

WEICON TB Flex F



flame-retardant | strong adhesion | trowelable

WEICON TB Flex F is a white, flame-retardant, trowelable 2-component adhesive. It is suitable for fire protection applications and is used to attach wear protection ceramics or steel parts to a wide variety of surface materials, such as metal, concrete, or similar.

The adhesive system shows very high adhesive strength, is hard-flexible after curing and has been modified to be impact-resistant. Even under the most extreme conditions, the adhesive does not become brittle. It shows good wear protection properties in particle erosion, has good chemical resistance and is solvent-free. TB Flex F contains additives that cause self-extinguishing within a few seconds. It was tested in accordance with DIN EN ISO 340 at the DMT in Dortmund and passed the test successfully.

Characteristics

Base	Epoxy
Filler	mineral
Texture	pasty
Colour	white

Processing

Processing temperature	+15 °C to +40 °C	
Component temperature	> 3 °C above dew point	
relative air humidity	max. 85%	
Mixing ratio by weight	100:67	
Mixing ratio by volume	100:77	
Viscosity of the mixture	at +25 °C	60.000 mPa·s
Density of the mixture	1,6 g/cm ³	
Consumption	Layer thickness 10 mm	1,6 g/cm ²
max. layer thickness	per step	20 mm

Curing

Pot life	at 20 °C, 500 g batch	30 min.
Additional layer after	(35 % strength)	5 h
Working strength after	(80 % strength)	8 h
Final strength	(100 % strength)	24 h
Shrinkage		0,31 %

Mechanical properties after curing

- measured after curing at	24 h RT + 24 h 60 °C	
Tensile strength	DIN EN ISO 527-2	32 MPa
Elongation at break (tensile)	DIN EN ISO 527-2	5,0 %
E-modulus (tensile)	DIN EN ISO 527-2	2400-2600 MPa
Compressive strength	DIN EN ISO 604	110 MPa
Bending strength	DIN EN ISO 178	52 MPa
Hardness (Shore D)	DIN ISO 7619	78 ±3
Adhesive strength	DIN EN ISO 4624	21,7 MPa
Taber Test	DIN ISO 9352 (H18, 1 kg, 1000 rotations)	0,3 g / 0,2 cm ³
Lap shear strength material thickn. 1,5mm DIN EN 1465		
Steel 1.0338 sandblasted		22 MPa
Stainless steel V2A sandblasted		26 MPa
Aluminium sandblasted		14 MPa
Galvanized steel		7 MPa

Thermal parameters

Temperature resistance	-35 °C to +120 °C	
Tg after curing at room temperature	(DSC)	ca. 50 °C
Tg after tempering (at 120°C)	(DSC)	90 °C
Heat deflection resistance	DIN EN ISO 75-2	79 °C
Thermal conductivity	DIN EN ISO 22007-4	0,579 W/m·K
Heat capacity	DIN EN ISO 22007-4	1,399 J/(g·K)

Electrical parameters

Resistance	DIN EN 62631-3-1	8,85 · 10 ¹⁰ Ω·m
magnetic		no

Instructions for use

When using WEICON products, the physical, safety-related, toxicological and ecological data and regulations in our EC safety data sheets (www.weicon.com) must be observed.

Surface pre-treatment

The successful application of WEICON TB Flex F depends on the thorough preparation of the surfaces. This is the most important factor for overall success. Dust, dirt, oil, grease, rust and moisture or wetness have a negative impact on the adhesion. Therefore, before processing WEICON TB Flex F, the following points must be observed: The areas to be bonded or repaired must be free of any oil, grease, dirt, rust, oxides, paint and other impurities or residues. For cleaning and degreasing, we recommend WEICON Cleaner Spray S.

