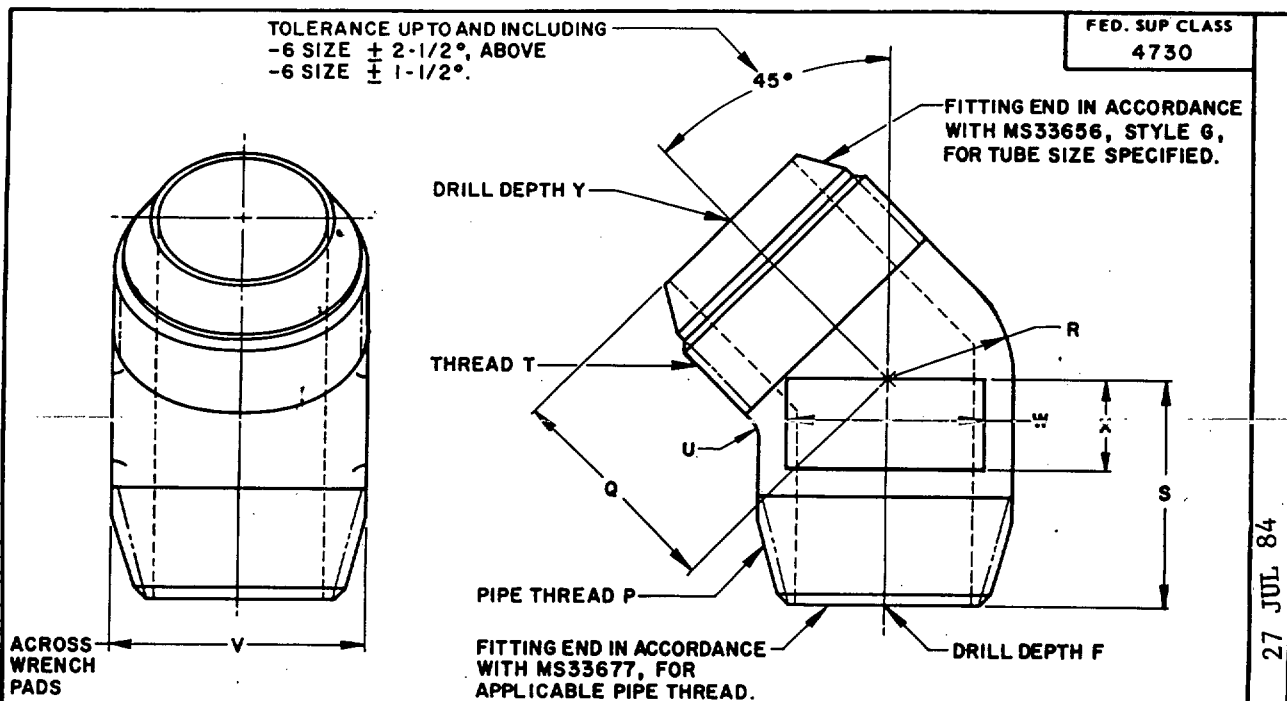


User activities: ARMY - ME, AV  
Review activities: DLA - CS

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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  $\pm .016$ .

AT OPTION OF MANUFACTURER THE FLUID PASSAGE HOLES MAY CORRESPOND TO THE SMALLER DIAMETER.

NO CODE LETTER IN PART NUMBER FOR CARBON STEEL.

ADD B AFTER DASH NO. 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 NUMBER: MS20823-4 - ELBOW, 1/4 TUBING OD AND 1/8 PIPE THREAD, CARBON STEEL.

MS20823-4B - ELBOW, 1/4 TUBING OD AND, 1/8 PIPE THREAD, COPPER ALLOY.

MS20823-4D - ELBOW, 1/4 TUBING OD AND, 1/8 PIPE THREAD, ALUMINUM ALLOY (EXCEPT 7075-T73).

MS20823-8J - ELBOW, 1/2 TUBING OD AND, 3/8 PIPE THREAD, CRES, CLASS 304.

MS20823-8K - ELBOW, 1/2 TUBING OD AND, 3/8 PIPE THREAD, CRES, CLASS 316.

