

# LT series



COMMERCIAL FINNED TUBE AND  
CONVECTOR LOW OPERATING WATER  
TEMPERATURE HIGH OUTPUT OFFERINGS

**Vulcan**  
RADIATOR



## MEETING TODAY'S GREEN INITIATIVES...

Today's high efficiency condensing boiler & ground source heat pump hot water systems demand commercial finned tube radiation with the highest BTU outputs possible.

The traditional hot water commercial radiation system operated at 180°F water temperatures. Newer hot water HVAC systems now often operate in the 120° – 140°F range which is a decrease in heating energy requirements of approximately 60%. Now, the difficulties facing the engineer are how to recover the lost output at the lower operating temperatures and maintain building comfort.

Vulcan has long been considered a leader in the commercial hydronic heating industry. With new, expanded enclosure offerings and a vast array of elements, Vulcan has included the highest capacity combinations together in one catalog. These high efficiency commercial enclosure and finned tube element offerings will provide the engineer with a variety of proven choices to meet the demands of today's low water temperature operating systems. Also included in this catalog are low water temperature ratings for Vulcan's best performing hydronic heating convectors.

All of the offerings in this catalog will allow today's modern high efficiency commercial condensing boilers to operate at their full potential, maximizing system efficiency and providing the building owner with all the cost saving benefits possible. This high performing BTU-per-foot commercial finned tube selection will help you meet the requirements of today's new high efficiency low temperature operating systems, and, as part of a complete building system, may help qualify for LEED energy credits.

### Retrofit and New Buildings

The flexibility of Vulcan's low operating temperature commercial finned tube allows it to easily be installed in retrofit applications as well as new building designs. Whether designing a new commercial office building or changing the layout of an existing building, either can easily be accomplished using Vulcan's commercial finned tube radiation. Piping design for hot water hydronic heating systems is extremely flexible and can help cut design costs significantly.

### Custom Applications

With over 70 years of manufacturing experience in the commercial finned tube market, Vulcan's engineering group can customize any enclosure application to meet your specific building needs. That, along with the most modern powder paint system available, gives the engineer and architect almost limitless design options. Our engineering staff has over 50 years of experience in the design and application of commercial finned tube heating systems and will assist you in meeting any job condition you encounter. We understand that your design concepts and conditions are endless. Vulcan will evaluate your options and provide multiple proven design concepts that will perform to the requirements needed for many years to come.

### Working for More Green

Vulcan commercial finned tube radiation provides standard, nominal size 3/4" copper tube mechanically expanded into aluminum fins. The aluminum and steel materials used for the element fins and enclosures have a high recycled content.





## FEATURES AND BENEFITS

- **Low Operating Temperatures & Premium Performance**

The Vulcan High Capacity Finned Tube is intended specifically for the use with low temperature water operating condensing boilers and ground source heat pumps.

- **Allows For Maximum Boiler Operating Efficiencies**

- **Most Efficient & Comfortable Heating Option Available**

- **Greater Comfort with Room-by-Room Temperature Control**

When utilizing the many advanced control devices available, each room allows for comfort settings for the occupants based on personal preference.

- **Clean and Healthy**

Heat from the natural convective action is distributed evenly along the exterior walls of the room, warming the wall while replacing the cold with warmth. When using hydronic heating systems, the building's ventilation system can be reduced in size, allowing additional budget to increase the quality of the indoor air quality system. This will provide cleaner and better air quality, and fewer airborne germs circulated throughout the building.

- **Design Flexibility**

Future zoning or circuit layout changes are easily done and cost less than changing out expensive duct work.

- **Durable Powder Paint Finish**

- **Custom Paint Color Matching**

Vulcan's state-of-the-art powder paint system allows for the matching of custom colors and includes the availability of RAL and metallic color offerings.

- **Multiple Enclosure Material & Gauge Options**

Cold Rolled Steel is standard. Aluminum and Stainless Steel are available options.

Choose from 18, 16, & 14 gauge material thickness.

-  **"Made in the U.S.A."**

All of the Vulcan High Capacity products are proudly made in the United States utilizing domestically produced raw materials.

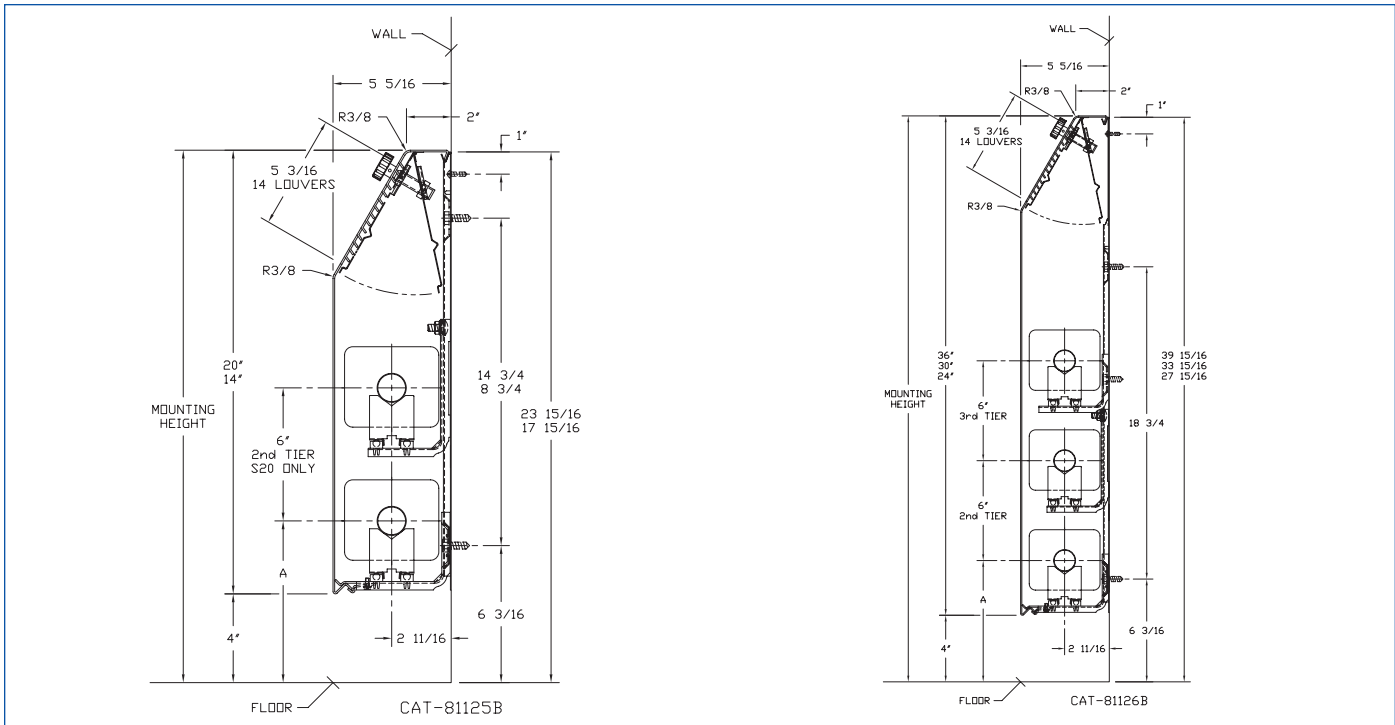
## PRODUCT DIRECTORY

<b>Enclosure Style</b>	<b>Page</b>
Slope Outlet.....	4
Front Outlet.....	6
Front & Top Outlet.....	8
Rounded Outlet.....	10
Slope Top Aluminum Grille.....	12
Finned Tube Design Data.....	17
Convector Styles.....	18
Convector Ratings.....	20
Convector Capacity Data.....	26
Convector Design/Installation Data.....	28
Convector Coil Detail.....	32



# LV4-S Style "S" Slope Top Enclosures

ELEMENT TUBE SIZE	ELEMENT FIN SIZE HEIGHT x WIDTH	CRADLE	A
3/4" COPPER	3 5/8 x 4 1/4	2	7"
3/4" COPPER	4 1/4 x 4 1/4	3A	



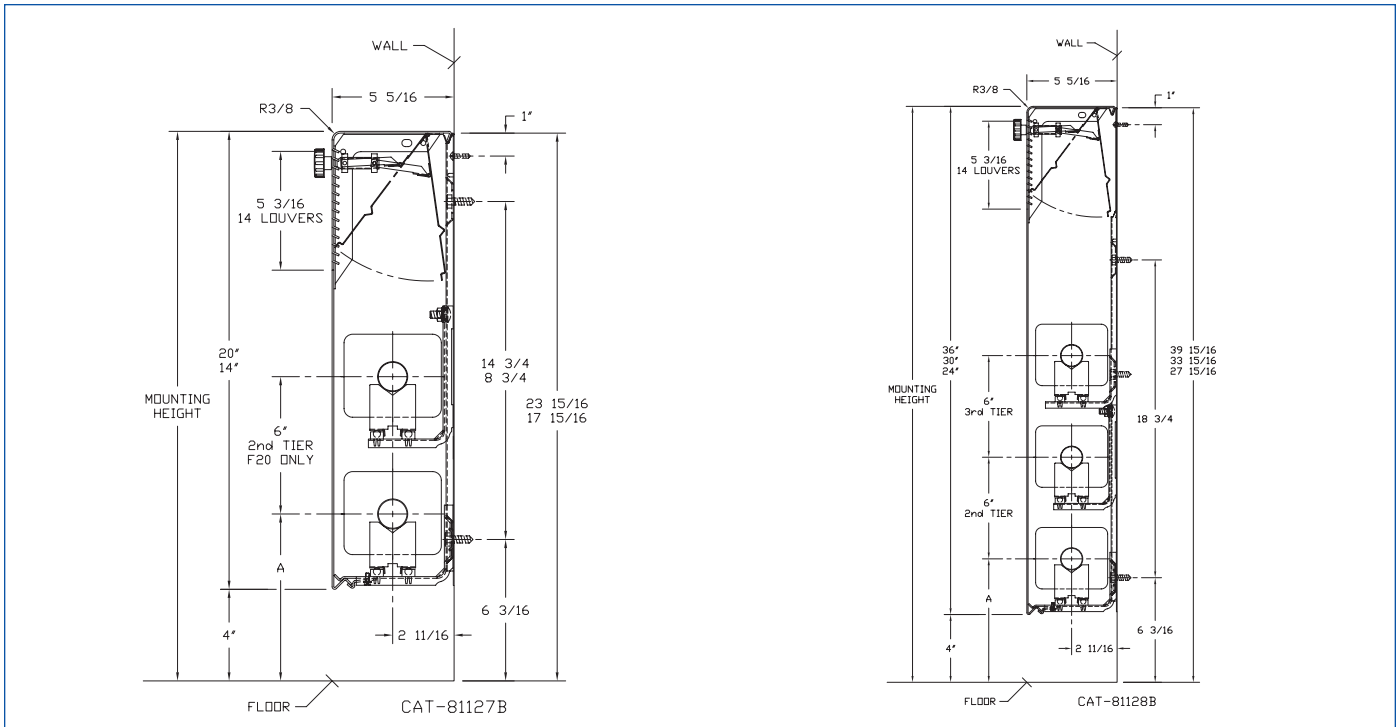
## LV4-S Copper/Aluminum Elements

ALL RATINGS ARE BASED ON 3 FPS WATER VELOCITY, 65°EAT

TUBE SIZE	CATALOG DESIGNATION	FIN SIZE HEIGHT X WIDTH	FIN PER FT.	FIN THICKNESS IN INCHES	ENCL DEPTH AND HEIGHT IN INCHES	TIERS AND CENTERS IN INCHES	MTG. HEIGHT IN INCHES	STEAM 215°F FACTOR	HOT WATER (AVG.)																					
									200°F	190°F	180°F	170°F	160°F	150°F	140°F	130°F	120°F	110°F	100°F											
									CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES																					
											1.00	0.86	0.78	0.69	0.61	0.53	0.45	.40	.33	.26	.20	.15								
3/4"	C3/4-433	3-5/8" x 4-1/4"	32	.020	14B	1	18	1520	1310	1190	1050	930	810	680	610	500	400	300	230											
					20B	1	24	1600	1380	1250	1100	980	850	720	640	530	420	320	240											
					20B	2-6 CL	24	2480	2130	1930	1710	1510	1310	1120	990	820	640	500	370											
					24B	1	28	1670	1440	1300	1150	1020	890	750	670	550	430	330	250											
					24B	2-6 CL	28	2570	2210	2000	1770	1570	1360	1160	1030	850	670	510	390											
					24B	3-6 CL	28	2960	2550	2310	2040	1810	1570	1330	1180	980	770	590	440											
					30B	1	34	1750	1510	1370	1210	1070	930	790	700	580	460	350	260											
					30B	2-6 CL	34	2680	2300	2090	1850	1630	1420	1210	1070	880	700	540	400											
					30B	3-6 CL	34	3080	2650	2400	2130	1880	1630	1390	1230	1020	800	620	460											
					36B	1	40	1830	1570	1430	1260	1120	970	820	730	600	480	370	270											
					36B	2-6 CL	40	2790	2400	2180	1930	1700	1480	1260	1120	920	730	560	420											
					36B	3-6 CL	40	3210	2760	2500	2210	1960	1700	1440	1280	1060	830	640	480											
					3/4"	C3/4-434	3-5/8" x 4-1/4"	40	.020	14B	1	18	1700	1460	1330	1170	1040	900	770	680	560	440	340	260						
20B	1	24	1820	1570						1420	1260	1110	960	820	730	600	470	360	270											
20B	2-6 CL	24	2580	2220						2010	1780	1570	1370	1160	1030	850	670	520	390											
24B	1	28	1910	1640						1490	1320	1170	1010	860	760	630	500	380	290											
24B	2-6 CL	28	2700	2320						2110	1860	1650	1430	1220	1080	890	700	540	410											
24B	3-6 CL	28	3080	2650						2400	2130	1880	1630	1390	1230	1020	800	620	460											
30B	1	34	2000	1720						1560	1380	1220	1060	900	800	660	520	400	300											
30B	2-6 CL	34	2830	2430						2210	1950	1730	1500	1270	1130	930	740	570	420											
30B	3-6 CL	34	3230	2780						2520	2230	1970	1710	1450	1290	1070	840	650	480											
36B	1	40	2090	1800						1630	1440	1270	1110	940	840	690	540	420	310											
36B	2-6 CL	40	2890	2490						2250	1990	1760	1530	1300	1160	950	750	580	430											
36B	3-6 CL	40	3290	2830						2570	2270	2010	1740	1480	1320	1090	860	660	490											
3/4"	C3/4-435	3-5/8" x 4-1/4"	50	.020						14B	1	18	1840	1580	1440	1270	1120	980	830	740	610	480	370	280						
					20B	1	24	2090	1800	1630	1440	1270	1110	940	840	690	540	420	310											
					20B	2-6 CL	24	2820	2430	2200	1950	1720	1490	1270	1130	930	730	560	420											
					24B	1	28	2260	1940	1760	1560	1380	1200	1020	900	750	590	450	340											
					24B	2-6 CL	28	3110	2670	2430	2150	1900	1650	1400	1240	1030	810	620	470											
					24B	3-6 CL	28	3510	3020	2740	2420	2140	1860	1580	1400	1160	910	700	530											
					30B	1	34	2510	2160	1960	1730	1530	1330	1130	1000	830	650	500	380											
					30B	2-6 CL	34	3330	2860	2600	2300	2030	1760	1500	1330	1100	870	670	500											
					30B	3-6 CL	34	3760	3230	2930	2590	2290	1990	1690	1500	1240	980	750	560											
					36B	1	40	2760	2370	2150	1900	1680	1460	1240	1100	910	720	550	410											
					36B	2-6 CL	40	3580	3080	2790	2470	2180	1900	1610	1430	1180	930	720	540											
					36B	3-6 CL	40	4050	3480	3160	2790	2470	2150	1820	1620	1340	1050	810	610											
					3/4"	C3/4-43	4-1/4" SQ.	32	.020	14B	1	18	1630	1400	1270	1120	990	860	730	650	540	420	330	240						
20B	1	24	1720	1480						1340	1190	1050	910	770	690	570	450	340	260											
20B	2-6 CL	24	2630	2260						2050	1810	1600	1390	1180	1050	870	680	530	390											
24B	1	28	1790	1540						1400	1240	1090	950	810	720	590	470	360	270											
24B	2-6 CL	28	2810	2420						2190	1940	1710	1490	1260	1120	930	730	560	420											
24B	3-6 CL	28	3230	2780						2520	2230	1970	1710	1450	1290	1070	840	650	480											
30B	1	34	1860	1600						1450	1280	1130	990	840	740	610	480	370	280											
30B	2-6 CL	34	2920	2510						2280	2010	1780	1550	1310	1170	960	760	580	440											
30B	3-6 CL	34	3360	2890						2620	2320	2050	1780	1510	1340	1110	870	670	500											
36B	1	40	1930	1660						1510	1330	1180	1020	870	770	640	500	390	290											
36B	2-6 CL	40	3030	2610						2360	2090	1850	1610	1360	1210	1000	790	610	450											
36B	3-6 CL	40	3480	2990						2710	2400	2120	1840	1570	1390	1150	900	700	520											
3/4"	C3/4-44	4-1/4" SQ.	40	.020						14B	1	18	2030	1750	1580	1400	1240	1080	910	810	670	530	410	300						
					20B	1	24	2210	1900	1720	1520	1350	1170	990	880	730	570	440	330											
					20B	2-6 CL	24	2930	2520	2290	2020	1790	1550	1320	1170	970	760	590	440											
					24B	1	28	2350	2020	1830	1620	1430	1250	1060	940	780	610	470	350											
					24B	2-6 CL	28	3210	2760	2500	2210	1960	1700	1440	1280	1060	830	640	480											
					24B	3-6 CL	28	3660	3150	2850	2530	2230	1940	1650	1460	1210	950	730	550											
					30B	1	34	2520	2170	1970	1740	1540	1340	1130	1010	830	660	500	380											
					30B	2-6 CL	34	3450	2970	2690	2380	2100	1830	1550	1380	1140	900	690	520											
					30B	3-6 CL	34	3930	3380	3070	2710	2400	2080	1770	1570	1300	1020	790	590											
					36B	1	40	2690	2310	2100	1860	1640	1430	1210	1080	890	700	540	400											
					36B	2-6 CL	40	3600	3100	2810	2480	2200	1910	1620	1440															

