VERSA-LINE

Submittal

JVB-SS19 25 29
Versa-Line
Copper/Aluminum and
Steel Element Ratings

☐ **JVB Slip Jointed Enclosure**

Specification

ENCLOSURE:

STYLE: Double Slope, Slope Outlet
OUTLET: Stamped Louvers
Pencil Proof

LENGTHS: 2'0" thru 8'0" in 6" Increments
MAT'L:
☐ 18 Ga. CRS (Std)
☐ 16 Ga. CRS (Opt'l)
☐ 14 Ga. CRS (Opt'l)
☐ 18 Ga. Stainless Steel (Opt'l)
☐ 16 Ga. Stainless Steel (Opt'l)
☐ 14 Ga. Stainless Steel (Opt'l)
☐ 16 Ga. Aluminum (Opt'l)
☐ 14 Ga. Aluminum (Opt'l)
☐ 12 Ga. Aluminum (Opt'l)
HEIGHT:
☐ 19 1/2"
☐ 25 1/2"
☐ 29 1/2"
FINISH:
☐ Baked Powder (Std)
☐ Baked Metallic (Opt'l)

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:

☐ Vertical Brkt w/Brkt Mtd B.B. Hngr
☐ Brkt Mtd B.B. Hgr for 2nd Tier

DAMPER:

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

☐ JVB-SS19 25 29

STERLING®
COMMERCIAL HYDRONIC PRODUCTS
MADE IN THE USA
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 "JVB-SS19 25 29" VERSA-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"	C3/4-433	3-5/8" x 4-1/4"	32	.020	19-1/2B	1	-	1220	1050	950	840	740	650	550	490	400	320
					25-1/2B	1	-	1305	1120	1020	900	800	690	590	520	430	340
					25-1/2B	2-6 CL	-	1985	1710	1550	1370	1210	1050	890	790	660	520
					29-1/2B	1	-	1370	1180	1070	950	840	730	620	550	450	360
					29-1/2B	2-6 CL	-	2080	1790	1620	1440	1270	1100	940	830	690	540
					29-1/2B	3-6 CL	-	2390	2060	1860	1650	1460	1270	1080	960	790	620
3/4"	C3/4-434	3-5/8" x 4-1/4"	40	.020	19-1/2B	1	-	1470	1260	1150	1010	900	780	660	590	490	380
					25-1/2B	1	-	1570	1350	1220	1080	960	830	710	630	520	410
					25-1/2B	2-6 CL	-	2230	1920	1740	1540	1360	1180	1000	890	740	580
					29-1/2B	1	-	1650	1420	1290	1140	1010	870	740	660	540	430
					29-1/2B	2-6 CL	-	2330	2000	1820	1610	1420	1230	1050	930	770	610
					29-1/2B	3-6 CL	-	2660	2290	2070	1840	1620	1410	1200	1060	880	690
3/4"	C3/4-435	3-5/8" x 4-1/4"	50	.020	19-1/2B	1	-	1590	1370	1240	1100	970	840	720	640	520	410
					25-1/2B	1	-	1805	1550	1410	1250	1100	960	810	720	600	470
					25-1/2B	2-6 CL	-	2435	2090	1900	1680	1490	1290	1100	970	800	630
					29-1/2B	1	-	1950	1680	1520	1350	1190	1030	880	780	640	510
					29-1/2B	2-6 CL	-	2685	2310	2090	1850	1640	1420	1210	1070	890	700
					29-1/2B	3-6 CL	-	3030	2610	2360	2090	1850	1610	1360	1210	1000	790
1"	C433	3-5/8" x 4-1/4"	32	.020	19-1/2B	1	-	1330	1140	1040	920	810	700	600	530	440	350
					25-1/2B	1	-	1400	1200	1090	970	850	740	630	560	460	360
					25-1/2B	2-6 CL	-	2160	1860	1680	1490	1320	1140	970	860	710	560
					29-1/2B	1	-	1460	1260	1140	1010	890	770	660	580	480	380
					29-1/2B	2-6 CL	-	2235	1920	1740	1540	1360	1180	1010	890	740	580
					29-1/2B	3-6 CL	-	2570	2210	2000	1770	1570	1360	1160	1030	850	670
1"	C434	3-5/8" x 4-1/4"	40	.020	19-1/2B	1	-	1535	1320	1200	1060	940	810	690	610	510	400
					25-1/2B	1	-	1640	1410	1280	1130	1000	870	740	660	540	430
					25-1/2B	2-6 CL	-	2300	1980	1790	1590	1400	1220	1040	920	760	600
					29-1/2B	1	-	1720	1480	1340	1190	1050	910	770	690	570	450
					29-1/2B	2-6 CL	-	2390	2060	1860	1650	1460	1270	1080	960	790	620
					29-1/2B	3-6 CL	-	2720	2340	2120	1880	1660	1440	1220	1090	900	710
1"	C435	3-5/8" x 4-1/4"	50	.020	19-1/2B	1	-	1665	1430	1300	1150	1020	880	750	670	550	430
					25-1/2B	1	-	1880	1620	1470	1300	1150	1000	850	750	620	490
					25-1/2B	2-6 CL	-	2280	1960	1780	1570	1390	1210	1030	910	750	590
					29-1/2B	1	-	2040	1750	1590	1410	1240	1080	920	820	670	530
					29-1/2B	2-6 CL	-	2510	2160	1960	1730	1530	1330	1130	1000	830	650
					29-1/2B	3-6 CL	-	2840	2440	2220	1960	1730	1510	1280	1140	940	740
1-1/4"	C1433	3-5/8" x 4-1/4"	32	.020	19-1/2B	1	-	1250	1080	980	860	760	660	560	500	410	330
					25-1/2B	1	-	1320	1140	1030	910	810	700	590	530	440	340
					25-1/2B	2-6 CL	-	2040	1750	1590	1410	1240	1080	920	820	670	530
					29-1/2B	1	-	1375	1180	1070	950	840	730	620	550	450	360
					29-1/2B	2-6 CL	-	2115	1820	1650	1460	1290	1120	950	850	700	550
					29-1/2B	3-6 CL	-	2430	2090	1900	1680	1480	1290	1090	970	800	630
1-1/4"	C1434	3-5/8" x 4-1/4"	40	.020	19-1/2B	1	-	1500	1290	1170	1040	920	800	680	600	500	390
					25-1/2B	1	-	1625	1400	1270	1120	990	860	730	650	540	420
					25-1/2B	2-6 CL	-	2255	1940	1760	1560	1380	1200	1010	900	740	590
					29-1/2B	1	-	1685	1450	1310	1160	1030	890	760	670	560	440
					29-1/2B	2-6 CL	-	2340	2010	1830	1610	1430	1240	1050	940	770	610
					29-1/2B	3-6 CL	-	2670	2300	2080	1840	1630	1420	1200	1070	880	690
1-1/4"	C1435	3-5/8" x 4-1/4"	50	.020	19-1/2B	1	-	1610	1380	1260	1110	980	850	720	640	530	420
					25-1/2B	1	-	1840	1580	1440	1270	1120	980	830	740	610	480
					25-1/2B	2-6 CL	-	2165	1860	1690	1490	1320	1150	970	870	710	560
					29-1/2B	1	-	1960	1690	1530	1350	1200	1040	880	780	650	510
					29-1/2B	2-6 CL	-	2425	2090	1890	1670	1480	1290	1090	970	800	630
					29-1/2B	3-6 CL	-	2740	2360	2140	1890	1670	1450	1230	1100	900	710
3/4"	C3/4-43	4-1/4" SQ.	32	.020	19-1/2B	1	-	1320	1140	1030	910	810	700	590	530	440	340
					25-1/2B	1	-	1415	1220	1100	980	860	750	640	570	470	370
					25-1/2B	2-6 CL	-	2180	1870	1700	1500	1330	1160	980	870	720	570
					29-1/2B	1	-	1480	1270	1150	1020	900	780	670	590	490	380
					29-1/2B	2-6 CL	-	2280	1960	1780	1570	1390	1210	1030	910	750	590
					29-1/2B	3-6 CL	-	2620	2250	2040	1810	1600	1390	1180	1050	860	680
3/4"	C3/4-44	4-1/4" SQ.	40	.020	19-1/2B	1	-	1610	1380	1260	1110	980	850	720	640	530	420
					25-1/2B	1	-	1730	1490	1350	1190	1060	920	780	690	570	450
					25-1/2B	2-6 CL	-	2440	2100	1900	1680	1490	1290	1100	980	810	630
					29-1/2B	1	-	1800	1550	1400	1240	1100	950	810	720	590	470
					29-1/2B	2-6 CL	-	2550	2190	1990	1760	1560	1350	1150	1020	840	660
					29-1/2B	3-6 CL	-	2910	2500	2270	2010	1780	1540	1310	1160	960	760

