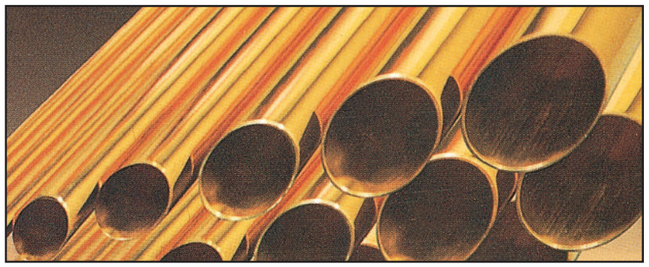
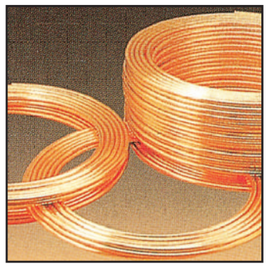
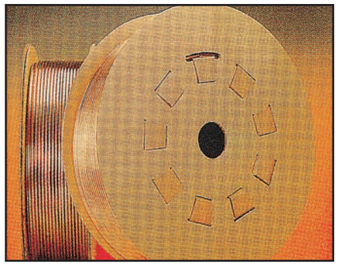
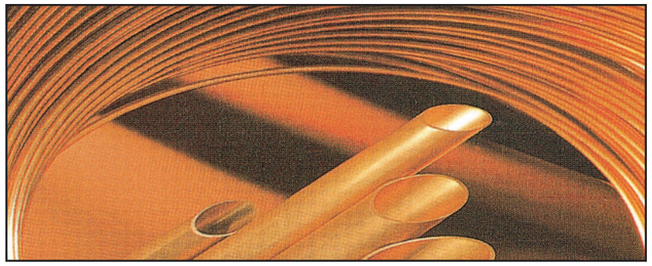
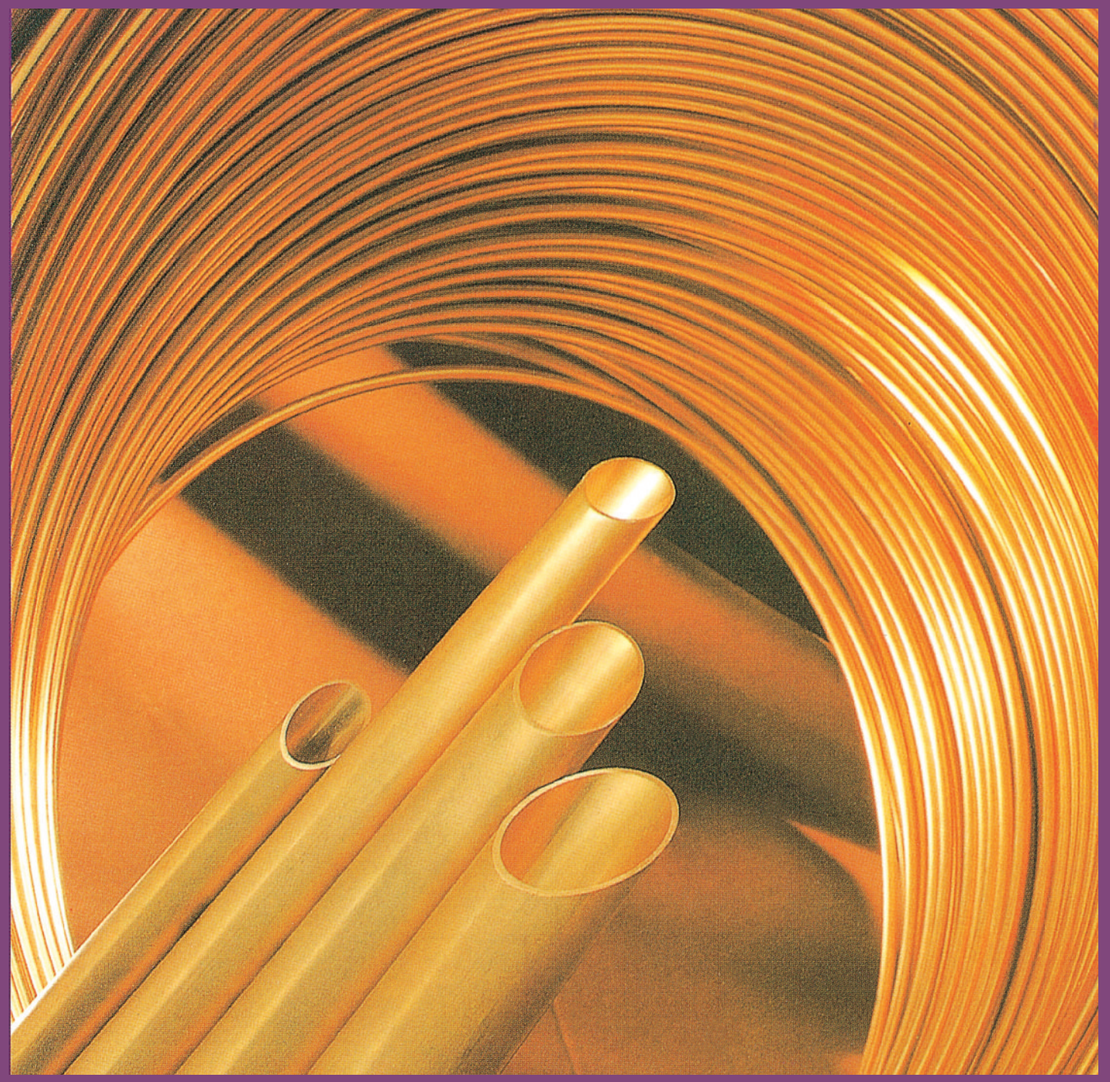








# QUALICOP PRODUCTS



## QUALICOP PRODUCTS

*Marketed by:*
Alpha Star TRADING

**Abu Dhabi, UAE:**
Muroor Road,
Next to Red Crescent Bldg
Tel: 971 2 6417599
Fax: 971 2 6418511
Email: astarauh@eim.ae

**Doha, Qatar:**
Salwa Road,
Ain Khalid Roundabout
Tel: 974 4582128
Fax: 974 4501270
Email: alphastar@qatar.net.qa

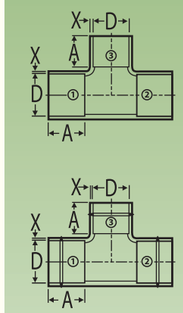
**Dubai, UAE:**
P.O. Box 80955, 368-611, Al Quoz, Third Interchange
Tel: 971 4 3307263 Fax: 971 4 3306242 Email: astartrd@eim.ae

**Salmabad, Kingdom of Bahrain:**
Shop No.56, Bldg.60
Salmabad Avenue, Salmabad-702
Tel: 973 1778 3285
Fax: 973 1778 3026

**Chennai, India:**
M/s Alpha Star Trading (P) Ltd.
#145 (old #77), Ground Floor
Perambur Barrecks Road
Vepary, Chennai - 600 007
Telefax: +91 44 42822367
Email: fareed@alphastarindia.com

## Tees

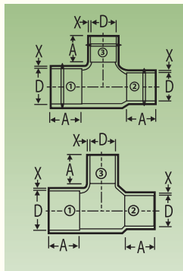
Patt. No. QC002
Branch
Reduction




| Code | Code (tin) | Size (mm) 1x2x3 |
|---|---|---|
| QC0020101 | QC0020102 | 22x22x15 |
| QC0020201 | QC0020202 | 28x28x15 |
| QC0020301 | QC0020302 | 28x28x22 |
| QC0020401 | QC0020402 | 35x35x15 |
| QC0020501 | QC0020502 | 35x35x22 |
| QC0020601 | QC0020602 | 35x35x28 |
| QC0020701 | QC0020702 | 42x42x15 |
| QC0020801 | QC0020802 | 42x42x22 |
| QC0020901 | QC0020902 | 42x42x28 |
| QC0021001 | QC0021002 | 42x42x35 |
| QC0021101 | QC0021102 | 54x54x15 |
| QC0021201 | QC0021202 | 54x54x22 |
| QC0021301 | QC0021302 | 54x54x28 |
| QC0021401 | QC0021402 | 54x54x35 |
| QC0021501 | QC0021502 | 54x54x42 |
| QC0021601 | QC0021602 | 67x67x15 |
| QC0021701 | QC0021702 | 67x67x22 |
| QC0021801 | QC0021802 | 67x67x28 |
| QC0021901 | QC0021902 | 67x67x35 |
| QC0022001 | QC0022002 | 67x67x42 |
| QC0022101 | QC0022102 | 67x67x54 |
| QC0022201 | QC0022202 | 76x76x15 |
| QC0022301 | QC0022302 | 76x76x22 |
| QC0022401 | QC0022402 | 76x76x28 |
| QC0022501 | QC0022502 | 76x76x35 |
| QC0022601 | QC0022602 | 76x76x42 |
| QC0022701 | QC0022702 | 76x76x54 |
| QC0022801 | QC0022802 | 76x76x67 |
| QC0022901 | QC0022902 | 108x108x15 |
| QC0023001 | QC0023002 | 108x108x22 |
| QC0023101 | QC0023102 | 108x108x28 |
| QC0023201 | QC0023202 | 108x108x35 |
| QC0023301 | QC0023302 | 108x108x42 |
| QC0023401 | QC0023402 | 108x108x54 |
| QC0023501 | QC0023502 | 108x108x67 |
| QC0023601 | QC0023602 | 108x108x76 |

## Couplings

Patt. No. QA005
Reduction




| Code | Code (tin) | Size (mm) 1x2x3 |
|---|---|---|
| QC0050101 | QC0050102 | 28x22x15 |
| QC0050201 | QC0050202 | 35x22x28 |
| QC0050301 | QC0050302 | 35x28x22 |
| QC0050401 | QC0050402 | 42x35x22 |
| QC0050501 | QC0050502 | 42x35x28 |
| QC0050601 | QC0050602 | 54x42x15 |
| QC0050701 | QC0050702 | 54x42x22 |
| QC0050801 | QC0050802 | 54x42x35 |

## Material: T2, TP2

Table 1. (For dimensions D,A,X and O -refer to Table 1.)

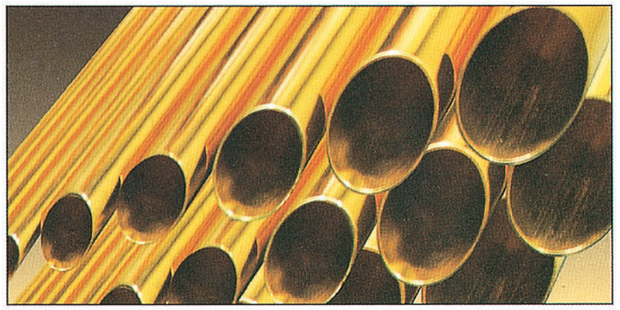
| Nominal Size of Fitting (mm) | Female End Inside Dia. D | | Male End Outside Dia. O | | Length A | Wall Thickness X |
|---|---|---|---|---|---|---|
| | MAX | MIN | MAX | MIN | MIN | MIN |
| 15 | 15.145 | 15.065 | 14.98 | 14.88 | 10.6 | 0.7 |
| 22 | 22.155 | 22.075 | 22.00 | 21.90 | 15.4 | 0.9 |
| 28 | 28.155 | 28.075 | 28.00 | 27.90 | 18.4 | 0.9 |
| 35 | 35.17 | 35.09 | 35.01 | 34.91 | 23.0 | 1.0 |
| 42 | 42.17 | 42.09 | 42.01 | 41.91 | 27.0 | 1.1 |
| 54 | 54.17 | 54.09 | 54.01 | 53.91 | 32.0 | 1.2 |
| 67 | 66.86 | 66.78 | 66.70 | 66.55 | 33.0 | 1.2 |
| 76 | 76.53 | 76.33 | 76.25 | 76.05 | 35.6 | 1.5 |
| 108 | 108.53 | 108.28 | 108.20 | 107.9 | 37.5 | 1.5 |





*CONTENTS*

## STRAIGHT TUBES



**STRAIGHT TUBES**

APPLICATION:

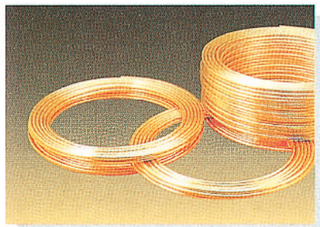
COSMETIC WATER SERVICE AND DISTRIBUTION. FIRE PROTECTION. SOLAR, FUEL/FUEL OIL, NATURAL GAS , LIQUEFIED PETROLEUM(LP)GAS,HVAC,SNOW MELTING, DRAIN, WASTE, VENT PIPING.

STRAIGHT LENGTHS : 6M, 4M

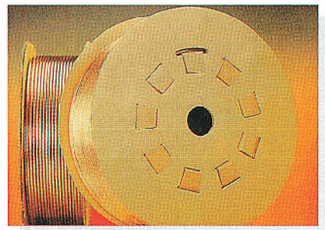
## COILS

APPLICATION : AIR CONDITIONING, REFRIGERATION, NATURAL GAS, LIQUEFIED PETROLEUM(LP) GAS FIELD SERVICE

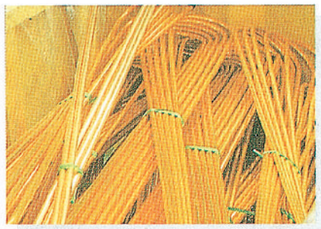
PAN CAKE COIL: 15~30m



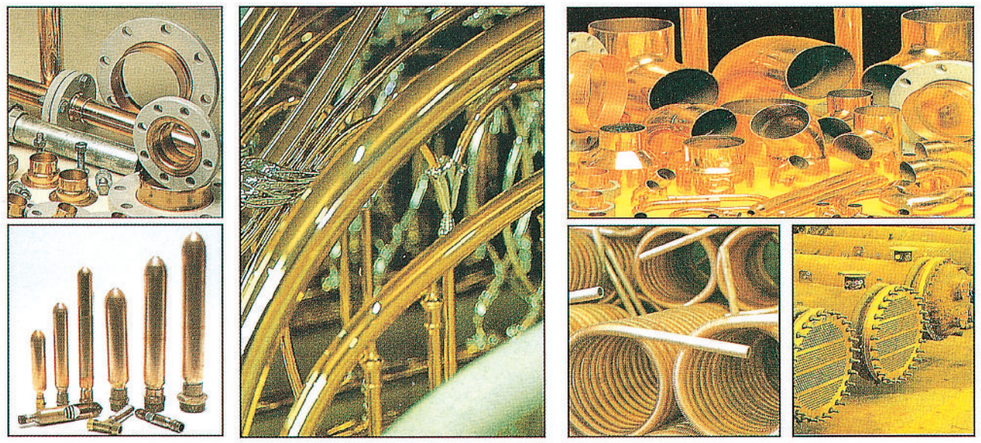
LEVEL WOUND COIL: 300~400m



FLOOR HEATING COIL: 15~30m

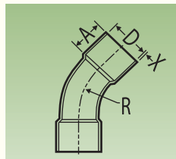


## RELATIVE PRODUCTS



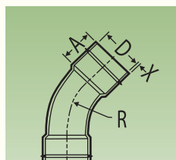






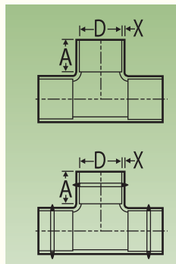

### Couplings
Patt. No. QB003
Long Radius 45º

| Code | Code (tin) | Size (mm) |
|---|---|---|
| QB0030101 | QB0030102 | 15 mm |
| QB0030201 | QB0030202 | 22 mm |
| QB0030301 | QB0030302 | 28 mm |
| QB0030401 | QB0030402 | 35 mm |
| QB0030501 | QB0030502 | 42 mm |
| QB0030601 | QB0030602 | 54 mm |



