BIRCOtop | Installation Instructions

A number of details must be observed when installing BIRCOtop. For comprehensive description please read here.

Galvanised steel/stainless steel drainage systems for building façades and open spaces

In order to ensure the lasting functionality or serviceable life of the high quality steel units, a number of points must be observed from a construction site work perspective. Special on-site particularities must of course also be taken into account.

+ It must be ensured that the components, which can be up to 3 metres long, are not damaged through misshaping during transport or incorrect carrying methods. During installation, before the channels can be walked upon they must be reinforced with the covers.

+ Contact of the visible surface with alkaline materials such as plaster or cement screed must be avoided without exception, since such contact could result in the corrosion damage of galvanised materials and the optical damage of stainless steel products.

+ When installing the steel units in screed or concrete/ single-grain concrete, we recommend the utilisation of stainless steel alloys due to the alkaline environment. Mechanical damages should be avoided to ensure lasting corrosion protection of galvanised materials.

+ When laying, the height of products fitted with a height adjustment feature can be regulated without restriction using the height adjustment feature. The height of products without a height adjustment feature can be adjusted any time using support padding with filling material.

+ Once the building façade has been cleaned, the channel must be rinsed out with clear water to the extent that no cleaning agent residue remains in the channel and could possibly act negatively on the channel material.

Installation Instructions for BIRCOtop

+ Once the channels have been laid, the supplied covers must be inserted to reduce the danger of accidents and to exclude the possibility of the channels warping. If construction phase-related plastering work is necessary, then the drainage units (channel and cover) must be appropriately covered and protected against mechanical and chemical damages.

+ Prior to cleaning the slot channels however, the covers must be removed and reinserted when cleaning is completed, as they prevent the incursion of large dirt and soiling particles.

+ The drainage units can be easily and effectively connected with one another using the connection clips as needed.

+ Once installation in traffic areas has been completed, the adjacent pavements should permanently border along the channels or covers approximately 3-5 mm above them.

+ It should always be ensured that edges in the end areas of the parts do not damage the insulation.

+ Special particularities of the site must be taken into account. For “Barrier-free access” applications, the requirements in accordance with DIN 18030 (Barrier-free dwellings) as well as particularities of the property must be taken into account.

General installation information

Stainless steel materials can be integrated into concrete ceilings for example without any concerns. In the event of high level requirements regarding the sealing tightness of the surroundings or the connection of surface coatings or pavements, sealing joints are to be positioned to the right and/or left of the channel unit to appropriately seal the concrete/stainless steel material transition point.

In the installation of stainless steel or galvanised channels, the length expansion coefficients must be observed. This applies in particular if the channels are utilised in areas subject to extreme temperature fluctuations.

It is necessary to attach matching end discs to the end of the drainage units in order to ensure the functionality of a drainage line. End caps that can easily be clicked into place on the building site are available for the different systems. This provides a clear separation of the channel line and the adjacent material and the channels are protected from the incursion of these adjacent materials.

Application examples - Flat roof guidelines/ Combination examples

BIRCOtop drainage units reduce tripping points. In addition, many BIRCO channel systems can be combined like in a building block system, providing the necessary freedom for design ideas.

Compliance with the flat roof guidelines

In accordance with the requirements of DIN 18195, the sealing of horizontal surfaces or surfaces with a slightly sloped surface with higher reaching components should generally extend 150 mm above the surface of the protective layer of the pavement or cover material and be secured there. This creates an offset of at least 150 mm (see Illustration a).

Ill. a

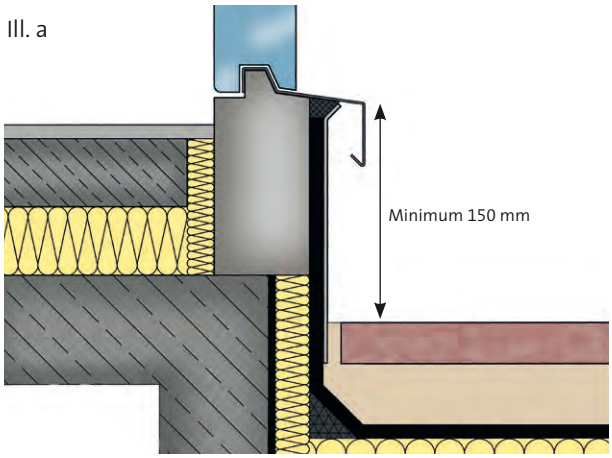
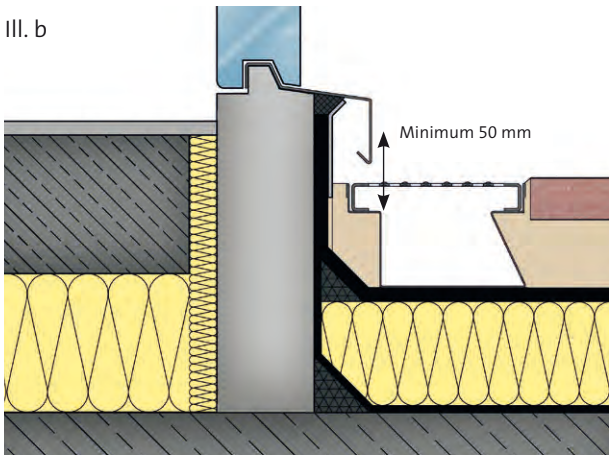


