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1.4913, X19CrMoNbVN11-1 - Turbine Blade Steels Datasheet

1.4913, X19CrMoNbVN11-1 high-alloyed chrome-molybdenum Creep resisting martensitic stainless steel formulated for primary forming into wrought products, 1.4913, X19CrMoNbVN11-1 high-alloyed chrome-molybdenum Creep resisting steel martensitic stainless steel formulated for primary forming into wrought products, Using Bolts, Nuts, When working at elevated temperatures resistant to 600 °C, characterized by good resistance and creep limit. 1.4913 is the Numeric designation for this material. X19CrMoNbVN11-1 is the Chemical designation.Other Spec. EN 10269-2006, EN 10302-2008, EN 10269-2013, EN 10088-1-2005, **DIN EN 10269-2014**

Chemical Composition

Grade	Chemical Composition %															
	C	Mn	Si	P	S	Cr	Ni	Mo	V	Nb	Al	W	B	N	Cu	Ti
EN 1.4913, X19CrMoNbVN11-1	0.17 - 0.23	0.4 - 0.9	Max 0.5	Max 0.025	Max 0.015	10.0 - 11.5	0.2 - 0.6	0.5 - 0.8	0.1 - 0.3	0.25 - 0.55	Max 0.02	Max 0.7	0.005 - 0.015	0.05 - 0.10	-	-
NF Z20CDNbV11, 56T5	0.18 - 0.25	0.3 - 0.8	0.1 - 0.5	Max 0.025	Max 0.015	10.0 - 12.0	Max 1.0	0.5 - 1.0	0.1 - 0.3	0.25 - 0.55	-	-	-	0.05 - 0.10	-	-
NF Z21CDNbV11	0.16 - 0.25	0.3 - 0.8	0.1 - 0.5	Max 0.030	Max 0.015	10.0 - 12.0	Max 1.0	0.5 - 1.0	0.1 - 0.3	0.25 - 0.55	-	-	-	0.05 - 0.10	-	-
ISO X18CrMnMoNbVN12, 1.4916	0.15 - 0.20	0.5 - 1.0	Max 0.5	Max 0.040	Max 0.030	10.0 - 13.0	Max 0.6	0.3 - 0.9	0.1 - 0.4	0.2 - 0.6	-	-	-	0.05 - 0.10	-	-
18Ch11MNFB, 18Х11МНФБ, 2Х11МФБН, ЕП291	0.15 - 0.21	0.6 - 1.0	Max 0.6	Max 0.030	Max 0.025	10.0 - 11.5	0.5 - 1.0	0.8 - 1.1	0.2 - 0.4	0.20 - 0.45	-	Max 0.2	-	-		

Mechanical Properties

- Tensile strength, R_m: 900 - 1050 MPa
- The yield point, R_e: > 750 MPa
- Elongation, A:> 12%

- Contraction, Z: >40%
- Impact resistance, $KV_{20°C}$: >20J
- Modulus of elasticity, E: 216 GPa
- Thermal capacity, $c_{p20°C}$: 460 J * kg^{-1} * K^{-1}
- Thermal conductivity, λ : 24,0 W * m^{-1} * K^{-1}
- Linear expansion coefficient, α : 10,5 * 10^{-6} K^{-1}

Physical Properties

Heat Treatment

Welding Properties

Machining Properties

Similar or Equivalents Steel Grade

1.4916, 17H11MFNb, Z20CDNbV11, Z 20 CDNbV 11, Z21CDNbV11, Z 21 CDNbV 11, MM12G, 4916-600-77-J, X18CrMnMoNbVN12, X 18 CrMnMoNbVN 12, SUH600, F SUH 600, X19CrMoNbVN11-1, X 19 CrMoNbVN11-1, 1.4913, 56 T 5, 56T5, 1.4916, 18Ch11MNFB, 18 Х 11М Н Ф Б , 2 Х 11М Ф Б Н , Е П291.