Installation Instruction
LORO Balcony Direct Drains
with connecting sleeve, Series H

according to EN 1253, made of galvanized steel, additionally coated, DN 70 and DN 100

System overview

LORO balcony direct drains, Series H, vertical runoff*

	one-piece				two-piece			
	for balcony floors		for upper balconies		for balcony floors		for upper balconies	
								
	DN 70	**DN 100**	**DN 70**	**DN 100**	**DN 70**	**DN 100**	**DN 70**	**DN 100**
Version a	16277.070X	16277.100X	16278.070X	16278.100X	16287.070X	16287.100X	16288.070X	16288.100X
Version b	16390.070X	16390.100X	16391.070X	16391.100X	16397.070X	16397.100X	16398.070X	16398.100X

version a = without thermal insulation, version b = with thermal insulation

Setup diagramm

Strainer unit
for balcony floors
No. 16303X

Strainer unit
for upper balconies
No. 16304X

Extension unit
No. 16204X

one-piece

two-piece

Base unit

vertical runoff
without thermal insulation, No. 16225X
with thermal insulation, No. 16226X

horizontal runoff*
without thermal insulation, No. 16220X
with thermal insulation, No. 16320X

Installation video
Series H

* Base unit for horizontal runoff, see page 7

1.) Connection of LORO connecting sleeve with balcony sealing sheets

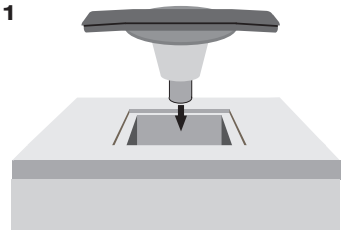
For LORO balcony drainage systems, Series H, connecting sleeves made of bitumen/EPDM compound, PVC or ECB are available (see page 8, point 9).
If you require connecting sleeves for other sealing sheets, please ask at the LOROWERK.

a) Combination connecting sleeve made of polymer-bitumen/EPDM compound for connection with two-layer bitumen sealing sheets

The combination connecting sleeve □ 500 x 3.0 mm is a sealing sheet on a EPDM (synthesis rubber) basis. Furthermore, it contains a glass fiber fabric. Manufacturer: Carlisle, type Resitrix CL.
The combination connecting sleeve is welded with the sealing sheet by means of the hot gas welding process.

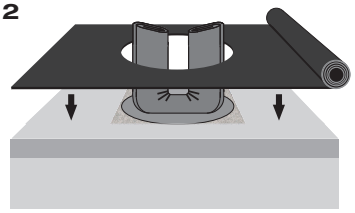
One-piece version:

1



1 Put the drain body with connecting sleeve into the ceiling recess (recess dimensions see page 8, point 10). At the factory, the connecting sleeve made of bitumen/EPDM is clamped into the drain body with the bitumen layer facing upwards, folded and provided with a protection foil.
The flange of the drain body should be inserted into the concrete as flush with the surface and as neatly as possible.
After that the drain body has to be encased in concrete in the recess.

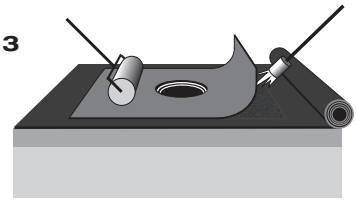
2



2 Prepunch the lower sealing sheet (in the case of a two-layer roof sealing).
Hole dimension: Ø ca. 230 mm.
Attention: The flange has to remain clear!
Lay the sealing sheet over the drain body.

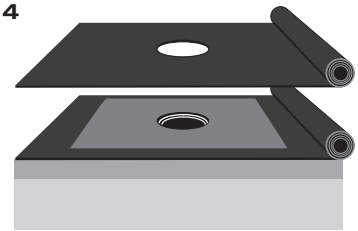
Thoroughly clean all contact surfaces (dry and free of grease as well as dust).

3



3 Remove the protection foil and unfold the connecting sleeve before starting the sealing process. If the work is delayed, the unfolded connecting sleeve has to be protected against damage on site.
Liquefy the bitumen compound of the sealing sheet in the area of the contact surface with the connecting sleeve by heating it.
Press the connecting sleeve evenly onto the liquefied bitumen compound or roll it on (hot gas welding process).

