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# ALLOY DATA SHEET CD-4MCu

## CORROSION RESISTANT ALLOY

REVISION: 01/90

### DESCRIPTION

FCD-4MCu is an Fe-Cr-Ni-Cu-Mo alloy with a duplex structure of ferrite and austenite. Moderately high strength and hardness are combined with good ductility and impact properties, resulting in an alloy with superior resistance to abrasion or erosion-corrosion. In chloride bearing environments the alloy is highly resistant to stress-corrosion cracking. Resistance to nitric and sulphuric acids is high. Castings are most commonly used in the solution annealed condition.

### COMPOSITION

	<u>C</u>	<u>Mn</u>	<u>Si</u>	<u>Cr</u>	<u>Ni</u>	<u>P</u>	<u>S</u>	<u>Cu</u>	<u>Mo</u>
Min %				24.5	4.75			2.75	1.75
Max %	0.04	1.0	1.0	26.5	6.0	0.04	0.04	3.25	2.25

### APPLICATIONS

Compressor cylinder, digester valves, feed screws, impellers, pump casings and liners, marine light fittings, seal rings.

### PRODUCT FORMS

Horizontal and vertical centrifugal castings; static castings.

### PHYSICAL PROPERTIES

Density (lbs/in <sup>3</sup> )	0.280	
Liquidus(°F)	2700	
Thermal Conductivity (Btu/h/ft <sup>2</sup> /ft/°F)	8.8 @ 212°F	13.4 @ 1000°F
Thermal Expansion (10 <sup>-6</sup> in/in °F)	70-212°F	6.3
	70-600°F	6.6
	70-1000°F	6.9
	70-1200°F	7.0
Magnetic Permeability	Ferromagnetic	

### MECHANICAL PROPERTIES

(Typical Values - Solution Annealed 2050°F, Slow Cooled.to1900°F, Water Quenched.)

		<u>Temperature</u>								
		<u>-100</u>	<u>0</u>	<u>70</u>	<u>200</u>	<u>400</u>	<u>600</u>	<u>800</u>	<u>1000</u>	<u>1100°F</u>
U.T.S.	K.S.I.			108	100	93	91	89	76	59
Y.S.	K.S.I.			82	71	60	58	55	48	40
Elong. %				27	26	24	22	21	23	34
R.A.	%			48		41	34	29	35	50
Brinell H B				253						
Charpy 'V'	ft-lbs	22	51	55						

**WELDABILITY**

CD-4MCu may be welded by the SMAW and GTAW processes.

Electrodes Same composition.

Preheat Not required.

Post weld heat treatment Heat to 2050°F cool to 1900°F and quench.

Procedures for welding CD-4MCu alloy are available from Kubota Metal Corporation.

**RELATED SPECIFICATIONS**

ASTM: A351(CD-4MCu), A743(CD-4MCu), A744(CD-4MCu)

Nearest wrought grade: None.

**HEAD OFFICE, FOUNDRY & INTERNATIONAL SALES**

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