30RA/RH/RY/RYH

SCROLL COMPRESSED AIR-TO-WATER HEATPUMP/CHILLER UNIT

COOLING CAPACITY: 38.3 ~ 157 kW
HEATING CAPACITY : 39.2 ~ 160 kW

ISO9001 ISO14001 R407C

Contents

FEATURES

- Integrated hydronic module can greatly reduce the time and work for installation. The module incorporates all components necessary for the operation of the system, removable screen filter, water pump with high available pressure, expansion tank, water flow switch, safety valve, pressure gauges and purge valve. Simplified field installation only uses a spanner and a screwdriver.

Unique Integrated Hydronic Module

New Pump With 30% Efficiency Improved Energy Saving

Optional Twin Pump More Reliable

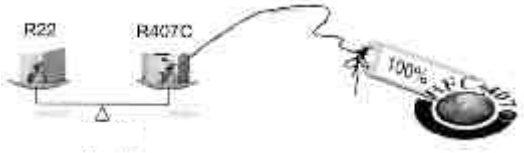
Victaulic Water Filter Easy Maintenance

Antifreeze Protection Down to –20℃

- Aquasnap is equipped with the revolutionary third–generation Flying Bird fan and scroll compressors, along with the extremely rigid tower chassis to ensure the ultra–silent running status.

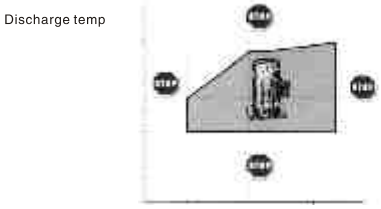
Features(Cont.)

- Aquasnap is 100% designed for the ecological refrigerant, HFC407c. The unit's high efficiency and low cost make it your best choice.

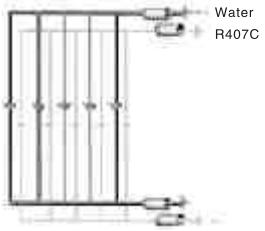


- The refrigerant circuit is designed to be completely leak–proof for life. The expensive cost to compensate the leaked refrigerant is saved. All pipes and the refrigeration components are welded, the capillaries, a source of leaks in the past, have been replaced. Pressure sensors, mounted directly on the pipes, take the place of the conventional pressure switches.

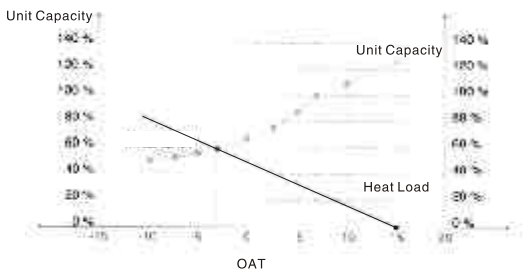
- PRO–DIALOG Plus control is auto–adaptive for full compressor protection. The system permanently optimizes compressor running time according to the application characteristics (water loop inertia), preventing excessive cycling. The patented receiver balances the refrigerant charging differences between cooling and heating modes, to guarantee the heat pump running stable.

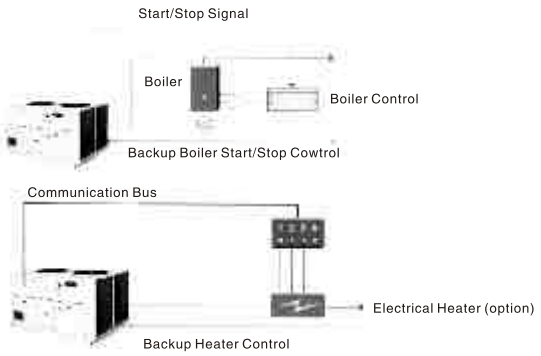


- The high efficiency scroll compressor and brazed plate heat exchanger help you to reduce operating cost. The independent refrigeration cycles enable economical operation at part load.



- The Aquasnap is designed for year–round operation and operates at –10°C to +45°C outdoor temperature range. The control system provides the heat compensate function for the extreme cold regions. When the outdoor temperature drops below the setting one, the controller will send a signal to startup a backup boiler or electric heater (option).





Features(cont.)

PRO–DIALOG Plus is an advanced numeric control system that combines complex intelligence with great operating simplicity.

User–friendly Panel

- The operator interface is clear and user–friendly: LEDs and two numeric displays ensure immediate verification of the unit operating data: enter/leave water temperature,evaporate/condense pressure /temperature, compressor's running time, etc.

Advanced Control Ability

- Offer local, remote control (wired) and CCN (Carrier Comfort Network) three control modes.
- PRO–DIALOG Plus allows remote control and monitoring of the chiller through a wired connection, start/stop, cooling/heating mode selection, capacity demand limit or dual set–point and customer safety lock. The system permits remote signaling of any general anomaly for each refrigerant circuit.
- Equalize the compressors' running time.
  The PID control algorithm with permanent compensation for the difference between entering and leaving water temperature and anticipation of load variations regulates compressor operation for intelligent leaving water temperature control, with fan speed control for correct condense pressure, with optimized defrost time to reduce heat loss.
- Control to start electric heater (up to 4 stages) to offer additional heat capacity for extremely cold regions (Heatpump only, optional IC panel must be installed).
- Control the running of the pump, preventing the water loop from freezing. Run the pump at set time to keep the unit working steadily.
- Offer capacity demand limits, which is used for system energy management.

Strong Diagnosis Function

- PRO–DIALOG Plus monitors all parameters and makes comparison with settings. More than 140 types of messages will describe the alarms. The solutions are also provided.
- For remote control or professional diagnosis tools, a RS485 serial port is provided to make connections.

Self Protection Measures

Access to important settings is available only correct password is entered, reducing the chance of malfunction. An alert message will be generated and the unit be shut down to protect the system. Such as,

- Low leave water temperature
- Low suction pressure
- High discharge pressure
- Short circuit
- Compressor, water pump overload
- Low/High voltage
- BPHE anti–freezing heating protection(–10℃)
- Water loop anti–freezing heating protection(–10℃)

Advanced Group Control Function

- Master/Slave control function: Two linked machines can be controlled by the master one, simplified the operation.
- A RS485 serial port is installed. Via Carrier's DATAPORT communication module (optional), plant control function can be realized by using CCN (optional) or other plant control network.

Unit Model & Options

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Options

PT003A Gold Fin Treatment	RA040A–160A
PT025 Soft Starter	RA040A–080A
PT116C Hydronic Module with Twin Water Pump	RA/RH/RY/RYH
PT116D Unit without hydronic Module	RA/RH/RY/RYH
PT301 Lead/leg Control	RA/RH/RY/RYH

Phase"A"

Unit's Capacity(kw)

Models

30RA	Scroll Compressor Air–to–Water Chiller	040A~160A
30RH	Scroll Compressor Air–to–Water Heat pump	040A–160A
30RY	Ductable Scroll Compressor Air–to–Water Chiller	040A~080A
30RYH	Ductable Scroll Compressor Air–to–Water Heat pump	040A~080A

Coding Form:

When several options are selected, larger codes rank backward;options are separated by a slash , e.g.

