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02 AIR TO WATER HEATING / COOLING PUMP

✓ Technical features

Air/water heating/cooling pump is part of the AQUA product line, which indicates the swimming pool and SPA heat pump. Swimming pool heat pump can be used for heating or cooling swimming pool, spa or some other open water system. Water system pressure should be less than 3 bar. (Cannot be used for close water system such as air conditioning, ground source heating and so on.)



PRODUCT FEATURES

HIGH EFFICIENCY
Adopt heat pump for heating and the energy comes from ambient air. So its COP can reach 5.5

SAFETY
Water and electricity are completely separate. ECO friendly gas, no fire, no electricity leakage, safer than fuel burner or electrical heater.

ENVIRONMENTALLY FRIENDLY
Adopt R407C, R410-A, R22 as refrigerant, according to the requirements of EU Montreal Protocol.

CORROSION PREVENTION
The condenser uses titanium metal, its corrosion resistance is 4-5 times of ordinary copper tube, the corrosion ability of the unit is significantly improved, while the effective way to prevent fluoride leakage. So the medium of heat exchange can also contain seawater, mild industrial water, etc.

INTELLIGENT DEFROSTING
By means of both mechanical and automatic control, defrosting can be operated in a shorter time to avoid severe attenuation of heating capacity in winter and not run when not necessary.

ANTIFREEZING CONTROL
The unit starts up automatic antifreezing control when shutdown (no power off), using of antifreezing heat exchanger, 10 freezing tests, no leakage..

VARIOUS PROTECTIVE MEASURES

- Lack-phase and anti-phase protection
- Self memory function when power off
- Overpressure protection
- Leakage refrigerant protection
- Water protection for unit
- Overcurrent protection
- Temperature over protection

ADVANCED CONTROL SYSTEM

- Displaying operating and trouble status.
- Checking real-time operation parameters etc.
- The cable length between controller and the unit can be up to 30m for flexible installation (on request).
- Keep balance running of compressor
- Automatically adjusting capacity according to the change of water inlet the temperature.
- Can achieve the perfect docking with BMS. Realizing remote control based on user requirement for easy management and maintenance. And can realize multi unit modular operation

COMPRESSOR
AQUA products and the world famous brand compressor manufacturers (COPELAND\ GMCC) have good cooperation, so as to ensure the high quality of the machine.

HOW DOES THE UNIT WORK?

AS A CHILLER

1- STAGE ONE

The temperature of the hot gaseous refrigerant discharged from the compressor is much higher than the outside ambient air temperature. When the outside air passes across the condenser coil, the gaseous refrigerant transfers its heat to the air and condenses into liquid.

2- STAGE TWO

The liquid refrigerant passes through the capillary tube, reducing its pressure and temperature.

3- STAGE THREE

The low temperature refrigerant passes to the heat exchanger evaporator, where the actual heat transfer takes place: the refrigerant absorbs heat from the water pumped into the heat exchanger and evaporates, whereby the water temperature is reduced.

4- STAGE FOUR

The gas refrigerant is then sucked to the compressor and compressed, increasing its pressure and temperature, ready to start the whole cycle once again.

AS A HEAT PUMP

1- STAGE ONE

The heat transfer medium (the refrigerant) is colder than the outside air. As the outside air passes across the evaporator coil, the liquid refrigerant absorbs heat from the air and evaporates.

2- STAGE TWO

The gaseous refrigerant then passes to the compressor and is compressed. When compressed, the pressure is increased and the temperature of the vapor rises, effectively concentrating the heat.

