

ASTRAL
DRAIN
HULK

ASTRAL
PIPES

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ASTRAL
DRAIN
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ASTRAL
PIPES

ASTRAL
UNDER
GROUND
DRAINAGE SYSTEMS



ASTRAL PE/PP MANHOLE & INSPECTION CHAMBERS

Astral introduces the best underground drainage system which connects your SWR system to your main drains, public sewer or sewage treatment plant. It's a complete solution for building drainage and sewerage application. Astral has designed and developed this ultra-modern system with a view to cater to the highly sophisticated building drainage requirements. Astral underground system is having multiple advantages to traditional drainage products.

ASTRAL manhole/inspection chambers are made of 100% virgin UV stabilized polyethylene (PE) or polypropylene (PP) material and are intended for use in underground drainage and sewerage systems. Innovative industrial strength design based on almost 20 years of German/European experience incorporates carefully designed ribs to provide extra strength to the product and at the same time act as an uplift prevention system against ground water. ASTRAL manholes have been installed in extremely challenging site conditions such as high ground water level. ASTRAL chambers are suitable for both on-road and off-road installations.

Manhole/inspection chambers are an essential part of any sewerage pipeline and are typically required whenever there is a change in direction, diameter or significant change in gradient of the sewerage pipeline. Manhole/inspection chambers are required in domestic, commercial and municipal sewerage networks.



KEY FEATURES

- Prefabricated system-complete with benching, shaft, steps and accessories.
- Stream line design and mirror smooth internal surface finish.
- Multiple configuration options in single piece.
- Multiple inlet options with a variety of inlet and outlet sizes in single piece.
- Fast, Easy, Flexible and Safe installation in hours with leak proof pipe connections in minutes.
- Completely water tight with no infiltration or ex-filtration.
- Ultra durable and resistant to corrosion.
- Can be very easily installed in heavy traffic or water logged areas.
- High quality as per latest European Standard EN 13598 leading to consistent quality for entire Project.
- Maintenance Free.
- Reduced Operating Cost - minimal blockages due to hydraulically optimized channels, no Infiltration.
- Environmentally Friendly - watertight preventing pollution / low carbon footprint.
- Top quality accessories - watertight rubber seals for pipe connection (EN 681-1); corrosion resistant steps.

DESIGN ADVANTAGES

ASTRAL manhole/inspection chambers - innovative design for strength, ease & flexibility of installation

Base Benching - all chambers come with integrated benching with various options from single to multiple inlets. The main channel has built in gradient of 1-2% to allow all inlets to drain towards outlet as part of gravity drainage system.

Inlet Pipe Connections - inlet pipes can be connected in minutes by drilling and placing ASTRAL EN 681-1 elastomer seal of appropriate diameter and pushing the inlet pipe for fast, easy and leak proof connection. This elegant method with elastomer seal remains watertight even if the pipe moves in any direction by up to 5°. Further, ASTRAL system allows for the flexibility of connecting inlet pipes anywhere on the body of the chamber while installing or at a later time with same methodology.

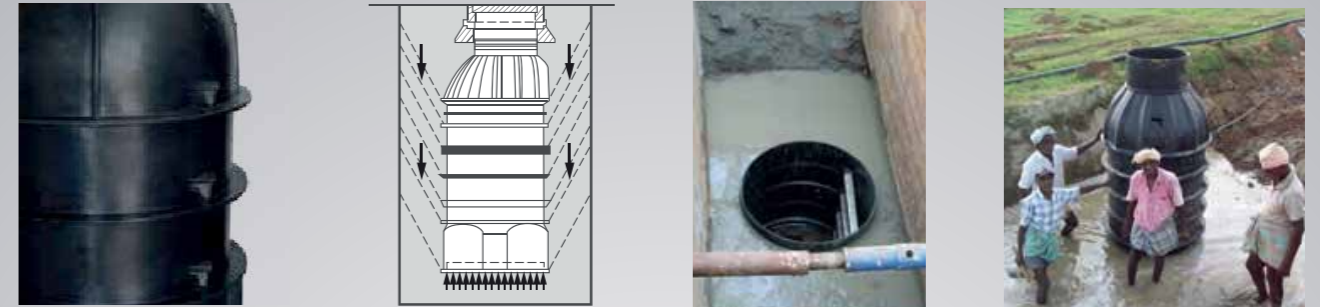
Outlet - unique multidimensional design with built in eccentric reducers to connect to various diameter pipes. This makes on-site installation very easy and avoids the need for extra fitting/joints.

