



LORO-X combined Main-Emergency parapet drainage system

main drainage and emergency drainage integrated in one system

Main drainage	Weir 0 mm	Emergency drainage	Weir 40 mm	combined
Gravity flow	Water height 35 mm	Siphonic flow	Water height 75 mm	
Silent		Silent Power		

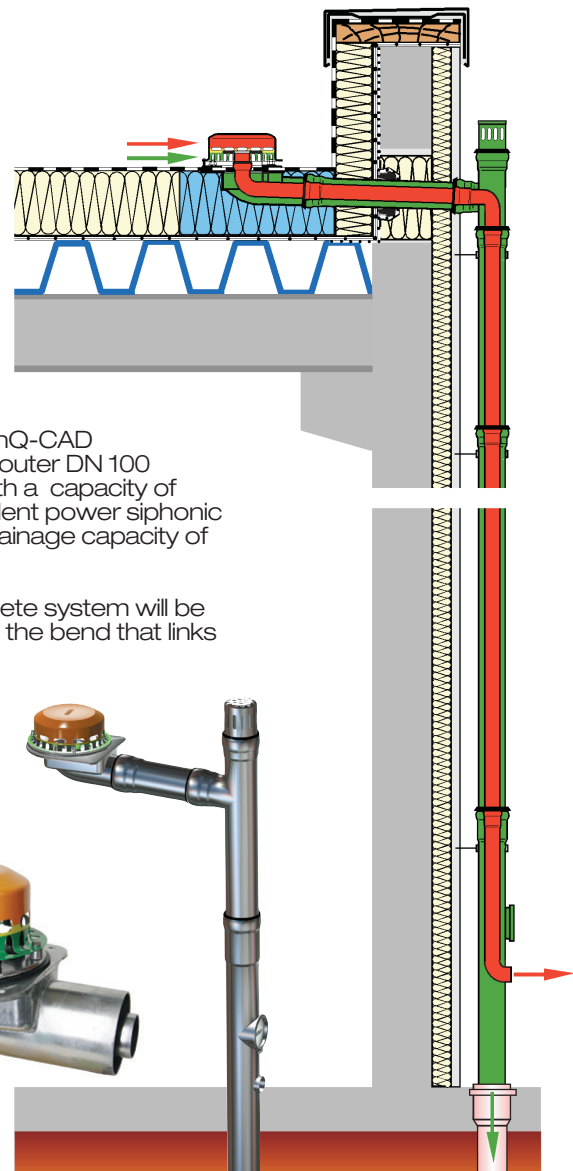
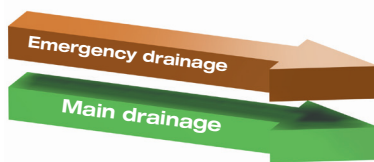
The LORO-X combined main & emergency system

with the „pipe-in-pipe principle“, for which LORO has applied a patent, unites a silent gravity main drainage with a silent power siphonic emergency drainage in a single drainage system.

Space saving: A single drain with just one opening in the parapet and thus just one recess in the heat insulation is required for both the main and the emergency drainage. Thanks to the “pipe-in-pipe principle”, only one pipe instead of two will be visible on the outside of the building.

Safe: According to data sheet LX 772 and the hQ-CAD certificate, the combined system consists of an outer DN 100 downpipe for the silent gravity main drainage with a capacity of 4.5 l/s at a water level of 35 mm and a DN 50 silent power siphonic emergency drainage inside with an additional drainage capacity of 8.2 l/sec at a water level of 75 mm.

