SAE The Engineering Society For Advancing Mobility Land Sea Air and Space

400 COMMONWEALTH DRIVE, WARRENDALE, PA 15096

AEROSPACE STANDARD

AS 1227

Issued 11-72
Revised 11-86

REV. A

Submitted for recognition as an American National Standard

HIGH-TEMPERATURE LOW PRESSURE HOSE ASSEMBLY, CONVOLUTED-, TETRAFLUOROETHYLENE-, FOR AEROSPACE

1. SCOPE:

1.1 Scope: This Aerospace Standard covers low pressure aerospace convoluted hose assemblies intended for use in high temperature fluid systems. The specified temperature ranges are as noted and the maximum operating pressures are listed in Table I.

1.2 Classification: The assemblies shall be of the following classes:

Class 1 - All corrosion resistant steel fittings -65°F to 400°F. (-54°C to 204°C).
Class 2 - Combination aluminum alloy nut, flange, elbow, nipple and corrosion resistant steel socket fittings, or all aluminum fittings -65°F to 275°F (-54°C to 204°C).
Type I - Conductive Innertube
Type II - Non-Conductive Innertube.

2. APPLICABLE SPECIFICATIONS, OTHER PUBLICATIONS, AND DRAWINGS:

2.1 The following specifications, standards, drawings and publications of the issue in effect on date of invitation for bid, form part of this standard to the extent specified herein. When the requirements of the below listed specifications conflict with the requirements of this document, the requirements of this document shall govern.

2.2 Military Standards and Specifications:

MIL-STD-100 - Engineering Drawing Practice
MIL-STD-130 - Military Std. Identification Marking of U.S. Military Property
MIL-H-5606 - Hydraulic Fluid, Petroleum Base, Aircraft, Missile and Ordnance
MIL-T-5624 - Turbine Fuel, Aviation,Grades JP-4 and JP-5
MIL-L-7808 - Lubrication Oil, Aircraft Turbine Engine Synthetic Base
MIL-T-8504 - Tubing, Steel, Corrosion-Resistant (304), Aerospace Vehicle Hydraulic Systems, Annealed, Seamless and Welded
MIL-A-8625 - Anodic Coating for Aluminum Alloy
MIL-T-8808 - Tubing, Steel, Corrosion-Resistant (18-8 Stabilized), Aircraft Hydraulic Quality
MIL-S-8879 - Screw Threads, Controlled Radius Root with Increased Minor Diameter, General Specification for
MIL-H-83282 - Hydraulic Fluid, Fire Resistant, Synthetic Hydrocarbon Base, Aircraft
MS 19059 - Ball, Bearing, Ferrous, Chrome Alloy Steel
MS 33514 - Fitting End, Standard Dimensions for Flareless Tube Connection and Gasket Seal
MS 33656 - Fitting End, Standard Dimensions for Flared Tube Connection and Gasket Seal

2.3 Federal Specifications:

QQ-A-225/6 - Aluminum Alloy Bar, Rod and Wire, Rolled, Drawn or Cold Finished (2024)
QQ-A-225/8 - Aluminum Alloy Bar, Rod and Wire, Rolled, Drawn or Cold Finished (6061)
QQ-W-423 - Wire, Steel, Corrosion Resisting
P-D-680 - Dry Cleaning Solvent
QQ-S-763 - Steel Bars, Shapes & Forgings, Corrosion-Resisting
TT-S-735 - Standard Test Fluids, Hydrocarbon

