

ASTRAL[®] PIPES



COMPLETE PLUMBING & DRAINAGE SOLUTIONS™



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REV:01/05/18

A
LOOK
INSIDE
YOUR
PLUMBING
VENTILATION,
SANITATION
AND
DRAINAGE
SOLUTIONS.



Where innovation flows...

ASTRAL has been the first company to bring piping innovations in India

- First to introduce CPVC piping system in India (1999)
- First to launch lead free uPVC piping system in India (2004)
- Corp Excel- National SME Excellence Award (2006)
- First to get NSF Certification for CPVC piping system in India (2007)
- First to launch lead free uPVC column pipes in India (2012)
- Enterprising Entrepreneur of the year 2012-13
- Business Standard Star SME of the year (2013)
- Inc. India Innovative 100 for Smart Innovation under category of "Technology" (2013)
- India's Most Promising Brand Award (2014)
- Value Creator Award during the first ever Fortune India Next 500 (2015)
- India's Most Trusted Brand Award (2015)
- India's Most Trusted Pipe Brand Award (2016)
- ET Inspiring Business Leaders of India Award (2016)
- India's Most Attractive Pipe Brand Award (2016)
- Fortune India 500 Company (2016)
- Consumer Validated Superbrands India (2017)

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ONLY THOSE PRODUCTS BEARING THE ABOVE MARKS ARE CERTIFIED

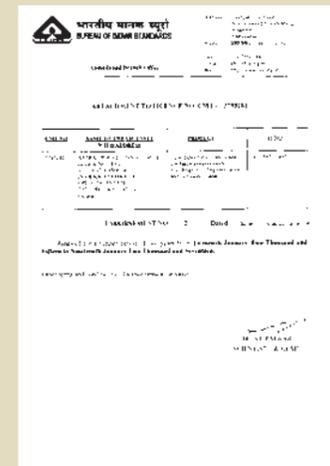
About Astral

Astral Poly Technik Limited was established in 1996 with the aim to manufacture pro-india plumbing and drainage systems in the country. While serving the plumbing needs of millions of houses, the company adds extra milage to india's developing real estate fraternity. Our contribution to the plumbing industry in the form of being pro-innovative bears the hallmark of unbeaten quality. Astral Poly Technik Limited is equipped with production facilities at Santej & Dholka (Gujarat), and Hosur (Tamil nadu) to manufacture Plumbing systems, Drainage ststems, Agriculture Systems, Industrial Piping, Fire Sprinkler Piping Systems and Electrical Conduit Pipes with all kinds of ecessary fittings. We are also known as pro- customers' company as we serve with an intention of taking excellence to new heights. Through our quality products and services we have also achieved the benchmark of being Pro-India Company in numerous ways. Astral Pipes has been awarded as 'ASTRAL – India's Most Trusted Brand in the category of Pipes' according to 'The Brand Trust Report, India Study 2016', and also won place in 'Consumers Superbrands Edition 2016-17' becoming consumer validated Superbrand in Piping category. Our incessant focus on quality piping leads us to be prominent player in the category and a wellknown piping brand.

Quality approvals & Certifications

Astral regularly test the finished products by testing its resistance to impact and pressure as well as other ASTM or DIN tests. In addition, they regularly test pipes, randomly selected from the market place. Various testing methods like OD/ID (Dimension) checking, Flattening, Burst pressure, Drop Impact, Heat Reversion etc. are carried out at regular intervals to keep quality very high.

In order to deliver consistent high quality pipes and fittings to end users, Astral has a Quality Assurance Program. This Quality Assurance Program intends quality levels to exceed the requirements of ASTM and other industrial standards. The program also includes regular visits of partners from USA to upgrade and to implement Quality Assurance Plan effectively.



IS 13592 : 1992



IS 16098 : Part 1 : 2013



Subsidiaries



Resinova manufactures a diversified range of adhesives, sealants, putties and construction aids. Our products are mostly pioneering efforts where advantages has been taken of our knowledge of different chemistries such as epoxy, silicones, acrylics, cyanoacrylates, UV care, PVA etc. Our products stand for quality and reliability and are marketed through a network of about more than 2000 distributors and 4,50,000 dealers across the country.



For almost two decades, Bond It has been a manufacturer of high performance, high quality building chemicals such as sealants, adhesives, grouts, cleaners, expanding foams, fillers, decorating sundries, landscaping products and other similar products.



Seal IT Services Limited, a UK based subsidiary of the Astral Poly Technik Ltd. has entered into U.S. market by acquiring silicone tape business of Rowe Industries Inc., USA.



SUPERIOR SWR DRAINAGE SYSTEM FOR LEAK PROOF JOINTS

INTRODUCTION

PRESENTING ASTRAL DRAINMASTER SWR SYSTEM

In this unique system, pipe and fittings are joined together by simple pushing the spigot into socket end. The spigot end is held firmly and tightly in the socket by reinforced pre-fitted yellow rubber ring provided in the groove. Thus it ensures leak-proof joints which can withstand high pressure and it also prevent choking. The system thus does not require to thread or to paste. The yellow co-molded rubber ring enables the joints to withstand high pressure and also compensates for the thermal expansion and 75mm, 90mm, 110mm & 160mm contraction. Since the joints are not fixed by the usage of solvent cements, it can be reopened later for the purpose of realignment or adjustment of pipes / fittings.

Astral DrainMaster pipes and fittings are manufactured from virgin raw material and they are tested for correct thickness and dimensional accuracy, randomly and batch wise in our most modern quality assurance laboratory.

PROFILE

Astral DrainMaster is a uPVC conventional drainage system for soil, waste and rain water. This system enables fast and efficient removal of waste without blockage and leakage. Its high impact strength, chemical and corrosion resistance. Long life and virtually zero maintenance have made Astral DrainMaster system a preferred drainage and rain water system among architects, builders and plumbing contractors.

The state of the art equipments and virgin raw material used to produced Astral DrainMaster SWR system. The system is available from 75mm to 160mm. the entire range is Manufactured as per internationally accepted quality standards and specifications.

APPLICATIONS

Astral DrainMaster drainage system can be applicable at houses, offices, hotels, commercial complex, industries, hospitals as well as at airports, railway stations, stadiums, theaters etc. for waste discharge, ventilation and rain water management.

ADVANTAGES

Specially designed Astral DrainMaster drainage system offers numerous advantages over conventional drainage systems. A large numbers of dealers, distributors and field staff are always on to for uninterrupted supply of products to the end users.

AVAILABLE SIZE

75 mm, 90mm, 110 mm & 160 mm

KEY PROPERTIES AND BENEFITS



STRONGER, RESILIENT & LIGHT WEIGHT

Astral DrainMaster system is highly resilient and tough with good mechanical strength and high impact resistance. At the same time this system is very light in weight which gives highest benefit to the end user in terms of transportation, installation and long service life.



CORROSION RESISTANCE

The inert nature of Astral DrainMaster uPVC drainage system provide complete corrosion resistance and renders wrapping, coating and lining unnecessary. It also ensures that uPVC sewer and drainage pipes have long operational life compared to conventional asbestos or cast iron systems.



NON CONDUCTIVE

Astral DrainMaster uPVC drainage system is a non-conductor of electricity, and is therefore not subject to galvanic or electrolytic action.



CHEMICAL RESISTANCE

Astral DrainMaster uPVC drainage system is inert to most of the acids, alkalis, effluents, salts, minerals and aggressive soils. The system remains unaffected by transportation of such type of media and gives longer life with trouble free service.



FLAMMABILITY

Astral DrainMaster uPVC drainage system does not support combustion and is inherently difficult to ignite. It also stops burning once the source of heat is removed.



UV STABILIZED

Astral DrainMaster uPVC drainage system is UV stabilized which gives protection to the system while being operational in direct sun light.



HIGH FLOW RATES

Extremely smooth bores, precision joints and lack of internal projections ensure unrivaled hydraulic capacity over the total life of the system.



QUICK & EASY INSTALLATIONS

Astral DrainMaster pipes and fittings can be joined together with rubber ring or solvent weld system. These techniques are very simple and ensure 100% leak proof system at a reduced installation time with lower maintenance.



VERSATILE AND ELEGANT

The physical properties of PVC allow designers a high degree of freedom while designing with Superb finished pipes and fittings.



ECONOMICAL

Astral DrainMaster uPVC drainage system is more cost effective than any other conventional drainage systems available in market.



ENVIRONMENTAL IMPACT

uPVC has a lower feedstock energy especially compared to other polymers and common building materials. It is the least energy intensive of all thermoplastics. In life cycle analysis and independent studies, PVC's environmental impact has been found most favorable, so the more usage of PVC will greatly help to keep our global natural resources intake for longer period of time. It does not pollute air, water or land during manufacturing or service life and can be recycled after prolonged service life.

ASTRAL DRAINMASTER PIPES & FITTINGS



DRAINMASTER PIPES : ASTRAL DRAINMASTER ISI marked pipes are available in ringfit pipe with two different class of pipes named as "TYPE A" & "TYPE B". TYPE A pipes are recommended for use in ventilation and rain water applications while TYPE B pipes are recommended for soil and waste discharge applications. Pipes are available in all sizes and in different lengths with single socket and double socket.



ASTRAL DRAINMASTER Ringfit pipes are socketed on automatic online socketing machine with very high degree of accuracy. The socket has groove inside for yellow co-molded rubber ring. The yellow rubber ring ensures trouble free water tight joint with allowance to thermal expansion /contraction. One end of the pipe is plain and the other is self socketed with an integral groove to hold the rubber gasket. When joined with a yellow rubber ring, the joint formed is a trouble free, water tight one, ready to take care of thermal expansion / contraction. **Sizes : 75 mm, 90 mm, 110 mm, 160 mm**



SELFIT PIPES - (Type A & Type B) : Selfit pipes are socketed on automatic socketing machine with self socket length (without groove). Such pipes are to be joined with solvent cement. One end of the pipe is plain and the other is self socketed on sophisticated automatic machines for high degree of accurate diameters. The pipes when joined using solvent cement, form a permanent water tight joint. **Sizes : 75 mm, 90 mm, 110 mm, 160 mm**

NOMINAL DIAMETER	MEAN OUTSIDE DIAMETER		TYPE A WALL THICKNESS		TYPE B WALL THICKNESS	
	Min.	Max.	Min.	Max.	Min.	Max.
75	75.0	75.3	1.8	2.2	3.2	3.8
90	90.0	90.3	1.9	2.3	3.2	3.8
110	110.0	110.4	2.2	2.7	3.2	3.8
160	160.0	160.5	3.2	3.8	4.0	4.6

All dimensions are in mm.



DRAINMASTER FITTINGS : ASTRAL DRAINMASTER ISI marked fittings are available in grooved ring type in full range starting from 75 mm to 160 mm and are fully compatible with ASTRAL DRAINMASTER Pipes.



ASTRAL DRAINMASTER Grooved ring type fittings are self socketed with groove to hold the yellow co-molded rubber ring. The grooves are made on highly accurate online socketing machines that give highest quality, performance and satisfaction.



PASTING TYPE : Pasting type fittings are self socketed on highly automatic machines. These fittings are to be joined with solvent cement.



