

ashirvad®

by aliaxis



TECHNICAL MANUAL Underground Drainage Solutions

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About Aliaxis

Aliaxis group is a leading global manufacturer and distributor of plastic fluid handling systems used in residential, commercial and industrial buildings.

Head quartered in Brussels, Belgium. Aliaxis is present in over 45 countries, has more than 100 manufacturing and commercial entities and employs over 16,000 people.

Aliaxis leverages local and global knowledge of the industry as well as regulations and building habits to provide consistently excellent customer service through distribution partners to builders, installers, infrastructure contractors and others. The group is in the Indian plumbing and sanitary market through a partnership with Ashirvad Pipes since 2013.



Aliaxis at a glance



€ 3.1 billion
Revenue



120+
Distribution centres



1.400+
Injection machines



16.000+
Colleagues



45+
Countries



600+
Extruders



€ 87 million
Capex



80+
Manufacturing sites



10
Commercial brands



About Ashirvad

Ashirvad, an Aliaxis Group company, set up its Bengaluru units in 1998 and is a wholly owned subsidiary of the Aliaxis Group. Aliaxis Group is a global leading manufacturer and distributor of plastic fluid handling systems used in residential, commercial, and industrial buildings. Headquartered in Brussels, Belgium, Aliaxis is present in over 40 countries with more than 75 manufacturing and commercial entities, employs over 16,100 people, and generates more than 3 billion Euros (₹21,600 crores approx.) in annual sales.

Ashirvad has always been relentless in its commitment to quality and service. Ashirvad Pipes is a leading manufacturer and supplier of CPVC, uPVC, and SWR plumbing systems, and is also the pioneer in designing and manufacturing uPVC column pipes, which are used in the erection of submersible borehole pumps. Today, Ashirvad is the world's largest manufacturer of uPVC column pipes and is successfully exporting to over 35 countries. The CPVC Hot and Cold plumbing system is manufactured in collaboration with Lubrizol, USA (a Berkshire Hathaway company), and is best suited for the clean and hygienic supply of potable water. Ashirvad is the world's largest selling CPVC and uPVC pipes and fittings company.

Ashirvad has expanded its product range with an innovative triple-layer low-noise (Silent and Silent Plus) SWR system and a foam-core underground drainage system, along with the widest range of locally manufactured speciality items and accessories such as manholes, inspection chambers, and non-return valves. Furthermore, the company has successfully entered the sanitary and fire safety space with its leading range of traps and couplings, pan connectors, and concealed valves.

Ashirvad has consistently grown year on year and aims to become a one-stop shop for all Plumbing, Industrial, Sanitary, Agriculture, Fire Safety, and Drainage products in the country.

Capabilities:

- Manufacturing capacity of more than 2,00,000 MT per annum
- State of the art facility spread across 50 acres
- 500+ Strong Sales & Marketing Team
- 200+ Strong Central Support Office Team
- Over 4,500 Manufacturing Workforce
- 14 Warehouses, 1,100 Distributors, 53,000 Dealers across India
- Exporting to more than 40 Countries
- 2 Factories in Bengaluru and one in Bhiwadi (Rajasthan) near Delhi



CIDC - 2017

Construction Industry Database (CIDC) – 2017 Has been enlisted as an Approved Vendor for providing the following services/products: Manufacturing of CPVC & uPVC Pipes & Fittings.



WCRC Leaders Summit - 2014


Ashirvad Pipes was recognised as **"One of the 100 Fastest Growing Marketing Brands in Asia"**, evaluated and selected by KPMG, the global audit firm.



The National Award - 2007

Ashirvad won the National Award for **"Outstanding Entrepreneurship in Medium Enterprises."** The award was presented by the Prime Minister of India.

Certifications



intertek
Total Quality Assured.

CERTIFICATE OF REGISTRATION

This is to certify that the management system of:

Ashirvad Pipes Pvt. Ltd.

Main Site: Site 1: Plot No. 4-B, Plot No. 26 & 26 B Attibele Industrial Area, Hosur Road, Bangalore - 562107, Karnataka, India

See appendix for additional sites and additional site scopes

has been registered by Intertek as conforming to the requirements of:

ISO 9001:2015

The management system is applicable to:
Manufacture and Supply of uPVC and cPVC Pipes, Fittings, Solvent Cement and LLDPE Water Storage Tank, HDPE Pipes for Industrial, Domestic, Agriculture, Sewage Applications.


Certificate Number:
0087728

Initial Certification Date:
10 April 2003


Date of Certification Decision:
21 February 2022

Issuing Date:
22 February 2022

Valid Until:
26 February 2025




intertek
014




Calin Moldovean
President, Business Assurance


Intertek Certification Limited, 10A Victory Park, Victory Road, Derby DE24 8ZF, United Kingdom



Intertek Certification Limited is a UKAS accredited body under schedule of accreditation no. 014.

In the issuance of this certificate, Intertek assumes no liability to any party other than to the Client, and then only in accordance with the agreed upon Certification Agreement. This certificate's validity is subject to the organization maintaining their system in accordance with Intertek's requirements for systems certification. Validity may be confirmed via email at certificate.validation@intertek.com or by scanning the code to the right with a smartphone. The certificate remains the property of Intertek, and should be returned upon request.





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See appendix for additional sites and additional site scope

has been registered by Intertek as conforming to the requirements of

ISO 45001:2018

OHSAS 18001:2007 certified from 20 July 2017 to 27 February 2019.

The management system is applicable to:
Manufacture and Supply of uPVC and cPVC Pipes, Fittings, Solvent Cement and LLDPE Water Storage Tank, HDPE Pipes for Industrial, Domestic, Agriculture, Sewage Applications.


Certificate Number:
0087730

Initial Certification Date:
20 July 2017


Date of Certification Decision:
21 February 2022

Issuing Date:
22 February 2022

Valid Until:
26 February 2025




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Calin Moldovean
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Certificate Number:
0087727

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30 March 2016


Date of Certification Decision:
23 February 2022

Issuing Date:
22 February 2022

Valid Until:
26 February 2025




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10 Assurances

Ashirvad's stringent quality checks ensure premium products and maximum customer satisfaction

#01

STATE OF THE ART
MANUFACTURING FACILITIES



#06

STRINGENT QUALITY
CHECKS AT EVERY LEVEL
OF PRODUCTION



#02

ADVANCED MACHINERY
FOR SUPERIOR QUALITY



#07

100% FINISHED
GOODS INSPECTION



#03

ADVANCED MATERIAL
HANDLING SYSTEMS



#08

EVERY BATCH OF
PRODUCTS LAB TESTED



#04

100% INCOMING
RAW MATERIAL INSPECTION



#09

REGULAR EXTERNAL LAB
TESTING OF PRODUCTS IN INDIA



#05

HIGH DIMENSIONAL ACCURACY
TO MAINTAIN QUALITY OF EACH
PIECE, TO ENSURE A DEFECT
FREE SYSTEM



#10

MULTIPLE QUALITY CHECKS IN
PLACE FOR EVERY INDUSTRIAL
PVC FITTINGS THAT LEAVES THE
ASHIRVAD FACTORY



Why Ashirvad Underground Drainage System?

Ashirvad offers an industry leading range of underground and surface drainage systems. These systems offer unparalleled installation options with high quality finish, superior dimensional accuracy and stability and are suitable for all types of commercial and domestic installations.

These pipes are extruded on state-of-the-art extruders and are socketed on inline bellling machines. The fittings are manufactured in collapsible core moulds to ensure straight sharp finish of the grooves for higher dimensional accuracy of the product which finally ensures the highest degree of dimensional accuracy and product strength.

Ashirvad underground drainage systems, therefore, offer unrivalled strength and product finish that provides a leak proof, maintenance free and long lasting solution to the customer. All this is backed by extensive technical research to support all aspects of design and installation.

Ashirvad underground drainage pipes are available in 110 mm to 315 mm in Pushfit and Solfit jointing methods with different stiffness classes mainly categorised as SN2, SN4 and SN8.

110 mm with stiffness class SN4 and SN8

160 mm, 200 mm, 250 mm and 315 mm with stiffness class SN2, SN4 and SN8

Features And Benefits



Light weight and strong



Chemical and corrosion resistance



Wide range and compatibility



Non toxic and non conductor



Easy to install



Non flammable and environmental friendliness



Maximum flow rate



Noise free



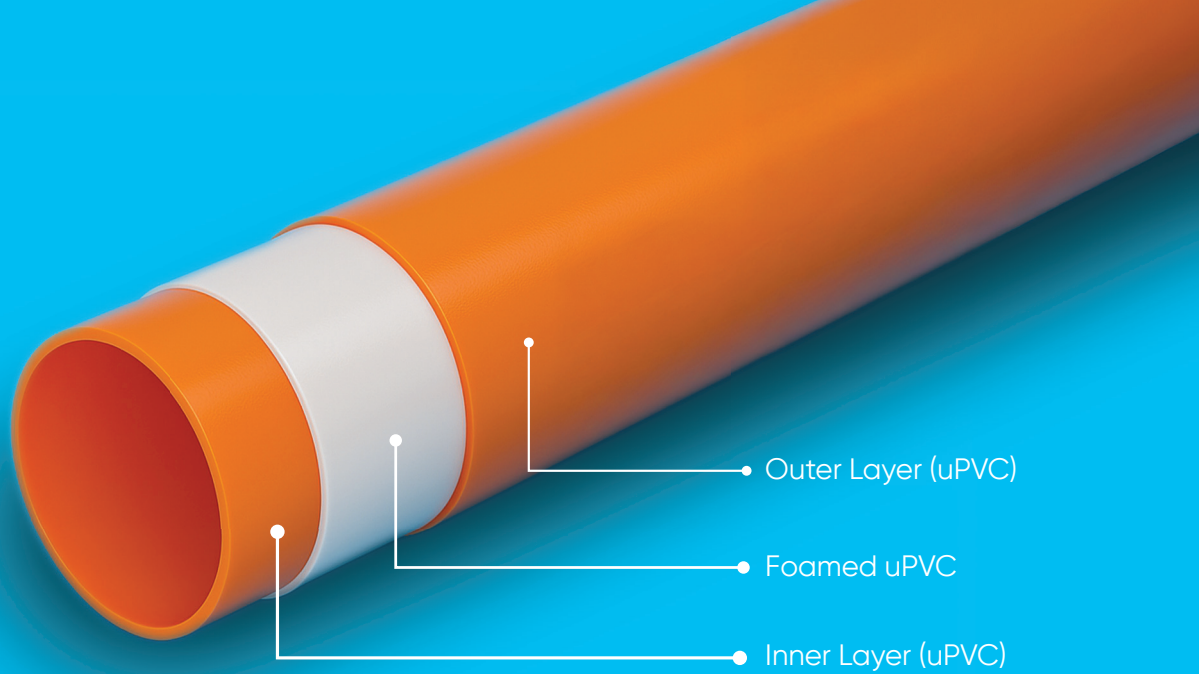
Longer service life

Underground Drainage Pipes Foam Core

About the product

Ashirvad Foam Core Pipes are advanced multilayer uPVC pipes, specifically engineered for underground drainage systems and manufactured in accordance with IS 16098 Part 1 (2013). These pipes feature a three-layer construction: a tough outer and inner layer made of conventional unplasticized polyvinyl chloride (uPVC), and a middle layer composed of foamed uPVC. This unique structure offers a combination of strength, chemical resistance, and rigidity, making the pipes ideally suited to withstand the high soil pressure typically encountered in underground installations.