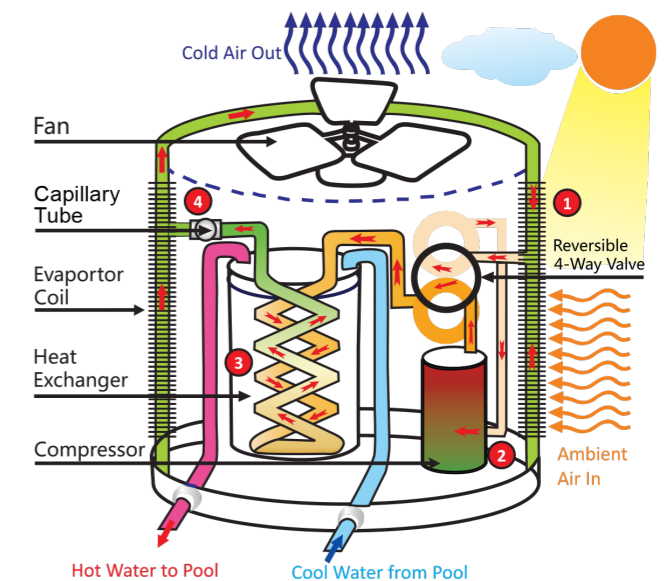
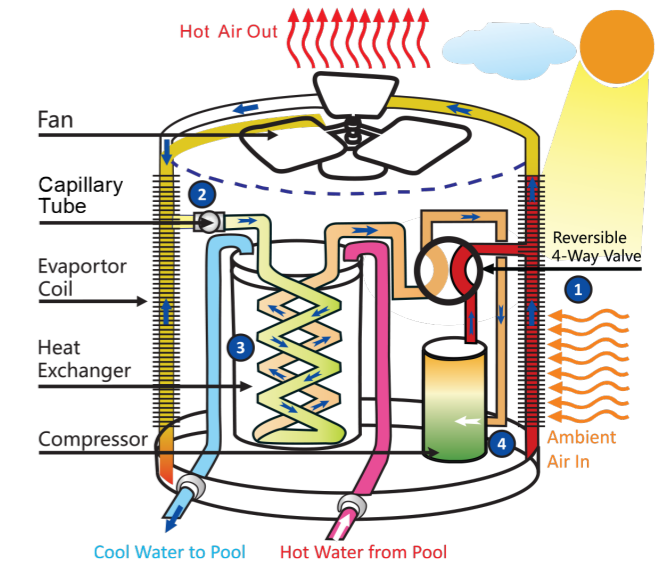
3- STAGE THREE

The hot gaseous refrigerant passes to the heat exchanger condenser, where the actual heat transfer takes place: the intensely hot gaseous refrigerant transfers its heat to the water pumped into the heat exchanger and condenses back into a liquid.

4- STAGE FOUR

The liquid refrigerant then passes through an capillary tube, reducing its pressure and temperature, ready to start the whole cycle once again.

