



AQUASNAP



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Cooling capacity 17.3-31.0 kW

This new generation of liquid chillers features the latest technological innovations, incorporating scroll compressors and operating on the ecological refrigerant HFC-407C.

The 30RA chillers from Carrier have an integrated hydronic module, with pump and expansion tank, limiting the installation to simple operations like connection of the power supply and the water supply and return piping.

An auto-adaptive control system ensures intelligent control of the compressor start-up sequence.

Features

- Refrigerant R-407C is a blend of R-32, R-125 and R-134a and has no effect on the ozone layer.
- The components of these units are specifically designed for R407C refrigerant, and all units have been submitted to the necessary laboratory tests to ensure perfect operation.
- The unit incorporates two axial fans with horizontal air discharge. The advanced design allows exceptionally low-noise operation.
- Compact unit dimensions facilitate installation of these units in restricted spaces.
- Prepainted steel panels.
- Removable panels for improved service and easier access to all components.
- The refrigerant-to-water heat exchangers are plate heat exchangers, ensuring excellent heat transfer at reduced dimensions and low weight. The plates are made of welded

stainless steel. This heat exchanger type requires only minimum refrigerant quantities, compared with traditional heat exchangers.

- The scroll compressors run very quietly and vibration-free. They are known for their durability and reliability. The motor is fully cooled by suction gas and permits up to 12 starts per hour. The advanced concept of the scroll compressor allows reverse rotation due to incorrect wiring, without impairing the operation of the compressor. These compressors are especially designed for operation with R-407C.
- The hydronic module is factory-installed. This eliminates the need to install the necessary components on site, making the unit more compact and easy to install.

The hydronic module includes:

- Flow switch
- Suction pressure gauge
- Expansion tank
- Spherical shutoff valve
- Filter
- Pressure pump
- Spherical control valve
- Discharge pressure gauge
- Automatic purge.

PRO-DIALOG control

PRO-DIALOG is an advanced numeric control system that combines complex intelligence with great operating simplicity. PRO-DIALOG constantly monitors all machine parameters and safety devices, and precisely manages the operation of compressor and fans for optimum energy efficiency. It also controls the operation of the water pump.

A powerful control system

- The PID control algorithm with permanent compensation for the difference between entering and leaving water temperature, anticipates load variations, and ensures intelligent leaving water temperature control.
- Reset of the leaving water temperature set point (according to the outdoor air temperature or the return water temperature).
- PRO-DIALOG control is auto-adaptive for improved chiller protection. Compressor cycling is automatically adapted to the characteristics of the application according to the inertia of the water loop and prevents dangerous compressor short cycling.
- PRO-DIALOG offers advanced energy management functions: time scheduling with up to eight sequences, lead/lag operation of two units, on/off control according to the outdoor air temperature.

Clear and easy-to-use control system

- The operator interface is clear and user-friendly: LEDs and numeric displays ensure immediate verification of the unit operating data.
- 10 menus offer direct access to all machine controls, including fault history, for rapid fault diagnosis.

Extended communications capabilities

- PRO-DIALOG offers a standard wired remote control with multiple functions for easy integration into any building management system: on/off control, cooling/heating mode selection, power demand limit or dual set point and a general alarm indication.
- RS485 serial port as standard.

Options/accessories

	Option	Accessory
Unit without neutral	x	
220-3-50 power supply	x	
Unit without hydronic kit	x	
Water fill system	x	x
Coil protection grille	x	x



