

POLO-UDS

SIPHONIC ROOF DRAINAGE SYSTEM



Strong brands under one roof!

True to this motto, POLOPLAST is pleased to offer POLO-UDS, a high-performance siphonic roof drainage system. Thanks to premium quality, perfectly coordinated system components produced by renowned manufacturers, POLO-UDS ensures the rapid and reliable drainage of roof areas.

POLO-UDS system components

Pipe system POLO-KAL NG UDS made of mineral reinforced polypropylene as well as the extraction-retainer POLO-ASV

poloplast

with system suppliers

Flat roof drains made of polypropylene



Fixing technology



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General information

The information provided in this technical manual is intended to help you select our products for your application. Text and images were compiled with utmost care. Nevertheless, errors cannot be entirely excluded. POLOPLAST does not assume legal liability or any other form of liability for erroneous information and its consequences. POLOPLAST is grateful for any suggestions or comments.

We are happy to provide further information – ask our technical field staff – or contact us on +43(0)732 / 38 86-0, office@poloplast.com

1.1 Type of drainage

A distinction is made between two types of roof drainage:

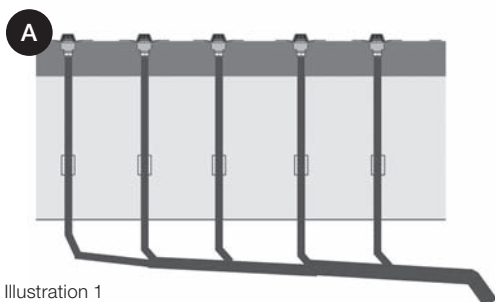


Illustration 1

Gravity drainage

A | Roof drainage with partly filled rainwater pipes according to EN 12056-3, DIN 1986-100, ÖNORM B2501

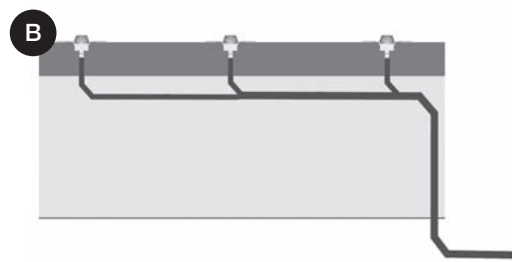


Illustration 2

Siphonic drainage

B | Roof drainage with pipes designed to work fully filled, according to EN 12056-3, DIN 1986-100, ÖNORM B2501

Principle of a roof drainage system designed to operate fully filled (siphonic flow)

Unlike gravity drainage, siphonic drainage is operated with the system fully filled (fill rate $h/d_i=1$).

A siphonic drainage system must be designed in such a way that even a light rainfall causes the cross-section of the downpipe to snap shut section by section. The weight of the “water pocket” flowing perpendicularly through the downpipe drains the roof surface using a “siphon effect”. (Comment DIN 1986-100, 14.3.5 Start-up Requirements)

1.2 Advantages of siphonic drainage

Advantages of siphonic drainage

1. improved pipe self-cleaning through high flow rates
2. less civil engineering works due to reduced number of downpipes
3. fewer downpipes, leading to improved use of the building
4. pipe routing under the roof does not require gradient
5. smaller pipe dimensions
6. fewer roof drains due to greater drainage capacity (fewer breaks)
7. high efficiency due to reduced expenditure on material and labour

1.3 Basic operational principles of Siphonic Drainage

Extract from DIN 1986-100:2008-05, 14.3.2 Dimensioning Principles:

“The basis for the dimensioning of roof drainage systems with pipes designed to operate fully filled, is a steady flow of water with a constant density (without dragging air in).”

When the calculated rain intensity is reached, roof drainage systems with pipes operated fully-filled utilize the geodesic pressure differential between roof drain and the transition to gravity drainage in order to produce a high-capacity flow. (Comment DIN 1986-100, 14.3)

1.4 Emergency drainage

In the event of heavy rainfall the roof area can become flooded/overloaded. Roof constructions without planned rain retention mechanisms are therefore equipped with emergency drainage (DIN 1986-100).

Where the emergency drainage cannot be routed via the building exterior in the form of an open emergency overflow, an additional pipe system draining freely onto the site must be provided for.

1.5 Determining the parameters for planning purposes

- Type of drainage – siphonic drainage
- Calculation of expected rainwater drainage in accordance with EN 12056-3, DIN 1986-100, ÖNORM B2501 (at least 300 l/s x ha) or according to local requirements
- Assessment of emergency drainage in accordance with EN 12056-3, DIN 1986-100 or ÖNORM B2501
- Selection of precise positioning of roof drains, taking into account the structural calculations, insulation, insulation thickness and type of roof membrane
- Determination of the type of attachment to the building structure taking into account the structural calculations for the roof
- Determination of the type of attachment of the pipe to the supporting rails taking into account the linear expansion factor

1.6 POLO-UDS system components

- flat roof drains made of polypropylene and PVC (for the attachment of PVC membranes)
- fastening material
- pipes and moulded parts made of mineral-reinforced polypropylene
- extraction-proof connection

1.7 Advantages of POLO-UDS

Roof drains

- integrated thermal insulation – superior quality
- drains made of polypropylene – highly impact proof, temperature and UV resistant
- premium design with 100% backflow-safe raising element
- secure connection between roof drain and raising element
- simple operation/assembly owing to compact product configuration
- drains available with integrated self-regulating heating tape
- in solid ceilings the ceiling break can take the form of a core drilling or of a recess clearance

Fixing technology

- products comply with relevant quality guidelines and are systematically stress-tested for safety
- impartial and externally controlled performance characteristics
- binding and reliable load values
- transparent and high-grade quality assurance
- compliance with strictest quality standards
- safety

Push-fit socket system POLO-KAL NG UDS

- low linear expansion CLTE (Coefficient of Linear Thermal Expansion) = 0.05 mm/m°K
- high ring stiffness (at least 6.0 kN/m²) – high length stiffness
 - great dimensional stability
- leak-tightness at negative pressure up to 900 mbar
- low-temperature impact strength up to -20°C
- easy to process, even in damp or rainy conditions
- simple, fast and therefore cost-effective assembly
- no welding necessary (no electrofusion sockets)
- can be installed without electric power
- highly extraction-proof due to extraction-retainer POLO-ASV
- noise insulation

2. Testing

Test Report No.: OFI 309.524-2

Leak test with external positive pressure performed on POLO-KAL NG pipes.

Technical report by OFI regarding usability

Test Report No.: OFI 311.480-5

Simulation of heavy rainfall events as practise test of the POLOPLAST siphonic roof drainage system

3. Technical specifications, basis for calculation

3.1 Drainage capacity

The drainage capacity can be adjusted independently due to the hydraulic calculations; the optimal function is achieved between 6 l/s and 17.4 l/s. At a maximum drainage capacity of 17.4 l/s and a rain yield factor of 300 l/s x ha, approx. 600 m² can be drained via one roof drain. Low points must be observed at an early stage during the planning phase. Every low point must be equipped with a drain!

3.2 Roof areas

Roof areas exceeding a measurement of 5,000 m² must be drained using multiple systems (down-pipes) in accordance with DIN 1986-100, 6.4. Roof areas featuring significantly different height levels (> 1 m) must also be drained using separate downpipes.

3.3 Spacing between Roof Drains

The maximum spacing of 20 m between roof drains must not be exceeded.

3.4 Maximum pipe line length

For economic reasons, per metre of available height differential $\Delta h_{\text{available}}$, the horizontal linear expansion of the longest flow path may not exceed $10 \cdot \Delta h_{\text{available}}$; in exceptional circumstances this can be increased to $20 \cdot \Delta h_{\text{available}}$ ($20 \times \Delta h_{\text{available}}$) (DIN 1986-100, 14.3.2)

3.5 Flow rate

To safeguard the self-cleaning of the pipes the flow rate must not fall below 0.5 m/s, in accordance with DIN 1986-100, 14.3.2.

3.6 Drainage velocity

In accordance with DIN 1986-100, 6.4 the transition from siphonic drainage to gravity drainage must be secured correspondingly, as the original requirement for a reduction of the flow rate to 2.5 m/s may not be feasible in all instances.

3.7 Reduction of pipe diameter in the direction of flow

A reduction of the nominal diameter of pipes in the direction of flow is admissible for hydraulic purposes, however as a rule it should only be implemented in vertical pipes. An increase of the diameter in the run of the downpipe should be avoided, as it generally leads to a stalling of the siphonic flow. (Extract from DIN 1986-100, 14.3.2)

3.8 Pipe dimensions

Push-fit socket pipes and fittings DN/OD 40-250 mm.

3.9 Negative pressure

The maximum permissible negative pressure in combination with POLO-UDS is 900 mbar.

3.10 Condensate insulation

Where applicable, rainwater pipes that are installed indoors must be protected from condensate in accordance with DIN EN 12056-1, 5.6.5.

3.11 Dimensioning

Dimensioning in accordance with EN 12056-3 and DIN 1986-100.

3.12 Noise insulation

Where noise insulation is required, the siphonic roof drainage system must be isolated using system-related noise insulating buffers and/or steel brackets with rubber inlays preventing the transmission of structure-borne sound from/to the building structure.

3.13 Transition from Siphonic Drainage to Gravity Drainage

As a rule the transition occurs in the downpipe and is implemented through the transition (expansion of pipe diameter, generally by 1 to 2 pipe dimensions) to a larger pipe diameter approximately 1 m above floor level.

In cases where the available height differential used in the construction is too small, the transition to gravity drainage can be implemented in the underground pipe. A cleaning pipe must be installed immediately following the transition to gravity drainage.

3.14 Attachment to the building

As a rule, the attachment to the building has to be carried out by the building contractor. The structural aspects of the design must be determined in advance and remain the responsibility of the contractor, as does the implementation.

Possible attachments to the building:

- To a trapezoidal sheeting
- To a steel reinforced concrete roof
- To a hollow core slab
- To a wooden construction

3.15 Laying of pipes in concrete

POLO-KAL pipes and fittings can be embedded directly into concrete. The pipe sections must be secured so that their position cannot change during concreting. Pipe openings must be closed; sleeve gaps must be sealed with tape or by wrapping with foil, to prevent the entry of cement slurry during the concreting and setting process.

A structural analysis must be carried out in the case of large-scale concrete covers. For acoustic reasons it is advisable to encase the entire pipe line with insulating material (with a diffusion-proof outer skin).

4.1 Roof Drain


4.1.1 Accreditation

The SuperDrain vertical/horizontal **roof drains** with the connection types PVC, FPO, clamping flange and bitumen flange have been accredited by the LGA in Würzburg with the **LGA Certificate No. 7391268-01z**.


Roof drains with the following **drainage capacities** have been accredited:

- vertical outlet 17.4 l/s
- horizontal outlet 18.4 l/s


LGA QualiTest GmbH
Sanitär- und Abscheidetechnik




Durch die DAP Deutsches Akkreditierungssystem Prüfwesen GmbH
akkreditiertes Prüflaboratorium
Zertifiziert nach DIN EN ISO 9001/14001



LGA-Zertifikat Nr. 7391268-01z

<p>Dem Hersteller:</p> <p>Dallmer GmbH & Co. KG Wiebelsheidestraße 25 59757 Arnsberg</p> <p>und Herstellwerk:</p> <p>wie vor</p> <p>wird bescheinigt, dass die Prüfung des nachfolgend beschriebenen Bauprodukts:</p> <p>Dachablauf-Programm SUPERDRAIN 62 Ablaufstützen DN 75, 90 senkrecht 64 Ablaufstützen DN 75, waagrecht 86 Ablaufstützen DN 75, waagrecht aus PP/FPO, PVC PP / Schraubflansch / DallBit für die Entwässerung mittels Druckströmung</p> <p>die Anforderungen folgender Normen erfüllt hat:</p> <p>entsprechend Bauregelliste A Teil 1, lfd. Nr. 12.2.12</p> <p>DIN EN 1253-1: 2003-09 DIN EN 1253-2: 2004-03 Abläufe für Gebäude</p> <p>Die Einzelergebnisse der durchgeführten Prüfung sind im LGA-Prüfbericht Nr. 7391268-01 dargestellt.</p> <p>Dieses Zertifikat ist gültig bis 31.12.2014.</p> <p>Würzburg, 16.12.2009</p> <p>LGA QualiTest GmbH Sanitär- und Abscheidetechnik</p>  <p>Dipl.-Ing. (FH) Arnold Fachzentrumsleiter</p>	<p>The Manufacturer:</p> <p>Dallmer GmbH & Co. KG Wiebelsheidestraße 25 59757 Arnsberg</p> <p>and Production plant:</p> <p>as above</p> <p>is attested, that the following described building product:</p> <p>Roof drains of the series, SUPERDRAIN 62 spigot DN 75, 90 vertical 64 spigot DN 75, horizontal 86 spigot DN 75, horizontal made of PP/FPO, PVC PP / screwing flange / DallBit for siphonic drainage systems</p> <p>has fulfilled the requirements according to the following standards:</p> <p>according to Bauregelliste A Teil 1, serial No. 12.2.12</p> <p>DIN EN 1253-1: 2003-09 DIN EN 1253-2: 2004-03 Gullies for buildings</p> <p>The detailed results of the test are shown in the test report no. 7391268-01 of the LGA.</p> <p>This certificate is valid until 31.12.2014.</p>
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Sitz und Registergericht Nürnberg HRB 20544
Geschäftsführer: Hans-Hermann Ueffing,
Michael F. Jungnitsch

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Tel +49 (0) 931 4196-166 • Fax +49 (0) 931 4196-165 • eMail: sat@lga.de • <http://sat.lga.de>

PRODUCTS

The SuperDrain vertical/horizontal **emergency drains** with the connection types PVC, FPO, clamping flange and bitumen flange have been accredited by the **LGA in Würzburg with the LGA Certificate No. 7391268-05z**.

