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Nu-Drain™

Underground Drainage and Sewerage System

with readymade ultra inspection chambers and manhole

The Supreme Industries Limited, has evolved as an undisputed leader in Indian Plastic Industry, with valuable experience in providing innovative and cost effective piping solution. The portfolio of comprehensive and exclusive range of Supreme plastic pipe products are designed and manufactured to meet and please practically- the highest standards set by the building and construction industry across the world.

Supreme proudly offers, Nu-drain Underground Drainage and Sewerage System. It is one of the latest and unique product development, Nu-drain is a breakthrough in underground sewerage system technology giving several advantages over erstwhile underground sewerage products made from conventional materials. Conventional drainage products are associated with several problems, which can be broadly classified into Leakage, Blockages and Breakages. Installation of these conventional products is also cumbersome and time consuming. On the other hand the Supreme Nu-Drain underground drainage system is not only free from these problems but equipped with many outstanding features. We believe this product has potential to change the face of sanitation, construction and environment in the country and will certainly enhance the quality of life by improving the quality of sanitation system. Thus it assures long term system performance and lasting smile !

... an underground drainage revolution

Nu-Drain™ Underground Drainage and Sewerage System

The System :

Supreme underground drainage and sewerage system has been designed with a view to modern man's inclination towards health, hygiene and his aversion to filth and pollutants. Due to unpleasant nature of human waste, a drainage system should be "out of sight and out of mind". Most of the drainage systems are actually hidden from sight. It is hence important that it should be of superior quality and should be able to function year after year without leakage or defects. It becomes unpleasant and expensive to address such problem that arise in conventional underground products unexpectedly. Such problems may happen due to poor product quality or due to faulty construction and outdated technology.

Nu-drain system is intended to carry soil and waste from S.W.R. drainage system to roadside sewers or drains and from there to treatment plant or disposal point. This system is advantageous over traditional drainage products for all drainage and sewerage application and highly recommended for buildings where hygiene is a prerequisite such as hospital, hotels, etc. The system is considered to be most ideal for applications, where horizontal lines run beneath the floor other than ground levels in hanging form for ex. basement. The system can also be used for rainwater collection and disposal, including rainwater harvesting. In short, the system provides complete solution for underground drainage and sewerage application.

The system is completely watertight and hence it is free from ingress and seepage of water and hence considered to be most hygienic. Unlike conventional drainage products, there is no fear of pollution of underground water, soil or ill effects on building foundations. In this fast age, this product is blessing to housing and construction industry as tremendous saving in time and labour is possible. This is because installation of this system is quite simple and fast. The choice of the raw material, the structural accuracy and the strict quality control imparts high degree of reliability.

Product specifications :

System comprising solid wall uPVC Nu-drain pipes conforms to IS: 15328:2003, whereas structured wall hi-tech Eco-drain pipes are made as per EN-13476 and meet the requirements of IS: 15328 standard. Plastic moulded inspection chambers are made as per BS: 7158:2001.

Features and Benefits :

Great Flexibility - Due to availability of readymade inspection chambers, long lengths of lighter weight pipes and different components, installation of this system is very convenient and fast.

Perfect Hydraulic Properties - Mirror smooth inside surface of the pipes and streamline design of the chambers, greatly reduce the possibility of blockages and maximize flow characteristics. As a result, carrying capacity of these pipes can be increased by 40% over concrete pipes.

Great Strength - System is sufficiently durable to meet site-loading conditions.

Watertight System - Pipe, riser or shaft connection with the chamber base is absolutely watertight and unique design of pipe joints with click ring and sealing ring makes the system completely leak proof.

Hygienic and Safe - Trouble free performance of the joints without blockage and leakage ensures high standards of hygiene.

Minimum Excavation Cost - Because of simple jointing technique, trench width can be kept minimum and smoother bore of the pipe allow high flow rates at relatively flatter gradients.

Different Flow Profile Designs - Inspection chambers and manholes are available in different flow profiles/configurations of inlet(s) and outlet in different sizes to suit the site requirements. Unwanted inlets if any can be closed with the help of blanking plugs.

Minimal Maintenance - Optimum functional qualities and good hydraulic properties play an important part in reducing the need for jetting and other forms of maintenance, and therefore operational costs are considerably reduced.

Longer Life and Overall Economy - Being free from problems like corrosion and susceptibility to chemical reactions and as designed to carry soil and traffic loads, it is sufficiently durable, and offers long and troublefree service life.

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Components of Nu - Drain System

Inspection Chamber - Following different sizes of Ultra inspection chambers and manhole along with cover solution are available in the range.

