



Installation and instruction manual

Heavy duty channel

Ferro Magna

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PLEASE NOTE

It is important that you read and understand the installation and instruction manual prior to installing and using the concrete channel. This is the only way to ensure proper use, prevent damage to the supplied product, and avoid injury.

Products manufactured by Richard Brink GmbH & Co. KG should not be used based solely on previous experience with similar components as our products can differ significantly in their application.

Please provide the installers tasked with installing and using the product with this installation and instruction manual in good time and check they have read the information.

If you have any questions or doubts after reading the manual, please do not hesitate to contact us.

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INSTALLATION AND INSTRUCTION MANUAL:

Richard Brink GmbH & Co. KG 2021

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1. General

1.1 Introduction

This installation and instruction manual covers everything you need to know about the product and components. Professional installation and regular maintenance of these are key to ensuring long-term, economically effective use without any damage or defects.

The annex sets out the relevant technical instructions and guidelines for installation, operation and accident prevention. These need to be complied with in addition to this manual.

The following sections provide detailed information on the topics of:

- Transport
- Installation
- Maintenance, inspection, repair.

1.2 Information for the user

Any modifications to the components or intended use shall result in the loss of warranty and exclusion of liability on the part of Richard Brink GmbH & Co. KG.

The information provided in this installation and instruction manual does not relieve the planners, the company carrying out the work or the user of their duty to independently check and appraise the channels, the local conditions and other relevant circumstances, also with an eye to the pertinent technical standards. In case of any doubts about installation and/or use, please notify Richard Brink GmbH & Co. KG.

Please also refer to our technical data sheet.

2. Transport

2.1 Delivery

Upon accepting the delivered goods, please check that the components show no signs of transport-related damage. If you do notice any damage, please notify the freight carrier and responsible shipping company of this immediately. Do not install or use any damaged elements.

2.2 Unloading

As the delivery vehicle is not usually fitted with its own lifting device, the client should provide an appropriate means of unloading the components, i.e. a forklift truck or a crane (*with a fork or lifting straps*) with a load capacity of at least 1,000kg. A level set-up area able to take the load of the pallets should also be arranged.



Caution

Warning: falling pallets or items!

Please always check that the pallets are secure. Never attempt to support a falling pallet!



Warning

Warning: suspended loads!

Suspended loads pose a risk of injury. Do not stand under suspended loads!



Wear a hard hat!

2.3 Opening the packaging units

Before opening the packaging units, please ensure that their contents have been stacked securely and are prevented from falling. If you are using any tools to open the packaging, please exercise particular caution to prevent elements from being damaged.

3. Handling

3.1 General



Please observe the following information.

Failure to do so may result in injury.

Appropriate protective clothing should be worn when handling the components on the construction site (*protective gloves, safety boots, etc.*). Edges may have burrs as a result of the manufacturing process. This is not a defect.



Caution

Warning: sharp edges!



Edges may have burrs as a result of the manufacturing process, which pose a risk of injury.



Caution

Warning: sharp edges!



Always exercise caution when handling components due to the risk of injury.

Fingers or other body parts could become jammed or otherwise injured.

Wear protective gloves!

The products should be used in accordance with this installation and instruction manual.

Please ensure that the products and selected materials fulfil the respective requirements (*load class, load-bearing capacity of the substrate, frost resistance etc.*)

Under no circumstances should damaged, old, previously used or expired products or materials be used.

Please observe the standards and regulations in effect at the installation site (*note the reference works set out in the annex*).

Written consent must be obtained from Richard Brink GmbH & Co. KG for any intended use not described in this manual and/or covered by the applicable standards and regulations.

The following information relates to the frames, grates and slotted attachments.

