

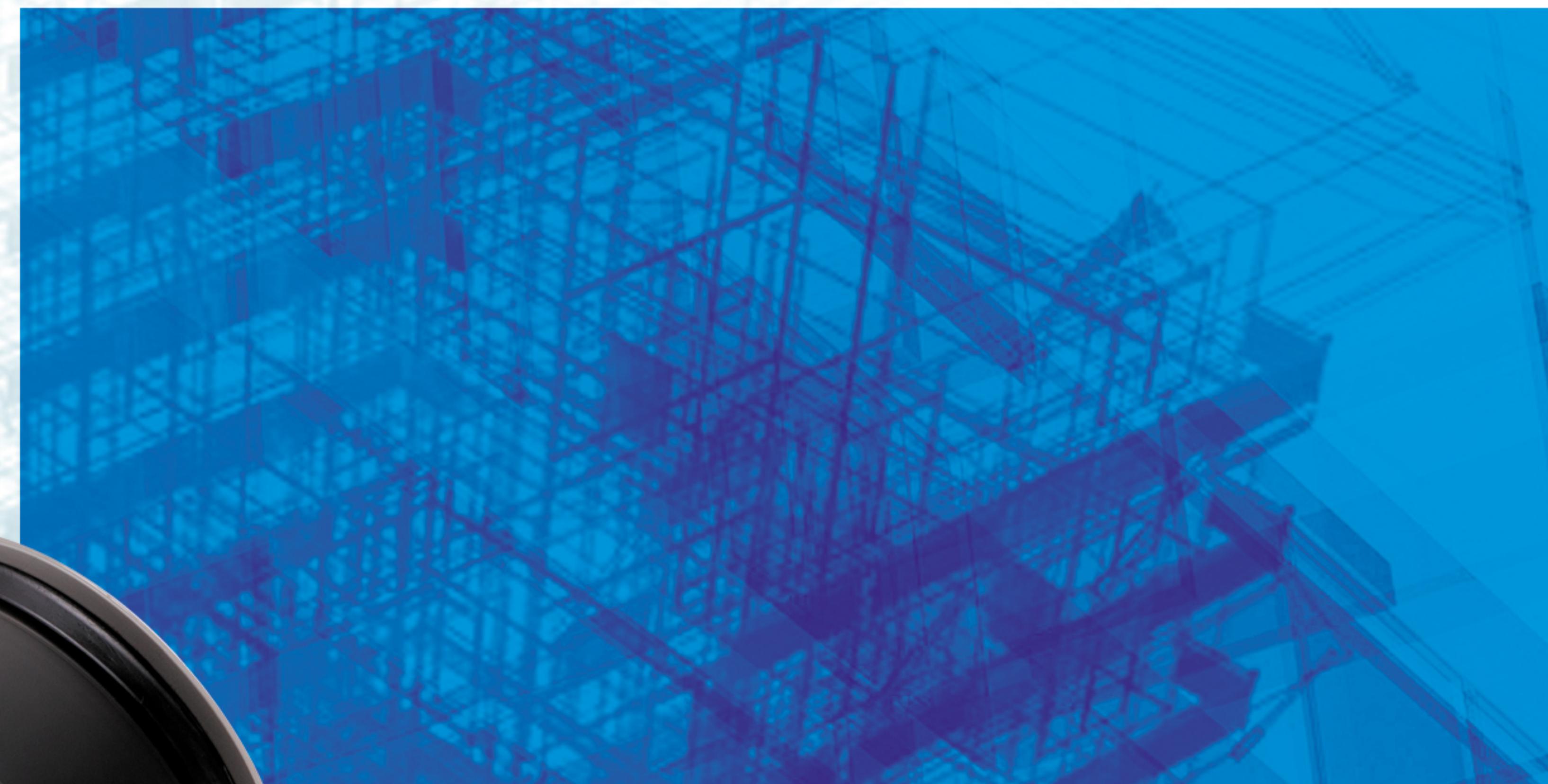
# POLIRAN

## Protect

Flame retardant & soundproof push-fit drainage system

**B1** Flame Retardant

**19 dB(A)**

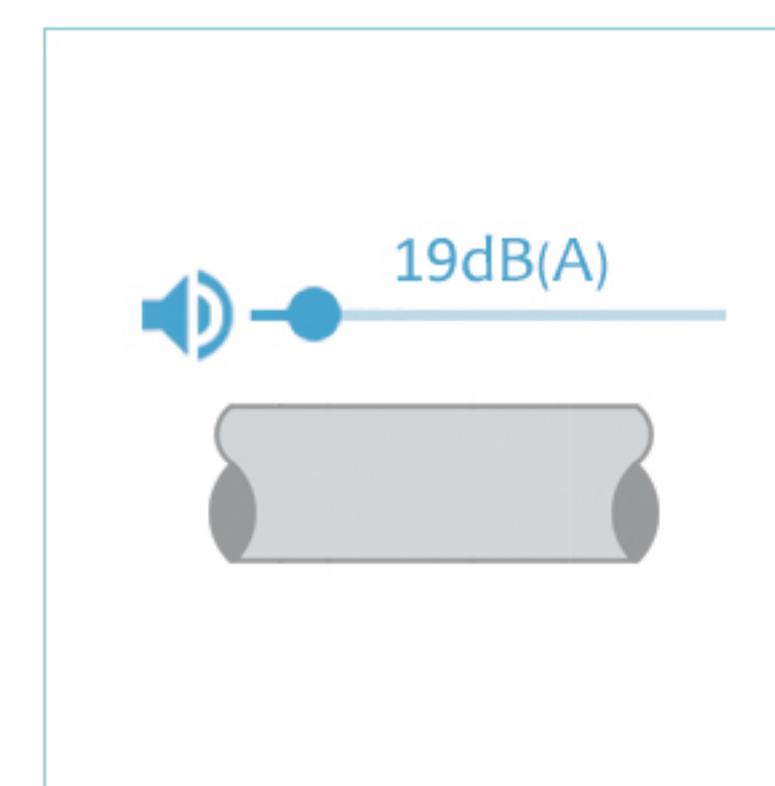


German Technology

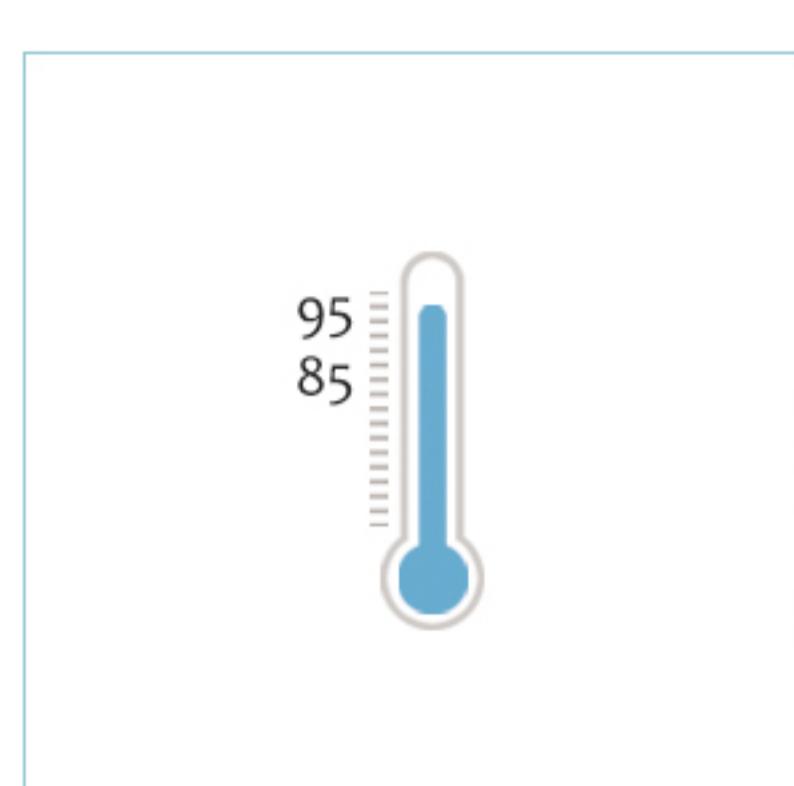
