

REV.
D

AS156

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 reaffirmed, revised, or cancelled. SAE invites your written comments and suggestions.

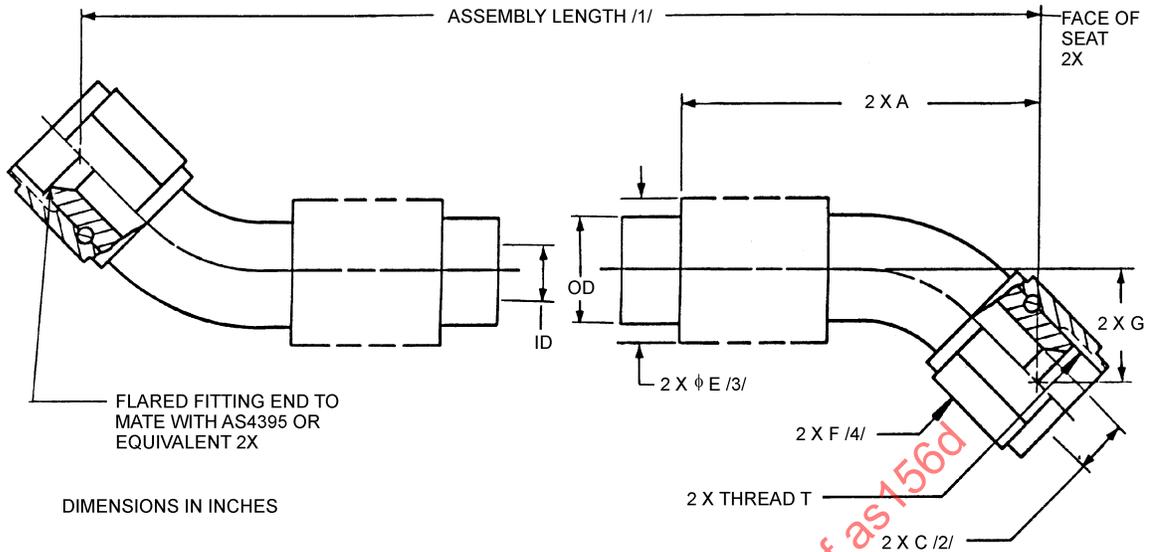


FIGURE 1 - HOSE AND FITTING DIMENSIONS

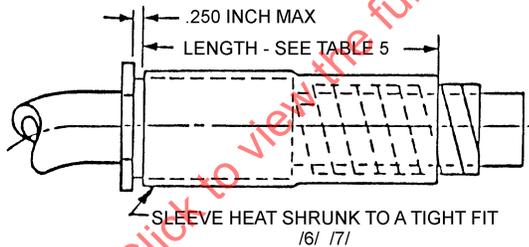


FIGURE 2 - TUBULAR/COIL ABRASION END

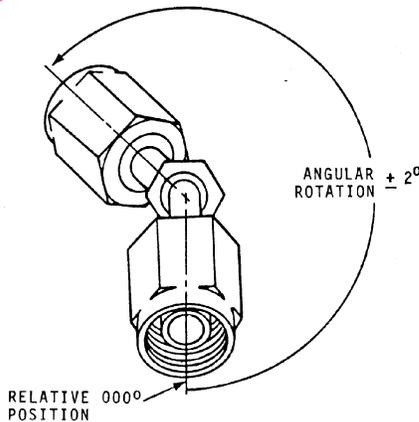


FIGURE 3 - FITTING ANGULAR ORIENTATION

CUSTODIAN: SAE G-3/G-3D

PROCUREMENT SPECIFICATION: AS1339 /20/

SAE The Engineering Society
For Advancing Mobility
Land Sea Air and Space
INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE STANDARD

