

METRIC

MIL-DTL-38999/62
w/AMENDMENT 1
10 December 2015
SUPERSEDING
MIL-DTL-38999/62
21 November 2014

DETAIL SPECIFICATION SHEET

SEALING BOOT, SIZE 8, PIN OR SOCKET, SHIELDED CRIMP CONTACTS,
ELECTRICAL CONNECTOR, CIRCULAR, METRIC

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-38999.

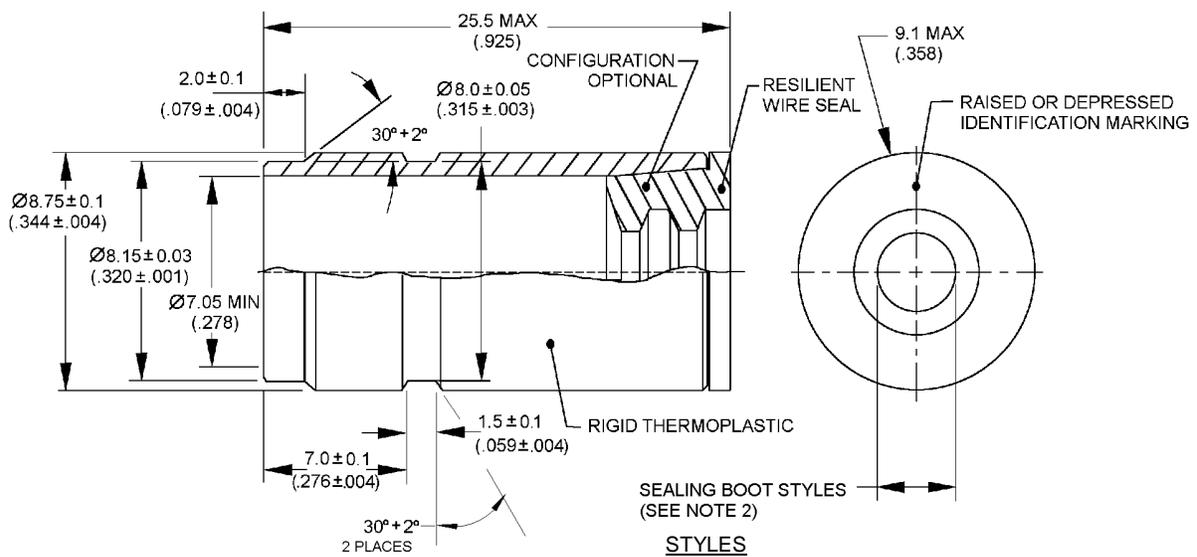


FIGURE 1. Sealing boot, size 8, shielded crimp contacts.



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NOTES:

1. Dimensions are in millimeters. Inch equivalents are provided for information only.
2. Sealing boot styles "A" (TWINAX) and "B" (COAX) are for use with qualified size 8 twinax contacts, qualified size 8 coax contacts, and MIL-DTL-17 cable, or with qualified dummy contacts in accordance with SAE-AS85049/80, and shall be used to effect environmental sealing in MIL-DTL-38999 connectors with applicable insert arrangements specified in MIL-STD-1560, including 17-3, 19-19, 21-76, 25-9, 25-10, 25-21, 25-47 and 25-91.
3. The left end of the sealing boot is intended to be installed over the contact. The right end of the sealing boot seals to the wire or cable.
4. Style A seals on TWINAX cable M17/176-00002. Style B seals on COAX cable M17/95-RG180.

FIGURE 1. Sealing boot, size 8, shielded crimp contacts - Continued.

REQUIREMENTS:

Dimensions and configurations: See figure 1.

Wire seal shall meet the wire sealing requirements specified in MIL-DTL-38999.

Materials.

Grommet (sealing boot grommet for sealing to cable): Fluorosilicone elastomer.

Contact seal (contact to connector sealing): Rigid thermoplastic or other suitable rigid dielectric material.

Dimensioning and tolerancing shall be in accordance with ASME Y14.5.

