

# CLASSIC

## Submittal

JV4-ARS14 20 24  
Classic Architectural  
Copper/Aluminum and  
Steel Elements

### Specification

JV4 Slip Jointed Enclosure

**ENCLOSURE:**

- STYLE: Classic Slope  
OUTLET: Extruded Aluminum Pencil Proof
- LENGTHS: 2'0" thru 8'0" in 6" Increments  
MAT'L:  16 Ga. CRS (Std)  
 14 Ga. CRS (Opt'l)  
 16 Ga. Stainless Steel (Opt'l)  
 14 Ga. Stainless Steel (Opt'l)  
 14 Ga. Aluminum (Opt'l)  
 12 Ga. Aluminum (Opt'l)
- HEIGHT:  14"  
 20"  
 24"
- FINISH:  Baked Powder (Std)  
 Baked Metallic (Opt'l)

**ACCESSORIES:**

- All Accessories are Overlapping Type  
All accessories return to the wall at the bottom and have pre-punched holes for fastening to the wall

**ELEMENT:**

- TYPE:  Cu/Al (Mechanically Expanded)  
LENGTHS: 2'0" thru 12'6" in 1" Increments for 1" & 1-1/4" Cu.  
2'0" thru 8'0" in 1" Increments for 3/4" Cu.
- One End Flared, (Std)
- TYPE:  IPS Steel (Mechanically Expanded)  
LENGTHS: 2'0" Thru 12'0" in 1" Increments  
 NPT Thread Both Ends (Std)  
 Beveled Ends for Field Weld
- See Catalog for Working Pressures

**BACKPLATE:**

- TYPE:  Partial B/P  
LENGTHS: 8'0" Only  
MAT'L:  20 Ga. Prepainted (Std)  
 18 Ga. Galvannealed (Opt'l)
- TYPE:  Full Ht. B/P (Opt'l)  
LENGTHS: 2'0" thru 8'0" in 6" Increments  
MAT'L:  20 Ga. Galvannealed (Opt'l)  
 20 Ga. Painted (Opt'l)  
 18 Ga. Painted (Opt'l)

**AIRSEAL:**

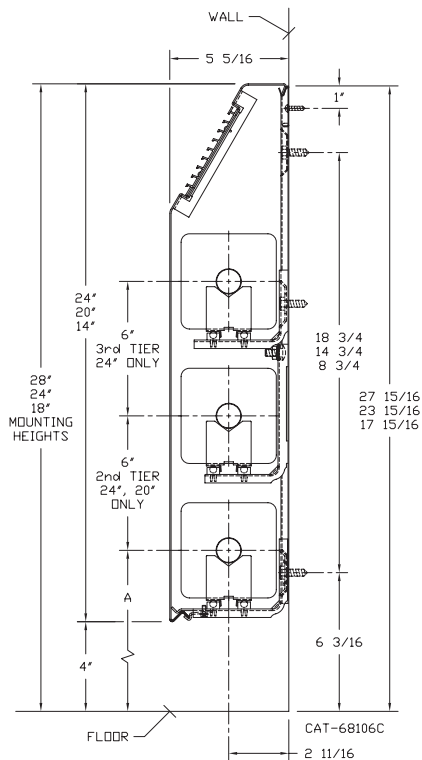
- 1/8" x 3/8" Closed Cell (Opt'l)

**BRACKETS:**

- Water Brkt w/B.B.  
 Steam Brkt w/Brkt Mtd  
 B.B. Hgr, Bracket Mtd  
 B.B. Hgr, Wall Mtd  
Wall Mtd B.B. Hgr required for 3rd Tier Element

**DAMPER:** Not Available

**JV4-ARS14 20 24**



| ELEMENT TUBE SIZE | FIN SIZE HEIGHT x WIDTH | CRADLE NUMBER | A       |
|-------------------|-------------------------|---------------|---------|
| 3/4 COPPER        | 3 5/8 x 4 1/4           | 2             | 7"      |
| 3/4 COPPER        | 4 1/4 x 4 1/4           | 3A            | 7 3/8"  |
| 1" COPPER         | 3 5/8 x 4 1/4           | 2             | 7 3/16" |
| 1" COPPER         | 4 1/4 x 4 1/4           | 2             | 7 3/16" |
| 1 1/4 COPPER      | 3 5/8 x 4 1/4           | 2             | 7 5/16" |
| 1 1/4 COPPER      | 4 1/4 x 4 1/4           | 2             | 7 5/16" |
| 1" STEEL          | 4 1/4 x 4 1/4           | 2             | 7 5/16" |
| 1 1/4 STEEL       | 4 1/4 x 4 1/4           | 2             | 7 1/2"  |
| 2" STEEL          | 4 1/4 x 4 1/4           | 1             | 7 1/4"  |



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www.vulcanrad.com



1/2024

PROJECT: \_\_\_\_\_ DATE: \_\_\_\_\_  
LOCATION: \_\_\_\_\_  
ARCHITECT: \_\_\_\_\_  
ENGINEER: \_\_\_\_\_  
CONTRACTOR: \_\_\_\_\_  
PO NUMBER: \_\_\_\_\_

