BIRCO

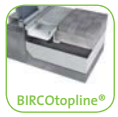
DRAINAGE
IN ITS BEST FORM

Drainage Solutions for Heavy Duty Areas

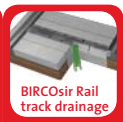
Systems for Traffic, Industry, Logistics and Airports

“THE BEST FOR OUR WATER”

Intelligent solutions to complete the water cycle.

Your application area	 BIRCOplus	 BIRCOlight	 BIRCOlight triloc®	 BIRCO Slotted tops	 BIRCOprofil	 BIRCOtop Series S	 BIRCOtop Series F	 BIRCOtopline®
Roads		✓ ✓	✓		✓			
Industrial areas		✓						
Commercial areas		✓	✓		✓			
Logistics areas								
Hall construction		✓	✓		✓			
Chemical industry								
Airports airside								
Ports								
Agriculture		✓						
Residential / office building	✓	✓	✓	✓		✓ ✓	✓ ✓	✓ ✓
Underground parking garages		✓			✓ ✓			
Multi-story parking garages					✓ ✓			
Train stations		✓	✓	✓	✓ ✓			
Landscaping	✓ ✓	✓ ✓	✓ ✓	✓				
Urban design		✓ ✓	✓ ✓	✓ ✓	✓			
Private areas	✓ ✓	✓	✓	✓		✓ ✓	✓ ✓	✓ ✓

Your area of application is not included? We are happy to advise you individually. You will find our contact data on the back cover.

Your application area	This brochure  BIRCOsir NW 100 – 200	This brochure  BIRCOsir NW 300 – 500	This brochure  BIRCOsir Point drainage	This brochure  BIRCOsir Rail track drainage	This brochure  BIRCOmassiv	This brochure  BIRCOcanal	This brochure  BIRCOmax-i	 BIRCOsolid Slot channel, type Pfuhler
Roads	✓ ✓	✓ ✓	✓	✓	✓	✓	✓ ✓	✓
Industrial areas	✓	✓	✓	✓	✓ ✓	✓ ✓	✓ ✓	
Commercial areas	✓ ✓	✓	✓	✓	✓ ✓	✓	✓ ✓	✓ ✓
Logistics areas	✓	✓	✓	✓	✓ ✓	✓	✓ ✓	
Hall construction	✓	✓ ✓		✓	✓ ✓	✓ ✓	✓	
Chemical industry							✓	
Airports airside					✓		✓ ✓	✓ ✓
Ports					✓ ✓		✓ ✓	
Agriculture	✓	✓	✓					
Residential / office building	✓		✓					
Underground parking garages	✓							
Multi-story parking garages								
Train stations	✓	✓	✓	✓ ✓		✓	✓	
Landscaping	✓							
Urban design	✓ ✓	✓ ✓	✓ ✓				✓	
Private areas	✓							

Your area of application is not included? We are happy to advise you individually. You will find our contact data on the back cover.

The BIRCO system finder

You can order and download all catalogs as PDFs on www.birco.com.

BIRCO Design – the perfect combination of style and performance

BIRCO Project management – Object-related planning, consultation and calculation

	BIRCO Design	BIRCO Project management
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Mark: ✓ recommended, ✓ ✓ highly recommended

	This brochure BIRCOport	BIRCO twinpack®	BIRCOsed®	This brochure BIRCOpur® Filtration	BIRCO Chambers by StormTech®	This brochure BIRCOprotect	This brochure BIRCOdicht	BIRCOsolid Box channel	BIRCOsolid Slot channel	
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Mark: ✓ recommended, ✓ ✓ highly recommended

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 outfall units 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?

Individual supervision in every phase of the project

In order to ensure its channel systems provide top functionality, BIRCO develops balanced, comprehensive concepts and supervises every stage of the project 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 be 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, realization 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 and complete 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 pressure-resistant C 40/50 and C 60/75 (BIRCOmax-i, BIRCOmassiv) concrete and feature high load reserves, even under extreme 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 installation concrete, i.e. "concrete in concrete". BIRCO moreover supplies Type I and Type M channel systems in accordance with EN 1433. Depending on the type, this means that load-bearing foundations and/or concrete casings are not needed on the building site. This reduces complicated, expensive casing work.

EN 1433

Load classes for channels and gratings

Pedestrians, bicyclists, planted areas

Roadways, pedestrian zones, parking lots

Pedestrians, parking lots, delivery vehicles

Industry, military, high wheel loads

Kerbs, road shoulders, parking lots

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 galvanized

BIRCO only uses high quality 4 mm and 5 mm (BIRCO-max-i) solid steel angle frames with a 70 µm 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 meter, 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.

Displacement guard

Meeting high requirements

Everyday life shows that heavy forces act on angles, covers and flanks through turning and starting heavy load vehicles. That's why the angles and covers of the BIRCOmassiv have been equipped with a sophisticated displacement guard.
Additionally, the covers are fastened with inherently safe 8-fold M12 nuts per meter.

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 first

Anti-slip classification

Many public areas, such as hospitals or nurseries, require covers with anti-slip classification.
Depending on the application, different classes (R 9 – R 13) are required. BIRCO has developed various covers specifically to meet these demands and has them tested by an external official institute.

Safety sealing joint

Precise connection in accordance with EN 1433

In order to ensure a permanently stable connection between the individual channel, all BIRCO concrete channels are fitted with a EN 1433-compliant safety sealing joint. Each safety sealing joint is visible from above, making inspection fast and easy. Professional joint sealing according to groundwater protection laws is possible for BIRCOmax-i and BIRCOmassiv.

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.

Manual Handling

How to avoid accidents

As a substance, cured concrete is non-hazardous; however it is heavy, hard and abrasive. Manual handling of these products therefore has associated hazards. Only individuals who have received training in kinetic handling techniques should be allowed to handle these products. Gloves should be worn when handling concrete or metal products to avoid cuts, abrasions and/or skin irritations.
BIRCO advises that the majority of their drainage components be installed using mechanical handling equipment (if full channel system). Techniques using mechanical handling equipment, such as vacuum machines, have been proven to eliminate manual handling on many sites. Overall project savings have been shown through the benefits of easier, more efficient and less wasteful installation. Suitable equipment is available from Probst Handling and Laying Systems (in case of full concrete drainage channel system).

Protection

Protective clothing and accessories

All necessary Personal Protective Equipment (PPE) should be worn on site, as the site rules dictate. Goggles, ear protection, dust masks and protective footwear must always be worn whenever cutting operations are undertaken.

Ductile Iron

Material properties

Throughout this catalogue reference is made to ductile iron as a generic material.
Ductile iron is available as 'ductile' iron (spheroidal graphite). The coating applied to our ductile iron is a temporary water based coating that will become dull and lose its gloss over a period of time. It is not intended to protect the casting in use and would be expected to break down over a short period of time, either through weathering, or by being worn off when trafficked. As this happens the product would be expected to show signs of surface oxidation.
From the perspective of long term structural performance, the application of such coatings is not intended to serve any purpose; the oxidation mechanism of ductile iron is very different to that of steel and is not detrimental to structural performance.
Both grey and ductile iron contain high quantities of silicon, which upon oxidation converts to silica (alongside the iron oxide) producing a tough nonporous homogenous surface coating. In addition, there is a slight reduction in volume, causing this coating to bind tightly onto the surface which effectively protects the iron and prevents further oxidation.
If the area is regularly trafficked, the gratings will fairly quickly polish up to a dark colour.
If the area is not regularly trafficked and where aesthetics are important, then galvanized steel, stainless steel or powder coated ductile iron gratings (all options that are available) should be considered.

Site Storage

Handling and placing

It is the site contractor's responsibility to ensure that BIRCO units are stored upright on solid level ground, in a clean and dry area away from potential site damage. Care should be taken when removing units from secure packaging from pallets. BIRCO units should not be stacked more than two pallets high.

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 standardized fashion. Specific projects can have unique requirements, ranging from the combination of different channel systems to customized pre-cuts and continuing up to specifically designed 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 accessories, as well as laying plans.

Strict material and process testing ensures the functionality and long service 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 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 EN ISO 9001:2008, environmental management in accordance with 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 realized using BIRCOsir. 7 different nominal widths and our large selection of gratings mean that there are virtually no limits to the application possibilities.

+ A 15 to F 900

+ High drainage capacity

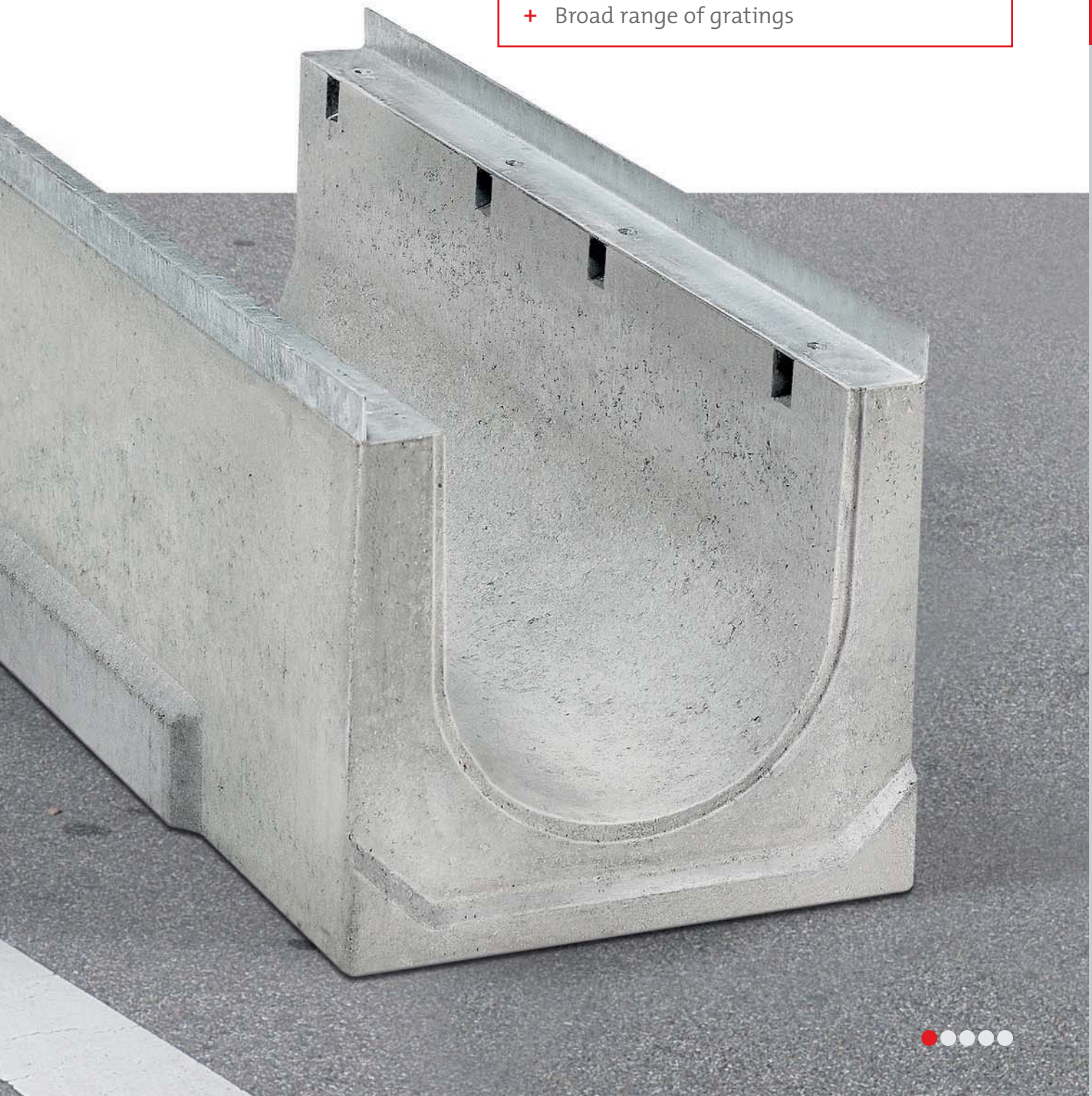
For drainage of surfaces in areas with heavy-duty loading; also for areas where the architectural and flexibility demands are especially high.

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 internal inbuilt falls
- Shallow channels: NW 100 – 300
- Channels equipped with anchoring system: NW 200, 300 and 500 AS
- Construction lengths: 0.5 and 1.0 meters
- Load class: Type I: A 15 – D 400
  Type M: A 15 – F 900
- Outfall units NW 100 – 400 with outstanding draining performance
- Broad range of gratings



BIRCOsir | Stability and Diversity

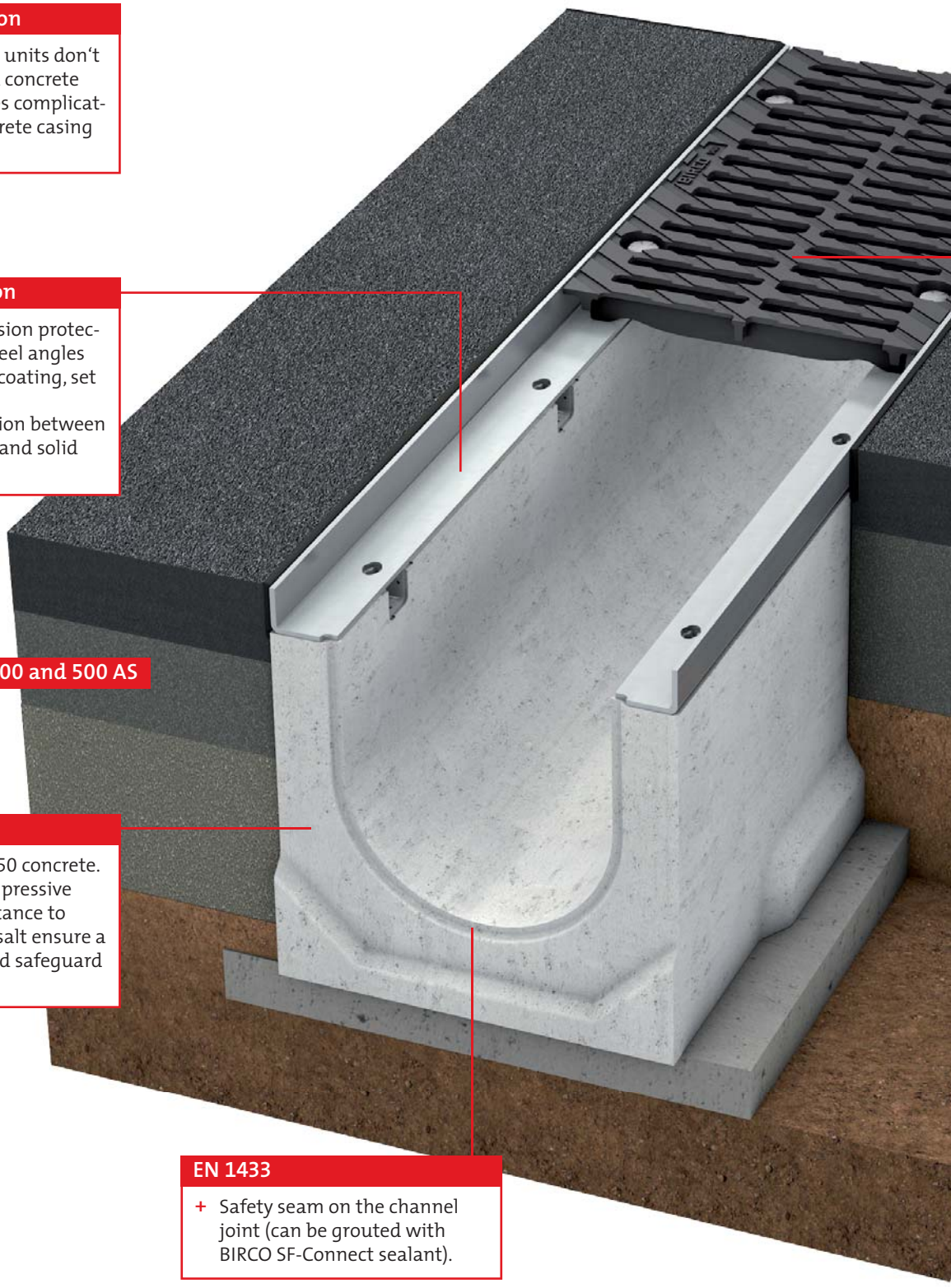
BIRCOsir combines top drainage performance with the highest safety standards and a variety of design possibilities.

Fast, safe installation

+ One-piece channel units don't generally require a concrete casing. This reduces complicated, expensive concrete casing work.

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.



BIRCOsir NW 100, 300 and 500 AS

Material quality

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

EN 1433

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

Traffic safety

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

Attractive design

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

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.

Both examples load class D 400 without concrete casing

BIRCOsir NW 400, 500 and 1000

We were able to actively support customers here:

National Museum Doha

Waste incineration plant Nuremberg

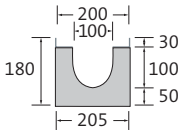
Abu Dhabi Airport

BIRCOsir | NW 100

Stability and Diversity

Channel elements | 1% internal inbuilt fall

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



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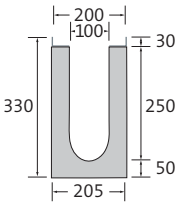


No. 15

Description	Length	Width at top/ at ground	Construction height at groove/tongue	Weight	Load class EN 1433 Type I	Load class EN 1433 Type M	Article No.
Channel No. 1	1000 mm	200/205 mm	180/190 mm	57.0 kg	A 15 – D 400	A 15 – F 900	020001
Channel No. 2	1000 mm	200/205 mm	190/200 mm	63.4 kg	A 15 – D 400	A 15 – F 900	020002
Channel No. 3	1000 mm	200/205 mm	200/210 mm	65.4 kg	A 15 – D 400	A 15 – F 900	020003
Channel No. 4	1000 mm	200/205 mm	210/220 mm	68.4 kg	A 15 – D 400	A 15 – F 900	020004
Channel No. 5	1000 mm	200/205 mm	220/230 mm	70.4 kg	A 15 – D 400	A 15 – F 900	020005
Channel No. 6	1000 mm	200/205 mm	230/240 mm	72.4 kg	A 15 – D 400	A 15 – F 900	020006
Channel No. 7	1000 mm	200/205 mm	240/250 mm	74.4 kg	A 15 – D 400	A 15 – F 900	020007
Channel No. 8	1000 mm	200/205 mm	250/260 mm	76.4 kg	A 15 – D 400	A 15 – F 900	020008
Channel No. 9	1000 mm	200/205 mm	260/270 mm	78.4 kg	A 15 – D 400	A 15 – F 900	020009
Channel No. 10	1000 mm	200/205 mm	270/280 mm	80.4 kg	A 15 – D 400	A 15 – F 900	020010
Channel No. 11	1000 mm	200/205 mm	280/290 mm	82.4 kg	A 15 – D 400	A 15 – F 900	020011
Channel No. 12	1000 mm	200/205 mm	290/300 mm	84.4 kg	A 15 – D 400	A 15 – F 900	020012
Channel No. 13	1000 mm	200/205 mm	300/310 mm	86.4 kg	A 15 – D 400	A 15 – F 900	020013
Channel No. 14	1000 mm	200/205 mm	310/320 mm	88.4 kg	A 15 – D 400	A 15 – F 900	020014
Channel No. 15	1000 mm	200/205 mm	320/330 mm	90.4 kg	A 15 – D 400	A 15 – F 900	020015

Channel elements | without internal inbuilt fall

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

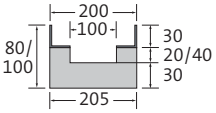
Description	Length	Width at top/ at ground	Construction height at groove/tongue	Weight	Load class EN 1433 Type I	Load class EN 1433 Type M	Article No.
Channel No. 0/0	500 mm	200/205 mm	180/180 mm	30.8 kg	A 15 – D 400	A 15 – F 900	020031
Channel No. 0/0	1000 mm	200/205 mm	180/180 mm	56.4 kg	A 15 – D 400	A 15 – F 900	020026
Channel No. 5/0	1000 mm	200/205 mm	230/230 mm	71.4 kg	A 15 – D 400	A 15 – F 900	020027
Channel No. 10/0	1000 mm	200/205 mm	280/280 mm	81.4 kg	A 15 – D 400	A 15 – F 900	020028
Channel No. 15/0	1000 mm	200/205 mm	330/330 mm	91.4 kg	A 15 – D 400	A 15 – F 900	020029

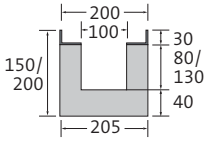
Channels No. 0/0 and 5/0 also available with socket DN 110 (Article No. 020025/020024) for vertical outlet.

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 galvanized solid steel angles for combi-closure system
+ As special solution also with stainless steel angles (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 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 vertical drilling

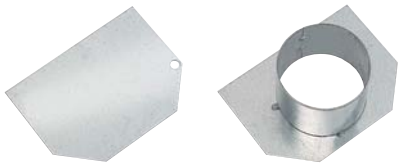
+ Galvanized
+ Drilled hole on request

Description	Length	Width	Height	Weight	Article No.
Silt bucket DN 110	96 mm	120 mm	166 mm	0.4 kg	603011
Silt bucket for shallow channel DN 110	96 mm	120 mm	121 mm	0.3 kg	603014

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

End caps

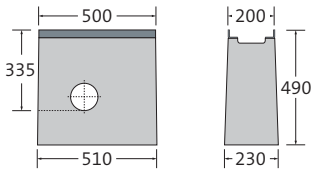
+ Also available in stainless steel (V2A)



Description	Width	For construction height	Weight	Article No.
End cap, galvanized, No. 0/0 – 2	200 mm	180 – 200 mm	0.4 kg	020090
End cap, galvanized, No. 3 – 4	200 mm	200 – 220 mm	0.5 kg	020091
End cap, galvanized, No. 5 – 6	200 mm	220 – 240 mm	0.6 kg	020092
End cap, galvanized, No. 7 – 8	200 mm	240 – 260 mm	0.6 kg	020093
End cap, galvanized, No. 9 – 10/0	200 mm	260 – 280 mm	0.7 kg	020094
End cap, galvanized, No. 11 – 12	200 mm	280 – 300 mm	0.7 kg	020095
End cap, galvanized, No. 13 – 14	200 mm	300 – 320 mm	0.8 kg	020096
End cap, galvanized, No. 15 – 15/0	200 mm	320 – 330 mm	0.9 kg	020097
End cap for shallow channel, galvanized, height 80 – 100	200 mm	80 – 100 mm	0.3 kg	030040
End cap for shallow channel, galvanized, height 150	200 mm	150 mm	0.5 kg	030041
End cap for shallow channel, galvanized, height 200	200 mm	200 mm	0.6 kg	030042
End cap with outlet DN 110, galvanized No. 0/0	200 mm	180 mm	0.8 kg	020045
End cap with outlet DN 110, galvanized No. 5/0	200 mm	230 mm	0.9 kg	020046
End cap with outlet DN 110, galvanized No. 10/0	200 mm	280 mm	1.1 kg	020047
End cap with outlet DN 110, galvanized 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
+ 1 integrated socket for DN 110 pipe connection
+ With hot-dipped galvanized solid steel angles
+ As special solution also with stainless steel angles (V2A, combi-closure system not in V2A)

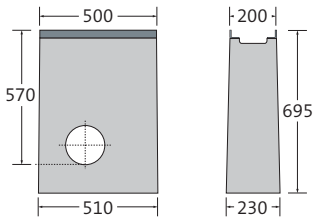


Description	Length	Width at top/ at ground	Construction height	Weight	Load class EN 1433	Article No.
No. 0/0 to No. 10	500 mm	200/230 mm	490 mm	78.2 kg	A 15 – F 900	020035

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 galvanized)
+ 1 integrated socket for DN 160 (without odour trap) pipe connection
+ With hot-dipped galvanized solid steel angles for combi-closure system
+ As special solution also with stainless steel angles (V2A, combi-closure system not in V2A)



Description	Length	Width at top/ at ground	Construction height	Weight	Load class 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

Ductile iron slotted gratings

+ Black immersion-lacquered
+ Also available galvanized
+ Load class D 400 as twofold ductile iron slotted grating
+ 8-point per meter M12/A2 bolt connection
+ 8-point per meter Easylock-fastening (alternatively)
+ Anti-slip classification R11/V10 (Art.-No. 020072, 020072e, 020075, 020075e, 020078)
  R12/V10 (Art.-No. 020074, 020074e)

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class EN 1433	Article No. with bolt connection	Article No. with Easylock
black	500 mm	187 mm	30 mm	5.2 kg	SW 100/13 mm	469 cm²/m	A 15 – C 250	020072	020072e
black	500 mm	187 mm	30 mm	4.6 kg	SW 60/18 mm	591 cm²/m	A 15 – D 400	020074	020074e
black	500 mm	187 mm	30 mm	6.4 kg	SW 100/13 mm	469 cm²/m	A 15 – E 600	020075	020075e
black	500 mm	187 mm	30 mm	7.6 kg	SW 100/13 mm	469 cm²/m	A 15 – F 900	020078	–

Ductile iron slotted gratings | narrow slot

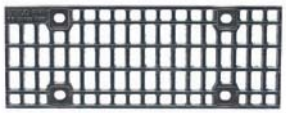
+ Black immersion-lacquered
+ 8-point per meter M12/A2 bolt connection

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class EN 1433	Article No. with bolt connection
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 | ductile iron

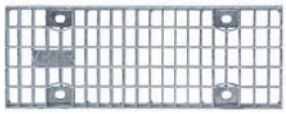
+ Black immersion-lacquered
+ Also available galvanized
+ 8-point per meter M12/A2 bolt connection
+ 8-point per meter Easylock-fastening (alternatively)



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

Mesh grating | galvanized steel

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



Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class EN 1433	Article No. with bolt connection	Article No. with Easylock
hot-dipped galvanized	500 mm	187 mm	30 mm	3.5 kg	MW 30/12 mm	1154 cm²/m	A 15 – C 250	020063	020063e
hot-dipped galvanized	1000 mm	187 mm	30 mm	6.3 kg	MW 30/12 mm	1154 cm²/m	A 15 – C 250	020053	020053e
hot-dipped galvanized	500 mm	187 mm	30 mm	5.0 kg	MW 20/30 mm	1140 cm²/m	A 15 – E 600	020064	020064e
hot-dipped galvanized	1000 mm	187 mm	30 mm	9.5 kg	MW 20/30 mm	1140 cm²/m	A 15 – E 600	020054	020054e

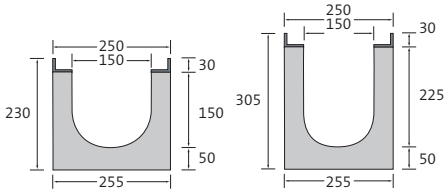
Article No. with e = with Easylock, MW = mesh width
Exception up to D 400: Not for use across the carriage way of highways or motorways.

BIRCOsir | NW 150

Stability and Diversity

Channel elements | 0.5% internal inbuilt fall

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



No. 0/0 No. 15

Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class EN 1433 Type I	Load class EN 1433 Type M	Article No.
Channel No. 1	1000 mm	250/255 mm	230/235 mm	79.4 kg	A 15 – D 400	A 15 – F 900	020101
Channel No. 2	1000 mm	250/255 mm	235/240 mm	80.4 kg	A 15 – D 400	A 15 – F 900	020102
Channel No. 3	1000 mm	250/255 mm	240/245 mm	81.0 kg	A 15 – D 400	A 15 – F 900	020103
Channel No. 4	1000 mm	250/255 mm	245/250 mm	82.4 kg	A 15 – D 400	A 15 – F 900	020104
Channel No. 5	1000 mm	250/255 mm	250/255 mm	83.4 kg	A 15 – D 400	A 15 – F 900	020105
Channel No. 6	1000 mm	250/255 mm	255/260 mm	84.4 kg	A 15 – D 400	A 15 – F 900	020106
Channel No. 7	1000 mm	250/255 mm	260/265 mm	85.4 kg	A 15 – D 400	A 15 – F 900	020107
Channel No. 8	1000 mm	250/255 mm	265/270 mm	86.4 kg	A 15 – D 400	A 15 – F 900	020108
Channel No. 9	1000 mm	250/255 mm	270/275 mm	87.4 kg	A 15 – D 400	A 15 – F 900	020109
Channel No. 10	1000 mm	250/255 mm	275/280 mm	88.4 kg	A 15 – D 400	A 15 – F 900	020110
Channel No. 11	1000 mm	250/255 mm	280/285 mm	91.4 kg	A 15 – D 400	A 15 – F 900	020111
Channel No. 12	1000 mm	250/255 mm	285/290 mm	92.4 kg	A 15 – D 400	A 15 – F 900	020112
Channel No. 13	1000 mm	250/255 mm	290/295 mm	93.4 kg	A 15 – D 400	A 15 – F 900	020113
Channel No. 14	1000 mm	250/255 mm	295/300 mm	94.4 kg	A 15 – D 400	A 15 – F 900	020114
Channel No. 15	1000 mm	250/255 mm	300/305 mm	95.4 kg	A 15 – D 400	A 15 – F 900	020115

Channel elements | without internal inbuilt fall

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

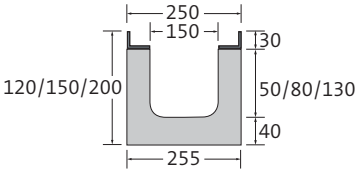
Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class EN 1433 Type I	Load class EN 1433 Type M	Article No.
Channel No. 0/0	500 mm	250/255 mm	230/230 mm	37.5 kg	A 15 – D 400	A 15 – F 900	020131
Channel No. 0/0	1000 mm	250/255 mm	230/230 mm	78.4 kg	A 15 – D 400	A 15 – F 900	020126
Channel No. 5/0	1000 mm	250/255 mm	255/255 mm	83.4 kg	A 15 – D 400	A 15 – F 900	020127
Channel No. 10/0	1000 mm	250/255 mm	280/280 mm	86.4 kg	A 15 – D 400	A 15 – F 900	020128
Channel No. 15/0	1000 mm	250/255 mm	305/305 mm	93.4 kg	A 15 – D 400	A 15 – F 900	020129

Channels No. 0/0 and 5/0 also available with socket DN 160 (Article No. 020125/020124) 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 galvanized solid steel angles for combi-closure system
+ As special solution also with stainless steel angles (V2A, combi-closure system not in V2A)
+ Safety sealing joint



Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class 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 vertical drilling

+ Galvanized
+ Drilled hole on request

Description	Length	Width	Height	Weight	Article No.
Silt bucket DN 160	146 mm	180 mm	242 mm	0.8 kg	603012
Silt bucket for shallow channel DN 160	130 mm	180 mm	171 mm	0.6 kg	603015

End caps

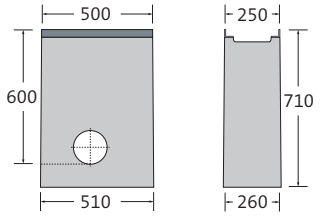
+ Also available in stainless steel (V2A)

Description	Width	For height	Weight	Article No.
End cap, galvanized, No. 0/0 – 5/0	250 mm	230 – 255 mm	0.7 kg	020190
End cap, galvanized, No. 6 – 10/0	250 mm	255 – 280 mm	0.8 kg	020191
End cap, galvanized, No. 11 – 15/0	250 mm	280 – 305 mm	0.9 kg	020192
End cap for shallow channel, galvanized, height 120 - 150	250 mm	120 – 150 mm	0.5 kg	030140
End cap for shallow channel, galvanized, height 200	250 mm	200 mm	0.7 kg	030141
End cap with outlet DN 160, galvanized, No. 0/0	250 mm	230 mm	1.0 kg	020145
End cap with outlet DN 160, galvanized, No. 5/0	250 mm	255 mm	1.1 kg	020146
End cap with outlet DN 160, galvanized, No. 10/0	250 mm	280 mm	1.2 kg	020147
End cap with outlet DN 160, galvanized, No. 15/0	250 mm	305 mm	1.3 kg	020148

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
+ PP odour trap
+ PP silt bucket
+ 1 integrated socket for DN 160 pipe connection
+ With hot-dipped galvanized solid steel angles for combi-closure system
+ As special solution also with stainless steel angles (V2A, combi-closure system not in V2A)



Description	Length	Width at top/ at ground	Height	Weight	Load class EN 1433	Article No.
No. 0/0 to No. 15/0	500 mm	250/260 mm	710 mm	120.5 kg	A 15 – F 900	020135

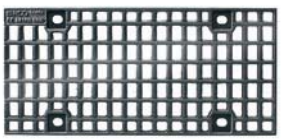
Ductile iron slotted gratings

+ Black immersion-lacquered
+ Also available galvanized
+ Load class D 400 as twofold ductile iron slotted grating
+ 8-point per meter M12/A2 bolt connection
+ 8-point per meter Easylock-fastening (alternatively)
+ Anti-slip classification R11/V10 (Art.-No. 020172, 020172e, 020175, 020175e,020178)

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class EN 1433	Article No. with bolt connection	Article No. with Easylock
black	500 mm	237 mm	30 mm	9.1 kg	SW 150/12 mm	644 cm²/m	A 15 – C 250	020172	020172e
black	500 mm	237 mm	30 mm	6.2 kg	SW 85/18 mm	855 cm²/m	A 15 – D400	020174	020174e
black	500 mm	237 mm	30 mm	10.7 kg	SW 150/12 mm	644 cm²/m	A 15 – E 600	020175	020175e
black	500 mm	237 mm	30 mm	12.4 kg	SW 150/12 mm	644 cm²/m	A 15 – F 900	020178	–

Mesh grating | ductile iron

+ Black immersion-lacquered
+ Also available galvanized
+ 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 EN 1433	Article No. with bolt connection	Article No. with Easylock
black	500 mm	237 mm	30 mm	11.2 kg	MW 20/30 mm	1110 cm²/m	A 15 – E 600	020186	020186e

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.

