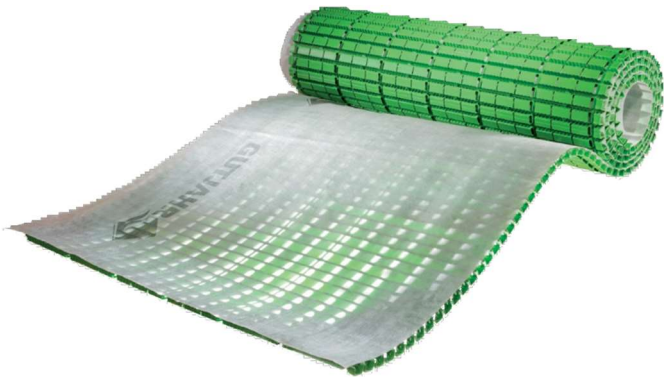
Aqua Drain® T+

Technical data sheet

Capillary Passive SURFACE DRAINAGE

For loose laying of pavements on gravel/chippings and as a basis for spot fixing in the TerraMaxx® PF laying method.



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PP

The combined support, drainage, filtration and protection system for direct or indirect laying of loose outdoor pavements.

Application area

Accessible outdoor surfaces in private and public areas, such as (roof) terraces and balconies.

Topping types

Suitable coverings are those that are praised by the covering manufacturer for the respective area of application and the respective type of covering installation.

Substrates

- Bonded substrates, concrete surfaces with or without waterproofing
- Old tiles, old coatings

Features

- High-performance, capillary-breaking surface drainage system
- Special nonwoven with low flow resistance
- Compensates for the insufficient water drainage capacity of unbound levelling layers
- Ensures drainage in all directions
- Reduces rising stagnant moisture
- Ensures fastest possible drying of pavement and bedding layer (gravel/split bedding)
- Bridges puddle formation within the drainage mats
- Temperature resistance: -30 °C to +70 °C
- Ensures backwater-free drainage of drainage grates at low or barrier-free door connections, according to DIN 18531-1:2017-07, 6.8

Load capacity

Area loadable up to 2,000 kg/m²; not trafficable

Impact sound improvement

Up to +33 dB

Drainage services

Gradient	100 %	10 %	1,5 %
AquaDrain® T+ 8 mm	5,04	1,51	0.53 l (m*s)
AquaDrain® T+ 16 mm	10,33	3,16	1.17 l (m*s)

System accessories

- AquaDrain® UB universal tape, covers head end lugs (without fleece overhang)
- AquaDrain® RD edge insulation strip with self-adhesive foot, covers connections to rising components (walls, profiles, etc.), prevents force-fit clamping of the covering
- AquaDrain® TR reinforced separating layer, PE film with integrated mesh reinforcement for better flatness, laid directly as a sliding layer on PE-compatible waterproofing levels, according to DIN 18531-2:2017-07, 5.4;
- AquaDrain® FF Fugenfix - spacer for narrow joints of pavement slabs

Delivery form

Roll: 1 m x 10 m
plus 5 cm fleece overhang on the long side

Notes on transport and storage

On the long side of the AquaDrain® T+ rolls, the special fabric protrudes 5 cm. Rolls must not be stored on this edge. The products must be protected from sunlight and moisture during storage and transport.

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Technical data sheet

Substrates

Bonded substrates

- Concrete, screed
- No direct laying on gravel substrates

Insulations

- Compression-resistant thermal insulation, applied to the substrate without hollow layers and, as far as possible, not resilient or compressible.
- Pressure load capacity ≥ 120 kPa (if the generally accepted rules of technology require a higher value, this applies)

Waterproofing

- All types of waterproofing in accordance with DIN 18531, Parts 1 to 5 are permissible.
- DiProtec® SDB, plastic rapid sealing membrane
- DiProtec® KSK, bitumen cold self-adhesive membrane
- AquaDrain® surface drainage meets the requirement for the use of protective layers on waterproofing levels according to DIN 18531-2:2017-07, 5.7 ("Substances for protective layers")
- Separation layers according to DIN 18531-2:2017-07, 5.4, may be required on waterproofing planes, e.g. PE film ≥ 0.2 mm, glass fleece. ≥ 150 g/m². AquaDrain® TR, separating layers with integrated grid reinforcement meet this requirement.

Subsoil slope

Water lenses on the subgrade level may only be partially present. In order to reliably prevent rising moisture into the pavement bedding level (capillary break), the drainage mats should be 4 mm thicker than the water puddle depth.

