

Roof drainage ▶ Syphonic rainwater drainage

**Cast iron flat roof drains**

**Cast iron (EN-GJL-200)**

Consists of an iron-carbon alloy in which the carbon is bonded in the metallic base in an lamellar fashion. This so-called graphite grid gives cast iron excellent resistance to corrosion and is thus perfect for use in waste water engineering.

**Stainless steel flat roof drains**

**Stainless steel (material grade 304)**

refers to especially highly-pure alloyed or non-alloyed steels. Suitable for a range of uses, steel is resistant to water, steam and humidity. Typical areas of use include roof drainage for large factory buildings.

**Informations**

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**Decision diagram - vacuum drain**
**Basic requirements**
**Vacuum drainage**

- Large roof areas, per drain  $\geq 150 \text{ m}^2$
- Sufficient difference in height of 4.2 m between the roof and the underground pipes
- In limited installation situations below the ceiling (no drop installation possible)
- In long collecting line

**Open channel drainage**

- Small roof areas, per drain  $< 150 \text{ m}^2$
- Lots of space
- Short collecting line

**Influencing factors**

- Local rain event
- Underground pipe connection
- Arrangement of pipe installation
- Roof structure
- Height level

**Dimensioning**
**DIN 1986-100**

Drainage systems for buildings and properties

**EN 12056**

**DIN 1986-100**  
Gravity drainage systems inside buildings

**Material selection**

Stainless steel or cast iron jet drains

Stainless steel or cast iron Spin drains

GM-X drain pipe  
GM-X composite pipe

## Basics

The vacuum drain works with special flat roof drains, which are operated with routinely filled pipes in contrast to the open channel drainage (degree of filling  $h/d$  1.0). In order to achieve this, it must include whirling in air into rain water (suctioning in air) must be stopped when entering into the pipe. This is achieved by using special functional parts in the ACO flat roof drains Jet. As soon as the measuring rainfall necessary for the operation is achieved, the system will operate with completely filled pipes in the pressure flow range, whereby the connected roof area will be quickly and safely drained. The roof drain can be operated with a pressure powered flow, if

- a sufficient height difference of at least four meters is available between the roof and the underground pipe.
- large roof areas have to be drained, whereby the a draining capacity of at least 1.0 l/s must be removed per drain.

- the possibility is available that the individual drains, which are connected to a downpipe, can be coordinated hydraulically.
- a starting height (distance between the inlet level up to the centre of the installation line) of at least 0.3 - 0.4 m is available.
- the distance between two drains equals no more than 20 meters.

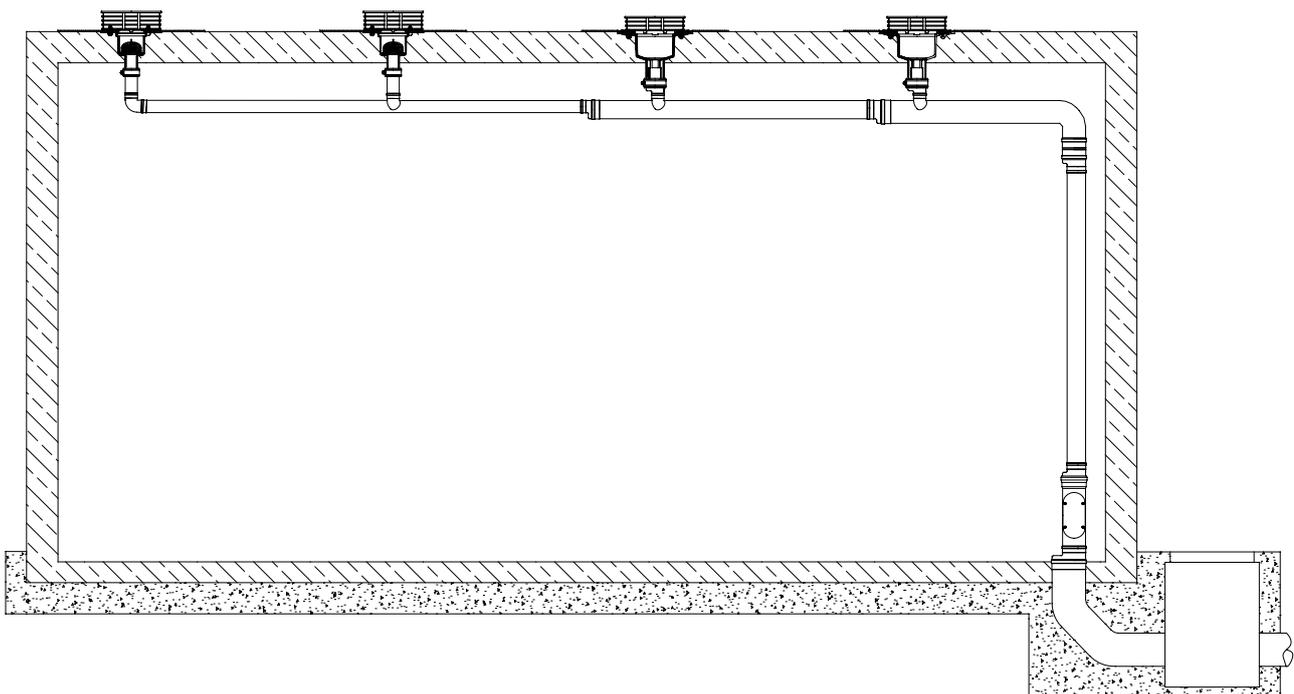
The functionality of pressure drainage pipes is only available above the backflow level. Rainwater pipes located underneath must be dimensioned as open channel lines.

Drainage in the open channel system is more advantageous for the drainage of traffic and walk-in areas (such as parking decks or terraces with public traffic) due to the pollution risk, since small pipe diameters become clogged more quickly than large ones. A vacuum drain calculation is required for the safe function of the

overall system. The volume flow, which must be discharged over the pipe system based on the dimensioning rain, is the calculation principle. A relevant hydraulic calculation can be verified with the aid of a programme.

### Planning service:

- Calculation of the number and location of roof drains
- Hydraulic calculation of the roof draining system
- Determination of strand geometry with details for the nominal width of the required pipes and fittings; Isometric drawing of the piping systems
- Hydraulic calculation verification
- Material lists
- System check after completed assembly



### Planning references

The roof cover is the ultimate limit of a building. Due to the high demands on these ceilings by rainfall, fluctuating climatic conditions and varied traffic loads, the seal in the roof structure receives special importance regarding its physical construction.

ACO has developed flat roof drains for the functional drainage of rainwater and the secure connection of the seal. The current version of EN 12056-3 in conjunction with DIN 1986-100 must be observed for planning.

Roof drains are installed to drain rain water that accumulates on roof areas. They absorb rain water and drain it over

interior pipes.

Drains without odour seals with compression-sealing flanges are used in these areas. The roof drains must be arranged so that the rain water is drained quickly.

Distance between the drains:

- Max. 20 m for flat roof drains
- Max. 10 m for channel drains

ACO provides a modular system for this, consisting of drains of the nominal widths DN 40, DN 50, DN 70, DN 80 and DN 100, in 1 or 2-part version as well as in stainless steel and cast iron. In addition, accessories are offered for the most diverse flat roof structures.

The increase in damages, especially on flat roofs of light construction, due to heavy rainfalls occurring more frequently, makes the engineering design and calculation of the emergency drainage on flat roofs a must.

According to DIN 1986-100, the emergency drain may not be connected to the drainage system, but must be drained by a free outlet to property areas that can be flooded without causing damage.

The utilization must be checked for vegetated roof areas and inverse roofs (water volumes).

### Roof structures

#### Solid construction

This type of roof construction, for example, of prestressed concrete or ferroconcrete are generally suitable for rain water storage or retention. The resulting loads must be calculated in dimensioning the structure by the structural engineers. Relevant information about the desired water over-fill must be provided to the planner in time.

#### Lightweight construction

Flat roofs of this construction are generally unsuitable for rainwater storage or retention. They are mainly used in commercial buildings, for example, as a trapezoidal sheet metal structures provided on light frames.

The additional rain water load at an increased backflow would create a burden that would even surpass snow loads.

### Roof construction

The top floor ceiling is generally the best part of the roof structure in flat roofs in multi-story buildings. Usually these are solid ferroconcrete sheets, fitted sheet metal or reinforced concrete structures.

Flat roofs are roofs that generally only have a low pitch.

Flat roofs are designed as warm roof (non-ventilated roof), as cold roof (ventilated roof) or also as an inverted roof with external insulation. Roofs without insulation, such as parking decks and terraces, and other roof areas above unheated spaces are a special form.

