

RATIONALE

MA2178B HAS BEEN REAFFIRMED TO COMPLY WITH THE SAE FIVE-YEAR REVIEW POLICY.

REV.
B

MA2178

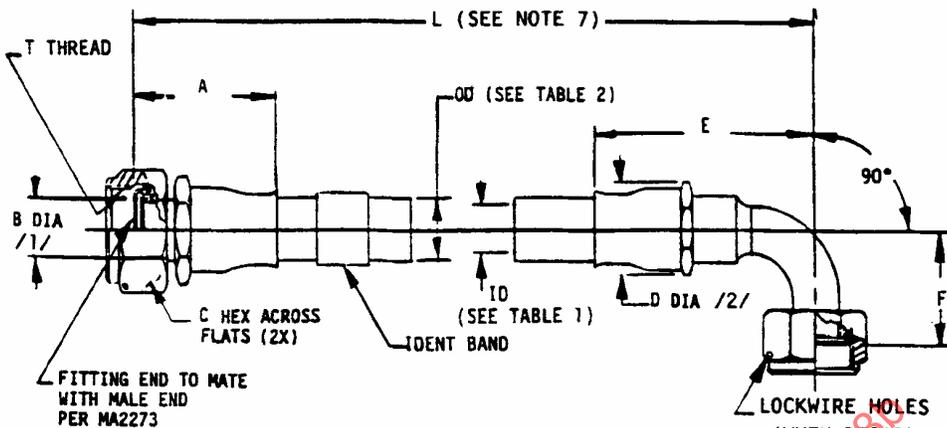


FIGURE 1 - DETAIL OF HOSE ASSEMBLY

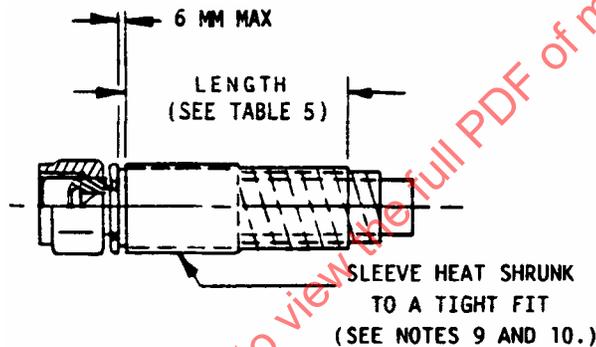


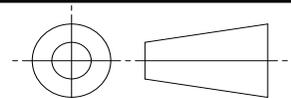
FIGURE 2 - DETAIL OF SLEEVE ASSEMBLY

TABLE 1 - FITTING DIMENSIONS

HOSE ASSEMBLY NO. AND SIZE CODE	SIZE REF	THREAD T PER MA1370 (ISO 5855) 4H-5H REF	I.D. MIN	A MAX	B DRILL DIA MIN /1/	C HEX	D DIA MAX /2/	E MAX	F MIN	F MAX	BALL SIZE THRU DIA MS19059 DASH NO.	MIN
												/1/
MA2178-06	6.0	MJ 12X1.25	4.39	28.19	6.502	16.0	14.2	39.37	20.37	24.89	4807	3.02
MA2178-10	10.0	MJ 16X1.5	7.57	33.53	6.502	21.0	18.0	45.70	24.00	34.80	4812	5.84
MA2178-12	12.0	MJ 18X1.5	9.93	36.83	8.636	22.0	21.4	50.55	24.00	34.80	4816	7.95
MA2178-16	16.0	MJ 22X1.5	12.32	40.64	10.922	27.0	26.0	60.20	29.46	40.39	4818	9.93
MA2178-20	20.0	MJ27X1.5	15.62	45.72	13.919	32.0	30.0	75.69	35.05	49.53	4821	13.08
MA2178-25	25.0	MJ 33X1.5	21.62	53.85	19.761	41.0	38.6	82.04	38.10	68.07	4829	19.05
MA2178-32	32.0	MJ 39X1.5	27.97	51.82	25.400	50.0	50.8	85.34	43.69	69.85	4834	24.61
MA2178-40	40.0	MJ 50X2.0	34.14	62.23	31.750	54.0	58.0	89.92	48.51	82.55	4841	30.18

SAE values your input. To provide feedback on this Technical Report, please visit <http://www.sae.org/technical/standards/MA2178B>

THIRD ANGLE PROJECTION



CUSTODIAN: G-3/G-3D

PROCUREMENT SPECIFICATION: MA2126



AEROSPACE STANDARD

HOSE ASSEMBLY, POLYTETRAFLUOROETHYLENE, PTFE CRES REINFORCED, 232 °C, 10,500 KPA, BEAM SEAL, STRAIGHT TO 90°, METRIC

MA2178
SHEET 1 OF 4

REV.
B

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user." SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

TABLE 2 - LENGTH INCREMENTS

HOSE ASSEMBLY LENGTHS	AVAILABLE INCREMENTS	TOLERANCE
UNDER 457 MM	(NOT LESS THAN) 3 MM	±3 MM
457 TO 914 MM	(NOT LESS THAN) 7 MM	±7 MM
915 TO 1270 MM	(NOT LESS THAN) 13 MM	±13 MM
OVER 1270 MM	(NOT LESS THAN) 26 MM	±1%

