

MIL-DTL-38999 Series III Type Environmental Connectors Performance Specifications

Performance Specification, IAW MIL-DTL-32546, MIL-DTL-38999 Series III Rev. M, TIA-568-C.2, and Glenair SpeedMaster™						
Test	Test Requirement				Requirement Met	
High-speed Performance*	Individual contact modules meet the performance requirements of TIA-568-C.2: • Return Loss • Insertion Loss • NEXT • PS NEXT • ACR-F • PS ACR-F • ACR-N				Meets TIA-568-C.2, section 6.2	
Temperature Cycling†	Mated connectors shall be tested as specified in EIA-364-32, Method A, Condition VI -65°C to +200°C					
Mating/Unmating Forces		Maximum Engagement & Disengagement		Minimum Disengagement		Meets MIL-DTL-38999, paragraph 3.11
	Shell Size	Pound inch	Newton meters	Pound inch	Newton meters	
	11*	12	1.4	2	0.2	
	19‡	28	3.2	3	0.3	
	21‡	32	3.6	5	0.6	
25*	40	4.6	5	0.6		
Durability*	No electrical or mechanical defects after 500 cycles of engagement and disengagement				Meets MIL-DTL-32546, paragraph 3.11	
Altitude Immersion	Mated connectors shall be tested as specified in EIA-364-03 75,000 ft equivalent					
Insulation Resistance at Ambient Temperature*	Unmated connectors shall be tested as specified in EIA-364-21 5000 megaohms min. at 25°C				Meets MIL-DTL-32546, paragraph 3.13.1	
Insulation Resistance at Elevated Temperature*	Unmated connectors shall be tested as specified in EIA-364-21 1000 megaohms min. at 200°C					
Salt Spray‡	Finish		Corrosion Resistance			MIL-DTL-32546, paragraph 3.16 Finish ME: Meets Finishes MT, NF, & ZR: Exceeds
	Electroless Nickel (ME)		48 hrs			
	PTFE/Nickel (MT)		500 hrs			
	OD Cadmium (NF)		500 hrs			
	Black Zinc-Nickel (ZR)		500 hrs			
Vibration, Sine	No discontinuity greater than 1 microsecond, no cracking, breaking, or loosening of parts, plug shall not become disengaged from the receptacle. Connectors shall meet electrical requirements after test. 60 G's					
Vibration, Random at Ambient Temperature*	No discontinuity greater than 1 microsecond, no cracking, breaking, or loosening of parts, plug shall not become disengaged from the receptacle. Connectors shall meet electrical requirements after test. 49 G's rms				Meets MIL-DTL-32546, paragraph 3.21	
Standard Shock*	No loosening of parts, cracking, or other deleterious results hindering further part operation after 300 G's in each of 3 mutually perpendicular planes				Meets MIL-DTL-32546, paragraph 3.22	
High Impact Shock	Mated connectors equipped with straight environmentally sealed backshells shall withstand high impact shock per MIL-S-901, lightweight, Grade A					
Shell-to-Shell Conductivity‡	Finish		Maximum Millivolt Drop			Exceeds MIL-DTL-32546, paragraph 3.23
	Electroless Nickel (ME)		1.0 mv			
	PTFE/Nickel (MT)		2.5 mv			
	OD Cadmium (NF)		2.5 mv			
	Black Zinc-Nickel (ZR)		2.5 mv			

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HIGH-SPEED CONNECTORS

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Humidity*	Testing shall be performed as specified in EIA-364-21, Method IV						Meets MIL-DTL-32546, paragraph 3.25	
Shielding Effectiveness‡	Leakage Attenuation Min (dB)			Leakage Attenuation Min (dB)			Meets MIL-DTL-32546, paragraph 3.27	
	Frequency (MHz)	Finish ME	Finishes MT, NF, ZR	Frequency (MHz)	Finish ME	Finishes MT, NF, ZR		
	100	90	90	1,500	76	69		
	200	88	88	2,000	70	65		
	300	88	88	3,000	69	61		
	400	87	87	4,000	68	58		
	800	85	85	6,000	66	55		
	1,000	85	85	10,000	65	50		
	Fluid Immersion	No visible damage from immersion in various fuels and oils. Electrical performance requirements shall still be met.						

* Indicates that test has been performed/data is available
 † Thermal cycling has been done from -55°C to +200°C
 ‡ Qualification by similarity

38999 SPEEDMASTER SUMMARY

Standard Material and Finishes

- Shell, Barrel, Coupling Nut, Jam-nut: Aluminum alloy per ASTM-B211.
- Grounding spring: BeCu alloy/electroless nickel finish
- Seals, O-Ring: Fluorosilicone Blend

Shell Type and Sizes

- Shell Type: D38999 Series III Type, sizes 11, 19, 21, 25