The waterproof roof seal of the flat roof takes over the protection from penetrating water. Typical materials for sealing flat roofs are bitumen - welding beads (now generally polymer modified) and plastic roof sheeting.

#### Roof structure with a sealing membrane

ACO flat roof/terrace drains have a moulded compression-sealing flange. The drain body is built into the flat roof or roof terrace ceiling, whereby the compression-sealing flange is slightly recessed in the ceiling.



### Roof structure with two sealing membranes

If a second sealing level is required, a cast iron drain body can be expanded with an additional upper part, which has a moulded compression-sealing flange. The top section is cut to length according to the insulation thickness and inserted in the drain body and is sealed with a sealing ring against water backflow.



For stainless steel, this drain is supplemented by a bottom part, into which the vapour barrier is pressed in. The top sealing membrane must be pressed into the drain.

ACO also provides specifically matched accessories for the various roof types, such as non-ventilated roof, inverted roof, multi-storey car park, plates in gravel

bed, stilted panels, green roof and gravel covered roof.

### Drain types

Two drain types are used for the safe drainage of rain water and the safe connection of the sealing membranes:

- Flat roof, terrace, parking deck drains  
1-piece with a compression-sealing flange
- Flat roof, terrace, parking deck drains  
2-piece with a compression-sealing flange each

The 1-piece drains are used for roofs without insulation and inverted roofs. The 2-part drains are used on non-ventilated roofs. The compression-sealing flange of the drain body/lower part is used for including the vapour barrier. The sealing membrane is securely connected to the compression-sealing flange of the upper flange section.

EN 12056-3 and the current DIN 1986-100 must be observed when planning flat roof drains. The drains of the Jet series are used for the vacuum drainage. The connecting lines must be designed according to DIN 1986-100.

### Selection criteria for roof drains

Roof drains channel the rain water from roof surfaces into the drainage lines harmless to humans and harmless to buildings. They should be provided wherever rain water can accumulate on the roof and must be safely drained. They must be installed where demanded by DIN 1986-100.

#### Rain water volume Nominal width

The drainage value of the roof drains is in direct conjunction with the nominal width of the roof drain. Depending on the accumulating rain water volume, the nominal width DN 40, DN 50, DN 70, DN 80 or DN 100 must be selected and the number of roof drains must be defined.

#### Pipe distortion socket inclination

The connecting line is distorted in or under the ceiling depending on the structural conditions. Accordingly, a roof drain with a socket inclination of 1.5° or 90° is selected.

#### Traffic load classification

The traffic areas are classified according to DIN 1253. In accordance, there are load classifications H 1,5, K 3, L 15 and M 125. Depending on the traffic area, the correspondingly classified drain/grating must be selected.

#### Fire behaviour

Cast iron and stainless steel roof drains correspond with building material class A1 according to DIN 4102. These drainage systems do not burn. These are ideal conditions for preventive structural fire protection.





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Syphonic rainwater drainage  
Cast iron

## Vacuum drain of cast iron

### Cast iron material

Grey cast iron with lamellar graphite (EN-GJL-200) is an ideal construction material with a good basic performance and many uses. Cast iron according to EN 1561 designates a ferrous alloy with a high content of carbon, silicon and other components, such as manganese, chrome or nickel. Cast iron offers a high degree

of safety in relation to fire protection for building drainage at a melting point of about 1,100 ° C. Roof drains Wal-Selecta are made of cast iron, material EN-GJL-200. Based on the layered deposit of carbon in the metal base, cast iron receives an excellent corrosion resistance. This so-called graphite grating makes it

basically possible to waive any surface coating for corrosion protection.

### Single part drain body with compression-sealing flange

A compression-sealing flange consists of

- **A non-rotatable flange**  
Flange which is solidly connected to the drain body.
- **A rotatable flange**  
Flange with which the seal is pressed against the non-rotatable flange to create a tight connection.



### Two-part drain body with compression-sealing flange

Installation in insulated roofs

- **Drain body**  
Compression-sealing flange to connect with the vapour barrier.
- **Top section**  
with compression-sealing flange to connect with the sealing membrane above the insulation.
- **Sealing ring** standard, prevents the penetration of waste water backflow from the downpipe into the insulation and also the water drainage of the sealing membrane into the drain body.



## Insulating body and rings for flat roof drains Jet DN 50/DN 80

- Moulded parts of vapour diffusion-tight foam glass (FOAM GLASS) for the heat insulation of the drain body, i.e. the upper part.
- The condensation development in the drain area is thereby prevented.
- The moulded parts can be used as lost shuttering when concreting the roof ceiling .
- The insulating rings and bodies are of non-combustible foam glass, building material class A1, according to DIN 4102.
- Foam glass is non-combustible and does not contribute to the further development of fire.
- Foam glass corresponds with building materialsclass A1, according to EN 13501-1.



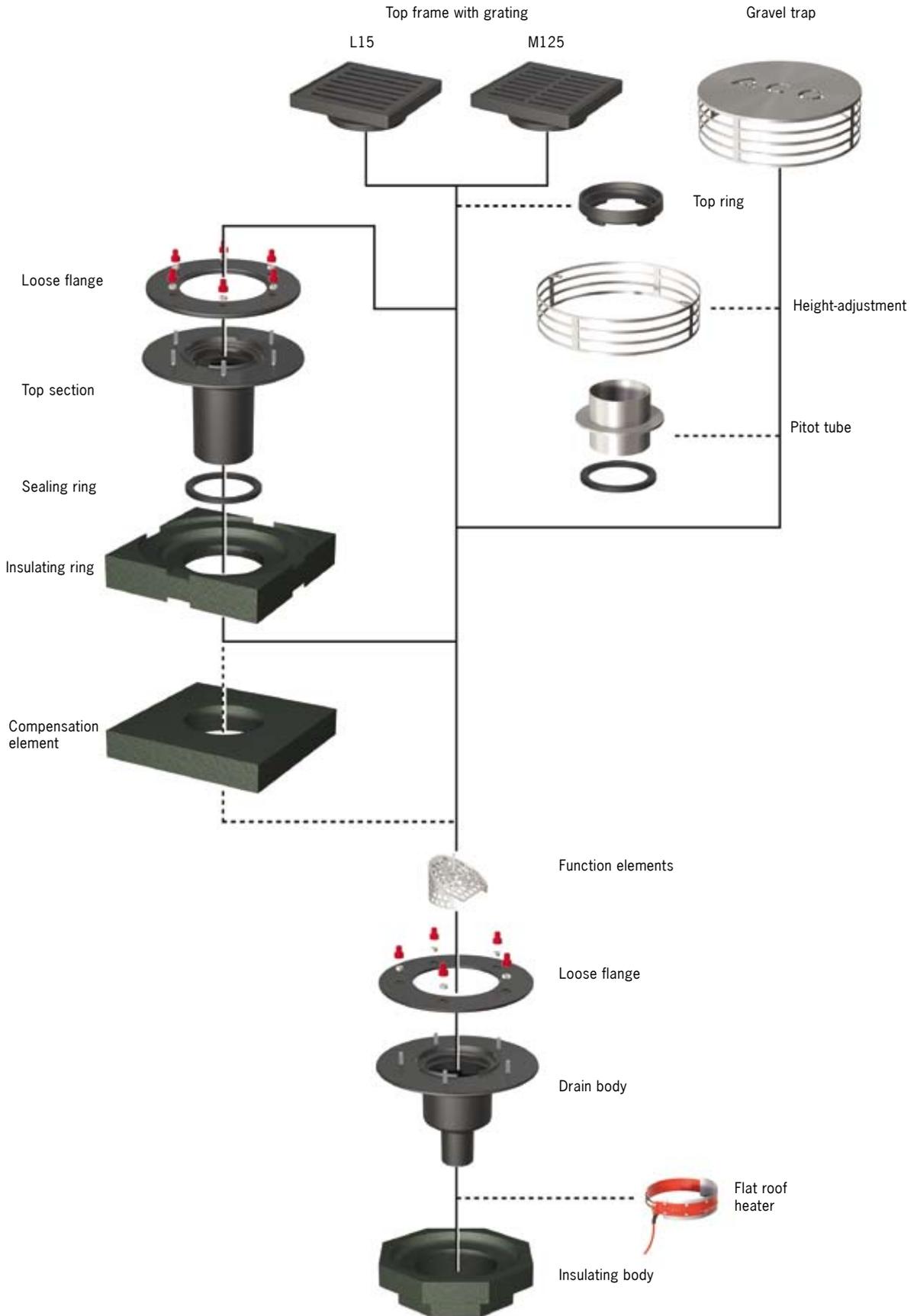
## Flat roof heater

ACO optionally offers a heater for roof drains to prevent freezing of the drain. This not only increases the functional reliability of the drainage system even at subzero temperatures, but is also recommended by DIN 1986-100. A flat roof heater is recommended espe-

cially in houses in an extreme location, when connected to separate sewage system, for buildings that are not heated at times during the winter months, drains that are located in shady areas, etc. The requirements of the VDE and the local EVU regulations must be observed.

