

DECILO

LOW NOISE PP DRAINAGE SYSTEMS

TECHNICAL MANUAL



BUILT FOR FLOW.
DESIGNED FOR SILENCE.



25 YEARS WARRANTY*

*T&C apply

MADE IN INDIA
DESIGNED USING
GERMAN TECHNOLOGY



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Prince Pipes - Towards a Better Future with Innovative Solutions

Prince Pipes stands for transformation and setting new trends in the piping industry. We are committed to constant innovations in plumbing, irrigation, and drainage & sewerage technologies to meet the nation's ever-growing water and sanitation demands. We strive to pave the way for a future that provides clean water to every corner of India. Since our inception in 1987, our mission has been to usher in a revolution in the plastic piping industry through innovative solutions that generate profitable growth, benefit our customers and society as a whole.

Greener Better Together

Prince Pipes is not just about creating products; it is about delivering solutions that drive meaningful progress for the nation. With over 40 years of proven experience, the organisation has consistently evolved to meet India's growing infrastructure needs with reliability and innovation at its core. Through responsible manufacturing, the use of recycled materials, solar-equipped plants, and energy-efficient system, the company remains committed to reducing environmental impact while offering durable, high-quality products.

The belief in "better lasts longer" ensures every solution is built to perform, conserve, and uplift India. Together with channel partners and plumbers, Prince Pipes continues to enable infrastructure that empowers communities and accelerates national growth. Every step forward becomes a step towards India's progress - India Ki Pragati Ka Taj, for a brighter future for all.



BEGUSARAI - BIHAR
PIPES & FITTINGS



HYDERABAD - TELANGANA
PIPES, FITTINGS & WATER TANKS



JOBNER - RAJASTHAN
PIPES & WATER TANKS



KOLHAPUR - MAHARASHTRA
PIPES



CHENNAI - TAMIL NADU
PIPES



HARIDWAR - UTTARAKHAND
PIPES, FITTINGS & WATER TANKS



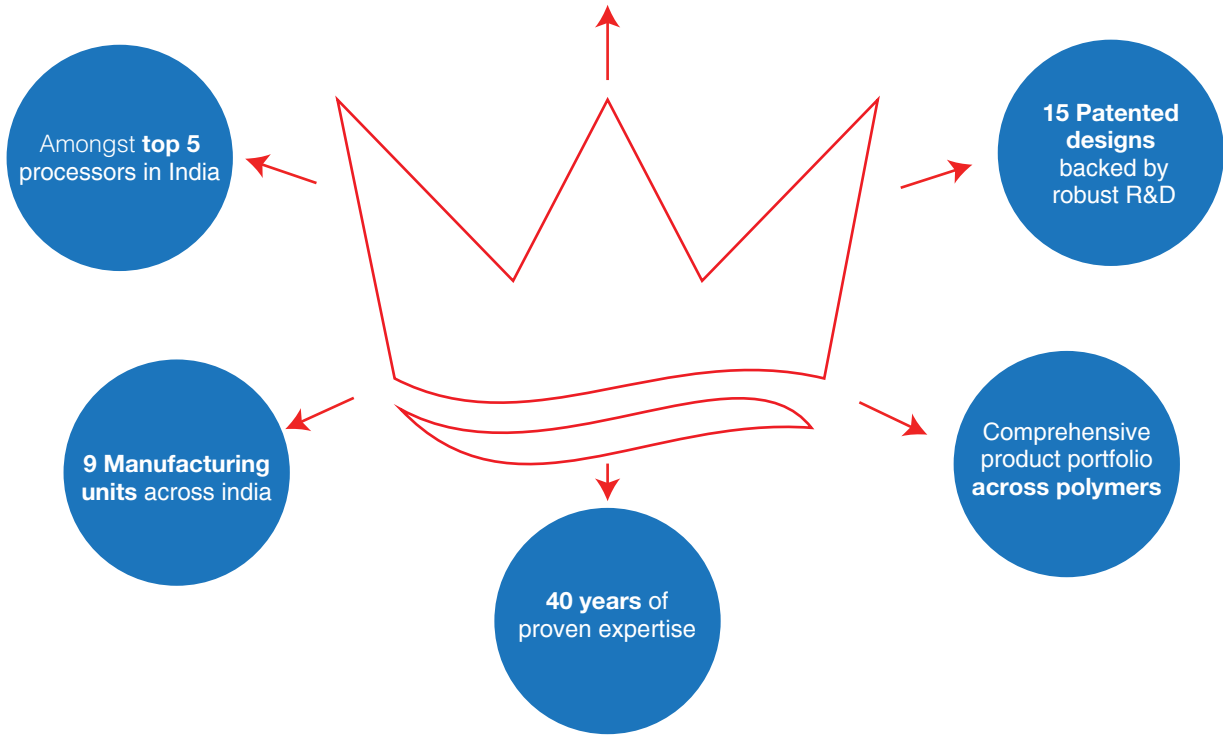
DADRA - SILVASSA
PIPES & WATER TANKS



ATHAL - SILVASSA
FITTINGS

COMPANY OVERVIEW

One of India's largest integrated piping solutions



AWARDS & CERTIFICATIONS



What is Noise?

We are subjected to various types of sound all the time. Sound waves are the result of various compression waves which cross the eardrum and are captured and transformed by the brain.

To propagate, a sound needs a medium: any means, whether solid, liquid or gas like air is able to transport sound, influencing its speed according to density. Sound is propagated through the exchange of air-solid vibrations.

Application Area	Intensity (dB)
Tick of a Clock	10 dB
DECILO	13 dB
Silent Environment	20 dB
Conference Halls	30 dB
Hospitals	35 dB
Class Rooms	45 dB
Living Rooms	60 dB
Average Water Pipes	55 - 60 dB

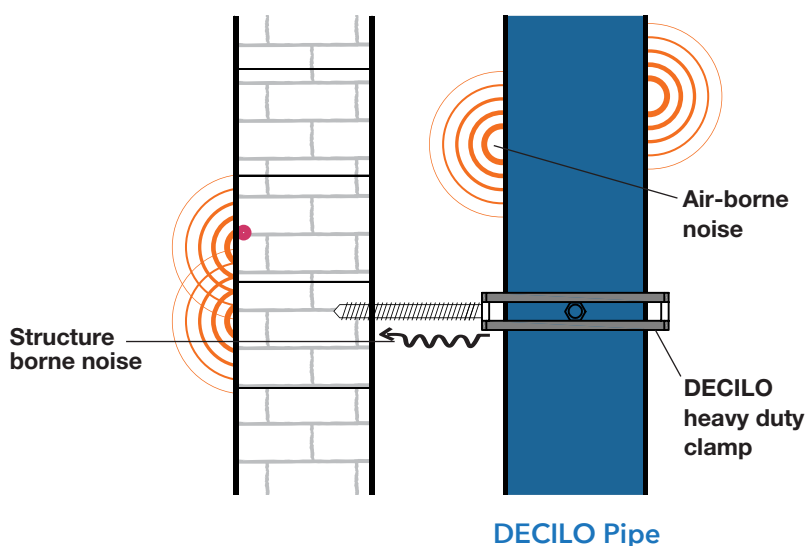
Origin of Noise in Sewer Piping

The fluid flowing inside sewer piping can reach a relatively high speed. Due to the flow and fluid impact on the pipe wall, air column resonance occurs especially in places like bends, branches, and vertical collecting pipes. The noise created by air column resonance has a tendency to penetrate the pipe wall and be transmitted to the building structure. The noise created by the pipe wall vibration has a similar propensity as well.

Noise Transmission and the Need for Low-Noise Piping System

In drainage system, especially in vertical soil and wastewater pipes, noise is generated by the flow of air, water, and solid particles inside the pipes. When these elements hit the walls of the pipes and fittings, they create vibrations. These vibrations travel through the pipe walls, clamps, and anchoring system, eventually spreading to the building's structure. This noise then reaches the occupants, causing discomfort and disrupting peace at home.

There are two main types of noise produced in drainage system:



Structure-Borne Noise: This occurs when vibrations from the pipes pass through the building's structure- like walls or floors - via direct contact (e.g., pipe clamps). The vibrating structure then radiates sound into the rooms, amplifying the disturbance.

Airborne Noise: This is noise that travels directly through the air, reaching people as sound waves. For example, the sound of water rushing through pipes can be heard in nearby rooms.

The highest flow rate from typical household or commercial appliances –like flushing cisterns can reach up to 2.0 liters per second. This peak discharge rate is the most significant source of noise in drainage system, generating both airborne and structure-borne sounds.

The continuous sound of water flowing through drainage pipes can echo throughout the building, creating an irritating and repetitive noise. That’s why using a low-noise piping system is essential for enhancing comfort and maintaining a peaceful living environment.

Introducing DECILO Low-Noise PP Drainage System

Crafted with precision by Prince Pipes, the DECILO Low-Noise PP Drainage System sets a new benchmark in quality and innovation. Made from **advanced mineral-filled polypropylene**, it offers superior strength, durability, and chemical resistance, ensuring reliable performance across diverse applications for years to come.

Engineered for modern infrastructure, DECILO’s three-layer design reduces noise, enhances flow, and guarantees long-term efficiency. Backed by a **25-year warranty**, it reflects Prince Pipes’ unwavering commitment to trust, technology, and excellence, delivering a premium low-noise drainage solution built to last with superior material integrity.

DECILO Low-Noise PP Drainage System provides **high-temperature resistance up to 90°C for long-term usage and 95°C for short-term** usage and outstanding chemical resistance across a broad **pH range right from pH 2 to pH 12**.



B2 Flame
DIN 4102-1



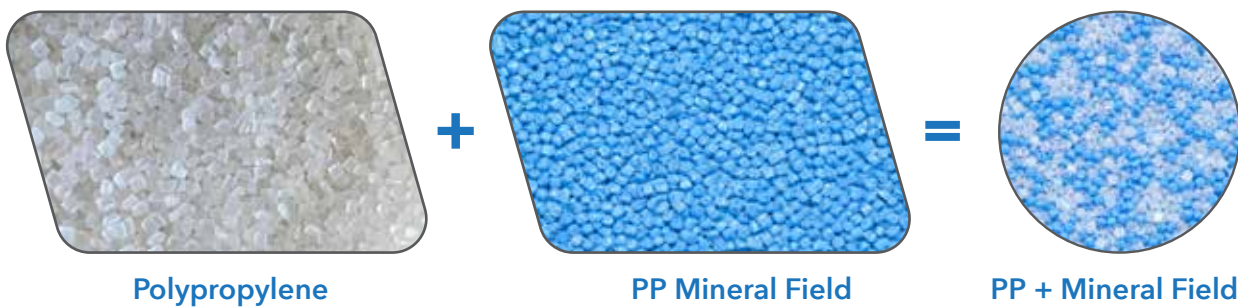
DIN EN 14366

Advantages of Polypropylene (PP)

Polypropylene (PP) is a versatile thermoplastic polymer known for its excellent **chemical resistance, durability, and high-temperature tolerance**. It exhibits high tensile strength and impact resistance, making it ideal for demanding applications. The mineral-filled PP used in DECILO Low Noise PP Drainage System enhances these properties, providing a robust and reliable solution for modern drainage and sewerage needs.

Advanced Raw Material Composition

DECILO Low Noise PP Drainage System is manufactured using a meticulously formulated mineral-filled polypropylene (PP-MD) compound with a **molecular density of ≈ 1.45 gm/cc**. This advanced composition delivers exceptional acoustic and mechanical properties. The material offers superior ring stiffness and impact resistance, crucial for any drainage and sewerage piping system. Additionally, DECILO Low Noise PP Drainage System maintains reliable performance when exposed to a variety of chemicals and hot water. The unique compound ensures resistance to scaling, incrustation, and corrosion throughout its lifespan.



DECILO Property Chart

Property	Unit	Value
Material for Pipe	–	Inner & Outer Layer PP. Middle Layer Mineral Filled
Material for Fitting	–	Mineral filled Polypropylene (PP-MD)
Material for Rubber Seal	–	Styrene-Butadiene Rubber (SBR)
RAL Code	–	5012
Density	g/cm ³	≈ 1.45
Tensile Strength	MPa	18
Elongation at Break	%	40
Modulus of Elasticity	MPa	3000-3300
Coefficient of Linear Expansion	mm/m.K	0.08
Ring Stiffness	kN/m ²	>6.5
Building Material Fire Classification	–	B2 as per DIN 4102-1, certified by TUV Rheinland
Joining Method	–	Ring Fit Socket
Chemical Resistance	–	Wastewater with pH 2-12
Operating Temperature	°C	Up to 90°C (continuous), 95°C (intermittent)
Operating Life	Years	50
Reference Standard	–	EN 1451-1, Series S16
Sound insulation @ 2lps	dB	13 as per DIN EN 14366, certified by Fraunhofer

DECILO-All about Quality (Key Properties)



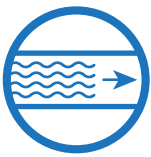
Exceptional Impact & Fatigue Durability

The DECILO Low Noise PP Drainage System, made from semi-crystalline polypropylene, offers outstanding impact and fatigue resistance, reducing breakages and damage during transport, handling, and on-site storage.



Shock & Vibration Resilience

The flexible ring-fit connection system absorbs vibrations and withstands shocks, boosting system integrity - an essential advantage in earthquake-prone areas where rigid piping systems are more prone to breakage.



Ultra-Smooth, Clog-Resistant Inner Surface

DECILO Low Noise PP Drainage System features a smooth, abrasion-resistant inner layer that prevents deposits and scaling, maintaining high flow rates and reducing the risk of clogging.



Fast & Secure Ring-Fit Connections

The innovative ring-fit rubber ring system ensures a tight, leak-proof seal, allowing for quick, easy installation, replacement, and reconfiguration of the piping system.



Environment Friendly & Sustainable

DECILO Low Noise PP Drainage Systems are made from materials that are 100% recyclable, allowing them to be reused at the end of their service life. Their production and installation require minimal energy, making them an environment-friendly choice that helps conserve resources and reduce waste.



Reduced Thermal Expansion for Stability

The unique three-layer design with a mineral-reinforced polypropylene intermediate layer minimizes thermal expansion compared to polyethylene. Paired with the ring-fit connection system, this ensures stability even with temperature variations.



Cost-Effective & Efficient Solution

The lightweight design and easy-to-install ring-fit system cut down labour costs, speed up installation, and lower transportation expenses, making DECILO Low Noise PP Drainage System a budget-friendly alternative to traditional systems.



UV-Resistant for Long-Lasting Performance

Enhanced with UV stabilizers, DECILO Low Noise PP Drainage System resists sun damage, ensuring durability and consistent performance even in outdoor installations.

Acoustic Performance Validation

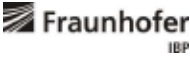

Engineered for Silence, Validated by Science

The DECILO Low Noise PP Drainage System is an industry-leading soil and waste solution designed specifically for high-comfort residential and commercial buildings. It doesn't just "muffle" sound; it prevents it at the source through advanced material science and hydraulic design.

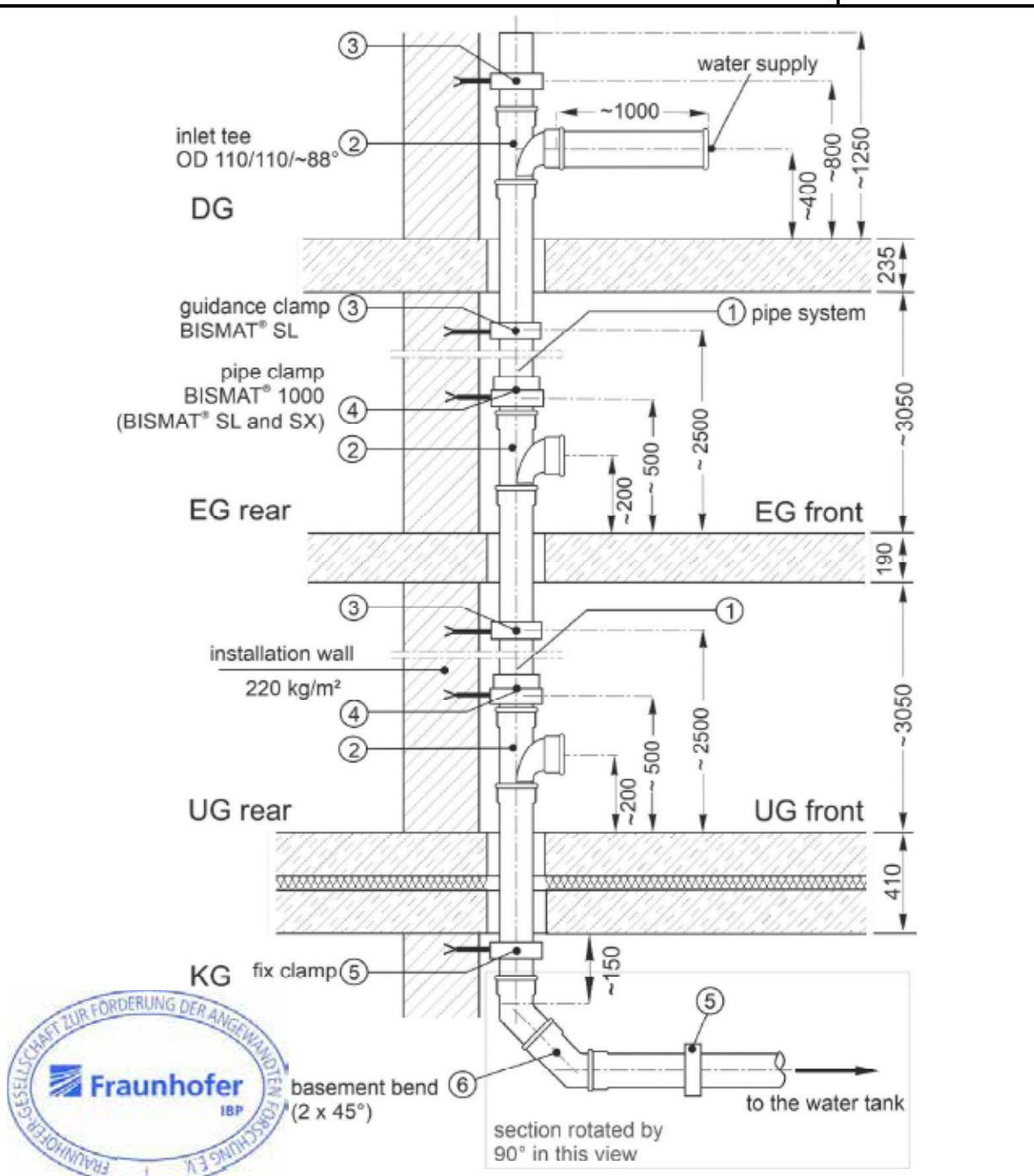
Why the DECILO System is Quieter?

