

HOSE CHARACTERISTICS AND SELECTION CHART

1. SCOPE:

- 1.1 This report lists military and industry specifications and standards which are used in aerospace systems and for ground servicing equipment. The characteristic limitations of the hose which are of major importance to designers and the sizes in which the hoses are standard are shown. Revisions and amendments which are current for these specifications and standards are not listed.
- 1.2 Listing Documents: Attention is called to the following documents which list specifications and standards and are used as a basis for this report.
- 1.2.1 Military Standards: The Department of Defense Index of Specifications and Standards: prepared by Commanding Officer U.S. Naval Supply Depot N.S.D. 103, 5801 Tabor Avenue, Philadelphia, PA 19120. This document is published semiannually, with bi-monthly cumulative supplements.
- 1.2.2 Society of Automotive Engineers, Inc. Standards: SAE Aerospace Standards, Recommended Practices, Information Reports (AS, ARP, AIR) Index. This document is published annually by the Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.

2. SPECIFICATIONS AND STANDARDS:

2.1 Miscellaneous Documents:

MIL-H-6002	Marking; Standard Hose, Aircraft
MS33620	Chart, Hose Selection
MIL-STD-1523	Age Controls of Age Sensitive Elastomeric Materials
ARP 600	Torque Determination, Method of
ARP 603	Impulse Test Equipment for Hydraulic System Components
ARP 605	Routine Inspection and Test Procedure for Refueling Hoses
AS 611	Tetrafluoroethylene Hose Assembly Cleaning Methods
AS 1055	Fire Testing of Flexible Hose, Tube Assemblies, Coils, Fittings and Similar System Components
AIR 1377	Fire Test Equipment for Flexible Tube and Hose Assemblies

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REAFFIRMED

3. NOTES:

- 3.1 Marginal Indicia: No phi (ϕ) symbol is used to indicate technical changes from the previous issue of this AIR because of the extensive nature of all changes.

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PREPARED BY SUBCOMMITTEE G-3D,
AEROSPACE HOSE OF
SAE COMMITTEE G-3, AEROSPACE FITTINGS, HOSE AND TUBING ASSEMBLIES

2.2 MILITARY HOSE SPECIFICATION AND STANDARDS

ASSEMBLY DRAWING OR SPECIFICATION	HOSE SPECIFICATION	END FITTING DRAWING OR SPECIFICATION	USAGE MEDIA	TEMP. RANGE	SIZES	PRESSURE (PSIG)			IMPULSE LIFE	BEND RADIUS (in)	REMARKS
						WORKING	PROOF	BURST			
AN 6270 Hose Assembly Detachable Swivel Fitting, Low Pressure	MIL-M-5593 Hose, Air- craft, Low Pressure, Flexible	MS 27404 MIL-A-38726	Gas Water Alcohol Oil	-65°F TO +160°F	-2 -3 -4 -6 -8 -10	Not Stated	1,000 800 500 500 300 300	2,000 1,700 1,250 1,000 750 700	No Life Test	Not Stated	
MIL-M-8790 Hose Assemblies, Rubber Hydraulic High Pressure (3000 psi) MS-28759 MS-28762 MS-28920 MS-28921 MS-28922 MS-28923 MS-28924	MIL-M-8788 Hose	MIL-F-8789 MS-28760 MS-28780 MS-28781 MS-28761	Hydraulic	-65°F TO +160°F	-4 -5 -6 -8 -10 -12 -16	3,000 3,000 3,000 3,000 3,000 3,000 3,000	8,000 7,000 7,000 7,000 6,000 6,000 5,000	16,000 14,000 14,000 14,000 12,000 12,000 10,000	100,000(1) 100,000 100,000 75,000 50,000 35,000 45,000(2)	3 3-3/8 5 5-3/4 6-1/2 7-3/4 9-5/8	No gas test (1) -4 to -12, peaks 150% working Pressure bent (2) No Impulse peaks, straight
MIL-H-8795 Hose Assemblies Rubber, Hydraulic Fuel and Oil Re- sistant MS-28741	MIL-H-8794	MIL-A-5070	Hydraulic Fuel Oil	-65°F TO +160°F	-3 -4 -5 -6 -8 -10 -12 -16 -20 -24 -32 -40 -48	3,000 3,000 3,000 2,000 2,000 1,750 1,500 800 600 500 350 200(1) 200(1)	6,000 6,000 5,000 4,500 4,000 3,500 3,000 1,600 1,250 1,000 700 300 300	12,000 12,000 10,000 9,000 8,000 7,000 6,000 3,200 2,500 2,000 1,400 1,000 800	200,000(2) 200,000 200,000 200,000 200,000 200,000 200,000 100,000 100,000(3) 100,000 No Impulse	3 3 3-3/8 4 4-4/8 5-1/2 6-1/2 7-3/8 9 11 13-1/4 24 33	No gas test (1) The pressure based on fuel, all others based on hydraulic (2) -3 to -16, 125% peak, bent (3) -20 to -32, 100% peak pressure straight
MIL-H-22343 Hose Assembly Metal Liquid Oxygen MS-90457	MIL-H-22343	MS 90457	Oxygen, Liquid and Gaseous	-297°F TO 160°F	-4 -5 -6 -8	None Stated	450 450 450 450	4,500 3,500 3,500 3,500	None	2 2-1/2 3 4	Low Temp Flex Test Vibration Test