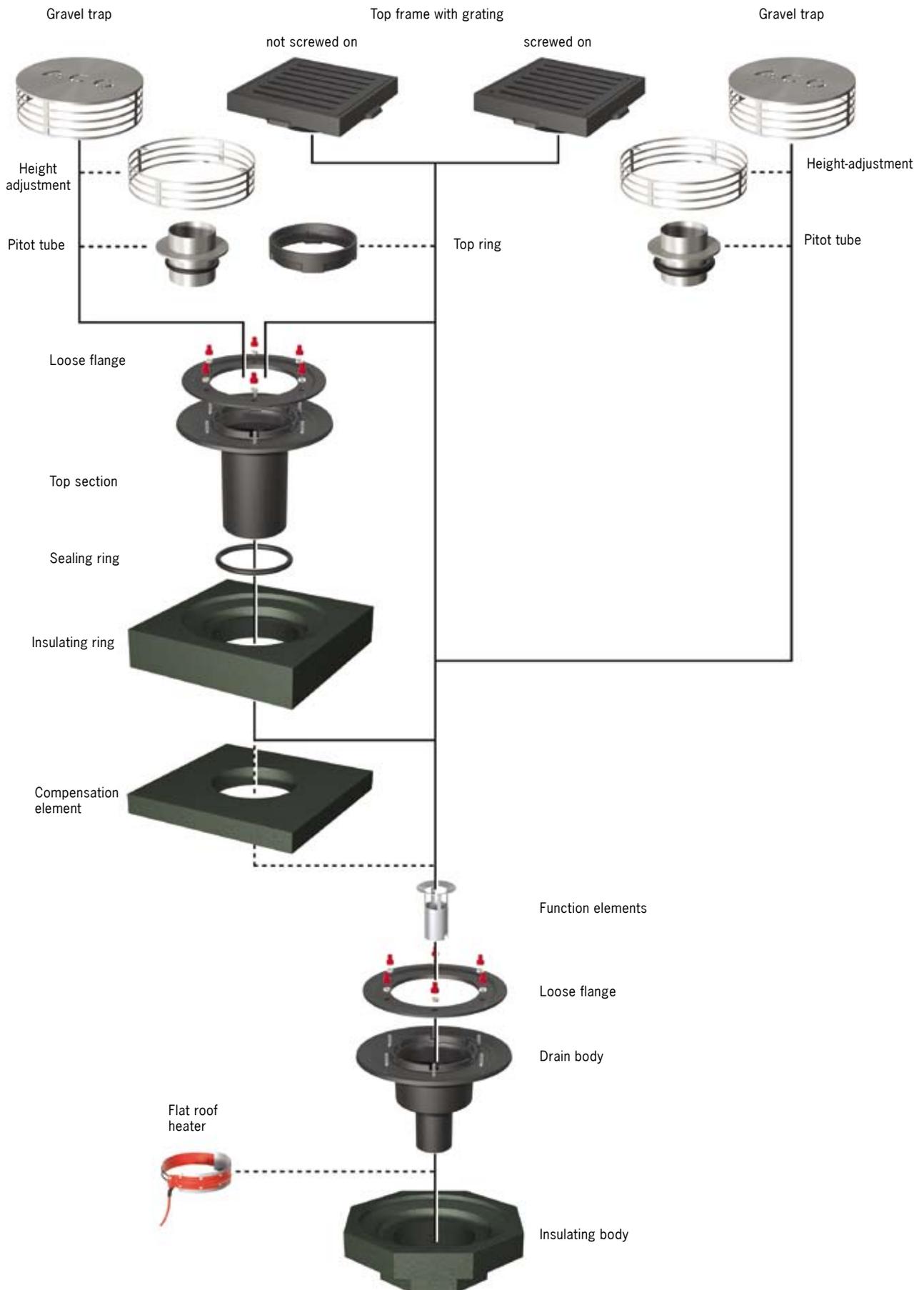
In order to prevent unnecessary energy consumption, it is advisable to regulate the heated roof drains via an additional thermostat.

**Cast iron vacuum drain DN 50**



Vacuum drain  
Cast iron

**Cast iron vacuum drain DN 80**



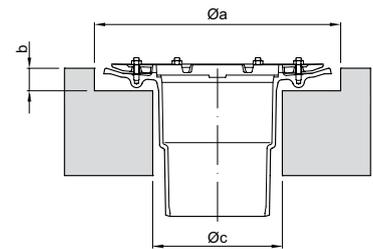
Vacuum drain  
Cast iron

**Flat roof drains Jet syphonic rainwater drainage**
**Product information**

- Drain body DN 50
- Coated cast iron
- Building material class A1
- Certified in accordance with DIN 1253
- With compression-sealing flange
- With seepage openings
- With function element

**Ordering information**
**Core hole dimension**

Selection assistant	Nominal size	Øa [mm]	Øc [mm]	b [mm]	Article No.
<b>For drain body without isolating body</b>					
	DN 50	300	150	30	7037.10.10
<b>For drain body with isolating body</b>					
	DN 50	315	220	45	7037.10.10

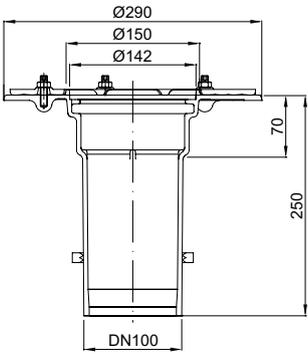


	Nominal width	Socket inclination	Outflow value [l/s]	Recess [mm]	Weight [kg]	Article No.
<p>Technical drawing showing a cross-section of the drain body with a mesh filter. Dimensions are indicated: Ø290 (top flange diameter), Ø141 (inner diameter of the mesh), 195 (total height), and 76 (height of the mesh section).</p>	DN 50	90°	9,0	230 x 320	5,0	7037.10.10

## Components

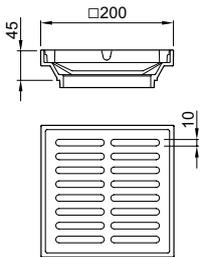
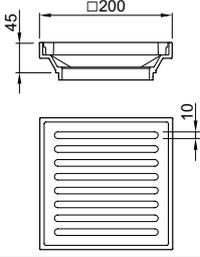
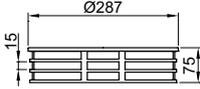
### Drain bodies upper part DN 50

#### Ordering information

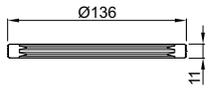
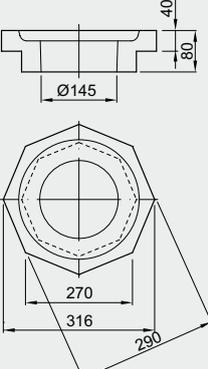
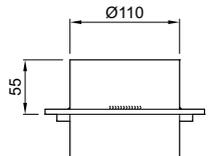
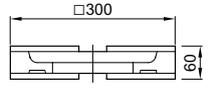
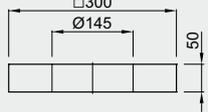
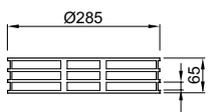
	Designation	compatible with	Description	Article No.
	Upper part	<ul style="list-style-type: none"> <li>■ Flat roof drains Jet                             <ul style="list-style-type: none"> <li>□ DN 50</li> </ul> </li> <li>■ Flat roof drains Spin                             <ul style="list-style-type: none"> <li>□ DN 70</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ Coated cast iron</li> <li>■ With compression-sealing flange in accordance with EN 1253</li> <li>■ Non-flammable in accordance with building materials class A1</li> <li>■ With seepage openings and lip-seal</li> <li>■ Height-adjustability: 62 – 200 mm</li> <li>■ Weight: 8.0 kg</li> </ul>	<b>7047.10.25</b>

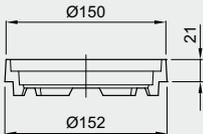
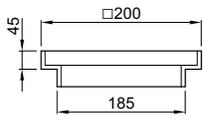
### Top sections and gratings

