

DECILO

Low Noise PP Drainage System



PRINCE PIPES AND FITTINGS LIMITED

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MODERN ENGINEERED DRAINAGE **SYSTEMS**

Index

Prince Pipes - Towards a Better Future with Innovative Solutions	02
Company Overview	03
Introducing DECILO Low-Noise PP Drainage System	04
DECILO - All About Quality, Technology, and Innovation	05
Noise Transmission and the Need for Low-Noise Piping Systems	06
Pipes Dimensions	07
Fittings Dimensions - Rubber Ring Joint	10
Door Cap	12

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.

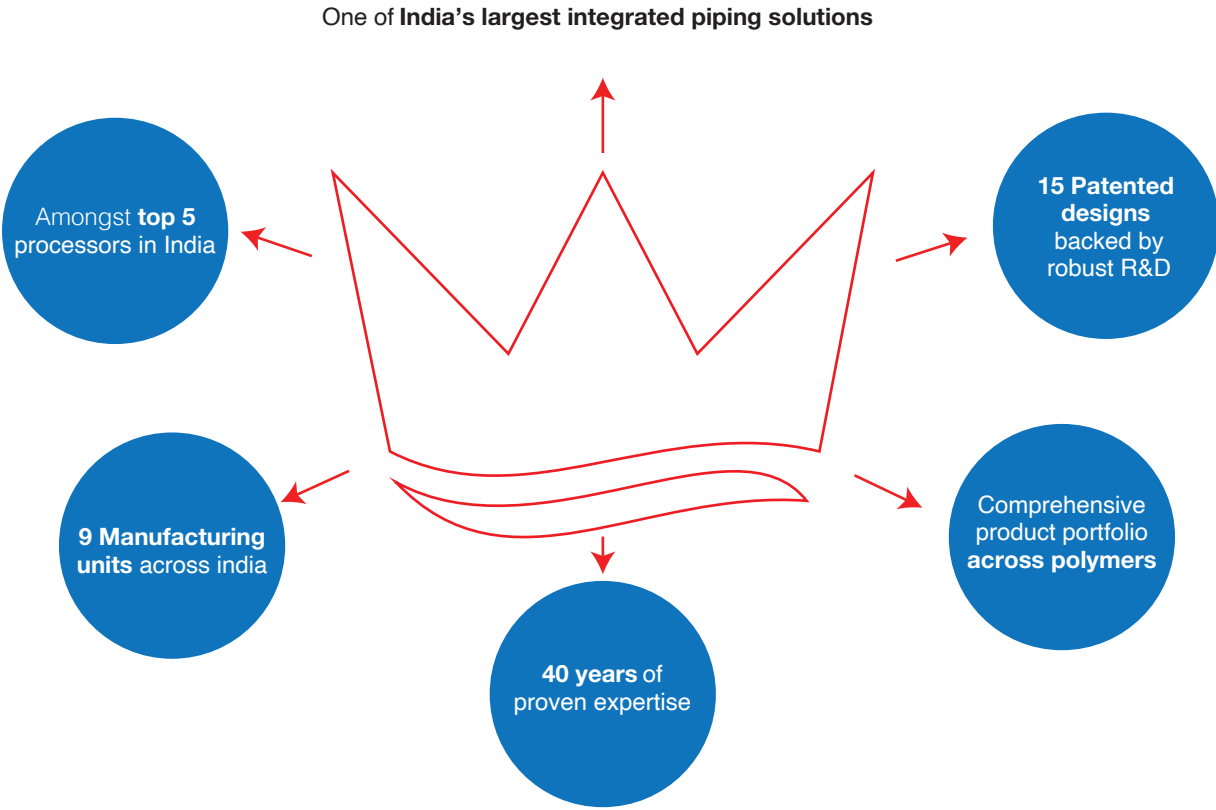
Greener Better Together

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 systems, 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.



COMPANY OVERVIEW



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 that 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 Watch	10 dB
DECILO	XX 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

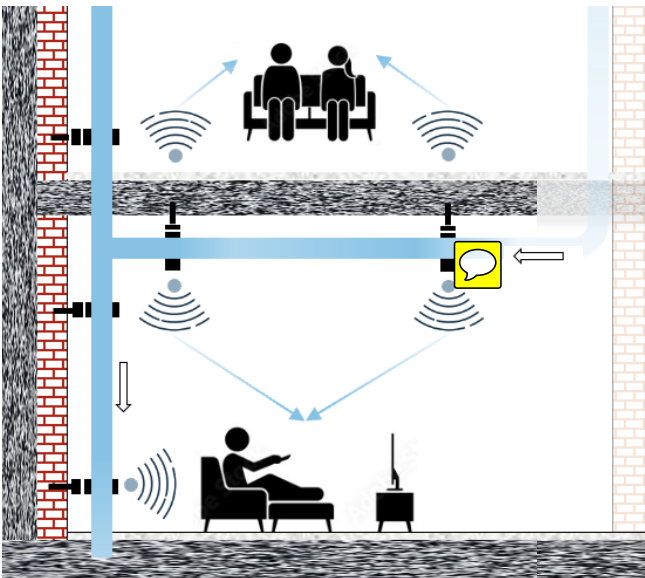
Origin of Noise in Sewer Piping

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 Systems

In drainage systems, 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 systems, 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 systems:



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 systems, 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 **10-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**.

10

YEARS WARRANTY



B2 Flame
DIN 4102-1

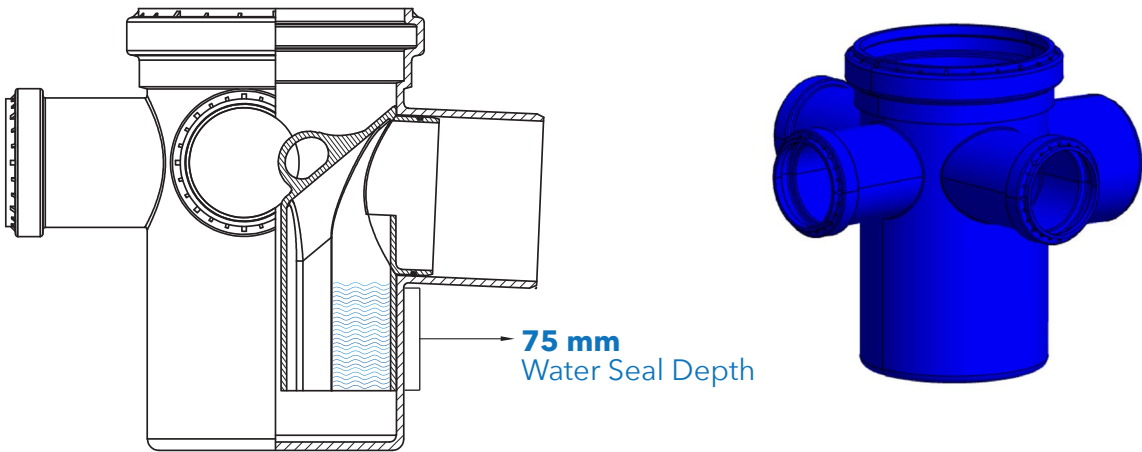
EN-13501-1



DIN 4102

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 systems. Specialized 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 push-fit system is universally compatible and can be seamlessly integrated with the various trade solutions.

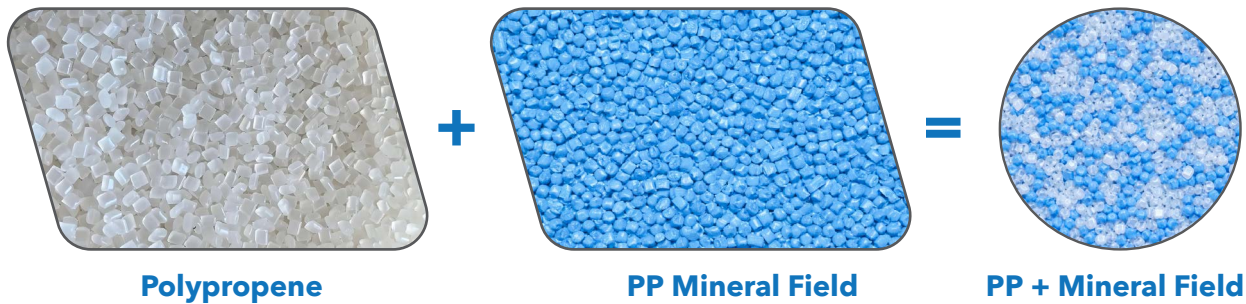


Advantages of Polypropylene (PP)

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 1.4 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

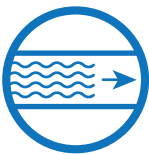
Property	Unit	Value
Material	–	PP / PP Mineral Filled / PP
Fitting	–	PP Mineral Filled
Rubber Seal	–	SBR (Need to check)
Colour	–	Blue RAL 5012
Density	g/cm ³	1.45
Tensile Strength	MPa	18.5
Elongation at Break	%	32
Modulus of Elasticity	MPa	3000-3500
Coefficient of Linear Expansion	mm/mK	0.09
Ring Stiffness	kN/m ²	>6.0
Fire Resistance	–	D- s2, d0
Connection Type	–	Push Fit sockets with factory-inserted lip seal rubber ring
Application Environment	–	Wastewater with pH 2-12
Operating Temperature	°C	Up to 95°C (intermittent), 90°C (continuous)
Life Expectancy	Years	50
Reference Standard	–	EN 1451, Series S16

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.