1. Ultra 250 with and without trap provision with 110 mm inlet(s) and outlet. (Size of the trap is 75 mm)
2. Ultra 315 mm with 110 mm inlet(s) and outlet is available in seven different flow profiles/ configurations.
3. Ultra 355 mm with 160 mm inlet(s)/ outlet in 5 different configurations.
4. Ultra 450 mm multiple inlet(s) with two 110 mm inlets at 45° and two 160 mm inlets at 90° with main inlet / outlet in 160 mm Ultra 450mm chamber in different flow configurations with 200mm main inlet(s)/ outlet and 110, 160 and 200 mm branch inlet(s).
5. Ultra 600mm with 200 and 250mm inlet(s) and outlet in six different configurations.
6. Ultra 1000 mm manhole with 160,200, 250, 315 inlet(s) / outlet in different configurations.
7. Eccentric reducers in different sizes are available to convert inlet (s) / outlet to required size.

Ultra 250

This unique inspection chamber of 250 x 110 mm in uPVC is featured with provision of 75 mm trap and hence one can directly combine soil and waste lines to reduce the cost. This is also available without trap and hence customer has choice to use this chamber as per site requirements. This small version of inspection chamber is recommended for small bungalows/ houses where maximum invert depth is up to 600 mm.

Ultra 315, Ultra 355 and Ultra 450

Ultra inspection chambers in different sizes comprise chamber base, riser(s) in specially designed polypropylene/PE grade whereas cover and frame is in uPVC. GRP frame and cover is also available for Ultra 450. Entire assembly provides a completely sealed system up to ground level. It offers a wide variety of flow profiles, giving you an option for all 110-200 mm drainage applications.

A choice of different configurations provides a comprehensive, level invert system with excellent flow characteristics. The invert depth of Ultra Chambers with combination of different assemblies from top of the cover to the channel inverts are given in the table.

Ultra 450 inspection chamber is designed to provide the method of collecting 110/160/200 mm drains at invert depth up to 1280 mm by the use of Ultra 450 risers. Maximum five risers are recommended. In addition to the risers, shaft pipe in different lengths are also made available which gives maximum invert depth 1295 mm. Based on number of risers or shaft length used, invert depth obtained are given in the table below.

Concentric grooves are given on the exterior face of the riser which acts as cutting guides and shallower depths can be achieved by cutting the riser.

Inspection Chamber and Manhole Invert depth with different combinations

Ultra Chamber/ Manhole	Combination of Base, Cover / Frame & Riser/ Shaft	Invert Depth
Ultra 250	Base - self invert	220 mm
	Base with shaft - 320 mm Length	450 mm
	Base with shaft - 470 mm Length	600 mm
Ultra 315	Base - self invert	270 - 305 mm
	Base with 1 riser	395 - 465 mm
	Base with 2 risers	555 - 625 mm
Ultra 355	Base - self invert	300 mm
	Base with shaft pipe - 465 mm length	640 mm
Ultra 450	Base - self invert	365 - 420 mm
	Base with 1 riser	530 - 600 mm
	Base with 2 risers	700 - 770 mm
	Base with 3 risers	870 - 940 mm
	Base with 4 risers	1040 - 1110 mm
	Base with 5 risers	1210 - 1280 mm
	Base with shaft pipe - 460mm length	680 - 735 mm
	Base with shaft pipe - 710mm length	930 - 985 mm
	Base with shaft pipe - 1020mm length	1240 - 1295 mm
	Base & shaft with 110 & / or 160 mm branch	695 - 750 mm
Ultra 600	Base - self invert	600 mm
	Base with shaft length - 600 mm	1000 mm
	Base with shaft length - 1200 mm	1600 mm
	Base with shaft length - 1500 mm	1900 mm
	Base with shaft length - 2400 mm	2800 mm
Ultra 1000	Base - self invert	Different for diff. sizes
	Cone only	672mm
	Shaft - 600mm long	400mm
	Shaft - 800mm long	600mm
	Shaft - 1000mm long	800mm
	Shaft - 1100mm long	900mm
	Shaft - 1300mm long	1100mm
	Shaft - 1500mm long	1300mm
	Shaft - 1800mm long	1600mm

Note : For total invert depth, invert depth of base, shaft under consideration and invert depth of cone needs to be added.