1. 30RA040A with soft starter the unit code shall be: 30RA040APT025
2. 30RA040A with soft starter and gold fin treatment,the unit code shall be:30RA040APT003A/025

30RY / RYH	Min.available static pressure		Nom.available static pressure		Max.available static pressure	
	Flow l/s	Pressure Pa	Flow l/s	Pressure Pa	Flow l/s	Pressure Pa
040A	4580	0	3890	150	3330	230
060A	5560	0	4720	150	4030	230
080A	6810	0	5830	150	5280	230

30RA Air-to-water Chiller

Model	30RA	040A	050A	060A	070A	080A	090A	100A	120A	140A	160A
Nominal Cooling Capacity	kW	39.4	49.5	57	68	79	90	98	115	136	157
Compressor Input	kW	14.1	17.7	20.7	24.8	27.8	31	35.2	40	49.2	53.2
Operating Weight (Single Pump)	kg	526	584	597	611	631	1093	1106	1205	1212	1248
Operating Weight (Twin Pump)	kg	606	664	677	691	708	1170	1183	1305	1312	1348
Operating Weight(Without Hydronic Module)	kg	502	560	573	587	605	1062	1075	1167	1174	1210
Refrigerant Charge	HFC–407C										
Circuit A	kg	10	13	15	12.5	18	10	10	15	12.5	18
Circuit B	kg	–	–	–	–	–	13	14	15	12.5	18
Compressor	Scroll Compressor										
In Circuit A		1	2	2	2	2	1	1	2	2	2
In Circuit B		–	–	–	–	–	2	2	2	2	2
No of Control Stages		1	2	2	2	2	3	3	4	4	4
Min Capacity	%	100	46	42	50	50	25	25	21	25	25
Control System	Pro Dialog Plus										
Condenser	Grooved Copper Tube, Aluminum Fins										
Fan	Flying Bird Fan										
Quantity		1	1	1	1	1	2	2	2	2	2
Air Flow	l/s	3945	3780	4220	5150	5800	7725	8165	8840	10300	11600
Fan Speed High	r/s	11.5	11.5	11.5	15.6	15.6	11.5	11.5	11.5	15.6	15.6
Low	r/s	5.8	5.8	5.8	7.8	7.8	5.8	5.8	5.8	7.8	7.8
Evaporator	Brazed Plate Heat Exchanger										
Water Volume	l	3.6	4.6	5.9	6.5	7.6	7.2	8.2	9.8	11.4	13
Nominal Water Flow	l/s	1.88	2.34	2.74	3.19	3.76	4.27	4.65	5.49	6.44	7.53
Nominal Pressure Drop	kPa	29	28	24	27	30	37	33	31	31	33
Max Water–Side Operating Pressure (W/O Hydronic Module)	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Hydronic Module	Pump, Expansion Tank, Filter										
Pump	Centrifugal Pump										
Quantity		1	1	1	1	1	1	1	1	1	1
Available Pressure(Single Pump)	kPa	141	136	133	121	147	124	114	168	147	116
Anailable Pressure (Twin Pump)	kPa	189	188	189	183	174	160	157	171	164	153
Expansion Tank Volume	l	12	12	12	12	12	35	35	35	35	35
Max Water Side Pressure (With Hydronic Module)	kPa	300	300	300	300	300	300	300	300	300	300
Pipe Connection	in	2	2	2	2	2	2	2	2–1/2	2–1/2	2–1/2
	mm	60.3	60.3	60.3	60.3	60.3	60.3	60.3	76.1	76.1	76.1
Electrical Data											
Power Supply	400V–3Ph–50Hz										
Control System	By Internal Transformer										
Max Operating Current	A	35	42.6	49.3	58.2	67.2	76.5	83.2	99.4	117.2	133.2
Max Starting Current(Standard Unit)	A	181	153	159	168	213	222	229	209	227	279
Max Starting Current(Softstarter option)	A	119	107	112	120	152	–	–	–	–	–
Pump Input(Single Pump)	kW	1.08	1.08	1.08	1.44	1.44	1.44	1.44	2.45	2.45	2.45
Pump Input(Twin Pump)	kW	2.7	2.7	2.7	2.7	2.7	2.7	2.7	4	4	4
Fan & Control Input	kW	1.2	1.2	1.2	2.6	2.2	2.4	2.4	2.4	4.8	6

Note: Nominal cooling capacity: BPHE entering water temperature/leaving water temperature 12/7℃,
Outdoor air temperature (dry bulb) 35℃.
Fouling factor=0.086m^2k/W
Power input includes compressor, fan motors and electric control power input. (exclude pump power input)

30RH Air-to-water Heatpump

Model		30RH	040A	060A	080A	120A	160A
Nominal Cooling Capacity		kW	38.3	54	71	108	142
Compressor Input(Cooling)		kW	13.0	19.9	25.2	37.8	48.5
Nominal Heating Capacity		kW	39.2	58	80	117	160
Compressor Input (Heating)		kW	13.7	20.3	27.2	40.7	53.0
Operating Weight (Single Pump)		kg	566	647	691	1238	1368
Operating Weight (Twin Pump)		kg	646	727	768	1338	1466
Operating Weight(Without Hydronic Module)		kg	542	623	665	1200	1330
Refrigerant Charge			HFC-407C				
Circuit A		kg	10.9	15.1	19.5	15.6	20.3
Circuit B		kg	-	-	-	15.6	20.3
Compressor			Scroll Compressor				
In Circuit A			1	2	2	2	2
In Circuit B			-	-	-	2	2
No of Control Stages			1	2	2	4	4
Min Capacity		%	100	42	50	21	25
Control System			Pro Dialog Plus				
Air-Side Heat Exchanger			Grooved Copper Tube, Aluminum Fins				
Fan			Flying Bird Fan				
Quantity			1	1	1	2	2
Air Flow		l/s	3870	4080	5600	8160	11200
Fan Speed	High	r/s	11.5	11.5	15.6	11.5	15.6
	Low	r/s	5.8	5.8	7.8	5.8	7.8
Evaporator			Brazed Plate Heat Exchanger				
Water Volume			3.6	5.9	7.6	9.8	13
Nominal Water Flow	Cooling	l/s	1.83	2.58	3.4	5.15	6.79
	Heating	l/s	1.87	2.79	3.83	5.58	7.66
Nominal Pressure Drop	Cooling	kPa	27	22	24	28	28
	Heating	kPa	29	25	31	32	35
Max Water-Side Operating Pressure	(W/O Hydronic Module)	kPa	1000	1000	1000	1000	1000
Hydronic Module			Pump,Expansion Tank,Filter				
Pump			Centrifugal Pump				
Quantity			1	1	1	1	1
Available Pressure	Cooling	kPa	143	139	162	178	142
	Heating	kPa	141	131	144	166	111
Expansion Tank Volume		l	12	12	12	35	35
Max Water Side Pressure(With Hydronic Module)		kPa	300	300	300	300	300
Pipe Connection		in	2	2	2	2-1/2	2-1/2
		mm	60.3	60.3	60.3	76.1	76.1
Electrical Data							
Power Supply			400V-3Ph-50Hz				
Control System			By Internal Transformer				
Max Operating Current		A	35.0	49.3	67.2	99.4	133.2
Max Starting Current		A	181.0	159.0	213.0	209.0	279.0
Fan & Control Input		kW	1.2	1.2	2.6	2.4	5.0
Pump Input		kW	1.08	1.08	1.44	2.45	2.45

Note: Nominal cooling capacity: BPHE entering water temperature/leaving water temperature 12/7°C,
Outdoor air temperature (dry bulb) 35°C.
Nominal cooling capacity: BPHE entering water temperature/leaving water temperature 40/45°C,
Outdoor air temperature (dry bulb) 7°C.87% relative humidity
Fouling factor=0.086m^2k/W
Power input includes compressor, fan motors and electric control power input. (exclude pump power input)

