

SPVWC



VERTICAL  
WATER COOLED  
AIR CONDITIONERS



**30 to 50 Ton Capacities**



## Contact Phone Numbers:

Toll Free: 800-932-6210

Toll Free Fax: 800-903-7294

[www.spinnakerindustries.com](http://www.spinnakerindustries.com)

**Gordon McCarthy**

[gord@spinnakerindustries.com](mailto:gord@spinnakerindustries.com)

Extension 121

**Vice President Sales & Marketing**

**Michael Bailey**

[michael@spinnakerindustries.com](mailto:michael@spinnakerindustries.com)

Extension 119

**Ontario Territory Manager**

**Adam Lattanzio**

[adam@spinnakerindustries.com](mailto:adam@spinnakerindustries.com)

Extension 125

**Customer Support / Inside Sales**

**Jim Sheridan**

[jsheridan@spinnakerindustries.com](mailto:jsheridan@spinnakerindustries.com)

Extension 139

**Customer Support**

• Energy Recovery Ventilators

**Armando Medeiros**

[armando@spinnakerindustries.com](mailto:armando@spinnakerindustries.com)

Extension 126

**Purchasing Manager**

**Shaibal Paul**

[shaibal@spinnakerindustries.com](mailto:shaibal@spinnakerindustries.com)

Extension 140

**Application Designer**

• Custom Air Handling Units

**Del Haskell**

[dell@spinnakerindustries.com](mailto:dell@spinnakerindustries.com)

Extension 131

**A/C Product Coordinator**

## **Current Spinnaker Locations:**

[www.spinnakerindustries.com](http://www.spinnakerindustries.com)

### **Toll Free:**

Telephone Number: (800) 932-6210

Fax Number: (800) 903-7294

### **- CANADA**



1171 Gorham Street, Newmarket, Ontario, Canada L3Y 8Y2

### **- U.S.A.**



4846 Jennings Lane, Louisville, Kentucky, USA 40218

# “SPVWC”

## COMMERCIAL VERTICAL WATER COOLED

### **Self-contained Air Conditioning Packages Belt Drive 30 - 50 Ton Series**

Spinnaker Industries Inc. “SPVWC” vertical self-contained air conditioning packages offer a complete line of unit options for indoor, floor mounted installations on high rise and single story building applications.

Spinnaker Industries Inc. compact, indoor design protects against potential vandalism, weathering and eliminates the need for any unsightly exterior equipment.

Floor-by-floor installation provides independent zone and temperature control, eliminating many of the complications encountered with roof-top equipment. Renovation and restoration projects are simplified where roof load, cooling tower, and construction restrictions can present application problems.

Spinnaker’s SPVWC Water Cooled Indoor Vertical air conditioning design offers a high efficiency, quality engineered, quiet and dependable option to conventional rooftop equipment. The SPVWC has been designed to provide a solid answer for “NICHE” engineering requirements.

#### **Spinnaker SPVWC Features and Benefits**

- Ideal for tenant change/renovation.
- Protected from extreme weather conditions and vandalism.
- Convenient access to all parts and service needs, while running in place.
- Allows independent metering / temperature control.
- Sub-cooling built into draw thru condensing coil.
- 18 gauge galvalume evaporator and condensing cabinets which can be field-split if required.
- Vertical evaporator discharge.
- Static capability to suit various installation requirements using belt driven centrifugal blowers and adjustable pulleys.
- Available in 30 - 50 ton capacities; multiple voltages.
- Filter Drier and TX Valve.
- High efficiency compressor(s)
- 410A Refrigerant
- Stainless Steel Drain Pan
- On Board microprocessor control with diagnostics
- Compressor Anti Short Cycle Timer

Units shipped in Canada are provided with CSA Special Inspection Approval .  
Units shipped in the USA are provided with QPS Field Evaluation Approval .

## **TYPICAL MECHANICAL SPECIFICATIONS**

### **GENERAL**

All Models 30 - 50 tons ship as factory-charged unitized packages. All units are designed for freestanding floor mounting and are shipped with vertical evaporator fan discharge as standard. Units are completely factory wired and piped and feature internally manifolded condensers.

### **CABINET**

All cabinets are completely constructed of 18 Ga. corrosion resistant "Galvalume" coated steel. The entire unit interior (both evaporator and compressor section) is insulated with 1/2' thick, 2 lb. density insulation. Service panels are equipped with lifting handles for ease of removal and handling. Duct flanges for return intake and evaporator discharge, are provided with the unit for field installation. Duct flanges on the evaporator return are incorporated into the filter frame.

