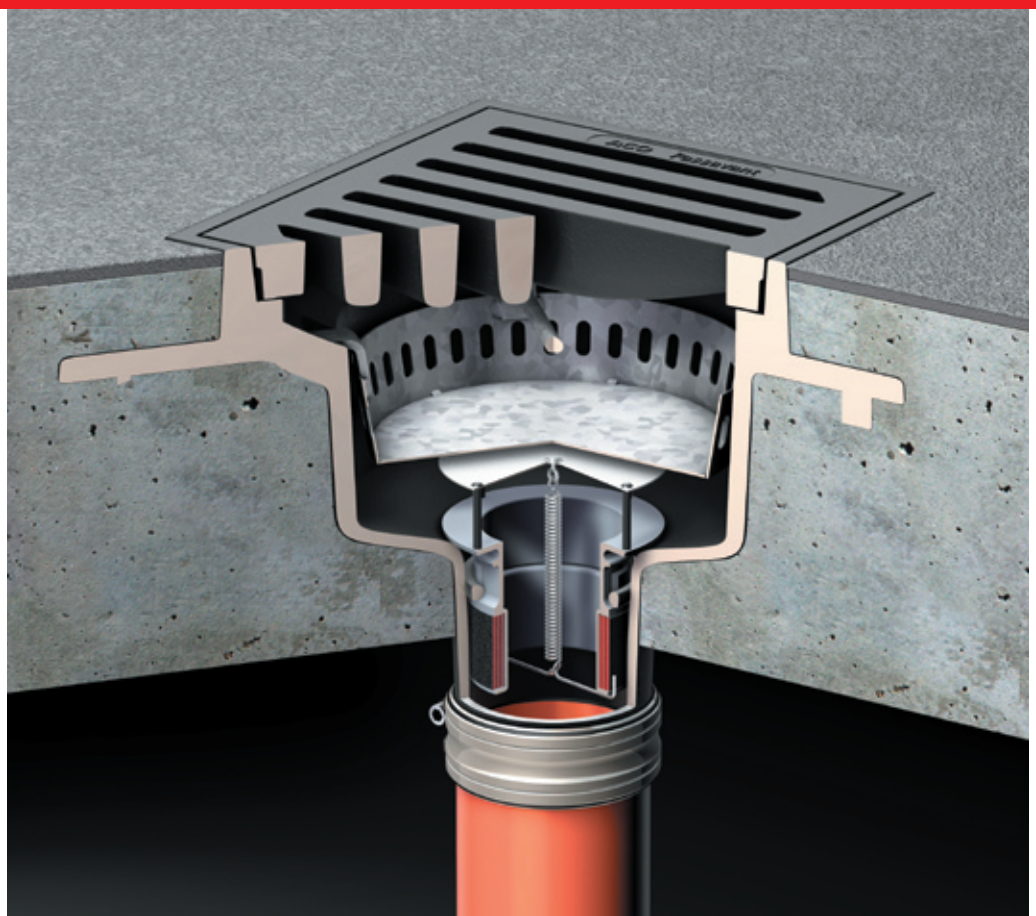
Parking deck drainage



ACO drains and channels for parking deck drainage

There are two categories of parking deck drainage: outdoor drains exposed to the weather, and inside parking decks protected from the weather. Both types have to cope with heavy loads, moisture, and the accumulation of water. ACO parking deck drains and channels reliably handle large volumes of rainwater, and are rugged enough to cope with the harsh conditions associated with rainwater, and the accumulation of snow in winter brought in on cars and especially in car wheel arches.

Drain components such as channels and parking deck drains integrated within the structure of a multi-storey car park should be permanently watertight and tightly sealed off from the different layers. An optimal adhesion bond prevents any part of the system becoming loose. To guarantee this effect, a recess must be incorporated in the transition zone, either built in during construction or cut out afterwards. This recess is subsequently filled with the coating material. The selected sealing system is then laid all the way to the drain system.

There is much higher traffic exposure in busy multi-storey car parks and underground garages (e.g. the industrially used parking areas at shopping centres, park-and-ride stations, airports).
The structural and mechanical loads are much higher than those affecting private homes for instance. The transition from building parts in this case have profiles which can be driven on. Each of the layers forming the surface coating extend in this case right up to the join profile.

The DN 100 vertical ACO parking deck drains made of cast iron can be equipped with fire protection inserts where necessary. Parking deck drains need to be cleaned when required because of the large amount of dirt which collects.

ACO drains and channels safely remove water accumulating on parking decks

Regulations and standards
DIN and DIN EN standards must be complied with when planning and constructing parking deck drains. These standards also apply to floor drains and flat roof drains.

Load classes
The drain model and the load-bearing capacity of the grating is selected depending on the installation location and the associated traffic load and the use of the surface. Drains are classified according to the type of installation situation.

Load classes L15 and M125 are suitable for parking deck drainage.

