TECHNICAL GUIDE

FOR PLANNING AND IMPLEMENTATION OF SAFETY DRAINS CONCERNING FLAT ROOFS AND TERRACES

Basic information on planning and implementation

• Why do I need safety drains?

Basically rain water on flat roofs is being lead away by roof gullies. Either as conventional gravity drainage or as vacuum roof drainage.
The dimensioning and planning is based on an average 5-year rainfall intensity (l/(s x ha).
Should the rainfall exceed the previous mentioned base (because of higher rain intensity during a 100 year rain event), rain water will not be drained anymore. In that case an independent safety drain should be installed, in order to reliably lead off the coming up rainfall.

The safety drain covers exceptional events like this and protects the roof construction (including any connected structural damage). Usually those thoughts are being neglected by the relevant/responsible people. Should a safety drain be under-dimensioned or not even be installed during an extraordinary rain event it can lead to an increase of the water level on the roof surface. For example pulling up of the sealing. The seeping in of water follows and leads to hidden damages and enormous repair costs. Not even to talk about the worst case scenario: break down of the roof construction!

• Where do I find the regulations for planning and implementation of a safety drain?

In Austira there is a regulation called ÖNORM B 2501:2014, also EN…….. ÖNORM B 2501:2014, Extracts:

5.10 Drainage of roofs and site areas
5.10.1 Rated rainfall intensity

Usually the roof drainage is based on a 5-minute rain event with a return frequency of 5 years.
The calculated rain fall intensity, with respect to the relevant location, can be taken from the data of the Federal Ministry of Agriculture and Forestry, Environment and Water Management under http://ehyd.gv.at (parameters and mesurements).
They have to be recalculated to l/(s • ha).

The minimum rainfall intensity for roof surfaces and site areas is being set at 300 l/(s • ha).

The measurement of the roof drainage is made according to ÖNORM EN 12056-3:2000, part 4.1.
Same approach for property drainage.

5.10.5.1 Safety overflow, safety drains
5.10.5.1 General information

Roofs and terraces with inward drainage, in addition to each single individual area (for a rain intensity according to 5.10.1) should be provided with an emergency overflow and drainage.
The goal is to cover a minimum sum of all individual areas according to 5.10.2.
Should a roof or terrace surface be established with more than two outlets each, it is possible to dimension one or more of the partial surfaces as a safety drain.
Within buildings, safety drains are to be drained separate to the roof drainage (according to 5.10.1).
While positioning the safety drains, the existing connection heights of the rising components and, if needed, the necessary accumulation height of the drainage system, have to be taken into concideration.

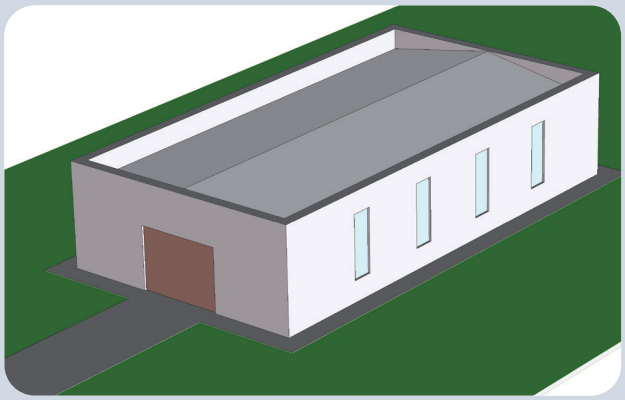
The safety drain must never be connected to any wastewater pipes.

Exceptions are: existing buildings, where the roof drainage had and has to be lead into a mixed water pipe.
A mathematical prove of the system performance must be made.
The drainage system as well as the safety overflow and drain system are supposed to work together and provide a drainage, concerning an expected 5 minute rain event with a return frequency of a 100 years r (5,100)

- **How do I calculate the minimum flow of a safety drain?**

Based on an example, we would like to show you how to calculate your safety drain system. Please note the following:

Basic Details



Building Location: Himberg bei Wien
Roof Dimensions: 55 m x 20 m
Roof Surface: 1100 m²
Type of Roof: Flat Roof with Attika, Sloap: 2%
Allowed Roof Load / Snow Load: 0,884 kN/m²
Calculation factor from kN/m² to mm water column = 101,974 428 892 2
Maximum water level on the roof: 90,14 mm

The roof drainage is to be used as vacuum drainage. It is designed to cover a 5 minute rain event.

Water output values of the roof drains are being checked for gravity drainage according to EN1253-2:2015 (table 3) to DN110 with a 35 mm and DN125 + DN150 with 45 mm water level.
For a drainage with pressure flow the water level is to be set to a height of 55mm.

Rated rainfall intensity is based on the data of http://ehyd.gv.at ffor a 5 minute rain event
with the following return frequency $r_{(5,5)}$ = **446,66 l/(s · ha)**

The return frequency for a 5 minute rain event during an average ot 100 years has been
set to $r_{(5,100)}$ = **836,66 l/(s · ha)**

The minimum flow of the emergency drainage is to be calculated as the following:

$$Q_{Not} = \left(r_{(5,100)} - r_{(5,5)} \cdot C\right) \cdot \frac{A}{10000}$$

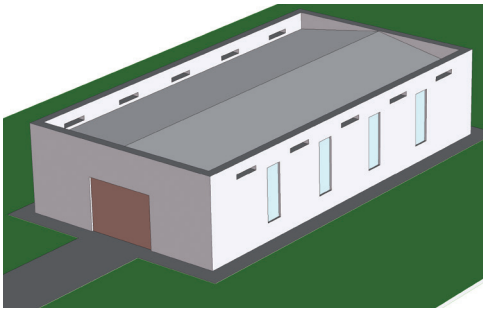
Q_{hot} Minimum run-off capacity of the emergency drainage in l/s
$r_{(5,100)}$ 5 minutes-rain event in l/(s•ha) with an interval of recurrance of 100 years = **836,66 l/(s · ha)**
$r_{(5,5)}$ 5 minutes-rain event in l/(s•ha) with an interval of recurrance of 5 years = **446,66 l/(s · ha)**
C Run-off coefficient (without dimension) depending on the roof surface condition = **1**
A Effective roof surface in m² = **1100 m²**