Height Adjustment - all chambers allow very simple method for height adjustment on site (see installation overview)

Corrosion Resistant Steps - DN 800/1000 manholes come fitted with corrosion resistant Steps.



Uplift Prevention - Installation in Water logged areas



The strategically designed ribs on ASTRAL chambers interlock with the soil to prevent uplift. Engineering calculations show that DN 1000 ASTRAL chambers have a safety factor well over 1.8 against buoyancy caused by existing groundwater.



Inspection chambers & Manhole available sizes				
Sizes mm	Inlet mm	Outlet mm	Cover mm	Person Entry
315	110	110	315	No
355	110-160	110-160	315	No
450	110-160	110-160	450	No
500	110-160	110-160	500	No
600	110-250	110-250	600	No
800	110-250	110-250	600	Yes
1000	110-315	110-315	600	Yes

Astral 500, 600, 800 & 1000 mm Manhole are available in 5 Inlets base & 3 Inlets base options.

SINGLE PIECE INSPECTION CHAMBER

Diameter (mm)	Inlet's (nos.)	Height (mm)	Part No.	Inlet & Outlet Size (mm)	
				Minimum	Maximum
500	5	500	5BC050001611050	110	160
	5	750	5BC050001611075		
	5	1000	5BC050001611100		
600	5	500	5BC060001611050	110	160
	3	750	3BL060252016050	110	250
	5		5BC060001611075	110	160
	3	3BL060252016075	110	250	
	5	1000	5BC060001611100	110	160
	3	3BL060252016100	110	250	
	5	1250	5BC060001611125	110	160
	3	3BL060252016125	110	250	
	3	1450	3BL0602520161450	110	250
	3	1950	3BL060252016195	110	250
800	5	1000	5BC080001611100	110	160
	5	1250	5BC080001611125	110	160
	3	1500	3BL080252016125	110	250
	5		5BC080001611150	110	160
	3	1750	3BL080252016175	110	250
1000	5	1250	5BC100201611125	110	200
	3	1500	3BL100312520125	110	315
	5		5BC100201611150	110	200
	3	3BL100312520150	110	315	

MODULAR

BASE

Diameter (mm)	Inlet's (Nos.)	Height (mm)	Part No.	Inlet & Outlet Size (mm)	
				Minimum	Maximum
1000	5	650	5BC100201611065	110	200
	3		3BL100312520065	110	315

FLAT BASE CHAMBER

Diameter (mm)	Height (mm)	Part No.
500	450	FB050045
	700	FB050070
	950	FB060095
600	450	FB060045
	700	FB060070
	950	FB060095
1000	1150	FB0100060115
	1400	FB0100060140
	1650	FB0100060165

RAISER (ELEVATION UNIT)

Diameter (mm)	Height (mm)	Part No.	Remarks
1000	500	E100050FIBSES	Invert Depth = Base + Raiser + Upper Unit
	750	E100075FIBSES	
	1000	E100100FIBSES	

UPPER UNIT

Diameter (mm)	Height (mm)	Part No.	Remarks
1000	1100	U100060110FIBSES	Invert Depth = Base + Raiser + Upper Unit
	1350	U100060135FIBSES	
	1600	U100060160FIBSES	