4



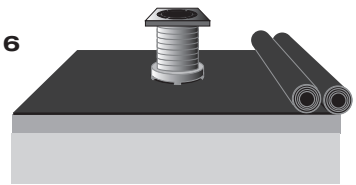
4 Roll out the upper sealing sheet over the drain. Prepunch the sealing sheet in the area of the drain.
Hole dimensions: DN 70 = Ø ca. 150 mm
DN 100 = Ø ca. 180 mm
Attention: The connecting sleeve may not be damaged!

Roll back the sealing sheet.

5

5 Liquefy the bitumen compound of the connecting sleeve and the sealing sheet by heating it (hot gas welding process). Roll out the upper sealing sheet in the liquefied bitumen and evenly press or roll onto the surface (see point 3).

6

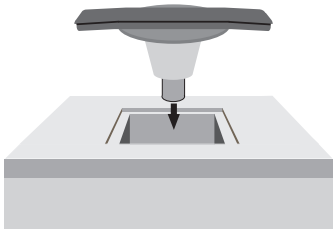


6 Clamp the drainage ring into the clamping ring of the drain body. Then put the end strainer (for the top balcony) or the strainer with pipe penetration (for balcony floors) into the strainer support.
Installation of the downpipes see page 7, point 2.

Two-piece version:

Installation of the vapor barrier

7

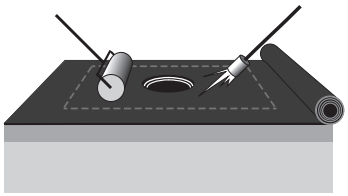


7 Put the drain body with connecting sleeve (vapor barrier) into the ceiling recess (recess dimensions see page 8). At the factory, the connecting sleeve made of bitumen/EPDM is clamped into the drain body with the bitumen layer facing upwards, folded and provided with a protection foil.
The flange of the drain body should be inserted into the concrete as flush with the surface and as neatly as possible.
After that the drain body has to be encased in concrete in the recess.

8

8 Remove the protection foil and unfold the connecting sleeve before starting the sealing process. If the work is delayed, the unfolded connecting sleeve has to be protected against damage on site.

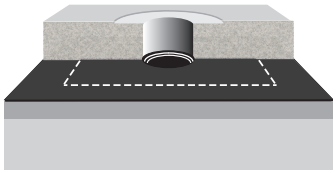
9



9 Liquefy the bitumen compound of the sealing sheet in the area of the contact surface with the connecting sleeve by heating it.
Press the connecting sleeve evenly onto the liquefied bitumen compound or roll it on (hot gas welding process).

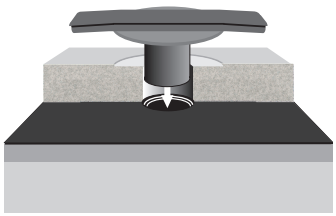
Installation of thermal insulation and sealing sheet:

10



10 Create a recess in the thermal insulation in accordance with the dimensions of the extension cartridge.
Important: The flange of the extension cartridge has to be inserted into the thermal insulation as flush with the surface as possible.

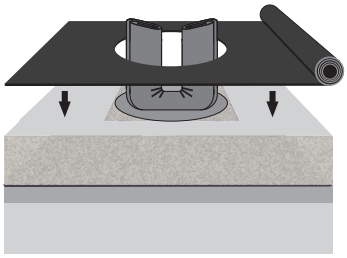
11



11 Insert the sealing element into the clamping ring of the drain body. Lubricate the sealing element inside and the plug-in pipe of the extension cartridge outside with LORO lubricant. Insert the extension cartridge backflow-proof into the drain body.

Installation heights/adjustment areas see page 7, point 3.

12

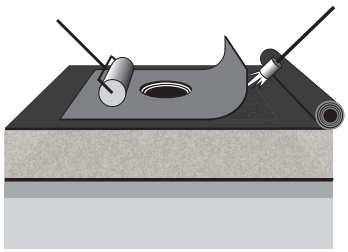


12 Prepunch the lower sealing sheet (in the case of a two-layer roof sealing).
Hole dimensions: DN 70 = Ø ca. 275 mm, DN 100 = Ø ca. 330 mm.
Attention: The flange has to remain clear!

Lay the sealing sheet over the drain body.

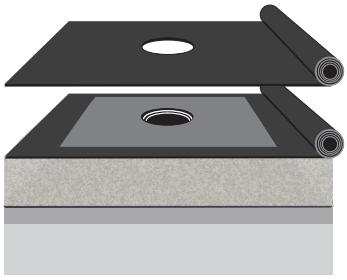
Thoroughly clean all contact surfaces (dry and free of grease as well as dust).