Pro-Dialog Junior operator interface

Physical data

30RA		017	021	026	033
Cooling capacity*	kW	17.30	21.20	25.20	31.00
Operating weight	kg				
Unit with hydronic module		220	240	280	315
Unit without hydronic module		200	220	250	285
Refrigerant charge R407C	kg	4.80	5.13	6.41	7.70
Compressor		One scroll compressor			
Water heat exchanger		One plate heat exchanger			
Net water volume	l	1.50	1.88	2.16	2.82
Maximum water pressure	kPa	1000	1000	1000	1000
Standard unit					
Water connections (MPT gas)	in	1	1	1-1/4	1-1/4
Unit with hydronic module					
Pump		One single-speed, 230-1-50			
Available pressure**	kPa	138	126	150	138
Water inlet connections	in	1-1/4	1-1/4	1-1/4	1-1/4
Water outlet connections	in	1	1	1-1/4	1-1/4
Expansion tank water volume	l	8	8	8	8
Water fill system (option)					
Inlet/outlet diameter	in	1/2	1/2	1/2	1/2
Condenser		One, copper tubes and pre-treated aluminium fins			
Tube diameter	in	3/8	3/8	3/8	3/8
No. of rows		2	3	2	3
Tubes/row		52	52	60	60
Fin spacing	mm	1.81	1.81	1.81	1.81
Fan		Two propeller fans			
Diameter	mm	500	500	610	610
No. of blades		5	5	5	5
Air flow	l/s	2450	2222	3278	3000
Fan speed	r/s	12.83	12.91	11.05	10.95
Water flow rate	l/s	0.84	1.03	1.23	1.51
Sound pressure level***	dB(A)	46	47	50	50
Sound power level	dB(A)	74	75	78	78

* Based on an outdoor entering air temperature of 35°C, an evaporator entering water temperature of 12°C and an evaporator leaving water temperature of 7°C.

** At nominal water flow

*** Sound pressure level measured at 10 m distance.

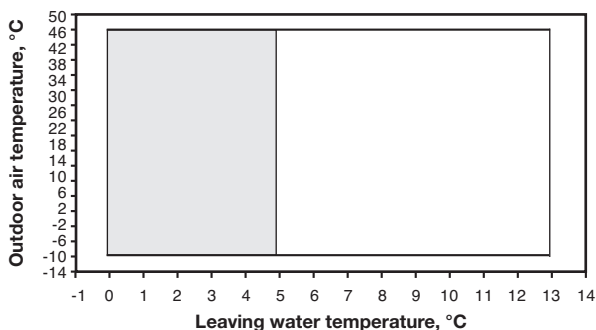
Electrical data

30RA		017	021	026	033
Power supply	V-ph-Hz	400-3-50			
Voltage range	V	360-440			
Power input	kW	6.87	9.11	10.40	13.30
Nominal current drawn*	A	10.75	15.50	18.80	24.55
Maximum power input	kW	7.87	10.80	12.23	14.95
Maximum current drawn**	A	13.50	20.00	22.50	28.00
Starting current	A	87	132	134	139
Pump power input	kW	0.65	0.68	0.89	0.93

* Based on an outdoor entering air temperature of 35°C, an evaporator entering water temperature of 12°C and an evaporator leaving water temperature of 7°C.

