

R448.11

EN: 19 12 3 Nb
ER318



R448.11 (ER318) is an molybdenum alloyed austenitic stainless steel with niobium addition. The niobium improves resistance to intergranular corrosion due to stabilisation of the microstructure and suppression of detrimental precipitation of chromium carbides which deteriorates the materials corrosion resistance. Applications are for joining other Nb/Ti stabilised molybdenum stainless steels.

CHEMICAL COMPOSITION (Nominal) %

C*	Si	Mn	Cr	Ni	Mo	N	Nb	
0.030	0.40	1.80	19.40	11.30	2.50	0.040	0.65	

PRE: 28 (PRE = Cr + 3.1x Mo + 25 x N) * Max

PHYSICAL PROPERTIES

Condition: Annealed

Density	8,0 g / cm ³
Modulus of elasticity, E	200 GPa
Specific heat 0-100°C	500 J / kg°C

TYPICAL MECHANICAL PROPERTIES

Condition: Annealed

Proof strength	Rp0.2	310-350 N / mm ²
Tensile strength	Rm	600-650 N / mm ²
Elongation	A10	45 %

THERMAL TREATMENT

Annealing temperature	1050-1150 °C
	1922-2102 °F

MAX. OPERATING TEMPERATURE

Operating temp. in air	400 °C
	752 °F

THERMAL CONDUCTIVITY

20 °C	14,0 W / m°C
100 °C	15,5 W / m°C
200 °C	16,5 W / m°C
300 °C	17,5 W / m°C
400 °C	18,5 W / m°C
500 °C	19,5 W / m°C

THERMAL EXPANSION

Thermal expansion per °C x 10-6 from 30°C to:

100 °C	16,0
200 °C	16,5
300 °C	17,0
400 °C	17,5
500 °C	18,0

RESISTIVITY

20 °C	0,72 μΩmm
100 °C	0,82 μΩmm
200 °C	0,94 μΩmm
400 °C	1,17 μΩmm