Honeycomb grating | ductile iron

+ Black immersion-lacquered
+ Also available galvanized
+ 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 EN 1433	Article No. with bolt connection	Article No. with Easylock
black	500 mm	237 mm	30 mm	7.6 kg	MW 24/59 mm	1396 cm²/m	A 15 – E 600	020179	020179e

Mesh grating | galvanized steel

+ Hot-dipped galvanized
+ 4-point per meter M12/A2 bolt connection
+ 4-point per meter Easylock-fastening (alternatively)
+ Also available in stainless steel (V2A) (without Easylock)
+ Anti-slip classification R10/V10 (Art.-No. 020163, 020163e, 020153, 020153e)

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

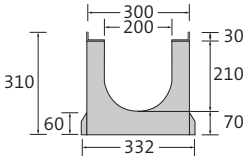
Article No. with e = with Easylock, MW = mesh width
Exception up to D 400: Not for use across the carriage-way of highways or motorways.

BIRCOsir | NW 200 AS

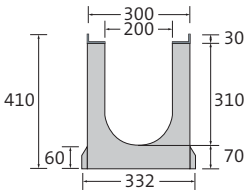
Stability and Diversity

Channel elements with anchoring system | 0.5% internal inbuilt fall

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



No. 0/0



No. 20/0

Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class EN 1433 Type I	Load class EN 1433 Type M	Article No.
Channel No. 1	1000 mm	300/332 mm	310/315 mm	115.4 kg	A 15 – D 400	A 15 – F 900	0020201
Channel No. 2	1000 mm	300/332 mm	315/320 mm	116.4 kg	A 15 – D 400	A 15 – F 900	0020202
Channel No. 3	1000 mm	300/332 mm	320/325 mm	117.4 kg	A 15 – D 400	A 15 – F 900	0020203
Channel No. 4	1000 mm	300/332 mm	325/330 mm	118.4 kg	A 15 – D 400	A 15 – F 900	0020204
Channel No. 5	1000 mm	300/332 mm	330/335 mm	119.4 kg	A 15 – D 400	A 15 – F 900	0020205
Channel No. 6	1000 mm	300/332 mm	335/340 mm	120.4 kg	A 15 – D 400	A 15 – F 900	0020206
Channel No. 7	1000 mm	300/332 mm	340/345 mm	121.4 kg	A 15 – D 400	A 15 – F 900	0020207
Channel No. 8	1000 mm	300/332 mm	345/350 mm	122.4 kg	A 15 – D 400	A 15 – F 900	0020208
Channel No. 9	1000 mm	300/332 mm	350/355 mm	123.4 kg	A 15 – D 400	A 15 – F 900	0020209
Channel No. 10	1000 mm	300/332 mm	355/360 mm	124.4 kg	A 15 – D 400	A 15 – F 900	0020210

Channel elements with anchoring system | without internal inbuilt fall

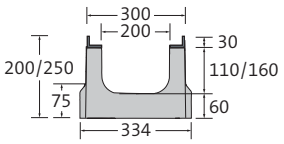
+ With hot-dipped galvanized solid steel angles for combi-closure system
+ As special solution also with stainless steel angles (V2A, combi-closure system not in V2A)
+ Safety sealing joint

Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class EN 1433 Type I	Load class EN 1433 Type M	Article No.
Channel No. 0/0	500 mm	300/332 mm	310/310 mm	57.0 kg	A 15 – D 400	A 15 – F 900	0020231
Channel No. 0/0	1000 mm	300/332 mm	310/310 mm	112.7 kg	A 15 – D 400	A 15 – F 900	0020226
Channel No. 5/0	1000 mm	300/332 mm	335/335 mm	117.2 kg	A 15 – D 400	A 15 – F 900	0020227
Channel No. 10/0	1000 mm	300/332 mm	360/360 mm	123.3 kg	A 15 – D 400	A 15 – F 900	0020228
Channel No. 20/0	1000 mm	300/332 mm	410/410 mm	136.0 kg	A 15 – D 400	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 | without internal inbuilt fall

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



Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class 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 vertical drilling

+ Galvanized
+ Drilled hole on request

Description	Length	Width	Height	Weight	Article No.
Silt bucket DN 200	198 mm	235 mm	209 mm	1.1 kg	603013
Silt bucket for shallow channel DN 200	184 mm	235 mm	201 mm	0.9 kg	603021

End caps

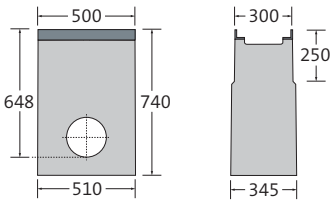
+ Also available in stainless steel (V2A)

Description	Width	For height	Weight	Article No.
End cap, galvanized, No. 0/0 – 5/0	330 mm	310 – 335 mm	1.2 kg	0020240
End cap, galvanized, No. 6 – 10/0	330 mm	335 – 360 mm	1.3 kg	0020241
End cap, galvanized, No. 20/0	330 mm	410 mm	1.4 kg	0020243
End cap for shallow channel, galvanized, height 200	330 mm	200 mm	0.9 kg	0030241
End cap for shallow channel, galvanized, height 250	330 mm	250 mm	1.2 kg	0030242
End cap with outlet DN 200, galvanized, No. 0/0	330 mm	310 mm	1.8 kg	0020245
End cap with outlet DN 200, galvanized, No. 5/0	330 mm	335 mm	1.9 kg	0020246
End cap with outlet DN 200, galvanized, No. 10/0	330 mm	360 mm	2.0 kg	0020247
End cap with outlet DN 200, galvanized, 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
+ Galvanized silt bucket
+ 1 integrated socket for DN 200 pipe connection
+ Without odour trap
+ With hot-dipped galvanized solid steel angles for combi-closure system
+ As special solution also with stainless steel angles (V2A, combi-closure system not in V2A)



Description	Length	Width at top/ at ground	Height	Weight	Load class EN 1433	Article No.
No. 0/0 to No. 20/0	500 mm	300/345 mm	740 mm	142.0 kg	A 15 – F 900	0020237

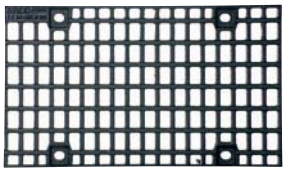
Ductile iron slotted gratings

+ Black immersion-lacquered
+ Also available galvanized
+ Load class D 400 as twofold ductile iron slotted grating
+ 8-point per meter M12/A2 bolt connection
+ 8-point per meter Easylock-fastening (alternatively)
+ Anti-slip classification: R12/V10 (Art. No. 0020274, 0020274e)

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

Mesh grating | ductile iron

+ Black immersion-lacquered
+ Also available galvanized
+ 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 EN 1433	Article No. with bolt connection	Article No. with Easylock
black	500 mm	287 mm	30 mm	12.8 kg	MW 20/30 mm	1370 cm²/m	A 15 – E 600	0020286	0020286e

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 | ductile iron

+ Black immersion-lacquered
+ Also available galvanized
+ 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 EN 1433	Article No. with bolt connection	Article No. with Easylock
black	500 mm	287 mm	30 mm	9.6 kg	MW 24/ 72mm	1995 cm²/m	A 15 – E 600	0020279	0020279e
black	500 mm	287 mm	30 mm	14.5 kg	MW 20/75 mm	1640 cm²/m	A 15 – F 900	0020280	–

Mesh gratings | galvanized steel

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

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

Guiding gratings for the blinds | ductile iron | ripped profile for guiding stripes

+ Black immersion-lacquered
+ Also available galvanized
+ 8-point per meter M12/A2 inbus bolt connection
+ 8-point per meter Easylock-fastening (alternatively)
+ According to DIN 32984 2011-10, DIN 18040-3, DIN 32975
+ Anti-slip classification R10/V10

Description	Length	Width	Height	Weight	Inlet cross section	Load class EN 1433	Article No. with bolt connection	Article No. with Easylock
Guiding stripes	500 mm	287 mm	30 mm	12.6 kg	409 cm²/m	A 15 – D 400	0020283	0020283e

Guiding gratings for the blinds | ductile iron | burling profile for attention fields

+ Black immersion-lacquered
+ Also available galvanized
+ 8-point per meter M12/A2 inbus bolt connection
+ 8-point per meter Easylock-fastening (alternatively)
+ According to DIN 32984 2011-10, DIN 18040-3, DIN 32975
+ Anti-slip classification R10/V10

Description	Length	Width	Height	Weight	Inlet cross section	Load class EN 1433	Article No. with bolt connection	Article No. with Easylock
Attention fields	500 mm	287 mm	30 mm	13.5 kg	202 cm²/m	A 15 – D 400	0020284	0020284e

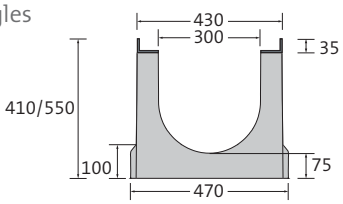
Article No. with e = with Easylock, MW = mesh width
Exception up to D 400: Not for use across the carriage-way of highways or motorways.

BIRCOsir | NW 300 AS

Stability and Diversity

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

+ With hot-dipped galvanized solid steel angles for combi-closure system
+ As special solution also with stainless steel angles (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 EN 1433 Type I	Load class EN 1433 Type M	Article No.
Channel No. 1	1000 mm	430/470 mm	410/415 mm	203.0 kg	A 15 – D 400	A 15 – F 900	0021301
Channel No. 2	1000 mm	430/470 mm	415/420 mm	204.6 kg	A 15 – D 400	A 15 – F 900	0021302
Channel No. 3	1000 mm	430/470 mm	420/425 mm	206.0 kg	A 15 – D 400	A 15 – F 900	0021303
Channel No. 4	1000 mm	430/470 mm	425/430 mm	207.8 kg	A 15 – D 400	A 15 – F 900	0021304
Channel No. 5	1000 mm	430/470 mm	430/435 mm	209.3 kg	A 15 – D 400	A 15 – F 900	0021305
Channel No. 6	1000 mm	430/470 mm	435/440 mm	210.9 kg	A 15 – D 400	A 15 – F 900	0021306
Channel No. 7	1000 mm	430/470 mm	440/445 mm	212.5 kg	A 15 – D 400	A 15 – F 900	0021307
Channel No. 8	1000 mm	430/470 mm	445/450 mm	214.1 kg	A 15 – D 400	A 15 – F 900	0021308
Channel No. 9	1000 mm	430/470 mm	450/455 mm	215.7 kg	A 15 – D 400	A 15 – F 900	0021309
Channel No. 10	1000 mm	430/470 mm	455/460 mm	217.3 kg	A 15 – D 400	A 15 – F 900	0021310

Channel elements with anchoring system | without internal inbuilt fall

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

Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class EN 1433 Type I	Load class EN 1433 Type M	Article No.
Channel No. 0/0, height 1	1000 mm	430/470 mm	410/410 mm	210.0 kg	A 15 – D 400	A 15 – F 900	0020326
Channel No. 0/0, height 2	1000 mm	430/470 mm	550/550 mm	245.0 kg	A 15 – D 400	A 15 – F 900	0020327

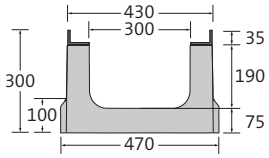
Anchoring system | Firmly anchored to the base structure

+ 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.

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

Shallow channel with anchoring system | without internal inbuilt fall

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



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

Silk bucket for drainage channels with vertical drilling

+ Galvanized
+ Drilled hole on request

Description	Length	Width	Height	Weight	Article No.
Silt bucket DN 315	**298 mm**	**343 mm**	**449 mm**	**1.1 kg**	**603026**
Silt bucket for shallow channel DN 315	**298 mm**	**343 mm**	**353 mm**	**0.9 kg**	**603025**

End caps

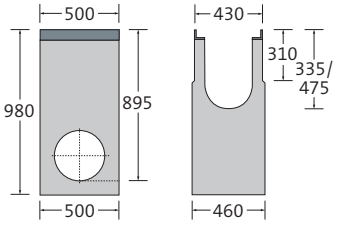
+ Also available in stainless steel (V2A)

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

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

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

+ 1- or 2-sided channel connection
+ Galvanized silt bucket
+ 1 integrated socket for DN 315 pipe connection
+ Without odour trap
+ With hot-dipped galvanized solid steel angles for combi-closure system
+ As special solution also with stainless steel angles (V2A, combi-closure system not in V2A)



Description	Length	Width at top/ at ground	Height	Weight	Load class 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

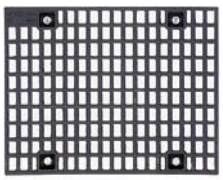
Ductile iron slotted gratings | twofold

+ Black immersion-lacquered
+ Also available galvanized
+ 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 EN 1433	Article No. with bolt connection	Article No. with Easylock
black	500 mm	417 mm	35 mm	15.9 kg	SW 165/17,5 mm	1696 cm²/m	A 15 – D 400	0020374	0020374e
black	500 mm	417 mm	35 mm	20.4 kg	SW 142/20 mm	1522 cm²/m	A 15 – E 600	0020375	0020375e
black	500 mm	417 mm	35 mm	24.9 kg	SW 142/20 mm	1522 cm²/m	A 15 – F 900	0020378	–

Mesh gratings | ductile iron

+ Black immersion-lacquered
+ Also available galvanized
+ 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 EN 1433	Article No. with bolt connection	Article No. with Easylock
black	500 mm	417 mm	35 mm	22.9 kg	MW 20/30 mm	2008 cm²/m	A 15 – E 600	0020386	0020386e

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.

Bulb ductile iron covers

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

Description	Length	Width	Height	Weight	Load class EN 1433	Article No. with bolt connection	Article No. with Easylock
black	**500 mm**	**437 mm**	**45 mm**	**31.0 kg**	**A 15 – E 600**	**0052376**	**0052376e**

PE Trobond panel | PE-foam panel for expansion joint formation

+ PE-foam panel with good recovery
+ Adjusted to the channel outline, customizable to the necessary height on site
+ BIRCO recommends: installation ever 8 to 12 meters

Nominal width	Height	Width	For construction height	Weight	Article No.
300	**13 mm**	**490 mm**	**450/550**	**0.1 kg**	**068111**

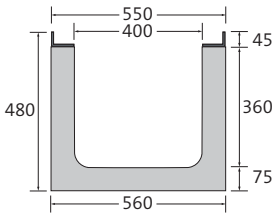
Article No. with e = with Easylock
Exception up to D 400: Not for use across the carriage-way of highways or motorways.

BIRCOsir | NW 400

Stability and Diversity

Channel elements | without internal inbuilt fall

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



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

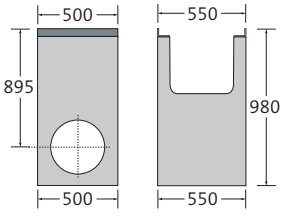
End caps

+ Also available in stainless steel (V2A)

Description	Width	For height	Weight	Article No.
End cap, galvanized	550 mm	480 mm	5.5 kg	020440
End cap with outlet DN 315, galvanized	550 mm	480 mm	7.1 kg	020445

In-line outfall unit | 1-piece

+ 1- or 2-sided channel connection
+ Galvanized silt bucket
+ 1 integrated socket for DN 315 pipe connection
+ Without odour trap
+ With hot-dipped galvanized solid steel angles for combi-closure system
+ As special solution also with stainless steel angles (V2A, combi-closure system not in V2A)



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

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

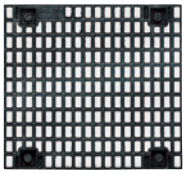
Ductile iron slotted gratings | twofold

+ Black immersion-lacquered
+ Also available galvanized
+ Load class D 400 as threefold ductile iron slotted grating
+ 8-point per meter M16/A2 bolt connection
+ 8-point per meter Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class EN 1433	Article No. with bolt connection	Article No. with Easylock
black	500 mm	537 mm	45 mm	27.5 kg	SW 139/17,5 mm	1967 cm²/m	A 15 – D 400	020474	020474e
black	500 mm	537 mm	45 mm	45.2 kg	SW 190/16 mm	1771 cm²/m	A 15 – E 600	020475	020475e
black	500 mm	537 mm	45 mm	52.1 kg	SW 190/16 mm	1771 cm²/m	A 15 – F 900	020478	–

Mesh grating | ductile iron

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



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

PE Trobond panel | PE-foam panel for expansion joint formation

+ PE-foam panel with good recovery
+ Adjusted to the channel outline, customizable to the necessary height on site
+ BIRCO recommends: installation ever 8 to 12 meters

Nominal width	Height	Width	For construction height	Weight	Article No.
400	13 mm	590 mm	450/550	0.1 kg	068112

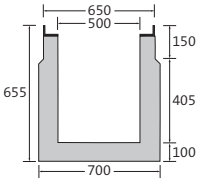
Article No. with e = with Easylock, SW = slot width, MW = mesh width
Exception up to D 400: Not for use across the carriage way of highways or motorways.

BIRCOsir | NW 500

Stability and Diversity

Channel elements | without internal inbuilt fall

+ Reinforced concrete C 40/50
+ With cast-in anchor sleeves for mechanical installation
+ With hot-dipped galvanized solid steel angles for combi-closure system
+ As special solution also with stainless steel angles (V2A, combi-closure system not in V2A)
+ Safety sealing joint
+ Lifting loops on demand (Article No. 609404)



Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class 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, galvanized	650 mm	655 mm	9.0 kg	020540
End cap with outlet DN 315, galvanized	650 mm	655 mm	10.9 kg	020545

Ductile iron slotted grating | threefold

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

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class EN 1433	Article No. with bolt connection	Article No. Easylock
black	500 mm	633 mm	45 mm	35.8 kg	SW 172/17.5 mm	2445 cm²/m	A 15 – D 400	020574	020574e
black	500 mm	633 mm	45 mm	54.9 kg	SW 155/16 mm	2258 cm²/m	A 15 – E 600	020575	020575e
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.

PE Trobond panel | PE-foam panel for expansion joint formation

+ PE-foam panel with good recovery
+ Adjusted to the channel outline, customizable to the necessary height on site
+ BIRCO recommends: installation ever 8 to 12 meters

Nominal width	Height	Width	For construction height	Weight	Article No.
500	**13 mm**	**690 mm**	**450/550**	**0.1 kg**	**068113**

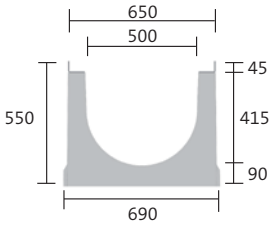
Exception up to D 400: Not for use across the carriage way of highways or motorways.

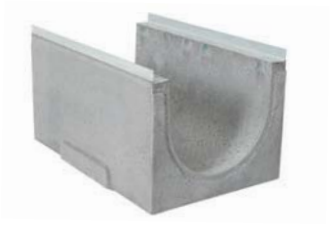
BIRCOsir | NW 500 AS

Channel system for high hydraulic performance

Channel elements with anchoring system | without internal inbuilt fall

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





Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class EN 1433 Type I	Load class EN 1433 Type M	Article No.
Channel No. 0/0	1000 mm	650/690 mm	550 mm	365.0 kg	A 15 – D 400	A 15 – F 900	0020526

End caps

Description	Width	For height	Weight	Article No.
End cap, galvanized	650 mm	655 mm	9.0 kg	020540
End cap with outlet DN 315, galvanized	650 mm	655 mm	10.9 kg	020545

Ductile iron slotted grating | threefold

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

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class EN 1433	Article No. with bolt connection	Article No. with Easylock
black	500 mm	633 mm	45 mm	35.8 kg	SW 172/17.5 mm	2445 cm²/m	A 15 – D 400	020574	020574e
black	500 mm	633 mm	45 mm	54.9 kg	SW 155/16 mm	2258 cm²/m	A 15 – E 600	020575	020575e
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.

PE Trobond panel | PE-foam panel for expansion joint formation

+ PE-foam panel with good recovery
+ Adjusted to the channel outline, customizable to the necessary height on site
+ BIRCO recommends: installation ever 8 to 12 meters

Nominal width	Height	Width	For construction height	Weight	Article No.
500	**13 mm**	**690 mm**	**450/550**	**0.1 kg**	**068113**

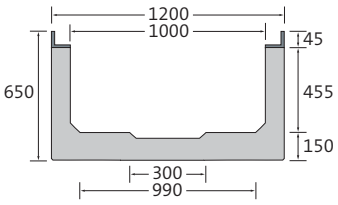
Exception up to D 400: Not for use across the carriage way of highways or motorways.

BIRCOsir | NW 1000

Stability and Diversity

Channel element | without internal inbuilt fall

+ Reinforced concrete C 40/50
+ With cast-in RD14 anchor sleeves for mechanical installation
+ With hot-dipped galvanized solid steel angles for combi-closure system
+ As special solution also with stainless steel angles (V2A, combi-closure system not in V2A)
+ Safety sealing joint
+ Lifting loops on demand (art. no. 606016)



Description	Length	Width at top/ at ground	Height at groove/tongue	Weight	Load class 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, galvanized	1200 mm	650 mm	21.5 kg	020940
End cap with outlet DN 315, galvanized	1200 mm	650 mm	23.5 kg	020945

Ductile iron slotted grating | sixfold

+ Black immersion-lacquered
+ 8-point per meter M16/A2 bolt connection

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class 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 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 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

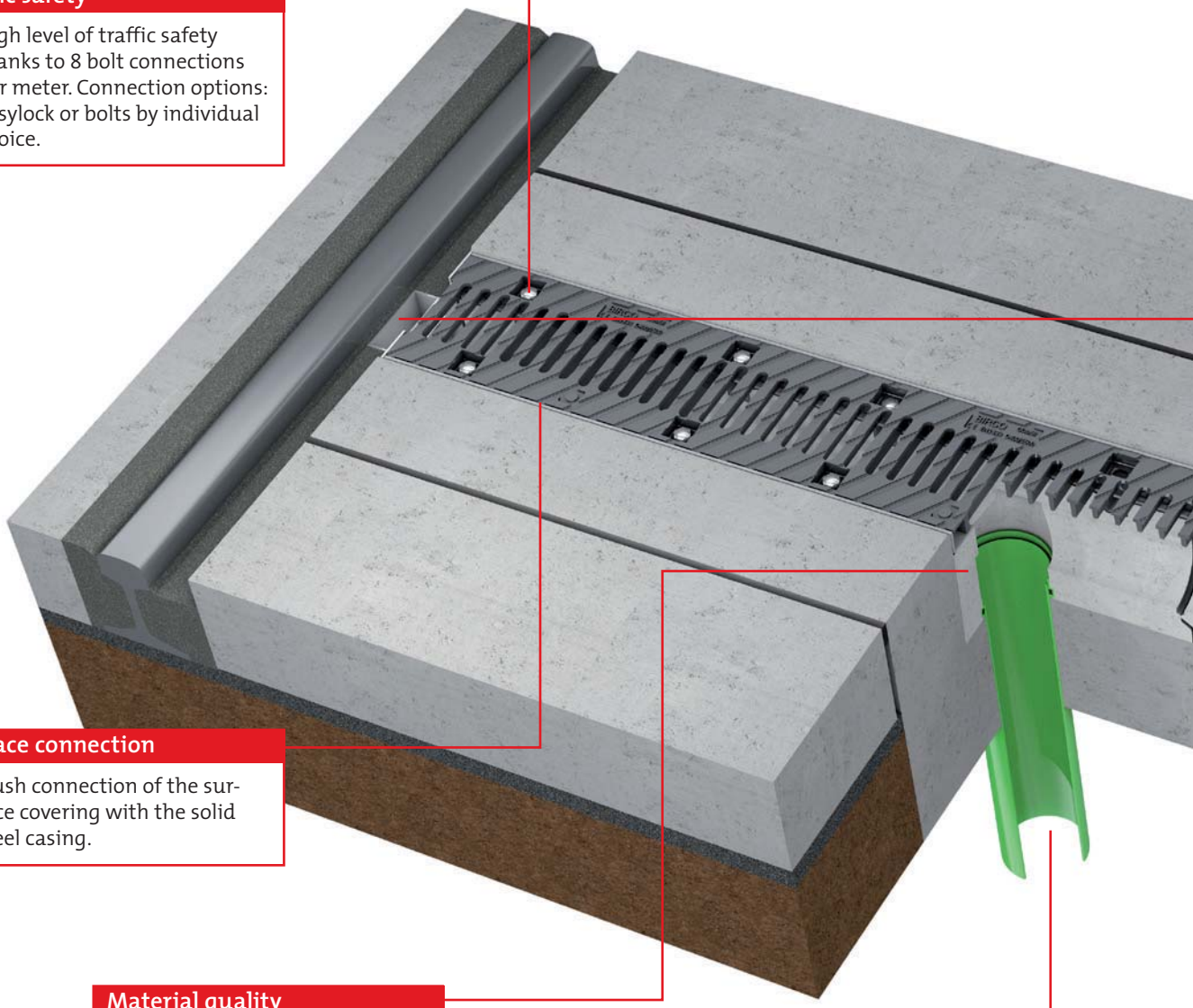
- \+ Channel system: BIRCOsir NW 100 (other nominal widths available upon request)
- \+ 2 standard models for all common rail gauges and track types
- \+ Two-sided track drainage casings for the absorption of water and dirt particles
- \+ Load class: A 15 – E 600
- \+ Integrated channel base sleeve for connection to the DN 110 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 meter. Connection options: Easylock or bolts by individual choice.



Surface connection

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

Material quality

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

Faster, safer installation

+ Outlet integrated into the channel base fitted with a cast-in socket for easy connection to a DN 110 drainage pipe.

Corrosion protection

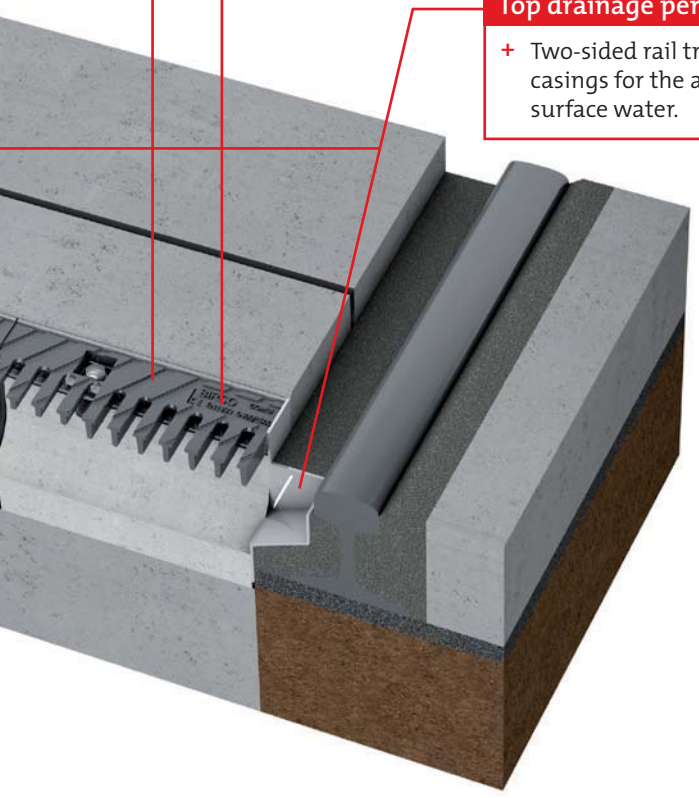
+ Stability and corrosion protection: 4 mm solid steel angles with a 70 µm zinc coating, set in concrete.

Grating options

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

Top drainage performance

+ Two-sided rail track drainage casings for the absorption of surface water.



We were able to actively support customers here:

Marina Tram Dubai

Port Emmelsum, Lippe River

BIRCOsir Rail Track Drainage | Drainage system

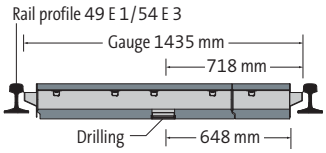
+ The water and dirt particles accumulating in the tracks flow together through openings in the rail profile where they are collected by a special rail track drainage casing and diverted into the drainage channel running at right angles to the section of track. Pipe sockets integrated into the channel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

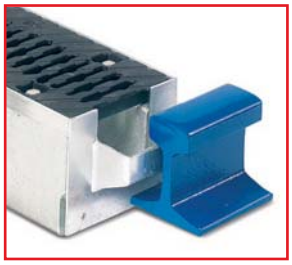
BIRCOsir Rail Track Drainage | NW 100

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 DN 110 pipe connection
+ Black immersion-lacquered ductile iron slotted grating
+ 8 point per meter M 12/A2 bolt connection
+ 2-piece

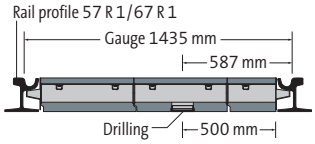


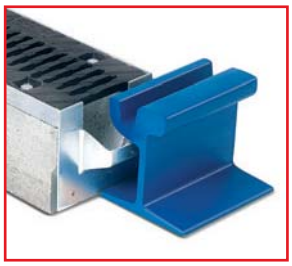


Description	Gauge	Construction height	Weight	Load class EN 1433	Article No.
S 49/S 54 - 49E1/54E3	1435 mm	180 mm	83.0 kg	A15 – E 600	080151

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 DN 110 pipe connection
+ Black immersion-lacquered ductile iron slotted grating
+ 8 point per meter M 12/A2 bolt connection
+ 3-pieces





Description	Gauge	Construction height	Weight	Load class 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.

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 and load capacities.

BIRCOsir Point Drainage | Areas of application

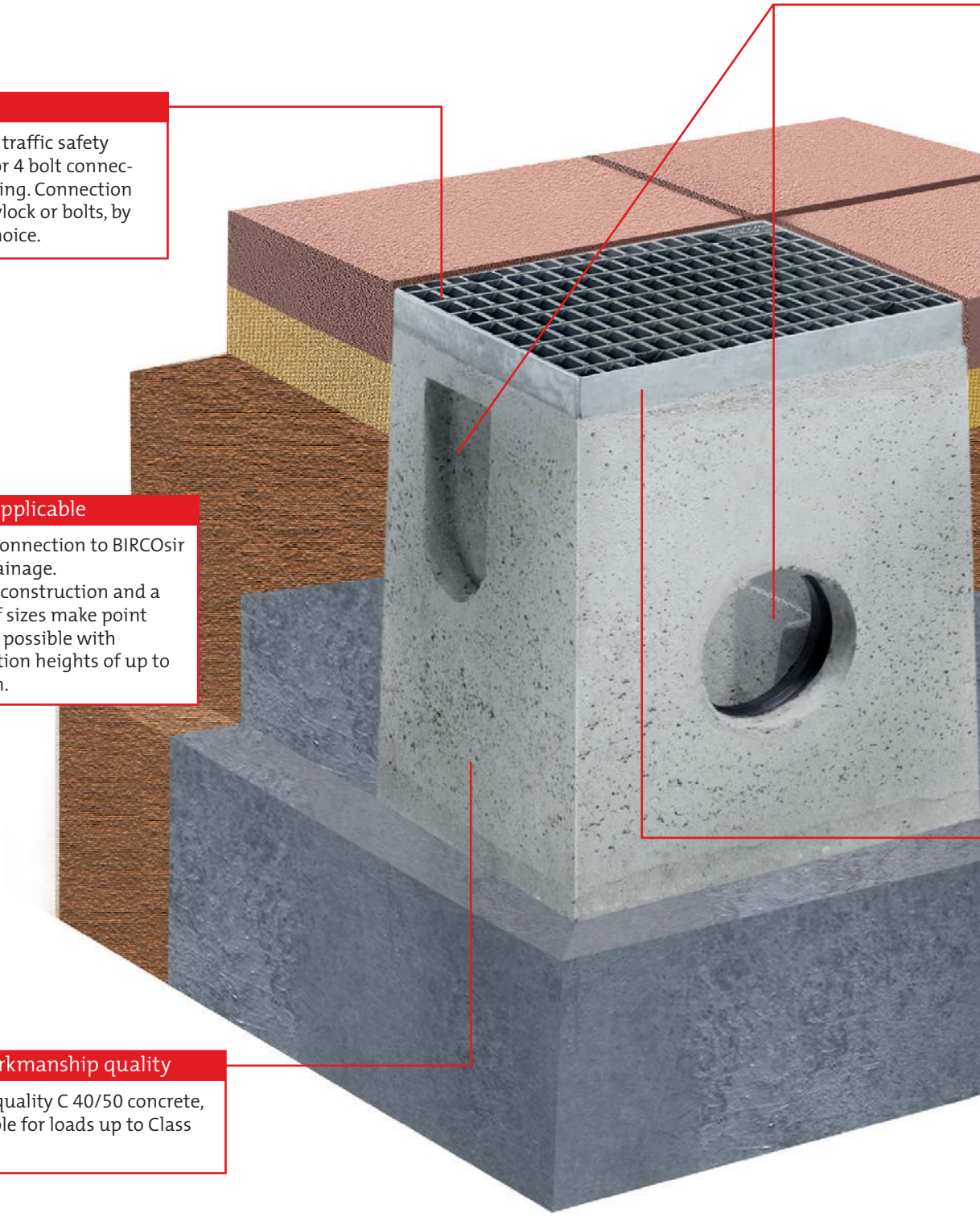
+ Open spaces and areas in the commercial and private sector, courtyards
+ Heavy traffic areas
+ Parking lots also used by lorries (supermarkets, logistic companies, etc.)
+ Also available as a sump well
+ Also suitable for the installation of lighting

BIRCOsir Point Drainage | Facts

+ Two sizes: 30/30 and 40/40 cm
+ With solid steel angle frames
+ One-piece or multi-piece
+ Also suitable as a sump well (40/40 cm)
+ 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.



