#### **DESCRIPTION**

IS 291 Gr I is commonly referred to as a naval brass and issued typically in a wide range of marine and subsea applications. This brass alloy offers superior strength and corrosion resistance and offers good property retention at cryogenic temperatures. With excellent hot formability and very good corrosion resistance.

### **CHEMICAL COMPOSITION**

Elements	Min (%)	Max (%)
Cu	61.00	64.00
Pb	The state states	0.20
Sn	1.00	1.50
Fe	the state of	0.10
Total Others	THE EMPTY SHIPE SHIP	0.20
Zn	Rema	ainder

### MECHANICAL PROPERTIES ACCORDING TO IS 291 GR I (AS PER TEMPER HB)

Range (Inch)	From	То	UTS Min (MPa)	PS Min	Elongation Min (%)	Hardness Min (HRB)	Hardness Max (HRB)
THE SHE	1.5	12.5	390.00	.s - di	18.00	Up.	-56
Round (Dia)	12.5	50.00	380.00	- 41/1/10	18.00	6	of the same
at Alpha	50.00	75.00	345.00	62,	18.00	of Ellins	"Hip - 61pg
Hex (A/F)	3.00	12.5	390.00	%	18.00	allip-	-
	12.5	50.00	380.00	- 4115	18.00	63.0	, C <sub>1</sub> - , d
	50.00	65.00	345.00	Hallin.	18.00	, <del>5</del> 5	all the - all the
a tallifith	3.00	12.5	390.00	42.	18.00	off the	- 4pm
Square (A/F)	12.5	50.00	380.00	6	18.00	1812 - 422	-
ALS SHELL	50.00	60.00	345.00	NET THE	18.00	-	- di
Rectangle (Thickness)	3.00	12.5	390.00	HIND -	18.00	.0, -	Ellin - Mile
	12.5	50.00	380.00		18.00	TELEBE - THE	Garage Contraction of the Contra

# PHYSICAL PROPERTIES

Melting Point - Liquidus°F	1650
Melting Point - Solidus°F	1630
Densitylb/cu in. at 68°F	0.304
Specific Gravity	8.41
Electrical Conductivity% IACS at 68°F	26
Thermal ConductivityBtu/ sq ft/ ft hr/ °F at 68°F	67
Coefficient of Thermal Expansion 68-57210 <sup>-6</sup> per °F (68 – 572°F)	11.8
Specific Heat CapacityBtu/ lb /°F at 68°F	0.09
Modulus of Elasticity in Tensionksi	15000
Modulus of Rigidityksi	5600
	Melting Point - Solidus°F  Densitylb/cu in. at 68°F  Specific Gravity  Electrical Conductivity% IACS at 68°F  Thermal ConductivityBtu/ sq ft/ ft hr/ °F at 68°F  Coefficient of Thermal Expansion 68-57210 <sup>-6</sup> per °F (68 – 572°F)  Specific Heat CapacityBtu/ lb /°F at 68°F  Modulus of Elasticity in Tensionksi

# **FABRICATION PROPERTIES**

Technique	Suitability		
Capacity for being Cold Worked	Fair		
Hot Worked	Excellent		
Machinability Rating	30%		
Forgeability Rating	90%		
Silver Alloy Brazing	Excellent		
Soft Soldering	Excellent		
Oxyacetylene Welding	Good		

### TYPICAL USES

- > Fasteners
- > Industrial
- > Marine