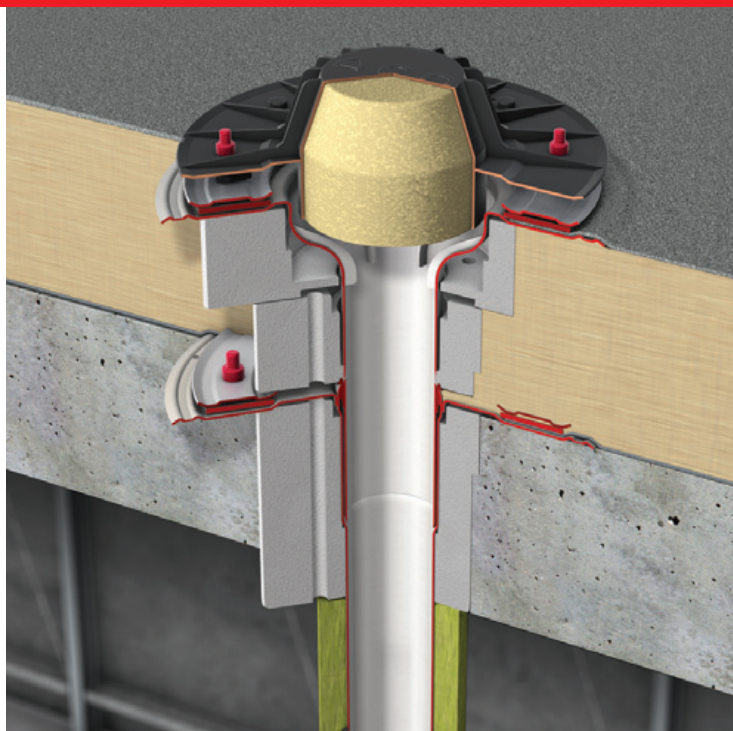


Syphonic drainage



Contents

Gravity drainage

Syphonic drainage

Parking deck
drainage

Balcony and terrace
drainage

Facade drainage

Pipe systems

ACO Jet flat roof drain for syphonic drainage

Syphonic drainage systems operate with specially designed flat roof drains which, unlike gravity drainage systems, are configured to work with completely full pipes (degree of fill h/d 1.0). This can only be achieved by assuring amongst other things that no air is sucked in with the rain water to form bubble vortexes in the pipe systems. Special components are used in the ACO Jet flat roof drains to prevent these vortexes from forming. Once the dimensioning rainfall volumes are reached which get the syphonic system operational, the system works with completely filled pipes which rapidly and safely drain the roof. Syphonic drainage systems can be used to drain a roof if the following criteria are fulfilled:

- Adequate difference in height of at least 4 metres between the roof and the buried drains.
- Drainage of large roof surfaces requiring a minimum outflow capacity of 1.0 l/s.
- If it is possible for each of the drains connected to a downpipe to be hydraulically matched to one another.
- Initiation height of at least 0.3–0.4 m between the inflow level to the centre of the inclined pipe.
- Distance between two drains max. 20 metres.



Regulations and standards

The stipulations in DIN and DIN EN standards must be complied with when planning and installing flat roof drains for syphonic drainage. The standards also apply to floor drains and flat roof drains.

Emergency drainage

DIN 1986-100, Chapter 5.9 stipulates that emergency drainage systems can either drain freely through parapets, or that emergency drainage systems must be installed as gravity drainage systems or as planned completely full pipes with syphonic drainage.

Fire protection

Flat roof drains with fire protection are required on flat roofs in accordance with state building regulations if the separation between the roof drains and a rising wall in these areas is less than 5 metres (walls with openings or with no fire resistance capacity).

In this case, an appropriate fire protection roof drain without an odour seal must be installed. This prevents the spread of fire and smoke into neighbouring parts of the building. Special attention should be given to the fire resistance class of the roof structure. The roof drain must have at least the same fire resistance class or a higher fire resistance class than the ceiling.

Specifications for green roofs

If a green roof is to be drained using a syphonic drainage system, analysis should be carried out in each case during the planning stage to ensure that this is feasible on a green roof (Green Roof Regulations, Chapter 5.8 and 6.5.2).

Calculating the syphonic drainage system parameters

Syphonic drainage calculations have to be carried out to ensure that the overall system functions properly. This calculation is based on the volume flow, which is itself derived from the reference rainfall to be drained by the pipe system.

The hydraulic calculation can be carried out using Aquaperfect software. This software generates the following data:

- Diagram of the pipe systems
- Hydraulic calculations
- Material listing

The following pages contain a calculation datasheet for syphonic drainage systems pursuant to DIN 1986-100, as well as a check list for the calculation data parameters. The calculation for syphonic drainage systems can be carried out by our own applications engineers.

Decision tree for syphonic drainage

Basic conditions

Syphonic drainage

- Large roofs, per drain $\geq 150 \text{ m}^2$
- Adequate height difference of 4.2 m between the roof and the buried pipes
- Situation with only limited space beneath the ceiling (no room for installing inclined pipes)
- Long collection pipes

Gravity drainage

- Small roof areas, per drain $\geq 150 \text{ m}^2$
- Plenty of room
- Short collection pipe

Influencing factors

- Local reference rainfall
- Connection to buried pipe
- Design of the piping system
- Roof construction
- Height

Dimensioning

DIN 1986-100

Drainage systems for buildings and building lots

DIN EN 12056

DIN 1986-100
Gravity drainage systems within buildings

Material selection

Jet drains made of stainless steel or cast iron

Spin drains made of stainless steel or cast iron

GM-X drain pipe
GM-X compound pipe

Dimensioning

Drainage using a syphonic system pursuant to DIN 1968-100

Please fill in this questionnaire for dimensioning your roof drainage system, and fax the pages to the ACO Applications Technology in Stadtlengsfeld/Germany:

■ Applications Technology
Flat roof drainage
Tel. +49 (0) 36965 819-0
Fax +49 (0) 36965 819-364
anwendungstechnik@aco-online.de

General information

Building: Name _____
Address _____
Postcode, Place _____
Country _____
☐ New building ☐ Extension ☐ Renovation ☐ Other

Planning phase: ☐ Blueprint planning ☐ Approval planning ☐ Implementation planning

Owner: Name _____
Address _____
Postcode, Place _____
Country _____
Telephone _____
Fax _____

Planner/fabricator: Name _____
Contact person _____
Address _____
Postcode, Place _____
Country _____
Telephone _____
Fax _____
E-mail _____

Reference rainfall details

☐ Reference rainfall pursuant to KOSTRA DWD 2000 ☐ or different rainfall details from the planner
 $r_{(5,5)}$ in l/s hectare _____ $r_{(5,100)}$ in l/s hectare _____
Flow coefficient C/Ψ _____
Does the building require special protection? ☐ no ☐ yes
Do you need plans for an emergency drainage system? ☐ yes ☐ No
Emergency drainage via...
☐ A second pipe network? ☐ Parapet drains? ☐ Parapet slots?

Pipe system / roof construction details

Roof construction:

- ☐ Concrete roof
 ☐ Trapezoidal sheet roof

Vapour trap manufacturer / type _____

Sealing membrane manufacturer / type _____

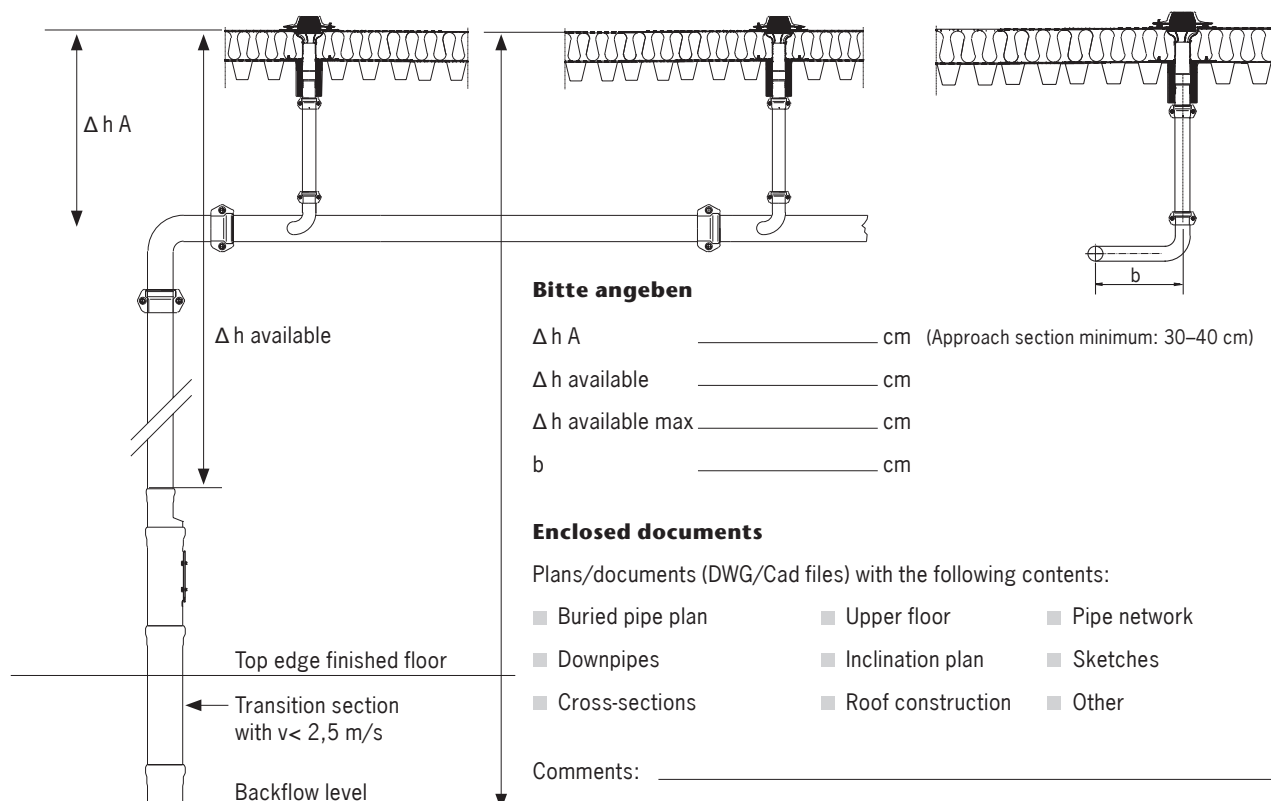
Drain Jet – type:

- | | |
|---|--|
| Stainless steel <input type="checkbox"/> 1-piece <input type="checkbox"/> 2-piece <input type="checkbox"/> Insulated: polystyrene <input type="checkbox"/> Insulated: rock wool <input type="checkbox"/> Insulated: foam glass <input type="checkbox"/> Heated: optional <input type="checkbox"/> With fire protection | Cast iron <input type="checkbox"/> 1-piece <input type="checkbox"/> 2-piece <input type="checkbox"/> Insulated: foam glass <input type="checkbox"/> Insulated: rock wool <input type="checkbox"/> Heated: optional <input type="checkbox"/> With fire protection |
|---|--|

Pipe type:

- ☐ GM-X steel pipe
 ☐ GM-X compound pipe

Connection situation of the roof drain



Dimensioning

Check list for calculation data parameters

Tick off the points in the check list which have already been dealt with. When complete, nothing more stands in the way of the precise planning of your drainage system.