### **REFRIGERANT CIRCUITS**

All models utilize "Scroll" type 410A hermetic compressors. Compressors are mounted on rubber isolators to minimize vibration transmission. Internal overload protection is provided. External high pressure and low pressure cutout switches are included in each compressor control circuit. Units feature multiple independent refrigeration circuits. Each refrigeration circuit includes an adjustable thermal expansion valve (with external equalizer), liquid line filter drier, and service gauge ports.

The evaporator coils are constructed of internally enhanced copper tubes mechanically bonded to rippled aluminum plate fins. The evaporator coil is employed in a draw-through configuration, and features inter-laced circuiting. Larger evaporator coil face areas minimize potential water carry-over. The high-efficiency tube-in-tube condensers feature a convoluted inner tube design for optimum performance. Standard models feature copper inner tube surrounded by a steel outer tube.

### **INDOOR FANS**

Forward curved, double inlet and double width centrifugal blowers are used for evaporator air movement. Larger diameter wheels are employed to provide required airflow performance at minimum rpm and noise levels. Blower wheels are fabricated of galvanized steel. Blowers employ solid steel shafts, supported in permanently lubricated ball bearings. All blowers are belt driven and come with variable-pitch motor sheaves which allow for field adjustments of blower rpm/cfm.

### **ELECTRICAL/CONTROLS**

All units are completely factory wired with all necessary controls. Manual reset protection is provided on evaporator blower motors. A manual reset circuit is also provided on each compressor control circuit in the event of high/low pressure cutout. A 24 volt control circuit, with an oversized transformer, is provided for field connection. Units are designed to operate with conventional thermostat control interface. Units include an on board microprocessor control with diagnostics. Compressor anti short cycle protection is standard.

### **FILTERS**

All models are shipped with 2 inch thick medium-efficiency throw-away filters factory installed. Filters are accessible from either front or right side.

## **OPTIONAL ACCESSORIES**

### **FACTORY INSTALLED**

#### **Oversized Evaporator Fan Motors**

Increased horsepower motors and drive components are available for those applications where external static pressure requirements exceed the capability of the standard motor.

#### **Corrosion Resistant Coatings**

Condenser and/or evaporator coils shall have ElectroFin baked flexible polymeric coating utilizing cathodic electro coat ( e-coat ) technology.

#### **Exterior Paint Finish**

The exterior of the cabinet can be provided with an optional powder cost paint finish ( Sky Gray ) . Custom color match is available

#### **Inner cabinet liner**

An optional 22 gauge galvanized inner cabinet liner is available to cover all exposed surfaces of insulation .

#### **Water Side Economizer**

Commercial Water Cooled Air Conditioners can achieve substantial operating cost reductions by utilizing the cooling effect made available by low temperature water. Spinnaker Industries Inc. Waterside Economizer package consists of a factory mounted water cooling coil, all necessary internal piping, a three-way motorized ball valve, and all necessary controls for unit operation from a conventional 24-Volt thermostat.

#### **Unit Capacity Control**

An optional modulating DX cooling system is available and consists of multiple refrigeration circuits utilizing fixed and digital scroll compressor technology affording the maximum in energy efficiency thru the cooling range with modulation from 10% to 100% of load demand.

#### **Modulating Hot Gas Bypass**

Adjustable hot gas regulator and all necessary piping shall be installed on the lead compressor circuit. Bypass capacity shall be minimum 50% of compress or capacity. The bypass valve opens at a preset suction pressure to prevent coil freeze-up at light evaporator load, or low airflow conditions. The use of the factory installed Condenser Pressure Control option is strongly recommended when Hot Gas Bypass is installed.

#### **Extended Compressor Warranty**

An optional, additional four year protection plan on the compressor is available at modest cost at the time of original unit sale only. This obligates Spinnaker Industries Inc. to replace f.o.b. factory, a defective compressor of equal capacity free of charge. No responsibility is assumed by Spinnaker Industries Inc. for refrigerant, labor, or freight to and from the factory.

### **FIELD INSTALLED**

#### **Hot Water & Steam Coils**

Hydronic heating coils shall mount on the return air side of the cooling coil.

