

Design
Registered

Supreme®
People who know plastics best

Ultra Manhole

... a real breakthrough in sewer technology



Unique Features

- Readymade-Complete user friendly solution
- 100% watertight
- 90% Lighter than concrete manhole
- Robust design to withstand heavy traffic loads
- Minimum 50 years of service life
- Extensive saving in time and labour
- Safe against floatation
- Maintenance free

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 has been a torch bearer in transition from conventional products to advance plastics piping products in the country and has been termed as "Trend Setters of Plastic Piping Products".

After successfully introducing "Nu-drain Underground Drainage System" with Ultra readymade inspection chambers in varied different sizes up to 600 mm, we are proud to present a most innovative ready to use "Ultra Manhole" in plastic. Ultra manhole with provision of ladder is a real breakthrough in sewer technology. A combination of strength and elasticity, it is the result of our extensive R & D, which offers several advantages over conventional concrete manhole. Looking at its versatile features, this new product has the potential to change the face of sanitation, construction and environment in the country that will enhance the quality of life. Nu-drain Underground Drainage System with readymade Ultra inspection chambers and manholes provides complete solution for underground drainage and sewerage which is in line with Government's initiative to provide sanitation for all .

Jeevan bhar ka saath...

Ultra Manhole: 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.

Most of the sewer requirements are fulfilled through Ultra 600 , however where man entry is essentially required, Supreme has now introduced Ultra1000 and Ultra1200 manholes. These readymade, ready to use manholes offered by the company consists of base, shaft and a cone with suitable cover solution. This robust manhole, is designed, manufactured and tested as per EN:13598 standard and offers multiple advantages.

Fields of application: Ultra 1000 and Ultra1200 manholes are designed to provide easy access for inspection, cleaning and maintenance of private and public sewer up to 6 meter invert depth. Complete solution having robust design, durability and flexibility makes it suitable for any situation and hence it is superior substitute to conventional concrete and masonry manhole.

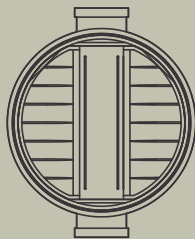


Unique Features

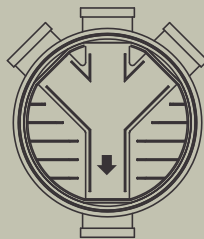
- Complete plastic solution - ready to use spacious 1.0 and 1.2 m diameter with 640 mm entrance.
- 90% lighter than concrete manholes – Easy to handle - Simple and quick installation.
- Robust design which can withstand heavy traffic loads up to 40 tons wheel load.
- 100% water tight structure - free from infiltration and ex - filtration.
- Smooth internal surface, less slim build-up, minimizing the risk of blockage.
- Suitable for installation depths up to 6 m.
- Safe against floatation.
- Flat bottom for easy and proper installation.
- Provided with inbuilt ladder to facilitate maintenance and cleaning.
- Adjustable height to suit site requirement during installation.
- Simple and reliable pipe connections at different levels are possible using 'in-situ' adapters.
- Strong and durable - can lasts for more than 50 years.
- Eco - friendly and Cost effective.

Product Range

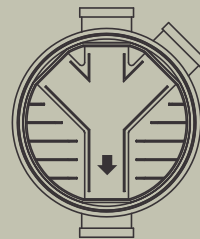
Ultra manhole is designed in three components i.e. Base, Shaft and Cone. Ultra 1000 & Ultra 1200 Manhole (1000 mm & 1200 mm inside diameter respectively) is made available in 2 different flow profiles i.e. straight through and three inlets. These configurations are offered in 7 different flow profiles by closing unwanted inlets using blanking plugs in case of 1.0 m size and in closed end form in 1.2 m size as shown below. Ultra 1000 manhole base is provided with 315 mm and 250 mm inlet(s) and outlet whereas Ultra 1200 is offered with 315 mm size inlet(s)/outlet. Smaller size of pipes can be connected using eccentric reducers. Ultra 1200 Straight through profile with 400 mm and 450 mm inlet and outlet is also made available to meet large size sewer requirements. Different flow profiles with inlet(s) and outlet sizes are given in the following tables.



