



General Information and Technical Reference
Product Specification

GENERAL INFORMATION

DESCRIPTION	REQUIREMENT	PROCEDURE																					
Altitude Immersion	No evidence of moisture on connector interface or contacts. At the end of the third cycle, while still submersed, connectors shall meet 2000 Vac dielectric withstanding voltage and 1,000 megohms insulation resistance.	EIA-364-03 Simulated 75,000 feet altitude																					
Altitude- Low Temperature	Insulation resistance greater than 5,000 megohms while mated and exposed to simulated 110,000 feet altitude and -65°C.	EIA-364-105 Mated pair																					
Blowing Sand and Dust	Connectors shall meet electrical and mechanical requirements following exposure to sand and dust.	MIL-STD-810G Method 510.5 Mated connectors																					
Contact Insertion and Removal Force (Maintenance Aging)	<table border="1"> <thead> <tr> <th>Contact Size</th> <th>Max. Pounds</th> </tr> </thead> <tbody> <tr> <td>16</td> <td>20</td> </tr> <tr> <td>12</td> <td>30</td> </tr> <tr> <td>8</td> <td>35</td> </tr> <tr> <td>4</td> <td>40</td> </tr> <tr> <td>1/0</td> <td>40</td> </tr> </tbody> </table>	Contact Size	Max. Pounds	16	20	12	30	8	35	4	40	1/0	40	EIA-364-24									
Contact Size	Max. Pounds																						
16	20																						
12	30																						
8	35																						
4	40																						
1/0	40																						
Contact resistance (copper alloy)	<table border="1"> <thead> <tr> <th>Wire Size</th> <th>Test Current</th> <th>Voltage Drop</th> </tr> </thead> <tbody> <tr> <td>16</td> <td>13</td> <td>49</td> </tr> <tr> <td>14</td> <td>17</td> <td>40</td> </tr> <tr> <td>12</td> <td>23</td> <td>42</td> </tr> <tr> <td>8</td> <td>46</td> <td>26</td> </tr> <tr> <td>4</td> <td>80</td> <td>23</td> </tr> <tr> <td>1/0</td> <td>150</td> <td>21</td> </tr> </tbody> </table>	Wire Size	Test Current	Voltage Drop	16	13	49	14	17	40	12	23	42	8	46	26	4	80	23	1/0	150	21	EIA-364-06 Test current in amperes. Maximum voltage drop in millivolts. Silver-coated copper wire, +25°C.
Wire Size	Test Current	Voltage Drop																					
16	13	49																					
14	17	40																					
12	23	42																					
8	46	26																					
4	80	23																					
1/0	150	21																					
Contact resistance (ferrous alloy hermetic)	<table border="1"> <thead> <tr> <th>Wire Size</th> <th>Test Current</th> <th>Voltage Drop</th> </tr> </thead> <tbody> <tr> <td>16</td> <td>10</td> <td>539</td> </tr> <tr> <td>14</td> <td>13</td> <td>440</td> </tr> <tr> <td>12</td> <td>17</td> <td>462</td> </tr> <tr> <td>8</td> <td>33</td> <td>286</td> </tr> <tr> <td>4</td> <td>60</td> <td>253</td> </tr> <tr> <td>1/0</td> <td>100</td> <td>231</td> </tr> </tbody> </table>	Wire Size	Test Current	Voltage Drop	16	10	539	14	13	440	12	17	462	8	33	286	4	60	253	1/0	100	231	EIA-364-06 Test current in amperes. Maximum voltage drop in millivolts. Silver-coated copper wire, +25°C.
