

VERSA-LINE

Submittal

JVK-T8 1114
Versa-Line Slim-Line
Copper/Aluminum and
Steel Element Ratings

Specification

□ JVK Slip Jointed Enclosure

ENCLOSURE:

STYLE: Slope Top, Slope Outlet
OUTLET: Stamped Louvers
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: 8"
 11"
 14"

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

ACCESSORIES:

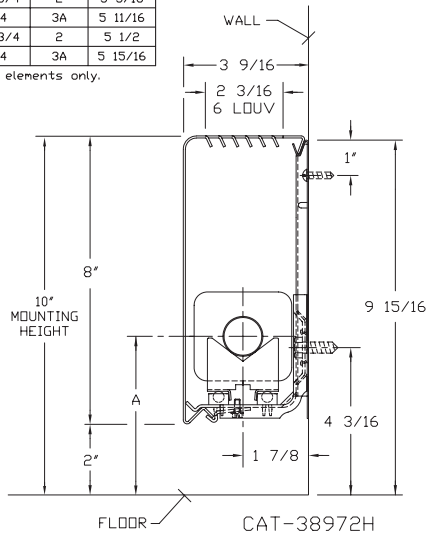
JV Overlapping Type

All accessories return to the wall at the bottom and have pre-punched holes for fastening to the wall.

□ JVK-T8

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

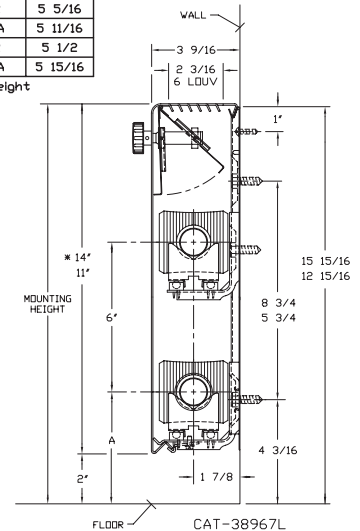
* Damper available with these elements only.



□ JVK-T11 14

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

* 2 tier with damper available in 14" height with these elements only.



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 12'6" in 1" Increments
 NPT Thread both Ends (Std)
 Beveled Ends for Field Weld (Opt'l)

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.
 Wall Mtd Hngr for 2nd Tier

DAMPER:

Damper Blades Factory Installed
 Knob Damper (Opt'l)
 Tamper Resistant (Opt'l)

Not recommended for steam applications, consult factory.

 **STERLING**
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-T8 11 14" VERSA-LINE SLIM-LINE

COPPER/ALUMINUM ELEMENTS

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	MOUNTING 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	8K*	1	10	750	650	590	520	460	400	340	300	250	200		
					11K	1	13	810	700	630	560	490	430	360	320	270	210		
					14K	1	16	870	750	680	600	530	460	390	350	290	230		
					14K*	2-5 CL	16	1240	1070	970	860	760	660	560	500	410	320		
3/4"	R02	2-1/2" x 2-3/4"	60	.010	8K*	1	10	900	770	700	620	550	480	410	360	300	230		
					11K	1	13	960	830	750	660	590	510	430	380	320	250		
					14K	1	16	1120	960	870	770	680	590	500	450	370	290		
					14K*	2-5 CL	16	1570	1350	1220	1080	960	830	710	630	520	410		
1"	R03	2-1/2" x 2-3/4"	55	.011	8K*	1	10	880	760	690	610	540	470	400	350	290	230		
					11K	1	13	940	810	730	650	570	500	420	380	310	240		
					14K	1	16	1000	860	780	690	610	530	450	400	330	260		
					14K*	2-5 CL	16	1440	1240	1120	990	880	760	650	580	480	370		
3/4"	R04	3-3/4" x 2-3/4"	50	.014	8K*	1	10	1080	930	840	750	660	570	490	430	360	280		
					11K	1	13	1140	980	890	790	700	600	510	460	380	300		
					14K	1	16	1200	1030	940	830	730	640	540	480	400	310		
					14K*	2-5 CL	16	1590	1370	1240	1100	970	840	720	640	520	410		
1"	R05	3-3/4" x 2-3/4"	50	.011	8K*	1	10	1070	920	830	740	650	570	480	430	350	280		
					11K	1	13	1130	970	880	780	690	600	510	450	370	290		
					14K	1	16	1190	1020	930	820	730	630	540	480	390	310		
					14K*	2-5 CL	16	1580	1360	1230	1090	960	840	710	630	520	410		
1-1/4"	R08	3-3/4" x 2-3/4"	50	.020	8K*	1	10	1020	880	800	700	620	540	460	410	340	270		
					11K	1	13	1080	930	840	750	660	570	490	430	360	280		
					14K	1	16	1190	1020	930	820	730	630	540	480	390	310		
					14K*	2-5 CL	16	1600	1380	1250	1100	980	850	720	640	530	420		
1"	R07	5" x 2-3/4"	50	.020	8K*	1	10	1210	1040	940	830	740	640	540	480	400	310		
					11K	1	13	1270	1090	990	880	770	670	570	510	420	330		
					14K	1	16	1320	1140	1030	910	810	700	590	530	440	340		
					14K*	2-5 CL	16	1650	1420	1290	1140	1010	870	740	660	540	430		
1-1/4"	R10	5" x 2-3/4"	50	.020	8K*	1	10	1180	1010	920	810	720	630	530	470	390	310		
					11K	1	13	1240	1070	970	860	760	660	560	500	410	320		
					14K	1	16	1290	1110	1010	890	790	680	580	520	430	340		
					14K*	2-5 CL	16	1610	1380	1260	1110	980	850	720	640	530	420		