Traffic safety

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

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.

Best workmanship quality

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

We were able to actively support customers here:

Machnigplatz, Memmingen

Point drainage on a parking lot

Faster, safer installation

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

Corrosion protection

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

Attractive design

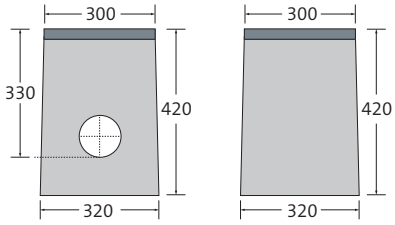
+ Flexible design possibilities thanks to different grating options.

BIRCOsir Point Drainage

Getting to the point with open space drainage

Outfall unit | 30/30 | 1-piece

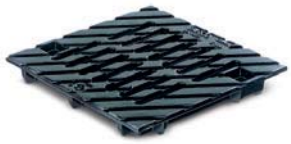
+ Also for drainage channel connection on two sides (NW 100)
+ PP odour trap, PP silt bucket
+ Integrated socket for DN 110 pipe connection
+ With hot-dipped galvanized solid steel angle frame for combi-closure system
+ As special solution also with stainless steel angle frame (V2A, combi-closure system not in V2A)



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

Ductile iron slotted grating | twofold

+ Black immersion-lacquered
+ 2-point M12/A2 bolt connection
+ 2-point Easylock-fastening (alternatively)
+ On request also available galvanized
+ Anti-slip classification R12/V10



Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class	Article No. with bolt connection	Article No. with Easylock
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	080001e

Mesh gratings | galvanized steel

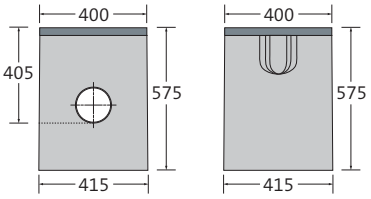
+ Galvanized
+ 2-point M12/A2 bolt connection
+ 2-point Easylock-fastening (alternatively)
+ Anti-slip classification R10/V10 (Art.-No. 080005, 080005e)

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class	Article No. with bolt connection	Article No. with Easylock
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	080004e
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	080005e

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

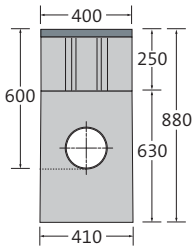
+ Also for drainage channel connection on three sides (NW 100, NW 150)
+ PP odour trap, PP silt bucket
+ Integrated socket for DN 160 pipe connection
+ With hot-dipped galvanized solid steel angle frame for combi-closure system
+ As special solution also with stainless steel angle frame (V2A, combi-closure system not in V2A)



Description	Length at top/ at bottom	Width at top/ at bottom	Construction height	Weight	Load class EN 1433	Article No.
until 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

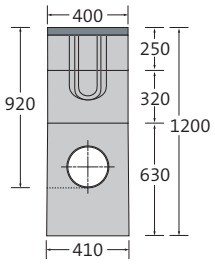
+ Point drainage, not for channel connection
+ PP silt bucket
+ Integrated socket for DN 200 pipe connection
+ With hot-dipped galvanized solid steel angle frame for combi-closure system
+ As special solution also with stainless steel angle frame (V2A, combi-closure system not in V2A)



Description	Length at top/ at bottom	Width at top/ at bottom	Construction height	Weight	Load class 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 galvanized solid steel angle frame for combi-closure system
+ As special solution also with stainless steel angle frame (V2A, combi-closure system not in V2A)



Description	Length at top/ at ground	Width at top/ at bottom	Construction height	Weight	Load class 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.

Ductile iron slotted gratings | twofold

+ Black immersion-lacquered
+ 4-point M12/A2 bolt connection
+ 4-point Easylock-fastening (alternatively)
+ On request also available galvanized
+ Anti-slip classification R12/V10

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class	Article No. with bolt connection	Article No. with Easylock
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	080015e

Mesh gratings | galvanized steel

+ Hot-dipped galvanized
+ 4-point M12/A2 bolt connection
+ 4-point Easylock-fastening (alternatively)
+ On request also available in stainless steel (V2A – without Easylock)
+ Anti-slip classification R10/V10 (Art.-No. 080017, 080017e)

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class	Article No. with bolt connection	Article No. with Easylock
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	080016e
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	080017e
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	080018e

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 | Installation Instructions

A number of details must be observed when installing BIRCOsir.
You will find a comprehensive description below.

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

1. Prior to installation, the correct load class in accordance with EN 1433 must be selected.

2. Thanks to the high level of stability, BIRCO channels must be installed on an earth-moist C 25/30 strip of foundation concrete at least 15 cm high which must be hunched on both sides. No additional concrete casing or reinforcement on the sides is required [(1)]. If present, the installation of the channel section should begin with the outfall unit. When installing the channel line following the outfall unit, begin with the highest channel number and continue the line with the next lowest number in each case.

3. All adjoining pavement surfaces must be permanently 3 to 5 mm higher than the upper edge of the channel. To achieve this, we recommend laying the first two to three rows surfacing in the mortar bed. Because there is no concrete casing, the surface pavement can run right up to the channel without any problems. For slab or paving connections, a permanent sealing gap of about 10 mm must be maintained between the channel and the adjoining surface. The joints between the first two to three series of slab or paving connections must be permanently sealed. It must be ensured that no horizontal forces act on the paving laid in the mortar bed due to displacement or expansion of the paving covering.

4. During installation in concrete or reinforced concrete surfaces, expansion joints must be provided on both sides parallel to the channel to compensate for occurring horizontal forces. These joints should be installed at a distance of 1 m to 2 m parallel to the channel. Care must be taken to design the expansion joints from an engineering perspective and to execute them professionally. When compacting the adjacent surfaces, it must be ensured that mechanical damage to the channel elements is ruled out. Expansion joints running transverse to the channel section must be planned from an engineering standpoint and must be executed professionally. The expansion joints must be arranged in the adjacent concrete surfaces (in-situ concrete) so that they run through a channel joint. We recommend an arrangement every 8 to 12 running meters (according to DIN 18318, valid version). The expansion joints must run across the entire channel cross-section through the foundation and the lateral concrete casing (e.g. PE foam boards).

5. BIRCO drainage units are fitted with a safety sealing seam on the channel end. In accordance with 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 (e.g. SF Connect). In Federal Water Act areas, the sealing joints are to be sealed with a caulking strip and BIRCOplast.

6. Proceed analogously when installing the outfall unit.

7. Local particularities can require special installation methods that have to be examined and considered by the planner(s).

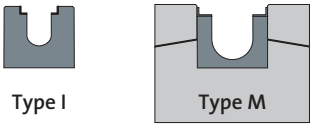
[(1)] Exception:
When installing BIRCO channels in heavily frequented, heavy load areas, the channel must be laterally encased with concrete due to any occurring high horizontal forces. Please note the separate installation examples here for heavily frequented heavy load areas.

Fast, safe installation | Efficient time & cost management

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

Introduction to 2 models

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

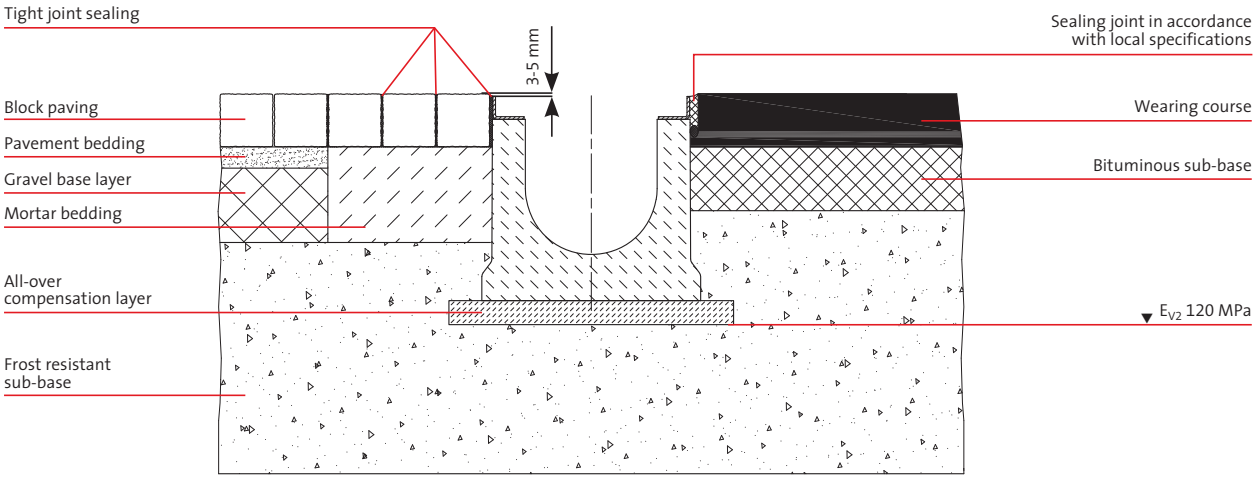


BIRCOsir Installation Examples

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

BIRCOsir NW 100, 150, 200 AS, 300 AS, 400, 500, 500 AS, 1000
Type I, Load class A 15 à C 250

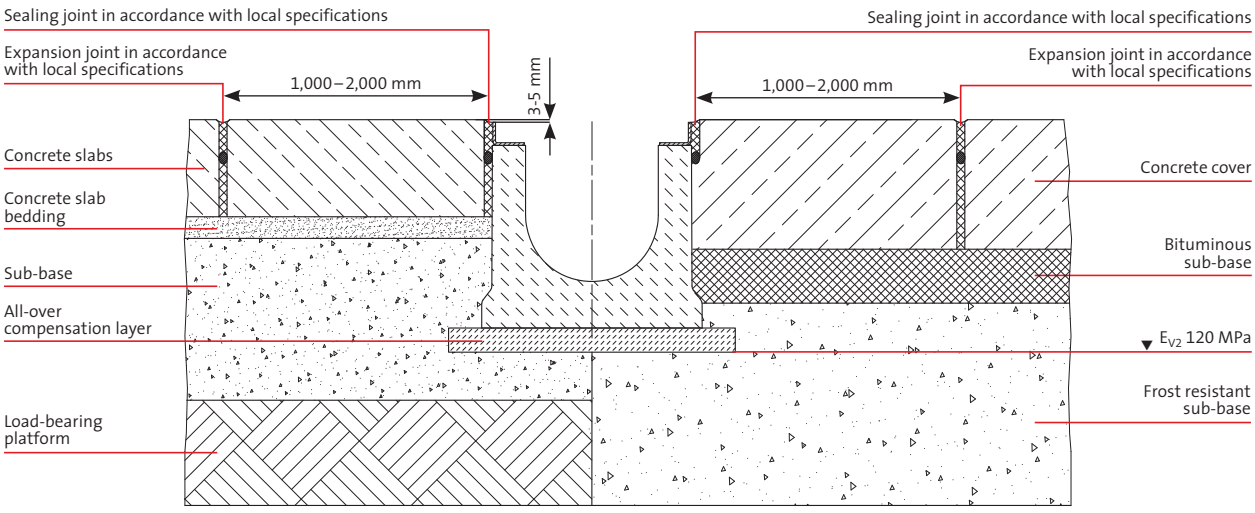
Drawings No. 20723, 20724, 20809, 20810



Construction with non-setting, frost-resistant carrier layers

BIRCOsir NW 100, 150, 200 AS, 300 AS, 400, 500, 500 AS, 1000
Type I, Load class A 15 à C 250

Drawings No. 20723, 20724, 20809, 20810



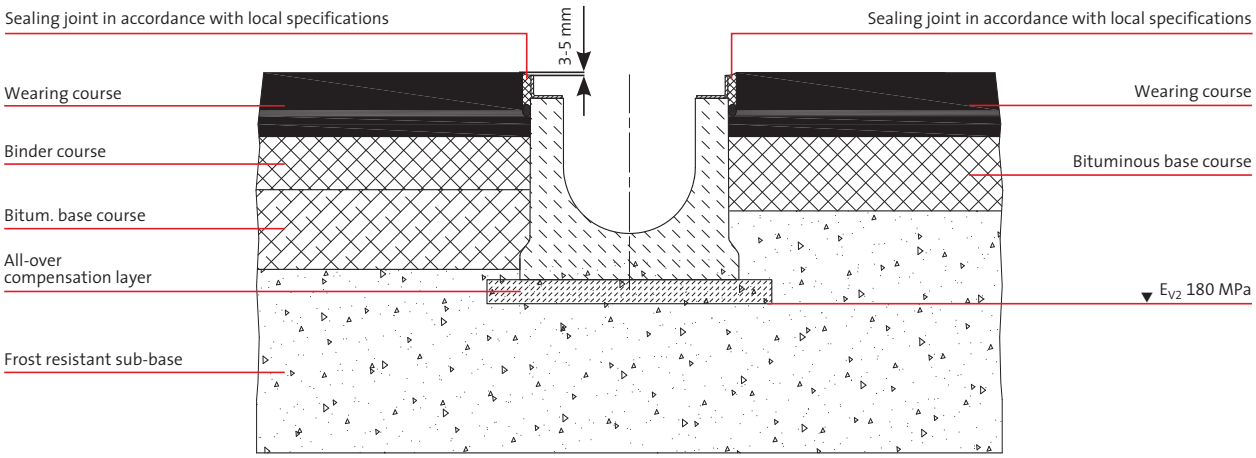
Construction with non-setting, frost-resistant carrier layers

Expansion joints must be planned on the basis of engineering considerations. When laying the channel line in a full concrete casing, expansion joints must be formed transversely to the section after 8 to 12 meters. They must be arranged so that they run through a channel joint.
Construction with non-setting, frost-resistant carrier layers.
Exception up to D 400: not for installation across the carriage-way of highways or motorways.

BIRCOsir NW 100, 150, 200 AS, 300 AS, 400, 500, 500 AS, 1000, Type I, Load class D 400

Exception: for heavy-duty areas subjected to frequent use, logistics centres, transshipment centres, marshalling areas, airport surfaces

Drawings No. 20723, 20724, 20809, 20810

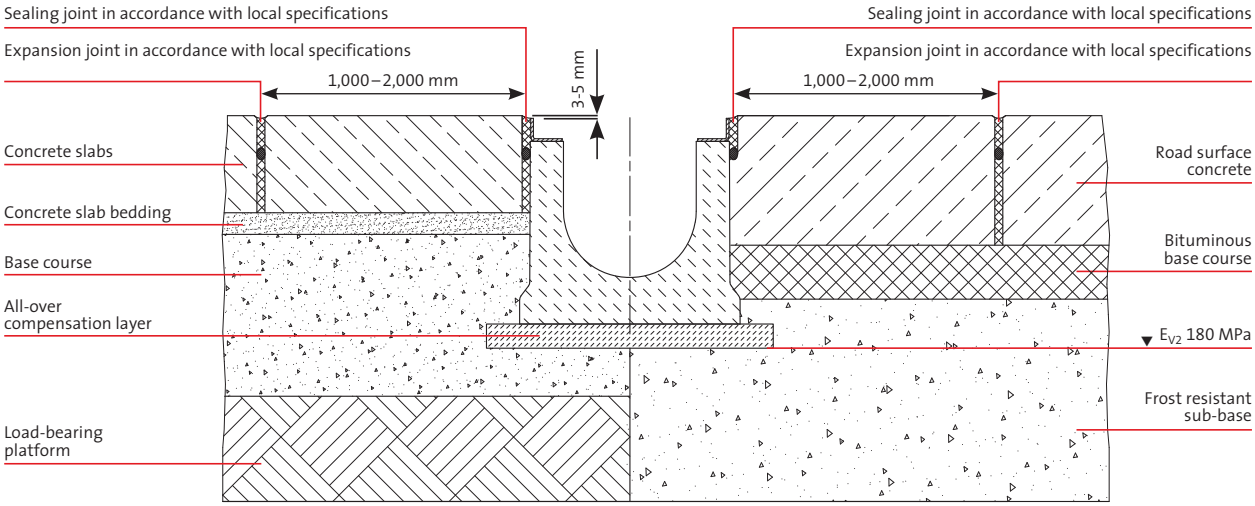


Construction with non-setting, frost-resistant carrier layers

BIRCOsir NW 100, 150, 200 AS, 300 AS, 400, 500, 500 AS, 1000, Type I, Load class D 400

Exception: for heavy-duty areas subjected to frequent use, logistics centres, transshipment centres, marshalling areas, airport surfaces

Drawings No. 20723, 20724, 20809, 20810



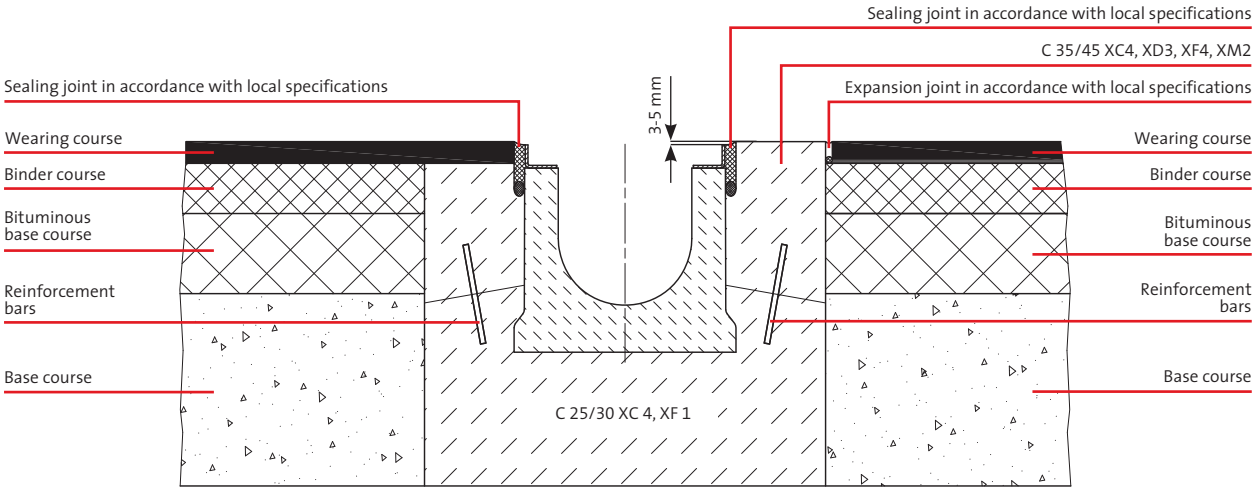
Construction with non-setting, frost-resistant carrier layers

Expansion joints must be planned on the basis of engineering considerations. When laying the channel line in a full concrete casing, expansion joints must be formed transversely to the section after 8 to 12 meters. They must be arranged so that they run through a channel joint.
Construction with non-setting, frost-resistant carrier layers.
Exception up to D 400: not for installation across the carriage-way of highways or motorways.

BIRCOsir NW 100, 150, 200 AS, 300 AS, 400, 500, 500 AS, 1000, Type M, for heavy-duty areas (Load class D 400 / E 600 / F 900)

Logistics centers | Transshipment centers | Marshalling areas | Airport surfaces

Drawings No. 20257, 20254, 20258, 20285, 20512, 20710, 20724, see page 59 for concrete casing overview

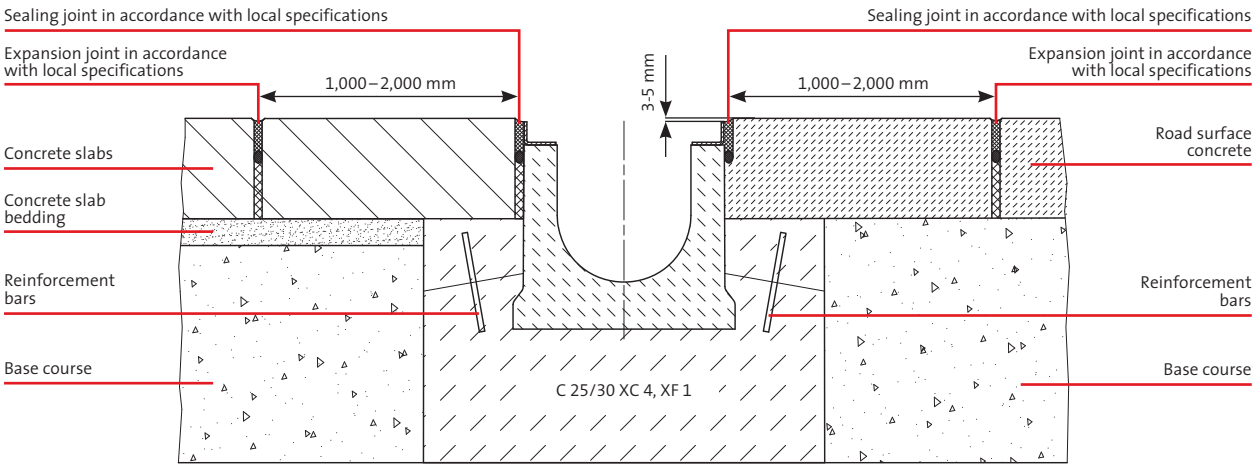


Construction with non-setting, frost-resistant carrier layers

BIRCOsir NW 100, 150, 200 AS, 300 AS, 400, 500, 500 AS, 1000, Type M, for heavy-duty areas (Load class D 400 / E 600 / F 900)

Logistics centers | Transshipment centers | Marshalling areas | Airport surfaces

Drawings No. 20257, 20254, 20258, 20285, 20512, 20710, 20724, see page 59 for concrete casing overviewv



Construction with non-setting, frost-resistant carrier layers

Expansion joints must be planned on the basis of engineering considerations. When laying the channel line in a full concrete casing, expansion joints must be formed transversely to the section after 8 to 12 meters. They must be arranged so that they run through a channel joint.
Construction with non-setting, frost-resistant carrier layers.
Exception up to D 400: not for installation 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 casing 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 casing, 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 EN 206-1 regarding for instance resistance to temperature variations 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.

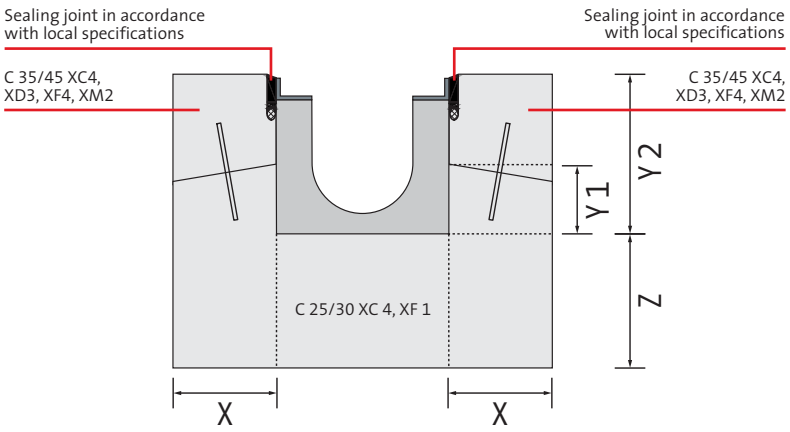
BIRCOsir concrete casing overview

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

BIRCOsir

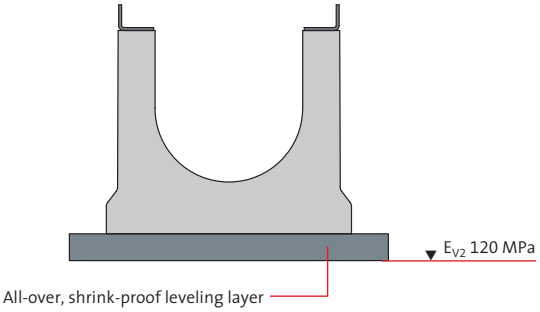
DN	Type	Load class	X	Y/Y 1	Y 2	Z	Drawing No.	Page
BIRCOsir 100	M	D 400 – F 900	≥ 150	≥ 100	Construction height + 5 mm	≥ 200	20724	58
BIRCOsir 150	M	D 400 – F 900	≥ 150	≥ 100	Construction height + 5 mm	≥ 200	20723	58
BIRCOsir 200 AS	M	D 400 – F 900	≥ 150	≥ 100	Construction height + 5 mm	≥ 200	20710	58
BIRCOsir 300 AS	M	D 400 – F 900	≥ 200	≥ 100	Construction height + 5 mm	≥ 200	20512	58
BIRCOsir 400	M	D 400 – F 900	≥ 200	≥ 200	Construction height + 5 mm	≥ 200	20257	58
BIRCOsir 500	M	D 400 – F 900	≥ 200	≥ 200	Construction height + 5 mm	≥ 200	20258	58
BIRCOsir 500 AS	M	D 400 – F 900	≥ 200	≥ 200	Construction height + 5 mm	≥ 200	20285	58
BIRCOsir 1000	M	A 15 – E 600	≥ 200	≥ 250	–	≥ 250	20254	58
BIRCOsir 1000	M	D 400 – F 900	≥ 200	≥ 250	Construction height + 5 mm	≥ 250	20254	58

Installation with concrete casing

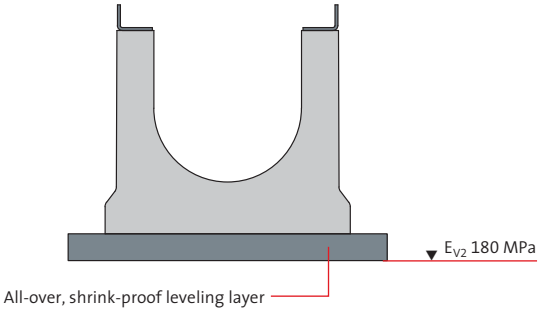


Shrink-proof leveling layer for BIRCOsir NW 100 to 500 Type I

BIRCOsir NW 100 to 500, Type I, Load class A 15 – C 250, without concrete casing



BIRCOsir NW 100 to 500, Type I, Load class D 400, without concrete casing



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

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	41.3 l/sec	743.4 cm²
No. 2	42.1 l/sec	758.4 cm²
No. 3	42.7 l/sec	773.4 cm²
No. 4	43.8 l/sec	788.4 cm²
No. 5	44.6 l/sec	803.4 cm²
No. 6	45,5 l/sec	818.4 cm²
No. 7	46.3 l/sec	833.4 cm²
No. 8	47.1 l/sec	848.4 cm²
No. 9	48.0 l/sec	863.4 cm²
No. 10	48.8 l/sec	878.4 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 | without inbuilt fall

	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

Horizontal and vertical drilling

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 110 to DN 315. 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.

BIRCOservice Page 141

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

BIRCOsir | Maximum bore hole diameter

NW	Bore hole, horizontal maximal	Bore hole, vertical maximal
100 mm	DN 160	DN 110
150 mm	DN 200	DN 160
200 mm	DN 250	DN 200
300 mm	DN 315	DN 315
400 mm	DN 315	DN 315
500 mm	DN 315	DN 315
1000 mm	DN 315	DN 315

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 casing 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

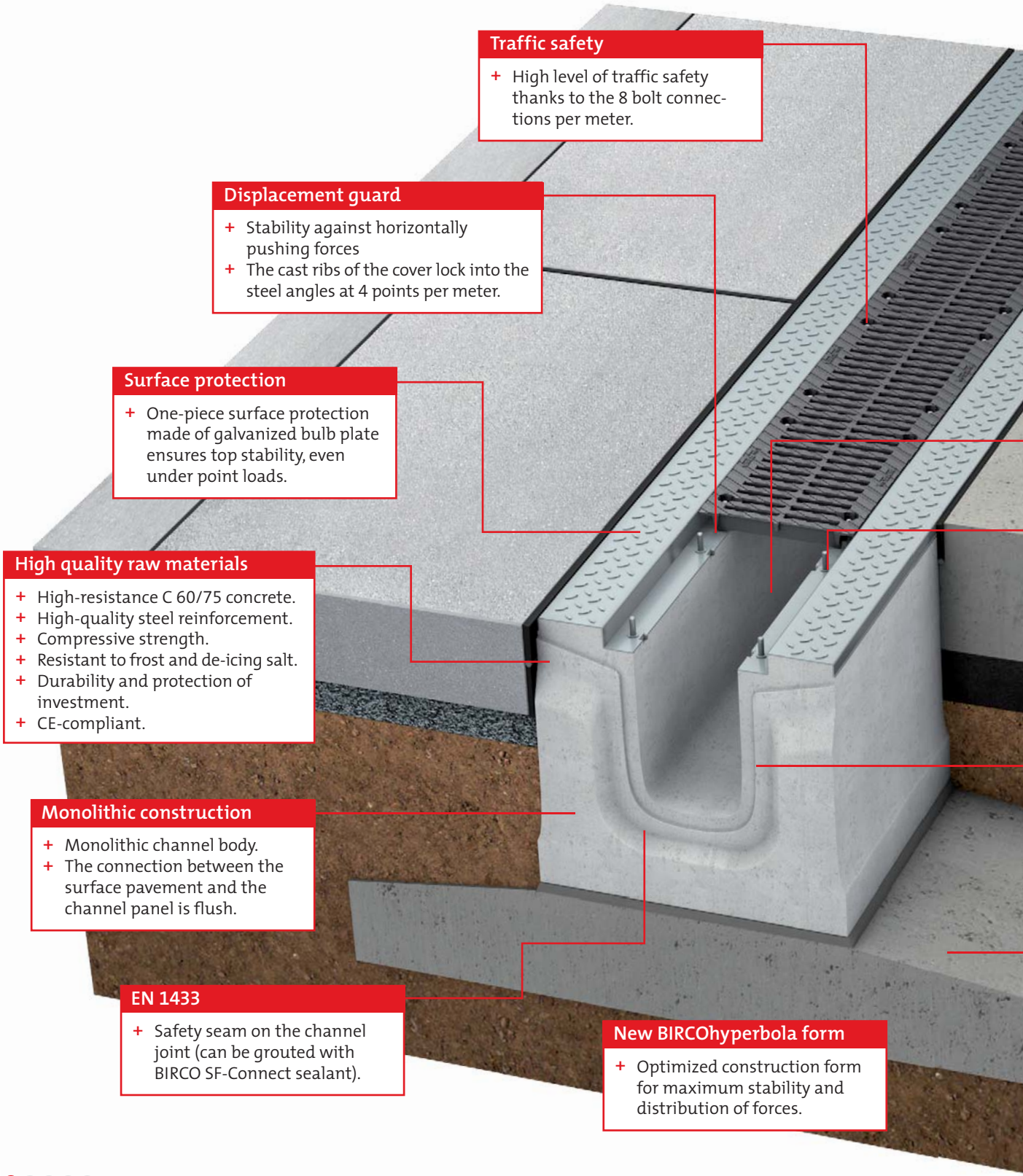
BIRCOmassiv | Facts

- + Channel system: NW 150 and 200, with and without internal inbuilt fall
- + High-quality C 60/75 concrete
- + BIRCOhyperbola construction form for maximum stability
- + With hot-dipped galvanized surface protection
- + Construction lengths: 1.5 and 3.0 meters
- + Load class: A 15 – F 900, Type I
- + Shift protection and 8-point per meter M-12 bolt connection of the grating
- + Continuous float guard
- + Professional jointing
- + 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 8 bolt connections per meter.

Displacement guard

+ Stability against horizontally pushing forces
+ The cast ribs of the cover lock into the steel angles at 4 points per meter.

Surface protection

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

High quality raw materials

+ High-resistance C 60/75 concrete.
+ High-quality steel reinforcement.
+ Compressive strength.
+ Resistant to frost and de-icing salt.
+ Durability and protection of investment.
+ CE-compliant.

Monolithic construction

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

EN 1433

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

New BIRCOhyperbola form

+ Optimized construction form for maximum stability and distribution of forces.

