



R647.73

EN: W 25 9 4 N L
ER2594

R647.73 is a Superduplex welding grade with excellent corrosion properties for service in highly corrosive environments. The grade is used as filler metal for welding other superduplex/duplex steels as for example SAF2507 and 2205. Some of the characteristics for this grade are; High resistance to general corrosion and excellent resistance to stress-corrosion cracking, pitting and crevice corrosion. The duplex structure results in very high mechanical strength and high resistance to erosion corrosion and fatigue corrosion. R647.73 is particularly suitable for applications within a temperature range of -40 to +250°C. It is not advisable to use the grade in higher service temperatures than recommended because of precipitation of intermetallic phases. Typical applications for R647.73 is severe environments where high corrosion resistance is required, for example offshore industry, chemical process industry and maritime industry.

CHEMICAL COMPOSITION (Nominal) %

C	Si	Mn	Cr	Ni	Mo	N		
0.01	0.4	0.4	25.1	9.5	3.8	0.25		

PRE: 43 (PRE = Cr + 3.1 x Mo + 25 x N)

Comments: *min-10xC

PHYSICAL PROPERTIES

Density	7.8 g / cm ³
Modulus of elasticity, E	200 GPa
Specific heat 0-100°C	500 J / kg°C

TYPICAL MECHANICAL PROPERTIES

Condition: D-Cooled

Proof strength	Rp0.2	min 600 N / mm ²
Tensile strength	Rm	880-970 N / mm ²
Elongation	A10	min 25 %

Condition: Solution Annealed

Proof strength	Rp0.2	min.480 N / mm ²
Tensile strength	Rm	790-900 N / mm ²
Elongation	A10	min.25 %

THERMAL TREATMENT

Annealing temperature	1090-1170 °C
	1990-2140 °F

MAX. OPERATING TEMPERATURE

operating temp. in air	250 °C
	482 °F
Scaling temp. in air	approx 850 °C
	approx 1560 °F

THERMAL CONDUCTIVITY

20 °C	14 W / m°C
100 °C	15 W / m°C
200 °C	17 W / m°C
300 °C	18 W / m°C
400 °C	20 W / m°C

THERMAL EXPANSION

Thermal expansion per °C x 10-6 from 20°C to:

100 °C	13.5
200 °C	14.0
300 °C	14.0
400 °C	14.5

RESISTIVITY

20 °C	830 μΩmm
100 °C	890 μΩmm
200 °C	960 μΩmm
300 °C	1030 μΩmm
400 °C	1080 μΩmm