

Sakura Air Conditioner User-friendly, Earth-friendly



Water Source Heat Pump
Water to Air (Packaged Type R-22)

Horizontal Water Source Heat Pump Units

- Eleven units from 2.8 to 17.7 kW
- Energy efficiencies up to 4.4 EER and 4.7 COP
- Fully run tested with water
- Compact size
- CCC and CE listed
- HP3C microprocessor-based control system including fan speed adjustment and condensate overflow
- Optional waterside economizer DDC controls and Geothermal application

R22 Standard Rating Data

Water-loop conditions

Unit size	Voltage	Air Flow m ³ /h	Water Flow m ³ /h	Cooling		Heating	
				kW	EER	kW	COP
009H(V)HC	L、D	382	0.6	2.8	3.8	3.0	4.1
013H(V)HC	L、D	511	0.8	3.3	3.8	4.2	4.2
016H(V)HC	L、D	763	0.9	4.3	4.4	5.4	4.2
019H(V)HC	L、D	893	1.2	5.2	3.9	6.3	3.9
024H(V)HC	L、D	1019	1.4	5.9	3.8	7.3	3.9
030H(V)HC	L、D	1274	1.8	7.8	3.7	9.2	4.2
036H(V)HC	J、H、G	1530	2.3	9.2	3.9	11.7	4.6
043H(V)HC	J、H、G	1782	2.7	10.2	3.7	12.2	3.9
052H(V)HC	J、H、G	2293	3.2	12.0	4.3	14.5	4.7
062H(V)HC	J、H、G	2549	3.6	14.7	3.8	18.0	4.0
072H(V)HC	J、H、G	2675	4.1	17.7	4.2	21.1	4.4

Rated per ARI/ISO standard 13256-1 and GB/T19409-2003

Cooling capacity is based on 27/19°C entering air and 30°C/35°C entering/leaving water.

Heating capacity is based on 20/15°C entering air and 20°C entering water.

EER and COP incorporate adjustments for water pressure drop and internal air pressure drop.

Ground-water conditions

Unit size	Voltage	Air Flow m ³ /h	Water Flow m ³ /h	Cooling		Heating	
				kW	EER	kW	COP
009H(V)HC	L、D	382	0.3	2.9	4.8	2.5	3.6
013H(V)HC	L、D	511	0.4	3.5	4.8	3.5	3.7
016H(V)HC	L、D	763	0.5	4.5	5.5	4.5	3.7
019H(V)HC	L、D	893	0.6	5.4	4.9	5.4	3.5
024H(V)HC	L、D	1019	0.7	6.2	4.8	6.2	3.5
030H(V)HC	L、D	1274	0.9	8.2	4.6	7.8	3.7
036H(V)HC	J、H、G	1530	1.2	9.6	4.9	9.6	4.1
043H(V)HC	J、H、G	1782	1.4	10.7	4.6	10.2	3.5
052H(V)HC	J、H、G	2293	1.6	12.6	5.4	12.0	4.2
062H(V)HC	J、H、G	2549	1.8	15.4	4.8	15.0	3.5
072H(V)HC	J、H、G	2675	2.1	18.5	5.3	18.0	3.9

Rated per ARI/ISO standard 13256-1 and GB/T19409-2003

Cooling capacity is based on 27/19°C entering air and 18°C/29°C entering/leaving water.

Heating capacity is based on 20/15°C entering air and 15°C entering water.

EER and COP incorporate adjustments for water pressure drop and internal air pressure drop.

Ground-loop conditions

Unit size	Voltage	Air Flow m ³ /h	Water Flow m ³ /h	Cooling		Heating	
				kW	EER	kW	COP
009H(V)HC	L、D	382	0.6	2.9	4.6	1.8	3.1
013H(V)HC	L、D	511	0.8	3.5	4.6	2.4	3.2
016H(V)HC	L、D	763	0.9	4.5	5.4	3.0	3.2
019H(V)HC	L、D	893	1.2	5.4	4.8	3.9	3.0
024H(V)HC	L、D	1019	1.5	6.2	4.6	4.2	3.0
030H(V)HC	L、D	1274	1.9	8.2	4.5	5.8	3.2
036H(V)HC	J、H、G	1530	2.4	9.6	4.8	6.8	3.5
043H(V)HC	J、H、G	1782	2.8	10.7	4.5	7.6	3.0
052H(V)HC	J、H、G	2293	3.4	12.6	5.2	8.9	3.6
062H(V)HC	J、H、G	2549	3.8	15.4	4.6	11.0	3.0
072H(V)HC	J、H、G	2675	4.3	18.5	5.1	13.0	3.3

Rated per ARI/ISO standard 13256-1 and GB/T19409-2003

Cooling capacity is based on 27/19°C entering air and 25°C/30°C entering/leaving water.

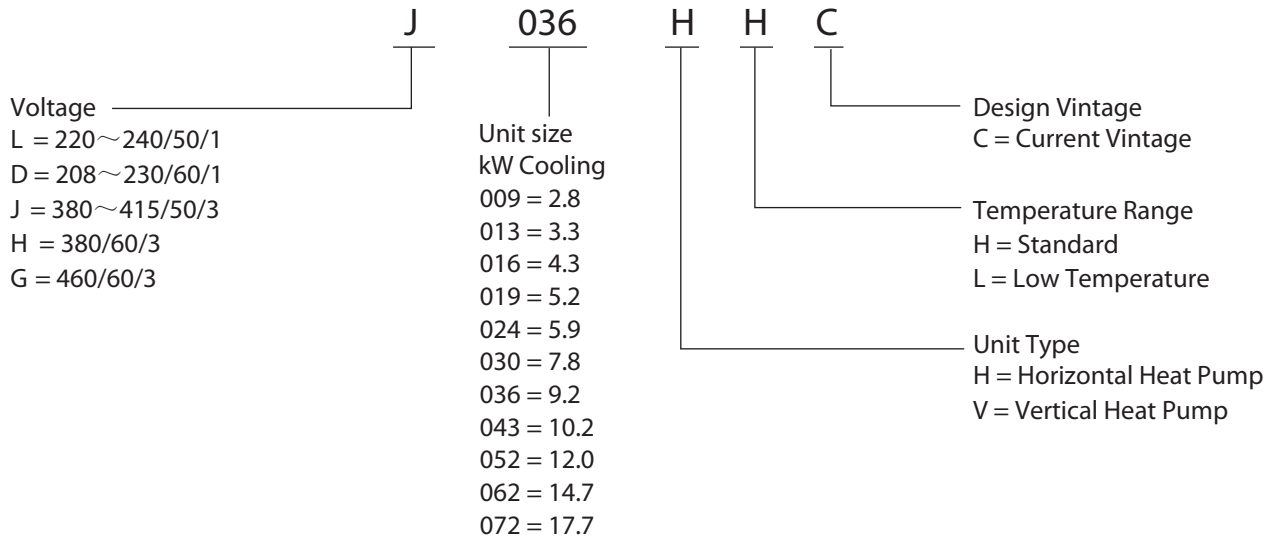
Heating capacity is based on 20/15°C entering air and 0°C entering water.

EER and COP incorporate adjustments for water pressure drop and internal air pressure drop.

The performance data is the same for 50Hz & 60Hz as different 50Hz & 60Hz compressor are utilized.

The performance data will be de-rated about 5% for R407c refrigerant.

Model Nomenclature

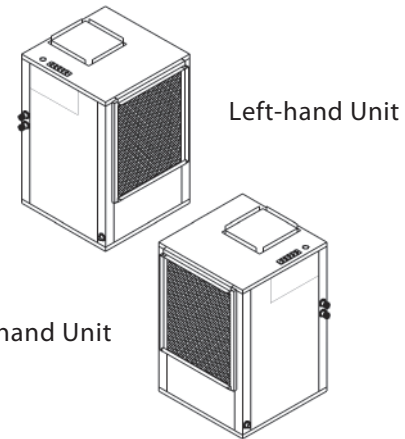


Unit Description

SAKURA offers a complete line of medium efficiency horizontal and vertical units from 2.8 to 17.7 kW. Four cabinet sizes with a similar shape allow for easy layout and installation. Each unit is run-tested with water in the cooling and heating modes. All units are listed for product safety by CCC & CE.



Vertical unit is available with either a left or right hand piping arrangement. The hand of the unit determines the location of the water and condensate connection side as well as the main voltage entrance and low voltage terminal strip. Also located is the main access panel for access to the fan motor, control box and compressor section. The fan section also has an additional removable panel to prevent air bypass while operating the unit during service checkout.



Unit construction

The cabinet is constructed of G-60,galvanized steel. Internal metal parts are also fabricated from galvanized steel.

Cabinet insulation is 15 mm thick, 48 kg/m³ density, skin-coated fiberglass. The entire bottom panel is insulated with the same material to prevent condensation and reduce noise transmission. Three access panels for the compressor, fan and control box sections allow service to all major components without removing the unit from the ceiling. Most competitors only offer two access panels.

The control box has its own entrance panel to limit exposure to other sections not requiring service. All major electrical components, including transformer, relays, contactor(s) and circuit board, are located inside the control box making it convenient to electrically service the unit. The corner post adjacent to the control box accepts a line voltage conduit connection. The low-voltage thermostat connections are conveniently made on an exposed, 16-pin terminal strip.

A 10 mm thick reusable filter is supplied in a factory-mounted filter bracket designed to accommodate a return air duct connection. The filter can be removed horizontally or vertically.

Horizontal units include factory-mounted hanger brackets, and have four top-panel adjustable brackets with factory-mounted grommets.

All units incorporate female NPT water fittings outside the cabinet for connection to flexible hoses. A 22 mm O.D. condensate connection is located outside the cabinet, adjacent to the water connections. The condensate line is internally trapped to eliminate the need for an external trap in the vertical units.

Refrigeration System

Refrigeration system for each circuit consists of a rotary or hermetic compressor, a coaxial water-to-refrigerant heat exchanger, an airside coil, thermal expansion valve or capillary tube,access valve,reversing valve and safety controls.

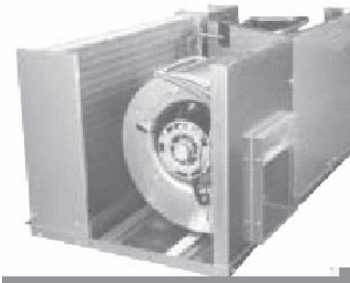
The compressor is mounted on heavy-gauge mounting rails to dampen compressor vibration.In addition, the compressor is also mounted on neoprene isolators. This dual isolation ensures minimal noise transmission

and quiet operation. Each refrigeration circuit has high and low side access valves for servicing.

The water-to-refrigeration coaxial coil consists of an inner twisty tube and a steel outer tube. It is rated for 3100kPa on the refrigeration side and 2760kPa on the water side. Large tube diameters prevent clogging, unlike brazed type heat exchangers which require mesh strainers. The air coil is a copper-tube, aluminum finned selected for high efficiency.

The reversing valve is energized in the heating and is fail-safe to the cooling mode.

Safety controls include high and low (loss of charge protection) refrigeration pressure switches for each circuit. A lockout relay prevents the compressor from operating if any of the safeties trip.



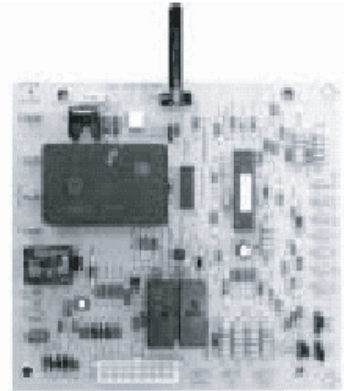
Electrical and Control Box

The control box houses all the electrical components with its own access panel. Controls include a minimum 48-VA transformer, printed-circuit board, compressor contactor, fan relay and a capacitor(s).

HP3C Control system SAKURA offers a microprocessor-based unit controller and includes

Features such as:

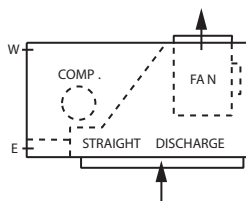
- Fan speed control
- Random-start delay
- Condensate overflow protection
- Compressor anti-shot protection
- Built-in night setback and night setup operation from a remote signal
- 2-hour override operation from a push button on the wall thermostat
- LED diagnostic display
- High and low voltage protection
- Low pressure switch bypass
- Safety lockout
- Others: optional automatic reset, startup delay, fan interlock, lockout alarm and dry contacts.



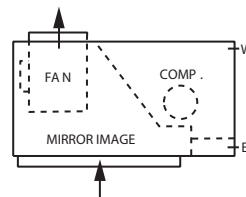
Fan Section

The fan section consists of the fan wheel/housing assembly, fan motor and drain pan. Airside components are separated from the compressor section to limit noise transmission from the compressor. The drain pan extends past the coil into the compressor section for easy cleaning. It is insulated from the unit casing to prevent sweating.

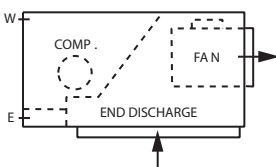
Horizontal units are capable of having two different discharge air arrangements: straight or end, both can be factory-supplied in either configuration or simply converted from one to the other in the field. Mirror image units allow a "reversed" configuration. All units have a direct drive fan assembly. The fan motor is a multispeed, with internal overload protection. With a maximum speed of 1200 rpm, the fan is quieter than the smaller of diameter, 4-pole motors used in similar products. Each centrifugal fan wheel is balance for minimum vibration.



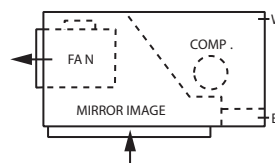
Standard Image
Straight-through
Discharge



Mirror Image
Straight-through
Discharge



Standard Image
End Discharge



Mirror Image
End Discharge

W=Water Connections
E=Electrical Connections

HP3C Control System

Fan speed control is a standard feature with the microprocessor control system. A control knob Permits motor speed adjustment from 100 percent to 80 percent of maximum speed to reduce the fan speed and assist with the field air balancing procedure.

Random start delays the startup of the unit 5 to 35 seconds after coming off from an unoccupied or shutdown cycle to prevent all the unit from starting at the same time.

Condensate overflow protection stops compressor operation if the drain pan sensor detects moisture at the top of the pan to prevent overflow due to clogged or slowdraining condensate piping.

Compressor anti-short cycle protection prevents the compressor from being energized for 5 minutes after shutoff to limit compressor cycling and to extend compressor life.

Night setback allows heating operation at a lower set point to maintain a minimum space temperature which is activated by a two-wire signal. The fan will cycle with the compressor.

Night setup allows cooling operation at a higher set point to maintain a maximum space temperature which is activated by a two-wire signal. The fan will cycle with the compressor.

Override allows night setback or setup modes to be de-activated for 2 hours while the unit resumes operation is activated by a push button on the wall thermostat.

Shutdown allows the units to be shut off with no compressor or fan operation in the event of an emergency. Shutdown is activated from a two-wire signal.

LED Diagnostic display communicates the status of the unit via three lights to indicate: power on, low voltage condition, high voltage condition, shutdown mode, high pressure switch fault, low pressure switch fault, freezestat fault, condensate sensor fault and compressor on.

High and low voltage protection shuts off the unit the event the unit voltage is too high or too low to protect the internal components from damage.

Low pressure switch bypass ignores the low Pressure input signal for 120 seconds each time The compressor starts to eliminate nuisance trip and to allow the suction pressure to build at Startup.

Safety lockout prevents compressor operation if any of the safety switches trip: high pressure switch, low pressure switch or optional freezestat. The unit can be reset from the wall thermostat or from the main unit disconnect.

Other features include: auto reset allows the unit to automatically reset itself four times within a 2 hour period, two-minute startup delay at initial startup and at loss of power, fan interlock makes sure the fan in on when the compressor is on, lockout alarm sends a signal to the thermostat to illuminate an LED and closes a set of dry contacts if any of the safety switches trip or if the unit is in shutdown mode due to a remote signal or to high/low voltage, dry contacts (set of normally open and close) are activated when the compressor is on to operate a motorized valve.

Factory-mounted Options

SAKURA water source heat pumps offer numerous factory-installed options that can help minimize field labor and enhance system performance.

Cooling-only units are available for those applications requiring no heating from the unit.

An extended-range package is available on all heat pump units to allow heating and cooling operation down to -9°C leaving water temperature. The package includes a freeze-stat water switch, an insulated coaxial heat exchanger and insulated refrigerant piping.

A Super Quiet is a blanket covering the compressor which is made of three layer different material including fiberglass insulation and heavy dampening rubber.

A field-supplied DDC controller can be factory-mounted and wired by SAKURA. This allows the engineer to specify a specific control manufacturer and achieve simple interface of the network system.



Shown: Optional swing-out box for DDC controller mounting.



A freeze-stat is available to sense the leaving water temperature. If the leaving water falls below -4°C or -9°C , the freeze-stat will open the safety lockout circuit and shut down the compressor. This option is beneficial on well water and city water applications where water temperatures can drop during the heating season.

A 25 and 50 mm filter rack replaces the 10 mm rack to allow for more efficient and longer lasting 25 and 50 mm filters.

LonWorks Unit Controller

The LonWorks controller can be factory mounted and wired on the SAKURA heat pumps. LonWorks technology allows the controllers to provide a direct digital control of the heat pump as well as an exchange of unit information with any LonWorks system. The customer can select a building automation system from any company that offers a LonWorks-based system, and the heat pump controllers can remain the same. SAKURA's optional LonWorks unit controller (shown with the optional operator's panel) includes features such as:

- Random-start delay
- Condensate overflow protection
- Compressor anti-short protection
- Night setback capability
- Override operation from a thermostat signal
- Shutdown operation from a remote signal
- LED diagnostic display
- High and low voltage protection
- Silent reversing valve operation
- Low pressure switch bypass
- Integral annunciation of the low and high pressure switch with safety lockout

Included with the unit controller is a leaving air temperature sensor for monitoring and alarm as well as a leaving water temperature sensor for monitoring.