TABLE 3 - MAXIMUM WEIGHTS

HOSE OR SLEEVE CODE	HOSE OR TYPE SLEEVE	UNITS	HOSE	HOSE							
			SIZE 06	SIZE 10	SIZE 12	SIZE 16	SIZE 20	SIZE 25	SIZE 32	SIZE 40	
-	HOSE ONLY	KG/M	0.13	0.18	0.25	0.30	0.38	0.80	1.02	1.32	
A	ABRASION SLEEVE (TFE-AS1291-B)	KG/M	0.05	0.05	0.07	0.09	0.11	0.14	0.16	0.20	
B	ABRASION SLEEVE (NYLON AS1294)	KG/M	0.02	0.04	0.05	0.07	0.07	0.09	0.11	0.16	
C	FIRESLEEVE (15 MIN) AS1072	KG/M	0.20	0.27	0.30	0.38	0.46	0.64	0.38	0.40	
E	ABRASION SLEEVE (FEP)	KG/M	0.04	0.04	0.05	0.07	0.13	0.18	0.15	0.16	
F	ABRASION SLEEVE (AS1073B)	KG/M	0.02	0.04	0.05	0.05	0.09	0.13	0.12	0.20	
H	FIRESLEEVE INTEGRAL	KG/M	0.34	0.45	0.57	0.68	0.80	1.41	1.79	2.21	
K	ABRASION SLEEVE POLYESTER W/HOSE	KG/M	0.16	0.25	0.34	0.39	0.48	0.89	1.13	1.54	
L	ABRASION SLEEVE (PTFE-AS1293)	KG/M	0.07	0.09	0.14	0.16	0.20	0.32	0.39	0.49	
NONE	FIRESLEEVE CLAMP	KG/EA	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	
NONE	FITTING END (HOSE SIZE-STRAIGHT)	KG/EA	0.02	0.04	0.06	0.08	0.10	0.17	0.22	0.31	
NONE	FITTING END (HOSE SIZE-90°)	KG/EA	0.02	0.03	0.06	0.08	0.11	0.21	0.32	0.39	

TABLE 4 - HOSE OR SLEEVE OUTSIDE DIAMETERS

SLEEVE CODE	SLEEVE MATERIAL	TEMP LIMIT °C	TOLERANCE	HOSE							
				SIZE 06	SIZE 10	SIZE 12	SIZE 16	SIZE 20	SIZE 25	SIZE 32	SIZE 40
-	(-) INDICATES HOSE ONLY NO SLEEVE	204	MAX MIN	8.71 7.72	11.91 10.92	14.86 13.87	17.45 16.28	20.62 19.46	28.96 27.38	35.31 33.7	43.36 41.58
A	ABRASION SLEEVE TUBULAR (TFE-AS1291 - CODE B)	204	MAX MIN	12.01 8.74	14.86 11.94	18.16 14.88	20.78 17.30	23.88 20.47	32.51 28.40	38.46 34.75	46.38 42.60
B	ABRASION SLEEVE COIL NYLON (AS1294)	135	MAX MIN	10.39 8.38	13.59 11.58	16.99 14.99	19.58 17.30	22.76 20.57	31.09 28.50	37.44 34.85	45.69 42.70
C	FIRESLEEVE (AS1072 SIL-FG) (15 MIN) /3/	204	MAX MIN	15.88 13.58	19.05 16.71	22.23 19.76	25.40 22.63	28.58 23.27	35.31 32.72	44.45 40.0	50.80 47.93
E	ABRASION SLEEVE SHRINK-ON (FEB)	177	MAX MIN	10.24 8.13	13.69 11.48	16.64 14.68	19.23 17.25	22.53 20.60	31.19 28.65	36.68 34.49	44.63 42.34
F	ABRASION SLEEVE SHRINK-ON (POLYOLEFIN AS1073-CODE B)	135	MAX MIN	10.44 8.84	13.89 12.29	16.84 15.24	19.53 17.75	22.71 20.93	31.29 29.11	37.64 35.46	45.95 43.56
H	FIRESLEEVE INTEGRAL SILICONE (15 MIN) (AS1722)	204	MAX MIN	16.28 15.09	19.46 18.26	22.63 21.44	25.81 24.10	28.98 27.28	36.93 35.41	43.28 41.88	51.21 49.71
K	INTEGRAL ABRASION SLEEVE (BRAIDED) POLYESTER	149	MAX MIN	10.92 9.91	14.20 12.95	16.89 15.88	19.61 18.44	22.53 21.36	30.73 29.16	37.08 35.51	45.26 43.48
L	ABRASION SLEEVE COIL (PTFE-AS1293)	204	MAX MIN	11.30 8.46	14.50 11.68	19.23 14.88	20.04 17.30	23.22 20.47	31.55 28.40	37.90 34.80	45.95 42.85

