

INCH-POUND

AN915 Rev 13  
22 November 2013  
 SUPERSEDING  
 AN915 Rev 12  
 19 July 2011

## DETAIL SPECIFICATION SHEET

## ELBOW, PIPE, 45°

Reinstated after 19 July 2011. Inactive for new design.  
 For new design, use SAE-AS4855.

This specification is approved for use by all Departments and  
 Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and  
 SAE-AS4842.

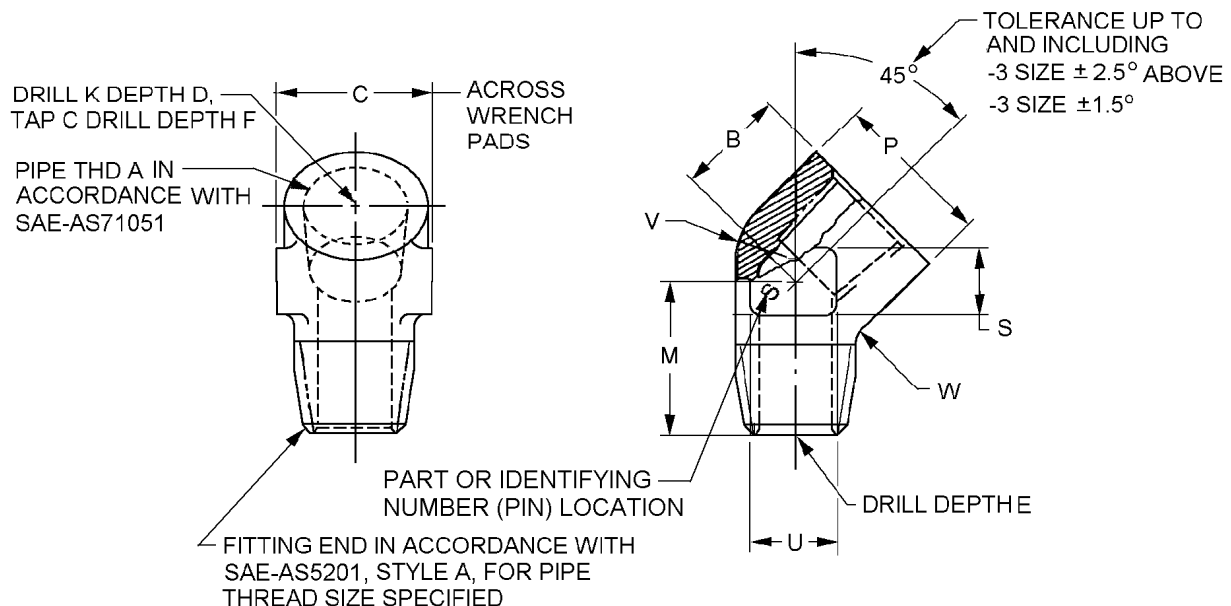


FIGURE 1. Elbow 45° dimensions and configuration.

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| Dash number | A<br>Pipe size<br>ANPT<br>SAE-AS71051 | B<br>+.047 (1.19)<br>-0.000<br>(mm) | C<br>mm       | D<br>+.047 (1.19)<br>-0.000<br>(mm) | E<br>+.047 (1.19)<br>-0.000<br>(mm) | F<br>(mm)    |
|-------------|---------------------------------------|-------------------------------------|---------------|-------------------------------------|-------------------------------------|--------------|
| 1           | 1/8-27                                | .469 (11.91)                        | .625 (15.88)  | .531 (13.49)                        | .781 (19.84)                        | .422 (10.72) |
| 2           | 1/4-18                                | .625 (15.88)                        | .813 (20.65)  | .688 (17.48)                        | 1.109 (28.17)                       | .563 (14.30) |
| 3           | 3/8-18                                | .719 (18.26)                        | .938 (23.83)  | .813 (20.65)                        | 1.156 (29.36)                       | .609 (15.47) |
| 4           | 1/2-14                                | .906 (23.01)                        | 1.188 (30.18) | 1.016 (25.81)                       | 1.453 (36.91)                       | .797 (20.24) |
| 6           | 3/4-14                                | .969 (24.61)                        | 1.375 (34.93) | 1.125 (28.58)                       | 1.531 (38.89)                       | .813 (20.65) |
| 8           | 1-11 1/2                              | 1.125 (28.58)                       | 1.750 (44.45) | 1.313 (33.35)                       | 1.906 (48.41)                       | .969 (24.61) |
| 10          | 1/ 1/4-11 1/2                         | 1.156 (29.36)                       | 2.156 (54.76) | 1.438 (36.53)                       | 2.156 (54.76)                       | .969 (24.61) |

