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Drill Tech
INTERNATIONAL

PIPE FOR LIFE

uPVC Casing Pipe

Company Profile

Drilltech International

Drilltech International is professional organisation founded in 2016 offers complete systems and solutions for construction, Industrial, mining and quarrying industry and we are representing well known brands in construction & mining equipments, drilling consumables and OEM replacement parts. Having relevant experience in the similar industry we have been able to provide consulting services and trainings to our reputed clients for a wide range of supply which includes right selection of the products as per the application in order to fulfil the high demands of our customers.

Drilltech International is formed to cater mainly the export business with regional office in DWC free Zone, Dubai. UAE.

Vision

To be recognised as a Drilling Solutions expert in Middle East, Africa & CIS.

Core Values

We support an environment of honesty, transparency, fairness and high moral standards.

Mission

We will achieve our goals through taking a consultative approach where we:

- Get deep understanding of customer applications and requirements
- Understand their processes in detail
- Recommend customised solutions & Process re-engineering Through these steps we will provide our customers with
- Better Productivity
- Higher Efficiency

More reliability for all your drilling solutions.

Why Drilltech International?

We maintain a superior level of integrity in interactions with business partners and associates. We strive to be the industry standard in service to customers.

- Highly trained staff and Big enough to handle the most complex projects.
- Numerous successful projects.
- Full line of brand name equipment, support systems and replacement parts.
- Complete service and maintenance department to keep you up and running.
- Save time and money while improving efficiency and product quality.
- Highly focused Research and development.
- Precision engineered products & Competitive pricing.
- Fast & effective services, excellent customer support services.

Introduction

Water covers almost three quarters of the earth's surface and a major portion of this is found in the oceans or frozen in the Polar Regions. Only a small percentage of fresh water is available as surface water in lakes, rivers, streams and as ground water. Ground water is the finite source and it must be exploited very carefully.

The past fifty years witnessed a global expansion of the water well industry particularly as extraction of water from the wells has become lifeline of industry, agriculture, and drinking water supply in cities, towns and villages.

Well construction products, therefore, play an important role to ensure the highest quality, efficiency and screens were the natural choice of well design engineers and drillers. However this material was not always found to be suitable, particularly in conditions where rapid corrosion of rapid pipes, deterioration of screens or formation of bacteria resulted in abandonment of the well and worse still to contaminates the store.

Synthetic material that belong to a family of thermoplastics have proven to be the most superior materials for well construction. Among others, unplasticised Polyvinly chloride (u-PVC) that is ideally suited for use in well construction also belongs to this familly of thermoplastics.

PVC-U has higher density then water that provides a clear advantage in well construction. Its yeild stress of 55N/mm is comparatively high. The modules of elasticity is also high enough to achive excellent stiffness in pipes preventing undesired deformation of the pipe.

PVC-U is resistance to all substances dissolved in naturalground waters. PVC-U is also resistant to aggresive and highly concentrated acid and salts. Its resistant covers a pH range of water between 2 & 12, due to which the chemical used, for cleaning, devloping and regenrating the wells (both organic and inorganic) do not affect the PVC-U well pipes. PVC-U is completely resistant to bacteria in water and soil.

Tensile Strength

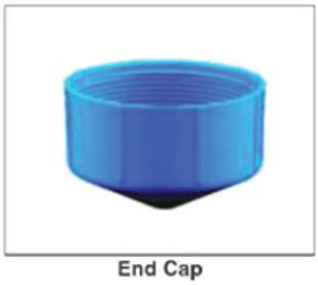
The tensile strength required can be calculated on the basis of pipe weight. In addition to the pipe weight, gravel that gets suck on the joints during the assembly and settlement phase should be considered in design calculations. The lower load bearing capacity of screen pipes with slots should be considered when the scree nular spaces, developing the well or when pumping (due to large differences in water level). The effect of such pressures cannot be precisely determined. When sinking pipes through clay layers, additional compressive forces are exerted due to swelling clays. This can happen at any depth and in extreme cases may cause considerable strain on the material surface. The values indicated in the tabels of this broucher are based on the minimum wall thickness of the pipes, their diameters and material composition.

