

# Aqua Drain<sup>®</sup> FLEX/BF-FLEX

## The drain grate system

For proper drainage at low and barrier-free door connections and as linear drainage in the surface/on parapets



AquaDrain FLEX<sup>®</sup>  
With standard swivel feet



AquaDrain<sup>®</sup> BF-FLEX  
With ball head swivel feet

Drainage grate system that can be flexibly cut to length and is infinitely height-adjustable

### Field of application

Walkable outdoor surfaces in private and public areas, e.g. on (roof) terraces and balconies, arcades, stair landings, restaurant terraces, etc.

### Mode of action

For the absorption of façade, surface and drainage water in combination with coverings in bonded, loose and paved construction methods. Drainage takes place via the AquaDrain<sup>®</sup> surface drainage and installation systems or TerraMaxx<sup>®</sup> pedestal support systems, into the intended point drains/via eaves edges on free edge areas. "Stub channels for water drainage", which can have a negative effect on the covering and bedding layers, can be omitted.

### Properties

#### AquaDrain<sup>®</sup> FLEX & BF-FLEX

- Simple and variable, can be cut to length directly on site
  - Thanks to movable double foot slider elements and frame geometry
- Protection against sooting thanks to integrated dirt grid.
  - Prevents dirt from falling into the drainage grating and thus ensures the permanent drainage performance of the drainage grating and drainage system.
- Simple, precise alignment to flooring level
  - With continuously adjustable swivel feet from above.
- Maximum drainage capacity
  - With drainage grating open at the bottom in the system with AquaDrain<sup>®</sup> drainage or TerraMaxx<sup>®</sup> pedestal support systems.
- Creation of reduced door connection heights from 15 to 0 cm in accordance with the regulations, corresponding to
  - DIN 18531, Part 1, Paragraph 6.8, Door connections
  - Flat roof guideline FDR, German roofing trade
  - DIN 18040 barrier-free building

#### AquaDrain<sup>®</sup> BF-FLEX

Inclined/ramped adjustment of the drainage grating, for higher door elements or lower external flooring surfaces. To reduce/avoid door stops/thresholds, in accordance with DIN 18040  $\leq 2$  cm

### System accessories

- AquaDrain<sup>®</sup> Perforated bracket, formwork support to prevent the entry of grit/drainage mortar under the drainage grating
- AquaDrain<sup>®</sup> FLEX end cap, as an end cap for AquaDrain<sup>®</sup> (BF-) FLEX drainage grates
- AquaDrain<sup>®</sup> SL Joint tape, self-adhesive & pre-compressed special tape for fixing loosely installed gratings in the floor opening and for protecting adjacent waterproofing from mechanical damage
- AquaDrain<sup>®</sup> Swivel base, diameter 75mm
- AquaDrain<sup>®</sup> BF-KD Ball head swivel foot, diameter 80 mm
- AquaDrain<sup>®</sup> FLEX Slider plate, for holding the swivel feet and as a connector between two drainage gratings

### Drainage capacity

The drainage grates, which are open at the bottom, drain the surface and façade water completely and unchecked into the appropriately dimensioned substrate. With dense substrates, drainage rates of  $\geq 1.17$  l / (m<sup>2</sup>s) are achieved in combination with AquaDrain<sup>®</sup> surface drainage (16 mm high) with a substrate slope of just 1.5 %.

### Delivery form

- Grate frame
- Grate - Inlay
- Dirt grid
- Foot element = 1 slider plate + 2 swivel feet
  - Basic unit = 2 x foot element
  - Mounting unit = 1 x base unit



## Substrates

### Bonded substrates

- Bonded substrates, concrete surfaces with or without waterproofing
- Unbound, earth-contacting substrates with delayed seepage (e.g. gravel-graded, vibrated and compacted surfaces)
- Thermal insulation of roof terraces  
When used on uneven surfaces, a load-distributing/leveling layer, for example, must be used to ensure that the swivel feet are positioned over the entire surface

