

AMPHENOL (453) SUFFIX
LOW OUTGASSING CONNECTOR
DESCRIPTION

In general, (453) connectors consist of standard components with certain restrictions and changes. This suffix is provided in MIL-DTL-38999 Series I (LJT), Series II (JT), Series III (TV) and MIL-C-26482 Series 2 (PTS-DR) connectors. To control outgassing characteristics, certain individual non-metallic components were originally evaluated in 1977 by Goddard Space Flight Center (GSFC) for Total Mass Loss (TML) and Volatile Condensable Material (VCM) measurements per NASA specification 50M02442 and ASTM E595. Materials for the following components were tested: insert, grommet, interfacial seal (used in pin assemblies), and main joint gasket (for receptacle assemblies). A unique test specification, 9-7607, is imposed on all (453) suffix connectors to ensure that any material changes to the above components requires retesting at GSFC per 50M02442. The materials originally tested were those presently used in our standard MS type connectors and have not been changed to date, except to add PPS, as an alternate to Torlon on front inserts. This material has passed NASA test on outgassing per SP-R-0022 (GSC 19731 reference number)

Additional variations are as follows:

1. Thread lubricant Apiezon-L grease 9-7615-1 is used, which is approved by NASA Spec 50M02442. This differs from the Dry Film Lube used in NLS connectors per 40M38277 and the Texaco grease per 9-3031 used in standard MS connectors.
2. Crimp contacts without bin code paint marking are used. These are identical to MS type contacts in all other respects.
3. Coupling nut captivated waved washer is of carbon steel, black oxide finished. MS connectors use stainless steel for high temperature application.
4. All metallic shell and nut components are plated only with electroless nickel per MIL-C-26074 (finish F of MIL-DTL-38999). MS connectors have various platings available.

5. Another difference is that sealing plugs, plastic insertion/removal tools, and spare contacts are not provided with (453) connectors.
6. Most metallic components of the (453) connectors will meet the preferred alloy listing for high resistance to stress corrosion per MSFC-SPEC-522A. However, the coupling nut aluminum alloy is listed as having only “moderate” resistance to stress corrosion. There is no attempt being made to purposefully meet the preferred requirement by changing materials or heat treatment of the coupling nut. (Nut is actually identical to the one used in MS connectors.)
7. Connectors are vacuum baked at $149^{\circ} \pm 5^{\circ}\text{C}$ and 10^{-6} torr maximum pressure for 24 hours minimum. Followed by a vacuum degas at $100^{\circ} \pm 3^{\circ}\text{C}$ and 10^{-6} for 4 hours minimum.

Amphenol offers strain relief clamps for both JT and LJT (453) connectors. Also, some hermetic connectors, JT and LJT, have been set up. At least one solder type JT plug and one LJT Failsafe plug also exists in a (453) type.