STYLE "JVB-SS19 25 29" VERSA-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"	C3/4-45	4-1/4" SQ.	50	.020	19-1/2B	1	-	1650	1420	1290	1140	1010	870	740	660	540	430
					25-1/2B	1	-	1770	1520	1380	1220	1080	940	800	710	580	460
					25-1/2B	2-6 CL	-	2440	2100	1900	1680	1490	1290	1100	980	810	630
					29-1/2B	1	-	1990	1710	1550	1370	1210	1050	900	800	660	520
					29-1/2B	2-6 CL	-	2550	2190	1990	1760	1560	1350	1150	1020	840	660
					29-1/2B	3-6 CL	-	2880	2480	2250	1990	1760	1530	1300	1150	950	750
1"	C43	4-1/4" SQ.	32	.020	19-1/2B	1	-	1425	1230	1110	980	870	760	640	570	470	370
					25-1/2B	1	-	1500	1290	1170	1040	920	800	680	600	500	390
					25-1/2B	2-6 CL	-	2235	1920	1740	1540	1360	1180	1010	890	740	580
					29-1/2B	1	-	1565	1350	1220	1080	950	830	700	630	520	410
					29-1/2B	2-6 CL	-	2445	2100	1910	1690	1490	1300	1100	980	810	640
					29-1/2B	3-6 CL	-	2810	2420	2190	1940	1710	1490	1260	1120	930	730
1"	C44	4-1/4" SQ.	40	.020	19-1/2B	1	-	1625	1400	1270	1120	990	860	730	650	540	420
					25-1/2B	1	-	1760	1510	1370	1210	1070	930	790	700	580	460
					25-1/2B	2-6 CL	-	2325	2000	1810	1600	1420	1230	1050	930	770	600
					29-1/2B	1	-	1850	1590	1440	1280	1130	980	830	740	610	480
					29-1/2B	2-6 CL	-	2520	2170	1970	1740	1540	1340	1130	1010	830	660
					29-1/2B	3-6 CL	-	2870	2470	2240	1980	1750	1520	1290	1150	950	750
1"	C45	4-1/4" SQ.	50	.020	19-1/2B	1	-	1780	1530	1390	1230	1090	940	800	710	590	460
					25-1/2B	1	-	2020	1740	1580	1390	1230	1070	910	810	670	530
					25-1/2B	2-6 CL	-	2315	1990	1810	1600	1410	1230	1040	930	760	600
					29-1/2B	1	-	2165	1860	1690	1490	1320	1150	970	870	710	560
					29-1/2B	2-6 CL	-	2590	2230	2020	1790	1580	1370	1170	1040	850	670
					29-1/2B	3-6 CL	-	2930	2520	2290	2020	1790	1550	1320	1170	970	760
1-1/4"	C143	4-1/4" SQ.	32	.020	19-1/2B	1	-	1400	1200	1090	970	850	740	630	560	460	360
					25-1/2B	1	-	1475	1270	1150	1020	900	780	660	590	490	380
					25-1/2B	2-6 CL	-	2195	1890	1710	1510	1340	1160	990	880	720	570
					29-1/2B	1	-	1530	1320	1190	1060	930	810	690	610	500	400
					29-1/2B	2-6 CL	-	2400	2060	1870	1660	1460	1270	1080	960	790	620
					29-1/2B	3-6 CL	-	2760	2370	2150	1900	1680	1460	1240	1100	910	720
1-1/4"	C144	4-1/4" SQ.	40	.020	19-1/2B	1	-	1600	1380	1250	1100	980	850	720	640	530	420
					25-1/2B	1	-	1725	1480	1350	1190	1050	910	780	690	570	450
					25-1/2B	2-6 CL	-	2280	1960	1780	1570	1390	1210	1030	910	750	590
					29-1/2B	1	-	1815	1560	1420	1250	1110	960	820	730	600	470
					29-1/2B	2-6 CL	-	2480	2130	1930	1710	1510	1310	1120	990	820	640
					29-1/2B	3-6 CL	-	2830	2430	2210	1950	1730	1500	1270	1130	930	740
1-1/4"	C145	4-1/4" SQ.	50	.020	19-1/2B	1	-	1745	1500	1360	1200	1060	920	790	700	580	450
					25-1/2B	1	-	1985	1710	1550	1370	1210	1050	890	790	660	520
					25-1/2B	2-6 CL	-	2270	1950	1770	1570	1380	1200	1020	910	750	590
					29-1/2B	1	-	2135	1840	1670	1470	1300	1130	960	850	700	560
					29-1/2B	2-6 CL	-	2545	2190	1990	1760	1550	1350	1150	1020	840	660
					29-1/2B	3-6 CL	-	2880	2480	2250	1990	1760	1530	1300	1150	950	750

Note: Copper tube furnished flared one end standard.

