

# Low Noise PP Drainage System



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# Prince Pipes – Paving the Way for a Brighter Future with Innovation

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

At Prince Pipes, our aim is to create products that act as solutions and make a difference. From our zero-defect manufacturing process that involves using recycled plastic to designing and equipping our plants with solar panels and several other **energy-saving measures**, firm in our commitment to bring down emission levels. Our strong belief in the concept of "better lasts longer" has not only helped us deliver premium-quality products but also be consumption-conscious. Together with our channel partners and plumber associates, we sincerely pledge to leave behind a stronger and more sustainable legacy for generations to come.



SANGAREDDY EST. 2021



JAIPUR EST. 2019



KOLHAPUR EST. 2012



CHENNAI EST. 2012



HARIDWAR EST. 2008



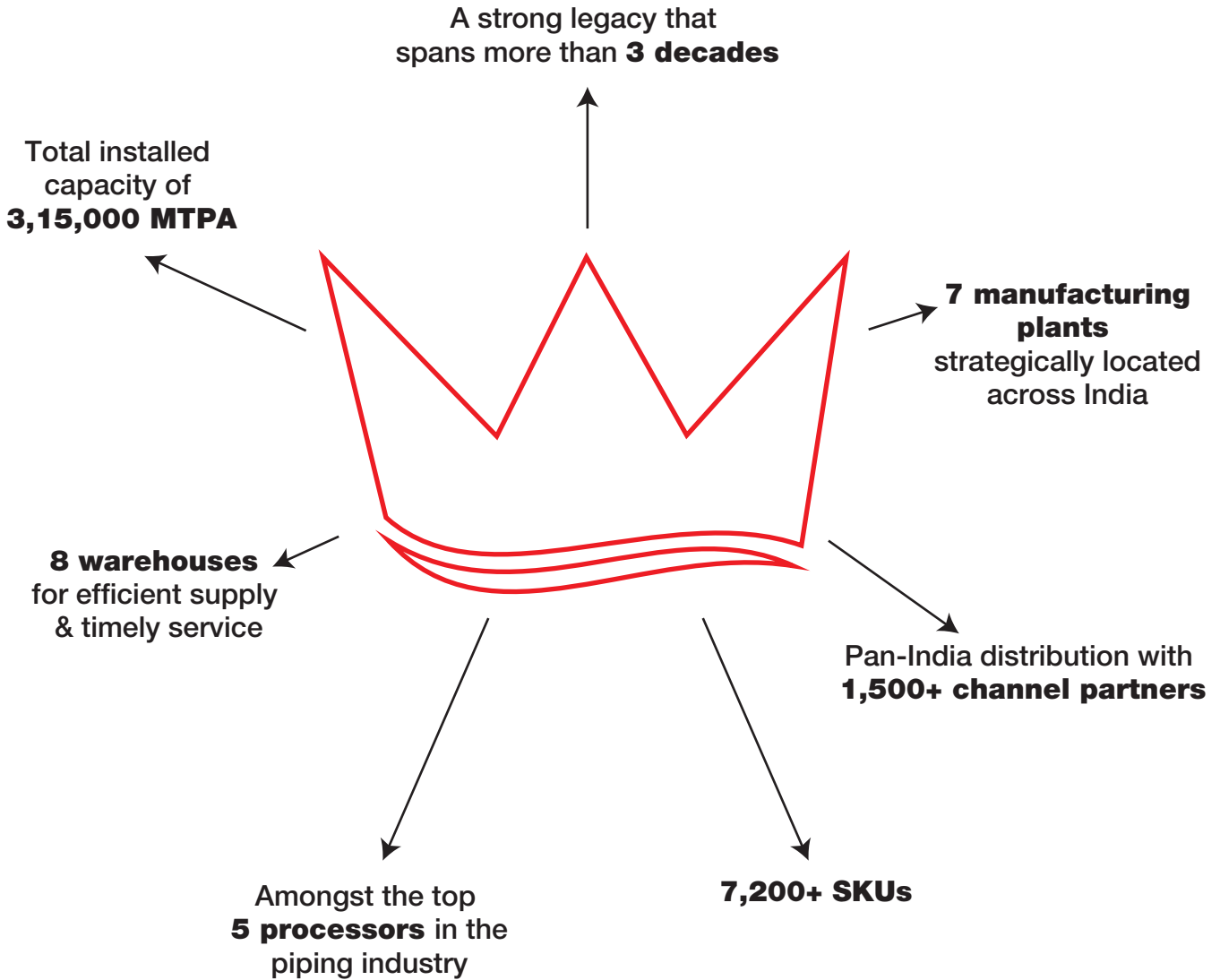
DADRA EST. 2000



ATHAL EST. 1995



# Company at a glance



## TECHNICAL COLLABORATION



## PRODUCT COLLABORATION



# The Best Global Drainage Piping System Now In India

We are passionate about honing our expertise in piping systems and bringing to you, the world's best products through a collaborative culture and approach. With the launch of the Prince-HT Safe Silent Drainage System manufactured by Ostendorf Kunststoffe GmbH in Germany, we are once again underscoring this commitment by aligning with one of the world's leading suppliers of drainage solutions with excellence in **quality, design, technology, and sustainability**.

With the benefit-laden properties of polypropylene (PP), Prince-HT Safe is a top-quality product, with high utility value. The Prince-HT Safe System has been designed keeping in mind architectural and civil engineering considerations, as well as stringent mechanical, sanitary and environmental requirements. With India's rapid urbanisation, HT Safe emerges as a reliable, new age drainage system that can replace all challenges faced by conventional piping & drainage systems, delivering a significantly superior experience in terms of mechanical, chemical and acoustic performance.