Impact of Temperature

Temprature conditions prevailing during the laying of PVC-U well pipes will influence the mechanical properties of the material. High temprature between 30° C and 40° C as indicated by the creep strength in realtion to time, the PVC-U material properties provide sufficent safety factor for the intended use. It is however important to determine to other influences while encasing the well pipes with concrete to seal the drill holes. Temprature increases can be caused by the hydration heat of concrete. Calculations however show that these tempratures do not normally exceed 15°C, with the temprature of unset concrete reaching approx. 18°C, the temprature within the seal will be slightly more than 30°C and that is within the optimum limits.

PVC-U Screen & Casing Pipes Accessories

The following accessories, adaptors and Transition fittings in various sizes and types of joints are available to complete well installation.


End Cap

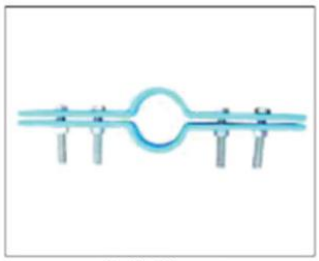

Reducer


Centering Guide


Top Cap


Lifting Cap


Wooden Clamp


Split Clamp

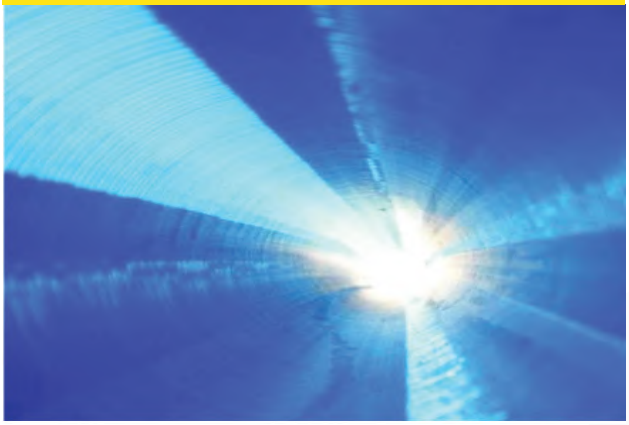

Transition Fittings

Advantages of PVC Well Casing & Ribbed Screens over Metal Casings & Screens Pipes

METAL CASING & SCREENS

- Due to local action and corrosive soil nature the life of tube wells is as low as two years
- Slot Openings get enlarged and silting starts due to erosion in the screens.
- More than 50% of slot opening is obstructed by Filtering Media (Gravel Pack) hence low permeability.
- Screen slot widths can not be made to suit aquifer sieve analysis for proper design of the well which cannot be avoided.
- Metal casing and screens are heavy, thus making installation cumbersome and tedious.
- Metal Casing require special equipments like welding sets and generator sets for assembly and erection.
- Due to its weight, vertically cannot be maintained.
- Casin Pipe & Ribboned Screen Pipes are manufactured out of quality PVC compound and PVC being an inert material are totally unaffected by corrosion.
- Slot openings are not subjected to erosion hence they do not offer any resistance to flow.

PVC WELL CASING & RIBBED SCREENS



- Due to the Ribs on the screen are FILTERING MEDIA (Gravel Pack) is kept 2 mm away from the slot opening and this increases the permeability.
- Manufactured with slot widths ranging from 0.2mm to 3mm to suit the aquifer ssieve analysis which helps engineers to design the well to give better life and yield.
- The specific gravity of PVC being 1.4, weight is only 1/5th of steel casing and screens. This makes it easier to handle and install.
- uPVC Screen Pipe & Casing Pipe are manufactured with socket and and spigot ends with suitable locking, which requires no special equipments to assemble and install.
- CASING and RIBBED SCREENS are supplied with centering guides to maintain verticality of the well.
- Total Installation with WELL CASING AND RIBBED SCREENS will be substantially cost effective when compared with conventional mild steel casing and screens.

