

REV.  
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AS4231

RATIONALE

THIS STANDARD HAS BEEN REVISED TO CORRECT THE AS-FORGED LEG DIMENSION TO ALLOW STANDARD TOLERANCE FORGINGS TO BE USED AND STILL MEET THE SPECIFICATION.

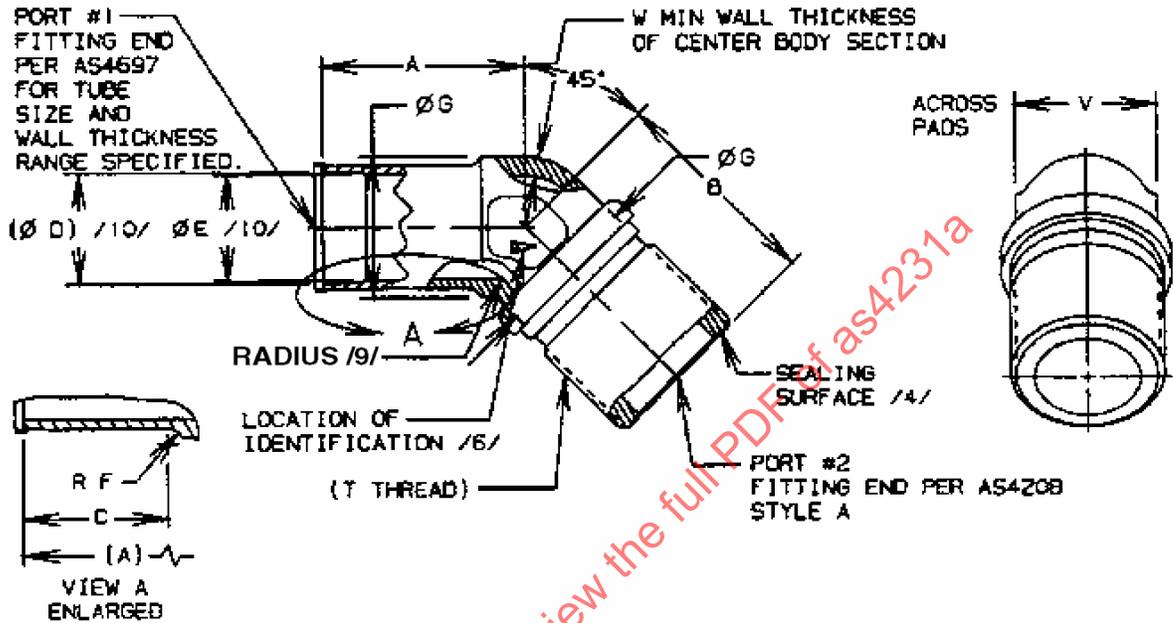
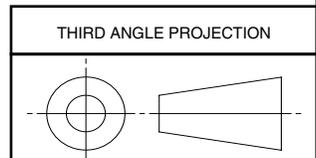