13



13 Remove the protection foil and unfold the connecting sleeve on the lower sealing sheet.
Liquefy the bitumen compound of the sealing sheet in the area of the contact surface by heating it.
Press the connecting sleeve evenly onto the liquefied bitumen compound or roll it on (hot gas welding process).

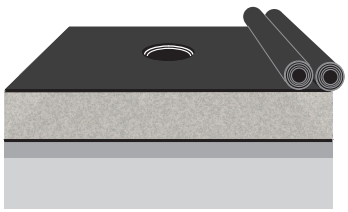
14



14 Roll out the upper sealing sheet over the drain. Prepunch the sealing sheet in the area of the drain.
Hole dimensions: DN 70 = Ø ca. 150 mm
DN 100 = Ø ca. 180 mm
Attention: The connecting sleeve may not be damaged!

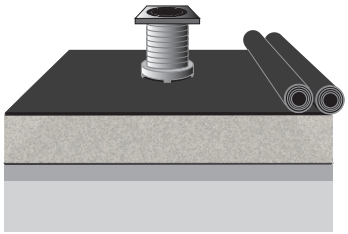
Roll back the sealing sheet.

15



15 Liquefy the bitumen compound of the connecting sleeve and the sealing sheet by heating them. Roll out the upper sealing sheet in the liquefied bitumen and evenly press or roll it on (hot gas welding process).

16



16 Clamp the drainage ring into the clamping ring of the drain body.
Then put the end strainer (for the top balcony) or the strainer with pipe penetration (for balcony floors) into the strainer support.
Installation of the downpipes see page 7, point 2.

Clamping of the combination connecting sleeve on site

Normally, the combination connecting sleeve is clamped in place at the factory. If on-site clamping is necessary, proceed as follows:

1.) Only use a combination connecting sleeve that has been preshaped at the factory.

2.) Place the combination connecting sleeve centrically over the installed drain. The bituminous layer faces upwards.

3.) Heat the bituminous layer of the combination connecting sleeve in the area of the holes (clamping area) with an open flame or a hot air blower. The surface has to be shiny (no flame development).

4.) Place the clamping ring centrically over the holes and push it evenly firm and deep into the preshaped and heated holes of the combination connecting sleeve. If necessary, push the clamping ring with a vertically positioned wooden board in order to achieve an even contact pressure.

5.) Let the combination connecting sleeve cool down somewhat before further processing.

6.) Weld the combination connecting sleeve with the sealing sheet (see above for instructions).

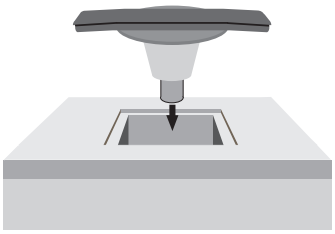
b) PVC connecting sleeve

for connection to single-layer PVC sealing sheets made of plasticized polyvinyl chloride in accordance with DIN 16730 - e. g.: PVC-P-NB

The PVC connecting sleeve □ 500 x 1.5 mm is a sealing sheet in accordance with DIN 16730 on a polyvinyl chloride (PVC-P-NB) basis. Manufacturer: Braas, type Rhenofol C.
The PVC connecting sleeve is welded with the existing PVC sealing sheet by means of solvent welding or hot gas welding. Hot gas welding should be preferably used at low outside temperatures and a high air humidity.

For a connection with sealing sheets, pay attention to the manufacturer's specifications.

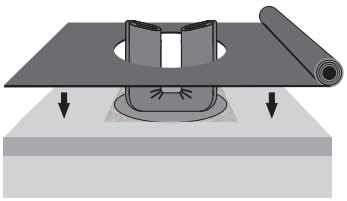
1



One-piece version:

1 Insert the drain body into the ceiling recess (recess dimensions see page 8) and tightly encase in concrete. The flange should be inserted into the concrete as flush with the surface and as neatly as possible.
In order to protect the connecting sleeve during the building phase and before starting the sealing work, it is folded at the factory and protected by a foil.

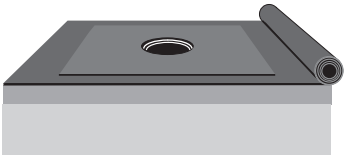
2



2 Cut a circular hole into the sealing sheet in the area of the drain.
Hole dimensions: DN 70 = Ø ca. 275 mm, DN 100 = Ø ca. 330 mm.
Attention: The flange has to remain clear!
Attention: The LORO connecting sleeve may not be damaged.

