



BIRCOprofil



Marshalls

Creating Better Spaces

BIRCOprofil Overview

BIRCOprofil combines the broadest range of requirements into one high performance linear drainage system. The steel channel is suitable for shallow construction heights and ensures optimum drainage performance and reliable traffic safety.



Low Capacity

Drains an area up to 750m² or typical run lengths up to 30 lin m.



Medium Capacity

Drains an area up to 1750m² or typical run lengths up to 100 lin m.



High Capacity

Drains an area in excess of 1750m² or typical run lengths over 100 lin m.



125Kn Test Load

Footways, pedestrian areas, car parks, car parking decks and similar areas used by light, slow-moving traffic.



250Kn Test Load

Kerb-sides, general parking areas and hard shoulders that extend to a maximum of 0.5m into the trafficked area.



400Kn Test Load

Carriageways of roads (including pedestrian streets and parking areas) catering for all legal road-going vehicles.



600Kn Test Load

Private traffic areas used by vehicles imposing particularly heavy wheel loads.



900Kn Test Load

Special areas of abnormally heavy wheel loads e.g. aircraft pavements.

Areas of application

- Roofs
- Railways
- Medical
- Food & Drink Manufacturing
- Balconies & Terraces
- Car Park Decks
- Applicable everywhere only limited installation depths are available for jointing

