



Image courtesy of Minotti.

HI-LINE.

The **HI-LINE** range offers creative use of wall space whilst keeping the heat source safely out of reach. All models are designed for ease of fitting and can be positioned above doorways for effective heating. The units are easy to install, control and maintain, therefore providing a simple yet effective method of heating. All RC models have a fan only option for cool air circulation.



HI-LINE RC & HI-LINE RC Heater/Cooler.

Engineered predominantly with the domestic market in mind, the re-modelled and very discreet **HI-LINE RC** unit is the only remote control version of this kind that is currently available for hot water products. The heater/cooler model, meanwhile, requires water chilling equipment as well as connection to the central heating system, which allows year-round application. A range of models are available giving effective heating for various room sizes and are ideal for use with heat pumps.



Remote control supplied.

System Design for Fan Convectors

Fan convectors are intended to be connected to central heating systems in the same way as radiators, and offer advantages and benefits not available from traditional emitters. To ensure optimum fan convector performance, great care must be taken to ensure that the choice of unit and the heating system design are considered. The following factors must be taken into consideration:

- Fan convectors should only be used on closed circulation, two pipe, pump assisted central heating systems.
- Fan convectors should be correctly sized to match the heat loss requirement of the room with the unit operating at its lowest fan speed.
- The heating system must be capable of providing sufficient hot water through the heat exchanger. This means that:
 - The minimum pipe size should be 15mm.
 - Fan convectors are not suitable for use on microbore pipe-work.
 - Fan convectors are not suitable for one-pipe systems.
 - Where the unit is fitted onto a system with other emitters, a separate circuit for the fan convector should be considered to ensure an adequate water flow through it.
- The heating system water temperature must be greater than 43°C in heating mode for the unit to operate (lower temperatures possible for heat pump applications on wall mounted units).
- Optimum performance of the fan convector will require effective balancing of the whole system.
- Fan convectors should not be used to replace radiators in existing systems unless pipe-work sizing, system design and system balancing can guarantee an adequate flow of water through the fan convector.
- The maximum working pressure through the heat exchanger is 10 bar (150 lb/in²). The maximum allowable water temperature through the heat exchanger is 90°C.
- Wall mounted units should be mounted on a flat wall, and stud or partition walls should be avoided to minimise the possibility of noise transmission.

HI-LINE RC Performance Data

The unit must be sized to match the calculated heat loss requirement of the room with the unit operating at normal fan speed. The higher fan speeds will be used automatically when the room temperature is significantly lower than the preset temperature.

When establishing the temperature difference, i.e. mean water to room temperature, allowance should be made for temperature drop in the system. It is the temperature at the convector which dictates the output.

Heating Performance Data

Model	Fan Speed	Temperature Difference (°C)									
		Heat Output (watts)					Heat Output (Btu/h)				
		20°	30°	40°	50°	60°	20°	30°	40°	50°	60°
20-14	Normal	1313	2018	2737	3468	4207	4479	6884	9339	11831	14354
	Medium	1658	2548	3457	4380	5314	5657	8695	11796	14944	18130
	Boost	1882	2889	3917	4959	6014	6421	9858	13364	16921	20519
15-10	Normal	931	1431	1941	2459	2984	3176	4881	6622	8390	10180
	Medium	1054	1620	2197	2783	3376	3596	5526	7496	9496	11519
	Boost	1397	2147	2913	3690	4477	4767	7327	9939	12590	15274
10-6	Normal	610	937	1271	1610	1953	2081	3197	4337	5493	6664
	Medium	742	1140	1546	1959	2376	2530	3889	5276	6683	8108
	Boost	954	1467	1990	2521	3059	3256	5005	6790	8602	10437
7-4	Normal	352	541	734	930	1128	1200	1845	2504	3172	3849
	Medium	489	752	1020	1292	1568	1669	2565	3480	4410	5350
	Boost	645	991	1344	1702	2065	2199	3380	4585	5808	7046

Heat outputs tested in accordance with BS 4856 Part 1.