#### Ordering information

	Designation	compatible with	Description	Article No.
	Top frame with grating	<ul style="list-style-type: none"> <li>■ Cast iron Jet flat roof drains DN 50</li> </ul>	<ul style="list-style-type: none"> <li>■ Cast iron</li> <li>■ Load class: M 125</li> <li>■ Weight: 5.0 kg</li> </ul>	<b>7000.44.00</b>
	Top frame with grating	<ul style="list-style-type: none"> <li>■ Cast iron Jet flat roof drains DN 50</li> </ul>	<ul style="list-style-type: none"> <li>■ Cast iron</li> <li>■ Load class: L 15</li> <li>■ Weight: 4.0 kg</li> </ul>	<b>7000.43.00</b>
	Shingle filter	<ul style="list-style-type: none"> <li>■ Flat roof drains Jet                             <ul style="list-style-type: none"> <li>□ DN 50</li> </ul> </li> <li>■ Flat roof drains Spin                             <ul style="list-style-type: none"> <li>□ DN 70</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ Stainless steel</li> <li>■ With 2 mounting screws</li> <li>■ Weight: 1.2 kg</li> </ul>	<b>7000.02.00</b>

**Accessories**

	Designation	compatible with	Description	Article No.
	Lip seal ring	<ul style="list-style-type: none"> <li>■ Flat roof drains Jet               <ul style="list-style-type: none"> <li>□ DN 50</li> </ul> </li> <li>■ Upper part for flat roof drains Spin               <ul style="list-style-type: none"> <li>□ DN 70</li> </ul> </li> <li>■ 1-/2 piece flat roof/terrace drains Spin DN 70 for customer-side provision of a ventilation pipe               <ul style="list-style-type: none"> <li>□ Cast iron SML pipe DN 100 for grey water downpipe over roofs, length according to DIN 12056 and DIN 1986-100</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ Diameter: 136 mm</li> </ul>	<b>7047.00.26</b>
	Insulating body	<ul style="list-style-type: none"> <li>■ Cast iron flat roof drains Spin               <ul style="list-style-type: none"> <li>□ Socket inclination: 90°</li> <li>□ DN 70</li> </ul> </li> <li>■ Cast iron flat roof drains Jet               <ul style="list-style-type: none"> <li>□ Socket inclination: 90°</li> <li>□ DN 50</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ Foam glass</li> <li>■ Weight: 0.75 kg</li> </ul>	<b>7040.22.00</b>
	Pilot tube	<ul style="list-style-type: none"> <li>■ Flat roof drains Jet               <ul style="list-style-type: none"> <li>□ DN 50</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ For upgrade of the drain body DN 50 to an emergency overflow</li> <li>■ With lip seal ring</li> <li>■ For 1-/2piece design</li> <li>■ Weight: 0.1 kg</li> </ul>	<b>7047.10.55</b>
	Flat roof heating	<ul style="list-style-type: none"> <li>■ All flat roof drains are made of cast iron               <ul style="list-style-type: none"> <li>□ DN 50 – DN 150</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ Mains supply: 220 – 240 V AC</li> <li>■ Nominal performance: 25 W</li> <li>■ Protection rating: I</li> <li>■ Protection type: IP X7</li> <li>■ Connection conduit:               <ul style="list-style-type: none"> <li>□ SIHF 3 x 1 mm<sup>2</sup></li> <li>□ Length: 1.5 m</li> </ul> </li> <li>■ Certified in accordance with DIN VDE 0700, parts 1 and 223</li> <li>■ Weight: 0.5 kg</li> </ul>	<b>7000.85.00</b>
	Insulating ring	<ul style="list-style-type: none"> <li>■ Flat roof drain upper part Spin               <ul style="list-style-type: none"> <li>□ DN 70</li> </ul> </li> <li>■ Flat roof drain upper part Jet               <ul style="list-style-type: none"> <li>□ DN 50</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ Foam glass</li> <li>■ Weight: 0.7 kg</li> </ul>	<b>7040.12.00</b>
	Compensation element	<ul style="list-style-type: none"> <li>■ Flat roof drain upper part Spin               <ul style="list-style-type: none"> <li>□ DN 70</li> </ul> </li> <li>■ Flat roof drain upper part Jet               <ul style="list-style-type: none"> <li>□ DN 50</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ Foam glass</li> <li>■ Weight: 0.7 kg</li> </ul>	<b>7040.02.00</b>
	height adjustment	<ul style="list-style-type: none"> <li>■ Shingle filter               <ul style="list-style-type: none"> <li>□ 7000.12.00</li> <li>□ 7000.02.00</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ Stainless steel</li> <li>■ With 2 mounting screws</li> <li>■ Height: 65 mm</li> <li>■ Can only be used in connection with a shingle filter</li> <li>■ Weight: 0.5 kg</li> </ul>	<b>7000.11.00</b>

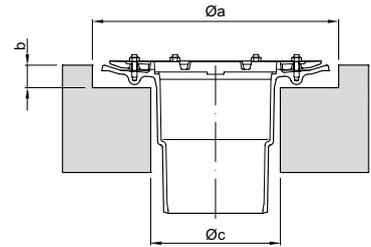
	<b>Designation</b>	<b>compatible with</b>	<b>Description</b>	<b>Article No.</b>
	Top ring	<ul style="list-style-type: none"> <li>■ Top frame with grating</li> <li>□ 7000.08.00</li> <li>□ 7000.44.00</li> <li>□ 7000.43.00</li> </ul>	<ul style="list-style-type: none"> <li>■ Cast iron</li> <li>■ Load class: M 125</li> <li>■ Weight: 0.8 kg</li> </ul>	<b>7000.05.00</b>
	Top frame	<ul style="list-style-type: none"> <li>■ Top sections</li> <li>□ 5084.80.00</li> <li>■ Cellar drains DN 100</li> <li>□ 5001.00.00</li> <li>□ 5002.00.00</li> <li>■ Top frame with grating</li> <li>□ 7000.43.00</li> </ul>	<ul style="list-style-type: none"> <li>■ Coated cast iron</li> <li>■ Frame dimensions: 200 x 200 mm</li> <li>■ For incremental adjustment by 45 mm</li> <li>■ Weight: 2.5 kg</li> </ul>	<b>5079.80.00</b>

**Flat roof drains Jet syphonic rainwater drainage**
**Product information**

- Drain body DN 80
- Coated cast iron
- With compression-sealing flange
- With seepage openings
- With function element

**Ordering information**
**Core hole dimension**

Selection assistant	Nominal size	Øa [mm]	Øc [mm]	b [mm]	Article No.
<b>For drain body without isolating body</b>					
	DN 80	380	200	35	7038.10.10
<b>For drain body with isolating body</b>					
	DN 80	430	270	65	7038.10.10

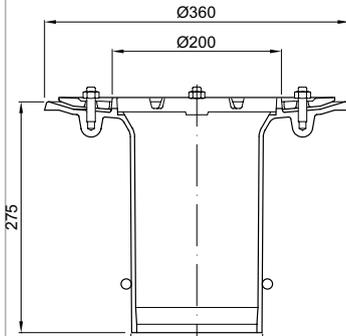


	Nominal width	Socket inclination	Outflow value [l/s]	Recess [mm]	Weight [kg]	Article No.
<p>Technical drawing showing a side view of the drain body. It includes the following dimensions: a total height of 246 mm, a height of 105 mm for the lower section, an outer diameter of Ø360 mm for the top flange, and an inner diameter of Ø188 mm for the main pipe.</p>	DN 80	90°	17,0	290 x 410	12,1	7038.10.10

**Components**

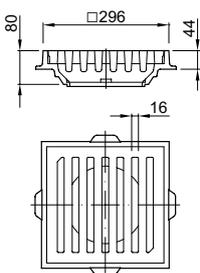
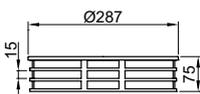
**Drain bodies upper part**