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<p>LGA QualiTest GmbH Sanitär- und Abscheidetechnik</p> <p> Durch die DAP Deutsches Akkreditierungssystem Prüfwesen GmbH DAP-PL-1524.23 akkreditiertes Prüflaboratorium Zertifiziert nach DIN EN ISO 9001/14001</p>		<p>LGA</p>	
<p>LGA-Zertifikat Nr. 7391268-05z</p>			
<p>Dem Hersteller:</p> <p>Dallmer GmbH & Co. KG Wiebelsheidestraße 25 59757 Arnsberg</p>		<p>The Manufacturer:</p> <p>Dallmer GmbH & Co. KG Wiebelsheidestraße 25 59757 Arnsberg</p>	
<p>und Herstellwerk:</p> <p>wie vor</p>		<p>and Production plant:</p> <p>as above</p>	
<p>wird bescheinigt, dass die Prüfung des nachfolgend beschriebenen Bauprodukts:</p> <p>Flachdach Notablauf-Programm SUPERDRAIN 62 Ablaufstutzen DN 75, 90 senkrecht 64 Ablaufstutzen DN 75, waagrecht 86 Ablaufstutzen DN 75, waagrecht aus PP/FPO, PVC PP / Schraubflansch / DallBit für die Entwässerung mittels Druckströmung</p>		<p>is attested, that the following described building product:</p> <p>Flat roof emergency drains of the series SUPERDRAIN 62 spigot DN 75, 90 vertical 64 spigot DN 75, horizontal 86 spigot DN 75, horizontal made of PP/FPO, PVC PP / screwing flange / DallBit for siphonic drainage systems</p>	
<p>die Anforderungen folgender Normen erfüllt hat:</p> <p>entsprechend Bauregelliste A Teil 1, lfd. Nr. 12.2.12</p> <p>DIN EN 1253-1: 2003-09 DIN EN 1253-2: 2004-03 Abläufe für Gebäude</p> <p>Anmerkung: Anforderungen an das Abflussvermögen für Not-Dachabläufe sind in EN 1253 nicht genannt.</p> <p>Die Einzelergebnisse der durchgeführten Prüfung sind im LGA-Prüfbericht Nr. 7391268-05 dargestellt.</p>		<p>has fulfilled the requirements according to the following standards:</p> <p>according to Bauregelliste A Teil 1, serial No. 12.2.12</p> <p>DIN EN 1253-1: 2003-09 DIN EN 1253-2: 2004-03 Gullies for buildings</p> <p>Remark: Requirements concerning the flow rate of emergency-roof outlets are not mentioned in EN 1253.</p> <p>The detailed results of the test are shown in the test report no. 7391268-05 of the LGA.</p>	
<p>Dieses Zertifikat ist gültig bis 31.12.2014.</p> <p>Würzburg, 16.12.2009</p> <p>LGA QualiTest GmbH Sanitär- und Abscheidetechnik</p> <p> Dipl.-Ing. (FH) Arnold Fachzentraleleiter</p>		<p>This certificate is valid until 31.12.2014.</p> <p> LGA QualiTest GmbH Sanitär- und Abscheidetechnik</p>	
<p>H:\Data\QI\WQSAT\Zeugnisse\2009\7391268-05z.doc</p> <p>Seite 1 von 1 Sitz und Registergericht Nürnberg HRB 20544 Geschäftsführer: Hans-Hermann Ueffing, Michael F. Jungnitsch</p> <p>LGA QualiTest GmbH • TÜV Rheinland Group • Dreikronenstraße 31 • 97082 Würzburg • Tel +49 (0) 931 4196-166 • Fax +49 (0) 931 4196-165 • eMail: sat@lga.de • http://sat.lga.de</p>			

4.1.2 Products

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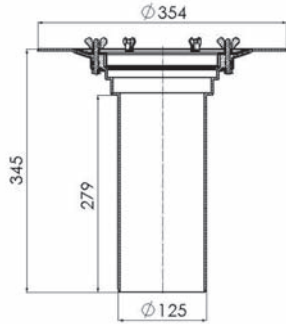
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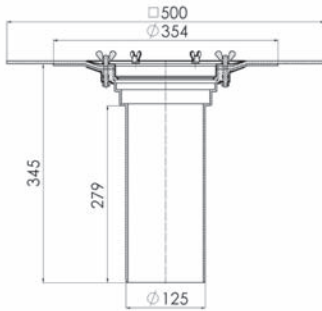
CALCULATION SOFTWARE



POLO-UDS Raising piece SuperDrain 65 CLAMP
Item No. 1609

POLO-UDS Raising Element SuperDrain 65 CLAMP compatible with SuperDrain roof drains 60 and 64, for thermal insulation from 50 to 240 mm, casing with stainless steel flange ring for the fastening of polymer roof membranes, delivery includes backflow seal and temporary blanking plate, extendable with plastic pipe DN/OD 125

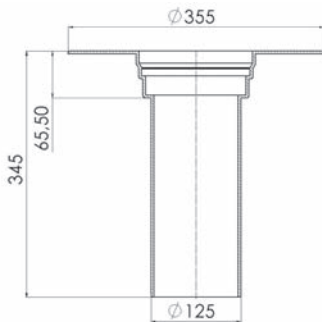
Material: Polypropylene, UV stabilised



POLO-UDS Raising piece SuperDrain 65 BIT
Item No. 1610

POLO-UDS Raising Element SuperDrain 65 BIT compatible with SuperDrain roof drains 60 and 64, for thermal insulation from 50 to 240 mm, casing with stainless steel flange ring and factory-welded bituminous membrane-collar, d=500 mm x 4.7 mm, delivery includes backflow seal and temporary blanking plate, extendable with plastic pipe DN/OD 125

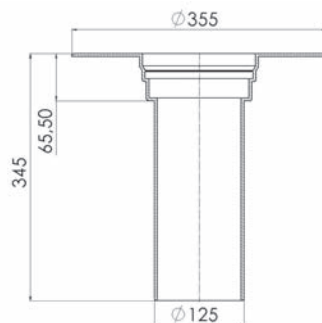
Material: Polypropylene, UV stabilised



POLO-UDS Raising piece SuperDrain 65 PVC
Item No. 1596

POLO-UDS Raising Element SuperDrain 65 PVC compatible with SuperDrain roof drains 60 and 64, for thermal insulation from 50 to 240 mm, PVC casing for adhesive bonding or solvent welding of PVC roof membrane, delivery includes backflow seal and temporary blanking plate, extendable with plastic pipe DN/OD 125

Material: PVC, UV stabilised

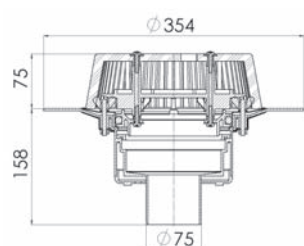


POLO-UDS Raising piece SuperDrain 65 FPO
Item No. 1597

POLO-UDS Raising Element SuperDrain 65 FPO compatible with SuperDrain roof drains 60 and 64, for thermal insulation from 50 to 240 mm, PP casing for adhesive bonding or solvent welding of FPO roof membrane, delivery includes backflow seal and temporary blanking plate, extendable with plastic pipe DN/OD 125

Material: Polypropylene, UV stabilised

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POLO-UDS Roof Drain SuperDrain 60 CLAMP Item No. 1570

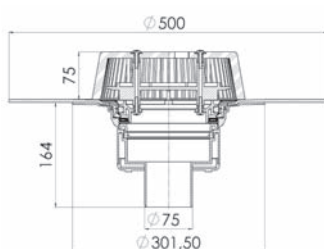
POLO-UDS Roof Drain SuperDrain 60 CLAMP according to EN 1253. For installation in siphonic roof drainage systems.

Insulated drain element with stainless steel flange ring for the fastening of polymer roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 17.4 l/s

Discharge nozzle: DN/OD 75 vertical

Material: Polypropylene, UV stabilised



POLO-UDS Roof Drain SuperDrain 60 BIT Item No. 1571

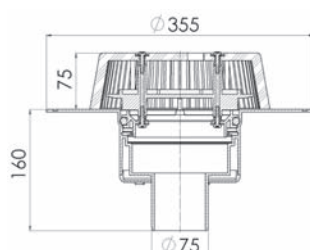
POLO-UDS Roof Drain SuperDrain 60 BIT according to EN 1253. For installation in siphonic roof drainage systems.

Insulated drain element with factory-welded bituminous membrane-collar d = 500 mm x 4.7 mm. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 17.4 l/s

Discharge nozzle: DN/OD 75 vertical

Material: Polypropylene, UV stabilised



POLO-UDS Roof Drain SuperDrain 60 PVC Item No. 1572

POLO-UDS Roof Drain SuperDrain 60 PVC according to EN 1253. For installation in siphonic roof drainage systems.

Insulated drain element made of PVC for adhesive bonding or solvent welding of PVC roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 17.4 l/s

Discharge nozzle: DN/OD 75 vertical

Material: PVC, UV stabilised

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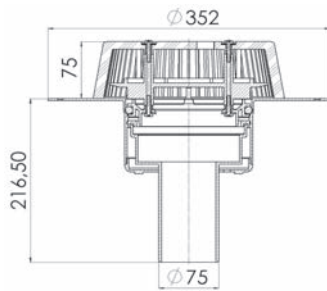
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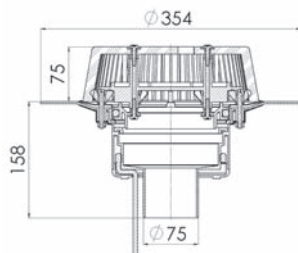
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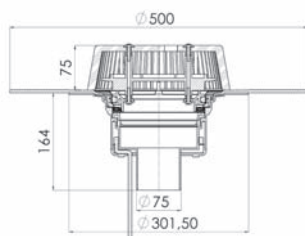
POLO-UDS Roof Drain SuperDrain 60 FPO Item No. 1573

POLO-UDS Roof Drain SuperDrain 60 FPO according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of PP for adhesive bonding or solvent welding of FPO roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert. Drainage capacity at 48 mm water level over drain: 17.4 l/s
Discharge nozzle: DN/OD 75 vertical
Material: Polypropylene, UV stabilised



POLO-UDS Roof Drain SuperDrain 60 CLAMP heat Item No. 1574

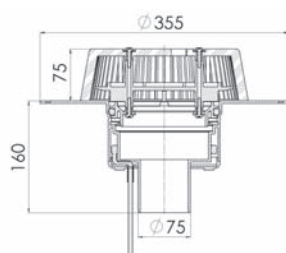
POLO-UDS Roof Drain SuperDrain 60 CLAMP heat according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element, with stainless steel flange ring for the fastening of polymer roof membrane and self-regulating heat source 230V, supply cable length 0.8 m. Delivery includes leaf and gravel guard, SuperDrain insert. Drainage capacity at 48 mm water level over drain: 17.4 l/s
Discharge nozzle: DN/OD 75 vertical
Material: Polypropylene, UV stabilised



POLO-UDS Roof Drain SuperDrain 60 BIT heat Item No. 1575

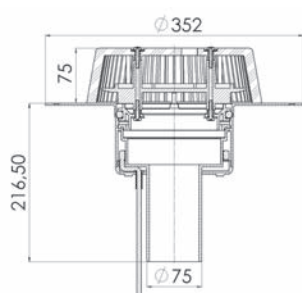
POLO-UDS Roof Drain SuperDrain 60 BIT heat according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element, with factory-welded bituminous membrane-collar d = 500 mm x 4.7 mm and self-regulating heat source 230V, supply cable length 0.8 m. Delivery includes leaf and gravel guard, SuperDrain insert. Drainage capacity at 48 mm water level over drain: 17.4 l/s
Discharge nozzle: DN/OD 75 vertical
Material: Polypropylene, UV stabilised

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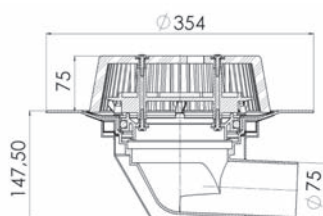
POLO-UDS Roof Drain SuperDrain 60 PVC heat Item No. 1576

POLO-UDS Roof Drain SuperDrain 60 PVC heat according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element, with PVC-flange for adhesive bonding or solvent welding of PVC roof membrane and self-regulating heat source 230V, supply cable length 0.8 m. Delivery includes leaf and gravel guard, SuperDrain insert. Drainage capacity at 48 mm water level over drain: 17.4 l/s
Discharge nozzle: DN/OD 75 vertical
Material: PVC, UV stabilised



POLO-UDS Roof Drain SuperDrain 60 FPO heat Item No. 1577

POLO-UDS Roof Drain SuperDrain 60 FPO heat according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element, with FPO-flange for solvent welding of FPO roof membrane and self-regulating heat source 230V, supply cable length 0.8 m. Delivery includes leaf and gravel guard, SuperDrain insert. Drainage capacity at 48 mm water level over drain: 17.4 l/s
Discharge nozzle: DN/OD 75 vertical
Material: Polypropylene, UV stabilised



POLO-UDS Roof Drain SuperDrain 64 CLAMP Item No. 1578

POLO-UDS Roof Drain SuperDrain 64 CLAMP according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of polypropylene, with stainless steel flange ring for the fastening of polymer roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert. Drainage capacity at 48 mm water level over drain: 18.4 l/s
Discharge nozzle: DN/OD 75 horizontal
Material: Polypropylene, UV stabilised

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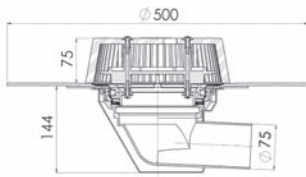
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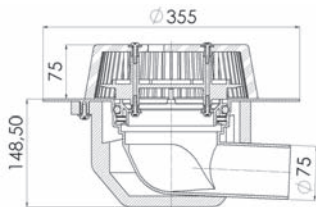
POLO-UDS Roof Drain SuperDrain 64 BIT Item No. 1579

POLO-UDS Roof Drain SuperDrain 64 BIT according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element, with factory-welded bituminous membrane-collar $d = 500 \text{ mm} \times 4.7 \text{ mm}$. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 18.4 l/s

Discharge nozzle: DN/OD 75 horizontal

Material: Polypropylene, UV stabilised



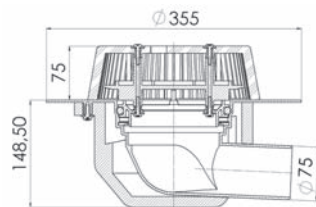
POLO-UDS Roof Drain SuperDrain 64 PVC Item No. 1580

POLO-UDS Roof Drain SuperDrain 64 PVC according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of PVC for adhesive bonding or solvent welding of PVC roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 18.4 l/s

Discharge nozzle: DN/OD 75 horizontal

Material: PVC, UV stabilised



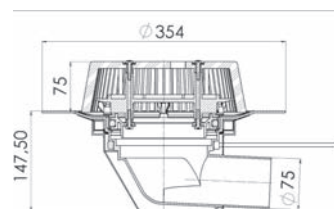
POLO-UDS Roof Drain SuperDrain 64 FPO Item No. 1581

POLO-UDS Roof Drain SuperDrain 64 FPO according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of polypropylene for solvent welding of FPO roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 18.4 l/s

Discharge nozzle: DN/OD 75 horizontal

Material: Polypropylene, UV stabilised



POLO-UDS Roof Drain SuperDrain 64 CLAMP heat Item No. 1582

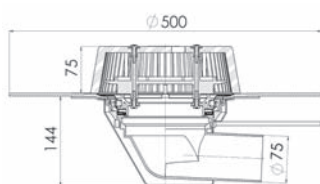
POLO-UDS Roof Drain SuperDrain 64 CLAMP heat according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of polypropylene, with stainless steel flange ring for the fastening of polymer roof membrane and self-regulating heat source 230V, supply cable length 0.8 m. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 18.4 l/s

Discharge nozzle: DN/OD 75 horizontal

Material: Polypropylene, UV stabilised

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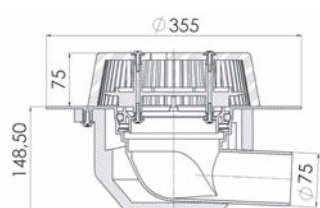
POLO-UDS Roof Drain SuperDrain 64 BIT heat Item No. 1583

POLO-UDS Roof Drain SuperDrain 64 BIT heat according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element, with factory-welded bituminous membrane-collar $d = 500 \text{ mm} \times 4.7 \text{ mm}$ and self-regulating heat source 230V, supply cable length 0.8 m. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 18.4 l/s

Discharge nozzle: DN/OD 75 horizontal

Material: Polypropylene, UV stabilised



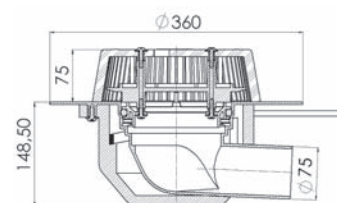
POLO-UDS Roof Drain SuperDrain 64 PVC heat Item No. 1584

POLO-UDS Roof Drain SuperDrain 64 PVC heat according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of PVC for adhesive bonding or solvent welding of PVC roof membrane and self-regulating heat source 230V, supply cable length 0.8 m. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 18.4 l/s

Discharge nozzle: DN/OD 75 horizontal

Material: PVC, UV stabilised



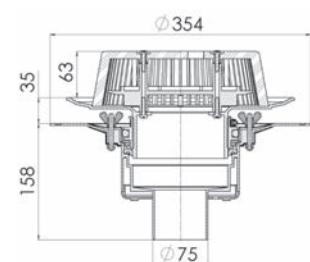
POLO-UDS Roof Drain SuperDrain 64 FPO heat Item No. 1585

POLO-UDS Roof Drain SuperDrain 64 FPO heat according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of polypropylene for solvent welding of FPO roof membrane and self-regulating heat source 230V, supply cable length 0.8 m. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 18.4 l/s

Discharge nozzle: DN/OD 75 horizontal

Material: Polypropylene, UV stabilised



POLO-UDS Emergency Drain SuperDrain 60 CLAMP Item No. 1586

POLO-UDS Emergency Drain SuperDrain 60 CLAMP according to EN 1253. For installation in siphonic roof drainage systems.

