

Ultra Manholes

...a real breakthrough in sewer technology

Design
Registered

MCGM
APPROVED



Unique features

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

The Supreme is the acknowledged leader of India's plastic industry. With a portfolio of over 7500 diverse products, the most comprehensive range in the industry, we cater to almost every conceivable need and application of the customer in piping. While helping the country transit from conventional to modern piping, we have several path breaking products to our credit making us a trend setter in the industry.

After successfully introducing "Nu-drain Underground Drainage System" with Ultra readymade inspection chambers in sizes up to 600mm, we are proud to present yet another innovative ready to use plastic "Ultra Manhole". Ultra Manhole with provision of a ladder is a real breakthrough in sewer technology. A combination of strength and elasticity, it is a result of our extensive R & D which offers several advantages over conventional concrete manholes. Its versatile features have 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 will help enhance the Government's initiative of providing sanitation for all.

Supreme[®] Ultra Manholes

People who know plastics best

Ultra manhole underground sewer chamber

Access to a sewer system for inspection, cleaning or maintenance is obtained either through an inspection chamber or a manhole. However unlike in conventional drainage systems, the requirement of entry of man in advanced plastic drainage/sewer system comprising readymade chamber or manhole is almost eliminated. In most cases, modern technology CCTV inspection cameras for inspection and jet cleaners for cleaning are available.

Most of the sewer maintenance requirements are fulfilled through Ultra600, however where man entry is a must, Supreme has now introduced Ultra1000 and Ultra1200 manholes. These readymade, ready to use manholes offered by the Company consists of a base, a shaft and a cone with suitable cover. In addition to this three piece design, a single piece design is also offered. This robust manhole is designed, manufactured and tested as per EN:13598 standards. It is now approved by MCGM.

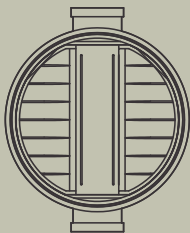
Fields of applications

Ultra1000 and Ultra1200 manholes are designed to provide easy access for inspection, cleaning and maintenance of private and public sewers up to 6m invert depth. Complete solution with a robust design, durability and flexibility makes it suitable for any situation and is an excellent substitute for conventional concrete and masonry manholes.



Product range

Ultra Manhole is designed in three components, viz., base, shaft and cone. Ultra1000 and Ultra1200 Manholes (1.0m and 1.2m inside diameter respectively) are available in straight through and three inlet flow profiles. These configurations are offered in 7 different flow profiles by closing unwanted inlets using blanking plugs in case of 1.0m size and in closed end form in 1.2m size as shown below. Ultra1000 manhole base is provided with 315mm and 250mm inlet(s) and outlet whereas Ultra1200 is offered with 315mm size inlet(s)/outlet. Smaller size of pipes can be connected using eccentric reducers to the manhole. Ultra1200 Straight through profile with 400mm and 450mm inlet and outlet is offered to meet large sized sewer requirements. Different flow profiles with inlet(s) and outlet sizes are given in the following tables:-



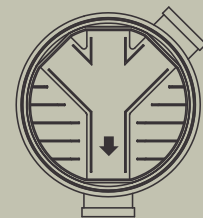
Straight Through



LH and RH 45° Junction



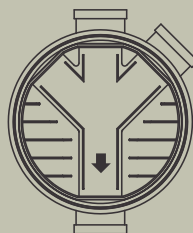
LH 45° Bend



RH 45° Bend



LH 45° Junction



RH 45° Junction



Two 45° Junction

Unique features

- **Completely made of plastic** - ready to use, spacious (1.0 and 1.2m diameter) with 600/640mm dia entrance
- **90% lighter than concrete manholes** - makes them easy to handle and allows 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 exfiltration
- **Smooth internal surface**, less slime build-up, minimizing the risk of blockage
- **Suitable for installation depths up to 6m**
- **Safe against floatation**
- **Flat bottom for easy and levelled installation**
- **Provided with inbuilt ladder to facilitate easy 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 last for more than 50 years
- **Eco-friendly and cost effective**