# STYLE JV4-ARS14 20 24

## COPPER/ALUMINUM ELEMENT RATINGS

ALL RATINGS ARE IN BTU/HR/LIN FT AND BASED ON 3 FPS VELOCITY, 65° EAT

| TUBE SIZE | CATALOG DESIGNATION | FIN SIZE HEIGHT X WIDTH | FINS PER FT. | FIN THICKNESS IN INCHES | ENCL HEIGHT IN INCHES | TIERS AND CENTERS IN INCHES | MTG. HEIGHT IN INCHES | STEAM 215° FACTOR | HOT WATER (AVG.)                                  |      |      |      |      |      |      |      |      |
|-----------|---------------------|-------------------------|--------------|-------------------------|-----------------------|-----------------------------|-----------------------|-------------------|---|------|------|------|------|------|------|------|------|
|           |                     |                         |              |                         |                       |                             |                       |                   | 200°  | 190° | 180° | 170° | 160° | 150° | 140° | 130° | 120° |
|           |                     |                         |              |                         |                       |                             |                       |                   | CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES |      |      |      |      |      |      |      | 1.00 |
| 3/4"      | VC3/4-433           | 3-5/8" x 4-1/4"         | 32           | .020                    | 14                    | 1                           | 18                    | 1520              | 1310  | 1190 | 1050 | 930  | 810  | 680  | 610  | 500  | 400  |
|           |                     |                         |              |                         | 20                    | 1                           | 24                    | 1600              | 1380  | 1250 | 1100 | 980  | 850  | 720  | 640  | 530  | 420  |
|           |                     |                         |              |                         | 20                    | 2-6 CL                      | 24                    | 2480              | 2130  | 1930 | 1710 | 1510 | 1310 | 1120 | 990  | 820  | 640  |
|           |                     |                         |              |                         | 24                    | 1                           | 28                    | 1670              | 1440  | 1300 | 1150 | 1020 | 890  | 750  | 670  | 550  | 430  |
|           |                     |                         |              |                         | 24                    | 2-6 CL                      | 28                    | 2570              | 2210  | 2000 | 1770 | 1570 | 1360 | 1160 | 1030 | 850  | 670  |
| 3/4"      | VC3/4-434           | 3-5/8" x 4-1/4"         | 40           | .020                    | 14                    | 1                           | 18                    | 1700              | 1460  | 1330 | 1170 | 1040 | 900  | 770  | 680  | 560  | 440  |
|           |                     |                         |              |                         | 20                    | 1                           | 24                    | 1820              | 1570  | 1420 | 1260 | 1110 | 960  | 820  | 730  | 600  | 470  |
|           |                     |                         |              |                         | 20                    | 2-6 CL                      | 24                    | 2580              | 2220  | 2010 | 1780 | 1570 | 1370 | 1160 | 1030 | 850  | 670  |
|           |                     |                         |              |                         | 24                    | 1                           | 28                    | 1910              | 1640  | 1490 | 1320 | 1170 | 1010 | 860  | 760  | 630  | 500  |
|           |                     |                         |              |                         | 24                    | 2-6 CL                      | 28                    | 2700              | 2320  | 2110 | 1860 | 1650 | 1430 | 1220 | 1080 | 890  | 700  |
| 3/4"      | VC3/4-435           | 3-5/8" x 4-1/4"         | 50           | .020                    | 14                    | 1                           | 18                    | 1840              | 1580  | 1440 | 1270 | 1120 | 980  | 830  | 740  | 610  | 480  |
|           |                     |                         |              |                         | 20                    | 1                           | 24                    | 2090              | 1800  | 1630 | 1440 | 1270 | 1110 | 940  | 840  | 690  | 540  |
|           |                     |                         |              |                         | 20                    | 2-6 CL                      | 24                    | 2820              | 2430  | 2200 | 1950 | 1720 | 1490 | 1270 | 1130 | 930  | 730  |
|           |                     |                         |              |                         | 24                    | 1                           | 28                    | 2260              | 1940  | 1760 | 1560 | 1380 | 1200 | 1020 | 900  | 750  | 590  |
|           |                     |                         |              |                         | 24                    | 2-6 CL                      | 28                    | 3110              | 2670  | 2430 | 2150 | 1900 | 1650 | 1400 | 1240 | 1030 | 810  |
| 1"        | VC433               | 3-5/8" x 4-1/4"         | 32           | .020                    | 14                    | 1                           | 18                    | 1540              | 1320  | 1200 | 1060 | 940  | 820  | 690  | 620  | 510  | 400  |
|           |                     |                         |              |                         | 20                    | 1                           | 24                    | 1620              | 1390  | 1260 | 1120 | 990  | 860  | 730  | 650  | 530  | 420  |
|           |                     |                         |              |                         | 20                    | 2-6 CL                      | 24                    | 2500              | 2150  | 1950 | 1720 | 1530 | 1330 | 1130 | 1000 | 830  | 650  |
|           |                     |                         |              |                         | 24                    | 1                           | 28                    | 1690              | 1450  | 1320 | 1170 | 1030 | 900  | 760  | 680  | 560  | 440  |
|           |                     |                         |              |                         | 24                    | 2-6 CL                      | 28                    | 2590              | 2230  | 2020 | 1790 | 1580 | 1370 | 1170 | 1040 | 850  | 670  |
| 1"        | VC434               | 3-5/8" x 4-1/4"         | 40           | .020                    | 14                    | 1                           | 18                    | 1780              | 1530  | 1390 | 1230 | 1090 | 940  | 800  | 710  | 590  | 460  |
|           |                     |                         |              |                         | 20                    | 1                           | 24                    | 1900              | 1630  | 1480 | 1310 | 1160 | 1010 | 860  | 760  | 630  | 490  |
|           |                     |                         |              |                         | 20                    | 2-6 CL                      | 24                    | 2660              | 2290  | 2070 | 1840 | 1620 | 1410 | 1200 | 1060 | 880  | 690  |
