The Whalen Company

PRODUCT DESIGN GUIDE

Whisperline® Console

June 2018

Console

Category	Position	Option Digit	Option Description
Brand	1	W	Whalen Brand
Product Family	2	C	Console Unit
Operating stages	3	S	Single-stage
Unit Configuration	4	B	Bottom Inlet
System Configuration	5	B	Cooling Only
System Configuration	5	C	Cooling Only or Hydronic Heat
System Configuration	5	G	Heat Pump (heating default)
System Configuration	5	I	Heat Pump or Electric Heat (Boilerless)
Unit Capacity	6	008	0.70 ton (8,000 Btu)
Unit Capacity	6	010	0.83 ton (10,000 Btu)
Unit Capacity	6	012	1.00 ton (12,000 Btu)
Unit Capacity	6	015	1.25 ton (15,000 Btu)
Unit Capacity	6	018	1.50 ton (18,000 Btu)
Performance	9	S	Standard
Revision (Major)	10	A	Current revision
Voltage	11	A	115-60-1
Voltage	11	B	208/230-60-1
Voltage	11	C	265-60-1
Distributor Options	12	G	Geothermal (TXV)
Distributor Options	12	S	Standard (Cap tube)
Distributor Options	12	Y	Standard (TXV)
Revision (Minor)	13	A	Current revision
Sound Attenuation	14	A	Standard Quiet Construction
Sound Attenuation	14	F	Insulated Compressor Enclosure
Heating Option	15	X	None
Heating Option	15	A	1-row Hot Water Coil
Heating Option	15	B	Electric Heat - 1.0 kW (Boilerless)
Heating Option	15	C	Electric Heat - 2.0 kW (Boilerless)
Coil Protection	16	A	Copper tube / Aluminum fin
Control Type	17	A	Solid State Control
Control Type	17	F	Solid State Control with Hard Start Kit
Thermostat Type	18	A	Unit Mounted Electronic Thermostat
Thermostat Type	18	B	Unit Mounted Mechanical MCO Control
Thermostat Type	18	C	Remote Mounted Thermostat
Thermostat Type	18	D	Remote Mounted Thermostat - Secondary Configuration
Fan Control	19	X	None
Fan Control	19	A	2-speed Fan Switch (Remote Thermostat Only)

Category	Position	Option Digit	Option Description
DDC Option	20	X	None
DDC Option	20	A	EMS Relay - N.O. line voltage
DDC Option	20	B	EMS Relay - N.O. 24V voltage
DDC Option	20	C	EMS Relay - N.C. line voltage
DDC Option	20	D	EMS Relay - N.C. 24V voltage
Power Termination	21	X	Single Point Power
Power Termination	21	A	Single Point Power with power cord
Power Termination	21	B	Single Point Power: Unfused unit disconnect
Power Termination	21	C	Single Point Power: Unfused unit disconnect with power cord
Drain Pan Options	22	A	Stainless Steel Drain Pan
Drain Pan Options	22	B	Stainless Steel Drain Pan with Condensate Pump
Drain Pan Options	22	C	Standard Painted Drain Pan
Drain Pan Options	22	D	Standard Painted Drain Pan with Condensate Pump
Drain Pan Controls	23	X	None
Drain Pan Controls	23	A	Dual Drain Stub Assembly
Drain Pan Controls	23	B	Condensate Safety Switch
Drain Pan Controls	23	C	Dual Drain Stub with Condensate Safety Switch
Water Connections	24	D	MPT (Tapered)
Water Connections	24	F	FPT (Tapered)
Water Connections	24	G	Sweat
Water Coil Type	25	A	Standard Coax
Water Coil Type	25	B	Cupro-Nickel Coax
Service Ports	26	A	Standard
Service Ports	26	B	Bleed Valve Assembly
Service Ports	26	C	Opposite Side Service Ports
Service Ports	26	D	Bleed Valve Assembly and Opposite Side Service Ports
Cabinet Type	27	X	Chassis Only - No Room Cabinet
Cabinet Type	27	A	Powder painted standard cabinet (with chassis)
Cabinet Type	27	B	Powder painted cabinet for hot water heating (with chassis)
Cabinet Type	27	C	Powder painted extended (46") cabinet (with chassis)
Outside Air	28	X	None
Outside Air	28	A	Motorized Damper Assembly
Handing	29	A	Standard Field Reversable Connections
Handing	29	R	Right Hand Connections
Handing	29	L	Left Hand Connections
Future	30	X	Future Option

Table 1: AHRI Performance Ratings – ASHRAE / ANSI / AHRI / ISO Standard 13256-1

Model	Cooling Total Btuh	Cooling Sensible Btuh	Cooling EER	Heating Total Btuh	Heating COP	Air Flow CFM Hi/Lo	Water Flow GPM
WCS-08	7,800	6,000	14.0	9,200	4.4	300/250	2.0
WCS-10	10,600	8,000	13.6	12,100	4.6	395/330	2.5
WCS-12	11,500	9,400	12.4	14,000	4.3	400/350	3.0
WCS-15	14,700	10,700	13.8	16,100	4.3	475/400	3.8
WCS-18	17,800	13,700	13.1	21,000	4.4	540/420	4.5

Features & Benefits

Whisperline® WCS water source heat pump
Quiet reliable operation in a compact vertical console unit with a reverse cycle R-410A refrigerant system to provide comfort heating and cooling.

Whisperline® WCS Cooling Only unit For warm climates where heating is not a priority the cooling only version is available in the same compact reliable cabinet as the heat pump version but with the flexibility of electric heating element to generate the desired heating.

Electric Heat Options - Boilerless Control
Factory installed electric heaters are available on vertical units. Unit controls are available for boilerless, supplemental, primary or emergency electric heat to serve several different application needs. Boilerless electric heat will be energized when the entering water temperature falls below set point. This will allow electric heat to function while ensuring the compressor remains off. With supplemental electric heat control, the wall thermostat will activate the compressor and heater simultaneously if necessary to maintain room heating conditions.

Unfused Disconnect Units are available with an optional non-fused disconnect switch, located on the unit front behind the return air panel. The disconnect switch is used to break power to the unit for safety and ease of service.

EMS Relay The EMS relay allows the WCS console unit to tie into the Energy Management System and turn on and off based on the programming of the building programming.