With Prince-HT Safe, we aim to deliver to you the absolute best - not only in terms of an exceptional product manufactured with German technology, but also with a promise of world-class quality, manufactured using environment friendly processes and excellent, and service so that your space and project always stays a notch above the rest.

## Prince-HT Safe - Product overview

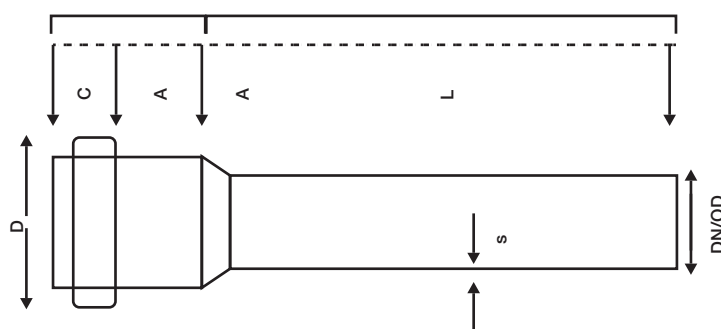
The **mechanical qualities, durability, and toughness** of HT Safe derive from the raw material polypropylene (PP). This is due to the **special molecular structure and the density of the material across its vast spectrum of pipes and fittings, of 0.9 to 1 gm / cm<sup>3</sup>**. This significantly adds to durability, as well as long-term thermal and chemical stability, providing pipelines with an extremely long lifetime. HT Safe has a smooth inner surface that prevents scaling and incrustation that provides for outstanding hydraulic characteristics of the piping system.

**Applications:** Villas, Residential condominiums, Industrial buildings, Commercial kitchens, Sports facilities, Hospitals, Hotels

### Product range & dimensions

Pipes & Fittings: 32, 40, 50, 75, 90, 110, 125, 160 mm

DN/OD	S (mm)	D (mm)	A+C (mm)	L (mm)
32	1.8	44	44	150-3000
40	1.8	54	53	150-3000
50	1.8	64	52	150-3000
75	1.9	89	54	150-3000
90	2.2	105	57	150-3000
110	2.7	128	61	150-3000
125	3.1	144	63	150-3000
160	3.9	184	79	150-3000



# Product Characteristics



## Class B1 Flame Retardancy

Flame retardancy of **class B1 as per DIN 4102-1**. The fire resistance of HT Safe offers permanent low inflammability. The risk of combustion is lowered in residential buildings through the integration of flame retardancy ingredients into the pipe material mixture. The spreading of the fire is thus minimized.



## Patented joints/ 3 lip seals

The SYSTEM BL lip seal ring is developed for plastic pipes and fittings made of PP in **compliance with EN 1451-1 and meets the requirements of EN 681**.



## Excellent sound proofing performance

HT Safe is sound rated at 17 dB (A) at 2 lps, certified by Fraunhofer, Germany; produced as per the requirements of **DIN EN 1451-1 resp. DIN 19560-10**. The reliable push-fit connection makes the system easy to install and fulfils all expectations.