|           |                     |                         |              |                         | 24                    | 1                           | 28                    | 1990              | 1710  | 1550 | 1370 | 1210 | 1050 | 900  | 800  | 660  | 520  |
|           |                     |                         |              |                         | 24                    | 2-6 CL                      | 28                    | 2770              | 2380  | 2160 | 1910 | 1690 | 1470 | 1250 | 1110 | 910  | 720  |
| 1"        | VC435               | 3-5/8" x 4-1/4"         | 50           | .020                    | 14                    | 1                           | 18                    | 1930              | 1660  | 1510 | 1330 | 1180 | 1020 | 870  | 770  | 640  | 500  |
|           |                     |                         |              |                         | 20                    | 1                           | 24                    | 2180              | 1870  | 1700 | 1500 | 1330 | 1160 | 980  | 870  | 720  | 570  |
|           |                     |                         |              |                         | 20                    | 2-6 CL                      | 24                    | 2640              | 2270  | 2060 | 1820 | 1610 | 1400 | 1190 | 1060 | 870  | 690  |
|           |                     |                         |              |                         | 24                    | 1                           | 28                    | 2360              | 2030  | 1840 | 1630 | 1440 | 1250 | 1060 | 940  | 780  | 610  |
|           |                     |                         |              |                         | 24                    | 2-6 CL                      | 28                    | 2910              | 2500  | 2270 | 2010 | 1780 | 1540 | 1310 | 1160 | 960  | 760  |
| 1-1/4"    | VC1433              | 3-5/8" x 4-1/4"         | 32           | .020                    | 14                    | 1                           | 18                    | 1450              | 1250  | 1130 | 1000 | 880  | 770  | 650  | 580  | 480  | 380  |
|           |                     |                         |              |                         | 20                    | 1                           | 24                    | 1530              | 1320  | 1190 | 1060 | 930  | 810  | 690  | 610  | 500  | 400  |
|           |                     |                         |              |                         | 20                    | 2 @ 6 CL                    | 24                    | 2360              | 2030  | 1840 | 1630 | 1440 | 1250 | 1060 | 940  | 780  | 610  |
|           |                     |                         |              |                         | 24                    | 1                           | 28                    | 1590              | 1370  | 1240 | 1100 | 970  | 840  | 720  | 640  | 520  | 410  |
|           |                     |                         |              |                         | 24                    | 2 @ 6 CL                    | 28                    | 2450              | 2110  | 1910 | 1690 | 1490 | 1300 | 1100 | 980  | 810  | 640  |
| 1-1/4"    | VC1434              | 3-5/8" x 4-1/4"         | 40           | .020                    | 14                    | 1                           | 18                    | 1740              | 1500  | 1360 | 1200 | 1060 | 920  | 780  | 700  | 570  | 450  |
|           |                     |                         |              |                         | 20                    | 1                           | 24                    | 1880              | 1620  | 1470 | 1300 | 1150 | 1000 | 850  | 750  | 620  | 490  |
|           |                     |                         |              |                         | 20                    | 2 @ 6 CL                    | 24                    | 2610              | 2240  | 2040 | 1800 | 1590 | 1380 | 1170 | 1040 | 860  | 680  |
|           |                     |                         |              |                         | 24                    | 1                           | 28                    | 1950              | 1680  | 1520 | 1350 | 1190 | 1030 | 880  | 780  | 640  | 510  |
|           |                     |                         |              |                         | 24                    | 2 @ 6 CL                    | 28                    | 2710              | 2330  | 2110 | 1870 | 1650 | 1440 | 1220 | 1080 | 890  | 700  |
| 1-1/4"    | VC1435              | 3-5/8" x 4-1/4"         | 50           | .020                    | 14                    | 1                           | 18                    | 1860              | 1600  | 1450 | 1280 | 1130 | 990  | 840  | 740  | 610  | 480  |
|           |                     |                         |              |                         | 20                    | 1                           | 24                    | 2130              | 1830  | 1660 | 1470 | 1300 | 1130 | 960  | 850  | 700  | 550  |
|           |                     |                         |              |                         | 20                    | 2 @ 6 CL                    | 24                    | 2510              | 2160  | 1960 | 1730 | 1530 | 1330 | 1130 | 1000 | 830  | 650  |
|           |                     |                         |              |                         | 24                    | 1                           | 28                    | 2270              | 1950  | 1770 | 1570 | 1380 | 1200 | 1020 | 910  | 750  | 590  |
|           |                     |                         |              |                         | 24                    | 2 @ 6 CL                    | 28                    | 2810              | 2420  | 2190 | 1940 | 1710 | 1490 | 1260 | 1120 | 930  | 730  |
| 3/4"      | VC3/4-43            | 4-1/4" SQ.              | 32           | .020                    | 14                    | 1                           | 18                    | 1630              | 1400  | 1270 | 1120 | 990  | 860  | 730  | 650  | 540  | 420  |
|           |                     |                         |              |                         | 20                    | 1                           | 24                    | 1720              | 1480  | 1340 | 1190 | 1050 | 910  | 770  | 690  | 570  | 450  |
|           |                     |                         |              |                         | 20                    | 2-6 CL                      | 24                    | 2630              | 2260  | 2050 | 1810 | 1600 | 1390 | 1180 | 1050 | 870  | 680  |
|           |                     |                         |              |                         | 24                    | 1                           | 28                    | 1790              | 1540  | 1400 | 1240 | 1090 | 950  | 810  | 720  | 590  | 470  |
|           |                     |                         |              |                         | 24                    | 2-6 CL                      | 28                    | 2810              | 2420  | 2190 | 1940 | 1710 | 1490 | 1260 | 1120 | 930  | 730  |
| 24        | 3-6 CL              | 28                      | 3230         | 2780                    | 2520                  | 2230                        | 1970                  | 1710              | 1450  | 1290 | 1070 | 840  |      |      |      |      |      |

