

FHP MANUFACTURING
Florida Heat Pump Environmental Equipment

GUIDE SPECIFICATIONS

SL SERIES

GENERAL - Units shall be A.R.I. Standard 325 (ground water), and A.R.I. 330/C.S.A.446 (ground source closed loop) performance certified and Underwriters Laboratories (UL) listed and Canadian Standards Association (CSA) certified for safety. Each unit shall be run tested at the factory. Each unit shall be pallet mounted and shipped in a corrugated box.

The units shall be warranted by the manufacturer against defects in materials and workmanship for a period of one year on all parts, and 5 years on the compressor.

The units shall be designed to operate with entering liquid temperature between 20°F and 110°F as manufactured by FHP Manufacturing in Fort Lauderdale, Florida.

CASING & CABINET - The cabinet shall be fabricated from heavy-gauge "paint-grip" galvanized steel and finished with two coats of lacquer acrylic. The interior shall be insulated with 1/2" thick, multi density, coated glass fiber. All units shall allow sufficient service access to replace the compressor without unit removal. One blower and two compressor compartment access panels shall be removable with supply and return ductwork in place. A duct collar shall be provided on the supply air opening. A 2" return air filter rack/duct collar which uses standard size 1" filters shall be provided with each unit. The units shall have an insulated divider panel between the air handling section and the compressor section to minimize the transmission of compressor noise, and to permit operational service testing without air bypass.

REFRIGERANT CIRCUIT - All units shall contain a sealed refrigerant circuit including a hermetic compressor, bi-directional thermal expansion valve, finned tube air-to-refrigerant heat exchanger, refrigerant reversing valve and service ports. Compressors shall be high efficiency designed for heat pump duty and mounted on vibration isolators. Compressor motors shall be equipped with internal overload protection. Refrigerant reversing valves shall be pilot operated sliding piston type with replaceable encapsulated magnetic coil energized only during the cooling cycle. The finned tube coil shall be constructed of lanced aluminum fins not exceeding fourteen fins per inch bonded to rifled copper tubes in a staggered pattern not less than

three rows deep and have a 450 PSIG working pressure. The coaxial water-to-refrigerant heat exchanger shall be constructed of a convoluted copper (optional cupronickel) inner tube and steel outer tube with a designed refrigerant working pressure of 450 PSIG. The water-to-refrigerant exchanger shall be insulated to prevent condensation at low liquid temperatures. The thermal expansion valve shall provide proper superheat over the entire liquid temperature range with minimal "hunting." The valve shall operate bi-directionally without the use of check valves.

FAN MOTOR & ASSEMBLY - The fan shall be a direct drive centrifugal type with a dynamically balanced wheel. The housing and wheel shall be designed for quiet low velocity operation. The fan housing shall be removable from the unit without disconnecting the supply air ductwork for servicing of the fan motor. The fan motor shall be three speed PSC type. The motor shall be permanently lubricated and have thermal overload protection.

ELECTRICAL - Controls and safety devices will be factory wired and mounted within the unit. Controls shall include fan relay, compressor contactor, 24V transformer, reversing valve coil and lockout relay. A terminal block with screw terminals will be provided for field control wiring. When the safety controls are activated to prevent compressor short cycling, the lockout circuit must be reset at the thermostat or main circuit breaker. A lockout indicating terminal shall be provided in the low voltage circuit. A ninety second low pressure bypass time delay control shall be provided to prevent nuisance lockouts during cold weather startup. Safety devices include a low pressure cutout set at 20 PSIG and a high pressure cutout control set at 380 PSIG. An optional five minute time delay control shall be factory installed to prevent short cycling of the compressor (delay on Break). An optional condensate over flow safety switch shall be factory installed to stop compressor operation. An optional energy management relay to allow unit control by an external source shall be factory installed.

PIPING - Supply, return water and condensate drain connections shall be brass female pipe thread fittings and mounted flush to cabinet exterior with optional stainless steel, braided hose kit with swivel connectors.