Smooth and particularly heavily soiled surfaces should additionally be treated by mechanical surface pre-treatment, e.g. by grinding or preferably by blasting. In case of blasting, the surface should be brought to a degree of purity of SA 2 ½ - "Near White Blast Cleaning" (according to ISO 8501/1-2, NACE, SSPC, SIS). In order to achieve an optimum surface roughness of 75 - 100 µm, angular, disposable blasting media

Note

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(aluminum oxide, corundum) should be used. The surface quality is negatively influenced by the use of reusable blasting media (slag, glass, quartz), but also by ice blasting. The air for blasting must be dry and oil-free. Metal parts that have come into contact with sea water or other salt solutions should first be rinsed thoroughly with demineralised water and, if possible, left to rest overnight so that all salts can be dissolved from the metal. Before each application of WEICON TB Flex F, a test for soluble salts should be carried out according to the Bresle method (DIN EN ISO 8502-6).

The maximum amount of soluble salts remaining on the substrate should not exceed 40 mg/m². Heating and repeated blasting of the surface may be necessary to remove all soluble salts and moisture.

After each mechanical pre-treatment, the surface should be cleaned again with WEICON Cleaner Spray S and protected from further contamination until the coating is applied.

Areas where no adhesion to the substrate is desired must be treated with silicone-free mould release agents. For smooth surfaces, we recommend WEICON Mould Release Agent Liquid F 1000 or, for porous surfaces, WEICON Mould Release Agent Wax P 500.

After the surface pre-treatment, WEICON TB Flex F should be applied as soon as possible (within one hour) to avoid oxidation, flash rust or new contamination.

Mixing

First, stir the resin. Then mix the resin and hardener together thoroughly and bubble-free for at least four minutes at 20°C (68°F). The included processing spatula or a mechanical mixer, such as a mortar stirrer, can be used for this purpose. With mechanical mixers, a low speed of max. 500 rpm should be used. The components should be stirred until a homogeneous mixture is achieved. The mixing ratio of the two components must be strictly observed, as otherwise, strongly deviating physical values will result (max. deviation +/- 2 %). Only prepare a batch as large as can be processed within the pot life of 30 minutes. The specified pot life refers to a material batch of 500 g and 20°C (68°F) material temperature. Mixing larger quantities or higher processing temperatures will result in faster curing due to the typical reaction heat of epoxy resins.



Application

For processing, we recommend an ambient temperature of 20°C (68°F) at less than 85% relative humidity. The highest adhesive strength is achieved when the parts to be processed are heated to >35°C (>95°F) before application. For a thin pre-coat, work WEICON TB Flex F intensively into the surface in crosswise layers using the Contour Spatula Flexy to achieve maximum adhesion. By means of this technique, the epoxy resin penetrates well into all cracks and roughness depths. Afterwards, further applications can be carried out straight away, until the desired layer thickness is reached. Make sure that the epoxy resin is applied evenly and without air bubbles. To fill large gaps or holes, fibreglass, expanded metal or other mechanical fixing materials should be used. Finally, the surface can be smoothed easily with the help of a PE film and a rubber roller.

Curing

Final hardness is reached after 24 hours at 20°C (68°F) at the latest. At lower temperatures, the curing can be accelerated by evenly applying heat up to max. 40°C (104°F), e.g. with a heating pack, hot air blower or fan heater. Higher temperatures shorten the curing time. The following rule of thumb applies: Each increase by +10°C (50°F) above room temperature (20°C/68°F) will decrease the curing time by half. Temperatures below 16°C (61°F) increase the curing time, until at approx. 5°C (41°F) and below, almost no reaction will take place at all.

Shelf life

Store WEICON TB Flex F at room temperature in a dry place. Unopened containers can be stored at temperatures of +18°C to +28°C for at least 36 months after delivery date. Opened containers must be used up within 6 months.

Conversion table

(°C x 1,8) + 32 = °F	Nm x 8,851 = lb·in
mm/25,4 = inch	Nm x 0,738 = lb·ft
µm/25,4 = mil	Nm x 141,62 = oz·in
N x 0,225 = lb	mPa·s = cP
N/mm ² x 145 = psi	N/cm x 0,571 = lb/in
MPa x 145 = psi	kV/mm x 25,4 = V/mil

Available sizes

17000002	WEICON TB Flex F, 200 g, white
17000005	WEICON TB Flex F, 0,5 kg, white
17000010	WEICON TB Flex F, 1 kg, white

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