Load class	Application area
A/L 15	for areas with light traffic and no forklift trucks
B/M 125	for areas with traffic movement, e.g. parking decks

Fire protection
State construction regulations specify the use of fire protection drains in multi-storey car parks when the distance between the roof drains and a rising wall (with openings or no fire resistance capacity) is smaller than 5 metres.

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.

Drainage type
Gravity drainage systems are recommended for parking decks with vehicular traffic because of the accumulation of dirt on the surfaces. Gravity drainage systems have wider pipes than syphonic drainage systems and are therefore less likely to become blocked. ACO Building Services therefore has no syphonic drainage systems specially for parking deck drains.

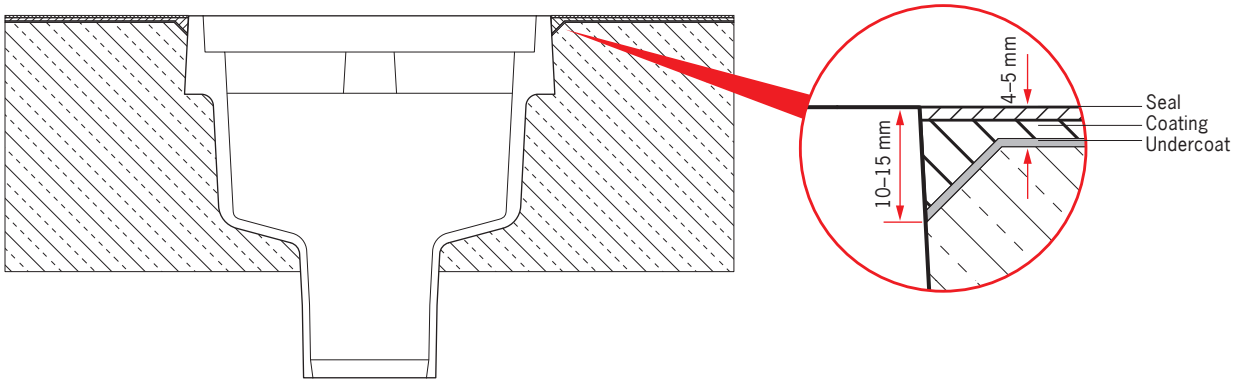
ACO parking deck drains and channels are very rugged and can easily cope with the tough conditions and high mechanical loads associated with the frequent movement of cars.

Cast iron parking deck drains

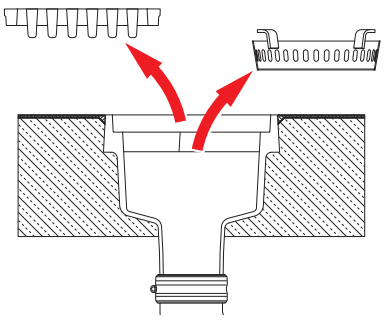
Sealing[2] cast iron parking deck drains

Built-in parking deck drains have to be connected with a permanent watertight seal to the coating system. An optimal adhesion join prevents parts of the two systems from becoming loose.

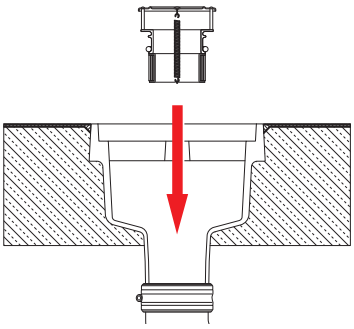
To achieve this, an approx. 10 – 15 mm deep notch is cut into the concrete in the transition zone and filled with coating material. Each of the sealing layers is then laid right up to the drain system.



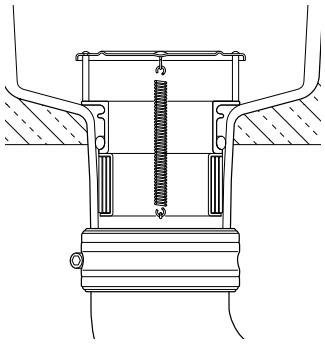
Retrofitting parking deck drains with fire protection inserts



Remove the grating and the sludge bucket



Install the fire protection insert into the outlet socket – make sure that the seal is properly fitted



Install the fire protection cartridge

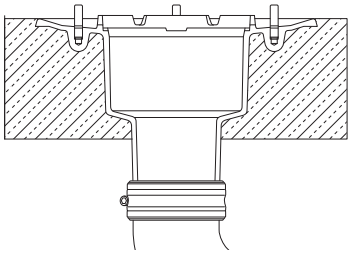
Pipe connections for parking deck drains

Type of pipe	with transitions	suitable for connection to
GM-X pipe DN 100 with coupling socket	CV connector transition 0174.14.27	Parking deck drain, cast iron DN 100
Spigot pipe DN 100 (no coupling socket)	CV connector	

