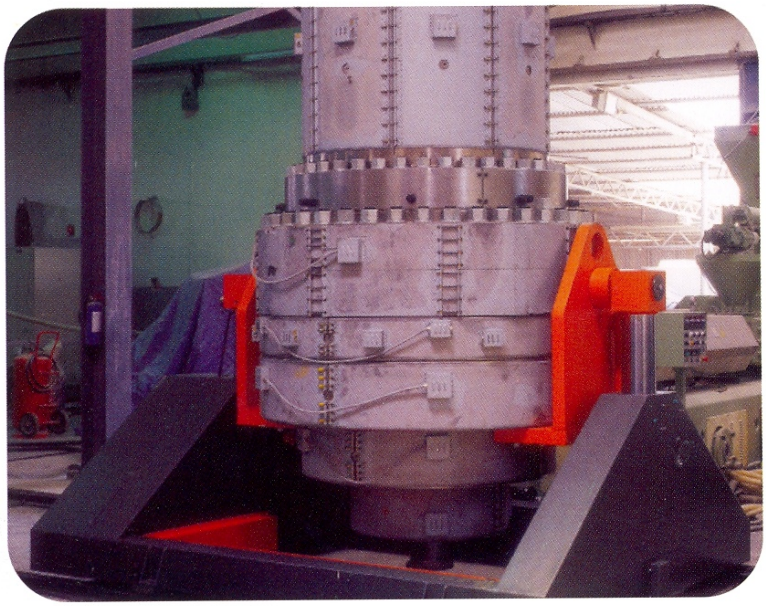
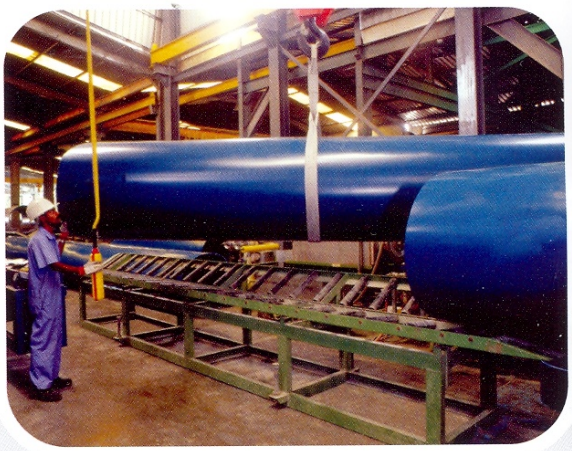
Cosmoplast™

WELL CASING

International Quality,
Local Expertise





ABOUT THE COMPANY

Cosmoplast industrial company was founded in the year 1976. It was a time when infrastructure and development in the region was just starting and there was a pressing requirement for locally supplied infrastructure solutions to cater to the growing needs of all the Gulf countries. With this in mind the company was formed to supply plastic and allied products to the region. Since then, constant growth and diversification has maintained Cosmoplast as an acknowledged leader in the industry.

As the infrastructure in the Gulf area continues to undergo massive development, there is a tremendous demand for a reliable and clean water supply for all aspects of the economy. One of the major sources in obtaining this water is from water well extraction, this is especially so in remote areas of the country.

Adherence to international quality standards has resulted in a high level of credibility for Cosmoplast range of casing and screen products in both local and international

markets. The ISO 9002 quality certificate, awarded in 1997 and then upgraded to ISO 9001 IN 2000, are milestone in the Companies quest for quality in manufacturing and overall customer satisfaction.

In line with this, all Cosmoplast casing and screen products are manufactured to strict quality standards and procedures. Cosmoplast Quality Control department can assure conformance to many international standards including BS, DIN and ASTM. The company can also manufacture products to individual customer requiremets that may diverge from standard international specifications. This gives us the flexibility to offer products for unique and highly demanding applications that may not be available in standard or off the shelf packages.