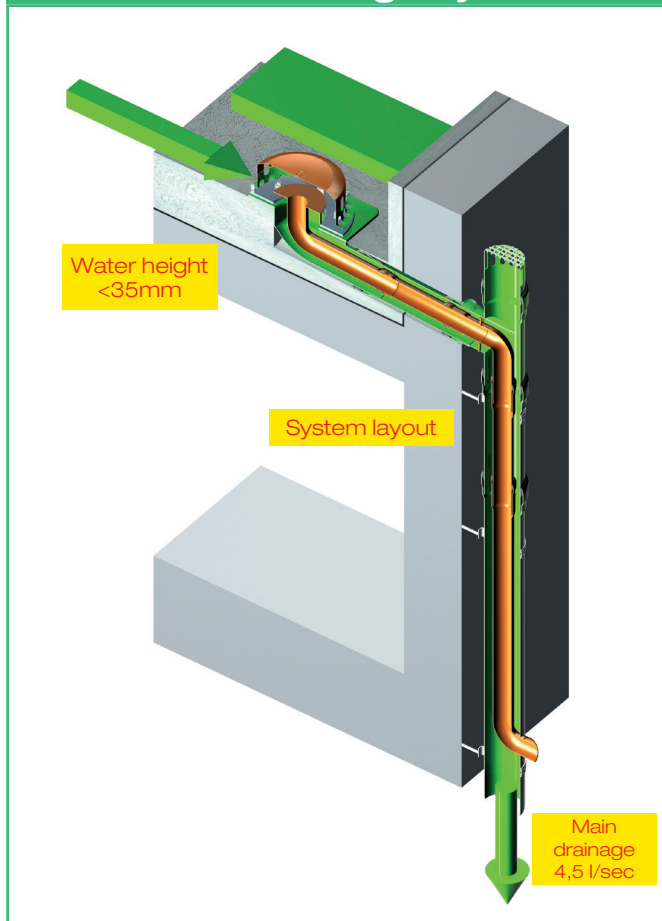
Complete system: As a standard, the complete system will be delivered with a 4.2 m long downpipe, the drain, the bend that links them and all the accessories (clamps, sealing elements...), so that it is ready for installation.



Advantages:

- 2 in 1 : integrated emergency drainage system
- patent and protective rights applied for
- one visible downpipe only
- one opening in the parapet only
- silent gravity drainage during main operations (DN 100)
- silent power siphonic drainage during emergency operations (DN 50)
- performance in accordance with data sheet LX 772 and hQ-CAD certificate
- complete system including all system components!

1. main drainage system



1. Main drainage system

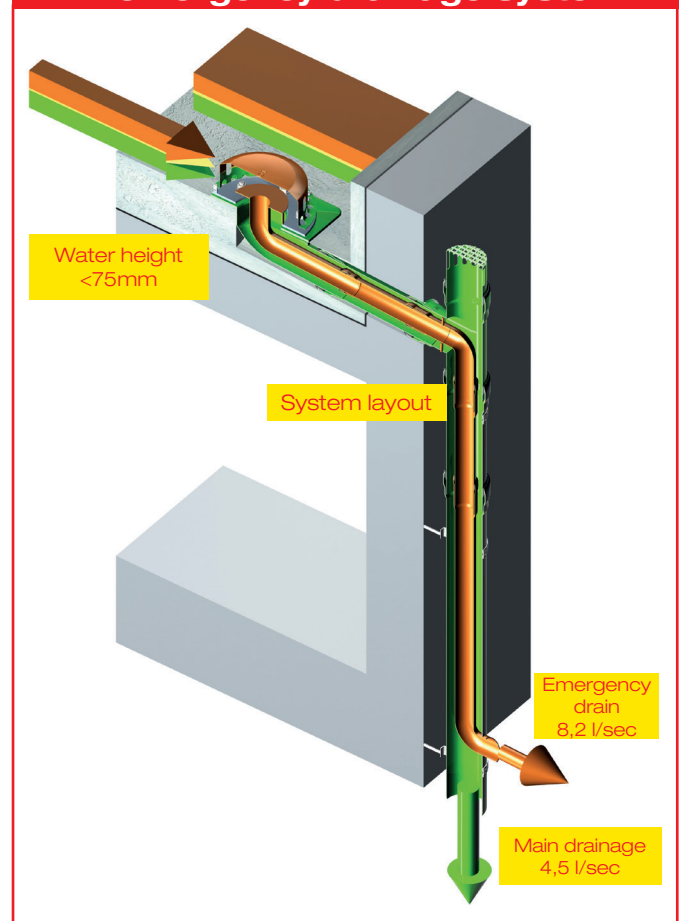
The water generated during normal precipitation will be drained by the main drainage system as quiet as possible.

A safe LORO-X gravity drainage requires the piping system to be completely vented, as to minimize the system's suction capacity. A special LORO vent piece, which is part of the delivery, will ensure this function.

The height of the water level on the roof is not supposed to exceed 35 mm under normal operating conditions. The drainage capacity of the silent gravity drainage system at this height of the water level will amount to 4.5 l/sec.