# LV4-F Style "F" Front Outlet

ELEMENT TUBE SIZE	ELEMENT FIN SIZE HEIGHT x WIDTH	CRADLE	A
3/4" COPPER	3 5/8 x 4 1/4	2	7"
3/4" COPPER	4 1/4 x 4 1/4	3A	



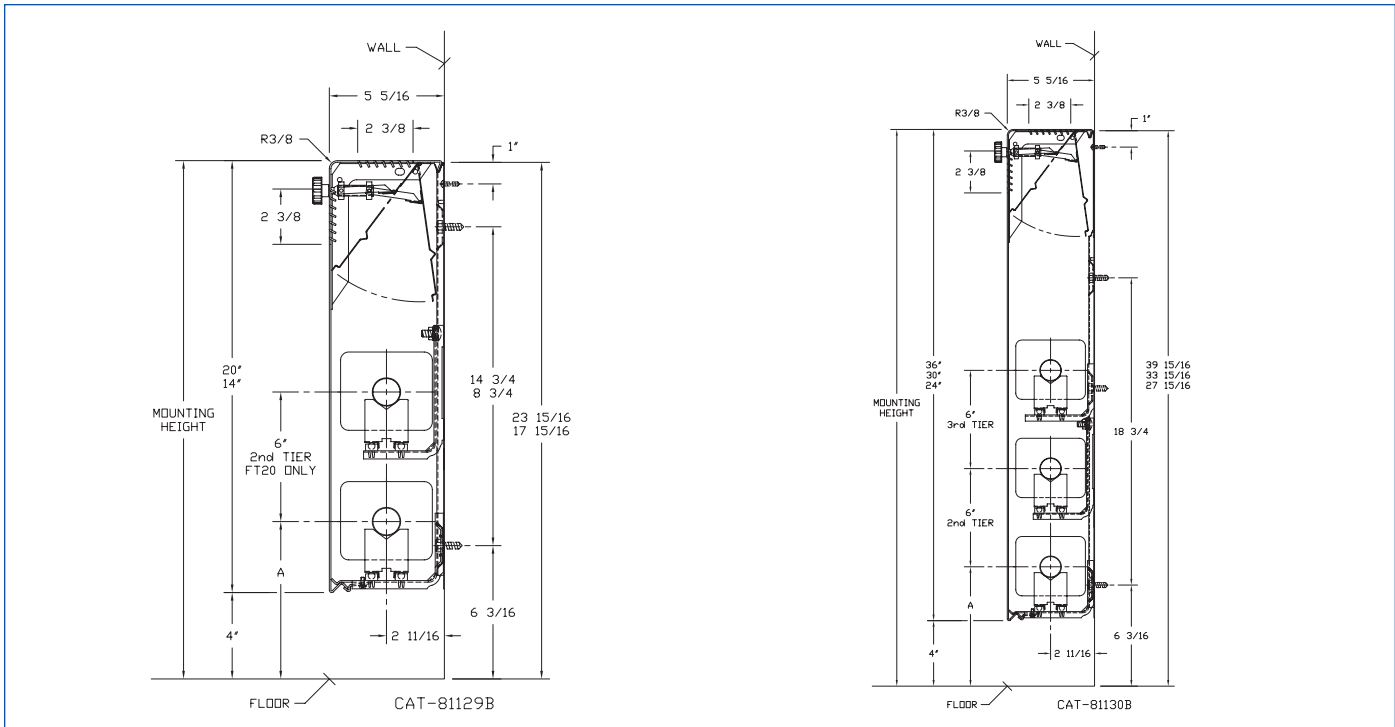
## LV4-F Copper/Aluminum Elements

ALL RATINGS ARE BASED ON 3 FPS WATER VELOCITY, 65°EAT

TUBE SIZE	CATALOG DESIGNATION	FIN SIZE HEIGHT X WIDTH	FIN PER FT.	FIN THICKNESS IN INCHES	ENCL DEPTH AND HEIGHT IN INCHES	TIERS AND CENTERS IN INCHES	MTG. HEIGHT IN INCHES	STEAM 215°F FACTOR	HOT WATER (AVG.)													
									200°F	190°F	180°F	170°F	160°F	150°F	140°F	130°F	120°F	110°F	100°F			
									CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES													
											1.00	0.86	0.78	0.69	0.61	0.53	0.45	.40	.33	.26	.20	.15
3/4"	C3/4-433	3-5/8" x 4-1/4"	32	.020	14B	1	18	1460	1260	1140	1010	890	770	660	580	480	380	290	220			
					20B	1	24	1570	1350	1220	1080	960	830	710	630	520	410	310	240			
					20B	2-6 CL	24	2390	2060	1860	1650	1460	1270	1080	960	790	620	480	360			
					24B	1	28	1620	1390	1260	1120	990	860	730	650	530	420	320	240			
					24B	2-6 CL	28	2410	2070	1880	1660	1470	1280	1080	960	800	630	480	360			
					24B	3-6 CL	28	2770	2380	2160	1910	1690	1470	1250	1110	910	720	550	420			
					30B	1	34	1710	1470	1330	1180	1040	910	770	680	560	440	340	260			
					30B	2-6 CL	34	2470	2120	1930	1700	1510	1310	1110	990	820	640	490	370			
					30B	3-6 CL	34	2840	2440	2220	1960	1730	1510	1280	1140	940	740	570	430			
					36B	1	40	1800	1550	1400	1240	1100	950	810	720	590	470	360	270			
					36B	2-6 CL	40	2530	2180	1970	1750	1540	1340	1140	1010	830	660	510	380			
					36B	3-6 CL	40	2910	2500	2270	2010	1780	1540	1310	1160	960	760	580	440			
					3/4"	C3/4-434	3-5/8" x 4-1/4"	40	.020	14B	1	18	1680	1440	1310	1160	1020	890	760	670	550	440
20B	1	24	1790	1540						1400	1240	1090	950	810	720	590	470	360	270			
20B	2-6 CL	24	2560	2200						2000	1770	1560	1360	1150	1020	840	670	510	380			
24B	1	28	1870	1610						1460	1290	1140	990	840	750	620	490	370	280			
24B	2-6 CL	28	2670	2300						2080	1840	1630	1420	1200	1070	880	690	530	400			
24B	3-6 CL	28	3040	2610						2370	2100	1850	1610	1370	1220	1000	790	610	460			
30B	1	34	2140	1840						1670	1480	1310	1130	960	860	710	560	430	320			
30B	2-6 CL	34	2920	2510						2280	2010	1780	1550	1310	1170	960	760	580	440			
30B	3-6 CL	34	3330	2860						2600	2300	2030	1760	1500	1330	1100	870	670	500			
36B	1	40	2410	2070						1880	1660	1470	1280	1080	960	800	630	480	360			
36B	2-6 CL	40	3170	2730						2470	2190	1930	1680	1430	1270	1050	820	630	480			
36B	3-6 CL	40	3610	3100						2820	2490	2200	1910	1620	1440	1190	940	720	540			
3/4"	C3/4-435	3-5/8" x 4-1/4"	50	.020						14B	1	18	1820	1570	1420	1260	1110	960	820	730	600	470
					20B	1	24	2080	1790	1620	1440	1270	1100	940	830	690	540	420	310			
					20B	2-6 CL	24	2780	2390	2170	1920	1700	1470	1250	1110	920	720	560	420			
					24B	1	28	2230	1920	1740	1540	1360	1180	1000	890	740	580	450	330			
					24B	2-6 CL	28	2940	2530	2290	2030	1790	1560	1320	1180	970	760	590	440			
					24B	3-6 CL	28	3320	2860	2590	2290	2030	1760	1490	1330	1100	860	660	500			
					30B	1	34	2470	2120	1930	1700	1510	1310	1110	990	820	640	490	370			
					30B	2-6 CL	34	3150	2710	2460	2170	1920	1670	1420	1260	1040	820	630	470			
					30B	3-6 CL	34	3560	3060	2780	2460	2170	1890	1600	1420	1170	930	710	530			
					36B	1	40	2690	2310	2100	1860	1640	1430	1210	1080	890	700	540	400			
					36B	2-6 CL	40	3320	2860	2590	2290	2030	1760	1490	1330	1100	860	660	500			
					36B	3-6 CL	40	3750	3230	2930	2590	2290	1990	1690	1500	1240	980	750	560			
					3/4"	C3/4-43	4-1/4" SQ.	32	.020	14B	1	18	1630	1400	1270	1120	990	860	730	650	540	420
20B	1	24	1680	1440						1310	1160	1020	890	760	670	550	440	340	250			
20B	2-6 CL	24	2590	2230						2020	1790	1580	1370	1170	1040	850	670	520	390			
24B	1	28	1720	1480						1340	1190	1050	910	770	690	570	450	340	260			
24B	2-6 CL	28	2650	2280						2070	1830	1620	1400	1190	1060	870	690	530	400			
24B	3-6 CL	28	3050	2620						2380	2100	1860	1620	1370	1220	1010	790	610	460			
30B	1	34	1800	1550						1400	1240	1100	950	810	720	590	470	360	270			
30B	2-6 CL	34	2730	2350						2130	1880	1670	1450	1230	1090	900	710	550	410			
30B	3-6 CL	34	3140	2700						2450	2170	1920	1660	1410	1260	1040	820	630	470			
36B	1	40	1880	1620						1470	1300	1150	1000	850	750	620	490	380	280			
36B	2-6 CL	40	2810	2420						2190	1940	1710	1490	1260	1120	930	730	560	420			
36B	3-6 CL	40	3230	2780						2520	2230	1970	1710	1450	1290	1070	840	650	480			
3/4"	C3/4-44	4-1/4" SQ.	40	.020						14B	1	18	1900	1630	1480	1310	1160	1010	860	760	630	490
					20B	1	24	2190	1880	1710	1510	1340	1160	990	880	720	570	440	330			
					20B	2-6 CL	24	2950	2540	2300	2040	1800	1560	1330	1180	970	770	590	440			
					24B	1	28	2290	1970	1790	1580	1400	1210	1030	920	760	600	460	340			
					24B	2-6 CL	28	3000	2580	2340	2070	1830	1590	1350	1200	990	780	600	450			
					24B	3-6 CL	28	3420	2940	2670	2360	2090	1810	1540	1370	1130	890	680	510			
					30B	1	34	2490	2140	1940	1720	1520	1320	1120	1000	820	650	500	370			
					30B	2-6 CL	34	3260	2800	2540	2250	1990	1730	1470	1300	1080	850	650	490			
					30B	3-6 CL	34	3720	3200	2900	2570	2270	1970	1670	1490	1230	970	740	560			
					36B	1	40	2680	2300	2090	1850	1630	1420	1210	1070	880	700	540	400			
					36B	2-6 CL	40	3530	3040	2750	2440	2150	1870	1590	1410	1160	920	710	530			
					36B	3-6 CL	40	4020	3460	3140	2770	2450	2130	1810	1610	1330	1050	800	600			
					3/4"	C3/4-45	4-1/4" SQ.	50	.020	14B	1	18	1950	1680	1520	1350	1190	1030	880	780	640	510
20B	1	24	2230	1920						1740	1540	1360	1180	1000	890	740	580	450	330			
20B	2-6 CL	24	3012	2590						2350	2080	1840	1600	1360	1200	990	780	600	450			
24B	1	28	2400	2060						1870	1660	1460	1270	1080	960	790	620	480	360			
24B	2-6 CL	28	3185	2740						2480	2200	1940	1690	1430	1270	1050	830	640	480			
24B	3-6 CL	28	3600	3100						2810	2480	2200	1910	1620	1440	1190	940	720	540			
30B	1	34	2670	2300						2080	1840	1630	1420	1200	1070	880	690	530	400			
30B	2-6 CL	34	3480	2990						2710	2400	2120	1840	1570	1390	1150	900	700	520			
30B	3-6 CL	34	3930	3380						3070	2710	2400	2080	1770	1570	1300	1020	790	590			
36B	1	40	2930	2520						2290	2020	1790	1550	1320	1170	970	760	590	440			
36B	2-6 CL	40	3710	3190						2890	2560	2260	1970	1670	1480	1220	960	740	560			
36B	3-6 CL	40	4190	3600						3270	2890	2560	2220	1890	1680	1380	1090	840	630			

# LV4-FT Style "FT" Front & Top Outlet

ELEMENT TUBE SIZE	ELEMENT FIN SIZE HEIGHT x WIDTH	CRADLE	A
3/4" COPPER	3 5/8 x 4 1/4	2	
3/4" COPPER	4 1/4 x 4 1/4	3A	7 3/8"