Ultra-Smooth, Clog-Resistant Inner Surface

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



Environmentally Friendly & Sustainable

DECILO Low Noise PP Drainage System 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 environmentally friendly choice that helps conserve resources and reduce waste.



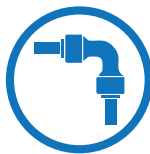
Cost-Effective & Efficient Solution

The lightweight design and easy-to-install push-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.



Shock & Vibration Resilience

The flexible push-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.



Fast & Secure Push-Fit Connections

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



Reduced Thermal Expansion for Stability

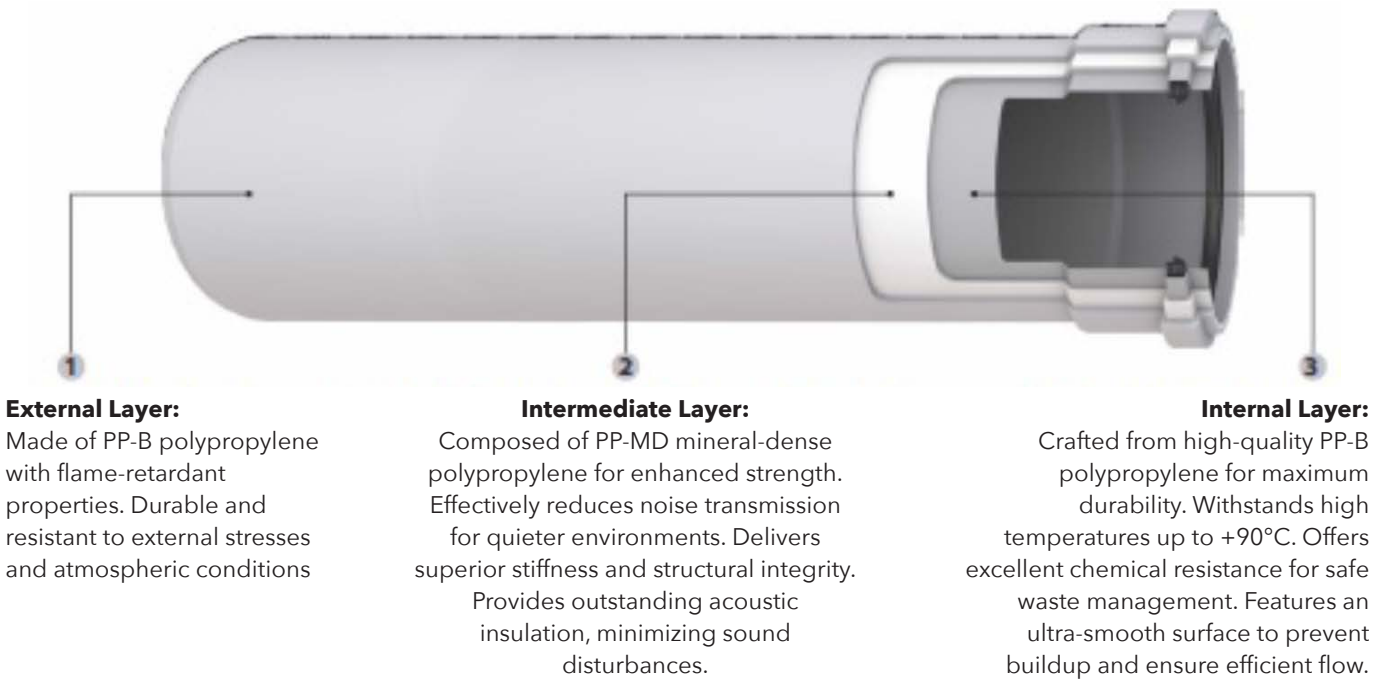
The unique three-layer design with a mineral-reinforced polypropylene intermediate layer minimizes thermal expansion compared to polyethylene. Paired with the push-fit connection system, this ensures stability even with temperature variations.



UV-Resistant for Long-Lasting Performance

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

The Structure of DECILO 3-Layer Low-Noise Pipe



Unique Features of Fittings



Rubber Seal

A secure and durable pipe connection is critical for the reliability of any drainage system. DECILO Low Noise PP Drainage System integrated with Precision sealing rings made from high-quality SBR rubber, meeting DIN 681-1 standards, ensure leak-proof joints even under demanding conditions. These innovative sealing rings not only ensure superior performance but also enable fast and effortless installation with minimal labour. Also, the rigid back support adds stability and enhances sound damping.

Reliable. Durable. Effortless

Comparison: DECILO v/s UPVC

Features	DECILO Low Noise PP Drainage System	UPVC pipe
Material Property	Made of PP, offering flexibility and toughness	Made of PVC, which is rigid
Impact Strength	Provides nearly double the impact resistance of PVC	Low resistance to impact, easily damaged during handling
Chemical Resistance	Strong resistance to chemicals, effective across a wide pH range (2-12)	Limited ability to withstand chemical exposure
Temperature Resistance	Can handle short-term exposure up to 95°C and continuous use up to 90°C	Functional only up to about 60°C
Versatile	Applicable in diverse settings such as kitchens, laboratories, and hospitals	Primarily limited to basic drainage purposes
Suspended Application	Well-suited for suspended pipe installations	Less suitable for suspended applications
Acoustic Properties	Provides effective sound and noise insulation	Poor in reducing noise and sound transmission
Fittings	Specially designed fittings with swept angles, depth markings, rotatable joints, and pre-fitted doors for high-rise projects	Such advanced fittings are currently not available in India

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.



Pipes Dimensions

Nominal Bore	Nominal Outside Diameter	Mean Outside Diameter		Wall Thickness	
		Minimum	Maximum	Minimum	
(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
40	40.0	40.0	40.30	1.80	2.20
50	50.0	50.0	50.30	1.80	2.20
75	75.0	75.0	75.40	2.30	2.80
110	110.0	110.0	110.40	3.40	4.00
160	160.0	160.0	160.50	4.90	5.60

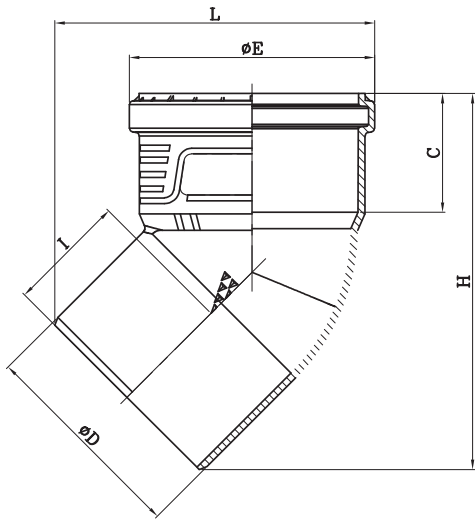


FITTINGS DIMENSIONS - RUBBER RING JOINT



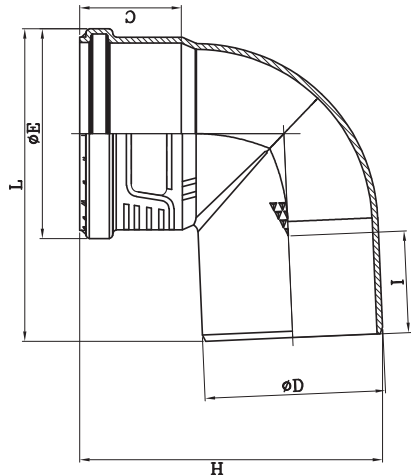
BEND 45°

Size (mm)	C	ØD	ØE	I	H	L
40	44.00	40.00	53.60	44.00	112.65	81.79
50	48.00	50.00	63.60	48.00	126.16	94.66
75	53.00	75.00	89.20	53.00	153.73	123.62
110	62.00	110.00	127.90	62.00	196.08	166.83
160	77.00	160.00	184.10	77.00	259.79	229.48