## Processing instructions

Basic unit, 100 cm long

- serves as a drainage line up to 1.00 m in length
- serves as 1st drainage grate for drainage lines longer than 1.00 m

Attachment unit, 100 cm long

- is used to extend drainage lines longer than 1.00 m



Basic unit = 2 base elements



Add-on unit = 1 base unit

Drainage lines ≤ 100 cm

1. Creation of a basic unit,
  - Slide two AquaDrain® slide plates into the bottom rail guide of the grate frame
  - Then screw 2 (ball head) swivel feet into the bottom of the slider plates
  - Allow the sliding panels to be flush with the outer edges of the grating frame
  - To complete, follow the next steps from 4.

Drainage lines > 100 cm

- The base unit serves as the 1st drainage grate,
- The slide plate on the extension side of the base unit ½ protrude slightly beyond the grate frame, this serves to accommodate the next drainage grate frame
2. Creation of an extension unit:  
Slide an AquaDrain® slide plate into the bottom rail guide of the grate frame so that it protrudes halfway over the grate frame to create an attachment unit.
    - The AquaDrain® slide plate of the first grate, which protrudes halfway, is used to hold and connect
  3. Repeat step 2 until the grate unit is ready
    - If necessary, the last and/or first grate is cut to length on site to achieve the required length of the grate unit
    - Make the sliding plate of the last grate flush with the outer edge of the grate frame.
  4. The drainage gratings (inserts and frames) can be cut to length continuously/accurately to suit the site situation:
    - Basic units up to ≥ 400 mm
    - Add-on units up to ≥ 280 mm
  5. Using a slotted screwdriver, the (ball-head) swivel feet can be turned in and out at the top to adjust the grate unit to the desired height
    - For low installation heights, it is necessary to cut the threaded rods of the (ball head) swivel feet to length after installation so that they do not protrude from the top of the grate unit

See the chapter "Installation heights",  
The contact surfaces of the (ball head) swivel feet are rubberized; no further protective layers for seals are required.
  6. Finally, insert the dirt grid and grate support and attach the AquaDrain® FLEX end caps

7. The AquaDrain® SL joint tape must be bonded all the way around the drainage grate line to ensure all-round movement/connection joints to adjacent covering surfaces and components and as mechanical protection for rising waterproofing. The AquaDrain® SL joint tape must be positioned approx. 5 mm below the top edge of the drainage grating and thus also acts as a backfill cord for the subsequent soft joint formation.
8. Only neutral cross-linking joint fillers should be used to create connection joints/soft joints, e.g. MorTec® SOFT.  
Acid-based joint fillers can lead to corrosion on components of AquaDrain® drain grates.

## Installation heights

with the 3 swivel base variants: Standard, XL and 2XL

AquaDrain® FLEX -GV:

- Standard: 53 - 100 mm, for heights ≤ 83 mm, the base threads must be shortened on site,
- XL: 60 - 175 mm, for heights ≤ 158 mm, the foot threads must be shortened on site,
- 2XL: 66 - 290 mm, for heights ≤ 273 mm, the foot threads must be shortened on site,

AquaDrain® FLEX -GE, -PE, -SL and -BE:

- Standard: 50 - 97 mm, for heights ≤ 80 mm, the base threads must be shortened on site,
- XL: 57 - 172 mm, for heights ≤ 155 mm, the foot threads must be shortened on site,
- 2XL: 63 - 287 mm, for heights ≤ 270 mm, the foot threads must be shortened on site,

AquaDrain® FLEX -QE:

- Standard: 50 - 97 mm, for heights ≤ 65 mm, the base threads must be shortened on site,
- XL: 57 - 172 mm, for heights ≤ 140 mm, the foot threads must be shortened on site,
- 2XL: 63 - 287 mm, for heights ≤ 238 mm, the foot threads must be shortened on site,

with the 2 ball head swivel foot variants: Standard and XL

AquaDrain® BF- FLEX -GV:

