DRAINAGE IN ITS BEST FORM BIRCO

Heavy Duty

Drainage solutions for heavy load areas

Contents

Heavy Duty

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Drainage solutions for heavy load areas

+ BIRCOsir
+ BIRCOsir Point Drainage
+ BIRCOsir Rail Track Drainage
+ BIRCOmassiv
+ BIRCOcanal

Environment

Drainage solutions for areas subject to federal water legislation (WHG)

+ BIRCOprotect, BIRCOprotect^{PLUS} with Inliner, BIRCOsolid grid system, BIRCOsolid slot system, BIRCOsolid slot channels Pfuhler, BIRCOdicht

Drainage solutions for sustainable rainwater management

+ BIRCOpur, BIRCOsed, BIRCOtwinpack, BIRCO BIRCO Chambers by StormTech®

Landscaping

Drainage solutions for gardening & landscaping construction

+ BIRCOlight
+ BIRCOplus
+ BIRCOslot steel covers
+ BIRCOtop
+ BIRCOprofil
+ BIRCO Filcoten® (separately)

Design

Attractive drainage solutions for private and commercial properties

+ Cast iron gratings
+ Galvanised metal gratings
+ Stainless steel gratings
+ BIRCOlux

Project Management

Planning, advice and calculations tailored to your construction project

+ From planning to realisation
+ Individual design
+ Rainwater management
+ Logistics and services

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www.birco.de

“Quality and durability are what counts in the heavy-duty sector.”

“Transport areas subjected to heavy-duty loads demand the most from materials, surfaces and drainage systems. Other factors for consideration include different pavement surfaces, varying traffic loads and ecological regulations, and all of these concerns have to be dealt with in the face of growing cost pressures. So it is indispensable right from the planning phase to have a capable partner who’s focused not on their own short-term financial benefit, but instead on providing long-term quality. For me, that partner is BIRCO, and has been for years.”

BIRCOquality | System development

Individual. Reliable. With planning security. As one of the leading manufacturers of channel systems in Europe, BIRCO designs and develops innovative drainage solutions.

Surface drainage as a comprehensive concept

Tailored to the specific project

Drainage for spaces and buildings covers a wide spectrum of tasks. Among the first of these is establishing the size and surface properties of the drainage area, its average precipitation and the applicable drainage or seepage possibilities. Afterwards the channel system, nominal width and outfalls are selected.

The detail planning is determined by the anticipated loads, amount of traffic and the peak loads that the concrete body and the covers will have to sustain for years.

Another important factor is the hydraulic performance. Does the site already have a natural slope or should the channels have inbuilt falls? Is line drainage or point drainage the better solution, or even a combination of the two?

You receive individual supervision in every phase of the work

In order to ensure its channel systems provide top functionality, BIRCO develops balanced, comprehensive concepts and supervises every stage of the work from planning through to the completed implementation.

BIRCO experts support planners and architects from the first concept through to laying, at the drawing board and every day at the building site.

Lasting quality in the heavy-duty sector

Material properties and manufacture

Traffic areas that are subjected to changing loads and load types pose a special challenge in the planning of drainage solutions.

The materials and manufacture have to capable of ensuring that the channel bodies and matching covers feature the best performance, best handling and best optics for the specific property for years to come.

Planning, realisation and value retention

Channel laying performance, value retention and installation safety are the decisive factors to keep costs and work times under control and to provide long-term investment protection at building sites that are often complex or in multi-stage planning procedures.

BIRCO unites all of these qualities in its products and services. BIRCO's advice, choice of materials, drainage performance and its laying advantages form a consistent total system designed to provide lasting performance adapted to the customer's individual needs.

BIRCOquality | Materials

Drainage channels in areas with constant traffic flow are subjected to highest loads. BIRCO's use of high quality construction materials ensures the necessary security and long-term investment protection.

High quality concrete drainage channels –strong and cost-oriented

Stability and sustainability

BIRCO channels are manufactured from especially pressure-resistant C 40/50 concrete and feature high load reserves, even under extreme usage conditions. The low water-cement ratio ensures top abrasion ratios, proven durability against frost and de-icing salt and a low water-penetration depth. All in all, the side stability of BIRCO drainage channels is up to three times higher than that of conventional, thin-walled construction components.

Ideal construction site conditions

The high quality adhesion of the concrete surface creates an ideal bond with the adjacent in-situ concrete, i.e. "concrete in concrete". BIRCO moreover supplies Type I and Type M channel systems in accordance with DIN EN 1433. Depending on the type, this means that load-bearing foundations and/or concrete casings are not needed on the building site. And this reduces complicated, expensive casing work.

DIN EN 1433

Load classes for channels and gratings

A 15
Pedestrians, bicyclists, planted areas

D 400
Roadways, pedestrian zones, parking lots

B 125
Pedestrians, parking lots, delivery vehicles

E 600
Industry, military, high wheel loads

C 250
Kerbs, road shoulders, parking lots

F 900
Aircraft pavements, ports

BIRCO's materials and manufacture guarantee lasting performance far beyond the 5-year limit.

Solid steel angles

4 mm solid steel – 70 µm galvanised

BIRCO only uses high quality 4 mm solid steel angles with a 70µm zinc coating or angles made of stainless steel. Massive anchors stably connect the angles with the concrete channels. This makes it possible to conduct sealing of the base courses directly at the channel/angles when laying BIRCO concrete channels. That creates the optimum connection with the very best de-icing salt and corrosion protection.

4 mm | 70 µm

The perfect connection

Fast, secure, low-maintenance

BIRCO channel systems are fitted with a solid steel combi-connection angle. This allows all types of gratings and coverings to be bolted to the channel up to 8 times per metre, or fastened quickly and securely with the BIRCO Easylock option. BIRCO creates individual fastening solutions for special requirements.

Only at BIRCO: Special angle casings

BIRCO angle casings make cleaning the threading easy. Removal or replacement of the grating works smoothly over the long term.

Steel angle threading

Steel angle with Easylock

BIRCOquality | Manufacture

Loads exert forces from above and horizontally onto the channel bodies and covers. BIRCO has developed a variety of product specifications to ensure consistent position stability.

Surface protection

Lasting stability

BIRCOmassiv is fitted with a one-piece protective surface that ensures the lasting durability of the channel when confronted with heavy loads and particularly pointed loads (like container feet). This closed, slip-resistant steel surface protects the channel from wear and tear.

Safety sealing joint

Precise connection in accordance with DIN EN 1433

In order to ensure a permanently stabile connection between the individual channel, all BIRCO concrete channels are fitted with a DIN EN 1433-compliant safety sealing joint. Each safety sealing joint is visible from above, making inspection fast and easy.

Anchoring system

Firmly anchored to the base structure

The anchoring system of BIRCO's AS product family (for example BIRCOlight) firmly bond the drainage channel to the adjoining base structure. When professionally laid, this virtually excludes the possibility of the sway or disengagement of the channels from the base structure.

Individual drainage solutions tailored to the respective construction plan. Cutting to measure makes precise laying possible at the building site.

Laying accessories

Ring nuts ensure easy laying

When laying BIRCOmassiv channels, the ring nuts screwed onto the steel bolts play a valuable role, enabling the channels to be moved easily and inserted precisely into a pre-assigned slot. This reduces digging and makes for better channel laying. Standard drainage channels can be moved using any laying grippers commonly found on the market. We develop individual laying accessories based on your specifications.

Individual customisations

Customised 90° and mitred cuts

BIRCO's factory service offers you a variety of customised channel solutions, either at a 90° angle or mitred. The concrete parts including the covers are cut so that installation at the building site can be conducted faster and with greater precision.

Horizontal and vertical bore holes

We can fit BIRCO channels with horizontal or vertical bore holes for directly fitting feed and drainage lines according to your plans. The available connections range from DN 70 to DN 300. The diameters are matched with channel base pipes; different pipes are available upon request.

BIRCOquality | Project management

BIRCO offers a consultancy and calculation service for planners and architects that supervises every construction plan from its conception through to completion

Individual solutions

Solutions for planners and architects

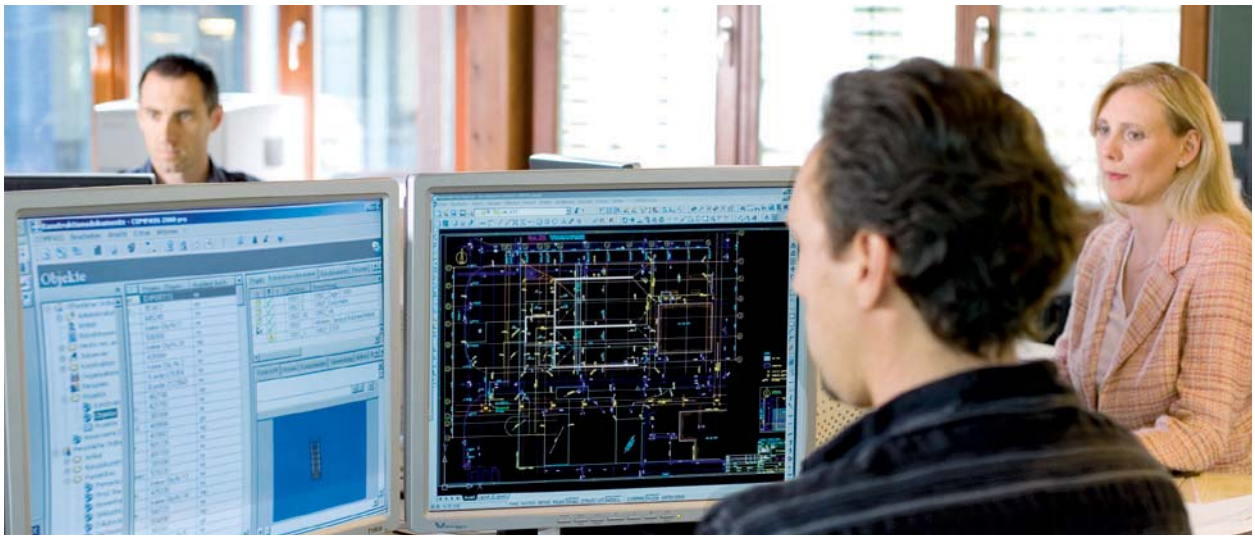
Frequently, drainage projects cannot be executed in a standardised fashion. Specific projects can have unique requirements, ranging from the combination of different channel systems to customized pre-cuts and continuing up to specifically diesgned inbuilt falls and discharge options.

BIRCO's office personnel and sales team experts apply their years of experience in supporting planners and architects. BIRCO's staff work together with them to come up with innovative solutions for surface drainage right from the planning and continuing through to calculation, implementation and execution on the building site.

Hydraulic calculations

Planning security right from the start

BIRCO calculates the hydraulic performance of your building project and helps you decide on the drainage system you need. Whether you order a standard product or an individual solution, you receive plans created with the aid of the latest CAD technology along with complete parts lists of all required accessoires required, as well as laying plans.



Strict material and process testing ensures the functionality and long serviceable life of all BIRCO systems.

Quality management

Ensuring BIRCO quality

BIRCO tests the materials from its suppliers and its own products regularly with the very latest metrology technology. Testing is conducted by our own quality management experts as well as by external, independent monitoring institutions. To this end, a supervision agreement was concluded with argus Cert Bau, one of the leading German organisations for testing, quality control and certification services for construction products. Consistent testing plans allow us to register all of the relevant data and compose comprehensible test reports.

From the material up to the finished product

We inspect all goods received for the stipulated quality characteristics, we conduct initial sample testing (documented in a corresponding report) and we monitor product quality continuously throughout the production process. In this way, our own production processes as well as those of our suppliers are under constant surveillance. All of this results in a quality standard that you can rely on.

Certification

Confirmed quality and processes

Our seamless quality control means that BIRCO products not only comply with the required DIN standards, but are also certified by a variety of construction supervisory authorities. This is a standard that we are proud of and that we are working on each day to improve even more.

In addition, BIRCO maintains an integrated management system (IMS) consisting of quality management in accordance with DIN EN ISO 9001:2008, environmental management in accordance with DIN EN ISO 14001 and in accordance with EWG 1836/93, and a management system for work safety and workplace safety in accordance with OHRIS guidelines.

BIRCOproduct system
For the heavy-duty sector

BIRCO heavy-duty channels: designed for maximum vertical and horizontal loads.

BIRCOsir | Stability and Diversity

The widest variety of drainage concepts can be realised using BIRCOsir. 7 different nominal widths, lengths of up to 2 metres and our large selection of gratings mean that there are virtually no limits to the application possibilities.

+ A 15 to F 900

For drainage of surfaces in areas with heavy-duty loading; also for areas where the architectural and flexibility demands are especially high.

BIRCOsir | Areas of application

+ Urban development, industrial construction, airports, ports
+ Heavy traffic areas
+ Parking lots also used by lorries (supermarkets, freighting companies, etc.)
+ Properties with special architectural requirements, based on the broad range of gratings

BIRCOsir | Facts

- Channel system: NW 100 – 1000 with and without inbuilt falls
- Shallow channels: NW 100 – 300
- Channels equipped with anchoring system: NW 200, 300 and 500 AS
- Construction lengths: 0.5, 1.0, 1.5, 2.0 metres
- Load class: A 15 – F 900
- Outfall units NW 100 – 400 with outstanding draining performance
- Broad range of gratings

BIRCOsir | Stability and Diversity

BIRCOsir combines top drainage performance with the highest safety standards and a variety of design possibilities.

Fast, safe installation

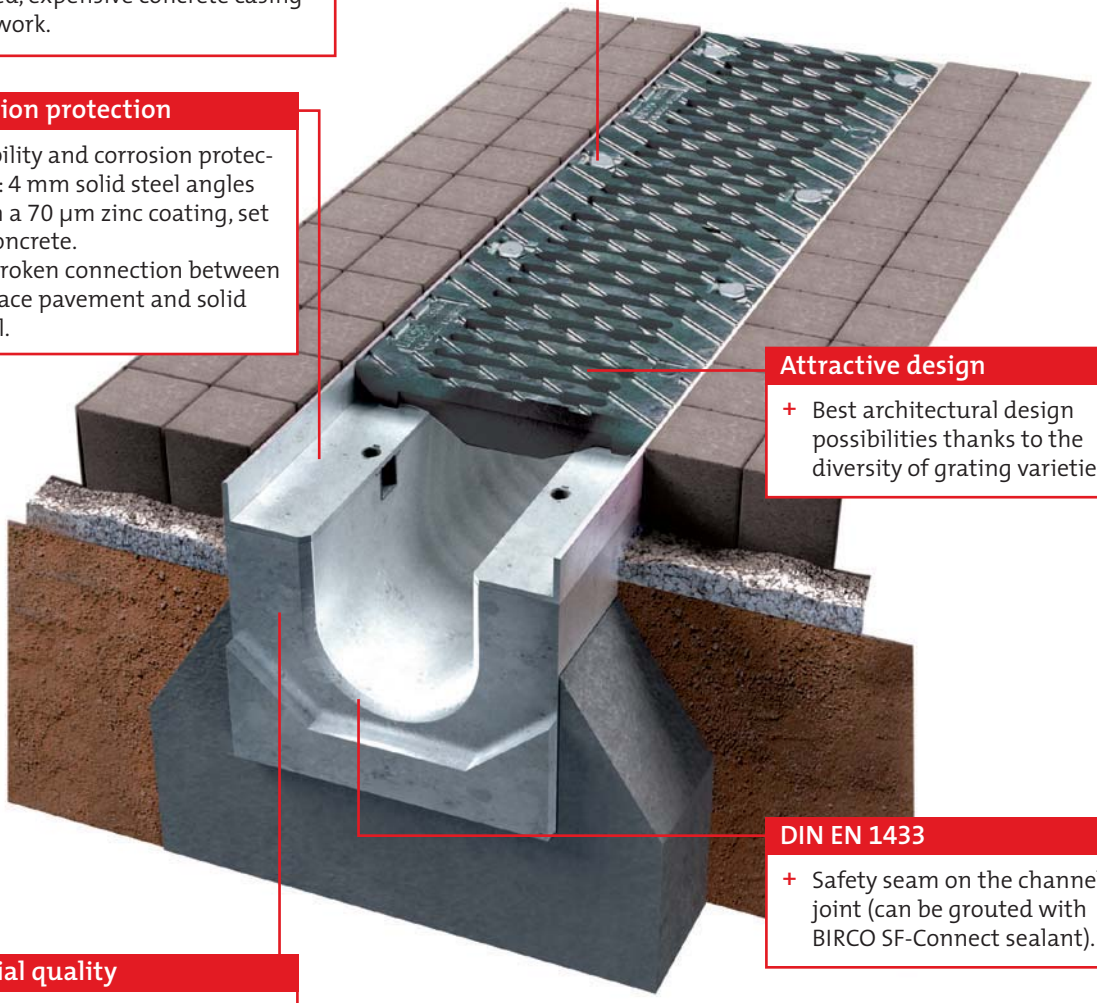
+ 2 metre long channel units make laying faster with fewer joints
+ One-piece channel units don't generally require a concrete casing. This reduces complicated, expensive concrete casing work.

Traffic safety

+ High level of traffic safety thanks to the 4 or 8 bolt connections per metre.
+ Connection options Easylock or bolts by individual choice.

Corrosion protection

+ Stability and corrosion protection: 4 mm solid steel angles with a 70 µm zinc coating, set in concrete.
+ Unbroken connection between surface pavement and solid steel.



Attractive design

+ Best architectural design possibilities thanks to the diversity of grating varieties.

DIN EN 1433

+ Safety seam on the channel joint (can be grouted with BIRCO SF-Connect sealant).

Material quality

+ High quality C 40/50 concrete.
+ High level of compressive strength and resistance to frost and de-icing salt ensure a long service life and safeguard your investment.

Individually applicable

+ Virtually unlimited application possibilities thanks to 7 different nominal widths. all of which can be combined with one another and the corresponding outfalls.

Donaueschingen – a resilient sweeping line

The historic Donauhallen in the city centre accommodate thousands of guests each year. A curving BIRCOsir drainage line in the nominal width of 150 mm was used for an ingenious visual separation of the busy parking lot from the street without the need for a curb. High positional stability, attractive appearance, and cut-to-size at the factory. The drainage concept is further complemented by the installation of the BIRCOtop series S along the facade and sidewalks.

Bergisch Gladbach – Cover with orientation system for the blind

The pedestrian zone in Bergisch Gladbach was able to be constructed with an especially pedestrian-friendly design thanks to an innovation from BIRCO: the barrier-free drainage line and integrated cover with an orientation system for the blind. Based on the channel system BIRCOsir in the nominal width of 200 AS, a cover was developed which functions as a ground guidance system. Special rib structures allow visually impaired people to orient themselves by means of their “white cane.” Similarly, the visually impaired perceive the height differences on the cover with their soles of their feet, take their bearings with the help of the contrast in luminance (light and dark), and can tell the difference acoustically in the quality of sound between the covers and the surrounding pavement. Modern urban architecture, efficient and rapid drainage, and all that with a load class up to D 400.

Büsum – combination of various systems

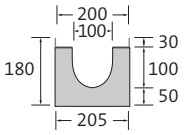
In order to make the beach in Büsum and access to the North Sea beach attractive while ensuring safety and a high load capacity (e.g. for any emergency vehicle operations), the builders decided to use a combination of different BIRCOsir channels. The drainage lines were laid as polygons, around corners, as wall-level separations, or in a stepped arrangement for access to the tidal flats and sea promenade. Cut-to-size in the factory with attractive covers and custom-ordered lengths.

BIRCOsir | NW 100

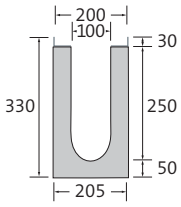
Stability and Diversity

Channel elements | 1% internal inbuilt fall

+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)
+ Safety sealing joint



Nr. 0/0



Nr. 15

Description	Length	Width at top/ at ground	Construction height at groove/tongue	Weight	Load class DIN EN 1433	Article No.
Channel No. 1	1000 mm	200/205 mm	180/190 mm	57.0 kg	A 15 – F 900	020001
Channel No. 2	1000 mm	200/205 mm	190/200 mm	63.4 kg	A 15 – F 900	020002
Channel No. 3	1000 mm	200/205 mm	200/210 mm	65.4 kg	A 15 – F 900	020003
Channel No. 4	1000 mm	200/205 mm	210/220 mm	68.4 kg	A 15 – F 900	020004
Channel No. 5	1000 mm	200/205 mm	220/230 mm	70.4 kg	A 15 – F 900	020005
Channel No. 6	1000 mm	200/205 mm	230/240 mm	72.4 kg	A 15 – F 900	020006
Channel No. 7	1000 mm	200/205 mm	240/250 mm	74.4 kg	A 15 – F 900	020007
Channel No. 8	1000 mm	200/205 mm	250/260 mm	76.4 kg	A 15 – F 900	020008
Channel No. 9	1000 mm	200/205 mm	260/270 mm	78.4 kg	A 15 – F 900	020009
Channel No. 10	1000 mm	200/205 mm	270/280 mm	80.4 kg	A 15 – F 900	020010
Channel No. 11	1000 mm	200/205 mm	280/290 mm	82.4 kg	A 15 – F 900	020011
Channel No. 12	1000 mm	200/205 mm	290/300 mm	84.4 kg	A 15 – F 900	020012
Channel No. 13	1000 mm	200/205 mm	300/310 mm	86.4 kg	A 15 – F 900	020013
Channel No. 14	1000 mm	200/205 mm	310/320 mm	88.4 kg	A 15 – F 900	020014
Channel No. 15	1000 mm	200/205 mm	320/330 mm	90.4 kg	A 15 – F 900	020015

Channel elements | without internal inbuilt fall

+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)
+ Safety sealing joint

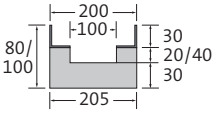
Description	Length	Width at top/ at ground	Construction height at groove/tongue	Weight	Load class DIN EN 1433	Article No.
Channel No. 0/0	500 mm	200/205 mm	180/180 mm	30.8 kg	A 15 – F 900	020031
Channel No. 0/0	1000 mm	200/205 mm	180/180 mm	56.4 kg	A 15 – F 900	020026
Channel No. 5/0	1000 mm	200/205 mm	230/230 mm	71.4 kg	A 15 – F 900	020027
Channel No. 10/0	1000 mm	200/205 mm	280/280 mm	81.4 kg	A 15 – F 900	020028
Channel No. 15/0	1000 mm	200/205 mm	330/330 mm	91.4 kg	A 15 – F 900	020029

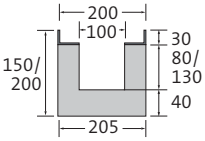
Channels No. 0/0 and 5/0 also available with socket DN 100 (Article No. 020025/020024) for vertical outlet.

Exception up to D 400: Not for use across the carriage- way of highways or motorways.

Shallow channels | without internal inbuilt fall

+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)
+ Safety sealing joint





Description	Length	Width at top/ at ground	Construction height at groove/tongue	Weight	Load class DIN EN 1433	Article No.
Shallow channel height 80	1000 mm	200/205 mm	80/80 mm	28.4 kg	A 15 – E 600	030026
Shallow channel height 100	1000 mm	200/205 mm	100/100 mm	32.4 kg	A 15 – E 600	030027
Shallow channel height 150	1000 mm	200/205 mm	150/150 mm	52.4 kg	A 15 – E 600	030029
Shallow channel height 200	1000 mm	200/205 mm	200/200 mm	62.4 kg	A 15 – E 600	030030

Silt bucket for drainage channels with horizontal drilling

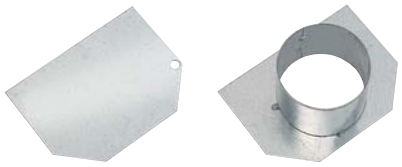
+ Galvanised
+ Drilled hole on request

Description	Article No.
Silt bucket DN 100	603011
Silt bucket for shallow channel DN 100	603014

Exception up to D 400: Not for use across the carriage- way of highways or motorways.

End caps

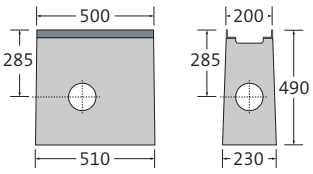
+ Also available in stainless steel (V2A)



Description	Width	For construction height	Weight	Article No.
End cap, galvanised, No. 0/0 – 2	200 mm	180 – 200 mm	0.4 kg	020090
End cap, galvanised, No. 3 – 4	200 mm	200 – 220 mm	0.5 kg	020091
End cap, galvanised, No. 5 – 6	200 mm	220 – 240 mm	0.6 kg	020092
End cap, galvanised, No. 7 – 8	200 mm	240 – 260 mm	0.6 kg	020093
End cap, galvanised, No. 9 – 10/0	200 mm	260 – 280 mm	0.7 kg	020094
End cap, galvanised, No. 11 – 12	200 mm	280 – 300 mm	0.7 kg	020095
End cap, galvanised, No. 13 – 14	200 mm	300 – 320 mm	0.8 kg	020096
End cap, galvanised, No. 15 – 15/0	200 mm	320 – 330 mm	0.9 kg	020097
End cap for shallow channel, galvanised, height 80 – 100	200 mm	80 – 100 mm	0.3 kg	030040
End cap for shallow channel, galvanised, height 150	200 mm	150 mm	0.5 kg	030041
End cap for shallow channel, galvanised, height 200	200 mm	200 mm	0.6 kg	030042
End cap with outlet DN 100, galvanised No. 0/0	200 mm	180 mm	0.8 kg	020045
End cap with outlet DN 100, galvanised No. 5/0	200 mm	230 mm	0.9 kg	020046
End cap with outlet DN 100, galvanised No. 10/0	200 mm	280 mm	1.1 kg	020047
End cap with outlet DN 100, galvanised No. 15/0	200 mm	330 mm	1.4 kg	020048

In-line outfall unit | 1-piece

+ 1- or 2-sided channel connection
+ PP odour trap, PP silt bucket
+ 2 integrated sockets for DN 100 pipe connection incl. 1 socket plug
+ In the case of lateral drain-pipe connection, the odour trap can only be fitted externally
+ With hot-dipped galvanised solid steel angle
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)

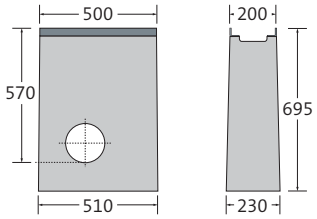


Description	Length	Width at top/ at ground	Construction height	Weight	Load class DIN EN 1433	Article No.
No. 0/0 to No. 10	500 mm	200/230 mm	490 mm	78.2 kg	A 15 – F 900	020035

Exception up to D 400: Not for use across the carriage- way of highways or motorways.

In-line outfall unit | with increased drainage capacity | 1-piece

+ 1- or 2-sided channel connection
+ PP silt bucket (also galvanised)
+ 1 integrated socket for DN 150 (without odour trap) pipe connection
+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)



Description	Length	Width at top/ at ground	Construction height	Weight	Load class DIN EN 1433	Article No.
No. 0/0 to No. 15	500 mm	200/230 mm	695 mm	103.2 kg	A 15 – F 900	020037

Cast slotted gratings

+ Black immersion-lacquered
+ Also available galvanised
+ 8 point per metre M12/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
black	500 mm	187 mm	30 mm	5.2 kg	SW 100/13 mm	469 cm²/m	A 15 – C 250	020072/e
black	500 mm	187 mm	30 mm	4,6 kg	SW 60/18 mm	591 cm²/m	A 15 – D 400	020074
black	500 mm	187 mm	30 mm	6.4 kg	SW 100/13 mm	469 cm²/m	A 15 – E 600	020075/e
black	500 mm	187 mm	30 mm	7.6 kg	SW 100/13 mm	469 cm²/m	A 15 – F 900	020078

Cast slotted gratings | narrow slot

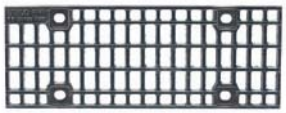
+ Black immersion-lacquered
+ 8 point per metre M12/A2 bolt connection

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
black	500 mm	187 mm	30 mm	7.5 kg	SW 100/6 mm	260 cm²/m	A 15 – E 600	020073

Article No. with e = with Easylock, SW = slot width
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

Mesh grating | cast

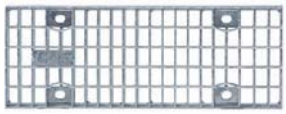
+ Black immersion-lacquered
+ Also available galvanised
+ 8 point per metre M12/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)



Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
black	500 mm	187 mm	30 mm	7.2 kg	MW 20/30 mm	876 cm²/m	A 15 – E 600	020086/e

Mesh grating | galvanised steel

+ Hot-dipped galvanised
+ 4 point per grating M12/A2 bolt connection
+ 4 point per grating Easylock-fastening (alternatively)
+ Also available in stainless steel (V2A) (without Easylock)



Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
hot-dipped galvanised	500 mm	187 mm	30 mm	3.5 kg	MW 30/12 mm	1154 cm²/m	A 15 – C 250	020063/e
hot-dipped galvanised	1000 mm	187 mm	30 mm	6.3 kg	MW 30/12 mm	1154 cm²/m	A 15 – C 250	020053/e
hot-dipped galvanised	500 mm	187 mm	30 mm	5.0 kg	MW 20/30 mm	1140 cm²/m	A 15 – E 600	020064/e
hot-dipped galvanised	1000 mm	187 mm	30 mm	9,5 kg	MW 20/30 mm	1140 cm²/m	A 15 – E 600	020054/e

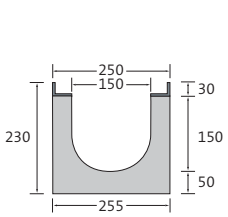
Article No. with e = with Easylock, MW = mesh width
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

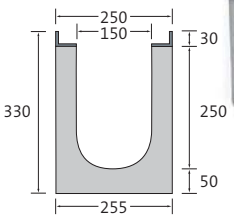
BIRCOsir | NW 150

Stability and Diversity

Channel elements | 0.5% internal inbuilt fall

+ With hot-dipped galvanised solid steel angle for combi-closure system
+ Safety sealing joint
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)





Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class DIN EN 1433	Article No.
Channel No. 1	1000 mm	250/255 mm	230/235 mm	79.4 kg	A 15 – F 900	020101
Channel No. 2	1000 mm	250/255 mm	235/240 mm	80.4 kg	A 15 – F 900	020102
Channel No. 3	1000 mm	250/255 mm	240/245 mm	81.0 kg	A 15 – F 900	020103
Channel No. 4	1000 mm	250/255 mm	245/250 mm	82.4 kg	A 15 – F 900	020104
Channel No. 5	1000 mm	250/255 mm	250/255 mm	83.4 kg	A 15 – F 900	020105
Channel No. 6	1000 mm	250/255 mm	255/260 mm	84.4 kg	A 15 – F 900	020106
Channel No. 7	1000 mm	250/255 mm	260/265 mm	85.4 kg	A 15 – F 900	020107
Channel No. 8	1000 mm	250/255 mm	265/270 mm	86.4 kg	A 15 – F 900	020108
Channel No. 9	1000 mm	250/255 mm	270/275 mm	87.4 kg	A 15 – F 900	020109
Channel No. 10	1000 mm	250/255 mm	275/280 mm	88.4 kg	A 15 – F 900	020110
Channel No. 11	1000 mm	250/255 mm	280/285 mm	91.4 kg	A 15 – F 900	020111
Channel No. 12	1000 mm	250/255 mm	285/290 mm	92.4 kg	A 15 – F 900	020112
Channel No. 13	1000 mm	250/255 mm	290/295 mm	93.4 kg	A 15 – F 900	020113
Channel No. 14	1000 mm	250/255 mm	295/300 mm	94.4 kg	A 15 – F 900	020114
Channel No. 15	1000 mm	250/255 mm	300/305 mm	95.4 kg	A 15 – F 900	020115
Channel No. 16	1000 mm	250/255 mm	305/310 mm	96.4 kg	A 15 – F 900	020116
Channel No. 17	1000 mm	250/255 mm	310/315 mm	97.4 kg	A 15 – F 900	020117
Channel No. 18	1000 mm	250/255 mm	315/320 mm	98.4 kg	A 15 – F 900	020118
Channel No. 19	1000 mm	250/255 mm	320/325 mm	99.4 kg	A 15 – F 900	020119
Channel No. 20	1000 mm	250/255 mm	325/330 mm	100.4 kg	A 15 – F 900	020120

Exception up to D 400: Not for use across the carriage- way of highways or motorways.

Channel elements | without internal inbuilt fall

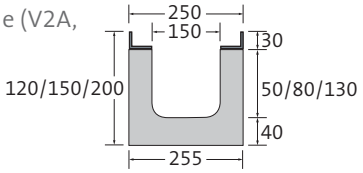
+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)
+ Safety sealing joint

Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class DIN EN 1433	Article No.
Channel No. 0/0	500 mm	250/255 mm	230/230 mm	37.5 kg	A 15 – F 900	020131
Channel No. 0/0	1000 mm	250/255 mm	230/230 mm	78.4 kg	A 15 – F 900	020126
Channel No. 5/0	1000 mm	250/255 mm	255/255 mm	83.4 kg	A 15 – F 900	020127
Channel No. 10/0	1000 mm	250/255 mm	280/280 mm	86.4 kg	A 15 – F 900	020128
Channel No. 15/0	1000 mm	250/255 mm	305/305 mm	93.4 kg	A 15 – F 900	020129

Channels No. 0/0 and 5/0 also available with socket DN 150 (Article No. 020125/020124) for vertical outlet.

Shallow channels | without internal gradient

+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)
+ Safety sealing joint



Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class DIN EN 1433	Article No.
Shallow channel height 120	1000 mm	250/255 mm	120/120 mm	53.4 kg	A 15 – E 600	030126
Shallow channel height 150	1000 mm	250/255 mm	150/150 mm	56.4 kg	A 15 – E 600	030127
Shallow channel height 200	1000 mm	250/255 mm	200/200 mm	63.0 kg	A 15 – E 600	030128

Silk bucket for drainage channels with horizontal drilling

+ Galvanised
+ Drilled hole on request

Description	Article No.
Silt bucket DN 150	603012
Silt bucket for shallow channel DN 150	603015

Exception up to D 400: Not for use across the carriage- way of highways or motorways.

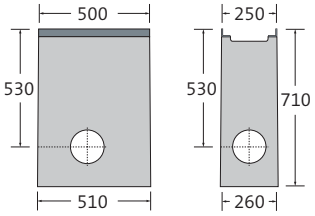
End caps

+ Also available in stainless steel (V2A)

Description	Width	For height	Weight	Article No.
End cap, galvanised, No. 0/0 – 5/0	250 mm	230 – 255 mm	0.7 kg	020190
End cap, galvanised, No. 6 – 10/0	250 mm	255 – 280 mm	0.8 kg	020191
End cap, galvanised, No. 11 – 15/0	250 mm	280 – 305 mm	0.9 kg	020192
End cap, galvanised, No. 16 – 20	250 mm	305 – 330 mm	1.0 kg	020193
End cap for shallow channel, galvanised, height 120 - 150	250 mm	120 – 150 mm	0.5 kg	030140
End cap for shallow channel, galvanised, height 200	250 mm	200 mm	0.7 kg	030141
End cap with outlet DN 150, galvanised, No. 0/0	250 mm	230 mm	1.0 kg	020145
End cap with outlet DN 150, galvanised, No. 5/0	250 mm	255 mm	1.1 kg	020146
End cap with outlet DN 150, galvanised, No. 10/0	250 mm	280 mm	1.2 kg	020147
End cap with outlet DN 150, galvanised, No. 15/0	250 mm	305 mm	1.3 kg	020148
End cap with outlet DN 150, galvanised, No. 19/0	250 mm	330 mm	1.4 kg	020149

In-line outfall unit | 1-piece

+ 1- or 2-sided channel connection
+ PP odour trap
+ PP silt bucket
+ 2 integrated sockets for DN 150 pipe connection and 1 socket plug
+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)



Description	Length	Width at top/ at ground	Height	Weight	Load class DIN EN 1433	Article No.
No. 0/0 to No. 20	500 mm	250/260 mm	710 mm	120,5 kg	A 15 – F 900	020135

Exception up to D 400: Not for use across the carriage- way of highways or motorways.

Cast slotted gratings

+ Black immersion-lacquered
+ Also available galvanised
+ 8 point per metre M12/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
black	500 mm	237 mm	30 mm	9.1 kg	SW 150/12 mm	644 cm²/m	A 15 – C 250	020172/e
black	500 mm	237 mm	30 mm	6,2 kg	SW 85/18 mm	855 cm²/m	A 15 – D400	020174
black	500 mm	237 mm	30 mm	10.7 kg	SW 150/12 mm	644 cm²/m	A 15 – E 600	020175/e
black	500 mm	237 mm	30 mm	12.4 kg	SW 150/12 mm	644 cm²/m	A 15 – F 900	020178

Mesh grating | cast

+ Black immersion-lacquered
+ Also available galvanised
+ 8 point per metre M12/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
black	500 mm	237 mm	30 mm	11.2 kg	MW 20/30 mm	1110 cm²/m	A 15 – E 600	020186/e

Honeycomb grating | cast

+ Black immersion-lacquered
+ Also available galvanised
+ 8 point per metre M12/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
black	500 mm	237 mm	30 mm	7.6 kg	MW 24/59 mm	1396 cm²/m	A 15 – E 600	020179/e

Article No. with e = with Easylock, SW = slot width, MW = mesh width
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

Mesh grating | galvanised steel

+ Hot-dipped galvanised
+ 4 point per grating M12/A2 bolt connection
+ 4 point per grating Easylock-fastening (alternatively)
+ Also available in stainless steel (V2A) (without Easylock)

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
hot-dipped galvanised	500 mm	237 mm	30 mm	4.4 kg	MW 30/15 mm	1185 cm²/m	A 15 – C 250	020163/e
hot-dipped galvanised	1000 mm	237 mm	30 mm	8.3 kg	MW 30/15 mm	1185 cm²/m	A 15 – C 250	020153/e
hot-dipped galvanised	500 mm	237 mm	30 mm	7.5 kg	MW 20/30 mm	1088 cm²/m	A 15 – E 600	020164/e
hot-dipped galvanised	1000 mm	237 mm	30 mm	14.5 kg	MW 20/30 mm	1088 cm²/m	A 15 – E 600	020154/e

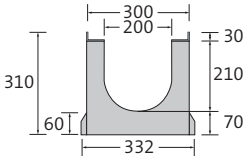
Article No. with e = with Easylock, MW = mesh width
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOsir | NW 200 AS

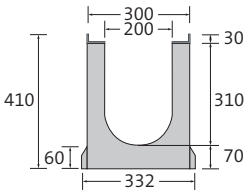
Stability and Diversity

Channel elements with anchoring system | 0.5% internal inbuilt fall

+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)
+ Safety sealing joint



Nr. 0/0



Nr. 20/0

Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class DIN EN 1433	Article No.
Channel No. 1	1000 mm	300/332 mm	310/315 mm	115.4 kg	A 15 – F 900	0020201
Channel No. 2	1000 mm	300/332 mm	315/320 mm	116.4 kg	A 15 – F 900	0020202
Channel No. 3	1000 mm	300/332 mm	320/325 mm	117.4 kg	A 15 – F 900	0020203
Channel No. 4	1000 mm	300/332 mm	325/330 mm	118.4 kg	A 15 – F 900	0020204
Channel No. 5	1000 mm	300/332 mm	330/335 mm	119.4 kg	A 15 – F 900	0020205
Channel No. 6	1000 mm	300/332 mm	335/340 mm	120.4 kg	A 15 – F 900	0020206
Channel No. 7	1000 mm	300/332 mm	340/345 mm	121.4 kg	A 15 – F 900	0020207
Channel No. 8	1000 mm	300/332 mm	345/350 mm	122.4 kg	A 15 – F 900	0020208
Channel No. 9	1000 mm	300/332 mm	350/355 mm	123.4 kg	A 15 – F 900	0020209
Channel No. 10	1000 mm	300/332 mm	355/360 mm	124.4 kg	A 15 – F 900	0020210

Channel elements with anchoring system | without internal inbuilt fall

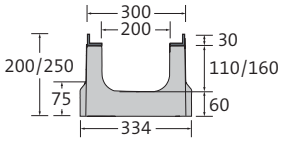
+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)
+ Safety sealing joint

Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class DIN EN 1433	Article No.
Channel No. 0/0	500 mm	300/332 mm	310/310 mm	57.0 kg	A 15 – F 900	0020231
Channel No. 0/0	1000 mm	300/332 mm	310/310 mm	112.7 kg	A 15 – F 900	0020226
Channel No. 5/0	1000 mm	300/332 mm	335/335 mm	117.2 kg	A 15 – F 900	0020227
Channel No. 10/0	1000 mm	300/332 mm	360/360 mm	123.3 kg	A 15 – F 900	0020228
Channel No. 20/0	1000 mm	300/332 mm	410/410 mm	136.0 kg	A 15 – F 900	0020232

Exception up to D 400: Not for use across the carriage- way of highways or motorways.