Q_{hot} = (836,66-446,66) . 1) . 0,11 = **42,9 l/s**

- **What safety drains are to be used?**

Basically there are a few different technical solutions to ensure any safety drainage.
The decision primarily will be taken by the planner. Following you will find 4 different possibilities to implement a safety drain, according to the example on page 3.

Example 1: Rectangular safety overflow via the attic



Calculation of the overflow with according to ÖNORM 2501 and DIN 1986-100

Overflow Volume (l/s)	42,9
Allowed Roof Load (kN/m²)	0,884
Maximum Water Level (mm)	90,14
Water Level of roof outlets (mm)	55
Overflow height (mm)	35,14

$$Q_W = \frac{L_W \cdot h_Ü^{1,5}}{24\,000} \quad \text{bzw.} \quad L_W = \frac{Q_W \cdot 24\,000}{h_Ü^{1,5}}$$

Q_W Drain capacity per meter length in l/s,
L_W Length of the overflow in mm
$h_Ü$ Maximum planned water level in case of overflow (pressure height) in mm

$$L_W = \frac{42{,}9 \text{ l/s} \cdot 24\,000}{h_Ü^{1,5}} = 4942{,}72 \text{ mm} = 4{,}95 \text{ m}$$

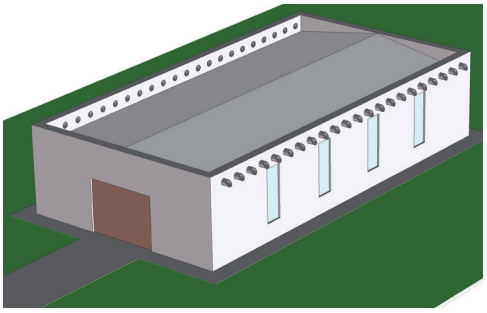
For this example the necessary overflow width was calculated on a base of 4,95 m.
Should the slit width be set to 500 mm (as usual), the roof surface will have to be provided with 10 attic outlets, 5 on each of the two longer sides.

Necessary outlets: 10

Example 2: Round safety overflow as water spout via the attic

Overflow Volume (l/s): 42,9 l/s
The drain capacity of a round DN 100 opening with a 35 mm water level and an inclination of 5° is 1 l/s.
Please see ÖNORM B2501:2015 as pointed out in

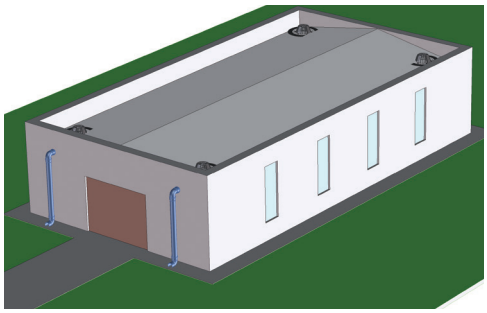
Necessary outlets: **44**

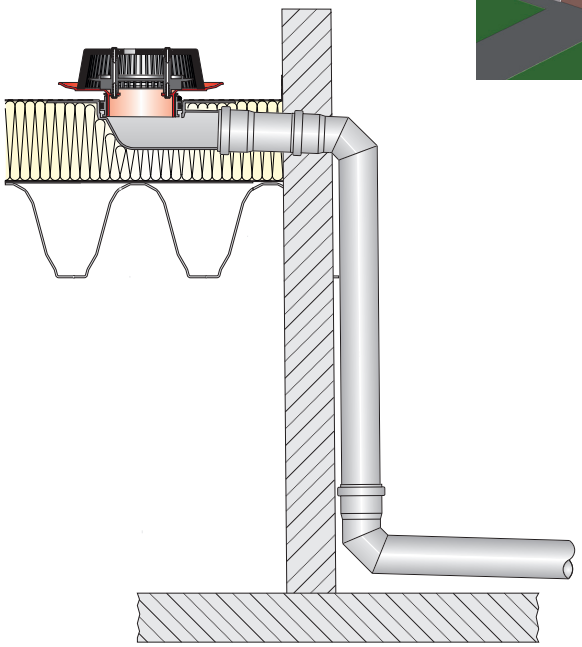


Example 3: Safety drain close to the attic (HL PowerSafe) connected to a 3m down pipe

The drain capacity of the HL PowerSafe system, connected to a 3m down pipe and a water level of 35mm is set to 12 l/s.
Requirement to the safety drainage: 42,9 l/s
Performance of 4 PowerSafe drains: 48 l/s

