ashirvad

by aliaxis

AGRI PIPES

uPVC PIPES FOR AGRICULTURE PURPOSE

TECHNICAL MANUAL

IS: 4985

CM/L - 4787995

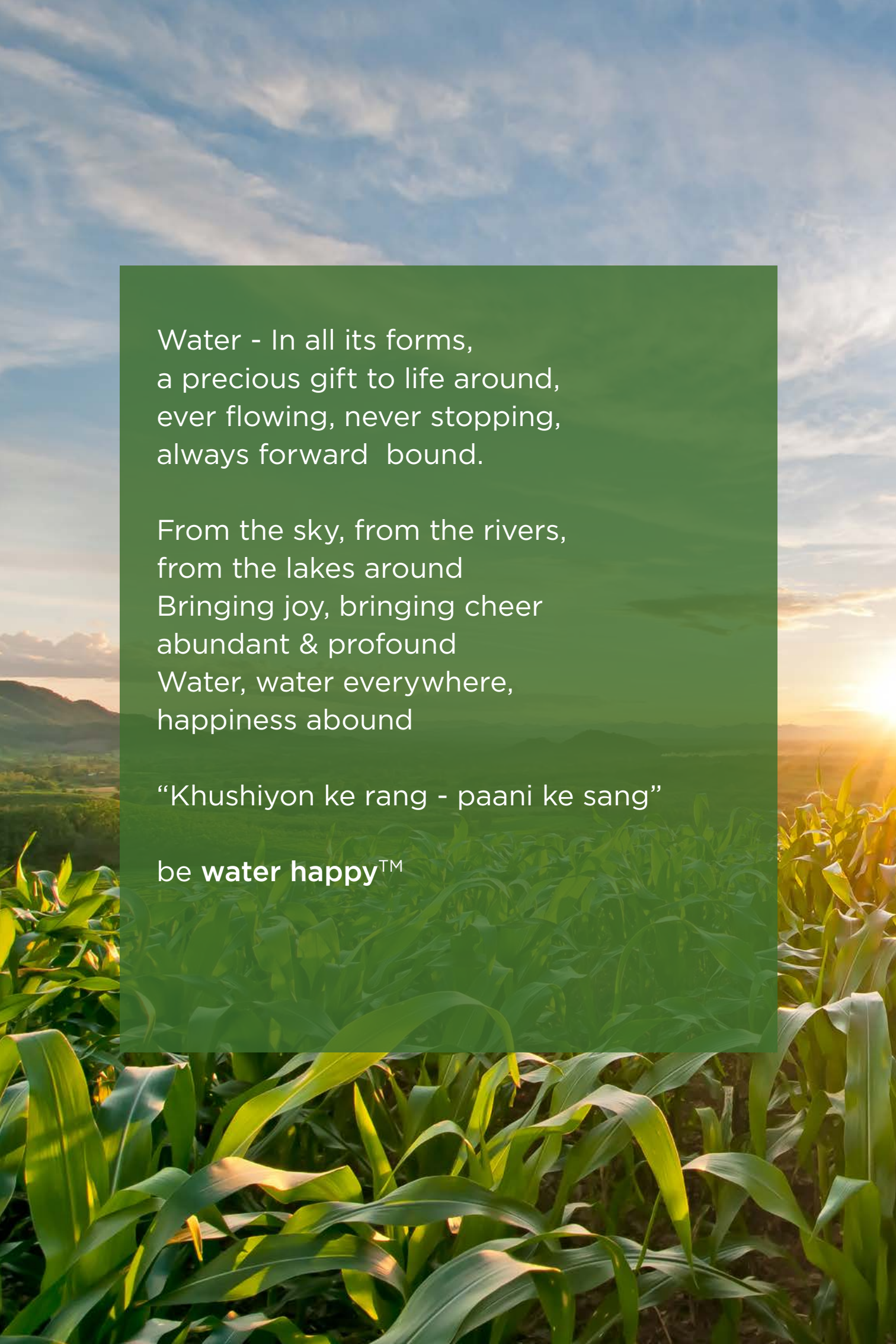
WARRANTY APPLICABLE ONLY IF ASHIRVAD PIPES & FITTINGS AND uPVC SOLVENT CEMENT ARE USED.

ashirvad agri

Ideal for potable water supplies for agriculture

Ashirvad manufactures lead free Agri solvent weld uPVC pressure pipes & fittings systems which is an Ideal solution for agricultural water supply.

Index



Water - In all its forms,
a precious gift to life around,
ever flowing, never stopping,
always forward bound.

From the sky, from the rivers,
from the lakes around
Bringing joy, bringing cheer
abundant & profound
Water, water everywhere,
happiness abound

“Khushiyon ke rang - paani ke sang”

be **water happy**™


ashirvad
110 x 4"-PVC
6kgf/cm²

About Ashirvad

Ashirvad an Aliaxis group company, setup its Bengaluru unit in 1998 and is a wholly owned company of Aliaxis group. Aliaxis group is a global leading manufacturer and distributor of plastic fluid handling systems used in residential, commercial and industrial buildings. Aliaxis, headquartered in Brussels and is present over 45 countries with more than 100 manufacturing and commercial entities, employs over 16,000 people and generates more than 3 billion Euro (₹ 21, 600 crores approx) in annual sales.

Ashirvad has always been relentless in its commitment to quality and services. Ashirvad pipes is a leading manufacturer and supplier of CPVC, uPVC, SWR plumbing systems and also the pioneer in designing and manufacturing of uPVC column pipes, which are used in the erection of submersible borehole pumps. Today Ashirvad Pipes is the world's largest manufacturer of uPVC column pipes and successfully exporting to 40+ countries. The CPVC Hot and Cold plumbing system is manufactured in collaboration with Lubrizol, USA.

Ashirvad is an ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 certified company with a constant endeavour towards achieving the highest level of customer satisfaction.

Ashirvad, with a determination to be a one-stop-shop for Plumbing, Agriculture, Sanitary, High-rise and Fire Safety solutions, has recently expanded its product range and successfully introduced Agri Pipe, Casing Pipe, BlazeMaster® Pipes & Fittings by Ashirvad.

