

HYDROFIX T-SYSTEM

CE-marking in accordance with EN 13967 for HYDROFIX T Band 1 mm
CE-marking in accordance with EN 13967 for HYDROFIX T Band 2 mm
General Building Authority Test Certificate



Properties:

The *HYDROFIX T-SYSTEM* is an external strip sealing and connection system against pressing water for sealing of construction joints, connection joints, elements for controlled crack joints, expansion joints etc..

It consists of the *HYDROFIX T* high-performance tape based on flexible polyolefines (FPO) and the two-component, creamy *HYDROPOX C* adhesive based on epoxy resin.

HYDROFIX T tape is weldable with waterstops and conventional plastic sheets based on TPO/TPE/FPO. It is used as connection system between concrete elements, e.g. segments in tunnelling or between in-situ concrete structures and plastic sheets / waterstops.

Due to special material base and creamy consistency of *HYDROPOX C* adhesives it can be applied even on slightly moist subsurfaces in horizontal, vertical and overhead areas.

Suitability according to DIN 18532-4:

Table 1.8, according to EN 13967

- Type of construction 1a, 2a, 2b
- Type of use N1-V bis N3-V
- Material thickness 2 mm

Suitability according to DIN 18533-2:

Table 3.7

- Type of waterproofing W1.1-E, W1.2-E, W2.1-E, W2.2-E, W3-E, W4-E

According to General Building Authority Test Certificate, the *HYDROFIX T-SYSTEM* is suitable for sealing of construction joints and elements for controlled crack joints with maximum opening width of 1 mm in waterproof concrete elements against ground moisture, non-pressing water and pressing water with maximum water pressure of 2 bar. The system is suitable for tidal zones.

Technical data:
HYDROFIX T tape 1 mm:
Substance data:

Material base:	flexible polyolefines (FPO)	
Colour:	grey	
Mass per unit area:	935 g/m ²	DIN EN 1849-2
Shore A hardness:	approx. 87	DIN EN ISO 7619-1
Thickness:	0.99 mm	DIN EN 1849-2
Straightness:	10 mm	DIN EN 1848-2
Length:	20 m	
Width:	150, 200, 300, 400 mm	
Temperature resistance	-30 to 90°C	
Maximum burst pressure	> 4 bar	
Maximum tensile force		DIN EN ISO 527-3
longitudinal	approx. 14 N/mm ²	
lateral	approx. 14 N/mm ²	
Elongation at break		DIN EN ISO 527-3
longitudinal	approx. 1000%	
lateral	approx. 1000%	
Force absorption		DIN EN ISO 527-3
at 25% lateral elongation	approx. 3.0 N/mm	
at 50% lateral elongation	approx. 3.5 N/mm	
Resistance to water pressure	> 4 bar	DIN EN 1928 B
Joint shear resistance	390 N/50mm	DIN EN 12317-2
Resistance to impact		DIN EN 12691
Method A: Al sheet	300 mm	
Method B: EPS sheet	1750 mm	
Resistance to static load		DIN EN 12730
Method A: EPS sheet	20 kg	
Method B: concrete	20 kg	
Tear resistance		DIN EN 12310-2
longitudinal	approx. 100 N	
lateral	approx. 100 N	
Maximum tensile force		DIN EN 12311-2
longitudinal	92.3 N/6 mm	
lateral	89.0 N/6 mm	
Tensile strength		DIN EN 12311-2
longitudinal	15.6 N/mm ²	
lateral	15.0 N/mm ²	
Elongation at break		DIN EN 12311-2
longitudinal	621 %	
lateral	673 %	
Tear resistance (nail shank)		DIN EN 12310-1
longitudinal	266 N	
lateral	263 N	
Foldability at low temperatures	-30°C	DIN EN 495-5
Water vapour permeability (s _d)	61 m	DIN EN 1931 B
UV resistance	min. 6500 h	DIN EN ISO 4892-3
Exposure to liquid chemicals	passed	DIN EN 1847
Exposure to bitumen	passed	DIN EN 1548
Fire classification	B2	DIN EN 4102
Reaction to fire	class E	DIN EN 13501-1
Testing for artificial ageing *	passed	DIN EN 1296
Watertightness **	passed	DIN EN 1928
Weldability:	Product is weldable with conventional hot-air welder according to RVS 8T / DVS 2225-5.	