Shallow channels with anchoring system feature | without internal inbuilt fall

+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)
+ Safety sealing joint



Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class DIN EN 1433	Article No.
Shallow channel height 200	1000 mm	300/334 mm	200/200 mm	74.0 kg	A 15 – E 600	0030227
Shallow channel height 250	1000 mm	300/334 mm	250/250 mm	86.5 kg	A 15 – E 600	0030228

Silt bucket for drainage channels with horizontal drilling

+ Galvanised
+ Drilled hole on request

Description	Article No.
Silt bucket DN 200	603013
Silt bucket for shallow channel DN 200	603021

End caps

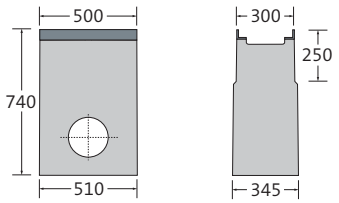
+ Also available in stainless steel (V2A)

Description	Width	For height	Weight	Article No.
End cap, galvanised, No. 0/0 – 5/0	330 mm	310 – 335 mm	1.2 kg	0020240
End cap, galvanised, No. 6 – 10/0	330 mm	335 – 360 mm	1.3 kg	0020241
End cap, galvanised, No. 20/0	330 mm	410 mm	1.4 kg	0020243
End cap for shallow channel, galvanised, height 200	330 mm	200 mm	0.9 kg	0030241
End cap for shallow channel, galvanised, height 250	330 mm	250 mm	1.2 kg	0030242
End cap with outlet DN 200, galvanised, No. 0/0	330 mm	310 mm	1.8 kg	0020245
End cap with outlet DN 200, galvanised, No. 5/0	330 mm	335 mm	1.9 kg	0020246
End cap with outlet DN 200, galvanised, No. 10/0	330 mm	360 mm	2.0 kg	0020247
End cap with outlet DN 200, galvanised, No. 20/0	330 mm	410 mm	2.1 kg	0020249

Exception up to D 400: Not for use across the carriage- way of highways or motorways.

In-line outfall unit with anchoring system | 1-piece

+ 1- or 2-sided channel connection
+ Galvanised silt bucket
+ 2 integrated sockets for DN 200 pipe connection
+ 1 socket plug
+ Without odour trap
+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)



Description	Length	Width at top/ at ground	Height	Weight	Load class DIN EN 1433	Article No.
No. 0/0 to No. 10/0	500 mm	300/345 mm	740 mm	142.0 kg	A 15 – F 900	0020237

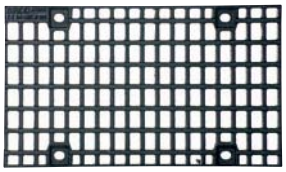
Cast slotted gratings

+ Black immersion-lacquered
+ Also available galvanised
+ 8 point per meter M12/A2 bolt connection
+ 8 point per meter Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
black	500 mm	287 mm	30 mm	8,1 kg	SW 109/17,5 mm	1114 cm²/m	A 15 – D 400	0020274
black	500 mm	287 mm	30 mm	11.6 kg	SW 200/18 mm	890 cm²/m	A 15 – E 600	0020275/e
black	500 mm	287 mm	30 mm	14.1 kg	SW 200/18 mm	890 cm²/m	A 15 – F 900	0020278

Mesh grating | cast

+ Black immersion-lacquered
+ Also available galvanised
+ 8 point per metre M12/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)



Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
black	500 mm	287 mm	30 mm	12.8 kg	MW 20/30 mm	1370 cm²/m	A 15 – E 600	0020286/e

Article No. with e = with Easylock, SW = slot width,
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

Honeycomb grating | cast

+ Black immersion-lacquered
+ Also available galvanised
+ 8 point per metre M12/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
black	500 mm	287 mm	30 mm	9.6 kg	MW 24/ 72mm	1995 cm²/m	A 15 – E 600	0020279/e
black	500 mm	287 mm	30 mm	14.5 kg	MW 20/75 mm	1640 cm²/m	A 15 – F 900	0020280

Mesh gratings | galvanised steel

+ Hot-dipped galvanised
+ 4 point per grating M12/A2 bolt connection
+ 4 point per grating Easylock-fastening (alternatively)
+ Also available in stainless steel (V2A) (without Easylock)

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
galvanised	500 mm	287 mm	30 mm	6.7 kg	MW 30/30 mm	2046 cm²/m	A 15 – C 250	0020262/e
galvanised	1000 mm	287 mm	30 mm	12.8 kg	MW 30/30 mm	2046 cm²/m	A 15 – C 250	0020252/e

Guiding gratings for the blinds | ductile iron

+ Black immersion-lacquered
+ Also available galvanised
+ 8 point per metre M12/A2 bolt connection
+ According to DIN 32984 2011-10

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
Guiding stripes	500 mm	287 mm	30 mm	12,8 kg	SW 46/10 mm	409 cm²/m	A 15 – D 400	0020283
Attention fields	500 mm	287 mm	30 mm	13,5 kg	SW 34/10 mm	202 cm²/m	A 15 – D 400	0020284

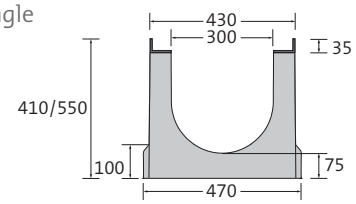
Article No. with e = with Easylock, SW = slot width, MW = mesh width
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOsir | NW 300 AS

Stability and Diversity

Channel elements with anchoring system | with 0,5 % internal inbuilt fall

+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)
+ Safety sealing joint



No. 0/0 Height 1/2

Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class DIN EN 1433	Article No.
Channel No. 1/2	2000 mm	430/470 mm	410/420 mm	427,0 kg	A 15 – F 900	0020301
Channel No. 3/4	2000 mm	430/470 mm	420/430 mm	432,0 kg	A 15 – F 900	0020302
Channel No. 5/6	2000 mm	430/470 mm	430/440 mm	438,0 kg	A 15 – F 900	0020303
Channel No. 7/8	2000 mm	430/470 mm	440/450 mm	443,0 kg	A 15 – F 900	0020304
Channel No. 9/10	2000 mm	430/470 mm	450/460 mm	448,0 kg	A 15 – F 900	0020305
Channel No. 11/12	2000 mm	430/470 mm	460/470 mm	453,0 kg	A 15 – F 900	0020306
Channel No. 13/14	2000 mm	430/470 mm	470/480 mm	458,0 kg	A 15 – F 900	0020307
Channel No. 15/16	2000 mm	430/470 mm	480/490 mm	464,0 kg	A 15 – F 900	0020308
Channel No. 17/18	2000 mm	430/470 mm	490/500 mm	469,0 kg	A 15 – F 900	0020309
Channel No. 19/20	2000 mm	430/470 mm	500/510 mm	474,0 kg	A 15 – F 900	0020310
Channel No. 21/22	2000 mm	430/470 mm	510/520 mm	479,0 kg	A 15 – F 900	0020311
Channel No. 23/24	2000 mm	430/470 mm	520/530 mm	484,0 kg	A 15 – F 900	0020312
Channel No. 25/26	2000 mm	430/470 mm	530/540 mm	490,0 kg	A 15 – F 900	0020313
Channel No. 27/28	2000 mm	430/470 mm	540/550 mm	495,0 kg	A 15 – F 900	0020314
Channel No. 1	1000 mm	430/470 mm	410/415 mm	203,0 kg	A 15 – F 900	0021301
Channel No. 2	1000 mm	430/470 mm	415/420 mm	204,6 kg	A 15 – F 900	0021302
Channel No. 3	1000 mm	430/470 mm	420/425 mm	206,0 kg	A 15 – F 900	0021303
Channel No. 4	1000 mm	430/470 mm	425/430 mm	207,8 kg	A 15 – F 900	0021304
Channel No. 5	1000 mm	430/470 mm	430/435 mm	209,3 kg	A 15 – F 900	0021305
Channel No. 6	1000 mm	430/470 mm	435/440 mm	210,9 kg	A 15 – F 900	0021306
Channel No. 7	1000 mm	430/470 mm	440/445 mm	212,5 kg	A 15 – F 900	0021307
Channel No. 8	1000 mm	430/470 mm	445/450 mm	214,1 kg	A 15 – F 900	0021308
Channel No. 9	1000 mm	430/470 mm	450/455 mm	215,7 kg	A 15 – F 900	0021309
Channel No. 10	1000 mm	430/470 mm	455/460 mm	217,3 kg	A 15 – F 900	0021310
Channel No. 11	1000 mm	430/470 mm	460/465 mm	218,8 kg	A 15 – F 900	0021311
Channel No. 12	1000 mm	430/470 mm	465/470 mm	220,4 kg	A 15 – F 900	0021312
Channel No. 13	1000 mm	430/470 mm	470/475 mm	222,0 kg	A 15 – F 900	0021313
Channel No. 14	1000 mm	430/470 mm	475/480 mm	223,6 kg	A 15 – F 900	0021314
Channel No. 15	1000 mm	430/470 mm	480/485 mm	225,2 kg	A 15 – F 900	0021315
Channel No. 16	1000 mm	430/470 mm	485/490 mm	226,8 kg	A 15 – F 900	0021316

Channel elements with anchoring system | with 0,5 % internal inbuilt fall | continuation

Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class DIN EN 1433	Article No.
Channel No. 17	1000 mm	430/470 mm	490/495 mm	228,3 kg	A 15 – F 900	0021317
Channel No. 18	1000 mm	430/470 mm	495/500 mm	229,9 kg	A 15 – F 900	0021318
Channel No. 19	1000 mm	430/470 mm	500/505 mm	231,5 kg	A 15 – F 900	0021319
Channel No. 20	1000 mm	430/470 mm	505/510 mm	233,1 kg	A 15 – F 900	0021320
Channel No. 21	1000 mm	430/470 mm	510/515 mm	231,7 kg	A 15 – F 900	0021321
Channel No. 22	1000 mm	430/470 mm	515/520 mm	236,3 kg	A 15 – F 900	0021322
Channel No. 23	1000 mm	430/470 mm	520/525 mm	237,8 kg	A 15 – F 900	0021323
Channel No. 24	1000 mm	430/470 mm	525/530 mm	239,4 kg	A 15 – F 900	0021324
Channel No. 25	1000 mm	430/470 mm	530/535 mm	241,0 kg	A 15 – F 900	0021325
Channel No. 26	1000 mm	430/470 mm	535/540 mm	242,6 kg	A 15 – F 900	0021326
Channel No. 27	1000 mm	430/470 mm	540/545 mm	244,2 kg	A 15 – F 900	0021327
Channel No. 28	1000 mm	430/470 mm	545/550 mm	245,8 kg	A 15 – F 900	0021328

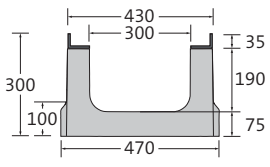
Channel elements with anchoring system | without internal inbuilt fall

+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)
+ Safety sealing joint

Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class DIN EN 1433	Article No.
Channel No. 0/0, Bauhöhe 1	1000 mm	430/470 mm	410/410 mm	210,0 kg	A 15 – F 900	0020326
Channel No. 0/0, Bauhöhe 1	2000 mm	430/470 mm	410/410 mm	422,0 kg	A 15 – F 900	0020334
Channel No. 0/0, Bauhöhe 2	1000 mm	430/470 mm	550/550 mm	245,0 kg	A 15 – F 900	0020327
Channel No. 0/0, Bauhöhe 2	2000 mm	430/470 mm	550/550 mm	500,0 kg	A 15 – F 900	0020335

Shallow channel with anchoring system | without internal inbuilt fall

+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)
+ Safety sealing joint



Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class DIN EN 1433	Article No.
Shallow channel height 300	1000 mm	430/470 mm	300/300 mm	150.0 kg	A 15 – E 600	0030328

Exception up to D 400: Not for use across the carriage- way of highways or motorways.

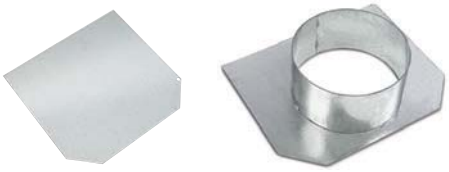
Silk bucket for drainage channels with horizontal drilling

+ Galvanised
+ Drilled hole on request

Description	Article No.
Silt bucket DN 300	603026
Silt bucket for shallow channel DN 300	603025

End caps

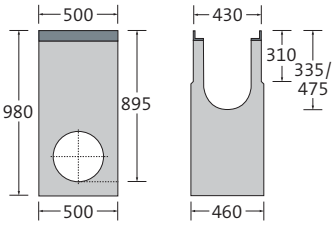
+ Also available in stainless steel (V2A)



Description	Width	For height	Weight	Article No.
End cap, galvanised, height 1	430 mm	410 mm	3.6 kg	0020340
End cap, galvanised, height 2	430 mm	550 mm	5.0 kg	0020341
End cap for shallow channel, galvanised	430 mm	300 mm	2.4 kg	0030342
End cap with outlet DN 200, galvanised, height 1	430 mm	410 mm	4.0 kg	0020345
End cap with outlet DN 200, galvanised, height 2	430 mm	550 mm	5.4 kg	0020346

In-line outfall units with anchoring system | 1-piece

+ 1- or 2-sided channel connection
+ Galvanised silt bucket
+ 1 integrated socket for DN 300 pipe connection
+ Without odour trap
+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)

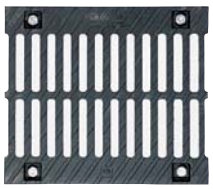


Description	Length	Width at top/ at ground	Height	Weight	Load class DIN EN 1433	Article No.
For height 1	500 mm	430/460 mm	980 mm	270.0 kg	A 15 – F 900	0020336
For height 2	500 mm	430/460 mm	980 mm	257.0 kg	A 15 – F 900	0020337

Article No. with e = with Easylock, SW = slot width
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

Cast slotted gratings | twofold

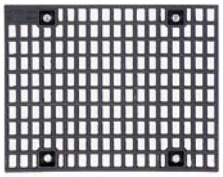
+ Black immersion-lacquered
+ Also available galvanised
+ 8 point per metre M12/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)



Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
black	500 mm	417 mm	35 mm	15,9 kg	SW 165/17,5 mm	1696 cm²/m	A 15 – D 400	0020374
black	500 mm	417 mm	35 mm	20.4 kg	SW 142/20 mm	1522 cm²/m	A 15 – E 600	0020375/e
black	500 mm	417 mm	35 mm	24.9 kg	SW 142/20 mm	1522 cm²/m	A 15 – F 900	0020378

Mesh gratings | cast

+ Black immersion-lacquered
+ Also available galvanised
+ 8 point per metre M12/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)



Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
black	500 mm	417 mm	35 mm	22.9 kg	MW 20/30 mm	2008 cm²/m	A 15 – E 600	0020386/e

Bulb cast covers

+ Solid
+ Black immersion-lacquered or galvanised
+ 8 point per metre M16/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Load class DIN EN 1433	Article No.
black	500 mm	437 mm	45 mm	31.0 kg	A 15 – E 600	0052376/e

Anchoring system | Firmly anchored to the base structure

+ The anchoring system of BIRCO's AS product family firmly bond the drainage channel to the adjoining base structure. When professionally laid, this virtually excludes the possibility of the sway or disengagement of the channels from the base structure.

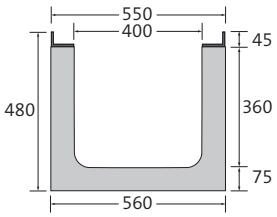
Article No. with e = with Easylock, MW = mesh width, SW = slot width
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOsir | NW 400

Stability and Diversity

Channel elements | without internal inbuilt fall

+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)
+ Safety sealing joint



Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class DIN EN 1433	Article No.
Channel No. 0/0	1000 mm	550/560 mm	480/480 mm	246.0 kg	A 15 – F 900	020426
Channel No. 0/0	2000 mm	550/560 mm	480/480 mm	488.0 kg	A 15 – F 900	020434

Silk bucket for drainage channels with horizontal drilling

+ Galvanised
+ Drilled hole on request

Description	Article No.
Silt bucket DN 300	603026

End caps

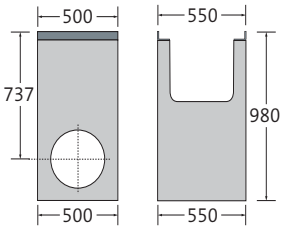
+ Also available in stainless steel (V2A)

Description	Width	For height	Weight	Article No.
End cap, galvanised	550 mm	480 mm	5.5 kg	020440
End cap with outlet DN 300, galvanised	550 mm	480 mm	7.1 kg	020445

Exception up to D 400: Not for use across the carriage- way of highways or motorways.

In-line outfall unit | 1-piece

+ 1- or 2-sided channel connection
+ Galvanised silt bucket
+ 1 integrated socket for DN 300 pipe connection
+ Without odour trap
+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)



Description	Length	Width at top/ at ground	Height	Weight	Load class DIN EN 1433	Article No.
In-line outfall unit	500 mm	550/550 mm	980 mm	300.0 kg	A 15 – F 900	020435

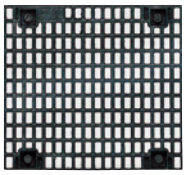
Cast slotted gratings | twofold

+ Black immersion-lacquered
+ Also available galvanised
+ 8 point per metre M16/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
black	500 mm	537 mm	45 mm	27,5 kg	SW 139/17,5 mm	1967 cm²/m	A 15 – D 400	020474
black	500 mm	537 mm	45 mm	45.2 kg	SW 190/16 mm	1771 cm²/m	A 15 – E 600	020475/e
black	500 mm	537 mm	45 mm	52.1 kg	SW 190/16 mm	1771 cm²/m	A 15 – F 900	020478

Mesh grating | cast

+ Black immersion-lacquered
+ Also available galvanised
+ 8 point per metre M16/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)



Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
black	500 mm	537 mm	45 mm	44.5 kg	MW 20/30 mm	2310 cm²/m	A 15 – E 600	020486/e

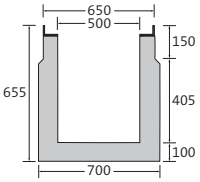
Article No. with e = with Easylock, SW = slot width, MW = mesh width
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOsir | NW 500

Stability and Diversity

Channel elements | without internal gradient

+ Reinforced concrete C 40/50
+ With cast-in anchor sleeves for mechanical installation
+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)
+ Safety sealing joint
+ Lifting loops on demande (art. no. 606016)



Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class DIN EN 1433	Article No.
Channel No. 0/0	1000 mm	650/700 mm	655/655 mm	440.0 kg	A 15 – F 900	020526
Channel No. 0/0	2000 mm	650/700 mm	655/655 mm	880.0 kg	A 15 – F 900	020534

End caps

+ Also available in stainless steel (V2A)

Description	Width	For height	Weight	Article No.
End cap, galvanised	650 mm	655 mm	9.0 kg	020540
End cap with outlet DN 300, galvanised	650 mm	655 mm	10.9 kg	020545

Cast slotted grating | threefold

+ Black immersion-lacquered
+ Also available galvanised
+ 8 point per metre M16/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
black	500 mm	633 mm	45 mm	35,8 kg	SW 172/17,5 mm	2445 cm²/m	A 15 – D 400	020574
black	500 mm	633 mm	45 mm	54,9 kg	SW 155/16 mm	2258 cm²/m	A 15 – E 600	020575/e
black	500 mm	633 mm	45 mm	64,6 kg	SW 155/16 mm	2258 cm²/m	A 15 – F 900	020578

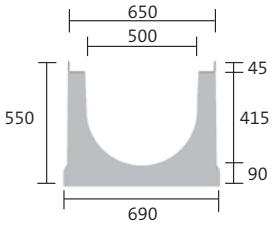
Article No. with e = with Easylock, SW = slot width
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

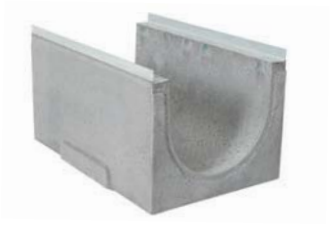
BIRCOsir | NW 500 AS

Channel system for high hydraulic performance

Channel elements with anchoring system | without internal inbuilt fall

+ With hot-dipped galvanised solid steel angle for combi-closure system
+ Safety sealing joint





Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class DIN EN 1433	Article No.
Channel No. 0/0	1000 mm	650/690 mm	550 mm	365,0 kg	A 15 - F 900*	0020526

* Please note separate installation for class E600 and F900.

End caps

Description	Width	For height	Weight	Article No.
End cap, galvanised	650 mm	655 mm	9.0 kg	020540
End cap with outlet DN 300, galvanised	650 mm	655 mm	10.9 kg	020545

Cast slotted grating | threefold

+ Black immersion-lacquered
+ Also available galvanised
+ 8 point per metre M16/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
black	500 mm	633 mm	45 mm	35,8 kg	SW 172/17,5 mm	2445 cm²/m	A 15 – D 400	020574
black	500 mm	633 mm	45 mm	54,9 kg	SW 155/16 mm	2258 cm²/m	A 15 – E 600	020575/e
black	500 mm	633 mm	45 mm	64,6 kg	SW 155/16 mm	2258 cm²/m	A 15 – F 900	020578

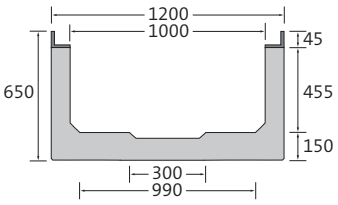
Article No. with e = with Easylock, SW = slot width
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOsir | NW 1000

Stability and Diversity

Channel element | without internal inbuilt fall

+ Reinforced concrete C 40/50
+ With cast-in anchor sleeves for mechanical installation
+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)
+ Safety sealing joint
+ Lifting loops on demande (art. no. 606016)



Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class DIN EN 1433	Article No.
Channel No. 0/0	2000 mm	1200/1200 mm	650/650 mm	1350.0 kg	A 15 – F 900	020934

End caps

+ Also available in stainless steel (V2A)

Description	Width	For height	Weight	Article No.
End cap, galvanised	1200 mm	650 mm	21.5 kg	020940
End cap with outlet DN 300, galvanised	1200 mm	650 mm	23.5 kg	020945

Cast slotted grating | sixfold

+ Schwarz-tauchlackiert
+ Black immersion-lacquered
+ 8 point per metre M16/A2 bolt connection

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
black	500 mm	1184 mm	45 mm	151.4 kg	SW 155/18 mm	4200 cm²/m	A 15 – D 400	020975

SW = slot width
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOsir with grid cover made of cast iron in the nominal widths of 200, 300 and 400 – at the Neu-Ulm University of Applied Sciences.

BIRCOsir Point Drainage | Getting to the point with open space drainage

Drainage concepts for open areas and spaces:
BIRCOsir point drainage's large inlet cross sections guarantee top draining performance. Its high level of durability and the attractive range of gratings make the system universally applicable with plenty of design choice flexibility in both the private and commercial sectors.

+ A 15 to E 600

For the point drainage of open spaces and areas, which demands best hydraulical capacities and load capacities.

BIRCOsir Point Drainage | Areas of application

+ Open spaces and areas in the commercial and private sectors, courtyards
+ Heavy traffic areas
+ Parking lots also used by lorries (supermarkets, freighting companies, etc.)
+ Also available as a sump well
+ Also suitable for the installation of lighting

BIRCOsir Point Drainage | Facts

+ Two sizes: 30/30 and 40/40 cm
+ With solid steel frame angles
+ One-piece or multi-piece
+ Also suitable as a sump well (40/40cm)
+ Load class: A 15 – E 600
+ Gratings with either 2 or 4 bolt connections, or with Easylock fastening

BIRCOsir Point Drainage | Getting to the point with open space drainage

BIRCOsir point drainage is your sensible supplement to linear drainage concepts, offering great draining performance and high load reserves.

Diversely applicable

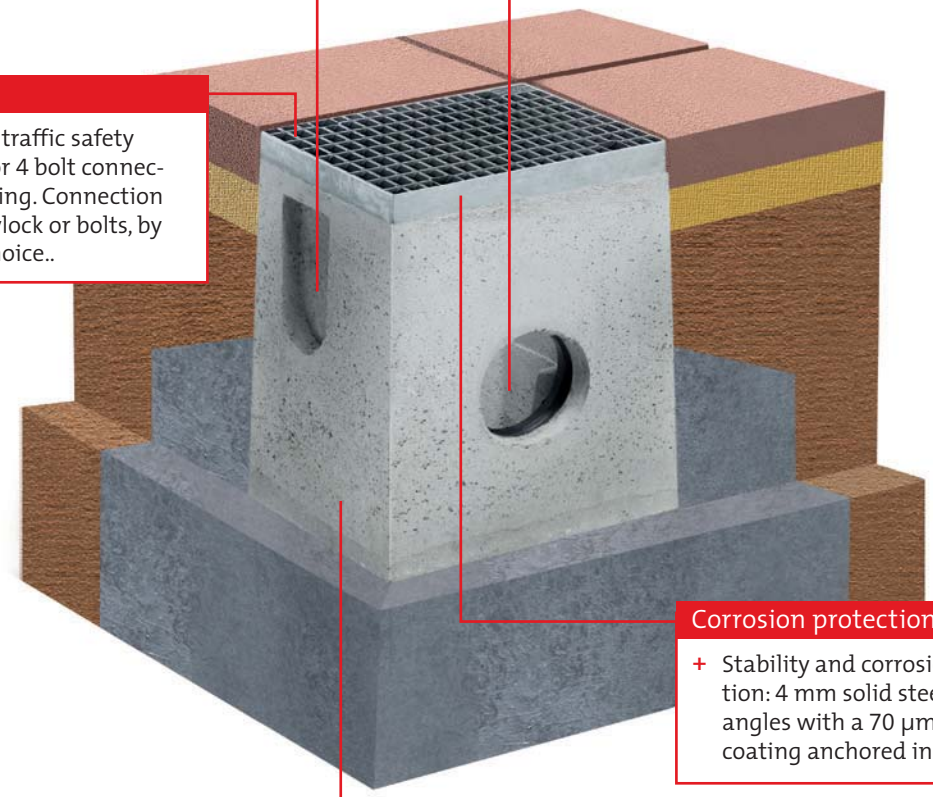
+ Also for connection to BIRCOsir linear drainage
+ Modular construction and a variety of sizes make point drainage possible with construction heights of up to 1200 mm.

Faster, safer installation

+ Predetermined breaking points in the upper section (linear drainage) and integrated sleeves for pipe connection save time in installation.

Traffic safety

+ High level of traffic safety thanks to 2 or 4 bolt connection per grating. Connection options: Easylock or bolts, by individual choice..



Corrosion protection

+ Stability and corrosion protection: 4 mm solid steel frame angles with a 70 µm zinc coating anchored in concrete.

Best workmanship quality

+ High quality C 40/50 concrete, suitable for loads up to Class E 600.

Attractive design

+ Flexible design possibilities thanks to different grating options.

Chemnitz Train Station – Point and linear drainage

410 metres of asymmetrical BIRCO slotted stainless steel channels were laid in the forecourt at the Chemnitz Train Station and embedded in top quality “Sora-Lamporphyr” stone slab flooring. Next to this area, a natural cobblestone channel embedded in a natural stone covering ensures efficient drainage. This is connected to a BIRCOsir 40/40 outfall unit with a slotted grating. Combined point and linear drainage.

Blittersdorfplatz in Frankfurt – An oasis in the banking centre

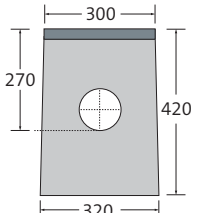
The idea behind the renovation of Blittersdorfplatz in Frankfurt was a place to rest and relax, as well as significantly increase the appeal and value of the entire area. A basin design was selected and furnished with highly effective BIRCO point drainage equipped with 12 BIRCOsir 40/40 outfall units, combining aesthetic appeal and efficiency.

BIRCOsir Point Drainage

Getting to the point with open space drainage

Outfall unit | 30/30 | 1-piece

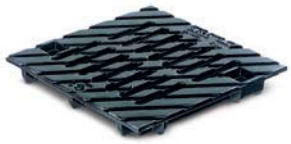
+ Also for drainage channel connection on two sides (NW 100)
+ PP odour trap, PP silt bucket
+ Integrated socket for DN 100 pipe connection
+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)



Description	Length at top/ at bottom	Width at top/ at bottom	Construction height	Weight	Load class DIN EN 1433	Article No.
to No. 10	300/320 mm	300/320 mm	420 mm	59.0 kg	A 15 – E 600	080000

Cast slotted grating | twofold

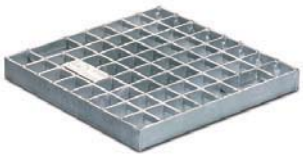
+ Black immersion-lacquered
+ 2 point M12/A2 bolt connection
+ 2 point Easylock-fastening (alternatively)
+ On request also available galvanised



Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class	Article No.
for OU 30/30	280 mm	280 mm	30 mm	7.4 kg	SW 93/17 mm	213 cm²/m	A 15 – E 600	080001/e

Mesh gratings | galvanised steel

+ Galvanised
+ 2 point M12/A2 bolt connection
+ 2 point Easylock-fastening (alternatively)

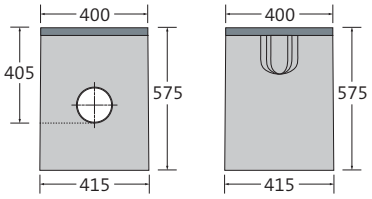


Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class	Article No.
for OU 30/30	280 mm	280 mm	30 mm	3.6 kg	MW 30/30 mm	502 cm²/m	A 15 – C 250	080004/e
for OU 30/30	280 mm	280 mm	30 mm	4.0 kg	MW 30/15 mm	482 cm²/m	A 15 – C 250	080005/e

Article No. with e = with Easylock, SW = slot width, MW = mesh width
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

Outfall unit | 40/40 | 1-piece

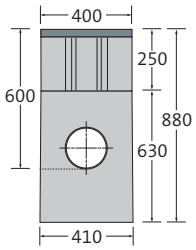
+ Also for drainage channel connection on three sides (NW 100, NW 150)
+ PP odour trap, PP silt bucket
+ Integrated socket for DN 150 pipe connection
+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)



Description	Length at top/ at bottom	Width at top/ at bottom	Construction height	Weight	Load class DIN EN 1433	Article No.
to No. 10/0	400/415 mm	400/415 mm	575 mm	121.0 kg	A 15 – E 600	080020

Outfall unit | 40/40 | 2-pieces

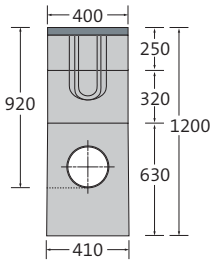
+ Point drainage, not for channel connection
+ PP silt bucket
+ Integrated socket for DN 200 pipe connection
+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)



Description	Length at top/ at bottom	Width at top/ at bottom	Construction height	Weight	Load class DIN EN 1433	Article No.
Top	400/ – mm	400/ – mm	250 mm	52.6 kg	A 15 – E 600	080014
Bottom	– /410 mm	– /410 mm	630 mm	127.0 kg	A 15 – E 600	080010

Outfall unit | 40/40 | 3-pieces

+ Also for drainage channel connection on four sides (NW 100, NW 150, NW 200 to No. 20)
+ PP silt bucket
+ Integrated socket for DN 200 pipe connection
+ With hot-dipped galvanised solid steel angle for combi-closure system
+ As special solution also with stainless steel angle (V2A, combi-closure system not in V2A)



Description	Length at top/ at ground	Width at top/ at bottom	Construction height	Weight	Load class DIN EN 1433	Article No.
Top	400/ – mm	400/ – mm	250 mm	44.6 kg	A 15 – E 600	080012
Middle	– / – mm	– / – mm	320 mm	60.6 kg	A 15 – E 600	080011
Bottom	– /410 mm	– /410 mm	630 mm	127.0 kg	A 15 – E 600	080010

Exception up to D 400: Not for use across the carriage- way of highways or motorways.

Cast slotted gratings | twofold

+ Black immersion-lacquered
+ 4 point M12/A2 bolt connection
+ 4 point Easylock-fastening (alternatively)
+ On request also available galvanised

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class	Article No.
for OU 40/40	380 mm	380 mm	40 mm	20.5 kg	SW 133/15 mm	389 cm²/m	A 15 – E 600	080015/e

Mesh gratings | galvanised steel

+ Hot-dipped galvanised
+ 4 point M12/A2 bolt connection
+ 4 point Easylock-fastening (alternatively)
+ On request also available in stainless steel (V2A - without Easylock)

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class	Article No.
for OU 40/40	380 mm	380 mm	40 mm	7.0 kg	MW 30/30 mm	977 cm²/m	A 15 – C 250	080016/e
for OU 40/40	380 mm	380 mm	40 mm	7.0 kg	MW 30/15 mm	792 cm²/m	A 15 – C 250	080017/e
for OU 40/40	380 mm	380 mm	40 mm	10,2 kg	MW 20/30 mm	931 cm²/m	A 15 – E 600	080018/e

Article No. with e = with Easylock, SW = slot width, MW = mesh width
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

Reliable BIRCOsir point drainage at Machnigplatz in Memmingen.

BIRCOsir Rail Track Drainage | Benefits right down the line

BIRCOsir rail track drainage ensures fast, safe drainage of surface water and accumulated rail water for public transport operations and rail track systems used in industry. Smooth operation, traffic safety, and significantly reduced maintenance expenditures, as well as water spray protection for passengers are all guaranteed.

+ A 15 to E 600

For rail track system drainage in the public transport and industrial sectors.

BIRCOsir Rail Track Drainage | Areas of application

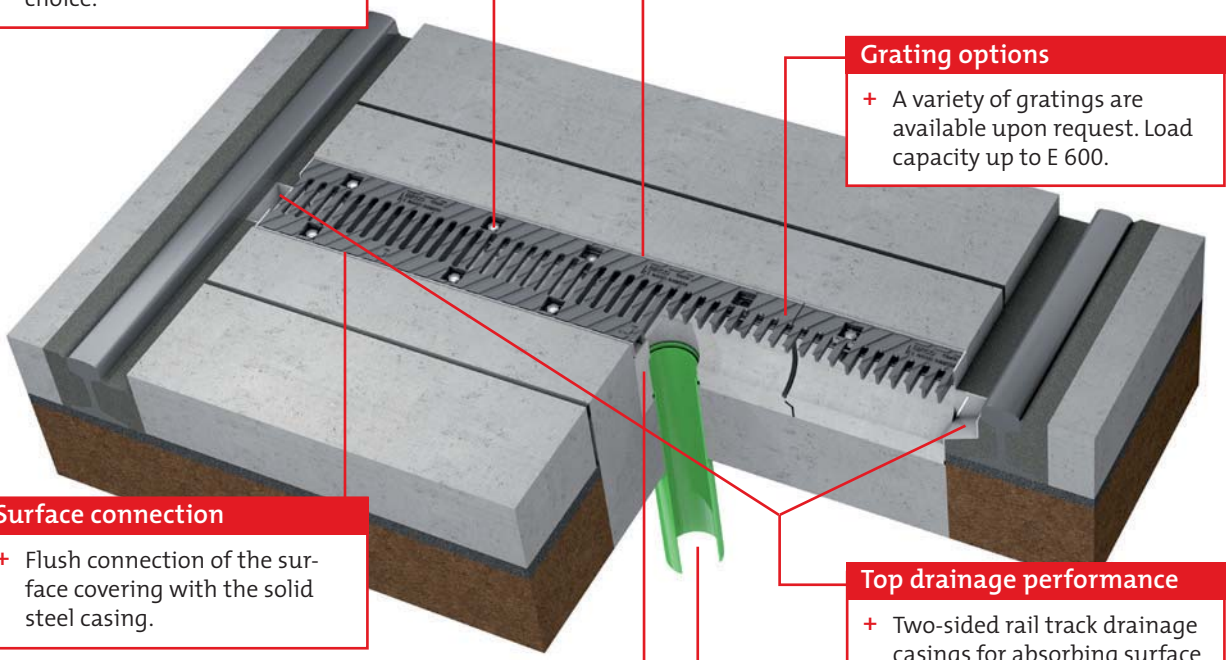
+ Public rail transport
+ Industrial rail track systems
+ Crane rail systems

BIRCOsir Rail Track Drainage | Facts

- \+ Channel system: BIRCOsir NW 100 (other nominal widths available upon request)
- \+ 2 standard models for all common rail gauges and track types
- \+ Two-sided track drainage casings for absorbing water and dirt particles
- \+ Load class: A 15 – E 600
- \+ Integrated channel base sleeve for connection to the DN 100 drainage pipe
- \+ A variety of grating options

BIRCOsir Rail Track Drainage
Benefits right down the line

BIRCOsir rail track drainage ensures the quick collection and drainage of surface water from the areas around rail tracks and platforms.



