

DURA-VANE II

Submittal

JDVP31 / 32
Dura-Vane II Architectural
Copper/Aluminum and
Steel Elements

Specification

JDVP31 Pedestal Enclosure

ENCLOSURE:

STYLE: Dura-Vane II Pedestal
OUTLET: Extruded Aluminum Grille
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)

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

ACCESSORIES:

JDV Overlapping Type
All accessories have finger tabs at the bottom for easy installation.

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

See Catalog for Working Pressures

JDVP32 Pedestal Enclosure

BACKPLATE: Not Applicable

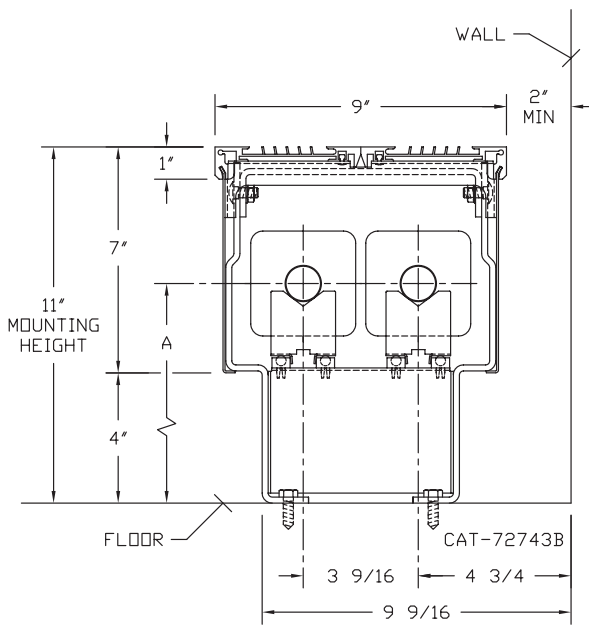
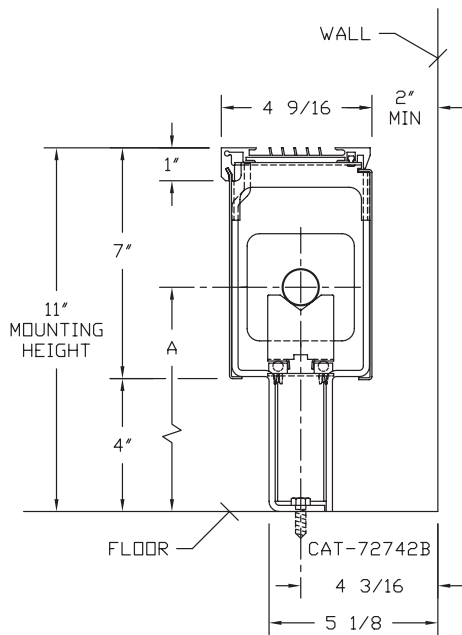
BRACKETS:

Pedestal Brk't w/ B.B. (Std)
 Adjustable Pedestal Brk't w/B.B. with Alum Base (Opt'l.)

JDVP31

JDVP32

ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A
3/4" COPPER	3 1/4 x 3 1/4	2	6 5/8
1" COPPER	3 1/4 x 3 1/4	2	6 13/16
1 1/4" COPPER	3 1/4 x 3 1/4	1	6 1/4
1" STEEL	3 1/4 x 3 1/4	2	6 15/16
1 1/4" STEEL	3 1/4 x 3 1/4	1	6 7/16