The water will be discharged from the main drainage system into the sewer.

2. emergency drainage system



2. The combined drainage system will use its emergency performance,

when a so-called once-in-a-hundred-year rain pours down, during which the immense water quantities may exceed the capacity of the main drainage system after a short time. The aim is now to channel the additional water quantities with the safe silent power siphonic drainage off the roof.

LORO-X rain water drainage systems controls the water power and the negative air pressure generated in the system. The water power in the piping system will also contain air, so that the negative air pressure in the drain resulting will suck the water off the roof in a controlled way. The LORO-X siphonic drainage will further increase the system's suction capacity.

According to the LORO-X factory standard, the height of the water level on the roof can increase to a maximum of 75 mm during emergency operations, so that the integrated emergency drainage system (weir height 40 mm) can start its additional operation. The water will be discharged into the open area, in order not to overload the sewer, or in order to be able to dewater the roof, even if the sewer is already overloaded.

High performance based on the right configuration:

The system configuration which is precisely defined by the CAD-design will absolutely guarantee the capacity (hQ) of the LORO-X parapet drainage systems. Please refer to the data sheets on the following pages for more details about the precise system capacity (hQ-CAD certificate). The configuration of the LORO-X drains will ensure the optimal development of the negative air pressure required to suck the maximum water quantity off the roof.

The new LORO-X data sheets provide both the planning and the building staff with an uncomplicated, fast and safe method to order their parapet drainage as a complete system. Each system includes the drain, the piping, the fittings (for 4.2 m high downpipes), the sealing elements and the clamps for fastening the system. This will make sure that you can never forget again any necessary LORO-X system component!

**LORO-X combined main & emergency parapet drainage systems:
Safe in design and performance!**

The pipe-in-pipe system:

„Safe in design and performance“ refers to the connection between the system configuration that has been precisely generated as CAD-design and the hQ-system performance of rain water drainage systems. This can convincingly be demonstrated with the new combined LORO-X main & emergency systems:

The objective is to arrange for a quiet and steady main drainage under normal precipitation conditions with the drainage capacity necessary for such events. Heavy precipitation, on the other (hand), i.e. a so-called once-in-a-hundred-year rain), requires an emergency drainage with the water being discharged into open area, in order to prevent the excess water from getting into the sewer. Until now, such an arrangement has required two separate systems. The innovative LORO “pipe-in-pipe” principle makes it now possible to combine the two systems into one, with one roof drain and one visible downpipe!

The main drainage will be achieved by the outer DN 100 silent gravity drainage system (green flow path) which has a maximum system capacity of $Q = 4.5 \text{ l/sec}$ at a height of water level of $h = 35 \text{ mm}$. The emergency drainage will be ensured through the inner DN 50 silent power siphonic drainage system (red flow path) which has an additional system capacity of $Q = 8.2 \text{ l/sec}$ at a roof height of the water level of $h = 75 \text{ mm}$.

The system layout (CAD) determines the performance parameters, (i.e. the height of the water level (h), the drain (Q) and the noise the systems generates), therefore LORO will prepare an LX data sheet with a hQ-CAD certificate for all newly developed rain water drainage systems (see the following pages).

System component 1 - The combined parapet drainage:

The rain water will enter the combined main & emergency drainage system at the new combined drain with its inner DN 50 emergency drainage weir. The combined LORO-X main & emergency cover has an extra row of slots for the free passage of the water into the emergency drain. Fixed on 3 „bolts“ on the loose flange, the inlet of the emergency system adapts itself optimally to the conditions of the roof sealing, so that the emergency drainage starts operating only, when the required height of the water level is achieved.