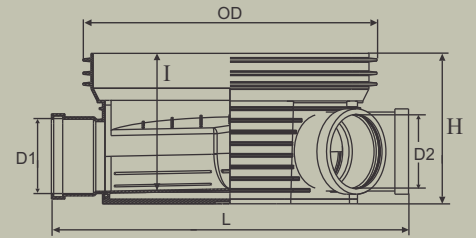
Base



Straight Through



Ultra1200
LH and RH 45° Junction



Ultra1000 LH and RH 45° Junction

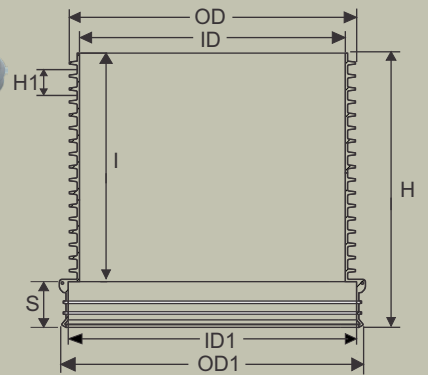
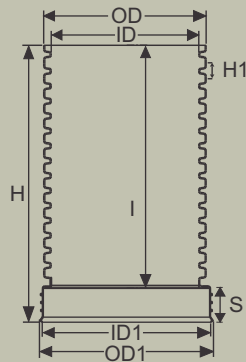
Dimensions of Ultra1000 Base

Configurations	D	D1	OD	I	H	L
Straight Through	250	-	1106	520	575	1240
Straight Through	315	-	1106	555	600	1376
LH and 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
LH or RH 45° Bend	315	250				

Dimensions of Ultra1200 Base

Configurations	D	OD	I	H	L	In built slope
Straight Through	315	1272	585	640	1508	Nil
LH and 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



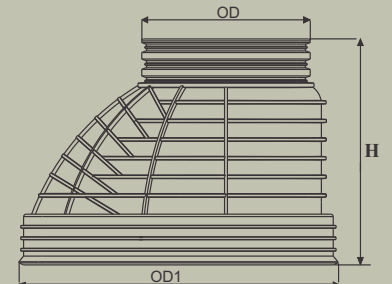
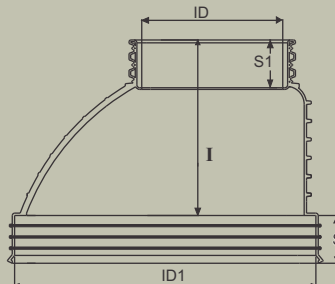
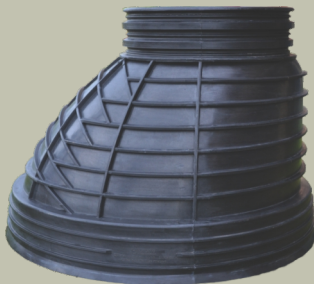
Dimensions of Ultra1000 Shaft

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 Ultra1200 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

In most of the projects, the invert depth of manhole is normally below 3m. For such applications the use of a three piece manhole may not be cost effective. Considering this fact our design team has come out with the light weight yet strong manhole in single piece design in 1m and 1.2m 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 is eliminated resulting in substantial saving in total product weight.

Smaller size cover - In three piece design, size of the opening is 640mm which is now reduced to 600mm in Ultra 1000 single piece design and hence additional saving on account of cover cost makes this single piece manhole further cost effective.

Easy and quick installation - Being single piece and light in weight, it is amenable to easy and quick installation. This single piece manhole in 1m size is made available in different depths ranging from 1.2 to 3.3m invert depths with a difference of 0.3m and hence it can be selected as per the site requirement. Similarly 1.2m size manhole is offered in 1.3 to 3.52m invert depth.