A factory-furnished wall temperature sensor with or without optional temperature display and override control controls all operation of the internal components for precise cooling and heating operation of each unit.

Field-mounted Accessories

The automatic changeover LCD THERMOSTAT has fan ON-AUTO operation, system ON-OFF operation, digital temperature display, 2 stages electric heater display. Also the thermostat can be controlled remotely. SAKURA also provide remote controller with thermostat.



Flexible hose kits are available in, 3/4-inch and 1-inch diameters, 600mm and 900mm long. Each hose is constructed of braided stainless steel and has NPT steel fittings with a swivel at one end. Hoses are rated at minimum 1550 kPa. A clear vinyl condensate hose includes clamps for connection to the 22mm OD condensate drain tube.

SAKURA offers a central loop control panel for staging of the tower and boiler. The panel provides four stages of heat rejection (boiler) and two stages of heating addition (boiler) control, as well as loop water pump control and alarm sequences. Flow switch and sensors are included.

Package WSHP



Performance Data

Capacity Data for size 009H(V)HC at 382m³/h

Low Temperature Operation - Anti-freeze Require

Ent. Water. °C	Water-Flow m ³ /h	Pressure Drop kpa	COOLING						HEATING				
			Ent. Air Db/wb °C	Total Watts	Sensible Watts	Ht. Rej Watts	Unit kW	Lvg. Water. °C	Ent. Water. °C	Ent. Air °C	Total Watts	Ht. Abs Watts	Unit kW
4.4	0.32	5.50	23.9/17.2	3.080	2.218	3.642	0.562	14.2	4.4	10.0	2.146	1.699	0.447
			26.7/19.4	3.217	2.509	3.784	0.567	14.6		15.6	2.013	1.529	0.484
			28.3/20.6	3.294	2.734	3.865	0.570	14.8		21.1	1.900	1.386	0.514
	30.0/21.7	3.377	3.039	3.951	0.574	15.0	26.7	1.786		1.240	0.546		
	0.44	10.30	23.9/17.2	3.354	2.415	3.891	0.537	12.0		10.0	2.244	1.785	0.458
			26.7/19.4	3.505	2.734	4.048	0.543	12.3		15.6	2.105	1.609	0.496
			28.3/20.6	3.591	2.981	4.138	0.547	12.5		21.1	1.986	1.459	0.528
	0.60	15.90	30.0/21.7	3.683	3.315	4.234	0.551	12.7		26.7	1.867	1.308	0.559
			23.9/17.2	3.389	2.440	3.912	0.523	10.0		10.0	2.273	1.805	0.468
26.7/19.4			3.550	2.769	4.078	0.528	10.2	15.6	2.134	1.628	0.506		
10.0	0.32	5.50	28.3/20.6	3.642	3.023	4.173	0.531	10.4	21.1	2.012	1.474	0.537	
			30.0/21.7	3.739	3.365	4.274	0.534	10.5	26.7	1.891	1.321	0.570	
			23.9/17.2	2.932	2.140	3.539	0.607	19.5	10.0	2.499	2.021	0.478	
	0.44	10.30	26.7/19.4	3.068	2.424	3.682	0.614	19.9	15.6	2.344	1.827	0.517	
			28.3/20.6	3.146	2.643	3.763	0.617	20.1	21.1	2.210	1.661	0.550	
			30.0/21.7	3.229	2.938	3.850	0.621	20.3	26.7	2.078	1.496	0.582	
	0.60	15.90	23.9/17.2	3.184	2.324	3.769	0.585	17.4	10.0	2.612	2.122	0.490	
			26.7/19.4	3.330	2.631	3.920	0.591	17.7	15.6	2.450	1.920	0.530	
			28.3/20.6	3.413	2.867	4.007	0.594	17.8	21.1	2.312	1.748	0.564	
21.1	0.32	5.50	30.0/21.7	3.502	3.187	4.099	0.597	18.0	26.7	2.173	1.576	0.597	
			23.9/17.2	3.384	2.470	3.946	0.562	15.7	10.0	2.646	2.146	0.500	
			26.7/19.4	3.535	2.792	4.102	0.567	15.9	15.6	2.482	1.942	0.540	
	0.44	10.30	28.3/20.6	3.621	3.042	4.191	0.570	16.0	21.1	2.342	1.769	0.574	
			30.0/21.7	3.713	3.378	4.286	0.574	16.1	26.7	2.202	1.592	0.609	
			23.9/17.2	2.666	1.999	3.414	0.748	30.3	10.0	3.236	2.701	0.535	
	0.60	15.90	26.7/19.4	2.784	2.255	3.540	0.756	30.6	15.6	3.036	2.458	0.578	
			28.3/20.6	2.852	2.453	3.612	0.760	30.8	21.1	2.864	2.250	0.614	
			30.0/21.7	2.924	2.661	3.689	0.765	31.0	26.7	2.692	2.041	0.652	
29.4	0.32	5.50	23.9/17.2	2.930	2.197	3.649	0.719	28.2	10.0	3.383	2.835	0.548	
			26.7/19.4	3.049	2.469	3.774	0.726	28.5	15.6	3.174	2.582	0.592	
			28.3/20.6	3.116	2.680	3.846	0.730	28.6	21.1	2.993	2.364	0.630	
	0.44	10.30	30.0/21.7	3.188	2.902	3.922	0.734	28.8	26.7	2.814	2.146	0.668	
			23.9/17.2	3.048	2.286	3.748	0.700	26.5	10.0	3.428	2.870	0.558	
			26.7/19.4	3.186	2.581	3.893	0.707	26.7	15.6	3.215	2.612	0.603	
	0.60	15.90	28.3/20.6	3.265	2.808	3.976	0.711	26.8	21.1	3.033	2.391	0.642	
			30.0/21.7	3.349	3.047	4.064	0.715	26.9	26.7	2.851	2.170	0.681	
			23.9/17.2	2.460	1.894	3.274	0.814	38.2	10.0	3.609	3.036	0.573	
32.2	0.32	5.50	26.7/19.4	2.568	2.142	3.391	0.823	38.5	15.6	3.386	2.767	0.619	
			28.3/20.6	2.630	2.325	3.458	0.828	38.7	21.1	3.193	2.536	0.658	
			30.0/21.7	2.695	2.587	3.529	0.833	38.9	26.7	3.002	2.306	0.697	
	0.44	10.30	23.9/17.2	2.675	2.059	3.451	0.777	36.1	10.0	3.773	3.186	0.586	
			26.7/19.4	2.793	2.330	3.578	0.785	36.4	15.6	3.539	2.906	0.634	
			28.3/20.6	2.861	2.529	3.650	0.789	36.5	21.1	3.339	2.665	0.675	
	0.60	15.90	30.0/21.7	2.933	2.816	3.727	0.794	36.7	26.7	3.138	2.423	0.715	
			23.9/17.2	2.804	2.159	3.561	0.756	34.5	10.0	3.823	3.224	0.598	
			26.7/19.4	2.943	2.454	3.707	0.764	34.7	15.6	3.585	2.940	0.646	
37.8	0.32	5.50	28.3/20.6	3.021	2.671	3.790	0.769	34.8	21.1	3.383	2.696	0.687	
			30.0/21.7	3.105	2.981	3.879	0.773	35.0	26.7	3.181	2.452	0.728	
			23.9/17.2	2.362	1.830	3.207	0.846	40.8	10.0	3.714	3.129	0.585	
	0.44	10.30	26.7/19.4	2.474	2.083	3.328	0.854	41.1	15.6	3.483	2.852	0.631	
			28.3/20.6	2.538	2.266	3.397	0.859	41.3	21.1	3.286	2.614	0.671	
			30.0/21.7	2.606	2.527	3.470	0.865	41.5	26.7	3.090	2.378	0.711	
	0.60	15.90	23.9/17.2	2.584	2.003	3.399	0.814	38.8	10.0	3.881	3.283	0.598	
			26.7/19.4	2.696	2.270	3.519	0.823	39.1	15.6	3.642	2.995	0.647	
			28.3/20.6	2.760	2.465	3.588	0.828	39.2	21.1	3.436	2.747	0.688	
43.3	0.32	5.50	30.0/21.7	2.828	2.743	3.662	0.833	39.4	26.7	3.229	2.500	0.730	
			23.9/17.2	2.742	2.125	3.533	0.791	37.3	10.0	3.933	3.322	0.610	
			26.7/19.4	2.854	2.403	3.653	0.800	37.4	15.6	3.689	3.030	0.659	
	0.44	10.30	28.3/20.6	2.918	2.605	3.722	0.805	37.5	21.1	3.480	2.779	0.702	
			30.0/21.7	2.985	2.896	3.795	0.810	37.6	26.7	3.272	2.527	0.744	
			23.9/17.2	2.199	1.737	3.113	0.914	46.2	All data is with 100% water (no antifreeze) and no pumping penalty. Unit kW data includes fan motor.				
	26.7/19.4	2.310	1.987	3.235	0.924	46.5							
	28.3/20.6	2.374	2.161	3.304	0.930	46.7							
	30.0/21.7	2.442	2.418	3.378	0.936	46.9							
0.60	15.90	23.9/17.2	2.406	1.901	3.282	0.875	44.2	Total Capacity Correction Factory (% by Weight)					
		26.7/19.4	2.518	2.166	3.403	0.885	44.5	METHANOL		10%	15%	20%	
		28.3/20.6	2.582	2.350	3.473	0.891	44.6	Cooling		1.00	0.99	0.99	
43.3	0.32	5.50	30.0/21.7	2.650	2.624	3.547	0.896	44.7		Heating	0.99	0.98	0.97
			23.9/17.2	2.553	2.017	3.399	0.846	42.7		ETHANOL	10%	15%	20%
			26.7/19.4	2.670	2.296	3.524	0.854	42.9	Cooling	1.00	1.00	1.00	
	0.44	10.30	28.3/20.6	2.736	2.490	3.596	0.859	43.0	Heating	0.99	0.98	0.97	
			30.0/21.7	2.807	2.779	3.672	0.865	43.1	PROPYLENE GLYCOL	15%	20%	25%	
			23.9/17.2	2.261	1.831	3.177	0.916	47.9	Cooling	0.98	0.97	0.96	
	0.60	15.90	26.7/19.4	2.465	2.170	3.390	0.925	48.2	Heating	0.96	0.95	0.93	
			28.3/20.6	2.582	2.401	3.512	0.930	48.3					
			30.0/21.7	2.706	2.679	3.641	0.935	48.5					

Performance Data

Capacity Data for size 013H(V)HC at 511m³/h

Low Temperature Operation - Anti-freeze Require

Ent. Water. °C	Water-Flow m ³ /h	Pressure Drop kpa	COOLING						HEATING								
			Ent. Air Db/wb°C	Total Watts	Sensible Watts	Ht. Rej Watts	Unit kW	Lvg. Water. °C	Ent. Water. °C	Ent. Air °C	Total Watts	Ht. Abs Watts	Unit kW				
4.4	0.40	5.50	23.9/17.2	3.635	2.617	4.276	0.642	13.6	4.4	10.0	3.001	2.324	0.678				
			26.7/19.4	3.774	2.944	4.421	0.647	13.9						15.6	2.815	2.082	0.733
			28.3/20.6	3.854	3.199	4.504	0.650	14.1						21.1	2.657	1.878	0.779
				30.0/21.7	3.939	3.545	4.592	0.654		14.3	26.7	2.498	1.671	0.827			
	0.60	11.00	23.9/17.2	3.959	2.850	4.572	0.613	11.0		10.0	3.138	2.443	0.694				
			26.7/19.4	4.113	3.208	4.733	0.620	11.2						15.6	2.944	2.193	0.751
			28.3/20.6	4.201	3.487	4.825	0.624	11.3						21.1	2.777	1.978	0.799
				30.0/21.7	4.295	3.865	4.922	0.627		11.5	26.7	2.611	1.764	0.847			
	0.80	16.00	23.9/17.2	4.002	2.881	4.599	0.597	9.3		10.0	3.179	2.470	0.709				
26.7/19.4			4.166	3.250	4.769	0.603	9.5	15.6	2.984					2.217	0.766		
28.3/20.6			4.260	3.536	4.866	0.606	9.6	21.1	2.813					1.999	0.814		
			30.0/21.7	4.360	3.924	4.969	0.609	9.7	26.7	2.645	1.781	0.864					
10.0	0.40	5.50	23.9/17.2	3.461	2.527	4.155	0.694	18.9	10.0	10.0	3.494	2.771	0.724				
			26.7/19.4	3.601	2.845	4.301	0.700	19.2						15.6	3.277	2.495	0.783
			28.3/20.6	3.680	3.091	4.384	0.704	19.4						21.1	3.091	2.259	0.832
				30.0/21.7	3.765	3.426	4.473	0.708		19.6	26.7	2.907	2.024	0.882			
	0.60	11.00	23.9/17.2	3.758	2.743	4.426	0.668	16.3		10.0	3.652	2.910	0.742				
			26.7/19.4	3.907	3.087	4.581	0.674	16.6						15.6	3.426	2.623	0.803
			28.3/20.6	3.993	3.354	4.670	0.677	16.7						21.1	3.233	2.378	0.854
				30.0/21.7	4.084	3.716	4.764	0.680		16.8	26.7	3.039	2.135	0.904			
	0.80	16.60	23.9/17.2	3.993	2.915	4.635	0.642	15.0		10.0	3.700	2.943	0.757				
26.7/19.4			4.148	3.277	4.795	0.647	15.2	15.6	3.471					2.653	0.818		
28.3/20.6			4.236	3.558	4.886	0.650	15.3	21.1	3.276					2.406	0.869		
			30.0/21.7	4.330	3.940	4.983	0.654	15.4	26.7	3.079	2.156	0.923					
21.1	0.40	5.50	23.9/17.2	3.146	2.359	4.000	0.854	29.7	21.1	10.0	4.525	3.714	0.810				
			26.7/19.4	3.267	2.646	4.129	0.862	30.0						15.6	4.245	3.370	0.875
			28.3/20.6	3.337	2.869	4.203	0.867	30.1						21.1	4.005	3.075	0.930
				30.0/21.7	3.410	3.103	4.282	0.872		30.3	26.7	3.765	2.778	0.987			
	0.60	11.00	23.9/17.2	3.455	2.591	4.276	0.821	27.2		10.0	4.731	3.900	0.831				
			26.7/19.4	3.576	2.897	4.404	0.828	27.4						15.6	4.439	3.542	0.897
			28.3/20.6	3.646	3.135	4.478	0.832	27.5						21.1	4.186	3.232	0.954
				30.0/21.7	3.719	3.385	4.556	0.836		27.6	26.7	3.935	2.924	1.011			
	0.80	16.60	23.9/17.2	3.597	2.698	4.397	0.800	25.8		10.0	4.793	3.948	0.845				
26.7/19.4			3.738	3.028	4.545	0.807	26.0	15.6	4.496					3.583	0.913		
28.3/20.6			3.819	3.285	4.630	0.811	26.1	21.1	4.241					3.269	0.972		
			30.0/21.7	3.905	3.554	4.720	0.815	26.2	26.7	3.987	2.956	1.031					
29.4	0.40	5.50	23.9/17.2	2.902	2.235	3.833	0.930	37.6	29.4	10.0	5.046	4.179	0.867				
			26.7/19.4	3.013	2.513	3.952	0.939	37.9						15.6	4.734	3.797	0.937
			28.3/20.6	3.076	2.719	4.020	0.944	38.0						21.1	4.465	3.469	0.996
				30.0/21.7	3.143	3.018	4.093	0.950		38.2	26.7	4.198	3.143	1.055			
	0.60	11.00	23.9/17.2	3.156	2.430	4.043	0.887	35.2		10.0	5.275	4.388	0.888				
			26.7/19.4	3.278	2.733	4.173	0.895	35.4						15.6	4.949	3.990	0.959
			28.3/20.6	3.347	2.959	4.247	0.900	35.5						21.1	4.670	3.648	1.022
				30.0/21.7	3.421	3.284	4.325	0.905		35.6	26.7	4.388	3.306	1.083			
	0.80	16.60	23.9/17.2	3.312	2.551	4.176	0.864	33.9		10.0	5.345	4.439	0.906				
26.7/19.4			3.454	2.880	4.326	0.872	34.0	15.6	5.014					4.036	0.978		
28.3/20.6			3.534	3.124	4.411	0.877	34.1	21.1	4.731					3.690	1.040		
			30.0/21.7	3.620	3.475	4.502	0.881	34.2	26.7	4.448	3.344	1.103					
32.2	0.40	5.50	23.9/17.2	2.789	2.161	3.754	0.966	40.3	32.2	10.0	5.193	4.307	0.886				
			26.7/19.4	2.903	2.444	3.878	0.975	40.5						15.6	4.870	3.915	0.956
			28.3/20.6	2.969	2.651	3.948	0.980	40.7						21.1	4.595	3.578	1.017
				30.0/21.7	3.038	2.947	4.023	0.985		40.8	26.7	4.320	3.243	1.077			
	0.60	11.00	23.9/17.2	3.049	2.363	3.979	0.930	37.9		10.0	5.428	4.522	0.906				
			26.7/19.4	3.164	2.664	4.103	0.939	38.1						15.6	5.093	4.113	0.980
			28.3/20.6	3.229	2.883	4.173	0.944	38.2						21.1	4.804	3.762	1.042
				30.0/21.7	3.299	3.200	4.248	0.950		38.3	26.7	4.516	3.411	1.105			
	0.80	16.60	23.9/17.2	3.233	2.506	4.136	0.903	36.6		10.0	5.499	4.575	0.924				
26.7/19.4			3.348	2.819	4.260	0.912	36.8	15.6	5.159					4.161	0.998		
28.3/20.6			3.413	3.048	4.330	0.918	36.9	21.1	4.867					3.804	1.063		
			30.0/21.7	3.483	3.378	4.405	0.923	36.9	26.7	4.575	3.448	1.127					
37.8	0.40	0.550	23.9/17.2	2.598	2.052	3.642	1.044	45.6	37.8	10.0	5.193	4.307	0.886				
			26.7/19.4	2.712	2.332	3.766	1.054	45.9						15.6	4.870	3.915	0.956
			28.3/20.6	2.778	2.528	3.838	1.060	46.0						21.1	4.595	3.578	1.017
				30.0/21.7	2.847	2.819	3.913	1.066		46.2	26.7	4.320	3.243	1.077			
	0.60	11.00	23.9/17.2	2.841	2.244	3.840	1.000	43.3		10.0	5.428	4.522	0.906				
			26.7/19.4	2.955	2.541	3.965	1.010	43.5						15.6	5.093	4.113	0.980
			28.3/20.6	3.021	2.749	4.036	1.015	43.6						21.1	4.804	3.762	1.042
				30.0/21.7	3.090	3.059	4.112	1.022		43.7	26.7	4.516	3.411	1.105			
	0.80	16.60	23.9/17.2	3.013	2.381	3.979	0.966	42.1		10.0	5.499	4.575	0.924				
26.7/19.4			3.133	2.694	4.108	0.975	42.2	15.6	5.159					4.161	0.998		
28.3/20.6			3.201	2.913	4.181	0.980	42.3	21.1	4.867					3.804	1.063		
			30.0/21.7	3.274	3.241	4.259	0.985	42.4	26.7	4.575	3.448	1.127					
43.3	0.40	16.60	23.9/17.2	2.692	2.180	3.738	1.046	47.3	43.3	10.0	5.193	4.307	0.886				
			26.7/19.4	2.901	2.553	3.956	1.055	47.6						15.6	4.870	3.915	0.956
			28.3/20.6	3.021	2.809	4.081	1.060	47.7						21.1	4.595	3.578	1.017
			30.0/21.7	3.148	3.116	4.213	1.065	47.8	26.7	4.320	3.243	1.077					

All data is with 100% water (no antifreeze) and no pumping penalty. Unit kW data includes fan motor.