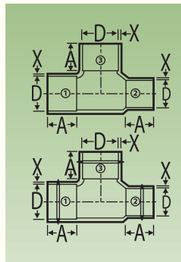

### Couplings

| Code | Code (tin) | Size (mm) |
|---|---|---|
| QB0030701 | QB0030702 | 67 mm |
| QB0030801 | QB0030802 | 76 mm |
| QB0030901 | QB0030902 | 108 mm |
| QB0031001 | QB0031002 | 6 mm |
| QB0031101 | QB0031102 | 8 mm |
| QB0031201 | QB0031202 | 10 mm |
| QB0031301 | QB0031302 | 12 mm |
| QB0031401 | QB0031402 | 18 mm |
| QB0031501 | QB0031502 | 89 mm |



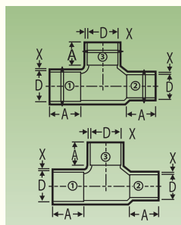

### Tees
Patt. No. QC001
Equal

| Code | Code (tin) | Size (mm) |
|---|---|---|
| QC0010101 | QC0010102 | 15 mm |
| QC0010201 | QC0010202 | 22 mm |
| QC0010301 | QC0010302 | 28 mm |
| QC0010401 | QC0010402 | 35 mm |
| QC0010501 | QC0010502 | 42 mm |
| QC0010601 | QC0010602 | 54 mm |
| QC0010701 | QC0010702 | 67 mm |
| QC0010801 | QC0010802 | 76 mm |
| QC0010901 | QC0010902 | 108 mm |
| QC0011001 | QC0011002 | 6 mm |
| QC0011101 | QC0011102 | 8 mm |
| QC0011201 | QC0011202 | 10 mm |
| QC0011301 | QC0011302 | 12 mm |
| QC0011401 | QC0011402 | 18 mm |
| QC0011501 | QC0011502 | 89 mm |



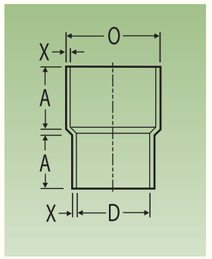

### Tees
Patt. No. QC003
In Line Reduction

| Code | Code (tin) | Size (mm) 1x2x3 |
|---|---|---|
| QC0030101 | QC0030102 | 22x15x22 |
| QC0030201 | QC0030202 | 28x22x28 |
| QC0030301 | QC0030302 | 12x10x12 |
| QC0030401 | QC0030402 | 15x12x15 |
| QC0030501 | QC0030502 | 28x15x28 |
| QC0030601 | QC0030602 | 35x22x35 |
| QC0030701 | QC0030702 | 35x28x35 |
| QC0030801 | QC0030802 | 42x28x42 |
| QC0030901 | QC0030902 | 42x35x42 |
| QC0031001 | QC0031002 | 54x35x54 |
| QC0031101 | QC0031102 | 54x42x54 |



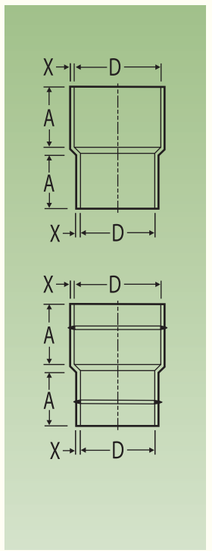

### Tees
Patt. No. QC004
In Line and
Branch Reduction

| Code | Code (tin) | Size (mm) 1x2x3 |
|---|---|---|
| QC0040101 | QC0040102 | 22x15x15 |
| QC0040201 | QC0040202 | 28x22x22 |
| QC0040301 | QC0040302 | 15x12x12 |
| QC0040401 | QC0040402 | 28x15x15 |
| QC0040501 | QC0040502 | 35x22x22 |
| QC0040601 | QC0040602 | 42x35x35 |
| QC0040701 | QC0040702 | 54x35x35 |



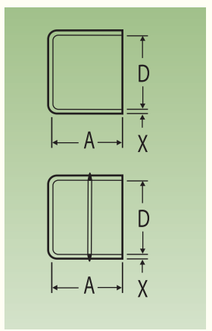

## Couplings
Patt. No. QA003
Bushings
MxF

| Code | Size (mm) | Code | Size (mm) |
|---|---|---|---|
| QA30101 | 15x10 | QA31401 | 67x35 |
| QA30201 | 22x15 | QA31501 | 67x42 |
| QA30301 | 28x15 | QA31601 | 67x54 |
| QA30401 | 28x22 | QA31701 | 76x28 |
| QA30501 | 35x15 | QA31801 | 76x35 |
| QA30601 | 35x22 | QA31901 | 76x42 |
| QA30701 | 35x28 | QA32001 | 76x54 |
| QA30801 | 42x22 | QA32101 | 76x67 |
| QA30901 | 42x28 | QA32201 | 108x42 |
| QA31001 | 42x35 | QA32301 | 108x54 |
| QA31101 | 54x28 | QA32401 | 108x67 |
| QA31201 | 54x35 | QA32501 | 108x76 |
| QA31301 | 54x42 | | |




## Couplings
Patt. No. QA002
Reducers
FxF

| Code | Code (tin) | Size (mm) |
|---|---|---|
| QA0020101 | QA0020102 | 22x15 |
| QA0020201 | QA0020202 | 28x15 |
| QA0020301 | QA0020302 | 28x22 |
| QA0020401 | QA0020402 | 35x15 |
| QA0020501 | QA0020502 | 35x22 |
| QA0020601 | QA0020602 | 35x28 |
| QA0020701 | QA0020702 | 42x22 |
| QA0020801 | QA0020802 | 42x28 |
| QA0020901 | QA0020902 | 42x35 |
| QA0021001 | QA0021002 | 54x28 |
| QA0021101 | QA0021102 | 54x35 |
| QA0021201 | QA0021202 | 54x42 |
| QA0021301 | QA0021302 | 67x35 |
| QA0021401 | QA0021402 | 67x42 |
| QA0021501 | QA0021502 | 67x54 |
| QA0021601 | QA0021602 | 76x28 |
| QA0021701 | QA0021702 | 76x35 |
| QA0021801 | QA0021802 | 76x42 |
| QA0021901 | QA0021902 | 76x54 |
| QA0022001 | QA0022002 | 76x67 |
| QA0022101 | QA0022102 | 108x42 |
| QA0022201 | QA0022202 | 108x54 |
| QA0022301 | QA0022302 | 108x67 |
| QA0022401 | QA0022402 | 108x76 |
| QA0022501 | QA0022502 | 15x12 |
| QA0022601 | QA0022602 | 42x15 |
| QA0022701 | QA0022702 | 54x15 |
| QA0022801 | QA0022802 | 54x22 |
| QA0022901 | QA0022902 | 67x22 |
| QA0023001 | QA0023002 | 67x28 |




## Caps
Patt. No. QD001

| Code | Code (tin) | Size (mm) |
|---|---|---|
| QD0010101 | QD0010102 | 15 mm |
| QD0010201 | QD0010202 | 22 mm |
| QD0010301 | QD0010302 | 28 mm |
| QD0010401 | QD0010402 | 35 mm |
| QD0010501 | QD0010502 | 42 mm |
| QD0010601 | QD0010602 | 54 mm |
| QD0010701 | QD0010702 | 67 mm |
| QD0010801 | QD0010802 | 76 mm |
| QD0010901 | QD0010902 | 108 mm |
| QD0011001 | QD0011002 | 6 mm |
| QD0011101 | QD0011102 | 8 mm |
| QD0011201 | QD0011202 | 10 mm |
| QD0011301 | QD0011302 | 12 mm |
| QD0011401 | QD0011402 | 18 mm |
| QD0011501 | QD0011502 | 89 mm |





## DWV COPPER TUBES

• ASTM B 306 (COPPER DRAINAGE TUBES)

| NOMINAL SIZES | | O.D | THK | WEIGHT | TOLERANCE | |
|---|---|---|---|---|---|---|
| (A) | (B) | (mm) | (mm) | (Kg/m) | O.D | THK. |
| 32 | 1 1/4 | 34.9 | 1.02 | 0.967 | 0.038 | 0.076 |
| 40 | 1 1/2 | 41.3 | 1.07 | 1.20 | 0.051 | 0.076 |
| 50 | 2 | 54.0 | 1.07 | 1.59 | 0.051 | 0.100 |
| 80 | 3 | 79.4 | 1.14 | 2.51 | 0.051 | 0.100 |
| 100 | 4 | 105.0 | 1.47 | 4.27 | 0.051 | 0.180 |
| 125 | 5 | 130.0 | 1.83 | 6.59 | 0.051 | 0.200 |
| 150 | 6 | 156.0 | 2.11 | 9.08 | 0.051 | 0.200 |
| 200 | 8 | 206.0 | 2.77 | 15.80 | 0.100 | 0.280 |

## DWV COPPER TUBES

• ASTM B 280 (COPPER ACR TUBES)

| NOMINAL SIZES (inch) | O.D inch(mm) | THK inch(mm) | WEIGHT lb/ft(kg/m) | TOLERANCE | | | |
|---|---|---|---|---|---|---|---|
| | | | | STRAIGHT | | COIL | |
| | | | | O.D inch(mm) | THK.inch(mm) | O.D inch(mm) | THK.inch(mm) |
| 1/8 | .125(3.18) | .030(.762) | .0347(.0516) | - | - | .002(.051) | .003(.076) |
| 3/16 | .187(4.75) | .030(.762) | .0575(.0856) | - | - | .002(.051) | .0025(.064) |
| 1/4 | .250(6.35) | .030(.762) | .0840(.120) | - | - | .002(.051) | .0025(.064) |
| 5/16 | .312(7.92) | .032(.813) | .109(.162) | - | | .002(.051) | .0025(.064) |
| 3/8 | .375(9.52) | .032(.813) | .134(.199) | .001(.025) | .0035(.089) | .002(.051) | .0025(.064) |
| 1/2 | .500(12.7) | .032(.813) | .182(.271) | .001(.025) | .0035(.089) | .002(.051) | .0025(.064) |
| 5/8 | .625(15.9) | .035(.889) | .251(.373) | .001(.025) | .0035(.089) | .002(.051) | .0030(.076) |
| 3/4 | .750(19.1) | .042(1.07) | .362(.539) | .001(.025) | .0035(.089) | .0025(.064) | .0035(.089) |
| 7/8 | .875(22.3) | .045(1.14) | .455(.677) | .001(.025) | .004(.10) | .003(.076) | .004(.10) |
| 1-1/8 | 1.125(28.6) | .050(1.27) | .665(.975) | .0015(.038) | .004(.10) | .0035(.089) | .004(.10) |
| 1-3/8 | 1.375(34.9) | .055(1.40) | .884(1.32) | .0015(.038) | .0045(.11) | .004(.10) | .0045(.11) |
| 1-5/8 | 1.625(41.3) | .060(1.52) | 1.14(1.70) | .002(0.51) | .0045(.11) | .0045(.11) | .0045(.11) |
| 2-1/8 | 2.125(54.0) | .070(1.78) | 1.75(2.60) | .002(.051) | .006(.15) | - | - |
| 2-5/8 | 2.625(56.7) | .080(2.03) | 2.48(3.69) | .002(.051) | .006(.15) | - | - |
| 3-1/8 | 3.125(79.4) | .090(2.29) | 3.33(4.96) | .002(.051) | .007(.18) | - | - |
| 3-5/8 | 3.625(92.1) | .100(2.54) | 4.29(6.38) | .002(.051) | .007(.18) | - | - |
| 4-1/8 | 4.125(105.0) | .110(2.79) | 5.38(8.01) | .002(.051) | .009(.23) | - | - |

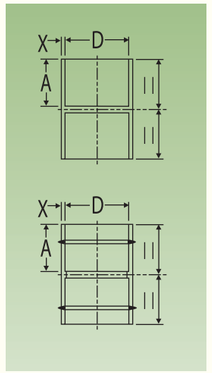
## COPPER WATER TUBE SPECIFICATIONS (AMERICAN STANDARDS)