[www.poliran.org](http://www.poliran.org)



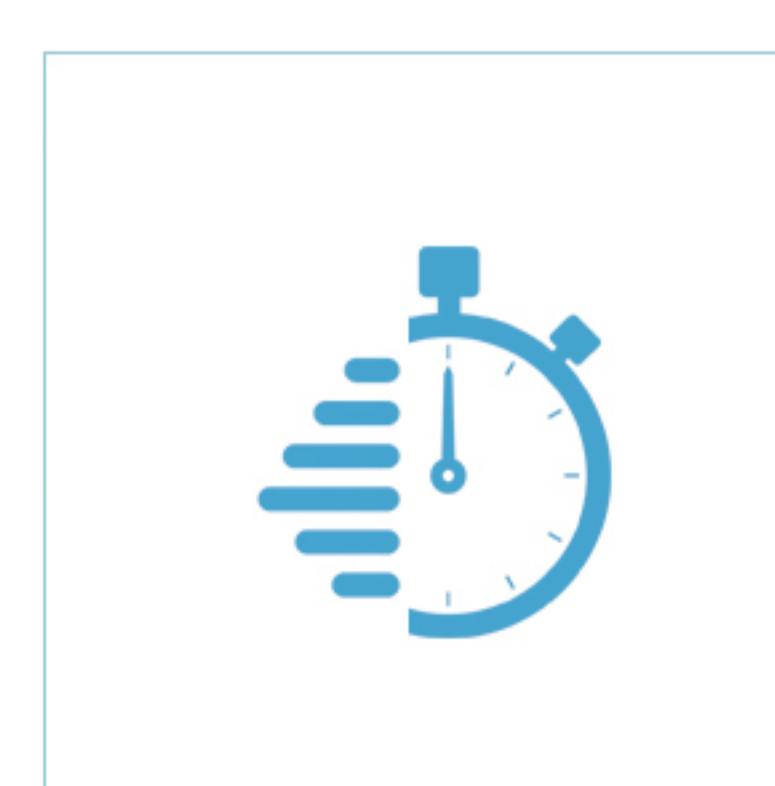
Flame retardant DWV system  
Class B1 as per DIN 4102



Excellent acoustic performance  
In conjunction with RC Clamps



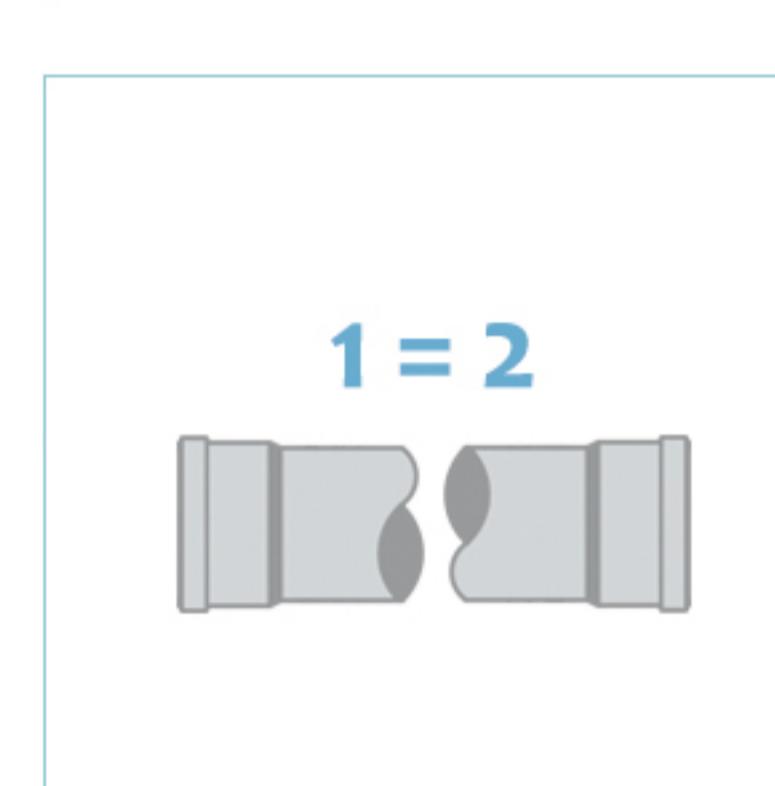
High temperature resistance  
Up to 95°C