TESTING REQUIREMENTS

ASTRAL DRAINMASTER uPVC pipes & fittings are manufactured subject to strict and continuous control over raw materials, production, dimensions & identification. The rigorous testing and quality control throughout the entire process ensures that ASTRAL DRAINMASTER System is highly reliable and efficient in working.



PIPES ARE SUBJECT TO TESTS LIKE.

- Tensile Strength
- Reversion
- Vicat softening temp. test
- Water tightness of joint
- Impact Strength
- Stress relief test
- Exposure to Sunlight
- Resistance to H₂SO₄

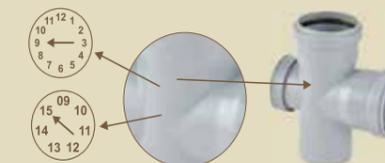
FITTING ARE SUBJECT TO TESTS LIKE.

- Impact Strength
- Vicat Softning temp. test
- Resistance to H₂SO₄
- Stress relief test
- Water tightness of joint
- Sulphated Ash content

The acceptance criteria for test results obtained are as per widely accepted International and National Standards.

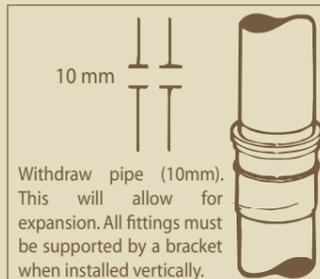
UNIQUE IDENTIFICATION :

Each fitting is having unique identification known as "Clock". This system ensures 100% traceability to every production lot.



THERMAL EXPANSION AND CONTRACTION :

ASTRAL DRAINMASTER piping system will undergo thermal expansion and contraction like any other thermoplastic materials. The thermal expansion & contraction depends on the coefficient of thermal expansion ($5.4 \times 10^{-5} \text{ mm / mm } ^\circ\text{C}$ for PVC), length of piping and temperature difference encountered by the piping. Normally for drainage & sewerage system temperature difference of atmosphere will effect more to thermal movements of piping rather than effluent temperatures as full bore discharges are normally not happened for prolong time and also these discharges are periodic in nature. Still expansion & contraction issue needs to be addressed. For ringfit joining systems specially designed yellow co-molded rubber rings and proper joining of pipes and fittings will take care of length change. Please refer joining method section of this catalogue for more details.



ASTRAL DRAINMASTER FITTINGS

BEND 87.5°



SIZE (D)	PART NO.	WT.	A	H	L
75	M342001207	3.2	90	146	134
90	M342001208	3.2	105	174	173
110	M342001209	3.2	127	198	175
160	M342001212	4.0	182	276	267

Application : Required to connect internal pipeline to main pipeline & also for direction change at an angle of 87.5°.

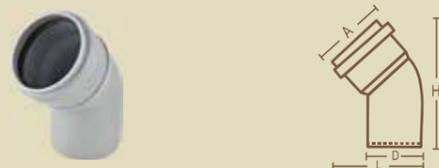
BEND 87.5° L-H WITH DOOR



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M342001407	3.2	90	143	135	79
110	M342001409	3.2	127	196	185	107

Application : Same as Bend with option of L-H door for cleaning purpose.

45° BEND



SIZE (D)	PART NO.	WT.	A	H	L
75	M342001107	3.2	90	153	120
90	M342001108	3.2	105	189	140
110	M342001109	3.2	127	207	168
160	M342001112	4.0	182	260	233

Application : Required as a shoe for drainage line & also for direction change at an angle of 45°.

INVERT 'Y' 45°



SIZE (D)	PART NO.	WT.	A	H	L
75	M342002507	3.2	90	221	180

Application : Required to connect two branches an angle of 45° with invert socket.

BEND 87.5° WITH DOOR (TS)



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M342001307	3.2	90	146	155	79
90	M342001308	3.2	105	147	191	92
110	M342001309	3.2	127	198	210	107
160	M342001312	4.0	182	276	280	107

Application : Same as Bend with option of door for cleaning purpose.

BEND 87.5° R-H WITH DOOR



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M342001507	3.2	90	143	135	79
110	M342001509	3.2	127	196	185	107

Application : Same as Bend with option of R-H door for cleaning purpose.

COUPLER



SIZE (D)	PART NO.	WT.	H	L
75	M342001607	3.2	90	105
90	M342001608	3.2	105	116
110	M342001609	3.2	127	130
160	M342001612	4.0	180	158

Application : Required to connect two length of pipe.

CLEANSING PIPE

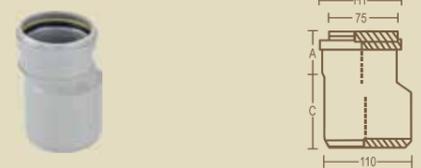


SIZE (D)	PART NO.	WT.	A	H	L	C
75	M342002607	3.2	90	187	118	79
110	M342002609	3.2	127	258	143	107
160	M342002612	4.0	182	345	207	107

Application : Used in between a vertical line to facilitate cleaning.

ASTRAL DRAINMASTER FITTINGS

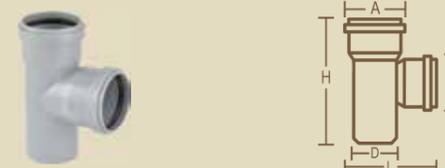
REDUCER



SIZE (Dxd)	PART NO.	WT.	A	H-1	L	C
90 x 75	M342001830	3.2	45	91	137	93
110 x 75	M342001829	3.2	58	90	151	92
110 x 90	M342001843	3.2	55	105	161	105
160 x 75	M342001831	4.0	68	127	186	117

Application : Required to reduce 110mm dia. pipe to 75 mm dia. pipe.

SINGLE TEE



SIZE (D)	PART NO.	WT.	A	H	L
75	M342000107	3.2	90	186	135
90	M342000108	3.2	105	233	170
110	M342000109	3.2	127	258	193
160	M342000112	4.0	182	362	270

Application : Required to connect branch soil / waste line to main line at an angle of 87.5°.

REDUCING TEE



SIZE (Dxd)	PART NO.	WT.	A	H	L
# 90 x 75	M342000330	3.2	105 x 90	232	152
110 x 75	M342000329	3.2	127 x 90	260	175
160 x 75	M342000335	4.0	182 x 90	343	229
160 x 110	M342000331	4.0	182 x 127	343	235

Application : Required to connect branch line at 87.5° / 92.5°

SINGLE TEE L-H WITH DOOR



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M342000507	3.2	90	186	137	79
110	M342000509	3.2	127	258	185	107

Application : Same as plain Tee with option of L-H door for cleaning purpose.

REPAIR COUPLER



SIZE (D)	PART NO.	WT.	H	L
75	M342001707	3.2	90	105
110	M342001709	3.2	127	130

Application : Required to repairing of pipe, having small cracks / holes / dents.

SINGLE TEE WITH DOOR



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M342000207	3.2	90	186	176	79
90	M342000208	3.2	105	233	193	92
110	M342000209	3.2	127	258	224	107
160	M342000212	4.0	182	362	298	107

Application : Same as plain Tee with option of door for cleaning purpose.

REDUCING TEE WITH DOOR



SIZE (Dxd)	PART NO.	WT.	A	H	L	C
# 90 x 75	M342000430	3.2	105 x 90	232	173	79
110 x 75	M342000429	3.2	127 x 90	260	207	107
160 x 75	M342000435	4.0	182 x 90	343	266	107
160 x 110	M342000431	4.0	182 x 127	343	277	107

Application : Same as Reducing Tee with option of door for cleaning purpose.

SINGLE TEE R-H WITH DOOR



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M342000607	3.2	90	186	137	79
110	M342000609	3.2	127	258	185	107

Application : Same as plain Tee with option of R-H door for cleaning purpose.

ASTRAL DRAINMASTER FITTINGS

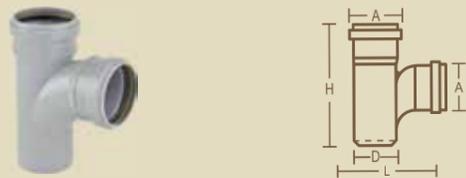
CROSS TEE



SIZE (D)	PART NO.	WT.	A	H	L
75	M342000707	3.2	90	187	185
110	M342000709	3.2	127	257	255

Application : Required to connect two adjacent branch line at an angle of 87.5°/92.5°

SWEPT TEE



SIZE (D)	PART NO.	WT.	A	H	L
75	M342000907	3.2	90	204	155
110	M342000909	3.2	127	265	205

Application : Same as plain Tee.

SINGLE 'Y'



SIZE (D)	PART NO.	WT.	A	H	L
75	M342001907	3.2	90	217	180
90	M342001908	3.2	105	258	207
110	M342001909	3.2	127	294	266
160	M342001912	4.0	182	412	347

Application : Required to connect branch soil/waste pipeline to the main vertical line at an angle of 45°.

REDUCING SINGLE 'Y'



SIZE (D)	PART NO.	WT.	A	H	L
110 x 75	M342002129	3.2	127 x 90	250	215
160 x 75	M342002135	3.2	182 x 90	282	284
160 x 110	M342002131	3.2	182 x 127	332	310

Application : Required to connect branch soil/waste pipeline to the main vertical line at an angle of 45° with reduction of size.

CROSS TEE WITH DOOR



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M342000807	3.2	90	187	185	79
110	M342000809	3.2	127	257	255	107

Application : Same as cross Tee with option of door for cleaning purpose.

SWEPT TEE WITH DOOR



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M342001007	3.2	90	204	175	79
110	M342001009	3.2	127	265	230	107

Application : Same as plain Tee with option of door for cleaning purpose.

SINGLE 'Y' WITH DOOR



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M342002007	3.2	90	217	200	79
90	M342002008	3.2	105	258	223	92
110	M342002009	3.2	127	294	273	107
160	M342002012	4.0	182	412	370	107

Application : Same as plain 'Y' with option of door for cleaning purpose.

REDUCING SINGLE 'Y' WITH DOOR



SIZE (D)	PART NO.	WT.	A	H	L	C
110 x 75	M342002229	3.2	127 x 90	250	242	107
160 x 75	M342002235	3.2	182 x 90	282	284	304
160 x 110	M342002231	3.2	182 x 127	332	310	330

Application : Same as reducing "Y" with option of door for cleaning purpose.

ASTRAL DRAINMASTER FITTINGS

DOUBLE 'Y'



SIZE (D)	PART NO.	WT.	A	H	L
75	M342002307	3.2	90	215	261
110	M342002309	3.2	127	295	375

Application : Required to connect 2 branch soil/waste pipeline to the main vertical line at an angle of 45°.

DOUBLE 'Y' WITH DOOR



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M342002407	3.2	90	215	261	79
110	M342002409	3.2	127	295	375	107

Application : Same as Double 'Y' with option of door for cleaning purpose.

GROOVE RING JOINING METHOD

1. CUT PIPE : Cut pipe square. As joints are sealed at the base of the fitting socket. An angled cut may result in joint failure.



2. REMOVE BURR AND BEVEL : Remove all burr from inside and outside of pipe with a knife-edge file, or deburring tool. Chamfer (bevel) the end of the pipe 10° -15°



CLEAN : Remove surface dirt, grease, or moisture with a clean dry cloth.

