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REV.
A

AS24651

FEDERAL SUPPLY CLASS
4730

RATIONALE

CHANGED THE PROCUREMENT SPECIFICATION FROM MIL-F-18280 TO AS18280, DELETED THE PREAMBLE NOTICE ON FIRST PAGE, ADDED PRI-QPL REQUIREMENT NOTE, ADDED TABLE 2, CADMIUM PLATING NOTICE, AND UPDATED FORMAT.

NOTICE

THE INITIAL PUBLICATION OF THIS DOCUMENT WAS TAKEN DIRECTLY FROM U.S. MILITARY STANDARD MS24651. AS5240 IS THE SUGGESTED REPLACEMENT STANDARD. AS5240 ELIMINATES THE POSSIBILITIES OF PART NUMBER DISCREPANCIES ORIGINATING FROM MS24651 PART NUMBERS.

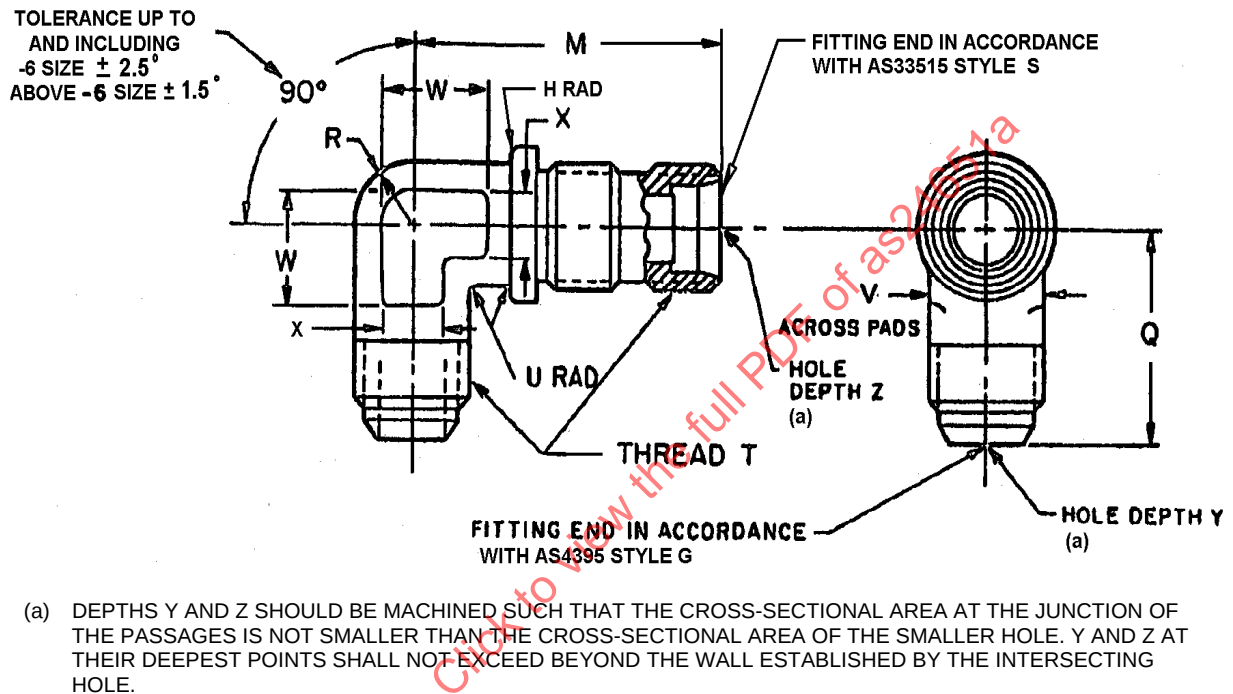
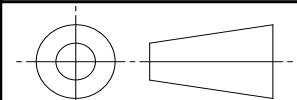


FIGURE 1 ELBOW, TUBE, 90° BULKHEAD, FLARELESS TO FLARED

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THIRD ANGLE PROJECTION



CUSTODIAN: G-3/G-3B

PROCUREMENT SPECIFICATION: AS18280 /8/



AEROSPACE STANDARD

(R) ELBOW, TUBE - 90°, BULKHEAD,
FLARELESS TUBE UNIVERSAL TO FLARED TUBE

AS24651
SHEET 1 OF 4

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ISSUED 1999-07 REAFFIRMED 2004-04 REVISED 2014-06