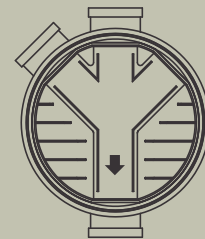
Straight Through



LH & RH 45° Junction



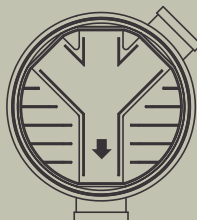
RH 45° Junction



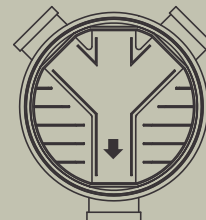
LH 45° Junction



LH 45° Bend



RH 45° Bend



Two 45° Junction

Base



Straight Through

Ultra 1200
LH & RH 45° Junction

Ultra 1000 LH & RH 45° Junction

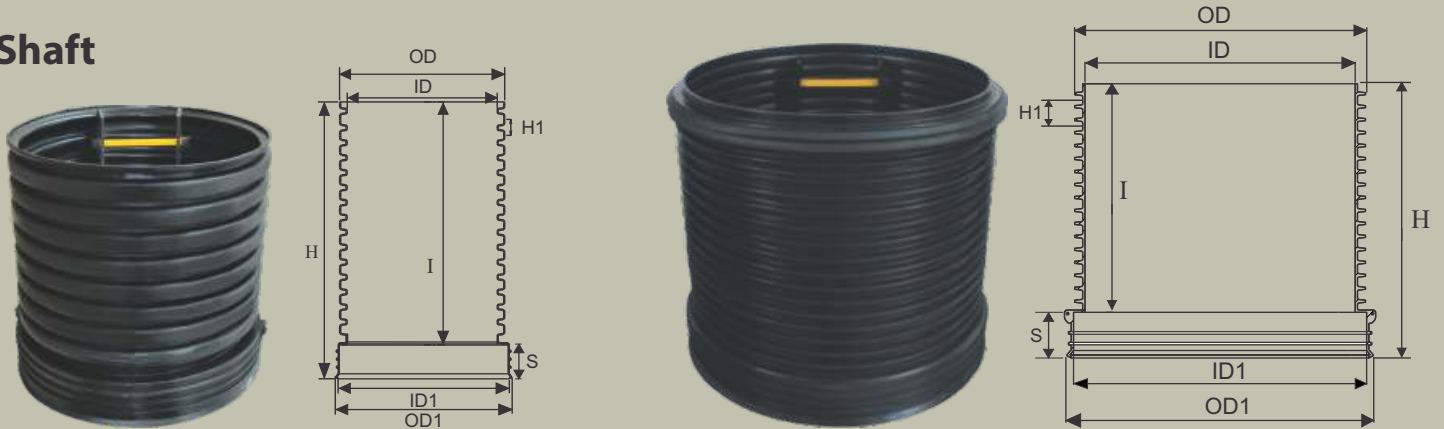
Dimensions of Ultra 1000 Base

Configurations	D1	D2	OD	I	H	L
Straight through	250	250	1106	520	575	1240
Straight through	315	315	1106	555	600	1376
LH & RH 45° Junction	315	250	1106	555	600	1376
Two 45° Inlet Junction	315	250	1106	555	600	1250
LH 45° Junction	315	250	1106	555	600	1376
RH 45° Junction	315	250	1106	555	600	1376

Dimensions of Ultra 1200 Base

Configurations	D	OD	I	H	L	In built Slope
Straight through	315	1272	585	640	1508	Nil
LH & RH 45° Junction	315	1272	565	640	1548	1 in 50
Two 45° Inlet Junction	315	1272	565	640	1450	1 in 50
LH 45° Junction	315	1272	565	640	1548	1 in 50
RH 45° Junction	315	1272	565	640	1548	1 in 50
LH 45° Bend	315	1272	565	640	1450	1 in 50
RH 45° Bend	315	1272	565	640	1450	1 in 50

