

C95500

Material High strength, heat treatable.

Notes:


Recommended Casting Methods: Centrifugal, Continuous, Permanent Mold, Plaster, and Sand.

Applications: Valve guides and seats in aircraft engines, corrosion-resistant parts, bushings, gears, worms, pickling hooks and baskets, agitators.

Classified under: Aluminum bronzes. ASTM B148; formerly ASTM B148-9D

Key Words: Nickel aluminum bronze, ASTM B148, ASTM B148-9D

Physical Properties	Metric	English	Comments
Density	7.53 g/cc	0.272 lb/in ³	
Mechanical Properties	Metric	English	Comments
Hardness, Brinell	192	192	as cast; 3000 kg load
	230	230	TQ50 temper; 3000 kg load
Hardness, Rockwell B	87	87	as cast
	96	96	TQ50 temper
Tensile Strength, Ultimate	620 MPa	89900 psi	as cast
	760 MPa	110000 psi	TQ50 temper
Tensile Strength, Yield	275 MPa	39900 psi	as cast
	415 MPa	60200 psi	TQ50 temper
Elongation at Break	5.0 %	5.0 %	TQ50 temper, in 50 mm
	6.0 %	6.0 %	as cast, in 50 mm
Reduction of Area	5.0 %	5.0 %	TQ50 temper
	7.0 %	7.0 %	as cast
Creep Strength	17.0 MPa	2470 psi	for 10E-5%/h, at 425°C
	38.0 MPa	5510 psi	for 10E-5%/h, at 370°C
	72.0 MPa	10400 psi	for 10-E5%/h, at 315°C
Modulus of Elasticity	110 GPa	16000 ksi	as cast
	115 GPa	16700 ksi	TQ50 temper
Compressive Yield Strength	825 MPa	120000 psi	as cast, at permanent set of 10%
	1030 MPa	149000 psi	TQ50 temper, at permanent set of 10%
Compressive Strength	895 MPa	130000 psi	as cast
	1140 MPa	165000 psi	TQ50 temper
Poissons Ratio	0.32	0.32	

Fatigue Strength  215 MPa 31200 psi as cast, rotating beam
 @# of Cycles 1.00e+8 @# of Cycles 1.00e+8

260 MPa 37700 psi TQ50 temper, rotating beam
 @# of Cycles 1.00e+8 @# of Cycles 1.00e+8

Machinability 50 % 50 % UNS C36000 (free-cutting brass) = 100%

Shear Modulus 42.0 GPa 6090 ksi

Shear Strength 44.0 MPa 6380 psi TQ50 temper

Izod Impact 18.0 J 13.3 ft-lb
 @Temperature 20.0 °C @Temperature 68.0 °F

Charpy Impact 14.0 J 10.3 ft-lb Keyhole

Electrical Properties **Metric** **English** **Comments**

Electrical Resistivity 0.0000203 ohm-cm 0.0000203 ohm-cm
 @Temperature 20.0 °C @Temperature 68.0 °F

Magnetic Permeability 1.2 1.2 TQ50 temper, 16 kA/m field strength

1.3 1.3 as cast, 16 kA/m field strength

Thermal Properties **Metric** **English** **Comments**

CTE, linear 16.2 µm/m-°C 9.00 µin/in-°F
 @Temperature 20.0 - 300 °C @Temperature 68.0 - 572 °F

Specific Heat Capacity 0.418 J/g-°C 0.0999 BTU/lb-°F

Thermal Conductivity 42.0 W/m-K 291 BTU-in/hr-ft²-°F
 @Temperature 20.0 °C @Temperature 68.0 °F

Melting Point 1040 - 1055 °C 1900 - 1931 °F

Solidus 1040 °C 1900 °F

Liquidus 1055 °C 1931 °F

Processing Properties **Metric** **English** **Comments**

Annealing Temperature 620 - 7050 °C 1150 - 12700 °F

Component Elements Properties **Metric** **English** **Comments**

Aluminum, Al 10 - 11.5 % 10 - 11.5 %

Copper, Cu >= 78 % >= 78 %

Iron, Fe 3.0 - 5.0 % 3.0 - 5.0 %

Manganese, Mn <= 3.5 % <= 3.5 %

Nickel, Ni 3.0 - 5.5 % 3.0 - 5.5 %

Other <= 0.50 % <= 0.50 %

Descriptive Properties

Elastic Limit 310 MPa as cast
 415 MPa TQ50 temper