- Sound insulation test according to DIN EN 14366 (Fraunhofer Institute)
- Noise emission at 2 litres volume flow according to measurement with Bismat 1000 (P-BA 222/2016)



## World-class design and quality

HT Safe pipes and fittings are quality labelled and subject to stringent checks by certified quality management according to **DIN EN ISO 9001**. Quality systems maintained as per ISO 14001 (Environmental Management Systems) and ISO 50001 (Energy Management System).



## High Chemical Resistance

Can handle waste liquids with pH value of 2 to 12. It also has a high resistance to the most common chemical substances.



## PP

The basic material for production of waste pipes and fittings is **Polypropylene (PP)** - A material with great durability as well as long-term thermal and chemical stability.



## High Impact Resistance

The system has shown **high impact resistance** at extremely harsh temperatures.



## Sound insulation that guarantees noise reduction

HT Safe's soundproof pipe system reduces sound transmitted through the pipe wall. It achieves a maximum **sound insulation of 17 dB (A)** at 2 lps by the use of clamps with rubber lining that are fixed to the anchors in the wall. To ensure reliability, HT Safe was tested by the **Fraunhofer Institut für Bauphysik IBP**, where measurement and evaluation were performed in accordance with DIN EN 14366.



## Environment-friendly & Recyclable

**Polypropylene is an environment-friendly material.** In fact, due to its method of production, it is 100% **recyclable**. HT Safe is aligned to Environmental Management System that fulfils the requirements of the ISO 14001 Standard and ISO 50001 (Energy Management System).



## For stress-free projects

HT Safe comes with a **25-year warranty**, consistent implementation advice, technical guidance from experts, and a well-trained team. We provide post-implementation review and frequent discussions to ensure the complete alignment of your project with world-class customer service.

# Prince-HT Safe Stands Out From the Rest

## Patented Triple Seal

A basic requirement in private and municipal property drainage is a permanently tight pipe connection. HT Safe's patented new triple seal makes processing faster than ever before and guarantees secure sealing even in the most adverse conditions. These decisive improvements result from the special design of the ring. This innovation is the result of several years of meticulous research, development, and industry knowledge. The BL seal is primarily used in sewage pipes, but it can also be used in building systems (high-temperature resistance drainage pipes).

### 1. Tensioning lip and retaining lip

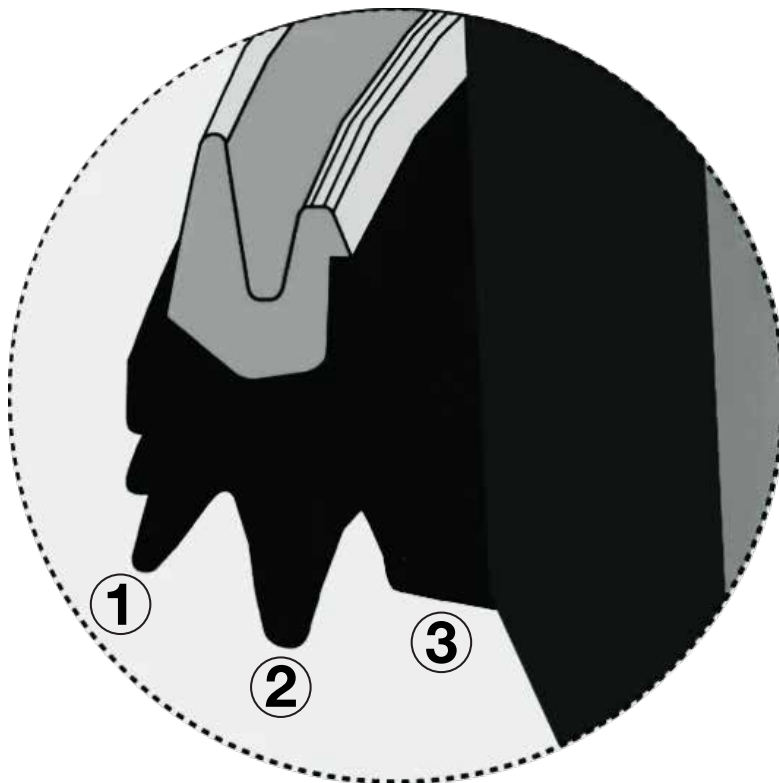
The tensioning lip prevents dirt from collecting between the pipe wall and the seal. The retaining lip causes the tensioning lip to be pressed against the foremost edge of the bead. This stops the sealing ring from being pressed out or rolling.