Capabilities:

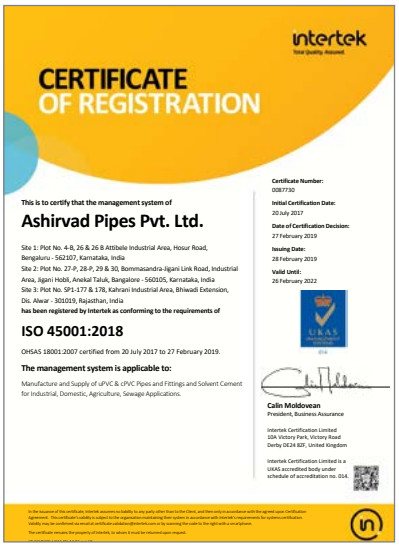
- Manufacturing capacity of more than 2,00,000 MT per annum
- Total factory area of 50 acres
- 500+ Strong Sales & marketing staff across India
- Strong team of 205 at corporate office
- Over 4,500 manufacturing workforce
- 11 warehouses, 1,100 distributors, 53,000 dealers across India
- Exporting Column Pipes to more than 40 countries
- 2 factories in Bengaluru and another one in Bhiwadi (Rajasthan) near Delhi

In 2007, Ashirvad won the National Award for **"OUTSTANDING ENTREPRENEURSHIP IN MEDIUM ENTERPRISES"**
The award was presented by the Prime Minister of India.

WCRC Leaders Summit - 2014
Ashirvad Pipes
"One Of The 100 Fastest Growing Marketing Brands In Asia"
(Evaluated and selected by KPMG)
The Global Audit Firm

Construction Industry Database (CIDC) - 2015 Has been enlisted as an **Approved Vendor** for providing the following Services / Products
Manufacturing of
CPVC & uPVC Pipes & Fittings

Certifications



intertek

CERTIFICATE
OF REGISTRATION

This is to certify that the management system of

Ashirvad Pipes Pvt. Ltd.

Site 1: Plot No. 4-B, 26 & 26 B Attibele Industrial Area, Hosur Road, Bengaluru - 562107, Karnataka, India
Site 2: Plot No. 27-P, 28-P, 29 & 30, Bommasandra-Jigani Link Road, Industrial Area, Jigani Hobli, Anekal Taluk, Bangalore - 560105, Karnataka, India
Site 3: Plot No. SP1-177 & 178, Kahrani Industrial Area, Bhiwadi Extension, Dis. Alwar - 301019, Rajasthan, India
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:

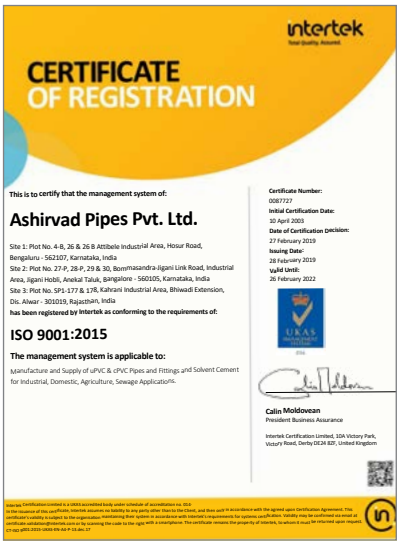
Manufacture and Supply of uPVC & cPVC Pipes and Fittings and Solvent Cement for Industrial, Domestic, Agriculture, Sewage Applications.

Certificate Number: 0087730
Initial Certification Date: 20 July 2017
Date of Certification Decision: 27 February 2019
Issuing Date: 28 February 2019
Valid Until: 26 February 2022

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.



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Site 3: Plot No. SP1-177 & 178, Kahrani Industrial Area, Bhiwadi Extension, Dis. Alwar - 301019, Rajasthan, India
has been registered by Intertek as conforming to the requirements of:

ISO 9001:2015

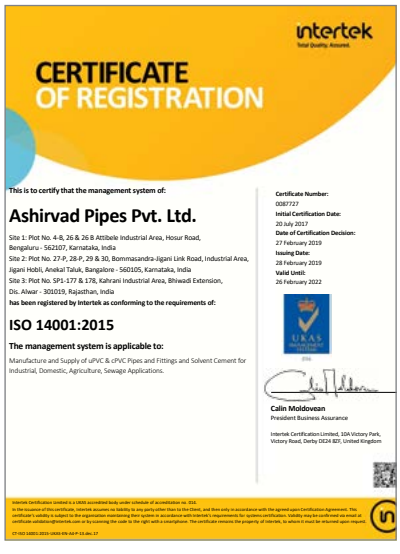
The management system is applicable to:

Manufacture and Supply of uPVC & cPVC Pipes and Fittings and Solvent Cement for Industrial, Domestic, Agriculture, Sewage Applications.

Certificate Number: 0087727
Initial Certification Date: 10 April 2003
Date of Certification Decision: 27 February 2019
Issuing Date: 28 February 2019
Valid Until: 26 February 2022

Calin Moldovean
President Business Assurance

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



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Initial Certification Date: 20 July 2017
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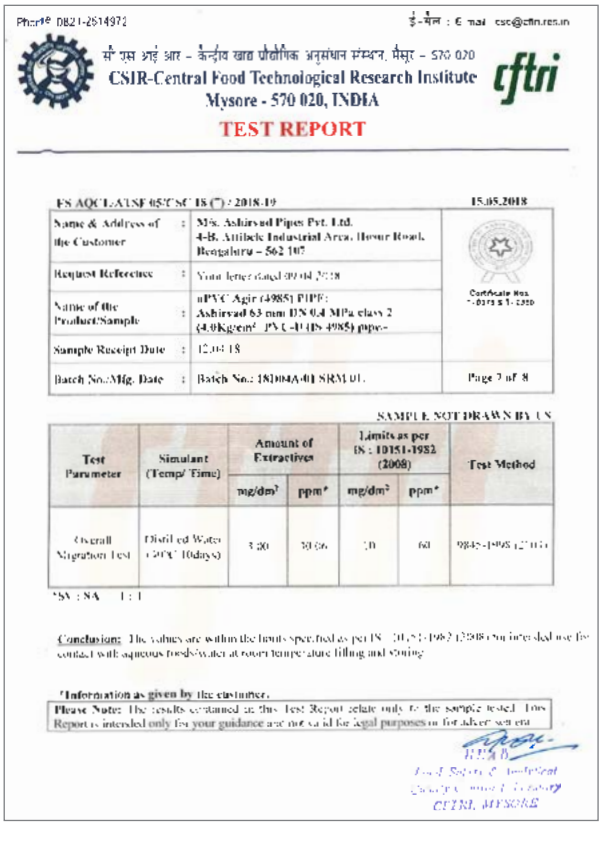

फोन 0821-2514972 ई-मेल : e mail csc@cftri.res.in

सी एफ़ आई आर आई - केन्द्रीय खाद्य प्रौद्योगिक अनुसंधान संस्थान, मैसूर - 570 020
CSIR-Central Food Technological Research Institute
Mysore - 570 020, INDIA

cftri

TEST REPORT

FS AQCL/ATSF 05/CSC 18 (7) : 2018-19 — 15.05.2018

Name & Address of the Customer	:	M/s. Ashirvad Pipes Pvt. Ltd. 4-B, Attibele Industrial Area, Hosur Road, Bengaluru – 562 107
Request Reference	:	Your letter dated 30.04.2018
Name of the Product/Sample	:	uPVC Agir (4985) PIPE: Ashirvad 63 mm DN 0.4 MPa class 2 (4.0Kg/cm² PVC-U (IS 4985) pipe.-
Sample Receipt Date	:	12.04.18
Batch No./Mfg. Date	:	Batch No.: 18D04A01 SRM 01.