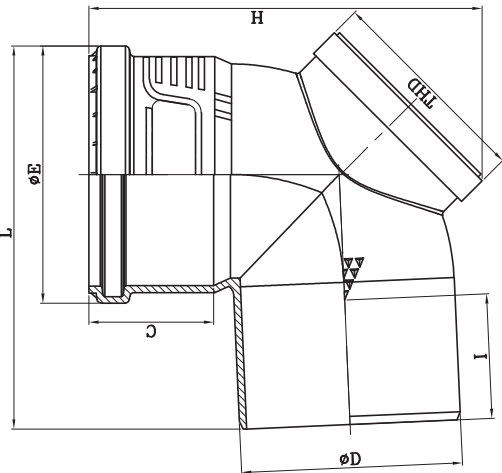
BEND 87.5° (ISI)

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



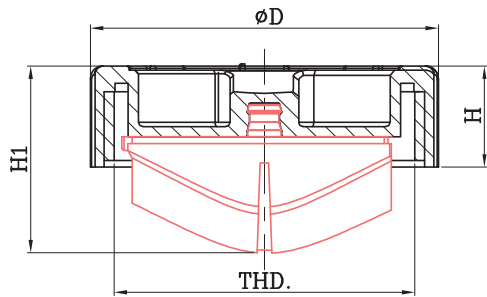
BEND 87.5° WITH DOOR

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



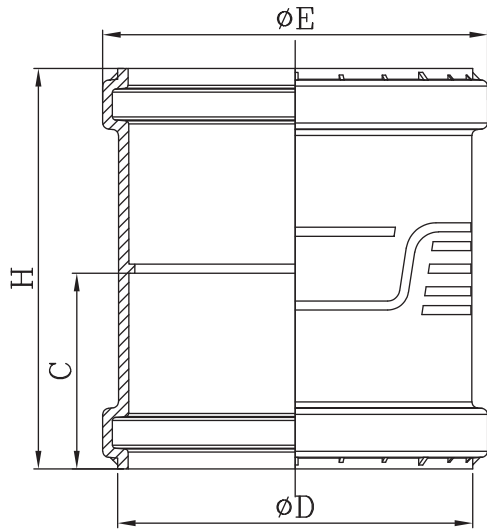
DOOR CAP

Size (mm)	ØD	H	H1
75	81.00	23.50	43.45
110	110.50	23.50	55.52



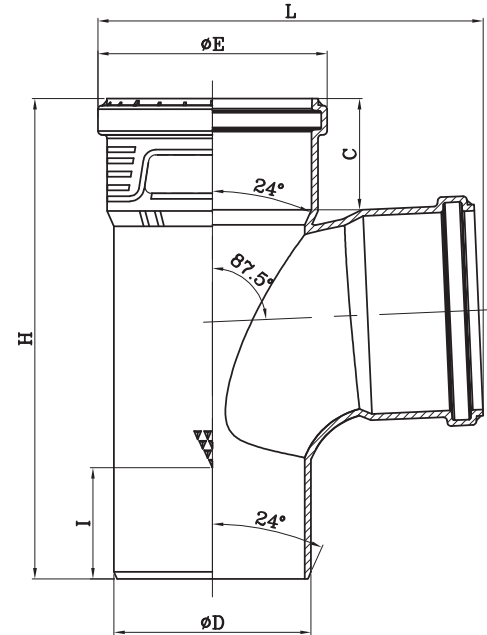
COUPLER

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°

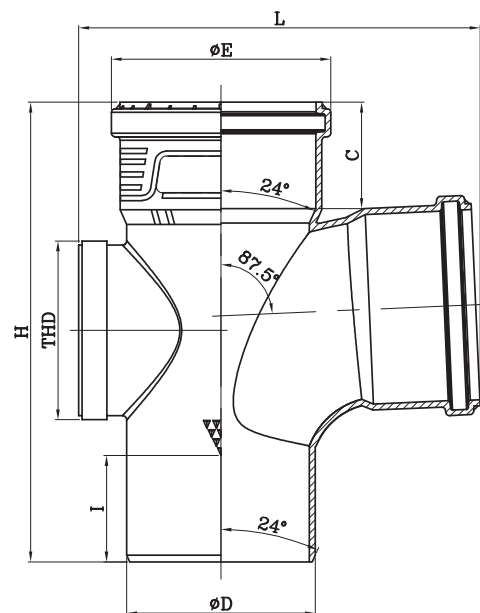
Size (mm)	C	ØD	ØE	I	H	L
40	44.00	40.00	53.60	44.00	145.50	103.21
50	48.00	50.00	63.60	48.00	152.00	111.93
75	53.00	75.00	89.20	53.00	207.00	153.26
110	62.00	110.00	127.90	62.00	268.00	215.00
160	77.00	160.00	184.10	77.00	348.00	288.05





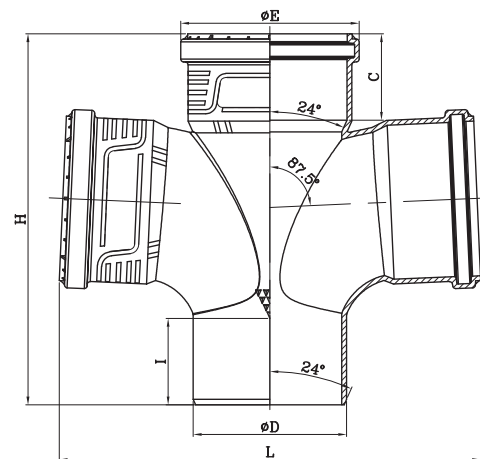
SWEPT TEE WITH
DOOR 87.5°

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



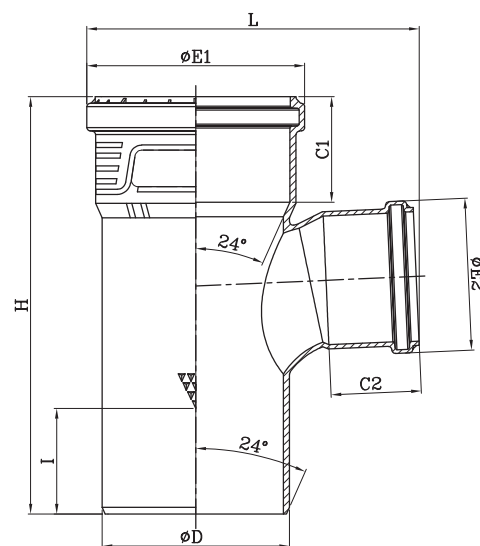
DOUBLE SWEPT
TEE 87.5°

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



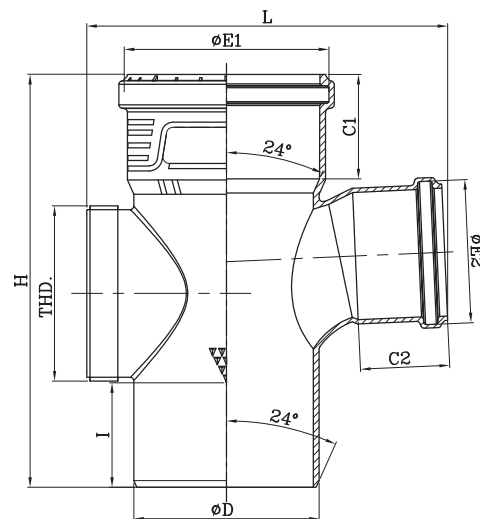
REDUCING SWEPT
TEE 87.5°

Size (mm)	C1	C2	ØD	ØE1	ØE2	I	H	L
110x50	62.00	48.00	110.00	127.90	63.60	62.00	246.00	173.95
110x75	62.00	53.00	110.00	127.90	89.20	62.00	245.00	195.20
160x75	77.00	53.00	160.00	184.10	89.20	77.00	275.00	251.43
160x110	77.00	62.00	160.00	184.10	127.90	77.00	295.00	272.05



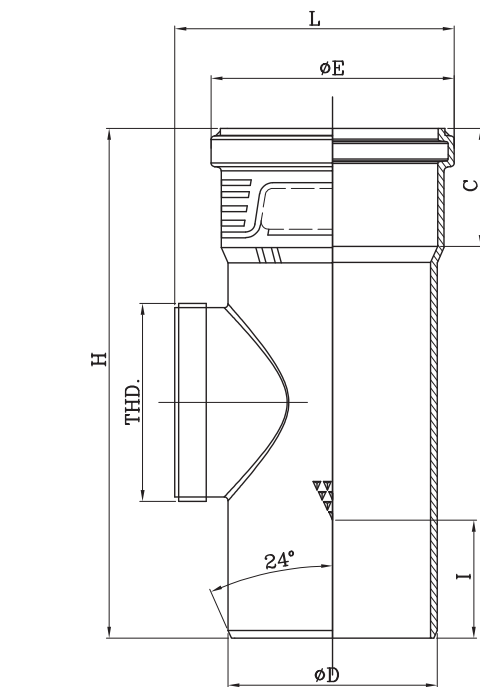
REDUCING TEE WITH
DOOR 87.5°

Size (mm)	C1	C2	ØD	ØE1	ØE2	I	H	L
110x50	62.00	48.00	110.00	127.90	63.60	62.00	246.00	193.00
110x75	62.00	53.00	110.00	127.90	89.20	62.00	245.00	214.25
160x75	77.00	53.00	160.00	184.10	89.20	77.00	275.00	267.38
160x110	77.00	62.00	160.00	184.10	127.90	77.00	295.00	288.00