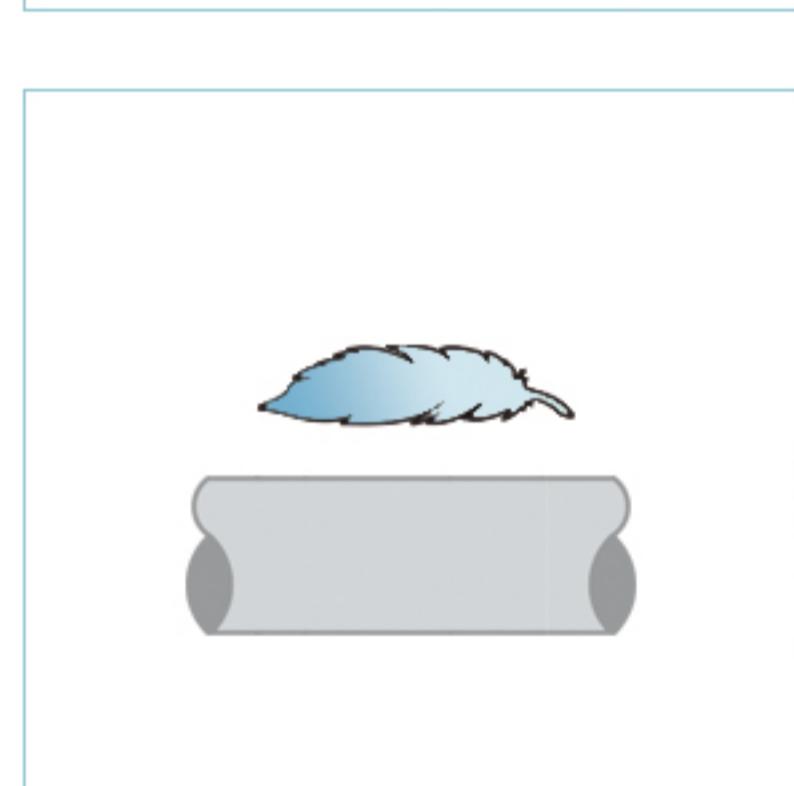
Faster installation of joints  
No need for welding or glue



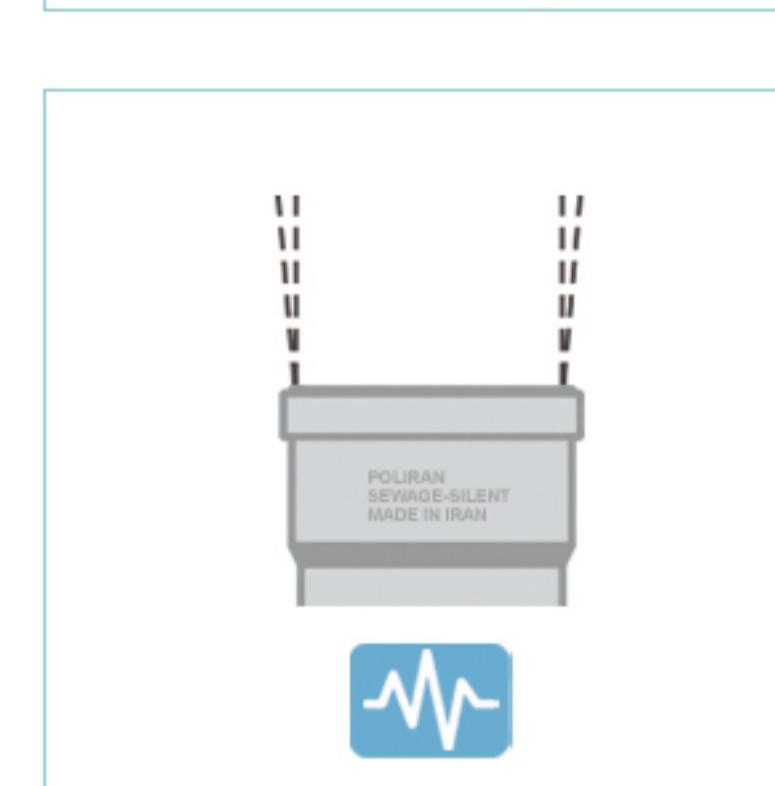
Excellent chemical resistance  
As per ISO 10358



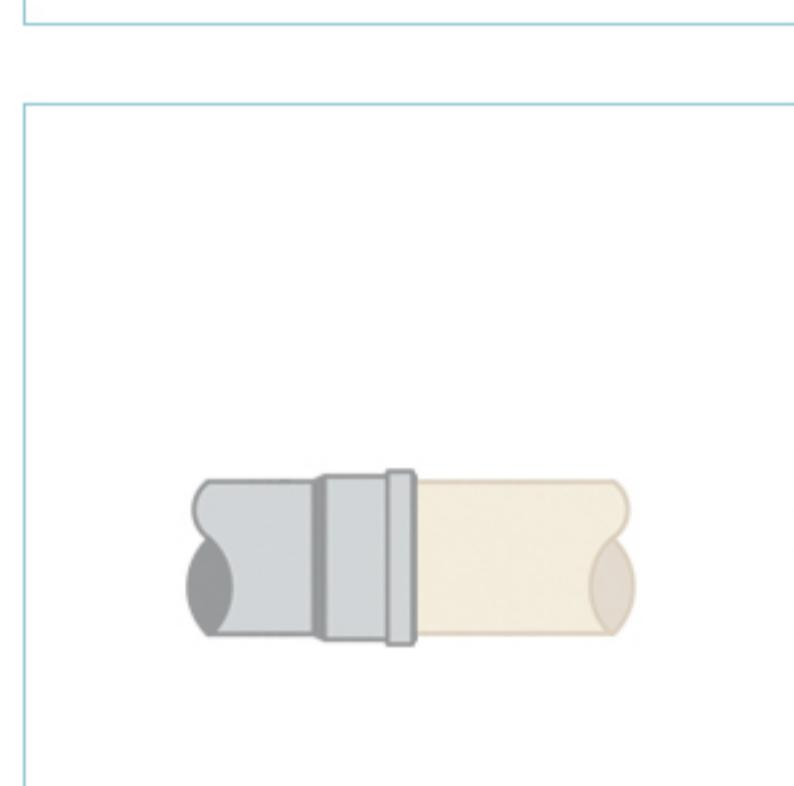
Double socket pipes available  
Minimum pipe wastage



