# RAE N HE Kc

**AIR COOLED CHILLERS FOR OUTDOOR INSTALLATION**
EQUIPPED WITH SCROLL COMPRESSORS AND AXIAL FANS

Cooling capacity from 18 kW to 195 kW

## VERSIONS

**RAE N HE -** high efficiency version
**RAE N S HE -** high efficiency silenced version

Packaged air cooled chillers of RAE N series are suitable for outdoor installation and can be used to cool pure fluid solutions for air conditioning or in industrial applications.

All the units are totally factory assembled and tested, following specific quality procedures. Besides they are totally hydraulic, cooling and electrical connected permitting a quick installation once on site. Before the test the cooling circuits of each unit are subjected to a pressure test and then charged with Refrigerant R410A or R454B and non-freezing oil. So, once on site, the units must be only positioned and electrically and hydraulically connected.

For versions S, the reduction of the sound level is achieved thanks to an increase of the condensing surfaces, to the fan speed reduction and to the soundproofed compressor cabinet.

**Units CE certified in compliance with the European regulation 2016/2281 ERP 2021.**

# MAIN COMPONENTS

### STRUCTURE
All units are made from hot-galvanised sheet steel, painted with polyurethane powder enamel and stoved at 180°C to provide maximum protection against corrosion. The frame is self-supporting with removable panels. All screws and rivets used are made from stainless steel. The standard colour of the units is RAL9018.

### SCROLL COMPRESSOR
Scroll compressors with R410a refrigerant, operating on one or two independent circuits in single, tandem or trio version. The compressors are installed on rubber isolation dampers, provided with direct-start motors cooled by suction gas and fitted with both overload protection and crankcase heaters. They are charged with polyester oil and the terminal board is IP54. The on-board microprocessor automatically controls the individual compressors to regulate the cooling capacity.

### SOURCE HEAT EXCHANGER
The source heat exchanger is made from copper pipes and aluminium fins. Dimensioning of the copper pipes and the aluminium fins is optimized in order to obtain excellent performance.
The tubes are mechanically expanded into the fins in order to maximise heat transfer. Furthermore, the design guarantees a low air side pressure drop thus enabling the use of low rotation speed (and hence low noise) fans. All heat exchangers are supplied standard with fins hydrophilic coating.

### USER HEAT EXCHANGERS
The user heat exchanger is a braze welded, plate type heat exchanger, manufactured from AISI 316 stainless steel. The use of this type of exchanger results in a massive reduction of the refrigerant charge of the unit compared to a traditional shell-in-tube type. A further advantage is a reduction in the overall dimensions of the unit.
The exchangers are factory insulated with flexible close cell material and can be fitted with an antifreeze heater (accessory). Each exchanger is fitted with a temperature sensor on the discharge water side for antifreeze protection.

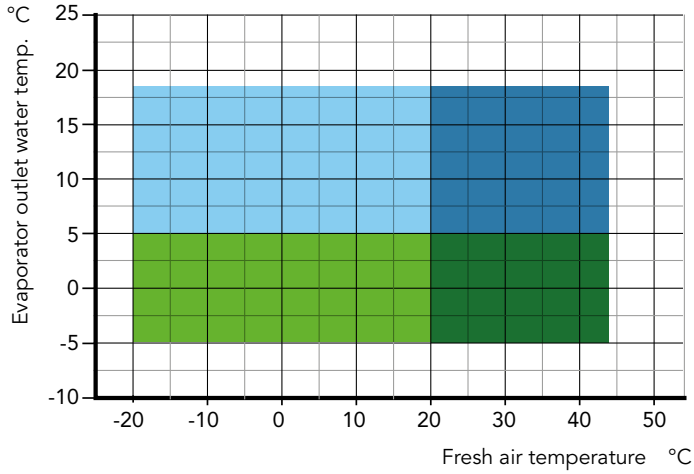
### AXIAL FANS
With external rotor directly coupled to a three-phase electronically commutated motor (EC) they have the possibility of a continuous regulation of the speed by means of a 0-10V signal completely managed by the microprocessor. Aluminum blades with wings profile are suitably designed to avoid any turbulence in the air detachment zone, granting in this way the max efficiency with the minimum noise level. The fan is equipped with galvanized steel protection grid painted after the construction. These fans, thanks to a more accurate regulation of the airflow, allow the unit to operate with an external air temperature up to - 20 °C.

### COOLING CIRCUITS
Each cooling circuit is equipped with the following elements: filter drier, sight glass, electronic thermostatic valve, high and low pressure safety valves, shut-off valve on liquid line, non-return valve on compressor discharge, high and low pressure gauges, high and low pressure switches, temperature probes to evaporator inlet and outlet.The above-mentioned components are connected in a close circuit through copper pipes and connections. The permanent junctions among components are made by brazing or welding, following processes and made by qualified staff.

### ELECTRICAL BOARD
The enclosure is manufactured in order to comply with the requirements of the electromagnetic compatibility standards CEE EN60204. Access to the enclosure is quick and easy thanks to hinged panels. The following components are supplied as standard on all units: main switch, a sequence relay that disables the power supply in the event that the phase sequence is incorrect (scroll compressors can be damaged if they rotate in the wrong direction), thermal overloads (protection of pumps and fans), compressor fuses, control circuit automatic breakers, compressor contactors, fan contactors and pump contactors. The terminal board has volt free contacts for remote ON-OFF, Summer/ winter change over (heat pumps only) and general alarm.

### MICROPROCESSOR
All the units are subject to a safety cycle with continuity tests on the protection circuit, insulation resistance and tension test (dielectric strength). The unit management is realized by the management program uploaded in the electronic microprocessor. The microprocessor is made up of: an electronic control board with terminals for working parameters transmission and control devices activation, a user interface board with programming buttons and graphic display to show operation status and alarms. The electronic control board manages all the devices installed in the unit based on the values of the operation variables, with the following main functions: unit ON/OFF from board or from remote position, management and storage of alert and alarm status. The user interface display of the microprocessor allows also to see the following information: working parameters set values, functional variables values; analogue and digital inputs and outputs status, unit operation status, alert and alarm indications.Possibility to interface EMS/BMS management systems.

# OPERATING RANGE




Cooling mode with cond. press. contr.

Cooling mode

Cooling mode with cond. press. contr. and glycol (Only VB versions)

Cooling mode without cond. press. contr. and glycol (Only VB versions)

## ACCESSORIES

| RAE N HE KC / RAE N HE S KC | | 191 | 251 | 311 | 411 | 461 | 511 | 601 | 651 |
|---|---|---|---|---|---|---|---|---|---|
| Axial fans with electronic commutated motor | EC | • | • | • | • | • | • | • | • |
| RS 485 Serial interface | IH | o | o | o | o | o | o | o | o |
| High and low pressure gauges | MT | o | o | o | o | o | o | o | o |
| Antifreeze kit for pump/s | NSP | o | o | o | o | o | o | o | o |
| Antifreeze kit for pump/s + tank | NSPS | o | o | o | o | o | o | o | o |
| Pump group | P1 | o | o | o | o | o | o | o | o |
| Double pump group | P2 | o | o | o | o | o | o | o | o |
| Rubber-type vibration dampers | PA | o | o | o | o | o | o | o | o |
| Spring-type vibration dampers | PM | o | o | o | o | o | o | o | o |
| Remote display | PQ | o | o | o | o | o | o | o | o |
| Integrated hydraulic kit 1 pump + Water tank | PS | o | o | o | o | o | o | o | o |
| Integrated hydraulic kit 2 pumps + Water tank | PTS | o | o | o | o | o | o | o | o |
| User heat exchanger antifreeze kit for basic unit | RQK | o | o | o | o | o | o | o | o |
| Electronic soft starter | SF | o | o | o | o | o | o | o | o |
| Electronic thermostatic valve | TE | o | o | o | o | o | o | o | o |
| Brine Version | VB | o | o | o | o | o | o | o | o |
| Solenoid valve | VS | o | o | o | o | o | o | o | o |
| Partial heat recovery | RP | o | o | o | o | o | o | o | o |

