

# ALLOY 330

## ALLOY INFORMATION SHEET

UNS N08330 (W Nr 1.4864)

■ HEAT AND/OR CREEP RESISTANT   
 ■ CORROSION RESISTANT   
 ■ OTHER

Alloy 330 is an iron based alloy with a high nickel and chrome content and displays a combination of :

- strength - carburization resistance - oxidation resistance - and resistance to thermal shock.

The presence of a minimum amount of silicon in the alloy enhances oxidation resistance. Alloy 330 is used extensively in high temperature industrial environments where the requirements are good resistance to carburisation and thermal cycling. It is the workhorse of the heat resistant alloys and should be used in preference to 310 stainless steel for the applications listed below. The alloy remains fully austenitic at all temperatures and is not subject to embrittlement from microstructural changes. Some specific applications for Alloy 330 are heat treating baskets and boxes used in carburising, carbonitriding and annealing furnaces; furnace muffles and retorts; radiant tubes; furnace fans and shafts; rails, trays and quenching fixtures.

**NOTE : Elevated temperature mechanical property data available upon request**

NOMINAL COMPOSITION (%)							
	Ni	Cr	Fe	Mn	Si	C	
	35	19	43	1,5	1,25	0,05	

APPLICABLE SPECIFICATIONS	
PLATE, SHEET	ASTM B536
PIPE, TUBE	ASTM B535/546/710
BAR	ASTM B511/512
FASTENERS	
FORGINGS	
FITTINGS	
WELDING PRODUCTS	

TYPICAL MECHANICAL PROPERTIES #	
TENSILE STRENGTH (MPa)	586
0.2% PROOF STRENGTH (MPa)	280
ELONGATION	45%
HARDNESS (Brinell)	160

TYPICAL PHYSICAL PROPERTIES #	
DENSITY (kg / cu m.)	8080
YOUNGS MODULUS (GPa)	200
THERMAL CONDUCTIVITY (w/ m.C)	13
THERMAL EXPANSION (per Deg C)	0,000016

# - At room temperature

### FABRICATION

Alloy 330 is formed in the same manner as conventional austenitic stainless steels. Heavy lubricants may be used to prevent die wear and galling. Sulphur and chlorine containing lubricants must be fully removed prior to any further processing. Hot working can be carried out in the temperature range 1150 - 950 deg C whilst full annealing requires heating into the temperature range 1060 - 1120 deg C followed by rapid cooling. Alloy 330 is readily welded using shielded metal arc, gas tungsten arc and gas metal arc processes. For best results do not preheat, keep interpass temperatures low and use reinforced bead contours. Stress raisers must be avoided to reduce the likelihood of thermal fatigue.

**Please call for details of availability and price**

### Detailed technical data available upon request

*Note: Data shown are typical and full research should be done to determine the usefulness in any application or design. No warranty is expressed or implied and we assume no responsibility for the accuracy, completeness or usefulness of the content.*