NeO tube®

Pancake coils

L.W.C for A.C.R

Copper water tubes

Straight lengths

ASTM B280, ASTM B88, ASTM B68, ASTM B75, ASTM B251, JIS H3300 BS EN 12735-1, BS EN 12735-2, BS 2871, BS 12449, EN 1057, AS 1432, AS 1571, ASTM B280, ASTM B88, ASTM B68, ASTM

## Copper tube for water, gas, sanitation, air conditioning, refrigerant, fire protection and general purposes.

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# ASTM B280

## AMERICAN STANDARD ASTM B 280 - SEAMLESS COPPER TUBE FOR AIR CONDITIONING AND REFRIGERATION FIELD SERVICE

### * CHEMICAL COMPOSITION

All tubing, manufactured from phosphorus deoxidized hight residual phosphorus complying with UNS C12200.

| ELEMENT | % MINIMUM | % MAXIMUM |
|---|---|---|
| **Copper** | **99.90** | |
| **Phosphorus** | **0.015** | **0.040** |

### * ASTM B 280

TABLE 1: Common Standard Dimensions and Weights, and Tolerances in Diameter and Wall Thickness for Coil Lengths. *(Just for reference only.)*

| Standard Size, | Outside Diameter, | | Wall Thickness, | | Weight, | | Tolerance[A] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| in. | in. | (mm) | in. | (mm) | kg/m | Tolerance, ± kg/m | Average Outside diameter, Plus and Minus, in.(mm) | | Wall Thickness, Plus and Minus, in.(mm) | |
| 1/8 | 0.125 | (3.18) | 0.0300 | (0.76) | 0.051 | (0.003) | 0.002 | (0.051) | 0.003 | (0.08) |
| 3/16 | 0.188 | (4.76) | 0.0300 | (0.76) | 0.085 | (0.004) | 0.002 | (0.051) | 0.003 | (0.08) |
| 1/4 | 0.250 | (6.35) | 0.0300 | (0.76) | 0.119 | (0.006) | 0.002 | (0.051) | 0.003 | (0.08) |
| 5/16 | 0.313 | (7.94) | 0.032 | (0.81) | 0.162 | (0.008) | 0.002 | (0.051) | 0.003 | (0.08) |
| 3/8 | 0.375 | (9.52) | 0.032 | (0.81) | 0.198 | (0.010) | 0.002 | (0.051) | 0.003 | (0.08) |
| 1/2 | 0.500 | (12.70) | 0.032 | (0.81) | 0.271 | (0.014) | 0.002 | (0.051) | 0.003 | (0.08) |
| 5/8 | 0.625 | (15.88) | 0.035 | (0.89) | 0.373 | (0.019) | 0.002 | (0.051) | 0.004 | (0.10) |
| 3/4 | 0.750 | (19.05) | 0.035 | (0.89) | 0.452 | (0.023) | 0.0025 | (0.064) | 0.004 | (0.10) |
| 3/4 | 0.750 | (19.05) | 0.042 | (1.07) | 0.537 | (0.027) | 0.0025 | (0.064) | 0.004 | (0.10) |
| 7/8 | 0.875 | (22.22) | 0.045 | (1.14) | 0.674 | (0.034) | 0.003 | (0.076) | 0.004 | (0.10) |
| 1 1/8 | 1.125 | (28.58) | 0.050 | (1.27) | 0.971 | (0.049) | 0.0035 | (0.089) | 0.005 | (0.13) |

[A]: The tolerances listed represent the maximum deviation at any point.

[B]: The average outside diameter of a tube is the everage of the maximum and the minimum outside diameters as determined at any one cross section of the tube.

## * ASTM B 88

TABLE 1: Dimension and Physical Characteristic of Copper Tube: TYPE M.

