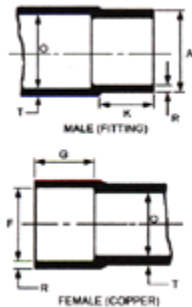


Cello Products - Engineering Data

Copper Water Tube Standard Dimensions & Weights

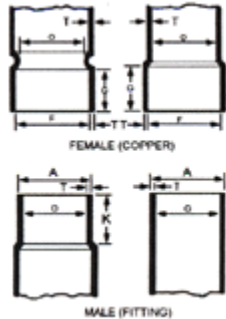
| Nominal Tube Sizes Inches | Outside Dia., In. Types K-L-M-DWV | Inside Diameter, Inches | | | | Wall Thickness, Inches | | | | Pounds Per Linear Foot | | | |
|---------------------------|-----------------------------------|-------------------------|--------|--------|----------|------------------------|--------|--------|----------|------------------------|--------|--------|----------|
| | | Type K | Type L | Type M | Type DWV | Type K | Type L | Type M | Type DWV | Type K | Type L | Type M | Type DWV |
| 1/4 | .375 | .305 | .315 | - | - | .035 | .030 | - | - | .145 | .126 | - | - |
| 3/8 | .500 | .402 | .440 | .450 | - | .049 | .035 | .025 | - | .269 | .198 | .145 | - |
| 1/2 | .625 | .527 | .545 | .569 | - | .049 | .040 | .028 | - | .344 | .285 | .204 | - |
| 5/8 | .750 | .652 | .666 | - | - | .049 | .042 | - | - | .418 | .362 | - | - |
| 3/4 | .875 | .745 | .811 | - | - | .065 | .045 | .032 | - | .641 | .455 | .328 | - |
| 1 | 1.125 | .995 | 1.025 | 1.055 | - | .065 | .050 | .035 | - | .839 | .655 | .465 | - |
| 1 1/4 | 1.375 | 1.245 | 1.265 | 1.291 | 1.295 | .065 | .055 | .042 | .040 | 1.04 | .884 | .682 | .650 |
| 1 1/2 | 1.625 | 1.481 | 1.505 | 1.527 | 1.541 | .072 | .060 | .049 | .042 | 1.36 | 1.14 | .940 | .809 |
| 2 | 2.125 | 1.959 | 1.985 | 2.009 | 2.041 | .083 | .070 | .058 | .042 | 2.06 | 1.75 | 1.46 | 1.07 |
| 2 1/2 | 2.625 | 2.435 | 2.465 | 2.495 | - | .095 | .080 | .065 | - | 2.93 | 2.48 | 2.03 | - |
| 3 | 3.125 | 2.907 | 2.945 | 2.981 | 3.035 | .109 | .090 | .072 | .045 | 4.00 | 3.33 | 2.68 | 1.69 |
| 3 1/2 | 3.625 | 3.385 | 3.425 | 3.459 | - | .120 | .100 | .083 | - | 5.12 | 4.29 | 3.58 | - |
| 4 | 4.125 | 3.857 | 3.905 | 3.935 | 4.009 | .134 | .110 | .095 | .058 | 6.51 | 5.38 | 4.66 | 2.87 |
| 5 | 5.125 | 4.805 | 4.875 | 4.907 | 4.981 | .160 | .125 | .109 | .072 | 9.67 | 7.61 | 6.66 | 4.43 |
| 6 | 6.125 | 5.741 | 5.845 | 5.881 | 5.959 | .192 | .140 | .122 | .083 | 13.9 | 10.2 | 8.92 | 6.10 |
| 8 | 8.125 | 7.583 | 7.725 | 7.785 | 7.907 | .271 | .200 | .170 | .109 | 25.9 | 19.3 | 16.5 | 10.6 |