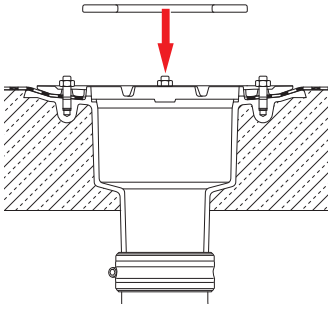
[3] e.g. using the sealing system produced by Sika, Zürich (www.sika.ch)

Cast iron parking deck channels

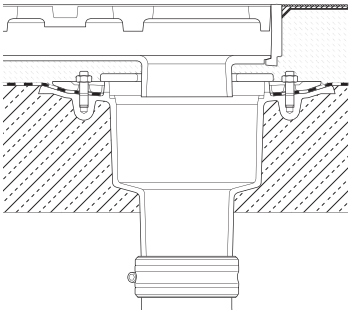
Parking deck channel assembly



Setting a Spin flat roof drain, cast iron, DN 100, in a suitable recess, or pouring the drain into the concrete slab



The cover plate 5801.00.90 is placed on top of the flat roof drain.

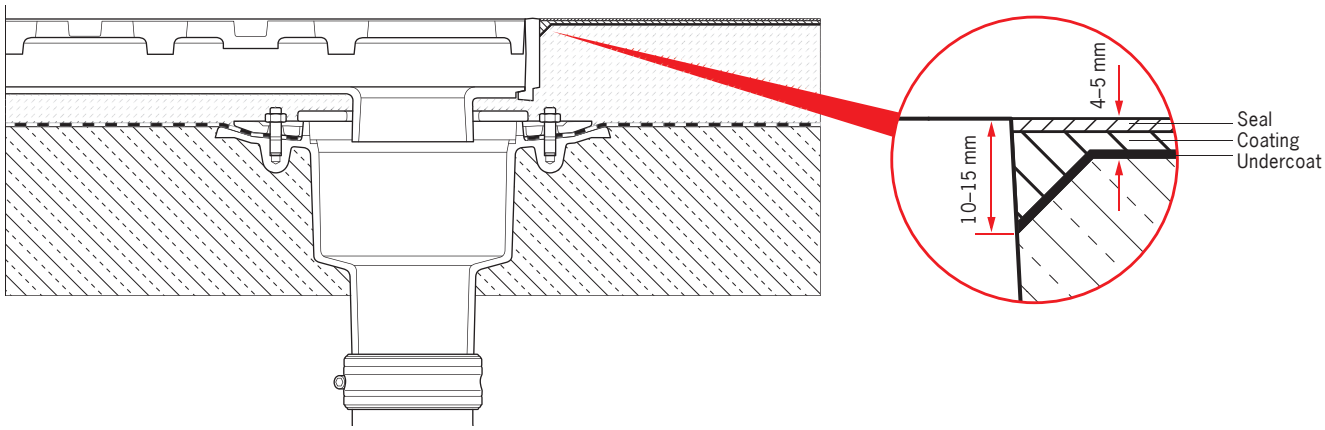


Installing the parking deck channel and constructing the rest of the floor structure

Sealing[3] cast iron parking deck drains

Built-in parking deck drains have to be connected with a permanent watertight seal to the coating system. An optimal adhesion join prevents parts of the two systems from becoming loose.

To achieve this, an approx. 10 – 15 mm deep notch is cut into the concrete in the transition zone and filled with coating material. Each of the sealing layers is then laid right up to the drain system.

