

REV.
F

AS21908™

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 /17D/. UPDATE PROCUREMENT SPECIFICATION NOTE TO CURRENT VERBIAGE.

NOTICE

THE INITIAL SAE PUBLICATION OF THIS DOCUMENT WAS TAKEN DIRECTLY FROM U.S. MILITARY STANDARD MS21908 AND RETAINS THE SAME PART NUMBERS ESTABLISHED BY THE ORIGINAL MILITARY DOCUMENT.

PROCUREMENT OF MS21908 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. AS1008 IS A RECOMMENDED REPLACEMENT STANDARD THAT ELIMINATES THIS PROBLEM.

SAE Executive Standards Committee Rules provide that: " This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user." SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

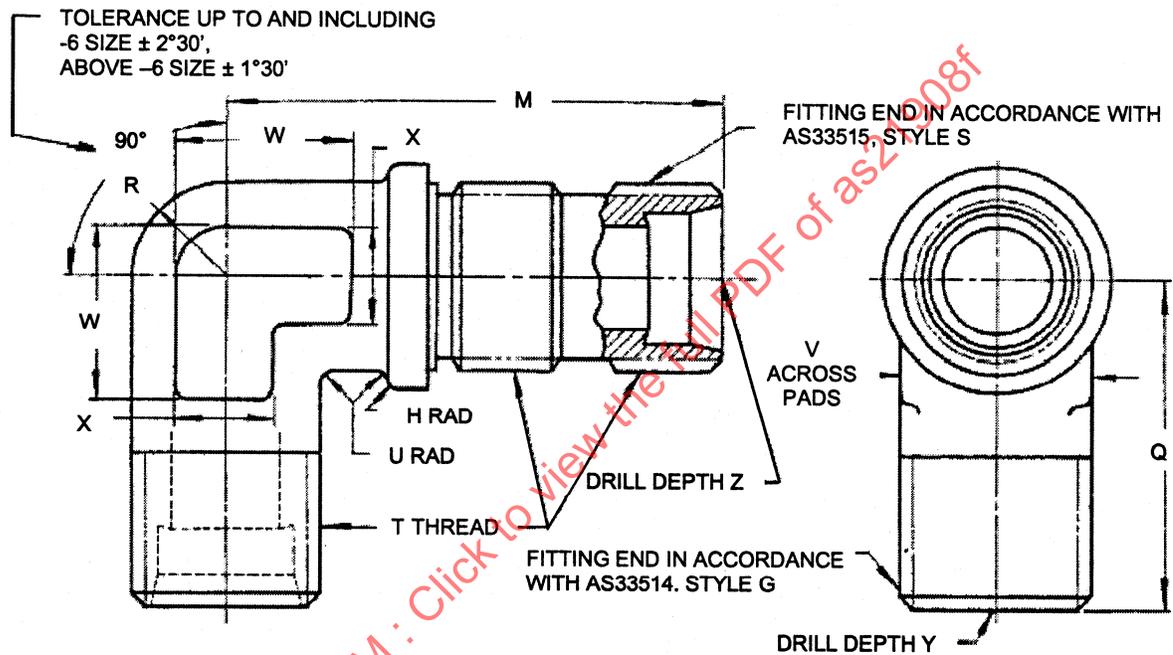
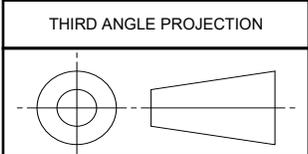


FIGURE 1 - ELBOW, BULKHEAD UNIVERSAL 90°, FLARELESS TUBE

SAENORM.COM : Click to view the full PDF of as21908f

For more information on this standard, visit
<https://www.sae.org/standards/content/AS21908F/>



CUSTODIAN: G-3/G-3B

PROCUREMENT SPECIFICATION: AS18280 /10/



AEROSPACE STANDARD

ELBOW,
BULKHEAD UNIVERSAL 90°,
FLARELESS TUBE

AS21908™
SHEET 1 OF 4

REV.
F

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

TABLE 1A - DIMENSIONS H-R

DASH NO. /5/	NOMINAL			M +0.047 -0.000	Q +0.047 -0.000	R RAD
	TUBE SIZE REF	(T) THREAD AS8879	H RAD			
-2	.125	.3125-24 UNJF-3A	.063	1.313	.781	.156
-3	.188	.3750-24 UNJF-3A	.063	1.391	.906	.188
-4	.250	.4375-20 UNJF-3A	.063	1.500	.938	.219
-5	.313	.5000-20 UNJF-3A	.094	1.531	1.031	.250
-6	.375	.5625-18 UNJF-3A	.094	1.688	1.063	.281
-8	.500	.7500-16 UNJF-3A	.094	1.969	1.313	.375
-10	.625	.8750-14 UNJF-3A	.094	2.250	1.500	.438
-12	.750	1.0625-12 UNJ-3A	.094	2.469	1.625	.531
-16	1.000	1.3125-12 UNJ-3A	.125	2.594	1.719	.656
-20	1.250	1.6250-12 UNJ-3A	.125	2.875	2.000	.813
-24	1.500	1.8750-12 UNJ-3A	.125	3.156	2.188	.938
-32	2.000	2.5000-12 UNJ-3A	.125	3.750	2.375	1.250