• KS D 5301, JIS H 3300, ASTM B 88

| TUBE TYPE | NOMINAL SIZES (A) mm | NOMINAL SIZES (B) inch | O.D (mm) | THK (mm) | WEIGHT (KG/m) | WORKING PRESSURE(Kg/cm²) HARD DRAWN | WORKING PRESSURE(Kg/cm²) ANNEALED | APPLICATION |
|---|---|---|---|---|---|---|---|---|
| K | 8 | 1/4 | 9.52 | 0.89 | 0.216 | 111.0 | 71.6 | SEE ITEM PRODUCED |
| | 10 | 3/8 | 12.70 | 1.24 | 0.399 | 123.0 | 79.7 | |
| | 15 | 1/2 | 15.88 | 1.24 | 0.510 | 95.3 | 61.6 | |
| | - | 5/8 | 19.05 | 1.24 | 0.620 | 78.7 | 50.9 | |
| | 20 | 3/4 | 22.22 | 1.65 | 0.953 | 90.8 | 58.7 | |
| | 25 | 1 | 28.58 | 1.65 | 1.25 | 69.7 | 45.1 | |
| | 32 | 11/4 | 34.92 | 1.65 | 1.54 | 56.6 | 36.6 | |
| | 40 | 11/2 | 41.28 | 1.83 | 2.03 | 53.7 | 34.7 | |
| | 50 | 2 | 53.98 | 2.11 | 3.07 | 46.1 | 29.8 | |
| | 65 | 21/2 | 66.68 | 2.41 | 4.35 | 43.2 | 27.9 | |
| | 80 | 3 | 79.38 | 2.77 | 5.96 | 42.4 | 27.4 | |
| | 90 | 31/2 | 92.08 | 3.05 | 7.63 | 39.8 | 25.7 | |
| | 100 | 4 | 104.78 | 3.40 | 9.68 | 38.7 | 25.0 | |
| | 125 | 5 | 130.18 | 4.06 | 14.40 | 37.2 | 24.0 | |
| | 150 | 6 | 155.58 | 4.88 | 20.70 | 38.1 | 24.7 | |
| | 200 | 8 | 206.38 | 6.88 | 38.60 | 41.2 | 26.6 | |
| | 250 | 10 | 257.18 | 8.59 | 59.97 | 41.5 | 27.0 | |
| L | 8 | 1/4 | 9.52 | 0.76 | 0.187 | 95.4 | 61.7 | SEE ITEM PRODUCED |
| | 10 | 3/8 | 12.70 | 0.89 | 0.295 | 81.7 | 52.8 | |
| | 15 | 1/2 | 15.88 | 1.02 | 0.426 | 74.5 | 48.1 | |
| | - | 5/8 | 19.05 | 1.07 | 0.540 | 65.3 | 42.2 | |
| | 20 | 3/4 | 22.22 | 1.14 | 0.675 | 60.1 | 38.8 | |
| | 25 | 1 | 28.58 | 1.27 | 0.974 | 52.6 | 34.0 | |
| | 32 | 11/4 | 34.92 | 1.40 | 1.32 | 47.9 | 31.0 | |
| | 40 | 11/2 | 41.28 | 1.52 | 1.70 | 43.3 | 28.0 | |
| | 50 | 2 | 53.98 | 1.78 | 2.61 | 38.5 | 24.9 | |
| | 65 | 21/2 | 66.68 | 2.03 | 3.69 | 35.5 | 22.9 | |
| | 80 | 3 | 79.38 | 2.29 | 4.96 | 34.1 | 22.0 | |
| | 90 | 31/2 | 92.08 | 2.54 | 6.38 | 33.0 | 21.3 | |
| | 100 | 4 | 104.78 | 2.79 | 7.99 | 31.5 | 20.4 | |
| | 125 | 5 | 130.18 | 3.18 | 11.30 | 28.8 | 18.6 | |
| | 150 | 6 | 155.58 | 3.56 | 15.20 | 27.3 | 17.6 | |
| | 200 | 8 | 206.38 | 5.08 | 28.70 | 29.7 | 19.2 | |
| | 250 | 10 | 257.18 | 6.35 | 44.70 | 29.9 | 19.2 | |
| M | 10 | 3/8 | 12.70 | 0.64 | 0.217 | 57.2 | 37.0 | SEE ITEM PRODUCED |
| | 15 | 1/2 | 15.88 | 0.71 | 0.302 | 51.5 | 33.3 | |
| | 20 | 3/4 | 22.22 | 0.81 | 0.487 | 39.6 | 25.6 | |
| | 25 | 1 | 28.58 | 0.89 | 0.692 | 34.4 | 22.2 | |
| | 32 | 11/4 | 34.92 | 1.07 | 1.02 | 35.0 | 22.6 | |
| | 40 | 11/2 | 41.28 | 1.24 | 1.39 | 35.1 | 22.7 | |
| | 50 | 2 | 53.98 | 1.47 | 2.17 | 30.7 | 19.8 | |
| | 65 | 21/2 | 66.68 | 1.65 | 3.01 | 28.4 | 18.3 | |
| | 80 | 3 | 79.38 | 1.83 | 3.99 | 26.8 | 17.3 | |
| | 90 | 31/2 | 92.08 | 2.11 | 5.33 | 26.7 | 17.3 | |
| | 100 | 4 | 104.78 | 2.41 | 6.93 | 26.6 | 17.2 | |
| | 125 | 5 | 130.18 | 2.77 | 9.91 | 25.1 | 16.2 | |
| | 150 | 6 | 155.58 | 3.10 | 13.30 | 23.3 | 15.1 | |
| | 200 | 8 | 206.38 | 4.32 | 24.50 | 24.8 | 16.0 | |
| | 250 | 10 | 257.18 | 5.38 | 38.09 | 25.0 | 16.0 | |

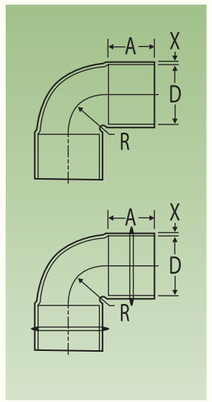






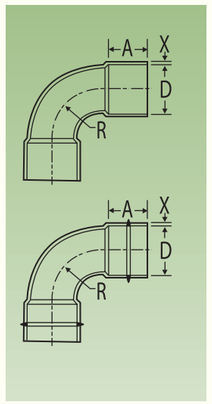

### Connectors
Patt. No. QA001
Equal

| Code | Code (tin) | Size (mm) |
|---|---|---|
| QA0010101 | QA0010102 | 15 mm |
| QA0010201 | QA0010202 | 22 mm |
| QA0010301 | QA0010302 | 28 mm |
| QA0010401 | QA0010402 | 35 mm |
| QA0010501 | QA0010502 | 42 mm |
| QA0010601 | QA0010602 | 54 mm |
| QA0010701 | QA0010702 | 67 mm |
| QA0010801 | QA0010802 | 76 mm |
| QA0010901 | QA0010902 | 108 mm |
| QA0011001 | QA0011002 | 6 mm |
| QA0011101 | QA0011102 | 8 mm |
| QA0011201 | QA0011202 | 10 mm |
| QA0011301 | QA0011302 | 12 mm |
| QA0011401 | QA0011402 | 18 mm |
| QA0011501 | QA0011502 | 89 mm |




### Elbows
Patt. No. QB001
Short Radius 90º

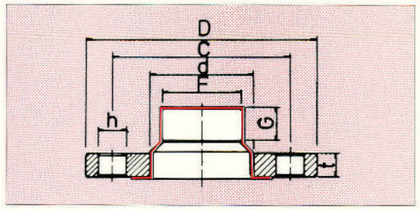
| Code | Code (tin) | Size (mm) |
|---|---|---|
| QB0010101 | QB0010102 | 15 mm |
| QB0010201 | QB0010202 | 22 mm |
| QB0011501 | QB0011502 | 28 mm |
| QB0010301 | QB0010302 | 35 mm |
| QB0010401 | QB0010402 | 42 mm |
| QB0010501 | QB0010502 | 54 mm |
| QB0010601 | QB0010602 | 67 mm |
| QB0010701 | QB0010702 | 76 mm |
| QB0010801 | QB0010802 | 108 mm |
| QB0010901 | QB0010902 | 6 mm |
| QB0011001 | QB0011002 | 8 mm |
| QB0011101 | QB0011102 | 10 mm |
| QB0011201 | QB0011202 | 12 mm |
| QB0011301 | QB0011302 | 18 mm |
| QB0011401 | QB0011402 | 89 mm |




### Elbows
Patt. No. QB002
Long Radius 90º

| Code | Code (tin) | Size (mm) |
|---|---|---|
| QB0020101 | QB0020102 | 15 mm |
| QB0020201 | QB0020202 | 22 mm |
| QB0020301 | QB0020302 | 28 mm |
| QB0020401 | QB0020402 | 35 mm |
| QB0020501 | QB0020502 | 42 mm |
| QB0020601 | QB0020602 | 54 mm |
| QB0020701 | QB0020702 | 67 mm |
| QB0020801 | QB0020802 | 76 mm |
| QB0020901 | QB0020902 | 108 mm |
| QB0021001 | QB0021002 | 6 mm |
| QB0021101 | QB0021102 | 8 mm |
| QB0021201 | QB0021202 | 10 mm |
| QB0021301 | QB0021302 | 12 mm |
| QB0021401 | QB0021402 | 18 mm |
| QB0021501 | QB0021502 | 89 mm |

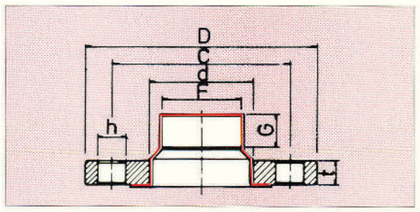
## Dielectric (Isolated) Flange




10kg/cm²
Class 10kg/cm²
DIELECTRIC FLANGE

**CODE-8820**

| Nominal Size Inch | Nominal Size (mm) | Application Copper Tube O.D (mm) | Dimension (mm) d | c | D | t | h | F | G | Bolt dia (mm) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1/2 | 15 | 15.88 | 26.5 | 70 | 95 | 12 | 15 x 4 | 16.00 | 11 | M12 |
| 3/4 | 20 | 22.22 | 34.5 | 75 | 100 | 14 | 15 x 4 | 22.36 | 17 | M12 |
| 1 | 25 | 28.58 | 41.2 | 90 | 125 | 14 | 19 x 4 | 28.75 | 21 | M16 |
| 1 1/4 | 32 | 34.92 | 46.5 | 100 | 135 | 16 | 19 x 4 | 35.11 | 22 | M 16 |
| 1 1/2 | 40 | 41.28 | 54.3 | 105 | 140 | 16 | 19 x 4 | 41.50 | 22 | M 16 |
| 2 | 50 | 53.98 | 68.5 | 120 | 155 | 16 | 19 x 4 | 54.22 | 23 | M 16 |
| 2 1/2 | 65 | 66.68 | 81.2 | 140 | 175 | 18 | 19 x 4 | 66.96 | 25 | M 16 |
| 3 | 80 | 79.38 | 94.2 | 150 | 185 | 18 | 19 x 8 | 79.66 | 26 | M 16 |
| 4 | 100 | 104.78 | 120.5 | 175 | 210 | 18 | 19 x 8 | 105.12 | 28 | M 16 |
| 5 | 125 | 130.18 | 146.5 | 210 | 250 | 20 | 23 x 8 | 130.55 | 30 | M 20 |
| 6 | 150 | 155.58 | 176.5 | 240 | 280 | 22 | 23 x 8 | 156.00 | 35 | M 20 |
| 8 | 200 | 206.38 | 226.5 | 290 | 330 | 22 | 23 x 12 | 207.27 | 40 | M 20 |
| 10 | 250 | 257.18 | 280.0 | 355 | 400 | 24 | 25 x 12 | 259.06 | 47 | M 20 |




20kg/cm²
Class 20kg/cm²
DIELECTRIC FLANGE

**CODE-8840**

| Nominal Size | | Application Copper Tube mm (OD) | Dimension mm d | c | D | t | h | F | G | Bolt dia (mm) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1/2 | 15 | 15.88 | 26.5 | 70 | 95 | 14 | 15 x 4 | 16.00 | 11 | M 12 |
| 3/4 | 20 | 22.22 | 34.5 | 75 | 100 | 16 | 15 x 4 | 22.36 | 17 | M 12 |
| 1 | 25 | 28.58 | 41.2 | 90 | 125 | 16 | 19 x 4 | 28.75 | 21 | M 16 |
| 1 1/4 | 32 | 34.92 | 46.5 | 100 | 135 | 18 | 19 x 4 | 35.11 | 22 | M 16 |
| 1 1/2 | 40 | 41.28 | 54.3 | 105 | 140 | 18 | 19 x 4 | 41.50 | 22 | M 16 |
| 2 | 50 | 53.98 | 68.5 | 120 | 155 | 18 | 19 x 8 | 54.22 | 23 | M 16 |
| 2 1/2 | 65 | 66.68 | 81.2 | 140 | 175 | 20 | 19 x 8 | 66.96 | 25 | M 16 |
| 3 | 80 | 79.38 | 94.2 | 160 | 200 | 22 | 23 x 8 | 79.66 | 26 | M 20 |
| 4 | 100 | 104.78 | 120.5 | 185 | 225 | 24 | 23 x 8 | 105.12 | 28 | M 20 |
| 5 | 125 | 130.18 | 146.5 | 225 | 270 | 26 | 25 x 8 | 130.55 | 30 | M 22 |
| 6 | 150 | 155.58 | 176.5 | 260 | 305 | 28 | 25 x 12 | 156.00 | 35 | M 22 |
| 8 | 200 | 206.38 | 226.5 | 305 | 350 | 30 | 25 x 12 | 207.27 | 40 | M 22 |
| 10 | 250 | 257.58 | 280.0 | 355 | 400 | 34 | 27 x 12 | 259.06 | 47 | M 22 |





## CHARACTER

| DESIGNATION UNS NO. | TYPE | RANK | CHARACTER | | |
|---|---|---|---|---|---|
| C 10200 | TUBE | NORMAL | C 10200 T | OF | OXYGEN-FREE COPPER IS MORE UNIFORM IN MICROSTRUCTURE. HOWEVER, IN THE ABSENCE OF INCLUSION OF COPPER OXIDE, SUPERIOR DUCTILITY AND RESISTANCE TO FATIGUE MAY BE OBTAINED. |
| | | SPECIAL | C 10200 TS | | |
| C 11000 | TUBE | NORMAL | C 11000 T | TP | TOUGH PITCH IS THE MAJOR COMMERCIAL TYPE OF COPPER . IT CONTAINS FEWER IMPURITIES AND AS A RESULT, IT HAS MORE UNIFORM MECHANICAL PROPERITIES. |
| | | SPECIAL | C 1100 TS | | |
| C 12200 | TUBE | NORMAL | C 12200 T | DHP | PHOSPHOROUS DEOXIDIZED COPPER ARE HIGHLY DUCTILE. THE ABSENCE OF THE COPPER-COPPER OXIDE EUTECTIC IMPROVES THE COLD- WORKING PROPERTIES OF THESE COPPERS OVER THOSE OF OXYGEN-BEARING COPPERS, PARTICULARLY FOR DEEP DRAWING AND SPINNING OPERATIONS. |
| | | SPECIAL | C 12200 TS | | |

## CHEMICAL REQUIREMENTS

| DESIGNATION | UNS NO. | CU, Min% | P (%) |
|---|---|---|---|
| DHP | C12200 | 99.9 | 0.015 to 0.040 |

## PHYSICAL AND MECHANICAL PROPERTY REQUIREMENTS

| SPECIFIC WEIGHT | LIQUIDS LINE TEMPERATURE (°C) | SOLIDS LINE TEMPERATURE (°C) | SPECIFIC HEAT (cal/g) 20 °C | 100 °C | LATENT HEAT OF MELTING (cal/g) | LATENT HEAT OF VAPORIZATION | COEFFICIENT OF THERMAL EXPANSION (m/m °C) -191~ 16 °C | 20~100 °C | 20~200 °C |
|---|---|---|---|---|---|---|---|---|---|
| 8.94 | 1,083 | 1,065 | 0.0921 | 0.0939 | 48.9 | 1,150 | $14.1\times10^{-6}$ | $16.8\times10^{-6}$ | $17.3\times10^{-6}$ |

| COEFFICIENT OF HEAT TRANSFER (Kcal/m hr °C) | ELECTRIC CONDUCTIVITY (IACS%) | ELECTRIC RESISTANCE (μ Ωcm) | POISON'S RATIO |
|---|---|---|---|
| 332 | 100 | 2.5~1.9 | 0.3 |

• O: AANEALED 1/2H; HALF HARD H: HARD (DRAWN)

| DESIGNATION | TEMPER | UNS NO. | O.D (mm) | THK (mm) | TENSILE STRENGTH (N/mm²) | ELONGATION (%) | ROCKWELL HARDNESS THK (mm) | HR 30T | HR 15 T | HRF |
|---|---|---|---|---|---|---|---|---|---|---|
| C12200T | O | C 12200T-0 | 4~250 | 0.25~30 | 205 Max | 40 Max | 0.6 Max | - | 60 Min | 50 Min |
| | OL | C 12200T-OL | 4~250 | 0.25~30 | 205 Max | 40 Max | 0.6 Max | - | 65 Min | 55 Min |
| | 1/2 H | C 12200T-1/2 H | 4~250 | 0.25~25 | 245~325 | - | - | 30 ~ 60 | - | - |
| | H | C 12200 T-H | ~25 | 0.25~3.0 | 315 Max | - | - | 55 Max | - | - |
| | | | 25~50 | 0.9~4.0 | | | | - | - | - |
| | | | 50~100 | 1.5~6.0 | | | | - | - | - |
| | | | 100~200 | 2.0~6.0 | 275 Max | - | - | - | - | - |
| | | | 200~350 | 3.0~8.0 | 255 Max | - | - | - | - | - |