### 2. Wiping lip

The wiping lip serves to keep back any dirt on the pipe.

### 3. Sealing lip

The sealing lip assures a permanently tight pipe connection. Leakage test according to DIN EN 1610 with air and water from 0.05 to 0.5 bar, and under a vacuum (System test 3.0 bar MPA Darmstadt) has been performed.





# Prince-HT Safe V/s Multilayer PVC V/s HDPE

Material Property	HT Safe - PP	Multilayer PVC	HDPE
<b>Impact Strength</b>	2x compared to PVC	Very poor	Good impact resistance
<b>Chemical Resistance</b>	Exceptional chemical resistance; withstands wide range of chemicals ranging from pH 2 to pH 12	Limited chemical resistance	Good chemical resistance
<b>Application Areas</b>	Can be used in residential condominiums, high rises, hotels, commercial kitchens, hospitals, etc.	Can be used for only ordinary drainage applications	Can be used for only ordinary drainage applications
<b>Suspended Application</b>	Highly suitable	Limited suitability	Limited suitability
<b>Acoustic Properties</b>	Very good sound insulation	Poor sound insulation	Poor sound insulation
<b>Installation</b>	Easy installation with a push-fit system	Solvent-based installation	Requires a complex welding system

## Noises and their intensities

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.



**Silence is Golden.**  
**Experience it with HT Safe.**

# 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.

Application Area	Intensity (dB)
Watch	10 dB
HT Safe	17 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
Streets	75 dB
Factories	80 dB
Motorcycle	110 dB
Motor Drill	120 dB
Ear Tolerance limit	120 - 140 dB

## Experience The Power of Silence

Prince-HT Safe completely isolates airborne and structure-borne noise.

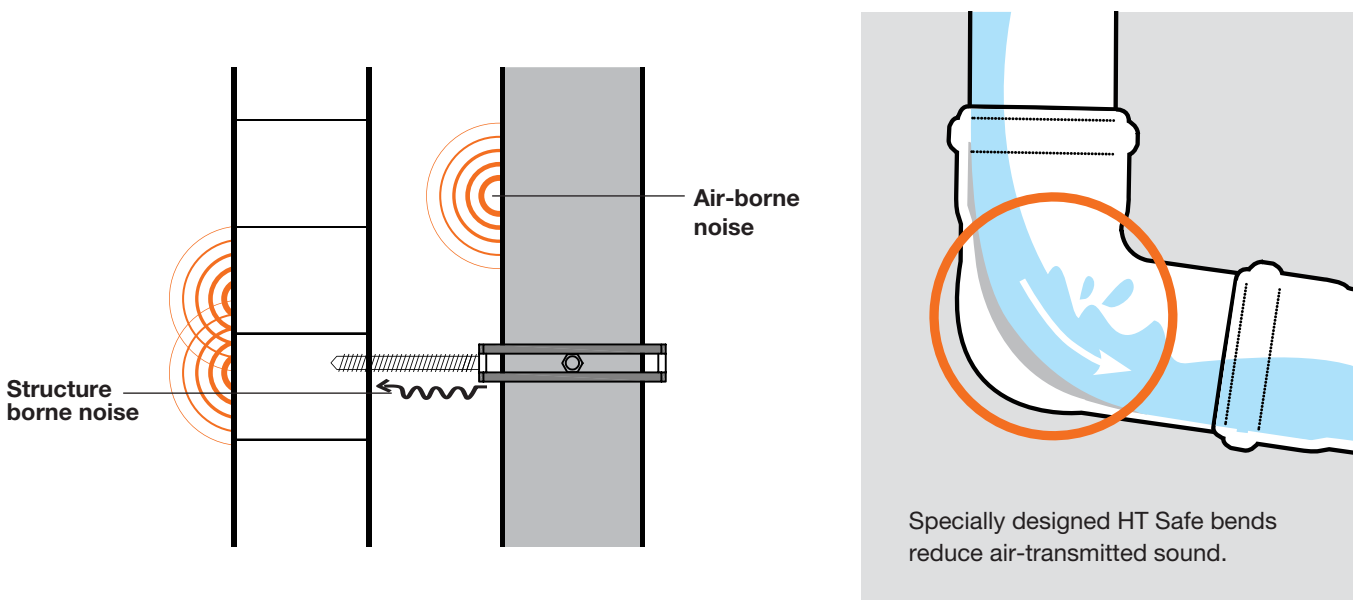
An unsuitable PVC drainage pipe system or ones using low-quality brackets generate airborne and structure-borne noise.