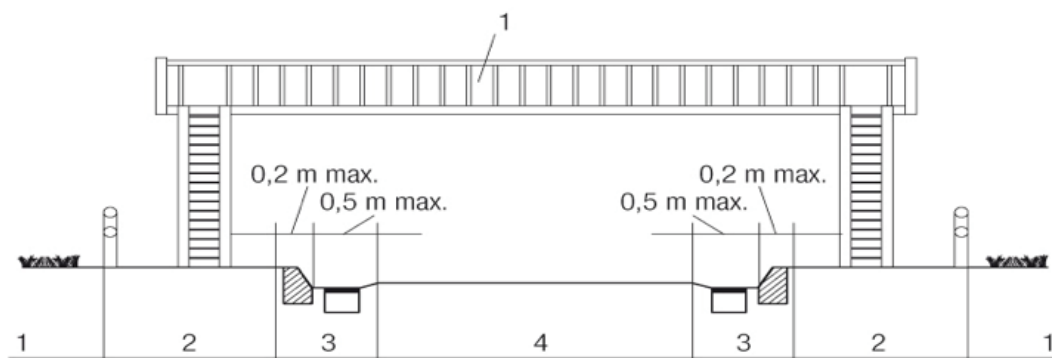
3.2 Handling regulations for stainless steel components

- Stainless steel components should be protected against flying sparks caused by metal cutting and against flash rust.
- Please ensure that any tools used for cutting or grinding have not been contaminated by abrasion or non-stainless steel chips (*risk of corrosion*).
- If different materials are processed together, please check their compatibility with regard to potential contact corrosion.
- The use of materials that may have come into contact with (*salty*) sea air, sea water, (*dissolved*) road grit, chemicals that cause corrosion or other specific environmental influences should be checked and monitored.
- Regular cleaning is recommended to prevent the risk of corrosion and preserve the overall appearance. To this end, the gratings should be cleaned with a brush or, where appropriate, with a pressure washer. Channels should be flushed using a pressure washer.

3.3 Handling regulations for galvanised steel components

- Please ensure that any cutting or grinding work does not have a thermal impact on the surrounding material.
- If different materials are processed together, please check their compatibility with regard to potential contact corrosion.
- The use of materials that may have come into contact with (*salty*) sea air, sea water, (*dissolved*) road grit, chemicals or other specific environmental influences should be checked and monitored.
- Ensure that the material is not exposed to aggressive leachates from other materials.
- Please refrain from using abrasive and/or aggressive cleaning agents.
- Please refrain from cleaning surfaces (*grates*) with a steam jet; instead, clean by hand using a broom.

3.5 Use in accordance with DIN EN 1433



Sample cross-section of a street with a pedestrian bridge with installation-location groups

The Poly-Fortis heavy-duty dewatering channel is type M in accordance with DIN EN 1433. A suitably sized concrete foundation is required to bear the load – see also the installation sketches in section 4.

Installation-location groups (pursuant to DIN EN 1433)

Group 1 (at least class A15)

Traffic areas used solely by pedestrians and cyclists.

Group 2 (at least class B125)

Footways, pedestrian areas and comparable areas, car parks and car-parking decks.

Group 3 (at least class C250)

Gutter zone (*see sketch above*) and untrafficked verges and similar. Slot drain channels are always group 3.

Group 4 (at least class D400)

Road carriageways (including pedestrian streets), road verges (*see sketch above*) and parking areas approved for all vehicle types.

Group 5 (at least class E600)

Areas that can withstand high wheel loads, such as industrial and military sites, not included in the illustration.

The Poly-Fortis polymer concrete channel can be used up to class E600 depending on the size.

4. Installation

4.1 General installation instructions

The supplied installation sketches and our instructions are general proposals for common scenarios. It is not possible to portray every possible installation situation here. The type of installation in each case must be defined by the project planner in line with the local conditions and assessed by the installers. In case of any doubts or queries prior to installation of the channels, the planner and, if need be, Richard Brink GmbH & Co. KG should be notified.

The relevant standards and guidelines (*see 6. Annex*) must be taken into account on planning and installation.