## MODULI OF ELASTICITY (99.9% Cu, MATERIAL)

• ANSI/ASME B 31.1 POWER PIPING

| TEMPERATURE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | °C | -198 | -129 | 73 | 21 | 38 | 93 | 149 | 204 |
| | °F | -324 | -200 | -99 | 70 | 100 | 200 | 300 | 400 |
| x10³ KPa | | 117.2 | 116.5 | 115.1 | 113.8 | 113.8 | 112.4 | 111.7 | 110.3 |
| x10³ Kg/cm² | | 1.196 | 1.188 | 1.174 | 1.160 | 1.160 | 1.146 | 1.139 | 1.125 |

## MAXIMUM ALLOWABLE STRESS VALUES IN TENSION (C12200T Cu, TUBE)

• ANSI/ASME B 31.1 POWER PIPING

| TEMPERATURE | °C | -28~ 38 | 66 | 93 | 121 | 149 | 177 | 204 | TENSILE STRENGTH |
|---|---|---|---|---|---|---|---|---|---|
| | °F | -20 ~100 | 150 | 200 | 250 | 300 | 350 | 400 | |
| O | X1000 PSI | 6.0 | 5.1 | 4.8 | 4.8 | 4.7 | 4.0 | 3.0 | 30KSI |
| | Kg/mm² | 4.1 | 3.5 | 3.3 | 3.3 | 3.2 | 2.7 | 2..0 | 21Kg/mm² |
| | N/mm² | 40. 2 | 34.3 | 32.4 | 32.4 | 31.4 | 26.5 | 19.6 | 205N/mm² |
| H | X1000 PSI | 11.3 | 11.3 | 11.3 | 11.3 | 11.0 | 10.3 | 4.3 | 36KSI |
| | Kg/mm² | 7.7 | 7.7 | 7.7 | 7.7 | 7.5 | 7.0 | 2.9 | 32Kg/mm² |
| | N/mm² | 75.5 | 75.5 | 75.5 | 75.5 | 73.5 | 68.6 | 28.4 | 315N/mm² |

## RECOMMENDATIONS FOR VARIOUS APPLICATIONS

**Underground Water Services**
Use Type M hard for straight lengths joined with fittings, and Type L soft where coils are more convenient.

**Water Distribution Systems**
Use Type M for above and below ground

**Chilled Water Mains**
Use Type M for all sizes. Type DWV, where approved, may be used for sizes of 11/4 inch and larger: however joints must be made with solder-joint pressure fittings.

**Drainage and Vent Systems**
Use Type DWV for above and belowground waste, soil and vent lines, roof and building drains and sewers.

**Heating**
For radiant panel and hydronic heating and for snow melting systems, use Type L soft temper where the coils are formed in place or prefabricated. Type M where straight lengths are used. For water heating and low pressure steam use Type M for all sizes. Type DWV, where approved may be used for sizes of 11/4 inch and larger: however joints must be made with solder joint pressure fittings
For condensate return lines. Type L is successfully used.

**Solar Heating**
See the heating section above. For information on solar installation and on solar collectors, write the Copper Development Association. Inc.

**Fuel Oil, L.P and Natural Gas Systems**
Use copper tube in accord with local codes.

**Nonflammable Medical Gas Systems**
Use Medical Gas tube Types K or L, suitably cleaned for oxygen service per *NFPA Publication No.99. Health Care Facilities.

**Air-Conditioning and Refrigeration Systems**
Copper is the preferred material for use with most refrigerants. Use Types L, ACR or as specified.

**Ground Source Heat Pump Systems**
Use Type L or ACR where ground coils are formed in place or prefabricated, or as specified.

**Fire Sprinkler Systems**
Use Type M hard, Where bending is required both types K or L are recommended. Types K.L and M are all accepted by NFPA.

## The Advantages of Copper Tube

High-strength, corrosion resistant, smooth-bore plumbing tube is the leading choice, by far, of modern contractors for plumbing and heating installations in all kinds of residential and commercial buildings. There are seven primary reasons for this popularity.

**1. Copper resists corrosion**
Excellent resistance to corrosion and scaling assures long trouble free service with copper which in turn means satisfied customers.

**2. Copper is light weight**
Copper tube does not require the heavy thickness o ferrous and threaded pipes of the same internal diameter. This means copper costs less to transport, handles more easily and when installed, takes less space.

**3. Copper is formable**
Because copper tube can be readily bent and formed, it is frequently possible to eliminate elbows and joints. Smooth bends permit the tube to follow contour and corners of any angle. With so ft temper tube, particularly when used for renovation or modernization projects much less wall and ceiling space is needed

**4. Copper is easy to join**
Copper tube can be joined with capillary fittings. These fittings save material and make smooth, neat, strong and leak-proof joints. No extra thickness or weight is necessary to compensate for material removed by threading

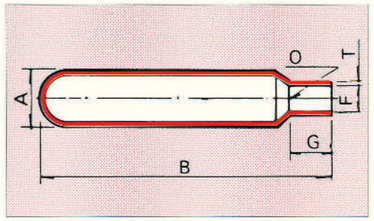
**5. Copper is safe**
The copper tube will not burn or support combustion and decompose to toxic gases.
Therefore, it will not carry fire through walls and ceilings. And no volatile compounds are required for installation.

**6. Copper is dependable.**
The defined composition standards and marked with permanent identification so you know exactly what it is and who made it.

**7. Copper is economical**
The combination of easy handling forming and joining permits savings in installation time, material and overall costs. Long term performance reliability and wide code acceptance makes copper the ideal cost-effective piping material.



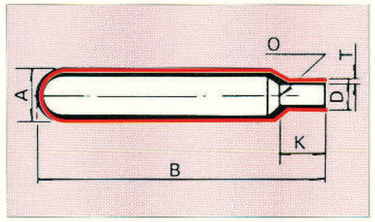





AIR CHAMBER A-TYPE

**CODE-6000**

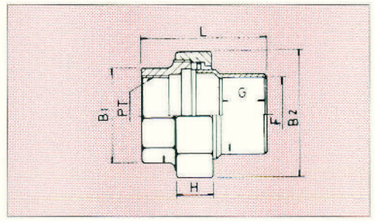
| Nominal Size Inch | (mm) | Figure A (mm) | B (mm) | Inside Dia. F (mm) | Depth (Min.) G (mm) | Thickness (Min.) T (mm) | Inside Dia. (Min.) O (mm) |
|---|---|---|---|---|---|---|---|
| 1/2 x 6 | (15 x 150) | 28.58 | 150 | 16.00 | 11 | 0.8 | 12 |
| 1/2 x 12 | (15 x 300) | 28.58 | 300 | 16.00 | 11 | 0.8 | 12 |
| 5/8 x 12 | (19 x 300) | 28.58 | 300 | 19.19 | 15 | 0.8 | 14 |
| 3/4 x 12 | (20 x 300) | 28.58 | 300 | 22.36 | 17 | 0.9 | 17 |
| 1 x 12 | (25 x 300) | 34.92 | 300 | 28.75 | 21 | 1.0 | 23 |
| 1 1/4 x 12 | (32 x 300) | 41.28 | 300 | 35.11 | 24 | 1.2 | 28 |




AIR CHAMBER C-TYPE

**CODE-6100**

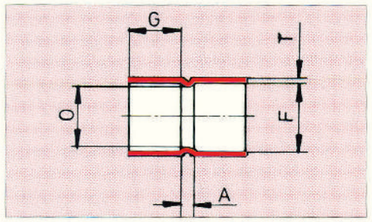
| Nominal Size Inch | (mm) | Figure A (mm) | B (mm) | Inside Dia. F (mm) | Depth (Min.) G (mm) | Thickness (Min.) T (mm) | Inside Dia. (Min.) O (mm) |
|---|---|---|---|---|---|---|---|
| 1/2 x 6 | (15 x 150) | 28.58 | 150 | 15.88 | 12 | 0.8 | 12 |
| 1/2 x 12 | (15 x 300) | 28.58 | 300 | 15.88 | 12 | 0.8 | 12 |
| 5/8 x 12 | (19 x 300) | 28.58 | 300 | 19.05 | 16 | 0.8 | 14 |
| 3/4 x 12 | (20 x 300) | 28.58 | 300 | 22.22 | 18 | 0.9 | 17 |
| 1 x 12 | (25 x 300) | 34.92 | 300 | 28.58 | 22 | 1.0 | 23 |
| 1 1/4 x 12 | (32 x 300) | 41.28 | 300 | 34.92 | 25 | 1.2 | 28 |




DIELECTRIC UNION
(C X F)

**CODE-8700**

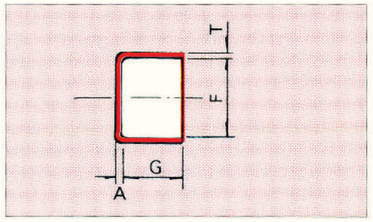
| Nominal Size Inch | (mm) | Application Copper Tube O. D. (mm) | Dimension (mm) L | B1 | B2 | H | Inside Dia. F (mm) | Depth (Min) G (mm) | PT |
|---|---|---|---|---|---|---|---|---|---|
| 1/2 | 15 | 15.88 | 46 | 27 | 42 | 17 | 16.00 | 11 | |
| 3/4 | 20 | 22.22 | 60 | 33 | 49 | 18.5 | 22.36 | 17 | 3/4 |
| 1 | 25 | 28.58 | 64 | 41 | 59 | 20.0 | 28.75 | 21 | 1 |
| 1 1/4 | 32 | 34.92 | 74 | 50 | 69 | 22.0 | 35.11 | 24 | 1 1/4 |
| 1 1/2 | 40 | 41.28 | 80 | 56 | 78 | 24.5 | 41.50 | 27 | 1 1/2 |
| 2 | 50 | 53.98 | 92 | 69 | 93 | 27.0 | 54.22 | 33 | 2 |




SOCKET A-TYPE
(C X C)

**CODE-4500**

| Nominal Size Inch | (mm) | Figure A (mm) | Inside Dia. F (mm) | Depth (Min.) G (mm) | Thickness (Min.) T (mm) | Inside Dia. (Min.) O (mm) |
|---|---|---|---|---|---|---|
| 3/8 | (10) | 2.5 | 12.81 | 9 | 0.7 | 11 |
| 1/2 | (15) | 2.5 | 16.00 | 11 | 0.8 | 14 |
| 5/8 | (19) | 2.5 | 19.19 | 15 | 0.8 | 17 |
| 3/4 | (20) | 2.5 | 22.36 | 17 | 0.9 | 20 |
| 1 | (25) | 2.5 | 28.75 | 21 | 1.0 | 27 |
| 1 1/4 | (32) | 3.0 | 35.11 | 24 | 1.2 | 33 |
| 1 1/2 | (40) | 3.0 | 41.50 | 27 | 1.3 | 39 |
| 2 | (50) | 3.0 | 54.22 | 33 | 1.5 | 52 |
| 2 1/2 | (65) | 3.0 | 66.96 | 37 | 1.7 | 64 |
| 3 | (80) | 3.0 | 79.66 | 42 | 2.0 | 76 |
| 4 | (100) | 5.5 | 105.12 | 54 | 2.4 | 102 |
| 5 | (125) | 5.5 | 130.55 | 67 | 2.9 | 127 |
| 6 | (150) | 7.0 | 156.00 | 78 | 3.3 | 153 |
| 8 | (200) | 12.0 | 207.27 | 100 | 4.7 | 203 |
| 10 | (250) | 18.0 | 259.06 | 110 | 5.0 | 235 |




CAP

**CODE-5000**

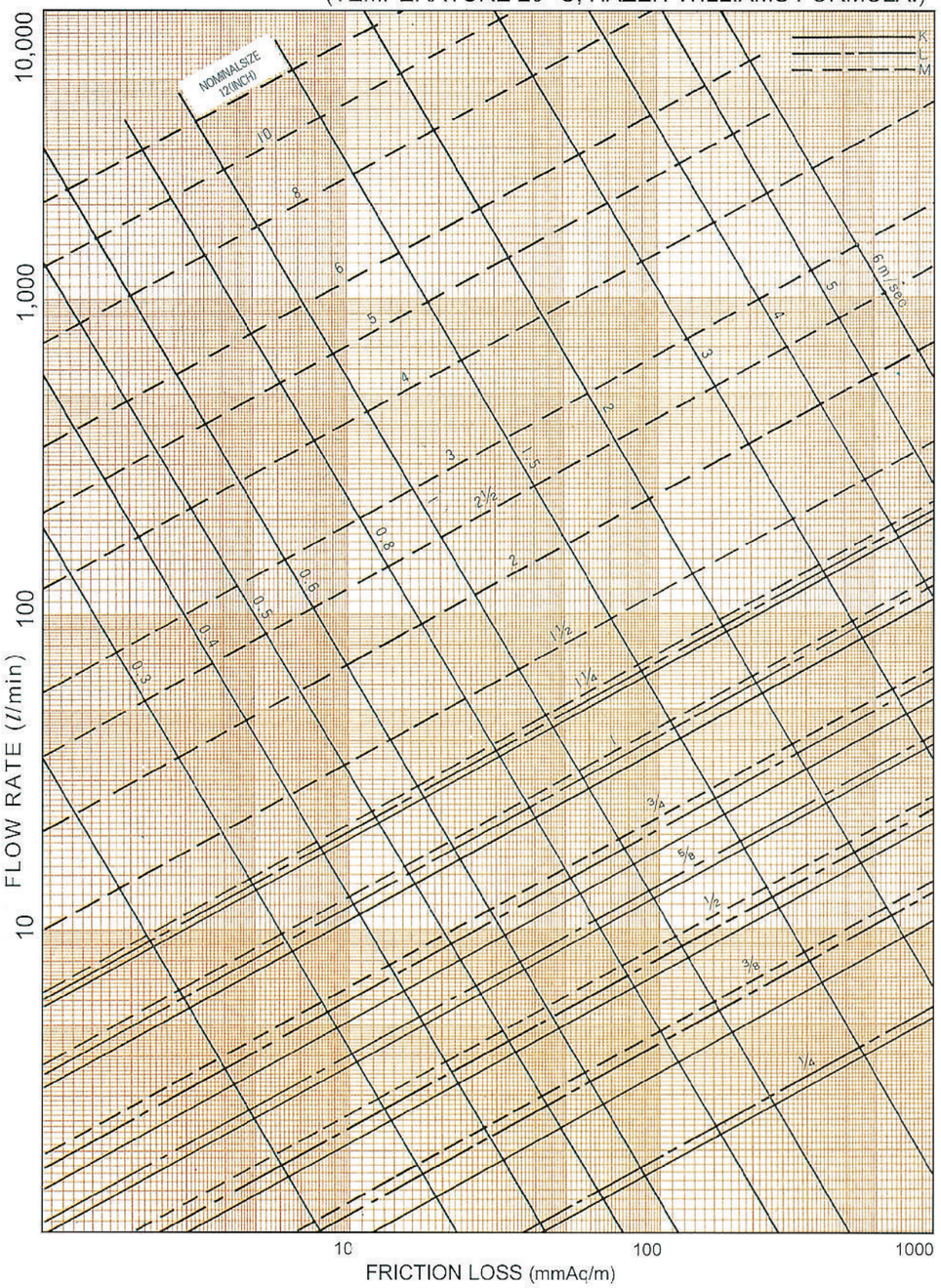
| Nominal Size Inch | (mm) | Figure A (mm) | Inside Dia. F (mm) | Depth (Min.) G (mm) | Thickness (Min.) T (mm) |
|---|---|---|---|---|---|
| 1/4 | (8) | 2.5 | 9.62 | 8 | 0.6 |
| 3/8 | (10) | 2.5 | 12.81 | 9 | 0.7 |
| 1/2 | (15) | 3.0 | 16.00 | 11 | 0.8 |
| 5/8 | (19) | 3.0 | 19.19 | 15 | 0.8 |
| 3/4 | (20) | 4.0 | 22.36 | 17 | 0.9 |
| 1 | (25) | 4.0 | 28.75 | 21 | 1.0 |
| 1 1/4 | (32) | 4.0 | 35.11 | 24 | 1.2 |
| 1 1/2 | (40) | 4.0 | 41.50 | 27 | 1.3 |
| 2 | (50) | 4.0 | 54.22 | 33 | 1.5 |
| 2 1/2 | (65) | 5.5 | 66.96 | 37 | 1.7 |
| 3 | (80) | 5.5 | 79.66 | 42 | 2.0 |
| 4 | (100) | 6.5 | 105.12 | 54 | 2.4 |





## FRICTION LOSS - FLOW RATE CHART

(TEMPERATURE 20° C, HAZEN-WILLIAMS FORMULA.)