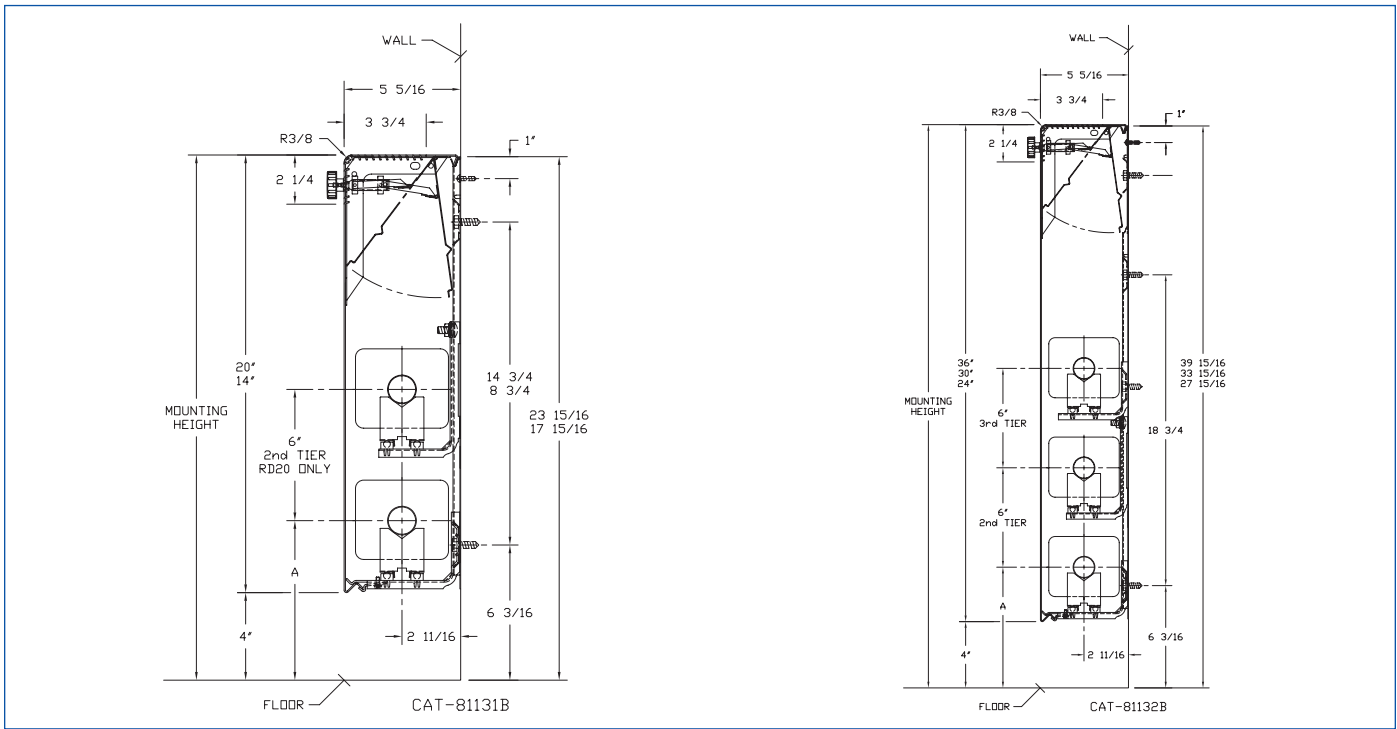






# LV4-R Style "R" Flat Top Enclosures

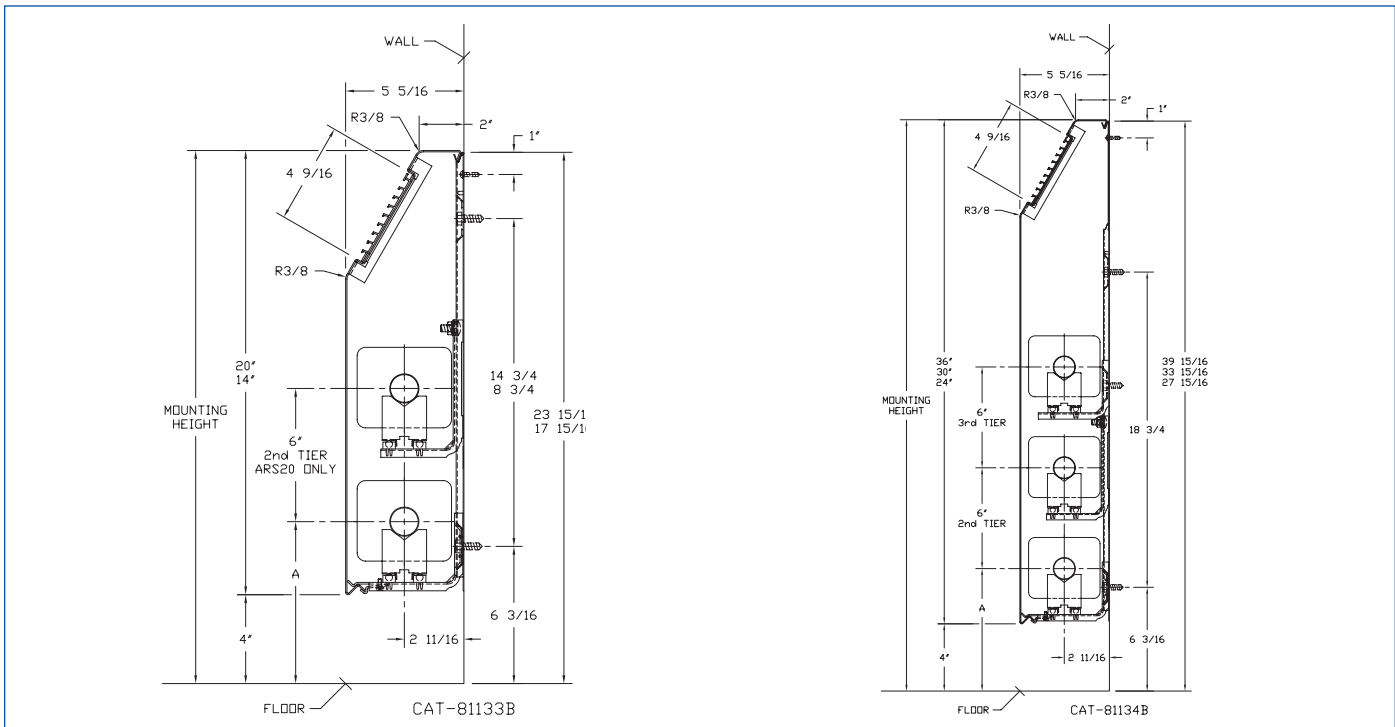
ELEMENT TUBE SIZE	ELEMENT FIN SIZE HEIGHT x WIDTH	CRADLE	A
3/4" COPPER	3 5/8 x 4 1/4	2	7"
3/4" COPPER	4 1/4 x 4 1/4	3A	7 3/8"





# JV4-ARS Slope Top Aluminum Grille

ELEMENT TUBE SIZE	ELEMENT FIN SIZE HEIGHT x WIDTH	CRADLE	A
3/4" COPPER	3 5/8 x 4 1/4	2	7"
3/4" COPPER	4 1/4 x 4 1/4	3A	





## 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

**Factor from Table Above  
for actual mounting height**  


---

**Factor from Table Above  
for recommended mounting height**

**EXAMPLE: Corrected steam rating for 1 row VC145 element in LV4F14 (14" high enclosures) mounted 30" above floor in lieu of the 18" recommended.**

#### FORMULA:

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

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

#### DYNAMIC FORMULAS

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

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

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

# COMMERCIAL FINNED TUBE RATING CORRECTION CHARTS

CATALOG FINNED TUBE RATINGS ARE BASED UPON THE FOLLOWING CONDITIONS:

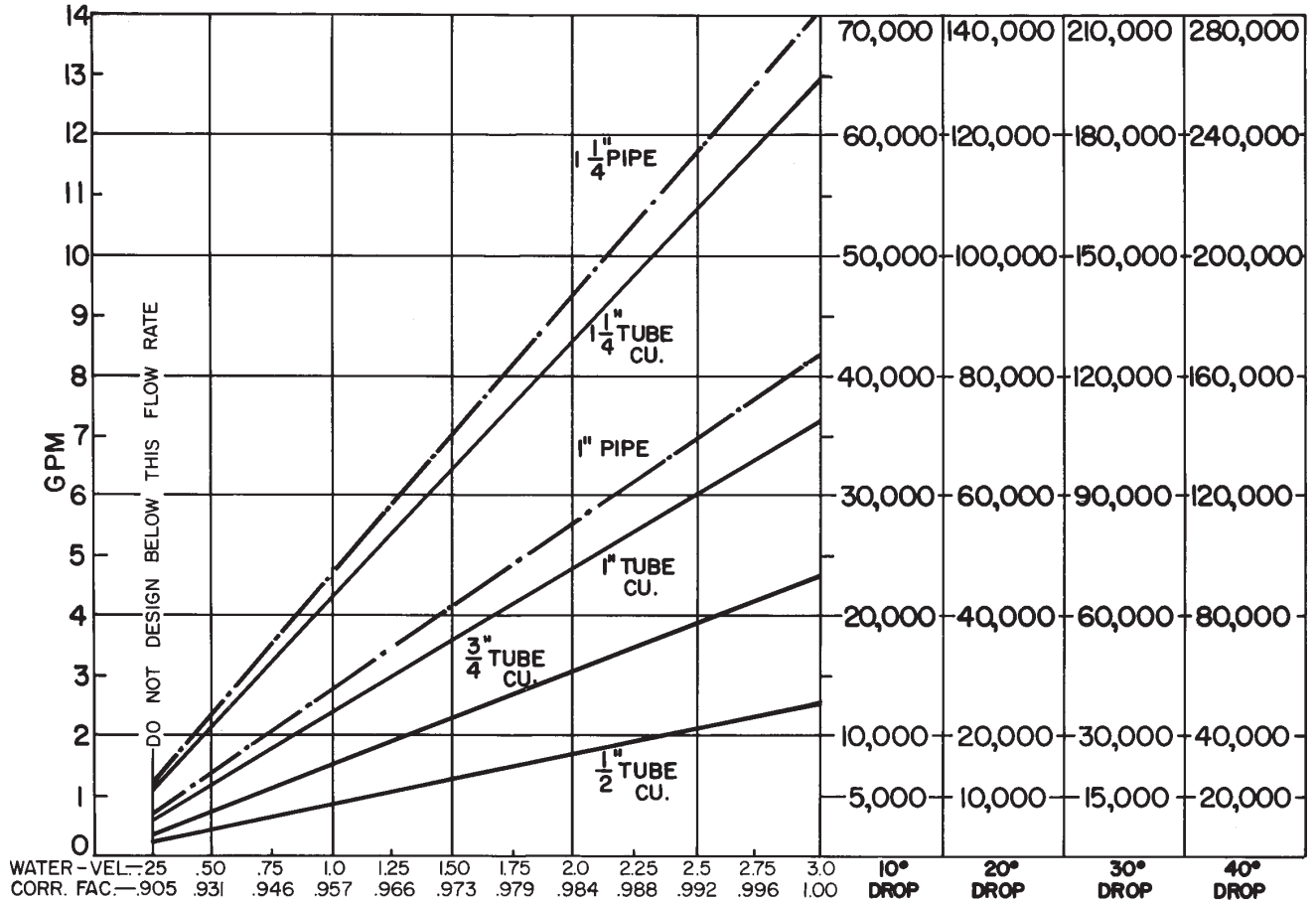
- 215°F AVERAGE WATER OR STEAM TEMPERATURE
- 65°F ENTERING AIR TEMPERATURE
- 3 FEET PER SECOND WATER FLOW RATE
- CATALOG MOUNTING HEIGHT

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

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

USE THE FOLLOWING CHARTS TO SELECT CORRECTION FACTORS

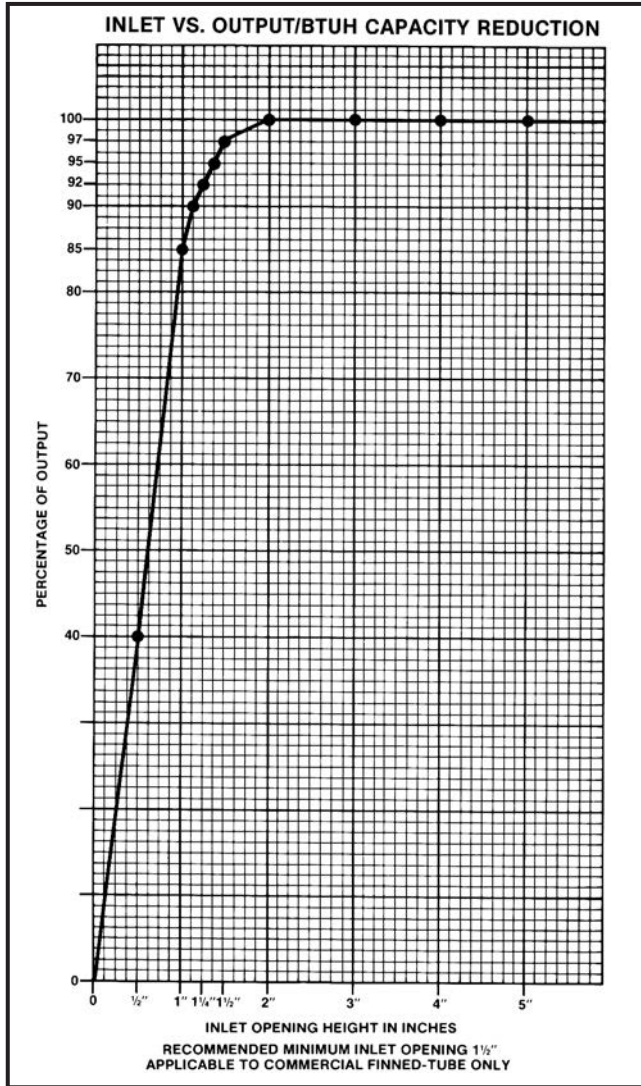
CHART/WATER VEL./CORR. FACTOR / PRESS. DROP/TOTAL BTU.



1/2" COP. ALUM.	.180	.233	.333	.480	.675	.916	1.225	1.650	2.250	3.000
3/4" COP. ALUM.	.15	.20	.28	.40	.54	.72	.96	1.28	1.71	2.25
1" COP. ALUM.	.123	.164	.233	.324	.432	.576	.768	1.008	1.344	1.800
1" PIPE	.037	.049	.067	.091	.122	.163	.216	.288	.384	.504
1 1/4" COP. ALUM.	.16	.21	.29	.40	.54	.72	.96	1.28	1.71	2.25
1 1/4" PIPE	.09	.12	.16	.21	.28	.37	.49	.65	.86	1.12

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

## INLET AIR CORRECTION FACTOR



## 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

## GUARANTEED WORKING PRESSURES

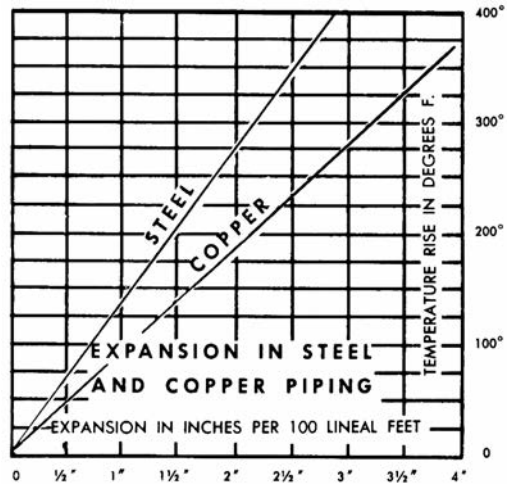
- 1" IPS — 780 AT TEMPERATURES UP TO 650°F.
  - 1 1/4" IPS — 660 AT TEMPERATURES UP TO 650°F.
  - 2" IPS — 405 AT TEMPERATURES UP TO 650°F.
  - 1 1/4" CU — 194 AT TEMPERATURES UP TO 300°F.
  - 1" CU — 204 AT TEMPERATURES UP TO 300°F.
  - 3/4" CU — 218 PSI AT TEMPERATURES UP TO 300°F.
- MAXIMUM PRESSURES 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'	Lbs./Hr. @ 3'
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.

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



## 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 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

In the interest of product improvement, Vulcan reserves the right to make changes without notice.

# Convactor Styles

## FS-A/FSG-A

**Type FS-A:** The type FS-A Free-Standing Cabinet Enclosure is designed to be used exposed and fitted flush against the wall. Readily installed without alteration of wall interior, the FS-A enclosure is frequently used for system modernization where it is desirable to avoid the expense of recessing the unit in the wall. Arched inlet shown is standard. Unit may be provided with integral inlet grille, (FSG-A).

## W-A

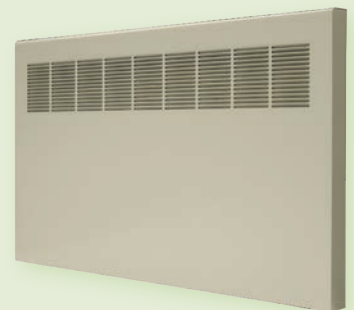
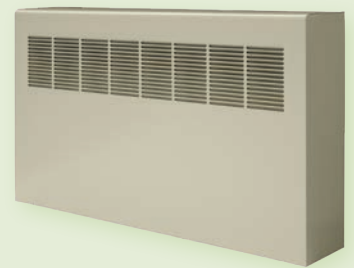
**Type W-A:** The W-A Convactor is a completely exposed wall hung unit with flat top. Outlet grille is in the face of the enclosure. Enclosure front wraps around unit and fastens to sides of cabinet with clips. Air inlet is through open bottom of unit enclosure.

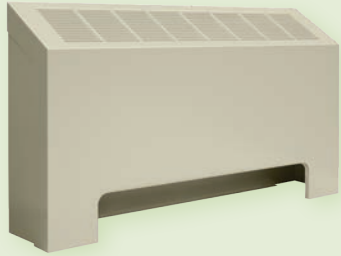
## SR-A/SRG-A

**Type SR-A Semi-Recessed:** Cabinet design is similar to FS-A model. Enclosure projects only 2-1/4" from wall. Complete unit includes enclosure, front panel with outlet grille and arched inlet opening, heating element. Front panel is easily removed for cleaning or access to heating element. Unit may be provided with integral inlet grille, (SRG-A).

## PW-A/PWG-A

**Type PW-A:** This is a partially recessed unit with rounded flange front and venetian type air outlet grille, standard for wall mounting as illustrated. Cabinet extends only 2-1/4" from wall. Enclosure front fastens and screw to brackets on unit liner installed in wall recess. Air inlet is through open bottom of unit (PW-A). Unit may be provided with integral inlet grille, (PWG-A).





## SF-A/SFG-A

**Type SF-A:** The Type SF-A Free-Standing Cabinet Enclosure is designed to be used exposed and fitted flush against the wall. Readily installed without alteration of wall interior, the SF-A enclosure is frequently used for system modernization where it is desirable to avoid the expense of recessing the unit in the wall. Arched inlet shown is standard. Unit may be provided with integral inlet grille, (SFG-A). (SFG-A available in stainless steel, consult factory).



## SW-A

**Type SW-A:** This model is fully exposed wall hung with outlet grille located in sloping top. Enclosure wraps around unit and fastens to sides with clips. Air inlet is through open bottom of unit. Slope of top is 30°. Consult factory for availability with stainless steel.



## RF-A/RFG-A AND FWG-A

**Type RF-A:** Designed to be fully recessed within the wall. The flanged edge metal front contains the outlet grille and inlet opening and is fastened by screws. It is easily removable for heating element access. The standard unit is arranged for floor mounting with arched inlet opening, (RF-A). Unit may be provided with integral inlet grille (RFG-A shown).

**Type FWG-A:** unit is similar, but for wall mounting with integral inlet grille. All units extend 13/16" from wall. Consult factory for availability of FWG-A and RFG-A models in stainless steel.

