Carrier

Air-Cooled Liquid Chillers with Integrated Hydronic Module

AQUASNAP™
with PURON® refrigerant

Quality Management System Approval

Puron™
the environmentally sound refrigerant

Model shown is with low-noise option

30RB 162-802

Nominal cooling capacity 163-760 kW

The new generation of Aquasnap Puron liquid chillers features the latest technological innovations:
- ozone-friendly refrigerant R-410A
- scroll compressors
- low-noise fans made of a composite material
- auto-adaptive microprocessor control
- aluminium micro-channel heat exchangers (MCHX)

The Aquasnap can be equipped with an integrated hydronic module, limiting the installation to straight-forward operations like connection of the power supply and the chilled water supply and return piping.

Features

Quiet operation

- Compressors
  - Low-noise scroll compressors with low vibration level
  - The compressor assembly is installed on an independent chassis and supported by flexible anti-vibration mountings
  - Dynamic suction and discharge piping support, minimising vibration transmission (Carrier patent)
  - Acoustic compressor enclosure, reducing radiated noise emissions (option)
- Condenser section
  - Condenser coils in V-shape with an open angle, allowing quieter air flow across the coil
  - Low-noise 4th generation Flying Bird fans, made of a composite material (Carrier patent) are now even quieter and do not generate intrusive low-frequency noise
  - Rigid fan installation for reduced noise (Carrier patent)

Easy and fast installation

- Integrated hydronic module (option)
  - Centrifugal low or high-pressure water pump (as required), based on the pressure loss of the hydronic installation
  - Single or dual pump (as required) with operating time balancing and automatic changeover to the back-up pump if a fault develops
  - Water filter protecting the water pump against circulating debris
  - High-capacity membrane expansion tank ensures pressurisation of the water circuit
  - Thermal insulation and frost protection down to -20°C, using an electric resistance heater (see table of options)
  - Pressure gauge to check filter pollution and measure the system water flow rate
  - Water flow control valve

- Simplified electrical connections
  - A single power supply point without neutral (30RB 162-522)
  - Main disconnect switch with high trip capacity (see table of options)
  - 24 V control circuit without risk from a transformer included
- Fast commissioning
  - Systematic factory operation test before shipment
  - Quick-test function for step-by-step verification of the instruments, electrical components and motors

Economical operation

- Increased energy efficiency at part load
  - The refrigerant circuit includes several compressors connected in parallel. At part load, around 99% of the operating time, only the compressors that are absolutely necessary operate. At these conditions the compressors operating are even more energy efficient, as they use the total condenser and evaporator capacity.
  - The electronic expansion device (EXV) allows operation at a lower condensing pressure (EER optimisation).
  - Dynamic superheat management for better utilisation of the evaporator heat exchange surface
  - All-aluminium micro-channel condenser (MCHX), more efficient than a copper/aluminium coil
- Reduced maintenance costs
  - Maintenance-free scroll compressors
  - Fast diagnosis of possible incidents and their history via the Pro-Dialog Plus control
  - R-410A refrigerant is easier to use than other refrigerant blends

Environmental care

- Ozone-friendly R-410A refrigerant
  - Chlorine-free refrigerant of the HFC group with zero ozone depletion potential
  - High-density refrigerant, therefore less refrigerant required
  - Very efficient - gives an increased energy efficiency ratio (EER)
  - 40% reduction in the refrigerant charge through use of the micro-channel heat exchangers (MCHX)
- Leak-tight refrigerant circuit
  - Brazed refrigerant connections for increased leak-tightness
  - Reduction of leaks as no capillary tubes and flare connections are used
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge

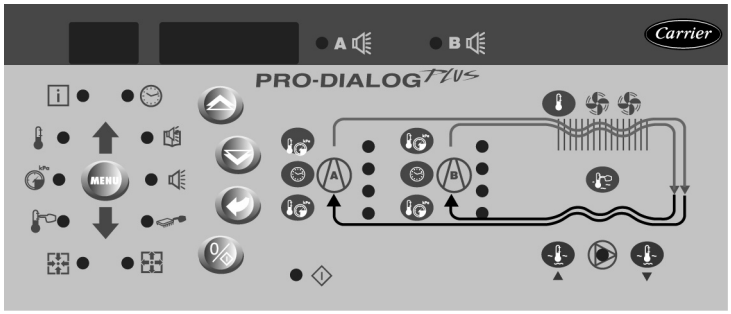
Superior reliability

- State-of-the-art concept
  - Cooperation with specialist laboratories and use of limit simulation tools (finite element calculations) for the design of the critical components, e.g. motor supports, suction/discharge piping
  - Compressor control box installed on the cold side of the compressor (Carrier patent)
  - All-aluminium micro-channel heat exchanger (MCHX) offers 3.5 times higher corrosion resistance than a conventional coil. The all-aluminium construction eliminates the formation of galvanic currents between aluminium and copper that are responsible for the coil corrosion in saline or corrosive atmospheres.
- Auto-adaptive control
  - Control algorithm prevents excessive compressor cycling and permits reduction of the water quantity in the hydronic circuit (Carrier patent).
  - Automatic compressor unloading in case of abnormally high condensing pressure. If an anomaly occurs (e.g. fouled condenser coil, fan failure) Aquasnap continues to operate, but at reduced capacity.
- Exceptional endurance tests
  - Corrosion resistance tests in salt mist in the laboratory
  - Accelerated ageing test on components that are submitted to continuous operation: compressor piping, fan supports
  - Transport simulation test in the laboratory on a vibrating table. The test is based on a military standard and equivalent to 4000 km by truck.