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www.vulcanrad.com



8/2022

PROJECT: _____ DATE: _____
 LOCATION: _____
 ARCHITECT: _____
 ENGINEER: _____
 CONTRACTOR: _____
 PO NUMBER: _____

STYLES JDVP31 & JDVP32 DURA-VANE II PEDESTAL ENCLOSURES

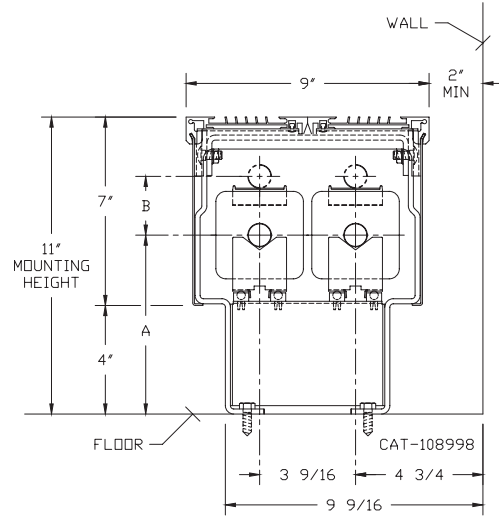
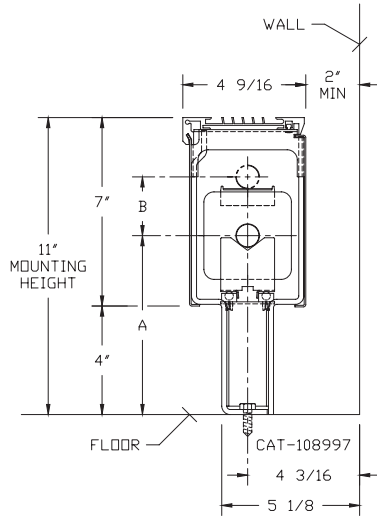
COPPER/ALUMINUM ELEMENT RATINGS ALL RATINGS ARE BASED ON 3 FPS VELOCITY, 65° EAT					ENCL DEPTH IN INCHES	ROWS AND CENTERS IN INCHES	MTG. HEIGHT IN INCHES	STEAM 215° FACTOR	HOT WATER (AVG.)									
TUBE SIZE	CATALOG DESIGNATION	FIN SIZE HEIGHT X WIDTH	FIN PER FT.	FIN THICKNESS IN INCHES					CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES									
									200°	190°	180°	170°	160°	150°	140°	130°	120°	
								1.00	0.86	0.78	0.69	0.61	0.53	0.45	.40	.33	.26	
3/4"	VC3/4-33	3-1/4" SQ.	32	.020	4 9/16	1	11	830	710	650	570	510	440	370	330	270	220	
					9"	2 - 3 9/16	11	1670	1440	1300	1150	1020	890	750	670	550	430	
3/4"	VC3/4-34	3-1/4" SQ.	40	.020	4 9/16	1	11	980	840	760	680	600	520	440	390	320	250	
					9"	2 - 3 9/16	11	1960	1690	1530	1350	1200	1040	880	780	650	510	
3/4"	VC3/4-35	3-1/4" SQ.	50	.020	4 9/16	1	11	1080	930	840	750	660	570	490	430	360	280	
					9"	2 - 3 9/16	11	2170	1870	1690	1500	1320	1150	980	870	720	560	
1"	VC33	3-1/4" SQ.	32	.020	4 9/16	1	11	830	710	650	570	510	440	370	330	270	220	
					9"	2 - 3 9/16	11	1670	1440	1300	1150	1020	890	750	670	550	430	
1"	VC34	3-1/4" SQ.	40	.020	4 9/16	1	11	930	800	730	640	570	490	420	370	310	240	
					9"	2 - 3 9/16	11	1860	1600	1450	1280	1130	990	840	740	610	480	
1"	VC35	3-1/4" SQ.	50	.020	4 9/16	1	11	1040	890	810	720	630	550	470	420	340	270	
					9"	2 - 3 9/16	11	2080	1790	1620	1440	1270	1100	940	830	690	540	
1-1/4"	VC133	3-1/4" SQ.	32	.020	4 9/16	1	11	830	710	650	570	510	440	370	330	270	220	
					9"	2 - 3 9/16	11	1670	1440	1300	1150	1020	890	750	670	550	430	
1-1/4"	VC134	3-1/4" SQ.	40	.020	4 9/16	1	11	910	780	710	630	560	480	410	360	300	240	
					9"	2 - 3 9/16	11	1820	1570	1420	1260	1110	960	820	730	600	470	
1-1/4"	VC135	3-1/4" SQ.	50	.020	4 9/16	1	11	1010	870	790	700	620	540	450	400	330	260	
					9"	2 - 3 9/16	11	2010	1730	1570	1390	1230	1070	900	800	660	520	

Copper tube furnished flared one end standard.