# Convactor Hot Water Capacities

## 100°F AVERAGE WATER TEMP (65°F ENTERING AIR TEMP)

DEPTH IN INCHES	LENGTH IN INCHES	FRONT OUTLET, NOMINAL LINER HEIGHT *TYPE FS-A, SR-A, RF-A, PW-A					FRONT OUTLET, WALL MOUNTED, NOM. HEIGHT TYPE W-A				
		18"	20"	24"	26"	32"	14"	18"	20"	26"	32"
4	20	270	300	340	350	375	300	340	350	375	390
	24	330	375	435	445	480	375	435	445	480	500
	28	395	460	520	535	575	460	520	535	575	605
	32	465	540	615	630	680	540	615	630	680	715
	36	525	620	705	725	780	620	705	725	780	825
	40	585	695	790	815	880	695	790	815	880	930
	44	650	780	885	905	980	780	885	905	980	1035
	48	715	855	975	1000	1075	855	975	1000	1075	1145
	52	785	935	1065	1090	1170	935	1065	1090	1170	1240
	56	845	1015	1155	1185	1275	1015	1155	1185	1275	1355
	60	920	1095	1240	1275	1370	1095	1240	1275	1370	1455
	64	975	1175	1335	1370	1475	1175	1335	1370	1475	1570
6	20	390	435	510	525	580	435	510	525	580	605
	24	485	545	645	670	740	545	645	670	740	770
	28	580	660	780	800	885	660	780	800	885	920
	32	675	780	915	945	1045	780	915	945	1045	1085
	36	770	885	1045	1085	1190	885	1045	1085	1190	1240
	40	870	1005	1180	1225	1350	1005	1180	1225	1350	1400
	44	970	1115	1310	1360	1500	1115	1310	1360	1500	1560
	48	1065	1230	1445	1495	1645	1230	1445	1495	1645	1715
	52	1170	1340	1575	1625	1790	1340	1575	1625	1790	1860
	56	1260	1455	1710	1770	1945	1455	1710	1770	1945	2030
	60	1370	1565	1835	1900	2090	1565	1835	1900	2090	2175
	64	1465	1685	1975	2050	2250	1685	1975	2050	2250	2350
8	20	485	545	605	615	670	545	605	615	670	695
	24	615	690	765	790	855	690	765	790	855	895
	28	765	835	920	945	1020	835	920	945	1020	1070
	32	905	980	1085	1115	1205	980	1085	1115	1205	1265
	36	1045	1125	1245	1285	1385	1125	1245	1285	1385	1455
	40	1185	1275	1410	1450	1565	1275	1410	1450	1565	1640
	44	1325	1420	1565	1615	1745	1420	1565	1615	1745	1825
	48	1435	1550	1730	1775	1930	1550	1730	1775	1930	2015
	52	1615	1710	1880	1935	2090	1710	1880	1935	2090	2175
	56	1755	1860	2050	2110	2280	1860	2050	2110	2280	2380
	60	1890	2000	2200	2260	2445	2000	2200	2260	2445	2545
	64	2015	2145	2370	2440	2635	2145	2370	2440	2635	2745

## 100°F AVERAGE WATER TEMP (65°F ENTERING AIR TEMP)

DEPTH IN INCHES	LENGTH IN INCHES	SLOPE TOP, FREE STANDING, NOMINAL HEIGHT TYPE SF-A					SLOPE TOP, WALL MOUNTED, NOMINAL HEIGHT TYPE SW-A				
		18"	20"	24"	26"	32"	14"	18"	20"	26"	32"
4	20	335	350	375	385	400	350	375	385	400	420
	24	430	445	475	485	510	445	475	485	510	530
	28	520	540	575	585	615	540	575	585	615	635
	32	615	635	675	690	725	635	675	690	725	755
	36	710	730	775	795	835	730	775	795	835	870
	40	800	820	880	900	940	820	880	900	940	975
	44	880	915	975	1000	1050	915	975	1000	1050	1090
	48	975	1010	1075	1105	1155	1010	1075	1105	1155	1200
	52	1060	1095	1170	1190	1255	1095	1170	1190	1255	1300
	56	1155	1190	1280	1300	1370	1190	1280	1300	1370	1420
	60	1230	1285	1370	1395	1465	1285	1370	1395	1465	1540
	64	1320	1380	1475	1505	1580	1380	1475	1505	1580	1670
6	20	525	540	595	610	650	540	595	610	650	685
	24	650	685	755	780	835	685	755	780	835	860
	28	785	825	905	930	1000	825	905	930	1000	1045
	32	905	975	1070	1095	1180	975	1070	1095	1180	1215
	36	1070	1115	1220	1260	1350	1115	1220	1260	1350	1395
	40	1200	1260	1375	1415	1520	1260	1375	1415	1520	1580
	44	1340	1400	1535	1575	1700	1400	1535	1575	1700	1760
	48	1480	1540	1685	1735	1865	1540	1685	1735	1865	1935
	52	1625	1680	1835	1885	2025	1680	1835	1885	2025	2110
	56	1795	1825	2000	2055	2210	1825	2000	2055	2210	2300
	60	1895	1960	2145	2205	2370	1960	2145	2205	2370	2470
	64	2020	2110	2310	2375	2550	2110	2310	2375	2550	2650
8	20	660	690	735	755	810	690	735	755	810	845
	24	865	880	940	965	1040	880	940	965	1040	1080
	28	1035	1065	1130	1160	1250	1065	1130	1160	1250	1300
	32	1225	1255	1335	1370	1475	1255	1335	1370	1475	1535
	36	1410	1445	1590	1575	1695	1445	1590	1575	1695	1765
	40	1585	1625	1730	1780	1920	1625	1730	1780	1920	1990
	44	1775	1815	1925	1980	2130	1815	1925	1980	2130	2210
	48	1960	2000	2125	2150	2355	2000	2125	2150	2355	2445
	52	2125	2185	2310	2370	2560	2185	2310	2370	2560	2665
	56	2325	2370	2520	2585	2790	2370	2520	2585	2790	2905
	60	2490	2555	2700	2775	2995	2555	2700	2775	2995	3125
	64	2685	2745	2910	2990	3225	2745	2910	2990	3225	3360

Capacities in BTU.

Derating factors for inlet grilles, see Table 7.

\* For FWG-A units, use ratings for FS-A units and apply derate correction factor from Table 7.

## 110°F AVERAGE WATER TEMP (65°F ENTERING AIR TEMP)

DEPTH IN INCHES	LENGTH IN INCHES	FRONT OUTLET, NOMINAL LINER HEIGHT *TYPE FS-A, SR-A, RF-A, PW-A					FRONT OUTLET, WALL MOUNTED, NOM. HEIGHT TYPE W-A				
		18"	20"	24"	26"	32"	14"	18"	20"	26"	32"
4	20	380	425	480	500	530	425	480	500	530	555
	24	470	535	615	630	675	535	615	630	675	705
	28	565	650	740	760	810	650	740	760	810	855
	32	655	765	870	895	965	765	870	895	965	1010
	36	745	875	1000	1025	1105	875	1000	1025	1105	1165
	40	830	990	1120	1155	1245	990	1120	1155	1245	1315
	44	920	1100	1255	1285	1385	1100	1255	1285	1385	1470
	48	1010	1210	1380	1420	1525	1210	1380	1420	1525	1620
	52	1115	1325	1505	1540	1655	1325	1505	1540	1655	1760
	56	1195	1435	1635	1675	1805	1435	1635	1675	1805	1920
	60	1300	1550	1760	1805	1940	1550	1760	1805	1940	2060
	64	1385	1665	1895	1940	2090	1665	1895	1940	2090	2225
6	20	550	615	725	745	825	615	725	745	825	855
	24	685	775	915	945	1050	775	915	945	1050	1090
	28	825	940	1100	1135	1255	940	1100	1135	1255	1300
	32	955	1100	1295	1340	1475	1100	1295	1340	1475	1535
	36	1095	1255	1475	1535	1690	1255	1475	1535	1690	1760
	40	1235	1425	1670	1735	1910	1425	1670	1735	1910	1985
	44	1370	1580	1855	1930	2120	1580	1855	1930	2120	2205
	48	1510	1745	2045	2115	2330	1745	2045	2115	2330	2430
	52	1655	1900	2230	2300	2535	1900	2230	2300	2535	2635
	56	1785	2065	2420	2505	2760	2065	2420	2505	2760	2875
	60	1940	2220	2605	2695	2960	2220	2605	2695	2960	3085
	64	2070	2385	2795	2900	3190	2385	2795	2900	3190	3330
8	20	685	770	855	875	945	770	855	875	945	990
	24	870	980	1080	1120	1210	980	1080	1120	1210	1270
	28	1085	1185	1305	1340	1450	1185	1305	1340	1450	1520
	32	1285	1390	1535	1585	1710	1390	1535	1585	1710	1795
	36	1480	1595	1765	1820	1965	1595	1765	1820	1965	2060
	40	1675	1805	2000	2050	2220	1805	2000	2050	2220	2320
	44	1875	2010	2220	2285	2475	2010	2220	2285	2475	2580
	48	2030	2200	2450	2520	2735	2200	2450	2520	2735	2855
	52	2290	2420	2665	2740	2960	2420	2665	2740	2960	3085
	56	2485	2635	2905	2985	3230	2635	2905	2985	3230	3375
	60	2680	2830	3115	3205	3465	2830	3115	3205	3465	3605
	64	2850	3040	3360	3455	3735	3040	3360	3455	3735	3890

## 110°F AVERAGE WATER TEMP (65°F ENTERING AIR TEMP)

DEPTH IN INCHES	LENGTH IN INCHES	SLOPE TOP, FREE STANDING, NOMINAL HEIGHT TYPE SF-A					SLOPE TOP, WALL MOUNTED, NOMINAL HEIGHT TYPE SW-A				
		18"	20"	24"	26"	32"	14"	18"	20"	26"	32"
4	20	480	500	530	545	565	500	530	545	565	595
	24	610	630	675	695	725	630	675	695	725	750
	28	735	765	810	830	870	765	810	830	870	900
	32	870	900	960	980	1030	900	960	980	1030	1070
	36	1005	1030	1095	1125	1185	1030	1095	1125	1185	1235
	40	1130	1165	1245	1275	1335	1165	1245	1275	1335	1380
	44	1250	1295	1385	1420	1485	1295	1385	1420	1485	1540
	48	1385	1430	1525	1560	1635	1430	1525	1560	1635	1695
	52	1500	1555	1655	1690	1775	1555	1655	1690	1775	1845
	56	1635	1690	1810	1845	1940	1690	1810	1845	1940	2010
	60	1745	1820	1940	1975	2070	1820	1940	1975	2070	2180
	64	1870	1955	2095	2130	2235	1955	2095	2130	2235	2365
6	20	745	765	845	865	920	765	845	865	920	965
	24	920	970	1070	1100	1185	970	1070	1100	1185	1220
	28	1110	1170	1285	1320	1415	1170	1285	1320	1415	1475
	32	1280	1380	1515	1550	1675	1380	1515	1550	1675	1720
	36	1515	1580	1730	1785	1915	1580	1730	1785	1915	1975
	40	1695	1785	1950	2010	2155	1785	1950	2010	2155	2235
	44	1900	1985	2175	2230	2405	1985	2175	2230	2405	2495
	48	2095	2185	2385	2460	2645	2185	2385	2460	2645	2740
	52	2300	2385	2600	2670	2870	2385	2600	2670	2870	2990
	56	2540	2585	2830	2915	3130	2585	2830	2915	3130	3255
	60	2685	2780	3040	3120	3355	2780	3040	3120	3355	3495
	64	2865	2985	3275	3360	3615	2985	3275	3360	3615	3755
8	20	935	980	1040	1075	1150	980	1040	1075	1150	1195
	24	1225	1250	1330	1365	1475	1250	1330	1365	1475	1530
	28	1470	1510	1600	1640	1770	1510	1600	1640	1770	1840
	32	1740	1775	1895	1940	2095	1775	1895	1940	2095	2175
	36	2000	2050	2255	2230	2405	2050	2255	2230	2405	2495
	40	2245	2305	2450	2520	2715	2305	2450	2520	2715	2820
	44	2515	2570	2725	2805	3020	2570	2725	2805	3020	3135
	48	2775	2835	3010	3045	3335	2835	3010	3045	3335	3465
	52	3010	3090	3275	3360	3625	3090	3275	3360	3625	3780
	56	3295	3360	3570	3665	3955	3360	3570	3665	3955	4115
	60	3525	3620	3825	3930	4245	3620	3825	3930	4245	4425
	64	3805	3890	4125	4240	4570	3890	4125	4240	4570	4760

Capacities in BTU.

Derating factors for inlet grilles, see Table 7.

\* For FWG-A units, use ratings for FS-A units and apply derate correction factor from Table 7.

# Convactor Hot Water Capacities

## 120°F AVERAGE WATER TEMP (65°F ENTERING AIR TEMP)

DEPTH IN INCHES	LENGTH IN INCHES	FRONT OUTLET, NOMINAL LINER HEIGHT *TYPE FS-A, SR-A, RF-A, PW-A					FRONT OUTLET, WALL MOUNTED, NOM. HEIGHT TYPE W-A				
		18"	20"	24"	26"	32"	14"	18"	20"	26"	32"
4	20	515	575	650	675	720	575	650	675	720	750
	24	635	725	835	855	915	725	835	855	915	955
	28	760	875	1000	1025	1100	875	1000	1025	1100	1160
	32	890	1035	1175	1210	1305	1035	1175	1210	1305	1370
	36	1005	1185	1350	1385	1495	1185	1350	1385	1495	1580
	40	1125	1335	1520	1560	1685	1335	1520	1560	1685	1780
	44	1250	1490	1700	1740	1875	1490	1700	1740	1875	1985
	48	1370	1635	1865	1920	2065	1635	1865	1920	2065	2190
	52	1505	1795	2035	2085	2240	1795	2035	2085	2240	2380
	56	1615	1945	2215	2270	2445	1945	2215	2270	2445	2600
	60	1760	2100	2380	2440	2620	2100	2380	2440	2620	2790
	64	1870	2250	2560	2620	2825	2250	2560	2620	2825	3010
6	20	745	835	980	1010	1115	835	980	1010	1115	1160
	24	925	1050	1235	1280	1420	1050	1235	1280	1420	1475
	28	1115	1270	1490	1535	1695	1270	1490	1535	1695	1760
	32	1290	1490	1750	1810	2000	1490	1750	1810	2000	2075
	36	1480	1700	2000	2075	2285	1700	2000	2075	2285	2380
	40	1670	1925	2255	2345	2585	1925	2255	2345	2585	2685
	44	1855	2135	2510	2610	2870	2135	2510	2610	2870	2985
	48	2040	2360	2765	2865	3150	2360	2765	2865	3150	3290
	52	2240	2575	3015	3115	3430	2575	3015	3115	3430	3565
	56	2415	2795	3275	3390	3730	2795	3275	3390	3730	3890
	60	2620	3005	3520	3645	4010	3005	3520	3645	4010	4175
	64	2805	3230	3780	3925	4315	3230	3780	3925	4315	4505
8	20	925	1045	1160	1180	1280	1045	1160	1180	1280	1335
	24	1175	1325	1465	1510	1635	1325	1465	1510	1635	1715
	28	1470	1600	1765	1815	1960	1600	1765	1815	1960	2055
	32	1740	1885	2075	2140	2315	1885	2075	2140	2315	2430
	36	2005	2160	2390	2460	2655	2160	2390	2460	2655	2790
	40	2270	2445	2705	2775	3005	2445	2705	2775	3005	3140
	44	2540	2720	3005	3090	3345	2720	3005	3090	3345	3495
	48	2750	2975	3310	3405	3700	2975	3310	3405	3700	3865
	52	3095	3275	3605	3705	4010	3275	3605	3705	4010	4175
	56	3360	3565	3930	4040	4370	3565	3930	4040	4370	4565
	60	3625	3830	4215	4335	4685	3830	4215	4335	4685	4880
	64	3860	4110	4545	4675	5050	4110	4545	4675	5050	5265

## 120°F AVERAGE WATER TEMP (65°F ENTERING AIR TEMP)

DEPTH IN INCHES	LENGTH IN INCHES	SLOPE TOP, FREE STANDING, NOMINAL HEIGHT TYPE SF-A					SLOPE TOP, WALL MOUNTED, NOMINAL HEIGHT TYPE SW-A				
		18"	20"	24"	26"	32"	14"	18"	20"	26"	32"
4	20	645	675	720	740	765	675	720	740	765	805
	24	830	855	910	940	980	855	910	940	980	1015
	28	995	1035	1100	1125	1175	1035	1100	1125	1175	1220
	32	1175	1220	1295	1325	1390	1220	1295	1325	1390	1445
	36	1360	1395	1485	1525	1600	1395	1485	1525	1600	1670
	40	1530	1575	1685	1725	1805	1575	1685	1725	1805	1865
	44	1690	1755	1870	1920	2010	1755	1870	1920	2010	2085
	48	1870	1930	2065	2115	2215	1930	2065	2115	2215	2295
	52	2030	2105	2240	2285	2400	2105	2240	2285	2400	2495
	56	2215	2285	2450	2495	2620	2285	2450	2495	2620	2720
	60	2360	2460	2620	2670	2805	2460	2620	2670	2805	2945
	64	2530	2645	2830	2880	3025	2645	2830	2880	3025	3200
6	20	1005	1035	1145	1170	1250	1035	1145	1170	1250	1310
	24	1250	1315	1445	1490	1600	1315	1445	1490	1600	1650
	28	1500	1585	1740	1785	1915	1585	1740	1785	1915	2000
	32	1735	1865	2050	2100	2265	1865	2050	2100	2265	2330
	36	2050	2135	2340	2415	2590	2135	2340	2415	2590	2670
	40	2295	2415	2640	2715	2915	2415	2640	2715	2915	3025
	44	2575	2685	2940	3015	3255	2685	2940	3015	3255	3375
	48	2835	2955	3230	3330	3575	2955	3230	3330	3575	3705
	52	3115	3225	3515	3615	3885	3225	3515	3615	3885	4045
	56	3440	3500	3830	3940	4235	3500	3830	3940	4235	4405
	60	3630	3760	4110	4225	4540	3760	4110	4225	4540	4730
	64	3875	4040	4430	4550	4890	4040	4430	4550	4890	5080
8	20	1265	1325	1410	1450	1555	1325	1410	1450	1555	1615
	24	1655	1690	1800	1850	1995	1690	1800	1850	1995	2070
	28	1985	2040	2165	2220	2395	2040	2165	2220	2395	2490
	32	2350	2400	2560	2620	2830	2400	2560	2620	2830	2940
	36	2705	2770	3050	3015	3250	2770	3050	3015	3250	3380
	40	3035	3120	3320	3410	3675	3120	3320	3410	3675	3815
	44	3400	3480	3685	3795	4085	3480	3685	3795	4085	4240
	48	3755	3835	4075	4120	4510	3835	4075	4120	4510	4685
	52	4075	4185	4430	4545	4905	4185	4430	4545	4905	5110
	56	4455	4545	4830	4955	5350	4545	4830	4955	5350	5570
	60	4770	4895	5175	5315	5740	4895	5175	5315	5740	5990
	64	5150	5265	5580	5735	6180	5265	5580	5735	6180	6440

Capacities in BTU.