Screen Permeability | Free Open Area

Screen Permeability

The possible production capacity of well basically depends on the following factors:

- Permeablity and yield of the water bearing start
- Permiablity of the filtering gravel
- Permeablity of the well screen
- Entrance velocity of the water at the screen

Screen dimensions are determined assumming good yeild of the aquifer and an average entrance velocity of water at 3 cm/sec. This value prevents tendency towards insrustation and thus possible reduction in the service life of the water well. This also avoids the possible risk of carrying sand from the formation as designing within the velocity avoids turbulence in the entrance to the screen.(Please refer to the relevant technical litreature as well)

Under realstic conditions, free pore area of gravel heap in its densest packing amount to approx 4.5% due to the grading mixing containing non circular gravel grains. Aquifer worthy of devlopment show permiablity (kF values) of 10 to 10 m/sec. Upon entry into the annular spaces filled with filter gravel these value changes between 10 to 10 m/sec. This means that in situ grain size distribution of the aquifier represents the major hindrance that leads to largest flow losses. When the water has reached the annular spaces it can enter the screen pipe almost without any hindrance.

Free Open Area

The percentage free open area is the sum of the internal slotted area of the scren pipe in realtion to the total internal surface area of the slotted length of pipe. The plastic sreens are manufactured with slots across the pipe axis. This ensures better stablity against lateral rock or soil pressure that is specially important in deep wells.

Screen Open Area Dia. 50 mm - 400 mm

Nominal Diameter		Number of slots Diameter	Slot width in mm								
			a'	0.2	0.3	0.5	0.75	1	1.5	2	3
mm	inch		Percentage of Open Area								
50	2	3	108	3.7	5.2	6.0	9.1	9.4	9.7	12.1	_
80	3	3	168	3.7	5.2	6.0	9.1	9.4	9.7	12.1	_
100	4	5	216	3.7	5.2	6.0	9.1	9.4	9.7	12.1	14.0
115	4.5	5	240	3.7	5.2	6.0	9.1	9.4	9.7	12.1	14.0
125	5	5	240	-	4.7	6.0	8.2	8.5	8.8	11.0	13.5
150	6	5	285	-	-	5.6	8.2	8.5	8.8	11.0	13.5
175	7	6	340	-	-	5.6	8.3	8.5	8.8	11.0	13.5
200	8	6	390	-	-	5.6	8.3	8.5	8.8	11.0	13.5
250	10	6	450	-	-	-	7.6	7.9	8.1	10.2	12.5
300	12	6	530	-	-	-	7.6	7.9	8.1	10.2	12.5
350	14	8	640	-	-	-	-	7.9	8.1	10.2	12.5
400	16	8	720	-	-	-	-	7.9	8.1	10.2	12.5
Slot Pitch mm				4.0	4.0	5.5	5.5	6.8	9.5	9.5	11.0

*Summation of slots given is for medium thickness screens. For heavy thickness screens, the summation of slots will be marginally less. The percentage of open area remains the same for both thicknesses.

Screen Permeability Dia. 50 mm - 400 mm

Nominal Diameter		Slot width in mm							
		0.2	0.3	0.5	0.75	1	1.5	2	3
mm	inch	Permeability per Meter of screen in LPS at v = 3 cm/sec							
50	2	0.18	0.25	0.29	0.44	0.45	0.46	0.58	0.67
80	3	0.27	0.39	0.45	0.68	0.70	0.75	0.90	1.04
100	4	0.35	0.50	0.57	0.87	0.90	0.93	1.16	1.34
115	4.5	0.40	0.56	0.64	0.97	1.01	1.04	1.30	1.50
125	5	-	0.56	0.66	0.97	1.00	1.04	1.30	1.59
150	6	-	-	0.78	1.15	1.19	1.23	1.54	1.89
175	7	-	-	0.93	1.38	1.41	1.46	1.82	2.24
200	8	-	-	-	1.59	1.62	1.68	2.10	2.58
250	10	-	-	-	1.81	1.88	1.93	2.42	2.97
300	12	-	-	-	2.13	2.27	2.27	2.86	3.15
350	14	-	-	-	-	2.76	2.76	3.47	4.26
400	16	-	-	-	-	3.11	3.11	3.19	4.79