30RY Ducted Air-to-water Chiller

Model	30RY	040A	060A	080A
Nominal Cooling Capacity	kW	39.3	58	79
Compressor Input	kW	14.1	21.1	27.7
Operating Weight (Single Pump)	kg	510	587	675
Operating Weight (Twin Pump)	kg	590	667	752
Operating Weight(Without Hydronic Module)	kg	486	563	649
Refrigerant Charge		HFC–407C		
Circuit A	kg	9.75	11.8	17
Compressor		Scroll Compressor		
In Circuit A		1	2	2
No of Control Stages		1	2	2
Min Capacity	%	100	42	50
Control System		Pro Dialog Plus		
Condenser		Grooved Copper Tube, Aluminum Fins		
Fan		Flying Bird Fan		
Quantity		1	1	1
Air Flow	l/s	24	24	24
Fan Speed High	r/s	3890	4720	5830
Low	r/s	12	12	12
Evaporator		Brazed Plate Heat Exchanger		
Water Volume	l	3.6	5.9	7.6
Nominal Water Flow	l/s	1.88	2.77	3.76
Nominal Pressure Drop	kPa	26	23	27
Max Water–Side Operacing Pressure (W/O Hydronic Module)	kPa	1000	1000	1000
Hydronic Module		Pump,Expansion,Tank Filter		
Pump		Centrifugal Pump		
Quantity		1	1	1
Available Pressure	kPa	141	132	147
Expansion Tank Volume	l	12	12	12
Max Water Side Pressure (With Hydronic Module)	kPa	300	300	300
Pipe Connection	in	2	2	2
	mm	60.3	60.3	60.3
Electrical Data				
Power Supply		400V–3Ph–50Hz		
Control System		By Internal Transformer		
Max Operating Current	A	35.9	53.9	72.4
Max Starting Current	A	181.4	163.4	217.9
Fan & Control Input	kW	1.08	1.08	1.44
Pump Input	kW	2	3.6	4.7

Note: Nominal cooling capacity: BPHE entering water temperature/leaving water temperature 12/7℃,
Outdoor air temperature (dry bulb) 35℃.
Fouling factor=0.086m^2k/W
Power input includes compressor, fan motors and electric control power input. (exclude pump power input)

30RYH Ducted Air-to-water Heatpump

Model		30RYH	040A	060A	080A
Nominal Cooling Capacity		kW	37.7	57	77
Compressor Input(Cooling)		kW	13.6	20.2	27.9
Nominal Heating Capacity		kW	37.2	55	77
Compressor Input (Hoaing)		kW	13.4	19.9	26.8
Operating Weight (Single Pump)		kg	550	627	736
Operating Weight (Twin Pump)			630	707	813
Operating Weight(Without Hydronic Module)		kg	526	603	710
Refrigerant Charge			HFC-407C		
Circuit A		kg	10.3	12.5	17.3
Compressor				Scroll Compressor	
In Circuit A			1	2	2
No of Control Stages			1	2	2
Min Capacity		%	100	42	50
Control System			Pro Dialog Plus		
Air-Side Heat Exchanger			Grooved Copper Tube, Aluminum Fins		
Fan			Flying Bird Fan		
Quantity			1	1	1
Air Flow		l/s	3890	4720	5830
Fan Speed	High	r/s	24	24	24
	Low	r/s	12	12	12
Evaporator			Brazed Plate Heat Exchanger		
Water Volume			3.6	5.9	7.6
Nominal Water Flow	Cooling	l/s	1.81	2.7	3.64
	Heating	l/s	1.77	2.64	3.7
Nominal Pressure Drop	Cooling	kPa	24	21	25
	Heating	kPa	23	21	26
Max Water-Side Operating Pressure (W/O Hydronic Module)		kPa	1000	1000	1000
Hydronic Module			Pump Expansion Tank Filter		
Pump			Centrifugal Pump		
Quantity			1	1	1
Available Pressure	Cooling	kPa	143	135	152
	Heating	kPa	145	136	149
Expansion Tank Volume		l	12	12	12
Max Water Side Pressure (With Hydronic Module)		kPa	300	300	300
Pipe Connection		in	2	2	2
		mm	60.3	60.3	60.3
Electrical Data					
Power Supply			400V-3Ph-50Hz		
Control System			By Internal Transformer		
Max Operating Current		A	35.9	53.9	72.4
Max Starting Current		A	181.4	163.4	217.9
Fan & Control Input		kW	1.08	1.08	1.44
Pump Input		kW	2	3.6	4.7

Note: Nominal cooling capacity: BPHE entering water temperature/leaving water temperature 12/7℃,
Outdoor air temperature (dry bulb) 35℃.
Nominal cooling capacity: BPHE entering water temperature/leaving water temperature 40/45℃,
Outdoor air temperature (dry bulb) 7℃.87% relative humidity
Fouling factor=0.086m^2k/W
Power input includes compressor, fan motors and electric control power input. (exclude pump power input)