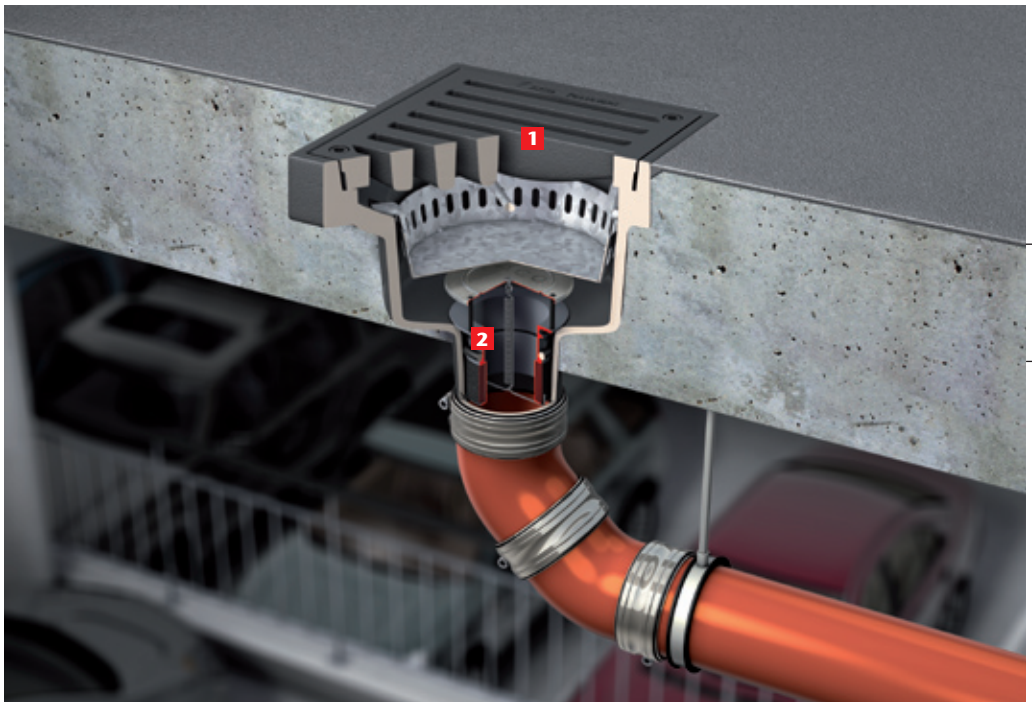


Fire protection

It is not possible to equip the combination parking deck channel and flat roof gully Spin DN 100 of cast iron with a fire protection cartidge!

[2] e.g. using the sealing system produced by Sika, Zürich (www.sika.ch)

Installation recommendation parking deck drainage with a cast iron parking deck drain

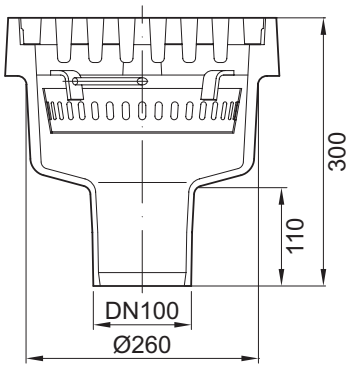


Top surface covering in accordance with the building requirements

Parking deck ceiling (thickness in accordance with the structural engineering specifications)

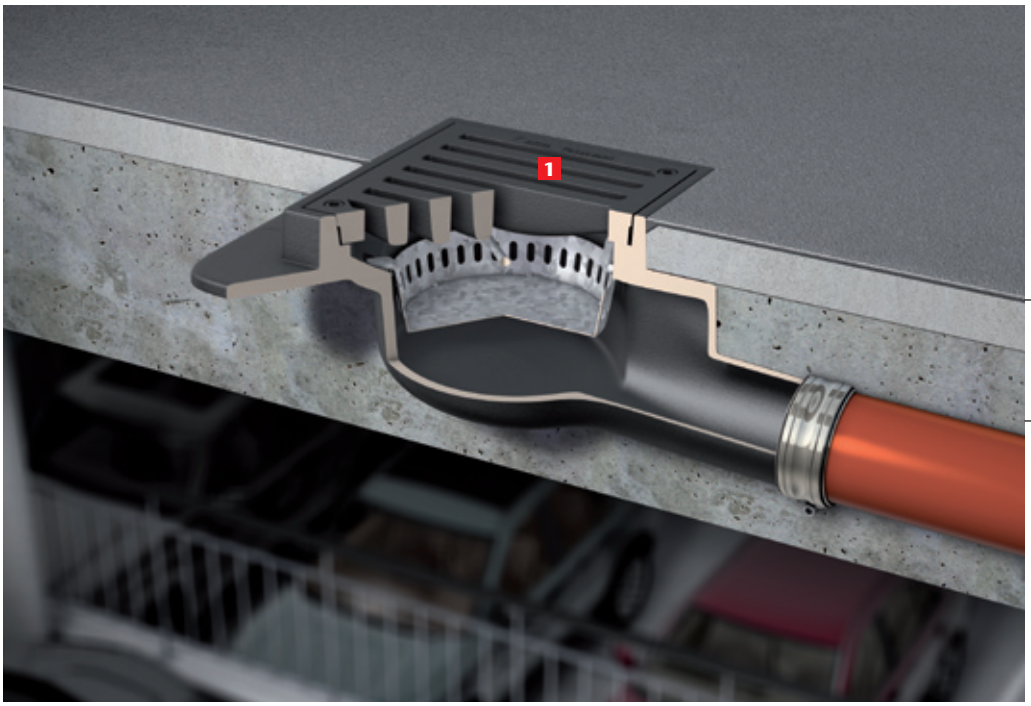
1 **Parking deck drain with gland and galvanised steel bucket, outlet socket inclination 90°, frame dimensions 300x300 mm Article No. 5935.00.00**

2 **Fire protection insert, tested pursuant to AbZ-Z-19.17.1887 Article No. 7034.20.15**

DN 100

The outlet socket of the drain body can be shortened on site by max. 35 mm (without fire protection).

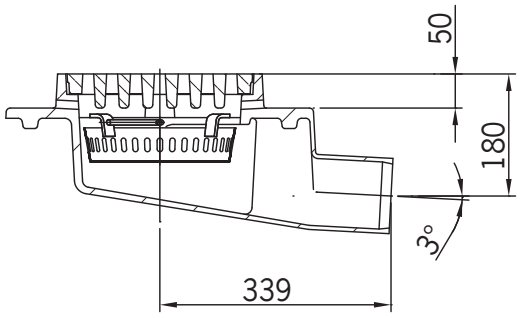
Extension heights in mm.