Hard Start Kit A hard start kit makes your A/C start smoothly and quickly, which reduces damage to A/C parts and prolongs the life of your cooling system. By shortening the startup period of the compressor, the hard start kit reduces the amount of electricity it takes to start your A/C saving you money.

Condensate Overflow Protection The switch is designed to sense when condensate water levels in the drain pan become excessively high. When high condensate water levels are detected during cooling or dehumidification mode, the unit is shut down to prevent additional condensation entering the drain pan.

Remote Thermostat Controls (Requires Wall Stat)
A factory provided thermostat extension with a low voltage wire harness ranging from 5 to 20 foot to allow remote mounting of an external thermostat.

Dual Drain Stub Assembly The dual drain stub assembly allows the unit to connect to the standard condensate drain line for normal operation with the added safety feature of a second drain line piped to a conspicuous location to indicate if there a block in the main drain connection.

Room Cabinet Available as a standard feature of the console unit, the optional room cabinet is also available to replace worn or damaged cabinets. All cabinets are powder painted furniture-grade steel construction with extruded aluminum grille and control door.

Two Way Control Valve (On/Off) - FIELD INSTALLED
2-way valves are used for a variety of pumping applications when more than one unit is installed on a common loop. These valves are also used to shut off flow when the unit is not operating. On a call for cooling or heating the valve opens providing full water flow prior to compressor operation. A 24 volt control wire harness is included with the factory provided control valve option.

Automatic Flow Control Valve - FIELD INSTALLED
The automatic flow control device includes a ball valve cast in the valve body and is located on the return water pipe. The flow control valve consists of a stainless steel/brass flow cartridge and a contoured orifice plate. As the pressure drop increases, the flow cartridge will move into the contoured orifice plate to decrease the flow. This flexing action provides a constant flow, independent of pressure (2-80 psi), makes it difficult to clog and resistant to cavitation damage. This valve sets flow through the coil without any action required by a system balancer.

Hose kit – FIELD INSTALLED Optional hose kits are available for quick and easy connection to the water supply. Stainless steel braided hoses come in 24” or 36” lengths and include ball-type shut

off valves or equipped with both ball-type shut off valves and automatic flow control devices. Female pipe thread fittings (2) 1/2"

Cu-Ni Coaxial Heat Exchanger The optional cupronickel tube-in-tube coaxial heat exchanger used in water source heat pumps is designed for maximum heat transfer at normal and low water flow rates with minimum pressure drop. The inside tube is deeply fluted to enhance heat transfer and minimize fouling. All coaxial coils are tested to 400 psig on the water side and 600 psig on the refrigerant side. The extended range chassis has coil and piping insulation to protect against condensation in low-temperature geothermal applications.

THERMOSTAT SELECTION OPTIONS WCS

Thermostat - Manual Changeover - Non-Programmable
SCI SC2001L

Thermostat - Manual Changeover - Programmable
SCI SC3010L

Thermostat - Auto or Manual Changeover - Programmable SCI SC5011

DIGITAL SOLID STATE CONTROL OPTIONS WCS

Non-Programmable Electronic Thermostat

Non-Programmable, Auto or Manual Changeover, 2-Speed Fan Control, Unit Mount. Part number 50293.

- Single Stage Heat Pump/Non-Heat Pump Systems
- Single Stage Heat/Cool Systems
- Two Speed Fan Control
- Auto/Manual Changeover
- Internal Temperature Sensing
- Ideally Suited for:
  - Residential, New Construction/ Replacement
  - Light Commercial

Specifications

Electrical Rating:

- 24 VAC (18 to 30 VAC)
- 3 amp maximum total load
- 1 amp maximum per terminal

Temperature control ranges: 63°F to 85°F **Accuracy**: ± 1°F
System configurations: 1-stage heat, 1-stage cool
Terminations: C, R, W1/O/B, G1, G2

Operating Modes

There are 4 possible operating modes and 2 fan modes.

OFF Mode

1. In this mode, the thermostat will NOT turn ON the heating or cooling systems.

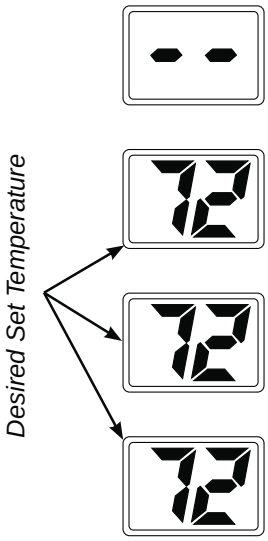
Heat Mode – Red LED On

2. In this mode, the thermostat controls the heating system

Cool Mode – Blue LED On

3. In this mode, the thermostat controls the cooling system

Auto (Heat & Cool) Mode – Yellow LED On



4. In this mode, the thermostat controls the heating and cooling systems, automatically changing over from one to the other as needed.

Continuous Fan Mode

1. The indoor fan can be turned on manually in every operating mode by sliding the auto/on switch to ON.

Cycling Fan Mode (– Switch to Auto)

2. Fan cycles with thermostat demand

Thermostat Displays Set Point Temp Only

Get to know your unit control.

Heat Test – Red LED On

1. Press the mode button until the heat red LED is displayed.
2. Adjust the set temperature so it is 5° above the room temperature.
3. The heat should come on.
4. Adjust the set temperature 5° below the room temperature and the heat should turn off. There is a 60 second fan delay on your system to purge any conditioned air.

Cool Test – Blue LED On

1. Press the mode button until the cool blue LED is displayed
2. Adjust the set temperature so it is 5° below the room temperature.
3. The air conditioning should come on.
4. Adjust the set temperature 5° above the room temperature and the A/C should turn off. There is a 60 second fan delay on your system to purge any conditioned air.

Fan Test

1. Slide the fan switch to the ON position. This turns the indoor fan ON continuous.
2. Slide the fan switch to the AUTO position. This cycles the indoor fan with the desired operation.

Operating Your Thermostat

1. Move the Fan Auto/On switch to the Auto position.
2. Press the MODE button to enter desired operating mode.

Configuration Mode Settings

To enter configuration, simultaneously hold down the ▲ and ▼ buttons for 5 seconds.

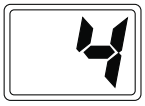
1. Temperature scale (F or C) – Choose Fahrenheit or Celsius.

   Press the ▲ or ▼ button to select.