**Ordering information**

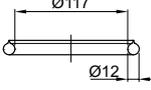
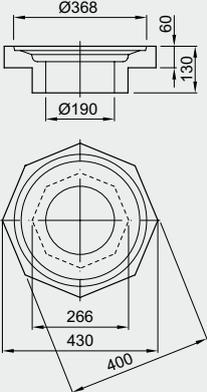
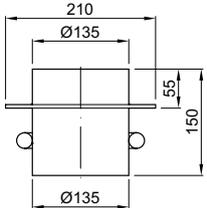
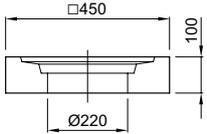
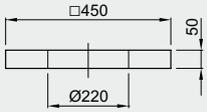
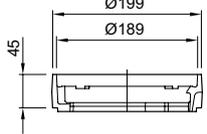
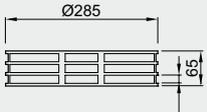
	Designation	compatible with	Description	Article No.
	Upper part	<ul style="list-style-type: none"> <li>■ Flat roof drains Spin</li> <li>□ DN 100 – DN 150</li> <li>■ Flat roof drains Jet</li> <li>□ DN 80</li> </ul>	<ul style="list-style-type: none"> <li>■ Coated cast iron</li> <li>■ With compression-sealing flange in accordance with EN 1253</li> <li>■ Non-flammable in accordance with building materials class A1</li> <li>■ With sealing ring</li> <li>■ With seepage openings</li> <li>■ Height-adjustability: 50 – 200 mm</li> <li>■ Weight: 12.6 kg</li> </ul>	<b>7044.10.25</b>

**Top sections and gratings**

**Ordering information**

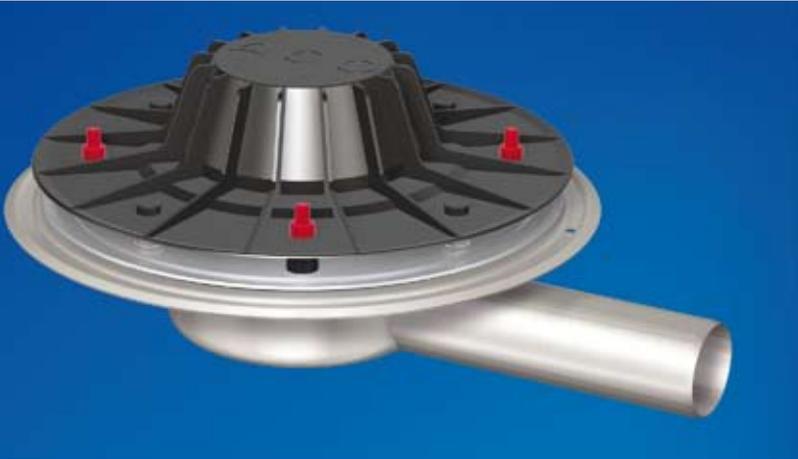
	Designation	compatible with	Description	Article No.
	Top frame with grating	<ul style="list-style-type: none"> <li>■ Flat roof drains Spin</li> <li>□ DN 100 – DN 150</li> <li>■ Flat roof drains Jet</li> <li>□ DN 80</li> </ul>	<ul style="list-style-type: none"> <li>■ Not screwed in place</li> </ul>	<b>7000.41.00</b>
			<ul style="list-style-type: none"> <li>■ Screwed in place</li> </ul>	<b>7000.42.00</b>
	Shingle filter	<ul style="list-style-type: none"> <li>■ Flat roof drains Jet</li> <li>□ DN 80</li> <li>■ Flat roof drains Spin</li> <li>□ DN 100 – DN 150</li> </ul>	<ul style="list-style-type: none"> <li>■ Stainless steel</li> <li>■ With 2 mounting screws</li> <li>■ Load class: H 1.5</li> <li>■ Weight: 1.2 kg</li> </ul>	<b>7000.12.00</b>

**Accessories**

	Designation	compatible with	Description	Article No.
	Sealing ring	<ul style="list-style-type: none"> <li>■ Flat roof drains Spin</li> <li>□ DN 100 – DN 150</li> <li>■ Flat roof drains Jet</li> <li>□ DN 80</li> </ul>	<ul style="list-style-type: none"> <li>■ Diameter: 117 mm</li> <li>■ Thickness: 2 mm</li> <li>■ For 2 piece design upper parts</li> </ul>	<b>7044.00.26</b>
	Insulating body	<ul style="list-style-type: none"> <li>■ Flat roof drains Spin</li> <li>□ Socket inclination: 90°</li> <li>□ DN 100 – DN 150</li> <li>■ Flat roof drains Jet</li> <li>□ Socket inclination 90°</li> <li>□ DN 80</li> </ul>	<ul style="list-style-type: none"> <li>■ Foam glass</li> <li>■ Weight: 1.3 kg</li> </ul>	<b>7040.21.00</b>
	Pilot tube	<ul style="list-style-type: none"> <li>■ Flat roof drains Jet</li> <li>□ DN 80</li> </ul>	<ul style="list-style-type: none"> <li>■ For upgrade of the drain body DN 80 to a emergency overflow</li> <li>■ With sealing ring</li> <li>■ Weight: 1.3 kg</li> </ul>	For 1 piece design <b>7048.10.50</b> For 2 piece design <b>7048.20.50</b>
	Flat roof heating	<ul style="list-style-type: none"> <li>■ All flat roof drains are made of cast iron</li> <li>□ DN 50 – DN 150</li> </ul>	<ul style="list-style-type: none"> <li>■ Mains supply: 220 – 240 V AC</li> <li>■ Nominal performance: 25 W</li> <li>■ Protection rating: I</li> <li>■ Protection type: IP X7</li> <li>■ Connection conduit:               <ul style="list-style-type: none"> <li>□ SIHF 3 x 1 mm<sup>2</sup></li> <li>□ Length: 1.5 m</li> </ul> </li> <li>■ Certified in accordance with DIN VDE 0700, parts 1 and 223</li> <li>■ Weight: 0.5 kg</li> </ul>	<b>7000.85.00</b>
	Insulating ring	<ul style="list-style-type: none"> <li>■ Flat roof drain upper part</li> </ul>	<ul style="list-style-type: none"> <li>■ Foam glass</li> <li>■ Weight: 1.9 kg</li> </ul>	<b>7040.11.00</b>
	Compensation element	<ul style="list-style-type: none"> <li>■ Flat roof drain upper part</li> </ul>	<ul style="list-style-type: none"> <li>■ Foam glass</li> <li>■ Weight: 0.8 kg</li> </ul>	<b>7040.01.00</b>
	Top ring	<ul style="list-style-type: none"> <li>■ Top frame with grating, load class: L 15 and M 125</li> <li>■ Gratings, load class: H 1.5 and L 15</li> </ul>	<ul style="list-style-type: none"> <li>■ Cast iron</li> <li>■ Weight: 2.0 kg</li> </ul>	<b>7000.45.00</b>
	height adjustment	<ul style="list-style-type: none"> <li>■ Shingle filter</li> <li>□ 7000.12.00</li> <li>□ 7000.02.00</li> </ul>	<ul style="list-style-type: none"> <li>■ Stainless steel</li> <li>■ With 2 mounting screws</li> <li>■ Height: 65 mm</li> <li>■ Can only be used in connection with a shingle filter</li> <li>■ Weight: 0.5 kg</li> </ul>	<b>7000.11.00</b>







Roof drainage ▶ Syphonic rainwater drainage ▶ Stainless steel

**Basics**

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**Flat roof drains Jet**

**Drain body DN 40 – DN 100**

Flat roof drains

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Drain bodies lower part

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Accessories

**315**

## Basics

### Stainless steel

The area of non-corrosive steels is described as stainless steel. However, this generic term does not provide any conclusion of the quality of the steel grade used. In waste water technology, material grade 304 with 18% chromium (Cr) and 10% nickel (Ni) has prevailed. An austenitic, acid-resistant stainless steel suitable for high temperatures has excellent hydraulic characteristics due to its smooth surface.

The flat roof drains of ACO Haustechnik are mass-produced from material grade 304. This material is resistant against water and humidity. However, the material is not suitable for all media, despite its high-quality properties. In the event of an accumulation of aggressive waste water or waste water contaminated with chloride ions - this occurs, for

example, in areas in which are located directly by the ocean - the suitability of the material used must be checked in any case.

### Single part drain body with compression-sealing flange

A compression-sealing flange consists of:

- **A non-rotatable flange**  
Flange which is solidly connected to the drain body.
- **A rotatable flange**  
Flange with which the seal is pressed against the non-rotatable flange to create a tight connection.



### 2-part drain body with compression-sealing flange

Installation in insulated roofs:

- **Lower section**  
with compression-sealing flange to connect with the vapour barrier.
- **Drain body**  
with compression-sealing flange to connect with the sealing membrane above the insulation.
- **Sealing element**  
standard, prevents the waste water backflow from the downpipe from penetrating the insulation.



## Installation instructions

### Recesses in concrete ceilings

The recesses must be designed so that concrete can also be filled below the flange (i.e. by inclining a side of the recess).

### Concreting in the roof drains

The roof drains must be stabilized prior to concreting so that the position cannot be shifted when sealing the concrete.

