

# CLASSIC

## Submittal

JVK/VK-AR11  
Classic Architectural  
Copper/Aluminum and  
Steel Elements

### Specification

JVK Slip Jointed Enclosure

**ENCLOSURE:**

STYLE: Classic  
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)  
\*Available on "J" Style only

FINISH:  Baked Powder (Std)  
 Baked Metallic (Opt'l)

**ACCESSORIES:**

- JVK Overlapping Type
- VK Underlapping 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

VK Wiped Edge Enclosure

**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)

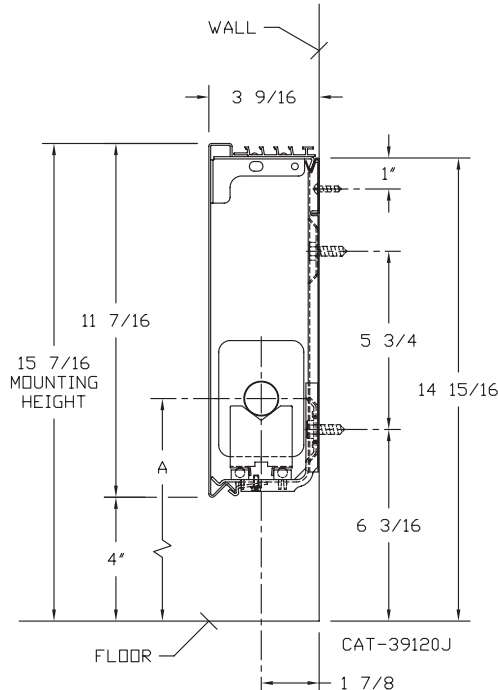
**BRACKETS:**

Water Brkt w/B.B.

**DAMPER:**

Dial Type (Opt'l)  
 Tamper Resistant (Opt'l)

**JVK/VK-AR11**  
(JVK Shown)



ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A
3/4 COPPER	2 1/2 x 2 1/4	1	6 5/16
3/4 COPPER	2 1/2 x 2 3/4	1	7*
3/4 COPPER	3 3/4 x 2 3/4	2	6 1/2
1" COPPER	2 1/2 x 2 3/4	1	7 3/16
1" COPPER	3 3/4 x 2 3/4	2	7 1/2
1 1/4 COPPER	3 3/4 x 2 3/4	2	7 5/16
1 1/4 COPPER	5" x 2 3/4	3A	7 11/16
1" STEEL	3 3/4 x 2 3/4	2	7 5/16
1" STEEL	5" x 2 3/4	3A	7 11/16
1 1/4 STEEL	3 3/4 x 2 3/4	2	7 1/2
1 1/4 STEEL	5" x 2 3/4	3A	7 15/16



COMMERCIAL HYDRONIC PRODUCTS  
260 North Elm St., Westfield, MA 01085  
(413) 564-5535 Fax: (413) 562-8437  
www.sterlingheat.com



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

# STYLE JVK/VK-AR11

## 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 DEPTH AND 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"	R01	2-1/2" x 2-1/4"	50	.011	11K	1	15-7/16	780	670	610	540	480	410	350	310	260	200
3/4"	R02	2-1/2" x 2-3/4"	60	.010	11K	1	15-7/16	1030	890	800	710	630	550	460	410	340	270
1"	R03	2-1/2" x 2-3/4"	55	.011	11K	1	15-7/16	1000	860	780	690	610	530	450	400	330	260
3/4"	R04	3-3/4" x 2-3/4"	50	.014	11K	1	15-7/16	1060	910	830	730	650	560	480	420	350	280
1"	R05	3-3/4" x 2-3/4"	50	.011	11K	1	15-7/16	1010	870	790	700	620	540	450	400	330	260
1-1/4"	R08	3-3/4" x 2-3/4"	50	.020	11K	1	15-7/16	1140	980	890	790	700	600	510	460	380	300
1"	R07	5" x 2-3/4"	50	.020	11K	1	15-7/16	1170	1010	910	810	710	620	530	470	390	300
1-1/4"	R10	5" x 2-3/4"	50	.020	11K	1	15-7/16	1140	980	890	790	700	600	510	460	380	300

## STEEL 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 DEPTH AND 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
1"	R11	3-3/4" x 2-3/4"	40	.024	11K	1	15-7/16	760	650	590	520	460	400	340	300	250	200
1"	R15	5" x 2-3/4"	50	.024	11K	1	15-7/16	930	800	730	640	570	490	420	370	310	240
1-1/4"	R16	5" x 2-3/4"	50	.024	11K	1	15-7/16	900	770	700	620	550	480	410	360	300	230

