Installation instructions Type M

Installation Guidelines Type M

The subgrade has to be compacted to an EV_2 > 45 MN/m², if the concrete base has an overlap of > 50 cm from channels end. Otherwise, it has to be compacted to an EV_2 of > 180 MN/m2, or it must be ensured that in case of heavy trucks circulation an overlap of > 50cm from channels end is guaranteed

The dimensioning of the lateral concrete surrounding (x) must be adapted to local site conditions and equals at least 20 cm. 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:

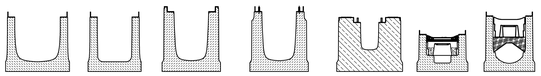
For screw fastening of the gratings, torque moments are to be set at M12 = 60 Nm, M16 = 100 Nm. The bolts must be re-tightened at regular intervals.

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

Channel cross section

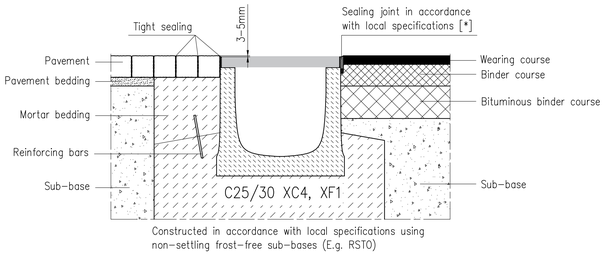


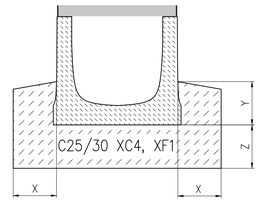
BIRCOsir NW 320-520, Type M – load class A15 – E600 [+] *

BIRCOsed NW 300AS, Type M – load class A15 – E600 [+] *
BIRCOpur NW 300AS, Type M – load class A15 – E600 [+] *

BIRCOcanal NW 320-520, Type M – load class A15 – E600 [+] *

* For heavy-duty areas see example below





load class	X [mm]	Y [mm]	Z [mm]
A 15 – E 600	≥200	≥200	≥200

Presentation with BIRCOsir
(s. channel cross section)

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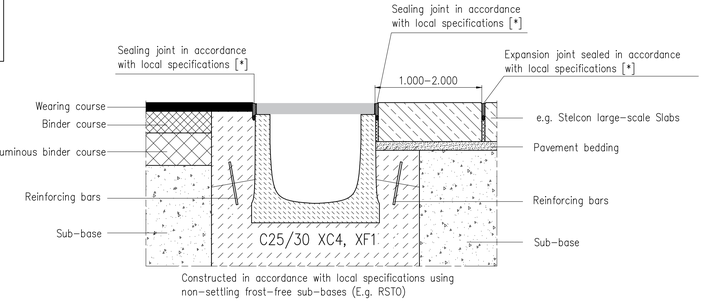
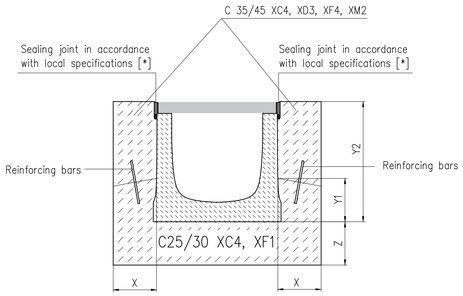
expended installation instructions for heavy-duty areas subjected to frequent use logistics centers, Transport hubs, maneuvering areas and aircraft pavements

BIRCOsir NW 320-520, Type M – load class D400 – F900 [+]

BIRCOsed NW 300AS, Type M – load class D400 – F900 [+]
BIRCOpur NW 300AS, Type M – load class D400 – F900 [+]

BIRCOcanal NW 320-520, Type M – load class D400 – F900 [+]





load class	X [mm]	Y1 [mm]	Y2 [mm]	Z [mm]
D 400 – F 900	≥200	≥200	channel height + 5mm	≥200

Presentation with BIRCOsir
(s. channel cross section)

Installation instructions Type I

installation instructions for heavy-duty areas
f.e. urban development / industrial building / parking places

