

## ZINC ELECTROPLATING ON FERROUS MATERIALS

## 1. SCOPE

1.1 This specification defines the requirements of electroplated zinc deposited directly on a ferrous substrate. Provisions for plating thickness and neutral salt spray corrosion resistance are included. Hot dip galvanizing, zinc spraying 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 electroplating where corrosion protection on ferrous surfaces are required.

## 3. DESIGNATION

The Engineering drawing or standard shall contain the following notation for the specification of zinc electroplating. Notion shall appear as noted below and in Figure 1.

Plate per item (X) where (X) is the item number  
BAKING is required per item (X)

The baking requirement shall be noted on Engineering drawings for parts having hardness greater than 34 Rockwell C or that are severely cold worked.

In addition to the above requirements, the plating specification shall be noted above the title block as shown in Figure 1. The part number shall be taken from Table 1. This number shall be matched with the numbers in Table 3 and the matching name will be used in the item name block as seen in Figure 1. The quantity shall be "0".

86508316 (FNHA-2-H-500.25) is the Zinc Electroplating Specification used most often for hardware.

FIGURE 1

Plate per Item 1  
BAKING is required per Item 2

|      |          |     |             |                       |
|------|----------|-----|-------------|-----------------------|
| 2    | 0        |     | 86512106    | BAKE PER STD 86508305 |
| 1    | 0        |     | 86508316    | 2H YCR 5 STD 86508305 |
| ITEM | QUANTITY | UOM | PART NUMBER | NAME                  |

D'ANGLE SECTION

EUROPEAN MATERIAL

AMERICAN MATERIAL

THE FOLLOWING TOLERANCES APPLY UNLESS OTHERWISE SPECIFIED  
90° = 90° ± 2° MACHINED SURFACE FINISH = 6.3 EXCEPT DRILLED HOLES  
POSITION TOLERANCES AND RELATED DATUMS. APPLY MMC OTHER GEOMETRIC TOLERANCES

|              |         |     |         |        |                                                                                                                                                                                                        |                           |  |
|--------------|---------|-----|---------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--|
|              |         |     |         |        | NAME                                                                                                                                                                                                   | STD ZINC ELECTROPLATE     |  |
| ALL          | G       | JDF | 112450  | 8/3/98 |  <b>NEW HOLLAND</b>                                                                                                 | ENGINEERING SPECIFICATION |  |
| ALL          | F       | EDF | 110646  | 10/97  |                                                                                                                                                                                                        | FRAME 1 OF 6              |  |
| ALL          | E       | RLF | 109921  | AUG 97 |                                                                                                                                                                                                        | PART NUMBER               |  |
| ALL          | D       | RLF | 109326  | 109326 |                                                                                                                                                                                                        | 86508305                  |  |
| ALL          | C       | RLF | 107244  | 960111 |                                                                                                                                                                                                        | Documents                 |  |
| ALL          | B       | RE  | 104739  | 950123 | THE INFORMATION HEREON IS THE CONFIDENTIAL AND PROPRIETARY PROPERTY OF NEW HOLLAND NORTH AMERICA, INC. AND/OR NEW HOLLAND CANADA, LTD. ANY USE, EXCEPT THAT FOR WHICH IT MAY BE LOANED, IS PROHIBITED. |                           |  |
| FRAME NO.    | REV     | BY  | ECN NO. | DATE   |                                                                                                                                                                                                        |                           |  |
| APP.         | DRAWN   |     | NE      | JAN 94 |                                                                                                                                                                                                        |                           |  |
| K. H. JAN 95 | CHECKED |     |         |        |                                                                                                                                                                                                        |                           |  |

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

#### 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 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

#### 5. REQUIREMENTS

##### 5.1 CLASSIFICATION

This specification provides a selection from four (4) zinc electroplating thickness with a combination of three (3) passivating treatments. Also, this specification makes a provision for a wax coating to be applied to improve the frictional characteristics of the plated surface.

##### 5.2 DESCRIPTION

5.2.1 Specifications 86508307 through 86508310 (FNHA-2-H500.00 through .09): These specifications will consist of a zinc electroplate without a passivation treatment. This electroplating appearance is bright silvery and will exhibit the least corrosion resistance. This process is also the least expensive.

5.2.2 Specifications 86508311 through 86508314 (FNHA-2-H500.10 through .19): These specifications will consist of a zinc electroplate 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 86508315 through 86508322 (FNHA-2-H500.20 through .39): These specifications will consist of a zinc electroplate and a passivation treatment by a chromate coating. The 86508315 through 86508318 (FNHA-2-H500.21 through .29) appearance is yellow to brown including olive drab. The corrosion resistance is considered to be the greatest. 86508319 through 86508322 (FNHA-2-H500.31 through .39) appearance is black. This black coloring of the chromate tends to reduce this coating's resistance to corrosion.

5.2.4 Specifications 86508323 through 86508338 (FNHA-2-H500.50 through .99): These specifications will consist of the same as above mentioned specification categories with the addition of a wax finish to alter the surface coefficient of friction.

##### 5.3 SURFACE PREPARATION

Prior to electroplating, 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 plating. 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.

##### 5.4 ELECTROPLATING THICKNESS

###### 5.4.1 Component Parts

The electroplating 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 Class 3 thickness is selected, the non-significant surfaces shall have a minimum of 1/2 the minimum thickness.

|                                                                                                   |                       |  |  |           |             |         |
|---------------------------------------------------------------------------------------------------|-----------------------|--|--|-----------|-------------|---------|
| <br>NEW HOLLAND | NAME                  |  |  |           | PART NUMBER |         |
|                                                                                                   | STD ZINC ELECTROPLATE |  |  |           | 86508305    |         |
| ENGINEERING SPECIFICATION                                                                         |                       |  |  | REV.<br>G | FRAME<br>2  | OF<br>6 |