30RA Air-to-water Chiller

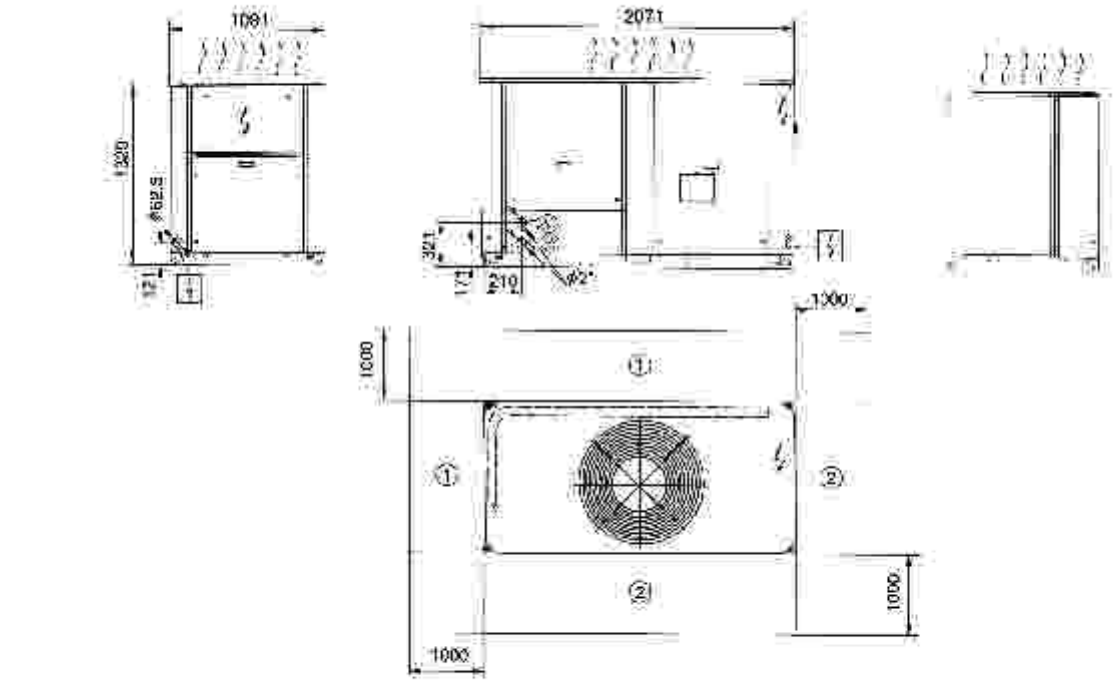
Cooling Performance

30RA	Outdoor Temp															
		25			30			35			40			45		
	LWT	CAP	COMP	FLOW	CAP	COMP	FLOW	CAP	COMP	FLOW	CAP	COMP	FLOW	CAP	COMP	FLOW
	℃	kW	kW	l/s	kW	kW	l/s	kW	kW	l/s	kW	kW	l/s	kW	kW	l/s
040A	5	41.1	11.4	1.96	39	12.5	1.86	36.9	13.7	1.76	34.9	15.1	1.67	32.9	16.6	1.57
050A	5	52	13.7	2.48	49.3	15.1	2.35	46.5	16.6	2.22	43.7	18.3	2.09	41	20	1.96
060A	5	61	17.1	2.92	57	18.8	2.76	54	20.3	2.57	51	22.5	2.44	47.2	24.5	2.28
070A	5	71	20.2	3.37	67	22	3.2	64	24	3.02	60	26.1	2.85	56	28.4	2.68
080A	5	83	23.6	3.96	79	26	3.76	74	27	3.55	70	31.1	3.35	65	34	3.14
090A	5	94	24.9	4.47	89	27.5	4.24	84	30.2	4	80	33.2	3.78	75	36.3	3.55
100A	5	103	28.5	4.88	97	31.3	4.62	92	34.3	4.36	87	37.6	4.11	81	41.1	3.86
120A	5	121	35	5.78	114	38.5	5.46	108	39	5.15	105	46.2	5.01	98	51	4.71
140A	5	142	40.3	6.74	135	44	6.39	128	47.9	6.05	120	52	5.7	113	57	5.36
160A	5	166	47.3	7.93	158	52	7.52	149	52	7.11	140	62	6.69	132	68	6.28
040A	6	41.7	11.6	2.03	39.5	12.7	1.92	37.3	13.9	1.82	35.2	15.3	1.72	33.2	16.7	1.63
050A	6	54	13.8	2.56	51	15.3	2.43	48	16.8	2.29	45.2	18.5	2.16	42.4	20.2	2.03
060A	6	63	17.3	3.02	59	19	2.85	56	20.5	2.69	52	22.8	2.52	48.9	24.8	2.36
070A	6	73	20.4	3.47	69	22.3	3.3	66	24.3	3.12	62	26.4	2.95	58	28.8	2.77
080A	6	85	24	4.08	81	26.3	3.87	76	27.5	3.66	72	31.5	3.45	68	34.3	3.23
090A	6	97	25.2	4.61	92	27.8	4.37	87	30.6	4.14	82	33.6	3.9	77	36.8	3.67
100A	6	106	28.9	5.04	100	31.7	4.77	95	34.8	4.51	89	38.1	4.25	84	41.6	3.99
120A	6	125	35.5	5.97	118	38.4	5.79	111	39.5	5.32	108	46.8	5.17	102	51	4.86
140A	6	146	40.9	6.95	139	44.5	6.59	132	48.5	6.24	124	53	5.89	117	58	5.55
160A	6	171	47.9	8.16	162	53	7.74	154	52.5	7.32	145	63	6.89	136	69	6.47
040A	7	43	11.7	2.09	40.8	12.9	1.98	39.4	14.1	1.88	36.4	15.5	1.78	34.3	16.9	1.68
050A	7	55	14	2.64	52	15.5	2.5	49.5	17.7	2.34	46.7	18.7	2.23	43.8	20.4	2.09
060A	7	65	17.6	3.11	61	19.3	2.94	57	20.7	2.74	54	23	2.6	51	25.1	2.44
070A	7	75	20.7	3.58	71	22.6	3.4	68	24.8	3.19	64	26.8	3.04	60	29.1	2.86
080A	7	88	24.3	4.19	83	26.6	3.98	79	27.8	3.76	74	31.9	3.55	70	34.7	3.33
090A	7	100	25.6	4.75	95	28.2	4.51	90	31	4.27	85	34	4.03	80	37.2	3.79
100A	7	109	29.3	5.2	103	32.1	4.92	98	35.2	4.65	92	38.5	4.38	87	42.1	4.12
120A	7	129	36	6.16	125	39.5	5.96	115	40	5.49	111	47.3	5.33	105	52	5.01
140A	7	151	41.4	7.16	143	45.1	6.8	136	49.2	6.44	128	54	6.08	121	58	5.73
160A	7	176	48.6	8.38	167	53	7.96	157	53.2	7.53	149	64	7.09	140	69	6.66
040A	8	44.3	11.8	2.15	42.1	13	2.05	39.8	14.3	1.94	37.6	15.6	1.84	35.4	17.1	1.73
050A	8	57	14.2	2.72	54	15.7	2.58	51	17.2	2.44	48.1	18.9	2.3	45.2	20.7	2.16
060A	8	67	17.8	3.2	63	19.5	3.03	59	21.4	2.86	56	23.3	2.69	52	25.4	2.52
070A	8	77	21	3.69	74	22.9	3.5	70	24.9	3.32	66	27.1	3.13	62	29.4	2.95
080A	8	90	24.6	4.31	85	27	4.09	81	29.5	3.87	76	32.2	3.65	72	35.1	3.43
090A	8	103	25.9	4.9	98	28.5	4.65	93	31.3	4.4	87	34.4	4.16	82	37.6	3.91
100A	8	112	29.7	5.36	107	32.5	5.08	101	35.6	4.8	95	39	4.52	90	42.5	4.25
120A	8	135	36.5	6.46	128	40	6.13	122	43.8	5.81	115	47.9	5.48	108	52	5.16
140A	8	155	42	7.37	147	45.7	7	140	49.8	6.63	132	54	6.27	125	59	5.91
160A	8	180	49.2	8.61	171	54	8.17	162	59	7.73	153	64	7.29	144	70	6.85
040A	10	47	12.1	2.28	44.6	13.3	2.17	42.3	14.6	2.06	40	16	1.95	–	–	–
050A	10	60	14.5	2.87	57	16	2.73	54	17.6	2.58	51	19.3	2.44	–	–	–
060A	10	71	18.3	3.39	67	20	3.21	63	21.9	3.03	59	23.9	2.85	–	–	–
070A	10	82	21.6	3.9	78	23.4	3.71	74	25.5	3.51	70	27.7	3.32	–	–	–
080A	10	95	25.3	4.53	90	27.7	4.31	85	30.2	4.08	80	33	3.85	–	–	–
090A	10	108	26.5	5.18	103	29.2	4.92	98	32.1	4.66	93	35.1	4.41	–	–	–
100A	10	119	30.4	5.67	113	33.4	5.38	107	36.5	5.09	101	39.9	4.8	–	–	–
120A	10	143	37.4	6.81	136	41	6.47	128	44.8	6.13	121	49	5.8	–	–	–
140A	10	163	43.1	7.8	156	46.9	7.41	148	51	7.03	140	55	6.65	–	–	–
160A	10	190	51	9.07	180	55	8.61	171	60	8.15	161	66	7.7	–	–	–