*Not recommended for steam applications consult, factory.

Note: Copper tube furnished flared one end standard.

STEEL ELEMENTS

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	MOUNTING 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	8K*	1	10	830	710	650	570	510	440	370	330	270	220		
					11K	1	13	890	770	690	610	540	470	400	360	290	230		
					14K	1	16	980	840	760	680	600	520	440	390	320	250		
					14K*	2-5 CL	16	1410	1210	1100	970	860	750	630	560	470	370		
1"	R15	5" x 2-3/4"	50	.024	8K*	1	10	890	770	690	610	540	470	400	360	290	230		
					11K	1	13	950	820	740	660	580	500	430	380	310	250		
					14K	1	16	1040	890	810	720	630	550	470	420	340	270		
					14K*	2-5 CL	16	1450	1250	1130	1000	880	770	650	580	480	380		
1-1/4"	R16	5" x 2-3/4"	50	.024	8K*	1	10	910	780	710	630	560	480	410	360	300	240		
					11K	1	13	970	830	760	670	590	510	440	390	320	250		
					14K	1	16	1060	910	830	730	650	560	480	420	350	280		
					14K*	2-5 CL	16	1460	1260	1140	1010	890	770	660	580	480	380		

*Not recommended for steam application, consult factory.

Notes: 1) Steel fin furnished as .024 thick, painted black.

2) NPT threads furnished on steel elements. Please use domestic fittings for proper installation.

3) The ends can be provided chamfered for field welded fittings when specified.

Design Data

Correction Factor Chart for Non-Standard Mounting Heights

MOUNTING HEIGHT (Inches)	ENCLOSURE STYLE						
	BARE FIN ALL SIZES	FRONT OUTLET	FT (FRONT & TOP)		SLOPE		
			3 1/4" FINS	4 1/4" FINS	2 3/4" FINS	3 1/4" FINS	4 1/4" FINS
40 or more	1.000	1.000	1.000	1.000	1.000	1.000	1.000
38	1.000	1.000	1.000	1.000	1.000	1.000	1.003
36	1.000	1.004	1.005	1.005	1.006	1.007	1.009
34	1.010	1.014	1.011	1.010	1.012	1.013	1.016
32	1.020	1.024	1.017	1.015	1.019	1.020	1.025
30	1.030	1.039	1.029	1.024	1.031	1.033	1.039
29	1.040	1.049	1.035	1.029	1.038	1.040	1.045
28	1.050	1.059	1.041	1.034	1.045	1.047	1.052
27	1.060	1.069	1.046	1.039	1.051	1.053	1.059
26	1.070	1.079	1.052	1.044	1.058	1.060	1.065
25	1.080	1.089	1.058	1.049	1.065	1.067	1.072
24	1.090	1.099	1.064	1.054	1.071	1.073	1.079
23	1.100	1.109	1.070	1.059	1.078	1.080	1.085
22	1.110	1.119	1.076	1.064	1.085	1.087	1.092
21	1.120	1.129	1.082	1.069	1.091	1.093	1.099
20	1.130	1.139	1.088	1.074	1.098	1.100	1.100
19	1.140	1.149	1.089	1.075	1.100	1.100	1.100
18 or less	1.150	1.150	1.089	1.075	1.100	1.100	1.100

TOP OUTLET "T" IS NOT AFFECTED.

The AHRI Ratings cataloged include the factor shown for the recommended mounting height.

