

INCH-POUND

MS9197D  
w/AMENDMENT 1  
17 May 2011  
SUPERSEDING  
MS9197D  
16 February 2010

## DETAIL SPECIFICATION SHEET

## NUT, TUBE COUPLING-CRES SAE-AMS5646, SILVER PLATE

This specification is approved for use by all Departments and Agencies  
of the Department of Defense .

The requirements for acquiring the product described herein shall consist of this specification sheet.

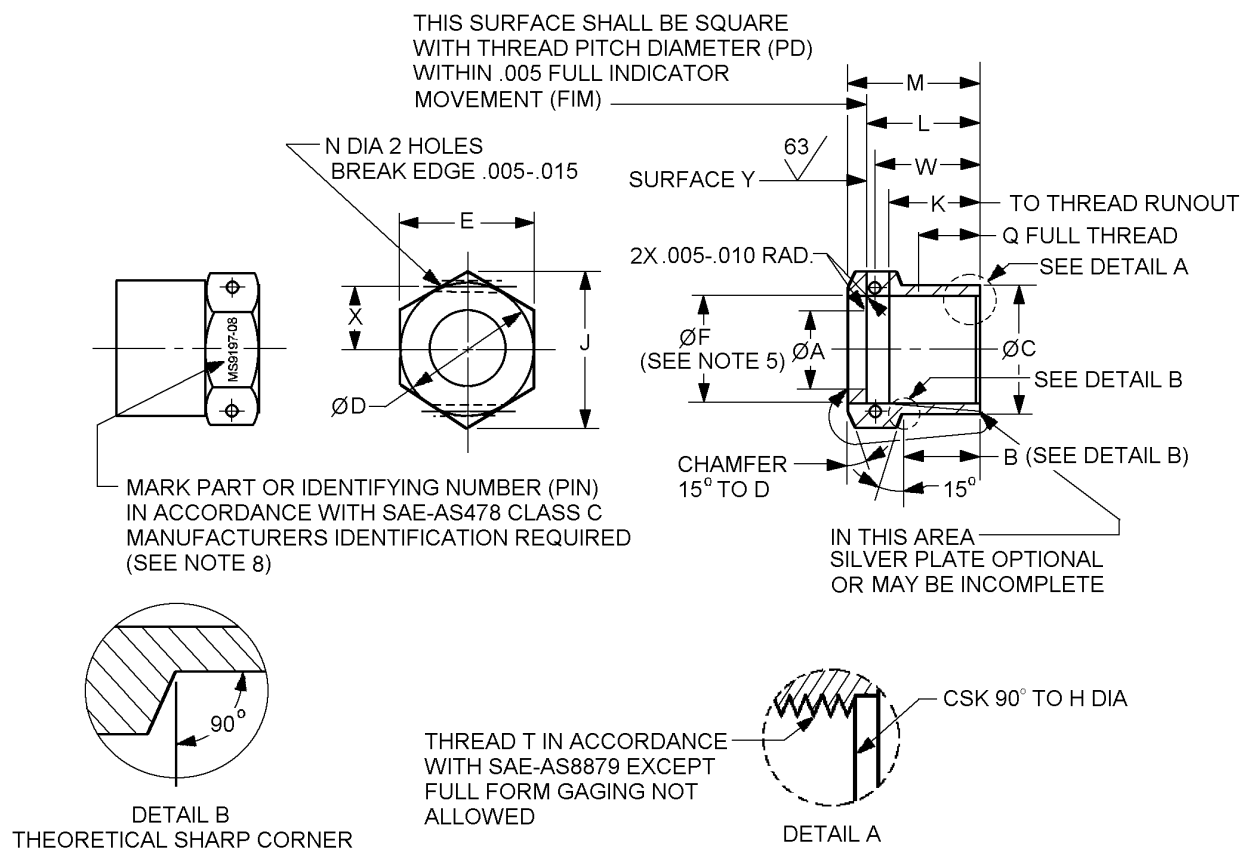


FIGURE 1. Nut, tube coupling.