- Defining the roof
 - Take into consideration the sub-roof areas
Consider minimum specific output for syphonic drainage!
(Minimum specific output/outlet 2–3 l/s)
 - Take into consideration the high points and low points
 - Take into consideration firewalls
 - Take into consideration fire protection zones

- Assigning the roof drains to the roof areas
 - When there are different sub-roofs
 - When there are different roof constructions
 - Define the flow coefficients for different parts of the roof

- Define the reference rainfall
 - $r_{5,5}$
 - $r_{5,100}$

- Request the construction plans (DWG/Cad files)
 - Roof floor plan with high points and low points
 - Cross-section with height figures
 - Cross-section through the floors with positions of the pipes
 - Position of buried pipes
 - Specify the following data when only sketches are available:
 - Position of the drains
 - Position of the collecting pipes
 - Position of the buried pipes
 - High points and low points on the roofs

- Defining the emergency drainage
 - Emergency drainage via parapet slots?
 - Emergency drainage via a second pipe system?

ACO Jet flat roof drain – volume flow

| Nominal width | Material of drain body | Outlet inclination | required outflow value according to DIN | actual outflow value according to DIN |
|---------------|------------------------|--------------------|---|---------------------------------------|
| DN 40 | stainless steel | 0° | 3 l/s | 5.2 l/s |
| DN 50 | stainless steel | 0° | 6 l/s | 8.5 l/s |
| DN 70 | stainless steel | 0° | 12 l/s | 16 l/s |
| DN 70 | stainless steel | 90° | 12 l/s | 15 l/s |
| DN 100 | stainless steel | 90° | – | 39 l/s |
| DN 50 | cast iron | 90° | 5 l/s | 9 l/s |
| DN 80 | cast iron | 90° | – | 17 l/s |

Installation example concrete roof with gravel layer
Syphonic drainage using ACO Jet flat roof drain made of cast iron



1 Gravel basket
Article No. 7000.12.00

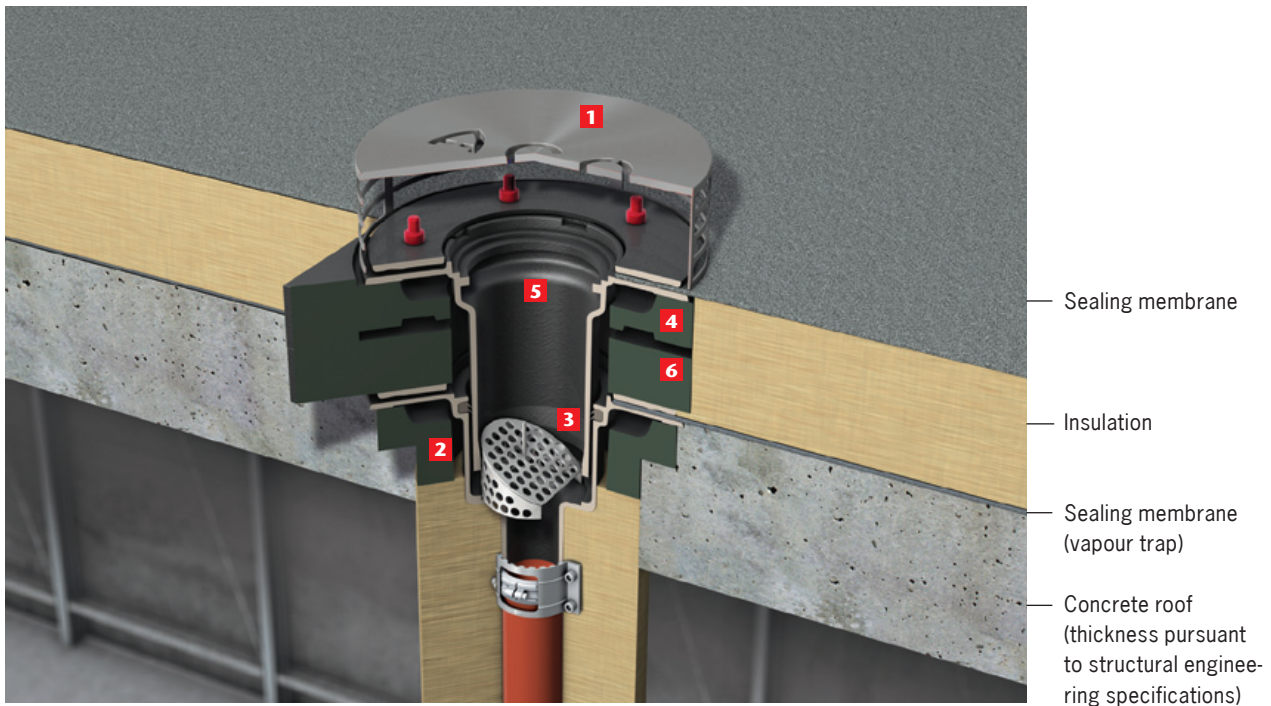
2 ACO Jet flat roof drain DN 80
made of cast iron
Article No. 7038.10.10

| DN 50 | DN 80 |
|---|---|
| | |
| The outlet socket of the drain body must not be shortened on site | The outlet socket of the drain body must not be shortened on site |
| The gravel basket (75 mm height) can be raised in 65 mm steps using a height adapter. Please see page 76. | |

Extension heights in mm

Installation example reversed roof

Syphonic drainage using ACO Jet flat roof drain made of cast iron



1 Gravel basket
Article No. 7000.02.00

2 Insulating body
Article No. 7040.22.00

3 ACO Jet flat roof drain DN 50
made of cast iron
Article No. 7037.10.10

4 Insulating ring
Article No. 7040.12.00

5 Upper part
Article No. 7047.10.25

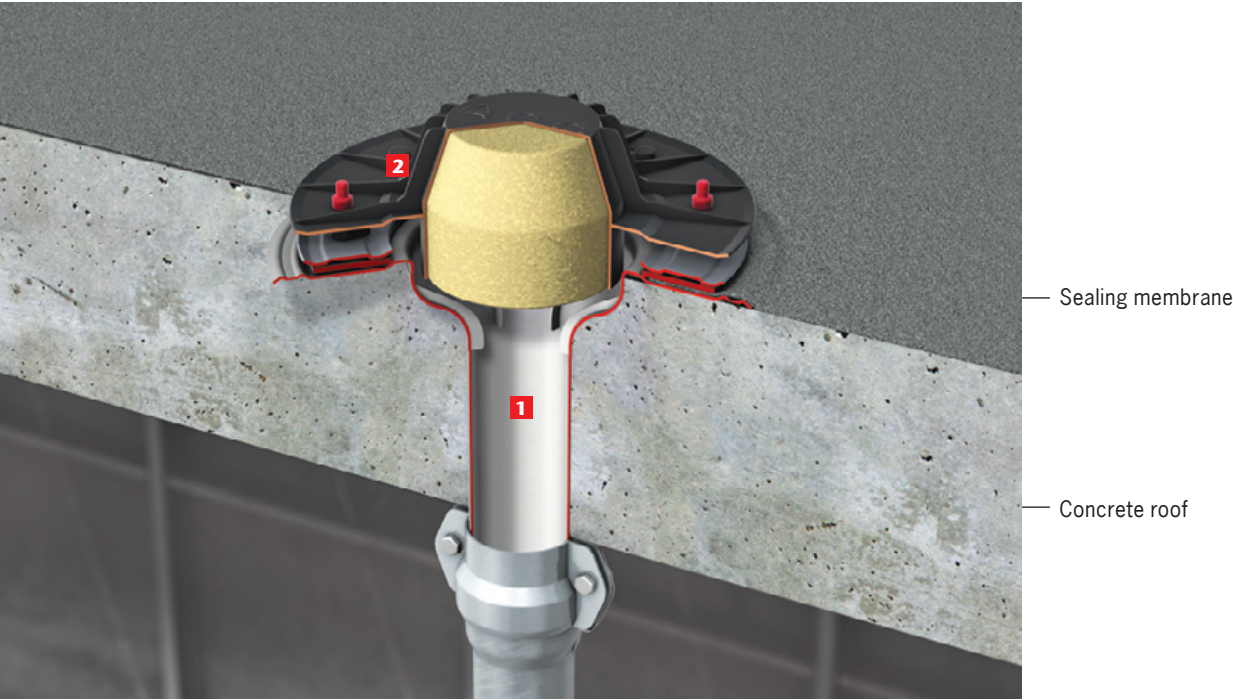
6 Levelling element
Article No. 7040.02.00

| DN 50 | DN 80 |
|---|---|
| | |
| The outlet socket of the drain body must not be shortened on site | The outlet socket of the drain body must not be shortened on site |
| The gravel basket (75 mm height) can be raised in 65 mm steps using a height adapter. Please see page 76. | |

