TorqBolt Inc.

MATERIAL GRADE DATA SHEET

S32550/F61

SUPER DUPLEX ALLOY

BOLTING MATERIAL FOR HIGH TEMPERATURE SERVICE

Ferralium 255 SD50 sets a new bench mark for Super Duplex as the first to state 570N/mm2 as the minimum 0.2% Proof Stress. It offers excellent corrosion resistance in a wide variety of corrosive chemicals including sulphuric, phosphoric and nitric acids.

In Seawater and other chloride containing environments Ferralium 255 SD50 also provides outstanding resistance to pitting and crevice corrosion, with Critical Pitting Temperature exceeding 50°C.

Excellent ductility and impact strength at both ambient and sub-zero temperatures combine with a high resistance to abrasion, erosion and cavitation erosion.

Listed in NACE MR 01 75 for sour service and having gained ASME Approval for Pressure Vessel applications, Ferralium 255-SD50 is tested to the highest degree using tests designed to guarantee that the trade-marked product possesses high integrity, a correct phase balance and the absence of sigma and other deleterious phases.

Ferralium 255 SD50 is particularly applicable for large forgings, as the formation of sigma phase is much less likely than it is for other Super Duplexes.

FERRALIUM 255-SD50 FERRALIUM 255-SD40 FERRALIUM 255-3SF FERRALIUM 255-3AF FERRALIUM 255-3SC FERRALIUM 255-FG46

Chemical Properties

C	Mn	P	S	Si	Cr	NI	Mo	Cu	N	PREN
0.04 Max	1.50 Max	0.04 Max	0.03 Max	1.00 Max	24.0-27.0	4.50-6.50	2.9-3.90	1.50-2.5	0.10-0.25	0.40Min

Mechanical Properties

Yeild strength	Tensile strength	Elongation	Reduction	Hardness
Mpa	Mpa	%	%	BHN
min	min	min	min	
550	760	15		297

Physical Properties

Density	Elastic Modulus	Mean Coefficient of Thermal	Thermal Conductivity	Specific Hea	Electrical Resistivity
(Kg/m^3)	(Gpa)	Expansion(µm/m/°C)	(W/m.K)	0-100°C	(µΩ.m)
7810	199	11.1 X10^{-6}	14.2	475	0.8

Heat Treatment

Solution Annealed @ 1050°C -1125°C & Liquid Quenched @ 260°C

Additional Tests:

ASTM G48A Corrosion test at 40°C	No pitting and weight loss <4.0 g/m2
Ultrasonic Testing	According to ASTM A388
Ferrite Content	35%-55%
Microstructure	Microstructure certified free from grain boundary carbides, sigma, chi and laves phases

Equivalent Designation

UNS S32550
EN number 1.4507
AISI F61
W.Nr.1.4515
SS
AFNOR Z3 CNDU 25-07 Az
FERRALIUM 255-SD50

Applications

Chemical Process Industry
Marine Industry and Shipbuilding
Oil and Gas Industry:
Pollution Control
Pulp and Paper Industry:
Food Industry:
Agrochemicals

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