

## MOLYBDENUM ARC-CAST PRODUCTS

# PURE MOLYBDENUM CLC Arc-Cast Bar Low Carbon

This specification covers carbon-deoxidized, low-carbon molybdenum wrought bar produced from ingots consolidated by the Elmet Technologies consumable electrode vacuum-arc-casting process.

### CHEMICAL CHARACTERISTICS<sup>1</sup>

(Mass fraction in % [cg/g]; ppm [ $\mu\text{g/g}$ ])

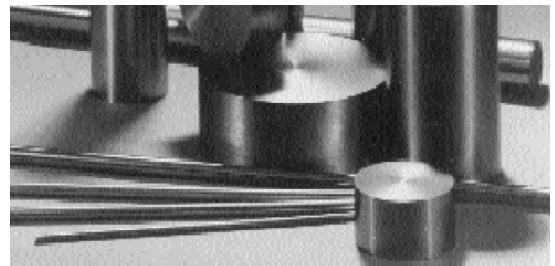
The chemical composition of the billet used for producing the wrought bar shall conform to the following limits:

| <b>Mo</b><br>(By Difference) | <b>min.</b> | <b>99.99 %</b> |
|------------------------------|-------------|----------------|
| C                            | max.        | 0.010 %        |
| *N                           | max.        | 0.002 %        |
| *O                           | max.        | 0.002 %        |
| Fe                           | max.        | 0.010 %        |
| Ni                           | max.        | 0.002 %        |
| Si                           | max.        | 0.010 %        |

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

### STRUCTURE

Material can be supplied in the recrystallized condition upon request.



**ARC-CAST PRODUCTS**

<sup>1</sup> Information on testing methods on request.

## 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      | +0.51-0.25 | 0.018        | 0.46 |
| Over 1 3/8 to 1 1/2 | 34.9 - 38.1 | +0.020 -0.015      | +0.51-0.38 | 0.020        | 0.51 |
| Over 1 1/2 to 1 5/8 | 38.1 - 41.3 | +0.025 -0.015      | +0.64-0.38 | 0.020        | 0.51 |
| Over 1 5/8 to 2     | 41.3 - 50.8 | +0.030 -0.020      | +0.76-0.51 | 0.025        | 0.64 |
| Over 2 to 2 1/2     | 50.8 - 63.5 | +0.032 -0.032      | +0.81-0.81 | 0.025        | 0.64 |
| Over 2 1/2 to 3 1/2 | 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  $\pm 0.002$  inch for 2 inches diameter or smaller sizes, and  $\pm 0.003$  inch for larger size bars.

Maximum variation from straightness will be 0.050 inch per foot.

Maximum variation in cut length will be + 1/4 inch, -0.

## SURFACE CONDITION AND INTERNAL 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.

The internal integrity of bar >1.0" diameter will be determined by ultrasonic inspection and shall satisfy Elmet Technologies Ultrasonic Specification No. Elmet QC-32 (latest version).

## 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

Elmet Technologies must receive written notification of rejected material with the reason 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.



### ELMET TECHNOLOGIES

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