| Nominal or Standard Size, | Nominal Dimensions, inches | | | Weight, | | | | |
|---|---|---|---|---|---|---|---|---|
| inches | Outside Diameter | Inside Diameter | Wall Thickness | Cross Sectional Area of Bore, sq.inches | Weight of Tube Only, pounds per linear ft. | Weight of Tube & Water, pounds per linear ft. | Contents of Tube per linear ft. | |
| | | | | | | | Cu ft. | Gal |
| 3/8 | 0.500 | 0.450 | 0.0250 | 0.159 | 0.145 | 0.214 | 0.00110 | 0.00826 |
| 1/2 | 0.625 | 0.569 | 0.0280 | 0.254 | 0.204 | 0.314 | 0.00176 | 0.0132 |
| 3/4 | 0.875 | 0.811 | 0.0320 | 0.517 | 0.328 | 0.551 | 0.00359 | 0.0269 |
| 1 | 1.125 | 1.055 | 0.035 | 0.874 | 0.465 | 0.843 | 0.00607 | 0.0454 |
| 1 1/4 | 1.375 | 1.291 | 0.042 | 1.31 | 0.682 | 1.25 | 0.00910 | 0.0681 |
| 1 1/2 | 1.625 | 1.527 | 0.049 | 1.83 | 0.94 | 1.73 | 0.0127 | 0.0951 |
| 2 | 2.125 | 2.009 | 0.058 | 3.17 | 1.46 | 2.83 | 0.022 | 0.165 |
| 2 1/2 | 2.625 | 2.495 | 0.065 | 4.89 | 2.03 | 4.14 | 0.034 | 0.254 |
| 3 | 3.125 | 2.981 | 0.072 | 6.98 | 3.68 | 5.70 | 0.0485 | 0.363 |
| 3 1/2 | 3.625 | 3.459 | 0.083 | 9.40 | 3.58 | 7.64 | 0.0653 | 0.488 |
| 4 | 4.125 | 3.935 | 0.095 | 12.2 | 4.66 | 9.83 | 0.0847 | 0.634 |
| 5 | 5.125 | 4.907 | 0.109 | 18.9 | 6.66 | 14.8 | 0.131 | 0.982 |
| 6 | 6.125 | 5.881 | 0.122 | 27.2 | 8.92 | 20.7 | 0.189 | 1.41 |
| 8 | 8.125 | 7.785 | 0.170 | 47.6 | 16.5 | 37.1 | 0.331 | 2.47 |
| 10 | 10.125 | 9.701 | 0.212 | 73.9 | 25.6 | 57.5 | 0.513 | 3.84 |
| 12 | 12.125 | 11.617 | 0.254 | 106.0 | 36.7 | 82.5 | 0.736 | 5.51 |

## ASTM B68

### SEAMLESS COPPER TUBE SUITABLE FOR USE IN REFRIGERATION, OIL LINES, GASOLINE LINES AND SO FORTH

* CHEMICAL COMPOSITION

| ELEMENT | % MINIMUM | % MAXIMUM |
|---|---|---|
| Copper | 99.90 | |
| Phosphorus | 0.015 | 0.040 |

* TEMPER DESIGNATION: O60 (SOFT ANNEALED), O50 (LIGHT ANNEALED)

* OUTSIDE DIAMETER, WALL THICKNESS, LENGTH AND TOLERANCE:

  PRACTICED BY ASTM B251 (page 6)

## ASTM B75

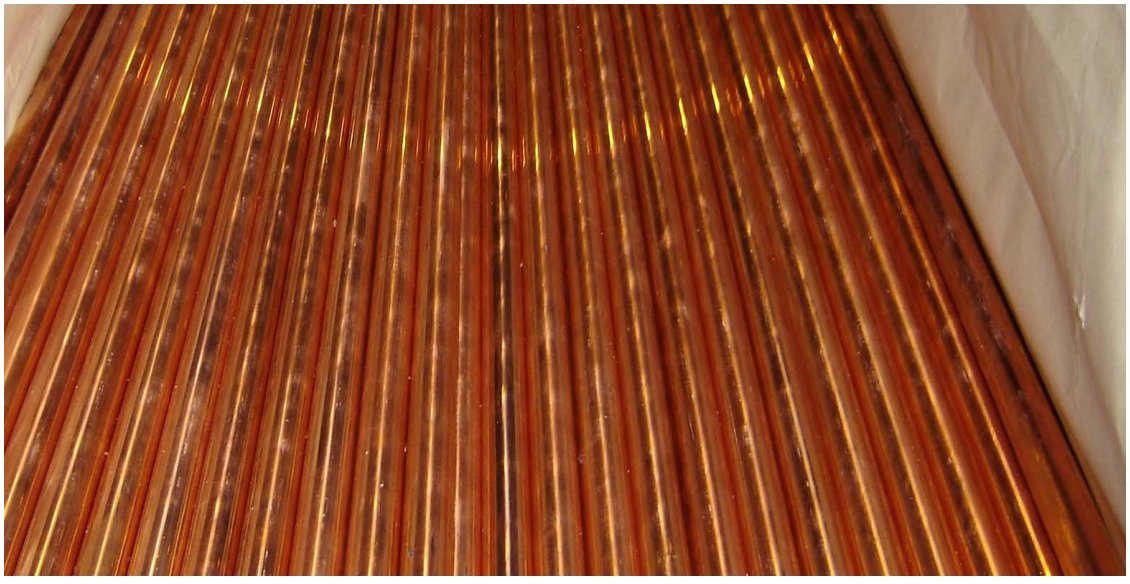
### SEAMLESS, ROUND RECTANGULAR AND SQUARE COPPER TUBE SUITABLE FOR GENERAL ENGINEERING APPLICATIONS