CAPILLARY TUBE



TOP DISCHARGE

Models

			PH-02620 -R410A	PH-02630-1 -R410A-1	PH-02630 -R410A-1	PH-02640 -R410A	PH2-02650 -R410A
Refrigerant			R410A	R410A	R410A	R410A	R410A
Power supply	V/PH/Hz		220~240/1/60	220~240/1/60	380~415/3/60	380~415/3/60	380~415/3/60
YL-H01-Heating: A24/W26°C	Heating capacity	kW	9.5	14.2	14.2	17.2	22
		BTU/h	32415	48478	48478	58720	75108
	Power input	kW	1.7	2.9	2.9	3.4	4.4
		COP	W/W	5.5	4.9	4.9	5.1
	YL-H02-Heating: A15/W26°C	Heating capacity	kW	7.6	11.4	11.4	13.8
BTU/h			25932	38919	38919	47113	60769
Power input		kW	1.7	2.9	2.9	3.5	4.4
YL-C01-Cooling: A35/W30°C	Cooling capacity	kW	5.5	8.3	8.3	10	13
		BTU/h	18766	28336	28336	34140	44382
	Power input	kW	2.5	3.7	3.7	4.4	5.6
		EER	W/W	2.2	2.2	2.2	2.27
	YL-C02-Cooling: A46/W30	Cooling capacity	kW	4.9	7.5	7.5	8.4
BTU/h			16719	25605	25605	28677	38578
Power input		kW	2.6	4.1	4.1	5.3	6.4
	EER	W/W	1.9	1.8	1.8	1.58	1.77
	MAX.POWER INPUT	kW	3	4.2	4.2	5.3	6.8
	MAX.CURRENT	A	15	19.2	8.5	10.8	13.9
OPERATING	Heating water temp range.	°C	15 ~ 40	15~40	15~40	15~40	15~40
	Cooling water temp range.	°C	12 ~ 30	12~30	12~30	12~30	12~30
	Ambient temp range	°C	-15 ~ 53	-15 ~ 53	-15 ~ 53	-15~53	-15~53
	Compressor type		Rotary	Scroll	Scroll	Scroll	Scroll
KEY	Controller		micro processor based digital controller with LCD touch screen display				
	Noise	dB(A)	55	56	56	56	57
HEATING EXCHANGER	Type		Teisted Titanium	Teisted Titanium	Teisted Titanium	Titanium /PVC	Teisted Titanium
	Water flow (min.)	m³/h	1.5	2.5	2.5	3	3.8
	Water flow (max)	m³/h	3.0	4.9	4.9	5.9	7.7
	Water pressure drop (max)	KPa	18	20	20	21	23
	Water connecton	mm	50	50	50	50	50
FAN	Water pipe		-	-	-	-	-
	Fan Position		Verticle	Verticle	Verticle	Verticle	Verticle
	Material		Plastic	Plastic	Plastic	Plastic	Plastic
	Air flow	m³/h	2000	3200	3200	3500	5500
	Net	mm	688 x 696 x 737	764 x 686 x 941	764 x 686 x 941	764 X 686 X 941	764 x 686 x 941
DIMENSIONS (L x W x H)	Shipping	mm	736 x 750 x 895	795 x 736 x 1100	795 x 736 x 1100	795 X 736 X 1100	795 x 736 x 1100
WEIGHT	-	kg	63/70	95 /110	95 /110	105 /115	106 / 125

TOP DISCHARGE

Models

			PH2-02660 -R410A	PH-02670 -R410A	PH-02680 -R410A	PH-02710 -R410A	PH-02712 -R410A	PH-02713 -R410A
			R410A	R410A	R410A	R410A	R410A	R410A
			380~415/3/60	380~415/3/60	380~415/3/60	380~415/3/60	380~415/3/60	380~415/3/60
			28.3	32	42	44	48	56.6
			96616.	109248	143388	150216	163872	193232
			5.8	6.8	8.7	8.8	9.5	11.6
			4.9	4.7	4.8	5.0	5.3	4.9
				22.8	26.1	34.2	35.6	39
			77839	89105	116758	121538	133146	155678.4
Power input		kW	5.7	6.7	8.6	8.8	9.8	11.4
	EER	W/W	4.0	3.90	4.0	4.0	4.0	4.0
			16.6	19.7	24.9	26	28.4	33.2
			56672	67255	85008	88764	96957	113344
			7.4	8.5	11.1	11.2	12.8	14.8
			2.24	2.32	2.2	2.3	2.2	2.2
				15	17.2	21.4	22.6	24
			51210	58720	73059	77156	81936	102420
Power input		kW	8.2	10	13.3	12.8	13	16.4
	EER	W/W	1.83	1.72	1.6	1.8	1.8	1.8
	MAX.POWER INPUT	kW	8.3	10	13	13.6	15	16.6
	MAX.CURRENT	A	16.9	20.4	26.5	17.7	30.6	33.9
OPERATING	Heating water temp range.	°C	15~40	15~40	15~40	15~40	15~40	15~40
	Cooling water temp range.	°C	12~30	12~30	12~30	12~30	12~30	12~30
	Ambient temp range	°C	-15~53	-15~53	-15~53	-15~53	-15~53	-15~53
	Compressor type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
KEY	Controller		micro processor based digital controller with LCD touch screen display					
	Noise	dB(A)	59	59	60	61	61	61
HEATING EXCHANGER	Type		Teisted Titanium	Titanium /PVC	Titanium /PVC	Titanium /PVC	Titanium /PVC	Titanium /PVC
	Water flow (min.)	m³/h	4.9	5.6	7.4	7.7	8.4	9.8
	Water flow (max)	m³/h	9.8	11.2	14.7	15.3	16.8	19.6
	Water pressure drop (max)	KPa	23	24	25	25	25	25
	Water connecton	mm	50	50	63	63	63	63
FAN	Water pipe		-	-	-	PPR OR PVC	PPR or PVC	PPR or PVC
	Fan Position		Verticle	Verticle	Verticle	Verticle	Verticle	Verticle
	Material		Plastic	Plastic	Plastic	Plastic	Plastic	Plastic
	Air flow	m³/h	7000	7000	10000	11000	11000	14000
	Net	mm	764 x 686 x 941	810 x 810 x 1069	882 x 860 x 1093	1453x 708 x 1084	1453 x 708 x 1084	1453 x 708 x 1284
DIMENSIONS (L x W x H)	Shipping	mm	795 x 736 x 1100	915 x 860 x 1230	945 x 910 x 1234	1520 x 760 x 1235	1520 x 760 x 1235	1520 x 760 x 1435
WEIGHT	-	kg	145 / 155	150 / 160	170 / 197	230 / 256	234 / 260	285 / 310

