

European Technical Assessment

Fradiflex[®]

ETA-15/0914 | 07.03.2016 | english

Tested by: DIBt, Berlin

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-15/0914
of 7 March 2016

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

FraDiflex metal water stop

Product family
to which the construction product belongs

Single or double sided coated metal water stop sheet for
construction and controlled crack joints in waterproof
concrete

Manufacturer

Max Frank GmbH & Co. KG
Mitterweg 1
94339 Leiblfing
DEUTSCHLAND

Manufacturing plant

Max Frank GmbH & Co. KG
Mitterweg 1
94339 Leiblfing
DEUTSCHLAND

This European Technical Assessment
contains

9 pages including 4 annexes which form an integral part
of this assessment

This European Technical Assessment is
issued in accordance with Regulation (EU)
No 305/2011, on the basis of

European Assessment Document
(EAD) 320002-01-0605

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Page 2 of 9 | 7 March 2016

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Specific Part

1 Description of the product

The single or double sided coated metal water stop "FraDiflex" consist of the following components:

- Galvanized metal sheet with the dimensions:
h = 120 mm or 150 mm, t = 0.6 mm or 1.5 mm
- coating on the basis of a thermoplastic elastomer

For installation purposes the water stop is delivered with a protective foil on the coating. Furthermore there are holders for fixing the water stop during installation and clamps for fixing the overlapping joint between the ends of the water stop.

There are the following types of products:

- FraDiflex Standard - single side coated, t = 0.6 mm – for construction joints
- FraDiflex Premium - double side coated, t = 0.6 mm – for construction joints
- FraDiflex Standard with mounting angle - single side coated, t = 0.6 mm – for construction joints
- FraDiflex Premium with mounting angle - double side coated, t = 0.6 mm – for construction joints
- FraDiflex Controlled crack joint - t = 1.5 mm for controlled crack joints in in-situ concrete elements
- FraDiflex Pre cast element - t = 1.5 mm for controlled crack joints in pre-cast elements
- Stremaflex Controlled crack joint - t = 1.5 mm with stop end panel for working joints

Annex A shows the principles and performances of the product and furthermore the different types of products.

2 Specification of the intended use in accordance with the applicable European assessment Document

The water stop is used to seal joints in constructions made of concrete with high resistance to water (watertight concrete) against the penetration of pressing and un-pressing water (e.g. ground water) and to soil moisture.

There are the following classes of intended use:

- a) Construction joints
- b) Controlled crack joints for the use in pre-cast elements made of concrete
- c) Controlled crack joints for the use in in-situ concrete

The performances given in Section 3 are only valid if the water stop is used in compliance with the specifications and conditions given in Annex B.

The verifications and assessment methods on which this European Technical Assessment is based lead the assumption of working life of the water stop of 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

3.1 Mechanical resistance and stability (BWR 1)

Not applicable

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	See Annex A1

3.3 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Content of dangerous substances:	The chemical composition of the product has to be in compliance with the composition deposited at the Technical Assessment Body (DIBt). The product does not contain dangerous substances > 0,1 wt-% according to EOTA TR 034 (version October 2015) In the coating: A raw material labeled with Aquatic chronic 3, H412 content 2,3 wt. %
Watertightness in end use conditions	See Annex A1

3.4 Safety and accessibility (BWR 4)

Not applicable

3.5 Protection against noise (BWR 5)

Not applicable

3.6 Energy economy and heat retention (BWR 6)

Not applicable

3.7 Sustainable use of natural resources (BWR 7)

For the sustainable use of natural resources no performance was investigated for this product.

3.8 General aspects

The verification of durability and serviceability is part of testing the essential characteristics and by additional tests on the product respectively on the components:

Essential characteristic	Performance
Bondstrength at state of delivery	See Annex A1
Bondstrength after heat aging	See Annex A1
Volatile compounds (Lost of weight)	See Annex A1

The verification of durability and serviceability is only ensured if the specifications of intended use according to Annex B and the specifications of the technical file of the manufacturer are kept.