SPECIFICATION DATA SHEET

SL010 SUPER LO-TEMP

FLORIDA HEAT PUMP HIGH-EFFICIENCY WATER SOURCE HEAT Pumps

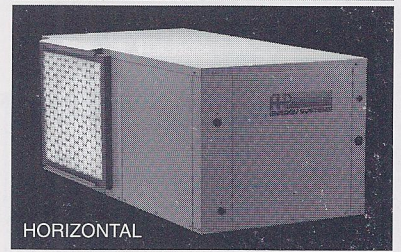
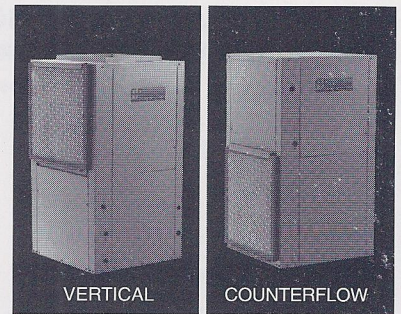
ELECTRICAL SPECIFICATIONS

Electrical Characteristics	Elec. Sym.	COMPRESSOR		BLOWER		Min. Circuit Ampacity	Fuse (T/D) HACR Cir. Bkr.
		RLA	LRA	NPA	H.P.		
115-1-60	-0	8.3	44.0	2.20	1/10	12.6	20
208/230-1-60	-1	4.5	23.0	.96	1/10	6.6	15
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Units are complete packages containing all refrigeration components: compressor, reversing valve, expansion valve metering device and water-to-refrigerant condenser. Also included are safety controls: Overload protection for motors, high and low refrigerant pressure switches and a lock-out impedance relay. The units are finished in a beige color.

MECHANICAL SPECIFICATIONS

EVAPORATOR				BLOWER SIZE	WEIGHT	
SQUARE FEET	ROWS DEEP	TUBE SIZE	FPI		NET	SHIP
1.42	3	3/8	14	4 x 7	142	158



ARI/CSA PERFORMANCE DATA

COOLING (ARI 325 CERTIFIED)					HEATING (ARI 325 CERTIFIED)					ARI 330/CSA-C446 CERTIFIED					
HIGH TEMP		LOW TEMP		GPM	HIGH TEMP		LOW TEMP		GPM	COOLING			HEATING		
BTUH	EER	BTUH	EER		BTUH	COP	BTUH	COP		BTUH	EER	GPM	BTUH	COP	GPM
11,200	15.0	12,500	19.5	1.5	12,300	4.0	9,700	3.4	1.5	11,200	16.1	2.5	8,000	3.2	2.5

CAPACITY DATA: All performance at 350 CFM (ARI Rated CFM)