Pro-Dialog Plus control

Pro-Dialog Plus combines intelligence with operating simplicity. The control constantly monitors all machine parameters and precisely manages the operation of compressors, expansion devices, fans and of the evaporator water pump for optimum energy efficiency.

- Energy management
  - Internal time schedule clock: permits chiller on/off control and operation at a second set point
  - Set point reset based on the outside air temperature or the return water temperature
  - Master/slave control of two chillers operating in parallel with operating time equalisation and automatic change-over in case of a unit fault.
  - Start/stop control based on the air temperature
- Ease-of-use
  - User interface with synoptic diagram for intuitive display of the principal operating parameters: number of compressors operating, suction/discharge pressure, compressor operating hours, set point, air temperature, entering/leaving water temperature
  - Ten menus for direct access to all machine commands, including fault history, allowing fast and complete chiller diagnostics



Pro-Dialog Plus operator interface

Remote management (standard)

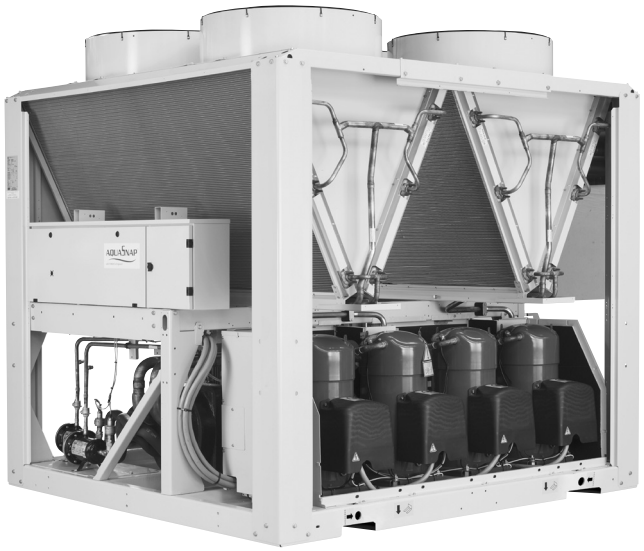
A simple two-wire communication bus between the RS485 port of the Aquasnap and the Carrier Comfort Network offers multiple remote control, monitoring and diagnostic possibilities. Carrier offers a vast choice of control products, specially designed to control, manage and supervise the operation of an air conditioning system. Please consult your Carrier representative for more information on these products.

- Start/stop: opening of this contact will shut down the unit
- Dual set point: closing of this contact activates a second set point (example: unoccupied mode)
- Demand limit: closing of this contact limits the maximum chiller capacity to a predefined value
- User safety: this contact is connected in series with the water flow switch and can be used for any customer safety loop
- Heat reclaim (option): closing of this contact allows heat reclaim mode operation
- Water pump 1 and 2 control*: these outputs control the contactors of one or two evaporator water pumps
- Water pump on reversal*: these contacts are used to detect a water pump operation fault and automatically change over to the other pump
- Operation indication: this volt-free contact indicates that the chiller is operating (cooling load) or that it is ready to operate (no cooling load)
- Alert indication: this volt-free contact indicates the presence of a minor fault
- Alarm indication: this volt-free contact indicates the presence of a major fault that has led to the shut-down of one or two refrigerant circuits

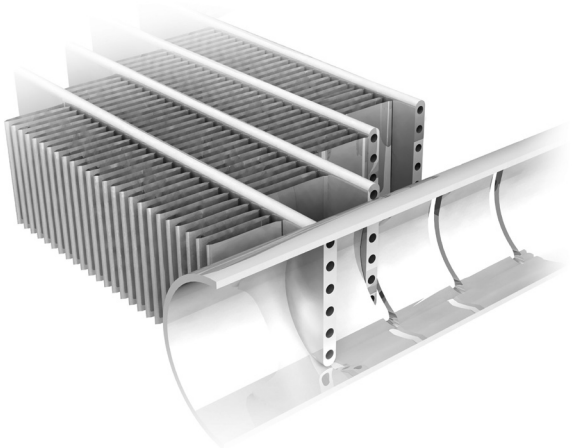
* contacts already supplied with the hydronic module option

Remote management (EMM option)

- Room temperature: permits set point reset based on the building indoor air temperature (with Carrier thermostat)
- Set point reset: ensures reset of the cooling set point based on a 4-20 mA or 0-5 V signal
- Demand limit: permits limitation of the maximum chiller demand based on a 4-20 mA or 0-5 V signal
- Demand limit 1 and 2: closing of these contacts limits the maximum chiller capacity to three predefined values
- User safety: this contact can be used for any customer safety loop, closing of the contact generates a specific alarm
- Ice storage end: when ice storage has finished, this input permits return to the second set point (unoccupied mode)
- Time schedule override: closing of this contact cancels the time schedule effects
- Out of service: this signal indicates that the chiller is completely out of service
- Chiller capacity: this analogue output (0-10 V) gives an immediate indication of the chiller capacity
- Compressor operation: this contact signals that one or several compressors are in operation



All aluminium micro-channel heat exchanger (MCHX)



Already utilised in the automobile and aeronautical industries for many years, the MCHX heat exchanger is entirely made of aluminium. This one-piece concept significantly increases its corrosion resistance by eliminating the galvanic currents that are created when two different metals (copper and aluminium) come into contact in traditional heat exchangers. Unlike traditional heat exchangers the MCHX heat exchanger can be used in moderate marine and urban environments.

