

Weicon Plastic Metal HB 300 is a high quality, versatile epoxy repair compound. Part of the larger Weicon range of Plastic Metal epoxies, HB 300 is made from steel filled epoxy resin and sets hard to form a tough, long lasting mass.

HB 300 is very versatile and can be used for bonding, sealing, lining, filling or rebuilding work. It will bond well to almost all kinds of materials and surfaces including steel, iron, aluminium, copper, brass, glass, ceramics, concrete, wood and most types of plastic (except for PTFE, polyethylene and polypropylene).



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This grade of plastic metal has a 1:1 mix ratio and is quite pasty once the two parts have been mixed and can be applied to vertical surfaces. When it has been properly mixed it will have a pot life of about 30 minutes (200gm at 20°C). HB 300 cures with very little shrinkage (0.015%) and can be applied in layers up to 20mm thick. It will achieve 50% of its final strength after about 12 hours and be fully cured in around 24 hours.

Cured HB 300 will be dark grey in colour and very hard (shore hardness 85 Shore D). It will also have excellent temperature resistance. HB 300 Plastic Metal can withstand ongoing temperatures between -35°C and +200°C as well as short-term spikes up to +280°C.

Applications

- High strength bonding of metal sheets and parts (especially when large gaps need to be bridged).
- Rebuilding damaged or worn surfaces on metal parts.
- Filling blow holes.
- Repairing damage to containers, machine parts, tanks and surfaces.
- Sealing pumps and piping.
- Many other repair, bonding and reconditioning jobs in the marine, agricultural, energy, engineering and facilities management sectors.

Technical Details

Basis	Steel Filled Epoxy Resin	Mean Compressive Strength at 25°C (DIN 53281-83)	100 MPa
Mix Ratio	1:1	Mean Tensile Strength at 25°C (DIN 53281-83)	27 MPa
Density of the Mixture	2.34 g/cm ³	Mean Flexural Strength at 25°C (DIN 53281-83)	42 MPa
Pot Life at 200g of Material At 20°C	30 Min.	Mean E-Modul at 25°C (DIN 53281-83)	9,500 – 10,000 MPa
Viscosity of the Mixture	1,700,000 MPa	Shore Hardness at 25°C (DIN 53281-83)	85 Shore D
Colour After Curing	Dark grey	Shrinkage	0.015%
Maximum Layer Thickness (per application)	20mm	Thermoforming Resistance	+120°C
Mechanical Strength (50%) When Curing at 20°C	12 Hours	Temperature Resistance	-35°C to +200°C +280°C for short periods
Final Strength (100%) When Curing at 20°C	24 Hours	Thermal Conductivity (ISO 8894-2)	0.3 W/m·K

Important

The values listed here and the information presented should not be treated as a substitute for specific technical advice. We cannot warrant the products performance or suitability for particular applications.

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Plastic Metal HB 300 Chemical Resistance After Curing

Acetic Acid Dilute (<5%)	+	Hydrocarbons (Aromatic)	-
Acetone	O	Hydrochloric Acid (<10%)	+
Alkalis (Basic Minerals)	+	Hydrochloric Acid (10-20%)	+
Amyl Acetate	+	Hydrofluoric Acid Dilute	O
Amyl Alcohols	+	Hydrogen Peroxide (<30%)	+
Anhydrous Ammonia (25%)	+	Impregnating Oils	+
Barium Hydroxide	+	Magnesium Hydroxide	+
Butyl Acetate	+	Maleic Acid	+
Butyl Alcohol	+	Methanol (Methyl Alcohol, <85%)	O
Calcium Hydroxide (slaked lime)	+	Milk of Lime	+
Carbolic Acid (Phenol)	-	Naphthalene	-
Carbon Disulphide	+	Naphthene	-
Carbon Tetrachloride	+	Nitric Acid (<5%)	O
Caustic Potash Solution	+	Oils, Vegetable and Animal	+
Chlorinated Water	+	Oxalic Acid (<25%)	+
Chloroacetic Acid	-	Paraffin	+
Chloroform	O	Perchloroethylene	O
Chlorosulphonic Acid	-	Petrol (92-100 Octane)	+
Chromic Acid	+	Phosphoric Acid (<5%)	+
Chroming Baths	+	Phthalic Acid	+
Creosote Oil	-	Phthalic Acid Anhydride	+
Cresylic Acid	-	Potassium Hydroxide (Caustic Potash, 0-20%)	+
Crude Oil	+	Soda Lye	+
Crude Oil Products	+	Sodium Bicarbonate (Sodium Hydrogen Carbonate)	+
Diesel Fuel Oil	+	Sodium Carbonate (Soda)	+
Ethanol < 85% (Ethyl Alcohol)	O	Sodium Chloride (Cooking Salt)	+
Ethyl Alcohol	O	Sodium Hydroxide (Caustic Soda, <20%)	O
Ethyl Benzole	-	Sulphur Dioxide	+
Ethyl Ether	+	Sulphuric Acid (<5%)	O
Exhaust Gases	+	Tannic Acid Dilute (<7%)	+
Formic Acid (>10%)	-	Tetralin	O
Glycerine	+	Toulene	-
Glycol	O	Trichloroethylene	O
Grease, Oils and Waxes	+	Turpenetine Substitute (White Spirit)	+
Heating Oil, Diesel	+	Xylene	-
Humic Acid	+		
Hydrobromic Acid (<10%)	+		
Hydrocarbons (Aliphatic)	+		