- Triple-Layer Pipe Technology:** Our optimized 3-layer structure uses a high-density middle layer specifically engineered to absorb vibration and block air-borne noise.
- Mass-Optimised Fittings:** Unlike standard thin-walled fittings, DECILO fittings have increased wall thickness and weight, providing superior acoustic dampening where the water turbulence is highest.
- Hydraulic Efficiency:** We utilize Swept Branches (curved entries) to minimize flow disturbance. By reducing "splashing" and turbulence in the downpipe, we eliminate the primary source of drainage noise.
- Structure-Borne Sound Isolation:** Our unique clamping system acts as a de-coupler, preventing vibrations from traveling from the pipe into the building's walls and slabs.

World-Class Certification from Fraunhofer Institute

Determination of the Acoustic Performance of a Wastewater Installation System in the Laboratory according to DIN EN 14366		P-BA 12/2026e Results sheet 1																																															
Client:	PRINCE Pipes and Fittings Ltd., Haridwar-249402, Uttarakhand, India																																																
Test specimen:	Wastewater system made of plastic "PRINCE DECILO, PP/PP-MD/PP, DN110 x 3.4 mm" (manufacturer: PRINCE Pipes and Fitting Limited) with PP-MD fittings "PRINCE DECILO" (manufacturer: PRINCE Pipes and Fitting Limited) mounted with acoustic pipe clamps "BISMAT® 1000" made by Walraven GmbH. Test object no.: S 12254-01; see figure 4 and 5.																																																
Test set-up:	<p>The pipe system was mounted according to figure 4 and 5 (see also Annex A).</p> <p>- The pipe system consisted of straight wastewater pipes (nominal size OD 110), three inlet tees (~87.5°, swept), a 2 x 45° basement bend with ring seal socket "PRINCE DECILO" (manufacturer: PRINCE Pipes and Fitting Limited) and a horizontal drain section. The inlet tees in the basement and in the ground floor were closed by lids supplied by the manufacturer. According to DIN EN 14366 the air gaps between the tube and floor in the entrance and exit openings are stuffed with porous absorber in order to prevent any structure-borne sound bridges influencing the building.</p> <p>Pipe system: "PRINCE DECILO, PP/PP-MD/PP, DN110 x 3.4 mm" (manufacturer: PRINCE Pipes and Fitting Limited) ". Three-layer pipes with ring seal socket and with shaped pipe sockets: PP/PP-MD/PP, wall thickness ~ 3.6 mm, weight ~ 1.67 kg/m, density ~ 1.4 g/cm³, values measured by IBP. One-layer PP-MD fittings: Material PP, wall thickness ~ 3.3 mm, density ~ 1.4 g/cm³, values measured by IBP. Plug connection of the pipes and fittings (shaped pipe sockets). The wastewater system was equipped with a basement bend "PRINCE DECILO" consisting of 2 x 45° bends and a horizontal drain section, length 100 cm (manufacturer: PRINCE Pipes and Fitting Limited). Pipe clamps: Acoustic pipe clamps, type: "BISMAT® 1000" (manufacturer: Walraven GmbH); structure-borne sound insulating support attachment consisting of "BISMAT® SL" guidance clamps and "BISMAT® SX" socket clamps. In each storey (EG and UG) respectively two clamps were installed. At the upper wall area one guidance clamp (SL, DN 100) was mounted. At the lower wall area one double clamp "BISMAT® 1000" consisting of support (guidance) clamp (SL, DN 100) and fixing (socket) clamp (SX, DN 100) was installed. To prevent contact to the pipe, the guidance clamps (SL) were mounted with 15 mm space between the locking tabs of the clamps (two 7.5 mm spacers on each side). The clamps were closed with a tightening torque of 2 Nm. The support/guidance clamps (SL) were fixed to the installation wall with an adjustable wall plate with dowels and thread rods. The wastewater installation system was mounted by a technician under the authority of Fraunhofer IBP.</p>																																																
Test facility:	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 (KG), basement (UG) front, ground floor (EG) front and top floor (DG), measuring rooms: UG front, UG rear (details in Annex P and DIN EN 14366: 2020-02)																																																
Test method:	The measurements were performed according to DIN EN 14366:2020-02; noise excitation by steady water flow with 0.5 l/s, 1.0 l/s, 2.0 l/s and 4.0 l/s. Additional evaluation for comparison with requirements following German standards DIN 4109:2018-01 and VDI 4100:2012-10 (details in Annexes A, F and V). As of the test date, DIN EN 14366:2020-02 had been withdrawn and replaced by DIN EN 14366:2023-09.																																																
Result:	<table border="1"> <thead> <tr> <th rowspan="2">Test specimen: Wastewater system made of plastic "PRINCE DECILO, PP/PP-MD/PP, DN110 x 3.4 mm" (manufacturer: PRINCE Pipes and Fitting Limited) with fittings "PRINCE DECILO" (manufacturer: PRINCE Pipes and Fitting Limited) mounted with acoustic pipe clamps "BISMAT® 1000" made by Walraven GmbH.</th> <th rowspan="2"></th> <th colspan="4">Flow rate [l/s]</th> </tr> <tr> <th>0.5</th> <th>1.0</th> <th>2.0</th> <th>4.0</th> </tr> </thead> <tbody> <tr> <td>Airborne sound pressure level $L_{p,A}$ [dB(A)] according to DIN EN 14366 for the basement test-room</td> <td>UG front</td> <td>40</td> <td>46</td> <td>48</td> <td>51</td> </tr> <tr> <td>Structure-borne sound characteristic level $L_{sc,A}$ [dB(A)] according to DIN EN 14366 for the basement test-room</td> <td>UG rear</td> <td><10</td> <td><10</td> <td>13</td> <td>18</td> </tr> <tr> <td rowspan="2">Installation sound level $L_{A,eq,n}$ [dB(A)] following DIN 4109 in the basement test-room</td> <td>UG front</td> <td>40</td> <td>46</td> <td>48</td> <td>51</td> </tr> <tr> <td>UG rear</td> <td><10</td> <td><10</td> <td>12</td> <td>17</td> </tr> <tr> <td rowspan="2">Installation sound level $L_{A,eq,IT}$ [dB(A)] following VDI 4100 in the basement test-room</td> <td>UG front</td> <td>38</td> <td>44</td> <td>46</td> <td>49</td> </tr> <tr> <td>UG rear</td> <td><10</td> <td><10</td> <td><10</td> <td>14</td> </tr> </tbody> </table>					Test specimen: Wastewater system made of plastic "PRINCE DECILO, PP/PP-MD/PP, DN110 x 3.4 mm" (manufacturer: PRINCE Pipes and Fitting Limited) with fittings "PRINCE DECILO" (manufacturer: PRINCE Pipes and Fitting Limited) mounted with acoustic pipe clamps "BISMAT® 1000" made by Walraven GmbH.		Flow rate [l/s]				0.5	1.0	2.0	4.0	Airborne sound pressure level $L_{p,A}$ [dB(A)] according to DIN EN 14366 for the basement test-room	UG front	40	46	48	51	Structure-borne sound characteristic level $L_{sc,A}$ [dB(A)] according to DIN EN 14366 for the basement test-room	UG rear	<10	<10	13	18	Installation sound level $L_{A,eq,n}$ [dB(A)] following DIN 4109 in the basement test-room	UG front	40	46	48	51	UG rear	<10	<10	12	17	Installation sound level $L_{A,eq,IT}$ [dB(A)] following VDI 4100 in the basement test-room	UG front	38	44	46	49	UG rear	<10	<10	<10	14
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Test date:	January 23, 2026																																																
Notes:	<ul style="list-style-type: none"> - For comparing test results with requirements according to DIN 4109 and VDI 4100 note Annex A. - Sound levels below 10 dB(A) are not mentioned in the official test report, since they are subject to an increased measurement uncertainty and moreover are not noticeable in a normal living environment. - The above-mentioned measurement results require careful assembly of the pipe clamps (see test set-up). 																																																
	<p>The test was carried out in laboratory facilities of the IBP which is accredited according to DIN EN ISO/IEC 17025:2018 by the DAkkS. The accreditation certificate is D-PL-11140-11-00.</p> <p>Stuttgart, March 2, 2026 Dep. Head of the test laboratory: </p>																																																

The acoustic performance of the DECILO system has been rigorously tested and certified by the Fraunhofer Institute für Bauphysik (Stuttgart, Germany), a world-renowned authority in building acoustics. While standard pipes often struggle with high noise levels, the DECILO system achieved an exceptional result of 13 dB(A) at a flow rate of 2.0 L/s, tested in accordance with the international DIN EN 14366 standard.



Installation plan of the test set-up in the test facility. Illustration simplified, schematically drawn and not to scale.

Test specimen: Wastewater system made of plastic "PRINCE DECILO, PP/PP-MD/PP, DN110 x 3.4 mm" (manufacturer: PRINCE Pipes and Fitting Limited) with PP-MD fittings "PRINCE DECILO" (manufacturer: PRINCE Pipes and Fitting Limited) mounted with acoustic pipe clamps "BISMAT® 1000" made by Walraven GmbH.

Unique Features



External Layer:

Made of PP-B polypropylene with flame-retardant properties. Durable and resistant to external stresses and atmospheric conditions

Intermediate Layer:

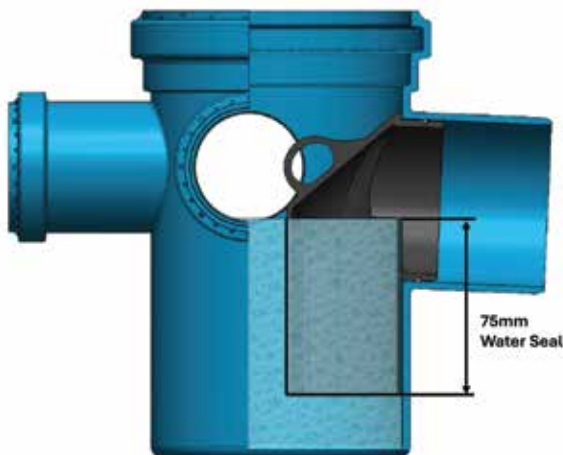
Composed of PP-MD mineral-dense polypropylene for enhanced strength. Effectively reduces noise transmission for quieter environments. Delivers superior stiffness and structural integrity. Provides outstanding acoustic insulation, minimizing sound disturbances.

Internal Layer:

Crafted from high-quality PP-B polypropylene for maximum durability. Withstands high temperatures up to +90°C. Offers excellent chemical resistance for safe waste management. Features an ultra-smooth surface to prevent buildup and ensure efficient flow.

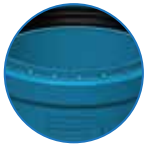
Extensive Range and Versatile Applications

DECILO Low-Noise PP Drainage System includes a comprehensive selection of pipes and fittings, available in 40, 50, 75, 110 and 160 sizes, along with wide array of accessories, this extensive range makes it the perfect choice for building industry drainage and sewerage system. Specialised fittings, such as 75mm water seal traps, are essential for maintaining hygienic integrity within tenant premises and offer numerous design possibilities for specifiers and designers. The ring-fit system is universally compatible and can be seamlessly integrated with the various trade solutions.



Special Features

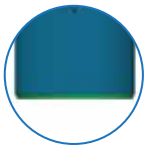
Fittings



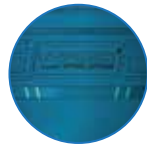
Reinforcement Hoop Ribs: 15° Engineered slanted ribs are positioned directly over the seal groove to provide maximum structural support. This ensures the socket maintains its "memory" and perfectly circular shape, preventing deformation even under the high-force insertion of the spigot end.



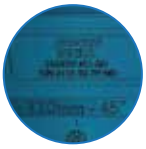
Thermal Stability & Stiffness: The socket wall thickness is significantly increased compared to the pipe body. This boosts the moment of inertia, providing superior mechanical resistance against structural loads and ensuring the fitting remains stable even when handling high-temperature fluids (up to 95°C).



Precision-Seal Protection: The spigot end of every fitting is with a precise chamfered. This allows the end to glide smoothly pass the internal rubber seal without snagging, tearing, or displacing the ring, ensuring a perfect, watertight "first-time" seal.



Slanted External Dampening Ribs: Located strategically below the socket base, these external ribs act as anchors that increase the overall stiffness of the fitting. This design dampens structure-borne noise and eliminates the bell effect caused by the impact of falling water.



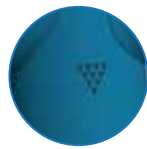
Clear Product Identification: Each fitting comes with distinct markings for easy identification, helping installers quickly verify specifications and streamline the installation process.



Quiet-Flow Junctions: All T-branches feature a curved, swept-entry design. By guiding water into a smooth turn, this geometry reduces internal turbulence and splashing, which significantly lowers airborne noise levels and minimizes the risk of blockages.



Anti-Slip Ergonomic Surface: The exterior socket surface features a moulded textured grip integrated with the brand logo. This provides a high-friction surface for installers, ensuring a secure hold even when hands are wet or covered in joint lubricants.



Dotted Arrow Depth Gauge: The spigot end is marked with a dotted arrow indicator that guides the installer to the exact insertion depth. This automatically ensures the correct expansion gap is left inside the joint to accommodate the natural thermal movement of the plastic without joint failure.



Constant-Bore Inspection Fitting: The inspection access fitting features a specialised internal plug that sits perfectly flush with the internal flow path. This maintains a continuous, smooth internal bore, eliminating the dead zones found in standard fittings where debris can collect and cause odours.



SBR Rubber Seal: The fittings utilize SBR material for all groove rubber gaskets, ensuring compliance with Indian Standards for optimal functionality.



Error-Proof Plug Alignment: The internal plug features a specialized flat-base segment and two depth notch slots that work together to guarantee perfect alignment. Because the plug is designed with this flat segment rather than a perfect circle, it can only be inserted in one specific position. This prevents the plug from being accidentally fitted in a 180° reversed position. This "one-way-only" design ensures the plug locks perfectly into the internal geometry of the fitting every time, maintaining a completely smooth internal path with zero obstruction to fluid flow.



Rubber Seal with Specially Designed 3lips

The seahorse-head-shaped SBR (Styrene Butadiene Rubber) rubber seal is a high-performance solution for ring seal sockets in polymer gravity drainage piping systems. Its unique triple-lip profile leverages a tapered "seahorse-nose" geometry to provide a precision point-contact grip on the spigot. This design facilitates effortless jointing by significantly reducing insertion friction, while ensuring a robust, leakproof connection in both vertical and horizontal installations.

Advantages and Functionality of the Triple-Lip System

Lip 1: Top most Tensioning and Retaining Lip

The first lip is designed to prevent external contaminants from settling between the pipe wall and the seal while also acting as a retainer. This lip causes tension against the spigot, stopping the entire sealing ring from rolling out of the socket groove during assembly or migration due to pipe movement.