| Dash number | K<br>Dia.<br>(mm) | M<br>+.047 (1.19)<br>-0.000<br>(mm) | P<br>Dia.<br>(mm) | S<br>Approx<br>(mm) | U<br>Approx<br>(mm) |
|-------------|-------------------|-------------------------------------|-------------------|---------------------|---------------------|
| 1           | .188 (4.48)       | .719 (18.26)                        | .578 (14.68)      | .188 (4.78)         | .313 (7.95)         |
| 2           | .281 (7.14)       | 1.047 (26.59)                       | .781 (19.84)      | .375 (9.53)         | .438 (11.13)        |
| 3           | .406 (10.31)      | 1.063 (27.00)                       | .922 (23.42)      | .375 (9.53)         | .500 (12.70)        |
| 4           | .531 (13.49)      | 1.344 (34.14)                       | 1.156 (29.36)     | .500 (12.70)        | .625 (15.88)        |
| 6           | .719 (18.26)      | 1.375 (34.93)                       | 1.359 (34.52)     | .625 (15.88)        | .750 (19.05)        |
| 8           | .938 (23.83)      | 1.719 (43.66)                       | 1.688 (42.88)     | .625 (15.88)        | .875 (22.23)        |
| 10          | 1.250 (31.75)     | 1.875 (47.63)                       | 2.125 (28.58)     | .750 (19.05)        | 1.000 (25.40)       |

| Dash number | V<br>Rad.<br>(mm) | W<br>Rad.<br>(mm) |
|-------------|-------------------|-------------------|
| 1           | .219 (5.56)       | .063 (1.60)       |
| 2           | .281 (7.14)       | .094 (2.39)       |
| 3           | .359 (9.12)       | .094 (2.39)       |
| 4           | .438 (11.13)      | .125 (3.18)       |
| 6           | .547 (13.89)      | .125 (3.18)       |
| 8           | .688 (17.48)      | .125 (3.18)       |
| 10          | .859 (21.82)      | .156 (3.96)       |

## NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Unless otherwise specified, tolerances are  $\pm 0.016$  inch (0.41 mm).
4. Break sharp edges and remove all hanging burrs and slivers.
5. Machined surfaces shall be finished to 125 $\mu$ in Ra; forged surfaces shall be 250 $\mu$ in Ra, unless otherwise specified on the figures. Surface finish shall be in accordance with ASME B46.1.
6. For design features purposes, this standard takes precedence over documents referenced herein.
7. Referenced documents shall be of the issue in effect on date of invitation for bid.

FIGURE 1. Elbow 45° dimensions and configuration - Continued.

## REQUIREMENTS:

Dimensions and configuration shall be in accordance with figure 1.

Materials and finishes shall be in accordance with SAE-AS4842; see table I for material code.

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TABLE I. Material and finish code letters.

