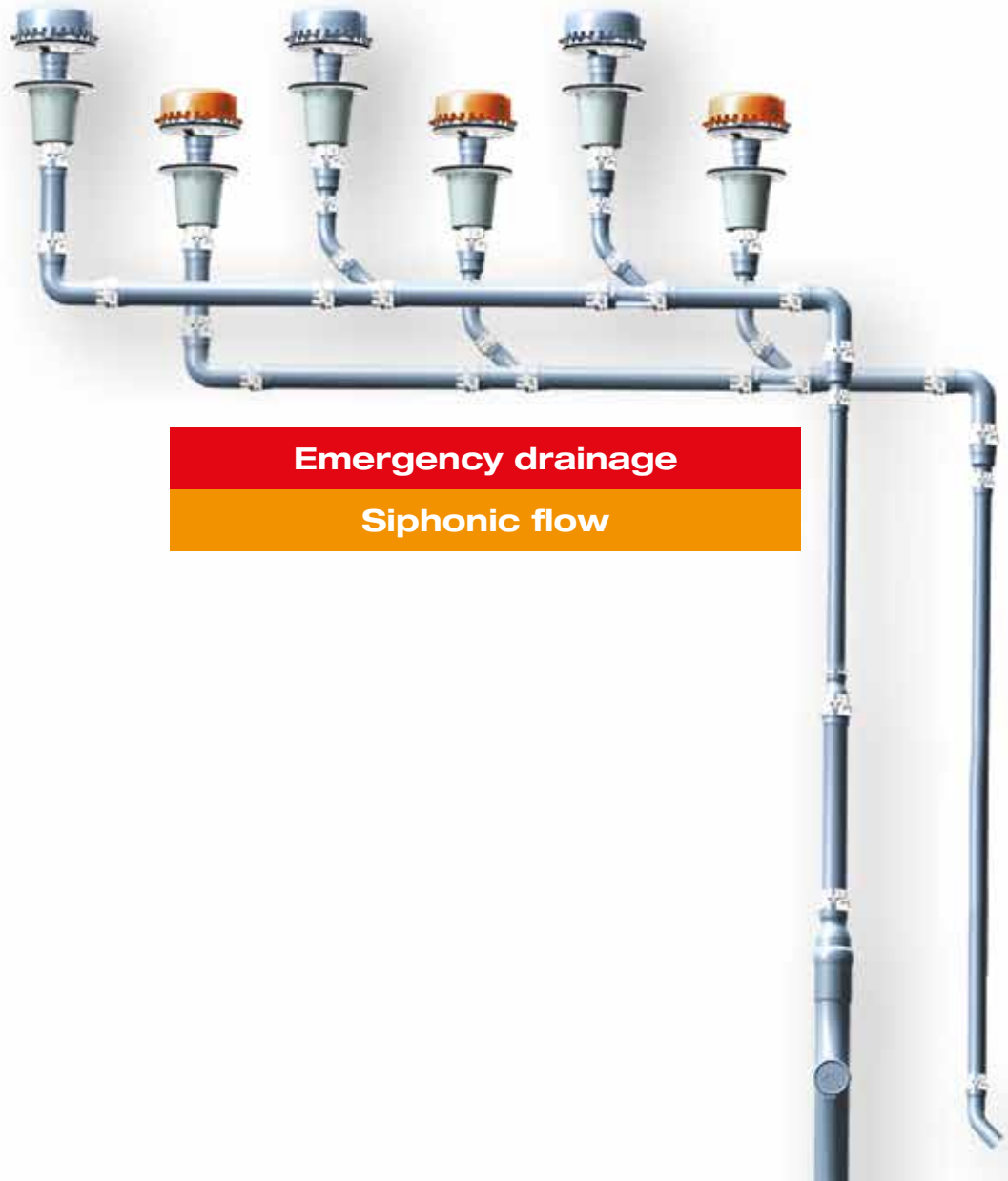


LORO-X DRAINJET®

Siphonic roof drainage systems

Main drainage

Siphonic flow



Emergency drainage

Siphonic flow

LORO-DRAINJET® DJ

siphonic drains, DN 50 - DN 150, series 49

for roof drainage with pressure flow

- as main drain
- as **emergency drain**

with clamping flange, for bituminous and plastic sealing sheets

LORO-DRAINJET® siphonic drains meet EN 1253. These are roof drains with optimised flow characteristics, offering higher discharge capacity, improved flow properties, reduced fitting size and better noise performance. With a capacity of up to 27 l/sec, they are amongst the drains with the highest discharge capacity.

Together with LORO-DRAINJET® emergency drains, whose use is specified by DIN 1986-100

for drainage systems with pressure flow, the drains, in combination with a wide range of pipes and pipe fittings, the drains provide a complete roof drainage system that satisfies the toughest demands.

Particular advantages:

- **High discharge capacity**
- **LORO-DRAINJET® emergency drains are fitted at the same level as the main drainage systems**



LORO-DRAINJET®
siphonic drains,
DN 50 - DN 150



LORO-DRAINJET®
siphonic drains as **emergency**
drain, DN 50 - DN 150

LORO-X

DRAINJET®

Siphonic roof drainage systems

Thomas Phillips, Logistikzentrum Melle

LORO-DRAINJET® Siphonic roof drainage

LORO-X Steel discharge pipes



LORO-X

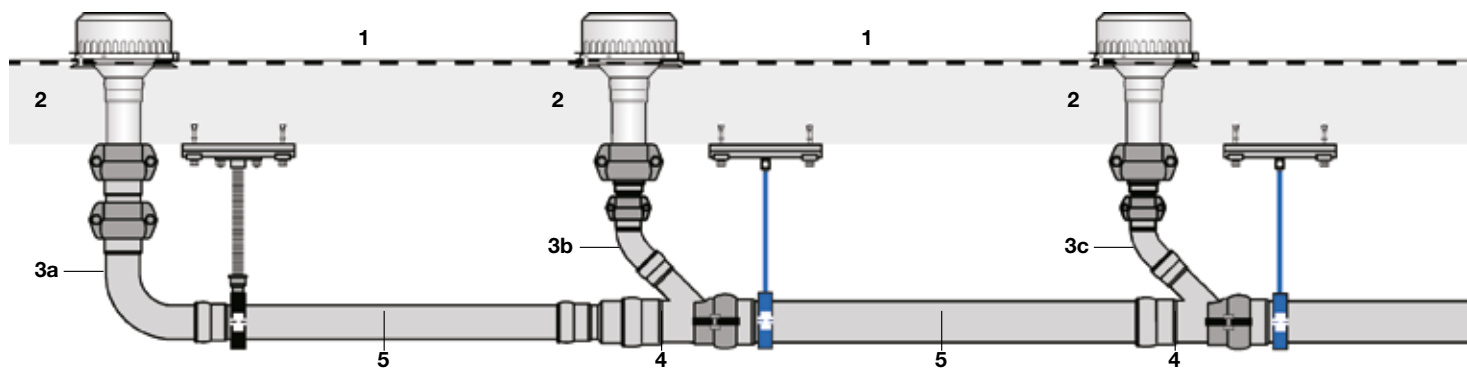
DRAINJET®

Siphonic roof drainage systems**Industriebau DAIMLER-BENZ, Berlin-Ludwigsfelde**

LORO-DRAINJET® Siphonic roof drainage







- 1- Roof area
- 2- Roof drains
- 3a - Connecting line
- 3b - Connecting line
- 3c - Connecting line
- 4 - Flow merging
- 5 - Collecting pipe

- 6- Flow deflection horizontal / vertical
- 7- Downpipe
- 8 - Extension
- 9 - Calming section
- 10 - Transfer to the underground or collecting pipe operated with gravity flow

Fundamental hydraulic conditions

1. The diameters of the connecting lines (3a, 3b, 3c) are selected in accordance with constant pressure loss in all the flow routes - from the edge of the roof (1) through to the transfer from pressure flow into the gravity line (10).

2. The diameter of the connecting line (3c) that is closest to the downpipe is usually the smallest diameter in the system, so that the highest flow rate occurs here. This diameter should be selected in such a way that the negative pressure resulting from the dynamic pressure in the line is not too large, and that an excessive initial banked-up water level on the roof is avoided before the negative pressure effect from the downpipe starts to act.

3. The diameter of the connecting line (3a) that is most distant from the downpipe is usually large, with a low water flow, so that the lowest flow rate in the system occurs here. A flow rate of less than 1 m/s is to be avoided during the design, so that a good self-cleaning effect is achieved.

4. The diameters of the collecting pipe (5) are favourably chosen to provide constant pressure loss per metre of pipe length rather than constant pipe diameter or constant flow speed.

5. The diameter of the downpipe (7) is selected so that the negative-pressure effect of the downpipe reliably starts to operate. The basic aim of the siphonic drain system is to implement a horizontal collecting pipe, and to support transport of the rainwater above the deflection (6) through the geodetic height below the deflection. The result of this is that the intended negative pressures develop at the deflection. The smaller the diameters of the connecting and collecting pipes that are installed, the lower is the rain discharge that the geodetic height above the

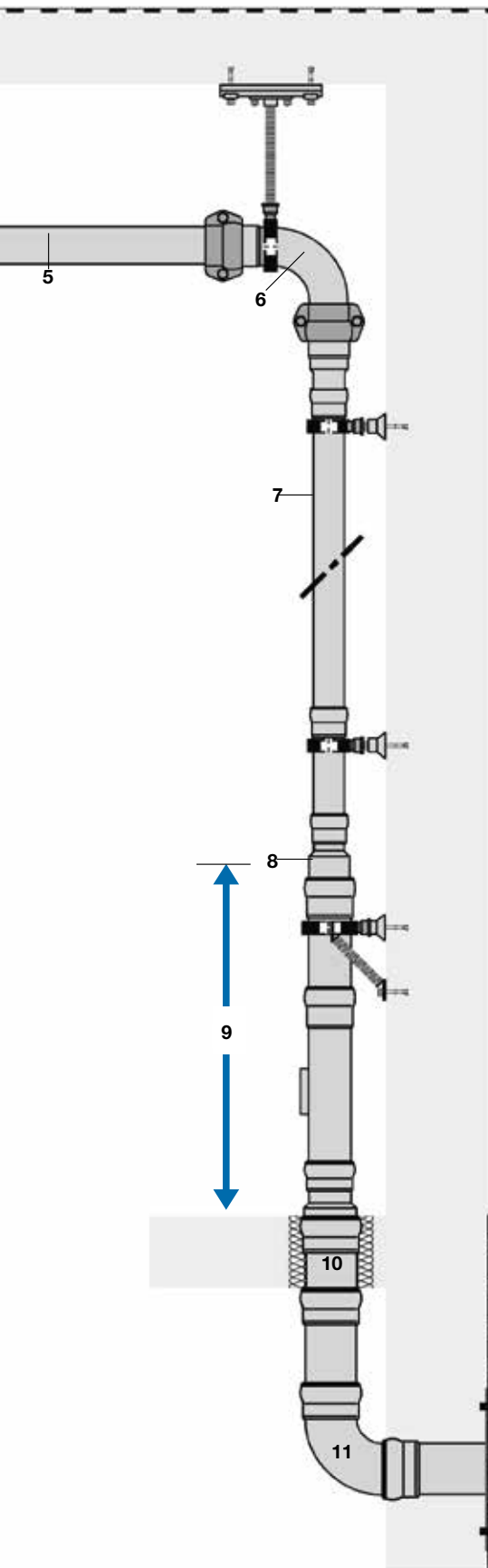
deflection will be able to drive towards the downpipe. The selection of the diameter of the downpipe is of particular importance here in order to ensure the effectiveness of the geodetic height of the downpipe *).

6. The diameter of the calming section (9) must be selected in such a way that at the outlet, i.e. at the transition (10) into the underground or collecting pipe, which is being operated with gravity flow, the conversion of the high kinetic energy through reducing the flow speed to ≤ 2.5 m/s in accordance with EN 12056 is ensured. In order to avoid damage resulting from entry velocities that are too high, the calming section (9) is dimensioned to generate at most 2.5 m/s before the transition to the partially filled line.

7. Because this is a roof drainage system with pressure flow, the diameters fitted in the system must be chosen in such a way that, when there is a risk of backflow from the sewer system, or when security requirements are tighter than normal (no backflow as far as the roof), the discharge head between the roof and the backflow level is sufficient to drive the rain discharge to the open outlet. The open outlet can either be a direct outlet of the rain discharge into the open at the height of the backflow level, or a free outlet into, for instance:

- a pressure compensation shaft with a sufficiently large opening in cover
- a natural water body
- a traffic area
- a rain storage reservoir or canal
- a cistern or a rainwater harvesting system
- a fire pond

Its volume must be large enough to provide temporary storage for the difference in the water quantity between a heavy rain discharge from the roof



drainage system with pressure flow and a small rain discharge into the sewer system with a small rise in the water level.

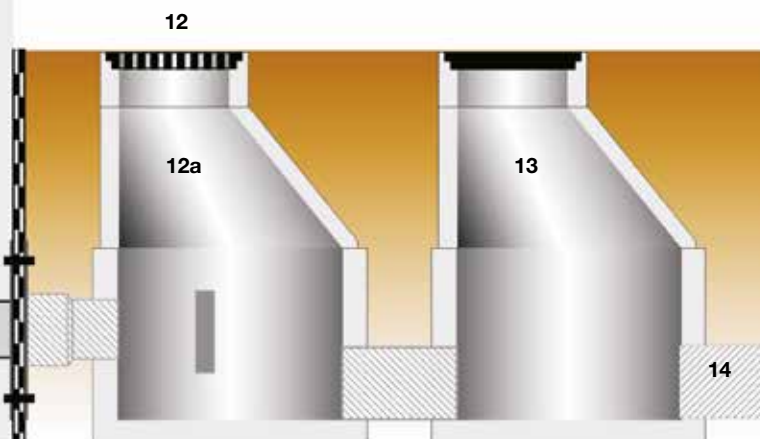
7.1 The diameters in the pressure flow system can be selected in such a way that, in order to minimise the diameter of the system, the entire geodetic height between the roof level and the backflow level is utilised, and the corresponding geodetic pressure fully exploited to convey the rain discharge within the roof drainage system.

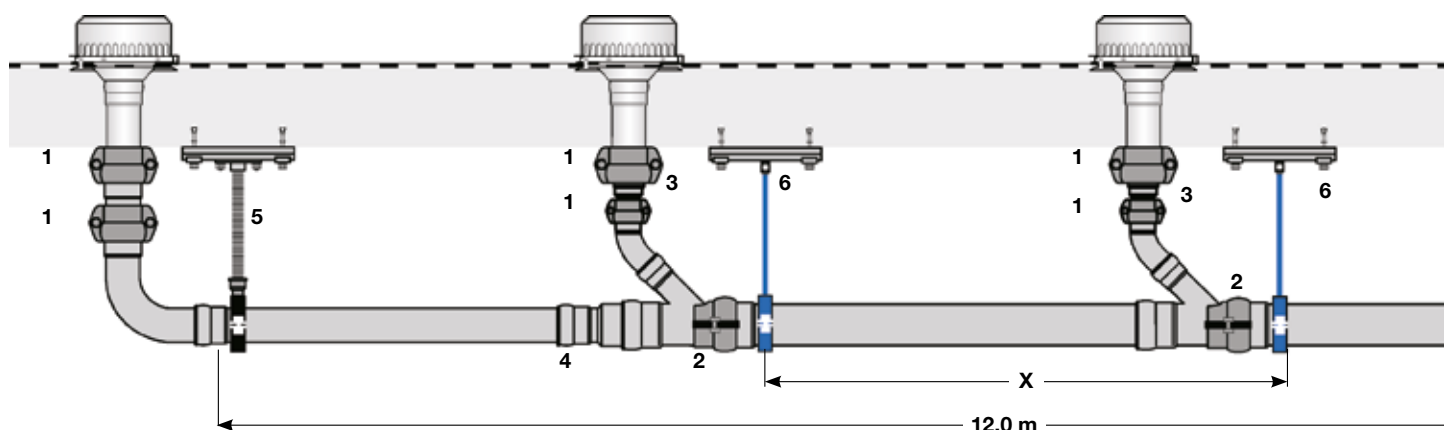
The dimensioning of the pressure flow system with minimal diameters must allow the free release of the rain discharge at the end of the roof drainage system with pressure flow in the form of an outlet opening into the open at the height of the backflow level. In this case, the free release of the rain discharge should occur in the immediate neighbourhood of the downpipe (7).

7.2 If it is not possible to provide free release of the rain discharge at the end of the pressure flow system in the form of an outlet opening into the open at the height of the backflow level, then it is necessary to ensure that the diameters are selected such that the rainwater can be conveyed within the discharge system below the backflow level as far as the free release of the rain discharge. The diameters of the discharge system below the back flow level are to be selected, in the light of pressure drops, in such a way that in the event that backflow occurs, the hydrostatic water head between the levels of the roof and the backflow is sufficient to drive the rainwater to the free outlet.

*) see also Vahlbrauk, W. : Sparsam vom Dach in die Traufe - Grundgedanken zur sicheren Bemessung von Druck-Regenentwässerungssystemen.

Sanitär- und Heizungstechnik 57 (1992)
No. 12, pp. 857 - 862 and
Haustechnische Rundschau (1993)
Nos. 7-8, pp. 56-60.





Fundamental rules for installing the LORO siphonic drain system:

Axial fastening of pipe connections:

Anchor clips for the LX-pipe DN 32 - DN 125, anchor hoop for the LX-pipe DN 150 - DN 200, CV claws for the XML pipe and broadband clamps for the composite pipe

Generally, axial fastenings have to be installed at the following positions:

- after LORO-DRAINJET® drains
- after branches
- before bends
- before compensating pieces
- at the transition between collecting pipe and downpipe

In the case of special requirements regarding the drainage system, additional axial fastenings have to be installed in accordance with the specifications of the project. F90 fire protection requirements demand an installation of axial fastenings at all pipe connections.