### Sealing the roof drains

Providing the roof drains with compression-sealing flanges makes it possible to include sealing membranes and foils of various qualities in thicknesses up to 10 mm in the drain bodies. Depending on the quality of the sealing membrane, the flange seals of EPDM/PVC soft or another quality must also be inserted under the sealing membrane.

### Insulated roof drains

The insulating bodies of the roof drains of Styrofoam (PS 30 DIN 18164) may not be damaged.

### Adjustment to the roof structure

Insulating layers of 25 - 200 mm thickness may be bridged with the stacking element of 2-part roof drains. An additional fitted pipe with an identical nominal width of the inlet body must be inserted in DN 70 or DN 100 in an appropriate length in thicker insulation layers.

### Backflow safety valve

2-part roof drains are always delivered in a backflow-safe version. This is required according to the valid DIN standards.

### Protective cover during construction period

In order to keep the inlet bodies free of contaminants during the construction phase, they must be provided with a protective cover during the construction period (sleeve cap). The protective covers must be removed prior to the assembly of the stacking elements or gravel trap baskets.

### Fire protection

The vertical flat roof drains Jet DN 70 can be equipped with a functional part with fire protection. The insulation here must be designed in foam glass.

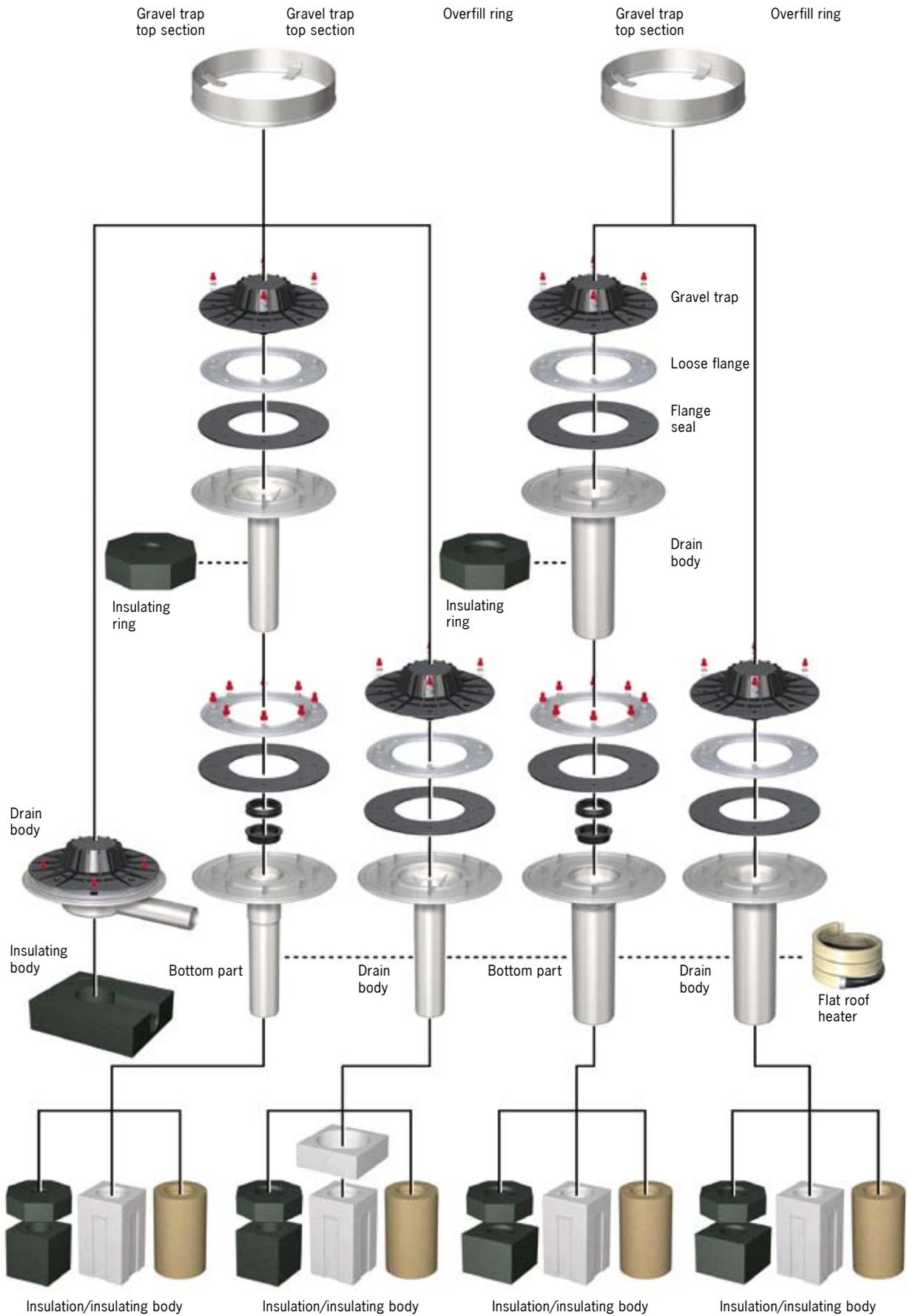
## Flat roof heater

ACO offers a heater for flat roof drains as an option, so that the drain will not freeze. This not only increases the functional reliability of the drainage system even at subfreezing temperatures, but is also recommended by DIN 1986-100. A flat roof heater is recommended especially

in buildings at an extreme location, when connected to a separate sewage system, in buildings that are occasionally not heated during the winter months, drains that are located in shady areas, etc.. The regulations according to VDE and the local EVU regulations must be observed.

In order to prevent an unnecessary energy consumption, it is recommended to control the heated flat roof drains with an additional thermostat.

**Stainless steel vacuum drain**



Vacuum drain  
Stainless steel

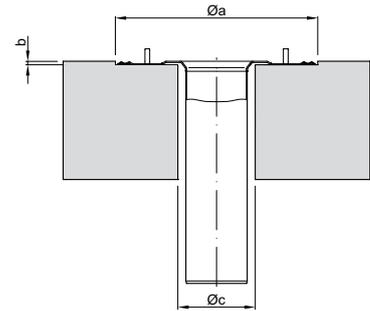


**Flat roof drains Jet syphonic rainwater drainage**
**Product information**

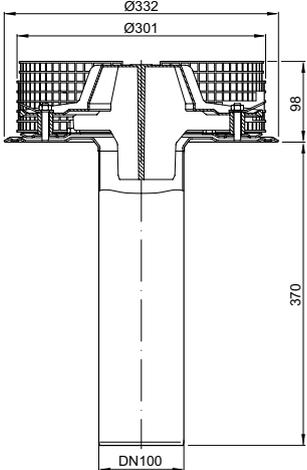
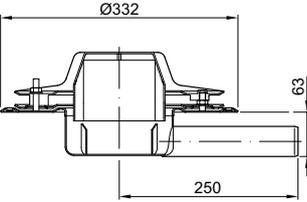
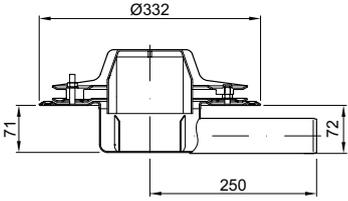
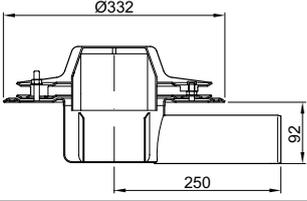
- Drain body
  - Horizontal: DN 40 – DN 70
  - Vertical: DN 70/DN 100
- Stainless steel, material grade 304
- Certified in accordance with EN 1253
- With compression-sealing flange

**Ordering information**
**Core hole dimension**

Selection assistant	Nominal size	Øa [mm]	Øc [mm]	b [mm]	Article No.	
	<b>For drain body without isolating body</b>					
	DN 70	340	90	10	<b>0174.46.79</b>	
	DN 100	340	110	10	<b>0174.46.81</b>	
	<b>For drain body with isolating body</b>					
DN 70	340	290	10	<b>0174.46.79</b>		
DN 100	340	290	10	<b>0174.46.81</b>		



	Nominal width	Socket inclination	Flow rate		Weight [kg]	Article No.
			in accordance with DIN [l/s]	with 75 mm accumulation [l/s]		
<p>Technical drawing of a drain body with dimensions: Ø332 (top diameter), 85 (top flange height), 364 (total height), and DN70 (bottom diameter).</p>	DN 70	90°	15,0	15,0	3,3	<b>0174.46.79</b>