** Based on an outdoor entering air temperature of 46°C and an evaporator leaving water temperature of 10°C.

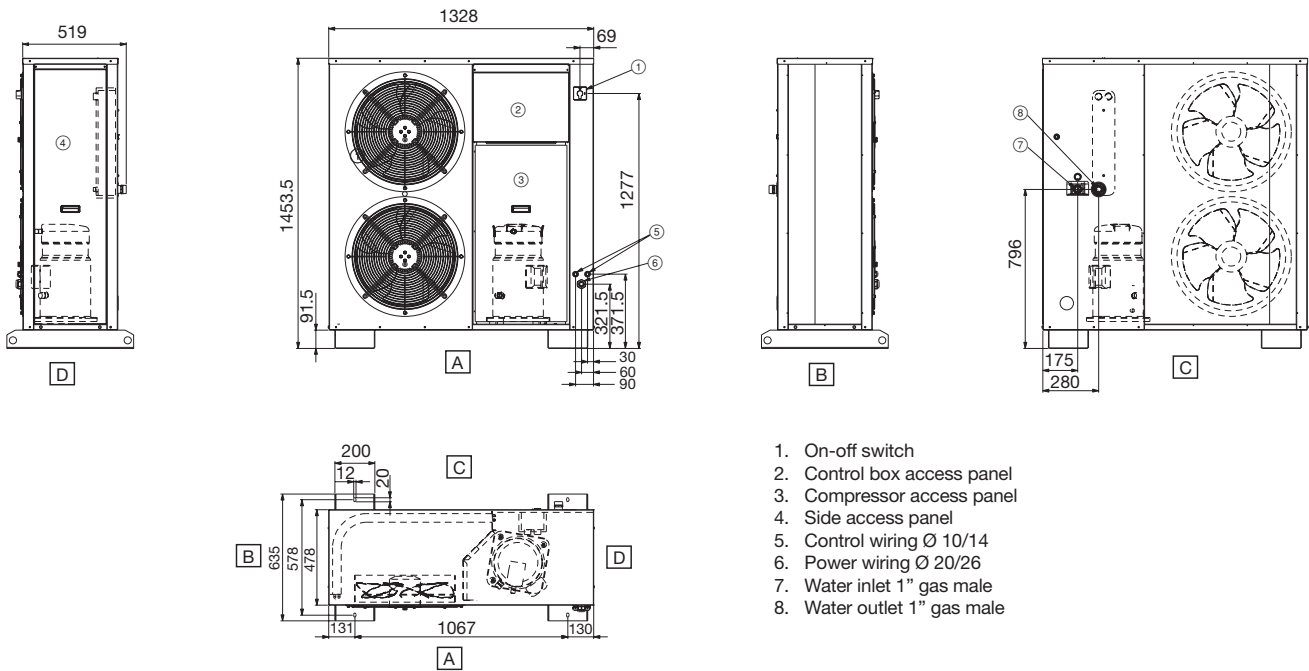
Operating range



Operating range with anti-freeze solution and with special configuration of the Pro-Dialog control system.

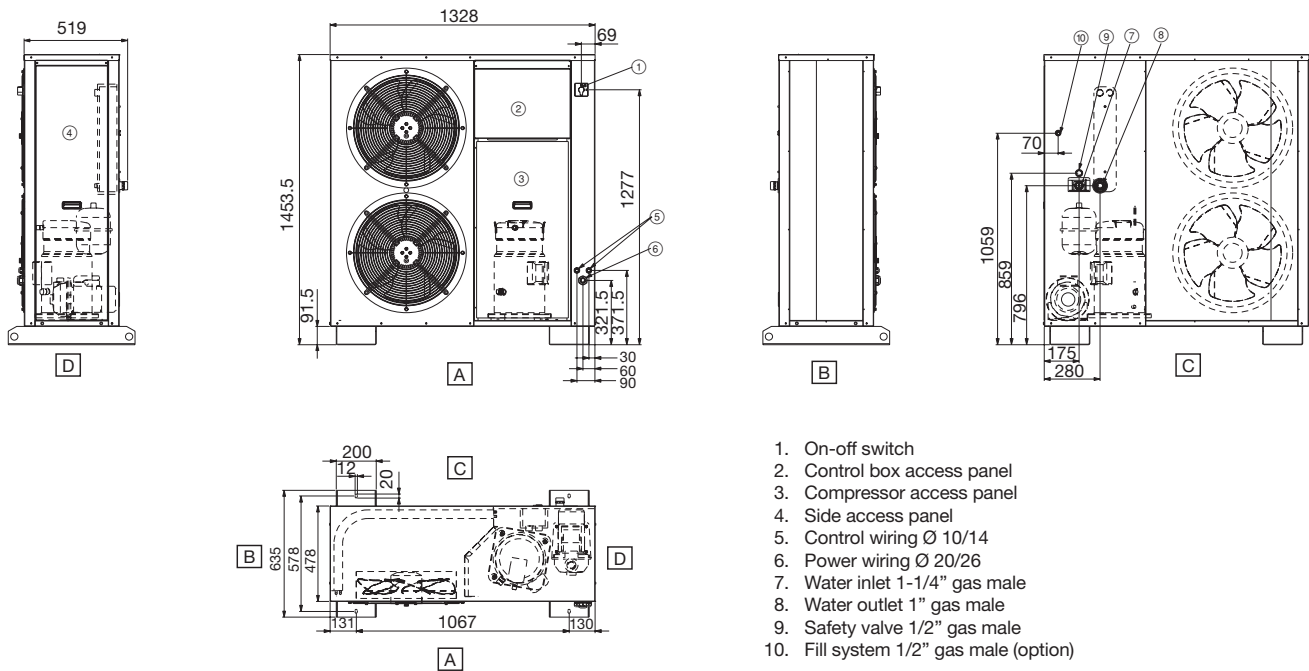
Dimensions, mm

30RA 017-021 unit without hydronic kit



1. On-off switch
2. Control box access panel
3. Compressor access panel
4. Side access panel
5. Control wiring Ø 10/14
6. Power wiring Ø 20/26
7. Water inlet 1" gas male
8. Water outlet 1" gas male