Airborne noise occurs if the noise of a sound source is transferred directly through the air to human ears, while structure-borne noise transfers sound through a solid body and passes the vibration to the human ears.

### With Prince-HT Safe, experience true silence

HT Safe is able to effectively absorb noise right at the point of its origin — inside the pipes — and can prevent its transmission through the pipe wall, all thanks to the special molecular structure of the used material.

Due to the near silent environment, it becomes possible to achieve noise values approaching the noise perception threshold. When tested, dramatically lower data were reached as required by DIN 4109, the standard regulating noise conditions in noise-protected premises in Germany. Now we bring, the same manufacturing excellence, technology, and know-how to India so that all your projects here achieve a similar level of noise insulation and quiet. With HT Safe, your ears will experience silence like never before!




\*Origin of noise in the drainage system.

# Acoustic & Class B1 Flame Retardancy Compliance Certifications

HT Safe has achieved Fraunhofer certification for excellent sound insulation properties attributed to its molecular structure, and density of 0.9 – 1.0 gm/cm<sup>3</sup>. The measurements in this test were performed as per the Acoustic Performance of a Wastewater Installation System in the Laboratory according to EN 14366 and following DIN 4109.

## Class B1 Flame Retardancy Certification received from Staatliche Materialprüfungsanstalt Darmstadt



**Fraunhofer**  
IBP

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Germany

Your Ref.                      Your Message of                      Our Ref. Mo                      Stuttgart, June 9, 2017

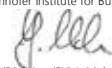
**Determination of the Acoustic Performance of a Wastewater Installation System in the Laboratory according to EN 14366 and following DIN 4109; Extract from test report P-BA 222/2016**

On October 25, 2016 the determination of the acoustic performance of a wastewater installation system was performed in the technical centre of the Fraunhofer Institute for Building Physics on a plastic wastewater installation system: **"HT Safe DN/OD 110 x 2.7 PP-H" (manufacturer Ostendorf) with pipe clamps "BISMAT 1000" (manufacturer Walraven)**. Below measurement results are stated in extracts. Precise information about test object, test set-up and test method as well as detailed measurement results can be found in the test report P-BA 222/2016.

**Result:**

Test specimen: Plastic wastewater installation system "HT Safe DN/OD 110 x 2.7 PP-H" (manufacturer Ostendorf) with pipe clamps "BISMAT 1000" (manufacturer Walraven). In each storey (EG and UG) two pipe clamps were mounted. At the upper wall area of the installation wall one "Bismat 1000" loose clamp was installed (supporting clamp SL, DN 100). At the lower wall area of the installation wall one "Bismat 1000" double clamp consisting of supporting clamp (SL, DN 100) and fixing clamp (SX, DN 100) was installed. To prevent contact to the pipe, the loose clamps and the supporting clamps were equipped with two spacers (2 x 7.5 mm, black) on each side.	Flow rate [l/s]				
	0,5	1,0	2,0	4,0	
<b>Installation sound level <math>L_{Aeq,T}</math> [dB(A)] following DIN 4109 in the basement test-room</b>	UG rear	12	12	17	21

Fraunhofer Institute for Building Physics IBP

  
(Dipl.-Ing. (FH) J. Mohr)

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HT Safe Fraunhofer Certificate

This document represents the English translation of the original German certificate issued by MPA Darmstadt. Please note that Germany is the official language of certification of compliance according to regional building laws and only the German version is legally binding.

**Staatliche Materialprüfungsanstalt Darmstadt**  
Grafenstraße 2, 64283 Darmstadt, Germany  
Certification Body



Testing laboratory, inspection body and certification body according to §27 of the German building law (BIBO) approved by the Deutsche Institut für Bautechnik (DIBt)

**Certificate of Compliance**  
Reg.-No. K 1706 - 11 / 04.19

This is to certify according to § 24, Abs. 1, of Niedersächsische Bauordnung (NBauO) of Niedersachsen, Germany, that the following construction product

**Plastic piping system made of polypropylene (PP) with the name "HT Safe"**  
Building material class B1 - hardly inflammable - according to DIN 4102-1 for wastewater discharge within buildings

produced in the factory

Gehr. Ostendorf Kunststoffe GmbH  
Rudolf-Diesel-Straße 6-8  
49377 Vechta

regarding the results of the factory production control and the third party inspection carried out by the approved inspection body