PVC-U Well Casing and Screen Pipes DIN 4925 - Threaded joints

Nominal Diameter		Outside Dia.	Wall Thickness	Inside Dia.	Outside Dia. DIN	Ressistance to Hydraulic Collapse Pressure (RHCP)	Max Tensile Strength Threaded Connection	Weight kg/m
			min.	min.	max.			
mm	inch	mm	mm	mm	mm	Kg/cm	Kg	
35	1.5	42	3.5	33.8	46	32	492	0.16
40	1.5	48	3.5	39.8	53	32	554	0.71
50	2	60	4.0	50.8	66	24	856	1.02
80	3	88	4.0	78.8	94	7.5	1351	1.53
100	4*	113	5.0	101.6	121	7.5	2024	2.46
			7.0	97.2	125	15.5	3458	3.38
115	4.5	125	5.0	113.6	132	7.5	2253	2.73
			7.5	108.0	137	15.5	4247	4.02
125	5	140	6.5	125.2	149	7.5	3192	3.95
			8.0	122.0	152	15.5	4528	4.81
150	6	165	7.5	148.0	176	7.5	4873	5.38
			9.5	143.6	180	15.5	6972	6.73
175	7	195	8.5	175.6	205	7.5	7022	7.22
			11.5	168.4	211	15.5	10745	9.62
200	8	225	10.0	202.6	241	7.5	10364	9.80
			13.0	195.4	247	15.5	14659	12.56
250	10	280	12.5	252.0	297	7.5	12518	15.24
			16.0	244.8	304	15.5	18755	19.25
300	12	330	14.5	297.6	350	7.5	17964	20.85
			19.0	288.0	359	15.5	27418	26.93
350	14	400	17.5	361.0	425	7.5	29713	30.50
			21.5	352.2	433	15.5	39944	37.08
400	16	450	19.5	406.6	475	7.5	33195	38.26
			23.5	397.8	490	15.5	45870	45.67

Available in straight length: 1.0, 2.0, 3.0, 4.0 & 6.0 meter.
* 4 inch Casing also available with Pipe Thread according to DIN 4925 & 2999

Slot Size	DN 35-115	0.2, 0.3, 0.5, 0.75, 1.0, 1.5, 2.0 mm
	DN 125	0.3, 0.5, 0.75, 1.0, 1.5, 2.0, 3.0 mm
	DN 150-175	0.5, 0.75, 1.0, 1.5, 2.0, 3.0 mm
	DN 200-300	0.75, 1.0, 1.5, 2.0, 3.0 mm

PVC-U Pressure Pipe

Unplasticised PVC (PVC-U) pressure pipe is a tried and tested system demonstrating a long track record in the water reticulation sector. Pressure pipes are manufactured to the SANS 966 Part 1 specification, incorporating the traditional design stresses of 10 and 12.5 MPa. The product is ideally suited to applications in both pumping and gravity designs.

Product Range

- Pressure Classes 4, 6, 9, 12, 16 and 20 Bar.
- Working Pressures 400, 600, 900, 1 200, 1 600 and 2 000 kPa.
- Length Supplied in standard 6m lengths.
- Outside Diameters Constant for all classes of a given size.
- Pipe Ends / Joints Spigot and socket pipe with integral socket and locked-in rubber ring seal.

Dimensions

Minimum wall thickness and mass per 6-metre length for each size and class.
(Wall thickness = mm / Mass = kg)

