

**NEW**

## HEAT PUMPS WITH GREENSPEED® INTELLIGENCE



Low environmental impact

High full and part load efficiency

Compact and simple to install

Low refrigerant charge

Superior reliability

# 30RQ 040R-160R

Heating capacity 40-160 kW

Cooling capacity 40-160 kW

Aquasnap® heat pumps and liquid chillers are the best solution for commercial and industrial applications where installers, engineering and design departments and building owners require reduced installation costs, optimal performances and maximum quality.

- AquaSnap® (30RQ) is a compact all-in-one package optimised for applications which require reduced investment and installation costs (low CapEx).
- The large options panel allows for configurations that suit user requirements.
- Optional variable-speed fans and pumps with Carrier Greenspeed® intelligence control logic make this a product which is optimised for part load applications where a high SEPR, SCOP or IPLV value is required.

In this configuration, AquaSnap® provides premium part load efficiency to reduce maintenance costs over the lifespan of the chiller. In addition, the sound levels achieved under the part load conditions are particularly low. Besides operating efficiently and quietly, the AquaSnap® range with Greenspeed® intelligence operates from -20 °C up to +46 °C as standard.



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

**PHYSICAL DATA, SIZES 040R TO 160R**

30RQ			040R	045R	050R	060R	070R	080R	090R	100R	120R	140R	160R	
<b>Heating</b>														
Standard unit Full load performances*	HA1	Nominal capacity	kW	44,1	47,9	<b>54,3</b>	61,6	68,2	61,8	93,3	106,6	119,1	136,8	123,0
		COP	kW/kW	3,91	3,97	<b>3,89</b>	3,80	3,80	3,03	3,80	3,75	3,74	3,80	3,03
	HA2	Nominal capacity	kW	42,7	47,0	<b>53,5</b>	59,5	67,2	75,7	91,7	104,5	117,6	134,9	150,2
		COP	kW/kW	3,07	3,16	<b>3,12</b>	3,01	3,08	3,01	3,10	3,09	3,09	3,08	3,00
Seasonal energy efficiency**	HA1	SCOP <sub>30/35°C</sub>	kWh/kWh	3,82	3,85	<b>3,81</b>	3,57	3,67	3,64	3,60	3,55	3,79	3,76	3,78
		η <sub>s heat</sub> 30/35°C	%	150	151	<b>149</b>	140	144	143	141	139	149	147	148
		P <sub>rated</sub>	kW	31,6	33,5	<b>36,4</b>	42,7	49,8	55,0	59,9	68,4	87,0	99,6	109,3
<b>Cooling</b>														
Standard unit Full load performances*	CA1	Nominal capacity	kW	41,0	43,1	<b>50,3</b>	60,2	65,2	74,3	87,0	99,9	114,2	131,6	147,2
		EER	kW/kW	2,89	2,69	<b>2,66</b>	2,97	2,90	2,66	2,88	2,84	2,93	2,85	2,66
Seasonal energy efficiency**		SEER <sub>12/7 °C Comfort low temp.</sub>	kWh/kWh	4,19	4,23	<b>4,18</b>	4,34	4,25	4,03	4,48	4,86	4,88	4,20	4,09
		SEPR <sub>12/7 °C Process high temp.</sub>	kWh/kWh	6,01	5,85	<b>5,62</b>	6,06	5,81	5,34	5,74	5,71	5,76	5,41	5,15
<b>Sound levels</b>														
<b>Unit + option 16</b>														
		Sound power <sup>(1)</sup>	dB(A)	82	83	<b>84</b>	89	89,5	89,5	92	92	92	92,5	92
		Sound pressure at 10 m <sup>(2)</sup>	dB(A)	50	52	<b>53</b>	58	58	58	60	61	60	61	60,0
<b>Standard unit</b>														
		Sound power <sup>(1)</sup>	dB(A)	82	83	<b>84</b>	89	89,5	89,5	92	92	92	92,5	92
		Sound pressure at 10 m <sup>(2)</sup>	dB(A)	50	52	<b>53</b>	58	58	58	60	61	60	61	60,0
<b>Unit + option 15LS<sup>(3)</sup></b>														
		Sound power <sup>(1)</sup>	dB(A)	78,5	79	<b>80,5</b>	80,5	80,5	80,5	83,5	83,5	83,5	83,5	83,5
		Sound pressure at 10 m <sup>(2)</sup>	dB(A)	47	48	<b>49</b>	49	49	49	52	52	52	52	52