Certificate Nos. T-0378 & T-0380

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SAMPLE NOT DRAWN BY US

Test Parameter	Simulant (Temp/ Time)	Amount of Extractives		Limits as per IS : 10151-1982 (2008)		Test Method
		mg/dm²	ppm*	mg/dm²	ppm*	
Overall Migration Test	Distilled Water (40°C 10days)	3.20	30.66	10	60	9845:1998 (2003)

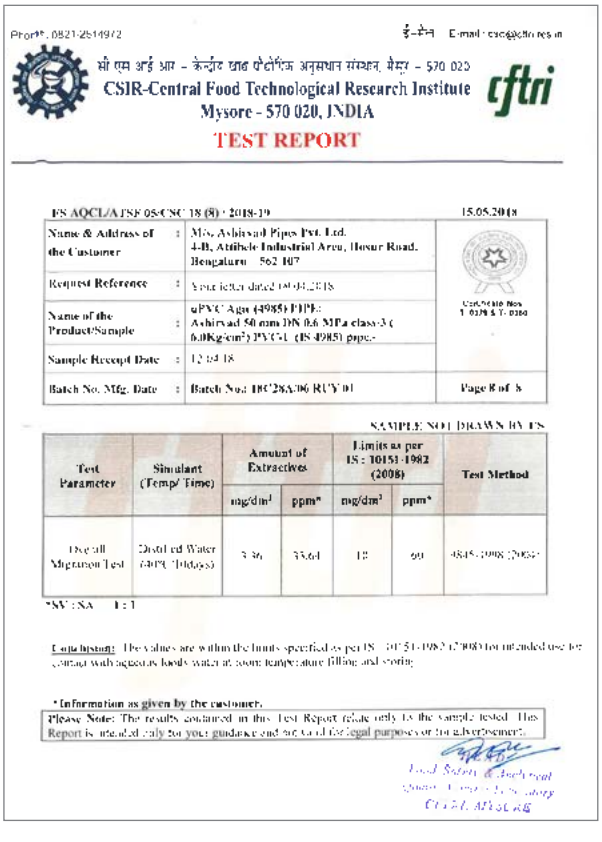
*SV : SA 1 : 1

Conclusion: The values are within the limits specified as per IS : 10151-1982 (2008) for intended use for contact with aqueous foods/water at room temperature filling and storing

*Information as given by the customer.

Please Note: The results contained in this Test Report relate only to the sample tested. This Report is intended only for your guidance and not to be used for legal purposes or for advertisement.

Head Safety & Analytical Quality Management
CFTRI, MYSORE



फोन 0821-2514972 ई-मेल E-mail : csc@cftri.res.in

सी एफ़ आई आर आई - केन्द्रीय खाद्य प्रौद्योगिक अनुसंधान संस्थान, मैसूर - 570 020
CSIR-Central Food Technological Research Institute
Mysore - 570 020, INDIA

cftri

TEST REPORT

FS AQCL/ATSF 05-CSC 18 (8) : 2018-19 — 15.05.2018

Name & Address of the Customer	:	M/s. Ashirvad Pipes Pvt. Ltd. 4-B, Attibele Industrial Area, Hosur Road, Bengaluru – 562 107
Request Reference	:	Your letter dated 30.04.2018
Name of the Product/Sample	:	uPVC Agir (4985) PIPE: Ashirvad 50 mm DN 0.6 MPa class-3 (6.0Kg/cm²) PVC-U (IS 4985) pipe.-
Sample Receipt Date	:	12.04.18
Batch No. Mfg. Date	:	Batch No.: 18C28A06 RUV 01

Certificate Nos. T-0378 & T-0380

Page 8 of 8

SAMPLE NOT DRAWN BY US

Test Parameter	Simulant (Temp/ Time)	Amount of Extractives		Limits as per IS : 10151-1982 (2008)		Test Method
		mg/dm²	ppm*	mg/dm²	ppm*	
Overall Migration Test	Distilled Water (40°C 10days)	3.36	33.61	10	60	9845:1998 (2003)

*SV : SA 1 : 1

Conclusion: The values are within the limits specified as per IS : 10151-1982 (2008) for intended use for contact with aqueous foods/water at room temperature filling and storing

*Information as given by the customer.

Please Note: The results contained in this Test Report relate only to the sample tested. This Report is intended only for your guidance and not to be used for legal purposes or for advertisement.

Head Safety & Analytical Quality Management
CFTRI, MYSORE

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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