Total Capacity Correction Factory (% by Weight)

	10%	15%	20%
METHANOL	10%	15%	20%
Cooling	1.00	0.99	0.99
Heating	0.99	0.98	0.97

	10%	15%	20%
ETHANOL	10%	15%	20%
Cooling	1.00	1.00	1.00
Heating	0.99	0.98	0.97

	15%	20%	25%
PROPYLENE GLYCOL	15%	20%	25%
Cooling	0.98	0.97	0.96
Heating	0.96	0.95	0.93

Package WSHP

Performance Data

Capacity Data for size 016H(V)HC at 763m³/h

Low Temperature Operation - Anti-freeze Require

Ent. Water. °C	Water-Flow m ³ /h	Pressure Drop kpa	COOLING						HEATING				
			Ent. Air Db/wb °C	Total Watts	Sensible Watts	Ht. Rej Watts	Unit kW	Lvg. Water. °C	Ent. Water. °C	Ent. Air °C	Total Watts	Ht. Abs Watts	Unit kW
4.4	0.47	7.60	23.9/17.2	4.796	3.453	5.678	0.882	14.8	4.4	10.0	3.859	3.045	0.814
			26.7/19.4	4.931	3.846	5.818	0.887	15.0		15.6	3.619	2.739	0.881
			28.3/20.6	5.008	4.157	5.898	0.890	15.2		21.1	3.417	2.481	0.936
	30.0/21.7	5.090	4.581	5.983	0.893	15.3	26.7	3.212		2.218	0.994		
	0.68	13.80	23.9/17.2	5.224	3.762	6.068	0.844	12.1		10.0	4.034	3.200	0.834
			26.7/19.4	5.374	4.191	6.224	0.850	12.3		15.6	3.785	2.882	0.903
			28.3/20.6	5.459	4.531	6.312	0.853	12.4		21.1	3.571	2.611	0.960
	30.0/21.7	5.550	4.995	6.407	0.857	12.5	26.7	3.357		2.339	1.018		
	0.90	22.10	23.9/17.2	5.286	3.806	6.107	0.821	10.2		10.0	4.087	3.235	0.852
26.7/19.4			5.445	4.247	6.271	0.826	10.4	15.6	3.836	2.915	0.921		
28.3/20.6			5.536	4.595	6.365	0.829	10.5	21.1	3.617	2.639	0.978		
30.0/21.7	5.632	5.069	6.464	0.832	10.6	26.7	3.401	2.363	1.038				
10.0	0.47	7.60	23.9/17.2	4.570	3.336	5.524	0.953	20.1	10.0	10.0	4.493	3.623	0.870
			26.7/19.4	4.705	3.717	5.665	0.960	20.4		15.6	4.214	3.273	0.940
			28.3/20.6	4.782	4.017	5.745	0.963	20.5		21.1	3.974	2.974	1.000
	30.0/21.7	4.864	4.426	5.831	0.967	20.7	26.7	3.737		2.677	1.060		
	0.68	13.80	23.9/17.2	4.961	3.622	5.879	0.918	17.4		10.0	4.695	3.804	0.892
			26.7/19.4	5.106	4.034	6.029	0.924	17.6		15.6	4.405	3.440	0.965
			28.3/20.6	5.188	4.358	6.115	0.927	17.7		21.1	4.156	3.129	1.027
	30.0/21.7	5.276	4.801	6.206	0.930	17.8	26.7	3.907		2.821	1.087		
	0.90	22.10	23.9/17.2	5.269	3.847	6.151	0.882	15.9		10.0	4.758	3.848	0.909
26.7/19.4			5.419	4.281	6.306	0.887	16.0	15.6	4.463	3.480	0.983		
28.3/20.6			5.504	4.623	6.394	0.890	16.1	21.1	4.212	3.167	1.044		
30.0/21.7	5.595	5.091	6.488	0.893	16.2	26.7	3.958	2.849	1.109				
21.1	0.47	7.60	23.9/17.2	4.151	3.113	5.325	1.174	30.8	21.1	10.0	5.817	4.844	0.974
			26.7/19.4	4.268	3.457	5.450	1.182	31.1		15.6	5.458	4.407	1.051
			28.3/20.6	4.336	3.729	5.522	1.186	31.2		21.1	5.149	4.032	1.117
	30.0/21.7	4.407	4.010	5.598	1.191	31.3	26.7	4.841		3.654	1.186		
	0.68	13.80	23.9/17.2	4.552	3.414	5.681	1.128	28.3		10.0	6.082	5.084	0.998
			26.7/19.4	4.670	3.783	5.805	1.135	28.4		15.6	5.707	4.629	1.078
			28.3/20.6	4.737	4.074	5.876	1.139	28.5		21.1	5.382	4.236	1.146
	30.0/21.7	4.808	4.376	5.951	1.143	28.6	26.7	5.059		3.845	1.215		
	0.90	22.10	23.9/17.2	4.748	3.561	5.847	1.099	26.7		10.0	6.163	5.147	1.016
26.7/19.4			4.885	3.957	5.990	1.106	26.8	15.6	5.781	4.683	1.098		
28.3/20.6			4.963	4.268	6.072	1.109	26.9	21.1	5.453	4.285	1.168		
30.0/21.7	5.046	4.592	6.159	1.114	27.0	26.7	5.126	3.887	1.239				
29.4	0.47	7.60	23.9/17.2	3.829	2.949	5.108	1.279	38.7	29.4	10.0	6.488	5.446	1.042
			26.7/19.4	3.936	3.283	5.224	1.287	39.0		15.6	6.087	4.961	1.126
			28.3/20.6	3.997	3.534	5.290	1.292	39.1		21.1	5.741	4.544	1.197
	30.0/21.7	4.062	3.900	5.360	1.298	39.2	26.7	5.398		4.130	1.268		
	0.68	13.80	23.9/17.2	4.164	3.207	5.384	1.219	36.2		10.0	6.783	5.716	1.067
			26.7/19.4	4.282	3.571	5.509	1.227	36.4		15.6	6.363	5.211	1.153
			28.3/20.6	4.349	3.845	5.581	1.231	36.5		21.1	6.004	4.776	1.228
	30.0/21.7	4.420	4.244	5.657	1.236	36.6	26.7	5.642		4.341	1.301		
	0.90	22.10	23.9/17.2	4.378	3.371	5.566	1.188	34.7		10.0	6.873	5.784	1.089
26.7/19.4			4.515	3.765	5.710	1.195	34.9	15.6	6.446	5.271	1.175		
28.3/20.6			4.593	4.060	5.792	1.200	34.9	21.1	6.082	4.832	1.250		
30.0/21.7	4.676	4.489	5.880	1.204	35.0	26.7	5.718	4.393	1.325				
32.2	0.47	7.60	23.9/17.2	3.683	2.855	5.011	1.327	41.4	32.2	10.0	6.677	5.612	1.064
			26.7/19.4	3.794	3.195	5.130	1.336	41.6		15.6	6.262	5.114	1.148
			28.3/20.6	3.857	3.445	5.198	1.341	41.7		21.1	5.907	4.686	1.221
	30.0/21.7	3.925	3.807	5.271	1.346	41.8	26.7	5.555		4.260	1.295		
	0.68	13.80	23.9/17.2	4.022	3.117	5.300	1.279	38.9		10.0	6.979	5.890	1.089
			26.7/19.4	4.132	3.480	5.420	1.287	39.1		15.6	6.548	5.370	1.177
			28.3/20.6	4.196	3.747	5.488	1.292	39.1		21.1	6.177	4.924	1.252
	30.0/21.7	4.263	4.135	5.561	1.298	39.2	26.7	5.806		4.478	1.328		
	0.90	22.10	23.9/17.2	4.261	3.302	5.503	1.242	37.5		10.0	7.071	5.960	1.111
26.7/19.4			4.372	3.681	5.622	1.251	37.6	15.6	6.633	5.434	1.199		
28.3/20.6			4.435	3.960	5.691	1.256	37.6	21.1	6.257	4.981	1.277		
30.0/21.7	4.502	4.367	5.763	1.261	37.7	26.7	5.882	4.528	1.354				
37.8	0.47	7.60	23.9/17.2	3.435	2.714	4.871	1.436	46.7	37.8	All data is with 100% water (no antifreeze) and no pumping penalty. Unit kW data includes fan motor.			
			26.7/19.4	3.546	3.050	4.991	1.445	46.9					
			28.3/20.6	3.609	3.284	5.060	1.451	47.1		Total Capacity Correction Factory (% by Weight)			
	30.0/21.7	3.677	3.640	5.133	1.457	47.2							
	0.68	13.80	23.9/17.2	3.751	2.963	5.126	1.375	44.3		METHANOL	10%	15%	20%
			26.7/19.4	3.862	3.321	5.246	1.384	44.4		Cooling	1.00	0.99	0.99
			28.3/20.6	3.925	3.572	5.315	1.390	44.5		Heating	0.99	0.98	0.97
	30.0/21.7	3.992	3.952	5.388	1.396	44.6	ETHANOL	10%		15%	20%		
	0.90	22.10	23.9/17.2	3.978	3.143	5.305	1.327	42.9		Cooling	1.00	1.00	1.00
26.7/19.4			4.094	3.521	5.430	1.336	43.0	Heating	0.99	0.98	0.97		
28.3/20.6			4.160	3.785	5.501	1.341	43.1	PROPYLENE GLYCOL	15%	20%	25%		
30.0/21.7	4.230	4.188	5.576	1.346	43.1	Cooling	0.98	0.97	0.96				
43.3	0.90	22.10	23.9/17.2	3.607	2.922	5.044	1.437	48.1	Heating	0.99	0.95	0.93	
			26.7/19.4	3.809	3.352	5.255	1.446	48.3					
			28.3/20.6	3.925	3.650	5.376	1.451	48.4					
30.0/21.7	4.048	4.007	5.504	1.456	48.6								

Performance Data

Capacity Data for size 019H(V)HC at 893m³/h

Low Temperature Operation - Anti-freeze Require

Ent. Water. °C	Water-Flow m ³ /h	Pressure Drop kpa	COOLING							HEATING				
			Ent. Air Db/wb°C	Total Watts	Sensible Watts	Ht. Rej Watts	Unit kW	Lvg. Water. °C	Ent. Water. °C	Ent. Air °C	Total Watts	Ht. Abs Watts	Unit kW	
4.4	0.60	11.00	23.9/17.2	5.818	4.189	6.883	1.065	14.3	4.4	10.0	4.502	3.531	0.971	
			26.7/19.4	5.961	4.650	7.032	1.071	14.5		15.6	4.223	3.172	1.050	
			28.3/20.6	6.043	5.015	7.117	1.074	14.6		21.1	3.986	2.870	1.116	
			30.0/21.7	6.129	5.516	7.207	1.077	14.7		26.7	3.747	2.562	1.185	
	0.91	20.70	23.9/17.2	6.339	4.564	7.358	1.019	11.4		10.0	4.707	3.712	0.995	
			26.7/19.4	6.497	5.067	7.523	1.026	11.5		15.6	4.416	3.340	1.077	
			28.3/20.6	6.587	5.467	7.617	1.030	11.6		21.1	4.166	3.021	1.145	
			30.0/21.7	6.683	6.015	7.717	1.034	11.7		26.7	3.916	2.702	1.214	
	1.20	33.80	23.9/17.2	6.415	4.619	7.407	0.991	9.7		10.0	4.768	3.752	1.016	
			26.7/19.4	6.584	5.135	7.581	0.997	9.8		15.6	4.475	3.378	1.098	
			28.3/20.6	6.680	5.544	7.680	1.000	9.9		21.1	4.220	3.054	1.166	
			30.0/21.7	6.782	6.104	7.786	1.004	10.0		26.7	3.967	2.730	1.238	
10.0	0.60	11.00	23.9/17.2	5.546	4.049	6.698	1.152	19.6	10.0	10.0	5.241	4.204	1.037	
			26.7/19.4	5.689	4.494	6.847	1.158	19.8		15.6	4.916	3.795	1.122	
			28.3/20.6	5.771	4.847	6.933	1.162	19.9		21.1	4.637	3.444	1.193	
			30.0/21.7	5.857	5.330	7.023	1.166	20.1		26.7	4.360	3.096	1.264	
	0.91	20.70	23.9/17.2	6.020	4.395	7.129	1.109	16.7		10.0	5.478	4.414	1.063	
			26.7/19.4	6.173	4.877	7.288	1.115	16.9		15.6	5.139	3.989	1.151	
			28.3/20.6	6.260	5.259	7.378	1.118	17.0		21.1	4.849	3.625	1.224	
			30.0/21.7	6.353	5.782	7.475	1.121	17.1		26.7	4.559	3.263	1.296	
	1.20	33.80	23.9/17.2	6.393	4.667	7.458	1.065	15.3		10.0	5.551	4.466	1.085	
			26.7/19.4	6.551	5.175	7.622	1.071	15.5		15.6	5.206	4.035	1.172	
			28.3/20.6	6.642	5.579	7.715	1.074	15.5		21.1	4.913	3.668	1.246	
			30.0/21.7	6.738	6.131	7.815	1.077	15.6		26.7	4.618	3.296	1.322	
21.1	0.60	11.00	23.9/17.2	5.036	3.777	6.454	1.418	30.3	21.1	10.0	6.787	5.266	1.161	
			26.7/19.4	5.160	4.180	6.587	1.427	30.5		15.6	6.368	5.114	1.253	
			28.3/20.6	5.232	4.499	6.663	1.431	30.6		21.1	6.007	4.675	1.333	
			30.0/21.7	5.307	4.829	6.743	1.436	30.8		26.7	5.647	4.233	1.414	
	0.91	20.70	23.9/17.2	5.521	4.140	6.883	1.363	27.6		10.0	7.096	5.906	1.190	
			26.7/19.4	5.645	4.572	7.015	1.370	27.7		15.6	6.658	5.373	1.285	
			28.3/20.6	5.716	4.916	7.090	1.374	27.8		21.1	6.279	4.912	1.367	
			30.0/21.7	5.792	5.270	7.170	1.378	27.9		26.7	5.903	4.454	1.449	
	1.20	33.80	23.9/17.2	5.761	4.321	7.088	1.327	26.2		10.0	7.190	5.979	1.211	
			26.7/19.4	5.906	4.784	7.240	1.334	26.3		15.6	6.744	5.435	1.309	
			28.3/20.6	5.988	5.150	7.327	1.339	26.3		21.1	6.362	4.969	1.393	
			30.0/21.7	6.076	5.529	7.419	1.343	26.4		26.7	5.981	4.503	1.478	
29.4	0.60	11.00	23.9/17.2	4.645	3.577	6.190	1.545	38.3	29.4	10.0	7.569	6.326	1.243	
			26.7/19.4	4.759	3.969	6.313	1.554	38.4		15.6	7.101	5.758	1.343	
			28.3/20.6	4.823	4.264	6.383	1.559	38.5		21.1	6.698	5.271	1.428	
			30.0/21.7	4.892	4.696	6.457	1.565	38.7		26.7	6.298	4.786	1.512	
	0.91	20.70	23.9/17.2	5.052	3.890	6.525	1.473	35.6		10.0	7.913	6.641	1.272	
			26.7/19.4	5.177	4.317	6.658	1.481	35.7		15.6	7.424	6.049	1.375	
			28.3/20.6	5.248	4.639	6.734	1.486	35.8		21.1	7.005	5.540	1.465	
			30.0/21.7	5.323	5.111	6.814	1.491	35.8		26.7	6.583	5.031	1.552	
	1.20	33.80	23.9/17.2	5.314	4.092	6.749	1.435	34.2		10.0	8.018	6.720	1.298	
			26.7/19.4	5.459	4.553	6.902	1.443	34.3		15.6	7.521	6.120	1.401	
			28.3/20.6	5.542	4.899	6.989	1.447	34.4		21.1	7.096	5.605	1.491	
			30.0/21.7	5.630	5.405	7.082	1.452	34.5		26.7	6.671	5.091	1.581	
32.2	0.60	11.00	23.9/17.2	4.470	3.464	6.074	1.604	40.9	32.2	10.0	7.790	6.520	1.269	
			26.7/19.4	4.588	3.863	6.200	1.613	41.1		15.6	7.306	5.936	1.370	
			28.3/20.6	4.655	4.156	6.273	1.618	41.2		21.1	6.892	5.435	1.457	
			30.0/21.7	4.726	4.584	6.349	1.624	41.3		26.7	6.481	4.937	1.544	
	0.91	20.70	23.9/17.2	4.879	3.781	6.423	1.545	38.3		10.0	8.142	6.843	1.298	
			26.7/19.4	4.996	4.206	6.550	1.554	38.4		15.6	7.639	6.235	1.404	
			28.3/20.6	5.063	4.521	6.622	1.559	38.5		21.1	7.206	5.713	1.494	
			30.0/21.7	5.134	4.980	6.699	1.565	38.5		26.7	6.773	5.190	1.583	
	1.20	33.80	23.9/17.2	5.167	4.004	6.668	1.501	37.0		10.0	8.249	6.924	1.325	
			26.7/19.4	5.284	4.449	6.794	1.510	37.1		15.6	7.738	6.308	1.430	
			28.3/20.6	5.351	4.779	6.866	1.515	37.1		21.1	7.300	5.778	1.523	
			30.0/21.7	5.423	5.260	6.943	1.521	37.2		26.7	6.862	5.247	1.615	
37.8	0.60	11.00	23.9/17.2	4.171	3.295	5.905	1.734	46.3	37.8	All data is with 100% water (no antifreeze) and no pumping Penalty. Unit kW data includes fan motor.				
			26.7/19.4	4.288	3.688	6.033	1.745	46.4		Total Capacity Correction Factory (% by Weight)				
			28.3/20.6	4.355	3.963	6.106	1.750	46.5		METHANOL	10%	15%	20%	
			30.0/21.7	4.426	4.382	6.183	1.757	46.7		Cooling	1.00	0.99	0.99	
	0.91	20.70	23.9/17.2	4.552	3.596	6.213	1.661	43.7		Heating	0.99	0.98	0.97	
			26.7/19.4	4.669	4.015	6.340	1.671	43.8		ETHANOL	10%	15%	20%	
			28.3/20.6	4.736	4.310	6.413	1.677	43.9		Cooling	1.00	1.00	1.00	
			30.0/21.7	4.807	4.759	6.490	1.683	43.9		Heating	0.99	0.98	0.97	
	1.20	33.80	23.9/17.2	4.827	3.813	6.431	1.604	42.4		PROPYLENE GLYCOL	15%	20%	25%	
			26.7/19.4	4.949	4.256	6.562	1.613	42.5		Cooling	0.98	0.97	0.96	
			28.3/20.6	5.019	4.568	6.637	1.618	42.6		Heating	0.99	0.95	0.93	
			30.0/21.7	5.094	5.043	6.717	1.624	42.6						
43.3	1.20	33.80	23.9/17.2	4.400	3.564	6.136	1.736	47.7						
			26.7/19.4	4.614	4.060	6.359	1.745	47.9						
			28.3/20.6	4.736	4.405	6.487	1.750	47.9						
			30.0/21.7	4.866	4.818	6.622	1.756	48.0						