Traffic safety

+ High level of traffic safety thanks to 8 bolt connections per metre. Connection options: Easylock or bolts by individual choice.

Corrosion protection

+ Stability and corrosion protection: 4 mm solid steel angle with a 70 µm zinc coating, set in concrete.

Grating options

+ A variety of gratings are available upon request. Load capacity up to E 600.

Surface connection

+ Flush connection of the surface covering with the solid steel casing.

Top drainage performance

+ Two-sided rail track drainage casings for absorbing surface water.

Faster, safer installation

+ Outlet integrated into the channel base fitted with a cast-in socket for easy connection to a DN 100 drainage pipe.

Material quality

+ High quality C 40/50 concrete
+ High level of compressive strength and resistance to frost and de-icing salt ensure a long service life and safeguard your investment.

Port of Mannheim Container Terminal

Part of the expansion of the container terminal at the port of Mannheim included connecting the site's industrial rail tracks to an efficient drainage system. A total of 48 BIRCO rail track drainage channels were laid to ensure that the accumulating surface water in the area of the platforms and rails will be drained safely and quickly. The easy handling guaranteed fast, uncomplicated installation of the channels. A line of BIRCOmassiv channels capable of bearing heavy-duty loads runs alongside the tracks.

Benefits across the board

The port Emmelsum is a public industrial port for inland and seagoing vessels of all kinds, located at the mouth of the Lippe River. This port is characterized by its perfect transportation infrastructure and therefore serves as a logistical hub for the European Single Market. For the expansion of the railway tracks, a track drainage system was selected which guarantees fast and reliable diversion of the water that accumulates on the bed and tracks.

BIRCOsir Rail Track Drainage | Drainage system

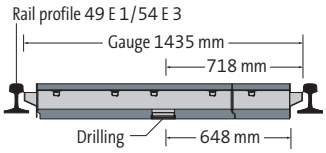
+ The water and dirt particles accumulating in the tracks flow together through openings in the rail profile where they are collected by a special rail track drainage casing and diverted into the drainage channel running at right angles to the section of track. Pipe sockets integrated into the channel base allow easy connection to DN 100 drainage pipes. The 2-piece design makes it easy and fast to lay the system on the building site.

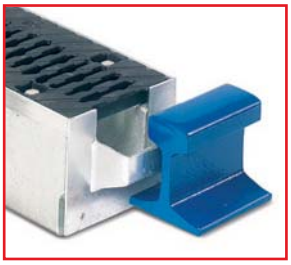
BIRCOsir Rail Track Drainage | NW 100

Benefits right down the line

Rail profile S 49/S 54 – new 49E1/54E3 | Gauge 1435

+ Channel BIRCOsir NW 100, No. 0/0
+ Two-sided rail track drainage casings for collecting surface water
+ Integrated outlet with socket for DN100 pipe connection
+ Black immersion-lacquered cast slotted grating
+ 8 point per metre M 12/A2 bolt connection
+ 2-piece

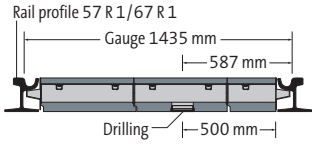


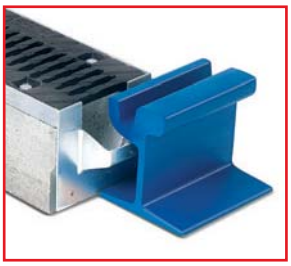


Description	Gauge	Construction height	Weight	Load class DIN EN 1433	Article No.
S 49/S 54 - 49E1/54E3	1435 mm	180 mm	83.0 kg	A15 – E 600	080151

Rail profile Ph 37/Ph 37a – new 57R1/67R1 | Gauge 1435

+ Channel BIRCOsir NW 100, No. 0/0
+ Two-sided rail track drainage casings for absorbing surface water
+ Integrated socket for DN100 pipe connection
+ Black immersion-lacquered cast slotted grating
+ 8 point per metre M 12/A2 bolt connection
+ 3-pieces

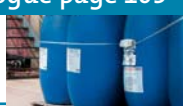




Description	Gauge	Construction height	Weight	Load class DIN EN 1433	Article No.
Ph 37/Ph 37a - 57R1/67R1	1435 mm	180 mm	111.4 kg	A 15 – E 600	080166

BIRCOsir NW 150 mm no. 15/0 on request also available for rail track drainage.
Rail track drainage for gauge 1000 mm available on request.
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOdicht Environment Catalogue page 105
Environmentally friendly rail track drainage.



BIRCOsir | Installation Instructions

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

To guarantee smooth operation and compliance with the requirements of DIN EN 1433, the following general 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 BIRCOsir channels is conducted on an earth-moist C 25/30 strip of foundation concrete at least 15 cm high which must be haunched both sides. No additional concrete surround or reinforcement on the sides is required[(1)]. 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. 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 transverse 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 sealing joint 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”.

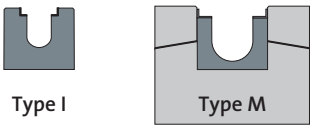
[(1)]Exception:
When using BIRCOsir in heavy-duty areas with frequent traffic, it may be necessary to encase the channel with concrete on the sides to compensate for the high levels of horizontal forces that could potentially emerge.

Fast, safe installation | Efficient time & cost management

+ The one-piece Type M channel unit only needs partial concrete surround, reducing casing and concrete casting work.

Introduction to 2 models

+ **Type I:** Requires no load-bearing foundation and/or no full concrete surround: e.g., BIRCOmassiv.
+ **Type M:** Requires a load-bearing foundation and/or full concrete surround: e.g., BIRCOsir.

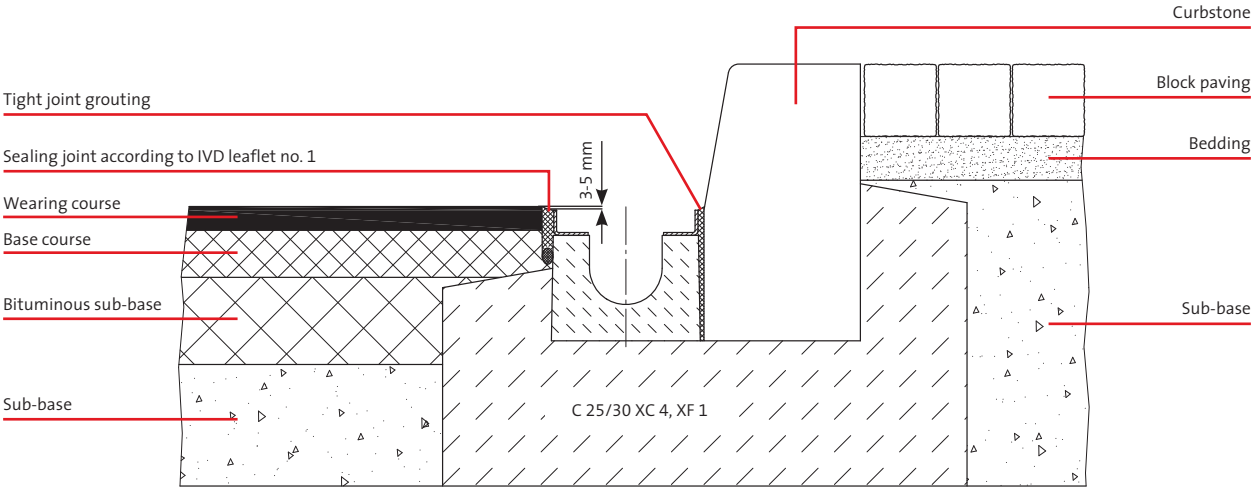


BIRCOsir Installation Examples

Installation instructions for traffic areas with heavy wheel loads.
Urban construction | Industrial construction | Parking lots

BIRCOsir NW 100, Type M, Load Class A 15 – E 600

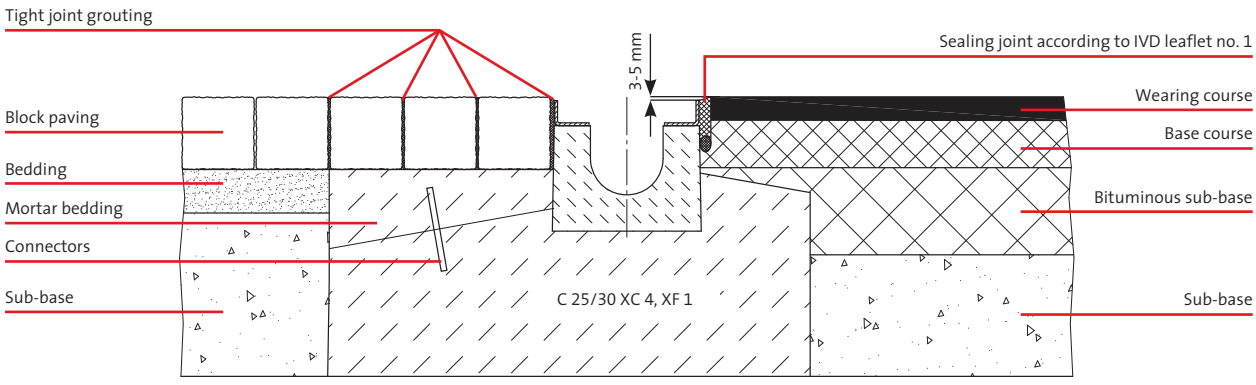
Drawings No. 20724



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOsir NW 100, Type M, Load Class A 15 – E 600

Drawings No. 20724

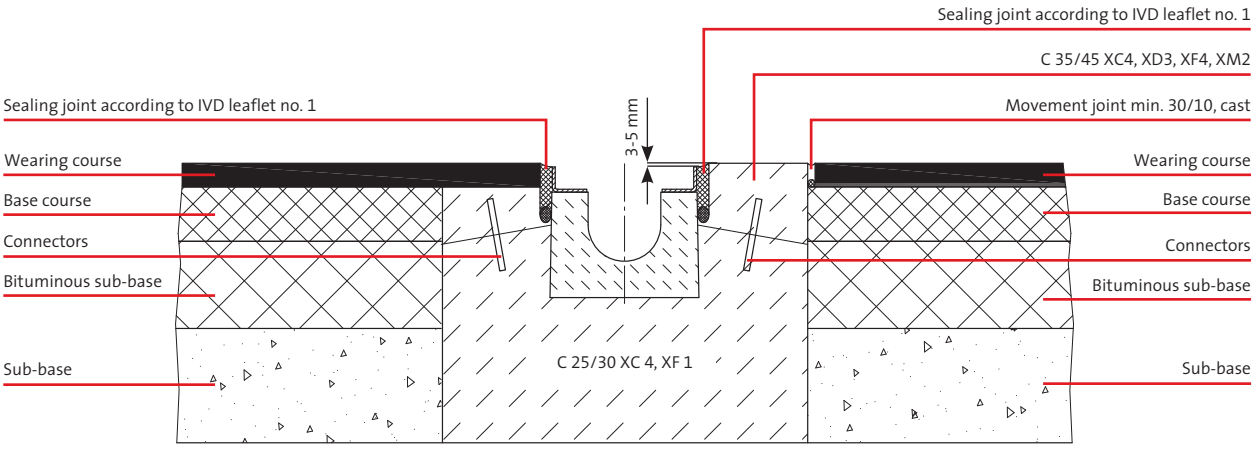


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOsir NW 100, Type M, for heavy-duty areas subjected to frequent use (Load Class D 400 / E 600 / F 900)

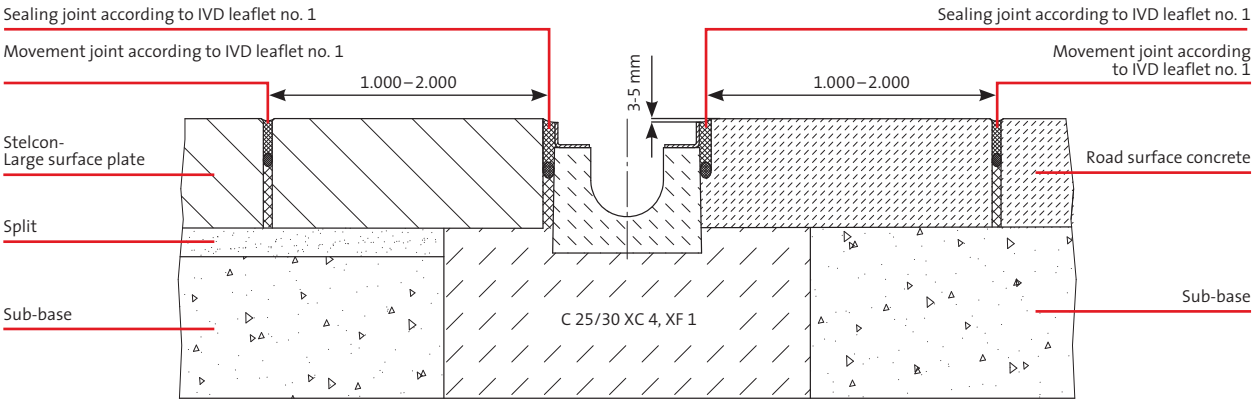
Drawings No. 20724



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOsir NW 100, Type M, for heavy-duty areas subjected to frequent use (Load Class D 400 / E 600 / F 900)

Drawings No. 20724



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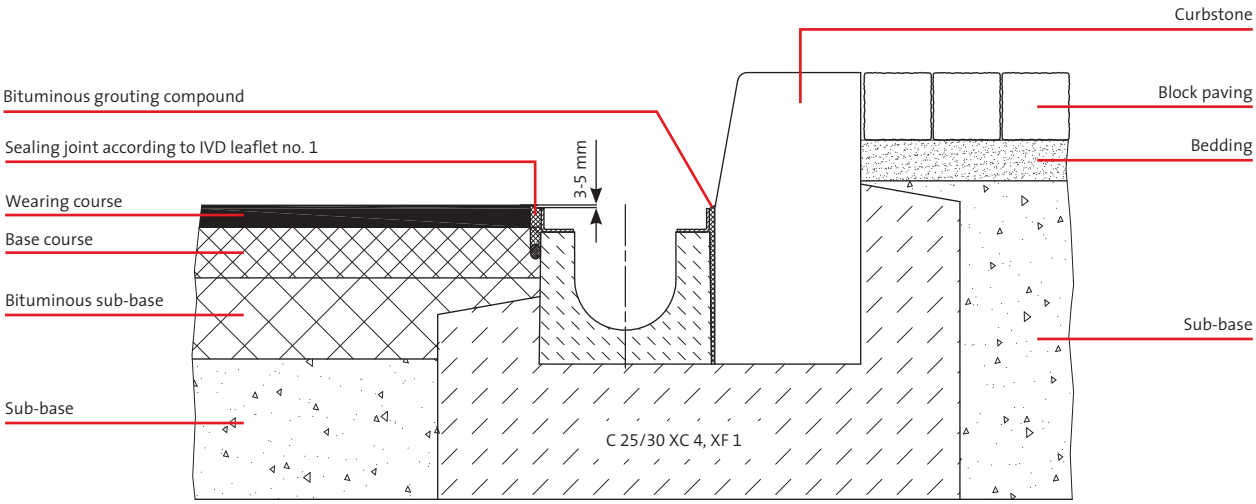
BIRCOsir NW 150, Type M, Load Class A 15 – E 600

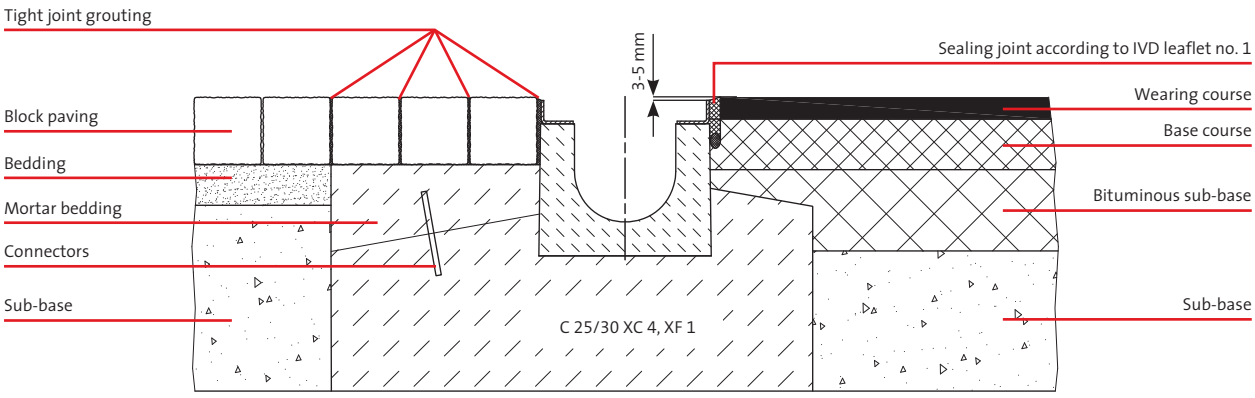
Drawings No. 20723



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOsir NW 150, Type M, Load Class A 15 – E 600

Drawings No. 20723



Construction according to RSTO with non-setting, frost-resistant carrier layers

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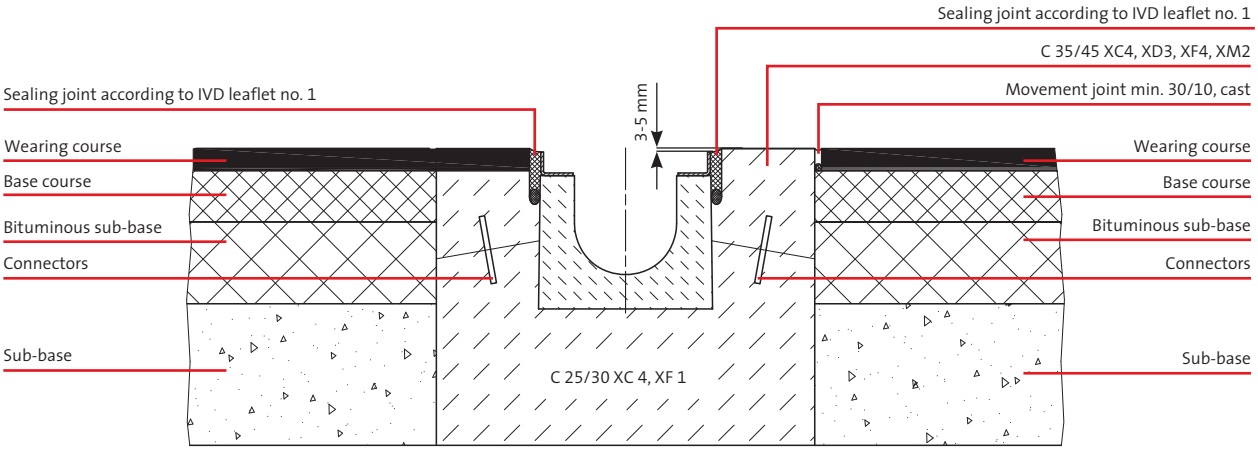
BIRCOsir NW 150, Type M, for heavy-duty areas subjected to frequent use (Load Class D 400 / E 600 / F 900)

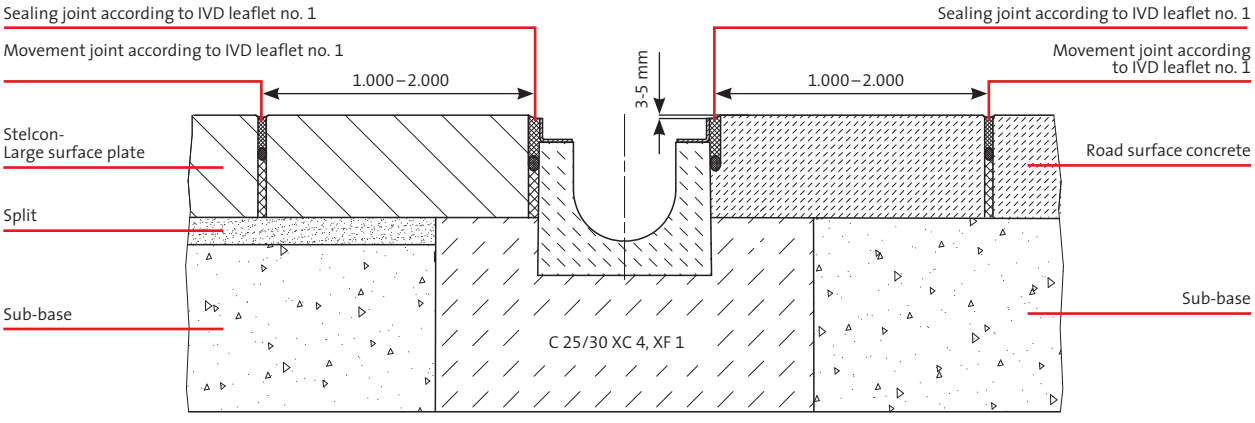
Drawings No. 20723



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOsir NW 150, Type M, for heavy-duty areas subjected to frequent use (Load Class D 400 / E 600 / F 900)

Drawings No. 20723



Construction according to RSTO with non-setting, frost-resistant carrier layers

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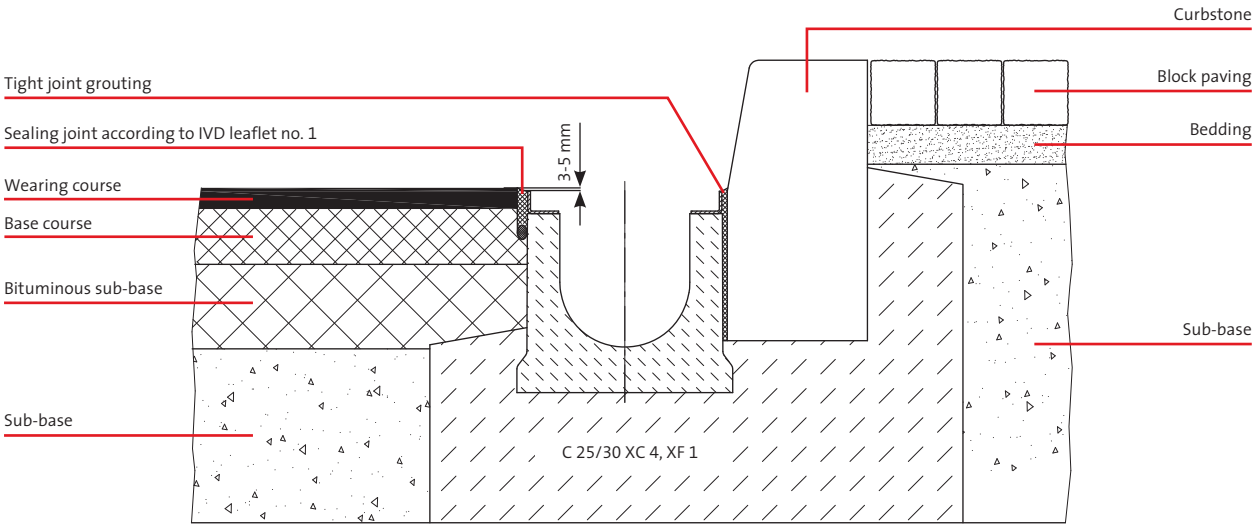
BIRCOsir NW 200 AS, Type M, Load Class A 15 – E 600

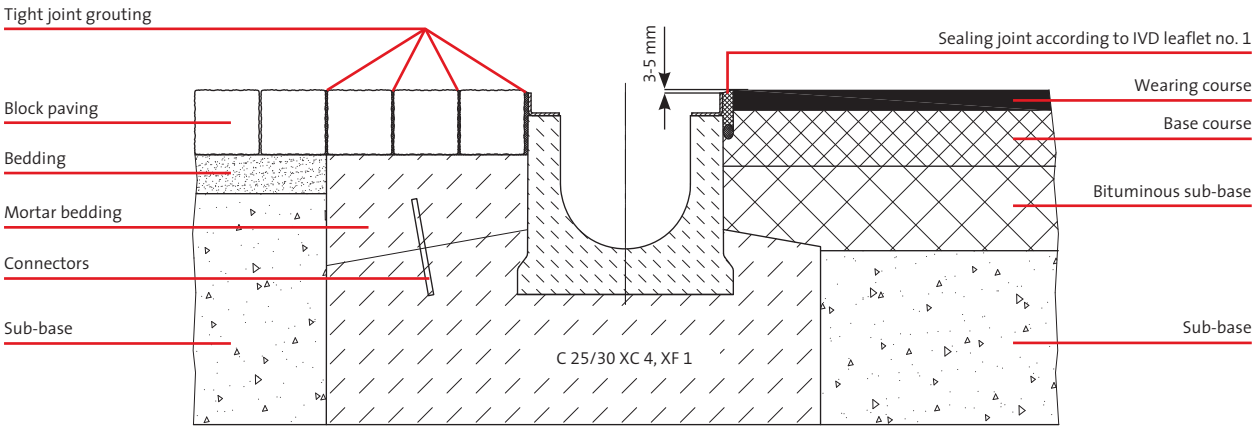
Drawings No. 20710



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOsir NW 200 AS, Type M, Load Class A 15 – E 600

Drawings No. 20710

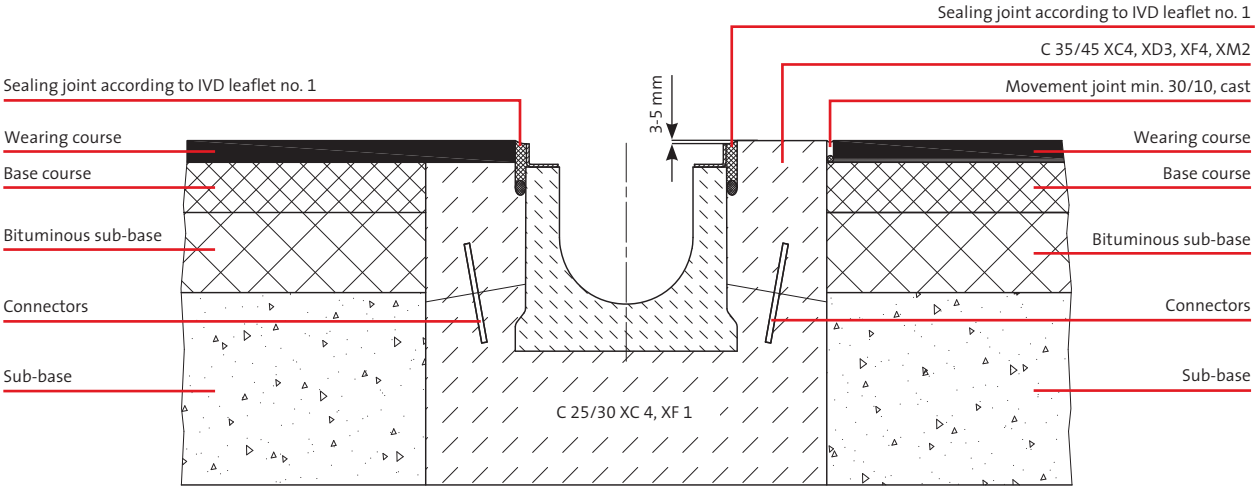


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOsir NW 200 AS, Type M, for heavy-duty areas subjected to frequent use (Load Class D 400 / E 600 / F 900)

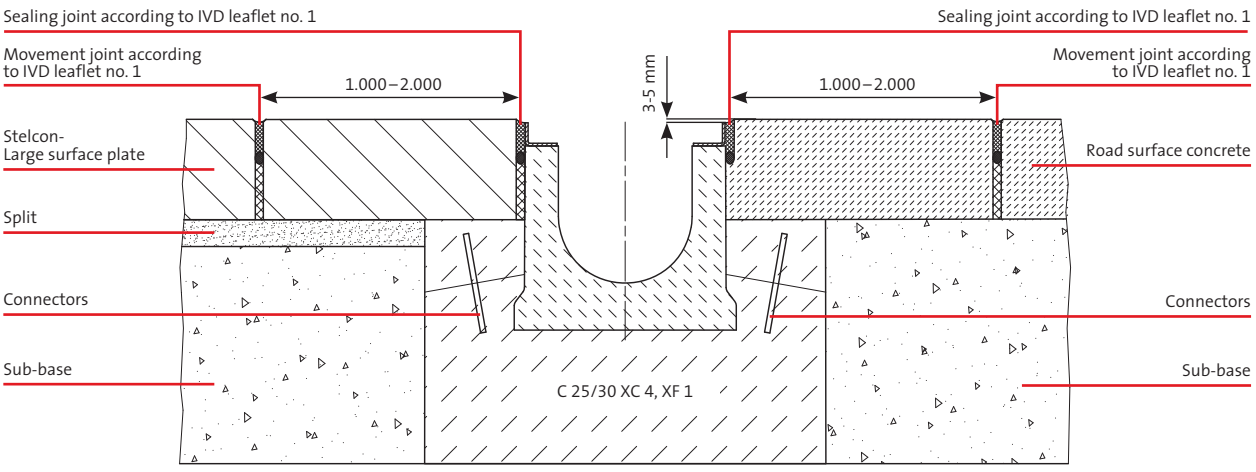
Drawings No. 20710



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOsir NW 200 AS, Type M, for heavy-duty areas subjected to frequent use (Load Class D 400 / E 600 / F 900)

Drawings No. 20710

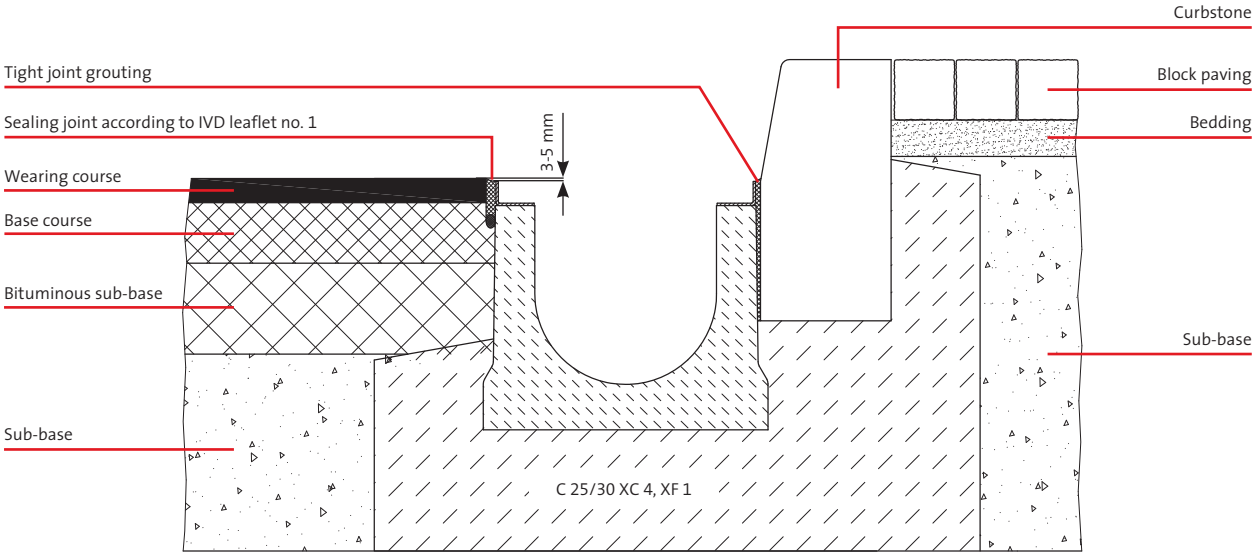


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOsir NW 300 AS, Type M, Load Class A 15 – E 600

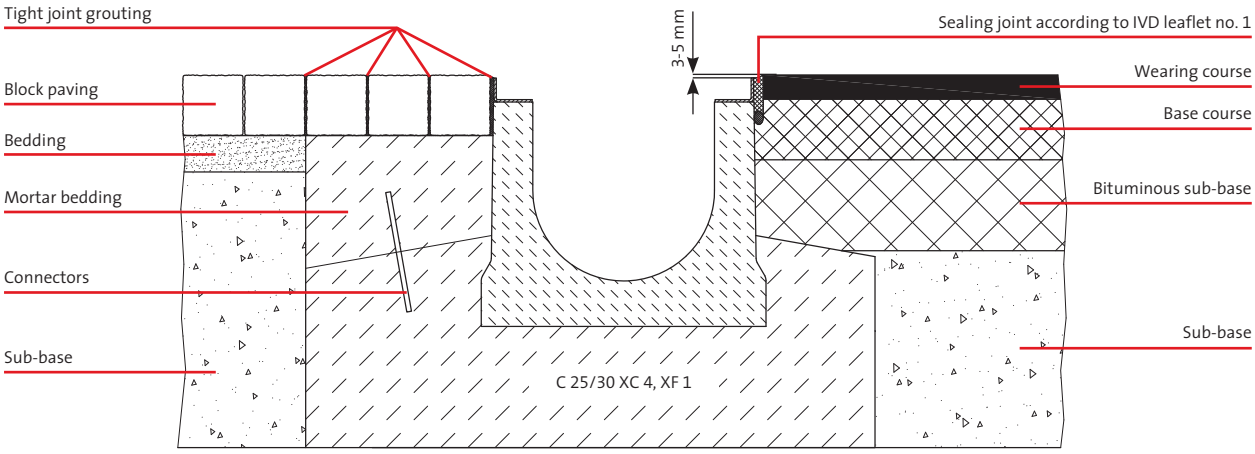
Drawings No. 20512



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOsir NW 300 AS, Type M, Load Class A 15 – E 600

Drawings No. 20512

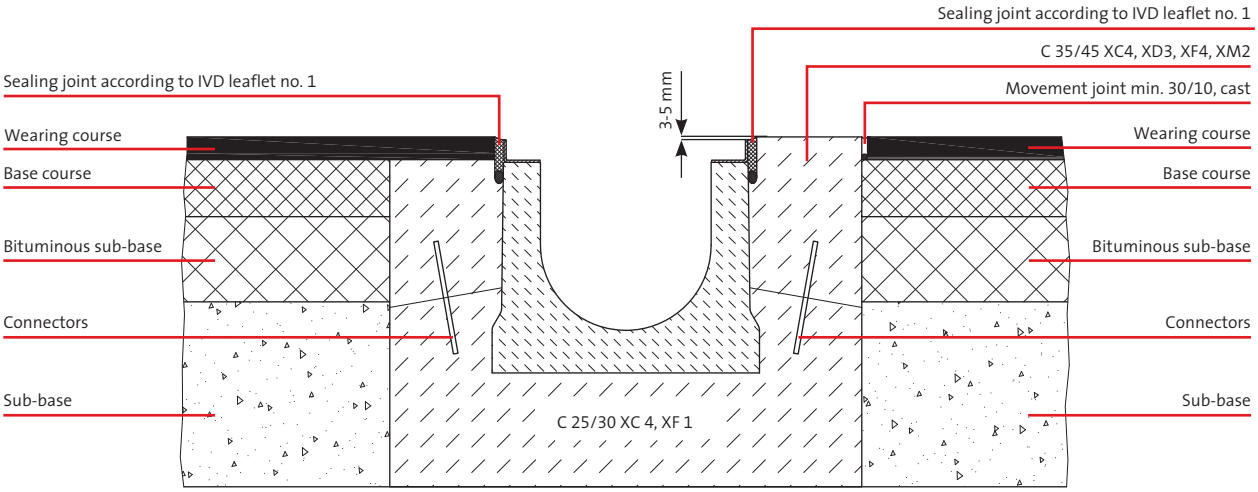


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOsir NW 300 AS, Type M, for heavy-duty areas subjected to frequent use (Load Class D 400 / E 600 / F 900)

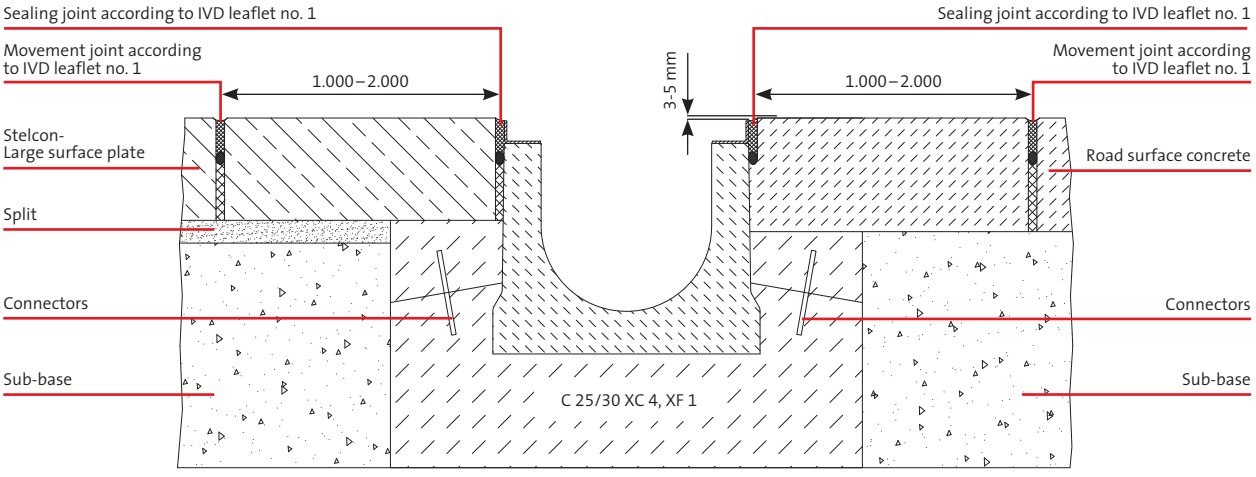
Drawings No. 20512



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOsir NW 300 AS, Type M, for heavy-duty areas subjected to frequent use (Load Class D 400 / E 600 / F 900)

Drawings No. 20512

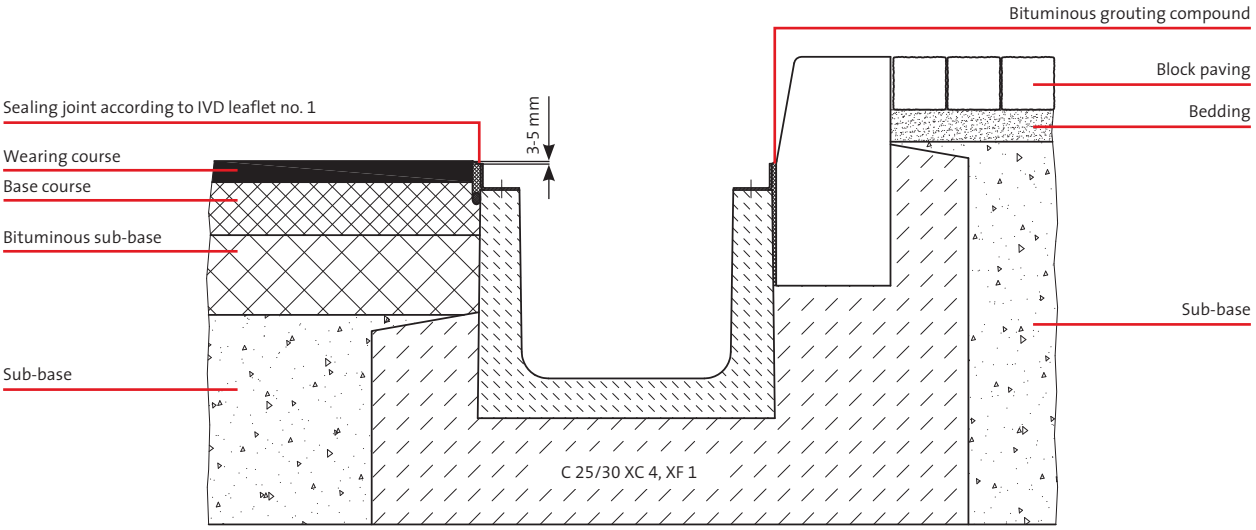


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOsir NW 400, Type M, Load Class A 15 – E 600