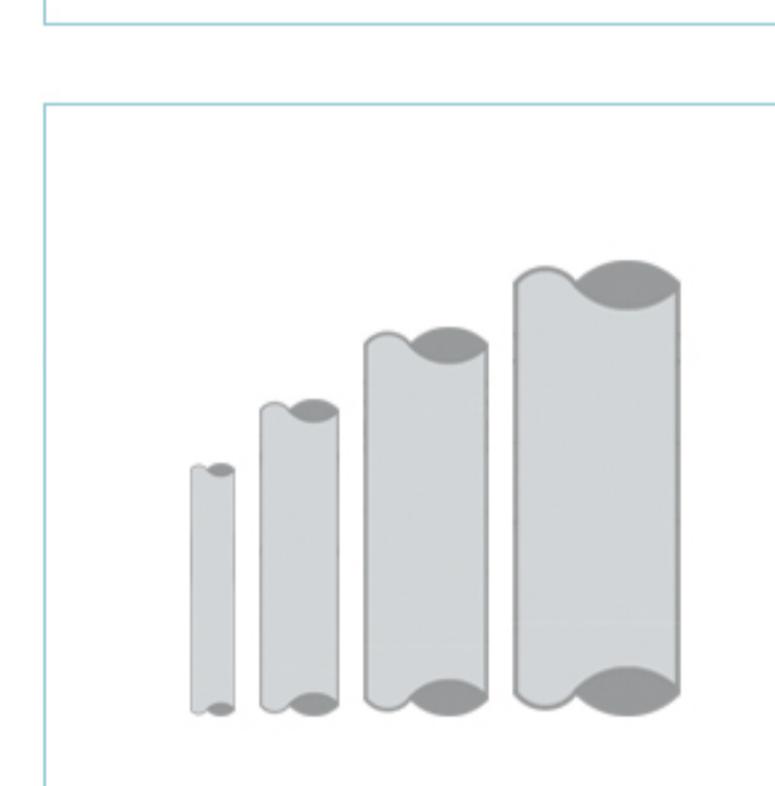
Easy handling & transportation  
Light weight system



Precision of rubber ring joints  
Flexible system



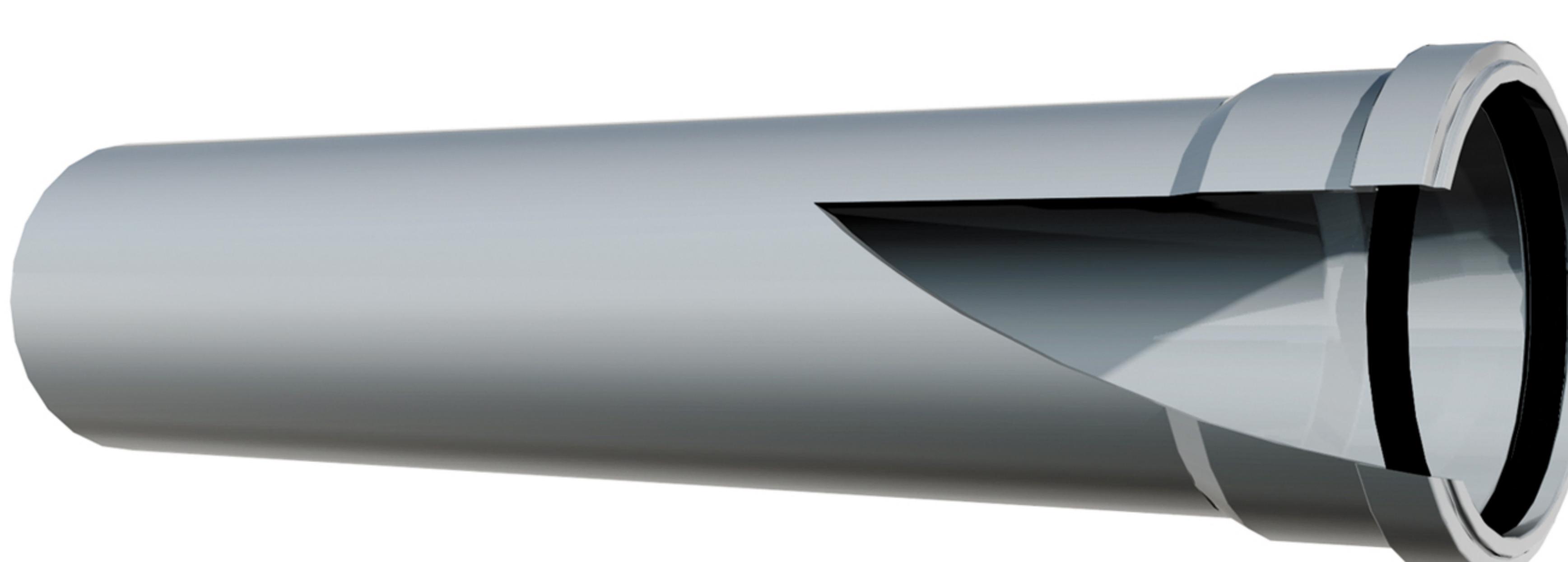
Easy Transition to other systems  
Various solutions available



Wide range of pipe and fittings  
DN 40 to DN 200 mm



**Poliran Push-fit Protect** is a self-extinguishing drainage system with silent characteristics made of polypropylene which has been designed and produced in accordance with EN 12056 requirements for internal gravity drainage systems. The behavior of this system against fire is classified as B1 according to DIN 4102. and it is resistant to ignition caused by intermittent contact with hot gas flames and mechanical or electrical sparks. and does not contribute to the spread of fire in the building. Additionally, this system, by using special formulations for dedicated clamps and specific poliran fittings, significantly reduces the sound transmission of the drainage system. This system is manufactured according to the European standard EN 1451 in sizes from 40 to 200 millimeters. Connection in this system is created easily with the help of a rubber sealing ring, simply by pushing the pipe or fitting into the socket. and it requires no adhesive or welding. The sealing rings in this system are produced by reputable European manufacturers which ensures its reliable and durable sealing performance. Using this connection method, in addition to increasing installation and execution speed, increases the flexibility of the system and maintains its sealing capability even during non-destructive earthquakes.



The **Gated Trap + Special Clamp** designed by the poliran R&D department with a two-piece design and the ability to open the lower part, in addition to maintaining the proper water-seal depth to prevent odor and contamination entering the building, also makes clearing the most severe blockages possible. The special clamp of this trap is designed to increase installation convenience and comply with technical requirements. By creating a 2-degree angle in the lug sections, it facilitates slope adjustment and establishes a stable connection to the structure using two M10 threaded bolts.