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Ultra Components - Product Details

Ultra Chamber/ Manhole	Invert Depth		Component	Size of Inlet(s)/Outlet		Material	Cover Solution	Load Capacity
	Min.	Max.		D1- Main inlet(s)/outlet	D2 - Branch inlet(s)			
Ultra 250	220 mm	600 mm	Base	110	110	uPVC		
			Shaft			uPVC		
			Cover			uPVC	L.W. cover	Non load- Pedestrian
Ultra 315	270 mm	625 mm	Base	110	110	Specially developed PP		
			Riser			Specially developed PP		
			Frame & Cover			uPVC	Cover L.W. & H.W.	H.W.- 35KN i.e.3.5 tonne wheel load
Ultra 355			Base	160	160	Specially developed PE		
			Shaft			Specially developed PE		
			Cover			Specially developed PE	Cover L.W.	
Ultra 450	365 mm	1280 mm	Base	160, 200	110, 160 & 200	Specially developed PP / PE		
			Riser / Shaft			Specially developed PP / PE		
			Frame & Cover			uPVC	H.W. cover	H.W.- 35KN i.e.3.5 tonne wheel load
						SFRC / GRP	H.W. ring & cover	20 tone wheel load
			Shaft with 110 mm branch			Specially developed PE		
			Shaft with 160 mm branch			Specially developed PE		
			Shaft with 110 & 160 mm branch			Specially developed PE		
Ultra 600	800 mm	5000 mm	Base	160, 200, 250	250, 200, 160	Specially developed PE		
			Shaft			Specially developed PE		
			Telescopic Adaptor			Specially developed PE		
			Frame & Cover			SFRC / GRP	H.W.ring & cover	20 tone wheel load
Ultra 1000		6000 mm	Base	160, 200, 250, 315	315,250, 200,160	Specially developed PE		
			Shaft			Specially developed PE		
			Cone			Specially developed PE		
			Frame & Cover			SFRC / GRP	H.W. ring & cover	20 tone wheel load

Ultra 600

The Ultra 600 inspection chamber consists of the base, corrugated shaft and adjustable telescopic adapter which provides proper seating base for GRP / SFRC ring and cover. Use of telescopic adapter is not mandatory. The Ultra 600 base is available in 6 different flow configurations. All flow configurations are provided with specially designed swivel adapter which allows a free angular deflection of 7.5º from the center line in each direction. Vertically the connecting pipe can be adjusted to any required angular gradient normally used in gravity systems. This flexibility makes it possible to directly adjust the pipe connection in the trench. Extra accessories are not necessary.

This robust chamber is suitable for installation depths from 0.8 to 5 meters. The shaft provides excellent resistance to ground movement and heavy traffic loads. Ultra 600 is suitable for 250 mm pipe and eccentric reducers are available to connect 160 mm and 200 mm pipes.Simple and reliable "insitu" connections can be easily made in the shaft to create additional connections. Very soon new range of ultra 600x200 mm inlet (s) / outlet in different configurations will be made available.

Ultra 250

Ultra 315

Ultra 355

Ultra 450

Ultra 600

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Ultra 1000

Access to the sewer system for inspection, cleaning or maintenance is obtained either through inspection chamber or manhole. Unlike conventional drainage system the entry of man in advanced plastic drainage / sewer system comprising readymade chamber or manhole is almost not required. In most cases modern technology CCTV inspection cameras for inspection and jet cleaners for cleaning are available.

Supreme make small diameter inspection chamber which facilitates such remote cleaning and inspection without entry of man. Most of sewer requirements are met in Ultra 600 chambers. However for the circumstances where man entry is essentially required, Supreme has introduced Ultra 1000 mm manhole. The Ultra 600 chamber as well as Ultra 1000 manhole offer advantages like water tightness, easy and fast installation and less maintenance resulting in effective solution.

The Ultra 1000 manhole consists of a base, a shaft and a cone (at the top). Shaft is available in different lengths and can be placed one on the other for increased depth. The complete set is suitable up to 6 m depth. The advanced cone and shaft designed with ribs and corrugation and shape of cone makes the assembly strong enough and stable to withstand heavy traffic loads. It has spacious 600 mm entrance and is provided with ladder. The ultra 1000 manhole base is available in different flow profiles and suitable for pipe connection from 160 to 400 mm.

In-situ Adapter

Specially designed in-situ adapters are available for accessing any line at any height (through shaft) or angle other than the inlets of available or selected configuration of the chamber. This adaptor can be used for assessing any line even in post installation condition.

Cover solution

Ultra 315 and Ultra 450 frame and cover is available which can tilts and rotate to suit site conditions. Cover is designed for installation in light traffic and a pedestrian area is made in uPVC with loading capacity of 35 KN i.e. for 3.5 tone wheel load. Light duty cover is also made available in Ultra 250, Ultra 315 and Ultra 355 for pedestrian areas where traffic load is not expected. For internal use, sealed cover are also available. Frame and cover is designed to be push-fitted into either a riser or a base. Each cover supplied with 4 screw holes suitable for self tapping screws provided with frame and cover.

