



United Technologies

PRODUCT SELECTION DATA



- Compact design
- Alluminium micro-channel heat exchanger technology
- Fully equipped hydronic module
 - Partial heat reclaim
 - Total heat reclaim
- Direct expansion free-cooling

Air-Cooled Liquid Chillers with Integrated
Hydronic Module

30RB 162-802

AQUASNAP[®]

30RB 162-802

Nominal cooling capacity 162-774 kW

The Aquasnap liquid chiller range 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 (MCHE)

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 (option)
 - Water flow control valve (option)

- 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
 - Eurovent energy efficiency class (in accordance with EN14511-3:2011) B to D
 - 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 (MCHE), 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
 - Very efficient - gives an increased energy efficiency ratio (EER)
 - 40% reduction in the refrigerant charge through use of the micro-channel heat exchangers (MCHE)
- 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 (MCHE) 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

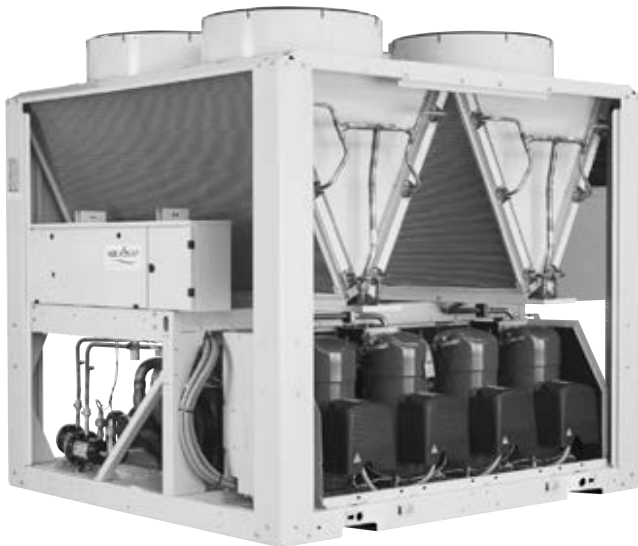


Remote management (standard)

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

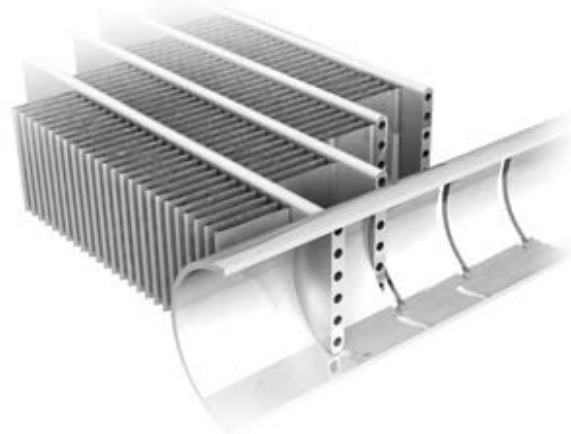
* contacts already supplied with the hydronic module option



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 (MCHE)



Already utilised in the automobile and aeronautical industries for many years, the MCHE 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 MCHE heat exchanger can be used in moderate marine and urban environments.

From an energy efficiency point-of-view the MCHE 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 MCHE reduces air pressure losses by 50% and makes it less susceptible to fouling (e.g. by sand) than a traditional coil. Cleaning of the MCHE heat exchanger is very fast using a high-pressure washer.

