

BIRCOplus | Installation Instructions

A number of details must be observed when installing BIRCOplus. For a comprehensive description please read [here](#).

To guarantee smooth operation and compliance with the requirements of DIN EN 1433, the following general valid installation instructions must be observed:

1. Prior to installation, the correct load class in accordance with DIN EN 1433 must be selected.
 2. Thanks to the high level of stability, laying the BIRCO channels is conducted on an earth-moist C 25/30 strip of foundation concrete at least 15 cm high which must be tapered in a conical shape on both sides. No additional encasing or reinforcement on the sides is required. Begin laying the channel line following the outfall unit with the highest channel at the drain and form the channel line with the next-smallest number.
 3. All adjoining pavement surfaces must run permanently at a level of some 3 to 5 mm higher than the upper edge of the channel⁽¹⁾. In order to achieve this, we recommend laying the first two to three rows of pavement surfacing in the mortar bed. Because there is no concrete encasing, the surface pavement can run right up to the channel without any problems.
 4. For installation in concrete surfaces or reinforced concrete constructions, running joints must be provided on both sides to compensate horizontal forces that emerge. These joints should be planned at an interval of some 0.2 to 0.5 metres from the channel. In sealing the adjacent areas it must be ensured that there is no mechanical damage to the channel units. Joints running diagonally to the channel line must be arranged every 5 – 6 metres in the adjacent concrete surfaces (in-situ concrete) so that they run through a channel joint.
 5. BIRCO drainage units are fitted with a safety seam on the channel end. In accordance with DIN EN 1433, once laying has been completed this safety seam can be further treated with a plastic modified mortar or a permanently elastic sealing material (for example SF-Connect).
 6. Proceed analogously when installing the outfall unit.
 7. Local particularities can require special installation methods that have to be examined and taken into account by the planner(s). The installation must comply with the latest regulations and guidelines such as ZTVT, ZTV concrete, ZTV bit and RStO.
- + Construction in accordance with the Construction Tendering and Contract Regulations (VOB) Part C, DIN 18318 "Transport Route Construction".
 - + Additional technical regulations and guidelines for pavement surfaces in road construction (ZTVT-StB) and ZTV Asphalt.
 - + Additional technical regulations and guidelines for ground work in road construction (ZTVE-StB).
 - + Guidelines for the standardisation of the pavement of public thoroughfares (RStO).
 - + Preparation of the ATV DIN 18299 performance description "General Regulations for Construction Work of all Types".
 - + The respectively correct load class in accordance with DIN EN 1433, "Drainage channels for vehicular and pedestrian areas".

⁽¹⁾ Please note that with BIRCOplus the total height increases by the thickness of the grate support.

Fast, safe installation | Efficient time and cost management

- + Easy transport and handling thanks to the low weight.
- + Channels do not require complete concrete surround.
- + Compatible for loads up to Class C 250 thanks to the cast grating cover with fastening clip.

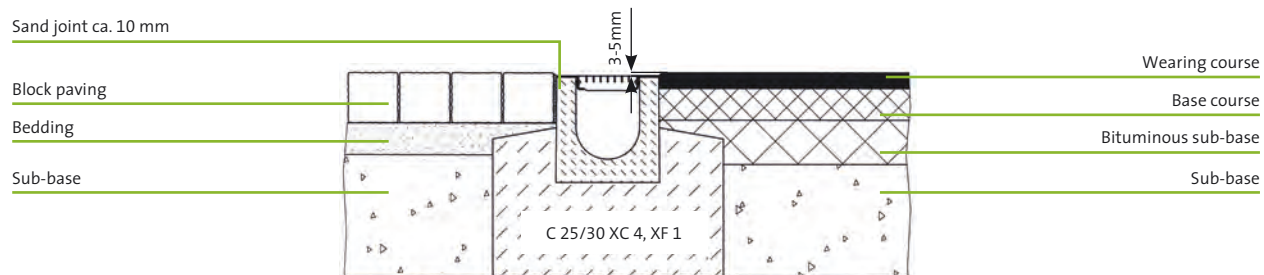


BIRCOplus Installation Examples

Expanded installation instructions for pedestrian zones.
Pedestrian zones | Footpaths