   Press the PROG button to advance to the next screen.

2. Deadband (4, 6) – Set the minimum number of degrees between your heating system activation and your cooling system activation.

   Press the ▲ or ▼ button to set deadband value.

   Press the PROG button to advance to the next screen.

3. Heat pump – Press the or button to configure as heat pump, or non-heat pump system.

   Factory Set

   - Hb – Heat pump - Heat active
   - H0 – Heat pump - Cool active
   - EL – Electric heat

   Press the PROG button to advance to the next screen.

4. Differential (1°F - 5°F) (1°C - 5°C) – Set the number of degrees between your “turn on” temperature and your “setpoint” temperature.

   Press the or button to set differential value.

   To exit configuration, simultaneously hold down the and buttons for 5 seconds.

Troubleshooting

Symptom	Remedy
No display	Check for power at unit
– – on display instead of set temperature	In OFF mode
Fan runs continuously	Check Fan On/Auto switch, fan runs continuously in On position

Table 3: Physical Data Table

Component	Models				
	WCS-08	**WCS-10**	**WCS-12**	**WCS-15**	**WCS-18**
Nominal Tonnage					
COOLING PERFORMANCE					
Capacity (MBTUH)	7,800	10,600	11,500	14,700	17,800
EER (Btuh/W)	14.0	13.6	12.4	13.8	13.1
Entering Water Temp (°F)	86	86	86	86	86
Water Flow (GPM)	2.0	2.5	3.0	3.8	4.5
Rated CFM	300	395	400	475	540
Refrigerant type	R410A	R410A	R410A	R410A	R410A
Refrigerant charge (oz)					
HEATING PERFORMANCE					
Capacity (MBTUH)	9,200	12,100	14,000	16,100	21,000
COP	4.4	4.6	4.3	4.3	4.4
Entering Water Temp (°F)	68	68	68	68	68
Water Flow (GPM)	2.0	2.5	3.0	3.8	4.5
DIMENSIONS (inches)					
Width (in.)	44.6	54.6	54.6	54.6	54.6
Depth (in.)	10.8	10.8	10.8	12.6	12.6
Height (in.)	25.5	25.5	25.5	25.5	25.5
OPERATING WEIGHT (lbs.)	108	111	113	138	148
SHIPPING WEIGHT (lbs.)	115	118	120	145	155
COMPRESSORS					
Type	Rotary	Rotary	Rotary	Rotary	Rotary
Quantity	1	1	1	1	1
EVAPORATOR COIL DATA					
Rows	2	2	2	3	3
Refrigerant control	Capillary Tube	Capillary Tube	Capillary Tube	Capillary Tube	Capillary Tube
SUPPLY FAN DATA					
Quantity	2	2	2	2	2
Fan Size (D x W)	4.75 x 6.875	4.75 x 6.875	4.75 x 6.875	4.75 x 6.875	4.75 x 6.875
Fan type	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal
Maximum E.S.P.					
PSC Motor - Standard	0.0	0.0	0.0	0.0	0.0
PSC MOTOR HP					
Voltage - 208-230/60/1	1/10	1/10	1/10	1/10	1/10
Voltage - 265/60/1	1/10	1/10	1/10	1/10	1/10
PSC HIGH STATIC MOTOR HP					
Voltage - 208-230/60/1	1/10	1/10	1/10	1/10	1/10
Voltage - 265/60/1	1/10	1/10	1/10	1/10	1/10
FILTERS					
Size	10.375 x 27.75 x 0.1.25	10.375 x 27.75 x 0.1.25	10.375 x 27.75 x 0.1.25	12.25 x 32.00 x 0.1.25	12.25 x 32.00 x 0.1.25
Quantity	1	1	1	1	1

Table 4: Unit Voltage Limitations

Voltage	Minimum	Maximum
208/230-60-1	197	252
265-60-1	239	292

Table 5: VP Continuous Operating Limits

Mode	Ambient Air °F		Entering Air °F				Entering Fluid °F			
	Minimum	Maximum	Minimum		Maximum		Standard Range		Extended Range	
	DB	DB	DB	WB	DB	WB	Min	Max	Min	Max
Cooling	60	100	75	63	100	83	60	120	30	120
Heating	60	80	60	–	80	–	60	90	20	90

Note: Extended Range **requires insulated risers, correct control jumper setting, and design condition antifreeze solution**

Table 6: VP Start-up Operating Limits

Mode	Ambient Air °F		Entering Air °F				Entering Fluid °F			
	Minimum	Maximum	Minimum		Maximum		Standard Range		Extended Range	
	DB	DB	DB	WB	DB	WB	Min	Max	Min	Max
Cooling	50	100	50	42	100	83	50	120	30	120
Heating	50	80	50	–	80	–	50	90	20	90

Note: Extended Range **requires insulated risers, correct control jumper setting, and design condition antifreeze solution**

Standard Range Units:

Units are designed to start in an ambient of 50°F (10°C) with entering air at 50°F (10°C), with entering water at 50°F (10°C), with nominal air flow and water flow (3.0 GPM/Ton), for initial start-up in heating and cooling mode.

Note: This is not a normal or continuous operating condition. It is assumed that such start-up is for the purpose of bringing the building space up to occupancy temperature and operating for extended periods of time.

Extended Range Units:

Units are designed to start in an ambient of 50°F (10°C) with entering air at 50°F (10°C), with entering water at 20°F (-7°C), with nominal air flow and water flow (3.0 GPM/Ton), for initial start-up in heating.

Units are designed to start in an ambient of 50°F (10°C) with entering air at 50°F (10°C), with entering water at 30°F (-1°C), with nominal air flow and water flow (3.0 GPM/Ton), for initial start-up in cooling.

Note: This is not a normal or continuous operating condition. It is assumed that such start-up is for the purpose of bringing the building space up to occupancy temperature and operating for extended periods of time.

Environment

This equipment is designed for indoor installation only. Unconditioned locations such as attics, garages, etc., generally will not provide sufficient protection against extremes in temperature and/or humidity, and equipment performance, reliability, and service life may be adversely affected.

Power supply

A voltage variation of +/-10% of nameplate voltage is acceptable.