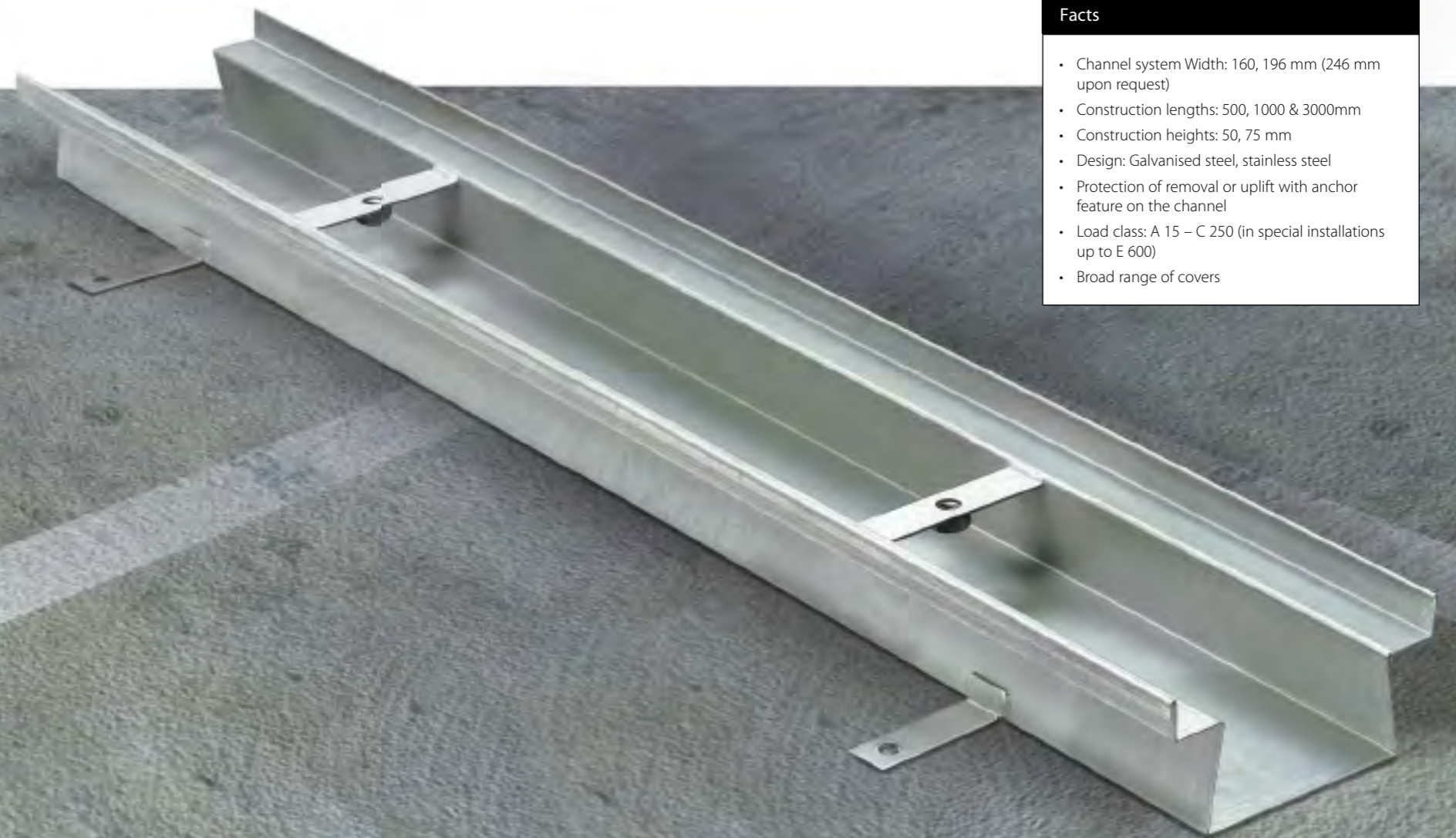
Facts

- Channel system Width: 160, 196 mm (246 mm upon request)
- Construction lengths: 500, 1000 & 3000mm
- Construction heights: 50, 75 mm
- Design: Galvanised steel, stainless steel
- Protection of removal or uplift with anchor feature on the channel
- Load class: A 15 – C 250 (in special installations up to E 600)
- Broad range of covers

A 15 to C 250



For shallow drainage of areas with low construction heights that are subjected to heavy dynamic loads.



BIRCOprofil Overview

With shallow construction heights and high demands on the load-bearing capability of the channel, BIRCOprofil provides top drainage and traffic safety in equal measure.

Flexible application

- Ideal for new construction, renovation or subsequent installation.
- 3 nominal widths and 2 different construction heights cover the broadest range of applications

Fast, safe installation

3 metre channel units enable fast laying with fewer joints. Special channel form and mounting anchor create an integrated uplift guard.

Traffic safety

High level of traffic safety thanks to the 2, 4 and 8 bolt connections per metre.

Low-maintenance

The large contact area is easy to clean and readily visible thanks to the channel's smooth surface.

Material quality

Galvanised or stainless steel V2A ensure a long service life and safeguard your investment

Attractive design

The broad range of covers available provides the very best architectural possibilities.



Residential Complex "In Den Kirschen" – Limited Installation Depth

With its low construction height, BIRCOprofil is particularly suited for the drainage of parking garages and parking decks. Munich's "In den Kirschen" residential complex was equipped with a reliable BIRCOprofil channel system that drains accumulating water quickly and efficiently, as well as providing the stability for frequent horizontal loads. And it does all this at an installation depth of only 75 mm.



Max-Rielpe-Platz, Donaueschingen – Reliable Drainage of The Public Square

In Donaueschingen, a redesigned gathering place in the city centre was created. A pleasant atmosphere, shops, public library, and a tourist information centre invite pedestrians to linger and stroll. The drainage line runs directly over an underground car park. Since the installation depths were limited, the planners' selection of BIRCOprofil was the perfect solution. Low installation height, but nevertheless stable load values make BIRCOprofil a guarantee for road safety and reliable drainage of large paved areas.

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Channel Elements

- Galvanised steel
- Also available in stainless steel (V2A)
- Welded bolt clamp
- Mounting anchor
- Drainage opening tailored for the connection to the local pipe systems
- Installation of a 2nd drainage level is possible



Description	Length (mm)	Width (mm)	Construction Height	Weight (kg)	Load Class DIN EN 1433	Item Code
Channel construction height 1, galvanised	500	160	50	2.9	A 15 – E 600*	061001
Channel construction height 1, galvanised	1000	160	50	6.0	A 15 – E 600*	061002
Channel construction height 1, galvanised	3000	160	50	18.4	A 15 – E 600*	061004
Channel construction height 2, galvanised	500	160	75	3.4	A 15 – E 600*	061011
Channel construction height 2, galvanised	1000	160	75	7.0	A 15 – E 600*	061012
Channel construction height 2, galvanised	3000	160	75	21.4	A 15 – E 600*	061014

*Please observe separate installation, otherwise load class C 250

Connection Shoes

- Galvanised steel
- Also available in stainless steel (V2A)
- Sealing required on the building site for ex. with BIRCOconnect



Description	Width (mm)	For Construction Height	Gewicht (kg)	Item Code
Connection shoe, galvanised, construction height 1	160	50	0.2	061050
Connection shoe, galvanised, construction height 2	160	75	0.2	061051

End Caps

- Galvanised steel
- Also available in stainless steel (V2A)
- Welded ex-factory and subsequently cold galvanised



Description	Width (mm)	For Construction Height	Gewicht (kg)	Item Code
End cap, galvanised, construction height 1	160	50	0.2	061045
End cap, galvanised, construction height 2	160	75	0.2	061046