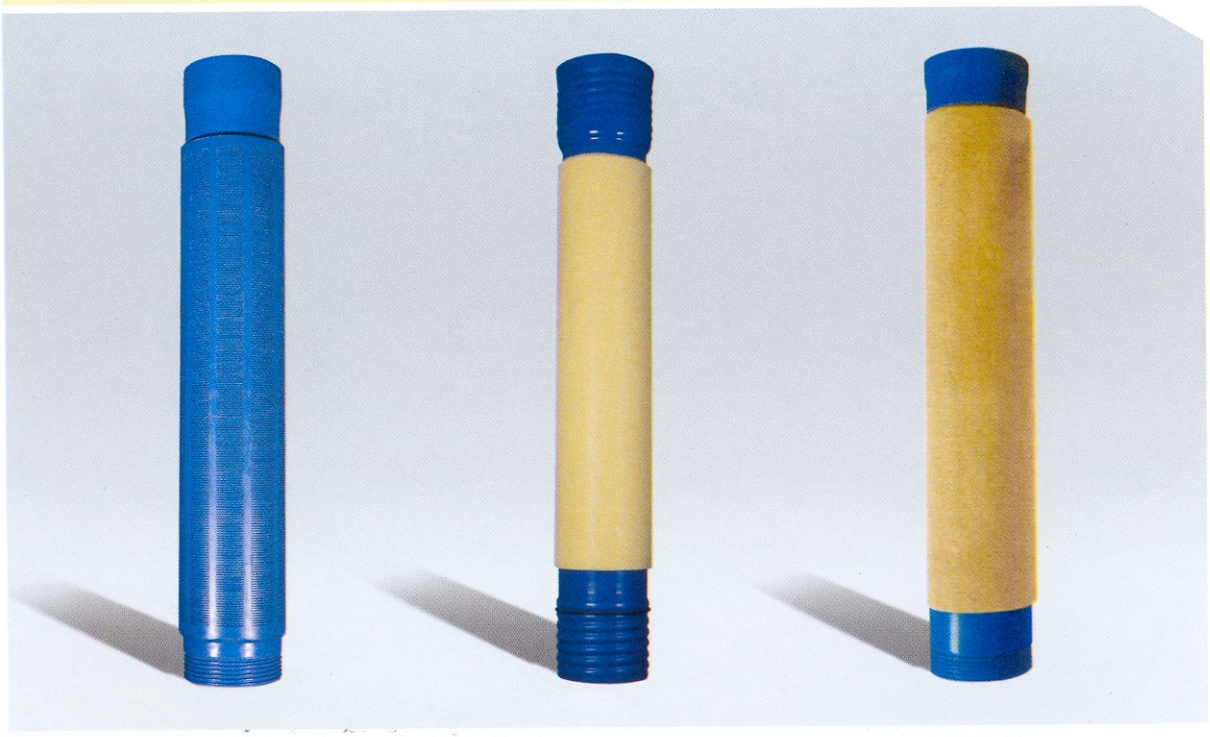
No other manufacturer can supply the unrivalled blend of local knowledge, experience in manufacturing, history of service and adaptability in development to provide the local markets with the optimum water well casing and filtering systems.

FILTERWELL, GRANULEPACK, GRAVELPACK

The Filterwell system is a combination of an internal screened pipe and an external slotted jacket pipe with a granular uPVC filter medium located in the gap between the two. Granulepack is a normal screened pipe covered with a bonded uPVC granular filter medium. The structure of Gravelpack is similar to the Granulepack with the exception of the filter medium comprising of specialized fine-grained sand.

	Filterwell			Granulepack		Gravelpack			
OD (Inch) (mm)**	12 330	25 630	40 1,000	12 330	25 630	10 280	12 330	14 400	25 630
Wall thickness (mm)	14.5-16	20-22	32	14.5-16	20-22	12.5-14.5	14.5-16.5	17.5-20	20-22
Filter thickness (mm)	8	15	17	15	17-22	13-17	15-18	17-19	17-22
Outer shell thickness (mm)	6	7.5	10	N/A	N/A	N/A	N/A	N/A	N/A
Granulation size (mm)	1.3*	1.3*	1.3*	2-3	2-3	1-1.5	1-1.5	1-1.5	1-1.5
Joint Type	Moulded or cut	Moulded or cut	Moulded	Moulded or cut	Moulded or cut	Moulded or cut	Moulded or cut	Moulded or cut	Moulded or cut

Slot size 1 or 2 mm depending on customer specifications. *Depending on filter medium used.
Jointing as per customer requirement, moulded thread or cut thread available. **Nominal Diameter



ISO 4427/4437
BS EN 1329/1401

ISO 9001 : 2000 Certificate No: FM75767

LARGE AND EXTRA LARGE DIAMETER WELL CASING AND SCREEN

Unique among the items that Cosmoplast can offer is its 1,000 mm diameter well casing and screen products. These have been configured for some of the more unusual well requirements which are found in the gulf region.

These sizes can be produced in solid wall formats utilizing either a single extrusion or multi-layer co-extrusion with the screw jointing system employing an enhanced moulded thread design.

One of the major advantages of such a size lies in its down well storage capability due to the volume of water, which can be held within the casing/screen structure.

