

## Chester Metal Super FE

### DESCRIPTION:

Chester Metal Super Fe is a two-element tixotropic 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:

- REBUILD DAMAGED, SCORED SHAFTS
- MODIFY BEARING SEATS
- REPAIR OVERSIZED KEYWAYS
- RECONSTRUCTION OF SPLINEWAY
- REPAIR OF CASING DEFECTS
- RECONSTRUCTION OF OVER-SIZED BEARING SEATS
- REBUILDING DAMAGED THREAD
- REBUILDING DISTORTED FLANGES

### Technical data

Cured Density	----	----	<b>2,07 ±0,05 g/cm<sup>3</sup></b>	
Mix Ratio by Volume	----	----	<b>3 : 1</b>	
Mix Ratio by Weight	----	----	<b>4,8 : 1</b>	
Color				<b>gray</b>
Tensile Shear (Mild Steel)	ASTM 1002	ISO 4587	<b>20,0 MPa</b>	<b>2900 psi</b>
Tensile Shear (Aluminum)	ASTM 1002	ISO 4587	<b>13,2 MPa</b>	<b>1915 psi</b>
Tensile Shear (Brass)	ASTM 1002	ISO 4587	<b>11,6 MPa</b>	<b>1680 psi</b>
Temperature Resistance Wet	----	----	<b>100°C</b>	
Temperature Resistance Dry	----	----	<b>210°C</b>	
Minimal working temperature	----	----	<b>-50°C</b>	
Heat Distortion Temperature	-----	DIN 53462	<b>92°C</b>	
Working Life (68°F)(20°C)	----	----	<b>40 min</b>	
Cured Hardness	ASTM D2240	----	<b>88°Sh D</b>	
Compressive Strength	ASTM D695	ISO 604	<b>146 MPa</b>	<b>21175 psi</b>
Thermal conductivity coefficient	----	----	<b>0.3 W/mK</b>	
Flexural strength	----	ISO 178	<b>92 MPa</b>	
Impact strength	----	ISO 179	<b>5,6 kJ/m<sup>2</sup></b>	

### DIRECTIONS FOR USE

#### Conditions during the application.

The product is not recommended to apply when the ambient temperature is below 5°C and the relative humidity is above 90% or when condensation occurs on the surface to be repaired.

## Chester Metal Super Fe

### Surface preparation.

On the damaged surface is recommended cut on a lathe the screw line with a height of 0.5 mm. The surface in the part to be repaired shall be degreased chemically or by gas-jet, mechanically cleaned by blast cleaning, sanding, or with the help of the abrasive paper, grinders, pin-lift grinding wheels, etc. You should always aim at thoroughly remove all loose contamination and make the surface roughened. A correctly prepared surface shall be degreased using for ex. Chester Fast Cleaner. F-7 or Chester 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. Once the mix was prepared it should be directly applied, because curing starts immediately and every late could weaken 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 dm<sup>3</sup>.

### Post curing

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

Optimal cure e.g: tensile shear research, obtained after 7 days in 20°C (68°F) and post-cure by heating to 80°C (176°F) for 4 hours.

### CURE TIME ACCORDING TO THE TEMPERATURE.

Ambient temperature °C (°F)	Time for application [min]	Time for treatment [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

Samples were subjected to thermal stabilization. If not stated otherwise tests were carried at the temperature of 20°C(68°F)

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

Solvent	Chemical resistance
Petrol	1
Diesel fuel	1
Brake fluid	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).

