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**PRODUCT DATA
SHEET**

Tin Brass
UNS C41500

**Copper
Alloys**

Chemical Composition

(%max., unless shown as range or min.)

	Copper	Iron	Lead	Tin	Zinc
Min./Max.	89.0 - 93.0	0.05	0.10	1.5 - 2.2	Rem.
Nominal	91.0	-	-	1.8	7.2

Note: Cu + Sum of Named Elements, 99.7% min.

Applicable Specifications

ASTM B591 Copper-Zinc-Tin Alloys Plate, Sheet Strip and Rolled Bar

Common Fabrication Processes

Bending, Blanking, Drawing, Forming, Shearing, Stamping

Fabrication Properties

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

Typical Mechanical Properties (at room temperature, 20°C)

Temper		Section Size	ASTM B 591	Yield	Yield	Tensile	Elongation	Hardness	Hardness			Shear	
			Tensile Strength Specification	Strength (0.2% offset)	Strength (0.5% ext. under load)	Strength	Vickers	Rockwell			Strength		
		mm.	MPa	MPa	MPa	MPa	%	HV	B	C	F	30T	MPa
H01	Quarter hard	1	317 – 386	-	283	345	28	110	62	-	-	58	-
H02	Half hard	1	366 – 434	372	365	386	16	135	74	-	-	65	283
H03	¾ hard	1	393 – 469	-	-	434	-	146	78	-	-	68	-
H04	Hard	1	441 – 517	455	448	483	5	158	83	-	-	72	290
H06	Extra hard	1	483 – 565	517	490	524	4	168	86	-	-	73	303
H08	Spring	1	538 – 614	572	503	558	3	180	90	-	-	75	345
H10	Extra spring	1	> 586	607	517	558	2	180	89	-	-	74	359
OS015	Annealed, nominal grain size 0.015 mm	1	-	186	179	345	42	74	-	-	74	36	248
OS025	Annealed, nominal grain size 0.025 mm	1	-	-	-	-	-	66	-	-	68	29	-
OS035	Annealed, nominal grain size 0.035 mm	1	-	124	117	317	44	62	-	-	64	24	241

Physical Properties

	Metric
Melting Point - Liquidus	1032°C
Melting Point - Solidus	1010°C
Density	8.8 gm/cm ³ @ 20°C
Specific Gravity	8.8
Electrical Resistivity	6.15 microhm-cm @ 20°C
Electrical Conductivity	0.164 MegaSiemens/cm @ 20°C
Thermal Conductivity	122.9 W/m · °K at 20°C
Coefficient of Thermal Expansion	18.5 · 10 ⁻⁶ per °C (20-300°C)
Modulus of Elasticity in Tension*	124,000 MPa
Modulus of Rigidity	46,200 MPa

*For annealed alloys.

Tempers Most Commonly Used

Flat Products	
STRIP, ROLLED	H01, H02, H03, H04, H06, H08, H10, OS015, OS035, OS050

Typical Uses

Architecture

Architectural Trim, Weather Stripping, Decorative Applications

Consumer

Pen Clips

Electrical

Electrical Connectors, Fuse Clips, Spring Applications for Electrical Switches