

## DESCRIPTION

CZ137, Engraving brass, are 60/40 alpha-beta brasses with lead added to give free machining properties. They should not be used for acid etched work, for which the single phase alpha brasses should be used.

## CHEMICAL COMPOSITION

Elements	Min (%)	Max (%)
Cu	58.50	61.00
Pb	0.30	0.80
Fe	-	0.20
Total Others	-	0.50
Zn	Remainder	

## MECHANICAL PROPERTIES ACCORDING TO BS2874 (AS PER TEMPER M)

Range (Inch)	From	To	UTS Min (N/mm <sup>2</sup> )	PS Min	Elongation Min (%)	Hardness Min	Hardness Max
Round (Dia)	6.00	40.00	380.00	-	25.00	-	-
	40.00	75.00	350.00	-	28.00	-	-
Hex (A/F)	6.00	40.00	380.00	-	25.00	-	-
	40.00	75.00	350.00	-	28.00	-	-
Square (A/F)	6.00	40.00	380.00	-	25.00	-	-
	40.00	75.00	350.00	-	28.00	-	-

## PHYSICAL PROPERTIES

Electrical conductivity %IACS	31
Thermal conductivity W/(m·K)	139
Thermal expansion coefficient (0–300 °C)	$10^{-6}$ /K 21.70
Density	8.36 g/cm <sup>3</sup>
Modulus of elasticity	107 Gpa

## FABRICATION PROPERTIES

Technique	Suitability
Machinability(CuZn39Pb3 = 100 %)	50%
Capacity for being cold worked	poor
Capacity for being hot worked	Excellent
Resistance welding (butt weld)	Fair
inert gas shielded arc welding	Fair
Gas welding	Fair
Hard soldering	Excellent
Soft soldering	Excellent
Melting range	870–900 °C
Hot working	650–750 °C
Soft annealing (1-3 h)	450–550 °C
Thermal stress relieving (1-3 h)	250–350 °C

## TYPICAL USES

- > Automatic Screw Machine Parts
- > Blanking
- > Riveting
- > Brazing
- > Upsetting