

REV. B

SAE AS4681

RATIONALE

FEDERAL SUPPLY CLASS
4730

CANCELED MILITARY STANDARD NUMBERS HAVE BEEN REPLACED. PRI-QPL NOTE HAS BEEN UPDATED AND CADMIUM WARNING NOTICE ADDED. OTHER UPDATES.

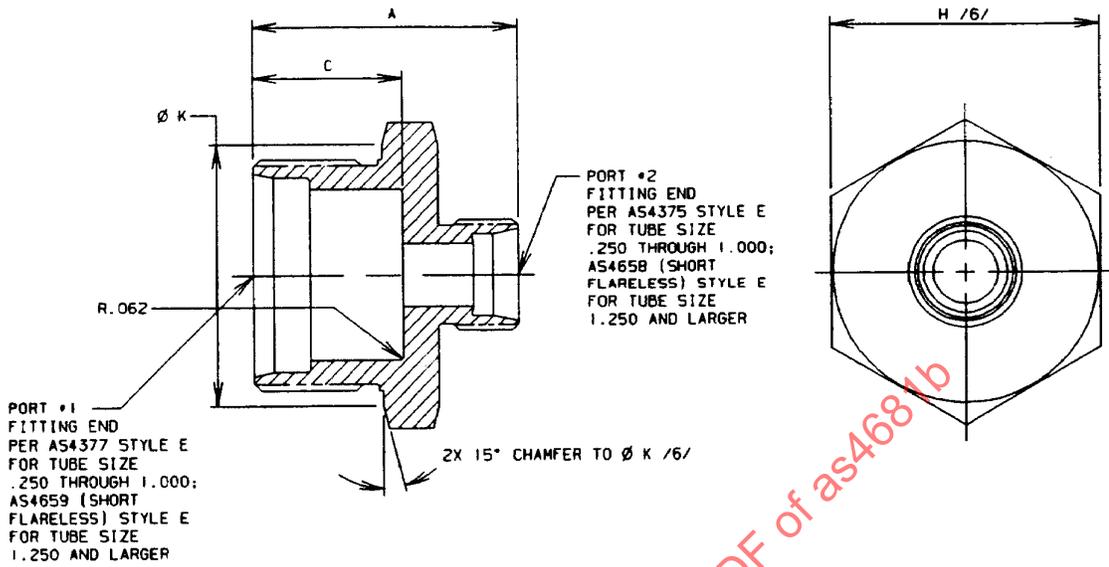


FIGURE 1 - FITTING, UNION, REDUCER, BULKHEAD, FLARELESS END SHOWN AS REDUCER

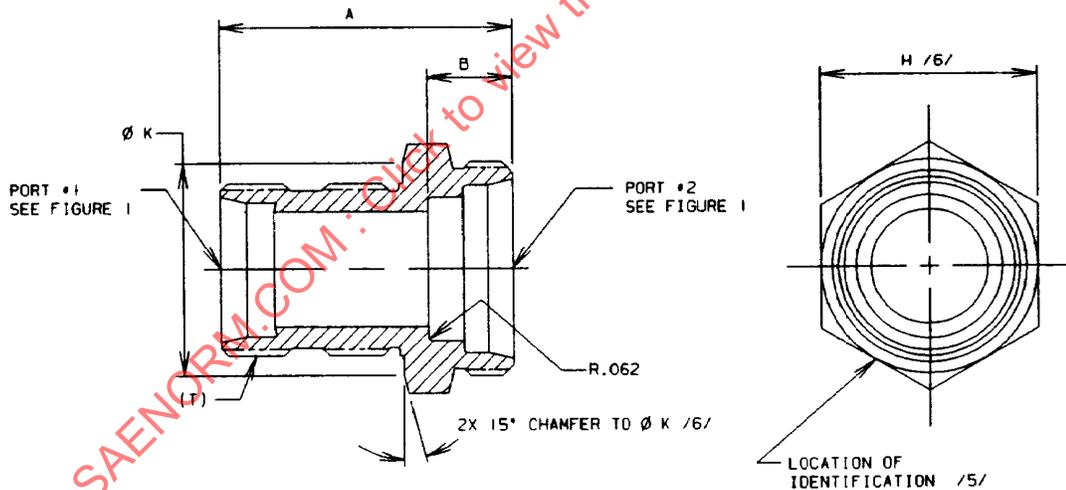
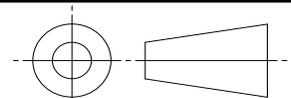