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

According to Decision of the Commission of 25 January 1999 (99/90/EC) (OJ L 29/38 of 03.02.1999) amended on 8 January 2001 (2001/586/EC) (OJ L 209/33 of 02.08.2001) the system of assessment and verification of constancy of performance (see Annex V and Article 65 Paragraph 2 to Regulation (EU) No 305/2011) given in the following table applies.

Product	Intended use(s)	Level or class	System
Coated Metal water stop sheet	For building works	-	3
	For uses subject to regulation on reaction to fire	E	3

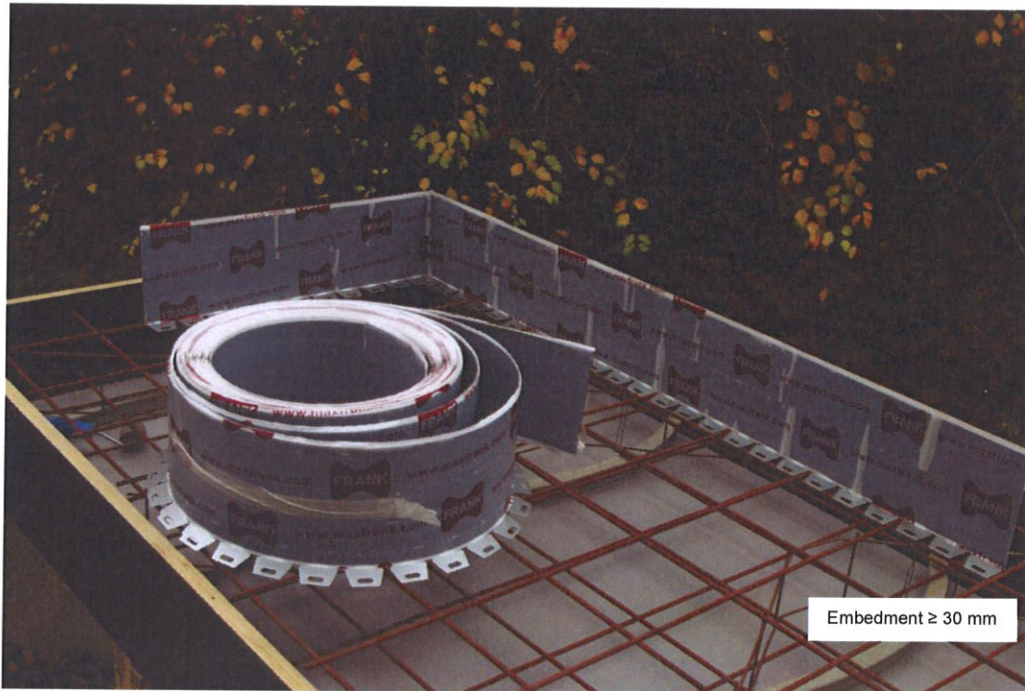
5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Deutsches Institut für Bautechnik.

Issued in Berlin on 7 March 2016 by Deutsches Institut für Bautechnik

Uwe Bender
Head of Department

beglaubigt:
Hemme



Coated metal water stop " FraDiflex Premium with mounting angle" - double side coated
– for horizontal construction joints

Performance of the product:

Reaction to fire acc. to EN 13501-1	Class E
Use category related to BWR 3	S/W 2
Content and/or releases of dangerous substances	see section 3.3
Watertightness in end use conditions All types, see Annex A2	up to 20 m
Bondstrength at the state of delivery	> 0.91 N/mm ²
Bondstrength after heat aging	pass (< 20 %)
Volatile compounds	pass (< 3 %)