- Standard: 74 - 110 mm, for heights ≤ 94 mm, the base threads must be shortened on site,
- XL: 74 - 175 mm, for heights ≤ 159 mm, the foot threads must be shortened on site,

AquaDrain® BF- FLEX -GE, -PE and -SL:

- Standard: 71 - 107 mm, for heights ≤ 91 mm, the base threads must be shortened on site,
- XL: 71 - 172 mm, for heights ≤ 156 mm, the foot threads must be shortened on site,

## Drain grate widths

Widths of AquaDrain® (BF-) FLEX drainage gratings are available in the following widths, depending on the choice of insert variants:

- GV: 100, 150 and 200 mm, with one perforation - splash water reduction  $\geq 50\%$
- GE: 100, 150 and 200 mm, with one perforated section - splash water reduction  $\geq 50\%$
- PE: 100, 150 and 200 mm, with one perforated section - splash water reduction  $\geq 50\%$
- QE: 100 mm
- SL: 100 and 150 mm, with one perforated section - splash water reduction  $\geq 50\%$
- BE: 150 mm

Drain grate inserts and widths for low or barrier-free door connections:

According to DIN 18531 - Waterproofing of roofs, balconies, loggias, arcades - Part 1, Section 6.8 Door connections and the German Roofing Trade Association's (DDH) technical rules for waterproofing - flat roof guidelines - Section 4.4 Connections to doors, drainage gratings must be installed if the waterproofing is less than 15 cm thick.

is raised above the top edge of the FFB. In addition, according to the DDH

a) Flat Roof Guideline, 4.4 (2):

if there is no roof = no reduction in splash water load, the drainage grate widths should be  $\geq 15$  cm.

This applies to low and barrier-free transitions

b) Planning aid - Barrier-free crossings -, paragraph 3 (6)

Drainage requirements:

- drainage gratings must have a nominal width of  $\geq 15$  cm,
- From snow load zone 3, the nominal width of drainage grates must be  $\geq 20$  cm,
- gratings (mesh gratings, transverse bar gratings, longitudinal bar gratings) with a hole ratio of at least 50 % must be arranged on the channels.

## Care and maintenance instructions

GUTJAHN drainage and dewatering gratings do not require any special care or maintenance.

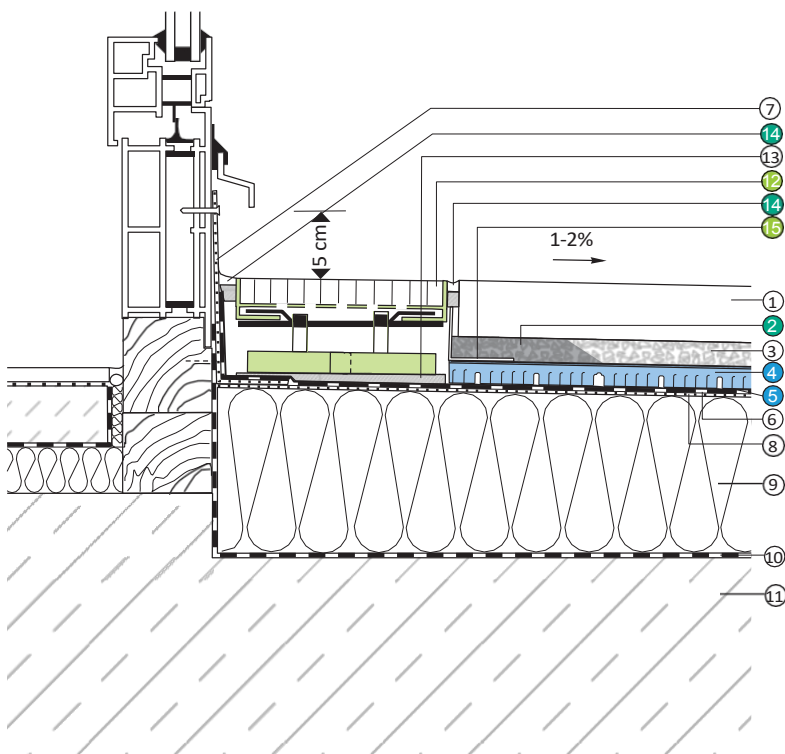
If necessary, the integrated drainage dirt grid must be removed and cleaned under running water using a soft cleaning brush. Clogged dirt must be removed. The lower part can be removed for cleaning. Acids or alkalis should be avoided as cleaning agents. Neutral cleaning agents are preferable. Please note that the drainage grille, which is made of plastic, can deform from temperatures of approx. 80°C, so avoid contact with burning cigarette butts or the introduction of boiling water. Based on our experience, maintenance cleaning should be carried out twice a year (in late fall and spring).

