

NATIONAL AEROSPACE STANDARD

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC., 1725 DE SALES STREET, N. W., WASHINGTON, D. C. 20036

SPECIFICATION

FITTING, SELF-SEALING, QUICK DISCONNECT TUBING

1. TYPE

- 1.1 QUICK DISCONNECT TUBING, SELF-SEALING FITTINGS FURNISHED UNDER THIS SPECIFICATION SHALL BE SUITABLE FOR USE IN FLUID LINE CONNECTIONS.

2. GENERAL REQUIREMENTS

2.1 CONSTRUCTION

- 2.1.1 THREADS - SHALL CONFORM TO SPECIFICATION MIL-S-7742

- 2.1.2 ENDS - STANDARD MS33658 TYPE OF ENDS SHALL BE USED FOR LOW PRESSURE FITTINGS OF SIZE UP TO AND INCLUDING 1 INCH, AND STANDARD AND10050 SHALL BE USED FOR ALL SIZES OF HIGH AND MEDIUM PRESSURE FITTING ENDS. FLANGES MATING WITH STANDARD MS33786 SHALL BE USED FOR LOW PRESSURE FITTINGS ABOVE 1 INCH SIZE.

2.2 FINISH

- 2.2.1 ALUMINUM ALLOY PARTS - SHALL BE ANODIZED IN ACCORDANCE WITH SPECIFICATION MIL-A-8625.

- 2.2.2 ALUMINUM PARTS - NO FINISH REQUIRED UNLESS SPECIFIED.

- 2.2.3 CORRODIBLE METALLIC PARTS - SHALL BE SUITABLY PLATED TO RESIST CORROSION DURING THE NORMAL SERVICE LIFE OF THE PART. CADMIUM PLATING IN ACCORDANCE WITH SPECIFICATION QQ-P-416 IS DESIRABLE WHERE PRACTICABLE. THE USE OF DISSIMILAR METALS, ESPECIALLY BRASS, COPPER, OR STEEL IN CONTACT WITH ALUMINUM OR ALUMINUM ALLOYS SHALL BE AVOIDED WHEREVER POSSIBLE. WHEN SUCH CONTACTS ARE UNAVOIDABLE, THE METALS SHALL BE PROTECTED IN THE BEST PRACTICABLE MANNER.

- 2.2.4 ALL PARTS SHALL BE SUITABLY PRIMED AND PAINTED WHEN CALLED FOR ON THE APPLICABLE DETAIL DRAWINGS BY THE PURCHASER.

2.3 PERFORMANCE

2.3.1 PRESSURE

- 2.3.1.1 DESIGN PRESSURE - THE FITTINGS SHALL BE CAPABLE OF MAINTAINING THE FOLLOWING PRESSURE IN BOTH THE OPEN OR DISCONNECTED POSITION AND THE CLOSED OR CONNECTED POSITION WITHOUT ANY APPRECIABLE PHYSICAL DEFORMATION:

- 2.3.1.1.1 HIGH PRESSURE - 30 INCH MERCURY VACUUM TO 5,000 PSI PRESSURE.

- 2.3.1.1.2 MEDIUM PRESSURE - 30 INCH MERCURY VACUUM TO 2,500 PSI PRESSURE.

- 2.3.1.1.3 LOW PRESSURE - 30 INCH MERCURY VACUUM TO 300 PSI PRESSURE.

2.3.1.2 BURSTING PRESSURE

- 2.3.1.2.1 HIGH PRESSURE FITTINGS SHALL HAVE A BURST PRESSURE OF NOT LESS THAN 7,500 PSI.

- 2.3.1.2.2 MEDIUM PRESSURE FITTINGS SHALL HAVE A BURST PRESSURE OF NOT LESS THAN 3,750 PSI.

- 2.3.1.2.3 LOW PRESSURE FITTINGS SHALL HAVE A BURST PRESSURE OF NOT LESS THAN 500 PSI.