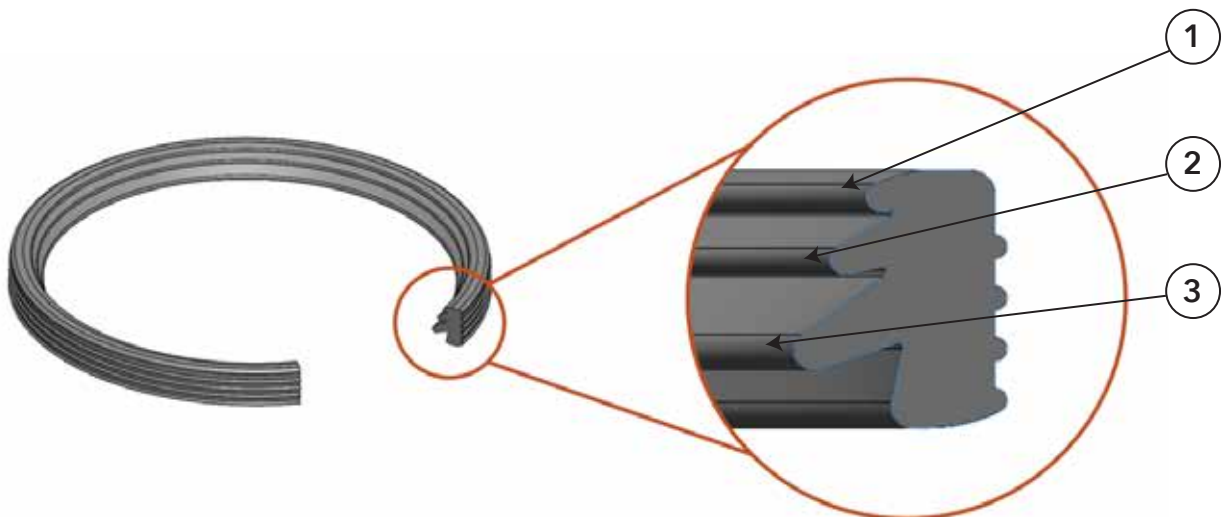
Lip 2: Intermediate Wiping Lip

This secondary barrier serves the specific function of keeping back any dirt or debris remaining on the spigot pipe surface just before it reaches the main sealing point. It acts as an intermediate cleanliness stage, protecting the critical third lip.

Lip 3: Bottom-most Seahorse-Nose Sealing Lip

Inspired by the "no-wake" hydrodynamic efficiency of a seahorse's snout, this bottom-most lip is the primary internal barrier that assures a permanently tight pipe connection. Its specialised point-contact creates a high-pressure barrier that "energises" under fluid weight, effectively arresting water migration and ensuring a robust seal in all orientations of gravity drainage piping.

SBR Durability & Ease of Jointing: Manufactured from SBR (Styrene Butadiene Rubber), the seal offers excellent abrasion resistance and long-term elasticity. The strategically designed "point-contact" profile across all lips allows for low assembly force, making jointing easy and efficient for installers.



DECILO Heavy Duty Pipe Clamp

Standard market clamps are often undersized, which deform the round pipe shape into an oval shape and may force to transfer more structural noise transmission. The Decibel MS Profiled Clamp solves this with a complete internal diameter and thicker nickel-plated steel. This exact fit, combined with our custom low-hardness rubber inlays, provides a vibration-damping grip that secures the pipe without deforming it.

To streamline high-rise work, we've integrated an M10 female threaded adapter and a captive spacer washer. This dual-purpose design allows the clamp to function as a Fixed Clamp (remove the spacer and tighten until ears touch) or a Sliding Clamp (leave the spacer in place to allow thermal movement), all while ensuring bolts never fall during installation. Kindly note that captive washer is very thin one and rubber washer for converting clamps in either fixed or sliding is separate. Our clamps are different than the clamps which are available in market which are manufactured to support steel piping system.



SMOOTHFIT⁺ LUBRICANT

To ensure the seamless installation of our **DECILO PP Low Noise System**, we have introduced **PRINCE SMOOTHFIT +**, a premium emulsified polymer-based lubricant specifically engineered from German formulae for rubber gasket joints. This high-viscosity, paste significantly reduces friction, allowing for the easy insertion of pipes into fittings while ensuring a secure, leak-free seal. It is a non-toxic, biodegradable, and plant-based product that is safe for both the environment and potable water systems. Designed to perform in temperatures ranging from 10°C to +55°C, **SMOOTHFIT +** is non-corrosive, odourless, and non-reactive to chlorine solutions, ensuring it does not degrade the rubber gaskets or pipe materials over time.

The water-dispersible formula is skin-safe and easy to clean, providing a professional, non-sticky finish to every joint assembly. To apply **SMOOTHFIT +**, ensure the pipe and fitting surfaces are clean, dry, and dust-free before applying the lubricant by hand or with an applicator directly to the rubber gasket and the spigot end of the pipe. It is essential to fit the ring into the groove before applying the lubricant to ensure a secure, seated connection. In addition to potable water applications, this versatile lubricant is specifically designed for use in building drainage and wastewater piping systems as well as underground networks.

Fields of Application

Applications and advantages of DECILO Low Noise PP Drainage System made from Polypropylene minerally dense (PP-MD) in wastewater drainage:

Dwelling Waste

PP-MD offers a durable and long-lasting solution for domestic wastewater, also provide quiet operations, ensuring a peaceful living environment.



Commercial and Trade Waste

PP-MD piping system can handle high temperature wastewater of 95°C for short term exposure and 90°C for long term exposure as well as grease efficiently. They can withstand the corrosive effects of cleaning agents and food residues.



Hospital Buildings

PP-MD pipes are easy to clean and disinfect, promoting a hygienic environment. They resist bacterial growth, reducing the risk of infection.



Chemical Laboratories

PP-MD pipes and fittings can withstand exposure to wide range of chemicals and acids. It can safely handle corrosive waste, minimizing the risk of leaks and spills.



Pipe Dimensions

Nominal Size	Nominal Outside Diameter	Mean Outside Diameter		Wall Thickness Pipe Series S 16	
		Minimum	Maximum	Minimum	Maximum
DN/OD (mm)	DN (mm)	Minimum (mm)	Maximum (mm)	Minimum (mm)	Maximum (mm)
40.00	40.00	40.00	40.30	1.80	2.20
50.00	50.00	50.00	50.30	1.80	2.20
75.00	75.00	75.00	75.40	2.30	2.80
110.00	110.00	110.00	110.40	3.40	4.00
160.00	160.00	160.00	160.50	4.90	5.60





*T&C apply

MADE IN INDIA
DESIGNED USING
GERMAN TECHNOLOGY

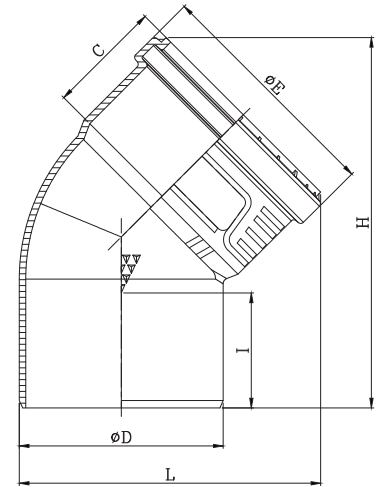


Fitting Dimensions



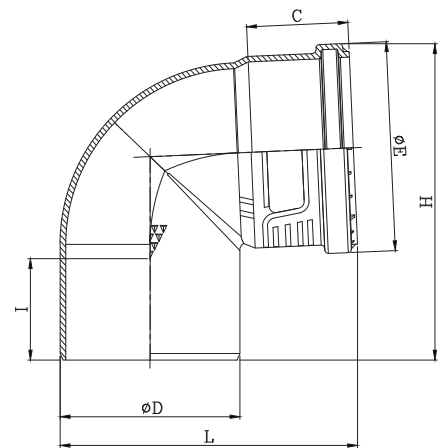
BEND 45°

Size (mm)	C	ØD	ØE	I	H	L
40	44.00	40.00	53.60	44.00	112.65	82.00
50	48.00	50.00	63.60	48.00	126.16	95.00
75	53.00	75.00	89.20	53.00	153.73	124.00
110	62.00	110.00	127.90	62.00	196.08	167.00
160	77.00	160.00	184.10	77.00	259.79	229.50



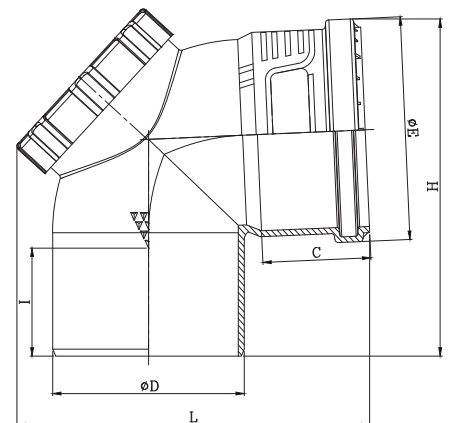
BEND 87.5°

Size (mm)	C	ØD	ØE	I	H	L
40	44.00	40.00	53.60	44.00	93.04	99.63
50	48.00	50.00	63.60	48.00	106.33	112.13
75	53.00	75.00	89.20	53.00	134.20	144.12
110	62.00	110.00	127.90	62.00	184.70	190.59
160	77.00	160.00	184.10	77.00	248.31	260.90



BEND 87.5° WITH DOOR

Size (mm)	C	ØD	ØE	I	H	L
75	53.00	75.00	89.20	53.00	146.08	144.12
110	62.00	110.00	127.90	62.00	195.25	190.59
160	77.00	160.00	184.10	77.00	248.31	260.90

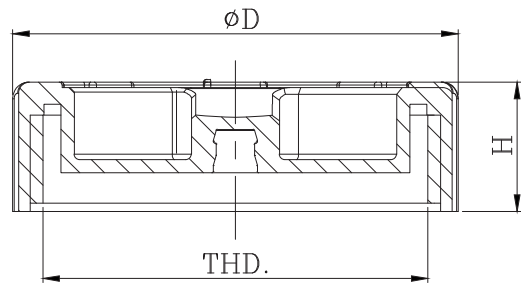




DOOR CAP*

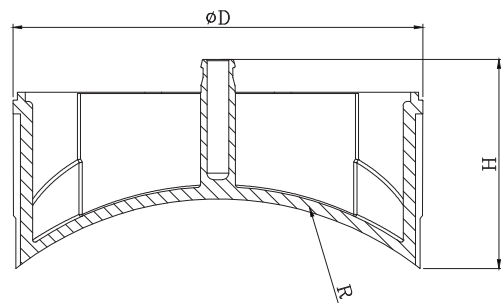
Size (mm)	ØD	H
75	81.00	23.50
110	110.50	23.50

*Assembly Item



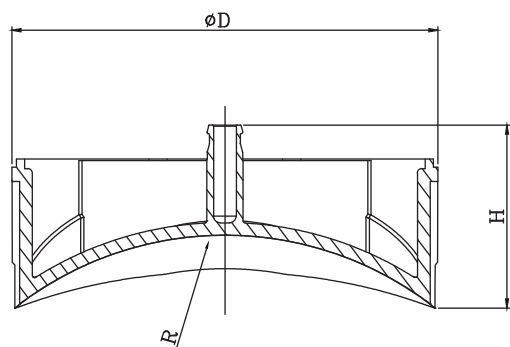
DOOR INNER CAP (TEE & Y)

Size (mm)	ØD	H	R
75	63.60	42.52	37.50
110	93.80	59.17	55.00
160	93.80	47.80	80.00



DOOR INNER CAP (BEND)

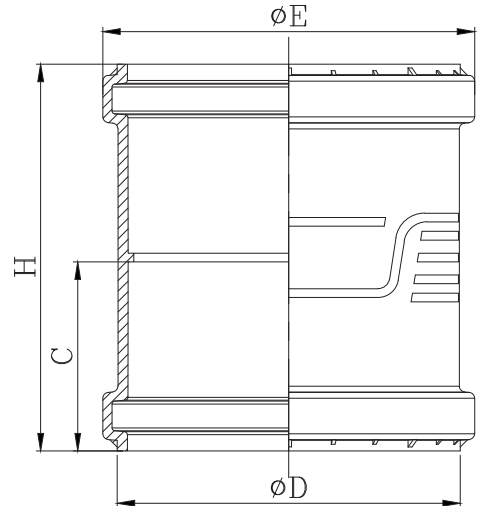
Size (mm)	ØD	H	R
75	62.60	34.53	35.20
110	93.80	47.97	51.31
160	93.80	40.28	74.74





COUPLER

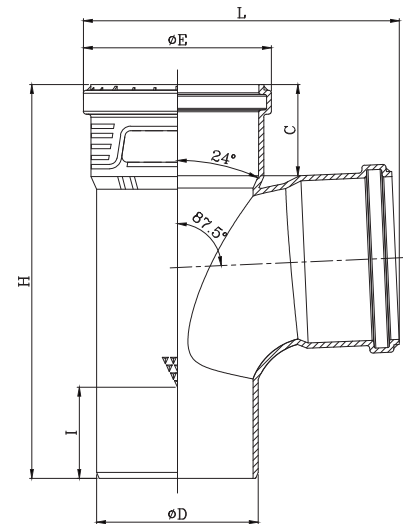
Size (mm)	C	ØD	ØE	H
40	44.00	45.00	53.60	92.00
50	48.00	55.00	63.60	99.00
75	53.00	81.00	89.20	112.00
110	65.00	118.00	127.90	133.00
160	77.00	171.00	184.10	160.00



SWEPT TEE 87.5°

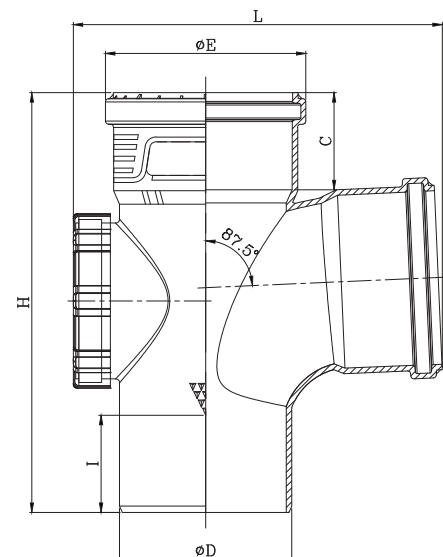
Size (mm)	C	ØD	ØE	I	H	L
40*	44.00	40.00	53.60	44.00	145.50	103.21
50*	48.00	50.00	63.60	48.00	152.00	111.93
75	53.00	75.00	89.20	53.00	207.00	153.26
110	62.00	110.00	127.90	62.00	268.00	215.00
160	77.00	160.00	184.10	77.00	348.00	288.05

*40 & 50 are not Swept Tee



SWEPT TEE WITH DOOR 87.5°

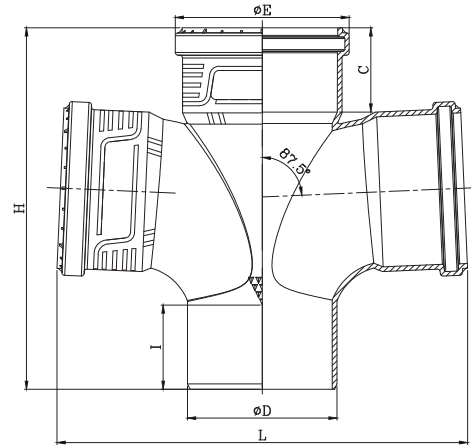
Size (mm)	C	ØD	ØE	I	H	L
75	53.00	75.00	89.20	53.00	207.00	170.18
110	62.00	110.00	127.90	62.00	268.00	234.05
160	77.00	160.00	184.10	77.00	348.00	303.01





DOUBLE SWEPT TEE 87.5°

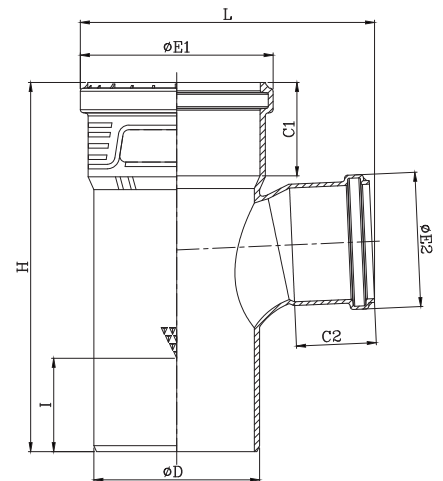
Size (mm)	C	ØD	ØE	I	H	L
75	53.00	75.00	89.20	53.00	205.00	223.32
110	62.00	110.00	127.90	62.00	266.00	302.10



REDUCING SWEPT TEE 87.5°

Size (mm)	C1	C2	ØD	ØE1	ØE2	I	H	L
110 X 50*	62.00	48.00	110.00	127.90	63.60	62.00	246.00	173.95
110 X 75	62.00	53.00	110.00	127.90	89.20	62.00	245.00	195.20
160 X 75	77.00	53.00	160.00	184.10	89.20	77.00	275.00	251.43
160 X 110	77.00	62.00	160.00	184.10	127.90	77.00	295.00	272.05