The direct use of antifreeze/de-icing agents, acids and alkalis leads to irreversible corrosion of galvanized and stainless steel parts and must be avoided.

Supplement for SL Shadowline

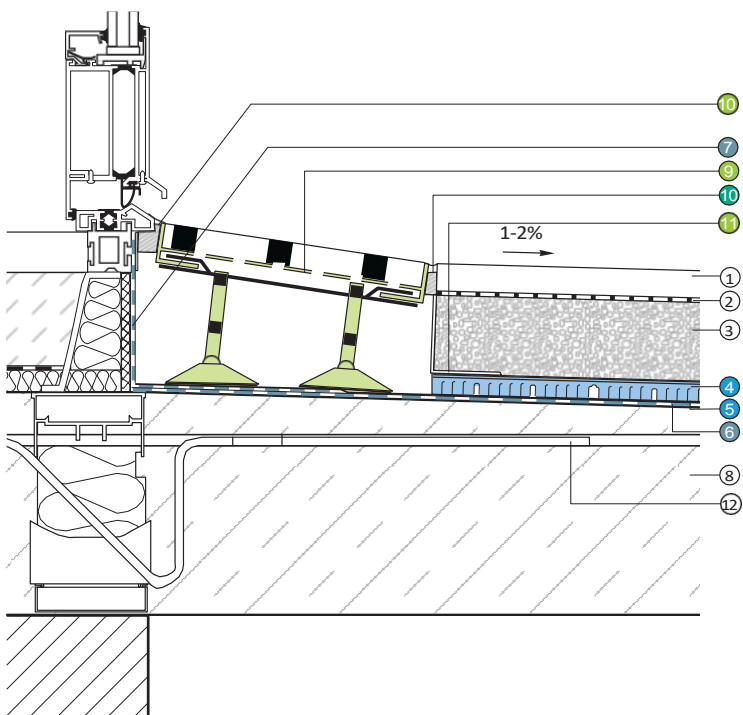
For normal everyday soiling, water with washing-up liquid, a brush or a sponge should be sufficient. If necessary, a commercially available stainless steel care product can also be used without attacking the dark surface coloration. Under no circumstances should abrasive (scouring) cleaning agents be used. Only the stainless steel satin-finished visible surfaces of the grates can be treated with a special stainless steel fleece in the longitudinal direction in the event of heavy soiling.

Planning details



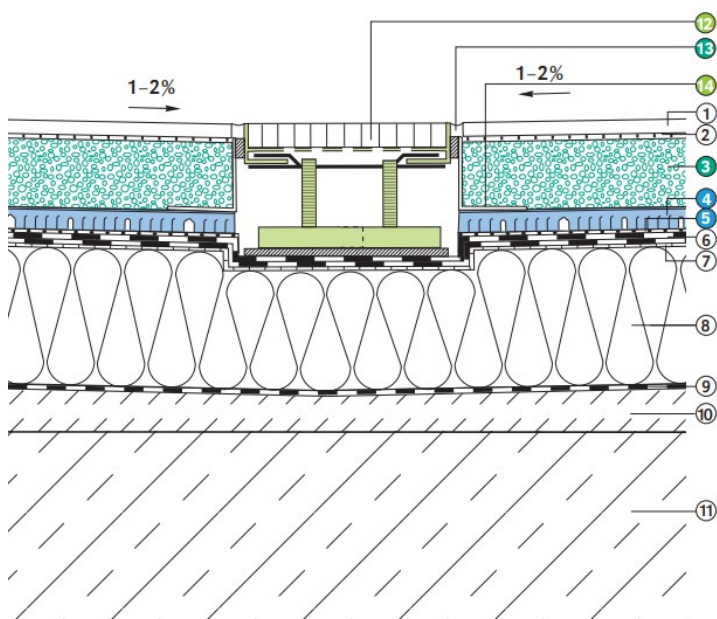
Low door connection with drain grate  
Covering with leveling layer  
on AquaDrain T+®