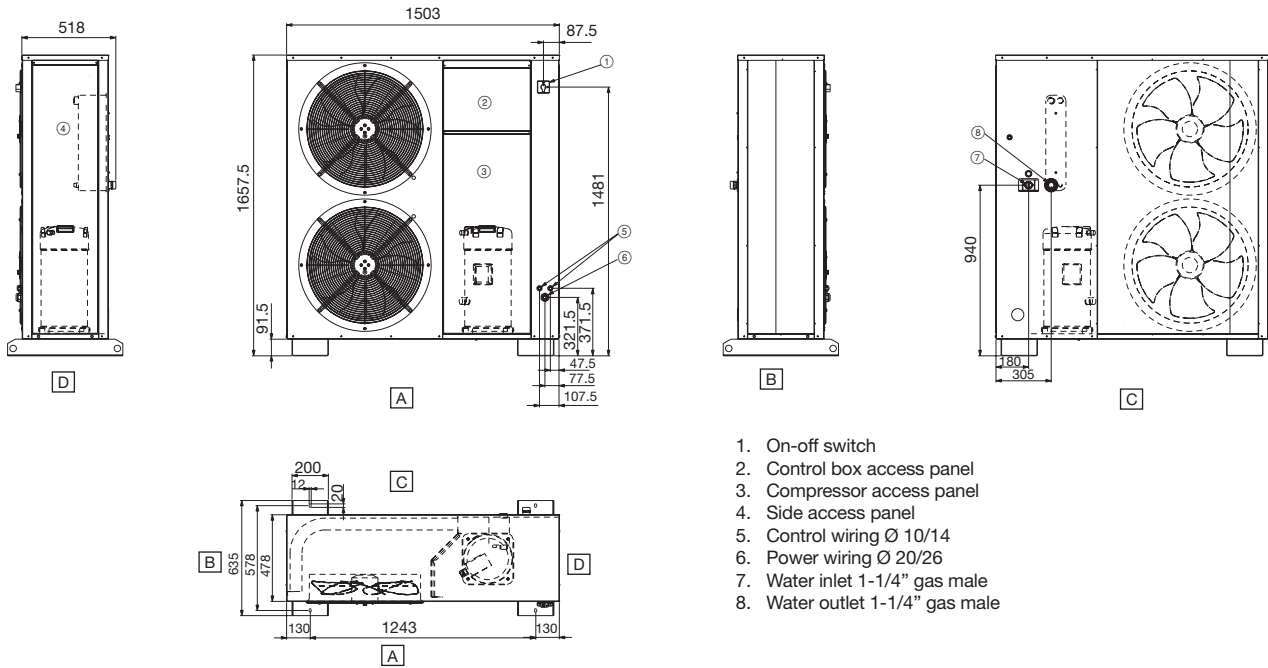
30RA 017-021 unit with hydronic kit



1. On-off switch
2. Control box access panel
3. Compressor access panel
4. Side access panel
5. Control wiring Ø 10/14
6. Power wiring Ø 20/26
7. Water inlet 1-1/4" gas male
8. Water outlet 1" gas male
9. Safety valve 1/2" gas male
10. Fill system 1/2" gas male (option)