Large Diameter Casing & Screen

Nominal Diameter		Wall Thickness	Joint Type
Inch	mm	mm	
40	1,000	25	Moulded Thread
25	630	20-22	Moulded or Cut Thread

Slot size 1 or 2 mm depending on customer specifications

Cosmoplast co-extruded casing and screen products are at the vanguard of material development in well casing systems. These unique pipes are made from specialized uPVC formulations, which provide high tensile strength coefficients thus allowing reduced operational wall thickness when compared to normal well casing products.

Standard Range according to DIN 4925 Parts I, II, III

Nominal Size	In DN	(2") 50	(3") 80	(4") 100	(4.5") 115	(5") 125	(6") 150	(8") 200	(10") 250	(12") 300	(14") 350
Test Mandrel Diameter	mm	50	77	98	110	122	144	195	243	290	350
Internal Diameter	mm	52	80	103	115	127	150	205	255	301	365
Outside Diameter Limit Deviation	mm	60 +0.2	88 +0.3	113 +0.3	125 +0.3	140 +0.4	165 +0.4	225 +0.5	280 +0.5	330 +0.6	400 +0.7
Wall Thickness Limit Deviation	mm	4.0 +0.6	4.0 +0.6	5.0 +0.7	5.0 +0.7	6.5 +0.9	7.5 +1.0	10.0 +1.2	12.5 +1.5	14.5 +1.7	17.5 +2.0
Max. OD at Connection	mm	66	94	121	132	149	176	241	297	350	425
Min. Screw Length	mm	60	60	47	47	62	62	72	88.5	88.5	88.5
Actual Screw Length	mm	63	63	55	55	55	90	90	95	95	110

Heavy Duty Ranges

Nominal Size	In mm	(8") 200	(10") 250	(12") 300	(14") 400	(20") 540
Internal Dia	mm	200	250	292	364	500
Max. Outside Dia	mm	225	280	330	400	543
Min. Wall Thickness	mm	12.5	15.0	19	18	20.5
Screw Length	mm	70	85	110	110	110

Conventional 10" to 25" Screen and Casing Configurations

In	OD (mm)	ID (mm)	Wall Thickness (mm)	Thread Details	Remarks
10"	280	255	12.5	Round/Trapezodial/Buttress Tread 14mm Pitch	Standard Range
10"	280	252	14.0	-do-	Heavy Duty Range
10"	280	250	15.0	-do-	-do-
10"	280	248	16.0	-do-	-do-
10"	280	243	18.5	-do-	-do-
12"	330	301	14.5	-do-	Standard Range
12"	330	294	18.0	-do-	Heavy Duty Range
12"	330	292	19.0	-do-	-do-
14"	400	365	17.5	-do-	Standard Range
20"	540	500	20	-do-	-do-
20"	540	490	25	-do-	-do-
25"	630	586-590	20-22	-do-	-do-

DURAWELL SCREEN

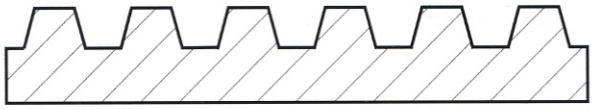
Similar to the Well Casing products, the Durawell Screen is made of a specially formulated uPVC compound to provide maximum hoop and axial strength, material stability and total resistance to corrosion or chemical attack. Different water table conditions will dictate the types and specifications of screen to be used to provide efficient and trouble free operations over the longer term. Critical factors such as open area and slot width of the screen will be specified by the size and type of the sand and gravel packing required by either the end user or drilling contractor involved. The Durawell range has been specifically developed to offer a specialized screen configuration for most water well and aquifer conditions encountered.

Durawell Screen Specification

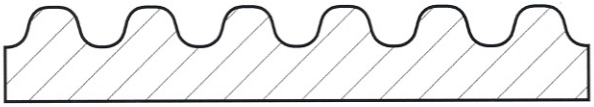
NOMINAL (In)	DIAMETER		Number of Slots In Cross Section	% Slot Length to Circumference ± 5%	Cutting Blade Diameter	SLOT WIDTH						
	ID (mm)	OD (mm)				0.3	0.5	0.7	1.0	1.5	2.0	3.0
						% Open Area						
1 ½	40	48	3	84%	80	2%	4%	5%	7%	10%	13%	
2	50	60	4	65%	80	2%	4%	5%	7%	10%	12%	
3	80	90	4	65%	80	2%	4%	5%	7%	10%	12%	
4	100	114	4	70%	160	3%	5%	6%	9%	12%	15%	
5	125	140	4	79.6 %	160	3%	5%	7%	9%	13%	16%	
6	150	165	4	67 %	160		5%	8%	10%	14%	18%	22%
8	200	225	6	67%	160			7%	9%	13%	16%	19%
10	250	280	8	72%	160				8%	12%	15%	22%
12	300	330	8	77 %	160				10%	13%	17%	23%
20	500	543	10	73.7%	175				8%	12%	15%	23%
25	586	630	12	69 %	175				8%	12%	15%	19%
40	970	1000	16	58 %	175						14%	15%
40	950	1000	16	54 %	175						11%	