Extension heights in mm

Installation example concrete roof

Syphonic drainage with ACO Jet flat roof drain made of stainless steel



Complete drain Article No.1279.10.00 **2** Air lock
consisting of: Article No. 0174.46.74

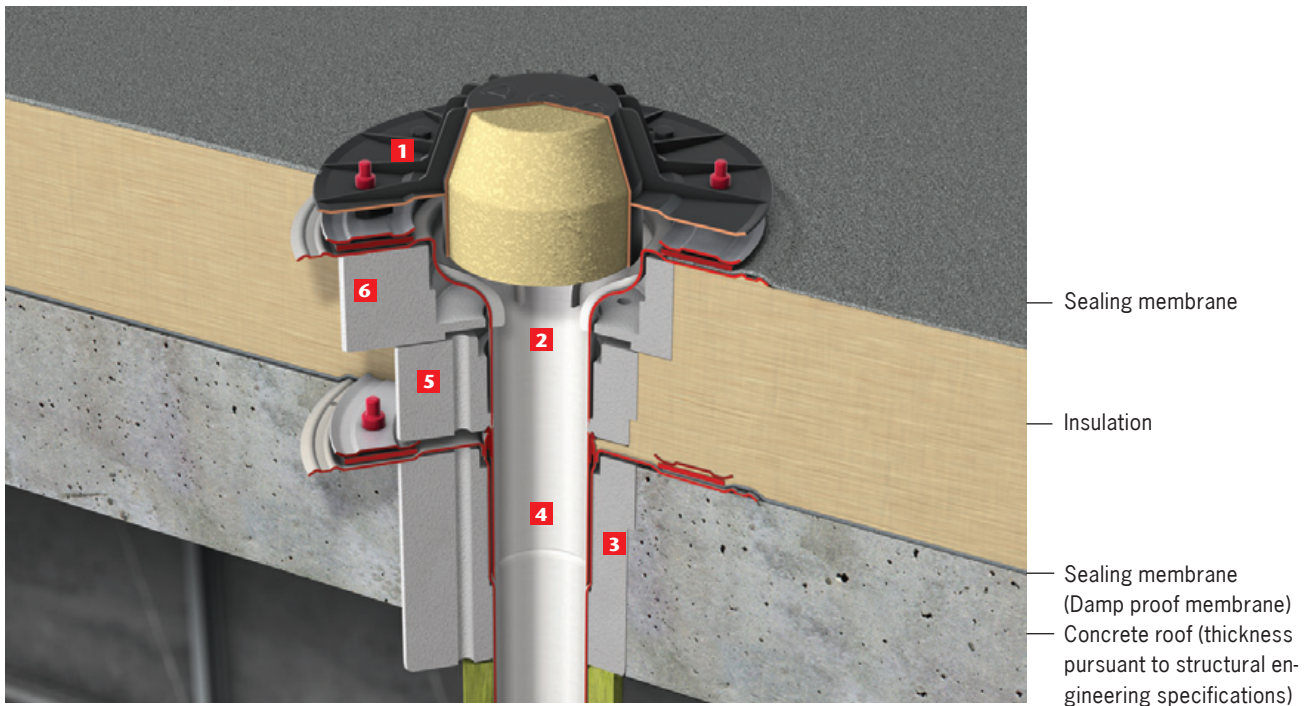
1 ACO Jet flat roof drain, stainless
steel, DN 70, 90°
Article No. 0174.46.60

| DN 70 | DN 100 |
|--|--|
| | |
| The gravel basket top section for the Jet drain DN 70 has an extension height of either 70 mm or 225 mm. | The gravel basket top section for the Jet drain DN 100 must always be installed. |

Extension heights in mm

Installation example concrete roof with insulation

Syphonic drainage with ACO Jet flat roof drain made of stainless steel



Complete drain Article No. 1279.25.00 consisting of:

1 Air lock
Article No. 0174.77.03

2 ACO Jet drain body, DN 70, made of stainless steel
Article No. 0174.76.48

3 Polystyrene insulation DN 70
Article No. 0174.46.55

4 Jet lower part DN 70, stainless steel
Article No. 0174.46.69

Accessories:

5 Polystyrene insulation DN 70
Article No. 0174.46.55

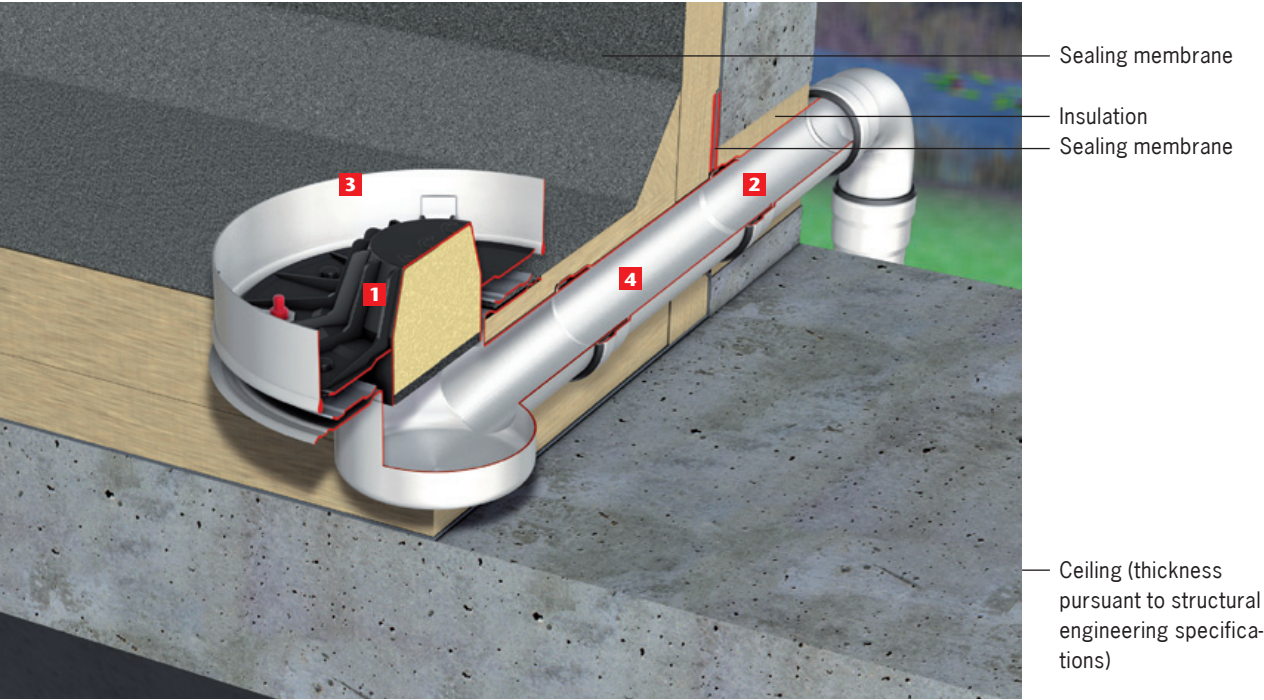
6 Insulation for inflow cone, polystyrene DN 70
Article No. 0174.46.56

| DN 70 | DN 100 |
|--|--|
| | |
| The gravel basket top section for the Jet drain DN 70 has an extension height of either 70 mm or 225 mm. | The gravel basket top section for the Jet drain DN 100 must always be installed. |