#### Features

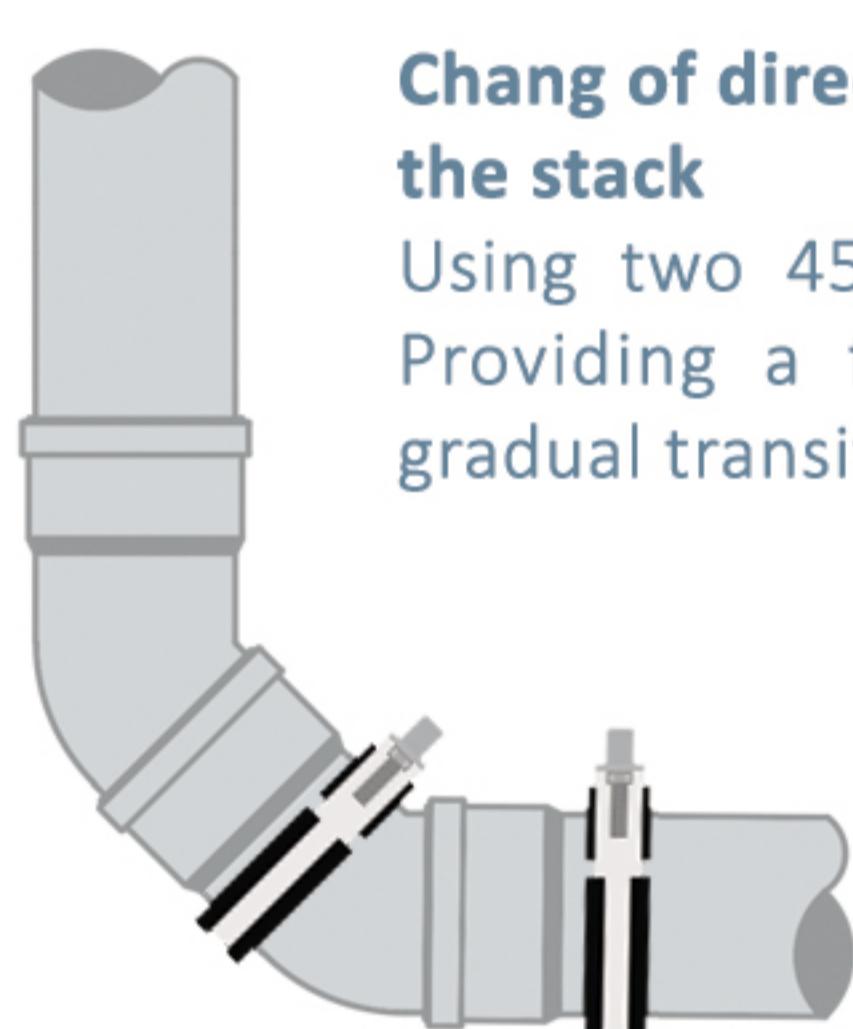
- Stable and reliable sealing
- Accessibility and ability to clear possible blockages
- Uniform cross-section throughout the entire flow path
- Proper water-seal depth in compliance with national and international standards
- Easier installation and slope adjustment using the 87-degree outlet without the need for an additional elbow
- Suitable for installing polymer floor drains due to the socketed trap inlet
- Stable connection of the trap to the structure using the special clamp
- Equipped with baked-paint coating and very high corrosion and rust resistance on the special clamp section



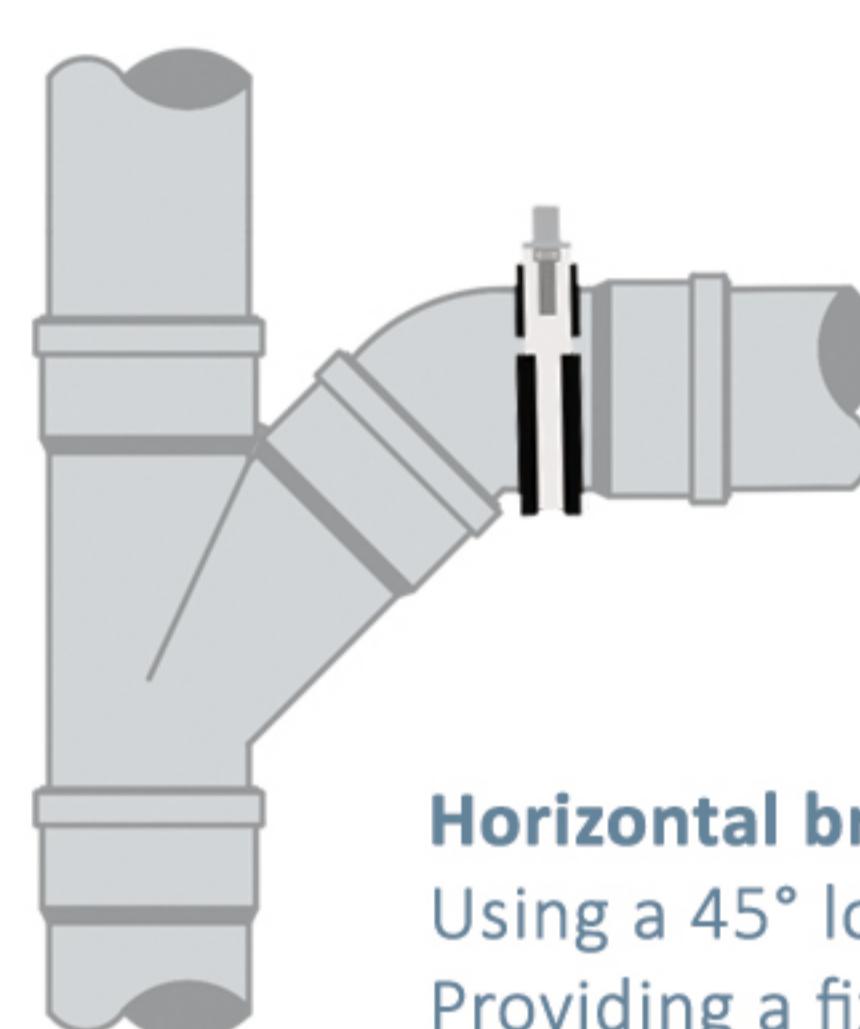
#### Poliran Special Fittings

Poliran's R&D department has a very close relationship with installers and contractors and constantly seeks to remove potential obstacles and simplify the installation and execution of the drainage system. Clamping of fittings at direction-change points is a common issue that is highly important due to water-tightness testing.