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Dash number	Tube OD inches (mm)	Thread T SAE-AS8879	A diameter inches (mm) $+0.003$ (0.08) $-0.000$	B inches (mm) $\pm 0.015$ (0.38)	C diameter inches (mm) $\pm 0.005$ (0.13)
-02	.125 (3.18)	.3125 - 24UNJF - 3B	.180 (4.57)	.435 (11.05)	.425 (10.80)
-03	.188 (4.78)	.3750 - 24UNJF - 3B	.242 (6.15)	.452 (11.48)	.490 (12.45)
-04	.250 (6.35)	.4375 - 20UNJF - 3B	.305 (7.75)	.467 (11.86)	.550 (13.97)
-05	.313 (7.95)	.5000 - 20UNJF - 3B	.374 (9.50)	.440 (11.18)	.615 (15.62)
-06	.375 (9.53)	.5625 - 18UNJF - 3B	.440 (11.18)	.467 (11.86)	.678 (17.22)
-07	.438 (11.13)	.6250 - 18UNJF - 3B	.502 (12.75)	.493 (12.52)	.740 (18.80)
-08	.500 (12.70)	.7500 - 16UNJF - 3B	.570 (14.48)	.493 (12.52)	.865 (21.97)
-09	.562 (14.27)	.8125 - 16UNJ - 3B	.634 (16.10)	.493 (12.52)	.927 (23.55)
-10	.625 (15.88)	.8750 - 14UNJF - 3B	.698 (17.73)	.617 (15.67)	.990 (25.15)
-11	.688 (17.48)	1.000 - 12UNJF - 3B	.770 (19.56)	.588 (14.94)	1.115 (28.32)
-12	.750 (19.05)	1.0625 - 12UNJ - 3B	.834 (21.18)	.588 (14.94)	1.180 (29.97)
-14	.875 (22.23)	1.1875 - 12UNJ - 3B	.961 (24.41)	.615 (15.62)	1.320 (33.53)
-16	1.000 (25.40)	1.3125 - 12UNJ - 3B	1.089 (27.66)	.652 (16.56)	1.433 (36.40)
-18	1.125 (28.58)	1.500 - 12UNJF - 3B	1.217 (30.91)	.680 (17.27)	1.620 (41.15)
-20	1.250 (31.75)	1.6250 - 12UNJ - 3B	1.347 (34.21)	.727 (18.47)	1.745 (44.32)
-24	1.500 (38.10)	1.8750 - 12UNJ - 3B	1.617 (41.07)	.880 (22.35)	1.995 (50.67)
-28	1.750 (44.45)	2.2500 - 12UNJ - 3B	1.890 (48.01)	.930 (23.62)	2.410 (61.21)
-32	2.000 (50.80)	2.500 - 12UNJ - 3B	2.167 (55.04)	1.060 (26.92)	2.660 (67.56)
-40	2.500 (63.50)	3.000 - 12UNJ - 3B	2.667 (67.74)	.860 (21.84)	3.200 (81.28)
-48	3.000 (76.20)	3.500 - 12UNJ - 3B	3.180 (80.77)	.910 (23.11)	3.700 (93.98)

FIGURE 1. Nut, tube coupling - Continued.

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Dash number	D diameter inches (mm)	E inches (mm)	F diameter inches (mm)	H inches (mm) +.030 (0.76) -.000
-02	.438 (11.13)	.430 - .439 (10.92) - (11.15)	.272 - .280 (6.91) - (7.11)	.312 (7.92)
-03	.500 (12.70)	.492 - .502 (12.50) - (12.75)	.334 - .342 (8.48) - (8.69)	.375 (9.53)
-04	.562 (14.27)	.553 - .564 (14.05) - (14.33)	.388 - .397 (9.86) - (10.08)	.438 (11.13)
-05	.625 (15.88)	.616 - .627 (15.65) - (15.93)	.451 - .459 (11.46) - (11.66)	.500 (12.70)
-06	.688 (17.48)	.679 - .690 (17.25) - (17.53)	.508 - .517 (12.90) - (13.13)	.562 (14.27)
-07	.750 (19.05)	.741 - .752 (18.82) - (19.10)	.570 - .579 (14.48) - (14.71)	.625 (15.88)
-08	.875 (22.23)	.865 - .877 (21.97) - (22.28)	.689 - .698 (17.50) - (17.73)	.750 (19.05)
-09	.937 (23.80)	.928 - .940 (23.57) - (23.88)	.751 - .760 (19.08) - (19.30)	.812 (20.62)
-10	1.000 (25.40)	.990 - 1.002 (25.15) - (25.45)	.805 - .815 (20.45) - (20.70)	.875 (22.23)
-11	1.125 (28.58)	1.114 - 1.127 (28.30) - (28.63)	.918 - .930 (23.32) - (23.62)	1.000 (25.40)
-12	1.250 (31.75)	1.239 - 1.252 (31.47) - (31.80)	.981 - .991 (24.92) - (25.17)	1.062 (26.97)
-14	1.375 (34.93)	1.364 - 1.377 (34.65) - (34.98)	1.106 - 1.116 (28.09) - (28.35)	1.188 (30.18)
-16	1.500 (38.10)	1.489 - 1.502 (37.82) - (38.15)	1.231 - 1.241 (31.27) - (31.52)	1.312 (33.32)
-18	1.750 (44.45)	1.738 - 1.752 (44.15) - (44.50)	1.419 - 1.429 (36.04) - (36.30)	1.500 (38.10)
-20	1.812 (46.02)	1.800 - 1.814 (45.72) - (46.08)	1.544 - 1.554 (39.22) - (39.47)	1.625 (41.28)
-24	2.125 (53.98)	2.113 - 2.127 (53.67) - (54.03)	1.794 - 1.804 (45.57) - (45.82)	1.875 (47.63)
-28	2.500 (63.50)	2.487 - 2.502 (63.17) - (63.55)	2.169 - 2.179 (55.09) - (55.35)	2.250 (57.15)
-32	2.750 (69.85)	2.737 - 2.752 (69.52) - (69.90)	2.419 - 2.429 (61.44) - (61.70)	2.500 (63.50)
-40	3.250 (82.55)	3.237 - 3.252 (82.22) - (82.60)	2.919 - 2.929 (74.14) - (74.40)	3.000 (76.20)
-48	3.812 (96.82)	3.798 - 3.814 (96.47) - (96.88)	3.419 - 3.429 (86.84) - (87.10)	3.500 (88.90)

