

REV.
E

AS21904™

RATIONALE

ADD NOTE: "WHEN MACHINED FROM BAR OR OVERSIZE FORGING, THE CENTER BODY DIMENSIONS SHALL CONFORM TO AS1376, TABLE 1." "INACTIVE" REMOVED FROM MATERIAL CODE "S" AND REPLACED BY EXPLANATORY NOTE /18D/. UPDATE PROCUREMENT SPECIFICATION NOTE TO CURRENT VERBIAGE.

NOTICE

THE INITIAL SAE PUBLICATION OF THIS DOCUMENT WAS TAKEN DIRECTLY FROM U.S. MILITARY STANDARD MS21904 AND RETAINS THE SAME PART NUMBERS ESTABLISHED BY THE ORIGINAL MILITARY DOCUMENT.

PROCUREMENT OF MS21904 PART NUMBERS TO THIS "AS" STANDARD MAY RESULT IN LOSS OF CONFIGURATION CONTROL WHERE DIFFERENCES IN THE CANCELLED MIL-F-18280 AND THE SUPERSEDING AS18280 PROCUREMENT SPECIFICATIONS EXIST. AS1004 IS A RECOMMENDED REPLACEMENT STANDARD THAT ELIMINATES THIS PROBLEM.

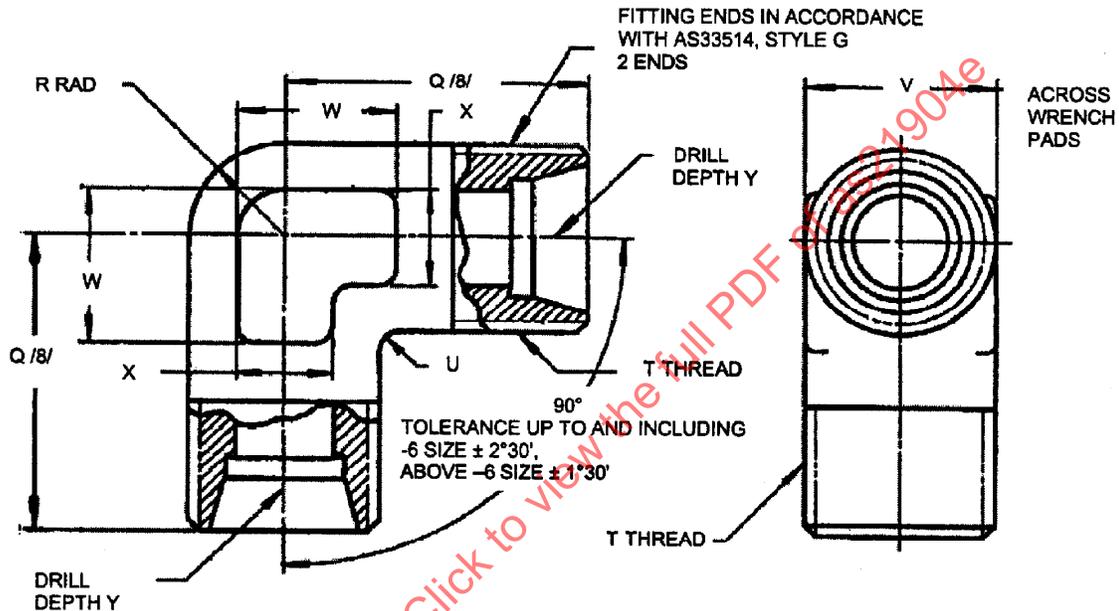
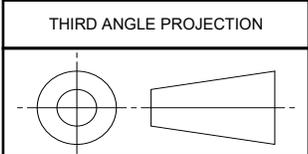


FIGURE 1 - ELBOW, FLARELESS TUBE, 90 DEGREES

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<https://www.sae.org/standards/content/AS21904E/>