2.4 SAE Publications:

AMS 5557 - Steel Tubing, Seamless and Welded, Corrosion and Heat Resistant, (SAE 30321), Hydraulic, Solution Heat Treated
AMS 5570 - Steel Tubing, Seamless, Corrosion and Heat Resistant (SAE 30321), Solution Heat Treated
AMS 5571 - Steel Tubing, Seamless, Corrosion and Heat Resistant (SAE 30347)
AMS 5576 - Steel Tubing, Welded, Corrosion and Heat Resistant (SAE 30321) Solution Heat Treated
AMS 5637 - Steel Bars, Corrosion Resistant, (SAE 30302), Cold Drawn
AMS 5639 - Steel Bars, Forgings, Tubing, and Rings, Corrosion Resistant, (SAE 30304), Solution Heat Treated
AMS 5643 - Steel Bars, Forgings, Tubing, and Rings, Corrosion Resistant, (17-4PH), Solution Heat Treated
AMS 5644 - Steel Bars and Forgings, Corrosion Resistant (17-7 PH)
AMS 5645 - Steel Bars, Forgings, Tubing, and Rings, Corrosion and Heat Resistant (SAE 30321), Solution Heat Treated
AMS 5646 - Steel Bars, Forgings, Tubing, and Rings, Corrosion and Heat Resistant (SAE 30347), Solution Heat Treated
AMS 5647 - Steel Bars, Forgings, Tubing, and Rings, Corrosion Resistant (SAE 304L), Solution Heat Treated
ARP 611 - Tetrafluoroethylene Hose Assembly Cleaning Methods
ARP 908 - Hose and Tube Fitting-Installation and Qualification Test Torque Requirements
AS 1055 - Fire Testing of Flexible Hose, Tube Assemblies, Coils, Fittings and Similar System Components
ARP 1153 - Method for Determining Relative Specific Gravity of Polytetrafluoroethylene Tubing

2.5 Other Publications:

ASTM-A-262 Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels
NAS 1760 Fitting End, Flareless Acorn, Standard Dimensions For

3. REQUIREMENTS:

3.1 Qualification: The hose assemblies furnished under this standard shall be a product identical to that which has been tested and has passed the qualification tests herein and shall be suitable for use in aerospace fluid systems under conditions specified herein.

3.2 Material: The hose assemblies shall be uniform in quality and free from defects in material as is consistent with good manufacturing practices. Materials shall conform to applicable specifications and the requirements specified herein. All materials which are not specifically described herein shall be of the highest quality and suitable for the purpose intended.

3.2.1 Metals: Metals shall be of the corrosion resistant type or be suitably treated to resist corrosion due to fluid being conveyed and/or salt spray and atmospheric conditions to which the hose assembly may be subjected when in storage or during normal service use. Metals shall conform to the following specifications:

Bars and Forgings:	Tubing	Wire
AMS 5639	AMS 5557	AMS 5637 (302)
AMS 5643	AMS 5570	QQ-W-423 (Comp 302, 304, 321)
AMS 5644	AMS 5571	
AMS 5645	AMS 5576	
AMS 5646	MIL-T-8808 Type I or Type II	
AMS 5647		
QQ-S-763, Class 302, 304, 304L 321, 347		
QQ-A-225/6		
QQ-A-225/8		

3.3 Design: The hose assembly shall consist of a convoluted tetrafluoroethylene innercore, reinforced with stainless steel wire, and with end fittings suitable for the intended installation and as specified by purchaser. This Aerospace Standard shall specifically cover the hose assembly made up of the specified hose and hose attachment mechanism of the fitting.

3.3.1 Innercore: The innercore shall be of convoluted construction of virgin tetrafluoroethylene resin designed to promote easy bending. It shall be free from pitting or projections on the inner surface which may interfere with fluid flow. Additives may be included in the compound from which the innercore is fabricated.

3.3.2 Reinforcement: The reinforcement shall consist of CRES Wire braid(s) (302, 304 or 321) of sufficient strength and corrosion resistance to meet the requirements of this standard. Broken wires shall be cause for rejection. Crossed-over reinforcing wires shall not be cause for rejection.

3.3.3 Interlayers: Interlayers, if used, shall be of suitable material. They shall be compatible with the fluids of the systems in which the assemblies are to be used.

3.3.4 Fittings: The fittings shall be specifically designed for this hose, and materials shall be selected for the specific operating conditions. Standard hose assemblies shall have flare fittings to mate with MS 33656 or flareless fittings to mate with MS 33514 and shall have hose nipples conforming to NAS 1760.

3.3.4.1 Standard Fittings: Standard fittings shall be of one-piece construction. Weld or braze joints must not be located in the fluid paths, except welded and redrawn tubing per MIL-T-8504 or MIL-T-8808 may be used. For double elbow assembly configurations and sizes above -24, the elbow fitting may be considered non-standard.

3.3.4.2 Non-Standard Fittings: Non-standard elbow nipples shall be of one-piece construction to the maximum extent possible. However, those made with other than one-piece construction shall be fusion welded and employ a butt-weld or lap-weld joint design.

