MSRR 8501 COPPER NICKEL SILICON BRONZE ALLOY

A nickel silicon bronze with a combination of high strength and good electrical and thermal conductivity. For general bars and forgings

National Specifications

Material may also be released to Customer Specifications, subject to enquiry.

ASTM	UNS	SAE AMS	British Standard	Other
–	–	–	DTD 498	–

Technical Data

Chemical Composition

	Cu	Ni	Si	Mn
Min %	-	2.3	0.4	0.05
Max %	Bal	3.5	0.8	0.3

Typical Tensile Properties at Ambient Temperature

Annealed Size	0.2% PS MPa min.	UTS MPa min.	Elongation % min.
Bars/Finished Parts	385	555	10
Forging Stock	385	555	10
Forgings/Finished Parts	385	555	10

Physical Properties

Density	8870 kg/m^3
Electrical conductivity	40% IACS
Electrical resistivity	0.043μΩm
Thermal Conductivity at 20°C	190 W/(mk)
Thermal Expansion 20 – 400°C	16 X 10^{-6} / °K

Heat Treatment
Solution treated at 770 - 800°C followed by water or oil quench.Precipitation treated at 500°C for 4 hours followed by air cooling.

Machining
Machining is best performed using a carbide tool with water soluble lubricant. A chip breaker may be found necessary for efficient operation

Condition	Tool Type	Cut Depth mm	Speed m/min.	Feed mm/rev.
Annealed	Carbide	2.0 roughing	30 – 60	0.25
		0.3 finishing	120 – 180	0.12