3. INSERT PIPE : Insert the pipe in to the socket without the seal ring and mark along the pipe, when it is fully inserted.



4. FIX RUBBER RING : Fix the rubber ring in the groove without twisting it.



5. APPLY LUBRICANT : Apply jointing lubricant to the chamfered end of the pipe & on rubber ring up to the mark made on spigot or to the socket end of fitting.



6. JOIN PIPE AND FITTINGS : Push the pipe firmly into the socket till the gap between the mark on the spigot and the socket is about 10 mm to allow thermal expansion.



ASTRAL PASTING TYPE FITTINGS

DOUBLE 'Y'



SIZE (D)	PART NO.	WT.	A	H	L
75	M142002307	3.2	82	220	268
110	M142002309	3.2	117	300	390

Application : Required to connect 2 branch soil/waste pipeline to the main vertical line at an angle of 45°.

BEND 87.5°



SIZE (D)	PART NO.	WT.	A	H	L
75	M142001207	3.2	82	142	140
90	M142001208	3.2	97	171	174
110	M142001209	3.2	117	195	188
160	M142001212	4.0	168	270	271

Application : Required to connect internal pipeline to main pipeline & also for direction change at an angle of 87.5°.

BEND 87.5° L-H WITH DOOR



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M142001407	3.2	82	137	139	79
110	M142001409	3.2	117	192	195	107

Application : Same as Bend with option of L-H door for cleaning purpose.

45° BEND



SIZE (D)	PART NO.	WT.	A	H	L
75	M142001107	3.2	82	157	123
90	M142001108	3.2	97	192	143
110	M142001109	3.2	117	212	168
160	M142001112	4.0	168	265	228

Application : Required as a shoe for drainage line & also for direction change at an angle of 45°.

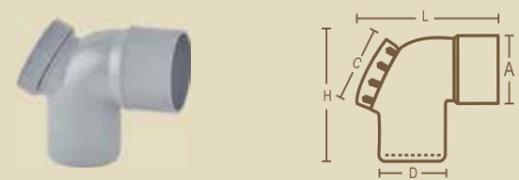
DOUBLE 'Y' WITH DOOR



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M142002407	3.2	82	220	268	79
110	M142002409	3.2	117	300	390	107

Application : Same as Double 'Y' with option of door for cleaning purpose.

BEND 87.5° WITH DOOR (TS)



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M142001307	3.2	82	142	168	79
90	M142001308	3.2	97	171	194	92
110	M142001309	3.2	117	195	217	107
160	M142001312	4.0	168	270	282	107

Application : Same as Bend with option of door for cleaning purpose.

BEND 87.5° R-H WITH DOOR



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M142001507	3.2	82	137	139	79
110	M142001509	3.2	117	192	195	107

Application : Same as Bend with option of R-H door for cleaning purpose.

REDUCER



SIZE (Dxd)	PART NO.	WT.	A	H-1	L	C
90 x 75	M142001930	3.2	82	45	137	93
110 x 75	M142001929	3.2	82	61	153	92
110 x 90	M142001943	3.2	95	58	163	105
160 x 75	M142001935	4.0	90	82	180	90
160 x 110	M142001931	4.0	118	73	190	117

Application : Required to reduce 110mm dia. pipe to 75 mm dia. pipe.

ASTRAL PASTING TYPE FITTINGS

COUPLER



SIZE (D)	PART NO.	WT.	H	L
75	M142001607	3.2	82	113
90	M142001608	3.2	97	119
110	M142001609	3.2	117	137
160	M142001612	4.0	168	165

Application : Required to connect two length of pipe.

SINGLE TEE



SIZE (D)	PART NO.	WT.	A	H	L
75	M142000107	3.2	82	190	140
90	M142000108	3.2	97	236	165
110	M142000109	3.2	117	264	195
160	M142000112	4.0	168	368	285

Application : Required to connect branch soil / waste line to main line at an angle of 87.5°.

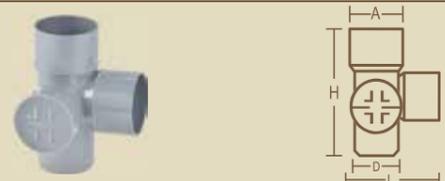
REDUCING TEE



SIZE (Dxd)	PART NO.	WT.	A	H	L
#90 x 75	M142000330	3.2	97 x 82	236	157
110 x 75	M142000329	3.2	117 x 82	265	179
160 x 75	M142000335	4.0	168 x 82	350	233
160 x 110	M142000331	4.0	168 x 172	350	240

Application : Required to connect branch line at 87.5° / 92.5°

SINGLE TEE L-H WITH DOOR



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M142000507	3.2	82	190	140	79
110	M142000509	3.2	117	261	193	107

Application : Same as plain Tee with option of L-H door for cleaning purpose.

REPAIR COUPLER



SIZE (D)	PART NO.	WT.	H	L
75	M142001707	3.2	82	113
110	M142001709	3.2	117	137

Application : Required to repairing of pipe, having small cracks / holes / dents.

SINGLE TEE WITH DOOR



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M142000207	3.2	82	190	172	79
90	M142000208	3.2	97	236	198	92
110	M142000209	3.2	117	264	233	107
160	M142000212	4.0	168	368	318	107

Application : Same as plain Tee with option of door for cleaning purpose.

REDUCING TEE WITH DOOR



SIZE (Dxd)	PART NO.	WT.	A	H	L	C
#90 x 75	M142000430	3.2	97 x 82	236	177	79
110 x 75	M142000429	3.2	117 x 82	265	211	107
160 x 75	M142000435	4.0	168 x 82	350	270	107
160 x 110	M142000431	4.0	168 x 117	350	277	107

Application : Same as Reducing Tee with option of door for cleaning purpose.

SINGLE TEE R-H WITH DOOR



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M142000607	3.2	82	190	140	79
110	M142000609	3.2	117	261	193	107

Application : Same as plain Tee with option of R-H door for cleaning purpose.

ASTRAL PASTING TYPE FITTINGS

CROSS TEE



SIZE (D)	PART NO.	WT.	A	H	L
75	M142000707	3.2	82	190	206
110	M142000709	3.2	117	262	277

Application : Required to connect two adjacent branch line at an angle of 87.5°/92.5°

CROSS TEE WITH DOOR



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M142000807	3.2	82	190	206	79
110	M142000809	3.2	117	262	277	107

Application : Same as cross Tee with option of door for cleaning purpose.

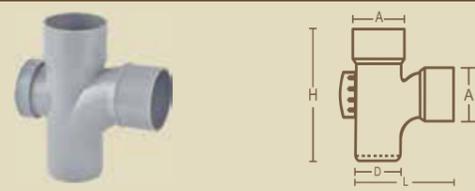
SWEPT TEE



SIZE (D)	PART NO.	WT.	A	H	L
75	M142000907	3.2	82	208	160
110	M142000909	3.2	117	273	212

Application : Same as plain Tee.

SWEPT TEE WITH DOOR



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M142001007	3.2	82	208	180	79
110	M142001009	3.2	117	273	236	107

Application : Same as plain Tee with option of door for cleaning purpose.

SINGLE 'Y'



SIZE (D)	PART NO.	WT.	A	H	L
75	M142001907	3.2	82	220	175
90	M142001908	3.2	97	260	207
110	M142001909	3.2	117	298	253
160	M142001912	4.0	168	417	348

Application : Required to connect branch soil/waste pipeline to the main vertical line at an angle of 45°.

SINGLE 'Y' WITH DOOR



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M142002007	3.2	82	220	202	79
90	M142002008	3.2	97	260	225	92
110	M142002009	3.2	117	298	290	107
160	M142002012	4.0	168	417	382	107

Application : Same as plain 'Y' with option of door for cleaning purpose.

REDUCING SINGLE 'Y'



SIZE (D)	PART NO.	WT.	A	H	L
110 x 63	M142002132	3.2	117 x 70	253	202
110 x 75	M142002129	3.2	117 x 82	253	210
160 x 75	M142002135	3.2	162 x 82	288	286
160 x 110	M142002131	3.2	168 x 117	337	312

Application : Required to connect branch soil/waste pipeline to the main vertical line at an angle of 45° with reduction of size.

REDUCING SINGLE 'Y' WITH DOOR



SIZE (D)	PART NO.	WT.	A	H	L	C
110 x 63	M142002232	3.2	117 x 70	253	234	107
110 x 75	M142002229	3.2	117 x 82	253	247	107
160 x 75	M142002235	3.2	162 x 82	288	286	107
160 x 110	M142002231	3.2	168 x 117	337	312	107

Application : Same as reducing "Y" with option of door for cleaning purpose.

ASTRAL PASTING TYPE FITTINGS

CLEANSING PIPE



SIZE (D)	PART NO.	WT.	A	H	L	C
75	M142002607	3.2	82	190	112	79
110	M142002609	3.2	117	263	157	107
160	M142002612	4	168	350	200	107

Application : Used in between a vertical line to facilitate cleaning.

INVERT 'Y' 45°



SIZE (D)	PART NO.	WT.	A	H	L
75	M142002507	3.2	82	226	175

Application : Required to connect two branches an angle of 45° with invert socket.

SOLVENT WELD JOINING METHOD

1. CUT PIPE :

Cut pipe square. As joints are sealed at the base of the fitting socket. An angled cut may result in joint failure.



2. REMOVE BURR AND BEVEL :

Remove all burr from inside and outside of pipe with a knife-edge file, or deburring tool. Chamfer (bevel) the end of the pipe 10° -15°



CLEAN :

Remove surface dirt, grease, or moisture with a clean dry cloth.

3. DRY FIT :

With light pressure, pipe should go one third to one half of the way into the fitting socket. Pipes and fittings that are too tight or too loose should not be used.



4. CEMENT :

Apply a full even layer of cement to the outside of a pipe and medium layer of cement to the inside of a fitting.



5. JOIN PIPE AND FITTINGS :

Assemble pipe and fitting socket till it contacts socket bottom. Hold pipe and fitting together until the pipe does not back out. Remove excessive cement from the exterior. A perfect made joint will show a continuous bead of cement around the perimeter.



ASTRAL FABRICATED FITTINGS

GULLY TRAP (SQUARE TYPE) WITH JALI



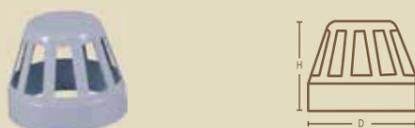
SIZE (D)	PART NO.	WT.	A	H	L
110	M142003409	3.2	139	239	290

ECCENTRIC REDUCING BUSH



SIZE (D)	PART NO.	WT.	H	L
110 x 63	M112003032	3.2	49	115
110 x 75	M112003029	3.2	49	115
110 x 90	M112003043	3.2	50	115
160 x 110	M112003031	4.0	78	172

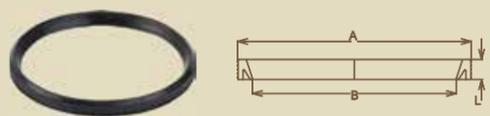
VENT COWL



SIZE (D)	PART NO.	WT.	H
# 50	M112002705	3.2	56
# 63	M112002706	3.2	67
75	M112002707	3.2	67
# 90	M112002708	3.2	80
110	M112002709	3.2	90

Application : Used as a cap on the top of the vertical line. Also helps in release of foul gases.

