Low noise soil waste and rain water system

Ashirvad Low Noise (silent and silent plus) SWR systems deliver a convincing performance distinguished by superior quality and excellent noise insulation values.

- High perceived quality and attractive appearance
- Abrasion resistant, smooth inner layer
- Dependable leak proof joints
- Acoustically inherent sound insulating properties
- Noise insulation of silent SWR system is <13dB at 2 lps flow rate
- Noise insulation of silent plus SWR system is <10dB at 2 lps flow rate
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</tbody>
</table>
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™
About Ashirvad

Ashirvad Pipes has been relentless in its commitment to quality and service since 1975. The product base has been enhanced through the years so as to suit the customer’s requirements better. With its base in Bengaluru, Ashirvad Pipes is an ISO 9001-2008 certified company with a constant endeavour towards achieving the highest level of customer satisfaction.

Ashirvad has partnered with Aliaxis S.A./N.V., a € 2.5 billion (~ INR 20,000 crores) Belgium conglomerate and a global leader in plastic fluid handling systems.

Ashirvad Pipes today:
- Manufacturing capacity in excess of 1,08,000 MT per annum
- Total factory area of 40 acres
- 325 sales & marketing staff
- 3,000 workforce
- 15 warehouses across the Country
- 1,800 distributors
- 16,000 dealers
- Exports to over 30 countries

Ashirvad Pipes today is the pioneer, largest manufacturer and exporter of Column pipes in India. Ashirvad is also a licensee of The Lubrizol Corporation, a Berkshire Hathaway Company, to manufacture and market CPVC plumbing systems in India. Ashirvad foresees to become a “one stop shop” for all plumbing and sanitary products needed by the Indian markets.

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
Certifications

The Aliaxis group is a leading global manufacturer and distributor primarily of plastic fluid handling systems used in residential, commercial and industrial buildings. Headquartered in Brussels, Belgium, Aliaxis is present in over 40 countries, has more than 100 manufacturing and commercial entities and employs over 15,700 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, infrastructure contractors and others. The group is in the Indian plumbing and sanitary market through a partnership with Ashirvad Pipes.

Global Partners - Aliaxis S.A./N.V.

New Range of Products

©Aliaxis

40 countries

15,700 people

100 manufacturing sites
Ashirvad Production Plant
Dimensional check of Low Noise SWR fittings
10 ASSURANCES

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

#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

#06 STRINGENT QUALITY CHECKS AT EVERY LEVEL OF PRODUCTION

#07 CHECKING OF GROOVES AND RINGS

#08 EVERY BATCH OF PRODUCTS LAB TESTED

#09 CONSTANT INNOVATION IN DESIGN FOR BETTER QUALITY

#10 REGULAR EXTERNAL LAB TESTING OF PRODUCTS IN INDIA
Ashirvad offers an industry leading range of Low Noise SWR (silent and silent plus). 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 where noise insulation plays a major role.

These pipes are extruded on state-of-the-art extruders and are socketed on inline 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.

Ashirvad Low Noise SWR system thus provides excellent sound insulation, creates ideal conditions for buildings and contributes to an increase in the property value along with the quality of life. All this is backed by extensive technical research to support all aspects of design and installation. Generic properties of uPVC are mentioned below.

### Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density (g/cm³)</td>
<td>1.3 - 1.45</td>
</tr>
<tr>
<td>Thermal conductivity (w/(m·k))</td>
<td>0.14 - 0.28</td>
</tr>
<tr>
<td>Yield strength (MPa)</td>
<td>31 - 60</td>
</tr>
<tr>
<td>Young's modulus (psi)</td>
<td>4,90,000</td>
</tr>
<tr>
<td>Flexural strength (yield) (psi)</td>
<td>10,500</td>
</tr>
<tr>
<td>Compression strength (psi)</td>
<td>9,500</td>
</tr>
<tr>
<td>Coefficient of thermal expansion (linear) (mm (mm·°C))</td>
<td>5 x 10⁻⁵</td>
</tr>
<tr>
<td>Vicat B (°C)</td>
<td>65 - 100</td>
</tr>
<tr>
<td>Resistivity (Ω·m)</td>
<td>10³⁶</td>
</tr>
<tr>
<td>Surface resistivity (Ω)</td>
<td>10⁻¹³ - 10⁻¹⁴</td>
</tr>
</tbody>
</table>

### Fire Resistant

Ashirvad Low Noise SWR 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 Oxygen Index (LOI) of 45. LOI is the percentage of oxygen needed in an atmosphere to support combustion.

