

## SUPER DUPLEX STAINLESS STEEL

### TYPICAL APPLICATIONS

Pumps, valves, chokes, Xmas trees, pipework / flanges, bolting, connectors & manifolds. In oil and gas industry.

### PRODUCT DESCRIPTION

Material to UNS S32760 (and the other specifications listed below) is described as a super duplex stainless steel with a microstructure of 50:50 austenite and ferrite. The steel combines high mechanical strength (typically up to 570 MPa yield strength) and good ductility with outstanding corrosion resistance in marine environments. The alloy is supplied with a PREn (Pitting Resistance Equivalent) at >40.0 which guarantees high resistance to pitting corrosion. In addition, the steel offers high resistance to crevice corrosion and stress corrosion cracking. Ambient and subzero (down to minus 50°C) notch ductility is good. These attributes mean that this super duplex steel can be used successfully as an alternative to 300 series stainless steel (such as type 316), standard 22% Cr duplex steel (such

as UNS S31803 / 1.4462 with PREn 33-34) and precipitation hardening stainless steels (typically 17/4PH).

### AVAILABILITY

Bar, forgings, sheet, plate, pipe, tube, closed die forgings, flanges and welding consumables.

### MATERIAL SPECIFICATIONS

- UNS S32750 in various ASTM product form specifications
- EN 10088-3 1.4410 (Grade X2CrNiMoN25-7-4)
- NORSOK MDS D51 to D55 D57 & D58
- ASTM A182 F53
- NACE MR01-75 (latest revision) / ISO 15156

### MACHINABILITY / WELDING

The machining and welding of this grade of super duplex stainless steel presents no particular problems. Guidance notes are available upon request.

### CHEMICAL COMPOSITION % (EN 10088-3 1.4410)

Weight (%)	C	Mn	Si	S	P	Cr	Ni	Mo	N	PREn
Min.						24.0	6.0	3.0	0.24	40.0
Max	0.03	2.00	1.00	0.015	0.035	26.0	8.0	4.5	0.35	

=REn = Cr % + 3.3Mo% + 16N%. Cu at 0.50% max in ASTM A479-05 UNS S32750

### MINIMUM MECHANICAL PROPERTIES AT ROOM TEMPERATURE (EN 10088-3 1.4410 MAX DIAMETER 160mm – SOLUTION TREATED)

Ultimate Tensile Strength	730 – 930 MPa	( 106 – 135 ksi )
0.2% Proof Strength	530 MPa	( 77 ksi )
Elongation	25 %	
Hardness (Max)	290 HB	
Impact	100 J	( 74 ft.lb )

### TYPICAL PHYSICAL PROPERTIES

Density	7.8	kg/dm <sup>3</sup>
Specific Thermal Capacity at 20°C	500	J.Kg <sup>-1</sup> .K <sup>-1</sup>
Mean Coefficient of Thermal Expansion at 20 - 100°C	13.0	x 10 <sup>-6</sup> K <sup>-1</sup>
Thermal Conductivity at 20°C	15	W.m <sup>-1</sup> .K <sup>-1</sup>
Electrical Resistivity at 20°C	0.80	Ω .mm <sup>2</sup> .m <sup>-1</sup>
Modulus of Elasticity at 20°C	200	GPa
Magnetisable	Yes	

### TECHNICAL SALES ASSISTANCE

Our resident team of qualified metallurgists and engineers will be pleased to assist further on any technical topic.

### Smiths High Performance

Unit O, Stratton Business Park, London Road, Biggleswade, Bedfordshire SG18 8QB United Kingdom

Tel: +44 (0) 1767 604 708

Fax: +44 (0) 01767 312 885

Email: sales@smithshp.com

Website: www.smithshp.com

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