Package WSHP

Performance Data

Capacity Data for size 024H(V)HC at 1019m³/h

Low Temperature Operation - Anti-freeze Require

Ent. Water. °C	Water-Flow m ³ /h	Pressure Drop kpa	COOLING						HEATING				
			Ent. Air Db/wb °C	Total Watts	Sensible Watts	Ht. Rej Watts	Unit kW	Lvg. Water. °C	Ent. Water. °C	Ent. Air °C	Total Watts	Ht. Abs Watts	Unit kW
4.4	0.70	13.90	23.9/17.2	6.626	4.771	7.715	1.089	13.9	4.4	10.0	5.217	4.163	1.054
			26.7/19.4	6.760	5.273	7.855	1.094	14.0		15.6	4.893	3.753	1.140
			28.3/20.6	6.837	5.675	7.935	1.097	14.1		21.1	4.619	3.408	1.211
			30.0/21.7	6.919	6.227	8.019	1.101	14.3		26.7	4.342	3.056	1.286
	1.10	26.30	23.9/17.2	7.220	5.198	8.262	1.043	10.9		10.0	5.454	4.374	1.080
			26.7/19.4	7.368	5.747	8.417	1.049	11.0		15.6	5.117	3.949	1.168
			28.3/20.6	7.453	6.186	8.505	1.052	11.0		21.1	4.828	3.585	1.243
	1.40	41.90	30.0/21.7	7.543	6.789	8.599	1.056	11.1		26.7	4.538	3.221	1.317
			23.9/17.2	7.309	5.263	8.323	1.014	9.5		10.0	5.526	4.423	1.103
			26.7/19.4	7.467	5.825	8.487	1.019	9.6	15.6	5.186	3.995	1.191	
			28.3/20.6	7.558	6.273	8.580	1.022	9.7	21.1	4.890	3.624	1.266	
			30.0/21.7	7.654	6.888	8.679	1.025	9.7	26.7	4.597	3.254	1.343	
			10.0	0.70	13.90	23.9/17.2	6.318	4.612	7.496	1.178	19.2	10.0	10.0
26.7/19.4	6.453	5.097				7.637	1.184	19.4	15.6	5.697	4.480		1.217
28.3/20.6	6.529	5.485				7.717	1.188	19.5	21.1	5.373	4.079		1.294
30.0/21.7	6.611	6.016				7.802	1.191	19.6	26.7	5.052	3.680		1.372
1.10	26.30	23.9/17.2		6.858	5.006	7.992	1.134	16.2	10.0	6.348	5.194		1.154
		26.7/19.4		7.001	5.531	8.141	1.140	16.4	15.6	5.955	4.707		1.249
		28.3/20.6		7.084	5.950	8.226	1.143	16.4	21.1	5.619	4.290		1.329
1.40	41.90	30.0/21.7		7.171	6.525	8.317	1.146	16.5	26.7	5.283	3.877		1.406
		23.9/17.2		7.281	5.315	8.370	1.089	15.1	10.0	6.432	5.255		1.177
			26.7/19.4	7.430	5.870	8.524	1.094	15.2	15.6	6.033	4.762	1.271	
			28.3/20.6	7.515	6.312	8.612	1.097	15.3	21.1	5.694	4.342	1.352	
			30.0/21.7	7.605	6.920	8.706	1.101	15.3	26.7	5.351	3.916	1.435	
			21.1	0.70	13.90	23.9/17.2	5.736	4.302	7.186	1.451	29.9	21.1	10.0
26.7/19.4	5.853	4.741				7.311	1.458	30.1	15.6	7.379	6.019		1.360
28.3/20.6	5.919	5.091				7.382	1.463	30.2	21.1	6.961	5.515		1.446
30.0/21.7	5.990	5.451				7.458	1.467	30.3	26.7	6.544	5.009		1.535
1.10	26.30	23.9/17.2		6.284	4.713	7.677	1.394	27.1	10.0	8.223	6.931		1.292
		26.7/19.4		6.401	5.185	7.801	1.400	27.2	15.6	7.715	6.321		1.395
		28.3/20.6		6.468	5.562	7.872	1.404	27.3	21.1	7.276	5.793		1.483
1.40	41.90	30.0/21.7		6.539	5.950	7.947	1.408	27.3	26.7	6.840	5.268		1.572
		23.9/17.2		6.562	4.921	7.919	1.358	26.0	10.0	8.332	7.017		1.314
			26.7/19.4	6.698	5.425	8.062	1.364	26.1	15.6	7.815	6.394	1.420	
			28.3/20.6	6.776	5.827	8.144	1.368	26.1	21.1	7.373	5.861	1.512	
			30.0/21.7	6.858	6.241	8.230	1.372	26.2	26.7	6.930	5.327	1.604	
			29.4	0.70	13.90	23.9/17.2	5.290	4.073	6.870	1.580	37.8	29.4	10.0
26.7/19.4	5.397	4.501				6.985	1.589	38.0	15.6	8.229	6.771		1.458
28.3/20.6	5.457	4.824				7.051	1.594	38.1	21.1	7.762	6.213		1.549
30.0/21.7	5.522	5.301				7.121	1.599	38.1	26.7	7.298	5.657		1.641
1.10	26.30	23.9/17.2		5.754	4.431	7.260	1.506	35.1	10.0	9.170	7.789		1.380
		26.7/19.4		5.871	4.896	7.385	1.514	35.2	15.6	8.603	7.111		1.492
		28.3/20.6		5.938	5.249	7.456	1.518	35.2	21.1	8.117	6.528		1.589
1.40	41.90	30.0/21.7		6.009	5.768	7.532	1.523	35.3	26.7	7.628	5.944		1.684
		23.9/17.2		6.057	4.664	7.524	1.467	34.0	10.0	9.291	7.882		1.409
			26.7/19.4	6.193	5.165	7.668	1.475	34.1	15.6	8.715	7.194	1.521	
			28.3/20.6	6.270	5.543	7.750	1.479	34.2	21.1	8.223	6.605	1.618	
			30.0/21.7	6.353	6.099	7.837	1.484	34.2	26.7	7.731	6.015	1.715	
			32.2	0.70	13.90	23.9/17.2	5.093	3.947	6.733	1.640	40.5	32.2	10.0
26.7/19.4	5.203	4.381				6.852	1.649	40.6	15.6	8.466	6.980		1.486
28.3/20.6	5.266	4.703				6.920	1.654	40.7	21.1	7.986	6.405		1.581
30.0/21.7	5.333	5.173				6.992	1.659	40.8	26.7	7.510	5.834		1.675
1.10	26.30	23.9/17.2		5.555	4.305	7.135	1.580	37.8	10.0	9.434	8.026		1.409
		26.7/19.4		5.665	4.770	7.254	1.589	37.9	15.6	8.852	7.329		1.523
		28.3/20.6		5.728	5.115	7.322	1.594	37.9	21.1	8.351	6.730		1.621
1.40	41.90	30.0/21.7		5.795	5.621	7.394	1.599	38.0	26.7	7.849	6.131		1.718
		23.9/17.2		5.882	4.558	7.417	1.535	36.8	10.0	9.559	8.122		1.438
			26.7/19.4	5.992	5.045	7.535	1.544	36.8	15.6	8.967	7.415	1.552	
			28.3/20.6	6.055	5.407	7.603	1.548	36.9	21.1	8.460	6.807	1.652	
			30.0/21.7	6.122	5.938	7.676	1.554	36.9	26.7	7.952	6.199	1.753	
			37.8	0.70	13.90	23.9/17.2	4.754	3.756	6.528	1.774	45.8	37.8	All data is with 100% water (no antifreeze) and no pumping penalty. Unit kW data includes fan motor.
26.7/19.4	4.865	4.184				6.648	1.784	46.0	Total Capacity Correction Factory (% by Weight)				
28.3/20.6	4.928	4.484				6.717	1.789	46.1	METHANO L	10%	15%		20%
30.0/21.7	4.995	4.945				6.789	1.795	46.1	Cooling	1.00	0.99		0.99
1.10	26.30	23.9/17.2		5.186	4.097	6.884	1.699	43.2	Heating	0.99	0.98		0.97
		26.7/19.4		5.296	4.554	7.004	1.708	43.3	ETHANO L	10%	15%		20%
		28.3/20.6		5.359	4.877	7.073	1.714	43.3	Cooling	1.00	1.00		1.00
1.40	41.90	30.0/21.7		5.426	5.372	7.145	1.720	43.4	Heating	0.99	0.98		0.97
		23.9/17.2		5.498	4.344	7.139	1.640	42.2	PROPYLENE GLYCOL	15%	20%		25%
			26.7/19.4	5.613	4.828	7.262	1.649	42.3	Cooling	0.98	0.97	0.96	
			28.3/20.6	5.679	5.168	7.333	1.654	42.3	Heating	0.99	0.95	0.93	
			30.0/21.7	5.749	5.691	7.408	1.659	42.3					
			43.3	1.40	41.90	23.9/17.2	5.043	4.084	6.818	1.775	47.5		
26.7/19.4	5.244	4.615				7.028	1.784	47.6					
28.3/20.6	5.359	4.984				7.148	1.789	47.7					
30.0/21.7	5.481	5.426				7.275	1.794	47.8					

Performance Data

Capacity Data for size 030H(V)HC at 1274m³/h

Low Temperature Operation - Anti-freeze Require

Ent. Water. °C	Water-Flow m ³ /h	Pressure Drop kpa	COOLING						HEATING				
			Ent. Air Db/wb°C	Total Watts	Sensible Watts	Ht. Rej Watts	Unit kW	Lvg. Water. °C	Ent. Water. °C	Ent. Air °C	Total Watts	Ht. Abs Watts	Unit kW
4.4	0.88	21.40	23.9/17.2	8.809	6.343	10.182	1.372	14.3	4.4	10.0	6.602	5.175	1.427
			26.7/19.4	8.943	6.976	10.321	1.377	14.5		15.6	6.192	4.649	1.543
			28.3/20.6	9.020	7.487	10.400	1.380	14.6		21.1	5.845	4.205	1.640
	30.0/21.7	9.101	8.191	10.485	1.384	14.6	26.7	5.494		3.753	1.741		
	1.34	42.10	23.9/17.2	9.600	6.912	10.913	1.314	11.4		10.0	6.901	5.440	1.462
			26.7/19.4	9.748	7.603	11.068	1.320	11.5		15.6	6.476	4.894	1.582
			28.3/20.6	9.833	8.161	11.156	1.324	11.6		21.1	6.109	4.426	1.683
	30.0/21.7	9.923	8.930	11.250	1.327	11.6	26.7	5.743		3.959	1.784		
	1.80	66.90	23.9/17.2	9.723	7.000	11.000	1.278	9.7		10.0	6.992	5.499	1.493
26.7/19.4			9.880	7.707	11.163	1.283	9.7	15.6	6.562	4.949	1.613		
28.3/20.6			9.971	8.276	11.256	1.286	9.8	21.1	6.188	4.474	1.714		
30.0/21.7	10.066	9.060	11.355	1.289	9.8	26.7	5.818	3.999	1.819				
10.0	0.88	21.40	23.9/17.2	8.403	6.134	9.887	1.484	19.7	10.0	10.0	7.686	6.162	1.524
			26.7/19.4	8.537	6.744	10.027	1.490	19.8		15.6	7.209	5.561	1.648
			28.3/20.6	8.614	7.235	10.107	1.494	19.9		21.1	6.799	5.046	1.753
	30.0/21.7	8.695	7.912	10.192	1.498	20.0	26.7	6.393		4.536	1.857		
	1.34	42.10	23.9/17.2	9.120	6.657	10.548	1.429	16.8		10.0	8.033	6.470	1.563
			26.7/19.4	9.263	7.318	10.697	1.434	16.9		15.6	7.536	5.845	1.691
			28.3/20.6	9.345	7.850	10.782	1.437	16.9		21.1	7.110	5.311	1.799
	30.0/21.7	9.432	8.583	10.872	1.440	17.0	26.7	6.685		4.781	1.904		
	1.80	66.90	23.9/17.2	9.681	7.067	11.053	1.372	15.3		10.0	8.139	6.545	1.594
26.7/19.4			9.829	7.765	11.206	1.377	15.4	15.6	7.635	5.913	1.722		
28.3/20.6			9.914	8.328	11.294	1.380	15.4	21.1	7.205	5.375	1.830		
30.0/21.7	10.004	9.103	11.387	1.384	15.4	26.7	6.771	4.829	1.943				
21.1	0.88	21.40	23.9/17.2	7.626	5.719	9.454	1.828	30.3	21.1	10.0	9.952	8.246	1.706
			26.7/19.4	7.742	6.271	9.578	1.835	30.5		15.6	9.337	7.495	1.842
			28.3/20.6	7.809	6.716	9.649	1.840	30.5		21.1	8.809	6.851	1.958
	30.0/21.7	7.880	7.171	9.724	1.844	30.6	26.7	8.281		6.203	2.078		
	1.34	42.10	23.9/17.2	8.349	6.262	10.105	1.756	27.6		10.0	10.405	8.657	1.749
			26.7/19.4	8.466	6.857	10.228	1.762	27.7		15.6	9.763	7.875	1.888
			28.3/20.6	8.532	7.338	10.298	1.766	27.7		21.1	9.207	7.199	2.009
	30.0/21.7	8.603	7.829	10.373	1.770	27.8	26.7	8.655		6.527	2.129		
	1.80	66.90	23.9/17.2	8.725	6.544	10.436	1.710	26.1		10.0	10.543	8.764	1.780
26.7/19.4			8.861	7.177	10.578	1.717	26.2	15.6	9.889	7.966	1.923		
28.3/20.6			8.939	7.687	10.659	1.721	26.2	21.1	9.329	7.282	2.047		
30.0/21.7	9.021	8.209	10.746	1.725	26.2	26.7	8.770	6.598	2.171				
29.4	0.88	21.40	23.9/17.2	7.033	5.415	9.024	1.991	38.2	29.4	10.0	11.099	9.273	1.826
			26.7/19.4	7.139	5.954	9.138	1.999	38.3		15.6	10.413	8.440	1.974
			28.3/20.6	7.200	6.365	9.204	2.004	38.4		21.1	9.822	7.724	2.098
	30.0/21.7	7.264	6.974	9.274	2.010	38.5	26.7	9.235		7.013	2.222		
	1.34	42.10	23.9/17.2	7.650	5.891	9.548	1.898	35.5		10.0	11.604	9.735	1.869
			26.7/19.4	7.767	6.478	9.672	1.905	35.6		15.6	10.886	8.866	2.020
			28.3/20.6	7.834	6.925	9.743	1.910	35.7		21.1	10.271	8.119	2.152
	30.0/21.7	7.904	7.588	9.819	1.914	35.7	26.7	9.653		7.373	2.280		
	1.80	66.90	23.9/17.2	8.059	6.205	9.908	1.849	34.1		10.0	11.757	9.850	1.908
26.7/19.4			8.195	6.834	10.051	1.856	34.2	15.6	11.028	8.969	2.059		
28.3/20.6			8.272	7.313	10.133	1.861	34.2	21.1	10.405	8.215	2.191		
30.0/21.7	8.355	8.021	10.220	1.865	34.3	26.7	9.783	7.460	2.323				
32.2	0.88	21.40	23.9/17.2	6.775	5.251	8.841	2.066	40.8	32.2	10.0	11.422	9.557	1.865
			26.7/19.4	6.885	5.797	8.960	2.075	41.0		15.6	10.713	8.700	2.012
			28.3/20.6	6.948	6.204	9.028	2.080	41.0		21.1	10.106	7.965	2.140
	30.0/21.7	7.015	6.804	9.100	2.085	41.1	26.7	9.503		7.234	2.268		
	1.34	42.10	23.9/17.2	7.384	5.723	9.375	1.991	38.2		10.0	11.939	10.031	1.908
			26.7/19.4	7.494	6.310	9.494	1.999	38.3		15.6	11.202	9.139	2.063
			28.3/20.6	7.557	6.749	9.562	2.004	38.3		21.1	10.567	8.372	2.195
	30.0/21.7	7.624	7.395	9.634	2.010	38.4	26.7	9.932		7.606	2.326		
	1.80	66.90	23.9/17.2	7.815	6.057	9.749	1.934	36.9		10.0	12.096	10.150	1.946
26.7/19.4			7.925	6.673	9.868	1.943	36.9	15.6	11.347	9.246	2.102		
28.3/20.6			7.988	7.133	9.935	1.948	36.9	21.1	10.705	8.468	2.237		
30.0/21.7	8.055	7.813	10.007	1.953	37.0	26.7	10.062	7.689	2.373				
37.8	0.88	21.40	23.9/17.2	6.328	4.999	8.563	2.235	46.2	37.8	All data is with 100% water (no antifreeze) and no pumping penalty. Unit kW data includes fan motor.			
			26.7/19.4	6.438	5.537	8.683	2.245	46.3		Total Capacity Correction Factory (% by Weight)			
			28.3/20.6	6.501	5.916	8.751	2.250	46.4		METHANO L	10%	15%	20%
	30.0/21.7	6.568	6.502	8.824	2.256	46.4	Cooling	1.00		0.99	0.99		
	1.34	42.10	23.9/17.2	6.897	5.448	9.037	2.141	43.6		Heating	0.99	0.98	0.97
			26.7/19.4	7.007	6.026	9.157	2.150	43.7		ETHANO L	10%	15%	20%
			28.3/20.6	7.070	6.433	9.225	2.156	43.7		Cooling	1.00	1.00	1.00
	30.0/21.7	7.136	7.065	9.298	2.161	43.8	Heating	0.99		0.98	0.97		
	1.80	66.90	23.9/17.2	7.312	5.776	9.378	2.066	42.3		PROPYLENE GLYCOL	15%	20%	25%
26.7/19.4			7.427	6.387	9.502	2.075	42.3	Cooling	0.98	0.97	0.96		
28.3/20.6			7.492	6.818	9.572	2.080	42.4	Heating	0.99	0.95	0.93		
30.0/21.7	7.562	7.486	9.647	2.085	42.4								
43.3	1.80	66.90	23.9/17.2	6.754	5.471	8.991	2.237	47.6					
			26.7/19.4	6.955	6.120	9.200	2.245	47.7					
			28.3/20.6	7.070	6.575	9.320	2.250	47.8					
			30.0/21.7	7.192	7.120	9.447	2.255	47.8					

