

Pipe Trades Workshop

COPPER SOLDERING PROJECT WORKSHEET

Take-offs (T/O)

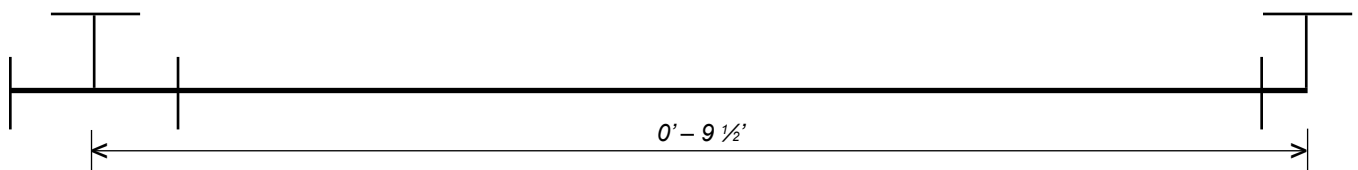
Using the attached chart answer the following questions.

1. What size copper tube are you using for the project? _____
2. What is the T/O for a 90-degree elbow? _____
3. What is the T/O for a tee? _____

Figuring End-to-End (E-E) Dimensions

The end-to-end dimension is length to which you will have to cut the pipe to achieve the correct center-to-center (C-C) dimension as shown on the drawing. To figure the E-E, subtract the correct T/O(s) from the C-C dimensions.

Example:



In this example the tube size is 1". The elbow T/O is $\frac{3}{4}$ ". The tee T/O is $\frac{3}{4}$ ". So we subtract $1 \frac{1}{2}$ " ($\frac{3}{4}$ " + $\frac{3}{4}$ ") from $9 \frac{1}{2}$ " for 8". Therefore, we would cut a piece of 1" tube 8" long to make the example piece.

Figure the E-E cut pieces for your project below:

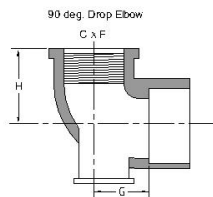
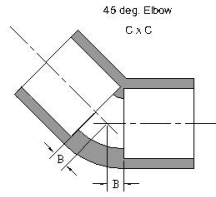
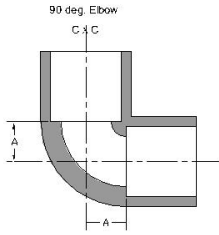


This product was funded by a grant awarded under the President's High Growth Job Training Initiative as implemented by the U.S. Department of Labor's Employment & Training Administration. The information contained in this product was created by a grantee organization and does not necessarily reflect the official position of the U.S. Department of Labor. All references to non-governmental companies or organizations, their services, products, or resources are offered for informational purposes and should not be construed as an endorsement by the Department of Labor. This product is copyrighted by the institution that created it and is intended for individual organizational, non-commercial use only.

www.CHICAGOWOMENINTRADES.org

Pipe Trades Workshop

COPPER SOLDER FITTINGS



KEY

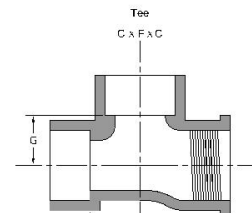
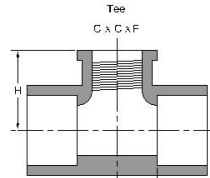
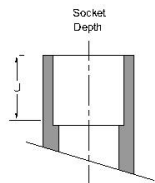
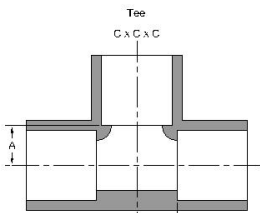
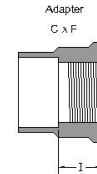
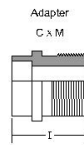
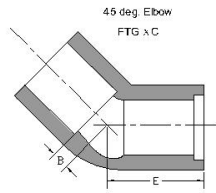
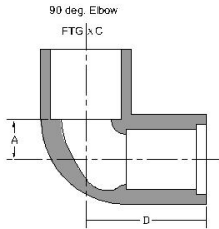
A, B, D, E, G, H, I, J see dimensions in the table below.

C = Female end connection (fits copper tube diameter).

FTG = Male connection (diameter same as copper tube).

F = Female thread (National Pipe Thread Internal – NPTI)

M = Male thread (National Pipe Thread External – NPTE).



DIMENSIONS FOR COMMON CAST COPPER ALLOY SOLDER FITTINGS (Given in Inches & Millimeters)

| Tube Size | Dimensions – Inches | | | | | | | | Tube Size | Dimensions – Millimeters | | | | | | | |
|-----------|---------------------|------|------|------|------|------|------|------|-----------|--------------------------|------|------|------|------|------|------|-------|
| | A | B | D | E | G | H | I | J | | A | B | D | E | G | H | I | J |
| ¼ | 0.25 | — | 0.75 | — | 0.38 | 0.56 | 0.62 | 0.31 | 8 | 6.5 | — | 19.0 | — | 9.5 | 14.5 | 16.0 | 7.87 |
| ⅜ | 0.31 | 0.19 | 0.88 | 0.75 | 0.44 | 0.69 | 0.62 | 0.38 | 10 | 8.0 | 5.0 | 22.0 | 19.0 | 11.0 | 17.5 | 16.0 | 9.65 |
| ½ | 0.44 | 0.19 | 1.12 | 0.88 | 0.56 | 0.88 | 0.75 | 0.50 | 15 | 11.0 | 5.0 | 28.5 | 22.0 | 14.5 | 22.0 | 18.0 | 12.70 |
| ¾ | 0.56 | 0.25 | 1.50 | 1.19 | 0.69 | 1.00 | 0.88 | 0.75 | 20 | 14.5 | 6.5 | 38.0 | 30.0 | 17.5 | 25.5 | 22.0 | 19.05 |
| 1 | 0.75 | 0.31 | 1.84 | 1.31 | 0.88 | 1.25 | 1.00 | 0.91 | 25 | 19.0 | 8.0 | 47.0 | 33.5 | 22.0 | 32.0 | 25.5 | 23.11 |
| 1 ¼ | 0.88 | 0.44 | 2.03 | 1.56 | 1.00 | 1.50 | 1.06 | 0.97 | 32 | 22.0 | 11.0 | 51.5 | 39.5 | 25.5 | 38.0 | 27.0 | 24.64 |
| 1 ½ | 1.00 | 0.50 | 2.28 | 1.75 | 1.12 | 1.62 | 1.06 | 1.09 | 40 | 25.5 | 12.5 | 58.0 | 44.5 | 28.5 | 41.5 | 27.0 | 27.69 |
| 2 | 1.25 | 0.56 | 2.78 | 2.12 | 1.38 | 1.94 | 1.12 | 1.34 | 50 | 32.0 | 14.5 | 70.5 | 54.0 | 35.0 | 49.0 | 28.5 | 34.04 |

Note: 1. Dimensions apply to cast fittings only. Dimensions for wrought fittings have not been standardized.
 2. Dimension for table based on fittings manufactured to ANSI standards.
 3. Tube size dimensions are nominal sizes.



This product was funded by a grant awarded under the President's High Growth Job Training Initiative as implemented by the U.S. Department of Labor's Employment & Training Administration. The information contained in this product was created by a grantee organization and does not necessarily reflect the official position of the U.S. Department of Labor. All references to non-governmental companies or organizations, their services, products, or resources are offered for informational purposes and should not be construed as an endorsement by the Department of Labor. This product is copyrighted by the institution that created it and is intended for individual organizational, non-commercial use only.