3.3.4.3 End Fitting Collars (sockets)

All end fitting collars (sockets), crimped or swaged, fabricated from Type 304 stainless steel, are required to be capable of passing an embrittlement test as specified in ASTM-A-262, Practice E, prior to assembly to the nipple or swaging operation.

3.4 Dimensions: The hose assembly dimensions, except for length, shall be as specified in Figure 3.

3.5 Performance: The hose assembly shall satisfy the performance requirements specified when subjected to the following tests:

a. Examination of Product per 4.4.1
b. Proof Pressure Test per 4.4.2
c. Elongation and Contraction Test per 4.4.3
d. Leakage Test per 4.4.4
e. Room Temperature Burst Pressure Test per 4.4.5
f. High Temperature Burst Pressure Test per 4.4.6
g. Oil Resistance Test per 4.4.7
h. Flexibility and Vacuum Test per 4.4.8
i. Pressure Surge Test per 4.4.9
j. Specific Gravity Tests per 4.4.10
k. Conductivity Test per 4.4.11

3.6 Screw Threads: All threads for end connections (exclusive of internal fitting threads) shall be in accordance with specification MIL-S-8879. Thread tolerance increase of 10 per cent during assembly or testing shall not be cause for rejection of the hose assembly.

TABLE I

PERFORMANCE REQUIREMENTS OF HOSE ASSEMBLIES

Hose Size	Operating Pressure Max. psi	Operating Pressure Max. kPa	Proof Pressure Min. psi	Proof Pressure Min. kPa	Burst Pressure Room Temp. Min. psi	Burst Pressure Room Temp. Min. kPa	Burst Pressure High Temp. Min. psi	Burst Pressure High Temp. Min. kPa	Bend Radius At Inside of Bend Inches	Bend Radius At Inside of Bend (Millimetres)
-4	300	2 068	600	4 137	1200	8 274	900	6 205	0.500	(12.70)
-6	300	2 068	600	4 137	1200	8 274	900	6 205	0.750	(19.05)
-8	250	1 724	500	3 447	1000	6 895	750	5 171	1.000	(25.40)
-10	250	1 724	500	3 447	1000	6 895	750	5 171	1.500	(38.10)
-12	200	1 379	400	2 758	800	5 516	600	4 137	2.000	(50.80)
-16	200	1 379	400	2 758	800	5 516	600	4 137	3.000	(76.20)
-20	150	1 034	300	2 068	600	4 137	450	3 103	4.000	(101.60)
-24	150	1 034	300	2 068	600	4 137	450	3 103	5.000	(127.00)
-32	150	1 034	300	2 068	600	4 137	450	3 103	6.000	(152.40)
-40	75	517	150	1 034	300	2 068	225	1 551	9.000	(228.60)
-48	50	345	100	689	200	1 379	150	1 034	12.000	(304.80)
*-64Z	50	345	100	689	200	1 379	150	1 034	20.000	(508.00)

* Double braid

3.7 Length: Hose assembly lengths and hose assembly tolerances shall be as follows:

Assembly Length	Assy. Length Increments	Tolerance
Under 18 in. long (457 mm)	1/8 in. (3.2 mm)	± 1/8 in. (± 3.2 mm)
18 to 36 in. long (457 to 914 mm)	1/4 in. (6.4 mm)	± 1/4 in. (± 6.4 mm)
36 to 50 in. long (914 to 1270 mm)	1/2 in. (12.7 mm)	± 1/2 in. (± 12.7 mm)
Over 50 in. long (1270 mm)	1 in. (25.4 mm)	± 1%

3.8 Interchangeability: All parts having the same manufacturer's part number shall be directly and completely interchangeable with each other with respect to installation and performance. Changes in manufacturer's part numbers shall be governed by the drawing number requirements of specification MIL-STD-1000.