Wire Size	Test Current	Voltage Drop																					
16	10	539																					
14	13	440																					
12	17	462																					
8	33	286																					
4	60	253																					
1/0	100	231																					
Contact Retention	<table border="1"> <thead> <tr> <th>Contact Size</th> <th>Min. Pounds</th> </tr> </thead> <tbody> <tr> <td>16</td> <td>25</td> </tr> <tr> <td>12</td> <td>30</td> </tr> <tr> <td>8</td> <td>50</td> </tr> <tr> <td>4</td> <td>60</td> </tr> <tr> <td>1/0</td> <td>75</td> </tr> </tbody> </table>	Contact Size	Min. Pounds	16	25	12	30	8	50	4	60	1/0	75	EIA-364-29 Method B									
Contact Size	Min. Pounds																						
16	25																						
12	30																						
8	50																						
4	60																						
1/0	75																						
Salt Spray material/finish code ME	No exposure of base metal. Connectors shall meet DWV, contact resistance, shell-to-shell resistance and coupling torque	EIA-364-26 96 hours																					
Dynamic Salt Spray material/finish codes NF, ZR, MT, Z1	No exposure of base metal. Connectors shall meet DWV, contact resistance, shell-to-shell resistance and coupling torque	MIL-DTL-38999 Para. 4.5.13.2 50 cycles of mating and unmating prior to test 452 hours mated 48 hours unmated 450 cycles of mating and unmating following salt spray exposure																					
Coupling Torque	<table border="1"> <thead> <tr> <th>Shell Size</th> <th>Maximum (in-lb.)</th> </tr> </thead> <tbody> <tr> <td>18</td> <td>28</td> </tr> <tr> <td>20</td> <td>32</td> </tr> <tr> <td>24</td> <td>36</td> </tr> <tr> <td>28</td> <td>47</td> </tr> <tr> <td>32</td> <td>53</td> </tr> <tr> <td>36</td> <td>65</td> </tr> <tr> <td>40</td> <td>75</td> </tr> </tbody> </table>	Shell Size	Maximum (in-lb.)	18	28	20	32	24	36	28	47	32	53	36	65	40	75						
Shell Size	Maximum (in-lb.)																						
18	28																						
20	32																						
24	36																						
28	47																						
32	53																						
36	65																						
40	75																						
Current Rating	<table border="1"> <thead> <tr> <th>Contact Size</th> <th>Copper Alloy</th> <th>Ferrous Alloy</th> </tr> </thead> <tbody> <tr> <td>16</td> <td>13</td> <td>10</td> </tr> <tr> <td>12</td> <td>23</td> <td>17</td> </tr> <tr> <td>8</td> <td>60</td> <td>33</td> </tr> <tr> <td>4</td> <td>100</td> <td>60</td> </tr> <tr> <td>1/0</td> <td>175</td> <td>125</td> </tr> </tbody> </table>	Contact Size	Copper Alloy	Ferrous Alloy	16	13	10	12	23	17	8	60	33	4	100	60	1/0	175	125	EIA-364-70			
Contact Size	Copper Alloy	Ferrous Alloy																					
16	13	10																					
12	23	17																					
8	60	33																					
4	100	60																					
1/0	175	125																					
Dielectric Withstanding Voltage at Sea Level (not applicable to filter connectors)	No breakdown or flashover at 2000 volts	EIA-364-20 AC rms 50-60 Hz 2mA max. leakage current																					