Insulated drain element, with stainless steel flange ring for the fastening of polymer roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert and height-adjustable overflow collar (35-75 mm)

Drainage capacity at 48 mm water level over drain: 17.4 l/s

Discharge nozzle: DN/OD 75 vertical

Material: Polypropylene, UV stabilised

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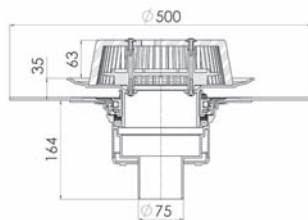
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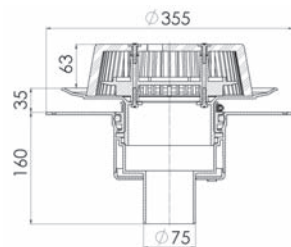
OBJECT QUESTIONNAIRE

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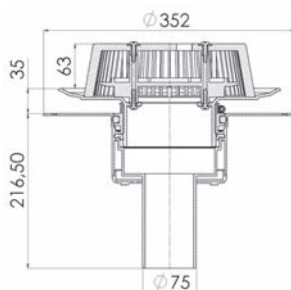
POLO-UDS Emergency Drain SuperDrain 60 BIT Item No. 1587

POLO-UDS Emergency Drain SuperDrain 60 BIT according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element, with factory-welded bituminous membrane-collar $d = 500 \text{ mm} \times 4.7 \text{ mm}$. Delivery includes leaf and gravel guard, SuperDrain insert and height-adjustable overflow collar (35-75 mm). Drainage capacity at 48 mm water level over drain: 17.4 l/s
Discharge nozzle: DN/OD 75 vertical
Material: Polypropylene, UV stabilised



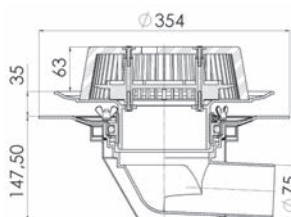
POLO-UDS Emergency Drain SuperDrain 60 PVC Item No. 1588

POLO-UDS Emergency Drain SuperDrain 60 PVC according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of PVC for adhesive bonding or solvent welding of PVC roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert height-adjustable overflow collar (35-75 mm)
Drainage capacity at 48 mm water level over drain: 17.4 l/s
Discharge nozzle: DN/OD 75 vertical
Material: PVC, UV stabilised



POLO-UDS Emergency Drain SuperDrain 60 FPO Item No. 1589

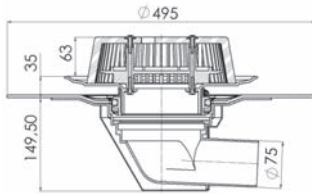
POLO-UDS Emergency Drain SuperDrain 60 FPO according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of PP for adhesive bonding or solvent welding of FPO roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert and height-adjustable overflow collar (35-75 mm)
Drainage capacity at 48 mm water level over drain: 17.4 l/s
Discharge nozzle: DN/OD 75 vertical
Material: Polypropylene, UV stabilised



POLO-UDS Emergency Drain SuperDrain 64 CLAMP Item No. 1590

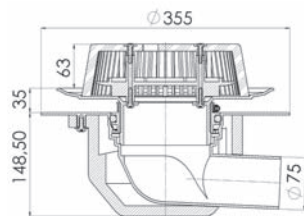
POLO-UDS Emergency Drain SuperDrain 64 CLAMP according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of polypropylene, with stainless steel flange ring for the fastening of polymer roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert and height-adjustable overflow collar (35-75 mm)
Drainage capacity at 48 mm water level over drain: 18.4 l/s
Discharge nozzle: DN/OD 75 horizontal
Material: Polypropylene, UV stabilised

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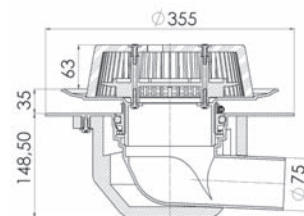
POLO-UDS Emergency Drain SuperDrain 64 BIT Item No. 1591

POLO-UDS Emergency Drain SuperDrain 64 BIT according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element, with factory-welded bituminous membrane-collar $d = 500 \text{ mm} \times 4.7 \text{ mm}$. Delivery includes leaf and gravel guard, SuperDrain insert and height-adjustable overflow collar (35-75 mm). Drainage capacity at 48 mm water level over drain: 18.4 l/s
Discharge nozzle: DN/OD 75 horizontal
Material: Polypropylene, UV stabilised



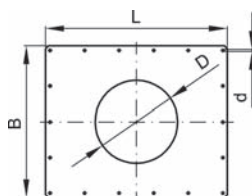
POLO-UDS Emergency Drain SuperDrain 64 PVC Item No. 1592

POLO-UDS Emergency Drain SuperDrain 64 PVC according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of PVC for adhesive bonding or solvent welding of PVC roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert and height-adjustable overflow collar (35-75 mm). Drainage capacity at 48 mm water level over drain: 18.4 l/s
Discharge nozzle: DN/OD 75 horizontal
Material: PVC, UV stabilised



POLO-UDS Emergency Drain SuperDrain 64 FPO Item No. 1593

POLO-UDS Emergency Drain SuperDrain 64 FPO according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of polypropylene for solvent welding of FPO roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert height-adjustable overflow collar (35-75 mm). Drainage capacity at 48 mm water level over drain: 18.4 l/s
Discharge nozzle: DN/OD 75 horizontal
Material: Polypropylene, UV stabilised



POLO-UDS Fixing Plate for Roof Drain in Trapezoidal Sheeting Item No. 1699

$B \times L = 600 \times 500 \text{ mm}$ compatible with all roof drains for the secure installation in trapezoidal sheeting roofs. $D = 270 \text{ mm}$
Material: Galvanized sheet steel, gauge 37
Product: POLO-UDS Fixing Plate for roof drain

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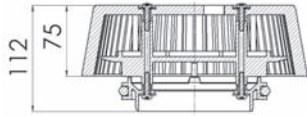
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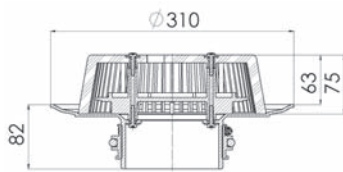
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Spare Parts



POLO-UDS Roof Drain SuperDrain Insert
Item No. 1598

POLO-UDS Roof Drain SuperDrain insert, consisting of socket adapter with pressure disc and leaf and gravel guard
Material: Polypropylene, UV stabilised



POLO-UDS Emergency Drain SuperDrain Insert
Item No. 1599

POLO-UDS Emergency Drain SuperDrain insert, PP, height-adjustable overflow collar (35-57 mm), compatible with all roof drains. To ensure emergency drainage on flat roofs in accordance with DIN 1986-100/EN 120563

POLO-UDS Stainless Steel Flange Ring
Item No. 1627

Stainless steel flange ring (clamping flange) for all roof drains and raising elements "CLAMP"

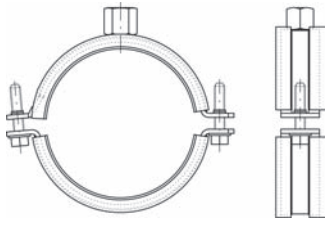
POLO-UDS Winged Nuts
Item No. 1628

6 winged nuts with serrated washer compatible with stainless steel flange ring

4.2 Pipe fixing system

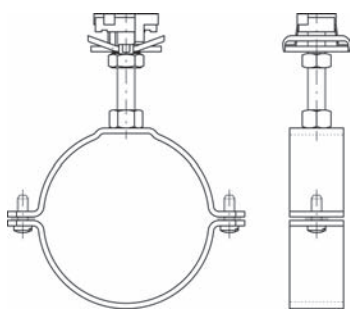
4.2.1 Connecting pipe

POLO-UDS Fixed bracket for connecting pipe DN 40 to DN 125

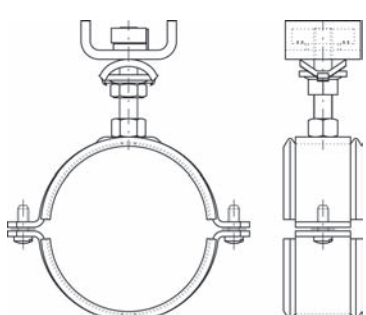
 <p>FPS-AL</p>	Connection / Ø-pipe	Item No.
	M8/M10 / DN 40	1670
	M8/M10 / DN 50	1671
	M8/M10 / DN 75	1672
	M8/M10 / DN 90	1673
	M8/M10 / DN 110	1674
M8/M10 / DN 125	1675	

4.2.2 Collector pipe

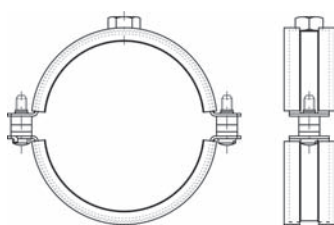
POLO-UDS Sliding bracket set for pipe DN 40 to DN 250 pre-assembled

 <p>GS-Set</p>	Connection / Ø-pipe	Item No.
	M10 / DN 40	1640
	M10 / DN 50	1641
	M10 / DN 75	1642
	M10 / DN 90	1643
	M10 / DN 110	1644
	M10 / DN 125	1645
	M10 / DN 160	1646
	M10 / DN 250	1648

POLO-UDS Fixed bracket set for pipe DN 40 to DN 250 pre-assembled

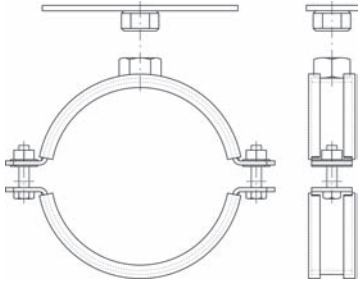
 <p>FPS-Set</p>	Connection / Ø-pipe	Item No.
	M10 / DN 40	1650
	M10 / DN 50	1651
	M10 / DN 75	1652
	M10 / DN 90	1653
	M10 / DN 110	1654
	M10 / DN 125	1655
	M10 / DN 160	1656
	M10 / DN 250	1658

POLO-UDS Fixed / sliding bracket for direct attachment to concrete ceiling DN 40 to DN 160

 <p>FPS-GS</p> <p>with spacer: sliding bracket</p> <p>without spacer: fixed bracket</p>	Connection / Ø-pipe	Item No.
	M10 / DN 40	1660
	M10 / DN 50	1661
	M10 / DN 75	1662
	M10 / DN 90	1663
	M10 / DN 110	1664
	M10 / DN 125	1665
M10 / DN 160	1666	

4.2.3 Down pipe

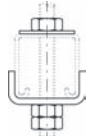
POLO-UDS Fixed bracket set for down pipe with noise insulation DN 40 to DN 250

	Connection / Ø-pipe	Item No.
	1/2" / DN 40	1680
	1/2" / DN 50	1681
	1/2" / DN 75	1682
	1/2" / DN 90	1683
	1/2" / DN 110	1684
	1/2" / DN 125	1685
	1/2" / DN 160	1686
	1/2" / DN 200	1687
	1/2" / DN 250	1688

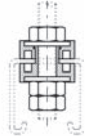
FPS-SS-FL-Set

4.2.4 Rail fixing

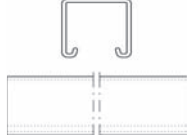
POLO-UDS Supporting rail suspension set

	Design	Item No.
	Attachment M10 for supporting rail	1690
	41 x 41 x 2,5 mm	

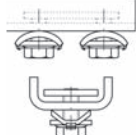
POLO-UDS Sound-absorbing protector for attachment of supporting rail

	Connection	Item No.
	M10	1691

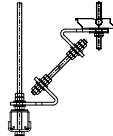
POLO-UDS Supporting rail for pipe DN 40 to DN 250

	Dimensions	Item No.
	41 x 41 x 2,5 mm	1693
	L = 6.000 mm	

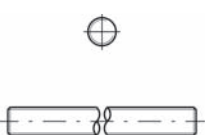
POLO-UDS Rail connector for supporting rail

	Design	Item No.
	for supporting rail	1694
	41 x 41 x 2,5 mm	

POLO-UDS Pendulum support set

	Connection	Item No.
	M10	1696

Threaded rod

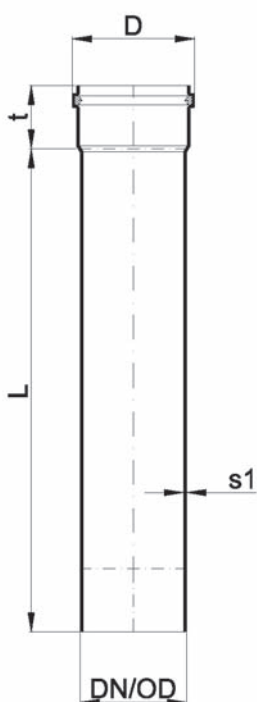
	Design	Item No.
	M10 x 1.000 mm	1921
	1/2" x 1.000 mm	1697