• Standard, o Optional, -- Not available

| RAE N HE KC / RAE N HE S KC | | 751 | 901 | 951 | 1101 | 1201 | 1401 | 1551 | 2001 |
|---|---|---|---|---|---|---|---|---|---|
| Axial fans with electronic commutated motor | **EC** | • | • | • | • | • | • | • | • |
| RS 485 Serial interface | **IH** | o | o | o | o | o | o | o | o |
| High and low pressure gauges | **MT** | o | o | o | o | o | o | o | o |
| Antifreeze kit for pump/s | **NSP** | o | o | o | o | o | o | o | o |
| Antifreeze kit for pump/s + tank | **NSPS** | o | o | o | o | o | o | o | o |
| Pump group | **P1** | o | o | o | o | o | o | o | o |
| Double pump group | **P2** | o | o | o | o | o | o | o | o |
| Rubber-type vibration dampers | **PA** | o | o | o | o | o | o | o | o |
| Spring-type vibration dampers | **PM** | o | o | o | o | o | o | o | o |
| Remote display | **PQ** | o | o | o | o | o | o | o | o |
| Integrated hydraulic kit 1 pump + Water tank | **PS** | o | o | o | o | o | o | o | o |
| Integrated hydraulic kit 2 pumps + Water tank | **PTS** | o | o | o | o | o | o | o | o |
| User heat exchanger antifreeze kit for basic unit | **RQK** | o | o | o | o | o | o | o | o |
| Electronic soft starter | **SF** | o | o | o | o | o | o | o | o |
| Electronic thermostatic valve | **TE** | o | o | o | o | o | o | o | o |
| Brine Version | **VB** | o | o | o | o | o | o | o | o |
| Solenoid valve | **VS** | o | o | o | o | o | o | o | o |
| Partial heat recovery | **RP** | o | o | o | o | o | o | o | o |

• Standard, o Optional, -- Not available

# TECHNICAL DATA

| RAE N HE Kc | | 191 | 251 | 311 | 411 | 461 | 511 | 601 | 651 |
|---|---|---|---|---|---|---|---|---|---|
| Cooling capacity | kW | 19,6 | 26,7 | 32,3 | 42,8 | 46,8 | 55,0 | 61,5 | 68,4 |
| Total input power | kW | 6,3 | 8,6 | 10,3 | 13,8 | 15,0 | 17,1 | 19,6 | 22,0 |
| Nominal input current | A | 13,3 | 16,7 | 18,6 | 25,3 | 27,3 | 31,8 | 35,3 | 40,9 |
| EER | W/W | 3,10 | 3,11 | 3,13 | 3,11 | 3,11 | 3,22 | 3,13 | 3,11 |
| SEER (EN14825) | W/W | 4,11 | 4,20 | 4,19 | 4,11 | 4,12 | 4,20 | 4,19 | 4,19 |
| Circuits | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Compressors | n° | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **Refrigerant R410A** | | | | | | | | | |
| Refrigerant charge | kg | 6,5 | 6,5 | 6,5 | 10,0 | 8,5 | 8,5 | 14,5 | 14,5 |
| Global warming potential (GWP) | - | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 |
| Equivalent $CO_2$ charge | t | 13,57 | 13,57 | 13,57 | 20,88 | 17,74 | 17,74 | 30,27 | 30,27 |
| **Axial fans** (1) | | | | | | | | | |
| Quantity | n° | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total air flow | $m^3/h$ | 8990 | 8913 | 17188 | 17079 | 17026 | 18949 | 18862 | 18802 |
| Total power input | kW | 0,39 | 0,38 | 1,05 | 1,04 | 1,04 | 0,97 | 0,95 | 0,93 |
| Total input current | A | 1,75 | 1,73 | 2,24 | 2,22 | 2,22 | 2,13 | 2,12 | 2,12 |
| **Evaporator** (2) | | | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Water flow | $m^3/h$ | 3,36 | 4,56 | 5,53 | 7,33 | 8,01 | 9,42 | 10,54 | 11,72 |
| Pressure drop | kPa | 10,0 | 17,0 | 11,7 | 12,4 | 10,0 | 13,7 | 13,8 | 12,4 |
| **Weight** | | | | | | | | | |
| Transport weight | kg | 547 | 547 | 670 | 690 | 720 | 1035 | 1035 | 1044 |
| Operating weight | kg | 560 | 560 | 967 | 1016 | 1015 | 1040 | 1060 | 1070 |
| **Dimensions** | | | | | | | | | |
| Length | mm | 1915 | 1915 | 2400 | 2400 | 2400 | 2905 | 2905 | 2905 |
| Width | mm | 875 | 875 | 1145 | 1145 | 1145 | 1145 | 1145 | 1145 |
| Height | mm | 1490 | 1490 | 1670 | 1670 | 1670 | 1840 | 1840 | 1840 |
| **Sound data** | | | | | | | | | |
| Total LWA (3) | dB(A) | 75 | 75 | 75 | 75 | 77 | 77 | 77 | 78 |
| Total SPL 10m (4) | dB(A) | 43 | 43 | 43 | 43 | 45 | 45 | 45 | 46 |
| **Power supply** | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3+N/50 | 400/3+N/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | |
| Maximum input power | [kW] | 9,80 | 12,6 | 16,1 | 20,1 | 21,7 | 25,0 | 27,4 | 30,8 |
| Maximum input current | [A] | 17,6 | 22,0 | 26,5 | 34,3 | 44,5 | 46,5 | 52,5 | 64,5 |
| Inrush current | [A] | 57,8 | 75,0 | 80,5 | 115,0 | 135,0 | 143,0 | 146,0 | 174,0 |

| RAE N HE Kc | | 751 | 901 | 951 | 1101 | 1201 | 1401 | 1551 | 2001 |
|---|---|---|---|---|---|---|---|---|---|
| Cooling capacity | kW | 82,6 | 93,5 | 104,5 | 121,4 | 133,3 | 151,6 | 168,9 | 195,0 |
| Total input power | kW | 26,2 | 30,0 | 33,6 | 38,1 | 42,9 | 48,7 | 54,3 | 62,7 |
| Nominal input current | A | 50,5 | 55,6 | 61,0 | 68,2 | 75,8 | 86,2 | 97,2 | 109,0 |
| EER | W/W | 3,15 | 3,12 | 3,11 | 3,19 | 3,11 | 3,11 | 3,11 | 3,11 |
| SEER (EN14825) | W/W | 4,14 | 4,13 | 4,12 | 4,13 | 4,19 | 4,13 | 4,17 | 4,18 |
| Circuits | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Compressors | n° | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **Refrigerant R410A** | | | | | | | | | |
| Refrigerant charge | kg | 19,0 | 19,0 | 20,0 | 28,0 | 30,0 | 30,0 | 30,0 | 30,0 |
| Global warming potential (GWP) | - | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 |
| Equivalent $CO_2$ charge | t | 39,67 | 39,67 | 41,76 | 58,46 | 62,64 | 62,64 | 62,64 | 62,64 |
| **Axial fans** (1) | | | | | | | | | |
| Quantity | n° | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 |
| Total air flow | $m^3/h$ | 41115 | 40998 | 40875 | 61987 | 61834 | 61624 | 61450 | 62820 |
| Total power input | kW | 2,94 | 2,88 | 2,81 | 4,38 | 4,37 | 4,29 | 4,17 | 4,16 |
| Total input current | A | 6,31 | 6,29 | 6,27 | 9,46 | 9,43 | 9,40 | 9,37 | 9,20 |
| **Evaporator** (2) | | | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Water flow | $m^3/h$ | 14,12 | 16,02 | 17,84 | 20,78 | 22,82 | 25,93 | 28,78 | 33,43 |
| Pressure drop | kPa | 18,3 | 22,4 | 26,4 | 20,4 | 20,4 | 13,1 | 15,4 | 28,0 |
| **Weight** | | | | | | | | | |
| Transport weight | kg | 1094 | 1134 | 1204 | 1520 | 1539 | 1557 | 1577 | 1736 |
| Operating weight | kg | 1100 | 1140 | 1210 | 1530 | 1550 | 1570 | 1590 | 1750 |
| **Dimensions** | | | | | | | | | |
| Length | mm | 2905 | 2905 | 2905 | 3905 | 3905 | 3905 | 3905 | 3905 |
| Width | mm | 1145 | 1145 | 1145 | 1145 | 1145 | 1145 | 1145 | 1145 |
| Height | mm | 1840 | 1840 | 1840 | 1890 | 1890 | 1890 | 1890 | 2280 |
| **Sound data** | | | | | | | | | |
| Total LWA (3) | dB(A) | 83 | 84 | 85 | 87 | 88 | 88 | 88 | 89 |
| Total SPL 10m (4) | dB(A) | 51 | 52 | 53 | 55 | 56 | 56 | 56 | 57 |
| **Power supply** | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | |
| Maximum input power | [kW] | 37,7 | 43,3 | 49,0 | 55,9 | 60,9 | 69,4 | 77,9 | 86,8 |
| Maximum input current | [A] | 75,8 | 81,8 | 87,8 | 100,0 | 109,0 | 126,0 | 142,0 | 160,0 |
| Inrush current | [A] | 216,0 | 267,0 | 273,0 | 324,0 | 332,0 | 370,0 | 387,0 | 485,0 |