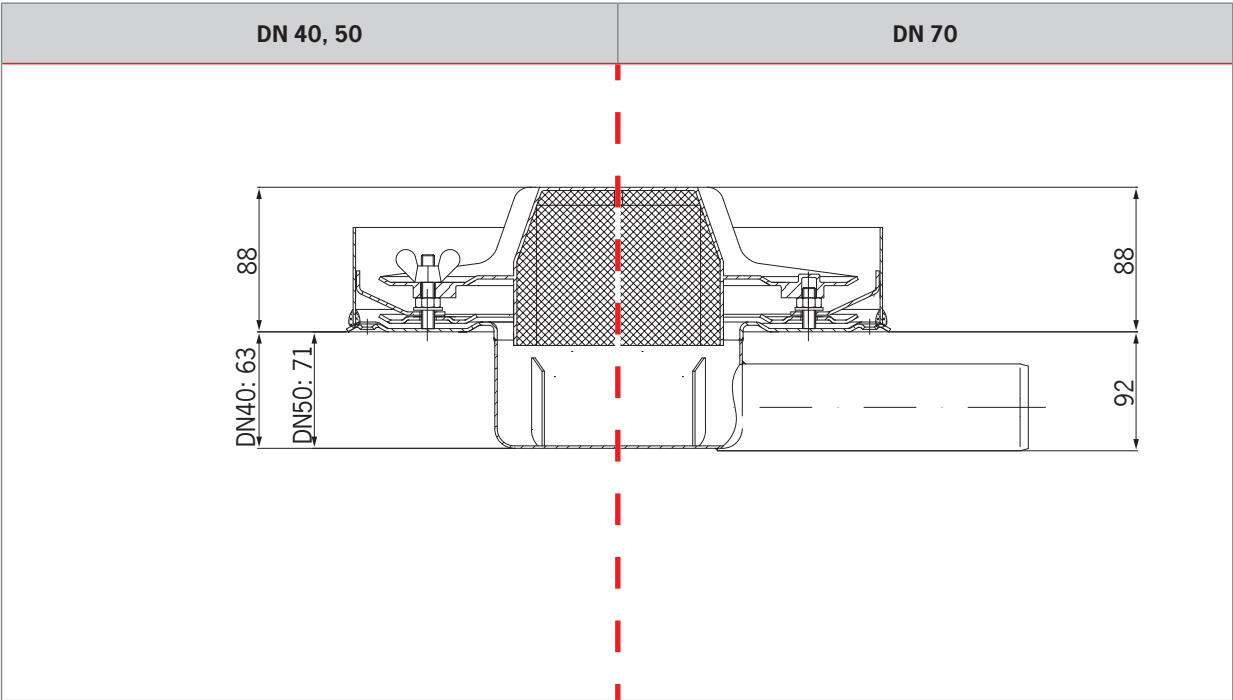
Extension heights in mm

Installation example

ACO flat roof drain made of stainless steel, emergency drainage system



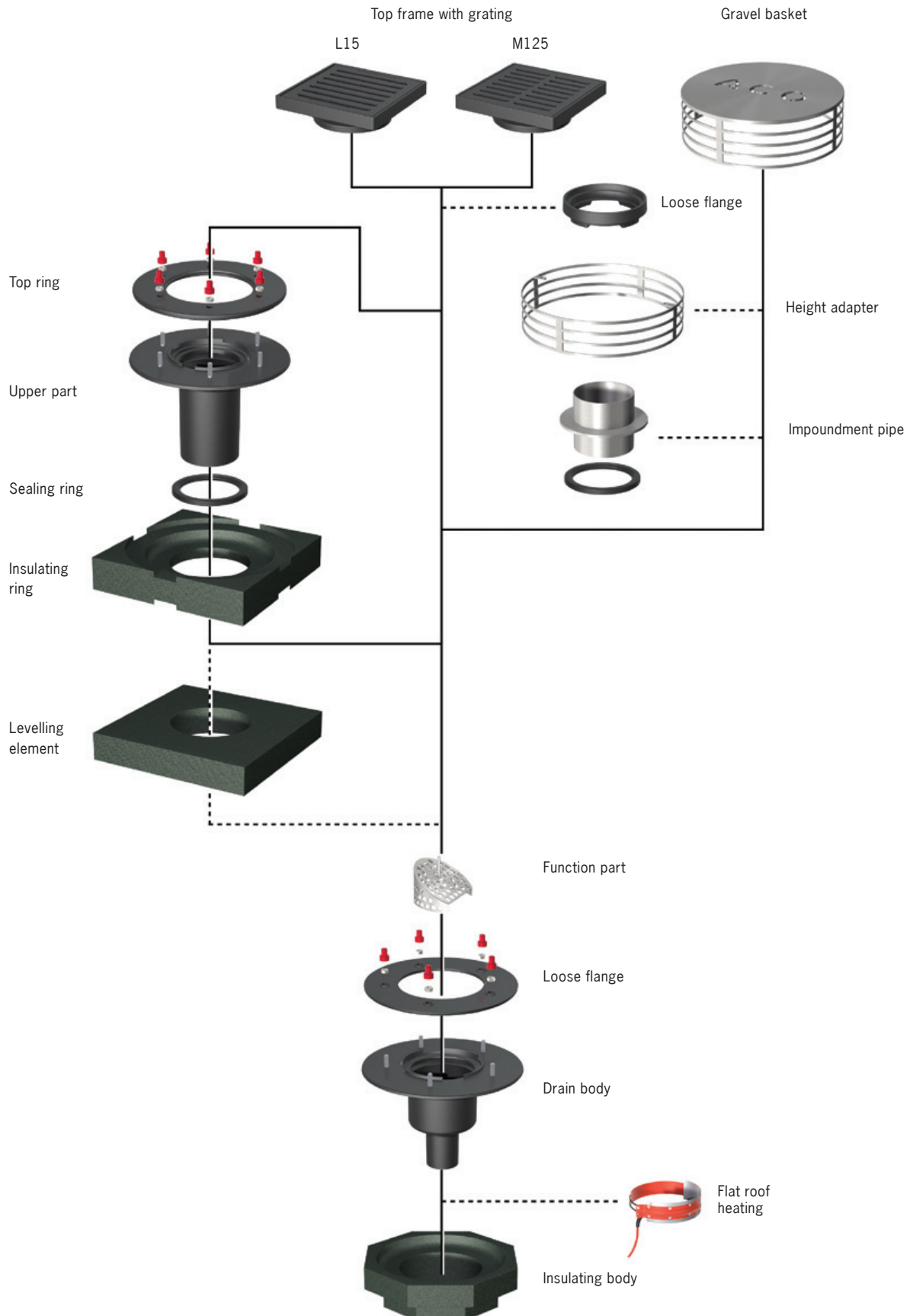
- 1** ACO Jet flat roof drain made of stainless steel
DN 70, 1,5° socket outlet inclination, for sealing with bitumen
Article No. 0174.46.45
- 2** Attika duct with compression sealing flange
Article No. 0174.48.66
- 3** Impoundment ring
Article No. 0174.46.75
- 4** GM-X pipe of galvanized steel
Length: 500 mm
Article No. 0174.10.62



Extension heights in mm

Modular system

ACO Jet flat roof drain made of cast iron for syphonic drainage

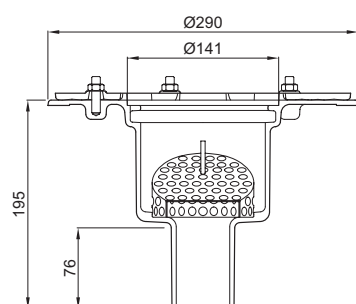


ACO Jet flat roof drain made of cast iron

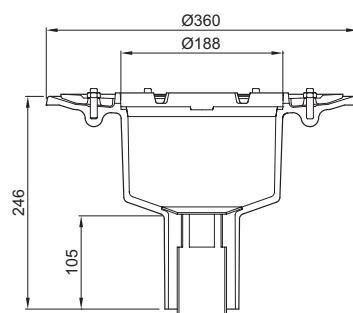
DN 50 – DN 80



- Drain body DN 50 or DN 80
- Cast iron, construction material class A1, coated
- With compression sealing flange and seepage openings and function component
- Can be connected to spigot pipe pursuant to DIN 19522/DIN EN 877



Model with vertical outlet socket
DN 50

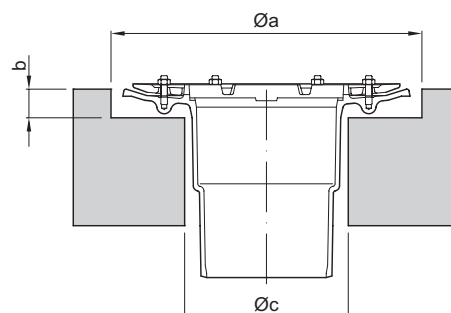


Model with vertical outlet socket
DN 80

| Model | Weight | Article No. |
|-------|--------|-------------|
| DN 50 | 5 kg | 7037.10.10 |
| DN 80 | 12 kg | 7038.10.10 |

Core borehole dimensions

| Nominal width | Ø a | Ø c | b [mm] | Article No. |
|---|-----|-----|--------|-------------|
| For drain body without insulating body | | | | |
| DN 50 | 300 | 150 | 30 | 7037.10.10 |
| DN 80 | 380 | 200 | 35 | 7038.10.10 |
| For drain body with insulating body | | | | |
| DN 50 | 315 | 220 | 45 | 7037.10.10 |
| DN 80 | 430 | 270 | 65 | 7038.10.10 |



Recess dimensions

| Nominal width | Type | Outlet inclination | Recess dimensions drain body without insulating body | Recess dimensions drain body with insulating body |
|---------------|------|--------------------|--|---|
| DN 50 | Jet | 90° | 230 x 320 mm | 320 x 320 mm |
| DN 80 | Jet | 90° | 290 x 410 mm | 450 x 450 mm |

Additional components

For ACO Jet flat roof drains made of cast iron

| | Scale drawing | Product description | Model | Article No. |
|---|---|--|-------|-------------|
|  |  | Upper part cast iron, fits Jet flat roof drains made of cast iron, for sealing with two sealing membranes, with compression sealing flange, seepage openings and sealing ring. | DN 50 | 7047.10.25 |
|  |  | Insulating body for flat roof drain with vertical outlet socket, foam glass | DN 50 | 7040.22.00 |
|  |  | Insulating ring for flat roof drain upper part, foam glass | DN 50 | 7040.12.00 |
|  |  | Gravel basket fits Jet flat roof drains made of cast iron, basket made of stainless steel with two fastening screws | DN 50 | 7040.02.00 |
|  |  | Upper part cast iron, fits Jet flat roof drains made of cast iron, for sealing with two sealing membranes, with compression sealing flange, seepage openings and sealing ring. | DN 80 | 7044.10.25 |
|  |  | Insulating body for flat roof drain with vertical outlet socket, foam glass | DN 80 | 7040.21.00 |

Contents

Gravity drainage

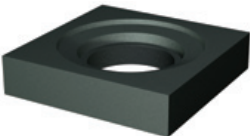
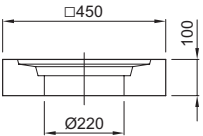
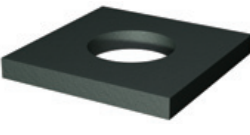
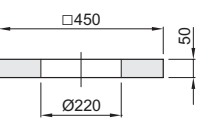
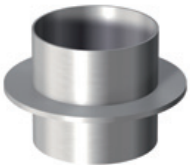
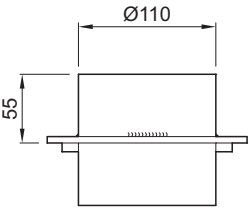