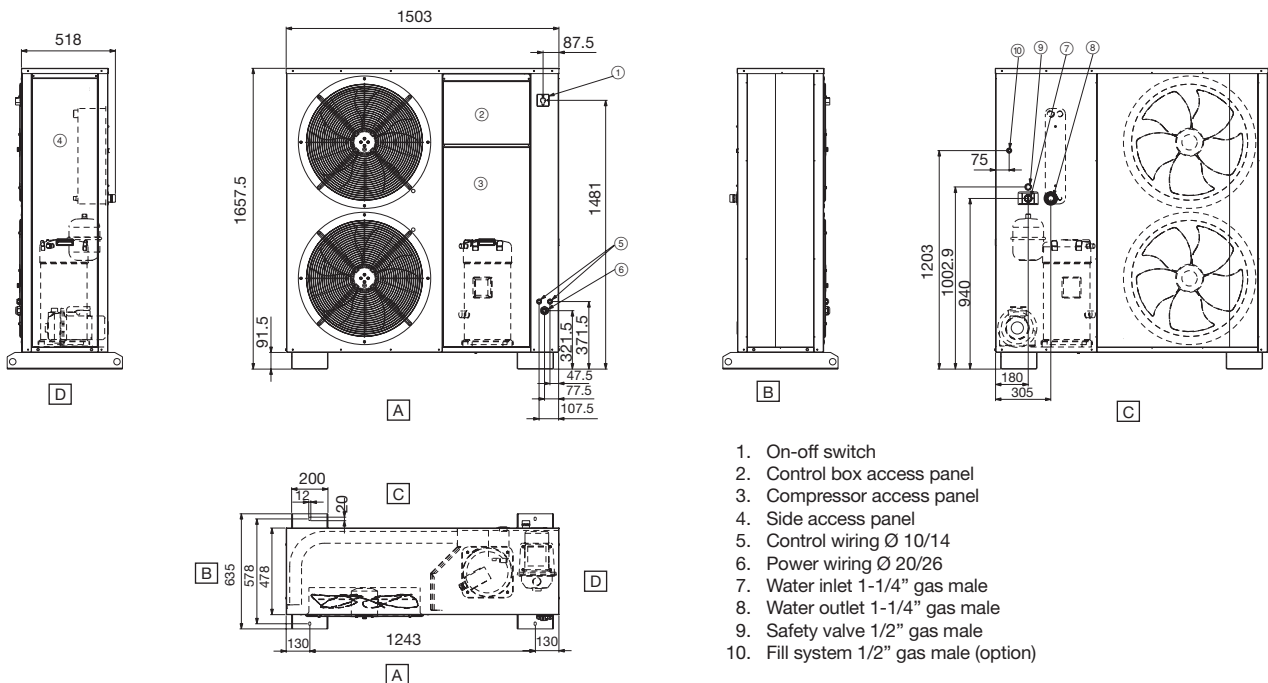
Dimensions, mm

30RA 026-033 unit without hydronic kit



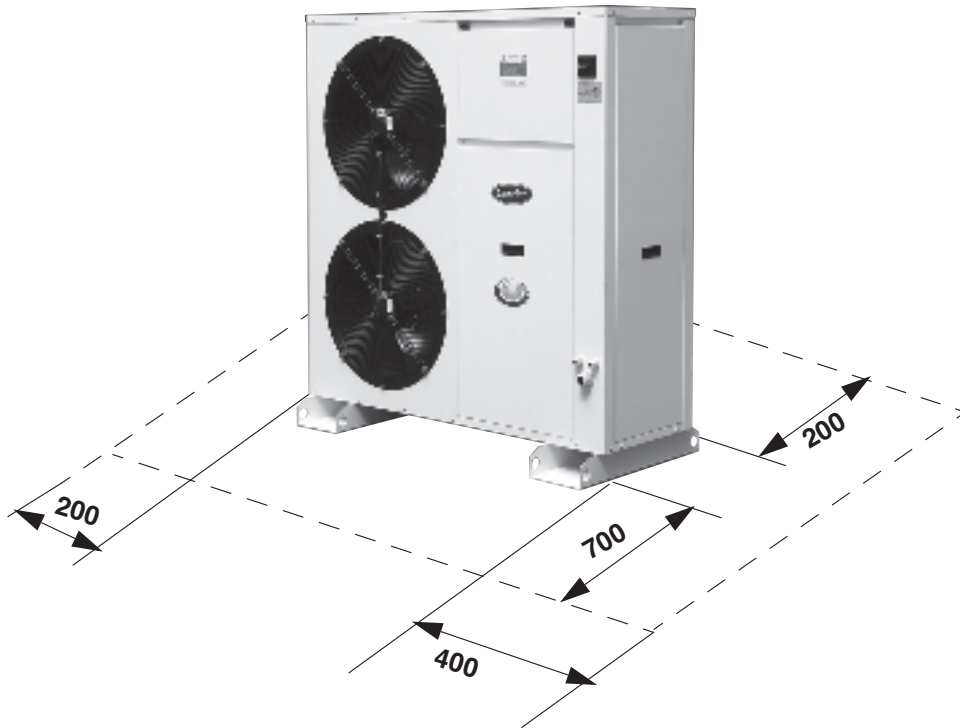
1. On-off switch
2. Control box access panel
3. Compressor access panel
4. Side access panel
5. Control wiring Ø 10/14
6. Power wiring Ø 20/26
7. Water inlet 1-1/4" gas male
8. Water outlet 1-1/4" gas male

