

INCH-POUND

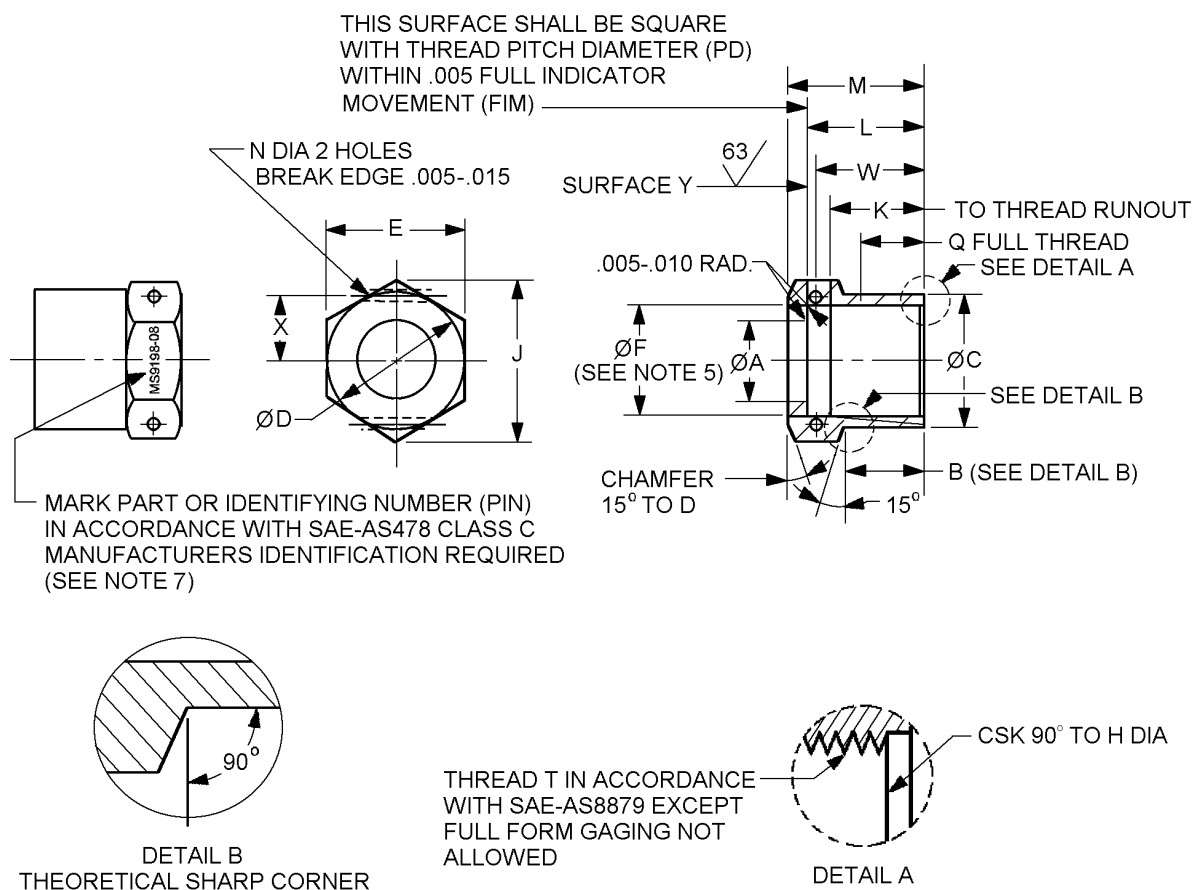
MS9198D  
w/AMENDMENT 1  
17 May 2011  
SUPERSEDING  
MS9198D  
12 February 2010

## DETAIL SPECIFICATION SHEET

## NUT, TUBE COUPLING-CRES SAE-AMS5646

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.



Inches	mm
.005	0.13
.010	0.25
.015	0.38

FIGURE 1. Nut, tube coupling.

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Dash number	Tube OD inches (mm)	Thread T SAE-AS8879	A diameter inches (mm) +.003 (0.08) -.000	B inches (mm) ±.015 (0.38)	C diameter inches (mm) ±.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	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 (0.010 mm) FIM. Diameter C and hexagon E shall be concentric to thread PD within .010 inch (0.25 mm) FIM.
6. 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.
7. Multiple marking permissible provided positive identification is shown. Parts shall be marked before threading.
8. For design features purposes, this standard takes precedence over documents referenced herein.

FIGURE 1. Nut, tube coupling - Continued.

REQUIREMENTS:

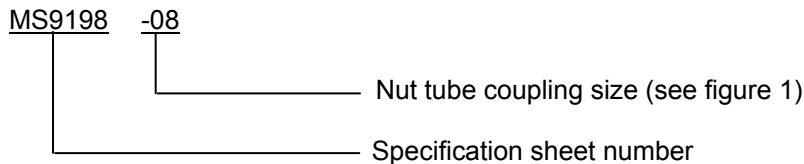
Dimensions and configurations: See figure 1.

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

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

Cleaning: Parts shall be degreased and immersed for not less than 20 minutes in a solution of 1 volume of nitric acid (specific gravity = 1.42) and 9 volumes of water at room temperature.

PIN:



PIN Example:

MS9198-08 identifies a nut tube coupling .500 inch (0.13 mm) tube.

Do not use unassigned PIN's.

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

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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	27.093 (12.29)
-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  
ASTM E1417  
SAE-AS478  
SAE-AS8879  
SAE-AMS5646

### CONCLUDING MATERIAL

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

Preparing activity:  
DLA - CC  
  
(Project 4730-2011-003)

Review activities:  
Navy - MC  
Air Force - 71

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