- 2.3.1.3 PRESSURE DROP - THE PRESSURE DROP THROUGH THE FITTING SHALL BE NOT GREATER THAN THE DROP THROUGH ONE (1) FOOT OF TUBE, HAVING A DIAMETER EQUAL TO THE NOMINAL DIAMETER OF THE FITTING. THE PRESSURE DROP FOR FITTINGS WHEN USED WITH GASOLINE SHALL NOT EXCEED 1/8 INCH MERCURY ACROSS THE FITTING UNDER THE FOLLOWING FLOW CONDITIONS:

400 GPH FOR 1-1/4 INCH FITTING
300 GPH FOR 1 INCH FITTING

200 GPH FOR 3/4 INCH FITTING
100 GPH FOR 5/8 INCH FITTING

2.3.2 ENDURANCE

- 2.3.2.1 THE FITTINGS SHALL SHOW NO APPRECIABLE EVIDENCE OF WEAR OR DISTORTION FOLLOWING 10,000 CYCLES OF SURGE TESTING FROM A MAXIMUM OF 100% OF DESIGN PRESSURE TO A MINIMUM OF NOT MORE THAN 0 PSI AT A FREQUENCY OF NOT LESS THAN 10 CYCLES PER MINUTE.

2.3.3 WEAR RESISTANCE

- 2.3.3.1 THE FITTINGS SHALL OPERATE SATISFACTORILY AFTER BEING CONNECTED AND DISCONNECTED 500 TIMES AND SHALL HAVE NO LEAKAGE AS SPECIFIED IN PARAGRAPH 2.3.5

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Inactive For
New Design
After 30 June, 1981

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2.3.4 CORROSION RESISTANCE

- 2.3.4.1 FITTINGS SHALL OPERATE SATISFACTORILY AFTER BEING EXPOSED TO A SALT SPRAY FOR 24 HOURS UNDER CONDITION PRESCRIBED IN FED-TEST METHOD STD NO. 151.
- 2.3.4.2 FITTINGS SHALL OPERATE SATISFACTORILY AFTER BEING SUBMERGED IN SPECIFICATION MIL-H-5606 FLUID AT 160°F FOR 7 DAYS. THE PACKING MATERIAL SHALL COMPLY WITH SPECIFICATION MIL-P-5516 FOR PACKING MATERIALS INsofar AS IT APPLIES TO THE PHYSICAL PROPERTIES OF THE MATERIALS.

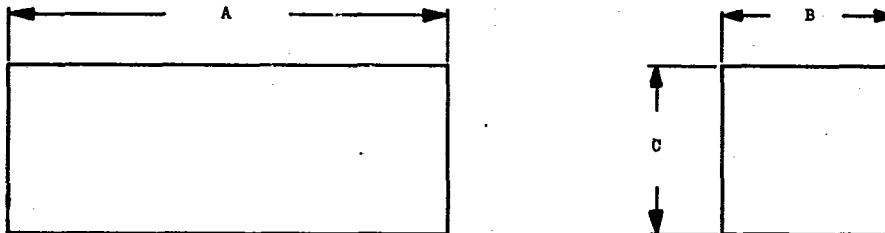
2.3.5 LEAKAGE TEST

- 2.3.5.1 FOR HIGH AND MEDIUM PRESSURE FITTINGS NO LEAKAGE SHALL BE PERMISSABLE FOR ONE COMPLETE ASSEMBLY AND DISASSEMBLY UNDER OPERATING PRESSURES. FOR LOW PRESSURE FITTINGS THE LEAKAGE SHALL BE KEPT AT A MINIMUM. THESE LEAKAGE REQUIREMENTS SHALL APPLY OVER A TEMPERATURE RANGE OF FROM -65°F TO TEMPERATURES LISTED IN PARAGRAPH 2.3.6 BELOW.
- 2.3.6 IN ADDITION TO THE REQUIREMENTS OF PARAGRAPH 2.3.4 FITTINGS INTENDED FOR USE IN THE LOW PRESSURE CATEGORY SHALL BE SUBMITTED TO THE 7 DAY SUBMERGENCE TEST USING EACH OF THE FOLLOWING FLUIDS. IF SPECIAL PACKINGS ARE REQUIRED FOR USE WITH ANY OF THESE FLUIDS, THE FITTING SHALL BE SO IDENTIFIED.

