FEDERAL SUPPLY CLASS
4730

RATIONALE

OPERATING PRESSURES FOR ALUMINUM FITTINGS CLARIFIED. NADCAP-QML REQUIREMENT HAS BEEN ADDED. MATERIAL AND FINISH SPECIFICATION NUMBERS HAVE BEEN UPDATED. OTHER CLARIFICATIONS AND UPDATES

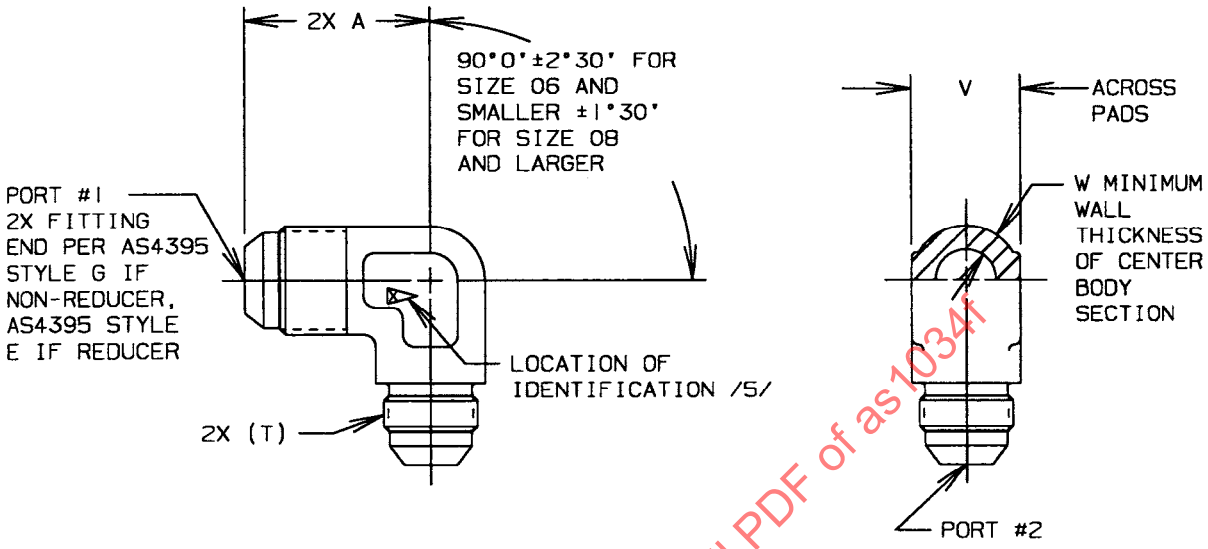


FIGURE 1 - ELBOW, 90°

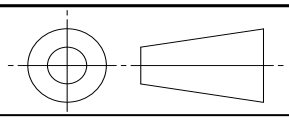
INACTIVE IN PART /21/

TABLE 1 - DIMENSIONS AND WEIGHTS /12/

BASIC NO. AS1034 /11/ /19/ SIZE CODE	V	W	LB/EA APPROX REF ALUM	LB/EA APPROX REF STEEL	LB/EA APPROX REF TI
02	.297- .314	.090	.0091	.0262	.0131
03	.360- .377	.100	.0136	.0389	.0214
04	.423- .440	.110	.0187	.0537	.0296
05	.485- .502	.120	.0247	.0708	.0391
06	.547- .565	.120	.0324	.093	.0513
08	.735- .753	.150	.0700	.199	.111
10	.860- .878	.170	.0869	.249	.138
12	1.047-1.065	.185	.172	.493	.272
16	1.292-1.317	.205	.257	.736	.406
20	1.605-1.630	.240	.437	1.25	.692
24	1.855-1.880	.250	.604	1.74	.954
28	2.238-2.255	.310	1.05	3.00	1.651
32	2.542-2.572	.350	1.49	4.26	2.349

SAE values your input. To provide feedback on this Technical Report, please visit
http://www.sae.org/technical/standards/AS1034F