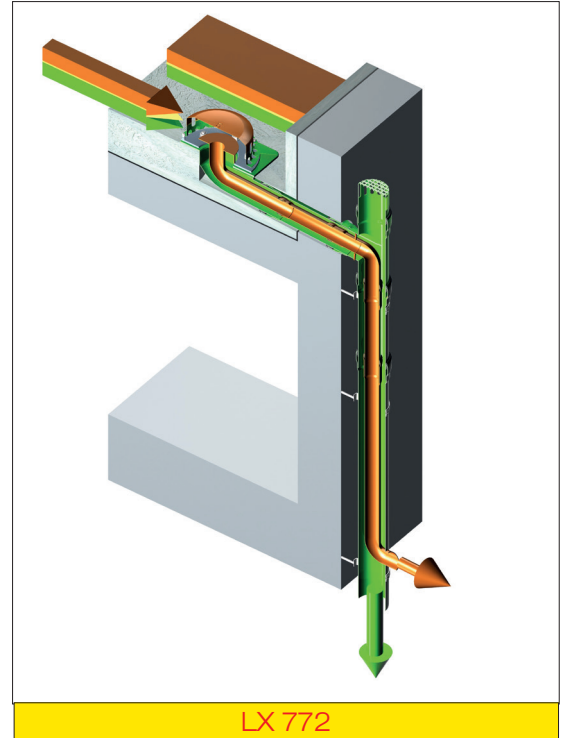
System component 2 - The bend:

A crucial criterion for maintaining a safe gravity drainage in the main drainage system is the proper and complete venting of the DN 100 downpipe, so that no suction effect is created. This will be ensured by the special DN 100 vent piece on the branch.

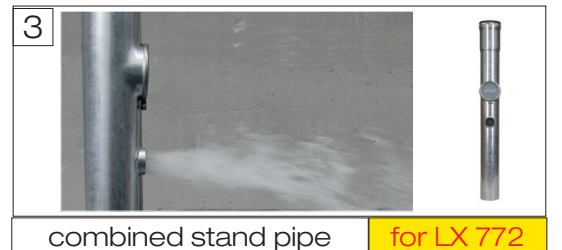
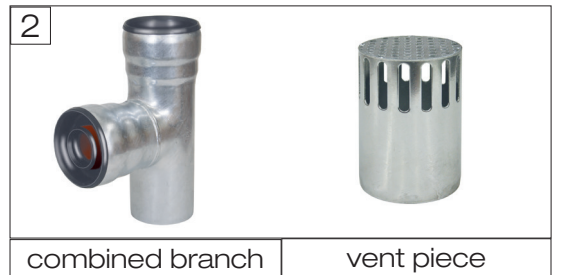
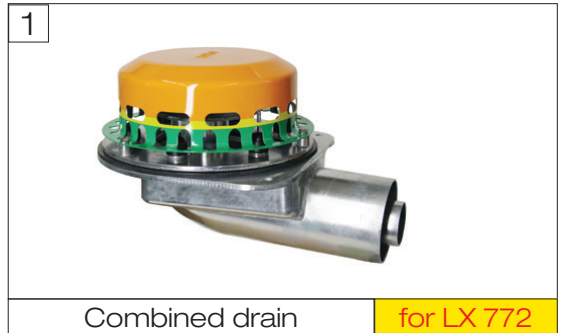
The emergency drainage system inside will therefore be a closed system, to be able to build up the required suction capacity. The length of the downpipe can be adjusted to the height of the building by using DN 100 and DN 50 LORO-X steel discharge pipes (however, please take note of the special DN 50 long-sleeve pipes!).

System component 3 - The combined LORO-X stand pipe:

Eventually, the inner DN 50 system will have to be separated from the outer system and brought into the open area, so that the water can be discharged, as it is required for emergency drainage systems. In order to do so, the outlet is installed underneath the cleanout fitting.



LX 772



Series 88 Main-Emergency-Combination Pipe in pipe

	Main drainage	Emergency drainage
	Gravity flow	Siphonic flow
	Silent	
	Combination	
DN	100 (Main)	50 (Emergency)
Roof penetration	106 mm	
Water height (mm)	35	75
Weir height (mm)	0	40
LX-No.	LX772	
Discharge Q (l/s)	4,5 l/s *	8,2 l/s *

