

AS4696

FEDERAL SUPPLY CLASS
4730

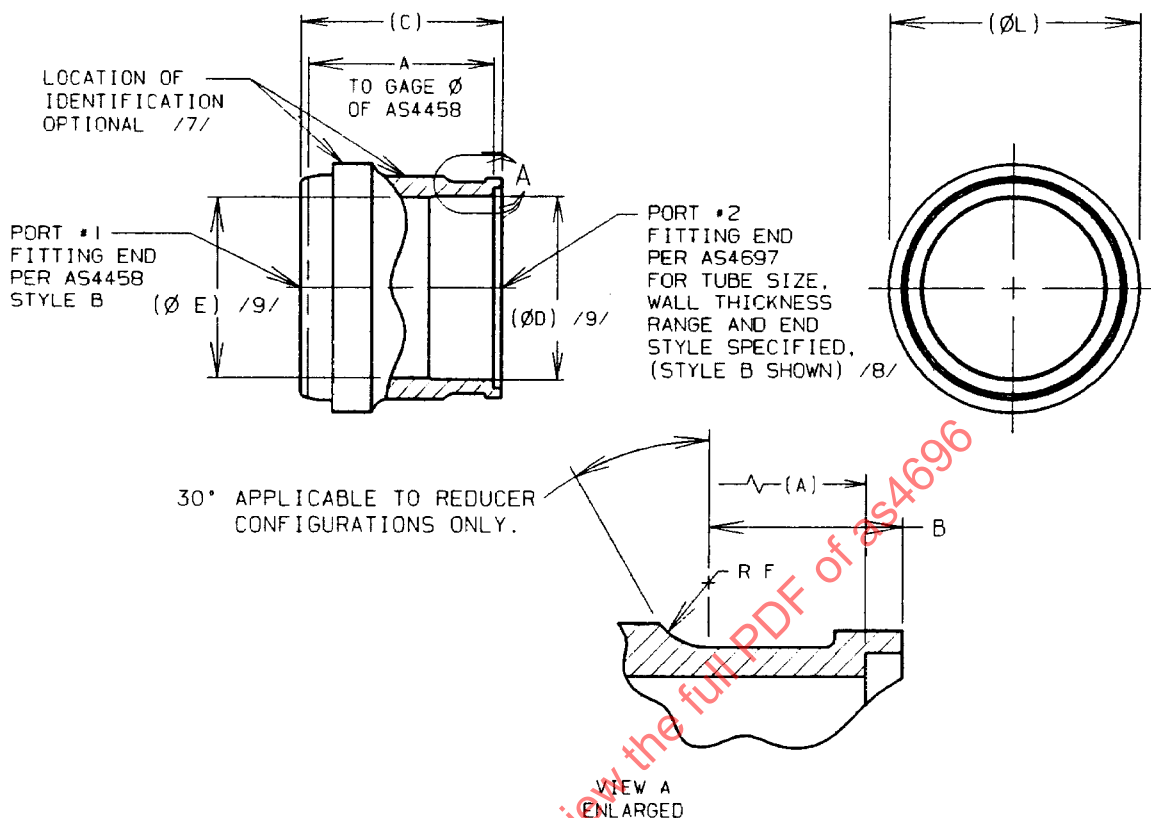
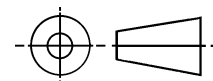


FIGURE 1-SLEEVE, TUBE END

THIRD ANGLE PROJECTION



CUSTODIAN: SAE G-3/G-3B

PROCUREMENT SPECIFICATION: /4/ AS1576

SAE Aerospace
An SAE International Group

AEROSPACE STANDARD

FITTING, SLEEVE, FLARELESS, NONREDUCER AND
REDUCER, SHORT ACORN TO WELD TUBE END

AS4696
SHEET 1 OF 4

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.

Copyright 2004 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Fax: 724-776-0790