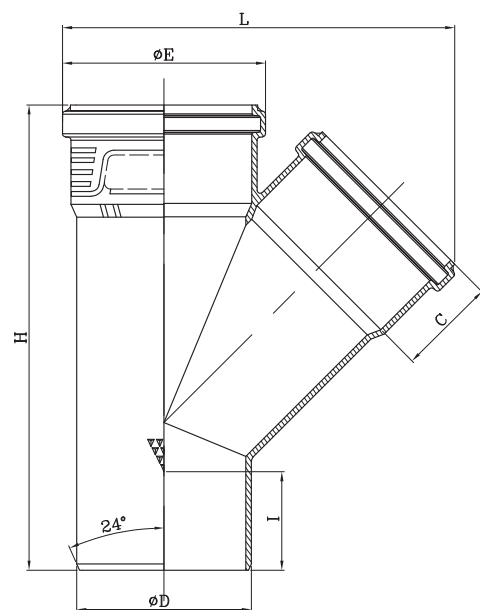
CLEANSING PIPE

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

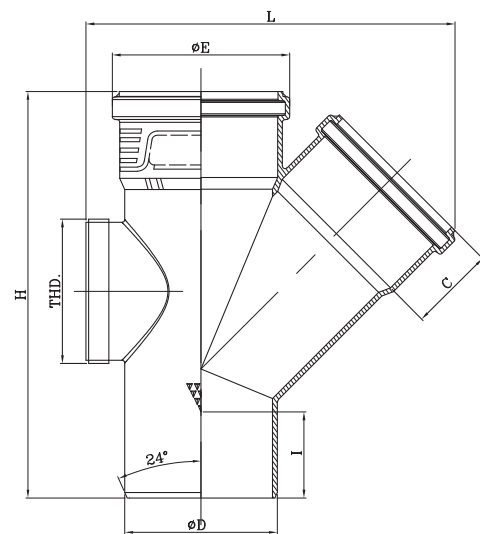
Size (mm)	C	ØD	ØE	I	H	L
40	44.00	40.00	53.60	44.00	152.32	110.59
50	48.00	50.00	63.60	52.00	173.78	129.45
75	53.00	75.00	89.20	53.00	221.38	177.05
110	62.00	110.00	127.90	62.00	293.00	247.00
160	77.00	160.00	184.10	77.00	388.00	347.67





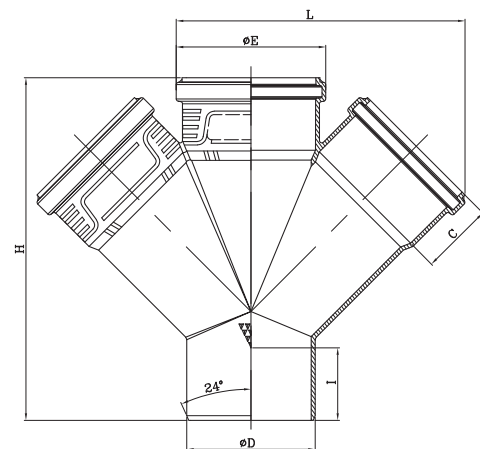
SINGLE DOOR Y

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



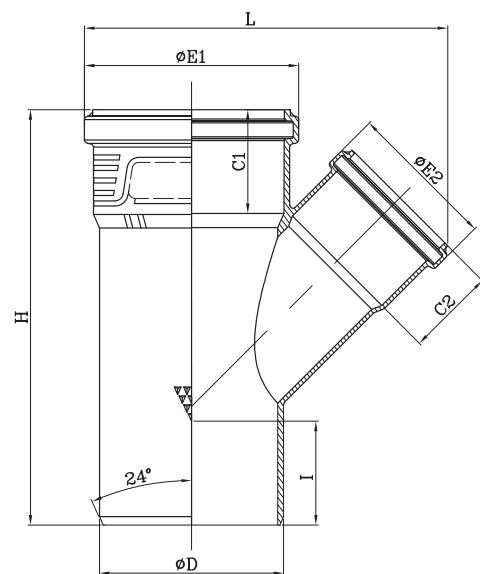
DOUBLE Y

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



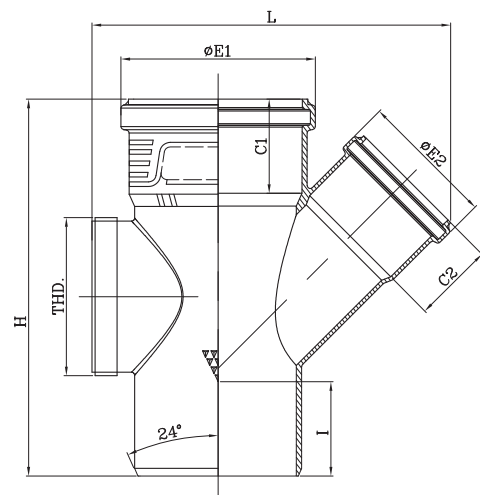
SINGLE REDUCING Y

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

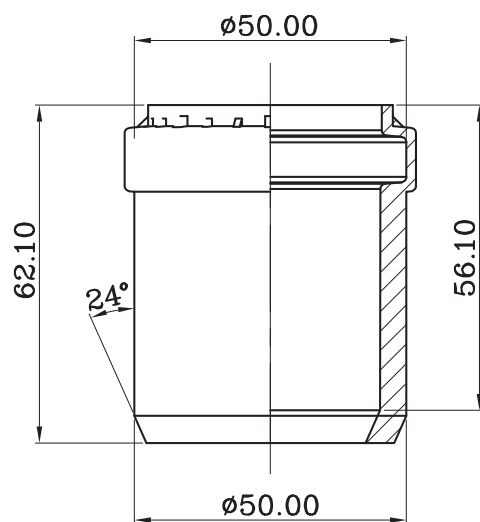


SINGLE REDUCING DOOR Y

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	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

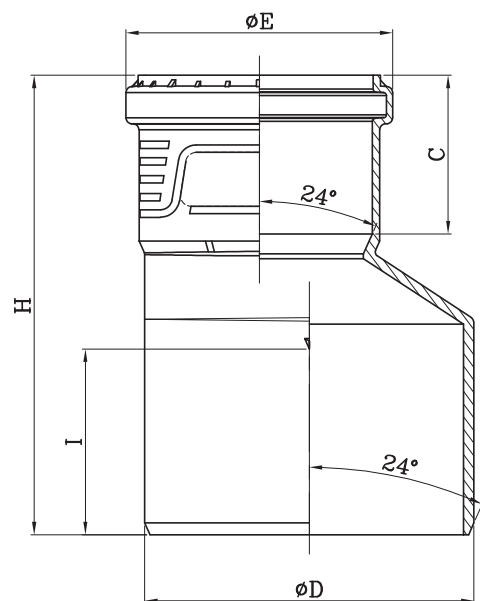


REDUCER (SHORT) 50X40MM



REDUCER

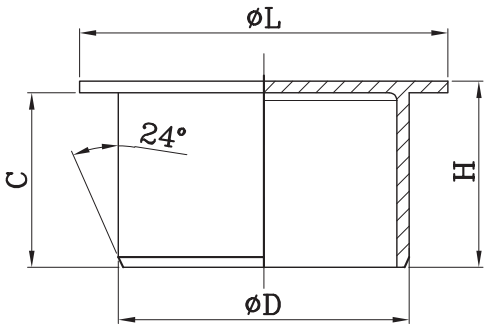
Size (mm)	C	ØD	ØE	I	H
75x50	48.00	75.00	60.00	48.00	129.00
110x50	48.00	110.00	60.00	62.00	160.00
110x75	53.00	110.00	85.00	62.00	153.50
160x75	53.00	160.00	85.00	73.00	192.00
160x110	62.00	160.00	121.50	73.00	186.00



Fitting Image

SOCKET PLUG

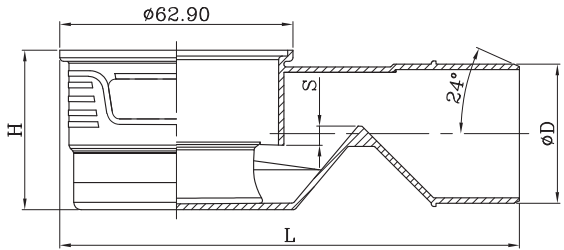
Size (mm)	C	ØD	H	ØL
50	46.50	50.00	49.00	56.00
75	51.50	75.00	54.50	81.00
110	58.50	110.00	61.80	120.00
160	73.50	160.00	78.50	175.50