* CHEMICAL COMPOSITION

| ELEMENT | % MINIMUM | % MAXIMUM |
|---|---|---|
| Copper | 99.90 | |
| Phosphorus | 0.015 | 0.040 |

* TEMPER DESIGNATION: O60, O55, H55, 58, H80

* DIMENSION AND TOLERANCE: PRACTICED BY ASTM B251 (page 6)



# JIS H3300 STANDARD

## COPPER AND COPPER-ALLOY SEAMLESS PIPE

### * CHEMICAL COMPOSITION

| ELEMENT | % MINIMUM | % MAXIMUM |
|---|---|---|
| **Copper** | **99.90** | |
| **Phosphorus** | **0.015** | **0.040** |

### * TEMPER DESIGNATION: O60 (SOFT ANNEALED), O50 (LIGHT ANNEALED)

| Temper | O (soft) | O.L (light soft) | 1/2 H (half hard) |
|---|---|---|---|
| **Tensile Strength** | | | |
| Mpa | ≥ 205 | ≥ 205 | ≥ 245 ~ 325 |

### * LENGTH: 0 - 6.1M

### * TOLERANCES ON AVERAGE DIAMETER OF COPPER TUBE FOR ORDINARY PIPING

TABLE 1: Tolerances on wall thickness (special grade)

**Unit: mm**

| Outside Diameter / Wall Thickness | Tolerance | | | | | | |
|---|---|---|---|---|---|---|---|
| | Over 0.25 and over, up to up to and incl 0.4 | Over 0.4 up to and incl. 0.6 | Over 0.6 up to and incl. 0.8 | Over 0.8 up to and incl. 1.4 | Over 1.4 up to and incl. 2 | Over 2 up to and incl. 3 | Over 3 up to and incl. 4 |
| 4 and over, up to and incl. 15 | ± 0.03 | ± 0.05 | ± 0.06 | ± 0.08 | ± 0.09 | ± 0.10 | _ |
| Over 15, up to and incl. 25 | ± 0.04 | ± 0.05 | ± 0.06 | ± 0.09 | ± 0.10 | ± 0.13 | ± 0.15 |
| Over 25, up to and incl. 50 | _ | ± 0.06 | ± 0.08 | ± 0.09 | ± 0.10 | ± 0.13 | ± 0.18 |
| Over 50, up to and incl. 100 | _ | _ | ± 0.10 | ± 0.13 | ± 0.15 | ± 0.18 | ± 0.20 |

**Remark:**

1: When the tolerance is specified by only either plus or minus side, the value in Table 1 shall be doubled.

2: When the inside diameter is specified, Table 1 shall be so applied that the outside diameter equals the inside diameter plus twice the wall thickness.

3: The applicable tolerances for tubes having a dimension exceeding the range of specified dimensions shall be those for common grade.

## BS EN 12735-1

### THE TUBE SYSTEM (SUCH AS FITTING) WITH THE FORM OF HARD STRAIGHT TUBES OR ANNEALED COILS (INCLUDING PANCAKE COILS)

* CHEMICAL COMPOSITION

| ELEMENT | % MINIMUM | % MAXIMUM |
|---|---|---|
| **Copper** | **99.90** | |
| **Phosphorus** | **0.015** | **0.040** |

* TEMPER DESIGNATION AND PROPERTY

| Form | R220 (annealed) | R250 (half hard) | R290 (hard) | R360 (hard) |
|---|---|---|---|---|
| **Tensile Strength** | | | | |
| Mpa | 200 ~ 250 | 250 ~ 300 | 300 ~ 360 | ≥ 360 |

* REQUIREMENTS FOR THE CLEANNESS OF INNER FACE: ≤38MG/M$^2$.