Outer Layer (uPVC)

Foamed uPVC

Inner Layer (uPVC)

Features



Material Composition

Constructed from high-grade uPVC for enhanced durability and environmental resistance.



Multilayer Design

Outer and inner layers provide structural strength and chemical resistance; the foamed core adds rigidity and shape retention.



Corrosion Resistance

Excellent resistance to chemicals and environmental degradation.



Temperature Tolerance

Performs reliably across a wide temperature range from 0°C to 60°C.



Lightweight Construction

Easy to transport, handle, and install.

Applications



Municipal underground drainage systems



Residential and commercial sewage networks



Industrial effluent discharge systems



Infrastructure projects requiring high load-bearing drainage solutions

Benefits



Lightweight & Strong

Reduces transportation and installation effort without compromising strength.



Noise & Vibration Dampening

Minimizes operational noise, ideal for urban and residential settings.



High Impact Resistance

Withstands mechanical stress during installation and use.



Thermal Insulation

Maintains internal temperature and prevents condensation.



Water Ingress Prevention

Solid construction prevents seepage into the pipe system.



Leak-Proof Joints

Ensures long-term reliability and minimal maintenance.

Available sizes

Pipes:

Pipe Diameter	Connection Type	Stiffness class		
		SN2	SN4	SN8
110mm	Pushfit & Solfit	Not covered in ISI	✓	✓
160 mm	Pushfit & Solfit	✓	✓	✓
200 mm	Pushfit & Solfit	✓	✓	✓
250mm	Pushfit & Solfit	✓	✓	✓
315 mm	Pushfit & Solfit	✓	✓	✓

*Only Available in Foam Core

Fittings: Pushfit & Solfit

110, 160, 200, 250 and 315 mm with stiffness class SN8

Know the application System

About the Pushfit system

Ashirvad Pushfit pipes are uPVC-based underground drainage pipes joined using a pre-fitted elastomeric ring (Brown Seal™). These pipes are designed for quick, tool-free installation and are ideal for non-pressure underground drainage applications.

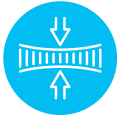
Features



Manufactured as per IS 16098 (Part 1): 2013 and EN 1401-1:2009



Available in sizes: 110 mm to 315 mm



Stiffness classes: SN2, SN4, SN8



High dimensional accuracy and smooth internal finish



Resistant to corrosion, abrasion, and chemical attack

Benefits

- Quick and easy installation without solvent cement
- Leak-proof joints with Brown Seal™ technology
- Accommodation of thermal expansion and contraction
- Reopenable joints for realignment or adjustments
- Cost-effective and time-saving

About the Solfit system

Ashirvad Solfit pipes are uPVC underground drainage pipes joined using solvent adhesive. These systems are designed for permanent, high-integrity installations where joint disassembly is not required.

Features



Manufactured as per IS 16098 (Part 1): 2013 and EN 1401-1:2009



Available in sizes: 110 mm to 315 mm



Stiffness classes: SN2, SN4, SN8



High dimensional accuracy and smooth bore



Compatible with Ashirvad solvent adhesive for secure bonding

Benefits

- 100% leak-proof solvent-welded joints
- High flow rates with no choking
- Strong chemical bonding ensures long-term durability
- Cost-effective for permanent installations

Pushfit vs Solfit – Comparison Table

Aspect	Pushfit System	Solfit System
Joining Method	Push-fit with Brown Seal™ elastomeric ring	Solvent adhesive bonding (chemical fusion)
Installation	Quick, tool-free, and reopenable	Permanent, requires solvent cement and curing time
Leak Protection	Leak-proof due to pre-fitted rubber seal	100% leak-proof due to solvent-welded joints
Flexibility	Allows for thermal expansion and contraction	Rigid joints; no flexibility after installation
Ease of Use	Ideal for fast and adjustable installations	Suitable for permanent and high-integrity installations
Maintenance	Joints can be reopened for realignment or changes	Joints are permanent and cannot be reopened
Applications	Residential, commercial underground drainage, soil, waste, rainwater systems	Long-term underground drainage, sewage, and wastewater systems
Sizes Available	110 mm to 315 mm (SN2, SN4, SN8)	110 mm to 315 mm (SN2, SN4, SN8)
Standards	IS 16098 (Part 1): 2013, EN 1401-1:2009	IS 16098 (Part 1): 2013, EN 1401-1:2009
Cost Efficiency	Cost-effective due to ease of installation	Cost-effective for long-term durability



Features of Solid Core UGD Pipes

Underground drainage system comprises of pipes, fittings and accessories used to conduct household sewage, rainwater or Industrial effluent. Most commonly seen application is in between houses or buildings to municipal sewers. It is a non pressure application system and as such can be comprised from different materials such as PVC, HDPE, clay, concrete or fibre glass. The Ashirvad product is made of uPVC for the following reasons:



Material Composition:

Made from high-grade unplasticized polyvinyl chloride (uPVC), ensuring durability and resistance to various environmental factors.



Corrosion Resistance:

UPVC pipes are highly resistant to corrosion from chemicals and environmental factors, making them ideal for drainage applications.



Temperature Resistance:

These pipes can withstand a wide range of temperatures, maintaining their structural integrity in both hot and cold environments ranging from 0deg C to 60deg C.

Applications



Drainage Systems:

Suitable for residential and commercial drainage systems, including underground applications.

Effective in sewage and waste management systems due to their durability and resistance to chemical degradation.

Benefits of Solid Core UGD Pipes



Durability:

Long-lasting with a lifespan that exceeds traditional piping materials, reducing the need for frequent replacements.



Cost-Effective:

Lower installation and maintenance costs due to their lightweight and easy installation process.



High Flow Rate:

Smooth interior surface ensures a high flow rate and reduces the risk of blockages. As compared to DI Pipes, it has low coefficient of friction.



Environmental Resistance:

Resistant to UV radiation and other environmental factors.



Cost-Effective:Low Maintenance:

Minimal maintenance required due to their resistance to scaling pitting.

REDI

*REDI (Italy) is active since 1960 and are leaders in the management of waste water system as well as ventilation in Europe.

Wide range of pipes and fittings

Sizes available for Pipes and fittings in Pushfit and Solfit – 110, 160, 200, 250 and 315 mm.

Under technical collaboration from REDI*

Ashirvad under technical collaboration from REDI made it possible to have wide range of products in underground drainage range.

Special fittings from REDI*

Special fittings such as large dia non return valves, easy clips, mechanical saddles, swivel and few higher diameter fittings are imported from REDI.

Fully analyzed raw materials

The raw materials used for manufacturing the products are fully analyzed and procured with utmost care to deliver high quality products to the customers.

Best manufacturing standards

The pipes are extruded on state-of-the-art extruders and are socketed on online belling machines. The fittings are manufactured in collapsible core moulds to ensure straight sharp finish of the grooves for higher dimensional accuracy of the product which finally ensures the highest degree of dimensional accuracy and product strength.

Wide distribution network

Ashirvad has a wide distribution network throughout the country which makes it possible to find our products in local shops too.

Rodent proof

Smooth surfaces and the rigidity of uPVC are hindrance for rodents from damaging the system.



About uPVC

Ashirvad offers an industry leading range of underground and surface drainage systems. These systems offer unparalleled installation options with high quality finish, superior dimensional accuracy and stability and are suitable for all types of commercial and domestic installations.

Physical Properties

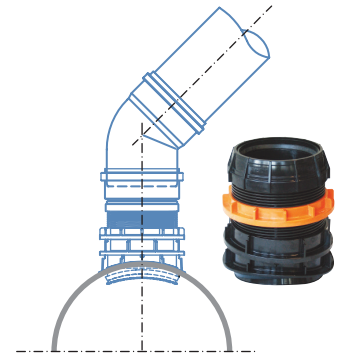
Density [g/cm ³]	1.3 - 1.45
Thermal conductivity [w/(m.k)]	0.14 - 0.28
Yield strength [MPa]	31 - 60
Young's modulus [psi]	4,90,000
Flexural strength (yield) [psi]	10,500
Compression strength [psi]	9,500
Coefficient of thermal expansion (linear) [mm (mm"°c)]	5 x 10 ⁻⁵
Vicat B [°c]	65 - 100
Resistivity [Qm]	10 ¹⁶
Surface resistivity [Q]	10 ¹³ - 10 ¹⁴



Speciality Fittings

Mechanical connections

Ashirvad introduces high quality mechanical connections that can be used to join underground drainage pipes to municipal sewers. These products can be used to join to sewers made out of PE/PP/PVC - solid wall, corrugated, clay, concrete, GRP or cast iron (thickness 5 mm to 14 mm, diameter 200 mm to 400 mm).

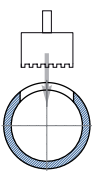


Easy clip (160 mm and 200 mm dia)

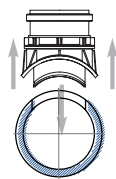
Easy clip is used for the creation of sewer line connections using a watertight coupling device with a mechanical anchoring system. The body of the clip is made from PVC and seals are made from EPDM. Easy clip fit for purpose saddles have been successfully installed for conveying surface waters from highway bridges and to connect private underground drainage systems to the main sewers.

These products can be used to join to sewers made out of PE/PP/PVC - solid wall, corrugated, clay, concrete, GRP or cast iron (thickness 5 mm to 100 mm, diameter 300 mm to 1200 mm).

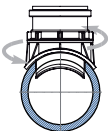
Installation steps



Identify the point at which to perforate the pipeline and drill the hole perpendicular to the axis of the main pipe.



Use a suitable tool to smooth the edge of the hole as well as lubricate the seal. Also ensure a good fit of the circular interface.



Insert the Saddles and tighten the ring nut. By turning the orange ring nut, the internal body moves upwards. The slightly conical shape of the body's base compresses the seal, thus ensuring that the hole drilled in the pipeline is properly sealed.



Advantages of installing easy clip

- Short excavation time
- Soil re-compaction time
- No alteration of bedding
- No risk of rupture
- No digging beneath the pipeline
- No risk of interference with other utilities
- Installation without the use of sealants
- Speed of installation
- Flexible solutions
- Ease of installation

Back Flow Preventer / Non return valves

Non return valves are simple and effective devices for reducing the risk of flood damage caused by surface water flowback through the underground drainage system. Injection moulded non return valves made of uPVC designed for connections to piping systems conform to European EN 1329 and EN 1401 standards.

