

## MIL-DTL-38999 Series I Type Class G and NASA space-grade guidelines

### NASA and Class G Screening

The MIL-DTL-38999 specification defines TML and CVCM values for Class G space flight. Glenair modification code 186T assures parts are outgassed to meet the Class G requirements for outgassing.

Additionally, NASA recommends that connectors for space flight be specially screened. NASA EEE-INST-002 instructions for EEE parts selection, screening, qualification, and derating contains three levels of screening for space-grade components. These outgassing and screening modification codes are listed at right. To add a modification code append code to end of part number: 231-206-G6NF17-8PN-429C.

- **“Mission critical” connectors for space flight should undergo rigorous 100% final inspection**
- **Modification codes are available to invoke special screening for both MIL-DTL-38999 and NASA applications**
- **Outgassing properties of materials used in Glenair SuperNine® connectors are detailed in the table below**

SCREENING LEVEL AND AVAILABLE OUTGASSING MODIFICATION CODES				
Screening Level	Screening Only	48 Hour Oven Bake 175° C	Thermal Vacuum Outgassing (10 <sup>-6</sup> Torr)	
			24 Hour 125° C	48 Hour 175° C
NASA, Level 1 Highest Reliability	429B	429J	429C	
NASA, Level 2 High Reliability	429	429K	429A	429AA
NASA, Level 3 Standard Reliability	Use Standard Part Number		429L	
38999, Class G or H (Group A and B inspection, no screening)				186T

TABLE II: NASA EEE-INST-002, TABLE 2A SCREENING LEVELS			
Inspection	Level 1	Level 2	Level 3
Visual	100%	100%	100%
Mechanical	2(0)	2(0)	
Dielectric Withstanding Voltage	2(0)	2(0)	
Insulation Resistance	2(0)	2(0)	
Contact Engagement & Separation Force	2(0)		
Hermeticity (Sealed Receptacles Only)	100%	100%	
Coupling Force	2(0)		

Required inspection quantity shown. Number in parenthesis indicates acceptance of failures allowed for all quantities inspected.

OUTGASSING PROPERTIES OF MATERIALS USED IN MIL-DTL-38999 TYPE SUPERNINE® CONNECTORS				
Component	Material	TML %	CVCM %	Test Reference
Front and Rear Insulator	Epiall 1908	0.84	0.0	NASA Test # GSC15435 (48 hours at 180°C)
Rear Grommet, Interfacial Seal, Peripheral Seal, and Special Auxiliary Seals	Blended fluorosilicone/silicone elastomer	0.04	0.0	Glenair test
Front-To-Rear Insulator Bonding Material	Eccobond 104 A/B	0.52	0.08	Emerson & Cuming Data Sheet
Insulator-to-Rubber Bonding Material	RTV, per MIL-A-46146	<1.0	<0.1	Glenair Test
White Epoxy Ink for Silk-screening	Markem 7224 White	0.49	0.03	NASA Test #GSC19899
Potting Compound	High-performance space-grade epoxy	<1.0	<0.1	Glenair Test

MIL-DTL-38999 TYPE SUPERNINE® CONNECTOR MATERIALS APPROVED FOR SPACE FLIGHT		
Component	Material	Notes
Shells, Coupling Nuts, Jam-nuts	Aluminum alloy	Approved for Space Flight
Rigid Insulators	Glass reinforced thermoset plastic, Epiall 1908	Approved for Space Flight
Contact Retention Clip	Beryllium copper, heat-treated, unplated	Approved for Space Flight
Grommet, Peripheral Seal, Interfacial Seal, Special Auxiliary Seals, O-ring	Blended fluorosilicone/silicone elastomer	Requires outgassing processing
Pin/Socket Contact	Gold plated beryllium copper alloy	Approved for Space Flight
Socket Contact Hood	Stainless steel	Approved for Space Flight
Potting Compounds and Adhesives	RTV and epoxies	Requires outgassing processing