Fitting Image

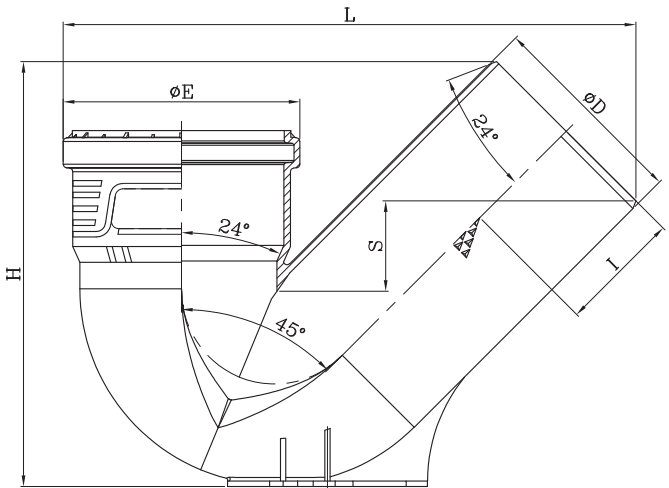
N- TRAP

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



P-TRAP 135°

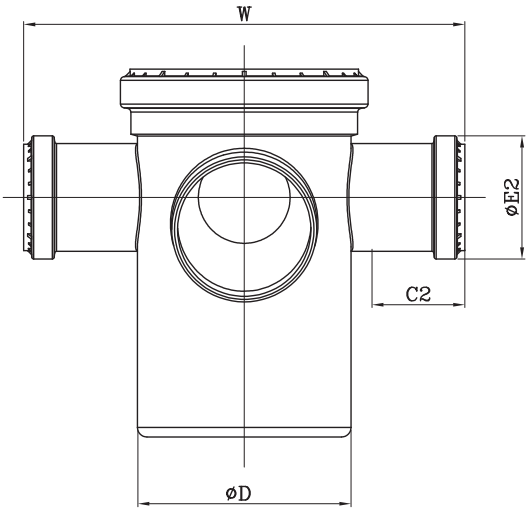
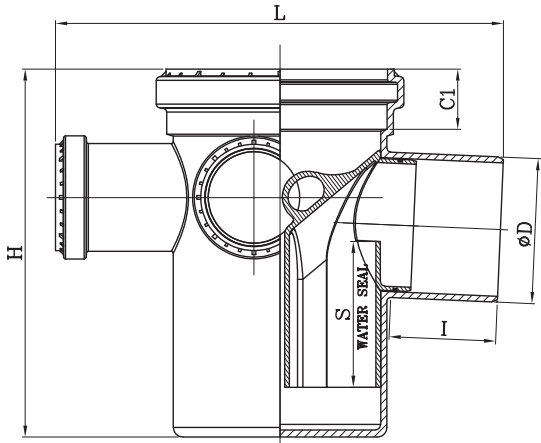
Size (mm)	C	ØD	ØE	I	S	H	L
75	53.00	75.00	89.20	53.00	50.00	167.10	223.26
110	62.00	110.00	127.90	66.00	50.00	230.00	309.43



Fitting Image

MULTI FLOOR TRAP
(OPEN 50mm)

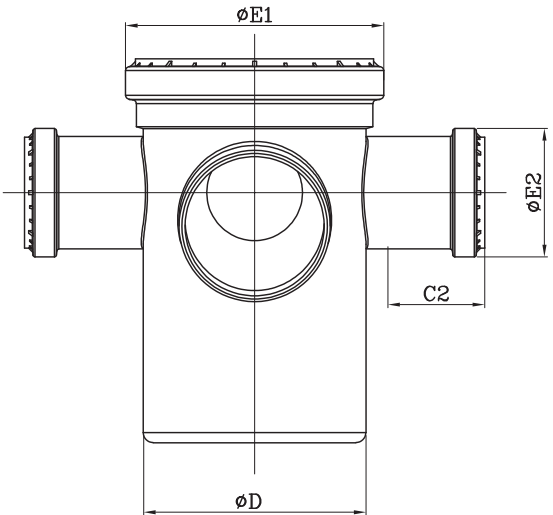
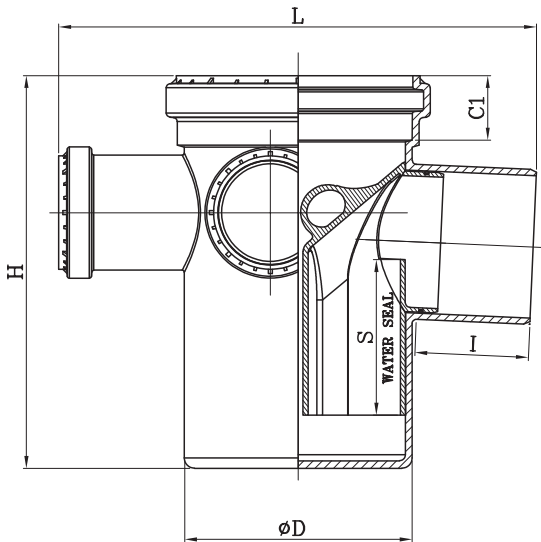
Size (mm)	C1	C2	ØD	ØE1	ØE2	I	L	W	H	S
110/50x75 (6"HT)	31.20	48.00	110.40	127.90	63.60	55.00	228.00	231.47	164.75	59.00
110/50x75 (7"HT)	31.20	48.00	110.40	127.90	63.60	55.00	228.00	231.47	190.15	75.00



Fitting Image

MULTI FLOOR TRAP
(CLOSED 50mm)

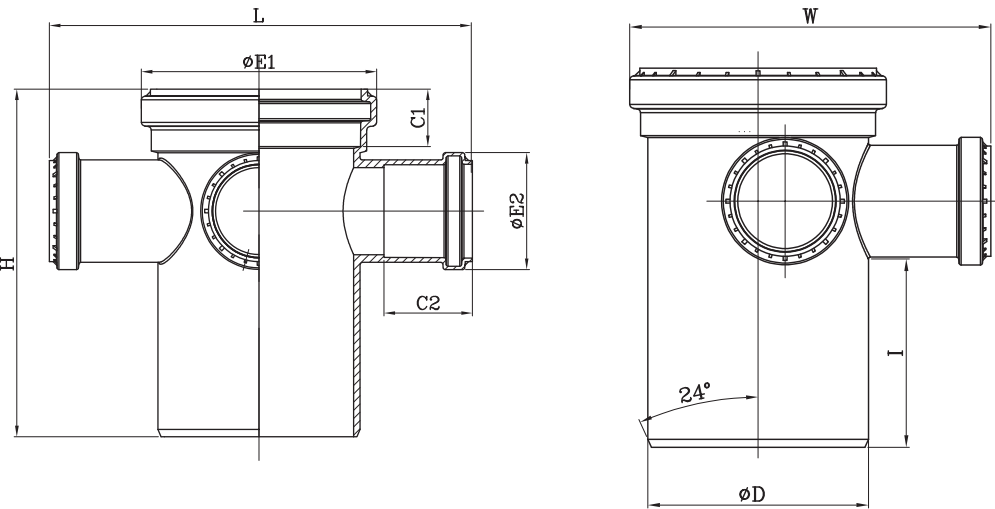
Size (mm)	C1	C2	ØD	ØE1	ØE2	I	L	W	H	S
110/50x75 (6"HT)	31.20	48.00	110.00	127.90	63.60	55.00	228.00	231.47	164.75	59.00
110/50x75 (7"HT)	31.20	48.00	110.00	127.90	63.60	55.00	228.00	231.47	190.15	75.00



Fitting Image

HEIGHT RISER
(OPEN 50mm)

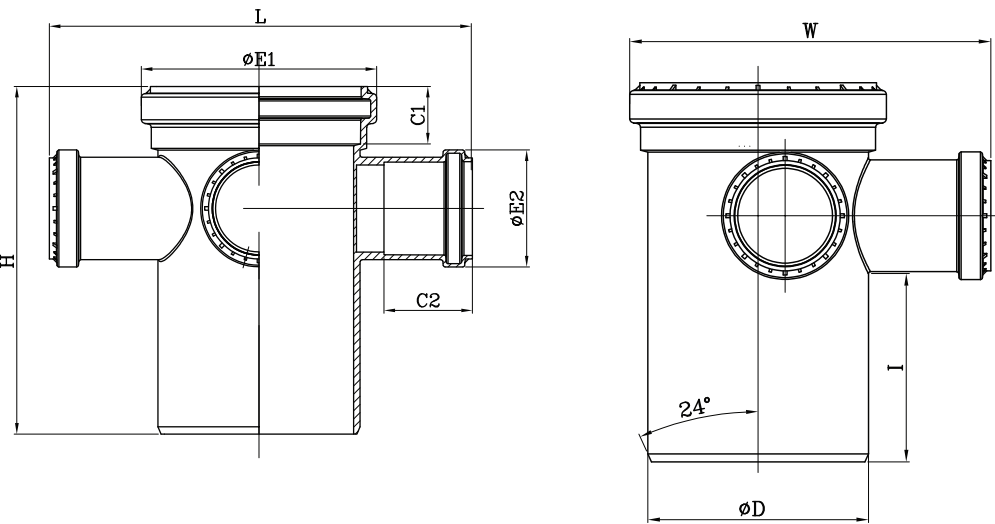
Size (mm)	C1	C2	ØD	ØE1	ØE2	I	L	W	H
110x50 (6"HT)	31.20	48.00	110.40	127.90	63.60	69.00	228.00	179.97	164.20
110x50 (7"HT)	31.20	48.00	110.40	127.90	63.60	93.80	228.00	179.97	189.00