- 1 Covering, e.g. concrete/natural stone slabs, also ceramic elements
- 2 Edge support made of bedding material and additional binding agent, such as **MorTec DRAIN-EP®**
- 3 Bedding layer made of clean, lime-free material (high-grade chippings/fine gravel, e.g. 1-3 mm, 2-5 mm or 4-8 mm grain size)
- 4 **AquaDrain® T+** drainage mats (8 or 16 mm)
- 5 **AquaDrain® TR**, separating layer with integrated mesh reinforcement, in accordance with DIN 18531, Part 2
- 6 Waterproofing in accordance with DIN 18531, e.g. plastic waterproofing membranes
- 7 Wall finish with composite sheet, screwed on
- 8 If required: Vapor pressure equalization layer
- 9 Pressure-resistant thermal insulation, applied to the substrate without cavities. Compressive load capacity  $\geq 120$  kPa (if the recognized rules of technology require a higher value, this applies)
- 10 Vapor barrier
- 11 Reinforced concrete ceiling
- 12 **AquaDrain® FLEX** drain grate, height-adjustable
- 13 Load-distributing intermediate plate
- 14 Elastic joint made of neutral cross-linking sealant, e.g. **MorTec® SOFT**, on **AquaDrain® SL** joint tape
- 15 **AquaDrain®** Perforated angle bracket



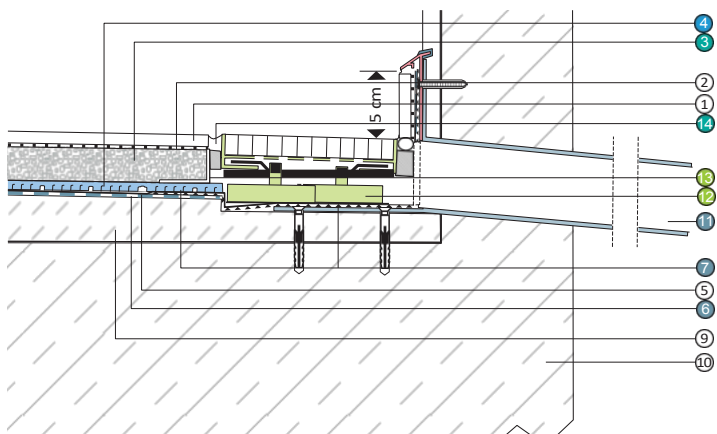
Barrier-free door connection  
to DIN 18 040, sill-free, with sloping,  
adjustable drainage grating covering on  
single-grain mortar with capillary-breaking  
surface drainage

- 1 Natural/concrete stone flooring
- 2 Bonding bridge/contact layer, fully serrated
- 3 Sufficiently load-bearing load distribution layer of single-grain mortar ( $d \geq 50$  mm)
- 4 **AquaDrain® EK** Drainage mats (8 or 16 mm), slats laid in gradient direction
- 5 **AquaDrain® TR**, separating layer with integrated Mesh reinforcement, according to DIN 18531, part 2
- 6 **DiProtec®** KSK Bitumen cold self-adhesive membrane, alternatively **DiProtec® SDB** Plastic quick sealing membrane
- 7 **DiProtec®** KSK-AB Sealing tape
- 8 Balcony cantilever slab on a slope
- 9 **AquaDrain® BF-Flex** drainage grating, adjustable angle of inclination
- 10 Elastic joint made of neutral cross-linking sealant, e.g. **MorTec® SOFT**, on **AquaDrain® SL** joint tape
- 11 **AquaDrain®** Perforated bracket on drainage
- 12 Isokorb