Options

Options	No.	Description	Advantages	For 30RB
Unit for low leaving water temperature	6B	Leaving water temperature of +3°C to -10°C.	All low-temperature applications: ice storage, cold stores, process cooling etc.	162-402
Unit for indoor installation with discharge ducts	12	Fans with available pressure	Ducted condenser air discharge, optimised condensing temperature control, based on the operating conditions and system characteristics	162-802
Low noise level	15	Sound absorbing compressor enclosure	Noise emission reduction	162-802
Very low noise level	15LS	Sound absorbing compressor enclosure and low-speed fans	Noise emission reduction	162-802
Grilles	23	Metallic grilles on all four unit faces (this option includes the supply of enclosure panels)	Improved aesthetics	162-802
Enclosure panels	23A	Side panels on each end of the coils	Improved aesthetics	162-802
Electronic starter	25	Electronic starter on each compressor	Reduced start-up current	162-522
Winter operation down to -20°C	28	Fan speed control via frequency converter	Stable unit operation when the air temperature is between 0°C and -20°C	162-802
Winter operation down to -10°C	28B	Twin-speed lead fan for each circuit	Stable unit operation when the air temperature is between 0°C and -10°C	162-802
Winter operation down to -10°C and very low noise level (options 28B + 15LS)	28C	Sound absorbing compressor enclosure and low-speed fans + twin-speed lead fan for each circuit	Noise emission reduction and stable unit operation when the air temperature is between 0°C and -10°C	162-802
Evaporator and water piping frost protection	41	Electric heater on the evaporator and the water inlet/outlet piping	Evaporator frost protection for air temperatures between 0°C and -20°C	162-802
Evaporator, water piping and hydronic module frost protection	42A	Electric heaters on the evaporator, the water inlet/outlet piping and hydronic module	Evaporator and hydronic module frost protection for air temperatures between 0°C and -20°C	162-522
Partial heat reclaim	49	Partial heat reclaim by desuperheating of the compressor discharge gas	Free high-temperature hot-water production simultaneously with chilled water production	162-802
Total heat reclaim	50	See heat reclaim option.	Free hot water production simultaneously with chilled water production	262-522
Master/slave operation	58	Unit equipped with an additional field-installed leaving water temperature sensor, allowing master/slave operation of two chillers connected in parallel	Optimised operation of two chillers connected in parallel with operating time equalisation	162-802
Main disconnect switch without fuse (standard for sizes 162-262)	70	Factory-installed main electric disconnect switch in the control box	Ease-of-installation and compliance with local electrical regulations	302-802
Main disconnect switch with fuse	70D	Factory-installed main electric disconnect switch with fuse in the control box	Same advantage as main disconnect switch and reinforced anti-short circuit protection	302-802
Evaporator with aluminium jacket	88	Evaporator thermal insulation protection by aluminium sheets	Improved resistance to climatic aggression	162-802
Evaporator and hydronic module with aluminium jacket	88A	Evaporator and water piping thermal insulation protection by aluminium sheets	Improved resistance to climatic aggression	302-522
Suction valve	92	Shut-off valve on the compressor suction piping (discharge valve as standard)	Simplified maintenance	302-802
Compressor suction and discharge valves	92A	Shut-off valves on the common compressor suction and discharge piping	Simplified maintenance	162-262
High-pressure single-pump hydronic module	116B	Single high-pressure water pump, water filter, expansion tank, pressure gauge, water flow control valve. See hydronic module option.	Easy and fast installation	162-522
High-pressure dual-pump hydronic module	116C	Dual high-pressure water pump, water filter, expansion tank, pressure gauge, water flow control valve. See hydronic module option.	Easy and fast installation, operating safety	162-522
Low-pressure single-pump hydronic module	116F	Single low-pressure water pump, water filter, expansion tank, pressure gauge, water flow control valve. See hydronic module option.	Easy and fast installation	162-522
Low-pressure dual-pump hydronic module	116G	Dual low-pressure water pump, water filter, expansion tank, pressure gauge, water flow control valve. See hydronic module option.	Easy and fast installation, operating safety	162-522
High-pressure single-pump hydronic module	116M	Single high-pressure water pump, water filter, expansion tank, pressure ports. See hydronic module option.	Easy and fast installation	162-522
High-pressure dual-pump hydronic module	116N	Dual high-pressure water pump, water filter, expansion tank, pressure ports. See hydronic module option.	Easy and fast installation, operating safety	162-522
Low-pressure single-pump hydronic module	116P	Single low-pressure water pump, water filter, expansion tank, pressure ports. See hydronic module option.	Easy and fast installation	162-522
Low-pressure dual-pump hydronic module	116Q	Dual low-pressure water pump, water filter, expansion tank, pressure ports. See hydronic module option.	Easy and fast installation, operating safety	162-522
Direct-expansion free-cooling system	118A	See free-cooling option.	Economic chilled-water production at low outside temperature	232-522
JBus gateway	148B	Two-directional communications board, complies with JBus protocol	Easy connection by communication bus to a building management system	162-802
Bacnet gateway	148C	Two-directional communications board, complies with Bacnet protocol	Easy connection by communication bus to a building management system	162-802
LonTalk gateway	148D	Two-directional communications board, complies with LonTalk protocol	Easy connection by communication bus to a building management system	162-802
Energy Management Module EMM	156	See controls manual	Easy wired connection to a building management system	162-802
Safety valve with three-way valve fitted	194	Three-way valve upstream of the safety valves (not compatible with BPHE version)	Safety valve inspection and replacement facilitated without refrigerant loss	162-802
Conformance with Australian regulations	200	Heat exchanger approved to Australian code	-	162-802
Unit storage above 48°C	241	Refrigerant charge stored in the condenser. Option not compatible with MCHC coils; Cu/Al coils are required to store the charge.	Unit transport by container only possible with this option	162-802
Anti-corrosion protection Enviro-Shield for microchannel MCHC coils	262	Microchannel MCHC protection by the Carrier factory for applications in standard and moderate corrosive environments.	Better corrosion resistance, recommended for marine or moderately corrosive industrial environments	30RB 162-802
Anti-corrosion protection Super Enviro-Shield for microchannel MCHC coils	263	Microchannel MCHC protection by the Carrier factory for applications in corrosive and aggressive environments	The Super Enviro-Shield option was developed to increase the microchannel MCHC coil application range to extremely corrosive environmental conditions.	30RB 162-802
Connection sleeve	266	Piping to be welded with Victaulic connection	Ease-of-installation	162-802
Shell-and-tube evaporator	280	Different heat exchanger type	Ensures compatibility with other options than those available with the standard unit (see Electronic Catalogue)	162-262
Power cable connection side extension	283	Side extension on the power control to allow a reduced cable bend radius	Use of thicker power cables	302-802
230 V electrical plug	284	230 V power source with transformer (180 VA, 0.8 Amps)	Permit connection of a laptop or an electrical device during unit commissioning or servicing	30RB 162-802