Fastening systems:

The pipe system must be fastened in accordance with the applicable requirements (e.g. fixed point, pipe clips etc.). The rule is that

at connecting and collecting pipes:

- The distance between **fixed points** should be 12 m.
- The distance from **suspension points** should be:

| | | | | | | | | | |
|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| DN | 32 | 40 | 50 | 70 | 80 | 100 | 125 | 150 | 200 |
| X | 2,0 m | 2,0 m | 2,0 m | 3,0 m | 3,0 m | 3,0 m | 3,0 m | 3,0 m | 3,0 m |

For fastening LORO-XML pipes (socket-less pipe), DN 250 and DN 300, please ask for the installation instructions for LORO-XML steel discharge pipes DN 250/300.

On downpipes:

- 3 m spacing.
- Downpipe supports are placed approximately every 12 m, with at least one per downpipe.
- Fixed point at the transition between collecting pipe and downpipe.

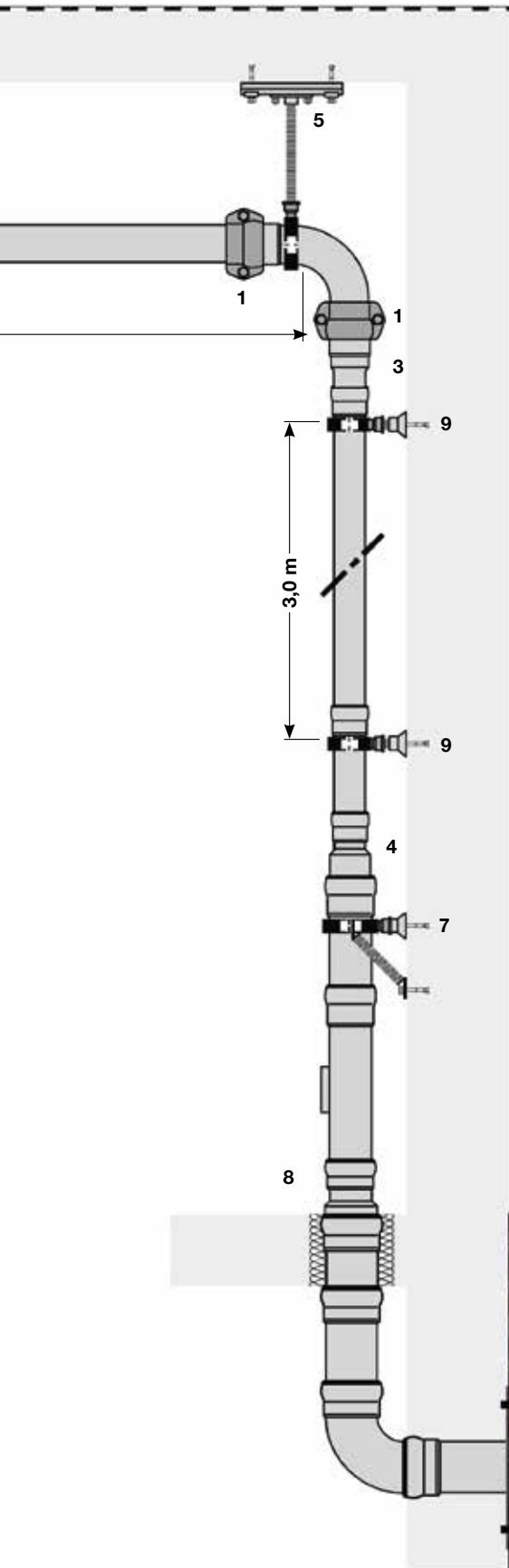
Fastening arrangement for appropriate forces

In order to achieve appropriate fastening forces, the LORO siphonic drain system is designed in such a way that it should be considered rigid.

This means that the pipe system must be fastened at all the necessary points. Dynamic forces arising from the flow can therefore be neglected.

Impact forces – such as can occur in pressurised supply systems, e.g. when flow is switched – cannot occur in the LORO siphonic drain system, and it is only necessary to design for the purely static loading when the system is full. The static forces that occur can be found in the weight table for filled pipes:

| | | | | | | | | | | | |
|-----------------------------|-----|-----|-----|------|------|------|------|------|------|------|-------|
| DN | 32 | 40 | 50 | 70 | 80 | 100 | 125 | 150 | 200 | 250 | 300 |
| LORO-X Steel discharge pipe | 1,6 | 2,6 | 4,0 | 6,8 | 9,3 | 12,4 | 20,8 | 28,2 | 51,4 | 81,7 | 110,0 |
| LORO-Compound pipe | 5,2 | 6,1 | 8,3 | 13,8 | 17,8 | 22,5 | 38,8 | 49,1 | 78,7 | - | - |



1 Anchor clip, no. 806X, DN 40 – DN 125, anchor hoop, no. 808X, DN 150 - DN 200, CV claw, no. 9071X, DN 250 - DN 300

2 Anchor clip with notch, no. 8061X, DN 40 - DN 125

3 Compensating pieces for pressure flow, no. 19602X

4 Transition pipes, concentric, no. 603X

5 Fixed point fastening

6 Suspension points

7 Downpipe support

8 Connecting piece for transition from LORO-X pipe to another type of pipe (e.g. stoneware or plastic pipe)

9 Downpipe fastening

Mounting instructions

- Variations from planning documents that are based on a hydraulic calculation are to be avoided. If changes are unavoidable, the planner or the engineering consultation service from LORO should be asked for a computational verification.

- It is particularly necessary to consider:
 - the specified pipe routes
 - the lengths of the individual sections
 - the heights of the collecting and single connection lines
 - the specified pipe dimensions
 - the arrangement of the roof drains (dimensions) according to the plans.

- The materials specified in the plans for pipes and roof drains must be used.
- The lines can be laid without a fall, but must be able to drain fully.
- Clearance dimensions upper edge of roof drain pot or bare slab to collecting pipe, see page 113.
- The 45° version of branches should be used.
- The pressure drainage system must end the latest at the backflow level (transition into the gravity line).
- The connection to the underground pipes (gravity line) of other materials must be made with connecting pieces appropriate for the system and must be backflow-safe.
- The flanges of the roof drains should be fastened setback into the surface as far as possible. Any slab cut-outs must be closed.
- During the building period, the drains and the pipe system must be protected against contamination (packaging and insulation residues, gravel, green roof substrate etc.). Before the strainer unit is fitted, contamination must be removed from the drain pot.
- Details on installing LORO-X steel discharge pipes and LORO compound pipes: see the special installation instructions – please ask the LOROWERK factory for them.

Technical product data

Material:

Drain pot:

Stainless steel 1.4301

Drainjet cover:

Stainless steel 1.4301

Loose flange:

G Al Si 10 Mg

Sealing elements:

SB (SBR) styrene-butadiene copolymer, trade name e.g. BUNA, DN 70 - DN 100, silicone-free.

Compression seal:

Perbunan P 599 (can be omitted from bituminous sealing sheets).

Thermal insulation:

POLYSTYRENE SE WLG 0.35

CFC-free,

Thickness: at least 20 mm on faces directly exposed to water.

Coefficient of thermal conductivity: 0.035 W/m x K.

Resistance to water vapour diffusion: $\mu = 40/100$.

Water absorption: 0.5 - 1.5 vol. %.

Building material class B2

Thermal insulation fire protection class R 90 by request.

Heating:

Self-regulating parallel heating line

T_{max} : +80 °C.

Rated voltage: 230 V / 50 Hz.

Rated power consumption: approx.

18 W at 0 °C ambient temperature

Fusing: slow-blow fuses

(C-characteristic) with max. 80% loading

Fire resistance:

LORO-DRAINJET® siphonic drains are assigned in accordance with DIN 4102 to building material class A1, non-combustible.

External supervision:

LORO-DRAINJET® siphonic drains meet EN 1253. External supervision is carried out by the Materials Inspection Institute TÜV Rheinland LGA Products GmbH in Würzburg.



DIN EN 1123 DIN EN 1123
DIN EN 1124 DIN EN 1124



Bauart geprüft und überwacht

www.tuv.com
ID 1111248795

LORO-DRAINJET® siphonic drains

The system for use in lightweight roofs*

LORO DRAINJET® siphonic drains of stainless steel

LORO DRAINJET® siphonic drains are made of stainless steel, and are therefore:

- dimensionally stable
- long-lasting
- UV-resistant

LORO DRAINJET® main and emergency drains are fitted at one level.

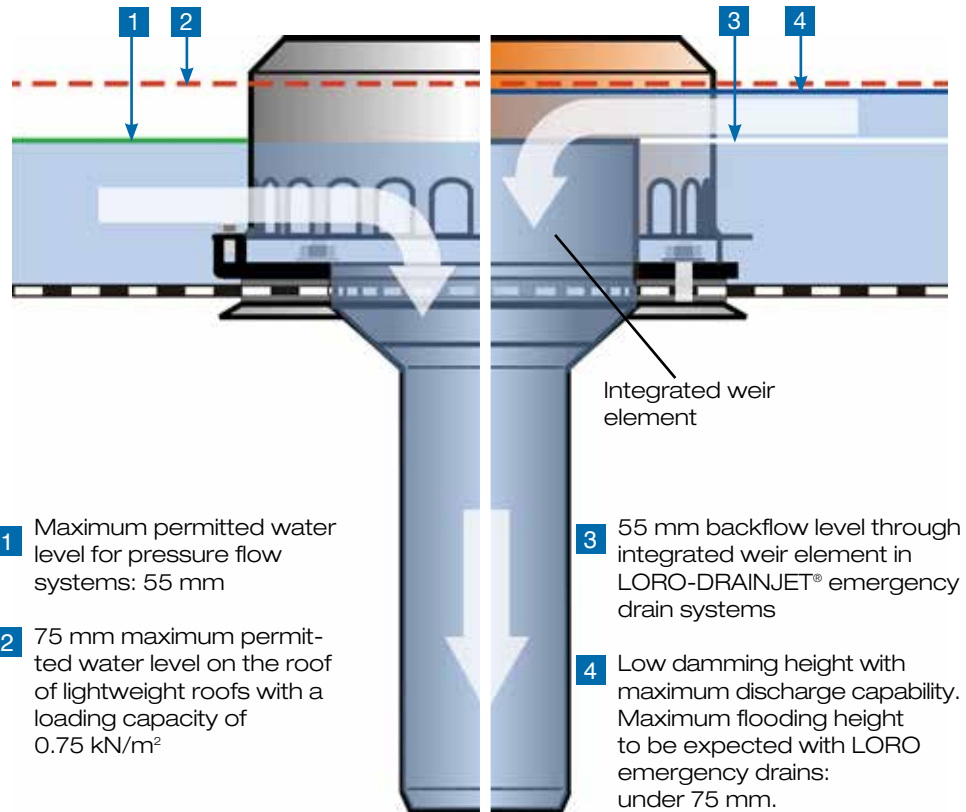
The patented, integrated weir element allows the trouble of setting the emergency drains higher to be omitted.

Low additional banked-up water level in the event of overload.

In the event of overload, LORO emergency drains discharge the maximum additional rainfall with a low damming height of less than 20 mm. This means that when they reach their rated capacity, LORO emergency drains hold the water lower than the maximum flooding height* permitted for lightweight roofs.

Main drainage system

Emergency drainage system



- 1** Maximum permitted water level for pressure flow systems: 55 mm
- 2** 75 mm maximum permitted water level on the roof of lightweight roofs with a loading capacity of 0.75 kN/m²

- 3** 55 mm backflow level through integrated weir element in LORO-DRAINJET® emergency drain systems
- 4** Low damming height with maximum discharge capability. Maximum flooding height to be expected with LORO emergency drains: under 75 mm.

The requirement:

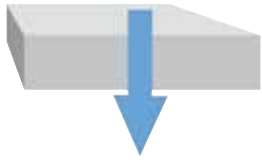
Any roof area that has drainage that is led away either inside or on the building must include at least one drain and one emergency drain that has a free outlet over the facade of the building. The loads that result from the backflow level must be taken into account in the static calculations for dimensioning the roof and its supporting construction.

The solution:

In LORO-DRAINJET® siphonic drain systems, the siphonic drain and the emergency drain remove water at one level. The banked-up water level required by the patented LORO-DRAINJET® emergency drain is achieved by an integrated weir element (55 mm backflow level). Operation in a single plane means that the water level on the roof is limited to a maximum of 75 mm. LORO-DRAINJET® siphonic drains can be installed without expensive modifications to the structure of the roof and all the associated problems.

* Maximum permitted flooding height on lightweight roofs with a loading capacity of 0.75 kN/m²: 75 mm.

Overview:

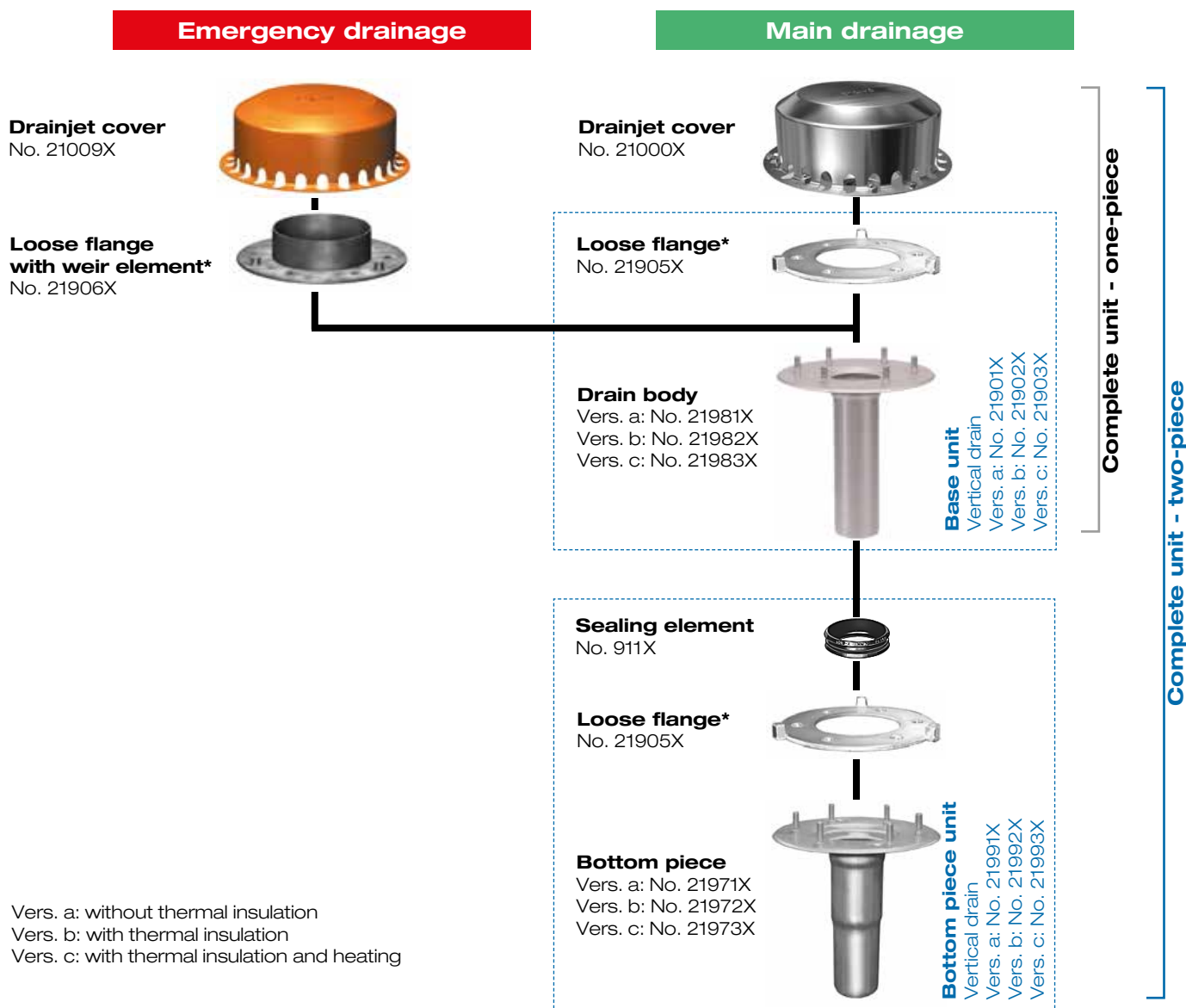


Series 49 DJ with clamping flange

| | Main drainage | | | | | Emergency drainage | | | | |
|--------------------------------|---|--------------|--------------|--------------|--------------|---|--------------|--------------|--------------|--------------|
| | Siphonic flow | | | | | Siphonic flow | | | | |
| | Silent Power | | | | | | | | | |
| <p>Roof without insulation</p> | <p>One-piece</p> <p>Vertical runoff</p> <p>Versio a: 2111X Versio b: 2112X Versio c: 2113X</p> | | | | | <p>One-piece</p> <p>Vertical runoff</p> <p>Versio a: 2131X Versio b: 2132X Versio c: 2133X</p> | | | | |
| <p>Insulated roof</p> | <p>Two-piece</p> <p>Vertical runoff</p> <p>Versio a: 21121X Versio b: 21122X Versio c: 21123X</p> | | | | | <p>Two-piece</p> <p>Vertical runoff</p> <p>Versio a: 21321X Versio b: 21322X Versio c: 21323X</p> | | | | |
| DN | 50 | 70 | 100 | 125 | 150 | 50 | 70 | 100 | 125 | 150 |
| Water height (mm) | 55 | 55 | 55 | 55 | 55 | 75 | 75 | 75 | 75 | 75 |
| Weir height(mm) | 0 | 0 | 0 | 0 | 0 | 55 | 55 | 55 | 60 | 60 |
| LX-No. | LX1175 | LX845 | LX530 | LX948 | LX960 | LX1340 | LX847 | LX542 | LX947 | LX961 |
| Discharge Q (l/sec) | 9,0 l/sec * | 18,8 l/sec * | 27,0 l/sec * | 50,0 l/sec * | 50,0 l/sec * | 9,0 l/sec * | 19,4 l/sec * | 38,0 l/sec * | 92,0 l/sec * | 94,4 l/sec * |

Structure scheme/system components

LORO-DRAINJET® DJ siphonic drains/emergency drains with clamping flange, for flat roof drainage with pressure flow, series 49, made of stainless steel, DN 50, DN 70 and DN 100



* Including compression seal of perbunan, can be omitted when bituminous roof sealing sheets are used.