Size (Tons)	EWT (°F)	GPM	Entering Air - 80°F / 67°F					Entering Air - 78°F / 65°F					Entering Air - 75°F / 63°F				
			TC (BTU/hr)	SC (BTU/hr)	kW	HR (BTU/hr)	Liquid Temp Rise (°F)	TC (BTU/hr)	SC (BTU/hr)	kW	HR (BTU/hr)	Liquid Temp Rise (°F)	TC (BTU/hr)	SC (BTU/hr)	kW	HR (BTU/hr)	Liquid Temp Rise (°F)
0.75	86	1.50	7.885	6.054	0.573	9.839	13.12	7.738	6.007	0.570	9.683	12.91	7.615	5.215	0.567	9.551	12.73
		1.88	7.724	6.075	0.554	9.615	10.26	7.580	6.028	0.552	9.462	10.09	7.459	5.233	0.549	9.332	9.95
		2.00	7.808	6.096	0.553	9.694	9.69	7.663	6.049	0.550	9.539	9.54	7.541	5.252	0.547	9.408	9.41
1.00	86	2.00	11.540	8.718	0.933	14.723	14.72	11.387	8.652	0.927	14.549	14.55	11.242	7.490	0.920	14.382	14.38
		2.50	11.251	8.632	0.905	14.339	11.47	11.101	8.567	0.899	14.169	11.34	10.960	7.416	0.893	14.006	11.20
		3.00	11.374	8.546	0.905	14.460	9.64	11.223	8.481	0.899	14.289	9.53	11.079	7.342	0.893	14.125	9.42
1.25	86	2.50	15.164	11.209	1.079	18.847	15.08	14.850	11.186	1.072	18.509	14.81	14.538	9.684	1.066	18.174	14.54
		3.13	15.383	11.162	1.052	18.974	12.14	15.064	11.139	1.045	18.631	11.92	14.747	9.643	1.039	18.293	11.71
		3.80	15.267	11.116	1.057	18.875	9.93	14.951	11.092	1.050	18.535	9.76	14.636	9.603	1.044	18.199	9.58
1.50	86	3.00	18.782	13.662	1.344	23.369	15.58	18.501	14.081	1.336	23.061	15.37	18.253	12.191	1.329	22.786	15.19
		3.75	18.506	13.457	1.309	22.973	12.25	18.229	13.869	1.302	22.670	12.09	17.984	12.007	1.294	22.399	11.95
		4.50	18.708	13.251	1.314	23.192	10.31	18.428	13.657	1.306	22.886	10.17	18.180	11.823	1.299	22.612	10.05

Size (Tons)	EWT (°F)	GPM	Entering Air - 65°F				Entering Air - 70°F				Entering Air - 75°F			
			HC (BTU/hr)	kW	HE (BTU/hr)	Liquid Temp Drop (°F)	HC (BTU/hr)	kW	HE (BTU/hr)	Liquid Temp Drop (°F)	HC (BTU/hr)	kW	HE (BTU/hr)	Liquid Temp Drop (°F)
0.75	68	1.50	10.068	0.649	7.856	10.47	9.968	0.681	7.645	10.19	9.867	0.713	7.435	9.91
		1.88	9.863	0.628	7.721	8.24	9.764	0.659	7.517	8.02	9.665	0.690	7.312	7.80
		2.00	9.970	0.626	7.836	7.84	9.871	0.657	7.630	7.63	9.771	0.688	7.424	7.42
1.00	68	2.00	13.572	0.940	10.366	10.37	13.439	0.986	10.074	10.07	13.311	1.033	9.787	9.79
		2.50	13.232	0.912	10.122	8.10	13.102	0.957	9.838	7.87	12.977	1.002	9.558	7.65
		3.00	13.377	0.911	10.267	6.84	13.245	0.956	9.982	6.65	13.119	1.001	9.701	6.47
1.25	68	2.50	15.471	0.955	12.211	9.77	15.316	1.003	11.894	9.52	15.161	1.050	11.578	9.26
		3.13	15.694	0.931	12.516	8.01	15.537	0.978	12.201	7.81	15.380	1.024	11.887	7.61
		3.80	15.576	0.936	12.382	6.52	15.420	0.982	12.068	6.35	15.264	1.029	11.754	6.19
1.50	68	3.00	21.567	1.488	16.491	10.99	21.355	1.564	16.020	10.68	21.152	1.642	15.547	10.36
		3.75	21.250	1.449	16.305	8.70	21.041	1.523	15.845	8.45	20.840	1.600	15.382	8.20
		4.50	21.482	1.455	16.518	7.34	21.271	1.529	16.055	7.14	21.067	1.606	15.588	6.93

Table 7: WCS PSC Performance Table

Unit	CFM Hi/Lo	Fan Option		CFM at External Static Pressure (in wg.)									
		Option	Speed	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.50
WCS-08	300/250	Standard PSC	HI	300	-	-	-	-	-	-	-	-	-
			Low	250	-	-	-	-	-	-	-	-	-
WCS-10	395/330	Standard PSC	HI	395	-	-	-	-	-	-	-	-	-
			Low	330	-	-	-	-	-	-	-	-	-
WCS-12	400/350	Standard PSC	HI	400	-	-	-	-	-	-	-	-	-
			Low	350	-	-	-	-	-	-	-	-	-
WCS-15	475/400	Standard PSC	HI	475	-	-	-	-	-	-	-	-	-
			Low	400	-	-	-	-	-	-	-	-	-
WCS-18	540/420	Standard PSC	HI	540	-	-	-	-	-	-	-	-	-
			Low	420	-	-	-	-	-	-	-	-	-

Table 10: WCS Electrical Ratings[1]

