BUILDING COMMON GROUND

MAX FRANK®

Metal waterstop Fradiflex®
FAQ

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All concrete structures adjacent to the ground must be sealed against moisture, seepage or pressurized water. Our Fradiflex® metal waterstop system meets all requirements for the sufficient sealing of water-impermeable structures. The flexible special coating bonds with the concrete, creating an adhesive barrier seal that prevents water from circulating. The system can be used for the reliable sealing of construction and predetermined crack joints in in-situ concrete construction and within element walls.

Advantages

- More safety due to less splicing (roll)
- Simple position protection due to fixing angle
- Tested up to 5.0 bar water pressure (usable according to ETA and General Building Test Certificate up to 2.0 bar)
- No welding required at all joints
- Fast installation thanks to two fixing points (crack inducing elements)
- Rigid crack inducing elements (self-supporting and easy to place)
- European Technical Assessment (ETA)
- German National Approval

Which approvals are available for Fradiflex® metal waterstop system?

- AbP as a joint sealing for structural elements made of concrete with high water penetration resistance
- ETA with CE marking

Can the Fradiflex® metal waterstop system be used in reinforced concrete components in contact with the groundwater?

Yes, see proof of usability (ETA, abP).

How long is the ETA valid?

The ETA is valid for an unlimited period.

Can the Fradiflex® metal waterstop system be used in accordance with the WU guideline?

Yes, Fradiflex® meets the requirements of the WU guideline regarding the usability of metal waterstops (10.1 Application rules). Verification by a functional test performed by the Technical University of Munich in accordance with PG-FBB. The usability explicitly applies to all stress classes (soil moisture, water freely running off the wall, permanently or temporarily pressing water) and all use classes.

Are crack widths limited to wk = 0.25 mm for the Fradiflex® product family?

No, functional tests were performed with crack widths up to wk = 1.0 mm.

Why is the crack width of a construction joint for Fradiflex® limited to wk = 0.25 mm in the abP?

The test principles (PG-FBB) are based on different crack widths depending on use and installation location. For construction joints, the test is performed with wk = 0.25 mm, element wall joints with wk = 0.5 mm and in-situ concrete crack joints with wk = 1.0 mm. Fradiflex® has successfully passed all functional tests according to PG-FBB.

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Is there an approval for the use in LAU[1] plants?
No, in facilities for handling substances hazardous to water, requirements from both building law and water law must be met. The existing usability certificates do not currently cover this matter holistically.

Is there an approval for drinking water plants?
Fradiflex® metal waterstop system has been tested and approved in the UK for use in drinking water applications. See WRAS test certificate. A German test certificate according to DVGW is not available. Since the metal waterstops do not come into contact with drinking water when installed correctly, their usage lies within the field of decision of the end user.

What pressure was used to test the system?
The system was tested at 5.0 bar (50 m water column), according to abP / ETA 2.0 bar (safety factor 2.5).

Are thinner stainless-steel metal waterstops (0.5 mm) equivalent to standard metal waterstops (0.6 mm)?
Due to its high corrosion resistance, high strength and higher chemical resistance, the stainless steel sheet is of higher quality in terms of functionality and basic properties than a 0.6 mm thick galvanized steel sheet. A separate test is therefore not required.

Are there hazardous substances in the Fradiflex® coating?
No, according to the REACH Regulation (Regulation 1907/2006/EC), the components of the coating are classified as non-hazardous and do not require labeling according to the CLP Regulation (Regulation 1272/2008/EC). Furthermore, the coating does not contain any SVHC substances (Substances of Very High Concern). Volatile organic hydrocarbons (VOC`s) less than 0.3 % according to regulation CH814.018 = 0 %.
Further information: see technical data sheet

Why should the metal waterstops be fixed and at what intervals should they be fixed to the component?
The metal waterstop must be fixed to the reinforcement in a way that it is secured in position during concreting (compliance with the minimum embedment depth of 30 mm). When using Fradiflex® Premium with fixing angle, no additional mounting brackets are required; we recommend fixing the angle every 30 - 40 cm. In the case of the Fradiflex® Premium variant without fastening angle, a mounting bracket secures the metal waterstop in its position every approx. 60 cm.

What must be the minimum distance between the metal waterstop and the reinforcement?
In order to ensure that the metal waterstop is fully encased in concrete and thus functions correctly, a distance to the reinforcement of at least 3 x diameter of maximum grain size should be planned (e.g. concrete with grain Ø 8 mm → distance min. 24 mm).

Is a metal waterstop with height 80mm allowed in the wall/head area?
Yes as the embedment depth of 30 mm must be guaranteed in the same way. For metal waterstops < 100 mm, the safety factor increases from 2.5 to 5, resulting in a maximum water pressure of 1 bar (10 m water column).

Are prefabricated Fradiflex® metal waterstop corners mandatory for proper execution of the waterproofing?
The utilisation of our Fradiflex® metal waterstop in the corners when sealing the floor slab-wall joint in combination with element walls is mandatory. This is the only way to create a functioning connection with the Fradiflex® crack corner. For all other application cases the use of Fradiflex® is not mandatory.

Where in the wall cross-section should the metal waterstop be installed?
The metal waterstop should be located as centrally as possible in the wall (core area), but under no circumstances in the pressurized water area (0 to 25 mm) (cf. DAfStB "WU Guideline" + Explanation 555

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"Moisture transport model"). The distance from Fradiflex® to the nearest component edge (for element walls to the inside of the shells) is at least 3 times the maximum grain diameter d_g and ≥ 50 mm.

What chemicals is the metal waterstop resistant to?
Our Fradiflex® metal waterstop system is generally resistant to many media. You will find a detailed list in the resistance table.

How long does the coating remain functional after the protective film is removed?
The protective film protects the coating from dirt, dust and during concreting from unwanted concrete splashes. After removal of the film, the coating should not be exposed to the weather for more than 7 days.

At what temperatures is the Fradiflex® metal waterstop functional?
Processing temperature: -10 °C to 50 °C
Temperature resistance: -25 °C to 60 °C
Storage temperature: > 0 °C to +35 °C, protected from moisture

How should the overlap joint be executed for coated metal waterstops?
It is recommended that the overlapping joint of the Fradiflex® metal waterstop is at least 10 cm. In individual cases, however, this can be reduced to > 5 cm. In any case the utilisation of system-compliant Fradiflex® clamping brackets is mandatory to secure the joint.

How is the connection to joint tapes made?
With the Fradiflex expansion joint connector, joint tapes can be tightly connected to the Fradiflex metal waterstop system.

Is there a DGNB/LEED certification for Fradiflex®?
No, sustainability certifications such as DGNB or LEED ALWAYS refer to the life cycle of a building component or structure and never to a building product.
However, there are certificates for building products themselves that summarize the most important material characteristics and product data with regard to the respective certification model.
We provide these for DGNB and LEED via the "Building Material Scout" platform.

If you have any questions about installation, please also refer to the installation instructions at www.maxfrank.com.