- The subgrade slope should be ≥ 1.0%.
- Slope formations > 2.5 % may require slip protection to be dimensioned on site, especially at free and open edge areas.
- Slope formations < 1% favor standing water on the subgrade.
  - They have higher flatness requirements to eliminate counter slopes.
  - They can have a negative effect on the pavement structure, z. e.g. prolonged moisture stains in natural and artificial stone and frost action in the pavement structure.
- Barrier-free door connections and transitions must always be designed with a minimum gradient > 1.0 %.

Processing instructions

Laying the drainage mat

1. AquaDrain® TR, lay separating layers on the waterproofing level over the entire surface with an overlap of 5 cm. Drainage slot openings on drain termination profiles must not be covered by separating layers.
2. AquaDrain® T+ rolls are installed with the fleece side facing up. Preferably, the drainage channels point in the main vessel direction.
3. The longitudinally overlapping fleece lamination covers joint areas between the sheets so that no substances (chippings/gravel levelling layer, dirt particles) can get into the drainage channels.
4. Join areas of attached partial surfaces without longitudinal overlap as well as the head ends of the mat joints are covered and connected with the self-adhesive AquaDrain® UB universal tape.
5. AquaDrain® T+ must be installed with an 8-10 mm movement joint to all rising structural components. To ensure freedom of movement of the subsequent covering structure and as protection against material ingress behind/underneath the surface drainage, the AquaDrain® RD edge insulation strip with self-adhesive foot must be glued onto AquaDrain® T+. The perforation of the self-adhesive foot guarantees the permeability of seepage water into the surface drainage.

During the work, protect the drainage in the area of transport routes, etc. with boards/shuttering panels.

Edge profiles at free pavement edges

Type and application can be found in the corresponding product links.

Drainage end profiles for already existing waterproofing

- ProFin® V22, V55
- ProFin® KL60, KL80, KL-H 61/92, KL-H 92/150

Drainage and eaves termination profiles with waterproofing still to be installed

- ProFin® DP11, 17, 21 base profiles in combination with ProFin® BL24, 49, 69 clip-on panels
- ProFin® DP30
- ProFin® RA

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Drain grates for low or barrier-free door connections

- AquaDrain® FLEX
- AquaDrain® BF-FLEX
- AquaDrain® KR, KR-U box drain system
- AquaDrain® DR drain grates

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Laying the covering

- As a rule, bedding layers must be installed for laying the pavement. Direct laying is possible. Chippings/gravel layers must be free of lime and fines that can be washed out.
- Depending on the design of the covering edges, joint crosses are required by the manufacturer for loose laying. The use of AquaDrain® FF Fugenfix meets the requirements.
  The molded-on, perforated bottom stabilizes the spacer and prevents the joint crosses from moving up out of the joint chambers.

Suitable coverings and recommended levelling layer t h i c k n e s s e s

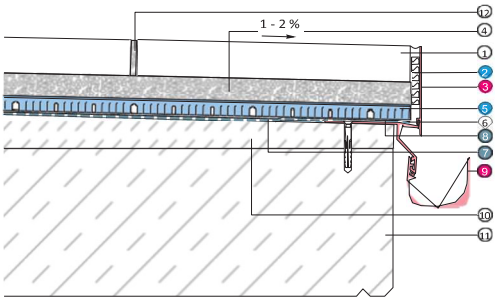
- Suitable coverings for loose pavements are
- Details of pavement formats and bedding layers are given in the table below:

Bedding material	suitable bedding layer material = as clean as possible, lime-free chippings/gravel with appropriate grain size - 1/3 mm chippings/gravel (bedding layer height 15-30 mm) - 2/5 mm chippings/gravel (bedding layer height 30-60 mm) - 4/8 mm chippings/gravel (bedding layer height 50 mm and thicker)	
Covering material	Minimum bedding layer height above drainage mat Substrate or waterproofing unevenness up to	
	2 mm	4 mm
Natural stone slabs min. 40/40/3 cm	15	30
Cinder block slabs min. 40/40/4 cm	15	30
Ceramic elements min. 40/40/3,5 cm (extruded ceramic)	20	35
Ceramic elements min. 60/60/2 cm (porcelain stoneware)	30	40
Natural/concrete block paving min. 20/10/6 cm	30	40

Excerpt from ZDB leaflet "Decking structures with tiles and slabs outside buildings" "3. Decking structures on gravel/chippings layer: Loosely laid elements/slabs in chippings and gravel may teeter, wobble or shift to a limited extent. This does not constitute a defect." Substrates with insulation layers favor "springy" coverings, depending on the strength and support, these properties compensate each other.