FIGURE 2 - FITTING, UNION, EXPANDER, BULKHEAD, BULKHEAD END SHOWN AS REDUCER

SAE values your input. To provide feedback on this Technical Report, please visit <http://www.sae.org/technical/standards/AS4681B>

THIRD ANGLE PROJECTION



CUSTODIAN: G-3/G-3B

PROCUREMENT SPECIFICATION: /4/ AS18280

SAE Aerospace
An SAE International Group

AEROSPACE STANDARD

(R) FITTING, UNION, REDUCER/EXPANDER BULKHEAD, FLARELESS AND SHORT FLARELESS

SAE AS4681
SHEET 1 OF 4

REV. B

SAE Technical Standards Board 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 reaffirmed, revised, or cancelled. SAE invites your written comments and suggestions.

ISSUED 1992-07 REAFFIRMED 2004-07 REVISED 2013-01

TABLE 1 - PORT SIZES, CORRESPONDING THREADS, HEX SIZES AND DRILL DEPTH

BASIC NO. AS4681									
PORT SIZE	(NOMINAL TUBE SIZE)	T THREAD PER AS8879 CLASS 3A	B	C	H1	H2	K1	K2	
04	.250	.4375-20UNJF	--	--	--	--	--	--	
06	.375	.5625-18UNJF	--	--	--	--	--	--	
08	.500	.7500-16UNJF	--	--	--	--	--	--	
10	.625	.8750-14UNJF	--	--	--	--	--	--	
12	.750	1.0625-12UNJ	--	--	--	--	--	--	
16	1.000	1.3125-12UNJ	--	--	--	--	--	--	
20	1.250	1.5625-12UNJ	.650	1.284	1.865-1.880	1.615-1.630	1.855	1.605	
24	1.500	1.8125-12UNJ	.682	1.312	2.115-2.130	1.865-1.880	2.105	1.855	

TABLE 2 - DIMENSIONS

PORT #1 SIZE	A PORT #2 SIZE FLARELESS /6/								
SIZE	04	06	08	10	12	16	20	24	
04	--	--	--	--	--	--	1.914	--	
06	--	--	--	--	--	--	1.960	--	
08	--	--	--	--	--	--	2.101	--	
10	--	--	--	--	--	--	2.242	--	
12	--	--	--	--	--	--	2.351	2.414	
16	--	--	--	--	--	--	2.351	2.414	
20	1.952	1.968	2.061	2.125	2.187	2.187	--	2.025	
24	--	--	--	--	2.250	2.250	2.025	--	

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:

- a. CODE LETTER T: TYPE 6AL-4V TITANIUM ALLOY BAR PER AMS4928
- b. CODE LETTER V: TYPE 15-5PH CORROSION RESISTANT STEEL BAR PER AMS5659
- c. CODE LETTER W: TYPE 7075-T7351 ALUMINUM ALLOY BAR PER AMS4124

2. HEAT TREATMENT:

- a. MATERIAL CODE LETTER T: NONE
- b. MATERIAL CODE LETTER V: HEAT TREAT TO CONDITION H-1075 PER AMS2759/3
- c. MATERIAL CODE LETTER W: NONE

 An SAE International Group	AEROSPACE STANDARD	SAE AS4681 SHEET 2 OF 4	REV. B
	(R) FITTING, UNION, REDUCER/EXPANDER BULKHEAD, FLARELESS AND SHORT FLARELESS		