# STYLE JV4-ARS14 20 24

## COPPER/ALUMINUM ELEMENT RATINGS

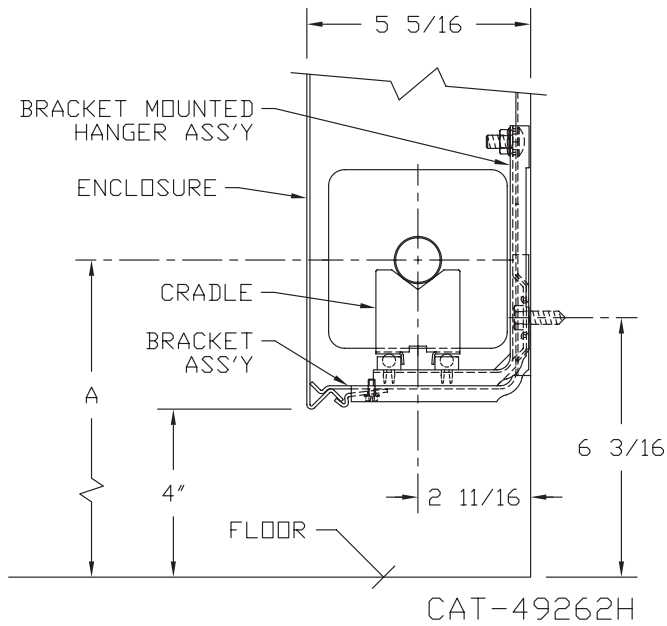
ALL RATINGS ARE IN BTU/HR/LIN FT AND BASED ON 3 FPS VELOCITY, 65° EAT

| TUBE SIZE | CATALOG DESIGNATION | FIN SIZE HEIGHT X WIDTH | FINS PER FT. | FIN THICKNESS IN INCHES | ENCL HEIGHT IN INCHES | TIERS AND CENTERS IN INCHES | MTG. HEIGHT IN INCHES | STEAM 215° FACTOR | HOT WATER (AVG.)                                  |      |      |      |      |      |      |      |      |     |
|-----------|---------------------|-------------------------|--------------|-------------------------|-----------------------|-----------------------------|-----------------------|-------------------|---|------|------|------|------|------|------|------|------|-----|
|           |                     |                         |              |                         |                       |                             |                       |                   | 200°  | 190° | 180° | 170° | 160° | 150° | 140° | 130° | 120° |     |
|           |                     |                         |              |                         |                       |                             |                       |                   | CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES |      |      |      |      |      |      |      |      |     |
|           |                     |                         |              |                         |                       |                             |                       |                   | 1.00  | 0.86 | 0.78 | 0.69 | 0.61 | 0.53 | 0.45 | .40  | .33  | .26 |
| 3/4"      | VC3/4-44            | 4-1/4" SQ.              | 40           | .020                    | 14                    | 1                           | 18                    | 2030              | 1750  | 1580 | 1400 | 1240 | 1080 | 910  | 810  | 670  | 530  |     |
|           |                     |                         |              |                         | 20                    | 1                           | 24                    | 2200              | 1890  | 1720 | 1520 | 1340 | 1170 | 990  | 880  | 730  | 570  |     |
|           |                     |                         |              |                         | 20                    | 2-6 CL                      | 24                    | 2910              | 2500  | 2270 | 2010 | 1780 | 1540 | 1310 | 1160 | 960  | 760  |     |
|           |                     |                         |              |                         | 24                    | 1                           | 28                    | 2340              | 2010  | 1830 | 1610 | 1430 | 1240 | 1050 | 940  | 770  | 610  |     |
|           |                     |                         |              |                         | 24                    | 2-6 CL                      | 28                    | 3200              | 2750  | 2500 | 2210 | 1950 | 1700 | 1440 | 1280 | 1060 | 830  |     |
| 3/4"      | VC3/4-45            | 4-1/4" SQ.              | 50           | .020                    | 14                    | 1                           | 18                    | 2040              | 1750  | 1590 | 1410 | 1240 | 1080 | 920  | 820  | 670  | 530  |     |
|           |                     |                         |              |                         | 20                    | 1                           | 24                    | 2320              | 2000  | 1810 | 1600 | 1420 | 1230 | 1040 | 930  | 770  | 600  |     |
|           |                     |                         |              |                         | 20                    | 2-6 CL                      | 24                    | 3070              | 2640  | 2390 | 2120 | 1870 | 1630 | 1380 | 1230 | 1010 | 800  |     |
|           |                     |                         |              |                         | 24                    | 1                           | 28                    | 2470              | 2120  | 1930 | 1700 | 1510 | 1310 | 1110 | 990  | 820  | 640  |     |
|           |                     |                         |              |                         | 24                    | 2-6 CL                      | 28                    | 3270              | 2810  | 2550 | 2260 | 1990 | 1730 | 1470 | 1310 | 1080 | 850  |     |
| 1"        | VC43                | 4-1/4" SQ.              | 32           | .020                    | 14                    | 1                           | 18                    | 1650              | 1420  | 1290 | 1140 | 1010 | 870  | 740  | 660  | 540  | 430  |     |
|           |                     |                         |              |                         | 20                    | 1                           | 24                    | 1740              | 1500  | 1360 | 1200 | 1060 | 920  | 780  | 700  | 570  | 450  |     |
|           |                     |                         |              |                         | 20                    | 2-6 CL                      | 24                    | 2590              | 2230  | 2020 | 1790 | 1580 | 1370 | 1170 | 1040 | 850  | 670  |     |
|           |                     |                         |              |                         | 24                    | 1                           | 28                    | 1810              | 1560  | 1410 | 1250 | 1100 | 960  | 810  | 720  | 600  | 470  |     |
|           |                     |                         |              |                         | 24                    | 2-6 CL                      | 28                    | 2830              | 2430  | 2210 | 1950 | 1730 | 1500 | 1270 | 1130 | 930  | 740  |     |
| 1"        | VC44                | 4-1/4" SQ.              | 40           | .020                    | 14                    | 1                           | 18                    | 1880              | 1620  | 1470 | 1300 | 1150 | 1000 | 850  | 750  | 620  | 490  |     |
|           |                     |                         |              |                         | 20                    | 1                           | 24                    | 2040              | 1750  | 1590 | 1410 | 1240 | 1080 | 920  | 820  | 670  | 530  |     |
|           |                     |                         |              |                         | 20                    | 2-6 CL                      | 24                    | 2690              | 2310  | 2100 | 1860 | 1640 | 1430 | 1210 | 1080 | 890  | 700  |     |
|           |                     |                         |              |                         | 24                    | 1                           | 28                    | 2140              | 1840  | 1670 | 1480 | 1310 | 1130 | 960  | 860  | 710  | 560  |     |
|           |                     |                         |              |                         | 24                    | 2-6 CL                      | 28                    | 2920              | 2510  | 2280 | 2010 | 1780 | 1550 | 1310 | 1170 | 960  | 760  |     |
| 1"        | VC45                | 4-1/4" SQ.              | 50           | .020                    | 14                    | 1                           | 18                    | 2060              | 1770  | 1610 | 1420 | 1260 | 1090 | 930  | 820  | 680  | 540  |     |
|           |                     |                         |              |                         | 20                    | 1                           | 24                    | 2340              | 2010  | 1830 | 1610 | 1430 | 1240 | 1050 | 940  | 770  | 610  |     |
|           |                     |                         |              |                         | 20                    | 2-6 CL                      | 24                    | 2680              | 2300  | 2090 | 1850 | 1630 | 1420 | 1210 | 1070 | 880  | 700  |     |
|           |                     |                         |              |                         | 24                    | 1                           | 28                    | 2510              | 2160  | 1960 | 1730 | 1530 | 1330 | 1130 | 1000 | 830  | 650  |     |
|           |                     |                         |              |                         | 24                    | 2-6 CL                      | 28                    | 3000              | 2580  | 2340 | 2070 | 1830 | 1590 | 1350 | 1200 | 990  | 780  |     |
| 1-1/4"    | VC143               | 4-1/4" SQ.              | 32           | .020                    | 14                    | 1                           | 18                    | 1620              | 1390  | 1260 | 1120 | 990  | 860  | 730  | 650  | 530  | 420  |     |
|           |                     |                         |              |                         | 20                    | 1                           | 24                    | 1710              | 1470  | 1330 | 1180 | 1040 | 910  | 770  | 680  | 560  | 440  |     |
|           |                     |                         |              |                         | 20                    | 2-6 CL                      | 24                    | 2540              | 2180  | 1980 | 1750 | 1550 | 1350 | 1140 | 1020 | 840  | 660  |     |
|           |                     |                         |              |                         | 24                    | 1                           | 28                    | 1770              | 1520  | 1380 | 1220 | 1080 | 940  | 800  | 710  | 580  | 460  |     |
|           |                     |                         |              |                         | 24                    | 2-6 CL                      | 28                    | 2780              | 2390  | 2170 | 1920 | 1700 | 1470 | 1250 | 1110 | 920  | 720  |     |
| 1-1/4"    | VC144               | 4-1/4" SQ.              | 40           | .020                    | 14                    | 1                           | 18                    | 1850              | 1590  | 1440 | 1280 | 1130 | 980  | 830  | 740  | 610  | 480  |     |
|           |                     |                         |              |                         | 20                    | 1                           | 24                    | 2000              | 1720  | 1560 | 1380 | 1220 | 1060 | 900  | 800  | 660  | 520  |     |
|           |                     |                         |              |                         | 20                    | 2-6 CL                      | 24                    | 2640              | 2270  | 2060 | 1820 | 1610 | 1400 | 1190 | 1060 | 870  | 690  |     |
|           |                     |                         |              |                         | 24                    | 1                           | 28                    | 2100              | 1810  | 1640 | 1450 | 1280 | 1110 | 950  | 840  | 690  | 550  |     |
|           |                     |                         |              |                         | 24                    | 2-6 CL                      | 28                    | 2870              | 2470  | 2240 | 1980 | 1750 | 1520 | 1290 | 1150 | 950  | 750  |     |
| 1-1/4"    | VC145               | 4-1/4" SQ.              | 50           | .020                    | 14                    | 1                           | 18                    | 2020              | 1740  | 1580 | 1390 | 1230 | 1070 | 910  | 810  | 670  | 530  |     |
|           |                     |                         |              |                         | 20                    | 1                           | 24                    | 2300              | 1980  | 1790 | 1590 | 1400 | 1220 | 1040 | 920  | 760  | 600  |     |
|           |                     |                         |              |                         | 20                    | 2-6 CL                      | 24                    | 2630              | 2260  | 2050 | 1810 | 1600 | 1390 | 1180 | 1050 | 870  | 680  |     |
|           |                     |                         |              |                         | 24                    | 1                           | 28                    | 2470              | 2120  | 1930 | 1700 | 1510 | 1310 | 1110 | 990  | 820  | 640  |     |
|           |                     |                         |              |                         | 24                    | 2-6 CL                      | 28                    | 2950              | 2540  | 2300 | 2040 | 1800 | 1560 | 1330 | 1180 | 970  | 770  |     |
| 24        | 3-6 CL              | 28                      | 3330         | 2860                    | 2600                  | 2300                        | 2030                  | 1760              | 1500  | 1330 | 1100 | 870  | 700  | 530  | 400  | 270  |      |     |