Derating factors for inlet grilles, see Table 7.

\* For FWG-A units, use ratings for FS-A units and apply derate correction factor from Table 7.

## 130°F AVERAGE WATER TEMP (65°F ENTERING AIR TEMP)

DEPTH IN INCHES	LENGTH IN INCHES	FRONT OUTLET, NOMINAL LINER HEIGHT *TYPE FS-A, SR-A, RF-A, PW-A					FRONT OUTLET, WALL MOUNTED, NOM. HEIGHT TYPE W-A				
		18"	20"	24"	26"	32"	14"	18"	20"	26"	32"
4	20	645	725	820	850	905	725	820	850	905	945
	24	800	910	1050	1080	1155	910	1050	1080	1155	1205
	28	960	1105	1260	1295	1385	1105	1260	1295	1385	1460
	32	1120	1300	1480	1525	1645	1300	1480	1525	1645	1725
	36	1265	1495	1705	1745	1885	1495	1705	1745	1885	1990
	40	1420	1685	1915	1970	2125	1685	1915	1970	2125	2240
	44	1575	1880	2145	2190	2365	1880	2145	2190	2365	2505
	48	1725	2060	2350	2420	2605	2060	2350	2420	2605	2765
	52	1900	2260	2570	2630	2825	2260	2570	2630	2825	3000
	56	2040	2450	2790	2860	3085	2450	2790	2860	3085	3280
	60	2220	2645	3000	3075	3305	2645	3000	3075	3305	3515
64	2360	2840	3230	3305	3565	2840	3230	3305	3565	3795	
6	20	940	1050	1235	1275	1405	1050	1235	1275	1405	1460
	24	1170	1320	1560	1615	1790	1320	1560	1615	1790	1860
	28	1405	1600	1880	1935	2135	1600	1880	1935	2135	2220
	32	1630	1880	2205	2280	2520	1880	2205	2280	2520	2615
	36	1865	2145	2520	2615	2880	2145	2520	2615	2880	3000
	40	2105	2430	2845	2960	3255	2430	2845	2960	3255	3385
	44	2340	2695	3165	3290	3620	2695	3165	3290	3620	3765
	48	2575	2975	3485	3610	3975	2975	3485	3610	3975	4150
	52	2825	3245	3800	3925	4320	3245	3800	3925	4320	4495
	56	3050	3520	4125	4275	4705	3520	4125	4275	4705	4905
	60	3305	3785	4440	4595	5055	3785	4440	4595	5055	5260
64	3535	4070	4770	4950	5445	4070	4770	4950	5445	5680	
8	20	1170	1315	1460	1490	1615	1315	1460	1490	1615	1685
	24	1480	1670	1845	1905	2060	1670	1845	1905	2060	2165
	28	1850	2020	2225	2290	2470	2020	2225	2290	2470	2590
	32	2190	2375	2615	2700	2915	2375	2615	2700	2915	3060
	36	2525	2720	3015	3105	3350	2720	3015	3105	3350	3515
	40	2860	3085	3410	3500	3785	3085	3410	3500	3785	3960
	44	3200	3430	3785	3900	4220	3430	3785	3900	4220	4405
	48	3465	3750	4175	4295	4665	3750	4175	4295	4665	4870
	52	3905	4125	4545	4670	5055	4125	4545	4670	5055	5260
	56	4240	4495	4955	5095	5515	4495	4955	5095	5515	5755
	60	4575	4830	5315	5465	5910	4830	5315	5465	5910	6150
64	4865	5185	5730	5895	6370	5185	5730	5895	6370	6640	

## 130°F AVERAGE WATER TEMP (65°F ENTERING AIR TEMP)

DEPTH IN INCHES	LENGTH IN INCHES	SLOPE TOP, FREE STANDING, NOMINAL HEIGHT TYPE SF-A					SLOPE TOP, WALL MOUNTED, NOMINAL HEIGHT TYPE SW-A				
		18"	20"	24"	26"	32"	14"	18"	20"	26"	32"
4	20	815	850	905	930	965	850	905	930	965	1015
	24	1045	1080	1150	1185	1235	1080	1150	1185	1235	1280
	28	1255	1300	1385	1420	1480	1300	1385	1420	1480	1540
	32	1480	1540	1635	1670	1755	1540	1635	1670	1755	1825
	36	1710	1760	1870	1920	2020	1760	1870	1920	2020	2105
	40	1930	1985	2125	2180	2275	1985	2125	2180	2275	2350
	44	2130	2215	2360	2420	2535	2215	2360	2420	2535	2630
	48	2360	2435	2605	2665	2790	2435	2605	2665	2790	2895
	52	2560	2650	2825	2880	3030	2650	2825	2880	3030	3145
	56	2790	2880	3090	3145	3305	2880	3090	3145	3305	3430
	60	2975	3105	3305	3370	3535	3105	3305	3370	3535	3715
64	3185	3335	3570	3635	3815	3335	3570	3635	3815	4035	
6	20	1265	1310	1440	1475	1575	1310	1440	1475	1575	1650
	24	1575	1655	1825	1880	2020	1655	1825	1880	2020	2080
	28	1895	2000	2190	2250	2415	2000	2190	2250	2415	2520
	32	2185	2350	2580	2645	2855	2350	2580	2645	2855	2940
	36	2580	2695	2950	3040	3265	2695	2950	3040	3265	3370
	40	2895	3040	3325	3425	3675	3040	3325	3425	3675	3815
	44	3245	3385	3710	3800	4105	3385	3710	3800	4105	4255
	48	3575	3725	4070	4195	4510	3725	4070	4195	4510	4670
	52	3925	4065	4435	4560	4900	4065	4435	4560	4900	5100
	56	4335	4410	4830	4970	5340	4410	4830	4970	5340	5555
	60	4580	4740	5185	5325	5720	4740	5185	5325	5720	5965
64	4885	5095	5590	5735	6165	5095	5590	5735	6165	6405	
8	20	1595	1670	1775	1830	1965	1670	1775	1830	1965	2040
	24	2090	2130	2270	2330	2515	2130	2270	2330	2515	2610
	28	2505	2575	2730	2800	3020	2575	2730	2800	3020	3140
	32	2965	3030	3230	3305	3570	3030	3230	3305	3570	3710
	36	3410	3495	3840	3800	4100	3495	3840	3800	4100	4260
	40	3830	3930	4185	4300	4635	3930	4185	4300	4635	4810
	44	4290	4385	4650	4790	5150	4385	4650	4790	5150	5345
	48	4735	4835	5135	5190	5685	4835	5135	5190	5685	5910
	52	5135	5275	5585	5730	6185	5275	5585	5730	6185	6445
	56	5615	5730	6090	6250	6745	5730	6090	6250	6745	7020
	60	6015	6175	6530	6700	7240	6175	6530	6700	7240	7550
64	6495	6640	7035	7230	7795	6640	7035	7230	7795	8125	

Capacities in BTU.

Derating factors for inlet grilles, see Table 7.

\* For FWG-A units, use ratings for FS-A units and apply derate correction factor from Table 7.

# Convactor Hot Water Capacities

## 140°F AVERAGE WATER TEMP (65°F ENTERING AIR TEMP)

DEPTH IN INCHES	LENGTH IN INCHES	FRONT OUTLET, NOMINAL LINER HEIGHT *TYPE FS-A, SR-A, RF-A, PW-A					FRONT OUTLET, WALL MOUNTED, NOM. HEIGHT TYPE W-A				
		18"	20"	24"	26"	32"	14"	18"	20"	26"	32"
		4	20	780	875	990	1025	1090	875	990	1025
24	965		1100	1270	1300	1395	1100	1270	1300	1395	1455
28	1160		1335	1520	1565	1670	1335	1520	1565	1670	1765
32	1355		1570	1790	1840	1985	1570	1790	1840	1985	2085
36	1530		1805	2060	2110	2275	1805	2060	2110	2275	2405
40	1715		2035	2310	2375	2560	2035	2310	2375	2560	2705
44	1900		2270	2585	2645	2855	2270	2585	2645	2855	3025
48	2085		2485	2840	2925	3140	2485	2840	2925	3140	3335
52	2295		2730	3100	3175	3410	2730	3100	3175	3410	3620
56	2460		2960	3370	3455	3720	2960	3370	3455	3720	3955
60	2680		3190	3620	3715	3990	3190	3620	3715	3990	4240
64	2845		3425	3895	3990	4300	3425	3895	3990	4300	4580
6	20	1135	1270	1490	1535	1700	1270	1490	1535	1700	1765
	24	1410	1595	1880	1950	2160	1595	1880	1950	2160	2245
	28	1700	1930	2270	2335	2580	1930	2270	2335	2580	2680
	32	1965	2270	2665	2755	3040	2270	2665	2755	3040	3160
	36	2250	2585	3040	3160	3475	2585	3040	3160	3475	3620
	40	2540	2930	3435	3570	3930	2930	3435	3570	3930	4085
	44	2825	3250	3820	3970	4370	3250	3820	3970	4370	4545
	48	3110	3585	4210	4360	4795	3585	4210	4360	4795	5005
	52	3410	3915	4585	4735	5215	3915	4585	4735	5215	5425
	56	3680	4250	4980	5155	5680	4250	4980	5155	5680	5920
	60	3990	4570	5360	5545	6100	4570	5360	5545	6100	6350
	64	4265	4915	5755	5975	6570	4915	5755	5975	6570	6855
8	20	1410	1585	1765	1795	1950	1585	1765	1795	1950	2035
	24	1790	2015	2225	2300	2485	2015	2225	2300	2485	2615
	28	2235	2435	2690	2765	2980	2435	2690	2765	2980	3125
	32	2645	2865	3160	3260	3520	2865	3160	3260	3520	3695
	36	3050	3285	3635	3745	4040	3285	3635	3745	4040	4240
	40	3455	3720	4115	4225	4570	3720	4115	4225	4570	4780
	44	3865	4140	4570	4705	5090	4140	4570	4705	5090	5315
	48	4185	4525	5040	5185	5630	4525	5040	5185	5630	5880
	52	4715	4980	5485	5635	6100	4980	5485	5635	6100	6350
	56	5115	5425	5980	6150	6655	5425	5980	6150	6655	6950
	60	5520	5830	6415	6595	7130	5830	6415	6595	7130	7425
	64	5870	6260	6915	7115	7685	6260	6915	7115	7685	8015

## 140°F AVERAGE WATER TEMP (65°F ENTERING AIR TEMP)

DEPTH IN INCHES	LENGTH IN INCHES	SLOPE TOP, FREE STANDING, NOMINAL HEIGHT TYPE SF-A					SLOPE TOP, WALL MOUNTED, NOMINAL HEIGHT TYPE SW-A				
		18"	20"	24"	26"	32"	14"	18"	20"	26"	32"
		4	20	985	1025	1090	1125	1165	1025	1090	1125
24	1260		1300	1385	1430	1490	1300	1385	1430	1490	1545
28	1510		1570	1670	1715	1790	1570	1670	1715	1790	1855
32	1790		1855	1975	2015	2120	1855	1975	2015	2120	2200
36	2065		2125	2260	2320	2435	2125	2260	2320	2435	2540
40	2330		2395	2560	2630	2750	2395	2560	2630	2750	2840
44	2570		2670	2845	2925	3055	2670	2845	2925	3055	3175
48	2845		2940	3140	3215	3370	2940	3140	3215	3370	3495
52	3090		3200	3410	3475	3655	3200	3410	3475	3655	3795
56	3370		3475	3730	3795	3990	3475	3730	3795	3990	4140
60	3585		3745	3990	4065	4265	3745	3990	4065	4265	4485
64	3845		4025	4310	4385	4605	4025	4310	4385	4605	4870
6	20	1530	1580	1740	1780	1900	1580	1740	1780	1900	1990
	24	1900	2000	2200	2270	2435	2000	2200	2270	2435	2510
	28	2285	2410	2645	2715	2915	2410	2645	2715	2915	3040
	32	2635	2840	3115	3190	3445	2840	3115	3190	3445	3545
	36	3115	3250	3560	3670	3940	3250	3560	3670	3940	4065
	40	3495	3670	4015	4135	4435	3670	4015	4135	4435	4605
	44	3915	4085	4475	4585	4955	4085	4475	4585	4955	5135
	48	4315	4495	4915	5065	5445	4495	4915	5065	5445	5635
	52	4735	4905	5350	5500	5915	4905	5350	5500	5915	6155
	56	5235	5325	5830	5995	6445	5325	5830	5995	6445	6705
	60	5525	5720	6260	6425	6905	5720	6260	6425	6905	7200
	64	5900	6150	6745	6920	7445	6150	6745	6920	7445	7730
8	20	1925	2015	2140	2210	2370	2015	2140	2210	2370	2460
	24	2520	2570	2740	2815	3035	2570	2740	2815	3035	3150
	28	3025	3110	3295	3380	3645	3110	3295	3380	3645	3790
	32	3580	3655	3895	3990	4310	3655	3895	3990	4310	4475
	36	4115	4220	4640	4585	4945	4220	4640	4585	4945	5140
	40	4620	4745	5050	5190	5595	4745	5050	5190	5595	5805
	44	5175	5290	5610	5780	6215	5290	5610	5780	6215	6450
	48	5710	5840	6200	6265	6865	5840	6200	6265	6865	7130
	52	6200	6365	6740	6915	7465	6365	6740	6915	7465	7780
	56	6780	6915	7350	7540	8140	6915	7350	7540	8140	8475
	60	7255	7450	7880	8090	8735	7450	7880	8090	8735	9115
	64	7835	8015	8495	8725	9410	8015	8495	8725	9410	9805

Capacities in BTU.

Derating factors for inlet grilles, see Table 7.

24 \* For FWG-A units, use ratings for FS-A units and apply derate correction factor from Table 7.



## 150°F AVERAGE WATER TEMP (65°F ENTERING AIR TEMP)

DEPTH IN INCHES	LENGTH IN INCHES	FRONT OUTLET, NOMINAL LINER HEIGHT *TYPE FS-A, SR-A, RF-A, PW-A					FRONT OUTLET, WALL MOUNTED, NOM. HEIGHT TYPE W-A				
		18"	20"	24"	26"	32"	14"	18"	20"	26"	32"
4	20	960	1075	1215	1260	1340	1075	1215	1260	1340	1405
	24	1185	1350	1560	1600	1715	1350	1560	1600	1715	1785
	28	1425	1640	1870	1920	2055	1640	1870	1920	2055	2165
	32	1660	1930	2195	2260	2435	1930	2195	2260	2435	2560
	36	1880	2220	2530	2590	2795	2220	2530	2590	2795	2950
	40	2105	2500	2840	2920	3150	2500	2840	2920	3150	3325
	44	2335	2785	3180	3250	3510	2785	3180	3250	3510	3715
	48	2560	3055	3485	3590	3860	3055	3485	3590	3860	4100
	52	2815	3355	3810	3900	4190	3355	3810	3900	4190	4450
	56	3025	3635	4140	4240	4570	3635	4140	4240	4570	4860
	60	3290	3920	4450	4560	4900	3920	4450	4560	4900	5210
	64	3500	4210	4790	4900	5285	4210	4790	4900	5285	5625
6	20	1395	1560	1830	1890	2085	1560	1830	1890	2085	2165
	24	1735	1960	2310	2395	2655	1960	2310	2395	2655	2755
	28	2085	2375	2785	2870	3170	2375	2785	2870	3170	3290
	32	2415	2785	3270	3385	3735	2785	3270	3385	3735	3880
	36	2765	3180	3735	3880	4270	3180	3735	3880	4270	4450
	40	3120	3600	4220	4385	4830	3600	4220	4385	4830	5015
	44	3470	3995	4695	4880	5365	3995	4695	4880	5365	5585
	48	3820	4410	5170	5355	5895	4410	5170	5355	5895	6150
	52	4190	4810	5635	5820	6410	4810	5635	5820	6410	6665
	56	4520	5220	6120	6335	6975	5220	6120	6335	6975	7275
	60	4900	5615	6585	6810	7495	5615	6585	6810	7495	7800
	64	5240	6035	7070	7340	8070	6035	7070	7340	8070	8420
8	20	1735	1950	2165	2210	2395	1950	2165	2210	2395	2500
	24	2195	2475	2735	2825	3055	2475	2735	2825	3055	3210
	28	2745	2995	3300	3395	3665	2995	3300	3395	3665	3840
	32	3250	3520	3880	4005	4325	3520	3880	4005	4325	4540
	36	3745	4035	4470	4605	4965	4035	4470	4605	4965	5210
	40	4240	4570	5055	5190	5615	4570	5055	5190	5615	5870
	44	4745	5085	5615	5780	6255	5085	5615	5780	6255	6530
	48	5140	5560	6190	6370	6915	5560	6190	6370	6915	7225
	52	5790	6120	6740	6925	7495	6120	6740	6925	7495	7800
	56	6285	6665	7350	7555	8175	6665	7350	7555	8175	8535
	60	6780	7160	7885	8100	8760	7160	7885	8100	8760	9120
	64	7215	7690	8495	8740	9445	7690	8495	8740	9445	9845