For heavy traffic condition, GRP / SFRC frame and cover is also available for Ultra 450, Ultra 600 chamber and Ultra 1000 manhole. (Covers with gratings are also available.)

Hi-tech pipes, High performance joints

Specially designed hi-tech Eco-drain pipes are noticeably lighter and less expensive than any existing PVC pipe of similar stiffness and many times lighter than a concrete pipe with equivalent load carrying capacity. These pipes are made as per EN-13476 standard and offered in 6 m length. Beside Eco-drain pipes, solid wall PVC pipes conforming to IS 15328 and marked with ISI mark are available in 3 m and 6 m lengths in different sizes are given in the table. Separate coupler with unique design of click ring and rubber sealing rings are available which makes the system absolutely watertight.

PE pipes

Supreme HDPE pipes are available in 63 to 400 mm in PN 2.5 to PN 16 pressure class. These pipes are manufactured as per IS 14333:1996 and are available in 6 meter length. The pipes are joined either by click ring type fittings or by butt welding, thus absolutely watertight. These pipes are most advantageous for undulating terrains.

Dimensions and stiffness class of Eco-drain pipes

Nominal ring stiffness SN (KN/m²)	4	8
OD mm (D)	Wall thickness in mm	
110	----	3.50
160	4.30	----
200	5.60	----
250	6.50	----
315	8.00	----

Dimensions and stiffness class of U-Drain solid wall pipes as per - IS 15328

Nominal ring stiffness SN (KN/m²)	2	4	8
SDR	51	41	34
OD mm (D)	Wall thickness in mm (t)		
110	-	-	3.2+0.5
160	3.2+0.5	4.0+0.6	4.7+0.7
200	3.9+0.6	4.9+0.7	5.9+0.8
250	4.9+0.7	6.2+0.8	7.3+1.0
315	6.2+0.8	7.7+1.0	9.2+1.2

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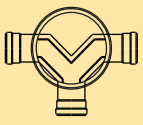
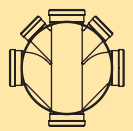
Ultra inspection chambers - configurations and accessories

Straight Through	Sizes
	315x110x110 mm 355x160x160 mm 450x200x200 mm 600x200x200 mm 600x250x250 mm 600x315x315 mm 1000x160x160 mm 1000x200x200 mm 1000x250x250 mm 1000x315x315 mm
Left or Right Hand 90° Bend	315x110x110 mm 355x160x160 mm 450x200x200 mm 600x250x250 mm 600x200x200 mm
	
Right Hand 90° & 45° Junction	315x110x110x110 mm
	
Two 90° Inlet Junction	315x110x110 mm
	

Left Hand & Right Hand 90° Bend	Sizes
	250x110x110 mm w/o Trap 250x110x110 mm with trap
Right Hand 90° Junction	315x110x110 mm 355x160x160 mm 450x200x160 mm 600x250x250 mm 600x200x200 mm
	
Left Hand 90° & 45° Junction	315x110x110x110 mm
	
Ultra 450 Multiple inlets	450x160x110 mm (110 mm two swept inlets at 45° and two 160 mm inlets at 90°)
	

Left Hand & Right Hand 90° Junction	Sizes
	250x110x110 mm w/o Trap 250x110x110 mm with trap
Left Hand 90° Junction	315x110x110 mm 355x160x160 mm 450x200x160 mm 600x250x250 mm 600x200x200 mm
	
Left & Right Hand 90° Junction (Cross)	355x160x160 mm 450x200x160 mm 600x250x250 mm 600x200x200 mm
	
Right / Left Hand 45° Bend	600x250x250 mm 1000x315x315 mm
	









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Riser	Sizes
	315mm (with rubber seal)
	450mm (with rubber seal)
Shaft pipe with socket - Ultra600 	775mm long 1075mm long 1375mm long 1675mm long 1975mm long 2575mm long
Telescopic Adaptor 	Ultra 600
GRP Frame & Cover 	450mm - 10 Ton 600/1000mm - 20 Ton

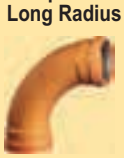
Master Trap	Sizes	Socket Type
	160x160	RxRxR
Coupler 	110 mm 160 mm 200 mm 250 mm	CR x CR CR x CR CR x CR CR x CR
Eccentric Reducer 	160x110mm 200x160mm 250x160mm 250x200mm 315x250mm	SpgxR SpgxR SpgxR SpgxR SpgxR