3.9 Identification of Product: Equipment, assemblies and parts shall be marked for identification in accordance with MIL-STD-130 to the extent applicable. The following special marking shall be added:

3.9.1 Fittings: The manufacturer's name or trademark shall be permanently marked on each end fitting.

3.9.2 Assembly: A permanent band which shall be an integral part of the hose assembly shall carry the following markings (the collar or socket of the fitting shall be considered a permanent band):

a. Assembly manufacturer's name or trademark.
b. FSCM and complete hose assembly part number
c. Max. operating temperature "400°F" (204°C) or 275°F (135°C) for Class 2
d. Pressure test symbol "PT"
e. Assembly specification "AS 1227"
f. Date of hose assembly manufactured expressed in terms of month and year
g. AS 1055 type and class (when applicable)

3.10 Workmanship:

3.10.1 General: The hose assembly including all parts shall be constructed and finished in a thoroughly workmanlike manner. All surfaces shall be free from burrs. All sealing surfaces shall be smooth, except that annular tool marks up to 100 - μ in. (2.5 micrometres) RMS maximum will be acceptable.

3.10.2 Tolerances: All pertinent dimensions and tolerances, where interchangeability, operation or performance of the hose assembly may be affected, shall be specified on all drawings.

3.10.3 Cleaning: All hose assemblies shall be free from oil, grease, dirt or any other foreign material both internally and externally. Unless otherwise specified, hose assemblies shall be cleaned to Class 0 of ARP 611 and all openings shall be suitably protected against entrance of foreign material and all threads protected against damage. All protective covers shall be of a configuration that prohibits assembly of mating parts without removing the cover.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Classification of Tests: The inspection and testing of hose assemblies shall be classified as follows:

a. Acceptance tests (See 4.2)

b. Qualification tests (See 4.4)

4.2 Acceptance Tests: Acceptance tests shall consist of:

a. Individual Tests (See 4.2.1)

b. Sampling Tests (See 4.2.2)

c. Periodic Control Tests (See 4.2.3)

4.2.1 Individual Tests: Each hose assembly delivered under this standard shall be subjected to the following tests described under 4.4:

a. Examination of Product (See 4.4.1)

b. Proof Pressure Test (See 4.4.2)

4.2.2 Sampling Tests: The following tests shall be performed on hose assemblies picked at random from each lot. A lot is defined as 500 assemblies of a given dash size.

4.2.2.1 One hose assembly shall be consecutively subjected to the following tests:

a. Elongation and Contraction (See 4.4.3) then

b. Leakage (See 4.4.4) then

c. Room Temperature Burst Pressure (See 4.4.5)

4.2.3 Periodic Control Tests: The following tests shall be performed on assemblies selected from each 5000 hose assemblies for each dash size, not necessarily manufactured during one continuous production run.

a. High Temperature Burst Pressure Test (See 4.4.6) - 2 assemblies

b. Oil Resistance Test - omitting 4.4.7.4 and 4.4.7.5 (See 4.4.7) - 2 assemblies

c. Conductivity Test (See 4.4.11) - One 14-inch (356-mm) length of innercore (Braid removed)

4.2.4 Rejection and Retest: When one item selected from a production run fails to meet the specification, no items still on hand or later produced shall be accepted until the extent and cause of failure are determined and corrective action, as necessary, taken.

4.2.4.1 Individual Tests May Continue: For operational reasons, the individual tests may be continued pending the investigation of a sampling or periodic control test failure. Final acceptance of items on hand or produced later shall not be made until it is determined that items meet the requirements on which the rejection was based.

4.2.5 Defects in Assemblies Already Accepted: The investigation of a test failure could indicate that defects may exist in items already accepted. If so, the contractor shall fully advise the purchaser of all defects likely to be found and methods of detecting and correcting them.

4.3 Test Conditions:

4.3.1 Preparation of Specimens: Length of the sample lines shall be in accordance with Table II, unless otherwise specified.

4.3.2 Test Fluids: Unless otherwise specified, the test fluid shall be hydraulic fluid conforming to specification MIL-H-5606, MIL-T-5624, MIL-H-83282 or water. When a high temperature test is performed, the test fluid shall be oil per MIL-L-7808 or oil specified by the purchaser.

4.3.3 Test Measurements: Unless otherwise specified, all pressures shall have a tolerance of + 20 PSIG (138 kPa) and temperatures shall have a tolerance of +15°F (+8°C) to -5°F (-3°C).

4.4 Qualification Tests: The qualification of hose assemblies shall consist of the following performance tests. The lengths of hose assemblies and schedule of tests are specified in Tables II and III, respectively.

4.4.1 Examination of Product: All hose assemblies shall be examined to determine conformance to this document with respect to material, size and workmanship. Broken or missing reinforcing wires or any other evidence of malfunction shall be cause for rejection. Crossed over reinforcing wires shall not be cause for rejection.