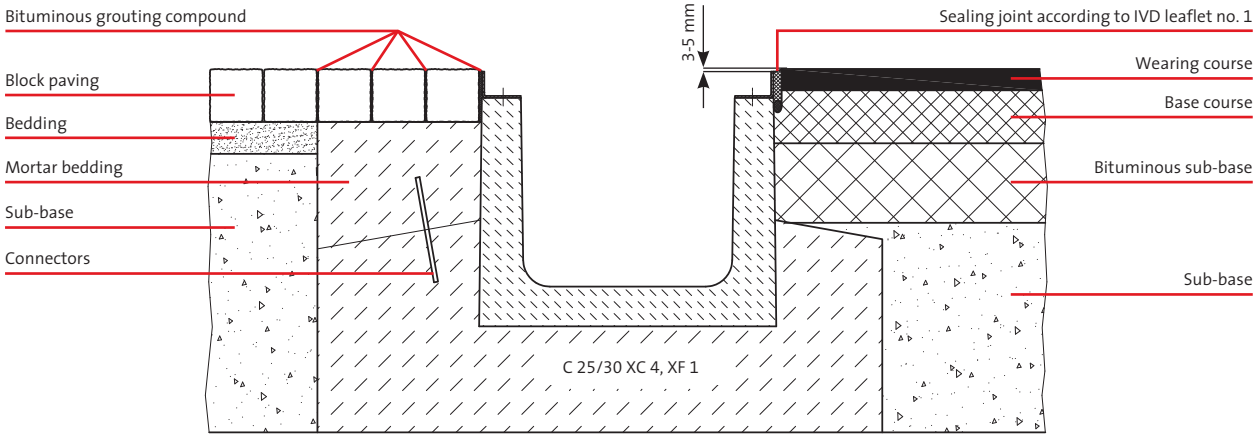
Drawings No. 20257



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOsir NW 400, Type M, Load Class A 15 – E 600

Drawings No. 20257



Construction according to RSTO with non-setting, frost-resistant carrier layers

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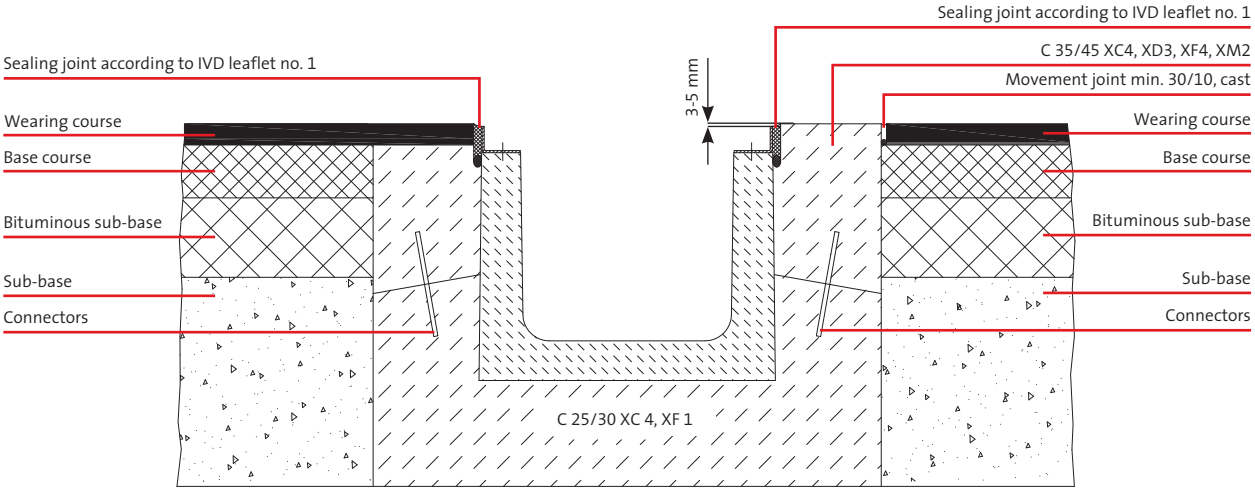
Constructed in accordance with RSTO using non-settling frost-free sub-bases
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOsir NW 400, Type M, for heavy-duty areas subjected to frequent use (Load Class D 400 / E 600 / F 900)

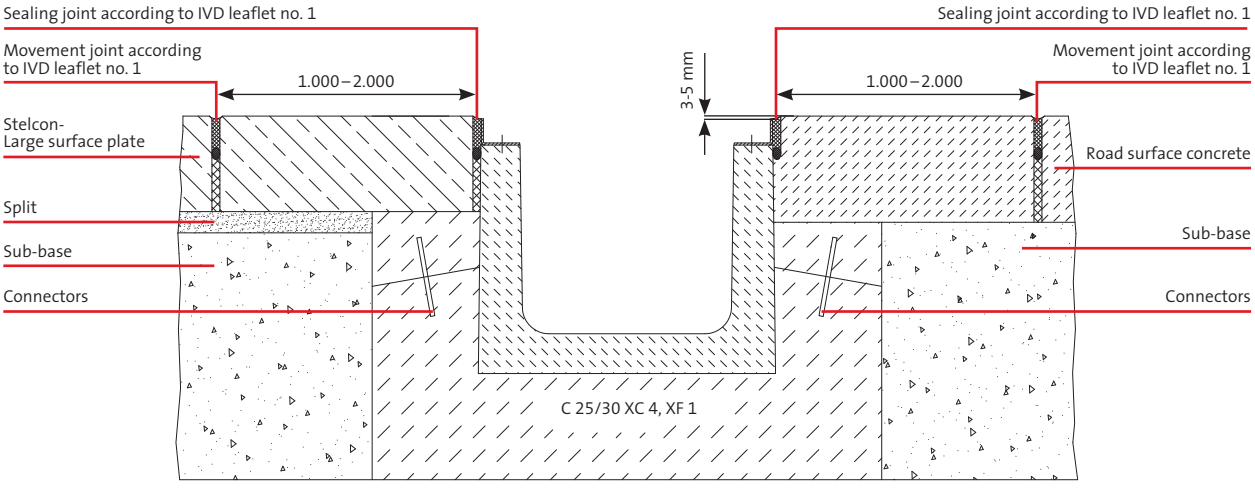
Drawings No. 20257



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOsir NW 400, Type M for heavy-duty areas subjected to frequent use (Load Class D 400 / E 600 / F 900)

Drawings No. 20257



Construction according to RSTO with non-setting, frost-resistant carrier layers

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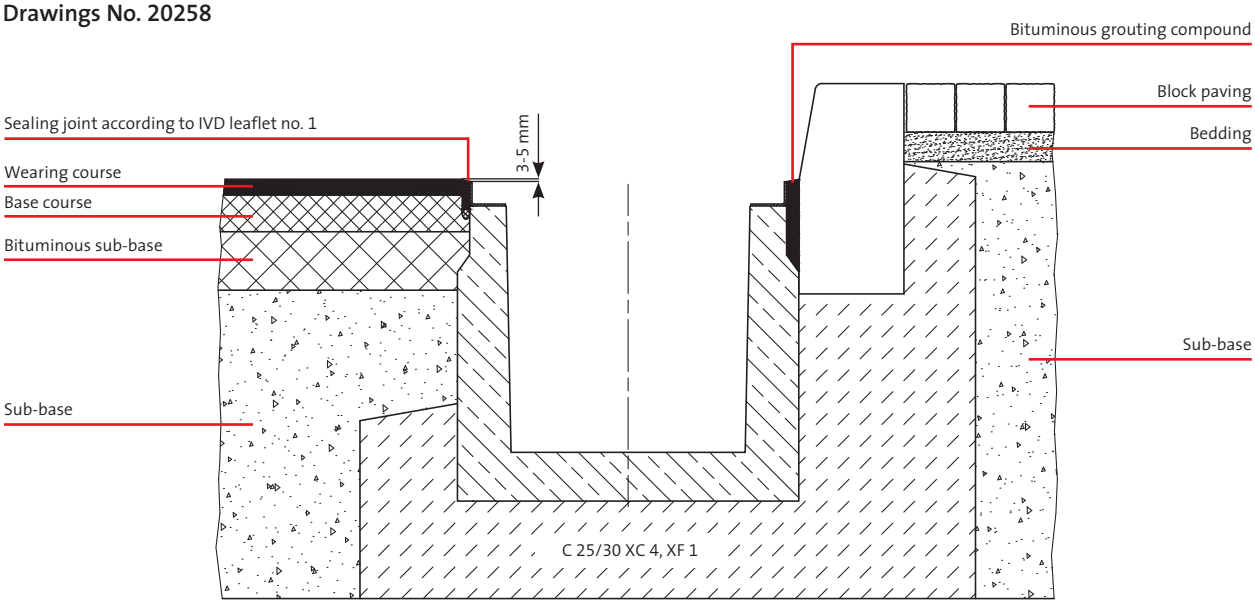
Constructed in accordance with RSTO using non-settling frost-free sub-bases
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOsir NW 500, Type M, Load Class A 15 – E 600

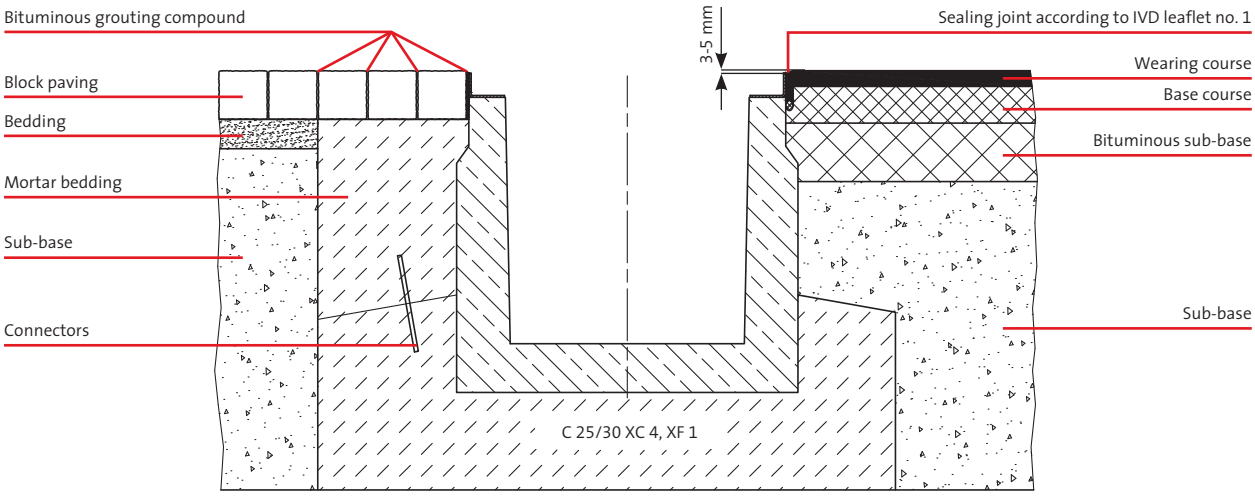
Drawings No. 20258



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOsir NW 500, Type M, Load Class A 15 – E 600

Drawings No. 20258

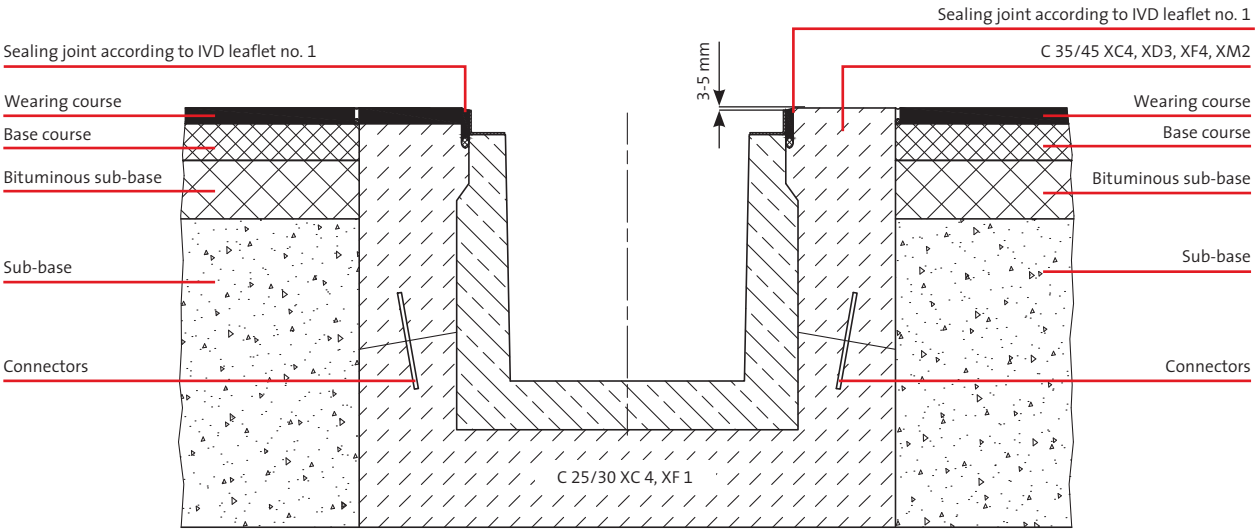


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOsir NW 500, Type M, for heavy-duty areas subjected to frequent use (Load Class D 400 / E 600 / F 900)

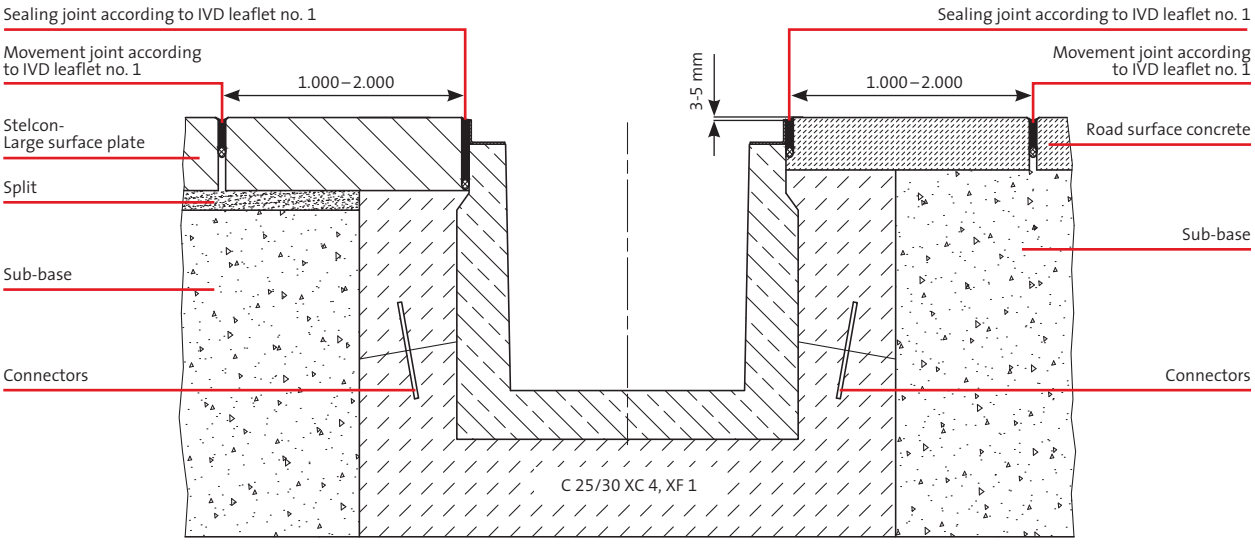
Drawings No. 20258



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOsir NW 500, Type M, for heavy-duty areas subjected to frequent use (Load Class D 400 / E 600 / F 900)

Drawings No. 20258

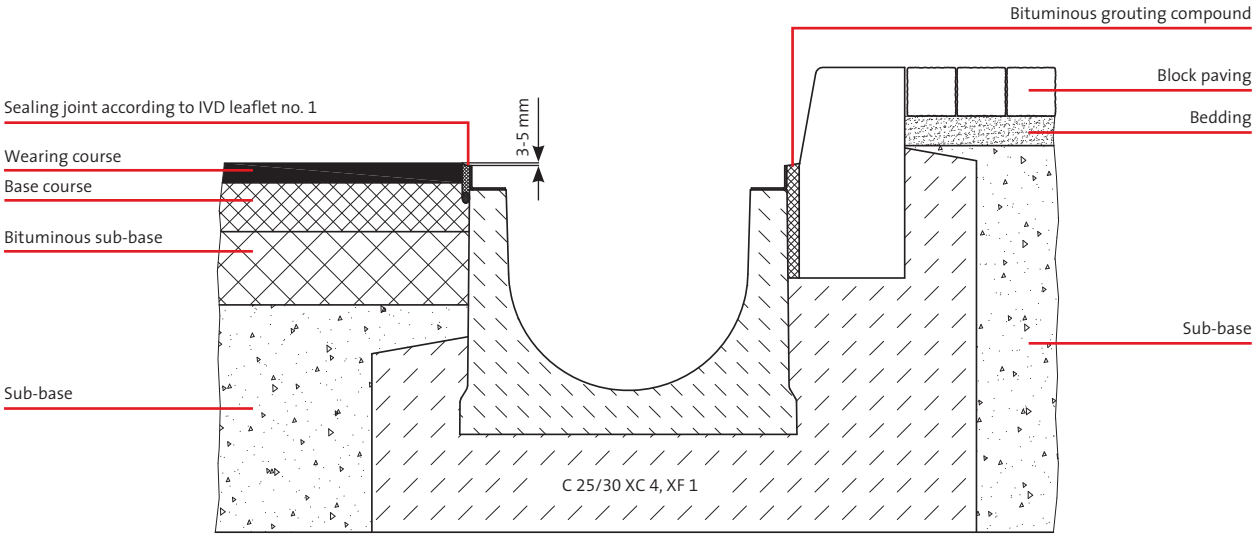


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOsir NW 500 AS, Type M, Load Class A 15 – D 400

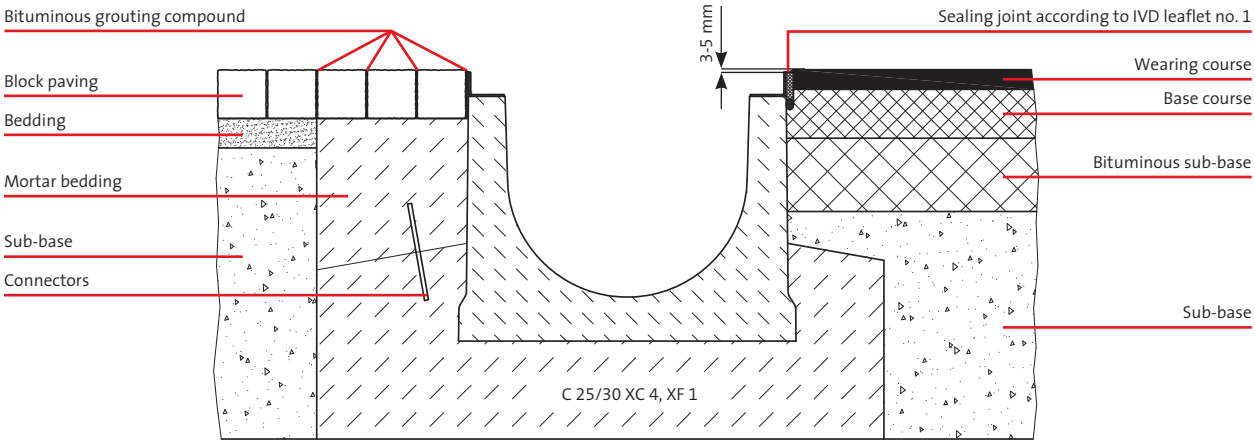
Drawings No. 20285



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOsir NW 500 AS, Type M, Load Class A 15 – D 400

Drawings No. 20285

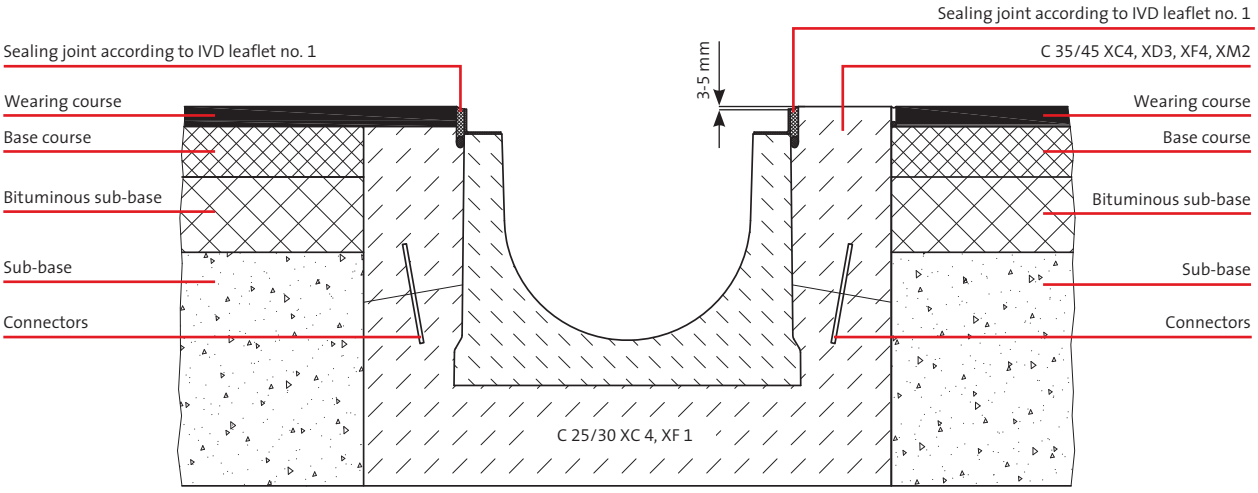


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOsir NW 500 AS, Type M, for heavy-duty areas subjected to frequent use (Load Class E 600 / F 900)

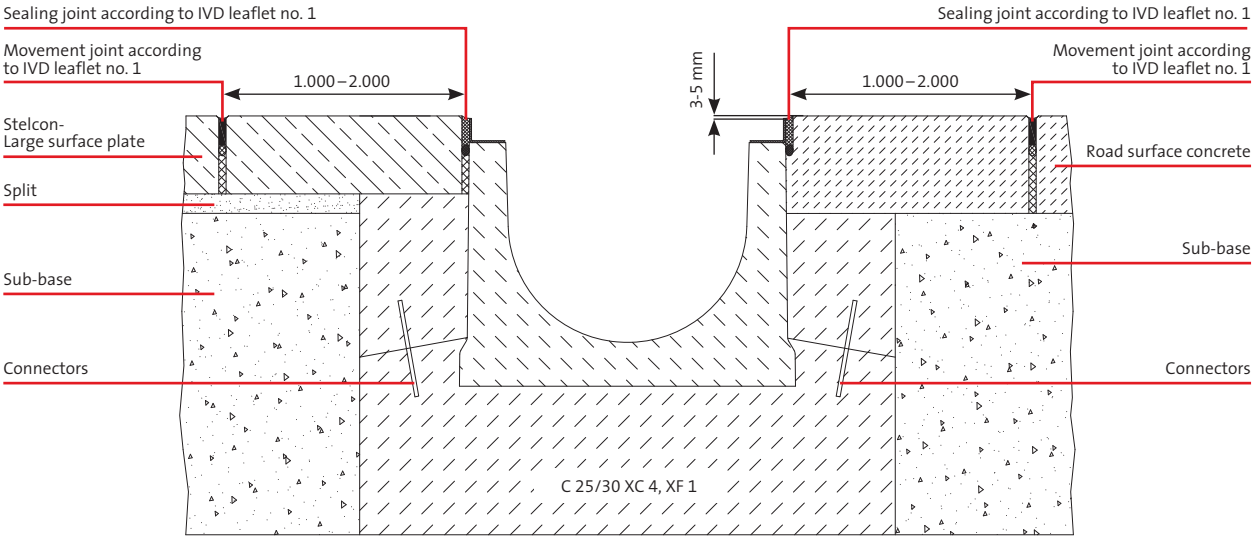
Drawings No. 20285



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOsir NW 500 AS, Type M, for heavy-duty areas subjected to frequent use (Load Class E 600 / F 900)

Drawings No. 20285

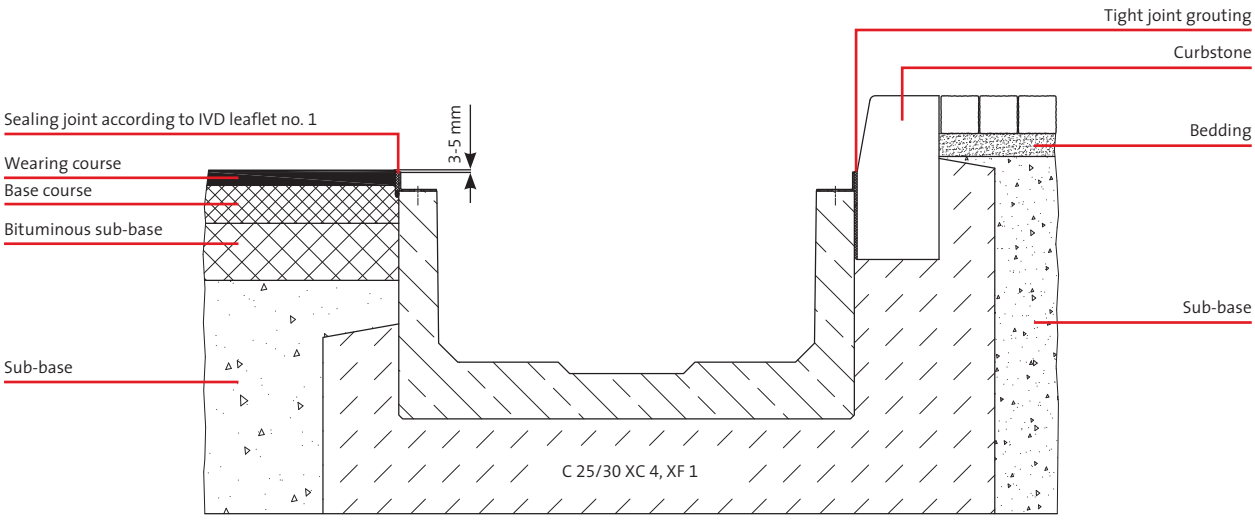


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOsir NW 1000, Type M, Load Class A 15 – D 400

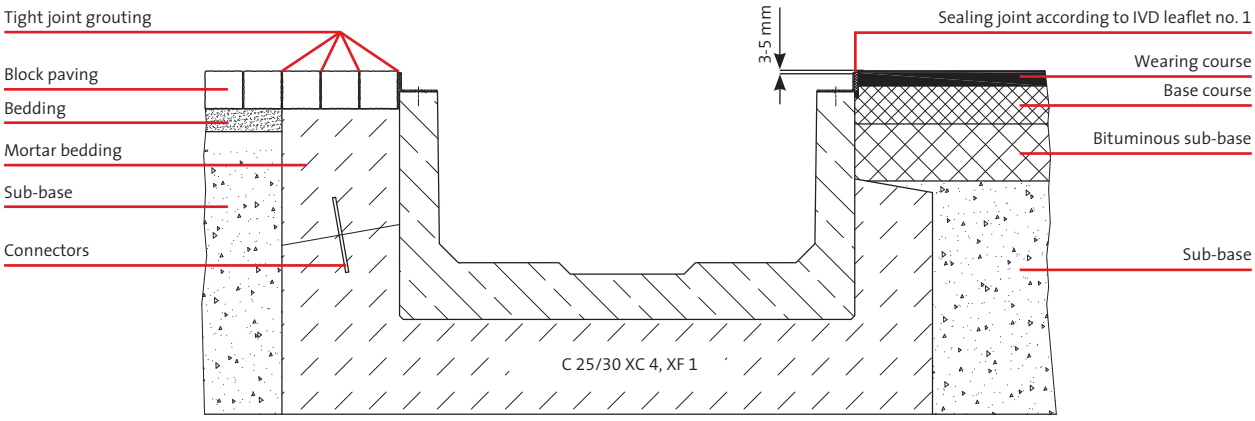
Drawings No. 20254



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOsir NW 1000, Type M, Load Class A 15 – D 400

Drawings No. 20254

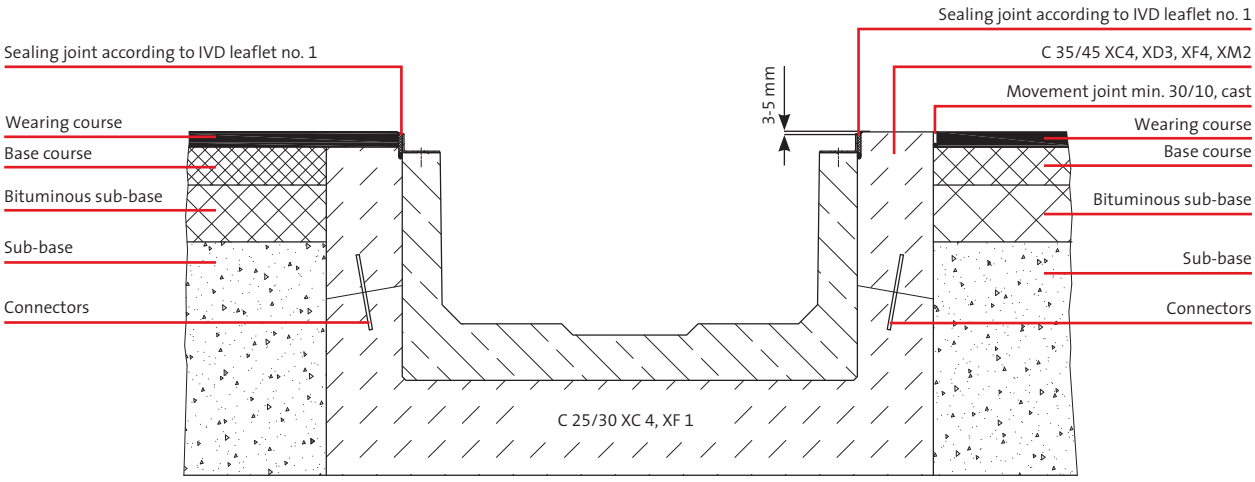


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOsir NW 1000, Type M, for heavy-duty areas subjected to frequent use (Load Class D 400)

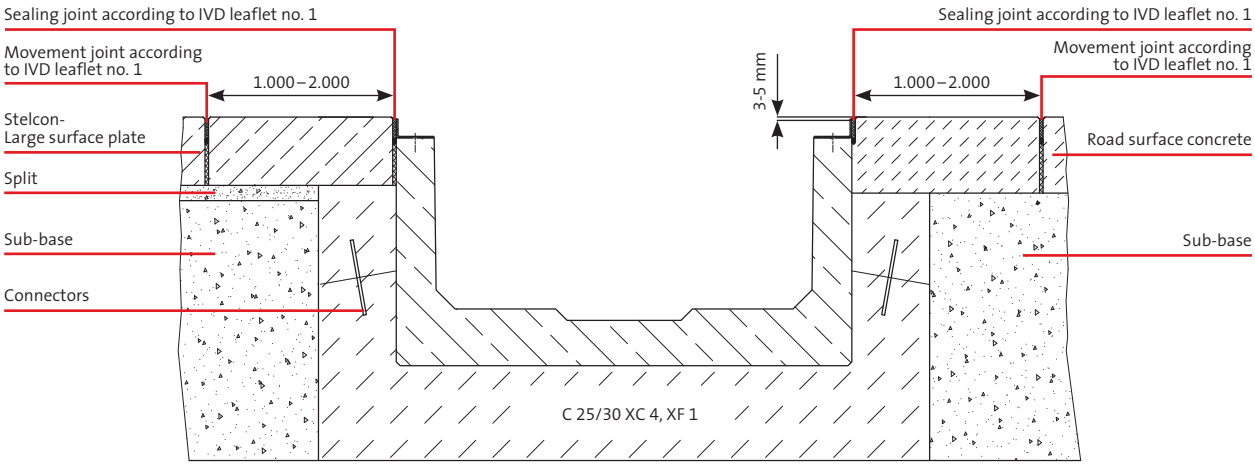
Drawings No. 20254



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOsir NW 1000, Type M, for heavy-duty areas subjected to frequent use (Load Class D 400)

Drawings No. 20254



Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

When pavement surfaces are being laid and pressed, it must be ensured that the pavement material is not forced against the channels. The dimensions of the concrete surround must be adapted to the circumstances on-site and must consist of at least 15 cm. If no bond can be created between the base and the surround, then dowel bars or flotation control made of Ø 8 mm reinforced bars are to be installed every 30 cm. 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.

Bolt connection note:
For heavy-duty load areas subjected to frequent traffic and in vehicle monoevering areas, we recommend using threaded bolts instead of fast connection systems (such as Easylock). Torque moments for screw fastening the gratings are to be set at M12 = 60 Nm, M16 = 100 Nm.
The bolts must be re-tightened at regular intervals.

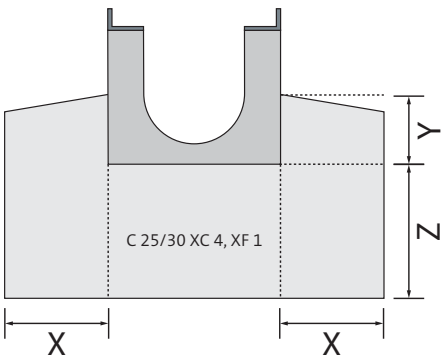
BIRCOsir concrete surround overview

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

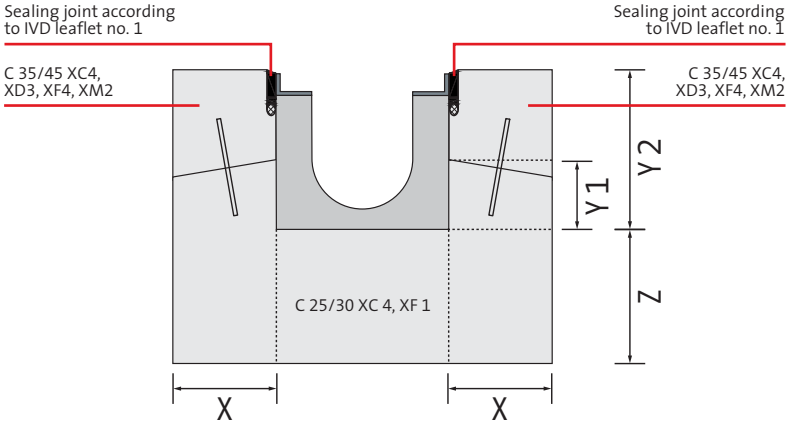
BIRCOsir

NW	Type	Load class	X	Y/Y 1	Y 2	Z	Drawing No.	Page
BIRCOsir 100	M	A 15 – E 600	≥ 150	≥ 100	–	≥ 200	20724	58
BIRCOsir 100	M	D 400 – F 900	≥ 150	≥ 100	Construction height + 5 mm	≥ 200	20724	59
BIRCOsir 150	M	A 15 – E 600	≥ 150	≥ 100	–	≥ 200	20723	60
BIRCOsir 150	M	D 400 – F 900	≥ 150	≥ 100	Construction height + 5 mm	≥ 200	20723	61
BIRCOsir 200 AS	M	A 15 – E 600	≥ 150	≥ 100	–	≥ 200	20710	62
BIRCOsir 200 AS	M	D 400 – F 900	≥ 150	≥ 100	Construction height + 5 mm	≥ 200	20710	63
BIRCOsir 300 AS	M	A 15 – E 600	≥ 200	≥ 100	–	≥ 200	20512	64
BIRCOsir 300 AS	M	D 400 – F 900	≥ 200	≥ 100	Construction height + 5 mm	≥ 200	20512	65
BIRCOsir 400	M	A 15 – E 600	≥ 200	≥ 200	–	≥ 200	20257	66
BIRCOsir 400	M	D 400 – F 900	≥ 200	≥ 200	Construction height + 5 mm	≥ 200	20257	67
BIRCOsir 500	M	A 15 – E 600	≥ 200	≥ 200	–	≥ 200	20258	68
BIRCOsir 500	M	D 400 – F 900	≥ 200	≥ 200	Construction height + 5 mm	≥ 200	20258	69
BIRCOsir 500 AS	M	A 15 – E 600	≥ 200	≥ 200	–	≥ 200	20285	70
BIRCOsir 500 AS	M	D 400 – F 900	≥ 200	≥ 200	Construction height + 5 mm	≥ 200	20285	71
BIRCOsir 1000	M	A 15 – E 600	≥ 200	≥ 250	–	≥ 250	20254	72
BIRCOsir 1000	M	D 400 – F 900	≥ 200	≥ 250	Construction height + 5 mm	≥ 250	20254	73

Installation without concrete surround



Installation with concrete surround



BIRCOsir Drainage Capacities

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

BIRCOsir NW 100

CL = 1000 mm	Drainage capacity at the channel end	Cross-sectional area at the channel end
Nr. 0/0	4,94 l/sec	89,0 cm²
No. 1	8,25 l/sec	99,0 cm²
No. 2	9,08 l/sec	109,0 cm²
No. 3	9,92 l/sec	119,0 cm²
No. 4	10,75 l/sec	129,0 cm²
No. 5	11,58 l/sec	139,0 cm²
No. 5/0	7,72 l/sec	139,0 cm²
No. 6	12,42 l/sec	149,0 cm²
No. 7	13,25 l/sec	159,0 cm²
No. 8	14,08 l/sec	169,0 cm²
No. 9	14,92 l/sec	179,0 cm²
No. 10	15,75 l/sec	189,0 cm²
No. 10/0	10,50 l/sec	189,0 cm²
No. 11	16,58 l/sec	199,0 cm²
No. 12	17,42 l/sec	209,0 cm²
No. 13	18,25 l/sec	219,0 cm²
No. 14	19,08 l/sec	229,0 cm²
No. 15	19,92 l/sec	239,0 cm²
No. 15/0	13,30 l/sec	239,0 cm²

BIRCOsir NW 150

CL = 1000 mm	Drainage capacity at the channel end	Cross-sectional area at the channel end
No. 0/0	11,17 l/sec	201,0 cm²
No. 1	12,29 l/sec	208,5 cm²
No. 2	12,73 l/sec	216,0 cm²
No. 3	13,17 l/sec	223,5 cm²
No. 4	13,61 l/sec	231,0 cm²
No. 5	14,05 l/sec	238,5 cm²
No. 5/0	13,25 l/sec	238,5 cm²
No. 6	14,50 l/sec	246,0 cm²
No. 7	14,94 l/sec	253,5 cm²
No. 8	15,38 l/sec	261,0 cm²
No. 9	15,82 l/sec	268,5 cm²
No. 10	16,26 l/sec	276,0 cm²
No. 10/0	15,33 l/sec	276,0 cm²
No. 11	16,71 l/sec	283,5 cm²
No. 12	17,15 l/sec	291,0 cm²
No. 13	17,59 l/sec	298,5 cm²
No. 14	18,03 l/sec	306,0 cm²
No. 15	18,47 l/sec	313,5 cm²
No. 15/0	17,42 l/sec	313,5 cm²
No. 16	18,92 l/sec	321,0 cm²
No. 17	19,36 l/sec	328,5 cm²
No. 18	19,80 l/sec	336,0 cm²
No. 19	20,24 l/sec	343,5 cm²
No. 20	20,68 l/sec	351,0 cm²

The tables can only give guidelines for the dimensioning. On-site conditions such as positions of manholes already installed, number of channel lines etc. cannot and have not been taken into account. We therefore recommend making use of our hydraulic calculation service which provides you with a draft proposal.