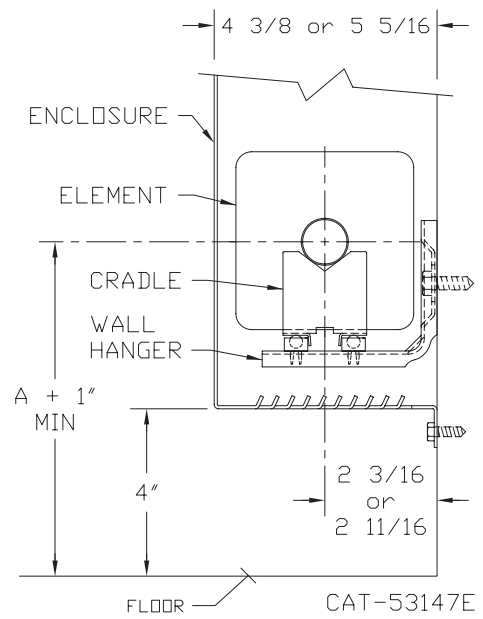


# ELEMENT CENTERLINE DIMENSIONS FOR ALTERNATE INSTALLATIONS

STEAM BRACKET W/ BRACKET MOUNTED HANGER



WALL MOUNTED BRACKET / LOUVERED INLET RETURN TO WALL



| ELEMENT TUBE SIZE | FIN SIZE HEIGHT x WIDTH | CRADLE NUMBER | A MIN   | A MAX  |
|-------------------|-------------------------|---------------|---------|--------|
| 3/4 COPPER        | 3 5/8 x 4 1/4           | 2             | 7 3/8   | 8 3/4  |
|                   | 4 1/4 x 4 1/4           | 3A            | 7 11/16 | 9 1/16 |
| 1" COPPER         | 3 5/8 x 4 1/4           | 2             | 7 1/2   | 8 7/8  |
|                   | 4 1/4 x 4 1/4           |               |         |        |
| 1 1/4 COPPER      | 3 5/8 x 4 1/4           | 2             | 7 5/8   | 9'     |
|                   | 4 1/4 x 4 1/4           |               |         |        |
| 1" STEEL          | 4 1/4 x 4 1/4           | 2             | 7 5/8   | 9'     |
| 1 1/4 STEEL       | 4 1/4 x 4 1/4           | 2             | 7 7/8   | 9 1/4  |
| 2" STEEL          | 4 1/4 x 4 1/4           | 1             | 7 5/8   | 9'     |

# DESIGN DATA

## COMMERCIAL FINNED TUBE RATING CORRECTION CHARTS

CATALOG FINNED TUBE RATINGS ARE BASED UPON THE FOLLOWING CONDITIONS:

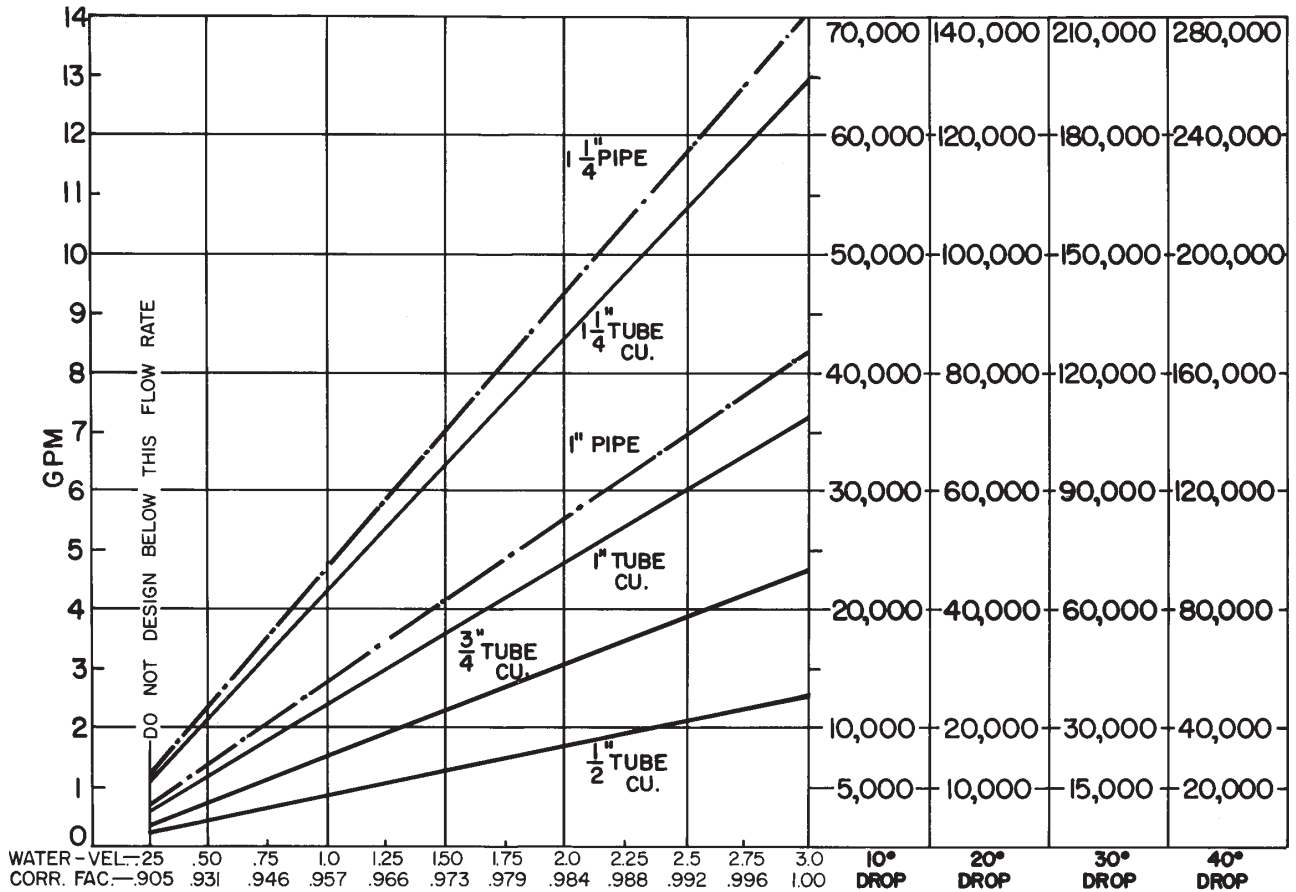
- 215°F AVERAGE WATER OR STEAM TEMPERATURE
- 65°F ENTERING AIR TEMPERATURE
- 3 FEET PER SECOND WATER FLOW RATE
- CATALOG MOUNTING HEIGHT