Outside Dia. (mm)	Class 4		Class 6		Class 9		Class 12		Class 16		Class 20	
	mm		mm	Kg	mm	Kg	mm	Kg	mm	Kg	mm	Kg
16	-	-	-	-	-	-	-	-	1.5	0.62	-	-
20	-	-	-	-	-	-	-	-	1.5	0.79	-	-
25	-	-	-	-	-	-	1.5	1.01	1.9	1.25	-	-
32	-	-	-	-	1.5	1.31	1.8	1.55	2.4	2.03	-	-
40	-	-	1.5	1.65	1.8	1.96	2.3	2.47	3.0	3.16	-	-
50	1.5	2.08	1.8	2.48	2.2	3.00	2.8	3.77	3.7	4.88	-	-
63	1.5	2.63	1.9	3.31	2.7	4.64	3.6	6.09	4.7	7.80	-	-
75	1.5	3.15	2.2	4.57	3.2	6.56	4.3	8.67	5.6	11.07	-	-
90	1.8	4..53	2.7	6.73	3.9	9.58	5.1	12.34	6.7	15.89	-	-
110	2.2	6.77	2.6	8.14	3.9	12.11	5.1	15.67	6.7	20.29	8.2	24.48
125	2.5	8.91	3.0	10.66	4.4	15.53	5.8	20.25	7.6	26.15	9.3	31.55
140	2.8	11.19	3.3	13.19	4.9	19.37	6.5	25.41	8.5	32.75	10.4	39.51
160	3.2	14.64	3.8	17.36	5.6	25.32	7.4	33.10	9.7	42.76	11.9	51.73
200	3.9	22.40	4.7	26.92	7.0	39.68	9.2	51.62	12.1	66.92	14.9	81.24
250	4.9	35.33	5.9	42.46	8.7	62.68	11.5	81.12	15.1	105.03	18.6	124.58
315	6.2	56.44	7.4	67.28	11.0	99.04	14.5	129.29	19.0	167.12	-	-
355	7.0	72.19	8.4	86.55	12.4	126.57	16.3	164.83	21.4	213.49	-	-
400	7.9	90.90	9.4	109.40	14.0	161.41	18.4	210.21	-	-	-	-
450	-	-	10.6	139.39	14.0	204.60	-	-	-	-	-	-
500	-	-	11.8	172.59	17.4	252.34	-	-	-	-	-	-
560	11.0	182	13.2	217	19.5	318	-	-	-	-	-	-

Note:
1. The wall thicknesses for pipe diameters 90mm and below, including the entire class 4 pressure range, are based on a design stress, Os of 10MPa and an overall service (design) coefficient (or safety factor) of C = 2.5.
2. Wall thicknesses for pipe diameters from 110mm are based on a design stress, Os of 12.5MPa and an overall service (design) coefficient (or safety factor) of C=2.0.

PVC-M Pressure Pipe

PVC-M is a tough and resilient, modified PVC pressure pipe, developed to offer greater strength and toughness. Pressure pipes are manufactured in accordance with the SANS 966 Part 2 specification, incorporating a design stress of 18MPa.

Product Range

- Pressure Classes 6, 9, 12, 16, 20 and 25 Bar.
- Working Pressures 600, 900, 1 200, 1 600, 2 000 and 2 500 kPa.
- Length Supplied in standard 6m lengths.
- Outside Diameter Constant for all classes.
- Pipe Ends / Joints Spigot and socket pipe with integral socket and locked-in rubber ring seal.

Dimensions

Minimum wall thickness and mass per 6-metre length for each size and class.
(Wall thickness = mm / Mass = kg)