Ductile Iron Slotted Gratings

- Black-immersion lacquered
- Also available galvanised
- 2-point per metre M12/A2 bolt connection

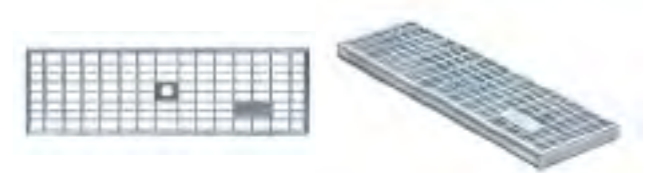


Description	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Inlet opening	Inlet Cross Section	Load Class DIN EN 1433	Item Code
Black	500	153	20	3.9	SW 100/13 mm	469 cm ² /m	A 15 – C 250	261072
Black	500	153	20	3.9	SW 100/13 mm	469 cm ² /m	A 15 – C 250	261075*

*Please note that the channel in combination with this cover has a reduced drainage cross-section as a result of the notch. We therefore recommend using the channel construction height of 75 mm.

Ductile Iron Slotted Gratings

- Black-immersion lacquered
- Also available galvanised
- 2-point per metre M12/A2 bolt connection



Description	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Inlet opening	Inlet Cross Section	Load Class DIN EN 1433	Item Code
Hot-Dipped Galvanised	500	153	20	2.1	MW 30/15 mm	1035 cm ² /m	A 15 – C 250	261063*
Hot-Dipped Galvanised	1000	153	20	4.3	MW 30/15 mm	1035 cm ² /m	A 15 – C 250	261053*
Hot-Dipped Galvanised	500	153	20	4.4	MW 10/30 mm	1051 cm ² /m	A 15 – E 600	261064*
Hot-Dipped Galvanised	1000	153	20	8.2	MW 10/30 mm	1051 cm ² /m	A 15 – E 600	261054*

*Please note that the channel in combination with this cover has a reduced drainage cross-section as a result of the notch. We therefore recommend using the channel construction height of 75 mm.

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Channel Elements

- Galvanised steel
- Also available in stainless steel (V2A)
- Bolting device
- Mounting anchor
- Drainage opening tailored for the connection to the local pipe systems
- Installation of a 2nd drainage level is possible



Description	Length (mm)	Width (mm)	Construction Height	Weight (kg)	Load Class DIN EN 1433	Item Code
Channel construction height 1, galvanised	500	196	50	3.1	A 15 – E 600*	061101
Channel construction height 1, galvanised	1000	196	50	6.2	A 15 – E 600*	061102
Channel construction height 1, galvanised	3000	196	50	18.6	A 15 – E 600*	061108
Channel construction height 2, galvanised	500	196	75	3.6	A 15 – E 600*	061104
Channel construction height 2, galvanised	1000	196	75	7.2	A 15 – E 600*	061105
Channel construction height 2, galvanised	3000	196	75	21.6	A 15 – E 600*	061107

*Please observe separate installation, otherwise load class C 250

Connection Shoes

- Galvanised steel
- Also available in stainless steel (V2A)
- Sealing required on the building site for ex. with BIRCOconnect



Description	Width (mm)	For Construction Height	Gewicht (kg)	Item Code
Connection shoe, galvanised, construction height 1	196	50	0.2	061150
Connection shoe, galvanised, construction height 2	196	75	0.2	061151

End Caps

- Galvanised steel
- Also available in stainless steel (V2A)
- Welded ex-factory and subsequently cold galvanised



Description	Width (mm)	For Construction Height	Gewicht (kg)	Item Code
End cap, galvanised, construction height 1	196	50	0.2	061145
End cap, galvanised, construction height 2	196	75	0.2	061146

Ductile Iron Slotted Gratings

- Black-immersion lacquered
- Also available galvanised
- 2-point per metre M12/A2 bolt connection



Description	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Inlet opening	Inlet Cross Section	Load Class DIN EN 1433	Item Code
Black	500	187	30	5.0	SW 100/13 mm	469 cm ² /m	A 15 – C 250	262172
Black	500	187	30	6.4	SW 100/13 mm	469 cm ² /m	A 15 – E 600	262175*

Please note that the channel in combination with this cover has a reduced drainage cross-section as a result of the notch. We therefore recommend using the channel construction height of 75 mm.