Flow Rate: 340 ltr/h (75 gal/h).

Flow Rate Correction Factors:

455 ltr/h (100 gal/h) multiply output by 1.06.

227 ltr/h (50 gal/h) multiply output by 0.96.

113 ltr/h (25 gal/h) multiply output by 0.85.

Cooling Performance Data (Heater/Cooler Model Only)

Model	Fan Speed	Temperature Difference (°C)											
		Cooling Performance (watts)						Cooling Performance (Btu/h)					
		15°		20°		25°		15°		20°		25°	
		Tot.	Sens.	Tot.	Sens.	Tot.	Sens.	Tot.	Sens.	Tot.	Sens.	Tot.	Sens.
20-14	Normal	1256	1034	1922	1291	2676	1421	4285	3528	6558	4405	9131	4848
	Medium	1510	1241	2312	1597	3220	1759	5152	4234	7889	5449	10987	6002
	Boost	1601	1363	2449	1770	3408	1879	5463	4651	8356	6039	11628	6411
15-10	Normal	886	761	1355	1002	1886	1091	3023	2597	4623	3419	6435	3722
	Medium	958	815	1466	1058	2041	1123	3269	2781	5002	3610	6964	3832
	Boost	1276	1093	1953	1434	2719	1549	4354	3729	6664	4893	9277	5285
10-6	Normal	578	490	884	635	1230	668	1972	1672	3016	2167	4197	2279
	Medium	646	545	988	704	1375	736	2204	1860	3371	2402	4692	2511
	Boost	780	638	1194	867	1662	1098	2661	2177	4074	2958	5671	3746
7-4	Normal	318	274	487	362	678	396	1085	935	1662	1235	2313	1351
	Medium	473	405	725	531	1009	574	1614	1382	2474	1812	3443	1958
	Boost	574	459	878	623	1222	790	1958	1566	2996	2126	4169	2695

Cooling performance tested in accordance with BS 4856 Part 2.

Flow Rate: 340 ltr/h.

Relative Humidity: 50%.

Flow Rate Correction Factors:

455 ltr/h (100 gal/h) multiply output by 1.06.

227 ltr/h (50 gal/h) multiply output by 0.96.

113 ltr/h (25 gal/h) multiply output by 0.85.

HI-LINE RC Performance Data (continued)
Approximate Hydraulic Resistance

Litres/h	mm wg				kPa			
	7-4	10-6	15-10	20-14	7-4	10-6	15-10	20-14
455	1084	1240	1500	1774	9.4	12.12	14.7	17.42
340	798	657	905	1140	7.7	6.42	8.9	11.2
227	350	327	450	565	3.5	3.25	4.37	5.5
113	134	105	157	221	1.4	1.1	1.57	2.1

Weight, Water Content and Motor Power

Model	Motor Power (W)	Water Content (l)	Unpacked Weight (kg)
20-14	80	0.77	14.7
15-10	62	0.56	11.3
10-6	35	0.32	8.9
7-4	35	0.30	7.4

Noise Levels

Model	Sound Pressures at 2.5m (dBA)		
	Normal	Medium	Boost
20-14	33.3	38.7	45.4
15-10	28.8	35.4	45.6
10-6	23.5	30.8	37.2
7-4	23.4	32.5	43.3

Noise levels tested in accordance with EN 23741.

Air Flow

Model	Air Flow (m ³ /h)			Air Flow (ft ³ /h)		
	Normal	Medium	Boost	Normal	Medium	Boost
20-14	285	371	431	10061	13096	15214
15-10	207	276	333	7307	9743	11755
10-6	143	171	220	5048	6036	7766
7-4	81	105	133	2859	3707	4695

HI-LINE LV Performance Data

This model should only be selected if the normal fan speed output is capable of maintaining the calculated heat losses of the room at the chosen operating conditions. This will enable the boost fan speed and the higher temperature differences to be used to greater advantage for rapid warming of the room from cold in excessive conditions.