EWT °F	GPM	COOLING								HEATING					
		Ent. Air W.B., °F	Total Btuh	Watts Input	Heat Rej. Btuh	Sensible Btuh, at ent. air dry bulb, °F			EER	WPD Ft. Hd.	Ent. Air D.B., °F	Htg. Btuh	Heat of Absorb. Btuh	Watts Input	COP
						75	80	85							
45	1.5	63	12.0	506	13.7	9.0	11.3	-	23.7	4.2	60	9.8	7.4	715	4.0
		67	12.8	511	14.5	7.6	9.9	12.5	25.0		70	9.2	6.7	719	3.7
		71	13.6	515	15.3	4.0	7.9	10.4	26.3		80	8.7	6.2	733	3.5
	2.5	63	13.3	466	14.9	9.5	11.9	-	28.6	9.7	60	10.1	7.7	712	4.2
		67	14.1	470	15.7	8.0	10.5	13.2	30.0		70	9.5	7.1	727	3.8
		71	15.0	474	16.6	4.3	8.3	10.9	31.7		80	9.1	6.5	741	3.6
	3.5	63	14.6	425	16.1	9.9	12.5	-	34.3	15.2	60	10.3	7.9	710	4.3
		67	15.5	429	17.0	8.4	11.0	13.8	36.1		70	9.8	7.3	725	3.9
		71	16.5	433	18.0	4.5	8.7	11.5	38.1		80	9.3	6.8	739	3.7
50	1.5	63	11.8	535	13.5	8.8	11.1	-	22.0	4.2	60	10.4	7.9	729	4.2
		67	12.5	540	14.3	7.5	9.8	12.2	23.1		70	9.7	7.2	730	3.9
		71	13.3	544	15.2	4.0	7.7	10.2	24.4		80	9.3	6.9	758	3.6
	2.5	63	13.0	492	14.7	9.3	11.7	-	26.5	9.7	60	10.7	8.3	726	4.3
		67	13.9	497	15.5	7.9	10.3	12.9	27.9		70	10.1	7.6	741	4.0
		71	14.7	501	16.5	4.2	8.1	10.7	29.4		80	9.5	6.9	756	3.7
	3.5	63	14.3	449	15.8	9.8	12.3	-	31.9	15.2	60	11.0	8.6	724	4.5
		67	15.2	454	16.7	8.2	10.8	13.5	33.5		70	10.6	8.0	752	4.1
		71	16.2	457	17.7	4.4	8.5	11.3	35.4		80	10.0	7.3	767	3.8
60	1.5	63	11.2	590	13.2	8.3	10.6	-	19.0	4.2	60	11.2	8.6	778	4.2
		67	11.9	595	13.9	7.1	9.2	11.7	19.9		70	10.9	7.9	794	3.9
		71	12.6	600	14.7	3.7	7.3	9.8	21.0		80	10.0	7.2	810	3.6
	2.5	63	12.4	542	14.2	8.8	11.2	-	22.8	9.7	60	11.5	8.9	776	4.4
		67	13.1	547	15.0	7.4	9.7	12.3	24.0		70	10.9	8.2	792	4.0
		71	14.0	552	15.9	3.8	7.7	10.3	25.3		80	10.3	7.5	807	3.7
	3.5	63	13.6	495	15.3	9.2	11.7	-	27.4	15.2	60	11.8	9.2	773	4.5
		67	14.4	500	16.1	7.8	10.2	12.9	28.8		70	11.2	8.5	789	4.1
		71	15.3	504	17.1	4.0	8.1	10.8	30.5		80	10.5	7.8	804	3.8
70	1.5	63	10.5	644	12.7	7.9	10.0	-	16.4	4.2	60	13.0	10.3	784	4.9
		67	11.2	650	13.4	6.9	8.7	11.0	17.2		70	12.3	9.6	800	4.5
		71	11.9	655	14.2	3.6	6.9	9.1	18.2		80	11.7	8.9	816	4.2
	2.5	63	11.7	592	13.7	8.3	10.5	-	19.7	9.7	60	13.7	11.0	800	5.0
		67	12.4	598	14.4	7.0	9.2	11.5	20.8		70	13.0	10.2	816	4.7
		71	13.2	603	15.3	3.7	7.3	9.6	21.9		80	12.3	9.5	831	4.3
	3.5	63	12.8	541	14.7	8.7	11.0	-	23.7	15.2	60	14.0	11.3	797	5.2
		67	13.6	546	15.5	7.4	9.6	12.1	24.9		70	13.2	10.5	813	4.8
		71	14.5	550	16.4	3.9	7.6	10.1	26.3		80	12.6	9.8	828	4.5
85	1.5	63	8.9	748	11.5	6.9	8.8	-	12.0	4.2	-	-	-	-	-
		67	9.5	755	12.0	5.9	7.7	9.5	12.6		-	-	-	-	-
		71	10.1	761	12.7	3.1	6.1	8.1	13.3		-	-	-	-	-
	2.5	63	9.9	688	12.3	7.3	9.3	-	14.4	9.7	-	-	-	-	-
		67	10.5	694	12.9	6.2	8.1	10.2	15.2		-	-	-	-	-
		71	11.2	700	13.6	3.3	6.4	8.5	16.0		-	-	-	-	-
	3.5	63	10.9	628	13.0	7.7	9.7	-	17.3	15.2	-	-	-	-	-
		67	11.5	634	13.7	6.5	8.5	10.7	18.2		-	-	-	-	-
		71	12.3	639	14.5	3.4	6.7	8.9	19.2		-	-	-	-	-
100	1.5	63	7.9	834	10.8	6.6	7.9	-	9.5	4.2	-	-	-	-	-
		67	8.3	842	11.2	5.6	7.4	8.3	9.9		-	-	-	-	-
		71	8.9	849	11.8	2.9	5.8	7.8	10.5		-	-	-	-	-
	2.5	63	8.8	767	11.4	7.0	8.8	-	11.4	9.7	-	-	-	-	-
		67	9.3	775	11.9	5.9	7.8	9.3	11.9		-	-	-	-	-
		71	9.9	781	12.5	3.1	6.1	8.2	12.6		-	-	-	-	-
	3.5	63	9.6	700	12.0	7.3	9.4	-	13.7	15.2	-	-	-	-	-
		67	10.2	707	12.6	6.2	8.1	10.2	14.4		-	-	-	-	-
		71	10.8	713	13.2	3.2	6.4	8.6	15.2		-	-	-	-	-