* 12 weeks at 70°C

** 24 h at water pressure of 60 kPa

HYDROFIX T tape 2 mm:
Substance data:

Material base:	flexible polyolefines (FPO)
Colour:	grey
Material weight:	approx. 1830 g/m ²

Shore A hardness:	approx. 87	DIN EN ISO 7619-1
Total thickness:	approx. 2.0 mm	
Length:	20 m	
Width:	150, 200, 300, 400 mm	
Temperature resistance	-30 to 90°C	
Maximum burst pressure	> 5 bar	
Maximum tensile force		DIN EN ISO 527-3
longitudinal	approx. 14 N/mm ²	
lateral	approx. 14 N/mm ²	
Elongation at break		DIN EN ISO 527-3
longitudinal	approx. 1000%	
lateral	approx. 1000%	
Force absorption		DIN EN ISO 527-3
at 25% lateral elongation	approx. 5.6 N/mm	
at 50% lateral elongation	approx. 6.5 N/mm	
Resistance to water pressure	> 5 bar	DIN EN 1928 B
Tear resistance		DIN EN 12310-2
longitudinal	approx. 200 N	
lateral	approx. 200 N	
Water vapour permeability (s _d)	125 m	DIN EN 1931 B
UV resistance	min. 6500 h	DIN EN ISO 4892-3
Fire classification	B2	DIN EN 4102
Tensile strength	8.0 N/mm ²	DIN EN 12311-2
Elongation at break	500 %	DIN EN 12311-2
Tear resistance (nail shank)		DIN EN 12310-1
longitudinal	400 N	
lateral	600 N	
Foldability at low temperatures	-30°C	DIN EN 495-5
Testing for artificial ageing *	passed	DIN EN 1296
Watertightness **	passed	DIN EN 1928
Weldability:	Product is weldable with conventional hot-air welder according to RVS 8T / DVS 2225-5.	

* 12 weeks at 70°C

** 24 h at water pressure of 60 kPa

Chemical resistance DIN EN ISO 175

Classification:

- + resistant (non or little effect)
- +/- limited resistant (moderate effect)
- not resistant (serious effect)

Chemical compound	Classification	Remarks
Hydrochloric acid 3 %	+	after test period of 7 days
Sulphuric acid 35 %	+	after test period of 7 days
Citric acid 100 g/l	+	after test period of 7 days
Lactic acid 5 %	+	after test period of 7 days
Potassium hydroxide solution 3 %	+	after test period of 7 days
Potassium hydroxide solution 20 %	+	after test period of 7 days
Sodium hypochlorite 0,3 g/l	+	after test period of 7 days
Salt water 20 g/l	+	after test period of 7 days

HYDROPOX C

Substance data of components:

Component A

Consistency	highly viscous
Colour	grey
Odour	characteristic
Spec. density (23°C)	approx. 1.83 g/cm ³
Dyn. viscosity (23°C)	not determined