When establishing the temperature difference, i.e. mean water to room temperature, allowance should be made for temperature drop in the system. It is the temperature at the convector which dictates the output.

Heating Performance Data

Model	Fan Speed	Temperature Difference (°C)									
		Heat Output (watts)					Heat Output (Btu/h)				
		20°	30°	40°	50°	60°	20°	30°	40°	50°	60°
7-4	Normal	352	541	734	930	1128	1201	1846	2504	3173	3849
	Boost	645	991	1344	1702	2065	2201	3381	4586	5807	7046

Heat outputs tested in accordance with BS 4856 Part 1.

Flow Rate: 340 ltr/h (75 gal/h).

Flow Rate Correction Factors:

455 ltr/h (100 gal/h) multiply by 1.06.

227 ltr/h (50 gal/h) multiply by 0.96.

113 ltr/h (25 gal/h) multiply by 0.85.

Approximate Hydraulic Resistance

Litres/h	mm wg	kPa
455	1084	9.4
341	798	7.7
227	350	3.5
113	134	1.4

Noise Levels

Fan Speed	Sound Pressures at 2.5m (dBA)
Normal	16.6
Boost	32.5

Noise levels tested in accordance with EN 23741.

HI-LINE Controls

HI-LINE RC & HI-LINE Super RC

Units are supplied with an electronic infra-red remote control system with the following features:

- Automatic room temperature control.
- Fan only option for ambient air circulation.
- Three fan speeds.
- Unit mounted controls and display.
- Unit control panel electronic tamper proof lock.
- Displayed temperature calibration system.

HI-LINE LV

Units are fitted with a switch offering high and low fan speed and off selection. A low limit thermostat is fitted to the unit to ensure that the fan stops after the heating system is switched off and the water flow stops.

HI-LINE RC E

Units are supplied with an electronic infra-red remote control system with the following features:

- Automatic room temperature control.
- Fan only option for ambient air circulation.
- Timer for user setting of heating periods.
- Unit mounted controls and temperature display .
- Single fan speed.
- Optional oscillating outlet vanes for improved air circulation.

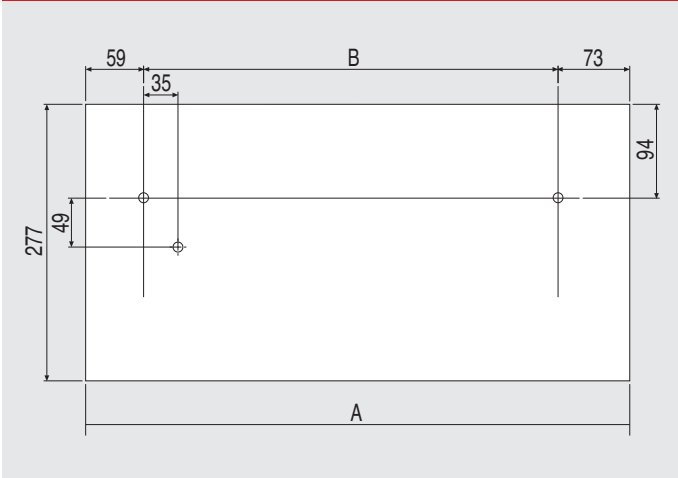
HI-LINE Water Connections

Water connections (15mm compression) are on the right-hand side and the system pipework may be brought in from above or the rear. Supplied with isolating valves.

HI-LINE Electrical Data

All HI-LINE models require an electrical supply of 220-240V - 50Hz fused at 3A (except HI-LINE RC E model which requires to be fused at 10A).

HI-LINE RC Dimensions and Fixings



Model	Dimensions (mm)	
	A	B
20-14	1171	1039
15-10	886	754
10-6	682	550
7-4	554	422

- Maximum installation height is 2.13m to the underside of the unit.
- Minimum installation height is 1.8m to the underside of the unit.
- Maximum ceiling height is 3m.
- Minimum clearance each side is 100mm.
- Minimum top clearance is 50mm.