Tel: 724-776-4970 (outside USA)
Email: custsvc@sae.org

SAE WEB ADDRESS: <http://www.sae.org>

ISSUED 1994-04 REAFFIRMED 2004-07

TABLE 1 - DIMENSIONS AND WEIGHTS

BASIC NO. AS4696 /15/ SIZE AND TUBE WALL CODES	(RANGE OF NOMINAL TUBE WALLS FOR PORT #2) /8/ /15/	(NOMINAL TUBE SIZE) PORT #1	(NOMINAL TUBE SIZE) PORT #2	PORT #2 STYLE /9/	A	B ±.010	C
0404-018	.016-.018	.250	.250	B	.604	.100	.686
0505-022	.019-.022	.312	.312	B	.602	.100	.684
0604-018	.016-.018	.375	.250	A	.594	.100	.676
0606-022	.019-.022	.375	.375	B	.594	.100	.676
0808-022	.019-.022	.500	.500	B	.646	.135	.743
0808-028	.023-.028	.500	.500	B	.646	.135	.744
1008-022	.019-.022	.625	.500	A	.740	.135	.838
1010-022	.019-.022	.625	.625	B	.770	.165	.868
1010-032	.029-.032	.625	.625	B	.770	.165	.868
1010-043	.033-.043	.625	.625	B	.770	.165	.868
1212-022	.019-.022	.750	.750	B	.802	.185	.904
1212-043	.033-.043	.750	.750	B	.802	.185	.904
1616-022	.019-.022	1.000	1.000	B	.908	.250	1.016
1616-055	.044-.055	1.000	1.000	A	.908	.250	1.016
2020-065	.056-.065	1.250	1.250	B	1.074	.250	1.186

TABLE 1 - DIMENSIONS AND WEIGHTS (CONTINUED)

BASIC NO. AS4696 /15/ SIZE AND TUBE WALL CODES	D /9/	E /9/	F	L	LB/EA MAX CRES	LB/EA MAX TI
0404-018	.208	.176	.050	.371	.0104	.00577
0505-020	.262	.232	.050	.434	.0142	.00786
0604-018	.208	-	.050	.490	.0177	.00980
0606-022	.325	.294	.050	.490	.0177	.00980
0808-022	.450	.412	.060	.670	.0313	.0173
0808-028	.438	.412	.060	.670	.0313	.0173
1008-022	.450	-	.060	.786	.0493	.0273
1010-022	.575	.498	.060	.786	.0493	.0273
1010-032	.555	.498	.060	.786	.0493	.0273
1010-043	.533	.498	.060	.786	.0493	.0273
1212-022	.700	.648	.090	.960	.0596	.0330
1212-043	.658	.648	.090	.960	.0596	.0330
1616-022	.950	.900	.090	1.210	.0901	.0499
1616-055	.884	-	.090	1.210	.0901	.0499
2020-065	1.114	1.090	.125	1.470	.163	.0902

TABLE 2 - RECOMMENDED MINIMUM SIZE NOMINAL TUBE WALL BASED ON BURST
PRESSURE FOR OPERATING PRESSURE SHOWN FOR AMS 4944
AND AMS 4945 TITANIUM ALLOY TUBING /8/

PORT #2 TUBE SIZE	1500 PSI OPERATING PRESSURE	3000 PSI OPERATING PRESSURE	4000 PSI OPERATING PRESSURE
04	.007*	.013*	.017*
05	.009*	.017*	.022
06	.010*	.020	.026
08	.014*	.026	.034
10	.017*	.033	.043
12	.020	.039	.051
16	.027	.052	.068
20	.034	.065	.085

NOTE:

THESE RECOMMENDED MINIMUM WALL THICKNESSES HAVE BEEN CALCULATED USING THE FORMULA SHOWN BELOW TO REPRESENT A RECOMMENDED MINIMUM FOR THE TUBE SIZE AND PRESSURE SHOWN. USERS MAY CHOOSE TO USE A THICKER OR A THINNER WALL FOR A GIVEN PRESSURE. FOR WALL THICKNESSES MARKED *, THICKER WALLS ARE NORMALLY USED BECAUSE OF DIFFICULTY IN BENDING THIN WALL TUBING.

$$P = 2 S \frac{B-A}{B+A}$$

WHERE:

P = INTERNAL BURST PRESSURE
S = ULTIMATE TENSILE STRENGTH OF TUBING
A = NOMINAL INNER RADIUS OF TUBING
B = NOMINAL OUTER RADIUS OF TUBING

$$\text{MINIMUM WALL THICKNESS} = \frac{1.13 P (\text{NOMINAL OD OF TUBE})}{2S + P}$$

WHERE:

P = 4 TIMES OPERATING PRESSURE
S = 125 000 PSI ULTIMATE TENSILE STRENGTH OF AMS 4944 OR AMS 4945 TITANIUM ALLOY TUBING
1.13 = 13% SAFETY FACTOR, SAME AS AS1579 THE RESULTS ARE ROUNDED UPWARD TO THREE DECIMAL PLACES

THE FORMULA IS FOR THIN WALL CYLINDRICAL VESSELS, PAGE 298, TABLE XIII, CASE NO. 1, "FORMULAS FOR STRESS AND STRAIN," ROARK, FOURTH EDITION WITH 13% SAFETY FACTOR.

AS4696