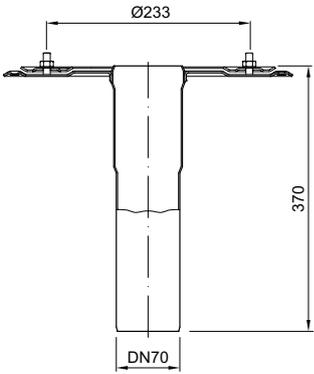
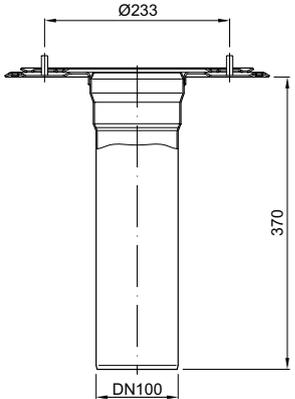
	Nominal width	Socket inclination	Flow rate		Weight [kg]	Article No.
			in accordance with DIN [l/s]	with 75 mm accumulation [l/s]		
	DN 100	90°	38,9	37,1	3,8	0174.46.81
	DN 40	1,5°	5,2	5,2	2,6	0174.46.43
	DN 50	1,5°	8,5	8,5	2,8	0174.46.44
	DN 70	1,5°	16,1	16,1	3,5	0174.46.45

Syphonic rainwater drainage  
Stainless steel

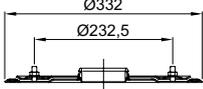
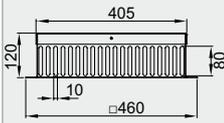
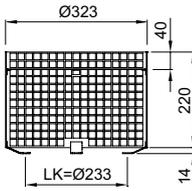
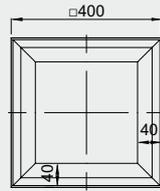
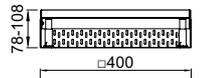
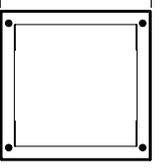
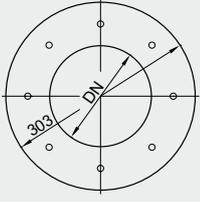
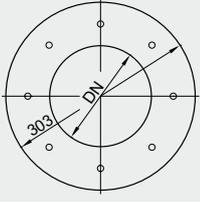
## Components

### Lower part for DN 70 – DN 100

#### Ordering information

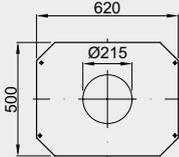
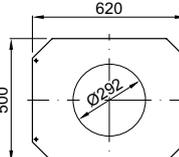
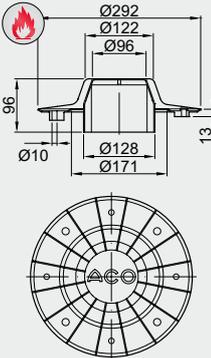
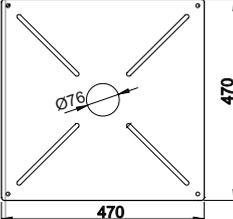
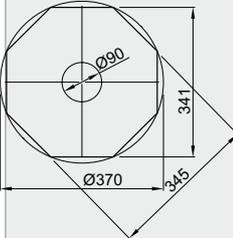
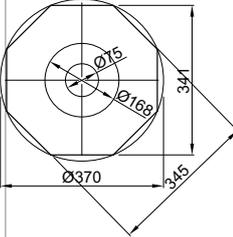
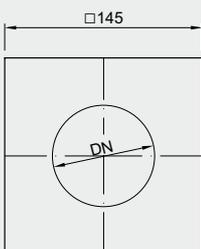
	Designation	compatible with	Description	Article No.
	Lower part	<ul style="list-style-type: none"> <li>■ Stainless steel flat roof drains Jet</li> <li>□ DN 70</li> <li>□ Socket inclination: 90°</li> </ul>	<ul style="list-style-type: none"> <li>■ Stainless steel, material grade 304</li> <li>■ Socket inclination: 90°</li> <li>■ With long socket</li> <li>■ With compression-sealing flange and loose flange in accordance with EN 1253</li> <li>■ Plastic protective cover during construction period</li> <li>■ Inc. GM-X sealing element</li> </ul>	<b>0174.46.69</b>
	Lower part	<ul style="list-style-type: none"> <li>■ Stainless steel flat roof drains Jet/Spin</li> <li>□ DN 100</li> </ul>	<ul style="list-style-type: none"> <li>■ Stainless steel, material grade 304</li> <li>■ Socket inclination: 90°</li> <li>■ With compression-sealing flange in accordance with EN 1253</li> </ul>	<b>0174.47.16</b>

Accessories

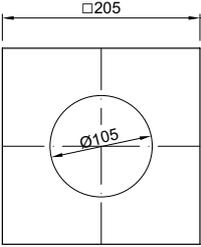
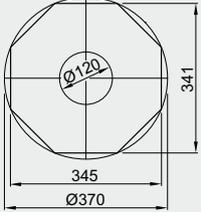
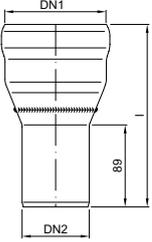
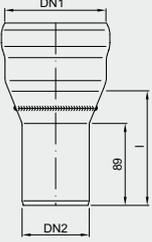
	Designation	compatible with	Description	Article No.
	Slide flange	<ul style="list-style-type: none"> <li>Stainless steel flat roof drains Jet/Spin series</li> <li>□ DN 70</li> <li>□ Socket inclination: 90°</li> </ul>	<ul style="list-style-type: none"> <li>Stainless steel, material grade 304</li> <li>Weight: 2.3 kg</li> </ul> <p>For unheated version</p> <p>For heated version</p>	<p><b>0174.46.53</b></p> <p><b>0174.46.54</b></p>
	Control shaft	<ul style="list-style-type: none"> <li>Stainless steel flat roof drains Jet/Spin series</li> </ul>	<ul style="list-style-type: none"> <li>Stainless steel, material grade 304</li> <li>Dimensions: 400 x 400 mm</li> <li>Height: 120 mm</li> <li>Load class: K 3</li> <li>Weight: 5.34 kg</li> </ul>	<b>0153.73.05</b>
	Shingle filter for inverted roof	<ul style="list-style-type: none"> <li>Stainless steel flat roof drains Jet/Spin series</li> </ul>	<ul style="list-style-type: none"> <li>Stainless steel, material grade 304</li> <li>Load class: H 1.5</li> <li>Weight: 0.63 kg</li> </ul>	<b>0153.60.01</b>
 	Gully grating Profile	<ul style="list-style-type: none"> <li>Stainless steel flat roof drains Jet/Spin series</li> <li>Profile</li> </ul>	<ul style="list-style-type: none"> <li>Installation height: 50 mm</li> <li>Dimensions: 400 x 400 mm</li> </ul> <p>Galvanized steel</p> <p>Stainless steel, material grade 304</p>	<p><b>38150</b></p> <p><b>38156</b></p>
 	Gully grating Profile	<ul style="list-style-type: none"> <li>Stainless steel flat drains Jet/Spin series</li> <li>Profile</li> </ul>	<ul style="list-style-type: none"> <li>Height-adjustability: 78 – 108 mm</li> <li>Dimensions: 400 x 400 mm</li> </ul> <p>Galvanized steel</p> <p>Stainless steel, material grade 304</p>	<p><b>38801</b></p> <p><b>38803</b></p>
	Flat roof heating	<ul style="list-style-type: none"> <li>Stainless steel flat roof drains Jet/Spin series</li> </ul>		<b>0174.84.32</b>
	Flange seal	<ul style="list-style-type: none"> <li>Stainless steel flat roof drains Jet/Spin series</li> <li>Parapet wall roof drains Spin</li> </ul>	<ul style="list-style-type: none"> <li>Thickness: 4 mm</li> <li>Weight: 0.3 kg</li> </ul> <p>EPDM rubber</p> <p>Soft PVC</p> <p>NBR/SBR</p>	<p><b>0174.42.87</b></p> <p><b>0174.42.92</b></p> <p><b>0174.42.97</b></p>
	Flange seal	<ul style="list-style-type: none"> <li>Stainless steel flat roof drains Jet/Spin series</li> </ul>	<ul style="list-style-type: none"> <li>EPDM rubber</li> <li>For box channels</li> <li>Thickness: 5 mm</li> </ul>	<b>0174.42.95</b>