RUBBER SEAL RING



SIZE (D)	A	B	L
75	85	71	9
90	100	84	9
110	122	106	10
160	175	152	13

SOCKET PLUG



SIZE (D)	PART NO.	WT.	H	L
75	M112002907	3.2	48	95
110	M112002909	3.2	60	130

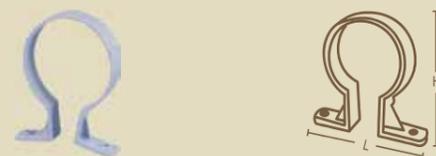
Application : Used as a blind plug to terminate the pipeline.

STRAIGHT REDUCING BUSH



SIZE (D)	PART NO.	WT.	H	L
110 x 75	M112007535	4.0	83	170
160 x 110	M112007531	4.0	83	170

PIPE CLIP



SIZE (D)	WT.	WT.	H	L
40	M112002804	3.2	75	76
50	M112002805	3.2	84	86
63	M112002806	3.2	98	103
75	M112002807	3.2	110	112
90	M112002808	3.2	122	140
110	M112002809	3.2	143	140
160	M112002812	4.0	210	180

Application : To fix / secure the pipeline to the wall or flat surface.

W.C. CONNECTOR (STRAIGHT)



SIZE (D)	PART NO.	L	H
110	F172006009	450	122

Application : To connect W.C. pans to soil pipe.

ASTRAL FABRICATED FITTINGS

4", 5", 7" FLOOR TRAP



SIZE	PART NO.	D	d	A	L	H
4"	M142003208	75	50	117	206	100
5"	M142003209	90 x 75	50	117	195	142
7"	M142003210	75	40	117	208	178
4" (Red)	M142003236	75 x 63	50	117	206	100

Application : For multiple draining i.e. Bathroom/ Washbasin/ Washing machine / Bathtub etc. Provided with 3 additional inlets that can be opened as an when required.

W.C. CONNECTOR (RED)



SIZE (D)	PART NO.	WT.	A	C	L
125 x 110	M112003834	3.2	125	110	103

Application : 125 x 110 Reducer with W.C. ring can be joined to required length of pipe to take the line out.

GULLY TRAP



SIZE (D)	PART NO.	A	d1 x 3	d2 x 3	H
160 x 110	M192014131	132	100	50	300

Application : used to remove surface water from paved pedestrian areas. Side and back boss inlets accept waste water from ground floor domestic applications and / or rainwater from roofs. Accepts waste or rainwater pipework from 32 mm up to 110 mm sizes

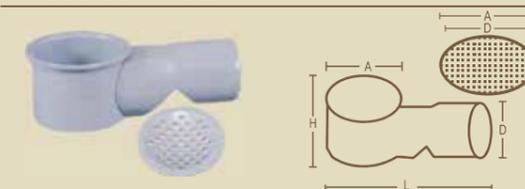
MULTI FLOOR TRAP ADAPTOR (HEIGHT RISER)



SIZE	PART NO.	WT.	A	D	d	L	H
110 x 50/40	M112003344	2.75	110	50	40	180	158

Application : Required to raise the height of floor traps.

NAHANI TRAP & JALI



SIZE (D)	PART NO.	H	L	A
63	M142003106	67	215	120
75	M142003107	85	256	128
90	M142003108	91	260	128
110	M142003109	100	270	128

NAHANI TRAP (SINGLE PIECE)

63 (with Jali)	M142007006	67	215	120
63 (without Jali)	M142007106	67	215	120

JALI	PART NO.	SIZE (D)	WT.	A
	M142008509	110	3.4	119

Application : For draining waste from bathroom / wash basin out to the main line.

W.C. CONNECTOR (BEND)



SIZE (D)	PART NO.	L	H
110	F172005909	192	197

Application : To provide appropriate adaption to W.C. pans.

PLAIN FLOOR TRAP



SIZE	PART NO.	D	d	A	L	H
4"	M142003208	75	63	117	155	101
5"	M142003209	75	63	117	155	140

Application : For draining surface water of bathroom.

FLOOR DRAIN TILE 110 MM OUTLET

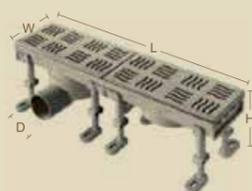


SIZE (D)	PART NO.	WT.	LxW	H
110	M112007508	-	150	42
110	M112007508I	-	150	42

Application : Cover for Multifloor Trap

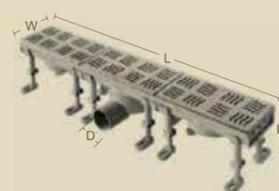
GULLY TRAPS

PRB4010 ABS MODULAR CHANNEL



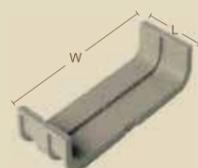
L	W	D	H
400	100	50	105-137

PRB6010 ABS MODULAR CHANNEL



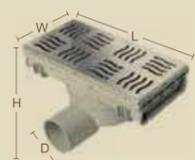
L	W	D	H
600	100	50	105-137

PRBG2010 JOINT TO GLUE FOR PRATIKO BAGNO



L	W
35	100

CHABS2010IN GULLY TRAP ABS



L	W	D	H
200	100	50	105

CHABSV1050IN ABS GULLY TRAP



L	W	D	H
100	100	50	82-74

CHABS1050IN ABS GULLY TRAP



L	W	D	H
100	100	50	82-74

CHABS1050G ABS GULLY TRAP



L	W	D	H
100	100	50	82-72

CHPVC10G PVC GULLY TRAP (GREY)



L	W	D	H
100	100	32-40-82	50

CHPVC10N PVC GULLY TRAP (BLACK)



L	W	D	H
100	100	32-40-82	50

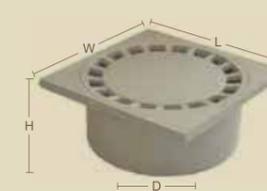
GULLY TRAPS

CHPVC1550G PVC GULLY TRAP



L	W	D	H
150	150	50	62

CHAPVC25G PVC GULLY TRAP (GREY)



L	W	D	H
250	250	110	100

CHAPVC25N PVC GULLY TRAP (BLACK)



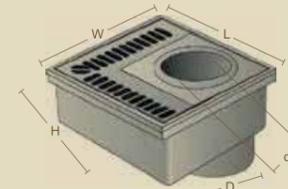
L	W	D	H
250	250	110	100

PSPV1611 PLUVIAL BOX FOR ROUND RAIN PIPE



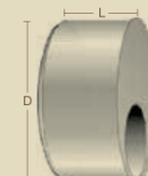
L	W	D	d	H
320	165	110	90-110-125	110

CHAN20G PVC CORNER GULLY TRAP



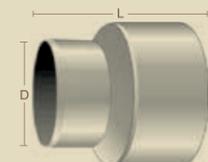
L	W	D	d	H
200	200	80-100-110	80-100	115

TAR07550 SOCKET REDUCER



L	D	d
50	75	50

RC110100 LEVEL INVERTER REDUCER



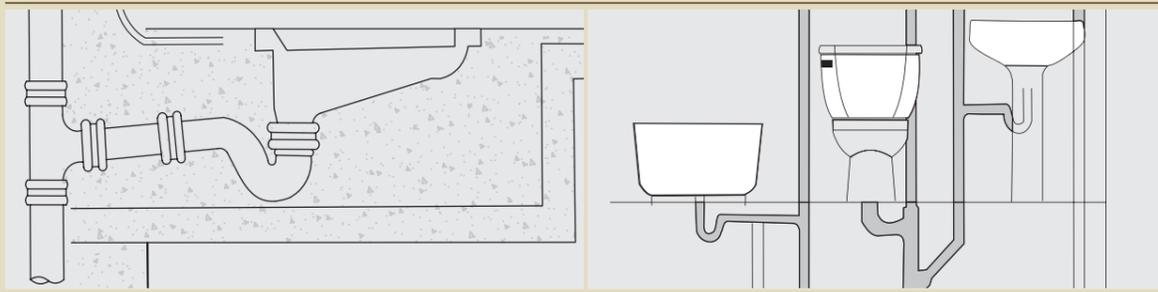
L	D	d
120	100	110

CWFL5511 WC BEND



L	D
550	110

uPVC TRAPS



Traps are very important parts of drainage and sewage system and are most critical to ensure efficient working of the system. Traps prevent foul gases or air to enter back in passage and at a same time allow waste to flow through them.

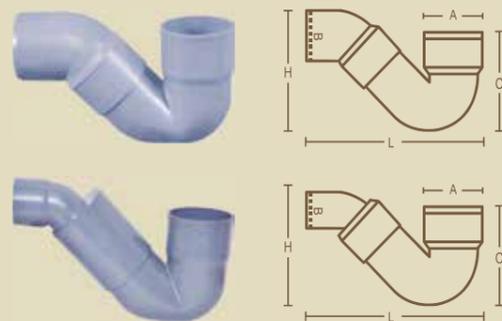
Conventional Cast Iron or cement traps are susceptible to bacterial growth due to its structure and material as they are not able to withstand the attack of salts, acidic or alkaline nature of effluent. This will lead to cracks in masonry and ultimately in inefficient working and unsatisfactory results of the system.

ASTRAL DRAINMASTER uPVC Traps are immune to attack of bacteria and have very good resistance to chemicals which make them most suitable for drainage system. These traps have very smooth inside surface which ensures efficient flushing of system.

Traps are available in "P", "Q" & "S" depending on the outlet angle required.

All traps have water seal well above 50 mm (normally accepted in most of the national, international and municipal guidelines) which ensure best functioning of traps.

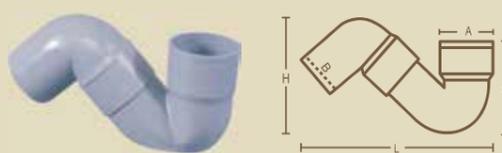
P-TRAP



SIZE (D)	PART NO.	H	L	C	A	B
75 x 75	-	150	250	128	84	75
110 x 75 (RED)	M112004329	245	400	193	110	75
110 x 110	M142003533	215	355	193	110	110
125 x 110	M142003534	215	365	193	125	110

Application : To provide water seal & efficient functioning of the drainage system.

Q-TRAP



SIZE (D)	PART NO.	H	L	C	A	B
110 x 110	M142003633	213	410	193	110	110
125 x 110	M142003634	213	410	192	125	110

Application : Where the outlet is at 45° to inlet.

S-TRAP



SIZE (D)	PART NO.	H	L	C	A	B
110 x 110	M142003733	228	395	193	110	110
125 x 110	M142003734	230	405	192	125	110

Application : Where inlet and outlet are parallel to each other.

LIP RING FOR P/Q/S TRAP



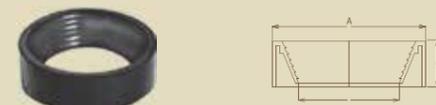
SIZE (D)	A	B	C	T	L
125	132	105	96	10	53

RUBBER RING FOR WC CONNECTOR & BEND



SIZE (D)	A	B	L
110	120	85	30

W.C. CONNECTOR RING FOR P/Q/S TRAP



SIZE (D)	A	B	L
110	126	85	38
125	412	95	40

Application : Where the outlet is at 45° to inlet.