#### **Discharge Plenum**

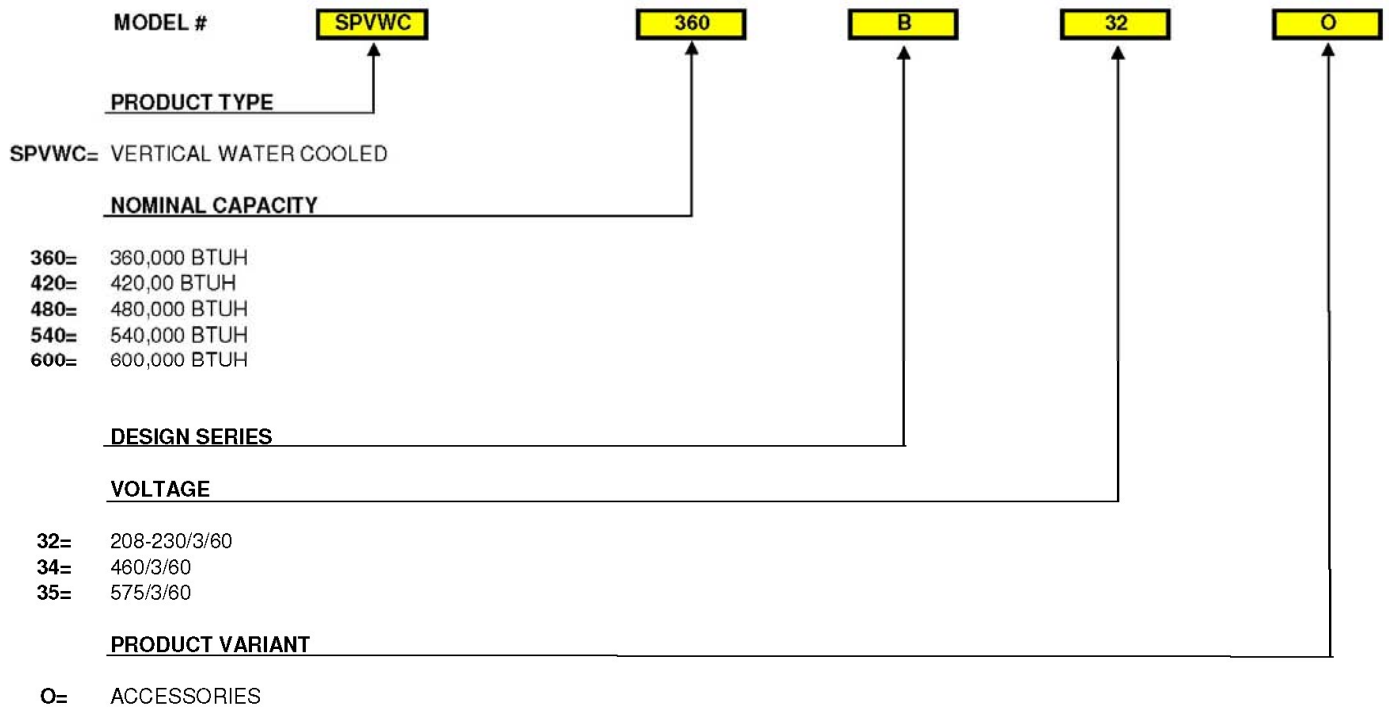
Plenums mount on top of the evaporator section, with fans arranged for vertical discharge. Double deflection grills shall allow air discharge in multiple directions.



## Electrical Data

MODEL	SUPPLY	COMPRESSOR			EVAP FAN		MIN. CCT.	MAX FUSE
Series	VOLTAGE	QTY	RLA	LRA	HP	FLA	AMPACITY	CCT. BKR. AMP
360	208-230/3/60	2	49.7	272	7.5	20.5	132.3	150
	460/3/60	2	18.9	137	7.5	9.3	51.8	70
	575/3/60	2	17.3	104	7.5	7.5	46.4	60
420	208-230/3/60	2	53.0	425	7.5	20.5	139.7	175
	460/3/60	2	23.7	187	7.5	9.3	62.6	80
	575/3/60	2	19.8	158	7.5	7.5	52.0	70
480	208-230/3/60	3	48.1	245	10.0	27.5	183.8	225
	460/3/60	3	18.6	125	10.0	12.5	72.9	100
	575/3/60	3	14.7	100	10.0	10.0	57.7	70
540	208-230/3/60	3	49.7	272	15.0	41.3	202.7	250
	460/3/60	3	18.9	137	15.0	18.7	80.1	100
	575/3/60	3	17.3	104	15.0	15.0	71.2	90
600	208-230/3/60	3	53.0	425	15.0	41.3	213.7	250
	460/3/60	3	23.7	187	15.0	18.7	95.7	125
	575/3/60	3	19.8	148	15.0	15.0	79.3	100