From an energy efficiency point-of-view the MCHX heat exchanger is approximately 10% more efficient than a traditional coil and allows a 40% reduction in the amount of refrigerant used in the chiller. The low thickness of the MCHX reduces air pressure losses by 50% and makes it less susceptible to fouling (e.g. by sand) than a traditional coil. Cleaning of the MCHX heat exchanger is very fast using a high-pressure washer.

Part load performances

With the rapid increase in energy costs and the care about environmental impacts of electricity production, the power consumption of air conditioning equipment has become an important topic. The energy efficiency of a liquid chiller at full load is rarely representative of the actual performance of the units, as on average a chiller works less than 5% of the time at full load.

The heat load of a building depends on many factors, such as the outside air temperature, the exposure to the sun and its occupation.

Consequently it is preferable to use the seasonal energy efficiency, calculated at several operating points that are representative for the unit utilisation.

ESEER (EUROVENT)

The ESEER (European seasonal energy efficiency ratio) permits evaluation of the average energy efficiency at part load, based on four operating conditions defined by Eurovent. The ESEER is the average value of energy efficiency ratios (EER) at different operating conditions, weighted by the operating time.

ESEER (European seasonal energy efficiency ratio)

Load, %	Air temperature, °C	Energy efficiency	Operating time, %
100	35	EER1	3
75	30	EER2	33
50	25	EER3	41
25	20	EER4	23

$ESEER = EER_1 \times 3\% + EER_2 \times 33\% + EER_3 \times 41\% + EER_4 \times 23\%$

Note: Constant leaving water temperature = 7°C

Part load performances in accordance with Eurovent

30RB 162-262 "B" standard units (with plate heat exchanger)

30RB	Load %	CAP kW	Unit kW	EER kW/kW	ESEER kW/kW
162	100	163	54.6	2.99	
	75	122	35.0	3.49	
	50	81.5	20.5	3.97	
	25	40.7	9.60	4.25	3.85
182	100	180	59.9	3.00	
	75	135	39.2	3.44	
	50	89.8	23.7	3.79	
	25	44.9	11.4	3.95	3.69
202	100	205	70.5	2.91	
	75	154	40.7	3.77	
	50	102	24.9	4.11	
	25	51.2	12.1	4.23	3.99
232	100	222	72.5	3.06	
	75	167	45.9	3.63	
	50	111	26.4	4.21	
	25	55.5	12.1	4.60	4.07
262	100	259	95.4	2.71	
	75	194	58.0	3.34	
	50	129	31.7	4.07	
	25	64.6	14.7	4.40	3.87

Load % - Unit heat load
Cap kW - Cooling capacity
Unit kW - Unit power input
EER - Cooling capacity kW/unit power input kW

Part load performances in accordance with Eurovent

30RB 162-262 "B" units with option 280 (shell-and-tube heat exchanger) and 30RB 302-802 units

30RB	Load %	Cap kW	Unit kW	EER kW/kW	ESEER kW/kW
162	100	159	53.8	2.95	
	75	119	35.9	3.31	
	50	79.3	21.0	3.77	
	25	39.6	9.7	4.10	3.67
182	100	173	59.3	2.92	
	75	130	37.6	3.45	
	50	86.6	21.6	4.00	
	25	43.3	9.8	4.41	3.88
202	100	193	70.1	2.75	
	75	145	42.2	3.42	
	50	96.4	24.6	3.92	
	25	48.2	11.5	4.18	3.78
232	100	227	72.8	3.12	
	75	171	45.4	3.76	
	50	114	25.5	4.45	
	25	56.8	11.7	4.87	4.28
262	100	263	97.5	2.70	
	75	198	59.8	3.31	
	50	132	32.6	4.04	
	25	65.8	15.0	4.40	3.84
302	100	293.3	104.5	2.81	
	75	220	62.3	3.53	
	50	147	36.1	4.06	
	25	73	16.2	4.54	3.96
342	100	327.5	120.9	2.71	
	75	245.6	71.50	3.44	
	50	164	40.0	4.09	
	25	82	18.1	4.53	3.94
372	100	358.5	127.5	2.81	
	75	268.9	73.7	3.65	
	50	179	42.4	4.22	
	25	90	19.4	4.62	4.08
402	100	391	146.6	2.67	
	75	293.2	83.9	3.50	
	50	196	48.3	4.05	
	25	98	21.7	4.50	3.93
432	100	418	150.6	2.77	
	75	313.2	86.7	3.61	
	50	209	51.4	4.06	
	25	104	24.6	4.24	3.92
462	100	447	168.5	2.65	
	75	335.1	93.3	3.59	
	50	223.4	55.5	4.03	
	25	111.7	27.2	4.11	3.86
522	100	506.3	191.4	2.65	
	75	379.7	109.5	3.47	
	50	253.1	63.7	3.97	
	25	126.6	31.6	4.01	3.77
602	100	596.2	218.1	2.73	
	75	447.1	121.9	3.67	
	50	298.1	70.8	4.21	
	25	149	31.9	4.66	4.09
672	100	651.8	240.6	2.71	
	75	488.8	137	3.57	
	50	325.9	78.8	4.14	
	25	163	36.1	4.52	4.00
732	100	704.2	265.1	2.66	
	75	528.2	148.2	3.56	
	50	352.1	84.3	4.15	
	25	176.1	40.6	4.33	3.96
802	100	757.7	288.1	2.63	
	75	568.3	162.6	3.5	
	50	378.8	92.4	4.1	
	25	189.4	43.9	4.31	3.91