Necessary outlets: **4**

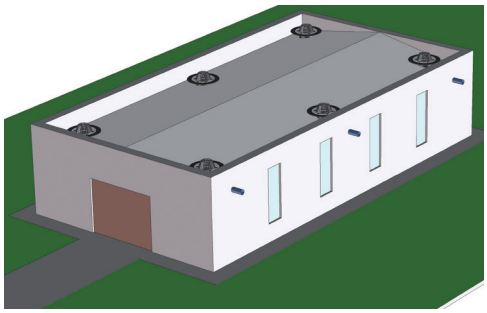


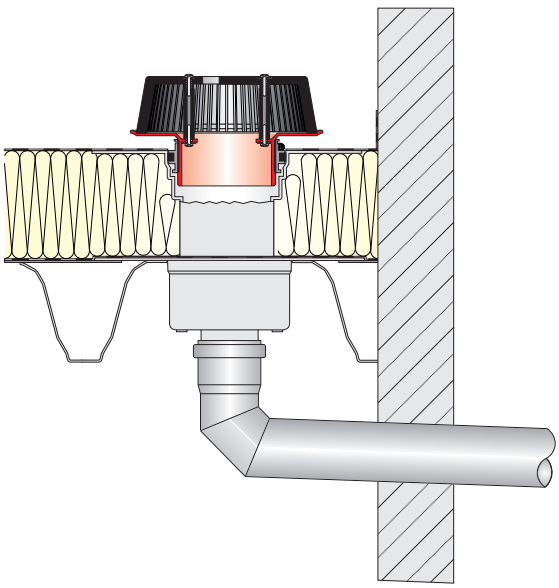


Example 4: Safety drain close to the attic (HL PowerSafe) including extension element

The drain capacity of the HL PowerSafe DN110, connected according to the picture presuming a water level of 35 mm is set to 8,1 l/s.
Requirement to the safety drainage: 42,9 l/s
Performance of 6 PowerSafe drains: 48,6 l/s

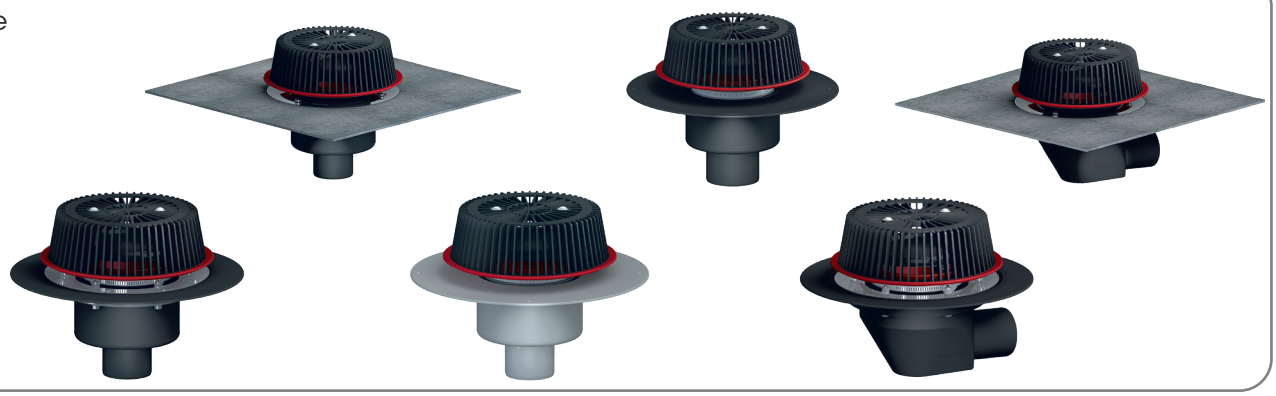
Necessary outlets: **6**





HL® Roof Drains – Products – Overview

Abläufe



Product	HL62Safe	HL62HSafe	HL62PSafe	HL62FSafe	HL64Safe	HL64HSafe
Description	Safety roof drain Vertical with clamping ring	Safety roof drain Vertical with bitumen membrane	Safety roof drain Vertical with PVC sealing flange	Safety roof drain Vertical with PP sealing flange	Safety roof drain Horizontal with clamping flange	Safety roof drain Horizontal with bitumen membrane
Function	Clamping of polymeric roof seal strips	Special design for connection to bitumen seals	Special design for connection to PVC seal strips	Special design for connection to PP-based FPO seal strips	Clamping of polymeric roof seal strips	Special design for connection to bitumen seals

Abläufe

Product	HL64PSafe	HL64FSafe	HL64H PowerSafe	HL64P Power Safe	HL64F PowerSafe
Description	Safety roof drain Horizontal with PVC sealing flange	Safety roof drain Horizontal with PP sealing flange	Safety roof drain PowerSafe with bitumen membrane	Safety roof drain with PVC sealing flange	Safety roof drain PowerSafe with PP sealing flange
Function	Special design for connection to PVC seal strips	Special design for connection to PP-based FPO seal strips	Special design for connection to bitumen seals	Special design for connection to PVC seal strips	Special design for connection to PP-based FPO seal strips

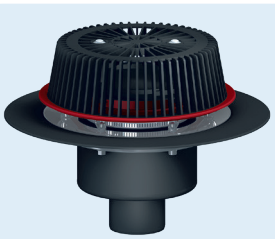
Any safety roof drain is available with heating, except for the PowerSafe series.
Please find further information within the particular product information.