<table>
<thead>
<tr>
<th>Material</th>
<th>LOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton</td>
<td>16 - 17</td>
</tr>
<tr>
<td>Polypropylene (PP)</td>
<td>18</td>
</tr>
<tr>
<td>Polyethylene (PE)</td>
<td>18</td>
</tr>
<tr>
<td>Wood</td>
<td>20</td>
</tr>
<tr>
<td>CPVC</td>
<td>60</td>
</tr>
<tr>
<td>Atmospheric content of OXYGEN</td>
<td>21</td>
</tr>
<tr>
<td>PVC</td>
<td>45</td>
</tr>
</tbody>
</table>
What is Noise?

Noise is often defined as ‘sound which is undesired by the recipient’ due to its intensity or persistence. Noise is produced due to constant knocking or percussion. It is very important to minimize the impact between materials in order to reduce noise.

How is Noise transmitted?

Noise is often transmitted due to vibration of a material, which can be a solid, liquid or air. The resistance offered by a material to noise depends on its density, and in turn determines the speed of the sound wave. When the medium changes – for example, a sound is transmitted from water to air – part of the energy is absorbed, part is reflected and the rest is transmitted i.e., passed on to the other medium.

Noise reduction in Soil and Waste water systems

Every object in motion makes noise transmitting its vibrations – in the form of pressure or negative pressure waves – to the surrounding air. There are two types of noise in soil and waste systems.

Air-borne Noise

Coming from pipelines, generated by soil and waste water flowing inside. In this case, a soundproof soil and waste system should limit the propagation of air borne noise and keep it inside the pipes. This is achieved by using a special material formula (using minerals), a three-layer pipe structure, the quality of manufacturing and correct installation procedures.

Structure-borne Noise

Coming from pipes and fittings as well as the system of fixing to the building’s structure. This sound comes from the noise inside the system mentioned before, which being limited by pipes and fittings makes them vibrate (acoustic resonance). The resonance is transmitted through a system of pipe clamps to the building’s structure and heard in the neighbouring rooms as an irritating acoustic wave. In this case it is important to design the system of fixing pipes and fittings to the building’s structure in such a way that the transmission of the acoustic resonance to its walls is reduced to a minimum.

Noise in bathroom is generated when change of direction occurs or due to filling of products or during discharge of sanitary appliances. The Low Noise system from Ashirvad only caters to the noise in the SWR system.
Sound reduction with Ashirvad Low Noise SWR system

Ashirvad Low Noise SWR system was developed by considering the effects of both Air borne and Structural noise. The voice waves diffusing by airway form a pressure inside the environment and surface it beats. The high molecular special formula used in the middle layer of three layer pipe absorbs this noise and avoids if from going out.

What is Low Noise SWR system?

Low Noise SWR system is a combination of pipes, fittings and brackets that is specially designed to reduce the noise that accompanies during the flow of water and waste in the system. Ashirvad low noise pipes are made from an innovative three layer uPVC structure, which is one of the finest technologies in the plumbing world.

The outer and inner layer are made of uPVC and middle layer made of mineralized uPVC which has better sound absorbing character. Both the outer and inner layers provide much needed impact resistance to the pipes due to the special formulation that is adapted along with high rigidity and UV resistance. The inner layer is also abrasion resistant and extremely smooth to allow high flow rates.

Pipe Brackets

Ashirvad pipe brackets are manufactured under license from GIRPI (Aliaxis group) and is patented. These patented pipe clamps absorb the vibrations from the pipe and reduce structural noise. They have a hinge opening and single point of fixation.