Fast, safe installation

+ 3 meter long channels make channel laying faster with fewer joints.
+ Type I in accordance with EN 1433, without full on-site concrete casing.
+ Precise installation from above.

Radial laying

+ Waterproofing mad easy even while radial laying.
+ Ready-for-use delivery thanks to BIRCO inhouse-service

Larger volume

+ The innovative BIRCOhyper-bola construction form assures more volume compared to competitive products while having the same construction width.

Laying from above

+ The particular tongue and groove system system allows direct laying from above thanks to the load rings screwed into the stud bolts.

Availability

+ Thanks to the innovative pro-duction technology, even large quantities of extremely bulky components can be delivered at short notice.

BIRCO sealing joint

+ The transitions to the channel joint fit pecisely and enable professional jointing.

BIRCOmassiv | Reduction of concrete work

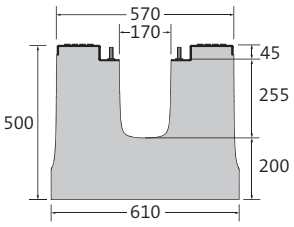
+ As a monolithic component part, BIRCOmassiv is categorized as what is known as a Type I channel. This means that load bearing foundations or full concrete is not necessary at the building site. This reduces complex, expensive concrete casing work and significantly speeds up the pace at which BIRCOmassiv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

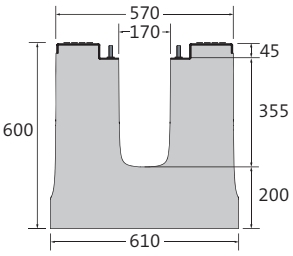
BIRCOmassiv | NW 150

Designed for maximum loads

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

+ Reinforced grade C 60/75
+ Optimum BIRCO hyperbola design
+ With continuous float guard
+ Safety sealing joint
+ Displacement guard of the grating





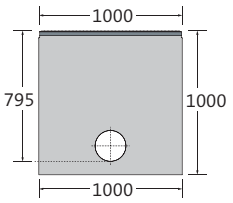
Description	Length	Width at top/ at ground	Construction height	Weight	Load class EN 1433	Cross section at channel end	Drainage capacity at channel end	Article No.
Channel CH 500	1500 mm	570/610 mm	500 mm	885.0 kg	A 15 – F 900	398.1 cm²	22.12 l/sec	30016116
Channel CH 500	3000 mm	570/610 mm	500 mm	1,720.0 kg	A 15 – F 900	398.1 cm²	22.12 l/sec	30016118
Channel CH 600	1500 mm	570/610 mm	600 mm	1,038.0 kg	A 15 – F 900	566.4 cm²	31.47 l/sec	30016126
Channel CH 600	3000 mm	570/610 mm	600 mm	2,076.0 kg	A 15 – F 900	566.4 cm²	31.47 l/sec	30016128

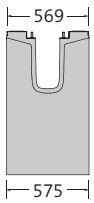
End caps

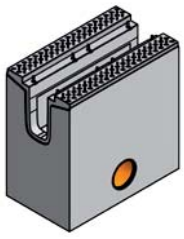
Description	Width	For construction height	Weight	Article No.
End cap, galvanized	569 mm	500 mm	2.8 kg	300160140
End cap, galvanized	569 mm	600 mm	3.5 kg	300160141
End cap with outlet DN 160, galvanized	569 mm	500 mm	3.6 kg	300160145
End cap with outlet DN 160, galvanized	569 mm	600 mm	4.2 kg	300160146

Outfall unit

+ 1- or 2-sided channel connection
+ 1 integrated socket for DN 200 pipe connection
+ Without odour trap
+ Displacement guard of the grating
+ Safety sealing joint



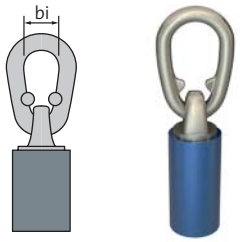




Description	Length at top/ at ground	Construction Height (CH)	Weight	Load class EN 1433	Article No.
Outfall unit for CH 500 mm	1000/1000 mm	1000 mm	457.0 kg	A 15 – F 900	30016135
Outfall unit for CH 600 mm	1000/1000 mm	1000 mm	451.0 kg	A 15 – F 900	30016136

Load ring M12 | mountable on studs | Set of 4

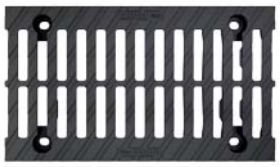
+ 4 load rings M12 are required for the installation of a BIRCOmassiv concrete channel
+ Supported by ball bearings, quality class 10
+ With internal thread, pivotable at 360°



Description	Load bearing capacity	Internal eyelet diameter	Article No.
Load ring M 12	1.4 t	32 mm	606111

Ductile iron slotted gratings

+ Black immersion-lacquered
+ Also available galvanized
+ 8-point per meter M12/A2 self-locking nuts
+ Displacement guard



Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class EN 1433	Article No.
black	500 mm	287 mm	45 mm	9.7 kg	SW 94/17.5 mm	890 cm²/m	A 15 – D 400	300160174
black	500 mm	287 mm	45 mm	11.8 kg	SW 94/17.5 mm	890 cm²/m	A 15 – F 900	300160178

Ductile iron mesh grating

+ Black immersion-lacquered
+ 8-point per meter M12/A2 self-locking nuts
+ Displacement guard

Description	Length	Weight	Inlet opening	Inlet cross section	Load class EN 1433	Article No.
black	500 mm	12.7 kg	MW 18/18 mm	990 cm²/m	A 15 – E 600	300160186

SW = slot width, MW = mesh width
Exception up to D 400: Not for use across the carriage-way of highways or motorways.
* Wedge lock washer should not be combined with other washers.

Wedge lock washer M12

+ A washer as longtime protection of the nut *
+ Stainless steel V2A
+ Requirement: 4 pces per grating

Description	Article No.
Wedge lock washer M12	**602167**

PE Trobond panel | PE-foam panel for expansion joint formation

+ PE-foam panel with good recovery
+ Adjusted to the channel outline, customizable to the necessary height on site
+ BIRCO recommends: installation ever 8 to 12 meters

Nominal width	Height	Width	For construction height	Weight	Article No.
150	**13 mm**	**610 mm**	**500/600**	**0.2 kg**	**068109**

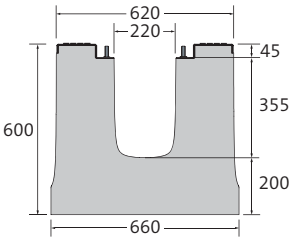
Exception up to D 400: Not for use across the carriage-way of highways or motorways.
* Wedge lock washer should not be combined with other washers.

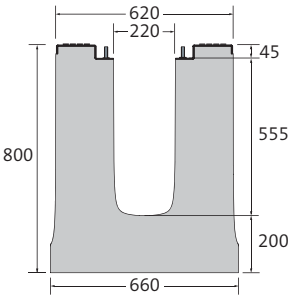
BIRCOmassiv | NW 200

Designed for Maximum Loads

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

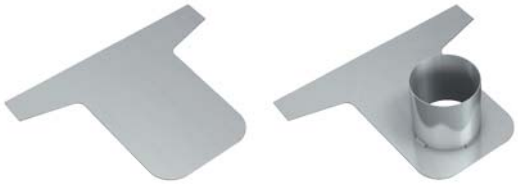
+ Reinforced grade C 60/75
+ Optimum BIRCOhyperbola construction form
+ With continuous float guard
+ Safety sealing joint
+ Displacement guard of the grating





Description	Length	Width at top/ at ground	Construc-tion heigh	Weight	Load class EN 1433	Cross section at channel end	Drainage capacity at channel end	Article No.
Channel CH 600	1500 mm	620/660 mm	600 mm	1,078.0 kg	A 15 – F 900	738.0 cm²	41.00 l/sec	30016216
Channel CH 600	3000 mm	620/660 mm	600 mm	2,152.0 kg	A 15 – F 900	738.0 cm²	41.00 l/sec	30016218
Channel CH 800	1500 mm	620/660 mm	800 mm	1,369.0 kg	A 15 – F 900	1177.7 cm²	65.43 l/sec	30016226
Channel CH 800	3000 mm	620/660 mm	800 mm	2,738.0 kg	A 15 – F 900	1177.7 cm²	65.43 l/sec	30016228

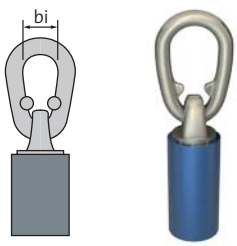
End caps



Description	Width	For construc-tion height	Weight	Article No.
End cap, galvanized	619 mm	600 mm	4.0 kg	300160240
End cap, galvanized	619 mm	600 mm	5.6 kg	300160241
End cap with outlet, galvanized	619 mm	800 mm	4.8 kg	300160245
End cap with outlet, galvanized	619 mm	800 mm	6.3 kg	300160246

Load ring M12 | mountable on studs | Set of 4

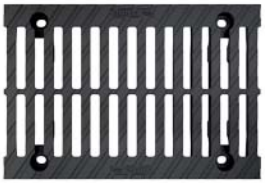
+ 4 load rings M12 are required for the installation of a BIRCOmassiv concrete channel
+ Supported by ball bearings, quality class 10
+ With internal thread, pivotable at 360°



Description	Load bearing capacity	Internal eyelet diameter	Article No.
Load ring M 12	1.4 t	32 mm	606111

Ductile iron slotted gratings

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



Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class EN 1433	Article No.
black	**500 mm**	**337 mm**	**45 mm**	**11.8 kg**	**SW 119/17.5 mm**	**1114 cm²/m**	**A 15 – D 400**	**300160274**
black	**500 mm**	**337 mm**	**45 mm**	**13.8 kg**	**SW 119/17.5 mm**	**1114 cm²/m**	**A 15 – E 600**	**300160275**
black	**500 mm**	**337 mm**	**45 mm**	**18.4 kg**	**SW 119/17.5 mm**	**1114 cm²/m**	**A 15 – F 900**	**300160278**

Ductile iron mesh grating

+ Black immersion-lacquered
+ 8-point per meter M12/A2 self-locking nuts
+ Displacement guard

Description	Length	Weight	Inlet opening	Inlet cross section	Load class EN 1433	Article No.
black	**500 mm**	**14.6 kg**	**MW 18/18 mm**	**1255 cm²/m**	**A 15 – E 600**	**300160286**

Wedge lock washer M12

+ A washer as longtime protection of the nut *
+ Stainless steel V2A
+ Requirement: 4 pces per grating

Description	Article No.
Wedge lock washer M12	**602167**

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.
* Wedge lock washer should not be combined with other washers.

PE Trobond panel | PE-foam panel for expansion joint formation

+ PE-foam panel with good recovery
+ Adjusted to the channel outline, customizable to the necessary height on site
+ BIRCO recommends: installation ever 8 to 12 meters

Nominal width	Height	Width	For construction height	Weight	Article No.
200	13 mm	660 mm	600/800	0.2 kg	068110

BIRCOmassiv
Installation instructions

A number of details must be observed when installing BIRCOmassiv. You will find a comprehensive description below.

The base courses must be frost-resistant and designed according to the latest version of RSTO (guidelines for the standardization of pavement structures of traffic areas).
The base course must be designed in such a way that it is settlement-free and suitable for the forces that arise.

For heavily frequented, heavy load areas in load classes E 600 and F 900 such as logistics centers, transshipment centers, marshalling areas and airport surfaces a load distribution layer must be calculated by an engineering office in consideration of the arising loads and soil properties.

For heavily frequented areas in load class D 400, BIRCO recommends the installation instructions for load class E 600, with a load distribution layer calculated by an engineering office.

BIRCO recommends completely jointing the channel joint to avoid freeze/thaw damage (see jointing information). Also to avoid freeze/thaw damage, it must be ensured that no water remains on the load distribution layer or the leveling layer.

Professional installation from a concrete technology perspective must be ensured.

All coverings (except for paving coverings):
The adjoining surface coverings must be permanently approx. 3 to 5 mm higher than the upper edge of the channel to ensure optimum protection of the channel.

For paving coverings:
To keep the adjacent paving permanently 3 to 5 mm above the upper edge, we recommend laying the first two to three rows in the mortar bed for paving coverings. Due to the lack of sheathing, the surface covering can be guided up to the gutter. For slab or paving connections, a permanent sealing gap of about 10 mm must be maintained between the channel and the covering. The joints between the first two to three series of slab or paving connections must be permanently sealed. It must be ensured that no horizontal forces act on the paving laid in the mortar bed due to displacement or expansion of the paving covering.

Expansion joints:
Expansion joints in components adjacent to the channel must be planned from an engineering perspective.

BIRCO recommends arranging expansion joints running parallel to the channel at a distance of 1 to 2 m to the channel section. Expansion joints running transverse to the channel section must be arranged so that they run through a channel joint. We recommend this arrangement every 9 to 12 running meters (according to DIN 18318, valid version). The expansion joints (e.g. PE foam boards) must run across the entire channel cross-section through the foundation and the lateral concrete casing.

Jointing information

Spray the channel joint/safety seam with SF Connect after laying the drainage channels.

Application area:
Bonding of concrete, brick, steel, stainless steel, aluminum, polyester (GRP), PVC, acrylic, polystyrene, glass, wood.

Properties:
Coated substrates must be checked in advance for adhesion and compatibility.
The setting time depends on the temperature and humidity. Increased temperatures reduce the setting time.
SF Connect does not contain any solvents, isocyanate or silicone and is not subject to labeling. Before the start of processing, find out about precautionary measures and safety recommendations by reading the Safety Data Sheet.

Operating instructions:
1. Use an industrial cartridge gun to spray the channel joint/safety seam.
2. **Important!** Before spraying the drainage channels, clean the channel joint/safety seam – remove any separating agents, dust, dirt, oil or other problematic substrates.
3. Insert the PE cord.
4. During processing, wear protective gloves and goggles.
5. Insert the tubular bag (600 ml) into the industrial cartridge gun.
6. Spray on SF connect.
7. Finally, smooth the joint/notch surface with a jointing iron or spatula dipped in a soap solution.
8. Allow the material residue to set. Set residues can be disposed of along with residual waste.

A note on the bolt connection

A tightening torque of M12 = 60 Nm must be applied for the bolt connection on the covers.
The bolts on the covers must be tightened at regular intervals.

Additional rules and guidelines

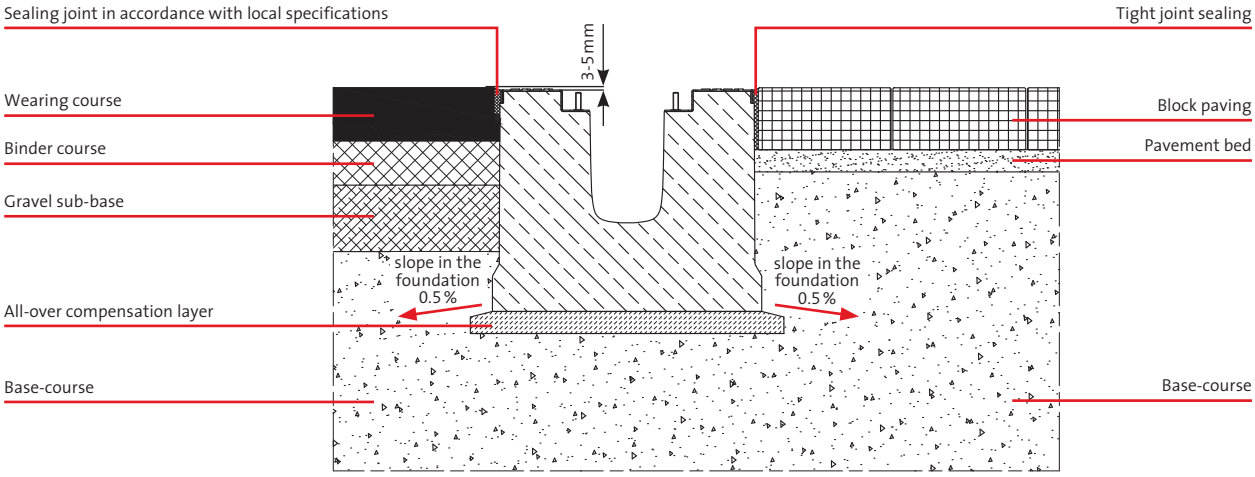
The local conditions must be checked and taken into account by the planner.

BIRCOmassiv Installation examples

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

Load class A 15 – D 400*, Type I, NW 150 – 200

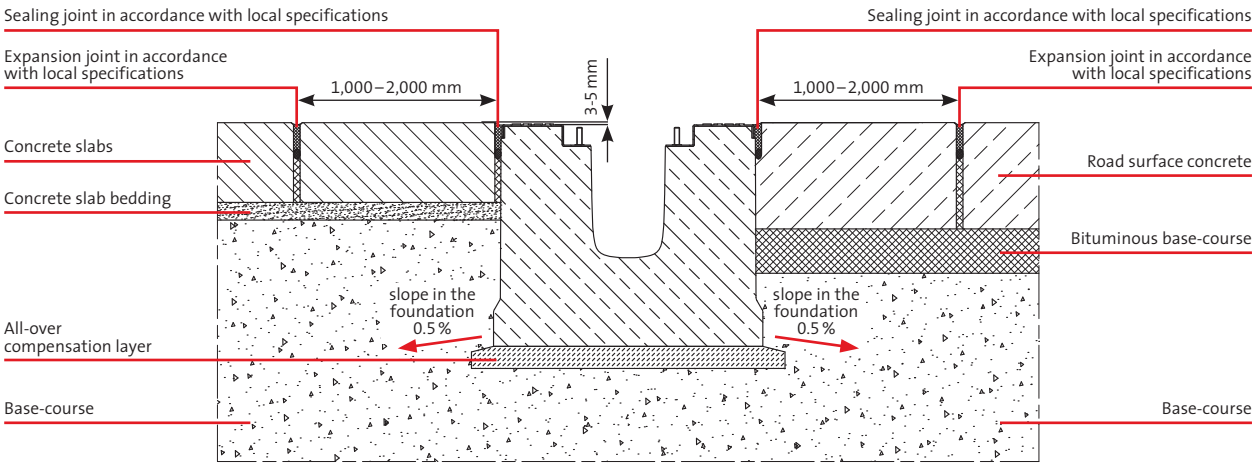
Drawing No. 22013



Construction with non-setting, frost-resistant carrier layers

Load class A 15 – D 400*, Type I, NW 150 – 200

Drawing No. 22013



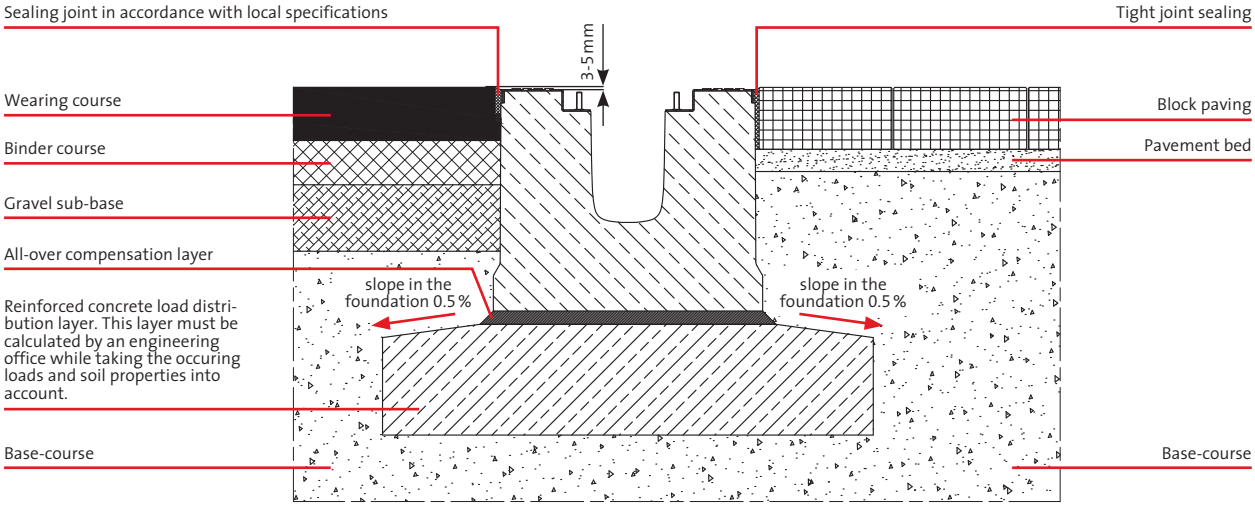
Construction with non-setting, frost-resistant carrier layers

Expansion joints must be planned on the basis of engineering considerations. When laying the channel line in a full concrete casing, expansion joints must be formed transversely to the section after 9 to 12 meters. They must be arranged so that they run through a channel joint.
Construction with non-setting, frost-resistant carrier layers.
Exception up to D 400: not for installation across the carriage-way of highways or motorways.

For heavily frequented heavy-duty areas.
Transport hubs | Maneuvering areas | Aircraft pavements

Load class E 600 – F 900, Type I, NW 150 – 200
Load class D 400* subjected to frequent use

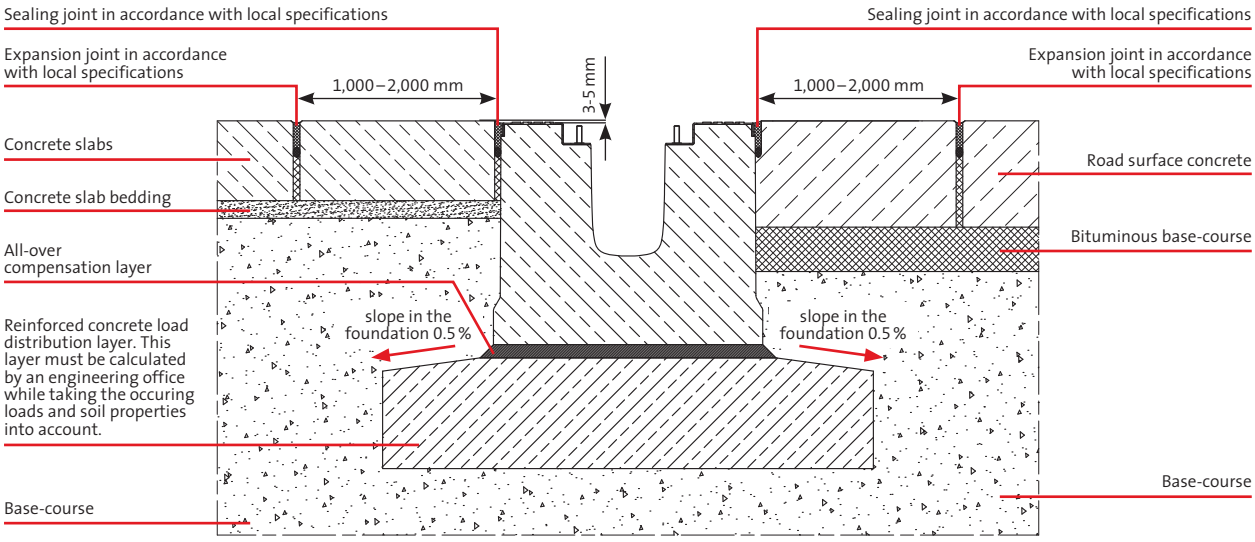
Drawing No. 22013



Construction with non-setting carrier layers

Load class E 600 – F 900, Type I, NW 150 – 200
Load class D 400* subjected to frequent use

Drawing No. 22013



Construction with non-setting carrier layers

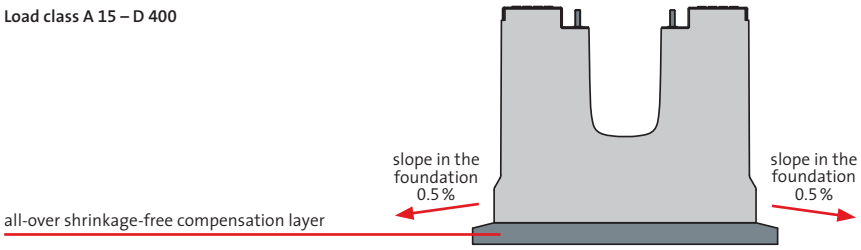
Expansion joints must be planned on the basis of engineering considerations. When laying the channel line in a full concrete casing, expansion joints must be formed transversely to the section after 9 to 12 meters. They must be arranged so that they run through a channel joint.
Construction with non-setting carrier layers.
Exception up to D 400: not for installation 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 channel.

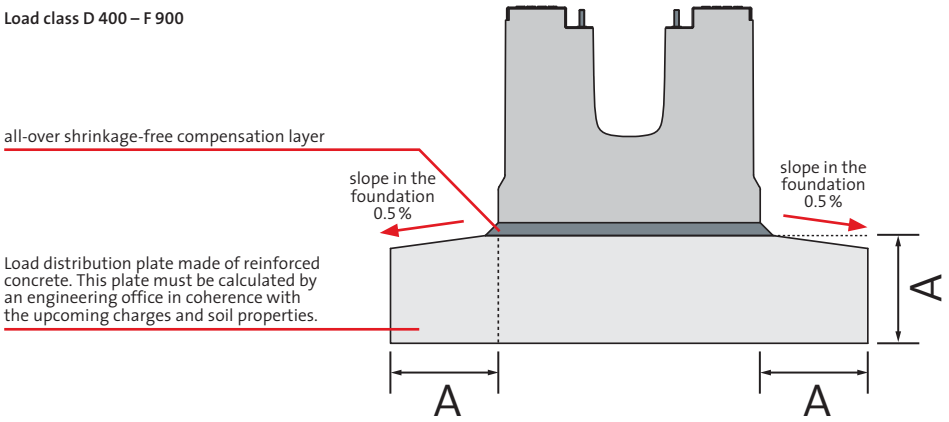
Bolting instructions:
Torque moments for screw fastening of the gratings are to be set at M 12 = 60 Nm. The bolts on the gratings must be retightened at regular intervals.

Schematic structure

Load class A 15 – D 400



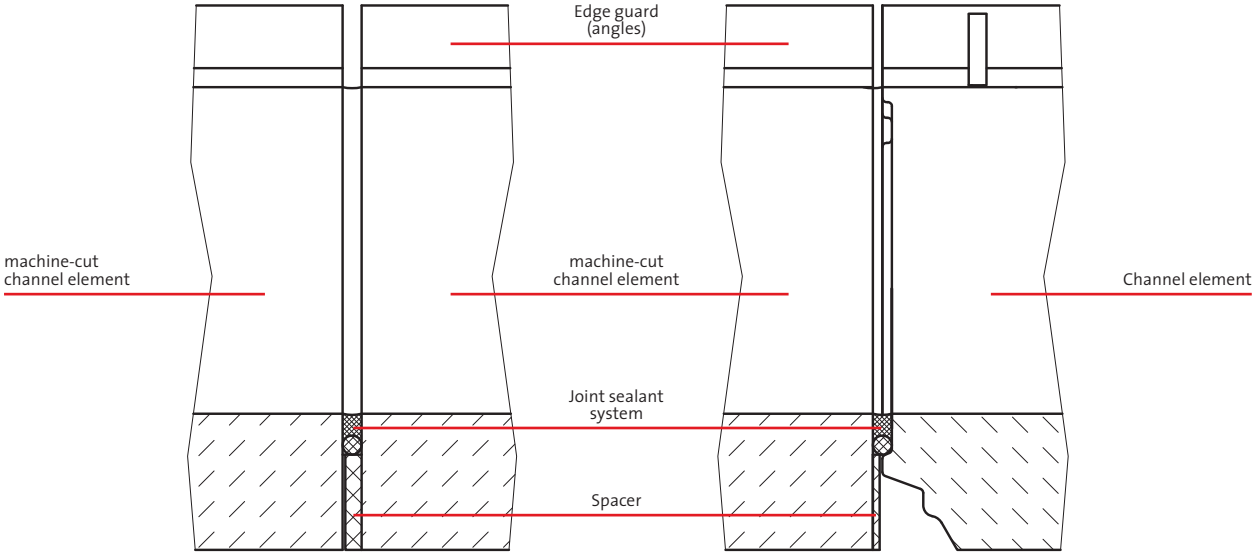
Load class D 400 – F 900



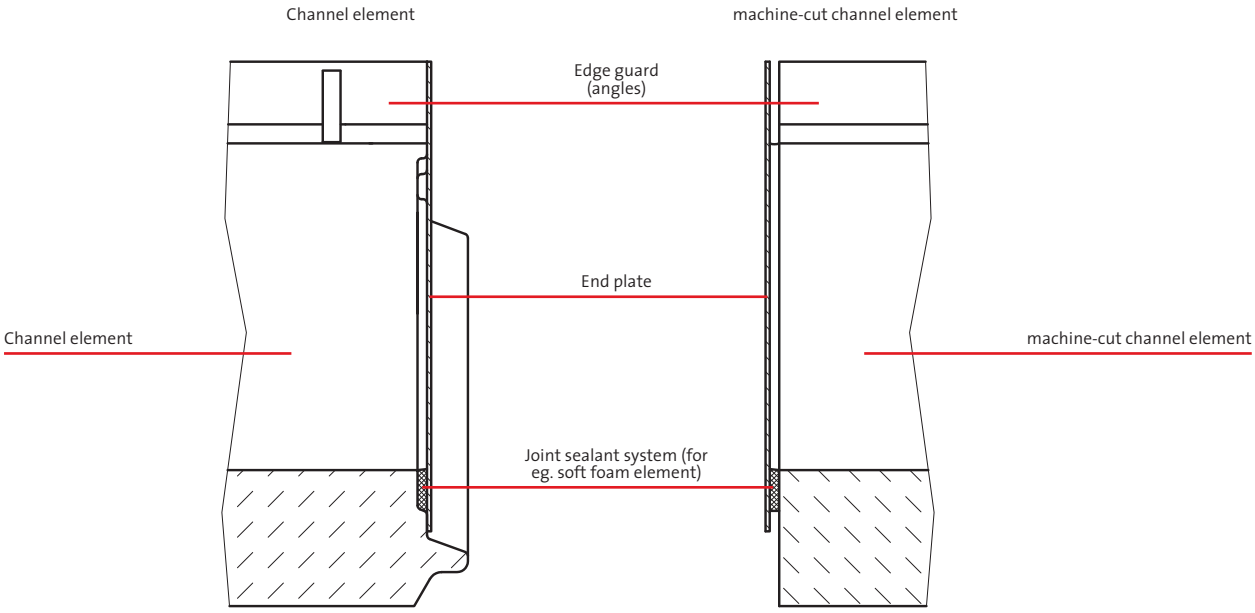
Sealing for customized 90° and mitred cuts

Radial laying without mitred cuts is possible up to specific radii. The channels can be sawed and closely adjusted to particular radii. On demand, BIRCO's factory service delivers tailor-made channels directly to your building site.

Joint layout between channel elements (longitudinal section)
and between machine-cut channel elements (mitred cuts).



Detailed joint layout connecting to the begin or end plates (longitudinal section)



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

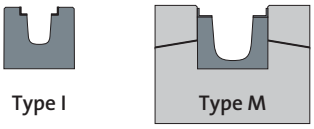
CL = 1500 / 3000 mm	Drainage capacity at the channel end	Cross-sectional area at the channel end
Constr. height 500	22.12 l/sec	398.1 cm²
Constr. height 600	31.47 l/sec	566.4 cm²

BIRCOmassiv NW 200 | without inbuilt fall

CL = 1500 / 3000 mm	Drainage capacity at the channel end	Cross-sectional area at the channel end
Constr. height 500	41.00 l/sec	738.0 cm²
Constr. height 600	65.43 l/sec	1177.7 cm²

Classification in 2 types

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



Horizontal and vertical drilling

We can fit BIRCOmassiv channels with horizontal or vertical bore holes for directly fitting feed and drainage lines according to your plans. Bore holes have to be at a minimum distance of 100 mm from the channel end. 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.

BIRCOmassiv

NW	Bore hole, horizontal maximal	Bore hole, vertical maximal
150 mm	DN 200	DN 150
200 mm	DN 300	DN 200

*** Bore hole diameters depend on the construction height. For individual advice, please refer to our hydraulic calculation service.**

BIRCOservice Page 141

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

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.

BIRCOmax-i | Maximum retention with maximum stability

Facing the challenges of climate change in the most optimal way. The channel with enormous retention volumes can collect up to 512 liters per running meter, providing immediate storage. In the process, the optimized hyperbola design masters even the highest loads – especially in the case of Type I installation.

+ A 15 to F 900

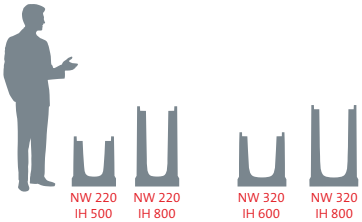
+ Retention

For rapid drainage of areas subjected to high loads. The large choice of installation heights and lengths offers maximum planning freedom.