* SPECIFICATIONS: AS PER CUSTOMER'S REQUIREMENTS

## BS EN 12735-2

### SEAMLESS COPPER TUBE FOR AIR CONDITIONING AND REFRIGERATION FIELD SERVICE

* CHEMICAL COMPOSITION

| ELEMENT | % MINIMUM | % MAXIMUM |
|---|---|---|
| **Copper** | **99.90** | |
| **Phosphorus** | **0.015** | **0.040** |

* TEMPER DESIGNATION

| Temper | YO80 (skin hard) | YO4 (light annealed) | YO3 (soft annealed) |
|---|---|---|---|
| **Tensile Strength** | | | |
| Mpa | ≥ 220 | ≥ 220 | ≥ 210 |

* OUTSIDE DIAMETER AND WALL THICKNESS

| Outside Diameter (mm) | % MINIMUM | |
|---|---|---|
| | ≤ 0.4 | > 0.4 |
| ∅ 6 ~ 13 | ± 0.04 | ± 0.04 |
| ∅ 13 ~ 16 | ± 0.05 | ± 0.04 |
| ∅ 16 ~ 24 | -------- | ± 0.05 |

* REQUIREMENTS FOR THE CLEANNESS OF INNER FACE: ≤38MG/M$^2$.

# AS 1432

## AUSTRALIA STANDARD

## COPPER TUBE FOR PLUMBING, GASFILLING AND DRAINAGE APPLICATIONS

### * CHEMICAL COMPOSITION

| ELEMENT | % MINIMUM | % MAXIMUM |
|---|---|---|
| **Copper**[1] | **99.90** | |
| **Phosphorus** | **0.015** | **0.040** |

1: Including Silver

### * TEMPER AND FORM

| Thickness Type | Temper | SIZE RANGE | | Form |
|---|---|---|---|---|
| | | Maximum | Minimum | |
| A | Hard drawn | DN 6 | DN 200 | Straight lengths |
| | Bendable | DN 15 | DN 200 | Straight lengths |
| | Annealed | DN 6 | DN 40 | Coils |
| B | Hard drawn | DN 6 | DN 200 | Straight lengths |
| | Bendable | DN 15 | DN 20 | Straight lengths |
| | Annealed | DN 6 | DN 40 | Coils |
| C | Hard drawn | DN 10 | DN 25 | Straight lengths |
| | Bendable | DN 15 | DN 20 | Straight lengths |
| | Annealed | DN 10 | DN 25 | Coils |
| D | Hard drawn | DN 32 | DN 150 | Straight lengths |

### * TUBE HARDNESS

| TEMPER | HARDNESS HV | |
|---|---|---|
| | MINIMUM | MAXIMUM |
| **Hard drawn** | 100 | _ |
| **Bendable** | 80 | 100 |
| **Annealed** | _ | 70 |

### * DIMENSIONS AND TOLERANCES

Appropriate tolerances for mean outside diameter and wall thickness are shown in each table.

### * LENGTH TOLERANCES

| PRODUCT | SPECIFIED LENGTH (M) | TOLERANCE |
|---|---|---|
| **Straight lengths** | **≥ 3**<br>**>3 ≤6** | **+ 12, - 0 mm**<br>**+ 24, - 0 mm** |
| **Coils** | **≤15**<br>**>15** | **+ 300, - 0 mm**<br>**+ 2, - 0 mm** |

### * SPECIAL SIZES

Larger diameter DN 225 (228.60mm), DN 250(254.00mm) tubes are available with wall thickness of 2.03mm, 2.64mm or 3.25mm. These tubes are manufactured to Australia Standard AS 1572. Full technical details are available upon application.