GULLY TRAP

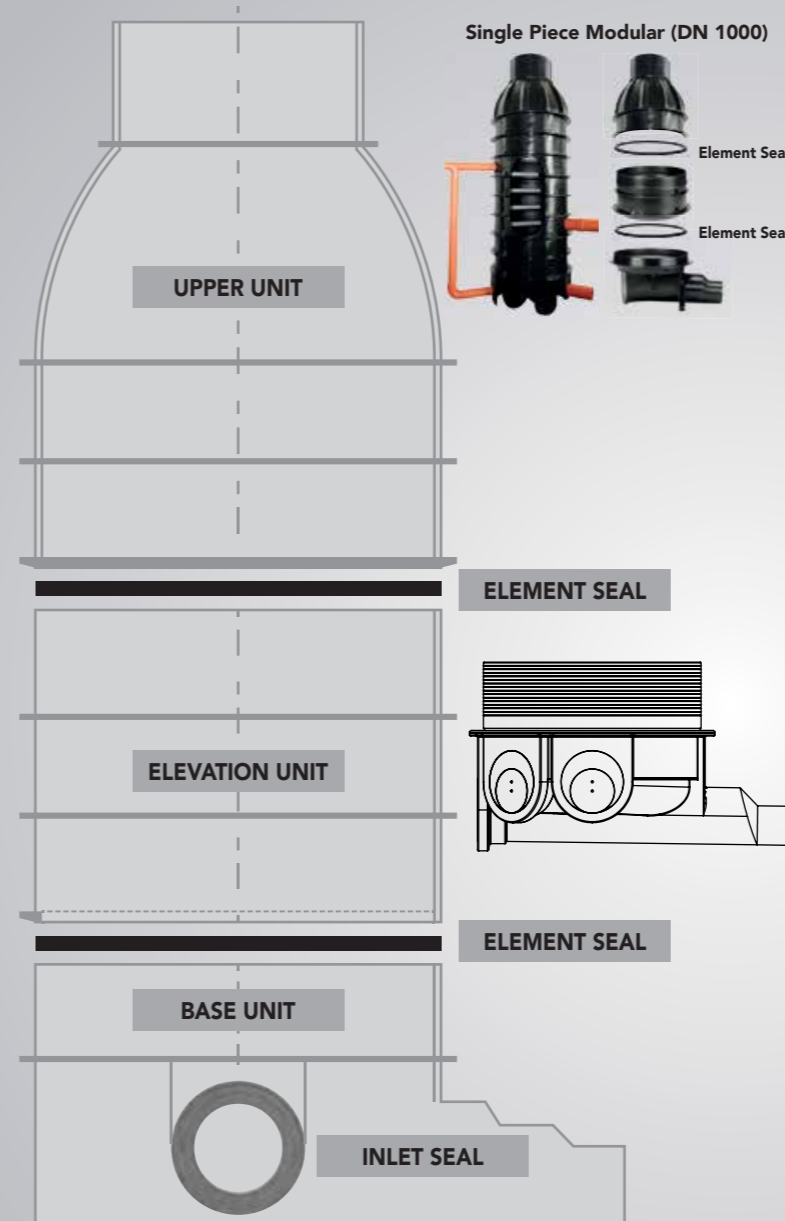
Diameter (mm)	Height (mm)	Part No.	Inlet (mmxmm)	Outlet (mm)
110	405	GTZ110GT	160x160	110

LID (COVER)

Diameter (mm)	Height (mm)	Part No.	Inlet (mmxmm)	Outlet (mm)
-	-	LID050	-	-



ACCESSORIES



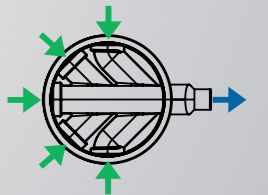
ELEMENT SEAL

Diameter (mm)	Part No.	Part No.
1000	M99020002	Element Seal For Modular Chambers 1000 Mm



CUP SAW BLADE

Diameter (mm)	Part No.	Part No.
110	CS-110	Cup Saw - 110mm for Inlet Connection
160	CS-160	Cup Saw - 110mm for Inlet Connection
200	CS-200	Cup Saw - 110mm for Inlet Connection
250	CS-250	Cup Saw - 110mm for Inlet Connection
315	CS-315	Cup Saw - 110mm for Inlet Connection
400	CS-400	Cup Saw - 110mm for Inlet Connection
-	CSA	Cup Saw - Adaptor



FRP MANHOLE STEP (Only for 800mm & 1000mm Dia.) (Optional)