4.3 Pipe System

Dimensions in mm

POLO-KAL NG
Socket pipe
PKEM

with inserted lip seal ring



DN/OD	Item No.	L	s1 (min)	t (min)	D (max)	kg/pc.
40	2010	150	1,8	45	53	0,06
40	2011	250	1,8	45	53	0,08
40	2012	500	1,8	45	53	0,15
40	2019	750	1,8	45	53	0,20
40	2013	1000	1,8	45	53	0,28
40	2014	1500	1,8	45	53	0,40
40	2015	2000	1,8	45	53	0,53
40	2016	3000	1,8	45	53	0,79
50	2020	150	2,0	47	63	0,08
50	2021	250	2,0	47	63	0,11
50	2022	500	2,0	47	63	0,21
50	2029	750	2,0	47	63	0,29
50	2023	1000	2,0	47	63	0,38
50	2024	1500	2,0	47	63	0,55
50	2025	2000	2,0	47	63	0,72
50	2026	3000	2,0	47	63	1,10
75	2030	150	2,6	53	89	0,16
75	2031	250	2,6	53	89	0,24
75	2032	500	2,6	53	89	0,42
75	2039	750	2,6	53	89	0,59
75	2033	1000	2,6	53	89	0,78
75	2034	1500	2,6	53	89	1,13
75	2035	2000	2,6	53	89	1,51
75	2036	3000	2,6	53	89	2,27
75	2037	4000	2,6	53	89	-
90	2070	150	3,0	57	106	0,23
90	2071	250	3,0	57	106	0,34
90	2072	500	3,0	57	106	0,60
90	2079	750	3,0	57	106	0,84
90	2073	1000	3,0	57	106	1,13
90	2074	1500	3,0	57	106	1,65
90	2075	2000	3,0	57	106	2,17
90	2076	3000	3,0	57	106	3,23
90	2077	4000	3,0	57	106	-
110	2040	150	3,4	62	128	0,33
110	2041	250	3,4	62	128	0,49
110	2042	500	3,4	62	128	0,84
110	2049	750	3,4	62	128	1,17
110	2043	1000	3,4	62	128	1,57
110	2044	1500	3,4	62	128	2,27
110	2045	2000	3,4	62	128	2,99
110	2046	3000	3,4	62	128	4,43
110	2047	4000	3,4	62	128	-
125	2050	150	3,9	67	145	0,46
125	2051	250	3,9	67	145	0,61
125	2052	500	3,9	67	145	1,10
125	2053	1000	3,9	67	145	1,99
125	2054	1500	3,9	67	145	2,88
125	2055	2000	3,9	67	145	3,76
125	2056	3000	3,9	67	145	5,52
125	2057	4000	3,9	67	145	-

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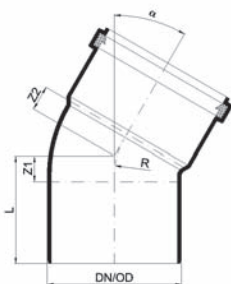
CALCULATION SOFTWARE

PRODUCTS

Dimensions in mm

GENERAL INFORMATION	POLO-KAL NG PKEM socket pipe	with inserted lip seal ring	DN/OD*	Art. Nr.	L	s1-min	t-min	D-max	Kg/Stk.
			160	2060	150	4,9	77	184	0,73
			160	2061	250	4,9	77	184	1,04
			160	2062	500	4,9	77	184	1,79
			160	2063	1000	4,9	77	184	3,26
			160	2064	1500	4,9	77	184	4,71
			160	2065	2000	4,9	77	184	6,20
			160	2066	3000	4,9	77	184	10,61
			160	2067	4000	4,9	77	184	-
TESTING, ACCREDITATIONS	200	2951	1000	6,8	122	228	5,92		
	200	2953	3000	6,8	122	228	-		
	200	2954	6000	6,8	122	228	-		
TECHNICAL SPECIFICATIONS	250	2956	1000	8,6	156	289	9,73		
	250	2959	3000	8,6	156	289	-		

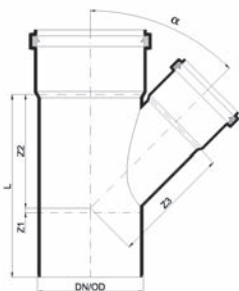
INSTALLATION	POLO-KAL NG Bend PKB	with inserted lip seal ring	45°	DN/OD	Item No.	Z1	Z2	R	L	kg/pc.		
				40	2112	13	14	21	57	0,04		
				50	2122	15	16	27	63	0,06		
				75	2132	21	21	40	75	0,13		
				90	2172	26	20	47	85	0,19		
				110	2142	29	29	57	96	0,30		
				125	2152	29	31	90	103	0,43		
				160	2162	37	41	115	122	0,78		
				200	2963	41	52	-	159	1,85		
				250	2968	113	152	segments	270	5,02		
				SYSTEM START-UP	87,5°	32	2104	16	20	18	57	0,03
						40	2114	24	25	21	68	0,05
						50	2124	29	30	27	78	0,07
						75	2134	42	42	40	97	0,15
						90	2174	50	43	47	109	0,22
						110	2144	60	60	58	128	0,37
						125	2154	64	66	90	138	0,53
160	2164	84	87			115	169	0,98				
200	2965	106	115			-	230	2,36				
250	2970	236	275			segments	392	6,32				



PRODUCTS

Dimensions in mm

POLO-KAL NG Branch PKEA	45°	DN/OD	Item No.	Z1	Z2	Z3	L	kg/pc.	GENERAL INFORMATION
		40/40	2206	13	54	54	111	0,08	
		50/40	2212	8	59	61	115	0,10	
		50/50	2215	15	66	66	129	0,11	
		75/50	2218	3	80	84	138	0,20	
		75/75	2221	21	98	98	173	0,28	
		90/50	2210	-2	84	92	142	0,26	
		90/75	2834	14	114	117	187	0,35	
		90/90	2211	25	112	112	196	0,40	
		110/40	2204	-14	92	106	145	0,35	
		110/50	2224	-13	99	109	153	0,38	
		110/75	2227	5	117	123	189	0,48	
		110/90	2839	29	144	173	240	0,82	
		110/110	2230	29	144	144	240	0,67	
		125/75	2233	12	130	139	215	0,66	
		125/90	2843	28	161	183	262	1,02	
		125/110	2236	28	161	154	262	0,85	
		125/125	2239	28	161	160	262	0,96	
		160/90	2840	2	174	184	261	1,41	
		160/110	2242	2	174	184	261	1,26	
		160/125	2240	34	198	201	309	1,58	
		160/160	2245	35	209	209	329	1,83	
		200/160	2971	13	229	253	360	3,23	
		200/200	2973	52	240	240	416	4,00	
		250/160	2975	215	301	320	672	7,75	



POLO-KAL NG Reducer PKR	with inserted lip seal ring	DN/OD1	DN/OD2	Item No.	Z1	L	kg/pc.	PRODUCTS
		50	40	2282	20	65	0,04	
		75	50	2283	31	79	0,09	
		90	50	2885	34	90	0,13	
		90	75	2886	19	76	0,14	
		110	50	2284	47	113	0,19	
		110	75	2285	32	99	0,20	
		110	90	2887	26	88	0,21	
		125	110	2286	18	92	0,31	
		160	110	2287	39	124	0,51	
		160	125	2288	32	117	0,54	
		200	160	2981	47	171	1,31	
		250	200	2983	177	299	2,96	



PRODUCTS

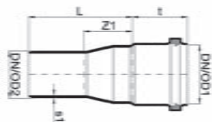
Dimensions in mm

GENERAL INFORMATION

POLO-KAL NG Reducer centric PKRZ

DN/OD1	DN/OD2	Item No.	L	t	Z1	kg/pc.
50	1786	40	88	47	41	0,06
75	1787	50	94	55	46	0,11
110	1791	90	47	69	7	0,18

with small spigot

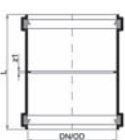


TESTING, ACCREDITATIONS

TECHNICAL SPECIFICATIONS

POLO-KAL NG Double socket PKD

with inserted lip seal ring



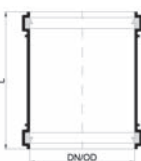
DN/OD	Item No.	L	Z1	kg/pc.
50	2302	104	1	0,06
75	2303	118	2	0,13
90	2307	127	1	0,17
110	2304	145	3	0,28
125	2305	157	4	0,40
160	2306	180	4	0,69
200	2986	240	4	1,53
250	2987	292	9	3,02

PRODUCTS

INSTALLATION

POLO-KAL NG Sleeve socket PKU

with inserted DD ring



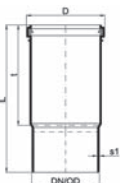
DN/OD	Item No.	L	kg/pc.
40	2311	96	0,05
50	2312	10	0,06
75	2313	118	0,13
90	2319	127	0,17
110	2314	145	0,28
125	2315	157	0,39
160	2316	180	0,68
200	2984	240	1,50

SYSTEM START-UP

INVITATION TO TENDER TEXTS

POLO-KAL NG Long sleeve socket PKL

with inserted DD ring



DN/OD	Item No.	L	D	t	s1	kg/pc.
40	2331	158	53	107	1,8	0,05
50	2332	174	63	119	1,8	0,07
75	2333	198	89	136	2,6	0,18
90	2338	212	105	143	3,1	0,23
110	2334	243	127	165	3,4	0,37
125	2335	316	144	187	3,9	0,63
160	2336	328	182	215	4,9	1,02
200	2339	422	229	280	6,8	2,36
250	2340	531	289	347	8,9	4,78

OBJECT QUESTIONNAIRE

CALCULATION SOFTWARE

PRODUCTS

Dimensions in mm

GENERAL INFORMATION

TESTING, ACCREDITATIONS

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INSTALLATION

SYSTEM START-UP

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CALCULATION SOFTWARE

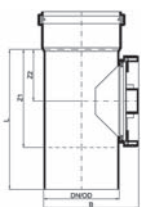
POLO-KAL NG Socket plug PKM



DN/OD	Item No.	L1	kg/pc.
40	2321	40	0,02
50	2322	44	0,02
75	2323	51	0,06
90	2327	55	0,09
110	2324	62	0,14
125	2325	81	0,19
160	2326	92	0,36
200	2990	122	0,85
250	2991	110	1,36

POLO-KAL NG Cleanout pipe PKRE

with inserted lip seal ring



DN/OD 50 - 110

DN/OD	Item No.	Z1	Z2	B	L	kg/pc.
50	2342	68	33	63	116	0,09
75	2343	102	52	94	156	0,25
90	2347	115	55	116	174	0,40
110	2344	144	76	138	205	0,46
125	2345	187	89	165	256	0,72
160	2346	168	92	213	244	1,14
200	2992	236	117	238	358	2,62
250	2993	253	133	295	409	4,80

POLO-KAL NG Replacement lip seal rings PKLI



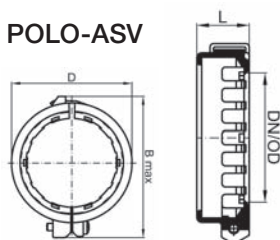
DN/OD	Item No.	kg/pc.
40	2931	0,05
50	2932	0,06
75	2933	0,01
90	2929	0,14
110	2934	0,19
125	2935	0,20
160	2936	0,46
200	2937	0,73
250	2938	0,18

POLO-KAL NG Replacement double lip seal rings PKDL



DN/OD	Item No.	Kg/Stk.
40	2940	0,01
50	2941	0,01
75	2942	0,01
90	2946	0,01
110	2943	0,02
125	2944	0,03
160	2945	0,04
200	2947	0,07

POLO-ASV



max. tightening torque 7 Nm

DN/OD	Item No.	L	D	B-max	Kg/Stk.	max. extraction force in kg
40	1751	24,00	60,50	72,80	0,04	100
50	1752	28,40	76,40	92,00	0,05	100
75	1753	30,30	98,50	116,3	0,06	130
90	1754	31,60	115,20	131,5	0,07	130
110	1755	37,20	137,60	152,8	0,10	180
125	1756	38,50	157,80	196,00	0,18	440
160	1757	42,50	197,20	234,00	0,26	550
200	1758	66,90	242,50	281,00	0,50	650
250	1759	87,10	305,60	345,00	0,92	650

