Beeley Wood Works
Beeley Wood Lane
Sheffield S6 1ND
United Kingdom

T: +44 (0)114 231 2271
F: +44 (0)114 232 4983
E: info@abbeyfp.co.uk

UNS S31254 F44 – Super Austenitic Stainless Steel

Related Specifications

EN10088-3 X1CrNiMoN20-18-7
ASTM A182 F44
W.Nr. 1.4547
NORSOK R11 to R15

F44 is a 6% Mo Super Austenitic stainless steel. The material combines moderately good mechanical strength and high ductility with excellent corrosion resistance in a variety of environments.
This material is generally supplied in the annealed condition giving yield strengths in excess of 44 KSI (300Mpa), this material cannot be hardened by heat treatment but stronger surface strengths can be achieved by cold working. The typical PREn of 42-44 of this alloy ensures that the resistance to crevice and pitting corrosion is high, giving this alloy particular use as an alternative to the 300 series alloys in applications where higher mechanical properties are required.

Typical Chemical composition

PREn = Pitting Resistance Equivalent PREn= Cr% + 3.3Mo% + 16N%		
	Carbon	0.02% Max
	Silicon	0.80% Max
	Manganese	1.00% Max
	Phosphorous	0.030% Max
	Sulphur	0.010% Max
	Chromium	19.5 – 20.5%
	Nickel	17.5 – 18.5%
	Molybdenum	6.0 – 6.5%
	Nitrogen	0.18 – 0.22%
	Copper	0.50 – 1.00%
	PREn	>40

Mechanical Property Requirements - Annealed condition

Yield	Tensile Strength	Elongation	Charpy Impact @ Rt J	Hardness
>300Mpa (44KSI)	650 – 850Mpa (94 – 123KSI)	35%	100	260HB Max

Forging

Forging temperature for this material should be 1100 – 1250°C
Reheat as often as necessary and cool in still air.

Heat Treatment

Anneal – Heat to 1150 – 1210°C ensuring sufficient time is allowed for the centre to achieve furnace temperature and hold for a time commensurate with the ruling section, followed by water quenching.

Machining

Material in the annealed condition is readily machinable by all conventional methods.

Welding

F44 is readily weldable using many of the standard electric arc welding processes but oxyacetylene welding is not recommended because carbon pickup in the weld metal may occur.