Installation recommendation parking deck drainage with a cast iron parking deck drain



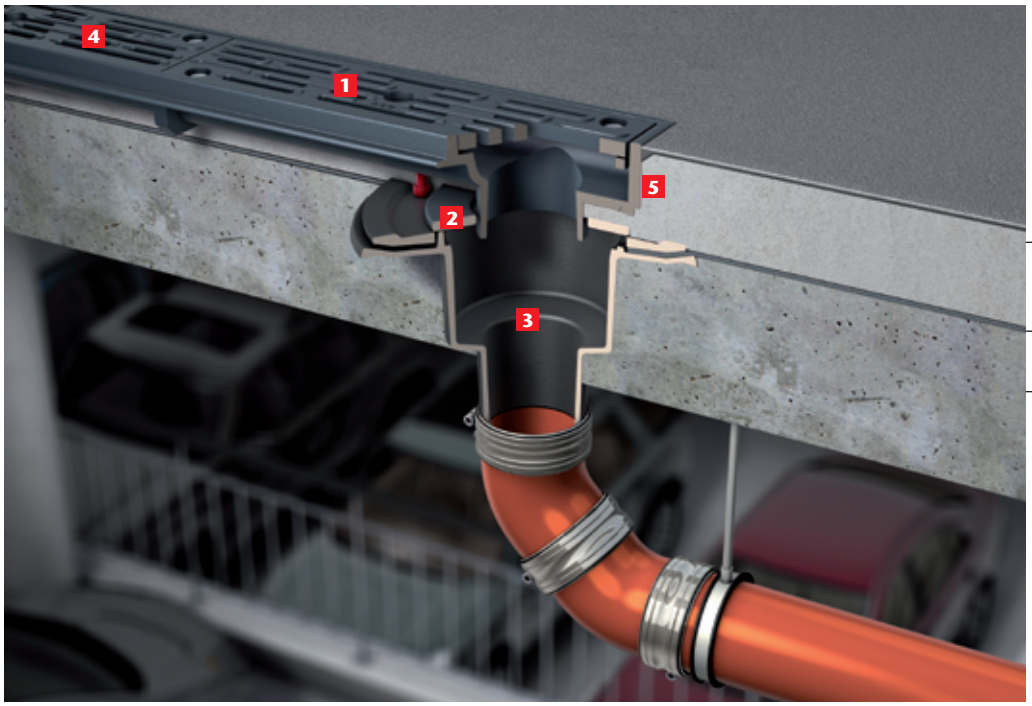
1 **Parking deck drain without gland, with connection collar and galvanised steel bucket, outlet socket inclination 1.5°, frame dimensions 300 x 300 mm Article No. 5935.60.00**

DN 100



Extension heights in mm

Installation recommendation parking deck drainage with cast iron drainage channel and drain body



The top surface coating in accordance with the building specifications
Sealing membrane
Reinforced concrete