Dimensions of Solder Joint Ends - Drainage Fittings



Cast-Copper Alloy Solder Joint DWV Fittings

| Size | Male End (fitting end) | | Length K | Female End (copper end) | | | Metal Thickness +/- 10% | | Inside Diameter Of Fitting O Min. |
|-------|------------------------|-------|----------|-------------------------|---------|--------|-------------------------|------|-----------------------------------|
| | Outside Diameter A | Max. | | Inside Diameter F | Depth G | Body T | Joint R | | |
| | | | | | | | | Min. | |
| 1 1/4 | 1.372 | 1.377 | 0.44 | 1.378 | 1.382 | 0.38 | 0.10 | 0.07 | 1.29 |
| 1 1/2 | 1.621 | 1.627 | 0.50 | 1.628 | 1.633 | 0.44 | 0.10 | 0.07 | 1.53 |
| 2 | 2.121 | 2.127 | 0.56 | 2.128 | 2.133 | 0.50 | 0.10 | 0.09 | 2.01 |
| 3 | 3.121 | 3.127 | 0.81 | 3.128 | 3.133 | 0.75 | 0.12 | 0.10 | 2.98 |
| 4 | 4.121 | 4.127 | 1.06 | 4.128 | 4.133 | 1.00 | 0.12 | 0.12 | 3.93 |
| 5 | 5.121 | 5.127 | 1.31 | 5.128 | 5.133 | 1.25 | 0.19 | 0.19 | 4.91 |
| 6 | 6.121 | 6.127 | 1.62 | 6.128 | 6.133 | 1.50 | 0.19 | 0.19 | 5.88 |
| 8 | 8.119 | 8.127 | 2.12 | 8.128 | 8.133 | 2.00 | 0.22 | 0.22 | 7.78 |

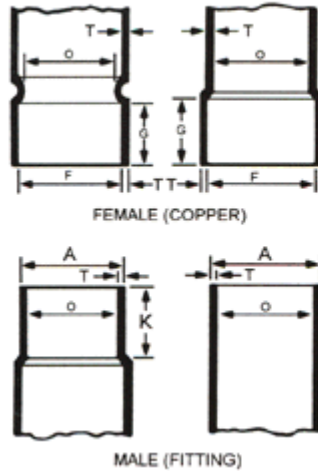


Wrought Copper and Copper Alloy Solder Joint DWV Fittings

| Size | Male End (fitting end) | | Length K | Female End (copper end) | | | Metal Thickness Joint T Min. | Inside Diameter Of Fitting O Min. |
|-------|------------------------|-------|----------|-------------------------|---------|------|------------------------------|-----------------------------------|
| | Outside Diameter A | Max. | | Inside Diameter F | Depth G | | | |
| | | | | | | Min. | | |
| 1 1/4 | 1.372 | 1.377 | 0.44 | 1.378 | 1.382 | 0.38 | 0.040 | 1.29 |
| 1 1/2 | 1.621 | 1.627 | 0.50 | 1.628 | 1.633 | 0.44 | 0.042 | 1.53 |
| 2 | 2.121 | 2.127 | 0.56 | 2.128 | 2.133 | 0.50 | 0.042 | 2.01 |
| 3 | 3.121 | 3.127 | 0.81 | 3.128 | 3.133 | 0.75 | 0.045 | 2.98 |
| 4 | 4.121 | 4.127 | 1.06 | 4.128 | 4.133 | 1.00 | 0.058 | 3.93 |

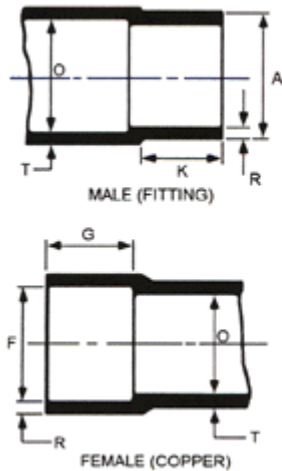
Dimensions of Solder Ends - Pressure Fittings

