BIRCOprofil | Installation Instructions

A number of details must be observed when installing BIRCOprofile. For a comprehensive description please here.

+ When using drainage elements in ceilings or building parts with greater sealing tightness requirements, we recommend using stainless steel products and welding of the channel ends on the building site. A sealing tightness test (water level test) must be conducted before installation is completed.
+ When installing in concrete fittings, the transition points (where the channel meets the adjacent concrete slabs) must be grouted with a permanently elastic sealing material (for example with SF-Connect or another polyurethane-based sealant). Expansion joints must be laid out in such manner that horizontal forces do not exert pressure on the drainage unit and that they run through the channel end.
+ Mechanical processing of the drainage units on the building site must be conducted taking into consideration that, in particular with galvanised materials, the connection interfaces will be primed and subsequently galvanised. Otherwise there would be no lasting corrosion protection.
+ With drainage elements installed in areas that are subjected to being driven over permanently it must be observed that the screws are tightened with the stipulated torque moments.
+ The contact surfaces of slots in concrete ceilings must be treated in advance with a bonding course.
+ The channel must be safeguarded against “flooding” during the concrete work and secured in its position.
+ Individual requirements must be taken into account according to the on-site circumstances and considered by the planner(s).
+ When bolting the covers it must by all means be observed that the torque moment (M12) 20 Nm is not exceeded.

General stainless steel information

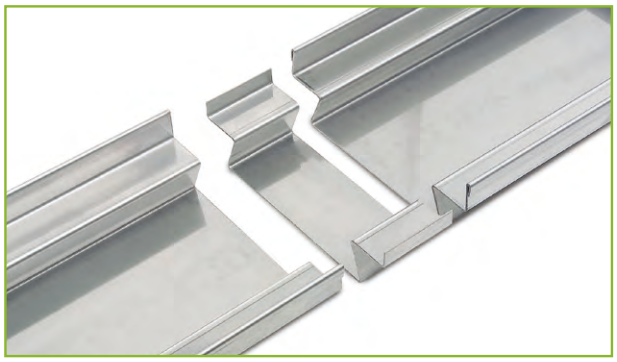
Stainless steel materials can be integrated into concrete ceilings for example without any concerns. However, in such cases corresponding tie bolts must be arranged in such manner that the smooth stainless steel material does not bond with the adjacent concrete. In the event of high levels of requirements 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 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. With BIRCOprofil, the end discs are welded in the factory in a tight seal onto the channels to provide the very highest degree of sealing tightness, particularly in regard to concrete ceilings. Galvanised end discs are then cold galvanised in conclusion.

Fast, safe installation | Efficient time and cost management

+ 3 metre channel units enable fast laying with fewer joints.
+ The special channel shape and mounting anchor create an integrated uplift guard.

BIRCOprofil laying examples and jointing

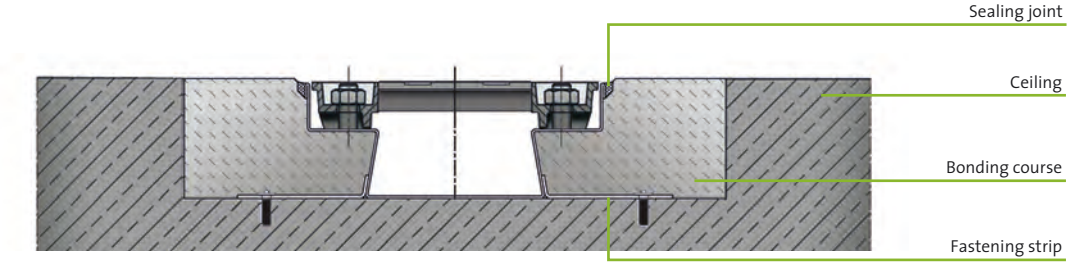
For renovation, new construction and double-walled ceiling construction.




n situations with greater demands on sealing tightness, we recommend welding the channel ends and appropriately sealing the work joints.

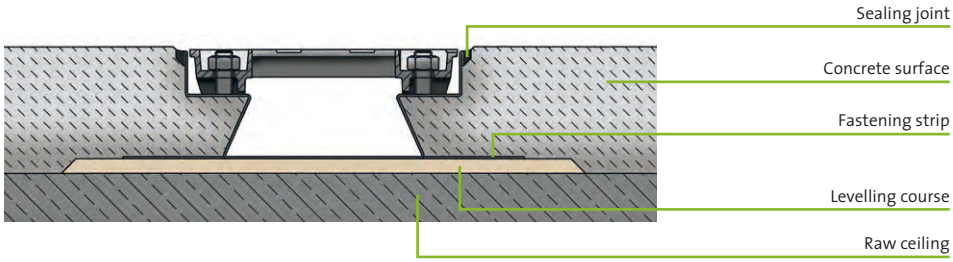
BIRCOprofil in renovation

BIRCOprofil is particularly suited for renovations due to its constructive properties and low construction heights. The channel units are fitted into the corresponding ceiling recess using mounting anchors to attach them to the base. The channel ends are mounted using the supplied connection elements. Sealing is conducted on the building site, for example with SF-Connect. Should height adaptations be required, we recommend using lumps of cement: They serve in adjusting the height on the one hand and in ensuring the stabile positioning of the channel units on the other. Prior to conducting concrete work, the existing concrete surfaces must be treated with a bonding course. It must be ensured that the down-flow of the channel unit occurs without bubbles and that the channel is fully encased with concrete. A sealing joint must be provided in order to prevent penetration in the area of the raised edge of the channel where the material changes to concrete. In newly built structures where a corresponding surface coating is stipulated, for instance, depending on the property's needs the flanks of the steel frame connectors can be treated with an epoxy resin and sanding for better adhesion. A variety of traffic-safe bolt connections is available to ensure traffic safety or to prevent clattering of the covers.