FIGURE 1. Nut, tube coupling - Continued.

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Dash number	J min	K max inches (mm)	L inches (mm) ±.005 (0.13)	M inches (mm)	N inches (mm)
-02	.491 (12.47)	.425 (10.80)	.575 (14.61)	.650 (16.51)	.045 (1.14) - .050 (1.27)
-03	.561 (14.25)	.441 (11.20)	.592 (15.04)	.667 (16.94)	.057 (1.45) - .062 (1.57)
-04	.631 (16.03)	.482 (12.24)	.607 (15.42)	.682 (17.32)	
-05	.703 (17.86)	.482 (12.24)	.610 (15.49)	.690 (17.53)	.065 (1.65) - .075 (1.91)
-06	.775 (19.69)	.535 (13.59)	.637 (16.18)	.742 (18.85)	
-07	.846 (21.49)	.536 (13.61)	.663 (16.84)	.768 (19.51)	
-08	.987 (25.07)	.569 (14.45)	.723 (18.36)	.828 (21.03)	
-09	1.059 (26.90)	.569 (14.45)	.723 (18.36)	.828 (21.03)	
-10	1.130 (28.70)	.667 (16.94)	.817 (20.75)	.927 (23.55)	
-11	1.271 (32.28)	.738 (18.75)	.868 (22.05)	.968 (24.59)	
-12	1.414 (35.92)	.738 (18.75)	.868 (22.05)	.968 (24.59)	
-14	1.556 (39.52)	.765 (19.43)	.915 (23.24)	1.015 (25.78)	
-16	1.699 (43.15)	.786 (19.96)	.962 (24.43)	1.062 (26.97)	
-18	1.985 (50.42)	.800 (20.32)	.990 (25.15)	1.120 (28.45)	
-20	2.054 (52.17)	.810 (20.57)	1.017 (25.83)	1.167 (29.64)	
-24	2.411 (61.24)	.937 (23.80)	1.170 (29.72)	1.320 (33.53)	
-28	2.838 (72.09)	.945 (24.00)	1.170 (29.72)	1.370 (34.80)	
-32	3.123 (79.32)	1.050 (26.67)	1.300 (33.02)	1.500 (38.10)	
-40	3.693 (93.80)	.850 (21.59)	1.100 (27.94)	1.300 (33.02)	
-48	4.334 (110.08)	.900 (22.86)	1.150 (29.21)	1.350 (34.29)	

FIGURE 1. Nut, tube coupling - Continued.