## Product Nomenclature



## GENERAL DATA

<b>Model</b>	360	420	480	540	600
Nominal cooling (Tons)	30	35	40	45	50
<b>Cooling Performance</b>					
Gross Cooling Capacity (BTUH)	366000	426000	486000	551000	639000
Design CFM	12000	14000	16000	18000	20000
EER RATING	13.01	13.13	12.77	13.18	12.80
<b>Compressor Type</b>	<b>Scroll</b>				
Number Used	2	2	3	3	3
<b>Evaporator Air Coil-Type</b>	<b>Enhanced Copper Tubes, Enhanced Aluminum Fins</b>				
Face Area (sq ft)	26.9	31.46	35.95	40.44	44.94
Rows/FPI	4/9	4/10	5/12	5/12	6/12
Refrigerant Control	TX Valve				
<b>Water Coil-Type</b>	<b>Flat Plate</b>				
Number Used / Tons Capacity	2/15	2/17.5	3/13.5	3/15	3/17.5
Nominal Water Flow Rate ( GPM )	90	105	120	135	150
Water Connection Size (in)	2	2	2.5	2.5	2.5
Condensate Drain Connection Size (in)	2	2	2	2	2
<b>Evaporator Fan Type</b>	<b>Centrifugal, Forward Curved</b>				
Number Used	2	2	2	2	2
Drive	Adjustable V Belt				
Diameter x Width(in)	15-15	18-18	18-18	20-18	20-18
Motor HP ( Standard / Oversized )	7.5/10	7.5/10	10/15	15/20	15/20
<b>Filters</b>					
Quantity-Size (in) 2" Thick :Disposable	4-14x20	12-20x20	6-20x20	4-24x25	5-20x20
	8-20x20		6-20x24	8-20x24	10-20x24
<b>Weight</b>					
Shipping	2375	2680	3215	3875	4225

Note:

- (1) Cooling performance is rated at 80°F entering dry bulb, 67°F wet bulb entering air temperature, CFM listed, 85°F entering 95°F leaving water temperature, and water flow rate listed.
- (2) Gross capacity does not included the effect of fan motor heat.

### SPVWC-360 @ 12000 CFM Cooling Performance

SPVWC		90GPM								
		65°F EWT			85°F EWT			105°F EWT		
EWB	EDB	TC	SC	kW	TC	SC	kW	TC	SC	kW
62°F	75°F	368.0	274.2	24.2	336.2	248.6	30.06	311.9	242.2	33.06
	80°F	368.0	322.0	24.2	336.2	296.3	30.06	311.9	290.4	33.06
	85°F	372.6	364.5	24.2	343.0	336.0	30.76	324.0	317.5	33.06
67°F	75°F	398.9	213.8	24.7	366.0	200.2	30.10	340.0	190.0	33.71
	80°F	398.9	260.1	24.7	366.0	271.0	30.10	340.0	251.6	33.71
	85°F	398.9	300.5	24.7	366.0	295.3	30.10	340.0	285.3	33.71
72°F	75°F	433.8	158.3	25.26	399.0	146.3	30.73	370.8	137.7	34.25
	80°F	433.8	207.2	25.26	399.0	194.1	30.73	370.8	185.0	34.25
	85°F	433.8	255.8	25.26	399.0	241.6	30.73	370.8	232.2	34.25



**SPVWC-420 @ 14000 CFM Cooling Performance**

SPVWC		105GPM								
		65°F EWT			85°F EWT			105°F EWT		
EWB	EDB	TC	SC	kW	TC	SC	kW	TC	SC	kW
62°F	75°F	429.0	319.4	27.8	391.0	288.6	34.03	363.4	281.5	38.05
	80°F	429.0	375.4	27.8	391.0	344.5	34.03	363.4	337.4	38.05
	85°F	433.6	424.0	27.8	399.2	391.0	34.03	377.4	369.8	38.05
67°F	75°F	464.3	249.5	28.4	426.0	232.8	34.6	396.2	221.3	38.8
	80°F	464.3	303.1	28.4	426.0	315.2	34.6	396.2	293.2	38.8
	85°F	464.3	331.6	28.4	426.0	343.4	34.6	396.2	331.9	38.8
72°F	75°F	504.8	183.8	29.0	464.4	169.8	35.3	430.9	163.0	39.4
	80°F	504.8	240.9	29.0	464.4	225.6	35.3	430.9	215.5	39.4
	85°F	504.8	296.8	29.0	464.4	281.4	35.3	430.9	294.5	39.4