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						WORKING	PROOF	BURST			
MIL-H-25579 Hose Assembly Tetrafluoroethy- lene, High Temp- ture, Medium pressure MS-8000 thru MS-8009	MIL-H-25579	MIL-H-25579	Fuel	-65°F TO	-3/-4	1,500	3,000	12,000(2)	100,000 (384)	2	Conductivity Tests (1) 400°F for hydraulic and pneumatic usage (2) Room temp. values 450°F are lower (3) 125% peak at 400°F bent (4) -5/-4 not for hyd use (5) -16Z and larger, straight (6) -20Z and -24X, 100% peaks
	MIL-H-27267	MIL-F-27272	Lube Oil	+450°F (1)	-4	1,500	3,000	12,000	100,000	2	
	MS-8000 thru MS-8009	MS-27053 thru MS-27060	Water-Alco- hol		-5	1,500	3,000	10,000	100,000	2	
		MS-27060	Chemical		-6	1,500	3,000	9,000	100,000	4	
		MS-27381 thru MS-27385	Fluid		-8	1,500	3,000	8,000	100,000	4-5/8	
		MS-8000 thru MS-8009	Hydraulic Pneumatic		-10 -12 -16Z -20Z -24Z	1,500 1,000 1,250 1,000 1,000	3,000 2,000 2,500 2,000 2,000	7,000 5,000 5,000 4,000 4,000	100,000 100,000 100,000(5) 100,000(6) 100,000	5-1/2 6-1/2 7-3/8 11 14	
MIL-H-26499 Hose Assembly, Metal, Flexible Breathing Oxygen	MIL-H-26499	MIL-H-26499	Oxygen	-65°F TO Unstated Max.	-4	3,500	7,000	14,000	50,000(1)	4	(1) 100% peaks
MIL-H-26626 Hose Assembly, Tetrafluoroethy- lene	MIL-H-26499 MIL-H-26626	MIL-H-26626	Oxygen	-297°F TO +260°F	-5 -6 -8	500	1,000	2,200		6 8 9-1/4	Cold Flex Test Diffusion Test
	MIL-H-26633	MS-28760 Type	Oxygen	-65°F TO +160°F	-5end -4hose	3,000	6,000	12,000	2,000 (Amb.) (1)	3-1/4	(1) 100% peak pressure cold flex test tensile test
MIL-H-26666 Hose Assembly Pneumatic High Pressure Polyethylene	MIL-H-26666	MS-28760 Type	Pneumatic (Ground Support Equipment)	-65°F TO +160°F	-4 -6 -8 -10 -12	4,000 4,000 4,000 4,000 4,000	8,000 8,000 8,000 8,000 8,000	16,000 16,000 16,000 16,000 16,000	1000 (Amb.) 1000 (160°F)	3-1/4 5-1/4 6 6-3/4 8	100% peak pressure
	MIL-H-27462	MIL-H-27462 (Pipe Threads)	Pneumatic (Ground Support Equipment)	-65°F TO +160°F	-4 -6 -8	8,500 8,500 8,500	17,000 17,000 17,000	34,000 34,000 34,000	No Life Test	6 7 10	

