

# RED BRASSES

CDA NUMBER	C83450		C83600		N.R.*
Common Name	Oshalloy-1		85-5-5-5 or Red		
COMPOSITION PERCENT	Min	Max	Min	Max	
Copper (Cu)	87.0	89.0	84.0	86.0	
Tin (Sn)	2.2	3.0	4.3	6.0	
Lead (Pb)	1.5	3.5	4.0	5.7	
Zinc (Zn)	5.8	7.5	4.3	6.0	
Iron (Fe)		0.25		0.25	
Antimony (SB)		0.25		0.25	
Nickel (Ni)	0.8	1.5		0.8	
Sulphur (S)		0.08		0.08	
Phosphorous (P)		0.03		0.03	
Aluminum (Al)		0.005		0.005	
Manganese (Mn)					
Silicon (Si)		0.005		0.005	
NEAREST APPLICABLE CASTING STANDARDS					
ASTM (B Series)	B584		B584		
SAE (J Series)			461, 462		
Federal (QQ-C- Series)			390		
Military (Mil-C- Series)			22229		
TYPICAL PROPERTIES	Typ	Min	Typ	Min	
Tensile Strength (ksi)	37	30	37	30	
Yield Strength (.5% extension under load) (ksi)	15	14	17	14	
Elongation (2 inch gauge length) (%)	34	25	30	20	
Reduction of Area (%)	31		30		
Modulus of Elasticity (ksi)			12400		
Hardness (Brinell) (HB @ 500kg)	62		62		
Machinability (% of free cutting brass)	75		84		
Fatigue Strength (10 <sup>8</sup> cycles) (ksi)	13		11		
Impact Strength (Charpy) (ft-lb)	16		11		
Impact Strength (Izod) (ft-lb)			10		
Compressive Strength (0.001 in. set/in.) (ksi)	9.91		14.4		
Compressive Strength (0.010 in. set/in.) (ksi)	14.4		17.4		
Compressive Strength (0.100 in. set/in.) (ksi)	33.1		37.5		
Creep Strength (0.00001% per hour) (ksi)			12.5 @ 350F		
Melting Range (Liquidus-Solidus)(F)	1580-1860		1568-1849		
Coefficient of Thermal Expansion (per F @ 68-400F)			0.0000101		
Thermal Conductivity (Btu/sq.ft./hr/F @ 68F)			41.6		
Specific Heat (Btu/lb/F @ 68F)			0.09		
Electrical Conductivity (% IACS @ 68F)	20		15		
Density (lb/cu.in. @ 68F)	0.319		0.318		
Pouring Temperature (Light Castings) (F)			2100-2350		
Pouring Temperature (Heavy Castings) (F)			1950-2150		
Patternmakers Shrinkage (in/ft)			11/64		
Drossing			Low		
Gassing			Medium		
Fluidity			Medium		
Shrinkage			Medium		
Casting Yield			High		
Corrosion Resistance:	Very good for hydrocarbons, and general corrosion.				
Applications:	Low-pressure valve bodies, water pump parts and impellers, electrical hardware, boat hardware, plumbing goods, valve trim, fire equipment, small gears, ornamental fixtures, hydraulic pressure castings, injectors, gas and vapor valves and fittings, hydraulic-pressure castings.				

\* Not Recommended



All mechanical properties listed are typical and not minimums. Always consult applicable specs and use good engineering judgment. Consult your foundry early in the design process.

**St. Paul Brass and Aluminum Foundry**

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