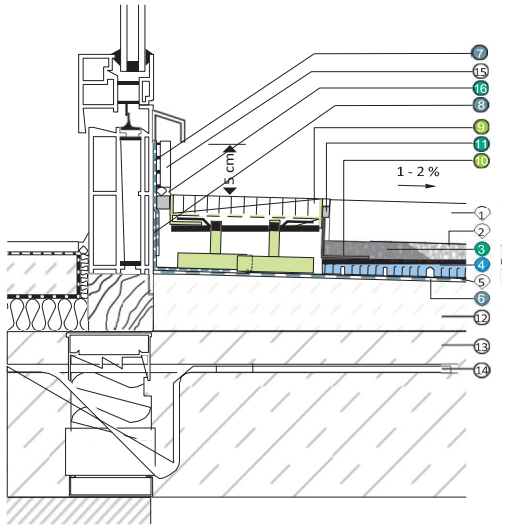
Planning details

Balcony edge with edge trim profile, covering laid directly on AquaDrain® T+.



1. Tile covering of natural/concrete stone
2. AquaDrain® RD Edge Insulation Strip
3. ProFin® DP base profile + ProFin® BL slip-on screen
4. Bedding layer of clean, lime-free material (high-grade chippings/fine gravel e.g. in grain size 1-3 mm, 2-5 mm or 4-8 mm)
5. AquaDrain® T+ drainage mats (8 or 16 mm)
6. AquaDrain® TR, separating layer according to DIN 18531 Part 2
7. DiProtec® KSK cold self-adhesive membrane, alternatively DiProtec® SDB rapid sealing membrane
8. DiProtec® AB Sealing Tape
9. ProRin® BR Balcony Gutter
10. Sloped bonded screed
11. Balcony cantilever slab
12. Joints filled with e.g. sharp washed sand (without fines).

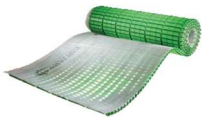
Low door connection with drainage grate and loose covering on AquaDrain® T+.



1. Tile covering of natural/concrete stone
2. Bedding layer of clean, lime-free material (high-grade chippings/fine gravel e.g. in grain size 1-3 mm, 2-5 mm or 4-8 mm)
3. Edge support made of bedding material and additional binder, z. e.g. MorTec® DRAIN-EP
4. AquaDrain® T+ drainage mats (8 or 16 mm)
5. AquaDrain® TR, separating layer according to DIN 18531 Part 2
6. DiProtec® KSK cold self-adhesive membrane, alternatively DiProtec SDB quick sealing membrane
7. DiProtec® AB Sealing Tape
8. DiProtec® KSK-AB Waterproofing Tape
9. AquaDrain® Flex Grate, height adjustable
10. AquaDrain® perforated angle
11. elastic joint made of neutrally cross-linking sealant, z. e.g. MorTec® SOFT, on AquaDrain® SL joint tape
12. Gradient bonded screed
13. Balcony cantilever slab
14. Isokorb
15. Skirting tile in thin bed mortar
16. elastic joint made of neutrally cross-linking sealant, z. e.g. MorTec® SOFT, on round cord

System accessories

AquaDrain® T+	AquaDrain® UB	AquaDrain® RD Edge	AquaDrain® FF	AquaDrain® TR, separating layer with integrated mesh reinforcement
Rolls 8/16 mm	Universal belt	Insulation Strip with SK Foot	Fugenfix	



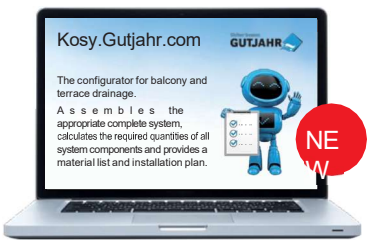


Material

AquaDrain® T+ drainage rolls
consist of channel-like, longitudinal and transverse as well as upper and lower side profiled, pressure-resistant, rot-proof plastic (PP) in 8 and 16 mm thickness special fabric with low flow resistance

- Special fabric laminated on top
- Special fabric resistant to tearing from unbound chippings

You can find more components for the complete systems you can execute with AquaDrain® T+ by scanning the QR-CODE or in the current price list.



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