Mesh Gratings

- Black-immersion lacquered
- Also available galvanised
- 8-point per metre M12/A2 self locking bolt connection



Description	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Inlet opening	Inlet Cross Section	Load Class DIN EN 1433	Item Code
Hot-Dipped Galvanised	500	187	30	7.0	MW 20/30 mm	876 cm ² /m	A 15 – E 600	262186

Mesh Gratings

- Black-immersion lacquered
- Also available galvanised
- 8-point per metre M12/A2 self locking bolt connection



Description	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Inlet opening	Inlet Cross Section	Load Class DIN EN 1433	Item Code
Hot-Dipped Galvanised	500	187	30	3.3	MW 30/12 mm	1154 cm ² /m	A 15 – C 250	262163
Hot-Dipped Galvanised	1000	187	30	6.1	MW 30/12 mm	1154 cm ² /m	A 15 – C 250	262153

SW = slot width, MW = mesh width

Installation Guide

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

- When using drainage elements in ceilings or building parts with greater sealing tightness requirements, we recommend using stainless steel products and welding 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.

BIRCOprofil Jointing

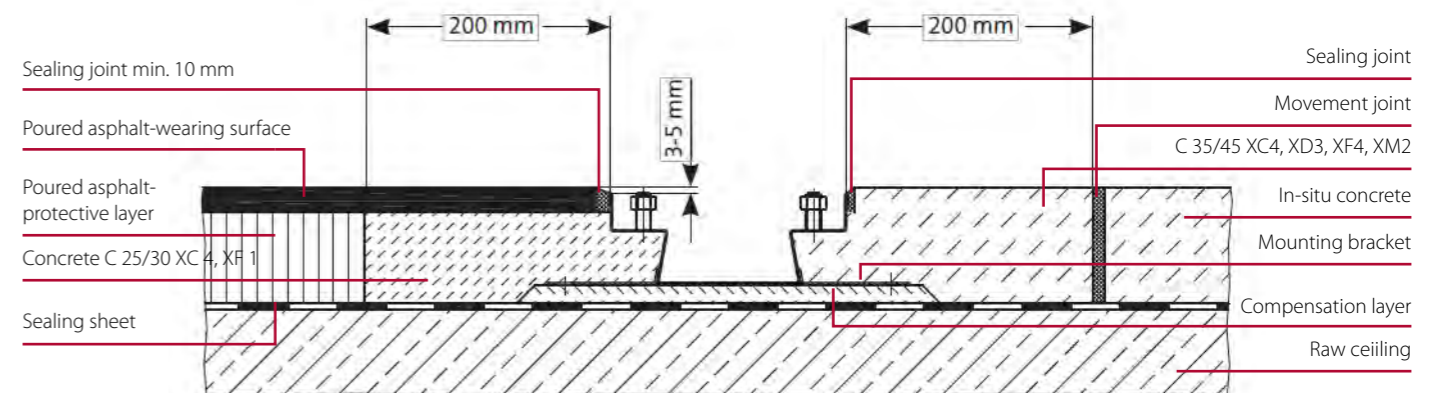
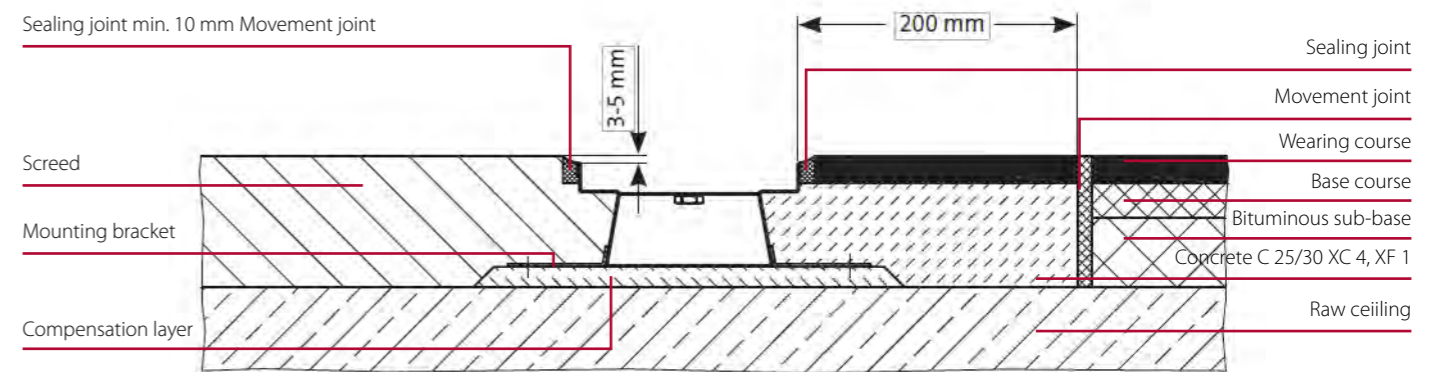
In situations with greater demands on sealing tightness, we recommend welding the channel ends and appropriately sealing the work joints.