BIRCOmax-i | Areas of application

+ Airports / Airside
+ Sea and inland ports
+ Industry and logistics centers
+ Parking lots with turning trucks
+ Forecourts of public buildings, train stations, schools and event venues
+ Traffic routes
+ Anywhere where large volumes of water need to be immediately absorbed
+ Addition to sewage networks

BIRCOmax-i | Variety



BIRCOmax-i | Facts

- + Channel system: NW 220, 320, 420, 520, each one available with several installation heights (IH)
- + High-quality C 60/75 concrete
- + Installation lengths: 1.50 and 3.00 meters
- + New BIRCOhyperbola construction form for maximum stability
- + Type I installation
- + 5 mm ductile iron frame with CDP coating
- + Shift protection and 8-point per meter M-12 bolt connection on grating
- + Continuous float guard
- + Professional jointing
- + Load class: A 15 – F 900, EN 1433
- + High inflow volumes
- + Short delivery times even for large quantities

Illustration:
Nominal width 520, installation height 1200

BIRCOmax-i | Maximum everything

BIRCOmax-i combines the best characteristics of modern channel systems with optimized performance.

Fast and safe installation

+ Up to 3 meter channel elements guarantee fast laying with a low number of joints.
+ One-piece channel element for installation as Type I.

Corrosion protection

+ Stability and corrosion protection: 5 mm ductile iron angle anchored in concrete.
+ CDP coating.

Laying from above

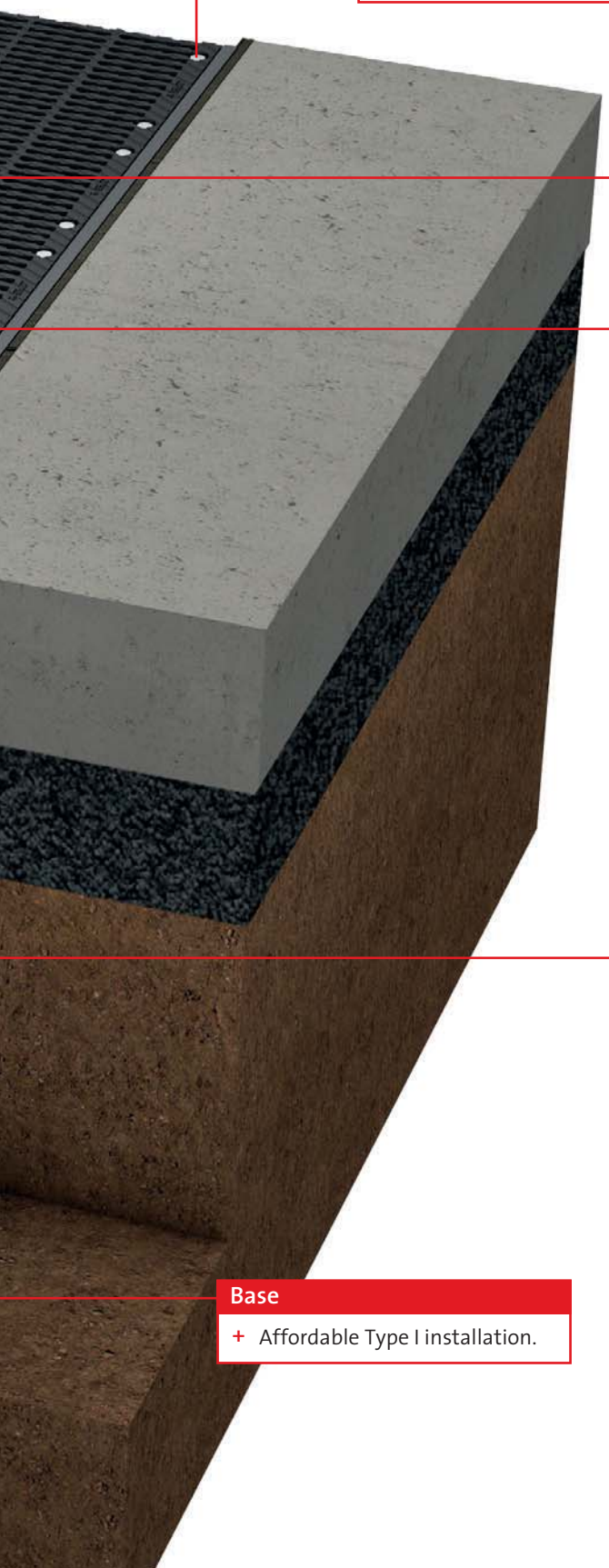
+ Installation possible with suspension gear in the screw threads.

High-quality raw materials

+ High-quality C 60/75 concrete.
+ High-quality steel reinforcement.
+ Compressive strength.
+ Resistant to frost and de-icing salt.
+ Durability and protection of investment.
+ CE-compliant.

New design: BIRCOhyperbola

+ Optimum BIRCOhyperbola design for maximum stability and distribution of forces.



Stability

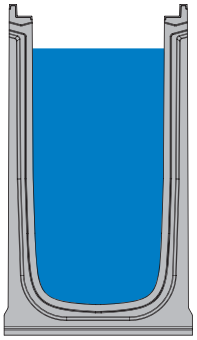
+ High level of traffic safety thanks to 8-point per meter M12 bolt connection.
+ Integrated displacement guard between angles and grating.

Drainage performance

+ High inlet cross-section.

Maximum volumes

+ Immediate drainage even in heavy rain.
+ Hydraulic advantage.
+ Impressive retention volumes: up to 512 liters per running meter.



BIRCO sealing joint

+ The transitions to the channel joint fit precisely and enable professional jointing. The design enables laying from above.

Base

+ Affordable Type I installation.

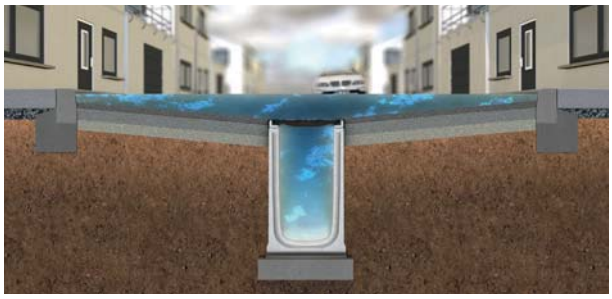
Availability

+ Thanks to the most innovative production technology, even large quantities of extremely bulky components can be delivered at short notice.

BIRCOmax-i | Planning suggestions

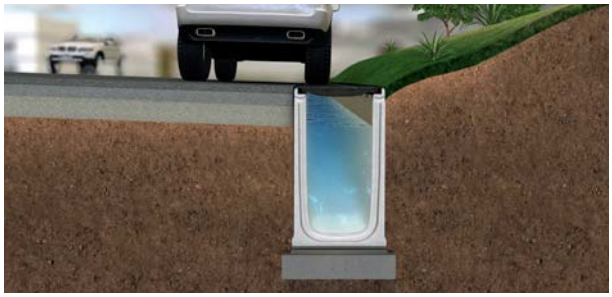
Large areas

BIRCOmax-i enables near-surface, quick drainage of large areas. The channel serves as an immediate storage area and noticeably diffuses the situation. On large drain traps, the added volume makes a big difference to downstream drains, cisterns or infiltration ditches.



Additional retention area for motorways

Modern planning methods regularly utilize the motorway as an initial retention space. With an adequate incline, a few thousand liters can be collected. With BIRCOmax-i blockages at points of entry are prevented, and the storage capacity is once again drastically increased.

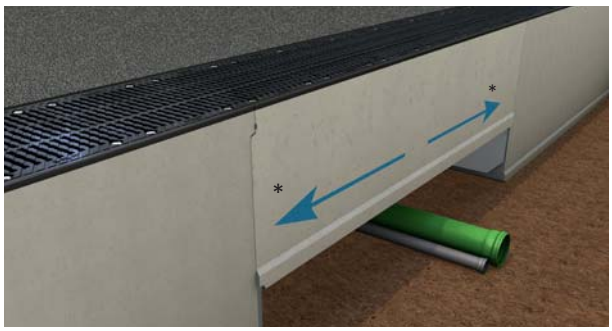


Diffusing traffic routes with inclines

Sharp curves or historically established traffic routes often represent a danger. In heavy rain, large quantities of water collect on the inside.

Network as an overall concept

With large-scale planning, BIRCOmax-i can also be planned as a water network. The volumes can be compared to those of a stream. In this way, large quantities of water can be controlled in a targeted way and sewer networks can be relieved.



Integrating a crossing infrastructure

Conflicts with crossing infrastructures can be easily circumvented by a transition piece with a smaller installation height with adapter plates (* possible flow directions).
We will be delighted to advise you about individual modifications.

References: Lauterbourg / Port of Strasbourg chooses BIRCOmax-i – in keeping with the times

One of the largest inland port operators, Port Autonome de Strasbourg, is carrying out a strategic expansion of its capacities at its port facility in Lauterbourg. BIRCO comprehensively supported the planning of the logistics area with calculations during the design phase.

Optimized installation

It did not take long for the planners to choose the BIRCOmax-i channel system. All the characteristics of this modern drainage system are simply convincing. The Type I components offer decisive advantages already during the installation phase. The fact that there is no lateral sheathing eliminates laborious processing steps. The large, three-meter components ensure rapid progress at the construction site and less joints make operations more secure. The innovative channel design also guarantees utmost stability even at maximum load.

High performance

Nominal width 320 with installation height 600 mm is also future-proof. To react to climate change and heavy rainfall, BIRCOmax-i with its huge immediate storage capacity, close to the surface, is a state-of-the-art solution for underground construction. The system is connected via DN 315 bore holes – which means that there is no backlog, and the large port areas are rapidly drained.

Permanent stability

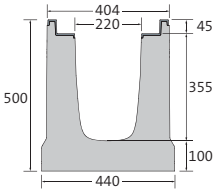
The surface protection provided by the ductile iron angle anchored in the concrete protects the surface of the channel component. The load-bearing BIRCOhyperbola design of BIRCOmax-i has been specially developed for heavy duty areas. This enables undisturbed operation in the long term. Particularly in port facilities subject to high continuous loads.

BIRCOmax-i | NW 220

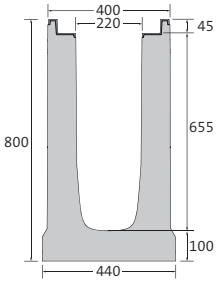
Supreme stability and maximum retention volume

Channel elements | without internal inbuilt fall

+ With cast-in 5 mm ductile iron angle with CDP coating
+ Reinforced C 60/75 concrete
+ Safety sealing joint
+ Anti-slip protection along the entire channel length



Constr. height 500



Constr. height 800

Description	Length	Width at top/ at ground	Constr. height at groove/ at tongue	Internal height at groove/ at tongue	Weight	Retention volumen per rm	Load class EN 1433	Article No.
Channel H 500	1500 mm	404/440 mm	500/500 mm	355/355 mm	438.5 kg	70.3 l	A 15 – F 900	0682200527
Channel H 500	3000 mm	404/440 mm	500/500 mm	355/355 mm	877.0 kg	70.3 l	A 15 – F 900	0682200529
Channel H 800	1500 mm	400/440 mm	800/800 mm	655/655 mm	635.0 kg	135.1 l	A 15 – F 900	0682200827
Channel H 800	3000 mm	400/440 mm	800/800 mm	655/655 mm	1270.0 kg	135.1 l	A 15 – F 900	0682200829

Ductile iron slotted gratings | twofold

+ Black immersion-lacquered
+ Also available as galvanized version
+ 8-point per meter M12/A2 bolt connection
+ Displacement guard

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Article No.
Class D 400	498 mm	337 mm	45 mm	10.3 kg	SW 119.5/17.5 mm	1114 cm²/m	0682200091
Class E 600	498 mm	337 mm	45 mm	15.6 kg	SW 119.5/17.5 mm	1114 cm²/m	0682200092
Class F 900	498 mm	337 mm	45 mm	18.0 kg	SW 119.5/17.5 mm	1114 cm²/m	0682200093

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

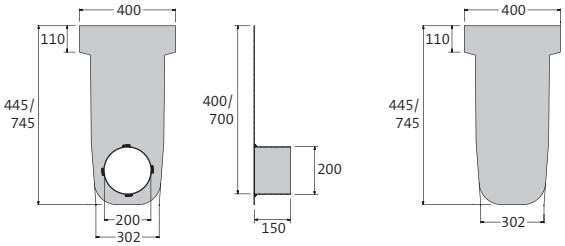
Ductile iron mesh grating

+ Black immersion-lacquered
+ 8-point per meter M12/A2 bolt connection
+ Displacement guard

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class EN 1433	Article No.
black	500 mm	337 mm	45 mm	14,6 kg	MW 18/18 mm	1255 cm²/m	A 15 – E 600	0682200086

End caps

+ Hot-dipped galvanized steel



Description	Width	For construction height	Weight	Article No.
Endcap, galvanized, H 500	400 mm	500 mm	3.2 kg	0682200540
Endcap, galvanized, H 800	400 mm	800 mm	5.4 kg	0682200840
Endcap with outlet DN 200, galvanized, H 500	400 mm	500 mm	4.7 kg	0682200545
Endcap with outlet DN 200, galvanized, H 800	400 mm	800 mm	6.9 kg	0682200845

PE Trobond panel | PE-foam panel for expansion joint formation

+ PE-foam panel with good recovery
+ Adjusted to the channel outline, customizable to the necessary height on site
+ BIRCO recommends: installation ever 9 to 12 meters

Nominal width	Height	Width	For construction height	Weight	Article No.
220	13 mm	440 mm	500/800	0.1 kg	068105

BIRCOmax-i suspension gear

Description	Lifting force per piece	Weight (Set)	Article No.
BIRCOmax-i suspension gear, rotatable, Set of 4	1.00 t	2.0 kg	606108

BIRCOservice | SF-Connect

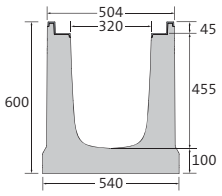
+ Sealing of the BIRCO safety joint with SF-Connect provides additional security.
More informations on page 143.

BIRCOmax-i | NW 320

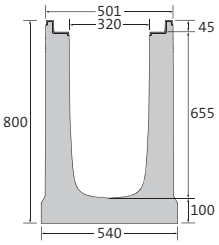
Supreme stability and maximum retention volume

Channel elements | without internal inbuilt fall

+ With cast-in 5 mm ductile iron angle with CDP coating
+ Reinforced C 60/75 concrete
+ Safety sealing joint
+ Anti-slip protection along the entire channel length



Constr. height 600



Constr. height 800

Description	Length	Width at top/ at ground	Constr. height at groove/ at tongue	Internal height at groove/ at tongue	Weight	Retention volumen per rm	Load class EN 1433	Article No.
Channel H 600	1500 mm	504/540 mm	600/600 mm	455/455 mm	557.0 kg	132.6 l	A 15 – F 900	0683200627
Channel H 600	3000 mm	504/540 mm	600/600 mm	455/455 mm	1114.0 kg	132.6 l	A 15 – F 900	0683200629
Channel H 800	1500 mm	501/540 mm	800/800 mm	655/655 mm	687.0 kg	195.8 l	A 15 – F 900	0683200827
Channel H 800	3000 mm	501/540 mm	800/800 mm	655/655 mm	1378.0 kg	195.8 l	A 15 – F 900	0683200829

Ductile iron slotted grating | twofold

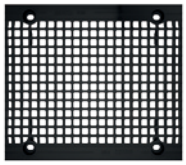
+ Black immersion-lacquered
+ Also available as galvanized version
+ 8-point per meter M12/A2 bolt connection
+ Displacement guard

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Article No.
Class D 400	498 mm	437 mm	45 mm	18.6 kg	SW 162/17.5 mm	1531 cm²/m	0683200091
Class E 600	498 mm	437 mm	45 mm	24.8 kg	SW 162/17.5 mm	1531 cm²/m	0683200092
Class F 900	498 mm	437 mm	45 mm	29.8 kg	SW 162/17.5 mm	1531 cm²/m	0683200093

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

Ductile iron mesh grating

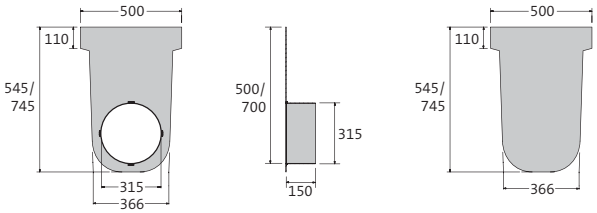
+ Black immersion-lacquered
+ 8-point per meter M12/A2 bolt connection



Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Load class EN 1433	Article No.
black	**500 mm**	**437 mm**	**45 mm**	**14,6 kg**	**MW 18/18 mm**	**1620 cm²/m**	**A 15 – E 600**	**0683200086**

End caps

+ Hot-dipped galvanized steel



Description	Width	For construction height	Weight	Article No.
Endcap, galvanized, H 600	**500 mm**	**600 mm**	**5.1 kg**	**0683200640**
Endcap, galvanized, H 800	**500 mm**	**800 mm**	**7.0 kg**	**0683200840**
Endcap with outlet DN 315, galvanized, H 600	**500 mm**	**600 mm**	**6.8 kg**	**0683200645**
Endcap with outlet DN 315, galvanized, H 800	**500 mm**	**800 mm**	**8.7 kg**	**0683200845**

PE Trobond panel | PE-foam panel for expansion joint formation

+ PE-foam panel with good recovery
+ Adjusted to the channel outline, customizable to the necessary height on site
+ BIRCO recommends: installation ever 9 to 12 meters

Nominal width	Height	Width	For construction height	Weight	Article No.
320	**13 mm**	**540 mm**	**600/800**	**0.1 kg**	**068106**

BIRCOmax-i suspension gear

Description	Lifting force per piece	Weight (Set)	Article No.
BIRCOmax-i suspension gear, rotatable, Set of 4	**1.00 t**	**2.0 kg**	**606108**

BIRCOservice | SF-Connect

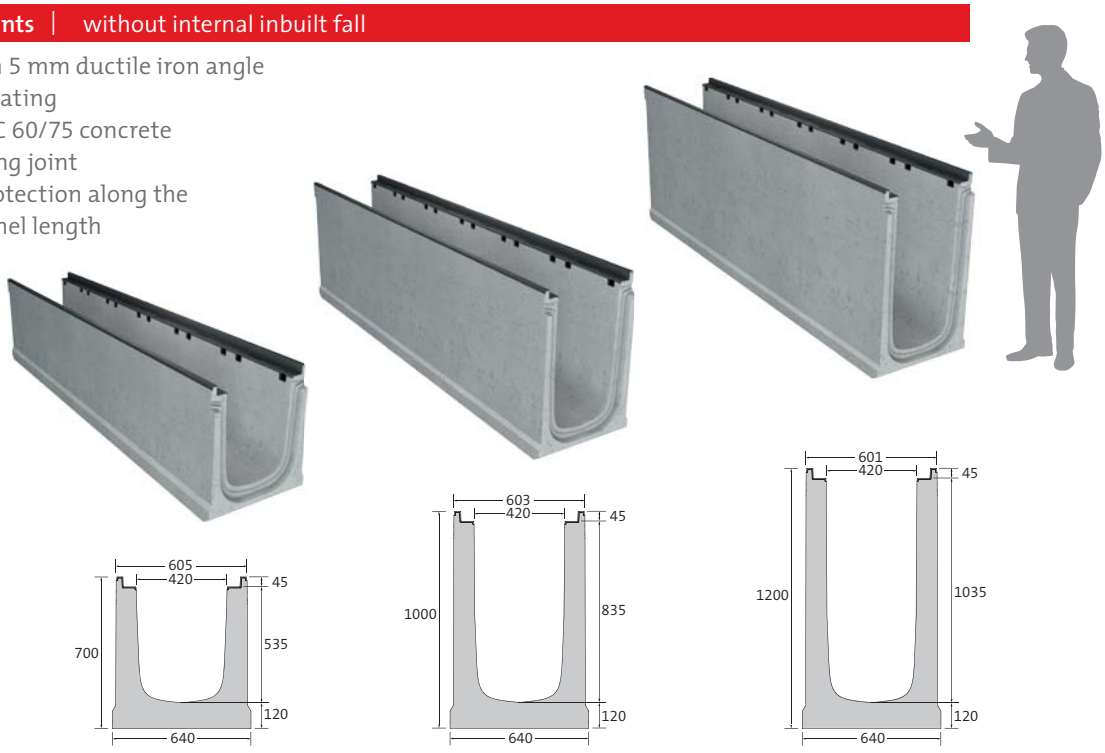
+ Sealing of the BIRCO safety joint with SF-Connect provides additional security.
More informations on page 143.

BIRCOmax-i | NW 420

Supreme stability and maximum retention volume

Channel elements | without internal inbuilt fall

+ With cast-in 5 mm ductile iron angle with CDP coating
+ Reinforced C 60/75 concrete
+ Safety sealing joint
+ Anti-slip protection along the entire channel length



Constr. height 700 | **Constr. height 1000** | **Constr. height 1200**

Description	Length	Width at top/ at ground	Constr. height at groove/ at tongue	Internal height at groove/ at tongue	Weight	Retention volumen per rm	Load class EN 1433	Article No.
Channel H 700	1500 mm	605/640 mm	700/700 mm	535/535 mm	707.5 kg	206.3 l	A 15 – F 900	0684200727
Channel H 700	3000 mm	605/640 mm	700/700 mm	535/535 mm	1415.0 kg	206.3 l	A 15 – F 900	0684200729
Channel H 1000	1500 mm	603/640 mm	1000/1000 mm	835/835 mm	905.5 kg	331.1 l	A 15 – F 900	0684201027
Channel H 1000	3000 mm	603/640 mm	1000/1000 mm	835/835 mm	1811.0 kg	331.1 l	A 15 – F 900	0684201029
Channel H 1200	1500 mm	601/640 mm	1200/1200 mm	1035/1035 mm	1035.0 kg	414.3 l	A 15 – F 900	0684201227
Channel H 1200	3000 mm	601/640 mm	1200/1200 mm	1035/1035 mm	2074.0 kg	414.3 l	A 15 – F 900	0684201229

BIRCOservice | SF-Connect

+ Sealing of the BIRCO safety joint with SF-Connect provides additional security.
More informations on page 143.

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

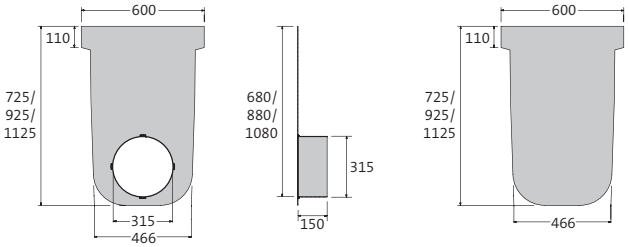
Ductile iron slotted grating | threefold

+ Black immersion-lacquered
+ Also available as galvanized version
+ 8-point per meter M12/A2 bolt connection
+ Displacement guard

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Article No.
Class D 400	498 mm	537 mm	45 mm	25.7 kg	SW 139/17.5 mm	1968 cm²/m	0684200091
Class E 600	498 mm	537 mm	45 mm	38.1 kg	SW 139/17.5 mm	1968 cm²/m	0684200092
Class F 900	498 mm	537 mm	45 mm	44.8 kg	SW 139/17.5 mm	1968 cm²/m	0684200093

End caps

+ Hot-dipped galvanized steel



Description	Width	For construction height	Weight	Article No.
Endcap, galvanized, H 700	600 mm	700 mm	7.3 kg	0684200740
Endcap, galvanized, H 1000	600 mm	1000 mm	10.8 kg	0684201040
Endcap, galvanized, H 1200	600 mm	1200 mm	13.2 kg	0684201240
Endcap with outlet DN 315, galvanized, H 700	600 mm	700 mm	9.0 kg	0684200745
Endcap with outlet DN 315, galvanized, H 1000	600 mm	1000 mm	12.5 kg	0684201045
Endcap with outlet DN 315, galvanized, H 1200	600 mm	1200 mm	14.9 kg	0684201245

PE Trobond panel | PE-foam panel for expansion joint formation

+ PE-foam panel with good recovery
+ Adjusted to the channel outline, customizable to the necessary height on site
+ BIRCO recommends: installation ever 9 to 12 meters

Nominal width	Height	Width	For construction height	Weight	Article No.
420	13 mm	640 mm	700/1000/1200	0.2 kg	068107

BIRCOmax-i suspension gear

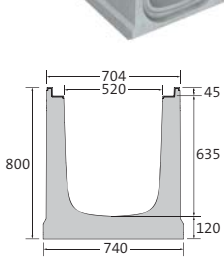
Description	Lifting force per piece	Weight (Set)	Article No.
BIRCOmax-i suspension gear, rotatable, Set of 4	1.00 t	2.0 kg	606108

BIRCOmax-i | NW 520

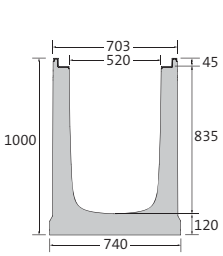
Supreme stability and maximum retention volume

Channel elements | without internal inbuilt fall

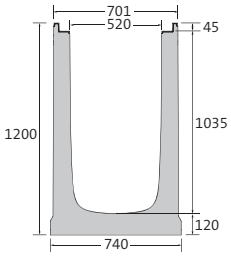
+ With cast-in 5 mm ductile iron angle with CDP coating
+ Reinforced C 60/75 concrete
+ Safety sealing joint
+ Anti-slip protection along the entire channel length



Constr. height 800



Constr. height 1000



Constr. height 1200

Description	Length	Width at top/ at ground	Constr. height at groove/ at tongue	Internal heigt at groove/ at tongue	Weight	Retention volumen per rm	Load class EN 1433	Article No.
Channel H 800	1500 mm	704/740 mm	800/800 mm	635/635 mm	833.0 kg	306.4 l	A 15 – F 900	0685200827
Channel H 800	3000 mm	704/740 mm	800/800 mm	635/635 mm	1666.0 kg	306.4 l	A 15 – F 900	0685200829
Channel H 1000	1500 mm	703/740 mm	1000/1000 mm	835/835 mm	965.0 kg	409.6 l	A 15 – F 900	0685201027
Channel H 1000	3000 mm	703/740 mm	1000/1000 mm	835/835 mm	1930.0 kg	409.6 l	A 15 – F 900	0685201029
Channel H 1200	1500 mm	701/740 mm	1200/1200 mm	1035/1035 mm	1094.0 kg	512.8 l	A 15 – F 900	0685201227
Channel H 1200	3000 mm	701/740 mm	1200/1200 mm	1035/1035 mm	2193.0 kg	512.8 l	A 15 – F 900	0685201229

BIRCOservice | SF-Connect

+ Sealing of the BIRCO safety joint with SF-Connect provides additional security.
More informations on page 143.

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

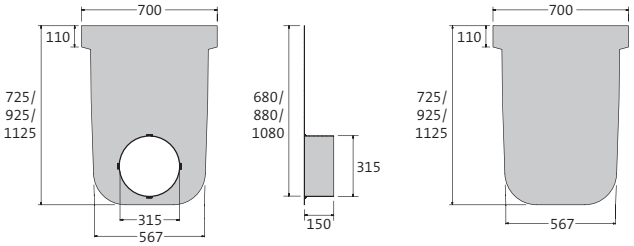
Ductile iron slotted grating | threefold

+ Black immersion-lacquered
+ Also available as galvanized version
+ 8 point per meter M12/A2 bolt connection
+ Displacement guard

Description	Length	Width	Height	Weight	Inlet opening	Inlet cross section	Article No.
Class D 400	498 mm	633 mm	45 mm	35.8 kg	SW 172/17.5 mm	2446 cm²/m	0685200091
Class E 600	498 mm	633 mm	45 mm	45.4 kg	SW 172/17.5 mm	2446 cm²/m	0685200092
Class F 900	498 mm	633 mm	45 mm	53.4 kg	SW 172/17.5 mm	2446 cm²/m	0685200093

End caps

+ Hot-dipped galvanized steel



Description	Width	For construction height	Weight	Article No.
Endcap, galvanized, H 800	700 mm	800 mm	10.1 kg	0685200840
Endcap, galvanized, H 1000	700 mm	1000 mm	12.9 kg	0685201040
Endcap, galvanized, H 1200	700 mm	1200 mm	15.8 kg	0685201240
Endcap with outlet DN 315, galvanized, H 800	700 mm	800 mm	11.8 kg	0685200845
Endcap with outlet DN 315, galvanized, H 1000	700 mm	1000 mm	14.6 kg	0685201045
Endcap with outlet DN 315, galvanized, H 1200	700 mm	1200 mm	17.5 kg	0685201245

PE Trobond panel | PE-foam panel for expansion joint formation

+ PE-foam panel with good recovery
+ Adjusted to the channel outline, customizable to the necessary height on site
+ BIRCO recommends: installation ever 9 to 12 meters

Nominal width	Height	Width	For construction height	Weight	Article No.
520	13 mm	740 mm	800/1000/1200	0.2 kg	068108

BIRCOmax-i suspension gear

Description	Lifting force per piece	Weight (Set)	Article No.
BIRCOmax-i suspension gear, rotatable, Set of 4	1.00 t	2.0 kg	606108

BIRCOmax-i
Installation instructions

A number of details must be observed when installing BIRCOmax-i. You will find a comprehensive description below.

The base course must be designed in such a way that it is settlement-free and suitable for the forces that arise.

For heavily frequented, heavy load areas in load classes E 600 and F 900 such as logistics centers, transshipment centers, marshalling areas and airport surfaces a load distribution layer must be calculated by an engineering office in consideration of the arising loads and soil properties.

For heavily frequented areas in load class D 400, BIRCO recommends the installation instructions for load class E 600, with a load distribution layer calculated by an engineering office.

BIRCO recommends completely jointing the channel joint to avoid freeze/thaw damage (see jointing information).

Also to avoid freeze/thaw damage, it must be ensured that no water remains on the load distribution layer or the leveling layer.

Professional installation from a concrete technology perspective must be ensured.

All coverings (except for paving coverings):
The adjoining surface coverings must be permanently approx. 3 to 5 mm higher than the upper edge of the channel to ensure optimum protection of the channel.

For paving coverings:
To keep the adjacent paving permanently 3 to 5 mm above the upper edge, we recommend laying the first two to three rows in the mortar bed for paving coverings. Due to the lack of sheathing, the surface covering can be guided up to the gutter. For slab or paving connections, a permanent sealing gap of about 10 mm must be maintained between the channel and the covering. The joints between the first two to three series of slab or paving connections must be permanently sealed. It must be ensured that no horizontal forces act on the paving laid in the mortar bed due to displacement or expansion of the paving covering.

Expansion joints:
Expansion joints in components adjacent to the channel must be planned from an engineering perspective.

BIRCO recommends arranging expansion joints running parallel to the channel at a distance of 1 to 2 m to the channel section. Expansion joints running transverse to the channel section must be arranged so that they run through a channel joint. We recommend this arrangement every 9 to 12 running meters (according to DIN 18318, valid version). The expansion joints (e.g. PE foam boards) must run across the entire channel cross-section through the foundation and the lateral concrete casing.

Jointing information

Spray the channel joint/safety seam with SF Connect after laying the drainage channels.

Application area SF-connect:
Bonding of concrete, brick, steel, stainless steel, aluminum, polyester (GRP), PVC, acrylic, polystyrene, glass, wood.

Properties:
Coated substrates must be checked in advance for adhesion and compatibility.
The setting time depends on the temperature and humidity. Increased temperatures reduce the setting time.
SF Connect does not contain any solvents, isocyanate or silicone and is not subject to labeling. Before the start of processing, find out about precautionary measures and safety recommendations by reading the Safety Data Sheet.

Operating instructions:
1. Use an industrial cartridge gun to spray the channel joint/safety seam.
2. **Important!** Before spraying the drainage channels, clean the channel joint/safety seam – remove any separating agents, dust, dirt, oil or other problematic substrates.
3. Insert the PE cord.
4. During processing, wear protective gloves and goggles.
5. Insert the tubular bag (600 ml) into the industrial cartridge gun.
6. Spray on SF connect.
7. Finally, smooth the joint/notch surface with a jointing iron or spatula dipped in a soap solution.
8. Allow the material residue to set. Set residues can be disposed of along with residual waste.

A note on the bolt connection

A tightening torque of M12 = 60 Nm must be applied for the bolt connection on the covers. The bolts on the covers must be tightened at regular intervals.

