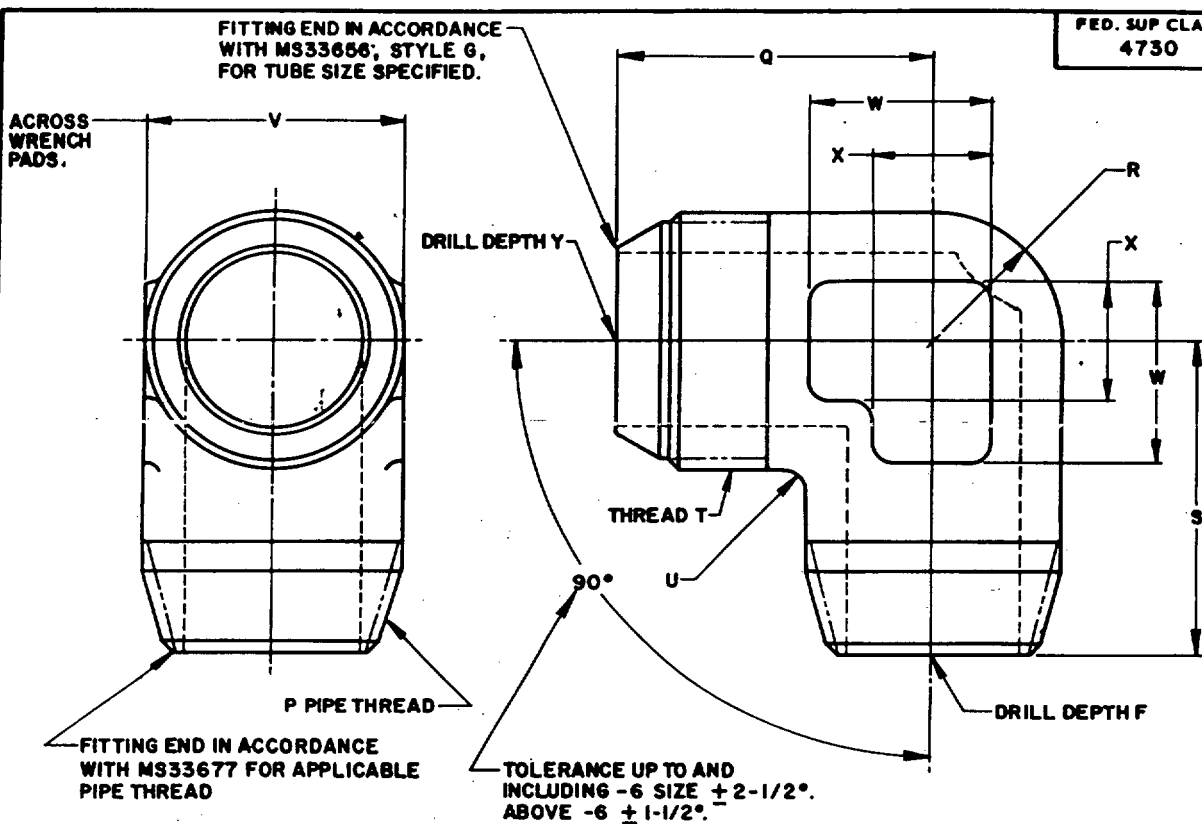


FED. SUP CLASS  
4730

- (a) AT OPTION OF MANUFACTURER, BASIC DIMENSIONS Q AND S MAY BE .016 LESS THAN DIMENSIONS SPECIFIED IN TABLE, PROVIDED DIMENSIONS Y AND F, RESPECTIVELY, ARE ALSO MADE .016 LESS THAN DIMENSIONS SPECIFIED. DIMENSIONS, AS LISTED, SHALL APPLY WHEN RETOOLING IS REQUIRED.

MATERIAL: STEEL; ALUMINUM ALLOY; COPPER ALLOY; CORROSION RESISTANT STEEL (CRES); BARS, SHAPES, OR FORGINGS (SEE PROCUREMENT SPECIFICATION).

FINISH: SEE PROCUREMENT SPECIFICATION.

BREAK ALL SHARP EDGES AND REMOVE ALL HANGING BURRS AND SLIVERS.

DIMENSIONS IN INCHES. UNLESS OTHERWISE SPECIFIED, TOLERANCE: DECIMALS +.016.

NO CODE LETTER IN PART NUMBER FOR CARBON STEEL. ADD B AFTER DASH NUMBER FOR COPPER ALLOY.

ADD D AFTER DASH NO. FOR ALUMINUM ALLOY. (EXCEPT 7075-T73)

ADD J AFTER DASH NO. FOR CRES, CLASS 304.

ADD K AFTER DASH NO. FOR CRES, CLASS 316.

ADD S AFTER DASH NO. FOR CRES, CLASS 347.

ADD W AFTER DASH NO. FOR 7075-T73 ALUMINUM ALLOY.

EXAMPLE OF PART NUMBERS: MS20822-4 - ELBOW, 1/4 TUBING AND 1/8 PIPE THREAD, CARBON STEEL.

MS20822-4B - ELBOW, 1/4 TUBING AND 1/8 PIPE THREAD, COPPER ALLOY.

MS20822-4D - ELBOW, 1/4 TUBING AND 1/8 PIPE THREAD, ALUMINUM ALLOY. (EXCEPT 7075-T73).

MS20822-8S - ELBOW, 1/2 TUBING AND 3/8 PIPE THREAD, CRES, CLASS 347.

MS20822-8J - ELBOW, 1/2 TUBING AND 3/8 PIPE THREAD, CRES, CLASS 304.

MS20822-8K - ELBOW, 1/2 TUBING AND 3/8 PIPE THREAD, CRES, CLASS 316.

MS20822-8W - ELBOW, 1/2 TUBING AND 3/8 PIPE THREAD.

