

ALLOY DATA SHEET

CF 8C

CORROSION RESISTANT ALLOY

REVISION: 04/92

DESCRIPTION

CF-8C is a modification of CF8 alloy in which niobium (or Nb + Ta) is used to prevent the precipitation of chromium carbides when the material is heated to 800-1600°F. This grade is the cast equivalent of the wrought 347 stainless steel. It is particularly suited for field welding where re-solution annealing after welding is not possible, or for long term service at elevated temperatures

The alloy has good resistance to nitric acid and nitric-sulphuric acid mixtures, organic acids and salts, potassium sulphate, sodium carbonate and sulphite as well as hydrogen sulphide. Solution annealing at 1950 to 2050°F followed by rapid cooling is used to optimise corrosion resistance. If the alloy is to be used in service at 800 to 1500°F, solution annealing should be followed by a stabilizing treatment at 1600 to 1650°F

In the heat treated condition the alloy normally consists of austenite and 5-10% ferrite.

COMPOSITION

	<u>C</u>	<u>Mn</u>	<u>Si</u>	<u>Cr</u>	<u>Ni</u>	<u>P</u>	<u>S</u>	<u>Nb</u> (i)
Min %				18.0	9.0			8xC Min.
Max %	0.08	1.50	2.0	21.0	12.0	0.04	0.04	1.0

(i) Note If Nb-Ta is used to stabilise the alloy, then the Nb+Ta shall not be less than 9xC Min., and shall not exceed 1.1%

APPLICATIONS

Autoclaves, digesters, marine fittings, pump parts, valve bodies, engine hardware, filters, chemical transfer lines

PRODUCT FORMS

Horizontal and vertical centrifugal castings; static castings.

PHYSICAL PROPERTIES

Density (lbs/in ³)	0.280
Liquidus(°F)	2600
Thermal Conductivity (Btu/h/ft ² /ft/°F)	9.2 @ 212°F 12.1 @ 1000°F
Thermal Expansion (10 ⁻⁶ in/in °F)	9.3 @ 70-212°F 10.3 @ 70-1000°F
Magnetic Permeability	1.2 to 1.8

MECHANICAL PROPERTIES

(Typical Values at Room Temperature - Solution Annealed at 1950-2050°F, W.Q.)

			ASTM Specs
			<u>A743,A744</u>
U.T.S.	K.S.I.	77	70 Min.
Y.S.	K.S.I.	38	30 Min.
Elong.	%	39	30 Min.
Hardness	BHN	149	
Charpy (Key)	ft-lbs	30	

CREEP-RUPTURE PROPERTIES

		<u>RUPTURE-STRESS-KSI</u>		
<u>HOURS</u>		<u>1000</u>	<u>1200</u>	°F
100.	AVG.	51.5	27	
1,000.	AVG.	43	19.5	

Note: Creep-rupture stresses are subject to periodic revisions as the results from long term tests become available.

WELDABILITY

CF-8C may be welded by the SMAW, GTAW and GMAW processes.

Electrodes 347

Preheat Not required.

Post weld heat treatment Not normally required.

Procedures for welding CF-8C alloy are available from Kubota Metal Corporation.

RELATED SPECIFICATIONS

ASTM A743(CF-8C), A744(CF-8C), UNS J92710

Nearest wrought grade: AISI 347.

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