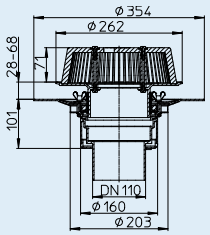
HL® Roof Drains – Products – Overview

HL62Safe Safety roof drain with 28 - 68 mm height-adjustable inlet edge
HL62.1Safe Safety roof drain similar to HL62Safe with additional electrical heating

Data

Drainage capacity	please see table
Material	PP, outlet unit thermally insulated
Connections	HL62Safe/7, HL62.1Safe/7: DN75 HL62Safe/1, HL62.1Safe/1: DN110 HL62Safe/2, HL62.1Safe/2: DN125 HL62Safe/5, HL62.1Safe/5: DN160
Outlet	vertical
Sealing flange	PP with stainless steel clamping ring
Inlet	Leaf catcher, height adjustable from 28 - 68 mm
Standard	ÖNORM B2501-2015, EN 1253, DIN 19599
Recommended for	polymere sheetings
Additional information	Notch dimension: 255 x 380 mm Tap hole dimension: Ø 255 mm HL62.1Safe: heated type with self-adjusted heat source for direct connection to a 230 V power grid (10 – 30 Watt)
Including	Lid cover, 6 pcs. HL062N.4E Hex nut alternative zu butterfly nuts





Drainage capacity according to DIN EN 1253, with connector to a 3 m down pipe
Drainage capacity in l/s for a water level of 5 - 65 mm

nominal width	DIN EN 1253	5 mm	15 mm	25 mm	35 mm	45 mm	55 mm	65 mm
DN75	1,7 (35 mm)	0,8	3,6	5,9	8,7	12,1	14,8	15
DN110	4,5 (35 mm)	0,9	3,8	6,4	9,1	12,2	15,8	20,1
DN125	7,0 (45 mm)	0,9	3,8	6,2	9,1	12,1	15,7	20
DN160	8,1 (45 mm)	0,9	3,8	6,5	9,3	12,8	16,5	21,5

Drainage capacity according to DIN EN 1253 with connector freely running out Drainage capacity in l/s for a water level of 5 - 65 mm

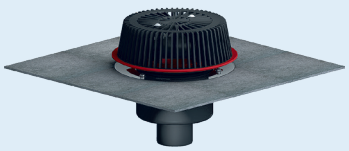
nominal width	DIN EN 1253	5 mm	15 mm	25 mm	35 mm	45 mm	55 mm	65 mm
DN75	1,7 (35 mm)	0,8	3,2	5,4	5,4	5,5	5,6	5,7
DN110	4,5 (35 mm)	0,9	3,2	5,5	8,1	9,6	10,1	10,5
DN125	7,0 (45 mm)	0,9	3,7	6	8,5	11,6	13,9	14,4
DN160	8,1 (45 mm)	0,9	3,2	5,8	8,1	9,2	10,2	11

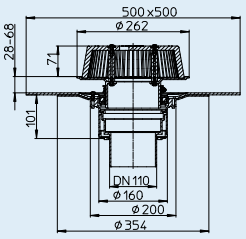
HL-Nr.	Dimension	Weight	EAN	Pcs./Package	Type
62Safe/7	DN75	3014g		1	Standard
62.1Safe/7	DN75	3154g		1	with heating
62Safe/1	DN110	3034g		1	Standard
62.1Safe/1	DN110	3174g		1	with heating
62Safe/2	DN125	3074g		1	Standard
62.1Safe/2	DN125	3214g		1	with heating
62Safe/5	DN160	3094g		1	Standard
62.1Safe/5	DN160	3234g		1	with heating

HL62HSafe Safety roof drain with bitumen membrane and 28 - 68 mm height adjustable inlet edge
HL62.1HSafe Safety roof drain similar to HL62HSafe with additional electrical heating

Data

Drainage capacity	please see table
Material	PP, outlet unit thermally insulated
Connections	HL62HSafe/7, HL62.1HSafe/7: DN75 HL62HSafe/1, HL62.1HSafe/1: DN110 HL62HSafe/2, HL62.1HSafe/2: DN125 HL62HSafe/5, HL62.1HSafe/5: DN160
Outlet	vertical
Sealing flange	PP, stainless steel with factory made bitumen membrane
Inlet	Leaf catcher, height adjustable from 28 - 68 mm
Standard	ÖNORM B2501-2015, EN 1253, DIN 19599
Recommended for	Bitumen sheetings
Additional information	Notch dimension: 255 x 380 mm Tap hole dimension : Ø 255 mm HL62.1HSafe: heated type with self-adjusted heat source for direct connection to a 230 V power grid (10 – 30 Watt)
Including	Lid cover





Drainage capacity according to DIN EN 1253, with connector to a 3 m down pipe
Drainage capacity in l/s for a water level of 5 - 65 mm

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DN75	1,7 (35 mm)	0,8	3,6	5,9	8,7	12,1	14,8	15
DN110	4,5 (35 mm)	0,9	3,8	6,4	9,1	12,2	15,8	20,1
DN125	7,0 (45 mm)	0,9	3,8	6,2	9,1	12,1	15,7	20
DN160	8,1 (45 mm)	0,9	3,8	6,5	9,3	12,8	16,5	21,5

Drainage capacity according to DIN EN 1253 with connector freely running out Drainage capacity in l/s for a water level of 5 - 65 mm

nominal width	DIN EN 1253	5 mm	15 mm	25 mm	35 mm	45 mm	55 mm	65 mm
DN75	1,7 (35 mm)	0,8	3,2	5,4	5,4	5,5	5,6	5,7
DN110	4,5 (35 mm)	0,9	3,2	5,5	8,1	9,6	10,1	10,5
DN125	7,0 (45 mm)	0,9	3,7	6	8,5	11,6	13,9	14,4
DN160	8,1 (45 mm)	0,9	3,2	5,8	8,1	9,2	10,2	11

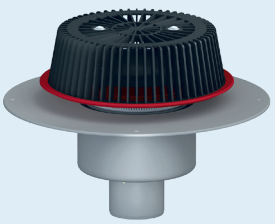
HL-Nr.	Dimension	Weight	EAN	Pcs./Package	Type
62HSafe/7	DN75	3253g		1	Standard
62.1HSafe/7	DN75	3371g		1	with heating
62HSafe/1	DN110	3494g		1	Standard
62.1HSafe/1	DN110	3611g		1	with heating
62HSafe/2	DN125	3504g		1	Standard
62.1HSafe/2	DN125	3621g		1	with heating
62HSafe/5	DN160	3514g		1	Standard
62.1HSafe/5	DN160	3631g		1	with heating