EUROPEAN STANDARD EN 1057 (BS2871)

## COPPER TUBE - CLASS X

| NOMINAL DIAMETER (mm) | NOMINAL THICKNESS (mm) | MAXIMUM WORKING PRESSURES † (kPa) ANNEALED | HALF HARD | HARD | MASS/ LENGTH ‡ (kg/5.8m) | LENGHTS/ BUNDLE | MASS/ BUNDLE ‡ (kg/5.8m) |
|---|---|---|---|---|---|---|---|
| 6 | 0.6 | 10 200 | 13 300 | 16 100 | 0.53 | | |
| 8 | 0.6 | 7 500 | 9 700 | 11 800 | 0.72 | | |
| 10 | 0.6 | 5 900 | 7 700 | 9 300 | 0.92 | | |
| 12 | 0.6 | 4 800 | 6 300 | 7 600 | 1.11 | | |
| 15 | 0.7 | 4 500 | 5 800 | 7 100 | 1.63 | 100 | 164 |
| 18 | 0.8 | 4 300 | 5 600 | 6 700 | 2.24 | | |
| 22 | 0.9 | 3 900 | 5 100 | 6 200 | 3.09 | 50 | 155 |
| 28 | 0.9 | 3 100 | 4 000 | 4 800 | 3.98 | 50 | 199 |
| 35 | 1.2 | 3 300 | 4 200 | 5 100 | 6.61 | 50 | 331 |
| 42 | 1.2 | 2 700 | 3 500 | 4 300 | 7.98 | 50 | 400 |
| 54 | 1.2 | 2 100 | 2 700 | 3 300 | 10.33 | 30 | 310 |
| 66.7 | 1.2 | 1 700 | 2 000 | 2 700 | 12.81 | 25 | 320 |
| 76.1 | 1.5 | 1 800 | 2 400 | 2 900 | 18.24 | 25 | 457 |
| 108 | 1.5 | 1 300 | 1 700 | 2 000 | 26.04 | 10 | 261 |
| 133 | 1.5 | 1 000 | 1 400 | 1 700 | 32.15 | 10 | 322 |
| 159 | 2.0 | 1 200 | 1 500 | 1 800 | 51.18 | 5 | 256 |

## COPPER TUBE - CLASS Y

| NOMINAL DIAMETER (mm) | NOMINAL THICKNESS (mm) | MAXIMUM WORKING PRESSURES † (kPa) ANNEALED | HALF HARD | HARD | MASS/ LENGTH ‡ (kg/5.8m) | LENGHTS/ BUNDLE | MASS/ BUNDLE ‡ (kg/5.8m) |
|---|---|---|---|---|---|---|---|
| 6 | 0.8 | 14 400 | 18 800 | 22 300 | 0.68 | | |
| 8 | 0.8 | 10 500 | 13 600 | 16 100 | 0.94 | | |
| 10 | 0.8 | 8 200 | 10 600 | 12 600 | 1.20 | | |
| 12 | 0.8 | 6 700 | 8 700 | 10 400 | 1.46 | | |
| 15 | 1.0 | 6 700 | 8 700 | 10 400 | 2.28 | 100 | 228 |
| 18 | 1.0 | 5 500 | 7 200 | 8 500 | 2.77 | | |
| 22 | 1.2 | 5 300 | 6 900 | 8 400 | 4.07 | 50 | 204 |
| 28 | 1.2 | 4 200 | 5 500 | 6 500 | 5.24 | 50 | 263 |
| 35 | 1.5 | 4 100 | 5 400 | 6 500 | 8.19 | 50 | 410 |
| 42 | 1.5 | 3 400 | 4 500 | 5 400 | 9.90 | 50 | 496 |
| 54 | 2.0 | 3 600 | 4 700 | 5 600 | 16.95 | 30 | 509 |
| 66.7 | 2.0 | 2 800 | 3 700 | 4 500 | 21.09 | 25 | 528 |
| 76.1 | 2.0 | 2 500 | 3 300 | 3 900 | 24.15 | 25 | 606 |
| 108 | 2.5 | 2 200 | 2 900 | 3 400 | 42.99 | 10 | 430 |

† Based on individual tempers for temperatures up to 65°C. Annealed values apply when tubes are softened during jointing or fabrication.

‡ Based on nominal diameter and thickness .

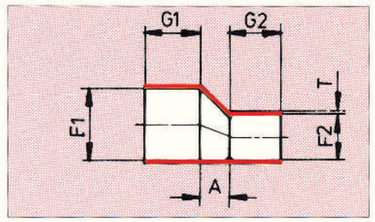
*Note*

For convenience and information, sizes covered by EN1057 are shown in the tables above. However, due to market demands, or manufacturing requirements, not all sizes are produced by QUALICOP.





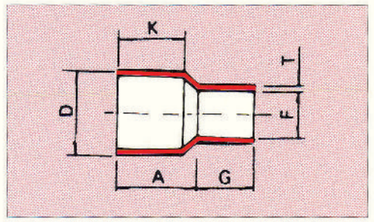
| Nominal Size Inch | (mm) | Figure A (mm) | In(out)side Dia. D (mm) | F (mm) | Depth (Min.) K (mm) | G (mm) | Thickness (Min.) T (mm) |
|---|---|---|---|---|---|---|---|
| 5 x 4 | (125 x 100) | 96.7 | 130.18 | 105.12 | 69 | 54 | 2.9 |
| 5 x 3 | (125 x 80) | 99.2 | 130.18 | 79.66 | 69 | 42 | 2.9 |
| 5 x 2 1/2 | (125 x 65) | 106.8 | 130.18 | 66.96 | 69 | 37 | 2.9 |
| 5 x 2 | (125 x 50) | 114.3 | 130.18 | 54.22 | 69 | 33 | 2.9 |
| 5 x 1 1/2 | (125 x 40) | 121.9 | 130.18 | 41.50 | 69 | 27 | 2.9 |
| 5 x 1 1/4 | (125 x 32) | 125.7 | 130.18 | 35.11 | 69 | 24 | 2.9 |
| 5 x 1 | (125 x 25) | 129.5 | 130.18 | 28.75 | 69 | 21 | 2.9 |
| 5 x 3/4 | (125 x 20) | 134.3 | 130.18 | 22.36 | 69 | 17 | 2.9 |
| 5 x 5/8 | (125 x 19) | 135.2 | 130.18 | 19.19 | 69 | 15 | 2.9 |
| 5 x 1/2 | (125 x 15) | 137.1 | 130.18 | 16.00 | 69 | 11 | 2.9 |
| 6 x 5 | (150 x 125) | 109.2 | 155.58 | 130.55 | 82 | 67 | 3.3 |
| 6 x 4 | (150 x 100) | 112.2 | 155.58 | 105.12 | 82 | 54 | 3.3 |
| 6 x 3 | (150 x 80) | 127.3 | 155.58 | 79.66 | 82 | 42 | 3.3 |
| 6 x 2 1/2 | (150 x 65) | 134.9 | 155.58 | 66.96 | 82 | 37 | 3.3 |
| 6 x 2 | (150 x 50) | 142.5 | 155.58 | 54.22 | 82 | 33 | 3.3 |
| 6 x 1 1/2 | (150 x 40) | 150.1 | 155.58 | 41.50 | 82 | 27 | 3.3 |
| 6 x 1 1/4 | (150 x 32) | 153.9 | 155.58 | 35.11 | 82 | 24 | 3.3 |
| 6 x 1 | (150 x 25) | 157.7 | 155.58 | 28.75 | 82 | 21 | 3.3 |
| 6 x 3/4 | (150 x 20) | 161.5 | 155.58 | 22.36 | 82 | 17 | 3.3 |
| 6 x 5/8 | (150 x 19) | 163.4 | 155.58 | 19.19 | 82 | 15 | 3.3 |
| 6 x 1/2 | (150 x 15) | 165.3 | 155.58 | 16.00 | 82 | 11 | 3.3 |
| 8 x 6 | (200 x 150) | 158.5 | 206.38 | 156.00 | 104 | 78 | 4.7 |
| 8 x 5 | (200 x 125) | 149.4 | 206.38 | 130.55 | 104 | 67 | 4.7 |
| 8 x 4 | (200 x 100) | 164.4 | 206.38 | 105.12 | 104 | 54 | 4.7 |
| 8 x 3 | (200 x 80) | 179.6 | 206.38 | 79.66 | 104 | 42 | 4.7 |
| 8 x 2 1/2 | (200 x 65) | 187.2 | 206.38 | 66.96 | 104 | 37 | 4.7 |
| 8 x 2 | (200 x 50) | 194.8 | 206.38 | 54.22 | 104 | 33 | 4.7 |
| 8 x 1 1/2 | (200 x 40) | 197.8 | 206.38 | 41.50 | 104 | 27 | 4.7 |
| 8 x 1 1/4 | (200 x 32) | 206.1 | 206.38 | 35.11 | 104 | 24 | 4.7 |
| 8 x 1 | (200 x 25) | 209.9 | 206.38 | 28.75 | 104 | 21 | 4.7 |
| 8 x 3/4 | (200 x 20) | 213.7 | 206.38 | 22.36 | 104 | 17 | 4.7 |
| 8 x 5/8 | (200 x 19) | 215.6 | 206.38 | 19.19 | 104 | 15 | 4.7 |
| 8 x 1/2 | (200 x 15) | 217.5 | 206.38 | 16.00 | 104 | 11 | 4.7 |
| 10 x 8 | (250 x 200) | 24.0 | 259.06 | 207.27 | 110 | 100 | 5.0 |




ECCENTRIC REDUCER
(C X C)

**CODE-4200**

| Nominal Size Inch | (mm) | Figure A (mm) | Inside Dia F1 (mm) | F2 (mm) | Depth (Min.) G1 (mm) | G2 (mm) | Thickness (Min.) T (mm) |
|---|---|---|---|---|---|---|---|
| 3/4 x 1/2 | (20 x 15) | 8.0 | 22.36 | 16.00 | 17 | 11 | 0.9 |
| 1 1/4 x 1 | (32 x 25) | 11.0 | 35.11 | 28.75 | 24 | 21 | 1.2 |
| 1 1/4 x 3/4 | (32 x 20) | 17.5 | 35.11 | 22.36 | 24 | 17 | 1.2 |
| 1 1/4 x 1/2 | (32 x 15) | 22.0 | 35.11 | 16.00 | 24 | 11 | 1.2 |
| 1 1/2 x 1 1/4 | (40 x 32) | 11.0 | 41.50 | 35.11 | 27 | 24 | 1.3 |
| 1 1/2 x 1 | (40 x 25) | 17.5 | 41.50 | 28.75 | 27 | 21 | 1.3 |
| 1 1/2 x 3/4 | (40 x 20) | 20.0 | 41.50 | 22.36 | 27 | 17 | 1.3 |
| 1 1/2 x 1/2 | (40 x 15) | 24.0 | 41.50 | 16.00 | 27 | 11 | 1.3 |
| 2 x 1 1/2 | (50 x 40) | 22.0 | 54.22 | 41.50 | 33 | 27 | 1.5 |




REDUCER B-TYPE
(C X ftg)