4.4.2 Proof Pressure Test: All hose assemblies shall be pressure tested to the values specified in Table I for a period of not less than 30 seconds and not more than 5 minutes. All assemblies used for the tests described in this document shall have this proof pressure test applied to them. Any evidence of leakage from hose or fittings or any other evidence of malfunction shall constitute failure.

4.4.3 Elongation and Contraction Test: One test assembly shall be held in a straight unpressurized condition and a 10 in. (254 mm) standard length marked off on the hose. It shall then be pressurized to operating pressure for 5 minutes minimum. At the end of this 5 minute period, and while still pressurized, the standard length shall be remeasured and recorded. The standard length of hose should not change in length more than plus 0.3 inch (7.62 mm) or minus 0.1 inch (2.54 mm).

4.4.4 Leakage Test: Two test assemblies shall be pressurized while at room temperature to 25 psi (172 kPa) for a minimum of 5 minutes. The pressure shall then be increased to a value equal to 70% of the rated room temperature burst pressure specified in Table I and held for a minimum of 5 minutes. The pressure shall then be completely released and again increased to 70% of the rated room temperature burst pressure and held for a minimum of 5 minutes. Any evidence of leakage shall constitute failure.

4.4.5 Room Temperature Burst Pressure Test: During this test, the test assemblies shall be fastened at one end to the source of pressure and filled with the specified test fluid. They shall be extended straight and the free end shall not be restrained or fastened in any way. The rate of pressure rise shall be 20,000 ± 5,000 psi (138,000 ± 34,000 kPa) per minute until failure is obtained. The hose assemblies shall be under continuous observation during pressure increase and the type of failure shall be recorded. The hose shall not burst, the fittings shall not blow off or loosen, and there shall be no leakage from the hose or fittings or any other evidence of malfunction below the values specified in Table I.

4.4.6 High Temperature Burst Pressure Test: The test assembly shall be filled with a suitable test fluid and soaked for one hour with ambient and fluid temperature of 400°F (204°C), for Class 2 use 275°F (135°C). After one hour, the pressure shall be raised to the rated operating pressure for 5 minutes. At the end of this period, the pressure shall be increased at the rate of 20,000 ± 5,000 psi (138,000 ± 34,000 kPa) per minute until failure is obtained. The hose assemblies shall be under continuous observation during pressure increase and the type of failure shall be recorded. The hose shall not burst, the fittings shall not blow off or loosen, and there shall be no leakage from the hose or fittings or any other evidence of malfunction below the values specified in Table I.

4.4.7 Oil Resistance Test:

4.4.7.1 Two test assemblies shall be filled with high temperature test fluid and placed in an oven maintained at 400°F. (204°C); for Class 2 use 275°F (135°C). Care should be taken to insure against the assemblies coming in contact with parts of the oven which are at a higher temperature. The same test fluid shall be used throughout this test, unless otherwise specified. The assembly shall have a pressure applied equal to the rated operating pressure as specified in Table I.

4.4.7.2 At the end of a minimum of 16 hours, the assemblies shall be removed from the oven, drained and refilled with test fluid in accordance with specification TT-S-735, Type III. A pressure shall be applied equal to the rated operating pressure and maintained for a minimum of 2 hr. at room temperature.

4.4.7.3 The assemblies shall be drained and the test as specified in 4.4.7.1 and 4.4.7.2 shall be repeated for a total of 3 times.

4.4.7.4 At the completion of the above tests, the test samples shall be filled with oil and placed in a cold chamber, maintained at -67°F ± 2, (-55°C ± 1). After the 4-hour soak at -67°F (-55°C), the samples shall be subjected to a pressure equal to the operating pressure specified in Table I. The pressure shall be held for a minimum of 5 minutes and then released. This shall be repeated for a total of 10 times with a minimum of 5 minutes between each pressure application.

4.4.7.5 The assemblies shall again be placed in the cold chamber where the temperature is -67°F ± 2 (-55°C ± 1) for 24 hours. At the end of this time, oil at a temperature of 400°F (204°C), for class 2 use 275°F (135°C), shall be circulated through the assemblies. Within 15 seconds after introduction of the hot oil, the pressure shall be increased to the rated proof pressure and held for a minimum of 2 minutes.