+ = Resistant

O = Resistant for a Limited Time

- = Not Resistant

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Preparation of the Surface

To ensure a perfect bond, the surface to which the Plastic Metal will be applied must be clean, dry and degreased. Most surface contaminants (e.g. old paint residues, oil, grease, dirt, dust) can be removed with either Weicon Cleaner S or Weicon Sealant and Adhesive Remover.

If the surfaces are very smooth, the adhesion achieved by Plastic Metal can be enhanced by sand-blasting with a suitable grain size of sand or by roughening with a coarse abrasive material.

Cast parts, which have been exposed to sea water for a long time, should be treated with special care as they might contain inorganic salts. It is possible that these salts reach the surface and absorb moisture, thus starting the formation of rust (rust bubbles under the protective coating). It is therefore suggested that such parts are heated or exposed to flame after sand blasting.

If adhesion is not desired, a separating agent must be used. For smooth surfaces, Weicon Mould Release Agent (silicone free) or Weicon Silicone Spray may be suitable.

It is suggested that you begin the application of Weicon Plastic Metal immediately after surface pre-treatment to avoid oxidation and instantaneous rust formation.

Application

Mixing

Before adding the hardeners to the larger resin container, it is very important that you stir up the fillers in the resin thoroughly while ensuring that they do not contain bubbles. After this has been done, mix the resin and the hardener for at least 4 minutes using the spatula supplied with every Plastic Metal kit or with a mechanical mixer (at low speed, max. 500 rpm) to get a uniform mass.

Do not mix more material that you intend to use within the pot life and be sure to strictly observe the specified mixing ratio of 1:1 for Plastic Metal HB 300 (tolerance on this is a maximum of +/- 2%).

Pot Life and Processing Time

The indicated pot life refers to mixtures of 200gm prepared at 20°C. Larger quantities will cure faster due to the typical exothermic reaction associated with epoxy resins. Weicon Plastic Metals should be processed at room temperature (approximately 20°C).

Pot life and cure time will be reduced considerably at higher temperatures. The rule of thumb for this is every increase of 10°C above room temperature leads to a reduction in pot life and cure time of about 50%. At temperatures below 16°C the pot life will slow. Below about 5°C there is no reaction between the resin and the hardener.

Cure and Treatment

Weicon Plastic Metal HB 300 can be machined or demoulded after about 12 hours at room temperature. Final cure will be achieved after 24 hours.

In low temperature environments, the cure time can be accelerated via the application of heat up to a maximum of 40°C (via a heat lamp, electric blanket or hot air fan). To avoid thermal overheating and possible deformation the surface must not be warmed up with open flame.

Storage

When stored unopened and in normal climatic conditions (20°C) Weicon Plastic Metal HB 300 has a minimum shelf-life of 24 months. Storage in direct sunlight should be avoided.

Opened containers must be used within 6 months.

Available Sizes

Plastic Metal HB 300 Steel Filled Epoxy is available from Swift Supplies in 1kg Kits. Each kit contains the correct proportions of resin and hardener, plastic gloves and a plastic mixing spatula.

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