HOSE ASSEMBLY, PTFE, CRES BRAID,
3000 PSIG, 400 °F, 45° TO 45°, FLARED,
LIGHTWEIGHT

AS156
SHEET 1 OF 5

REV. D

REV.
D

AS156

TABLE 1 - ASSEMBLY DIMENSION

| HOSE ASSEMBLY AS156 SIZE CODE | SIZE | THREAD T PER AS8879 | ID MIN (REF) | A MAX | C /2/ DIA MIN | E /3/ DIA MAX WITHOUT SLEEVING | F HEX (REF) | G MIN | G MAX |
|-------------------------------|-------|---------------------|--------------|-------|---------------|--------------------------------|-------------|-------|-------|
| E | .250 | .4375-20 UNJF-3B | .212 | 2.08 | .135 | .69 | .56 | .280 | .450 |
| G | .375 | .5625-18 UNJF-3B | .298 | 2.29 | .240 | .80 | .69 | .370 | .565 |
| H | .500 | .7500-16 UNJF-3B | .391 | 2.61 | .340 | .97 | .88 | .430 | .645 |
| J | .625 | .8750-14 UNJF-3B | .485 | 3.09 | .410 | 1.11 | 1.00 | .510 | .675 |
| K | .750 | 1.0625-12 UNJ-3B | .602 | 3.44 | .510 | 1.38 | 1.25 | .590 | .720 |
| M | 1.000 | 1.3125-12 UNJ-3B | .852 | 3.75 | .760 | 1.66 | 1.50 | .760 | .820 |

TABLE 2 - HOSE AND SLEEVE OUTSIDE DIAMETER

| SLEEVE CODE | SLEEVE MATERIAL | TEMP. LIMIT °F | TOL- RANCE | HOSE OR SLEEVE OUTSIDE DIAMETER |
|-------------|---|----------------|------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| | | | | /5/ HOSE SIZE .250 | /5/ HOSE SIZE .375 | /5/ HOSE SIZE .500 | /5/ HOSE SIZE .625 | /5/ HOSE SIZE .750 | /5/ HOSE SIZE 1.000 |
| - | (-) INDICATES HOSE ONLY, NO SLEEVE (AS1624) | 400 | MAX MIN | .390 .360 | .490 .455 | .615 .585 | .730 .690 | .990 .950 | 1.270 1.230 |
| A | ABRASION SLEEVE TUBULAR (TFE-AS1291-CODE B) /6/ | 400 | MAX MIN | .500 .440 | .600 .540 | .730 .670 | .840 .780 | 1.110 1.050 | 1.400 1.340 |
| B | ABRASION SLEEVE COIL (NYLON AS1294) /7/ | 275 | MAX MIN | .450 .390 | .550 .490 | .695 .635 | .810 .750 | 1.080 1.020 | 1.360 1.300 |
| C | FIRESLEEVE (AS1072 SIL-FG) (15 min) /8/ /9/ /13/ | 400 | MAX MIN | .625 .500 | .750 .625 | .875 .750 | 1.000 .875 | 1.250 1.125 | 1.500 1.375 |
| D | ABRASION SLEEVE INTEGRAL SILICONE COMPOSITE /10/ /14/ | 350 | MAX MIN | .500 .460 | .600 .560 | .700 .660 | .830 .790 | 1.120 1.070 | 1.400 1.350 |
| E | ABRASION SLEEVE SHRINK-ON (FEP) /11/ | 350 | MAX MIN | .424 .374 | .540 .480 | .665 .615 | .790 .730 | 1.070 1.010 | 1.350 1.290 |
| F | ABRASION SLEEVE SHRINK-ON (POLYOLEFIN AS1073 - CODE B) /11/ | 275 | MAX MIN | .450 .400 | .560 .505 | .695 .645 | .810 .750 | 1.080 1.020 | 1.360 1.300 |
| G | FIRESLEEVE (AS1072 SIL-FG) (5 min) /8/ /9/ /12/ | 400 | MAX MIN | .625 .500 | .750 .625 | .875 .750 | 1.000 .875 | 1.250 1.125 | 1.500 1.375 |
| H | FIRESLEEVE INTEGRAL SILICONE (15 min) (AS1722) /13/ | 400 | MAX MIN | .660 .600 | .745 .685 | .895 .835 | 1.005 .945 | 1.220 1.160 | 1.515 1.455 |
| J | FIRESLEEVE INTEGRAL SILICONE (5 min) /12/ | 400 | MAX MIN | .660 .600 | .745 .685 | .895 .835 | 1.005 .945 | 1.220 1.160 | 1.515 1.455 |
| K | INTEGRAL ABRASION SLEEVE (BRAIDED) POLYESTER /10/ | 300 | MAX MIN | .490 .444 | .570 .535 | .695 .650 | .800 .760 | 1.070 1.030 | 1.350 1.310 |
| L | ABRASION SLEEVE COIL (PTFE-AS1293) /7/ | 400 | MAX MIN | .500 .440 | .600 .540 | .730 .670 | .862 .802 | 1.110 1.050 | 1.400 1.340 |

REV.
D

AS156

TABLE 3 - ASSEMBLY LENGTH TOLERANCE

| HOSE ASSEMBLY LENGTH | TOLERANCE |
|-----------------------|-----------|
| UNDER 18 in | ±.125 in |
| 18 TO 36 in EXCLUSIVE | ±.250 in |
| 36 TO 50 in EXCLUSIVE | ±.500 in |
| 50 in AND OVER | ±1% |