**CODE: 4100**

| Nominal Size | | Figure | In(out)side Dia. | | Depth, Length (Min.) | | Thickness (Min.) |
|---|---|---|---|---|---|---|---|
| Inch | (mm) | A (mm) | D (mm) | F (mm) | K (mm) | G (mm) | T (mm) |
| 3/8 x 1/4 | (10 x 8) | 13.0 | 12.70 | 9.62 | 10 | 8 | 0.7 |
| 1/2 x 3/8 | (15 x 10) | 15.3 | 15.88 | 12.81 | 12 | 9 | 0.8 |
| 5/8 x 1/2 | (19 x 15) | 19.6 | 19.05 | 16.00 | 16 | 11 | 0.8 |
| 3/4 x 5/8 | (20 x 19) | 20.4 | 22.22 | 19.19 | 18 | 15 | 0.9 |
| 3/4 x 1/2 | (20 x 15) | 20.9 | 22.22 | 16.00 | 18 | 11 | 0.9 |
| 1 x 3/4 | (25 x 20) | 28.6 | 28.58 | 22.36 | 22 | 17 | 1.0 |
| 1 x 5/8 | (25 x 19) | 27.6 | 28.58 | 19.19 | 22 | 15 | 1.0 |
| 1 x 1/2 | (25 x 15) | 29.5 | 28.58 | 16.00 | 22 | 11 | 1.0 |
| 1 1/4 x 1 | (32 x 25) | 31.9 | 34.92 | 28.75 | 25 | 21 | 1.2 |
| 1 1/4 x 3/4 | (32 x 20) | 32.5 | 34.92 | 22.36 | 25 | 17 | 1.2 |
| 1 1/4 x 5/8 | (32 x 19) | 34.3 | 34.92 | 19.19 | 25 | 15 | 1.2 |
| 1 1/4 x 1/2 | (32 x 15) | 36.3 | 34.92 | 16.00 | 25 | 11 | 1.3 |
| 1 1/2 x 1 1/4 | (40 x 32) | 35.0 | 41.28 | 35.11 | 28 | 24 | 1.3 |
| 1 1/2 x 1 | (40 x 25) | 35.7 | 41.28 | 28.75 | 28 | 21 | 1.3 |
| 1 1/2 x 3/4 | (40 x 20) | 39.3 | 41.28 | 22.36 | 28 | 17 | 1.3 |
| 1 1/2 x 5/8 | (40 x 19) | 41.2 | 41.28 | 19.19 | 28 | 15 | 1.3 |
| 1 1/2 x 1/2 | (40 x 15) | 43.2 | 41.28 | 16.00 | 28 | 11 | 1.3 |
| 2 x 1 1/2 | (50 x 40) | 47.5 | 53.98 | 41.50 | 34 | 27 | 1.5 |
| 2 1 1/4 | (50 x 32) | 45.4 | 53.98 | 35.11 | 34 | 24 | 1.5 |
| 2 x 1 | (50 x 25) | 49.2 | 53.98 | 28.75 | 34 | 21 | 1.5 |
| 2 x 3/4 | (50 x 20) | 52.8 | 53.98 | 22.36 | 34 | 17 | 1.5 |
| 2 x 5/8 | (50 x 19) | 54.7 | 53.98 | 19.19 | 34 | 15 | 1.5 |
| 2 x 1/2 | (50 x 15) | 56.7 | 53.98 | 16.00 | 34 | 11 | 1.5 |
| 2 1/2 x 2 | (65 x 50) | 51.7 | 66.68 | 54.22 | 38 | 33 | 1.7 |
| 2 1/2 x 1 1/2 | (65 x 40) | 53.2 | 66.68 | 41.50 | 38 | 27 | 1.7 |
| 2 1/2 x 1 1/4 | (65 x 32) | 57.0 | 66.68 | 35.11 | 38 | 24 | 1.7 |
| 2 1/2 x 1 | (65 x 25) | 60.8 | 66.68 | 28.75 | 38 | 21 | 1.7 |
| 2 1/2 x 3/4 | (65 x 20) | 64.6 | 66.68 | 22.36 | 38 | 17 | 1.7 |
| 2 1/2 x 5/8 | (65 x 19) | 66.5 | 66.68 | 19.19 | 38 | 15 | 1.7 |
| 2 1/2 x 1/2 | (65 x 15) | 68.4 | 66.68 | 16.00 | 38 | 11 | 1.7 |
| 3 x 2 1/2 | (80 x 65) | 56.6 | 79.38 | 66.96 | 43 | 37 | 2.0 |
| 3 x 2 | (80 x 50) | 58.2 | 79.38 | 54.22 | 43 | 33 | 2.0 |
| 3 x 1 1/2 | (80 x 40) | 65.7 | 79.38 | 41.50 | 43 | 27 | 2.0 |
| 3 x 1 1/4 | (80 x 32) | 69.5 | 79.38 | 35.11 | 43 | 24 | 2.0 |
| 3 x 1 | (80 x 25) | 73.3 | 79.38 | 28.75 | 43 | 21 | 2.0 |
| 3 x 3/4 | (80 x 20) | 77.1 | 79.38 | 22.36 | 43 | 17 | 2.0 |
| 3 x 5/8 | (80 x 19) | 79.0 | 79.38 | 19.19 | 43 | 15 | 2.0 |
| 3 x 1/2 | (80 x 15) | 80.9 | 79.38 | 16.00 | 43 | 11 | 2.0 |
| 4 x 3 1/2 | (100 x 90) | 68.8 | 104.78 | 92.22 | 55 | 48 | 2.4 |
| 4 x 3 | (100 x 80) | 70.2 | 104.78 | 79.66 | 55 | 42 | 2.4 |
| 4 x 2 1/2 | (100 x 65) | 77.7 | 104.78 | 66.96 | 55 | 37 | 2.4 |
| 4 x 2 | (100 x 50) | 85.3 | 104.78 | 54.22 | 55 | 33 | 2.4 |
| 4 x 1 1/2 | (100 x 40) | 92.9 | 104.78 | 41.50 | 55 | 27 | 2.4 |
| 4 x 1 1/4 | (100 x 32) | 96.7 | 104.78 | 35.11 | 55 | 24 | 2.4 |
| 4 x 2 | (100 x 50) | 100.5 | 104.78 | 28.75 | 55 | 21 | 2.4 |
| 4 x 3/4 | (100 x 20) | 104.3 | 104.78 | 22.36 | 55 | 17 | 2.4 |
| 4 x 5/8 | (100 x 19) | 106.2 | 104.78 | 19.19 | 55 | 15 | 2.4 |
| 4 x 1/2 | (100 x 15) | 108.1 | 104.78 | 16.00 | 55 | 11 | 2.4 |



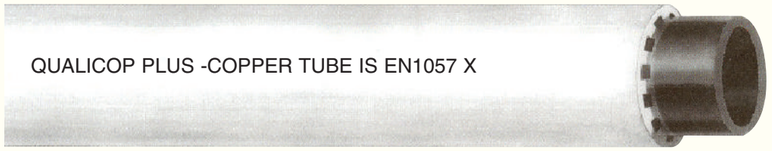


## PLASTIC COVERED COPPER TUBE

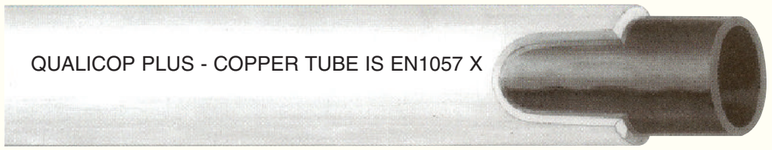
Qualicop Copper Systems has developed **Qualicop Plus** pre-insulated copper tube for a range of plumbing applications. The products consist of EN1057 tube encapsulated in a tough, solid extruded polyethylene jacket.

This polyethylene sheathed tubing is suitable for use in a variety of applications including; burying in corrosive soils, laying under floors and concrete slabs (where approved), chasing into walls and masonry, exposed or aggressive environments The covering is coloured white. This insulation will soften at elevated temperatures and the product should not be used for installations operating continuously at temperatures above 90°C.

**Qualicop Plus** insulation is internally profiled to entrap air and provide a thermal barrier. It is suitable for both hot and cold water plumbing and is useful in preventing condensation.

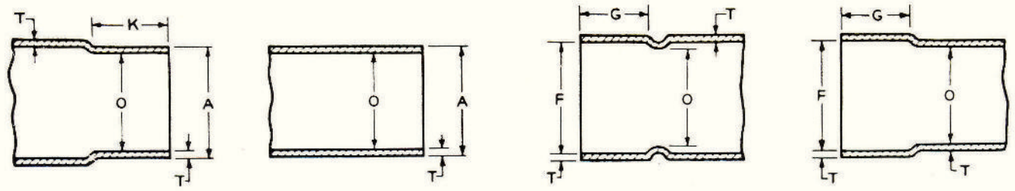



**Qualicop Plus** has a tough, thin, space-saving covering. The moisture resistant jacket makes the product suitable for cold water applications and where tube may be concealed or exposed to aggressive environments. This tube is also suitable for gas line installations.



## ASME B16.22-1995
## Wrought Copper and Copper Alloy Solder Joint Pressure Fittings

### Dimensions of Solder Joint Ends




MALE END (FTG) — FEMALE END (C)

| Standard Water Tube Size | | Male End | | | | | Female End | | | | | Metal Thickness (Min) | Inside Diameter (Min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Inch | mm | Outside Diameter A(mm) | Average Tolerance (mm) | Actual O.D. MIN (mm) | Actual O.D. MAX (mm) | Length (Min) K(mm) | Inside (Diameter) F(mm) | Average Tolerance (mm) | Actual I.D. MIN (mm) | Actual I.D. MAX (mm) | Depth (Min) G(mm) | T(mm) | O(mm) |
| 1/8 | 6 | 6.34 | | 6.28 | 6.40 | 9 | 6.45 | | 6.39 | 6.51 | 8 | 0.6 | 5 |
| 1/4 | 8 | 9.52 | | 9.46 | 9.58 | 9 | 9.62 | | 9.56 | 9.68 | 8 | 0.6 | 6 |
| 3/8 | 10 | 12.70 | ±0.03 | 12.63 | 12.77 | 10 | 12.81 | ±0.03 | 12.74 | 12.88 | 9 | 0.7 | 9 |
| 1/2 | 15 | 15.88 | | 15.79 | 15.97 | 12 | 16.00 | | 15.92 | 16.08 | 11 | 0.8 | 12 |
| 5/8 | 19 | 19.05 | | 18.95 | 19.15 | 16 | 19.19 | | 19.09 | 19.29 | 15 | 0.8 | 14 |
| 3/4 | 20 | 22.22 | | 22.12 | 22.32 | 18 | 22.36 | | 22.26 | 22.46 | 17 | 0.9 | 17 |
| 1 | 25 | 28.58 | ±0.04 | 28.45 | 28.71 | 22 | 28.75 | | 28.63 | 28.87 | 21 | 1.0 | 23 |
| 1 1/4 | 32 | 34.92 | | 34.77 | 35.07 | 25 | 35.11 | ±0.04 | 34.97 | 35.25 | 24 | 1.2 | 28 |
| 1 1/2 | 40 | 41.28 | | 41.09 | 41.47 | 28 | 41.50 | | 41.34 | 41.66 | 27 | 1.3 | 34 |
| 2 | 50 | 53.98 | ±0.05 | 53.78 | 54.18 | 34 | 54.22 | | 54.04 | 54.40 | 33 | 1.5 | 45 |
| 2 1/2 | 65 | 66.68 | | 66.44 | 66.92 | 38 | 66.96 | ±0.05 | 66.74 | 67.18 | 37 | 1.7 | 55 |
| 3 | 80 | 79.38 | | 79.14 | 79.62 | 43 | 79.66 | | 79.44 | 79.88 | 42 | 2.0 | 67 |
| 4 | 100 | 104.78 | | 104.48 | 105.08 | 55 | 105.12 | | 104.84 | 105.40 | 54 | 2.4 | 90 |
| 5 | 125 | 130.18 | | 129.84 | 130.52 | 69 | 130.55 | | 130.21 | 130.89 | 67 | 2.8 | 119 |
| 6 | 150 | 155.58 | ±0.08 | 155.19 | 155.97 | 82 | 156.00 | ±0.08 | 155.61 | 156.39 | 78 | 3.1 | 145 |
| 8 | 200 | 206.38 | | 205.86 | 206.90 | 104 | 207.27 | | 206.75 | 207.79 | 100 | 4.5 | 192 |
| 10 | 250 | 257.18 | ±.0.35 | 256.48 | 257.88 | 115 | 259.06 | ±.0.35 | 258.36 | 259.76 | 110 | 5.0 | 235 |

**Symbol**

C : Solder joint fitting end made to receive copper tube diameter (Female)

Ftg : Solder joint fitting end made to copper tube diameter (Male)

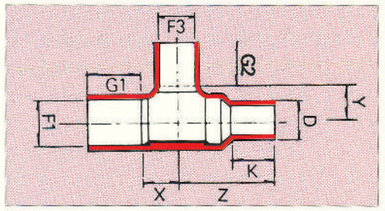
F : Internal ANSI Standard Taper Pipe Thread (Female) NPTI

M : External ANSI Standard Taper Pipe Thread (Male) NPTE





| Nominal Size Inch | (mm) | Figure A (mm) | Inside Dia. F1 (mm) | Inside Dia. F2 (mm) | Depth (Min.) G1 (mm) | Depth (Min.) G2 (mm) | Thickness (Min.) T (mm) |
|---|---|---|---|---|---|---|---|
| 3 x 2 1/2 | (80 x 65) | 13.6 | 79.66 | 66.96 | 42 | 37 | 2.0 |
| 3 x 2 | (80 x 50) | 15.2 | 79.66 | 54.22 | 42 | 33 | 2.0 |
| 3 x 1 1/2 | (80 x 40) | 22.7 | 79.66 | 41.50 | 42 | 27 | 2.0 |
| 3 x 1 1/4 | (80 x 32) | 26.5 | 79.66 | 35.11 | 42 | 24 | 2.0 |
| 3 x 1 | (80 x 25) | 30.3 | 79.66 | 28.75 | 42 | 21 | 2.0 |
| 3 x 3/4 | (80 x 20) | 34.1 | 79.66 | 22.36 | 42 | 17 | 2.0 |
| 3 x 5/8 | (80 x 19) | 36.0 | 79.66 | 19.19 | 42 | 15 | 2.0 |
| 3 x 1/2 | (80 x 15) | 37.9 | 79.66 | 16.00 | 42 | 11 | 2.0 |
| 4 x 3 1/2 | (100 x 90) | 13.8 | 105.12 | 92.22 | 54 | 48 | 2.4 |
| 4 x 3 | (100 x 80) | 15.2 | 105.12 | 79.66 | 54 | 42 | 2.4 |
| 4 x 2 1/2 | (100 x 65) | 22.7 | 105.12 | 66.96 | 54 | 37 | 2.4 |
| 4 x 2 | (100 x 50) | 30.3 | 105.12 | 54.22 | 54 | 33 | 2.4 |
| 4 x 1 1/2 | (100 x 40) | 37.9 | 105.12 | 41.50 | 54 | 27 | 2.4 |
| 4 x 1 1/4 | (100 x 32) | 41.7 | 105.12 | 35.11 | 54 | 24 | 2.4 |
| 4 x 1 | (100 x 25) | 45.5 | 105.12 | 28.75 | 54 | 21 | 2.4 |
| 4 x 3/4 | (100 x 20) | 49.3 | 105.12 | 22.36 | 54 | 17 | 2.4 |
| 4 x 5/8 | (100 x 19) | 51.2 | 105.12 | 19.19 | 54 | 15 | 2.4 |
| 4 x 1/2 | (100 x 15) | 53.1 | 105.12 | 16.00 | 54 | 11 | 2.4 |
| 5 x 4 | (125 x 100) | 21.0 | 130.55 | 105.12 | 67 | 54 | 2.9 |
| 5 x 3 | (125 x 80) | 25.0 | 130.55 | 79.66 | 67 | 42 | 2.9 |
| 5 x 2 1/2 | (125 x 65) | 37.8 | 130.55 | 66.96 | 67 | 37 | 2.9 |
| 5 x 2 | (125 x 50) | 45.3 | 130.55 | 54.22 | 67 | 33 | 2.9 |
| 5 x 1 1/2 | (125 x 40) | 52.9 | 130.55 | 41.50 | 67 | 27 | 2.9 |
| 5 x 1 1/4 | (125 x 32) | 56.7 | 130.55 | 35.11 | 67 | 24 | 2.9 |
| 5 x 1 | (125 x 25) | 60.5 | 130.55 | 28.75 | 67 | 21 | 2.9 |
| 5 x 3/4 | (125 x 20) | 64.3 | 130.55 | 22.36 | 67 | 17 | 2.9 |
| 5 x 5/8 | (125 x 19) | 66.2 | 130.55 | 19.19 | 67 | 15 | 2.9 |
| 5 x 1/2 | (125 x 15) | 68.1 | 130.55 | 16.00 | 67 | 11 | 2.9 |
| 6 x 5 | (150 x 125) | 20.0 | 156.00 | 130.55 | 78 | 67 | 3.3 |
| 6 x 4 | (150 x 100) | 30.2 | 156.00 | 105.12 | 78 | 54 | 3.3 |
| 6 x 3 | (150 x 80) | 45.3 | 156.00 | 79.66 | 78 | 42 | 3.3 |
| 6 x 2 1/2 | (150 x 65) | 46.0 | 156.00 | 66.96 | 78 | 37 | 3.3 |
| 6 x 2 | (150 x 50) | 60.5 | 156.00 | 54.22 | 78 | 33 | 3.3 |
| 6 x 1 1/2 | (150 x 40) | 68.1 | 156.00 | 41.50 | 78 | 27 | 3.3 |
| 6 x 1 1/4 | (150 x 32) | 71.9 | 156.00 | 35.11 | 78 | 24 | 3.3 |
| 6 x 1 | (150 x 25) | 75.7 | 156.00 | 28.75 | 78 | 21 | 3.3 |
| 6 x 3/4 | (150 x 20) | 79.5 | 156.00 | 22.36 | 78 | 17 | 3.3 |
| 6 x 5/8 | (150 x 19) | 81.4 | 156.00 | 19.19 | 78 | 15 | 3.3 |
| 6 x 1/2 | (150 x 15) | 83.3 | 156.00 | 16.00 | 78 | 11 | 3.3 |
| 8 x 6 | (200 x 150) | 54.5 | 207.27 | 156.00 | 100 | 78 | 4.7 |
| 8 x 5 | (200 x 125) | 45.4 | 207.27 | 130.55 | 100 | 67 | 4.7 |
| 8 x 4 | (200 x 100) | 60.4 | 207.27 | 105.12 | 100 | 54 | 4.7 |
| 8 x 3 | (200 x 80) | 75.6 | 207.27 | 79.66 | 100 | 42 | 4.7 |
| 8 x 2 1/2 | (200 x 65) | 83.2 | 207.27 | 66.96 | 100 | 37 | 4.7 |
| 8 x 2 | (200 x 50) | 90.8 | 207.27 | 54.22 | 100 | 33 | 4.7 |
| 8 x 1 1/2 | (200 x 40) | 93.8 | 207.27 | 41.50 | 100 | 27 | 4.7 |
| 8 x 1 1/4 | (200 x 32) | 102.1 | 207.27 | 35.11 | 100 | 24 | 4.7 |
| 8 x 1 | (200 x 25) | 105.9 | 207.27 | 28.75 | 100 | 21 | 4.7 |
| 8 x 3/4 | (200 x 20) | 189.7 | 207.27 | 22.36 | 100 | 17 | 4.7 |
| 8 x 5/8 | (200 x 19) | 111.6 | 207.27 | 19.19 | 100 | 15 | 4.7 |
| 8 x 1/2 | (200 x 15) | 113.5 | 207.27 | 16.00 | 100 | 11 | 4.7 |
| 10 x 8 | (250 x 200) | 24.0 | 259.06 | 207.27 | 110 | 100 | 5.0 |

