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PRODUCT DATA SHEET

Section Brass Alloy 380 UNS C38010

Copper Alloys

Composition, AS2738.2 - 1984, Compositions & designations

Copper		Lead		Iron	Aluminium		Zinc
Min	Max	Min	Max	Max	Min	Max	Max
55.0	60.0	1.5	3.0	0.30	0.10	0.6	Remainder

Equivalent Alloy Specifications

Specification	Designation
UNS	C38010
ISO	CuZn43Pb3
BSI	CZ121

Specification	Product Form
AS1567	Wrought rods, bars & sections
AS2738	Compositions & designations

Australian Product Specifications

Mechanical Properties

AS1567,
Wrought rods,
bars & sections

	Units	Temper M
Tensile Strength minimum	MPa	380
Elongation minimum	%	12
Hardness maximum	HV	(90)

() – for information only

Available Forms Austral Wright Metals can supply alloy C38010 as extruded sections – rods, angles, channels, flats, other extruded shapes

General Description Section brass is a readily extrudable leaded alpha / beta brass alloy with a small aluminium addition, which gives a bright golden colour. The alloy is supplied only as extruded sections and shapes, with a minimum amount of cold work. The bright gold colour is lost if severe cold working operations are applied – alloy 385 is a better choice for cold work. The lead addition renders the alloy free cutting, and it is used widely in components produced by automatic machining.

C38010 weathers to a warm bronze tone.

Typical applications include builders hardware.

PHYSICAL PROPERTIES

Property	Metric Units	Imperial Units
Melting Point (Liquidus)	890°C	1635°F
Melting Point (Solidus)	875°C	1610°F
Density	8.47 gm/cm ³ @ 20°C	0.306 lb/in ³ @ 68°F
Specific Gravity	8.47	8.47
Coefficient of Thermal Expansion	20.9 x 10 ⁻⁶ /°K (20 - 300°C)	11.0 x 10 ⁻⁵ /°F (68 - 572°F)
Thermal Conductivity	121 W/m.°K @ 20°C	70 BTU/ft ² /hr/°F @ 68°F
Thermal Capacity (Specific Heat)	377 J/kg.°K @ 20°C	0.09 BTU/lb/°F @ 68°F
Electrical Resistivity (Annealed)	6.16 microhm.cm @ 20°C	38 ohms (circ mil/ft) @ 68°F
Electrical Conductivity (Annealed)	0.162 microhm ⁻¹ .cm ⁻¹ @ 20°C	28% IACS
Modulus of Elasticity (tension)	96 GPa @ 20°C	14.2 x 10 ⁶ psi @ 68°F
Modulus of Rigidity (torsion)	36 GPa @ 20°C	5.3 x 10 ⁶ psi @ 68°F
Poisson's Ratio	0.34	0.34

FABRICATING PROPERTIES

Cold Working Capacity	Poor
Hot Working Capacity	Fair
Hot Working Temperature	700 - 800°C
Annealing Temperature	425 - 600°C
Stress Relieving Temperature	250 - 300°C
Machinability Rating	80% of free cutting brass (C36000)
Polishing/Electroplating Finish	Good

JOINING PROPERTIES

Soft Soldering	Good
Silver Soldering	Fair - Good
Brazing	Good
Oxy-Acetylene Welding	Fair
Gas Shielded Arc Welding (GTAW/TIG, GMAW/MIG)	Not recommended
Coated Metal Arc Welding (Manual electrodes)	Not recommended
Resistance Welding	Not recommended

Corrosion Resistance

C38010 has good corrosion resistance to weathering and fair resistance to many waters.

C38010 should not be used in contact with ammonia, ammonia compounds or amines, as it may suffer stress corrosion cracking.

Please consult Austral Wright Metals for advice on your specific application.

Phase Diagram & Mechanical Properties of the Brasses