TOP DISCHARGE

Models

			PH-02714 -R410A	PH-02715 -R410A	PH-02720 -R410A	PH-02730 -R410A
Refrigerant			R410A	R410A	R410A	R410A
Power supply	V/PH/Hz		380~415/3/60	380~415/3/60	380~415/3/60	380~415/3/60
YL-H01-Heating: A24/W26°C	Heating capacity	kW	64	88	113	141
		BTU/h	218496	300432	385782	481374
	Power input	kW	13.6	18.9	24	29
	COP	W/W	4.7	4.7	4.7	4.9
YL-H02-Heating: A15/W26°C	Heating capacity	kW	52.2	71	91.1	114
		BTU/h	188452	242394	311015	389196
	Power input	kW	13.4	8.8	22.8	28.5
	COP	W/W	3.9	3.78	4	4
YL-C01-Cooling: A35/W30°C	Cooling capacity	kW	39.4	54	66	83
		BTU/h	134511	184356	225324	283362
	Power input	kW	17	23.5	29.5	37
	EER	W/W	2.3	2.30	2.24	2.24
YL-C02-Cooling: A46/W30	Cooling capacity	kW	34.4	46	60	75
		BTU/h	117441	157044	204840	256050
	Power input	kW	20	27	32.8	41
	EER	W/W	1.7	1.7	1.83	1.83
MAX.POWER INPUT		kW	20	29	33.5	42
MAX.CURRENT		A	40.8	59.2	68.3	85.7
OPERATING	Heating water temp range.	°C	15~40	15~40	15~40	15~40
	Cooling water temp range.	°C	12~30	12~30	12~30	12~30
	Ambient temp range	°C	-15~53	-15~53	-15~53	-15~53
KEY	Compressor type		Scroll	Scroll	Scroll	Scroll
	Controller					
HEATING EXCHANGER	Noise	dB(A)	61	66	67	67
	Type		Titanium /PVC	Titanium /PVC	Titanium /PVC	Titanium /PVC
	Water flow (min.)	m³/h	11.2	15.3	19.6	24.5
	Water flow (max)	m³/h	22.4	13.5	39.2	49
	Water pressure drop (max)	KPa	25	25	26	27
	Water connecton	mm	63	63	110	110
	Water pipe		PPR or PVC	PPR or PVC	PVC	PVC
FAN	Fan Position		Verticle	Verticle	Verticle	Verticle
	Material		Plastic	Plastic	Plastic	Plastic
	Air flow	m³/h	14000	20000	28000	42000
DIMENSIONS (L x W x H)	Net	mm	2149 X 764 X 1306	2149 x 764 x 1306	1420 X 1420 X 1578	2185 X 1767 X 388
	Shipping	mm	2230 x 815 x 1455	2215 x 815 x 1455	1485 X 1485 X 1730	2235 X 1820 X 1550
WEIGHT	kg	390/427	397/434	580 / 620	820 / 870	

