SAE The Engineering Resource For Advancing Mobility
400 COMMONWEALTH DRIVE, WARRENDALE, PA 15096

# AEROSPACE STANDARD

AS 1040B

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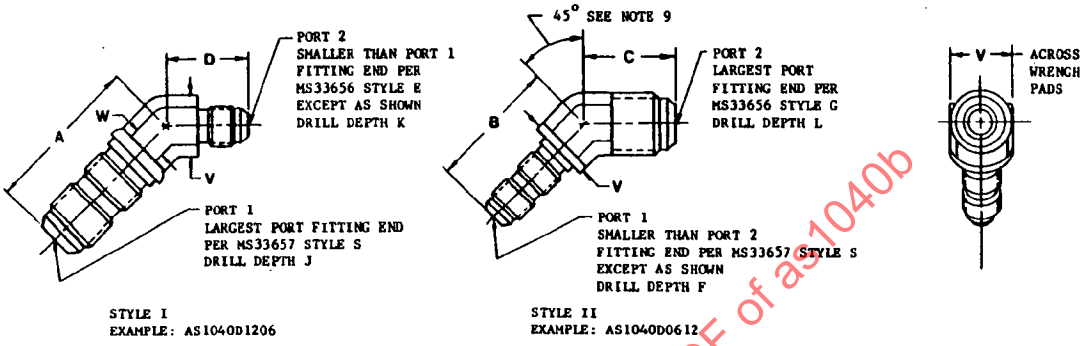
## ELBOW, 45° REDUCER, FLARED TUBE




STYLE I
EXAMPLE: AS1040D1206

STYLE II
EXAMPLE: AS1040D0612

| FORGING SIZE | A ±.016 | C ±.016 | V ±.016 | W APP | J ±.016 | L ±.016 |
|---|---|---|---|---|---|---|
| 3 | 1.398 | .664 | .375 | .219 | 1.406 | .688 |
| 4 | 1.554 | .726 | .438 | .312 | 1.562 | .750 |
| 5 | 1.554 | .773 | .500 | .312 | 1.562 | .781 |
| 6 | 1.695 | .836 | .563 | .375 | 1.719 | .859 |
| 8 | 1.961 | .992 | .750 | .500 | 2.000 | 1.031 |
| 10 | 2.195 | 1.117 | .875 | .625 | 2.250 | 1.172 |
| 12 | 2.461 | 1.289 | 1.063 | .812 | 2.547 | 1.375 |
| 16 | 2.586 | 1.476 | 1.312 | 1.000 | 2.719 | 1.609 |
| 20 | 2.679 | 1.601 | 1.625 | 1.250 | 2.859 | 1.781 |
| 24 | 2.695 | 1.789 | 1.875 | 1.500 | 2.922 | 2.016 |
| 32 | 2.929 | 2.226 | 2.562 | 2.000 | 3.250 | 2.547 |

LEG LENGTH B ±.016

| FORGING SIZE | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 4 | 5 | 6 | 8 | 10 | 12 | 16 | 20 | 24 | 32 | | |
| 1.398 | 1.460 | 1.460 | 1.523 | 1.633 | 1.726 | 1.821 | 1.946 | 1.992 | 1.992 | 1.945 | 2 | SIZE OF #1 PORT |
| | 1.460 | 1.460 | 1.523 | 1.633 | 1.726 | 1.821 | 1.946 | 1.992 | 1.992 | 1.945 | 3 | |
| | | 1.557 | 1.617 | 1.727 | 1.820 | 1.915 | 2.040 | 2.086 | 2.086 | 2.039 | 4 | |
| | | | 1.617 | 1.727 | 1.820 | 1.915 | 2.040 | 2.086 | 2.086 | 2.039 | 5 | |
| | | | | 1.805 | 1.898 | 1.993 | 2.118 | 2.164 | 2.164 | 2.117 | 6 | |
| | | | | | 2.054 | 2.149 | 2.274 | 2.320 | 2.320 | 2.273 | 8 | |
| | | | | | | 2.290 | 2.415 | 2.461 | 2.461 | 2.414 | 10 | |
| | | | | | | | 2.586 | 2.632 | 2.632 | 2.585 | 12 | |
| | | | | | | | | 2.632 | 2.632 | 2.585 | 16 | |
| | | | | | | | | | 2.679 | 2.632 | 20 | |
| | | | | | | | | | | 2.648 | 24 | |