BIRCOsir NW 200 AS

CL = 1000 mm	Drainage capacity at the channel end	Cross-sectional area at the channel end
No. 0/0	20,89 l/sec	367,0 cm²
No. 1	22,75 l/sec	386,0 cm²
No. 2	23,33 l/sec	396,0 cm²
No. 3	23,92 l/sec	406,0 cm²
No. 4	24,51 l/sec	416,0 cm²
No. 5	25,10 l/sec	426,0 cm²
No. 5/0	23,67 l/sec	426,0 cm²
No. 6	25,69 l/sec	436,0 cm²
No. 7	26,28 l/sec	446,0 cm²
No. 8	26,87 l/sec	456,0 cm²
No. 9	27,46 l/sec	466,0 cm²
No. 10	28,05 l/sec	476,0 cm²
No. 10/0	24,44 l/sec	476,0 cm²
No. 20/0	32,00 l/sec	576,0 cm²

BIRCOsir NW 300 AS

	Drainage capacity at the channel end	Cross-sectional area at the channel end
No. 1/2	82,1 l/sec	758,4 cm²
No. 3/4	86,1 l/sec	788,4 cm²
No. 5/6	90,0 l/sec	818,4 cm²
No. 7/8	94,0 l/sec	848,4 cm²
No. 9/10	98,0 l/sec	878,4 cm²
No. 11/12	102,0 l/sec	908,4 cm²
No. 13/14	106,0 l/sec	938,4 cm²
No. 15/16	110,0 l/sec	968,4 cm²
No. 17/18	114,0 l/sec	998,4 cm²
No. 19/20	118,0 l/sec	1028,4 cm²
No. 21/22	122,1 l/sec	1058,4 cm²
No. 23/24	126,1 l/sec	1088,4 cm²
No. 25/26	130,1 l/sec	1118,4 cm²
No. 27/28	134,2 l/sec	1148,4 cm²
No. 1	80,2 l/sec	743,4 cm²
No. 2	82,1 l/sec	758,4 cm²
No. 3	84,1 l/sec	773,4 cm²
No. 4	86,1 l/sec	788,4 cm²
No. 5	88,0 l/sec	803,4 cm²
No. 6	90,0 l/sec	818,4 cm²
No. 7	92,0 l/sec	833,4 cm²
No. 8	94,0 l/sec	848,4 cm²
No. 9	96,0 l/sec	863,4 cm²
No. 10	98,0 l/sec	878,4 cm²
No. 11	100,0 l/sec	893,4 cm²
No. 12	102,0 l/sec	908,4 cm²
No. 13	104,0 l/sec	923,4 cm²
No. 14	106,0 l/sec	938,4 cm²
No. 15	108,0 l/sec	953,4 cm²
No. 16	110,0 l/sec	968,4 cm²
No. 17	112,0 l/sec	983,4 cm²
No. 18	114,0 l/sec	998,4 cm²
No. 19	116,0 l/sec	1013,4 cm²
No. 20	118,0 l/sec	1028,4 cm²
No. 21	120,0 l/sec	1043,4 cm²
No. 22	122,1 l/sec	1058,4 cm²
No. 23	124,1 l/sec	1073,4 cm²
No. 24	126,1 l/sec	1088,4 cm²
No. 25	128,1 l/sec	1103,4 cm²
No. 26	130,1 l/sec	1118,4 cm²
No. 27	132,2 l/sec	1133,4 cm²
No. 28	134,2 l/sec	1148,4 cm²

BIRCOsir NW 400

	Drainage capacity at the channel end	Cross-sectional area at the channel end
No. 0/0	74,91 l/sec	1348,0 cm²

BIRCOsir NW 500 AS

	Drainage capacity at the channel end	Cross-sectional area at the channel end
No. 0/0	137,5 l/sec	2475,95 cm²

BIRCOsir NW 500

	Drainage capacity at the channel end	Cross-sectional area at the channel end
No. 0/0	133,3 l/sec	2400,0 cm²

BIRCOsir NW 1000

	Drainage capacity at the channel end	Cross-sectional area at the channel end
No. 0/0	252,8 l/sec	4550,0 cm²

Hole drilling horizontal and vertical

We can fit BIRCOsir 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, ranging from DN 100 to DN 300. The diameters are matched with channel base pipes; different pipes are available upon request. BIRCO also supplies ready-made pipe connections and silt buckets with vertical drilling upon request.

BIRCOsir | Maximum bore hole diameter

NW	Bore hole, horizontal maximal	Bore hole, vertical maximal
100 mm	DN 150	DN 100
150 mm	DN 200	DN 150
200 mm	DN 250	DN 200
300 mm	DN 300	DN 300
400 mm	DN 300	DN 300
500 mm	DN 300	DN 300
1000 mm	DN 300	DN 300

BIRCOservice Page 107

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

BIRCOmassiv
Designed for Maximum Loads

BIRCOmassiv's monolithic reinforced concrete channel body can bear the largest loads, while its integrated surface protection provides absolute traffic safety. Installation efficiency and the elimination of the need for an on-site full concrete surround also make BIRCOmassiv a heavy-duty sector investment you can rely on.

+ A 15 to F 900

For drainage of areas subjected to high levels of dynamic horizontal forces and high traffic heavy-duty transport areas.

BIRCOmassiv | Areas of application

+ Industrial areas, airports, ports
+ Container hubs
+ Logistics and freight company premises
+ Agricultural operations and builder's yards
+ Entrance and exit areas exposed to heavy traffic

BIRCOmassiv | Facts

- Channel system: NW 150 and 200, with and without internal inbuilt fall
- With hot-dipped galvanised surface protection
- Construction lengths: 1.0, 2.0 metres
- Load class: A 15 – F 900
- Outfall units available in all nominal widths also with surface protection
- Grating product range up to Class F 900

BIRCOmassiv

Designed for Maximum Loads

The reinforced concrete channel BIRCOmassiv is the first choice wherever high levels of dynamic horizontal forces are found.

Traffic safety

+ High level of traffic safety thanks to the 4 or 8 bolt connections per metre.
+ Displacement guard.

Fast, safe installation

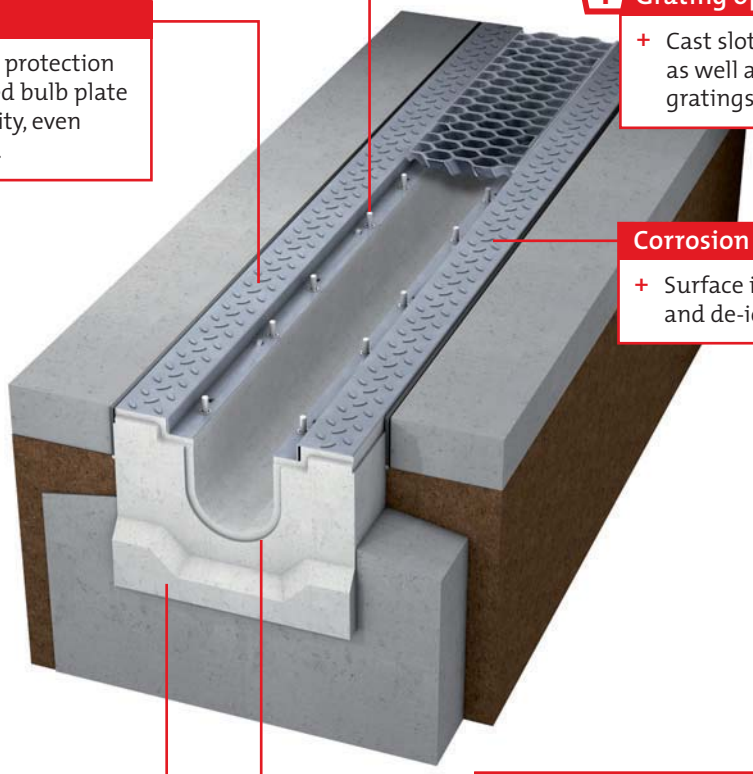
+ 2 metre long channels make channel laying faster with fewer joints.
+ Type I in accordance with DIN EN 1433, without full on-site concrete surround.

Surface protection

+ One-piece surface protection made of galvanised bulb plate ensures top stability, even under point loads.

Grating options

+ Cast slotted or mesh gratings as well as galvanised steel gratings.



Corrosion protection

+ Surface is resistant to frost and de-icing salt.

Monolithic construction

+ Monolithic channel body.
+ The connection between the surface pavement and the channel panel is flush.

DIN EN 1433

+ Safety seam on the channel joint (can be grouted with BIRCO SF-Connect sealant).

Infraserv Höchst Gruppe, Frankfurt – maximum load

The southwest entrance area of the Infraserv Höchst company grounds is one of the busiest transhipment centres in the industrial site of Frankfurt. Extreme horizontal loads, high dynamic forces, and point loads with peak values at times are the challenges that the drainage line running horizontal to the entranceway must meet. The reinforced concrete channel BIRCOmassiv was the first choice of builders and planners for this project.

TNT, Hamburg – Truck loading yard

The drainage line in the yard of this shipping company had to be installed parallel to the loading ramp. That means that high dynamic forces act on the system tray and cover on a daily basis, especially when trucks have to turn on the channel. In addition, maximum point loads are exerted by the adjustable feet of the containers. BIRCOmassiv, as a type I channel, masters these challenges without the need for an additional load-bearing concrete casing.

Knoll, Bad Saulgau – Reinforcement for new construction

During the construction of the shipping yard in 2012, the company Knoll reinforced not only their transport potential, but also the drainage performance and safety of the approach and exit routes. The 100 metres of BIRCOmassiv in the nominal width of 150 mm guarantee absolute positional stability and reliable hydraulic performance in the manoeuvring and loading area. Even under peak loads.

BIRCOmassiv | Reduction of concrete work

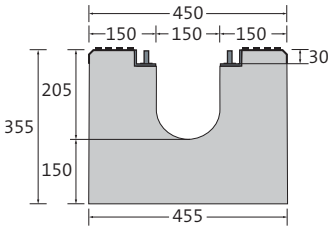
+ As a monolithic component part, BIRCOmassiv is categorised as what is known as a Type I channel. This means that load bearing foundations or full concrete is not necessary at the building site. This reduces complex, expensive casing surround work and significantly speeds up the pace at which BIRCOmassiv can be laid.

BIRCOmassiv | NW 150

Designed for maximum loads

Channel elements | without internal inbuilt fall | with one-piece hot-dipped galvanised surface protection

+ Safety sealing joint
+ With 8-point per metre slide protection of the grating
+ On demand with internal inbuild fall



Description	Length	Width at top/ at ground	Construction height at groove/tongue	Weight	Load class DIN EN 1433	Article No.
Channel No. 0/0	1000 mm	450/455 mm	355/355 mm	314.0 kg	A 15 – F 900	016115
Channel No. 0/0	2000 mm	450/455 mm	355/355 mm	628.0 kg	A 15 – F 900	016117

End caps

Description	Width	For construction height	Weight	Article No.
End cap, galvanised	455 mm	355 mm	2.0 kg	016140
End cap with outlet DN 150, galvanised	455 mm	355 mm	2.2 kg	016145

Exception up to D 400: Not for use across the carriage- way of highways or motorways.

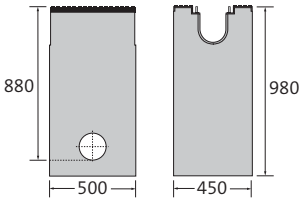
Ring nut M 12 | to fit on stud bolt

+ For installation of concrete channels BIRCOmassiv, ring nuts M 12 can be used

Description	Article No.
Ring nut M 12	602121

In-line outfall unit | one piece | with one-piece hot-dipped galvanised surface protection

+ 1- or 2-sided channel connection
+ Galvanised silt bucket
+ Integrated socket for DN 150 pipe connection
+ Without odour trap
+ Safety sealing joint
+ Also available with PEHD pipe connector



Description	Length	Width at top/ at ground	Construction height	Weight	Load class DIN EN 1433	Article No.
In-line outfall unit	500 mm	450/450 mm	980 mm	341.1 kg	A 15 – F 900	016136

Exception up to D 400: Not for use across the carriage- way of highways or motorways.

Cast slotted gratings

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

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
black	500 mm	237 mm	30 mm	10.7 kg	SW 150/12 mm	644 cm²/m	A 15 – E 600	160175
black	500 mm	237 mm	30 mm	12.4 kg	SW 150/12 mm	644 cm²/m	A 15 – F 900	160178

Honeycomb grating | cast

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

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
black	500 mm	237 mm	30 mm	7.6 kg	MW 24/59 mm	1396 cm²/m	A 15 – E 600	160179

BIRCOmassiv | Surface protection

+ BIRCOmassiv is fitted with a one-piece protective surface that ensures the lasting durability of the channel when confronted with heavy loads and with particularly pointed loads (like container feet). This closed, slip-resistant steel surface protects the channel from wear and tear.

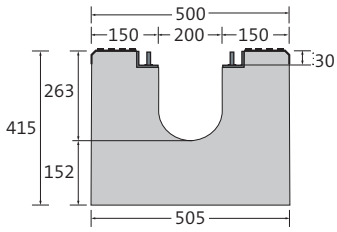
SW = slot width, MW = mesh width
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOmassiv | NW 200

Designed for Maximum Loads

Channel elements | without internal inbuilt fall | with one-piece hot-dipped galvanised surface protection

+ Safety sealing joint
+ With 8-point per metre slide protection of the grating
+ On demand with internal inbuild fall



Description	Length	Width at top/ at ground	Construction height at groove/tongue	Weight	Load class DIN EN 1433	Article No.
Channel No. 0/0	1000 mm	500/505 mm	415/415 mm	390.0 kg	A 15 – F 900	016215
Channel No. 0/0	2000 mm	500/505 mm	415/415 mm	800.0 kg	A 15 – F 900	016217

End caps

Description	Width	For construction height	Weight	Article No.
End cap, galvanised	505 mm	415 mm	3.1 kg	016240
End cap with outlet DN 200, galvanised	505 mm	415 mm	3.6 kg	016245

Exception up to D 400: Not for use across the carriage- way of highways or motorways.

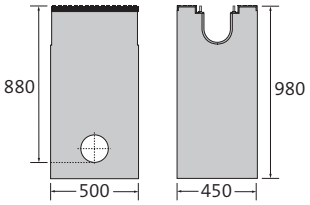
Ring nut M 12 | mounted on studs

+ For installation of concrete channels BIRCOmassiv ring nuts M 12 can be used

Description	Article No.
Ring nut M 12	**602121**

In-line outfall unit | one-piece | with one-piece hot-dipped galvanised surface protection

+ 1- or 2-sided channel connection
+ Galvanised silt bucket
+ Integrated socket for DN 200 pipe connection
+ Without odour trap
+ Safety sealing joint



Description	Length	Width at top/ at ground	Construction height	Weight	Load class DIN EN 1433	Article No.
In-line outfall unit	**500 mm**	**500/500 mm**	**980 mm**	**443.5 kg**	**A 15 – F 900**	**016236**

Exception up to D 400: Not for use across the carriage- way of highways or motorways.

Cast slotted gratings

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

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
black	500 mm	287 mm	30 mm	11.6 kg	SW 200/17.5 mm	890 cm²/m	A 15 – E 600	160282
black	500 mm	287 mm	30 mm	14.1 kg	SW 200/17.5 mm	890 cm²/m	A 15 – F 900	160283

Honeycomb grating | cast

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

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class DIN EN 1433	Article No.
black	500 mm	287 mm	30 mm	9.6 kg	MW 24/72 mm	1995 cm²/m	A 15 – E 600	160279
black	500 mm	287 mm	30 mm	14.5 kg	MW 20/75 mm	1640 cm²/m	A 15 – F 900	160280

BIRCOmassiv | Surface protection

+ BIRCOmassiv is fitted with a one-piece protective surface that ensures the lasting durability of the channel when confronted with heavy loads and with particularly pointed loads (like container feet). This closed, slip-resistant steel surface protects the channel from wear and tear.

SW = slot width, MW = mesh width
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOmassiv | Installation instructions

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

To guarantee smooth operation and compliance with the requirements of DIN EN 1433, the following general 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 haunched on both sides. No additional concrete surround or reinforcement on the sides is necessary.**

3. The channel parts are fundamentally only to be moved or transported on the specific ring nuts. The ring nuts can be procured from BIRCO. A cross-beam is to be used when moving the channel parts in order to avoid a diagonal pull of the steel cable.

4. All adjoining pavement surfaces must run **permanently at a level of some 3 to 5 mm higher than the upper edge of the channel.** A 10 mm joint must be provided with pavement or plate coverings to avoid flaking in the edge area. In order to achieve this, we recommend laying the first two to three rows of pavement surfacing in the mortar bed.

5. For installation in concrete surfaces or reinforced concrete constructions, movement joints must be provided on both sides to compensate horizontal forces that emerge. They can be situated next to the channel units. 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.

6. BIRCOmassiv drainage units are fitted with a safety sealing joint on the channel end. In accordance with DIN EN 1433, once laying has been completed this safety sealing joint can be further treated with a plastic modified mortar or a permanently elastic sealing material (for example SF-Connect) (see also page 109).

7. Proceed analogously when installing the outfall unit.

8. 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. In addition, the requirements according to the official building authority approval regarding installation, verification and maintenance additionally apply.

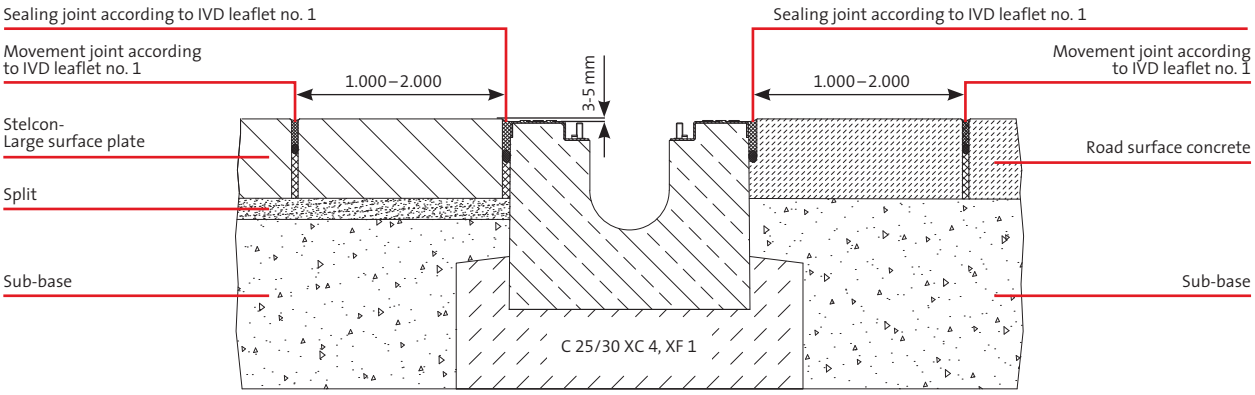
+ Construction in accordance with the Construction Tendering and Contract Regulations (VOB) Part C, DIN 18318 “Transport Route Construction”.
+ Additional technical regulations and guidelines for pavement surfaces in road construction (ZTVT-StB) and ZTV Asphalt..
+ Additional technical regulations and 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”.

BIRCOmassiv Installation examples

For heavily travelled heavy-duty loading and vehicle manœvering areas.
Container hubs | Freight company premises | Industrial construction

Up to load class F 900, Type I, NW 150 - 200

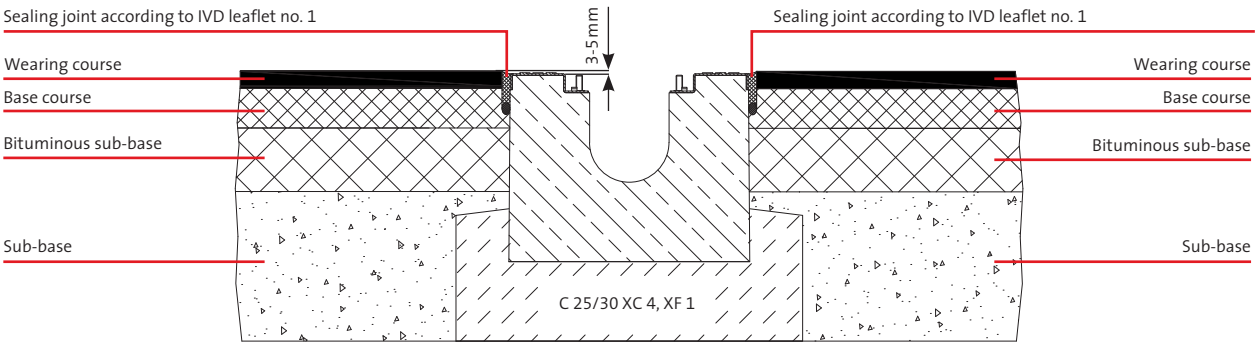
Drawing No. 21102



Construction according to RSTO with non-setting, frost-resistant carrier layers

Up to load class F 900, Type I, NW 150 - 200

Drawing No. 21102



Construction according to RSTO with non-setting, frost-resistant carrier layers

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

Bolting instructions:
Torque moments for screw fastening of on the gratings are to be set at M 12 = 60 Nm. The bolts on the gratings must be retightened at regular intervals.

BIRCOmassiv must be embedded on a concrete bed (min. C 25/30 XC 4, XF 1) at least 15 cm thick. Overhang on the side must be at least 10 cm. The subgrade must be sealed with an E_{V2} of > 45 N/mm if the concrete bed maintains an overhang of > 50 cm at the end of the channel. Otherwise, an E_{V2} of > 180 N/mm must be maintained or it must be ensured that a distance of > 50 cm to the end of the channel is maintained when lorries drive over the channel.

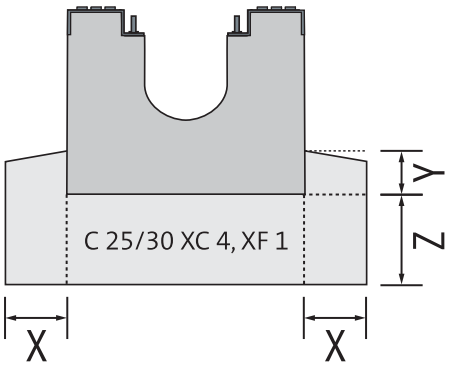
Constructed in accordance with RSTO using non-settling frost-free sub-bases.
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

Overview BIRCOmassiv

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

BIRCOmassiv

NW	Type	Load class	X	Y	Z	Drawing No.	Page
BIRCOmassiv 150	I	A 15 – F 900	≥ 100	≥ 100	≥ 150	21102	71
BIRCOmassiv 200	I	A 15 – F 900	≥ 100	≥ 100	≥ 150	21102	71



Installation without concrete surround

BIRCOmassiv drainage performance

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

BIRCOmassiv NW 150 | without inbuilt fall

CL = 1000 mm	Drainage capacity at the channel end	Cross-sectional area at the channel end
No. 0/0	12.66 l/sec*	227.86 cm²

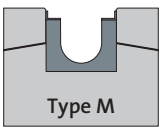
BIRCOmassiv NW 200 | without inbuilt fall

CL = 1000 mm	Drainage capacity at the channel end	Cross-sectional area at the channel end
No. 0/0	22.39 l/sec*	403.08 cm²

Introduction to 2 models

+ **Type I:** Requires no load-bearing foundation and/or no full concrete surround: e.g., BIRCOmassiv.
+ **Type M:** Requires a load-bearing foundation and/or full concrete surround: e.g., BIRCOsir.


Type I


Type M

The tables can only give guidelines for the dimensioning. On-site conditions such as position of the manholes already installed, number of channel lines etc. cannot and have not been taken into account. We therefore recommend making use of our hydraulic calculation service which provides you with a draft proposal.

Horizontal and vertical bore holes

We can fit BIRCOmassiv 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, ranging from DN 150 to DN 200. The diameters are matched with channel base pipes; different pipes are available upon request. BIRCO also supplies ready-made pipe connections upon request.

BIRCOmassiv

NW	Bore hole, horizontal maximal	Bore hole, vertical maximal
150 mm	DN 150	DN 150
200 mm	DN 150	DN 200

BIRCOservice Page 107

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

Fast, safe installation | Efficient time and cost management

+ BIRCOmassiv 2 metre long channel panels make channel laying faster with fewer joints.
+ The one-piece channel panels do not require concrete casings, reducing additional concrete and casing work.

BIRCOcanal | The Supply Channel

BIRCOcanal is an economically sound solution for safely laying lines and pipes in production halls, trade fair centres and public buildings, as well as internal and external industrial areas.

+ A 15 to E 600

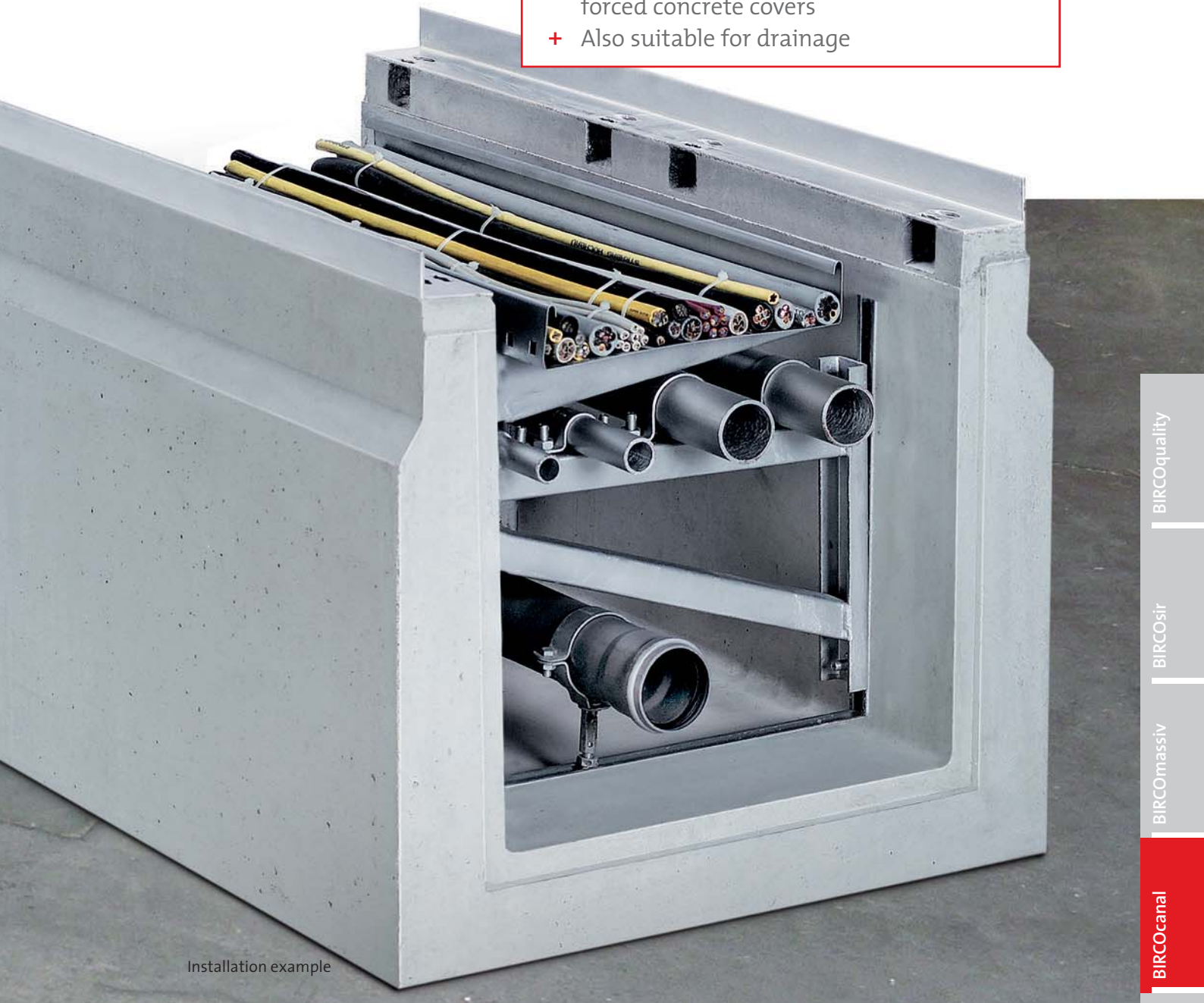
For safely laying lines and pipes in heavily frequented, high-traffic industrial and public areas.

BIRCOcanal | Areas of application

+ Industrial construction (internal and external areas)
+ Production halls
+ Trade fair centres
+ Public buildings

BIRCOcanal | Facts

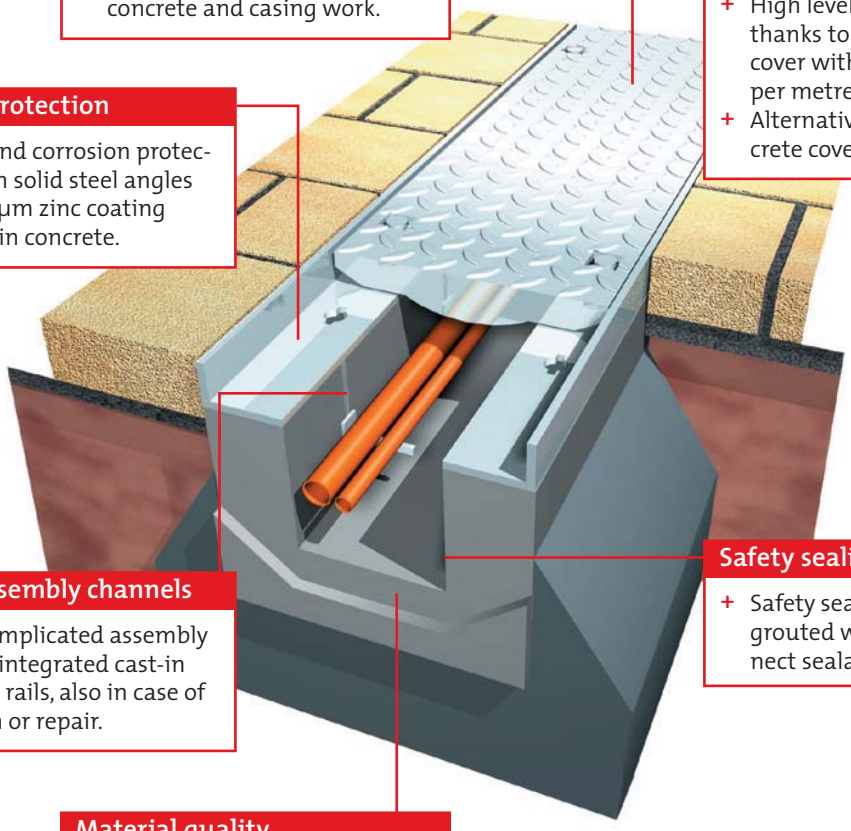
- Supply channels: NW 100 – 1000
- NW 500 with corner pieces and T-pieces
- Construction lengths: 1.0, 2.0 metres
- Cast-in mounting rails (from NW 200 – upon request)
- Load class: A 15 – E 600 / SLW 60 (wheel load 10 to)
- Fitted with solid steel angles for bolting covers or with side plates for laying reinforced concrete covers
- Also suitable for drainage



Installation example

BIRCOcanal | The Supply Channel

BIRCOcanal ensures safe, uncomplicated laying of lines and pipes combined with a high level of load stability.



Safe, fast installation

+ 2 metre long channel units make channel laying faster with fewer joints.
+ The one-piece channel units do not require full concrete surround, reducing additional concrete and casing work.

Traffic safety

+ High level of traffic safety thanks to the galvanised cast cover with 8 bolt connections per metre.
+ Alternatively: Reinforced concrete cover

Corrosion protection

+ Stability and corrosion protection: 4 mm solid steel angles with a 70 µm zinc coating anchored in concrete.

Safety sealing joint

+ Safety sealing joint (can be grouted with BIRCO SF-Connect sealant).

Installed assembly channels

+ Fast, uncomplicated assembly thanks to integrated cast-in mounting rails, also in case of expansion or repair.

Material quality

+ High quality C 40/50 concrete.
+ High level of compressive strength and resistance to frost and de-icing salt ensure a long service life and safeguard your investment.

Individual application

+ 8 different nominal widths and construction lengths of 1.0, 1.5 and 2.0 metres provide flexible, individual laying possibilities.

Kostheim Lock – Drainage with BIRCOcanal

The Kostheim Lock, one of the busiest locks in the German waterways network, is located at the point where the Main and Rhine rivers meet at kilometre 3.2. Large-scale BIRCOcanal supply channels with a nominal width of 1,000 mm were installed for drainage alongside the lock chambers. Class E reinforced concrete covers were used to ensure traffic safety. This created optimum drainage volume that can be traversed along the entire line, even with heavy wheel loads.

Liebherr, Colmar – Internal conveyor belt

At its premises in Colmar, France, utility vehicle manufacturer Liebherr had specially made versions of the BIRCOcanal NW 1000 channel with a height of 1,840 mm installed. A conveyor belt runs through the channel that is used to transport steel chips. The cover can be driven on and is capable of handling heavy-duty loads, and is also easily removed for repair or maintenance work.

Kreuzwertheim – Cable pathway accessible at all times

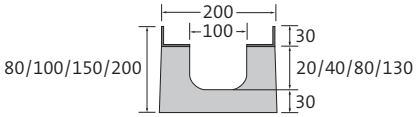
At the production hall of an automobile industry supplier in Kreuzwertheim, various machines had to be linked with several cables fitted with machinery control stations, and supply cables from the building services section had to be installed in a comprehensible, easily accessible way. BIRCOcanal combined with bulb plates capable of bearing loads up to Class E 600 made it possible to lay the necessary cabling and to have easy access to it in subsequent maintenance work.

BIRCOcanal | NW 100

The Supply Channel for Heavy Duty Areas

Supply channels with angles | with cast-in mounting rails

+ With hot-dipped galvanised solid steel angles for combi-closure system
+ Safety sealing joint



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	1000 mm	200/80 mm	100/20 mm	23.0 kg	A 15 – E 600	052010
Supply channel	1000 mm	200/100 mm	100/40 mm	30.0 kg	A 15 – E 600	052011
Supply channel	1000 mm	200/150 mm	100/80 mm	47.0 kg	A 15 – E 600	052013
Supply channel	1000 mm	200/200 mm	100/130 mm	57.0 kg	A 15 – E 600	052014

Bulb cast covers | for supply channels with angles

+ Solid
+ Black immersion-lacquered or galvanised
+ 8 point per metre M12/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Load class DIN EN 1433	Article No.
black	500 mm	187 mm	30 mm	7.5 kg	A 15 – E 600	052076/e
galvanised	500 mm	187 mm	30 mm	7.5 kg	A 15 – E 600	052076v/ve

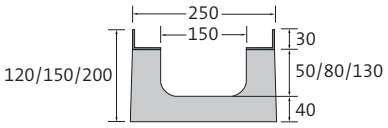
Article No. with v = galvanised, Article No. with e = with Easylock
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOcanal | NW 150

The Supply Channel for Heavy Duty Areas

Supply channels with angles | without mounting rails

+ With hot-dipped galvanised solid steel angles for combi-closure system
+ Safety sealing joint



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	1000 mm	250/120 mm	150/50 mm	48.0 kg	A 15 – E 600	052110
Supply channel	1000 mm	250/150 mm	150/80 mm	51.0 kg	A 15 – E 600	052111
Supply channel	1000 mm	250/200 mm	150/130 mm	63.0 kg	A 15 – E 600	052112

Bulb cast covers | for supply channels with angles

+ Solid
+ Black immersion-lacquered or galvanised
+ 8 point per metre M12/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Load class DIN EN 1433	Article No.
black	500 mm	237 mm	30 mm	10.5 kg	A 15 – E 600	052176/e
galvanised	500 mm	237 mm	30 mm	10.5 kg	A 15 – E 600	052176v/ve

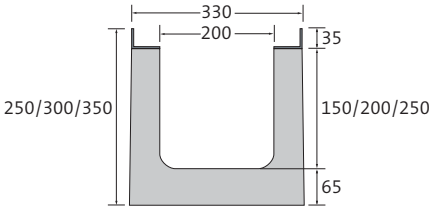
Article No. with v = galvanised, Article No. with e = with Easylock
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOcanal | NW 200

The Supply Channel for Heavy Duty Areas

Supply channels with angles | with cast-in mounting rails

+ With hot-dipped galvanised solid steel angles for combi-closure system
+ Safety sealing joint
+ Cast-in mounting rails type 28/15, hot-dipped galvanised



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	1000 mm	330/250 mm	200/150 mm	107.0 kg	A 15 – E 600	052210
Supply channel	1000 mm	330/300 mm	200/200 mm	118.0 kg	A 15 – E 600	052211
Supply channel	1000 mm	330/350 mm	200/250 mm	134.0 kg	A 15 – E 600	052212

Supply channels with angles | without mounting rails

+ With hot-dipped galvanised solid steel angles for combi-closure system
+ Safety sealing joint

Description	Length	External dimension Width/construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	1000 mm	330/250 mm	200/150 mm	103.0 kg	A 15 – E 600	052230
Supply channel	1000 mm	330/300 mm	200/200 mm	127.0 kg	A 15 – E 600	052231
Supply channel	1000 mm	330/350 mm	200/250 mm	147.0 kg	A 15 – E 600	052232

Bulb cast covers | for supply channels with angles

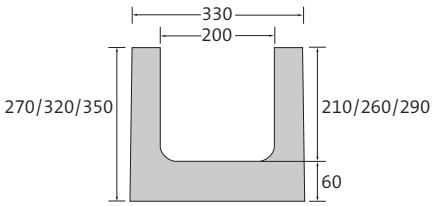
+ Solid
+ Black immersion-lacquered or galvanised
+ 8 point per metre M12/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Load class DIN EN 1433	Article No.
black	500 mm	317 mm	35 mm	14.8 kg	A 15 – E 600	052276/e
galvanised	500 mm	317 mm	35 mm	14.2 kg	A 15 – E 600	052276v/ve

Article No. with v = galvanised, Article No. with e = with Easylock
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

Supply channels without angles | with cast-in mounting rails

+ Safety sealing joint
+ Cast-in mounting rails type 28/15, hot-dipped galvanised



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	1000 mm	330/270 mm	200/210 mm	112.0 kg	A 15 – E 600	050210
Supply channel	1000 mm	330/320 mm	200/260 mm	125.0 kg	A 15 – E 600	050211
Supply channel	1000 mm	330/350 mm	200/290 mm	140.0 kg	A 15 – E 600	050212

Supply channels without angles | without mounting rails

+ Safety sealing joint

Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	1000 mm	330/270 mm	200/210 mm	111.5 kg	A 15 – E 600	050230
Supply channel	1000 mm	330/350 mm	200/290 mm	137.5 kg	A 15 – E 600	050232

Reinforced concrete cover | for supply channels without angles

+ Smoothed surface
+ 2 cast-in anchor sleeves for mechanical installation

Description	Length	Width	Height	Weight	Load class	Article No.
Reinforced concrete cover	1000 mm	330 mm	100 mm	90.0 kg	SLW 60	050298

Please ensure that a sealing tape is generally stuck down between BIRCOcanal and the reinforced concrete cover.