(1) Ambient air temperature 35°C
(2) Fluid: Water - In/out Temperature: 12/7°C
(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 10m from the unit in free field conditions, in accordance with ISO 3744

| RAE N HE S Kc | | 191 | 251 | 311 | 411 | 461 | 511 | 601 | 651 |
|---|---|---|---|---|---|---|---|---|---|
| Cooling capacity | kW | 20,5 | 27,0 | 31,9 | 42,6 | 46,1 | 54,0 | 61,2 | 68,1 |
| Total input power | kW | 6,6 | 8,7 | 10,2 | 13,7 | 14,9 | 17,4 | 19,6 | 22,0 |
| Nominal input current | A | 14,6 | 17,7 | 18,0 | 25,0 | 27,0 | 31,6 | 35,5 | 41,1 |
| EER | W/W | 3,11 | 3,10 | 3,14 | 3,11 | 3,10 | 3,11 | 3,12 | 3,10 |
| SEER (EN14825) | W/W | 4,14 | 4,11 | 4,15 | 4,13 | 4,11 | 4,16 | 4,15 | 4,15 |
| Circuits | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Compressors | n° | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **Refrigerant R410A** | | | | | | | | | |
| Refrigerant charge | kg | 6,5 | 6,5 | 6,5 | 10,0 | 8,5 | 8,5 | 14,5 | 14,5 |
| Global warming potential (GWP) | - | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 |
| Equivalent $CO_2$ charge | t | 13,57 | 13,57 | 13,57 | 20,88 | 17,74 | 17,74 | 30,27 | 30,27 |
| **Axial fans** (1) | | | | | | | | | |
| Quantity | n° | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total air flow | $m^3/h$ | 11669 | 11591 | 13900 | 13791 | 13738 | 15749 | 15678 | 15636 |
| Total power input | kW | 0,72 | 0,70 | 0,76 | 0,74 | 0,74 | 0,71 | 0,68 | 0,67 |
| Total input current | A | 3,24 | 3,21 | 1,27 | 1,26 | 1,25 | 1,18 | 1,17 | 1,17 |
| **Evaporator** (2) | | | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Water flow | $m^3/h$ | 3,5 | 4,6 | 5,5 | 7,3 | 7,9 | 9,2 | 10,5 | 11,7 |
| Pressure drop | kPa | 10,4 | 18,0 | 11,4 | 12,0 | 9,6 | 13,1 | 13,1 | 11,8 |
| **Weight** | | | | | | | | | |
| Transport weight | kg | 547 | 547 | 680 | 710 | 740 | 1035 | 1035 | 1044 |
| Operating weight | kg | 570 | 570 | 967 | 1016 | 1015 | 1060 | 1080 | 1090 |
| **Dimensions** | | | | | | | | | |
| Length | mm | 1915 | 1915 | 2400 | 2400 | 2400 | 2905 | 2905 | 2905 |
| Width | mm | 875 | 875 | 1145 | 1145 | 1145 | 1145 | 1145 | 1145 |
| Height | mm | 1490 | 1490 | 1670 | 1670 | 1670 | 1840 | 1840 | 1840 |
| **Sound data** | | | | | | | | | |
| Total LWA (3) | dB(A) | 70 | 70 | 70 | 70 | 72 | 72 | 72 | 73 |
| Total SPL 10m (4) | dB(A) | 38 | 38 | 38 | 38 | 40 | 40 | 40 | 41 |
| **Power supply** | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3+N/50 | 400/3+N/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | |
| Maximum input power | [kW] | 10,1 | 12,9 | 15,8 | 19,7 | 21,3 | 24,6 | 27,0 | 30,4 |
| Maximum input current | [A] | 19,2 | 23,6 | 25,5 | 33,3 | 43,5 | 45,5 | 51,5 | 63,5 |
| Inrush current | [A] | 59,4 | 76,6 | 79,5 | 114,0 | 134,0 | 142,0 | 144,0 | 172,0 |

| RAE N HE S Kc | | 751 | 901 | 951 | 1101 | 1201 | 1401 | 1551 | 2001 |
|---|---|---|---|---|---|---|---|---|---|
| Cooling capacity | kW | 80,7 | 91,2 | 103,2 | 118,8 | 130,1 | 150,1 | 166,8 | 189,1 |
| Total input power | kW | 25,4 | 29,4 | 33,3 | 36,9 | 42,0 | 48,1 | 53,8 | 60,8 |
| Nominal input current | A | 49,1 | 54,6 | 60,6 | 66,0 | 74,0 | 85,2 | 96,7 | 107,0 |
| EER | W/W | 3,18 | 3,10 | 3,10 | 3,22 | 3,10 | 3,12 | 3,10 | 3,11 |
| SEER (EN14825) | W/W | 4,16 | 4,17 | 4,16 | 4,20 | 4,11 | 4,25 | 4,12 | 4,27 |
| Circuits | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Compressors | n° | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **Refrigerant R410A** | | | | | | | | | |
| Refrigerant charge | kg | 19,0 | 19,0 | 20,0 | 28,0 | 30,0 | 30,0 | 30,0 | 30,0 |
| Global warming potential (GWP) | - | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 |
| Equivalent $CO_2$ charge | t | 39,67 | 39,67 | 41,76 | 58,46 | 62,64 | 62,64 | 62,64 | 62,64 |
| **Axial fans** (1) | | | | | | | | | |
| Quantity | n° | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 |
| Total air flow | $m^3/h$ | 31482 | 31373 | 31277 | 47528 | 47380 | 47180 | 46991 | 48165 |
| Total power input | kW | 1,45 | 1,42 | 1,38 | 2,18 | 2,17 | 2,21 | 2,04 | 2,04 |
| Total input current | A | 3,94 | 3,92 | 3,91 | 5,91 | 5,89 | 5,87 | 5,84 | 5,77 |
| **Evaporator** (2) | | | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Water flow | $m^3/h$ | 13,9 | 15,6 | 17,7 | 20,3 | 22,2 | 25,6 | 25,6 | 32,4 |
| Pressure drop | kPa | 17,6 | 21,4 | 25,2 | 19,6 | 19,4 | 12,5 | 14,7 | 27,3 |
| **Weight** | | | | | | | | | |
| Transport weight | kg | 1094 | 1134 | 1204 | 1520 | 1539 | 1557 | 1577 | 1736 |
| Operating weight | kg | 1120 | 1160 | 1230 | 1560 | 1580 | 1600 | 1620 | 1780 |
| **Dimensions** | | | | | | | | | |
| Length | mm | 2905 | 2905 | 2905 | 3905 | 3905 | 3905 | 3905 | 3905 |
| Width | mm | 1145 | 1145 | 1145 | 1145 | 1145 | 1145 | 1145 | 1145 |
| Height | mm | 1840 | 1840 | 1840 | 1890 | 1890 | 1890 | 1890 | 2280 |
| **Sound data** | | | | | | | | | |
| Total LWA (3) | dB(A) | 75 | 77 | 78 | 80 | 81 | 81 | 81 | 83 |
| Total SPL 10m (4) | dB(A) | 43 | 45 | 46 | 48 | 49 | 49 | 49 | 51 |
| **Power supply** | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | |
| Maximum input power | [kW] | 35,5 | 41,2 | 46,8 | 52,7 | 57,7 | 66,2 | 74,7 | 83,6 |
| Maximum input current | [A] | 72,4 | 78,4 | 84,4 | 95,1 | 104,0 | 120,0 | 137,0 | 155,0 |
| Inrush current | [A] | 212,0 | 263,0 | 269,0 | 319,0 | 327,0 | 365,0 | 382,0 | 480,0 |

(1) Ambient air temperature 35°C
(2) Fluid: Water - In/out Temperature: 12/7°C
(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 10m from the unit in free field conditions, in accordance with ISO 3744

# RAE N S Kc/Kr

## AIR COOLED CHILLERS FOR OUTDOOR INSTALLATION
EQUIPPED WITH SCROLL COMPRESSORS AND AXIAL FANS

Cooling capacity from 143 kW to 640 kW

R410a

R454B

AIR

AC

ERP 2021

HIGHLY SUSTAINABLE

## VERSIONS

**RAE N S -** silenced version

Packaged air cooled chillers of RAE N S series are suitable for outdoor installation and can be used to cool pure fluid solutions for air conditioning or in industrial applications.
Multiscroll technology allows to reach great efficiency improvements at part load, if compared to the other traditional systems for cooling capacity control.
The coupling of high-efficiency finned exchangers and the thermo physical purity of R410A or R454B refrigerant, particularly glide-free at state exchanges, allows this range to attain EER nominal values close to 3.