Diameter (mm)	Part No.	Part No.
-	M99020005	Manhole Steps

TRIZ REQUIRED FOR MANHOLE STEPS MOUNTING

Diameter (mm)	Part No.	Part No.
1000	M99020006	Triz Manhole Step For 1000mm Chamber
800	M99020007	Triz Manhole Step For 800mm Chamber

CLIP FOR FIXING MANHOLE STEPS

Diameter (mm)	Part No.	Part No.
-	M99020001	Clip For Fixing Manhole Steps

INLET SEAL

Diameter (mm)	Part No.	Part No.
63	IS-63	Inlet Seal 63mm For Inlet Connection
75	IS-75	Inlet Seal 75mm For Inlet Connection
90	IS-90	Inlet Seal 90mm For Inlet Connection
110	IS-110	Inlet Seal 110mm For Inlet Connection
160	IS-160	Inlet Seal 160mm For Inlet Connection
200	IS-200	Inlet Seal 200mm For Inlet Connection
250	IS-250	Inlet Seal 250mm For Inlet Connection
315	IS-315	Inlet Seal 315mm For Inlet Connection
400	IS-400	Inlet Seal 400mm For Inlet Connection

Installation Procedure Overview

Important: Consult ASTRAL for installations where water level is high. All instructions from the Engineer and local regulations must be respected. Following is an overview of installation procedure. Please consult ASTRAL for detailed instructions.

Rock sand or non-cohesive type material of size less than 16mm without any sharp objects/rocks should be used as back filling material.

Fast, easy and safe installation in 5 simple steps:

A - Excavate

- 1 Excavate 60 cm wider and 15 cm deeper than the chamber Invert depth.
- 2 A base layer of 15 cm should be filled and compacted to 95%.
- 3 Place the chamber on the compacted layer of 15 cm.
- 4 Check the levelling to ensure chamber is horizontally aligned.



B - Connect Inlet

- 1 To connect inlet pipe(s), drill hole of appropriate diameter with ASTRAL cup saw on pre-marked inlet positions, insert ASTRAL EN 681-1 inlet rubber seal, push the pipe into the seal for a watertight connection. Soap water may be used as lubricant. There is no need for any glue, silicon.
- 2 ASTRAL seals provide watertight connection and allow for 5° movement in all directions.
- 3 If due to site constraint you cannot connect the inlet at the pre-marked location then you may connect the inlet anywhere on the body of the chamber. However direction of the inlet/outlet in benching should be taken into consideration for proper flow.

C - Connect Outlet

- 1 Connect the outlet pipe by slipping the socket of the pipe onto the outlet spigot of the chamber. If required smaller, unnecessary spigot may be cut off at an right angle with a saw.