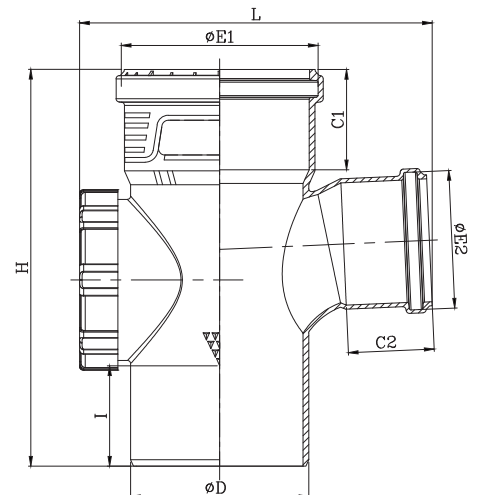
*110 X 50 are not Swept Tee



REDUCING TEE WITH DOOR 87.5°

Size (mm)	C1	C2	ØD	ØE1	ØE2	I	H	L
110 X 50*	62.00	48.00	110.00	127.90	63.60	62.00	246.00	193.00
110 X 75	62.00	53.00	110.00	127.90	89.20	62.00	245.00	214.25
160 X 75	77.00	53.00	160.00	184.10	89.20	77.00	275.00	267.38
160 X 110	77.00	62.00	160.00	184.10	127.90	77.00	295.00	288.00

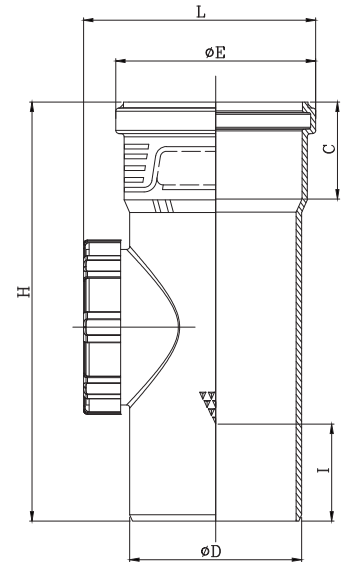
*110 X 50 are not Swept Tee





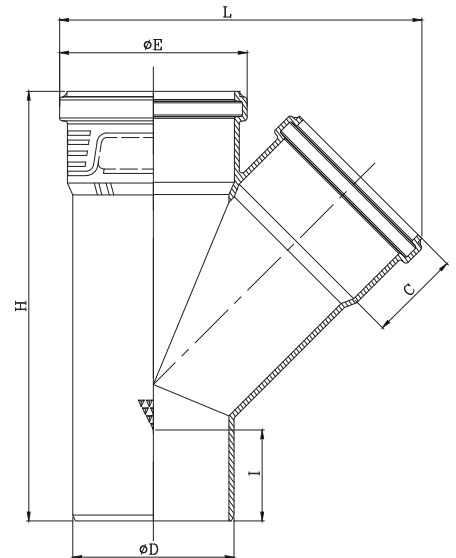
CLEANSING PIPE

Size (mm)	C	ØD	ØE	I	H	L
75	53.00	75.00	89.20	53.00	204.00	106.36
110	62.00	110.00	127.90	62.00	268.00	146.95
160	77.00	160.00	184.10	77.00	306.00	200.05



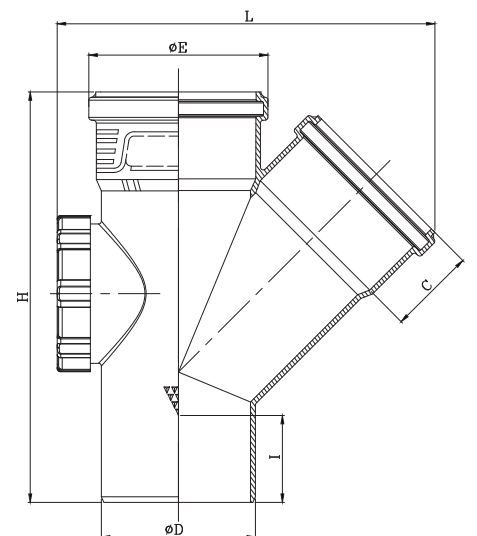
SINGLE Y

Size (mm)	C	ØD	ØE	I	H	L
40	44.00	40.00	53.60	44.00	152.32	110.59
50	48.00	50.00	63.60	52.00	173.78	129.45
75	53.00	75.00	89.20	53.00	221.38	177.05
110	62.00	110.00	127.90	62.00	293.00	247.00
160	77.00	160.00	184.10	77.00	388.00	347.67



SINGLE Y WITH DOOR

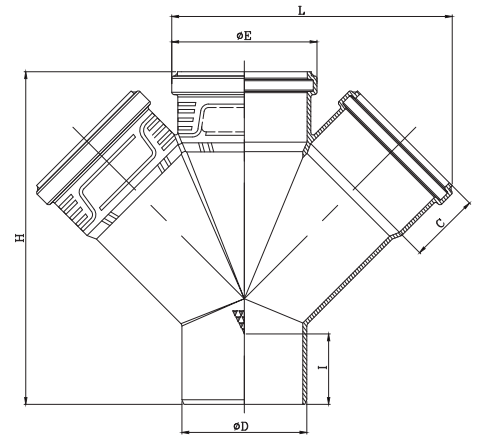
Size (mm)	C	ØD	ØE	I	H	L
75	53.00	75.00	89.20	53.00	221.38	194.21
110	62.00	110.00	127.90	62.00	293.00	247.00
160	77.00	160.00	184.10	77.00	388.00	363.62





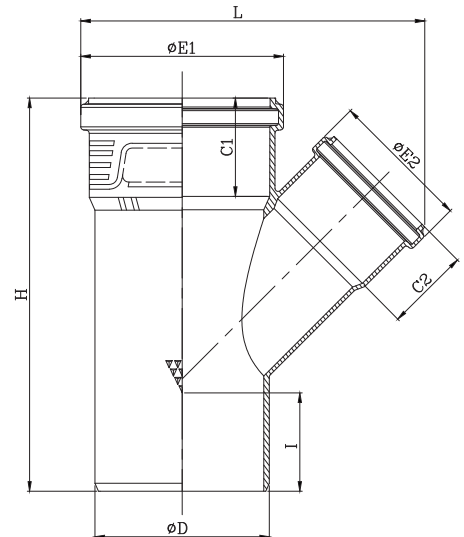
DOUBLE Y

Size (mm)	C	ØD	ØE	I	H	L
75	53.00	75.00	89.20	53.00	221.38	264.90
110	62.00	110.00	127.90	62.00	293.00	366.28
160	77.00	160.00	184.10	77.00	388.00	511.24



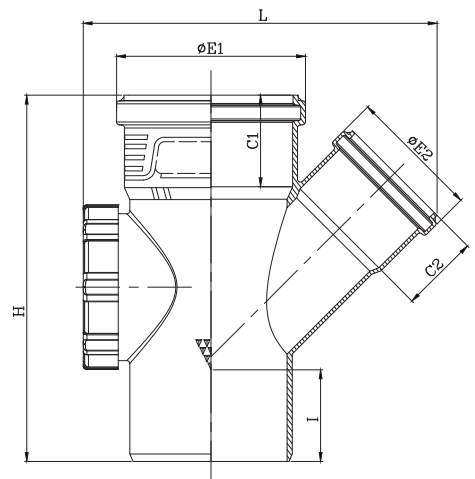
REDUCING Y

Size (mm)	C1	C2	ØD	ØE1	ØE2	I	H	L
110x75	62.00	53.00	110.00	127.90	89.20	62.00	245.00	217.04
160x75	77.00	53.00	160.00	184.10	89.20	77.00	280.00	264.84
160x110	77.00	62.00	160.00	184.10	127.90	77.00	320.00	303.13



REDUCING Y WITH DOOR

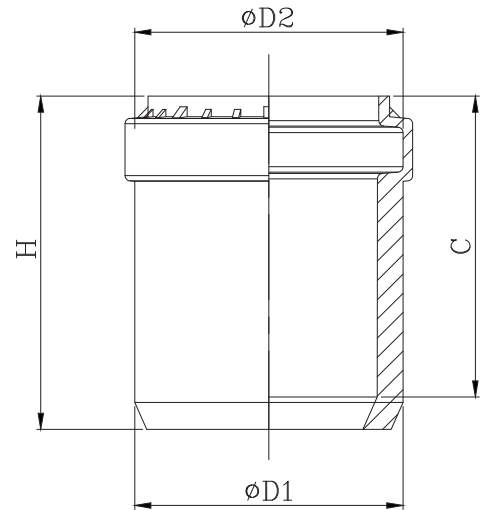
Size (mm)	C1	C2	ØD	ØE1	ØE2	I	H	L
110x75	62.00	53.00	110.00	127.90	89.20	62.00	245.00	236.09
160x75	77.00	53.00	160.00	184.10	89.20	77.00	280.00	280.75
160x110	77.00	62.00	160.00	184.10	127.90	77.00	320.00	319.08





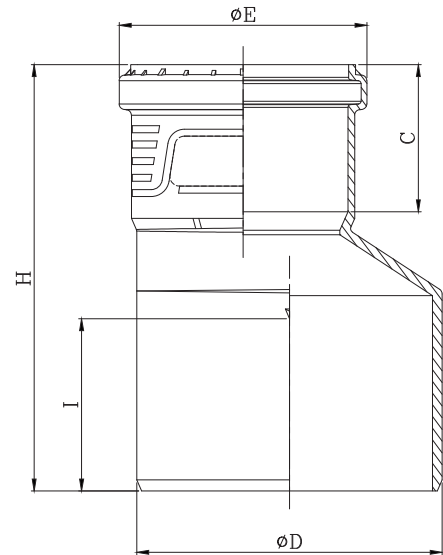
REDUCER (SHORT)

Size (mm)	C	ØD1	ØD1	H
50 X 40	56.10	40.00	50.00	62.10



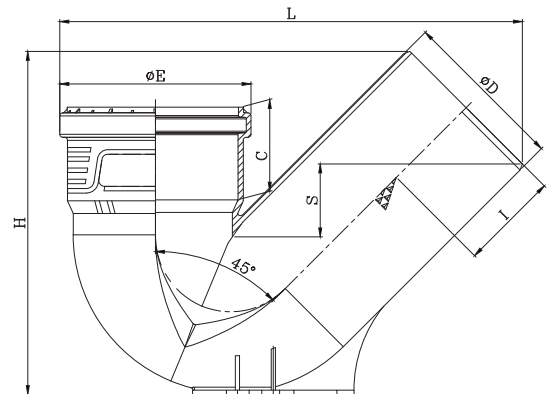
REDUCER

Size (mm)	C	ØD	ØE	I	H
75 X 50	48.00	75.00	60.00	48.00	129.00
110 X 50	48.00	110.00	60.00	62.00	160.00
110 X 75	53.00	110.00	85.00	62.00	153.50
160 X 75	53.00	160.00	85.00	73.00	192.00
160 X 110	62.00	160.00	121.50	73.00	186.00



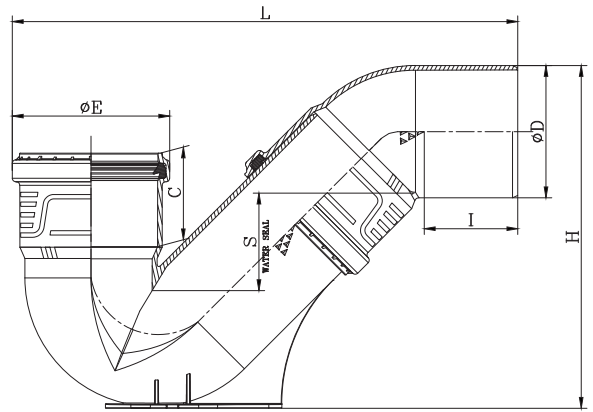
P-TRAP BODY

Size (mm)	C	ØD	ØE	I	S	H	L
75 X 75	53.00	75.00	89.20	53.00	50.00	167.10	223.26
110 X 110	62.00	110.00	127.90	66.00	50.00	230.00	309.43





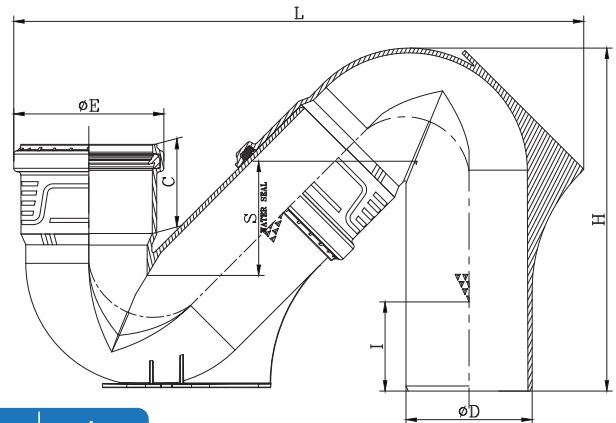
P TRAP WITH 45° BEND



Size (mm)	C	ØD	ØE	I	S	H	L
75 X 75	53.00	75.00	89.20	53.00	55.00	194.35	286.60
110 X 110	62.00	110.00	127.90	66.00	54.00	266.20	383.30



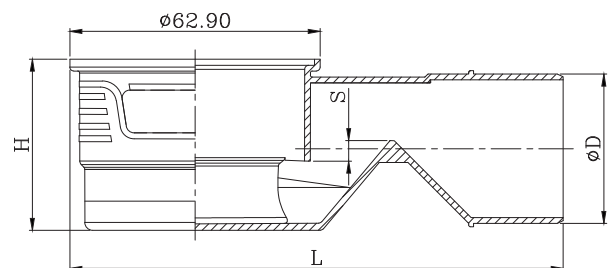
S TRAP



Size (mm)	C	ØD	ØE	I	S	H	L
75 X 75	53.00	75.00	89.20	53.00	67.00	203.90	338.85
110 X 110	62.00	110.00	127.90	66.00	64.00	277.00	455.00



NAHANI TRAP W/O JALI



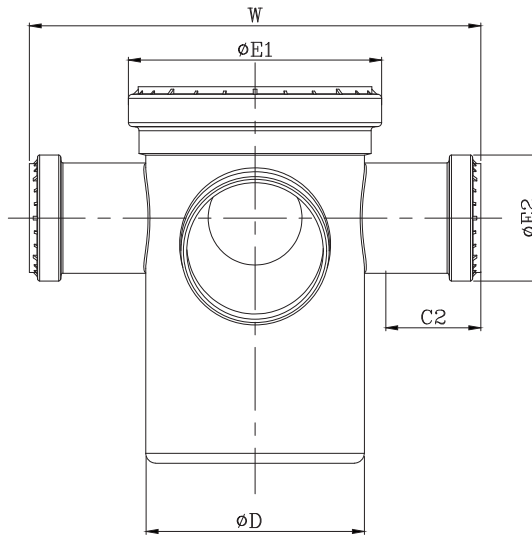
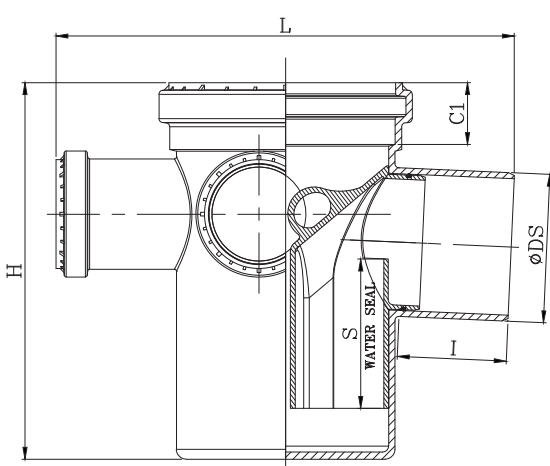
Size (mm)	C	ØD	S	H	L
75 X 75	47.20	75.00	10.00	86.00	247.90
110 X 110	62.00	110.00	17.00	120.00	255.07



MULTI FLOOR TRAP (OPEN 50mm)



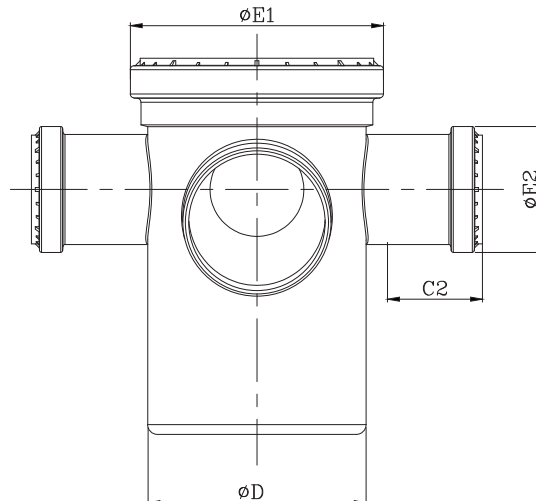
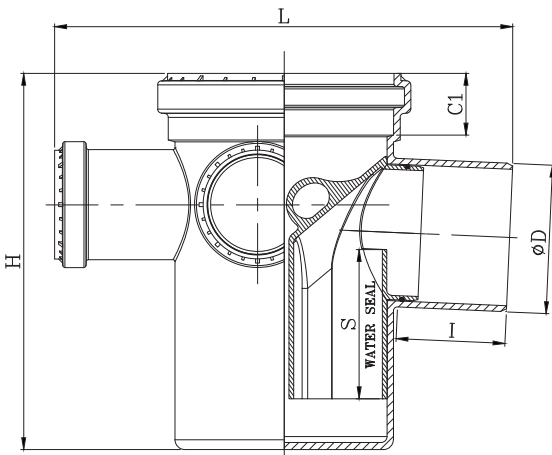
Size (mm)	C1	C2	ØD	ØE1	ØE2	I	L	W	H	S	ØDS
110 X 75 X 50 X 50 X 50 (6"HT)	31.20	48.00	110.00	127.90	63.60	55.00	228.00	231.47	164.75	59.00	75.00
110 X 75 X 50 X 50 X 50 (7"HT)	31.20	48.00	110.00	127.90	63.60	55.00	228.00	231.47	190.15	75.00	75.00