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ASSEMBLY DRAWING OR SPECIFICATION	HOSE SPECIFICATION	END FITTING DRAWING OR SPECIFICATION	USAGE MEDIA	TEMP. RANGE	SIZES	PRESSURE (PSIG)			IMPULSE LIFE	BEND RADIUS (in)	REMARKS
						WORKING	PROOF	BURST			
MIL-H-38360 Hose Assembly, TFE High Tempera- ture Hydraulic and Pneumatic	MIL-H-38360 MS-27364 thru MS-27374	MIL-H-38360 MS-27364 thru MS-27374	Hydraulic Pneumatic	-65°F (2) TO +400°F	-4 -6 -8 -10 -12 -16 -20	3,000	6,000	16,000	250,000(1)	3 5 5-3/4 6-1/2 7-3/4 9-5/8 12	(1) 150% peak pressure bent (2) Pneumatic limit for field attachable assemblies is +160°F Conductivity Tests
	MIL-H-83298(2) for sizes -4 thru -10 only	MIL-F-83296(2) for sizes -4 thru -10 only						14,000 12,000 12,000 12,000 12,000			
MIL-H-38390 Hose Assembly Tetrafluoroethy- lene Pneumatic High Pressure	MIL-H-39390	MS-28760 Type	Pneumatic (Ground Support Equipment)	-65°F TO +160°F	-4 -6 -8 -10 -12	4,000	8,000	16,000	2,000 (Amb.)	3-1/4 5-1/4 6 6-3/4 8	100% peak pressure Tensile Test
MIL-H-83772 Hose Assembly, Metal Cryogenic Liquid, Aircraft Servicing	MIL-H-83772	MIL-H-83772	Cryogenic Liquids Oxygen and Nitrogen	-320°F TO 500°F	3/8"	100	150	500	None	12	(1) Non-Vacuum Insulated (2) .12 BTU/HR/ F/FT of Length Maximum Thermal Conductivity
MIL-H-83796 Hose Assembly Rubber Lightweight Medium Pressure MIL-H-83796/1 thru 9	MIL-H-83797	MIL-H-83798/1 Thru 9	Aircraft Fuel Oil	-65°F +250°F	-3 -4 -5 -6 -8 -10 -12 -16 -20 -24 -32	1,000	3,000(1)	6,000	None	1.75 2.00 2.25 2.50 3.50 4.00 4.50 5.50 8.00 9.00 12.50	(1) All flanges to be tested at rated proof or 1500 psi whichever is less Vacuum Test Cold Flex Test Corrosion Test
						1,000 1,000 1,000 1,000 1,000 1,000 750 500 250 200	3,000 3,000 3,000 2,500 2,500 2,000 1,500 800 600	6,000 6,000 6,000 6,000 5,000 5,000 3,750 2,500 2,000 1,750 1,200			

2.3 SAE HOSE SPECIFICATIONS AND STANDARDS

ASSEMBLY DRAWING OR SPECIFICATION	HOSE SPECIFICATION	END FITTING DRAWING OR SPECIFICATION	USAGE MEDIA	TEMP. RANGE	SIZES	PRESSURE (PSIG)		IMPULSE LIFE	BEND RADIUS (in)	REMARKS
						WORKING	PROOF			
AS 604 Hose Assemblies Aircraft and Missiles, High Temperature, High Pressure (250,000 cycles)	AS 604	AS 604	Hydraulics Lubricants Pneumatics	-65°F TO +400°F	-4 -6 -8 -10 -12 -16 -20	3,000	6,000	250,000 (2)	3	(1) Room Temp. values 400°F are lower (2) 150% peaks
						3,000	6,000	250,000	5	
						3,000	6,000	250,000	5-3/4	
						3,000	6,000	250,000	6-1/2	
						3,000	6,000	250,000	7-3/4	
AS 614 High Temperature High Pressure Aircraft Missiles Polytetrafluoro- ethylene	ARP-614	ARP-614	Hydraulics Lubricants Pneumat- ics (3)	-65°F TO +450°F	-4 -6 -8 -10 -12 -16	4,000	8,000	100,000 (2)	3	(1) R.I. values -450°F are lower (2) 150% peaks and bent (3) No gas test
						4,000	8,000	100,000	5	
						4,000	8,000	100,000	5-3/4	
						4,000	8,000	100,000	6-1/2	
						4,000	8,000	100,000	7-3/4	
AS 620 High Temperature Aircraft and Missile Convuluted Polytetrafluoro- ethylene	AS 620	AS 620 AS 1633 to AS 1638 (Flareless)	Lubricant Fuel Hydraulics Pneumat- ics (3)	-65°F TO +400°F	-4 -6 -8 -12 -16 -20 -24 -32 -40 -48 -64Z	1,000	2,000	50,000 (2)	1.25	(1) R.I. values 400°F values are lower (2) Bent, 100% peaks (3) No gas test Class II - Conductive Innertube Class I - Non-Conductive Innertube
						1,000	2,000	50,000	2.25	
						1,000	2,000	50,000	2.88	
						1,000	1,800	50,000	3.75	
						1,000	1,800	50,000	5.0	
						1,000	1,800	50,000	6.25	
						750	1,500	50,000	7.50	
						250	500	50,000	10.00	
						100	200	50,000	12.50	
						100	200	50,000	15.00	
						100	200	50,000	24.00	
						100	200	50,000		
						100	200	50,000		
ARP-824 High Temperature High Pressure Aircraft, Flexible Metal	ARP-824	ARP-824	Lubricant Fuel Hydraulics Pneumat- ics (5) Molten Salts (1)	Type I -65°F TO +650°F TYPE II -65°F TO +1000°F	-4 -6 -8 -10 -12 -16	4,000	10,000(2)	75,000 (4)	3.50	(1) Type II only (2) Room Temperature (3) At 650°F for Type I at 1000°F for Type II (4) 150% peaks bent (5) No gas tests
						4,000	10,000	75,000	5.50	
						4,000	10,000	55,000	6.50	
						4,000	10,000	35,000	8.00	
						4,000	10,000	35,000	9.75	
						4,000	10,000	30,000	13.00	
						4,000	10,000	30,000		
						4,000	10,000	30,000		
						4,000	10,000	30,000		
						4,000	10,000	30,000		

