

# TECHNICAL DATASHEET UPS105

## Unique Polymer Systems – Super Metal Rebuilding System



Unique Polymer Systems

ADVANCED POLYMER SURFACE ENGINEERING TECHNOLOGY

### Unique Polymer Systems – Super Metal Rebuilding System



'Super Metal Rebuilding System' is a high performance multi purpose synthetic metal repair compound specifically developed for metal repairs requiring good mechanical strength combined with easy machining properties.

UPS' Super Metal Rebuilding System' is formulated on a complex range of epoxy resins combined with a polyamino curing system reinforced with a phosphor steel alloy to enhance corrosion and chemical resistance of

the whole system. The superior compressive strength, hardness along with its adhesive tensile strength makes 'Super Metal Rebuilding System' suitable for repairing worn out metal components, it can be machined, ground, drilled and tapped to required accurate dimensions.

Machining Instruction	Turning	Vertical Milling	Slot Drilling
Surface Cutting Speed	100 cm/sec (200 ft/min)	100 cm/sec (200 ft/min)	100 cm/sec (200 ft/min)
Feed Rate for Rough Cutting	1.27 m/rev (0.01 in/rev)	—	—
Feed Rate for Finishing	0.25 m/rev (0.01 in/rev)	—	—
Table Traverse	—	7.1-15.2 cm/min (2.8-6.0 in/min)	15.2 cm/min (6.0 in/min)
Tool	Tungsten Carbide / Diamond Tipped	Tungsten Carbide / Diamond Tipped	Tungsten Carbide / Diamond Tipped
Top Rake	3 °	Standard	—
Side-Clearance	3 °	—	—
Front Clearance	3 °	—	—
Coolents	Cut Dry	Cut Dry	Cut Dry

#### SURFACE PREPARATION & APPLICATION PROCEDURE

Parts that are required to be repaired and rebuilt should be thoroughly cleaned with UPS 'Cleaner'. Worn out surfaces must be roughened by filing, knurling, and emery-cleaning preferably to at least 1mm depth 12 TPI thread cutting to increase surface contact area for proper adhesion. It is advisable to clean the surface again with UPS Cleaner following any lathe-work on the repair job. 'Super Metal Rebuilding System' is to be mixed in advised ratio until a single coloured paste appears. Apply the material over the prepared surface and wet surface property, then apply remaining material over the surface and press firmly to remove trapped air.

Ensure to apply material at least 1mm in excess of the dimension required after machining. The applied material will be set firm in 60mins, but only machine after 2hours' setting time as per instructions above. After machining, an excellent smooth surface finish and superior hardness can be achieved with the repaired area attaining the required engineering properties to tolerate high compressive loads.

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### PHYSICAL PROPERTIES

Compressive Strength	1090 kg/cm <sup>2</sup>
ASTM D695	(15500 psi)
Corrosion Resistance	5000 hours
ASTM B117	
Flexural Strength	700 kg/cm <sup>2</sup>
ASTM D790	(10000 psi)
Hardness (Rockwell R)	100
ASTM D785	
Tensile Shear Adhesion	175 kg/cm <sup>2</sup>
ASTM D1002	(2500 psi)
Heat Distortion	90 °C
ASTM D648	
Nuclear Decontamination	Excellent
BS4247 Part I	

### PHYSICAL CONSTANTS

Mixing Ratio	Resin	Hardner
By volume	3	1
Appearance	Resin	Hardner
Paste	Black	Light Grey
Drying Time @ 20°C		
Usable Life	25 Minutes	
Initial Set	60 Minutes	
Machining	2 Hours	
Volume Solids	100%	
VOC	Nil	
Operating Temperature	Maximum	Continuous
Dry Heat	250 °C	120 °C
Wet Heat	120 °C	70 °C
Shelf Life	5 years	

### CHEMICAL RESISTANCE \*

Sulfuric Acid 0-20%	Good
Hydrochloric Acid 0-20%	Excellent
Hydroflouric Acid	Satisfactory
Phosphoric Acid Diluted	Excellent
Nitric Acid 0-10%	Excellent
Sulphur Dioxide Wet	Excellent
Chlorine	Satisfactory
Acetic Acid 0-10%	Good
Sodium Hydroxide	Excellent
Naptha	Excellent

### SUPPLY INFORMATION

**Stock No : UPS105**  
**Description : Super Metal Rebuilding System**  
**Pack Size : 1 kg**

### RECOMMENDED APPLICATIONS

- Worn shafts, oversized bearing housings, motor end covers
- Cracked cases / casings & blocks, gearbox housings, metal cracks
- Damaged flanges, scored hydraulic rams, rebuilding of collors
- Leveling of base plates, machine beds
- Repair of pinholes / blow holes, pitting in castings
- Rebuilding / machining of parts to accurate dimensions

\* for further information see Chemical Resistance Chart

### FOR FURTHER INFORMATION PLEASE CONTACT



**Unique Polymer Systems**

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