TABLE 1 - DIMENSIONS

DASH NO. /5/	TUBE OD	THREAD T AS8879 CLASS 3A	H RAD	M +.047 - .000	Q +.047 - .000	R RAD	U RAD	V	W APPROX	X APPROX
-3	.188	.3750-24UNJF	.063	1.391	.891	.188	.063	.375	.313	.250
-4	.250	.4375-20UNJF	.063	1.500	.953	.219	.063	.438	.375	.250
-5	.313	.5000-20UNJF	.094	1.531	1.016	.250	.063	.500	.500	.313
-6	.375	.5625-18UNJF	.094	1.688	1.078	.281	.094	.563	.500	.313
-8	.500	.7500-16UNJF	.094	1.969	1.344	.325	.094	.750	.625	.438
-10	.625	.8750-14UNJF	.094	2.250	1.547	.438	.125	.875	.750	.438
-12	.750	1.0625-12UNJ	.094	2.469	1.766	.531	.125	1.063	.875	.500
-16	1.000	1.3125-12UNJ	.125	2.594	1.922	.656	.125	1.313	1.063	.625
-20	1.250	1.6250-12UNJ	.125	2.875	2.156	.813	.188	1.625	1.250	.750
-24	1.500	1.8750-12UNJ	.125	3.156	2.328	.938	.188	1.875	1.438	.875
-32	2.000	2.5000-12UNJ	.125	3.750	2.875	1.250	.188	2.563	1.938	1.188

NOTES:

NOTICE

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

1. MATERIALS: SEE PROCUREMENT SPECIFICATION.

CARBON STEEL
CORROSION RESISTANT STEEL
ALUMINUM ALLOY
TITANIUM ALLOY

2. FINISH: SEE PROCUREMENT SPECIFICATION.

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

4. DIMENSIONS ARE IN INCHES. UNLESS OTHERWISE SPECIFIED, TOLERANCES: DECIMALS $\pm .016$, ANGLES $\pm 0^{\circ}30'$.

/5/ PART NUMBERS:

DASH "-" IN PART NUMBER FOR 4130 ALLOY STEEL IS REPLACED BY CODE LETTER "F" SEE TABLE 2/A/

ADD "F" IN PLACE OF DASH FOR 4130 ALLOY STEEL IS REPLACEMENT FOR CODE "-."

ADD "V (SIZE)P" IN PLACE OF DASH FOR CORROSION RESISTANT STEEL (15-5PH), CADMIUM PLATED

ADD "V" IN PLACE OF DASH FOR CORROSION RESISTANT STEEL (15-5PH), NOT CADMIUM PLATED

ADD "D" AFTER DASH NUMBER FOR ALUMINUM ALLOY (2024) IS REPLACED SEE TABLE 2/C/

ADD "W" AFTER DASH NUMBER FOR ALUMINUM ALLOY (7075)

ADD "J" AFTER DASH NUMBER FOR CORROSION-RESISTANT STEEL, (TYPE 304)

ADD "K" AFTER DASH NUMBER FOR CORROSION-RESISTANT STEEL, (TYPE 316)

ADD "R" AFTER DASH NUMBER FOR CORROSION-RESISTANT STEEL, (TYPE 321)

ADD "S" AFTER DASH NUMBER FOR CORROSION RESISTANT STEEL (TYPE 347) IS REPLACED BY CODE "R" SEE TABLE 2/D/

ADD "T" AFTER DASH NUMBER FOR TITANIUM ALLOY (6AL-4V)



AEROSPACE STANDARD

(R) ELBOW, TUBE - 90°, BULKHEAD,
FLARELESS TUBE UNIVERSAL TO FLARED TUBE

AS24651
SHEET 2 OF 4

REV.
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EXAMPLES OF PART NUMBERS:

MS24651-4	ELBOW, .250 TUBING, 90°, “-” CODE FOR 4130 ALLOY STEEL IS REPLACED SEE TABLE 2/A/
MS24651F4	ELBOW, .250 TUBING, 90°, FOR 4130 ALLOY STEEL
MS24651V4P	ELBOW, .250 TUBING, 90°, CORROSION RESISTANT STEEL (15-5PH) CADMIUM PLATED
MS24651V4	ELBOW, .250 TUBING, 90°, CORROSION RESISTANT STEEL (15-5PH), NOT CADMIUM PLATED
MS24651-8D	ELBOW, .500 TUBING, 90°, ALUMINUM ALLOY (2024) IS REPLACED SEE TABLE 2/C/
MS24651-8W	ELBOW, .500 TUBING, 90°, ALUMINUM ALLOY (7075)
MS24651-8J	ELBOW, .500 TUBING, 90°, CORROSION RESISTANT STEEL (TYPE 304)
MS24651-8K	ELBOW, .500 TUBING, 90°, CORROSION RESISTANT STEEL (TYPE 316)
MS24651-8R	ELBOW, .500 TUBING, 90°, CORROSION RESISTANT STEEL (TYPE 321)
MS24651-8S	ELBOW, .500 TUBING, 90°, CORROSION RESISTANT STEEL (TYPE 347) IS REPLACED SEE TABLE 2/D/
MS24651-8T	ELBOW, .500 TUBING, 90°, TITANIUM ALLOY (6AL-4V)

