

Performance specifications

2 **ORDER OF PRECEDENCE**

2.1 **Order of precedence.** In the event of a conflict between the requirements of this specification and the references cited herein, this document takes precedence. The requirements set forth in customer specifications and Glenair detail drawings shall take precedence over this document.

3 **REQUIREMENTS**3.1 **Electrical Performance Requirements.**

3.1.1 **Insulation resistance.** 5,000 megohms minimum between any pair of contacts and any contact and the shell when tested in accordance with EIA-364 Procedure 21, which specifies 500 volts DC.

3.1.2 **Dielectric withstanding voltage.**

3.1.2.1 **Dielectric withstanding voltage (sea level).** 600 volts ac, rms 60 Hz. Connectors shall show no evidence of breakdown or flashover when subjected to the DWV test of EIA-364 Procedure 20.

3.1.2.2 **Dielectric withstanding voltage (70,000 feet).** 150 volts ac, rms 60 Hz. Connectors shall show no evidence of breakdown or flashover when subjected to the DWV test of EIA-364 Procedure 20 when interfacial seal is used on #24 contacts.

3.1.3 **Contact resistance**

3.1.3.1 **#24 Contact resistance (M83513 Group C qualification).** The voltage drop of a mated pair of contacts attached to wires shall not exceed the values shown when tested in accordance with MIL-DTL-83513F Paragraph 4.5.8, using 2.5 amps test current.

WIRE	VOLTAGE DROP (MV)
M22759/11-26	65 Maximum
M22759/33-26	75 Maximum
A-A-59551 25 gage	60 Maximum

3.1.3.2 **#24 Contact resistance (lot acceptance testing).** The voltage drop across a mated pair of contacts shall not exceed 8 millivolts when tested in accordance with EIA-364-06, using a test current of one ampere \pm 2%. If the connector under test is wired, the calculated resistance across the contacts shall not exceed 8 milliohms when the maximum specified wire resistance per foot is subtracted from the total resistance.

3.1.3.3 **#30 Contact resistance (lot acceptance testing).** The voltage drop across a mated pair of contacts shall not exceed 71 millivolt drop maximum using a 1 ampere test current, when tested in accordance with EIA-364-06, using M22759/33-30 wire.

3.1.3.4 **#30 Low signal level contact resistance.** When tested with a micro-ohmmeter using a test current of 100 milliamperes maximum, the resistance of a mated pair of contacts shall be 71 milliohms maximum using M22759-33-30 wire. Test procedure shall be in accordance with EIA-364-23.

3.1.4 **#24 Low signal level contact resistance.** When tested with a micro-ohmmeter using a test current of 100 milliamperes maximum and 20 millivolts open circuit maximum, the resistance of a mated pair of contacts shall be 32 milliohms maximum. Test procedure shall be in accordance with EIA-364-23.