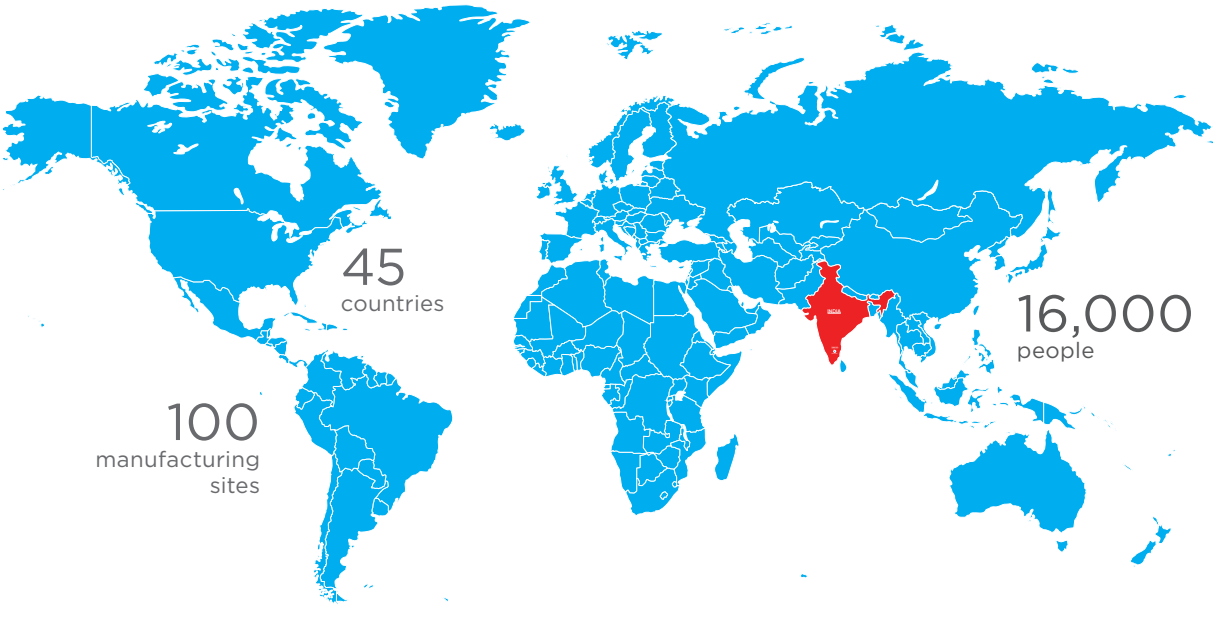
45+
Countries

600+
Extruders

€ 87 million
Capex

80+
Manufacturing sites

10
Commercial brands



Ashirvad production plant

Injection Moulding Facility

Automated Raw material storage in Silos

Ashirvad workforce

Brass Fittings Quality Control

Extrusion Facility

10 ASSURANCES

#01
STATE OF THE ART
MANUFACTURING FACILITIES

#02
ADVANCED MACHINERY
FOR SUPERIOR QUALITY

#03
ADVANCED MATERIAL
HANDLING SYSTEMS

#04
100% INCOMING RAW
MATERIAL INSPECTION

#05
HIGH DIMENSIONAL ACCURACY
TO MAINTAIN QUALITY OF
EACH PIECE, TO ENSURE
A DEFECT FREE SYSTEM

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

#06
STRINGENT QUALITY CHECKS AT EVERY LEVEL OF PRODUCTION

#07
100% FINISHED GOODS INSPECTION

#08
MULTIPLE QUALITY CHECKS IN PLACE FOR EVERY FITTING THAT LEAVES THE ASHIRVAD FACTORY

#09
EVERY BATCH OF PRODUCTS LAB TESTED

#10
REGULAR EXTERNAL LAB TESTING OF PRODUCTS IN INDIA

About uPVC

Unplasticized polyvinyl chloride (uPVC) pipes are made from a combination of plastic and vinyl. These pipes are durable, hard to damage and long lasting. They do not rust, rot, or wear over a long period of time. Therefore, uPVC pipes are most commonly used for cold water applications in plumbing, water supply, underground drainage and sewage lines.

Due to the ability of uPVC pipe to withstand extreme movement and bending, it is also increasingly used in earthquake prone areas. It can withstand rigorous shaking of earth without experiencing any damage.

The smooth surface of the pipe is also resistant to bacterial contamination such as E.coli. Therefore, many water companies rely on uPVC pipes in their systems in order to keep them free of contamination. The general properties of uPVC are given below.

Physical Properties

Density [g/cm^3]	1.300 - 1.450
Thermal conductivity [w/(m.k)]	0.14 - 0.28
Yield strength [MPa]	31 - 60
Young's modulus [psi]	490,000
Flexural strength (yield) [psi]	10,500
Compression strength [psi]	9500
Coefficient of thermal expansion (linear) [mm(mm°C)]	5 x 10^{-5}
Vicat B [°C]	>80°C
Resistivity [Ωm]	10^{16}
Surface resistivity [Ω]	10^{13} - 10^{14}

Fire resistant

Ashirvad Agri pipes and fittings Systems are self-extinguishing and do not support combustion. They are therefore ideally suited for use in buildings and houses. uPVC must be forced to burn due to its High Limiting Oxygen Index (LOI) of 45. LOI is the percentage if oxygen needed in an atmosphere to support combustion. Since the Earth's atmosphere is only 21% oxygen, uPVC will not burn unless a flame is constantly applied, and stops burning when the ignition source is removed.

Material	LOI
Cotton	16 - 17
Polypropylene (PP)	18
Polyethylene (PE)	18
Wood	20
Atmospheric content of OXYGEN	21
uPVC	45
CPVC	60

Why Ashirvad Agri?

Ashirvad Pipes manufactures “Lead Free” uPVC Agri Solvent weld system which is an ideal solution for agricultural water supply. Agri pipes are manufactured as per IS 4985 : 2000 standard and are available from size 40 mm to 315 mm in different pressure classes. Fittings are available from size 40 mm to 110 mm.

Lead Free

Ashirvad Agri is a lead free system making it an ideal and safe system for potable water distribution. It conformes to the latest standards for pipes meant for drinking water supply and is preferred worldwide.

Freedom from Toxicity, Odours, Tastes

Ashirvad Agri pipes and fittings are non-toxic, odourless and tasteless.

Cost Effective

Ashirvad Agri pipes and fittings are light in weight. They save on material as well as installation costs.

Easy to Install

Ashirvad Agri pipes and fittings are light in weight. They have smooth seamless interior walls, They require no special tools for cutting and are installed with solvent Cement.

Maintenance - Free

Ashirvad Agri pipes and fittings do not rust, pit, scale, corrode or promote build-up on the system interior. Years of trouble-free service can be expected from these pipes.

Strong and Durable

Ashirvad Agri pipes and fittings are highly resilient, tough and durable products that have high tensile and high-impact strength. They withstand high pressure for long periods. These pipes and fittings are free from corrosion, rust, weathering and chemical action and hence have a longer proven life term.

UV Resistant

Ashirvad Agri pipes and fittings are UV resistant offering better resistance to Ultra Violet degradation.

Good Chemical Resistance

Ashirvad Agri pipes and fittings are inert to attack by a wide variety of strong acids, alkalis, salt solutions, alcohols and many other chemicals. They do not react with materials carried, nor act as a catalyst.

Good Corrosion Resistance

Internal Corrosion Resistance

Ashirvad Agri pipes and fittings resist chemical attack by most acids, alkalis, salts, and organic media such as alcohols and aliphatic hydrocarbons, within certain limits of temperature and pressure.