Ashirvad pipe brackets are available in sizes ranging from 40, 50, 63, 75, 90, 110, 160 and 200 mm. The pipe is allowed to move freely inside the bracket as it expands and contracts without risking damage by abrasion.

These special pipe clamps provide very high acoustic performances at optimized costs. They can be used on vertical and horizontal sections for both anchoring and guide configurations.

The brackets are made of high quality polypropelene and are UV resistant to protect against sunlight. Their hinge opening mechanism allows easy access to remove pipes for maintenance or replacement.

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### Sound Level

**COMMON OUTDOOR NOISE**
- Jet Flyover (1000 ft)
- Diesel truck (50 ft)
- Heavy Traffic (300ft)
- Typical Urban daytime
- Urban nighttime

**COMMON INDOOR NOISE**
- Rock Band (at 15 ft)
- Food Blender (at 3ft)
- Vacuum Cleaner (at 10 ft)
- Normal Speech (at 3 ft)
- Library
- Whisper

**THRESHOLD OF PAIN**

**THRESHOLD OF HEARING**

Why Ashirvad Low Noise SWR?

Designed to meet strictest demands for strength and other mechanical properties, this thick walled, high density Low Noise SWR drainage system is additionally featured with sound reducing aspects. This makes it suitable for the projects where sound beyond certain decibel level is not desirable. Thus a combination of strength and low noise aspects has made this product a much better solution for building drainage.

We offer fully accredited product systems. Ashirvad Low Noise SWR Pushfit systems are available in sizes ranging from 75, 90, 110, 160 and 200 mm in both silent and silent plus range and Solfit systems are available in sizes ranging from 40, 50, 63, 75 and 90 mm in silent.

Wide range of pipes and fittings
Complete product range in Pushfit - rubber seal type joints and Solfit – solvent fitted are made available to cater to each and every installation requirement.

Under technical collaboration from GIRPI*
Ashirvad under technical collaboration from GIRPI, France introduces specially designed robust pipe clamps to avoid structural borne noise.

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.

Smooth bore - better flow
No clogging – smooth and bright internal and external surfaces of Low Noise SWR help to avoid sedimentations and lime deposition.

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

Compatible with existing SWR systems
Ashirvad Low Noise SWR systems are compatible with existing SWR lines and thus can be used for retrofit or as a replacement to IS 13592 and IS 14735.

Significant Acoustic Performance

Ashirvad’s Low Noise SWR (soil, waste and rain) systems (silent and silent plus) guarantees customer satisfaction, peace and living comfort. In practice, oriented measurements carried out by the officially recognized Fraunhofer Institute for Building Physics in Stuttgart, Germany Ashirvad’s Low Noise SWR achieved a sound intensity level of 13 dB at 2 lps for silent SWR and 10 dB at 2 lps for silent plus SWR.

The below results are obtained by installation of Ashirvad’s Low Noise SWR pipes, fittings and clamps as a system. Any combination of other brand products with the system may not give the same performance.

Ashirvad silent SWR

Ashirvad silent plus SWR
### Fraunhofer test result for Ashirvad silent SWR system