STEEL ELEMENT RATINGS ALL RATINGS ARE BASED ON 3 FPS VELOCITY, 65° EAT					ENCL DEPTH IN INCHES	ROWS AND CENTERS IN INCHES	MTG. HEIGHT IN INCHES	STEAM 215° FACTOR	HOT WATER (AVG.)									
I.P.S. SIZE	CATALOG DESIGNATION	FIN SIZE HEIGHT X WIDTH	FIN PER FT.	FIN THICKNESS IN INCHES					CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES									
									200°	190°	180°	170°	160°	150°	140°	130°	120°	
								1.00	0.86	0.78	0.69	0.61	0.53	0.45	.40	.33	.26	
1"	VS33	3-1/4" SQ.	32	.032	4 9/16	1	11	780	670	610	540	480	410	350	310	260	200	
					9"	2 - 3 9/16	11	1570	1350	1220	1080	960	830	710	630	520	410	
1"	VS34	3-1/4" SQ.	40	.032	4 9/16	1	11	850	730	660	590	520	450	380	340	280	220	
					9"	2 - 3 9/16	11	1700	1460	1330	1170	1040	900	770	680	560	440	
1"	VS35	3-1/4" SQ.	50	.032	4 9/16	1	11	910	780	710	630	560	480	410	360	300	240	
					9"	2 - 3 9/16	11	1820	1570	1420	1260	1110	960	820	730	600	470	
1-1/4"	VS133	3-1/4" SQ.	32	.032	4 9/16	1	11	770	660	600	530	470	410	350	310	250	200	
					9"	2 - 3 9/16	11	1550	1330	1210	1070	950	820	700	620	510	400	
1-1/4"	VS134	3-1/4" SQ.	40	.032	4 9/16	1	11	860	740	670	590	520	460	390	340	280	220	
					9"	2 - 3 9/16	11	1720	1480	1340	1190	1050	910	770	690	570	450	
1-1/4"	VS135	3-1/4" SQ.	50	.032	4 9/16	1	11	890	770	690	610	540	470	400	360	290	230	
					9"	2 - 3 9/16	11	1770	1520	1380	1220	1080	940	800	710	580	460	

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

RETURN PIPING OPTIONS - JDVP31 & JDVP32



ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A	B WITH 3/4 HWR	B WITH 1' HWR	B WITH 1 1/4 HWR
3/4 COPPER	3 1/4 x 3 1/4	2	6 5/8	2 3/16	N/A	N/A
1' COPPER	3 1/4 x 3 1/4	2	6 13/16	N/A	2 5/16	N/A
1 1/4 COPPER	3 1/4 x 3 1/4	1	6 1/4	N/A	N/A	2 7/16

ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A	B WITH 3/4 HWR	B WITH 1' HWR	B WITH 1 1/4 HWR
3/4 COPPER	3 1/4 x 3 1/4	2	6 5/8	2 3/16	N/A	N/A
1' COPPER	3 1/4 x 3 1/4	2	6 13/16	N/A	2 5/16	N/A
1 1/4 COPPER	3 1/4 x 3 1/4	1	6 1/4	N/A	N/A	2 7/16