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						WORKING	PROOF	BURST			
ARP-907 High Temperature High Pressure Missile and Rockets Flexible Metal	ARP-907	ARP-907	Lubricant Fuel Hydraulics Pneumatic- ice (1) Molten Salts (2)	Type I -65°F TO +650°F Type II -65°F TO 1000°F	-4 -6 -8 -10 -12 -16	4,000 4,000 4,000 4,000 4,000 4,000	10,000(3) 10,000 10,000 10,000 10,000 10,000	12,000(4) 12,000 12,000 12,000 12,000 12,000	10,000 10,000 10,000 10,000 10,000 10,000	3.50 5.50 6.50 8.00 9.75 13.00	(1) No gas tests (2) Type II only (3) Room temperature (4) At 650°F for Type I at 1000°F for Type II
AS 1227 High Temperature Low Pressure Convuluted Tetrafluoroethy- lene	AS 1227	AS 1227	Hydraulics Fuels Lubricants Pneumatics	Class 1 -65°F TO +400°F Class 2 -65°F TO +275°F	-4 -6 -8 -10 -12 -16 -20 -24 -32 -40 -48 -64	300 300 250 250 200 200 150 150 150 75 50 50	600 600 500 500 400 400 300 300 300 150 100 100	1,200(1) 1,200 1,000 1,000 800 800 600 600 600 300 200 200	50,000 (2) 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000	.50 .75 1.00 1.50 2.00 3.000 4.00 5.00 6.00 9.00 12.00 20.00	(1) Burst is Room Temp. (2) Peak is max opera- ting pressure Conductive Innertube
AS 1339 Hose Assembly, Teflon Light Weight High Temperature High Pressure 3000 psi Hydraulic and Pneumatic	AS 1624	AS 115 thru 120 (NAS 1760 Flareless) AS 153 thru 158 (37 Flared)	Hydraulics Pneumatics	-65°F TO 400°F	-4 -6 -8 -10 -12 -16	3,000 3,000	6,000	16,000(1) 14,000 14,000 12,000 12,000 12,000	250,000 (2)	1-1/2 2-1/2 2-7/8 3-1/4 4 5	(1) Room Temp. burst (2) 150% peak pressure bent following 50 hour corrosion test Conductivity tests

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						WORKING	PROOF	BURST			
AS 1424 Hose Assemblies, Metal Medium Pressure High Temperature	AS 1424	AS 136 to 141 (NAS 1760 Flareless)	Pneumatic Systems Bleed Air Systems Heavy Ven- tilation System Instrument Air Systems	Up to 850°F Con- tinu- ous (1)	-4 -6 -8 -10 -12 -16 -20	2,000 (2)	3,000	3,000 (2)	50,000 (3)	2 (4)	(1) Short excursions to 200°F
						1,600	2,400	6,400		3	(2) Pressure values are room temperature 850°F pressure value are 65% of noted values
						1,400	2,100	5,600		4	(3) 100% peak combined with flexing (4) Bend radius values are static condition Flexing condition radius is 2 x noted values
						1,200	1,800	4,800		4-1/2	
AMS-3380 Hose Polytetrafluoro- ethylene TFE Fluorocarbon Resin, Wire Braid Reinforced	No Mention	No Mention	Fuel	-65°F TO +450°F	-3 -4 -5 -6 -8 -10 -12 -16Z -20Z -24Z	1,500	3,000	12,000 (1)	100,000 (2)	2	(1) Room Temp. values, 450°F are lower (2) -3 to -16Z, 125% peaks
						1,500	3,000	12,000	100,000	2	
						1,500	3,000	10,000	100,000	2	
						1,500	3,000	9,000	100,000	4	
						1,500	3,000	8,000	100,000	4-5/8	
						1,500	3,000	7,000	100,000	5-1/2	
						1,000	2,000	6,500	100,000	6-1/2	
						1,200	2,500	5,000	100,000	7-3/8	
						1,000	2,000	4,000	100,000	11	
						1,000	2,000	4,000	100,000	14	