THREAD JOINTS

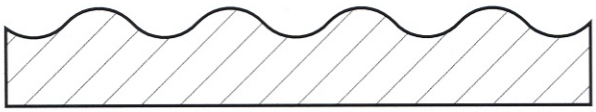
Different types of thread profiles used in Durawell casing and screen.



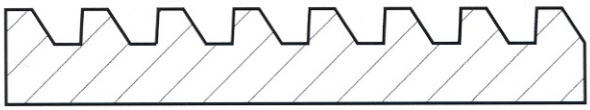
Trapezoidal Thread - to DIN 2999 with a modified depth to DIN 4925 pitch 0.5 inch (11mm)



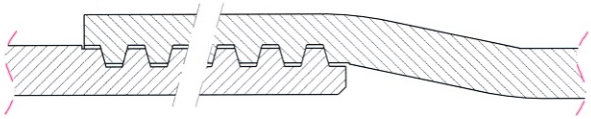
Trapezoidal with Rounded Shoulder - Cut to DIN 103 or BS 1104 with a modified depth to complement pitch. Pitch 0.6 inch (11mm)



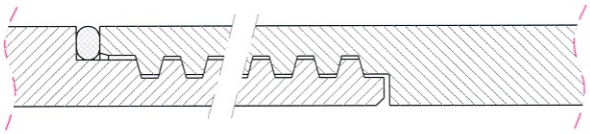
Rounded Thread - A special thread for use on heavy duty large diameter casing with a 14mm pitch.



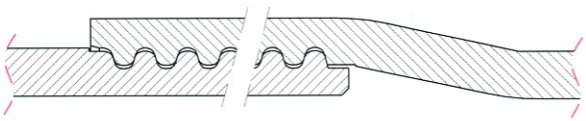
Special Buttress Thread* - 14mm pitch



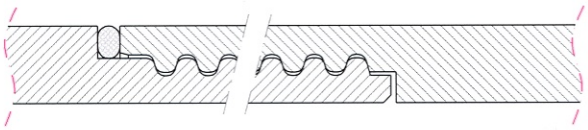
Trapezoidal Thread DIN 4925



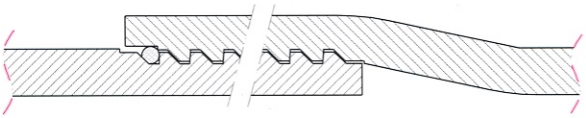
Flush Joint Trapezoidal Thread



Trapezoidal Round Shoulder Thread



Flush Joint with Trapezoidal Round Shoulder Thread



Buttress Thread*

ISO 4427/4437
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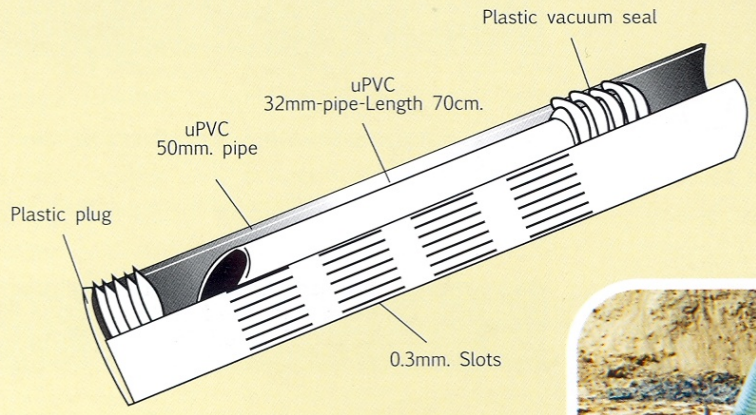
* Patent Pending

WELL POINT DEWATERING SYSTEM



Slotted length 90 cm.
Available in 4mtr,
6mtr and 7mtr length

HANDLING

AS uPVC is a material that is approximately 1/5th of the weight of ductile iron, then proper handling of this material is an area which is sometimes incorrectly addressed and thus can seriously affect the quality of the final pipe system structure.