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

Dimensions and weights

LORO-X Main-Emergency-Combination Parapet drain, Series 88,

with clamping flange, DN 100/50

for bituminous and plastic sealing sheets

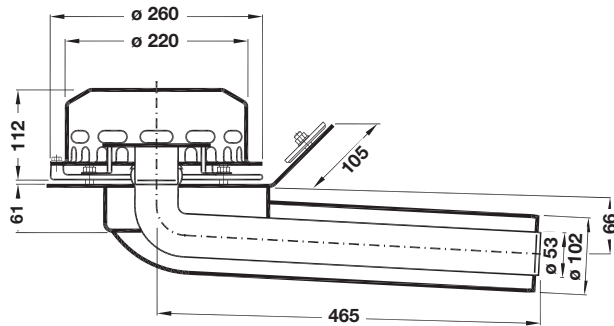
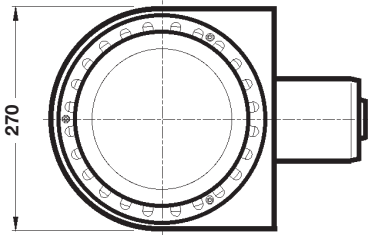
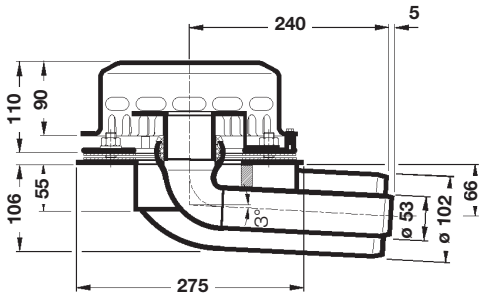
Discharge rate according to specification sheet:

LX 772	Main:	4,5 l/s*
	Emergency:	8,2 l/s*
	Combi:	12,7 l/s*

with clamping flange, **without upstand**, galvanized steel, with additional coating, strainer basket made of stainless steel

consisting of:
strainer basket, loose flange, compression seal**, overflow nozzle, drain body

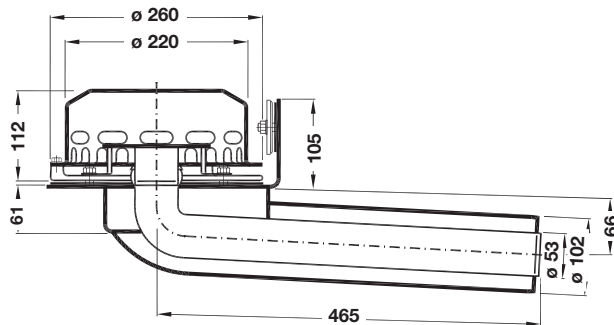
DN 100: Art.-No. 13506.100X weight: 7,0 kg



with clamping flange, **45° upstand**, galvanized steel, for bituminous sealing sheets, with additional coating, strainer basket made of stainless steel

consisting of:
strainer basket, loose flange, compression seal**, overflow nozzle, drain body

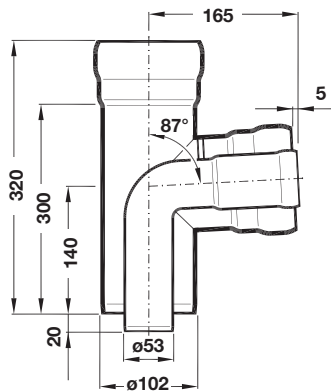
DN 100: Art.-No. 13605.100X weight: 8,9 kg



with clamping flange, **90° upstand**, galvanized steel, for plastic sealing sheets, with additional coating, strainer basket made of stainless steel

consisting of:
strainer basket, loose flange, compression seal**, overflow nozzle, drain body

DN 100: Art.-Nr. 13607.100X weight: 8,9 kg

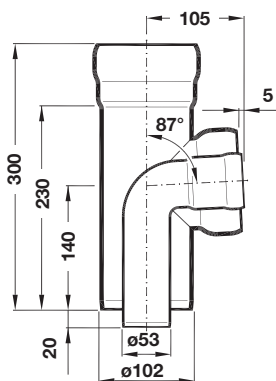


Dimensions and weights

LORO Branch 87° with bend - Pipe in pipe - DN 100/50

galvanized steel with additional coating

DN 100/50: Art.-No. 13500.100X weight: 2,7 kg



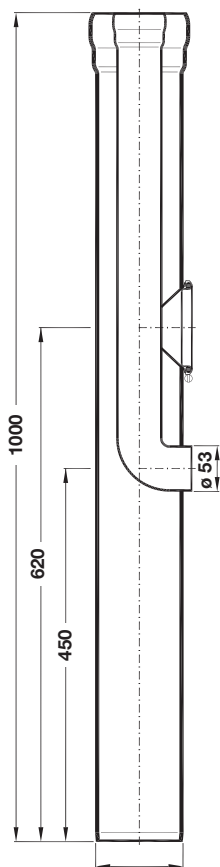
LORO Branch 87° with bend - Pipe in pipe - DN 100/50

short version for small distance to the parapet,
galvanized steel with additional coating

DN 100/50: Art.-No. 13550.100X weight: 2,6 kg

Important: Installation of additional bends only after consultation with LOROWERK.