Example applications

LORO-DRAINJET® siphonic drain, in concrete/trapezoidal sheet metal roofs, insulated

- 1 Sealing sheet
- 2 Compression seal*
- 3 Reinforcing metal sheet
- 4 Thermal insulation
- 5 LORO-DRAINJET® cover
- 6 LORO-DRAINJET® drain body with loose flange
- 7 LORO-DRAINJET® bottom piece with loose flange and thermal insulation
- 8 Vapour barrier
- 9 Concrete slab or trapezoidal sheet metal roof
- 10 LORO-X anchor clip
- 11 LORO-DRAINJET® compensating piece

* Can be omitted when bituminous roof sealing sheets are used.

LORO-DRAINJET® siphonic drain, in concrete/trapezoidal sheet metal roofs, insulated

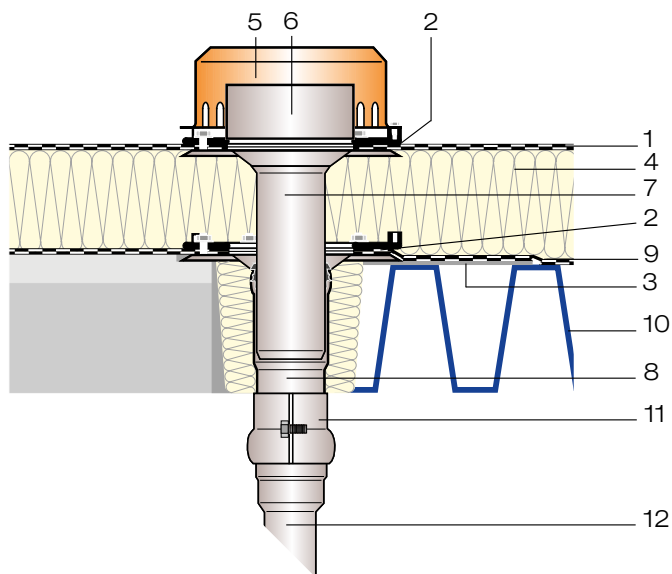
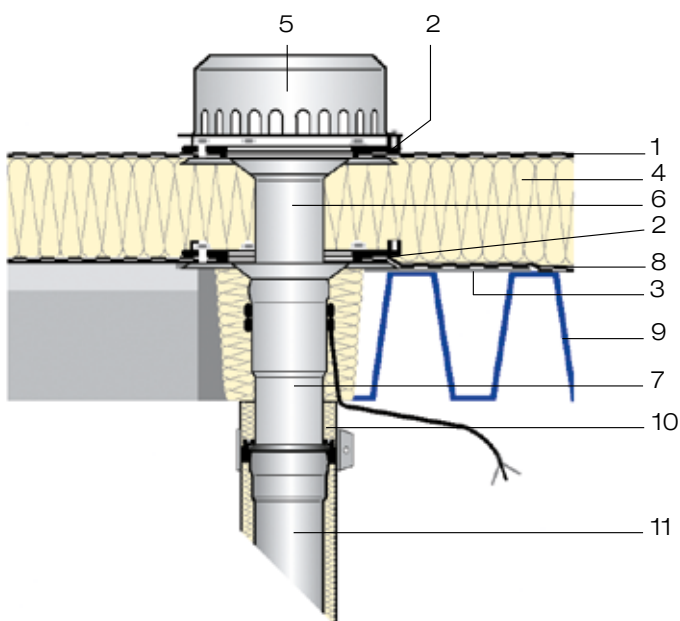
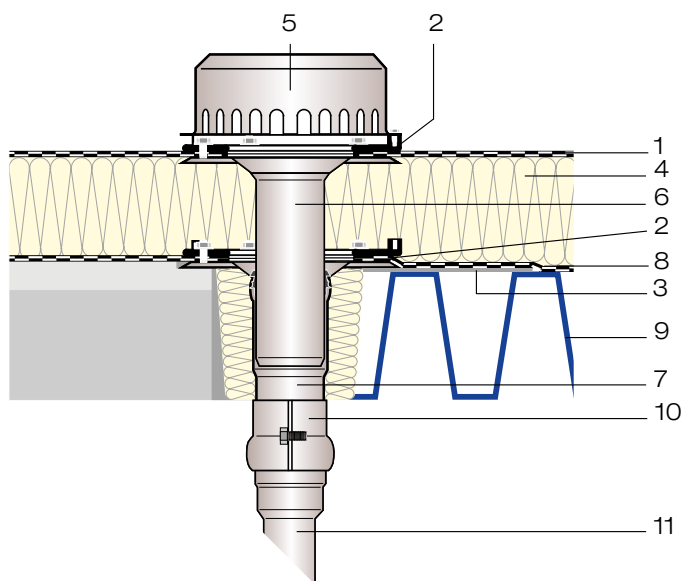
- 1 Sealing sheet
- 2 Compression seal*
- 3 Reinforcing metal sheet
- 4 Thermal insulation
- 5 LORO-DRAINJET® strainer
- 6 LORO-DRAINJET® drain body with loose flange
- 7 LORO-DRAINJET® bottom piece with loose flange, thermal insulation and heating
- 8 Vapour barrier
- 9 Concrete slab or trapezoidal sheet metal roof
- 10 Compound pipe insulating piece
- 11 LORO compound pipe

* Can be omitted when bituminous roof sealing sheets are used.

LORO-DRAINJET® siphonic drain as **emergency drain**, in concrete/trapezoidal sheet metal roofs, insulated

- 1 Sealing sheet
- 2 Compression seal*
- 3 Reinforcing metal sheet
- 4 Thermal insulation
- 5 LORO-DRAINJET® emergency drain cover
- 6 LORO-DRAINJET® loose flange with weir element
- 7 LORO-DRAINJET® drain body
- 8 LORO-DRAINJET® bottom piece with clamping flange and thermal insulation
- 9 Vapour barrier
- 10 Concrete slab or trapezoidal sheet metal roof
- 11 LORO-X anchor clip
- 12 LORO-DRAINJET® compensating piece

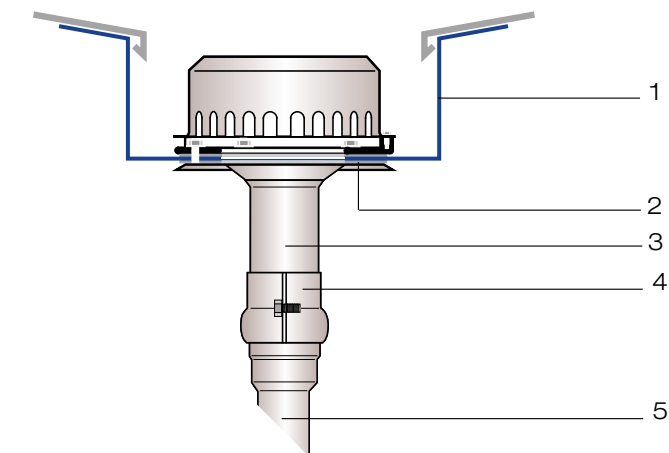
* Can be omitted when bituminous roof sealing sheets are used.



Example applications

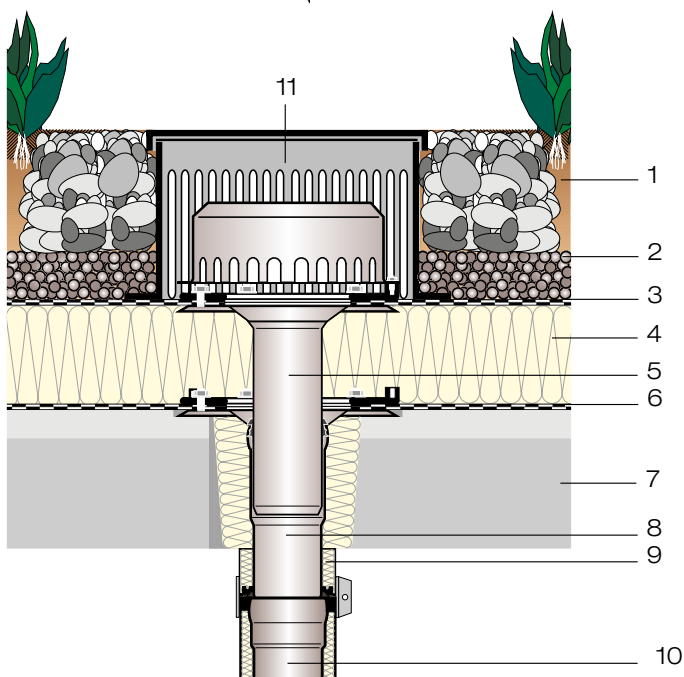
LORO-DRAINJET® siphonic drain, in uninsulated box gutter

- 1 Box gutter
- 2 Compression seal
- 3 LORO-DRAINJET® drain body
- 4 LORO-X anchor clip
- 5 LORO-DRAINJET® compensating piece



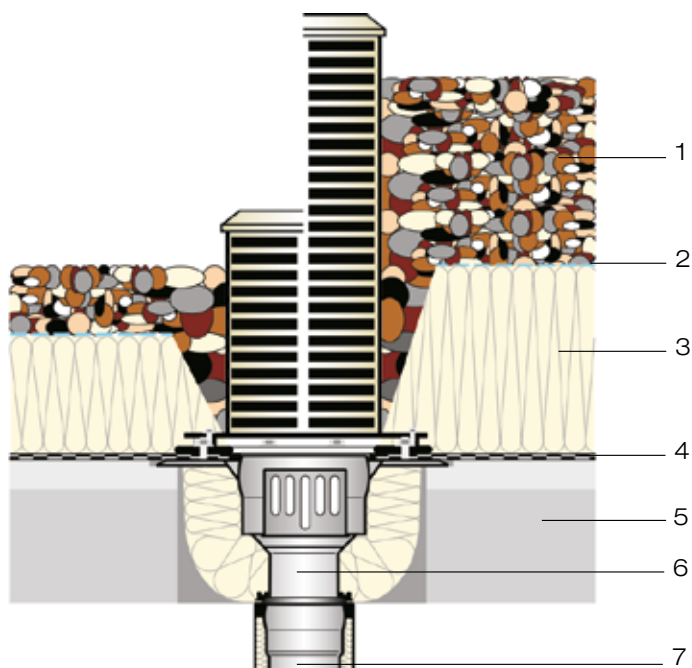
LORO-DRAINJET® siphonic drain, in concrete roof, insulated, with extensive roof planting

- 1 Layer of vegetation
- 2 Drainage layer
- 3 Root-resistant roof sealing sheet
- 4 Thermal insulation
- 5 LORO-DRAINJET® drain body with loose flange
- 6 Vapour barrier
- 7 Concrete slab
- 8 LORO-DRAINJET® bottom piece with loose flange and thermal insulation
- 9 Compound insulating piece
- 10 LORO compound pipe
- 11 LORO inspection shaft



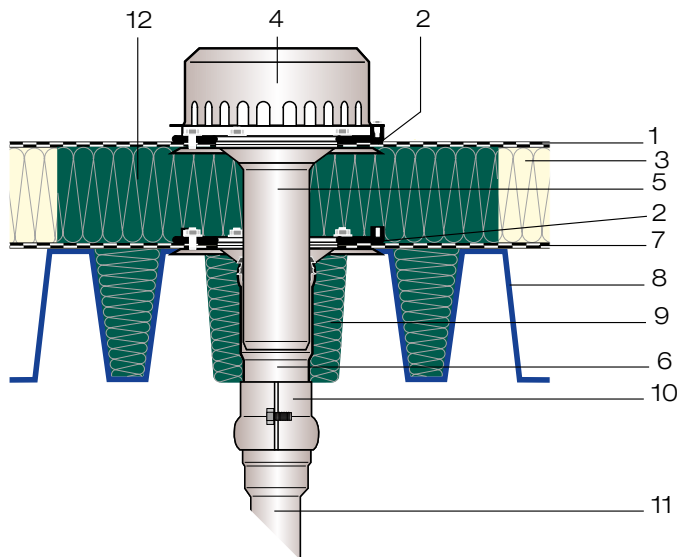
LORO-VERSAL® siphonic drains for inverted roofs, sheet metal roofs, insulated

- 1 Gravel layer
- 2 Separating layer
- 3 Thermal insulation
- 4 Sealing sheet
- 5 Concrete slab
- 6 LORO-VERSAL® siphonic drain, one-piece, consisting of: Base unit and strainer unit
- 7 LORO-compound pipe



Example applications

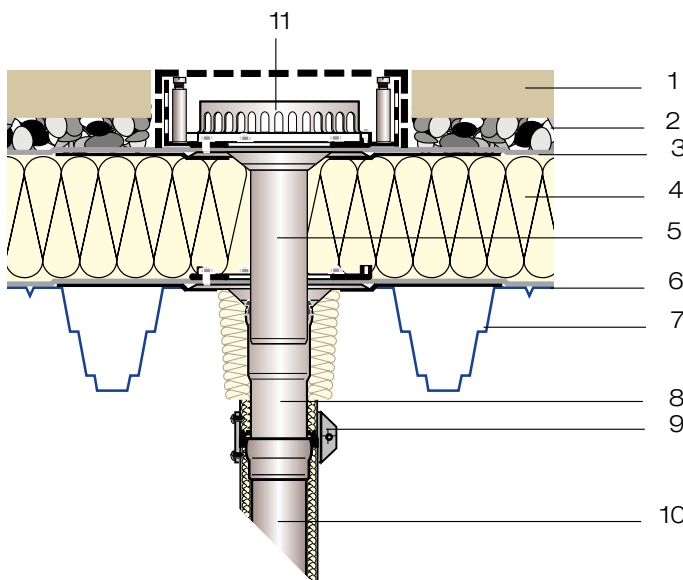
LORO-DRAINJET® flat roof drain, in trapezoidal sheet metal roof, insulated (Fire protection solution)



- 1 Sealing sheet
- 2 Compression seal*
- 3 Thermal insulation
- 4 LORO-DRAINJET® strainer
- 5 LORO-DRAINJET® drain body with loose flange
- 6 LORO-DRAINJET® bottom piece with loose flange and thermal insulation
- 7 Vapour barrier
- 8 Trapezoidal sheet metal roof
- 9 CONLIT thermal insulation, non-combustible
- 10 LORO-X anchor clip
- 11 LORO-DRAINJET® compensating piece
- 12 Thermal insulation partitioning

* Can be omitted when bituminous roof sealing sheets are used.

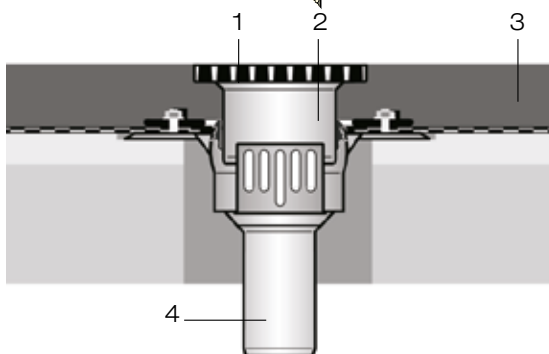
LORO-DRAINJET® siphonic drain with flat cover, in special version for attachment to the roof drain on site



- 1 Slab covering
- 2 Foundation bed
- 3 Sealing sheets
- 4 Thermal insulation
- 5 LORO-DRAINJET® drain body
- 6 Vapour barrier
- 7 Trapezoidal sheet metal roof
- 8 LORO-DRAINJET® bottom piece with clamping flange and thermal insulation
- 9 Compound insulating piece
- 10 LORO compound pipe
- 11 LORO-DRAINJET® flat cover

LORO rainwater drains for traffic areas, without trap

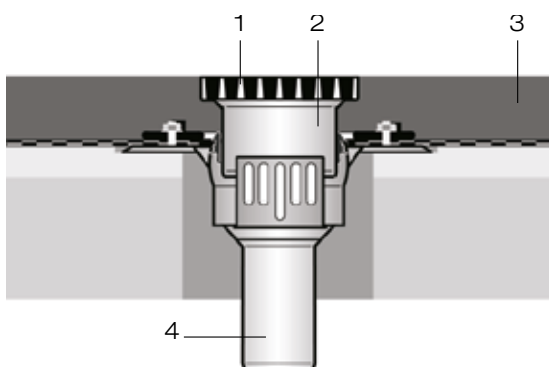
LORO-VERSAL® siphonic drains in combination with walkable cast strainers (please enquire at the LOROWERK factory)



- 1 Cast strainer, □187 mm, class L (1.5 t)
- 2 Strainer receptacle
- 3 Walkway /roadway paving
- 4 LORO-VERSAL® siphonic drain pot

LORO rainwater drains for traffic areas, without trap

LORO-VERSAL® siphonic drains in combination with driveable cast strainers (please enquire at the LOROWERK factory)

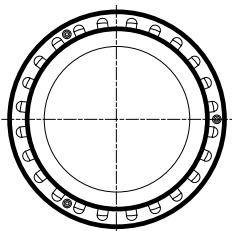
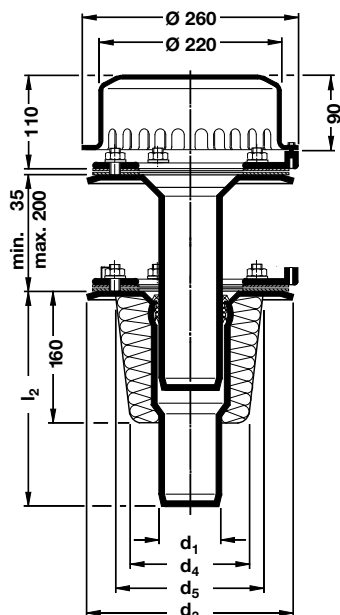
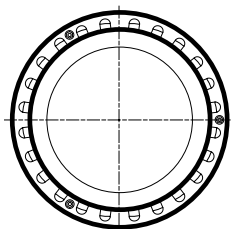
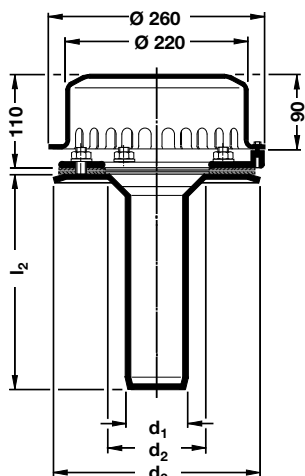