AVIATION GASOLINE, 40% AROMATIC TYPE AT A TEMPERATURE OF 110°F
 AVIATION ENGINE OIL AT A TEMPERATURE OF 300°F
 AVIATION GRADE ETHYLENE GLYCOL AT A TEMPERATURE OF 275°F
 AVIATION GRADE ISOPROPYL ALCOHOL AT A TEMPERATURE OF 110°F

3. DETAIL REQUIREMENTS

- 3.1 DESIGN - THE FITTINGS SHALL BE DESIGNED TO PROVIDE A DIRECT MECHANICAL CONNECTION WITH PROVISIONS FOR SECURELY MAINTAINING THE CONNECTION.
- 3.1.1 THE FITTING SHALL BE DISCONNECTABLE BY NOT MORE THAN 180° OF TURNING MOTION OR 1/2 INCH OF LINEAR MOTION FOR SIZES UP TO AND INCLUDING 3/4 INCH, 1 INCH OF LINEAR MOTION FOR SIZES GREATER THAN 3/4 INCH.
- 3.2 SIZE- FITTINGS SHALL BE FOR TUBES OF THE FOLLOWING SIZES: 1/4, 3/8, 1/2, 5/8, 3/4, 1, 1-1/4, 1-1/2, 1-3/4 AND 2 INCH OD. VENTURI SHAPED ADAPTORS MAY BE USED TO REDUCE THE BULK OF FITTINGS REQUIRED FOR LARGE SIZE TUBES PROVIDING PRESSURE DROP REQUIREMENTS OF PARAGRAPH 2.3.1.3 CAN BE SATISFIED.
- 3.3 OPERATION - OPERATION OF THE FITTING SHALL BE SUCH THAT NO DELAY WILL BE ENTAILED DUE TO OPENING A SAFETY DEVICE LOCK WIRE, ETC. THE FITTING SHALL BE OPERABLE EITHER BY HAND OR WITH NORMAL TOOLS, SUCH AS A SCREWDRIVER, WRENCH OR PLIERS. THE OPERATING HANDLE OR SCREW SHALL BE ACCESSIBLE AND OPERABLE WHEN FITTINGS ARE GROUPED IN MULTIPLES. ALL SIZE FITTINGS SHALL OPERATE SUCCESSFULLY AT AMBIENT TEMPERATURES BETWEEN -40°F AND 160°F.
- 3.4 THE ENVELOPE SIZE OF THE ASSEMBLED FITTING SHALL NOT EXCEED SIZE SHOWN ON THE FOLLOWING SKETCH:



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	LOW PRESSURE FITTINGS							HIGH AND MEDIUM PRESSURE FITTINGS						
SIZE	5/8	3/4	1	1-1/4	1-1/2	1-3/4	2	1/4	3/8	1/2	5/8	3/4	1	
A	6.94	6.94	7.94	7.94	8.19	8.44	9.50	3.50	3.81	5.12	5.31	5.50	6.62	
B	2.31	2.31	3.00	3.00	3.62	3.88	4.12	1.62	1.12	2.00	1.88	2.31	3.00	
C	2.31	2.31	3.00	3.00	4.50	3.88	4.31	1.56	1.12	1.88	1.88	2.94	3.25	

- NOTE: 1. NO PART OF THE DISCONNECT FITTING MAY PROJECT OUTSIDE OF THE SPACE ENCLOSED BY THE STANDARD SKETCH.
2. NO PART OF THE AIRCRAFT OR ITS EQUIPMENT MAY PROJECT INTO THE SPACE ENCLOSED BY THE STANDARD SKETCH.

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