<table>
<thead>
<tr>
<th>Determination of the installation Sound Level L_{eq} in the Laboratory</th>
<th>P-BA 311/2014e Results sheet 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Client:</strong></td>
<td>ASHIRVAD PIPES PVT LTD., 19/8, Aobele Industrial Area, Hour Road, Bengaluru – 562 107, INDIA</td>
</tr>
<tr>
<td><strong>Test specimens:</strong></td>
<td>Wastewater installation system consisting of plastic pipes and fittings “SILENT SWR” with plastic pipe clamps “SILENT PLUS, Ø 110” made by ASHIRVAD PIPES PVT LTD. (test object no: 10327-2; see figure 4 and 5)</td>
</tr>
<tr>
<td><strong>Test setup:</strong></td>
<td>- The pipe system was mounted according to figure 4 (see also Annex A).</td>
</tr>
<tr>
<td></td>
<td>- The system consisted of wastewater pipes (nominal size OD 110), three inlet tees, two 45º basement bends and a horizontal drain section. The inlet tees in the basement and in the ground floor were closed by kits supplied by the manufacturer.</td>
</tr>
<tr>
<td></td>
<td>- Pipe system: Three layer pipes “100 mm Ø SILENT SWR PIPE”, material uPVC, color OD 110 mm, wall thickness 3.2 mm, weight 1.04 kg/m, density 1.6 g/cm³. Single layer fittings, material uPVC, size OD 110, wall thickness 3.2 mm, density 1.45 g/cm³ (kitchen and laundry areas).</td>
</tr>
<tr>
<td></td>
<td>Ritual connection of the pipes and fittings come with a moulded rubber ring to absorb vibrations and cater to any thermal expansion and contraction.</td>
</tr>
<tr>
<td></td>
<td>- Pipe clamps “SILENT PLUS, Ø 110” Acostatic pipe clamps (figure 5) without elastomer rings. On each floor (FG and IG) two clamps were installed. The clamps were mounted with plastic underlay so that they are not unduly bent and the two parts of the safety clamps on each side of the tie rod do not touch each other (figure 5). The clamps were fixed to the installation wall with dowels and adjustable screws.</td>
</tr>
<tr>
<td><strong>Test facility:</strong></td>
<td>Installation test facility P12, mass per unit area of the installation wall 220 kg/m², mass per unit area of the ceiling 440 kg/m². Installation rooms: sub-basement (SGC), basement (UGF front, ground floor (SGF) front and top floor (SGF), measuring rooms: UGF front, UGF rear (details in Annex F and EN 14366:2005-02))</td>
</tr>
<tr>
<td><strong>Test method:</strong></td>
<td>The measurements were performed according to EN 14366: 2005-02 and German standard DIN 4109.11: 2004-09, noise evacuation by constant water flow with 15 L, 20 L and 40 L (details in Annex A and F). Additional analysis according to VDI 4109: 2011-13</td>
</tr>
<tr>
<td><strong>Results:</strong></td>
<td>Water supply system consisting of plastic pipes and fittings “SILENT SWR” with plastic pipe clamps “SILENT PLUS, Ø 110” made by ASHIRVAD PIPES PVT LTD.</td>
</tr>
<tr>
<td><strong>Flow rate [L/s]</strong></td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Sound pressure level L_{eq} [dB(A)]</strong></td>
<td>45</td>
</tr>
<tr>
<td><strong>Sound pressure level L_{dec} [dB(A)]</strong></td>
<td>+30</td>
</tr>
<tr>
<td><strong>Sound pressure level L_{eq} [dB(A)]</strong></td>
<td>43</td>
</tr>
<tr>
<td><strong>Airborne sound pressure level L_{eq} [dB(A)]</strong></td>
<td>+10</td>
</tr>
<tr>
<td><strong>Structure-borne sound characteristic level L_{0} [dB(A)]</strong></td>
<td>+20</td>
</tr>
</tbody>
</table>

**Notes:**
- The requirements of DIN 4109 and VDI 4109 only apply for the test room (UFG).
- Sound levels below 10 dB provide no additional information subject to an increased measurement uncertainty and moreover are not noticeable in a normal living environment.