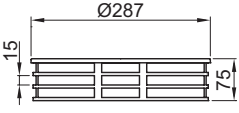

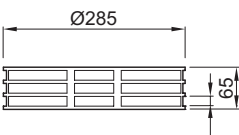

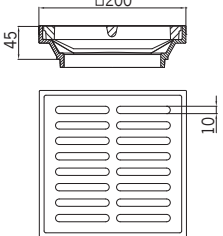

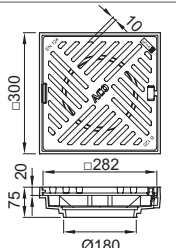
Syphonic drainage

Parking deck drainage

Balcony and terrace drainage

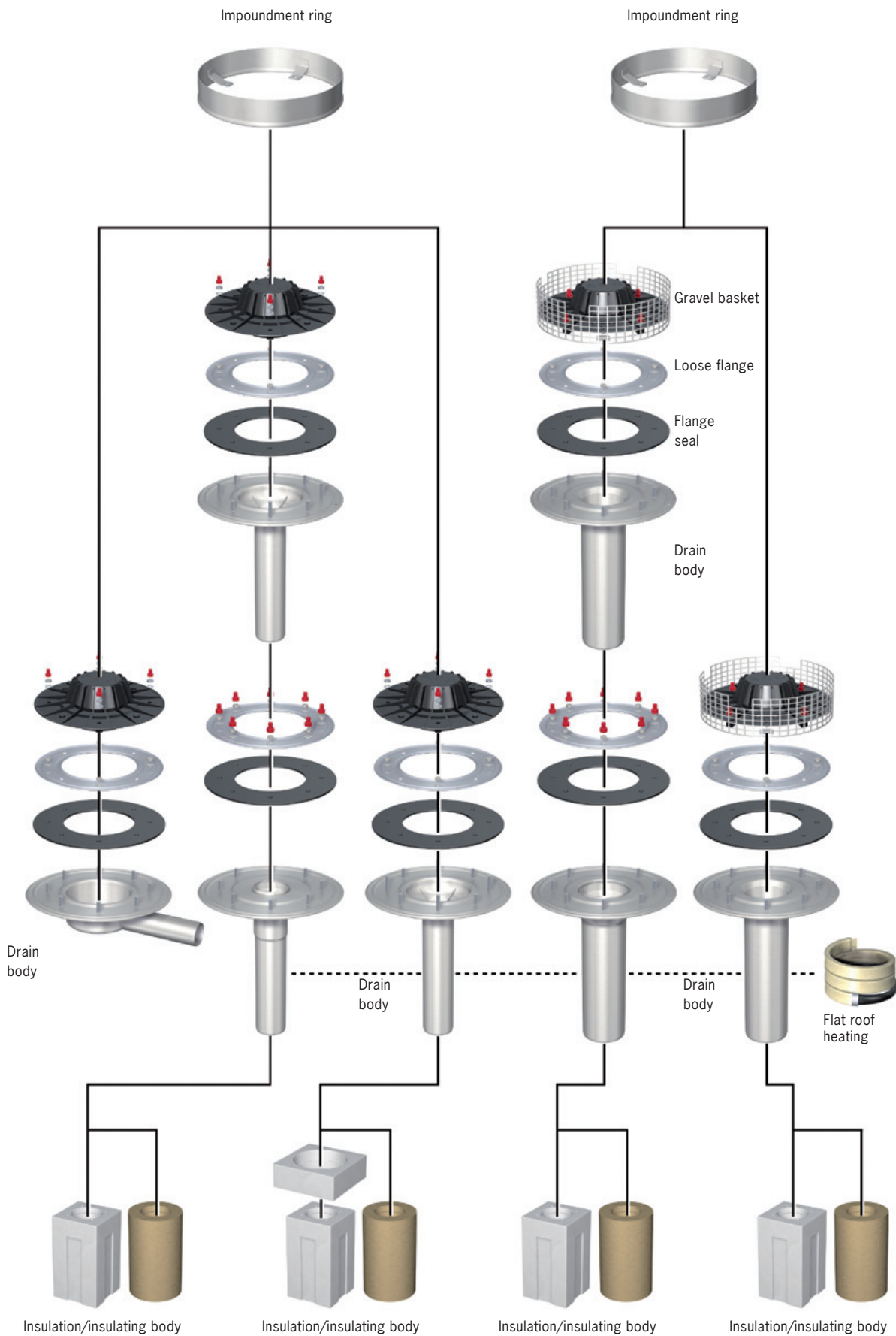
Facade drainage

Pipe systems

| | Scale drawing | Product description | Model | Article No. |
|------------------------------|---|---|--|--|
| Contents |  |  | Insulating ring for flat roof drain upper part, foam glass | DN 80 7040.11.00 |
| |  |  | Levelling element for flat roof drain upper part DN 50, DN 80, foam glass | DN 80 7040.01.00 |
| Gravity drainage |  |  | Impoundment pipe 55 mm high, for converting a Jet flat roof drain to an emergency drain, including sealing ring | DN 50, one-piece and two-piece 7047.10.55 DN 80, one-piece 7048.10.50 DN 80, two-piece 7048.20.50 |
| |  | | Flat roof heating Suitable for all flat roof drains DN 50 – DN 150, Electrical supply: 220-240 V AC, Nominal power: 25 W, Protection class: I, Protection type: IP 67, Connecting cable: SIHF 3 x 1 mm ² , 1.5 m G 1.5 | 7000.85.00 |
| Parking deck drainage |  |  | Levelling element for flat roof drain upper part DN 50, DN 80, foam glass | DN 50 7000.02.00 DN 80 7000.12.00 |
| |  |  | Height adapter Height: 65 mm, fits gravel basket for Jet flat roof drains made of cast iron. Height ad- apter made of stainless steel with two fixing screws. | DN 50/DN 80 7000.11.00 |
| Balcony and terrace drainage |  |  | Top frame with grating Cast iron | DN 50, Class L15 7000.43.00 DN 50, Class M125 7000.44.00 |
| |  |  | Top frame with grating Cast iron | DN 80, Class M125 7000.46.00 |

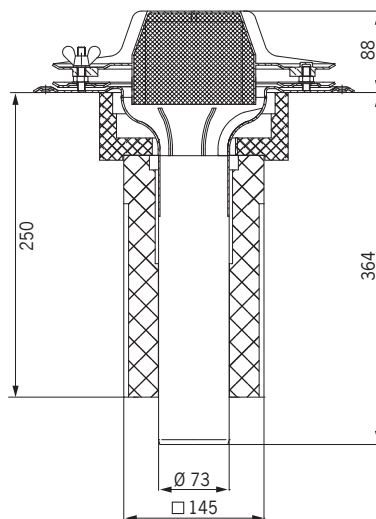
Modular system

ACO Jet flat roof drains made of stainless steel for syphonic drainage



ACO Jet flat roof drains made of stainless steel with vertical outlet socket

DN 70

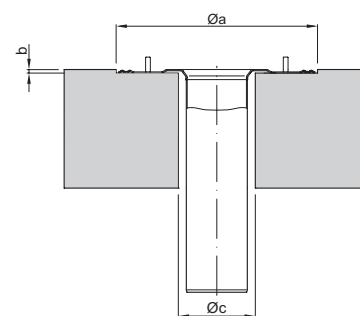


- Flat roof drain for syphonic drainage DN 70 with vertical outlet socket, pursuant to DIN EN 1253
- Stainless steel, material 1.4301
- With compression sealing flange for sealing one sealing membrane
Warning! It is NOT possible to install a second sealing membrane after the vertical drain has been installed!
- With air lock made of PP
- Sarnafil TG 66-15
 - for loose placement
 - for greened, gravelled roofs with foot and vehicle traffic
 - for roofs with additional loads
- Sikaplan 15 G
 - for loose placement with mechanical fixing
 - up to a roof gradient of maximum 20%
 - for roofs without additional loads

| | Model | Gravel basket | D [mm] | Weight [kg] | Without sealing membrane Article No. | Sarnafil TG 66-15 Article No. | Sikaplan 15 G Article No. |
|-------|----------------------------------|---------------|--------|-------------|--------------------------------------|-------------------------------|---------------------------|
| DN 70 | uninsulated | without | 73 | 3.6 | 1279.10.00 | 1279.10.02 | 1279.10.07 |
| | insulated (polystyrene) | without | 73 | 3.6 | 1279.15.00 | 1279.15.02 | 1279.15.07 |
| | insulated (rock wool) | without | 73 | 3.6 | 1279.17.00 | 1279.17.02 | 1279.17.07 |
| | uninsulated, heatable | without | 73 | 3.8 | 1279.10.40 | 1279.10.42 | 1279.10.47 |
| | insulated (polystyrene) heatable | without | 73 | 3.8 | 1279.15.40 | 1279.15.42 | 1279.17.07 |
| | insulated (rock wool) heatable | without | 73 | 3.8 | 1279.17.40 | 1279.17.42 | 1279.17.47 |

Core borehole dimensions

| Nominal width | Ø a | Ø c | b [mm] | Article No. |
|---|-----|-----|--------|-------------|
| For drain bodies without insulating bodies | | | | |
| DN 70 | 340 | 90 | 10 | 1279.10.00 |
| For drain bodies with insulating bodies | | | | |
| DN 70 | 340 | 290 | 10 | 1279.15.00 |
| | | | | 1279.17.00 |
| | | | | 1279.15.40 |
| | | | | 1279.17.40 |

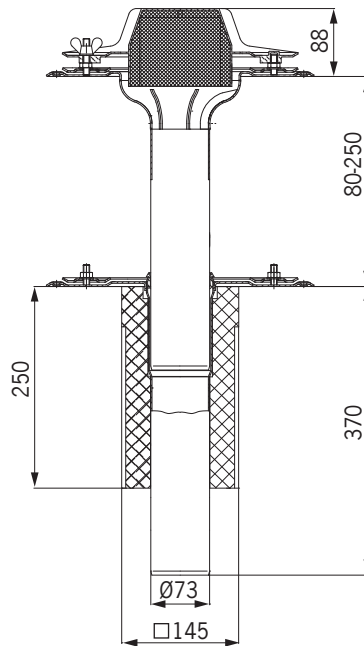


Recess dimensions

| Nominal width | Type | Inclination | Recess dimensions drain body without insulating body | Recess dimensions drain body with insulating body |
|---------------|------|-------------|--|---|
| DN 70 | Jet | 90° | 120 x 260 mm | 230 x 360 mm |