FIGURE 1 - FITTING, ELBOW, 45°, BULKHEAD



CUSTODIAN: SAE G-3/G-3B

PROCUREMENT SPECIFICATION: /5/ AS4510

**SAE Aerospace**  
An SAE International Group

**AEROSPACE STANDARD**

(R) FITTING, ELBOW, 45°, BULKHEAD, EXTERNAL  
THREAD, BEAM SEAL TO INTEGRAL WELD RING

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SHEET 1 OF 4

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TABLE 1A - DIMENSIONS

| BASIC NO.<br>AS4231 /16/<br>SIZE AND TUBE<br>WALL CODES | RANGE OF<br>NOMINAL<br>TUBE WALL<br>FOR PORT #2<br>/7/ /16/ | (NOMINAL<br>TUBE<br>SIZE) | PORT #1<br>STYLE<br>/10/ | T THREAD<br>PER AS8879<br>CLASS 3A | A     | B     | C     | D<br>/10/ |
|---------------------------------------------------------|-------------------------------------------------------------|---------------------------|--------------------------|------------------------------------|-------|-------|-------|-----------|
| 03-018                                                  | .016-.018                                                   | .188                      | A                        | .3750-28 UNJS                      | .832  | .987  | .610  | .146      |
| 03-022                                                  | .019-.022                                                   | .188                      | A                        | .3750-28 UNJS                      | .832  | .987  | .610  | .138      |
| 04-022                                                  | .019-.022                                                   | .250                      | B                        | .4375-24 UNJS                      | .832  | 1.028 | .680  | .200      |
| 05-022                                                  | .019-.022                                                   | .312                      | B                        | .5000-24 UNJS                      | .887  | 1.046 | .650  | .262      |
| 05-028                                                  | .023-.028                                                   | .312                      | B                        | .5000-24 UNJS                      | .887  | 1.046 | .650  | .250      |
| 06-022                                                  | .019-.022                                                   | .375                      | B                        | .5625-20 UNJS                      | 1.005 | 1.120 | .740  | .325      |
| 06-028                                                  | .023-.028                                                   | .375                      | B                        | .5625-20 UNJS                      | 1.005 | 1.120 | .740  | .313      |
| 06-032                                                  | .029-.032                                                   | .375                      | B                        | .5625-20 UNJS                      | 1.005 | 1.120 | .740  | .305      |
| 08-022                                                  | .019-.022                                                   | .500                      | B                        | .7188-20 UNJS                      | 1.180 | 1.246 | .820  | .450      |
| 08-043                                                  | .033-.043                                                   | .500                      | B                        | .7188-20 UNJS                      | 1.180 | 1.246 | .820  | .408      |
| 10-028                                                  | .023-.028                                                   | .625                      | B                        | .8438-18 UNJS                      | 1.243 | 1.433 | .880  | .563      |
| 10-043                                                  | .033-.043                                                   | .625                      | B                        | .8438-18 UNJS                      | 1.243 | 1.433 | .880  | .533      |
| 10-055                                                  | .044-.055                                                   | .625                      | A                        | .8438-18 UNJS                      | 1.243 | 1.433 | .880  | .509      |
| 12-028                                                  | .023-.028                                                   | .750                      | B                        | 1.0000-16 UNJ                      | 1.392 | 1.576 | .980  | .688      |
| 12-055                                                  | .044-.055                                                   | .750                      | A                        | 1.0000-16 UNJ                      | 1.392 | 1.576 | .980  | .634      |
| 12-065                                                  | .056-.065                                                   | .750                      | A                        | 1.0000-16 UNJ                      | 1.392 | 1.576 | .980  | .614      |
| 14-032                                                  | .029-.032                                                   | .875                      | B                        | 1.1250-16 UNJ                      | 1.562 | 1.725 | 1.090 | .805      |
| 14-065                                                  | .056-.065                                                   | .875                      | A                        | 1.1250-16 UNJ                      | 1.562 | 1.725 | 1.090 | .739      |
| 16-043                                                  | .033-.043                                                   | 1.000                     | B                        | 1.2500-14 UNJS                     | 1.617 | 1.725 | 1.150 | .908      |
| 16-078                                                  | .066-.078                                                   | 1.000                     | A                        | 1.2500-14 UNJS                     | 1.617 | 1.725 | 1.150 | .838      |
| 16-089                                                  | .079-.089                                                   | 1.000                     | A                        | 1.2500-14 UNJS                     | 1.617 | 1.725 | 1.150 | .816      |
| 20-055                                                  | .044-.055                                                   | 1.250                     | B                        | 1.5781-14 UNJS                     | 1.750 | 1.775 | 1.170 | 1.134     |
| 20-089                                                  | .079-.089                                                   | 1.250                     | A                        | 1.5781-14 UNJS                     | 1.750 | 1.775 | 1.170 | 1.066     |
| 24-055                                                  | .044-.055                                                   | 1.500                     | B                        | 1.8438-14 UNJS                     | 1.900 | 2.027 | 1.270 | 1.384     |

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TABLE 1B - DIMENSIONS AND WEIGHTS