Load % - Unit heat load
Cap kW - Cooling capacity
Unit kW - Unit power input
EER - Cooling capacity kW/unit power input kW

30RB 162-262 “B” units with option 280 (shell-and-tube heat exchanger) and 30RB 302-802 units

30RB		162	182	202	232	262	302	342	372	402	432	462	522	602	672	732	802
Nominal cooling capacity*	kW	159	173	193	227	263	293	328	359	391	418	447	506	596	652	704	758
Nominal power input, standard unit*†	kW	54	59	70	73	98	104	121	128	147	151	169	191	218	240	265	288
EER	kW/kW	2.94	2.93	2.76	3.11	2.68	2.82	2.71	2.80	2.66	2.77	2.64	2.65	2.73	2.72	2.66	2.63
Eurovent class, cooling		B	B	C	A	D	C	C	C	D	C	D	D	C	C	D	D
ESEER	kW/kW	3.67	3.88	3.78	4.28	3.84	3.96	3.94	4.08	3.93	3.92	3.86	3.77	4.09	4.00	3.96	3.91
Operating weight**																	
Standard unit with option 15 and high-pressure dual-pump hydronic module option	kg	1960	2040	2130	2160	2330	3070	3266	3254	3480	4010	4200	4400	-	-	-	-
Unit with option 15	kg	1780	1860	1950	1970	2150	2770	2966	3014	3140	3670	3810	3988	5166	5344	6024	6204
Standard unit	kg	1710	1780	1880	1890	2060	2660	2856	2884	3010	3520	3660	3818	4966	5135	5794	5954
Sound levels																	
Unit with option 15LS (very low noise level)																	
Sound power level 10^{-12} W***†	dB(A)	84	84	84	85	85	86	86	87	87	88	88	88	89	89	89	90
Sound pressure level at 10 m****	dB(A)	52	52	52	53	53	54	54	55	55	55	55	56	56	57	57	57
Unit with option 15 (low noise level)																	
Sound power level 10^{-12} W***†	dB(A)	89	89	89	89	89	90	90	91	91	92	92	92	93	93	94	94
Sound pressure level at 10 m****	dB(A)	57	57	57	57	57	58	58	59	59	60	60	60	61	61	61	62
Standard unit‡																	
Sound power level 10^{-12} W***†	dB(A)	91	91	91	91	91	92	92	93	93	94	94	94	95	95	96	96
Sound pressure level at 10 m****	dB(A)	59	59	59	59	59	60	60	61	61	62	62	62	62	63	63	64
Compressors		Hermetic scroll, 48.3 r/s															
Circuit A		1	1	1	2	2	3	3	3	3	4	4	4	3	3	4	4
Circuit B		2	2	2	2	2	2	2	3	3	3	3	4	3	3	4	4
Circuit C		-	-	-	-	-	-	-	-	-	-	-	-	3	4	3	4
No. of control stages		-	-	-	-	4	5	5	6	6	7	7	8	9	10	11	12
Refrigerant		R-410A															
Circuit A	kg	11.4	11.4	11.4	14.5	14.5	20	21	21	20.5	26	26.5	26.5	23	23	28	28
Circuit B	kg	13.5	13.5	13.5	14	14	14	14	21	21.5	22	21.5	27.5	23	22.5	30	30
Circuit C	kg	-	-	-	-	-	-	-	-	-	-	-	-	24	28	25	33
Capacity control		Pro-Dialog Plus															
Minimum capacity	%	33	28	33	25	25	18	20	15	17	13	14	13	11	10	9	8
Condensers		All aluminium micro-channel heat exchanger (MCHX)															
Fans		Axial Flying Bird 4 with rotating shroud															
Quantity		3	4	4	4	4	5	5	6	6	7	7	8	9	10	11	12
Total air flow (high speed)	l/s	13542	18056	18056	18056	18056	22569	22569	27083	27083	31597	31597	36111	40623	45139	49653	54167
Speed	r/s	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Evaporator		Direct expansion. shell-and-tube															
Water volume	l	120	120	120	110	110	110	125	125	125	113	113	113	284	284	284	284
Max. water-side operating pressure without hydronic module	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Water connections without hydronic module		Victaulic															
Diameter	inch	3	3	3	3	3	4	4	4	4	6	6	6	6	6	6	6
Outside tube diameter	mm	88.9	88.9	88.9	88.9	88.9	114.3	114.3	114.3	114.3	168.3	168.3	168.3	168.3	168.3	168.3	168.3
Chassis paint colour		Colour code: RAL7035															

* Nominal conditions: evaporator entering/leaving water temperature 12°C/7°C, outside air temperature 35°C, evaporator fouling factor 0.18 x 10^{-4} (m^2 K)/W
** Weight shown is a guideline only. To find out the unit refrigerant charge, please refer to the unit nameplate.
*** In accordance with ISO 9614-1 and certified by Eurovent.
**** Average sound pressure level, unit in a free field on a reflective surface
† Data is not contractually binding and for information only. The values are rounded.
‡ Standard unit: base unit without option 15 and hydronic module.