(F)

CERTAIN PROVISIONS OF THE DESIGN CHARACTERISTICS OF THIS STANDARD (SCREW THREADS, HEXAGON SIZES AND UNDERCUT DIMENSIONS) ARE THE SUBJECT OF INTERNATIONAL STANDARDIZATION AGREEMENT ABC AIR STD 17/15. WHEN REVISION OR CANCELLATION OF THIS STANDARD IS PROPOSED, THE DEPARTMENTAL CUSTODIANS WILL INFORM THEIR RESPECTIVE DEPARTMENTAL STANDARDIZATION OFFICES SO THAT APPROPRIATE ACTION WILL BE TAKEN RESPECTING THE INTERNATIONAL AGREEMENT CONCERNED.

FOR DESIGN FEATURE PURPOSES, THIS STANDARD TAKES PRECEDENCE OVER PROCUREMENT DOCUMENTS REFERENCED HEREIN.

REFERENCED DOCUMENTS SHALL BE OF THE ISSUE IN EFFECT ON DATE OF INVITATIONS FOR BID.

INACTIVE FOR DESIGN AFTER 9 JAN 1964, EXCEPT FOR USE ON OXYGEN SYSTEMS AND GROUND SERVICE EQUIPMENT.

SEE MIL-STD-962 FOR STATUS CRITERIA.

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User activities: ARMY - NE, NAVY - AS

Review activities: ARMY - NE, NAVY - AS

DLA-CS

P.A. AIR FORCE - 82 Other Code	TITLE <b>ELBOW, FLARED TUBE AND PIPE THREADS, 90°</b>	<b>MILITARY STANDARD</b>
NAVY-AS AIR FORCE - 89		<b>MS20822</b>
PROCUREMENT SPECIFICATION MIL-F-5509	SUPERSEDES: <b>AN622</b>	SHEET 1 OF 2

APPROVED 30 JAN 87 REVISED A 8 AUG 60 B 9 JAN 64 C 16 JUN 78 D 21 MAR 79 E 26 OCT 83 F 26 DEC 85

FED. SUP CLASS  
4730

(F)

DASH NO	THREAD T (REF)	F
- 2	.312 -24UNJF-3A	.719
- 3	.375 -24UNJF-3A	
- 4	.437 -20UNJF-3A	.781
- 4 - 4		1.094
- 5	.500 -20UNJF-3A	.844
- 5 - 4		1.094
- 6 - 2		.969
- 6	.562 -18UNJF-3A	1.125
- 6 - 6		1.250
- 6 - 8		1.500
- 8	.750 -16UNJF-3A	1.281
-10	.875 -14UNJF-3A	1.594
-10 -12		1.688
-12 - 8		1.750
-12	1.062 -12UNJ -3A	1.719
-12 -16		2.062
-16 -12	1.312 -12UNJ -3A	1.844
-16		2.094
-20	1.625 -12UNJ -3A	2.469
-21		
-25	1.875 -12UNJ -3A	2.594
-28	2.250 -12UNJ -3A	3.094
-32	2.500 -12UNJ -3A	3.219

User activities: ARMY-ME-34  
NAVY-AS-34Review activities: ARMY-ME-34  
NAVY-AS-34

DLA-CS

DASH NO	TUBING OD	PIPE THREAD END		(a) Q +.047 -.000	R RAD	(a) S +.047 -.000	U RAD	V	W APPROX	X APPROX	Y
		THD P ANPT	MS33677 STYLE								
2	1/8		B	.766	.156	.719		.312	.312	.188	.797
3	3/16	1/8		.828	.188		.062	.375		.250	.859
4	1/4	1/4		.891	.219	.781		.438	.375		.938
4- 4		1/4		1.031	.281	1.062	.094	.562	.500		1.125
5	5/16	1/8		.953	.250	.781	.062	.500	.469		1.000
5- 4		1/4				1.062				.312	1.109
6- 2		1/8		1.031	.281	.875		.562	.500		1.094
6	3/8	1/4		1.062		1.094					1.125
6- 6		3/8	A	1.188	.344	1.188		.750	.625		1.312
6- 8		1/2		1.312	.438	1.438		.875	.750	.438	1.500
8	1/2	3/8		1.250	.375	1.219	.094	.750	.625		1.312
10		1/2		1.453	.438	1.469		.875	.750		1.516
10-12	5/8	3/4									1.750
12- 8		1/2		1.625	.531	1.562		1.062	.875	.500	1.781
12	3/4	3/4		1.656		1.594					1.719
12-16		1	B	1.781		1.938			1.000	.625	2.094
16-12	1	3/4	A		.656	1.719		1.312	.875	.500	1.938
16		1	B	1.812		1.969			1.062	.625	
20	1-1/4	1-1/4		2.062	.812	2.375	.125	1.625	1.250	.750	2.188
21		1		2.031							2.156
25	1-1/2	1-1/4	A	2.203	.938	2.500		1.875	1.438	.875	2.328
28	1-3/4	1-1/2		2.812	1.125	2.781	.188	2.250	1.625	1.062	2.938
32	2	2		3.062	1.250	3.000	.250	2.562	1.875	1.188	3.250

APPROVED 30 JAN 57 REVISED (C) FOR CHANGES SEE PAGES 1, 2 &amp; 3. 16 JUN 78 (F) FOR CHANGES SEE PAGES 1 &amp; 2.

P.A. AIR FORCE- 82  
Other Code  
ARMY-ME, AV  
NAVY-AS  
AIR FORCE - 99

TITLE

ELBOW, PIPE TO TUBE, 90°

MILITARY STANDARD

MS20822

PROCUREMENT SPECIFICATION  
MIL-F-5509

SUPERSEDES:

AN822

SHEET 2 OF 2