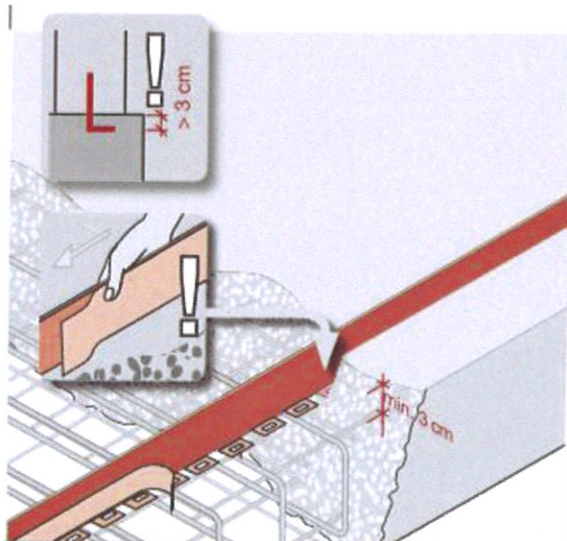
FraDiflex metal water stop
Max Frank GmbH & Co. KG

System built-up, use categories and performances of the product

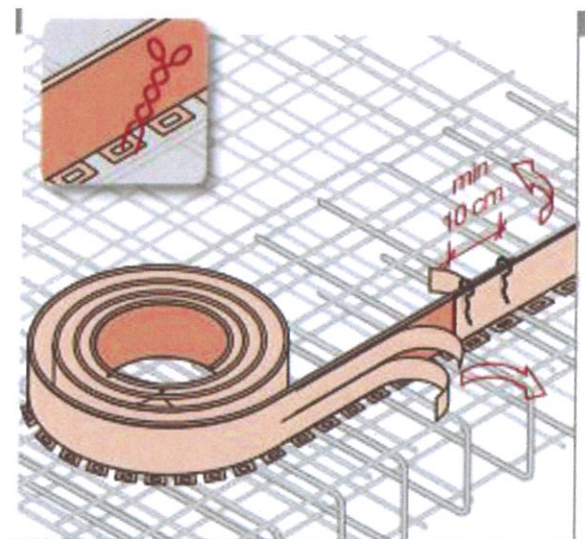
Annex A1

Types of Product	Coated sides	t [mm]	h [mm]	l [m]	Use scenario
FraDiflex Standard	1	0.6	120 150	2.1 or 25 as coil	construction joints
FraDiflex Premium	2	0.6	120 150	2,1 or 25 as coil	
FraDiflex Standard with mounting angle	1	0.6	120 150	25 as coil	construction joints
FraDiflex Premium with mounting angle	2	0.6	120 150	25 as coil	
FraDiflex Controlled crack joint in pre cast element	2	1.5	150	2.5 3.0	controlled crack joints in pre-cast elements
FraDiflex Controlled crack joint in pre cast element / edge	2	1.5	150	2.5 3.0	controlled crack joints in pre-cast elements for edges
FraDiflex Controlled crack joint in in-situ concrete	2	1.5	150	2.5 3.0	controlled crack joints in in-situ concrete
Stremaflex Controlled crack joint	2	1.5	150		with stop end panel for working joints and controlled crack joints in in-situ concrete

Embedment:



Overlap:

