Installation instructions type M

Installation instructions type I

Installation Guidelines Type M

Generally, the compaction index below the base of the channel must be sufficient to ensure the transfer of operational loads (it must be verified by a specialized engineering office).

The dimensioning of the lateral concrete surrounding (x) must be adapted to local site conditions (see chart beside). In cases where the connection between subgrade and lateral concrete surrounding of the channel is avoided by for example by expansion joints, then dowel bars made of Ø8 mm reinforced steel have to be installed every 30 cm.

Installation Guidelines Type I

The planum is to perform settlement–free so that the expected loads can be derived without damaging the components. For changing substrates or substrates with a lower degree of compaction, an additional foundation must be designed.

Installation Guidelines Type M and Type I

The concrete grades indicated are minimum values. Requirements related to the location of installation, such as resistance to freeze–thaw with de–icing salts, must be taken into account by choosing the appropriate concrete grade in accordance with local restrictions respectively.

With complete concrete surrounded channels system, BIRCO recommends a fully sealing of the channel joints, so as to prevent damage through freeze – thaw conditions (see jointing information!)

It must be ensured that installation is performed expertly, taking into account concrete technology aspects.

All adjoining pavement surfaces must run permanently at a level of approximately 3 to 5 mm higher than the upper edge of the channel. In order to achieve this, we recommend laying the first two to three rows of block paving or paving slabs in a mortar bed. Because there is no concrete encasing, the surfacing can run right up to the channel. In the case of block paving or paving slabs being used as the adjoining surfacing, a durable sealing joint of some 10 mm must be established between the channel and the surfacing. The joints between the first two to three rows of the block paving or paving slabs must be sealed durably in a tight and impermeable manner. It must be ensured that horizontal forces, which may result from the expansion or shifting of the pavement, have no impact on the two to three rows of pavement set in the mortar bed.

Expansion joints in the construction parts adjoining the channel must be planned on the basis of engineering considerations. BIRCO recommends arranging expansion joints parallel to the channel, at a distance of approximately 1m – 2m from the channel line. Expansion joints running transverse to the channel line must be arranged so that they run through a channel joint. We recommend arranging them every 8 to 12 metres (in accordance with DIN 18318, valid edition). The expansion joints (e.g. PE foam sheets) must cover the total cross–sectional area of the channel, as well as the full area of the concrete base and the lateral concrete encasing.

[*] Jointing Information

You will find detailed jointing information under www.birco.de

Bolt Connection Information:

The positioning of the screws is done diagonally to optimize their adjustement and their tightening. The recommended tightening torque moments for the grid securing screws is as follows:

M12 = 60 Nm.

The bolts must be re–tightened at regular intervals.

Installation Instructions :

The installation direction of the channels is against the flow direction.

The installation of the channel string begins with the outlet (drain box/channel with a hole). The highest channel is placed at the outlet, and then the channel string is formed with the respective smaller numbered channels.

The Channels BIRCOplus and BIRCOlight, cannot be lifted by the gratings.

Only after the installation is completed and the covers are inserted is the corresponding load class achieved.

The channels must not be driven over during the construction phase!

Additional regulations and guidelines :

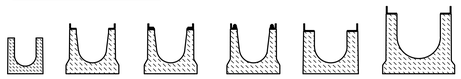
Local particularities have to be examined and taken into account by the planner. Installation must comply with the latest internationel/local regulations and guidelines .

+ The correct load class in accordance with DIN EN 1433 "Drainage channels for vehicular and pedestrian areas"has to respected.

[+] Exception D 400: not for installation accross the roadway in highway and expressways

The installation of the drain box must be carried out in the same manner!

Channel cross section



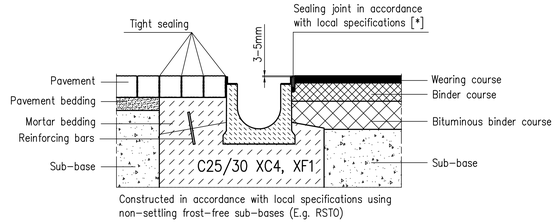
BIRCOplus | BIRCOlight (steel angles) | BIRCOlight (DI angles) | BIRCOlight triloc | BIRCOsir DN 100/150 | BIRCOsir DN 200AS

BIRCOplus DN 100, type M – load class A15 – C250

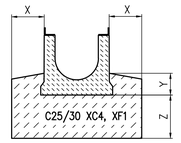
BIRCOlight DN 100 / 150 / 200 / 300, type M – load class A15 – C250

BIRCOsir DN 100 / 150 / 200AS, type M – load class A15 – E600 [+]*

* For heavy–duty areas see example below



Constructed in accordance with local specifications using non–settling frost–free sub–bases (E.g. RSTO)