Component B

Consistency	liquid
Colour	light yellow

Odour	similar to amine	
Spec. density (23°C)	approx. 0.99 g/cm ³	DIN EN ISO 2811-1
Dyn. viscosity (23°C)	approx. 20 - 40 mPas	DIN EN ISO 2555
<u>Mixture of A- and B-component:</u>		
Processing temperature	15 - 30°C	substrate temperature
Density of mixture (23°C)	approx. 1.68 g/cm ³	
<u>Reaction data (at 23°C):</u>		
Pot-life	approx. 30 min	
Final curing	7 d	
<u>Properties after curing:</u>		
Compressive strength		DIN EN 196
1 d	approx. 20 N/mm ²	
3 d	approx. 44 N/mm ²	
7 d	approx. 51 N/mm ²	
Bending tensile strength		DIN EN 196
1 d	approx. 17 N/mm ²	
3 d	approx. 21 N/mm ²	
7 d	approx. 22 N/mm ²	
Bond strength at concrete at 10°		DIN EN 1542
1 d	nicht messbar	
2 d	approx. 1.5 N/mm ²	
3 d	approx. 3.0 N/mm ²	
7 d	≥ 4.0 N/mm ²	
Bond strength at concrete at 23°		DIN EN 1542
1 d	approx. 0.95 N/mm ²	
3 d	≥ 4.0 N/mm ²	
7 d	≥ 4.0 N/mm ²	
14 d	≥ 4.0 N/mm ²	
E-modulus		DIN EN ISO 527
7 d	approx. 2490 MPa	
14 d	approx. 3370 MPa	
Tensile strength		DIN EN ISO 527
7 d	approx. 13 MPa	
14 d	approx. 14 MPa	
Elongation at break		DIN EN ISO 178
7 d	approx. 1.0 %	
E-modulus		DIN EN ISO 604
7 d	approx. 3030 MPa	
14 d	approx. 3660 MPa	

HYDROFIX T-SYSTEM

Pull-off strength at concrete *	approx. 4.50 N/mm ²	DIN EN 1348
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* valid for 1 and 2 mm HYDROFIX T tape, measured after 7 d

Processing:

The HYDROFIX T-SYSTEM is applied on the water side of concrete structure on both sides of the joint.

Subsurface preparation:

The subsurface must be stable and free of separating substances. Insufficiently firm layers and concrete slurry must be removed. For this purpose the subsurface must be prepared by suitable mechanical processes such e.g. shot blasting, milling and subsequent shot blasting or blasting with other hard blasting abrasives.

Cavities and damage areas at horizontal surfaces can be smoothed out with HYDROPOX C to a maximum depth of 40 mm.

HYDROPOX C is supplied in a set defined mix-ratio of components (A : B). For the processing, the B component (hardener) is completely filled into the A component (resin mixture) and homogenously mixed by means of a slowly moving stirring device (max. 60 rpm) until a uniformly, streak-free, grey colouring and a creamy, steady consistency is produced.

It must be ensured that fringes are thoroughly mixed. Mixing must be carried out for at least 3 minutes. After filling in another container and short stirring again the mixture must be used up within 30 minutes (20°C).

HYDROPOX C adhesive can be applied to both dry and slightly moist subsurfaces (matt glossy surfaces without a standing film of water, pores not saturated with water).

Wet, water saturated subsurfaces must be dried before application.

Application:

HYDROPOX C is applied onto the subsurface by means of a trowel. Ensure that any exiting expansion zone or joint is not covered by the adhesive.



If it's dirty, *HYDROFIX T* tape is cleaned before by using a dry or wet towel (water, no solvent). After that the sealing tape is positioned on the adhesive layer during the open time of adhesive and rolled into the adhesive layer from the inside out with a wide draw roll. A full-surface bonding is necessary. Air pockets must be displaced outwardly by using the roll.

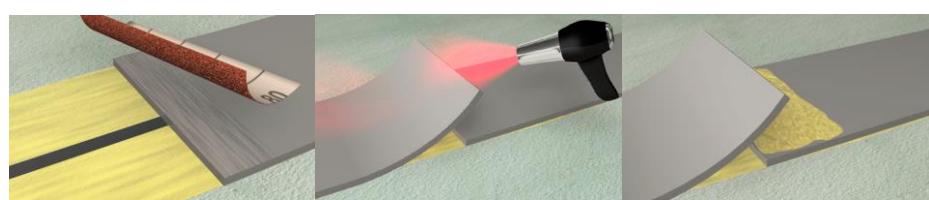


The sealing tape must be protected from mechanical damage. Therefore the edges of *HYDROFIX T* tape have to be covered with *HYDROPOX C* with a width of at least 50 mm.



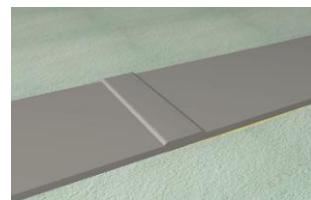
The longitudinal connection of tapes can be made by welding according to RVS 8T / DVS 2225-5 or by bonding with *HYDROPOX C* system adhesive. If welding grind the overlaps before with sandpaper (80 grit).