- 1 Cast strainer, □170 mm, class M (12.5 t)
- 2 Strainer receptacle
- 3 Walkway /roadway paving
- 4 LORO-VERSAL® siphonic drain pot

Maße und Gewichte

LORO-DRAINJET® DJ siphonic drains, DN 50 - DN 100, with clamping flange, made of stainless steel, meeting EN 125, series 49, Discharge capacity according to data sheet:

LX1175 DN 50 = 9,0 l/sec*
LX 845) = 18.8 l/sec*
LX 530 DN 100 = 27.0 l/sec*



Complete units, one-piece

Version a (without thermal insulation)

DN 50: [Item no. 21111.050X](#) Weight: 2,7 kg
 DN 70: [Item no. 21111.070X](#) Weight: 2,9 kg
 DN 100: [Item no. 21111.100X](#) Weight: 3,7 kg

consisting of:

Drain body, compression seal**, loose flange, drainjet cover

Version b (with thermal insulation)

DN 50: [Item no. 21112.050X](#) Weight: 2,4 kg
 DN 70: [Item no. 21112.070X](#) Weight: 3,0 kg
 DN 100: [Item no. 21112.100X](#) Weight: 3,8 kg

consisting of:

Drain body with thermal insulation, compression seal**, loose flange, drainjet cover

Version c (with thermal insulation and heating)

DN 50: [Item no. 21113.050X](#) Weight: 2,7 kg
 DN 70: [Item no. 21113.070X](#) Weight: 3,1 kg
 DN 100: [Item no. 21113.100X](#) Weight: 3,9 kg

consisting of:

Drain body with thermal insulation and heating, compression seal**, loose flange, drainjet cover

Complete units, two-piece

Version a (without thermal insulation)

DN 50: [Item no. 21121.050X](#) Weight: 3,6 kg
 DN 70: [Item no. 21121.070X](#) Weight: 4,7 kg
 DN 100: [Item no. 21121.100X](#) Weight: 5,5 kg

consisting of:

Drain body, compression seal*, loose flange, drainjet cover, bottom piece, compression seal**, loose flange, sealing element

Version b (with thermal insulation)

DN 50: [Item no. 21122.050X](#) Weight: 3,7 kg
 DN 70: [Item no. 21122.070X](#) Weight: 4,8 kg
 DN 100: [Item no. 21122.100X](#) Weight: 5,6 kg

consisting of:

Drain body, compression seal*, loose flange, drainjet cover, bottom piece with thermal insulation, compression seal**, loose flange, sealing element

Version c (with thermal insulation and heating)

DN 50: [Item no. 21123.070X](#) Weight: 3,9 kg
 DN 70: [Item no. 21123.070X](#) Weight: 4,8 kg
 DN 100: [Item no. 21123.100X](#) Weight: 6,0 kg

consisting of:

Drain body, compression seal**, loose flange, drainjet cover, bottom piece with thermal insulation and heating, compression seal*, loose flange, sealing element

| DN | d ₁ | d ₂ | d ₃ | d ₄ | d ₅ | l ₂ |
|-----|----------------|----------------|----------------|----------------|----------------|----------------|
| 50 | 53 | 125 | 245 | 130 | 150 | 260 |
| 70 | 73 | 125 | 245 | 130 | 150 | 260 |
| 100 | 102 | 145 | 300 | 160 | 190 | 270 |

* According to the test assembly of EN 1253

** Can be omitted with bituminous sealing sheets.

Dimensions and weights

LORO-DRAINJET® DJ siphonic drains, as emergency drains, series 49 DN 50 - DN 100, with clamping flange, made of stainless steel, meeting EN 1253, Discharge capacity according to data sheet:

DN 50 = 9,0 l/sec*

LX1340 DN 70 = 19.4 l/sec*

LX 847 DN 100 = 38.0 l/sec*

LX 542

Complete units, one-piece

Version a (without thermal insulation)

DN 50: [Item no. 21311.050X](#) Weight: 2,6 kg

DN 70: [Item no. 21311.070X](#) Weight: 3.1 kg

DN 100: [Item no. 21311.100X](#) Weight: 3.9 kg

consisting of:

Drain body, compression seals**, loose flange with weir element, drainjet cover

Version b (with thermal insulation)

DN 50: [Item no. 21312.050X](#) Weight: 2,7 kg

DN 70: [Item no. 21312.070X](#) Weight: 3.2 kg

DN 100: [Item no. 21312.100X](#) Weight: 4.0 kg

consisting of:

Drain body with thermal insulation, compression seals**, loose flange with weir element, drainjet cover

Version c (with thermal insulation and heating)

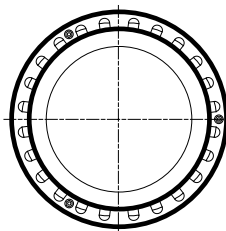
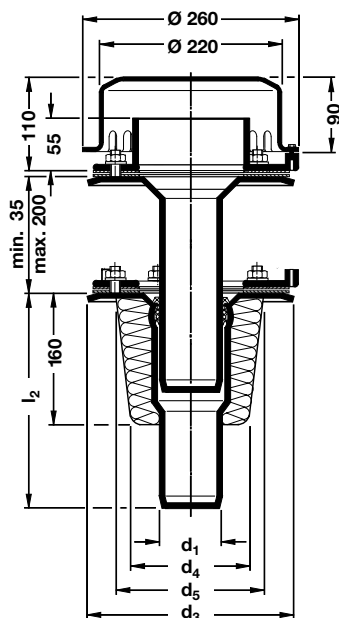
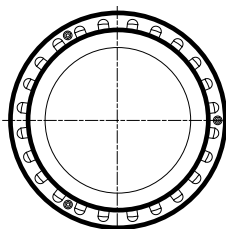
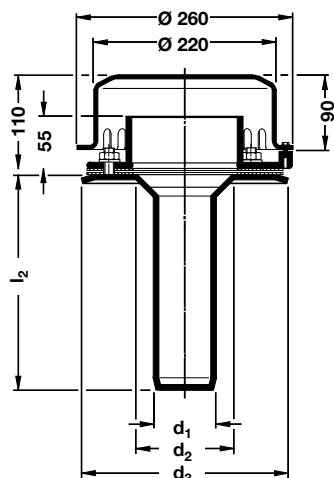
DN 50: [Item no. 21313.050X](#) Weight: 2,9 kg

DN 70: [Item no. 21313.070X](#) Weight: 3.3 kg

DN 100: [Item no. 21313.100X](#) Weight: 4.1 kg

consisting of:

Drain body with thermal insulation and heating, compression seals*, loose flange with weir element, drainjet cover



Complete units, two-piece

Version a (without thermal insulation)

DN 50: [Item no. 21321.050X](#) Weight: 4,3 kg

DN 70: [Item no. 21321.070X](#) Weight: 5.1 kg

DN 100: [Item no. 21321.100X](#) Weight: 5.9 kg

consisting of:

Drain body, compression seal**, loose flange with weir element, drainjet cover, bottom piece, compression seal*, loose flange, sealing element

Version b (with thermal insulation)

DN 50: [Item no. 21322.050X](#) Weight: 4,4 kg

DN 70: [Item no. 21322.070X](#) Weight: 5.2 kg

DN 100: [Item no. 21322.100X](#) Weight: 6.0 kg

consisting of:

Drain body with thermal insulation, compression seal**, loose flange with weir element, drainjet cover, bottom piece with thermal insulation, compression seal*, loose flange, sealing element

Version c (with thermal insulation and heating)

DN 50: [Item no. 21323.050X](#) Weight: 4,6 kg

DN 70: [Item no. 21323.070X](#) Weight: 5.3 kg

DN 100: [Item no. 21323.100X](#) Weight: 6.1 kg

consisting of:

Drain body, compression seal**, loose flange with weir element, drainjet cover, bottom piece with thermal insulation and heating, compression seal**, loose flange, sealing element

| DN | d ₁ | d ₂ | d ₃ | d ₄ | d ₅ | l ₂ |
|-----|----------------|----------------|----------------|----------------|----------------|----------------|
| 50 | 53 | 125 | 245 | 130 | 150 | 260 |
| 70 | 73 | 125 | 245 | 130 | 150 | 260 |
| 100 | 102 | 145 | 300 | 160 | 190 | 270 |

* According to the test assembly of EN 1253

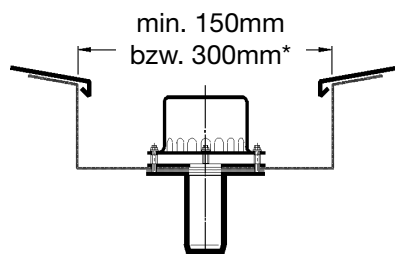
** Can be omitted with bituminous sealing sheets.



LORO-X DRAINJET®-Mini Box-gutter DN 50

for main drainage and Emergency drainage

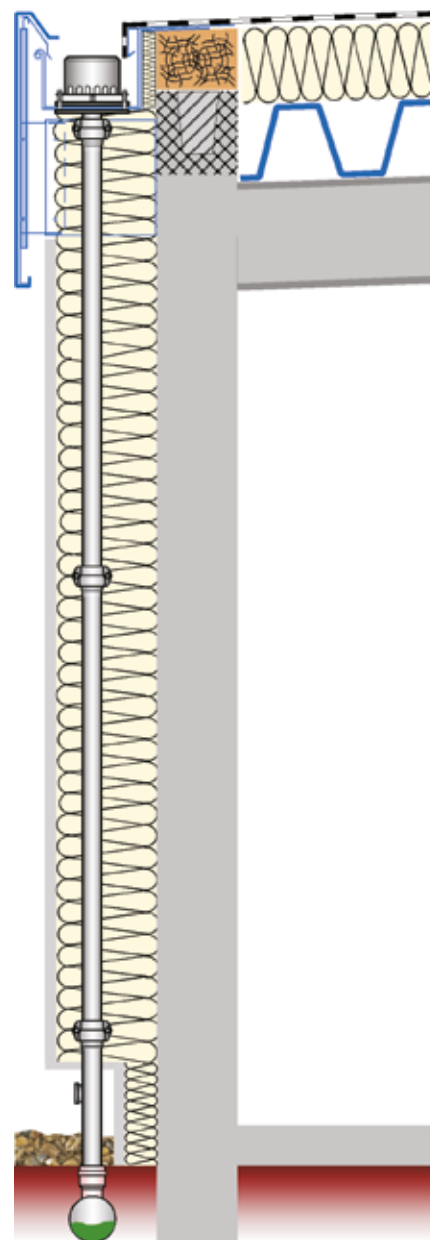
| Main drainage | Emergency drainage | Main drainage | Emergency drainage |
|----------------------|----------------------|----------------------|----------------------|
| Gravity flow | Gravity flow | Siphonic flow | Siphonic flow |
| Silent Power | Silent Power | Silent Power | Silent Power |
| Discharge: 2,7 l/sec | Discharge: 7,5 l/sec | Discharge: 8,5 l/sec | Discharge: 8,0 l/sec |
| Weir height: 0 mm | Weir height: 40 mm | Weir height: 0 mm | Weir height: 60 mm |
| Water height: 35 mm | Water height: 75 mm | Water height: 55 mm | Water height: 75 mm |



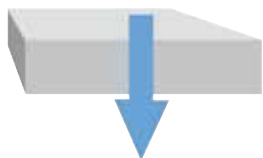
* depending on the design of the gutter size

Advantages:




- for curtain-type and box gutters
- high discharge capacity up to 9,0 l/sec
- space-saving: DN50 = only half of the nominal diameter, but twice the performance of a standard DN100 solution
- unbreakable and shockproof
- downpipe behind facade as a back pressure safe and pressure-resistant complete system
- convenient clamping flange „ without soldering or welding“ for all metallic gutters



LORO news 122

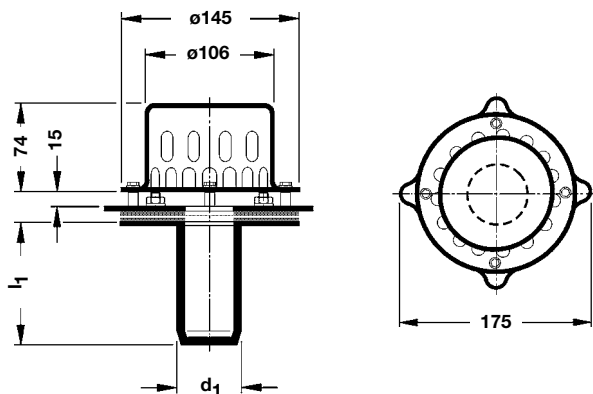


Series 49 DRAINLET® Mini

| | Main drainage | | Emergency drainage | | |
|--|---|---------------|---|---------------|---------------|
| | Gravity flow | | Gravity flow | | |
| | Silent Power | | | | |
|  Channel |  21118.050X 21118.070X with clamping flange | |  21119.050X 21119.070X with clamping flange | | |
| Channel width (mm) | 150 | 150 | 300 | 150 | 150 |
| DN | 50 | 70 | 50 | 50 | 70 |
| Water height (mm) | 35 | 35 | 75 | 75 | 75 |
| Weir height (mm) | 0 | 0 | 40 | 40 | 40 |
| LX-No. | LX1391 | LX3045 | LX1393 | LX1493 | LX3047 |
| Discharge Q (l/sec) | | | | | |
| | 2,7 l/s* | | 7,5 l/s* | | |
| | 2,5 l/s* | | 6,9 l/s* | | |
| | | | 6,0 l/s* | | |
| | | | | | |

* Discharge capacity in keeping with test specification according to DIN EN 1253, downpipe length 4,2 m

Dimensions and weights



LORO-DRAINLET® Mini, series 49

made of stainless steel, DN 50 and DN 70, according to DIN EN 1253 Box gutter with gravity flow from channel width 150 mm

Complete units

DN 50: [Item no. 21118.050X](#)

Weight: 1,2 kg

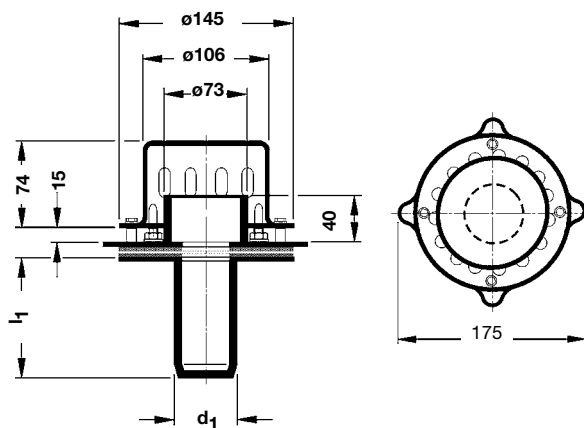
DN 70: [Item no. 21118.070X](#)

Weight: 1,2 kg

consisting of:

Drain body, compression seal**, loose flange, drainlet mini cover

| DN | d ₁ | l ₁ |
|----|----------------|----------------|
| 50 | 53 | 103 |
| 70 | 73 | 100 |



LORO-DRAINLET® Mini, emergency drain, serie 49

made of stainless steel, DN 50 and DN 70, according to DIN EN 1253 Box gutter with gravity flow from channel width 150 mm

Complete units

DN 50: [Item no. 21119.050X](#)

Weight: 1,3 kg

DN 70: [Item no. 21119.070X](#)

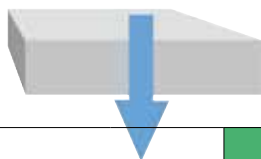
Weight: 1,3 kg

consisting of:




Drain body, compression seal**, loose flange with weir element, drainlet mini cover

| DN | d ₁ | l ₁ |
|----|----------------|----------------|
| 50 | 53 | 103 |
| 70 | 73 | 100 |

Overview:

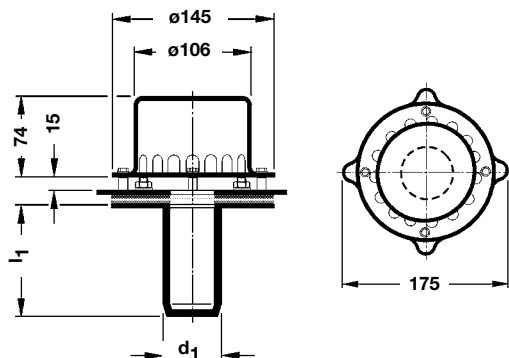


Series 49 DRAINJET® Mini

| | Main drainage | | | Emergency drainage | | | |
|--|---|----------|----------|---|----------|-----------|-----------|
| | Siphonic flow | | | Siphonic flow | | | |
| | Silent Power | | | | | | |
|  Channel |  21116.050X 21116.070X with clamping flange | | |  60 mm weir height 21117.050X 21117.070X 80 mm weir height 21120.070X with clamping flange | | | |
| Channel width(mm) | 150 | 300 | 150 | 150 | 300 | 150 | 150 |
| DN | 50 | 50 | 70 | 50 | 50 | 70 | 70 |
| Water heigh (mm) | 55 | 55 | 55 | 75 | 75 | 95 | 95 |
| Weir height(mm) | 0 | 0 | 0 | 60 | 60 | 60 | 80 |
| LX-No. | LX1490 | LX1392 | LX3044 | LX1491 | LX1394 | LX3046 | LX2070 |
| Discharge Q (l/sec) | 5,5 l/s* | 8,5 l/s* | 5,7 l/s* | 8,0 l/s* | 8,0 l/s* | 13,2 l/s* | 12,4 l/s* |

* Discharge capacity in keeping with test specification according to DIN EN 1253, downpipe length 4,2 m

Dimensions and weights



LORO-DRAINJET® Mini, series 49

made of stainless steel, DN 50 and DN 70, according to DIN EN 1253 Box gutter with siphonic flow from channel width 150 mm

