

POLIRAN

Rainwater Drainage System





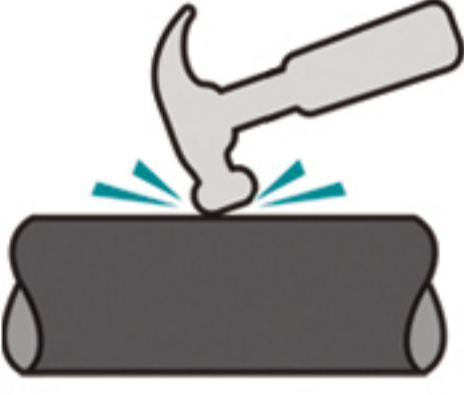



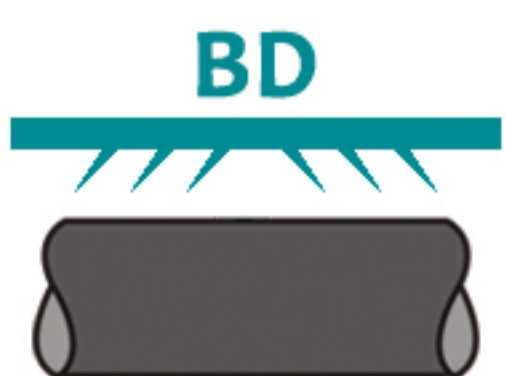

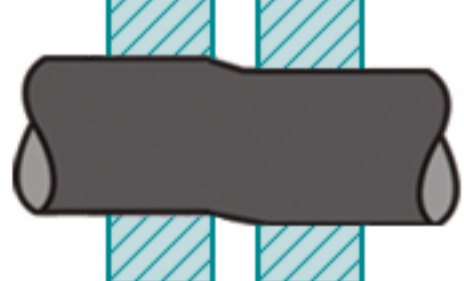
PE 100 - PN 10



German Technology

Water- tightness tested up to 15 bar

www.poliran.org

	The best option for rainwater drainage in high-rise buildings		The ultimate solution for integrated rainwater system testing
	Utilizing Iranian expertise combined with modern global technology		Elimination of problems found in conventional metallic and UPVC systems
	Patent certificate NO.101431		High resistance to impact, stress, and abrasion even at very low temperatures
	Resistant to direct sunlight and diverse climatic conditions		Fire behavior BS EN 13501-E
	Chemical resistance within a pH range of 2 to 12 in compliance with ISO 10358		Suitable for underground installation, certified with BD approval by the Road, Housing, and Urban Development Research Center
	Extremely lightweight compared to metallic systems		High elasticity and flexibility, resistant to non-destructive seismic vibrations

Poliran Comprehensive Rainwater System

Considering the limitations of polymer systems, for integrated rainwater system testing in high-rise buildings has become a major challenge for designers and contractors, leaving no practical option other than the use of conventional alloy systems. However, these metallic systems, compared to polymer systems, have many shortcomings: in addition to high initial and installation costs, they suffer from corrosion and decay over time, resulting in a much shorter service life. Butt-Fusion polyethylene systems, due to their light weight, ease of installation, reliability, long service life, and cost-effectiveness, are the best choice for rainwater drainage in buildings. Nevertheless, even when using 10-bar pipes and fittings, because of common couplings in such systems, testing with pressures above 1.8 bar (18 meters water column) is practically impossible.

The Poliran Comprehensive Rainwater System provides the possibility of integrated testing up to a height of 150 meters water column, offering a reliable solution for rainwater drainage in high-rise buildings. This system employs the special 100RT coupling, designed and patented by Poliran's Research & Development (R&D) department, which ensures proper installation of polyethylene systems while accommodating longitudinal changes caused by thermal expansion and contraction.

Fire Performance of the Comprehensive Rainwater System

Today, fire control is one of the most important considerations in the design and construction of modern buildings. In addition to fire detection and extinguishing systems, there is a need for methods and products that can delay the spread of fire as much as possible. The rainwater system is flame behavior and according to BS EN 13501-E standard.