| Material and finish code | Material                                                                                                                                                                                                                                                  | Protective chemical finish <u>3/</u> <u>4/</u>                                                                                                                                                     |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No code<br><u>1/</u>     | Copper alloy, type 377 forging in accordance with ASTM B124/B124M or half hard forging or bar in accordance with ASTM B138/B138M or bar in accordance with SAE-AMS4614.                                                                                   | No finish.                                                                                                                                                                                         |
| BC<br><u>1/</u>          | Copper alloy, type 377 forging in accordance with ASTM B124/B124M or half hard forging or bar in accordance with ASTM B138/B138M or bar in accordance with SAE-AMS4614.                                                                                   | Cadmium in accordance with SAE-AMS-QQ-P-416, type II, class 3.                                                                                                                                     |
| J                        | Type 304 corrosion resistant steel forging or bar in accordance with SAE-AMS-QQ-S-763 or SAE-AMS5639.                                                                                                                                                     | Passivate in accordance with SAE-AMS2700, type VI or VII.                                                                                                                                          |
| K                        | Type 316 corrosion resistant steel forging or bar in accordance with SAE-AMS-QQ-S-763 or SAE-AMS5648.                                                                                                                                                     | Passivate in accordance with SAE-AMS2700, type VI or VII.                                                                                                                                          |
| R                        | Type 321 corrosion resistant steel forging or bar in accordance with SAE-AMS-QQ-S-763 or SAE-AMS5645.                                                                                                                                                     | Passivate in accordance with SAE-AMS2700, type VI or VII.                                                                                                                                          |
| T <u>3/</u>              | Titanium                                                                                                                                                                                                                                                  | Anodize in accordance with SAE-AMS2488, type 2.                                                                                                                                                    |
| W<br><u>2/</u>           | Type 7075-T73 aluminum alloy forging in accordance with SAE-AMS-QQ-A-367 or SAE-AMS4141, or type 7075-T73 aluminum alloy bar in accordance with SAE-AMS-QQ-A-225/9, in accordance with type 7075-T7351 aluminum alloy bar in accordance with SAE-AMS4124. | Anodize in accordance with SAE-AMS2472 or MIL-A-8625, type II, class 2; dye brown similar to color in accordance with FED-STD-595/10080; duplex seal in accordance with procurement specification. |
| WV<br><u>2/</u>          | Type 7075-T73 aluminum alloy forging in accordance with SAE-AMS-QQ-A-367 or SAE-AMS4141, or type 7075-T73 aluminum alloy bar in accordance with SAE-AMS-QQ-A-225/9, in accordance with type 7075-T7351 Aluminum alloy bar in accordance with SAE-AMS4124. | High purity aluminum in accordance with MIL-DTL-83488, class 3, type II with maximum coating thickness of .0005 inch. Glass bead peen pressure shall be 25 psi (1.72 bar) maximum.                 |

1/ Material code was dash on previous revisions, changed to agree with SAE-ARP1590.

2/ Aluminum code D is canceled; use code W.

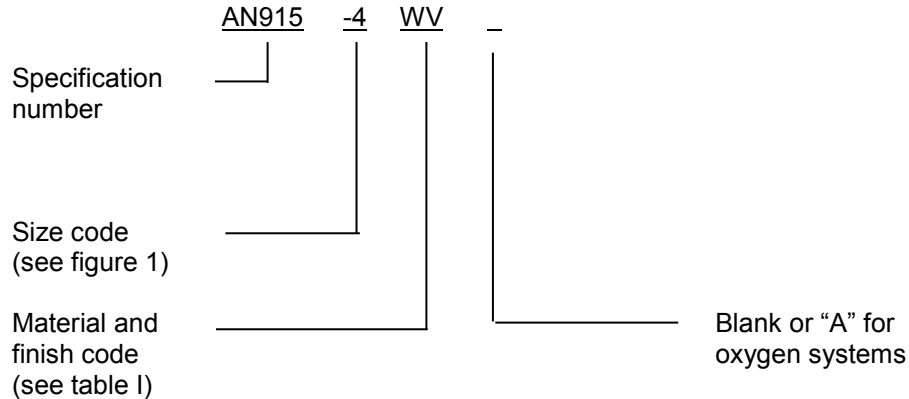
3/ Titanium and cadmium shall not be used in oxygen systems.

4/ Cadmium shall not be used in potable water systems.

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Oxygen systems for aerospace, shipboard, and ground support equipment. Parts for use in oxygen systems shall be identified in the PIN as code "A" and shall be furnished cleaned, packaged, and labeled in accordance with SAE-AS611 to a process approved by the user.

Part or Identifying Number (PIN): The PIN consists of the prefix "AN", specification sheet number, dash number for hose and flared tube size, material finish code letter(s) and blank of "A" for oxygen cleaning requirements. Unassigned PIN's shall not be used.