## * TYPE C

| NOMINAL SIZE | MEAN OUTSIDE DIAMETER (mm) | | | OVALITY (mm) | THICKNESS (mm) | | |
|---|---|---|---|---|---|---|---|
| | Minimum | | Maximum | Maximum for straight lengths | Minimum at any point | Standard | Maximum at any point |
| | Coils | Straight lengths | | | | | |
| DN 10 | 9.42 | 9.44 | 9.52 | 0.08 | 0.61 | 0.71 | 0.81 |
| DN 15 | 12.57 | 12.62 | 12.70 | 0.10 | 0.61 | 0.71 | 0.81 |
| DN 18 | 15.72 | 15.80 | 15.88 | 0.16 | 0.81 | 0.91 | 1.01 |
| DN 20 | 18.85 | 18.97 | 19.05 | 0.20 | 0.81 | 0.91 | 1.01 |
| DN 25 | 25.09 | 25.30 | 25.40 | 0.28 | 0.81 | 0.91 | 1.01 |

## * TYPE D

| NOMINAL SIZE | MEAN OUTSIDE DIAMETER (mm) | | | OVALITY (mm) | THICKNESS (mm) | | |
|---|---|---|---|---|---|---|---|
| | Minimum | | Maximum | Maximum for straight lengths | Minimum at any point | Standard | Maximum at any point |
| | Coils | Straight lengths | | | | | |
| DN 32 | _ | 31.65 | 31.75 | 0.38 | 0.81 | 0.91 | 1.01 |
| DN 40 | _ | 38.00 | 38.10 | 0.48 | 0.81 | 0.91 | 1.01 |
| DN 50 | _ | 50.67 | 50.80 | 0.64 | 0.81 | 0.91 | 1.01 |
| DN 65 | _ | 63.35 | 63.50 | 0.88 | 0.81 | 0.91 | 1.01 |
| DN 80 | _ | 76.02 | 76.20 | 1.08 | 1.09 | 1.22 | 1.35 |
| DN 90 | _ | 88.70 | 88.90 | 1.24 | 1.09 | 1.22 | 1.35 |
| DN 100 | _ | 101.35 | 101.60 | 1.42 | 1.09 | 1.22 | 1.35 |
| DN 125 | _ | 126.75 | 127.00 | 1.78 | 1.27 | 1.42 | 1.57 |
| DN 150 | _ | 152.10 | 152.40 | 2.12 | 1.47 | 1.63 | 1.79 |

## * SAFE WORKING PRESSURE (PSW) AND TESTING PRESSURE (PT) FOR TEMPERATURES UP TO AND INCLUDING 50°C

| NOMINAL SIZE | PRESSURE (Bar) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | TYPE A | | TYPE B | | TYPE C | | TYPE D | |
| | Psw | Pt | Psw | Pt | Psw | Pt | Psw | Pt |
| DN 6 | 120 | 180 | 87 | 131 | _ | _ | _ | _ |
| DN 8 | 93 | 140 | 68 | 102 | _ | _ | _ | _ |
| DN 10 | 87 | 130 | 76 | 114 | 56 | 84 | _ | _ |
| DN 15 | 63 | 95 | 56 | 84 | 41 | 62 | _ | _ |
| DN 18 | 60 | 91 | 50 | 75 | 44 | 66 | _ | _ |
| DN 20 | 59 | 88 | 41 | 62 | 36 | 55 | _ | _ |
| DN 25 | 50 | 76 | 37 | 55 | 27 | 41 | _ | _ |
| DN 32 | 40 | 60 | 29 | 44 | _ | _ | 22 | 32 |
| DN 40 | 33 | 49 | 24 | 36 | _ | _ | 18 | 27 |
| DN 50 | 24 | 37 | 18 | 27 | _ | _ | 13 | 20 |
| DN 65 | 19 | 29 | 14 | 22 | _ | _ | 11 | 16 |
| DN 80 | 20 | 30 | 16 | 24 | _ | _ | 12 | 18 |
| DN 90 | 17 | 26 | 14 | 21 | _ | _ | 10 | 15 |
| DN 100 | 15 | 23 | 12 | 18 | _ | _ | 9 | 13 |
| DN 125 | 12 | 18 | 10 | 14 | _ | _ | 8 | 12 |
| DN 150 | 13 | 20 | 10 | 15 | _ | _ | 8 | 12 |
| DN 200 | 9 | 14 | 7 | 11 | _ | _ | _ | _ |

## * DIMENSIONS AND TOLERANCES

## * OUTSIDE DIAMETER (OD)

The mean outside diameter for tube in all tempers, either coiled or in straight lengths should not vary from the specified diameter by more than the tolerances specified.

