

AS38999/30

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THIRD ANGLE PROJECTION



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PREPARED BY SAE SUBCOMMITTEE AE-8C1

SAE The Engineering Society
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INTERNATIONAL
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400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE STANDARD

CONNECTORS, ELECTRICAL, CIRCULAR, MINIATURE, HIGH DENSITY, QUICK DISCONNECT (BAYONET, THREADED, AND BREECH COUPLING), ENVIRONMENT RESISTANT, REMOVABLE CRIMP AND HERMETIC SOLDER CONTACTS, PLUG, LANYARD RELEASE, FAIL-SAFE, TRIPLE START THREADED COUPLING, REMOVABLE CRIMP CONTACTS SOCKETS, SERIES III, METRIC

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SHEET 1 OF 6

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THE COMPLETE REQUIREMENTS FOR ACQUIRING THE CONNECTORS DESCRIBED HEREIN SHALL CONSIST OF THIS SPECIFICATION SHEET AND THE LATEST ISSUE OF MIL-C-38999.

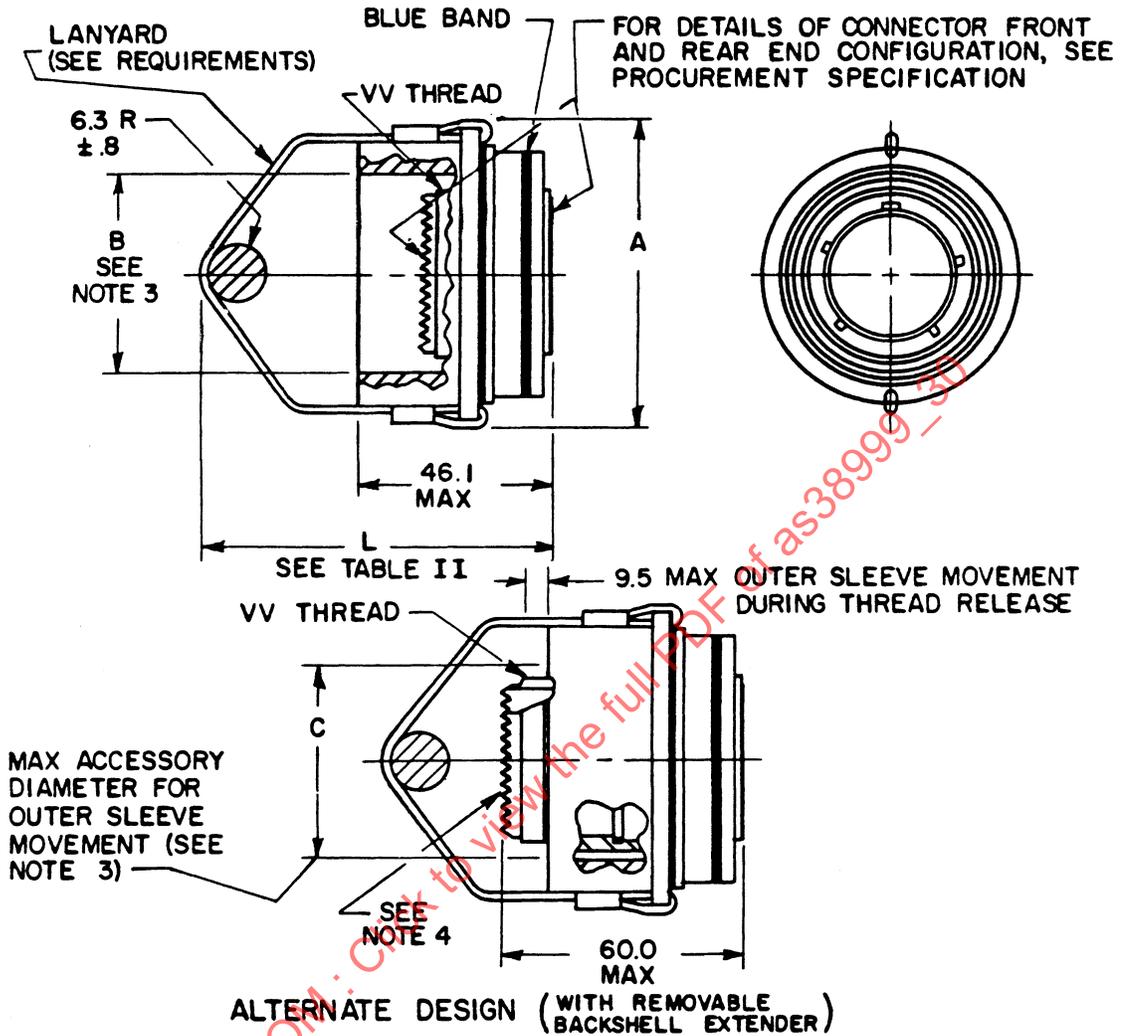


FIGURE 1. PLUG, CLASSES F, K, S AND W.

SHELL SIZE	SHELL SIZE CODE	A MAX.	B MIN.	C MAX.	VV THREAD	BACKSHELL EXTENDER TORQUE
11	B	46.9	25.5	25.0	M15x1.0-6g 0.100R	5.6 Newton meters min.
13	C	50.1	29.9	29.4	M18	
15	D	52.8	33.0	32.5	M22	
17	E	56.0	36.2	35.7	M25	
19	F	59.2	39.0	38.5	M28	
21	G	62.8	42.2	41.7	M31	5.6 Newton meters min.
23	H	65.9	45.4	44.9	M34	
25	J	68.7	48.5	48.0	M37x1.0-6g 0.100R	

NOTES:

- Dimensions are in millimeters.
