

1.4962, X12CrNiWTiB16-13, St17-13W - Turbine Blade Steels Datasheet

[1.4962](#) austenitic stainless steel, [X12CrNiWTiB16-13](#) has good thermoplasticity due to good chemical balance of its elements, mainly used in turbine blades, gas turbines and heat-resistant products, containing W and Ti, tungsten improves its creep strength and high temperature machinery Properties, titanium is a very strong carbide former, it precipitates carbides at higher temperatures than chromium carbides form, so there is no carbon available to react with chromium.

The 1.4962 is suitable for high temperature assemblies and is selected in soldering processes and applications where intermittent heating up to 850 C ° may occur. This material can be supplied in the annealed or hardened condition, resulting from warm working, but in the annealed condition its creep properties are lower than those in the strain hardened condition, and this difference is at lower temperatures than in the more pronounced at higher temperatures.

Ge Power grade: X10CrNiW17-13-3

Smelting method: EAF+LF+VD+ESR

Chemical Composition

Grade	Chemical composition WT %									
	C	Si	Mn	Ni	P	S	Cr	W	Ti	B
1.4962, X12CrNiWTiB16-13	0.07 - 0.15	max 0.5	max 1.5	12.5 - 14.5	max 0.035	max 0.015	15.5 - 17.5	2.5 - 3	0.4 - 0.7	0.0015 - 0.006
GE NB 00145	0.08-0.15	max 0.8	max 1.0	13-16	max 0.045	max 0.03	15.5-18	2.5-4.0	4xC-1.0	
GE NB 00144, X10CrNiW17-13-3, St17/13W	0.08-0.15	max 0.8	max 1.0	13-14.5	max. 0.035	max. 0.005	15.5-17.5	2.5-3	5xC%-0.85	max. 0.0060

Mechanical Properties

- +AT
 - Tensile strength KSI(MPa): 500-750
 - Yield Strength 0.02%, Offset KSI(MPa): Min 230
 - A %: Min 30
- +WW (warm worked)
 - Tensile strength KSI(MPa): 590-790
 - Yield Strength 0.02%, Offset KSI(MPa): Min 440
 - A %: Min 20
- Room
 - Tensile strength KSI(MPa): 440-650

- Yield Strength 0.02%, Offset KSI(MPa): Min 590
- A %: Min 20
- Z %: Min 50
- Akv J Min: 70
- HB: Max 240
- High temperature 600 ° C
 - Tensile strength KSI(MPa): 544
 - Yield Strength 0.02%, Offset KSI(MPa): 482
 - A %: 17
 - Z %: 39
 - Creep rupture: 600 ° C/312MPa, >1000h

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- Mechanical property requirements at 23 ° C ± 5 ° C
 - Tensile strength MPa: min 590
 - Yield Strength 0.02%, Offset MPa: 440-650
 - Elongation on 5.65 So (A) min 20
 - Notch impact strength (KV-ISO) min 70 J
 - Brinell hardness: 180 to 240 HBW

Physical Properties

Heat Treatment

Welding Properties

Machining Properties

Similar or Equivalent Steel Grade