Electrical data

30RB 162-262 “B” standard units (plate heat exchanger) and units with option 280 (shell-and-tube heat exchanger) and 30RB 302-802 units

30RB (without hydronic module)		162	182	202	232	262	302	342	372	402	432	462	522	602	672	732	802
Power circuit																	
Nominal power supply	V-ph-Hz	400-3-50															
Voltage range	V	360-440															
Max. connectable power cable section																	
Circuit A + B or	mm^2	1x240 2x150	1x240 2x150	1x240 2x150	1x240 2x150	1x240 2x150	2x240	2x240	2x240	2x240	3x240	3x240	3x240	2x240	2x240	3x240	3x240
Circuit C	mm^2	-	-	-	-	-	-	-	-	-	-	-	-	2x185	2x185	2x185	2x185
Control circuit supply		24 V, via internal transformer															
Maximum unit power input*																	
Circuits A + B	kW	76	85	98	102	127	140	159	172	191	204	223	255	191	191	255	255
Circuit C	kW	-	-	-	-	-	-	-	-	-	-	-	-	96	127	96	127
Nominal unit current draw**																	
Circuits A + B	A	101	113	129	135	167	185	209	227	251	269	293	334	251	251	334	334
Circuit C	A	-	-	-	-	-	-	-	-	-	-	-	-	125	167	125	167
Maximum unit current draw***																	
Circuits A + B	A	131	146	168	175	219	241	274	296	329	351	384	438	329	329	439	438
Circuit C	A	-	-	-	-	-	-	-	-	-	-	-	-	164	219	164	219
Maximum start-up current, standard unit (Un)†																	
Circuits A + B	A	304	353	375	348	426	448	481	502	535	557	590	645	535	535	645	645
Circuit C	A	-	-	-	-	-	-	-	-	-	-	-	-	371	426	371	426
Cosine phi, unit at max. capacity		0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Max. start-up current, unit with soft starter (Un)†																	
Circuits A + B†	A	259	283	305	277	356	378	411	433	466	489	521	575	-	-	-	-
Circuit C	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stability for three-phase short circuits (TN system)																	
Units with main disconnect without fuse††																	
Short-time current (1 s) rms/peak value																	
Circuits A + B	kA/kA	9/26	9/26	9/26	9/26	9/26	13/26	13/26	13/26	13/26	15/30	15/30	15/30	13/26	13/26	15/30	15/30
Circuit C	kA/kA	-	-	-	-	-	-	-	-	-	-	-	-	13/26	13/26	13/26	13/26
Unit with main disconnect with fuse‡																	
Circuits A + B	kA	NA	NA	NA	NA	NA	50	50	50	50	50	50	50	50	50	50	50
Circuit C	kA	-	-	-	-	-	-	-	-	-	-	-	-	50	50	50	50

* Power input of the compressor(s) + fan(s) at maximum unit operating conditions. Values given on the unit name plate.
** Nominal unit current draw at nominal conditions: evaporator entering/leaving water temperature 12°C/7°C, outdoor air temperature 35°C. The current values are given at 400 V nominal voltage.
*** Maximum unit operating current at maximum unit power input and 400 V.
† Maximum instantaneous starting current at 400 V nominal voltage and operating limit values with compressor in across-the-line start (maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor).
†† Standard for 30RB 162 to 262 and option for 30RB 302 to 802
‡ Not available for 30RB 162 to 262 and option for 30RB 302 to 802

Note: Units 30RB 602-802 have two electrical connection points.

Operating limits

Evaporator water flow rate

30RB 162-262 “B” standard units (with plate heat exchanger)

30RB	Minimum flow rate, l/s	Maximum flow rate, l/s*
162	2.8	13.9
182	2.8	13.9
202	2.8	14.3
232	3.0	14.3
262	3.5	14.3

30RB 162-262 “B” with option 280 (shell-and-tube heat exchanger) and 30RB 302-802

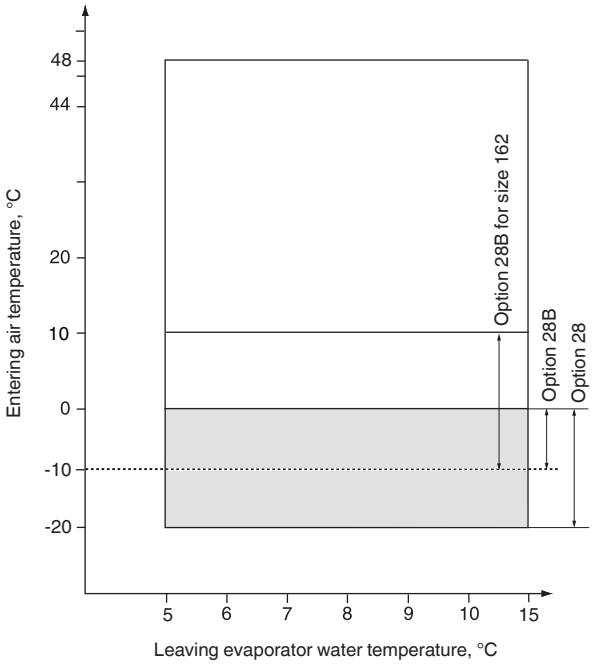
30RB	Minimum flow rate, l/s	Maximum flow rate, l/s*
162	2.8	28.1
182	2.8	28.1
202	2.8	28.1
232	3.0	26.7
262	3.5	26.7
302	3.9	26.7
342	4.4	29.4
372	4.9	29.4
402	5.2	29.4
432	5.8	31.1
462	6.1	31.1
522	6.9	31.1
602	7.9	50.6
672	8.7	50.6
732	9.6	50.6
802	10.3	50.6

* The maximum flow rate corresponds to a pressure loss of 100 kPa (heat exchanger without hydronic module).