MULTI FLOOR TRAP (CLOSED 50mm)



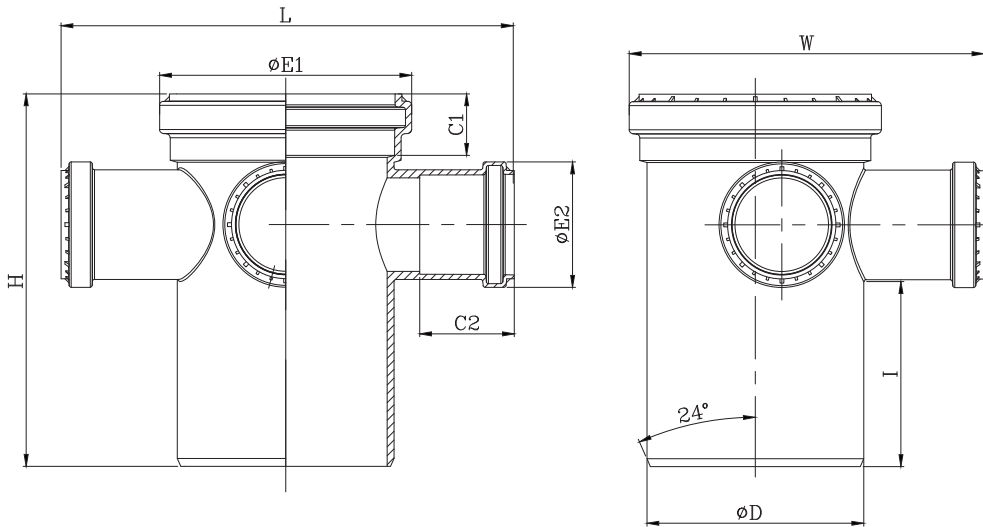
Size (mm)	C1	C2	ØD	ØE1	ØE2	I	L	W	H	S	ØDS
110 X 75 X 50 X 50 X 50 (6"HT)	31.20	48.00	110.00	127.90	63.60	55.00	228.00	231.47	164.75	59.00	75.00
110 X 75 X 50 X 50 X 50 (7"HT)	31.20	48.00	110.00	127.90	63.60	55.00	228.00	231.47	190.15	75.00	75.00





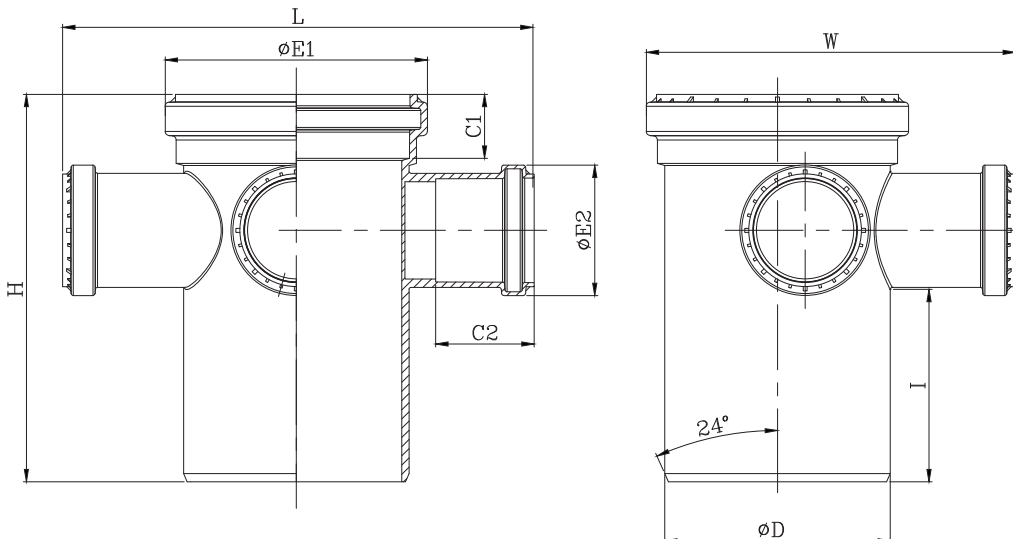
HEIGHT RISER (OPEN 50mm)

Size (mm)	C1	C2	ØD	ØE1	ØE2	I	L	W	H
110 X 50 X 50 X 50 (6"HT)	31.20	48.00	110.00	127.90	63.60	69.00	228.00	179.97	164.20
110 X 50 X 50 X 50 (7"HT)	31.20	48.00	110.00	127.90	63.60	93.80	228.00	179.97	189.00



HEIGHT RISER (CLOSED 50mm)

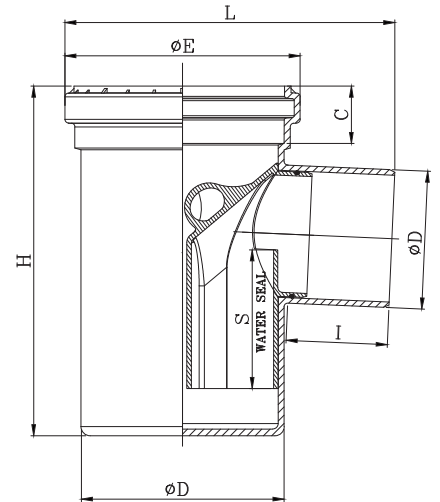
Size (mm)	C1	C2	ØD	ØE1	ØE2	I	L	W	H
110 X 50 X 50 X 50 (6"HT)	31.20	48.00	110.00	127.90	63.60	69.00	228.00	179.97	164.20
110 X 50 X 50 X 50 (7"HT)	31.20	48.00	110.00	127.90	63.60	93.80	228.00	179.97	189.00





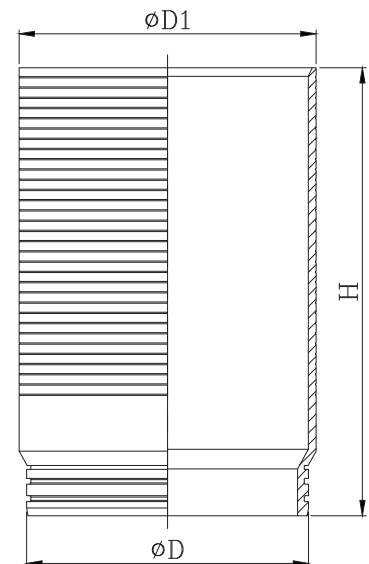
PLAIN FLOOR TRAP

Size (mm)	C1	ØD	ØE	I	L	H	S
110 X 75 (7"HT)	31.20	110.40	127.90	55.00	179.40	190.15	75.00



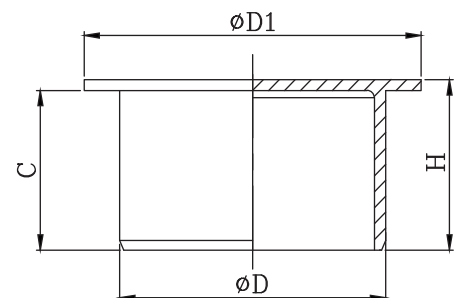
EXT. PIECE FOR N-TRAP

Size (mm)	ØD	ØD1	H
110	110.00	190.59	195.25



SOCKET PLUG

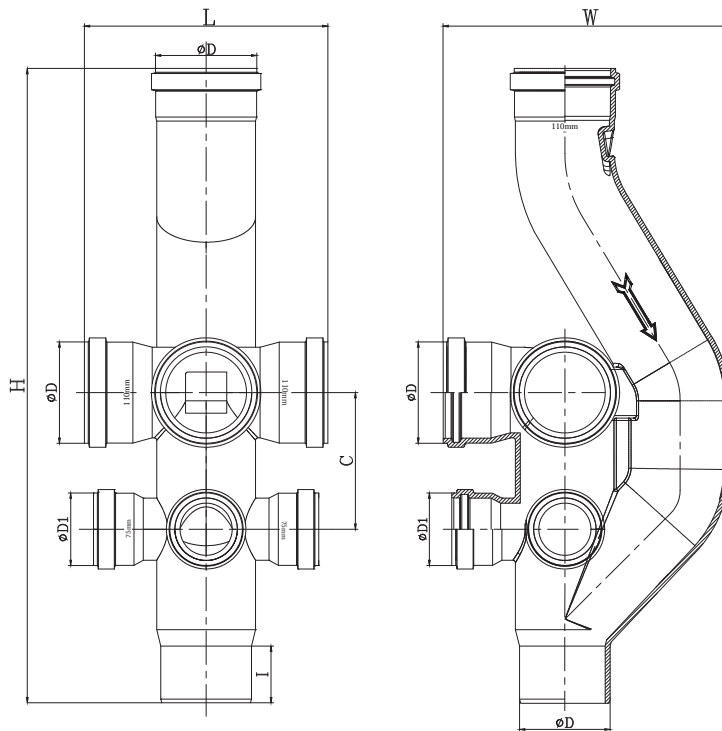
Size (mm)	C	ØD	H	ØD1
50	46.50	50.00	49.00	56.00
75	51.50	75.00	54.50	81.00
110	58.50	110.00	61.80	120.00
160	73.50	160.00	78.50	175.50





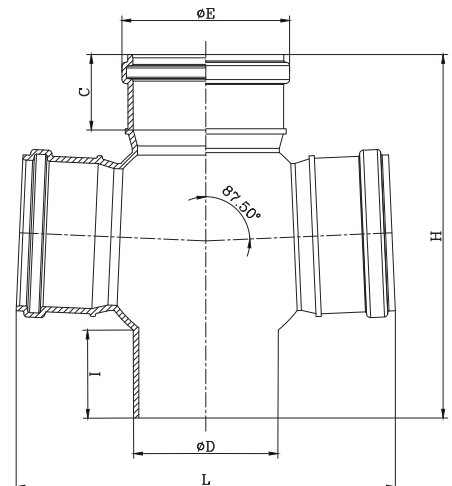
AERATOR

Size (mm)	C	ØD	ØD1	I	L	W	H
110 X 75	165.90	110.00	75.00	68.00	296.00	348.00	770.00



BALL BRANCH 180°

Size (mm)	C	ØD	ØE	I	H	L
110	57.50	110.00	127.60	67.00	272.00	288.71



DECILO Low Noise PP Drainage System

Jointing Procedure

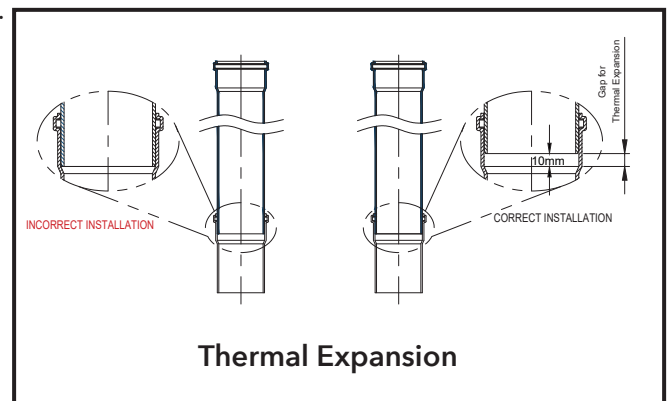
To ensure a leak-tight and highly soundproofed system, follow these instructions carefully.

Pre-Installation Checks and Preparation

1. **Check Seals:** Inspect the seal inside the pipe socket to ensure it's clean and correctly positioned.
2. **Clean Pipe Ends:** Clean the spigot end (the plain end) of the pipe and/or fitting.
3. **Mark Insertion Depth:** Mark the required insertion depth on the spigot end. This is the length of the socket. For a convenient guide, a pointer for insertion depth is provided on each fitting.
4. **Lubricate Seals:** Apply rubber lubricant to the seals before joining the pipes.
5. **Chamfer Pipes:** Create a 5 mm, 15-degree chamfer on the plain end of the pipes to facilitate easier insertion and prevent damage to the rubber seal. Use a knife or bevelling tool for this.
6. **Cut Pipes:** When cutting pipes, use a standard tool like a hacksaw. Make sure the cut is perpendicular to the pipe's axis to ensure a perfect fit. Clean any burrs or sharp edges after cutting.

Making the Joint

1. Cut pipe of required length perpendicular to its axis.
2. Remove burr and sharp edges.
3. Chamfer the plain end of pipe.
4. **Join Pipes:** Apply lubricant to the rubber seals as well as chamfered spigot end and insert the chamfered spigot end of the pipe/fitting into the socket.
5. **Allow for Thermal Expansion:** For both horizontal and vertical installations, you must account for thermal expansion and contraction. After inserting the pipe, pull it back out by 10 mm. This creates a gap that prevents stress on the pipe from temperature changes and ensures it doesn't slip out during contraction.



6. **Secure with Brackets:** Once the joint is made, secure the connection with a sound-insulating bracket. The DECILO Low Noise PP Drainage System metal bracket with rubber inlays is highly recommended as it's specifically designed to reduce noise.



Cutting



Chamfering



Pipe Cleaning



Socket Cleaning



Socket Marking

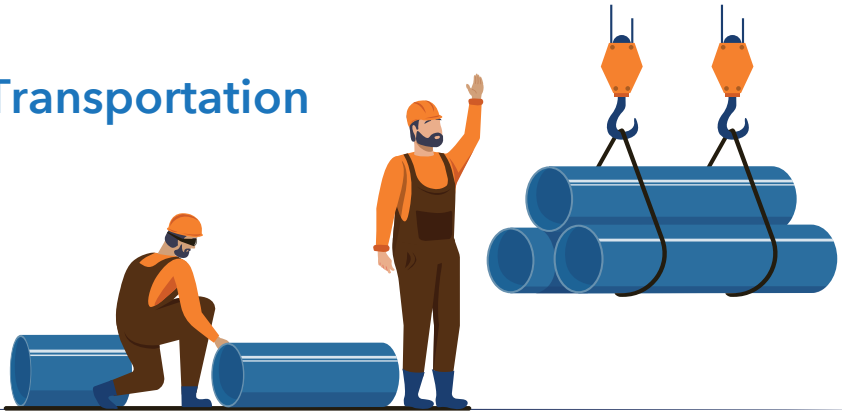


Lubricating



Jointing

Handling, Storage and Transportation



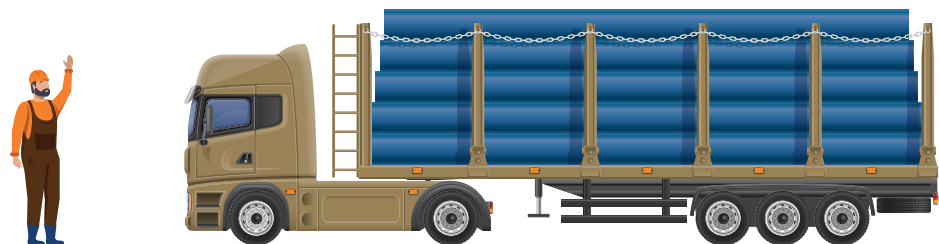
1. Handling

- Do not handle DECILO Low Noise PP Drainage System pipes carelessly during unloading, shifting, jointing practices etc. This may cause permanent damage to the pipe.
- Do not drop DECILO Low Noise PP Drainage System pipes & fittings from heights, as this can cause cracks or deformation.
- For longer length of pipes and bulk unloading use nylon slings for lifting from vehicles.
- Always support DECILO Low Noise PP Drainage System pipes along its length during handling and storage to prevent sagging and bending.
- Do not drag the pipe on ground as this may cause permanent damage to socket/spigot ends.
- Keep socket ends and sealing element free of dirt and debris to avoid installation issues at the time of installation.



2. Storage

- Pipe shall be always stored under covered shadow area to protect them from extreme temperatures, rain, etc.
- Always store pipes on a flat, stable surface with proper support at regular intervals of every 1.2 meters.
- Pipe stack height should not be more than 1.5 meters to prevent excessive load stress or deformation on bottom most pipes.
- While stacking socketed pipes, stack the pipe with socket protruding at alternate ends. (The pipe sockets shall be free and not obstructed from all sides.
- Rubber sealing elements have shelf life of 12 months, keep them in a cool, dry and flat surface to prevent early material degradation.