| SPECIFIED OD (mm) | | TOLERANCE ON OD PLUS NIL, MINUS (mm) | |
|---|---|---|---|
| OVER | UP TO AND INCLUDING | STRAIGHT LENGTHS | COILS |
| 3.18 | 12.70 | 0.08 | 0.13 |
| 12.70 | 19.05 | 0.08 | 0.20 |
| 19.05 | 25.40 | 0.08 | 0.31 |
| 25.40 | 31.75 | 0.08 | 0.38 |
| 31.75 | 50.80 | 0.08 | 0.46 |
| 50.80 | 101.60 | 0.15 | _ |
| 101.60 | 155.58 | 0.30 | _ |

## * THICKNESS

The standard thickness at any point tolerance for tubes either coiled or in straight lengths is ± 10% of the specified thickness.

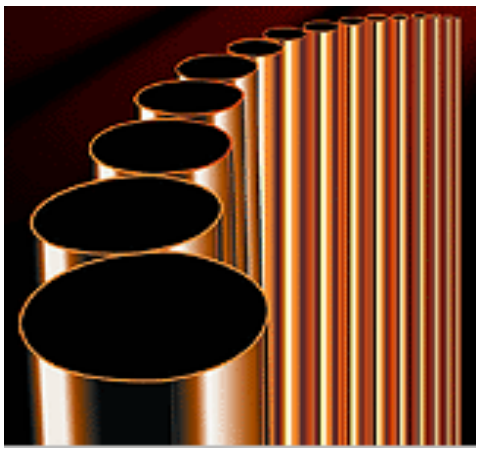
## * LENGTH

Tube ordered to a specified length should not vary from that length by more than tolerances specified.

| PRODUCT | SPECIFIED LENGTH (m) | | TOLERANCE ON LENGTH PLUS NIL, MINUS (mm) |
|---|---|---|---|
| | OVER | UP TO AND INCLUDING | |
| **Straight lengths** | _ | 2 | 12mm |
| | 2 | 10 | 24mm |
| **Coils** | _ | 15 | 300mm |
| | 15 | _ | 2% |

## * CLEANNESS

Tubes are manufactured to meet the internal residue requirement of 0.038g/$m^2$.