Optional Adjustable Pedestal Bracket Assembly with Aluminum Floor Flange

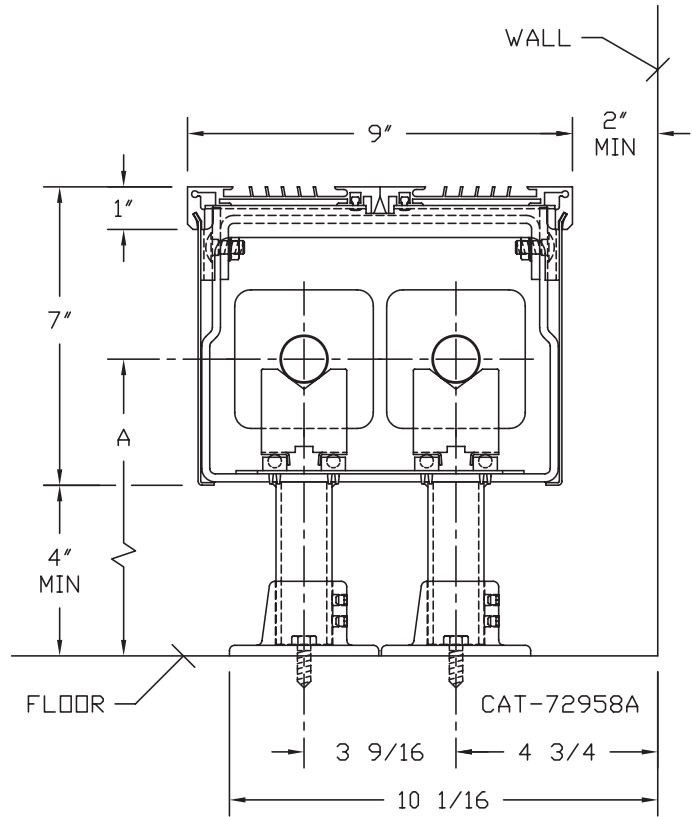
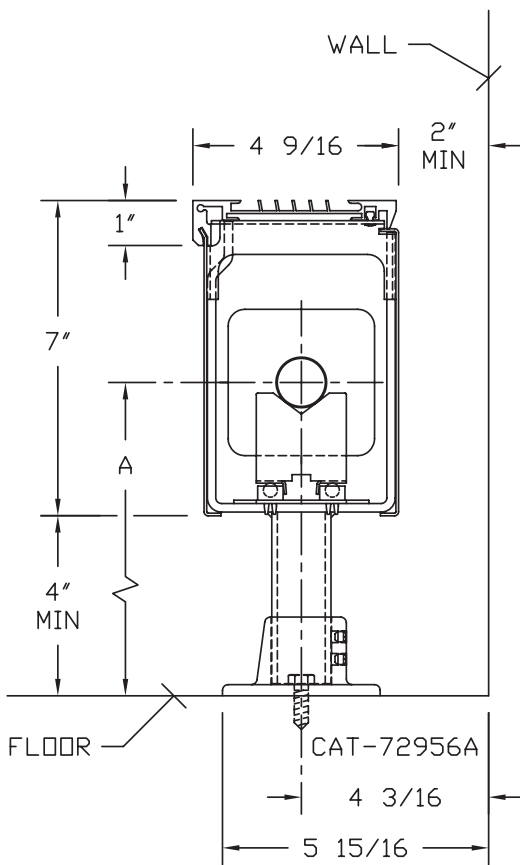
□ JDVP31

□ Adjustable Pedestal Brk't

□ JDVP32

□ Adjustable Pedestal Brk't

ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A MIN	A MAX
3/4" COPPER	3 1/4 x 3 1/4	2	6 13/16	7 11/16
1" COPPER	3 1/4 x 3 1/4	2	6 15/16	7 13/16
1 1/4" COPPER	3 1/4 x 3 1/4	1	6 7/16	7 5/16
1" STEEL	3 1/4 x 3 1/4	2	7 1/16	7 15/16
1 1/4" STEEL	3 1/4 x 3 1/4	1	6 5/8	7 1/2



DESIGN DATA

COMMERCIAL FINNED TUBE CHARTS FOR RATING CORRECTIONS

For assistance with ratings and selection, please use our online Specifier.