Complet units

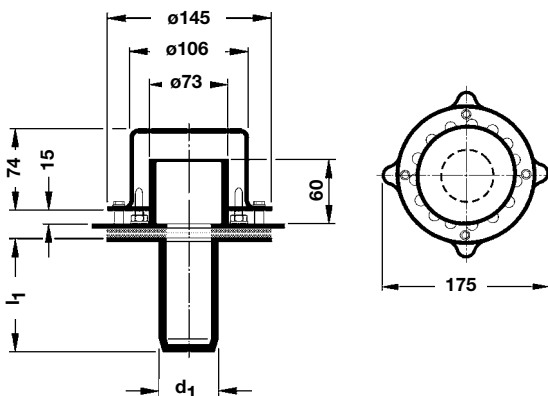
DN 50: [Item no. 21116.050X](#)
 DN 70: [Item no. 21116.070X](#)

Weight: 1,2 kg
 Weight: 1,2 kg

consisting of:

Drain body, compression seal**, loose flange, drainjet mini cover

| DN | d ₁ | l ₁ |
|----|----------------|----------------|
| 50 | 53 | 103 |
| 70 | 73 | 100 |



LORO-DRAINJET® Mini,

emergency drainage, series 49

made of stainless steel, DN 50 and DN 70, according to DIN EN 1253 Box gutter with siphonic flow from channel width 150 mm, weir height 60 mm

Complet units

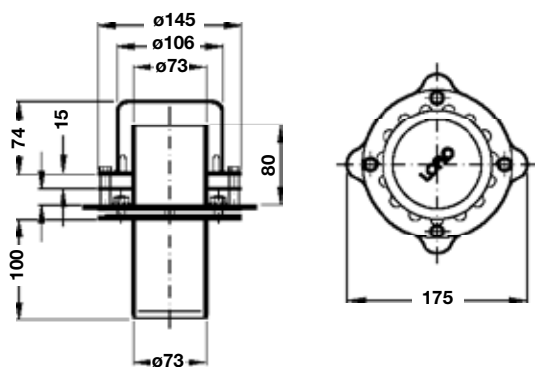
DN 50: [Item no. 21117.050X](#)
 DN 70: [Item no. 21117.070X](#)

Weight: 1,3 kg
 Weight: 1,3 kg

consisting of:

Drain body, compression seal**, loose flange with weir element, drainjet mini cover,

| DN | d ₁ | l ₁ |
|----|----------------|----------------|
| 50 | 53 | 103 |
| 70 | 73 | 100 |



LORO-DRAINJET® Mini,

emergency drainage, series 49

made of stainless steel, DN 70, according to DIN EN 1253 Box gutter with siphonic flow from channel width 150 mm, weir height 80 mm

Complet units

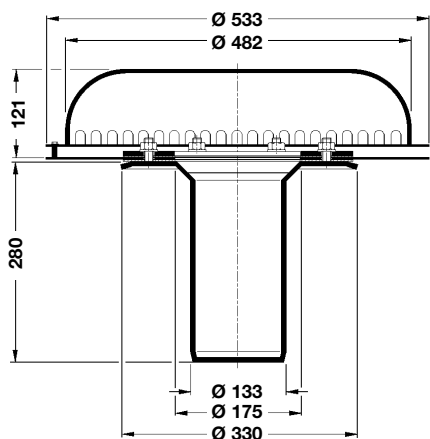
DN 50: [Item no. 21120.050X](#)

Weight: 1,5 kg

consisting of:

Drain body, compression seal**, loose flange with weir element, drainjet mini cover,

Dimensions and weights



LORO-DRAINJET® DJ siphonic drains, DN 125, with clamping flange, series 49 made of stainless steel, meeting EN 1253
Discharge capacity according to data sheet:
DN 125 = 50,0 l/sec*

LX 948

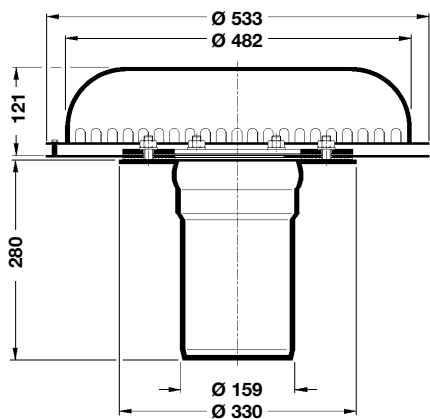
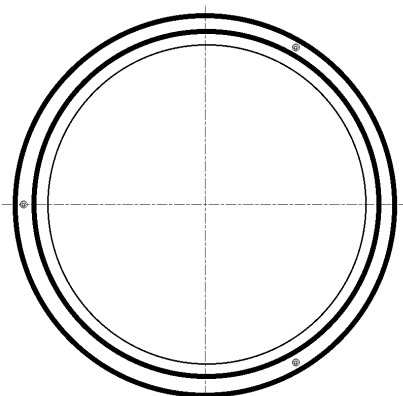
Complete units, one-piece without thermal insulation

DN 125: [Item no. 21111.125X](#)

Weight: 11,1 kg

consisting of:

Drain body, compression seal**, loose flange, baseplate, suction cover



LORO-DRAINJET® DJ siphonic drains, DN 150, with clamping flange, series 49 made of stainless steel, meeting EN 1253
Discharge capacity according to data sheet:
DN 150 = 50,0 l/sec*

LX 960

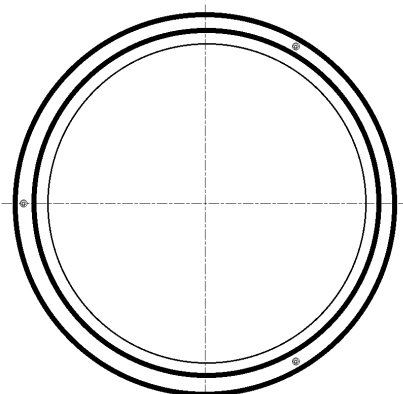
Complete units, one-piece without thermal insulation

DN 150: [Item no. 21111.150X](#)

Gewicht: 13,5 kg

consisting of:

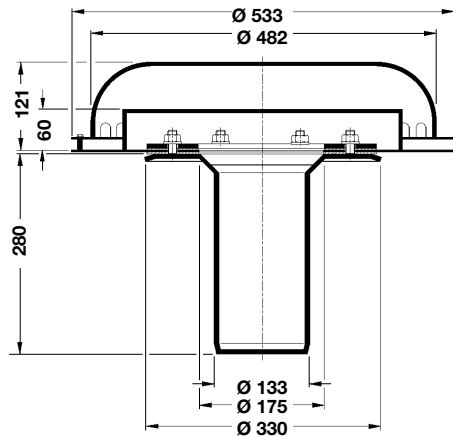
Drain body, compression seal**, loose flange, baseplate, suction cover



* According to the test assembly of EN 1253

** Can be omitted with bituminous sealing sheets.

Dimensions and weights



LORO-DRAINJET® DJ siphonic drains, as emergency drains, series 49, DN 125, with clamping flange, made of stainless steel, meeting EN 1253
 Discharge capacity according to data sheet:

LX 947 DN 125 = 92,0 l/sec*

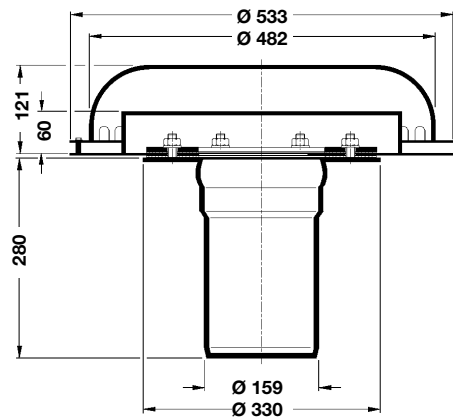
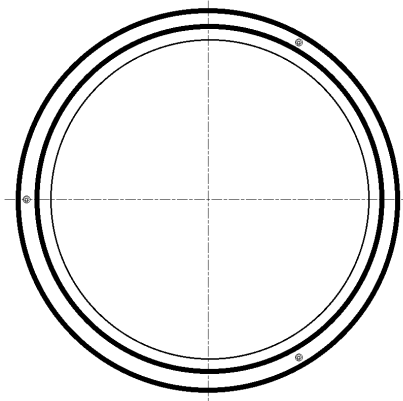
Complete units, one-piece without thermal insulation

DN 125: [Item no. 21311.125X](#)

Weight: 12,0 kg

consisting of:

Drain body, compression seal**, loose flange, baseplate, weir basin, suction cover



LORO-DRAINJET® DJ siphonic drains, as emergency drains, series 49, DN 150, with clamping flange, made of stainless steel, meeting EN 1253
 Discharge capacity according to data sheet:

LX 961 DN 150 = 94,4 l/sec*

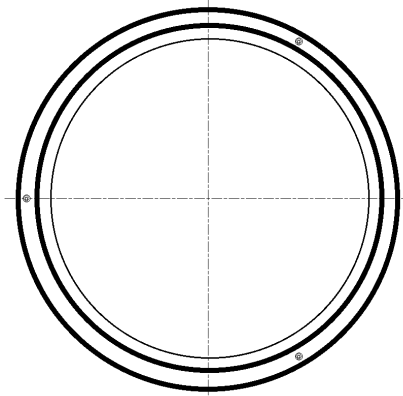
Complete units, one-piece without thermal insulation

DN 150: [Item no. 21311.150X](#)

Weight: 14,5 kg

consisting of:

Drain body, compression seal**, loose flange, baseplate, weir basin, suction cover



* According to the test assembly of EN 1253

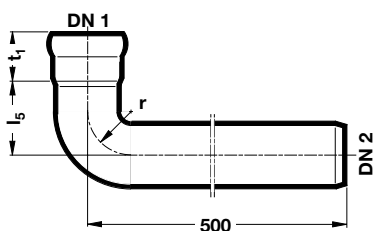
** Can be omitted with bituminous sealing sheets.

Dimensions and weights

Special parts for pressure flow

LORO-DRAINJET® connecting bend

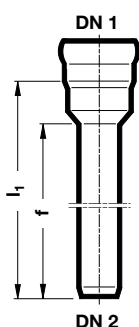
Steel, hot-dip galvanised, with additional internal coating



| Art.-Nr. | DN 1 | DN 2 | l ₅ | t ₁ | r | kg |
|------------|------|------|----------------|----------------|------|-----|
| 05042.CA0X | 70 | 40 | 85 | 55 | 26,0 | 1,3 |
| 05042.CB0X | 70 | 50 | 85 | 55 | 36,5 | 1,4 |
| 05042.CC0X | 70 | 70 | 85 | 55 | 50,0 | 2,0 |
| 05042.DC0X | 100 | 70 | 75 | 70 | 50,0 | 2,3 |
| 05042.DM0X | 100 | 80 | 75 | 70 | 60,0 | 2,4 |
| 05042.DD0X | 100 | 100 | 85 | 70 | 70,0 | 3,0 |

LORO-DRAINJET® connecting pieces

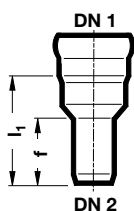
Steel, hot-dip galvanised, with additional internal coating



| Art.-Nr. | DN 1 | DN 2 | l ₁ | f | kg |
|------------|------|------|----------------|-----|-----|
| 05043.CA0X | 70 | 40 | 250 | 195 | 0,7 |
| 05043.CB0X | 70 | 50 | 250 | 200 | 0,7 |
| 05043.DC0X | 100 | 70 | 240 | 200 | 1,1 |
| 05043.DM0X | 100 | 80 | 240 | 210 | 1,3 |

LORO-DRAINJET® compensating pieces

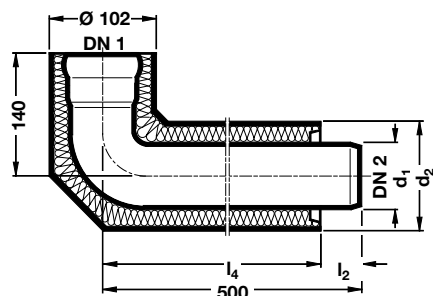
Steel, hot-dip galvanised, with additional internal coating



| Art.-Nr. | DN 1 | DN 2 | l ₁ | f | kg |
|------------|------|------|----------------|-----|-----|
| 19602.BA0X | 50 | 40 | 94 | 75 | 0,2 |
| 19602.CB0X | 70 | 50 | 118 | 80 | 0,4 |
| 19602.MB0X | 80 | 50 | 134 | 80 | 0,5 |
| 19602.MC0X | 80 | 70 | 135 | 100 | 0,7 |
| 19602.DB0X | 100 | 50 | 125 | 80 | 0,8 |
| 19602.DC0X | 100 | 70 | 140 | 100 | 0,8 |
| 19602.DM0X | 100 | 80 | 140 | 110 | 1,0 |
| 19602.ED0X | 125 | 100 | 185 | 120 | 1,8 |
| 19602.FE0X | 150 | 125 | 205 | 130 | 2,5 |
| 19602.GF0X | 200 | 150 | 196 | 130 | 4,2 |

LORO-DRAINJET® compound pipe connecting bend

Steel, hot-dip galvanised, with additional internal coating



| Art.-Nr. | DN 1 | DN 2 | d ₁ | d ₂ | l ₂ | l ₄ | kg |
|------------|------|------|----------------|----------------|----------------|----------------|-----|
| 58042.CA0X | 70 | 40 | 42 | 89 | 25 | 475 | 3,8 |
| 58042.CB0X | 70 | 50 | 53 | 89 | 30 | 470 | 3,9 |
| 58042.CC0X | 70 | 70 | 73 | 102 | 45 | 455 | 5,5 |

You will find all the pipes and pipe fittings from the standard range necessary to lay the lines in the brochure: LORO-X steel discharge pipes.

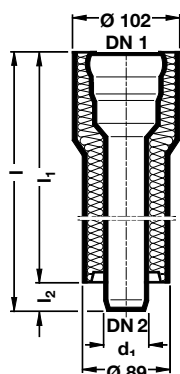
Dimensions and weights

Special parts for pressure flow

LORO-DRAINJET® compound pipe connecting pieces

Steel, hot-dip galvanised, with additional internal coating

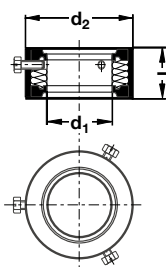
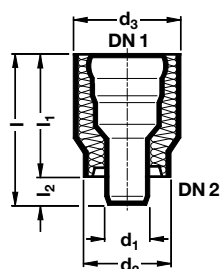
| Art.-Nr. | DN 1 | DN 2 | d ₁ | l | l ₁ | l ₂ | kg |
|------------|------|------|----------------|-----|----------------|----------------|-----|
| 58043.CL0X | 70 | 32 | 32 | 305 | 285 | 20 | 0,6 |
| 58043.CA0X | 70 | 40 | 42 | 305 | 280 | 25 | 0,7 |
| 58042.CB0X | 70 | 50 | 53 | 305 | 275 | 30 | 0,8 |



LORO-DRAINJET® compound pipe compensating pieces

Steel, hot-dip galvanised, with additional internal coating

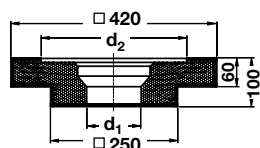
| Art.-Nr. | DN 1 | DN 2 | d ₁ | d ₂ | d ₃ | l | l ₁ | l ₂ | kg |
|------------|------|------|----------------|----------------|----------------|-----|----------------|----------------|-----|
| 58602.AL0X | 40 | 32 | 32 | 89 | 89 | 110 | 90 | 20 | 0,5 |
| 58602.BA0X | 50 | 40 | 42 | 89 | 89 | 132 | 107 | 25 | 0,8 |
| 58602.CB0X | 70 | 50 | 53 | 89 | 102 | 168 | 138 | 30 | 1,2 |
| 58602.MB0X | 80 | 50 | 53 | 89 | 133 | 178 | 148 | 30 | 1,4 |
| 58602.MC0X | 80 | 70 | 73 | 102 | 133 | 195 | 150 | 45 | 1,5 |
| 58602.DB0X | 100 | 50 | 53 | 89 | 133 | 195 | 165 | 30 | 2,5 |
| 58602.DC0X | 100 | 70 | 73 | 102 | 133 | 210 | 165 | 45 | 2,6 |
| 58602.DM0X | 100 | 80 | 89 | 133 | 133 | 210 | 160 | 50 | 2,8 |
| 58602.ED0X | 125 | 100 | 102 | 133 | 168 | 260 | 200 | 60 | 4,0 |
| 58602.FE0X | 150 | 125 | 133 | 168 | 229 | 285 | 225 | 60 | 6,0 |



LORO-DRAINJET® compound insulating piece

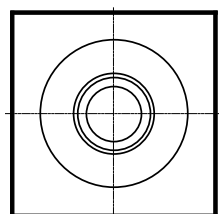
Steel, hot-dip galvanised, with additional internal coating

| Art.-Nr. | DN | d ₁ | d ₂ | l | kg |
|------------|-----|----------------|----------------|----|-----|
| 19974.070X | 70 | 73 | 102 | 57 | 0,2 |
| 19974.100X | 100 | 102 | 133 | 47 | 0,3 |



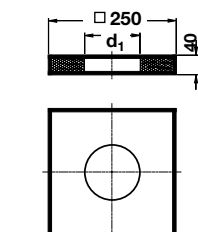
LORO-DRAINJET® thermal insulation, of foam glass, non-combustible

| Art.-Nr. | DN | d ₁ | d ₂ | kg |
|------------|-----|----------------|----------------|-----|
| 19845.070X | 70 | 80 | 247 | 0,4 |
| 19845.100X | 100 | 112 | 303 | 0,6 |



LORO-DRAINJET® compensating piece, of foam glass, non-combustible

| Art.-Nr. | DN | d ₁ | kg |
|------------|-----|----------------|-----|
| 19844.070X | 70 | 80 | 0,2 |
| 19844.100X | 100 | 112 | 0,3 |



You will find all the pipes and pipe fittings from the standard range necessary to lay the lines in the brochure: LORO-X steel discharge pipes.