General Information and Technical Reference Product Specification

GENERAL INFORMATION

DESCRIPTION	REQUIREMENT	PROCEDURE																										
Dielectric Withstanding Voltage at Sea Level, filter connectors	No breakdown or flashover at 1250 volts	EIA-364-20 Volts DC 2mA max. leakage current																										
EMI Shielding Effectiveness	<table border="1"> <thead> <tr> <th>Frequency MHz</th> <th>Min. Atten. dB</th> </tr> </thead> <tbody> <tr><td>100</td><td>90</td></tr> <tr><td>200</td><td>88</td></tr> <tr><td>300</td><td>88</td></tr> <tr><td>400</td><td>87</td></tr> <tr><td>800</td><td>85</td></tr> <tr><td>1000</td><td>85</td></tr> <tr><td>1500</td><td>76</td></tr> <tr><td>2000</td><td>70</td></tr> <tr><td>3000</td><td>69</td></tr> <tr><td>4000</td><td>68</td></tr> <tr><td>6000</td><td>66</td></tr> <tr><td>10000</td><td>65</td></tr> </tbody> </table>	Frequency MHz	Min. Atten. dB	100	90	200	88	300	88	400	87	800	85	1000	85	1500	76	2000	70	3000	69	4000	68	6000	66	10000	65	EIA-364-66 1,000 MHz to 10,000 MHz. MIL-DTL-38999L Para. 4.5.28.1 100 MHz to 1,000 MHz Prior to EMI test, connectors shall be mated a minimum of 500 cycles.
Frequency MHz	Min. Atten. dB																											
100	90																											
200	88																											
300	88																											
400	87																											
800	85																											
1000	85																											
1500	76																											
2000	70																											
3000	69																											
4000	68																											
6000	66																											
10000	65																											
External Bend Moment	<p>No evidence of damage.</p> <table border="1"> <thead> <tr> <th>SHELL SIZE</th> <th>Bend Moment (in-lb.)</th> </tr> </thead> <tbody> <tr><td>18</td><td>420</td></tr> <tr><td>20</td><td>450</td></tr> <tr><td>24</td><td>570</td></tr> <tr><td>28</td><td>630</td></tr> <tr><td>32</td><td>750</td></tr> <tr><td>36</td><td>810</td></tr> <tr><td>40</td><td>870</td></tr> </tbody> </table>	SHELL SIZE	Bend Moment (in-lb.)	18	420	20	450	24	570	28	630	32	750	36	810	40	870	SAE AS50151 Para. 4.6.20										
SHELL SIZE	Bend Moment (in-lb.)																											
18	420																											
20	450																											
24	570																											
28	630																											
32	750																											
36	810																											
40	870																											
Fluid Immersion	No visual evidence of degradation from immersion in various fuels and oils. Following immersion connectors shall meet coupling torque and dielectric withstanding voltage at sea level.	EIA-364-10																										
Fungus Resistance	Connector materials shall be fungus inert	MIL-STD-810G Method 508.6																										
High-Impact Shock	No discontinuity, no cracking, breaking or loosening of parts. Connectors shall meet electrical requirements after shock test.	MIL-DTL-38999L Para. 4.5.23.2 MIL-S-901, grade A																										
Humidity, 21 Day (Damp heat, Long Term)	No deterioration which will adversely affect the connector. Following the drying period, connectors shall meet 100 megohms minimum, contact resistance, shell-to-shell resistance, DWV, mating and unmating requirements.	EIA-364-31 Condition C Method II 90-95% RH 40° C Apply 100 volts DC during test. 4 hours drying time at ambient temperature prior to final measurements.																										
Humidity, Cyclic (Damp Heat, Cyclic) (Moisture Resistance)	No deterioration which will adversely affect the connector. 100 megohms minimum insulation resistance during the final cycle. Following the recovery period, connectors shall meet contact resistance, shell-to-shell resistance and DWV requirements.	EIA-364-31 Condition B Method III 80-98% RH 10 cycles (10 days) +25° C to +65° C Step 7b vibration deleted. 24 hour recovery period.																										
Impact, Cable Connectors	No impairment of function. Connector shall meet contact resistance, insulation resistance and waterproof sealing.	EIA-364-42 1 meter 8 drops																										
Ingress Protection	IP67 rating	IEC-60529																										
Insert Retention	<table border="1"> <thead> <tr> <th>SHELL SIZE</th> <th>FORCE (lbs.)</th> </tr> </thead> <tbody> <tr><td>18</td><td>50</td></tr> <tr><td>20</td><td>75</td></tr> <tr><td>24</td><td>85</td></tr> <tr><td>28</td><td>105</td></tr> <tr><td>32</td><td>115</td></tr> <tr><td>36</td><td>135</td></tr> <tr><td>40</td><td>165</td></tr> </tbody> </table>	SHELL SIZE	FORCE (lbs.)	18	50	20	75	24	85	28	105	32	115	36	135	40	165	EIA-364-35 Unmated connectors 100 ± 5 pounds per square inch										
SHELL SIZE	FORCE (lbs.)																											
18	50																											
20	75																											
24	85																											
28	105																											
32	115																											
36	135																											
40	165																											