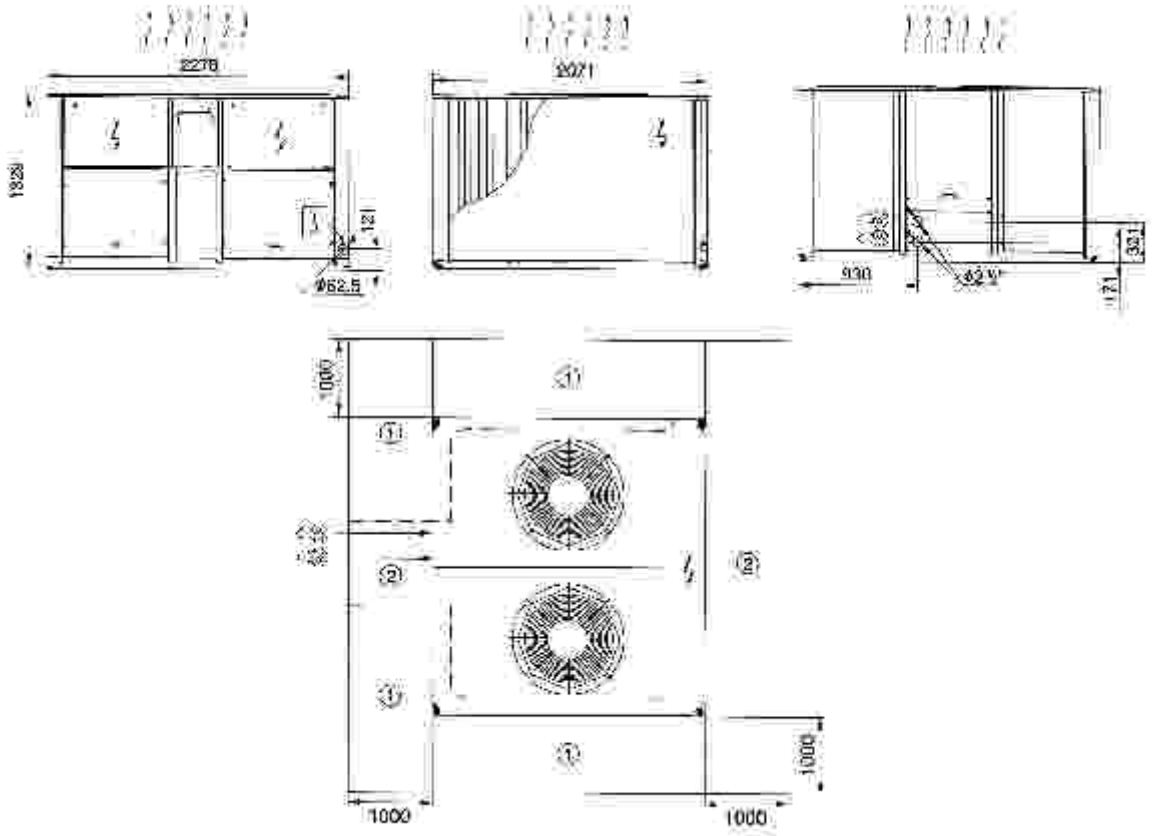
LWT:Leaving Water Temp
CAP:Capacity
COMP:Compressor Input
FLOW:Water Flow

Dimensions/Clearance

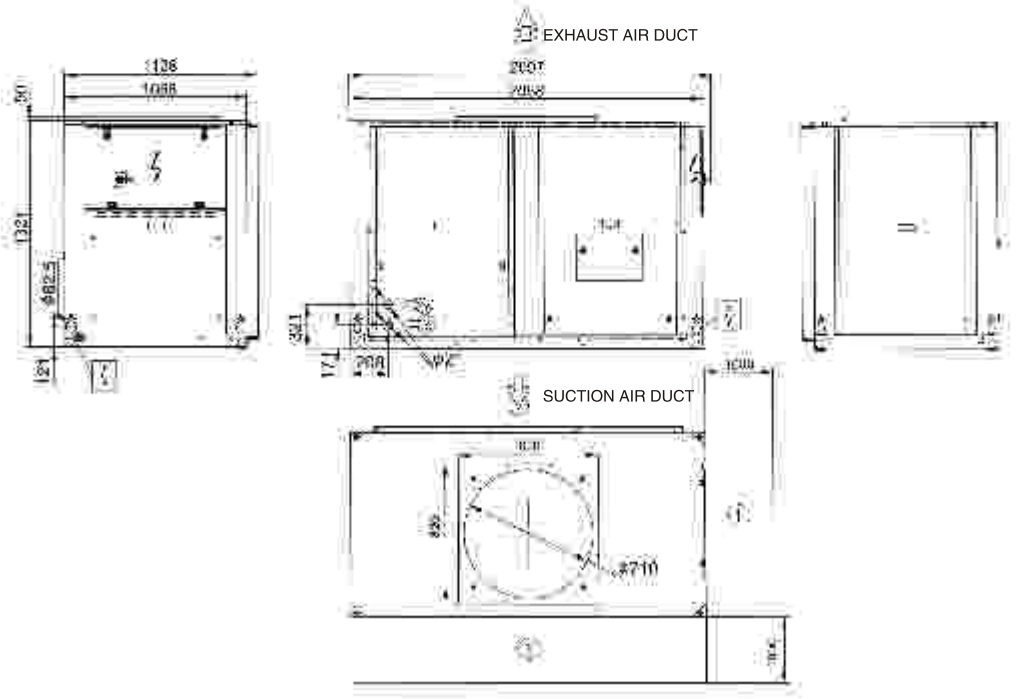
30RA/RH040A~080A



30RA/RH090A~160A



30RY/RYH 040A-080A



Operating Limits

30RA/RH	BPHE Flow Rate			
	Min Flow	Max Flow *		Max Flow **
		Single Pump	Twin Pump	
040A	1.1(RA), 1.0(RH), 1.2(RY/RYH)	3.5	4.4	3.7
060A	1.4(RA/RH) 1.46(RY/RYH)	4.4	6.0	5.8
080A	1.7(RA/RH) 1.92(RY/RYH)	5.5	6.8	7.3
120A	3.6(RA), 3.1(RH)	8.5	10.5	10.8
160A	4.8(RA), 4.2(RH)	9.1	11.9	14.4

* Max Flow at Available Pressure=50kpa (with hydronic module)
** Max Flow at Pressure Drop in BPHE=100kpa (W/O Hydronic module)

Cooling Mode		
BPHE	MIN TEMP	MAX TEMP
Entering Water Temp (Start up)	7.8*	30(RYH 35)
Leaving Water Temp (Operating)	5**	15(RY/RYH 10)
Entering Water Temp (Off)	–	50(RY), 55(RA), 60(RH/RYH)
Coil Side		
Suction Air DB Temp	–10***	46***
Heating Mode		
BPHE		
Entering Water Temp (Start up)	10	45(RYH 50)
Leaving Water Temp (Operating)	20	50
Entering Water Temp (off)	3	60
Coil Side		
Suction Air DB Temp	–10***	40***

Water Loop Requirements & Multiple Units Installation

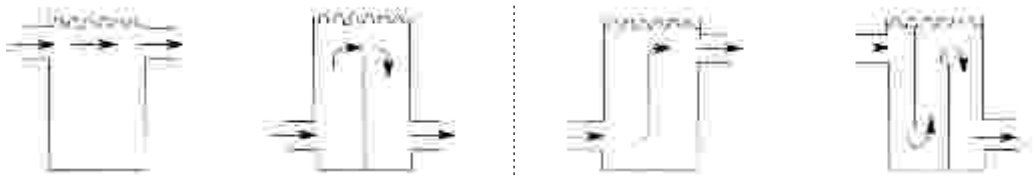
Min Water Loop Volume

Min water loop volume

For better control of leaving water temperature,the min water loop volume can be calculated by following formula:V (L) =CAP kW xN

CAP:Unit's nominal cooling capacity

Air conditioning application	N
Residential Application	
30RA/RH040A,30RA050A	3.5
30RA/RH060A~160A	2.5
Industrial application	For industrial process cooling applications,where high stability of the water temperature must be achieved,the values above must be increased.