Physical data (continued)

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			
Air conditioning application as per EN14511-3:2011*																				
Nominal cooling capacity	kW	162	181	197	227	270	297	331	366	395	422	452	503	607	657	712	774			
EER	kW/kW	2.98	2.98	2.74	3.04	2.68	2.77	2.69	2.80	2.60	2.71	2.59	2.58	2.72	2.68	2.59	2.58			
Eurovent class, cooling		B	B	C	B	D	C	D	C	D	C	D	D	C	D	D	D			
ESEER	kW/kW	3.89	3.81	3.64	4.07	3.74	3.80	3.81	3.95	3.72	3.71	3.65	3.56	3.97	3.88	3.75	3.71			
Air conditioning application**																				
Nominal cooling capacity	kW	163	181	197	227	271	298	332	367	397	424	454	506	609	660	714	778			
EER	kW/kW	3.01	3.01	2.77	3.07	2.72	2.81	2.72	2.83	2.64	2.75	2.62	2.63	2.75	2.72	2.63	2.62			
ESEER	kW/kW	3.99	3.91	3.74	4.22	3.87	3.96	3.95	4.11	3.89	3.86	3.81	3.74	4.11	4.03	3.91	3.88			
Operating weight**																				
Standard unit with option 15 and high-pressure dual-pump hydronic module option	kg	1896	2006	2093	2118	2292	2911	3102	3258	3358	3720	3977	4183	-	-	-	-			
Unit with option 15	kg	1720	1830	1917	1934	2108	2606	2797	2913	3013	3375	3582	3768	4828	5091	5597	5861			
Standard unit***	kg	1645	1755	1842	1839	2013	2489	2680	2779	2879	3224	3431	3600	4627	4873	5362	5609			
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			
Unit without option 15 and without hydronic module																				
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			
Dimensions																				
Length x depth	mm	2457 x 2253					3604 x 3353					4798 x 2253				5992 x 2253				7186 x 2253
Height	mm	2297	2297	2297	2297	2297	2297	2297	2297	2297	2297	2297	2297	2297	2297	2297	2297	2297		
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	9.2	11	11	13.5	13.5	18.5	19.5	19.5	19	24.3	24.5	24.5	21.5	21.5	26	26			
Circuit B	kg	12.8	12.8	12.8	13	13	13	14	19.5	20	21.5	21.5	25.5	22	21.5	28	28			
Circuit C	kg	-	-	-	-	-	-	-	-	-	-	-	-	23.5	28	24	31			
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 (MCHE)																				
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	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, dual-circuit shell-and-tube																				
Water volume	l	110	110	110	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			
Hydronic module (option)																				
Pump, Victaulic screen filter, safety valve, expansion tank, pressure gauge, water + air purge valves, flow control valve																				
Centrifugal, monocell, low or high pressure (as required), 48.3 r/s, single or twinned dual pump (as required)																				
Quantity		1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	-			
Expansion tank volume	l	50	50	50	50	50	80	80	80	80	80	80	80	-	-	-	-			
Max. water-side operating pressure with hydronic module	kPa	400	400	400	400	400	400	400	400	400	400	400	400	-	-	-	-			
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			
Water connections with hydronic module																				
Victaulic																				
Diameter	inch	3	3	3	3	3	4	4	4	4	5	5	5	-	-	-	-			
Outside tube 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	-	-	-	-			
Chassis paint colour																				
Colour code: RAL7035																				