30RA 026-033 unit with hydronic kit



1. On-off switch
2. Control box access panel
3. Compressor access panel
4. Side access panel
5. Control wiring Ø 10/14
6. Power wiring Ø 20/26
7. Water inlet 1-1/4" gas male
8. Water outlet 1-1/4" gas male
9. Safety valve 1/2" gas male
10. Fill system 1/2" gas male (option)

Clearances, mm



Cooling capacities

		Condenser entering air temperature, °C																								
		25					30					35					40					45				
	LWT °C	CAP kW	COMP kW	UNIT kW	Cooler l/s	Pres kPa	CAP kW	COMP kW	UNIT kW	Cooler l/s	Pres kPa	CAP kW	COMP kW	UNIT kW	Cooler l/s	Pres kPa	CAP kW	COMP kW	UNIT kW	Cooler l/s	Pres kPa	CAP kW	COMP kW	UNIT kW	Cooler l/s	Pres kPa
017	5	18.08	5.17	5.63	0.86	134	17.30	5.75	6.20	0.83	138	16.23	6.38	6.83	0.78	144	15.06	7.06	7.51	0.72	149	13.70	7.81	8.25	0.65	156
021		22.08	7.01	7.47	1.06	121	21.10	7.71	8.17	1.01	127	19.92	8.48	8.94	0.95	134	18.65	9.31	9.77	0.89	141	17.27	10.20	10.63	0.83	147
026		26.37	7.75	8.51	1.26	144	25.20	8.61	9.36	1.20	150	23.73	9.56	10.31	1.13	157	22.07	10.61	11.34	1.05	165	20.22	11.74	12.53	0.97	172
033		34.03	10.29	11.07	1.63	125	31.59	11.22	11.92	1.51	136	29.14	12.29	12.98	1.39	145	26.70	13.46	14.15	1.28	155	24.25	14.74	15.53	1.16	164
017	6	18.56	5.18	5.64	0.89	131	17.79	5.77	6.22	0.85	135	16.81	6.40	6.85	0.80	140	15.55	7.09	7.54	0.74	147	14.19	7.84	8.29	0.68	154
021		22.77	7.08	7.55	1.09	117	21.79	7.80	8.26	1.04	124	20.61	8.56	9.02	0.98	130	19.34	9.40	9.85	0.92	137	17.96	10.28	10.74	0.86	144
026		27.15	7.77	8.53	1.30	140	25.98	8.64	9.40	1.24	146	24.52	9.61	10.36	1.17	153	22.76	10.66	11.45	1.09	162	20.80	11.85	12.53	0.99	170
033		34.72	10.47	11.28	1.66	122	32.37	11.32	12.13	1.55	132	30.12	12.39	13.09	1.44	142	27.77	13.57	14.26	1.33	151	25.43	14.85	15.64	1.21	160
017	7	19.05	5.19	5.65	0.91	128	18.27	5.78	6.23	0.87	133	17.30	6.42	6.87	0.83	138	16.13	7.12	7.56	0.77	144	14.77	7.88	8.32	0.71	151
021		23.46	7.16	7.62	1.12	112	22.38	7.87	8.33	1.07	120	21.20	8.65	9.11	1.01	126	19.92	9.47	9.93	0.95	133	18.55	10.37	10.84	0.89	141
026		28.03	7.79	8.55	1.34	136	26.76	8.67	9.43	1.28	142	25.20	9.65	10.40	1.20	150	23.54	10.71	11.45	1.12	158	21.49	11.85	12.64	1.03	167
033		35.40	10.64	11.38	1.69	118	33.15	11.54	12.24	1.58	128	31.00	12.50	13.30	1.48	138	28.75	13.68	14.47	1.37	147	26.60	14.96	15.75	1.27	156
017	8	19.54	5.20	5.66	0.93	125	18.76	5.80	6.25	0.90	130	17.79	6.44	6.89	0.85	135	16.62	7.15	7.59	0.79	142	15.26	7.91	8.35	0.73	149