	AEROSPACE STANDARD	MA2178 SHEET 2 OF 4	REV. B
	HOSE ASSEMBLY, POLYTETRAFLUOROETHYLENE, PTFE CRES REINFORCED, 232 °C, 10,500 KPA, BEAM SEAL, STRAIGHT TO 90°, METRIC		

TABLE 5 - FITTING SLEEVE LENGTH

HOSE SIZE	LENGTH (MM)
DN 06 DN 10	50.0 ± 6
DN 12 DN 16	63.5 ± 6
DN 20 DN 25	76.0 ± 6
DN 32 DN 40	102.0 ± 6

NOTES:

- /1/ A TRUE CIRCULAR CROSS SECTION IS NOT REQUIRED THROUGH THE END FITTING. HOWEVER, THE BALL DIAMETER B LISTED IN TABLE 1 SHALL PASS THROUGH THE END FITTING AFTER THE END FITTING IS ATTACHED TO THE HOSE ASSEMBLY.
- /2/ DISTANCE ACROSS CORNERS OF THE COUPLING NUT MAY EXCEED THIS DIMENSION.
- /3/ THE SLEEVE DIAMETERS FOR AS1072 SLEEVES APPLY WHEN THE SLEEVE IS COMPRESSED, OR CLAMPED, TO CONTACT THE HOSE. IN THIS CASE A WRINKLE MAY OCCUR OVER APPROXIMATELY 10% OF THE SLEEVE CIRCUMFERENCE.
4. MATERIALS: HOSE AND FITTINGS - PER MA2126. SLEEVES - SEE APPLICABLE STANDARD, TABLE 4.
5. CONSTRUCTION AND PERFORMANCE: THESE HOSE ASSEMBLIES SHALL MEET THE CONSTRUCTION AND PERFORMANCE OF MA2126. FITTINGS SHALL BE PERMANENTLY ATTACHED TO THE HOSE.
6. RATED OPERATING CHARACTERISTICS: SEE MA2126.
7. LENGTH "L" IS A FOUR DIGIT NUMBER OF WHICH THE FIRST THREE DIGITS DESCRIBE THE HOSE ASSEMBLY LENGTH IN WHOLE CENTIMETERS (CM), AND THE FOURTH DIGIT IS THE FRACTION OF A CENTIMETER IN MILLIMETERS (MM). LENGTH "L" IS MEASURED FROM "FACE OF SEAT" TO "FACE OF SEAT". SEE TABLE 2 FOR AVAILABLE LENGTH INCREMENTS AND TOLERANCES.
8. THE CUT ENDS OF THE SILICONE/FIBERGLASS FIRESLEEVE SHALL BE COATED WITH RTV SILICONE RUBBER, PRIOR TO INSTALLATION, TO PREVENT WICKING OF FLUIDS. THE FIRESLEEVE ENDS SHALL BE SECURED TO THE HOSE ASSEMBLY END FITTINGS WITH CORROSION RESISTANT STEEL BANDS. AFTER INSTALLATION, CRACKS OR VOIDS IN THE FIRESLEEVE, WHICH EXPOSE THE FIBERGLASS, SHALL BE COATED WITH RTV SILICONE RUBBER. THE ENDS OF THE INTEGRAL FIRESLEEVE SHALL EXTEND OVER THE END OF THE FITTING SOCKET.
9. COIL ABRASION SLEEVE, WHEN ASSEMBLED IN THE STRAIGHT CONDITION ON THE HOSE, SHALL HAVE AN AVERAGE GAP BETWEEN COILS NOT EXTENDING 1.3 MM DISPLACEMENT OF THE SPIRAL SLEEVE, CAUSING A GREATER GAP SHALL NOT BE CAUSE FOR REJECTION IF THE COILS CAN BE REPOSITIONED TO MEET THE GAP REQUIREMENT. ENDS OF THE COIL SLEEVE SHALL BE TERMINATED WITH A LENGTH OF MIL-I-23053/5 BLACK POLYOLEFIN TUBING PER TABLE 5 AND FIGURE 2.
10. TUBULAR ABRASION (TFE) SLEEVES SHALL BE PER AS1291 EXCEPT I.D. SHALL BE NO GREATER THAN HOSE O.D. PLUS 1.27 MM. ENDS OF THE TUBULAR SLEEVE SHALL BE TERMINATED WITH A LENGTH OF MIL-I-23053/11 (FEP) PER TABLE 5 AND FIGURE 2.
11. SHRINK ABRASION SLEEVES, FEP OR POLYOLEFIN, SHALL BE SHRUNK TO A SNUG FIT OVER THE HOSE AND END FITTING COLLARS.
12. FOR FIRESLEEVES, ADD "AS1055 TYPE IIB CLASS B-S/P" TO IDENTIFICATION MARKING TO SHOW LEVEL OF COMPLIANCE. FIRE PROOF (15 MIN) WITH AS1055.

	AEROSPACE STANDARD	MA2178 SHEET 3 OF 4	REV. B
	HOSE ASSEMBLY, POLYTETRAFLUOROETHYLENE, PTFE CRES REINFORCED, 232 °C, 10,500 KPA, BEAM SEAL, STRAIGHT TO 90°, METRIC		