## 150°F AVERAGE WATER TEMP (65°F ENTERING AIR TEMP)

DEPTH IN INCHES	LENGTH IN INCHES	SLOPE TOP, FREE STANDING, NOMINAL HEIGHT TYPE SF-A					SLOPE TOP, WALL MOUNTED, NOMINAL HEIGHT TYPE SW-A				
		18"	20"	24"	26"	32"	14"	18"	20"	26"	32"
4	20	1210	1260	1340	1380	1435	1260	1340	1380	1435	1505
	24	1550	1600	1705	1755	1830	1600	1705	1755	1830	1900
	28	1860	1930	2055	2105	2195	1930	2055	2105	2195	2280
	32	2195	2280	2425	2475	2600	2280	2425	2475	2600	2705
	36	2540	2610	2775	2850	2995	2610	2775	2850	2995	3120
	40	2860	2940	3150	3230	3375	2940	3150	3230	3375	3485
	44	3160	3280	3500	3590	3755	3280	3500	3590	3755	3900
	48	3500	3610	3860	3950	4140	3610	3860	3950	4140	4295
	52	3795	3930	4190	4270	4490	3930	4190	4270	4490	4665
	56	4140	4270	4580	4665	4900	4270	4580	4665	4900	5085
	60	4410	4605	4900	4995	5240	4605	4900	4995	5240	5510
	64	4725	4945	5295	5390	5655	4945	5295	5390	5655	5985
6	20	1880	1940	2135	2190	2335	1940	2135	2190	2335	2445
	24	2335	2455	2705	2785	2995	2455	2705	2785	2995	3085
	28	2810	2965	3250	3335	3580	2965	3250	3335	3580	3735
	32	3240	3485	3830	3920	4230	3485	3830	3920	4230	4355
	36	3830	3995	4375	4510	4840	3995	4375	4510	4840	4995
	40	4295	4510	4930	5080	5450	4510	4930	5080	5450	5655
	44	4810	5015	5500	5635	6090	5015	5500	5635	6090	6305
	48	5305	5520	6035	6220	6685	5520	6035	6220	6685	6925
	52	5820	6025	6575	6760	7265	6025	6575	6760	7265	7565
	56	6430	6540	7160	7370	7915	6540	7160	7370	7915	8235
	60	6790	7030	7690	7895	8485	7030	7690	7895	8485	8845
	64	7245	7555	8285	8505	9145	7555	8285	8505	9145	9495
8	20	2365	2475	2630	2715	2910	2475	2630	2715	2910	3025
	24	3095	3160	3365	3455	3725	3160	3365	3455	3725	3870
	28	3715	3820	4045	4150	4480	3820	4045	4150	4480	4655
	32	4395	4490	4790	4900	5295	4490	4790	4900	5295	5500
	36	5055	5180	5700	5835	6080	5180	5700	5835	6080	6315
	40	5675	5830	6205	6375	6875	5830	6205	6375	6875	7130
	44	6360	6500	6895	7100	7635	6500	6895	7100	7635	7925
	48	7020	7170	7615	7700	8430	7170	7615	7700	8430	8760
	52	7615	7820	8280	8495	9175	7820	8280	8495	9175	9555
	56	8330	8495	9030	9265	10000	8495	9030	9265	10000	10410
	60	8915	9155	9680	9935	10735	9155	9680	9935	10735	11195
	64	9630	9845	10435	10720	11560	9845	10435	10720	11560	12045

Capacities in BTU.

Derating factors for inlet grilles, see Table 7.

\* For FWG-A units, use ratings for FS-A units and apply derate correction factor from Table 7.

# Convector Steam Ratings

**TABLE 1**

**STEAM RATINGS IN EDR (215°F AT 65°F EAT)**

DEPTH IN INCHES	LENGTH IN INCHES	FRONT OUTLET, NOMINAL LINER HEIGHT					FRONT OUTLET, WALL MOUNTED, NOM. HEIGHT				
		*TYPES FS-A, SR-A, RF-A, PW-A					TYPE W-A				
		18"	20"	24"	26"	32"	14"	18"	20"	26"	32"
4	20	9.3	10.4	11.8	12.2	13.0	10.4	11.8	12.2	13.0	13.6
	24	11.5	13.1	15.1	15.5	16.6	13.1	15.1	15.5	16.6	17.3
	28	13.8	15.9	18.1	18.6	19.9	15.9	18.1	18.6	19.9	21.0
	32	16.1	18.7	21.3	21.9	23.6	18.7	21.3	21.9	23.6	24.8
	36	18.2	21.5	24.5	25.1	27.1	21.5	24.5	25.1	27.1	28.6
	40	20.4	24.2	27.5	28.3	30.5	24.2	27.5	28.3	30.5	32.2
	44	22.6	27.0	30.8	31.5	34.0	27.0	30.8	31.5	34.0	36.0
	48	24.8	29.6	33.8	34.8	37.4	29.6	33.8	34.8	37.4	39.7
	52	27.3	32.5	36.9	37.8	40.6	32.5	36.9	37.8	40.6	43.1
	56	29.3	35.2	40.1	41.1	44.3	35.2	40.1	41.1	44.3	47.1
60	31.9	38.0	43.1	44.2	47.5	38.0	43.1	44.2	47.5	50.5	
64	33.9	40.8	46.4	47.5	51.2	40.8	46.4	47.5	51.2	54.5	
6	20	13.5	15.1	17.7	18.3	20.2	15.1	17.7	18.3	20.2	21.0
	24	16.8	19.0	22.4	23.2	25.7	19.0	22.4	23.2	25.7	26.7
	28	20.2	23.0	27.0	27.8	30.7	23.0	27.0	27.8	30.7	31.9
	32	23.4	27.0	31.7	32.8	36.2	27.0	31.7	32.8	36.2	37.6
	36	26.8	30.8	36.2	37.6	41.4	30.8	36.2	37.6	41.4	43.1
	40	30.2	34.9	40.9	42.5	46.8	34.9	40.9	42.5	46.8	48.6
	44	33.6	38.7	45.5	47.3	52.0	38.7	45.5	47.3	52.0	54.1
	48	37.0	42.7	50.1	51.9	57.1	42.7	50.1	51.9	57.1	59.6
	52	40.6	46.6	54.6	56.4	62.1	46.6	54.6	56.4	62.1	64.6
	56	43.8	50.6	59.3	61.4	67.6	50.6	59.3	61.4	67.6	70.5
60	47.5	54.4	63.8	66.0	72.6	54.4	63.8	66.0	72.6	75.6	
64	50.8	58.5	68.5	71.1	78.2	58.5	68.5	71.1	78.2	81.6	
8	20	16.8	18.9	21.0	21.4	23.2	18.9	21.0	21.4	23.2	24.2
	24	21.3	24.0	26.5	27.4	29.6	24.0	26.5	27.4	29.6	31.1
	28	26.6	29.0	32.0	32.9	35.5	29.0	32.0	32.9	35.5	37.2
	32	31.5	34.1	37.6	38.8	41.9	34.1	37.6	38.8	41.9	44.0
	36	36.3	39.1	43.3	44.6	48.1	39.1	43.3	44.6	48.1	50.5
	40	41.1	44.3	49.0	50.3	54.4	44.3	49.0	50.3	54.4	56.9
	44	46.0	49.3	54.4	56.0	60.6	49.3	54.4	56.0	60.6	63.3
	48	49.8	53.9	60.0	61.7	67.0	53.9	60.0	61.7	67.0	70.0
	52	56.1	59.3	65.3	67.1	72.6	59.3	65.3	67.1	72.6	75.6
	56	60.9	64.6	71.2	73.2	79.2	64.6	71.2	73.2	79.2	82.7
60	65.7	69.4	76.4	78.5	84.9	69.4	76.4	78.5	84.9	88.4	
64	69.9	74.5	82.3	84.7	91.5	74.5	82.3	84.7	91.5	95.4	

**TABLE 1A**

**STEAM RATINGS IN BTU/H (215°F AT 65°F EAT)**

DEPTH IN INCHES	LENGTH IN INCHES	FRONT OUTLET, NOMINAL LINER HEIGHT					FRONT OUTLET, WALL MOUNTED, NOM. HEIGHT				
		*TYPES FS-A, SR-A, RF-A, PW-A					TYPE W-A				
		18"	20"	24"	26"	32"	14"	18"	20"	26"	32"
4	20	2230	2495	2830	2930	3120	2495	2830	2930	3120	3265
	24	2760	3145	3625	3720	3985	3145	3625	3720	3985	4150
	28	3310	3815	4345	4465	4775	3815	4345	4465	4775	5040
	32	3865	4490	5110	5255	5665	4490	5110	5255	5665	5950
	36	4370	5160	5880	6025	6505	5160	5880	6025	6505	6865
	40	4895	5810	6600	6790	7320	5810	6600	6790	7320	7730
	44	5425	6480	7390	7560	8160	6480	7390	7560	8160	8640
	48	5950	7105	8110	8350	8975	7105	8110	8350	8975	9530
	52	6550	7800	8855	9070	9745	7800	8855	9070	9745	10345
	56	7030	8450	9625	9865	10630	8450	9625	9865	10630	11305
60	7655	9120	10345	10610	11400	9120	10345	10610	11400	12120	
64	8135	9790	11135	11400	12290	9790	11135	11400	12290	13080	
6	20	3240	3625	4250	4390	4850	3625	4250	4390	4850	5040
	24	4030	4560	5375	5570	6170	4560	5375	5570	6170	6410
	28	4850	5520	6480	6670	7370	5520	6480	6670	7370	7655
	32	5615	6480	7610	7870	8690	6480	7610	7870	8690	9025
	36	6430	7390	8690	9025	9935	7390	8690	9025	9935	10345
	40	7250	8375	9815	10200	11230	8375	9815	10200	11230	11665
	44	8065	9290	10920	11350	12480	9290	10920	11350	12480	12985
	48	8880	10250	12025	12455	13705	10250	12025	12455	13705	14305
	52	9745	11185	13105	13535	14905	11185	13105	13535	14905	15505
	56	10510	12145	14230	14735	16225	12145	14230	14735	16225	16920
60	11400	13055	15310	15840	17425	13055	15310	15840	17425	18145	
64	12190	14040	16440	17065	18770	14040	16440	17065	18770	19585	
8	20	4030	4535	5040	5135	5570	4535	5040	5135	5570	5810
	24	5110	5760	6360	6575	7105	5760	6360	6575	7105	7465
	28	6385	6960	7680	7895	8520	6960	7680	7895	8520	8930
	32	7560	8185	9025	9310	10055	8185	9025	9310	10055	10560
	36	8710	9385	10390	10705	11545	9385	10390	10705	11545	12120
	40	9865	10630	11760	12070	13055	10630	11760	12070	13055	13655
	44	11040	11830	13055	13440	14545	11830	13055	13440	14545	15190
	48	11950	12935	14400	14810	16080	12935	14400	14810	16080	16800
	52	13465	14230	15670	16105	17425	14230	15670	16105	17425	18145
	56	14615	15505	17090	17570	19010	15505	17090	17570	19010	19850
60	15770	16655	18335	18840	20375	16655	18335	18840	20375	21215	
64	16775	17880	19750	20330	21960	17880	19750	20330	21960	22895	

26 \* Derating factors for inlet grilles, see Table 7. For FWG-A units, use ratings for FS-A units and apply derate correction factors from table 7.

**TABLE 2**
**STEAM RATINGS IN EDR (215°F AT 65°F EAT)**

DEPTH IN INCHES	LENGTH IN INCHES	SLOPE TOP, FREE STANDING, NOMINAL HEIGHT					SLOPE TOP, WALL MOUNTED, NOMINAL HEIGHT				
		*TYPE SF-A					TYPE SW-A				
		18"	20"	24"	26"	32"	14"	18"	20"	26"	32"
4	20	11.7	12.2	13.0	13.4	13.9	12.2	13.0	13.4	13.9	14.6
	24	15.0	15.5	16.5	17.0	17.7	15.5	16.5	17.0	17.7	18.4
	28	18.0	18.7	19.9	20.4	21.3	18.7	19.9	20.4	21.3	22.1
	32	21.3	22.1	23.5	24.0	25.2	22.1	23.5	24.0	25.2	26.2
	36	24.6	25.3	26.9	27.6	29.0	25.3	26.9	27.6	29.0	30.2
	40	27.7	28.5	30.5	31.3	32.7	28.5	30.5	31.3	32.7	33.8
	44	30.6	31.8	33.9	34.8	36.4	31.8	33.9	34.8	36.4	37.8
	48	33.9	35.0	37.4	38.3	40.1	35.0	37.4	38.3	40.1	41.6
	52	36.8	38.1	40.6	41.4	43.5	38.1	40.6	41.4	43.5	45.2
	56	40.1	41.4	44.4	45.2	47.5	41.4	44.4	45.2	47.5	49.3
60	42.7	44.6	47.5	48.4	50.8	44.6	47.5	48.4	50.8	53.4	
64	45.8	47.9	51.3	52.2	54.8	47.9	51.3	52.2	54.8	58.0	
6	20	18.2	18.8	20.7	21.2	22.6	18.8	20.7	21.2	22.6	23.7
	24	22.6	23.8	26.2	27.0	29.0	23.8	26.2	27.0	29.0	29.9
	28	27.2	28.7	31.5	32.3	34.7	28.7	31.5	32.3	34.7	36.2
	32	31.4	33.8	37.1	38.0	41.0	33.8	37.1	38.0	41.0	42.2
	36	37.1	38.7	42.4	43.7	46.9	38.7	42.4	43.7	46.9	48.4
	40	41.6	43.7	47.8	49.2	52.8	43.7	47.8	49.2	52.8	54.8
	44	46.6	48.6	53.3	54.6	59.0	48.6	53.3	54.6	59.0	61.1
	48	51.4	53.5	58.5	60.3	64.8	53.5	58.5	60.3	64.8	67.1
	52	56.4	58.4	63.7	65.5	70.4	58.4	63.7	65.5	70.4	73.3
	56	62.3	63.4	69.4	71.4	76.7	63.4	69.4	71.4	76.7	79.8
60	65.8	68.1	74.5	76.5	82.2	68.1	74.5	76.5	82.2	85.7	
64	70.2	73.2	80.3	82.4	88.6	73.2	80.3	82.4	88.6	92.0	
8	20	22.9	24.0	25.5	26.3	28.2	24.0	25.5	26.3	28.2	29.3
	24	30.0	30.6	32.6	33.5	36.1	30.6	32.6	33.5	36.1	37.5
	28	36.0	37.0	39.2	40.2	43.4	37.0	39.2	40.2	43.4	45.1
	32	42.6	43.5	46.4	47.5	51.3	43.5	46.4	47.5	51.3	53.3
	36	49.0	50.2	55.2	54.6	58.9	50.2	55.2	54.6	58.9	61.2
	40	55.0	56.5	60.1	61.8	66.6	56.5	60.1	61.8	66.6	69.1
	44	61.6	63.0	66.8	68.8	74.0	63.0	66.8	68.8	74.0	76.8
	48	68.0	69.5	73.8	74.6	81.7	69.5	73.8	74.6	81.7	84.9
	52	73.8	75.8	80.2	82.3	88.9	75.8	80.2	82.3	88.9	92.6
	56	80.7	82.3	87.5	89.8	96.9	82.3	87.5	89.8	96.9	100.9
60	86.4	88.7	93.8	96.3	104.0	88.7	93.8	96.3	104.0	108.5	
64	93.3	95.4	101.1	103.9	112.0	95.4	101.1	103.9	112.0	116.7	

**TABLE 2A**
**STEAM RATINGS IN BTU/H (215°F AT 65°F EAT)**

DEPTH IN INCHES	LENGTH IN INCHES	SLOPE TOP, FREE STANDING, NOMINAL HEIGHT					SLOPE TOP, WALL MOUNTED, NOMINAL HEIGHT				
		*TYPE SF-A					TYPE SW-A				
		18"	20"	24"	26"	32"	14"	18"	20"	26"	32"
4	20	2810	2930	3120	3215	3335	2930	3120	3215	3335	3505
	24	3600	3720	3960	4080	4250	3720	3960	4080	4250	4415
	28	4320	4490	4775	4895	5110	4490	4775	4895	5110	5305
	32	5110	5305	5640	5760	6050	5305	5640	5760	6050	6290
	36	5905	6070	6455	6625	6960	6070	6455	6625	6960	7250
	40	6650	6840	7320	7510	7850	6840	7320	7510	7850	8110
	44	7345	7630	8135	8350	8735	7630	8135	8350	8735	9070
	48	8135	8400	8975	9190	9625	8400	8975	9190	9625	9985
	52	8830	9145	9745	9935	10440	9145	9745	9935	10440	10850
	56	9625	9935	10655	10850	11400	9935	10655	10850	11400	11830
60	10250	10705	11400	11615	12190	10705	11400	11615	12190	12815	
64	10990	11495	12310	12530	13150	11495	12310	12530	13150	13920	
6	20	4370	4510	4970	5090	5425	4510	4970	5090	5425	5690
	24	5425	5710	6290	6480	6960	5710	6290	6480	6960	7175
	28	6530	6890	7560	7750	8330	6890	7560	7750	8330	8690
	32	7535	8110	8905	9120	9840	8110	8905	9120	9840	10130
	36	8905	9290	10175	10490	11255	9290	10175	10490	11255	11615
	40	9985	10490	11470	11810	12670	10490	11470	11810	12670	13150
	44	11185	11665	12790	13105	14160	11665	12790	13105	14160	14665
	48	12335	12840	14040	14470	15550	12840	14040	14470	15550	16105
	52	13535	14015	15290	15720	16895	14015	15290	15720	16895	17590
	56	14950	15215	16655	17135	18410	15215	16655	17135	18410	19150
60	15790	16345	17880	18360	19730	16345	17880	18360	19730	20570	
64	16850	17570	19270	19775	21265	17570	19270	19775	21265	22080	
8	20	5495	5760	6120	6310	6770	5760	6120	6310	6770	7030
	24	7200	7345	7825	8040	8665	7345	7825	8040	8665	9000
	28	8640	8880	9410	9650	10415	8880	9410	9650	10415	10825
	32	10225	10440	11135	11400	12310	10440	11135	11400	12310	12790
	36	11760	12050	13250	13105	14135	12050	13250	13105	14135	14690
	40	13200	13560	14425	14830	15985	13560	14425	14830	15985	16585
	44	14785	15120	16030	16510	17760	15120	16030	16510	17760	18430
	48	16320	16680	17710	17905	19610	16680	17710	17905	19610	20375
	52	17710	18190	19250	19750	21335	18190	19250	19750	21335	22225
	56	19370	19750	21000	21550	23255	19750	21000	21550	23255	24215
60	20735	21290	22510	23110	24960	21290	22510	23110	24960	26040	
64	22390	22895	24265	24935	26880	22895	24265	24935	26880	28010	

\* Derating factors for inlet grilles, see Table 7.