INSTALLATION OF TRAPS & TESTING THE SYSTEM

INSTALLATION OF TRAPS

- Select right type of trap from "P" / "Q" / "S" traps as per the outlet angle required. Place the trap on firm base, pour with concrete on a slab and set it relative to the level of finished floor.
- Concrete can be poured around "P" / "Q" / "S" trap but outlet to the trap must be left open clear to concrete.
- Place ASTRAL W.C. connector ring to the socketed end of trap.
- Apply rubber lubricant on W.C. connector ring and on outer side of W.C. pan. Join W.C. pan to trap by pushing W.C. pan to 125 mm socket of trap.
- Solvent cement can be used to make joints when 110x110mm traps are being used to join connectors other than W.C. Pan connection.

In such cases, outlet of traps can be inserted in the socketed end of pipe or fittings which ever is applicable and joint can be solvent cemented.

PREPARING THE PIPELINE FOR TEST

- All joints should be inspected to ensure the correct location of the mark or groove to the coupling socket.
- Check that minimum cure time has elapsed since the last concrete thrust block or support was cast.
- Check the tightness of all ties and clamps and correct positioning of piping.

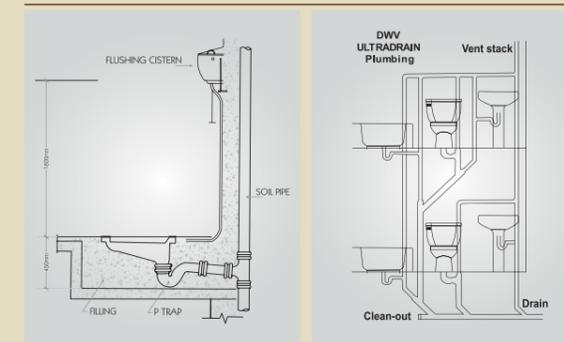
WATER TEST

Water test is the most recommended test in most plumbing code standards. The purpose of the test is to locate any leaks at the joints and correct them prior to putting system into operation since it is important to be able to visually inspect the joints, a water test should be conducted prior to closing in the piping or backfilling underground piping.

To isolate each floor or section being tested, test plugs are inserted through test fittings in the stack. All other opening should be plugged or capped with test plug or test caps. Fill the system to be tested with water at the highest point. As water fills a vertical pipe it creates hydrostatic pressure. The pressure increases as the height of water in the vertical pipe increases. Astral recommends testing at 5m of hydrostatic pressure (0.5 kg/cm²) or as per the local authority's guidelines. Filling the system slowly should allow any air in the system to escape as the water rises in the vertical pipe. All entrapped air in the system should be expelled prior to the beginning of the test. Failure to remove entrapped air may give fully test results.

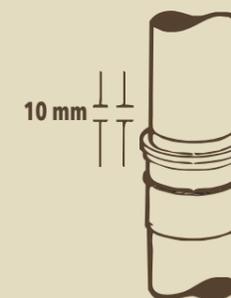
Once the stack is filled to desired level of water column, a visual inspection of the section being tested should be made to check for leaks. If a leak is found, the corrective actions must be completed to find the cause of leak and to repair or replace the joint. Fifteen minutes is a suitable time for the water test. Once the system has been successfully tested, it should be drained and the next section prepared for testing.

TYPE OF COMMON INSTALLATION



THERMAL EXPANSION & CONTRACTION

uPVC has a coefficient of linear expansion of $5.4 \times 10^{-5} \text{ mm/mm/}^\circ\text{C}$. This means that one metre length of uPVC pipe will expand approximately 0.54 mm for each 10°C rise or fall in temperature. However due to short duration of most effluent flows and the slow temperature response of the material, the greatest thermal movement take place due to variation in environmental temperature rather than the effect of hot effluent discharge. Successful accommodation of thermal movement is dependent on the controlled direction and distribution of this movement. Specially designed rubber seal rings and gap of 10 mm while joining pipe and fittings will take care of length change in most of the cases. However, expansion loops, change in direction or offsets can also be accommodated in the system to overcome expansion and contraction issue.



**Withdraw pipe (10 mm)
This will allow for expansion.
All fittings must be supported by a bracket when installed vertically.**

INSTALLATION OF DRAINMASTER SYSTEM IN TRENCH

One of the most significant advantages of ASTRAL DRAINMASTER uPVC pipe system is its light weight. This means that the pipe can be easily handled and longer lengths can be installed without sophisticated lifting machinery and with minimum in-trench labour.

Long pipe lengths increase the speed with which a system can be installed, and also mean that pipelines are less susceptible to misalignment and consequent blockage following possible ground movement, than those made up of short pipe lengths.

Sewer and waste pipelines rely on gravity to ensure adequate flow of fluid. Strict adherence to the designed grade along the entire pipeline is essential and the line must be maintained to specification between inspection or manhole position.

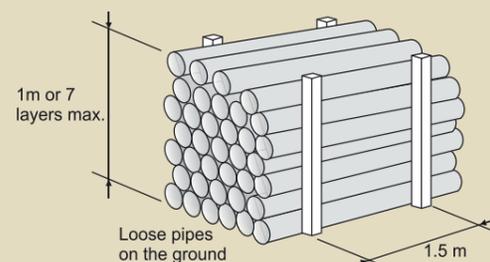
Installation of ASTRAL DRAINMASTER uPVC pipelines should be fast and efficient provided the proper guidelines are followed. The installer should also be familiar with national plumbing code together with the requirements of local authorities or municipal standards where applicable

HANDLING AND STORAGE

While ASTRAL DRAINMASTER, uPVC Foamcore pipes are light and easy to handle, careless handling can cause unnecessary damage. Pipes and fittings should not be dropped or thrown onto hard surfaces or allowed to come into contact with sharp objects that could inflict deep scratches. Foamcore pipes should not be allowed to slide across sharp edges.

BOWING

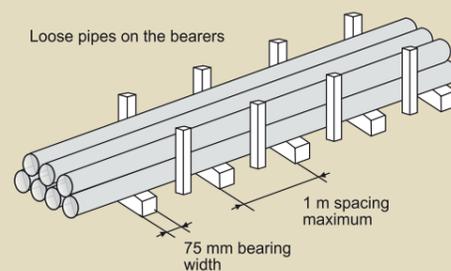
- Pipes can distort under high applied loads due to pipes not being properly supported or stacked too high or incorrectly. This can be aggravated if the pipes are hot.
- Heat sources should be avoided to reduce the risk of distortion.
- If pipes or fittings are to be stored outdoors for prolonged period they should be protected, by for example, hessian or white PE sheet in a manner that allows ventilation and avoids heat build-up.
- Pipes heated on one side by direct sunlight might tend to bow. This process is reversible and the bow can be eliminated by exposing the other side to the sunlight or otherwise allowing the temperature to become consistent before laying the pipe.



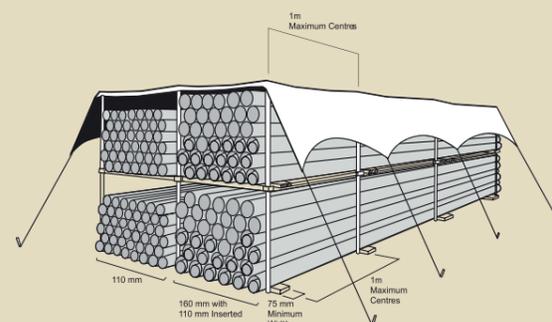
STORAGE

Temporary storage in the fields where racks are not provided, can be in stacks on the ground, providing this surface is level and free from loose stones or other sharp projections.

Socketed pipes should be stacked in layers with sockets placed at alternative ends of the rack, and protruding, to avoid uneven stacks and distortion. The sockets should not be load bearing. Another acceptable approach is to have alternate layers pipes facing in the same direction.



Racks for long term storage are recommended and should preferably provide continuous support, but if this is not possible then supports of at least 75mm bearing widths at 1m centres (max) should be placed beneath the pipes. Side restraints should be placed at centres not exceeding 1.5m and stacks should not exceed 1m in height.



ON SITE STORAGE

- Ideally, stacks should contain one diameter pipe size only. Where this is not possible, stack largest diameter pipes at base of stack. Small pipes may be nested inside larger pipes.
- Store all materials in well ventilated, shady conditions.
- Store fittings under cover. Do not remove from cartons or packaging until required.
- Store solvent cement and cleaning fluid in a cool place out of direct sunlight and away from any heat source.

DO'S & DON'TS

DO'S

- Always insist to use ASTRAL DRAINMASTER rubber lubricant and solvent cement for making joints.
- Cut the pipe straight, as improper cut may lead to leakage.
- Use test plug / socket plug for testing the lines. Try to avoid smoke test.
- Avoid over tightening of door caps. Make sure that door gaskets are placed properly before tightening.

DON'TS

- Do not insert the pipe into socket of fitting without chamfering. This can lead to misplacing of rubber rings and finally leakage in piping.
- Never mix soil and waste line without putting water seal trap in between.
- Never remove rubber rings from pipes and fittings to make solvent weld joint from the same pipe or fittings. This will lead to heavy leakage or failure of system.
- Do not install pipeline without properly placed pipe clips. This is required to ensure efficient working of the system.

HANDLING AND STORAGE





LIGHT WEIGHT UPVC DRAINAGE PIPING SYSTEM

PROFILE

Foamcore pipes are basically multilayer pipes having outer and inner layers of conventional PVC and middle layer of foamed PVC. Outer and inner layers are designed to take the load and middle layer of foamed PVC gives rigidity and maintains the shape of the pipe under load. It reduces total weight of pipe and makes it light when compared to solid wall PVC pipes.

PRODUCT AVAILABILITY

Astral Foamcore pipes are available in 110 mm to 315 mm with different stiffness classes mainly categorized as SN2, SN4 & SN8. SN2 pipes are recommended for above ground applications while SN4 & SN8 pipes are recommended for below ground applications depending on the level at which these pipes have to be installed.

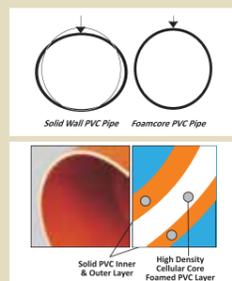
PRODUCT STANDARDS

Astral Foamcore pipes are manufactured as per European and International standards published under structure wall pipes for drainage and sewerage and are mainly based on stiffness classes. These specifications are very well adopted at global levels and are in used for more than 25 years.

AVAILABLE SIZES

110 mm, 160 mm, 200 mm, 250 mm & 315 mm with stiffness class SN2, SN4 & SN8.

PRODUCT DIMENSIONS			
NOMINAL RING STIFFNESS SN (KN/M ²)	2	4	8
DIMENSION RATIO (SDR)	51	41	34
NOMINAL DIAMETER DN (mm)	Wall Thickness (mm)		
110	-	2.7 + 0.5	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



KEY PROPERTIES AND BENEFITS

Astral Foamcore uPVC pipes are suitable for residential and commercial drain, waste & vent piping systems for both underground and above ground applications with top quality raw materials and state-of-the art processing technology, Astral Foamcore pipes meet all industrial standards in addition to our own rigorous quality control standards.