ALL BTUH ARE THOUSANDS

SL010

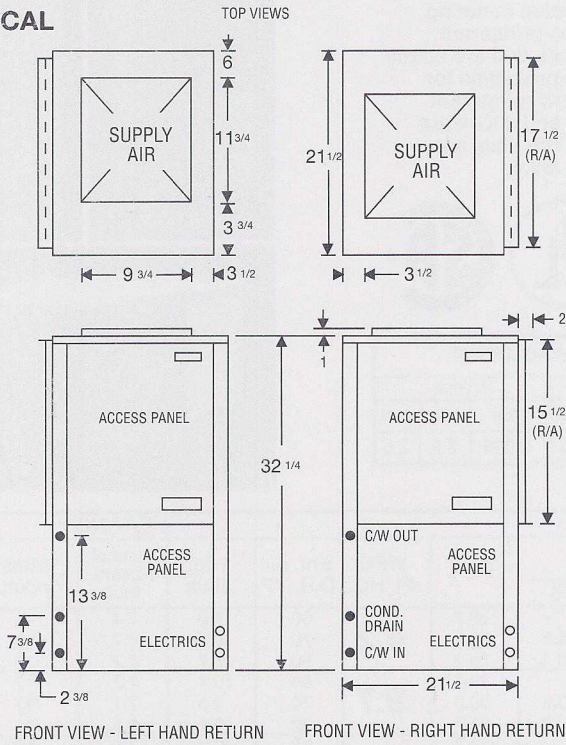
SUPER LO-TEMP

PHYSICAL CHARACTERISTICS

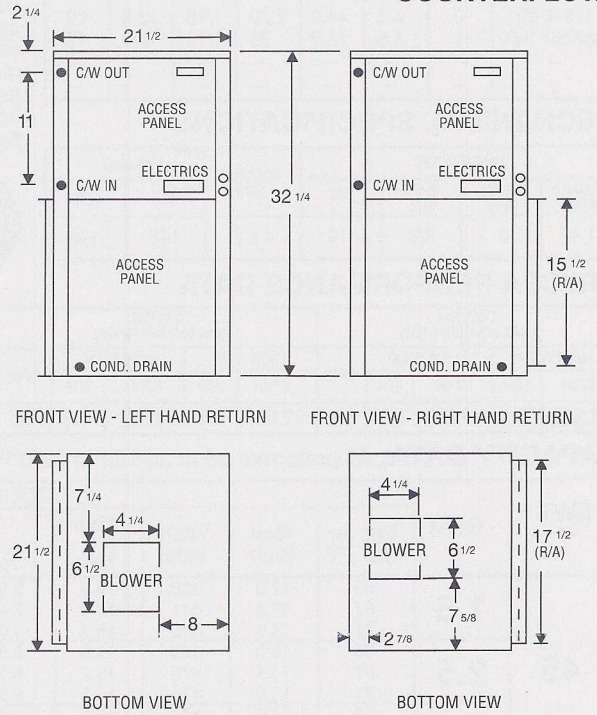
BLOWER PERFORMANCE

AVAILABLE EXTERNAL STATIC PRESSURE (In. H ₂ O including allowance for wet coil and filter)												
FAN SPEED	.10	.20	.30	.40	.50	.60	.70	.80	.90	1.0	1.1	1.2
HIGH	-	-	-	-	-	385	340	280	-	-	-	-
MED.	-	-	-	-	385	345	290	-	-	-	-	-
LOW	-	-	400	380	345	300	250	-	-	-	-	-