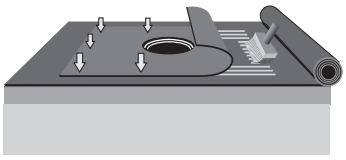
Roll out the sealing sheet over the drain.

3



3 Remove the protection foil and unfold the connection sleeve over the cut-out area of the sealing sheet.
In order to be able to process the connecting sleeve without problems, it should be left to „straighten out" in its unfolded state after encasing the drain in concrete. If the sealing work is delayed, protection measures have to be taken to protect the connecting sleeve against damage.
Thoroughly clean all contact surfaces (dry and free of grease as well as dust).

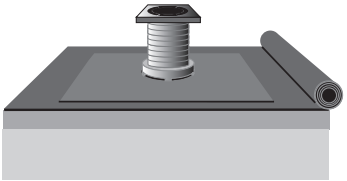
4



4 Fold back the LORO connecting sleeve.
Pay attention to the installation instructions of the sealing sheet manufacturer when connecting the connecting sleeve to the roof sealing sheet.

Check the seams and - if necessary - rework.

5



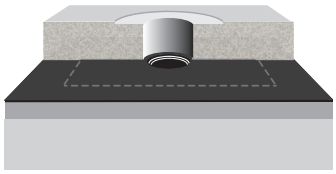
5 Clamp the drainage ring into the clamping ring of the drain body. Then put the end strainer (for the top balcony) or the strainer with pipe penetration (for balcony floors) into the strainer support.
See page 7 point 2 for installation of the downpipes.

Two-piece version:

Installation of the vapor barrier: see page 3, point 7 - 9

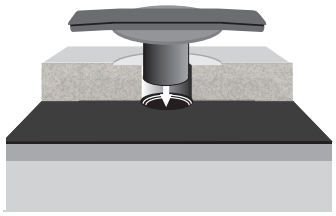
Installation of thermal insulation and sealing sheet:

6



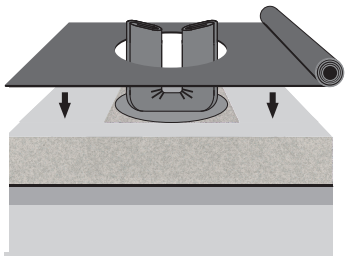
6 Create a recess in the thermal insulation in accordance with the dimensions of the extension cartridge.
Important: The flange of the extension cartridge has to be inserted into the thermal insulation as flush with the surface as possible.

7



7 Insert the sealing element into the clamping ring of the drain body. Lubricate the sealing element inside and the plug-in pipe of the extension cartridge outside with LORO lubricant. Insert the extension cartridge backflow-proof into the drain body.
See page 8 point 3 for installation heights/thermal insulation thicknesses

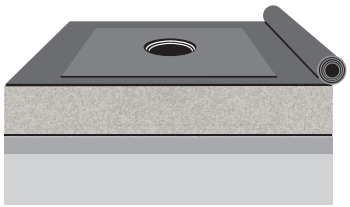
8



8 Cut a circular hole into the sealing sheet in the area of the extension cartridge.
Hole dimensions: DN 70 = Ø ca. 275 mm, DN 100 = Ø ca. 330 mm.
Attention: The flange has to remain clear!
Attention: The LORO connecting sleeve may not be damaged.

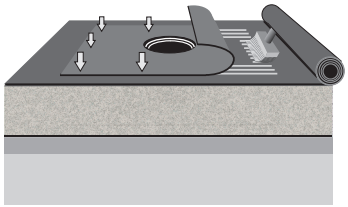
Roll out the sealing sheet over the extension cartridge.

9



9 Remove the protection foil and unfold the connection sleeve over the cut-out area of the sealing sheet.
In order to be able to process the connecting sleeve without problems, it should be left to „straighten out“ in its unfolded state after encasing the drain in concrete. If the sealing work is delayed, protection measures have to be taken to protect the connecting sleeve against damage.
Thoroughly clean all contact surfaces (dry and free of grease as well as dust).

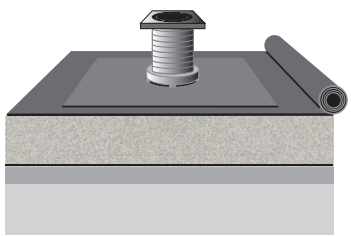
10



10 Fold back the LORO connecting sleeve.
Pay attention to the installation instructions of the sealing sheet manufacturer when connecting the connecting sleeve to the roof sealing sheet.