## PIN examples:

AN915-4W indicates an adapter 45° elbow 1/2-14 ANPT internal pipe threads, aluminum alloy 7075-T73.

AN841-4WV indicates an adapter 45° elbow 1/2-14 ANPT internal pipe threads, aluminum alloy 7075-T73 finish with high purity aluminum.

AN841-4WA indicates an adapter 45° elbow 1/2-14 ANPT internal pipe threads, aluminum alloy 7075-T73 for use on oxygen systems.

Guidance on use of alternative parts with less hazardous or non-hazardous materials. This specification provides for a number of alternative plating materials via the PIN. Users should select the PIN with the least hazardous material that meets the form, fit, and function requirements of their application.

## Supersession data:

Due to stress corrosion cracking aluminum alloys 2014 and 2024, "D" designator has been replaced by aluminum alloy 7075 "W" designator. Example: AN915-8D use AN915-8W.

Metal cracking due to high temperatures CRES alloy 347 "S" designator has been replaced by CRES alloy 321 "R" designator. Example: AN915-8S use AN915-8R.

Marking: Part shall be permanently marked with the AN PIN, and include the manufacturer's CAGE, name, or trademark.

Table II provides a detailed cross-reference of AN915 PINs and replacement SAE-AS4855 PINs. Users are cautioned to evaluate replacements for their particular application.

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CAUTION: The superseding information is valid as of the date of this specification and may be superseded by subsequent revisions of the superseding document.

TABLE II. Cross-reference data.

| AN PIN<br>(inactive) | Cancelled<br>PIN | Pipe<br>size | Replacement<br>AS PIN<br>(for new<br>design) | Replacement<br>AN PIN<br>(inactive) |
|----------------------|------------------|--------------|----------------------------------------------|-------------------------------------|
| AN915-1              | AN915-1D         | .125         | AS4855-01 <u>1/</u>                          | AN915-1W                            |
|                      |                  | .125         | AS4855W01                                    |                                     |
| AN915-1J             |                  | .125         | AS4855J01                                    |                                     |
| AN915-1K             |                  | .125         | AS4855K01                                    |                                     |
| AN915-1R             | AN915-1S         | .125         | AS4855R01                                    | AN915-1R                            |
|                      |                  | .125         | AS4855R01                                    |                                     |
| AN915-1T             |                  | .125         | NONE                                         |                                     |
| AN915-1W             |                  | .125         | AS4855W01                                    |                                     |
| AN915-2              | AN915-2D         | .250         | AS4855-02 <u>1/</u>                          | AN915-2W                            |
|                      |                  | .250         | AS4855W02                                    |                                     |
| AN915-2J             |                  | .250         | AS4855J02                                    |                                     |
| AN915-2K             |                  | .250         | AS4855K02                                    |                                     |
| AN915-2R             | AN915-2S         | .250         | AS4855R02                                    | AN915-2R                            |
|                      |                  | .250         | AS4855R02                                    |                                     |
| AN915-2T             |                  | .250         | NONE                                         |                                     |
| AN915-2W             |                  | .250         | AS4855W02                                    |                                     |
| AN915-3              | AN915-3D         | .375         | AS4855-03 <u>1/</u>                          | AN915-3W                            |
|                      |                  | .375         | AS4855W03                                    |                                     |
| AN915-3J             |                  | .375         | AS4855J03                                    |                                     |
| AN915-3K             |                  | .375         | AS4855K03                                    |                                     |
| AN915-3R             | AN915-3S         | .375         | AS4855R03                                    | AN915-3R                            |
|                      |                  | .375         | AS4855R03                                    |                                     |
| AN915-3T             |                  | .375         | NONE                                         |                                     |
| AN915-3W             |                  | .375         | AS4855W03                                    |                                     |
| AN915-4              | AN915-4D         | .500         | AS4855-04 <u>1/</u>                          | AN915-4W                            |
|                      |                  | .500         | AS4855W04                                    |                                     |
| AN915-4J             |                  | .500         | AS4855J04                                    |                                     |
| AN915-4K             |                  | .500         | AS4855K04                                    |                                     |
| AN915-4R             | AN915-4S         | .500         | AS4855R04                                    | AN915-4R                            |
|                      |                  | .500         | AS4855R04                                    |                                     |
| AN915-4T             |                  | .500         | NONE                                         |                                     |
| AN915-4W             |                  | .500         | AS4855W04                                    |                                     |
| AN915-6              | AN915-6D         | .750         | AS4855-06 <u>1/</u>                          | AN915-6W                            |
|                      |                  | .750         | AS4855W06                                    |                                     |
| AN915-6J             |                  | .750         | AS4855J06                                    |                                     |
| AN915-6K             |                  | .750         | AS4855K06                                    |                                     |
| AN915-6R             | AN915-6S         | .750         | AS4855R06                                    | AN915-6R                            |
|                      |                  | .750         | AS4855R06                                    |                                     |
| AN915-6T             |                  | .450         | NONE                                         |                                     |
| AN915-6W             |                  | .750         | AS4855W06                                    |                                     |