THIRD ANGLE PROJECTION



ISSUED 1962-08 REVISED 2010-04

CUSTODIAN: G-3/G-3B

PROCUREMENT SPECIFICATION: /4/ AS4841

SAE Aerospace
An SAE International Group

AEROSPACE STANDARD

FITTING, ELBOW, 90°, STANDARD AND REDUCER, FLARED

SAE AS1034

TABLE 2 - LEG LENGTH A

FORGING SIZE /11/	TUBE SIZE OF PORT #1 OR #2 02	TUBE SIZE OF PORT #1 OR #2 03	TUBE SIZE OF PORT #1 OR #2 04	TUBE SIZE OF PORT #1 OR #2 05	TUBE SIZE OF PORT #1 OR #2 06	TUBE SIZE OF PORT #1 OR #2 08	TUBE SIZE OF PORT #1 OR #2 10	TUBE SIZE OF PORT #1 OR #2 12	TUBE SIZE OF PORT #1 OR #2 16	TUBE SIZE OF PORT #1 OR #2 20	TUBE SIZE OF PORT #1 OR #2 24	TUBE SIZE OF PORT #1 OR #2 32
02	.788	-	-	-	-	-	-	-	-	-	-	-
03	.820	.851	-	-	-	-	-	-	-	-	-	-
04	.820	.843	.914	-	-	-	-	-	-	-	-	-
05	.874	.905	.976	.976	-	-	-	-	-	-	-	-
06	.978	1.009	1.080	1.080	1.086	-	-	-	-	-	-	-
08	1.064	1.095	1.166	1.166	1.172	1.273	-	-	-	-	-	-
10	1.166	1.197	1.268	1.268	1.274	1.375	1.476	-	-	-	-	-
12	1.263	1.294	1.365	1.365	1.371	1.472	1.573	1.679	-	-	-	-
16	1.373	1.404	1.475	1.475	1.481	1.582	1.683	1.789	1.836	-	-	-
20	1.576	1.607	1.678	1.678	1.684	1.786	1.886	1.992	2.039	2.086	-	-
24	1.716	1.747	1.818	1.818	1.824	1.925	2.026	2.132	2.179	2.226	2.351	-
28	2.100	2.131	2.206	2.206	2.208	2.309	2.410	2.516	2.563	2.610	2.735	2.860
32	2.201	2.232	2.303	2.303	2.309	2.410	2.511	2.617	2.664	2.711	2.836	3.086

TABLE 3 - TUBE SIZE AND CORRESPONDING THREAD

PORT SIZE	(NOMINAL TUBE SIZE)	T THREAD PER AS8879 CLASS 3A
02	.125	.3125-24 UNJF
03	.188	.3750-24 UNJF
04	.250	.4375-20 UNJF
05	.312	.5000-20 UNJF
06	.375	.5625-18 UNJF
08	.500	.7500-16 UNJF
10	.625	.8750-14 UNJF
12	.750	1.0625-12 UNJ
16	1.000	1.3125-12 UNJ
20	1.250	1.6250-12 UNJ
24	1.500	1.8750-12 UNJ
28	1.750	2.2500-12 UNJ
32	2.000	2.5000-12 UNJ

NOTICE:

THIS DOCUMENT REFERENCES A PART WHICH CONTAINS CADMIUM AS A PLATING MATERIAL. CONSULT LOCAL OFFICIALS IF YOU HAVE QUESTIONS CONCERNING CADMIUM'S USE.

NOTES:

/1/ MATERIAL:

a. DASH AS CODE LETTER - TYPE 4130 STEEL FORGING OR BAR PER AMS6370 OR AMS-S-6758, OR TYPE 4140 STEEL BAR PER AMS6349 OR AMS6382.

b. CODE LETTER D - TYPE 2014-T6 ALUMINUM ALLOY FORGING PER AMS4133 OR AMS-QQ-A-367; OR 2024-T6 ALUMINUM ALLOY BAR PER AMS-QQ-A-225/6; OR 2024-T851 ALUMINUM ALLOY BAR PER AMS-QQ-A-225/6. /21/

c. CODE LETTER J - TYPE 304 CORROSION RESISTANT STEEL FORGING OR BAR PER AMS5639.

d. CODE LETTER K - TYPE 316 CORROSION RESISTANT STEEL FORGING OR BAR PER AMS5648.

e. CODE LETTER R - TYPE 321 CORROSION RESISTANT STEEL FORGING OR BAR PER AMS5645.

f. CODE LETTER S - TYPE 347 CORROSION RESISTANT STEEL FORGING OR BAR PER AMS5646. /21/

g. CODE LETTER T - 6AL-4V TITANIUM ALLOY FORGING OR BAR PER AMS4928. /20/

h. CODE LETTER W - 7075-T73 ALUMINUM ALLOY FORGING PER AMS4141 OR AMS-QQ-A-367; OR 7075-T7351 ALUMINUM ALLOY BAR PER AMS4124; OR 7075-T73 ALUMINUM ALLOY BAR PER AMS-QQ-A-225/9.