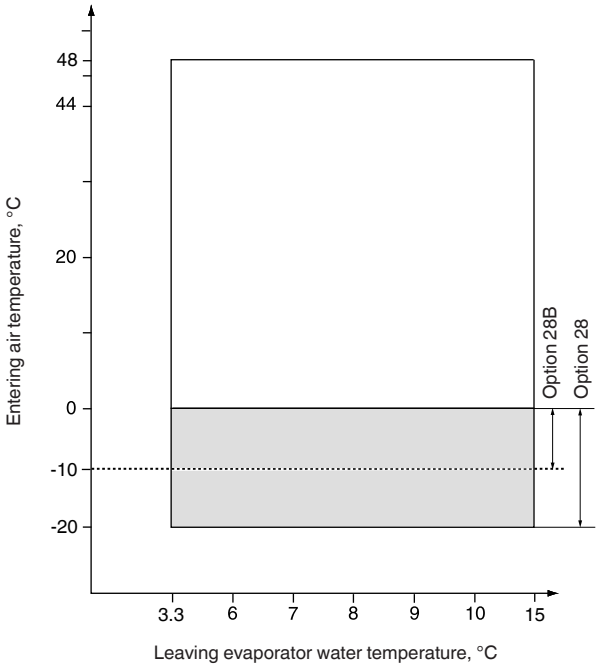
Evaporator water temperature, °C	Minimum	Maximum
Entering water temperature at shut-down	-	48
Entering water temperature at start-up	6.8	40
Entering water temperature during operation	6.8	25
Leaving water temperature during operation (plate heat exchanger)	5	15
Leaving water temperature during operation (shell-and-tube heat exchanger)	3.3	15

Condenser air temperature, °C	Minimum	Maximum
Standard unit	0	48
With winter operation option (No. 28)	-20	48
With winter operation option (No. 28B)	-10	48

Operating range - 30RB 162-262 “B” standard units (with plate heat exchanger)



Operating range - 30RB 162-262 “B” with option 280 (shell-and-tube heat exchanger) and 30RB 302-802



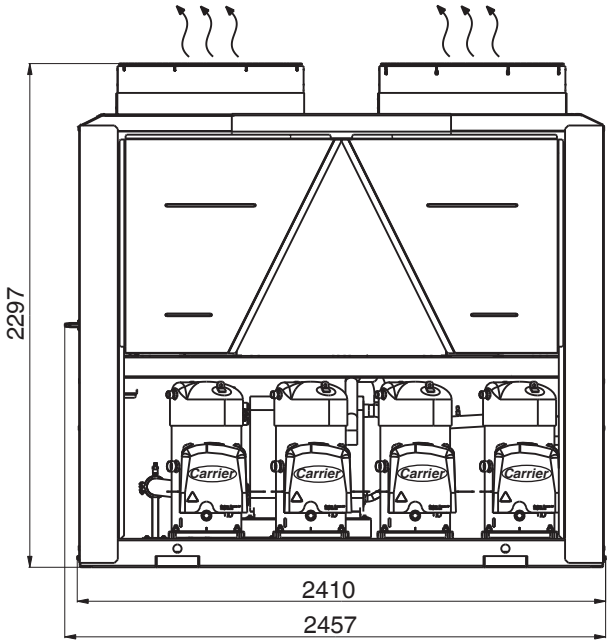
Notes:
Evaporator ΔT = 5 K
The evaporator is protected against frost down to -20°C.

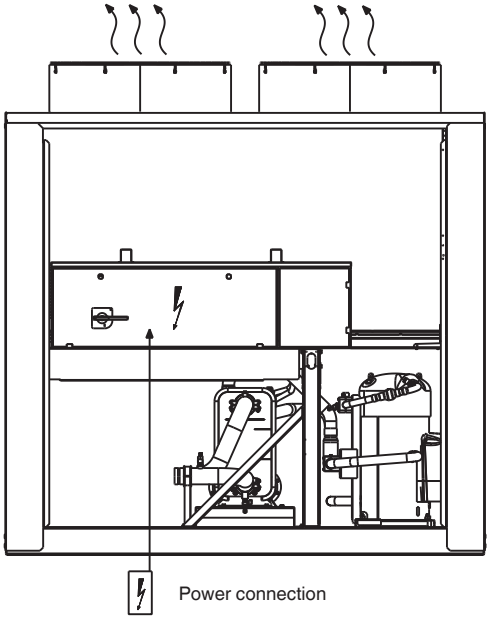
Legend:

Standard unit operating at full load.
Operating range, units equipped with options 28 and 28B “Winter operation”.
Option 28 (with variable-speed lead fan for each circuit) allows operation down to -20°C outside temperature.
Option 28B (with two-speed lead fan for each circuit) allows operation down to -10°C outside temperature.
Moreover the unit must either be equipped with the evaporator frost protection option or the water loop must be protected against frost by the installer, using an anti-freeze solution.