Shaft



Dimensions of Ultra 1000 Shaft

OD	ID	OD1	ID1	S	H1
1102	1001	1170	1111	200	100

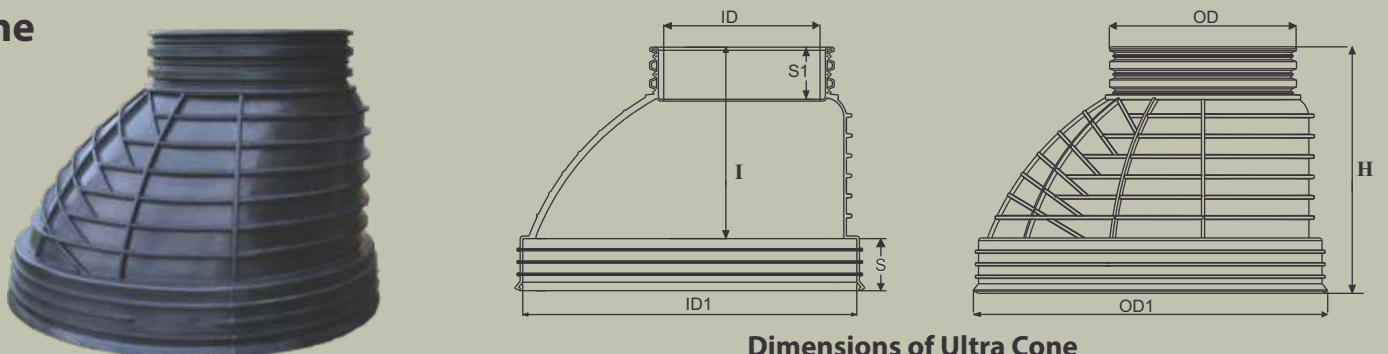
Length (H)	600	800	1000	1100	1300
Invert Depth (I)	360	560	780	880	1080

Dimensions of Ultra 1200 Shaft

OD	ID	OD1	ID1	S	H1
1272	1182	1329	1282	200	100

Length (H)	500	600	700	800	900	1000	1100	1200
Invert Depth (I)	300	400	500	600	700	800	900	1000

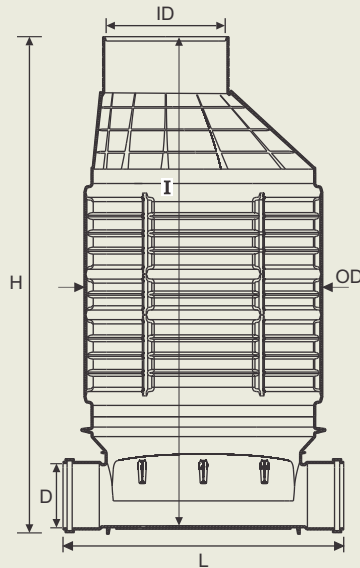
Cone



Dimensions of Ultra Cone

Size	OD	OD1	ID	ID1	S	S1	H	I
1000 x 600	708	1170	641	1111	200	205	835	630
1200 x 600	708	1340	641	1282	200	200	935	735

Single Piece Manhole



Dimensions of Single piece Manhole Ultra 1000 x 315 x 315

Configurations	D	D1	OD	ID	L
Straight through	315	315	1272	600	1377
LH & RH 45° Junction	315	250	1272	600	1377

D2- Dimension of branch inlets in case of LH & RH 45° Junction configuration

Length (H)	Invert Depth (I)
1241	1200
1541	1500
1841	1800
2141	2100
2441	2400
2741	2700
3041	3000

Single Piece Manhole : In most of the projects the invert depth of manhole is normally below 3.0 m, for such applications the use of three piece manhole may not be cost effective. Considering this fact our design team have come out with the light weight yet strong manhole in single piece design in 1 m and 1.2 m size. Like our existing 3 piece design manholes, this uniquely designed cost effective product is strong enough to withstand all sorts of loads. This new design offers following additional benefits.-

Single piece cost effective design – This uniquely designed product is made available in single piece and hence the need for rubber ring used for connections of base, shaft and cone are eliminated besides substantial saving in total product weight.

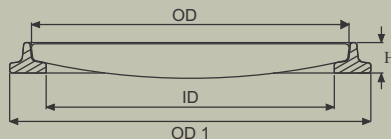
Smaller size cover - In three piece design, size of the opening 640 mm which is now reduced to 600 mm in single piece design and hence additional saving on account of cover cost makes this single piece manhole further cost effective.

Easy and fast installation – Being in single piece and lighter in weight it is very easier for installation. This single piece manhole in 1 m size is made available in different depths from 1.2 to 3.3 m invert depths with a difference of 0.3 m and hence it can be selected as per the site requirement. Similarly 1.2 m size manhole is offered in 1.3 to 3.52 m invert depth.

Light weight yet strong & sturdy – In spite of light in weight, this uniquely designed product is strong and sturdy to handle all sorts of soil and traffic loads that will encounter during and after installation.

Cover Solution

We offer variety of manhole covers in different material and load class. Details of these covers offered in different materials are given in the following table.