CERTIFICATE 

This is to certify that

M.O.L.
M.O.L. Gummiverarbeitung GmbH & Co. KG
Gutenbergstraße 12-14
40225 Venlo
Germany

has implemented and maintains a Quality Management System.

Scope:
Development, production and sales of rubber moulded articles and rubber extrusion

Through an audit the req. **ISO 9001** is fulfilled in the req. **ISO 9001**

Certificate no. **1516643311**
Valid until **2020-03-31**
Date of audit **2019-02-01**

DQS GmbH
DQS-Ing. Ludwig Voth

Prüfbericht K 15 1145
1. Ausfertigung

Auftraggeber: **Poliran Ebnat**
Arjantin Str. No. 17
1516643311 Tübingen
IBAN

Auftrag vom: **24.03.2015** Bestell-Nr. oder Zeichen: --

Auftrag über: **Typprüfung an einem Kunststoff-Rohrleitungssystem aus Polypropylen (PP) zum Abbläsen von Abwasser innerhalb von Gebäuden gemäß DIN EN 1451-1:1999-03 in Verbindung mit DIN CEN/TS 1451-2:2012-05**

Prüfobjekt: **Rohre und Formstücke der Dimensionen DN/D 40 bis DN/D 160 aus Polypropylen gemäß DIN EN 1451-1:1999-03**
Nähere Beschreibung des Prüfobjekts auf Seite 2 dieses Prüfberichts.

Prüfungsmethode: **Das Prüfobjekt wurde vom Auftraggeber angefertigt**

Prüfungstermin: **21.07.2015**

Prüfzeitraum: **09.2015 bis 11.2015**

Bearbeitung: **Siehe Gesamtbewertung Abschnitt 3, Seite 13**

Versand: **Auftraggeber (1. und 2. Ausfertigung)**
MPA/Darmstadt (Seite 1. Ausfertigung)

Fraunhofer IBP
Institut für Bauphysik, Bauphysik und Bauteilprüfung
Technische Universität Darmstadt
Prüfungsbereich für Bauphysik, Bauteilprüfung und Bauteilprüfung
Prof. Dr. Peter Lohmeyer
Prof. Dr. Oliver Neuenhuth

Test Report P-BA 6/2019e
Determination of the Acoustic Performance of a Wastewater Installation System in the Laboratory

Client: **Poliran Ebnat Co.**
Arjantin Str. No. 17
1516643311 Tübingen
IBAN

Test object: **Wastewater installation system consisting of plastic pipes and fittings "POLIRAN (FF Flame Retardant FOR SEWERS-40, 50, 110 & 127 mm" mounted with pipe clamps "POLIRAN RC" (manufacturer: Poliran Ebnat Co.)**

Content: **Results sheet 1: Summary of test results
Figures 1 to 3: Detailed results
Figures 4 and 5: Test set-up
Annex A: Measurement set-up, noise excitation, acoustic parameters
Annex E: Evaluation of measurements
Annex F: Description of the test facility
Annex V: Assessment according to ISO 4100**

Test date: **The measurement was carried out on November 26, 2018 in the test facilities of the Fraunhofer Institute for Building Physics in Stuttgart.**

Stuttgart, February 08, 2019
Responsible Test Engineer: **M.Sc. B. Kallenberg**
Head of Laboratory: **M.Sc. Dr.-Ing. Ludwig Voth**

The test was carried out in a laboratory, accredited according to DIN EN ISO/IEC 17025:2005 by DAkkS. The accreditation certificate is 03-01-11401-1-03.