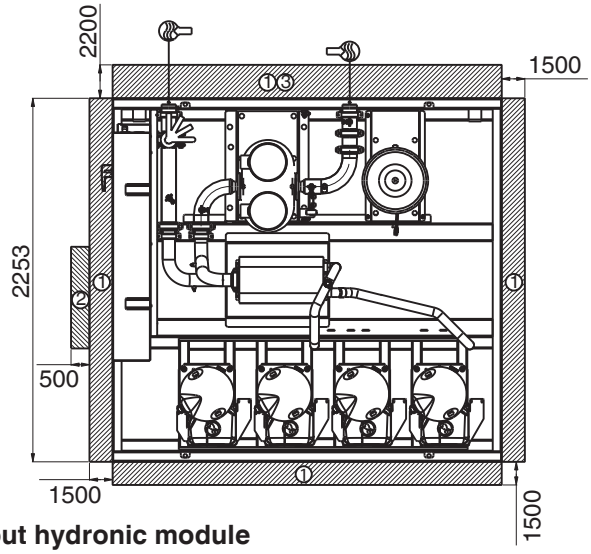
Dimensions/clearances

30RB 162-262 “B”, standard units (with plate heat exchanger)

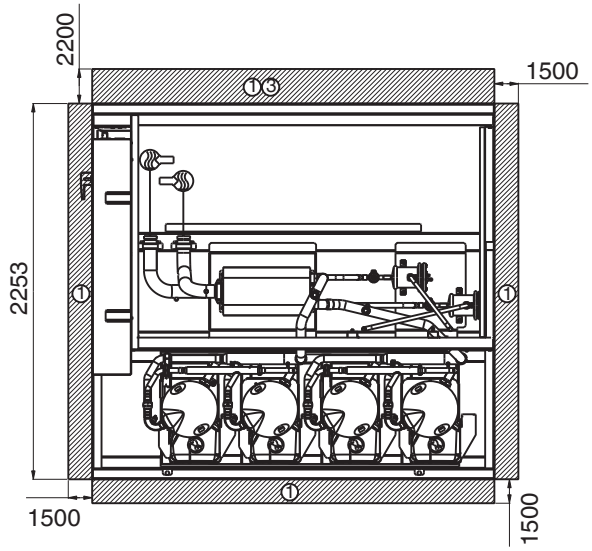




Unit with hydronic module



Unit without hydronic module



Legend:
All dimensions are in mm.

1. Clearances required for maintenance and air flow
2. Clearances recommended for evaporator tube removal
3. Clearances recommended for heat exchanger removal

Water inlet

Water outlet

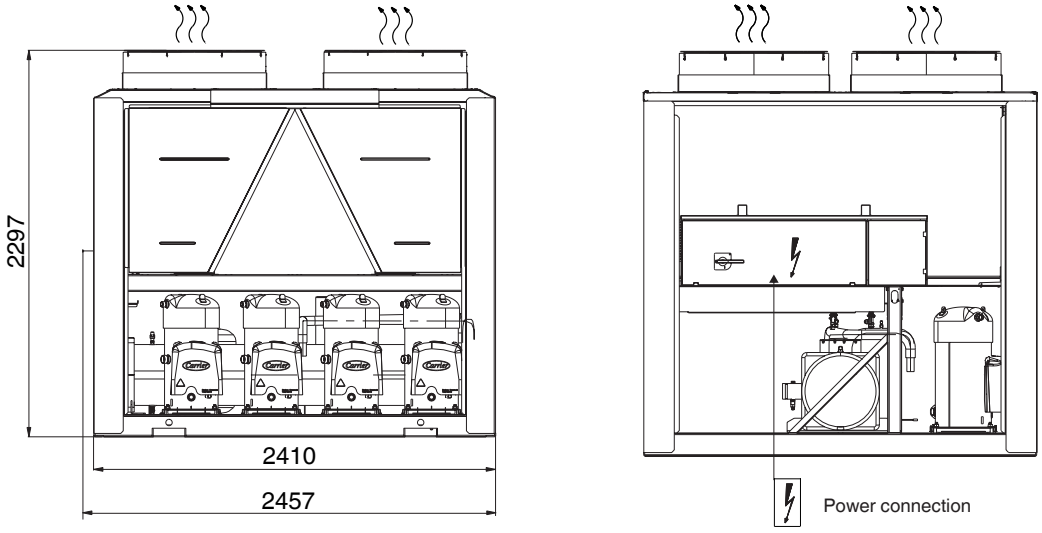
Air outlet, do not obstruct

NOTE: Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.

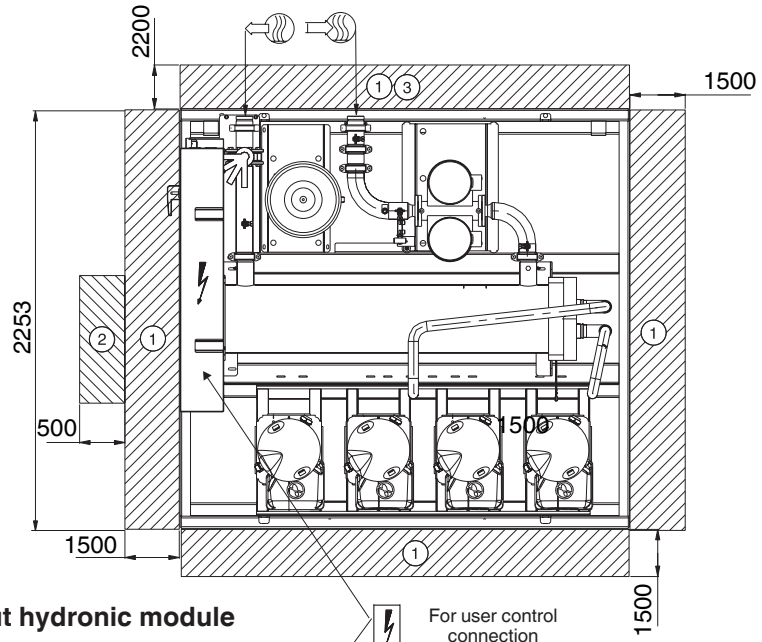
For the positioning of the fixing points, weight distribution points and centre of gravity coordinates please refer to the dimensional drawings.

