

NAVISTAR, INC.		
Material, Parts, and Process Specifications (MPAPS)	NUMBER: MPAPS S-M-3.101-GS/PL	
	Former Designation: ESP-M-3.101-GS	
TITLE: Automotive Straight Thread Filler and Drain Plugs - English Series (Noun Code – 6400)	CURRENT REV No.: 1506	DATE: June 2015
WRITTEN/EDITED BY: Materials Engineering	APPROVED BY: Materials Engineering	SUPERSEDES: ESP-M-3.101-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, PP, NPP.		

1.0 GENERAL: This standard conforms with the SAE J532 Standard and covers filler and drain plugs having straight threads which are commonly used with gaskets or seals in automotive or related application.

2.0 MISCELLANEOUS DIMENSIONS AND TOLERANCES: Tabulated dimensions will apply to specified plugs, plated, hardened or otherwise processed, as required. The minimum across corner dimension of external hexagons will be 1.092 times the nominal width across flats, but will not result in a side flat width less than .43 times the nominal width across flats. The minimum across corner dimensions of external squares will be 1.25 times the nominal width across flats, but will not result in a side flat width less than .75 times the nominal width across flats. The diameter of the washer face on hexagon outside head plugs will be equal to 95% of the maximum width across flats within a tolerance of $\pm 5\%$. At maximum material condition, the radii at corners of hexagon and square sockets in broached or upset plugs will not exceed .005 inch.

Tolerance on dimensions not otherwise limited will be $\pm .010$ inch.

3.0 THREADS: Unified Standard Class 2A external and Class 2B internal threads will apply to plain finish (unplated) plugs and holes into which they assemble. For externally threaded parts with additive finish, the maximum diameters of Class 2A may be exceeded by the amount of the allowance, that is, the basic diameters (Class 2A maximum diameter plus the allowance) will apply to an externally threaded part after plating. The pitch diameter tolerance for special diameter pitch combinations is based on diameter, pitch and a length of engagement of 9 times the pitch.

4.0 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.

Type: Hex Outside Head
Material: Steel
Finish: Plain (PLN) and Zinc Trivalent, Class 6A (ZN6A)

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5.0 MATERIAL: As indicated by part number per CEMS and MPAPS below:

Steel (STL) - SAE 1212 or equivalent per MPAPS A-0, Part I.

Malleable Iron (MI) - ASTM-A197 or equivalent.

Brass (BRS) – Grades C34500, C36000, C37700 or equivalent per CEMS C-3.

Bronze (BRZ) – Grades C51000, C26000, or C33500 per CEMS C-3.

6.0 FINISH: As designated by part number, parts will be furnished plain, plated or coated in accordance with MPAPS and class listed below:

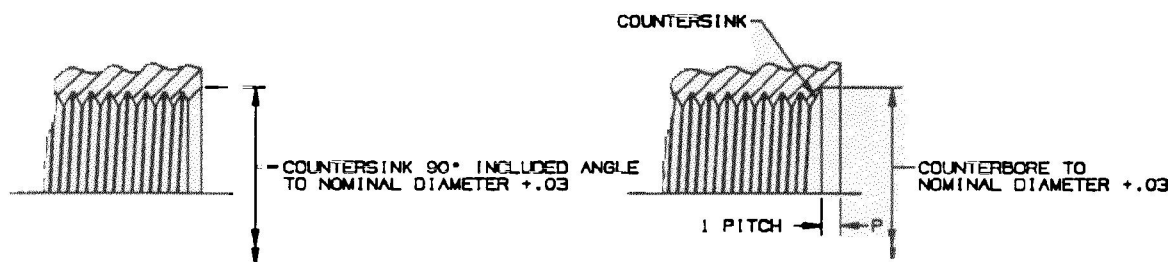
Plain (PLN).

Zinc Trivalent, Class 6A (ZN6A) – MPAPS G-20, Class 6A.

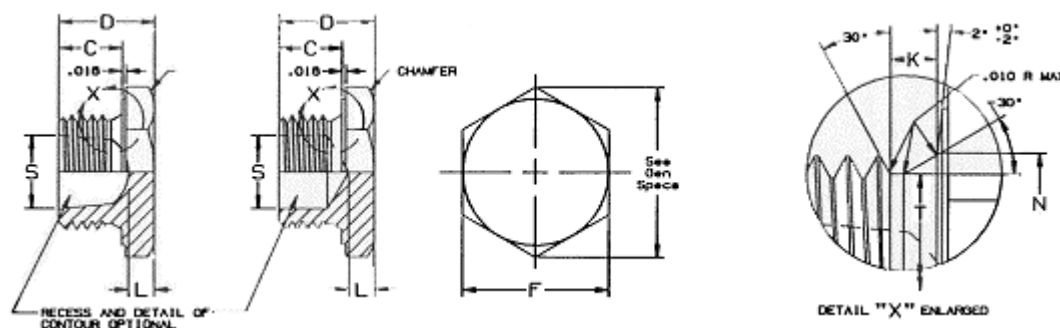
7.0 RESTRICTED CHEMICAL SUBSTANCES: Effective January 1, 2007, all product supplied to the requirements of this specification must comply with the requirements of the MPAPS B-50 specification.

8.0 DEFECTS: Parts will be free from all hanging burrs, loose scale and slivers which might become dislodged in usage and all other defects that may affect their serviceability.

Recommended Hole Data



9.0 HEXAGON OUTSIDE HEAD FILLER AND DRAIN PLUGS:



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