5.1 Roof Drain installation examples

1. Cold roof – solid construction

POLO-UDS
Roof drain
SuperDrain 60 CLAMP

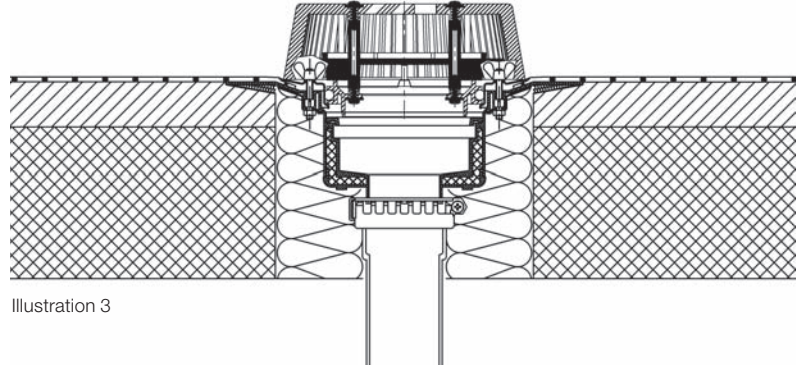


Illustration 3

2. Cold roof – solid construction with gravel ballast

POLO-UDS
Roof drain
SuperDrain 60 Bit

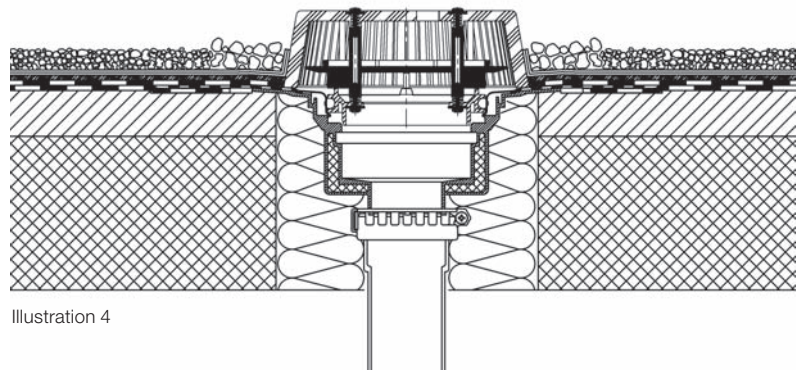


Illustration 4

3. Warm roof – lightweight construction

POLO-UDS
Raising Element
SuperDrain 65 PVC

POLO-UDS
Roof Drain
SuperDrain 60 FPO

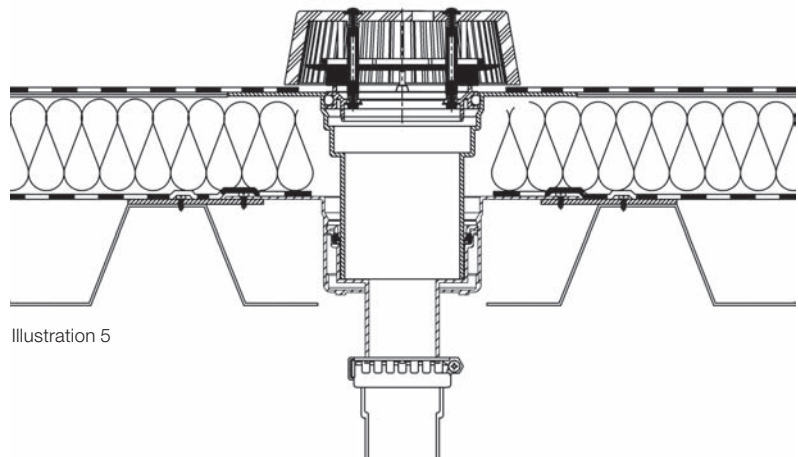


Illustration 5

4. Warm roof – solid construction with gravel ballast or green roof

POLO-UDS
Raising Element
SuperDrain 65 BIT

POLO-UDS
Roof Drain
SuperDrain 60 PVC

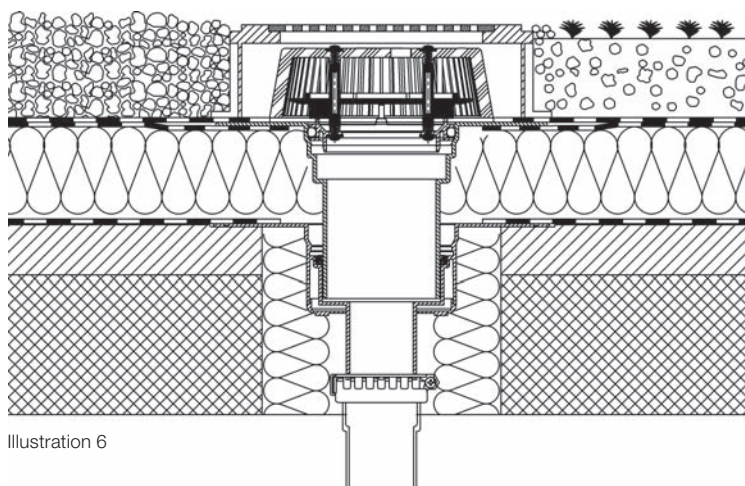


Illustration 6

5. Warm roof – lightweight construction with gravel ballast

POLO-UDS
Raising Element
SuperDrain 65 PVC

POLO-UDS
Roof Drain
SuperDrain 60 FPO

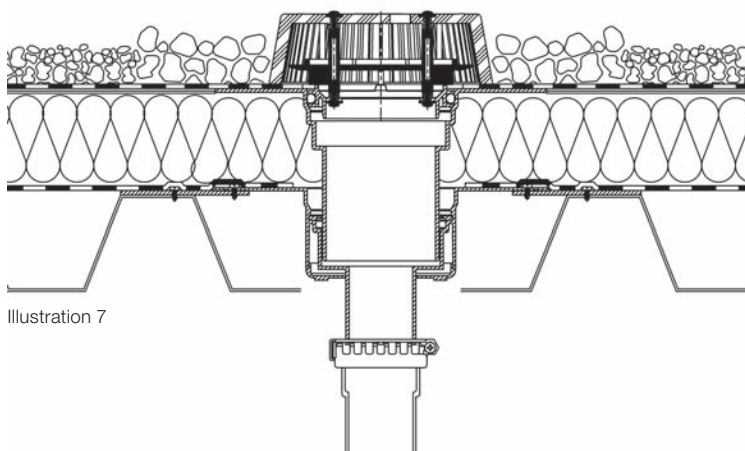


Illustration 7

Emergency drainage

According to DIN 1986-100 every flat roof must be safeguarded against the 5-minute rainfall event $r_{5/100}$ once in 100 years. Emergency drains must drain at least the difference between the 100-year rainfall event $r_{5/100}$ and the calculation rainfall $r_{5/5}$. For emergency drainage we offer the emergency drains SuperDrain in combination with a height-adjustable overflow collar (red colour). The setting of the height adjustment is dependent on the main drainage. If the main drainage has been designed with gravity roof drains using DN/OD 70 or DN/OD 100, the unit must be set to 35 mm, because the drainage performance of normal drainage according to DIN EN 1253 is calculated at 35 mm. The same applies with DN/OD 125/150 at 45 mm. If the main drainage is siphonic drainage, the system must activate no later than at 55 mm. With our products, this will be the case as soon as 48 mm are reached. It should be noted that these height settings have been determined in accordance with the testing standard and have also been fixed in DIN 1986-100.

5.2 Pipe fixing system

As a rule, POLO-UDS should be fastened using supporting rail assembly.

Item No.	Description	Dimensions	Pipe dimension	Mounting to the building structure
1693	Supporting rail	6000 x 41 x 41 x 2,5 mm	DN/OD 40 - 160	every 3 m
			DN/OD 200 - 250	every 2 m

Table 1

5.3 Mounting distance of the POLO-UDS supporting rail

The supporting rail from pipe diameter DN/OD 40 – 160 mm must be fixed to the building at least every 3 m, from DN/OD 200 mm at least every 2 m, and must be tightly fastened to the structure at least every 12 m (e.g. using a pendulum support set), so that dynamic forces occurring during operation can be discharged into the building. The pendulum support is to be installed alternately left and right of the pipeline. The attachment to the building must be determined by the contractor in accordance with structural requirements. A tight

connection to the structure is also required in cases where the routing of the supporting rail has to be disrupted due to structural conditions (e.g. joists or girders). Where a fixed bracket is required for the mounting of the pipe, it is mandatory that the supporting rail must be connected within a space not exceeding 0.30 m to

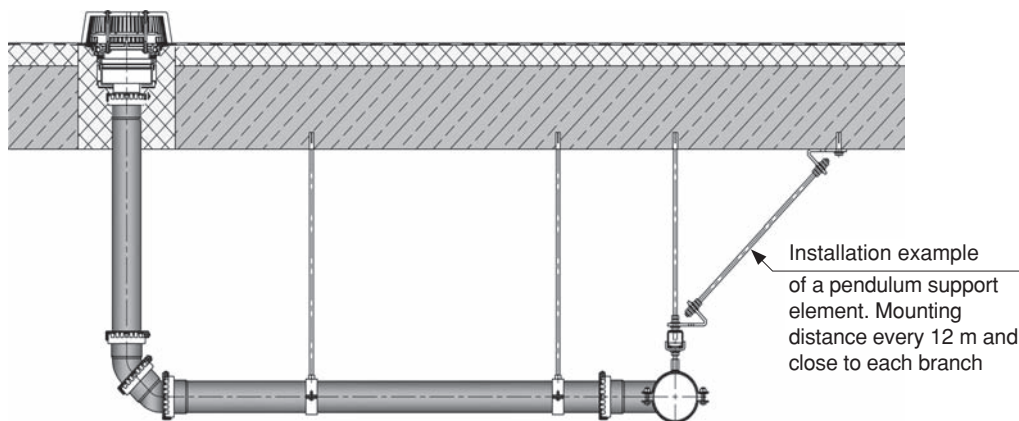


Illustration 8

Installation of pendulum support

INSTALLATION

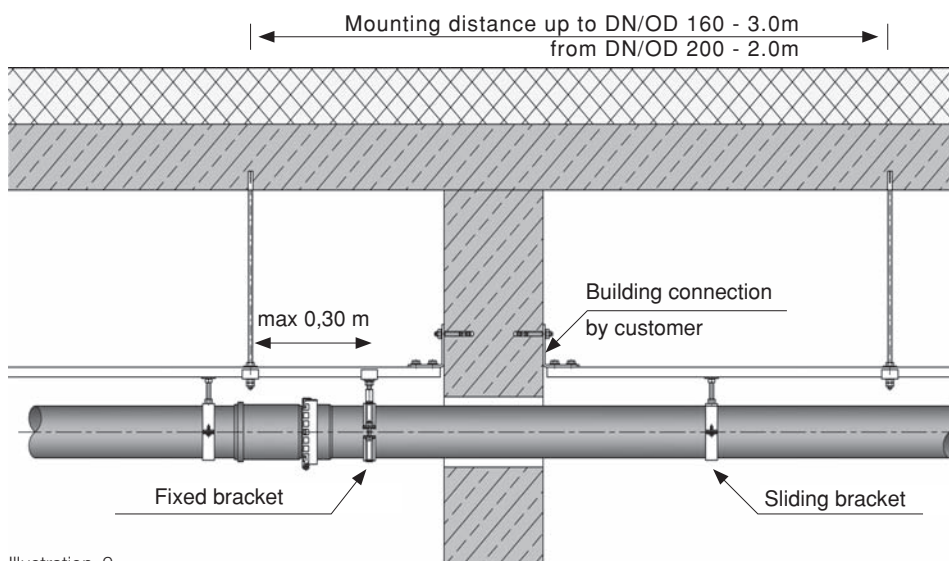


Illustration 9

Disruption of the supporting rail

5.4 Horizontal pipe mounting

The horizontal pipe mounting of the pipe to the supporting rail is carried out according to Table 2. These values must not be exceeded.

Pipe dimension DN/OD	40	50	75	90	110	125	160	200	250
Spacing (m)	0,80	0,80	1,00	1,30	1,50	1,80	2,20	2,50	2,00
Weight at full flow (kg/m)	1,32	2,02	4,56	6,64	9,78	12,67	20,76	33,02	52,09
Weight per attachment to supporting rail (kg/bracket) - weight of the bracket not included	1,06	1,62	4,56	8,63	14,67	22,81	45,67	82,55	104,18

Table 2

5.5 Vertical pipe mounting

The vertical pipe mounting of the downpipe is carried out according to Table 3. These values are the maximum mounting distances and must not be exceeded.

Dimension DN/OD	40	50	75	90	110	125	160	200	250
Spacing (m)	0,80	0,80	1,50	1,50	1,50	1,50	2,00	2,00	2,00

Table 3

5.6 Mounting to a concrete ceiling without supporting rail

In confined spaces (e.g.: office buildings) the pipe line can also be directly mounted to the reinforced concrete ceiling. Special fixed and sliding brackets with a noise insulated design must be used for this purpose (see Product Range, Point 4.2).

GENERAL INFORMATION

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5.7 Extraction-retainer

All connections of pipes and fittings must be secured using the extraction retainer POLO-ASV (except at the socket end of the long socket).

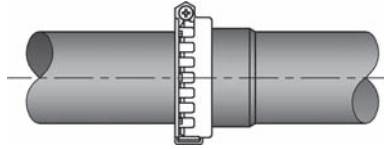


Illustration 10

5.8 Linear expansion absorption

In the European climate zone a temperature difference of max. 50K (-10°C - +40°C) is applied for roof drainage systems. The long sleeve socket in the collecting pipe is intended to accomplish the controlled linear expansion of the pipe system. The long sleeve socket is designed with a triple insertion depth; the insertion depth at the spigot end of the pipe to be connected has to be marked and inserted into the long sleeve socket up to 2/3, which facilitates secure movement in both directions.

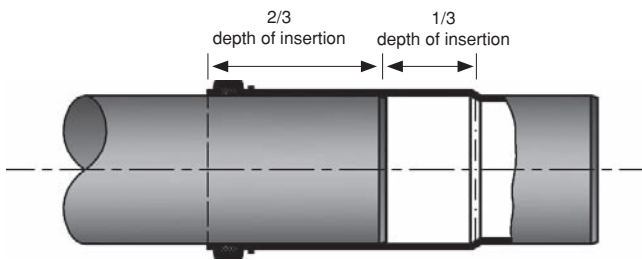


Illustration 11

Given a pipe length of 10 m and a temperature range of 50 K, the linear expansion with POLO-KAL NG equates to 25 mm.

As a matter of principle, a long sleeve socket is to be installed ahead of each branch. Additionally, after max. 10 m of straight pipe routing a long socket must be inserted. Each long sleeve socket must be preceded by a sliding bracket with a spacing of at least 50 mm.

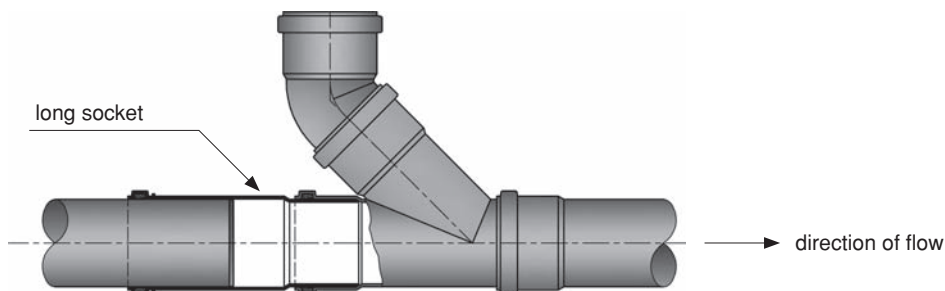


Illustration 12

5.9 Fixed points

Fixed points must be installed by fitting fixed brackets.

Fixed brackets must be provided for at least at every 10 m of pipe length, also ahead of and following changes in direction, and following every branch. In the case of straight pipe routing a fixed bracket must be installed in the direction of flow after every long sleeve socket as a matter of principle.

Note:

For pipes with a length of less than 2 m (e.g. the connecting pipe of a roof inlet) it is not necessary to mount a supporting rail to the pipe.

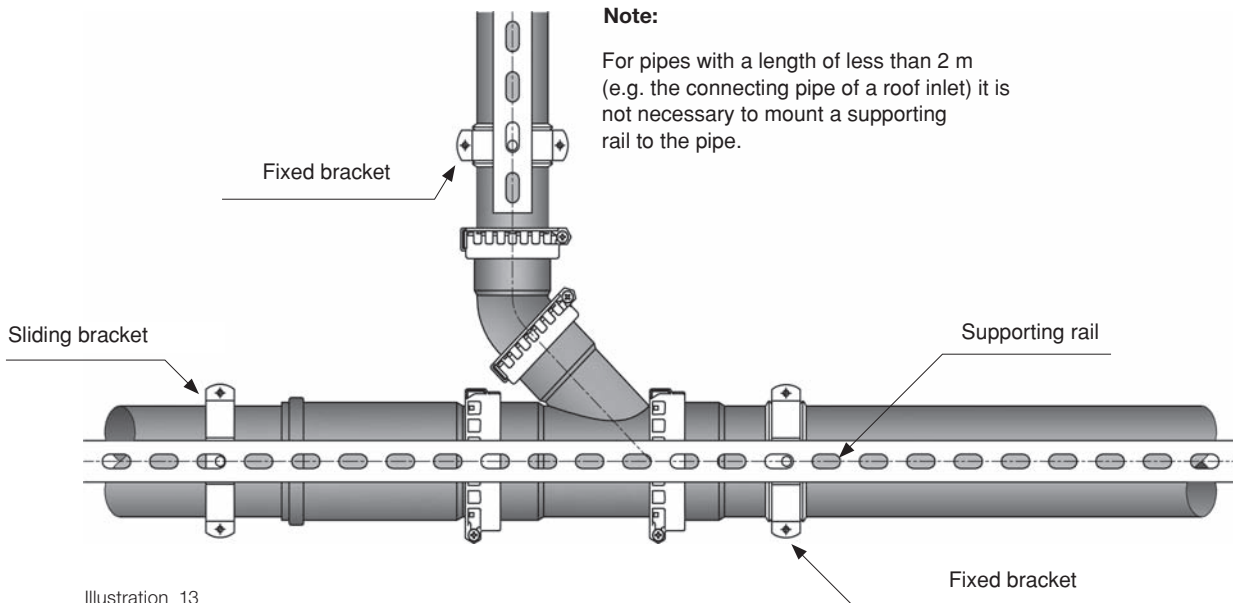


Illustration 13

Arrangement of fixed points with branches (top view)

5.10 Slide points

Slide points must be installed by fitting sliding brackets.

Slide brackets are installed between the fixed brackets and serve the pipe support; they prevent lateral yielding and sagging of the fully filled pipe. The spacing between the brackets is determined at Point 5.4 – Horizontal Pipe Installation. The distance from the sliding bracket to the next socket must be at least 50 mm (Illustration 14).