Package WSHP

Performance Data

Capacity Data for size 036H(V)HC at 1530m³/hr

Low Temperature Operation - Anti-freeze Require

Ent. Water. °C	Water-Flow m ³ /h	Pressure Drop kpa	COOLING						HEATING																
			Ent. Air Db/wb °C	Total Watts	Sensible Watts	Ht. Rej Watts	Unit kW	Lvg. Water. °C	Ent. Water. °C	Ent. Air °C	Total Watts	Ht. Abs Watts	Unit kW												
4.4	1.17	21.40	23.9/17.2	10.407	7.493	12.061	1.654	13.3	4.4	10.0	8.363	6.711	1.651												
			26.7/19.4	10.541	8.222	12.200	1.659	13.4		15.6	7.843	6.058	1.786												
			28.3/20.6	10.617	8.812	12.280	1.662	13.4		21.1	7.404	5.506	1.898												
			30.0/21.7	10.699	9.629	12.364	1.665	13.5		26.7	6.960	4.945	2.015												
	1.72	40.70	23.9/17.2	11.341	8.166	12.926	1.584	10.9		10.0	8.742	7.051	1.691												
			26.7/19.4	11.489	8.962	13.080	1.590	10.9		15.6	8.203	6.372	1.831												
			28.3/20.6	11.574	9.606	13.168	1.594	11.0		21.1	7.738	5.791	1.947												
			30.0/21.7	11.664	10.497	13.261	1.598	11.0		26.7	7.274	5.210	2.064												
	2.30	65.50	23.9/17.2	11.489	8.272	13.029	1.540	9.3		10.0	8.857	7.129	1.727												
			26.7/19.4	11.647	9.084	13.192	1.545	9.3		15.6	8.313	6.446	1.866												
			28.3/20.6	11.737	9.741	13.285	1.548	9.4		21.1	7.838	5.855	1.983												
			30.0/21.7	11.832	10.649	13.384	1.552	9.4		26.7	7.369	5.265	2.104												
10.0	1.17	21.40	23.9/17.2	9.929	7.248	11.718	1.789	18.6	10.0	10.0	9.736	7.972	1.763												
			26.7/19.4	10.063	7.950	11.858	1.795	18.7		15.6	9.131	7.225	1.907												
			28.3/20.6	10.139	8.517	11.938	1.799	18.8		21.1	8.612	6.584	2.028												
			30.0/21.7	10.220	9.300	12.023	1.803	18.8		26.7	8.098	5.949	2.149												
	1.72	40.70	23.9/17.2	10.775	7.866	12.497	1.722	16.2		10.0	10.175	8.367	1.808												
			26.7/19.4	10.918	8.625	12.646	1.727	16.3		15.6	9.546	7.590	1.956												
			28.3/20.6	11.000	9.240	12.731	1.730	16.4		21.1	9.007	6.925	2.082												
			30.0/21.7	11.087	10.089	12.821	1.734	16.4		26.7	8.467	6.264	2.203												
	2.30	65.50	23.9/17.2	11.437	8.349	13.091	1.654	14.9		10.0	10.310	8.466	1.844												
			26.7/19.4	11.585	9.152	13.244	1.659	15.0		15.6	9.671	7.679	1.992												
			28.3/20.6	11.670	9.802	13.332	1.662	15.0		21.1	9.126	7.009	2.118												
			30.0/21.7	11.759	10.701	13.425	1.665	15.0		26.7	8.577	6.329	2.248												
21.1	1.17	21.40	23.9/17.2	9.009	6.757	11.213	2.203	29.3	21.1	10.0	12.606	10.632	1.974												
			26.7/19.4	9.126	7.392	11.337	2.211	29.4		15.6	11.827	9.696	2.131												
			28.3/20.6	9.192	7.905	11.408	2.215	29.5		21.1	11.158	8.893	2.266												
			30.0/21.7	9.263	8.429	11.483	2.220	29.5		26.7	10.489	8.085	2.405												
	1.72	40.70	23.9/17.2	9.861	7.395	11.977	2.116	27.1		10.0	13.180	11.157	2.024												
			26.7/19.4	9.977	8.081	12.100	2.123	27.1		15.6	12.367	10.182	2.185												
			28.3/20.6	10.044	8.637	12.170	2.127	27.2		21.1	11.663	9.339	2.324												
			30.0/21.7	10.114	9.204	12.245	2.131	27.2		26.7	10.964	8.501	2.463												
	2.30	65.50	23.9/17.2	10.309	7.732	12.370	2.062	25.7		10.0	13.355	11.296	2.059												
			26.7/19.4	10.444	8.460	12.513	2.068	25.8		15.6	12.526	10.301	2.225												
			28.3/20.6	10.522	9.049	12.594	2.072	25.8		21.1	11.817	9.448	2.369												
			30.0/21.7	10.604	9.650	12.680	2.076	25.8		26.7	11.108	8.596	2.513												
29.4	1.17	21.40	23.9/17.2	8.308	6.397	10.708	2.400	37.3	29.4	10.0	14.059	11.946	2.113												
			26.7/19.4	8.414	7.017	10.823	2.409	37.4		15.6	13.190	10.907	2.284												
			28.3/20.6	8.475	7.492	10.888	2.414	37.4		21.1	12.442	10.014	2.427												
			30.0/21.7	8.539	8.198	10.958	2.419	37.5		26.7	11.698	9.127	2.571												
	1.72	40.70	23.9/17.2	9.038	6.959	11.326	2.288	35.1		10.0	14.698	12.536	2.163												
			26.7/19.4	9.154	7.635	11.450	2.295	35.1		15.6	13.790	11.452	2.338												
			28.3/20.6	9.221	8.151	11.521	2.300	35.2		21.1	13.011	10.521	2.490												
			30.0/21.7	9.292	8.920	11.596	2.304	35.2		26.7	12.227	9.589	2.638												
	2.30	65.50	23.9/17.2	9.525	7.334	11.753	2.229	33.8		10.0	14.893	12.685	2.207												
			26.7/19.4	9.660	8.056	11.896	2.236	33.8		15.6	13.969	11.587	2.382												
			28.3/20.6	9.737	8.608	11.978	2.241	33.9		21.1	13.180	10.645	2.535												
			30.0/21.7	9.820	9.427	12.065	2.245	33.9		26.7	12.392	9.704	2.688												
32.2	1.17	21.40	23.9/17.2	8.006	6.204	10.497	2.491	39.9	32.2	10.0	14.468	12.310	2.158												
			26.7/19.4	8.116	6.833	10.615	2.500	40.0		15.6	13.570	11.241	2.329												
			28.3/20.6	8.178	7.303	10.683	2.505	40.1		21.1	12.801	10.324	2.477												
			30.0/21.7	8.245	7.998	10.755	2.510	40.1		26.7	12.037	9.412	2.625												
	1.72	40.70	23.9/17.2	8.723	6.760	11.123	2.400	37.8		10.0	15.123	12.915	2.207												
			26.7/19.4	8.833	7.437	11.242	2.409	37.8		15.6	14.189	11.802	2.387												
			28.3/20.6	8.896	7.944	11.309	2.414	37.9		21.1	13.385	10.846	2.539												
			30.0/21.7	8.962	8.693	11.381	2.419	37.9		26.7	12.581	9.889	2.692												
	2.30	65.50	23.9/17.2	9.230	7.153	11.562	2.332	36.5		10.0	15.322	13.070	2.252												
			26.7/19.4	9.340	7.864	11.680	2.340	36.6		15.6	14.374	11.942	2.432												
			28.3/20.6	9.403	8.397	11.748	2.345	36.6		21.1	13.560	10.971	2.589												
			30.0/21.7	9.469	9.185	11.820	2.350	36.6		26.7	12.746	10.000	2.746												
37.8	1.17	21.40	23.9/17.2	7.480	5.909	10.174	2.695	45.3	37.8	All data is with 100% water (no antifreeze) and no pumping penalty. Unit kW data includes fan motor. Total Capacity Correction Factory (% by Weight) <table border="1"> <tr> <td>METHANOL</td><td>10%</td><td>15%</td><td>20%</td></tr> <tr> <td>Cooling</td><td>1.00</td><td>0.99</td><td>0.99</td></tr> <tr> <td>Heating</td><td>0.99</td><td>0.98</td><td>0.97</td></tr> </table>				METHANOL	10%	15%	20%	Cooling	1.00	0.99	0.99	Heating	0.99	0.98	0.97
			METHANOL	10%	15%	20%																			
			Cooling	1.00	0.99	0.99																			
			Heating	0.99	0.98	0.97																			
	26.7/19.4	7.589	6.527	10.294	2.704	45.4																			
	28.3/20.6	7.652	6.963	10.362	2.710	45.4																			
	30.0/21.7	7.719	7.642	10.434	2.715	45.5																			
	1.72	40.70	23.9/17.2	8.149	6.438	10.730	2.581	43.2																	
			26.7/19.4	8.259	7.103	10.849	2.590	43.2																	
			28.3/20.6	8.322	7.573	10.917	2.596	43.3																	
			30.0/21.7	8.388	8.305	10.990	2.602	43.3																	
	2.30	65.50	23.9/17.2	8.639	6.825	11.130	2.491	42.0																	
26.7/19.4			8.754	7.528	11.253	2.500	42.0																		
28.3/20.6			8.819	8.025	11.324	2.505	42.0																		
30.0/21.7			8.889	8.800	11.399	2.510	42.1																		
43.3	2.30	65.50	23.9/17.2	8.007	6.485	10.703	2.696	47.3	43.3	<table border="1"> <tr> <td>ETHANOL</td><td>10%</td><td>15%</td><td>20%</td></tr> <tr> <td>Cooling</td><td>1.00</td><td>1.00</td><td>1.00</td></tr> <tr> <td>Heating</td><td>0.99</td><td>0.98</td><td>0.97</td></tr> </table>				ETHANOL	10%	15%	20%	Cooling	1.00	1.00	1.00	Heating	0.99	0.98	0.97
			ETHANOL	10%	15%	20%																			
			Cooling	1.00	1.00	1.00																			
			Heating	0.99	0.98	0.97																			
26.7/19.4	8.207	7.222	10.912	2.705	47.4																				
28.3/20.6	8.322	7.739	11.031	2.710	47.4																				
30.0/21.7	8.443	8.359	11.158	2.715	47.5																				