\* In accordance with standard EN14511-3:2018.  
 \*\* In accordance with EN14825:2018, average climatic conditions.  
 HA1 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 30 °C/35 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m<sup>2</sup>. k/W  
 HA2 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 40 °C/45 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m<sup>2</sup>. k/W  
 CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m<sup>2</sup>. k/W  
**η<sub>s heat</sub> 30/35°C & SCOP<sub>30/35°C</sub>** Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for Heating applications  
 SEER<sub>12/7 °C</sub> & SEPR<sub>12/7 °C</sub> Applicable Ecodesign regulation (EU) No. 2016/2281  
 (1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.  
 (2) In dB ref 20 μPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power L<sub>w</sub>(A).  
 (3) Options: 15LS = Very low noise level, 116W = Variable-speed high pressure dual-pump hydraulic module, 307 = Water buffer tank module



Eurovent certified values

## PHYSICAL DATA, SIZES 040R TO 160R

30RQ		040R	045R	050R	060R	070R	080R	090R	100R	120R	140R	160R
<b>Dimensions</b>												
<b>Standard unit</b>												
Length	mm	1090	1090	1090	1090	1090	1090	2125	2125	2125	2125	2125
Width	mm	2109	2109	2109	2109	2109	2109	2275	2275	2275	2275	2275
Height	mm	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330
Unit height (option 12)	mm	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372
Unit height (option 307)	mm	1931	1931	1931	1931	1931	1931	1931	1931	1931	1931	1931
Unit height (option 12 +307)	mm	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973	1973
<b>Operating weight<sup>(4)</sup></b>												
Standard unit	kg	444	446	469	496	506	515	759	818	866	996	1000
Unit + single high-pressure pump option	kg	464	466	489	516	526	535	779	838	891	1021	1025
Unit + dual high-pressure pump option	kg	491	493	516	543	553	562	805	864	923	1054	1058
Unit + single high-pressure pump and buffer tank options	kg	816	818	841	868	878	887	1197	1256	1309	1439	1443
Unit + dual high-pressure pump and buffer tank options	kg	843	845	868	895	905	914	1223	1282	1341	1472	1476
<b>Compressors</b>												
Hermetic Scroll 48,3 r/s												
Circuit A		2	2	2	2	2	2	2	3	3	2	2
Circuit B											2	2
No. of power stages		2	2	2	2	2	2	2	3	3	4	4
<b>Refrigerant<sup>(4)</sup></b>												
R-32 / A2L/ PRP= 675 in accordance with AR4												
Circuit A	kg	7,30	7,30	7,80	8,70	8,95	9,20	15,20	15,70	19,60	8,95	9,15
	tCO <sub>2</sub> e	4,9	4,9	5,3	5,9	6,0	6,2	10,3	10,6	13,3	6,0	6,2
Circuit B	kg										8,95	9,15
	tCO <sub>2</sub> e										6,0	6,2
<b>Oil</b>												
Oil type												
Circuit A	l	6,0	6,0	6,6	6,6	7,2	7,2	7,2	10,8	10,8	7,2	7,2
Circuit B	l										7,2	7,2
<b>Capacity control</b>												
SmartVu™												
Minimum capacity	%	50	50	50	50	50	50	50	33	33	25	25
<b>PED category</b>												
III												
<b>Condenser</b>												
Grooved copper tubes and aluminium fins												
<b>Fans</b>												
Axial Flying Bird 6 with rotating shroud												
<b>Standard unit</b>												
Quantity		1	1	1	1	1	1	2	2	2	2	2
Maximum total air flow	l/s	4034	4034	4034	5613	5613	5613	10904	10904	10904	11226	11226
Maximum rotation speed	r/s	12	12	12	16	16	16	16	16	16	16	16
<b>Evaporator</b>												
Dual-circuit plate heat exchanger												
Water volume	l	3,55	4	4,44	5,18	6,07	6,96	7,4	8,44	9,92	12,69	14,31
Max. water-side operating pressure without hydronic module	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>Hydronic module (option)</b>												
Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors												
Centrifugal pump, monocell, 48,3 r/s, low- or high-pressure (as required), single or dual (as required)												
Expansion tank volume (Option 293)	l	12	12	12	12	12	12	35	35	35	35	35
Buffer tank volume (Option 307)	l	208	208	208	208	208	208	208	208	208	208	208
Max. water-side operating pressure with hydronic module	kPa	400	400	400	400	400	400	400	400	400	400	400
<b>Water connections with or without hydronic module</b>												
Victaulic® type												
Connections	inches	2	2	2	2	2	2	2	2	2	2	2
External diameter	mm	60,3	60,3	60,3	60,3	60,3	60,3	60,3	60,3	60,3	60,3	60,3
<b>Casing paint colour</b>												
Colour code RAL 7035 & 7024												

