Standard Specification for Free-Cutting Brass (UNS C36000) Rod, Bar and Shapes for Use in Screw Machines

Rev	Reason of Change	Date	Made By	Reviewed By	Approved By	Status
0	Initial release	17-03-2017	MN	AS	KKD	Released

1.) Scope:

This specification establishes requirements for brass free machine UNS C36000, (half hard), including for shear pins, supplied with certified mechanical properties.

2.) References:

ASTM B16
SAE J463

3.) Materials allowed:

Brass free machine UNS C36000 or SAE CA360, ASTM B16, half hard (HO_2, in accordance with ASTM B601).

4.) Chemical composition:

The nominal chemical composition of this material must be in accordance with (in accordance with ASTM B16):

Cu	60 - 63%
Zn	remainder
Pb	2.5 –3.7%
Fe, maximum	0.35%
other elements maximum	0.5%

5.) Mechanical properties:

5.1- Hardness

Diameter	HRB
½ a 1", inclusive	60 - 80
1 a 2" inclusive	55 - 75
2 a 3" inclusive	45 - 75
3 a 4" inclusive	40 - 65
higher than 4"	25 minimum

NOTE- For shear pins: Perform the hardness test on both ends for each part, at T/4.

5.2) Tensile Test

Perform tensile test as per ASTM A370. The test specimens must be removed either from an additional sacrifice part or from the extension of one of the parts at T/4 position. The following values of mechanical properties must be achieved:

Tensile Strength, minimum	55 - 68 ksi
Yield Strength (0,2 Offset), minimum	44 - 52 ksi
Elongation in 2", minimum	18 - 22%
Reduction of Area, minimum	48 - 52%

5.3) Shear Tensile (only for shear pins)

35 to 4 0 ksi

NOTE- For shear pins: Perform shear test (per heat) on bars that show the maximum and the minimum values of hardness. This test must be performed on a coupon test with the same final diameter of pieces that will be supplier.

6.) Tests and certification:

The following tests and certificates are required of the manufacturer:

- Chemical (ladle) analysis.
- Hardness (perform Hardness Test on 100% of the lot).
- Tensile Test.
- Shear Test.