MS20823-8S - ELBOW, 1/2 TUBING OD AND, 3/8 PIPE THREAD, CRES, CLASS 347.

MS20823-8W - ELBOW, 1/2 TUBING OD AND, 3/8 PIPE THREAD, 7075-T73 ALUMINUM ALLOY.

~~OF THIS STANDARD (SCREW THREADS, HEXAGON SIZES, AND UNDERCUT DIMENSIONS) ARE THE SUBJECT OF INTERNATIONAL STANDARDIZATION AGREEMENT AND AIR STD 17/15. WHEN REVISION OR CANCELLATION OF THIS STANDARD IS PROPOSED, THE DEPARTMENTAL CUSTODIANS WILL IN FORM 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 64, EXCEPT FOR USE ON OXYGEN SYSTEMS AND GROUND SERVICE EQUIPMENT. SEE MIL-STD-962 FOR STATUS CRITERIA.

(E) DENOTES CHANGES

P.A. AIR FORCE - 82 Other Cust ARMY - AR NAVY - AS AIR FORCE - 99	TITLE <b>ELBOW, 45° PIPE TO FLARED</b>	<b>MILITARY STANDARD</b> <b>MS 20823</b>
PROCUREMENT SPECIFICATION MIL - F - 5509	SUPERSEDES: AN823	SHEET 1 OF 2

FED. SUP CLASS  
4730

DASH NO	THREAD T (REF)	F +.047 -.000
2	5/16-24UNJF-3A	.500
3	3/8 -24UNJF-3A	
4	7/16-20UNJF-3A	.641
5	1/2 -20UNJF-3A	.688
6	9/16-18UNJF-3A	.906
8	3/4 -16UNJF-3A	1.016
10	7/8 -14UNJF-3A	
12	1-1/16-12UNJ -3A	1.250
16-12	1-5/16-12UNJ -3A	1.484
16		1.594
20	1-5/8 -12UNJ -3A	1.781
21		1.813
25	1-7/8 -12UNJ -3A	1.953
28	2-1/4 -12UNJ -3A	2.344
32	2-1/2 -12UNJ -3A	2.391

DASH NO	TUBING OD	PIPE THREAD END		Q +.047 - .000	R RAD	S	U RAD	V	W APPROX	X APPROX	Y			
		THD P NPT	MS33677 STYLE											
2	1/8	1/8	B	.641	.156	.500	.062	.312	.219	.188	.719			
3	3/16				.188			.375			.703			
4	1/4				.703			.219			.438	.766		
5	5/16				.750			.250			.500	.781		
6	3/8	1/4	A	.812	.281	.844	.094	.562	.375	.250	.875			
8	1/2	3/8		.969	.375			.938			.750	.500	.312	1.047
10	5/8	1/2		1.094	.438			1.156			.875	.625	.375	1.172
12	3/4	3/4		B	1.266			.531			1.188	1.062	.812	.438
16-12	1		A	1.453	.656	1.250	1.312	.875	1.547					
16		B	1		1.469	.125	1.000	.562	1.703					
20			1-1/4		1.656		1.625	1.250	.688	1.938				
21			1	A	1.578		.812	1.531	1.875	1.500	.750	2.016		
25	1-1/2		1-1/4		1.766		.938	1.656	2.250	1.750	.812	2.250		
28	1-3/4	1-1/2	1.953		1.125	2.000	.188	2.250	1.750	.812	2.250			
32	2	2	2.203		1.250	2.094	.250	2.562	2.000	.875	2.672			

Review activities: ARMY - ME, AV  
DLA-CS

User activities:

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P.A. AIR FORCE-82 Other Cust ARMY - AR NAVY - AS AIR FORCE - 99	TITLE (E) <b>ELBOW, 45° PIPE TO FLARED</b>	<b>MILITARY STANDARD</b> <b>MS 20823</b>
PROCUREMENT SPECIFICATION MIL-F-5509	SUPERSEDES: AN823	SHEET 2 OF 2

DD FORM 672-1 (Coordinated)

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

PROJECT NO. 4730-0597

20 July 1984

APPROVED 24 MAY 62 REVISED (E) FOR CHANGES SEE PAGE 1