Syphonic rainwater drainage  
Stainless steel

	Designation	compatible with	Description	Article No.
	Insulation	<ul style="list-style-type: none"> <li>■ Stainless steel flat roof drains Jet</li> <li>□ Socket inclination: 90°</li> <li>□ DN 70</li> </ul>	<ul style="list-style-type: none"> <li>■ For inlet/pipe socket</li> <li>■ Styrofoam, PS 30</li> <li>■ In accordance with DIN 18164</li> <li>■ Weight: 0.09 kg</li> </ul>	<b>0174.46.55</b>
	Insulation	<ul style="list-style-type: none"> <li>■ Intake guide</li> </ul>	<ul style="list-style-type: none"> <li>■ Styrofoam, PS 30</li> <li>■ In accordance with DIN 18164</li> <li>■ Weight: 0.04 kg</li> </ul>	<b>0174.46.56</b>
	Insulation	<ul style="list-style-type: none"> <li>■ Stainless steel flat roof drains Jet/Spin series</li> <li>□ Socket inclination: 90°</li> <li>□ DN 70</li> </ul>	<ul style="list-style-type: none"> <li>■ For inlet/pipe socket</li> <li>■ Rock wool, building material class A1</li> <li>■ Weight: 0.06 kg</li> </ul>	<b>0174.46.57</b>
	Insulation	<ul style="list-style-type: none"> <li>■ Stainless steel flat roof drains Jet/Spin series</li> <li>□ Socket inclination: 90°</li> <li>□ DN 100</li> </ul>	<ul style="list-style-type: none"> <li>■ For inlet/pipe socket</li> <li>■ Rock wool, building material class A1</li> <li>■ Weight: 0.06 kg</li> </ul>	<b>0174.47.21</b>
	Insulation	<ul style="list-style-type: none"> <li>■ Stainless steel flat roof drains Jet/Spin series</li> <li>□ Socket inclination: 90°</li> </ul>	<ul style="list-style-type: none"> <li>■ Styrofoam</li> <li>■ Height: 250 mm</li> <li>■ Length x width 205 x 205 mm</li> <li>■ Weight: 0.2 kg</li> </ul>	<b>0174.47.18</b> <b>0174.47.19</b>
	Damming ring	<ul style="list-style-type: none"> <li>■ Stainless steel flat roof drains Jet</li> <li>□ Socket inclination: 90°</li> </ul>	<ul style="list-style-type: none"> <li>■ Stainless steel, material grade 304</li> <li>■ Weight: 1.1 kg</li> </ul>	<b>0174.46.75</b>

	Designation	compatible with	Description	Article No.
	Support sheet for trapezoidal tin roof	<ul style="list-style-type: none"> <li>■ Flat roof drains Jet</li> <li>□ DN 70</li> <li>□ Socket inclination: 90°</li> <li>■ Flat roof drains Spin</li> <li>□ DN 70 – DN 125</li> <li>□ Socket inclination: 90°</li> </ul>	<ul style="list-style-type: none"> <li>■ Galvanized steel panel</li> <li>■ Thickness: 1.5 mm</li> <li>■ Weight: 3.14 kg</li> </ul>	0174.46.61
	Support sheet for trapezoidal tin roof	<ul style="list-style-type: none"> <li>■ Stainless steel flat roof drains Spin</li> <li>□ DN 70 – DN 125</li> <li>■ Stainless steel flat roof drains Jet</li> <li>□ DN 100</li> </ul>	<ul style="list-style-type: none"> <li>■ Galvanized steel panel</li> <li>■ Thickness: 1.5 mm</li> <li>■ Weight: 3.0 kg</li> </ul>	0174.47.26
	Shingle trap with airlock	<ul style="list-style-type: none"> <li>■ Stainless steel flat roof drains Jet</li> <li>□ DN 70</li> </ul>	<ul style="list-style-type: none"> <li>■ Construction with fire protection compound</li> <li>■ With technical authorization (ABZ) Z-19.17-1872</li> </ul>	0174.77.03
	Heat shield	<ul style="list-style-type: none"> <li>■ Stainless steel flat roof drains Jet</li> <li>□ DN 70</li> </ul>	<ul style="list-style-type: none"> <li>■ Stainless steel</li> <li>■ With drive-in plug M8 and hexagon head screw M8 x 16</li> </ul>	0174.77.97
	Insulating body	<ul style="list-style-type: none"> <li>■ Stainless steel flat roof drains Jet</li> <li>□ Lower section DN 70</li> <li>□ Socket inclination: 90°</li> </ul>	<ul style="list-style-type: none"> <li>■ Foam glass</li> <li>■ Socket inclination: 90°</li> <li>■ Height: 100 mm</li> </ul>	0150.12.69
	Insulating body	<ul style="list-style-type: none"> <li>■ Stainless steel flat roof drains Jet</li> <li>□ Socket inclination: 90°</li> <li>□ DN 70</li> </ul>	<ul style="list-style-type: none"> <li>■ Foam glass</li> <li>■ Height: 100 mm</li> </ul>	0150.12.70
	Insulating sheath	<ul style="list-style-type: none"> <li>■ Stainless steel flat roof drains Jet</li> <li>□ Socket inclination: 90°</li> <li>□ DN 70</li> </ul>	<ul style="list-style-type: none"> <li>■ Foam glass</li> <li>■ Height: 100 mm</li> <li>■ For length adjustment</li> </ul>	0174.77.93

Syphonic rainwater drainage  
Stainless steel

	Designation	compatible with	Description	Article No.
	Insulating sheath	<ul style="list-style-type: none"> <li>■ Stainless steel flat roof drains Jet/Spin series</li> <li>□ DN 100</li> <li>□ Socket inclination: 90°</li> </ul>	<ul style="list-style-type: none"> <li>■ Foam glass</li> <li>■ Height: 150 mm</li> <li>■ As length adjustment</li> </ul>	<b>0174.77.94</b>
	Insulating body	<ul style="list-style-type: none"> <li>■ Stainless steel flat roof drains Spin</li> <li>□ DN 70/DN 100</li> <li>□ Socket inclination: 90°</li> </ul>	<ul style="list-style-type: none"> <li>■ Foam glass</li> <li>■ Height: 100 mm</li> </ul>	<b>0174.77.96</b>
	Optimization piece	<ul style="list-style-type: none"> <li>■ Stainless steel flat roof drains Jet</li> <li>□ Socket inclination: 90°</li> <li>□ DN 70</li> </ul>	<ul style="list-style-type: none"> <li>■ Galvanized steel</li> <li>■ Weight: 0.5 kg</li> </ul>	DN 70/DN 40 Length: 95 mm <b>0174.12.69</b>
				DN 70/DN 50 Length: 105 mm <b>0174.12.70</b>
	Optimization piece	<ul style="list-style-type: none"> <li>■ Stainless steel flat roof drains Jet</li> <li>□ Socket inclination: 90°</li> <li>□ DN 100</li> </ul>	<ul style="list-style-type: none"> <li>■ Galvanized steel</li> <li>■ Weight: 0.9 kg</li> </ul>	DN 100/DN 70 Length: 130 mm <b>0174.12.73</b>
				DN 100/DN 80 Length: 120 mm <b>0174.12.74</b>
	Mesh grating	<ul style="list-style-type: none"> <li>■ Gulley grating Profiline</li> <li>□ 38150</li> <li>□ 38801</li> </ul>	<ul style="list-style-type: none"> <li>■ Galvanized steel</li> <li>■ Mesh width 30 x 10 mm</li> <li>■ Not screwed in place</li> <li>■ Weight: 0.9 kg</li> </ul>	<b>38570</b>
	Mesh grating	<ul style="list-style-type: none"> <li>■ Gulley grating Profiline</li> <li>■ 38150</li> <li>■ 38801</li> </ul>	<ul style="list-style-type: none"> <li>■ Galvanized steel</li> <li>■ Mesh width 30 x 14 mm</li> <li>■ Not screwed in place</li> <li>■ Weight: 0.9 kg</li> </ul>	<b>36754</b>
	Mesh grating	<ul style="list-style-type: none"> <li>■ Gulley grating Profiline</li> <li>□ 38156</li> <li>□ 38803</li> </ul>	<ul style="list-style-type: none"> <li>■ Stainless steel, material grade 304</li> <li>□ Etched</li> <li>■ Mesh width 30 x 10 mm</li> <li>■ Not screwed in place</li> <li>■ Weight: 0.9 kg</li> </ul>	<b>38573</b>
	Mesh grating	<ul style="list-style-type: none"> <li>■ Gulley grating Profiline</li> <li>□ 38156</li> <li>□ 38803</li> </ul>	<ul style="list-style-type: none"> <li>■ Stainless steel, material grade 304</li> <li>□ Etched</li> <li>■ Mesh width 30 x 14 mm</li> <li>■ Not screwed in place</li> <li>■ Weight: 0.9 kg</li> </ul>	<b>36760</b>