CUSTODIAN: G-3/G-3B

PROCUREMENT SPECIFICATION: AS18280 /11/



AEROSPACE STANDARD

ELBOW,
FLARELESS TUBE,
90 DEGREES

AS21904™
SHEET 1 OF 4

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ISSUED 1998-03 REAFFIRMED 2015-04 REVISED 2023-02

TABLE 1A - DIMENSIONS Q-V

DASH NO. /5/	NOMINAL TUBE SIZE REF	(T) THREAD AS8879	Q /8/ +.047 -.000	R RAD	U RAD	V
-2	.125	.3125-24 UNJF-3A	.750	.156	.063	.313
-3	.188	.3750-24 UNJF-3A	.813	.188	.063	.375
-4	.250	.4375-20 UNJF-3A	.875	.219	.063	.438
-5	.313	.5000-20 UNJF-3A	.938	.250	.063	.500
-6	.375	.5625-18 UNJF-3A	1.031	.281	.094	.563
-8	.500	.7500-16 UNJF-3A	1.250	.375	.094	.750
-10	.625	.8750-14 UNJF-3A	1.406	.438	.094	.875
-12	.750	1.0625-12 UNJ-3A	1.563	.531	.094	1.063
-16	1.000	1.3125-12 UNJ-3A	1.719	.656	.125	1.313
-20	1.250	1.6250-12 UNJ-3A	1.875	.813	.125	1.625
-24	1.500	1.8750-12 UNJ-3A	2.000	.938	.125	1.875
-32	2.000	2.5000-12 UNJ-3A	2.438	1.250	.250	2.563

TABLE 1B - DIMENSIONS W-Y

DASH NO. /5/	W APPROX	X APPROX	Y +.047 -.000	WEIGHT, LB/EA, APPROX, REF		
				STEEL	AL ALLOY	TI ALLOY
-2	.313	.188	.781	.040	.014	.023
-3	.313	.250	.844	.056	.020	.032
-4	.375	.250	.922	.062	.022	.035
-5	.500	.313	.984	.086	.031	.049
-6	.500	.313	1.063	.104	.037	.060
-8	.625	.438	1.313	.191	.064	.110
-10	.750	.438	1.469	.258	.087	.148
-12	.875	.500	1.625	.402	.135	.231
-16	1.063	.625	1.844	.535	.200	.308
-20	1.250	.750	2.000	.792	.265	.456
-24	1.438	.875	2.313	1.262	.463	.728
-32	2.000	1.188	2.688	3.062	1.125	1.766

NOTES:

NOTICE

THIS DOCUMENT REFERENCES PARTS THAT CONTAIN CADMIUM AS A PLATING MATERIAL. CONSULT LOCAL OFFICIALS IF YOU HAVE QUESTIONS CONCERNING CADMIUM'S USE.

1. MATERIAL:

REFER TO PROCUREMENT SPECIFICATION
 ALLOY STEEL
 ALUMINUM ALLOY
 CORROSION RESISTANT STEEL
 TITANIUM ALLOY

2. FINISH: REFER TO PROCUREMENT SPECIFICATION.

3. BREAK EDGES .003 TO .015, UNLESS OTHERWISE SPECIFIED.

4. DIMENSIONS ARE IN INCHES. UNLESS OTHERWISE SPECIFIED, TOLERANCES: DECIMALS ±.016, ANGLES ±0°30'.

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/5/ PART NUMBERS:

MATERIAL CODE DASH "-" IN PART NUMBER FOR 4130 ALLOY STEEL.
 ADD MATERIAL CODE "V(SIZE)P" IN PLACE OF DASH FOR CORROSION RESISTANT STEEL (15-5PH), CADMIUM PLATED.
 ADD MATERIAL CODE "V" IN PLACE OF DASH FOR CORROSION RESISTANT STEEL (15-5PH), NOT CADMIUM PLATED.
 ADD MATERIAL CODE "D" IN PLACE OF DASH FOR ALUMINUM ALLOY (2014).
 ADD MATERIAL CODE "W" IN PLACE OF DASH FOR ALUMINUM ALLOY (7075).
 ADD MATERIAL CODE "J" IN PLACE OF DASH FOR CORROSION RESISTANT STEEL (TYPE 304).
 ADD MATERIAL CODE "K" IN PLACE OF DASH FOR CORROSION RESISTANT STEEL (TYPE 316).
 ADD MATERIAL CODE "R" AFTER DASH NUMBER FOR CORROSION RESISTANT STEEL (TYPE 321).
 ADD MATERIAL CODE "S" AFTER DASH NUMBER FOR CORROSION RESISTANT STEEL (TYPE 347). /18D/
 ADD MATERIAL CODE "T" AFTER DASH NUMBER FOR TITANIUM ALLOY (6AL-4V).

EXAMPLES OF PART NUMBERS:

MS21904-4 ELBOW, .250 TUBING, 4130 ALLOY STEEL.
 MS21904V4P ELBOW, .250 TUBING, CORROSION RESISTANT STEEL (15-5PH), CADMIUM PLATED. SEE TABLE 2. /18A/
 MS21904V4 ELBOW, .250 TUBING, CORROSION RESISTANT STEEL (15-5PH), NOT CADMIUM PLATED.
 MS21904D4 ELBOW, .250 TUBING, ALUMINUM ALLOY (2014). SEE TABLE 2. /18C/
 MS21904W4 ELBOW, .250 TUBING, ALUMINUM ALLOY (7075).
 MS21904J4 ELBOW, .250 TUBING, CORROSION RESISTANT STEEL (TYPE 304).
 MS21904K4 ELBOW, .250 TUBING, CORROSION RESISTANT STEEL (TYPE 316).
 MS21904-4R ELBOW, .250 TUBING, CORROSION RESISTANT STEEL (TYPE 321).
 MS21904-4S ELBOW, .250 TUBING, CORROSION RESISTANT STEEL (TYPE 347). (REPLACED.) SEE TABLE 2. /18D/
 MS21904-4T ELBOW, .250 TUBING, TITANIUM ALLOY (6AL-4V).

6. PART MARKING: REFER TO PROCUREMENT SPECIFICATION.

7. DIMENSIONING AND TOLERANCING: ANSI Y14.5M-1982.

/8/ AT THE OPTION OF THE MANUFACTURER, BASIC DIMENSION Q MAY BE .016 LESS THAN THE DIMENSIONS SPECIFIED, WITH THE PROVISION THAT BASIC DIMENSION Y IS ALSO MADE .016 LESS THAN THE DIMENSION SPECIFIED.

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

10. 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.

/11/ PROCUREMENT SPECIFICATION: AS18280, EXCEPT AS SPECIFIED ON THIS STANDARD. PRODUCT MANUFACTURED TO THIS STANDARD SHALL MEET THE REQUIREMENTS SPECIFIED HEREIN AND THE PROCUREMENT SPECIFICATION. ORIGINAL COMPONENT MANUFACTURERS (OCM) SHALL BE LISTED IN THE PRI QUALIFIED PRODUCTS LIST (QPL) PRI-QPL-AS18280 FOR THIS STANDARD. SEE www.eAuditNet.com FOR CURRENT QPL ONLINE.

12. SURFACE TEXTURE: SYMBOLS PER ASME Y14.36M. REQUIREMENTS PER ASME B46.1. UNLESS OTHERWISE SPECIFIED, MACHINED SURFACES SHALL BE 125 MICROINCHES Ra.

13. REVISION INDICATOR: A CHANGE BAR (I) 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 AS4296.

15. FLUID PASSAGE, HOLE CONTOUR: AS4266 (OPTIONAL).

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

17. WHEN MACHINED FROM BAR OR OVERSIZE FORGING, THE CENTER BODY DIMENSIONS SHALL CONFORM TO AS1376, TABLE 1.

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