The main causes of back flow are

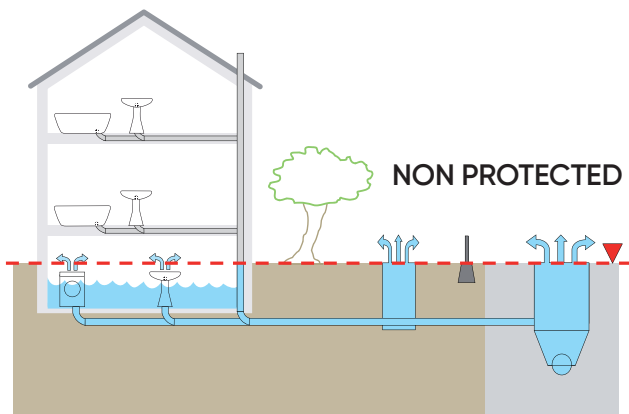
Overall under-sizing of the public sewage.

High peak of flow (example in case of intense rainfalls).

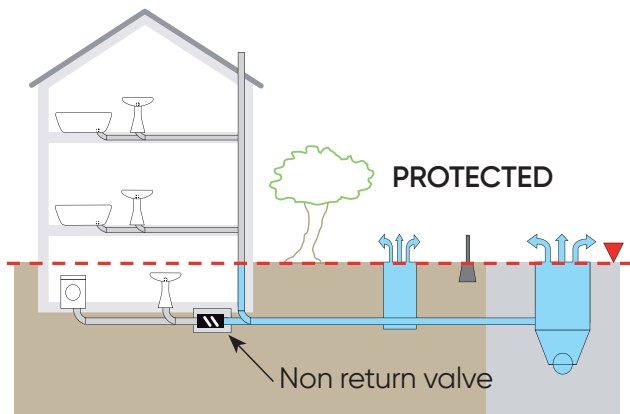
Growing urbanization areas means greater sewage volume to be evacuated.

Malfunctioning or blockages downstream in the network.

Main functioning components and operation



Back flow event: without non return valve



Back flow event: with non return valve



Installation

Installation of NRV is within an access point between the facility to be protected and main sewer. Any flowback will automatically shut the valve.

This product can be obtained in sizes from 110 mm to 315 mm from Ashirvad.

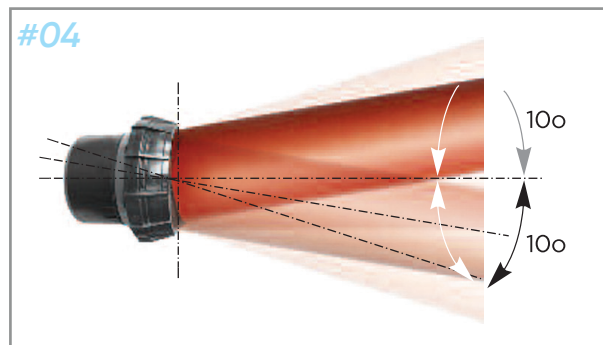
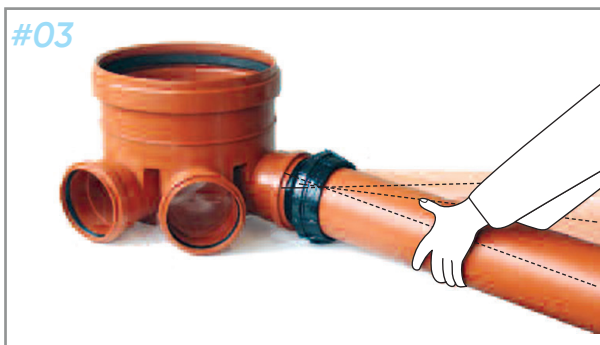
Swivel

Swivel joint for the compensation of settling side when used with inspection chambers. Special kneecap compensation whose seat is obtained by the coupling of 2 hemispheres. The product comes from Redi mounted, pre-lubricated and ready to use. The end can absorb inclinations of the pipe up to $\pm 10^\circ$.

Installation: Suitable for systems with O-ring seal. Always chamfer cut pipe and lubricate all plain ended spigots for perfect push-fit.

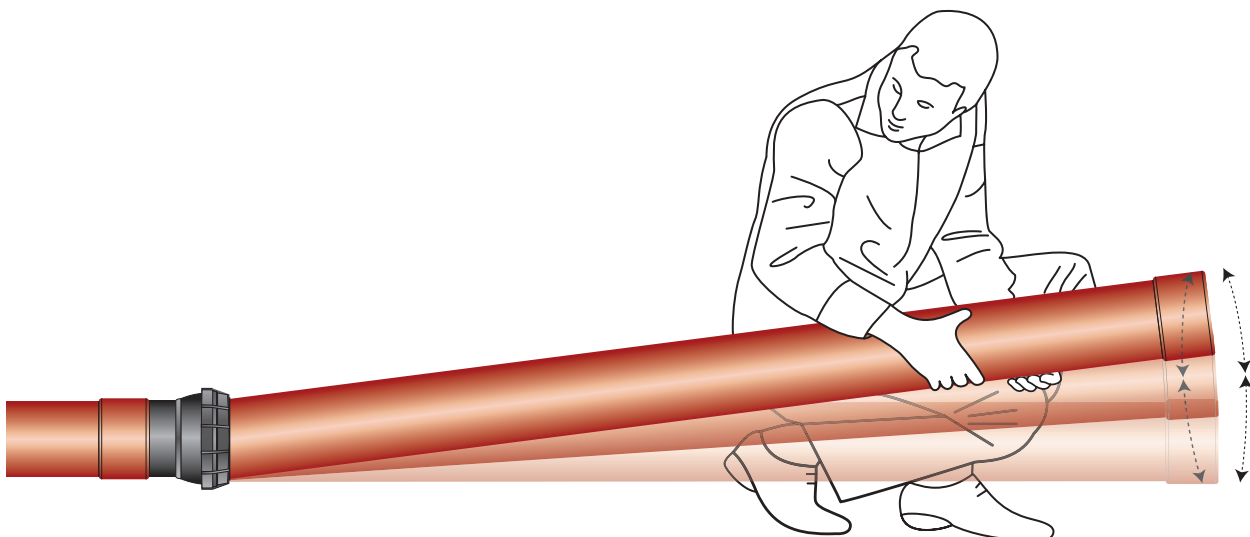


Installation Procedure

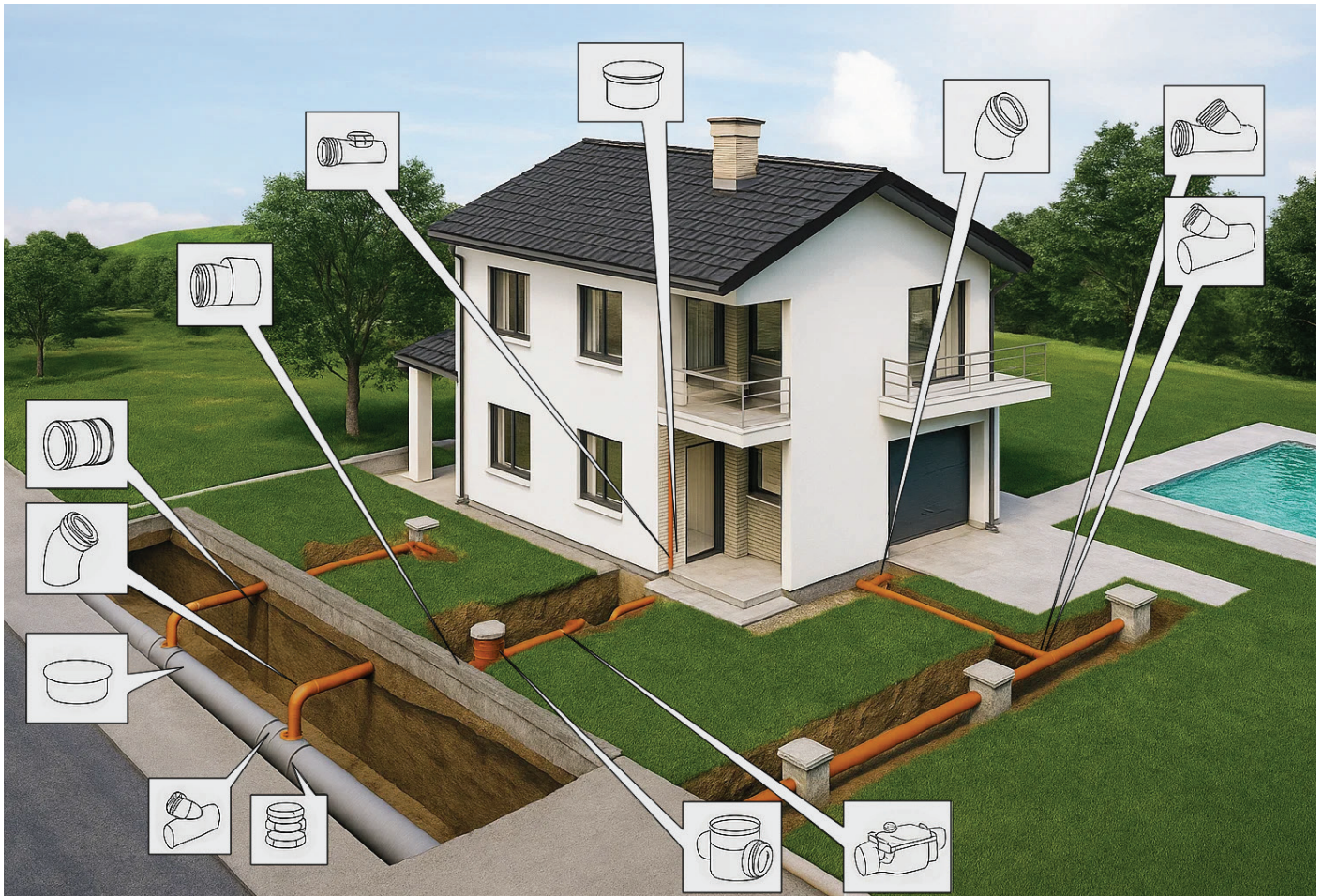


DN 160 mm

- Pre lubricated and ready to install
- Rotation up to 10° to ease house connections and balance ground settlement



Applications of Underground Drainage System



Ashirvad underground drainage and sewerage system has been designed with a view to modern man's inclination towards health, hygiene and his aversion to filth and pollutants. Due to unpleasant nature of human waste, a drainage system should be "out of sight and out of mind". Most of the drainage systems are actually hidden from sight.

Ashirvad 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.

Good practice guide for underground drainage systems

- Pipes to be laid at such a gradient as to ensure a self-cleansing velocity.
- Pipes to be of sufficient size to cope effectively with the maximum load to be carried.
- Efficient means of ventilation to be provided and maintained.
- Adequate means of access to be provided.
- Length of branch drains to be kept to a minimum and all junctions to be made in the direction of flow.
- Pipes to pipe and pipe to fitting to be watertight joints.
- Every part of the drainage system to be adequately supported.
- So far as circumstances will permit, drains should not pass under buildings.
- Drains to be laid as far as possible in straight lines between points where access is provided.
- Drains not to be laid in close proximity to trees owing to the possibility of damage being caused by roots.