Performance Data

Capacity Data for size 043H(V)HC at 1782m³/h

Low Temperature Operation - Anti-freeze Require

Ent. Water. °C	Water-Flow m ³ /h	Pressure Drop kpa	COOLING						HEATING				
			Ent. Air Db/wb°C	Total Watts	Sensible Watts	Ht. Rej Watts	Unit kW	Lvg. Water. °C	Ent. Water. °C	Ent. Air °C	Total Watts	Ht. Abs Watts	Unit kW
4.4	1.35	20.70	23.9/17.2	11.553	8.318	13.580	2.027	13.0	4.4	10.0	8.719	6.753	1.966
			26.7/19.4	11.686	9.115	13.718	2.032	13.1		15.6	8.178	6.052	2.126
			28.3/20.6	11.761	9.762	13.796	2.035	13.2		21.1	7.719	5.460	2.260
			30.0/21.7	11.841	10.657	13.880	2.038	13.2		26.7	7.256	4.858	2.398
	2.00	40.70	23.9/17.2	12.591	9.065	14.532	1.942	10.6		10.0	9.114	7.101	2.014
			26.7/19.4	12.737	9.935	14.685	1.948	10.7		15.6	8.552	6.373	2.179
			28.3/20.6	12.821	10.641	14.772	1.951	10.8		21.1	8.068	5.750	2.318
			30.0/21.7	12.910	11.619	14.865	1.955	10.8		26.7	7.584	5.127	2.457
	2.70	66.90	23.9/17.2	12.756	9.184	14.643	1.888	9.1		10.0	9.234	7.178	2.057
			26.7/19.4	12.912	10.071	14.804	1.893	9.1		15.6	8.667	6.445	2.222
			28.3/20.6	13.001	10.791	14.897	1.896	9.1		21.1	8.172	5.811	2.361
			30.0/21.7	13.095	11.786	14.994	1.899	9.2		26.7	7.683	5.178	2.505
10.0	1.35	20.70	23.9/17.2	11.024	8.047	13.216	2.193	18.4	10.0	10.0	10.150	8.051	2.099
			26.7/19.4	11.156	8.813	13.355	2.199	18.5		15.6	9.521	7.250	2.270
			28.3/20.6	11.231	9.434	13.434	2.202	18.6		21.1	8.979	6.565	2.414
			30.0/21.7	11.312	10.294	13.518	2.206	18.6		26.7	8.443	5.884	2.559
	2.00	40.70	23.9/17.2	11.962	8.733	14.073	2.111	16.1		10.0	10.608	8.456	2.153
			26.7/19.4	12.104	9.562	14.220	2.116	16.1		15.6	9.953	7.624	2.329
			28.3/20.6	12.185	10.235	14.304	2.119	16.1		21.1	9.390	6.912	2.479
			30.0/21.7	12.271	11.167	14.393	2.122	16.2		26.7	8.828	6.205	2.623
	2.70	66.90	23.9/17.2	12.697	9.269	14.724	2.027	14.7		10.0	10.749	8.554	2.195
			26.7/19.4	12.843	10.146	14.875	2.032	14.7		15.6	10.083	7.711	2.372
			28.3/20.6	12.927	10.858	14.962	2.035	14.8		21.1	9.515	6.994	2.521
			30.0/21.7	13.016	11.844	15.054	2.038	14.8		26.7	8.943	6.267	2.676
21.1	1.35	20.70	23.9/17.2	10.001	7.501	12.702	2.701	29.2	21.1	10.0	13.143	10.793	2.350
			26.7/19.4	10.117	8.194	12.825	2.708	29.3		15.6	12.331	9.794	2.537
			28.3/20.6	10.182	8.757	12.895	2.713	29.3		21.1	11.634	8.936	2.698
			30.0/21.7	10.252	9.330	12.969	2.717	29.4		26.7	10.936	8.073	2.863
	2.00	40.70	23.9/17.2	10.944	8.208	13.538	2.593	26.9		10.0	13.742	11.333	2.409
			26.7/19.4	11.060	8.958	13.660	2.600	27.0		15.6	12.894	10.292	2.601
			28.3/20.6	11.125	9.568	13.729	2.604	27.0		21.1	12.160	9.393	2.767
			30.0/21.7	11.195	10.188	13.803	2.608	27.0		26.7	11.431	8.498	2.933
	2.70	66.90	23.9/17.2	11.445	8.583	13.971	2.526	25.5		10.0	13.924	11.472	2.452
			26.7/19.4	11.579	9.379	14.112	2.533	25.6		15.6	13.060	10.411	2.649
			28.3/20.6	11.655	10.023	14.192	2.537	25.6		21.1	12.321	9.501	2.820
			30.0/21.7	11.737	10.680	14.277	2.541	25.6		26.7	11.582	8.590	2.991
29.4	1.35	20.70	23.9/17.2	9.223	7.102	12.165	2.942	37.1	29.4	10.0	14.658	12.142	2.516
			26.7/19.4	9.328	7.779	12.278	2.950	37.2		15.6	13.752	11.034	2.719
			28.3/20.6	9.388	8.299	12.343	2.955	37.3		21.1	12.972	10.082	2.890
			30.0/21.7	9.451	9.073	12.412	2.960	37.3		26.7	12.196	9.135	3.061
	2.00	40.70	23.9/17.2	10.033	7.725	12.837	2.804	34.9		10.0	15.324	12.750	2.575
			26.7/19.4	10.148	8.464	12.960	2.811	35.0		15.6	14.377	11.594	2.783
			28.3/20.6	10.214	9.029	13.030	2.816	35.0		21.1	13.565	10.600	2.965
			30.0/21.7	10.284	9.873	13.104	2.820	35.0		26.7	12.748	9.607	3.141
	2.70	66.90	23.9/17.2	10.576	8.143	13.307	2.731	33.6		10.0	15.527	12.899	2.628
			26.7/19.4	10.710	8.932	13.449	2.739	33.7		15.6	14.564	11.728	2.836
			28.3/20.6	10.786	9.535	13.530	2.743	33.7		21.1	13.742	10.724	3.018
			30.0/21.7	10.868	10.433	13.615	2.748	33.7		26.7	12.920	9.720	3.200
32.2	1.35	20.70	23.9/17.2	8.889	6.889	11.942	3.053	39.8	32.2	10.0	15.085	12.516	2.569
			26.7/19.4	8.997	7.576	12.059	3.062	39.9		15.6	14.148	11.376	2.772
			28.3/20.6	9.059	8.090	12.126	3.067	39.9		21.1	13.346	10.398	2.949
			30.0/21.7	9.125	8.851	12.197	3.072	40.0		26.7	12.550	9.425	3.125
	2.00	40.70	23.9/17.2	9.683	7.505	12.625	2.942	37.6		10.0	15.767	13.139	2.628
			26.7/19.4	9.792	8.245	12.742	2.950	37.7		15.6	14.793	11.952	2.842
			28.3/20.6	9.854	8.800	12.809	2.955	37.7		21.1	13.955	10.932	3.023
			30.0/21.7	9.920	9.622	12.880	2.960	37.7		26.7	13.117	9.912	3.205
	2.70	66.90	23.9/17.2	10.245	7.940	13.103	2.858	36.4		10.0	15.975	13.294	2.682
			26.7/19.4	10.353	8.718	13.220	2.867	36.4		15.6	14.986	12.091	2.895
			28.3/20.6	10.415	9.301	13.287	2.871	36.4		21.1	14.138	11.055	3.082
			30.0/21.7	10.481	10.167	13.358	2.877	36.5		26.7	13.289	10.020	3.269
37.8	1.35	20.70	23.9/17.2	8.306	6.562	11.608	3.303	45.2	37.8	All data is with 100% water (no antifreeze) and no pumping penalty. Unit kW data includes fan motor.			
			26.7/19.4	8.414	7.236	11.726	3.312	45.3		Total Capacity Correction Factory (% by Weight)			
			28.3/20.6	8.476	7.714	11.794	3.317	45.3		METHANOL	10%	15%	20%
			30.0/21.7	8.542	8.457	11.866	3.323	45.4		Cooling	1.00	0.99	0.99
	2.00	40.70	23.9/17.2	9.048	7.148	12.211	3.163	43.0		Heating	0.99	0.98	0.97
			26.7/19.4	9.156	7.874	12.329	3.173	43.1		ETHANOL	10%	15%	20%
			28.3/20.6	9.218	8.389	12.396	3.178	43.1		Cooling	1.00	1.00	1.00
			30.0/21.7	9.284	9.191	12.468	3.184	43.2		Heating	0.99	0.98	0.97
	2.70	66.90	23.9/17.2	9.591	7.577	12.644	3.053	41.8		PROPYLENE GLYCOL	15%	20%	25%
			26.7/19.4	9.704	8.346	12.766	3.062	41.9		Cooling	0.98	0.97	0.96
			28.3/20.6	9.769	8.890	12.836	3.067	41.9		Heating	0.99	0.95	0.93
			30.0/21.7	9.838	9.740	12.910	3.072	41.9					
43.3	2.70	66.90	23.9/17.2	8.907	7.214	12.211	3.304	47.2					
			26.7/19.4	9.105	8.012	12.417	3.313	47.3					
			28.3/20.6	9.218	8.573	12.536	3.317	47.3					
			30.0/21.7	9.339	9.245	12.661	3.323	47.3					

Package WSHP

Performance Data

Capacity Data for size 052H(V)HC at 2293m³/hr

Low Temperature Operation - Anti-freeze Require

Ent. Water. °C	Water-Flow m ³ /h	Pressure Drop kpa	COOLING						HEATING				
			Ent. Air Db/wb°C	Total Watts	Sensible Watts	Ht. Rej Watts	Unit kW	Lvg. Water. °C	Ent. Water. °C	Ent. Air °C	Total Watts	Ht. Abs Watts	Unit kW
4.4	1.60	16.5	23.9/17.2	13.620	9.806	15.942	2.322	13.0	4.4	10.0	10.363	8.131	2.232
			26.7/19.4	13.747	10.723	16.074	2.327	13.0		15.6	9.720	7.306	2.414
			28.3/20.6	13.820	11.470	16.149	2.330	13.1		21.1	9.175	6.610	2.565
			30.0/21.7	13.897	12.507	16.230	2.333	13.1		26.7	8.624	5.902	2.723
	2.40	32.4	23.9/17.2	14.844	10.687	17.068	2.225	10.5		10.0	10.833	8.547	2.286
			26.7/19.4	14.984	11.688	17.215	2.231	10.6		15.6	10.165	7.691	2.474
			28.3/20.6	15.065	12.504	17.299	2.234	10.6		21.1	9.590	6.958	2.632
			30.0/21.7	15.150	13.635	17.388	2.238	10.6		26.7	9.014	6.225	2.790
	3.20	53.8	23.9/17.2	15.041	10.830	17.203	2.162	9.0		10.0	10.976	8.641	2.335
			26.7/19.4	15.191	11.849	17.358	2.167	9.1		15.6	10.301	7.778	2.523
			28.3/20.6	15.276	12.679	17.446	2.170	9.1		21.1	9.713	7.033	2.680
			30.0/21.7	15.367	13.830	17.540	2.173	9.1		26.7	9.132	6.288	2.844
10.0	1.60	16.5	23.9/17.2	12.997	9.488	15.510	2.512	18.3	10.0	10.0	12.064	9.681	2.383
			26.7/19.4	13.124	10.368	15.642	2.518	18.4		15.6	11.316	8.738	2.577
			28.3/20.6	13.197	11.086	15.718	2.521	18.4		21.1	10.672	7.931	2.741
			30.0/21.7	13.274	12.079	15.799	2.525	18.5		26.7	10.035	7.130	2.905
	2.40	32.4	23.9/17.2	14.104	10.296	16.521	2.418	15.9		10.0	12.609	10.165	2.444
			26.7/19.4	14.240	11.249	16.663	2.423	16.0		15.6	11.829	9.185	2.644
			28.3/20.6	14.318	12.027	16.743	2.426	16.0		21.1	11.161	8.347	2.814
			30.0/21.7	14.400	13.104	16.829	2.429	16.0		26.7	10.493	7.515	2.978
	3.20	53.8	23.9/17.2	14.968	10.927	17.290	2.322	14.6		10.0	12.776	10.283	2.492
			26.7/19.4	15.109	11.936	17.436	2.327	14.7		15.6	11.984	9.291	2.693
			28.3/20.6	15.189	12.759	17.519	2.330	14.7		21.1	11.310	8.447	2.862
			30.0/21.7	15.274	13.900	17.607	2.333	14.7		26.7	10.629	7.591	3.038
21.1	1.60	16.5	23.9/17.2	11.791	8.843	14.885	3.094	29.1	21.1	10.0	15.622	12.953	2.668
			26.7/19.4	11.901	9.640	15.003	3.101	29.2		15.6	14.657	11.776	2.881
			28.3/20.6	11.965	10.289	15.070	3.105	29.2		21.1	13.828	10.765	3.063
			30.0/21.7	12.032	10.949	15.141	3.110	29.2		26.7	12.999	9.748	3.251
	2.40	32.4	23.9/17.2	12.899	9.674	15.870	2.971	26.8		10.0	16.333	13.598	2.735
			26.7/19.4	13.009	10.538	15.987	2.977	26.8		15.6	15.325	12.371	2.953
			28.3/20.6	13.073	11.242	16.053	2.981	26.9		21.1	14.453	11.311	3.141
			30.0/21.7	13.140	11.957	16.125	2.985	26.9		26.7	13.586	10.257	3.329
	3.20	53.8	23.9/17.2	13.493	10.120	16.387	2.894	25.5		10.0	16.550	13.766	2.784
			26.7/19.4	13.622	11.033	16.522	2.901	25.5		15.6	15.523	12.515	3.008
			28.3/20.6	13.695	11.778	16.599	2.904	25.6		21.1	14.644	11.442	3.202
			30.0/21.7	13.773	12.534	16.681	2.908	25.6		26.7	13.766	10.370	3.396
29.4	1.60	16.5	23.9/17.2	10.873	8.372	14.243	3.370	37.1	29.4	10.0	17.422	14.566	2.856
			26.7/19.4	10.973	9.152	14.352	3.378	37.1		15.6	16.346	13.259	3.087
			28.3/20.6	11.031	9.751	14.414	3.383	37.1		21.1	15.418	12.137	3.281
			30.0/21.7	11.092	10.648	14.480	3.388	37.2		26.7	14.496	11.021	3.475
	2.40	32.4	23.9/17.2	11.828	9.108	15.040	3.212	34.8		10.0	18.214	15.291	2.923
			26.7/19.4	11.939	9.957	15.158	3.219	34.8		15.6	17.088	13.929	3.160
			28.3/20.6	12.002	10.610	15.225	3.223	34.9		21.1	16.123	12.757	3.366
			30.0/21.7	12.069	11.586	15.297	3.228	34.9		26.7	15.152	11.586	3.566
	3.20	53.8	23.9/17.2	12.472	9.603	15.601	3.129	33.6		10.0	18.455	15.472	2.984
			26.7/19.4	12.601	10.509	15.737	3.136	33.6		15.6	17.311	14.091	3.220
			28.3/20.6	12.674	11.204	15.815	3.140	33.6		21.1	16.333	12.907	3.426
			30.0/21.7	12.752	12.242	15.897	3.145	33.7		26.7	15.356	11.723	3.633
32.2	1.60	16.5	23.9/17.2	10.481	8.123	13.979	3.498	39.7	32.2	10.0	17.930	15.013	2.917
			26.7/19.4	10.585	8.913	14.091	3.506	39.8		15.6	16.816	13.668	3.147
			28.3/20.6	10.645	9.506	14.156	3.511	39.8		21.1	15.863	12.516	3.348
			30.0/21.7	10.708	10.387	14.224	3.516	39.8		26.7	14.917	11.369	3.548
	2.40	32.4	23.9/17.2	11.415	8.846	14.785	3.370	37.5		10.0	18.740	15.756	2.984
			26.7/19.4	11.519	9.699	14.897	3.378	37.5		15.6	17.583	14.357	3.226
			28.3/20.6	11.579	10.340	14.962	3.383	37.6		21.1	16.587	13.155	3.432
			30.0/21.7	11.642	11.293	15.030	3.388	37.6		26.7	15.591	11.952	3.639
	3.20	53.8	23.9/17.2	12.074	9.358	15.349	3.274	36.3		10.0	18.987	15.943	3.044
			26.7/19.4	12.179	10.255	15.461	3.283	36.4		15.6	17.812	14.525	3.287
			28.3/20.6	12.238	10.929	15.526	3.287	36.4		21.1	16.804	13.304	3.499
			30.0/21.7	12.302	11.933	15.594	3.292	36.4		26.7	15.795	12.084	3.711
37.8	1.60	16.5	23.9/17.2	9.796	7.739	13.580	3.784	45.1	37.8	All data is with 100% water (no antifreeze) and no pumping Penalty. Unit kW data includes fan motor.			
			26.7/19.4	9.900	8.514	13.693	3.793	45.2		Total Capacity Correction Factory (% by Weight)			
			28.3/20.6	9.960	9.064	13.758	3.798	45.2		METHANOL	10%	15%	20%
			30.0/21.7	10.023	9.923	13.827	3.803	45.2		Cooling	1.00	0.99	0.99
	2.40	32.4	23.9/17.2	10.668	8.427	14.292	3.624	42.9		Heating	0.99	0.98	0.97
			26.7/19.4	10.772	9.264	14.405	3.633	43.0		ETHANOL	10%	15%	20%
			28.3/20.6	10.832	9.857	14.470	3.638	43.0		Cooling	1.00	1.00	1.00
			30.0/21.7	10.895	10.786	14.539	3.644	43.0		Heating	0.99	0.98	0.97
	3.20	53.8	23.9/17.2	11.308	8.933	14.806	3.498	41.8		PROPYLENE GLYCOL	15%	20%	25%
			26.7/19.4	11.417	9.818	14.923	3.506	41.8		Cooling	0.98	0.97	0.96
			28.3/20.6	11.479	10.446	14.990	3.511	41.8		Heating	0.99	0.95	0.93
			30.0/21.7	11.545	11.430	15.061	3.516	41.8					
43.3	3.20	53.8	23.9/17.2	10.532	8.531	14.317	3.785	47.1					
			26.7/19.4	10.723	9.436	14.516	3.793	47.2					
			28.3/20.6	10.832	10.073	14.630	3.798	47.2					
			30.0/21.7	10.947	10.838	14.750	3.803	47.3					