Installation Examples

BIRCOprofil, Load Class A 15 – E 600

Drawing no. 14947



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

The concrete qualities indicated are minimum values. Requirements related to the installation location according to DIN 1045-2 or DIN EN 206-1 regarding for instance resistance to frost and de-icing salt are to be taken into account in the choice of the concrete.

Bolting connection note:

Torque moments for screw fastening the gratings are to be set at M12 = 60 Nm.

The bolts on the gratings must be retightened at regular intervals.

Fast, safe installation - client time and cost management

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

For information on cleaning, maintenance and jointing instructions see Page 119 Constructed in accordance with RSTO using non-settling frost-free sub-bases. Exception up to D 400: Not for use across the carriage-way of highways or motorways.

Installation Examples

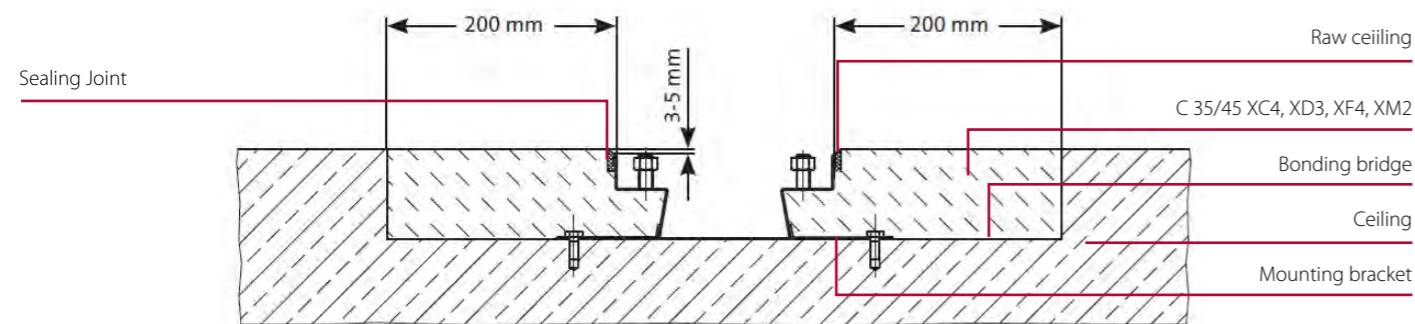
BIRCOprofil In Renovation

BIRCOprofil is particularly suited for renovations due to its constructive properties and shallow 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 stable 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 Renovation, Load Class A 15 – E 600

