

MIL-PRF-49142/10E
w/AMENDMENT 3
17 September 2021
SUPERSEDING
MIL-PRF-49142/10E
w/AMENDMENT 2
24 June 2021

PERFORMANCE SPECIFICATION SHEET

CONNECTORS, RECEPTACLE, ELECTRICAL, TRIAXIAL,
RADIO FREQUENCY, UNCABLED (SERIES TRT, SOCKET CONTACT,
JAMNUT MOUNTED, CLASS 2) HERMETIC AND NONHERMETIC

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-PRF-49142.

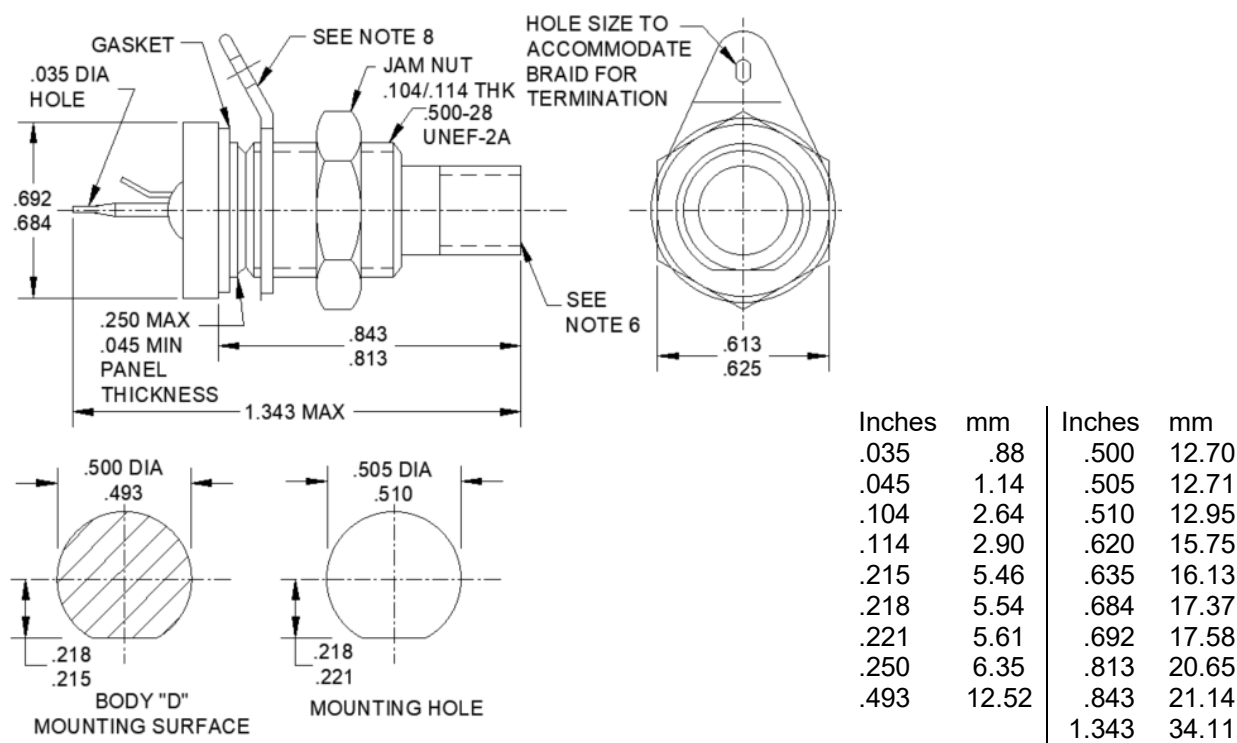


FIGURE 1. General configuration.



NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Wrench flats are to accommodate standard wrench openings in accordance with ASME B18.2.2, Appendix A, Table A-1, Hex Jam formula.
4. All undimensioned pictorial representations are for reference purposed only.
5. Panel thickness, .045 (1.14 mm) minimum, .250 (6.35 mm) maximum.
6. Interface as specified in MIL-STD-348, series TRT, socket contact.
7. Unless otherwise specified, all tolerances are $\pm .005$ inch (0.13 mm).
8. Only dash numbers -X003 and -X004 are supplied with braid termination lock washer rings. All previous dash numbers are supplied with standard lock washers (internal tooth .635(16.00 mm) max dia. x .022 (0.56 mm) thick).

FIGURE 1. General configuration – Continued.

ENGINEERING DATA:

Nominal impedance: Non-constant.

Frequency range: 0 to 500 MHz minimum.

Voltage rating: 400 V rms maximum working voltage at sea level. 100 V rms maximum working voltage at 70,000 feet (4.437 kPa).

Temperature range: -65°C to +165°C.

REQUIREMENTS:

Dimensions and configuration: See figure 1 and MIL-STD-348.

Force to engage and disengage:

Longitudinal force: Not applicable.

Torque: 2.5 inch-pounds (0.28 Nm) maximum.

Coupling proof torque: Not applicable.

Inspection conditions: Coupling torque: 4-6 inch-pounds (0.45 Nm to 0.68 Nm).

Mating characteristics: See figure 1 and MIL-STD-348 for dimensions.

Center contact (socket):

Oversize test pin: .040 inch (1.02 mm) diameter minimum (on closed entry contacts only).