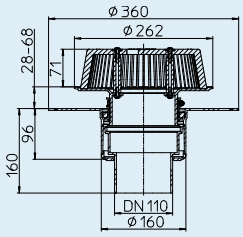
HL® Roof Drains – Products – Overview

HL62PSafe Safety roof drain with PVC sealing flange and 28 - 68 mm height adjustable inlet edge
HL62.1PSafe Safety roof drain simmilar to HL62PSafe with additional electrical heating

Data

Drainage capacity	please see table
Material	PP, outlet unit thermally insulated
Connections	HL62PSafe/7, HL62.1PSafe/7: DN75 HL62PSafe/1, HL62.1PSafe/1: DN110 HL62PSafe/2, HL62.1PSafe/2: DN125 HL62PSafe/5, HL62.1PSafe/5: DN160
Outlet	vertical
Sealing flange	PVC, weldable with hot air
Inlet	Leaf catcher, height adjustable from 28 - 68 mm
Standard	ÖNORM B2501-2015, EN 1253, DIN 19599
Recommended for	PVC sheetings
Additional information	Notch dimension: 255 x 380 mm Tap hole dimension: Ø 255 mm HL62.1PSafe: heated type with self-adjusted heat source for direct connection to a 230 V power grid (10 – 30 Watt)
Including	Lid cover





Drainage capacity according to DIN EN 1253, with connector to a 3 m down pipe
Drainage capacity in l/s for a water level of 5 - 65 mm

nominal width	DIN EN 1253	5 mm	15 mm	25 mm	35 mm	45 mm	55 mm	65 mm
DN75	1,7 (35 mm)	0,8	3,6	5,9	8,7	12,1	14,8	15
DN110	4,5 (35 mm)	0,9	3,8	6,4	9,1	12,2	15,8	20,1
DN125	7,0 (45 mm)	0,9	3,8	6,2	9,1	12,1	15,7	20
DN160	8,1 (45 mm)	0,9	3,8	6,5	9,3	12,8	16,5	21,5

Drainage capacity according to DIN EN 1253 with connector freely running out Drainage capacity in l/s for a water level of 5 - 65 mm

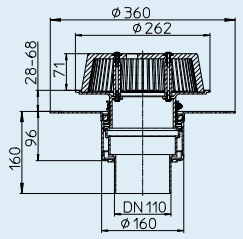
nominal width	DIN EN 1253	5 mm	15 mm	25 mm	35 mm	45 mm	55 mm	65 mm
DN75	1,7 (35 mm)	0,8	3,2	5,4	5,4	5,5	5,6	5,7
DN110	4,5 (35 mm)	0,9	3,2	5,5	8,1	9,6	10,1	10,5
DN125	7,0 (45 mm)	0,9	3,7	6	8,5	11,6	13,9	14,4
DN160	8,1 (45 mm)	0,9	3,2	5,8	8,1	9,2	10,2	11

HL-Nr.	Dimension	Weight	EAN	Pcs./Package	Type
62PSafe/7	DN75	2834g		1	Standard
62.1PSafe/7	DN75	2951g		1	with heating
62PSafe/1	DN110	2874g		1	Standard
62.1PSafe/1	DN110	2991g		1	with heating
62PSafe/2	DN125	2814g		1	Standard
62.1PSafe/2	DN125	2931g		1	with heating
62PSafe/5	DN160	2894g		1	Standard
62.1PSafe/5	DN160	3011g		1	with heating

HL62FSafe Safety roof drain with PP sealing flange and 28 - 68 mm height adjustable inlet edge
HL62.1FSafe Safety roof drain simmilar to HL62FSafe with additional electrical heating

Data

Drainage capacity	please see table
Material	PP, outlet unit thermally insulated
Connections	HL62FSafe/7, HL62.1FSafe/7: DN75 HL62FSafe/1, HL62.1FSafe/1: DN110 HL62FSafe/2, HL62.1FSafe/2: DN125
Outlet	vertical
Sealing flange	PVC, weldable with hot air
Inlet	Leaf catcher, height adjustable from 28 - 68 mm
Standard	ÖNORM B2501-2015, EN 1253, DIN 19599
Recommended for	FPO-sheetings on a PP-Basis
Additional information	Notch dimension: 255 x 380 mm Tap hole dimension: Ø 255 mm HL62.1FSafe: heated type with self-adjusted heat source for direct connection to a 230 V power grid (10 – 30 Watt)
Including	Lid cover



Drainage capacity according to DIN EN 1253, with connector to a 3 m down pipe
Drainage capacity in l/s for a water level of 5 - 65 mm

nominal width	DIN EN 1253	5 mm	15 mm	25 mm	35 mm	45 mm	55 mm	65 mm
DN75	1,7 (35 mm)	0,8	3,6	5,9	8,7	12,1	14,8	15
DN110	4,5 (35 mm)	0,9	3,8	6,4	9,1	12,2	15,8	20,1
DN125	7,0 (45 mm)	0,9	3,8	6,2	9,1	12,1	15,7	20

Drainage capacity according to DIN EN 1253 with connector freely running out Drainage capacity in l/s for a water level of 5 - 65 mm

nominal width	DIN EN 1253	5 mm	15 mm	25 mm	35 mm	45 mm	55 mm	65 mm
DN75	1,7 (35 mm)	0,8	3,2	5,4	5,4	5,5	5,6	5,7
DN110	4,5 (35 mm)	0,9	3,2	5,5	8,1	9,6	10,1	10,5
DN125	7,0 (45 mm)	0,9	3,7	6	8,5	11,6	13,9	14,4