* Eurovent-certified performances in accordance with standard EN14511-3:2011.

Cooling mode conditions: evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator fouling factor 0 m² K/W

** Gross performances, not in accordance with EN14511-3:2011. These performances do not take into account the correction for the proportional heating capacity and power input generated by the water pump to overcome the internal pressure drop in the heat exchanger.

Cooling mode conditions: evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator fouling factor 0 m² K/W

*** Weight shown is a guideline only. To find out the unit refrigerant charge, please refer to the unit nameplate.

**** Standard unit: base unit without option 15 and hydronic module.

† In accordance with ISO 9614-1 and certified by Eurovent.

‡ For information, calculated from the sound power level Lw(A).

Electrical data

30RB 162-262 “B” standard units and units with option 280 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																
Control circuit supply		24 V, via internal transformer																
Nominal unit current draw*																		
Circuits A + B (one supply)	A	101	113	129	135	167	185	209	227	251	269	293	334	251	251	334	334	
Circuit C (separate supply)	A	-	-	-	-	-	-	-	-	-	-	-	-	125	167	125	167	
Maximum unit power input**																		
Circuits A + B (one supply)	kW	76	85	98	102	127	140	159	172	191	204	223	255	191	191	255	255	
Circuit C (separate supply)	kW	-	-	-	-	-	-	-	-	-	-	-	-	96	127	96	127	
Cosine phi, unit at max. capacity**		0.84																
Maximum unit current draw (Un-10%)*																		
Circuits A + B (one supply)	A	143	159	183	191	239	263	299	323	359	383	419	478	359	359	478	478	
Circuit C (separate supply)	A	-	-	-	-	-	-	-	-	-	-	-	-	179	239	179	239	
Maximum unit current draw (Un)****																		
Circuits A + B (one supply)	A	131	146	168	175	219	241	274	296	329	351	384	438	329	329	439	438	
Circuit C (separate supply)	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	
Max. start-up current, unit with soft starter (Un)†																		
Circuits A + B	A	259	283	305	323	356	378	411	433	466	489	521	575	-	-	-	-	
Circuit C	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

* Standardised Eurovent conditions: evaporator entering/leaving water temperature 12°C/7°C, outside air temperature 35°C.

** Power input, compressors and fans, at the unit operating limits (saturated suction temperature 10°C, saturated condensing temperature 65°C) and nominal voltage of 400 V (data given on the unit nameplate).

*** Maximum unit operating current at maximum unit power input and 360 V.

**** Maximum unit operating current at maximum unit power input and 400 V (values given on the unit nameplate).

† Maximum instantaneous start-up current at operating limit values (maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor).

Fan motor electrical data: current used in the tables below: Units at Eurovent conditions and motor ambient air temperature of 50°C at 400 V: 3.8 A, start-up current 20 A, power input 1.75 kW. These values are those given on the motor nameplate.