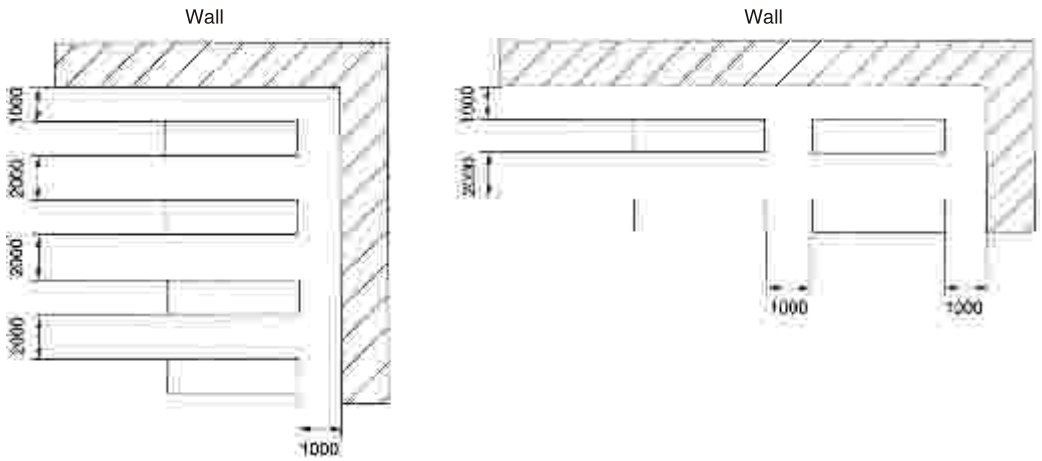
Bad Good Bad Good

Max Water Loop Volume

The expansion tank in hydronic module limits the max water loop volume

	30RA/RH/RY/RYH040A~080A	30RA/RH120A~160A
Water	600	1500
10%Glycol	450	1200
20%Glycol	400	1000
30%Glycol	300	800

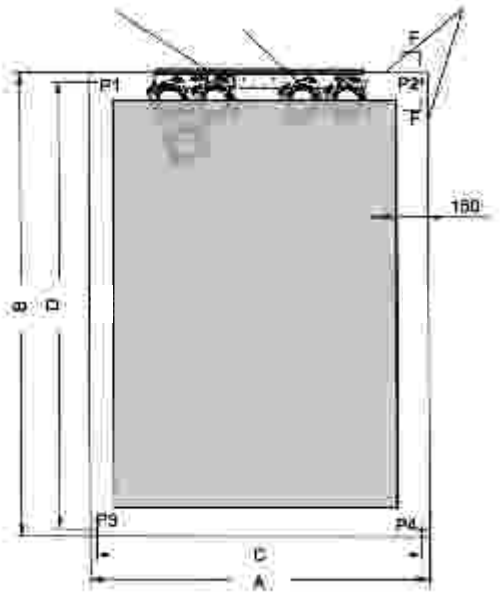
Multiple Units Installation



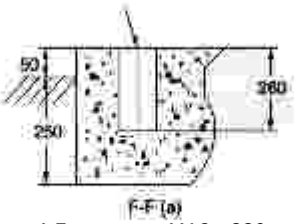
Please contact Carrier's Sales Representive once the height of the wall exceeds 2m.

Unit Base & Weight Distribution

Control Box Compressors Unit's Outline

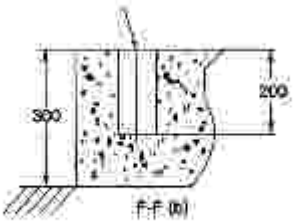


Square Hole 100X100



4 Footscrews,M16×220

Square Hole 100X100

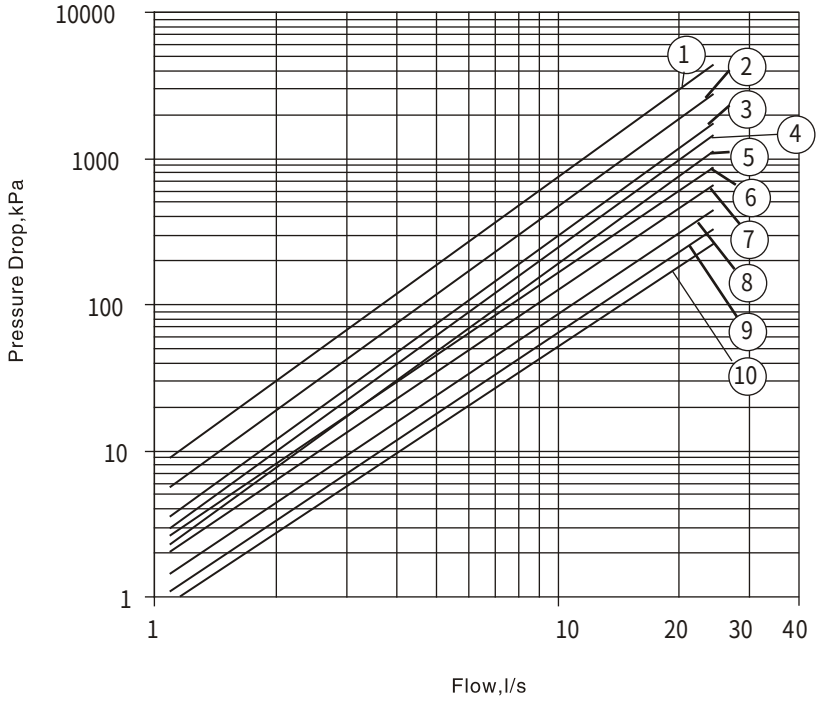


4 Footscrews,M16×220

	A	B	C	D	P1	P2	P3	P4	Operating Weight
30RA040A	1061	2050	1017	2002	133	128	135	130	526
30RA050A	1061	2050	1017	2002	184	134	154	112	584
30RA060A	1061	2050	1017	2002	189	138	156	114	597
30RA070A	1061	2050	1017	2002	193	141	160	117	611
30RA080A	1061	2050	1017	2002	200	146	165	120	631
30RA090A	2258	2050	2214	2002	302	269	276	246	1093
30RA100A	2258	2050	2214	2002	318	259	291	238	1106
30RA120A	2258	2050	2214	2002	334	326	276	269	1205
30RA140A	2258	2050	2214	2002	336	328	277	271	1212
30RA160A	1061	2050	2214	2002	346	338	285	279	1248
30RH040A	1061	2050	1017	2002	143	138	145	140	566
30RH060A	1061	2050	1017	2002	204	149	170	124	647
30RH080A	1061	2050	1017	2002	218	160	181	132	691
30RH120A	2258	2050	2214	2002	343	335	283	277	1238
30RH160A	2258	2050	2214	2002	379	370	313	306	1368
30RY040A	1061	2050	1017	2002	136	126	129	119	510
30RY060A	1061	2050	1017	2002	197	133	154	103	587
30RY080A	1061	2050	1017	2002	227	153	177	119	675
30RYH040A	1061	2050	1017	2002	146	135	140	129	550
30RYH060A	1061	2050	1017	2002	211	142	164	110	627
30RYH080A	1061	2050	1017	2002	247	167	193	129	736