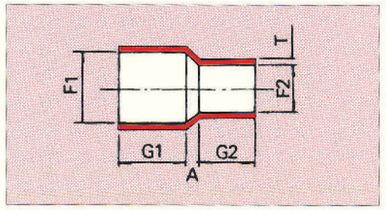



T 3B-TYPE

(C X Ftg X C)

**CODE-3200**

| Nominal Size | | Figure | | | In(outside) Dia. | | | Depth. Length (Min.) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Inch | (mm) | X (mm) | Y (mm) | Z (mm) | F1 (mm) | D (mm) | F3 (mm) | G1 (mm) | K (mm) | G2 (mm) |
| 5/8 x 1/2 x 1/2 | (19 x 15 x 15) | 11.5 | 12.0 | 26.5 | 19.19 | 15.88 | 16.00 | 15 | 12 | 11 |
| 3/4 x 1/2 x 1/2 | (20 x 15 x 15) | 11.5 | 14.0 | 34.5 | 22.36 | 15.88 | 16.00 | 17 | 12 | 11 |
| 1 x 3/4 x 3/4 | (25 x 20 x 20) | 14.0 | 18.5 | 41.5 | 28.75 | 22.22 | 22.36 | 22 | 18 | 17 |
| 1 x 3/4 x 5/8 | (25 x 20 x 19) | 12.0 | 18.5 | 45.0 | 28.75 | 22.22 | 19.19 | 22 | 18 | 15 |




REDUCER A-TYPE

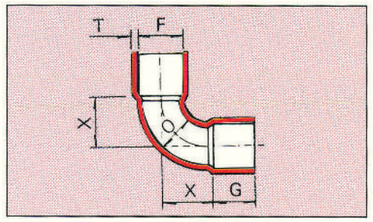
(C X C)

**CODE-4000**

| Nominal Size | | Figure | Inside Dia. | | Depth (Min.) | | Thickness (Min.) |
|---|---|---|---|---|---|---|---|
| Inch | (mm) | A (mm) | F1 (mm) | F2 (mm) | G1 (mm) | G2 (mm) | T (mm) |
| 3/8 x 1/4 | (10 x 8) | 3.0 | 12.81 | 9.62 | 9 | 8 | 0.7 |
| 1/2 x 3/8 | (15 x 10) | 3.3 | 16.00 | 12.81 | 11 | 9 | 0.8 |
| 5/8 x 1/2 | (19 x 15) | 3.6 | 19.19 | 16.00 | 15 | 11 | 0.8 |
| 3/4 x 5/8 | (20 x 19) | 3.4 | 22.36 | 19.19 | 17 | 15 | 0.9 |
| 3/4 x 1/2 | (20 x 15) | 3.9 | 22.36 | 16.00 | 17 | 11 | 0.9 |
| 1 x 3/4 | (25 x 20) | 6.6 | 28.75 | 22.36 | 21 | 17 | 1.0 |
| 1 x 5/8 | (25 x 19) | 5.6 | 28.75 | 19.19 | 21 | 15 | 1.0 |
| 1 x 1/2 | (25 x 15) | 7.5 | 28.75 | 16.00 | 21 | 11 | 1.0 |
| 1 1/4 x 1 | (32 x 25) | 6.9 | 35.11 | 28.75 | 24 | 21 | 1.2 |
| 1 1/4 x 3/4 | (32 x 20) | 7.5 | 35.11 | 22.36 | 24 | 17 | 1.2 |
| 1 1/4 x 5/8 | (32 x 19) | 9.3 | 35.11 | 19.19 | 24 | 15 | 1.2 |
| 1 1/4 x 1/2 | (32 x 15) | 11.3 | 35.11 | 16.00 | 24 | 11 | 1.2 |
| 1 1/2 x 1 1/4 | (40 x 32) | 7.0 | 41.50 | 35.11 | 27 | 24 | 1.3 |
| 1 1/2 x 1 | (40 x 25) | 7.7 | 41.50 | 28.75 | 27 | 21 | 1.3 |
| 1 1/2 x 3/4 | (40 x 20) | 11.3 | 41.50 | 22.36 | 27 | 17 | 1.3 |
| 1 1/2 x 5/8 | (40 x 19) | 13.2 | 41.50 | 19.19 | 27 | 15 | 1.3 |
| 1 1/2 x 1/2 | (40 x 15) | 15.2 | 41.50 | 16.00 | 27 | 11 | 1.3 |
| 2 x 1 1/2 | (50 x 40) | 13.5 | 54.22 | 41.50 | 33 | 27 | 1.5 |
| 2 x 1 1/4 | (50 x 32) | 11.4 | 54.22 | 35.11 | 33 | 24 | 1.5 |
| 2 x 1 | (50 x 25) | 15.2 | 54.22 | 28.75 | 33 | 21 | 1.5 |
| 2 x 3/4 | (50 x 20) | 18.8 | 54.22 | 22.36 | 33 | 17 | 1.5 |
| 2 x 5/8 | (50 x 19) | 20.7 | 54.22 | 19.19 | 33 | 15 | 1.5 |
| 2 x 1/2 | (50 x 15) | 22.7 | 54.22 | 16.00 | 33 | 11 | 1.5 |
| 2 1/2 x 2 | (65 x 50) | 13.7 | 66.96 | 54.22 | 37 | 33 | 1.7 |
| 2 1/2 x 1 1/2 | (65 x 40) | 15.2 | 66.96 | 41.50 | 37 | 27 | 1.7 |
| 2 1/2 x 1 1/4 | (65 x 32) | 19.0 | 66.96 | 35.11 | 37 | 24 | 1.7 |
| 2 1/2 x 1 | (65 x 25) | 22.8 | 66.96 | 28.75 | 37 | 21 | 1.7 |
| 2 1/2 x 3/4 | (65 x 20) | 26.6 | 66.96 | 22.36 | 37 | 17 | 1.7 |
| 2 1/2 x 5/8 | (65 x 19) | 28.5 | 66.96 | 19.19 | 37 | 15 | 1.7 |
| 2 1/2 x 1/2 | (65 x 15) | 30.4 | 66.96 | 16.00 | 37 | 11 | 1.7 |





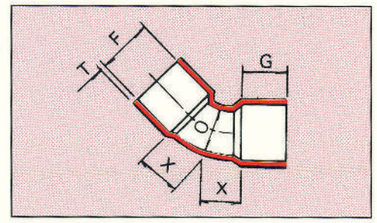



90° ELBOW A-TYPE

(C x C)

**CODE-1000**

| Nominal Size | | Figure | Inside Dia. | Depth (Min.) | Thickness (Min.) | Inside Dia. (Min.) |
|---|---|---|---|---|---|---|
| inch | (mm) | X(mm) | F(mm) | G(mm) | T(mm) | O (mm) |
| 1/8 | (6) | 8.0 | 6.45 | 8 | 0.6 | 5 |
| 1/4 | (8) | 10.0 | 9.62 | 8 | 0.6 | 6 |
| 3/8 | (10) | 11.0 | 12.81 | 9 | 0.7 | 9 |
| 1/2 | (15) | 13.5 | 16.00 | 11 | 0.8 | 12 |
| 5/8 | (19) | 16.0 | 19.19 | 15 | 0.8 | 14 |
| 3/4 | (20) | 19.0 | 22.36 | 17 | 0.9 | 17 |
| 1 | (25) | 25.0 | 28.75 | 21 | 1.0 | 23 |
| 1 1/4 | (32) | 30.5 | 35.11 | 24 | 1.2 | 28 |
| 1 1/2 | (40) | 37.0 | 41.50 | 27 | 1.3 | 34 |
| 2 | (50) | 44.0 | 54.22 | 33 | 1.5 | 45 |
| 2 1/2 | (65) | 56.5 | 66.96 | 37 | 1.7 | 55 |
| 3 | (80) | 67.0 | 79.66 | 42 | 2.0 | 67 |
| 4 | (100) | 87.0 | 105.12 | 54 | 2.4 | 90 |
| 5 | (125) | 100.0 | 130.55 | 67 | 2.9 | 119 |
| 6 | (150) | 120.0 | 156.00 | 78 | 3.3 | 145 |
| 8 | (200) | 160.0 | 207.27 | 100 | 4.7 | 192 |
| 10 | (250) | 180.0 | 259.06 | 110 | 5.0 | 235 |

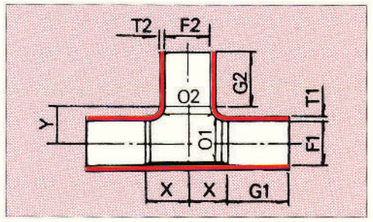



45° ELBOW A-TYPE

(C x C)

**CODE-1600**

| Normal Size | | Figure | Inside Dia. | Depth (Min.) | Thickness (Min.) | Inside Dia. (Min.) |
|---|---|---|---|---|---|---|
| inch | (mm) | X(mm) | F(mm) | G(mm) | T(mm) | O (mm) |
| 1/4 | (8) | 5.0 | 9.62 | 8 | 0.6 | 6 |
| 3/8 | (10) | 6.5 | 12.81 | 9 | 0.7 | 9 |
| 1/2 | (15) | 7.5 | 16.00 | 11 | 0.8 | 12 |
| 5/8 | (19) | 9.0 | 19.19 | 15 | 0.8 | 14 |
| 3/4 | (20) | 11.0 | 22.36 | 17 | 0.9 | 17 |
| 1 | (25) | 14.0 | 28.75 | 21 | 1.0 | 23 |
| 1 1/4 | (32) | 15.5 | 35.11 | 24 | 1.2 | 28 |
| 1 1/2 | (40) | 18.0 | 41.50 | 27 | 1.3 | 34 |
| 2 | (50) | 22.0 | 54.22 | 33 | 1.5 | 45 |
| 2 1/2 | (65) | 28.0 | 66.96 | 37 | 1.7 | 55 |
| 3 | (80) | 30.5 | 79.66 | 42 | 2.0 | 67 |
| 4 | (100) | 43.0 | 105.12 | 54 | 2.4 | 90 |
| 5 | (125) | 36.0 | 130.55 | 67 | 2.9 | 119 |
| 6 | (150) | 59.5 | 156.00 | 78 | 3.3 | 145 |
| 8 | (200) | 72.5 | 207.27 | 100 | 4.7 | 192 |
| 10 | (250) | — | 259.06 | 110 | 5.0 | 235 |




T A-TYPE
(C x C X C)