LEG LENGTH D ±.016

| FORGING SIZE | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 4 | 5 | 6 | 8 | 10 | 12 | 16 | 20 | 24 | 32 | | |
| .633 | .633 | .671 | .728 | .783 | .807 | .873 | 1.013 | 1.091 | 1.154 | 1.341 | 2 | SIZE OF #2 PORT |
| | .655 | .702 | .759 | .814 | .838 | .904 | 1.044 | 1.122 | 1.185 | 1.372 | 3 | |
| | | .773 | .830 | .885 | .909 | .975 | 1.115 | 1.193 | 1.256 | 1.443 | 4 | |
| | | | .830 | .885 | .909 | .975 | 1.115 | 1.193 | 1.256 | 1.443 | 5 | |
| | | | | .891 | .915 | .981 | 1.121 | 1.199 | 1.262 | 1.449 | 6 | |
| | | | | | 1.016 | 1.082 | 1.222 | 1.300 | 1.363 | 1.550 | 8 | |
| | | | | | | 1.183 | 1.323 | 1.401 | 1.464 | 1.651 | 10 | |
| | | | | | | | 1.429 | 1.507 | 1.570 | 1.757 | 12 | |
| | | | | | | | | 1.554 | 1.617 | 1.804 | 16 | |
| | | | | | | | | | 1.664 | 1.851 | 20 | |
| | | | | | | | | | | 1.976 | 24 | |

DRILL DEPTH F ±.016

| FORGING SIZE | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 4 | 5 | 6 | 8 | 10 | 12 | 16 | 20 | 24 | 32 | | |
| 1.469 | 1.531 | 1.531 | 1.594 | 1.703 | 1.797 | 1.891 | 2.016 | 2.062 | 2.062 | 2.016 | 2 | SIZE OF #1 PORT |
| | 1.531 | 1.531 | 1.594 | 1.703 | 1.797 | 1.891 | 2.016 | 2.062 | 2.062 | 2.016 | 3 | |
| | | 1.625 | 1.688 | 1.797 | 1.891 | 1.984 | 2.109 | 2.156 | 2.156 | 2.109 | 4 | |
| | | | 1.719 | 1.828 | 1.922 | 2.016 | 2.141 | 2.188 | 2.188 | 2.141 | 5 | |
| | | | | 1.906 | 2.000 | 2.094 | 2.219 | 2.266 | 2.266 | 2.219 | 6 | |
| | | | | | 2.156 | 2.250 | 2.375 | 2.422 | 2.422 | 2.375 | 8 | |
| | | | | | | 2.391 | 2.516 | 2.562 | 2.562 | 2.516 | 10 | |
| | | | | | | | 2.750 | 2.797 | 2.797 | 2.750 | 12 | |
| | | | | | | | | 2.797 | 2.797 | 2.750 | 16 | |
| | | | | | | | | | 2.906 | 2.859 | 20 | |
| | | | | | | | | | | 2.875 | 24 | |

DRILL DEPTH K ±.016

| FORGING SIZE | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 4 | 5 | 6 | 8 | 10 | 12 | 16 | 20 | 24 | 32 | | |
| .703 | .703 | .734 | .797 | .859 | .875 | .938 | 1.078 | 1.156 | 1.219 | 1.406 | 2 | SIZE OF #2 PORT |
| | .719 | .766 | .828 | .891 | .906 | .969 | 1.109 | 1.188 | 1.250 | 1.438 | 3 | |
| | | .844 | .906 | .953 | .984 | 1.046 | 1.188 | 1.266 | 1.328 | 1.516 | 4 | |
| | | | .937 | .984 | 1.016 | 1.078 | 1.219 | 1.297 | 1.359 | 1.547 | 5 | |
| | | | | 1.000 | 1.016 | 1.078 | 1.219 | 1.297 | 1.359 | 1.547 | 6 | |
| | | | | | 1.125 | 1.187 | 1.328 | 1.406 | 1.469 | 1.656 | 8 | |
| | | | | | | 1.281 | 1.422 | 1.500 | 1.562 | 1.750 | 10 | |
| | | | | | | | 1.594 | 1.672 | 1.734 | 1.922 | 12 | |
| | | | | | | | | 1.719 | 1.781 | 1.969 | 16 | |
| | | | | | | | | | 1.891 | 2.078 | 20 | |
| | | | | | | | | | | 2.203 | 24 | |



