

RAW MATERIALS / FERROUS

FNHA-2-A-500.00

INDUCTION HARDENED CHROME PLATED ROUND BAR - 100 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 100KSI

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 1045/1050 - Chemistry Requirements.

ASTM A108 - Specification for Steel Bars, Carbon, Cold-Finished, Standard Quality.

ASTM A311, Class B, - Specification for Stress-Relieved Cold-Drawn Carbon Steel Bars Subject to Mechanical Property Requirements.

ASTM B117 - Salt Spray Standard.

4. REQUIREMENTS**4.1 ORDERING INFORMATION**

AISI 1045/1050 Steel, with 100000 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 REQUIREMENTS.

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

4.3 CHEMISTRY REQUIREMENTS

Element	Minimum	Maximum
Carbon	0.43	0.55
Manganese	0.60	0.90
Phosphorus	---	0.040
Sulfur	---	0.050

4.4 INDUCTION HARDENING

4.4.1 Surface Hardness: 55 / 62 Rockwell C.

4.4.2 Case Depth: 0.050" to 0.090" Effective Case.

4.5 CHROME PLATING

4.5.1 Plating Thickness: 0.0005" minimum thickness.

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 in 4.1 Ordering Information.

					NAME	STD CHR PL RD 100KSI		
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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:

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"

4.6.2 Length Tolerance: Any specified length 10 ft. to 24 ft.; +0.060" / -0.000" tolerance.

4.6.3 Squareness of Cut: 0.015 per inch of diameter.

4.6.4 Surface Finish: RMS = 16 Maximum.

4.6.5 Straightness Tolerance

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

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