BIRCOcanal | Accessories

+ Different accessories for BIRCOcanal are listed on page 99.

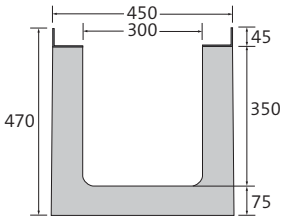
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOcanal | NW 300

The Supply Channel for Heavy Duty Areas

Supply channels with angles | with cast-in mounting rails

+ With hot-dipped galvanised solid steel angles for combi-closure system
+ Safety sealing joint
+ Cast-in mounting rails type 28/15, hot-dipped galvanised



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	1000 mm	450/470 mm	300/350 mm	223.6 kg	A 15 – F 900	052310
Supply channel	2000 mm	450/470 mm	300/350 mm	446.0 kg	A 15 – F 900	052320

Supply channels with angles | without mounting rails

+ With hot-dipped galvanised solid steel angles for combi-closure system
+ Safety sealing joint

Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	1000 mm	450/470 mm	300/350 mm	221.0 kg	A 15 – F 900	052330
Supply channel	2000 mm	450/470 mm	300/350 mm	437.6 kg	A 15 – F 900	052340

Bulb cast covers | for supply channels with angles

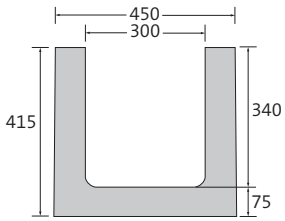
+ Solid
+ Black immersion-lacquered or galvanised
+ 8 point per metre M16/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Load class DIN EN 1433	Article No.
black	500 mm	437 mm	45 mm	32.1 kg	A 15 – E 600	052376/e
galvanised	500 mm	437 mm	45 mm	31.0 kg	A 15 – E 600	052376v/ve

Article No. with v = galvanised, Article No. with e = with Easylock
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

Supply channels without angles | with cast-in mounting rails

+ Safety sealing joint
+ Cast-in mounting rails type 28/15, hot-dipped galvanised



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	1000 mm	450/415 mm	300/340 mm	212.0 kg	A 15 – E 600	050310
Supply channel	2000 mm	450/415 mm	300/340 mm	422.0 kg	A 15 – E 600	050320

Supply channels without angles | without mounting rails

+ Safety sealing joint

Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	1000 mm	450/415 mm	300/340 mm	211.0 kg	A 15 – E 600	050330
Supply channel	2000 mm	450/415 mm	300/340 mm	417.0 kg	A 15 – E 600	050340

Reinforced concrete cover | for supply channels without angles

+ Smoothed surface
+ 2 cast-in anchor sleeves for mechanical installation

Description	Length	Width	Height	Weight	Load class	Article No.
Reinforced concrete cover	1000 mm	450 mm	100 mm	122.0 kg	SLW 60	050398

Please ensure that a sealing tape is generally stuck down between BIRCOcanal and the reinforced concrete cover.

BIRCOcanal | Accessories

+ Different accessories for BIRCOcanal are listed on page 99.

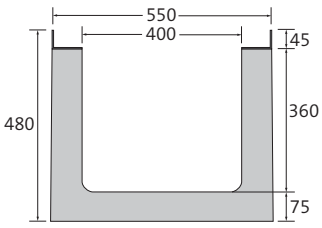
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOcanal | NW 400

The Supply Channel for Heavy Duty Areas

Supply channels with angles | with cast-in mounting rails

+ With hot-dipped galvanised solid steel angles for combi-closure system
+ Safety sealing joint
+ Cast-in mounting rails type 28/15, hot-dipped galvanised



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	1000 mm	550/480 mm	400/360 mm	250.0 kg	A 15 – F 900	052410
Supply channel	2000 mm	550/480 mm	400/360 mm	482.0 kg	A 15 – F 900	052420

Supply channels with angles | without mounting rails

+ With hot-dipped galvanised solid steel angles for combi-closure system
+ Safety sealing joint

Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	1000 mm	550/480 mm	400/360 mm	249.0 kg	A 15 – F 900	052430
Supply channel	2000 mm	550/480 mm	400/360 mm	488.0 kg	A 15 – F 900	052440

Bulb cast covers | for supply channels with angles

+ Solid
+ Black immersion-lacquered or galvanised
+ 8 point per metre M16/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Load class DIN EN 1433	Article No.
black	500 mm	537 mm	45 mm	45.5 kg	A 15 – E 600	052476/e
galvanised	500 mm	537 mm	45 mm	45.5 kg	A 15 – E 600	052476v/ve

BIRCOcanal | Accessories

+ Different accessories for BIRCOcanal are listed on page 99.

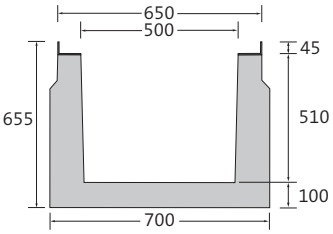
Article No. with v = galvanised, Article No. with e = with Easylock
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOcanal | NW 500

The Supply Channel for Heavy Duty Areas

Supply channels with angles | with cast-in mounting rails

+ Reinforced grade C 40/50 concrete
+ With hot-dipped galvanised solid steel angles for combi-closure system
+ Safety sealing joint
+ Cast-in anchor sleeves for mechanical installation
+ Cast-in mounting rails type 28/15, hot-dipped galvanised



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	1000 mm	700/655 mm	500/510 mm	445.0 kg	A 15 – E 600	052510
Supply channel	2000 mm	700/655 mm	500/510 mm	890.0 kg	A 15 – E 600	052520

Supply channels with angles | without mounting rails

+ Reinforced grade C 40/50 concrete
+ With hot-dipped galvanised solid steel angles for combi-closure system
+ Safety sealing joint
+ Cast-in anchor sleeves for mechanical installation
+ Also as T-branch or corner unit (mitre right, left 45°)

Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	1000 mm	700/655 mm	500/510 mm	440.0 kg	A 15 – E 600	052530
Supply channel	2000 mm	700/655 mm	500/510 mm	880.0 kg	A 15 – E 600	052540

Bulb cast covers | for supply channels with angles

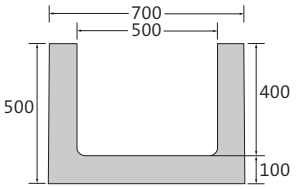
+ Solid
+ Black immersion-lacquered
+ 8 point per metre M16/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Load class DIN EN 1433	Article No.
black	500 mm	633 mm	45 mm	56.5 kg	A 15 – E 600	052576/e

Article No. with v = galvanised, Article No. with e = with Easylock
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

Supply channels without angles | with cast-in mounting rails

+ Reinforced grade C 40/50 concrete
+ Safety sealing joint
+ Cast-in anchor sleeves for mechanical installation
+ Cast-in mounting rails type 28/15, hot-dipped galvanised



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	1000 mm	700/500 mm	500/400 mm	370.0 kg	A 15 – E 600	050510
Supply channel	2000 mm	700/500 mm	500/400 mm	740.0 kg	A 15 – E 600	050520

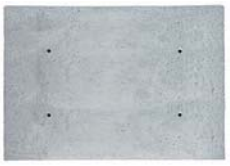
Supply channels without angles | without mounting rails

+ Reinforced grade C 40/50 concrete
+ Safety sealing joint
+ Cast-in anchor sleeves for mechanical installation
+ Also as T-branch or corner unit (mitre right, left 45°)

Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	1000 mm	700/500 mm	500/400 mm	370.0 kg	A 15 – E 600	050530
Supply channel	2000 mm	700/500 mm	500/400 mm	740.0 kg	A 15 – E 600	050540

Reinforced concrete covers | for supply channels without angles

+ Smoothed surface
+ 2 cast-in anchor sleeves for mechanical installation



Description	Length	Width	Height	Weight	Load class	Article No.
without edge protection frame	1000 mm	690 mm	125 mm	220.0 kg	SLW 60	050597
without edge protection frame	2000 mm	690 mm	125 mm	440.0 kg	SLW 60	050598

Please ensure that a sealing tape is generally stuck down between BIRCOcanal and the reinforced concrete cover.

BIRCOcanal | Accessories

+ Different accessories for BIRCOcanal are listed on page 99.

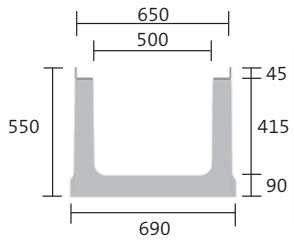
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOcanal | NW 500 AS

The Supply Channel for Heavy Duty Areas with angles

Supply channels with angles and anchoring system | with cast-in mounting rails

+ With hot-dipped galvanised solid steel angles for combi-closure system
+ Safety sealing joint
+ Cast-in mounting rails type 28/15, hot-dipped galvanised



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	1000 mm	690/550 mm	500/415 mm	304,0 kg	A 15 – F 900*	0052510

* Please note separate installation for class E600 and F900.

Supply channels with angles and anchoring system | without cast-in mounting rails

+ With hot-dipped galvanised solid steel angles for combi-closure system
+ Safety sealing joint

Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Versorgungskanal	1000 mm	690/550 mm	500/415 mm	304,0 kg	A 15 – F 900*	0052530

* Please note separate installation for class E600 and F900.

Bulb cast covers | for supply channels with angles

+ Solid
+ Black immersion-lacquered
+ 8 point per metre M16/A2 bolt connection
+ 8 point per metre Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Load class DIN EN 1433	Article No.
black	500 mm	633 mm	45 mm	56.5 kg	A 15 – E 600	052576/e

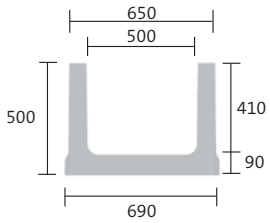
Article No. with e = with Easylock
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOcanal | NW 500 AS

The Supply Channel for Heavy Duty Areas without angles

Supply channels without angles with anchoring system | with cast-in mounting rails

+ Safety sealing joint
+ Cast-in mounting rails type 28/15, hot-dipped galvanised



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	1000 mm	690/500 mm	500/410 mm	297,0 kg	A 15 – F 900*	0050510

*Please note separate installation for class E600 and F900.

Supply channels without angles with anchoring system | without mounting rails

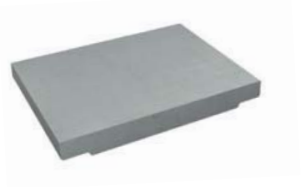
+ Safety sealing joint

Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Versorgungskanal	1000 mm	690/500 mm	500/410 mm	297,0 kg	A 15 – F 900*	0050530

*Please note separate installation for class E600 and F900.

Reinforced concrete cover | for supply channels without angles

+ Smoothed surface
+ For earth covering up to 1 mtr.



Description	Length	Width	Height	Weight	Load class	Article No.
Reinforced concrete cover	500 mm	640 mm	60 mm	55,0 kg	Earth covering up to 1 m	0050596
Reinforced concrete cover	1000 mm	640 mm	125 mm	212,0 kg	SLW 60	0050597

Please ensure that a sealing tape is generally stuck down between BIRCOcanal and the reinforced concrete cover.

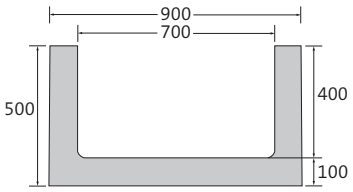
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOcanal | NW 700

The Supply Channel for Heavy Duty Areas

Supply channels without angles | with cast-in mounting rails

+ Reinforced grade C 40/50 concrete
+ Safety sealing joint
+ Cast-in anchor sleeves for mechanical installation
+ Cast-in mounting rails type 28/15, hot-dipped galvanised



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	2000 mm	900/500 mm	700/400 mm	850.0 kg	A 15 – E 600	050720

Supply channels without angles | without mounting rails

+ Reinforced grade C 40/50 concrete
+ Safety sealing joint
+ Cast-in anchor sleeves for mechanical installation

Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	2000 mm	900/500 mm	700/400 mm	845.0 kg	A 15 – E 600	050740

Reinforced concrete cover

+ Smoothed surface
+ 2 cast-in anchor sleeves for mechanical installation

Description	Length	Width	Height	Weight	Load class	Article No.
Reinforced concrete cover	2000 mm	900 mm	125 mm	630.0 kg	SLW 60	050798

Please ensure that a sealing tape is generally stuck down between BIRCOcanal and the reinforced concrete cover.

BIRCOcanal | Accessories

+ Different accessories for BIRCOcanal are listed on page 99.

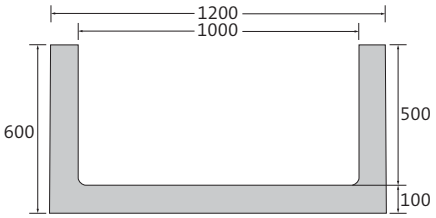
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOcanal | NW 1000

The Supply Channel for Heavy Duty Areas

Supply channels without angles | with cast-in mounting rails

+ Reinforced grade C 40/50 concrete
+ Safety sealing joint
+ Cast-in anchor sleeves for mechanical installation
+ Cast-in mounting rails type 28/15, hot-dipped galvanised



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	2000 mm	1200/600 mm	1000/500 mm	1080.0 kg	A 15 – E 600	051020

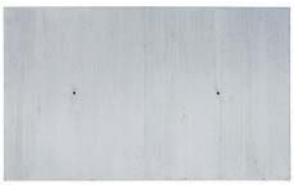
Supply channels without angles | without mounting rails

+ Reinforced grade C 40/50 concrete
+ Safety sealing joint
+ Cast-in anchor sleeves for mechanical installation

Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class DIN EN 1433	Article No.
Supply channel	2000 mm	1200/600 mm	1000/500 mm	1070.0 kg	A 15 – E 600	051040

Reinforced concrete cover | for supply channels without angles

+ Smoothed surface
+ 2 cast-in anchor sleeves for mechanical installation



Description	Length	Width	Height	Weight	Load class	Article No.
Reinforced concrete cover	2000 mm	1200 mm	165 mm	990.0 kg	SLW 60	051098

Please ensure that a sealing tape is generally stuck down between BIRCOcanal and the reinforced concrete cover.

Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOcanal | Accessories

The Supply Channel for Heavy Duty Areas

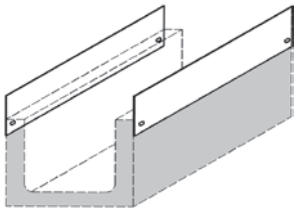
Lifting loops | only for vertical tensile direction

+ For the mecanical installation of reinforced concrete covers
+ For the mecanical installation of supply channels without angles

Description	Article No.
NW 200–500 RD 12	609404
NW 700–1000 RD 14	606016

Lateral steel upstands | as back support for reinforced concrete covers of BIRCOcanal without angles

+ Hot-dipped galvanised
+ Mounted 1- or 2-sided



Description	Length	Height	Thickness of material	Weight	Article No.
One-side NW 200 - 700	1000 mm	220 mm	5 mm	8.6 kg	609604
Two-side NW 200- 700	1000 mm	220 mm	5 mm	17.2 kg	609605
One-side NW 1000	1000 mm	260 mm	5 mm	10.2 kg	609616
Two-side NW 1000	1000 mm	260 mm	5 mm	20.4 kg	609617

! The side panels serve only as a lateral boundary and do not have the function to accomodate dynamic horizontal forces.

Sealing tape | flexible liner

+ Between supply channel and reinforced concrete cover for BIRCOcanal without angles, 50/6 mm (sold by the metre)
+ Self adhesive

Description	Length	Width	Thickness of material	Article No.
Sealing tape	sold by metre	50 mm	6 mm	609402

! To compensate for manufacturing and installation tolerances imperative to ensure full surface contact of the reinforced concrete covers.

Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOcanal | Installation Instructions

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

To guarantee smooth operation and compliance with the requirements of DIN EN 1433, the following general 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 haunched on both sides. No additional concrete surround or reinforcement on the sides is required[(1)]. Large-scale products are only to be moved unsing the anchor sleeves designed for that purpose.

3. All adjoining pavement surfaces must run **permanently at a level of some 3 to 5 mm higher than the upper edge of the supply channel.** 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 surround, the surface pavement can run right up to the channel without any problems.

4. For installation in concrete surfaces or reinforced concrete constructions, movement 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 transverse 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 end.

5. BIRCO drainage units are fitted with a safety sealing joint on the channel end. In accordance with DIN EN 1433, once laying has been completed this safety can be further treated with a plastic modified mortar or a permanently elastic sealing material (for example SF-Connect). When using reinforced concrete covers, we recommend using a flexible intermediate layer between the supply channel and the cover in order to prevent damage to the supply channel and/or the cover.

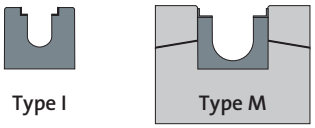
6. Local particularities can require special installation methods that have to be examined and taken into account by the planner(s). The installation must comply with the latest regulations and guidelines such as ZTVT, ZTV concrete, ZTV bit and RStO.

+ 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)] Exception:
When using BIRCOcanal in heavy-duty areas with frequent traffic, it may be necessary to encase the channel with concrete on the sides to compensate for the high levels of horizontal forces that could potentially emerge.

Introduction to 2 models

+ **Type I:** Requires no load-bearing foundation and/or no full concrete surround: e.g., BIRCOmassiv.
+ **Type M:** Requires a load-bearing foundation and/or full concrete surround: e.g., BIRCOsir.



Fast, safe installation | Efficient time & cost management

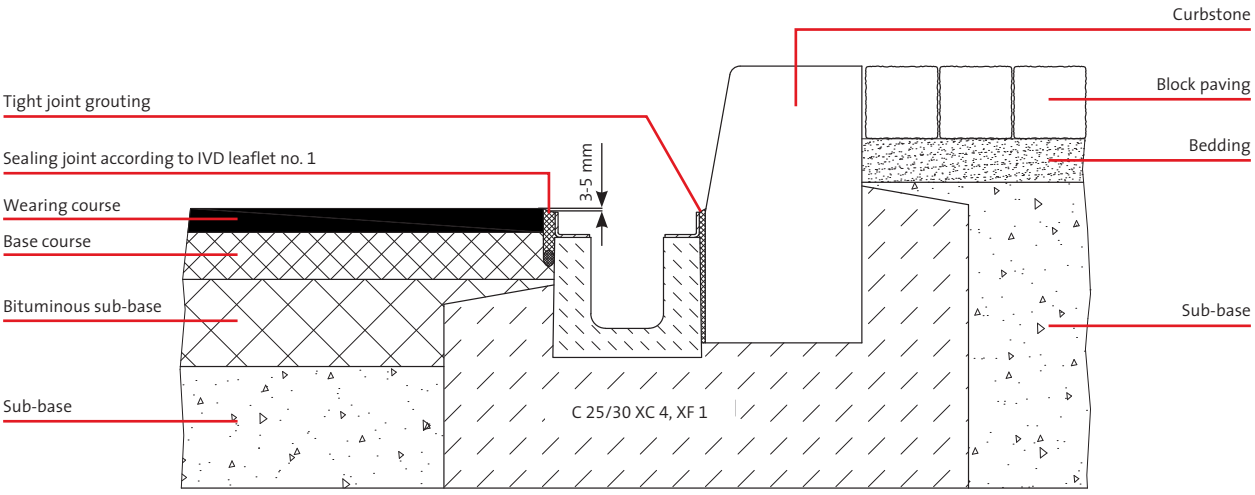
+ BIRCOcanal's 2 metre long channel units make channel laying faster with fewer joints.
+ The one-piece channel do not require full concrete surround, reducing additional concrete and casing work.

BIRCOcanal Installation Examples

Installation instructions for traffic areas with heavy wheel loads.
Public buildings | Industrial halls and trade fair centres

BIRCOcanal NW 100, Type M, Load class A 15 – E 600

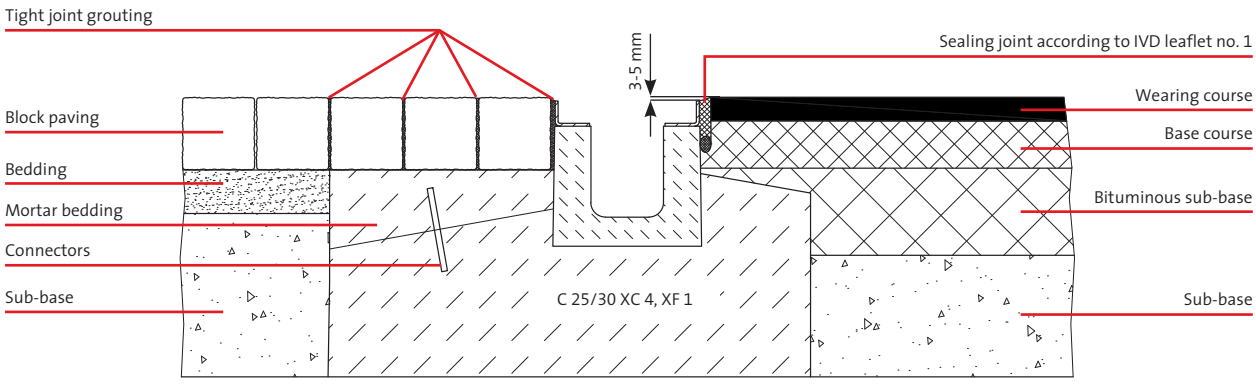
Drawing-No. 20984



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOcanal NW 100, Type M, Load class A 15 – E 600

Drawing-No. 20984

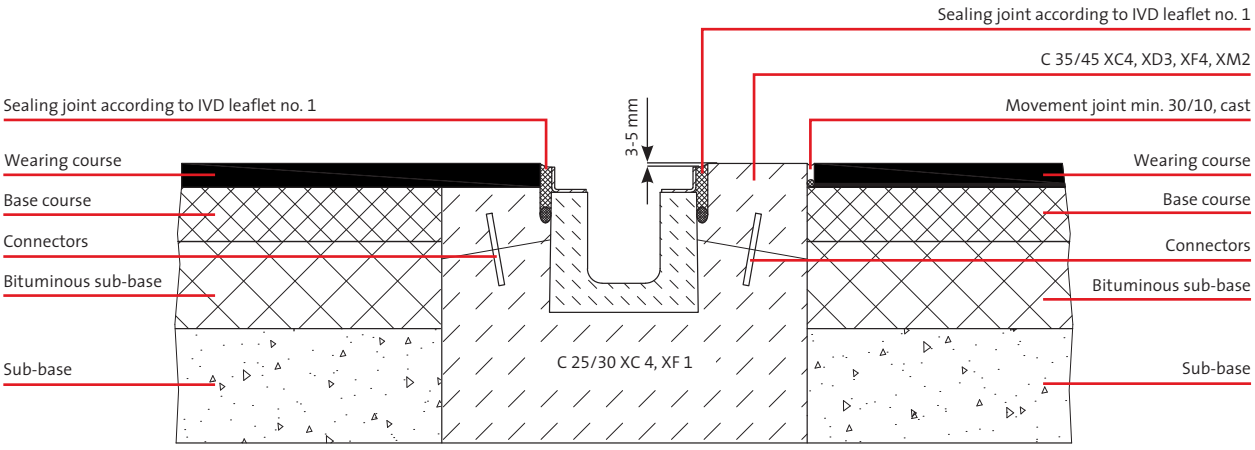


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOcanal NW 100, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

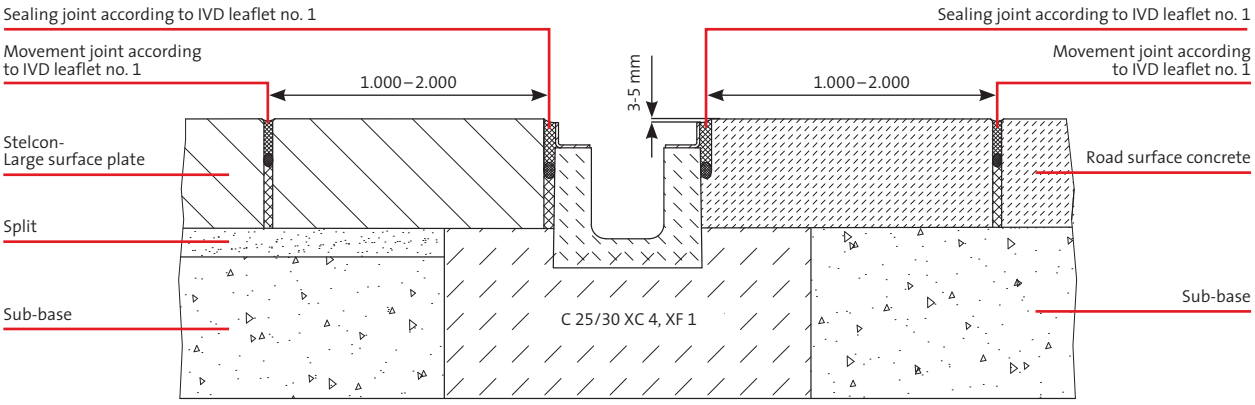
Drawing-No. 20984



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOcanal NW 100, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

Drawing-No. 20984

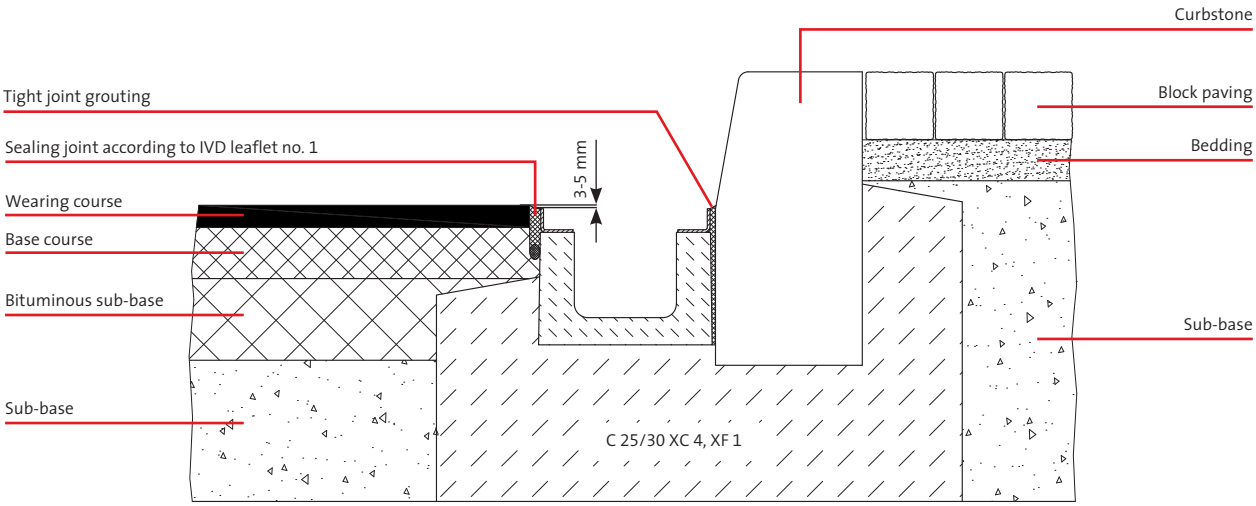


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOcanal NW 150, Type M, Load class A 15 – E 600

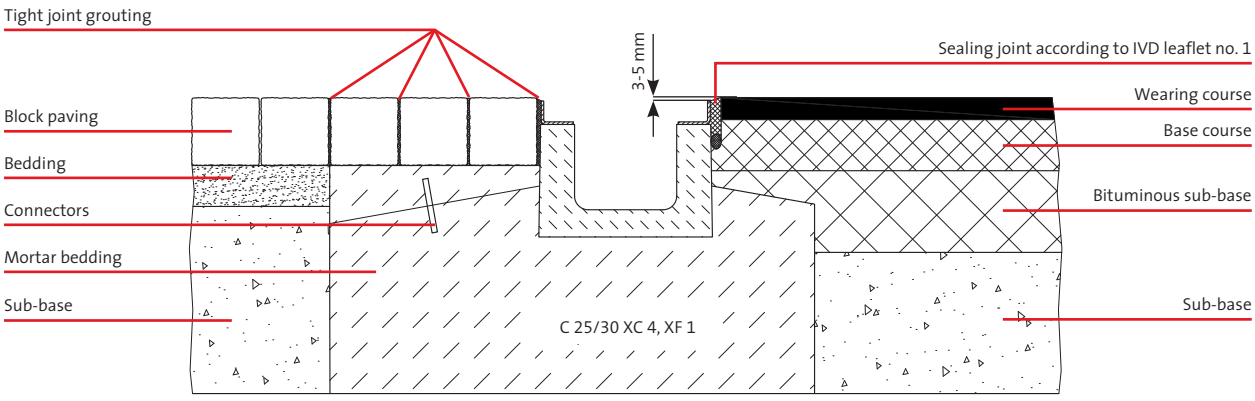
Drawing-No. 20987



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOcanal NW 150, Type M, Load class A 15 – E 600

Drawing-No. 20987

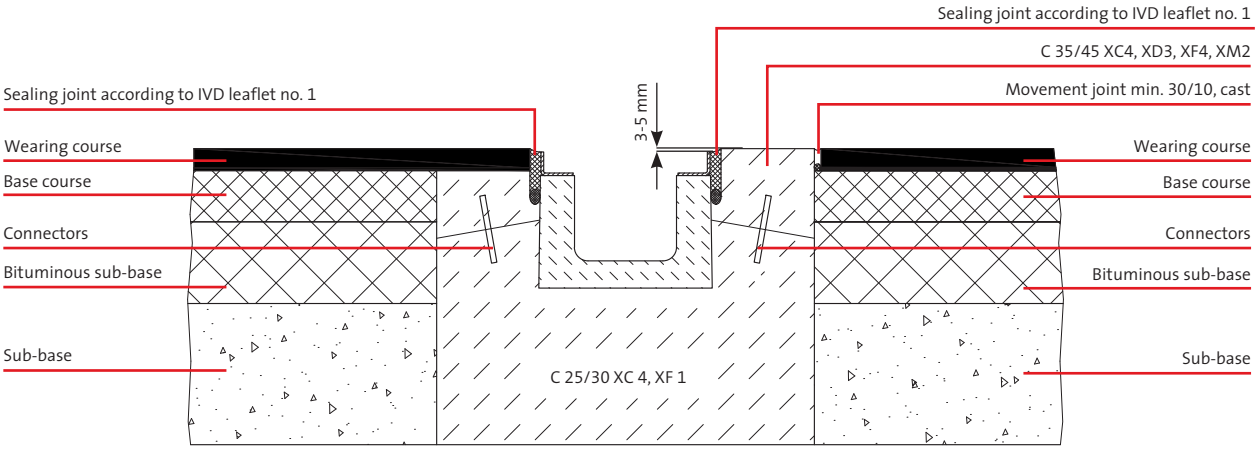


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOcanal NW 150, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

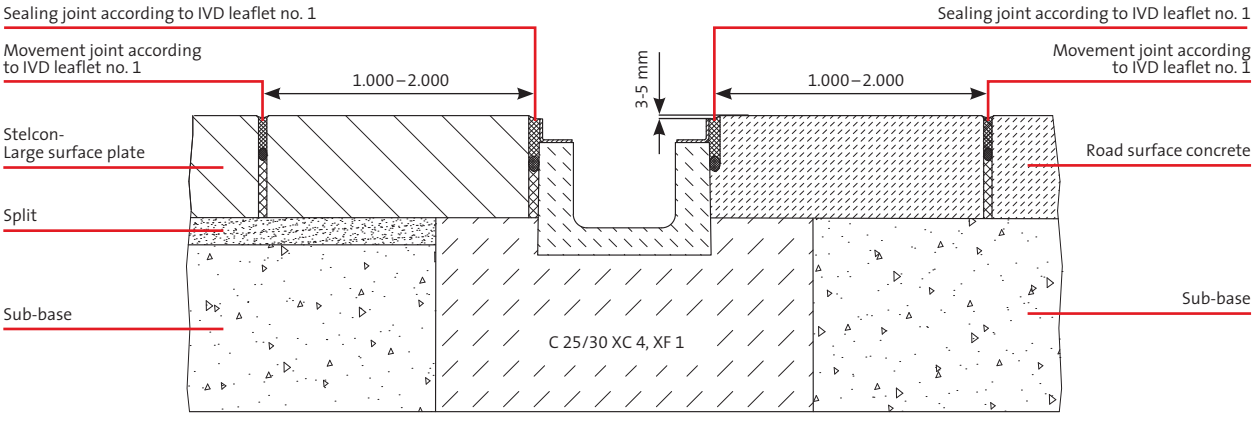
Drawing-No. 20987



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOcanal NW 150, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

Drawing-No. 20987

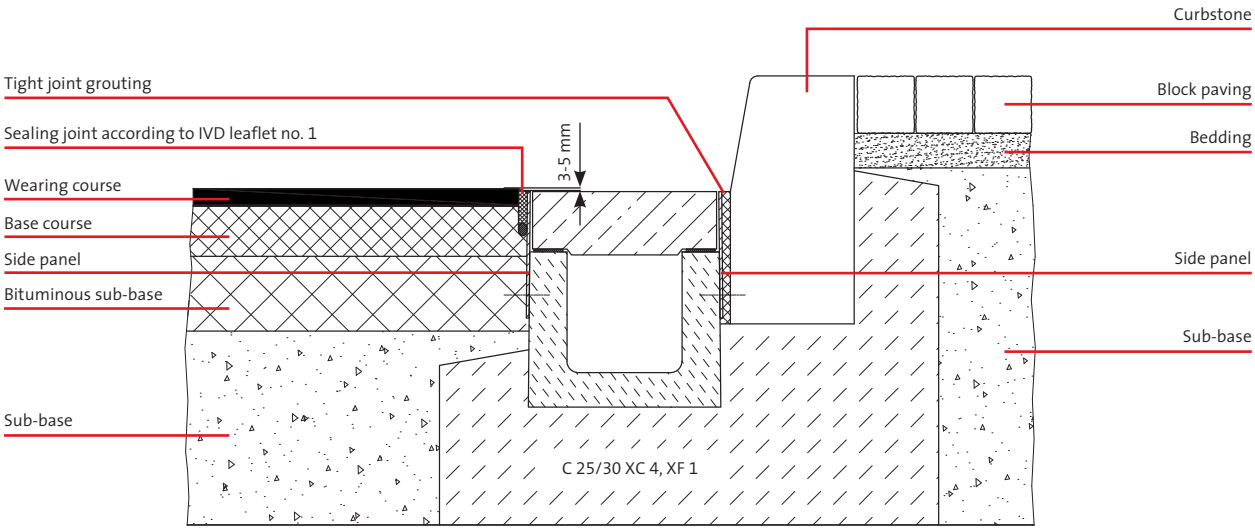


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOcanal NW 200 without angle, Type M, Load class A 15 – E 600

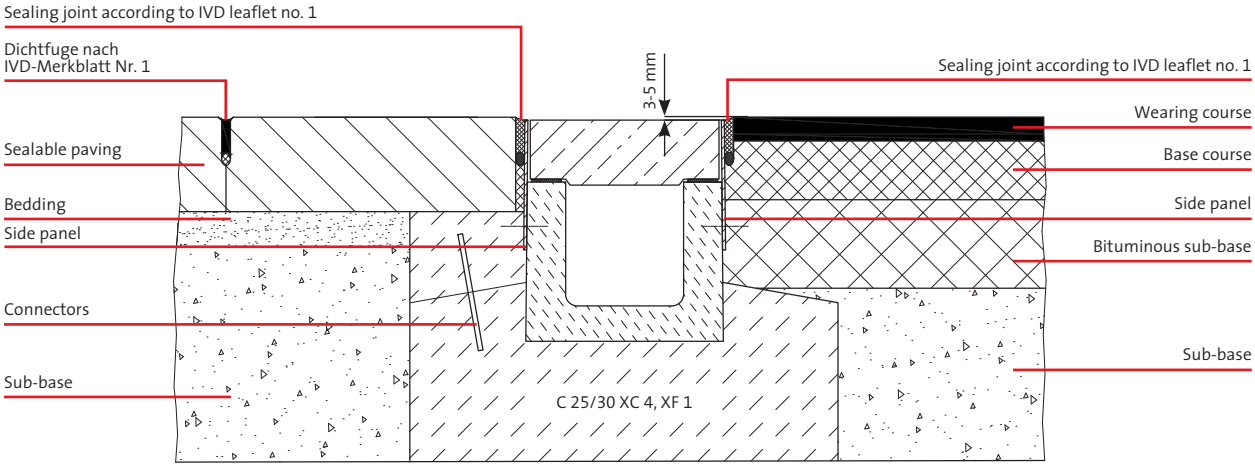
Drawing-No. 21007



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOcanal NW 200 without angle, Type M, Load class A 15 – E 600