Dimensions and weights

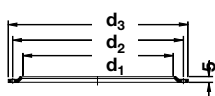
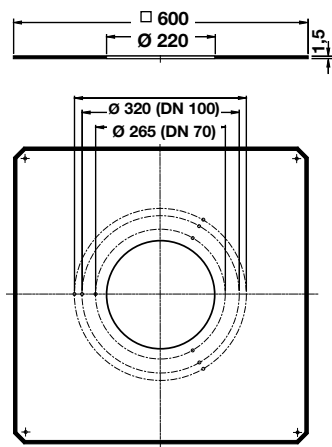
Special parts

LORO-DRAINJET® reinforcing metal sheet

made of steel, hot-dip galvanised
for fitting into trapezoidal sheet metal roofs

Item no. 19975.000X

Weight: 3.9 kg



LORO-DRAINJET® fastening flange

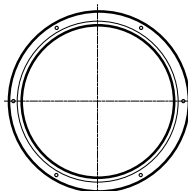
made of steel, hot-dip galvanised

DN 70: [Item no. 21910.070X](#)

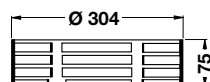
Weight: 0.2 kg

DN 100: [Item no. 21910.100X](#)

Weight: 0.3 kg



| DN | d ₁ | d ₂ | d ₃ |
|-----|----------------|----------------|----------------|
| 70 | 237 | 265 | 285 |
| 100 | 292 | 320 | 340 |

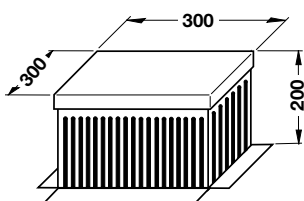
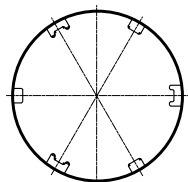


Gravel basket for LORO-DRAINJET® roof drains

made of stainless steel, material no. 1.4571

Item no. 19979.000X

Weight: 0.5 kg

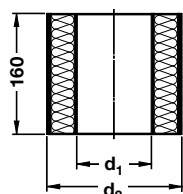


Inspection shaft for LORO-DRAINJET® roof drains

made of aluminium

Item no. 19973.000X

Weight: 4.1 kg



Thermal insulation, non-combustible

The thermal insulation is factory-fitted to the LORO-DRAINJET® flat roof drains, without thermal insulation (version a)

| Art.-Nr. | DN | d ₁ | d ₂ | kg |
|----------------------------|-----|----------------|----------------|-----|
| 19995.070X | 70 | 73 | 150 | 0,2 |
| 19995.100X | 100 | 102 | 180 | 0,3 |



Heating tape cable for LORO drains

Item no. 19853.000X

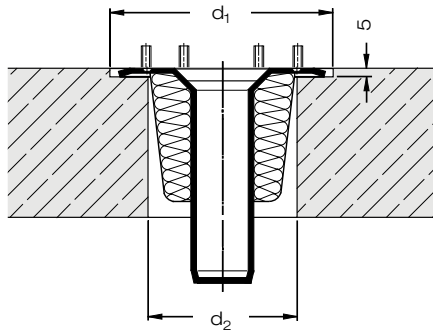
Weight: 0.3 kg

Cut-out dimensions

LORO-DRAINJET® siphonic drains DN 50, DN 70 and DN 100 in flat concrete roofs

Core hole, single stage

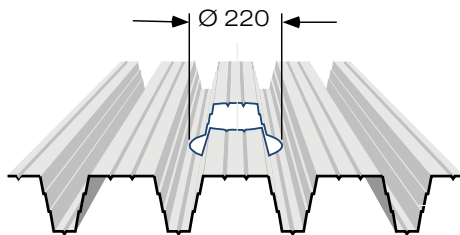
for LORO-DRAINJET® drain body
and LORO-DRAINJET® bottom piece



| DN | d ₁ | d ₂ |
|-----|----------------|----------------|
| 50 | 260 | 122 / 158* |
| 70 | 260 | 122 / 158* |
| 100 | 320 | 142 / 200* |

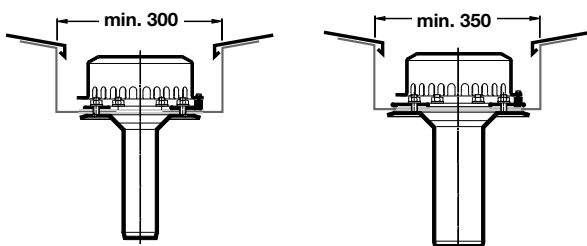
* Core hole for LORO-DRAINJET® bottom piece with thermal insulation (two-piece version).

Prepare and attach a lower shuttering panel for filling. Lift the drain a little and fill. Return the drain to its position.



LORO-DRAINJET® siphonic drains DN 50, DN 70 and DN 100 for fitting into trapezoidal sheet metal roofs

- for LORO-DRAINJET® drain body with clamping flange,
- for LORO-DRAINJET® bottom piece with clamping flange

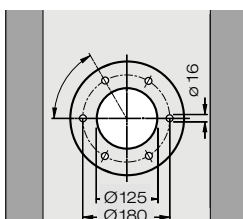


LORO-DRAINJET® siphonic drains, DN 50, DN 70 and DN 100, for fitting into box gutters

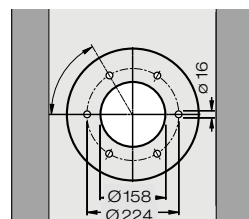
- Make holes (diameter 16 mm) according to the pattern in the box gutter. The loose flange can be used as a template for the holes.

When assembling the drain, make sure that the threaded bolts are located in the centre of the pre-drilled holes.

Note: Longitudinal expansion of the gutter must be taken appropriately into account.



DN 50/DN 70

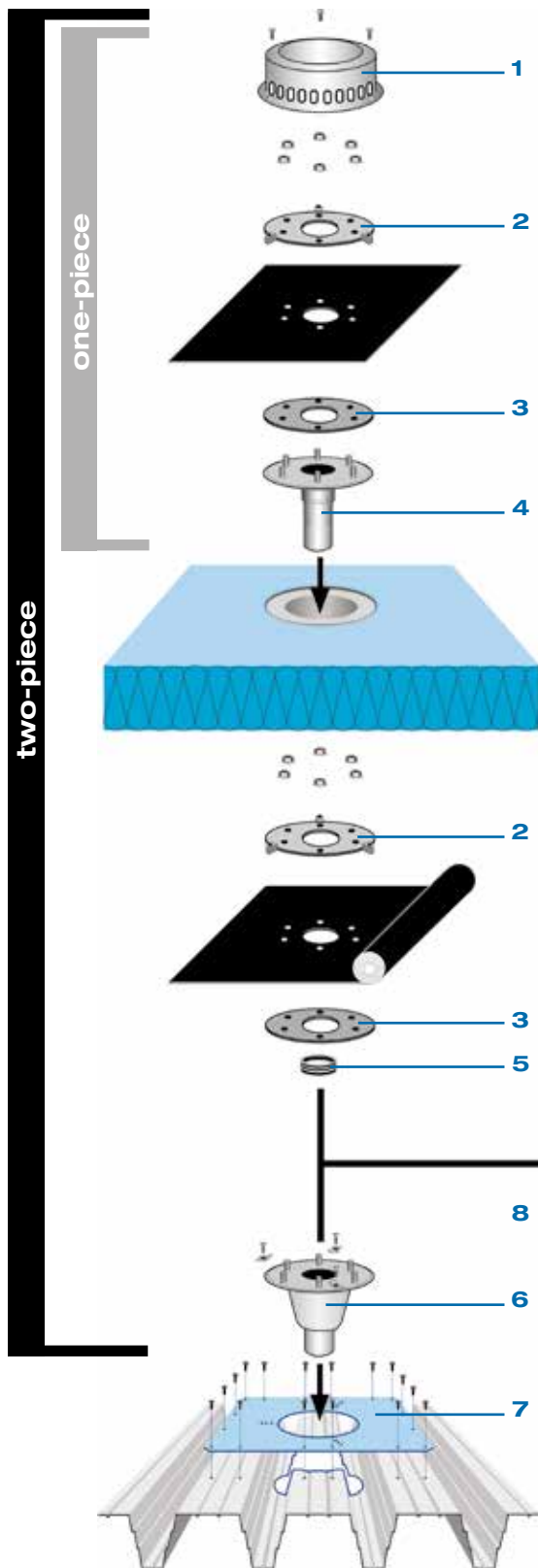


DN 100

Assembly Instructions

for fitting into trapezoidal sheet metal or concrete roofs

for fitting into gutters



1 DRAINJET® cover
with 3 fastening screws

2 Loose flange
with 6 hexagonal nuts M 10 (tightened to 20 Nm for bituminous roof sealing sheets, or 30 Nm on plastic roof sealing sheets)

3 Compression seals*

4 DRAINJET® drain body

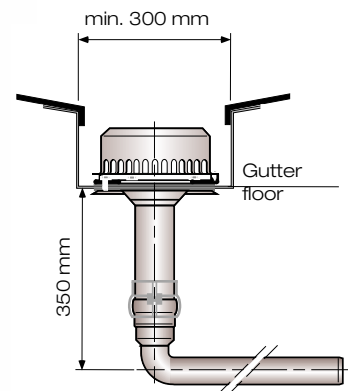
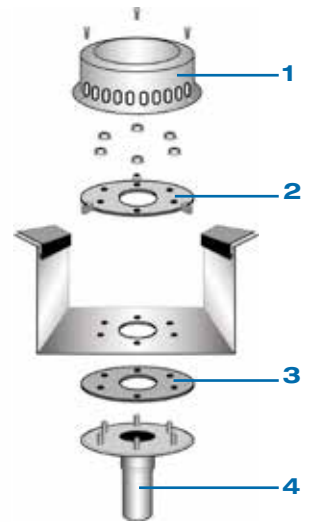
5 Sealing element

6 DRAINJET® bottom piece

7 Reinforcing metal sheet
with 3 self-tapping screws and 3 fastening clips

8 Fastening flange

*Can be omitted when using bituminous roof sealing sheets.

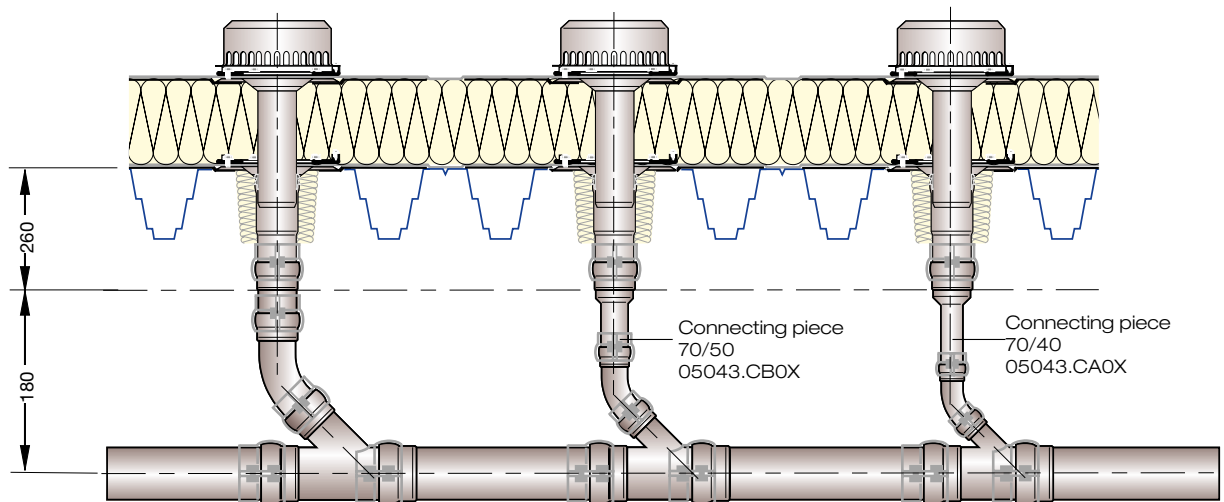


Cut-out
on trapezoidal sheet metal roofs

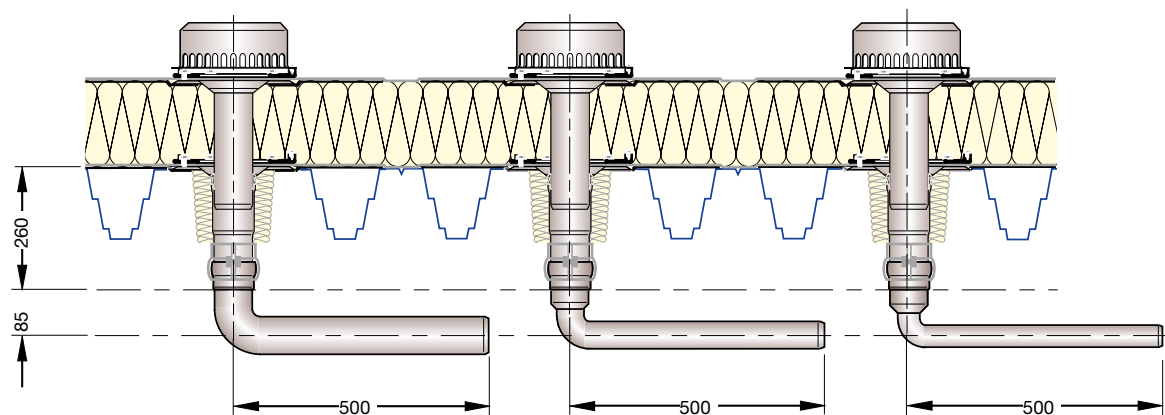
on concrete roofs

Installation examples

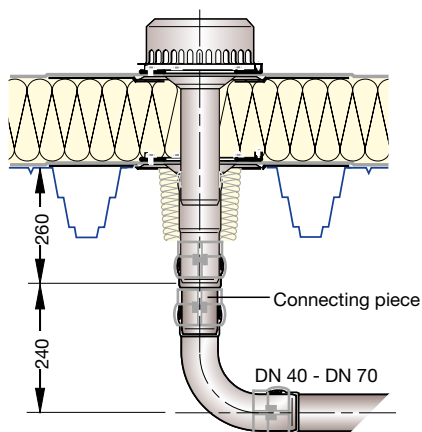
Use of branches with vertical connection



Use of connecting bends with side connection

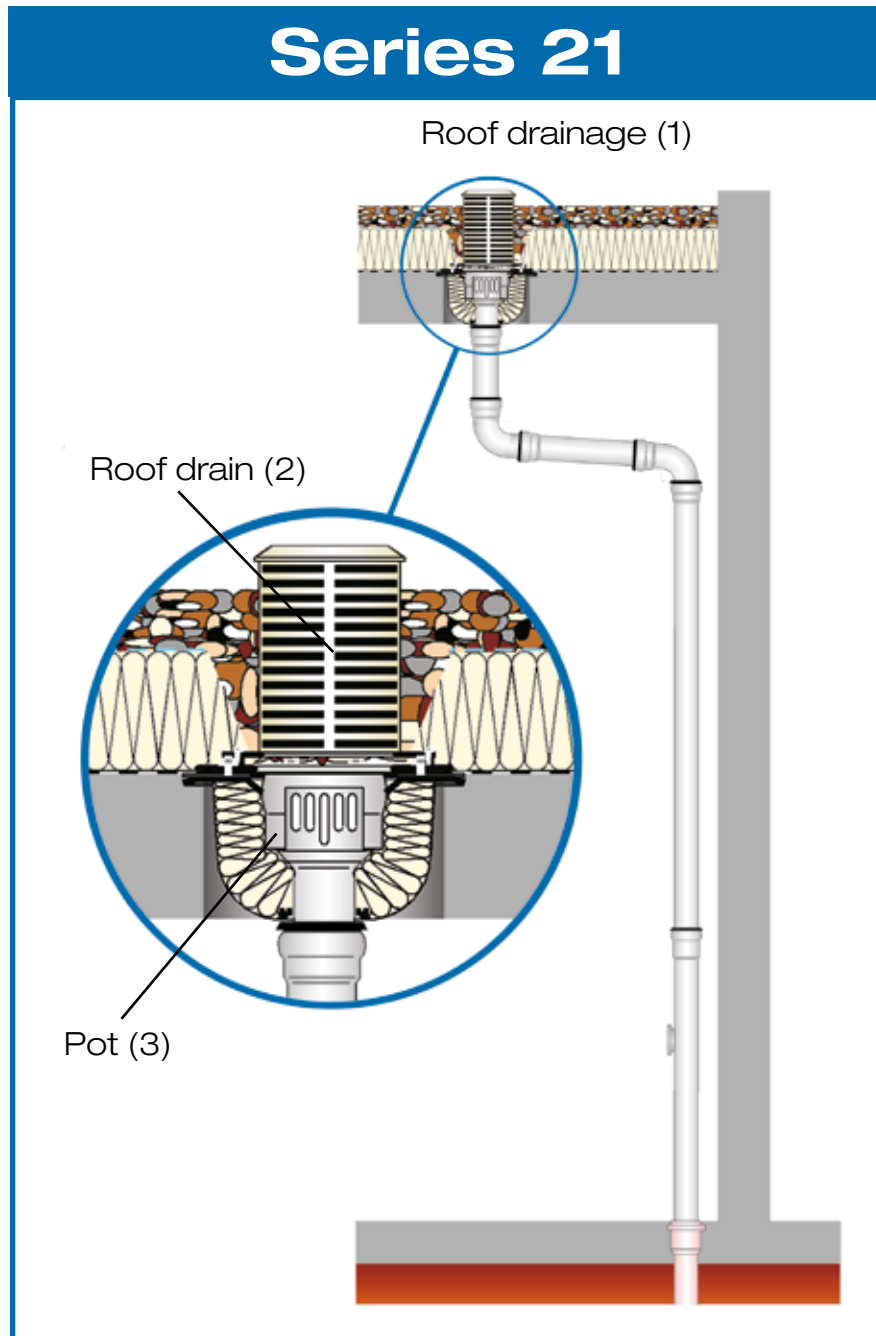


Minimum fitting heights for LORO-DRAINJET® siphonic drains in combination with LORO-X steel discharge pipe bends 87°



