

INCH-POUND

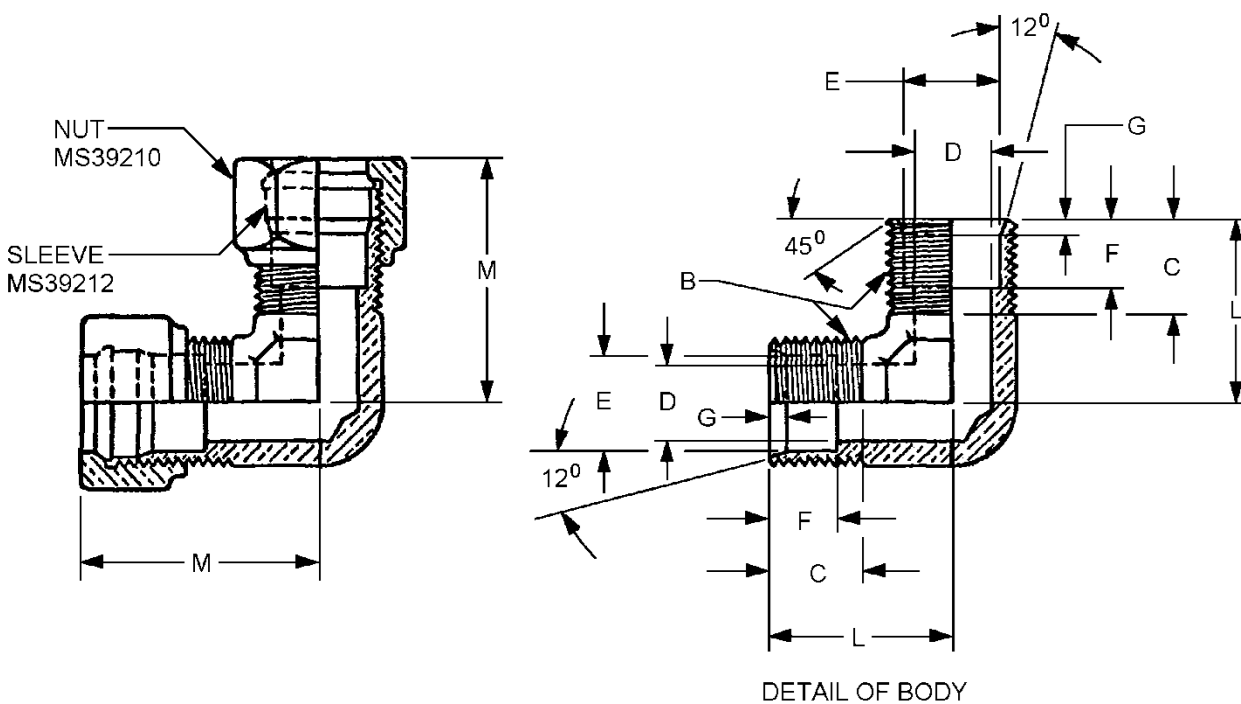
MS39207H
w/ AMENDMENT 1
8 July 2026
SUPERSEDING
MS39207H
31 January 2018

DETAIL SPECIFICATION SHEET

ELBOWS, TUBE - SAFETY SLEEVE COMPRESSION TYPE, 90 DEGREE

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
and MIL-DTL-18866.



See notes at end of figure.

FIGURE 1. 90-degree elbow.



MS39207H
w/ AMENDMENT 1

Suffix Designator		Tube O.D. inch (mm)	B (see note 4)	C Thread length inch (mm)	D inch (mm)	E ±0.005 (0.13) inch (mm)
Assembly	Body Z/					
A1	B1	0.1250 (3.175)	0.3125-24UNF-2A	0.281 (7.14)	0.094 (2.39)	0.135 (3.43) 0.139 (3.53)
A2	B2	0.1875 (4.763)	0.3750-24UNF-2A	0.281 (7.14)	0.125 (3.18)	0.196 (4.98) 0.200 (5.08)
A3	B3	0.2500 (6.350)	0.5000-20UNF-2A	0.390 (3.91)	0.203 (5.16)	0.261 (6.63) 0.265 (6.73)
A4	B4	0.3125 (7.938)	0.5625-18UNF-2A	0.390 (3.91)	0.203 (5.16)	0.324 (8.23) 0.328 (8.33)
A5	B5	0.3750 (9.525)	0.6250-18UNF-2A	0.438 (11.13)	0.281 (7.14)	0.386 (9.80) 0.390 (9.91)
A6	B6	0.5000 (12.700)	0.7500-16UNF-2A	0.438 (11.13)	0.422 (10.72)	0.514 (13.06) 0.518 (13.16)
A7	B7	0.6250 (15.875)	0.9375-16UN-2A	0.469 (11.91)	0.500 (12.70)	0.641 (16.28) 0.645 (16.38)
A8	B8	0.7500 (19.050)	1.0625-16UN-2A	0.469 (11.91)	0.656 (16.66)	0.766 (19.46) 0.770 (19.56)
A9	B9	0.8750 (22.225)	1 3/16-16UN-2A	0.469 (11.91)	0.719 (18.26)	0.891 (22.63) 0.895 (22.73)
A10	B10	1.0000 (25.400)	1 5/16-16UN-2A	0.156 (3.96)	0.875 (22.23)	1.016 (25.81) 1.020 (25.91)
A11	B11	1.2500 (31.750)	1.6250-16UN-2A	0.547 (16.43)	1.094 (27.79)	1.270 (32.26) 1.274 (32.36)
A12	B12	1.5000 (38.100)	1.8750-16UN-2A	0.563 (14.30)	1.344 (34.14)	1.520 (38.61) 1.524 (38.71)

