

Variant:

X13VDW : Consumable electrode remelted steel

SPECIFICATIONS

European standard:

- X12CrNiMoV12-3

AIR : Z 12 CNDV 12

WL : 1.4933

BS : S 151, S 538, S 159

UNS : S64152

For remelted grade:

WL : 1.4939

UNS : S64152

AMS : 5719

COMPOSITION

Carbon.....	0.12
Chromium.....	11.50
Nickel.....	2.50
Molybdenum.....	1.60
Vanadium.....	0.30

TYPICAL MECHANICAL PROPERTIES

- Annealed condition: heat to 680°C followed by slow cooling.
 - Brinell Hardness: 255
- Air cool from 1050°C. Temper at 250°C.
 - UTS: 1350 N/mm²
 - 0.2 % Yield strength: 1000 N/mm²
 - Elongation (5d): 17 %
 - Impact strength KCU: 110 J/cm²

HEAT TREATMENT REFERENCE

- Air cool from 1050°C. Temper at 650°C.
 - UTS: 1050 N/mm²
 - 0.2 % Yield strength: 700 N/mm²
 - Elongation (5d): 15 %
 - Impact strength KCU: 120 J/cm²
- Creep:

Temperature In °C	Average load in N/mm ² causing creep fracture in:		Average load in N/mm ² causing 1 % elongation in:	
	100 hrs	1000 hrs	100 hrs	1000 hrs
500	500	420	430	370

APPLICATIONS

- Aerospace industry: various mechanical parts.
- Turbine blades and discs.

CHARACTERISTICS

- Good resistance to various corrosive agents.
- Good weldability and suitable for brazing.

HEAT TREATMENT

- Hardening:
Heat to 1050°C.
Air cool or oil quench.
- Temper:
Depending on properties required.

PHYSICAL PROPERTIES

- Density: 7.8
- Thermal conductivity in W.m/m².°C:
- at 20°C: 21
- Mean coefficient of expansion in m/m.°C:
 - between 20°C and 100°C: 9.7×10^{-6}
 - between 20°C and 300°C: 10.4×10^{-6}
 - between 20°C and 500°C: 11.2×10^{-6}
- Modulus of elasticity in N/mm²:
 - at 20°C: 211×10^3

FORGING

- 1000/900°C

Contact:

www.aubertduval.com

The data provided in this document represent typical or average values rather than maximum or minimum guaranteed values. The applications indicated for the grades described are given as guidance only in order to help the reader in his personal assessment. Please note that these do not constitute a guarantee whether implicit or explicit as to whether the grade selected is suited to specific requirements. Aubert & Duval's liability shall not under any circumstances extend to product selection or to the consequences of that selection.