1. SPECIFY END SIZES IN THE FOLLOWING ORDER: (1) BULKHEAD END; (2) SHORT END.
2. LARGEST TUBE SIZE DETERMINES FORGING SIZE.
3. MATERIAL CODING:
   - STEEL 1137 OR 1141 PER QQ-S-637 (OPTIONAL: 4130/MIL-S-6758). FINISH CADMIUM PLATE PER QQ-P-416, TYPE II, CLASS 2. COLOR BLACK.
   S CRES TYPE 347. CRES PER QQ-S-763 SURFACE TREAT PER MIL-S-5002.
   J CRES TYPE 304. CRES PER QQ-S-763 SURFACE TREAT PER MIL-S-5002.
   K CRES TYPE 316. CRES PER QQ-S-763 SURFACE TREAT PER MIL-S-5002.
   D ALUMINUM ALLOY 2014-T6 PER QQ-A-367 (OR 2024-T851). ANODIZE PER MIL-A-8625, TYPE II, CLASS 2. DYE BLUE.
   W ALUMINUM ALLOY 7075-T73 PER QQ-A-225/9 (OPTIONAL: QQ-A-367). ANODIZE PER MIL-A-8625. TYPE II, CLASS 2. DYE BROWN.
   T TITANIUM ALLOY (6AL-4V) PER AMS 4928. FLUORIDE PHOSPHATE COAT PER AMS 2486.
4. PART NUMBER EXAMPLE:

ALUMINUM ALLOY 1.313 WRENCH FLATS

AS 1040 D 16 08
MS33656-8
MS33657-16

| A | B | C | D | DRILL DEPTH |
|---|---|---|---|---|
| | | | 1.222 | 1.328 |
| 2.586 | | | | 2.766 |

5. PROC. SPEC. MIL-F-5509, LATEST REVISION, UNLESS OTHERWISE SPECIFIED ON PURCHASE ORDER BY PURCHASER.
6. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES.
7. THIS STANDARD TAKES PRECEDENCE OVER REFERENCED DOCUMENTS HEREIN.
8. MANUFACTURER'S TRADEMARK AND BASIC PART NUMBER (EXCLUSIVE OF SIZE) TO APPEAR PERMANENTLY ON FINISHED PARTS. BASIC PART NUMBER MAY BE REDUCED TO "AS" ON FORGINGS SIZE 6 AND SMALLER. PARTS PREVIOUSLY IMPRESSION STAMPED WITH AN, MS OR PROPRIETARY IDENTIFICATION SHALL BE ACCEPTABLE PROVIDED SUCH IDENTIFICATION IS OBLITERATED BY IMPRESSION STAMPING WITHOUT DAMAGING THE PART.
9. TOLERANCE ON 90° ANGLE: ±2-1/2° FOR TUBE SIZE 6 AND SMALLER, ±1-1/2° FOR TUBE SIZE 8 AND LARGER.
10. WHEN FITTING IS MADE FROM BAR, THE CONTOUR OF THE BODY SECTION SHALL BE PER AS 1376 FOR FORGING SIZES DASH 3 THROUGH DASH 8, AND AS 1376 CODE M FOR SIZES DASH 10 AND LARGER.

PREPARED BY SUBCOMMITTEE G-3B, AEROSPACE FITTINGS OF
SAE COMMITTEE G-3, AEROSPACE FITTINGS & HOSE ASSEMBLIES