Suffix Designator		F inch (mm)	G inch (mm)	L inch (mm)	M inch (mm)
Assembly	Body Z/				
A1	B1	0.203 (5.16)	0.125 (3.18)	0.656 (16.66)	0.969 (34.61)
A2	B2	0.250 (6.35)	0.156 (3.96)	0.656 (16.66)	0.969 (24.61)
A3	B3	0.297 (7.54)	0.203 (5.16)	0.750 (19.05)	1.156 (29.36)
A4	B4	0.297 (7.54)	0.203 (5.16)	0.821 (20.85)	1.156 (29.36)
A5	B5	0.297 (7.54)	0.203 (5.16)	0.938 (23.83)	1.375 (34.93)
A6	B6	0.313 (7.95)	0.203 (5.16)	1.125 (28.58)	1.656 (42.06)
A7	B7	0.344 (8.74)	0.234 (5.94)	1.313 (33.35)	1.844 (46.84)
A8	B8	0.344 (8.74)	0.203 (5.16)	1.500 (38.10)	2.094 (53.19)
A9	B9	0.344 (8.74)	0.203 (5.16)	1.750 (44.45)	2.344 (59.54)
A10	B10	0.406 (10.31)	0.203 (5.16)	1.750 (44.45)	2.344 (59.54)
A11	B11	0.406 (10.31)	0.203 (5.16)	2.250 (57.15)	2.875 (73.03)
A12	B12	0.469 (11.91)	0.203 (5.16)	2.375 (60.33)	3.063 (77.80)

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Tolerances: Unless otherwise specified, decimals ±0.016 (0.41mm), degrees ±2°.
4. Threads shall be in accordance with FED-STD-H28/2.
5. Break all sharp edges; remove all burrs and slivers.
6. This illustration is for identification and is not intended to restrict designs or shapes not dimensioned.
7. Assemblies are only furnished to this specification (body, nuts, and sleeves). Bodies are not to be stocked, stored, or issued.

FIGURE 1. 90-degree elbow. - Continued.

MS39207H
w/ AMENDMENT 1

REQUIREMENTS:

Fittings shall be as specified on figure 1 and table I.

Materials shall be in accordance with MIL-DTL-18866 and table I.

The part or identifying number (PIN) is for the complete item with MS39210 nut and MS39212 sleeve.

Maximum operating pressure. See MIL-DTL-18866.

Finish. Finishes shall be as specified in table I. All plating's shall be capable of meeting a minimum of 96 hours salt spray test in accordance with ASTM B117. The fittings shall show no evidence of red corrosion after 96 hours of salt spray. Fluid passages, other openings and internal threads shall not be subject to the plating thickness requirement and may have bare areas provided they are protected with a light film of oil.

MS39207H
w/ AMENDMENT 1

Table I. Material and finish designators.

Material finish designator	Material	Finish
C	Steel bar, type 1117, 1118 or 1137 in accordance with ASTM A29/A29M	Carbon steel: Cadmium in accordance with SAE-AMS-QQ-P-416, type II, class 3, 200μ inches to 300μ inches (5.08 μm to 7.62 μm) thick. <u>1/</u>
CZ	Steel bar, type 1117, 1118 or 1137 in accordance with ASTM A29/A29M	Zinc plating in accordance with ASTM B633; type III or V, Fe/Zn 8. <u>2/</u>
F	Steel	Cadmium in accordance with SAE-AMS-QQ-P-416, type II, class 3, 200μ inches to 300μ inches (5.08 μm to 7.62 μm) thick. <u>1/</u>
FZ	Steel	Zinc plating in accordance with ASTM B633; type III or V, Fe/Zn 8. <u>2/</u>
H	Steel	Zinc-Aluminum in accordance with ASTM F1136/F1136M, grade 3, NC. <u>3/</u>
J	Steel	Zinc-nickel in accordance with SAE-AMS2417, type 2, grade B. <u>3/ 4/</u>
M	Nickel-copper alloy UNS N04400	No additional finish.
N	High-chromium nickel alloy UNS N06690	No additional finish.
P	Steel	Zinc phosphate finish in accordance MIL-DTL-16232 type Z, class 1. <u>2/</u>
S	Corrosion resistant steel	Corrosion resistant steel: Passivate in accordance with SAE AMS2700, type 6 or 7.
T	Titanium	Anodize in accordance with SAE-AMS2488 type 2. <u>5/</u>
TF	Titanium	Fluoride phosphate in accordance with SAE-AMS2486. <u>5/</u>
Z	Steel	Zinc plating in accordance with ASTM B695, type II, class 8 <u>2/</u>
ZC	Steel	Zinc may be any zinc plating from PIN codes CZ, J, and Z with a colored chromate coating. <u>2/</u>

