FISK MA38B Free-Cutting Brass
UNS C38500 / CuZn39Pb3 / CW614N

MA38B is the European reference standard for free-cutting brass with machinability rating of 100, moderate strength, and good resistance to corrosion. The alloy is used in the widest range of applications where excellent machining performance is the key selection criteria, including all types of special machined or micro-machined components with or without electrical requirement.

Fabrication Indices

Machinability	100
Cold Working	poor
Hot Working	excellent
Brazing	good
Soldering	excellent
Welding	poor

Available Forms

Rod and Wire, round

Typical Standards

EN 12164, 12166

Chemical Composition

55-59% Copper
2.5-3.5% Lead
0.35% max Iron
Remainder Zinc (40% nominal)

Mechanical Properties

○ Round Rod

TEMPER NAME	TEMPER CODE	TENSILE STRENGTH min, ksi (MPa)	YIELD STRENGTH ksi (MPa) @ 0.2%	ELONGATION min, %	MILL LIMITS
soft anneal	R360	52 (360)	46 (320) max	15	0.2362- 0.3150" (6 - 8 mm)
half-hard	R430	62 (430)	32 (220) min	7	0.0787 - 0.3150" (2 - 8 mm)
hard	R500	73 (500)	51 (350) min	4	

○ Round Wire

TEMPER NAME	TEMPER CODE	TENSILE STRENGTH min, ksi (MPa)	YIELD STRENGTH ksi (MPa) @ 0.2%	ELONGATION min, %	MILL LIMITS
soft anneal	R360	52 (360)	46 (320) max	15	0.2362- 0.3150" (6 - 8 mm)
half-hard	R430	62 (430)	32 (220) min	4	0.0197 - 0.3150" (0.5 - 8 mm)
hard	R500	73 (500)	51 (350) min	4	

Physical Properties

Melting Point (Liquidus)	1630 °F	890 °C
Melting Point (Solidus)	1610 °F	875 °C
Annealing Range (min - max)	800 - 1100 °F	427 - 593 °C
Density	0.306 lb/in^3	8.40 gm/cm^3
Electrical Resistivity (Annealed)	43.0 Ω·cir-mil/ft @ 68 °F	6.17 μΩ·cm @ 20 °C
Electrical Conductivity (Annealed)	28% IACS @ 68 °F	0.162 MS/cm @ 20 °C
Thermal Conductivity	71 Btu/ft^2/ft·hr/°F @ 68 °F	123 W/m·K @ 20 °C
Coefficient of Thermal Expansion	11.6 x 10^{-6} per °F (68-572 °F)	21.0 x 10^{-6} per °C (20-300 °C)
Modulus of Elasticity (Tension)	14,000 ksi	96,500 MPa
Modulus of Rigidity	5,300 ksi	36,500 MPa

Fisk Alloy Wire, Inc. ● P.O. Box 26 ● 10 Thomas Road N ● Hawthorne, NJ 07507 U.S.A.
Phone: 973-825-8500 ● Fax (973) 825-8501 ● E-mail: sales@fiskalloy.com