**Staatliche Materialprüfungsanstalt Darmstadt**  
Grafenstraße 2  
64283 Darmstadt

complies with the requirements of the

of the Decree of the Administrative Provisions Technical Building Regulations (VV TB) of 21 January 2019, Chapter C, No C 2.12.1.14 according to technical rules  
DIN EN 1451-1 in conjunction with DIN EN / TS 1451-2  
In addition: DIN 4102-1 and DIN 4102-4, DIN EN ISO 11925-2 in conjunction with Appendix C 3.7 below Consideration of A 2.2.1.3, Table 1.2.1

The manufacturer is therefore authorised to mark the construction product with the German mark of conformity (Ü-Sign).

Darmstadt, April 22, 2019

    
Dr.-Ing. Petra Bender  
Certification Body of MPA Darmstadt  
Dipl.-Ing. (FH) Ludwig Veith  
Deputy Head of Certification Body according to BIBO

Grafenstraße 2, 64283 Darmstadt, Germany - P.O. Box 11 14 92, 64283 Darmstadt, Germany - Fax: +49(0)6151-262400

HT Safe Compliance Certificate

# Application Areas

The stability and functionality of a waste water system must be established by a secure connection. Waste water systems installed within buildings are subjected to greater internal pressures due to special loads (i.e. rain water drainage in case of a heavy rain fall). Some of the applications of HT Safe are as follows:



## Residential Buildings

Due to its excellent sound insulating properties, which considerably reduce drain noise, HT Safe is an ideal choice for all kinds of residential buildings bringing a sense of great calm and comfort to living spaces.



## Large Commercial Buildings

HT Safe can be installed in buildings that require great sound insulation, such as hotels, office buildings, hospitals, restaurants, libraries, educational institutions, etc.



## Commercial Kitchens

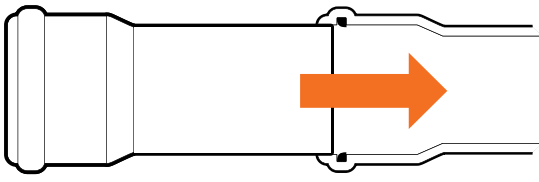
HT Safe is a great choice for commercial kitchens where wastewater with a high temperature is drained.



## Laboratories

HT Safe is resistant to a wide variety of chemicals and can be used for the drainage of harsh chemicals, making it a great fit for the industrial building segment.

# Easy Installation, Efficient Application

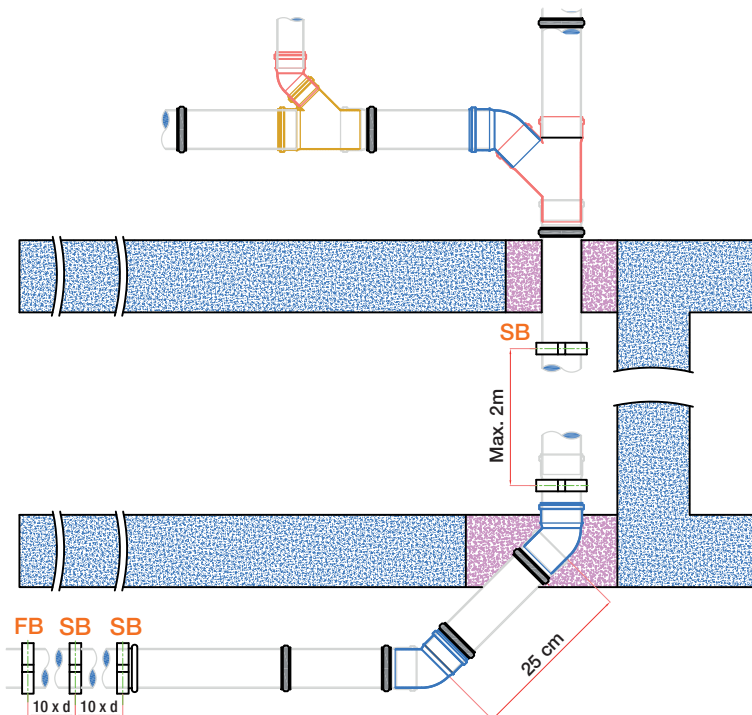


HT Safe uses a push-fit system with sockets and patented 3-lip seal which ensure a water tight system. The push-fit design confirms error-proof connections and considerable reduction in installation time.