### Fraunhofer test result for Ashirvad silent plus SWR system

<table>
<thead>
<tr>
<th>Determination of the installation Sound Level L_{eq} in the Laboratory</th>
<th>P-BA 311/2014e Results sheet 1</th>
</tr>
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<tr>
<td><strong>Client:</strong></td>
<td>ASHIRVAD PIPES PVT LTD., 19/8, Aobele Industrial Area, Hour Road, Bengaluru – 562 107, INDIA</td>
</tr>
<tr>
<td><strong>Test specimens:</strong></td>
<td>Wastewater installation system consisting of plastic pipes and fittings “SILENT PLUS SWR” with plastic pipe clamps “SILENT PLUS, Ø 110” made by ASHIRVAD PIPES PVT LTD. (test object no: 10327-4; see figure 4 and 5)</td>
</tr>
<tr>
<td><strong>Test setup:</strong></td>
<td>- The pipe system was mounted according to figure 4 (see also Annex A).</td>
</tr>
<tr>
<td></td>
<td>- The system consisted of wastewater pipes (nominal size OD 110), three inlet tees, two 45º basement bends and a horizontal drain section. The inlet tees in the basement and in the ground floor were closed by kits supplied by the manufacturer.</td>
</tr>
<tr>
<td></td>
<td>- Pipe system: Three layer pipes “110 mm Ø SILENT PLUS SWR PIPE”, material uPVC, color OD 110 mm, wall thickness 6.3 mm, weight 2.07 kg/m, density 1.66 g/cm³. Single layer fittings, material uPVC, size OD 110, wall thickness 6.3 mm, density 1.45 g/cm³ (kitchen and laundry areas).</td>
</tr>
<tr>
<td></td>
<td>Ritual connection of the pipes and fittings come with a moulded rubber ring to absorb vibrations and cater to any thermal expansion and contraction.</td>
</tr>
<tr>
<td></td>
<td>- Pipe clamps “SILENT PLUS, Ø 110” Acostatic pipe clamps (figure 5) without elastomer rings. On each floor (FG and IG) two clamps were installed. The clamps were mounted with plastic underlay so that they are not unduly bent and the two parts of the safety clamps on each side of the tie rod do not touch each other (figure 5). The clamps were fixed to the installation wall with dowels and adjustable screws.</td>
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<tr>
<td><strong>Test facility:</strong></td>
<td>Installation test facility P12, mass per unit area of the installation wall 220 kg/m², mass per unit area of the ceiling 440 kg/m². Installation rooms: sub-basement (SGC), basement (UGF front, ground floor (SGF) front and top floor (SGF), measuring rooms: UGF front, UGF rear (details in Annex F and EN 14366:2005-02))</td>
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<td><strong>Test method:</strong></td>
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</tr>
<tr>
<td><strong>Results:</strong></td>
<td>Water supply system consisting of plastic pipes and fittings “SILENT PLUS SWR” with plastic pipe clamps “SILENT PLUS, Ø 110” made by ASHIRVAD PIPES PVT LTD.</td>
</tr>
<tr>
<td><strong>Flow rate [L/s]</strong></td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Sound pressure level L_{eq} [dB(A)]</strong></td>
<td>44</td>
</tr>
<tr>
<td><strong>Sound pressure level L_{dec} [dB(A)]</strong></td>
<td>+10</td>
</tr>
<tr>
<td><strong>Sound pressure level L_{eq} [dB(A)]</strong></td>
<td>42</td>
</tr>
<tr>
<td><strong>Airborne sound pressure level L_{eq} [dB(A)]</strong></td>
<td>+10</td>
</tr>
<tr>
<td><strong>Structure-borne sound characteristic level L_{0} [dB(A)]</strong></td>
<td>+10</td>
</tr>
</tbody>
</table>

**Notes:**
- The requirements of DIN 4109 and VDI 4109 only apply for the test room (UFG).
- Sound levels below 10 dB provide no additional information subject to an increased measurement uncertainty and moreover are not noticeable in a normal living environment.
Why Pushfit?

Ashirvad Pushfit Low Noise SWR pipes and fittings are manufactured in sizes ranging from 75, 90, 110, 160 and 200 mm. This system comes with a pre-fitted rubber (Blue Seal™) in the groove that ensures a leak proof joint. The system is joined by simply pushing the spigot end into the socket end. This seal coupling system absorbs normal expansions in installations.

This requires no threading or solvent cementing. The spigot end is held firmly in the socket with the help of the Blue Seal™. It ensures a leak proof joint and can withstand high pressure flow. This system is made in high tech, new generation machines and offers unrivalled performance, strength and finish.

The advanced Blue Seal™ enables the joints to not only withstand high pressure and provide leak proof joints but also allows the thermal expansion and contraction of plastic. Since the joint is not fixed by solvent cement, it can be reopened after several hours of installation to realign, change or adjust the pipe/fitting.