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Advantages of the Polyethylene Comprehensive Rainwater System compared to Metallic Systems :

No scaling, corrosion, or rusting / Higher chemical resistance / Much lighter weight / Faster and easier installation / Significantly lower cost / Longer lifespan and durability / Suitable for installation under all weather conditions

Advantages of the Polyethylene Comprehensive Rainwater System compared to UPVC Systems :

No emission of toxic and lethal gases during fire / No need for adhesives at joints / Permanent and reliable sealing after installation / Non-brittle material / Longer service life and durability / UV-resistant and suitable for outdoor installation

Components of the Comprehensive Rainwater System :

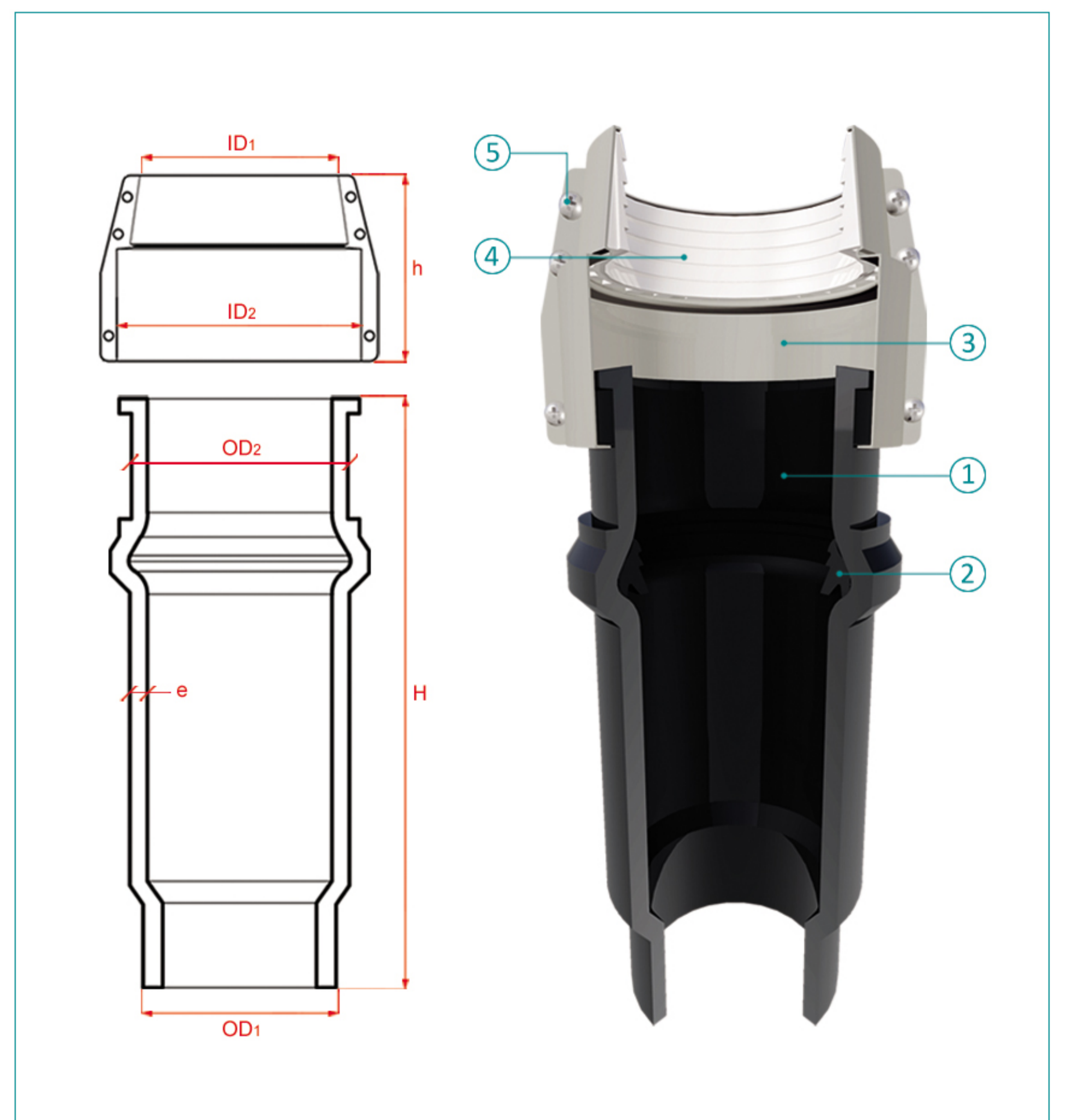
1- Special Rainwater Expansion joint



To solve the problem of integrated rainwater testing while considering the effects of thermal expansion in polyethylene systems, the special rainwater coupling was designed and developed by Poliran's R&D department. Its unique design allows controlled longitudinal movement of the pipe as required, while the use of a split ring retainer and a metal collar prevents the pipe from excessive withdrawal during testing and enables testing up to 15 bar pressure. In addition, the triple-lip sealing ring used in this coupling has been specially designed for pressurized systems.

- 1 - Connection body made of polyethylene
- 2 - Special high-pressure sealing ring
- 3 - Metal collar with baked enamel coating
- 4 - Retainer ring made of polyacetal
- 5 - Six M6 size bolts and nuts

size	H (mm)	OD1 (mm)	OD2 (mm)	e (mm)	h (mm)	ID1 (mm)	ID2 (mm)
110	350	110	130	10.5	111	117	144