1/ Embrittlement test need not be run. Cadmium shall not be used in oxygen or potable water systems.

2/ Not for use in aircraft. Requires approval from the Program Office for all applications.

3/ Hexavalent chromium free. Finish shall be ROHS compliant.

4/ The zinc-nickel alloy plate shall contain 12% to 16% nickel. The coating thickness shall be 315μ inches (8μm) minimum.

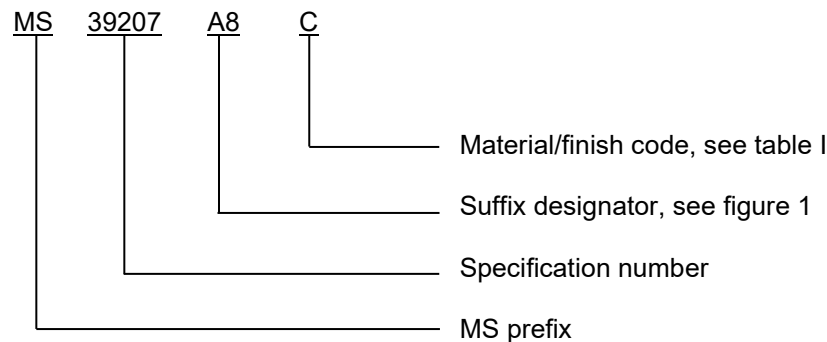
5/ A pretreatment, a modification of the fluoride treatment, or a post treatment shall be applied so the final color of the fittings shall be similar to SAE-AMS-STD-595 colors 36076 through 36293. Titanium shall not be used in oxygen or potable water systems.

MS39207H
w/ AMENDMENT 1

Trivalent wrenchability. When the finish has been damaged due to poor wrenchability, the surface of the connector shall be touched up using one of the brush plating processes below as appropriate to the primary finish. The term "trivalent wrenchability" is used to evaluate the ability of the finish to withstand abrasion from an excessive amount of wrenching.

- a. Brush plating of hard chromium by electrodeposition shall be in accordance with SAE-AMS-2451/5.
- b. Brush plating of medium-hardness, low stress nickel by electrodeposition shall be in accordance with SAE-AMS-2451/9.

Part or Identifying Number (PIN) example:



MS39207A8C indicates a 90° elbow, 3/8 pipe thread to 3/4 straight thread, steel bar with cadmium plating.

Cadmium is not recommended. To the users of this document, it is recommended that the use of carbon steel material with cadmium plating be used only when other materials and finishes specified in this document cannot meet performance requirements.

Class I and II ozone depleting substances (ODS) shall not be used in MS39207 or any referenced procedures.

Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

Referenced documents shall be of the issue in effect on date of invitations for bid.

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.

MS39207H
w/ AMENDMENT 1

Referenced documents. In addition to MIL-DTL-18866, this document references the following:

FED-STD-H28/2	SAE-AMS-STD-595/36076	SAE-AMS-STD-595/36251
MIL-DTL-16232	SAE-AMS-STD-595/36081	SAE-AMS-STD-595/36270
MS39210	SAE-AMS-STD-595/36099	SAE-AMS-STD-595/36280
MS39212	SAE-AMS-STD-595/36118	SAE-AMS-STD-595/36293
ASTM A29/A29M	SAE-AMS-STD-595/36134	SAE-AMS2417
ASTM B117	SAE-AMS-STD-595/36152	SAE-AMS2451/5
ASTM B633	SAE-AMS-STD-595/36170	SAE-AMS2451/9
ASTM B695	SAE-AMS-STD-595/36173	SAE-AMS2486
ASTM F1136/F1136M	SAE-AMS-STD-595/36176	SAE-AMS2488
SAE-AMS-QQ-P-416	SAE-AMS-STD-595/36231	SAE-AMS2700

CONCLUDING MATERIAL

Custodians:
Army - AT
DLA - CC

Preparing activity:
DLA - CC

(Project 4730-2026-044)

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.dla.mil>.