USE THE FOLLOWING CALCULATION WITH CORRECTION FACTORS FOR JOB CONDITIONS TO DETERMINE CORRECTED RATING:

$$\text{CORRECTED RATING} = (\text{215°F CATALOG RATING}) \times \left( \frac{\text{CORRECTION FACTOR FOR STEAM OR WATER AND AVERAGE AIR TEMP.}}{\text{CORRECTION FACTOR FOR FLOW RATE}} \right) \times \left( \frac{\text{CORRECTION FOR MOUNTING HTG.-SEE CATALOG RATING}}{\text{CORRECTION FOR MOUNTING HTG.-SEE CATALOG RATING}} \right)$$

USE THE FOLLOWING CHARTS TO SELECT CORRECTION FACTORS

### CHART/WATER VEL./CORR. FACTOR / PRESS. DROP/TOTAL BTU.

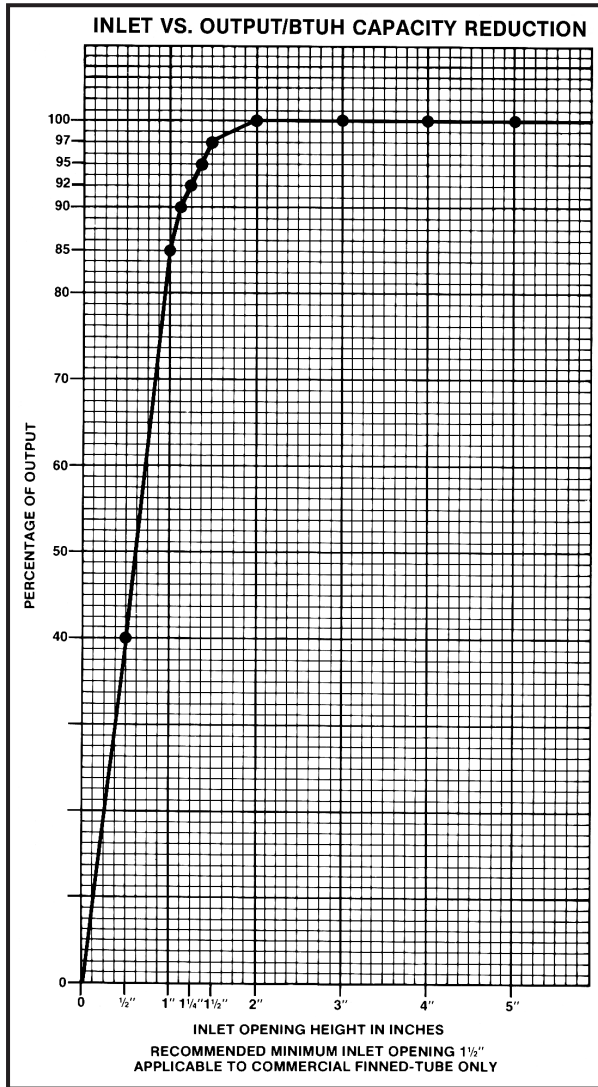


|                   |      |      |      |      |      |      |      |      |      |      |      |     |     |  |  |  |
|-------------------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|--|--|--|
| 1/2" COP. ALUM.   | 1,80 | 2,33 | 5,33 | 9,16 |      |      |      |      |      |      |      |     |     |  |  |  |
| 3/4" COP. ALUM.   | .5   | 1,5  | 3,16 | 5,4  | 6,25 |      |      |      |      |      |      |     |     |  |  |  |
| 1" COP. ALUM.     | .233 | .41  | .83  | 1,45 | 2,16 | 2,83 | 3,66 |      |      |      |      |     |     |  |  |  |
| 1" PIPE           | .37  | .79  | 1,3  | 2,00 | 2,70 | 3,70 | 4,80 |      |      |      |      |     |     |  |  |  |
| 1 1/4" COP. ALUM. | .16  | .33  | .55  | .79  | 1,08 | 1,33 | 1,8  | 2,25 | 2,26 | 2,91 | 3,3  |     |     |  |  |  |
| 1 1/4" PIPE       | .09  | .18  | .31  | .5   | .70  | 1,0  | 1,1  | 1,3  | 1,6  | 1,8  | 2,58 | 2,3 | 3,3 |  |  |  |

PRESSURE DROP PER 100 LINEAR FT., IN FEET OF HEAD

# DESIGN DATA

## INLET AIR CORRECTION FACTOR



## GUARANTEED WORKING PRESSURES

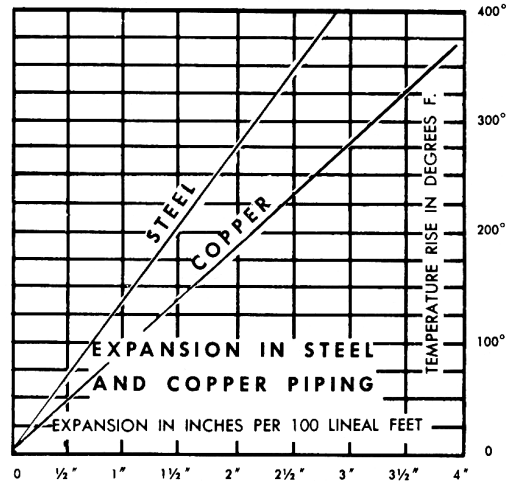
- 1" IPS — 780 AT TEMPERATURES UP TO 650°F.
  - 1 1/4" IPS — 660 AT TEMPERATURES UP TO 650°F.
  - 2" IPS — 405 AT TEMPERATURES UP TO 650°F.
  - 1 1/4" CU — 194 AT TEMPERATURES UP TO 300°F.
  - 1" CU — 204 AT TEMPERATURES UP TO 300°F.
  - 3/4" CU — 218 PSI AT TEMPERATURES UP TO 300°F.
- MAXIMUM PRESSURES AT OTHER TEMPERATURES ARE AVAILABLE UPON REQUEST.