TOP DISCHARGE

Models

			PH-02740 -R410A	PH-02750 -R410A	PH-02760 -R410A	PH-02770 -R410A	PH-02780 -R410A
Refrigerant			R410A	R410A	R410A	R410A	R410A
Power supply	V/PH/Hz		380~415/3/60	380~415/3/60	380~415/3/60	380~415/3/60	380~415/3/60
YL-H01-Heating: A24/W26°C	Heating capacity	kW	169.8	198.1	226.4	256	352
		BTU/h	579697	676313	771564	873984	1201728
	Power input	kW	34.8	40.6	46.4	54.4	75.6
	COP	W/W	4.9	4.9	4.9	4.7	4.7
YL-H02-Heating: A15/W26°C	Heating capacity	kW	136.8	159.6	182.4	208.8	284
		BTU/h	4467035	544874	622713	712843	969576
	Power input	kW	34.2	39.9	45.6	53.6	75.2
	COP	W/W	4	4	4	3.90	3.78
YL-C01-Cooling: A35/W30°C	Cooling capacity	kW	99.7	116.3	132.9	157.6	216
		BTU/h	340375	557506	453720	538046	737424
	Power input	kW	44.4	51.8	59.2	68	94
	EER	W/W	2.24	2.24	2.24	2.32	2.30
YL-C02-Cooling: A46/W30	Cooling capacity	kW	90	105	120	137.6	184
		BTU/h	307260	358470	409680	469766	628176
	Power input	kW	49.2	57.4	65.6	80	108
	EER	W/W	1.83	1.83	1.83	1.72	1.7
MAX.POWER INPUT		kW	49.8	58.1	66.4	80	116
MAX.CURRENT		A	101.6	118.5	135.5	163.2	236.6
OPERATING	Heating water temp range.	°C	15~40	15~40	15~40	15~40	15~40
	Cooling water temp range.	°C	12~30	12~30	12~30	12~30	12~30
	Ambient temp range	°C	-15~53	-15~53	-15~53	-15~53	-15~53
KEY	Compressor type		Scroll	Scroll	Scroll	Scroll	Scroll
	Controller						
HEATING EXCHANGER	Noise	dB(A)	68	68	69	72	72
	Type		Titanium /PVC	Titanium /PVC	Titanium /PVC	Titanium /PVC	Titanium /PVC
	Water flow (min.)	m³/h	29.4	34.3	39.2	44.9	61
	Water flow (max)	m³/h	58.8	68.6	78.4	89.8	122.1
	Water pressure drop (max)	KPa	27	27	28	28	28
	Water connecton	mm	110	110	110	160	160
	Water pipe		PVC	PVC	PVC	PPR or PVC	PVC
FAN	Fan Position		Verticle	Verticle	Verticle	Verticle	Verticle
	Material		Plastic	Plastic	Plastic	Plastic	Plastic
	Air flow	m³/h	42000	39000	56000	56000	88000
DIMENSIONS (L x W x H)	Net	mm	2185 X 1767 X 1388	2185 X 1767 X 1515	2185 X 1767 X 1515	2188 x 2188 x 2360	3280 X 2188 X 2236
	Shipping	mm	2235 X 1820 X 1550	2235 X 1820 X 1665	2235 X 1820 X 1665	2240 x 2240 x 2440	3332 X 2240 X 2400
WEIGHT	kg	928 / 960	1044 / 1080	1276 / 1320	1450 / 1500	2030 / 2100	