6. REFERENCED DOCUMENTS SHALL BE OF THE ISSUE IN EFFECT ON DATE OF INVITATIONS FOR BID.
7. 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.
- /8/ PROCUREMENT SPECIFICATION: AS18280 UNLESS OTHERWISE SPECIFIED IN THIS STANDARD. PRODUCT SUPPLIED TO THIS SPECIFICATION SHALL BE MANUFACTURED BY AN ACCREDITED MANUFACTURER AS LISTED IN THE PERFORMANCE REVIEW INSTITUTE (PRI) QUALIFIED PRODUCTS LIST PRI-QPL-AS18280 FOR THIS STANDARD. SEE www.eAuditNet.com FOR CURRENT QPL ONLINE.
9. SURFACE TEXTURE: SYMBOLS PER ASME Y14.36M. REQUIREMENTS PER ASME B46.1. UNLESS OTHERWISE SPECIFIED, MACHINED SURFACE SHALL BE 125 MICROINCHES Ra.
10. INTERPRETATION OF DRAWING PER ARP4296.

TABLE 2 - OLD DOCUMENT AND OLD PART NUMBERS VERSUS NEW DOCUMENT WITH RETAINED AND CURRENT PART NUMBERS

CANCELLED DOCUMENT NUMBER	OLD PART NUMBERS	SUPERSEDING DOCUMENT NUMBER	RETAINED PART NUMBERS MIL-F-18280	REPLACING PART NUMBERS AS18280
MS24651	MS24651-(3 THRU 32)	AS24651	/A/	MS24651F(3 THRU 32)
MS24651	MS24651-(3 THRU 32)	AS24651	/A/	MS24651V(3 THRU 32)P
MS24651	MS24651-(3 THRU 32)	AS24651	/A/	MS24651V(3 THRU 32)
MS24651	MS24651C(3 THRU 32)	AS24651	/B/	MS24651-(3 THRU 32)J
MS24651	MS24651C(3 THRU 32)	AS24651	/B/	MS24651-(3 THRU 32)K
MS24651	MS24651C(3 THRU 32)	AS24651	/B/	MS24651-(3 THRU 32)R
MS24651	MS24651-(3 THRU 32)D	AS24651	/C/	MS24651-(3 THRU 32)W
MS24651	MS24651-(3 THRU 32)W	AS24651	MS24651-(3 THRU 32)W	
MS24651	MS24651-(3 THRU 32)J	AS24651	MS24651-(3 THRU 32)J	
MS24651	MS24651-(3 THRU 32)K	AS24651	MS24651-(3 THRU 32)K	
MS24651	MS24651-(3 THRU 32)R	AS24651	MS24651-(3 THRU 32)R	
MS24651	MS24651-(3 THRU 32)S	AS24651	/D/	MS24651-(3 THRU 32)R
MS24651	MS24651-(3 THRU 32)T	AS24651	MS24651-(3 THRU 32)T	

- /A/ PARTS CODED “-” FOR 4130 ALLOY STEEL ARE REPLACED BY CODE LETTER “F”, CODE LETTER “V(SIZE)P”, 15-5PH CORROSION RESISTANT STEEL, CADMIUM PLATED OR CODE LETTER “V”, 15-5PH CORROSION RESISTANT STEEL, NON CADMIUM PLATED PARTS.
- /B/ PARTS CODED “C” FOR CORROSION RESISTANT STEEL (TYPE 303) ARE REPLACED BY PARTS CODED “J”, “K” OR “R” FOR CORROSION RESISTANT STEEL (TYPES 304, 316, OR 321, RESPECTIVELY).
- /C/ PARTS CODED “D” FOR ALUMINUM ALLOY 2024 ARE REPLACED BY PARTS CODED “W” FOR 7075 ALUMINUM ALLOY.
- /D/ PARTS CODED “S” FOR CORROSION RESISTANT STEEL (TYPE 347) ARE REPLACED BY PARTS CODED “R” FOR CORROSION RESISTANT STEEL (TYPE 321).