External Corrosion Resistance

Industrial fumes, humidity, saltwater, weather, atmospheric, or underground conditions-regardless of soil type or moisture - cannot harm these pipe and fittings. Scratches or surface abrasions do not provide points at which corrosive elements can attack.

Low thermal conductivity

Ashirvad Agri pipes and fittings have a much lower thermal conductivity factor than metal pipes. This ensures that fluids maintain a constant temperature.

Solvent Cement jointing

The jointing of Ashirvad Agri pipes is simple and a single step process which uses solvent cement, providing a 100% leak proof joint.

Fire Resistant

Ashirvad Agri pipes and fittings are self-extinguishing and do not support combustion.

Properties of Ashirvad Agri Pipe

General

Physical properties of uPVC pipe	Value	Test Method
Cell classification	12454	ASTMD1784
Maximum service temperature	140°F/60°C	-
Colour	Grey	-
Water Absorption % increase 24 hrs @ 25°C	0.05	ASTM D570
Rockwell hardness	110-120	ASTM D785
Poisson's Ratio @ 73°F	0.410	-
Hazen Williams factor	C=150	-

Mechanical

Physical properties of uPVC pipe	Value	Test Method
Specific gravity	1.400 / 1.460	ASTM D792
Tensile strength, psi @ 73°F	7,000	ASTM D638
Modulus of elasticity, psi @ 73°F (tensile modulus)	420,000	ASTM D638
Flexural strength, psi @ 73°F	14,450	ASTM D790
Compressive strength, psi @ 73°F	9,600	ASTM D695
Izod impact, ft-lb./in @ 73°F	0.75	ASTM D256

Thermal

Physical properties of uPVC pipe	Value	Test Method
Coefficient of linear expansion (in/in/°F)	2.9×10^{-5}	ASTM D696
Coefficient of thermal conductivity ($BTU/hr/ft^2/°F/in$)	1.02	ASTM C177
Heat deflection temperature °F @ 264 psi	170	ASTM D648
Specific heat, Cal/g/°C	0.25	ASTM D2766

Electrical

Physical properties of uPVC pipe	Value	Test Method
Dielectric strength, V/mil	1,413	ASTM D149
Dielectric Constant, 60Hz, 30°F	3.7	ASTM D150
Volume resistivity, Ω/cm @ 95°C, ohms/cm	1.2×10^{12}	ASTM D257

Flammability

Physical properties of uPVC pipe	Value	Test Method
Flammability rating	V-0	UL94
Flammability index	<10	
Flame spread	0-25	ULC S102.2
Flash ignition temperature	730°F	ASTM D1929
Average time of burning (sec.)	<5	ASTM D635
Average extent of burning	<10(mm)	ASTM D635
Burning rate (in/min)	Self Extinguishing	ASTM D635
Softening starts (approx)	250°F/121°C	-
Material becomes viscous	350°F/176°C	-
Material carbonizes	425°F/218°C	-
Smoke generation	80-225	ULC S102.2

Standards for Pipes & Fittings

Class of Pipe/Fitting	Standard	Sizes Available
Class 2 (4 Kgf/cm^2) Pipe	IS 4985	63 mm - 315 mm
Class 3 (6 Kgf/cm^2) Pipe	IS 4985	40 mm - 315 mm
Class 3 (6 Kgf/cm^2) Fitting	IS 7834	63 mm - 110 mm
Class 5 (10 Kgf/cm^2) Fitting	IS 7834	40 mm - 50 mm

PVC pipe temperature de-rating factor for pressure rating

Operating Temperature		
Fahrenheit (°F)	Centigrade °C	De-rating Factor
73	23	1.00
80	27	0.88
90	32	0.75
100	38	0.62
110	43	0.51
120	49	0.40
130	54	0.31
140	60	0.22

Dimensions of Ashirvad Agri Pipes

Nominal Outside Diameter (Nominal Size- mm)	Mean Outside Diameter (O.D)		Wall Thickness	
	Minimum (mm)	Maximum (mm)	Minimum (mm)	Maximum (mm)
Dimensions as per IS 4985 - Class 2 (4Kgf/cm²)				
63	63.00	63.30	1.50	1.90
75	75.00	75.30	1.80	2.20
90	90.00	90.30	2.10	2.60
110	110.00	110.40	2.50	3.00
125	125.00	125.40	2.90	3.40
140	140.00	140.50	3.20	3.80
160	160.00	160.50	3.70	4.30
180	180.00	180.60	4.20	4.90
200	200.00	200.60	4.60	5.30
225	225.00	225.70	5.20	6.00
250	250.00	250.80	5.70	6.50
315	315.00	316.00	7.20	8.30
Dimensions as per IS 4985 - Class 3 (6Kgf/cm²)				
40	40.00	40.30	1.40	1.80
50	50.00	50.30	1.70	2.10
63	63.00	63.30	2.20	2.70
75	75.00	75.30	2.60	3.10
90	90.00	90.30	3.10	3.70
110	110.00	110.40	3.70	4.30
125	125.00	125.40	4.30	5.00
140	140.00	140.50	4.80	5.50
160	160.00	160.50	5.40	6.20
180	180.00	180.60	6.10	7.10
200	200.00	200.60	6.80	7.90
225	225.00	225.70	7.60	8.80
250	250.00	250.80	8.50	9.80
315	315.00	316.00	10.70	12.40

Quality Control Procedures at Ashirvad

The pipes and fittings manufactured at Ashirvad, follow a stringent quality control process before being rolled out to the market, in order to supply a defect free system to its users.

The various quality control checks regularly being done at Ashirvad follow the highest specifications of BIS (India) as given below.

PIPES

Drop Impact Test
Weights dropped onto pipe at 0°C. No cracks or failures are expected to be seen after testing.

Heat Reversion Test
The percentage of change in length when heated in an oven and left to cool. It measures the residual stresses left in pipe from production process.

Vicat Softening Temperature
The VST of the specimen shall not be less than 80°C.

Sulphated Ash Content
The ash content in the pipe shall not exceed 11 percent.

Density
Density of pipes and fittings is to be determined.

FITTINGS

Stress Relief Test
To determine the level of internal stress by heating the fitting in an aircirculated oven @ 150°C. There should not be any blisters, weld line splitting or any cracking.

PIPES AND FITTINGS

Visual Appearance
To ensure that all pipes and fittings are uniform in colour and free from visual effects such as black dots, scratches, burn marks, etc.

Dimensions
To ensure that all pipes and fittings conform to the appropriate standards particularly wall thickness, socket diameters and socket depth.

Opacity
To measure the percentage of light flux passing through the wall and to ensure it is below 0.2%.