Type	Nominal width	Load class	X [mm]	Y [mm]	Z [mm]
BIRCOplus	100	A 15 – C 250	≥100	≥100	≥150
BIRCOlight	100	A 15 – C 250	≥100	≥100	≥150
	150		≥150	≥100	≥150
	200		≥150	≥100	≥150
BIRCOsir	100	A 15 – E 600	≥150	≥100	≥200
	150		≥150	≥100	≥200
	200 AS		≥150	≥100	≥200

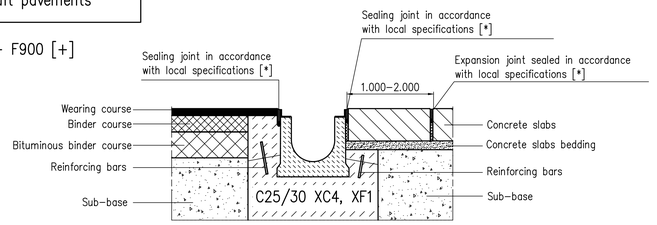
Presentation with BIRCOsir (s. channel cross section)

BIRCOlight DN 100 / 150, type M – load class D400* – E600*
BIRCOlight DN 200 / 300, type M – load class D400*

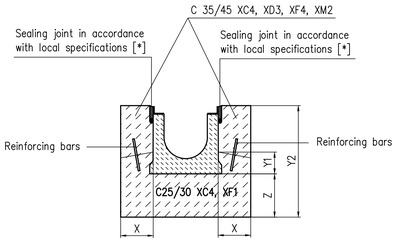
* suitable for a punctual overrun D 400 / E 600

expended installation instructions for heavy–duty areas subjected to frequent use logistics centers, Transport hubs, maneuvering areas and aircraft pavements

BIRCOsir DN 100 / 150 / 200AS, type M – load class D400 – F900 [+]



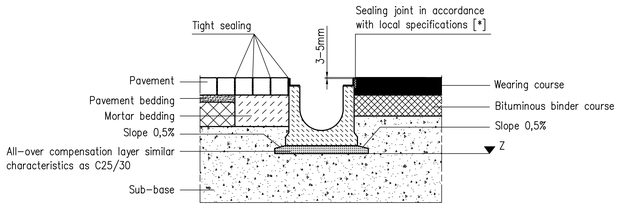
Constructed in accordance with local specifications using non–settling frost–free sub–bases (E.g. RSTO)



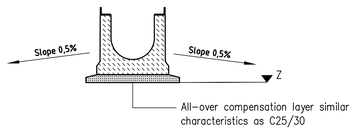
Type	Nominal width	Load class	X [mm]	Y1 [mm]	Y2 [mm]	Z [mm]
BIRCOlight	100	D 400 – E 600	≥150	≥100	channel height + 5mm	≥200
	150		≥150	≥100		≥200
	200	D 400	≥150	≥100		≥200
BIRCOsir	100	D 400 – F 900	≥150	≥100		≥200
	150		≥150	≥100		≥200
	200 AS		≥150	≥100		≥200

Presentation with BIRCOsir (s. channel cross section)

BIRCOsir DN 100 / 150 / 200, type I – load class A15 – C250



Constructed in accordance with local specifications using non–settling frost–free sub–bases (E.g. RSTO)

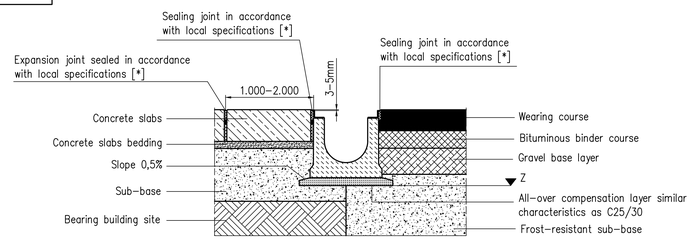


Z = The substructure must be designed long–lasting stable (settlement–free), in order to ensure the transfer of the expected loads without damage.

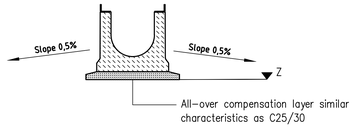
Presentation with BIRCOsir (s. channel cross section)

BIRCOsir DN 100 / 150 / 200, type I– class D400

EXCEPT for load class E 600 and F 900 and for heavy–duty load areas exposed to frequent use
For example Ports, Freight company premises, Industrial halls and trade fair centres



Constructed in accordance with local specifications using non–settling frost–free sub–bases (E.g. RSTO)



Z = The substructure must be designed long–lasting stable (settlement–free), in order to ensure the transfer of the expected loads without damage.

Presentation with BIRCOsir (s. channel cross section)

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Titel / titel / title :

Installation instructions Type M / Type I
BIRCOplus – up to load class C 250
BIRCOlight – up to load class E 600
BIRCOsir – up to load class F 900