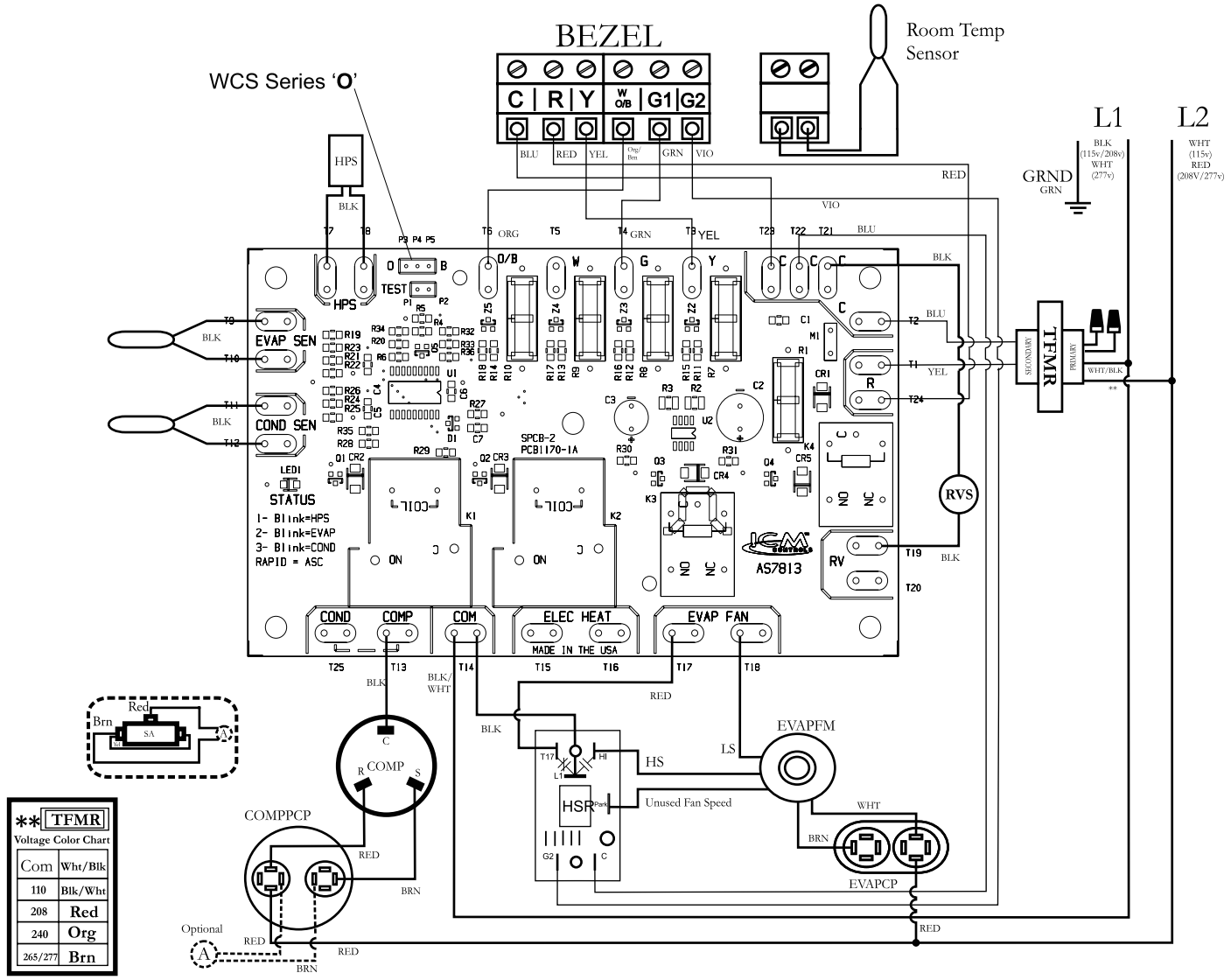
Model	Comp	Voltage/ HZ/Ph	Fan Amps	Fan HP	Compressor		Total Amps.	CKT Ampacity	Max. Fuse
					RLA	LRA			
WCS-08	Rotary	115/60/1	1.2	1/10	6.1	39.1	7.30	9.0	15
WCS-08	Rotary	208-230/60/1	0.4	1/10	3.0	15.0	3.40	5.0	15
WCS-08	Rotary	265/60/1	0.4	1/10	2.7	11.0	3.10	4.0	15
WCS-10	Rotary	115/60/1	1.2	1/10	7.8	50.0	9.00	11.0	15
WCS-10	Rotary	208-230/60/1	0.4	1/10	4.4	22.0	4.80	6.0	15
WCS-10	Rotary	265/60/1	0.4	1/10	3.4	21.0	3.75	5.0	15
WCS-12	Rotary	115/60/1	1.2	1/10	9.5	50.0	10.70	14.0	20
WCS-12	Rotary	208-230/60/1	0.4	1/10	4.7	25.0	5.10	7.0	15
WCS-12	Rotary	265/60/1	0.4	1/10	4.2	22.0	4.60	6.0	15
WCS-15	Rotary	208-230/60/1	0.6	1/10	5.6	29.0	6.20	8.0	15
WCS-15	Rotary	265/60/1	0.6	1/10	5.0	28.0	5.60	7.0	15
WCS-18	Rotary	208-230/60/1	0.6	1/10	7.4	33.0	8.00	10.0	15
WCS-18	Rotary	265/60/1	0.6	1/10	6.0	28.0	6.60	9.0	15

IMPORTANT: Chassis must replace a unit of like capacity to ensure proper power supply.
(1) If optional electric heat is selected see Electric Heat Ratings Table: Total Amps, Ampacity & Fuse is the larger Value.

Electric Heat Ratings (Boilerless)*

Heater No.	Volt	Watts	BTU/h	HTR Amps	Total Amps	Min CKT Amps	Max. Fuse
WCS-08	208	1,000	3,400	4.8	5.4	7	15
	230	1,220	4,160	5.3	5.9	7	15
	277	1,000	3,400	3.6	4.2	5	15
WCS-12	208	2,000	6,820	9.6	10.2	13	15
	230	2,450	8,350	10.7	11.3	14	15
	277	2,000	6,820	7.3	7.9	10	15

*Optional



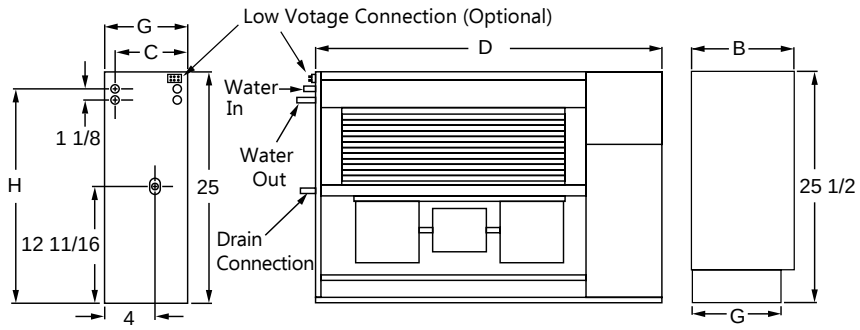
LEGEND:

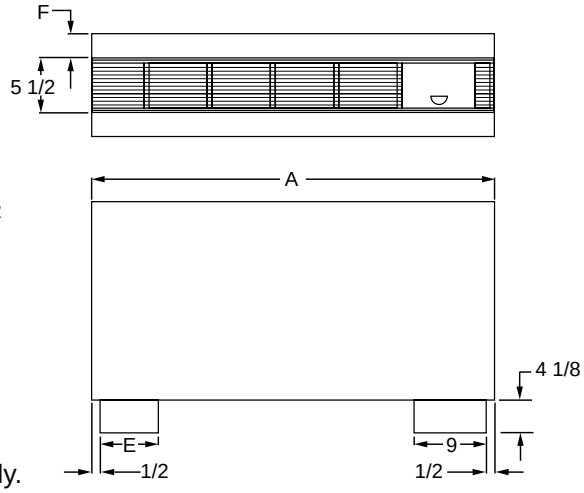
COMP= Compressor
COMPCP= Compressor Capacitor
EVAPCP= Evaporator Capacitor
EVAPFM= Evaporator Fan Motor
FPT= Freeze Protection T'stat
HPS= High Pressure Switch
HS= Hard Start
HSR= High Speed Relay
RVS= Reversing Valve Solenoid
SA= Start Assist
TFMR= Transformer

95332-W
Rev. G

Whisperline® Cabinet Drawing

Model	A	B	C	D	E	F	G	H	Water In-Out	Drain	Chassis Weight (lbs.)
WCS-08	44 9/16	10 3/4	8 7/8	37 3/4	6 1/4	2 5/8	10 1/4	23 5/16	5/8" O.D.	3/4" O.D.	116
WCS-10, 12											120
WCS-15, 18	54 9/16	12 9/16	10 7/8	42 3/4	10 3/4	3 1/2	12 1/8	24			155





Chassis is field adaptable to LH or RH connections. Left hand shown.

Chassis must replace a unit of like capacity to assure proper power supply.

Mechanical Specifications

MODEL WCS CONSOLE WATER SOURCE HEAT PUMP

DESCRIPTION

Whalen 'WCS' Series console units are manufactured by The Whalen Company and are designed as a direct replacement for Singer/McQuay 'WMB' console water source heat pumps. The 'WCS' series is also an excellent candidate for new construction or renovation console water source heat pump applications. These console units are offered with new cabinets for a complete upgrade or as chassis only to work with existing or custom cabinets. Chassis dimensions are identical to the original units. The supply and return water piping connections, drain location and wiring connections are located and sized identical to the original Singer/McQuay units. Units requiring changes or modifications to the existing piping, wiring or mounting are not acceptable.

GENERAL

Units shall be designed, constructed and tested in accordance with UL 1995 and CSA C22.2 #236 safety standards. All electrical and refrigeration components shall be UL recognized. Units shall be ETL safety labeled. Chassis shall be completely factory assembled, piped, internally wired, tested and fully charged with R-410A refrigerant. Capacities and efficiencies shall be rated in accordance with ISO detailed on the specification sheet. All units shall have warning and caution labels, and labels to aid in service.

CHASSIS CONSTRUCTION

The chassis contains the compressor, air side heat exchanger, water side heat exchanger, evaporator fan motor, electronic controls and safety components. The 'WCS' series has two chassis sizes, Small (models 08, 10 &12), and large (models 15 &18). All chassis sizes must be dimensionally identical to the original 'WMB' series and fit the existing Singer/McQuay room cabinets without modification. Units that do not fit the original cabinet are not acceptable. The chassis must be field adaptable to either left or right hand piping applications. Water, drain and electrical connections must line up to the original installation. The chassis shall be constructed of heavy gauge, G-90U corrosion resistant sheet metal. The evaporator drain pan shall be constructed of welded galvanized steel and coated with baked powder coat paint for corrosion resistance. Service panels shall be easily removable and sufficiently large to allow access to all components. Service ports are external for field service without chassis removal. Chassis are factory built for left hand water piping configuration and are field reversible for right hand pipe applications.

INSULATION

Chassis shall be insulated to minimize thermal and acoustic transfer. Insulation material to be dual-density ½" thick 'TUF-SKIN II' fiberglass with a thermal conductance rating of .52. Insulation shall be rated for use in air moving components with a working velocity rating of 3600 FPM. Insulation shall conform to the physical properties and requirements of ASTM C 1071. An optional sound attenuating Soundfoam "M" insulation is available.

EVAPORATOR MOTOR/BLOWER

Evaporator motor/blower assembly shall consist of a high efficiency 2-speed 'PSC' motor designed for long life. Motor shall have sleeve bearings for long life and cool operation. Motor case is to be totally enclosed to inhibit entrance of moisture and contaminants. Motor mount to be 'resilient' end ring type to minimize noise and vibration. Motor is to direct drive the blower wheels. Blower wheels to be a DWDI, dynamically balanced, design for smooth operation and efficient airflow. Blower wheels to be constructed of galvanized steel or aluminum for corrosion resistance. Motor/blower assembly shall be mounted to a 'slide-out' deck for easy removal from the chassis. Fixed deck designs are not acceptable.

AIR FILTER

Filter is to be 3/16" thick, electro-static type and cleanable for re-use. Filter to be chassis mounted for easy maintenance.

REFRIGERATION SYSTEM

COMPRESSOR

The compressor shall be a hermetically sealed, quiet, durable, and efficient rotary type with built in pressure and external temperature overload protection. Compressor shall be externally isolated to minimize vibration and sound transmission.

AIR-TO- REFRIGERANT HEAT EXCHANGERS

The evaporator fin-tube air to refrigerant heat exchanger shall be of efficiency enhanced aluminum fin and copper tube construction rated to withstand 645-PSI refrigerant working pressure. Fins are mechanically bonded to tubes. Endplates shall be constructed of corrosion resistant galvanized steel. Evaporator airflow is to be 'blow-thru'.

WATER-TO- REFRIGERANT HEAT EXCHANGERS

The water-to-refrigerant heat exchanger shall be a low water side pressure drop formed coaxial type (tube-in-tube) design. Heat exchanger shall be constructed with copper inner water tube with bonded aluminum fins and steel refrigerant outer tube. Steel outer tube to be painted to resist corrosion. Heat exchanger assembly shall be rated to withstand 645 Psig refrigerant and 400 Psig water working pressures.