1 Aquapass drainage channel
Article No. 5801.62.00

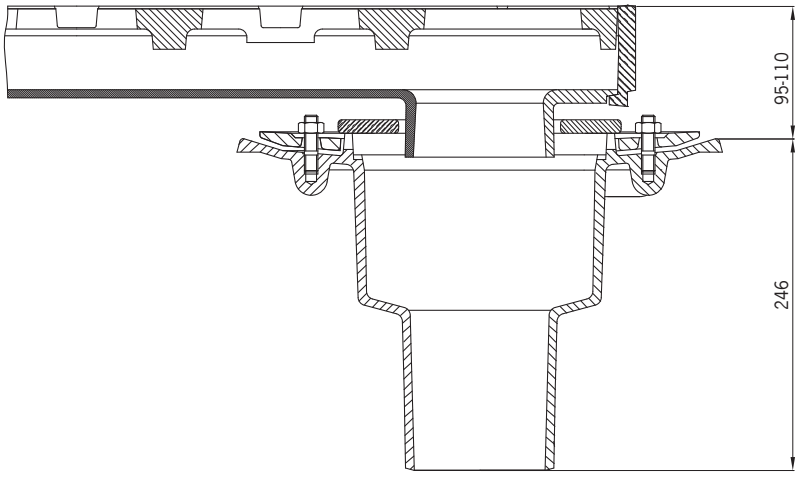
2 Cover plate
Article No. 5801.00.90

3 Drain body
Article No. 7034.10.10

4 Channel unit
Article No. 5801.60.00

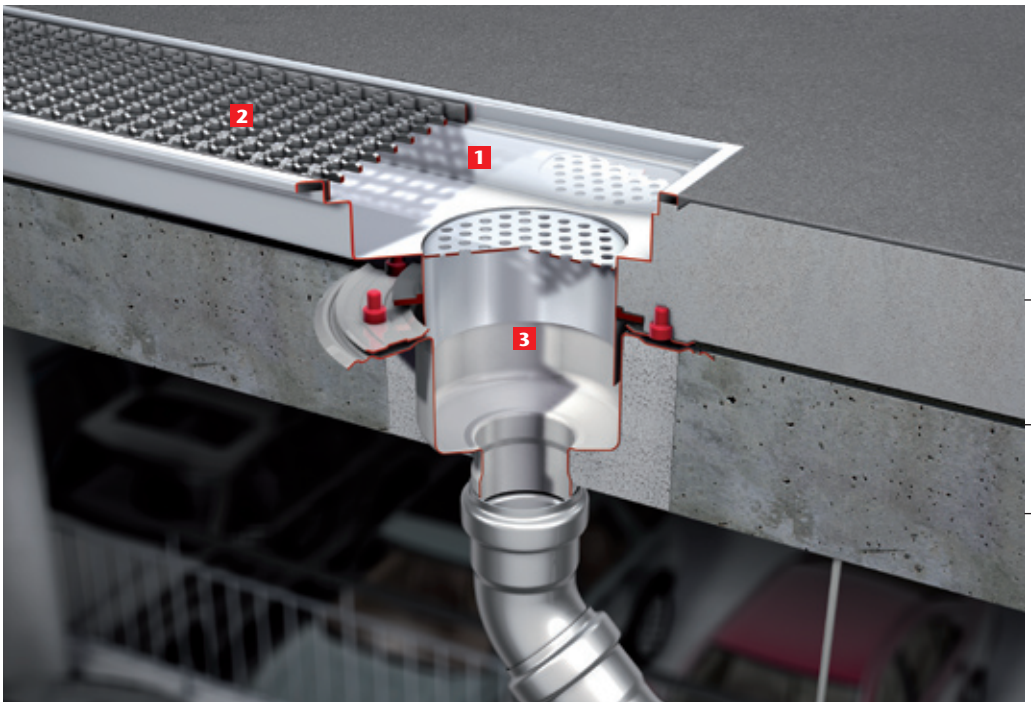
5 Cast iron end wall
Artikle No. 5801.00.80

DN 100



Extension heights in mm

Installation recommendation parking deck drainage with stainless steel drainage channel and drain body

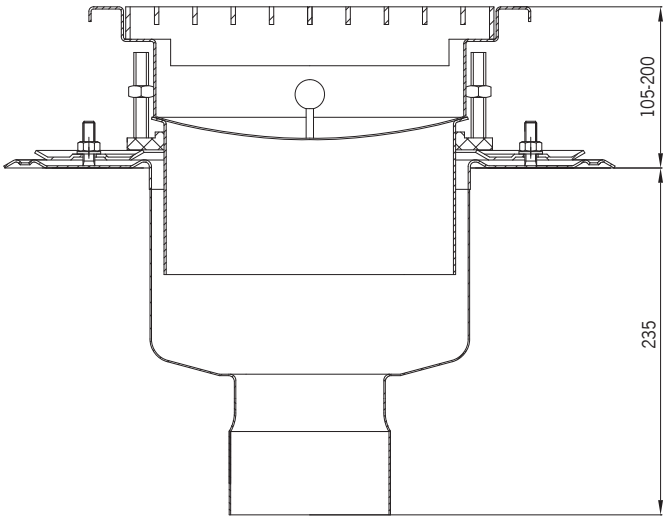


1 **Variant-CR drainage channel, stainless steel, length: 1050 mm Article No. 9013.10.10**

2 **Stainless steel lattice grating, MW 22x22 mm, Class M, length: 500 mm Article No. 9306.05.05 (2-piece)**

3 **Stainless steel drain body DN 100 Article No. 9390.10.00**

DN 100



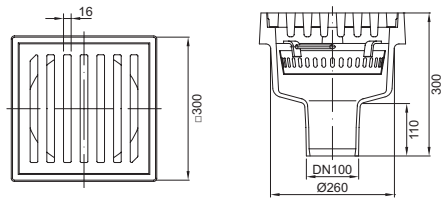
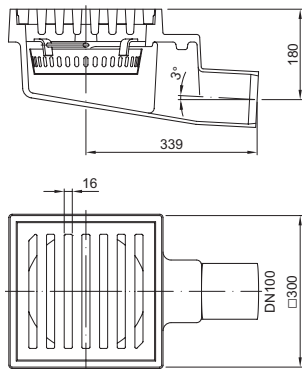
Warning! Drain bodies for parking deck drainage systems must not be retrofitted with an odour seal!