These units have been designed considering limited space requirements and keeping, at the same time, high cooling performances. Such result has been attained with high-quality and up-to-date components.
All units are completely assembled and tested in the factory with specific quality procedures and are already equipped with all necessary hydraulic, refrigerant and electrical connections for a quick installation on site.

Before factory testing, cooling circuits are tested under pressure and then supplied with refrigerant and a non-freezing oil charge.

**Units CE certified in compliance with the European regulation 2016/2281 ERP 2021.**

# MAIN COMPONENTS

**STRUCTURE**
Made of a base and a chassis manufactured in high-thickness galvanised steel, assembled with stainless steel rivets. All galvanised steel surfaces are powder-coated with colour RAL 7035.

**SCROLL COMPRESSOR**
Operating on one single circuit or on two independent circuits in either tandem or trio version. The compressors are installed on rubber isolation dampers, provided with direct-start motors cooled by suction gas and fitted with both overload protection and crankcase heaters. They are charged with polyester oil and the terminal board is IP54. The on-board microprocessor automatically controls the individual compressors to regulate the cooling capacity.

**STAINLESS STEEL PLATE EVAPORATOR**
Of single or dual circuit type, with high thickness close cell insulation and UV ray-proof. The evaporator is also equipped with safety water flow switch switching off the unit in case of low water flow through the evaporator.

**HEAT EXCHANGE EXTERNAL COILS**
With micro-finned copper tubes, positioned in staggered rows and mechanically expanded into an aluminium finned pack. Fins are designed with such a shape providing the highest heat exchange efficiency (turbo-fin).The max operating pressure refrigerant side is 45 relative bar.

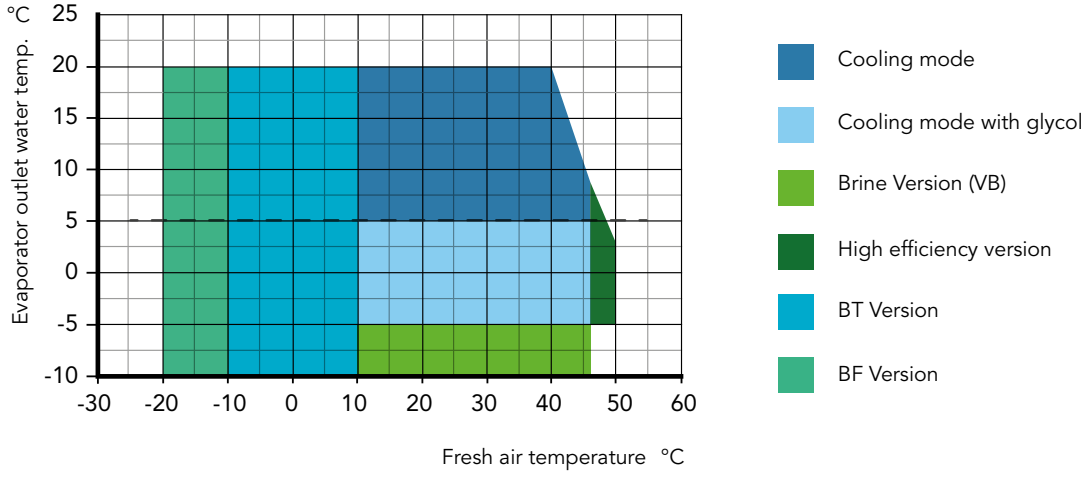
**AXIAL FANS**
Of directly coupled type, with wing-profile aluminium blades, are designed not to create air turbulence. This ensures the max efficiency with the lowest sound level. Each fan is provided with a galvanized steel protection grid, which is painted after construction. The IP54 fans motors are completely closed and provided with in-built overload protection thermostat, incorporated to the motor windings. With this type of fans the air flow rate that invests the heat exchange coil is adjusted with more precision allowing the unit to operate with external temperatures up to -20°C while maintaining high efficiency.

**AXIAL FANS WITH INVERTER SYSTEM**
**(only 6102 size)**
With 6-poles electrical motor with external rotor directly coupled to the impeller and driven by a V/F inverter system which controls the condensation temperature. Aluminum blades with wings profile are suitably designed to avoid any turbulence in the air detachment zone, granting in this way the max efficiency with the minimum noise level. The fan is equipped with galvanized steel protection grid painted after the construction. The fan motors are of totally closed type and have got a protection factor IP54 and protection winding-flooded thermostat.

**COOLING CIRCUIT**
Each provided with a shut-off valve for refrigerant charge, anti-freeze sensor, shut-off valves on liquid lines, certified liquid receiver, 4-way valve for cycle inversion, sight glass, dehydrating filter, high-pressure safety device on high pressure refrigerant side and mechanical thermostatic expansion valve up to 3802 model and electronic type for all remaining sizes, as well as high and low pressure switches and gauges.

**ELECTRICAL BOARD**
Built in compliance with CE Norms, inside of which are placed the control system and the components for motors starting, wired and tested in the factory. It is made by a cabinet suitable for outdoor installation, containing power and control devices, microprocessor electronic board complete with keypad and display, for visualizing the several functions available, main switch of lock-door type, isolation transformer for auxiliary circuits, automatic switches, fuses and protection switches for compressors and fans, terminals for general alarm and remote ON/OFF, terminal board and possibility to interface to BMS systems.

# OPERATING RANGE



# ACCESSORIES

| RAE N S Kc / Kr | | 1501 | 1701 | 2002 | 2302 | 2502 | 2902 | 3202 | 3402 |
|---|---|---|---|---|---|---|---|---|---|
| Amperometer | A | o | o | o | o | o | o | o | o |
| Electrical power supply different than standard | AE | o | o | o | o | o | o | o | o |
| Operation in cooling mode down to -20°C | BF | o | o | o | o | o | o | o | o |
| Operation in cooling mode down to -10°C | BT | o | o | o | o | o | o | o | o |
| Overall compressor and technical compartment cabinet | CFT | o | o | o | o | o | o | o | o |
| Soundproofed compressors cabinet with higher thickness material | CFU | o | o | o | o | o | o | o | o |
| Compressors inrush counter | CS | o | o | o | o | o | o | o | o |
| Axial fans with electronic commutated motor | EC | o | o | o | o | o | o | o | o |
| Condensing coil protection grid | GP | o | o | o | o | o | o | o | o |
| Anti-intrusion grid | GP3 | o | o | o | o | o | o | o | o |
| Victaulic insulation on pump side | I1 | o | o | o | o | o | o | o | o |
| Victaulic insulation buffer tank side | I2 | o | o | o | o | o | o | o | o |
| RS 485 Serial interface | IH | o | o | o | o | o | o | o | o |
| LON Protocol serial interface | IH-LON | o | o | o | o | o | o | o | o |
| Seawood packing | IM | o | o | o | o | o | o | o | o |
| TCP/IP Protocol serial interface | IWG | o | o | o | o | o | o | o | o |
| Phase monitor | MF | o | o | o | o | o | o | o | o |
| Buffer tank module | MV | o | o | o | o | o | o | o | o |
| Pump group | P1 | o | o | o | o | o | o | o | o |
| Pump + tank | P1+MV | o | o | o | o | o | o | o | o |
| Higher available pressure pump group | P1H | o | o | o | o | o | o | o | o |
| Higher available pressure pump group + tank | P1H+MV | o | o | o | o | o | o | o | o |
| Double pump group | P2 | o | o | o | o | o | o | o | o |
| Double pump group + tank | P2+MV | o | o | o | o | o | o | o | o |
| Higher available pressure double pump group | P2H | o | o | o | o | o | o | o | o |
| Higher available pressure double pump group + tank | P2H+MV | o | o | o | o | o | o | o | o |
| Rubber-type vibration dampers | PA | o | o | o | o | o | o | o | o |
| Spring-type vibration dampers | PM | o | o | o | o | o | o | o | o |
| Remote display | PQ | o | o | o | o | o | o | o | o |
| In-line twin pump group (only one working) | PT | o | o | o | o | o | o | o | o |
| In-line twin pump group (only one working) + tank | PT+MV | o | o | o | o | o | o | o | o |
| Anti-freeze heater on evaporator | RA | o | o | o | o | o | o | o | o |
| Shut-off valve on compressors discharge side | RD | o | o | o | o | o | o | o | o |
| Power factor correction system cosfi ≥0,9 | RF | o | o | o | o | o | o | o | o |
| Shut-off valve on compressors suction side | RH | o | o | o | o | o | o | o | o |
| Compressor overload relays | RL | o | o | o | o | o | o | o | o |
| Batteria con alette preverniciate | RM | o | o | o | o | o | o | o | o |
| Partial heat recovery | RP | o | o | o | o | o | o | o | o |
| Copper/Copper coil | RR | o | o | o | o | o | o | o | o |
| Total heat recovery | RT | o | o | o | o | o | o | o | o |
| Personalized frame painting | RV | o | o | o | o | o | o | o | o |
| Electronic thermostatic valve | TE | • | • | • | • | • | • | • | • |
| Voltmeter | V | o | o | o | o | o | o | o | o |
| Brine Version | VB | o | o | o | o | o | o | o | o |
| Solenoid valve | VS | o | o | o | o | o | o | o | o |