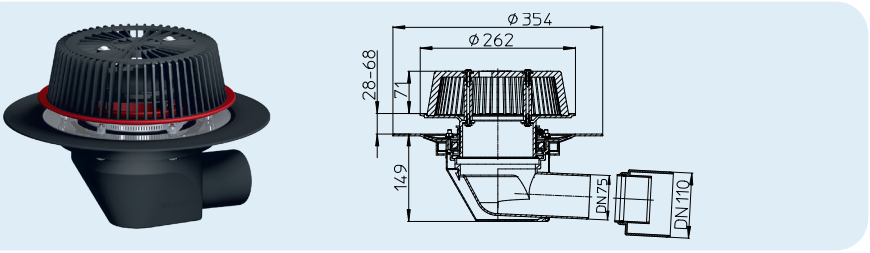
HL-Nr.	Dimension	Weight	EAN	Pcs./Package	Type
62FSafe/7	DN75	2974g		1	Standard
62.1FSafe/7	DN75	3091g		1	with heating
62FSafe/1	DN110	3274g		1	Standard
62.1FSafe/1	DN110	3391g		1	with heating
62FSafe/2	DN125	3514g		1	Standard
62.1FSafe/2	DN125	3634g		1	with heating

HL® Roof Drains – Products – Overview

HL64Safe Safety roof drain with 28 - 68 mm height adjustable nlet edge
HL64.1Safe Safety roof drain simmilar to HL62FSafe with additional electrical heating

Data

Drainage capacity	please see table
Material	PP, outlet unit thermally insulated
Connection	DN75/110
Outlet	horizontal
Sealing flange	PP with stainless steel clamping ring
Inlet	Leaf catcher, height adjustable from 28 - 68 mm
Standard	ÖNORM B2501-2015, EN 1253, DIN 19599
Recommended for	polymere roof sheetings
Additional information	Additional information Notch dimension: 260 x 380 mm HL64.1Safe: heated type with self-adjusted heat source for direct connectio to a 230 V power grid (10 – 30 Watt)
Including	Lid cover, 6 pcs. HL062N.4E Hex nut alternative zu butterfly nuts



Drainage capacity according to DIN EN 1253, with connector to a 3 m down pipe
Drainage capacity in l/s for a water level of 5 - 65 mm

nominal width	DIN EN 1253	5 mm	15 mm	25 mm	35 mm	45 mm	55 mm	65 mm
DN75	1,7 (35 mm)	0,7	3,9	6,1	8,8	11,1	15	17,5
DN110	4,5 (35 mm)	0,9	3,7	6,4	8,9	12,1	15,9	20,1

Drainage capacity according to DIN EN 1253 with connector freely running out Drainage capacity in l/s for a water level of 5 - 65 mm

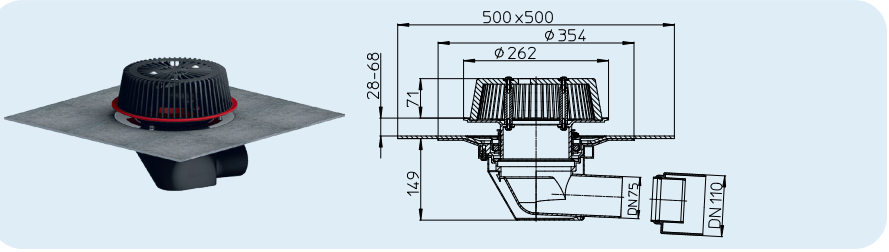
nominal width	DIN EN 1253	5 mm	15 mm	25 mm	35 mm	45 mm	55 mm	65 mm
DN75	1,7 (35 mm)	1,2	3,6	5,4	5,6	5,7	5,9	6
DN110	4,5 (35 mm)	0,8	3,3	4,1	4,2	4,3	4,4	4,5

HL-Nr.	Dimension	Weight	EAN	Pcs../Package	Type
64Safe	DN75/110	2934g		1	Standard
64.1Safe	DN75/110	3054g		1	with heating

HL64HSafe Safety roof drain with bitumen membrane and 28 - 68 mm height adjustable inlet edge
HL64.1HSafe Safety roof drain simmilar to HL64HSafe with additional electrical heating

Data

Drainage capacity	please see table
Material	PP, outlet unit thermally insulated
Connection	DN75/110
Outlet	horizontal
Sealing flange	PP, stainless steal with factory made bitumen membrane
Inlet	Leaf catcher, height adjustable from 28 - 68 mm
Standard	ÖNORM B2501-2015, EN 1253, DIN 19599
Recommended for	bitumen sheetings
Additional information	Notch dimension: 260 x 380 mm HL64.1HSafe: heated type with self-adjusted heat source for direct connection to a 230 V power grid (10 – 30 Watt)
Including	Lid cover



Drainage capacity according to DIN EN 1253, with connector to a 3 m down pipe
Drainage capacity in l/s for a water level of 5 - 65 mm

nominal width	DIN EN 1253	5 mm	15 mm	25 mm	35 mm	45 mm	55 mm	65 mm
DN75	1,7 (35 mm)	0,7	3,9	6,1	8,8	11,1	15	17,5
DN110	4,5 (35 mm)	0,9	3,7	6,4	8,9	12,1	15,9	20,1

Drainage capacity according to DIN EN 1253 with connector freely running out Drainage capacity in l/s for a water level of 5 - 65 mm