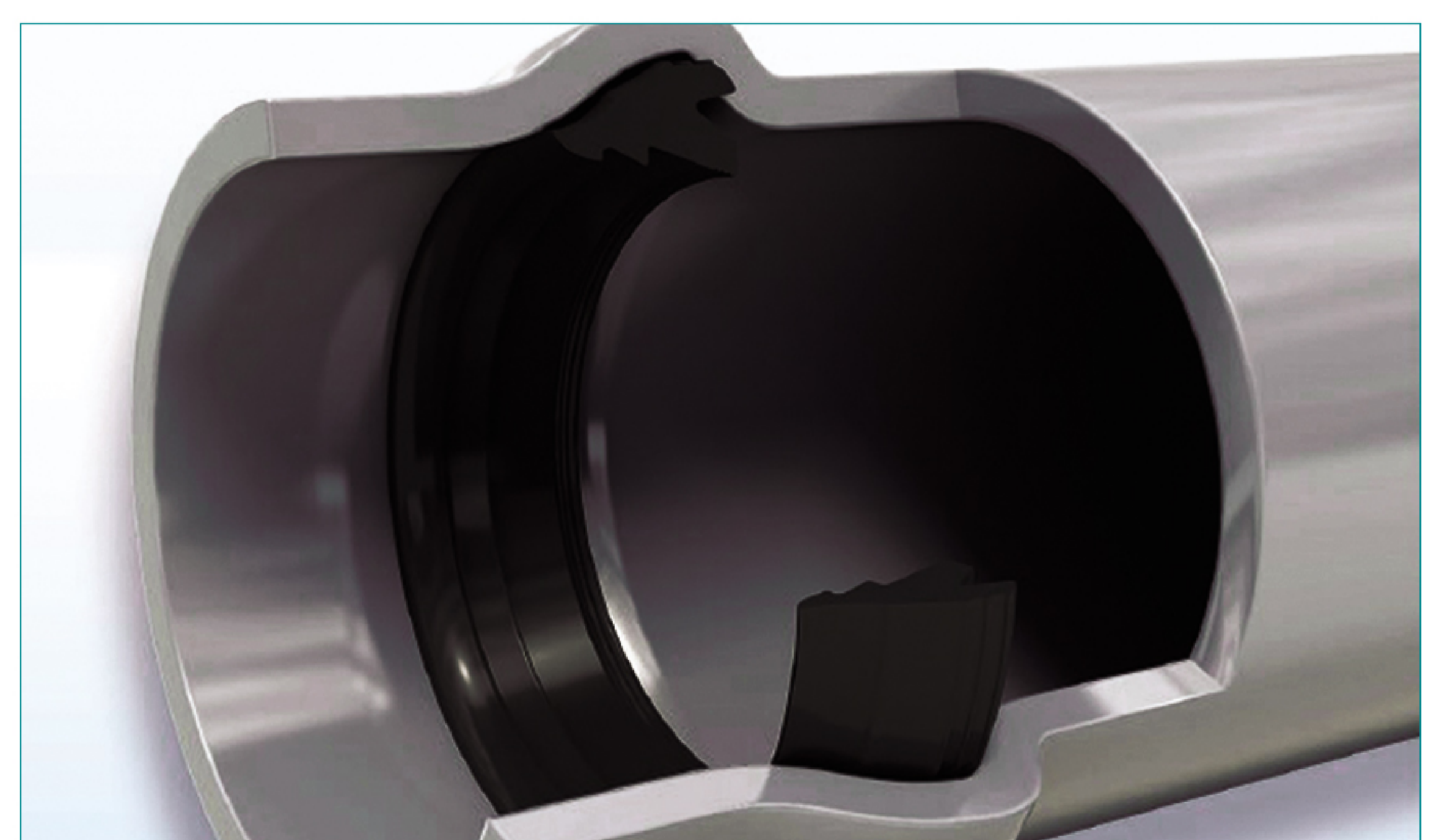