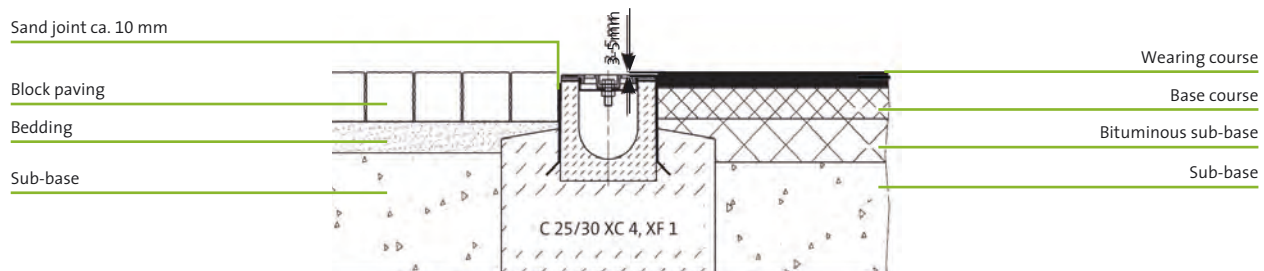
BIRCOplus, class A 15 to B 125, Type M

Drawing No. 6415



BIRCOplus, class A 15 to C 250, Type M

Drawing No. 6287



When pavement surfaces are being laid and pressed, it must be ensured that the pavement material is not forced against the channels.

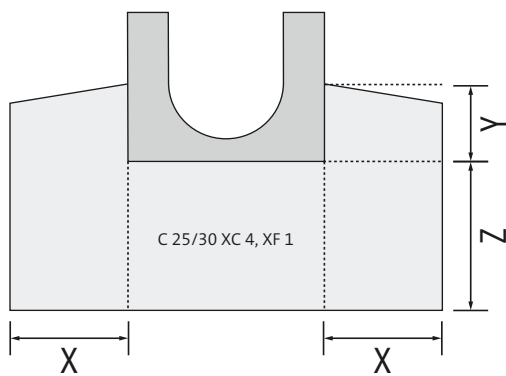
BIRCOplus concrete surround overview

The manufacturer's installation instructions must be followed in order to comply with the requirements stipulated by DIN EN 1433.

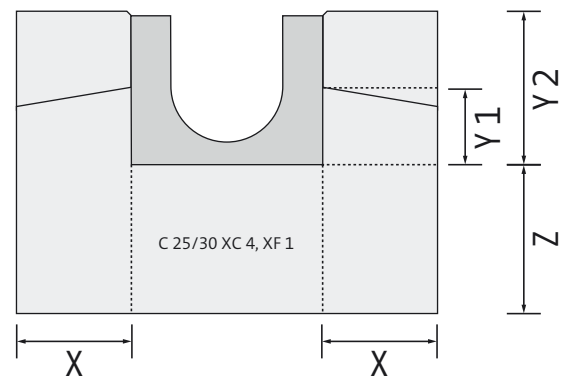
BIRCOplus

NW	Typ	Load class	X	Y/Y 1	Y 2	Z	Drawing No.	Page
BIRCOplus	M	A 15 – C 250	≥ 100	≥ 100	-	≥ 150	6287	43

Schematic structure



Installation without concrete surround



Installation with concrete surround

BIRCOplus Drainage Capacities

BIRCO channel systems provide outstanding drainage performance. BIRCO offers a calculation service in addition to this diagram.

BIRCOplus NW 100 | 0.5 % inbuilt fall

CL = 1000 mm	Drainage capacity at the channel end	Cross-sectional area at the channel end
No. 0/0	6.10 l/sec*	110.0 cm ²
No. 1	6.70 l/sec*	115.0 cm ²
No. 2	7.00 l/sec*	120.0 cm ²
No. 3	7.30 l/sec*	125.0 cm ²
No. 4	7.60 l/sec*	130.0 cm ²
No. 5	7.90 l/sec*	135.0 cm ²
No. 5/0	7.50 l/sec*	135.0 cm ²
No. 6	8.20 l/sec*	140.0 cm ²
No. 7	8.50 l/sec*	145.0 cm ²
No. 8	8.80 l/sec*	150.0 cm ²
No. 9	9.10 l/sec*	155.0 cm ²
No. 10	9.40 l/sec*	160.0 cm ²
No. 10/0	8.90 l/sec*	160.0 cm ²

*Safety factor $v = 1.2$

Horizontal and vertical bore holes

Depending on the circumstances on-site, drainage channels sometimes have to be fitted with a bore hole for connection to the sewage line. We can fit BIRCO channels with horizontal or vertical bore holes for directly fitting feed and drainage lines according to your plans. The connections

available differ according to the nominal widths, extending in the standard range from DN 100 to DN 150. The diameters are matched with channel base pipes; different pipes are available upon request..

BIRCOplus | Maximum bore hole diameter

NW	Bore hole, horizontal maximal	Bore hole, vertical maximal
100 mm	DN 100/150*	DN 100

* Starting from channel No. 5

Bore holes must be a distance of least 100 mm away from the end of the channel

BIRCOservice

- + BIRCO offers you an individual customisation and bore hole service ex-factory.



These diagrams can only provide the desired result in a few cases since the job definition is influenced in large part by the conditions on-site, i.e., the location of the existing drains, the number of drainage lines, etc. Therefore we recommend a hydraulic calculation from our personnel with a proposed design.