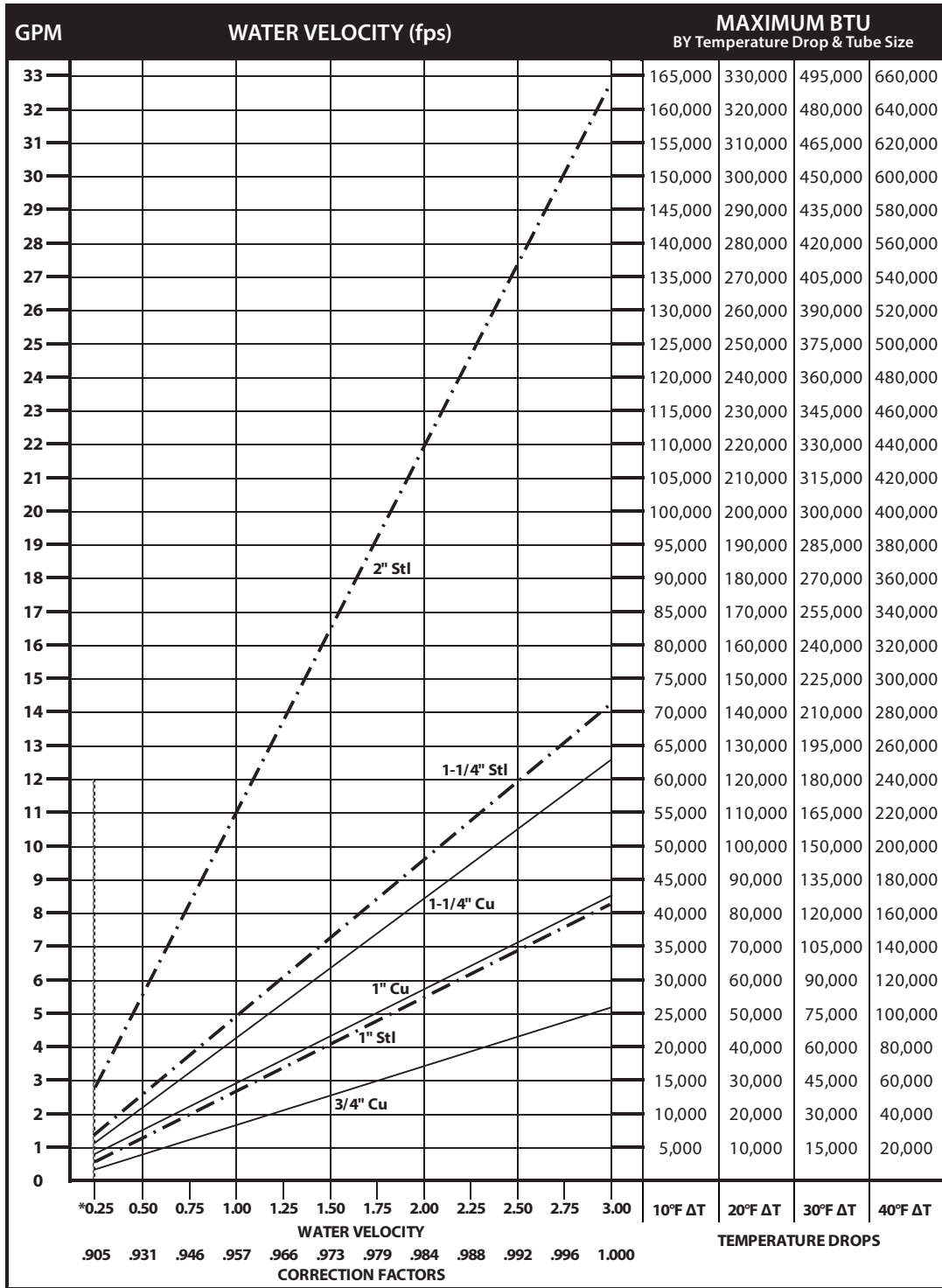
CORRECTION FACTORS FOR WATER TEMPERATURES AND AIR TEMPERATURES OTHER THAN STANDARD															
AVERAGE WATER TEMP. °F	ENTERING AIR TEMPERATURE °F														
	45	55	STD 65	70	75	80	85	90	95	100	110	120	130	140	150
90	.19	.13	.11	.06											
100	.25	.19	.15	.11	.08	.06									
110	.31	.25	.20	.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

CORRECTION FACTORS FOR STEAM PRESSURES AND AIR TEMPERATURES OTHER THAN STANDARD																
STEAM		ENTERING AIR TEMPERATURE °F														
PRESSURE		TEMP. °F	45	55	STD 65	70	75	80	85	90	100	110	120	130	140	150
GAUGE	ABS. PSI															
(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
▶ 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	258.5	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.

Rate of pitch for steam ½" drop over 20-foot run.

DESIGN DATA



*Do not design below .25 fps.

DYNAMIC FORMULAS

$$BTU = GPM \times 500 \times TD$$

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

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

Pressure Drop at Given Water Velocities (Feet of Water per 100 ft. of pipe) based on Hazen - Williams calculation												
Nominal Pipe Size	Water Velocity (ft/sec)											
	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00
3/4" Copper	0.06	0.20	0.42	0.72	1.09	1.53	2.04	2.61	3.25	3.95	4.71	5.53
1" Copper	0.04	0.15	0.32	0.54	0.81	1.14	1.52	1.94	2.42	2.94	3.50	4.11
1 1/4" Copper	0.03	0.12	0.25	0.43	0.64	0.90	1.20	1.54	1.92	2.33	2.78	3.26
1" Steel	0.04	0.15	0.32	0.54	0.81	1.14	1.52	1.95	2.42	2.94	3.51	4.12
1 1/4" Steel	0.03	0.11	0.23	0.40	0.60	0.84	1.12	1.44	1.79	2.17	2.59	3.05
2" Steel	0.02	0.07	0.14	0.25	0.37	0.52	0.69	0.89	1.10	1.34	1.60	1.88