Additional rules and guidelines

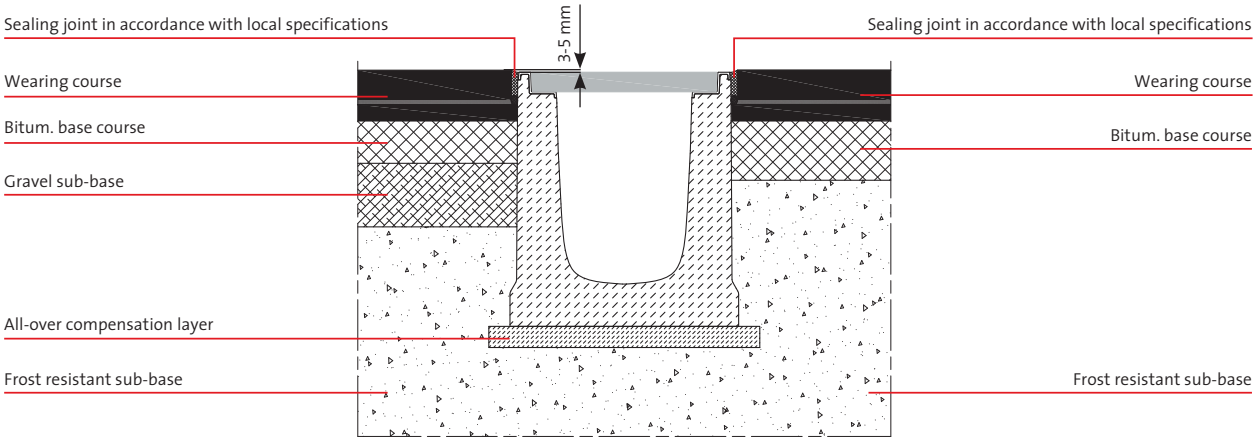
The local conditions must be checked and taken into account by the planner.

BIRCOmax-i – Installation examples

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

BIRCOmax-i, Type I, Load class A 15 – D 400

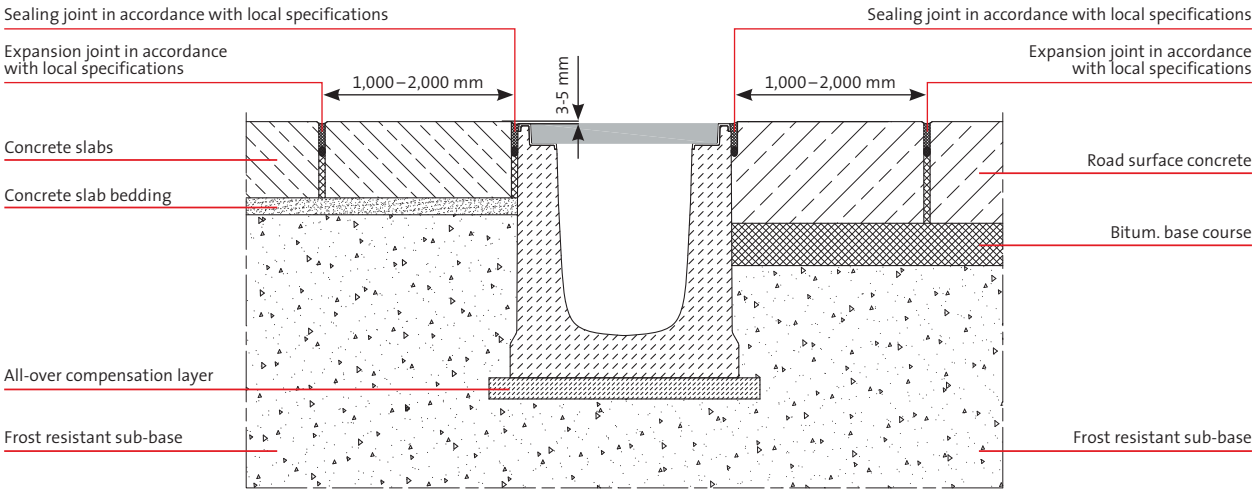
Drawing no. 21420



Construction with non-setting, frost-resistant carrier layers

BIRCOmax-i, Type I, Load class A 15 – D 400

Drawing no. 21420



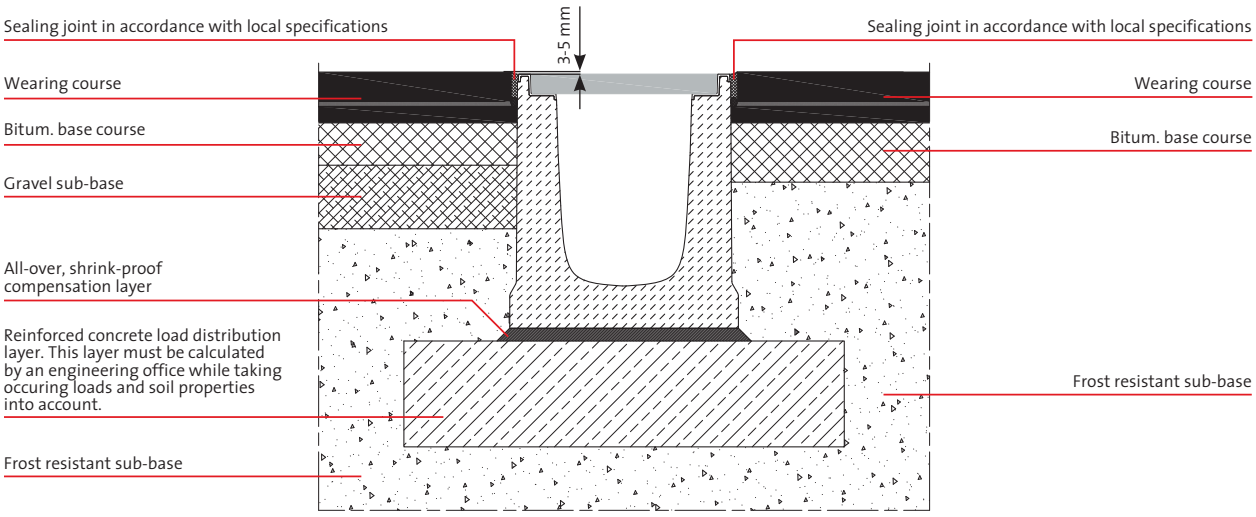
Construction with non-setting, frost-resistant carrier layers

Expansion joints must be planned on the basis of engineering considerations. When laying the channel line in a full concrete casing, expansion joints must be formed transversely to the section after 9 to 12 meters. They must be arranged so that they run through a channel joint.
Construction with non-setting, frost-resistant carrier layers.
Exception up to D 400: not for installation across the carriage-way of highways or motorways.

Expanded installation instructions for heavily frequented, heavy load areas. Logistics centers | Transshipment centers | Marshalling areas | Airport surfaces

BIRCOmax-i, Type I, Load class E 600 – F 900, D 400 (heavily frequented)

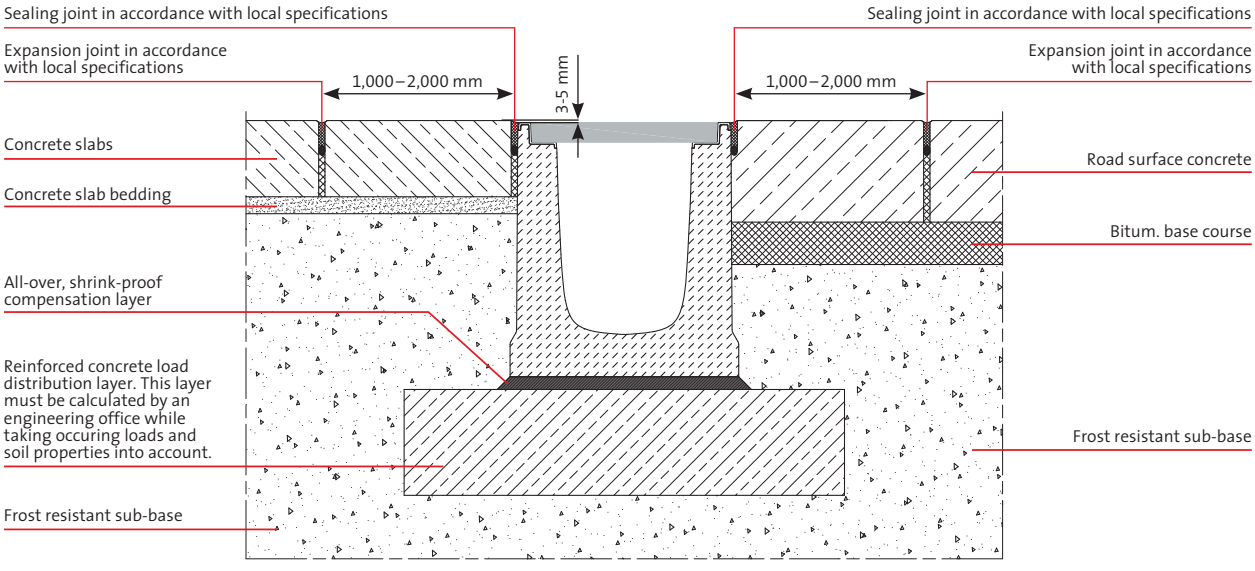
Drawing no. 21420



Construction with non-setting, frost-resistant carrier layers

BIRCOmax-i, Type I, Load class E 600 – F 900, D 400 (heavily frequented)

Drawing no. 21420



Construction with non-setting, frost-resistant carrier layers

Expansion joints must be planned on the basis of engineering considerations. When laying the channel line in a full concrete casing, expansion joints must be formed transversely to the section after 9 to 12 meters. They must be arranged so that they run through a channel joint.
Construction with non-setting, frost-resistant carrier layers.
Exception up to D 400: not for installation across the carriage-way of highways or motorways.

BIRCOmax-i drainage performance

BIRCO's channel systems have excellent drainage capacities. In addition to this table, BIRCO offers a property-related hydraulic calculation service.

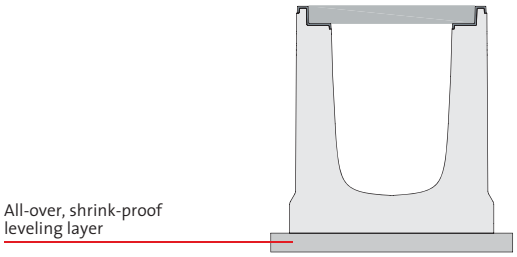
BIRCOmax-i

Nominal width	Installation height (mm)	Length (mm)	Drainage capacity at end of channel (l/sec)	Retention volume per running meter (l)	Channel cross-section (cm^2)	Pipe diameter DN / internal Ø (mm)	Pipe cross-section (cm^2)
220	500	1.5/3.0	39.06	70.30	703.0	300	707
220	800	1.5/3.0	75.06	135.10	1 351.0	400	1 256
320	600	1.5/3.0	73.67	132.60	1 326.0	400	1 256
320	800	1.5/3.0	108.78	195.80	1 958.0	500	1 963
420	700	1.5/3.0	114.61	206.30	2 063.0	500	1 963
420	1000	1.5/3.0	183.94	331.10	3 311.0	600	2 826
420	1200	1.5/3.0	230.17	414.30	4 143.0	700	3 847
520	800	1.5/3.0	170.22	306.40	3 064.0	600	2 826
520	1 000	1.5/3.0	227.56	409.60	4 096.0	700	3 847
520	1 200	1.5/3.0	284.89	512.80	5 128.0	800	5 024

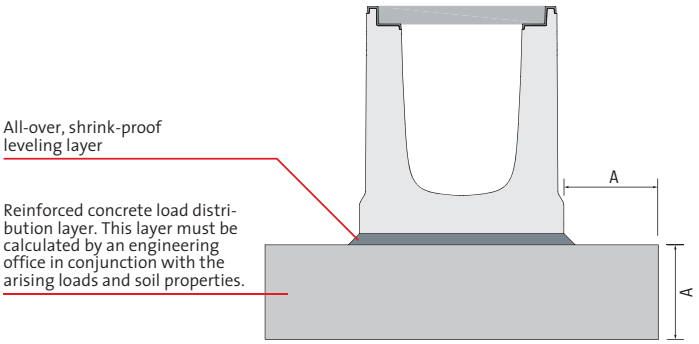
Comparison with standard pipes

Schematic structure Type I

Load class A 15 – D 400

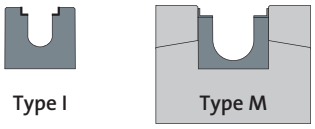


Load class A 15 – F 900



Classification into 2 types

+ **Type I:** Does not require a load-bearing base or sheathing.
+ **Type M:** Requires a load-bearing base and/or sheathing.



Horizontal and vertical drilling

We can fit BIRCOmax-i channels with horizontal or vertical bore holes for directly fitting feed and drainage lines according to your plans (bore holes must be set at a minimum distance of 100 mm from the bore hole outer edge to the end of the channel). The connections available differ according to the nominal widths, ranging from DN 100 to DN 300. The diametres are matched with channel base pipes; different pipe diametres are available upon request.

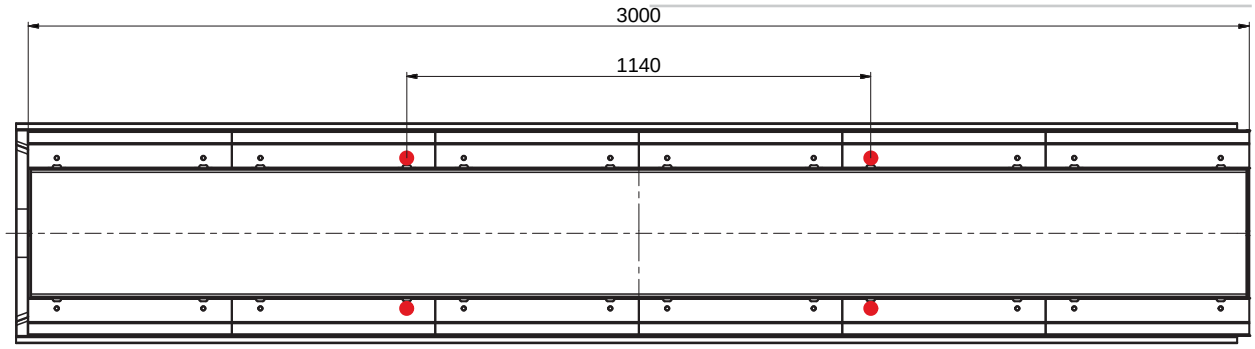
BIRCOmax-i | Maximum bore hole diameter

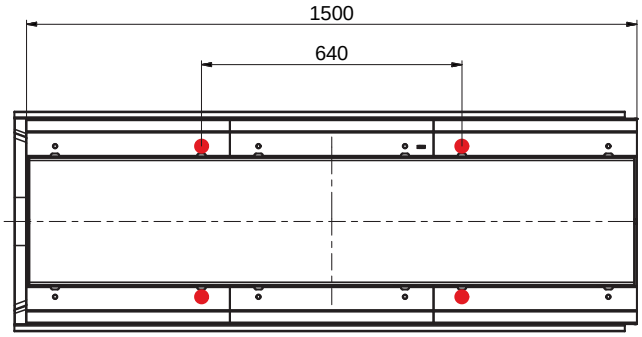
Nominal width	Horizontal bore, maximum *	Vertical bore, maximum
220	DN 150	DN 200
320	DN 200	DN 300
420	DN 250	DN 300
520	DN 315	DN 300

* Bore holes depending on installation height. Our Application Technology department will be delighted to advise you on individual designs.

For a retention application, small outlets can be integrated or drains can be controlled by a throttle valve.

BIRCOmax-i Suspension points





Points for suspension gear

Lauterbourg / Port of Strasbourg

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

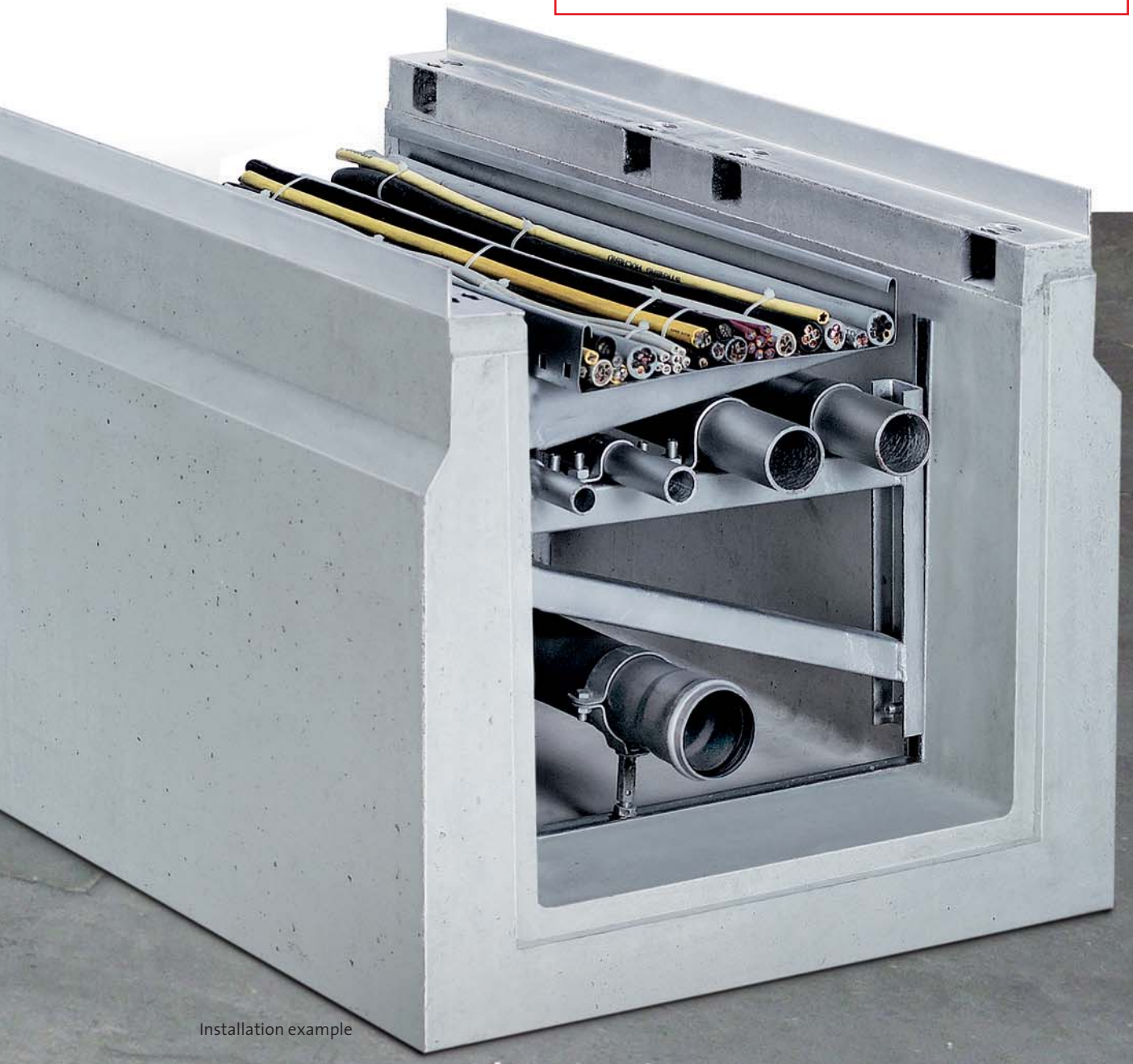
For safely laying lines and pipes in heavily frequented, high-traffic industrial and public areas.

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 meters
- Cast-in mounting rails
  (from NW 200 – upon request)
- Load class: A 15 – E 600 (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

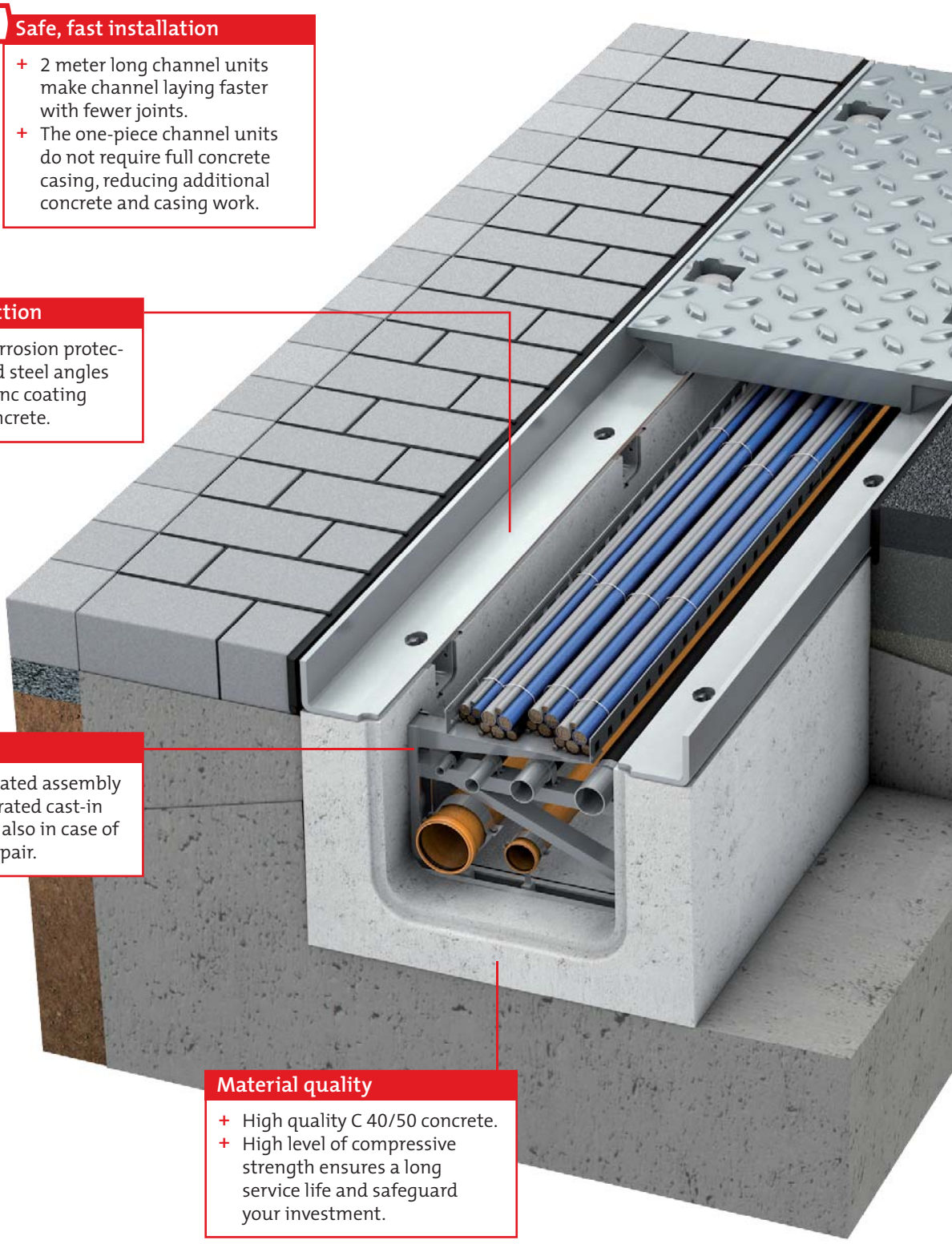
BIRCOcanal ensures safe, uncomplicated laying of lines and pipes combined with a high level of load stability.

Safe, fast installation

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

Corrosion protection

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



Mounting rails

+ 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 ensures a long service life and safeguard your investment.

Traffic safety

+ High level of traffic safety thanks to the galvanized ductile iron cover with 8 bolt connections per meter.
+ Alternatively: Reinforced concrete cover.

Safety sealing joint

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

Individual application

+ 8 different nominal widths and construction lengths of 1 and 2 meters provide flexible, individual laying possibilities.

We were able to actively support customers here:

Kostheim Lock

Liebherr, Colmar

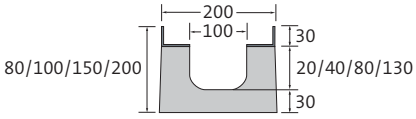
Production hall, Kreuzwertheim

BIRCOcanal | NW 100

The supply channel for heavy-duty areas

Supply channels with angles | with cast-in mounting rails

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



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class 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 ductile iron covers | for supply channels with angles

+ Black immersion-lacquered or galvanized
+ 8-point per meter M12/A2 bolt connection
+ 8-point per meter Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Load class EN 1433	Article No. with bolt connection	Article No. with Easylock
black	500 mm	187 mm	30 mm	7.5 kg	A 15 – E 600	052076	052076e
galvanized	500 mm	187 mm	30 mm	7.5 kg	A 15 – E 600	052076v	052076ve

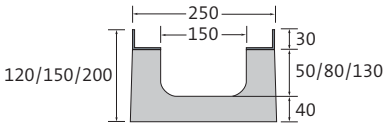
Article No. with v = galvanized
Exception up to D 400: Not for use across the carriage-way of highways or motorways.

BIRCOcanal | NW 150

The supply channel for heavy-duty areas

Supply channels with angles | without mounting rails

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



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class 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 ductile iron covers | for supply channels with angles

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

Description	Length	Width	Height	Weight	Load class EN 1433	Article No. with bolt connection	Article No. with Easylock
black	500 mm	237 mm	30 mm	10.5 kg	A 15 – E 600	052176	052176e
galvanized	500 mm	237 mm	30 mm	10.5 kg	A 15 – E 600	052176v	052176ve

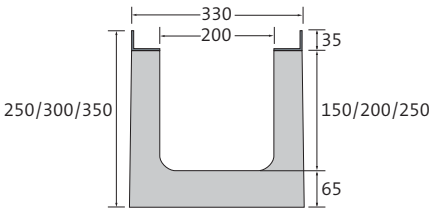
Article No. with v = galvanized, Article No. with e = with Easylock
Exception up to D 400: Not for use across the carriage-way of highways or motorways.

BIRCOcanal | NW 200

The supply channel for heavy-duty areas

Supply channels with angles | with cast-in mounting rails

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



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class 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 galvanized solid steel angles for combi-closure system
+ Safety sealing joint

Description	Length	External dimension Width/construction height	Internal dimension Width/Height	Weight	Load class 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 ductile iron covers | for supply channels with angles

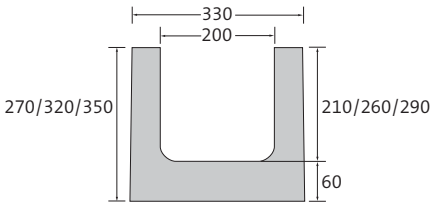
+ Black immersion-lacquered or galvanized
+ 8-point per meter M12/A2 bolt connection
+ 8-point per meter Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Load class EN 1433	Article No. with bolt connection	Article No. with Easylock
black	500 mm	317 mm	35 mm	14.8 kg	A 15 – E 600	052276	052276e
galvanized	500 mm	317 mm	35 mm	14.2 kg	A 15 – E 600	052276v	052276ve

Article No. with v = galvanized
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 galvanized



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class EN 1433	Article No.
Supply channel	1000 mm	330/270 mm	200/200 mm	112.0 kg	A 15 – E 600	050210
Supply channel	1000 mm	330/320 mm	200/250 mm	125.0 kg	A 15 – E 600	050211
Supply channel	1000 mm	330/350 mm	200/280 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 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 RD12 for mechanical installation

Description	Length	Width	Height	Weight	Load class	Article No.
Reinforced concrete cover	1000 mm	330 mm	100 mm	90.0 kg	Heavy loads	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 116.

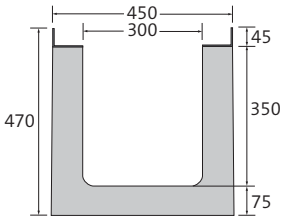
Exception up to D 400: Not for use across the carriage-way of highways or motorways.

BIRCOcanal | NW 300

The supply channel for heavy-duty areas

Supply channels with angles | with cast-in mounting rails

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



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class EN 1433	Article No.
Supply channel	1000 mm	450/470 mm	300/350 mm	223.6 kg	A 15 – E 600	052310
Supply channel	2000 mm	450/470 mm	300/350 mm	446.0 kg	A 15 – E 600	052320

Supply channels with angles | without mounting rails

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

Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class EN 1433	Article No.
Supply channel	1000 mm	450/470 mm	300/350 mm	221.0 kg	A 15 – E 600	052330
Supply channel	2000 mm	450/470 mm	300/350 mm	437.6 kg	A 15 – E 600	052340

Bulb ductile iron covers | for supply channels with angles

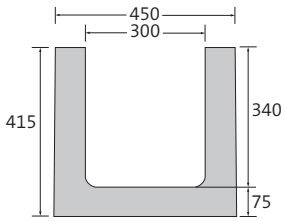
+ Solid
+ Black immersion-lacquered or galvanized
+ 8-point per meter M16/A2 bolt connection
+ 8-point per meter Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Load class EN 1433	Article No. with bolt connection	Article No. with Easylock
black	500 mm	437 mm	45 mm	32.1 kg	A 15 – E 600	052376	052376e
galvanized	500 mm	437 mm	45 mm	31.0 kg	A 15 – E 600	052376v	052376ve

Article No. with v = galvanized
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 galvanized



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class 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 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 RD12 for mechanical installation

Description	Length	Width	Height	Weight	Load class	Article No.
Reinforced concrete cover	1000 mm	450 mm	100 mm	122.0 kg	Heavy loads	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 116.

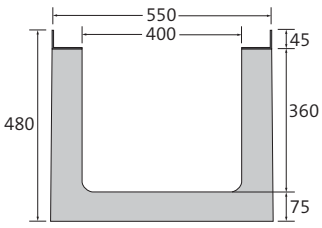
Exception up to D 400: Not for use across the carriage-way of highways or motorways.

BIRCOcanal | NW 400

The supply channel for heavy-duty areas

Supply channels with angles | with cast-in mounting rails

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



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class EN 1433	Article No.
Supply channel	1000 mm	550/480 mm	400/360 mm	250.0 kg	A 15 – E 600	052410
Supply channel	2000 mm	550/480 mm	400/360 mm	482.0 kg	A 15 – E 600	052420

Supply channels with angles | without mounting rails

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

Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class EN 1433	Article No.
Supply channel	1000 mm	550/480 mm	400/360 mm	249.0 kg	A 15 – E 600	052430
Supply channel	2000 mm	550/480 mm	400/360 mm	488.0 kg	A 15 – E 600	052440

Bulb ductile iron covers | for supply channels with angles

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

Description	Length	Width	Height	Weight	Load class EN 1433	Article No. with bolt connection	Article No. with Easylock
black	500 mm	537 mm	45 mm	45.5 kg	A 15 – E 600	052476	052476e
galvanized	500 mm	537 mm	45 mm	45.5 kg	A 15 – E 600	052476v	052476ve

BIRCOcanal | Accessories

+ Different accessories for BIRCOcanal are listed on page 106.

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

Supply channels without angles | without cast-in mounting rails

+ Safety sealing joint

Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class EN 1433	Article No.
Supply channel	1000 mm	550/435 mm	400/360 mm	241.3 kg	A 15 – E 600	050430
Supply channel	2000 mm	550/435 mm	400/360 mm	486.7 kg	A 15 – E 600	050440

Supply channels without angles | with cast-in mounting rails

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

Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class EN 1433	Article No.
Supply channel	1000 mm	550/435 mm	400/360 mm	241.3 kg	A 15 – E 600	050410
Supply channel	2000 mm	550/435 mm	400/360 mm	486.7 kg	A 15 – E 600	050420

Reinforced concrete covers | for supply channels without angles

+ Smoothed surface
+ 3 cast-in anchor sleeves RD12 for mechanical installation

Description	Length	Width	Height	Weight	Load class	Article No.
Reinforced concrete cover	1000 mm	540 mm	125 mm	177.0 kg	Heavy loads	050498

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

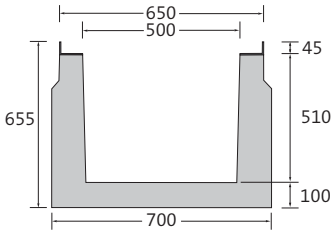
Exception up to D 400: Not for use across the carriage-way of highways or motorways.

BIRCOcanal | NW 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 galvanized solid steel angles for combi-closure system
+ Safety sealing joint
+ Cast-in anchor sleeves RD12 for mechanical installation
+ Cast-in mounting rails type 28/15, hot-dipped galvanized



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class 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 galvanized solid steel angles for combi-closure system
+ Safety sealing joint
+ Cast-in anchor sleeves RD12 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 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 ductile iron covers | for supply channels with angles

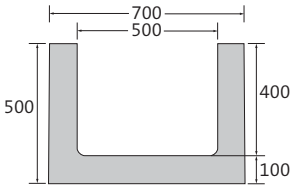
+ Solid
+ Black immersion-lacquered
+ 8-point per meter M16/A2 bolt connection
+ 8-point per meter Easylock-fastening (alternatively)

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

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 RD12 for mechanical installation
+ Cast-in mounting rails type 28/15, hot-dipped galvanized



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class 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

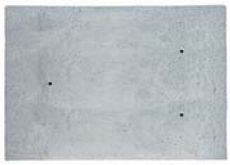
Supply channels without angles | without mounting rails

+ Reinforced grade C 40/50 concrete
+ Safety sealing joint
+ Cast-in anchor sleeves RD12 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 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
+ 3 cast-in anchor sleeves RD12 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	Heavy loads	050597
without edge protection frame	2000 mm	690 mm	125 mm	440.0 kg	Heavy loads	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 116.

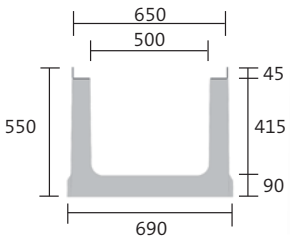
Exception up to D 400: Not for use across the carriage-way of highways or motorways.