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Dash number	Q min inches (mm)	W inches (mm)	X inches (mm) ±.005 (0.13)
-02	.300 (7.62)	.535 (13.59)	.180 (4.57) - .190 (4.83)
-03	.316 (8.03)	.552 (14.02)	.210 (5.33) - .220 (5.59)
-04	.332 (8.43)	.567 (14.40)	.245 (6.22) - .255 (6.48)
-05	.332 (8.43)	.565 (14.35)	.280 (7.11) - .290 (7.37)
-06	.367 (9.32)	.592 (15.04)	.310 (7.87) - .320 (8.13)
-07	.368 (9.35)	.618 (15.70)	.336 (8.53) - .356 (9.04)
-08	.383 (9.73)	.648 (16.46)	.400 (10.16) - .420 (10.67)
-09	.383 (9.73)	.668 (16.97)	.427 (10.85) - .447 (11.35)
-10	.453 (11.51)	.777 (19.74)	.465 (11.81) - .485 (12.32)
-11	.488 (12.40)	.818 (20.78)	.520 (13.21) - .540 (13.72)
-12	.488 (12.40)	.818 (20.78)	.580 (14.73) - .600 (15.24)
-14	.515 (13.08)	.865 (21.97)	.645 (16.38) - .665 (16.89)
-16	.536 (13.61)	.912 (23.16)	.715 (18.16) - .735 (18.67)
-18	.550 (13.97)	.945 (24.00)	.840 (21.34) - .860 (21.84)
-20	.560 (14.22)	.967 (24.56)	.890 (22.61) - .910 (23.11)
-24	.687 (17.45)	1.100 (27.94)	1.040 (26.42) - 1.060 (26.92)
-28	.695 (17.65)	1.170 (29.72)	1.255 (31.88) - 1.275 (32.39)
-32	.800 (20.32)	1.300 (33.02)	1.395 (35.43) - 1.415 (35.94)
-40	.600 (15.24)	1.100 (27.94)	1.680 (42.67) - 1.700 (43.18)
-48	.650 (16.51)	1.150 (29.21)	2.000 (50.80) - 2.020 (51.31)

FIGURE 1. Nut, tube coupling - Continued.

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NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Tolerances linear dimensions  $\pm .010$  inch (0.25 mm) angular dimensions  $\pm 5^\circ$ .
4. Surface texture unless otherwise specified shall be  $125\mu$  inches ( $3.17\mu\text{m}$ ) except hex, reference ASME B46.1.
5. Diameters A and F shall be concentric to thread PD within .004 inch (0.01 mm) FIM. Diameter C and hexagon E shall be concentric to thread PD within .010 inch (0.25 mm) FIM.
6. Dimensions specified are after plating.
7. Break Sharp edges .003 - .015 inch (0.08 - 0.38 mm) unless otherwise specified. Fillets .005 - .020 inch (0.13 - 0.51 mm) RAD or chamfer
8. Multiple marking permissible provided positive identification is shown. Parts shall be marked before threading.
9. For design features purposes, this standard takes precedence over documents referenced herein.

FIGURE 1. Nut, tube coupling - Continued.

REQUIREMENTS:

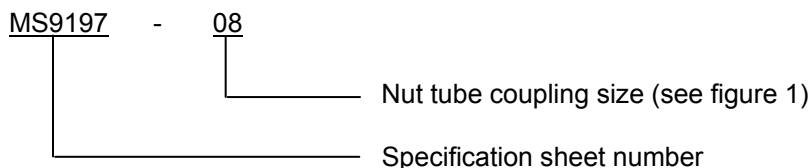
Dimensions and configurations: See figure 1.

Material: Steel, corrosion and heat-resistant in accordance with SAE-AMS5646.

Surface finish: Silver plate in accordance with SAE-AMS2410,  $300\mu$  to  $600\mu$  inches ( $7.62\mu\text{m}$  to  $15.24\mu\text{m}$ ) thick on thread at PD and surface Y.

Parts shall be fluorescent penetrate inspected in accordance with ASTM E1417.

PIN:



PIN Example:

MS9197-08 identifies a nut tube coupling .500 inch (12.70 mm) tube.

Do not use unassigned PIN's.

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The approximate weight for each fitting is shown in table I.

TABLE I. Approximate weight.

Dash number	Approximate weight lb/100 (kg/100)		Dash number	Approximate weight lb/100 (kg/100)
-02	1.210 (0.55)		-11	7.859 (3.56)
-03	1.475 (0.67)		-12	9.907 (4.49)
-04	1.830 (0.83)		-14	12.164 (5.52)
-05	2.600 (1.18)		-16	13.637 (6.19)
-06	2.920 (1.32)		-18	19.830 (8.99)
-07	3.422 (1.55)		-20	20.016 (9.08)
-08	4.680 (2.12)		-24	27.903 (12.66)
-09	5.314 (2.41)		-28	41.710 (18.92)
-10	6.310 (2.86)		-32	49.000 (22.23)
			-40	60.621 (27.50)
			-48	78.529 (35.62)

Amendment notations. The margins of this specification are marked with vertical lines to indicate modifications generated by this amendment. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.

Referenced documents. This document references the following:

ASME B46.1	SAE-AS8879
ASTM E1417	SAE-AMS2410
SAE-AS478	SAE-AMS5646

### CONCLUDING MATERIAL

Custodians:  
Navy - AS  
Air Force - 99  
DLA - CC

Preparing activity:  
DLA - CC  
  
(Project 4730-2011-002)

Review activities:  
Navy - MC  
Air Force - 71

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.daps.dla.mil>.