Workmanship. Break all sharp edges. Sealing boot shall be free from flash and burrs.

Part identification marking. The applicable, single-digit style code, boot style "A" (TWINAX style) or "B" (COAX style), shall be integrally molded-in or shall be permanently etched or laser marked on the boot as specified in figure 1.

Insert Arrangements: Used with MIL-STD-1560 insert arrangements which require size 8 twinax contacts in accordance with SAE-AS39029/113 and /114, or size 8 coax contacts in accordance with SAE-AS39029/59 and /60, and installed with the applicable M17/176-00002 or M17/95-RG180 cables. Sealing boot may also be used to seal a size 8 dummy contact in accordance with SAE-AS85049/80.

Note: A heat shrink seal shall not be used with this sealing boot.

QUALIFICATION:

The combination of the connector insert arrangement and associated sealing boot comprise a system for environmental sealing. In order to ensure interoperability, interchangeability and reliable quality, only QPL-38999 manufacturers seeking to qualify connectors with insert arrangements that require a MIL-DTL-38999/62 sealing boot shall be eligible to qualify, provided that the prospective sealing boot manufacturer has previously qualified the connectors with the same class, finish and shell configuration used for qualification of the QPL-38999 connector with its associated sealing boot.

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Qualification inspection, test samples and sample size. Qualification of size 8 twinax sealing boots shall initially be performed concurrently with qualification of MIL-DTL-38999 connectors with insert arrangements 25-10 and 25-21. Qualification of size 8 coax sealing boots shall be performed concurrently with qualification of MIL-DTL-38999 with insert arrangement 25-47, which uses size 8 coax sealing boots. Applicable QPL-39029 contacts and QPL-17 cable shall be used.

Once a first manufacturer is listed on QPL-38999 for insert arrangement 25-10 or 25-21, then other eligible QPL-38999 manufacturers that do not seek to qualify insert arrangements 25-10 or 25-21, but that seek to qualify connector/sealing boot systems with for other insert arrangements requiring that boot, including 17-3, 19-19, 21-76, 25-9 or 25-91, may seek qualification of the connector/sealing boot system using qualified MIL-DTL-38999 connectors with insert arrangements 25-10 or 25-21, as applicable, as well as the sealing boot arrangements that they wish to qualify. However, if connector/sealing boot systems with insert arrangements 25-10 or 25-21 fail, then the other connector/sealing boot system insert arrangements fail. Any eligible manufacturer seeking qualification of size 8 coax sealing boots shall use qualified MIL-DTL-38999 connectors with insert arrangement 25-47.

For eligible manufacturers who meet the above requirements, initial qualification and group C testing for the connector/sealing boot system shall be in accordance with MIL-DTL-38999, test groups 1, 2 and 5, except group 5 shall be required for initial qualification only. For each insert arrangement to be qualified, two crimp type mated plugs and receptacles shall be provided for testing with the associated sealing boots. For group C periodic testing, for each qualified insert arrangement, two qualified, mated connector pairs and associated sealing boots shall be provided, except for size 25. For size 25, only two qualified, mated pairs representing shell size 25-10 and 25-21 shall be provided. If the manufacturer is not qualified for 25-10 or 25-21, then for group C, they shall be required to test two mated pairs and associated sealing boots for each size 25 insert arrangement the manufacturer has qualified. Eligible manufacturers that seek to qualify style A (twinax) sealing boots as a stand-alone accessory shall conduct test groups 1, 2 and 5 with two qualified manufacturer's shell size 25 connectors, insert arrangement 25-10. For all qualification testing, contact cavities shall be fully populated with contacts, except one size 8 contact cavity shall be populated with a qualified SAE-AS85049/80 dummy contact and sealed with a sealing boot. For qualification of style B (coax) sealing boots, two mated pairs, shell size 25, insert arrangement size 25-47, shall be required for qualification.