Short-circuit stability current (TN system)*

30RB	162	182	202	232	262	302	342	372	402	432	462	522	602	672	732	802	
Unit without main disconnect (except for units 30RB 162 to 262, that are supplied with the disconnect switch installed as standard)																	
With fuses upstream - maximum fuse values assigned (gL/gG)																	
Circuits A and B	A	-	-	-	-	500	500	500	500	630/500	630/500	630/500	630/500	630/500	630/500	630/500	
Circuit C	A	-	-	-	-	-	-	-	-	-	-	-	400	400	400	400	
With fuses upstream - admissible rms current value (gL/gG)																	
Circuits A and B	kA	-	-	-	-	70	70	70	70	60/70	60/70	60/70	70	70	60/70	60/70	
Circuit C	kA	-	-	-	-	-	-	-	-	-	-	-	60	60	60	60	
Unit with optional main disconnect without fuse (standard for units 30RB 162 to 262, and option for units 30RB 302 to 802)																	
Short-time assigned current I_{cw}** (1s) rms value/peak I_{pk}***																	
Circuits A and B	kA/kA	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	
With fuses upstream - maximum fuse values assigned (gL/gG)																	
Circuits A and B	A	200	200	200/250	250/315†	250/315†	400	400	400	400	500	630	630	400	400	630	630
Circuit C	A	-	-	-	-	-	-	-	-	-	-	-	400	400	400	400	
With fuses upstream - conditional short-circuit assigned current I_{cc}/I_{cf}††																	
Circuits A and B	kA	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Circuit C	kA	-	-	-	-	-	-	-	-	-	-	-	50	50	50	50	
Unit with optional main disconnect with fuses (not available for units 30RB 162 to 262, and option for units 30RB 302 to 802)																	
Short-circuit stability current I_{cc}/I_{cf}†† increased with fuses - maximum fuse values assigned (gL/gG)																	
Circuits A and B	kA	-	-	-	-	315	315	400	400	400	630	630	400	400	630	630	
Circuit C	kA	-	-	-	-	-	-	-	-	-	-	-	250	250	250	250	
Short-circuit stability current I_{cc}/I_{cf}†† increased with fuses - admissible rms current value (gL/gG)																	
Circuits A and B	kA	-	-	-	-	50	50	50	50	50	50	50	50	50	50	50	
Circuit C	kA	-	-	-	-	-	-	-	-	-	-	-	50	50	50	50	

* Type of system earthing

** I_{cw}: assigned short-time current

*** I_{pk}: assigned current, admissible peak

† For units with options 12 and 116 use the higher value.

†† I_{cc}/I_{cf}: assigned conditional short-circuit current

IT system: The short circuit current stability values given above for the TN system are also valid for IT for units 30RB 302 to 522. For units 30RB 162 to 262 and 30RB 602 to 802 modifications are required.

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).

Unit operating limits

30RB 162-262 "B" standard units and units with option 280			
Evaporator		Minimum	Maximum
Entering water temperature at start-up	°C	8*	40
Leaving water temperature during operation	°C	5	15**
Condenser		Minimum	Maximum
Outdoor ambient operating temperature			
Standard unit	°C	0***/10†	48
Unit with options 28B, 28C (winter operation)	°C	-10	48
Unit with option 28 (winter operation)	°C	-20	48
Available static pressure			
Standard unit (outdoor installation)	Pa	0	0
Unit with option 12 (indoor installation)	Pa	0****	200

30RB 302-802 units			
Evaporator		Minimum	Maximum
Entering water temperature at start-up	°C	6,8*	40
Leaving water temperature during operation	°C	3,3	15**
Condenser		Minimum	Maximum
Outdoor ambient operating temperature			
Standard unit	°C	0***	48
Unit with options 28B, 28C (winter operation)	°C	-10	48
Unit with option 28 (winter operation)	°C	-20	48
Available static pressure			
Standard unit (outdoor installation)	Pa	0	0
Unit with option 12 (indoor installation)	Pa	0****	200

* For application requiring operation at less than 8 or 6.8°C respectively, contact Carrier for unit selection using the Carrier electronic catalog.

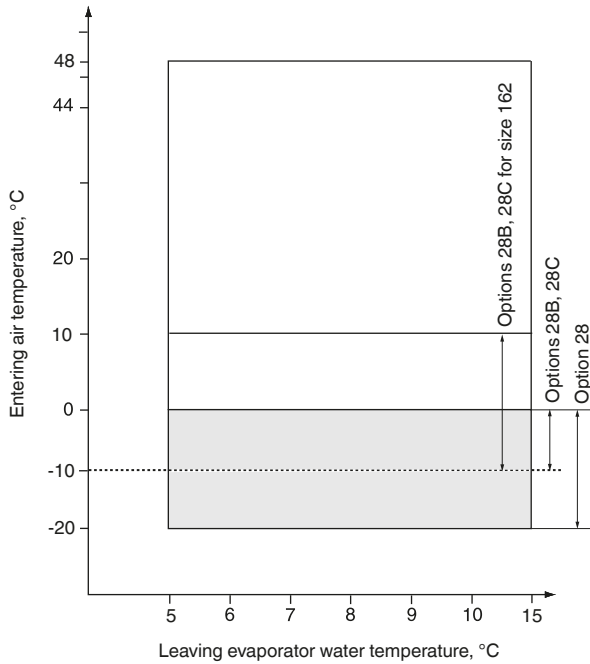
** For an application, requiring operation up to +15°C leaving water temperature, contact Carrier for the selection of the unit.