Drawing-No. 21007

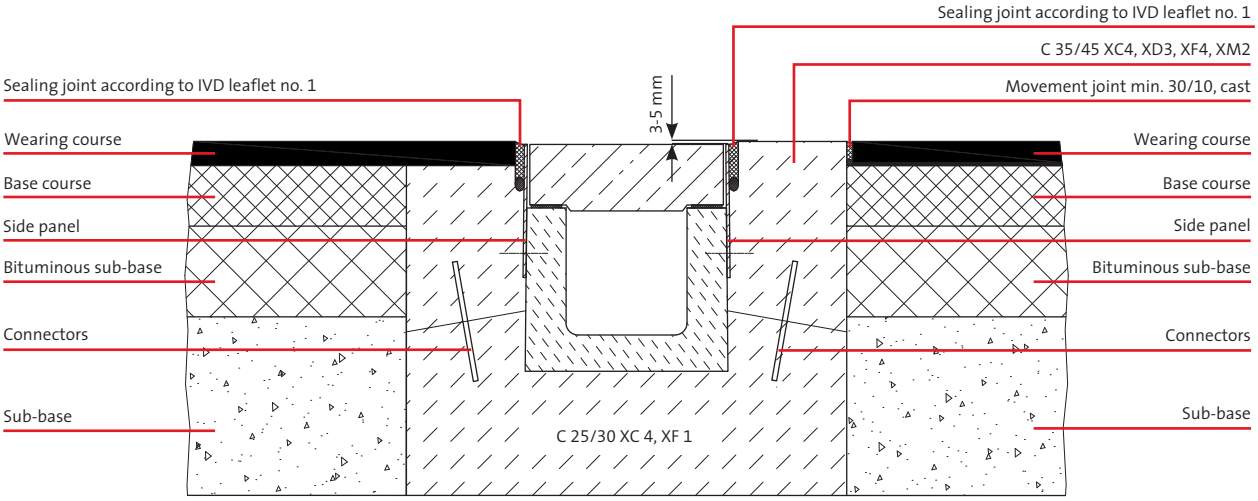


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOcanal NW 200 without angle, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

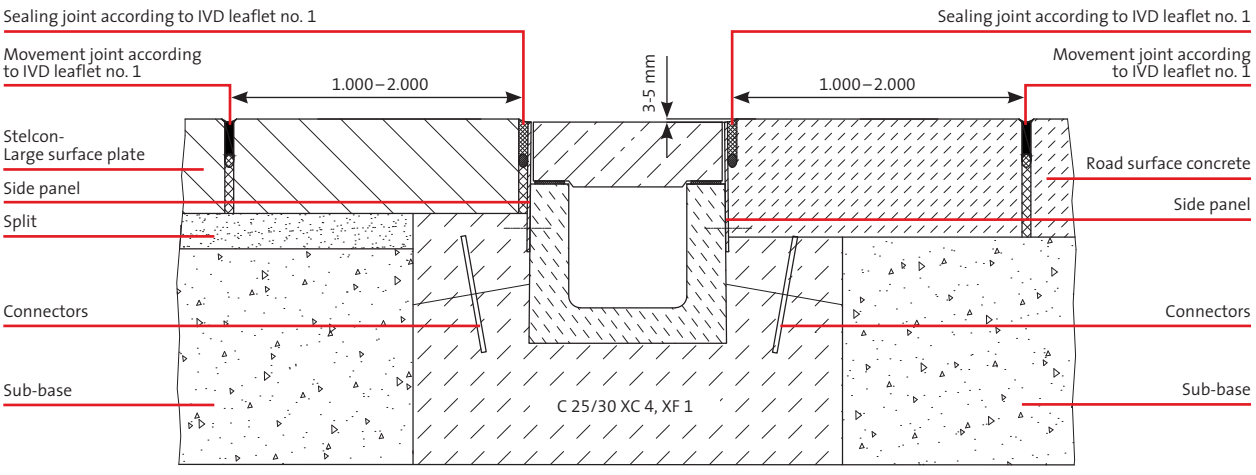
Drawing-No. 21007



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOcanal NW 200 without angle, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

Drawing-No. 21007

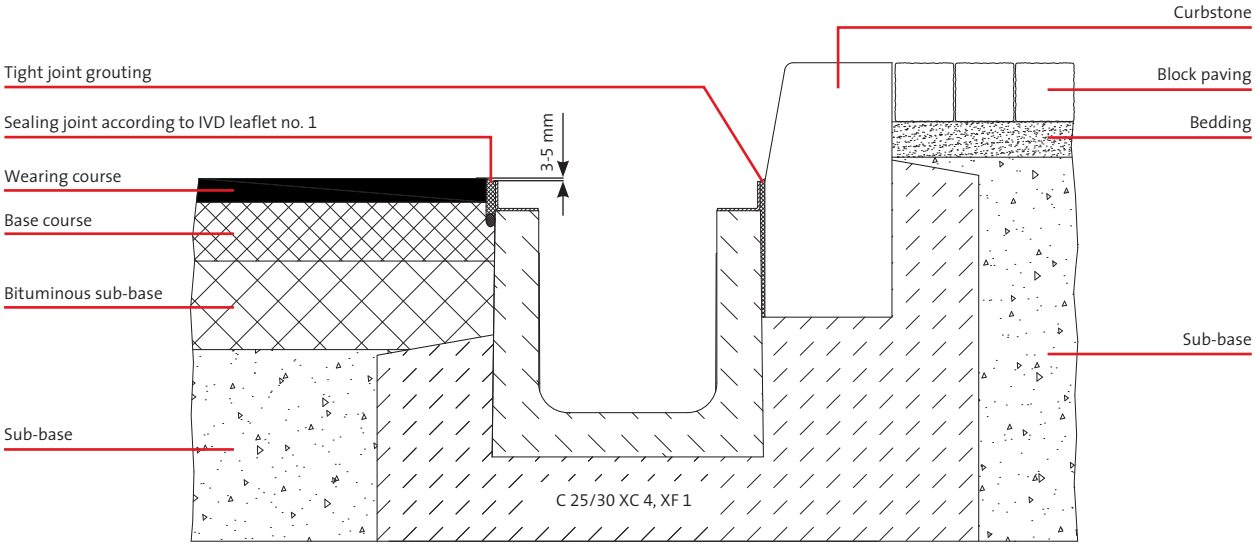


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOcanal NW 300, Type M, Load class A 15 – E 600

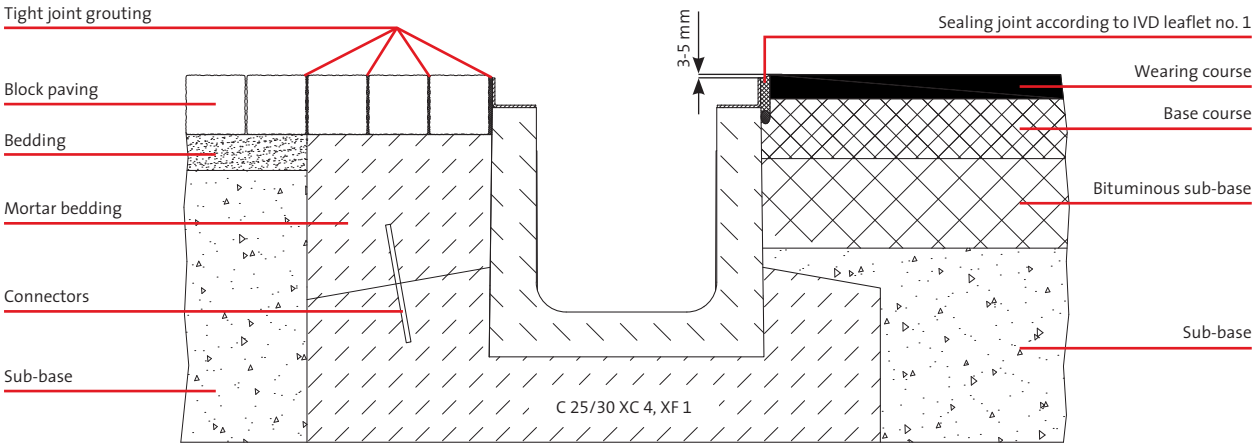
Drawing-No. 21000



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOcanal NW 300, Type M, Load class A 15 – E 600

Drawing-No. 21000

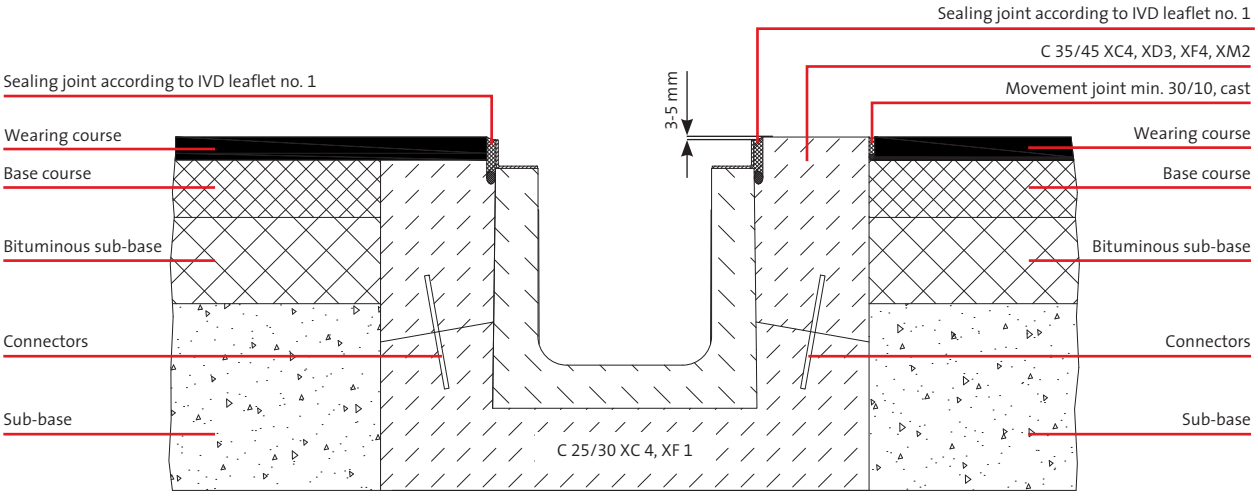


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOcanal NW 300, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600 / F 900)

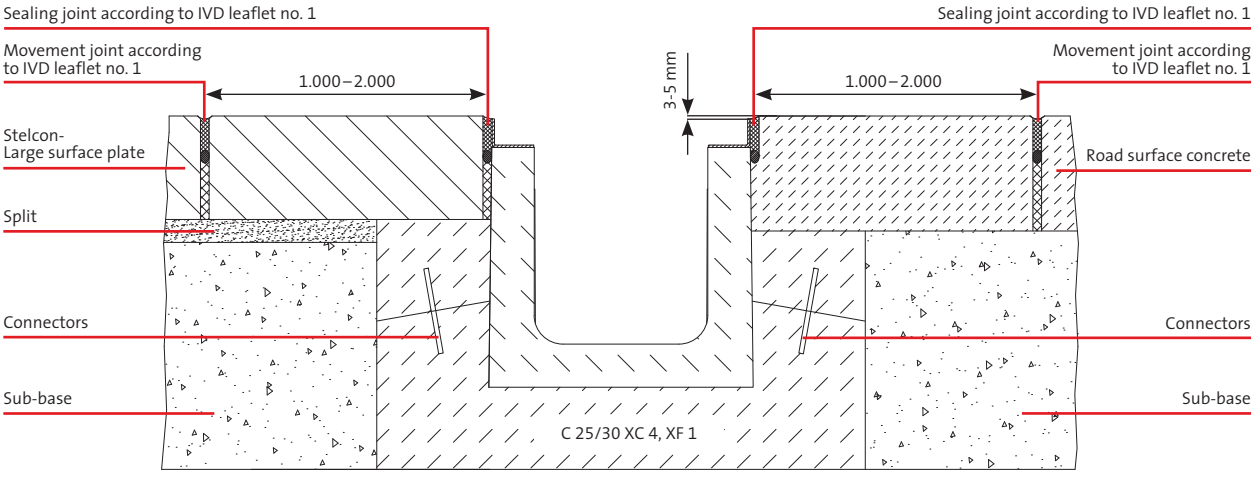
Drawing-No. 21000



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOcanal NW 300, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600 / F 900)

Drawing-No. 21000

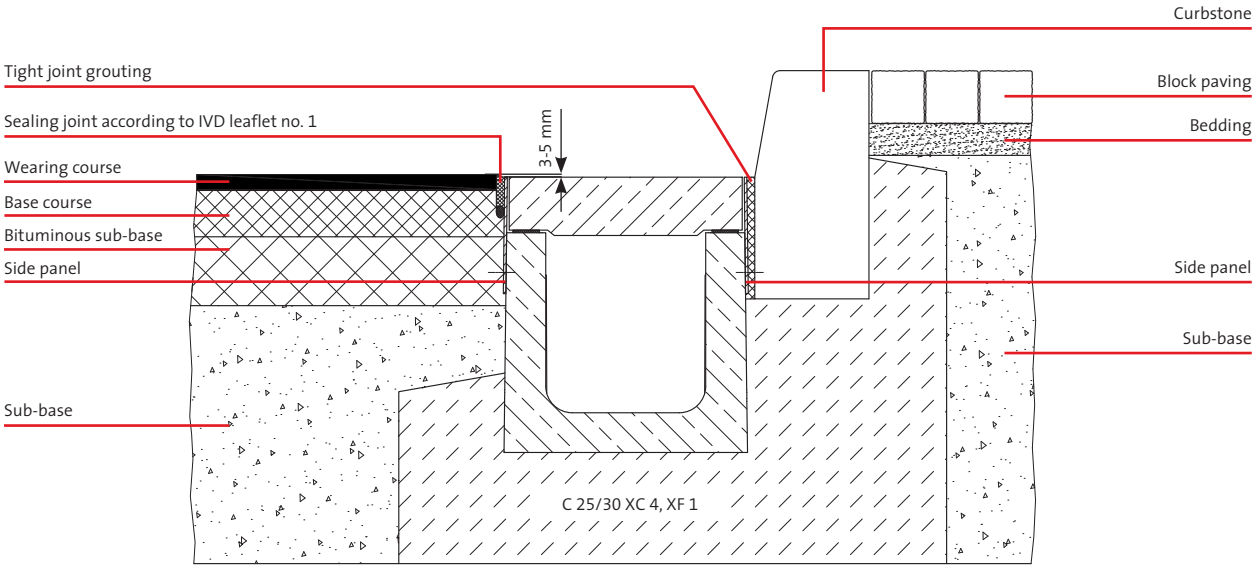


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOcanal NW 300 without angle, Type M, Load class A 15 – E 600

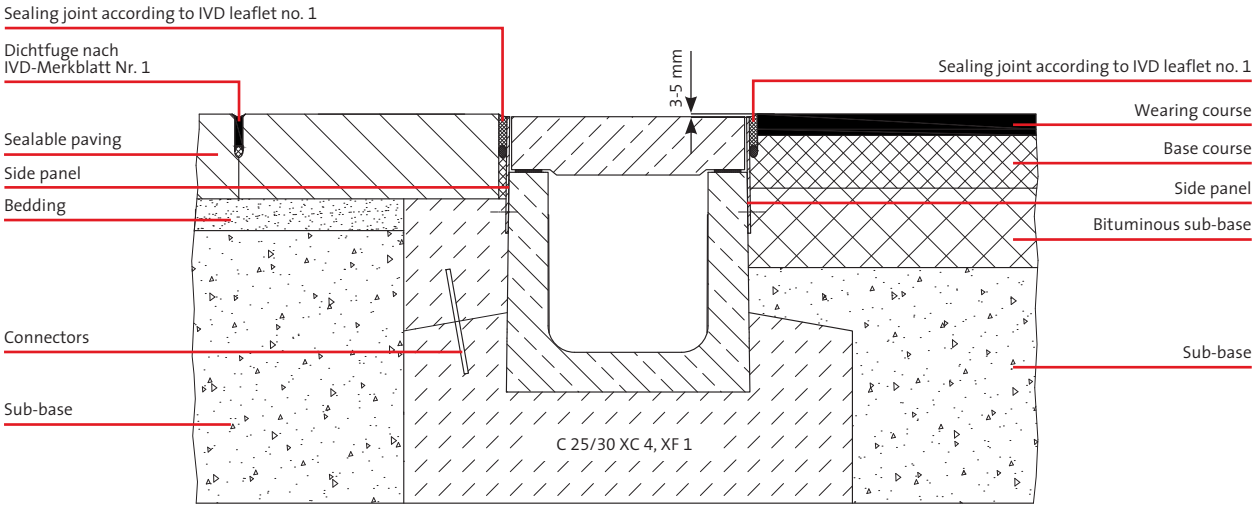
Drawing-No. 21008



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOcanal NW 300 without angle, Type M, Load class A 15 – E 600

Drawing-No. 21008



Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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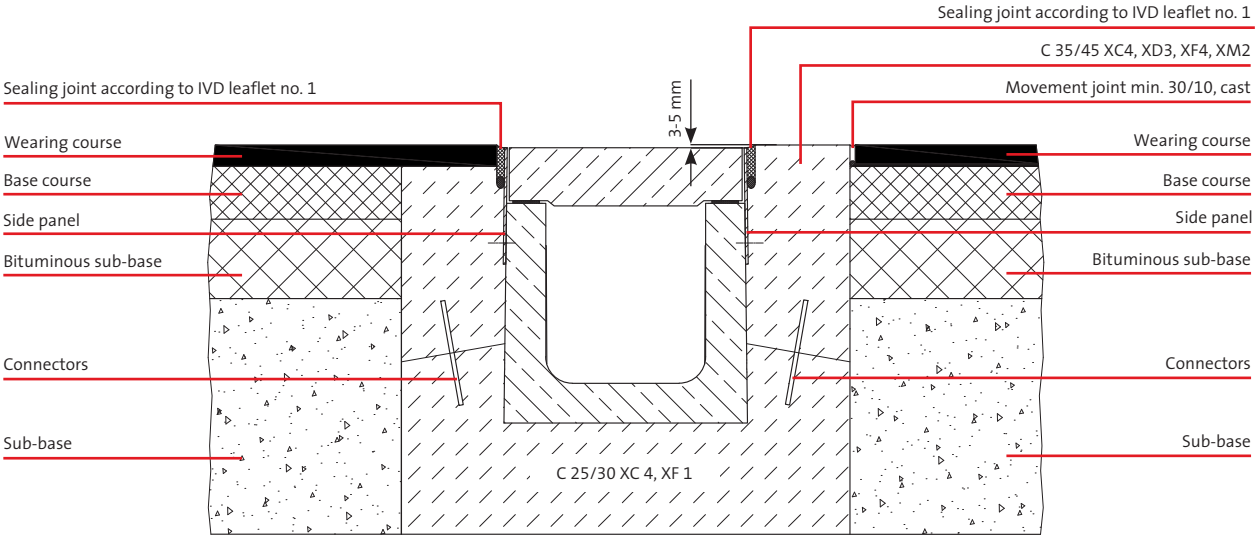
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOcanal NW 300 without angle, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

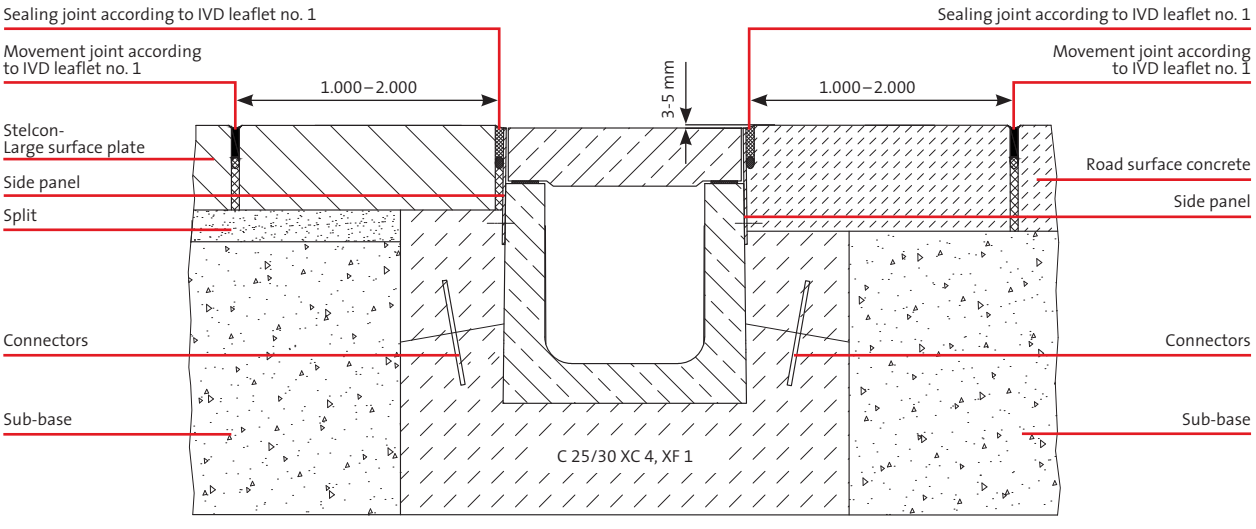
Drawing-No. 21008



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOcanal NW 300 without angle, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

Drawing-No. 21008

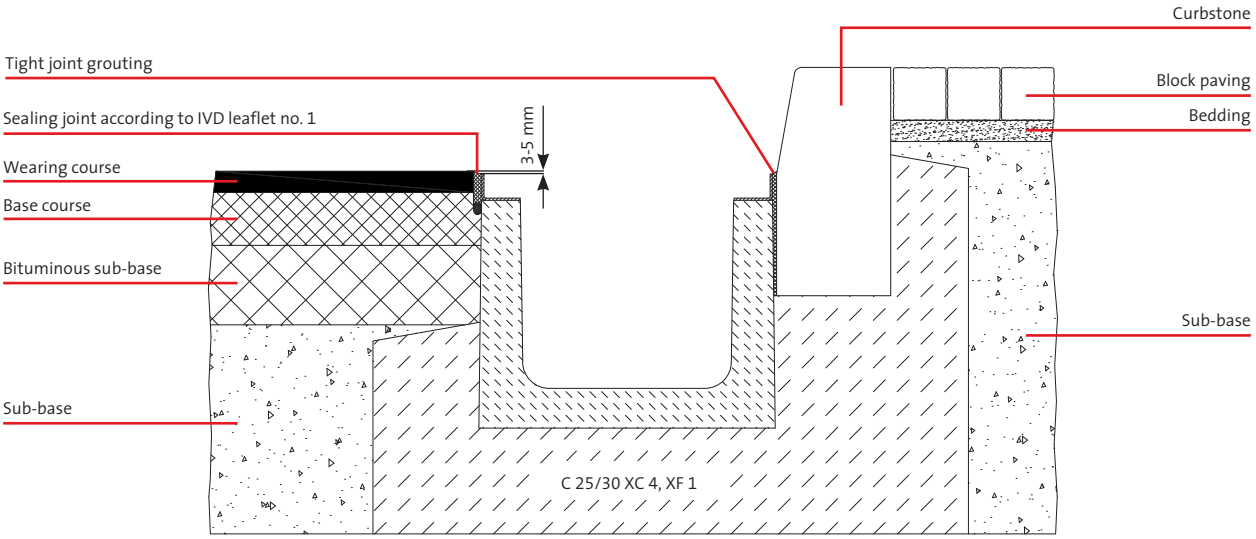


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOcanal NW 400, Type M, Load class A 15 – E 600

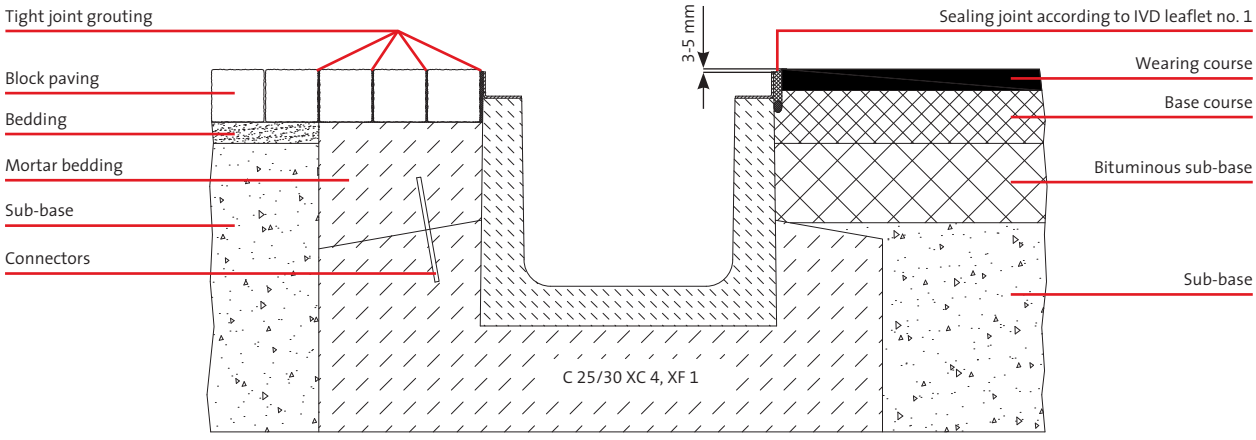
Drawing-No. 21004



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOcanal NW 400, Type M, Load class A 15 – E 600

Drawing-No. 21004

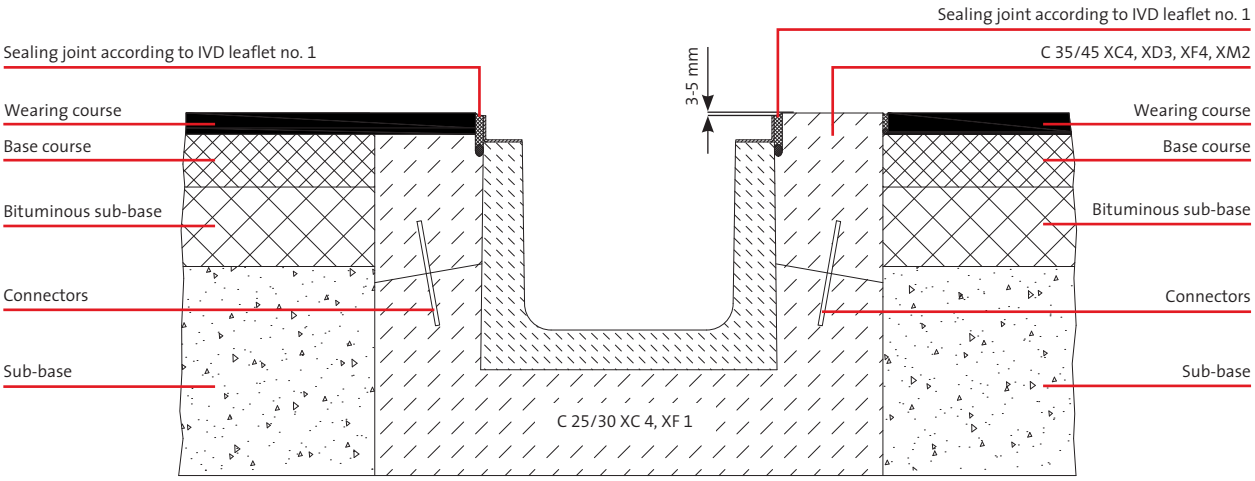


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOcanal NW 400, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

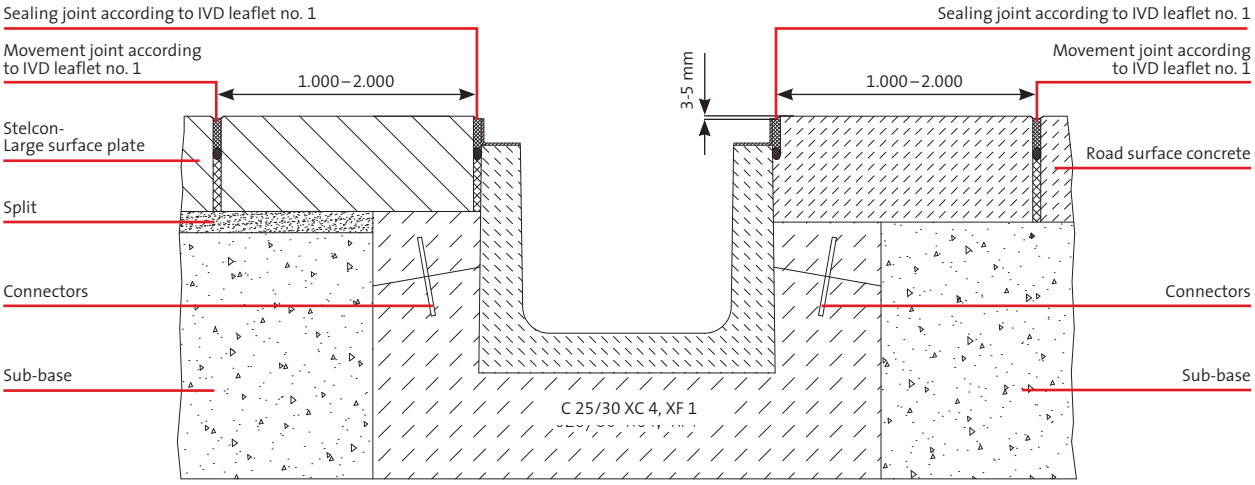
Drawing-No. 21004



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOcanal NW 400, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

Drawing-No. 21004

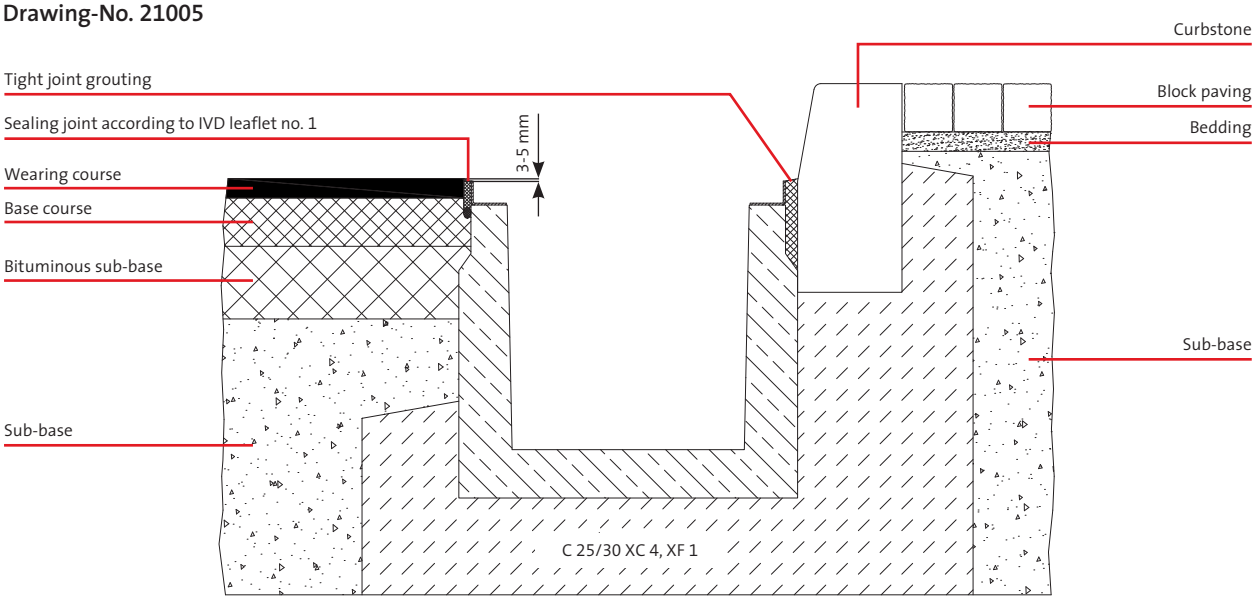


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOcanal NW 500, Type M, Load class A 15 – E 600

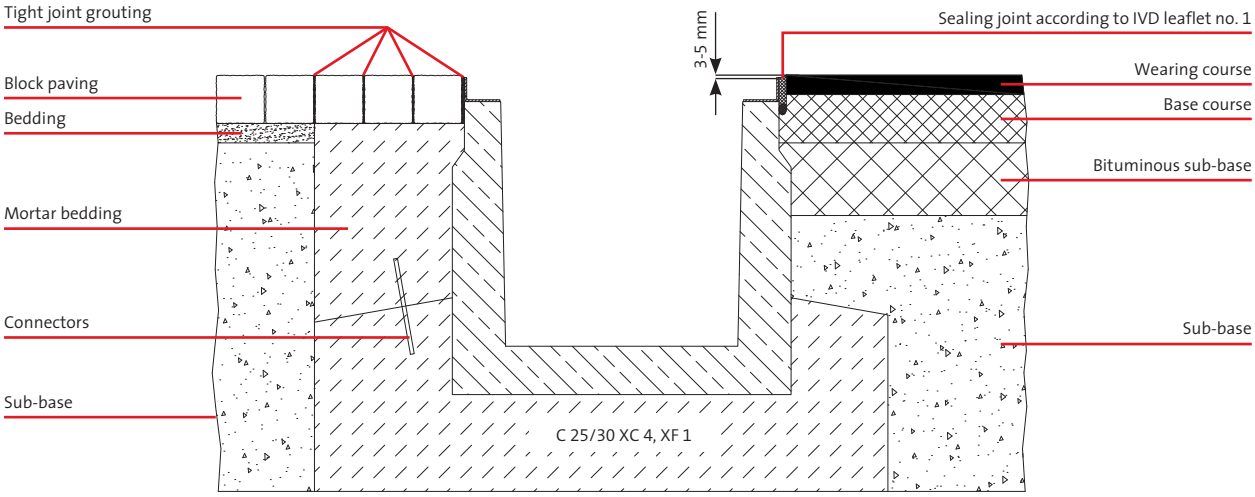
Drawing-No. 21005



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOcanal NW 500, Type M, Load class A 15 – E 600

Drawing-No. 21005

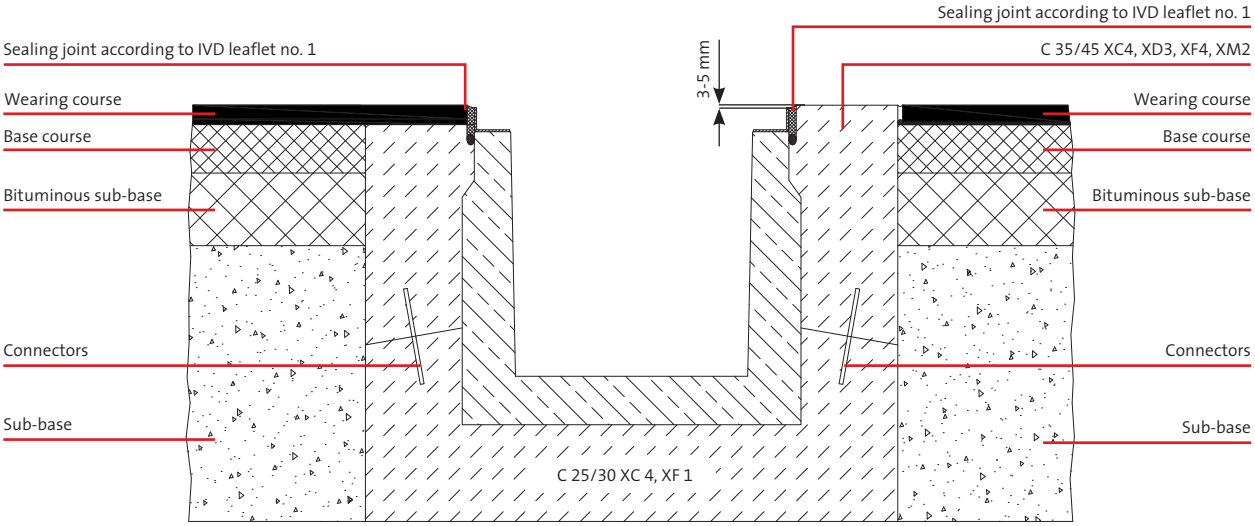


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOcanal NW 500, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

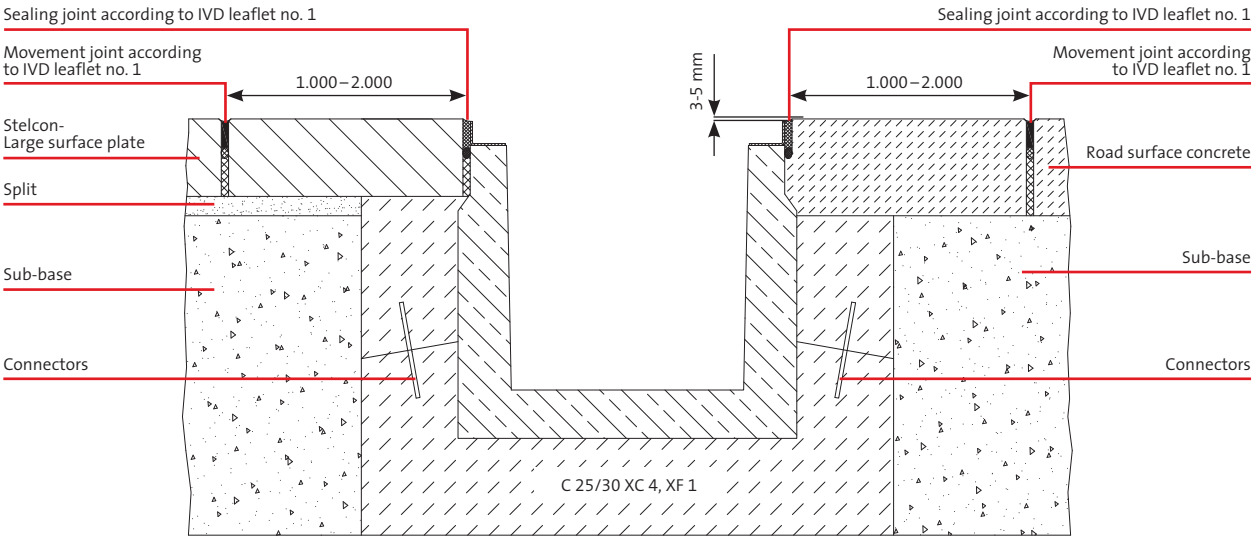
Drawing-No. 21005



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOcanal NW 500, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

Drawing-No. 21005

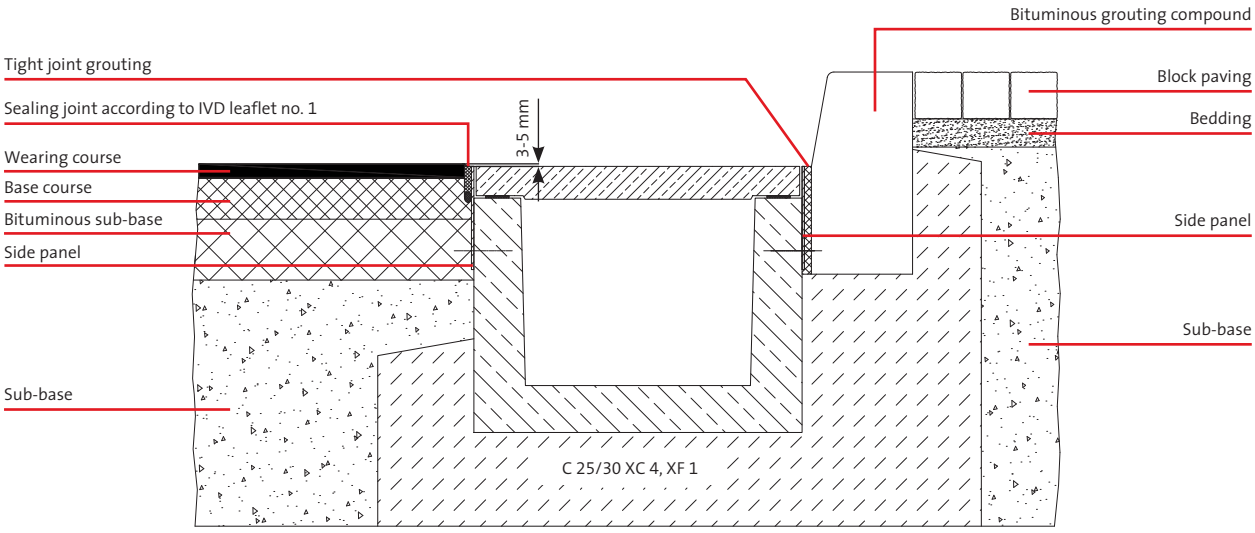


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOcanal NW 500 without angle, Type M, Load class A 15 – E 600