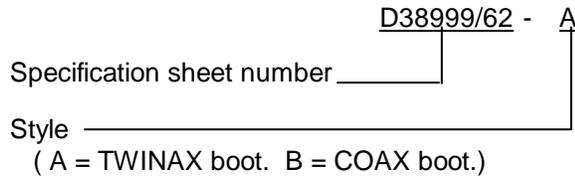
Group A: Sampling inspection shall consist of visual and mechanical inspection. Sampling for group A inspection as specified in table I. Group B: Not applicable.

TABLE I. Group A sampling plan.

Lot size	Sampling size
1 to 13	100 percent
14 to 150	13 units
151 to 280	20 units
281 to 500	29 units
501 to 1,200	34 units
1,201 to 3,200	42 units
3,201 and up	54 units

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Part or Identifying Number (PIN) example:



Application notes.

(These application notes contain information of a general or explanatory nature and are provided for information only.)

The sealing boot is primarily designed for use with a shielded size 8, wired contact in connector applications. The sealing boot may also be used with a size 8 dummy contact.

Sealing boot installation. Sealing boots are installed onto the cable first, and then the contact is crimped to the cable. The contact is then inserted into the connector's size 8 grommet cavity until it locks into position. The contact/sealing boot assembly is then press fit into the size 8 grommet cavity.

Use of accessories and mitigation of contact splaying. Recommend that methods to prevent contact splaying be considered during new design. The wire harness design must keep the twinax or coax pin in axial alignment. Depending on the insert arrangement and the wiring harness design, the maximum protrusion of the sealing boot from the rear of the grommet may potentially interfere with a straight backshell with saddle bars installed onto the rear of the connector. Both sealing boot styles are designed for use with an SAE-AS85049/38 strain relief backshell. A 90 degree backshell should be avoided. Note: SAE-AS85049/147, which is a straight, extended backshell developed for use with MIL-DTL-38999 connectors that require sealing boots, does not have any qualified manufacturing source at the time of publication of this document, but should be considered when sources become available. Commercially available wire supports, also called wire "combs", "spiders" or "wire support bushings", are also potential design options for mitigating contact splaying. More design precautions/recommendations are referenced in MIL-HDBK-1760, which refers to the splaying problem with the keyword "skewing".

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Recommended grommet cavity dimensions. Figure 2 is not mandatory, but is provided as guidance.

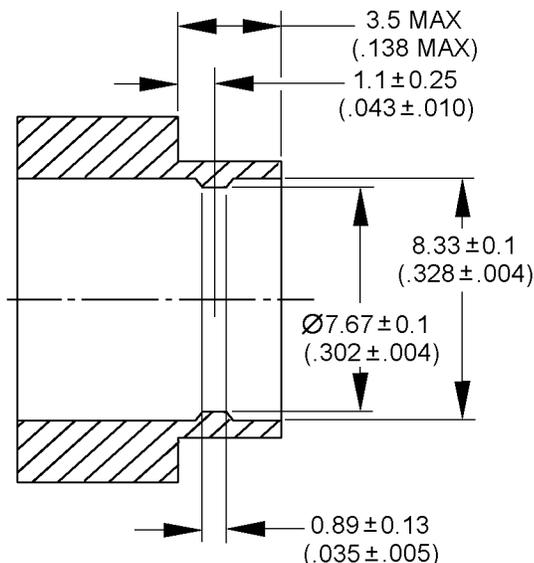


FIGURE 2. Recommended grommet cavity dimensions, sealing boot, size 8, shielded crimp contacts, configuration.

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.

Referenced documents. In addition to MIL-DTL-38999, this document references the following:

- MIL-DTL-17
- MIL-HDBK-1760
- MIL-STD-1560
- ASME Y14.5
- SAE-AS39029/59
- SAE-AS39029/60
- SAE-AS39029/113
- SAE-AS39029/114
- SAE-AS85049/38
- SAE-AS85049/80
- SAE-AS85049/147

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CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - AS
Air Force - 85
DLA - CC

Preparing activity:

DLA - CC

(Project 5935-2015-196)

Review activities:

Army - MI
Navy - EC, MC, OS
Air Force - 19, 99

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>.