• Standard, o Optional, -- Not available

| RAE N S Kc / Kr | | 3602 | 4102 | 4402 | 4902 | 5202 | 5602 | 6102 |
|---|---|---|---|---|---|---|---|---|
| Amperometer | A | o | o | o | o | o | o | o |
| Electrical power supply different than standard | AE | o | o | o | o | o | o | o |
| Operation in cooling mode down to -20°C | BF | o | o | o | o | o | o | • |
| Operation in cooling mode down to -10°C | BT | o | o | o | o | o | o | -- |
| Overall compressor and technical compartment cabinet | CFT | o | o | -- | -- | -- | -- | -- |
| Soundproofed compressors cabinet with higher thickness material | CFU | o | o | o | o | o | o | o |
| Compressors inrush counter | CS | o | o | o | o | o | o | o |
| Axial fans with electronic commutated motor | EC | o | o | o | o | o | o | o |
| Condensing coil protection grid | GP | o | o | o | o | o | o | o |
| Anti-intrusion grid | GP3 | o | o | o | o | o | o | o |
| Victaulic insulation on pump side | I1 | o | o | o | o | o | o | o |
| Victaulic insulation buffer tank side | I2 | o | o | o | o | o | o | o |
| RS 485 Serial interface | IH | o | o | o | o | o | o | o |
| LON Protocol serial interface | IH-LON | o | o | o | o | o | o | o |
| Seawood packing | IM | o | o | o | o | o | o | o |
| TCP/IP Protocol serial interface | IWG | o | o | o | o | o | o | o |
| Phase monitor | MF | o | o | o | o | o | o | o |
| Buffer tank module | MV | o | o | o | o | o | o | o |
| Pump group | P1 | o | o | o | o | o | o | o |
| Pump + tank | P1+MV | o | o | o | o | o | o | o |
| Higher available pressure pump group | P1H | o | o | o | o | o | o | o |
| Higher available pressure pump group + tank | P1H+MV | o | o | o | o | o | o | o |
| Double pump group | P2 | o | o | o | o | o | o | o |
| Double pump group + tank | P2+MV | o | o | o | o | o | o | o |
| Higher available pressure double pump group | P2H | o | o | o | o | o | o | o |
| Higher available pressure double pump group + tank | P2H+MV | o | o | o | o | o | o | o |
| Rubber-type vibration dampers | PA | o | o | o | o | o | o | o |
| Spring-type vibration dampers | PM | o | o | o | o | o | o | o |
| Remote display | PQ | o | o | o | o | o | o | o |
| In-line twin pump group (only one working) | PT | o | o | o | o | o | o | o |
| In-line twin pump group (only one working) + tank | PT+MV | o | o | o | o | o | o | o |
| Anti-freeze heater on evaporator | RA | o | o | o | o | o | o | o |
| Shut-off valve on compressors discharge side | RD | o | o | o | o | o | o | o |
| Power factor correction system cosfi ≥0,9 | RF | o | o | o | o | o | o | o |
| Shut-off valve on compressors suction side | RH | o | o | o | o | o | o | o |
| Compressor overload relays | RL | o | o | o | o | o | o | o |
| Condensing coil with pre-painted fins | RM | o | o | o | o | o | o | o |
| Partial heat recovery | RP | o | o | o | o | o | o | o |
| Copper/Copper coil | RR | o | o | o | o | o | o | o |
| Total heat recovery | RT | o | o | o | o | o | o | o |
| Personalized frame painting | RV | o | o | o | o | o | o | o |
| Electronic thermostatic valve | TE | • | • | • | • | • | • | • |
| Voltmeter | V | o | o | o | o | o | o | o |
| Brine Version | VB | o | o | o | o | o | o | o |
| Solenoid valve | VS | o | o | o | o | o | o | o |

• Standard, o Optional, -- Not available

| RAE N S Kc | | 1501 | 1701 | 2002 | 2302 | 2502 | 2902 | 3202 | 3402 |
|---|---|---|---|---|---|---|---|---|---|
| Cooling capacity | kW | 143,0 | 162,1 | 205,9 | 237,0 | 254,7 | 289,4 | 317,6 | 344,5 |
| Total input power | kW | 49,5 | 59,1 | 71,1 | 84,8 | 92,1 | 102,8 | 105,4 | 116,5 |
| Nominal input current | A | 84,6 | 100,3 | 126,1 | 148,2 | 157,0 | 174,7 | 179,4 | 197,7 |
| EER | W/W | 2,89 | 2,74 | 2,90 | 2,79 | 2,77 | 2,81 | 3,01 | 2,96 |
| SEER (EN14825) | W/W | 4,21 | 4,10 | 4,14 | 4,19 | 4,14 | 4,10 | 4,39 | 4,14 |
| Circuits | n° | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| Compressors | n° | 2 | 2 | 4 | 4 | 4 | 4 | 4 | 4 |
| **Refrigerant R410A** | | | | | | | | | |
| Refrigerant charge | kg | 38 | 24 | 38 | 48 | 58 | 48 | 78 | 60 |
| Global warming potential (GWP) | - | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 |
| Equivalent $CO_2$ charge | t | 79,3 | 50,1 | 79,3 | 100,2 | 121,1 | 100,2 | 162,9 | 125,3 |
| **Axial fans** (1) | | | | | | | | | |
| Quantity | n° | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 5 |
| Total air flow | $m^3/h$ | 34630 | 67280 | 62850 | 59010 | 55750 | 83770 | 74250 | 104720 |
| Total power input | kW | 2,8 | 4,0 | 4,0 | 4,1 | 4,1 | 5,4 | 5,5 | 6,7 |
| Total input current | A | 5,2 | 7,5 | 7,6 | 7,7 | 7,7 | 10,2 | 10,3 | 12,7 |
| **Evaporator** (2) | | | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Water flow | $m^3/h$ | 24,6 | 27,9 | 35,4 | 40,8 | 43,8 | 49,8 | 54,6 | 59,3 |
| Pressure drop | kPa | 32,3 | 33,3 | 25,9 | 33,2 | 37,7 | 32,6 | 36,5 | 36,4 |
| **Weight** | | | | | | | | | |
| Transport weight | kg | 1455 | 1473 | 1885 | 1994 | 2086 | 2147 | 2379 | 2389 |
| Operating weight | kg | 1464 | 1480 | 1894 | 2004 | 2096 | 2160 | 2392 | 2410 |
| **Dimensions** | | | | | | | | | |
| Length | mm | 2660 | 3700 | 3700 | 3700 | 3700 | 4740 | 4740 | 5780 |
| Width | mm | 1370 | 1370 | 1370 | 1370 | 1370 | 1370 | 1370 | 1370 |
| Height | mm | 2420 | 2420 | 2420 | 2420 | 2420 | 2420 | 2420 | 2420 |
| **Sound data** | | | | | | | | | |
| Total LWA (3) | dB(A) | 89,0 | 89,0 | 90,0 | 91,0 | 91,0 | 92,0 | 92,0 | 93,0 |
| Total SPL 10m (4) | dB(A) | 57,0 | 56,9 | 57,9 | 58,9 | 58,9 | 59,8 | 59,8 | 60,6 |
| **Power supply** | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | |
| Maximum input power | [kW] | 65,1 | 75,6 | 90,4 | 110,8 | 118,3 | 130,3 | 137,7 | 149,6 |
| Maximum input current | [A] | 119,8 | 139,9 | 173,9 | 207,5 | 215,9 | 239,6 | 253,2 | 276,9 |
| Inrush current | [A] | 364,4 | 465,3 | 412,8 | 452,1 | 460,5 | 484,2 | 578,6 | 602,3 |

