BPA WATERPROOFING SYSTEMS

CEMFLEX® VB STEEL PLATE WATERSTOP

„Active" steel plate waterstop with a patented special coating on both sides

PRODUCT DESCRIPTION

Steel Plate Waterstop CEMflex® VB consists of a galvanised steel plate (stainless steel on special request only) encapsulated in a special patented active coating which reacts with water and moisture when embedded in concrete to provide a watertight construction joint.

The steel plate creates a physical barrier whilst the CEMflex® active coating reacts with the alkalinity of any water in the concrete to form Calcium Hydroxide (Free Lime) which supports the natural self-healing (sintering) process of the concrete to seal cracks and eliminate water ingress. Only 3 cm of concrete cover on both sides are necessary to seal cold joints up to 8 bar (80 m water pressure).

The connection of the special coating to the concrete prevents any water-flow through the concrete construction joint.

APPLICATION AREAS

Steel Plate Waterstop CEMflex® VB functions as both an active and passive barrier to the transmission of water through all non-movement construction joints (both horizontal and vertical) in in-situ reinforced concrete. It can be used in pressurized, non-pressurized water, radon gas areas and substances hazardous to water (oil, gasoline, fuel, biogas, manure, slurry and silage effluent). As CEMflex® VB is only activated by the alkalinity of fresh concrete it may be installed in all weather conditions.

Areas of application:

- Construction and controlled crack joints in contact with pressurized and non-pressurized water
- Construction and controlled crack joints in contact with radon gas
- Construction and controlled crack joints in contact with substances hazardous to water
- Installation areas: wall/floor, wall/wall, floor/floor or wall/ceiling
- Joints between prefabricated components: wall/floor, wall/wall, corner joints, wall/ceiling and predetermined breaking points

FUNCTION – HOW DOES BPA CEMFLEX® WORK?

When fresh concrete is placed around CEMflex® VB Plate waterstop, the alkalinity (pH>11) of the concrete activates the patented coating producing a chemical reaction, causing the patented coating to soften and expand slightly, thus improving its osmotic effect. This allows it to penetrate deeply into any cracks in the concrete where it crytallises and seals the concrete. This means that limestone created by the CHP (Calcium Hydroxide Penetration) process penetrates deep into the capillaries of the concrete. The CEMflex coating generates microscopic needles and fibres fusing within the body of the concrete, sealing capillaries and shrinkage cracks reliably and permanently, whilst continuously displacing moisture for the lifetime of the structure. Unlike other systems the sealing process is multi directional. Without moisture, the components of the special coating do not react.

Once installed, the patented coating on CEMflex® VB Plate Waterstop has infinite sealing ability. Should water or moisture come into contact with the coating at any time in the future, the coating will re-activate and repeat the sealing process. In doing so, the crystallisation and fusion processes penetrate even deeper into the structure of the concrete.

WATERPROOF CONSTRUCTION

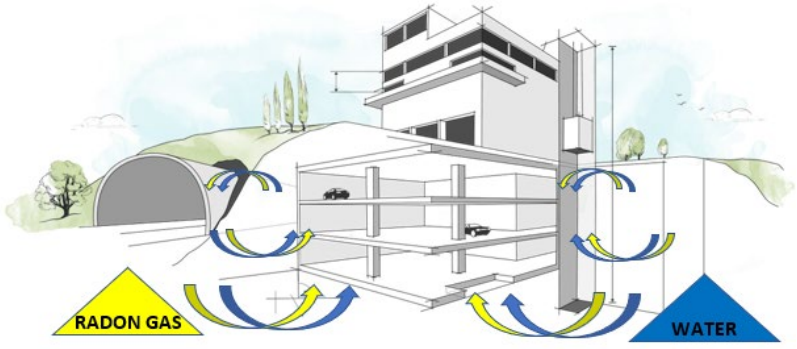
Unlike conventional crystallisation waterproofing the CEMflex® active process is a form of crystallisation that does not create any salts which could potentially have an adverse effect on the reinforcing steel which supports the concrete structure.