HT Safe must be installed in such a manner that they are free of tension and that changes in length are not hindered. The product is installed using rubber-lined pipe clamps.

## Pipe preparation and assembly

1. Pipes are produced in various lengths with one or two sockets and with plain, pre-beveled ends. Proper cutting tools should be used if cutting to length is needed (manual or mechanical). Bevel the cut pipe end with an angle of approximately 15° with a bevel length of about 5 mm.
2. Remove chips, shavings, and sawdust before installing.
3. Check the position and integrity of the lip seal in the socket gasket slot. Clean the seal and the socket, and apply a thin layer of lubricant around the plain pipe end.
4. Fittings should be inserted to maximum socket depth, whereas pipes, after being pushed completely into the socket, have to be pulled back approximately 10 mm.
5. For anchoring HT Safe to walls and ceilings, use steel brackets with rubber inserts, approved for acoustic insulation systems.
6. As a general rule, straight lengths of pipe must be anchored by means of fixed brackets (FB) under each socket, while the rest of the pipework and the fittings will be supported by sliding brackets (SB).
7. The distance between the pipe clamps in the case of horizontal piping is approximately 10 times the exterior pipe diameter.
8. In the case of vertical installation, the distance between clamps should be 1 to 2 metres, not exceeding 2 metres.
9. A fixed clamp and a loose clamp per pipe length (storey height of more than 2.50 m) are recommended for drop pipelines.



Arrangement of fixed brackets and sliding brackets.



# How to Arrange Brackets and Clamps?

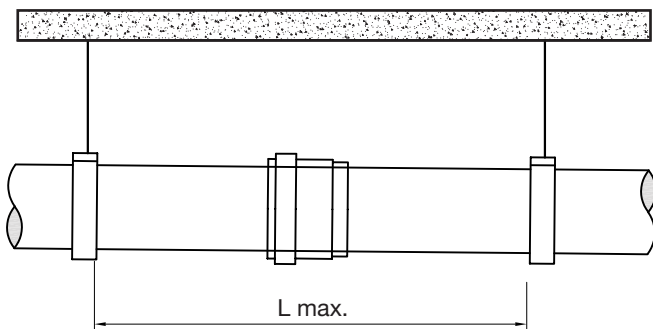
Prince-HT Safe can significantly reduce noise levels. However, when installing high-performance sound-insulating wastewater piping systems, it is still necessary to consider how effectively the system can be noise-isolated from all aspects of structure and airborne noise transmissions. HT Safe considers the wastewater discharge system as a whole, including several points of contact with the building structure (pipe brackets and clamps, the running of pipework through walls and ceilings, mortar droppings between pipes and wall surfaces etc.)

- The sound dampening brackets reduce structure-borne noise transmission by decoupling the vibrations within the drainage line from the wall.
- The quick and easy push-fit installations add to the convenience. It guarantees hydraulic tightness and allows the normal movements of the pipe, including those caused by thermal expansion. It also repeats the performance of the sound dampening effect by centralizing the pipe securely and applying the exact fastening force.
- HT Safe, with superior, well-engineered pipes and fittings, improves the sound insulation performance through specially designed bends with optimal wall thickness that reduce the air transmitted sound even further.
- By combining these sound insulation techniques into one system, HT Safe can fulfil the best acoustic requirements and mechanical performance targets, making it the ideal solution for all types of large modern / multi-storied buildings.

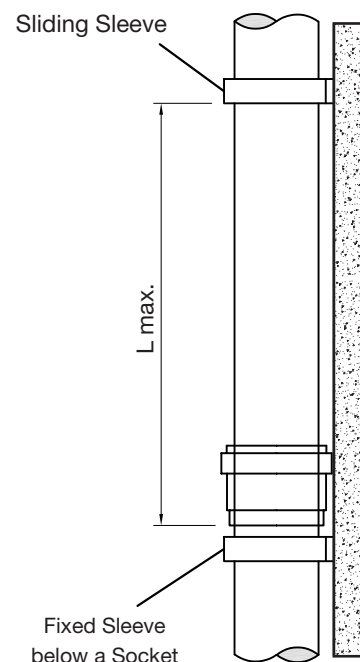
Nominal outer diameter DN/OD	Max distance between brackets	
	Horizontal (m)	Vertical (m)
32	0.50	1.20
40	0.50	1.20
50	0.50	1.50
75	0.80	2.0
90	1.10	2.0
110	1.10	2.0
125	1.25	2.0
160	2.0	2.0

Spacing of brackets based on diameters of pipes.