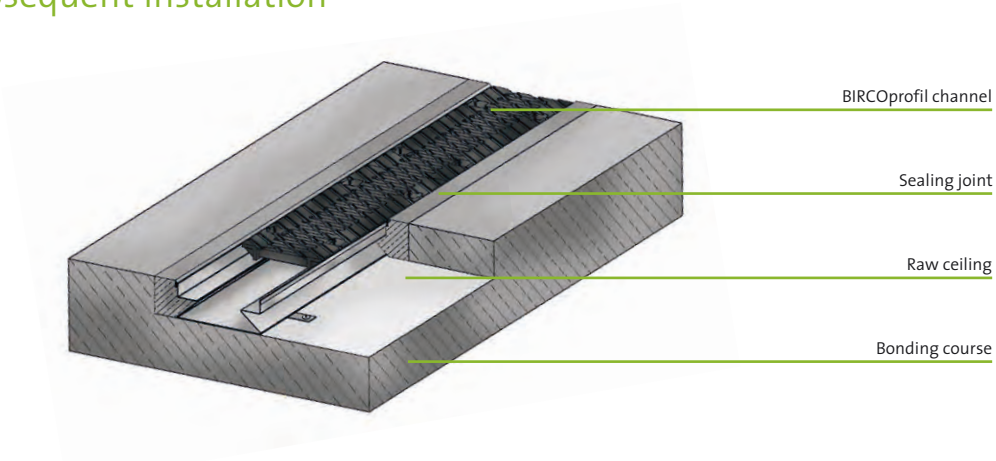


BIRCOprofil in double-walled ceiling construction

The drainage channel can also be integrated into the screed due to its low construction height. To do this, the unit is laid flush onto the raw ceiling levelling course and then worked directly onto the screed. When attaching the screed it must be ensured that it fully encompasses the channel unit with no bubbles. A sealing joint should be executed at the transition area of the channel's raised edge up to the screed in order to prevent the penetration of water. A prepared frame connector flank for jointing can also be executed in the area where the surface coating is conducted in order to provide better adhesion. The sealing tightness requirements for the entire system must be examined prior to installation. The channel ends of the drainage units must be connected with a sealing shoe. If a high level of seal tightness or absolute seal tightness be required, then the ends have to be additionally welded on the building site. In the event of high sealing tightness requirements, then a water level inspection must be conducted in any case prior to attachment of the screed.



BIRCOprofil, subsequent installation



BIRCOprofil drainage performance

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

BIRCOprofil 160, class C 250

CL = 1000 mm	Drainage capacity at the channel end	Cross-sectional area at the channel end
Construction height 50 mm	1.38 l/sec	24.92 cm²
Construction height 75 mm	2.96 l/sec	53.29 cm²

BIRCOprofil 196, class C 250

CL = 1000 mm	Drainage capacity at the channel end	Cross-sectional area at the channel end
Construction height 50 mm	1.05 l/sec	18.92 cm²
Construction height 75 mm	2.58 l/sec	46.41 cm²

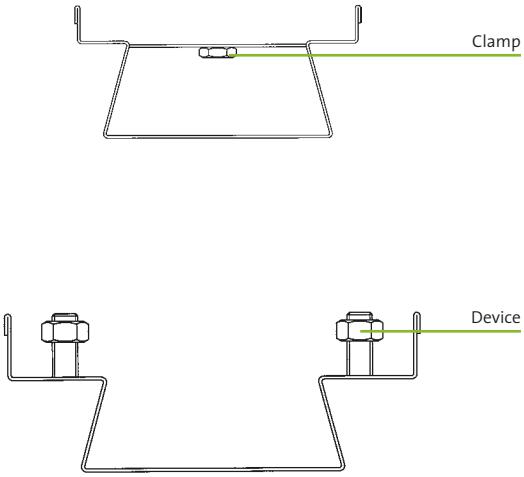
These diagrams can only provide the desired result in a few cases since the job definition is influenced in large part by the conditions on-site, i.e, the location of the existing drains, the number of drainage lines, etc. Therefore we recommend a hydraulic calculation from our personnel with a proposed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

Benefits of BIRCOprofil – Low height, high stability

The BIRCOprofile drainage system is suitable for numerous areas of application.

Safe and combinable

One special feature of BIRCOprofil with a construction width of 160 consists of its two bolt connections per metre. This prevents the cover from pitching up when it is driven over, resulting in damages or an increased accident risk. In accordance with DIN EN 1433, traffic-safe fastening is required from load class C 250. The bolting connections in these channel units ensures this.
BIRCOprofil in the construction width 196 is generally offered with 8 bolt connections per metre. As an augmentation to the construction width 160 design, this form of bolting connection simultaneously serves as a safeguard against slipping and prevents the displacement of the cover. The 8 connection bolts are used particularly in areas subjected to high levels of dynamic forces, for example ramps or in radii (curve areas). This bolt connection additionally prevents clattering of the covers, which could possibly damage the adjoining concrete area.



Second drainage level

With BIRCOprofil, a second drainage level can be installed. For this, the channel unit is fitted ex-factory with a welded, sealed pipe socket that is integrated directly into the ceiling opening. The sealing course is pressed together with the ceiling opening flange connection. The attached PE disc with spacer nubs prevents the penetration of gravel or cement-bonded material. The formation of the nubs on the collar ensures drainage of the second level.