BIRCOsir NW 320-520, Type I – load class A15 – D400 [+]

BIRCOsed NW 300AS, Type I – load class A15 – D400 [+]
BIRCOpur NW 300AS, Type I – load class A15 – D400 [+]

BIRCOcanal NW 320-520, Typel – load class A15 – D400 [+]

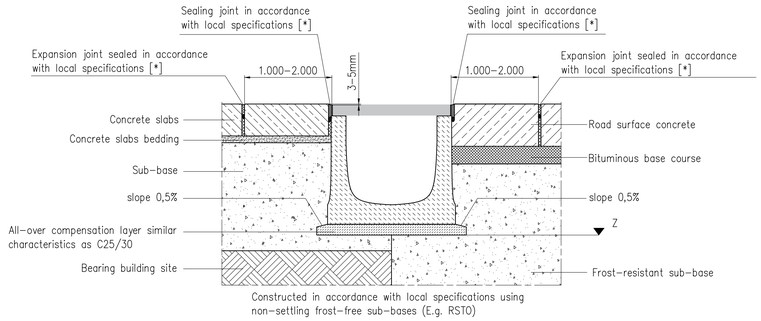
installation instructions for heavy-duty areas with high wheel load
f.e. urban development / industrial building / parking places

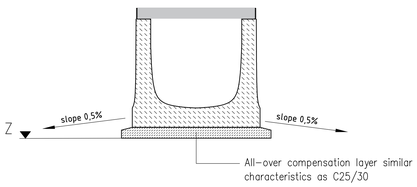
BIRCOmax-i, Type I – load class A15 – D400

BIRCOprime, Type I – load class A15 – D400

BIRCOmassiv Type I – load class A15 – D400

Presentation with BIRCOsir
(s. channel cross section)





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

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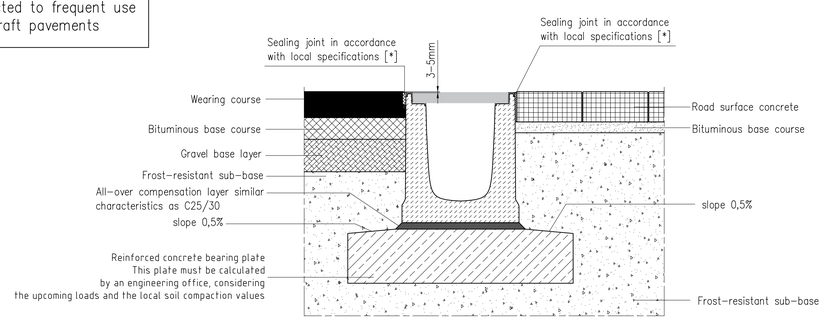
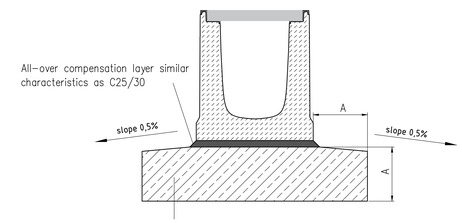
expended installation instructions for heavy-duty areas subjected to frequent use logistics centers, Transport hubs, maneuvering areas and aircraft pavements

BIRCOmax-i, Type I – load class E600-F900
– load class D400 [+] heavy-duty

BIRCOprime, Type I – load class E600-F900
– load class D400 [+] heavy-duty

BIRCOmassiv, Type I – load class E600-F900
– load class D400 [+] heavy-duty





Presentation with BIRCOmax-i
(s. channel cross section)

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	Date Datum	Nom Name	Artikel-Nr. / N° d'article : Installation instructions Type M + I
gez. dessiné	24.02.2023	gü	BIRCOsir/BIRCOcanal NW 320-520 – up to load class F900
Maßstab / Echelle : 1:10			BIRCOsed / BIRCOpur NW 300AS – up to load class F900
CAD A.G.			BIRCOmax-i / BIRCOprime – up to load class F 900
Zeichn. Nr. N° plan			BIRCOmassiv – up to load class F 900

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