- Before installing the channel, the correct load class for the planned deployment scenario must be selected in accordance with DIN EN 1433.
- Planning and installation must be carried out in a manner that enables regular maintenance.
- Installation may only be performed on a sufficiently compacted substructure to avoid settlement. Load plate tests may be performed if required. A ground layer (*watch out for any gradient*) of an appropriate height needs to be prepared.
- The base layers for the adjacent surfaces (*paving, asphalt*) also need to be compacted in line with the accepted rules of engineering.
- The channel foundation (*see installation sketch*) must be compacted accordingly.
- Concrete grades for the surround (*minimum qualities*):
 - without frost risk: C20/25
 - with frost risk: C30/37 XD 1
- The upper edge of the surface must protrude above the upper edge of the channel by 2-3 millimetres at all times.
- When installing in paving or slab flooring, the joint along the channel must be filled with a mineral medium, bitumen or epoxy resin.
- The superstructure must be directly connected to the channel. No expansion joints or cut paving stones must directly abut the channel.
- The setting times for the surround and the filling must be observed! The work may only be signed off after the covering layer has been applied accordingly and has reached the required firmness.
- The channel must be thoroughly cleaned after installation.

4.2 Installation

Installing channels with a cover grating or slotted attachment differs significantly. The differences are described below.

4.2.1 Installation of the channel with cover grating

The channel must be embedded in a concrete surround, as described in the installation sketches.

A distinction needs to be made in terms of whether the channel for classes A15, B125, C250, D400 or E600 is used (*see installation sketches*).

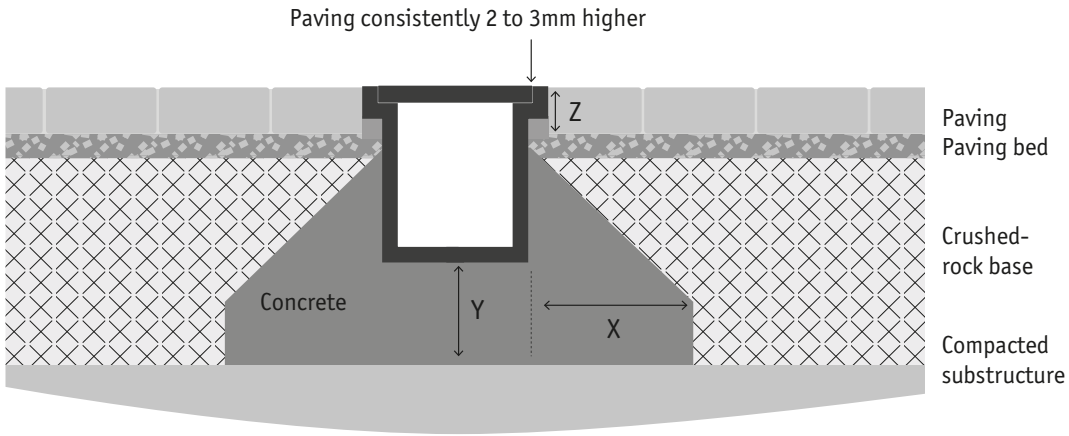
For classes A15, B125 and C250

The channel must be laid on an earth-moist concrete strip foundation raised in a wedge shape.