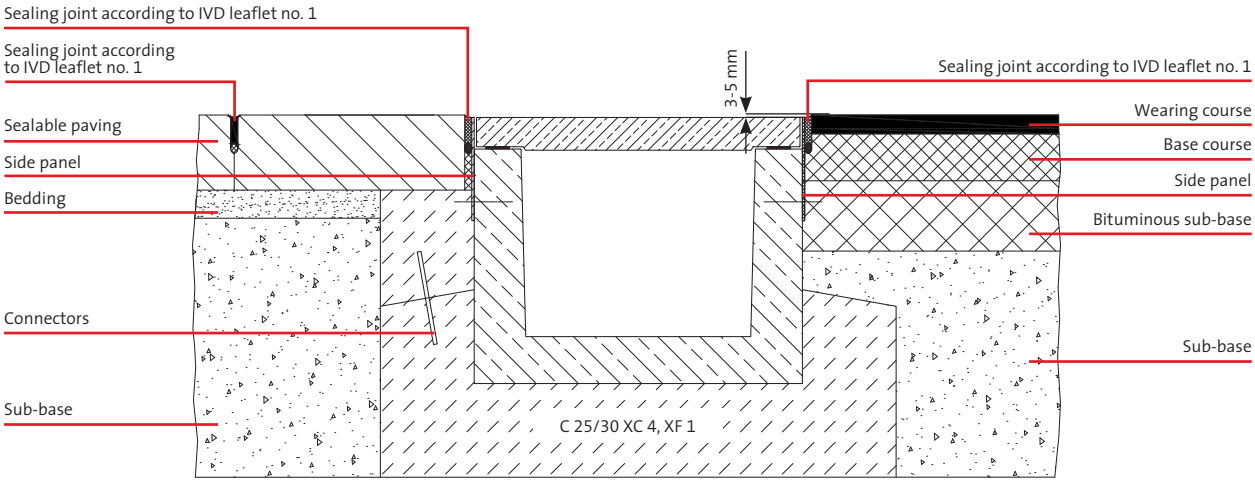
Drawing-No. 21010



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOcanal NW 500 without angle, Type M, Load class A 15 – E 600

Drawing-No. 21010



Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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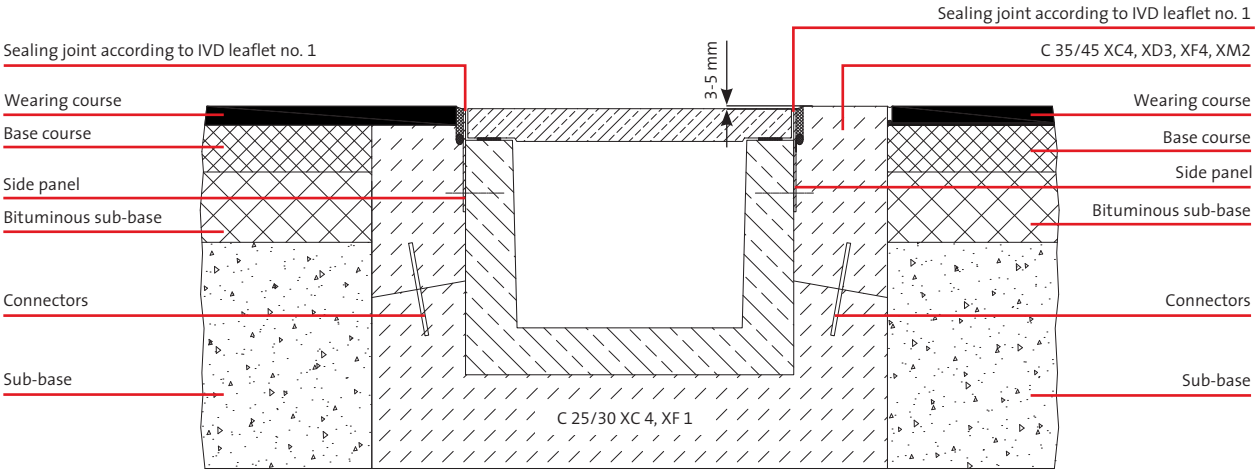
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOcanal NW 500 without angle, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

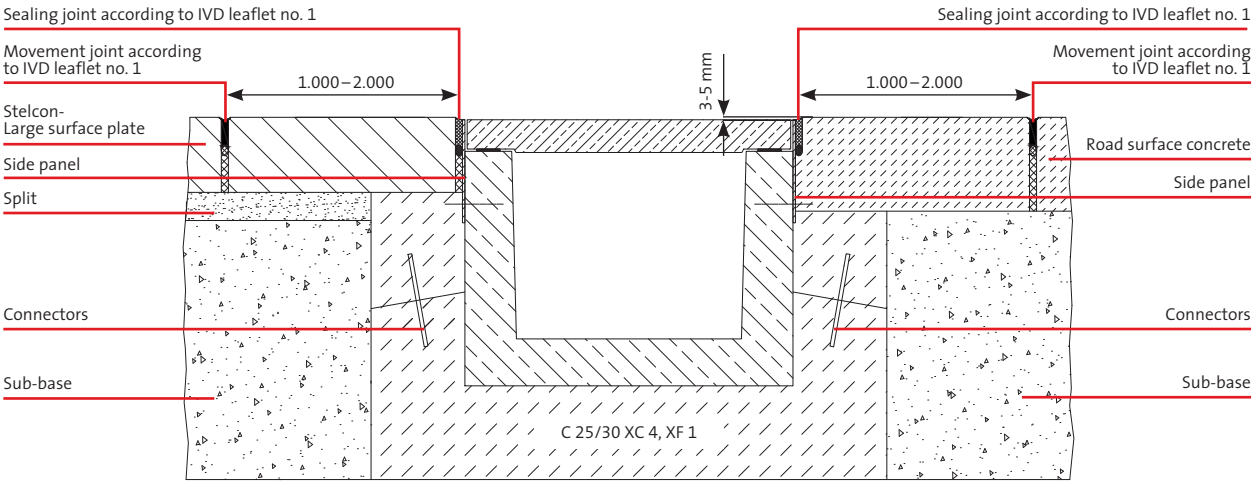
Drawing-No. 21010



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOcanal NW 500 without angle, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

Drawing-No. 21010

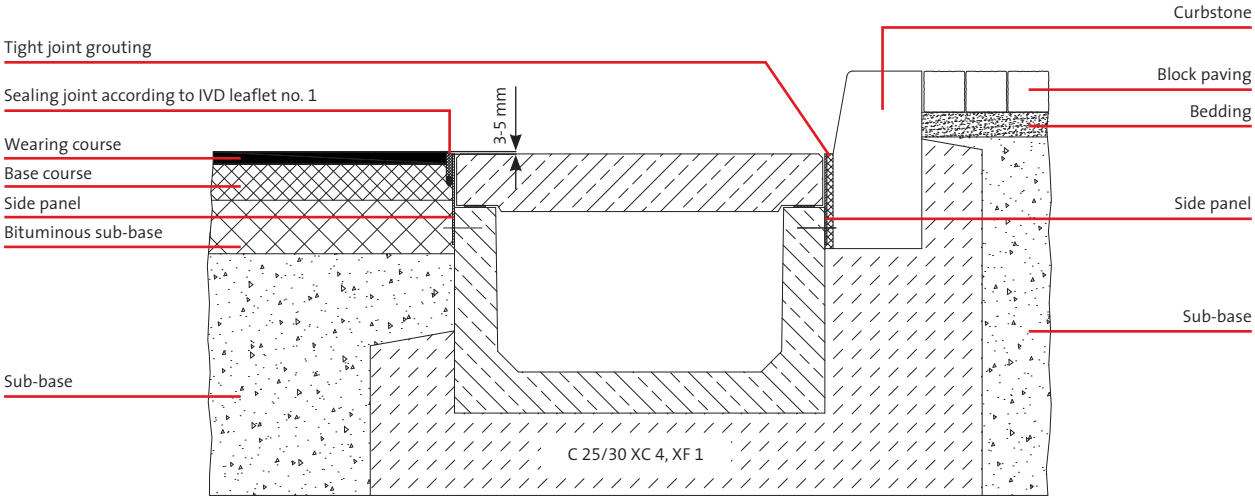


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOcanal NW 700, Type M, Load class A 15 – E 600

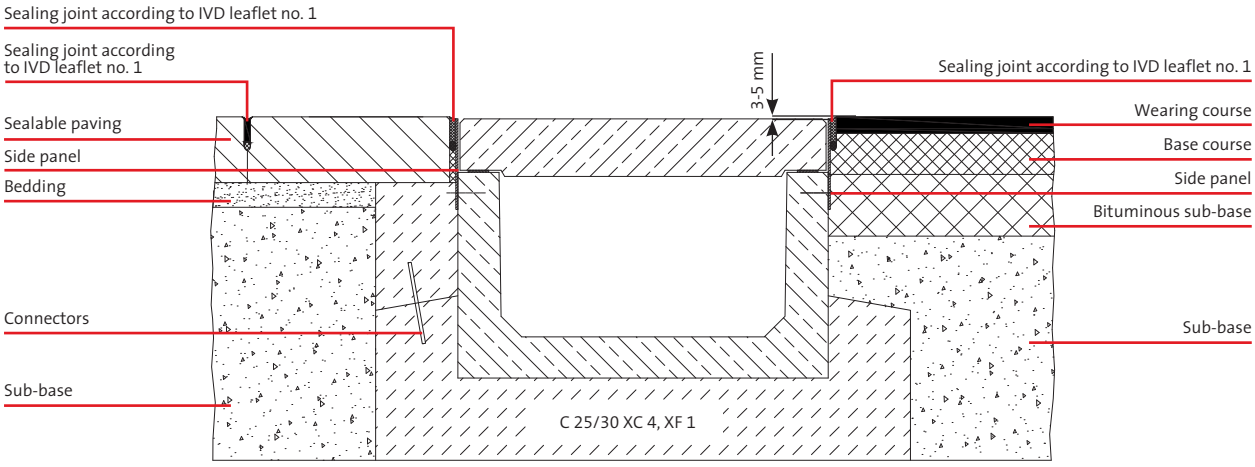
Drawing-No. 20498



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOcanal NW 700, Type M, Load class A 15 – E 600

Drawing-No. 20498



Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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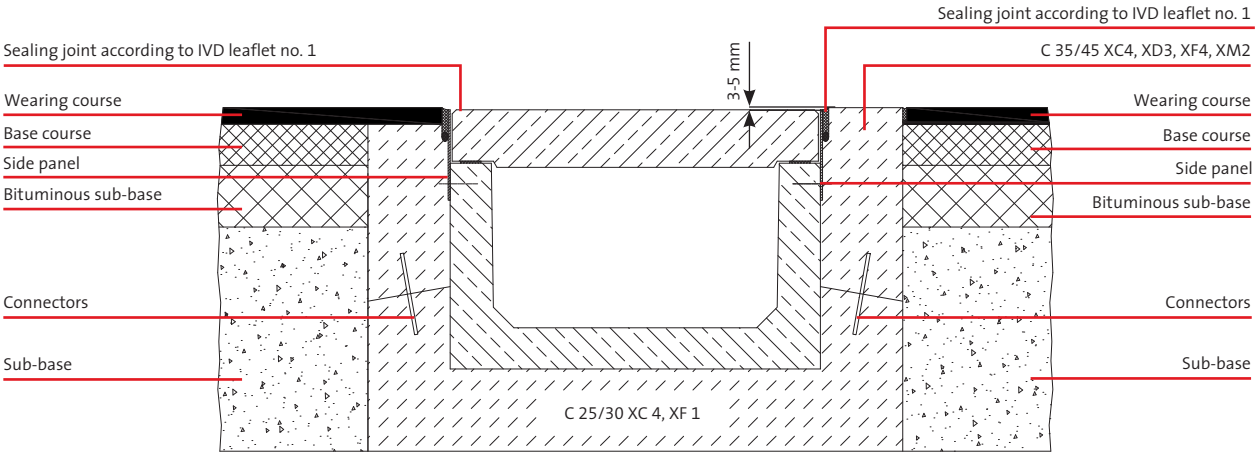
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOcanal NW 700, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

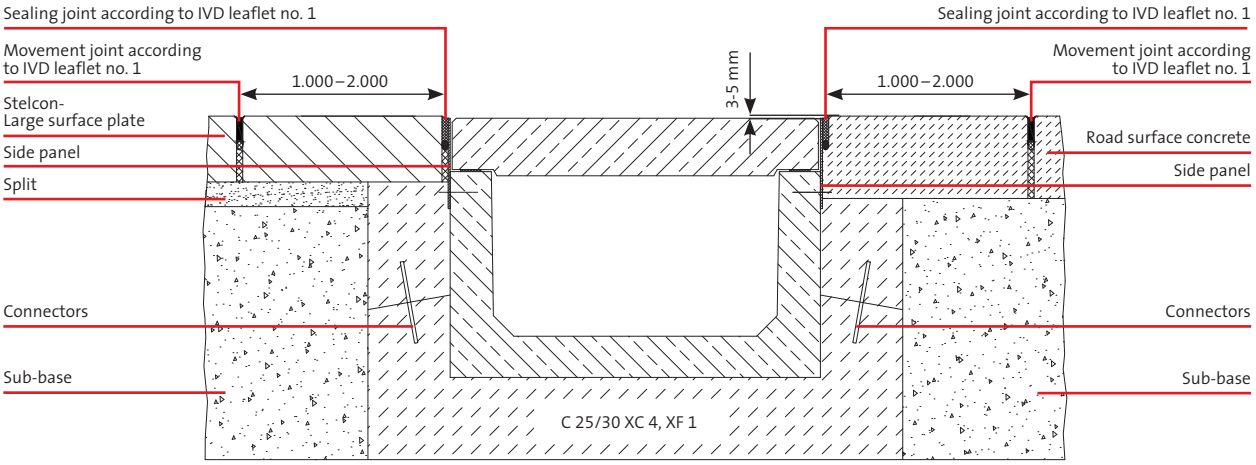
Drawing-No. 20498



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOcanal NW 700, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

Drawing-No. 20498

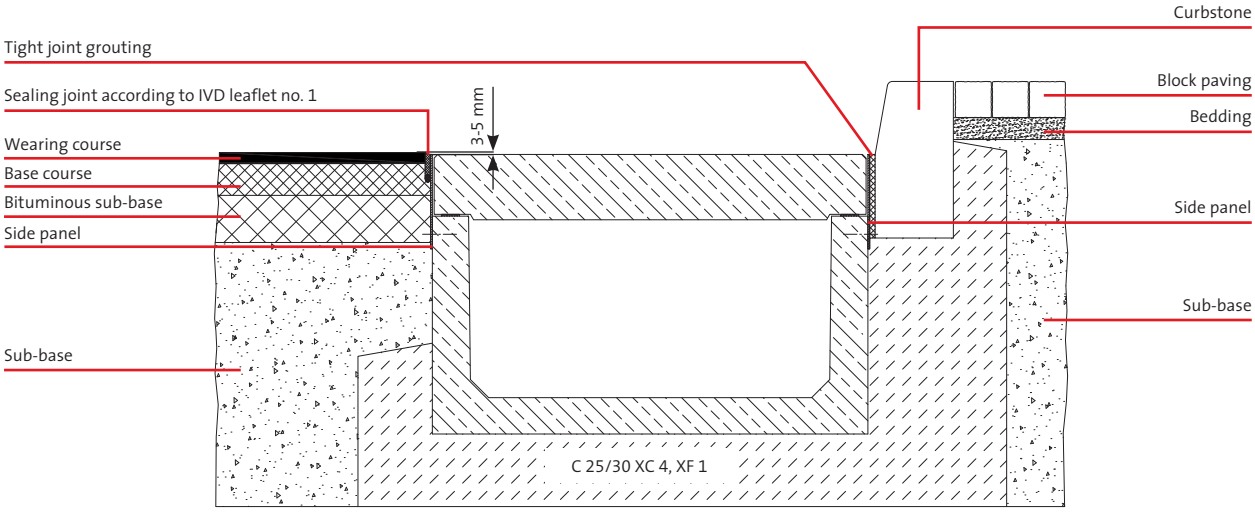


Construction according to RSTO with non-setting, frost-resistant carrier layers

The planning of movement joints must be conducted from on the basis of engineering considerations. When laying the channel line in a full concrete surround, movement joints at right angles to the channel line must be installed every 12 metres.
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.

BIRCOcanal NW 1000, Type M, Load class A 15 – E 600

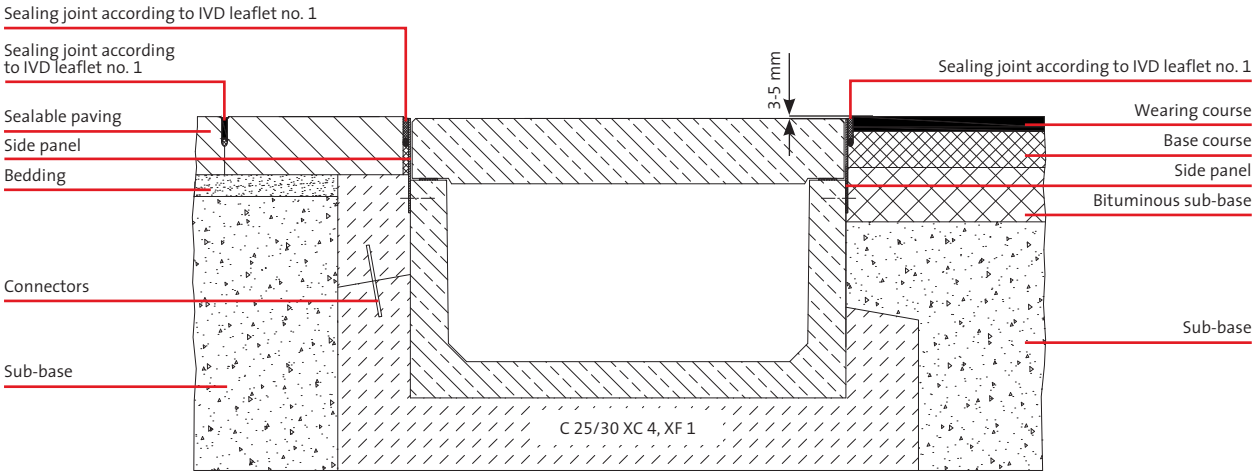
Drawing-No. 21012



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOcanal NW 1000, Type M, Load class A 15 – E 600

Drawing-No. 21012



Construction according to RSTO with non-setting, frost-resistant carrier layers

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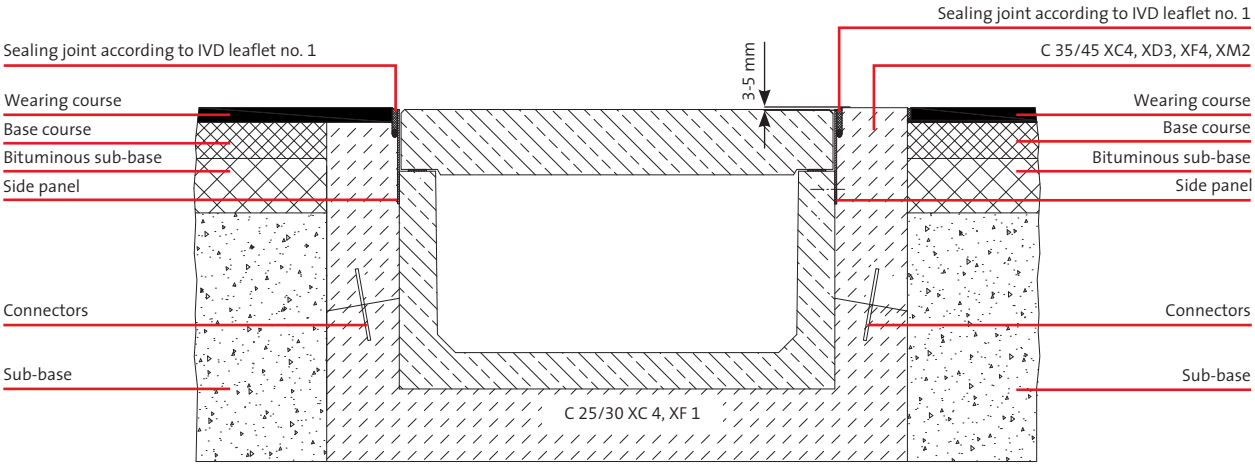
Constructed in accordance with RSTO using non-settling frost-free sub-bases
Exception up to D 400: Not for use across the carriage- way of highways or motorways.

BIRCOcanal NW 1000, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

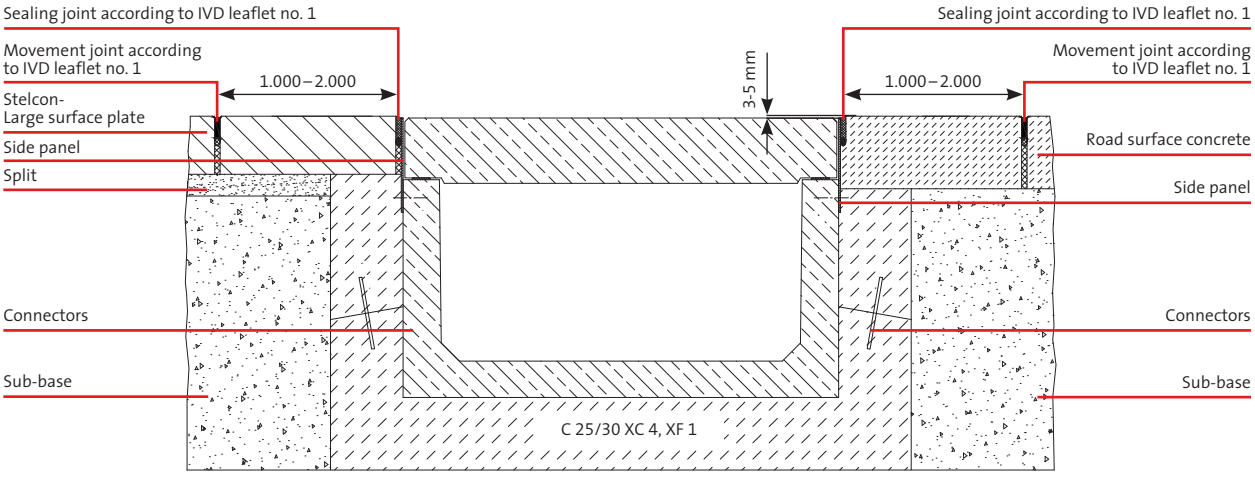
Drawing-No. 21012



Construction according to RSTO with non-setting, frost-resistant carrier layers

BIRCOcanal NW 1000, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

Drawing-No. 21012



Construction according to RSTO with non-setting, frost-resistant carrier layers

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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.

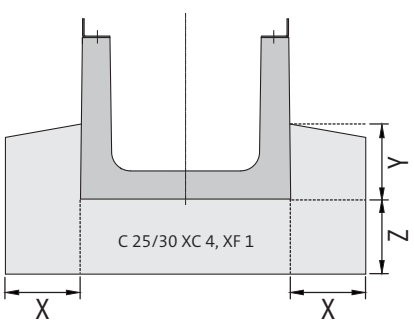
When pavement surfaces are being laid and pressed, it must be ensured that the pavement material is not forced against the blocks.

The dimensions of the lateral concrete surround must be adapted to the circumstances on-site and must consist of at least 15 cm. If no bond can be created between the base and the lateral concrete surround, then chisels or flotation controls made of Ø 8 mm reinforced bars are to be installed every 30 cm. 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.

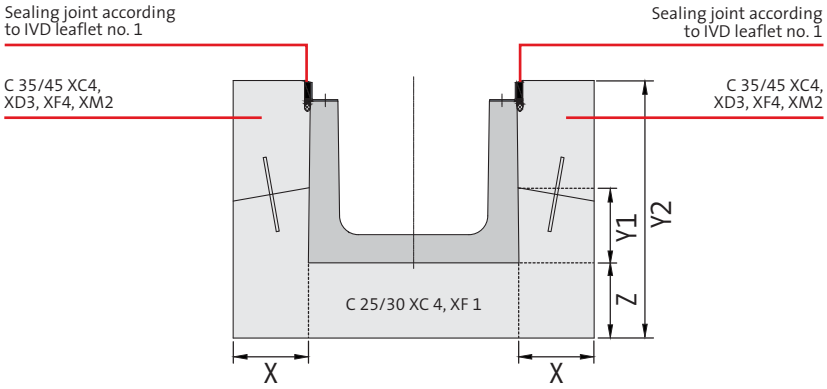
Bolt connection note:
For heavy-duty load areas subjected to frequent traffic and in vehicle manœvering areas, we recommend using threaded bolts instead of fast connection systems (such as Easylock). Torque moments for screwing on the gratings are to be set at M12 = 60 Nm, M16 = 100 Nm.
The bolts must be re-tightened at regular intervals.

BIRCOcanal | Overview

NW	Type	Load class	X	Y/Y 1	Y 2	Z	Drawing-No.	Page
BIRCOcanal 100	M	A 15 – E 600	≥ 150	≥ 100	–	≥ 200	20984	112
BIRCOcanal 100	M	D 400 – E 600	≥ 150	≥ 100	Construction height + 5 mm	≥ 200	20984	113
BIRCOcanal 150	M	A 15 – E 600	≥ 150	≥ 100	–	≥ 200	20987	114
BIRCOcanal 150	M	D 400 – E 600	≥ 150	≥ 100	Construction height + 5 mm	≥ 200	20987	115
BIRCOcanal 200	M	A 15 – E 600	≥ 150	≥ 100	–	≥ 200	21007	116
BIRCOcanal 200	M	D 400 – E 600	≥ 150	≥ 100	Construction height + 5 mm	≥ 200	21007	117
BIRCOcanal 300	M	A 15 – E 600	≥ 200	≥ 100	–	≥ 200	21000/21008	118/120
BIRCOcanal 300	M	D 400 – E 600	≥ 200	≥ 100	Construction height + 5 mm	≥ 200	21000/21008	119/121
BIRCOcanal 400	M	A 15 – E 600	≥ 200	≥ 200	–	≥ 200	21004	122
BIRCOcanal 400	M	D 400 – E 600	≥ 200	≥ 200	Construction height + 5 mm	≥ 200	21004	123
BIRCOcanal 500	M	A 15 – E 600	≥ 200	≥ 200	–	≥ 200	21005/21010	124/126
BIRCOcanal 500	M	D 400 – E 600	≥ 200	≥ 200	Construction height + 5 mm	≥ 200	21005/21010	125/127
BIRCOcanal 700	M	A 15 – E 600	≥ 200	≥ 200	–	≥ 200	20498	128
BIRCOcanal 700	M	D 400 – E 600	≥ 200	≥ 200	Construction height + 5 mm	≥ 200	20498	129
BIRCOcanal 1000	M	A 15 – E 600	≥ 200	≥ 200		≥ 200	21012	130
BIRCOcanal 1000	M	D 400 – E 600	≥ 200	≥ 250	Construction height + 5 mm	≥ 250	21012	131



Installation without concrete surround



Installation with concrete surround

BIRCOcanal | Bore hole horizontal and vertical

NW	Bore hole horizontal maximal	Bore hole vertical maximal
100 mm	DN 150	DN 100
150 mm	DN 200	DN 150
200 mm	DN 250	DN 200
300 mm	DN 300	DN 300
400 mm	DN 300	DN 300
500 mm	DN 300	DN 300
700 mm	DN 300	DN 300
1000 mm	DN 300	DN 300

The figures shown relate to PVC drainage pipe used in German road construction. For bore hole diameters for PEHD pipes please contact us. Bore holes must be a distance of at least 100 mm away fromt the end of the channel.

BIRCOservice Page 107

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

BIRCOservice |
For the heavy duty sector

Special solutions for your specific project are produced in BIRCO's own workshops.

BIRCOservice

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BIRCO drainage solutions are adapted individually to your specific project in accordance with the latest construction guidelines.

Systematic drainage solutions

Linear drainage

Linear drainage (in contrast to point drainage) consists of a line of drainage channels collecting the water flowing in from the surface and feeding this water to the drain. The channel line can also serve as an intermediate storage facility and delay drainage. Precise calculations have to be made in order for this type of channel system to work properly: The size and surface properties of the drainage area must be taken into consideration, as well as the average level of precipitation in the area. Since the adjacent surfaces and pavements have to be slanted toward the drainage line, a pavement profile generally emerges between the channel lines.

Channel elements with inbuilt falls

BIRCO channels are available both with and without inbuilt falls. The inbuilt fall eases the flow of water toward the outfall unit. A combination of channels with and without an inbuilt falls can ensure rapid drainage performance.

Point drainage

Point drainage (in contrast to linear drainage) is a system in which rainwater is collected at individual points in a decentralised fashion and fed to the drainage pipe. Accordingly, the drainage points must be located at the lowest point on the site.

Linear drainage

Linear drainage with inbuilt fall

Linear drainage with opposing falls

Horizontal and vertical bore holes

Pipe connections to fit your needs

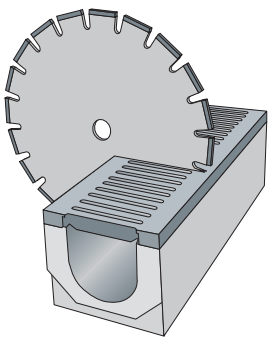
We can fit BIRCO channels with horizontal or vertical bore holes for directly fitting feed and drainage lines according to your plans. (Bore holes must be a distance of at least 100 mm away fromt the end of the channel.) The connections available differ according to the nominal widths, extending in the standard range from DN 100 to DN 300. The diameters are matched with channel base pipes; different pipes are available upon request. BIRCO also supplies ready-made pipe connections upon request and sludge buckets for channels with vertical bore holes.

The design of the pipe connection can also be supplied with double walls. Standard components from specialist retailers are also available for the junction between the sealed PE pipe and stoneware or PVC pipe.

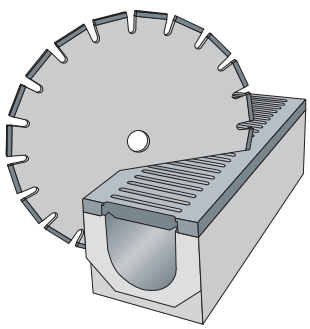
Individual customisations for every nominal width

Your plans are in good hands

BIRCO's factory service offers you a variety of customised channel panel solutions, either at a 90° angle or mitred. The concrete parts are cut including the covers so that installation at the building site can be conducted faster and with greater precision.



Channel section 90° including cover



Mitre cut according to degree specification, including cover. Please note that two mitre cuts are required and calculated per corner connection.

BIRCOservice | Ideal laying and jointing

Matching accessories for fast, uncomplicated installation. Systematic tools for smooth operation.

Laying

Ring nuts ensure easy laying

When laying BIRCOmassiv channels, the ring nuts screwed onto the steel bolts play a valuable role, enabling the channel units to be moved easily and inserted precisely into a pre-assigned slot. This reduces excavation work and makes for better channel laying. Standard drainage units can be moved using any laying grippers commonly found on the market. We develop individual laying accessories based on your specifications.

Fastening

Fast, secure, low-maintenance

BIRCO channel systems are fitted with a solid steel combi-connection edge angle. This allows all types of gratings and covers to be bolted to the channel unit up to 8 times per metre, or fastened quickly and securely with the BIRCO Easylock option. Easylock – one turn and everything's securely in place. BIRCO creates individual fastening solutions for special requirements.

Jointing with SF-Connect

Sealing of the BIRCO safety joint with SF-Connect provides additional security of the channel's seal.

Grouting of the channel end/ safety joint with SF-Connect after laying of the drainage channels has been completed. Additional areas of application: Adhesion of concrete, clinker, steel, stainless steel, aluminium, polyester (GFK), PVC, acrylic, polystyrene, glass, wood.

Properties:

Coated bases must be inspected in advance for adhesion and compatibility. The hardening period depends on the temperature and moisture. Higher temperatures reduce the drying period time. SF-Connect does not contain solvents, isocyanate and silicones and does not require special warning labelling. Prior to beginning the work, it is necessary to inform oneself regarding handling and safety instructions by reading the material safety data sheet.

Benefit:

SF-Connect can be used on a moist sub-surface and without the prior application of any primers!

Material requirements

The amount of SF-Connect required changes according to the system and the length of the channel line. Upon request, BIRCO will conduct a calculation for your specific project.

Working instructions:

1. Use an industrial grouting pistol to apply the sealant to the channel end/safety seam.
2. Important! Prior to applying the sealant to the safety joint, clean the channel end/safety joint and remove separating agents, dust, soiling, oil and other residues that could diminish adhesion.
3. Wear protective gloves and eyewear when conducting the work.
4. Insert 600 ml tubular bag into the industrial grouting gun.
5. Squirt out SF-Connect.
6. Then smooth out the channel end surface/joint surface with a jointer or putty knife that has been dipped in a soap solution.
7. Allow material residue to dry. Dried residue can be disposed of as residual waste.

Cleaning and maintenance

Easy and fast

In order to ensure the proper functioning of the system components, they must be cleaned on a regular basis dependent upon the accumulation of soiling. This is customarily done using a high-pressure cleaner with a pipe cleaning nozzle.

Conventional cleaning:

Once the cover at the lowest point is removed (gully), insert the cleaning hose and jettison the soiling in the direction of the second gully. The covers of the channel panels do not have to be removed for this.

Cleaning with BIRCOeasyclean:

There is no need to remove the cover. Stick the nozzle directly in through the cover and jettison the soiling toward the outfall unit.

The cover bolts must be retightened to the specified torque moment on a regular basis. This is necessary in order to ensure long-lasting traffic safety or to prevent destruction of the channel units as a result of clattering covers.

BIRCOservice

Advice around the clock

BIRCO provides a comprehensive range of advice and services, offering you our expertise personally, by phone, via the internet or on-site.

Sharing our expertise with you – Service on-site

BIRCO is there for you anytime

By phone or on-site, our experts are ready to help you find your way around the BIRCO product range, select the right channel system for your needs and answer specific questions about the arrangement and layout you need.

On-site throughout Europe

BIRCO's sales team experts are at your side right from the start of your construction project in planning, problem resolution, bid tenders and implementation. Our sales reps are located throughout Europe and have years of experience and training in the very latest industrial developments.

BIRCO | Notices

Tradition of responsibility

As a family business with almost 100 years of history, we look back on many developments. What remains, is the attitude towards our customers and the desire to offer the best building materials. Made in Germany.

BIRCO quality since 1927

The company today – BIRCO International

With its headquarters in Baden-Baden, BIRCO is in the south-west of Germany and with over 160 employees a well-known employer. BIRCO is a synonym for drainage channels in many regions and a well-known partner in the building material business. BIRCO is represented in more than 17 countries and realized big international projects. The BIRCO staff is convincing with competence in rain-water management. For more customer service we have invested in a separate logistics center close to the A5. Just in time deliveries to the distributers and the construction site are always in focus.

The detail makes the difference

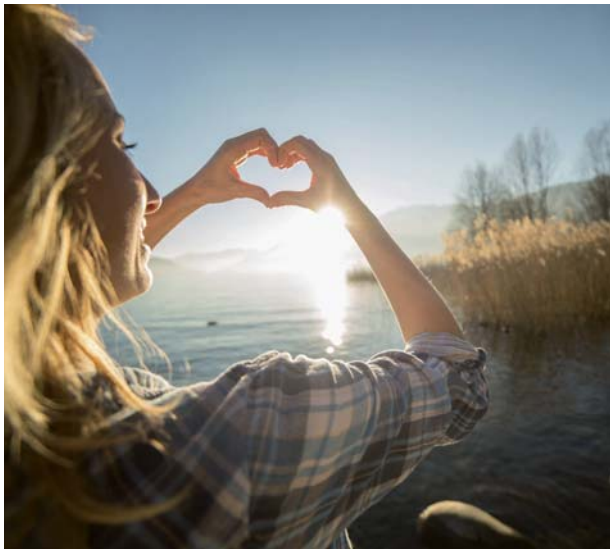
Often it is the little things that inspires our customers for ours Products. Time and again, our product developers have succeeded in improving the components. As in case of the “BIRCO SIR” (safety channel) 1976, which anchored in the concrete solid steel angle with screw connection. Until today, a genuine branded product for the building materials trade, „ Frank Wagner, Managing Director and CEO, Grand-son of the company founder Fritz Birnbräuer says.

Pleasure of innovation

Having fun every day, the staff proves by countless suggestions every year. The best get realized and make it possible for BIRCO to have always a firework at the big fairs. With the BIRCOdirect infiltration channel, the company was a pioneer in the rainwater management sector in 1998.

What are we going to do? – Create the future!

“The people are in the center of our actions”, the managing director and co-owner, Christian Merkel, defines it. “With this premise, the employees, both internally and externally, want to make the world a bit better in partnership and positively shape the future of our children. Water is an essential building block for us. We look forward to your suggestions.



BIRCO experts support planners and architects from the first concept through to laying, at the drawing board and every day at the building site.

BIRCOonline

Information at a single mouse click

In addition to personal consultation, you can also order all of our product information by post, e-mail or via the internet.

Download Center

At the Download Centre you can find installation instructions, technical information and much more in PDF file form. On the data pages, you can create PDF files of daily technical data updates.

BIRCOsales team

Always close by

Your internal customer service representative can always be reached by phone or e-mail, ready to assist you with inquiries, advice and expert knowledge.

We also rely on a continuous trusting cooperation with regional dealerships. This network benefits you in product inquiries and logistics.

www.birco.de

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Heavy Duty

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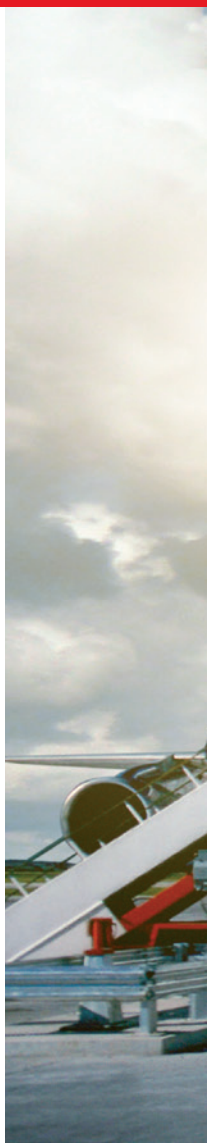

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