## RATE OF PITCH FOR STEAM 1/2" DROP OVER 20 FT. RUN.

| PIPE WATER CAPACITIES AND QUANTITIES<br>CIRCULATED AT VELOCITY OF 3* FEET PER SECOND |                      |                            |                          |
|--|----------------------|----------------------------|--------------------------|
| Pipe Size  | Gals. Per Linear Ft. | Gals./Min. @ 3' Sec. Vel.* | Lbs./Hr. @ 3' Sec. Vel.* |
| 1/2"   | .016                 | 2.88                       | 1440                     |
| 3/4"   | .023                 | 4.14                       | 2070                     |
| 1"   | .040                 | 7.20                       | 3600                     |
| 1 1/4"   | .063                 | 11.34                      | 5660                     |
| 1 1/2"   | .102                 | 18.36                      | 9160                     |
| 2"   | .170                 | 30.60                      | 15300                    |
| 2 1/2"   | .275                 | 49.50                      | 24850                    |
| 3"   | .390                 | 70.20                      | 35000                    |

\*3 Ft./Sec. Velocity is Basic for Hot Water Rating Factors Shown on this Page.

$$\text{VELOCITY FT./SEC.} = \frac{\text{LBS. PER HOUR}}{(\text{GALS. PER FT.}) (3600) (8.3)}$$



## GLYCOL CORRECTION FACTORS

### Fluid Temperature 200°F

| % Solution | Ethylene Glycol | Propylene Glycol |
|------------|-----------------|------------------|
| 20         | .952            | .988             |
| 30         | .921            | .968             |
| 40         | .888            | .943             |
| 50         | .852            | .912             |

### Fluid Temperature 180°F

| % Solution | Ethylene Glycol | Propylene Glycol |
|------------|-----------------|------------------|
| 20         | .946            | .982             |
| 30         | .913            | .961             |
| 40         | .879            | .934             |
| 50         | .842            | .902             |

### Fluid Temperature 140°F

| % Solution | Ethylene Glycol | Propylene Glycol |
|------------|-----------------|------------------|
| 20         | .934            | .97              |
| 30         | .898            | .946             |
| 40         | .861            | .916             |
| 50         | .821            | .881             |

## ALTITUDE FACTORS

Approximate factors for convective heat value at varying altitudes

| Altitude   | Ferrous Units | Copper Alum. Units |
|------------|---------------|--------------------|
| Sea Level  | 1.000         | 1.000              |
| 1,000 ft.  | .984          | .969               |
| 2,000 ft.  | .968          | .938               |
| 3,000 ft.  | .952          | .908               |
| 4,000 ft.  | .936          | .878               |
| 5,000 ft.  | .920          | .850               |
| 6,000 ft.  | .904          | .822               |
| 7,000 ft.  | .889          | .795               |
| 8,000 ft.  | .874          | .768               |
| 9,000 ft.  | .859          | .743               |
| 10,000 ft. | .844          | .718               |
| 15,000 ft. | .771          | .603               |
| 20,000 ft. | .703          | .502               |

## CORRECTION FACTORS FOR STEAM PRESSURES AND AIR TEMPERATURES OTHER THAN STANDARD

| STEAM        |          | ENTERING AIR TEMPERATURE, °F |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|----------|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Pressure     |          | Temp.                        | 45   | 55   | STD  | 70   | 75   | 80   | 85   | 90   | 100  | 110  | 120  | 130  | 140  | 150  |
| Gauge        | Abs. Psi | °F                           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| (Vac) 15" Hg | 7.32     | 178.9                        | 0.90 | 0.80 | 0.70 | 0.65 | 0.60 | 0.56 | 0.51 | 0.45 | 0.39 | 0.32 | 0.25 | 0.18 | 0.13 | 0.08 |
| (Vac) 10"    | 9.78     | 192.2                        | 1.02 | 0.91 | 0.81 | 0.76 | 0.71 | 0.66 | 0.62 | 0.55 | 0.48 | 0.40 | 0.33 | 0.26 | 0.20 | 0.14 |
| (Vac) 5"     | 12.25    | 202.9                        | 1.11 | 1.00 | 0.90 | 0.85 | 0.79 | 0.75 | 0.70 | 0.63 | 0.56 | 0.48 | 0.40 | 0.33 | 0.27 | 0.20 |
| (Vac) 0 Psi  | 14.696   | 212.0                        | 1.19 | 1.09 | 0.97 | 0.92 | 0.87 | 0.82 | 0.77 | 0.70 | 0.63 | 0.54 | 0.46 | 0.38 | 0.31 | 0.25 |
| ▶ .899       | 15.595   | 215.0                        | 1.22 | 1.11 | 1.00 | 0.95 | 0.90 | 0.84 | 0.80 | 0.75 | 0.65 | 0.57 | 0.48 | 0.40 | 0.33 | 0.26 |
| 5            | 19.70    | 227.1                        | 1.34 | 1.22 | 1.11 | 1.05 | 1.00 | 0.95 | 0.90 | 0.81 | 0.75 | 0.66 | 0.57 | 0.49 | 0.41 | 0.34 |
| 10           | 24.70    | 239.4                        | 1.45 | 1.33 | 1.22 | 1.17 | 1.11 | 1.05 | 1.00 | 0.91 | 0.85 | 0.75 | 0.66 | 0.58 | 0.50 | 0.42 |
| 15           | 29.70    | 249.8                        | 1.55 | 1.43 | 1.31 | 1.26 | 1.20 | 1.14 | 1.09 | 1.00 | 0.94 | 0.84 | 0.75 | 0.66 | 0.57 | 0.49 |
| 20           | 34.70    | 258.8                        | 1.63 | 1.52 | 1.40 | 1.33 | 1.28 | 1.23 | 1.17 | 1.07 | 1.02 | 0.92 | 0.82 | 0.73 | 0.64 | 0.55 |
| 25           | 39.70    | 266.8                        | 1.71 | 1.59 | 1.47 | 1.41 | 1.36 | 1.30 | 1.25 | 1.15 | 1.09 | 0.98 | 0.89 | 0.80 | 0.71 | 0.62 |
| 30           | 44.70    | 274.0                        | 1.78 | 1.66 | 1.54 | 1.48 | 1.42 | 1.37 | 1.31 | 1.21 | 1.15 | 1.05 | 0.95 | 0.85 | 0.76 | 0.68 |
| 40           | 54.70    | 286.7                        | 1.91 | 1.79 | 1.66 | 1.61 | 1.54 | 1.49 | 1.43 | 1.32 | 1.27 | 1.16 | 1.06 | 0.97 | 0.87 | 0.78 |
| 50           | 64.70    | 297.7                        | 2.02 | 1.90 | 1.77 | 1.71 | 1.65 | 1.60 | 1.54 | 1.42 | 1.37 | 1.26 | 1.16 | 1.06 | 0.96 | 0.87 |
| 60           | 74.70    | 307.3                        | 2.10 | 2.00 | 1.87 | 1.81 | 1.75 | 1.69 | 1.63 | 1.51 | 1.47 | 1.35 | 1.25 | 1.15 | 1.05 | 0.95 |
| 70           | 84.70    | 316.0                        | 2.20 | 2.09 | 1.95 | 1.89 | 1.83 | 1.77 | 1.71 | 1.59 | 1.55 | 1.44 | 1.33 | 1.23 | 1.12 | 1.03 |
| 80           | 94.70    | 323.9                        | 2.27 | 2.17 | 2.03 | 1.97 | 1.91 | 1.85 | 1.80 | 1.69 | 1.63 | 1.52 | 1.41 | 1.31 | 1.20 | 1.10 |
| 90           | 104.70   | 331.2                        | 2.36 | 2.24 | 2.11 | 2.05 | 1.98 | 1.93 | 1.87 | 1.74 | 1.70 | 1.59 | 1.48 | 1.38 | 1.28 | 1.17 |
| 100          | 114.70   | 337.9                        | 2.43 | 2.31 | 2.18 | 2.11 | 2.05 | 2.00 | 1.94 | 1.81 | 1.77 | 1.65 | 1.54 | 1.44 | 1.33 | 1.23 |
| 125          | 139.70   | 352.9                        | 2.59 | 2.47 | 2.33 | 2.27 | 2.21 | 2.16 | 2.10 | 1.96 | 1.92 | 1.80 | 1.69 | 1.59 | 1.48 | 1.38 |
| 150          | 164.70   | 365.9                        | 2.73 | 2.62 | 2.47 | 2.43 | 2.35 | 2.29 | 2.23 | 2.08 | 2.05 | 1.94 | 1.82 | 1.72 | 1.61 | 1.51 |
| 175          | 189.70   | 377.4                        | 2.86 | 2.74 | 2.60 | 2.54 | 2.47 | 2.41 | 2.35 | 2.21 | 2.17 | 2.05 | 1.95 | 1.85 | 1.73 | 1.63 |
| 200          | 214.70   | 387.8                        | 2.95 | 2.85 | 2.71 | 2.63 | 2.58 | 2.52 | 2.47 | 2.31 | 2.29 | 2.17 | 2.06 | 1.96 | 1.84 | 1.75 |