Attention: Do not grind the tape when bonding with adhesive!



The connected *HYDROFIX T* tapes are pressed completely into the adhesive layer.

The edge of tape must be covered with a width of minimum 50 mm of *HYDROPOX C*.



Consumption:

Width of tape [mm]	Layer thickness [mm]	Quantity of <i>HYDROPOX C</i> [kg/m]
150	2	0.50
150	4	1.00
150	6	1.50
200	2	0.67
200	4	1.34
200	6	2.01
300	2	1.00
300	4	2.00
300	6	3.00
400	2	1.34
400	4	2.68
400	6	4.02

(Consumption quantities are values based on experience, which can vary depending on quality of substrate. Recommended layer thickness is 2 to 4 mm.)

Safety information:

HYDROFIX T tape:

No special safety measures required.

HYDROPOX C:

HYDROPOX C component A contains epoxy resin. *HYDROPOX C* component B contains amines. Both components are classified as hazardous according to Regulation (EC) 1272/2008 (CLP).

It is therefore necessary, before beginning processing, to become familiar with the precautions and safety advice as indicated in the material safety data sheet.

Packaging:

HYDROFIX T tape 20 m rolls, individually shrink-wrapped

Other dimensions on request

HYDROPOX C 8 kg combined metal drum

Bigger packaging on request

Storage:

HYDROFIX T tape:

Shelf life maximum 12 month in original packaging when stored in cool and dry conditions, protected from UV radiation.

HYDROPOX C:

Shelf life at least 6 month in original packaging when stored in dry conditions between 15-25°C, protected from heat, frost and direct sunlight.

After the expiration the use of the product is generally not recommended, unless an approval has been provided by TPH. This approval can only be obtained by the quality assurance department of TPH releasing the material after verification of main properties being within specification.

Disposal:**HYDROFIX T tape:****Recommendation:**

Small quantities of product residues can be disposed of as normal domestic waste. Dispose of bigger quantities must be effected in accordance with the corresponding local regulations.

HYDROPOX C:

Small quantities of cured product residues can be disposed of as normal domestic waste. Dispose of not cured product components must be effected in accordance with the corresponding local regulations. For further information please refer to the material safety data sheets.

Test certificates:

Testing of *HYDROFIX T tape* for classification of fire behaviour according to EN 13501-1; MPA Braunschweig 2016

HYDROFIX T tape - Classification of fire behaviour according to EN 13501-1; MPA Braunschweig 2016

Determination of identification properties and performances of *HYDROFIX T tape* 1 mm according to EN 13967; MPA Braunschweig 2016

Determination of identification properties and performances of *HYDROFIX T tape* 2 mm according to EN 13967; MPA Braunschweig 2016

Testing of adhesive tensile strength for sealing of vertical block joint by using the *HYDROFIX T-SYSTEM*; ARGE Tunnelprüftechnik Koralmtunnel Deutschlandsberg (Österreich) 2016

Resistance test to sewage, liquid manure and silage effluent and test of root resistance; MPA Braunschweig 2017

HYDROFIX T-SYSTEM - Application on cold surfaces - application-technical test; MFPA Leipzig 2017

HYDROFIX T-SYSTEM - Determination of selected mechanical characteristics; MFPA Leipzig 2017

HYDROFIX T - Examination of weldability of selected tunnel waterproofing membranes; MFPA Leipzig 2017

General Building Authority Test Certificate of *HYDROFIX T-SYSTEM*; MFPA Leipzig 2018

**Legal notice:**

The correct and thus successful application of our products is not subject to our control. A guarantee can be issued for the quality of our products within the framework of our sales and supply conditions, however not for successful processing. All data and specifications in this specification sheet are based on the present state of the art and the right to changes and adaptations for the sake of development remains explicitly reserved. The consumption specifications designated by us can be only average empirical values, where deviations are possible on an individual basis and therefore cannot be excluded by us.

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