*** For operation from 0°C to -10°C the units must be equipped with options 28B, 28C "Winter operation". For operation from 0°C to -20°C the units must be equipped with option 28 "Winter operation". For both options the unit must either be equipped with the evaporator frost protection option (for units without hydronic module option) or the evaporator and hydronic module frost protection option (for units with hydronic module option) or the water loop must be protected against frost by the installer, using an anti-freeze solution. Maximum outside temperature: For transport and storage of the 30RB units the minimum and maximum allowable temperatures are -20°C and +48°C. It is recommended that these temperatures are used for transport by container.

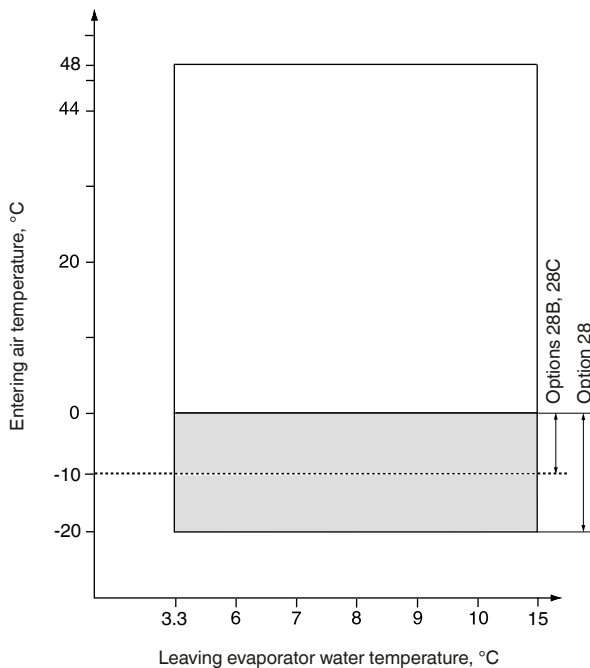
**** Unit with fans with available pressure up to 200 Pa.

† 30RB 162 units use options 28B, 28C for outside temperatures below 10°C.

Operating range - 30RB 162-262 "B" standard units and units with option 280



Operating range - 30RB 302-802



Notes:

Evaporator $\Delta T = 5$ K

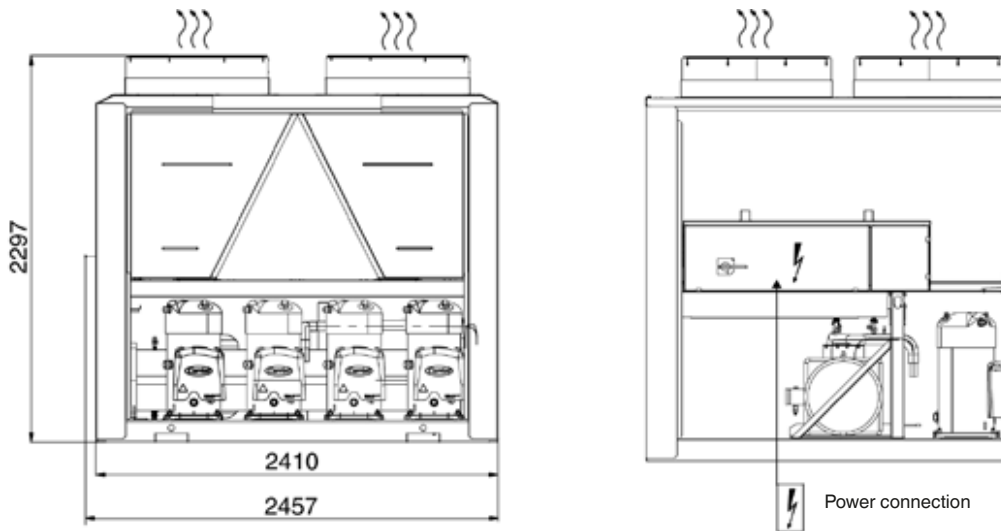
The evaporator is protected against frost down to -20°C.