# Convector Capacity & Selection Data

## SELECTION

1. Determine the conditions of the system. (If hot water, the average temperature, temp. drop, etc.)
2. Determine the MBH capacity of the unit as required for each location as shown on plans or based on heat loss calculations.
3. Refer to the hot water capacity tables on page 20 thru 23 which list capacities at the conditions for the job, for the model convector required.
4. Locate in table the required capacity and read convector size from columns showing Depth, Length, Height.
5. To calculate ratings for temperatures not listed, use correction factors from Table 3 for desired AWT and multiply by 215°F rating.

**TABLE 4**

CORRECTION FACTORS FOR STEAM PRESSURES OTHER THAN 1 PSI GAUGE*						
	PRESSURE PSI GAUGE					
	5	10	15	20	25	50
<b>FACTOR</b>	1.12	1.25	1.36	1.46	1.56	1.93
<b>BTU PER SQ. FT.</b>	269	301	327	351	374	463

\*Apply factor to Tables 1, 1A, 2 and 2A (pages 24 & 25) to obtain rating at other than 1 psi gauge.

Note: Max Recommended operating pressure 150 PSIG, (365.9°F).  
For conversion from steam to hot water, use table factors as multiplier rather than a divisor.

**TABLE 5**

DERATING PERCENTAGE REDUCTION TABLE								
Length	Free Standing, Non-Recessed Non-Standard Access Door Locations				Semi-Recessed or Recessed Non-Standard Access Door Locations			
	3 or 4	3 & 4	5 or 6	5 & 6	3 or 4	3 & 4	5 or 6	5 & 6
20"	6%	12%	18%	35%	2.5%	5%	7.5%	15%
24"	5	9	14	28	2	4	6	12
28"	4	8	11	23	1.8	3.2	5.2	9.8
32"	3	6	11	20	1.5	2.8	4.5	8.2
36"	3	6	8	17	1.2	2.5	3.8	7.5
40"	3	5	8	15	1	2.2	3	6.8
44"	2	5	7	14	1	2	3	6
48"	2	4	6	12	1	1.8	3	5.2
52"	2	4	5	11	.8	1.5	2.2	4.5
56"	2	4	5	11	.8	1.5	2.2	4.5
60"	2	3	5	10	.8	1.5	2.2	4.5
64"	2	3	5	9	.8	1.2	2.2	3.8

Note: Derating factors do not apply to units with end pockets.

**TABLE 6**

WATER FLOW IN GPM	PRESSURE LOSS IN FEET OF WATER		
	4 INCH MODELS	6 INCH MODELS	8 INCH MODELS
.25	0.044	—	—
.50	0.160	0.070	0.046
1	0.597	0.270	0.167
2	2.220	1.047	0.616
3	—	2.260	1.367
4	—	3.793	2.380
5	—	—	3.673

Charted figures showing pressure drop through Convectors with forced hot water. Used for determining pressure head requirement. Based on 64" length units, but applicable to shorter units, as most loss is due to headers.

**TABLE 3**

CONVECTOR CORRECTION FACTORS Based on ASHRAE HVAC Systems and Equipment					
AVERAGE WATER TEMPERATURE	ENTERING AIR TEMPERATURE				
	55°F	60°F	STD. 65°F	70°F	75°F
100°F	0.17	0.14	0.12	0.09	0.07
110°F	0.23	0.20	0.17	0.14	0.12
120°F	0.29	0.26	0.23	0.20	0.17
130°F	0.35	0.32	0.29	0.26	0.23
140°F	0.43	0.39	0.35	0.32	0.29
150°F	0.50	0.46	0.43	0.39	0.35
160°F	0.58	0.54	0.51	0.47	0.43
170°F	0.67	0.63	0.58	0.54	0.51
180°F	0.76	0.71	0.67	0.63	0.58
190°F	0.85	0.81	0.76	0.71	0.67
200°F	0.95	0.90	0.85	0.81	0.76
210°F	1.05	1.00	0.95	0.90	0.85
215°F (STD) ▶	1.10	1.05	1.00	0.95	0.90
220°F	1.15	1.10	1.05	1.00	0.95
230°F	1.26	1.20	1.15	1.10	1.05
240°F	1.37	1.32	1.26	1.21	1.15
250°F	1.47	1.43	1.37	1.32	1.27

**TABLE 7**

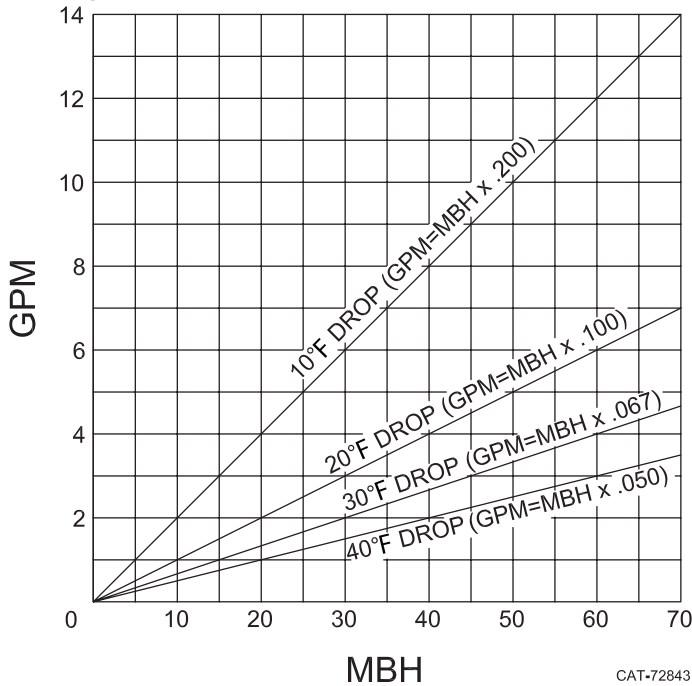
DERATING FACTORS FOR INLET GRILLES			
TYPES: FSG-A, SRG-A, RFG-A, FWG-A, PWG-A, SFG-A			
HEIGHT	DEPTH		
	4	6	8
20"	3%	6%	9%
24"	2%	5%	7%
32"	1%	2%	3%

Refer: All Tables Pages 20-25

Due to the restriction to air flow, the percentages should be subtracted from the BTU output when inlet grilles are specified.

## GALLONS PER MINUTE OF HOT WATER REQUIRED

**TABLE 8**



The chart above may be used to determine the approximate GPM required for the desired MBH with various water temperature drops. Formulas shown in chart with temperature drops may also be used for determining GPM.

EXAMPLE:  $\left\{ \begin{array}{ll} \text{MBH} & 15 \\ \text{Temperature drop} & 10^\circ\text{F} \\ \text{Factor from formula} & .200 \\ 15 \times .200 = 3.0 \text{ GPM} \end{array} \right.$

Where systems are designed for low flow rates (velocity) it has been determined by ASHRAE and the Hydronics Institute (I.B.R.) that a minimum flow rate of .25 F.P.S. should be observed. No formal test information is available for performance below the .25 F.P.S. at this point in time.

REF:

$$\begin{aligned} \text{BTU} &= \text{GPM} \times 500 \times \text{TD} \\ \text{GPM} &= (\text{BTU} \div 500) \div \text{TD} \\ \text{TD} &= (\text{BTU} \div 500) \div \text{GPM} \end{aligned}$$

### CORRECTIONS WHEN USING GLYCOL SOLUTION IN SYSTEM

		<b>Propylene Glycol</b>
1. Heat transfer @ 180°F, with no increase in flow rate	20% solution	.982*
	30% solution	.961*
	40% solution	.934*
	50% solution	.902*
2. GPM req'd @ 180°F, (no correction to pump curve)	20°Δt	110%*
3. Pump head req'd @ 180°F, with increase in GPM		123%*
4. Freezing Point	50% by volume	-37°F -28°F
	40%	-14°F -13°F
	30%	+ 2°F + 4°F
	20%	+15°F +17°F

\*Compared To Water.

## OUTPUT-FLOW RATE CORRECTIONS

**TABLE 9**

Convactor Depth	Tubes per Element	Minimum Flow Rate (0.25 Ft./Sec.) GPM	MBH Based on TD & Minimum Flow Rate			
			10TD	20TD	30TD	40TD
4	2	.15	0.750	1.500	2.250	3.000
6	3	.225	1.125	2.250	3.375	4.500
8	4	.30	1.500	3.000	4.500	6.000

Note: Table 9 shows MBH which result at specific water temperature drops and minimum water flow rates which are required to maintain turbulent flow within element tubes. If the MBH output rating capacities shown on pages 20 to 23 fall below those shown in Table 9 for minimum flow rates, this indicates that the GPM required at a 20°F Water Temperature drop is less than the minimum GPM required to maintain turbulent flow.

Example: From page 22, 20°F water temperature drop  
110°F AWT, 65°F EAT  
Unit FSA-18, 8" deep, 24" long  
MBH=.87 (870BTU/1000)

This capacity rating is less than the MBH (3.000) shown in Table 9 for a 20°F TD and the minimum flow rate of .30 GPM. Applying the following formula to the example above, we may determine the GPM required for a 20°F TD at .87 MBH.

$$\text{GPM} = \frac{870 \text{ BTU}}{500 \times 20\text{TD}} \quad \text{GPM} = .087$$

Again, this GPM is too low to maintain turbulent flow within the element tubes. Therefore, use Min. GPM of .30 per Table 9. The water temperature drop which may be expected when using the Min. GPM can be determined used the following formula:

$$\text{TD} = \frac{870 \text{ BTU}}{500 \times .30} \quad \text{TD} = 5.8^\circ\text{F}$$

Note: By using the higher flow rate, a lower water temperature drop will be experienced. Because of this, the average water temperature will be higher and result in a somewhat higher output capacity. For many installations, the use of the minimum GPM from Table 9 will be satisfactory, without further consideration. However, if required, a closer approximation may be obtained by dividing by two and subtracting the result from the entering water temperature of 110°F.

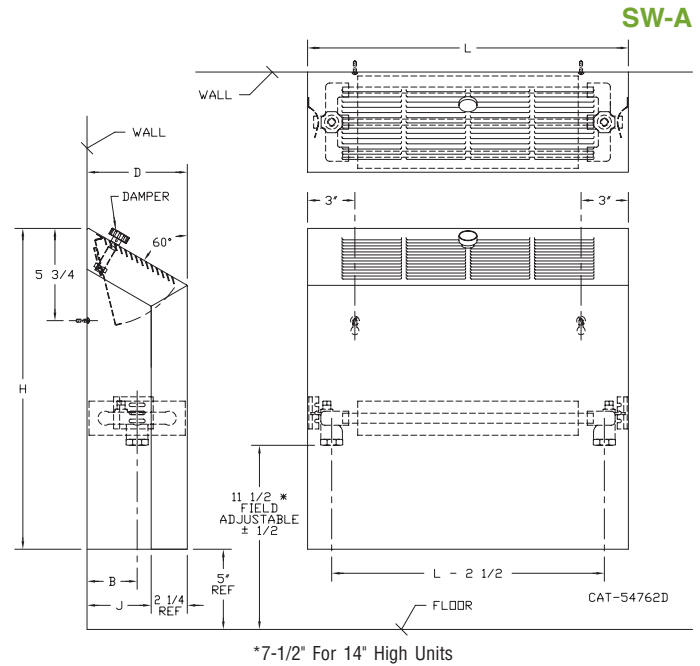
$$\text{i.e. } 110 - \frac{5.8}{2} = 107.1^\circ\text{F AWT}$$

Then, the new MBH rating may be determined by interpolation between the ratings shown on page 22 for the unit at 100°F AWT and 110°F AWT. In the above example, the new rating would be 794 BTU which would be very close to the actual performance without resorting to further iterations.

# Convactor Design/Installation Data

## TYPE SW-A

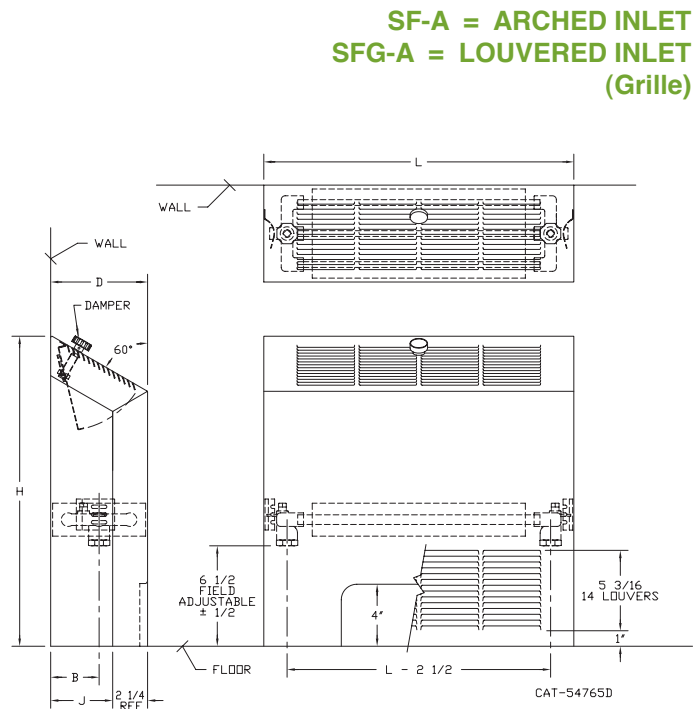
TABLE					
MODEL	D	L	H	B	J
4xx-14	4-1/4	20,24,28,	14	2-1/8	2
4xx-18		32,36,40,	18		
4xx-20		44,48,52,	20		
4xx-26		56,60,64,	26		
4xx-32			32		
6xx-14	6-1/4	20,24,28,	14	3-1/8	4
6xx-18		32,36,40,	18		
6xx-20		44,48,52,	20		
6xx-26		56,60,64,	26		
6xx-32			32		
8xx-14	8-1/4	20,24,28,	14	4-1/8	6
8xx-18		32,36,40,	18		
8xx-20		44,48,52,	20		
8xx-26		56,60,64,	26		
8xx-32			32		



NOTE: When adding end pockets liner and front length increase.