# DESIGN DATA

## COMMERCIAL FINNED TUBE RATING CORRECTION CHARTS

CATALOG FINNED TUBE RATINGS ARE BASED UPON THE FOLLOWING CONDITIONS:

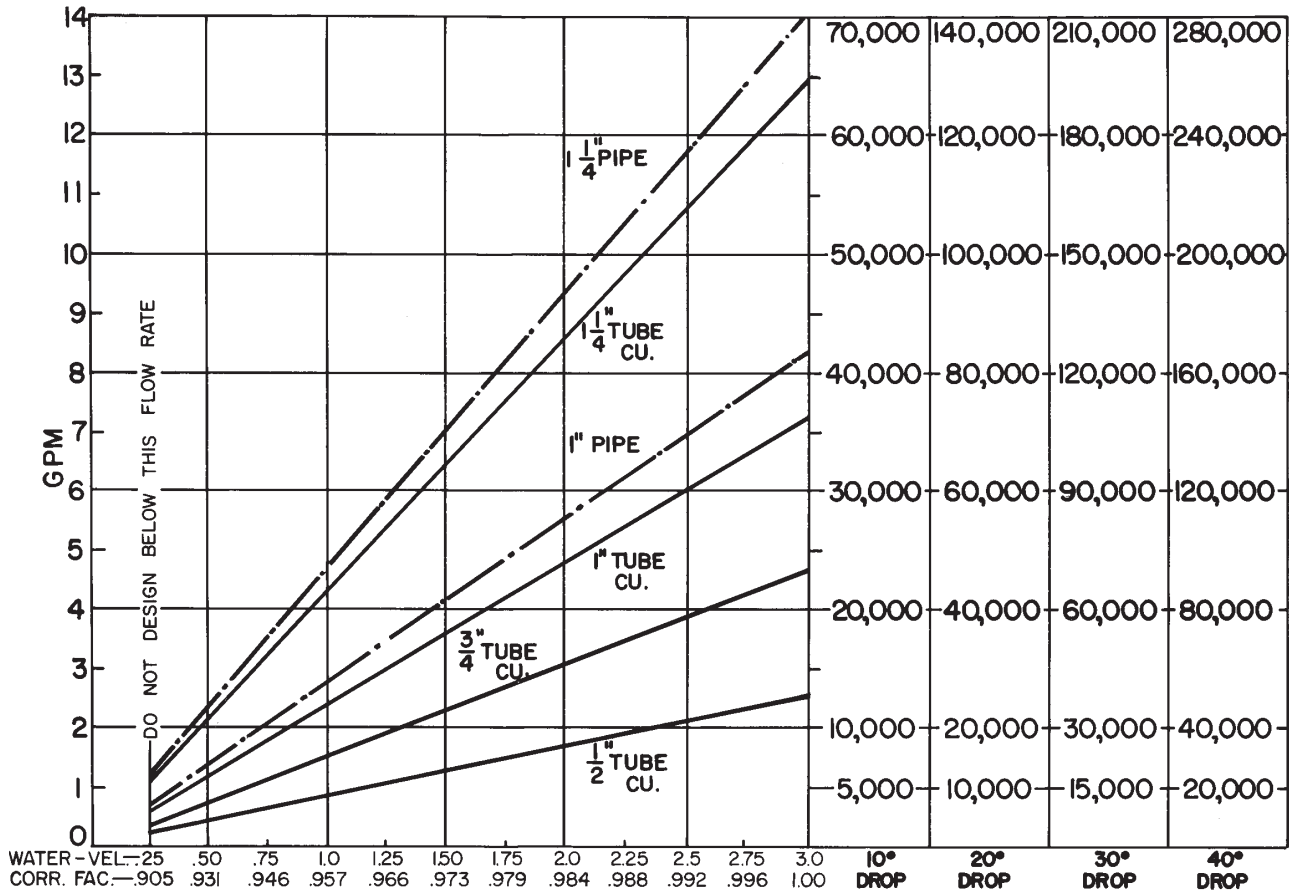
- 215°F AVERAGE WATER OR STEAM TEMPERATURE
- 65°F ENTERING AIR TEMPERATURE
- 3 FEET PER SECOND WATER FLOW RATE
- CATALOG MOUNTING HEIGHT

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.