For class D400

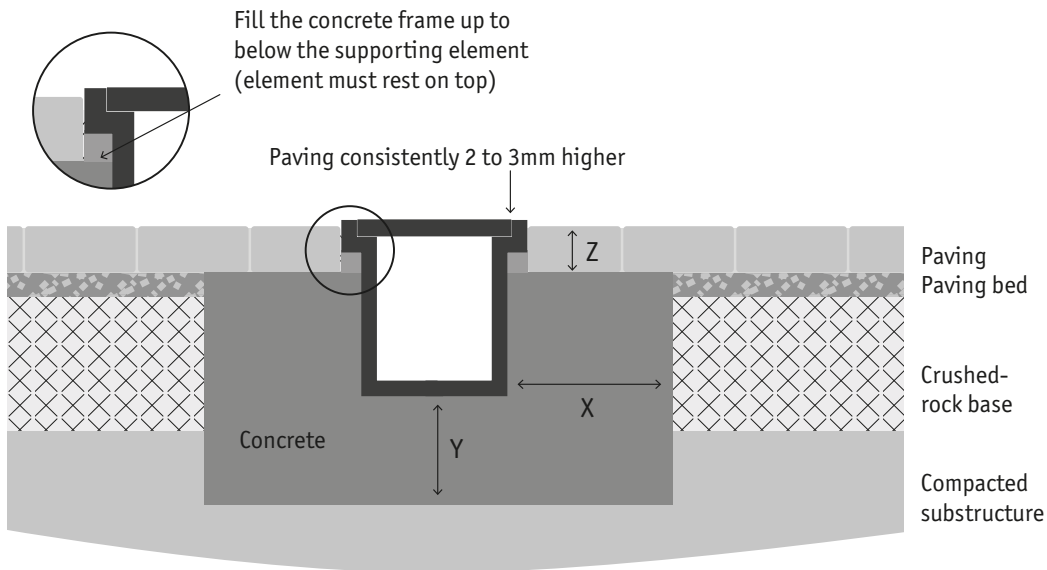
The paving adjoining the channel (*stretcher*) must be laid in the fresh concrete for an optimal channel surround.

Installation sketch for class A15 / B125 / C250 (not to scale)



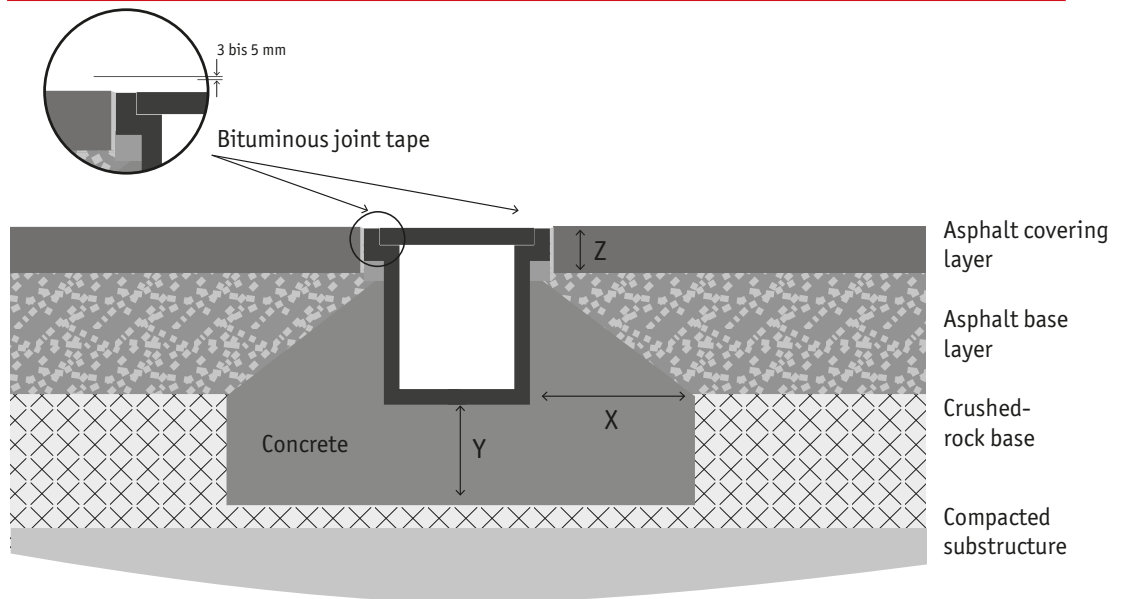
Dimensions of the concrete surround	X	Y	Z
A 15	≥ 100 mm	≥ 100 mm	≤ 80 mm
B 125	≥ 100 mm	≥ 100 mm	≤ 80 mm
C 250	≥ 150 mm	≥ 150 mm	≤ 80 mm

Installation sketch for class D400 and above (not to scale)



Dimensions of the concrete surround	X	Y	Z
D 400	≥ 200 mm	≥ 200 mm	≤ 80 mm

Installation sketch for asphalt (not to scale)