**SPVWC-480 @ 16000 CFM Cooling Performance**

SPVWC		120GPM								
		65°F EWT			85°F EWT			105°F EWT		
EWB	EDB	TC	SC	kW	TC	SC	kW	TC	SC	kW
62°F	75°F	489.0	363.6	31.6	446.0	329.2	39.1	414.1	321.6	43.5
	80°F	489.0	472.4	31.6	446.0	392.4	39.1	414.1	384.3	43.5
	85°F	493.4	482.7	31.6	455.2	445.8	39.1	430.5	422.0	43.5
67°F	75°F	529.7	283.8	32.3	486.0	266.3	39.8	451.9	252.4	44.4
	80°F	529.7	397.3	32.3	486.0	359.6	39.8	451.9	334.5	44.4
	85°F	529.7	377.0	32.3	486.0	391.3	39.8	451.9	378.5	44.4
72°F	75°F	574.6	210.0	32.9	529.3	193.8	40.6	498.6	188.7	45.3
	80°F	574.6	272.8	32.9	529.3	256.5	40.6	498.6	249.5	45.3
	85°F	574.6	337.9	32.9	529.3	320.8	40.6	498.6	340.5	45.3

**SPVWC-540 @ 18000 CFM Cooling Performance**

SPVWC		135GPM								
		65°F EWT			85°F EWT			105°F EWT		
EWB	EDB	TC	SC	kW	TC	SC	kW	TC	SC	kW
62°F	75°F	552.8	410.5	36.1	503.8	371.7	44.3	467.5	361.5	49.5
	80°F	552.8	482.5	36.1	503.8	443.1	44.3	467.5	434.0	49.5
	85°F	552.8	546.4	36.1	514.2	503.7	44.3	485.5	475.2	49.5
67°F	75°F	598.4	320.9	36.9	549.0	300.3	45.1	510.6	284.6	50.5
	80°F	598.4	448.8	36.9	549.0	406.3	45.1	510.6	277.8	50.5
	85°F	598.4	427.4	36.9	549.0	442.0	45.1	510.6	427.4	50.5
72°F	75°F	649.5	236.9	37.6	597.9	229.3	46.0	553.7	209.6	51.2
	80°F	649.5	309.0	37.6	597.9	281.5	46.0	553.7	277.0	51.2
	85°F	649.5	381.1	37.6	597.9	362.0	46.0	553.7	378.0	51.2

## SPVWC-600 @ 20000 CFM Cooling Performance

SPVWC		150GPM								
		65°F EWT			85°F EWT			105°F EWT		
EWB	EDB	TC	SC	kW	TC	SC	kW	TC	SC	kW
62°F	75°F	643.5	475.8	42.7	586.5	515.5	52.3	544.5	521.8	57.5
	80°F	643.5	562.0	42.7	586.5	515.5	52.3	544.5	505.0	57.4
	85°F	643.5	634.0	42.7	598.5	586.0	52.3	565.5	553.0	58.4
67°F	75°F	696.5	374.2	43.6	639.0	349.2	53.2	594.3	331.5	59.6
	80°F	696.5	454.5	43.6	639.0	472.8	53.2	594.3	439.7	59.6
	85°F	696.5	496.5	43.6	639.0	514.5	53.2	594.3	496.5	59.6
72°F	75°F	756.0	276.0	44.5	696.0	252.0	54.3	645.0	244.5	60.5
	80°F	756.0	361.5	44.5	696.0	338.4	54.3	645.0	320.7	60.5
	85°F	756.0	444.5	44.5	696.0	422.1	54.3	645.0	441.0	60.5