Extension heights in mm

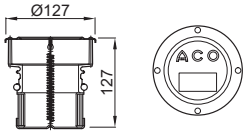
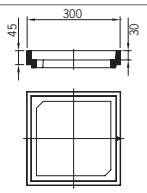
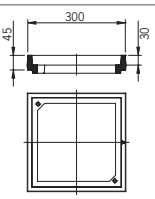
ACO parking deck drains made of cast iron

DN 100

- Drain DN 100
- Cast iron, construction material class A1, coated
- With galvanised steel bucket
- With cast iron grating, slot width 16 mm for load class B/M 125 pursuant to DIN EN 124 – DIN 1229 – DIN 19599/DIN EN 1253
- Recess dimensions 350 x 350 mm (vertical model)
- Recess dimensions 350 x 700 mm (horizontal model)
- To be connected to spigot pipe pursuant to DIN 19522 / DIN EN 877

Scale drawing	Outlet socket inclination	Gland	Weight	Article No.
	90°	Without	35 kg	**5935.00.00**
		With	35 kg	**5935.09.00**
	1,5°	Without	40 kg	**5935.50.00**
		With	40 kg	**5935.59.00**

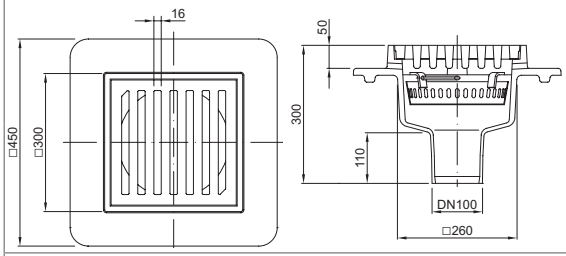
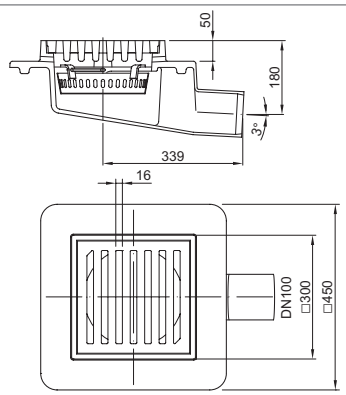
Additional components

	Scale drawing	Product description	Article No.
		**Fire protection insert** to fit parking deck drain DN 100, with 90° socket outlet inclination Warning! This insert reduces the outflow capacity	**7034.20.15**
		**Top frame** 300 x 300 mm, cast iron, primed, for height adjustment in steps of 45 mm	**5935.20.10**
		**Top frame** 300 x 300 mm, cast iron, primed, step-wise height adjustment by 45 mm suitable for parking deck drains with glands	**5935.29.10**

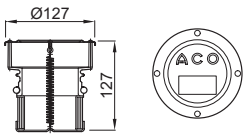
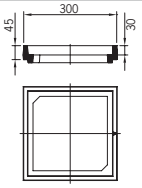
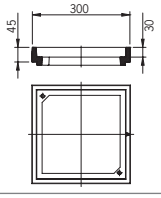
ACO parking deck drains

with connecting collar, cast iron

- Drain DN 100
- With connecting collar
- Cast iron, construction material class A1, coated
- With galvanised steel bucket
- With cast iron grating, slot width 16 mm for load class B/M 125 pursuant to DIN EN 124 – DIN 1229 – DIN 19599/DIN EN 1253
- Recess dimensions 350 x 350 mm (vertical model)
- Recess dimensions 350 x 700 mm (horizontal model)
- To be connected to spigot pipe pursuant to DIN 19522 / DIN EN 877

Scale drawing	Outlet socket inclination	Gland	Weight	Article No.
	90°	Without	47 kg	**5935.10.00**
		With	47 kg	**5935.19.00**
	1,5°	Without	52 kg	**5935.60.00**
		With	52 kg	**5935.69.00**

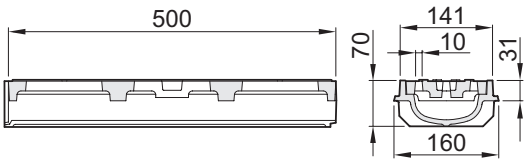
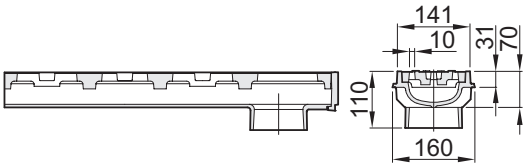
Additional components

	Scale drawing	Product description	Article No.
		**Fire protection insert** to fit parking deck drain DN 100, with 90° socket outlet inclination Warning! This insert reduces the outflow capacity.	**7034.20.15**
		**Top frame** 300 x 300 mm, cast iron, primed, for height adjustment in steps of 45 mm	**5935.20.10**
		**Top section frame** 300 x 300 mm, cast iron, primed, step-wise height adjustment by 45 mm suitable for parking deck drains with glands	**5935.29.10**