For maintenance purposes, a cleaning pipe 00550.100X has to be placed in front of each bend.



LORO Rain standpipe - Pipe in pipe - DN 100/50

galvanized steel with additional coating

DN 100/50: Art.-No. 13510.100X weight: 6,7 kg

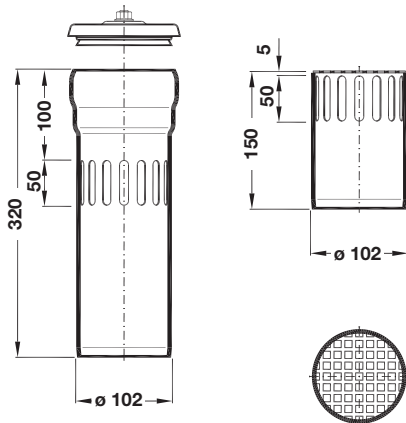
Heat tracing

LOROWERK recommends to equip all main-emergency-combination parapet drains and the continuing downpipes with heat tracing provided by the customer.

** Can be omitted for bituminous sealing sheets.

* In accordance with test specification according to DIN EN 1253.

Dimensions and weights



LORO-X Ventilation piece with closing plug, DN 100

galvanized steel with additional coating

DN 100: [Art.-No. 13216.100X](#)

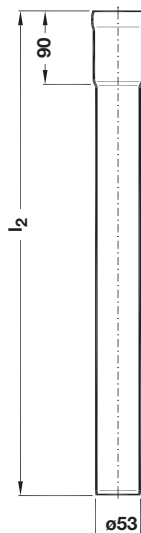
weight: 2,1 kg

LORO-X Ventilation piece with perforated plate, DN 100

galvanized steel with additional coating

DN 100: [Art.-No. 13217.100X](#)

weight: 0,7 kg



LORO-X Pipe with long socket, DN 50

galvanized steel with additional coating

DN 50, $l_2 = 590$ mm: [Art.-No. 01302.050X](#) weight: 1,2 kg

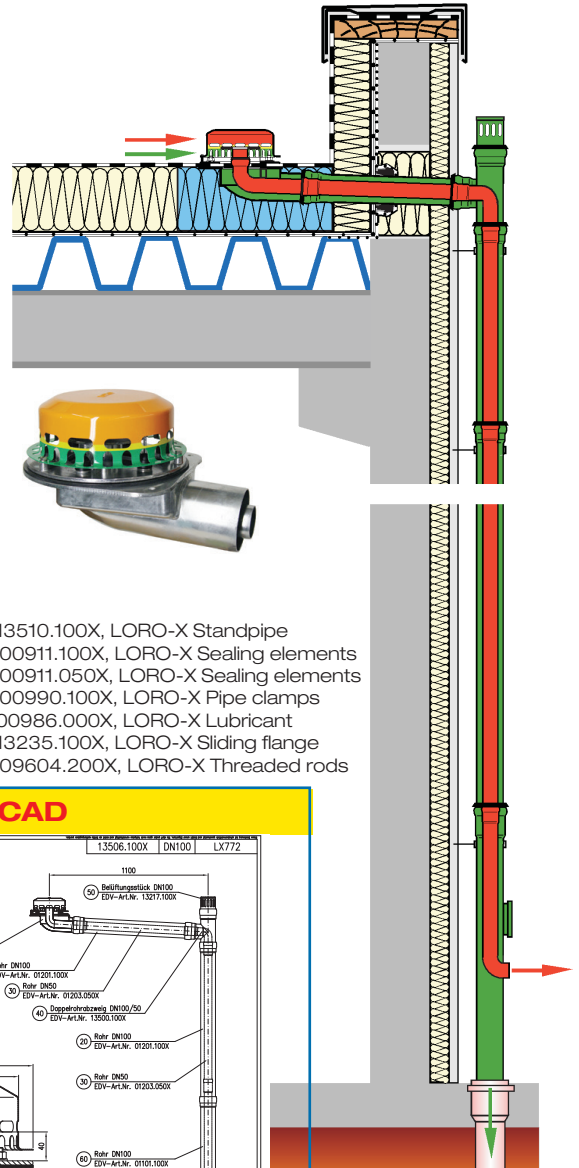
DN 50, $l_2 = 1090$ mm: [Art.-No. 01203.050X](#) weight: 2,2 kg