3. Transportation

- While transporting pipes load them carefully on the truck. Ensure truck bed surface is flat.
- Use soft strips instead of chains or hard rope to avoid surface damage of pipes.
- Avoid overhanging of pipes out of vehicle bed to prevent breakage and permanent deformation.
- Use proper lifting techniques while unloading heavy and bulk quantity of pipes.

Installation & Technical Guideline for DECILO Low Noise PP Drainage System

Professional practices for Optimal Noise Reduction and Leak-Free Performance of DECILO system are as follows:

Installing a DECILO Low Noise PP Drainage System correctly is crucial for achieving optimal soundproofing and a long-lasting, leak-free installation. The DECILO Low Noise PP Drainage System is designed to minimize sound transmission, but proper installation techniques are essential to prevent structure-borne noise.

Understanding Noise Sources

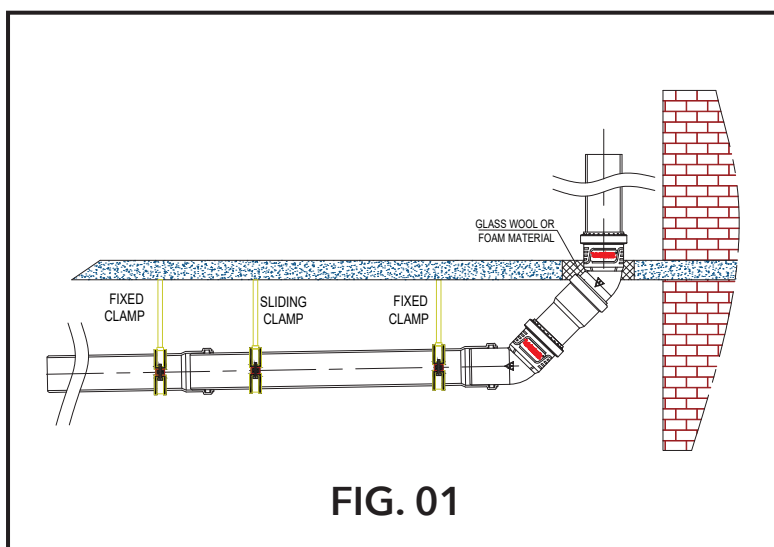
Noise in buildings is generated by moving parts and flowing media. In drainage, the primary issues are:

- **Impact Noise:** Water clashing against pipe walls at bends and downpipes.
- **Structure-Borne Noise:** Vibrations transferring from the pipe into the building through brackets, walls, or slabs.
- **Mechanical Noise:** Filling operations, intake/discharge turbulence, and shocks against the building structure.

To achieve the best results, the system must be installed "tension-free" (Stress Free) and isolated from the building's skeleton.

Structural Planning & Placement

- **Wall Mass Requirements:** As per DIN 4109, wastewater lines should be installed on walls with a mass of at least 220 kg/m² (e.g., solid brick or concrete). Avoid mounting on lightweight partitions. If you must use a light wall, additional acoustic insulation is mandatory. Refer Fraunhofer installation sketch on page number 09.
- **Routing:** Never route wastewater pipes inside walls that separate living areas (bedrooms and living areas).
- **Airborne Isolation:** Use rubber strips, glass wool, or foam sleeves when pipes pass through walls, slabs, or ceilings. No part of the pipe should touch the building structure directly. (Refer Fig. No-01)



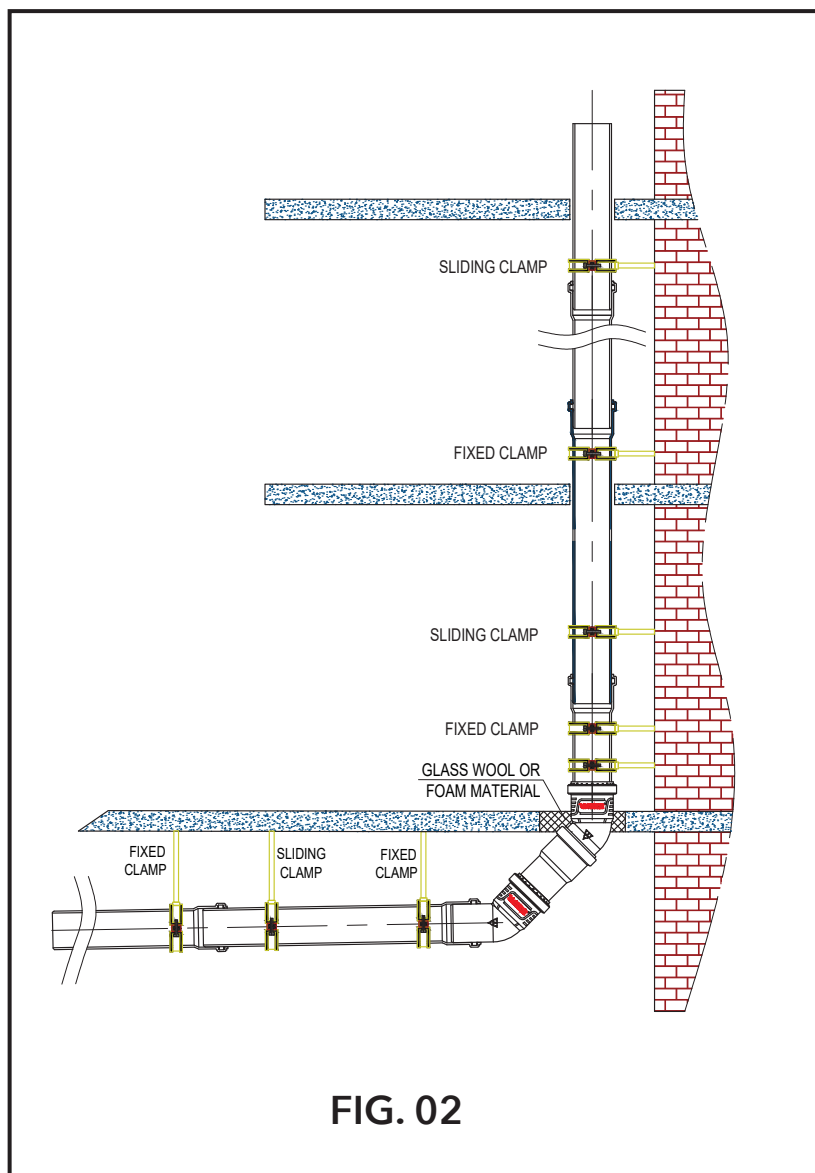
- **System Separation:** Ensure the DECILO Low Noise PP Drainage System does not touch electrical conduits, HVAC ducts, or water supply lines, as these conduits, ducts or waterlines can act as "acoustic bridges."

Fixed and Sliding Clamping Plan

The DECILO Low Noise PP Drainage System steel bracket with a rubber inlay is a dual-purpose component. Proper use is the "secret" to a quiet system.

Fixed Clamps

- **Purpose of fixed clamp:** Prevents all longitudinal movement.
- Placement of fixed clamp on vertical and horizontal pipework: *(Refer Fig. No-02)*
 - **Vertical:** One fixed clamp per floor level, positioned immediately below the pipe socket.
 - **Horizontal:** One fixed clamp at the start/end of every full pipe length or below the socket neck.
- **Fixing of Fixed Clamp:** Tighten the screws until the "ears" of the clamp touch. Remove the spacer between the ears to ensure a rigid grip.



Sliding Clamps or Guiding Clamp

- **Purpose of sliding clamp:** Allows the pipe to move during thermal expansion/contraction.
- **Placement of Sliding Clamp:** All clamps located between two fixed points must be sliding clamps. (Refer Fig. No-01)
- **Fixing of Sliding Clamp:** Use a washer and tighten the screw only until the rubber inlay touches the pipe. The pipe must be able to slide through the clamp.

Important: Always use the correct clamp size. An oversized or undersized clamp can cause pipe stress or joint failure.

Support Spacing

Clamp spacing for low-noise pipes in high-rise buildings generally follows standard plumbing practices to ensure stability and proper function. The specific distances are crucial for preventing pipe sagging, managing thermal expansion, and effectively reducing noise.

For Horizontal Installation

For horizontal low-noise pipes, the primary goal is to prevent the pipe from sagging between supports, which can create blockages and lead to noise. The general rule of thumb for clamp spacing is based on the pipe's diameter.

Clamp Locations

Near Fittings - A support clamp must be placed on each side of a fitting, as close as possible to the joint. This provides crucial support for the heavier, more rigid fitting and helps manage the forces at the connection/joint point. (Refer Fig. No-03)

Changes in Direction: Always place a clamp before and after any bend or change in direction.

For Vertical Installation

In vertical installations (stack pipes), the clamps' main job is to bear the weight of the pipe and its contents. They prevent the pipes from slipping downwards due to gravity. The spacing is typically less frequent than for horizontal runs.

General Spacing - A support clamp is generally required at every floor level. For a typical high-rise building with a floor-to-floor distance of around 2.5 - 3.0 meters, you'd place a clamp on each floor. This ensures the weight of the entire stack is properly distributed and supported.

Clamp points

Base of the Stack- The lowest point of the vertical stack, where it connects to the horizontal line, is a critical support location. This is where the entire weight of the stack is initially transferred.

Below Fittings- It's also good practice to place a clamp directly below any heavy fittings or junctions to provide additional support.

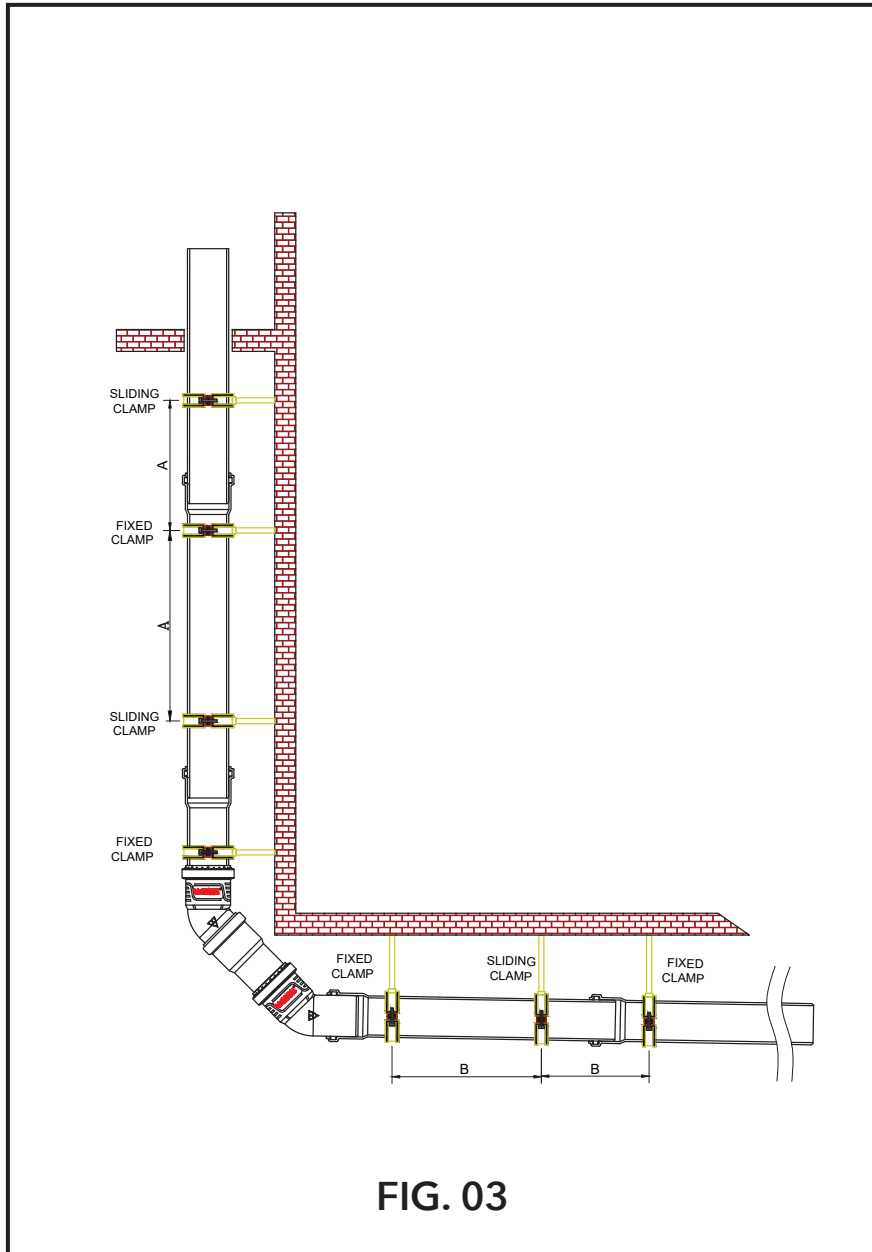
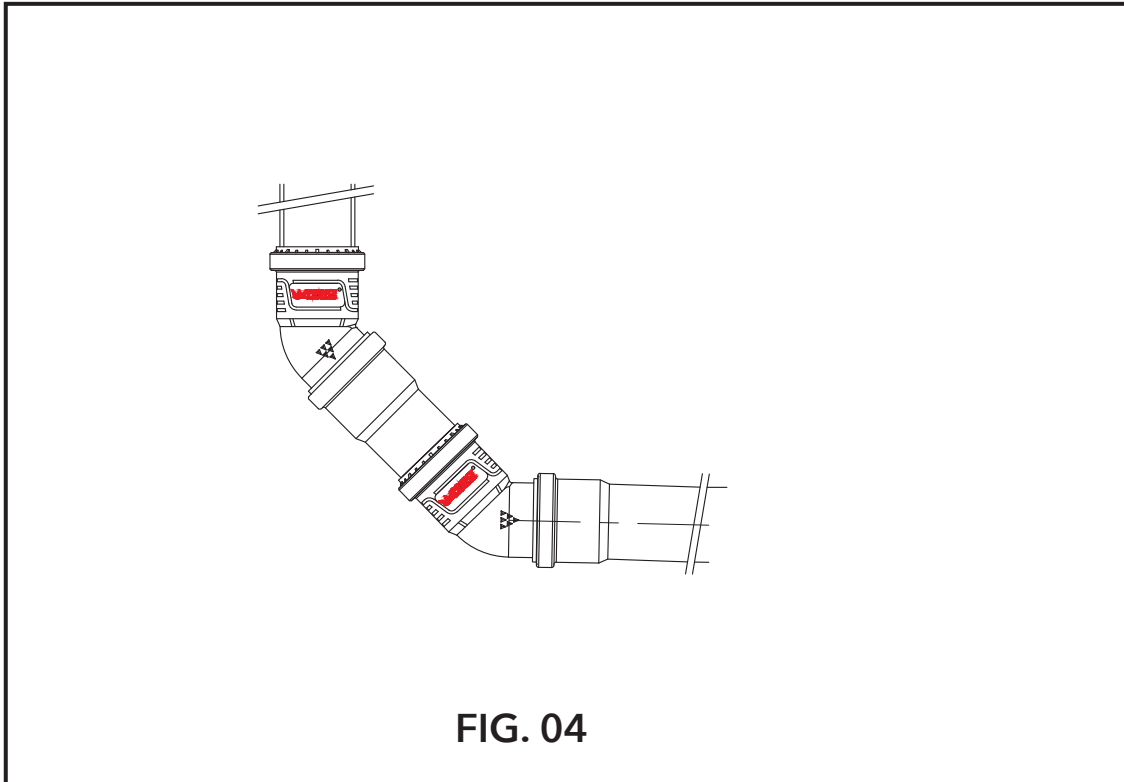


Table for support clamp spacing of Decilo Low Noise PP Drainage System (Refer Fig. No. 3)

Outside Diameter of Decibel pipe	Maximum distance between two clamp supports	
	Horizontal Run (B)	Vertical Run (A)
DN/OD	cm	cm
40	70	120
50	75	120
75	105	180
110	150	200
160	180	200

Advanced Hydraulic & Thermal Protection

- **Smooth Transitions:** When moving from vertical to horizontal, avoid a single 87.5° bend. Use two 45° bends with a short pipe piece between them to reduce impact noise. (Refer Fig. No-04)
- **Slope:** Maintain a consistent downward slope in the flow direction for all horizontal runs. (Refer Fig. No-01)
- **Alignment:** Do not disturb the vertical alignment of the stack; it must remain perfectly straight to prevent internal splashing.