REVERSING VALVE

The 4-way refrigerant reversing valve is solenoid coil activated and shall be a pilot operated sliding piston type for positive shift and low-pressure drop. Valve design shall allow for cooling function should the solenoid fail to function. Valve body shall be constructed of corrosion resistant brass and copper.

REFRIGERANT

Refrigerant system shall be precisely charged with pure and clean HFC-R410A refrigerant. The refrigerant containing system components shall be handled and processed to be air and contaminant free then sealed to be leak free. The charge amount shall appear on the unit nameplate.

REFRIGERANT METERING

A smooth bore capillary tube, carefully selected for optimum performance and precise control in both cooling and heating modes of operation shall meter refrigerant.

EVAPORATOR COIL FREEZE PROTECTION

An electronic thermistor shall be used to prevent evaporator coil freeze-up and shall be set to stop the unit operation when the coil temperature drops to 35˚-F. The control auto resets at 45˚-F.

WATER SIDE HEAT EXCHANGER FREEZE PROTECTION

A water coil insertion type freeze protection set to stop unit operation when the water inside the coil water tube drops to 35˚-F near the outlet. The control auto resets at 45˚-F.

REFRIGERANT TUBING

Refrigerant tubing shall be clean refrigeration grade soft copper. Tubing shall be mandrel formed for low-pressure drop and minimum work hardening.

REFRIGERANT TUBING ACCESS PORTS

¼" SAE flare type system access ports shall be provided external of the chassis on the low and high side of the refrigeration system to allow for diagnostics and refrigerant recovery/charging. Ports shall include internal valve cores and external caps to prevent leakage.

PIPING AND WIRING

Piping and wiring connections to be sized and located per detail on specification sheets. Size and location to match the original unit for direct installation to the existing piping and wiring without modification.

ELECTRICAL

All controls and connectors necessary for chassis operation and interface with thermostat and power supply will be factory installed and tested.

ELECTRIC HEAT (OPTIONAL)

Internal mounted electric heating element shall be constructed of nichrome wire suspended by ceramic insulators and a corrosion resistant structural frame. Element is designed for low surface temperature and long life. A carefully selected replaceable, automatic or manual, limit switch rated for 100,000 cycles prevents overheat and protects against the build-up of excessive/damaging heat within the unit.

CONTROL

All control components are to be mounted in an enclosure within the chassis for easy access, ease of troubleshooting and service without chassis removal. The internal control board, via 24VAC NEC class 2 transformer, will provide outputs to the compressor, evaporator fan, reversing valve and (optional) electric heat strips. The high pressure switch (HPS) input will turn the compressor off upon opening. Temperature sensors/capillaries will monitor the evaporator and water side heat exchangers and shut down the compressor if a 35 deg. set point is reached. The control will incorporate a 5 minute anti-short cycle time delay to prevent the compressor from short cycling. Each evaporator fan initiation will introduce a 60 second post purge delay (in the auto position) after each room thermostat cycle.

CONTROL COMPONENTS – UNIT MOUNTED DIGITAL

The on board LED thermostat will operate as a Heat/Cool or Heat Pump controller and interfaces via 24V control wiring with the self-contained internal control board previously described. The large LED Display shows Set Point only and operates as a non-programmable, auto-changeover or manual changeover thermostat including high/low fan speeds and on/auto fan operations. The room temperature set point is set via 2 up and down arrows. The fan speeds and on/auto selection to be managed through individual slide switches. All functions are to be managed thru the internal control board. Chassis shall include a wiring diagram, which clearly details point-to-point wiring connections.

CONTROL COMPONENTS – REMOTE THERMOSTAT

An external low voltage terminal block is to be provided as a junction point for the wall thermostat wiring. The terminal block is to be clearly labeled identifying the required terminations. Chassis shall include a wiring diagram, which clearly details point-to-point wiring connections.

NAMEPLATE

Unit chassis shall include a clearly legible nameplate which indicates unit: Model Number, Serial Number, Refrigerant Charge, Full Load Amps, Fan Motor Amps, Compressor Locked Rotor Amps, Minimum Circuit Ampacity, Maximum Fuse/HACR Circuit Breaker Size, High and Low Test Pressures, and Manufacturer's Name and Address.

ROOM CABINET

The room cabinet is to be constructed of powder painted furniture grade steel with extruded aluminum grille and control door. Air flow is to be bottom intake and top discharge. Grille to include a 15˚ deflection angle for optimal air distribution to the room. The cabinet shall be insulated to minimize sound transmission to the room. Cabinet dimensions are in accordance with specifications and must be identical to the original Singer/McQuay unit sizes. Removal of the room cabinet provides complete access to the sides and front of the chassis for routine servicing. Cabinet is mounted to the chassis with screws for security. Cabinets are to be factory assembled for left hand piping connections as standard. Cabinets to accept right hand piping connections are field adaptable. Cabinet is to be conventional flat top design. Slope top or plastic cabinets and/or grilles are not acceptable.

The Whalen Company

The Whalen Company
Limited Express Warranty
Water-to-Air Heat Pump Standard Warranty

The Whalen Company warrants to the purchaser each water-to-air heat pump to be free from original defects in materials and workmanship.

Where inspection by an authorized representative of The Whalen Company confirms such defects to be present, for a period of eighteen months from date of shipment, Whalen will furnish replacement components or materials to the original purchaser without charge.

This warranty excludes all field labor in connection with inspection and diagnosis of malfunctions, all field labor in connection with repair or replacement of parts, all field labor in connection with removal and transportation to and from a repair facility and all field labor in connection with reinstallation after repairs are completed.

This warranty is intended to cover original equipment defects only. Whalen expressly disclaims all liability for component failures arising out of the misuse of Whalen heat pumps through misapplication, improper installation, inadequate maintenance, or operation on defective water and electrical systems. Equipment failure due to corrosion, abuse or acts of God is also excluded from this warranty.

The Whalen Company neither assumes nor authorizes any person to assume for it any obligation or warranty other than those stated herein.

Replacement or repair under this warranty will not extend the warranty time periods defined above. Whalen shall not, in any event, have any liability under this warranty unless and until it has been paid in full for the equipment supplied. The warranty period shall commence on the date of shipment, however, whether or not payment has been made.