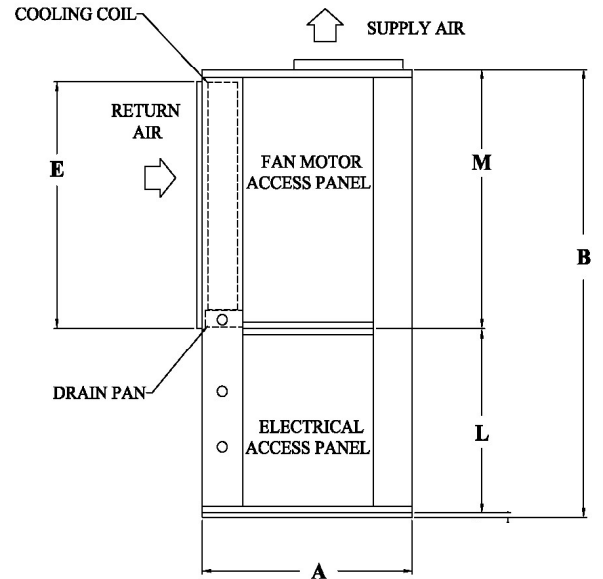
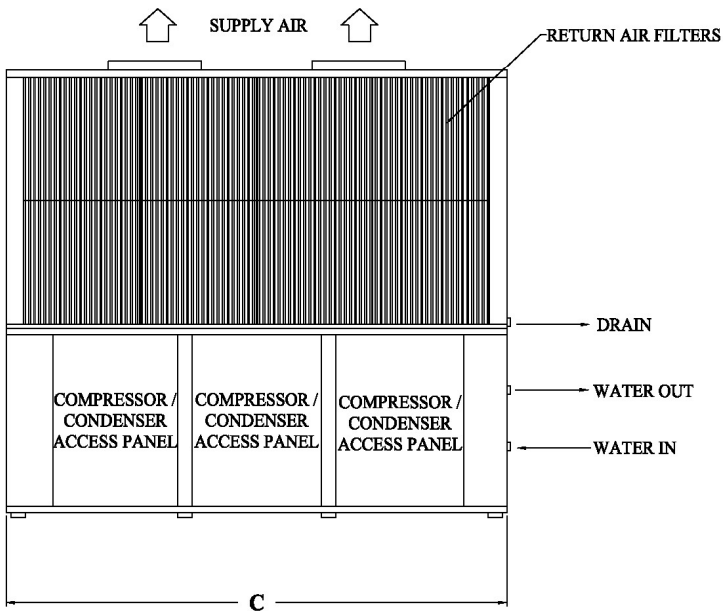
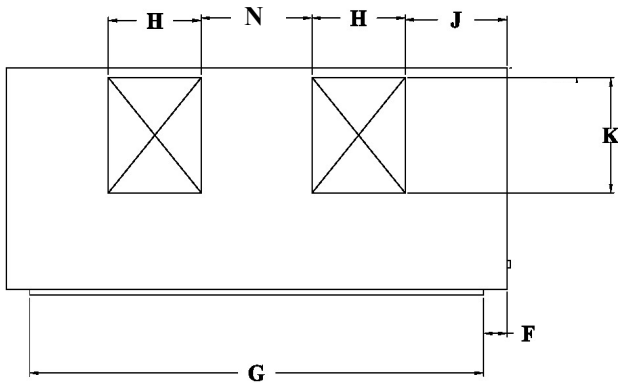
## Evaporator Fan Performance

Model	Supply CFM	External Static Pressure (inches w.c)											
		0.2		0.4		0.6		0.8		1.0		1.2	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
360	10000	751	3.38	805	3.8	858	4.2	910	4.5	959	4.9	1006	5.3
	12000	843	5.28	891	5.7	936	6.2	981	6.7	1025	7.1	1068	7.6
	14000	912	7.51	956	8.0	998	8.6	1039	9.2	1078	9.7	1117	10.2
420	12000	551	3.54	598	4.0	645	4.4	690	4.9	736	5.5	786	6.0
	14000	592	5.02	634	5.5	675	6.0	715	4.6	755	7.0	794	7.6
	16000	644	7.01	681	7.6	719	8.1	755	8.7	790	9.3	825	9.9
480	14000	577	4.85	619	5.3	665	5.9	705	6.4	745	7.0	784	7.5
	16000	625	6.74	633	7.3	700	7.9	737	8.4	772	9.0	808	9.6
	18000	668	8.96	704	9.6	738	10.3	771	10.9	804	11.5	837	12.2
540	16000	551	5.71	590	6.3	626	7.0	662	7.7	696	8.4	729	9.1
	18000	591	7.58	626	8.3	660	9.0	693	9.7	725	10.4	757	11.2
	20000	631	9.81	663	10.6	695	11.3	726	12.0	756	12.9	785	13.7
600	18000	575	7.28	610	7.9	643	8.6	677	9.3	709	10.0	741	10.8
	20000	615	9.45	647	10.2	679	11.0	710	11.7	741	12.5	770	13.3
	22000	657	12.1	686	13.0	716	13.7	745	14.5	773	15.3	801	16.2