021		24.24	7.23	7.70	1.16	108	23.06	7.95	8.41	1.10	115	21.89	8.72	9.18	1.05	122	20.61	9.56	10.01	0.98	130	19.24	10.45	10.95	0.92	138
026		28.81	7.80	8.56	1.38	131	27.54	8.70	9.46	1.32	138	25.98	9.68	10.43	1.24	146	24.22	10.77	11.56	1.16	155	22.17	11.95	12.64	1.06	165
033		35.99	10.79	11.60	1.72	115	33.93	11.65	12.45	1.62	125	31.88	12.71	13.41	1.52	134	29.83	13.78	14.58	1.43	143	27.77	15.06	15.85	1.33	151
017	9	19.92	5.21	5.67	0.95	123	19.24	5.81	6.27	0.92	127	18.27	6.46	6.91	0.87	133	17.11	7.17	7.62	0.82	139	15.74	7.94	8.38	0.75	146
021		24.93	7.31	7.77	1.19	103	23.75	8.03	8.49	1.13	110	22.57	8.81	9.27	1.08	118	21.30	9.64	10.10	1.02	126	19.83	10.54	10.95	0.95	134
026		29.69	7.82	8.59	1.42	126	28.33	8.73	9.48	1.35	133	26.76	9.73	10.48	1.28	142	24.91	10.82	11.56	1.19	151	22.76	12.06	12.74	1.09	162
033		36.67	11.00	11.81	1.75	112	34.72	11.86	12.56	1.66	121	32.76	12.82	13.51	1.57	130	30.90	13.89	14.68	1.48	138	28.95	15.17	15.96	1.38	147
017	10	20.41	5.23	5.68	0.98	119	19.73	5.83	6.29	0.94	124	18.76	6.49	6.93	0.90	130	17.59	7.20	7.65	0.84	136	16.23	7.97	8.41	0.78	144
021		25.62	7.38	7.85	1.22	99	24.44	8.11	8.57	1.17	106	23.26	8.88	9.34	1.11	115	21.99	9.73	10.18	1.05	122	20.51	10.62	11.06	0.98	131
026		30.47	7.85	8.61	1.46	122	29.11	8.76	9.51	1.39	130	27.45	9.77	10.52	1.31	139	25.59	10.87	11.66	1.22	148	23.44	12.06	12.85	1.12	158
033		37.36	11.22	11.92	1.78	109	35.50	11.97	12.77	1.70	118	33.74	12.93	13.73	1.61	126	31.88	14.00	14.79	1.52	134	30.12	15.28	16.07	1.44	142

Legend:

LWT	Leaving water temperature
CAP kW	Cooling capacity
COMP kW	Compressor power input
UNIT kW	Unit power input (compressor, fans, control circuit)
Cooler l/s	Water heat exchanger water flow rate
Pres kPa	Available pressure at the unit outlet (unit with single-pump hydronic module)



Capacity based on standard EUROVENT conditions

The performances are in accordance with EN 12055 and certified by EUROVENT.

Full load corrections factors for Eurovent laboratory test:

Cooling capacity	1.00
Energy efficiency ratio	1.00

Application data:

Refrigerant:	R-407C
Evaporator temperature rise:	5 K
Evaporator fluid:	Chilled water
Fouling factor:	0.000044 m ² K/W



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Manufacturer reserves the right to change any product specifications without notice.

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