TIMETAL® 62S

LOW COST, MULTIPURPOSE ALLOY

TIMETAL 62S, with iron used for the beta stabilizer in lieu of more expensive elements, has a lower formulation cost than most titanium alloys, yet the properties and processing characteristics of *TIMETAL* 62S are equivalent to or better than those of the workhorse of the titanium industry, *TIMETAL*® 6-4. The combination of reasonable cost and excellent mechanical properties make *TIMETAL* 62S a practical substitute for other engineering materials in numerous industrial applications that require low weight and high corrosion resistance.

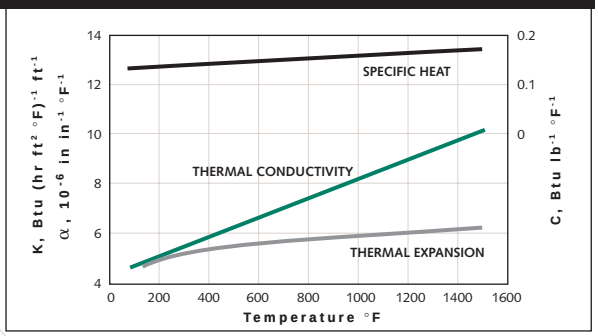
TABLE 1

CHEMICAL COMPOSITION

ELEMENT	WEIGHT %	
	Min.	*Max.*
Aluminum	5.50	6.50
Iron	1.30	2.00
Silicon	0.07	0.13
Oxygen	0.15	0.20
Carbon	—	0.08
Nitrogen	—	0.04
Hydrogen	—	0.0125
Residual Elements, total	—	0.300
Titanium	Remainder	

THERMAL PROPERTIES

BETA ROLLED PLUS RECRYSTALLIZATION ANNEALED



HEAT TREATMENT

Mill Anneal (MA)	1400°F (760°C) for 1-2 hrs, air cool

TABLE 2

PHYSICAL PROPERTIES

PROPERTY	VALUE	
	English	*SI*
Density	0.160 lb in^{-3}	4.44 g cm^{-3}
Beta Transus	1860°F	1015°C
Tensile Modulus	18.5 Msi	128 GPa

TABLE 3

MINIMUM TENSILE MECHANICAL PROPERTIES ANNEALED PLATE AND FORGINGS TO 3 IN (76MM) THICK

Alloy	*Ultimate Tensile Strength ksi (MPa) min*	*0.2% Yield Strength ksi (MPa) min*	*Elongation % in 2 in min*
TIMETAL 62S	135 (930)	130 (896)	10

FIGURE 2

TENSILE MECHANICAL PROPERTIES VS. TEMPERATURE

BETA ROLLED PLUS MILL ANNEALED

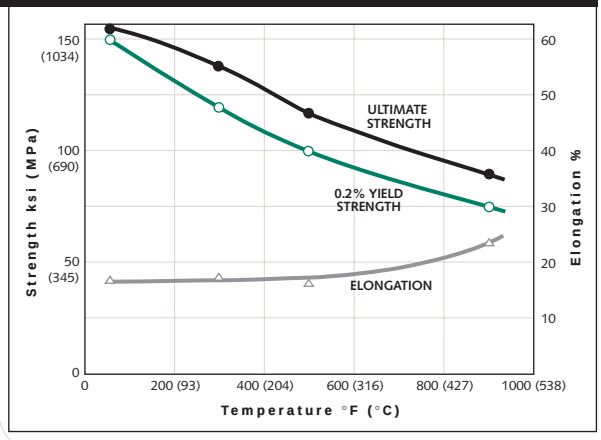


TABLE 5

TYPICAL ROOM TEMPERATURE MECHANICAL PROPERTIES

Condition	Tensile Orientation	Ultimate Tensile Strength ksi (MPa)	0.2% Yield Strength ksi (MPa)	Elongation % in 2-in	Reduction in Area, %	Toughness Orientation	K_{1C} ksi√in (MPa√m)
α–β Forged, RA	L	143 (986)	137 (945)	18	37	L-T	44 (48)
	T	147 (1014)	141 (972)	16	30	T-L	47 (52)
β Forged, RA	L	143 (986)	137 (945)	15	16	L-T	61 (67)
	T	145 (1000)	138 (952)	11	20	T-L	58 (64)