| BASIC NO.<br>AS4231 /16/<br>SIZE AND TUBE<br>WALL CODES | E<br>/10/   | F<br>±.005 | G<br>MIN | V           | W    | RECOMMENDED<br>MAXIMUM<br>PRESSURE<br>PSI /7/ | LB/EA<br>MAX<br>CRES | LB/EA<br>MAX<br>TI |
|---------------------------------------------------------|-------------|------------|----------|-------------|------|-----------------------------------------------|----------------------|--------------------|
| 03-018                                                  | --          | .080       | .330     | .360- .377  | .055 | 5000                                          | .0369                | .0211              |
| 03-022                                                  | --          | .080       | .330     | .360- .377  | .055 | 5000                                          | .0369                | .0211              |
| 04-022                                                  | .184- .194  | .080       | .374     | .360- .377  | .060 | 5000                                          | .0461                | .0263              |
| 05-022                                                  | .232- .242  | .080       | .436     | .423- .440  | .060 | 4000                                          | .0630                | .0360              |
| 05-028                                                  | .232- .242  | .080       | .436     | .423- .440  | .060 | 5000                                          | .0630                | .0360              |
| 06-022                                                  | .297- .307  | .090       | .499     | .485- .502  | .060 | 3000                                          | .0790                | .0452              |
| 06-028                                                  | .297- .307  | .090       | .499     | .485- .502  | .060 | 4000                                          | .0790                | .0452              |
| 06-032                                                  | .297- .307  | .090       | .499     | .485- .502  | .060 | 5000                                          | .0790                | .0452              |
| 08-022                                                  | .398- .408  | .090       | .650     | .547- .565  | .065 | 2000                                          | .132                 | .0753              |
| 08-043                                                  | .398- .408  | .090       | .650     | .547- .565  | .065 | 5000                                          | .132                 | .0753              |
| 10-028                                                  | .512- .523  | .125       | .748     | .673- .691  | .070 | 2000                                          | .188                 | .107               |
| 10-043                                                  | .512- .523  | .125       | .748     | .673- .691  | .070 | 4000                                          | .188                 | .107               |
| 10-055                                                  | --          | .125       | .748     | .673- .691  | .070 | 5000                                          | .188                 | .107               |
| 12-028                                                  | .649- .660  | .125       | .955     | .860- .878  | .095 | 2000                                          | .275                 | .157               |
| 12-055                                                  | --          | .125       | .955     | .860- .878  | .095 | 4000                                          | .275                 | .157               |
| 12-065                                                  | --          | .125       | .955     | .860- .878  | .095 | 5000                                          | .275                 | .157               |
| 14-032                                                  | .769- .780  | .125       | 1.210    | 1.110-1.128 | .105 | 2000                                          | .425                 | .243               |
| 14-065                                                  | --          | .125       | 1.210    | 1.110-1.128 | .105 | 4000                                          | .425                 | .243               |
| 16-043                                                  | .862- .874  | .125       | 1.210    | 1.110-1.128 | .110 | 2000                                          | .480                 | .274               |
| 16-078                                                  | --          | .125       | 1.210    | 1.110-1.128 | .110 | 4000                                          | .480                 | .274               |
| 16-089                                                  | --          | .125       | 1.210    | 1.110-1.128 | .110 | 5000                                          | .480                 | .274               |
| 20-055                                                  | 1.115-1.128 | .180       | 1.480    | 1.355-1.380 | .110 | 2000                                          | .718                 | .410               |
| 20-089                                                  | --          | .180       | 1.480    | 1.355-1.380 | .110 | 4000                                          | .718                 | .410               |
| 24-055                                                  | 1.324-1.337 | .180       | 1.740    | 1.605-1.630 | .130 | 2000                                          | 1.120                | .640               |

## NOTES:

## /1/ MATERIAL:

- a. CODE LETTER T - TYPE 6AL-4V TITANIUM ALLOY FORGING OR BAR PER AMS 4965.
- b. CODE LETTER P - TYPE 17-4PH CORROSION RESISTANT STEEL FORGING OR BAR PER AMS 5643.
- c. CODE LETTER V - TYPE 15-5PH CORROSION RESISTANT STEEL FORGING OR BAR PER AMS 5659.

## 2. HEAT TREATMENT:

- a. MATERIAL CODE LETTER T - NONE.
- b. MATERIAL CODE LETTERS P AND V - HEAT TREAT TO CONDITION H 1075 PER AMS 2759/3.

## 3. FINISH:

- a. MATERIAL CODE LETTER T - NONE.
- b. MATERIAL CODE LETTER P AND V - PASSIVATE PER AMS 2700.



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## AEROSPACE STANDARD

(R) FITTING, ELBOW, 45°, BULKHEAD, EXTERNAL  
THREAD, BEAM SEAL TO INTEGRAL WELD RINGAS4231  
SHEET 3 OF 4REV.  
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