Illustration a depicts the transitional border described above from inside to outside without drainage channels. The offset generally represents a usage restriction, but also an increased accident risk in any case.

Ill. b



In Illustration b, the transition is reduced to 50 mm as the result of the installation of a drainage channel. This creates a transitional border that can be walked upon without problems.

Ill. c

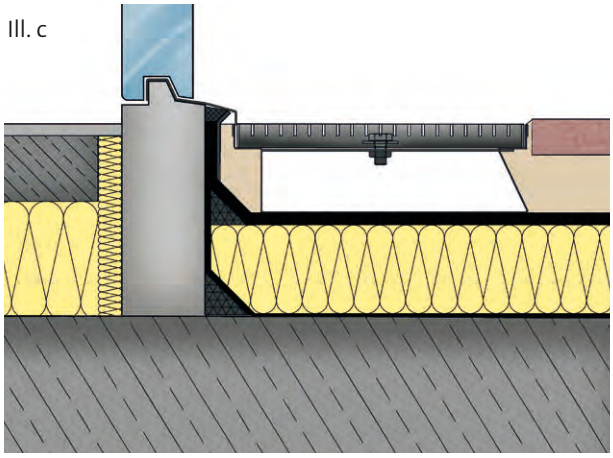
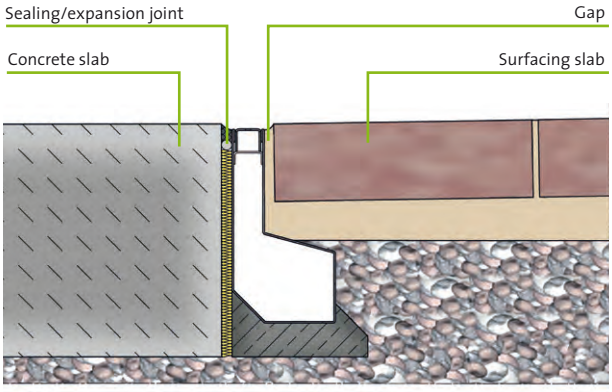


Illustration c: Depending on the property, the installation of drainage channels can create a transitional border without barriers, providing for construction that is compatible for handicapped persons and senior citizens.

However, since the particular problem of sealing in the area of the door element can be difficult to resolve technically, other measures must be considered in addition to the arrangement of the drainage unit. These measures can for example include using grated mesh covers with the largest possible inlet cross-section to cover the channels, as well as roofing whenever possible in the area of the transition from inside to outside to reduce the threat of spray and bilge water during heavy rains. Furthermore, free-flowing drainage with no tailback at all times, even of large quantities of water, must be ensured. This is why the choice of the adjacent drainage-capable pavement or surface covering is of prime importance. Because of these potential problems, such details should be precisely examined prior to conducting the corresponding work.

Pavement/surface covering separation

Differing settlement characteristics of base courses, the passage of time between completion of different construction phases and pavement/surface covering separations with different foundations often result in damages to the drainage units arranged at the connection interface point. In the case depicted here, this problem was resolved using an asymmetrical closed BIRCOtop slot channel: The channel unit was leaned against an existing concrete slab, forming a clean break or transition between the different surface coverings. Hardly any visually disruptive separation is noticeable. The type of installation must be modified according to the load-bearing capacity or traffic load.