- /3/ FINISH:
- a. MATERIAL CODE LETTER T - FLUORIDE PHOSPHATE CONVERSION COAT PER AMS2486
 - b. MATERIAL CODE LETTER V:
 - (1) V CODE PARTS TO BE PASSIVATED ONLY WILL HAVE NO FINISH CODE LETTER AFTER THE SIZE CODE IN THE PART NUMBER. THE FINISH WILL BE: PASSIVATE PER AMS2700 TYPE 2 OR 8.
 - (2) V CODE PARTS TO BE CADMIUM PLATED ONLY WILL HAVE THE FINISH CODE LETTER "P" AFTER THE SIZE CODE IN THE PART NUMBER. THE FINISH WILL BE: CADMIUM PLATE PER AMS-QQ-P-416, TYPE II, CLASS 2.
 - c. MATERIAL CODE LETTER W: ANODIZE PER AMS2472 OR PER MIL-A-8625, TYPE II, CLASS 2 DYED BROWN SIMILAR TO COLOR 10080 OF FED-STD-595.
- /4/ PROCUREMENT SPECIFICATION: AS18280 UNLESS SPECIFIED OTHERWISE ON 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 (QPL) PRI-QPL-AS18280 FOR THIS STANDARD. SEE <http://www.eAuditNet.com> FOR CURRENT QPL ONLINE.
- /5/ IDENTIFICATION AT LOCATION SHOWN: MARK PER AS478 CLASS C OR D OR METHOD 7A3, 15A3, OR 15B. MANUFACTURER'S NAME, TRADEMARK OR CAGE CODE, BASIC PART NUMBER AND MATERIAL CODE LETTER.
- /6/ THE LARGEST PORT DETERMINES THE HEX SIZE. WHEN PORT #1 IS LARGER, USE H1 AND K1 DIMENSIONS. WHEN PORT #2 IS LARGER, USE H2 AND K2 DIMENSIONS. ONLY FITTINGS WITH PORT #2 OF SIZE 20 OR 24 SHORT FLARELESS FITTING ENDS ARE SHOWN ON THIS STANDARD. SIZES 16 AND UNDER ARE STANDARD FLARELESS FITTING ENDS. FITTING PORT SIZES SIZE 20 AND LARGER SHALL BE SHORT FLARELESS ONLY. FOR HEX SIZE H1 AND H2 THE SHORT FLARELESS END IS NOT INTENDED TO BE USED ON AS5202 TYPE O-RING BOSSES, SO THE HEX SIZE IS SMALLER THAN USED FOR BOSS APPLICATIONS. FOR REDUCER FITTINGS THE HEX SIZE IS THE SAME AS USED ON THE AS4664 BULKHEAD SHORT FLARELESS UNION.
7. THIS PART IS DESIGNED FOR USE IN SYSTEMS WITH OPERATING PRESSURES AS FOLLOWS:
- a. SIZES -20 AND -24 TITANIUM ALLOY AND CORROSION RESISTANT STEEL AT 3000 PSI
 - b. SIZES -20, AND -24, ALUMINUM ALLOY AT 600 PSI
8. 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.
9. INVENTORIED PARTS CONFORMING TO THE PREVIOUS "LETTER CHANGE" MAY BE USED TO DEPLETION.
10. INTERPRETATION OF DRAWING PER ARP4296.
11. SURFACE TEXTURE: SYMBOLS PER ASME Y14.36M. REQUIREMENTS PER ASME B46.1. UNLESS OTHERWISE SPECIFIED, MACHINED SURFACES TO BE 125 MICRONS Ra.
12. BREAK EDGES .003 TO .015 UNLESS OTHERWISE SPECIFIED.
13. DIMENSIONING AND TOLERANCING: ANSI Y14.5M-1982
14. DIMENSIONS IN INCHES. UNLESS OTHERWISE SPECIFIED, TOLERANCES: LINEAR DIMENSIONS ± 0.010 , ANGULAR DIMENSIONS ± 5 DEGREES.
15. HEX CORNER ROUNDING OF PARTS MACHINED FROM ROUND BAR SHALL NOT EXCEED LIMITS OF ARP1942.

 An SAE International Group	AEROSPACE STANDARD	SAE AS4681 SHEET 3 OF 4	REV. B
	(R) FITTING, UNION, REDUCER/EXPANDER BULKHEAD, FLARELESS AND SHORT FLARELESS		