- EMI grounding feature required on this connector.
- Dimension indicates clearance required for proper operation. Connector must be capable of accepting and functioning with applicable MIL-C-85049 accessories.
- Backshell extender is factory installed but may be removed for serviceability if necessary. If removed the extender must be reassembled and torqued to specified value for proper operation of connector.

FIGURE 1. PLUG, CLASSES F, K, S AND W. - CONTINUED

REQUIREMENTS:

DIMENSIONS AND CONFIGURATIONS: SEE FIGURE 1. INTERFACE DIMENSIONS SHALL CONFORM TO MIL-C-38999.

THIS CONNECTOR MATES WITH DOD-C-38999/20, /21, /23, /24, /25, AND /27.

FOR INSERT ARRANGEMENTS: SEE MIL-STD-1560.

LANYARD:

- 1.57MM MIN DIA., SEVEN STRANDS OF STAINLESS STEEL CAPABLE OF WITHSTANDING 890 NEWTONS PULL TEST AFTER ASSEMBLY WITH CONNECTOR.
- CABLE SHALL BE COVERED WITH A SUITABLE PROTECTIVE SLEEVING TO PRECLUDE POSSIBLE CHAFFING OF WIRES.

CONNECTOR SHALL DISENGAGE FROM ANY COUPLING CONDITION INCLUDING PARTIALLY MATED.

CONNECTOR DESIGN SHALL INCORPORATE A SWIVEL ACTION FOR THE LANYARD TO PREVENT TWISTING OF THE CABLE.

QUALIFICATION: CONNECTORS SHALL MEET THE QUALIFICATION REQUIREMENTS OF MIL-C-38999 WITH THE FOLLOWING EXCEPTIONS AND ADDITIONS:

DURABILITY: WIRED CONNECTORS SHALL MEET THE DURABILITY REQUIREMENTS OF MIL-C-38999, WITH THE FOLLOWING EXCEPTION:

THE TOTAL NUMBER OF CYCLES OF NORMAL MATING AND UNMATING SHALL BE 250 IN THE FOLLOWING SEQUENCES:

200 CYCLES OF NORMAL MATING AND UNMATING FOLLOWED BY 50 CYCLES OF NORMAL MATING WITH PULL-SEPARATION UNMATING.

PULL-SEPARATION: IN ADDITION TO MATING AND UNMATING BY NORMAL COUPLING RING ROTATION, THE CONNECTOR SHALL BE CAPABLE OF LANYARD-PULL SEPARATION AT ANY ANGLE WITHIN 15 DEGREES OF THE NORMAL AXIS. EACH CONNECTOR SHALL HAVE ONE STRAIGHT PULL AND ONE PULL AT 15 DEGREES FROM STRAIGHT, WITH A PULL RATE NOT EXCEEDING 13 CM/SECOND. AFTER BEING EXPOSED FOR ONE HOUR MINIMUM AT THE SPECIFIED TEMPERATURES, THE TEST WILL BE AT -65°C, AT AMBIENT, AND AT THE MAXIMUM TEMPERATURE OF THE SPECIFIED CLASS. THE TEST WILL BE CONDUCTED WITHIN THREE (3) MINUTES AFTER REMOVAL FROM THE TEMPERATURE CHAMBER WITHOUT FORCED HEATING OR COOLING. MAXIMUM SEPARATION FORCES SHALL BE AS SPECIFIED IN TABLE I.

FAIL-SAFE DISENGAGEMENT: CONNECTORS SHALL BE PARTIALLY MATED WITH THE PLUG COUPLING RING ROTATED APPROXIMATELY 50 PERCENT OF FULL COUPLING. PULL-SEPARATION BOTH STRAIGHT AND 15 DEGREES FROM STRAIGHT AT AMBIENT TEMPERATURE SHALL BE ACCOMPLISHED WITHIN THE LIMITS AS SPECIFIED IN TABLE I.

VIBRATION: WIRED MATED CONNECTORS SHALL MEET THE VIBRATION REQUIREMENTS OF MIL-C-38999 WITH THE FOLLOWING EXCEPTIONS:

- a. **SINE VIBRATION:** CONNECTORS SHALL BE SUBJECTED TO THE TEST SPECIFIED IN METHOD 204, TEST CONDITION G, OF MIL-STD-202. ACCESSORY LOAD SHALL BE OMITTED.
- b. **RANDOM VIBRATION:** CONNECTORS SHALL BE SUBJECTED TO THE TEST SPECIFIED IN METHOD 2005 OF MIL-STD-1344, TEST CONDITION VI, LETTER J, AMBIENT TEMPERATURE. DURATION SHALL BE 8 HOURS IN THE LONGITUDINAL DIRECTION AND 8 HOURS IN A PERPENDICULAR DIRECTION, FOR A TOTAL OF 16 HOURS. ACCESSORY LOAD SHALL BE OMITTED. ADDITIONAL RANDOM VIBRATION TESTS AS SPECIFIED IN MIL-C-38999 SHALL BE PERFORMED.

ICE RESISTANCE: THE MATED, WIRED CONNECTORS WITH ACCESSORIES ATTACHED SHALL BE PLACED IN A CHAMBER AND THE TEMPERATURE REDUCED AND STABILIZED SUCH THAT THE ITEM IS MAINTAINED AT -17.8°C (0°F) FOR 1 HOUR. AFTER STABILIZATION OF THE CHAMBER TEMPERATURE, THE TEST ITEM SHALL BE SPRAYED WITH WATER PRECOOLED TO 1.7°C (35°F), FOR A PERIOD OF FIVE (5) MINUTES. THE TEST ITEM SHALL BE LOCATED A MAXIMUM OF 305 MM (12 INCHES) FROM THE SPRAY NOZZLE. THE ENTIRE TEST ITEM SHALL BE EXPOSED TO THE SPRAY. AFTER COMPLETION OF WATER SPRAY, THE TEST ITEM SHALL REMAIN IN THE CHAMBER AT -17.8°C (0°F) FOR AN ADDITIONAL 30 MINUTES. UPON COMPLETION OF THE 30 MINUTE COLD SOAK PERIOD, THE TEST ITEM SHALL BE REMOVED FROM THE CHAMBER AND IMMEDIATELY (WITHIN TWO (2) MINUTES) SUBJECTED TO UNCOUPLING BY USE OF THE LANYARD MECHANISM. THE FORCE REQUIRED TO SEPARATE THE CONNECTOR SHALL NOT EXCEED THE VALUES IN TABLE 1 BY MORE THAN 50%.

TABLE XI OF MIL-C-38999:

GROUP 11: REPLACE COUPLING TORQUE REQUIREMENT WITH PULL SEPARATION. FAILSAFE DISENGAGEMENT SHALL FOLLOW PULL-SEPARATION.