Quick, easy and convenient installation

Corrosion and abrasion resistance

Smooth Inner finish

Tough and reliable

Cost effective

**Thermal expansion**

uPVC has a coefficient of expansion of approximately 0.06mm/m/°C. Consequently a 2m length of soil or waste pipe will expand by 2.4 mm for a 20°C rise in temperature. This expansion is taken into consideration in the design of systems and components, and must be accommodated when installing. It is important that this movement be allowed by including an expansion gap at ring seal joints. The spigot should be pushed fully into the ring seal socket, marked at the socket face, and then withdrawn by 10 mm. A subsequent check should be made to ensure that the expansion gap is not lost during further installation work.

---

**Technical Specifications for silent SWR - Pushfit**

**Dimensions of pipes and fittings**

![Typical Groove design for elastomeric ring seal sockets](image)

**Dimensions of wall thickness**

<table>
<thead>
<tr>
<th>Nominal Outside Diameter DN (mm)</th>
<th>Mean Outside Diameter (mm)</th>
<th>Outside Diameter at Any Point (mm)</th>
<th>Wall Thickness S (mm)</th>
<th>Wall Thickness S2 (mm)</th>
<th>Wall Thickness S3 (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>75</td>
<td>75.0</td>
<td>75.3</td>
<td>74.1</td>
<td>75.9</td>
<td>3.2</td>
</tr>
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**Dimensions of grooved socket**

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Technical Specifications for silent plus SWR - Pushfit

Dimensions of pipes and fittings

![Diagram](image)

Typical Groove design for elastomeric ring seal sockets

Dimensions of wall thickness

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Dimensions of grooved socket

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Dimensions of wall thickness

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Measurement of effective length of pipe

![Diagram](image)

Nominal pipe length and dimensional measurements.
Why Solfit in Ashirvad silent SWR?

Ashirvad Low Noise SWR Solfit pipes and fittings are manufactured in sizes ranging from 40, 50, 63, 75 and 90 mm in the silent range only. Ashirvad Solfit systems are joined by solvent cement. This system is made by new generation high tech machines and offer unrivalled performance, strength and finish.

- 100% leak proof joints
- High flow rates - no choking
- High degree of dimensional accuracy
- Cost effective

Technical Specifications for silent SWR Solfit system

### Dimensions of Wall Thickness

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### Dimensions of Pipes and Fittings

![Solvent Cementing Socket Detail](image)

### Dimensions of Socket

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Availability of Ashirvad SWR silent and silent plus systems

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*Plain end pipes only

Note:
Pipes available with socket on single side.
Pipes available with socket on double side.
Technical Data

Low Noise SWR system products use mineralized uPVC with different mineral fillers, depending on component conditions.

### Outer Layer
- Material - uPVC
- Color: (silent SWR - Light Grey / silent plus - Dark Grey)
- Impact resistant
- Resistant against high temperature variations
- Reinforces the pipe rigidity
- Provides protection against sunlight as it is UV resistant

### Middle Layer
- Material - Mineral reinforced uPVC
- Color: (silent SWR and silent plus SWR - Blue)
- Highly rigid layer
- Due to its high molecular weighted structure and its special formula, it prevents the sound waves formed inside the pipe to transmit towards outside of the pipe

### Inner Layer
- Material - uPVC
- Color - (silent SWR - Light Grey / silent plus - Dark Grey)
- Provides a superior flow performance with its smooth surface
- Prevents the corrosion which can form inside by the virtue of its chemical resistance

Quality Control Procedures at Ashirvad

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

#### FOR PIPES
- **Dimensional Check**
  To ensure that all pipe dimensions, particularly wall thickness and outer diameter (roundness), conform to the appropriate standards.
- **Heat Reversion Test**
  How much the pipe changes in length when heated in an oven and left to cool. This is a measure of residual stresses left in the pipe during production process.
- **Density Test**
  The mass of the specimen of the solid plastic in air is first measured. It is then immersed in a liquid and its apparent mass upon immersion is measured.