Wrought-Copper and Wrought-Copper Alloy Solder Joint Pressure Fittings



| Standard Water Tube Size | Male End (fitting end) | | | Female End (copper end) | | | Metal Thickness | | Inside Dia. Of Fitting O Min. |
|--------------------------|------------------------|-------|----------|-------------------------|-------|---------|-----------------|------|-------------------------------|
| | Outside Diameter A | | Length K | Inside Diameter F | | Depth G | T | R | |
| | Min. | Max. | Min. | Min. | Max. | Min. | Min. | | |
| 1/8 | 0.248 | 0.251 | 0.31 | 0.252 | 0.256 | 0.25 | 0.019 | 0.18 | |
| 1/4 | 0.373 | 0.376 | 0.38 | 0.377 | 0.381 | 0.31 | 0.023 | 0.30 | |
| 3/8 | 0.497 | 0.501 | 0.44 | 0.502 | 0.506 | 0.38 | 0.026 | 0.39 | |
| 1/2 | 0.622 | 0.626 | 0.56 | 0.627 | 0.631 | 0.50 | 0.029 | 0.52 | |
| 5/8 | 0.747 | 0.751 | 0.69 | 0.752 | 0.756 | 0.62 | 0.031 | 0.63 | |
| 3/4 | 0.872 | 0.876 | 0.81 | 0.877 | 0.881 | 0.75 | 0.033 | 0.74 | |
| 1 | 1.122 | 1.127 | 0.97 | 1.128 | 1.132 | 0.91 | 0.040 | 0.98 | |
| 1 1/4 | 1.372 | 1.377 | 1.03 | 1.378 | 1.382 | 0.97 | 0.044 | 1.23 | |
| 1 1/2 | 1.621 | 1.627 | 1.16 | 1.628 | 1.633 | 1.09 | 0.051 | 1.47 | |
| 2 | 2.121 | 2.127 | 1.41 | 2.128 | 2.133 | 1.34 | 0.059 | 1.94 | |
| 2 1/2 | 2.621 | 2.627 | 1.53 | 2.628 | 2.633 | 1.47 | 0.067 | 2.42 | |
| 3 | 3.121 | 3.127 | 1.72 | 3.128 | 3.133 | 1.66 | 0.075 | 2.89 | |
| 3 1/2 | 3.621 | 3.627 | 1.97 | 3.628 | 3.633 | 1.91 | 0.086 | 3.37 | |
| 4 | 4.121 | 4.127 | 2.22 | 4.128 | 4.133 | 2.16 | 0.096 | 3.84 | |
| 5 | 5.121 | 5.127 | 2.72 | 5.128 | 5.133 | 2.66 | 0.111 | 4.70 | |
| 6 | 6.121 | 6.127 | 3.22 | 6.128 | 6.133 | 3.09 | 0.124 | 5.72 | |
| 8 | 8.119 | 8.127 | 4.09 | 8.128 | 8.133 | 3.97 | 0.173 | 7.55 | |

Cast Copper Alloy Solder Joint Pressure Fittings



| Standard Water Tube Size | Male End (fitting end) | | | Female End (copper end) | | | Metal Thickness +/- 10% | | Inside Dia. Of Fitting O Min. |
|--------------------------|------------------------|--------|----------|-------------------------|--------|---------|-------------------------|---------|-------------------------------|
| | Outside Diameter A | | Length K | Inside Diameter F | | Depth G | Body T | Joint R | |
| | Min. | Max. | Min. | Min. | Max. | Min. | | | |
| 1/4 | 0.373 | 0.376 | 0.38 | 0.377 | 0.381 | 0.31 | 0.08 | 0.05 | 0.31 |
| 3/8 | 0.497 | 0.501 | 0.44 | 0.502 | 0.506 | 0.38 | 0.09 | 0.05 | 0.43 |
| 1/2 | 0.622 | 0.626 | 0.56 | 0.627 | 0.631 | 0.50 | 0.09 | 0.05 | 0.54 |
| 3/4 | 0.872 | 0.876 | 0.81 | 0.877 | 0.881 | 0.75 | 0.10 | 0.06 | 0.78 |
| 1 | 1.122 | 1.127 | 0.97 | 1.128 | 1.132 | 0.91 | 0.11 | 0.07 | 1.02 |
| 1 1/4 | 1.372 | 1.377 | 1.03 | 1.378 | 1.382 | 0.97 | 0.12 | 0.07 | 1.26 |
| 1 1/2 | 1.621 | 1.627 | 1.16 | 1.628 | 1.633 | 1.09 | 0.13 | 0.08 | 1.50 |
| 2 | 2.121 | 2.127 | 1.41 | 2.128 | 2.133 | 1.34 | 0.15 | 0.09 | 1.98 |
| 2 1/2 | 2.621 | 2.627 | 1.53 | 2.628 | 2.633 | 1.47 | 0.17 | 0.10 | 2.46 |
| 3 | 3.121 | 3.127 | 1.72 | 3.128 | 3.133 | 1.66 | 0.19 | 0.11 | 2.94 |
| 3 1/2 | 3.621 | 3.627 | 1.97 | 3.628 | 3.633 | 1.91 | 0.20 | 0.12 | 3.42 |
| 4 | 4.121 | 4.127 | 2.22 | 4.128 | 4.133 | 2.16 | 0.22 | 0.13 | 3.90 |
| 5 | 5.121 | 5.127 | 2.72 | 5.128 | 5.133 | 2.66 | 0.28 | 0.17 | 4.87 |
| 6 | 6.121 | 6.127 | 3.22 | 6.128 | 6.133 | 3.09 | 0.34 | 0.20 | 5.84 |
| 8 | 8.119 | 8.127 | 4.09 | 8.128 | 8.133 | 3.97 | 0.38 | 0.31 | 7.72 |
| 10 | 10.119 | 10.127 | 4.12 | 10.128 | 10.133 | 4.00 | 0.48 | 0.48 | 9.62 |
| 12 | 12.119 | 12.127 | 4.62 | 12.128 | 12.133 | 4.50 | 0.56 | 0.56 | 11.56 |