



(a) DEPTHS Y AND Z SHOULD BE MACHINED SUCH THAT THE CROSS-SECTIONAL AREA AT THE JUNCTION OF THE PASSAGES IS NOT SMALLER THAN THE CROSS-SECTIONAL AREA OF THE SMALLER HOLE. Y AND Z AT THEIR DEEPEST POINTS SHALL NOT EXTEND BEYOND THE WALL ESTABLISHED BY THE RESPECTIVE INTERSECTING HOLE.

DASH NO.	TUBE OD	THREAD T MIL-T-8879	H RAD	M +.047 -.000	Q +.047 -.000	R RAD	U RAD	V	W APPROX
-3	.188	.3750-24UNJF-3A	.062	1.328	.641	.188	.062	.375	.219
-4	.250	.4375-20UNJF-3A		1.453	.703	.219		.438	.312
-5	.312	.5000-20UNJF-3A			.750	.250		.500	
-6	.375	.5625-18UNJF-3A	.094	1.562	.812	.281	.094	.562	.375
-8	.500	.7500-16UNJF-3A		1.812	.969	.375		.750	.500
-10	.625	.8750-14UNJF-3A		2.047	1.094	.438		.875	.625
-12	.750	1.0625-12UNJ-3A		2.250	1.266	.531		1.062	.812
-16	1.000	1.3125-12UNJ-3A	.125	2.375	1.453	.656	.125	1.312	1.000
-20	1.250	1.6250-12UNJ-3A		2.406	1.578	.812		1.625	1.250
-24	1.500	1.8750-12UNJ-3A		2.422	1.766	.938		1.875	1.500
-32	2.000	2.5000-12UNJ-3A		2.578	2.203	1.250	.250	2.562	2.000

© DENOTES CHANGES

PREPARING ACTIVITY: NAVY-AS

CUSTODIANS: ARMY- AV NAVY-

AIR FORCE- 99 DLA-

REVIEW: AF-82, 71, ARMY-MI, DLA-CS

USER: ARMY-GL, CR, AT

PROJECT NUMBER: 4730-0004

# MILITARY SPECIFICATION SHEET

TITLE ELBOW, TUBE - 45°, BULKHEAD,  
FLARELESS TUBE UNIVERSAL  
TO FLARED TUBE

SPECIFICATION SHEET NUMBER

**MS24654C** 31 JULY 1990

SUPERSEDING  
MS24654B

30 SEP 1983

AMSC- N/A

FSC 4730

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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**(C) REQUIREMENTS:**

1. MATERIAL: CARBON STEEL-FORGINGS, CORROSION-RESISTANT STEEL-FORGINGS, ALUMINUM ALLOY-FORGINGS, SEE PROCUREMENT SPECIFICATION. PARTS MADE FROM 1137 OR 1141 FORGINGS QUALIFIED TO MIL-F-18280 SHALL NOT BE SUPPLIED AFTER 30 JUNE 1984.
2. FINISH: SEE PROCUREMENT SPECIFICATION.

**(C) NOTES:**

1. DIMENSIONS ARE IN INCHES. UNLESS OTHERWISE SPECIFIED, TOLERANCES: DECIMALS  $\pm .015$ .
2. BREAK ALL SHARP EDGES AND REMOVE ALL BURRS AND SLIVERS.
3. PART NUMBERS: NO CODE LETTER IN PART NUMBER FOR CARBON STEEL.  
ADD "D" AFTER DASH NUMBER FOR ALUMINUM ALLOY (2024).  
ADD "W" AFTER DASH NUMBER FOR ALUMINUM ALLOY (7075).  
ADD "J" AFTER DASH NUMBER FOR CORROSION-RESISTANT STEEL, TYPE 304.  
ADD "K" AFTER DASH NUMBER FOR CORROSION-RESISTANT STEEL, TYPE 316.  
ADD "R" AFTER DASH NUMBER FOR CORROSION-RESISTANT STEEL, TYPE 321.  
ADD "T" AFTER DASH NUMBER FOR TITANIUM ALLOY (6AL-4V).

**EXAMPLES OF PART NUMBER:**

MS24654-4-ELBOW, .250 TUBING, CARBON STEEL.  
MS24654-8D-ELBOW, .500 TUBING, ALUMINUM ALLOY (2014) (2024).  
MS24654-8W-ELBOW, .500 TUBING, ALUMINUM ALLOY (7075).  
MS24654-8J-ELBOW, .500 TUBING, CORROSION-RESISTANT STEEL, CLASS 304.  
MS24654-8K-ELBOW, .500 TUBING, CORROSION-RESISTANT STEEL, CLASS 316.  
MS24654-8R-ELBOW, .500 TUBING, CORROSION-RESISTANT STEEL, CLASS 321.  
MS24654-8T-ELBOW, .500 TUBING, TITANIUM ALLOY (6AL-4V).

4. ITEMS CODED "C" ON PREVIOUS ISSUES OF THIS STANDARD ARE NO LONGER TO BE FURNISHED. UNLESS OTHERWISE SPECIFIED, PARTS CODED "J", "K", OR "R" (AT SUPPLIER'S OPTION) SHALL BE FURNISHED IN LIEU OF "C" CODED PARTS.
5. TITANIUM NOT RECOMMENDED FOR USE IN OXYGEN SYSTEMS.
6. PARTS ARE NOT TO BE MANUFACTURED FROM TYPE 347 CRES AFTER 31 MAY 1992. HOWEVER, TYPE CODE "S" PARTS MAY BE USED UNTIL EXISTING STOCKS ARE DEPLETED.

IN THE EVENT OF A CONFLICT BETWEEN THE TEXT OF THIS STANDARD AND THE REFERENCES CITED HEREIN, THE TEXT OF THIS STANDARD SHALL TAKE PRECEDENCE.

REFERENCED GOVERNMENT (OR NON-GOVERNMENT) DOCUMENTS OF THIS ISSUE LISTED IN THAT ISSUE OF THE DEPARTMENT OF DEFENSE INDEX OF SPECIFICATIONS AND STANDARDS (DoDISS) SPECIFIED IN THE SOLICITATION FORM A PART OF THIS STANDARD TO THE EXTENT SPECIFIED HEREIN.

PREPARING ACTIVITY: NAVY-AS

CUSTODIANS: ARMY-AV NAVY-

AIR FORCE-99 DLA-

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FORM

672

MAY 1988

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

113994

THIS SPECIFICATION SHEET AND THE ISSUE OF THE FOLLOWING SPECIFICATION LISTED IN  
THAT ISSUE OF THE DODISS SPECIFIED IN THE SOLICITATION: MIL-F-18280

THIS SPECIFICATION SHEET IS THE PROPERTY OF THE  
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DEPARTMENT OF DEFENSE.

GIVEN STATE INFORMATION