(3) Options: 15LS = Very low noise level, 116W = Variable-speed high pressure dual-pump hydraulic module, 307 = Water buffer tank module, (4) Values are guidelines only. Refer to the unit name plate.

## ELECTRICAL SPECIFICATIONS

30RQ		040R	045R	050R	055R	060R	070R	080R	090R	100R	120R	140R	160R
<b>Power circuit supply</b>													
Nominal voltage	V-ph-Hz	400 - 3 - 50											
Voltage range	V	360 - 440											
<b>Control circuit supply</b>													
24 V via internal transformer													
<b>Maximum operating input power<sup>(1) or (2)</sup></b>													
Circuit A&B	kW	19	21	24	24	28	31	36	41	48	55	63	71
<b>Power factor at maximum power<sup>(1) or (2)</sup></b>													
Displacement Power Factor (Cos Phi), standard unit		0,81	0,82	0,82	0,82	0,84	0,84	0,85	0,82	0,84	0,85	0,84	0,85
<b>Nominal unit current draw<sup>(4)</sup></b>													
Standard unit	A	26	29	35	35	36	46	52	59	71	81	91	104
<b>Maximum operating current draw (Un)<sup>(1) or (2)</sup></b>													
Standard unit	A	34	37	42	42	48	54	60	72	84	93	108	121
<b>Maximum current (Un-10%)<sup>(1) or (2)</sup></b>													
Standard unit	A	37	39	44	44	51	58	65	77	89	99	115	129
<b>Maximum start-up current (Un)<sup>(2) + (3)</sup></b>													
Standard unit	A	116	118	165	165	169	177	191	238	206	223	231	251

- (1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).  
 (2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).  
 (3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.  
 (4) Standardised EUROVENT conditions, water-cooled exchanger inlet/outlet = 12 °C/7 °C, outdoor air temperature = 35 °C.

### Short-circuit withstand current (TN system)<sup>(1)</sup>

30RQ		040R	045R	050R	055R	060R	070R	080R	090R	100R	120R	140R	160R	
<b>Rated short-circuit withstand currents</b>														
Rated short time (1s) current - I <sub>cw</sub>	kA eff	3,36	3,36	3,36	3,36	3,36	3,36	5,62	5,62	5,62	5,62	5,62	5,62	
Rated peak current - I <sub>pk</sub>	kA pk	20	20	20	20	20	20	15	20	20	15	20	15	
<b>Value with upstream electrical protection<sup>(1)</sup></b>														
Rated conditional short circuit current I <sub>cc</sub>	kA eff	40	40	40	40	40	40	40	40	40	40	30	30	
Associated protection - type/supplier		Circuit breaker/Schneider												
Associated protection - rating/reference		NS100H	NS100H	NS100H	NS100H	NS100H	NS100H	NS100H	NS100H	NS100H	NS160H	NS160H	NS250H	NS250H

- (1) If another current limitation protection device is used, its time-current and thermal constraint (I<sup>2</sup>t) trip characteristics must be at least equivalent to those of the recommended protection.  
 Note: The short circuit current withstand capability values above have been established for the TN system.