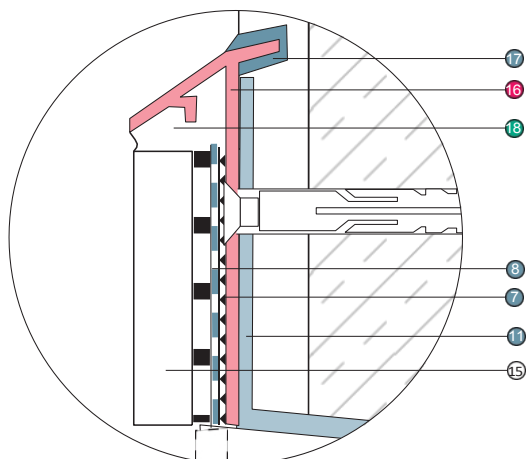
**Linienentwässerung mit Drainrosten  
Bodenbelag auf Einkornmörtel mit  
Drainung**

- 1 Fliesen- oder Plattenbelag
- 2 Dünnbettmörtel bzw. Kontaktschicht
- 3 Einkornmörtel, z. B. **MorTec® DRAIN-ZE**
- 4 **AquaDrain®** EK Drainagematten (8 oder 16 mm)
- 5 **AquaDrain®** TR, Trennlage mit integrierter Gitter-Armierung, gem. DIN 18531, Teil 2
- 6 Abdichtungen nach DIN 18531, z. B. Bitumenschweißbahnen
- 7 Wenn erforderlich: Dampfdruckausgleichsschicht
- 8 Druckfeste Wärmedämmung, hohlkugelfrei auf dem Untergrund aufgebracht. Druckbelastbarkeit  $\geq 120$  kPa (falls die anerkannten Regeln der Technik einen höheren Wert fordern, gilt dieser)
- 9 Dampfsperre
- 10 Gefälleverbundestrich
- 11 Stahlbetondecke
- 12 **AquaDrain®** FLEX Drainrost - höhenverstellbar - auf lastverteilernder Zwischenplatte
- 13 Elastische Fuge aus neutral vernetztem Dichtstoff, z. B. **MorTec®** SOFT, auf **AquaDrain®** SL Fugenband
- 14 **AquaDrain®** Lochwinkel



**Line drainage in front of parapet/attic**

- 1 Slab covering
- 2 Bonding bridge or contact layer, toothed over the entire surface
- 3 Load distribution layer made of **MorTec® DRAIN-EP**, thin-layer single-grain mortar system (min. 25 mm)
- 4 **AquaDrain®** EK Drainage mats (8 or 16 mm)
- 5 **AquaDrain®** TR, separating layer with integrated mesh reinforcement, in accordance with DIN 18531, Part 2
- 6 **DiProtec®** SDB Plastic quick sealing membrane
- 7 **DiProtec®** FLK Liquid plastic waterproofing in the area of linear drainage
- 8 **DiProtec®** AB-V sealing tape
- 9 Gradient bonded screed
- 10 Balcony cantilever slab
- 11 **DiProtec®** DRAIN BR Parapet spout
- 12 **AquaDrain®** Flex grating, height-adjustable
- 13 **AquaDrain®** Perforated angle bracket
- 14 Elastic joint made of neutral cross-linking sealant, e.g. **MorTec®** SOFT, on **AquaDrain®** SL joint tape
- 15 Skirting tile on thin-bed mortar
- 16 **ProFin®** SP skirting profile
- 17 **DiProtec®** FIX-MSP special sealant
- 18 Elastic joint made of neutral cross-linking sealant, e.g. **MorTec®** SOFT



