

INCH-POUND

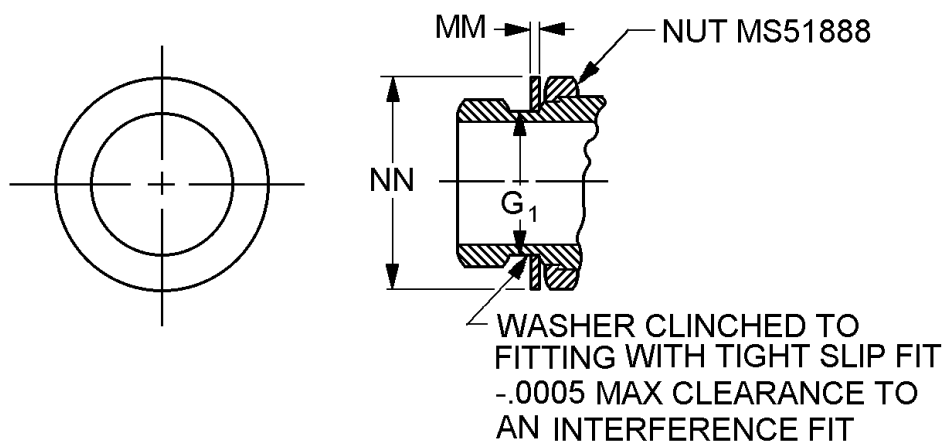
MS51889A
w/AMENDMENT 2
23 August 2023
SUPERSEDING
MS51889A
w/AMENDMENT 1
24 September 2018

DETAIL SPECIFICATION SHEET

WASHER, BACK-UP, 37 DEGREE FLARED AND FLARELESS TYPE, HYDRAULIC

This specification is approved for use by all Departments and
Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet
and MIL-DTL-18866.



Inches	mm
.0005	0.013

See notes at end of figure.

FIGURE 1. Washer, backup.



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Tube OD Nom inches (mm)	G ₁ Diameter .002 (0.05) -.003 (0.08)	MM inches (mm) ±.003 (0.08)	NN Diameter ±.015 (0.38)
.1250 (3.175)	.250 (6.35)	.030 (0.76)	.504 (12.80)
.1875 (4.763)	.313 (7.95)	.030 (0.76)	.575 (14.61)
.2500 (6.350)	.364 (9.25)	.035 (0.89)	.650 (16.51)
.3125 (7.936)	.427 (10.85)	.035 (0.89)	.722 (18.34)
.3750 (9.525)	.482 (12.24)	.035 (0.89)	.794 (20.17)
.5000 (12.700)	.660 (16.76)	.041 (1.04)	1.010 (25.65)
.6250 (15.875)	.773 (19.63)	.050 (1.27)	1.155 (29.34)
.7500 (19.050)	.945 (24.00)	.050 (1.27)	1.444 (36.68)
.8750 (22.225)	1.070 (27.18)	.050 (1.27)	1.589 (40.36)
1.0000 (25.400)	1.195 (30.35)	.050 (1.27)	1.732 (43.99)
1.2500 (31.750)	1.507 (38.28)	.050 (1.27)	2.165 (54.99)
1.5000 (38.100)	1.756 (44.60)	.050 (1.27)	2.454 (62.33)
2.000 (50.800)	2.381 (60.48)	.050 (1.27)	3.160 (80.26)

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Washer shall be free from all hanging burrs, loose scale, or slivers.
4. Dimensions and tolerances not shown shall be in accordance with SAE-J514.
5. Threads shall be in accordance with ASME B1.1.
6. The drawing is for identification purposes only and is not intended to restrict designs and shapes not dimensioned.

FIGURE 1. Washer, backup - Continued.

REQUIREMENTS:

Washer shall be as specified on figure 1 and in table for Material and finish identification codes. of MIL-DTL-18866.

This is a design standard and shall not be used for procurement.

Used on MS51527, MS51528, MS51529, MS51530, MS51839, MS51841, and MS51842.

Materials shall be in accordance with MIL-DTL-18866.

Finish and finish designators shall be in accordance with MIL-DTL-18866. All platings shall be capable of meeting a minimum of 96 hours salt spray test in accordance with ASTM B117. The washers shall show no evidence of red corrosion after 96 hours of salt spray.

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Class I and II ozone depleting substances (ODS) shall not be used in MS51889 or any referenced procedures.

Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

Referenced documents shall be of the issue in effect on date of invitations for bid.

Cadmium is not recommended. To the users of this document, it is recommended that the use of carbon steel material with cadmium platings be used only when other materials and finishes specified in this document cannot meet performance requirements.

Army and Marine ground forces zinc platings. PIN codes FC, FD, Z, and ZC finishes have a chromate conversion coating which includes hexavalent chromium and are not recommended for Army and Marine ground systems. The use of coatings depositing hexavalent chromium for Army vehicles is prohibited unless otherwise explicitly stated in the contract as a requirement. For new designs PIN codes FC, FD, Z, and ZC are not to be supplied to Army and Marine ground forces. MIL-PRF-32647 Type KA is intended as a hazardous free platings material and is a direct replacement for zinc platings with a hexavalent chromium conversion coating. KA has an equivalent torque/tension as the platings replaced.

Army and Marine ground vehicles. The use of cadmium platings for Army and Marine ground vehicles is prohibited unless otherwise explicitly stated in the contract as a requirement.

Army ground vehicle applications cadmium platings. Pin code J or KB may be substituted for cadmium ("Blank" PIN code) for Army ground vehicle applications. MIL-PRF-32647 Type KB is intended as a hazardous free platings material and is a direct replacement for cadmium platings ("Blank" PIN code). KB has an equivalent torque/tension as cadmium.

NAVSEA shipboard owned equipment. Cadmium is prohibited from use in NAVSEA-owned shipboard systems in accordance with the requirements of T9070-AL-DPC-020/077-2, unless otherwise approved by NAVSEA.

A pretreatment, a modification of the fluoride treatment, or a post treatment shall be applied so the final color of the fittings shall be similar to SAE-AMS-STD-595 colors 36076 ,36081,36099,36118, 36134, 36152, 36170, 36173, 36176, 36231, 36251, 35270,36280, and 36293.

NOTE: The following restrictions do not apply to manufacturers of the fittings and is applicable only to OEM's and users.

This is a design standard and shall not be used as a Part or Identifying Number (PIN).

Amendment notations. The margins of this specification are marked with vertical lines to indicate modifications generated by this amendment. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.

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Referenced documents. In addition to MIL-DTL-18866, this document references the following:

MIL-PRF-32647	SAE-AMS-STD-595
MS51527	SAE-J514
MS51528	T9070-AL-DPC-020/077-2
MS51529	
MS51530	
MS51839	
MS51841	
MS51842	
ASME B1.1	
ASTM B117	

CONCLUDING MATERIAL

Custodians:

Army - AR
Navy - OS
Air Force - 71
DLA - CC

Preparing activity:

DLA - CC

(Project 4730-2023-068)

Review activities:

Army - AT, GL, MI
Navy - AS

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil>.