General Information and Technical Reference
Product Specification

GENERAL INFORMATION

DESCRIPTION	REQUIREMENT	PROCEDURE						
Insulation Resistance at Ambient Temperature	5,000 megohms minimum	EIA-364-21 500 volts DC ± 50 volts.						
Insulation Resistance at Elevated Temperature	1,000 megohms minimum following 30 minutes at +200°C	EIA-364-21 500 volts DC ± 50 volts.						
Low Level Contact Resistance	<table border="1"> <thead> <tr> <th>Wire Size</th> <th>Max. Milliohms</th> </tr> </thead> <tbody> <tr> <td>16</td> <td>5</td> </tr> <tr> <td>20</td> <td>9</td> </tr> </tbody> </table>	Wire Size	Max. Milliohms	16	5	20	9	EIA-364-23 100 milliamperes maximum and 20 millivolts maximum open circuit voltage
Wire Size	Max. Milliohms							
16	5							
20	9							
Magnetic Permeability	2 μ maximum.	EIA-364-54						
Mechanical Durability, at Ambient Temperature	No deterioration which will adversely affect the connector after 500 cycles of mating and unmating. Connectors shall meet contact resistance, insulation resistance, shell-to-shell resistance, DWV, and coupling torque.	EIA-364-09						
Mechanical Shock	No discontinuity of greater than 1 microsecond, no cracking, breaking or loosening of parts, plug shall not become disengaged from receptacle. Connectors shall meet electrical requirements after shock test.	EIA-364-27 Condition D 3 shocks X 3 axes X 2 directions = 18 shocks 2941 m/s ² (300 g's), 3 ms, half-sine						
Operating Temperature	-65°C to +200°C Filter Connectors -55°C to +125°C							
Outgassing	Connectors, when specially processed for outgassing control, shall not exceed 1.0% Total Mass Loss (TML) and 0.1% Collected Volatile Condensable Material (CVCM)	ASTM E 595						
Ozone Exposure	No evidence of degradation due to ozone exposure that will adversely affect performance	EIA-364-14 Wired, mated connectors						
Resistance to Indirect Lightning Strike	No damage or degradation to material or finish that would affect subsequent use, no damage or hardening of elastomeric materials that adversely affects sealing effectiveness. Connector must meet coupling torque, DWV and IR and shell-to-shell conductivity. Applicable to connectors with conductive plating finishes.	EIA/ECA-364-75 Table XII, group 14 10,000 Amps peak current Test details per MIL-DTL-38999 Para. 4.5.47						
Shell-To-Shell Conductivity	Finish Code ME 1 millivolt drop maximum Finish Code NF, MT 2.5 millivolt drop maximum Finish Code ZR 10 millivolt drop maximum Finish Code Z1 50 millivolt drop maximum	EIA-364-83 Unwired connectors						
Socket Contact Engagement and Separation Force	Contact engagement and separation forces shall meet the requirements of SAE AS39029 Table 9	SAE AS39029						
Thermal Shock	No mechanical damage or loosening of parts. Following thermal shock, connector shall meet contact resistance, DWV, insulation resistance and shell-to-shell resistance requirements.	EIA-364-32 Test Condition VI 5 cycles consisting of -65° C 30 minutes, +25° C 5 minutes max., +200° C 30 minutes, +25° C 5 minutes max.						
Vibration, Random, at Ambient Temperature	No discontinuity of greater than 1 microseconds, no cracking, breaking or loosening of parts, plug shall not become disengaged from receptacle. Connectors shall meet electrical requirements after vibration test.	MIL-DTL-38999 Para. 4.5.23.2.4						
Vibration, Random, at Elevated Temperature	No discontinuity of greater than 1 microseconds, no cracking, breaking or loosening of parts, plug shall not become disengaged from receptacle. Connectors shall meet electrical requirements after vibration test.	EIA-364-28 Test Condition VI Letter "J" 50- 2,000 Hz 43.92 g rms 200° C						
Vibration, Sine	No discontinuity of greater than 1 microseconds, no cracking, breaking or loosening of parts, plug shall not become disengaged from receptacle. Connectors shall meet electrical requirements after vibration test.	MIL-DTL-38999L Para. 4.5.23.2.1						
Water Immersion	No evidence of water penetration into mated connectors.	MIL-STD-810F Method 512.4, 1 meter immersion for 1 hour						
Water Pressure	No evidence of water penetration into mated connectors or backshell interface. ≥ 100 MΩ insulation resistance.	MIL-DTL- 28840 Paragraph 4.1.15. 6 feet immersion in tap water, 48 hours						
Outgassing	Special Bakeout Required 1.0% Total Mass Loss (TML) 0.1% Collected Volatile Condensable Material (CVCM)	ASTM E595						