Handling and Storage

Proper Handling

Please check and inspect the pipes on receipt. The pipes should be checked for any forms of transport damage due to shift in loads or improper handling/treatment. Visually examine the ends of pipes for any cracks or damage.



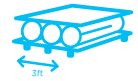
The pipes should be handled with care. The tendency to throw or drop the pipes to the floor should be avoided. Do not drag or push the pipes from a truck bed. Contact of pipes with from any sharp object should be totally avoided.



Storage of Pipes

The pipes should preferably be stored indoors. When this is not possible, please

- Protect the pipes from sun light, to reduce the effect of UV rays.
- Store on level ground and dry surface.
- If pipes of same diameter but different classes are being stacked together, place the thicker pipes below. i.e., Stack below SN2, SN4 and SN8. If placing pipes on racks, ensure the spacing between the supports does not exceed 3 feet.



Correct Transportation procedure

- Where possible use a truck for deliveries. Lay pipe flat on the tray.
- Alternate socket and pipe ends when loading pipe.
- Keep pipe strapped down so it doesn't roll around and remains



Installation Guide for Pushfit

Easy and 100% leakproof installation.

Step 1: Cutting

Measure and cut pipe to size. Ensure to cut the pipes straight and square to provide optimal bonding area for the solvent cement. Inspect pipe ends thoroughly before making the cut, if any cracks or split in the ring is noticed cut off a minimum of 25 mm beyond the visible crack before proceeding.

Step 2: Chamfering and Deburring

Burrs in and on pipe end can obstruct flow/proper contact between the pipe and socket of the fitting during assembly and should be removed from both in and outside of the pipe. A 15 mm dia half round file/a pen knife or a Deburring tool are suitable for this purpose.

A slight bevel on the end of the pipe will ease entry of the pipe into the socket of the fitting socket.

Step 3: Fitting Preparation

Use a clean dry cloth to wipe the dirt, moisture from the fitting and pipe end.

Step 4: Fitting Preparation™

Check the socket end for Brown Seal™. Ensure that the brown part of the seal

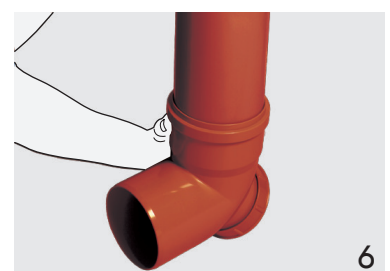
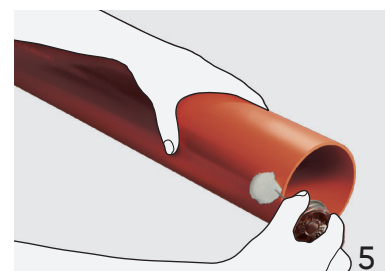
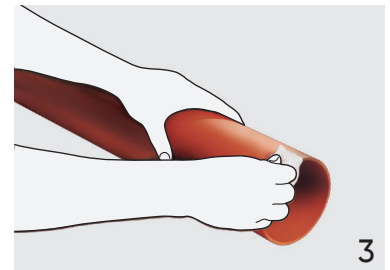
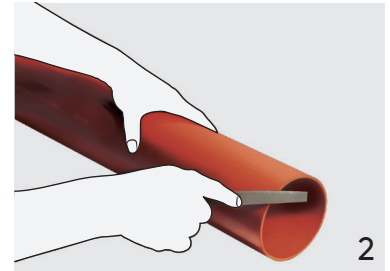
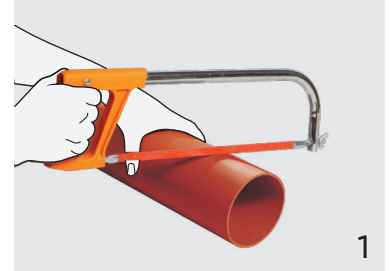
Step 5: Lubricant

Check the socket end for Brown Seal™. Ensure that the brown part of the seal

Step 6: Assembly

Immediately insert the pipe into the fitting socket. Rotate the pipe slightly while inserting. Withdraw pipe until the mark is 12 mm away from socket. This means a 12 mm gap exists between the end of the pipe and the socket register. This gap will allow the pipe to expand without distorting the pipe-work jointing.

ASHIRVAD underground pipes and fittings are joined with the help of Ashirvad Lubricant. For faster plumbing and leak proof joints we strongly recommend the use of Ashirvad lubricants only.the outside of socket.

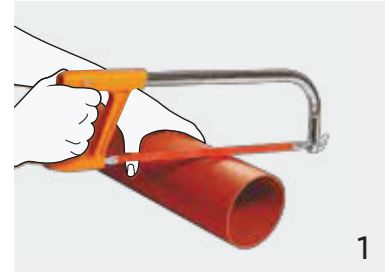


Installation Guide for Solfit

Easy and 100% leakproof installation.

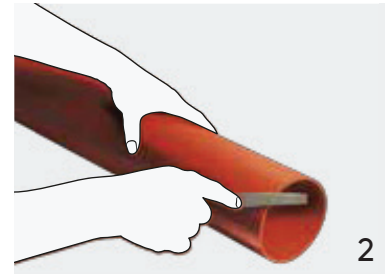
Step 1: Cutting

Measure the pipe length accurately and make a visible marking using a felt tip pen. Ensure that the pipe and fittings are size compatible. You can easily cut with a plywood cutting saw/ ratchet cutter or a wheel cutter. Cutting the pipe as squarely as possible (at 90°) provides optimal bonding area within a joint. Inspect pipe ends thoroughly prior to making a joint. If a crack or splintering is noticed cut-off a minimum of 25 mm



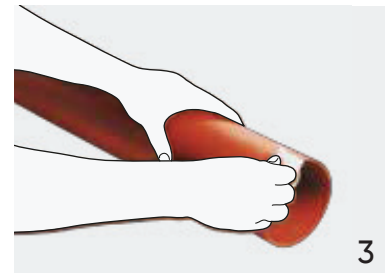
Step 2: Chamfering and Deburring

Burrs in and on pipe end can obstruct flow/proper contact between the pipe and socket of the fitting during assembly and should be removed from both in and outside of the pipe. A 15 mm dia half round file/a pen knife or a deburring tool are suitable for this purpose. A slight bevel on



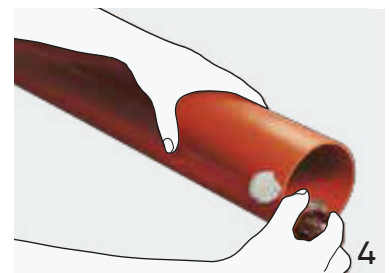
Step 3: Fitting Preparation

Use a clean dry cloth to wipe the dirt, moisture from the fitting and pipe end.



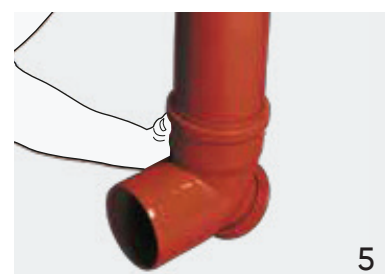
Step 4: Fitting Preparation™

Check the socket end for Brown Seal™. Ensure that the brown part of the seal is towards the outside of socket.



Step 5: Lubricant

Check the socket end for Brown Seal™. Ensure that the brown part of the seal is towards the outside of socket.



Step 6: Assembly

Immediately insert the pipe into the fitting socket. Rotate the pipe slightly while inserting. Withdraw pipe until the mark is 12 mm away from socket. This means a 12 mm gap exists between the end of the pipe and the socket register. This gap will allow the pipe to expand without distorting the pipe-work jointing.

ASHIRVAD underground pipes and fittings are joined with the help of Ashirvad Lubricant. For faster plumbing and leak proof joints we strongly recommend the use of Ashirvad lubricants only.the outside of socket.

Trench Excavation

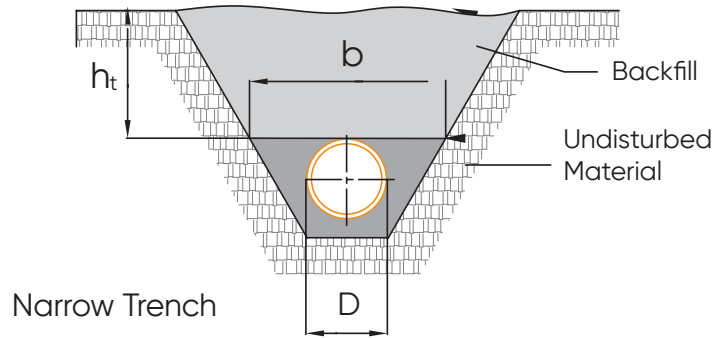
Trench excavation are carried out principally to allow installation or repair of public utilities, drains and sewers to serve populated areas. The density of the backfill material, the width of the trench at the crown of the pipe, b , and the nominal outside diameter of the pipe, D , and the height of backfill (h_t) all influence the loads imposed on the pipe.

Types of Trench

Narrow Trench

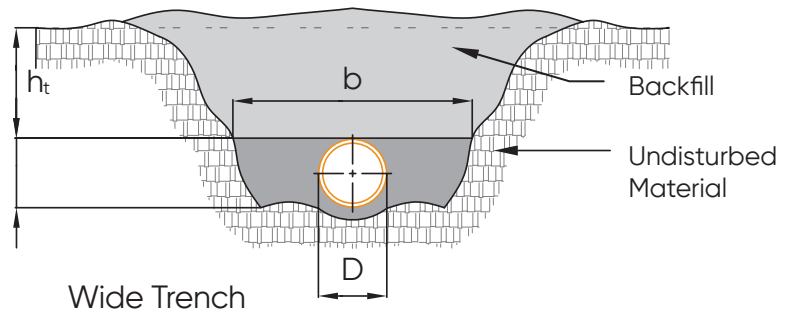
The pipe is laid in a relatively narrow trench with backfill properly compacted, the weight of fill is jointly supported by both the pipe and the frictional forces along the trench walls.

The narrow trench condition is used where excavation commences from the natural ground surface without any fills above the surface.



Wide Trench

A wide trench gives rise to loads greater than those which occur in narrow trench owing to the greater mass of backfill bearing on the pipe, although friction between the undisturbed trench side and the backfill reduces the load to some extent.



Recommended steps for installation of Ashirvad Underground Drainage pipes

1. Trench excavation
2. Compaction
3. Sand bedding and pipe laying
4. Sand filling upto crown of the pipes
5. Side filling
6. Back filling
7. Final compaction

Important Note

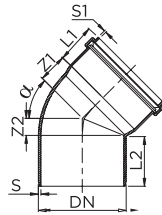
When a trench excavation is being planned for, a thorough search should be made for information about any existing utilities adjacent to or crossing the line of the planned trench, including their sizes, locations and alignments. Most of the underground utilities are live systems, such as electricity, water, sewer and gas, and can be dangerous to workers when damaged or fractured.