| RAE N S Kc | | 3602 | 4102 | 4402 | 4902 | 5202 | 5602 | 6102 |
|---|---|---|---|---|---|---|---|---|
| Cooling capacity | kW | 379,4 | 399,0 | 435,8 | 504,7 | 543,2 | 602,3 | 640,7 |
| Total input power | kW | 128,7 | 147,0 | 137,9 | 168,0 | 183,5 | 195,1 | 213,8 |
| Nominal input current | A | 217,5 | 247,0 | 241,6 | 286,0 | 310,7 | 330,5 | 360,0 |
| EER | W/W | 2,95 | 2,71 | 3,16 | 3,00 | 2,96 | 3,09 | 3,00 |
| SEER (EN14825) | W/W | 4,23 | 4,13 | 4,54 | 4,58 | 4,57 | 4,55 | 4,59 |
| Circuits | n° | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Compressors | n° | 4 | 6 | 6 | 6 | 6 | 6 | 6 |
| **Refrigerant R410A** | | | | | | | | |
| Refrigerant charge | kg | 78 | 100 | 96 | 124 | 152 | 152 | 154 |
| Global warming potential (GWP) | - | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 |
| Equivalent $CO_2$ charge | t | 162,9 | 208,8 | 200,4 | 258,9 | 317,4 | 317,4 | 321,6 |
| **Axial fans** (1) | | | | | | | | |
| Quantity | n° | 5 | 5 | 8 | 8 | 8 | 10 | 10 |
| Total air flow | $m^3/h$ | 98300 | 92900 | 133130 | 126380 | 121020 | 157980 | 158010 |
| Total power input | kW | 6,8 | 6,8 | 8,4 | 8,4 | 8,4 | 10,6 | 10,6 |
| Total input current | A | 12,8 | 12,9 | 15,9 | 15,9 | 16,0 | 20,0 | 19,9 |
| **Evaporator** (2) | | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Water flow | $m^3/h$ | 65,3 | 68,6 | 74,9 | 86,8 | 93,4 | 103,6 | 110,2 |
| Pressure drop | kPa | 43,1 | 31,3 | 32,9 | 40,8 | 46,4 | 55,6 | 52,7 |
| **Weight** | | | | | | | | |
| Transport weight | kg | 2495 | 2495 | 3202 | 3584 | 3818 | 4428 | 4529 |
| Operating weight | kg | 2516 | 2516 | 3228 | 3614 | 3850 | 4465 | 4566 |
| **Dimensions** | | | | | | | | |
| Length | mm | 5780 | 5780 | 4750 | 4750 | 4750 | 5720 | 5720 |
| Width | mm | 1370 | 1370 | 2300 | 2300 | 2300 | 2300 | 2300 |
| Height | mm | 2420 | 2420 | 2560 | 2560 | 2560 | 2560 | 2560 |
| **Sound data** | | | | | | | | |
| Total LWA (3) | dB(A) | 93,0 | 93,0 | 94,0 | 94,0 | 94,0 | 95,0 | 95,0 |
| Total SPL 10m (4) | dB(A) | 60,6 | 60,6 | 61,6 | 61,6 | 61,6 | 62,5 | 62,5 |
| **Power supply** | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | |
| Maximum input power | [kW] | 170,0 | 187,8 | 190,0 | 226,6 | 244,4 | 264,7 | 282,5 |
| Maximum input current | [A] | 310,5 | 344,9 | 350,4 | 412,4 | 446,8 | 486,2 | 520,6 |
| Inrush current | [A] | 635,9 | 670,3 | 675,8 | 657,0 | 772,2 | 811,6 | 846,0 |

(1) Ambient air temperature 35°C
(2) Fluid: Water - In/out Temperature: 12/7°C
(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 10m from the unit in free field conditions, in accordance with ISO 3744

| RAE N S Kr | | 1501 | 1701 | 2002 | 2302 | 2502 | 2902 | 3202 | 3402 |
|---|---|---|---|---|---|---|---|---|---|
| Cooling capacity | kW | 147,3 | 167,0 | 212,1 | 244,1 | 262,3 | 298,1 | 327,1 | 354,8 |
| Total input power | kW | 50,5 | 60,3 | 72,5 | 86,5 | 93,9 | 104,9 | 107,5 | 118,8 |
| Nominal input current | A | 86,3 | 102,3 | 128,6 | 151,2 | 160,1 | 178,2 | 183,0 | 201,7 |
| EER | W/W | 2,9 | 2,8 | 2,9 | 2,8 | 2,8 | 2,8 | 3,0 | 3,0 |
| SEER (EN14825) | W/W | 4,26 | 4,15 | 4,19 | 4,24 | 4,19 | 4,15 | 4,44 | 4,19 |
| Circuits | n° | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| Compressors | n° | 2 | 2 | 4 | 4 | 4 | 4 | 4 | 4 |
| **Refrigerant R454B** | | | | | | | | | |
| Refrigerant charge | kg | 38 | 24 | 38 | 48 | 58 | 48 | 78 | 60 |
| Global warming potential (GWP) | - | 466 | 466 | 466 | 466 | 466 | 466 | 466 | 466 |
| Equivalent $CO_2$ charge | t | 17,7 | 11,2 | 17,7 | 22,4 | 27,0 | 22,4 | 36,3 | 28,0 |
| **Axial fans** (1) | | | | | | | | | |
| Quantity | n° | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 5 |
| Total air flow | $m^3/h$ | 34630 | 67280 | 62850 | 59010 | 55750 | 83770 | 74250 | 104720 |
| Total power input | kW | 2,8 | 4,0 | 4,0 | 4,1 | 4,1 | 5,4 | 5,5 | 6,7 |
| Total input current | A | 5,2 | 7,5 | 7,6 | 7,7 | 7,7 | 10,2 | 10,3 | 12,7 |
| **Evaporator** (2) | | | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Water flow | $m^3/h$ | 25,4 | 28,8 | 36,5 | 42,0 | 45,2 | 51,3 | 56,3 | 61,1 |
| Pressure drop | kPa | 31,9 | 32,9 | 25,6 | 32,8 | 37,2 | 32,2 | 36,0 | 35,9 |
| **Weight** | | | | | | | | | |
| Transport weight | kg | 1475 | 1493 | 1911 | 2021 | 2114 | 2176 | 2411 | 2421 |
| Operating weight | kg | 1484 | 1500 | 1920 | 2031 | 2124 | 2189 | 2424 | 2443 |
| **Dimensions** | | | | | | | | | |
| Length | mm | 2660 | 3700 | 3700 | 3700 | 3700 | 4740 | 4740 | 5780 |
| Width | mm | 1370 | 1370 | 1370 | 1370 | 1370 | 1370 | 1370 | 1370 |
| Height | mm | 2420 | 2420 | 2420 | 2420 | 2420 | 2420 | 2420 | 2420 |
| **Sound data** | | | | | | | | | |
| Total LWA (3) | dB(A) | 89,0 | 89,0 | 90,0 | 91,0 | 91,0 | 92,0 | 92,0 | 93,0 |
| Total SPL 10m (4) | dB(A) | 57,0 | 56,9 | 57,9 | 58,9 | 58,9 | 59,8 | 59,8 | 60,6 |
| **Power supply** | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | |
| Maximum input power | [kW] | 65,1 | 75,6 | 90,4 | 110,8 | 118,3 | 130,3 | 137,7 | 149,6 |
| Maximum input current | [A] | 119,8 | 139,9 | 173,9 | 207,5 | 215,9 | 239,6 | 253,2 | 276,9 |
| Inrush current | [A] | 364,4 | 465,3 | 412,8 | 452,1 | 460,5 | 484,2 | 578,6 | 602,3 |