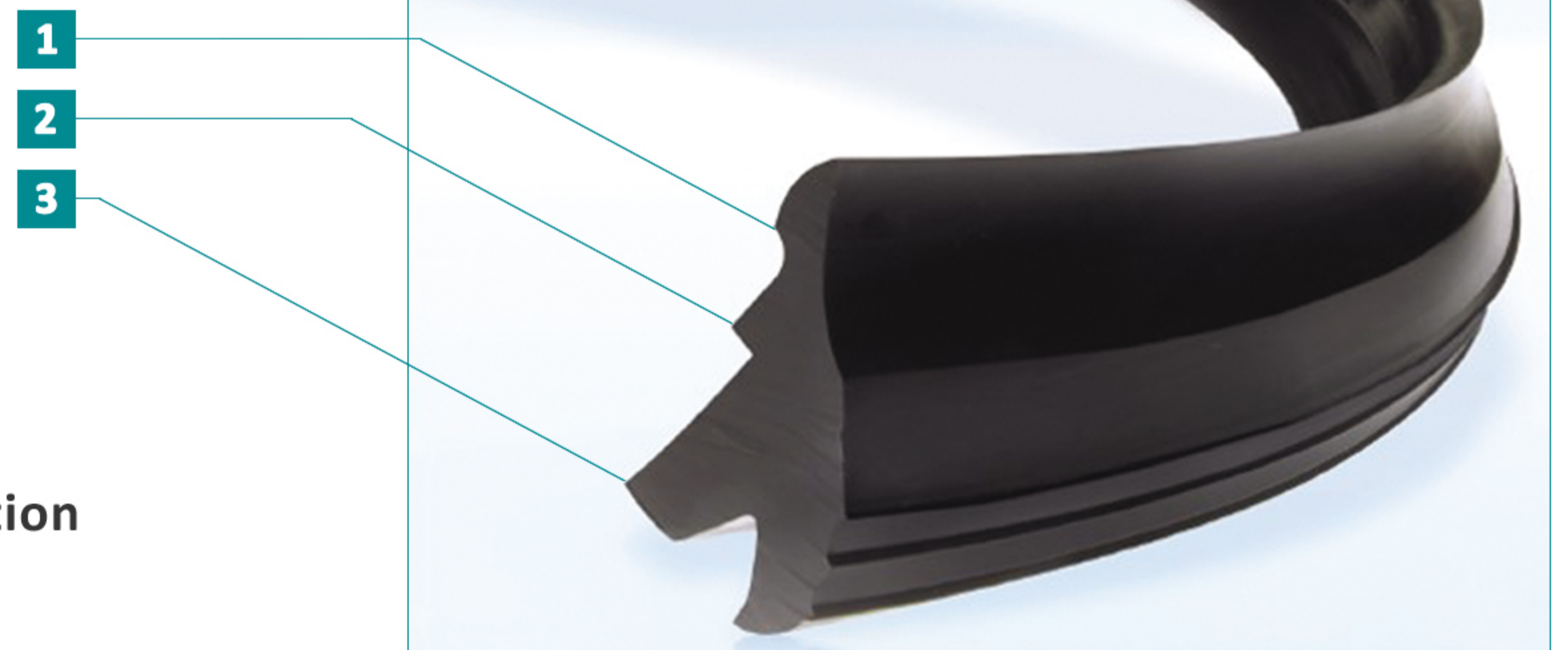