Shaft pipe	Sizes
	Ultra 250 - 320mm (1-1/2 Ft. invert depth) Ultra 250 - 470mm (2 Ft. invert depth) Ultra 355 - 465mm Ultra 450 - 460 mm Ultra 450 - 710 mm Ultra 450 - 1020 mm Ultra 450 shaft with - 110mm branch 160mm branch 110mm & 160mm branch
Shaft pipe for Manhole 	600mm long 800mm long 1000mm long 1100mm long 1300mm long 1500mm long 1800mm long
Frame & Cover 	250mm L.W. 315mm H.W. 315mm L.W. 355mm H.W. 450mm H.W. 1000mm
In-situ Adaptor 	110 mm 160 mm *200 mm
Hole Saw 	110 mm 160 mm *200 mm

Bottle Gully Trap	Sizes	Socket Type
	6x4" 6x4x4"	Spg SpgxSpg
Swept Tee 	110	CRxCRxCR
Equal Tee, Reducing Tee 	110 160 160x110	CRxCRxSpg CRxCRxSpg CRxCRxSpg

Shaft pipe - Ultra 600	Sizes
	600mm long 1200mm long 1500mm long 1800mm long 2100mm long 2400mm long (with rubber seal)
Cone for Manhole 	1000 x 600
Frame + Grating Cover 	315mm 450mm

Blanking Plug	Sizes	Socket Type
	75mm 110mm 160mm	Spg Spg Spg

Square Gully Trap	Sizes	Socket Type
	110mm	Spg
Swept Bend Long Radius 	110 mm (Short) 110 mm (Long)	CR x CR CR x CR
Stoneware Pipe Adapter  for plain end (rubber ring type)	4"x110 6"x160	RxSpg RxSpg

*Shortly introducing

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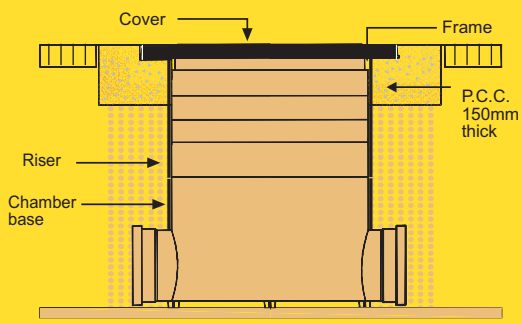
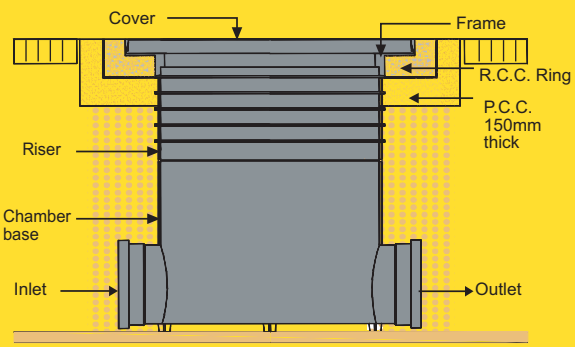
INSTALLATION ULTRA 250, 315, 355 AND 450 :

- Compact the bed and lay suitable bedding of granular material.
- Make pipe connections in the same way as per the standard procedure (use rubber lubricant for joining)
- Place Ultra chamber base on minimum of 100 mm bed of granular material and surround it with similar material 150 mm wide.
- Depending on the depth of invert required, either use chamber base only or chamber base with one or two riser for Ultra 315 and up to five risers for Ultra 450 based on required invert depth. Intermediate depths may be obtained by cutting the riser to the required depth.
- Apply rubber lubricant on rubber seal provided on the riser/shaft. The riser is designed to fit tightly into Ultra base and should be pushed fully home.
- If more than one riser is required, repeat the same procedure. Instead of risers, shaft pipe of required invert depth can also be used.
- The frame component should be positioned to meet the site requirements.
- Ensure proper positioning of the riser(s) and frame (fitted with cover)/shaft.
- Backfill the pit with granular material (soft grit/ sand) of 150 mm width with proper compaction. In case backfilling material is murum or soil it needs watering with slight compaction.

- 6" PCC at the top is recommended in case of traffic loads.
- Place the suitable cover as per the load requirements.
- Provision of GRP / SFRC ring and cover at the top on the P.C.C. further strengthen the installation.
- GRP frame and cover option is also available.



Ultra 315 Installation without R.C.C. Ring



Ultra 450mm Installation with R.C.C. Ring

Supreme team of technical design engineers are able to offer specific project assistance for your drainage installation.

- Any specification can change without prior notice.
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