MOLYBDENUM ARC-CAST PRODUCTS

Number PD-7024
Issue 0-29.10.2003

MOLYBDENUM ALLOY AB-30W
Arc-Cast Bar

Description of Product This specification covers wrought bar of carbon-deoxidized molybdenum 30 % tungsten alloy produced from ingots consolidated by the H.C. Starck consumable electrode vacuum-arc-casting process.

Chemical Characteristics[1)]
(Mass fraction in % [cg/g]; ppm [µg/g])

The chemical composition of the billet used for producing the wrought bar shall conform to the following limits:

Mo(By Difference)	min.	66.9		%
Tungsten	27.0	-	33.0	%
Ni	max.		0.002	%
*N	max.		0.002	%
*O	max.		0.0025	%
Fe	max.		0.008	%
Si	max.		0.008	%
C	max.		0.030	%

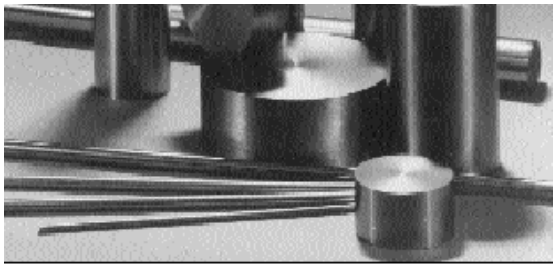
*Unless method of analysis is agreed upon, deviations from these limits alone shall not be cause for rejection.

Structure Bar will be supplied in a stress-relieved condition. Material can be supplied in the recrystallized condition upon request.

Mechanical Properties The hardness of stress-relieved material will be determined to conform to the following (measured at mid-radius location):

Diameter		Hardness, DPH (10 kg)	
Inches	mm	Minimum	Maximum
Over 1/8 to 7/8	3.2 - 22.2	240	300
Over 7/8 to 1 1/8	22.2 - 28.6	235	300
Over 11/8 to 1 3/8	28.6 - 34.9	230	290
Over 13/8 to 2 7/8	34.9 - 73.0	230	290

Tensile properties can be supplied, at additional cost, if requested at time of order.



Arc-Cast Products

1) Information on testing methods on request.

Number PD-7024
Issue 0-29.10.2003

Dimensional Tolerances

Diameter		Diameter Variation				Out-of-Round	
Inches	mm	Inches		mm		Inches	mm
1/8 to 9/32	3.2 - 7.1	+0.002	-0.002	+0.05	-0.05	0.004	0.10
Over 9/32 to 13/32	7.1 - 10.3	+0.003	-0.003	+0.07	-0.07	0.006	0.15
Over 13/32 to 5/8	10.3 - 15.9	+0.010	-0.005	+0.25	-0.13	0.012	0.30
Over 5/8 to 7/8	15.9 - 22.2	+0.015	-0.005	+0.38	-0.13	0.015	0.38
Over 7/8 to 1	22.2 - 25.4	+0.020	-0.005	+0.51	-0.13	0.015	0.38
Over 1 to 1 3/8	25.4 - 34.9	+0.020	-0.010	+0.51	-0.13	0.018	0.46
Over 13/8 to 11/2	34.9 - 38.1	+0.020	-0.015	+0.51	-0.25	0.020	0.51
Over 11/2 to 15/8	38.1 - 41.3	+0.025	-0.015	+0.51	-0.38	0.020	0.51
Over 15/8 to 2 41.3	- 50.8 +0.030	-0.020	+0.64	-0.38	0.025	0.64	
Over 2 to 2 1/2	50.8 - 63.5	+0.032	-0.032	+0.76	-0.51	0.025	0.64
Over 21/2 to 31/4	63.5 - 88.9	+0.032	-0.032	+0.81	-0.81	0.027	0.69

Special finished bars can be supplied with a tolerance of ± 0.002 inch for 2 inches diameter or smaller sizes, and ± 0.003 inch for larger size bars.

Maximum variation from straightness will be 0.050 inch per foot.

Maximum variation in cut length will be + ¼ inch, -0.

Surface Condition Bars will be supplied with chemically or mechanically cleaned surfaces. Minor surface imperfections, revealed by dye penetrant inspection, may be removed by conditioning, provided such removal does not reduce dimensions below specified tolerance limits. Special finished bars will be supplied with a surface finish of 90 RMS or better.

Identification Bar will be identified with an appropriate lot number. Each shipping container will be marked with the name of the customer and the purchase order number.

Hazards identification in Advertising (Directive 67/548/EEC Article 26, Directive 1999/45/EC Article 13 and REGULATION (EC) No 1272/2008 Article 48)
none.

Reports A product certification report that details pertinent chemical, mechanical, structural and physical integrity features will be provided.

Rejection H.C. Starck must receive written notification of rejected material with the resaon for rejection. The right is reserved to inspect rejected material at customer plant for claim validation. The material may be returned only after proper authorization.

H.C. Starck Inc.
45 Industrial Place
Newton, MA 02461-1951 / USA
Phone +1 (617) 630-5800, Fax +1 (617) 630-5879

H.C.Starck
High Performance Metal Solutions

info@hcstarcksolutions.com www.hcstarcksolutions.com