Characteristics of the Special Sealing Ring :

Unique triple-lip design

- First lip :** Aligns the pipe with the fitting
- Second lip :** Removes any dirt or foreign particles
- Third lip :** Largest lip ensuring stable, long-lasting, and reliable sealing

- 1 - Ease of installation
- 2 - No displacement of the ring from its seat during installation
- 3 - Exclusive use in high-pressure systems
- 4 - Manufactured with the latest technology



Performance of the Special Rainwater Coupling for Controlling Longitudinal Changes in Polyethylene Due to Temperature Variations

Like any other material, polyethylene expands or contracts when exposed to temperature changes, causing its length to vary. The special rainwater coupling was designed and developed by Poliran's Research & Development (R&D) unit to address the issue of integrated rainwater testing while considering the effects of temperature fluctuations in polyethylene systems. Each material has a unique coefficient of linear expansion, which indicates the extent of its dimensional changes. For butt-Fusion polyethylene systems, this coefficient is 0.19 mm/m.

Since the dimensional changes in polyethylene pipes are greater compared to other polymer systems, their impact on the piping system requires special consideration. To absorb and neutralize these longitudinal changes in butt-Fusion polyethylene systems, special Expansion joint are used.

The Expansion joint is a push-fit joint consisting of a socket and a sealing ring, which creates the necessary space for free longitudinal movement of pipes, thereby preventing damage to the supports.

Type of Expansion joint	Application	Installation distance for longitudinal compensation
Special Rainwater Expansion joint	Absorbing longitudinal changes and facilitating installation and integrated testing	Minimum 6 meters and maximum 12 meters testing



2- 10Bar Inspection Chamber



3- Inspection Tee 90°, 10 Bar



4- Tee 45°, 10 Bar

 <ul style="list-style-type: none"> - Engineering design - Leak-tight up to 15 bar - Manufactured with the latest technology - Exclusively designed, manufactured, and developed for the rainwater system 	 <ul style="list-style-type: none"> - Engineering design at the inspection point - Leak-tight up to 15 bar - Proper dimensions for installation in confined spaces - Manufactured with the latest technology - Exclusively designed, manufactured, and developed for the rainwater system 	 <ul style="list-style-type: none"> - Specially produce by injection mold - Exclusively designed, manufactured, and developed for the rainwater system
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5- Elbow45°, 10 Bar

6- Polyethylene Pipes

7- Expansion joint Lubricant Spray

 <ul style="list-style-type: none"> - Specially produce by injection mold - Exclusively designed, manufactured, and developed for the rainwater system 	 <p>Pipes in the Poliran Comprehensive Rainwater System are manufactured from PE100 material with a working pressure of 10 bar, in compliance with EN 1519</p>	 <p>Volume: 300 cc</p>
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6 - Poliran RC Clamps : Normal

Specially designed for the Comprehensive Rainwater System, these clamps feature two unequal half-rings that ensure better stability, secure fastening, and the ability to support the weight of the rainwater system during testing. The unique design of the rubber used in these clamps provides stronger grip and prevents the transmission of vibrations caused by water flow to the structure and the building's interior.