Performance Data

Capacity Data for size 062H(V)HC at 2549m³/h

Low Temperature Operation - Anti-freeze Require

Ent. Water. °C	Water-Flow m ³ /h	Pressure Drop kpa	COOLING						HEATING				
			Ent. Air Db/wb°C	Total Watts	Sensible Watts	Ht. Rej Watts	Unit kW	Lvg. Water. °C	Ent. Water. °C	Ent. Air °C	Total Watts	Ht. Abs Watts	Unit kW
4.4	1.80	13.10	23.9/17.2	16.705	12.027	19.549	2.845	13.7	4.4	10.0	12.865	10.211	2.654
			26.7/19.4	16.838	13.134	19.688	2.850	13.8		15.6	12.067	9.196	2.871
			28.3/20.6	16.914	14.039	19.767	2.853	13.8		21.1	11.391	8.340	3.051
			30.0/21.7	16.995	15.296	19.851	2.856	13.9		26.7	10.707	7.469	3.239
	2.71	26.20	23.9/17.2	18.206	13.108	20.932	2.726	11.0		10.0	13.449	10.730	2.719
			26.7/19.4	18.354	14.316	21.086	2.732	11.1		15.6	12.620	9.677	2.943
			28.3/20.6	18.438	15.304	21.174	2.736	11.1		21.1	11.905	8.775	3.130
			30.0/21.7	18.528	16.675	21.267	2.739	11.1		26.7	11.191	7.873	3.318
	3.60	42.70	23.9/17.2	18.450	13.284	21.100	2.649	9.4		10.0	13.626	10.849	2.777
			26.7/19.4	18.607	14.514	21.262	2.654	9.5		15.6	12.789	9.788	3.001
			28.3/20.6	18.697	15.519	21.354	2.657	9.5		21.1	12.059	8.871	3.188
			30.0/21.7	18.792	16.913	21.453	2.661	9.5		26.7	11.337	7.954	3.383
10.0	1.80	13.10	23.9/17.2	15.943	11.638	19.021	3.078	19.1	10.0	10.0	14.978	12.143	2.835
			26.7/19.4	16.076	12.700	19.160	3.084	19.2		15.6	14.048	10.983	3.065
			28.3/20.6	16.152	13.568	19.240	3.087	19.2		21.1	13.249	9.989	3.260
			30.0/21.7	16.233	14.772	19.324	3.091	19.2		26.7	12.458	9.003	3.455
	2.71	26.20	23.9/17.2	17.299	12.629	20.261	2.962	16.4		10.0	15.654	12.747	2.907
			26.7/19.4	17.442	13.779	20.409	2.967	16.5		15.6	14.686	11.541	3.145
			28.3/20.6	17.524	14.720	20.494	2.970	16.5		21.1	13.856	10.509	3.347
			30.0/21.7	17.610	16.025	20.584	2.973	16.5		26.7	13.027	9.485	3.542
	3.60	42.70	23.9/17.2	18.359	13.402	21.203	2.845	15.1		10.0	15.861	12.896	2.964
			26.7/19.4	18.506	14.620	21.356	2.850	15.1		15.6	14.878	11.675	3.203
			28.3/20.6	18.590	15.616	21.443	2.853	15.1		21.1	14.041	10.636	3.404
			30.0/21.7	18.680	16.999	21.536	2.856	15.1		26.7	13.196	9.582	3.614
21.1	1.80	13.10	23.9/17.2	14.461	10.846	18.252	3.791	29.8	21.1	10.0	19.394	16.220	3.174
			26.7/19.4	14.577	11.808	18.376	3.798	29.9		15.6	18.196	14.770	3.426
			28.3/20.6	14.644	12.594	18.446	3.802	29.9		21.1	17.167	13.524	3.643
			30.0/21.7	14.714	13.390	18.521	3.807	29.9		26.7	16.137	12.271	3.866
	2.71	26.20	23.9/17.2	15.817	11.863	19.457	3.640	27.3		10.0	20.277	17.024	3.253
			26.7/19.4	15.934	12.906	19.580	3.646	27.3		15.6	19.025	15.513	3.513
			28.3/20.6	16.000	13.760	19.650	3.650	27.3		21.1	17.942	14.206	3.736
			30.0/21.7	16.070	14.624	19.725	3.654	27.4		26.7	16.867	12.907	3.960
	3.60	42.70	23.9/17.2	16.550	12.412	20.095	3.546	25.9		10.0	20.546	17.236	3.311
			26.7/19.4	16.685	13.515	20.237	3.552	25.9		15.6	19.271	15.694	3.578
			28.3/20.6	16.762	14.415	20.318	3.556	26.0		21.1	18.181	14.372	3.808
			30.0/21.7	16.844	15.328	20.404	3.560	26.0		26.7	17.090	13.051	4.039
29.4	1.80	13.10	23.9/17.2	13.335	10.268	17.464	4.129	37.7	29.4	10.0	21.629	18.232	3.397
			26.7/19.4	13.441	11.209	17.578	4.138	37.8		15.6	20.293	16.621	3.671
			28.3/20.6	13.501	11.935	17.643	4.142	37.8		21.1	19.141	15.239	3.902
			30.0/21.7	13.565	13.022	17.713	4.148	37.9		26.7	17.996	13.863	4.133
	2.71	26.20	23.9/17.2	14.507	11.170	18.442	3.935	35.3		10.0	22.612	19.136	3.477
			26.7/19.4	14.623	12.196	18.566	3.943	35.3		15.6	21.215	17.457	3.758
			28.3/20.6	14.689	12.985	18.637	3.947	35.3		21.1	20.016	16.013	4.003
			30.0/21.7	14.760	14.170	18.712	3.952	35.3		26.7	18.810	14.569	4.241
	3.60	42.70	23.9/17.2	15.300	11.781	19.134	3.833	34.0		10.0	22.912	19.363	3.549
			26.7/19.4	15.435	12.873	19.276	3.841	34.0		15.6	21.491	17.661	3.830
			28.3/20.6	15.512	13.713	19.358	3.845	34.0		21.1	20.277	16.202	4.075
			30.0/21.7	15.594	14.971	19.444	3.850	34.0		26.7	19.064	14.743	4.321
32.2	1.80	13.10	23.9/17.2	12.857	9.964	17.142	4.285	40.4	32.2	10.0	22.259	18.790	3.469
			26.7/19.4	12.966	10.917	17.260	4.294	40.4		15.6	20.877	17.133	3.743
			28.3/20.6	13.029	11.634	17.327	4.299	40.5		21.1	19.694	15.712	3.982
			30.0/21.7	13.095	12.702	17.399	4.304	40.5		26.7	18.519	14.299	4.220
	2.71	26.20	23.9/17.2	13.999	10.850	18.128	4.129	38.0		10.0	23.265	19.717	3.549
			26.7/19.4	14.109	11.880	18.246	4.138	38.0		15.6	21.829	17.992	3.837
			28.3/20.6	14.171	12.655	18.314	4.142	38.0		21.1	20.592	16.510	4.082
			30.0/21.7	14.238	13.811	18.385	4.148	38.0		26.7	19.356	15.028	4.328
	3.60	42.70	23.9/17.2	14.807	11.475	18.819	4.012	36.7		10.0	23.573	19.952	3.621
			26.7/19.4	14.916	12.560	18.937	4.020	36.7		15.6	22.113	18.204	3.909
			28.3/20.6	14.979	13.376	19.004	4.025	36.7		21.1	20.861	16.699	4.162
			30.0/21.7	15.045	14.594	19.076	4.030	36.8		26.7	19.609	15.195	4.414
37.8	1.80	13.10	23.9/17.2	12.018	9.495	16.654	4.636	45.8	37.8	All data is with 100% water (no antifreeze) and no pumping penalty. Unit kW data includes fan motor.			
			26.7/19.4	12.128	10.430	16.773	4.645	45.8		Total Capacity Correction Factory (% by Weight)			
			28.3/20.6	12.190	11.093	16.841	4.650	45.8		METHANOL	10%	15%	20%
			30.0/21.7	12.257	12.134	16.913	4.656	45.9		Cooling	1.00	0.99	0.99
	2.71	26.20	23.9/17.2	13.085	10.337	17.525	4.440	43.4		Heating	0.99	0.98	0.97
			26.7/19.4	13.195	11.347	17.644	4.450	43.4		ETHANOL	10%	15%	20%
			28.3/20.6	13.257	12.064	17.712	4.455	43.4		Cooling	1.00	1.00	1.00
			30.0/21.7	13.324	13.190	17.784	4.461	43.4		Heating	0.99	0.98	0.97
	3.60	42.70	23.9/17.2	13.870	10.957	18.155	4.285	42.1		PROPYLENE GLYCOL	15%	20%	25%
			26.7/19.4	13.984	12.026	18.278	4.294	42.2		Cooling	0.98	0.97	0.96
			28.3/20.6	14.049	12.785	18.348	4.299	42.2		Heating	0.99	0.95	0.93
			30.0/21.7	14.119	13.978	18.423	4.304	42.2					
43.3	3.60	42.70	23.9/17.2	12.943	10.484	17.580	4.637	47.5					
			26.7/19.4	13.143	11.566	17.788	4.646	47.5					
			28.3/20.6	13.257	12.329	17.908	4.650	47.6					
			30.0/21.7	13.378	13.245	18.034	4.656	47.6					

Package WSHP

Performance Data

Capacity Data for size 072H(V)HC at 2650m³/h

Low Temperature Operation - Anti-freeze Require

Ent. Water. °C	Water-Flow m ³ /h	Pressure Drop kpa	COOLING						HEATING				
			Ent. Air Db/wb°C	Total Watts	Sensible Watts	Ht. Rej Watts	Unit kW	Lvg. Water. °C	Ent. Water. °C	Ent. Air °C	Total Watts	Ht. Abs Watts	Unit kW
4.4	2.05	15.90	23.9/17.2	20.139	14.500	23.477	3.337	14.2	4.4	10.0	15.080	11.435	3.645
			26.7/19.4	20.272	15.812	23.615	3.343	14.3		15.6	14.144	10.202	3.943
			28.3/20.6	20.348	16.889	23.694	3.346	14.3		21.1	13.352	9.162	4.190
			30.0/21.7	20.429	18.386	23.778	3.349	14.4		26.7	12.551	8.103	4.448
	3.10	31.00	23.9/17.2	21.950	15.804	25.148	3.198	11.4		10.0	15.765	12.030	3.735
			26.7/19.4	22.097	17.236	25.302	3.205	11.4		15.6	14.792	10.751	4.042
			28.3/20.6	22.182	18.411	25.390	3.208	11.4		21.1	13.955	9.656	4.299
			30.0/21.7	22.271	20.044	25.483	3.212	11.5		26.7	13.118	8.561	4.557
	4.10	51.70	23.9/17.2	22.247	16.018	25.355	3.108	9.7		10.0	15.972	12.158	3.814
			26.7/19.4	22.404	17.475	25.517	3.113	9.8		15.6	14.990	10.870	4.121
			28.3/20.6	22.493	18.669	25.610	3.116	9.8		21.1	14.135	9.757	4.378
			30.0/21.7	22.588	20.330	25.708	3.120	9.8		26.7	13.289	8.643	4.646
10.0	2.05	15.90	23.9/17.2	19.223	14.033	22.833	3.611	19.6	10.0	10.0	17.556	13.663	3.893
			26.7/19.4	19.356	15.291	22.973	3.617	19.6		15.6	16.467	12.257	4.210
			28.3/20.6	19.432	16.323	23.052	3.621	19.7		21.1	15.531	11.053	4.477
			30.0/21.7	19.513	17.756	23.137	3.624	19.7		26.7	14.603	9.858	4.745
	3.10	31.00	23.9/17.2	20.858	15.226	24.332	3.475	16.7		10.0	18.349	14.357	3.992
			26.7/19.4	21.000	16.590	24.480	3.480	16.8		15.6	17.214	12.895	4.319
			28.3/20.6	21.082	17.709	24.565	3.483	16.8		21.1	16.242	11.646	4.596
			30.0/21.7	21.168	19.263	24.654	3.486	16.8		26.7	15.269	10.406	4.864
	4.10	51.70	23.9/17.2	22.133	16.157	25.471	3.337	15.3		10.0	18.592	14.520	4.071
			26.7/19.4	22.281	17.602	25.623	3.343	15.4		15.6	17.439	13.041	4.398
			28.3/20.6	22.365	18.787	25.710	3.346	15.4		21.1	16.458	11.782	4.676
			30.0/21.7	22.454	20.433	25.803	3.349	15.4		26.7	15.468	10.505	4.963
21.1	2.05	15.90	23.9/17.2	17.435	13.076	21.882	4.447	30.3	21.1	10.0	22.733	18.375	4.359
			26.7/19.4	17.551	14.216	22.006	4.455	30.3		15.6	21.329	16.623	4.705
			28.3/20.6	17.617	15.151	22.076	4.459	30.4		21.1	20.122	15.120	5.002
			30.0/21.7	17.687	16.096	22.151	4.464	30.4		26.7	19.166	13.606	5.310
	3.10	31.00	23.9/17.2	19.066	14.300	23.336	4.270	27.6		10.0	23.769	19.301	4.468
			26.7/19.4	19.182	15.538	23.459	4.277	27.6		15.6	22.301	17.477	4.824
			28.3/20.6	19.248	16.554	23.529	4.280	27.6		21.1	21.032	15.900	5.131
			30.0/21.7	19.319	17.580	23.603	4.285	27.6		26.7	19.771	14.333	5.438
	4.10	51.70	23.9/17.2	19.953	14.965	24.113	4.160	26.2		10.0	24.084	19.537	4.547
			26.7/19.4	20.088	16.271	24.255	4.167	26.2		15.6	22.589	17.676	4.913
			28.3/20.6	20.165	17.342	24.336	4.171	26.2		21.1	21.311	16.080	5.230
			30.0/21.7	20.247	18.425	24.422	4.175	26.2		26.7	20.032	14.485	5.547
29.4	2.05	15.90	23.9/17.2	16.076	12.379	20.921	4.845	38.2	29.4	10.0	25.353	20.687	4.666
			26.7/19.4	16.182	13.496	21.035	4.853	38.2		15.6	23.787	18.744	5.042
			28.3/20.6	16.242	14.358	21.100	4.858	38.3		21.1	22.436	17.077	5.359
			30.0/21.7	16.306	15.654	21.169	4.863	38.3		26.7	21.095	15.419	5.676
	3.10	31.00	23.9/17.2	17.490	13.467	22.107	4.617	35.5		10.0	26.506	21.731	4.775
			26.7/19.4	17.606	14.683	22.230	4.624	35.6		15.6	24.867	19.706	5.161
			28.3/20.6	17.672	15.622	22.301	4.629	35.6		21.1	23.462	17.965	5.498
			30.0/21.7	17.742	17.033	22.376	4.633	35.6		26.7	22.049	16.224	5.825
	4.10	51.70	23.9/17.2	18.450	14.206	22.948	4.498	34.2		10.0	26.857	21.983	4.874
			26.7/19.4	18.585	15.500	23.090	4.505	34.2		15.6	25.191	19.931	5.260
			28.3/20.6	18.662	16.497	23.172	4.510	34.3		21.1	23.769	18.172	5.597
			30.0/21.7	18.744	17.994	23.258	4.514	34.3		26.7	22.346	16.412	5.934
32.2	2.05	15.90	23.9/17.2	15.502	12.014	20.530	5.028	40.8	32.2	10.0	26.091	21.327	4.765
			26.7/19.4	15.611	13.145	20.648	5.036	40.9		15.6	24.471	19.330	5.141
			28.3/20.6	15.674	13.997	20.715	5.041	40.9		21.1	23.084	17.616	5.468
			30.0/21.7	15.740	15.268	20.787	5.046	40.9		26.7	21.707	15.912	5.795
	3.10	31.00	23.9/17.2	16.877	13.080	21.721	4.845	38.2		10.0	27.271	22.397	4.874
			26.7/19.4	16.986	14.302	21.839	4.853	38.3		15.6	25.587	20.317	5.270
			28.3/20.6	17.049	15.224	21.907	4.858	38.3		21.1	24.138	18.531	5.607
			30.0/21.7	17.115	16.602	21.978	4.863	38.3		26.7	22.688	16.745	5.944
	4.10	51.70	23.9/17.2	17.848	13.833	22.555	4.707	36.9		10.0	27.631	22.658	4.973
			26.7/19.4	17.958	15.120	22.673	4.716	37.0		15.6	25.920	20.551	5.369
			28.3/20.6	18.020	16.092	22.741	4.720	37.0		21.1	24.453	18.737	5.716
			30.0/21.7	18.087	17.544	22.812	4.726	37.0		26.7	22.985	16.923	6.062
37.8	2.05	15.90	23.9/17.2	14.494	11.450	19.932	5.439	46.2	37.8	All data is with 100% water (no antifreeze) and no pumping penalty. Unit kW data includes fan motor.			
			26.7/19.4	14.603	12.559	20.051	5.448	46.2		Total Capacity Correction Factory (% by Weight)			
			28.3/20.6	14.666	13.346	20.119	5.454	46.2		METHANOL	10%	15%	20%
			30.0/21.7	14.732	14.585	20.191	5.460	46.3		Cooling	1.00	0.99	0.99
	3.10	31.00	23.9/17.2	15.777	12.464	20.987	5.210	43.6		Heating	0.99	0.98	0.97
			26.7/19.4	15.886	13.662	21.105	5.219	43.7		ETHANOL	10%	15%	20%
			28.3/20.6	15.949	14.513	21.173	5.225	43.7		Cooling	1.00	1.00	1.00
			30.0/21.7	16.015	15.855	21.245	5.230	43.7		Heating	0.99	0.98	0.97
	4.10	51.70	23.9/17.2	16.723	13.211	21.751	5.028	42.4		PROPYLENE GLYCOL	15%	20%	25%
			26.7/19.4	16.837	14.480	21.873	5.036	42.4		Cooling	0.98	0.97	0.96
			28.3/20.6	16.902	15.381	21.943	5.041	42.4		Heating	0.99	0.95	0.93
			30.0/21.7	16.971	16.802	22.018	5.046	42.4					
43.3	4.10	51.70	23.9/17.2	15.635	12.664	21.075	5.440	47.7					
			26.7/19.4	15.835	13.934	21.283	5.449	47.8					
			28.3/20.6	15.949	14.832	21.402	5.454	47.8					
			30.0/21.7	16.070	15.909	21.529	5.459	47.8					

Application Limits

water temp. °C	Standard units		Extended range units	
	Cooling	Heating	Cooling	Heating
Minimum entering water temp.	20	10	4	-5
Normal entering water temp.	30	20	30	20
Maximum entering water temp.	43	32	43	32

air temp. °C	Standard units		Extended range units	
	Cooling	Heating	Cooling	Heating
Minimum ambient air temperature	10	10	4	4
Normal ambient air temperature	27	20	27	20
Maximum ambient air temperature	38	20	38	20
Minimum entering Air temp.	10	10	10	4
Normal entering Air temp.	27/19	20	27/19	20
Maximum entering Air temp.	38/28	30	38/28	30

At standard flow rates specified or equivalent enthalpy.

Note: leaving water temperature must never go below 2°C in the heating mode or above 47°C in the cooling mode. Only one maximum condition can be operated at any one time.

Standard Units: Units can start and operate at 4°C entering air and 27°C entering water in the heating mode with both air and water flow rates at standard conditions for startup purposes only to bring the room up to temperature.

Fan Performance

Unit Size	External Static Pressure (Pa)								Min. m ³ /h
	40	50	70	80	100	125	150	180	
009H(V)HC	406	388	-	-	-	-	-	-	360
013H(V)HC	582	521	-	-	-	-	-	-	505
016H(V)HC	805	772	-	-	-	-	-	-	724
019H(V)HC	980	940	920	-	-	-	-	-	810
024H(V)HC	1165	1098	1047	-	-	-	-	-	936
030H(V)HC	-	-	1320	1274	1220	1133	951	-	950
036H(V)HC	-	-	1600	1530	1450	1400	1360	-	1360
043H(V)HC	-	-	1910	1782	1600	1550	1510	1900	1510
052H(V)HC	-	-	-	2435	2293	2197	2030	2030	1890
062H(V)HC	-	-	-	-	2549	2476	2283	2106	1980
072H(V)HC	-	-	-	-	2675	2578	2368	2250	2016

(Airflow in m³/h)

H=Horizontal Unit V=Vertical Unit

Air Flow Correction Factor

	Percent							
	80	85	90	95	100	105	110	115
Total Cooling	.980	.986	.989	.994	1.000	1.011	1.017	1.023
Sensible Cooling	.902	.931	.960	.978	1.000	1.025	1.051	1.078
Total heat of Rejection	.981	.985	.989	.996	1.000	1.009	1.015	1.021
Cooling kW	.980	.985	.990	.995	1.000	1.005	1.010	1.015
Total Heating	.970	.979	.989	.994	1.000	1.009	1.017	1.025
Total Heat of Absorption	.951	.968	.983	.991	1.000	1.017	1.031	1.045
Heating kW	1.030	1.020	1.010	1.050	1.000	.995	.988	.981

To determine unit performance at different airflows, multiply the data from the capacity data from the capacity data tables by the factors above.