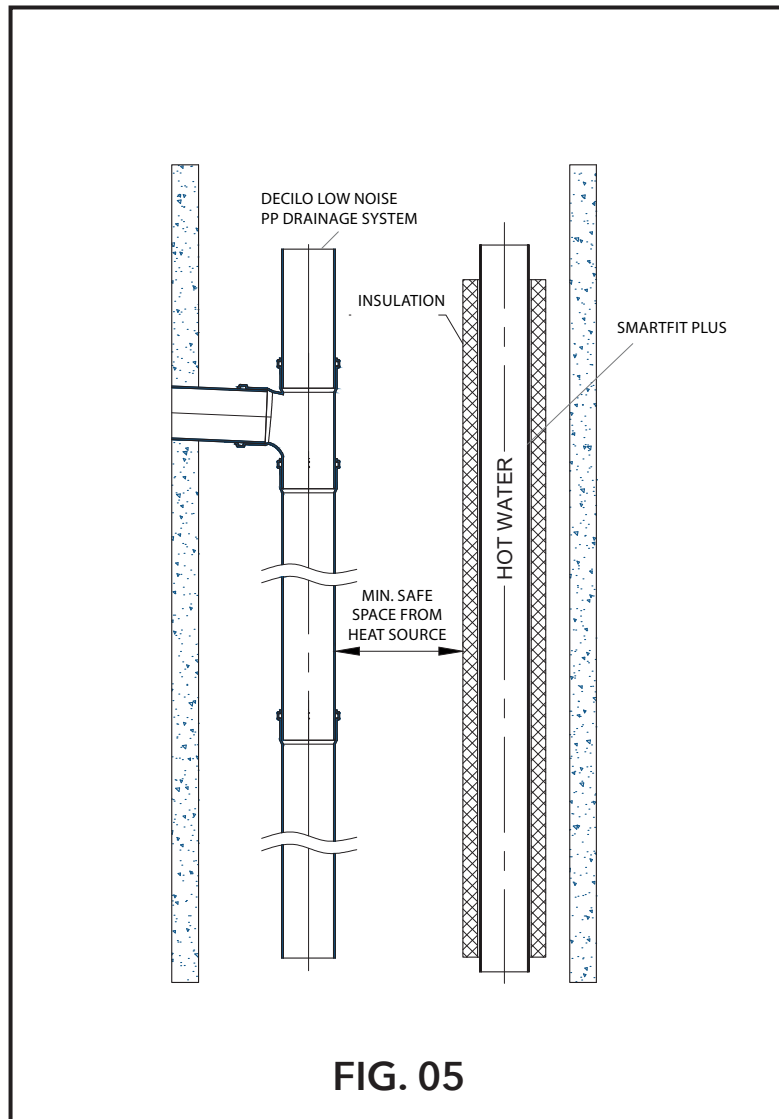


Heat Protection

DECILO Low Noise PP Drainage System expand when heated. Protect them from central heating pipes or hot water lines by keeping certain distance as mentioned in below table. In such condition we recommend insulating nearby hot water pipes to prevent heat transfer to DECILO Low Noise PP Drainage System (Refer Fig. No-05).

Table - Follow safer distance given in below table for parallel straight runs in case of hot run.

Pipe Diameter (DN/OD)	Min. Distance from Heat Source (mm)
40	150
50	150
75	170
110	210
160	270

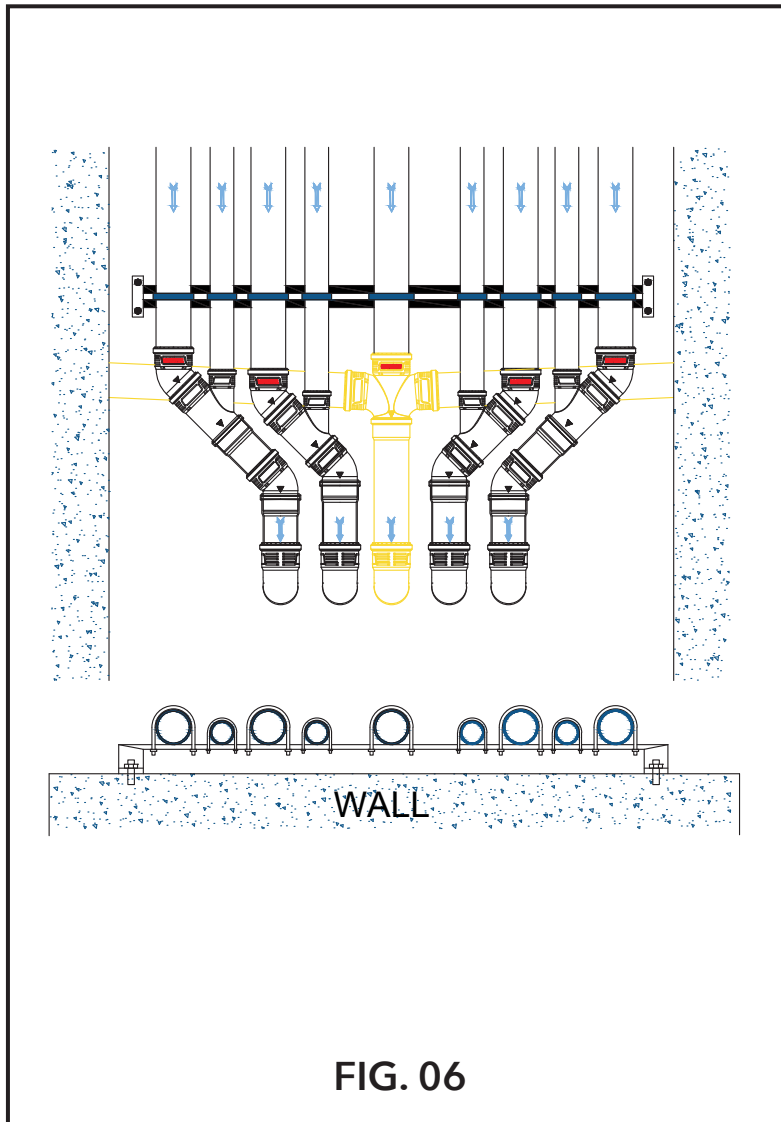


High-Rise Safety & Flood Protection

To protect the system against extreme conditions like a flood, we recommend using rigid support as shown in the sketches below. Rigid support are stronger clamps that hold the pipes firmly in place, preventing them from sagging or coming apart under the heavy weight and pressure of a full pipe. One can say them as reinforced anchors for the pipes.

We also recommend using additional safety clamps on the joints other than installed clamps where wastewater line changes its direction specifically in high rise buildings. A safety clamp is an extra fastener that locks the joint together, providing a second line of defense against separation. They are especially important at the bottom of a tall vertical pipe, known as a high-rise stack. Here, water rushing down from the upper floor creates immense force when it changes direction, and a safety clamp ensures the joint stays secure under that high-velocity flow. This can be summarized as, *(Refer Fig. No-06)*

- **Rigid and Strong Supports:** Use reinforced anchors/rigid clamps at the bottom of the stack to prevent the pipe from shifting under the weight of a full water column.
- **Safety Clamp:** Install extra joint-locking clamps at the base of vertical stacks and at major changes in direction. This provides a "second line of defence" against joint separation during high-flow events or blockages.



Threaded Rod Selection for Hanging Decilo Low Noise PP Drainage System Installation

Ensuring Leak-Free Performance for Low Noise Piping Systems

A DECILO Low Noise PP Drainage System is only as reliable as its support structure. While threaded rods are excellent for holding the weight of a pipe (tension), they are not designed to resist bending forces.

In case of hanged pipework Rod Length matters and it is as, In case pipeline becomes clogged or filled with water, internal pressure builds up (approx. 0.1 bar per 1 meter of vertical water column). In this situation threaded rods act like a pendulum. If the rod is too long or the diameter (M8/M10/M12) is too small, the internal pressure will cause the rod to bend. In result a slight bend pulls the pipe out of alignment, causing the joints to separate and leak from rubber ring socket.

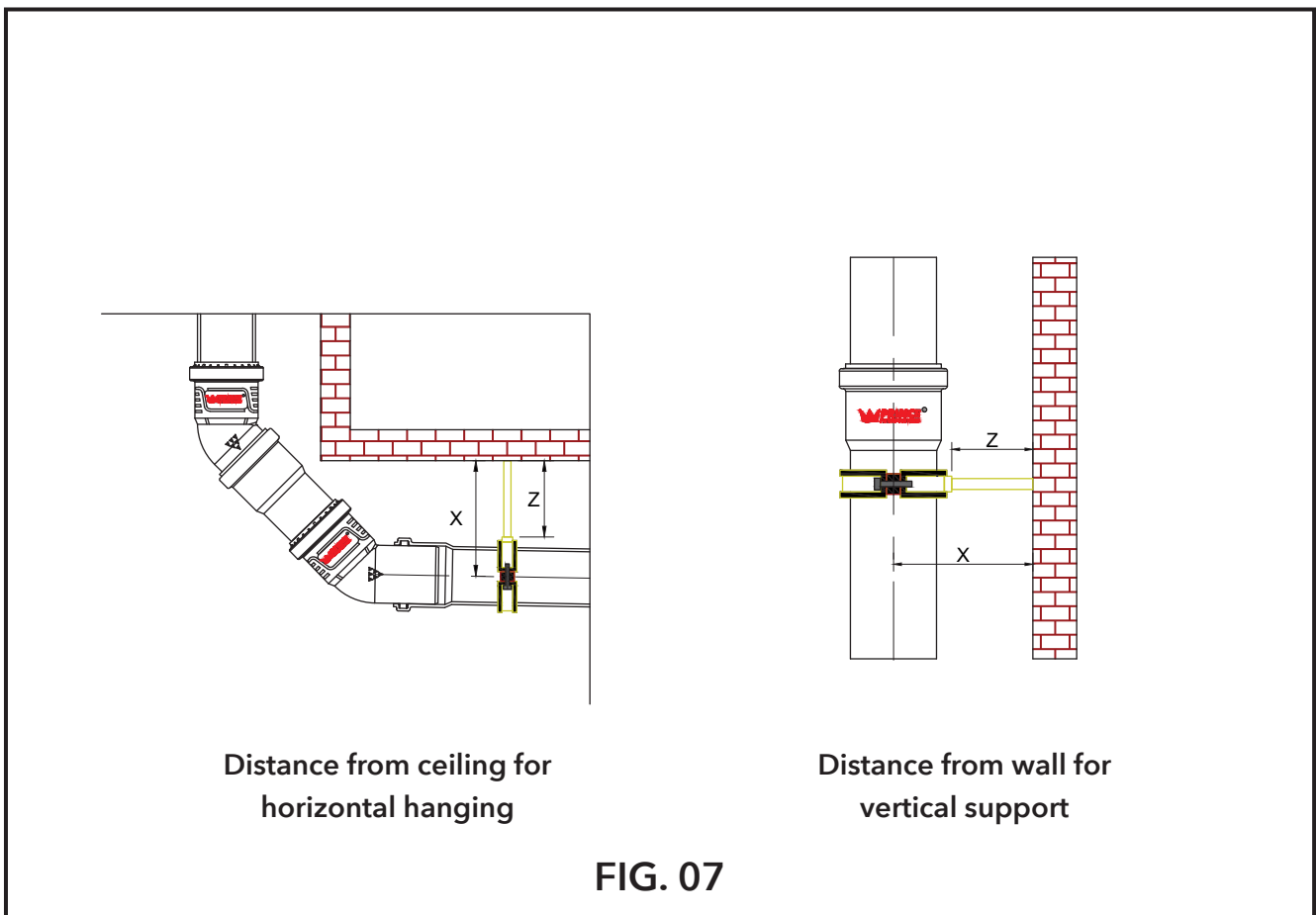
1. Horizontal Installations (Hanging from Ceiling): (Refer Fig. No-07 - Horizontal)

For horizontal runs, the "X" and "Z" distances must be strictly followed to prevent the pipe from "swaying" or "sagging" if a blockage occurs.

- X: Maximum distance from the ceiling to the centre of the pipe.
- Z: Maximum allowable length of the threaded rod/pipe.

Table for Horizontal Installation

Pipe Size	Clamp Threaded Adaptor Size					
	M 8		M 10		M 12	
	"X" in mm	"Z" in mm	"X" in mm	"Z" in mm	"X" in mm	"Z" in mm
50	120	85	195	160	315	280
75	110	60	170	120	260	210
110	105	40	145	80	205	140
160	-	-	135	40	175	85



2. Vertical Installations (Distance from Wall): (Refer Fig. No-04 A - Vertical)

In vertical setups, the rod must be stiff enough to keep the pipe at a constant distance from the wall. As the pipe size increases, the rod length must often decrease to maintain rigidity.

- X: Maximum distance from the wall to the centre of the pipe.
- Z: Maximum allowable length of the threaded rod.

Table for Vertical Installation

Pipe Size	Clamp Threaded Adaptor Size					
	M 8		M 10		M 12	
	"X" in mm	"Z" in mm	"X" in mm	"Z" in mm	"X" in mm	"Z" in mm
50	95	60	155	120	245	210
75	90	45	130	185	195	150
110	-	-	115	50	150	85
160	-	-	120	30	140	50

Note: Use transition adaptor for M 10 sized clamp adaptor conversion to M8, M 12 rod conversion as well as ½ MS pipe and ¾ MS pipe conversion.

Important Installation Notes

- The "M10" Rule: If your pipe clamp has an M10 connection but you are using M8 or M12 rods, you must use a transition adaptor. Ensure transition adaptor fitment shall not be loose or mismatching in alignment, because this may lead to joint failure.
- Testing for Safety of threaded rod: We recommend to conduct a hydrotest at pressures above 0.1 bar. If you observe any visible bending of the threaded rods during the test, the support is insufficient.
- When to Upgrade threaded rod Fixation: If your installation exceeds the "Z" lengths in the tables, or if the vertical pressure could exceed 0.1 bar (e.g., a multi-story clogging), you must:
 1. Increase the rod diameter (e.g., move from M8 to M12 or M10 to M12).
 2. Use a cantilever "U" bracket for extra rigidity from nearby structure.
 3. Install lateral rigid wire bracing to stop the pipe from moving side-to-side using 2 half clamps.

Fire Safety

Fire Behaviour Classification

Fire Safety Certification for DECILO Low Noise PP Drainage System.

The DECILO low noise piping system has been rigorously tested to meet stringent safety standards for building materials. Our system has undergone professional evaluation by TÜV Rheinland to ensure reliable performance under fire conditions.

Fire Safety Certification: DIN 4102-1 (TUV Rheinland)

According to the German standard DIN 4102-1, DECILO pipes are classified as Class B2. This classification identifies the material as "normally flammable," meaning that while the material may burn when exposed to a small flame, the spread of fire remains controlled and predictable.

Understanding European Standard EN 13501-1

While our current testing is based on the DIN 4102-1 standard, modern building regulations often reference the latest European standard, EN 13501-1. In line with European standardization, the fire classifications from DIN 4102-1 are translated into the EN 13501-1 framework as follows

Comparison of DIN 4102-1 and EN 13501-1 Standards

EN 13501-1 (EU Standard)	DIN 4102-1 (German Standard)	Description
A1	A1	Non-combustible, no contribution to fire
A2	A2	Very limited combustibility
B	B1	Very difficult to ignite (fire-retardant)
C	B1	Limited combustibility
D	B2	Normal combustibility
E	B2	Easily combustible

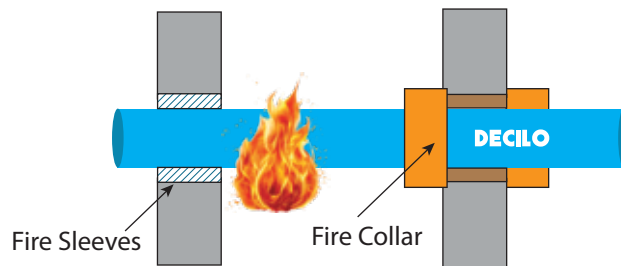


Scan QR code for
TUV Rheinland
certification

Fire Collar / Sleeve

Fire protection collars / sleeves are essential components used to maintain fire compartmentation when plastic pipes pass through fire-rated walls or floors/ceilings. The primary functions of these collars include:

1. **Fire Resistance:** The collars / sleeves contain intumescent material that expands when exposed to high temperatures, sealing the pipe opening to prevent fire and smoke spread.
2. **Maintaining Structural Integrity:** They help preserve the fire resistance rating of walls, floors, or ceilings by closing off penetrations caused by melting polymer pipes.
3. **Limiting Fire Spread:** By sealing off the gap left by the burned-out pipe, they act as a barrier against flames, hot gases, and toxic smoke.
4. **Compliance with Fire Codes:** They ensure that penetrations through fire-rated assemblies comply with building codes and fire safety regulations.



General Recommendations for Fire Collars / Sleeves

To ensure effective fire protection, please follow these recommendations for the use and installation of fire collars / sleeves:

1. **Correct Sizing:** Always select fire collars / sleeves specifically designed for the diameter and type of polymer pipe (e.g., PVC, HDPE, PP). Using the correct size ensures proper sealing in case of a fire.
2. **Proper Installation:** Install fire collars / sleeves strictly according to the manufacturers and supplier's instructions, along with local building codes and fire safety regulations. Proper installation is essential for maintaining the fire resistance of walls, floors, and ceilings.
3. **Location-Specific Application:** Fire collars / sleeves must be installed wherever polymer pipes penetrate fire-rated barriers, such as walls, floors, and ceilings. This helps maintain the integrity of fire compartments within the building.
4. **Regular Inspection & Maintenance:** Periodically inspect installed fire collars / sleeves for any signs of damage, gaps, or deterioration. If any defects are found, they should be repaired or replaced immediately to ensure continued fire protection.
5. **Compatibility:** Ensure that the fire collar / sleeves used is tested and certified for the specific type of pipe being installed. Using non-compatible collars / sleeves may compromise fire safety performance.
6. **Supplier Guidance:** Always follow the specific instructions provided by the fire collar / sleeves supplier, including recommendations on fastening, sealing, and testing, to ensure optimal performance in a fire situation.