Note:

1. At higher evaporator airflows and wet bulb conditions, condensate carry over may occur. Adjust airflow downward as necessary.
2. Values include pressure drop from wet coil and clean filters.
3. Shaded areas indicate oversize motors

# SPVWC 360 - 600 DIMENSIONAL DATA



UNIT	A	B	C	RETURN AIR			SUPPLY AIR			L	M	N
				E	F	G	H	J	K			
360	36	86	86	52	1	78	18 5/8	16 1/8	15 1/8	30	56	15
420	42	92	90	58	3	78	21 7/8	14 1/8	18 7/8	32	60	18
480	42	98	96	58	2	76	21 7/8	17 1/8	18 7/8	33	65	18
540	52	102	101	62	2	94	22 3/4	18 3/4	24 3/4	33	69	18
600	50	102	110	66	3	98	22 3/4	23 1/4	24 3/4	33	69	18

Dimensions shown in ( inches )

## Optional Water Side Economizer



### Includes:

Water coil ▪ Drain Pan Assembly ▪ 3-way diverting valve & actuator ▪ Temperature control panel ▪ External filter rack  
▪ Coil attachment hardware ▪ Header and return bend cover ▪ Diverting valve cover enclosure ▪ internal piping & fittings

# **LIMITED WARRANTY**

## **COVERAGE AND TERMS**

SPVWC Model Series units, and all related accessories as manufactured by Spinnaker Industries, are warranted to the original buyer to be free from defects in materials or workmanship provided that these units and accessories have been installed and maintained in accordance with instructions and operated under normal conditions. Spinnaker Industries sole obligation under this Limited Warranty is to repair or replace, at its opinion, free of charge to the customer (except as provided below), FOB factory, any part determined by Spinnaker Industries (in its sole discretion) to be defective. Warranty terms, from original ship date are as follows:

- ◆ All components ( excluding filters and fan belts ) ..... 1 year from date of shipment
- ◆ Optional 4 year extended compressor warranty available at time of original purchase

## **EXCLUSIONS**

Spinnaker Industries Limited Warranty does not cover defects, reduced performance, or failure caused, directly or indirectly, by improper installation, abuse, misuse, misapplication, improper maintenance, lack of maintenance, negligence, accident, or normal deterioration, including wear and tear. This Limited Warranty shall not apply to items that require replacement due to normal wear i.e. fan drive belts, filters, etc., or to failures, defects, or reduced performance resulting, directly or indirectly, from use of its products exposed to corrosive gasses or liquids.

Spinnaker Industries Limited Warranty does not include costs for transportation (including, without limitation, freight and return freight charges, costs, and insurance), costs for removal or re-installation of parts or equipment, cranes and hoisting, premiums for overtime, labor for performing repairs or replacement made in the field, roofing contractors or any other sub trades. Spinnaker Industries is not responsible for damages occurring during transport of any product to or from its facilities.

## **RETURN PROCEDURE**

To return defective parts under these warranty terms, please contact Spinnaker Industries at 1-800-932-6210 to confirm the ship to address. The serial number located on the rating label of the unit must be provided so that the original ship date of the unit can be verified. All defective parts must be authorized for return and shipped pre-paid to Spinnaker Industries for inspection. A purchase order must be received prior to shipment of repaired or replacement parts. Repaired or replacement parts will be invoiced and shipped collect FOB Factory. A credit will be issued only if the defective parts are deemed the responsibility of Spinnaker Industries. Spinnaker Industries is not responsible for any damage or loss occurring during shipment to or from Spinnaker Industries.

THE OBLIGATION AND LIABILITY OF Spinnaker Industries UNDER THIS LIMITED WARRANTY DOES NOT INCLUDE LOSSES, DIRECT OR INDIRECT, FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. THIS LIMITED WARRANTY IS PROVIDED EXCLUSIVELY TO THE ORIGINAL BUYER OF PRODUCTS AND MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED.

THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

Spinnaker Industries maintains a continuous product improvement policy , therefore specifications are subject to change without notice



Toll Free: 1-800-932-6210

Web: [www.spinnakerindustries.com](http://www.spinnakerindustries.com)