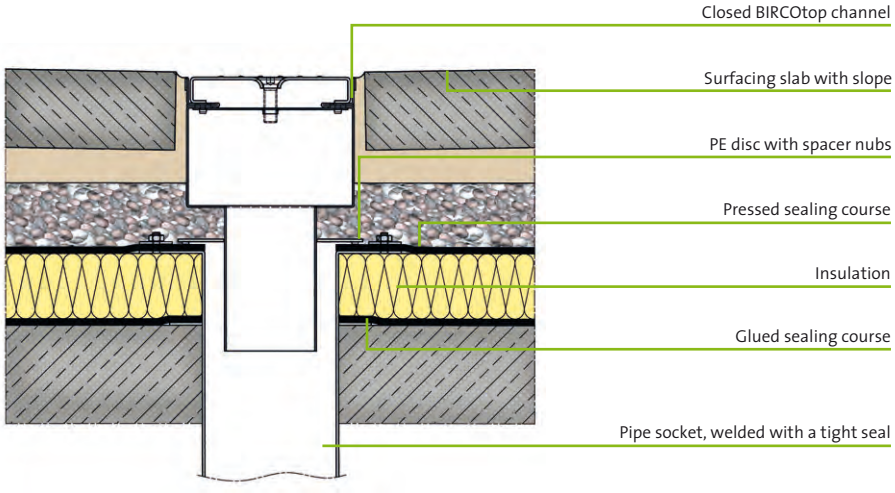


The BIRCOtop drainage system comes in different variations, making it suitable for a broad range of different applications.

Featuring a second drainage level in closed channel systems

A second drainage level is installed in roof structures for the protection of the insulation or fittings below. In the case depicted here, drainage is provided via the ceiling opening using a pipe socket welded in the factory with a tight seal to the channel. The sealing course of the second drainage level is connected with a sealing flange. A PE disc located above this fitted with spacer nubs prevents the penetration of the adjacent base course material (gravel, for example) into the drainage pipe. The formation of the nubs additionally ensures the outward flow of the water accruing at the second drainage level.

Along with the various options specified here, attachment elements arranged in accordance with the same principle can also be used for the work.



BIRCOtop drainage performance

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

BIRCOtop Series F 100 | without visible edge

Construction height	Drainage capacity	Cross-sectional area
50 mm	0.83 l/sec	14.97 cm²
75 mm	1.67 l/sec	30.15 cm²
100 mm	2.52 l/sec	45.41 cm²

BIRCOtop Series F 130 | without visible edge

Construction height	Drainage capacity	Cross-sectional area
50 mm	1.26 l/sec	22.62 cm²
75 mm	2.52 l/sec	45.30 cm²
100 mm	3.78 l/sec	68.06 cm²

BIRCOtop Series F 160 | with visible edge

Construction height	Drainage capacity	Cross-sectional area
50 mm	2.27 l/sec	41.00 cm²
75 mm	3.67 l/sec	66.00 cm²
100 mm	5.06 l/sec	91.00 cm²

BIRCOtop Series F 130 | with visible edge

Construction height	Drainage capacity	Cross-sectional area
50 mm	1.70 l/sec	30.60 cm²
75 mm	3.20 l/sec	57.60 cm²

BIRCOtop Series V 100 | without visible edge

Construction height	Drainage capacity	Cross-sectional area
59 – 83 mm	1.77 – 3.04 l/sec	31.87 – 54.65 cm²
82 – 117 mm	2.94 – 4.78 l/sec	52.88 – 86.10 cm²
115 – 170 mm	4.62 – 7.52 l/sec	83.08 – 135.27 cm²

BIRCOtop Series V 100 | with visible edge

Construction height	Drainage capacity	Cross-sectional area
57 – 88 mm	1.35 – 2.63 l/sec	24.21 – 47.31 cm²
88 – 119 mm	2.63 – 3.91 l/sec	47.31 – 70.40 cm²
119 – 150 mm	3.91 – 5.19 l/sec	70.40 – 93.50 cm²

BIRCOtop Series V 130 | without visible edge

Construction height	Drainage capacity	Cross-sectional area
59 – 83 mm	2.36 – 4.02 l/sec	42.45 – 72.42 cm²
82 – 117 mm	3.91 – 6.34 l/sec	70.36 – 114.07 cm²
115 – 170 mm	6.14 – 9.84 l/sec	110.45 – 177.15 cm²

BIRCOtop Series S | asymmetrical

Construction height	Drainage capacity	Cross-sectional area
150 mm, neck 80 mm	2.10 l/sec	37.75 cm²

BIRCOtop Series S | symmetrical

Construction height	Drainage capacity	Cross-sectional area
180 mm, neck 80 mm	2.70 l/sec	48.66 cm²

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.