## Spacing Distances



**Horizontal Pipe Routing**



**Vertical Pipe Routing**

# How to Position The Brackets and Clamps?

Any mechanical stress must be taken into account during design and assembly, so as not to affect the integrity of the system. Pipes must be fastened using brackets, and placed under the socket, in order to prevent them from slipping (Fig. 1).

HT Safe should be installed tension-free and with free lateral allowance for temperature compensation. All fittings that involve a change in the direction of the system must be properly clamped to prevent the socket from slipping in the event of accidental excess pressure. The sound-dampening brackets have a rubber-lined sliding and fixing clamp that work together effectively to decouple vibrations from the drainage stake to the fixing wall. For pipe systems in which inner pressures can arise, the joints have to be secured to prevent them from sliding apart and deviating from the central structure.

**Fixed Bracket (FB)** - A fixed point (fixed bracket) that blocks that part of the system must be installed under the socket of each pipe, leaving the rest of the system free to expand. With fixed brackets, no longitudinal movement is possible, and the pipe/fitting is firmly secured and cannot be moved.

**Sliding Bracket (SB)** - Sliding brackets allow longitudinal movement. Post installation, the pipe can be moved through the bracket, even when the clamp and screws are tightened.

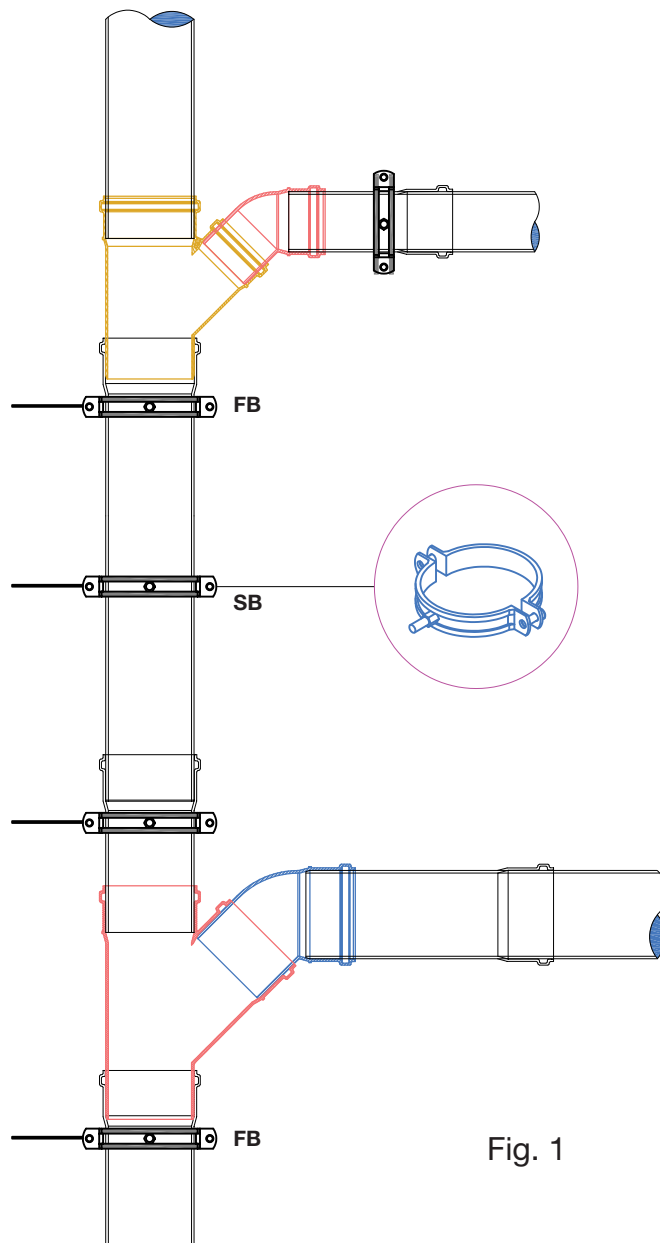


Fig. 1

## **PRINCE PIPES AND FITTINGS LIMITED**

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Please Call between 10 am to 6 pm

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