Outside Dia. (mm)	Class 6		Class 9		Class 12		Class 16		Class 20		Class 25	
	mm	Kg	mm	Kg	mm	Kg	mm	Kg	mm	Kg	mm	Kg
50	1.5	2.1	1.5	2.1	1.7	2.4	2.2	3.0	2.7	3.7	3.3	4.4
63	1.5	2.7	1.6	2.8	2.1	3.7	2.7	4.7	3.4	6.0	4.1	7.0
75	1.5	3.2	1.9	4.0	2.5	5.3	3.2	6.8	4.0	8.2	4.9	10.0
90	1.8	4.6	2.2	5.6	3.0	7.6	3.9	9.7	4.8	11.9	5.9	14.4
110	2.2	6.9	2.7	8.4	3.6	11.1	4.7	14.4	5.8	17.6	7.2	21.5
122	-	-	-	-	4.0	13.3	5.2	17.2	-	-	-	-
125	2.5	8.9	3.1	11.0	4.1	14.4	5.4	19.1	6.6	22.7	8.2	27.9
140	2.8	11.2	3.5	14.2	4.6	18.1	6.0	24.1	7.4	28.6	9.1	35.8
160	3.2	14.6	4.0	18.2	5.2	23.5	6.9	30.8	8.5	37.6	10.4	45.5
177	-	-	-	-	5.8	28.1	7.7	36.8	-	-	-	-
200	3.9	22.3	4.9	27.9	6.5	36.8	8.6	48.2	10.6	60.3	13.0	71.3
250	4.9	35.1	6.1	44.9	8.1	57.6	10.7	75.4	13.2	94.6	16.3	112.5
315	6.2	56.3	7.7	69.7	10.2	91.7	13.5	120.3	16.6	146.7	-	-
355	7.0	72.0	8.7	89.2	11.5	117.3	15.2	153.6	-	-	-	-
400	7.8	90.3	9.8	113.5	13.0	149.8	17.1	195.4	-	-	-	-
450	8.9	116.7	11.0	144.0	14.6	190.1	-	-	-	-	-	-
500	9.8	144.4	12.2	177.7	16.2	234.8	-	-	-	-	-	-
560	11.0	182	13.5	222	117.1	280	23.4	378	-	-	-	-
630	12.5	232	15.4	285	20.4	375	26.9	489				

Note:
1. Wall thicknesses for PVC-M pipes are based on a design stress, Os of 18MPa and an overall service (design) co-efficient (or safety factor) of C = 1.4.

Screen Permeability | Free Open Area

Material

- PVC-U, unplas_cised polyvinyl chloride is the almost ideal material for manufacturing well pipes as it is impervious to corrision and chemical action, easy to handel and install, light in weight, non toxic, non conductive. Its long service life make it an economical choice over other materials. Selection of right polymer grades, additives and stabilizing agents is an important criteria to produce a quality product and the lay a special emphasis on this.
- Upon request the manufacturer can provide a certificate of compliance with DIN EN 10204, 2.1
- In Europe and other countries most of the manufacturer are still using lead Stabilizers due to its lower cost.
- The "European Plastics Pipes and fittings association" represent by TEPPFA has set itself the goal to reduce the use of Lead Stablizers in the EU by 25% until 2005 and by 75% until 2010 and by 100% until 2015.

Properties

Physical Properties

- Physical Properties To meet or exceeds the user's expectation on the external pressure ressitance, load bearing capacity of the threads, pipe dimensions and free open ares of the screen pipe Vinyl floats all the set standars for the crieteria. Tests on the physical properties and their compliance with the applicable rules and guidlines are carried out of the State of the art in-house Laboratry. Technical data of the physical properties of our well pipes are listed in the table below:

Chemical properties

The chemical resistance of PVC-U well pipes is exceptionally high. pipes are highly resistant to all kinds of groundwater, lake water, brine and even diluted acids and alkaline solutions. Even the repeated treatment with regenrating and disinfecting agents do not affect oue well pipes.

Properties	Unit	Value	Standard
Impact Strength	-	max 10% reptures	DIN EN ISO 179
Notched impact strength	Kj/m^2	above 5	DIN EN ISO 179
Yield stress	N/mm^2	45 to 55	DIN EN ISO 527-2
Modulus of elasticity	N/mm^2	2500 to 3000	DIN EN ISO 178

Standard

Since 1981, Plas_c well casing and screen pipes manufacturing guidlines have beenlaid in DIN 4925,Part 1-3 Standard. This standard defines the following proper_es:

- Material
- Pipe Colour (Ral 5015) Dark blue
- Pipe nominal diameter, outside diameter and wall thickness
- Laying length
- Slot cutting lateral to the tubular axis including slot Specifications like slot width, slot length, number of slots, Summation of slots, minimum open area, etc.
- Thread joints

Summerizing we can say that the standard on plastic screen and well casing pipes manufactured with unplasticised polyvinyl chloride (PVC-U) comprises the follwing:

DIN 4925, Part 1

Well screens and casing of unplasticised polyvinyl chloride (PVC-U) for Water Well Filters Pipes & Casing - Part 1: DN 35 to DN 100 with Whiteworth pipe thread according to DIN2999-1.