See note at end of table.

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TABLE II. Cross-reference data - Continued.

| AN PIN<br>(inactive) | Cancelled<br>PIN | Pipe<br>size | Replacement<br>AS PIN<br>(for new<br>design) | Replacement<br>AN PIN<br>(inactive) |
|----------------------|------------------|--------------|----------------------------------------------|-------------------------------------|
| AN915-8              | AN915-8D         | 1.000        | AS4855-08 <u>1/</u>                          | AN915-8W                            |
|                      |                  | 1.000        | AS4855W08                                    |                                     |
| AN915-8J             |                  | 1.000        | AS4855J08                                    |                                     |
| AN915-8K             |                  | 1.000        | AS4855K08                                    |                                     |
| AN915-8R             | AN915-8S         | 1.000        | AS4855R08                                    | AN915-8R                            |
|                      |                  | 1.000        | AS4855R08                                    |                                     |
| AN915-8T             |                  | 1.000        | NONE                                         |                                     |
| AN915-8W             |                  | 1.000        | AS4855W08                                    |                                     |
| AN915-10             | AN915-10D        | 1.250        | AS4855-10 <u>1/</u>                          | AN915-10W                           |
|                      |                  | 1.250        | AS4855W10                                    |                                     |
| AN915-10J            |                  | 1.250        | AS4855J10                                    |                                     |
| AN915-10K            |                  | 1.250        | AS4855K10                                    |                                     |
| AN915-10R            | AN915-10S        | 1.250        | AS4855R10                                    | AN915-10R                           |
|                      |                  | 1.250        | AS4855R10                                    |                                     |
| AN915-10T            |                  | 1.250        | NONE                                         |                                     |
| AN915-10W            |                  | 1.250        | AS4855W10                                    |                                     |

1/ SAE part may be unplated or cadmium plated.

Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

Referenced documents shall be of the issue in effect on date of invitations for bid.

Changes from previous issues. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Referenced documents. In addition to SAE-AS4842, this document references the following:

|                    |                  |             |
|--------------------|------------------|-------------|
| FED-STD-595/10080  | SAE-AMS-QQ-P-416 | SAE-AMS5639 |
| MIL-A-8625         | SAE-AMS-QQ-S-763 | SAE-AMS5645 |
| MIL-DTL-83488      | SAE-AMS2472      | SAE-AMS5648 |
| ASME B46.1         | SAE-AMS2488      | SAE-ARP1590 |
| ASTM B124/B124M    | SAE-AMS2700      | SAE-AS611   |
| ASTM B138/B138M    | SAE-AMS4124      | SAE-AS4855  |
| SAE-AMS-QQ-A-225/9 | SAE-AMS4141      | SAE-AS5201  |
| SAE-AMS-QQ-A-367   | SAE-AMS4614      | SAE-AS71051 |

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## CONCLUDING MATERIAL

Custodians:

Army - AV  
Navy - AS  
Air Force - 99  
DLA - CC

Preparing activity:  
DLA - CC

(Project 4730-2013-121)

Review activities:

Navy - MC, SH  
Air Force - 71

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