CHARACTERISTICS AND ADVANTAGES

- CEMflex VB Active Waterstop has been designed to provide the highest level of efficacy of any joint waterstop available whilst also being the simplest to fit
- Steel plate waterstop encapsulated in a 0,5mm thick special patented active coating on both sides with crystallization properties, which seals cracks in the concrete
- Independently tested for use up to 8 bar water pressure
- Excellent bond with the concrete
- Suitable for both vertical and horizontal applications
- Can be used in conjunction with other waterstop systems: PVC waterstops for movement joints, injectable hose systems or hydrophillic waterstops
- Life expectancy of 100 years
- In the event of water ingress the patented coating will reactivate at any time throughout the lifetime of the element
- Studies show up to 80% installation labour saving over traditional waterstops
- Simple design dramatically reduces the potential for poor installation or expensive remedial works
- Fully Weatherproof System- no premature activation of the coating on contact with rainwater
- Can be installed both pre and post pour
- No collapse or displacement of the waterstop when subjected to the weight of concrete poured from above
- No special installation tools required
- No sticky protection tape to be removed and disposed of from CEMflex VB Plate Waterstop prior to use
- Bonding the overlappings is not required (The overlapping has to be at least 5cm)
- No welding required
- Radon gas tight sealant for construction and controlled crack joints

APPROVALS

- CE - Conformité Européene by DIBt / ETA-16/0601
- DIBT Approval (abZ) / oil-, gasoline- and fuel-resistance test
- DIBT Approval (abZ) / MSS SF facilities[1] and biogas SF facilities[2]; tested up to 5 bar pressure
- BBA Agrément Certificate 15/5194
- Vattenfall Rapport PR.117.21; tested up to 8 bar water pressure
- Drinking Water Approval - DVGW Code of Practice W270 and W347
- iBMB (P-5147/258/09) General German Public Test Report (abP)
- The Public German Railway Authority – 80 years of service life
- Test report / Radon gas tight sealant for construction and controlled crack joints



[1] MSS SF facilities: storage and filling facilities for manure, slurry and silage effluent (Z-74.10-138)

[2] biogas SF facilities: (uncoated) storage and filling facilities for biogas (Z-74.101-188)

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PRODUCT DATA

	CEMflex VB	ARTICLE-NO
DIMENSIONS / DESCRIPTION	CEMflex VB 100; 2 m length, 100 mm high and 1.25 mm thick	13 - 110
	CEMflex VB 150; 2 m length, 150 mm high and 1.25 mm thick	13 - 100
	CEMflex VB 200; 2 m length, 200 mm high and 1.25 mm thick	On request
	CEMflex VB 250; 2 m length, 250 mm high and 1.25 mm thick	On request
	Special dimensions on demand	
FORM OF DELIVERY	CEMflex VB packed in wooden boxes with 50 pieces per box (100 m/box) Special quantities on demand	
STORAGE	should be stored in the original packaging on a sustainable ground, in dry conditions which are free from frost	

	CEMflex VB NG	ARTICLE-NO
DIMENSIONS / DESCRIPTION	CEMflex VB NG 70/30; 2 m length, 70 mm high, 30 mm angled, 90° angle, 1.25 mm thick	13 - 204
	CEMflex VB NG 120/30; 2 m length, 120 mm high, 30 mm angled 90° angle, 1.25 mm thick	13 - 200
	Special dimensions on demand	
FORM OF DELIVERY	CEMflex VB NG 70/30 packed in wooden boxes with 75 pcs. per box (150 m/box) CEMflex VB NG 120/30 packed in wooden boxes with 50 pcs. per box (100 m/box) Special quantities on demand	
STORAGE	should be stored in the original packaging on a sustainable ground, in dry conditions which are free from frost	

	CEMflex VB NG Plus	ARTICLE-NO
DIMENSIONS / DESCRIPTION	CEMflex VB NG Plus 120/30; 2 m length, 120 mm high, 30 mm angled, 90° angle, 1.25 mm thick, installation help included	On request
	Special dimensions on demand	
FORM OF DELIVERY	CEMflex VB NG Plus packed in wooden boxes with 50 pcs. per box (100m/box) Special quantities on demand	
STORAGE	should be stored in the original packaging on a sustainable ground, in dry conditions which are free from frost	

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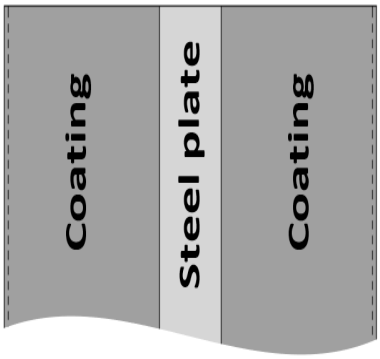
DIMENSIONS / DESCRIPTION	SPECIAL SOLUTIONS CEMflex VB ASE / CEMflex VB with non-coating area	ARTICLE-NO
		
