

ALLOY DATA SHEET CC-50

CORROSION RESISTANT ALLOY

REVISION: 01/90

DESCRIPTION

CC-50 is a non-hardenable, ferritic Fe-Cr-Ni alloy with good resistance to acidic mine water, dilute sulphuric acid, nitric and sulphuric acid mixtures and oxidizing acids. The ductility and impact strength of the alloy are poor, but may be increased by maintaining nickel and nitrogen contents above 2% and 0.15% respectively. Welding of the alloy is rated as difficult.

CC-50 may also be used in high sulphur bearing environments at temperatures up to 2000°F. For high temperature applications and properties reference should be made to HC ALLOY DATA SHEET .

COMPOSITION

	C	Mn	Si	Cr	Ni	P	S	N₂
Min %				26.0				+
Max %	0.50	1.0	1.50	30.0	4.0	0.04	0.04	

APPLICATIONS

Bushings, cylinder liners, digester components, pump casings and impellers, valve bodies and seats

PRODUCT FORMS

Horizontal and vertical centrifugal castings; static castings.

PHYSICAL PROPERTIES

Density (lbs/in ³)	0.272
Melting Point(°F)	2730
Thermal Conductivity (Btu/h/ft ² /ft/°F)	12.6 @ 212°F 17.9 @ 1000°F
Thermal Expansion (10 ⁻⁶ in/in °F)	5.9 @ 70-212°F 6.4 @ 70-1000°F
Magnetic Permeability	Ferromagnetic

MECHANICAL PROPERTIES (Typical Values at Room Temperature)

		As Cast		1900°F A.C.		
		(i)	(ii)	(ii)		
U.T.S.	K.S.I.	70	95	97		ASTM Spec.A743 55.0 Min.
Y.S.	K.S.I.	65	60	65		
Elong.	%	2	15	18		
Brinell	H B	212	193	210		
Izod V	ft-lbs	2	45			

Notes: (i) Less than 1% Ni
 (ii) Over 2% Ni plus 0.15% N₂ minimum

WELDABILITY

CC may be welded by the SMAW and GTAW processes, but is considered difficult to weld.

Electrodes 446

Preheat 400-1300°F

Post weld heat treatment 1650°F, Air Cool.

Procedures for welding CC-50 alloy are available from Kubota Metal Corporation.

RELATED SPECIFICATIONS

ASTM: A743(CC-50), UNS J92616

Nearest wrought grade: AISI 446

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