Hydrostatic pressure test
System is to sustain upto 1 hour a pressure of 4.2 times working pressure without leakage.

Effect on Water Test
The pipes shall not have any detrimental effect on the composition of water flowing through them.

ashirvad
by aliaxis

Handling and Storage

Proper Handling of Pipes

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.

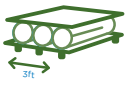
The pipes should be handled with care. The tendency to throw or drop the pipes to the floor should be avoided. Do not drag or push the pipes from a truck bed. Contact of the pipes with any sharp object should be totally avoided.

Storage of Pipes

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

Protect the pipes from sun light, to reduce the effect of UV rays.

The pipes should be stored on level ground and on dry surface.



If pipes of same diameter but different classes are being stacked together, place the thicker pipes below.

If placing pipes on racks, ensure the spacing between the supports does not exceed 3 feet.

Safe Handling of Solvent Cement / Solvent Cement

When using solvent Cement, primers and cleaners, there are some basic safety measures all users should keep in mind.

After every application of solvent on the pipe / fitting ensure to put the lid back on the solvent Cement containers and tighten the lid slightly to avoid evaporation and escape of solvent.

Avoid prolonged breathing of solvent vapours. When pipe and fittings are being joined in enclosed areas, please ensure sufficient ventilation.

Keep the solvent Cement, primers and cleaners away from all sources of ignition, heat, sparks and open flame.

Keep containers of solvent Cement, primers and cleaners tightly closed except when the product is being used.

Dispose of all rags used with solvents in a proper outdoor waste bin.

Avoid eye and skin contact. In case of eye contact, flush with plenty of water for 15 minutes and call a doctor.

Instructions Solvent Cement

Recommendations

One Step Solvent Cement is recommended for joining of pipes and fittings.

Summary

1. The following procedures shall be clearly understood and followed:
   - The joining surfaces must be softened (dissolved) and made semi-fluid.
   - Sufficient solvent Cement must be applied to fill the gap between pipe and fitting.
   - Assembly of pipe and fitting must be made while the surfaces are still wet and fluid.
   - Joint strength develops as the solvent Cement dries. In the tight part of the joint, the surfaces will tend to fuse together; in the loose part, the One-Step solvent Cement will bond to both surfaces.
2. Sufficient One-Step solvent Cement must be applied to fill the gap in the loose part of the joint (see Figure 2). Besides filling the gap, adequate One-Step solvent Cement layers will penetrate the surfaces and also remain wet until the joint is assembled.
3. If the One-Step solvent Cement coatings on the pipe and fittings are wet and fluid when assembly takes place, they will tend to flow together and become one solvent Cement layer. Also, if the solvent Cement is wet, the surfaces beneath them will still be soft, and these dissolved surfaces in the tight part of the joint will tend to fuse together (see Figure 3).
4. As the solvent dissipates, the One-Step solvent Cement layer and the dissolved surfaces will dry and harden with a corresponding increase in joint strength. Completed joints should not be disturbed until they have cured sufficiently to withstand handling. Joint strength develops as the One-Step solvent Cement dries.

Figure 1: outside of pipe and inside the fitting socket to be softened and penetrated

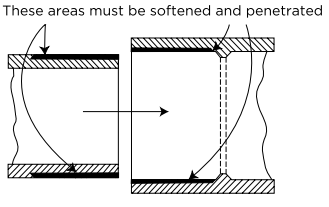


Figure 2: solvent Cement coatings of sufficient thickness applied uniformly around pipe and inside fitting socket

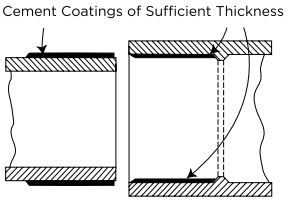
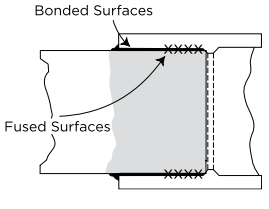


Figure 3: fused and bonded surfaces of joined pipe and fitting



Warning:
Follow all preparation and installation procedures.

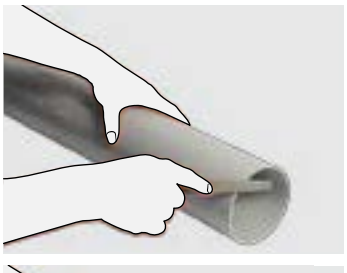
Easy and 100% leakproof installation.

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 beyond the visible crack before proceeding.

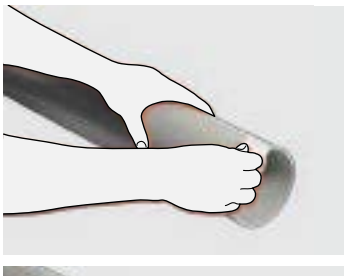
Step 2: Deburring/Beveling

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.



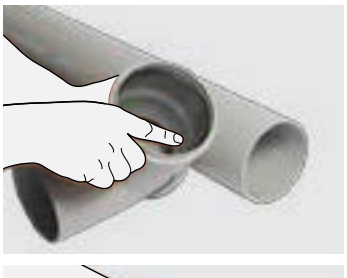
Step 3: Fitting Preparation

Using a clean dry rag, wipe the dirt and moisture from the fitting sockets and pipe end. Dry fit the pipe to ensure total entry into the bottom of the fittings socket and make a visible marking using a felt tip pen.



Step 4: One Step Solvent Cement Procedure

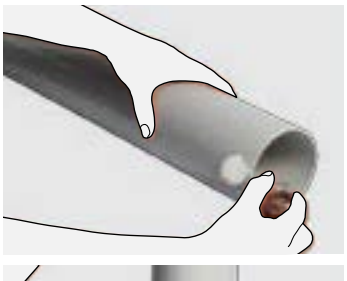
Use only Ashirvad uPVC Solvent Cement conforming to ASTM D-2564 / IS 14182 to ensure a perfect solvent weld joint. When making a joint, apply an even coat of solvent Cement at the end of the pipe and also inside the fitting socket. Do not use thickened or lumpy solvent Cement. It should have a flow consistency like that of syrup or paint.



Step 5: Assembly

Immediately insert the pipe into the fitting socket, rotate the pipe 1/4 to 1/2 turn while inserting. This motion ensures an even distribution of solvent Cement within the joint. Hold the assembly for 3 seconds to allow the joint to setup and avoid push-out.

A bead of One-Step solvent Cement must be formed around the entire socket fitting entrance. With a clean, dry cloth remove the excess solvent Cement from the surface of the pipe and fitting.