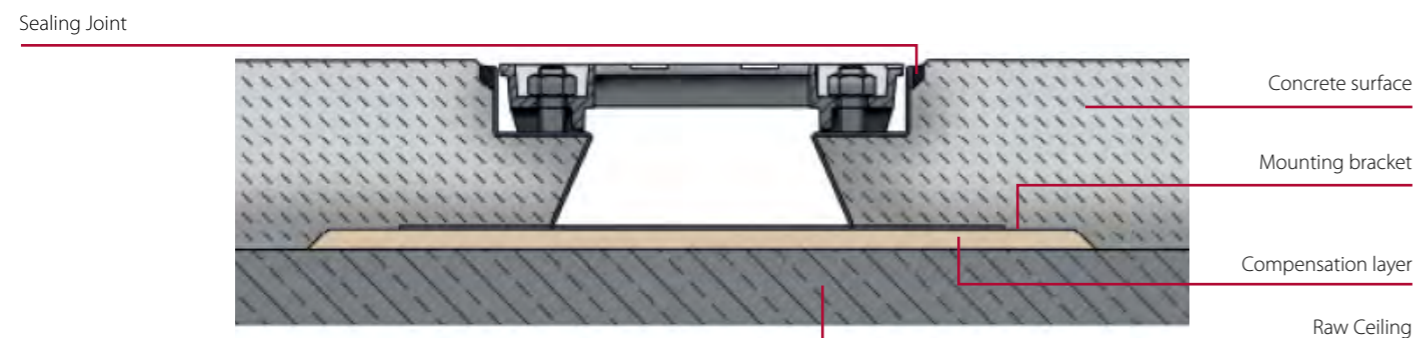
Drawing no. 14947



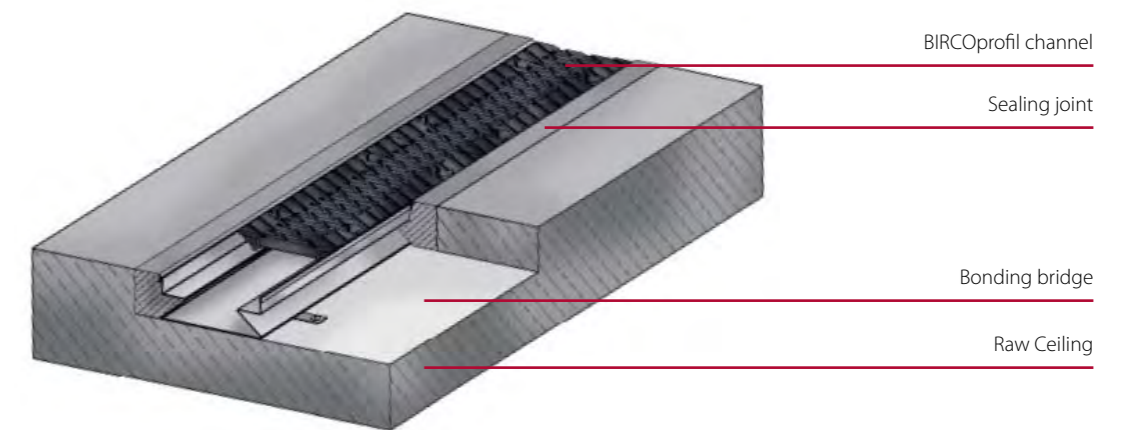
BIRCOprofil In Double-walled Ceiling Construction

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.



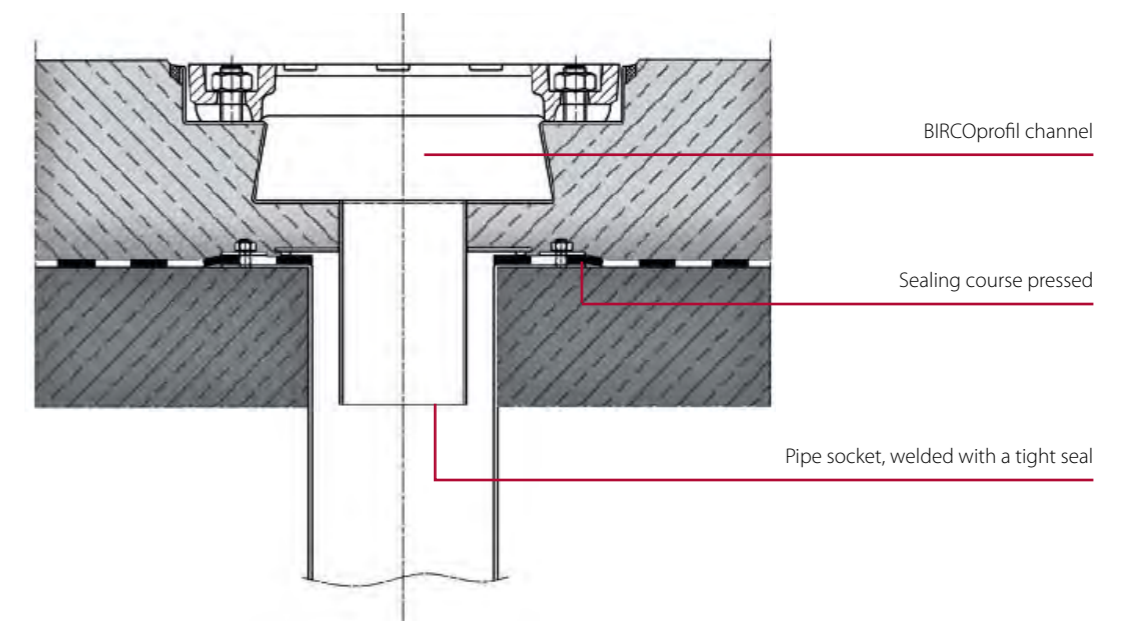
BIRCOprofil, Subsequent Installation



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.



Drainage Performance

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

BIRCOprofil drainage performance

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 cm ²
Construction height 75 mm	2,96 l/sec	53,29 cm ²

BIRCOprofil drainage performance

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 cm ²
Construction height 75 mm	2,58 l/sec	46,41 cm ²

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.