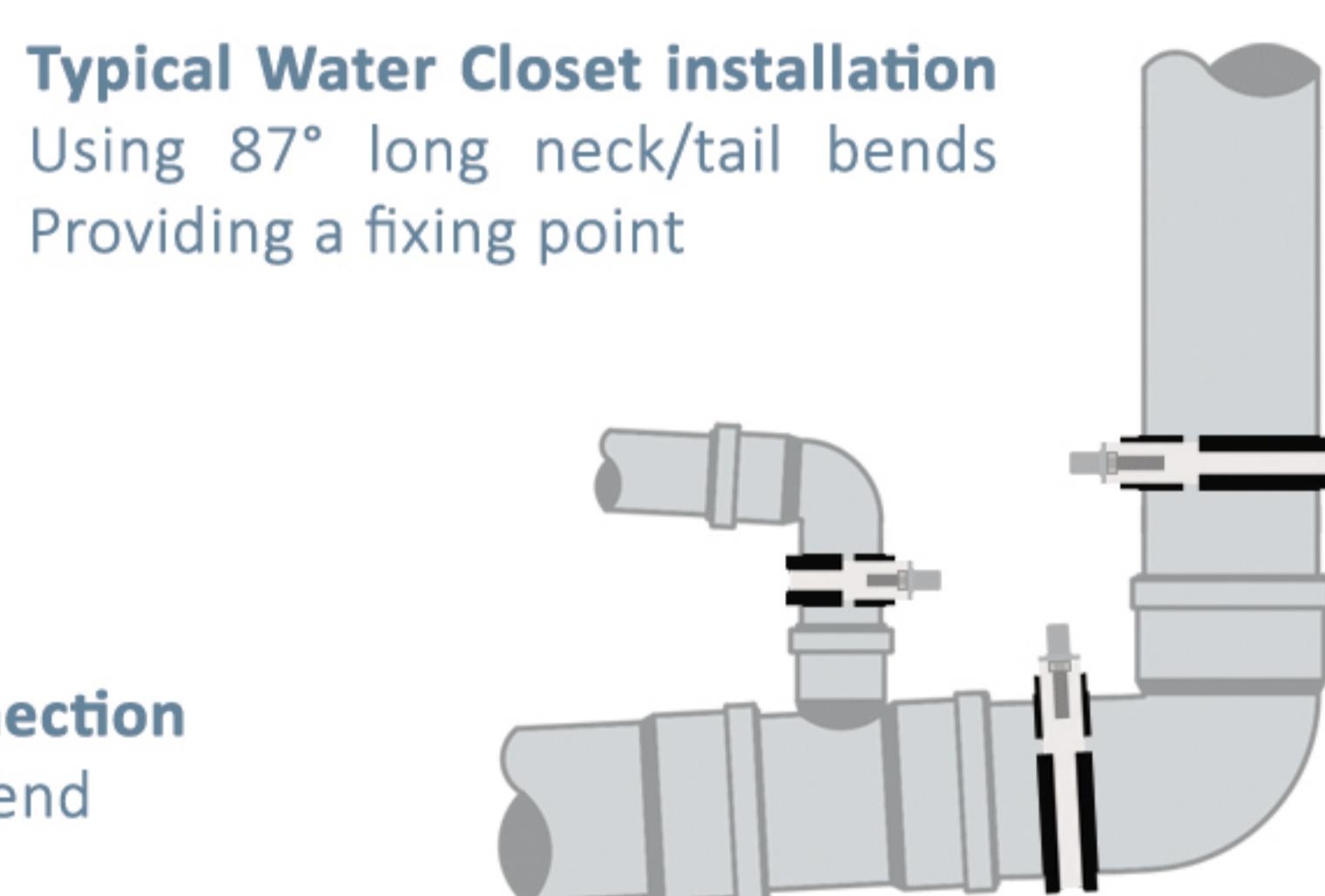
To solve this issue, special fittings have been designed and manufactured that allow clamp installation without putting pressure on the ring seat and jeopardizing system sealing.



**Change of direction at the base of the stack**  
Using two 45° long neck bends  
Providing a fixing point and a gradual transition



**Horizontal branch connection**  
Using a 45° long neck bend  
Providing a fixing point



**Typical Water Closet installation**  
Using 87° long neck/tail bends  
Providing a fixing point



**Poliran RC clamps** are specifically designed for sound-reduction systems and contain two unequal half-rings that improve pipe and fitting stability. The unique rubber profile used in this clamp prevents transmission of flow-induced vibrations to the structure and interior environment of the building.

#### Features

- High strength and durability made of steel with electro-galvanized coating
- Special rubber profile design with maximum vibration absorption
- Outstanding noise-reduction performance confirmed by the Fraunhofer Institute of Germany
- No rubber protrusion during sealing tests due to its retaining lip
- Produced in 4 different types in sizes : 50 - 63 - 75 - 90 - 110 - 125 - 160 mm
- Ultra-P model with baked-paint coating suitable for highly corrosive environments such as northern/southern regions, industrial zones, swimming pools, etc.



**Stand Pipe Clamp**



**Screw Clamp**



**Weldable Clamp**



**Adjustable Clamp**



## Fire performance of the Push-fit Protect system

Today, fire protection is one of the most important considerations in the design and construction of new buildings. For this purpose, in addition to fire detection and extinguishing systems, methods are required that delay the spread of fire as much as possible and provide enough time for occupants to escape and for fire suppression. This is where self-extinguishing products come to our aid; a self-extinguishing product does not ignite easily and extinguishes itself once the flame source is removed and reduces the rate of fire spread.

The **Poliran Push-fit Protect system** made of polypropylene with flame-retardant characteristics and is resistant to ignition caused by intermittent contact with hot gas flames and mechanical or electrical sparks and does not contribute to the spread of fire in the building. This system is classified as B1 according to DIN 4102.

## Sound transmission reduction performance of the Push-fit Protect system

The comfort of occupants in a building, as the primary place of living and daily work, is highly important. One of the most important factors that must be considered in this regard is the problem of noise pollution. The building drainage system can also be one of the sources of noise pollution; the movement of wastewater flow in the piping routes produces noise which is transmitted to the environment in two ways :

1- Airborne sound : Airborne sound is the noise that is transmitted to the environment through the air. To reduce it, the quality and sound-absorption capacity of the raw materials used in pipes and fittings are highly important.