WHY FOAMCORE PIPES ?

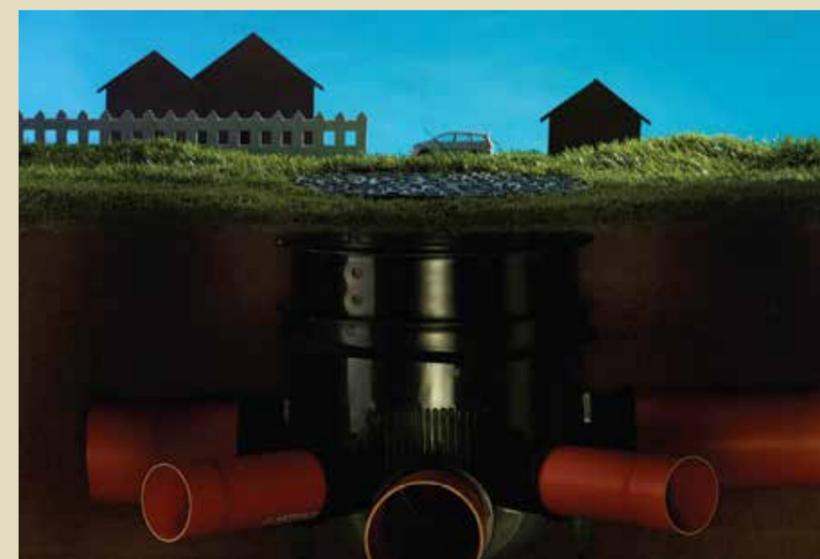
Astral Foamcore uPVC pipe is typical of solid wall PVC under load and the type of distortion normally expected. The Foamcore pipe on the right, under equal load, distributes the load more evenly and does not show the same amount of distortion, as it has unique "I-Beam" structure. Due to its ability of absorbing the load, Foamcore pipes are most suitable for underground drainage systems, where soil exerts a lot of pressure on pipe surfaces. In solid wall pipes this soil pressure will rupture the pipe after some time where Foamcore pipes give better life as foamed PVC layer will absorb pressure and make pipes "stress free" in working conditions.

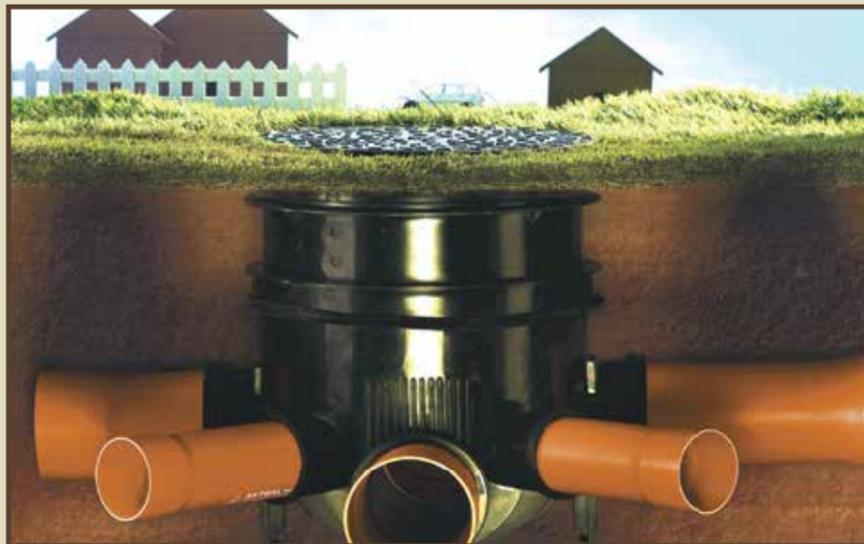
RINGFIT PIPE

Ringfit pipes are socketed on automatic online socketing machine with very high degree of accuracy. The socket has groove inside for rubber ring. The rubber ring ensures trouble free water tight joint with allowance to thermal expansion / contraction. One end of the pipe is plain and other end is self socketed with an integral groove to hold the rubber gasket. When joined with a rubber ring, the joint formed is a trouble free, water tight one, ready to take care of thermal expansion / contraction.

SELFIT PIPE

Selfit pipes are socketed on automatic socketing machine with self socket length (without groove). Such pipes are to be joined with solvent cement. One end of the pipe is plain and the other end is self socketed on sophisticated automatic machines for high degree of accurate diameters. The pipes when joined using solvent cement, form a permanent water tight joint.





ULTRA MODERN DRAINAGE SYSTEM

INTRODUCTION

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 unparalleled long term performance.

AVAILABLE SIZE*

315 mm, 355mm & 450 mm chamber base with riser and top cover
* shortly introducing 315mm and 355mm chamber in different configuration

KEY FEATURES

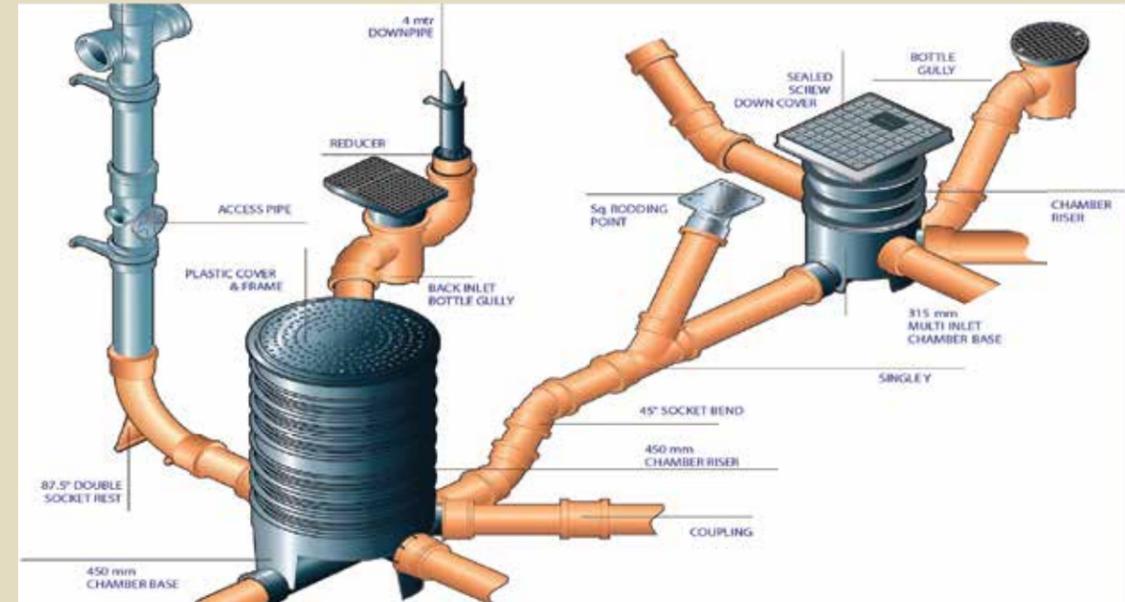
- Strength :** Long term stiffness and strength
- Durable :** Never corrode and hence ment for long life performance
- Flexibility :** Various molded and fabricated fittings for easy of installation and flexibility
- Installation :** Easy and quick installation compared to traditional drainage system
- 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 used in single house application to multi floors buildings, hotels, hospitals, shopping malls, academic institutes upto the main lines.



ASTRAL INSPECTION CHAMBERS

Astral Underground system is completely watertight and 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.

Astral Underground 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 applications. Unlike conventional drainage products, there is no fear of pollution of underground water, soil or ill effects on building foundations. The 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. Astral's Inspection Chambers have been designed to offer easier and more economical alternatives to traditional construction methods. They are made of a tough polypropylene material, are impact resistant, simple and straightforward to install. The chamber raising pieces are designed for simple dry joining, providing an instant watertight joint. They have strengthening ribs and webbing. The raising pieces can be simply built-up to the required overall height between the chamber base and cover. Both Astral 315 & 450 mm preformed units comply with all current regulations. They are designed with a built-in fall for good flow performance.



KEY PROPERTIES AND BENEFITS



GREAT FLEXIBILITY :

Due to availability of ready made inspection chambers, long lengths of lighter weight pipes and different components, installation of this system is very convenient and fast.



PERFECT HYDRAULIC PROPERTIES :

The chambers are designed with in built slope which increase the hydraulic capabilities of the system.



GREAT STRENGTH :

System is sufficiently durable to meet site loading requirements.



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 joining technique, trench width can be kept minimum and smoother bore of the pipe allow high flow rates at relatively flatter gradients..



MINIMAL MAINTENANCE :

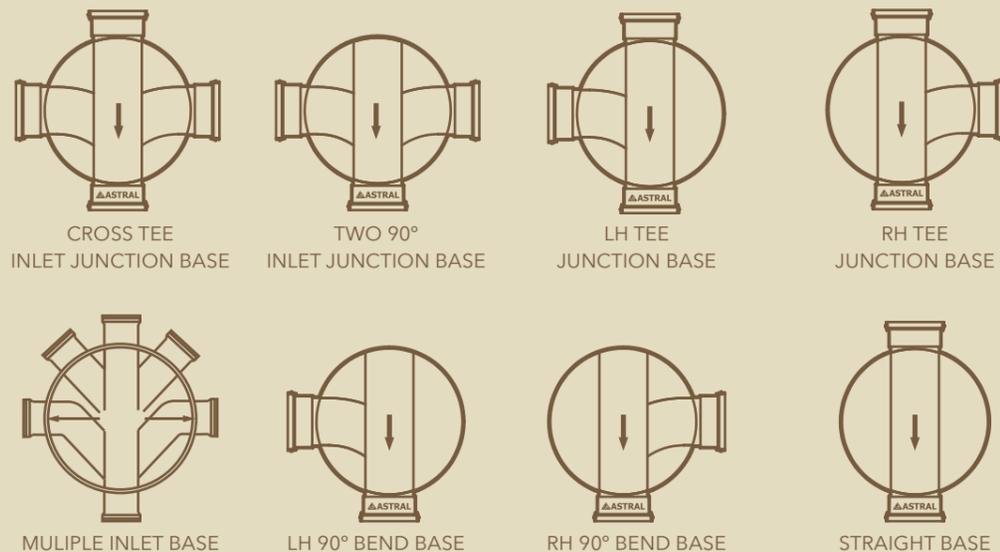
Optimum functional qualities and good hydraulic properties play an important part in reducing the need for jetting and other forms of maintenance, and therefore operational costs are considerably reduced.



LONGER LIFE AND OVERALL ECONOMY :

It is sufficiently durable, and offers long and trouble free service.

CONFIGURATION AVAILABLE IN 315 MM & 355MM



315 MM, 355 MM INSPECTION CHAMBER

Astral's innovative design for 315 mm, 355 mm, brings unmatched flexibility to the underground drainage market. The joints & seals are designed such that they can accommodate the movement of connecting piece up to 3° in any direction.