Fitting Image

HEIGHT RISER
(CLOSED 50mm)

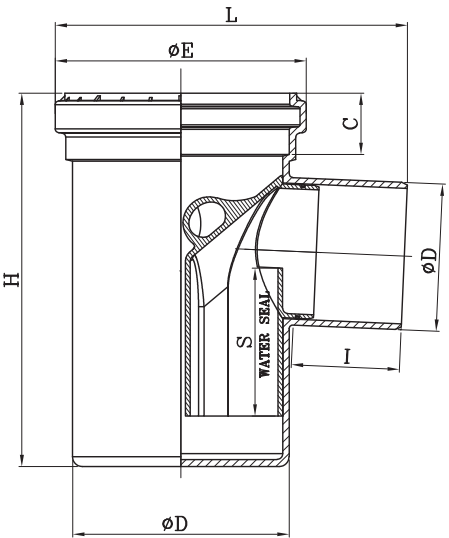
Size (mm)	C1	C2	ØD	ØE1	ØE2	I	L	W	H
110x50 (6"HT)	31.20	48.00	110.40	127.90	63.60	69.00	228.00	179.97	164.20
110x50 (7"HT)	31.20	48.00	110.40	127.90	63.60	93.80	228.00	179.97	189.00



Fitting Image

PLAIN FLOOR TRAP

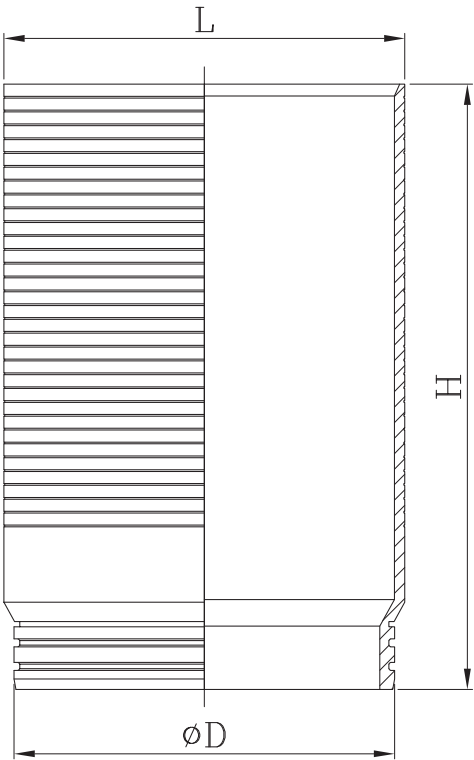
Size (mm)	C1	ØD	ØE	I	S	H	L
110x75 (7"HT)	31.20	110.40	127.90	55.00	179.40	190.15	75.00



Fitting Image

EXT. PIECE FOR N-TRAP

Size (mm)	C	ØD	ØE	I	H	L
110	62.00	110.00	127.90	62.00	195.25	190.59



Fire Safety

Fire Behaviour Classification

Fire Safety Certification for DECILO Low Noise PP Drainage System.

The DECILO Low Noise PP Drainage System has been rigorously tested and certified to meet the highest European fire safety standards for building materials. Let’s break down the certifications:

1. EN 13501-1:2009 (Class D-s2, d0) - Certified by (Lab name to be added after certification) This European standard evaluates the reaction of building materials to fire. The DECILO Low Noise PP Drainage System received a classification of D-s2, d0, which means:

- **Fire Resistance (Class D):** The material has a high contribution to fire, meaning it can catch fire but doesn’t ignite or spread flames as quickly as lower-rated materials.
- **Smoke Production (s2):** It produces a moderate amount of smoke during burning – not excessive, but not minimal either.
- **Flaming Droplets (d0):** No flaming droplets or particles that could cause secondary fires.

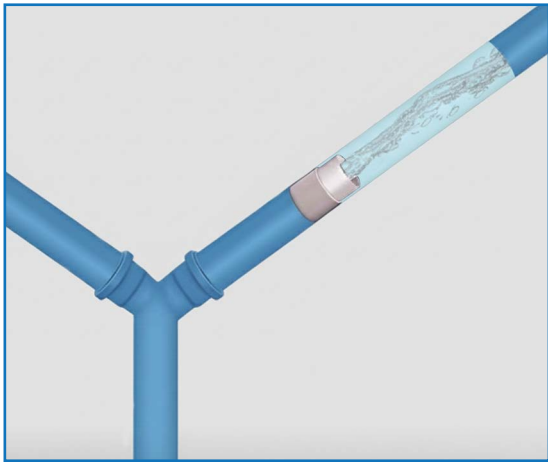
This classification ensures the system offers reliable safety for typical building applications, though additional protective measures might be needed for high-risk areas.

2. DIN 4102-1 (Class B2) – Certified by (M/s Shreeram Institute of Industrial Research) According to this German standard, DECILO Low Noise PP Drainage System are classified as B2, meaning they are normally flammable. When exposed to a small flame, the material burns, but the spread of fire remains controlled.

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

In line with European standardization, the fire classification classes as per DIN 4102-1 is translated into European EN 13501-1. The accreditation is based on the standardized Single-Burning-Item-Test (SBIT) in conformity with EN 13823.



Fire Resistance Classification

Understand the difference between “Reaction to Fire” & “Fire Resistance”

Reaction to fire: This refers to how a material contributes to a fire when it burns or decomposes under specific test conditions. For example, does it ignite easily? Does it release a lot of heat or smoke? Does it produce flaming droplets?

Fire resistance (not the same as reaction to fire): Fire resistance is about how long a material can withstand fire while still performing its function (like holding up a structure or stopping flames from spreading). Reaction to fire is more about how the material behaves during the initial stages of a fire.

In line with European standardization, the fire classification classes as per DIN 4102-1 is translated into European EN 13501-1. The accreditation is based on the standardized

Single-Burning-Item-Test (SBIT) in conformity with EN 13823. The fire resistance classification provides the fire resistance duration of a specific construction element.

Fire Resistance Classification	Fire Resistance Duration in minutes
F 30	≥ 30 minutes = Fire Retardant
F 60	≥ 60 minutes = High Fire Retardant
F 90	≥ 90 minutes = Fire Resistant
F 120	≥ 120 minutes = High Fire Resistant
F 180	≥ 180 minutes = Extreme Fire Resistant

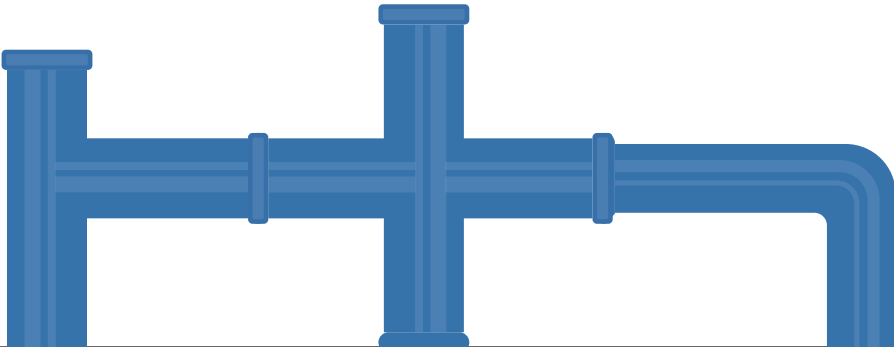
Possible additions to these fire resistance classes, e.g. F90 A or F90 B, can be explained as follows:

A - Made of non-combustible materials

B - Made of combustible materials

AB - In principle made of non-combustible materials.