| RAE N S Kr | | 3602 | 4102 | 4402 | 4902 | 5202 | 5602 | 6102 |
|---|---|---|---|---|---|---|---|---|
| Cooling capacity | kW | 390,8 | 411,0 | 448,9 | 519,8 | 559,5 | 620,4 | 659,9 |
| Total input power | kW | 131,3 | 149,9 | 140,7 | 171,4 | 187,2 | 199,0 | 218,1 |
| Nominal input current | A | 221,9 | 251,9 | 246,4 | 291,7 | 316,9 | 337,1 | 367,2 |
| EER | W/W | 3,0 | 2,7 | 3,2 | 3,0 | 3,0 | 3,1 | 3,0 |
| SEER (EN14825) | W/W | 4,28 | 4,18 | 4,60 | 4,64 | 4,63 | 4,61 | 4,65 |
| Circuits | n° | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Compressors | n° | 4 | 6 | 6 | 6 | 6 | 6 | 6 |
| **Refrigerant R454B** | | | | | | | | |
| Refrigerant charge | kg | 78 | 100 | 96 | 124 | 152 | 152 | 154 |
| Global warming potential (GWP) | - | 466 | 466 | 466 | 466 | 466 | 466 | 466 |
| Equivalent $CO_2$ charge | t | 36,3 | 46,6 | 44,7 | 57,8 | 70,8 | 70,8 | 71,8 |
| **Axial fans** (1) | | | | | | | | |
| Quantity | n° | 5 | 5 | 8 | 8 | 8 | 10 | 10 |
| Total air flow | $m^3/h$ | 98300 | 92900 | 133130 | 126380 | 121020 | 157980 | 158010 |
| Total power input | kW | 6,8 | 6,8 | 8,4 | 8,4 | 8,4 | 10,6 | 10,6 |
| Total input current | A | 12,8 | 12,9 | 15,9 | 15,9 | 16,0 | 20,0 | 19,9 |
| **Evaporator** (2) | | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Water flow | $m^3/h$ | 67,3 | 70,8 | 77,3 | 89,5 | 96,3 | 106,8 | 113,6 |
| Pressure drop | kPa | 42,5 | 30,9 | 32,5 | 40,3 | 45,8 | 48,9 | 46,7 |
| **Weight** | | | | | | | | |
| Transport weight | kg | 2529 | 2529 | 3245 | 3633 | 3870 | 4488 | 4590 |
| Operating weight | kg | 2550 | 2550 | 3272 | 3663 | 3902 | 4526 | 4628 |
| **Dimensions** | | | | | | | | |
| Length | mm | 5780 | 5780 | 4750 | 4750 | 4750 | 5720 | 5720 |
| Width | mm | 1370 | 1370 | 2300 | 2300 | 2300 | 2300 | 2300 |
| Height | mm | 2420 | 2420 | 2560 | 2560 | 2560 | 2560 | 2560 |
| **Sound data** | | | | | | | | |
| Total LWA (3) | dB(A) | 93,0 | 93,0 | 94,0 | 94,0 | 94,0 | 95,0 | 95,0 |
| Total SPL 10m (4) | dB(A) | 60,6 | 60,6 | 61,6 | 61,6 | 61,6 | 62,5 | 62,5 |
| **Power supply** | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | |
| Maximum input power | [kW] | 170,0 | 187,8 | 190,0 | 226,6 | 244,4 | 264,7 | 282,5 |
| Maximum input current | [A] | 310,5 | 344,9 | 350,4 | 412,4 | 446,8 | 486,2 | 520,6 |
| Inrush current | [A] | 635,9 | 670,3 | 675,8 | 657,0 | 772,2 | 811,6 | 846,0 |

(1) Ambient air temperature 35°C
(2) Fluid: Water - In/out Temperature: 12/7°C
(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 10m from the unit in free field conditions, in accordance with ISO 3744

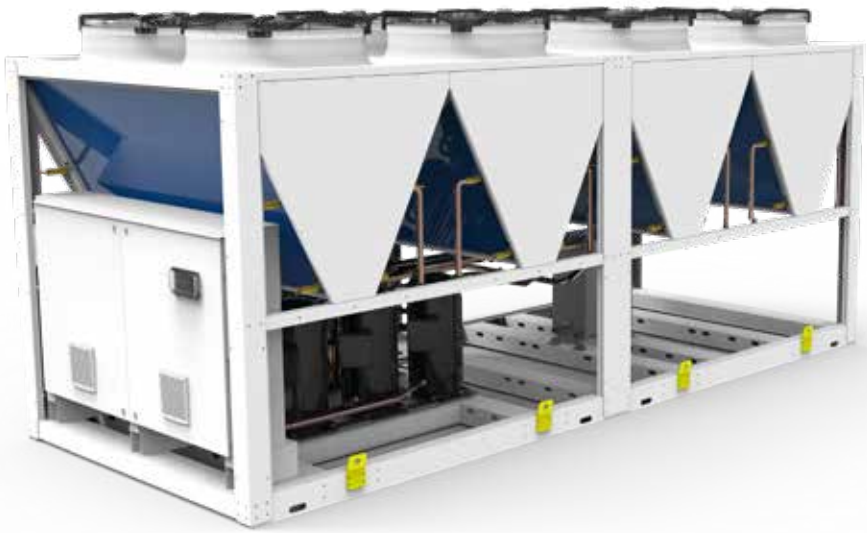
# RAE N MC Kc/Kr

**AIR COOLED CHILLERS FOR OUTDOOR INSTALLATION**
EQUIPPED WITH SCROLL COMPRESSORS,
AXIAL FANS AND MICROCHANNEL CONDENSING COILS

Cooling capacity from 78 kW to 636 kW

R410a
R454B
AIR
AC
EC
alu
ERP 2021

HIGHLY SUSTAINABLE



## VERSIONS

**RAE N MC -** standard version
**RAE N MC S -** silenced version
**RAE N MC HE -** high efficiency version
**RAE N MC S HE -** high efficiency silenced version

Packaged air cooled chillers of RAE N MC series are suitable for outdoor installation and can be used to cool pure fluid solutions for air conditioning or in industrial applications.
Multiscroll technology allows to reach great efficiency improvements at part load, if compared to the other traditional systems for cooling capacity control.

All the units are totally factory assembled and tested, following specific quality procedures. Besides they are totally hydraulic, cooling and electrical connected permitting a quick installation once on site. Before the test the cooling circuits of each unit are subjected to a pressure test and then charged with Refrigerant R410A or R454B and non-freezing oil. So, once on site, the units must be only positioned and electrically and hydraulically connected.

Reduced sound level in versions S is realised by using condensers with larger surface areas as well as sound-proofed compressor cabinets.

**Units CE certified in compliance with the European regulation 2016/2281 ERP 2021.**

# MAIN COMPONENTS

**STRUCTURE**
Structure made of a base and a chassis manufactured in high-thickness galvanised steel, assembled with stainless steel rivets. All galvanised steel surfaces are powder-coated with colour RAL 7035. The technical compartment, easily accessible, contains the compressors and the main components.

**SCROLL COMPRESSOR**
Scroll compressors operating on one or two independent circuits in single, tandem or trio version. The compressors are installed on rubber isolation dampers, provided with direct-start motors cooled by suction gas and fitted with both overload protection and crankcase heaters. They are charged with polyester oil and the terminal board is IP54. The on-board microprocessor automatically controls the individual compressors to regulate the cooling capacity.

**STAINLESS STEEL PLATE EVAPORATOR**
Of "single" or "dual" circuit type, with high thickness close cell insulation and UV ray-proof. The max operating pressure limits are 6 bar for water side and 45 bar for refrigerant side. The evaporator is also equipped with safety water flow switch switching off the unit in case of low water flow through the evaporator.