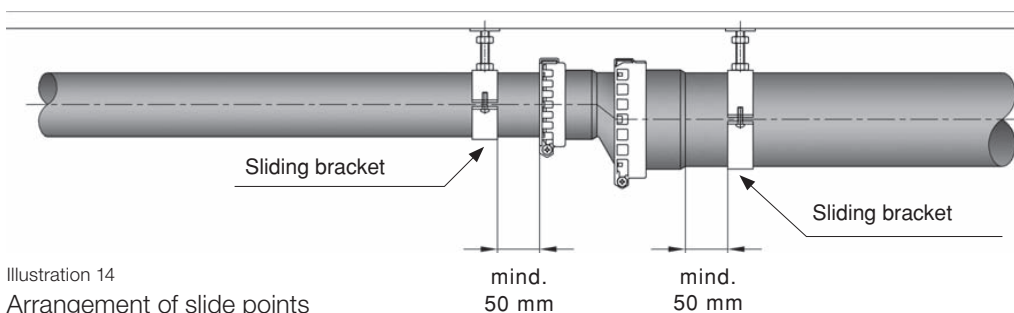


Illustration 14

Arrangement of slide points

5.11 Mounting horizontal connecting pipes

Horizontal connecting pipes with a length of up to 2 m (Illustration 15) can be attached directly to the load-bearing building element without supporting rail. A minimum of one fixing element must be used. Horizontal connecting pipes with a length greater than 2 m require an accompanying supporting rail with at least 2 fixed brackets. When installing the brackets, care must be taken to adhere to the maximum horizontal mounting distance.

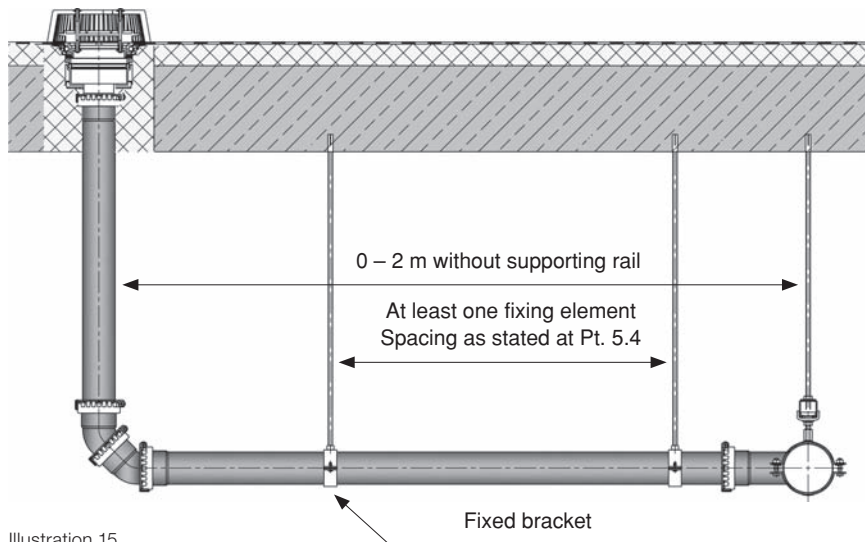


Illustration 15

5.12 Reduction or expansion of the connecting pipe dimension

As a rule, the reduction or expansion in the connecting pipe dimension must be effected **prior to** the change of direction from vertical to horizontal.

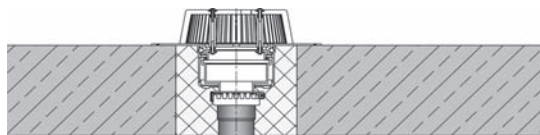


Illustration 16
Reduction or
expansion

5.13 Expansion of the collector pipe

Reducers transitioning to larger pipe dimensions must be installed flush with the crown.

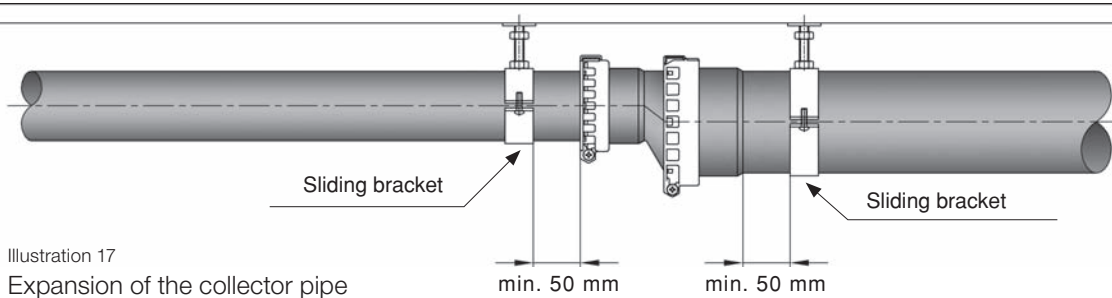


Illustration 17
Expansion of the collector pipe

In the vicinity of branches, the reducers must be placed between long sleeve socket and branch.

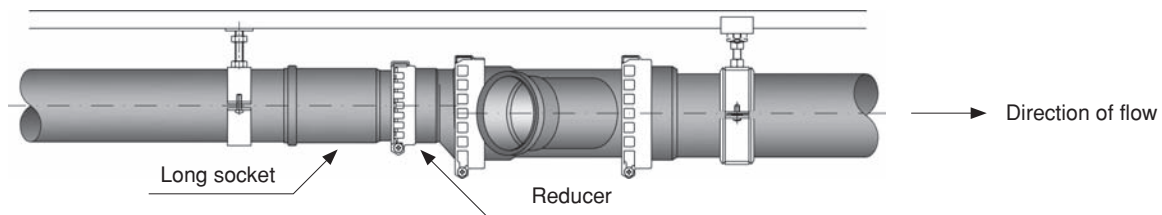


Illustration 18
Expansion of the collector pipe

5.14 Changes of direction - horizontal

All 90° changes of direction in horizontal pipes are to be implemented with 2 x 45° bends. If the pipe line length prior to the deflection is > 2 m, a long sleeve socket must be inserted. The fixed bracket can be mounted to a short length of pipe that must be installed between the long sleeve socket and the bend.

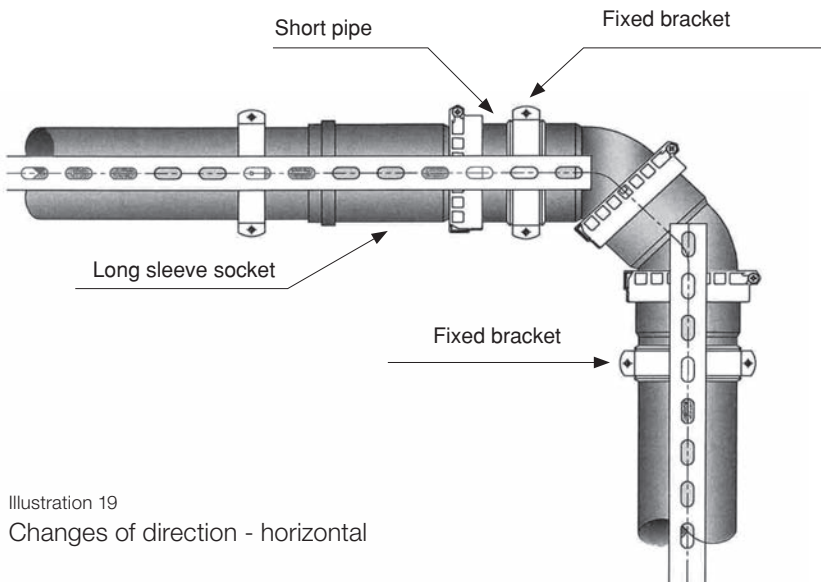


Illustration 19
Changes of direction - horizontal

5.15 Branches

Only branches with 45° may be used.

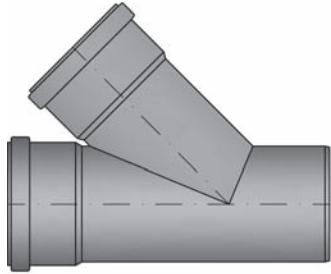


Illustration 20

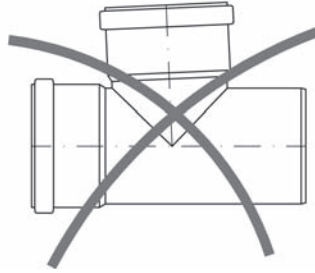


Illustration 21

5.16 Transition from connecting pipe to collector pipe

If an expansion of the dimension of the connecting pipe should prove necessary, the insertion point must be arranged **immediately ahead** of the introduction into the collector pipe.

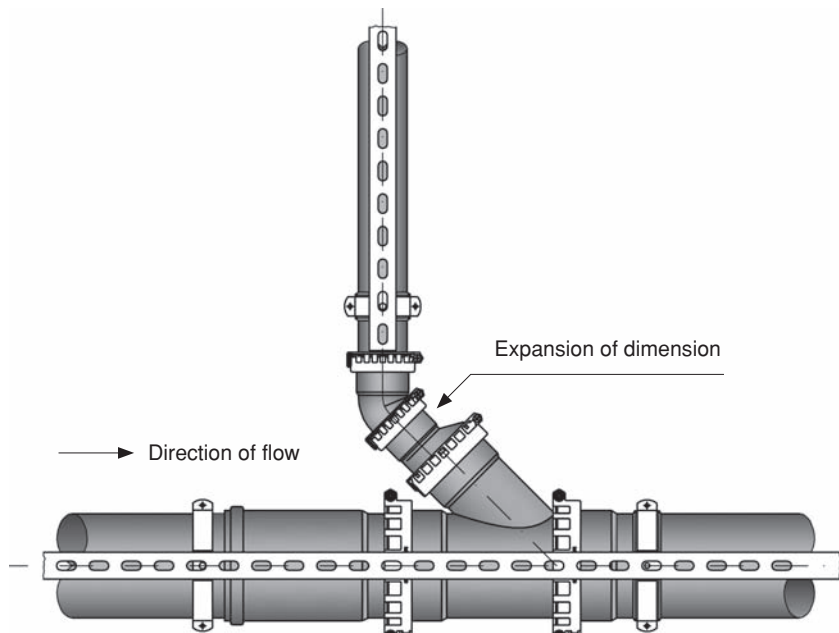


Illustration 22

5.17 Mounting to a concrete ceiling

The attachment to a solid concrete ceiling is basically possible. The contractor is responsible for the structural analysis and the selection of anchoring. The intended pipe bracket for this type of attachment is a combined fixed and sliding bracket. For the use as fixed bracket the factory mounted spacer must be removed from the bracket. The distance between the lower edge of the ceiling and the pipe crown must not exceed 50 mm.

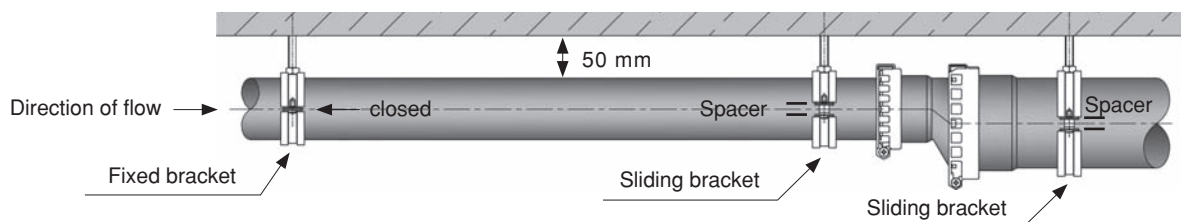


Illustration 23

5.18 Transition from collector pipe to down pipe

In the area of transition from collector pipe to down pipe the diameter of the down pipe may not be larger than the end of the collector pipe (flow breakaway according to DIN EN 12056-3 6.2.12). If the dimension of the down pipe decreases, the reducer must be inserted into the down pipe **after** the bend.

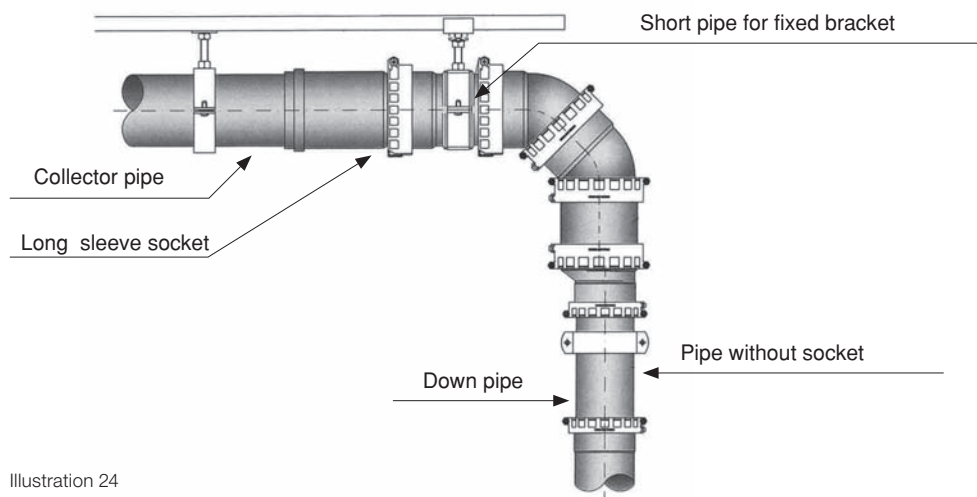


Illustration 24

As a rule, the transition from the collector pipe to the downpipe is implemented with 2 x 45° bends. If it is necessary for hydraulic reasons, as an alternative the deflection can be carried out with 1 x 90° bend or 2 x 45° bends with adapter. Please refer to the calculation for the specification regarding the design.

5.19 Transition from collector pipe to down pipe in T-Networks

Where two collector pipes lead into one down pipe, they must be vertically offset (Illustration 25). The integration is implemented with 2 x 45° bends. The second integration is carried out with one 45° bend, an adapter pipe and a 45° bend.

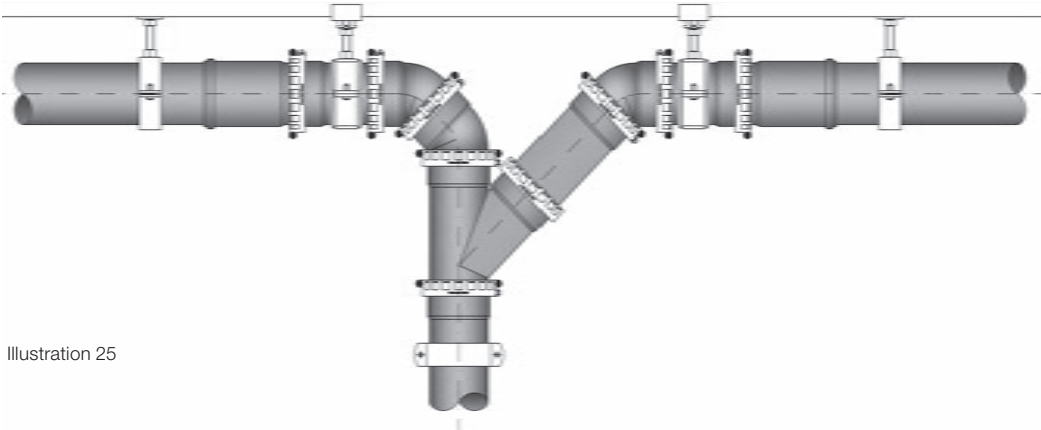


Illustration 25

5.20 Transition from Siphonic Drainage to Gravity Drainage

The transition from siphonic drainage to gravity drainage is generally achieved one metre above floor level by the expansion of the pipe line by one to two dimensions (Illustration 26). If required for hydraulic reasons, the transition can also be implemented directly ahead of the deflection to the mains pipe (Illustration 27).