ACO Jet flat roof drains made of stainless steel with vertical outlet socket

DN 70

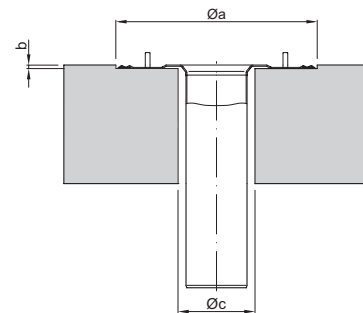


- Flat roof drain for syphonic drainage DN 70 with vertical outlet socket, pursuant to DIN EN 1253
- Stainless steel, material 1.4301
- With two compression sealing flanges for sealing two sealing membranes
- With air lock made of PP
- Sarnafil TG 66-15
 - for loose placement
 - for greened, gravelled roofs with foot and vehicle traffic
 - for roofs with additional loads
- Sikaplan 15 G
 - for loose placement with mechanical fixing
 - up to a roof gradient of maximum 20%
 - for roofs without additional loads

| | Model | Gravel basket | D [mm] | Weight [kg] | Without sealing membrane Article No. | Sarnafil TG 66-15 Article No. | Sikaplan 15 G Article No. |
|-------|----------------------------------|---------------|--------|-------------|--------------------------------------|-------------------------------|---------------------------|
| DN 70 | uninsulated | without | 73 | 6.0 | 1279.20.00 | 1279.20.05 | 1279.20.09 |
| | insulated (polystyrene) | without | 73 | 6.0 | 1279.25.00 | 1279.25.05 | 1279.25.09 |
| | insulated (rock wool) | without | 73 | 6.0 | 1279.27.00 | 1279.27.05 | 1279.27.09 |
| | uninsulated, heatable | without | 73 | 6.2 | 1279.20.40 | 1279.20.45 | 1279.20.49 |
| | insulated (polystyrene) heatable | without | 73 | 6.2 | 1279.25.40 | 1279.25.45 | 1279.27.09 |
| | insulated (rock wool) heatable | without | 73 | 6.2 | 1279.27.40 | 1279.27.45 | 1279.27.49 |

Core borehole dimensions

| Nominal width | Ø a | Ø c | b [mm] | Article No. |
|---|-----|-----|--------|-------------|
| For drain bodies without insulating bodies | | | | |
| DN 70 | 340 | 90 | 10 | 1279.20.00 |
| For drain bodies with insulating bodies | | | | |
| DN 70 | 340 | 290 | 10 | 1279.25.00 |
| | | | | 1279.27.00 |
| | | | | 1279.25.40 |
| | | | | 1279.27.40 |

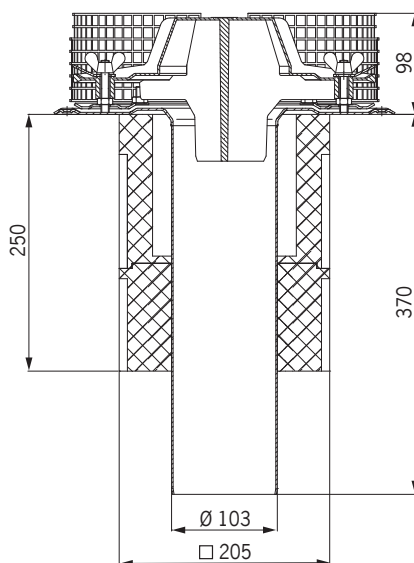


Recess dimensions

| Nominal width | Type | Inclination | Recess dimensions drain body without insulating body | Recess dimensions drain body with insulating body |
|---------------|------|-------------|--|---|
| DN 70 | Jet | 90° | 120 x 260 mm | 230 x 360 mm |

ACO Jet flat roof drains made of stainless steel with vertical outlet socket

DN 100

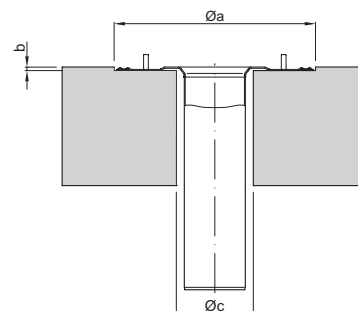


- Flat roof drain for syphonic drainage DN 100 with vertical outlet socket, pursuant to DIN EN 1253
- Stainless steel, material 1.4301
- With compression sealing flange for sealing one sealing membrane
Warning! It is NOT possible to install a second sealing membrane after the vertical drain has been installed!
- With a gravel basket from stainless steel, material grade 304 and air lock made of PP
- Sarnafil TG 66-15
 - for loose placement
 - for greened, gravelled roofs with foot and vehicle traffic
 - for roofs with additional loads
- Sikaplan 15 G
 - for loose placement with mechanical fixing
 - up to a roof gradient of maximum 20%
 - for roofs without additional loads

| | Model | Gravel basket | D [mm] | Weight [kg] | Without sealing membrane Article No. | Sarnafil TG 66-15 Article No. | Sikaplan 15 G Article No. |
|--------|----------------------------------|-----------------|--------|-------------|--------------------------------------|-------------------------------|---------------------------|
| DN 100 | uninsulated | stainless steel | 103 | 4.9 | 1219.10.60 | 1219.10.62 | 1219.10.67 |
| | insulated (polystyrene) | stainless steel | 103 | 4.9 | 1219.15.60 | 1219.15.62 | 1219.15.67 |
| | insulated (rock wool) | stainless steel | 103 | 4.9 | 1219.17.60 | 1219.17.62 | 1219.17.67 |
| | uninsulated, heatable | stainless steel | 103 | 5.1 | 1219.10.90 | 1219.10.92 | 1219.10.97 |
| | insulated (polystyrene) heatable | stainless steel | 103 | 5.1 | 1219.15.90 | 1219.15.92 | 1219.17.97 |
| | insulated (rock wool) heatable | stainless steel | 103 | 5.1 | 1219.17.90 | 1219.17.92 | 1219.17.97 |

Core borehole dimensions

| Nominal width | Ø a | Ø c | b [mm] | Article No. |
|---|-----|-----|--------|-------------|
| For drain bodies without insulating bodies | | | | |
| DN 100 | 340 | 110 | 10 | 1219.10.60 |
| For drain bodies with insulating bodies | | | | |
| DN 100 | 340 | 290 | 10 | 1219.15.60 |
| | | | | 1219.17.60 |
| | | | | 1219.15.90 |
| | | | | 1219.17.90 |

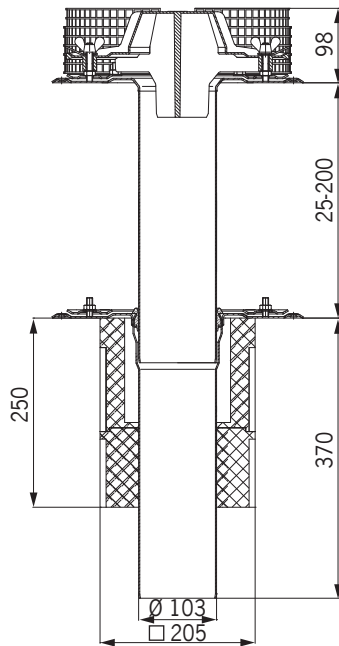
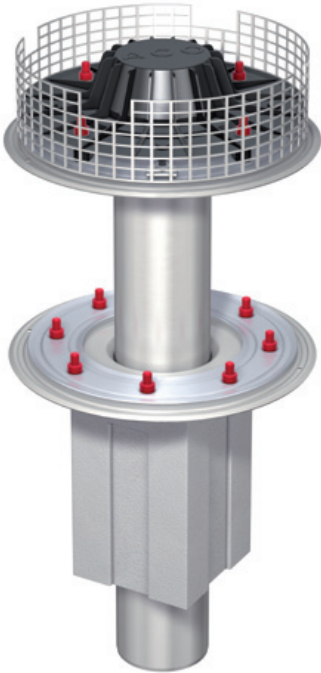


Recess dimensions

| Nominal width | Type | Inclination | Recess dimensions drain body without insulating body | Recess dimensions drain body with insulating body |
|---------------|------|-------------|--|---|
| DN 100 | Jet | 90° | 150 x 290 mm | 230 x 360 mm |

ACO Jet flat roof drains made of stainless steel with vertical outlet socket

DN 100

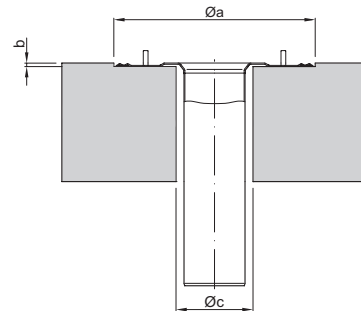


- Flat roof drain for syphonic drainage DN 100 with vertical outlet socket, pursuant to DIN EN 1253
- Stainless steel, material 1.4301
- With two compression sealing flanges for sealing two sealing membranes
- With a gravel basket from stainless steel, material grade 304 and air lock made of PP
- Sarnafil TG 66-15
 - for loose placement
 - for greened, gravelled roofs with foot and vehicle traffic
 - for roofs with additional loads
- Sikaplan 15 G
 - for loose placement with mechanical fixing
 - up to a roof gradient of maximum 20%
 - for roofs without additional loads

| | Model | Gravel basket | D [mm] | Weight [kg] | Without sealing membrane Article No. | Sarnafil TG 66-15 Article No. | Sikaplan 15 G Article No. |
|--------|----------------------------------|-----------------|--------|-------------|--------------------------------------|-------------------------------|---------------------------|
| DN 100 | uninsulated | stainless steel | 103 | 7.9 | 1219.20.60 | 1219.20.65 | 1219.20.69 |
| | insulated (polystyrene) | stainless steel | 103 | 7.9 | 1219.25.60 | 1219.25.65 | 1219.25.69 |
| | insulated (rock wool) | stainless steel | 103 | 7.9 | 1219.27.60 | 1219.27.65 | 1219.27.69 |
| | uninsulated, heatable | stainless steel | 103 | 8.1 | 1219.20.90 | 1219.20.95 | 1219.20.99 |
| | insulated (polystyrene) heatable | stainless steel | 103 | 8.1 | 1219.25.90 | 1219.25.95 | 1219.27.99 |
| | insulated (rock wool) heatable | stainless steel | 103 | 8.1 | 1219.27.90 | 1219.27.95 | 1219.27.99 |