Electrical Data

Model	Voltage	Compressor		Fan Motor FLA	Total Amps	Min./Max. Volts	Min./Circuit Ampacity	Max. Breaker Size	Max. Fuse Size
		RLA	LRA						
L009H(V)HN	220~240/50/1	4.4	23	0.3	4.7	198/242	5.6	8.5	10
	208~230/60/1	5.3	28	0.3	5.6	188/253	6.7	10.0	15
L013H(V)HN	220~240/50/1	4.5	23	0.3	4.8	198/242	5.8	8.6	10
	208~230/60/1	5.4	28	0.3	5.7	188/253	6.8	10.3	15
L016H(V)HN	220~240/50/1	6.1	32	0.4	6.5	198/242	7.8	11.7	15
	208~230/60/1	7.3	38	0.4	7.7	188/253	9.3	13.9	15
L019H(V)HN	220~240/50/1	8.1	39	0.6	8.7	198/242	10.4	15.7	20
	208~230/60/1	9.7	47	0.6	10.3	188/253	12.4	18.6	20
L024H(V)HN	220~240/50/1	8.8	42	0.8	9.6	198/242	11.5	17.3	20
	208~230/60/1	10.6	50	0.8	11.4	188/253	13.6	20.4	25
L030H(V)HN	220~240/50/1	11.6	67	1.0	12.6	198/242	15.1	22.7	25
	208~230/60/1	13.9	80	1.2	15.1	188/253	18.1	27.2	30
J036H(V)HN	380~415/50/3	6.5	38	1.5	8.0	342/456	9.6	14.4	15
	380/60/3	7.7	45	1.7	9.4	342/418	11.3	16.9	20
	460/60/3	6.5	38	1.5	8.0	414/506	9.6	14.4	15
J043H(V)HN	380~415/50/3	6.5	40	1.8	8.3	342/456	10.0	14.9	15
	380/60/3	7.7	47	2.1	9.7	342/418	11.7	17.5	20
	460/60/3	6.5	40	1.8	8.3	414/506	10.0	14.9	15
J052H(V)HN	380~415/50/3	6.9	45	2.2	9.1	342/456	10.9	16.4	20
	380/60/3	8.1	53	2.5	10.7	342/418	12.8	19.2	25
	460/60/3	6.9	45	2.2	9.1	414/506	10.9	16.4	20
J062H(V)HN	380~415/50/3	8.2	56	2.5	10.7	342/456	12.8	19.3	20
	380/60/3	9.7	66	2.9	12.6	342/418	15.1	22.6	35
	460/60/3	8.2	56	2.5	10.7	414/506	12.8	19.3	25
J072H(V)HN	380~415/50/3	9.7	69	2.8	12.5	342/456	15.0	22.5	25
	380/60/3	11.4	81	3.2	14.7	342/418	17.6	26.4	30
	460/60/3	9.7	69	2.8	12.5	414/506	15.0	22.5	30

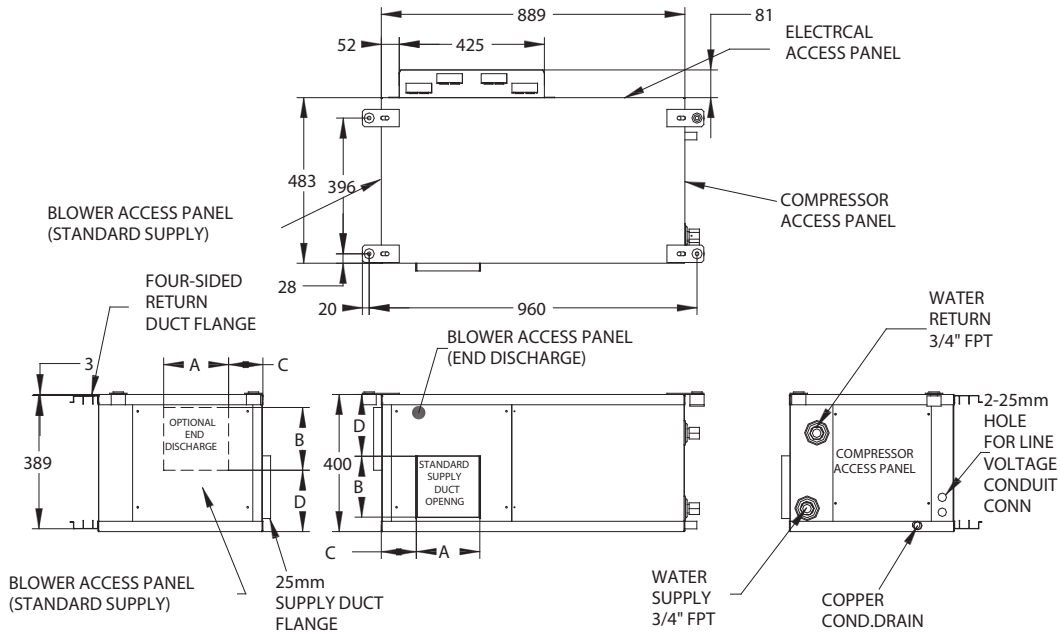
RLA = Rated Load Amperage; LRA = Locked Rotor Amperage.

Physical Data

Unit Size	No. of Refrigerant Circuit	Coil Area (sq.cm)	Fan Motor (watts)	Blower Size Dia. X Width (mm)	Filter Size (mm)	Water Cons FPT(IN.)	Operating Weight (kg)	Shipping Weight (kg)
009H(V)HN	1	1529	30	117.8 x 127	840 x 390	3/4"	66	75
013H(V)HN	1	1529	30	117.8 x 127	840 x 390	3/4"	68	77
016H(V)HN	1	2492	45	117.8 x 117.8	400 x 480	3/4"	83	93
019H(V)HN	1	2492	70	117.8 x 117.8	400 x 480	3/4"	83	93
024H(V)HN	1	2492	90	117.8 x 117.8	400 x 480	3/4"	84	94
030H(V)HN	1	3734	120	117.8 x 117.8	800 x 508	3/4"	144	156
036H(V)HN	1	3734	150	254 x 203.2	800 x 508	3/4"	144	156
043H(V)HN	1	3734	200	254 x 203.2	800 x 508	3/4"	144	156
052H(V)HN	1	5420	220	254 x 203.2	1028 x 580	3/4"	160	175
062H(V)HN	1	5420	300	254 x 203.2	1028 x 580	3/4"	170	185
072H(V)HN	1	5420	370	254 x 203.2	1028 x 580	1"	180	195

Dimensional Data

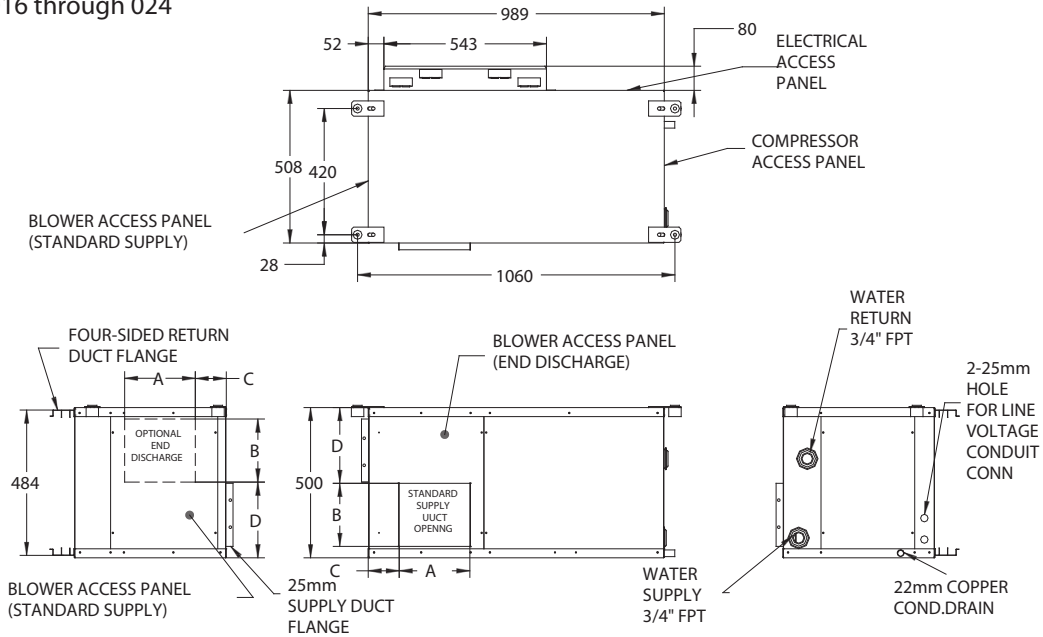
Unit Size 009 through 013



All dimensions are millimeters unless otherwise noted.

Size	A	B	C	D
009	181	203	100	212
013	181	203	100	212

Unit Size 016 through 024

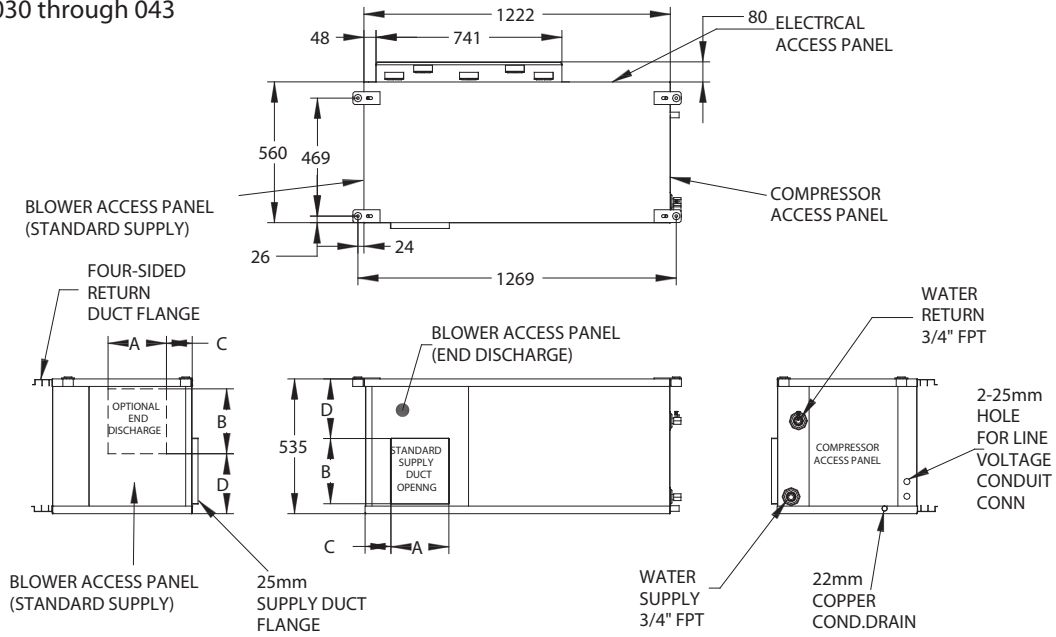


All dimensions are millimeters unless otherwise noted.

Size	A	B	C	D
016	236	208	108	250
019	236	262	101	280
024	236	262	101	280

Dimensional Data

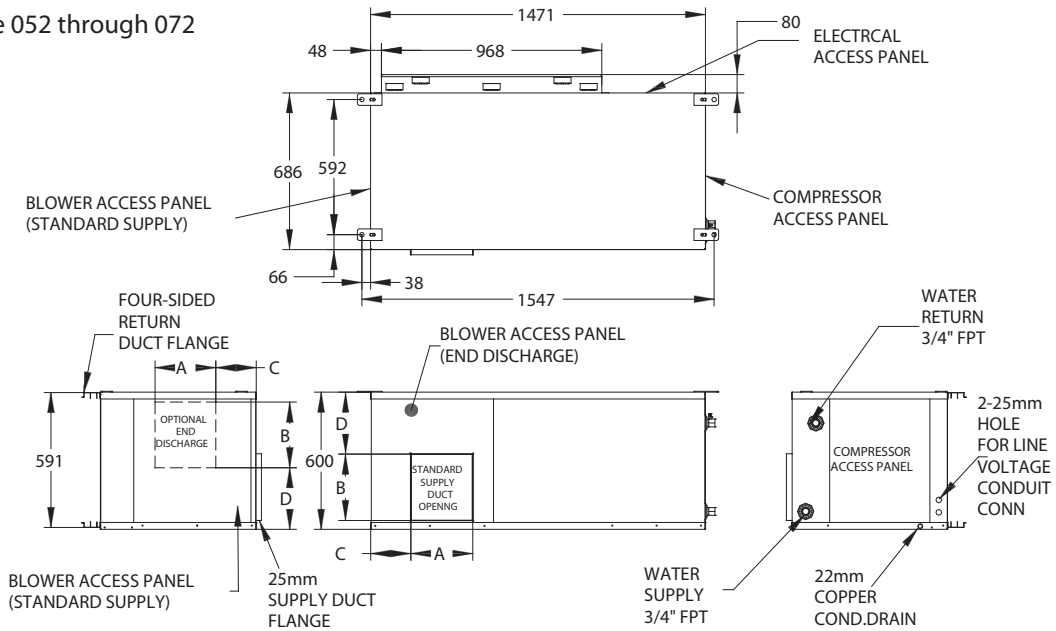
Unit Size 030 through 043



All dimensions are millimeters unless otherwise noted.

Size	A	B	C	D
030	236	262	232	270
036	276	290	98	220
043	276	290	98	220

Unit Size 052 through 072

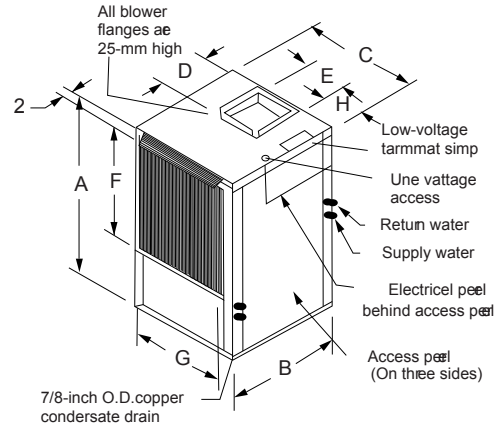
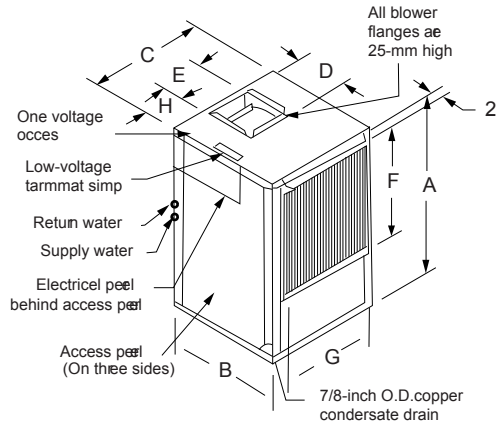


All dimensions are millimeters unless otherwise noted.

Size	A	B	C	D
052	276	290	174	280
062	276	290	174	280
072	276	290	174	280

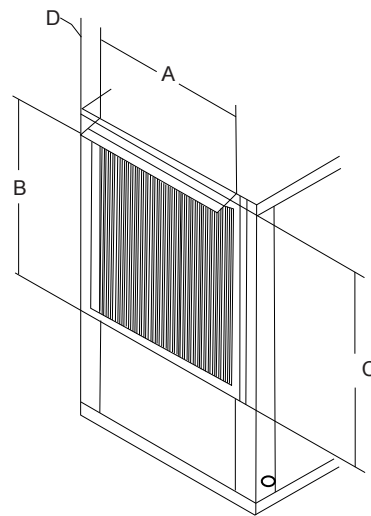
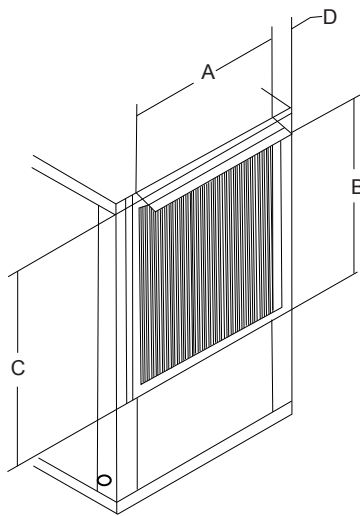
SIZE	WATER CONNECTIONS
006 & 062	3/4" FEMALE NPT
072	1" FEMALE NPT

All dimensions are approximate.



Package WSHHP

Unit Size	Dimension (millimeters)								Water Connections (inches)
	A	B	C	D	E	F	G	H	
009-013	813	527	527	203	108	464	413	175	3/4-inch Female NPT
016	813	527	527	208	236	464	413	165	3/4-inch Female NPT
019-024	813	527	527	262	236	464	413	165	3/4-inch Female NPT
030	927	597	597	262	236	591	480	165	3/4-inch Female NPT
036-043	927	597	597	290	276	591	480	165	3/4-inch Female NPT
052-072	1118	711	711	290	276	775	597	191	1-inch Female NPT



'3-inch 4763 for actual 2-inch thick finer rock.

Unit Size	Dimensions (millimeters)			
	A	B	C	D
009-024	413	464	514	27
030-043	480	591	641	27
052-072	597	775	826	27