Solvent Cement Set & Cure Times

Average initial set schedule for uPVC solvent cement

Temperature Range	Pipe Sizes ½"-1¼" (15 mm – 32 mm)	Pipe Sizes 1½"-2" (40 mm – 50 mm)	Pipe Sizes 2½"-6" (65 mm – 150 mm)
60° – 100°F / 16° – 38°C	2 minutes	5 minutes	30 minutes
40° – 60°F / 5° – 16°C	5 minutes	10 minutes	2 hours
0° – 40°F / -18° – 5°	10 minutes	15 minutes	12 hours

Note - Initial set schedule is the necessary time to allow before the joint can be carefully handled. In damp or humid weather allow 50% more set time.

Average joint cure schedule for uPVC solvent cement

Relative Humidity 60% or Less	Pipe Sizes ½"-1¼" (15 mm – 32 mm)		Pipe Sizes 1½"-2" (40 mm – 50 mm)		Pipe Sizes 2½"-6" (65 mm – 150 mm)	
Temperature range during assembly and cure periods	psi (Bar)		psi (Bar)		psi (Bar)	
	up to 160 (up to 11)	160 to 370 (11 to 26)	up to 160 (up to 11)	160 to 315 (11 to 22)	up to 160 (up to 11)	160 to 315 (11 to 22)
60° – 100°F / 16° – 38°C	15 minutes	6 hours	30 minutes	12 hours	1 - ½ hours	24 hours
40° – 60°F / 5° – 16°C	20 minutes	12 hours	45 minutes	24 hours	4 hours	48 hours
0° – 40°F / -18° – 5°C	30 minutes	48 hours	1 hour	96 hours	72 hours	8 days

Note - Joint cure schedule is the necessary time to allow before pressurizing system. In damp or humid weather allow 50% more cure time.

CAUTION: These figures are estimates based on testing done under laboratory conditions. Although this information is widely published across the industry, these charts should be used as a general reference only. Field working conditions can vary significantly and will increase set and cure times.

Pressuring Solvent Cement Joints

Care must be taken to allow solvent cement joints to adequately cure and develop full strength. A number of
factors will impact the required cure time before joints
can be pressurised. These factors include:

a. On-site temperature and humidity

b. Pipe diameter (larger diameter joints require more time to cure)

c. Internal operating pressure

d. Internal operating temperature

In general, the cure times will allow cold water lines to be pressurised to the cited levels shown.

Hot Weather Solvent Cement - Above 86°F (30°C)

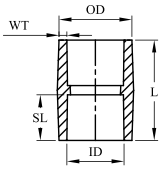
1. Store solvent Cement in a cool or shaded area prior to use.
2. If possible store pipe and fittings in a shaded area prior to solvent Cement.
3. Cool surfaces to be joined with a clean, damp rag. Be sure the surface is dry prior to solvent Cement.
4. Try applying solvent Cement to the joints in the cooler morning hours.
5. Make sure both surfaces to be joined are still wet with solvent Cement when joining them together.
6. Vigorously stir or shake the solvent Cement before use.
7. System anchoring and final connections should be made during the cooler hours of the day to account for expansion and contraction.

Installation Warning

1. Dry fit all joints prior to application of solvent Cement to confirm proper interference fit.
2. Discard fitting joints without proper interference fit.
3. DO NOT apply solvent Cement to the joints that are too loose or too tight.
4. Always use proper bevelling tools to prepare pipe ends before application of solvent Cement.
5. DO NOT apply solvent Cement to the joints without first bevelling pipe ends.
6. Use only One-Step solvent Cement to connect pipe, fittings and accessories.
7. DO NOT use primer with One-Step solvent Cement.
8. DO NOT use other solvent Cement to connect Ashirvad Agri pipe, fittings and accessories.
9. Follow all instructions for application of solvent Cement provided with this product.
10. Ashirvad fully endorses safety and protective measures recommended by government agencies when installing Agri pipes.
11. Always provide proper ventilation when applying solvent Cement.
12. Avoid unnecessary skin or eye contact with solvent Cement.
13. Wash immediately if contact occurs to avoid prolonged exposure.
14. Follow all manufacturer-recommended precautions when cutting or sawing pipe or when using any flame, heat or power tools.
15. Avoid open flames or soldering around solvent Cement joints.

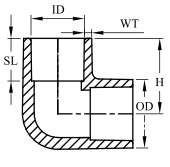
Fittings - Dimensions

COUPLER



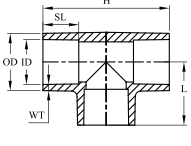
SIZE	ID	SL	WT	L
40	40.10 / 40.30	26.00	3.00	55.20
50	50.10 / 50.30	31.50	3.00	66.00
63	63.10 / 63.30	38.00	3.00	79.50
75	75.10 / 75.30	44.00	3.10	92.00
90	90.10 / 90.30	51.20	3.80	108.50
110	110.10 / 110.40	61.30	4.10	129.00

ELBOW 90°



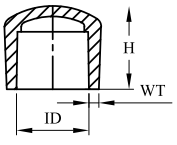
SIZE	ID	SL	WT	H
40	40.10 / 40.30	26.00	3.00	72.30
50	50.10 / 50.30	31.50	3.00	87.60
63	63.10 / 63.30	38.00	3.00	106.90
75	75.10 / 75.30	44.50	3.10	123.80
90	90.10 / 90.30	51.50	3.10	145.60
110	110.10 / 110.40	61.50	3.30	177.50

TEE



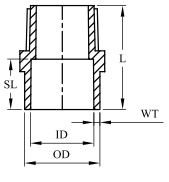
SIZE	ID	SL	WT	H
40	40.10 / 40.30	26.00	3.00	96.70
50	50.10 / 50.30	31.50	3.00	118.40
63	63.10 / 63.30	38.00	3.00	143.90
75	75.10 / 75.30	44.50	3.10	166.00
90	90.10 / 90.30	51.50	3.10	194.80
110	110.10 / 110.40	61.30	4.10	238.00

END CAP



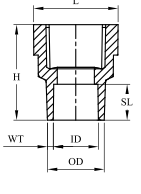
SIZE	ID	SL	WT	H
40	40.10 / 40.30	26.20	3.20	34.30
50	50.10 / 50.30	31.70	3.20	41.30
63	63.10 / 63.30	38.00	3.20	47.30
75	75.10 / 75.30	44.00	3.20	52.00
90	90.10 / 90.30	51.00	3.20	62.30
110	110.10 / 110.40	61.00	3.20	69.50

