

ZINC MECHANICAL COATING ON FERROUS MATERIALS**SCOPE**

1.1 This specification defines the requirements of mechanical coated zinc deposited on a ferrous substrate. Provisions for coating thickness and neutral salt spray corrosion resistance are included. Hot dip galvanizing, zinc spraying, zinc electroplate or the replacement of zinc with cadmium are not allowed per this specification.

1.2 This specification may involve hazardous materials, procedures and apparatus. This specification does not address the health and safety problems associated with its application or use. It is the specification user's responsibility to follow appropriate health or safety practices and determine the application or regulatory limitation prior to use.

2. APPLICATION

This specification was released to define performance requirements for zinc mechanical coating where corrosion protection on high strength ferrous surfaces are required.

3. DESIGNATION

3.1 The Engineering drawing shall contain the notations for specification of zinc mechanical coating in accordance with standard 8651126 (FNHA-3-B-100.00) for zinc electroplating. The zinc mechanical coating part number shall be taken from the Table 1. The zinc mechanical coating description is listed in Table 3.

3.2 The dimensions specified on the drawing are before coating. If the application does not allow the additional thickness of coating, the actual required limits must be specified on the drawing and noted "AFTER COATING".

4. RELATED STANDARDS

ASTM B117—Standard Method of Salt Spray (Fog) Testing
 ASTM B183—Practice for Preparation of Low Carbon Steel for Electroplating
 ASTM B201—Practice for Testing Chromate Coatings on Zinc and Cadmium Surfaces
 ASTM B 242—Practice for Preparation of High Carbon Steel for Electroplating
 ASTM B320—Practice for Preparation of Iron Castings for Electroplating
 ASTM B322- Practice for Cleaning Metals Prior to Electroplating
 ASTM B487—Method for Measurement of Metal and Oxide Coating Thickness by Microscopical Examination of a Cross Section
 ASTM B571—Test Methods for Adhesion of Metallic Coatings
 8651126 (FNHA-3-B-100.00) Drafting, Referencing Standards on Drawings

5. REQUIREMENTS**5.1 CLASSIFICATION**

This specification provides a selection from one (1) zinc mechanical coating thickness with a combination of three (3) passivating treatments.

					NAME	STD ZINC MECH COAT					
					 NEW HOLLAND			ENGINEERING SPECIFICATION			
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MATERIALS / COATINGS

FNHA-2-H-505.00

5.2 DESCRIPTION

5.2.1 Specification 86580483: This specification will consist of a zinc mechanical coating without a passivation treatment. This coating appearance is bright silvery and will exhibit the least corrosion resistance. This process is also the least expensive.

5.2.2 Specification 86580484, This specification will consist of a zinc mechanical coating and a passivation treatment by a clear or a colored chromate treatment leached clear. The appearance is a bright silvery or light blue hue. The corrosion resistance is considered to be intermediate.

5.2.3 Specifications 86580485 and 86580486 These specifications will consist of a zinc mechanical coating and a passivation treatment by a chromate coating. The 86580485 appearance is yellow to brown including olive drab. The corrosion resistance is considered to be the greatest. 86580486 appearance is black. This black coloring of the chromate tends to reduce this coating's resistance to corrosion.

5.3 STRESS RELIEF

All ferrous materials having a ultimate tensile strength greater than 1000 Mpa shall be stress relieved prior to the surface preparation process. This stress relief shall be performed at $190 \pm 15^\circ \text{C}$ for a minimum of three (3) hours.

5.4 SURFACE PREPARATION

Prior to coating, the parts shall be thoroughly cleaned and free from rust, scale, oil or any other foreign matter which would be detrimental to the finish or adhesion of the coating. Particular care should be taken in the cleaning operation to prevent hydrogen embrittlement of parts exposed to high stress in service, prior heat treatment or cold working. It is recommended that the appropriate practices be used: ASTM B183, ASTM B242, ASTM B320.

5.5 COATING DEPOSITION

5.5.1 A thin metallic coating (generally copper) shall be applied to the surface without the use of electrical current.

5.5.2 The zinc coating shall be applied through a tumbling process in a media which shall assure the uniform adhering coating is developed.

5.5.3 Supplementary coating such as a chromate shall be applied as required.

5.6 MECHANICAL COATING THICKNESS

5.6.1 Component Parts

The mechanical coating thickness shall be not less than the thickness specified in Table 1 for the specific classes. This coating thickness shall be applied only to significant surfaces. Other non-significant surfaces shall have a minimum of the next lowest class thickness with respect to the selected class. When the lowest thickness is selected, the non-significant surfaces shall have a minimum of 1/2 the minimum thickness.

5.6.2 Definition

Significant Surface: Surface which is visible, susceptible to corrosion, and on which mechanical coating is a necessary function, unless otherwise specified on Engineering drawings or standards. In general, the portion of the visible surface on the part which can be touched by a 20 mm (0.75 inch) diameter sphere. Sharp edges are excluded.

5.6.3 Maximum Mechanical Coating Thickness for Threads on Fasteners

The maximum allowable thickness of zinc mechanical coating applied to the threaded surface is described on Table 2. The location of this thickness shall be measured at 1 diameter from the threaded end of the fastener and at 1/2 the tooth height of the thread. This maximum thickness may be altered if the manufacturer of the threaded fastener takes into account the changes in pitch diameter due to the mechanical coating

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