# REFRIGERATION QUALITY COPPER TUBE

## * AS/NZS 1571

### * COMMON STANDARD SIZES, TEMPERS AND LENGTHS. *(Just for reference only.)*

| STANDARD SIZES, TEMPERS & LENGTHS | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ACTUAL TUBE SIZE | | | SAFE WORKING PRESSURE (Bar) | | NOMINAL TUBE MASS (kg/m ± tolerances) | TEMPER | | | | |
| OUTSIDE DIAMETER | | WALL THICKNESS | SERVICE TEMPERATURE (°C) | | | ANNEALED | | | HARD | |
| | | | | | | LENGTH (m) | | | | |
| inch | (mm) | mm ± tolerances | UP TO 50 | OVER 50 UP TO 75 | | 15 | 18 | 30 | 5.8 | 6 |
| 1 | (25.4) | 0.91 ± 0.05 | 27 | 23 | 0.624 ± 0.03 | | | | ● | ● |
| 1 | (25.4) | 1.22 ± 0.06 | 37 | 31 | 0.826 ± 0.04 | | | | ● | ● |
| 1 | (25.4) | 1.63 ± 0.08 | 50 | 42 | 1.085 ± 0.05 | | | | ● | ● |
| 1 1/8 | (28.58) | 0.91 ± 0.05 | 24 | 20 | 0.705 ± 0.04 | | | | ● | ● |
| 1 1/8 | (28.58) | 1.22 ± 0.06 | 33 | 27 | 0.935 ± 0.05 | | | | ● | ● |
| 1 1/8 | (28.58) | 1.27 ± 0.06 | 34 | 28 | 0.971 ± 0.05 | | | | ● | ● |
| 1 1/8 | (28.58) | 1.63 ± 0.08 | 44 | 37 | 1.230 ± 0.06 | | | | ● | ● |
| 1 1/8 | (28.58) | 1.83 ± 0.09 | 50 | 42 | 1.371 ± 0.07 | | | | ● | ● |
| 1 1/4 | (31.75) | 0.91 ± 0.05 | 22 | 18 | 0.786 ± 0.04 | | | | ● | ● |
| 1 1/4 | (31.75) | 1.22 ± 0.06 | 29 | 24 | 1.043 ± 0.05 | | | | ● | ● |
| 1 1/4 | (31.75) | 2.03 ± 0.10 | 50 | 42 | 1.689 ± 0.08 | | | | ● | ● |
| 1 3/8 | (34.92) | 0.91 ± 0.05 | 20 | 16 | 0.867 ± 0.04 | | | | ● | ● |
| 1 3/8 | (34.92) | 1.22 ± 0.06 | 27 | 22 | 1.151 ± 0.06 | | | | ● | ● |
| 1 3/8 | (34.92) | 1.40 ± 0.07 | 31 | 25 | 1.314 ± 0.07 | | | | ● | ● |
| 1 3/8 | (34.92) | 1.63 ± 0.08 | 36 | 30 | 1.519 ± 0.08 | | | | ● | ● |
| 1 3/8 | (34.92) | 2.03 ± 0.10 | 45 | 38 | 1.869 ± 0.09 | | | | ● | ● |
| 1 1/2 | (38.10) | 0.91 ± 0.05 | 18 | 15 | 0.948 ± 0.05 | | | | ● | ● |
| 1 1/2 | (38.10) | 1.22 ± 0.06 | 24 | 20 | 1.260 ± 0.06 | | | | ● | ● |
| 1 1/2 | (38.10) | 2.29 ± 0.11 | 47 | 39 | 2.296 ± 0.11 | | | | ● | ● |
| 1 5/8 | (41.28) | 0.91 ± 0.05 | 17 | 14 | 1.029 ± 0.05 | | | | ● | ● |
| 1 5/8 | (41.28) | 1.22 ± 0.06 | 22 | 19 | 1.368 ± 0.07 | | | | ● | ● |
| 1 5/8 | (41.28) | 1.52 ± 0.08 | 28 | 23 | 1.692 ± 0.08 | | | | ● | ● |
| 1 5/8 | (41.28) | 1.83 ± 0.09 | 34 | 28 | 2.021 ± 0.10 | | | | ● | ● |
| 2 | (50.80) | 1.22 ± 0.06 | 18 | 15 | 1.694 ± 0.08 | | | | ● | ● |
| 2 | (50.80) | 1.63 ± 0.08 | 24 | 20 | 2.244 ± 0.11 | | | | ● | ● |
| 2 1/8 | (53.98) | 0.91 ± 0.05 | 13 | 10 | 1.352 ± 0.07 | | | | ● | ● |
| 2 1/8 | (53.98) | 1.22 ± 0.06 | 17 | 14 | 1.802 ± 0.09 | | | | ● | ● |
| 2 1/8 | (53.98) | 1.63 ± 0.08 | 23 | 19 | 2.389 ± 0.12 | | | | ● | ● |
| 2 1/8 | (53.98) | 1.78 ± 0.09 | 25 | 21 | 2.602 ± 0.13 | | | | ● | ● |
| 2 1/8 | (53.98) | 2.11 ± 0.11 | 30 | 25 | 3.065 ± 0.15 | | | | ● | ● |
| 2 1/8 | (53.98) | 2.64 ± 0.13 | 38 | 31 | 3.795 ± 0.19 | | | | ● | ● |
| 2 5/8 | (66.68) | 1.22 ± 0.06 | 14 | 11 | 2.236 ± 0.11 | | | | ● | ● |
| 2 5/8 | (66.68) | 1.63 ± 0.08 | 18 | 15 | 2.969 ± 0.15 | | | | ● | ● |
| 2 5/8 | (66.68) | 2.03 ± 0.10 | 23 | 19 | 3.675 ± 0.18 | | | | ● | ● |
| 3 | (76.20) | 1.63 ± 0.08 | 16 | 13 | 3.403 ± 0.17 | | | | ● | ● |
| 3 1/8 | (79.38) | 2.29 ± 0.11 | 22 | 18 | 4.943 ± 0.25 | | | | ● | ● |
| 4 | (101.60) | 1.63 ± 0.08 | 12 | 10 | 4.563 ± 0.23 | | | | ● | ● |
| 4 1/8 | (104.78) | 2.79 ± 0.14 | 20 | 17 | 7.967 ± 0.40 | | | | ● | ● |