Series 21

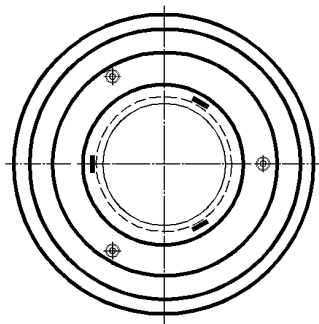
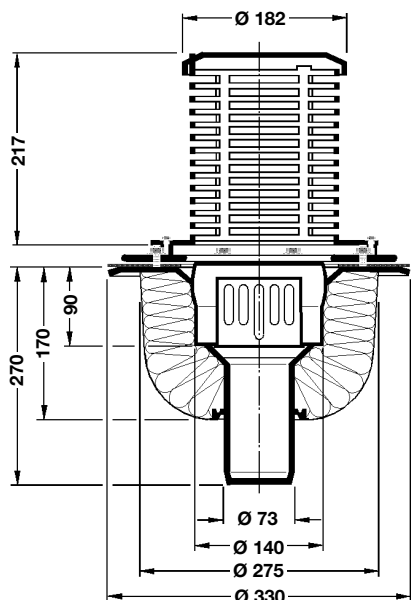
LORO-X VERSAL[®] Siphonic drains
Roof drains with "pot"



Series 21 LORO-X VERSAL®

LORO-Versal® siphonic drains for inverted roofs, DN 70

with clamping flange, made of stainless steel according to DIN EN 1253



Sub-units for modular-based completion purposes

LORO-VERSAL® siphonic drain base unit

consisting of:
Drain pot, air filter and loose flange

Version a (without thermal insulation)

Item no. 19543.070X

Weight: 6.3 kg

Version b (with thermal insulation)

Item no. 19544.070X

Weight: 6.9 kg

Version c (with thermal insulation and heating)

Item no. 19545.070X

Weight: 7.0 kg

Siebeinheit für LORO-VERSAL® siphonic drain for inverted roofs

consisting of:
Strainer and strainer cover of steel, hot-dip galvanised, with additional plastic coating

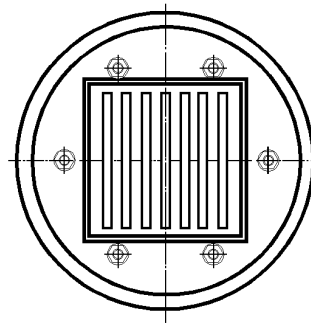
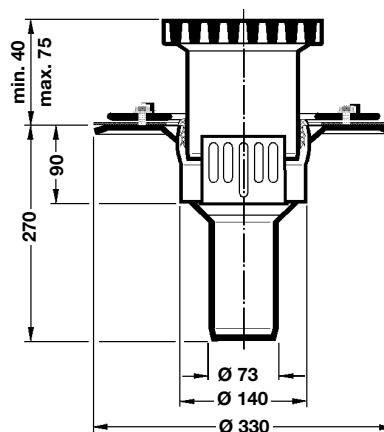
Item no. 19491.070X

Weight: 1.4 kg

See page 14 for an installation example

LORO-Versal® siphonic drains for transportation surfaces, DN 70

with clamping flange, made of stainless steel according to DIN EN 1253



Sub-units for modular-based completion purposes

LORO-VERSAL® siphonic drain base unit

consisting of:
Drain pot, air filter and loose flange

Item no. 19543.070X

Weight: 6.8 kg

Strainer unit, walkable, class L (1.5 t)

for installation height 40 - 75 mm, consisting of:
Strainer receptacle, hot-dip galvanised, additionally coated,

□199 mm

Cast strainer, asphalted, □187 mm

Item no. 18620.125X

Weight: 4.6 kg

Strainer unit, driveable, class M (12.5 t)

for installation height 40 - 75 mm, consisting of:
Strainer receptacle, hot-dip galvanised, additionally coated,

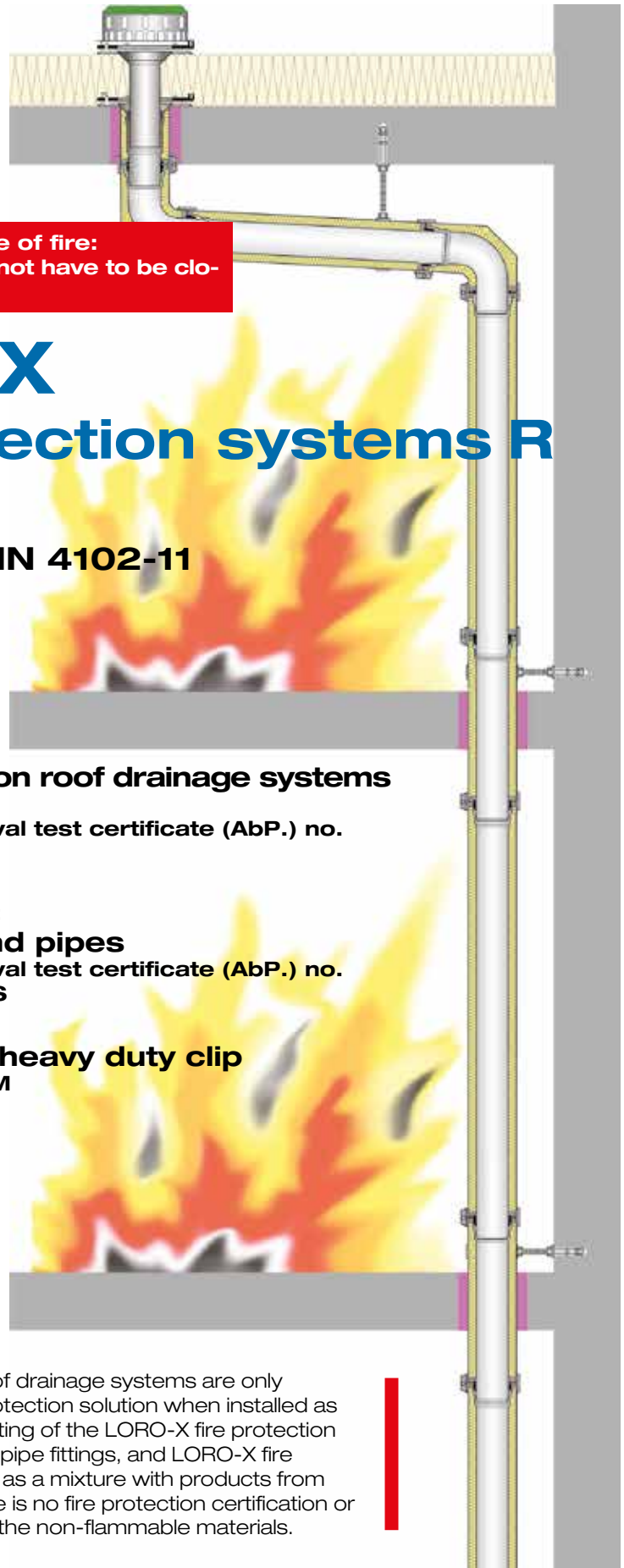
□182 mm

Cast strainer, asphalted, □170 mm

Item no. 18621.125X

Weight: 6.4 kg

See page 15 for an installation example



**Full functionality in case of fire:
The drain system does not have to be closed!**

LORO-X

Fire protection systems R 90

according to DIN 4102-11

Roof penetration

LORO fire protection roof drainage systems

for gravity and pressure flow

General building approval test certificate (AbP.) no. P-MPA-E-09-010

Pipe bushing

for wall and slab penetration:

LORO-X compound pipes

General building approval test certificate (AbP.) no. P-3317/086/08-MPA BS

Fastening

BIS HD 500/1501 heavy duty clip

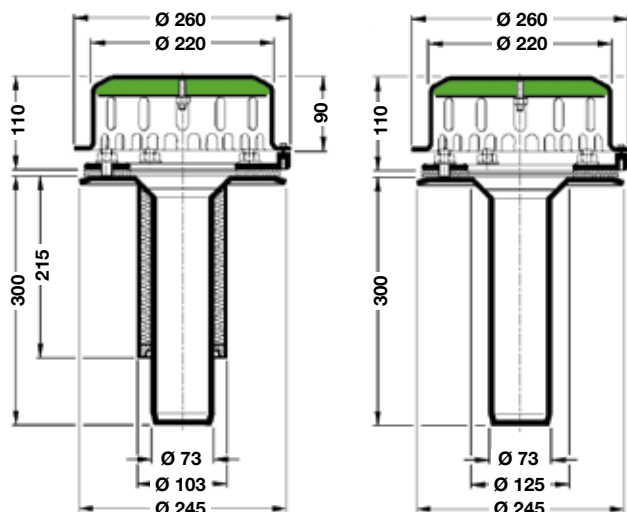
Pb. no. 3059/161/07-CM

LORO-X fire protection roof drainage systems are only certified as an R 90 fire protection solution when installed as complete systems, consisting of the LORO-X fire protection drains, LORO-X pipes and pipe fittings, and LORO-X fire protection clips. If installed as a mixture with products from other manufacturers, there is no fire protection certification or guarantee beyond that of the non-flammable materials.



LORO-X Special fire protection parts

Dimensions and weights



LORO-DRAINLET® DL flat roof drains for gravity flow, series 84 DN 70, with clamping flange, made of stainless steel, meeting EN 1253

General building approval test certificate (AbP.) no. P-MPA-E-09-010

Discharge capacity: 6.3 l/sec*

Complete units, one-piece Factory-installed fire protection

DN 70: [Item no. 22502.070X](#)

Weight: 3.1 kg

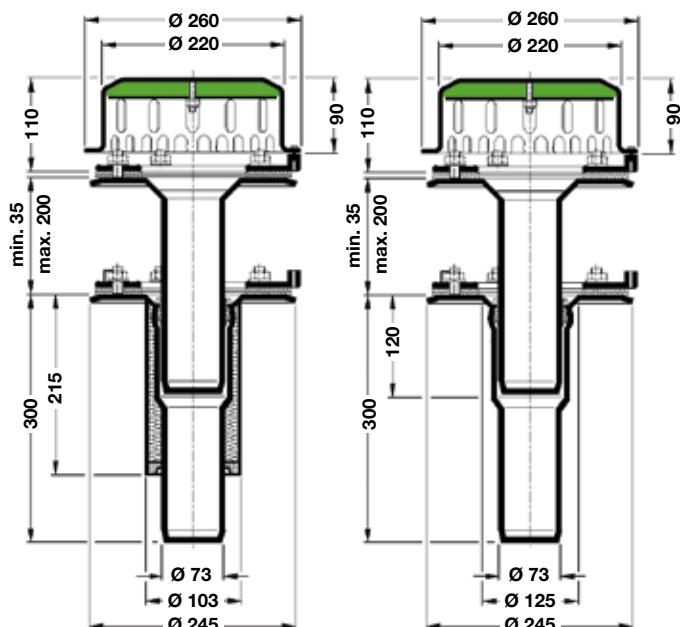
consisting of:
Drain body with thermal insulation, compression seal**, loose flange, drainlet fire protection cover

Fire protection installed on-site

DN 70: [Item no. 22501.070X](#)

Weight: 3.0 kg

consisting of:
Drain body, compression seal**, loose flange, drainlet fire protection cover



Complete units, two-piece Factory-installed fire protection

DN 70: [Item no. 22522.070X](#)

Weight: 4.9 kg

consisting of:
Drain body, compression seal**, loose flange, drainlet fire protection cover, bottom piece with thermal insulation, compression seal**, loose flange, sealing element

Fire protection installed on-site

DN 70: [Item no. 22521.070X](#)

Weight: 4.8 kg

consisting of:
Drain body, compression seal**, loose flange, drainlet fire protection cover, bottom piece, compression seal**, loose flange, sealing element

* According to the test assembly of EN 1253

** Can be omitted with bituminous sealing sheets.

LORO-X Special fire protection parts

Dimensions and weights

LORO-DRAINLET® DL flat roof drains for gravity flow, series 84 as emergency drains, DN 70, with clamping flange, made of stainless steel, meeting EN 1253

General building approval test certificate (AbP.) no.
P-MPA-E-09-010

Discharge capacity: 9.0 l/sec*

Complete units, one-piece Factory-installed fire protection

DN 70: [Item no. 22702.070X](#)

Weight: 3.3 kg

consisting of:

Drain body with thermal insulation, compression seal**, loose flange with weir element, drainlet fire protection cover

Fire protection installed on-site

DN 70: [Item no. 22701.070X](#)

Weight: 3.2 kg

consisting of:

Drain body, compression seal**, loose flange with weir element, drainlet fire protection cover

Complete units, two-piece Factory-installed fire protection

DN 70: [Item no. 22722.070X](#)

Weight: 5.1 kg

consisting of:

Drain body, compression seal**, loose flange with weir element, drainlet fire protection cover, bottom piece with thermal insulation, compression seal**, loose flange, sealing element

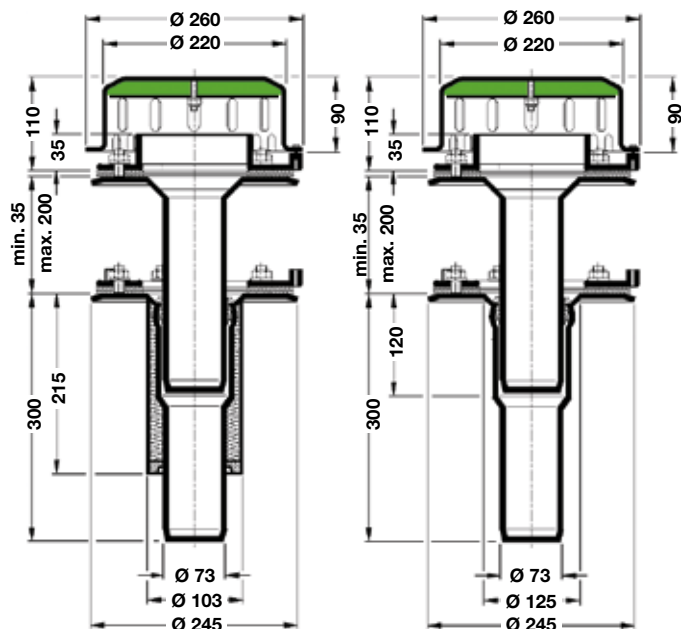
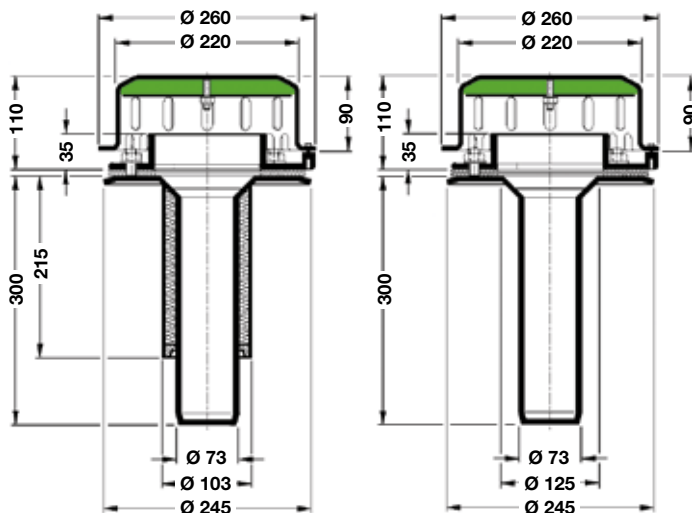
Fire protection installed on-site

DN 70: [Item no. 22721.070X](#)

Weight: 5.0 kg

consisting of:

Drain body, compression seal**, loose flange with weir element, drainlet fire protection cover, bottom piece, compression seal**, loose flange, sealing element

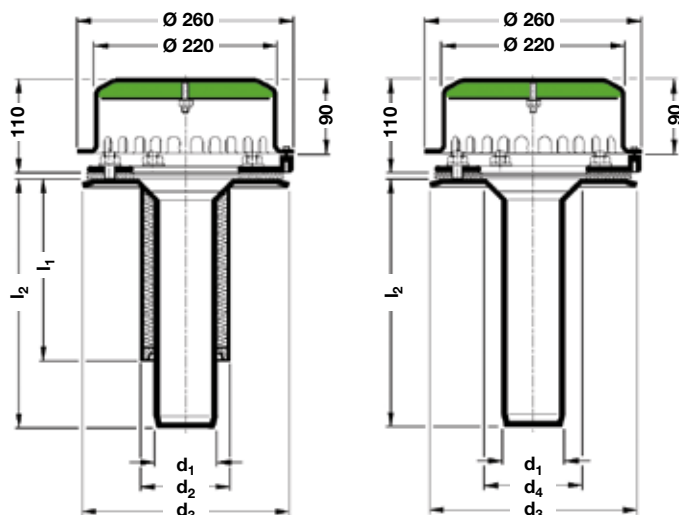


* According to the test assembly of EN 1253

** Can be omitted with bituminous sealing sheets.

LORO-X Special fire protection parts

Dimensions and weights



LORO-DRAINJET® DJ flat roof drains for pressure flow, series 49 DN 70 - DN 100, with clamping flange, made of stainless steel, meeting EN 1253

General building approval test certificate (AbP.) no.
P-MPA-E-09-010

Discharge capacity: DN 70 = 18.8 l/sec*
DN 100 = 27.0 l/sec*

Complete units, one-piece Factory-installed fire protection

DN 70: [Item no. 22102.070X](#)

Weight: 3.1 kg

DN 100: [Item no. 22102.100X](#)

Weight: 3.9 kg

consisting of:

Drain body with thermal insulation, compression seal**,
loose flange, drainjet fire protection cover

Fire protection installed on-site

DN 70: [Item no. 22101.070X](#)

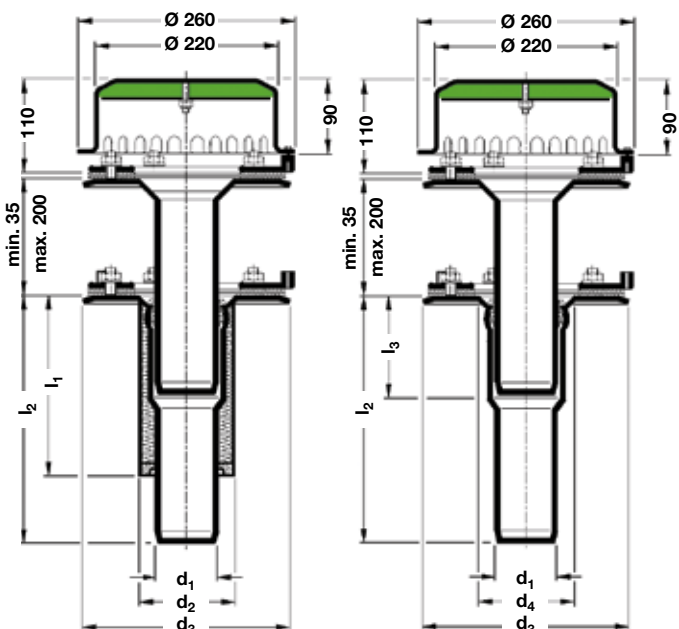
Weight: 3.0 kg

DN 100: [Item no. 22101.100X](#)