2. HEAT TREATMENT:

a. DASH AS CODE LETTER - HARDNESS SHALL BE 92 HRB TO 40 HRC PER PROCUREMENT SPECIFICATION.

b. OTHER MATERIAL CODE LETTERS - NONE.

3. FINISH:

a. DASH AS CODE LETTER - CADMIUM PLATE PER AMS-QQ-P-416, TYPE II, CLASS 2, DYE BLACK.

b. MATERIAL CODE LETTER D:

1. ANODIZE PER AMS2472 OR MIL-A-8625, TYPE II, CLASS 2, DYE BLUE, DUPLEX SEAL PER PROCUREMENT SPECIFICATION.

2. D CODE PARTS TO BE COATED WITH HIGH PURITY ALUMINUM ONLY WILL HAVE THE FINISH CODE LETTER “V” PLACED AFTER THE SIZE CODE IN THE PART NUMBER. THE FINISH WILL BE: COAT WITH HIGH PURITY ALUMINUM PER MIL-DTL-83488, CLASS 3, TYPE II, WITH MAXIMUM COATING THICKNESS OF .0005. GLASS BEAD PEEN PRESSURE SHALL BE 25 psi MAXIMUM. /19/ SEE PROCUREMENT SPECIFICATION FOR ADDITIONAL REQUIREMENTS.

c. MATERIAL CODE LETTER J - PASSIVATE PER AMS2700, TYPE 6 OR 7.

d. MATERIAL CODE LETTER K - PASSIVATE PER AMS2700, TYPE 6 OR 7.

e. MATERIAL CODE LETTER R - PASSIVATE PER AMS2700, TYPE 6 OR 7.

f. MATERIAL CODE LETTER S - PASSIVATE PER AMS2700, TYPE 6 OR 7.

g. MATERIAL CODE LETTER T - ANODIZE PER AMS 2488, TYPE 2 OR FLUORIDE PHOSPHATE CONVERSION COAT PER AMS2486.

h. MATERIAL CODE LETTER W:

1. ANODIZE PER AMS 2472 OR MIL-A-8625, TYPE II, CLASS 2, DYE BROWN, DUPLEX SEAL PER PROCUREMENT SPECIFICATION.

2. W CODE PARTS TO BE COATED WITH HIGH PURITY ALUMINUM ONLY WILL HAVE THE FINISH CODE LETTER “V” PLACED AFTER THE SIZE CODE IN THE PART NUMBER. THE FINISH WILL BE: COAT WITH HIGH PURITY ALUMINUM PER MIL-DTL-83488, CLASS 3, TYPE II, WITH MAXIMUM COATING THICKNESS OF .0005. GLASS BEAD PEEN PRESSURE SHALL BE 25 psi MAXIMUM. /19/ SEE PROCUREMENT SPECIFICATION FOR ADDITIONAL REQUIREMENTS.

/4/ PROCUREMENT SPECIFICATION: AS4841 EXCEPT AS SPECIFIED ON THIS STANDARD. PRODUCT SUPPLIED TO THIS SPECIFICATION SHALL BE MANUFACTURED BY AN ACCREDITED MANUFACTURER LISTED IN THE NATIONAL AEROSPACE AND DEFENSE CONTRACTORS ACCREDITATION PROGRAM (NADCAP) QUALIFIED MANUFACTURER LIST FOR THIS PRODUCT TYPE. THE QML IS AVAILABLE AT WWW.EAUDITNET.COM.