DN 50, $l_2 = 2090$ mm: [Art.-No. 01108.050X](#) weight: 4,4 kg

Specification sheet LX 772

**Parapet drainage system
Series 88 combined main-emergency**

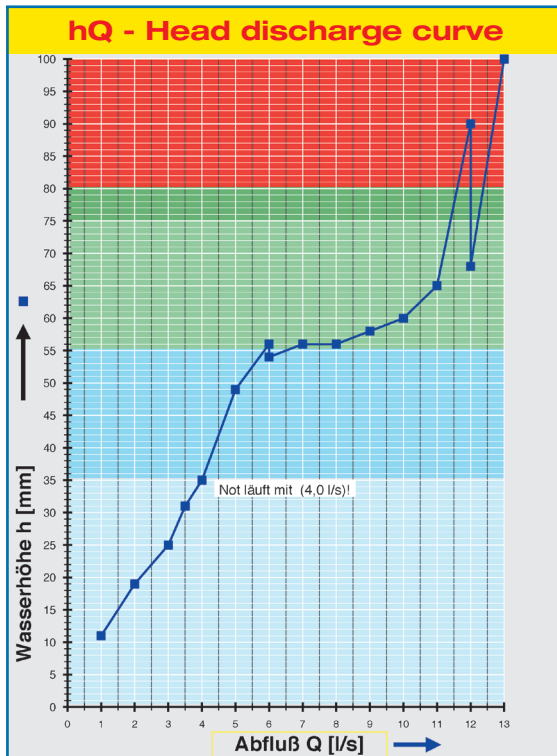
combined main-emergency	
Gravity flow	Siphonic flow
Silent	Silent Power
Discharge rate: 4,5 l/sec	Discharge rate: 8,2 l/sec
Water height: 35 mm	Water height: 75 mm
Roof penetraion: 106 mm	Roof penetraion: 106 mm
Diameter: DN 100	Diameter: DN 50
LX-Number: LX 772	LX-Number: LX 772
Weir height: 0 mm	Weir height: 40 mm
Drain: ventilated	Drain: ventilated
Downpipe: ventilated	Downpipe: not ventilated
Downpipe height: min.4,2 m	Downpipe height: min 4,2 m
Drainage: in sewer	Drainage: on floor
Flange form: clamping flange	Flange form: clamping flange



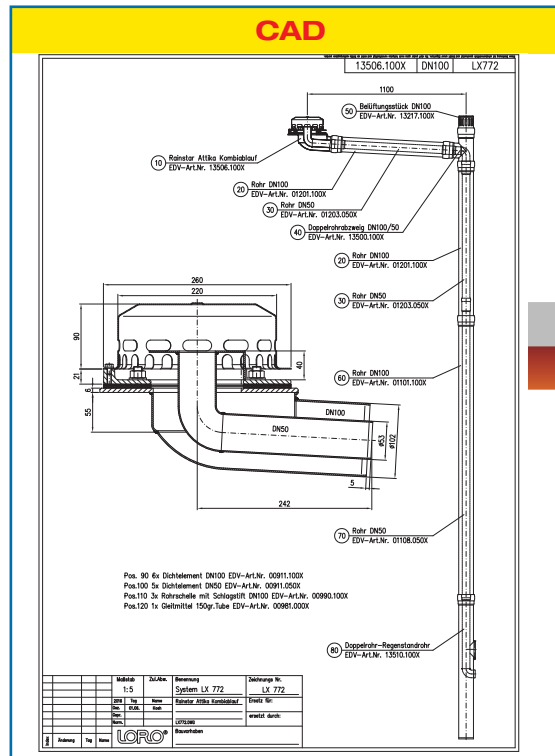
LX 772 Piece list

- 1 x article No. 13506.100X, combined main & emergency parapet drain
- 2 x article No. 01201.100X, LORO-X Pipe with one socket
- 2 x article No. 01203.050X, LORO-X Pipe with long socket
- 1 x article No. 13217.100X, LORO-X Vent piece
- 1 x article No. 13500.100X, LORO-X Pipe in pipe branch with bend
- 1 x article No. 01101.100X, LORO-X Pipe with one socket
- 1 x article No. 01108.050X, LORO-X Pipe with long socket