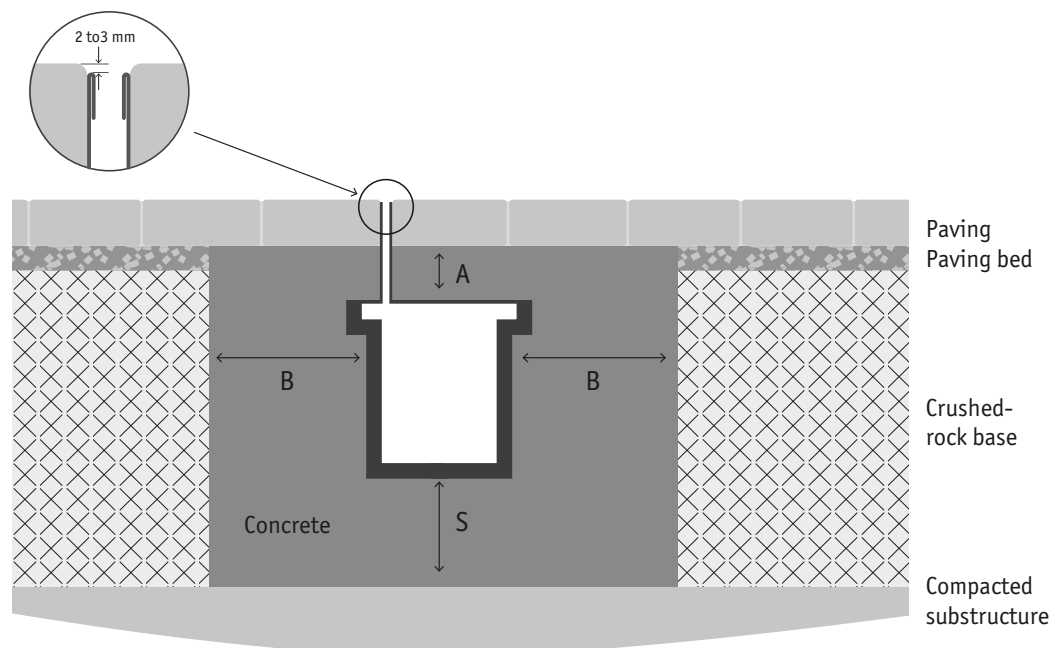


Dimensions of the concrete surround	X	Y	Z
A 15 à B 125	≥ 100 mm	≥ 100 mm	≤ 80 mm
C 250	≥ 150 mm	≥ 150 mm	≤ 80 mm
D 400	≥ 200 mm	≥ 200 mm	≤ 80 mm

4.2.2 Installation of the channel with slotted attachment

The channel must be fully embedded in a concrete surround, as described in the installation sketch.

Installation sketch (not to scale)



Dimensions of the concrete surround	X	Y
A 15 à B 125	A ≥ 80 mm	B, S ≥ 100 mm
C 250	A ≥ 80 mm	B, S ≥ 150 mm
D 400	A ≥ 80 mm	B, S ≥ 200 mm



Caution

If installed incorrectly, the components may not be able to support the loads acting upon them. If they collapse, they may cause injury or damage to vehicles or other objects.

The channel joints may also not be tightly sealed.

The following accessories can be supplied

500mm elements with and without drain nozzle / end pieces / drainage units / inspection and flush boxes
(for the channels with slotted attachments)

Please note

If the channel is used for an application not described here, please consult Richard Brink GmbH & Co. KG.



Prepare the foundation for the channel and place the channel at the appropriate height.

Preparing the channel with a connector fitted to one side makes handling easier (*side with the pegs*). The correct screws are either pre-installed or supplied along with the product.



The channels can be interlinked using the pegs. To do so, place the channels on the pegs at an angle of approx. 45 degrees and then slowly tilt them downwards.

Please note: pegs can break if handled incorrectly!



Then connect the channel elements using the screw connections still to be affixed.



Now mount the concrete anchor. The shape of the anchor may vary depending on the height of the channel (*straight/angled*).



Ensure that the black plastic elements are fully lined as these bear the loads through to the foundation.



