



ALLOY

C48500

Data Sheet

Typical Chemistry & Mechanical Properties

Alloy Number	Name	Nominal Chemical Composition	Tensile Strength (KSI)	Yield Strength (KSI)	Elongation %	Rockwell B Hardness	Remarks
UNS C48500	Naval Brass (High Leaded)	Cu: 59.0~62.0% Pb: 1.3~2.2% Fe: 0.104% Sn: 0.50~1.00% Zn: Rem%	75	53	15%	82	Alloy noted for its machinability & resistance to wear, fatigue, galling & stress corrosion cracking

Straightness Tolerances

Round	All Sizes	1/4" in any 10' portion
Hexagonal/Octagonal	Up to 2.500" >2.5000"	1/4" in any 10' portion As Drawn
Square/Rectangle	All Sizes	0.500" in any 6' & over portion

Drawn Length Tolerances

0.375" 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
0.375" 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)	0.15% of Diameter	0.30% of Diameter
>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: Alloy C48500 possesses superior machinability. The machinability rating is 70% of free cutting brass (C36000). The recommended tool design, feeds & speeds for machining this material are as follows:

	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	0~3	5~10
Form Tools (1/2°):	300~1,000	0.001~0.003	7~12	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.

Synthetic soluble oil is recommended as the cutting fluid. A light paraffin oil with an addition of 5-10% lard oil is recommended for threading & tapping operations. For longer running jobs, carbide tooling is recommended.

Workability: Alloy C48500 possesses characteristics for good hot workability & is fairly well adapted to any hot working process including forging. Due to its lead content, alloy C48500 has poor cold forming ability. Due to this limitation, the alloy is best suited for machining applications rather than typical cold working operations (blanking, drawing, forming, bending, shearing, etc.)

Spec. Equal.: ASTM B21 & B124

Applications: This alloy is typically used for fastener, valve stems, screw machine products & marine hardware.

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