This is of great assistance to the installer where the connecting pipes are not perfectly aligned with the chamber inlets. In many instances it will eliminate the need to install an extra bend and provide a saving on the cost of the installation. The chamber base is designed to facilitate the stacking of bases on top of one another to give a space saving storage solution for the merchant stockist. In summary, the Inspection Chamber design and flexibility provides a practical, innovative and cost effective solution for the provision of access in a drainage system.



450 MM LARGE DIAMETER INSPECTION CHAMBER

Astral's product innovation is again demonstrated with the introduction of a new 450 mm. diameter large inspection chamber. Significant research and development has gone into the design of this unique product. The Chamber base incorporates 02-160 mm & 02-110 mm inlets with main through of 160 mm. Also 160 mm inlets can be converted to all 110 mm inlets with reducer which allow 3° of movement in any direction. The plastic cover and frame can take loadings up to a maximum of 35kN.



INSTALLATION PROCEDURE - 315, 355 & 450MM CHAMBERS

Installation of the chambers is to be done with the standard practice and as requirement of local authorities.

General installation figures are provided herewith for different type of installation mainly based on traffic loads which are going to impose on system. Fig. 1 is for installation of 450mm chamber base with durable polypropylene cover and frame having wheel load up to 3.5 tonnes. Suits pedestrian areas / domestic driveways. Fig. 2 is for installation of 450 mm chamber base with RCC cover and frame having wheel load up to 20 tonnes. Suits heavy traffic loads. Fig. 3 is for installation of 315 mm chamber base.

Astral® 315 mm chamber to be used with three risers. Depth are as shown in the chart below.

315 mm Chamber	Height mm
Only Body	240 mm
With One Riser	375 mm
With Two Riser	510 mm
With Three Riser	645 mm

Astral® 355 mm chamber to be used with three risers. Depth are as shown in the chart below.

355 mm Chamber	Height mm
Only Body	295 mm
With One Riser	465 mm
With Two Riser	600 mm
With Three Riser	735 mm

Astral® 450 mm chamber to be used with three risers. Depth are as shown in the chart below.

450 mm Chamber	Height mm
Only Body	345 mm
With One Riser	575 mm
With Two Riser	740 mm
With Three Riser	905 mm
With Four Riser	1065 mm

GENERAL REQUIREMENTS FOR INSTALLATION

Installation of the chambers is to be done with the standard practice and as requirement of local authorities.

Installation as per load class requirements General installation figures are provided herewith for different type of installation mainly based on traffic loads which are going to impose on system. Fig. 1 is for installation of 450mm chamber base with durable polypropylene cover and frame having wheel load up to 3.5 tons. Suits pedestrian areas / domestic driveways. Fig. 2 is for installation of 450 mm chamber base with RCC cover and frame having load class up to 20 tons. Suits heavy traffic loads. Fig. 3 is for installation of 315 mm chamber base.

- The chamber base should be bedded with suitable granular material or single size aggregates having no sharp edges on 100 mm bed thickness for light traffic load conditions. For heavy traffic load conditions Fig.2 section has to be followed.

- When Astral PP cover and frame is used, the cover and frame is to be supported on a concrete base while the chamber is surrounded by granular backfill 150mm wide as recommended. When RCC or other cover is used, the chamber should be fully supported in concrete surround.

Figure 1 :

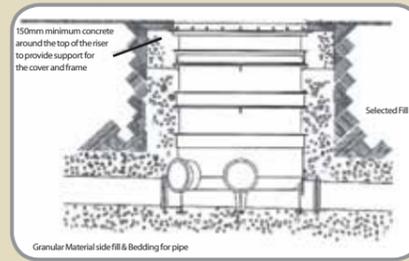


Figure 2 :

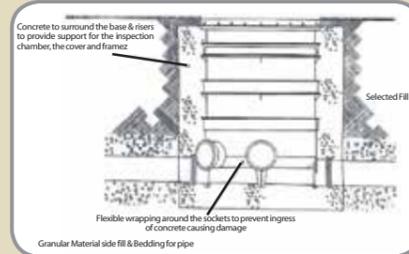
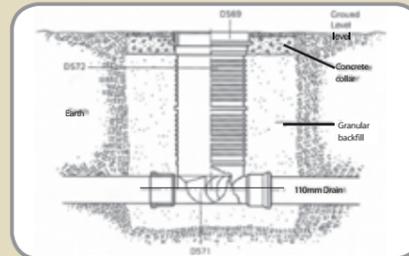


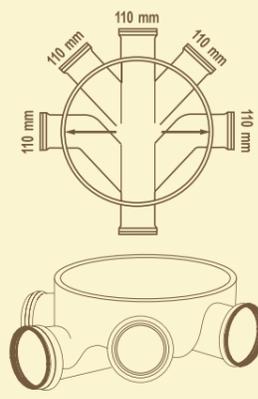
Figure 3 :



315mm, 355mm Inspection Chamber Installation



315 MM, 355 MM INSPECTION CHAMBER SYSTEM



INSTALLATION INSTRUCTION

- Base units are supplied with lubricated blanking plugs. These may be pushed out on site when required and used to secure unused inlets.
- When making joints, the pipe spigot must be well chamfered, de-burred, cleaned and lubricated using Astral's lubricant.
- The pipe is then pushed into the socket allowing a clearing for subsequent expansion i.e., pipes should be pushed home fully and then withdrawn by 10 mm.
- Depending on the depth of invert required, use combination of the chamber base and risers. The riser can be cut for the intermediate depth. Use rubber seal ring in between chamber base and riser for 450 chamber and for 315mm use ring to join last riser and cover. For subsequent risers, rubber rings are not required.

If the chamber is to be installed in ground where the water level may rise above the invert level of the chamber, the chamber must be bedded on and surrounded by concrete.

INSTALLATION PROCEDURE - 315, 355 & 450MM CHAMBERS

- Connect the pipes with rubber lubricants to the inlet and outlet of chambers and level the chamber.
- Fix the no. of raiser on base as per invert level
- Backfill the pit with granular material with 150 mm width all around. Properly compact the backfill material, in 6"-10" layer if needed watering can be used.
- 6" PCC / RCC collar at the top is recommended for heavy traffic loads. The frame should be properly embedded in these concrete and then the cover should be placed on it.

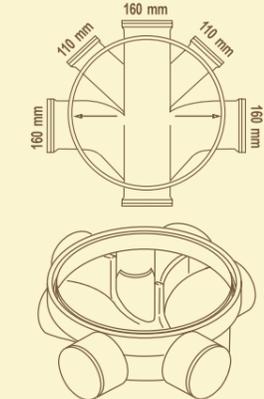
ASTRAL UNDERGROUND - PRODUCT DETAILS:

ASTRAL Underground Chamber	Size of inlet's, outlet of base		Component	Material	Load Capacity
	Main Inlet	Main Outlet			
315	110	110	Base	Polypropylene Impact co-polymer	
			Raiser	Polypropylene Impact co-polymer	
			Frame & Cover	Polypropylene Impact co-polymer	1.5 ton wheel load
355	110/160	110/160	Base	Polypropylene Impact co-polymer	
			Raiser	Polypropylene Impact co-polymer	
			Frame & Cover	Polypropylene Impact co-polymer	1.5 ton wheel load
450	110/160	110/160	Base	Polypropylene Impact co-polymer	
			Raiser	Polypropylene Impact co-polymer	
			Frame & Cover	Polypropylene Impact co-polymer	3.5 ton wheel load

NOTE: These chambers can be used for higher load capacities using RCC covers on top of them. Normally load capacities are applied to covers, not to chambers.



450 MM INSPECTION CHAMBER SYSTEM



450mm Inspection Chamber Installation



ASTRAL GULLIES



GULLIES

A gully holds water, like a trap, to stop foul air escaping from the foul drainage system. Its purpose is to accept waste water from ground floor bathrooms, kitchens and utility rooms or rainwater from paved areas or roofs.

ASTRAL BOTTLE GULLY

ASTRAL bottle gullies can be used to remove surface water from paved pedestrian areas. Side and back boss inlets accept waste water from ground floor domestic applications and / or rainwater from roofs.

By adding a raising piece the gully grating can be installed where paving is set at varying heights, where a new surface is laid or if deep bedding is required. It can be cut to the desired length to allow the gully to be installed at depths of up to 600 mm, reducing the need for additional bends.

The Bottle Gully has one 110 mm outlet and three closed inlets for either waste pipe or 110 mm connections. To discharge waste pipes to this gully adapt the smaller

closed inlets by drilling them out with a 48 mm hole cutter and use the correct adaptor for the boss to accept the 32mm, 40mm and 50mm waste pipe.

Ideal for domestic, industrial and commercial installations.

Accepts waste or rainwater pipework from 32mm up to 110mm sizes includes sealed rodding access

Size Available : 160mm x 110mm



ASTRAL SURFACE CHANNEL



The surface channel that are used at present are of cast iron or in concrete and due to their heavy weight it is difficult to handle or storage or to install and more over they are prone to corrosion. ASTRAL offers surface channel made from polypropylene and they are free from above problems caused by traditional surface channel.

AVAILABLE SIZES : 110 mm x 1mtr (L x H x W) Long End. LH & RH both end caps are available.

SALIENT FEATURE :

- Tough and durable
- Excellent corrosion and chemical resistance
- Environment friendly • Light weight
- Easy to install • Cost effective.
- Saves labour and material cost
- Effective substitute to C.I and concrete channels.
- Durable design resists up to 1 tonne wheel load

FIELD OF APPLICATION :

In various applications like pavements, road side curbs, cycle ways and car park area, shopping malls, sports grounds, building terrace, corporate houses, hotels, hospitals, academic institutes and many more places where surface drain is necessary.

INSTALLATION GUIDELINE :

 Sufficient slope in the paving and channel should always be determined prior to installation to accommodate desired water run-off. Place channel in trench

 Always backfill with concrete with the grating fitted Haunch concrete up and around channel without leaving any empty spaces

 Engage all modules including bends before backfilling

 Simple push-together channel system for ease of installation.



LH END CAP



RH END CAP



COVER TEE



SPECIALLY DEVELOPED FITTINGS

ADJUSTABLE BEND :

Adjustable Bends are specially designed by ASTRAL to suit with installation of inspection chambers. As the chamber inlet and outlets have fixed angle & position, adjustable bends can be changed depend on site requires. These bends are available in two different patterns one with 02 pcs (suitable for 5° to 37.5° movement) & 03 pcs (suitable for 0° to 87.5° movement). These bends eliminates use of extra fittings and pipes to get the angle with pipeline and hence very cost effective. Also it is durable, leakage free and very easy to install at any angle.

LONG RADIUS REST BEND :

This is specially designed to take the load of vertical shaft and the sudden impact of drain & sewer falling down from the vertical lines. The rib on the curve area will strengthen the bend and give adequate support to act as counter force against load due to falling sewer & drain.



2 Pc Adjustable Bend



3 Pc Adjustable Bend



Long Radius Bend



Access and Rodding Points

ACCESS AND RODDING POINTS :

Access is very important on all installations for testing, inspection, and removal of any blockage or debris. Rodding in both directions can be achieved by using a 315 mm or 450 mm Large Inspection Chamber in conjunction with access fittings. Rodding points are more usually used in storm water drainage systems where the rodding point is located at the head of the drain run connection to a chamber, and being no further than 22 meters away from the chamber. The rodding point should be enclosed in a concrete surround to provide support and to ensure that it does not become mislaid at ground level. Rodding points eliminates the need for majority of conventional manholes. By using various combinations of rodding point with ASTRAL's other standard range of fittings, considerable savings can be achieved on cost of underground drainage system.