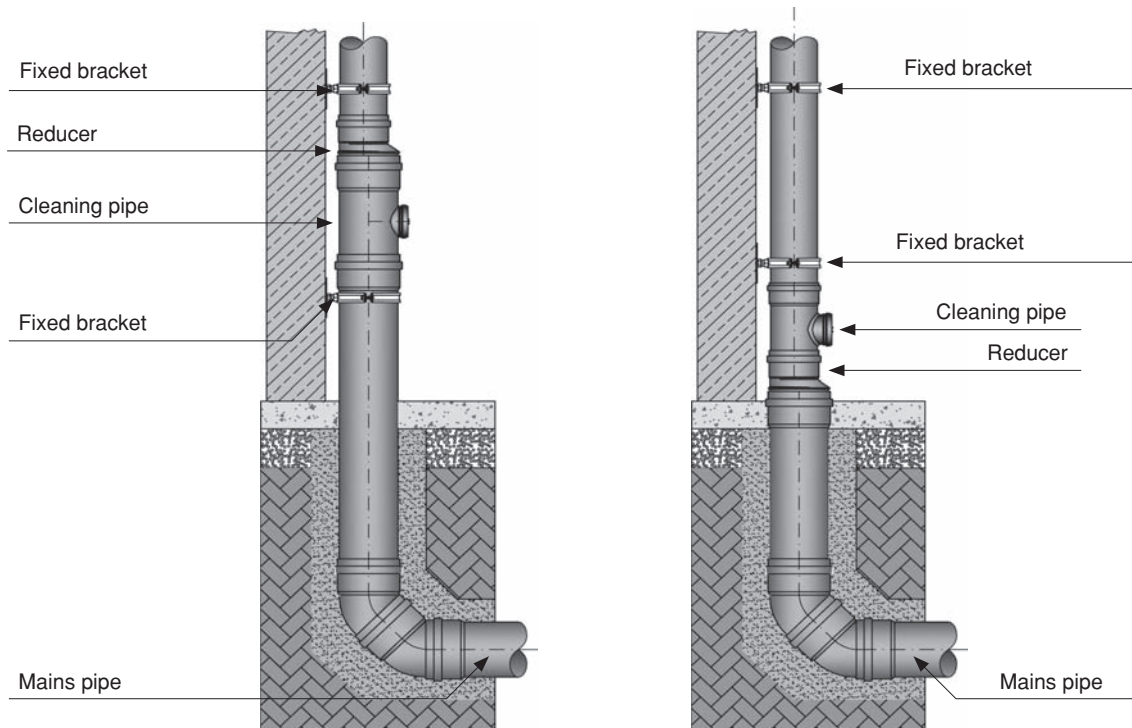
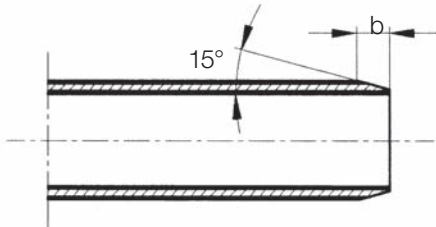


Illustration 26

Illustration 27

5.21 Cutting pipes to length

All cut pipe ends are deburred and chamfered. Unless a specific device for cutting off and chamfering plastic pipes is used, the chamfering of the pipe ends is carried out with a suitable chamfering tool or with a coarse file applying an angle of approx. 15° in accordance with Table 4 below:



DN/OD	32	40	50	75	90	110	125	160	200	250
b approx. mm	4	4	4	4	5	6	6	7	8	10

Table 4

Illustration 28

The conventional pipe cutter for use with PE-rigid pipes is not suitable for trimming POLO-KAL NG and POLO-KAL 3S pipes.

Further installation guidelines can be found in our Technical Manual - Above Ground Drainage.

5.22 Installation of POLO-ASV



Illustration 29

The push-fit connection POLO-KAL NG to POLO-KAL NG pipe or moulded part is established



Illustration 30

Prior to mounting around the socket, POLO-ASV is dismantled.



Illustration 31

POLO-ASV is slid over the socket connection and pushed together so that the pin is hooked into the holding end.



Illustration 32

Subsequently, the screw on the opposite side is tightened until it stops. The maximum tightening torque is 7 Nm.



Illustration 33

From the dimension DN/OD 125 onwards, two screws are arranged directly opposite each other. Both have to be tightened until they stop. The maximum tightening torque is 7 Nm.



Illustration 34

The fully assembled extraction-proof connection.

6.1 System start-up

according to DIN 1986 Part 30

Inspection of the ready-for-use system using layout plans and dimensioning calculations in order to ensure correct installation:

1. Positioning, assembly and completeness of roof drains
2. Pipe routing and pipe dimensions
3. Transition from siphonic drainage to gravity drainage
4. Positioning of cleanout pipes
5. Inspection of system components used; only products delivered by POLOPLAST may be utilized
6. Inspection of attachment to the building structure and the pipe work – number of fixed points, attachment to the building structure, etc.
7. Inspection of the entire emergency overflow system
8. The roof surface and the roof drains must be cleaned before operation is initiated; the pipes must be flushed through if required
9. Wing nuts used in connection with screw-type flanges must be tightened after 6 months

6.2 System maintenance

according to DIN 1986 Part 30

- The roof and the roof drains must be regularly maintained and/or cleaned, in order to prevent any obstruction of the roof drains.
- Cleaning is carried out in accordance with the respective regional environmental conditions, at intervals to be determined by the property owner on-site, **however, no less than twice a year.**
- The leaf and gravel guard must be removed prior to cleaning and is subsequently reattached in the correct manner.

7.1 Roof Drain

POLO-UDS Raising piece SuperDrain 65 CLAMP

compatible with SuperDrain roof drains 60 and 64, for thermal insulation from 50 to 240 mm, casing with stainless steel flange ring for the fastening of polymer roof membranes, delivery includes backflow seal and temporary blanking plate, extendable with plastic pipe DN/OD 125

Material: Polypropylene, UV stabilised

POLO-UDS Raising piece SuperDrain 65 BIT

compatible with SuperDrain roof drains 60 and 64, for thermal insulation from 50 to 240 mm, casing with stainless steel flange ring and factory-welded bituminous membrane-collar, d=500 mm x 4.7 mm, delivery includes backflow seal and temporary blanking plate, extendable with plastic pipe DN/OD 125

Material: Polypropylene, UV stabilised

POLO-UDS Raising piece SuperDrain 65 PVC

compatible with SuperDrain roof drains 60 and 64, for thermal insulation from 50 to 240 mm, PVC casing for adhesive bonding or solvent welding of PVC roof membrane, delivery includes backflow seal and temporary blanking plate, extendable with plastic pipe DN/OD 125

Material: PVC, UV stabilised

POLO-UDS Raising piece SuperDrain 65 FPO

compatible with SuperDrain roof drains 60 and 64, for thermal insulation from 50 to 240 mm, PP casing for adhesive bonding or solvent welding of FPO roof membrane, delivery includes backflow seal and temporary blanking plate, extendable with plastic pipe DN/OD 125

Material: Polypropylene, UV stabilised

POLO-UDS Roof Drain SuperDrain 60 CLAMP

according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element, with stainless steel flange ring for the fastening of polymer roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 17.4 l/s

Discharge nozzle: DN/OD 75 vertical

Material: Polypropylene, UV stabilised

POLO-UDS Roof Drain SuperDrain 60 BIT

according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element, with factory-welded bituminous membrane collar d = 500 mm x 4.7 mm. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 17.4 l/s

Discharge nozzle: DN/OD 75 vertical

Material: Polypropylene, UV stabilised

POLO-UDS Roof Drain SuperDrain 60 PVC

according to EN 1253. For installation in siphonic roof drainage systems. PVC insulated drain element for adhesive bonding or solvent welding of PVC roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 17.4 l/s

Discharge nozzle: DN/OD 75 vertical

Material: PVC, UV stabilised

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POLO-UDS Roof Drain SuperDrain 60 FPO

according to EN 1253. For installation in siphonic roof drainage systems. PP insulated drain element for adhesive bonding or solvent welding of FPO roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 17.4 l/s

Discharge nozzle: DN/OD 75 vertical

Material: Polypropylene, UV stabilised

POLO-UDS Roof Drain SuperDrain 60 CLAMP heat

according to EN 1253. For installation in siphonic roof drainage systems. Polypropylene insulated drain element, with stainless steel flange ring for the fastening of polymer roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 17.4 l/s

Discharge nozzle: DN/OD 75 vertical

Material: Polypropylene

POLO-UDS Roof Drain SuperDrain 60 BIT heat

according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element, with factory-welded bituminous membrane collar d = 500 mm x 4.7 mm and self-regulating heat source 230V, supply cable length 0.8 m. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 17.4 l/s

Discharge nozzle: DN/OD 75 vertical

Material: Polypropylene, UV stabilized

POLO-UDS Roof Drain SuperDrain 60 PVC heat

according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element, with PVC-flange for adhesive bonding or solvent welding of PVC roof membrane and self-regulating heat source 230V, supply cable length 0.8 m. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 17.4 l/s

Discharge nozzle: DN/OD 75 vertical

Material: PVC, UV stabilized

POLO-UDS Roof Drain SuperDrain 60 FPO heat

according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element, with FPO-flange for solvent welding of FPO roof membrane and self-regulating heat source 230V, supply cable length 0.8 m. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 17.4 l/s

Discharge nozzle: DN/OD 75 vertical

Material: Polypropylene, UV stabilised

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POLO-UDS Roof Drain SuperDrain 64 CLAMP

POLO-UDS Roof Drain SuperDrain 64 CLAMP according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of polypropylene, with stainless steel flange ring for the fastening of polymer roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 18.4 l/s

Discharge nozzle: DN/OD 75 horizontal

Material: Polypropylene, UV stabilised

POLO-UDS Roof Drain SuperDrain 64 BIT

POLO-UDS Roof Drain SuperDrain 64 BIT according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element, with factory-welded bituminous membrane collar d = 500 mm x 4.7 mm. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 18.4 l/s

Discharge nozzle: DN/OD 75 horizontal

Material: Polypropylene, UV stabilised

POLO-UDS Roof Drain SuperDrain 64 PVC

POLO-UDS Roof Drain SuperDrain 64 PVC according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of PVC for adhesive bonding or solvent welding of PVC roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 18.4 l/s

Discharge nozzle: DN/OD 75 horizontal

Material: PVC, UV stabilised

POLO-UDS Roof Drain SuperDrain 64 FPO

POLO-UDS Roof Drain SuperDrain 64 FPO according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of polypropylene for solvent welding of FPO roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 18.4 l/s

Discharge nozzle: DN/OD 75 horizontal

Material: Polypropylene, UV stabilised

POLO-UDS Roof Drain SuperDrain 64 CLAMP heat

POLO-UDS Roof Drain SuperDrain 64 CLAMP heat according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of polypropylene, with stainless steel flange ring for the fastening of polymer roof membrane and self-regulating heat source 230V, supply cable length 0.8 m.

Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 18.4 l/s

Discharge nozzle: DN/OD 75 horizontal

Material: Polypropylene, UV stabilised

POLO-UDS Roof Drain SuperDrain 64 BIT heat

POLO-UDS Roof Drain SuperDrain 64 BIT heat according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element, with factory-welded bituminous membrane collar d = 500 mm x 4.7 mm and self-regulating heat source 230V, supply cable length 0.8 m. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 18.4 l/s

Discharge nozzle: DN/OD 75 horizontal

Material: Polypropylene, UV stabilised

POLO-UDS Roof Drain SuperDrain 64 PVC heat

POLO-UDS Roof Drain SuperDrain 64 PVC heat according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of PVC for adhesive bonding or solvent welding of PVC roof membrane and self-regulating heat source 230V, supply cable length 0.8 m. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 18.4 l/s

Discharge nozzle: DN/OD 75 horizontal

Material: PVC, UV stabilised

POLO-UDS Roof Drain SuperDrain 64 FPO heat

POLO-UDS Roof Drain SuperDrain 64 FPO heat according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of polypropylene for solvent welding of FPO roof membrane and self-regulating heat source 230V, supply cable length 0.8 m. Delivery includes leaf and gravel guard, SuperDrain insert.

Drainage capacity at 48 mm water level over drain: 18.4 l/s

Discharge nozzle: DN/OD 75 horizontal

Material: Polypropylene, UV stabilised

POLO-UDS Emergency Drain SuperDrain 60 CLAMP

according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element, with stainless steel flange ring for the fastening of polymer roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert and height-adjustable overflow collar (35 - 75 mm).

Drainage capacity at 48 mm water level over drain: 17.4 l/s

Discharge nozzle: DN/OD 75 vertical

Material: Polypropylene, UV stabilised

POLO-UDS Emergency Drain SuperDrain 60 BIT

according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element, with factory-welded bituminous membrane collar d = 500 mm x 4.7 mm. Delivery includes leaf and gravel guard, SuperDrain insert and height-adjustable overflow collar (35 - 75 mm)

Drainage capacity at 48 mm water level over drain: 17.4 l/s

Discharge nozzle: DN/OD 75 vertical

Material: Polypropylene, UV stabilised

POLO-UDS Emergency Drain SuperDrain 60 PVC

according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of PVC for adhesive bonding or solvent welding of PVC roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert and height-adjustable overflow collar (35 - 75 mm).

Drainage capacity at 48 mm water level over drain: 17.4 l/s

Discharge nozzle: DN/OD 75 vertical

Material: PVC, UV stabilised

POLO-UDS Emergency Drain SuperDrain 60 FPO

according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of PP for adhesive bonding or solvent welding of FPO roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert and height-adjustable overflow collar (35 - 75 mm).

Drainage capacity at 48 mm water level over drain: 17.4 l/s

Discharge nozzle: DN/OD 75 vertical

Material: Polypropylene, UV stabilised

POLO-UDS Emergency Drain SuperDrain 64 CLAMP

according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of polypropylene, with stainless steel flange ring for the fastening of polymer roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert and height-adjustable overflow collar (35 - 75 mm).

Drainage capacity at 48 mm water level over drain: 18.4 l/s

Discharge nozzle: DN/OD 75 horizontal

Material: Polypropylene, UV stabilised

POLO-UDS Emergency Drain SuperDrain 64 BIT

according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element, with factory-welded bituminous membrane collar d = 500 mm x 4.7 mm. Delivery includes leaf and gravel guard, SuperDrain insert and height-adjustable overflow collar (35 - 75 mm).

Drainage capacity at 48 mm water level over drain: 18.4 l/s

Discharge nozzle: DN/OD 75 horizontal

Material: Polypropylene, UV stabilised

POLO-UDS Emergency Drain SuperDrain 64 PVC

according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of PVC for adhesive bonding or solvent welding of PVC roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert and height-adjustable overflow collar (35 - 75 mm).

Drainage capacity at 48 mm water level over drain: 18.4 l/s

Discharge nozzle: DN/OD 75 horizontal

Material: PVC, UV stabilised

POLO-UDS Emergency Drain SuperDrain 64 FPO

according to EN 1253. For installation in siphonic roof drainage systems. Insulated drain element made of polypropylene for solvent welding of FPO roof membrane. Delivery includes leaf and gravel guard, SuperDrain insert and height-adjustable overflow collar (35 - 75 mm).

Drainage capacity at 48 mm water level over drain: 18.4 l/s

Discharge nozzle: DN/OD 75 horizontal

Material: Polypropylene, UV stabilised

POLO-UDS Fixing Plate for Roof Drain in Trapezoidal Sheeting

600 x 500 mm compatible with all roof drains for the secure installation in trapezoidal sheeting roofs.