2-Structure-borne sound : Structure-borne sound is the noise that spreads through vibration or impact within a solid object. The fluid flow causes the pipes to vibrate and when this vibration is transmitted to the clamp and the building structure, the noise is emitted into the environment as airborne sound. To minimize this noise, special clamps with rubber coating must be used. Reduction of the drainage system noise transmission to the environment is the result of simultaneously observing the following factors :

1. Assigning an appropriate duct for vertical pipes in the building architecture and insulating the duct when adjacent to private spaces such as bedrooms

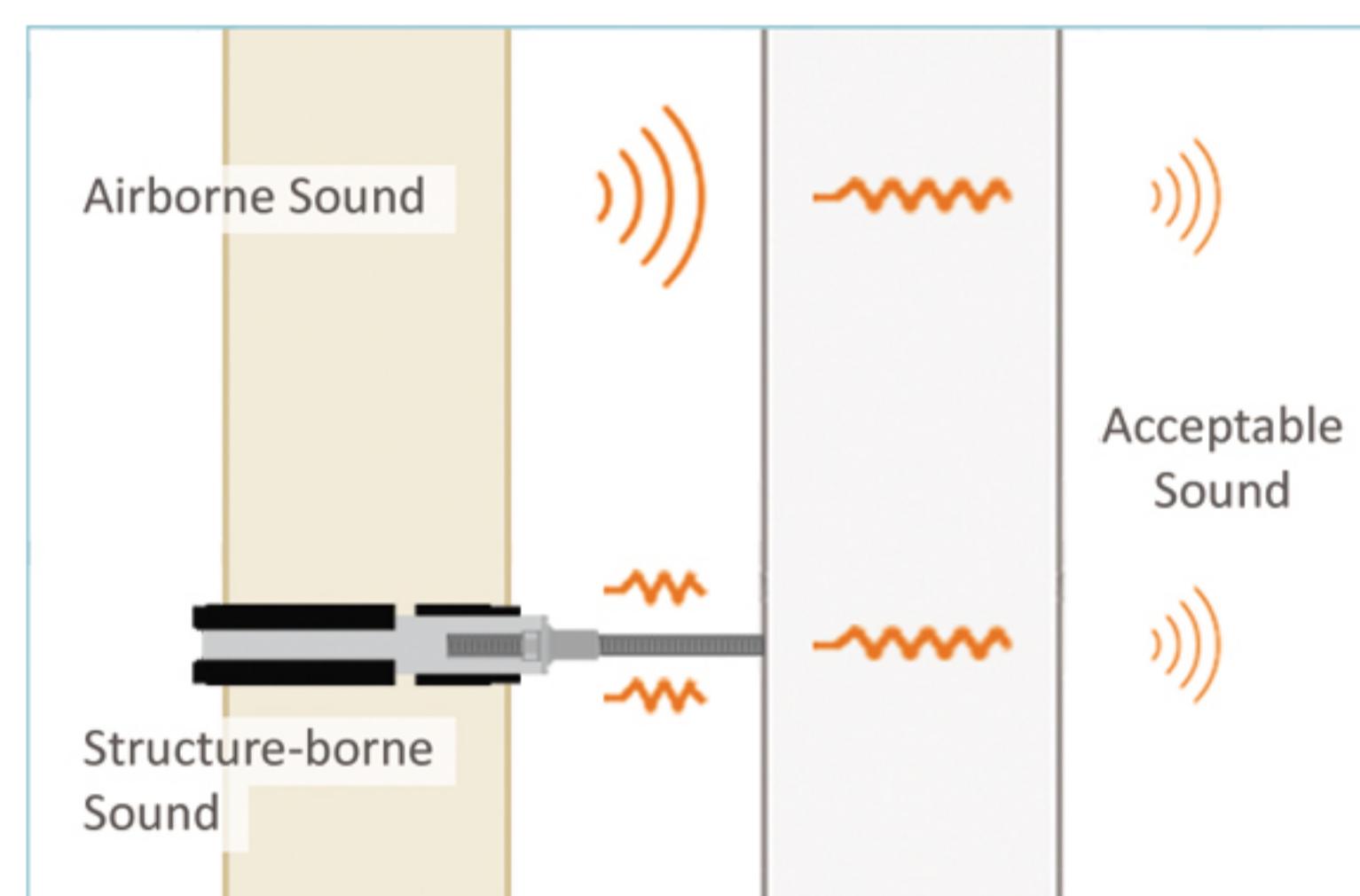
2. Proper and engineering-based design of the wastewater and vent piping system with minimal complexity

3. Correct implementation of wastewater transfer routes according to design

4. Installing vertical pipes fully plumb and avoiding embedding them inside walls

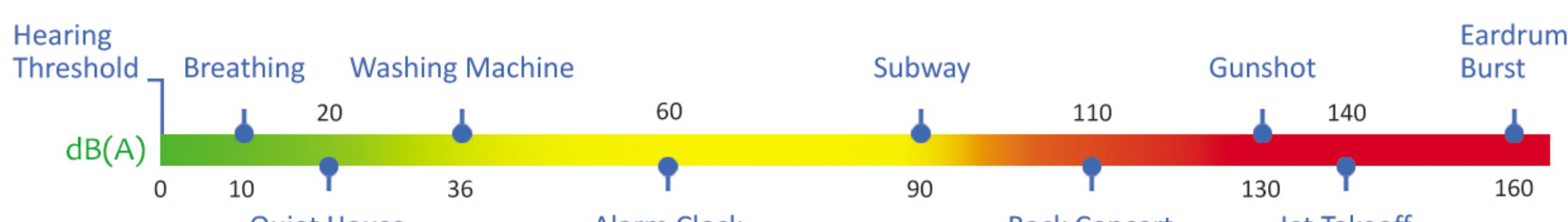
5. Choosing a suitable and noise-reducing wastewater system

6. Using special vibration-absorbing and noise-reducing RC clamps to secure the wastewater system



## Features

- Maximum reduction of structure-borne noise using Poliran RC clamps
- Reduction of airborne noise using special formulation
- Reduction of noise at critical system points using 45 long neck bend and gate trap



## B1 Flame Retardant

Table 1: Building material classes

Building material class	Designation *)
<b>A</b>	Non-combustible materials ('nichtbrennbar')
<b>A1</b>	
<b>A2</b>	
<b>B</b>	Combustible materials ('brennbar')
→ <b>B1</b>	Not easily flammable ('schwerentflammbar')
<b>B2</b>	Flammable ('normalentflammbar')
<b>B3</b>	Easily flammable ('leichtentflammbar')

DIN 4102-1

## 19dB(A) Silent

Detailed results		P-BA 6/2019e figure 4
Client: Poliran Ettesal Co., Iran Postal Code: 1516643311, No. 17, Zagros St, Arjantin Sq., TEHRAN, IRAN		
<p>Installation plan of the test set-up in the test facility. Illustration simplified, schematically drawn and not to scale.</p> <p>Test specimen: Wastewater installation system consisting of plastic pipes and fittings "POLIRAN HT Flame Retardant FOR SEWER &lt;B&gt; S20, 110 x 2.7 mm" mounted with pipe clamps "POLIRAN RC" (manufacturer: Poliran Ettesal Co.).</p>		

Fraunhofer

The test was carried out in a laboratory, accredited according to DIN EN ISO/IEC 17025:2005 by DAKKs. The accreditation certificate is D-PL-11140-11-01.



