

## Chester Metal Super MS

### DESCRIPTION:

Chester Metal Super MS is a two-element thixotropic epoxy-metallic composite. The material contains modified epoxy resins, metallic and fiber fillers. Cures at room temperature and is designed for filling, rebuilding, and bonding brass castings.

### TYPICAL APPLICATION:

- REPAIR OF DEFECTS IN BRASS CASTINGS
- FILLING CAVITIES IN BRASS CASTINGS

### Technical Data

|                                  |            |               |                 |           |
|----------------------------------|------------|---------------|-----------------|-----------|
| Cured Density                    | ----       | ----          | 1,40±0,05 g/cm³ |           |
| Mix Ratio by Volume              | ----       | ----          | 2 : 1           |           |
| Mix Ratio by Weight              | ----       | ----          | 2,5 : 1         |           |
| Color                            | brass      |               |                 |           |
| Tensile Shear (Stainless Steel)  | ASTM 1002  | ISO 4587      | 17,5 MPa        | 2959 psi  |
| Tensile Shear (Mild Steel)       | ASTM 1002  | ISO 4587      | 17,5 MPa        | 2915 psi  |
| Tensile Shear (Brass)            | ASTM 1002  | ISO 4587      | 14,5 MPa        | 1856 psi  |
| Temperature Resistance Wet       | ----       | ----          | 100°C           | 212°F     |
| Temperature Resistance Dry       | ----       | ----          | 200°C           | 392°F     |
| Minimal working temperature      | ----       | ----          | -50°C           | -58 °F    |
| Heat Distortion Temperature      | ASTM D648  | ISO 75-1      | 85 °C           | 185°F     |
| Working Life 20°C (68°F)         | ----       | ----          | 20 min          |           |
| Hardness                         | ASTM D2240 | ----          | 87 ShD          |           |
| Compressive Strength             | ASTM D695  | ISO 604       | 142 MPa         | 20590 psi |
| Thermal conductivity coefficient | ----       | ----          | 0,56 W/mK       |           |
| Flexural strength                | ----       | ISO 178       | 89 MPa          | 12910 psi |
| Impact strength                  | ----       | ISO 179-1/1fU | 5,6 kJ/m²       |           |

## ***Chester Metal Super MS***

### ***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.

#### ***Surface preparation.***

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 in 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 fiberglass net.

#### ***Post curing***

Post curing at a temperature of 80-110°C (176-230°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 110°C (230°F) for 4 hours.

### ***CURE TIME ACCORDING TO THE TEMPERATURE.***

| Ambient temperature °C (°F) | Working life [min] | Time for machining [h] |
|-----------------------------|--------------------|------------------------|
| 5 (41)                      | 50                 | 14                     |
| 10 (50)                     | 35                 | 12                     |
| 20 (68)                     | 20                 | 4                      |

|         |    |     |
|---------|----|-----|
| 30 (86) | 15 | 2,5 |
|---------|----|-----|

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 3%        | 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 +0°C (32 °F) to +30°C (86 °F).