Insertion depth: .125 inch (3.17 mm) minimum.

Number of insertions: 1

Insertion force test:

Steel test pin finish: 16 microinches (0.406 μ m).

Insertion force: 2 pounds (8.90 N), maximum.

Steel test pin diameter: .039 inch (0.99 mm) minimum $\pm .001$ inch (0.02 mm).

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Withdrawal force test:

Steel test pin diameter: .037 inch (0.94 mm) maximum -.001 inch (0.02 mm).

Withdrawal force: 2 ounces (0.56 N) minimum.

Test pin finish: 16 microinches (0.406 μ m).

Permeability: Applicable.

Hermetic seal: See table I.

Leakage: Not applicable.

Insulation resistance: 5,000 megohms.

Conductor retention: 6 pounds (26.69 N), minimum, axial force.

Dielectric withstanding voltage: At sea level, 1,200 V rms, between center conductor and intermediate conductor. 500 V rms, between intermediate conductor and outer conductor.

Salt spray (corrosion): Applicable.

Vibration: Applicable.

Shock: Applicable.

Thermal shock: Applicable.

Moisture resistance: Applicable.

Conductor resistance: In milliohms, maximum.

	<u>Connector type</u>	<u>Initial</u>	<u>After environment</u>
Center conductor:	All non-hermetic connectors	2.0	2.5
	All hermetic connectors	12.0	12.5
Intermediate conductor	All non-hermetic connectors	0.5	0.6
	All hermetic connectors	1.0	1.5
Outer conductor (Silver)	All non-hermetic connectors	0.2	0.3
	All hermetic connectors	0.5	0.6
Outer conductor (Nickel)	All non-hermetic connectors	0.4	0.6
	All hermetic connectors	1.0	1.2

Corona level:

Altitude: 70,000 feet (4.437 kPa).

Voltage: 200 V rms, minimum.

RF high potential withstanding voltage:

800 V rms, between center conductor and intermediate conductor.

200 V rms, between intermediate conductor and outer conductor at 5 to 7.5 MHz.

Leakage current: Not applicable.

Cable retention: Not applicable.

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Coupling mechanism retention force: Not applicable.

Rise time degradation: Not applicable.

Connector durability: 500 cycles minimum at 12 cycles per minute, maximum.

Part or Identifying Number (PIN): M49142/10- (dash number from table I). **CAUTION: A NICKEL PLATED BODY COMBINATION IS AVAILABLE. THIS COMBINATION IS NOT FOR USE IN APPLICATIONS WHERE PASSIVE INTERMODULATION GENERATION (PIM) MAY BE A CONCERN.** (https://www.amphenolrf.com/library/download/link/link_id/584611/)

TABLE I. Cross reference of PIN.

Dash number (“X” in the dash number allows material options, refer to the basic document)	Superseding PIN
-X001 -X003 Non-hermetic	---
-X002 -X004 Hermetic	---

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Retention of qualification: To retain qualification, the qualified manufacturer shall test and report all Group A, Group B and Group C inspections in accordance with MIL-PRF-49142. All Group C subgroup inspections from Table VII of MIL-PRF-49142 are required.

M49142/10 subgroup 1 inspections may be waived when M49142/3 and M49142/4 subgroup 1 inspections have been performed and passed.

M49142/10 subgroup 2 inspections may be waived when M49142/3, M49142/4, M49142/8 and M49142/11 subgroup 2 inspections have been performed and passed.

M49142/10 subgroup 3 inspections may be waived when M49142/3 and M49142/8 subgroup 3 inspections have been performed and passed.

M49142/10 subgroup 4 inspections may be waived when M49142/3, M49142/6, M49142/8 and M49142/11 subgroup 4 inspections have been performed and passed.

M49142/10 subgroup 5 inspections may be waived when M49142/3 and M49142/4 subgroup 5 inspections have been performed and passed.

Table II lists the minimum subgroup tests required to qualify M49142/3 through M49142/12 for each finish.

TABLE II. Retention of qualification by similarity table. 1/ 2/

MIL-PRF-49142 Table VII Subgroup	/3 & /8		/4 & /10	/5 & /9		/6 & /11		/7 & /12	
1	/3-X*08	---	/4-X*04	---	---	---	---	---	---
2	/3-X*08	/8-X*06	/4-X*04	---	---	---	/11-X*06	---	---
3	/3-X*08	/8-X*06	---	---	---	---	---	---	---
4	/3-X*08	/8-X*06	---	---	---	/6-X*07	/11-X*06	---	---
5	/3-X*08	---	/4-X*04	---	---	---	---	---	---
Units	15	9	9	0	0	3	6	0	0

1/ The "X" in the dash number refers to body material and finish combinations. Only connector combinations of the same material and finish allow for retention of that specific connector. Refer to the basic specification for the material and finish requirements.

2/ The "*" signifies connector keying configuration. Only one keying configuration is required to retain all keying combinations.

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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-PRF-49142, this document references the following:

MIL-STD-348 ASME B18.2.2

CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - EC
Air Force - 85
NASA - NA

Preparing activity:
DLA - CC

(Project 5935-2021-110)

Review activities:

Army - AR, AT
Navy - AS, MC, OS
Air Force – 19

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>.