GRP Frame and Cover

Size	Material	Load Class M-Ton	ID	OD	OD1	H
600 /1000/ 1200	Plastic	-	625	-	720	80
	GRP	10	720	900	797	75
		20	720	900	797	75
		40	720	950	808	90
	SFRC	20	720	1020	820	150

* all dimensions are in mm

Accessories



Cone Extension Piece : This specially designed extension piece can be used for extension of cone or manhole depth up to 300 mm. This is normally required when formation level of road / ground increases after installation.



RCC Adapters: Specially designed adapters in 200x8", 250x10", 315x12" are made available to connect RCC pipes with Ultra 1000 and Ultra 1200 manhole base.



Adpater for DWC pipe : This specially designed adpoters are suitable for connecting double wall corrugated pipes with the manhole. This is made available in 315x300 mm size, and other sizes will be made available along with the DWC pipes of different sizes.



In-situ adapter: Beside, inlet(s) of selected flow profile of the base, additional connections are possible through shaft or cone at different heights or angle using specially designed in-situ adapters. These adaptors are available in 75, 110, 160 and 200 mm which can be used for assessing any line even in post installation condition.



Fittings: Different fittings are made available to facilitate easy and fast installation this includes 45° bends in 250 and 315 mm and couplers in 400 and 450 mm

Installation Procedure

Installation of Supreme Ultra Manhole is very simple and fast using specially designed rubber seal joints. Connection between different components of manhole i.e. base, shaft and cone (3 piece design) as well as pipe connection with the manhole base is very simple using push fit type rubber seal joints.

Backfilling and compaction is very important for achieving desired strength. Use of sand or non cohesive material like stone dust or small grained gravel is recommended for backfilling. It is advised to consult our team of engineers where water table is too high. Following simple steps are recommended for easy, fast and safe installation.

Excavation and Bedding

- Excavate 60 cm wider and 50 cm deeper than the size of manhole base.
- Prepare 15 cm thick bed of suitable material and compact to 95%.



Pipe Connections

- Place the manhole base in position on a compacted bed, adjust and align to the correct level using spirit level.
- Apply lubricant on sealing ring of inlet(s)/ outlet and make the connection with pipe (or accessories) by pushing the base to the spigot of pipe.

Backfilling and Compaction

Backfill the surrounding with suitable material in 30 cm layers with proper compaction.

(This should be repeated for all the manhole components up to ground level for entire depth of installation.)

Connection of Shaft (s)

- Clean and place the rubber sealing ring on the exterior face of manhole base (between top two ribs). Check the sealing ring for proper placement and damages if any.
- Apply lubricant evenly on the rubber seal around the base and on the socket of the shaft.
- Bring the shaft to the correct position and see that the ladder aligns well with the benching. Push and place the shaft on the base uniformly for full insertion depth.

- Repeat the procedure in case of more than one shaft. Shaft can be cut on site as per requirements.

Connection of Cone

Bring the cone in the right position and install the cone by pushing it evenly on the shaft fitted with rubber seal. Ensure proper alignment of ladder while placing the cone.

Installation of Cover

- Provide 150 mm PCC (M20) at the top and embed frame considering finish level.
- Place the cover of suitable load class and finish off with road top.

Note : For single piece manhole, installation procedure remains same except step by step installation of three different components, single piece manhole of preselected invert depth have to be installed.



Specifications

Diameter	: DN 1000 / 1200
Material	: Polyethylene (PE)
Colour	: Black
Standard	: EN 13598 -2
Installation depth	: 1-6 meters*, with a maximum ground water level of 5 meters
Chemical resistance	: Sewer environment
Load bearing capacity	: Heavy traffic up to 40 MT
Covers	: light to heavy traffic

* 1-6 meters with standard installation conditions

Testing

Performance of Ultra manhole components are ensured by carrying out vigorous tests as per EN 13598. Some of the important tests are shown in visual form.



Load test



Stiffness of the shaft



Vacuum test



Pullout Test



Impact strength



Anti-floatation test

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

- Any specification can change without prior notice.
- All information contained in this literature is given in good faith and believed to be accurate and reliable. But because of many factors which may be outside our knowledge and control and affect the use of the product, no warranty is given or is to be implied with respect to such information, nor do we offer any warranty of immunity against patent infringement. No responsibility can be accepted for any error, omissions or incorrect assumptions.

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