Dimensions/clearances

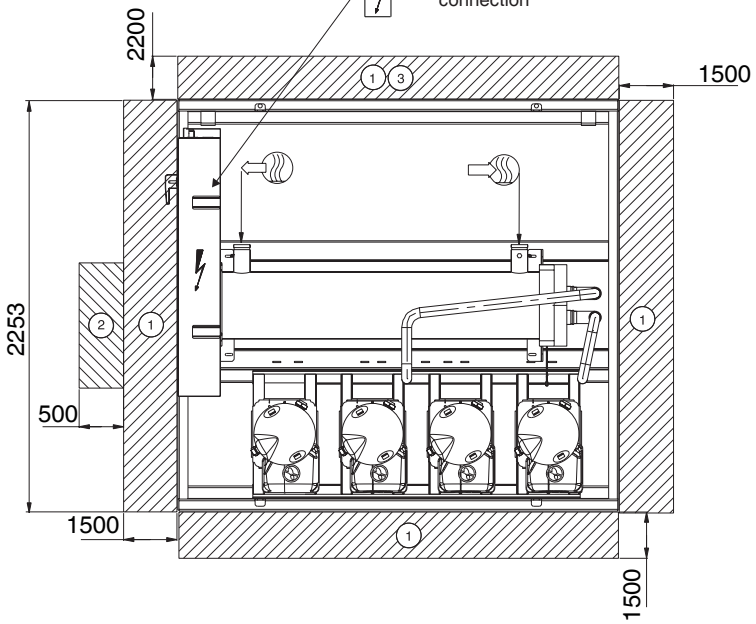
30RB 162-262 “B” with option 280 (shell-and-tube heat exchanger)



Unit with hydronic module



Unit without hydronic module



Legend:
All dimensions are in mm.

1. Clearances required for maintenance and air flow
2. Clearances recommended for evaporator tube removal
3. Clearances recommended for heat exchanger removal

Water inlet

Water outlet

Air outlet, do not obstruct

NOTE: Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.

For the positioning of the fixing points, weight distribution points and centre of gravity coordinates please refer to the dimensional drawings.

Physical and electrical data for units with hydronic module

30RB 162-262 “B” standard units (with plate heat exchanger)

30RB		162	182	202	232	262
Operating weight*						
Unit with option 15 and dual-pump hydronic module	kg	1280	1358	1455	1471	1655
Hydronic module						
Expansion tank volume	l	50	50	50	50	50
Maximum operating pressure	kPa	400	400	400	400	400
Water filter		Screen filter (Victaulic)				
Low-pressure pump						
Water pump		Single or dual monocell centrifugal pump				
Pump capacity	kW	2.2	2.2	2.2	2.2	3
Pump power input	kW	2.7	2.7	2.7	2.7	3.6
Maximum pump current drawn	A	4.7	4.7	4.7	4.7	6.4
High-pressure pump						
Water pump		Single or dual monocell centrifugal pump				
Pump capacity	kW	4	4	4	4	4
Pump power input	kW	4.7	4.7	4.7	4.7	4.7
Maximum pump current drawn	A	8.2	8.2	8.2	8.2	8.2
Water connections (with hydronic module)		Victaulic type				
Diameter	in	3	3	3	3	3
Outside pipe diameter	mm	88.9	88.9	88.9	88.9	88.9

30RB 162-262 “B” units with option 280 (shell-and-tube heat exchanger) and 30RB 302-802 units

30RB		162	182	202	232	262	302	342	372	402	432	462	522
Operating weight*													
Unit with option 15 and dual-pump hydronic module	kg	1960	2040	2130	2160	2330	3070	3266	3254	3480	4010	4200	4400
Hydronic module													
Expansion tank volume	l	50	50	50	50	50	80	80	80	80	80	80	80
Maximum operating pressure	kPa	400	400	400	400	400	400	400	400	400	400	400	400
Water filter		Screen filter (Victaulic)											
Low-pressure pump													
Water pump		Single or dual monocell centrifugal pump											
Pump capacity	kW	2.2	2.2	2.2	2.2	2.2	3	3	4	4	4	5.5	5.5
Pump power input	kW	2.7	2.7	2.7	2.7	2.7	3.6	3.6	4.6	4.6	4.6	6.3	6.3
Maximum pump current drawn	A	4.7	4.7	4.7	4.7	4.7	6.4	6.4	8.2	8.2	8.2	11.2	11.2
High-pressure pump													
Water pump		Single or dual monocell centrifugal pump											
Pump capacity	kW	4	4	4	4	4	5.5	5.5	7.5	7.5	7.5	11	11
Pump power input	kW	4.7	4.7	4.7	4.7	4.7	6.4	6.4	8.5	8.5	8.5	12.2	12.2
Maximum pump current drawn	A	8.2	8.2	8.2	8.2	8.2	11.2	11.2	15.4	15.4	15.4	21.2	21.2
Water connections (with hydronic module)		Victaulic type											
Diameter	in	3	3	3	3	3	4	4	4	4	5	5	5
Outside pipe diameter	mm	88.9	88.9	88.9	88.9	88.9	114.3	114.3	114.3	114.3	139.7	139.7	139.7

* Weights are for guidance only