Also consideration to water bodies or surface water is to be given to ensure no buoyancy effects on the underground drainage system.

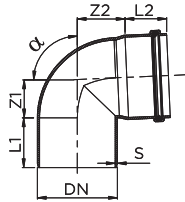
Pushfit Underground Fittings Technical Details

PLAIN BEND 45°



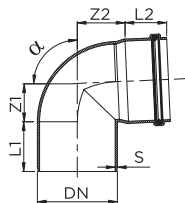
Size (in)	α	DN	S	Z1	Z2	L1	L2
4	45°	110	3.3	23.2	37	64	54
6	45°	160	4.1	33.1	50.2	87	70.9
8	45°	200	5.0	41.4	64.5	110	85.0

PLAIN BEND 87.5°



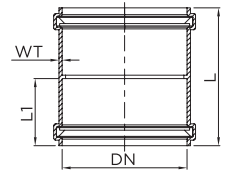
Size (in)	α	DN	S	Z1	Z2	L1	L2
4	87.5°	110	3.3	52.7	66.7	64	54
6	87.5°	160	4.1	76.6	93.7	87	70.9
8	87.5°	200	5.0	95.7	118.9	110	85.0

PLAIN BEND 87.5°



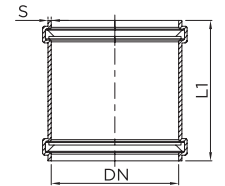
Size (in)	DN	DN1	S	L1	L2	Z
6 x 4	160	110	4.1	54	82	51
8 x 6	200	160	5.0	70.9	100	43.1
10 x 8	250	200	6.3	85.0	133.0	52
10 x 6	250	160	6.3	70.9	133.0	45.1
12 x 8	315	200	7.8	85.0	150.0	75.9
12 x 10	315	250	7.8	111.0	150.0	52.8

COUPLER



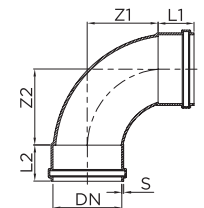
Size (in)	DN	S	L1	L2
4	110	3.0	61.5	127
6	160	3.7	79.1	163.6
8	200	4.5	95.8	197
10	250	5.6	122.3	251.5
12	315	7.0	142.5	294.0

REPAIR COUPLER



Size (in)	DN	S	L1
4	110	3.0	127
6	160	3.7	163.6
8	200	4.5	197
10	250	5.6	251.5
12	315	7.0	294.0

LONG SWEEP BEND 87.5° PLAIN



Size (in)	α	DN	S	Z1	Z2	L1	L2
4	87.5°	110	3.3	102.4	102.4	60	60
6	87.5°	160	4.1	145.3	145.3	81	81
8	87.5°	200	5.0	184	184	100	100

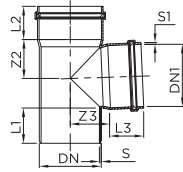
The following notation (symbols) shall apply in this reference manual.

DN – Nominal Diameter
DN1 – Manhole ID
DN2/DN3/DN4 – Socket ID

L1 – Total length
L2 – Length from manhole centre to socket
L3 – Total height

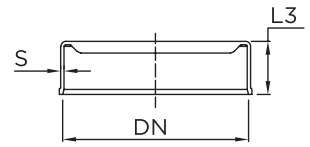
L4 – Bottom to centre of socket

SINGLE TEE PLAIN



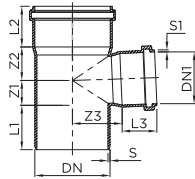
Size (in)	DN	DN1	S	Z1	Z2	L1	L2
4	110	111.5	3.3	52.7	69.3	64	54
6	160	161.5	4.1	76.6	98.7	87	70.9
8	200	201.8	5.0	96	125.3	110	85.0

END CAP



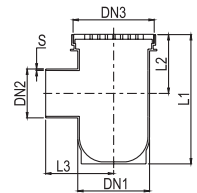
Size (in)	DN	S	L3
8	200	3.1	38.7
10	250	3.6	40.5
12	315	4.1	52.5

REDUCING SINGLE TEE



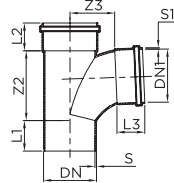
Size (in)	DN	DN1	S	S1	Z1	Z2	Z3	L1	L2	L3
6x4	160	111.5	5.0	3.0	51.4	76.7	54	87	70.9	54

BOTTLE GULLY TRAP WITH JALI - SINGLE SIDE



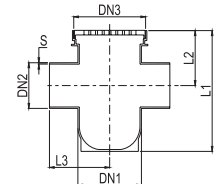
Size (in)	DN1	DN2	DN3	S	L1	L2	L3
160 x 110	161	109.5	182	3.25	290	132	152.5

LONG SWEEP TEE PLAIN



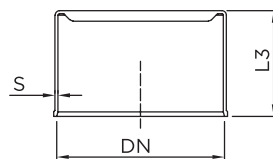
Size (in)	DN	S	S1	Z2	Z3	L1	L2	L3
4	110	3.3	3.0	167	100	64	54	60
6	160	4.1	3.7	239.1	141.9	87	70.9	81
8	200	5.0	4.5	302.3	180	110	85.0	100

BOTTLE GULLY TRAP WITH JALI - DOUBLE SIDE



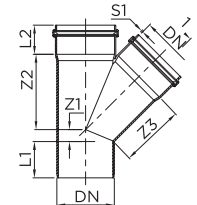
Size (in)	DN1	DN2	DN3	S	L1	L2	L3
160 x 110	161	109.5	182	3.25	290	132	152.5

DUMMY PLUG



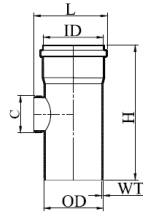
Size (in)	DN	S	L
4	110	3.3	3.0
6	160	4.1	3.7

SINGLE WYE 45° PLAIN



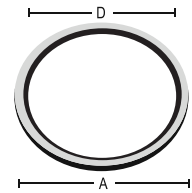
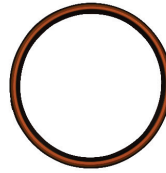
Size (in)	DN	DN1	S	S1	Z1	Z2	Z3	L1	L2	L3
4	110	111.5	3.3	3.3	22.8	140	140	64	54	54
6	160	161.5	4.1	4.1	33.2	202.6	202.6	87	70.9	70.9
8	200	201.8	5.0	5.0	42	254.8	254.8	110	85.0	85.0

CLEANING PIPE



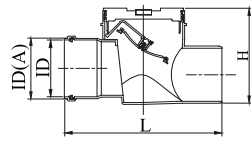
Size (in)	DN	ID	OD	WT	C	H	L
4	110	111.5	110	3.3	90.40	261.50	140.30
6	160	161.5	160	4.1	89.20	362.50	183.50
8	200	201.8	200	5.0	161.60	412.77	301.30

RUBBER WASHER



Size (in)	Size (mm)	ID	OD	WT
4	110	111.3	121.5	8.1
6	160	161.5	174.14	10.7
8	200	193.3	215.5	11.9
10	250	239.6	272.8	19.0
12	315	303	341.0	20.20

BACKFLOW PREVENTER



Size (in)	Size (mm)	Socket ID	Groove ID (A)	WT	H	L
4	110	111.30	121.3	3.2	170	280
6	160	161.5	175.0	4.0	257	396
8	200	205.0	225.0	6.0	257	442
10	250	264.0	275.0	7.0	330	520
12	315	325.0	365.0	10.0	395	630

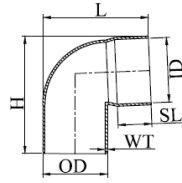
RUBBER LUBRICANTS



Weight in Grams	Container Type
100	Can
250	Can
500	Can

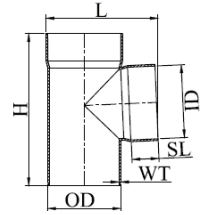
Solfit Underground Fittings Technical Details

PLAIN BEND



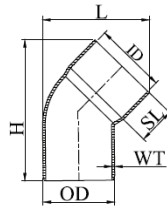
Size (in)	Size (mm)	ID	OD	SL	WT	H	L
4	110	111.3	110.4	48	3.2	178	170
6	160	161.5	160.5	58	4.0	248.2	230

SINGLE TEE



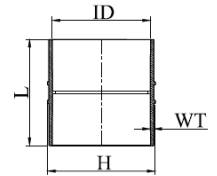
Size (in)	Size (mm)	ID	OD	SL	WT	H	L
4	110	111.3	110.4	48	3.2	232	175
6	160	161.5	160.5	58	4.0	319	250

BEND 45°



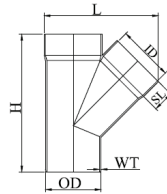
Size (in)	Size (mm)	ID	OD	SL	WT	H	L
4	110	111.3	110.4	48	3.2	186	156
6	160	161.5	160.5	58	4.0	253	199

COUPLER



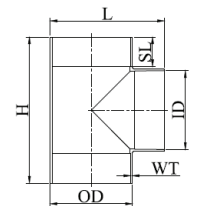
Size (in)	Size (mm)	ID	WT	H	L
4	110	111.30	3.2	120	102
6	160	161.50	4.0	170	125
8	200	200.60	4.6	210	219
10	250	250.8	5.7	262	271
12	315	316.0	7.2	331	338

SINGLE Y



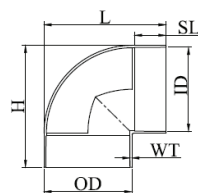
Size (in)	Size (mm)	ID	OD	SL	WT	H	L
4	110	111.3	110.4	48	3.2	276	235
6	160	161.5	160.5	58	4.0	380	330

EQUAL TEE



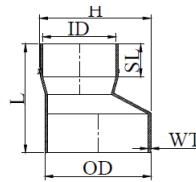
Size (in)	Size (mm)	ID	OD	SL	WT	H	L
8	200	200.6	209.8	106	4.6	430	320

EQUAL ELBOW



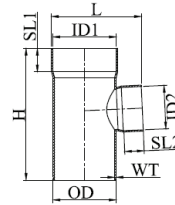
Size (in)	Size (mm)	ID	OD	SL	WT	H	L
8	200	200.6	209.8	106	4.6	320	320

REDUCER OFFSET



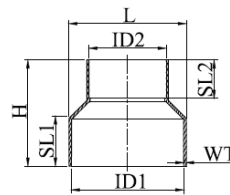
Size (in)	Size (mm)	ID	OD	SL 1	SL 2	WT	H	L
6x4	160x110	111.30	160.5	48	58	4	118.23	155.5

REDUCING TEE



Size (in)	Size (mm)	ID 1	ID 2	OD	SL 1	SL 2	WT	H	L
6x4	160x110	161.50	111.30	160.30	58	48	4	319	227

REDUCER COUPLER



Size (in)	Size (mm)	ID 1	ID 2	SL 1	SL 2	WT	H	L
8 X 6	200 X 160	200.6	161.5	106	58	4.6	222	210
10 X 8	250 X 200	250.8	200.6	131	106	5.7	272	265
12 X 10	315 X 250	316.0	250.8	163.5	131	7.2	314	316

SOLVENT ADHESIVE



Weight in Litres	Container Type
100 ml	Can
250 ml	Can
500 ml	Can
1000 ml	Can



Manholes

About the product

Manhole is a prefabricated structure made with Polyethylene (PE) used to replace conventional RCC structures which are compatible with modern underground drainage system for movement of wastewater to public sewer or main drain lines connecting to Sewage Treatment Plants.