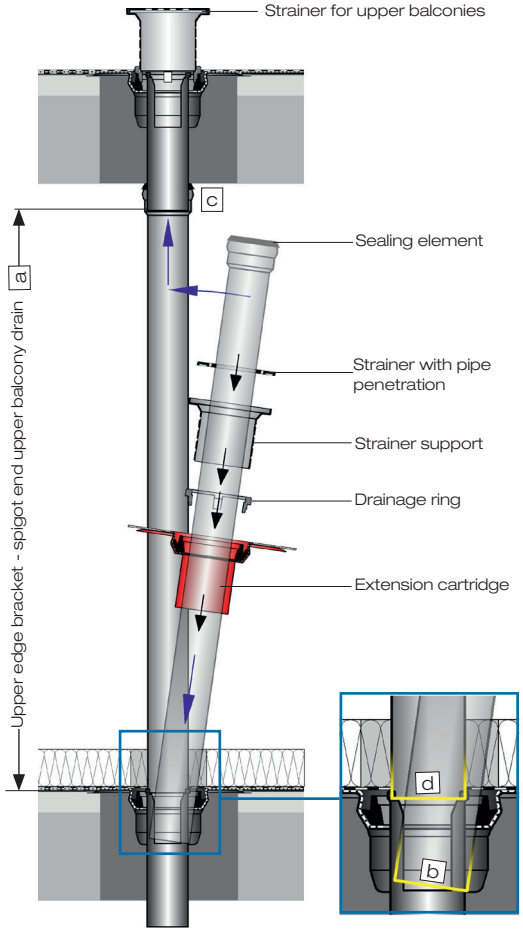
Check the seams and - if necessary - rework.

11



11 Clamp the drainage ring into the clamping ring of the drain body. Then put the end strainer (for the top balcony) or the strainer with pipe penetration (for balcony floors) into the strainer support.
See page 7 point 2 for installation of the downpipes.

2.) Calculation and installation of downpipe and strainers



Installation instruction:

1) Determine the length from the upper edge of the bracket of the downpipe support in the lower direct drain to the spigot end of the upper direct drain. [a] Cut the downpipe, socket inclusive, to the determined length + socket insertion (DN 70 = 55 mm, DN 100 = 70 mm).
2) Insert the sealing element into the socket. Lubricate the inside of the sealing element and the outlet of the upper drain with lubricant. In the case of balconies without thermal insulation, push strainer with pipe penetration, strainer support and drainage ring in this order onto the downpipe. In the case of balconies with thermal insulation, the extension cartridge with connecting sleeve has to be pushed onto the downpipe after the drainage ring.
3) Slantingly push the downpipe over one of the downpipe brackets into the lower balcony direct drain until reaching the ground of the drain body. [b] Position the downpipe vertically and push the socket onto the outlet of the upper direct drain. [c] Pay attention to the correct position of the sealing element.
4) Put the downpipe onto both brackets of the downpipe supports of the lower balcony direct drain. [d] Insert the drainage ring into the clamping ring. On site, cut the strainer support to the desired length and place it into the drainage ring. Fix the downpipe by pushing the strainer with pipe penetration into the strainer support.
5) At the top balcony, place the drainage ring onto the clamping ring. On site, cut the strainer support to the desired height and place it into the drainage ring. Push the strainer into the strainer support.

3.) Extension cartridge

Extension cartridge, no. 16298X, in two parts (use with thermal insulation for balcony slab), seal in a backflow-safe manner inside the clamping ring of the drain pot.

Installation heights/adjustment areas	Installation instructions
60 mm - 120 mm	infinitely adjustable
120 mm - 230 mm	with extension pipe, No. 16587X, can be cut to length

4.) Drain body, horizontal runoff

For application in the case of horizontal offsets.

part unit, horizontal runoff	DN 70
Version a: without thermal insulation	16220.070X
Version b: with thermal insulation	16320.070X

5.) Drainage ring

The drainage ring, No. 16097X, serves the drainage of seepage and rainwater in the case of a drainage on two levels. The drainage ring is clamped into the clamping ring and has to be used in any case.

6.) Strainer support

The strainer support, No. 16290X, can be cut to the desired length on site.
For an extension, the extension pipe, No. 16587X, with sealing element, No. 911X, DN 100 or DN 125, is used.

