

Chester Metal Super FE

DESCRIPTION:

Chester Metal Super Fe is a two-element thixotropic epoxy-metallic composite **especially designed for machining**. The material contains modified epoxy resins, steel and fiber fillers. A steel-filled epoxy putty cures at room temperature and is designed for filling, rebuilding, and bonding metal surfaces.

TYPICAL APPLICATION:

- REBUILDING OF SHAFT NECKS
- REBUILDING OF BEARING SEATS
- REPAIR OF DAMAGED SPLINEWAYS
- REPAIR OF CRACKS IN THE BODIES
- CASTING DEFECTS REPAIR
- REBUILDING OF DAMAGED THREADS
- REPAIR OF DAMAGED FLANGES

Technical data

Cured Density	----	----	2,07 ±0,05 g/cm³	
Mix Ratio by Volume	----	----	3 : 1	
Mix Ratio by Weight	----	----	4,8 : 1	
Color				gray
Tensile Shear (Mild Steel)	ASTM 1002	ISO 4587	20,0 MPa	2900 psi
Tensile Shear (Aluminum)	ASTM 1002	ISO 4587	13,2 MPa	1915 psi
Tensile Shear (Brass)	ASTM 1002	ISO 4587	11,6 MPa	1680 psi
Temperature Resistance Wet	----	----	100°C	
Temperature Resistance Dry	----	----	210°C	
Minimal working temperature	----	----	-50°C	
Heat Distortion Temperature	-----	DIN 53462	92 °C	
Working Life (68°F)(20°C)	----	----	40 min	
Cured Hardness	ASTM D2240	----	88°Sh D	
Compressive Strength	ASTM D695	ISO 604	146 MPa	21175 psi
Thermal conductivity coefficient	----	----	0,3 W/mK	
Flexural strength	----	ISO 178	92 MPa	
Impact strength	----	ISO 179	5,6 kJ/m²	

DIRECTIONS FOR USE

Conditions during the application.

The product cannot be used at a temperature lower than 5 ° C (41°F) or a relative air humidity higher than 90% and in conditions in which moisture condensation occurs on the surface to be repaired.

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Surface preparation.

On the surface of damaged shaft necks and bearing seats, cut a helix about 0,5 mm high on the lathe.

In other cases, the surface of the part to be repaired should be degreased chemically or with a gas burner and mechanically cleaned - by shot blasting, sandblasting or with the use of angle grinders, pin grinding wheels, sandpaper, etc.

Always strive to thoroughly remove surface contamination and make the surface well roughened. A properly prepared surface should be degreased using e.g. Chester Fast Cleaner F-7 or Ultra Fast Degreaser F-6.

Mixing and application of the composition.

Use two different spatulas to take the Base and the Reactor. Mix both elements on the flat smooth surface or mix them in original packages until obtaining a uniform color. Efforts should be made to apply immediately after preparing the mixture, because the curing reaction starts immediately and any delay reduces the adhesion. Necessary layer should be placed single, carefully rubbing it into the base. In case there is necessary second layer, first shouldn't be fully cured, otherwise there should be made rough surface. In the case of repairs of cracks, it is recommended to additionally reinforce the composite with a steel mesh or fiberglass net.

Efficiency

1kg after mixing has volume 0,48 dm³.

Post curing

Post curing at a temperature of 80-100°C (176-212°F) for minimum 2h, after initial cure considerably improves mechanical properties, heat and chemical resistance.

Optimal curing process: 7 days at 20°C (68°F) and post-curing at 80°C (230°F) for 4 hours.

CURE TIME ACCORDING TO THE TEMPERATURE.

Ambient temperature °C (°F)	Working life [min]	Time for machining [h]
10 (50)	45	8
20 (68)	40	5
30 (86)	25	3

It should be remembered that the rate of the reaction significantly depends, apart from the ambient

temperature, on the quantity of the used material (the bigger mass of the mixed material, the reaction rate increases). The above presented times refer to the mass of 0,25 kg of the composite.

CHEMICAL RESISTANCE

The samples were subjected to optimal curing process. Unless otherwise stated, the tests were carried out at 20 °C (68°F).

- 1 – Prolonged immersion
- 2 – Short-term immersion
- 3 – Not recommended

Solvent	Chemical resistance
Petrol	1
Diesel fuel	1
Antifreeze	1
Motor oil	1
Petroleum	1
Nitric acid 10%	1
Nitrous acid 10%	1
Acetic acid 5%	2
Amines	1
Hydrochloric acid 10%	1
Ammonia 20%	1
Water 100 °C(212 °F)	1
Sea water	1
Ozone (dry)	1
Chlorine	1
Acetone	3
Methylene Chloride	3

Full table of chemical resistance is on the website

OTHER INFORMATION

Storage

The product should be stored in original packaging at temperature between +5°C(32 °F) to +30°C(86 °F).