From Keenan and Keyes — Linear Interpolation.

Note: Gauge pressure should be corrected for altitude.

## CORRECTION FACTORS FOR WATER TEMPERATURES AND AIR TEMPERATURES OTHER THAN STANDARD

| AVERAGE WATER<br>TEMP. °F | ENTERING AIR TEMPERATURE, °F |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|                           | 45                           | 55   | STD  | 70   | 75   | 80   | 85   | 90   | 95   | 100  | 110  | 120  | 130  | 140  | 150  |
| 90                        | .19                          | .13  | .11  | .06  |      |      |      |      |      |      |      |      |      |      |      |
| 100                       | .25                          | .19  | .15  | .11  | .08  | .06  |      |      |      |      |      |      |      |      |      |
| 110                       | .31                          | .25  | .20  | .16  | .13  | .11  | .08  | .06  |      |      |      |      |      |      |      |
| 120                       | .38                          | .31  | .26  | .21  | .19  | .16  | .13  | .11  | .08  | .06  |      |      |      |      |      |
| 130                       | .45                          | .38  | .33  | .28  | .25  | .21  | .19  | .16  | .13  | .11  | .06  |      |      |      |      |
| 140                       | .53                          | .45  | .40  | .34  | .31  | .28  | .25  | .21  | .19  | .16  | .11  | .06  |      |      |      |
| 150                       | .61                          | .53  | .45  | .41  | .38  | .34  | .31  | .28  | .25  | .21  | .16  | .11  | .06  |      |      |
| 160                       | .69                          | .61  | .53  | .49  | .45  | .41  | .38  | .34  | .31  | .28  | .21  | .16  | .11  | .06  |      |
| 170                       | .77                          | .69  | .61  | .57  | .53  | .49  | .45  | .41  | .38  | .34  | .28  | .21  | .16  | .11  | .06  |
| 180                       | .86                          | .77  | .69  | .65  | .61  | .57  | .53  | .49  | .45  | .41  | .34  | .28  | .21  | .16  | .11  |
| 190                       | .95                          | .86  | .78  | .73  | .69  | .65  | .61  | .57  | .53  | .49  | .41  | .34  | .28  | .21  | .16  |
| 200                       | 1.05                         | .95  | .86  | .82  | .77  | .73  | .69  | .65  | .61  | .57  | .49  | .41  | .34  | .28  | .21  |
| 210                       | 1.14                         | 1.05 | .95  | .91  | .86  | .82  | .77  | .73  | .69  | .65  | .57  | .49  | .41  | .34  | .28  |
| ▶ 215 (STD.)              | 1.19                         | 1.09 | 1.00 | .95  | .91  | .86  | .82  | .77  | .73  | .69  | .61  | .53  | .45  | .38  | .31  |
| 220                       | 1.24                         | 1.14 | 1.05 | 1.00 | .95  | .91  | .86  | .82  | .77  | .73  | .65  | .57  | .49  | .41  | .34  |
| 230                       | 1.34                         | 1.24 | 1.14 | 1.09 | 1.05 | 1.00 | .95  | .91  | .86  | .82  | .73  | .65  | .57  | .49  | .41  |
| 240                       | 1.44                         | 1.34 | 1.25 | 1.19 | 1.14 | 1.09 | 1.05 | 1.00 | .95  | .91  | .82  | .73  | .65  | .57  | .49  |
| 250                       | 1.55                         | 1.44 | 1.34 | 1.29 | 1.24 | 1.19 | 1.14 | 1.09 | 1.05 | 1.00 | .91  | .82  | .73  | .65  | .57  |
| 260                       | 1.66                         | 1.55 | 1.44 | 1.39 | 1.34 | 1.29 | 1.24 | 1.19 | 1.14 | 1.09 | 1.00 | .91  | .82  | .73  | .65  |
| 270                       | 1.76                         | 1.66 | 1.55 | 1.50 | 1.44 | 1.39 | 1.34 | 1.29 | 1.24 | 1.19 | 1.09 | 1.00 | .91  | .82  | .73  |
| 280                       | 1.87                         | 1.76 | 1.66 | 1.60 | 1.55 | 1.50 | 1.44 | 1.39 | 1.34 | 1.29 | 1.19 | 1.09 | 1.00 | .91  | .82  |
| 290                       | 1.99                         | 1.87 | 1.76 | 1.71 | 1.66 | 1.60 | 1.55 | 1.50 | 1.44 | 1.39 | 1.29 | 1.19 | 1.09 | 1.00 | .91  |
| 300                       | 2.10                         | 1.99 | 1.87 | 1.82 | 1.76 | 1.71 | 1.66 | 1.60 | 1.55 | 1.50 | 1.39 | 1.29 | 1.19 | 1.09 | 1.00 |