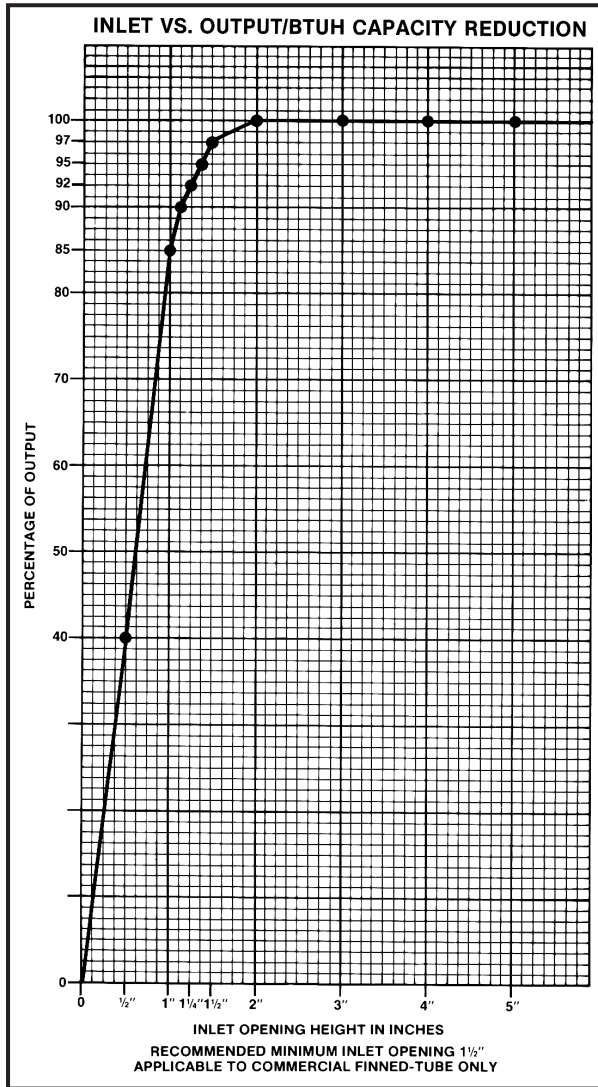


1/2" COP. ALUM.	1,80	2,33	5,33	9,16					
3/4" COP. ALUM.	.5	1,5	3,16	5,4	6,25				
1" COP. ALUM.	.233	.41	.83	1,45	2,16	2,83	3,66		
1" PIPE	.37	.79	1,3	2,00	2,70	3,70	4,80		
1 1/4" COP. ALUM.	.16	.33	.55	.79	1,08	1,33	1,8	2,25	2,26
1 1/4" PIPE	.09	.18	.31	.5	.70	1,0	1,1	1,3	1,6
								1,8	2,58
					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

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

# DESIGN DATA

## INLET AIR CORRECTION FACTOR



## GUARANTEED WORKING PRESSURES

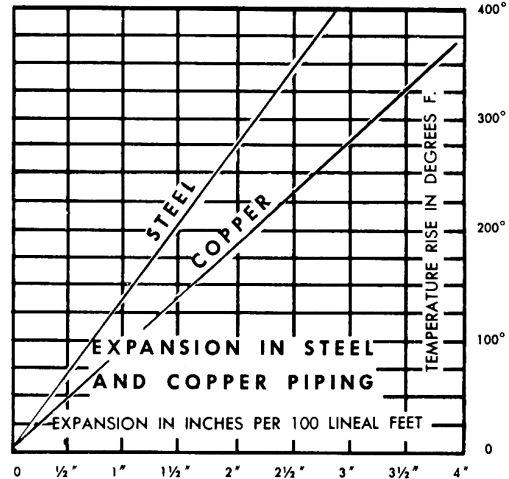
- 1" IPS — 780 AT TEMPERATURES UP TO 650°F.
  - 1 1/4" IPS — 660 AT TEMPERATURES UP TO 650°F.
  - 2" IPS — 405 AT TEMPERATURES UP TO 650°F.
  - 1 1/4" CU — 194 AT TEMPERATURES UP TO 300°F.
  - 1" CU — 204 AT TEMPERATURES UP TO 300°F.
  - 3/4" CU — 218 PSI AT TEMPERATURES UP TO 300°F.
- MAXIMUM PRESSURES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

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

PIPE WATER CAPACITIES AND QUANTITIES 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.			STD											
Gauge	Abs. Psi	°F	45	55	65	70	75	80	85	90	100	110	120	130	140	150
(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 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