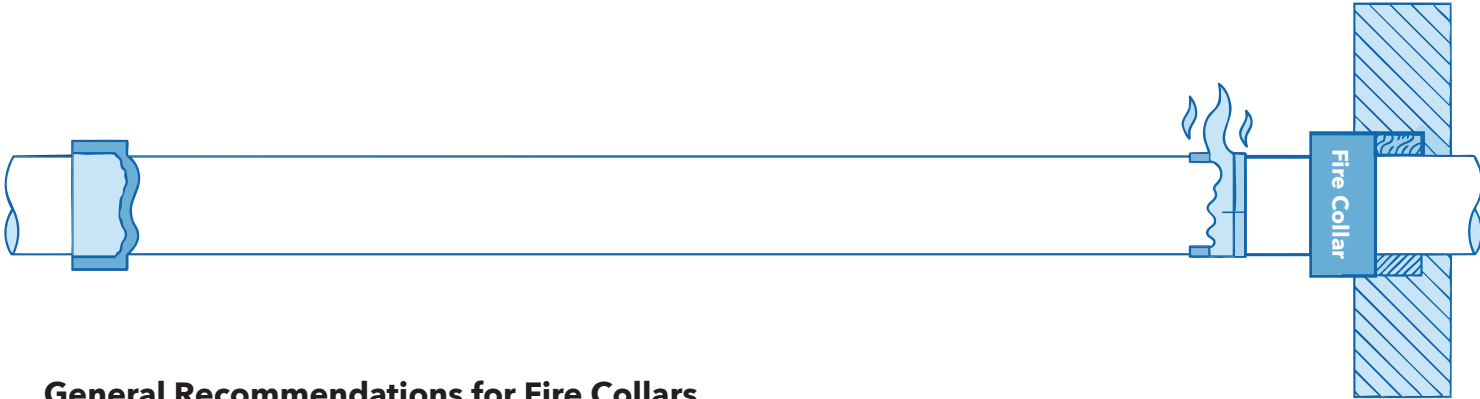
The **National Building Code (NBC)** emphasizes fire safety by limiting fire spread through fire barriers. The code states: “It is important to limit the spread of a fire in any building. The usual method is to use fire barriers. In some instances, these barriers need to be penetrated for ductwork, plumbing, and electrical systems, and in such cases, use of passive fire protection measures shall be done so that the integrity of these barriers is not compromised.



Fire Collar

Fire protection collars 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 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

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

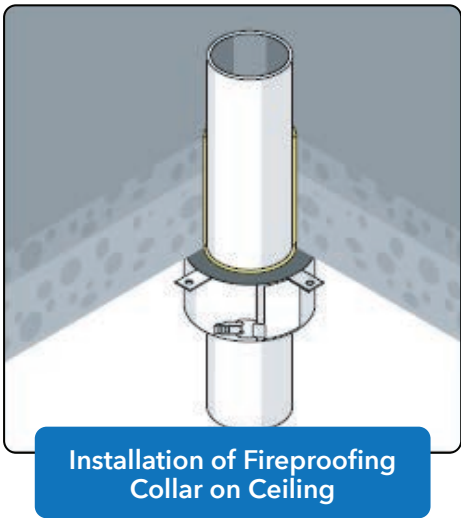
- 1. Correct Sizing:** Always select fire collars specifically designed for the diameter and type of polymer pipe (e.g., PVC, HDPE, PP). Using the correct size ensures proper sealing in case of a fire.
- 2. Proper Installation:** Install fire collars strictly according to the manufacturers and supplier's 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 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 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 used is tested and certified for the specific type of pipe being installed. Using non-compatible collars may compromise fire safety performance.
- 6. Supplier Guidance:** Always follow the specific instructions provided by the fire collar supplier, including recommendations on fastening, sealing, and testing, to ensure optimal performance in a fire situation.

Type of Installations

Minimum requirements of the ceiling: min. 15.0 cm / 6 Inches thick concrete ceiling.

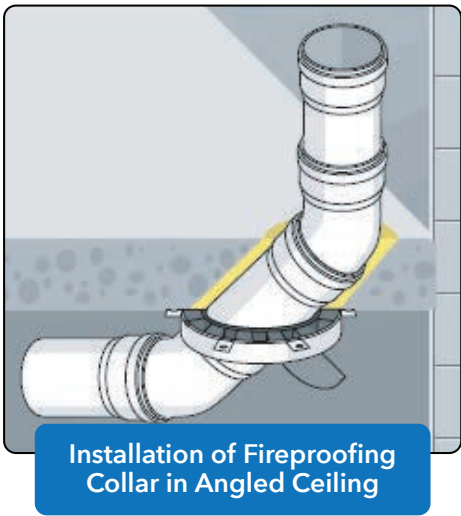
Flush/ Straight Ceiling Installation

- Wrap protecting mat around the pipe
- While hooking in the push-in fastening, open the collar and position it around the line
- Bend the collar mounting tabs
- Install the collar flush with the ceiling
- Fill the leftover ceiling gap with concrete or cement
- Hold the collar firmly against the ceiling and mark the places of the mounting holes
- Rotate the collar and drill the holes
- Insert plugs and fix the collar utilizing screws and washers. (Mounting the collar utilizing the washers, attachments, and screws given)



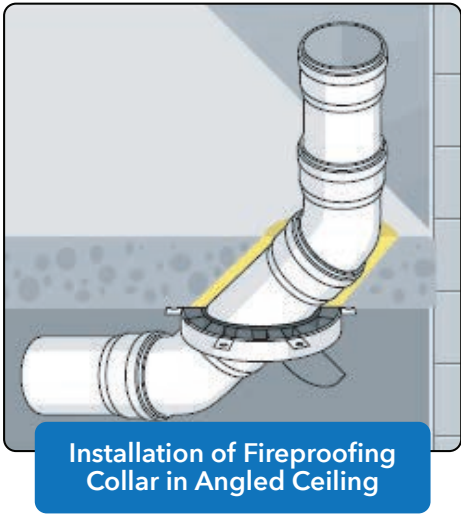
Angled Ceiling Installation

- Wrap protecting mat around the pipe
- While hooking in the push-in fastening, open the collar and position it around the line Fill the leftover ceiling gap with concrete or cement
- Hold the collar firmly against the ceiling and mark the places of the mounting holes
- Rotate the collar and drill the holes
- Insert plugs and fix the collar utilizing screws and washers. (Mounting the collar utilizing the washers, attachments, and screws given)



Angled Ceiling Installation

- Wrap protecting mat around the pipe
- While hooking in the push-in fastening, open the collar and position it around the line Fill the leftover ceiling gap with concrete or cement
- Hold the collar firmly against the ceiling and mark the places of the mounting holes
- Rotate the collar and drill the holes
- Insert plugs and fix the collar utilizing screws and washers. (Mounting the collar utilizing the washers, attachments, and screws given)



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.

About Clamps and Lubricants



Handling, Storage and Transportation



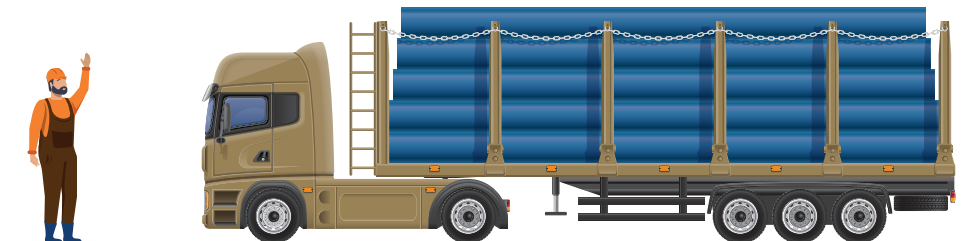
1. Handling

- 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 Guide: DECILO Low Noise PP Drainage System

Installing a low noise piping 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.

Key Considerations for Installation

To prevent sound from traveling through the building's structure, you must ensure the piping system components do not make direct contact with building elements like walls, ceilings, and floors.

- **Avoid Direct Contact:** When pipes pass through walls, floors, or other structures, use a rubber strip or glass wool or foam material to create a buffer. This isolates the pipe and prevents vibrations from being transmitted to the building.
- **Placement:** Wherever possible, avoid routing wastewater discharge pipes inside walls that separate living spaces.
- **Change in Direction:** When changing the direction of the wastewater flow from vertical to horizontal, do not use a single 87.50 bend. Instead, use two 450 bends with a short section of pipe in between. This reduces the turbulence of the wastewater, which is a major source of noise.
- **Separation from Other Systems:** Ensure the low noise piping system does not encounter other building systems, such as electrical conduits, water supply lines, or HVAC ducts.

DECILO Low Noise PP Drainage System Installation and 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 metal bracket with rubber inlays is highly recommended as it's specifically designed to reduce noise.

Fixed and Sliding Clamps

The proper use of clamps is fundamental to a low noise piping system. They secure the pipes while managing thermal expansion and contraction. The DECILO Low Noise PP Drainage System steel bracket with rubber inlay can be used for both fixed and sliding applications.