Weight: 3.8 kg

consisting of:

Drain body, compression seal**, loose flange,
drainjet fire protection cover



Complete units, two-piece Factory-installed fire protection

DN 70: [Item no. 22122.070X](#)

Weight: 4.9 kg

DN 100: [Item no. 22122.100X](#)

Weight: 5.7 kg

consisting of:

Drain body, compression seal**, loose flange,
drainjet fire protection cover, bottom piece with thermal
insulation, compression seal**, loose flange, sealing element

Fire protection installed on-site

DN 70: [Item no. 22121.070X](#)

Weight: 4.8 kg

DN 100: [Item no. 22121.100X](#)

Weight: 5.6 kg

consisting of:

Drain body, compression seal**, loose flange,
drainjet fire protection cover, bottom piece, compression
seal**, loose flange, sealing element

| DN* | d_1 | d_2 | d_3 | d_4 | l_1 | l_2 | l_3 |
|-----|-------|-------|-------|-------|-------|-------|-------|
| 70 | 73 | 103 | 245 | 125 | 215 | 300 | 120 |
| 100 | 102 | 133 | 300 | 145 | 210 | 310 | 130 |

* According to the test assembly of EN 1253

** Can be omitted with bituminous sealing sheets.

LORO-X Special fire protection parts

Dimensions and weights

LORO-DRAINJET® DJ flat roof drains, for pressure flow, series 49 as emergency drains, DN 70 - DN 100, with clamping flange, made of stainless steel, meeting EN 1253

General building approval test certificate (AbP.) no.
P-MPA-E-09-010

**Discharge capacity: DN 70 = 19.4 l/sec*
DN 100 = 38.0 l/sec***

Complete units, one-piece Factory-installed fire protection

DN 70: [Item no. 22302.070X](#)

Weight: 3.3 kg

DN 100: [Item no. 22302.100X](#)

Weight: 4.1 kg

consisting of:

Drain body with thermal insulation, compression seal**, loose flange with weir element, drainjet fire protection cover

Fire protection installed on-site

DN 70: [Item no. 22301.070X](#)

Weight: 3.2 kg

DN 100: [Item no. 22301.100X](#)

Weight: 4.0 kg

consisting of:

Drain body, compression seal**, loose flange with weir element, drainjet fire protection cover

Complete units, two-piece Factory-installed fire protection

DN 70: [Item no. 22322.070X](#)

Weight: 5.4 kg

DN 100: [Item no. 22322.100X](#)

Weight: 6.2 kg

consisting of:

Drain body, compression seal**, loose flange with weir element, drainjet fire protection cover, bottom piece with thermal insulation, compression seal**, loose flange, sealing element

Fire protection installed on-site

DN 70: [Item no. 22321.070X](#)

Weight: 5.3 kg

DN 100: [Item no. 22321.100X](#)

Weight: 6.1 kg

consisting of:

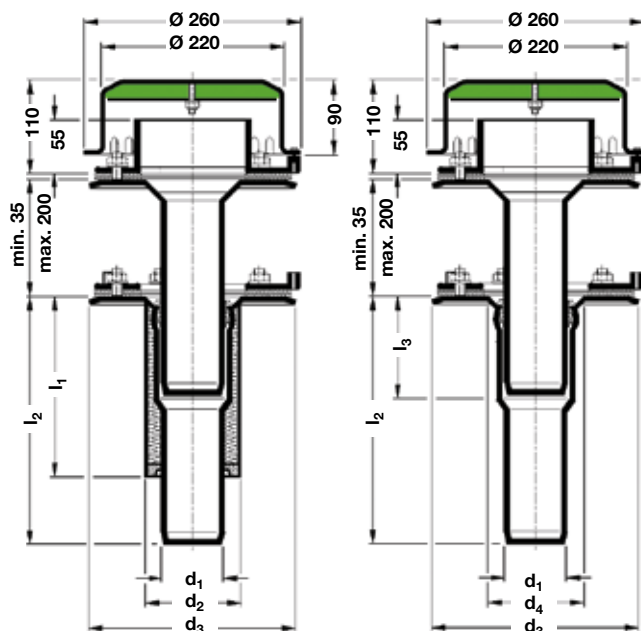
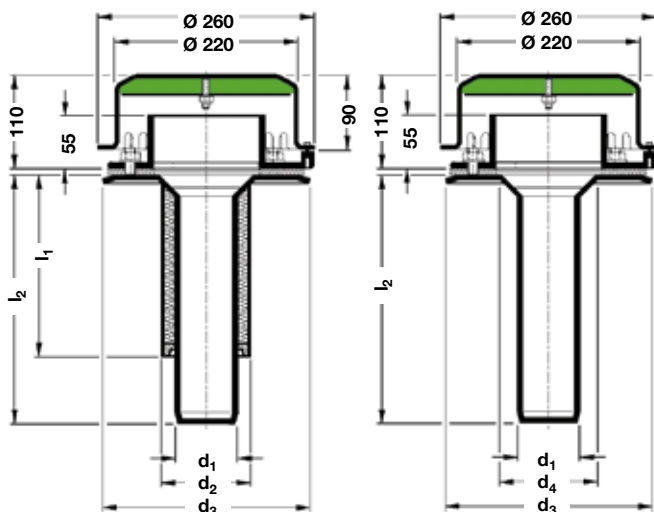
Drain body, compression seal**, loose flange with weir element, drainjet fire protection cover, bottom piece, compression seal**, loose flange, sealing element

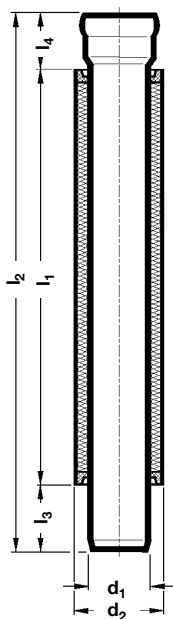
| DN* | d ₁ | d ₂ | d ₃ | d ₄ | l ₁ | l ₂ | l ₃ |
|-----|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 70 | 73 | 103 | 245 | 125 | 215 | 300 | 120 |
| 100 | 102 | 133 | 300 | 145 | 210 | 310 | 130 |

* DN 125 by request

* According to the test assembly of EN 1253

** Can be omitted with bituminous sealing sheets.





LORO-X Special fire protection parts

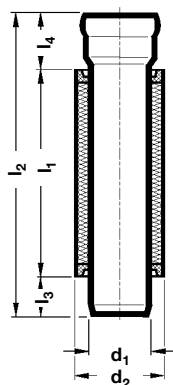
LORO fire protection element

with open socket and extended spigot end,
outer pipe 500 mm long

| Art.-Nr. | DN | d ₁ | d ₂ | l ₁ | l ₂ | l ₃ | l ₄ | kg |
|------------|-----|----------------|----------------|----------------|----------------|----------------|----------------|-----|
| 58008.070X | 70 | 73 | 102 | 500 | 645 | 85 | 60 | 5,5 |
| 58008.100X | 100 | 102 | 133 | 500 | 675 | 100 | 75 | 8,5 |

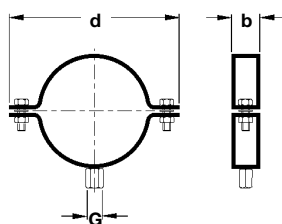
with open socket and extended spigot end,
outer pipe 1500 mm long

| Art.-Nr. | DN | d ₁ | d ₂ | l ₁ | l ₂ | l ₃ | l ₄ | kg |
|------------|-----|----------------|----------------|----------------|----------------|----------------|----------------|------|
| 58007.070X | 70 | 73 | 102 | 1500 | 1645 | 85 | 60 | 15,5 |
| 58007.100X | 100 | 102 | 133 | 1500 | 1675 | 100 | 75 | 24,5 |



with open socket,
outer pipe 250 mm long

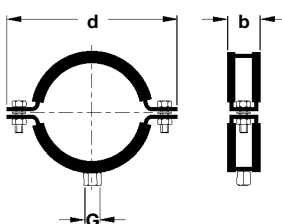
| Art.-Nr. | DN | d ₁ | d ₂ | l ₁ | l ₂ | l ₃ | l ₄ | kg |
|------------|-----|----------------|----------------|----------------|----------------|----------------|----------------|-----|
| 58006.070X | 70 | 73 | 102 | 250 | 355 | 45 | 60 | 2,8 |
| 58006.100X | 100 | 102 | 133 | 250 | 385 | 60 | 75 | 4,3 |



LORO-X heavy duty pipe clips

Steel, galvanised, with threaded connecting socket,
without sound insulation

| Art.-Nr. | DN | b | d | G | kg |
|------------|-----|----|-----|-----|-----|
| 00983.070X | 70 | 30 | 136 | M10 | 0,3 |
| 00983.100X | 100 | 30 | 165 | M10 | 0,4 |
| 00983.125X | 125 | 30 | 193 | M10 | 0,6 |



LORO-X heavy duty pipe clips

Steel, galvanised, with threaded connecting socket,
with sound insulation

| Art.-Nr. | DN | b | d | G | kg |
|------------|-----|----|-----|-----|-----|
| 00984.070X | 70 | 30 | 144 | M10 | 0,4 |
| 00984.100X | 100 | 30 | 175 | M10 | 0,5 |
| 00984.125X | 125 | 30 | 200 | M10 | 0,7 |

Questionnaire for LORO-DRAINJET®/RAINSTAR® siphonic drains
E-Mail: drainjet@lorowerk.de

| | | | |
|--|---|---------------------------|---------|
| Completed by | | | |
| Building project | Building project: | | |
| | Street: | | |
| | Postcode and town: | | |
| Planner address | Planner: | | |
| | Street: | | |
| | Postcode and town: | | |
| | Person responsible: | | |
| | Telephone No.: | | |
| | Fax No.: | | |
| | E-mail: | | |
| Planning implementation | DIN 1986-100: | | |
| | DIN EN 12056-3: | | |
| | DIN EN 752 | | |
| Required structural data | Basic data: | | |
| | Height specification of low point of the roof: | m | |
| | Height of collector connection pipe: | m | |
| | Backwater level: 0.00 m OKFFB or: | m | |
| | Material of the ground pipe (material and nominal diameter): | | |
| | Isometric representation of the drainage system with: | | |
| | Specification of the area to be drained per drain | | |
| | Length specification of the drainage pipes | | |
| | Height of the drainage pipes | | |
| | Full-scale PDF-drawings as attachment: | | |
| | Top view of the roof with incline situation and position of the drains | | |
| | Floor plans with outlined pipe routing | | |
| | Building cross section with height specification of the collecting and connecting pipes | | |
| | Ground pipe plan | | |
| | Discharge coefficients according to DIN 1986-100 | | |
| | Roof areas | C = 1.0 | |
| | Gravel roof | C = 0.8 | |
| | Extensive roof greening | under 10 cm | C = 0.5 |
| | Extensive roof greening | from 10 cm | C = 0.4 |
| | Intensive roof greening | from 30 cm | C = 0.2 |
| | Paving stone, installed in sand or slag, areas with plates | | C = 0.9 |
| | Inverted roof | C = depending on the load | |
| | Parking deck, blacktop | C = 1.0 | |
| Wind effects EN 12056-3 Section 4.3.4 (50% wall areas) | | | |
| Rainfall event | local rainfall event r (5/5) l/(s x ha) | | |
| | local heavy rainfall event r (5/100) l/(s x ha) | | |

Questionnaire for LORO-DRAINJET®/RAINSTAR® siphonic drains
E-Mail: drainjet@lorowerk.de

| | | | | |
|--|---|-----|--|-----|
| Roof sealing | Roofing sheet | | | |
| | Bitumen | | | |
| | Plastic sheet | | | |
| | Vapor barrier | | | |
| | Bitumen | | | |
| | Plastic sheet | | | |
| Type of pipe | Pipe system versions with max. pipe length | | | |
| | LORO-X Steel discharge pipe | 6 m | | 3 m |
| | LORO-XCL Stainless steel discharge pipe | | | 3 m |
| | LORO Composite pipe standard version | 4 m | | 3 m |
| | LORO Composite pipe „Silent“ version | 4 m | | 3 m |
| Type of drain | LORO-DRAINJET® Siphonic drain | | | |
| | one-piece drain | | | |
| | two-piece drain | | | |
| | for flat roof | | | |
| | for box gutter (gutter width min. 300 mm for DN 70, min. 350 mm for DN 100) | | | |
| | inverted roof | | | |
| | parking deck, accessible | | | |
| | without thermal insulation | | | |
| | with thermal insulation | | | |
| | with thermal insulation and self-regulating heating | | | |
| | Accessories Inspection shaft for installation in roof greening | | | |
| | Strainer | | | |
| | Reinforcing metal sheet | | | |
| LORO-DRAINJET® Mini (only for box gutter min. 150 mm gutter width) | | | | |
| LORO-RAINSTAR® Parapet siphonic drain | | | | |
| Emergency drain | LORO-DRAINJET® Siphonic drain system | | | |
| | LORO-DRAINJET® Mini (only for box gutter min. 150 mm gutter width) | | | |
| | LORO-RAINSTAR® Parapet siphonic drain system | | | |
| | Via parapet opening | | | |
| Fire protection requirements | LORO-X Fire protection solution for flat roof drainage according to R90 | | | |
| | Structural fire protection of large roofs according to DIN18234 | | | |
| | Different fire protection specification: | | | |
| Roof structure | Warm roof | | | |
| | Inverted roof | | | |
| | Cold roof | | | |
| | Box gutter rectangular | | | |
| | Trapezoidal sheet | | | |
| | Concrete roof | | | |
| | Send documents to: | | | |
| | Desired deadline: | | | |

References (extract)

| | | |
|-----------------------------|--------------------|---|
| ARENA ‚AUF SCHALKE‘ | | Gelsenkirchen Stadium, new build |
| ATHENS AIRPORT | Athens | New build |
| AUDI | Neckarsulm | New build |
| BAYER UERDINGEN | Uerdingen | High-bay warehouse, new build |
| BAYERISCHE VEREINSBANK | Munich | New build |
| BRAUN | Melsungen | New build |
| BREMEN AIRPORT | Bremen | Extension |
| CINEMAXX | Krefeld | New build |
| COCA-COLA | Gemshagen | Production and distribution centre |
| DACHDECKEREINKAUF WEST | Düsseldorf | Halls - new build |
| DEUTSCHE MESSE AG | Hanover | Halls - new build |
| DEUTSCHE STAR | Schweinfurt | Production site, new build |
| DORTMUNDER UNION BRAUEREI | Frankfurt/Main | Extension |
| EXPO-ARENA | Hanover | New build |
| FLYLINE | Bremen | New build |
| FURTHER EDUCATION ACADEMY | Herne | New build |
| GEWÜRZMÜLLER | Ditzingen | New build |
| HAWERA KARRER | Ravensburg | Production site, new build |
| INTERNATIONAL SCHOOL | Frankfurt/Main | New build |
| JOKER-JEANS | Bönnigheim | Production site, new build |
| KÄSSBOHRER | Neu- Ulm | Shipping hall, new build |
| KETTLER | Mersch | Production site, new build |
| KREISSPARKASSE DRESDEN | Dresden | Logistics Centre, new build |
| LIBRI | Bad Hersfeld | New build |
| MANNESMANN DEMATIC | Wetter | Production site, new build |
| MERCEDES-BENZ AG | Germersheim | Halls - new build |
| MERCEDES-BENZ AG | Bremen | Paint shop, new build |
| MERCEDES-BENZ AG | Rastatt | Production site, new build |
| MERCEDES-BENZ AG | Sindelfingen | Development centre, new build |
| MERCEDES-BENZ AG, RVL | Hanover-Ricklingen | Regional sales warehouse |
| MERCEDES-BENZ AG, NDL | Bielefeld | Car dealership branch, new build |
| MUNICH AIRPORT CENTRE WEST | Munich | Passenger handling |
| NOKIA | Bochum | Production site, new build |
| NOWEA | Düsseldorf | Exhibition Service Centre |
| OBI-BAUMARKT | Gießen | New build |
| OPEL | Rüsselsheim | Cafeteria M 2, new build |
| OPEL | Hungary | Production site, new build |
| PARACELSUS-CLINIC | Bad Gandersheim | New build |
| PRAKTIKER | Göttingen | Extension |
| RITTERBRAUEREI | Dortmund | Extension |
| SCHWÄBISCHE GLASHANDLUNG | Memmingen | New build |
| SIEMENS BAUELEMENTE OHG | Villach | Extension |
| STINNES BAUMARKT | Witten | New build |
| STUTE | Paderborn | High-bay warehouse, new build |
| TEST AND DEVELOPMENT CENTRE | Sailauf | New build |
| THYSSEN | Dortmund | Stainless Steel Service Center, new build |
| ULM MUSEUM | Ulm | New build |
| VOLKSWAGEN | Dresden | Transparent Factory |
| VOLKSWAGEN | Wolfsburg | Autostadt |
| WEIMAR BAUMASCHINEN GMBH | Weimar | Production site, new build |
| WERNER & MERZ | Mainz | High-bay warehouse, new build |
| WEST-LB | Düsseldorf | New build |
| WESTFALENSTADION | Dortmund | North/south stands, new construction |
| WESTMILCH | Altentreptow | Production site, new build |
| WÜRTH | Künzelsau | Extension |
| WÜRTH INDUSTRIAL PARK | Bad Mergentheim | High-bay warehouse, new build |
| ZWISCHENLAGER NORD | Lubmin | New build |

