

ALLOY DATA SHEET CA-40

CORROSION RESISTANT ALLOY

REVISION: 01/90

DESCRIPTION

CA-40 is an Fe-Cr alloy with similar corrosion properties to CA-15. It can be heat treated to higher hardness values up to 550 BHN because of it's higher carbon content, but as a consequence has lower impact strength but better resistance to more abrasive service.

COMPOSITION

	<u>C</u>	<u>Mn</u>	<u>Si</u>	<u>Cr</u>	<u>Ni</u>	<u>Mo</u>	<u>P</u>	<u>S</u>
Min %	0.25			11.5				
Max %	0.40	1.0	1.50	14.0	1.0	0.5	0.04	0.04

APPLICATIONS

Pump casings, bowls, impellers and diffusers, valve bodies and trim, water turbine components, runout and conveyor rolls, choppers, cutting blades and shredders, liners.

PRODUCT FORMS

Horizontal and vertical centrifugal castings; static castings.

PHYSICAL PROPERTIES

Density (lbs/in ³)	0.275
Liquidus(°F)	2725
Thermal Conductivity (Btu/h/ft ² /ft/°F)	14.5 @ 212°F 16.7 @ 1000°F
Thermal Expansion (10 ⁻⁶ in/in °F)	5.5 @ 70-212°F 6.4 @ 70-1000°F 6.7 @ 70-1300°F
Magnetic Permeability	Ferromagnetic

MECHANICAL PROPERTIES (Typical Values-1800°F Air Cool)

		<u>TEMPERING TEMPERATURE*</u>				°F	<u>ASTM Spec.A743</u>	
		<u>600</u>	<u>1100</u>	<u>1200</u>	<u>1400</u>			
U.T.S.	K.S.I.	220	150	140	110		100	Min
Y.S.	K.S.I.	165	125	113	67		70	Min
Elong.	%	1	10	14	18		15	Min
R.A.	%	10	30	55	60		25	Min
Brinell	H B	470	310	267	212		269	Max
Charpy key'	ft-lbs	1	2	4	3			

*Notes

- Tempering at about 900°F should be avoided due to poor impact strength.
- Tempering at 600°F or less, optimizes strength, hardness and corrosion resistance.
- Tempering above 1100°F increases toughness but reduces corrosion resistance.

WELDABILITY

CA-40 may be welded by the SMAW, GTAW or GMAW processes.

Electrodes Type 410 or 420

Preheat 400 to 600°F

Post weld heat treatment 1125 to 1400°F, Air Cool.

Procedures for welding CA-40 alloy are available from Kubota Metal Corporation

RELATED SPECIFICATIONS

ASTM: A743(CA-40 and CA-40F), UNS J91153

Nearest wrought grade: AISI 420

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