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



Dimensions of single piece manhole - Ultra1000x315x315

Configurations	D	D1	OD	ID	L
Straight Through	315	315	1172	600	1377
LH and RH 45° Junction	315	250	1172	600	1377

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

Invert depths (mm) for Ultra1000

Straight through	LH & RH 45° Junction
1200	1300
1500	1600
1800	1900
2100	2200
2400	2500
2700	2800
3000	3100
3300	3400

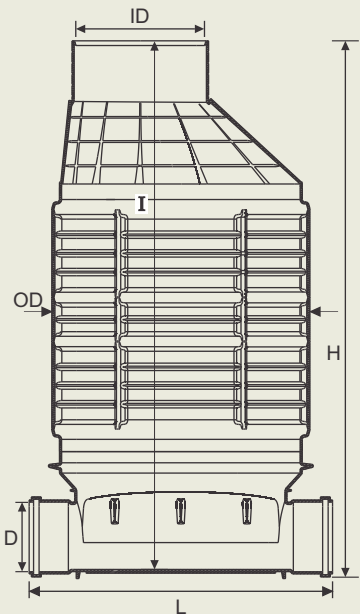
Dimensions of single piece manhole - Ultra1200x315x315

Configurations	D	D1	OD	ID	L
Straight Through	315	315	1272	640	1666
LH and RH 45° Junction	315	315	1272	640	1666

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

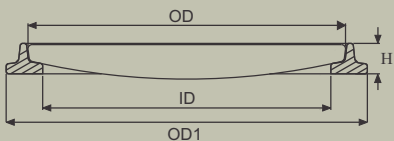
Invert depths (mm) for Ultra1200

Straight through	LH & RH 45° Junction
1300	1300
1750	1750



Cover

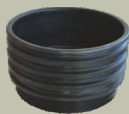
We offer a variety of manhole covers in different materials and load classes. Details of these covers offered in different materials are given in the following table:-



GRP frame and cover

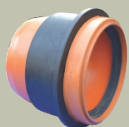
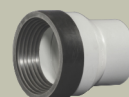
Size	Material	Load class (MT)	ID	OD	OD1	H
600, 1000 and 1200	Plastic	-	625	-	720	80
		10	720	900	797	75
	GRP	20	720	900	797	75
		40	720	950	808	90
	SFRC	20	720	1020	820	150

Accessories



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

RCC adapters: Specially designed adapters in 200x8", 250x10", 315x12" are also manufactured to connect RCC pipes with Ultra1000 and Ultra1200 manhole base.



In-situ adapter: Besides inlet(s) of selected flow profile of the base, additional connections are possible through shaft or cone at different heights or angle by using specially designed in-situ adapters. These adapters are available in 75, 110, 160 and 200mm sizes 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. These include 45° bends in 250 and 315mm and couplers in 400 and 450mm sizes..



Installation procedure

Installation of Supreme Ultra Manhole is very simple and quick using specially designed rubber seal joints. Connections between different components of manhole, viz., base, shaft and cone (three 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 an easy, quick and safe installation:-



Excavation and bedding

- Excavate a hole 60cm wider and 50cm deeper than the size of manhole base and height of the manhole respectively.
- Prepare a 15cm thick bed of suitable material and compact it to 95%. The bedding material should be sand/sand dust or small grained gravel.



Pipe connections

- Place the manhole base in position on a stable/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 pipes (or accessories) by pushing the base to the spigot of pipe.



Backfilling and Compaction

Backfill the surrounding with suitable material in 30cm 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 external face of the 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 to full insertion depth.
- Repeat the procedure in case of more than one shaft. Shafts 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 150mm 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, the installation procedure remains the same except for step by step installation of three different components, single piece manhole of pre-selected invert depth have to be installed.

Specifications

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

Testing

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

• All the dimensions unless otherwise are in mm • Any specification may change without prior notice. • All information contained in this literature is given in good faith and believed to be accurate and reliable. Because of many factors which may be outside our knowledge or control and affect the use of the product, no warranty is given or 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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