

## Plastic Steel

**ThistleBond 'Plastic Steel'** is a high performance multi purpose metal repair compound specifically developed for onsite repairs of damaged or faulty castings, corroded pumps, valves, pump or shafts

**ThistleBond 'Plastic Steel'** is formulated on a complex range of epoxy resins combined with a polyamino curing system which is reinforced with inert pigments and fillers to produce a pourable paste which has excellent resistance to corrosive liquids and gasses.

**ThistleBond 'Plastic Steel'** is ideally suited for use in tool rooms providing an economical solution to the problem of producing short run or prototype dies, jigs and fixtures.

**ThistleBond 'Plastic Steel'** is simple and easy to use, can be drilled, tapped or filed etc. just like the parent metal.

**Before proceeding, please read the following information carefully to ensure that the correct application procedure is fully understood.**

### SURFACE PREPARATION

Heavy contamination due to oil or grease must first be removed using **ThistleBond Cleaner**.

All loose material, rust and surface contaminants, including existing coatings, must be removed and the surface roughened by using an angle grinder, needle gun or abrasive blasting. Where grinding or needle gunning is used, the surface should be cross-scored to improve adhesion. Care must be taken, when angle grinding, to avoid polishing rather than roughening metal surfaces.

Where possible, abrasive blasting is the preferred surface preparation, especially in fluid flow repairs.

Surfaces should finally be carefully degreased using **ThistleBond Cleaner**. Cloths should be frequently changed to avoid spreading contamination. On deeply pitted surfaces or porous castings, **ThistleBond Cleaner** should be worked into the surface by brush and washed off using excess cleaner.

### MIXING

**ThistleBond 'Plastic Bronze'** is a two component solvent free material comprising resin and hardener components which must be mixed together prior to use.

The mixed material should be used within 30 minutes of mixing at 20°C (68°F). This time will be reduced at higher temperatures and extended at lower temperatures.

### APPLICATION

The mixed material should be pressed firmly onto the prepared area, working the material into any cracks and surface defects.

When **ThistleBond 'Plastic Steel'** is being used to bond two surfaces together, both surfaces should be coated with the material. The two pieces should then be pressed firmly together and clamped in position until the product has set, any excess material squeezed out should be scraped away before the **ThistleBond 'Plastic Steel'** begins to cure.

When a reinforcing Tape is being used to strengthen the repairs the tape should either be impregnated with **ThistleBond 'Plastic Steel'**, or the tape should be layed over the **ThistleBond 'Plastic Steel'** surface and stippled into the material before it cures, then additional **ThistleBond 'Plastic Steel'** applied over the surface.

In areas where a second layer of **ThistleBond 'Super Metal rebuilding System'** is required this application must be carried out within the initial set time for the first layer, if this is not possible surfaces will require thorough abrasion or abrasion blasting prior to any subsequent material being applied.

Once **ThistleBond 'Plastic Steel'** has cured for a minimum of 4 hours at 20°C (68°F), sanding, grinding and machining etc. can be carried out using standard engineering practice.

**PHYSICAL CONSTANTS**

<b>Mixing Ratio</b>	Resin	Hardener	
	3	1	By Volume
	5	1	By Weight

<b>Appearance</b>	Resin	Dark Grey Paste
	Hardener	Grey Paste

<b>Drying &amp; Cure times at 20°C(68°F)</b>	Usable Life	30 minutes
	Gel Time	60 minutes
	Machining	2 hours
	Full Mechanical	3 days

**Volume Solids** 100%

**V.O.C.** Nil

**Shelf Life** Use within 5 years of purchase. Store in original sealed containers at temperatures between 5°C (40°F) and 30°C (86°F).

**Operating Temperature**

	<b>Maximum</b>	<b>Continuous</b>
Dry Heat	250°C (480°F)	120°C (248°F)
Wet Heat	120°C(248°F)	70°C(158°F)

**PHYSICAL PROPERTIES**

**Compressive Strength** 1090kg/cm<sup>2</sup>(15500 psi)  
ASTMD 695

**Corrosion Resistance** 5000 hours  
ASTMB117

**Flexural Strength** 700kg/cm<sup>2</sup>(10000 psi)  
ASTMD 790

**Hardness (Rockwell R)** 100  
ASTMD785

**Heat Distortion** 90°C(195°F)  
ASTMD648

(Post Cured 24 hrs at 100°C/212°F)

**Nuclear Decontamination** Excellent  
BS4247 Part 1

**Tensile Shear Adhesion** 175kg/cm<sup>2</sup> (2500 psi)  
ASTMD1002 (Grit Blasted Steel)

**HEALTH AND SAFETY**

As long as normal good practice is observed **ThistleBond 'Plastic Steel'** can be safely used.

Protective gloves should be worn during use.

A fully detailed **Material Safety Data Sheet** is either included with the material or is available on request.

**PACKAGING**

Supplied in 0.500kg packs

The information provided in this Product Data Sheet is intended as a general guide only and should not be used for specification purposes. The information is given in good faith but we assume no responsibility for the use made of the product or this information because this is outside the control of the company. Users should determine the suitability of the product for their own particular purposes by their own tests. Detailed specifications are available on request from the company.



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FOR FURTHER INFORMATION PLEASE CONTACT