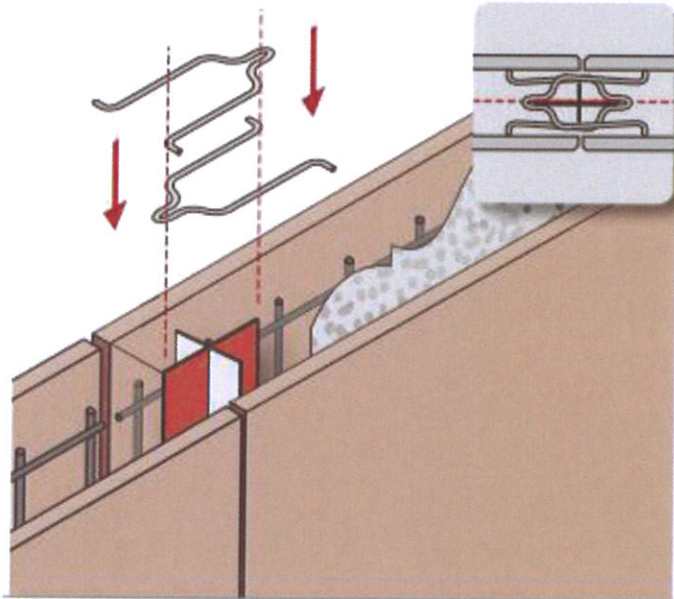


FraDiflex metal water stop
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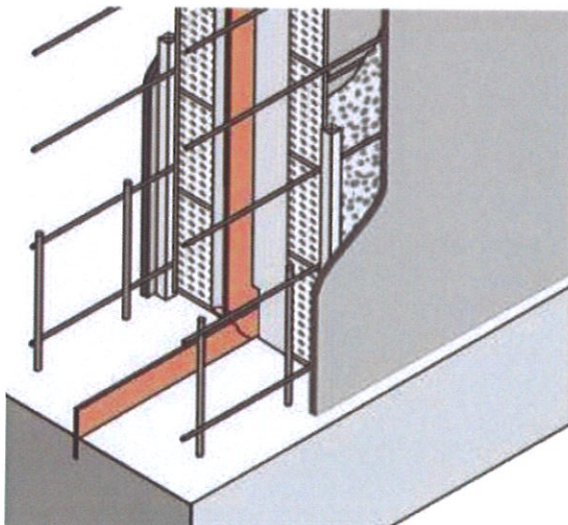
Description of equipment

Annex A2

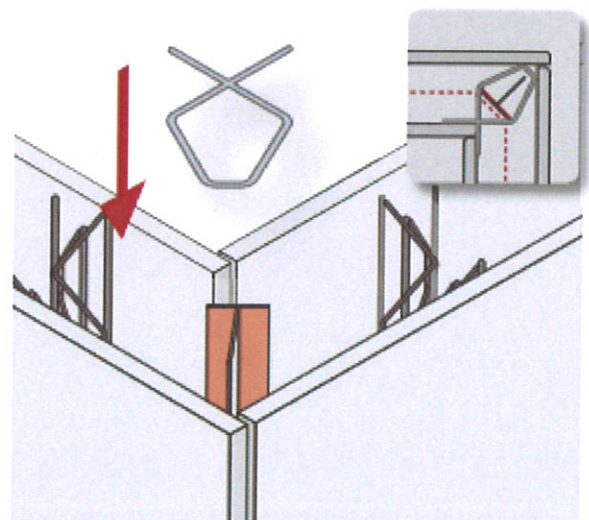
FraDiflex Controlled crack joint in pre cast element edge



Fradiflex Stremaflex Stop end panel



FraDiflex Controlled crack joint in pre cast element edge



FraDiflex metal water stop
Max Frank GmbH & Co. KG

Description of equipment

Annex A3

Installation

The levels of use categories and the performance of the waterproofing product can be assumed only, if the installation is carried out according to the installation instructions stated in the technical file of the manufacturer, in particular taking account of the following points:

- Installation by appropriately trained personnel
- Installation of only those components which are specified as components of the products
- Installation with the required tools
- Inspecting the substrate surface and the joint surface for cleanliness and correct treatment

- During storage and installation the water stop must be protected from excessive warming.
- The water stop is generally located in the center of the construction joints respectively crack control sections.
- The embedment in the concreting steps must be at least 30 mm.
- The distance between water stop and the edge of the construction element must be at least 50 mm respectively at least three times of maximum grain size.
- The water stop has to be attached with variable retaining clips on or at the reinforcement. During concreting the water stop should not move and should not float.
- The overlapping between the water stops is at least 100 mm. After removing the protective foil, the water stops are pressed tightly together. Finally, overlapping has to be secured with the joint clips.
- The protective foil should be removed just before concreting, because the coating has to be protected from pollution. The second part of the protection foil has to be removed earliest after the concreting of the first concreting step.

- Inspecting of position and fixing of the water stop during installation and of the finished installed water stop respectively after the 1. concrete step and documentation of the results.

FraDiflex metal water stop
Max Frank GmbH & Co. KG

Intended use
Specifications

Annex B