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- 3.1.5 **#24 Contact current capability.** Contacts shall be capable of carrying 3.0 amperes in continuous duty operation from -55° C. to +150° C. when tested in accordance with EIA-364-70.
- 3.1.5.2 **#30 Contact current capability.** Contacts shall be capable of carrying 1.0 amperes in continuous duty operation from -55° C. to +125° C. when tested in accordance with EIA-364-70.
- 3.1.6 **Shell-to-shell conductivity.** A mated pair of nickel-plated metal shell GMMD connectors fitted with an optional grounding spring on the plug shell mating face, shall not exceed 10 millivolts maximum voltage drop when tested in accordance with EIA-364-83.
- 3.1.7 **Shielding effectiveness.** A mated pair of metal shell GMMD connectors fitted with an optional grounding spring on the plug shell mating face shall meet a requirement of 65 dB minimum attenuation when tested in accordance with EIA-364-66.
- 3.1.8 **Magnetic permeability.** Magnetic permeability, when tested in accordance with EIA-364-54, shall not exceed 2 mu. Non-magnetic options are available.
- 3.2 ***Mechanical Requirements***
- 3.2.1 **Contact engaging and separation force.** Maximum engaging force shall be 6.0 ounces when tested in accordance with EIA-364-37, except with a .0221 ± .0001 diameter sleeve with a 6-10 microfinish. Minimum separation force shall be 0.5 ounces when tested in accordance with EIA-364-37, except with a .0230 ± .0001 diameter sleeve with a 6-10 microfinish.
- 3.2.2 **Connector mating and unmating force.** The maximum mating and unmating force shall not exceed a value equal to 10 ounces times the number of contacts, when tested per EIA-364-13. Mate connectors three times before initial measurements are taken.
- 3.2.3 **Contact retention.** Contacts, when tested in accordance with EIA-364-29, shall withstand a 5 pound axial load for a minimum of 5 seconds, with a maximum allowable displacement of .005 inch.
- 3.2.5 **Insert retention.** Inserts shall not be dislodged or moved from their original position when subjected to an axial load of 50 pounds per square inch when tested in accordance with EIA-364-35
- 3.2.6 **Resistance to soldering heat.** Connectors with solder cup contacts shall not be damaged following soldering with a 360° C. solder iron for at least 4 seconds in accordance with EIA-364-56 Procedure 1. Connectors with printed circuit board terminations shall withstand immersion in a solder bath for 9-11 seconds at 260° C. when tested in accordance with EIA-364-56 Procedure 3 Test Condition B. Connectors, after cooling, shall not exhibit damage or warpage when examined at 10X magnification. .
- 3.2.7 **Solderability.** Solder cup and printed circuit terminals shall meet the solderability requirements of MIL-STD-202 Method 208.
- 3.2.8 **Durability.** GMMD connectors shall be capable of 500 cycles of mating with no damage or degradation to electrical performance. Engaging and separation force and mating forces shall not exceed the requirements of 3.2.1 and 3.2.2.

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3.3 **Environmental Requirements**

3.3.1 **Salt spray (corrosion).** Connectors shall show no exposure of base metal due to corrosion when subjected to the salt spray test of EIA-364-26. In addition, connectors shall meet contact resistance, lw circuit level contact resistance and mating force requirements.

Shell material, finish (code)	EIA-364-26 test condition	Duration (hours)
Aluminum, electroless nickel plating (-2)	B	48
Aluminum, alochrome (-6)	B	48
Aluminum, gold (-5)	B	48
Stainless steel, passivated (-3)	D	1000 (48 for M83513)
Aluminum, nickel-PTFE (-7)	T	500 (48 for M83513)
Aluminum, zinc-nickel, black (-8)	T	500 (48 for M83513)

3.3.2 **Fluid immersion.** Connectors shall meet mating force requirements following 20 hours immersion in synthetic lubricating oil and 1 hour immersion in Coolanol 25, when tested in accordance with MIL-DTL-83513F paragraph 4.5.18.

3.3.3 **Thermal vacuum outgassing.** The assembled connector mass excluding metallic parts shall not exceed 1.0% total mass loss (TML) or 0.1% total volatile condensable materials (CVCM) when tested in accordance with ASTM E595.

3.3.4 **Thermal shock.** Unmated connectors shall withstand 5 cycles of thermal shock with a minimum temperature of -65° C. and a maximum temperature of 150° C. when tested in accordance with EIA-364-32, Condition IV. Connectors shall not exhibit any detrimental damage or degradation of electrical performance.

3.3.6 **Vibration (sine).** Connectors, when mated, wired in series and fixtured in accordance with MIL-DTL-83513F, shall not exhibit any discontinuity longer than 1 microsecond when tested in accordance with EIA-364-28 Test Condition IV, which specifies 12 hour duration, 10 Hz to 2000 Hz, and amplitude of 20 g_{rms} peak. Connectors shall not be damaged and no loosening of parts shall occur.

3.3.7 **Shock.** Connectors, when mated, wired in series and fixtured in accordance with MIL-DTL-83513F, shall not exhibit any discontinuity longer than 1 microsecond when tested in accordance with EIA-364-27, Test Condition E, which specifies an amplitude of 50 g peak. Connectors shall not be damaged and no loosening of parts shall occur.