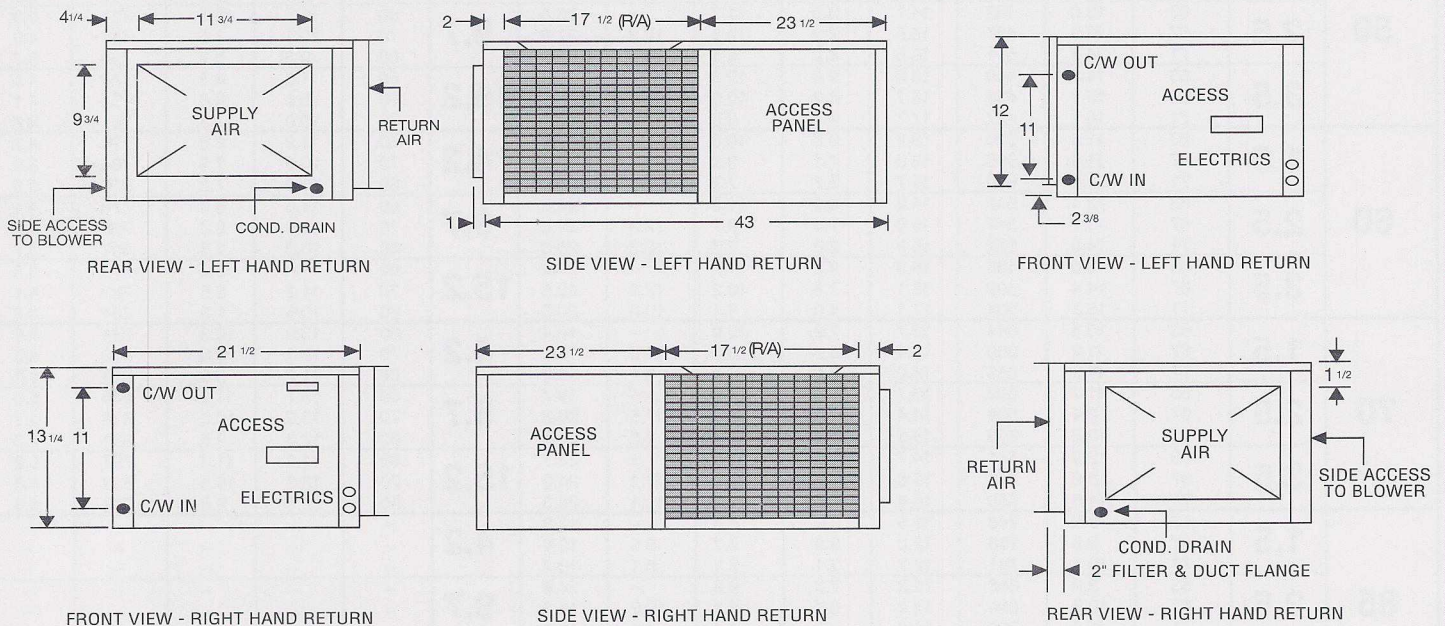
VERTICAL



COUNTERFLOW



HORIZONTAL



OPTIONAL STRAIGHT-THRU AIR CONFIGURATION AVAILABLE



FHP MANUFACTURING
 601 N.W. 65th COURT
 FT. LAUDERDALE, FL 33309
 PHONE: (305) 776-5471
 FAX: (305) 776-5529

CONDENSER WATER CONNECTIONS: 3/4" F.P.T.
 CONDENSATE DRAIN CONNECTION: 3/4" F.P.T.
 FILTER SIZE: VT, CF 15" X 20 1/4" X 1" ; HZ 11 1/2" X 20" X 1"

As a result of continuing research and development, all ratings and specifications are subject to change without notice. Rev. 1/95



SPECIFICATION DATA SHEET

SL016

SUPER LO-TEMP

FLORIDA HEAT PUMP HIGH-EFFICIENCY WATER SOURCE HEAT Pumps

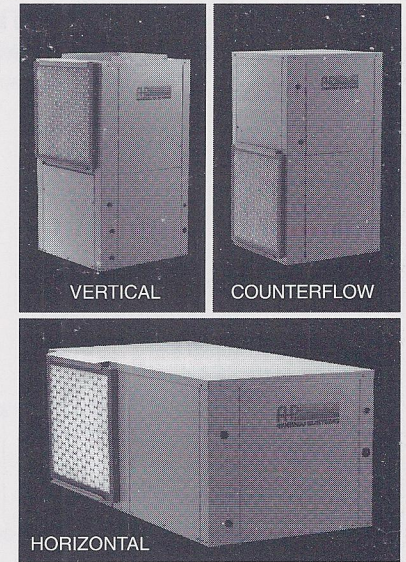
ELECTRICAL SPECIFICATIONS

Electrical Characteristics	Elec. Sym.	COMPRESSOR		BLOWER		Min. Circuit Ampacity	Fuse (T/D) HACR Cir. Bkr.
		RLA	LRA	NPA	H.P.		
208/230-1-60	-1	5.9	29.0	1.8	1/4	9.2	15
265-1-60	-2	5.5	27.0	1.6	1/4	8.5	15
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Units are complete packages containing all refrigeration components: compressor, reversing valve, expansion valve metering device and water-to-refrigerant condenser. Also included are safety controls: Overload protection for motors, high and low refrigerant pressure switches and a lock-out impedance relay. The units are finished in a beige color.