TABLE 4 - WEIGHT

| HOSE OR SLEEVE CODE | HOSE OR TYPE SLEEVE | UNITS | MAXIMUM WEIGHT |
|---------------------|--|-------|----------------|----------------|----------------|----------------|----------------|-----------------|
| | | | HOSE SIZE .250 | HOSE SIZE .375 | HOSE SIZE .500 | HOSE SIZE .625 | HOSE SIZE .750 | HOSE SIZE 1.000 |
| - | HOSE ONLY | LB/IN | .009 | .015 | .020 | .027 | .055 | .085 |
| A | ABRASION SLEEVE (TFE-AS1291- CODE B) | LB/IN | .003 | .004 | .004 | .005 | .007 | .009 |
| B | ABRASION SLEEVE (NYLON AS1294) | LB/IN | .001 | .002 | .003 | .003 | .004 | .005 |
| C | FIRESLEEVE (15 min) AS1072 | LB/IN | .007 | .009 | .011 | .012 | .017 | .021 |
| D | ABRASION SLEEVE INTEGRAL WITH HOSE | LB/IN | .012 | .016 | .024 | .034 | .067 | .110 |
| E | ABRASION SLEEVE (FEP) | LB/IN | .002 | .003 | .003 | .005 | .006 | .007 |
| F | ABRASION SLEEVE (AS1073 - CODE B) | LB/IN | .002 | .003 | .003 | .004 | .005 | .006 |
| G | FIRESLEEVE (5 min) AS1072 | LB/IN | .007 | .009 | .011 | .012 | .017 | .021 |
| H | FIRESLEEVE INTEGRAL (15 min) WITH HOSE | LB/IN | .019 | .027 | .035 | .047 | .099 | .117 |
| J | FIRESLEEVE INTEGRAL (5 min) WITH HOSE | LB/IN | .019 | .027 | .035 | .047 | .099 | .117 |
| K | ABRASION SLEEVE POLYESTER WITH HOSE | LB/IN | .012 | .016 | .022 | .030 | .060 | .090 |
| L | ABRASION SLEEVE (PTFE-AS1293) | LB/IN | .003 | .004 | .005 | .005 | .006 | .007 |
| NONE | FIRESLEEVE CLAMP | LB/EA | .025 | .025 | .025 | .026 | .026 | .026 |
| NONE | FITTING END (HOSE SIZE - 45°) | LB/EA | .075 | .121 | .207 | .306 | .566 | .780 |

TABLE 5 - SLEEVE LENGTH

| HOSE SIZE | LENGTH (INCHES) |
|-----------|-----------------|
| E G | 2.00 ± .25 |
| H J | 2.50 ± .25 |
| K M | 3.00 ± .25 |

TABLE 6 - SPEHERICAL BALL SIZE FOR DETERMINING
MINIMUM HOSE ASSEMBLY ID /2/

| HOSE SIZE | ELBOW FITTING |
|-----------|---------------|
| E | .115 |
| G | .204 |
| H | .289 |
| J | .349 |
| K | .434 |
| M | .646 |

REV.
D

AS156

NOTES:

- /1/ LENGTH "L" IS A THREE DIGIT NUMBER OF WHICH THE FIRST TWO DIGITS DESCRIBE THE HOSE ASSEMBLY LENGTH IN WHOLE INCHES, AND THE THIRD DIGIT, THE FRACTION OF AN INCH IN EIGHTHS. LENGTH "L" IS MEASURED FROM "FACE OF SEAT" TO "FACE OF SEAT." FOR LENGTH TOLERANCES SEE TABLE 3.
- /2/ HOSE ASSEMBLY INSIDE DIAMETER SHALL BE VERIFIED BY PASSING THE DESIGNATED, OR LARGER, SPHERICAL BALL PER TABLE 6 THROUGH THE HOSE ASSEMBLY.
- /3/ DISTANCE ACROSS CORNERS OF THE COUPLING NUT MAY EXCEED THIS DIMENSION.
- /4/ STANDARD COUPLING NUTS SHALL BE IN ACCORDANCE WITH AN818 OR AS4730 AND MATE WITH AS4395 FLARED FITTING ENDS. NONSTANDARD COUPLING NUTS MAY BE USED, PROVIDED THEY ARE DIMENSIONALLY AND FUNCTIONALLY EQUIVALENT, AND PROVIDED THEY CANNOT BE REMOVED FROM THE FITTING. NUTS SHALL MEET TORQUE TEST REQUIREMENTS PER AS1339.
- /5/ DIAMETERS ARE LISTED FOR CLAMP SELECTION. TUBULAR SLEEVES MAY NOT BE A PERFECT ROUND AND SHALL BE MEASURED WITH A DIAMETER TAPE RULE (OFTEN REFERRED TO AS A PI-TAPE).
- /6/ TUBULAR ABRASION (TFE) SLEEVES SHALL HAVE AN ID NO GREATER THAN HOSE OD + .05 in. AXIAL MOVEMENT OF THE SLEEVE INSTALLED ON THE HOSE SHALL NOT EXCEED .05 in. ENDS OF THE TUBULAR SLEEVE SHALL BE TERMINATED WITH A LENGTH OF AMS-DTL-23053/11 (FEP) CLASS 1 OR 2, COLOR CLEAR, PER TABLE 5 FIGURE 2.
- /7/ COIL ABRASION SLEEVES, WHEN ASSEMBLED ON A STRAIGHT HOSE, SHALL HAVE AN AVERAGE GAP BETWEEN COILS NOT EXCEEDING .05 in. DISPLACEMENT OF THE COILS OF THE SLEEVE, CAUSING A GREATER GAP, SHALL NOT BE CAUSE FOR REJECTION IF THE COILS CAN BE REPOSITIONED TO MEET THE GAP REQUIREMENTS. ENDS OF THE COIL SLEEVE SHALL BE TERMINATED WITH A LENGTH OF HEAT SHRINKABLE SLEEVING IN ACCORDANCE WITH TABLE 5 AND FIGURE 2. CODE "B" (NYLON COIL) ABRASION SLEEVES SHALL BE TERMINATED WITH AMS-DTL-23053/5 CLASS 1 OR 3, COLOR BLACK. CODE "L" (COIL ABRASION) SLEEVES SHALL BE TERMINATED WITH AMS-DTL-23053/12, CLASS 1, COLOR TRANSPARENT, PTFE (OPTIONAL AMS-DTL-23053/11 (FEP) CLASS 1 OR 2, COLOR CLEAR).
- /8/ THE TABLE 2 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.
- /9/ THE CUT ENDS OF THE 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.
- /10/ INTEGRAL ABRASION SLEEVE SHALL FORM AN INTEGRAL, PERMANENT PART OF THE HOSE AND SHALL TERMINATE A MAXIMUM OF .200 in FROM THE END OF THE COLLAR.
- /11/ FEP AND POLYOLEFIN SHRINK ABRASION SLEEVES SHALL BE SHRUNK TO A SNUG FIT OVER THE HOSE AND END FITTING COLLARS.
- /12/ ADD "AS1055 TYPE IIb CLASS A-S/P" OR "AS150 TYPE IX bA" TO IDENTIFICATION MARKING TO SHOW LEVEL OF COMPLIANCE, "FIRE RESISTANT" (5 min), WITH AS1055.
- /13/ ADD "AS1055 TYPE IIb CLASS B-S/P" OR "AS150 TYPE IX bB" TO IDENTIFICATION MARKING TO SHOW LEVEL OF COMPLIANCE, "FIRE PROOF" (15 min), WITH AS1055.
- /14/ SLEEVES CODED "D" ARE INACTIVE FOR FUTURE DESIGN AND SUPERSEDED BY CODE "K", AS OF THE RELEASE DATE OF REVISION "A" OF THIS STANDARD.
15. CONSTRUCTION AND PERFORMANCE: AS1339. FITTINGS SHALL BE PERMANENTLY ATTACHED TO THE HOSE.
16. OPERATING CHARACTERISTICS: SEE AS1339.
17. MATERIALS:
 - a. HOSE AND FITTINGS: PER AS1339.
 - b. SLEEVES: SEE APPLICABLE STANDARD, TABLE 2.
18. MARKING: MARKING SHALL BE PER AS1339 ON A STAINLESS STEEL BAND NOT OVER 1.0 in WIDE, OR ON THE COLLAR. THE CHARACTERS SHALL BE A MINIMUM OF .06 in HIGH. THE BAND SHALL BE SO DESIGNED AS TO REMAIN TIGHT ON THE HOSE TO PREVENT RELATIVE MOVEMENT AND RESULTANT CHAFING. IT SHALL BE OF SUFFICIENT STRENGTH TO PREVENT REMOVAL BY HAND. HOSE ASSEMBLY DATE AND "PT" SYMBOL SHALL BE PERMANENTLY MARKED ON THE BAND OR ON AN END FITTING OR A FIRESLEEVE CLAMP.