/5/ IDENTIFICATION AT LOCATION SHOWN: MARK PER AS478 CLASS C OR D, OR METHOD 7A3, 15A3 OR 15B.

a. FOR SIZE 06 AND SMALLER: MANUFACTURER'S NAME, CAGE CODE OR TRADEMARK, LETTERS "AS", AND MATERIAL CODE LETTER FOR CORROSION RESISTANT STEEL, TITANIUM AND ALUMINUM AND NO MATERIAL CODE LETTER FOR ALLOY STEEL.

b. FOR SIZE 08 AND LARGER: MANUFACTURER'S NAME, CAGE CODE OR TRADEMARK, BASIC PART NUMBER, AND MATERIAL CODE LETTER FOR CORROSION RESISTANT STEEL, TITANIUM AND ALUMINUM AND NO MATERIAL CODE LETTER FOR ALLOY STEEL.

6. INVENTORIED PARTS CONFORMING TO THE PREVIOUS "LETTER CHANGE" MAY BE USED TO DEPLETION.

7. INTENDED USE: THIS PART IS DESIGNED FOR USE IN SYSTEMS WITH MAXIMUM OPERATING PRESSURES AS SHOWN IN TABLE 4.

TABLE 4 - OPERATING PRESSURES FOR ASSOCIATED MATERIAL

SIZE	MATERIAL	PSI
02-08	ALUMINUM ALLOY	3000
10-16	ALUMINUM ALLOY	1500
20-28	ALUMINUM ALLOY	1000
32	ALUMINUM ALLOY	600
02-16	STEEL	3000
20-32	STEEL	1500
02-16	CORROSION RESISTANT STEEL	3000
20-32	CORROSION RESISTANT STEEL	1500
02-16	TITANIUM ALLOY	3000
20-32	TITANIUM ALLOY	1500

8. FOR REDUCER CONFIGURATIONS, THE PRESSURE RATING IS DETERMINED BY THE LARGEST PORT.

9. THE NON-REDUCER CONFIGURATION IS THE FUNCTIONAL EQUIVALENT OF AN821 AND MS24401 FOR THE CORRESPONDING FORGING SIZE AND IS INTENDED TO BE SUITABLE AS A REPLACEMENT STANDARD.

10. WHEN MACHINING FROM BAR STOCK OR OVERSIZED FORGING, THE CENTER BODY DIMENSIONS SHALL CONFORM TO AS1376, TABLE 1.

/11/ THE DIMENSIONS IN THE TABLE ARE FOR FINAL MACHINED PARTS. THE FORGING SIZE IS DETERMINED AS THE SIZE NECESSARY TO MAKE THE LARGEST FITTING END.

/12/ WEIGHTS ARE FOR NON-REDUCERS ONLY. REDUCER FITTINGS WILL HAVE LOWER WEIGHTS.

13. A CHANGE BAR (|) LOCATED IN THE LEFT MARGIN IS FOR THE CONVENIENCE OF THE USER IN LOCATING AREAS WHERE TECHNICAL REVISIONS, NOT EDITORIAL CHANGES HAVE BEEN MADE TO THE PREVIOUS ISSUE OF THIS DOCUMENT. AN (R) SYMBOL TO THE LEFT OF THE DOCUMENT TITLE INDICATES A COMPLETE REVISION OF THE DOCUMENT, INCLUDING TECHNICAL REVISIONS. CHANGE BARS AND (R) ARE NOT USED IN ORIGINAL PUBLICATIONS NOR IN DOCUMENTS THAT CONTAIN EDITORIAL CHANGES ONLY.

14. INTERPRETATION OF DRAWING PER ARP4296.

15. SURFACE TEXTURE: SYMBOLS PER ASME Y14.36M; REQUIREMENTS PER ASME B46.1. UNLESS OTHERWISE SPECIFIED, MACHINED SURFACES TO BE 125 µin Ra. FORGED SURFACES MAY BE 250 µin Ra.

16. BREAK ALL SHARP EDGES .003 TO .015 UNLESS OTHERWISE SPECIFIED.

17. DIMENSIONING AND TOLERANCING: ASME Y14.5M-1994.

18. DIMENSIONS IN INCHES. UNLESS OTHERWISE SPECIFIED, TOLERANCES: LINEAR DIMENSIONS ±.016, ANGULAR DIMENSIONS ±0 DEGREES 30'.