

NAVISTAR, INC.		
Material, Parts, and Process Specifications (MPAPS)	NUMBER: MPAPS S-EM-1.101-GS/PL	
	Former Designation: ESP-EM-1.101-GS	
TITLE: Hex Nuts –Metric Series (Noun Code 5780)	CURRENT REV No.: 1506	DATE: June 2015
WRITTEN/EDITED BY: Materials Engineering	APPROVED BY: Materials Engineering	SUPERSEDES: ESP-EM-1.101-GS - August 2006
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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>		
Change Notice: Changed to New MPAPS format; Combined GS, GI, PP, NPP.		

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.

This standard may differ in some respects with certain segments of ISO and national standards. In recognition of these possible differences, the sizes and tolerance ranges used were established in an effort to enable the use of commercially available items, dimensionally interchangeable worldwide.

This specification contains the essentials of the following standards:

International Organization for Standardization: ISO 4032
American National Standards Institute: ANSI B18.2.4.1M
German Institute of Standardization: DIN 970

For M10, M12 and M14 sizes, across flats, across corners and height dimensions in the table on last page, reflect the latest ISO/TC2 decisions. Many nuts presently being manufactured and used, will be to the old ISO dimensions (1 mm larger across flats). It is recommended that locations such as European operations sourcing to old ISO dimensions continue to do so until a complete and cost effective transition to the new dimensions is accomplished. Locations sourcing to the new ANSI/ISO dimensions (as stated in this standard) are urged to monitor stock and procurement practices to assure consistent production availability of the latest nuts. For M22 size, the dimensions across flats and corners are shown per latest ISO/TC2 decisions. The previous width across flats and corners, which are shaded in gray, will be deleted from the standard on its next issue. Inch series nuts may be found in MPAPS S-E-1.101-GS/PL.

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3.0 DESIGN CONSIDERATION: The use of thru hardened washers is recommended in high strength bolted connections and in Class 8.8 applications involving oversize or slotted holes.

Coarse thread series only will be considered as part of this standard, because of the following advantages:

Less tendency to cross thread.

Resists nicking and has less stress concentration at the thread roots.

Less likely to be seriously affected by decarburization and oversize minor diameter of internal threads.

4.0 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.

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