This warranty applies only to Whalen heat pump installations in the fifty United States and in Canada. There are no warranties outside those areas.

The Whalen Company has no liability for incidental or consequential damages arising out of the ownership, use or operation of Whalen heat pumps.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. NO IMPLIED WARRANTY OR MERCHANTABILITY SHALL ACCOMPANY THE SALE OF THIS EQUIPMENT, AND THIS EXPRESS WARRANTY IS INTENDED TO AND DOES REPLACE ANY IMPLIED WARRANTY OF MERCHANTABILITY.

This warranty, its limitations and its exclusions are to be governed by the laws of Maryland. Although some warranties may vary in their effect and coverage from locality to locality, this warranty, its effects, coverage and remedies are only those available in Maryland.

Rev: 11/2016

The Whalen Company
Limited Express Warranty
Water-to-Air Heat Pump Chassis Standard Warranty

The Whalen Company warrants to the purchaser each water-to-air heat pump chassis (or each refrigeration chassis) to be free from original defects in materials and workmanship.

Where inspection by an authorized representative of The Whalen Company confirms such defects to be present, for a period of twelve months from date of shipment, Whalen will furnish replacement components or materials to the original purchaser without charge.

This warranty excludes all field labor in connection with inspection and diagnosis of malfunctions, all field labor in connection with repair or replacement of parts, all field labor in connection with removal and transportation to and from a repair facility and all field labor in connection with reinstallation after repairs are completed.

This warranty is intended to cover original equipment defects only. Whalen expressly disclaims all liability for component failures arising out of the misuse of Whalen heat pumps through misapplication, improper installation, inadequate maintenance, or operation on defective water and electrical systems. Equipment failure due to corrosion, abuse, or acts of God is also excluded from this warranty.

The Whalen Company neither assumes nor authorizes any person to assume for it any obligation or warranty other than those stated herein.

Replacement or repair under this warranty will not extend the warranty time periods defined above. Whalen shall not, in any event, have any liability under this warranty unless and until it has been paid in full for the equipment supplied. The warranty period shall commence on the date of shipment, however, whether or not payment has been made.

This warranty applies only to Whalen heat pump installations in the fifty United States and in Canada. There are no warranties outside those areas.

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This warranty, its limitations and its exclusions are to be governed by the laws of Maryland. Although some warranties may vary in their effect and coverage from locality to locality, this warranty, its effects, coverage, and remedies are only those available in Maryland.

Rev: 05/2015

The Whalen Company

The Whalen Company
Limited Express Warranty
Water-to-Air Heat Pump with 5 Year Compressor Warranty

The Whalen Company warrants to the purchaser each water-to-air heat pump to be free from original defects in materials and workmanship.

Where inspection by an authorized representative of The Whalen Company confirms such defects to be present, for a period of fifteen months from date of shipment, Whalen will furnish replacement components or materials to the original purchaser without charge.

In addition, for a period of sixty months from the date of shipment, Whalen will furnish a replacement for any compressor found by an authorized representative of The Whalen Company to contain an original defect.

This warranty does not cover labor in connection with repair or replacement of parts, labor in connection with removal and transportation to and from a repair facility, or labor in connection with reinstallation after repairs are completed.

The sixty month extended warranty is intended to cover original equipment defects only. Whalen expressly disclaims all liability for component failures arising out of the misuse of Whalen heat pumps through misapplication, improper installation, inadequate maintenance, or operation on defective water and electrical systems. Equipment failure due to corrosion, abuse, or acts of God is also excluded from this warranty.

The Whalen Company neither assumes nor authorizes any person to assume for it any obligation or warranty other than those stated herein.

Replacement or repair under this warranty will not extend the warranty time periods defined above. Whalen shall not, in any event, have any liability under this warranty unless and until it has been paid in full for the equipment supplied. The warranty period shall commence on the date of shipment, however, whether or not payment has been made.

This warranty applies only to Whalen heat pump installations in the fifty United States and in Canada. There are no warranties outside those areas.

The Whalen Company has no liability for incidental or consequential damages arising out of the ownership, use, or operation of Whalen heat pumps.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. NO IMPLIED WARRANTY OR MERCHANTABILITY SHALL ACCOMPANY THE SALE OF THIS EQUIPMENT, AND THIS EXPRESS WARRANTY IS INTENDED TO AND DOES REPLACE ANY IMPLIED WARRANTY OF MERCHANTABILITY.

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Rev: 05/2015

The Whalen Company
Limited Express Warranty
Water-to-Air Heat Pump with 5 Year Refrigeration Circuit Warranty

The Whalen Company warrants to the purchaser each water-to-air heat pump to be free from original defects in materials and workmanship.

Where inspection by an authorized representative of The Whalen Company confirms such defects to be present, for a period of fifteen months from date of shipment, Whalen will furnish replacement components or materials to the original purchaser without charge.

In addition, for a period of sixty months from the date of shipment, Whalen will repair or replace refrigeration circuit components found by an authorized representative of The Whalen Company to contain an original defect. Refrigeration circuit components are defined to include the compressor, reversing valve, water coil, air coil, expansion device and interconnecting tubing only.

This warranty excludes all field labor in connection with inspection and diagnosis of malfunctions, all field labor in connection with repair or replacement of parts, all field labor in connection with removal and transportation to and from a repair facility, and all field labor in connection with reinstallation after repairs are completed.

The sixty month extended warranty is intended to cover original equipment defects only. Whalen expressly disclaims all liability for component failures arising out of the misuse of Whalen heat pumps through misapplication, improper installation, inadequate maintenance, or operation on defective water and electrical systems. Equipment failuredue to corrosion, abuse or acts of God is also excluded from this warranty.

The Whalen Company neither assumes nor authorizes any person to assume for it any obligation or warranty other than those stated herein.

Replacement or repair under this warranty will not extend the warranty time periods defined above. Whalen shall not, in any event, have any liability under this warranty unless and until it has been paid in full for the equipment supplied. The warranty period shall commence on the date of shipment, however, whether or not payment has been made.

This warranty applies only to Whalen heat pump installations in the fifty United States and in Canada. There are no warranties outside those areas.

The Whalen Company has no liability for incidental or consequential damages arising out of the ownership, use, or operation of Whalen heat pumps.

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Rev: 05/2015

Whisperline® Design Guide Revision Table

Date	Description
3/21/18	First Published

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