STANDARD FITTINGS

ASTRAL UNDERGROUND® MOLDED FITTINGS



Bend 87.5°



Bend 45°



Single Tee



Swept Tee



Swept Tee With Door



Single "Y"



Coupler



Blanking Plug

ASTRAL UNDERGROUND® FABRICATED FITTINGS



Equal Tee



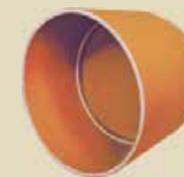
Reducer Tee



Fabricated Coupler



Long Radius Bend



End Cap

*Other Molded / Fabricated fittings are available on request.



ULTRA MODERN DRAINAGE SYSTEM

KEY FEATURES :

- Pre-fabricated 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.
- Environment friendly - watertight preventing pollution / low carbon footprint.
- Top quality accessories - watertight rubber seals for pipe connection (EN 681-1); corrosion resistant steps.

ULTRA-MODERN INSPECTION CHAMBERS WITH THE WIDEST RANGE

ASTRAL P.E. MANHOLE & INSPECTION CHAMBERS

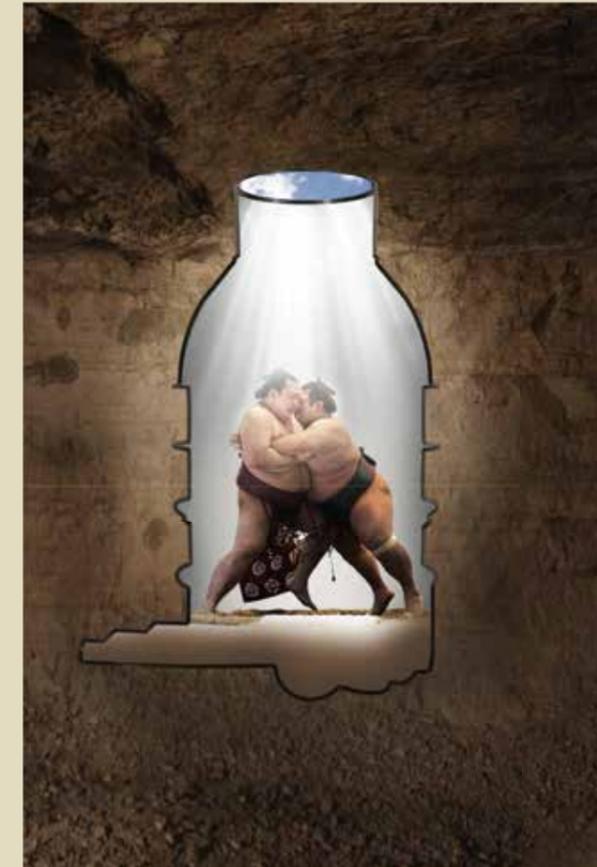
Astral introduces the best underground drainage system which connects SWR system to the main drains, public sewer or sewage treatment plant. It's a complete solution for building drainage and sewerage application. Astral has designed and developed this ultra-modern system with a view to cater to highly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

ASTRAL UNDERGROUND DRAINAGE SYSTEM AVAILABLE SIZES WITH OPTIONS OF INLET AND OUTLET.

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 INLET BASE & 3 INLET BASE OPTIONS.

**UPTO
1000
MM
DIAMETER**



ASTRAL UNDERGROUND INSPECTION CHAMBER & MANHOLE INVERT DEPTH

SINGLE PIECE	SIZE OF CHAMBER & MANHOLE	HEIGHT	Inlet's	Outlet
	500 mm DIA - 5 INLET	500MM 750MM 1000MM	110/160	110/160
	600 mm DIA - 5 INLET	500MM 750MM 1000MM 1250MM 2000MM	110/160	110/160
	600 mm DIA - 3 INLET	500MM 750MM 1000MM 1250MM 2000MM	160/200/250	160/200/250
	800 mm DIA - 5 INLET	1000MM 1250MM 1500MM	110/160	110/160
	800 mm DIA - 3 INLET	1250MM 1500MM 1750MM	160/200/250	160/200/250
	1000 mm DIA - 5 INLET	1250MM 1500MM 1750MM	110/160/200	110/160/200
	1000 mm DIA - 3 INLET	1250MM 1500MM 1750MM	200/250/315	200/250/315
1000 mm DIA MANHOLE MODULAR				
BASE UNIT - 3 INLET	650MM	200/250/315	200/250/315	
BASE UNIT - 5 INLET	650MM	110/160/200	110/160/200	
RAISER UNIT	500MM 750MM 1000MM	<u>Invert depth = base + raiser + upper unit</u>		
UPPER UNIT	1100MM 1350MM 1600MM			
FLAT BASE				
FLAT BASE - 500 mm	450MM 700MM 950MM	---	---	
FLAT BASE - 600 mm	450MM 700MM 950MM	---	---	
Gully Trap				
GULLY TRAP - 110 mm	405MM	---	---	110 mm

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 selected 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 15cm 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 15cm.
- 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 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.

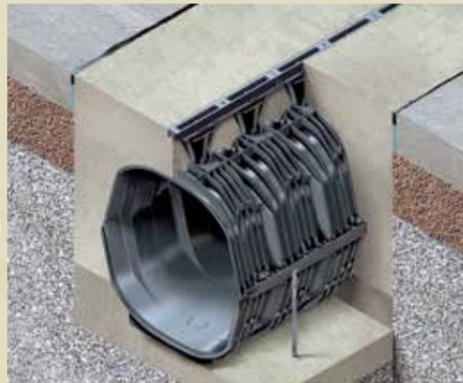
note: for greater stability and increase the load bearing capacity use gravel or sand for backfilling as it has the properties like high permeability and absorb the lateral thrust. Also it is easily compactable and non expensive.



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 15cm 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.





RECYFIX®HICAP®F

Linear drainage for extreme conditions with high hydraulic requirements

- High capacity drainage channel
- Suitable for heavy load areas
- No expensive crane or machine hours required for installation



RECYFIX®PRO

Corrosion free linear drainage for private and public areas

- Channel made of PP and grating made of high quality PA-GF (Polyamide)
- Drainage system according to EN 1433
- Light weight, robust and easy to install

RECYFIX®NC

Highly stable and lightweight linear drainage made of PP for civil engineering

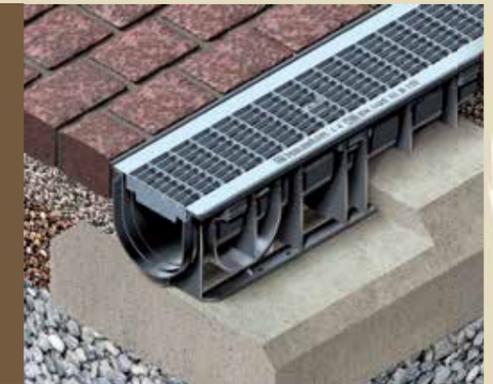
- High stability with durable ductile iron grating (8-fold bolted)
- Low weight ensures easy handling on site
- Prefabricated, ready to install



RECYFIX®STANDARD

Linear drainage channels for public and commercial areas

- Made from recycled polypropylene making it environment friendly
- High resistance against frost and road salt
- Very light which makes it quick and easy to install



RECYFIX®PLUS X

Linear drainage with edge protection for areas with higher traffic volume

- Highly stable
- The steel edge means it's easier to use on many applications including tarmac and also adds aesthetics
- An extensive range of channels and gratings upto 300mm width gives flexibility in design



AQUAFIX®SEPARATOR

Modern separation technology for sustainable preservation of vital resources

- Highest cleaning performances
- Modern materials for all demands
- Up to NS 250 l/sec

RECYFIX®MONOTEC

Monolithic drainage system for heavily frequented traffic areas

- Monolithic channel for maximum security
- High hydraulic capacity through slim channel construction
- Durable and unbreakable

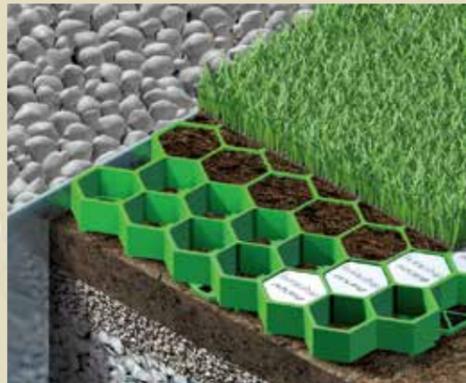


TOP X CHANNELS

The drainage channel for private driveways, courtyards, patios and gardens

- Perfect for driveways, garages and gardens
- Easy to transport and quick to install
- End caps and installation advice make a complete system





RECYFIX®GREEN

Turf honeycomb for infiltration of rainwater in parking areas

- The product is light and strong making it easy to install
- Helps directly drain the rainfall
- The product when laid gives more than 90% of the area to turf

RECYFIX®PLUS

Linear drainage channels with a sophisticated look for public and commercial areas

- Highly stable
- The steel edge means it is easier to use on many applications including tarmac and also adds to the aesthetics
- An extensive range of channels and gratings up to 300mm wide, gives flexibility in design



SPORTFIX®

The drainage range for stadiums and sport facilities

- A bespoke system with easy design and high strength for track and field drainage
- Water jump, long jump, sand traps and soft kerb compliment the track drainage
- All products are manufactured as per the standards set out by the IAAF

SLOTTED CHANNEL

Slotted channels for design-sensitive applications

- Cover only as a thin line visible making it environmentally friendly
- Allows the design of a project in a common optic
- Easy access to channels through an access cover



PRODUCT RANGE

ASTRAL CPVC PRO®

ADVANCED HOT AND COLD WATER PLUMBING SYSTEM

ADVANCED HOT AND COLD WATER PLUMBING SYSTEM



ONLY THOSE PRODUCTS BEARING THE ABOVE MARKS ARE CERTIFIED

ASTRAL Aquarius®

STANDARDS REDEFINED
UPVC PLUMBING SYSTEM FOR OUTER LOOP LINES

LEAD FREE UPVC SOLVENT WELD PLUMBING SYSTEM



ASTRAL Clamps & Hangers

SUPPORT SYSTEM FOR PIPES AND FITTINGS

FOR PROVIDING PROPER SUPPORT TO PIPES AND CABLES



ASTRAL AquaSAFE®

UPVC PIPES FOR AGRICULTURE & WATER TRANSPORT SYSTEM



ASTRAL SILENCIO®

High Density Low Noise System

THE COMPLETE LOW NOISE SYSTEM



ASTRAL BORE-WELL®

LEAD FREE UPVC COLUMN PIPES

HEAVY METAL & LEAD FREE COLUMN PIPES FOR SUBMERSIBLE PUMP



ASTRAL Wire Guard®

Conduit Pipes & Fittings

CONDUIT PIPES FOR PROTECTION OF WIRES AND CABLES



WELD-ON®

Under license of: **IPS CORPORATION**

CPVC & UPVC CEMENTS & PRIMER FOR LEAKAGE FREE PLUMBING