MECHANICAL SPECIFICATIONS

EVAPORATOR				BLOWER SIZE	WEIGHT	
SQUARE FEET	ROWS DEEP	TUBE SIZE	FPI		NET	SHIP
2.29	4	3/8	14	9 x 7	174	185



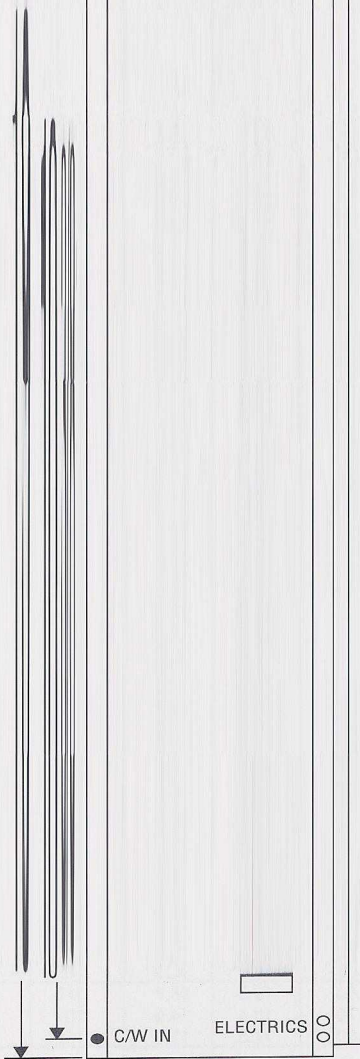
ARI/CSA PERFORMANCE DATA

COOLING (ARI 325 CERTIFIED)					HEATING (ARI 325 CERTIFIED)					ARI 330/CSA-C446 CERTIFIED							
HIGH TEMP		LOW TEMP			GPM	HIGH TEMP		LOW TEMP			GPM	COOLING			HEATING		
BTUH	EER	BTUH	EER	BTUH		COP	BTUH	COP	BTUH	EER		GPM	BTUH	COP	GPM		
17,000	14.4	18,700	18.4	2.0	17,500	4.1	14,000	3.4	2.0	17,000	15.6	4.0	11,500	3.2	4.0		

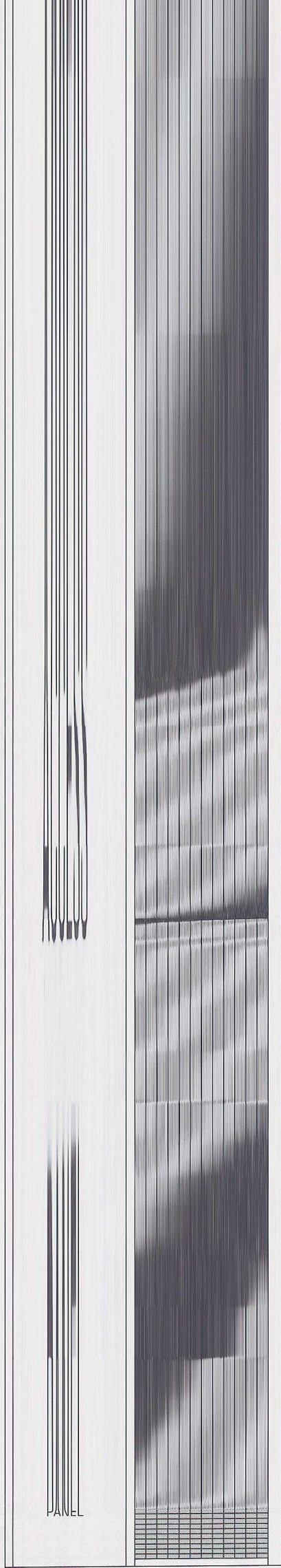
CAPACITY DATA: All performance at 550 CFM (ARI Rated CFM)