During transportation, casing and screen must not be handled roughly. This is particularly so when they are in contact with hard surfaces. Dropping from a height or dragging them from one place to another may damage the pipes and make them insuitable for use.

Use of improper machinery/handling equipment for lifting or moving pipes must be avoided at all times. Where mechanical handling equipment is used, it should be insured that any metallic implements do not come in direct contact with the pipes. Fibrous material like ropes and web slings are ideal for such purposes, as they will not damage the pipe walls.

TRANSPORT

The transportation vehicle must ideally have a flat bed, free from any rough surfaces or corrugations.

The overhanging of pipes from the bed of the transporting vehicle must not exceed 1 Meter, must be evenly supported and should be loaded with sockets aligned at alternate ends.

STORAGE

If uPVC casing or screen is to be stored for long periods of time, It is necessary to observe a few precautions.

IN BUNDLES. It is important that factory made bundle should have a flat surface to rest on. The bundles must remain undisturbed till they are required for use as excessive movement can damage them permanently.

LOOSE. These must also have a flat surface to rest on and it may be sometimes necessary to level the appropriate site prior to storage. Alternatively, timber supports, not less than 75 mm wide placed at distances not greater than 1,5 meters can also meet this requirement.

Casing and screen sockets must be placed with alternating ends to avoid damage to the sockets. Casing of different dimensions should be stored separately. Wherever this is not possible the larger and heavier ones must always be at bottom stack.

The stack height should be restricted to seven layers or less, with the total heigh not exceeding 2 meters. Where a storage period of more than a month is anticipated, the stack must never exceed 4 layers or a maximum stack height of 1 meter. All stacks should be properly covered by tarpaulin, which should be securely fastened to the timber supports to afford shaded and airy storage conditions.

ON SITE HANDLING AND STORAGE GUIDELINE

uPVC threaded socket pipes are used mainly as casing and screen pipes. In this case extreme care should be taken to safe guard the pipe thread from any damage.

- Threaded socket pipes are bundled and strapped in a special way with proper wooden packing to avoid damage of pipe thread. As far aspossible strapping should remain in position until such time that the pipe is to be used.

- Where individual casing and screen pipe lengths are stacked on the site, Such individual pipes should be stored on flat even ground and the total height of the stack should not cross one meater.

- While lifting each pipe vertically always use lifting piece which can be coupled to the pipe. Lifting pieces are made from the same pipe matrial and are available with us.

- Continuous use of lifting piece can damage its thread. It is advisable to discard it and use new lifting piece if the thread is found worn out after some usage.

- Pipes should be properly protected from direct sunlight. If covered to tarpaulin care should be taken to provide proper airflow to avoid heat entrapment.

- PVC pipes are difficult to ignite with a naked flame but once ignited can burn extremely fiercely. Although the risk is small, storage should take account of possible sources of ignition and the consequences of a possible fire.

- Never place pipes in contact with lubricating or hydraulic oil, gasoline, and solvents, Pipes should be stored away from exhaust outlets and all other high temperea-ture sources.

- In the case of site storage careful consideration should be given to the following aspects:-

- Security of all materials and equipment from theft, accidental damage or contamination.
- Safety of the general public, especially children and blind persons.
- the movement of traffic, construction equipment, farm machinary and animals.

RESISTANCE TO BIOLOGICAL ATTACK AND GROWTH

Casing and screen made from uPVC is completely immune to any microscope life that it might be exposed to. It also does not offer a food source to any bacterial life form and is completely guaranteed to withstand any such growth.

RESISTANCE TO WEATHERING

Long and high temperature exposure to sunlight, especially in the Middle East where the surface temperature of pipes may rise significantly above the ambient temperature may considerably reduce the tensile strength of uPVC pipes. Due to certain ultra violet radiation, the pipe surface can discolor and craze over. This degration causes a marked reduction of the pipes in addition to color change.

Solar gain i.e the heat that the pipes absorb when exposed to direct sunlight, may also cause permanent damage to pipes and fittings and therefore, proper precautions must be taken while storing them as detailed previously in this brochure.

RESISTANCE TO ABRASION AND TUBERCULATION

Abrasions on uPVC pipes whether due to stress from abrasive fluids or excessive pressure are never localized and cause erosion over a large area. Generalizations would not be appropriate due to the Large types of abrasions possible. Tests have however shown that uPVC pipes are up to 2.5 times more resistant to abrasions when compared to mild steel. uPVC are totally immune to tuberculation caused by soluble enerumants such as calcium carbonate, as it does not offer a firm base to any precipitate.