Legend:

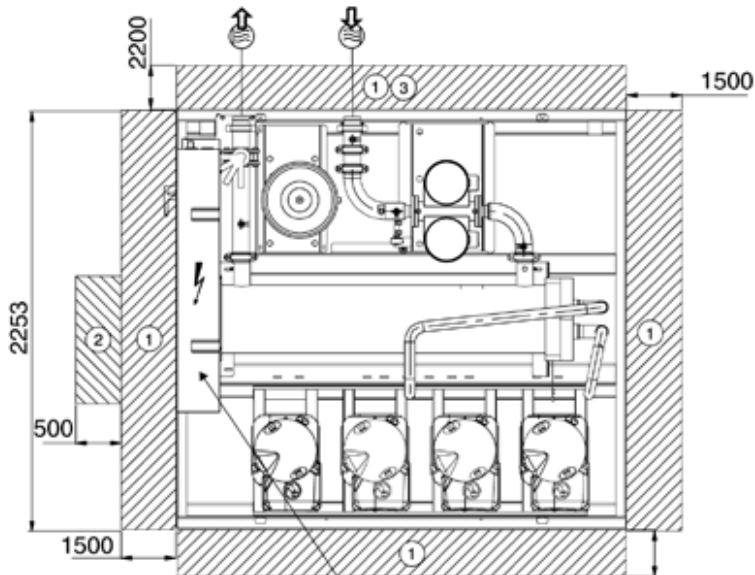
- Standard unit operating at full load.
- Operating range, units equipped with options 28, 28B, 28C "Winter operation".
- Option 28 (with variable-speed lead fan for each circuit) allows operation down to -20°C outside temperature.
- Options 28B, 28C (with two-speed lead fan for each circuit) allows operation down to -10°C outside temperature. In addition to options 28, 28B, 28C the unit must either be equipped with the evaporator frost protection option (for units without hydronic module option) or the evaporator and hydronic module frost protection option (for units with hydronic module option) or the water loop must be protected by the installer by adding a frost protection solution.

Dimensions/clearances

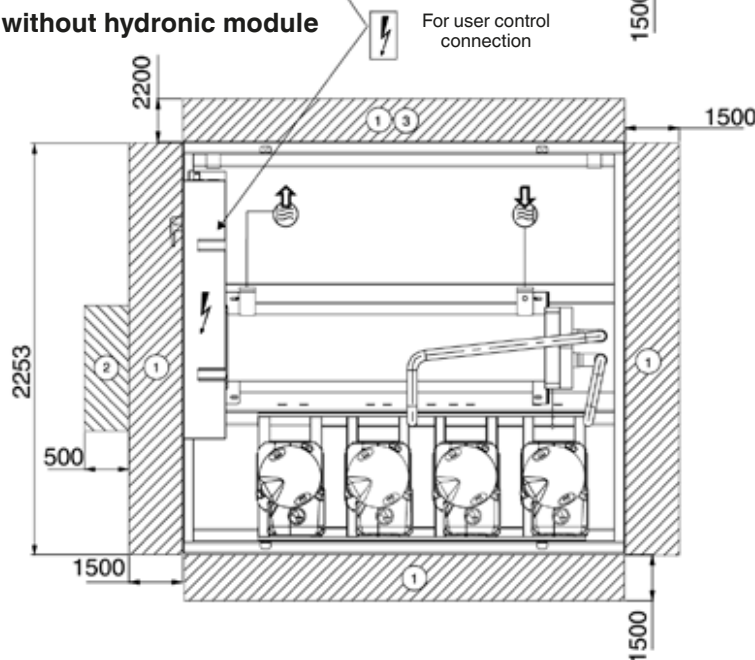
30RB 162-262 "B" with option 280 (shell-and-tube heat exchanger)






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.



Order No.13438, 12.2016. Supersedes order No. 13438, 02.2014.
The manufacturer reserves the right to make any changes, without notice.



Quality and Environment
Management Systems
Approval

Manufacturer: Carrier SCS, Montluel, France.
Printed in the European Union.