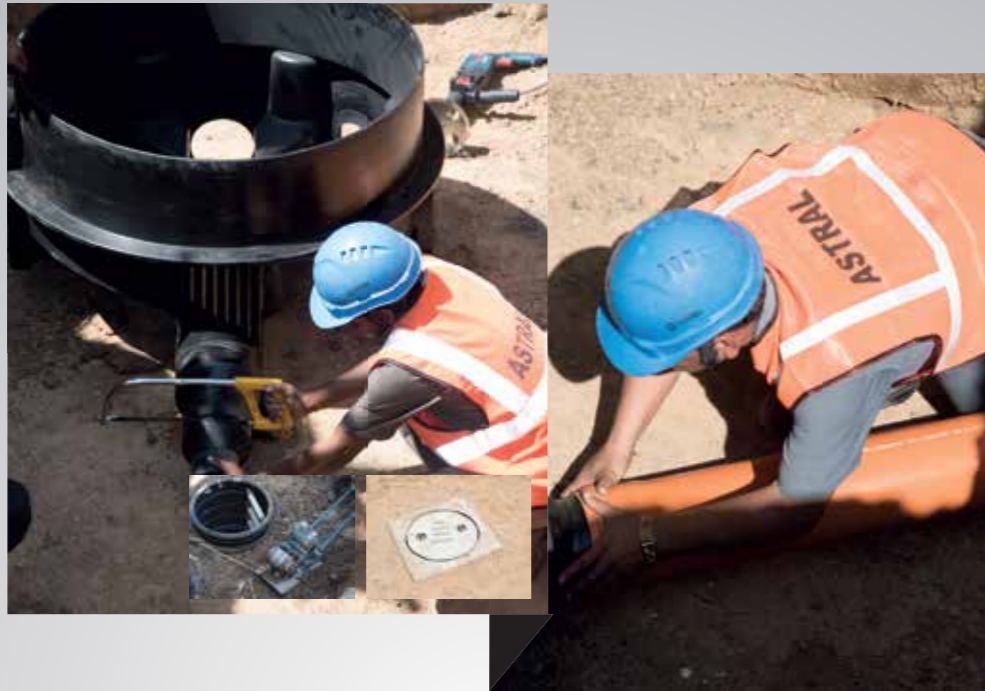


D - Backfill and Compact

- 1 Check levelling of chamber and ensure horizontal alignment.
- 2 Back filling material should be inserted under the manhole in order to fill-in the gap between the manhole and the compacted layer. Use hand stamper.
- 3 Back fill around the manhole in layers of 30 cm and compact to 95% with a mechanical vibrating stamper (50 kg).
- 4 Place the rubber sealing ring on base to connect the raiser.
- 5 Place the rubber sealing ring on raiser to connect the Upper unit.
- 6 Continue to fill-in and compact in layers up to ground, with margin of PCC and cover height.

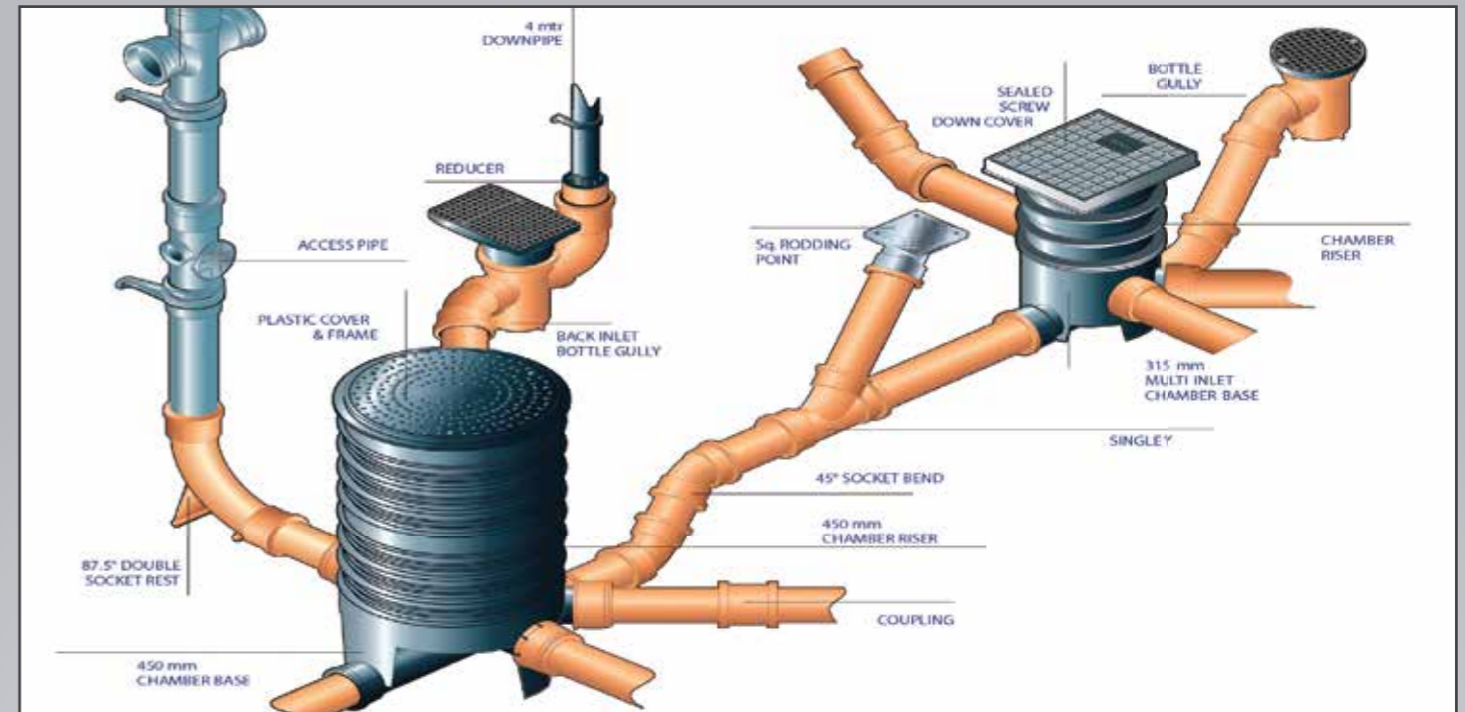
Note :