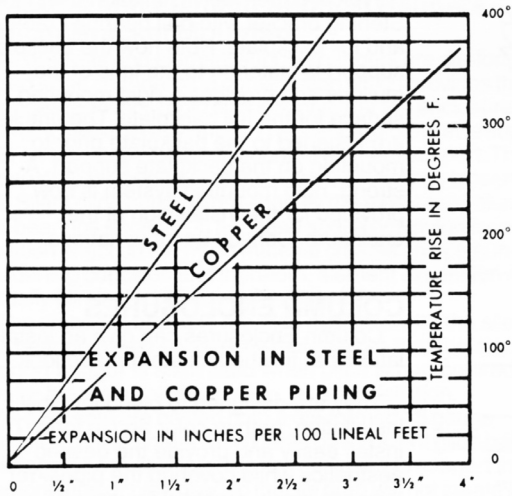
DESIGN DATA

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.

Pipe Water Capacities and Quantities Circulated at Velocity of 3 Feet Per Second			
Nominal Pipe Size	Pipe I.D. (inches)	Gals Per Lin. Ft.	GPM @ 3' per sec Velocity
3/4" Copper	0.835	0.028	5.12
1" Copper	1.077	0.047	8.52
1 1/4" Copper	1.315	0.071	12.70
1" Steel	1.075	0.047	8.49
1 1/4" Steel	1.395	0.079	14.29
2" Steel	2.115	0.183	32.85



Glycol Correction Factors

Fluid Temperature 200°F

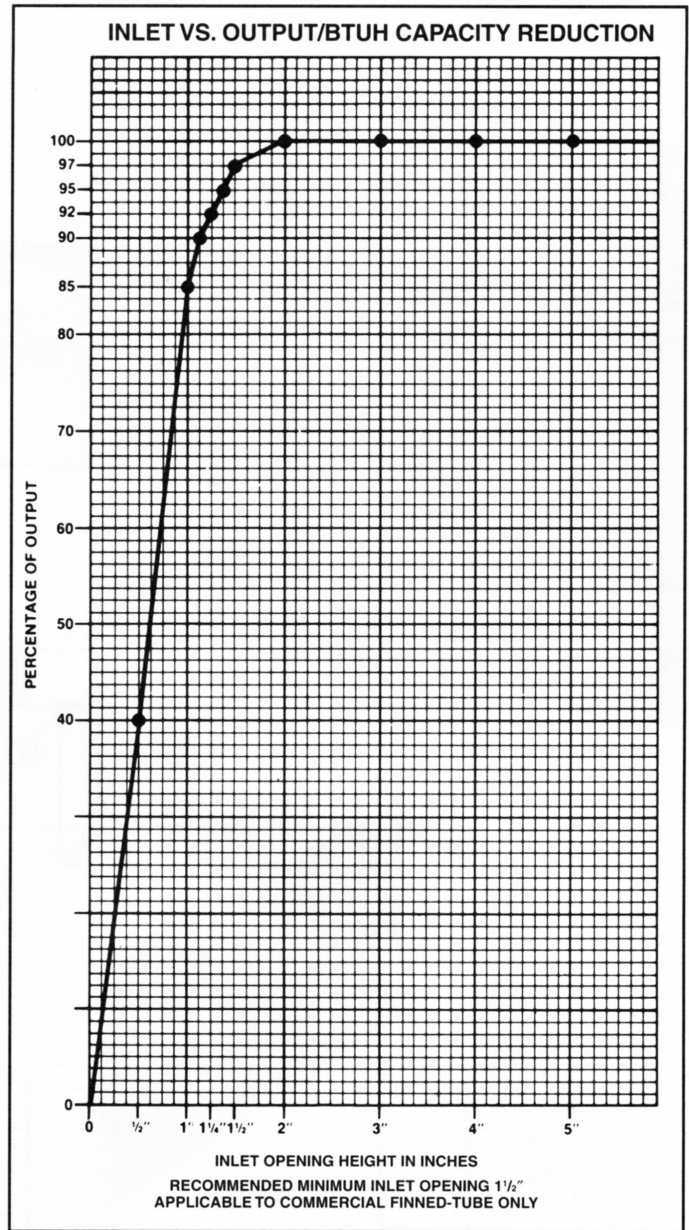
% Solution	Ethylene Glycol	Propylene Glycol
20	.952	.988
30	.921	.968
40	.888	.943
50	.852	.912

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