4.4.7.6 Any leakage of the test fluid from the assemblies during the preceding tests shall constitute failure.

4.4.7.7 At the conclusion of the above tests, one of the test assemblies shall be used for the burst test of 4.4.5. The other assembly shall be subjected to the flexibility and vacuum test of 4.4.8.

4.4.8 Flexibility and Vacuum Test:

4.4.8.1 One test assembly from the oil resistance test (4.4.7) and one unaged sample shall be used for this test. The samples shall be filled with test fluid in accordance with TT-S-735, Type I, and placed in a cold chamber for 24 hours maintained at a temperature of -67°F ± 2. (-55°C ± 1).

4.4.8.2 At the end of this time, and while still at this temperature, the samples shall be bent 180° around a mandrel with a radius equal to the minimum bend radius specified in Table I. The bend shall then be reversed and returned to the straight position. This cycle shall be repeated a total of 5 times allowing about 4 seconds per cycle. Damage to the hose as a result of this test shall be cause for rejection.

4.4.8.3 The assemblies shall then be drained and with applicable diameter steel ball, per following tabulation installed, be placed in an oven at 400°F (204°C) for Class 2 use 275°F (135°C) with the assemblies in the minimum bend radius condition. A negative pressure as specified in the following tabulation shall be applied. At the end of 4 hours, the assembly shall be removed from the oven while continually maintaining the negative pressure. The test ball shall then be rolled through the hose assemblies from fitting to fitting. Failure of the ball to pass through shall be evidence of failure.

VALUES FOR VACUUM TEST

Hose Size	Negative Pressure		Ball Size		
	Inch Hg	mm Hg	MS 19059 Dash No.	Inch	mm
-4	28	711	1008	0.125	3.18
-6	28	711	1014	0.250	6.35
-8	28	711	1017	0.344	8.74
-10	28	711	1019	0.406	10.31
-12	28	711	1626	0.625	15.88
-16	28	711	1632	0.812	20.62
-20	20	508	1639	1.062	26.97
-24	12	305	TBD	1.281	32.54
-32	5	127	4851	1.812	46.02
-40	5	127	TBD	2.250	57.15
-48	5	127	TBD	2.750	69.85
*-64Z	3	76	TBD	3.688	93.68

* Double-braided

4.4.9 Pressure Surge Test: The test assemblies shall be connected to rigid supports and bent in a 90° arc with a bend radius as specified in Table I. The ambient air and fluid temperature shall be maintained at 400°F (204°C), for Class 2 use 275°F (135°C). The test fluid shall be MIL-L-7808. The hose assemblies shall be pressure-cycled from 0 to operating pressure at a rate of not less than 20 cycles per minute or more than 30 cycles per minute, as shown in Fig. 1. Any leakage from the hose or hose attachment to the end fittings at less than 50,000 cycles shall constitute failure.

4.4.10 Specific Gravity Tests: Innercore.

4.4.10.1 Apparent Specific Gravity: Apparent specific gravity shall be determined in accordance with ARP 1153 and shall be from 2.125 to 2.155 at 77°F ± 2 (25°C ± 1). Two drops of wetting agent shall be added to the water.

4.4.10.2 Relative Specific Gravity: Relative specific gravity shall be determined in accordance with ARP 1153, and shall not exceed a value of 2.210 (for all sizes of tubes).

4.4.11 Conductivity Test: (Type I only)

4.4.11.1 The test specimen shall be a 14-in. (356-mm) length of tube (braid removed). The inner surface of the tube shall be washed first with solvent conforming to P-D-680 and then with isopropyl alcohol conforming to TT-S-735, to remove surface contamination, and thoroughly dried at room temperature.

4.4.11.2 The test specimen shall then be arranged vertically as shown on Fig. 2. The relative humidity shall be kept below 70% and room temperature between 60°F and 90°F. (16°C to 32°C). One thousand volts dc shall be applied between the upper and lower electrodes.

4.4.11.3 The current shall be measured with an instrument with a sensitivity of at least 1 microampere (1×10^{-6} ampere). The current measured shall be equal to or greater than 10 microamperes for sizes -4 through -8 and equal to or greater than 20 microamperes for sizes -10 through -64.