TABLE 1B - DIMENSIONS U-Z

DASH NO. /5/	U RAD	V	W APPROX	X APPROX	Y +0.047 -0.000	Z +0.047 -0.000	WEIGHT, LB/EA, APPROX, REF		
							STEEL	AL ALLOY	TI ALLOY
-2	.063	.313	.313	.188	.813	1.344	.048	.017	.027
-3	.063	.375	.313	.250	.938	1.422	.064	.023	.036
-4	.063	.438	.375	.250	.969	1.531	.071	.025	.040
-5	.063	.500	.500	.313	1.063	1.563	.102	.038	.058
-6	.094	.563	.500	.313	1.094	1.719	.123	.054	.070
-8	.094	.750	.625	.438	1.344	2.000	.237	.091	.136
-10	.125	.875	.750	.438	1.563	2.344	.400	.133	.230
-12	.125	1.063	.875	.500	1.719	2.578	.530	.190	.305
-16	.125	1.313	1.063	.625	1.813	2.688	.920	.310	.530
-20	.188	1.625	1.250	.750	2.125	3.000	1.330	.524	.767
-24	.188	1.875	1.438	.875	2.359	3.359	1.960	.700	1.130
-32	.188	2.563	1.938	1.188	2.438	4.063			

NOTES:

NOTICE

THIS DOCUMENT REFERENCES A PART WHICH CONTAINS 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'.

	AEROSPACE STANDARD	AS21908™ SHEET 2 OF 4	REV. F
	ELBOW, BULKHEAD UNIVERSAL 90°, FLARELESS TUBE		

/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). /17D/
 ADD MATERIAL CODE "T" AFTER DASH NUMBER FOR TITANIUM ALLOY (6AL-4V).

EXAMPLES OF PART NUMBERS:

MS21908-4	ELBOW, .250 TUBING, 4130 ALLOY STEEL.
MS21908V4P	ELBOW, .250 TUBING, CORROSION RESISTANT STEEL (15-5PH), CADMIUM PLATED. SEE TABLE 2. /17A/
MS21908V4	ELBOW, .250 TUBING, CORROSION RESISTANT STEEL (15-5PH), NOT CADMIUM PLATED.
MS21908D4	ELBOW, .250 TUBING, ALUMINUM ALLOY (2014). SEE TABLE 2. /17C/
MS21908W4	ELBOW, .250 TUBING, ALUMINUM ALLOY (7075).
MS21908J4	ELBOW, .250 TUBING, CORROSION RESISTANT STEEL (TYPE 304).
MS21908K4	ELBOW, .250 TUBING, CORROSION RESISTANT STEEL (TYPE 316).
MS21908-4R	ELBOW, .250 TUBING, CORROSION RESISTANT STEEL (TYPE 321).
MS21908-4S	ELBOW, .250 TUBING, CORROSION RESISTANT STEEL (TYPE 347). SEE TABLE 2. /17D/
MS21908-4T	ELBOW, .250 TUBING, TITANIUM ALLOY (6AL-4V).

6. PART MARKING: REFER TO PROCUREMENT SPECIFICATION.
7. DIMENSIONING AND TOLERANCING: ANSI Y14.5M-1982.
8. REFERENCED DOCUMENTS SHALL BE OF THE ISSUE IN EFFECT ON DATE OF INVITATIONS FOR BID.
9. 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.
- /10/ 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.
11. SURFACE TEXTURE: SYMBOLS PER ASME Y14.36M. REQUIREMENTS PER ASME B46.1. UNLESS OTHERWISE SPECIFIED, MACHINED SURFACES SHALL BE 125 MICROINCHES Ra.
12. 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.
13. INTERPRETATION OF DRAWING PER AS4296.
14. FLUID PASSAGE, HOLE CONTOUR: AS4266 (OPTIONAL).
15. INVENTORIED PARTS CONFORMING TO THE PREVIOUS LETTER CHANGE MAY BE USED TO DEPLETION.
16. WHEN MACHINED FROM BAR OR OVERSIZE FORGING, THE CENTER BODY DIMENSIONS SHALL CONFORM TO AS1376, TABLE 1.

	AEROSPACE STANDARD	AS21908™ SHEET 3 OF 4	REV. F
	ELBOW, BULKHEAD UNIVERSAL 90°, FLARELESS TUBE		