- 1 x article No. 13510.100X, LORO-X Standpipe
- 6 x article No. 00911.100X, LORO-X Sealing elements
- 5 x article No. 00911.050X, LORO-X Sealing elements
- 3 x article No. 00990.100X, LORO-X Pipe clamps
- 1 x article No. 00986.000X, LORO-X Lubricant
- 1 x article No. 13235.100X, LORO-X Sliding flange
- 3 x article No. 09604.200X, LORO-X Threaded rods



Systempower



Systemshape

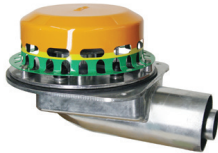
Water height	mm	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
Discharge	l/sec	0,5	1,2	1,5	2,1	3	4	4,5	4,7	4,9	5,1	8	12,0	12,3	12,6	12,7
Silent									Silent Power							

LORO-X combined main-emergency parapet drainage system

LX772-4X

drain article No. 13506.100X
Weight: 7,2 kg

**with clamping flange
without raised edge**
for bituminous and plastic
roofing sheets



LX772-2X

drain article No. 13605.100X
Weight: 8,9 kg

**with clamping flange
45° raised edge**
for bituminous
roofing sheets



LX772-1X

drain article No. 13607.100X
Weight: 8,9 kg

**with clamping flange
90° raised edge**
for plastic roofing sheets



Important: Please order the additional LORO-X system components when placing an order, so as to achieve the drainage performance.

LORO-"pipe in pipe" branch with bend

- for combined
LORO-X main-emergency
parapet drains,
made of hot-dip galvanised steel,
DN 100/50,

article No. 13500.100X
Weight: 3,1 kg



LORO-"pipe in pipe" standpipes

- for combined LORO-X main-emergency parapet drains

with inspection hole
for cleaning purposes,
made of hot-dip galvanised steel,
DN 100/50

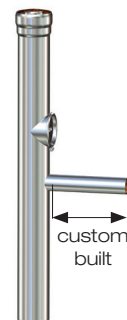
article No. 13510.100X
Weight: 6,7 kg



for installation behind the facade
made of hot-dip galvanised steel,
DN 100/50

Attention: Building-related design -
please indicate desired Length of outlet
pipe when ordering

article No. 13509.100X
Weight: 7,0 kg



LORO-X Pipe with long socket

-emergency drain pipe(inner pipe) for
combined LORO-X main & emergency
parapet drains, made of hot-dip
galvanised steel, DN 50

500 mm long article No. 01302.050X
1000 mm long article No. 01203.050X
2000 mm long article No. 01108.050X



LORO-X Support pipe - pipe in pipe -

DN 100/50
Recommended for longer
downpipes over 12 m

article No. 13582.100X
Weight: 1,2 kg



LORO-X Vent piece with perforated sheet

- for combined LORO-X
main & emergency
parapet drains, made of hot-dip
galvanised steel, DN 100

article No. 13217.100X
Weight: 0,7 kg



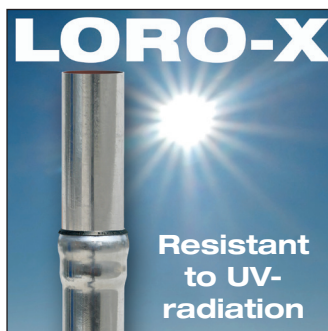
LORO-sealing elements

article No. 00911.050X
article No. 00911.100X
LORO-pipe clamps
article No. 00990.100X

Important: Additional bends may only be installed after consultation with LOROWERK.
A cleaning pipe 00550.100X must be installed in front of each bend for maintenance purposes.

Heat tracing: Lorowerk recommends to check all drains and pipes with regard to their frost-sensibility. Where necessary, these parts should be upgraded with heat tracing.

Advantages of LORO-X pipe systems made of steel with LORO-X push-fit socket



Please contact us for further information or for placing an order:

LOROWERK

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