TABLE II

LENGTH OF HOSE ASSEMBLIES FOR TEST

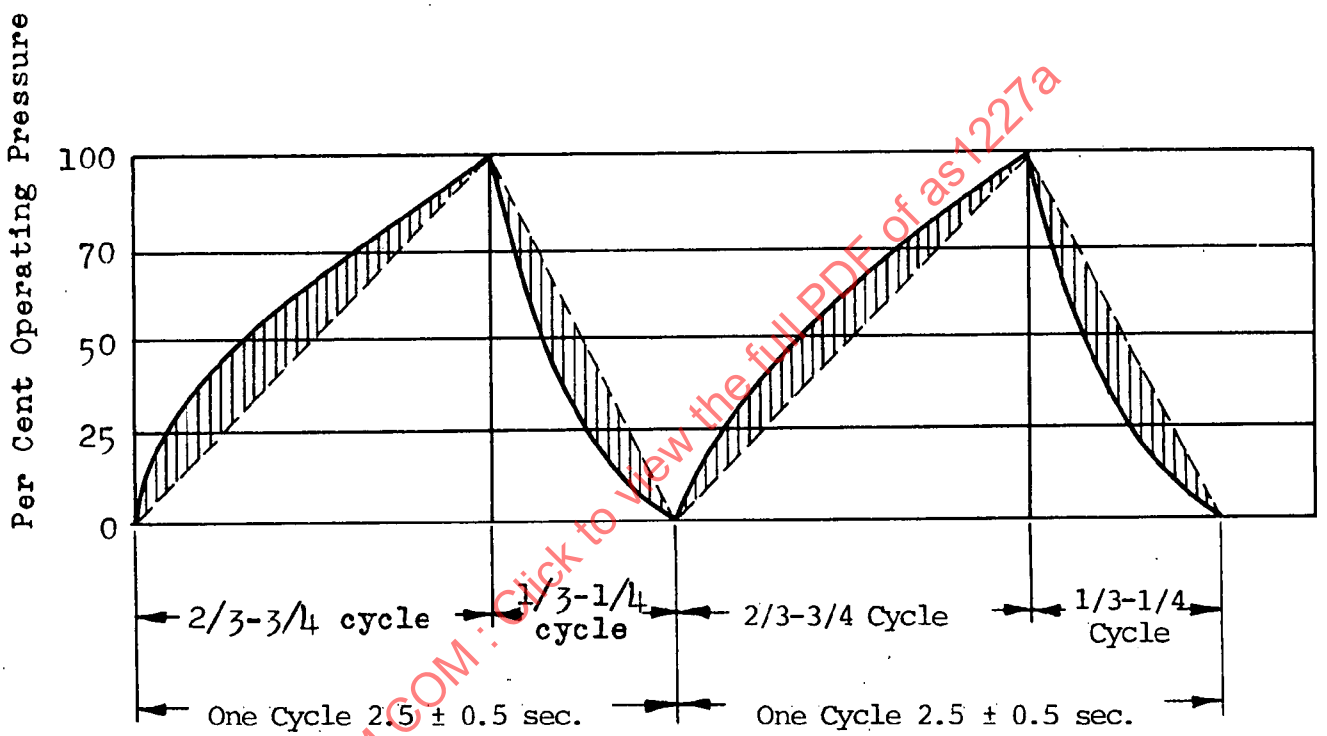
Hose Size	Assembly Number 1-4	Assembly Number 5-6	Assembly Number 7-10
-4	15	15	15
-6	15	15	15
-8	15	15	15
-10	15	15	15
-12	18	18	18
-16	18	18	18
-20	18	20	20
-24	18	25	25
-32	18	30	30
-40	18	38	38
-48	18	45	45
*-64Z	18	60	60

* Double-braided

In addition to the eleven hose assemblies listed in Table III, one length of hose inner tube 14 in. (356 mm) long is required for the Conductivity Test (4.4.11) and several chips for Specific Gravity tests.

Ø FIGURE 1

PRESSURE SURGE CURVE



The curve shown above is the approximate pressure/time cycle for proper severity for surge testing hose assemblies. It is mandatory that the pressure peak rise to 100% of operating pressure. It is considered desirable that the pressure time curve be confined to the shaded area so that results of tests performed on different test machines will be comparable.