Manholes when connected with underground drainage pipe system are used for collection of stormwater collection and sewage applications which are free from challenges of conventional RCC system. The system is also very easy and quick to install, which saves time and effort for projects.

These manholes come with ANTI RODENT property which makes it robust from damage caused by rodents.



Challenges with RCC system



Structural Issues

RCC manholes can suffer from structural problems such as cracks, breaks, and collapses due to physical stresses, traffic loads, and natural aging.



Blockages

Conventional systems can experience blockages due to solids settling in the pipes if the flow speed is too low.



Infiltration and Exfiltration

These systems often face issues with infiltration (surface water entering the sewer system) and exfiltration (sewage leaking out), which can lead to environmental contamination and increased



Maintenance Challenges

Regular maintenance is required to keep these systems functioning properly, and inadequate maintenance can lead to significant malfunctions.



Corrosion and Abrasion

The materials used in conventional systems are susceptible to corrosion and abrasion, especially from the chemicals present in sewage.



High Installation Costs

The installation of RCC manholes and conventional sewage systems can be expensive due to the need for extensive excavation and construction.

Features



Anti-Rodent

Prevents damage caused by rodents, ensuring system longevity and maintaining hygiene.



Extra Strength (Double Layer)

Dual-layer construction enhances structural durability under load.



Improved Visibility (Dark Blue Inner Layer)

Facilitates easier and more accurate inspection and maintenance.



Longer Life than RCC

Offers extended service life compared to traditional RCC structures due to superior



Low Maintenance Cost

Durable, leak-proof design reduces long-term upkeep expenses.

Benefits



Robust & Resilient

Engineered to withstand heavy loads and harsh underground environments.



Quick & Easy Installation

Modular and lightweight components save time and labor during setup.



Hygienic & Safe

Sealed, leak-proof systems prevent contamination and unpleasant odors.



Flexible Design

Easily adapts to different site conditions and layouts.



Watertight

Effectively prevents infiltration and exfiltration, safeguarding both infrastructure and the environment.

Applications

Ashirvad's UGD system offers a superior alternative to RCC with faster installation, leak-proof performance, and long-term durability. It simplifies underground drainage for residential, commercial, and infrastructure projects.



Private Townships



Hotels / Hospitals
Shopping malls



Individual House



Institutions
(Corporate / Educational)

Dimensions

Diameter id (mm)	3 way/ 5 way	Inlet pipe dia (mm)	Outlet pipe dia (mm)	Height range* (mm)	Manual entry /Steps	Standard
500	5 way	Up to 160 mm	Up to 160 mm	500 - 1000	No	EN 13598-1
600	3 way	Up to 250 mm	Up to 315 mm	350 - 1250	No	EN 13598-1
	5 way	Up to 160 mm	Up to 160 mm	350 - 1250	No	EN 13598-1
800	3 way	Up to 250 mm	Up to 315 mm	1000 - 1500	Yes	EN 13598-2
	5 way	Up to 160 mm	Up to 160 mm	1000 - 1500	Yes	EN 13598-2
*1000	3 way	Up to 315 mm	Up to 315 mm	1250 - 6000	Yes	EN 13598-2
	5 way	Up to 200 mm	Up to 200 mm	1250 - 6000	Yes	EN 13598-2

*Riser height is at 250 mm and 450 mm.



Installation Guideline

Introduction

Follow the instructions carefully before installing and commissioning the Manholes. The warranty will be void if any installation procedure is deviated and results in failure.

⚠ Note: Consult Ashirvad for installations where the water level is high.

Installation Requirements

Construction Pit:

A sufficient area must be available for the excavation pit so that working space widths and slope angles can be maintained.

Back-filling Material:

A sufficient area must be available for the excavation pit so that working space widths and slope angles can be maintained.

⚠ Note: The excavated soil, especially with clay content, should not be used.

Installation Procedure

Excavation:

- Excavate 300mm (30 cm) wider on all the sides of the manhole and 150mm (15 cm) deeper than the manhole inverted depth.
- A base layer of PCC (M15) of height 150mm (15 cm) should be created at the bottom of the pit.
- Place the manhole on the PCC bed.
- Check the levelling to ensure chamber is horizontally aligned.

Inlet Pipe Connection:

- Drill the hole of appropriate diameter with hole saw cutter on the pre-marked inlet position of manhole.
- Insert Ashirvad inlet rubber seal and push the UGD pipe into the seal for watertight connection.
- Soap water may be used as lubricant and there is no need for any glue or silicon.

⚠ Note: The inlet pipe should not be connected anywhere on the body of Manhole and to be connected only on the pre-marked location.

Outlet Pipe Connection:

- 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.
- Do not use glue or silicone.

Backfill & Compaction for Single piece design:

- Check levelling of manhole and ensure horizontal alignment.
- Back filling material should be inserted under the manhole to fill-in the gap between the manhole and the PCC bed. Use hand stampers to compact the back fill.
- Back fill around the manhole in layers of 300mm (30 cm) and compact to 95% with a mechanical vibrating stamper (50 kg).
- Continue to fill-in and compact in layers up to ground, with margin of PCC and cover height.

Backfill & Compaction for Split piece design:

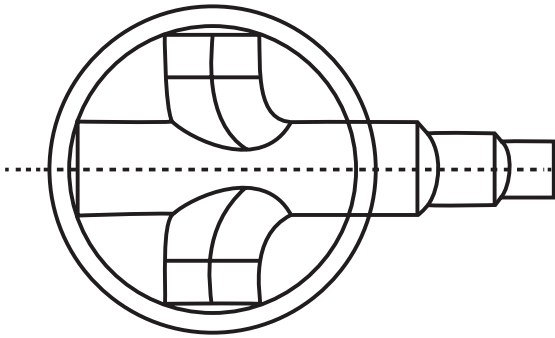
- Check levelling of manhole base and ensure horizontal alignment.
- Back filling material should be inserted under the manhole base to fill-in the gap between the base and the PCC bed. Use hand stampers to compact the back fill.
- Back fill around the manhole in layers of 300mm (30 cm) and compact to 95% with a mechanical vibrating stamper (50 kg).
- Back fill up to the riser connection and place the rubber seal on the external surface of manhole. Check the rubber seal for proper placement and damages, if any.
- Apply lubricant evenly on the rubber seal all around and on the socket.
- Place the riser to the correct position and see that the ladder aligns well with the benching. Push and place the riser on the base uniformly to full insertion depth.
- Check levelling and ensure horizontal alignment.
- Repeat the procedure in case of more than one riser, back fill accordingly and check the levelling for each riser and ensure horizontal alignment.
- Place the top of manhole in the right position to ensure proper alignment of ladder and install by pushing it evenly on the riser. Check levelling and ensure horizontal alignment.
- Continue to fill-in and compact in layers up to ground, with margin of PCC and cover height.

Cover Installation:

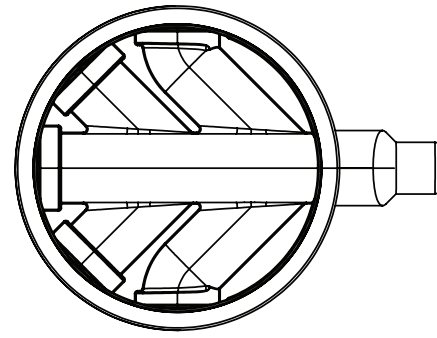
- A concrete load bearing ring of PCC (M15) of height 150mm (15 cm) should be created around the neck. Direct contact of PCC to chamber neck should be avoided.
- On this ring of PCC, appropriate class (B/C/D/E) cover with frame should be installed.
- For installation in traffic areas, concrete load bearing ring of PCC (M15) of height 150mm (15 cm) & ring of RCC (M25) of height 150mm (15 cm) is required around the neck. Direct contact of PCC & RCC to manhole neck should be avoided. On this ring of RCC, appropriate class (B/C/D/E) cover with frame should be installed.

⚠ Note: Ashirvad can provide more details on the installation in traffic areas and site engineer should be consulted.

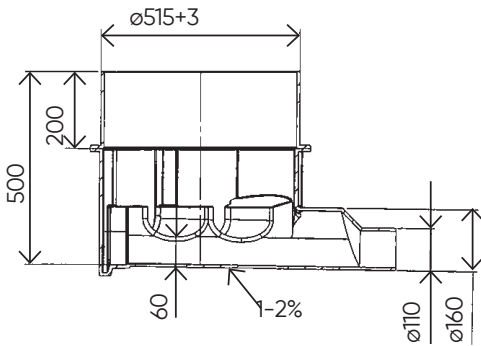
Inspection Chambers and Manholes - Technical Details



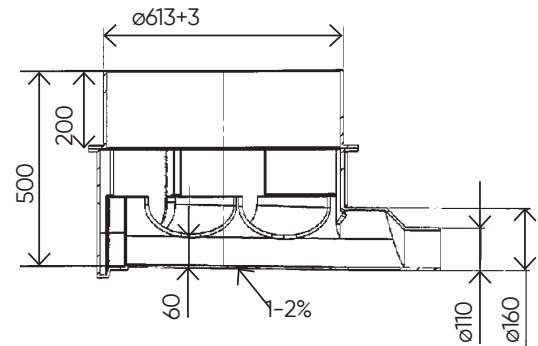
3 way



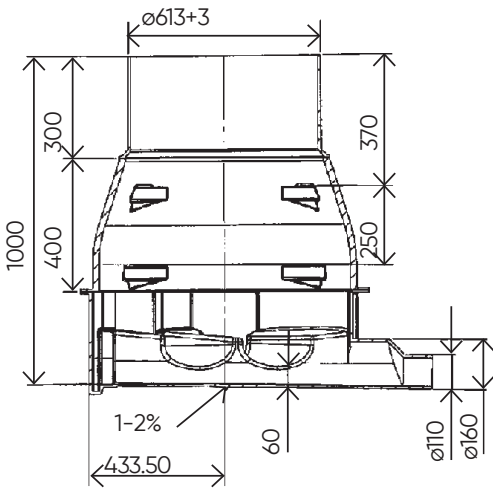
5 way



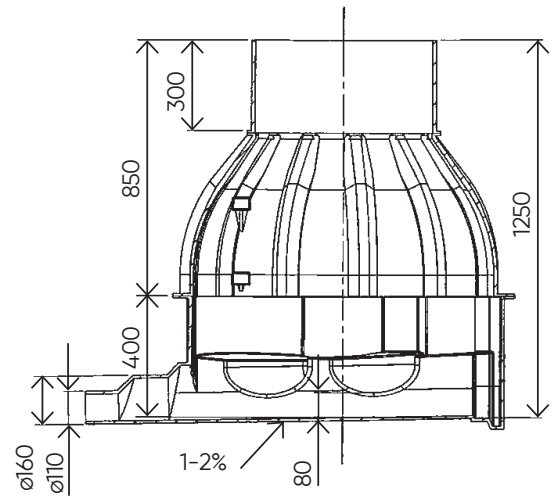
500 mm dia inspection chamber



600 mm dia inspection chamber



800 mm dia manhole



1000 mm dia manhole

Inspection Chambers

About the product

Inspection chambers are the devices which allow access to sewage for cleaning. Inspection chambers are used when there are too many long sewage segments, at the converging inlets, change of direction, for new connections, to disconnect public and private sewer lines and at places of sewage fall



Features



Load-Bearing Lid

Supports up to 35 kN, suitable for pedestrian and light traffic use.