MALE ADAPTOR PLASTIC THREADED - MAPT



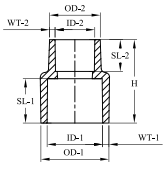
SIZE	ID	SL	WT	L
40	40.10 / 40.30	26.00	3.00	54.00
50	50.10 / 50.30	31.00	3.00	61.00
63	63.10 / 63.30	38.00	3.20	70.00
75	75.10 / 75.30	44.00	3.20	82.50
90	90.10 / 90.30	51.00	3.80	94.00
110	110.10 / 110.40	61.00	4.80	106.00

FEMALE ADAPTOR PLASTIC THREADED – FAPT



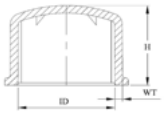
SIZE	ID	SL	WT	H
40	40.10 / 40.30	26.00	3.00	55.00
50	50.10 / 50.30	31.00	3.00	65.00
63	63.10 / 63.30	38.00	3.20	74.00
75	75.10 / 75.30	44.00	3.20	91.00
90	90.10 / 90.30	51.00	3.30	106.00
110	110.10 / 110.40	61.50	3.80	118.00

REDUCER COUPLER



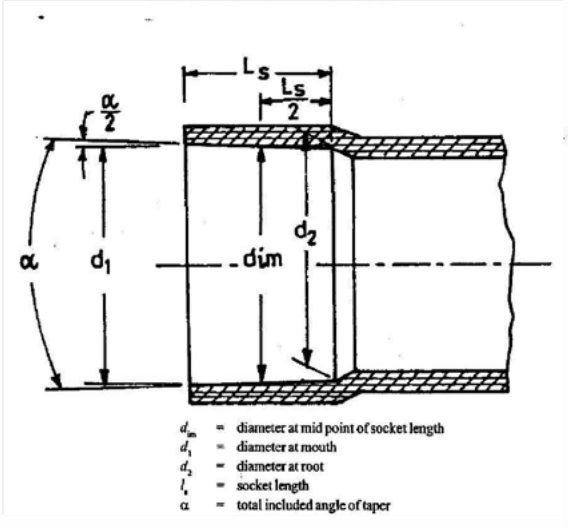
SIZE	ID-1	SL-1	WT-1	ID-2	SL-2	WT-2	H
50 x 40	50.38	31.00	3.20	40.36	26.00	3.20	66.50
63 x 40	63.42	38.00	3.00	40.36	26.50	3.10	80.50
63 x 50	63.42	38.00	3.00	50.38	31.50	3.00	80.50
75 x 40	75.44	44.00	3.00	40.36	26.50	3.00	93.50
75 x 50	75.44	44.00	3.00	50.38	31.50	3.00	93.50
75 x 63	75.44	44.00	3.00	63.42	38.00	3.00	93.50
110 x 90	110.40	61.30	3.00	90.40	51.30	3.00	126.00

THREADED END CAP



SIZE	ID	WT	H
40	42.36	3.20	30.50
50	48.27	3.20	32.70
63	59.79	3.20	37.50
75	75.44	3.20	42.00
90	88.40	3.20	50.00
110	113.30	3.20	54.00

Socket - Dimensions



Nominal Size DN	Socket Length L_s	Mean Socket Internal Diameter at Mid-Point of Socket Length, d_m	
	Min	Min	Max
(1)	(2)	(3)	(4)
20	16.0	20.1	20.3
25	19.0	25.1	25.3
32	22.0	32.1	32.3
40	26.0	40.1	40.3
50	31.0	50.1	50.3
63	37.5	63.1	63.3
75	43.5	75.1	75.3
90	51.0	90.1	90.3
110	61.0	110.1	110.4
125	68.5	125.1	125.4
140	76.0	140.2	140.5
160	86.0	160.2	160.5
180	96.0	180.2	180.5
200	106.0	200.3	200.6
225	118.5	225.3	225.7
250	131.0	250.4	250.8
280	146.0	280.4	280.9
315	163.5	315.4	316.0
355	183.5	355.4	356.0
400	206.0	400.4	401.0
450	231.0	450.4	451.0
500	256.0	500.4	501.0
560	286.0	560.4	561.0
630	321.0	630.4	631.0

NOTE — For nominal sizes 20 mm to 225 mm, the dimensions are based on IS 727-1985 (E).

Frequently Asked Questions

1. Why lead free?

Lead free water supply system is the most favored for potable water transportation worldwide.

2. Why U.V. Resistant?

U.V. Resistance prevents the oxidation process and helps to increase the durability of pipes and fittings.

3. Why Ashirvad Agri uPVC Pipes?

Ashirvad Agri uPVC pipes and fittings are made with special lead free compound to ensure conformity to the latest requirements in the developed nations, the lead free compound is non-toxic and safe for drinking water purposes.

Ashirvad Agri pipes & fittings are manufactured with stringent quality control and dimensional contol.We maintain minimal ovality at higher precision.

Ashirvad agri fittings are manufactured with specially designed moulds;the gate point is not in line with weld - line. So the chance of breaking through weld-line is minimal.

4. What about health, safety and fire toxicity issues?

Tests performed at various independent laboratories confirm that uPVC is superior to metal systems in terms of water quality effects and “no more toxic than wood” in fire.

Ashirvad Agri uPVC system is manufactured from a compound which is lead free and hence most favored system in terms of health and safety, LOI of uPVC is 45, which means uPVC is not really burnable in atmosphere. Once the burning source is removed, it stops burning.

The limited warranty will not apply if

1. Ashirvad products are used in combination with any other brand / make of pipes, fittings and solvent cement.
2. The product is used for purposes other than distribution of domestic water.
3. The product fails due to defects or deficiencies in design, engineering or installation.
4. The joints are not pressure tested before plastering of the casings.
5. The Installation manual for the use of the product is not followed.
6. The pipe is not warranted against any mechanical damage by nails, drilling, chiseling, etc.

Ashirvad Agri limited warranty

Ashirvad Pipes Pvt. Ltd., warrants to the original owner that the product will be free from manufacturing defects and conform to current applicable BIS standards under normal use. Buyers’ remedy for breach of this warranty is limited to replacement of, or credit for, the defective product. This warranty excludes any expense for removal or reinstallation of any defective product and any other incidental, consequential or punitive damages.

Ashirvad Pipes Pvt. Ltd., 4-B, Attibele Industrial Area, Hosur Road, Bengaluru - 562 107, Karnataka, INDIA.
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