USED FOR ELECTRICAL WIRING CONDUIT?

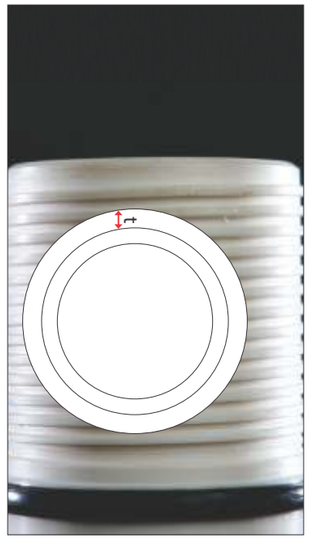
PVC are Excellent Electrical Resistance also being light in weight and Smooth internal finish, they are best suited for Electrical Wiring.

EFFECT OF TEMPERATE AND IS PVC FIRE SAFE?

PVC has low thermal conductivity than traditional pipe material. Thus, PVC pipe are very much recommended for Plumbing and Thermal insulation

Fire Hazards : It is difficult to ignite PVC pipe is difficult to ignite and will not continue burning in the absence of an external ignition source. The spontaneous ignition temperature is approx 450°c. It is also a Self Extinguishing.





- V4
- Medium
- Standard
- Heavy
- Super Heavy

uPVC COLUMN PIPE
1” to 4”

TOP & BOTTOM ADAPTER SET SS 410 & 304

SIGRI (LOWERING JIG)
2” to 4”

PUMP GUARD SET
1½” to 4”

‘O’ RING
1” to 4” ALL SIZE

1 Insert one MS Flange to Bottom Adaptor from bottom side

INSERT MS FLANGE

2 Fix the Adaptor to Pump with wrench support, tightly

FIX THE ADAPTOR

3 Wash PVC SM Piece male and female Threads with plain water and insert in Adaptor Square Threads.

WASH WITH SOAP & CLEAN WATER

4 Place 2nd MS Flange on top of PVC SM Piece coupler and connect both Flanges with SS RODS

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

CONNECT FLANGES WITH SS RODS

5 Clean the male and female Threads with plain water and insert pipe to pipe till last pipe.

INSERT PIPES

6 Drop the pump with one after another pipe with a support of LOWERING ZIG and manpower.

FIX WITH PUMPS

7 Tie the cable to pipe outer walls, with a winding wire loosely, with an extra length of one foot approximately to each pipe to sustain the Vibration jerks.

FIX WINDING WIRE

8 Fix TOP ADAPTOR to final pipe coupler, adjust with GI coupler and bend for regular usage.

FIX TOP ADAPTOR FOR USAGE