EWT °F	GPM	COOLING								HEATING					
		Ent. Air W.B., °F	Total Btuh	Watts Input	Heat Rej. Btuh	Sensible Btuh, at ent. air dry bulb, °F			EER	WPD Ft. Hd.	Ent. Air D.B., °F	Htg. Btuh	Heat of Absorb. Btuh	Watts Input	COP
						75	80	85							
45	2	63	18.0	834	20.8	15.9	18.0	-	21.5	1.2	60	14.1	1050	3.9	
		67	19.1	842	21.9	13.4	17.5	19.1	22.7		70	13.1	1057	3.6	
		71	20.3	849	23.2	7.2	13.9	18.3	23.9		80	12.5	1076	3.4	
	3	63	19.4	784	22.1	16.5	19.4	-	24.8	3.2	60	14.3	1048	4.0	
		67	20.6	791	23.3	13.9	18.2	20.6	26.1		70	13.3	1055	3.7	
		71	21.9	798	24.7	7.4	14.4	19.0	27.5		80	12.6	1074	3.4	
	4	63	20.9	734	23.4	17.1	20.9	-	28.4	5.2	60	14.5	1046	4.1	
		67	22.2	741	24.7	14.5	18.9	22.2	29.9		70	13.7	1067	3.8	
		71	23.6	747	26.1	7.7	15.0	19.7	31.6		80	13.0	1087	3.5	
50	2	63	17.6	881	20.6	13.2	16.6	-	20.0	1.2	60	15.1	1078	4.1	
		67	18.7	890	21.7	11.2	14.6	18.3	21.0		70	14.0	1080	3.8	
		71	19.9	897	23.0	5.9	11.6	15.3	22.2		80	13.4	1122	3.5	
	3	63	19.0	828	21.9	13.7	17.3	-	23.0	3.2	60	15.3	1076	4.2	
		67	20.2	837	23.1	11.6	15.2	19.0	24.2		70	14.3	1088	3.9	
		71	21.5	843	24.4	6.2	12.0	15.9	25.5		80	13.7	1130	3.6	
	4	63	20.5	776	23.1	14.2	17.9	-	26.4	5.2	60	15.5	1074	4.2	
		67	21.7	783	24.4	12.0	15.7	19.7	27.7		70	14.6	1096	3.9	
		71	23.1	789	25.8	6.4	12.5	16.5	29.3		80	13.8	1118	3.6	
60	2	63	16.8	960	20.1	12.6	16.0	-	17.5	1.2	60	15.7	1085	4.2	
		67	17.9	970	21.2	10.7	13.9	17.6	18.4		70	15.1	1107	4.0	
		71	19.0	978	22.3	5.5	11.0	14.7	19.4		80	14.2	1129	3.7	
	3	63	18.2	903	21.3	13.1	16.6	-	20.2	3.2	60	16.1	1083	4.3	
		67	19.3	912	22.4	11.1	14.5	18.3	21.2		70	15.3	1105	4.0	
		71	20.5	919	23.7	5.7	11.4	15.3	22.4		80	14.4	1127	3.7	
	4	63	19.6	845	22.4	13.5	17.2	-	23.1	5.2	60	16.4	1081	4.4	
		67	20.7	854	23.7	11.5	15.0	19.0	24.3		70	15.5	1103	4.1	
		71	22.1	860	25.0	6.0	11.9	15.8	25.7		80	14.6	1125	3.8	
70	2	63	16.0	1040	19.6	12.0	15.1	-	15.4	1.2	60	18.6	1092	5.0	
		67	17.0	1050	20.6	10.2	13.3	16.6	16.2		70	17.5	1115	4.6	
		71	18.1	1058	21.7	5.4	10.5	13.9	17.1		80	16.6	1137	4.3	
	3	63	17.3	978	20.6	12.5	15.7	-	17.7	3.2	60	18.9	1090	5.1	
		67	18.4	987	21.7	10.6	13.8	17.3	18.6		70	17.7	1113	4.7	
		71	19.6	995	22.9	5.6	10.9	14.4	19.7		80	16.8	1135	4.3	
	4	63	18.6	915	21.7	13.0	16.3	-	20.3	5.2	60	19.5	1115	5.1	
		67	19.8	924	22.9	10.9	14.3	17.9	21.4		70	18.4	1137	4.7	
		71	21.0	931	24.2	5.8	11.3	15.0	22.6		80	17.5	1159	4.4	
85	2	63	13.0	1222	17.1	10.1	12.8	-	10.6	1.2	-	-	-	-	
		67	13.7	1234	18.0	8.5	11.2	13.7	11.1		-	-	-	-	
		71	14.6	1243	18.9	4.5	8.8	11.7	11.8		-	-	-	-	
	3	63	14.0	1149	17.9	10.5	13.3	-	12.2	3.2	-	-	-	-	
		67	14.9	1160	18.8	8.9	11.6	14.6	12.8		-	-	-	-	
		71	15.8	1169	19.8	4.7	9.2	12.2	13.5		-	-	-	-	
	4	63	15.1	1076	18.7	10.9	13.8	-	14.0	5.2	-	-	-	-	
		67	16.0	1085	19.7	9.2	12.0	15.1	14.7		-	-	-	-	
		71	17.0	1094	20.7	4.8	9.5	12.6	15.5		-	-	-	-	
100	2	63	11.5	1364	16.1	9.6	11.5	-	8.4	1.2	-	-	-	-	
		67	12.1	1377	16.8	8.2	10.7	12.1	8.8		-	-	-	-	
		71	12.9	1388	17.6	4.2	8.4	11.3	9.3		-	-	-	-	
	3	63	12.4	1282	16.8	10.0	12.4	-	9.7	3.2	-	-	-	-	
		67	13.1	1294	17.5	8.5	11.1	13.1	10.1		-	-	-	-	
		71	13.9	1305	18.4	4.4	8.7	11.8	10.7		-	-	-	-	
	4	63	13.3	1201	17.4	10.4	13.2	-	11.1	5.2	-	-	-	-	
		67	14.0	1212	18.2	8.8	11.5	14.0	11.6		-	-	-	-	
		71	15.0	1221	19.2	4.5	9.1	12.2	12.3		-	-	-	-	