If the unit is to be installed at a different height than that recommended, the AHRI Rating (except for Top Outlet) must be adjusted as follows: AHRI Rating multiplied by

$$\frac{\text{Factor from Table Above for actual mounting height}}{\text{Factor from Table Above for recommended mounting height}}$$

FORMULA:

$$\text{Catalog Rating} \times \frac{\text{Factor at 30" Height}}{\text{Factor at 18" Height}}$$

$$\text{SOLUTION: } 1950 \times \frac{1.039}{1.150} = 1760 \text{ BTU/Hr.}$$

DYNAMIC FORMULAS

$$\text{BTU} = \text{GPM} \times 500 \times \text{TD}$$

$$\text{GPM} = \left(\frac{\text{BTU}}{500} \right) \div \text{TD}$$

$$\text{TD} = \left(\frac{\text{BTU}}{500} \right) \div \text{GPM}$$

Design Data

COMMERCIAL FINNED TUBE RATING CORRECTION CHARTS

CATALOG FINNED TUBE RATINGS ARE BASED UPON THE FOLLOWING CONDITIONS:

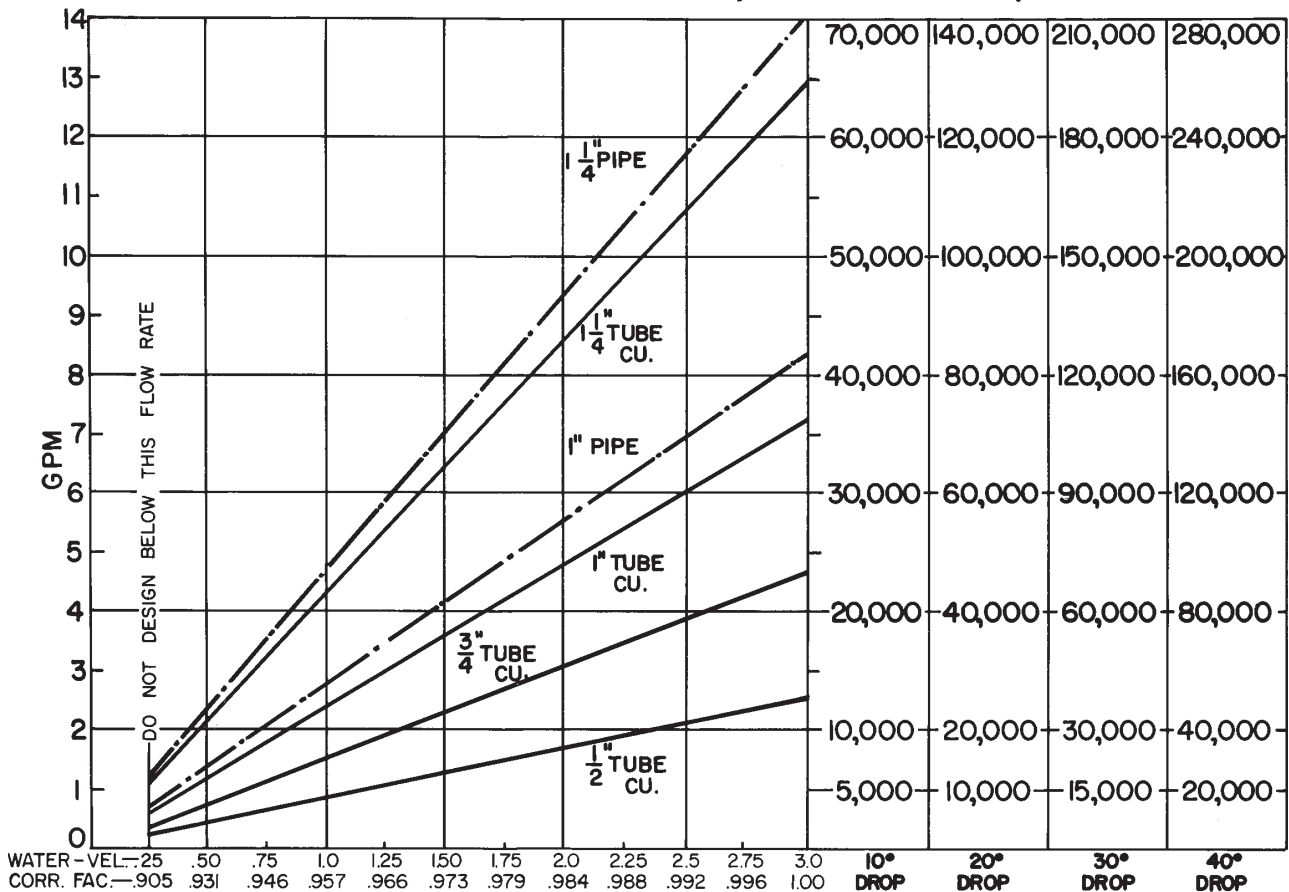
- 215°F AVERAGE WATER OR STEAM TEMPERATURE
- 65°F ENTERING AIR TEMPERATURE
- 3 FEET PER SECOND WATER FLOW RATE
- CATALOG MOUNTING HEIGHT

