

RAW MATERIALS / FERROUS

FNHA-2-A-501.00

INDUCTION HARDENED CHROME PLATED ROUND BAR - 75 KSI YIELD STRENGTH

1. SCOPE

1.1 This specification defines the requirements for induction hardened, chrome plated round steel bars used primarily in cylinder rod applications.

1.2 This specification includes material requirements, ordering information and quality requirements to be used by Engineering, Purchasing and Manufacturing.

2. DESIGNATION

New drawings and revisions shall specify the following in the material block:

STD CHR PL RD 75KSI

Standard designation will be used for 48 hour salt spray specification material. If 96 hour salt spray specification material is required, it must be noted on the drawing.

3. RELATED SPECIFICATIONS

3.1 REFERENCED STANDARDS

AISI 1045 Modified Hot Rolled to 75000 psi Minimum Yield (LaSalle Steel Specification 1045V1).

ASTM A29 Standard Specifications for Steel Bar, Carbon and Alloy, Hot Wrought and Cold Finished, General Requirements.

ASTM B117 Salt Spray Standard.

4. REQUIREMENTS

4.1 ORDERING INFORMATION

AISI 1045 Steel, modified to 75000 psi minimum yield strength.

Induction Hardened Bar.

Hard Chrome Plated.

Dimensions (diameter, bar length, and cut length).

Salt Spray Requirements: select one

48 hours – Standard

96 hours – Optional, when extra protection is required.

4.2 PACKAGING

Collared and boxed, or individual fiber tubes, bundled and wrapped.

4.3 STEEL PROPERTIES

4.3.1 Hot Rolled Special Quality Carbon Steel Bar, per LaSalle Specification 1045V1. (see Appendix 1.)

4.3.2 Chemical Composition

	Minimum	Maximum
Carbon	0.43	0.47
Manganese	0.60	0.90
Phosphorus	---	0.04
Sulfur	---	0.05
Silicon	0.15	0.35
Chromium	---	0.20
Nickel	---	0.20
Copper	---	0.15
Molybdenum	---	0.06
Vanadium	0.04	0.13

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Nitrogen 0.008 0.016
Columbium may be substituted for or used in combination with vanadium in some applications.

To 1.5" 0.001"
Over 1.5" to under 2.5" 0.0015"
2.5" to 3.0" 0.002"
Over 3.0" to 4.0" 0.003"
Over 4.0" 0.005"

4.4 INDUCTION HARDENING**4.4.1** Surface Hardness: 55 / 62 Rockwell C.**4.6.2** Length Tolerance: Any specified length 10 ft. to 24 ft.; +0.060" / -0.000" tolerance.**4.4.2** Case Depth: 0.050" to 0.090" Effective Case.**4.6.3** Squareness of Cut: 0.015 per inch of diameter.**4.5. CHROME PLATING****4.6.4** Surface Finish: RMS = 16 Maximum.**4.5.1** Plating Thickness: 0.0005" minimum thickness.**4.6.5** Straightness Tolerance**4.5.2** Plating Hardness: 69 / 71 Rockwell C.**4.5.3** Salt Spray Requirements: Must pass 48 or 96 hour salt spray test per ASTM B117 with no corrosion, as specified by 4.1 Ordering Information.

Diameter, inch	Length, feet	Maximum Curvature
Less than 5/8"	Less than 15'	3/16 " in any 10' length
Less than 5/8"	15' and over	5/16 " in any 10' length
5/8" and over	Less than 15'	1/8 " in any 10' length
5/8" and over	15' and over	3/16 " in any 10' length

4.5.4 Substitutions: 96 hour salt spray material may be substituted for applications specifying 48 hour salt spray. 48 hour salt spray material may not be substituted for applications specifying 96 hour salt spray, unless written approval is obtained through the deviation procedure.**4.6. DIMENSIONAL TOLERANCES****4.6.1** Diameter Tolerance, in decimals of an inch, provide for undersize variation only:

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