NOTE

The information provided, including recommendations for the use and installation of fire collars, is based on our current knowledge and industry best practices. As we do not supply fire collars directly, we advise customers to purchase products from reputable manufacturers or suppliers and strictly follow their installation guidelines and instructions. Due to variations in materials, site conditions, and factors beyond our control, we recommend conducting adequate internal trials to ensure the product's suitability for the intended application. We do not assume liability based on these recommendations or any verbal advice, except in cases of proven gross negligence or intentional misconduct.

Chemical Resistance Chart

Chemical Resistance of Polypropylene, Not Subjected to Mechanical Stress,
to Various Fluids at 20, 60 and 100°C

Chemical or Product	Concentration	Temperature °C		
		20	60	100
Acetic acid	Up to 40 %	S	S	-
Acetic acid	50 %	S	S	L
Acetic acid, glacial	> 96 %	S	L	NS
Acetic anhydride	100 %	S	-	-
Acetone	100 %	S	S	-
Acceptophenone	100 %	S	L	-
Acrylonitrile	100 %	S	-	-
Air	-	S	S	S
Allyl alcohol	100 %	S	S	-
Almond oil	-	S	-	-
Alum	Sol	S	S	-
Ammonia, aqueous	Sat.sol	S	S	-
Ammonia, dry gas	100 %	S	-	-
Ammonia, liquid	100 %	S	-	-
Ammonium acetate	Sat. sol	S	S	-
Ammonium chloride	Sat.sol	S	S	-
Ammonium fluoride	Up to 20 %	S	S	-
Ammonium hydrogen carbonate	Sat.sol	S	S	-
Ammonium metaphosphate	Sat.sol	S	S	S
Ammonium nitrate	Sat.sol	S	S	S
Ammonium persulphate	Sat.sol	S	S	-
Ammonium phosphate	Sat.sol	S	-	-
Ammonium sulphate	Sat.sol	S	S	S
Ammonium sulphide	Sat.sol	S	S	-
Amyl acetate	100 %	L	-	-
Amyl alcohol	100 %	S	S	S
Aniline	100 %	S	S	-
Apple juice	-	S	-	-
Aqua regia	HCl/HNO ₃ =3/1	NS	NS	NS
Barium bromide	Sat.sol	S	S	S
Barium carbonate	Sat.sol	S	S	S
Barium chloride	Sat.sol	S	S	S
Barium hydroxide	Sat.sol	S	S	S
Barium sulphide	Sat.sol	S	S	S
Beer	-	S	S	-
Benzene	100 %	L	NS	NS
Benzoic acid	Sat.sol	S	S	-
Benzyl alcohol	100 %	S	L	-
Borax	Sol	S	S	-
Boric acid	Sat.sol	S	-	-

Chemical or Product	Concentration	Temperature °C		
		20	60	100
Boron trifluoride	Sat.sol	S	-	-
Bormine, gas		NS	NS	NS
Bromine, liquid	100 %	NS	NS	NS
Butane, gas	100 %	S	-	-
Butanol	100 %	S	L	L
Butyl acetate	100 %	L	NS	NS
Butyl glycol	100 %	S	-	-
Butyl phenols	Sat.sol	S	-	-
Butyl phthalate	100 %	S	L	L
Calcium carbonate	Sat.sol	S	S	S
Calcium chlorate	Sat.sol	S	S	-
Calcium chloride	Sat.sol	S	S	S
Calcium hydroxide	Sat.sol	S	S	S
Calcium hypochlorite	Sol	S	-	-
Calcium nitrate	Sat.sol	S	S	-
Camphor oil		NS	NS	NS
Carbon dioxide, dry gas		S	S	-
Carbon dioxide, wet gas		S	S	-
Carbon disulphide	100 %	S	NS	NS
Carbon monoxide, gas		S	S	-
Carbon tetrachloride	100 %	NS	NS	NS
Castor oil	100 %	S	S	-
Caustic soda	Up to 50 %	S	L	L
Chlorine, aqueous	Sat.sol	S	L	-
Chlorine, dry gas	100 %	NS	NS	NS
Chlorine, liquid	100 %	NS	NS	NS
Chloroacetic acid	Sol	S	-	-
Chloroethanol	100 %	S	-	-
Chloroform	100 %	L	NS	NS
Chlorosulphonic acid	100 %	NS	NS	NS
Chrome alum	Sol	S	S	-
Chromic acid	Up to 40 %	S	L	NS
Citric acid	Sat.sol	S	S	S
Coconut oil		S	-	-
Copper (II) chloride	Sat.sol	S	S	-
Copper (II) nitrate	Sat.sol	S	S	S
Copper (II)	Sat.sol	S	S	-
Corn oil		S	L	-
Cottonseed oil		S	S	-
Cresol	Greater than 90 %	S	-	-
Cyclohexane	100 %	S	-	-
Cyclohexanol	100 %	S	L	-
Cyclohexanone	100 %	L	NS	NS
Decalin (decahydronaphthalene)	100 %	NS	NS	NS

Chemical or Product	Concentration	Temperature °C		
		20	60	100
Dextrin	Sol	S	S	-
Dextrose	Sol	S	S	S
Dibutyl phthalate	100 %	S	L	NS
Dichloroacetic acid	100 %	L	-	-
Dichloroethylene (A and B)	100 %	L	-	-
Diethanolamine	100 %	S	-	-
Diethyl ether	100 %	S	L	-
Diethylene glycol	100 %	S	S	-
Diglycolic acid	Sat.sol	S	-	-
Diisooctyl	100 %	S	L	-
Dimethyl amine, gas		S	-	-
Dimethyl formamide	100 %	S	S	-
Diethyl phthalate	100 %	L	L	-
Dioxane	100 %	L	L	-
Distilled water	100 %	S	S	S
Ethanolamine	100 %	S	-	-
Ethyl acetate	100 %	L	NS	NS
Ethyl alcohol	Up to 95 %	S	S	S
Ethyl chloride, gas		NS	NS	NS
Ethylene chloride (mono and di)		L	L	-
Ethyl ether	100 %	S	L	-
Ethylene glycol	100 %	S	S	S
Ferric chloride	Sat.sol	S	S	S
Formaldehyde	40 %	S	-	-
Formic acid	10 %	S	S	L
Formic acid	85 %	S	NS	NS
Formic acid, anhydrous	100 %	S	L	L
Fructose	Sol	S	S	S
Fruit juice		S	S	S
Gasoline, petrol (aliphatic hydrocarbons)		NS	NS	NS
Gelatine		S	S	-
Glucose	20 %	S	S	S
Glycerine	100 %	S	S	S
Glycolic acid	30 %	S	-	-
Heptane	100 %	L	NS	NS
Hexane	100 %	S	L	-
Hydrobromic acid	Up to 48 %	S	L	NS
Hydrochloric acid	Up to 20 %	S	S	S
Hydrochloric acid	30 %	S	L	L
Hydrochloric acid	From 35 to 36 %	S	-	-
Hydrofluoric acid	Dil.sol	S	-	-
Hydrofluoric acid	40 %	S	-	-
Hydrogen	100 %	S	-	-
Hydrogen chloride, dry gas	100 %	S	S	-

Chemical or Product	Concentration	Temperature °C		
		20	60	100
Hydrogen peroxide	Up to 10 %	S	-	-
Hydrogen peroxide	Up to 30 %	S	L	-
Hydrogen sulphide, dry gas	100 %	S	S	-
Iodine, in alcohol		S	-	-
Isoctane	100 %	L	NS	NS
Isopropyl alcohol	100 %	S	S	S
Isopropyl ether	100 %	L	-	-
Lactic acid	Up to 90 %	S	S	-
Lanoline		S	L	-
Linseed oil		S	S	S
Magnesium carbonate	Sat.sol	S	S	S
Magnesium chloride	Sat.sol	S	S	-
Magnesium hydroxide	Sat.sol	S	S	-
Magnesium sulphate	Sat.sol	S	S	-
Maleic acid	Sat.sol	S	S	-
Mercury (II) chloride	Sat.sol	S	S	-
Mercury (II) cyanide	Sat.sol	S	S	-
Mercury (I) nitrate	Sol	S	S	-
Mercury	100 %	S	S	-
Methyl acetate	100 %	S	S	-
Methyl alcohol	5 %	S	L	L
Methyl amine	Up to 32 %	S	-	-
Methyl bromide	100 %	NS	NS	NS
Methyl ethyl ketone	100 %	S	-	-
Methylene chloride	100 %	L	NS	NS
Milk		S	S	S
Monochloroacetic acid	>85 %	S	S	-
Naphtha		S	NS	NS
Nickel chloride	Sat.sol	S	S	-
Nickel nitrate	Sat.sol	S	S	-
Nickel sulphate	Sat.sol	S	S	-
Nitric acid	Up to 30 %	S	NS	NS
Nitric acid	From 40 to 50 %	L	NS	NS
Nitric acid, fuming (with nitrogen dioxide)		NS	NS	NS
Nitrobenzene	100%	S	L	-
Oleic acid	100 %	S	L	-
Oleum (sulphuric acid with 60 % of SO ₃)		S	L	-
Olive oil		S	S	L
Oxalic acid	Sat.sol	S	L	NS
Oxygen, gas		S	-	-
Paraffin oil (FL65)		S	L	NS
Peanut oil		S	S	-
Peppermint oil		S	-	-
Perchloric acid	(2 N) 20 %	S	-	-

Chemical or Product	Concentration	Temperature °C		
		20	60	100
Petroleum ether (ligroine)		L	L	-
Phenol	5 %	S	S	-
Phenol	90 %	S	-	-
Phosphine, gas		S	S	-
Phosphoric acid	Up.to 85 %	S	S	S
Phosphorus oxychloride	100 %	L	-	-
Picric acid	Sat.sol	S	-	-
Potassium bicarbonate	Sat.sol	S	S	S
Potassium borate	Sat.sol	S	S	-
Potassium bromate	Up to 10 %	S	S	-
Potassium bromide	Sat.sol	S	S	
Potassium carbonate	Sat.sol	S	S	
Potassium chlorate	Sat.sol	S	S	
Potassium chlorite	Sat.sol	S	S	
Potassium chromate	Sat.sol	S	S	
Potassium cyanide	Sol	S	-	
Potassium dichromate	Sat.sol	S	S	S
Potassium ferricyanide	Sat.sol	S	S	-
Potassium fluoride	Sat.sol	S	S	-
Potassium hydroxide	Up to 50 %	S	S	S
Potassium iodide	Sat.sol	S	-	-
Potassium nitrate	Sat.sol	S	S	-
Potassium perchlorate	10 %	S	S	-
Potassium permanganate	(2 N) 30 %	S	-	-
Potassium persulphate	Sat.sol	S	S	-
Potassium sulphate	Sat.sol	S	S	-
Propane, gas	100 %	S	-	-
Propionic acid	>50 %	S	-	-
Pyridine	100 %	L	-	-
Seawater		S	S	S
Silicon oil		S	S	S
Silver nitrate	Sat.sol	S	S	L
Sodium acetate	Sat.sol	S	S	S
Sodium benzoate	35 %	S	L	-
Sodium bicarbonate	Sat.sol	S	S	S
Sodium carbonate	Up to 50 %	S	S	L
Sodium chlorate	Sat.sol	S	S	-
Sodium chloride	Sat.sol	S	S	-
Sodium chlorite	2 %	S	L	NS
Sodium chlorite	20 %	S	L	NS
Sodium dichromate	Sat.sol	S	S	S
Sodium hydrogen carbonate	Sat.sol	S	S	S
Sodium hydrogen sulphate	Sat.sol	S	S	-
Sodium hydrogen sulphite	Sat.sol	S	-	-

Chemical or Product	Concentration	Temperature °C		
		20	60	100
Sodium hydroxide	1 %	S	S	S
Sodium hydroxide	From 10 to 60 %	S	S	S
Sodium hypochlorite	5 %	S	S	-
Sodium hypochlorite	10 % - 15 %	S	-	-
Sodium hypochlorite	20 %	S	L	-
Sodium metaphosphate	Sol	S	-	-
Sodium nitrate	Sat.sol	S	S	-
Sodium perborate	Sat.sol	S	S	-
Sodium phosphate (neutral)		S	S	S
Sodium silicate	Sol	S	S	-
Sodium sulphate	Sat.sol	S	S	-
Sodium sulphide	Sat.sol	S	-	-
Sodium sulphite	40 %	S	S	S
Sodium thiosulphate (hypo)	Sat.sol	S	-	-
Soybean oil		S	L	-
Succinic acid	Sat.sol	S	S	-
Sulphuric acid	Up to 10 %	S	S	S
Sulphuric dioxide, dry or wet	100 %	S	S	-
Sulphur acid	From 10 to 30 %	S	S	-
Sulphuric acid	50 %	S	L	L
Sulphuric acid	96 %	S	L	NS
Sulphuric acid	98 %	L	NS	NS
Sulphurous acid	Up to 30 %	S	-	-
Tartaric acid	Sat.sol	S	S	-
Tetrahydrofuran	100 %	L	NS	NS
Tetralin	100 %	NS	NS	NS
Thiophene	100 %	S	L	-
Tin (IV) chloride	Sol	S	S	-
Tin (II) chloride	Sat.sol	S	S	-
Toluene	100 %	L	NS	NS
Trichloroacetic acid	Up to 50 %	S	S	-
Trichloroethylene	100 %	NS	NS	NS
Triethanolamine	Sol	S	-	-
Turpentine		NS	NS	NS
Urea	Sat.sol	S	S	-
Vinegar		S	S	-
Water brackish, mineral, potable		S	S	S
Whiskey		S	S	-
Wines		S	S	-
Xylene	100 %	NS	NS	NS
Yeast	Sol	S	S	S
Zinc chloride	Sat.sol	S	S	-
Zinc sulphate	Sat.sol	S	S	-

WARRANTY

PRINCE PIPES AND FITTINGS LIMITED warrants to the original owner of the structure in which its PP-SWR DECILO Pipe and Fittings have been installed, that the Products will be free from manufacturing defects and conform to applicable standards under normal use. Buyer's 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.

This limited warranty is the only warranty made by seller and is expressly in lieu of all other warranties, express and implied, including any warranties of merchantability and fitness for a particular purpose.

No statement, conduct or description by Prince Pipes or its representative, in addition to or beyond this Limited Warranty, shall constitute a warranty. This Limited Warranty may only be modified in writing signed by an officer of Prince Pipe.

This Limited Warranty will not apply if:

1. The Products are used for purposes other than the transmission of domestic sewage water.
2. The Products are not installed in good and workmanship consistent with normal industry standards; installed in compliance with the latest instructions published by Prince Pipes and good plumbing practices; and installed in conformance with all applicable plumbing and building code requirements.
3. Products of Prince Pipes are used with the products of other manufacturers.
4. The Products fail due to normal wear and tear or deficiencies in design, engineering, or installation of the water distribution system of which they are a part.
5. The Products have been the subject of modification; misuse; misapplication; improper maintenance or repair; damage caused by the fault or negligence of anyone other than Prince Pipe; or any other act or event beyond the control of Prince Pipes.
6. Improper storage, failure to observe the operating instructions, over stressing or overloading, unsuitable operating media, unsuitable construction work or unsuitable building ground.
7. The Products fail due to the freezing of water in the Products.
8. The Products fail due to contact with incompatible material.
9. Prince Pipe cannot accept responsibility for the performance, dimensional accuracy, or compatibility of pipe, fittings, gaskets, or couplings not manufactured or sold by Prince Pipes.
10. This Limited Warranty will not apply unless written notice of a claim is mailed to Prince Pipes at the address below within 30 days of the day of discovery of the allegedly defective product. Any Prince Pipes products alleged to be defective must be made available to Prince Pipes at the following address for verification, inspection and determination of cause:

PRINCE PIPES AND FITTINGS LIMITED

The Ruby, 8th Floor, 29, Senapati Bapat Marg (Tulsi Pipe Road), Dadar (W),
Mumbai - 400 028, Maharashtra, India.

Purchaser must obtain a return materials authorization and instructions for return shipment to Prince Pipes of any product claimed defective or shipped in error. Any Prince Pipes product proved to be defective in manufacture will be replaced F.O.C. point of original delivery, or credit will be issued, at the discretion of Prince Pipes.

PRINCE PIPES AND FITTINGS LIMITED

E: info@princepipes.com | W: www.princepipes.com

Branch Offices: Ahmedabad | Chennai | Delhi | Hyderabad | Kolkata | Pune | Patna

Toll Free: 1800 267 7555

Please call between 10 am to 6 pm

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