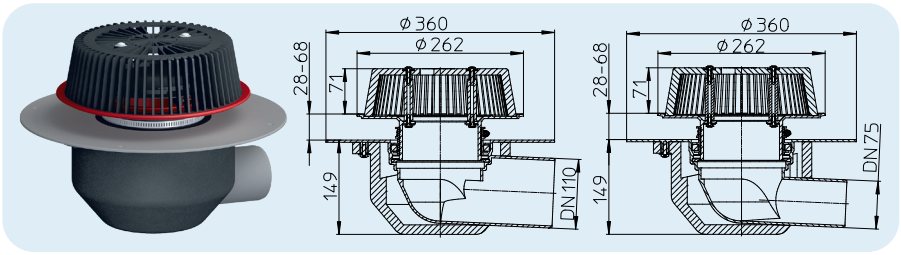
nominal width	DIN EN 1253	5 mm	15 mm	25 mm	35 mm	45 mm	55 mm	65 mm
DN75	1,7 (35 mm)	1,2	3,6	5,4	5,6	5,7	5,9	6
DN110	4,5 (35 mm)	0,8	3,3	4,1	4,2	4,3	4,4	4,5

HL-Nr.	Dimension	Weight	EAN	Pcs../Package	Type
64HSafe	DN75/110	3254g		1	Standard
64.1HSafe	DN75/110	3371g		1	with heating

HL® Roof Drains – Products – Overview

HL64PSafe Safety roof drain with PVC sealing flange and 28 - 68 mm height adjustable inlet edge
HL64.1PSafe Safety roof drain simmilar to HL62PSafe with additional electrical heating

Data	
Drainage capacity	please see table
Material	PP, PVC, outlet unit thermally insulated
Connections	HL64PSafe/7, HL64.1PSafe/7: DN75 HL64PSafe/1, HL64.1PSafe/1: DN110
Outlet	horizontal
Sealing flange	PVC, weldable with hot air
Inlet	Leaf catcher, height adjustable from 28 - 68 mm
Standard	ÖNORM B2501-2015, EN 1253, DIN 19599
Recommended for	PVC sheetings
Additional information	Additional information: 260 x 380 mm HL64.1PSafe: heated type with self-adjusted heat source for direct connection to a 230 V power grid (10 – 30 Watt)
Including	Lid cover



Drainage capacity according to DIN EN 1253, with connector to a 3 m down pipe
Drainage capacity in l/s for a water level of 5 - 65 mm

nominal width	DIN EN 1253	5 mm	15 mm	25 mm	35 mm	45 mm	55 mm	65 mm
DN75	1,7 (35 mm)	0,7	3,9	6,1	8,8	11,1	15	17,5
DN110	4,5 (35 mm)	0,9	3,7	6,4	8,9	12,1	15,9	20,1

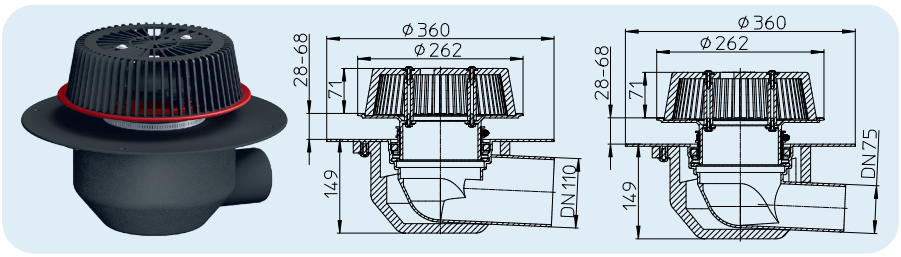
Drainage capacity according to DIN EN 1253 with connector freely running out Drainage capacity in l/s for a water level of 5 - 65 mm

nominal width	DIN EN 1253	5 mm	15 mm	25 mm	35 mm	45 mm	55 mm	65 mm
DN75	1,7 (35 mm)	1,2	3,6	5,4	5,6	5,7	5,9	6
DN110	4,5 (35 mm)	0,8	3,3	4,1	4,2	4,3	4,4	4,5

HL-Nr.	Dimension	Weight	EAN	Pcs../Package	Type
64PSafe/7	DN75	2174g		1	Standard
64.1PSafe/7	DN75	2295g		1	with heating
64PSafe/1	DN110	2231g		1	Standard
64.1PSafe/1	DN110	2348g		1	with heating

HL64FSafe Safety roof drain with bitumen membrane and 28 - 68 mm height adjustable inlet edge
HL64.1FSafe Safety roof drain similar to HL64HSafe with additional electrical heating

Data	
Drainage capacity	please see table
Material	PP,outlet unit thermally insulated
Connections	HL64FSafe/7, HL64.1FSafe/7: DN75 HL64FSafe/1, HL64.1FSafe/1: DN110
Outlet	horizontal
Sealing flange	FPO-sheetings on a PP-Basis
Inlet	Laubfangkorb, in der Höhe verstellbar von 28 - 68 mm
Standard	ÖNORM B2501-2015, EN 1253, DIN 19599
Recommended for	FPO-Bahnen auf PP-Basis
Additional information	Additional information: 260 x 380 mm HL64.1FSafe: heated type with self-adjusted heat source for direct connection to a 230 V power grid (10 – 30 Watt)
Including	Lid cover



Drainage capacity according to DIN EN 1253, with connector to a 3 m down pipe
Drainage capacity in l/s for a water level of 5 - 65 mm

nominal width	DIN EN 1253	5 mm	15 mm	25 mm	35 mm	45 mm	55 mm	65 mm
DN75	1,7 (35 mm)	0,7	3,9	6,1	8,8	11,1	15	17,5
DN110	4,5 (35 mm)	0,9	3,7	6,4	8,9	12,1	15,9	20,1