## Material

### AquaDrain® FLEX Drainage grating

Steel/hot-dip galvanized, frame height: 38 mm, with integrated dirt grille ■ -

GV, grating support with mesh width 30/10 mm

Frame width: 100, 150, 200 mm

Stainless steel, electropolished, material no. 1.4301, frame height: 35 mm, with integrated dirt grille ■ -

GE, grating support with mesh width 30/10 mm

Frame width: 100, 150, 200 mm

■ -PE, profile design grating support glass bead blasted, distance between profile bars: 5 mm

Frame width: 100, 150, 200 mm

■ -QE, square design grating support with hole width 8 x 8 mm, ground, with protective film

Frame width: 100 mm

■ -SL, Shadowline grating support Flat bars with effective iridescent, anthracite-colored flanks, distance

between flat bars: 5 mm

Frame width: 100, 150 mm

■ -BE, covering support, for on-site installation of ceramic, natural stone or wood

The decking support frame simultaneously forms 1 slotted channel 10 mm wide on each side.

Width for covering to be inserted = 117 mm, height = 15 mm (frame OK flush). Thicker covering materials are possible without any problems.

Frame width: 150 mm

## System accessories

AquaDrain® Perforated angle bracket, formwork support

■ 50/70 mm x 1,000 mm, made of high-quality plastic

■ XS: 30/40 mm x 1,000 mm, made of sendzimir galvanized steel + plastic coating

■ XL: 120/150 mm x 1,000 mm, made of sendzimir galvanized steel + plastic coating

AquaDrain® FLEX End cap, for drain grates, electropolished, stainless steel no.

1.4301 ■ 100 mm, ■ 150 mm, ■ 150 mm

AquaDrain® SL Joint tape, self-adhesive, pre-compressed special tape ■ Roll

of 2.55 m, thickness 3-15 mm

AquaDrain® Swivel foot, standard, thread M12, no. 1.4301 stainless steel and hot-dip

galvanized ■ Standard: 60 mm height, foot diameter 7 x 75 mm

■ XL: 135 mm height, base diameter 14 x 75 mm

AquaDrain® Swivel foot, standard, thread M12, stainless steel no.

1.4301 ■ 2XL: 135 mm height, foot diameter 20 x 75 mm

AquaDrain® BF-KD Ball head swivel foot, thread M12, stainless steel no. 1.4301, foot diameter 20 x 80 mm ■

Standard: 70 mm height, ■ XL: 135 mm height,

AquaDrain® FLEX Slider plate, galvanized steel with additional sliding coating,

thickness installed in drain grate = Ø 4 mm

■ 100 mm, ■ 150 mm, ■ 200 mm

## System components

Surface drainage for unbound pavement beddings made of grit/gravel

■ AquaDrain® T+, ■ AquaDrain® T25, ■ AquaDrain® HU,

Surface drainage for bonded pavement bedding made of single grain/drain mortar

■ AquaDrain® EK, ■ AquaDrain® HU-EK,

Drain laying systems for point/stilt bearing construction and frame systems

■ TerraMaxx® PF, ■ TerraMaxx® DS, ■ TerraMaxx® TSL, ■ TerraMaxx® RS ceramic, ■ TerraMaxx® RS plank

The information contained in this technical data sheet is based on our careful investigations and our experience. The many substances and materials used in the overall construction as well as the different building site and processing conditions cannot be checked or influenced by us in detail. Specialist knowledge, correct professional judgment and the correct use of products are the basis for permanently reliable construction work. In case of doubt, you should carry out your own tests or seek technical application advice. In addition to the information in this technical data sheet, the relevant rules and regulations of the responsible organizations and trade associations as well as the respective national standards for the work to be carried out must be observed. With the publication of this technical data sheet, all previous data sheets lose their validity.

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The currently valid versions of the technical data sheets and the current installation instructions can be found at <https://www.gutjahr.com/downloads/>



Sicher besser.

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