#### FOR FITTINGS
- **Dimensions Check**
  To ensure that fittings have correct dimensions, particularly wall thickness, socket diameters and socket depth.
- **Drop Impact Test**
  Weights are dropped on the pipe to observe any cracks or failures.

#### FOR SYSTEM
- **Air-tightness Test**
  The pipes, fittings and joints should be capable of withstanding an air or smoke test of +ve pressure of 38 mm water gauge for at least 3 mins and upto 15 mins.
- **Water-tightness Test**
  The pipes, fittings and joints should be capable of withstanding a water column of 10 feet. Inspection for any leakage must start 15 mins after the water has been put into the stack to be tested.

### OTHER TESTS
- Color
- Visual appearance
- Vicat softening temperature
- Impact test
- Water tightness of joints
- Stress relief test
Applications of Low Noise SWR systems

Areas of application
Ashirvad Low Noise SWR systems are designed for the evacuation of waste and rain water in down pipe sections as well as general drainage connections in buildings that place great importance on a noise-free environment for residents and users. Most common areas being

- Apartments / multi-storey buildings
- Hotels
- Hospitals / old age homes
- Public buildings / libraries
- Entertainment venues
- Restaurants
- High end villas
- Sports stadiums
- Office spaces
- Educational institutes

With technical tie ups from across the globe, Ashirvad strives to bring the latest technology and products into the Indian plumbing market, with more and more satisfied customers each day.
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 ensure to:

• 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 type B below type A. If placing pipes on racks, ensure the spacing between the supports does not exceed 3 feet.

Safe handling of Solvents
When using solvent cements, 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 cements, primers and cleaners away from all sources of ignition, heat, sparks and open flame.
• Keep containers of cements, 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.

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 supported.
Pushfit silent SWR Fittings
- Technical details

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

- DN - Nominal Diameter
- S - Spigot Wall Thickness
- S1 - Socket Wall Thickness
- L1 - Spigot Length
- L2/L3 - Socket Length
- Z1/Z2 - Design length of fitting
- H - Height

ASHIRVAD LOW NOISE SWR TECHNICAL MANUAL 43
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The following notation (symbols) shall apply in this reference manual:

- **DN** - Nominal Diameter
- **S** - Spigot Wall Thickness
- **S1** - Socket Wall Thickness
- **Z2** - Design length of fitting
- **Z3** - Spigot Length
- **L1** - Spigot Length
- **L2** - Socket Length
- **L3** - Depth Diameter
- **C** - Cap Diameter
### Pushfit silent plus SWR Fittings – Technical details

#### CLEANING PIPE

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#### PLAIN BEND 45°

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- **S**: Spigot Wall Thickness
- **S1**: Socket Wall Thickness
- **L1**: Spigot Length
- **L2/L3**: Socket Length
- **Z1/Z2**: Design length of fitting
- **C**: Cap Diameter
- **H**: Height

**Aerotor_Push fit**

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**Aerotor_Sol fit**

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**LONG SWEPT BEND 87.5° PLAIN**

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**LONG SWEPT BEND 87.5° WITH DOOR**

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**SINGLE TEE PLAIN**

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**REDDUCING SINGLE TEE WITH DOOR**

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**SINGLE WYE 45° PLAIN**

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**SINGLE WYE 45° WITH DOOR**

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

- **DN** - Nominal Diameter
- **S** - Spigot Wall Thickness
- **S1** - Socket Wall Thickness
- **L1** - Spigot Length
- **L2/L3** - Socket Length
- **Z1/Z2** - Design length of fitting
- **C** - Cap Diameter
- **H** - Height

ASHIRVAD LOW NOISE SWR TECHNICAL MANUAL 49
### COUPLER

<table>
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### P - TRAP WITH LEG

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

- DN - Nominal Diameter
- S - Spigot Wall Thickness
- S1 - Socket Wall Thickness
- L1 - Spigot Length
- L2/L3 - Socket Length
- Z1/Z2 - Design length of fitting
- C - Cap Diameter
- H - Height
- L - Length of fitting
- ID - Inner Diameter
- OD - Outer Diameter
# Solfit silent SWR Fittings - Technical details