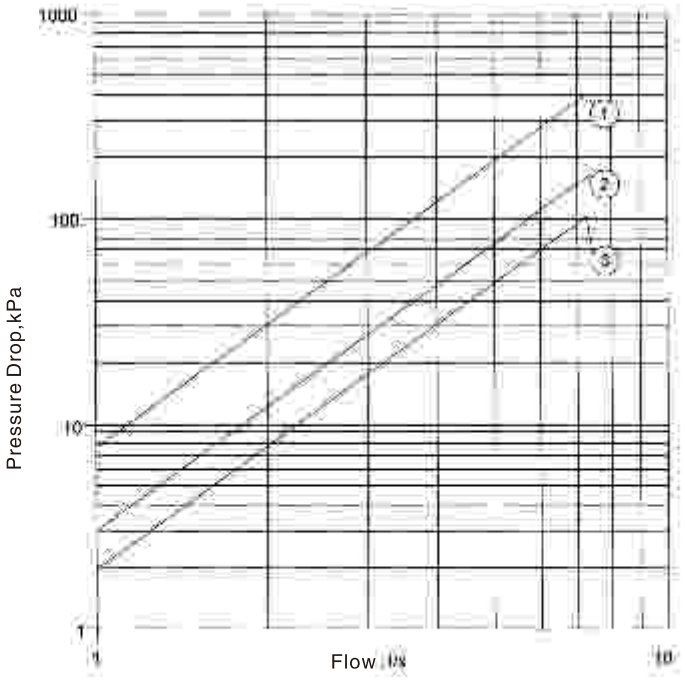
BPHE Pressure Drop

30RA/RH



Legend
1-30RA/RH040A
2-30RA050A
3-30RA/RH060A
4-30RA070A
5-30RA/RH080A
6-30RA090A
7-30RA100A
8-30RA/RH120A
9 -30RA140A
10-30RA/RH160A

30RY/RYH

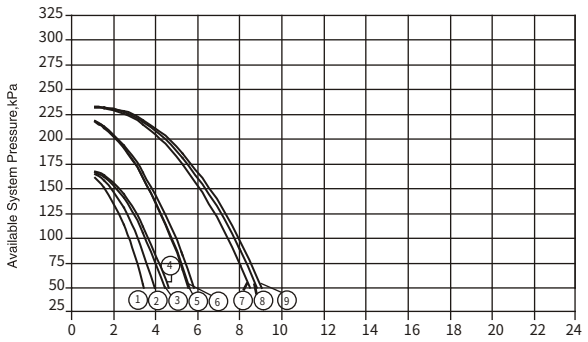


1–30RY/RYH040A 2–30RY/RYH060A 3–30RY/RYH080A

Available System Pressure (Static Pressure)

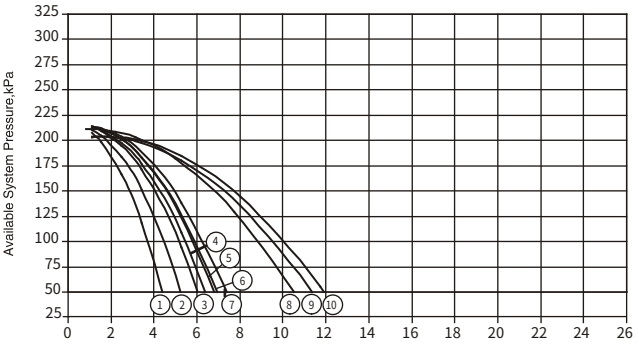
30RA/RH

Single Pump



Legend
1–30RA/RH040A
2–30RA050A
3–30RA/RH060A
4–30RA070A
5–30RA/RH080–RA090A
6–30RA100A
7–30RA/RH120A
8–30RA140A
9 – 30RA/RH160A

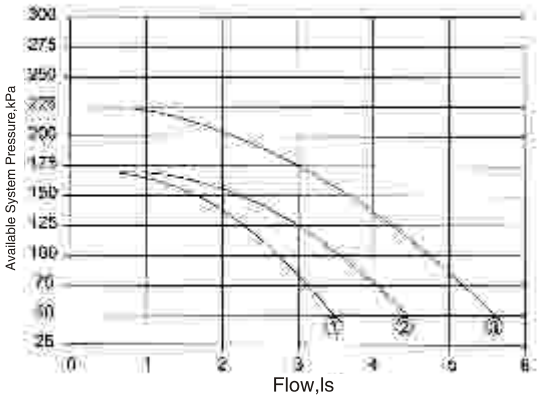
Twin Pump



Legend
1–30RA/RH040A
2–30RA050A
3–30RA/RH060A
4–30RA070A
5–30RA/RH080A
6–30RA090A
7–30RA100A
8–30RA/RH120A
9 –30RA140A
10–30RA/RH160A

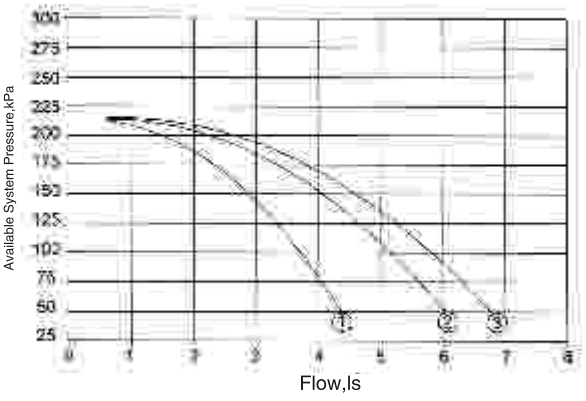
30RY/RYH

Single Pump



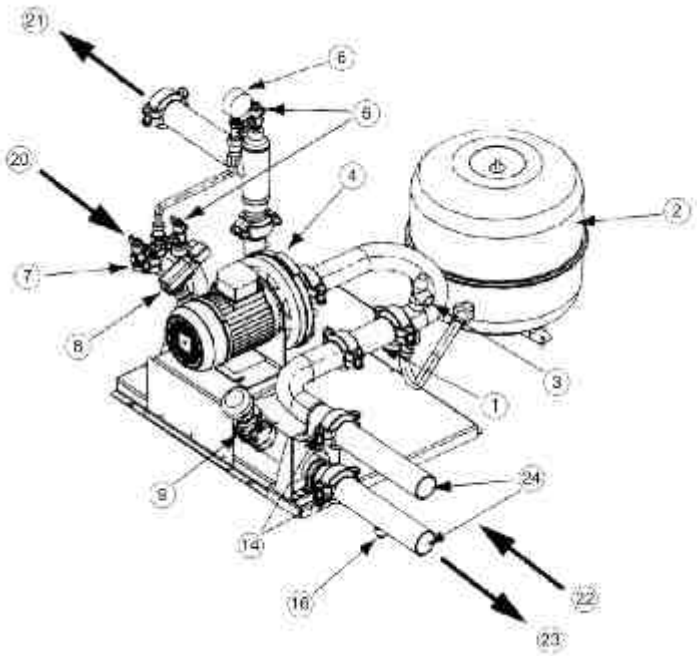
1–30RY/RYH040A 2–30RY/RYH060A 3–30RY/RYH080A

