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Perth	08 9258 2600	08 9358 6206

**PRODUCT DATA
SHEET**

Naval Brass, Arsenical
Copper 60%, Zinc 40%
UNS C46500

**Copper
Alloys**

Chemical Composition

(% maximum, unless shown as range or minimum)

	Copper	Arsenic	Iron	Lead	Tin	Zinc
Minimum / Maximum	59.0 - 62.0	0.02 - 0.06	0.10	0.20	0.50 - 1.0	Remainder
Nominal	60.0	0.04	-	-	.7	39.2

Note: Copper + sum of named elements, 99.6% minimum

Applicable Specifications

Product	Specification
Bar	SAE J461, J463
Plate, Clad	ASTM B432
Plate, Condenser Tube	ASME SB171 ASTM B171
Rod	SAE J461, J463

Common Fabrication Processes

Blanking, Drawing, Forming and Bending, Heading and Upsetting, Hot Forging and Pressing, Hot heading and upsetting, Shearing

Fabrication Properties

Joining Technique	Suitability
Soldering	Excellent
Brazing	Excellent
Oxyacetylene Welding	Good
Gas Shielded Arc Welding	Fair
Coated Metal Arc Welding	Not Recommended
Spot Weld	Good
Seam Weld	Fair
Butt Weld	Good
Capacity for Being Cold Worked	Fair
Capacity for Being Hot Formed	Excellent
Forgeability Rating	90
Machinability Rating	30

Typical Mechanical Properties at 20° C

Temper	Section Size	Cold Work	Tensile Strength	Yield Strength (0.5% extension under load)	Elongation	Rockwell Hardness				Shear Strength
						B	C	F	30T	
	mm	%	MPa	MPa	%					MPa
H01	25.4	8	476	317	27	78	-	-	-	296
H01	51	8	462	276	35	75	-	-	-	296
H01	6.35	10	483	331	25	80	-	-	-	296
H02	25.4	20	517	365	20	82	-	-	-	303
H02	6.35	20	552	393	20	85	-	-	-	310
O50	25.4	0	434	207	40	60	-	-	-	290
O50	51	0	427	193	43	60	-	-	-	290
O50	6.35	0	434	207	40	60	-	-	-	290
O60	25.4	0	393	172	47	55	-	-	-	276
O60	51	0	386	172	47	55	-	-	-	276
O60	6.35	0	400	186	45	56	-	-	-	276
H04	0.0	35	607	455	18	95	-	-	-	-
H01	1	0	483	400	17	75	-	-	68	296
M20	25.4	0	379	172	50	55	-	-	55	276
O50	1	0	427	207	40	60	-	-	57	283
O50	6.35	0	414	193	45	58	-	-	56	283
O60	6.35	0	400	172	49	56	-	-	55	276

Physical Properties

	US Customary	Metric
Melting Point - Liquidus	1650°F	899 C
Melting Point - Solidus	1630°F	888 C
Density	0.304 lb/in ³ at 68°F	8.41 gm/cm ³ @ 20°C
Specific Gravity	8.41	8.41
Electrical Resistivity	39.9 ohms-cmil/ft @ 68°F	6.63 microhm-cm @ 20°C
Electrical Conductivity	26 %IACS @ 68°F	0.152 MegaSiemens/cm @ 20°C
Thermal Conductivity	67.0 Btu · ft/(hr ft ² ·°F) at 68F	116.0 W/m · °K at 20°C
Coefficient of Thermal Expansion	11.8 · 10 ⁻⁶ per °F (68-572°F)	21.2 · 10 ⁻⁶ per °C (20-300°C)
Specific Heat Capacity	0.09 Btu/lb/°F at 68°F	377.1 J/kg · °K at 293°K
Modulus of Elasticity in Tension	15,000 ksi	103,400 MPa
Modulus of Rigidity	5,600 ksi	38,610 MPa

Tempers Most Commonly Used

Flat Products	
BAR, DRAWN	H01, H02, O50, O60
BAR, ROLLED	H01, O50, O60
PLATE	H02, M20, O60
STRIP, ROLLED	H01, O50

Other	
ROD	H01, H02, M30, O50, O60
SHAPES	H01, M30
TUBE	H58, H80

Typical Uses**Architecture**

Elevators, Architectural Metal

Fasteners

Bolts, Nuts, Rivets

Industrial

Plater Bar for Jewelry, Plates, Baffles, Heat Sinks, Balls, Structural Uses, Welding Rod, Condenser Plates, Valve Stems, Aircraft Turn buckle Barrels, Petrochemical Tanks, Heat Exchanger Tube

Marine

Marine Hardware, Propeller Shafts

Plumbing

Fittings