FIGURE 3

FATIGUE CRACK PROPAGATION RESISTANCE ROOM TEMPERATURE

R=0.10; 20HZ; 50% RELATIVE HUMIDITY BETA FORGED + MA

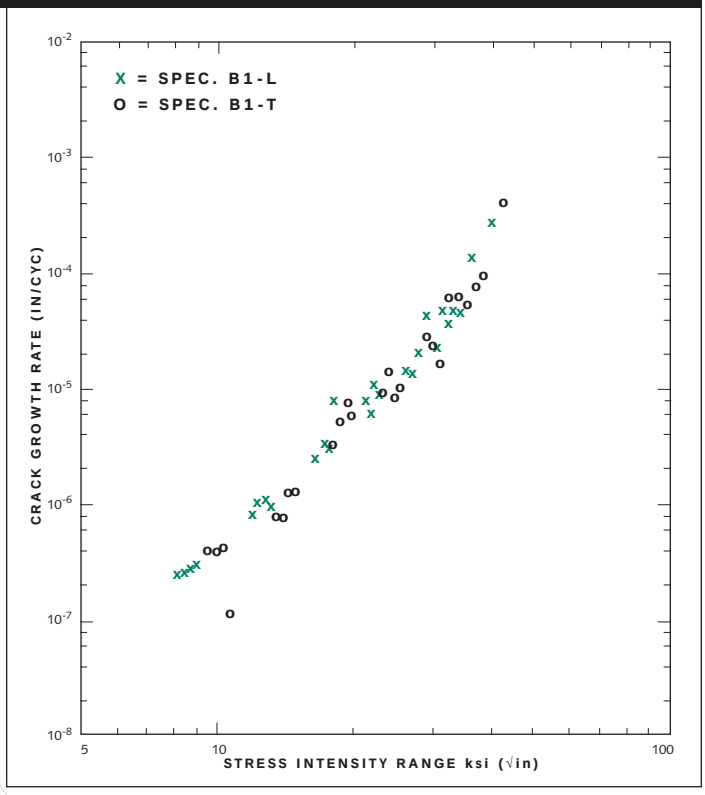
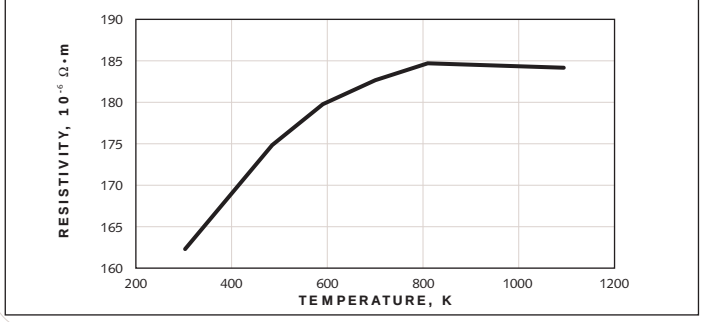


FIGURE 4

ELECTRICAL RESISTIVITY



TYPICAL APPLICATIONS

Armor	*Sporting Goods*
Artillery	*Ship Superstructure*
Machinery	*Bicycles*
Motor Vehicles	*Automotive Valves*
Downhole Piping	*Industrial Valves*

The data and other information contained herein are derived from a variety of sources which TIMET believes are reliable. Because it is not possible to anticipate specific uses and operating conditions, TIMET urges you to consult with our technical service personnel on your particular applications.

For more information, please contact the TIMET Sales Office/Service Center nearest you, TIMET's Technical Laboratories or TIMET's Website @ www.timet.com

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TECHNICAL SUPPORT

Henderson, NV	702-566-4416
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