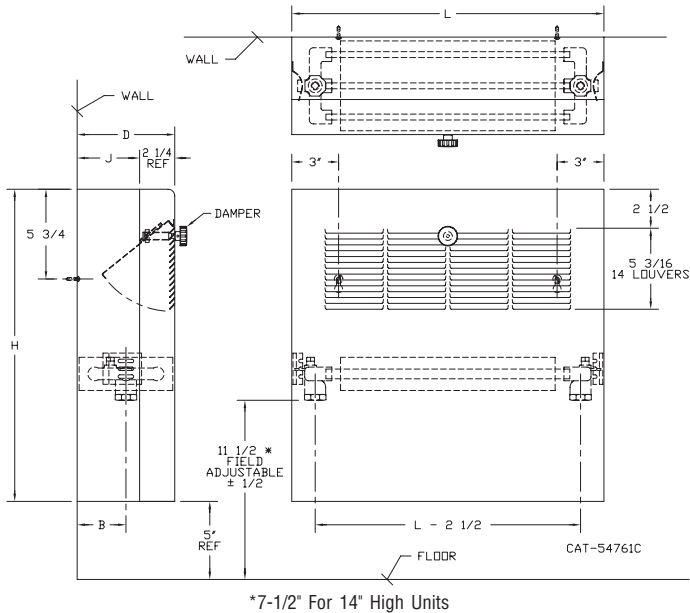
## TYPE SF-A / SFG-A

TABLE					
MODEL	D	L	H	B	J
4xx-18	4-1/4	20,24,28,	18	2-1/8	2
4xx-20		32,36,40,	20		
4xx-24		44,48,52,	24		
4xx-26		56,60,64,	26		
4xx-32			32		
6xx-18	6-1/4	20,24,28,	18	3-1/8	4
6xx-20		32,36,40,	20		
6xx-24		44,48,52,	24		
6xx-26		56,60,64,	26		
6xx-32			32		
8xx-18	8-1/4	20,24,28,	18	4-1/8	6
8xx-20		32,36,40,	20		
8xx-24		44,48,52,	24		
8xx-26		56,60,64,	26		
8xx-32			32		



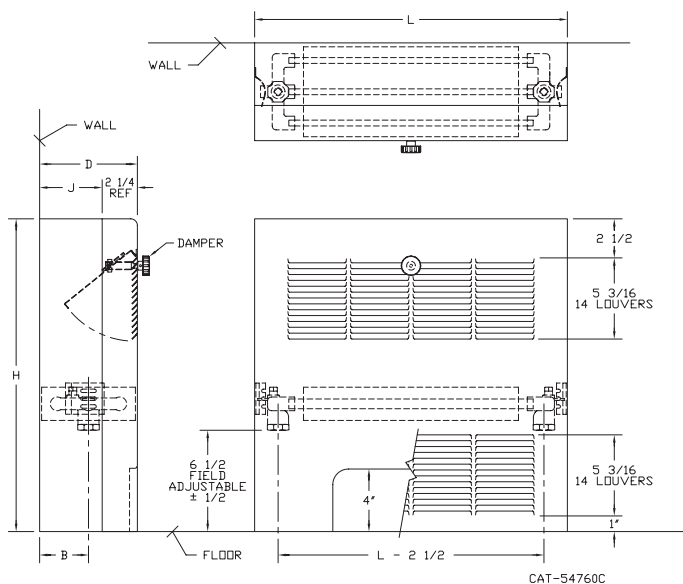
NOTE: When adding end pockets liner and front length increase.

## W-A



NOTE: When adding end pockets liner and front length increase.

FS-A = ARCHED INLET  
FSG-A = LOUVERED INLET (Grille)



NOTE: When adding end pockets liner and front length increase.

## TYPE W-A

TABLE					
MODEL	D	L	H	B	J
4xx-14	4-1/4	20,24,28,	14	2-1/8	2
4xx-18		32,36,40,	18		
4xx-20		44,48,52,	20		
4xx-26		56,60,64,	26		
4xx-32			32		
6xx-14	6-1/4	20,24,28,	14	3-1/8	4
6xx-18		32,36,40,	18		
6xx-20		44,48,52,	20		
6xx-26		56,60,64,	26		
6xx-32			32		
8xx-14	8-1/4	20,24,28,	14	4-1/8	6
8xx-18		32,36,40,	18		
8xx-20		44,48,52,	20		
8xx-26		56,60,64,	26		
8xx-32			32		

## TYPE FS-A / FSG-A

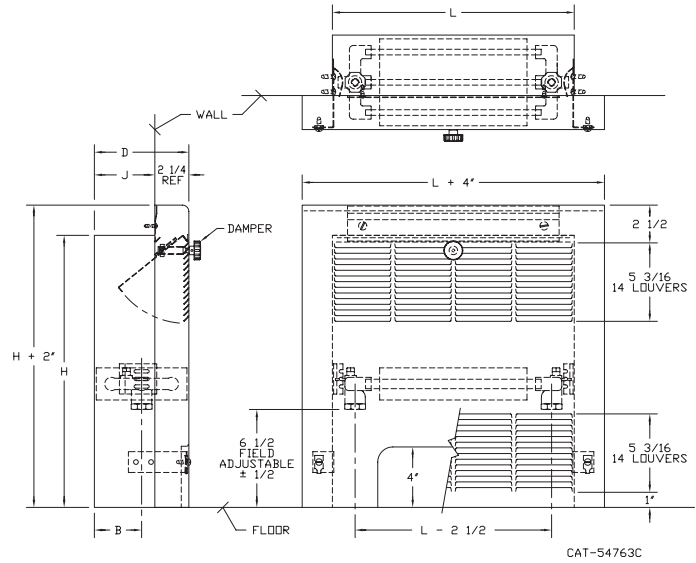
TABLE					
MODEL	D	L	H	B	J
4xx-18	4-1/4	20,24,28,	18	2-1/8	2
4xx-20		32,36,40,	20		
4xx-24		44,48,52,	24		
4xx-26		56,60,64,	26		
4xx-32			32		
6xx-18	6-1/4	20,24,28,	18	3-1/8	4
6xx-20		32,36,40,	20		
6xx-24		44,48,52,	24		
6xx-26		56,60,64,	26		
6xx-32			32		
8xx-18	8-1/4	20,24,28,	18	4-1/8	6
8xx-20		32,36,40,	20		
8xx-24		44,48,52,	24		
8xx-26		56,60,64,	26		
8xx-32			32		

# Convactor Design/Installation Data

## TYPE SR-A / SRG-A

TABLE					
MODEL	D	L	H	B	J
4xx-16	4-1/4	20,24,28	16	2-1/8	2
4xx-18		32,36,40	18		
4xx-22		44,48,52	22		
4xx-24		56,60,64	24		
4xx-30		56,60,64	30		
6xx-16	6-1/4	20,24,28	16	3-1/8	4
6xx-18		32,36,40	18		
6xx-22		44,48,52	22		
6xx-24		56,60,64	24		
6xx-30		56,60,64	30		
8xx-16	8-1/4	20,24,28	16	4-1/8	6
8xx-18		32,36,40	18		
8xx-22		44,48,52	22		
8xx-24		56,60,64	24		
8xx-30		56,60,64	30		

SR-A = ARCHED INLET  
SRG-A = LOUVERED INLET  
(Grille)

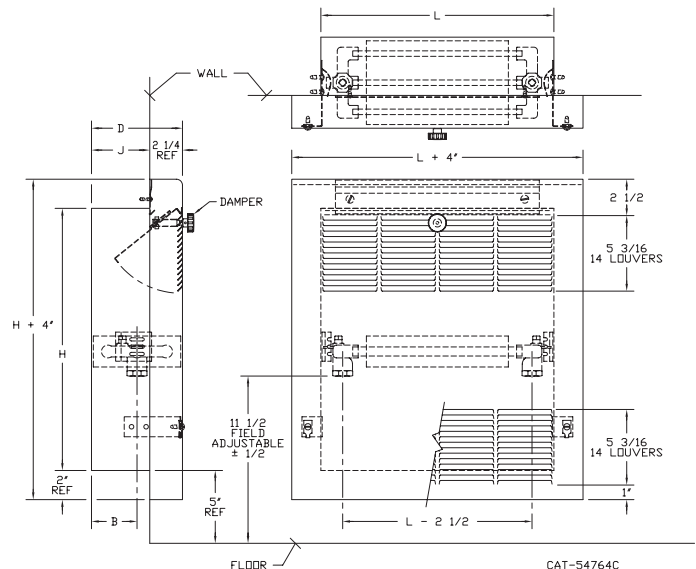


**NOTE:** Order by Liner Dimensions — L x H.  
When adding end pockets liner and front length increase.

## TYPE PW-A / PWG-A

TABLE					
MODEL	D	L	H	B	J
4xx-18	4-1/4	20,24,28	18	2-1/8	2
4xx-20		32,36,40	20		
4xx-24		44,48,52	24		
4xx-26		56,60,64	26		
4xx-28		56,60,64	28		
6xx-18	6-1/4	20,24,28	18	3-1/8	4
6xx-20		32,36,40	20		
6xx-24		44,48,52	24		
6xx-26		56,60,64	26		
6xx-28		56,60,64	28		
8xx-18	8-1/4	20,24,28	18	4-1/8	6
8xx-20		32,36,40	20		
8xx-24		44,48,52	24		
8xx-26		56,60,64	26		
8xx-28		56,60,64	28		

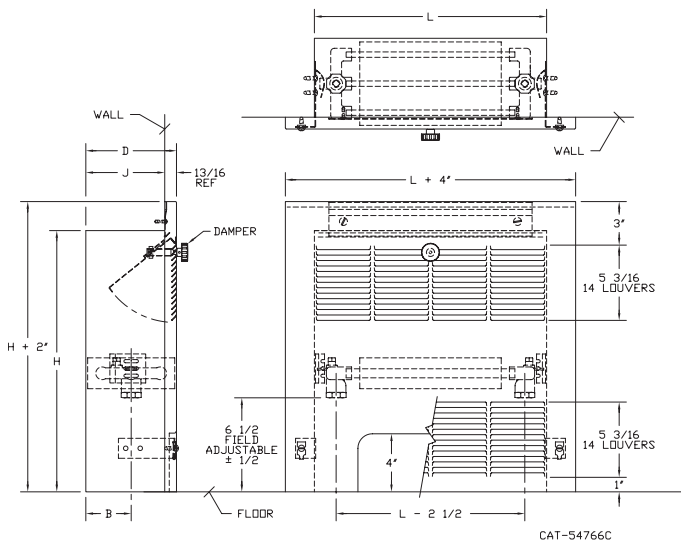
PW-A = BOTTOM INLET  
PWG-A = LOUVERED INLET  
(Grille)



**NOTE:** Order by Liner Dimensions — L x H.  
When adding end pockets liner and front length increase.



**RF-A = ARCHED INLET**  
**RFG-A = LOUVERED INLET**  
**(Grille)**

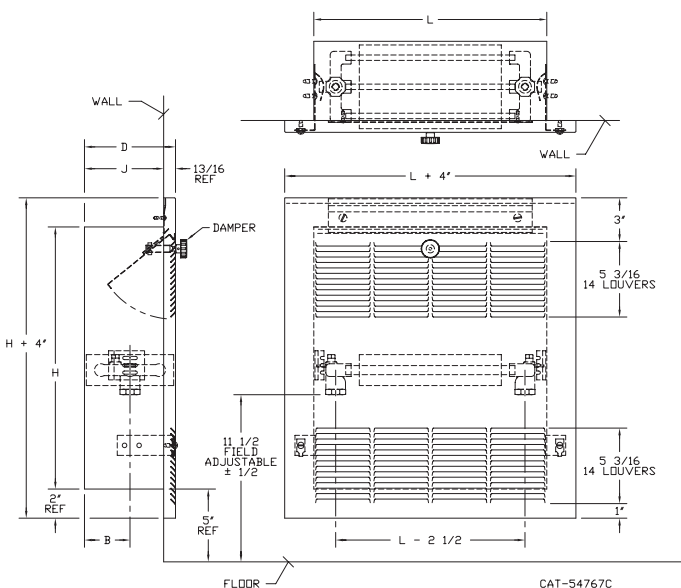


**NOTE: Order by Liner Dimensions — L x H.**  
**When adding end pockets liner and front length increase.**

**TYPE RF-A / RFG-A**

TABLE					
MODEL	D	L	H	B	J
4xx-18	4-13/16	20,24,28,	18	2-1/8	4
4xx-20		32,36,40,	20		
4xx-24		44,48,52,	24		
4xx-26		56,60,64,	26		
4xx-32		56,60,64,	32		
6xx-18	6-13/16	20,24,28,	18	3-1/8	6
6xx-20		32,36,40,	20		
6xx-24		44,48,52,	24		
6xx-26		56,60,64,	26		
6xx-32		56,60,64,	32		
8xx-18	8-13/16	20,24,28,	18	4-1/8	8
8xx-20		32,36,40,	20		
8xx-24		44,48,52,	24		
8xx-26		56,60,64,	26		
8xx-32		56,60,64,	32		

**FWG-A = LOUVERED INLET**

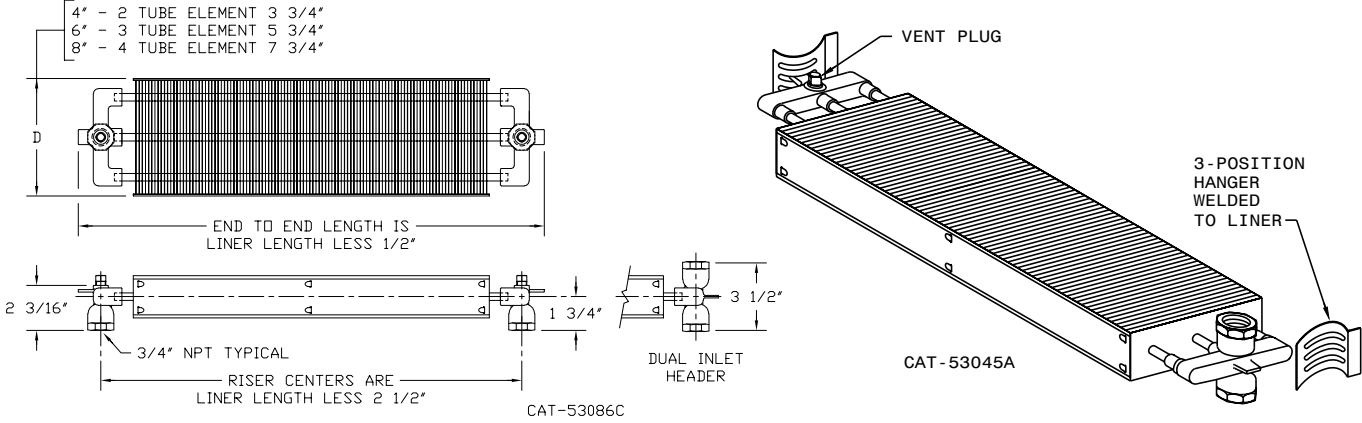


**NOTE: Order by Liner Dimensions — L x H.**  
**When adding end pockets liner and front length increase.**

**TYPE FWG-A**

TABLE					
MODEL	D	L	H	B	J
4xx-18	4-13/16	20,24,28,	18	2-1/8	4
4xx-20		32,36,40,	20		
4xx-24		44,48,52,	24		
4xx-26		56,60,64,	26		
4xx-32		56,60,64,	32		
6xx-18	6-13/16	20,24,28,	18	3-1/8	6
6xx-20		32,36,40,	20		
6xx-24		44,48,52,	24		
6xx-26		56,60,64,	26		
6xx-32		56,60,64,	32		
8xx-18	8-13/16	20,24,28,	18	4-1/8	8
8xx-20		32,36,40,	20		
8xx-24		44,48,52,	24		
8xx-26		56,60,64,	26		
8xx-32		56,60,64,	32		

# Coil Detail

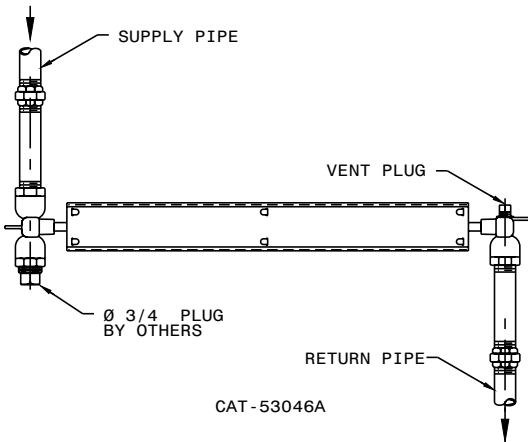


**NOTE:** When ordering convectors with end pockets always refer to the standard unit length. The overall physical length will increase by 4" for each end pocket. The coil length will remain the standard size. Coil fins are 2½" high by width shown above and are mechanically bonded to copper tube at 6 fins per inch.

Non-ferrous convector heating elements consist of aluminum fins specially collared and mechanically bonded to 3/8" diameter copper tubes as the primary radiating surface. The tubes are joined at each end by cast brass headers for connection to the system risers. One header is provided with 1/4" NPT tapping for venting, the other header is supplied

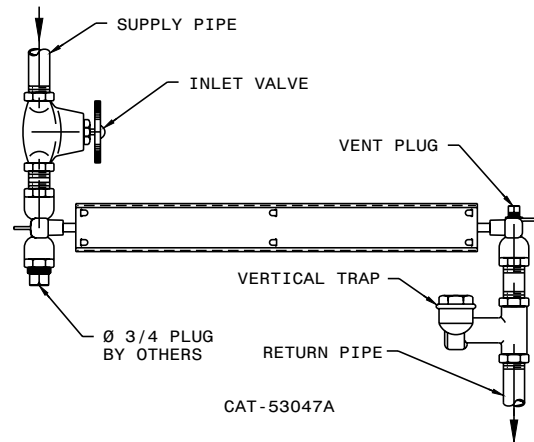
with a 1/4" NPT galvanized plug. All elements have steel side plates for appearance and strength. Standard heating element is supplied with two single 3/4" NPT headers. An optional dual inlet header is available. This allows for piping to come in from the top or bottom of element. Specify DH header one end when required.

## HOT WATER SYSTEM



## STEAM SYSTEM

(Not recommended for one pipe steam)





# Vulcan

R A D I A T O R

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