Poliran RC



Long Neck 45° Bend

## 19dB(A) at a flow Rate of 4l/s

The measurement of sound emission levels in the Poliran Pushfit Protect system including pipes, fittings, and stable clamps has been conducted by the reputable Fraunhofer Institute in Germany. According to international standards and modern building comfort guidelines, the maximum acceptable noise level for achieving ideal acoustic comfort in buildings is 20 decibels.

Table of sound emission test results from Fraunhofer Institute, Germany

"POLIRAN HT Flame Retardant FOR SEWER <B> S20, 110 x 2.7 mm" mounted with pipe clamps "POLIRAN RC" (manufacturer: Poliran Ettesal Co.)	Flow rate [l/s]				
	0.5	1.0	2.0	4.0	
Airborne sound pressure level $L_{A,1A}$ [dB(A)] according to EN 14366 for the basement test-room	UG front	45	49	51	54
Structure-borne sound characteristic level $L_{S,1A}$ [dB(A)] according to EN 14366 for the basement test-room	UG rear	< 10	< 10	10	15
Installation sound level $L_{AFeq,n}$ [dB(A)] following DIN 4109 in the basement test-room	UG front	45	49	51	54
	UG rear	< 10	11	14	19

## About Us

Founded in 1971, Poliran is the leading manufacturer of plastic pipe systems in Iran, providing state-of-the-art solutions for pipes and fittings used in water conveyance, irrigation and building water supply and drainage systems.

Deep attention to quality requirements and continuous improvement of products, as well as using best raw materials and up to date technologies have kept Poliran at the forefront of manufacturing plastic pipe systems. To achieve our quality objectives, we have adopted ISO 9001 Quality Management System and we aim to be the quality leader in our sector.

Our technical department provides complete support during design and installation thanks to a team of experienced engineers and experts, capable of dealing with the most complex system requirements.



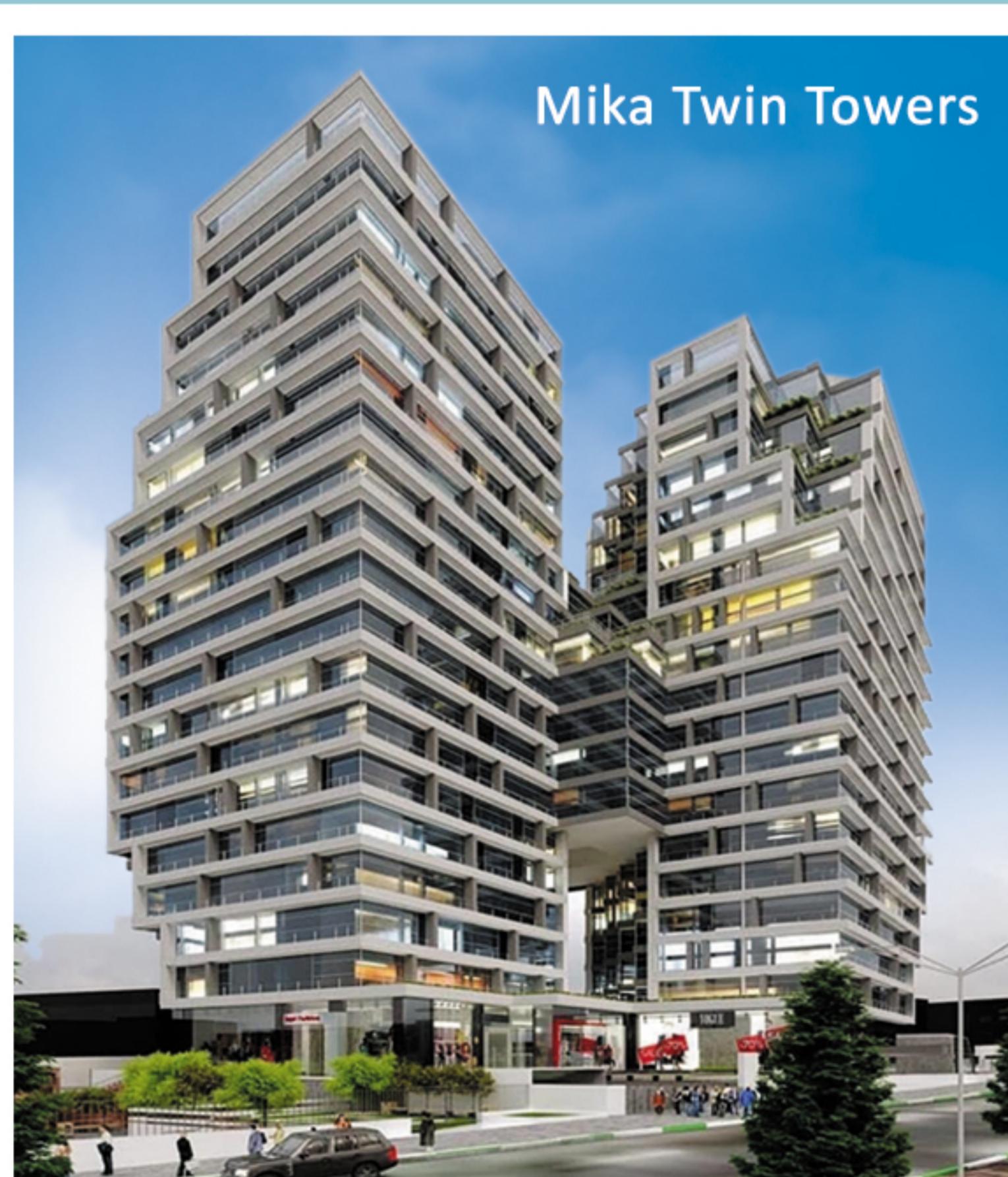
## Some of our projects:



Milad Tower



Iran Mall



Mika Twin Towers



Artiman



Tehran International Tower



Atlas Mall



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