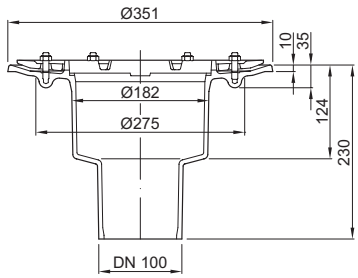
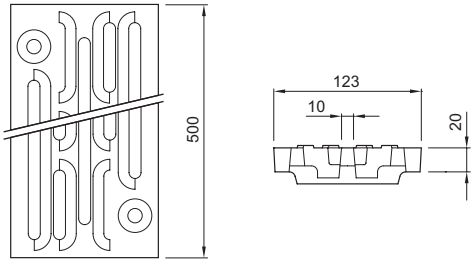
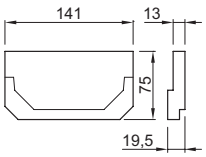
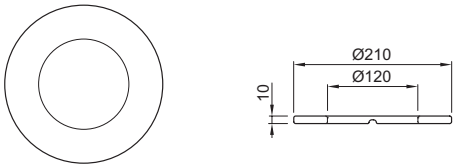
ACO Aquapass parking deck drainage channel, cast iron

DN 100

- Cast iron
- No built-in gradient
- Load class B/M 125 pursuant to DIN EN 124/1253/ DIN 1229
- Internal longitudinal slotted grating, gland
- Inlet section 340 cm^2/m

Scale drawing	Model	Weight	Article No.
	Channel without outlet socket	13,0 kg	**5801.60.00**
	Channel with moulded outlet socket	13,2 kg	**5801.62.00**

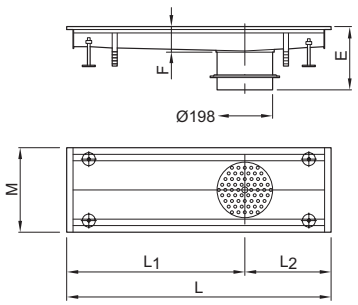
Accessories

Scale drawing	Product description	Weight	Article No.
	**Drain body, cast iron** with compression sealing flange DN 100, 90° socket outlet inclination	13,1 kg	**7034.10.10**
	**Longitudinal slotted channel, cast iron** length: 500 mm load class B125/C250, slot width: 10 mm	13,2 kg	**5801.60.20**
	**Cast iron end walls**	1,2 kg	**5801.00.80**
	**Cover plate for the annulus between the drain body and the channel outlet socket**	1,2 kg	**5801.00.90**

Installation recommendation

ACO Variant-CR box channel, stainless steel, material 1.4301*

*Material 1.4571 upon request

	Scale drawing	Article description
		■ Variant-CR stainless steel channel in material 1.4301 ■ Channel width (M): 300 mm ■ Height at the outlet socket (E): ... mm ■ With support ring and sieve grating to trap dirt, with welded end pieces ■ Channel profile type: NH ■ Additional dimensions: L : .....mm L1: .....mm L2: .....mm ■ Article-No: .....

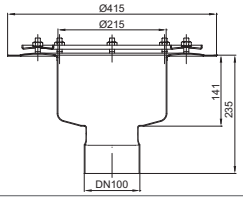
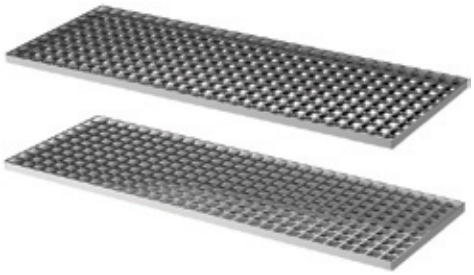
Article No. list for the box channels**

**Other dimensions upon request

Length	Space between socket outlets		E	Hmin	Hmax	F	Weight kg	Profile type NH*** Article No.
	L1	L2						
550	390	160	205	105	135	65	4,8	9013.10.05
1050	890	160	205	105	135	65	7,2	9013.10.10
1050	525	525	205	105	135	65	7,7	9013.10.11
1550	1390	160	205	105	135	65	9,6	9013.10.15
1550	775	775	205	105	135	65	9,8	9013.10.16
2050	1890	160	205	105	135	65	12,1	9013.10.20
2050	1025	1025	205	105	135	65	12,6	9013.10.21
2550	2390	160	205	105	135	65	14,5	9013.10.25
2550	1275	1275	205	105	135	65	15,0	9013.10.26
3050	1525	1525	205	105	135	65	17,4	9013.10.30
3550	1775	1775	225	120	200	85	21,5	9013.10.35
4050	2025	2025	225	120	200	85	25,3	9013.10.40
4550	2275	2275	225	120	200	85	27,2	9013.10.45
5050	2525	2525	225	120	200	85	29,6	9013.10.50

***Delivery time approx. 2 – 3 weeks after receipt of order

Accessories

	Scale drawing	Product description	Weight	Article No.
		**Drain body with compression sealing flange,** Stainless steel, DN 100	Without odour seal	**9390.10.00**
		**Lattice grating, stainless steel** for channel width 300 mm, with anti-slip surface, lattice width: 22 x 22 mm	Load class M 125 Length: 250 mm	**9306.05.02**
			Load class M 125 Length: 500 mm	**9306.05.05**

Height adjustment of the box channel in connection with the drain body