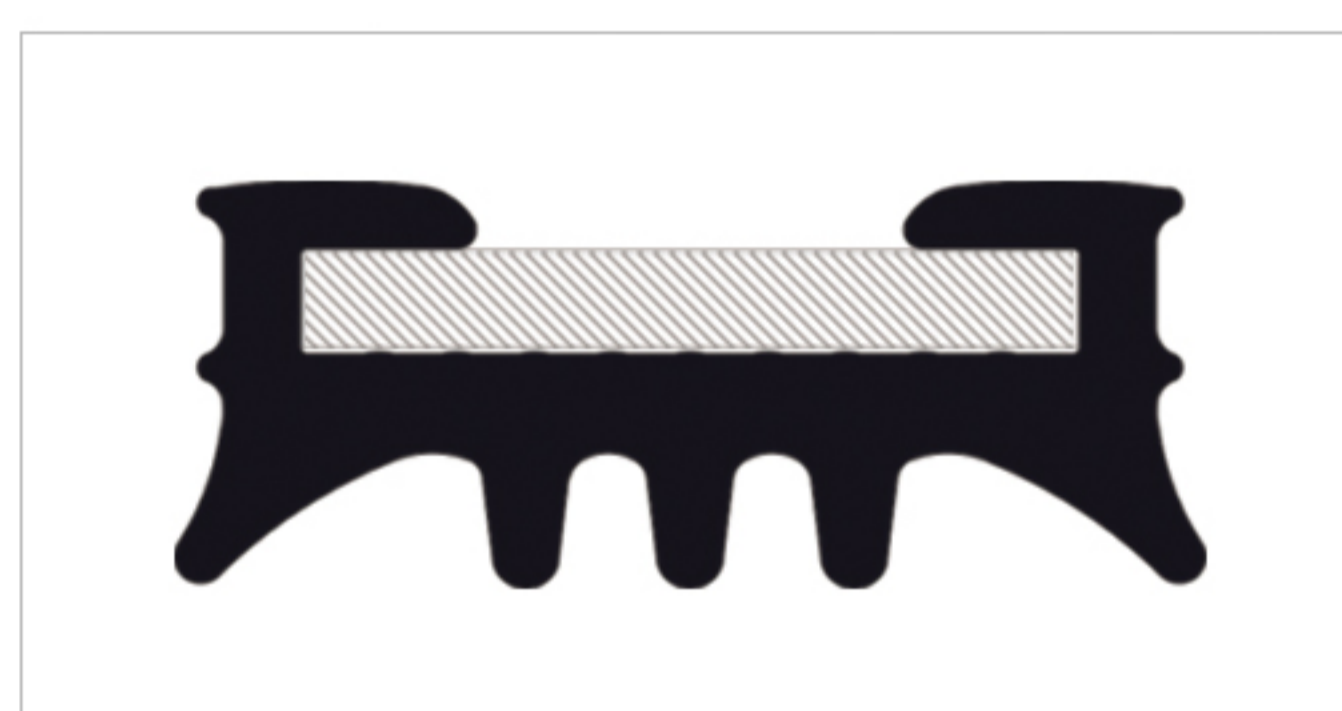
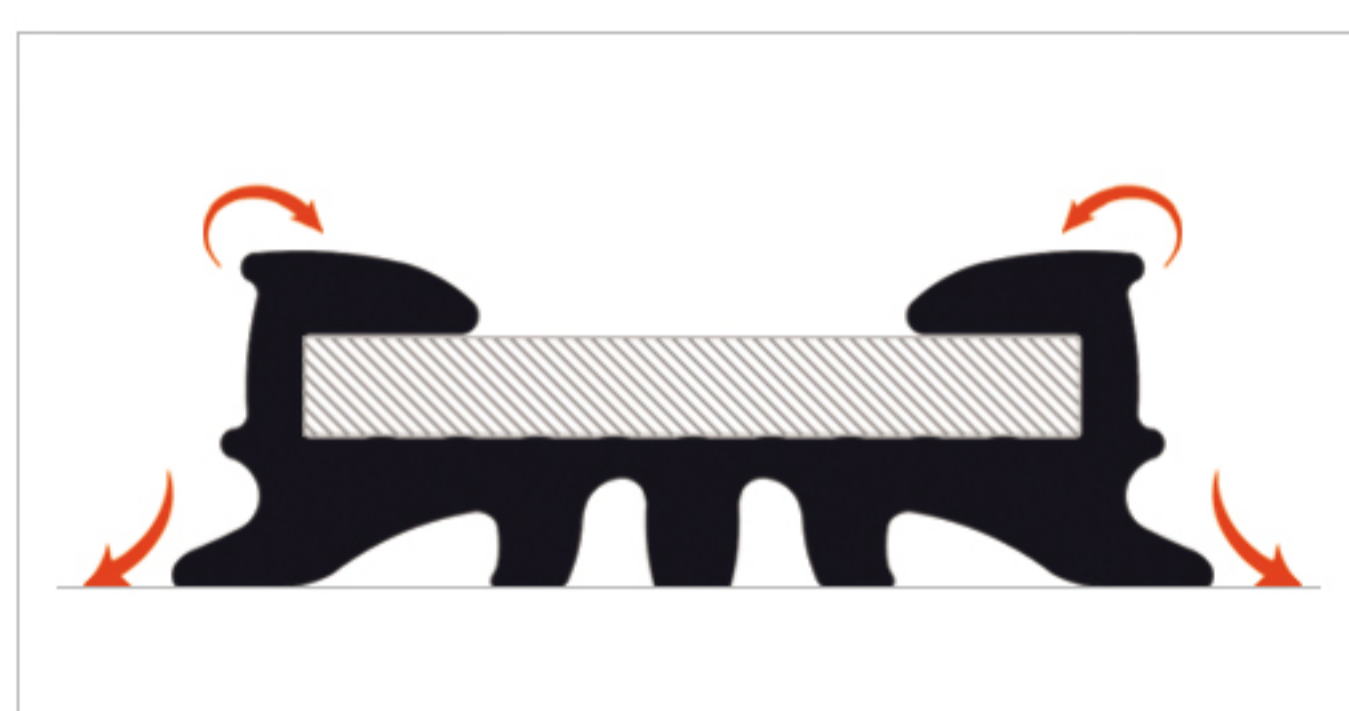
Features :