Core borehole dimensions

| Nominal width | Ø a | Ø c | b [mm] | Article No. |
|---|-----|-----|--------|-------------|
| For drain bodies without insulating bodies | | | | |
| DN 100 | 340 | 110 | 10 | 1219.20.60 |
| For drain bodies with insulating bodies | | | | |
| DN 100 | 340 | 290 | 10 | 1219.25.60 |
| | | | | 1219.27.60 |
| | | | | 1219.25.90 |
| | | | | 1219.27.90 |

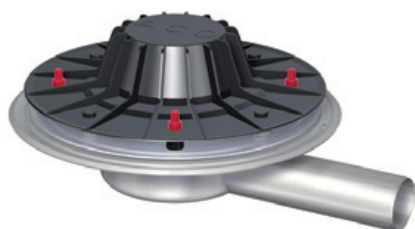


Recess dimensions

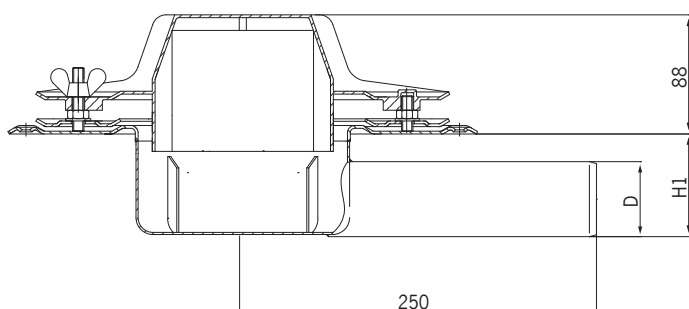
| Nominal width | Type | Inclination | Recess dimensions drain body without insulating body | Recess dimensions drain body with insulating body |
|---------------|------|-------------|--|---|
| DN 100 | Jet | 90° | 150 x 290 mm | 230 x 360 mm |

ACO Jet flat roof drains made of stainless steel with horizontal outlet socket

DN 40 – DN 70




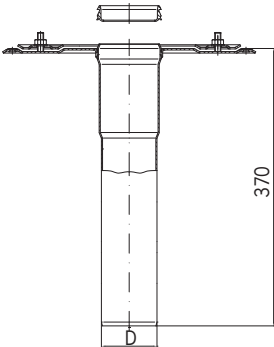

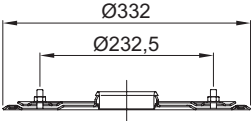

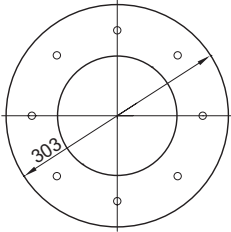

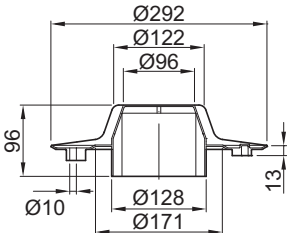
- Flat roof drains for syphonic drainage DN 40, 50 or 70,
- Horizontal outlet socket
- Stainless steel, material 1.4301
- With compression sealing flange
- Airlock made of PP
- Direct connection to ACO GM-X pipe system
- Sarnafil TG 66-15
 - for loose placement
 - for greened, gravelled roofs with foot and vehicle traffic
 - for roofs with additional loads
- Sikaplan 15 G
 - for loose placement with mechanical fixing
 - up to a roof gradient of maximum 20%
 - for roofs without additional loads



| DN | Model | Gravel basket | D [mm] | Weight [kg] | Without sealing membrane Article No. | Sarnafil TG 66-15 Article No. | Sikaplan 15 G Article No. |
|----|----------------------------------|---------------|--------|-------------|---|----------------------------------|------------------------------|
| 40 | uninsulated | without | 63 | 5.2 | 1245.10.00 | 1245.10.02 | 1245.10.07 |
| | insulated (polystyrene) | without | 63 | 5.2 | 1245.10.40 | 1245.10.42 | 1245.10.47 |
| 50 | insulated (rock wool) | without | 72 | 8.5 | 1255.10.00 | 1255.10.02 | 1255.10.07 |
| | uninsulated, heatable | without | 72 | 8.7 | 1255.10.40 | 1255.10.42 | 1255.10.47 |
| 70 | insulated (polystyrene) heatable | without | 95 | 16.1 | 1275.10.00 | 1275.10.02 | 1275.10.07 |
| | insulated (rock wool) heatable | without | 95 | 16.3 | 1275.10.40 | 1275.10.42 | 1275.10.47 |

Additional components

ACO Spin flat roof drains made of stainless steel

| | Scale drawing | Product description | Model | Article No. |
|---|---|---|---|--|
|  |  | Lower part for two-piece flat roof drain for syphonic drainage stainless steel, material 1.4301 with compression sealing flange | DN 70, D: 73 mm DN 100, D: 103 mm | 0174.46.69 0174.47.16 |
|  |  | Positioning flange with compression sealing flange, stainless steel, material 1.4301, for vertical drain body DN 70 in the Jet product line | unheated heated | 0174.46.53 0174.46.54 |
|  |  | Flange seal | EPDM, Thickness: 4 mm EPDM, Thickness: 5 mm PVC-soft, Thickness: 4 mm NBR/SBR, Thickness: 4 mm | 0174.42.87 0174.42.95 0174.42.92 0174.42.97 |
|  |  | Air lock polypropylene | DN 70 DN 100 | 0174.46.74 0174.75.50 |

Contents

Gravity drainage

Syphonic drainage

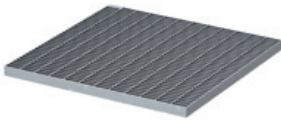
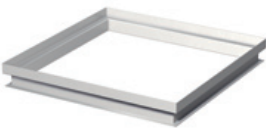
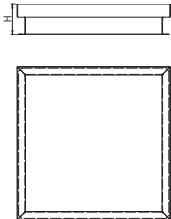


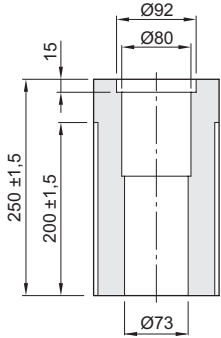
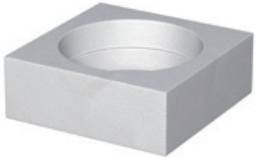
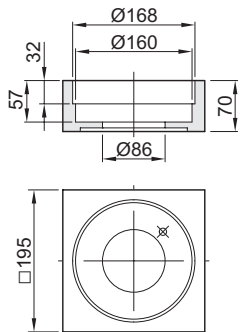
Parking deck
drainage


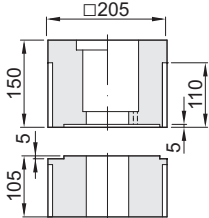

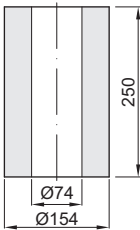
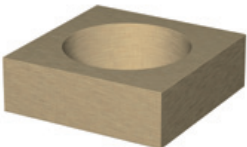
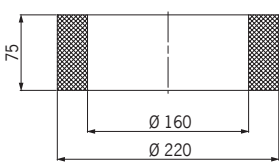

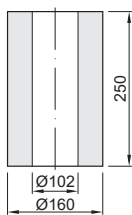

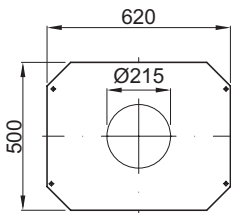
Balcony and terrace
drainage

Facade drainage

Pipe systems

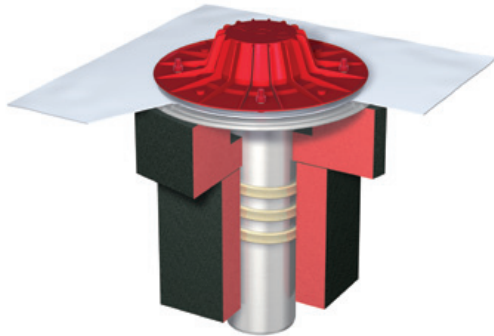
| | Maßzeichnung | Produktbeschreibung | Ausführung | Artikel-Nr. |
|---|---|--|------------|-------------------|
|  |  | Impoundment ring stainless steel, material 1.4301 | | 0174.46.75 |
|  |  | Gravel basket for reversed roof stainless steel, material 1.4301, load class H 1.5 | | 0153.60.01 |
|  |  | Control shaft stainless steel, material 1.4301, dimensions: 400 x 400 mm, height: 120 mm, load class H 1.5 | | 0153.73.05 |
|  |  | Profile top section steel, galvanised, dimensions: 400 x 400 mm Height adjustable from 78 – 108 mm | | 38801 |

| | Scale drawing | Product description | Model | Article No. |
|---|---|--|---|--|
|  | | Lattice grating for Profiline top section steel, galvanised, dimensions: 400 x 400 mm Lattice dimensions 30 x 10 | | 38570 |
|  |  | Extension for Profiline top section steel, galvanised, for frame dimensions 400 x 400 mm | Height: 30 mm Height: 60 mm Height: 120 mm | 38685 38687 38689 |
|  | | Flat roof heating fits all flat roof drains DN 70–DN 150, Electrical supply: 220-240 V, AC, Nominal power: 25 W, Protection class: I, Protection type: IP 67, Cables: SIHF 3 x 1 mm ² , 1.5 m G 1.5 | | 0174.84.32 |
|  |  | Polystyrene insulation, PS 30 for all Jet vertical flat roof drains DN 70 | | 0174.46.55 |
|  |  | Insulation for inlet cone, polystyrene, PS 30 for all Jet vertical flat roof drains DN 70 drain bodies | | 0174.46.56 |