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

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

USE THE FOLLOWING CHARTS TO SELECT CORRECTION FACTORS

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

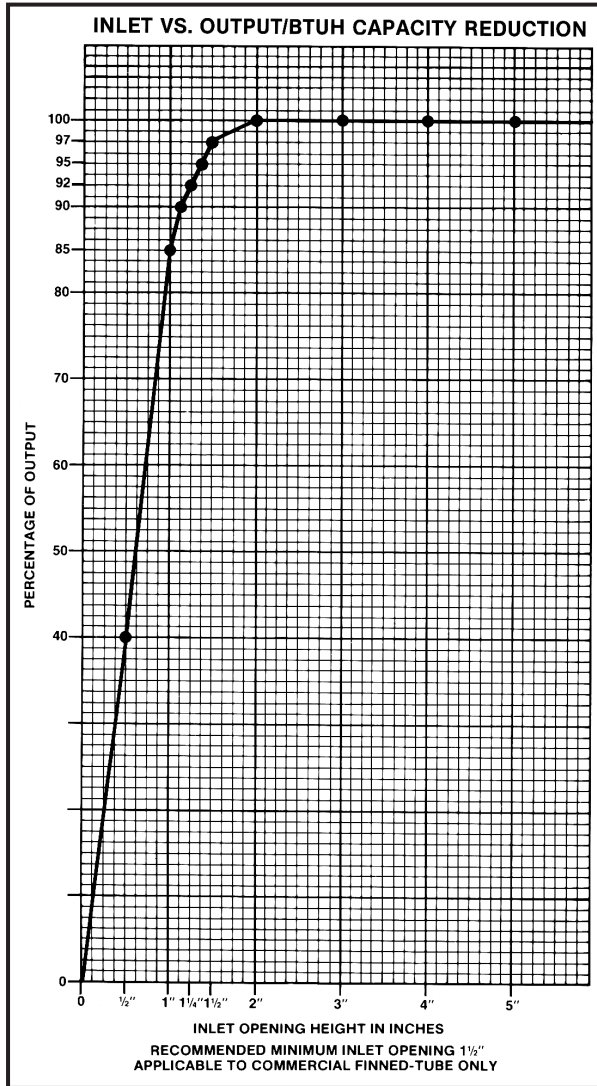


1/2" COP. ALUM.	.180	.233	.333	.533	.916											
3/4" COP. ALUM.	.5	.15	.316	.54	6.25											
1" COP. ALUM.	.233	.41	.83	1.45	2.16	2.83	3.66									
1" PIPE	.37	.79	1.3	2.00	2.70	3.70	4.80									
1 1/4" COP. ALUM.	.16	.33	.55	.79	1.08	1.33	1.8	2.25	2.26	2.91	3.3					
1 1/4" PIPE	.09	.18	.31	.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

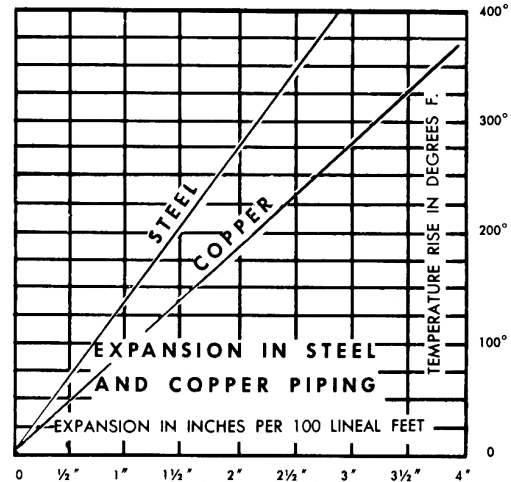
- 1" IPS — 780 AT TEMPERATURES UP TO 650°F.
 - 1 1/4" IPS — 660 AT TEMPERATURES UP TO 650°F.
 - 2" IPS — 405 AT TEMPERATURES UP TO 650°F.
 - 1 1/4" CU — 194 AT TEMPERATURES UP TO 300°F.
 - 1" CU — 204 AT TEMPERATURES UP TO 300°F.
 - 3/4" CU — 218 PSI AT TEMPERATURES UP TO 300°F.
- MAXIMUM PRESSURES AT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

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

PIPE WATER CAPACITIES AND QUANTITIES 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

Design Data

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