Durable PP Construction with Slope Design

Made from high-quality polypropylene with an integrated gradient for optimal flow.



Flexible Connection Options

Easily add or seal inlets using dummy plugs.



Push-Fit Jointing

Enables quick, tool-free installation.



Multi-Material Compatibility

Seamlessly connects with PVC pipes.



Complete System Package

Includes riser, lid, and frame for ready-to-install convenience.



Single-Piece Mold with Stability Legs

Ensures structural integrity and simplifies installation.



Standards Compliant

Meets EN 13598-2:2020 for assured quality and performance.

Benefits



High Flow Capacity

Ensures efficient performance even under heavy demand, reducing downtime.



High Hydraulic Tightness

Prevents leaks and maintains system integrity under pressure.



Self-Cleaning Design

Minimizes manual maintenance by automatically clearing debris.



Very Low Cleaning Frequency

Reduces operational interruptions and maintenance costs.



Long-Lasting System

Built for durability, ensuring reliable performance over time.



Quick and Easy Installation

Saves time and labor costs during setup.



Lower Overall Costs

Offers cost-efficiency through reduced maintenance and long service life.



Flexible Connectivity

Allows easy addition of connections for future system expansion.

Applications



Private
Townships



Hotels / Hospitals
Shopping malls



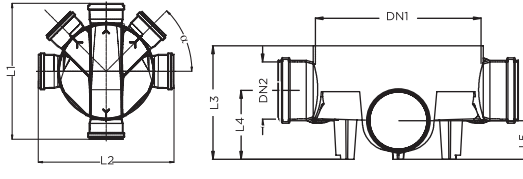
Individual
House



Institutions
(Corporate / Educational)

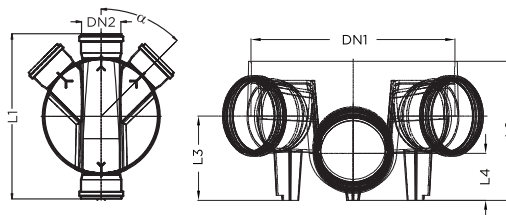
Inspection Chambers - Technical Details

315 x 110 mm 6-LINE ACCESS JUNCTION BASE



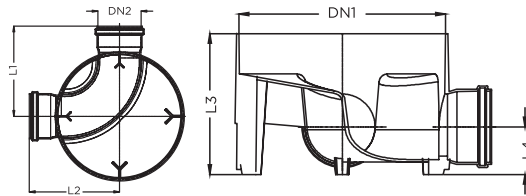
Size (mm)	α	DN	DN 1	DN 2	L 1	L 2	L 3	L 4	L 5
315 x 110	45°	315	322	111.5	466.6	466.6	220	133.5	74.5

315 x 110 mm 4-LINE ACCESS JUNCTION BASE



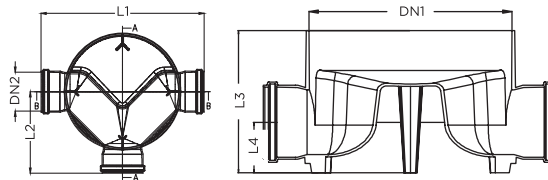
Size (mm)	α	DN	DN 1	DN 2	L 1	L 2	L 3	L 4
315 x 110	45°	315	322	111.5	466.6	220	133.5	74.5

315 x 110 mm 4-LINE ACCESS JUNCTION BASE



Size (mm)	DN	DN 1	DN 2	L 1	L 2	L 3	L 4
315 x 110	315	322	111.5	233.3	233.3	220	74.5

315 x 110 mm TWO 90° INLET JUNCTION



Size (mm)	DN	DN 1	DN 2	L 1	L 2	L 3	L 4
315 x 110	315	322	111.5	466.6	233.3	220	74.5

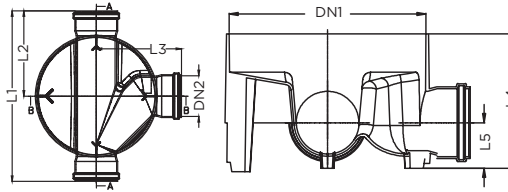
The following notation (symbols) shall apply in this reference manual.

DN – Nominal Diameter
 DN1 – Manhole ID
 DN2/DN3/DN4 – Socket ID

L1 – Total length
 L2 – Length from manhole centre to socket
 L3 – Total height

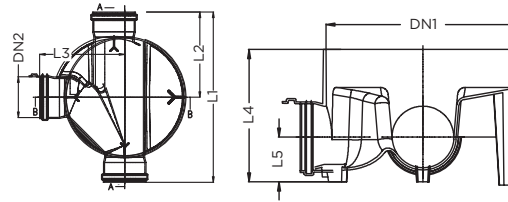
L4 – Bottom to centre of socket

315 x 110 mm RIGHT HAND 90° JUNCTION



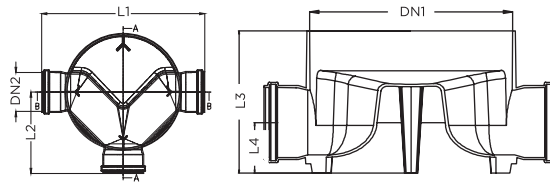
Size (mm)	DN	DN 1	DN 2	L 1	L 2	L 3	L 4	L 5
315 x 110	315	322	111.5	466.6	233.3	220	220	74.5

315 x 110 mm LEFT HAND 90° JUNCTION



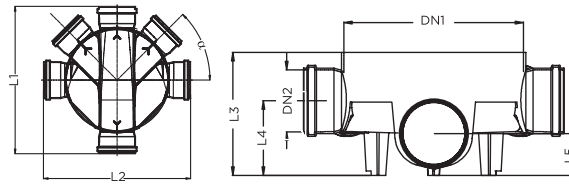
Size (mm)	DN	DN 1	DN 2	L 1	L 2	L 3	L 4	L 5
315 x 110	315	322	111.5	466.6	233.3	220	220	74.5

315 x 110 mm STRAIGHT THROUGH



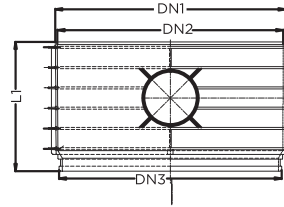
Size (mm)	DN	DN 1	DN 2	L 1	L 2	L 3	L 4
315 x 110	315	322	111.5	466.6	233.3	220	74.5

450 MM INSPECTION CHAMBER BASE



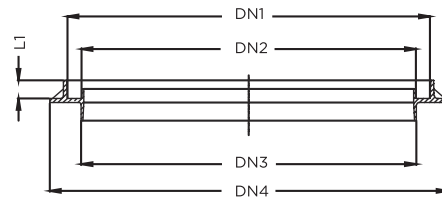
Size (mm)	DN	DN 1	DN 2	DN 3	DN 4	L 1	L 2	L 3	L 4	L 5
450 x 200 x 160 x 110	45	471.9	161.5	201.8	111.5	695	658.8	375	218	133
450 x 160 x 110	45	471.7	161.5	161.5	111.5	656.6	655	325	198	118

RISER



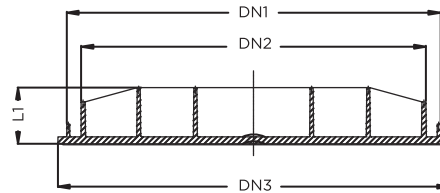
Size (mm)	DN	DN 1	DN 2	DN 3	L 1
315	315	331.8	323.4	315.0	159.7
450	450	482	472.5	466	270.2

FRAME



Size (mm)	DN	DN 1	DN 2	DN 3	DN 4	L 1
315	315	358.1	293.5	295.1	405.1	25
450	450	492	453.4	454	539.8	25

LID



Size (mm)	DN	DN 1	DN 2	DN 3	L 1
315	315	332.1	280.1	355.6	51.7
450	450	466	430	488	70.4



Installation of inspection chamber

Preparation

Before installation, the base component will be prepared as follows:

- Check the seal (s) are clean
- Lubricate the seal (s)
- Lubricate the male ends of the pipes chamfered beforehand (if necessary)
- Always maintain gap between the riser and the top cover frame in order to avoid the vertical external load directly transmitted on the riser and chamber

Installation base

- Place the base level on a prepared regulated compact bed and connect pipe work using appropriate adaptors / reducers as necessary, using the angular deflection up to $\pm 7.5^\circ$ available in sockets or adaptors for perfect alignment
- Close off sockets that will not be used with socket plugs.
- Stabilize the base by applying bedding material backfill around it prior to locating shaft.