Drainage capacity according to DIN EN 1253 with connector freely running out Drainage capacity in l/s for a water level of 5 - 65 mm

nominal width	DIN EN 1253	5 mm	15 mm	25 mm	35 mm	45 mm	55 mm	65 mm
DN75	1,7 (35 mm)	1,2	3,6	5,4	5,6	5,7	5,9	6
DN110	4,5 (35 mm)	0,8	3,3	4,1	4,2	4,3	4,4	4,5

HL-Nr.	Dimension	Weight	EAN	Pcs../Package	Type
64FSafe/7	DN75	2163g		1	Standard
64.1FSafe/7	DN75	2279g		1	with heating
64FSafe/1	DN110	2273g		1	Standard
64.1FSafe/1	DN110	2388g		1	with heating

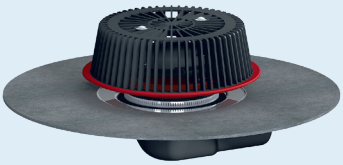
HL® Roof Drains – Products – Overview

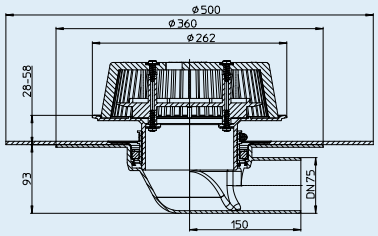
HL64H PowerSafe Power-Safety roof drain with bitumen membrane and 28 - 68 mm height adjustable inlet edge
HL64P PowerSafe Power-Safety roof drain with PVC sealing flange and 28 - 68 mm height adjustable inlet edge
HL64F PowerSafe Power-Safety roof drain with PP- sealing flange and 28 - 68 mm height adjustable inlet edge

Data

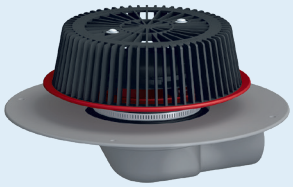
Drainage capacity	please see table
Material	HL64H PowerSafe: PP, Bitumen sheeting HL64P PowerSafe: PVC HL64F PowerSafe: PP
Connections	DN75
Outlet	horizontal
Sealing flange	HL64H PowerSafe: factory made bitumen membrane HL64P PowerSafe: PVC, weldable with hot air HL64F PowerSafe: PP, weldable with hot air
Inlet	Leaf catcher, height adjustable from 28 - 58 mm
Standard	ÖNORM B2501-2015, EN 1253, DIN 19599
Recommended for	HL64H PowerSafe: bitumen sheetings HL64P PowerSafe: PVC-sheetings HL64F PowerSafe: FPO-sheetings on a PP-Basis
Additional information	Aussparungsmaß: 220 x 380 mm
Including	Lid cover

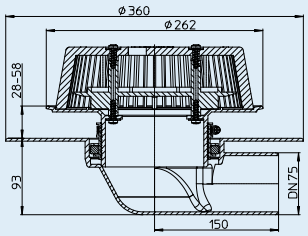
HL64H PowerSafe



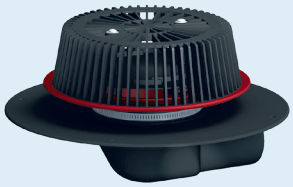


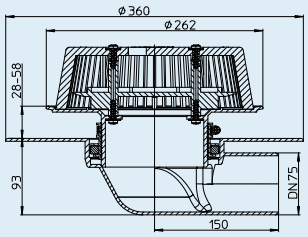
HL64P PowerSafe





HL64F PowerSafe





Drainage capacity according to DIN EN 1253, with connector to a 3 m down pipe
Drainage capacity in l/s for a water level of 5 - 65 mm

nominal width	DIN EN 1253	5 mm	15 mm	25 mm	35 mm	45 mm	55 mm	65 mm
DN75	1,7 (35 mm)	0,7	3,2	7,3	12	15,6	16	16

Drainage capacity according to DIN EN 1253, with connector to a 4,2 m down pipe
Drainage capacity in l/s for a water level of 5 - 65 mm

nominal width	DIN EN 1253	5 mm	15 mm	25 mm	35 mm	45 mm	55 mm	65 mm
DN75	1,7 (35 mm)	0,7	3,8	7,5	12,1	17,7	17,9	17,9

Drainage capacity according to DIN EN 1253 with connector freely running out Drainage capacity in l/s for a water level of 5 - 65 mm

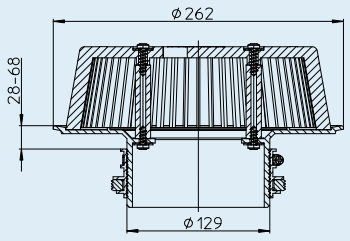
nominal width	DIN EN 1253	5 mm	15 mm	25 mm	35 mm	45 mm	55 mm	65 mm
DN75	1,7 (35 mm)	1	3,8	3,9	4,1	4,2	4,3	4,5

HL-Nr.	Dimension	Weight	EAN	Pcs../Package
64H PowerSafe	DN75	4161g		1
64P PowerSafe	DN75	3284g		1
64F PowerSafe	DN75	3010g		1

HL062.1Safe Safety drain attachment

Daten

Drainage capacity	please see table
Material	PP
Inlet	Leaf catcher, height adjustable from 28 - 58 mm
Standard	ÖNORM B2501-2015, EN 1253, DIN 19599
Recommended for	roof drains for safety drainage



HL-Nr.	Dimension	Weight	EAN	Pcs../Package
062.1Safe		1250g		1

HL Hutterer & Lechner GmbH
Brauhausgasse 3-5, A-2325 Himberg, Austria
T: +43 / (0)2235 / 862 91-0
office@hl.at
www.hl.at