

ALLOY DATA SHEET CF 3

CORROSION RESISTANT ALLOY

REVISION: 01/90

DESCRIPTION

CF-3 is the cast equivalent of the wrought, low carbon, AISI 304L grade of stainless steel. Corrosion resistance is marginally better than the higher carbon CF 8 alloy and is not seriously impaired in welded light sectioned parts if post-weld heat treatment is omitted. Optimum corrosion resistance is reached after solution annealing at 1900 to 2050°F followed by rapid cooling. High impact strength is retained at cryogenic temperatures, while conversely it may be used for service up to 750°F. It has good resistance to nitric and organic acids, phosphates and sulphates.

A modified form of the alloy known as CF-3A has a controlled ferrite range which imparts higher strength than CF-3 and is used in nuclear plant construction.

COMPOSITION

	C	Mn	Si	Cr	Ni	P	S
Min %				17.0	8.0		
Max %	0.03	1.50	2.0	21.0	12.0	0.04	0.04

APPLICATIONS

Food and beverage processing equipment, pumps, valves, manifolds, transfer piping, impellers, propellers, filter screens, agitators and mixers, paper mill rolls.

PRODUCT FORMS

Horizontal and vertical centrifugal castings; static castings.

PHYSICAL PROPERTIES

Density (lbs/in ³)	0.280		
Liquidus(°F)	2650		
Thermal Conductivity (Btu/h/ft ² /ft/°F)	9.2 @ 212°F		
	12.1 @ 1000°F		
Thermal Expansion (10 ⁻⁶ in/in °F)	70-212°F	9.0	
	70-1000°F	10.0	
Magnetic Permeability	1.2 to 3.0		

MECHANICAL PROPERTIES

(Typical Values at Room Temperature - Solution Annealed at <1900°F, Water Quenched.)

		ASTM Specs A351 and A743				
		CF-3	CF-3A	A743 CF-3	A351 CF-3A	
U.T.S.	K.S.I.	77	87	70	77	Min.
Y.S.	K.S.I.	36	42	30	35	Min.
Elong.	%	60	50	35	35	Min
Brinell	H B	150	160			
Charpy 'V'	ft-lbs	102	100			

WELDABILITY

CF-3 may be welded by the SMAW, GTAW and GMAW processes.

Electrodes 308L.

Preheat Not required.

Post weld heat treatment Not normally required

Procedures for welding CF-3 alloy are available from Kubota Metal Corporation.

RELATED SPECIFICATIONS

ASTM A351(CF3 and CF3A), A743(CF-3), A744(CF-3), UNS 92700

Nearest wrought grade: AISI 304L.

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