STYLE "JVB-SS19 25 29" VERSA-LINE

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"	S43	4-1/4" SQ.	32	.032	19-1/2B	1	-	1215	1040	950	840	740	640	550	490	400	320
					25-1/2B	1	-	1255	1080	980	870	770	670	560	500	410	330
					25-1/2B	2-6 CL	-	1980	1700	1540	1370	1210	1050	890	790	650	510
					29-1/2B	1	-	1290	1110	1010	890	790	680	580	520	430	340
					29-1/2B	2-6 CL	-	2045	1760	1600	1410	1250	1080	920	820	670	530
					29-1/2B	3-6 CL	-	2350	2020	1830	1620	1430	1250	1060	940	780	610
1"	S44	4-1/4" SQ.	40	.032	19-1/2B	1	-	1360	1170	1060	940	830	720	610	540	450	350
					25-1/2B	1	-	1445	1240	1130	1000	880	770	650	580	480	380
					25-1/2B	2-6 CL	-	2140	1840	1670	1480	1310	1130	960	860	710	560
					29-1/2B	1	-	1495	1290	1170	1030	910	790	670	600	490	390
					29-1/2B	2-6 CL	-	2240	1930	1750	1550	1370	1190	1010	900	740	580
					29-1/2B	3-6 CL	-	2550	2190	1990	1760	1560	1350	1150	1020	840	660
1"	S45	4-1/4" SQ.	50	.032	19-1/2B	1	-	1425	1230	1110	980	870	760	640	570	470	370
					25-1/2B	1	-	1515	1300	1180	1050	920	800	680	610	500	390
					25-1/2B	2-6 CL	-	2190	1880	1710	1510	1340	1160	990	880	720	570
					29-1/2B	1	-	1570	1350	1220	1080	960	830	710	630	520	410
					29-1/2B	2-6 CL	-	2295	1970	1790	1580	1400	1220	1030	920	760	600
					29-1/2B	3-6 CL	-	2590	2230	2020	1790	1580	1370	1170	1040	850	670
1-1/4"	S143	4-1/4" SQ.	32	.032	19-1/2B	1	-	1120	960	870	770	680	590	500	450	370	290
					25-1/2B	1	-	1185	1020	920	820	720	630	530	470	390	310
					25-1/2B	2-6 CL	-	1780	1530	1390	1230	1090	940	800	710	590	460
					29-1/2B	1	-	1250	1080	980	860	760	660	560	500	410	330
					29-1/2B	2-6 CL	-	1880	1620	1470	1300	1150	1000	850	750	620	490
					29-1/2B	3-6 CL	-	2160	1860	1680	1490	1320	1140	970	860	710	560
1-1/4"	S144	4-1/4" SQ.	40	.032	19-1/2B	1	-	1360	1170	1060	940	830	720	610	540	450	350
					25-1/2B	1	-	1470	1260	1150	1010	900	780	660	590	490	380
					25-1/2B	2-6 CL	-	2090	1800	1630	1440	1270	1110	940	840	690	540
					29-1/2B	1	-	1560	1340	1220	1080	950	830	700	620	510	410
					29-1/2B	2-6 CL	-	2240	1930	1750	1550	1370	1190	1010	900	740	580
					29-1/2B	3-6 CL	-	2550	2190	1990	1760	1560	1350	1150	1020	840	660
1-1/4"	S145	4-1/4" SQ.	50	.032	19-1/2B	1	-	1415	1220	1100	980	860	750	640	570	470	370
					25-1/2B	1	-	1505	1290	1170	1040	920	800	680	600	500	390
					25-1/2B	2-6 CL	-	2150	1850	1680	1480	1310	1140	970	860	710	560
					29-1/2B	1	-	1555	1340	1210	1070	950	820	700	620	510	400
					29-1/2B	2-6 CL	-	2250	1940	1760	1550	1370	1190	1010	900	740	590
					29-1/2B	3-6 CL	-	2540	2180	1980	1750	1550	1350	1140	1020	840	660
2"	S242	4-1/4" SQ.	25	.032	19-1/2B	1	-	1050	900	820	720	640	560	470	420	350	270
					25-1/2B	1	-	1110	950	870	770	680	590	500	440	370	290
					25-1/2B	2-6 CL	-	1670	1440	1300	1150	1020	890	750	670	550	430
					29-1/2B	1	-	1170	1010	910	810	710	620	530	470	390	300
					29-1/2B	2-6 CL	-	1770	1520	1380	1220	1080	940	800	710	580	460
					29-1/2B	3-6 CL	-	2040	1750	1590	1410	1240	1080	920	820	670	530
2"	S243	4-1/4" SQ.	32	.032	19-1/2B	1	-	1220	1050	950	840	740	650	550	490	400	320
					25-1/2B	1	-	1290	1110	1010	890	790	680	580	520	430	340
					25-1/2B	2-6 CL	-	1930	1660	1510	1330	1180	1020	870	770	640	500
					29-1/2B	1	-	1360	1170	1060	940	830	720	610	540	450	350
					29-1/2B	2-6 CL	-	2040	1750	1590	1410	1240	1080	920	820	670	530
					29-1/2B	3-6 CL	-	2350	2020	1830	1620	1430	1250	1060	940	780	610

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 PRESSURE		ENTERING AIR TEMPERATURE °F														
GAUGE	ABS. PSI	TEMP. °F	45	55	STD 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
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 x 500 x 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