DIN 4925, Part 2

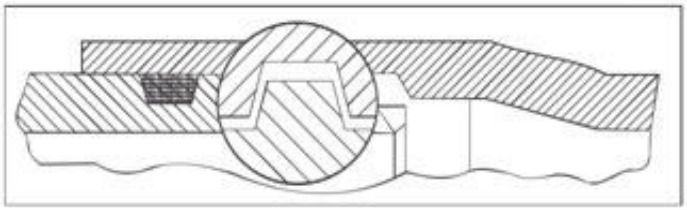
Well screens and casing of unplasticised polyvinyl chloride (PVC-U) for Water Well Filters Pipes & Casing - Part 2: DN 100 to DN 200 with Trapezoidal thread.

DIN 4925, Part 3

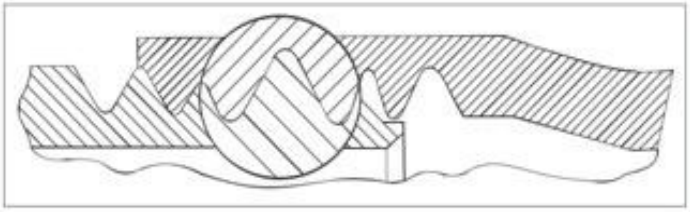
Well screens and casing of unplasticised polyvinyl chloride (PVC-U) for Water Well Filters Pipes & Casing tube wells-Part 3: DN 250 to DN 400 with Trapezoidal thread.

Thread Joints (More Connections on next page)

R ≙ Pipe thread, DIN 4925 T
T ≙ Trapezoidal thread, DIN 4925



T ≙ Trapezoidal thread according to DIN 4925 Part 2 and 3, pitch 12mm, DN 250-400



R ≙ Pipe thread (Whiteworth pipe thread) according to DIN 4925 Part 1, with reference to DIN 2999 Part 1, cylindrical internal thread and taper externalthread, pitch 11 threads per inch, DN 35-100

PVC-U Screen, Casing Pipes & Joints

Nominal Diameter		Outside Dia.	Wall Thikness	Inside Dia.	Socket Outside Dia.	Ressistance to Hydraulic Collapse Pressure (RHCP)	Max Tensile Strength Sure-Loc Connection	Weight
mm	inch	mm	mm	mm	mm	Kg/Cm	Kg	Kg/m
50	2	60.0	5.5	47.6	73	66	929	1.37
80	3	88.7	6.0	75.1	103	25	1400	2.24
100	4	113.0	6.0	99.4	127	11.5	1830	2.93
115	4.5	125.0	6.0	111.4	139	8.5	2042	3.25
125	5	140.0	60.5	125.2	155	7.5	2758	3.95
150	6	165.0	7.5	148.0	183	7.5	3369	5.38
175	7	195.0	8.5	175.6	215	7.5	5020	7.22
200	8	225.0	10.0	202.6	248	7.5	5790	9.80
250	10	280.0	12.5	252.0	309	7.5	10800	15.24
300	12	330.0	14.5	297.6	363	7.5	12729	20.85
350	14	400.0	17.5	361.0	440	7.5	15428	30.50
400	16	450.0	19.5	406.6	495	7.5	17357	38.26

Available in straight length: 1.0, 2.0, 3.0, 4.0 & 6.0 meter. Ressitance to Hydraulic Collapse Pressure (RHCP) given in the table are valid only for plain casing pipe with sure-loc joint

Slot Size	DN 50-115	0.3, 0.5, 0.75, 1.0, 1.5, 2.0 mm
	DN 125	0.3, 0.5, 0.75, 1.0, 1.5, 2.0, 3.0 mm
	DN 150-175	0.5, 0.75, 1.0, 1.5, 2.0, 3.0 mm
	DN 200-300	0.75, 1.0, 1.5, 2.0, 3.0 mm
	DN 350-400	1.0, 1.5, 2.0, 3.0 mm

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