## EQUAL ELBOW

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## COUPLER

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## EQUAL TEE

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## EQUAL 'Y'

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<th>ID2</th>
<th>SL</th>
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</thead>
<tbody>
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## EQUAL 'Y' WITH DOOR

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<tbody>
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## MULTI TRAP WITHOUT VALVE

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<th>ID2</th>
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<td>90.1</td>
<td>51.5</td>
<td>3.05</td>
<td>195</td>
</tr>
</tbody>
</table>

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**Notes:**
- **DN** - Nominal Diameter
- **ID1** - Spigot ID
- **ID2** - Socket ID
- **SL** - Spigot Wall Thickness
- **WT** - Socket Wall Thickness
- **H** - Height
- **L** - Length
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. 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: Check for Blue Seal™
Check the socket end for Blue Seal™. Ensure that the Blue part of the seal is towards the outside of socket.

Step 5: Lubricant
Apply the lubricant on the chamfered end of the pipe.

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 gap will allow the pipe to expand without distorting the pipe-work jointing.

ASHIRVAD Low Noise Pushfit Pipes and Fittings are joined with the help of Ashirvad SWR Lubricant. For faster plumbing and leak proof joints we strongly recommend the use of Ashirvad lubricants only.

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 beyond the visible crack before proceeding.

Step 2: Deburring/Bevelling
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: Solvent Cement Application
Apply an even coat of solvent cement on the pipe and the socket end of the fitting. 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 ¼ to ½ turn while inserting. This motion ensures an even distribution of cement within the joint. Hold the assembly for 10 seconds to allow the joint to setup.

ASHIRVAD Low Noise Solfit Pipes and Fittings are joined with the help of Ashirvad SWR solvent cement, which is a single step fast setting solvent cement. The bonding takes place due to chemical fusion of the mating surfaces.
Installation Guide for Pipe Brackets

Step 1
Drill a hole into the wall of suitable diameter depending on the size of the clamp.

Step 2
Place the plastic plug provided into the drilled hole for easier fixing of the anchoring bolt.

Step 3
Fix the anchoring bolt into the plastic plug by rotating carefully with the help of spanner. Make sure it is rigidly fixed.

Step 4
Rotate the Pipe bracket onto the anchor bolt and make sure the bracket is rigidly fixed.

Step 5
Once the bracket is rigidly fixed, unscrew the pipe clip and place the pipe into the bracket.

Step 6
Fix the screw tightly and ensure the pipe clip is rigidly fixed to the bracket.

Step 7
Completed installation.

During installation please take care to ensure that there is no contact made at the locations mentioned in the image (above left).

Important Note
These acoustic pipe brackets were used together with Ashirvad Low Noise SWR pipes and fittings during the test procedure of noise reduction inside the pipe line, conducted at the Fraunhofer Institute for Building Physics in Stuttgart, Germany. The use of a different type of pipe clip for the installation of the Ashirvad Low Noise SWR system will result in change to the certified noise reduction values.
Ashirvad Low Noise SWR Systems Limited Warranty

The limited warranty will not apply if

1. Ashirvad products are used in combination with any other brand/make of pipes and fittings.
2. Ashirvad lubricant is not used for Ashirvad Low Noise SWR Pushfit systems.
3. Ashirvad SWR solvent cement is not used for Ashirvad Solfit systems.
4. The product is used for applications other than soil, waste and rain water plumbing.
5. Ashirvad’s pipe brackets are not used for clamping of Low Noise SWR pipes.
6. The installation guide provided in the manual is not followed.
7. The systems are not warranted against any mechanical damage by nails, chisels, drilling etc.

Ashirvad Low Noise SWR systems limited warranty

Ashirvad Pipes Pvt. Ltd., Bengaluru warrants to the original owner that the product will be free from manufacturing defects and conform to current applicable Indian and European 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.