	CEMflex® VB ASE [u-form / z-form]	CEMflex® VB with non-coating area [one- / two-sided]
	Special dimensions and solutions on demand	On request
FORM OF DELIVERY	Special quantities on demand	
STORAGE	should be stored in the original packaging on a sustainable ground, in dry conditions which are free from frost	

TECHNICAL DATA

	CEMflex VB	CEMflex VB NG	CEMflex VB NG Plus	CEMflex VB ASE
MINUMUM CONCRETE COVER	≥ 30mm	≥ 30mm	≥ 30mm	fully covered
WATERTIGHTNESS	8,0 bar [2] 5,0 bar [1]	5,0 bar [1]	5,0 bar [1]	0,75 bar [3]
OVERLAPPING	≥ 50mm	≥ 50mm	≥ 50mm	≥ 50mm
USE IN WATER EXCHANGE AREAS	✓	✓	✓	✓
RADON GAS TIGHT	✓	✓	✓	✓
RESISTANCE AGAINST OIL, GASOLINE, FUEL, ETC.	✓	✓	✓	✓

RESISTANCE AGAINST MANURE, SLURRY AND SILAGE	✓	✓	✓	✓
LIFETIME EXPECTANCY	minimum 50 years (ETA)			
WATERTIGHT CONCRETE CONSTRUCTION	Grade of waterproofing protection: Grade 1, Grade 2, Grade 3 as British Standard 8102:2009^{typeB}			
	Type of waterproofing: Typ B BS8102:2009			
FIRE CLASSIFICATION	class E according to EN 13501-1			
1) *2)* *3)*	*Tested to 5,0 bar (50 m water pressure); test medium: water* *Supplementary tests to 8,0 bar (80 m water pressure); test medium: water* *Tested to 0,75 bar (7,5 m water pressure)*			
Type B	Type B (structurally Integral) protection- the structure is proved as a watertight construction using admixtures and water-bars			
Grad 1)	*Some water seepage damp tolerable depending on the intended use. Car parking, plant rooms (no electrical equipment) etc. local drainage may be provided.* ***Capillary moistened-watertight concrete structures***			
Grad 2)	*No water penetration is acceptable. Damp areas are tolerable depending on the end use. Plant rooms, workshops etc.; Mainly dry: watertight concrete structure including accessories to seal joints, formwork ties, penetrations, additional reinforcement, crack reduction reinforcement, concrete admixture, advanced concrete technology, etc. Fully designed and detailed concrete structure by a waterproofing specialist / engineer!*			
Grad 3)	*No dampness or water penetration is acceptable- Ventilated residential and commercial areas such as homes, offices, shops etc.; Completely dry: watertight concrete structures*			

ADDITIONAL INFORMATION

Application Instructions

CEMflex VB Plate Waterstop can be installed in one of two simple methods:
either by fixing it to the steel reinforcement pre-pour using CEMflex Omega Holders or alternatively by pushing the plate into the first pour of concrete to a depth of at least 30 mm, allowing the remainder of the plate to be covered by the next pour of concrete. To connect elements simply overlap the plates by 5 cm and secure with a CEMflex Clip. CEMflex VB Plate Waterstop can be installed both horizontally and vertically and is easily connected to PVC Waterstops in movement joints to form a continuous watertight joint system.

The elements are strong yet malleable so angles/corners can be formed by hand without damage to the patented CEMflex coating.

Preparation and General Advice

Surrounding air temperature:
- minimum - 5 °C
- maximum + 45 °C

The above mentioned temperatures constitute the generally valid area in which no additional measures need to be taken during application.

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Environmental Advice

This product does not represent a hazardous substance within the meaning of the EU Hazardous Substances Regulation. A safety data sheet for transport, placing on the market and use is available on the request. In accordance with DVGW Code of Practice W270 and W347, CEMflex VB is approved for use in drinking water tanks and therefore complies with the WHG requirements for drinking water protection.

Health and Safety

The essential safety, toxicological, physical and ecological data for the handling of CEMflex VB can be taken from the product-specific safety data sheets.

Data

All technical data stated in this product data sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

Disclaimer

All above mentioned Information concerning BPA products, especially any recommendations and advices relating to the application and use of BPA products are given in good faith based on BPA´s current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with BPA's recommendations.

In practice, the differences in materials, actual site conditions and other factors outside are such that no warranty nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose before proceeding with the full application of the products. BPA reserves the right to change the properties of its products without notice. Users must always refer to the most recent issue of the Product Data Sheet for the product concerned, copies of which will be supplied on request. All sales of BPA are subject to our current terms and conditions.

Local Restrictions

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local product data sheet for the exact description of the application fields.