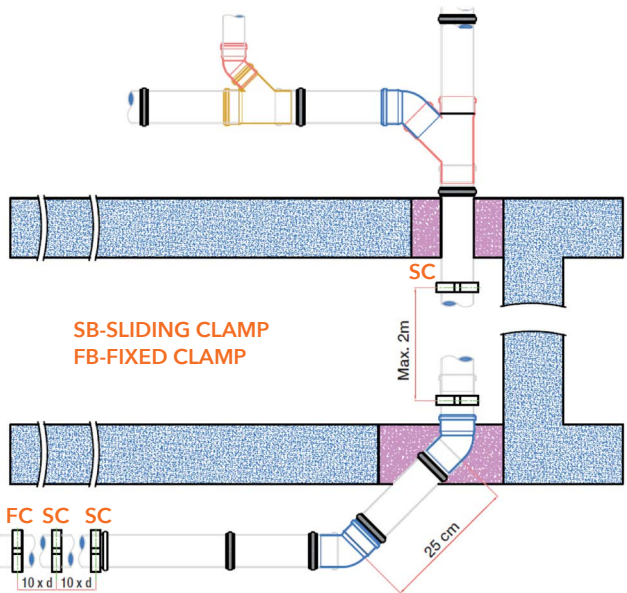
Fixed Clamps

- **Purpose:** A fixed clamp, as the name suggests, prevents any longitudinal movement of the pipe.
- **Placement:** These clamps are typically positioned just below the socket of a pipe or fitting.
- **Installation:** Tighten the screws of the clamp until the "ears" of the clamp touch. Remember to remove any spacer that may be provided between the two ears.

Note: Ensure you use the correct size clamp for the pipe diameter. Wrong size clamp may cause damage due to excessive tightening of clamps.

Sliding Clamps

- **Purpose:** Sliding clamps allow for longitudinal movement of the pipe due to thermal expansion and contraction.
- **Installation:** When using the DECILO Low Noise PP Drainage System clamp for a sliding application, use a washer and tighten the screw only until the rubber inlay contacts the pipe. This allows the pipe to move freely within the bracket.



Follow the above installation guidelines, you can ensure the DECILO Low Noise PP Drainage System performs as intended, providing a quiet and reliable soil and waste system for your building.

When installing DECILO Low Noise PP Drainage System, you must be careful to protect them from external heat such as central heating pipes or hot water supply pipelines, as it will expand when heated. If the Decilo Low Noise PP Drainage System is installed too close to source of heat expansion then it cause stress on joints and potentially lead to leaks.

Therefore,

- To prevent heat transfer, insulate the hot water pipes/central heating pipes. Pipe heat insulation material acts as a barrier and keeps heat from reaching and affecting the DECILO Low Noise PP Drainage System.
- Hence to ensure to provide enough space as specified in the table below to keep away DECILO Low Noise PP Drainage System away from heat source.

Table for maintaining safer distance between DECILO Low Noise PP Drainage System and heat source

Outside Diameter of DECILO pipe DN/OD	Minimum required space from heat source for safer installation (in mm)
40	150
50	160
75	180
110	210
160	270

Note - Above spacing is for straight pipe runs only and not for pipe crossing.

Support Clamp 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.

General Spacing - A common practice is to place a clamp every 10 times the pipe's outer diameter (OD). For example, a 110 mm pipe would require clamps at a maximum distance of 1.1 meters (110 mm x 10).

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 point.

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 clamp’s 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

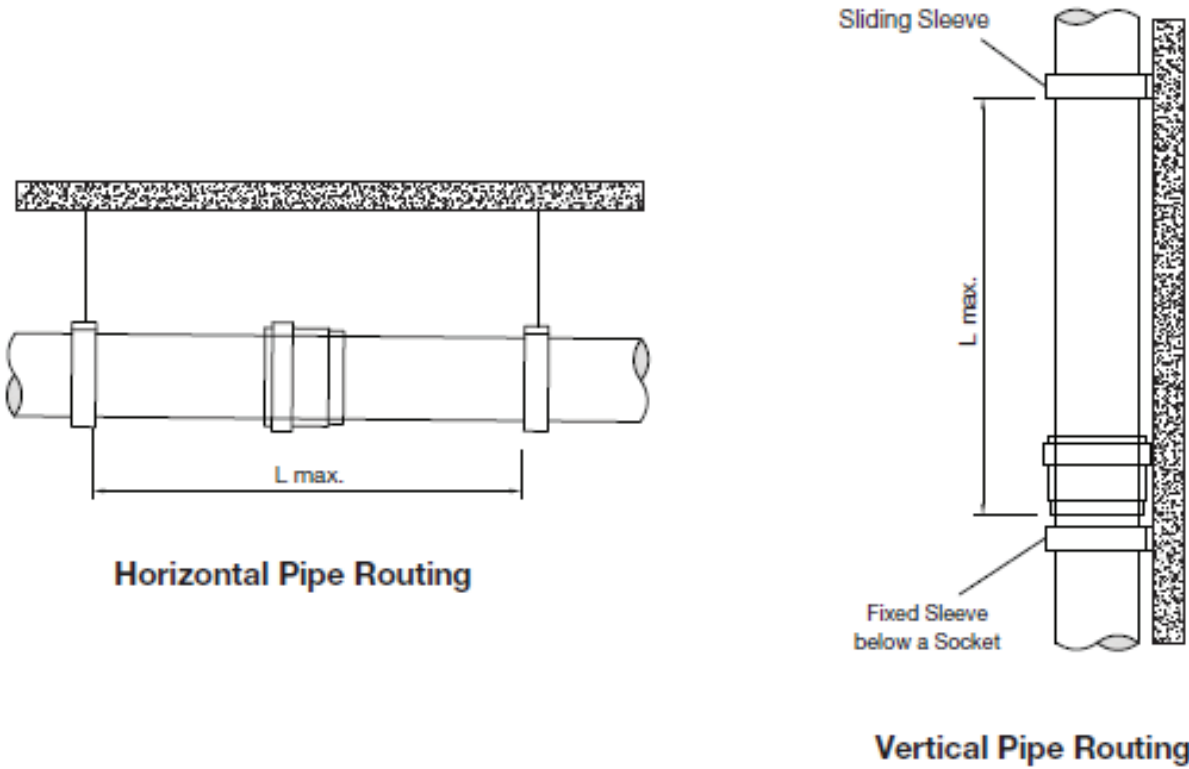
Clamp Points -

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.

Support clamp spacing for DECILO Low Noise PP Drainage System

Outside Diameter of DECILO pipe	Maximum distance between two clamp supports	
	Horizontal Run	Vertical Run
DN/OD	cm	cm
40	75	120
50	75	120
75	105	180
110	150	200
160	180	200



To protect the system against extreme conditions like a flood, we recommend using rigid support as shown in the sketches below. Rigid supports 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 clips on the joints other than clamps where the wastewater line changes its direction specifically in high rise buildings. A safety clip 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 floors creates immense force when it changes direction, and a safety clip ensures the joint stays secure under that high-velocity flow.

Special Fitting: Expansion Coupler

An expansion coupler (also known as an acoustic or compensator coupler) is a specialized fitting in DECILO Low Noise PP Drainage System designed to absorb thermal expansion and contraction. It typically features a rigid joint on one end and a flexible, sliding seal on the other, allowing the pipe to move longitudinally within the fitting.

Uses of Expansion Coupler

- **Vertical Stack Runs:** Installed at regular intervals (e.g., every 3 meters) along long vertical stack pipes in multi-story buildings to manage significant length changes due to temperature fluctuations.
- **Horizontal Pipe Runs:** Used in extended horizontal runs to accommodate cumulative expansion and contraction, preventing stress on fixed points and potential buckling.
- **Hot Water Discharge Lines:** Crucial systems receiving frequent hot water discharge (e.g., kitchens, industrial applications) to handle rapid thermal changes.

WARRANTY PRINCE Pipes and fittings Ltd. undertake to repair or replace as early as possible & free of charge all products of PP SWR Pipe and Fittings supplied to under Purchase Order- which demonstrably suffer from faulty materials or manufacturing defect.

This warranty is valid for installation of PP SWR Pipe and Fittings in accordance with the standard procedure & technical details laid down in reference standard as well as our manual. Installed line need to be checked & tested before concealing and Tiles work.

This warranty shall not apply to damage resulting from normal wear & tear, improper storage & maintenance, failure to observe the operating instructions, over stressing or overloading, unsuitable operating media, unsuitable construction work or unsuitable building ground, improper repairs & alterations by the purchaser or third parties, the use of other than original spare parts & other reason beyond control of PRINCE Pipes and Fittings Ltd.

PRINCE Pipes and Fittings Ltd. will assume the cost of dismantling the defective product & restoring the damaged object as well. However, the liability will be limited to the cost of replaced Pipes & Fittings supplied / invoiced & installation charges.

Technical documentation such as drawings, descriptions, illustrations, performance & weight as well as reference to standards is for information purpose only. They are not warranted characteristics & are subject to change.

This warranty is valid for a period of 10 years from the date of purchase / invoice from PRINCE.