

ALLOY

C36000

Free Cutting Brass

Data Sheet

Typical Chemistry & Mechanical Properties

Alloy Number	Name	Nominal Chemical Composition	Tensile Strength (KSI)	Yield Strength (KSI)	Elongation %	Rockwell B Hardness	Remarks
UNS C36000	Free Cutting Brass	Cu: 60.0~63.0% Pb: 2.5~3.0% Fe: 0.35% max Zn: Rem	56	45	25%	72	Used for screw machine products in a wide range of applications

Straightness Tolerances

Round	All Sizes	1/4" in any 10' portion
Hexagonal/Octagonal	Up to 4.000"	3/8" in any 10' portion
	>4.000"	As Extruded
Square/Rectangle	All Sizes	3/8" in any 10' portion

Drawn Length Tolerances

0.250" to 2.000" (Inclusive)	+/-0.500"
2.000" to 3.000" (Inclusive)	+/-0.500"
3.000" to 4.000" (Inclusive)	+/-0.500"

Notes:

Standard Lengths: 12', 14', 15' & 16'
All other lengths considered non-standard
Minimum Length: 9' - 11" (119")

Shapes and Sizes

Round	0.250" to 4.000"
Hexagonal/Octagonal	0.250" to 3.500"
Square/Rectangle	0.375" to 2.000"

Diameter Tolerances

	Round	Hexagonal
0.250" to 0.375" (Inclusive)	+/- 0.0015"	+/- 0.0030"
0.375" to 0.500" (Inclusive)	+/- 0.0015"	+/- 0.0030"
0.500" to 1.000" (Inclusive)	+/- 0.0020"	+/- 0.0040"
1.000" to 2.000" (Inclusive)	+/- 0.0025"	+/- 0.0050"
2.000" to 2.500" (Inclusive)	+/- 0.0030"	+/- 0.0060"
2.500" to 3.000" (Inclusive)	+/- 0.0035"	+/- 0.0075"
3.000" to 3.500" (Inclusive)	+/- 0.0045"	+/- 0.0090"
3.500" to 4.000" (Inclusive)	+/- 0.0050"	+/- 0.0100"



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Machinability:

Recently amended and revised to reflect a lower maximum lead percentage; C36000 remains the industry standard for general machining and high volume production. The excellent machinability characteristic of C36000 permits full utilization of a screw machine's capabilities.

	Speed (sfpm)	Feed (ipr)	Back Rake Angle (degrees)	Clearance Angle (degrees)
Lathe Turning Tools:	300~1,000	0.002~0.015	0~5	6
Drills (118°):	300~1,000	0.003~0.020	0	12~15
Milling Cutters:	200~500	0.015~0.030	0~10	10~15
Form Tools (1/2°):	300~1,000	0.001~0.003	0~5	7~12
Taps:	100~200 (lineal)		2~4	

Use maximum speeds & minimum feeds for finish cuts. Light mineral (paraffin) oil or water soluble oil (20/1) should be used as a cutting lubricant & coolant. Sulfurized oils will stain parts & should be avoided.

Workability:

Alloy C36000 has a poor capacity to be hot worked. It can be moderately cold worked. However, it is recommended that this be followed by stress relieving at 500 degrees for 1.5 hours to reduce the possibility of stress corrosion cracking.

Spec. Equal.:

ASTM B16
SAE J463, Alloy C36000
AMS Alloy 4610

Applications:

Free Cutting Brass include general machining and high volume production where the alloy's excellent machinability can permit full utilization of the screw machine's capabilities. With the lower maximum lead content, manufacturers are afforded greater latitude in their designs for lead free compliant component and products.

Typical applications include plumbing components and products, fittings, adapters, valve stems, and miscellaneous screw machine parts.