Adjustment areas	Installation instructions
35 - 150 mm	cut to length
1505 - 265 mm	with extension pipe, No. 16587X, can be cut to length

7.) Strainers

For LORO balcony direct drains, Series H, the following strainers are available:
1.) Strainer, No. 16196X, with pipe penetration
2.) Strainer, No. 16197X, for upper balconies (end strainer)

8.) Trace heating

We recommend to check all drains and pipes with regard to their frost-sensibility. Where necessary, these parts should be equipped with a trace heating on site (see DIN EN 12056, part 1, or DIN 1986, part 100).

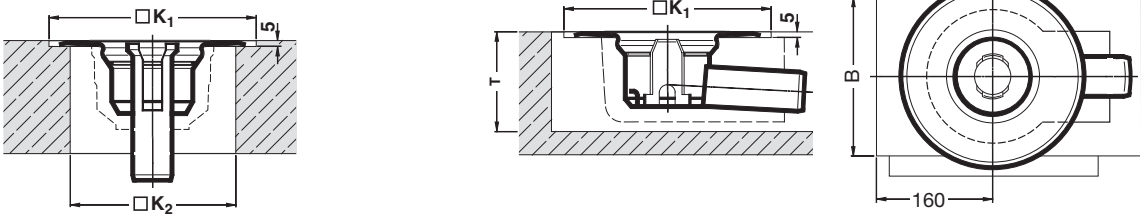
9.) Available **connecting sleeves** for LORO balcony drainage systems

Connecting sleeve material	DN 70	DN 100
Resitrix bitumen/EPDM compound - standard	16000.070X	16000.100X
Evalon Grau	16005.070X	16005.100X
Flagon EP-S 150	16016.070X	16016.100X
Rhenofol C-Grau	16596.070X	16596.100X
Sarnafil T66/15D	16007.070X	16007.100X
Sika-Plan Typ S	16011.070X	16011.100X
Thermofin F18	16018.070X	16018.100X
Thermofol D	16015.070X	16015.100X
Thermoplan T TL	16003.070X	16003.100X
Wolfin IB Schwarz	16006.070X	16006.100X
Novaproof Schwarz	16008.070X	16008.100X
Hertalan S Schwarz	16009.070X	16009.100X
Evalonfolie Weiß	16002.070X	16002.100X
Evalastic Hellgrau	16010.070X	16010.100X
Alkorplan F35170 Schwarz	16012.070X	16012.100X
Rhepanol H Schwarz	16013.070X	16013.100X
Nogaflex Verbundwerkstoff	16004.070X	16004.100X
Cosmofin F-Folie Grau	16017.070X	16017.100X
Tectofin R Grau	16020.070X	16020.100X

The standard delivery comprises a connecting sleeve of bitumen/EPDM compound. If a different connecting sleeve is needed, please definitely indicate the desired connecting sleeve when ordering.

10.) Recess dimensions / tapping holes

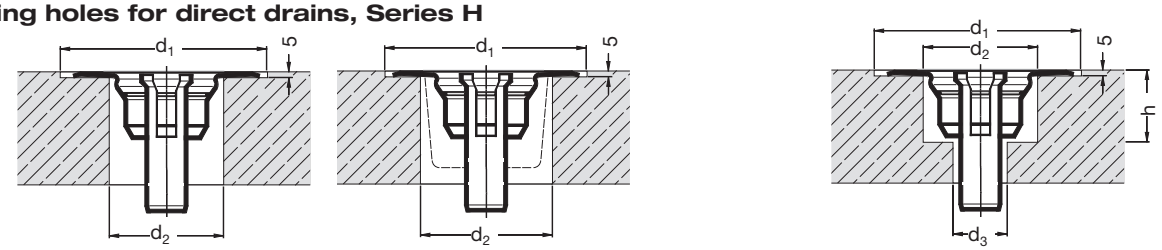
Recess dimensions for direct drains, Series H



	vertical runoff				horizontal runoff			
DN	□ K_1		□ K_2		recess depth T		recess width B	
	a	b	a	b	a	b	a	b
70	300	300	250	250	150	160	160	200
100	360	360	300	300	-	-	-	-

a = without thermal insulation, b = with thermal insulation

Tapping holes for direct drains, Series H



	one-stage without thermal insulation		one-stage with thermal insulation		two-stage without thermal insulation			
DN	d_1	d_2	d_1	d_2	d_1	d_2	d_3	h
70	300	162	300	202	300	162	92	120
100	360	192	360	225	360	192	122	140