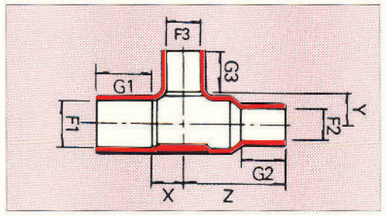
**CODE-3000**

| Normal Size | | Figure | | Inside Dia. | | Depth (min) | | Thickness (Min.) | | Inside Dia (Min.) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Inch | (mm) | X (mm) | Y (mm) | F1 (mm) | F2 (mm) | G1 (mm) | G2 (mm) | T1 (mm) | T2 (mm) | O1 (mm) | O2 (mm) |
| 1/4 x 1/4 | (8 x 8) | 6.5 | 6.5 | 9.62 | 9.62 | 8 | 8 | 0.6 | 0.6 | 6 | 6 |
| 3/8 x 3/8 | (10 x 10) | 8.5 | 8.5 | 12.81 | 12.81 | 9 | 9 | 0.7 | 0.7 | 9 | 9 |
| 3/8 x 1/4 | (10 x 8) | 6.5 | 8.0 | 12.81 | 9.62 | 9 | 8 | 0.7 | 0.6 | 9 | 6 |
| 1/2 x 1/2 | (15 x 15) | 11.5 | 11.5 | 16.00 | 16.00 | 11 | 11 | 0.8 | 0.8 | 12 | 12 |
| 1/2 x 3/8 | (15 x 10) | 8.5 | 10.5 | 16.00 | 12.81 | 11 | 9 | 0.8 | 0.7 | 12 | 9 |
| 5/8 x 5/8 | (19 x 19) | 12.0 | 12.0 | 19.19 | 19.19 | 15 | 15 | 0.8 | 0.8 | 14 | 14 |
| 5/8 x 1/2 | (19 x 15) | 11.5 | 12.0 | 19.19 | 16.00 | 15 | 11 | 0.8 | 0.7 | 14 | 12 |
| 3/4 x 3/4 | (20 x 20) | 13.0 | 14.0 | 22.36 | 22.36 | 17 | 17 | 0.9 | 0.9 | 17 | 17 |
| 3/4 x 5/8 | (20x 19) | 12.0 | 14.0 | 22.36 | 19.19 | 17 | 15 | 0.9 | 0.8 | 17 | 14 |
| 3/4 x 1/2 | (20x 15) | 11.5 | 14.0 | 22.36 | 16.00 | 17 | 11 | 0.9 | 0.8 | 17 | 12 |
| 1 x 1 | (25 x 25) | 17.0 | 18.5 | 28.75 | 28.75 | 21 | 21 | 1.0 | 1.0 | 23 | 23 |
| 1 x 3/4 | (25 x 20) | 14.0 | 18.5 | 28.75 | 22.36 | 21 | 17 | 1.0 | 0.9 | 23 | 17 |
| 1 x 5/8 | (25 x 19) | 12.0 | 18.5 | 28.75 | 19.19 | 21 | 15 | 1.0 | 0.8 | 23 | 14 |
| 1 x 1/2 | (25 x 15) | 11.5 | 18.5 | 28.75 | 16.00 | 21 | 11 | 1.0 | 0.8 | 23 | 12 |
| 1 1/4x1 1/4 | (32 x 32) | 21.0 | 22.0 | 35.11 | 35.11 | 24 | 24 | 1.2 | 1.2 | 28 | 28 |
| 1 1/4 x 1 | (32 x 25) | 17.5 | 22.0 | 35.11 | 28.75 | 24 | 21 | 1.2 | 1.0 | 28 | 23 |
| 1 1/4 x 3/4 | (32 x 20) | 14.0 | 22.0 | 35.11 | 22.36 | 24 | 17 | 1.2 | 0.9 | 28 | 17 |
| 1 1/4 x 5/8 | (32 x 19) | 12.0 | 21.0 | 35.11 | 19.19 | 24 | 15 | 1.2 | 0.9 | 28 | 14 |
| 1 1/4 x 1/2 | (32 x 15) | 11.5 | 21.0 | 35.11 | 16.00 | 24 | 11 | 1.2 | 0.8 | 28 | 12 |
| 1 1/2 x 1 1/2 | (40 x 40) | 25.5 | 26.0 | 41.50 | 41.50 | 27 | 27 | 1.3 | 1.3 | 34 | 34 |
| 1 1/2 x 1 1/4 | (40 x 32) | 20.0 | 26.0 | 41.50 | 35.11 | 27 | 24 | 1.3 | 1.2 | 34 | 28 |
| 1 1/2 x 1 | (40 x 25) | 18.0 | 26.0 | 41.50 | 28.75 | 27 | 21 | 1.3 | 1.0 | 34 | 23 |
| 1 1/2 x 3/4 | (40 x 20) | 13.5 | 25.0 | 41.50 | 22.36 | 27 | 17 | 1.3 | 0.9 | 34 | 17 |
| 1 1/2 x 5/8 | (40 x 19) | 12.0 | 25.0 | 41.50 | 19.19 | 27 | 15 | 1.3 | 0.8 | 34 | 14 |
| 1 1/2 x 1/2 | (40 x 15) | 11.5 | 25.0 | 41.50 | 16.00 | 27 | 11 | 1.3 | 0.8 | 34 | 12 |
| 2 x 2 | (50 x 50) | 31.0 | 34.0 | 54.22 | 54.22 | 33 | 33 | 1.5 | 1.5 | 45 | 45 |
| 2 x 1 1/2 | (50 x 40) | 25.0 | 34.0 | 54.22 | 41.50 | 33 | 27 | 1.5 | 1.3 | 45 | 34 |
| 2 x 1 1/4 | (50 x 32) | 20.0 | 34.0 | 54.22 | 35.11 | 33 | 24 | 1.5 | 1.2 | 45 | 28 |
| 2 x 1 | (50 x 25) | 17.5 | 34.0 | 54.22 | 28.75 | 33 | 21 | 1.5 | 1.0 | 45 | 23 |
| 2 x 3/4 | (50 x 20) | 13.5 | 34.0 | 54.22 | 22.36 | 33 | 17 | 1.5 | 0.9 | 45 | 17 |
| 2 x 5/8 | (50 x 19) | 12.0 | 34.0 | 54.22 | 19.19 | 33 | 15 | 1.5 | 0.8 | 45 | 14 |
| 2 x 1/2 | (50 x 15) | 9.5 | 32.5 | 54.22 | 16.00 | 33 | 11 | 1.5 | 0.8 | 45 | 12 |
| 2 1/2 x 2 1/2 | (65 x 65) | 38.0 | 44.0 | 66.96 | 66.96 | 37 | 37 | 1.7 | 1.7 | 55 | 55 |
| 2 1/2 x 2 | (65 x 50) | 32.0 | 41.0 | 66.96 | 54.22 | 37 | 33 | 1.7 | 1.5 | 55 | 45 |
| 2 1/2 x 1 1/2 | (65 x 40) | 23.5 | 41.0 | 66.96 | 41.50 | 37 | 27 | 1.7 | 1.3 | 55 | 34 |
| 2 1/2 x 1 1/4 | (65 x 32) | 19.0 | 40.5 | 66.96 | 35.11 | 37 | 24 | 1.7 | 1.2 | 55 | 28 |
| 2 1/2 x 1 | (65 x 25) | 18.0 | 40.5 | 66.96 | 28.75 | 37 | 21 | 1.7 | 1.0 | 55 | 23 |
| 2 1/2 x 3/4 | (65 x 20) | 16.0 | 40.5 | 66.96 | 22.36 | 37 | 17 | 1.7 | 0.9 | 55 | 17 |
| 2 1/2 x 5/8 | (65 x 19) | 16.0 | 42.5 | 66.96 | 19.19 | 37 | 15 | 1.7 | 0.8 | 55 | 14 |
| 2 1/2 x 1/2 | (65 x 15) | 14.0 | 40.5 | 66.96 | 16.00 | 37 | 11 | 1.7 | 0.8 | 55 | 12 |
| 3 x 3 | (80 x 80) | 45.1 | 50.0 | 79.66 | 79.66 | 42 | 42 | 2.0 | 2.0 | 67 | 67 |
| 3 x 2 1/2 | (80 x 65) | 37.0 | 48.0 | 79.66 | 66.96 | 42 | 37 | 2.0 | 1.7 | 67 | 55 |
| 3 x 2 | (80 x 50) | 31.0 | 48.0 | 79.66 | 54.22 | 42 | 33 | 2.0 | 1.5 | 67 | 45 |
| 3 x 1 1/2 | (80 x 40) | 25.5 | 47.0 | 79.66 | 41.50 | 42 | 27 | 2.0 | 1.3 | 67 | 34 |
| 3 x 1 1/4 | (80 x 32) | 19.5 | 45.5 | 79.66 | 35.11 | 42 | 24 | 2.0 | 1.2 | 67 | 28 |





| Nominal Size | | Figure | | Inside Dia. | | Depth (min) | | Thickness (Min.) | | Inside Dia (Min.) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Inch | (mm) | X (mm) | Y (mm) | F1 (mm) | F2 (mm) | G1 (mm) | G2 (mm) | T1 (mm) | T2 (mm) | O1 (mm) | O2 (mm) |
| 3 x 1 | (80 x 25) | 19.0 | 48.0 | 79.66 | 28.75 | 42 | 21 | 2.0 | 1.0 | 67 | 23 |
| 3 x 3/4 | (80 x 20) | 16.0 | 47.0 | 79.66 | 22.36 | 42 | 17 | 2.0 | 0.9 | 67 | 17 |
| 3 x 5/8 | (80 x 19) | 16.0 | 49.0 | 79.66 | 19.19 | 42 | 15 | 2.0 | 0.8 | 67 | 14 |
| 3 x 1/2 | (80 x 15) | 12.0 | 44.0 | 79.66 | 16.00 | 42 | 11 | 2.0 | 0.8 | 67 | 12 |
| 4 x 4 | (100 x 100) | 64.0 | 66.0 | 105.12 | 105.12 | 54 | 54 | 2.4 | 2.4 | 90 | 90 |
| 4 x 3 | (100 x 80) | 44.5 | 64.0 | 105.12 | 79.66 | 54 | 42 | 2.4 | 2.0 | 90 | 67 |
| 4 x 21/2 | (100 x 65) | 41.0 | 64.0 | 105.12 | 66.96 | 54 | 37 | 2.4 | 1.7 | 90 | 55 |
| 4 x 2 | (100 x 50) | 31.0 | 59.0 | 105.12 | 54.22 | 54 | 33 | 2.4 | 1.5 | 90 | 45 |
| 4 1 1/2 | (100 x 40) | 25.0 | 62.0 | 105.12 | 41.50 | 54 | 27 | 2.4 | 1.3 | 90 | 34 |
| 4 x 1 1/4 | (100x 32) | 24.0 | 62.0 | 105.12 | 35.11 | 54 | 24 | 2.4 | 1.2 | 90 | 28 |
| 4 x 1 | (100 x 25) | 23.5 | 62.0 | 105.12 | 28.75 | 54 | 21 | 2.4 | 1.0 | 90 | 23 |
| 4 x 3/4 | (100 x 20) | 23.5 | 61.0 | 105.12 | 22.36 | 54 | 17 | 2.4 | 0.9 | 90 | 17 |
| 4 x 5/8 | (100 x 19) | 23.5 | 63.0 | 105.12 | 19.19 | 54 | 15 | 2.4 | 0.8 | 90 | 14 |
| 4 x 1/2 | (100 x 15) | 12.5 | 58.0 | 105.12 | 16.00 | 54 | 11 | 2.4 | 0.8 | 90 | 12 |
| 5 x 5 | (125 x 125) | 75.0 | 79.0 | 130.55 | 130.55 | 67 | 67 | 2.9 | 2.9 | 119 | 119 |
| 5 x 4 | (125 x 100) | 60.0 | 79.0 | 130.55 | 105.12 | 67 | 54 | 2.9 | 2.4 | 119 | 90 |
| 5 x 3 | (125 x 80) | 47.0 | 77.0 | 130.55 | 79.66 | 67 | 42 | 2.9 | 2.0 | 119 | 67 |
| 5 x 2 1/2 | (125 x 65) | 40.0 | 75.0 | 130.55 | 66.96 | 67 | 37 | 2.9 | 1.7 | 119 | 55 |
| 5 x 2 | (125 x 50) | 32.0 | 75.0 | 130.55 | 54.22 | 67 | 33 | 2.9 | 1.5 | 119 | 45 |
| 5 x 1 1/2 | (125 x 40) | 27.0 | 75.0 | 130.32 | 41.50 | 67 | 27 | 2.9 | 1.3 | 119 | 34 |
| 5 x 1 1/4 | (125 x 32) | 23.0 | 74.0 | 130.32 | 35.11 | 67 | 24 | 2.9 | 1.2 | 119 | 28 |
| 5 x 1 | (125 x 25) | 21.0 | 74.0 | 130.32 | 28.75 | 67 | 21 | 2.9 | 1.0 | 119 | 23 |
| 6 x 6 | (150 x 150) | 87.0 | 92.0 | 156.00 | 156.00 | 78 | 78 | 3.3 | 3.3 | 145 | 145 |
| 6 x 5 | (150 x 125) | 74.0 | 92.0 | 156.00 | 130.55 | 78 | 67 | 3.3 | 2.9 | 145 | 119 |
| 6 x 4 | (150 x 100) | 60.0 | 92.0 | 156.00 | 105.12 | 78 | 54 | 3.3 | 2.4 | 145 | 90 |
| 6 x 3 | (150 x 80) | 48.0 | 90.0 | 156.00 | 79.66 | 78 | 42 | 3.3 | 2.0 | 145 | 67 |
| 6 x 2 1/2 | (150 x 65) | 41.0 | 90.0 | 156.00 | 69.96 | 78 | 37 | 3.3 | 1.7 | 145 | 55 |
| 6 x 2 | (150 x 50) | 34.0 | 87.0 | 156.00 | 54.22 | 78 | 33 | 3.3 | 1.5 | 145 | 45 |
| 8 x 8 | (200 x 200) | 118.0 | 124.0 | 207.27 | 207.27 | 100 | 100 | 4.7 | 4.7 | 192 | 192 |
| 8 x 6 | (200 x 150) | 88.0 | 124.0 | 207.27 | 156.00 | 100 | 78 | 4.7 | 3.3 | 192 | 145 |
| 8 x 5 | (200 x 125) | 75.0 | 124.0 | 207.27 | 130.55 | 100 | 67 | 4.7 | 2.9 | 192 | 119 |
| 8 x 4 | (200 x 100) | 62.0 | 122.0 | 207.27 | 105.12 | 100 | 54 | 4.7 | 2.4 | 192 | 90 |
| 8 x 3 | (200 x 80) | 49.0 | 120.0 | 207.27 | 79.66 | 100 | 42 | 4.7 | 2.0 | 192 | 67 |
| 8 x 2 1/2 | (200 x 65) | 42.0 | 120.0 | 207.27 | 66.96 | 100 | 37 | 4.7 | 1.7 | 192 | 55 |
| 8 x 2 | (200 x 50) | 36.0 | 120.0 | 207.27 | 54.22 | 100 | 33 | 4.7 | 1.5 | 192 | 45 |
| 10 x 10 | (250 x 250) | 147.0 | 147.0 | 259.06 | 259.06 | 110 | 110 | 5.0 | 5.0 | 235 | 235 |




T 3A - TYPE
(C X C X C)

**CODE-3100**

| Nominal Size | | Figure | | | Inside Dia. | | | Depth (Min.) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Inch | (mm) | X (mm) | Y (mm) | Z (mm) | F1 (mm) | F2 (mm) | F3 (mm) | G1 (mm) | G2 (mm) | G3 (mm) |
| 5/8 x 1/2 x 1/2 | (19 x 15 x 15) | 11.5 | 12.0 | 26.5 | 19.19 | 16.00 | 16.0 | 15 | 11 | 11 |
| 3 x 1/2 x 1/2 | (20 x 15 x 25) | 11.5 | 14.0 | 34.5 | 22.36 | 16.00 | 16.0 | 17 | 11 | 11 |
| 1 x 3/4 x 3/4 | (25 x 20 x 20) | 14.0 | 18.5 | 41.5 | 28.75 | 22.36 | 22.36 | 22 | 17 | 17 |
| 1 x 3/4 x 5/8 | (25 x 20 x 19) | 12.0 | 18.5 | 45.0 | 28.75 | 22.36 | 19.19 | 22 | 17 | 15 |