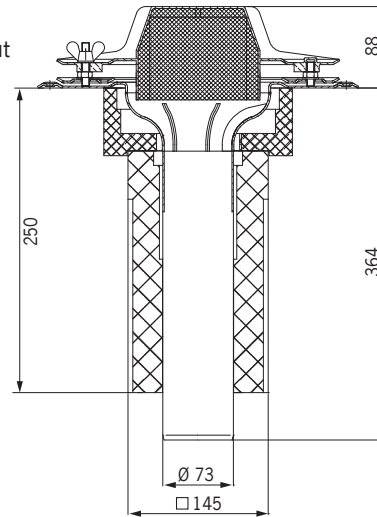
| | Scale drawing | Product description | Model | Article No. |
|---|---|---|-------|-------------------|
|  |  | Polystyrene insulation, PS 30 for all Jet vertical flat roof drains DN 100 | | 0174.47.19 |
|  |  | Rock wool insulation, construction material class A1 for all Jet vertical flat roof drains DN 70 | | 0174.46.57 |
|  |  | Insulation for inlet cone, rock wool, construction material class A1 For all Jet vertical flat roof drains DN 70 drain bodies | | 0174.81.22 |
|  |  | Rock wool insulation, construction material class A1 for all Jet vertical flat roof drains DN 100 | | 0174.47.21 |
|  |  | Mounting sheet for trapezoidal sheet metal roofs steel, galvanised | | 0174.46.61 |

ACO fire protection drains Jet – Syphonic drainage

Complete 1-part/inclination: 90 °



- With factory inserted sealing membrane
- unit checked for leaks
- Flat roof gullies tested to DIN EN 1253
- Made from stainless steel, material grade 304
- With fire protection insert
- Incl. sealing membrane
- With clamping flange for sealing with 1 sealing membrane
- Usable for 1 sealing plane
- Socket inclination: 90°
- Insulation
 - ☐ Foam glass
 - ☐ uninsulated
 - ☐ insulated with Styrofoam with/without heating
- Sarnafil TG 66-15
 - ☐ for loose placement
 - ☐ for greened, gravelled roofs with foot and vehicle traffic
 - ☐ for roofs with additional loads
- Sikaplan 15 G
 - ☐ for loose placement with mechanical fixing
 - ☐ up to a roof gradient of maximum 20%
 - ☐ for roofs without additional loads

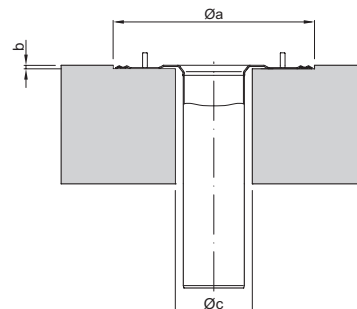


Nominal width: DN 100/Diameter: 103 mm

| Nominal width [mm] | Gravel basket | Insulation | Recess dimensions [mm] | Weight [kg] | without ceiling membrane | Article No. Sarnafil TG 66-15 | Sikaplan 15 G |
|-----------------------|-----------------|---------------------|---------------------------|----------------|--------------------------|----------------------------------|---------------|
| 73 | stainless steel | uninsulated | 150 x 290 | 5.1 | 1311.10.60 | 1311.10.62 | 1311.10.67 |
| | | uninsulated, heated | 150 x 290 | 5.3 | 1311.10.90 | 1311.10.92 | 1311.10.97 |
| | | foam glass | 230 x 360 | 6.0 | 1311.18.60 | 1311.18.62 | 1311.18.67 |
| | | foam glass, heated | 230 x 360 | 6.2 | 1311.18.90 | 1311.18.92 | 1311.18.97 |

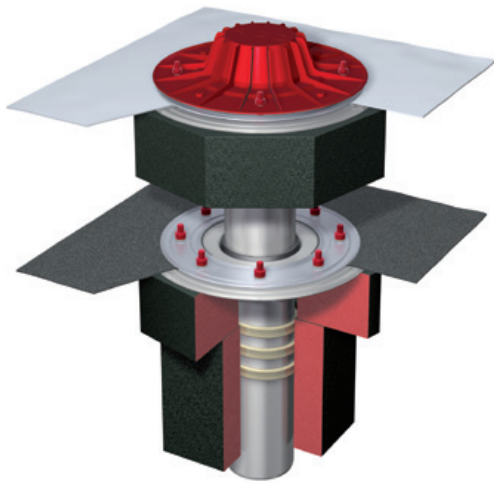
Core borehole dimensions

| Nominal width | Ø a | Ø c | b [mm] |
|---|-----|-----|--------|
| For drain bodies without insulating bodies | | | |
| DN 100 | 340 | 130 | 10 |
| For drain bodies with insulating bodies | | | |
| DN 100 | 340 | 290 | 10 |

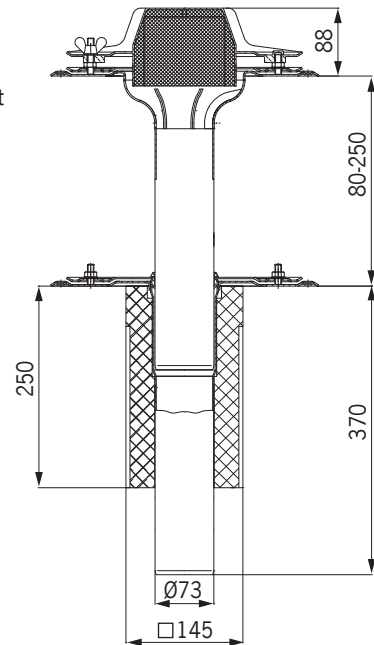


ACO fire protection drains Jet – Syphonic drainage

Complete 2-part/inclination: 90 °



- With factory inserted sealing membrane
- unit checked for leaks
- Flat roof gullies tested to DIN EN 1253
- Made from stainless steel, material grade 304
- With fire protection insert
- Incl. sealing membrane
- With clamping flange for sealing with 1 sealing membrane
- Usable for 2 sealing plane
- Incl. vapour seal
- Socket inclination: 90°
- Insulation
 - Foam glass
 - uninsulated
 - insulated with Styrofoam with/without heating
- Sarnafil TG 66-15
 - for loose placement
 - for greened, gravelled roofs with foot and vehicle traffic
 - for roofs with additional loads
- Sikaplan 15 G
 - for loose placement with mechanical fixing
 - up to a roof gradient of maximum 20%
 - for roofs without additional loads

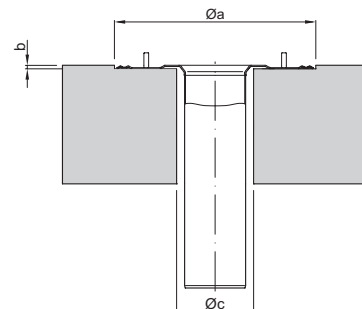


Nominal width: DN 100/Diameter: 103 mm

| Nominal width [mm] | Gravel basket | Insulation | Recess dimensions [mm] | Weight [kg] | without ceiling membrane | Article No. Sarnafil TG 66-15 | Sikaplan 15 G |
|-----------------------|---------------|--------------------|---------------------------|----------------|--------------------------|----------------------------------|---------------|
| 73 | without | foam glass | 230 x 360 | 7.0 | 1372.28.00 | 1372.28.05 | 1372.28.09 |
| | without | foam glass, heated | 230 x 360 | 7.2 | 1372.28.40 | 1372.28.45 | 1372.28.45 |


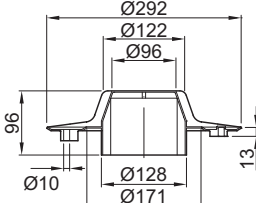
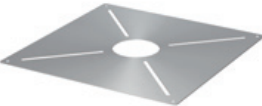
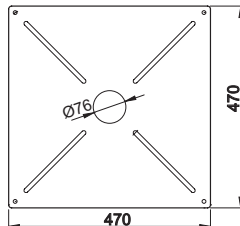
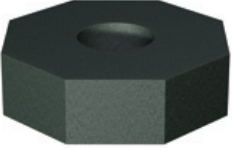
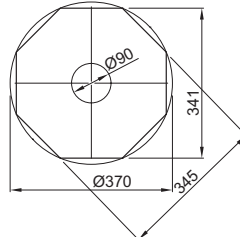
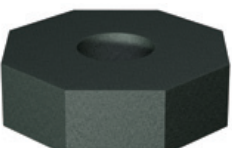
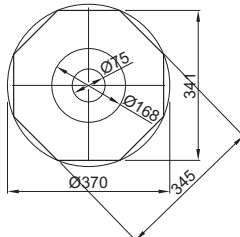
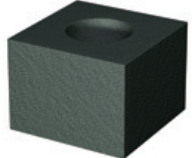
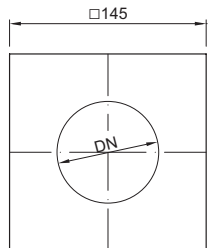
Core borehole dimensions

| Nominal width | Ø a | Ø c | b [mm] |
|---|-----|-----|--------|
| For drain bodies without insulating bodies | | | |
| DN 100 | 340 | 130 | 10 |
| For drain bodies with insulating bodies | | | |
| DN 100 | 340 | 290 | 10 |



Accessories

ACO Jet flat roof drains with fire protection

| | Scale drawing | Product description | Model | Article No. |
|---|---|---|--------------------------|-------------------|
|  |  | Air lock with fire protection sealant for jet drain body DN 70 | | 0174.77.03 |
|  |  | Heat shield stainless steel, for Jet flat roof drains DN 70, with impact dowel M 8, and hexagonal bolts M 8 x 16 | | 0174.77.97 |
|  |  | Insulating body foam glass, for Jet vertical flat roof drain lower parts DN 70 | | 0150.12.69 |
|  |  | Insulating body foam glass, for Jet vertical drain bodies DN 70 | | 0150.12.70 |
|  |  | Insulating sleeve foam glass, for Jet vertical drain bodies and lower parts for length adjustment | DN 70, height: 100 mm | 0174.77.93 |

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