



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



## AEROSPACE STANDARD

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

MA2178  
SHEET 2 OF 4

REV.  
B

TABLE 5 - FITTING SLEEVE LENGTH

| HOSE SIZE      | LENGTH (MM) |
|----------------|-------------|
| DN 06<br>DN 10 | 50.0 ± 6    |
| DN 12<br>DN 16 | 63.5 ± 6    |
| DN 20<br>DN 25 | 76.0 ± 6    |
| DN 32<br>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.

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