Twin Pump

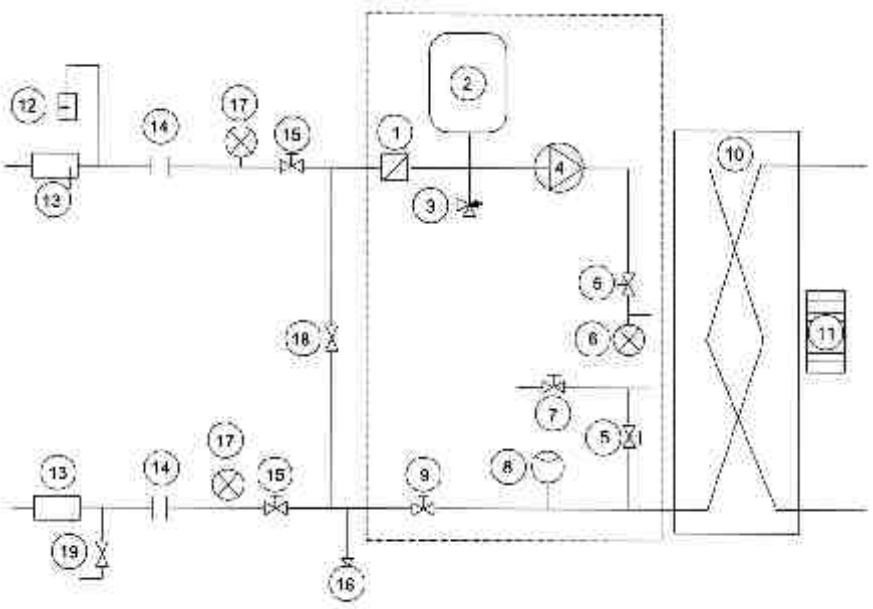


1–30RY/RYH040A 2–30RY/RYH060A 3–30RY/RYH080A

Typical Hydronic Circuit Diagram

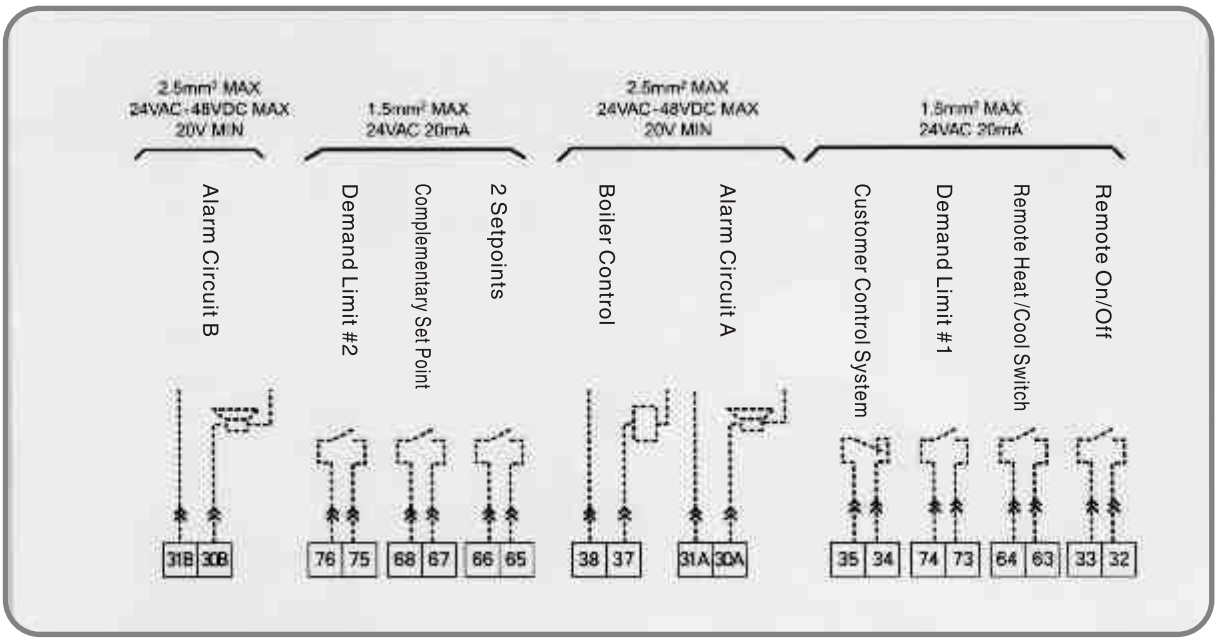


1 Water filter with Victaulic coupling
2 Expansion tank
3 Safety valve
4 Water pump
5 Change over valve
6 Manometer
7 Air purge
8 Flow switch
9 Throttle valve
10 BPHE
11 Electrical heater
12 Purge valve
13 Temp sensor
14 Victaulic couplings
15 Check valve
16 Drain plug
17 Manometer
18 Bypass valve
19 Fill in valve
20 BPHE outlet
21 BPHE inlet
22 Entering water
23 Leaving water
24 Victaulic pipes

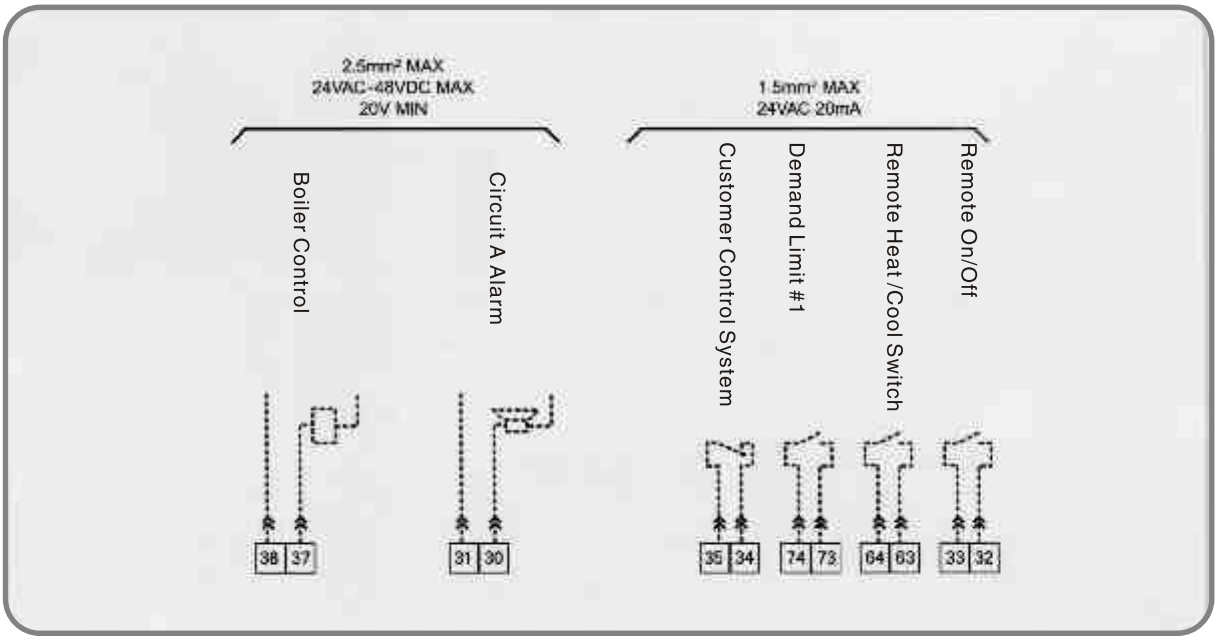


Electrical Connection

30RA/RH/RY/RYH 040A~080A



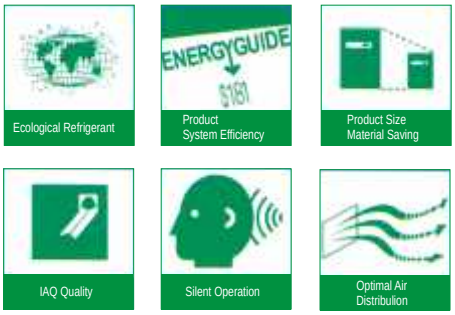
30RA/RH 090A~160A



As a leader in global HVAC industry,Carrier has been committed to provide customers with comfortable life.

But we aim even higher...

As a world manufacturer,Carrier has identified six specific areas that directly affect how we balance our customers'need with our responsibility for environmental protection:



These symbols represent our six areas of concentration and serve as visual reminders of the importance of managing our finite resources while creating a comfortable life for human beings.

Deeply rooted in the HVAC products and systems is our common belief:to create a better world.

Carrier shall reserve the right to modify catalogues without giving notice in advance

C-30RA/RH-0601-1