

NAVISTAR, INC.		
Material, Parts, and Process Specifications (MPAPS)		NUMBER: MPAPS S-EM-40.101-GS/PL
		Former Designation: ESP-EM-40.101-GS
TITLE: Hex Piloted – Projection Weld Nuts – Metric Series (Noun Code 5780)	CURRENT REV No.: 1801	DATE: Jan 2018
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<i>This specification may involve hazardous materials, equipment, and procedures. This specification does not purport to address all of the safety issues associated with its use. The user is responsible to consult appropriate safety and health practices and to determine the applicability of regulatory limits prior to use.</i>		

1.0 GENERAL: Implementation of this standard must be in accordance with the policies and procedures outlined in MPAPS S-A-0.101. There may also be supplemental group instructions in regard to use of metric standards that should be taken into account.

Weld nuts are used as prepositioned nuts that permit blind one-sided assembly of parts. These nuts are designed with 3 or 6 projections at the corners for projection welding. A pilot around the threaded hole is used to positively locate the nut when it is inserted into the hole provided in the part to which it is assembled. The pilot also minimizes the splatter of molten metal into threads during the welding operation. There is no National or International Standard on this product. The specifications are based upon local manufacture and user requirements.

Inch series weld nuts may be found in MPAPS S-E-40.101-GS/PL.

2.0 RESTRICTED CHEMICAL SUBSTANCES: Effective January 1, 2007, all product supplied to the requirements of this specification must comply with the requirements of the MPAPS B-50 specification.

3.0 CONTENTS:

	Page
General	1
Restricted Chemical Substances	1
Design Consideration	2
Metric-Inch Related Sizes	2
Threads	2
Thread Tolerances	2
Color Coding	2
Method of Designation	2
Policy for Selecting Parts for New Design	3
Miscellaneous Dimension	3
Threads	3
Marking	3
Material	3

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JANUARY 2018

NUMBER: MPAPS S-EM-40.101-GS/PL	TITLE: Hex Piloted – Projection Weld Nuts	REVISION:: 1801
--	--	----------------------------------

Finish	Page
Surface Discontinuities	3
Dimension and Part List	3
Technical Information	3
	6

4.0 DESIGN CONSIDERATION: Weld nuts are used for blind fastening of parts. They permit the use of a threaded fastener on metals too thin to be tapped, and they position readily into a drilled or punched pilot hole.

5.0 METRIC-INCH RELATED SIZES: During the inch to metric design transition period, the following chart of related sizes can be used for reference. This information is not to be considered as a recommendation for substitutions but only as a means of determining approximate dimensional equivalents.

Metric Series mm	Approximate Inch Series
6	1/4
8	5/16
10	3/8, 7/16
12	1/2
14	9/16
16	5/8

6.0 THREADS: The ISO basic profile is essentially the same geometric configuration as the unified screw thread basic form. The threads will be coarse series, tolerance class 6H.

7.0 THREAD TOLERANCES: The medium ISO class of fit 6H/6g is approximately the same as the 2A/2B allowance in the U.S. unified thread series for comparable size. For example:

<u>Thread</u>	<u>Allowance</u>
M10 x 1.5 - 6H/6g	0.032 mm (.00126 in)
3/8-16 UNC 2A/2B	.0013 in (0.033mm)

8.0 COLOR CODING: Not recommended, except in cases where adequate insurance is needed to prevent mixing of "metric parts" with look-alike "inch parts." The color blue is standard identifier used in some industries. This must be handled internally at individual plants where needed and is meant to be supplemental to the normal finish and easily deleted when the need for supplemental identification no longer exists. The supplemental blue color should not be used on material such as stainless steel which is specified for cosmetic purposes, or phosphate coating which may cause a loss of color identity.

9.0 METHOD OF DESIGNATION: Weld nuts will be designated by size, word description, type, series, and part number as follows:

M10, Hex Short Piloted Weld Nut, 6 Projection, Regular, Part Number
M10, Hex Long Piloted Weld Nut, 6 Projection, Heavy, Part Number

The absence of a specification for pitch indicates that coarse thread is required; e.g., a coarse thread of the dimensions M10 x 1.5 is designated as "M10."

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JANUARY 2018



Documents

Page 2 of 7
Document Sharing Hub

NUMBER: MPAPS S-EM-40.101-GS/PL	TITLE: Hex Piloted – Projection Weld Nuts	REVISION:: 1801
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10.0 POLICY FOR SELECTING PARTS FOR NEW DESIGN: Approved parts are so designated to reduce variety of parts and assure maximum availability, interchangeability, and cost savings in volume buying.

For new design, parts shall be selected from "Approved" part list only.

Sizes: Regular Series - M5, M6, M8, and M10.

Heavy Series - M10, M12, and M16.

11.0 MISCELLANEOUS DIMENSIONS: Tops of nuts may be chamfered or rounded at corners and edges provided the flat area and degree of flatness are sufficient to provide intimate contact with the welding electrode. The axis of the threaded hole will be at right angles to the top face within 2°. Pilot diameter will not be eccentric with threaded hole by more than 0.2 mm. Height of all projections of any one nut will be within 0.13 mm of each other.

12.0 THREADS: Threads will conform to ISO metric internal threads, tolerance Class 6H.

13.0 MARKING: Weld nuts will be identified as metric by the symbol "M" or a numerical 9 indented on the top surface of the nut.

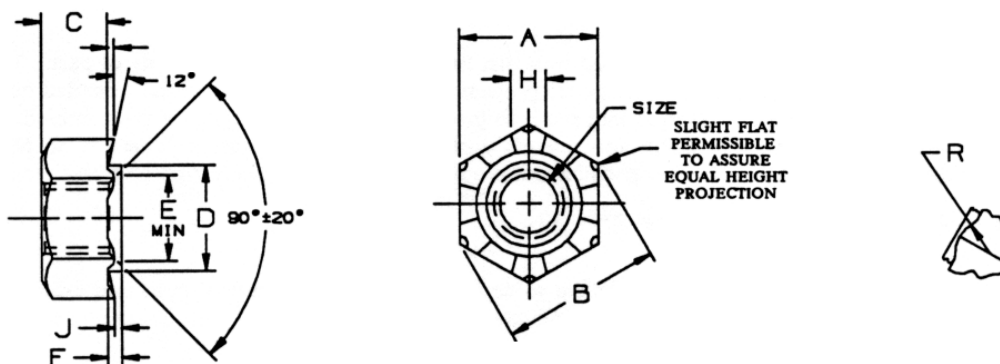
14.0 MATERIAL: Low Carbon Steel (STL), AISI 1008 or 1010. Nuts will meet proof load requirements for property Class 9 metric nuts per ASTM A563M.

15.0 FINISH: Plain.

16.0 SURFACE DISCONTINUITIES: Allowable limits are defined in MPAPS F-31, Part II. In addition, nuts will be free from burrs, sharp edges, loose scale, dirt, or other contaminants which adversely affect their weldability or serviceability.

17.0 DIMENSIONS AND PART LIST:

17.1 6 Projections Regular Series – Short Pilot:



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JANUARY 2018



Documents

Page 3 of 7

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