For greater stability and increase the load bearing capacity, use gravel or sand for backfilling as it has the properties like high permeability and absorb the lateral thrust. Also it is easily compactable and non expensive.



E - Adjust Height and Install Cover

- 1 The height of the chamber can be adjusted on site by cutting the upper edge of the chamber.
- 2 ASTRAL PE covers can be used for installation in the garden or non-traffic areas.
- 3 For installation in traffic areas, a concrete load bearing ring around the neck of the chamber or 15 cm PCC is required around the neck. Direct contact of PCC to chamber neck is avoided. On this ring or PCC appropriate class C/D cover with frame should be installed.
- 4 Finish of with asphalt top layer, around the cover.



ULTRA MODERN DRAINAGE SYSTEM

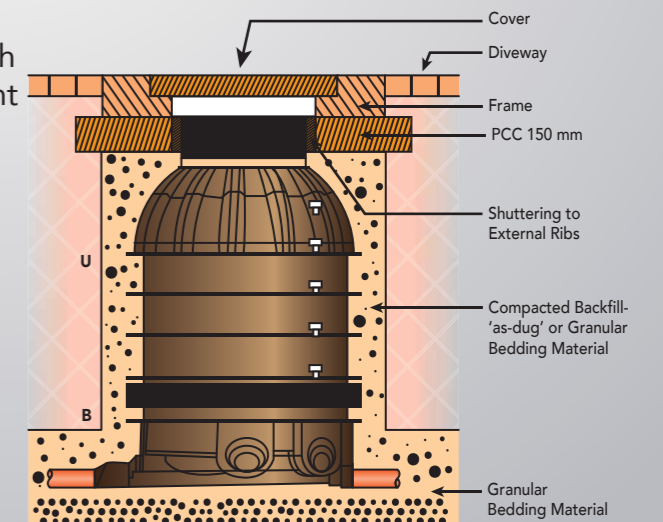
Over the years Astral® is committed to introduce innovative plumbing products in Indian market to better serve plumbing industry. Astral® provides next generation integrated drainage solution using latest manufacturing technology. For many years drainage engineers and contractors have been forced to make a traditional methods to make drainage system of a building. Astral® offers Underground drainage system with strength and durability, installation speed, long term performance, cost effectiveness and superior quality of a complete drainage system. Astral Underground® drainage products are manufactured using state-of-the-art production technology which provides comprehensive range of robust, lightweight and extremely durable drainage products with unparallel long term performance.

AVAILABLE SIZE

315 mm, 355 mm & 450 mm chamber base with riser and top cover

KEY FEATURES

- Strength : Long term stiffness and strength
- Durable : Never corrode and hence meant for long life performance
- Flexibility : Various molded and fabricated fittings for easy of installation and flexibility
- Installation : Easy and quick installation compared to traditional drainage system
- Cost benefits : Reduced installation cost



BENEFITS

- Push Fit System
- Easy Installation
- Maintenance Free
- Longer Life
- Cost Saving

APPLICATIONS

Astral Underground® drainage system is ideal to use in single house application to multi floors buildings, hotels, hospitals, shopping malls, academic institutes upto the main lines.