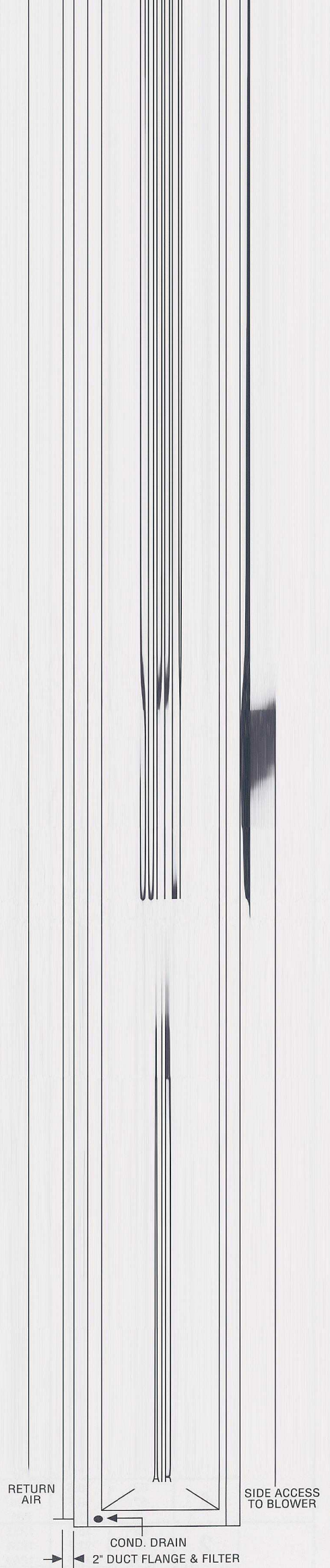
ALL BTUH ARE THOUSANDS



FRONT VIEW - RIGHT HAND RETURN



SIDE VIEW - RIGHT HAND RETURN




REAR VIEW - RIGHT HAND RETURN

OPTIONAL STRAIGHT-THRU AIR CONFIGURATION

CONDENSER WATER CONNECTIONS: 3/4" F.P.T.
 CONDENSATE DRAIN CONNECTION: 3/4" F.P.T.
 FILTER SIZE: VT, CF 19 1/2" X 19 1/2" X 1" ; HZ 17" X 20" X 1"

As a result of continuing research and development, all ratings and specifications are subject to change without notice. Rev. 2/95



a  HARROW company

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