Material: Galvanized sheet steel, gauge 37

Product: POLO-UDS Fixing Plate for roof drain

7.2 Pipe fixing system

GENERAL INFORMATION

Fixed bracket for connecting pipe

for the mounting of POLO-KAL NG pipes as connecting pipes, pipe bracket with EPDM-soundproofing inlay. Manufactured from galvanized steel 1.0332, with quick-release fastener and welded connecting nut M8/10. Dimensional range: DN 40-125 mm

Product: POLO-UDS Fixed bracket for connecting pipe

TESTING, ACCREDITATIONS

Sliding bracket set for collector pipe

for mounting POLO-KAL NG pipes used as collector to a supporting rail, individually consisting of:

TECHNICAL SPECIFICATIONS

Pipe bracket with marginally larger internal diameter than the external diameter of the PP-pipe, allowing linear expansion and/or contraction of the pipe. Manufactured from electrolytically galvanized steel 1.0332, closure using cylinder head bolts with combined cross-head. With quadruple-welded connecting nut M10.

Hammerfix, pre-assembled unit consisting of sliding nut, threaded pin M10, washer, hexagonal nut and plastic spring washer for mounting the pipe bracket to the supporting rail. Manufactured from galvanized steel 1.0332, plastic spring made from polyoxymethylene (POM). Colour: green (RAL 6026).

Dimensional range: DN 40-250 mm

Product: POLO-UDS Sliding bracket set

PRODUCTS

Fixed bracket set for collector pipe

for mounting POLO-KAL NG pipes used as collector to a supporting rail, individually consisting of:

INSTALLATION

Pipe bracket with marginally larger internal diameter than the external diameter of the PP-pipe, allowing insertion of the inlays. Manufactured from electrolytically galvanized steel 1.0332, closure using cylinder head bolts with combined cross-head. With quadruple-welded connecting nut M10.

Two-piece inlays, for anchoring the pipe in the pipe bracket. Manufactured from chromium steel 1.4016, moulded design.

SYSTEM START-UP

Hammerfix, pre-assembled unit consisting of sliding nut, threaded pin M10, washer, hexagonal nut and plastic spring washer for mounting the pipe bracket to the supporting rail.

INVITATION TO TENDER TEXTS

Manufactured from galvanized steel 1.0332, plastic spring made from polyoxymethylene (POM). Colour: green (RAL 6026).

Dimensional range: DN 40-250 mm

Product: POLO-UDS Fixed bracket set

OBJECT QUESTIONNAIRE

CALCULATION SOFTWARE

Fixed/Sliding bracket for mounting directly to a concrete ceiling

for mounting POLO-KAL NG pipes used as collector pipe directly to a concrete ceiling without accompanying supporting rail. Pipe bracket with non-ageing green EPDM-soundproofing inlay. Manufactured from galvanized steel 1.0332, with quick-release fastener and welded connecting nut M8/10, with plastic spacers between the locking flaps for use as sliding bracket. Can be used as fixed bracket without spacers.

Dimensional range: DN 40-160 mm

Product: POLO-UDS Fixed/sliding bracket for concrete

Fixed bracket set for down pipe with noise insulation

for mounting POLO-KAL NG pipes as downpipes to the building structure, individually consisting of:

Heavy-duty bracket with inlay for very high loads. Manufactured from galvanized steel 1.0332, closure using hexagonal bolts and nuts, with non-ageing EPDM-soundproofing inlay, with CO₂-welded connecting nut 1/2".

Wall plate for mounting the pipe bracket on the wall or ceiling using a threaded nipple provided by the contractor. Manufactured from galvanized steel 1.0332, fixing holes are die cut in the form of slit holes with a 90° angle to each other, with CO₂-welded connecting nut 1/2".

Dimensional range: DN 40-250 mm

Product: POLO-UDS Fixed bracket set for down pipe with noise insulation

Supporting rail suspension set

for the suspended mounting of supporting rails on the building structure using threaded rods M10 (provided by the contractor), individually consisting of:

U-mounting plate. Manufactured from hot-dip galvanized steel 1.0332, bore Ø 11 mm. Hexagonal nuts M10, manufactured from galvanized steel in accordance with DIN EN 24032 (DIN 934). Washer, manufactured from galvanized steel 1.0332, dimensions 10.5 x 35 mm.

Product: POLO-UDS Supporting rail suspension set

Sound-absorbing protector for supporting rail suspension set

For the noise-isolated mounting of the supporting rail on to the building structure. Metal parts manufactured from stainless steel, noise insulation provided by TPE moulded part, threaded connection M10.

Product: POLO-UDS sound absorbing protector

INVITATION TO TENDER TEXTS

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Supporting rail

as concurrently running supporting rail for the mounting of PP-pipes DN 40 to DN 250. C-profile with flanks bent inward and serrated interior. Perforation on the reverse side. Manufactured from galvanized steel 1.0332. Dimensions: 41 x 41 x 2.5 x 6.000 mm for pipe DN 40 to DN 250 (pricing per meter).
Product: POLO-UDS supporting rail

TESTING,
ACCREDITATIONS

Rail connector

connects two profile rails. Pre-assembled unit with sliding nuts, screws and plastic springs for fast assembly. Manufactured from galvanized steel 1.0332, plastic springs made from polyoxymethylene (POM), colour: green (RAL 6026).
Product: POLO-UDS Rail connector

TECHNICAL
SPECIFICATIONS

Pendulum support set

for the lateral reinforcement of the pipe line, in order to prevent oscillation of the system while in operation, individually consisting of:

Toggle fastener M10 x 100 mm for the attachment to the trapezoidal sheeting roof. Manufactured from galvanized steel, protective rubber ring, three-bolt angle 45°, easy to install due to rounded corners, manufactured from hot-dip galvanized steel 1.0332. Hexagonal nuts M10, manufactured from galvanized steel according to DIN EN 24032 (DIN 934). Washers, manufactured from galvanized steel, dimension 10.5 x 25 mm.
Product: POLO-UDS Pendulum support set

PRODUCTS

INSTALLATION

Threaded rods

for mounting pipe brackets or supporting rails to the building structure. Manufactured from galvanized steel 1.0332, in accordance with DIN ISO 228-1.
Design: M10 x 1000 mm, 1/2" 1000 mm
Product: Threaded rods

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7.3 Pipe System

POLO-KAL NG UDS

Introductory remarks:

Sound-absorbing compound drainage pipes made of PP-C (PP-C sound-absorbing compound drainage pipes).

POLO-KAL NG socket pipe

3-layer, mineral-reinforced compound pipe made of non-halogen plastic, PP-C inner layer, hot water resistant up to 97°C, sound-absorbing intermediate layer made of PP-TV mineral-reinforced compound, PP-C exterior layer.

Minimum rigidity da 40-160 6 kN/m² (SN4), da 200 and 250 8 kN/m² (SN8).

Application classification B/D.

Colour RAL 5014, dove blue.

Moulded connecting socket with factory-fitted lip ring,

low temperature impact resistant to -20°C in accordance with EN 1411

average coefficient of linear expansion: CLTE (Coefficient of Linear Thermal Expansion) = 0.05 mm/m²K

Fire behaviour according to EN 13501-1: Classification D-s2 d2

Modulus of elasticity: 2600MPA according to ISO 178

Leak proof under negative pressure up to 900 mbar

Product: POLO-KAL NG Socket pipe DN/OD

POLO-KAL NG fitting (bend)

Single layer, mineral-reinforced fitting made of non-halogen plastic PP-C-KV with push-fit socket and factory-fitted lip ring, hot water resistant up to 97°C.

Product: POLO-KAL NG bend 45° DN/OD

POLO-KAL NG fitting (branch pipe)

Single layer, mineral-reinforced fitting made of non-halogen plastic PP-C-KV with push-fit socket and factory-fitted lip ring, hot water resistant up to 97°C.

Product: POLO-KAL NG branch 45° DN/OD

POLO-KAL NG fitting (reducer)

Single layer, mineral-reinforced fitting made of non-halogen plastic PP-C-KV with push-fit socket and factory-fitted lip ring, hot water resistant up to 97°C.

Product: POLO-KAL NG reducer DN/OD

POLO-KAL NG fitting (reducer centric with small spigot)

Single layer, mineral-reinforced fitting made of non-halogen plastic PP-C-KV with push-fit socket and factory-fitted lip ring, hot water resistant up to 97°C.

Product: POLO-KAL NG reducer centric with small spigot DN/OD/.....

POLO-KAL NG fitting (double socket)

Single layer, mineral-reinforced fitting made of non-halogen plastic PP-C-KV with push-fit socket and factory-fitted lip ring, hot water resistant up to 97°C.

Product: POLO-KAL NG double socket DN/OD

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POLO-KAL NG fitting (sleeve socket)

Single layer, mineral-reinforced fitting made of non-halogen plastic PP-C-KV with push-fit socket and factory-fitted double lip ring, hot water resistant up to 97°C.

Product: POLO-KAL NG sleeve socket DN/OD

TESTING,
ACCREDITATIONS

POLO-KAL NG fitting (long sleeve socket)

Single layer, mineral-reinforced fitting made of non-halogen plastic PP-C-KV with push-fit socket and factory-fitted double lip ring, hot water resistant up to 97°C.

Product: POLO-KAL NG long sleeve socket DN/OD

TECHNICAL
SPECIFICATIONS

POLO-KAL NG fitting (socket plug)

Single layer, mineral-reinforced fitting made of non-halogen plastic PP-C-KV, hot water resistant up to 97°C.

Product: POLO-KAL NG socket plug DN/OD

POLO-KAL NG fitting (cleanout pipe)

Single layer, mineral-reinforced fitting made of non-halogen plastic PP-C-KV with push-fit socket and factory-fitted lip ring, hot water resistant up to 97°C.

Product: POLO-KAL NG cleanout pipe DN/OD

PRODUCTS

POLO-ASV

POLO-ASV (extraction-proof connection)

Mineral-reinforced plastic claw fastener made of non-halogen plastic PA-GFV, hot water resistant up to 97°C, minimum protection from extraction 140 kg.

Product: POLO-ASV DN/OD

INSTALLATION

POLO-BSM

POLO-BSM (Fire protective collar)

Fire protective collar for the pipe system POLO-KAL NG, protection of pipes belonging to the POLO-KAL NG – pipe system where these are ducted through a fire compartment, sleeve body made of non-corroding sheet steel, starting at temperatures around 130°C, the filling compound expands to 10 times its volume with a pressure of up to 10 bar.

Product: POLO-BSM DN/OD

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8. Project data questionnaire

Siphonic drainage systems in accordance with VDI 3806

in adherence to guidelines provided by DIN EN 12056-3, DIN 1986-100, ÖNORM B2501

Contact person:

Project details

Date:		Return by:	
Construction project:			
Design engineer:			
Contact person:		Tel. No.:	
E-mail:		Fax No.:	
Required drawings:	<input type="checkbox"/> plan view/top view <input type="checkbox"/> cross sections	File format of	<input type="checkbox"/> DWG <input type="checkbox"/> DXF <input type="checkbox"/> PDF if applicable

DIN specifications

Rainfall intensity according to DIN 1986-100:	_____ l / (s x ha) (calculation rainfall r5.5 (5 min./5 years))	_____ l / (s x ha) (Century rainfall r5.100 (5 min./100 years))
Run-off coefficient values C for defining the rainwater run-off <small>Information must be provided</small>	<input type="checkbox"/> Roof surfaces 1.0 (standard flat roof with membrane) <input type="checkbox"/> Gravel roof 0.5 <input type="checkbox"/> Green roof 0.3 from 10 cm build-up <input type="checkbox"/> Green roof 0.5 up to 10 cm build-up	CAUTION! For green roofs with lateral water retention a gravity drainage system should be used (VDI 3806, Section 3.3).

Technical construction details

Type of pipe	POLO-KAL NG
Type of roof:	<input type="checkbox"/> trapezoidal sheeting <input type="checkbox"/> concrete <input type="checkbox"/> wood max. permissible flood level: _____ mm or max. permissible concentrated load _____ kN/m ²
Gravel layer/thickness of thermal insulation	<input type="checkbox"/> yes <input type="checkbox"/> no / thickness of thermal insulation: _____ mm
Apertures:	Have regular recesses (pipe sleeves) been implemented in the joists? <input type="checkbox"/> yes <input type="checkbox"/> no
Mounting of the supporting rails	Is it possible to mount the supporting rail onto joists or girders? <input type="checkbox"/> yes <input type="checkbox"/> no
Noise insulation requirements:	<input type="checkbox"/> yes <input type="checkbox"/> no
Type of roof membrane:	<input type="checkbox"/> PVC roof membrane <input type="checkbox"/> FPO roof membrane <input type="checkbox"/> welded bituminous membrane <input type="checkbox"/> EPDB roof membrane _____ mm thick
Type of vapour barrier:	<input type="checkbox"/> PVC roof membrane <input type="checkbox"/> FPO roof membrane <input type="checkbox"/> welded bituminous membrane <input type="checkbox"/> EPDB roof membrane <input type="checkbox"/> PE membrane _____ mm thick

OBJECT QUESTIONNAIRE

Height of downpipe: <small>Information must be provided</small>	at least 2.50 m from upper edge of roof membrane to underground pipe or to floor level (incl. transition section) Please provide cross sectional view $\Delta h_{\text{available max}} =$ _____ m
Height of roof drain – collector connecting pipe: <small>Information must be provided</small>	Height from upper edge of roof membrane to center line collector pipe $\Delta h_A =$ _____ m
Downpipes:	Please mark the positions of the downpipes in the drawing or identify the axes along which the downpipe is to be routed to the underground pipe.

Drainage system

Roof drains:	<input type="checkbox"/> POLO-UDS roof drain SuperDrain 60 vertical with POLO-UDS raising element SuperDrain 65 <input type="checkbox"/> unheated <input type="checkbox"/> heated
	<input type="checkbox"/> POLO-UDS roof drain SuperDrain 64 horizontal with POLO-UDS raising element SuperDrain 65 <input type="checkbox"/> unheated <input type="checkbox"/> heated
Emergency drainage: DIN 1986-100 Section 5.8.2 DIN EN 12056-3 Section 7-4	<p>“For roofs built using solid construction methods, where rain water retention has been incorporated into the plan and can be proven statically, the system can be installed without emergency drainage” Lightweight roofs (e.g. trapezoid sheeting roofs) must be equipped with emergency drainage.</p> <p>“Emergency drains must be included for flat roofs with parapets and with roof gutters that have not been suspended, to reduce the risk of rainwater seeping into the building or of the construction becoming overloaded.”</p>
Calculate emergency drains? <small>Information must be provided</small>	<input type="checkbox"/> yes <input type="checkbox"/> no
Emergency drainage	<input type="checkbox"/> as second piped drainage system <input type="checkbox"/> POLO-UDS emergency drain SuperDrain 60/64 with POLO-UDS raising element SuperDrain 65 <input type="checkbox"/> with a slit in the parapet

Illustration 35

GENERAL INFORMATION

TESTING, ACCREDITATIONS

TECHNICAL SPECIFICATIONS

PRODUCTS

INSTALLATION

SYSTEM START-UP

INVITATION TO TENDER TEXTS

OBJECT QUESTIONNAIRE

CALCULATION SOFTWARE



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