Place the adjoining stones on the foundation to achieve high lateral stability.



Precisely place the gratings with the locking mechanisms on the channels. Depending on the grating type, the locking mechanisms may be enclosed loose with the product and need to be installed in situ.



Carefully lock the gratings in place. Ensure that the bolts reach under the cross bars.

5. Additional information

5.1 Obligations of the customer

Several safety-relevant obligations are outlined below and must be observed by the facility operator:

- The channels must be installed by qualified individuals only who possess the required technical skills and knowledge. Regular maintenance is also only performed by appropriately trained employees.
- This manual must be made available during on-site assembly and for maintenance purposes. Please make sure that all individuals entrusted with the product have read and understood the content of this manual.

Please note

Liability in the case of errors

In accordance with the statutory provisions, our liability is limited to damage arising from the product's intended use. We shall not be held liable for defects that cannot yet be identified according to the current state of the art or that are caused by force majeure, extreme weather or environmental conditions, e.g. exposure to aggressive substances (*leaching, cleaning agents, etc.*), or incorrect material combinations, etc.

We shall not accept liability for the consequences of breaches

- of safety and usage instructions
- of information about special material and component properties
- of the prohibition on unauthorised structural alterations and changes
- of intended use, i.e. using products for purposes not approved by the manufacturer.

5.2 Scrap disposal

Please note

Scrap disposal

If the channel is scrapped following use, please observe any laws and provisions on disposal that are in force at the time.

6. Annex – Technical standards

ATV DIN 18336

Waterproofing

ATV DIN 18354

Asphalt flooring work

Working paper

Surface pavements with paving and slab coverings in a bonded design (FGSV no. 618/2)

BWA

Guideline for waterproofing of buildings

DBV data sheet

Multi-storey and underground parking garages

DIN EN 206-1

Concrete – specification, performance, production and conformity

DIN EN 752

Drain and sewer systems outside buildings (part 1-4)

DIN 1986-100

Drainage systems on private ground

DIN EN 1433

Drainage channels for vehicular and pedestrian areas

DIN 1045-2

Concrete, reinforced and prestressed concrete structures – Part 2: Concrete – Specification, performance, production and conformity: Application rules for DIN EN 206-1

DIN 18195

Waterproofing of buildings part 1-10

DIN 18531

Waterproofing of roofs

DIN EN 752

Drain and sewer systems outside buildings part 1-4

DIN EN 1610

Construction and testing of drains and sewers

DIN 1986-100

Drainage systems on private ground

DIN EN 12056

Gravity drainage systems inside buildings part 1-5

FLL

Recommendation on planning and construction of traffic areas on structures

IVD data sheet 1

Sealing of floor joints with elastic sealants

VOB part C: ATV DIN 18299

General technical specifications in construction contracts

VOB part C: ATV DIN 13315 to 18318

Road construction – Surfacing without binder/... with hydraulic binders/... asphalt surfacings/... Sett and slab pavements, and surrounds

RAS-EW

Guidelines for road design – part: Drainage

RSt0

Directives for the Standardisation of Traffic Area Surfaces

ZTV Fug-STB

Joints in trafficked areas

RSt0

Directive for the Standardisation of Traffic Area Surfaces

ZTV Asphalt-StB

Supplementary technical conditions of contract and guidelines for asphalt surface courses in road construction

ZTV Beton-StB

Supplementary technical conditions of contract and guidelines for concrete surface courses in road construction

ZTV E-StB

Supplementary technical conditions of contract and guidelines for earthworks in road construction

ZTV Ew-StB

Supplementary technical conditions of contract and guidelines for constructing drainage systems in road construction

ZTV PStB

Supplementary technical conditions of contract and guidelines for constructing paving coverings and slab pavements (unbonded construction method)

ZTV T-StB

Supplementary technical conditions of contract and guidelines for constructing base layers in road construction

The standards and guidelines are provided for explanatory purposes. The list does not claim to be complete. All specifications, standards and guidelines applicable at the construction location must be complied with. These need to be researched by the client or the company performing the work.

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