BIRCOcanal | NW 500 AS

The supply channel for heavy-duty areas

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

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



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class EN 1433	Article No.
Supply channel	1000 mm	690/550 mm	500/415 mm	304.0 kg	A 15 – E 600	0052510

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

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

Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class EN 1433	Article No.
Supply channel	1000 mm	690/550 mm	500/415 mm	304.0 kg	A 15 – E 600	0052530

Bulb ductile iron covers | for supply channels with angles

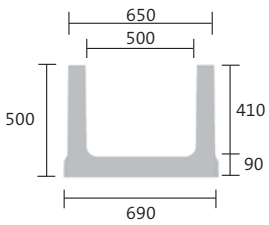
+ Solid
+ Black immersion-lacquered
+ 8-point per meter M16/A2 bolt connection
+ 8-point per meter Easylock-fastening (alternatively)

Description	Length	Width	Height	Weight	Load class EN 1433	Article No. with bolt connection	Article No. with Easylock
black	500 mm	633 mm	45 mm	56.5 kg	A 15 – E 600	052576	0052576e

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

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

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



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class EN 1433	Article No.
Supply channel	1000 mm	690/500 mm	500/410 mm	297.0 kg	A 15 – E 600	0050510

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 EN 1433	Article No.
Supply channel	1000 mm	690/500 mm	500/410 mm	297.0 kg	A 15 – E 600	0050530

Reinforced concrete cover | for supply channels without angles

+ Smoothed surface

Description	Length	Width	Height	Weight	Load class	Article No.
Reinforced concrete cover	1000 mm	640 mm	125 mm	212.0 kg	Heavy loads	0050597

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

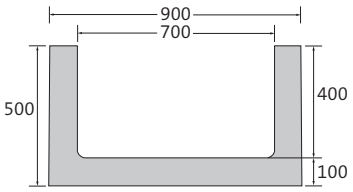
Exception up to D 400: Not for use across the carriage-way of highways or motorways.

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 RD14 for mechanical installation
+ Cast-in mounting rails type 28/15, hot-dipped galvanized



Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class 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 RD14 for mechanical installation

Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class 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 RD14 for mechanical installation

Description	Length	Width	Height	Weight	Load class	Article No.
Reinforced concrete cover	2000 mm	900 mm	125 mm	630.0 kg	Heavy loads	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 116.

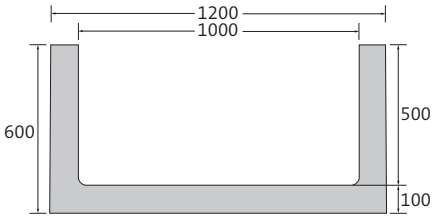
Exception up to D 400: Not for use across the carriage-way of highways or motorways.

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 RD14 for mechanical installation
+ Cast-in mounting rails type 28/15, hot-dipped galvanized



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

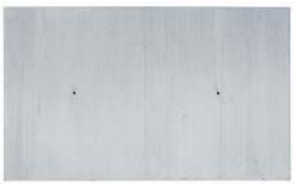
Supply channels without angles | without mounting rails

+ Reinforced grade C 40/50 concrete
+ Safety sealing joint
+ Cast-in anchor sleeves RD14 for mechanical installation

Description	Length	External dimension Width/Construction height	Internal dimension Width/Height	Weight	Load class 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 RD14 for mechanical installation



Description	Length	Width	Height	Weight	Load class	Article No.
Reinforced concrete cover	2000 mm	1200 mm	165 mm	990.0 kg	Heavy loads	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

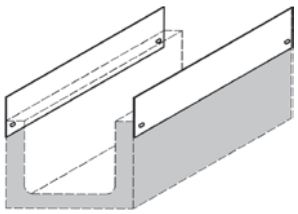
Lifting loops | only for vertical tensile direction

+ For the mecanical installation of several reinforced concrete covers
+ For the mecanical installation of supply channels without angle NW 500/700/1000

Description	Article No.
Supply channel NW 500 RD 12	609404
Supply channel NW 700 RD 14	606016
Supply channel NW 1000 RD 14	606016
Reinforced concrete cover NW 200 – 500 RD 12	609404
Reinforced concrete cover NW 700 – 1000 RD 14	606016

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

+ Hot-dipped galvanized
+ 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.

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

Sealing tape | flexible liner

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

Description	Length	Width	Thickness of material	Article No.
Sealing tape	sold by meter	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. You will find a comprehensive description below.

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

1. Prior to installation, the correct load class in accordance with 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 20 cm high which must be haunched on both sides. No additional concrete casing or reinforcement on the sides is required[(1)]. Large-scale products are only to be moved using 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 casing, the surface pavement can run right up to the channel without any problems.

4. For installation in concrete surfaces or reinforced concrete constructions, expansion 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 meters 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 meters in the adjacent concrete surfaces (in-situ concrete) so that they run through a channel end.

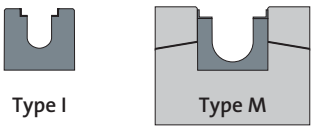
5. BIRCO drainage units are fitted with a safety sealing joint on the channel end. In accordance with EN 1433, once laying has been completed this safety can be further treated with a plastic modified mortar or a permanently elastic sealing material (for example SF-Connect). When using reinforced concrete 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).

[(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.

Classification in 2 types

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



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

The dimensions of the lateral concrete casing 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 casing, 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 EN 206-1 regarding for instance resistance high temperature variations are to be taken into account in the choice of the concrete.

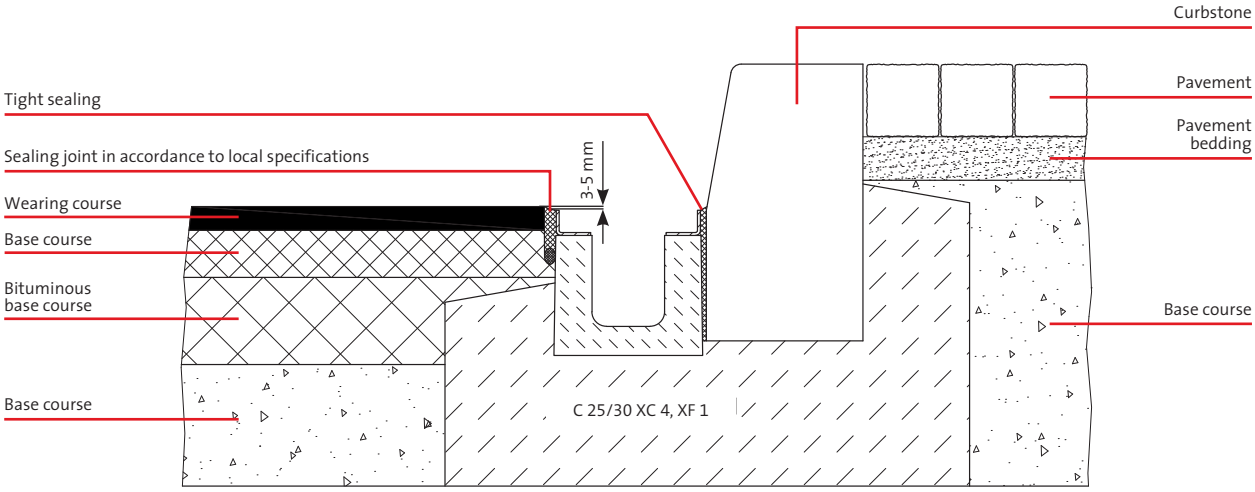
Bolt connection note:
For heavy-duty load areas subjected to frequent traffic and in vehicle manœvering areas, we recommend using threaded bolts instead of fast connection systems (such as Easylock). Torque moments for screwing on the gratings are to be set at M12 = 60 Nm, M16 = 100 Nm.
The bolts must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

BIRCOcanal Installation Examples

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

BIRCOcanal NW 100, NW 150, NW 200, NW 300, NW 400, NW 500, NW 500 AS Type M, Load class A 15 – E 600

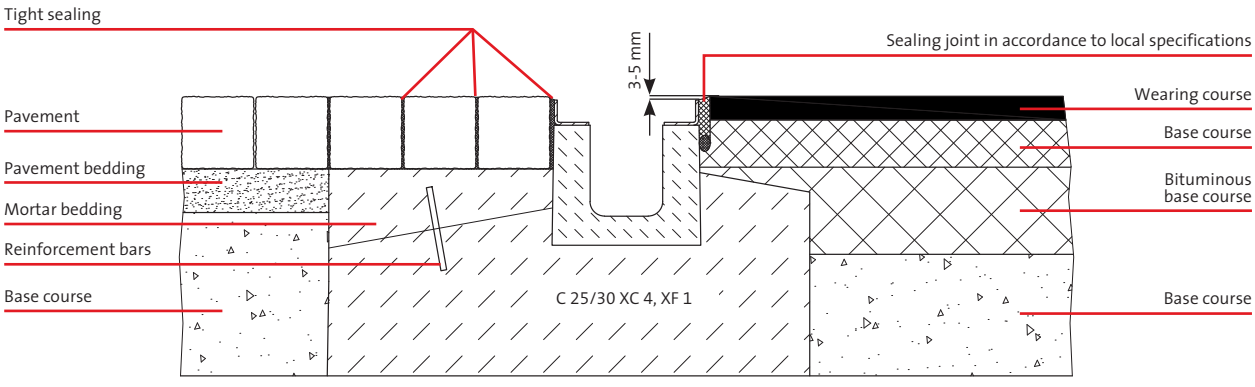
Drawing-No. 20984, 20987, 21007, 21000, 21004, 21005, 21006



Construction with non-setting, frost-resistant carrier layers

BIRCOcanal NW 100, NW 150, NW 200, NW 300, NW 400, NW 500, NW 500 AS Type M, Load class A 15 – E 600

Drawing-No. 20984, 20987, 21007, 21000, 21004, 21005, 21006

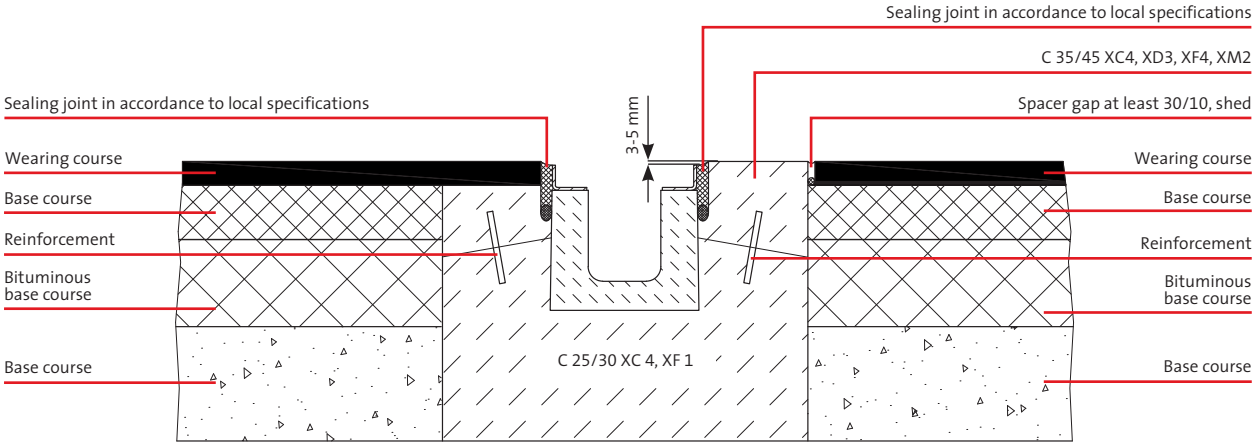


Construction with non-setting, frost-resistant carrier layers

Expansion joints must be planned on the basis of engineering considerations. When laying the channel line in a full concrete casing, expansion joints must be formed transversely to the section after 8 to 12 meters. They must be arranged so that they run through a channel joint.
Construction with non-setting, frost-resistant carrier layers.
Exception up to D 400: not for installation across the carriage-way of highways or motorways.

BIRCOcanal NW 100, NW 150, NW 200, NW 300, NW 400, NW 500, NW 500 AS Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

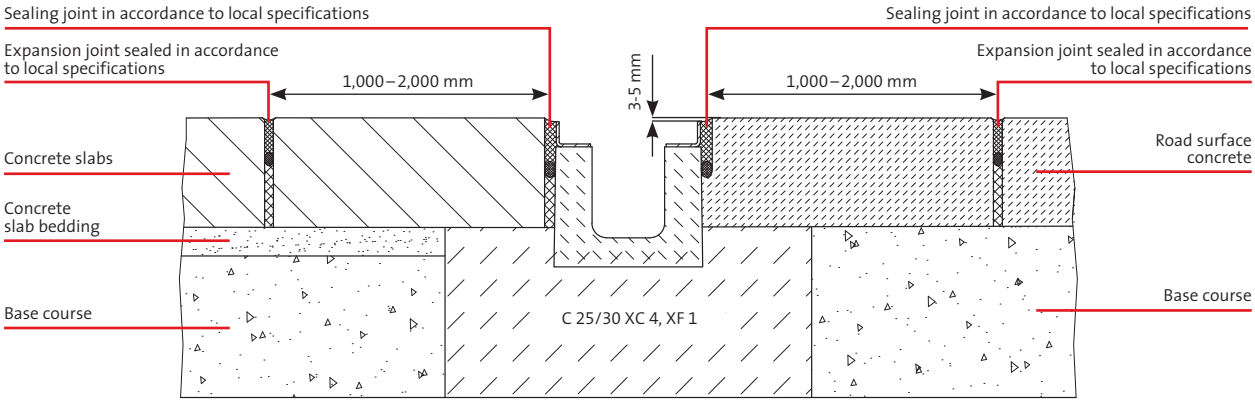
Drawing-No. 20984, 20987, 21007, 21000, 21004, 21005, 21006



Construction with non-setting, frost-resistant carrier layers

BIRCOcanal NW 100, NW 150, NW 200, NW 300, NW 400, NW 500, NW 500 AS Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

Drawing-No. 20984, 20987, 21007, 21000, 21004, 21005, 21006

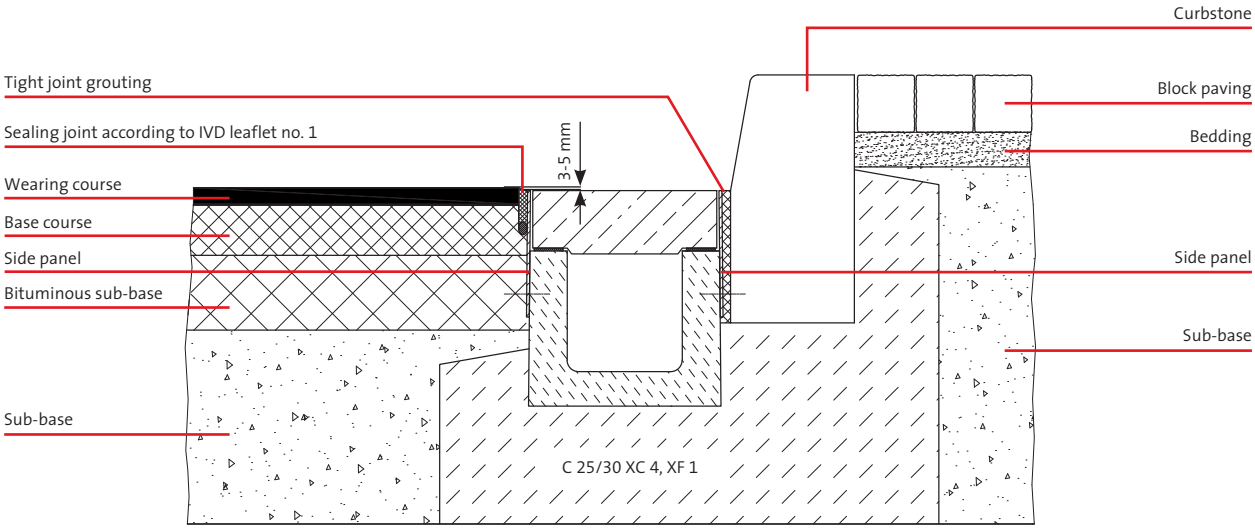


Construction with non-setting, frost-resistant carrier layers

Expansion joints must be planned on the basis of engineering considerations. When laying the channel line in a full concrete casing, expansion joints must be formed transversely to the section after 8 to 12 meters. They must be arranged so that they run through a channel joint.
Construction with non-setting, frost-resistant carrier layers.
Exception up to D 400: not for installation across the carriage-way of highways or motorways.

BIRCOcanal NW 200, NW 300, NW 500, NW 500 AS, NW 700, NW 1000 without angles, Type M, Load class A 15 – E 600 / Heavy loads

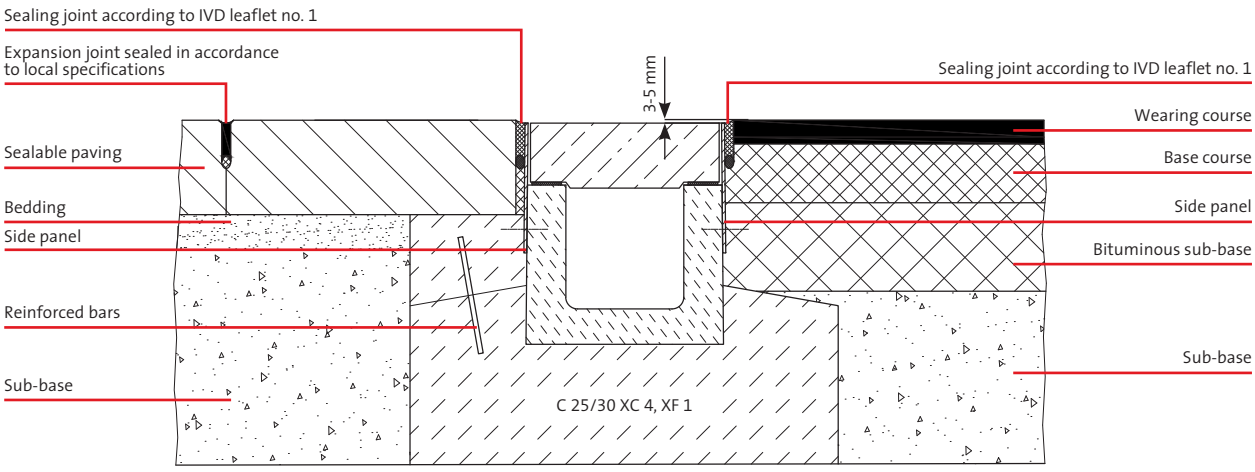
Drawing-No. 21007, 21008, 21010, 21006, 20498, 21012



Construction with non-setting, frost-resistant carrier layers

BIRCOcanal NW 200, NW 300, NW 500, NW 500 AS, NW 700, NW 1000 without angles, Type M, Load class A 15 – E 600 / Heavy loads

Drawing-No. 21007, 21008, 21010, 21006, 20498, 21012

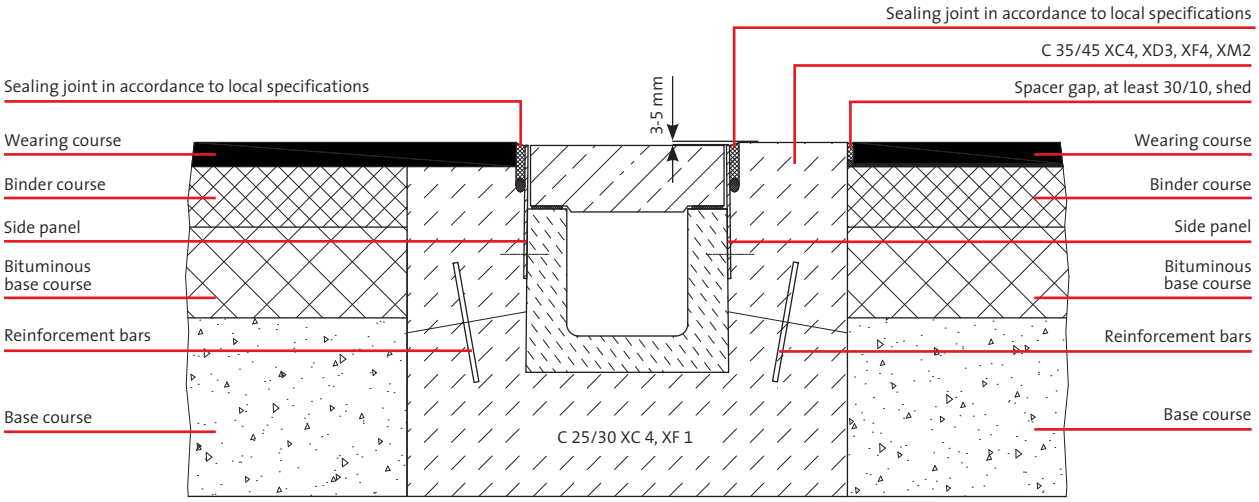


Construction with non-setting, frost-resistant carrier layers

Expansion joints must be planned on the basis of engineering considerations. When laying the channel line in a full concrete casing, expansion joints must be formed transversely to the section after 8 to 12 meters. They must be arranged so that they run through a channel joint.
Construction with non-setting, frost-resistant carrier layers.
Exception up to D 400: not for installation across the carriage-way of highways or motorways.

BIRCOcanal NW 200, NW 300, NW 500, NW 500 AS, NW 700, NW 1000 without angles, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

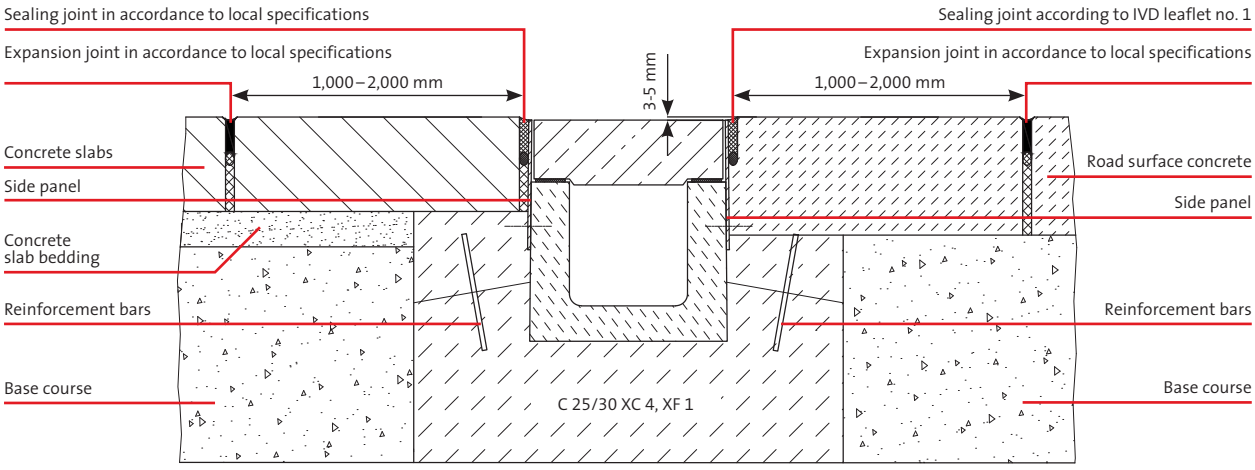
Drawing-No. 21007, 21008, 21010, 21006, 20498, 21012



Construction with non-setting, frost-resistant carrier layers

BIRCOcanal NW 200, NW 300, NW 500, NW 500 AS, NW 700, NW 1000 without angles, Type M, for heavy-duty load areas exposed to frequent use (Load class D 400 / E 600)

Drawing-No. 21007, 21008, 21010, 21006, 20498, 21012

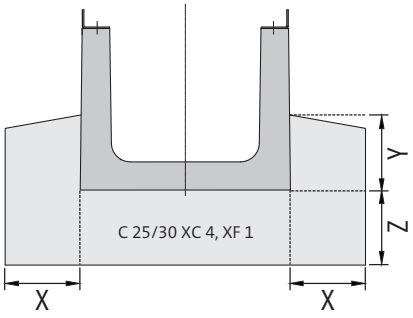


Construction with non-setting, frost-resistant carrier layers

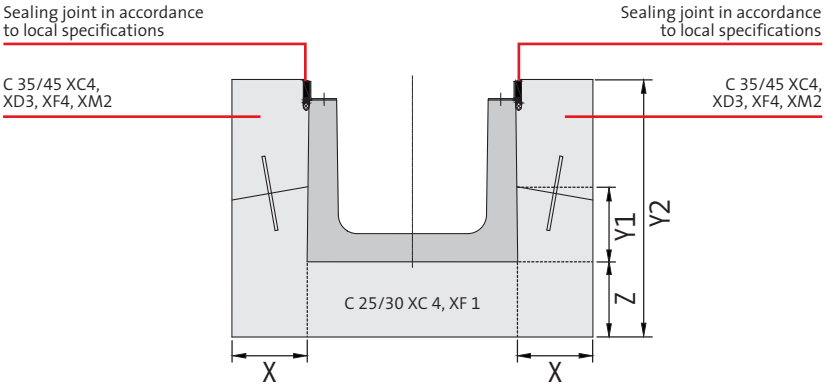
Expansion joints must be planned on the basis of engineering considerations. When laying the channel line in a full concrete casing, expansion joints must be formed transversely to the section after 8 to 12 meters. They must be arranged so that they run through a channel joint.
Construction with non-setting, frost-resistant carrier layers.
Exception up to D 400: not for installation across the carriage-way of highways or motorways.

BIRCOcanal | Overview

NW	Type	Load class	X	Y/Y 1	Y 2	Z	Drawing-No.
BIRCOcanal 100	M	A 15 – E 600	≥ 150	≥ 100	–	≥ 200	20984
BIRCOcanal 100	M	D 400 – E 600	≥ 150	≥ 100	Construction height + 5 mm	≥ 200	20984
BIRCOcanal 150	M	A 15 – E 600	≥ 150	≥ 100	–	≥ 200	20987
BIRCOcanal 150	M	D 400 – E 600	≥ 150	≥ 100	Construction height + 5 mm	≥ 200	20987
BIRCOcanal 200	M	A 15 – E 600	≥ 150	≥ 100	–	≥ 200	21007
BIRCOcanal 200	M	D 400 – E 600	≥ 150	≥ 100	Construction height + 5 mm	≥ 200	21007
BIRCOcanal 300	M	A 15 – E 600	≥ 200	≥ 100	–	≥ 200	21000/21008
BIRCOcanal 300	M	D 400 – E 600	≥ 200	≥ 100	Construction height + 5 mm	≥ 200	21000/21008
BIRCOcanal 400	M	A 15 – E 600	≥ 200	≥ 200	–	≥ 200	21004
BIRCOcanal 400	M	D 400 – E 600	≥ 200	≥ 200	Construction height + 5 mm	≥ 200	21004
BIRCOcanal 500	M	A 15 – E 600	≥ 200	≥ 200	–	≥ 200	21005/21010
BIRCOcanal 500	M	D 400 – E 600	≥ 200	≥ 200	Construction height + 5 mm	≥ 200	21005/21010
BIRCOcanal 500 AS	M	A 15 – E 600	≥ 200	≥ 200	–	≥ 200	21005/21010
BIRCOcanal 500 AS	M	D 400 – E 600	≥ 200	≥ 200	Construction height + 5 mm	≥ 200	21005/21010
BIRCOcanal 700	M	A 15 – E 600	≥ 200	≥ 200	–	≥ 200	20498
BIRCOcanal 700	M	D 400 – E 600	≥ 200	≥ 200	Construction height + 5 mm	≥ 200	20498
BIRCOcanal 1000	M	A 15 – E 600	≥ 200	≥ 200		≥ 200	21012
BIRCOcanal 1000	M	D 400 – E 600	≥ 200	≥ 250	Construction height + 5 mm	≥ 250	21012



Installation without concrete casing



Installation with concrete casing

BIRCOcanal | Horizontal and vertical drilling

The drawings 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 from the end of the channel.

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

BIRCOservice Page 141

\+ BIRCO offers you an individual customisation and drilling service ex-factory.

BIRCOpur® | Rainwater treatment system to complete the water cycle

An ingenious, modular filter system cleans rainwater of substances from abrasion, combustion and leaching. It does so constantly and reliably throughout the entire service life – and is particularly easy to maintain. A fully sealed area of at least 20 m² can be connected to one running meter of channel.

+ A 15 to F 900

+ DIBt approval

+ Modular structure

Precipitation water treatment as an alternative to the biotic soil zone

BIRCOpur® | Application areas

+ Municipalities
+ Commercial companies
+ Industry
+ Private households

BIRCOpur® | Facts

+ Modular, two-stage filter system for near-surface rainwater treatment
+ The best value for the evaluation procedure according to DWA-M 153: permeability value 0.15
+ Channel system: NW 300 AS
+ Suitable for heavy rainfall
+ With float guard
+ 4 mm solid steel angle
+ Installation length: 1.00 meter
+ Load class: A 15 – F 900
+ Suitable for an area of at least 20 square meters per running meter of channel

BIRCOpur® | Reliable filtration according to the multi-stage principle

BIRCO is breaking new ground in rainwater filtration: the modular rainwater treatment system, developed together with the filter experts 3P Technik, combines functional reliability, reliable performance and easy maintenance – and offers decisive advantages too.

High level of planning freedom

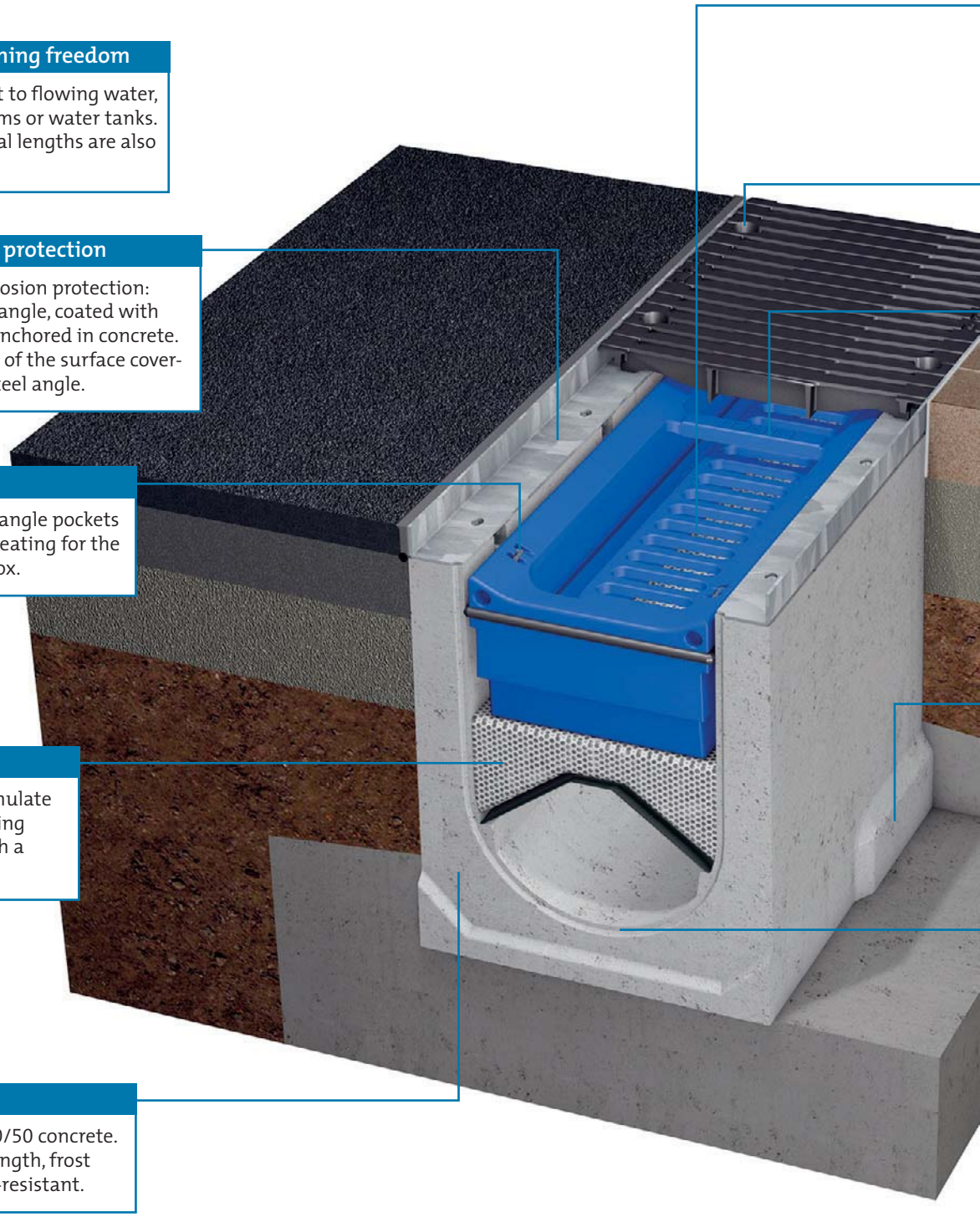
+ Ability to connect to flowing water, infiltration systems or water tanks.
+ Corner and special lengths are also available.

Reliable corrosion protection

+ Stability and corrosion protection: 4 mm solid steel angle, coated with 70 µm zinc and anchored in concrete.
+ Flush connection of the surface covering to the solid steel angle.

