C95200

Material Notes: Casting methods recommended for this alloy: Centrifugal, Continuous, Permanent Mold, Plaster, and Sand.

Applications: Acid-resisting pumps, bearings, gears, valve seats, guides, plungers, pump rods, bushings.

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

Typical data for sand-cast test bars. Alloy does not respond to heat treating.

Key Words: Aluminum bronze, ASTM B148, ASTM B148-9A

Physical Properties	Metric	English	Comments
Density	7.64 g/cc	0.276 lb/in³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	125	125	3000 kg
Hardness, Rockwell B	64	64	
Tensile Strength, Ultimate	550 MPa	79800 psi	as cast
	390 MPa @Temperature 315 °C	56600 psi @Temperature 599 °F	
	400 MPa @Temperature 300 °C	58000 psi @Temperature 572 °F	
	450 MPa @Temperature 250 °C	65300 psi @Temperature 482 °F	
	490 MPa @Temperature 200 °C	71100 psi @Temperature 392 °F	
	525 MPa @Temperature 150 °C	76100 psi @Temperature 302 °F	
	550 MPa @Temperature 100 °C	79800 psi @Temperature 212 °F	
	570 MPa @Temperature 25.0 °C	82700 psi @Temperature 77.0 °F	
	570 MPa @Temperature 50.0 °C	82700 psi @Temperature 122 °F	
Tensile Strength, Yield	185 MPa	26800 psi	as cast
	185 MPa @Strain 0.500 %, Temperature 150 °C	26800 psi @Strain 0.500 %, Temperature 302 °F	
	185 MPa @Strain 0.500 %,	26800 psi @Strain 0.500 %,	

	Temperature 200 °C	Temperature 392 °F	
	190 MPa @Strain 0.500 %, Temperature 250 °C	27600 psi @Strain 0.500 %, Temperature 482 °F	
	190 MPa @Strain 0.500 %, Temperature 100 °C	27600 psi @Strain 0.500 %, Temperature 212 °F	
	195 MPa @Strain 0.500 %, Temperature 300 °C	28300 psi @Strain 0.500 %, Temperature 572 °F	
	195 MPa @Strain 0.500 %, Temperature 315 °C	28300 psi @Strain 0.500 %, Temperature 599 °F	
	200 MPa @Strain 0.500 %, Temperature 50.0 °C	29000 psi @Strain 0.500 %, Temperature 122 °F	
	205 MPa @Strain 0.500 %, Temperature 25.0 °C	29700 psi @Strain 0.500 %, Temperature 77.0 °F	
Elongation at Break	35 %	35 %	in 50 mm
Reduction of Area	3.0 % @Temperature 150 °C	3.0 % @Temperature 302 °F	
	23 % @Temperature 315 °C	23 % @Temperature 599 °F	
	24 % @Temperature 300 °C	24 % @Temperature 572 °F	
	30 % @Temperature 250 °C	30 % @Temperature 482 °F	
	32 % @Temperature 200 °C	32 % @Temperature 392 °F	
	38 % @Temperature 100 °C	38 % @Temperature 212 °F	
	43 % @Temperature 50.0 °C	43 % @Temperature 122 °F	
	46 % @Temperature 25.0 °C	46 % @Temperature 77.0 °F	
Creep Strength	54.0 MPa	7830 psi	for 10E-5%/h, at 315°C
	145 MPa	21000 psi	for 10E-5%/h, at 230°C
Modulus of Elasticity	105 GPa	15200 ksi	
Poissons Ratio	0.31	0.31	
Fatigue Strength	150 MPa @# of Cycles 1.00e+8	21800 psi @# of Cycles 1.00e+8	rotating beam
Machinability	20 %	20 %	UNS C36000 (free-cutting brass) = 100%
Shear Modulus	39.0 GPa	5660 ksi	
Izod Impact	40.0 J @Temperature -18.0 - 38.0 °C	29.5 ft-lb @Temperature -0.400 - 100 °F	
Charpy Impact	27.0 J @Temperature -18.0 - 38.0 °C	19.9 ft-lb @Temperature -0.400 - 100 °F	Keyhole

Electrical Properties	**Metric**	**English**	**Comments**
Electrical	0.0000144 ohm-cm	0.0000144 ohm-cm	

Resistivity			
Magnetic Permeability	1.2	1.2	at 16,000 A/m

Thermal Properties	Metric	English	Comments
CTE, linear	16.2 µm/m-°C @Temperature 20.0 - 300 °C	9.00 µin/in-°F @Temperature 68.0 - 572 °F	
Specific Heat Capacity	0.380 J/g-°C	0.0908 BTU/lb-°F	
Thermal Conductivity	50.0 W/m-K @Temperature 20.0 °C	347 BTU-in/hr-ft²-°F @Temperature 68.0 °F	
Melting Point	1040 - 1045 °C	1900 - 1913 °F	
Solidus	1040 °C	1900 °F	
Liquidus	1045 °C	1913 °F	

Processing Properties	Metric	English	Comments
Annealing Temperature	650 - 745 °C	1200 - 1370 °F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	8.5 - 9.5 %	8.5 - 9.5 %	
Copper, Cu	>= 86 %	>= 86 %	
Iron, Fe	2.5 - 4.0 %	2.5 - 4.0 %	
Other	<= 1.0 %	<= 1.0 %	