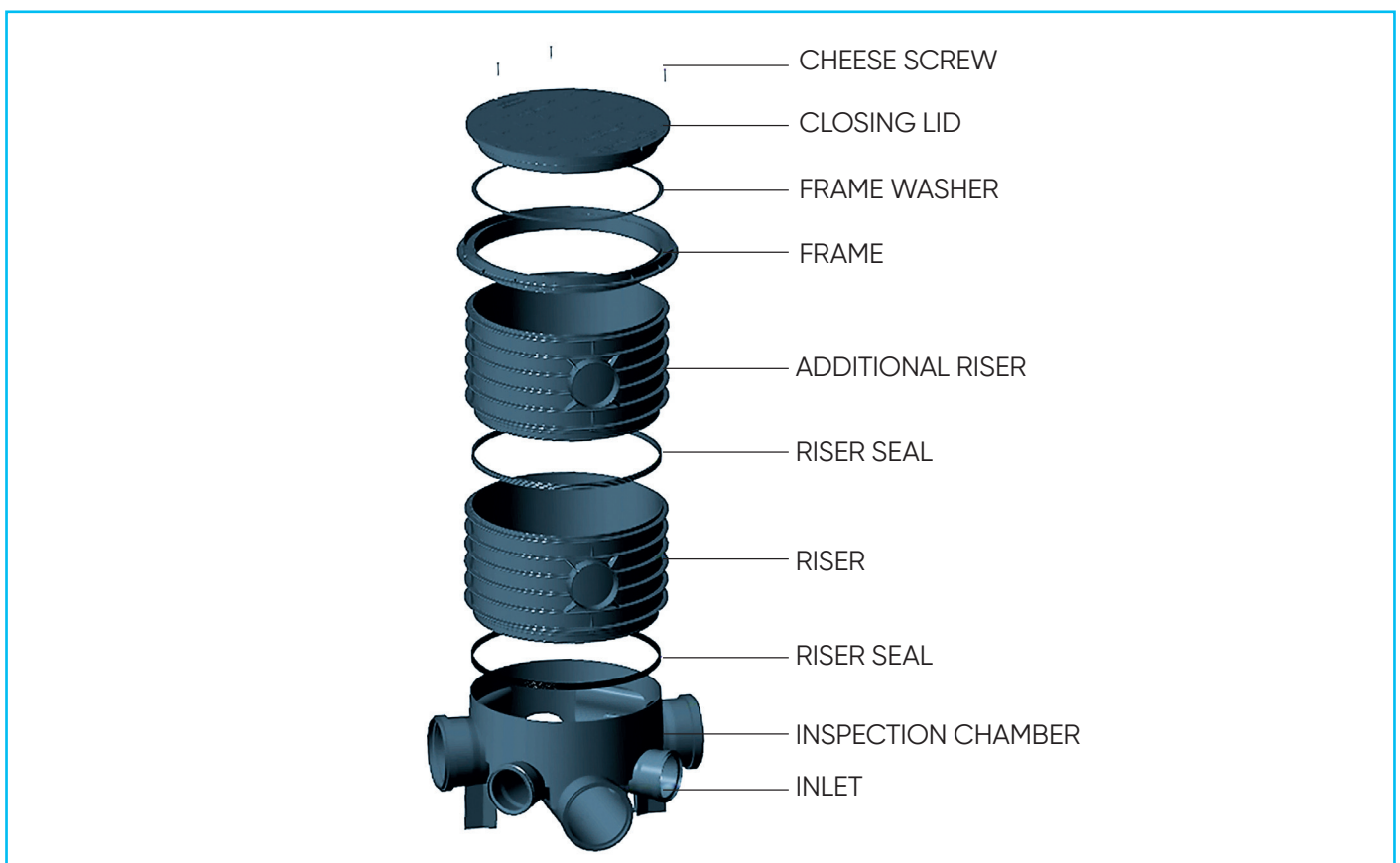
Installation of Riser

Excavation:

- Position the sealing ring on to the top edge of the chamber & then lubricate.
- Once the riser is positioned onto the base mechanical assistance can be used to gently push the riser and sealing ring into the base to create the watertight seal.

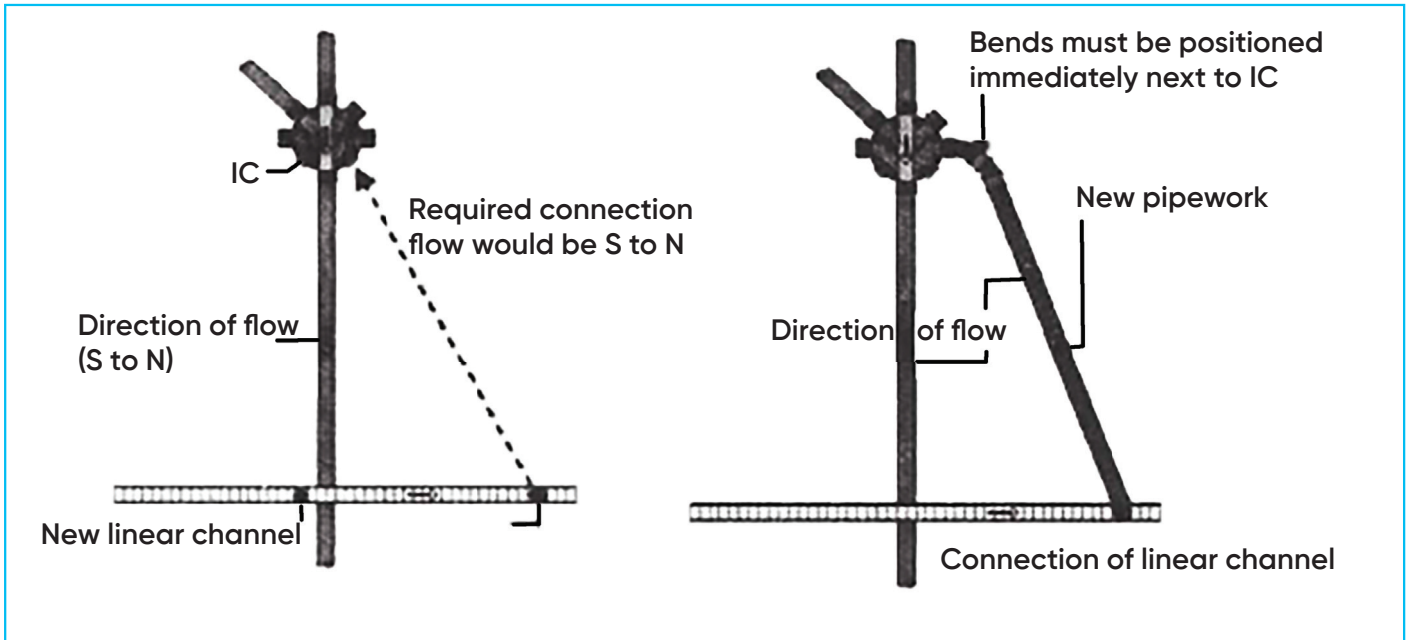
Backfilling

- Backfilling can commence once the connection has been made between the riser and the base. "As dug" or type 1 backfill can be used as appropriate for the application in successive 300mm compacted layers, ensuring that fines from gravels do not clog joints. If layers are greater than 100mm, lighter cover material is used to avoid compaction.
- It is advised that the shaft is cut to the required height after backfilling is complete and when finished ground level is known, using a fine-toothed saw.



Covering of Inspection Chamber

- A minimum 200mm compact layer should be laid using compacted type 1 material, followed by a blinding layer.
- If the chamber is subjected to loadings (i.e., areas where vehicular access may occur) a pre-cast concrete slab should be laid over the riser for distributed loads away from the chamber(s).
- The appropriate height of FGL (engineering brick or concrete seating ring) can then be used to build up to required height prior to positioning the cover.
- Finally fitting lid and frame must both be positioned on top of the brickwork/slab.



Reflex Connection

Note:

One question which has been asked several times concerns connecting a new drainage point to an existing IC where the direction of flow from the new is opposite to that of the existing. There seems to be some sort of perception that connecting two pipelines that are effectively running in opposite direction will cause problems.

If the new line was brought into the IC at 180° to the main direction of flow, this could in certain arrangements lead to problems, but what happens in practice is that we construct what we refer to as a Reflex connection. In essence, the line of approach of the new drainage is curved so that it comes into the chamber at an angle of 90° or less.

The scenario is that a linear channel has been installed but the most direct route from the outfall of the end channel to the nearest IC runs counter to the direction of flow in the existing line of pipes.

The solution is to introduce a bend or curve into the line of pipes connecting the linear channel to the IC so that the new pipe enters the IC at an angle of 90° or less. By adding a curve to the line, we are reducing a reflex angle (an angle greater than 90°) to an acute angle (90° or less) and so 'easing' the inflow of collected

Ashirvad Underground Drainage vs Conventional System

Feature	Ashirvad UGD System	Conventional System
Material	Virgin UV-stabilized Polyethylene (PE)	Reinforced Cement Concrete
Lifespan	50+ years (corrosion-resistant, watertight)	15–25 years (subject to corrosion and wear)
Corrosion Resistance	High (inherently resistant to chemical and microbial corrosion)	Low (susceptible to H ₂ S-induced corrosion)
Installation Time	Low (lightweight, modular, ready-to-install)	High (requires curing, heavy equipment)
Execution Cost	Slightly higher upfront, lower long-term due to durability	Moderate upfront, high long-term due to maintenance
Labor Cost	Low (minimal labor, faster installation)	High (skilled labor, longer duration)
Maintenance Frequency	Minimal (requires only periodic inspection)	Frequent (due to structural degradation)
Customization	High (modular risers, adjustable height on-site)	Limited (fixed sizes, difficult to modify on-site)
Environmental Impact	Lower (less material usage, recyclable components)	Higher (cement production, excavation)
Safety Features	Enhanced (FRP steps, light-colored interior for visibility)	Basic (manual entry, limited visibility)
Watertightness	Factory-sealed with rubber gaskets for leak-proof joints	Depends on workmanship and sealing

Ashirvad Underground Drainage Product Selection Guide

Step 1: Selection of Pipe

Criteria	Recommendation
Application	Wastewater, stormwater, or sewage
Pipe Type	Ashirvad Underground Drainage Pipes (Solid core or foam core)
Diameter Options	110mm, 160mm, 200mm, 250mm, 315mm
Length	Typically, 3m or 6m
Joining Method	Push-fit rubber ring or solvent cement (based on site conditions)
Tip	Use larger diameters for main lines and smaller ones for branch connections

Step 2: Selection of Inspection Chamber

Criteria	Recommendation
Location	At pipe junctions, changes in direction, or slope
Chamber Type	Ashirvad Inspection Chambers (PP)
Diameter Options	315mm, 450mm, 600mm
Height	Adjustable with risers
Cover Type	Sealed cover for pedestrian areas; load-bearing cover for vehicular zones
Tip	Place chambers every 30–50 meters for easy maintenance access

Step 3: Selection of Manhole

Criteria	Recommendation
Purpose	Access for cleaning, inspection, and maintenance of main sewer lines
Manhole Type	Ashirvad PE Manholes (modular, watertight)
Diameter Options	500mm, 600mm, 800mm, 1000mm
Depth	Up to 6 meters (customizable with risers)
Cover Type	Heavy-duty cover for roads; standard cover for green belts or footpaths
Tip	Use larger diameters for deeper installations or high-flow areas

Quick Checklist for Selection

Component	Key Questions to Ask
Pipe	What is the flow rate? What diameter is needed?
Inspection Chamber	Where are the bends, junctions, or slope changes?
Manhole	What is the depth and traffic load at the location?

Example Use Case

Residential Layout Drainage System

- Pipe: 160mm PVC-U for branch lines, 250mm for main line
- Inspection Chamber: 450mm at every junction and slope change
- Manhole: 800mm PE manhole at main sewer connection with heavy-duty cover

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