Safe lock

+ Locking hooks in angle pockets ensure a secure seating for the sedimentation box.



Reliable filtering

+ High-quality granulate filter pad for lasting performance with a high kf-value.

Materials quality

+ High-quality C 40/50 concrete.
+ Compressive strength, frost and de-icing salt-resistant.

The latest rainwater filtration

+ The modular structure of the filtration channel ensures optimum rainwater filtration and treatment.
+ With DIBt approval no. Z-84.2-10.

High level of traffic safety

+ 8-point per meter fastening via quick-release fastener or bolt.

Easy cleaning / maintenance

+ Removable sedimentation box for absorbing solids.

Float guard

+ Firm anchoring in the foundation.

EN 1433

+ Safety seam at the channel joint (can be fitted with BIRCO sealant SF Connect).

Large drain volume

+ No additional lines required.
+ Direct drainage possible under the channel in the trenching.

We were able to actively support customers here:

Collection Station, Berlin

Mittelbaden Clinic, Baden-Baden

Audi, Münchsmünster

BIRCOprotect |
Secure groundwater protection, even with heavy loads

With its officially-certified sealing concept, BIRCOprotect offers reliable groundwater protection and can even withstand heavy loads. With four different nominal widths and a matching outfall unit system, we can resolve even the most challenging drainage situations in a flexible and affordable way.

+ A 15 to F900

+ WRA approval No. Z-74.4-34

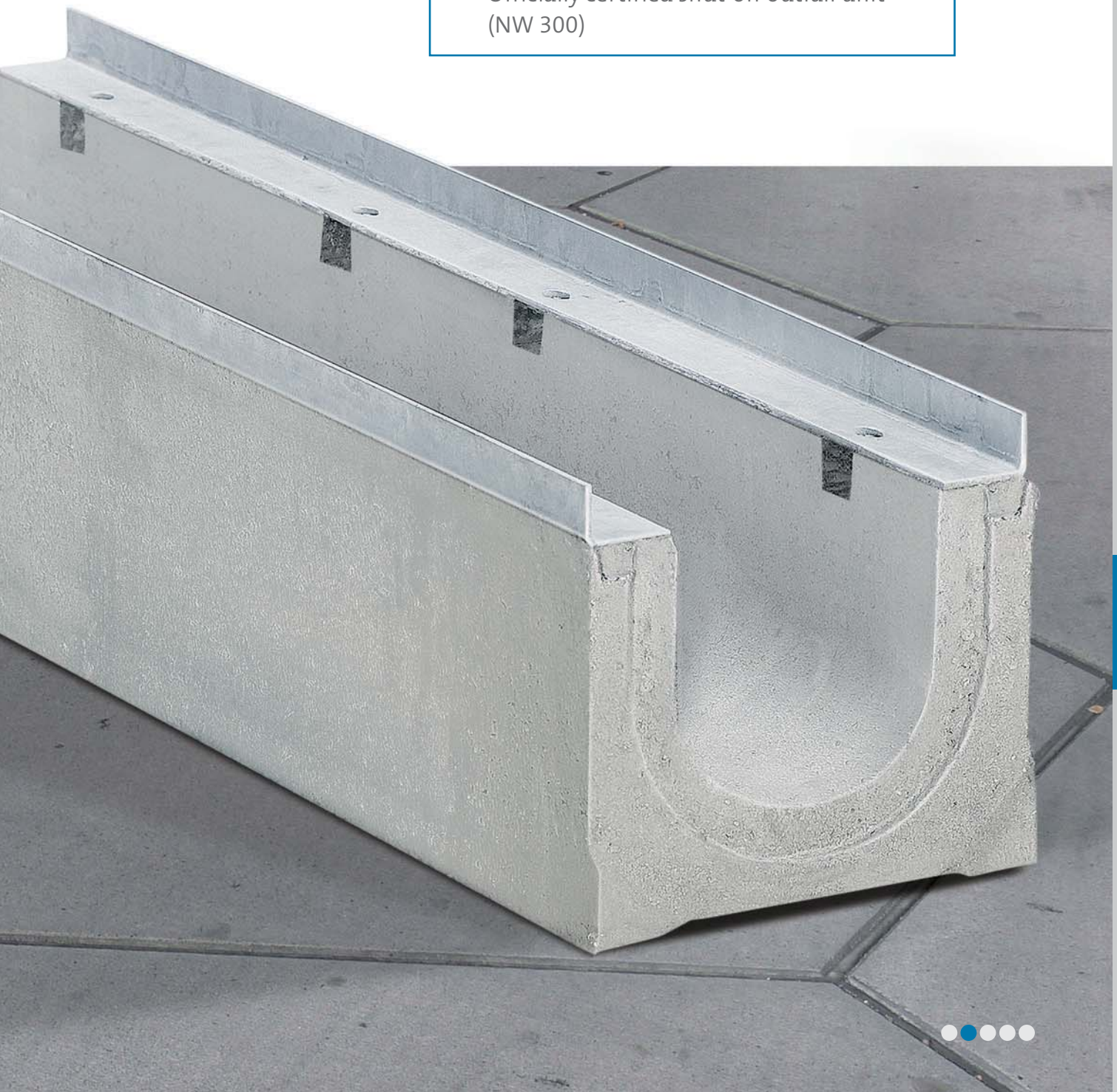
Wherever water-hazardous substances (such as fuels, weak alkalies and acids) are generated, and wherever there are high traffic loads.

BIRCOprotect | Application areas

+ Container transshipment centers
+ Heavy load areas
+ Storage/filling/handling plants/ areas subject to water legislation
+ Petrol stations
+ Sewage treatment plants

BIRCOprotect | Facts

- Channel system: NW 100 – 300, with and without inbuilt fall
- General building approval (no. Z-74.4-34)
- Installation lengths: 0.50 and 1.00 meters
- Load class: A 15 – F 900
- Outfall units in every nominal width with excellent drainage performance
- Officially certified shut-off outfall unit (NW 300)



BIRCOprotect

Secure groundwater protection, even under heavy loads

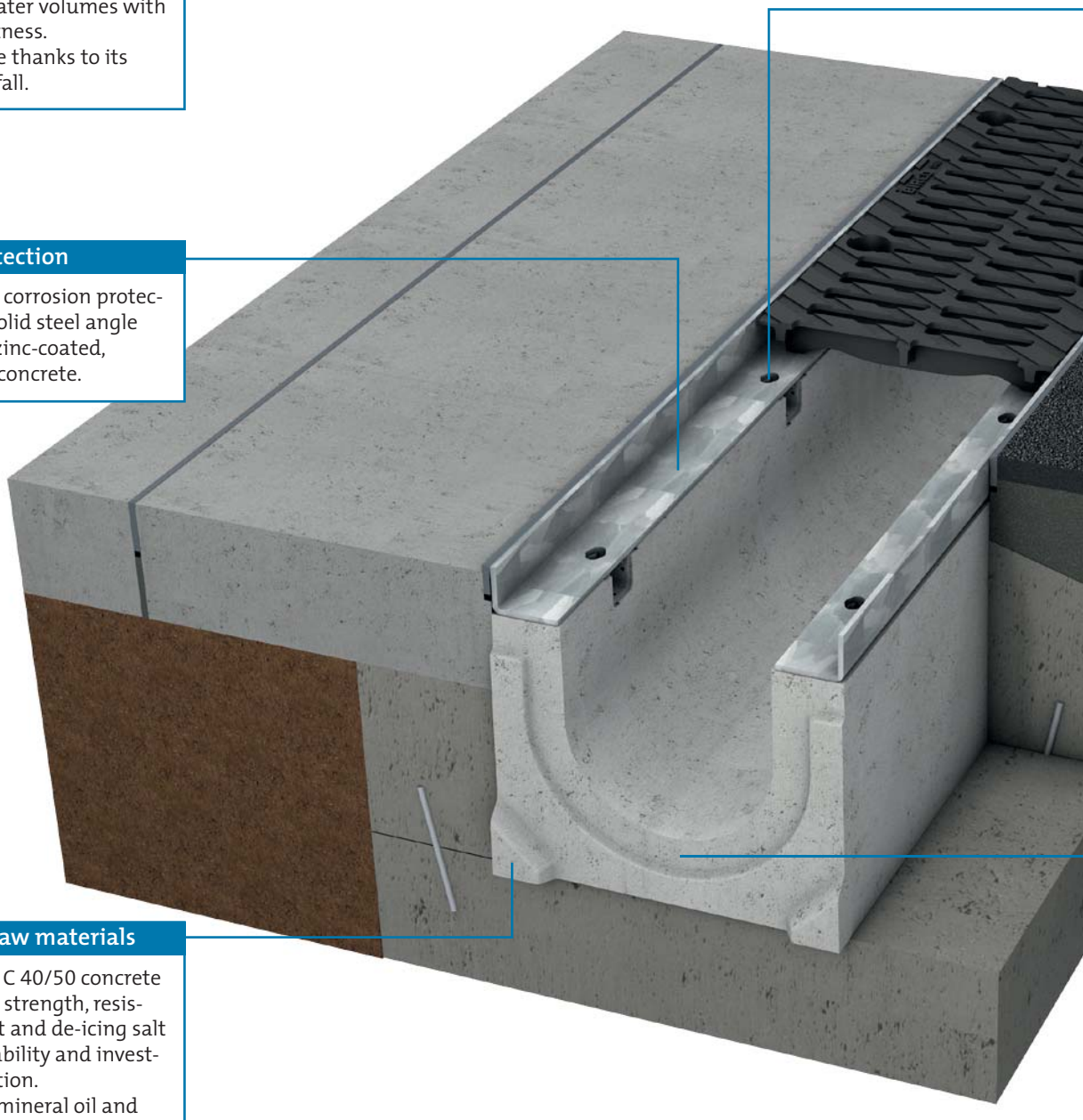
BIRCOprotect combines the best drainage performance and large backwater volumes with efficient groundwater protection under extreme loads.

Optimal drainage

+ Large backwater volumes with reliable tightness.
+ Fast drainage thanks to its own inbuilt fall.

Corrosion protection

+ Stability and corrosion protection: 4 mm solid steel angle with 70 µm zinc-coated, anchored in concrete.



High-quality raw materials

+ High-quality C 40/50 concrete
+ Compressive strength, resistance to frost and de-icing salt ensures durability and investment protection.
+ Resistant to mineral oil and gasoline.

Can be used individually

+ Many fields of application thanks to four different, nominal widths which can be combined with each other, and matching outfall units.

Traffic safety

+ High level of traffic safety thanks to 4- or 8-point per meter bolt connection. Bolt connections: Easy-lock bolt, individually selectable.

Safety concept

+ Visible sealing joint.
+ Two-flank adhesion of the sealing joint guarantees optimum flexibility.
+ General building approval (no. Z-74.4-34).

We were able to actively support customers here:

Biogas plant, Geislingen an der Steige

Nordzucker, Wanzleben-Börde

Goldsteig Dairy, Cham

BIRCOdicht

The channel safety system

BIRCOdicht provides reliable, lasting protection in any area where liquids posing a threat to water have to be collected. Its continuous HPDE lining and solid concrete body ensure that your waterway has an absolutely tight seal. Resistant against highly aggressive agents, it is also stable under heavy loads and protected against corrosion.

+ A 15 to F 900

+ WRA approval no. Z-74.4-52

For the safe drainage of aggressive substances and for areas subjected to high horizontal loads.

BIRCOdicht | Application areas

+ Chemical plants
+ Tank plants, quench water collection points
+ Storage/filling/ handling plants subjected to “low”, “middle” and “high” levels of stress
+ Industrial construction, corrosion prevention
+ Production areas, transshipment centers

BIRCOdicht | Facts

- + Channel system: NW 150 to 300 mm with and without inbuilt fall
- + General building authority approval (no. Z-74.4-52)
- + Installation lengths: up to 2.0 meters, various installation heights
- + Load class: A 15 – F 900
- + Outfall units in every nominal width and shut-off outfall units up to NW 300
- + Varied range of covers, including GRP covers

BIRCOdicht

The channel safety system

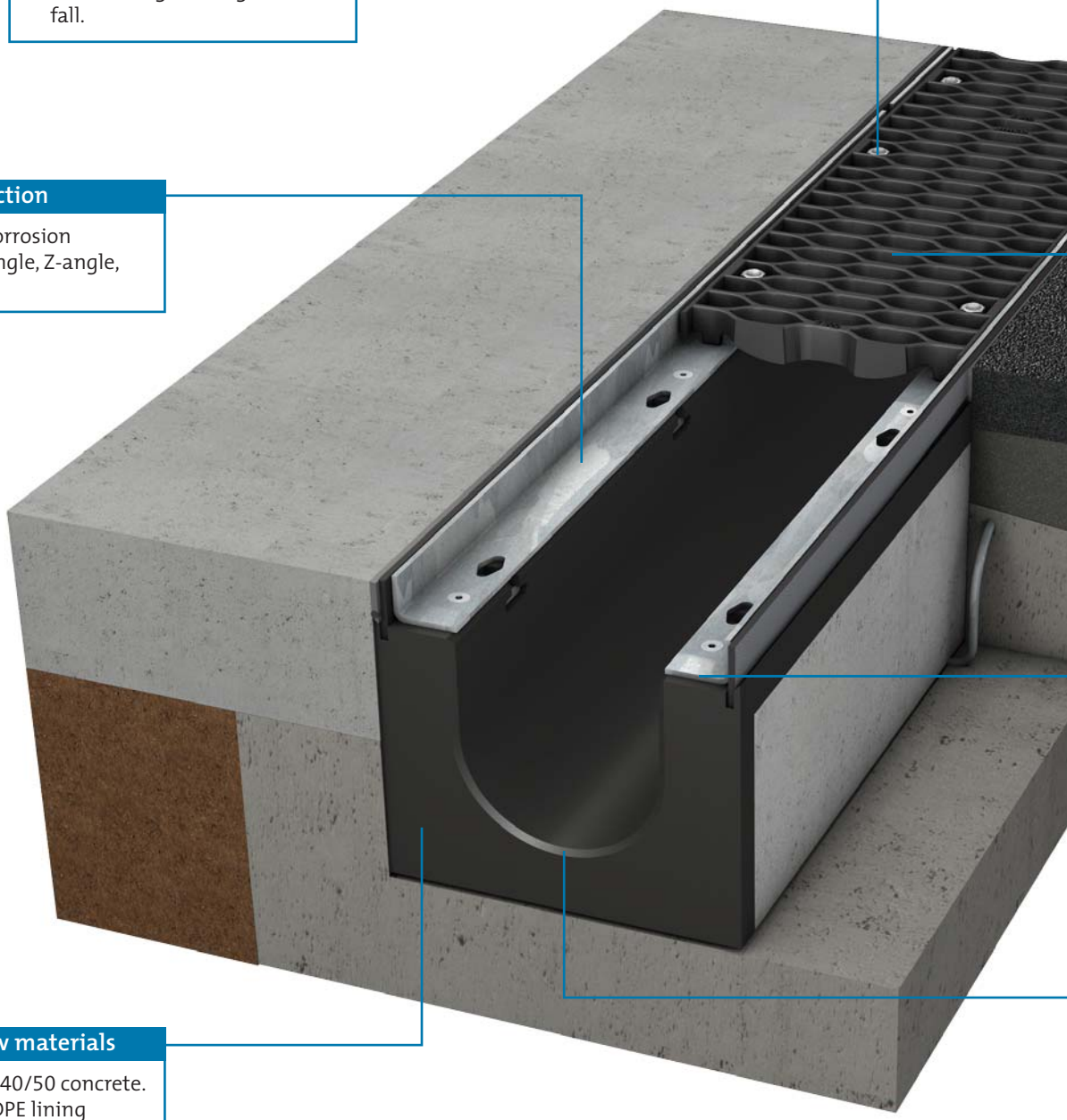
BIRCOdicht guarantees high backwater volumes and rapid drainage with sustained resistance including against highly aggressive media.

Optimal drainage

+ Large backwater volumes with reliable tightness.
+ Fast drainage through inbuilt fall.

Corrosion protection

+ Stability and corrosion protection: L-angle, Z-angle, HDPE edge.



High-quality raw materials

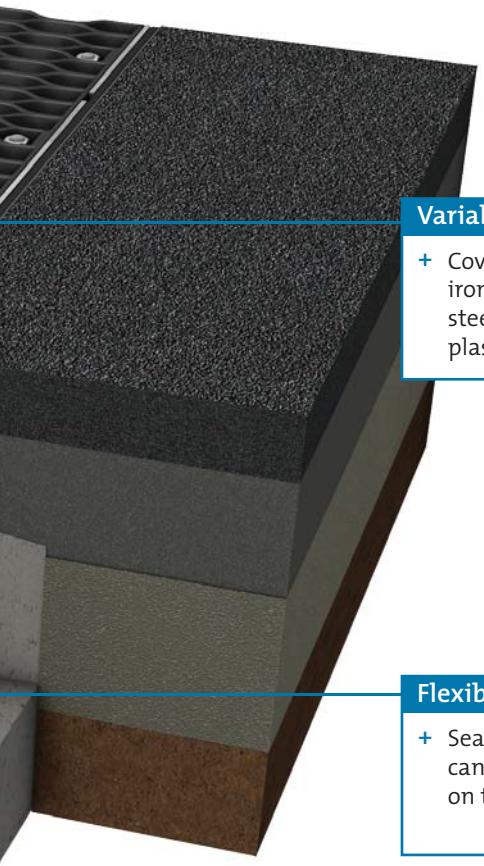
+ High-quality C 40/50 concrete.
+ Continuous HDPE lining ensures lasting tightness.
+ Also resistant to highly aggressive media.

Can be used individually

+ Various installation heights and lengths and a range of nominal widths enable flexible use depending on the specific application.

Traffic safety

+ High level of traffic safety thanks to 4- or 8-point per meter bolt connection.



Variable covers

+ Cover versions made of ductile iron, stainless steel, galvanized steel or glass-fiber reinforced plastic.

Flexible connection

+ Sealing and bitumen sheeting can be connected depending on the requirements.

Safety concept

+ Sealing joints are welded on site by approved specialist companies.
+ General building authority approval (no. Z-74.4-52).

We were able to actively support customers here:

Infraserv, Frankfurt

Bayer, Wolfenbüttel

Evonik, Stockhausen

BIRCOport DN 340 | Individual building solutions for airports and ports

Cost-efficient and able to withstand heavy loads

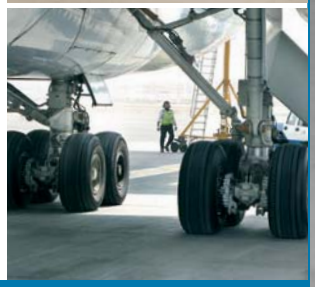
BIRCO's latest development, the BIRCOport, is the ideal solution for large surfaces exposed to heavy loading. Customizable, highly efficient drainage and customer-friendly laying – a simple yet ingenious solution for new construction projects and existing systems in renovation projects. BIRCO's wide range of advice and services enable the systems to be perfectly adapted to the specific construction project, with and without a foundation on site.

+ A 15 to F 900

F 900

+ DIBt-approval

DIBt
Z-74.4-114



4.5 m and 5.0 channels can be used with or without a foundation on site, perfectly tailored to the needs of airports and port operators.

BIRCOport | Application areas

+ Airports / Airside
+ Inland and sea ports
+ Container terminals
+ Logistics areas
+ Military operating areas
+ WRA [Water Resources Act] / LAU [storage, filling and transfer facilities for water-contaminating substances] areas
+ Areas with maximum loads

BIRCOport | Facts

+ Type I slot channel system DN 340
+ Monolithic reinforced concrete body (C 60/75)
+ Can be used with or without a foundation on site
+ Construction height: 590 mm, Construction length: 5.00 m
+ Construction height: 670 mm, Construction length: 4.50 m
+ ASR-resistant concrete mix
+ Profiled surface
+ Self-cleaning slot,
  Slot length (top/bottom): 300/320 mm
  Slot width (top/bottom): 30/50 mm
+ Removable ductile iron honeycomb cover with a large inlet cross-section for easy inspection of the sealing joints
+ DIBt-approval for LAU systems (no. Z-74.4-114)

passed ASR PERFORMANCE-TEST

BIRCOport | Intelligent

+ Pre-assembled soft foam plate at the end of the channel as a joint formation (expansion / sealing joint)

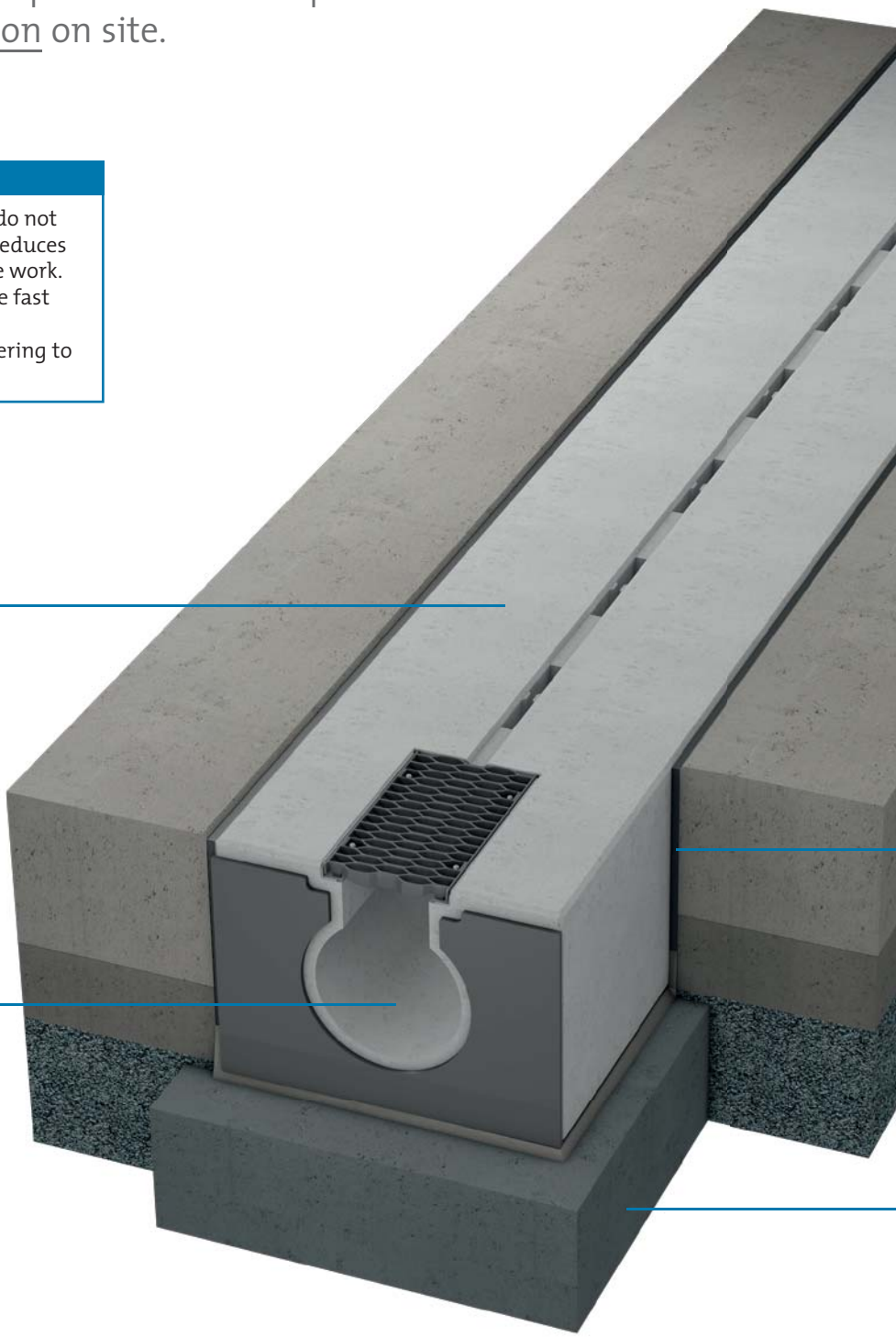
BIRCOport DN 340

Maximum expertise for maximum demands

The optimal channel concept for the individual planning of areas. Whether a new installation or renovation, with BIRCOport the system is intelligently adapted to the main parameters. Even without a foundation on site.

Efficient processing, fast laying

+ One-piece Type I channel elements do not require concrete surrounds, which reduces the need for formwork and concrete work.
+ Large installation lengths guarantee fast laying with a low number of joints.
+ Flush connection of the surface covering to the channel element.



Structured surface

+ Higher snow and wet performance with better grip in all directions.

High-quality raw material

+ Monolithic concrete body made of reinforced C 50/60 concrete.
+ Resistance to frost and de-icing salt ensures durability and investment protection.

Resistance to de-icing agents

+ AVIFORM S-solid sodium formate (solid).
+ AVIFORM L50 potassium formate solution (liquid).
+ Safewing PM I 1938.
+ Safewing MP IV LAUNCH.

Installation length advantage

+ Fewer inspection openings due to long components.
+ Efficient when it comes to costs, maintenance and wear.
+ Reduction of maintenance joints.
+ High installation speed.

Sealing joint formation

Foundation-optimized

+ Bottom optimized for strong bond.
+ Foundation dimensioning according to customer specifications.

We were able to actively support customers here:

Munich International Airport

Reykjavik International Airport

Resistance to large amounts of de-icing salts

BIRCOservice

Variable drainage solutions

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 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 drilling

Pipe connections to fit your needs

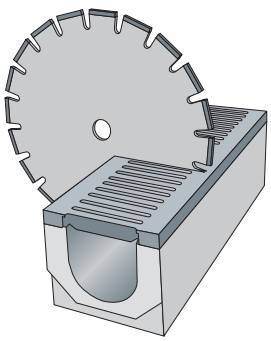
We can fit BIRCO channels with horizontal or vertical bore holes for directly fitting feed and drainage lines according to your plans. (Bore holes must be a distance of at least 100 mm away from the end of the channel.) The connections available differ according to the nominal widths, extending in the 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.

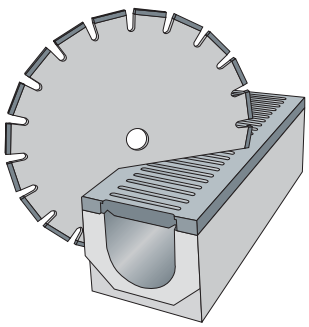
Individual customizations for every nominal width

Your plans are in good hands

BIRCO's factory service offers you a variety of customized 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

Optimal laying and grouting

Matched accessories for a quick and easy installation.
Systematic tools for smooth operation.

Laying

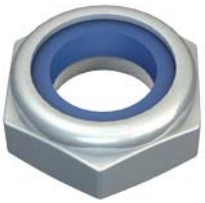
Load rings for a quick laying progress

Firmly anchored stud bolts with screwed on load rings make it possible to lay the BIRCOmassiv even in the smallest excavation.

Self-locking screw connection

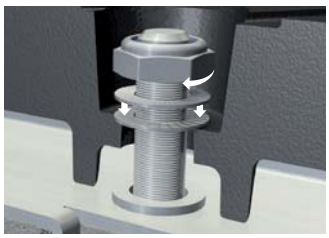
Fast, safe, low maintenance

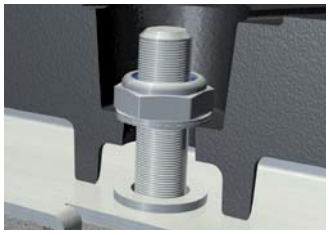
The BIRCOmassiv system relies on bolting frames that meet the highest requirements. In addition to the firm anchorage in concrete and the 8-point bolt connection per meter, BIRCO uses nuts with self-locking function in conjunction with stud bolts made of high-quality steel. The result: an overall concept of very high traffic safety above the standards the EN 1433 requirements.



Small washers, great results

Ingeniously designed wedge locking washers can optionally be inserted under the nuts. The special design of the surface interlocks the two discs and the nut. This ensures a permanent hold and avoids that vibrations release the nut. Wedge lock washers should not be combined with other washers.





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.

SF-connect

+ Article No. 608550

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 depending of 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 (outfall unit), insert the cleaning hose and jettison the soiling in the direction of the second outfall unit. The covers of the channel panels do not have to be removed for this.

easyclean

+ Article No. 610010

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.

Maintenance instructions for BIRCO drainage systems

1. Preliminary remarks

To continuously exploit the full hydraulic performance of our channel systems, ensure system safety and make sure that the covers are locked in a way that is safe for traffic, the drainage channels and / or other drains and / or installations, as well as their covers and fastening mechanisms must be cleaned and maintained at regular intervals.

2. Cleaning and maintenance of drainage systems for application areas involving media which is not hazardous to water

BIRCO drainage systems should undergo a visual inspection regularly, however at least once a year. If any impurities from leaves, sand, dirt and / or filterable suspended solids are found that could reduce, restrict or even prevent drainage, they must be removed. Impurities in the drainage systems that are not subject to the regulations of the Ordinance on Waste Disposal (AVV) may be disposed of in the residual trash. (Observe the local waste disposal regulations in the process.)

The completeness of the cover fastenings must be checked when inspecting the drainage systems. Missing or damaged parts must be replaced. The locks must be fastened with the specified tightening torques to prevent the covers from loosening and thus to avoid possible damage to the system.

3. Cleaning the channels with tools

3.1 Cleaning the drainage systems using shovel blades or similar tools

Block off the area so that it is safe for passing traffic according to the generally applicable rules.
Remove all covers and put them to one side next to the drainage channel.
Check the covers for any adhesion and remove this using a water jet for example.
Shovel the dirt out of the drainage channel and dispose of it according to the local regulations for waste disposal.
Blockages in the outgoing pipe system must be removed by means of a flushing lance or jet nozzle.
Insert the covers and lock them according to the installation instructions for the system.
If necessary, clean the area around the drainage system and remove the traffic security measure.

3.2 Cleaning with BIRCOeasyclean

Block off the area so that it is safe for passing traffic according to the generally applicable rules.
After fitting the BIRCOeasyclean flushing nozzle onto a compatible high-pressure cleaner, insert the BIRCOeasyclean through the drainage opening of the cover and flush towards the direction of the drain. Remove any stubborn adhesions on the covers using a water jet.
A working distance of about 2-3 meters per flush thrust is recommended when working in a splash water protected area. The cleaning direction must be selected facing towards the drain trap in order to remove the sludge tank in the drain trap after cleaning the channel, and to dispose of the dirt in the residual trash.
Blockages in the outgoing pipe system must be removed by means of a flushing lance or jet nozzle.
Insert the covers and lock them according to the installation instructions for the system.
If necessary, clean the area around the drainage system and remove the traffic security measure.

4. Drainage systems with jointed component transitions

All joints must be checked at regular intervals in order to avoid damage.
Weather, mechanical stress, decomposition from chemicals, damage to the structure, damage from animals or other situations may make a joint sealing unstable, thus impairing the function.
It is most effective to perform the joint test during cooler ambient temperatures as this is when the components shrink the most and the joint is therefore at its widest.
Pay particular attention to the general maintenance condition of the surrounding materials when checking the joints.
The joints must be professionally repaired if any cracks are found in the sealant or if excessive deformations, chunking, detachment (loss of adhesion) of the component, hardening of the permanent elastic joint dimension, discolorations or similar are found.

4.1 Restoration/repair of joints for application areas of media which is not hazardous to water

Damaged jointing must be completely removed so that it can be replaced with a continuous new joint. If necessary, the contact surfaces must be prepared for the adhesion of the jointing agent using a suitable tool.
Observe the product-specific instructions and regulations for working the joint.

5. Spare parts and technical support are available from the following address

BIRCO GmbH, Herrenpfädel 142, 76532 Baden-Baden
Tel.: +49 (0) 7221 5003-1000
info@birco.com, www.birco.com

BIRCO | Notices

BIRCOservice

On-site – personalized – reliable

The excellent quality of our products includes completely personalized support and service. It's our job to advise you with your drainage project, from planning to completion, with confidence, day in, day out.

Advice for clients and project managers

+ Personalized support from our experts and engineers
+ Responsiveness and availability
+ Absolute reliability
+ Expert advice on individual drainage solutions

Advice for design offices and architects

+ Latest advice on design and hydraulic assessment of drainage solutions
+ Precise layout plans
+ Expert know-how for special solutions, environmental issue and custom variants
+ Optimum combination of functionality and architectural esthetics

Advice for municipal service providers and policymakers

+ Complete performance declaration for all our products
+ Supporting documents and test reports
+ Hydraulic assessment notes
+ Putting together technical documentation
+ Creating documentation for calls for tenders

Advice for costing experts

+ The best price/performance ratio
+ BIRCO's many innovations reduce installation times and site work
+ The durability of our products protects your investment and ensures long-term operation
+ Low maintenance costs enable you to caculate long-term costs

Trace advice

+ Wide range of products
+ Timely deliveries
+ Availability of products, short delivery times
+ Flexibility for problem-free modification of orders (even in case of "last-minute" changes)

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Drainage Solutions
for Heavy Duty Areas

BIRCO Homepage

www.birco.com

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