- Significant reduction in noise transmission from water flow, certified by the Fraunhofer Institute (Germany).
- No rubber protrusion from its position during water-tightness testing, due to the retaining edge.
- Made of galvanized steel sheet, resistant to corrosion and rust.
- Quick and easy installation without the need for a wrench, using a flanged knurled nut.
- Available in 4 models: wall-mounted, welded, suspended, and adjustable, depending on the installation method.
- Suitable for all polymer and metallic systems.
- Much higher strength compared to all existing clamps, designed to support the weight of the rainwater system during integrated testing with up to 150 meters water column.



Closed Position : Full seating of the rubber on the clamp and proper fastening of the pipe with minimal contact surface with minimum contact surface.

Open Position : Special design of the rubber cross-section and its placement on the metal body of the clamp.



Stable Wall Clamp / Stable Suspended Ceiling Clamp / Stable Welded Ceiling Clamp / Stable Adjustable Ceiling Clamp



Ultra-P RC Clamp



Ultra Protection Against Corrosion

The Ultra-P stable clamp, Poliran's latest product, offers significantly higher resistance to corrosion and rust. It is specially designed for use in high-humidity environments such as northern and southern regions of the country, swimming pools, as well as highly corrosive environments such as industrial and laboratory projects.

Features :

- Baked enamel coating
- Suitable for environmental and climatic conditions C1 to C4 according to EN 12944-2 and EN 14713-150 standards
- Excellent performance in 1000-hour Salt Spray Test (ASTM B117-18) with no rusting
- Suitable for outdoor and open-space applications
- Available in 2 models: wall-mounted and adjustable, depending on installation method



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:



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