**EXTERNAL CONDENSING COIL**
Totally made up of aluminum alloy to grant a perfect and continuous contact among tubes and fins optimizing the thermal exchange and reducing dimensions.
The high passivation degree of the used alloy, besides the peculiar assembling way, avoids the possibility to have galvanic corrosion phenomena. On demand it is also possible to provide the units installed in particularly aggressive environments with surface treatments against exchangers environmental corrosion.
The cross "V" arrangement of the condensing coils makes the units of this series perfectly each other modular, granting at the same time the easiest access to the technical room both for checking operations required during the normal unit functioning and for maintenance.

**AXIAL FANS**
Of directly coupled type, with wing-profile aluminium blades, are designed not to create air turbulence. This ensures the max efficiency with the lowest sound level. Each fan is provided with a galvanized steel protection grid, which is painted after construction. The IP54 fans motors are completely closed and provided with in-built overload protection thermostat, incorporated to the motor windings. With this type of fans the air flow rate that invests the heat exchange coil is adjusted with more precision allowing the unit to operate with external temperatures up to -20°C while maintaining high efficiency.

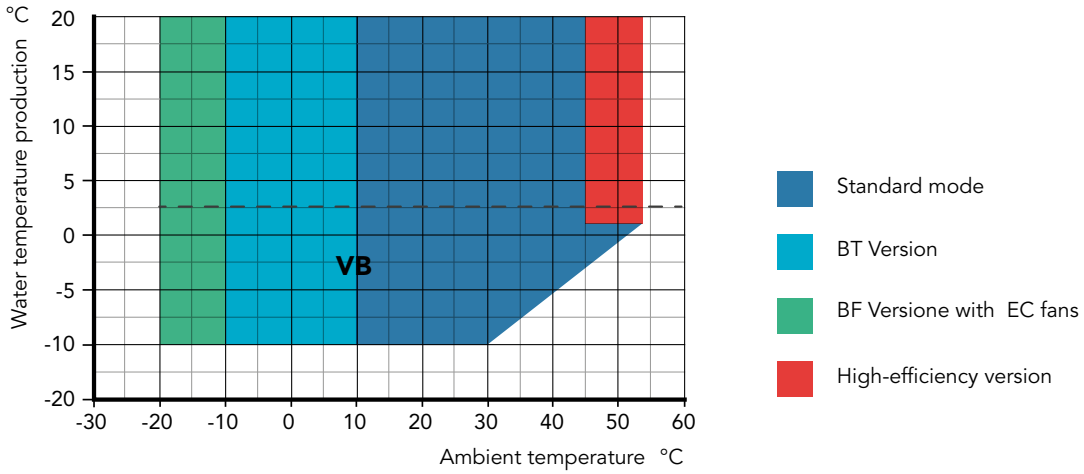
**AXIAL FANS WITH INVERTER SYSTEM (only for mod. 5002÷6502)**
With 6-poles electrical motor with external rotor directly coupled to the impeller and driven by a V/F inverter system which controls the condensation temperature. Aluminum blades with wings profile are suitably designed to avoid any turbulence in the air detachment zone, granting in this way the max efficiency with the minimum noise level. The fan is equipped with galvanized steel protection grid painted after the construction. The fan motors are of totally closed type and have got a protection factor IP54 and protection winding-flooded thermostat.

**INDEPENDENT COOLING CIRCUITS**
Independent cooling circuits, each provided with a shut-off valve for refrigerant charge, antifreeze sensor, shut-off valves on liquid lines, sight glass, dehydrating filter, high-pressure safety device on high pressure refrigerant side and electronic thermostatic expansion valve, as well as high and low pressure switches and gauges.

**ELECTRICAL BOARD**
In compliance with CE Norms, contained in a suitable section protected by internal safety panel, provided with a lock-door main switch. Inside all the control and protection components are suitably placed, together with terminal board and auxiliaries. The electrical board also includes the control device for power supply phases to prevent the compressor wrong side rotation. Microprocessor and relevant display are also placed inside the electrical cabinet.

**MICROPROCESSOR**
For unit management installed inside the electrical cabinet, with double evaporator in/out control of the chilled water temperature, as well as control of working parameters and equalization of compressors working hours, failures auto-detection system, alarm log, start and set point timeslot programming, possibility of remote management and supervision by enabling standard communication protocols management.

# OPERATING RANGE



## ACCESSORIES

| RAE N MC KC / RAE N MC S KC | | 801 | 1001 | 1301 | 1501 | 1651 | 1701 | 2001 | 2402 | 2702 |
|---|---|---|---|---|---|---|---|---|---|---|
| Amperometer | A | o | o | o | o | o | o | o | o | o |
| Electrical power supply different than standard | AE | o | o | o | o | o | o | o | o | o |
| Operation in cooling mode down to -20°C | BF | o | o | o | o | o | o | -- | o | o |
| Operation in cooling mode down to -10°C | BT | o | o | o | o | o | o | -- | o | o |
| Compressors inrush counter | CS | o | o | o | o | o | o | o | o | o |
| Axial fans with electronic commutated motor | EC | o | o | o | o | o | o | • | o | o |
| Condensing coil protection grid | GP | o | o | o | o | o | o | o | o | o |
| Anti-intrusion grid | GP1 | o | o | o | o | o | o | o | o | o |
| Victaulic insulation on pump side | I1 | o | o | o | o | o | o | o | o | o |
| Victaulic insulation buffer tank side | I2 | o | o | o | o | o | o | o | o | o |
| RS 485 Serial interface | IH | o | o | o | o | o | o | o | o | o |
| LON Protocol serial interface | IH-LON | o | o | o | o | o | o | o | o | o |
| Seawood packing | IM | o | o | o | o | o | o | o | o | o |
| TCP/IP Protocol serial interface | IWG | o | o | o | o | o | o | o | o | o |
| Phase monitor | MF | o | o | o | o | o | o | o | o | o |
| Buffer tank module | MV | o | o | o | o | o | o | o | o | o |
| Pump group | P1 | o | o | o | o | o | o | o | o | o |
| Pump + tank | P1+MV | o | o | o | o | o | o | o | o | o |
| Higher available pressure pump group | P1H | o | o | o | o | o | o | o | o | o |
| Higher available pressure pump group + tank | P1H+MV | o | o | o | o | o | o | o | o | o |
| Double pump group | P2 | o | o | o | o | o | o | o | o | o |
| Double pump group + tank | P2+MV | o | o | o | o | o | o | o | o | o |
| Higher available pressure double pump group | P2H | o | o | o | o | o | o | o | o | o |
| Higher available pressure double pump group + tank | P2H+MV | o | o | o | o | o | o | o | o | o |
| Rubber-type vibration dampers | PA | o | o | o | o | o | o | o | o | o |
| Anti-corrosive protection of the condensing coils (Powder coating) | PCP | o | o | o | o | o | o | o | o | o |
| Spring-type vibration dampers | PM | o | o | o | o | o | o | o | o | o |
| Remote display | PQ | o | o | o | o | o | o | o | o | o |
| In-line twin pump group (only one working) | PT | o | o | o | o | o | o | o | o | o |
| In-line twin pump group (only one working) + tank | PT+MV | o | o | o | o | o | o | o | o | o |
| Anti-freeze heater on evaporator | RA | o | o | o | o | o | o | o | o | o |
| Shut-off valve on compressors discharge side | RD | o | o | o | o | o | o | o | o | o |
| Power factor correction system cosfi ≥0,9 | RF | o | o | o | o | o | o | o | o | o |
| Shut-off valve on compressors suction side | RH | o | o | o | o | o | o | o | o | o |
| Compressor overload relays | RL | o | o | o | o | o | o | o | o | o |
| Electronic thermostatic valve | TE | o | o | o | o | o | o | • | o | o |
| Voltmeter | V | o | o | o | o | o | o | o | o | o |
| Brine Version | VB | o | o | o | o | o | o | o | o | o |
| Solenoid valve | VS | o | o | o | o | o | o | o | o | o |
| Partial heat recovery | RP | o | o | o | o | o | o | o | o | o |
| Total heat recovery | RT | o | o | o | o | o | o | o | o | o |

• Standard, o Optional, -- Not available

| RAE N MC KC / RAE N MC S KC | | 3102 | 3502 | 3802 | 4002 | 5002 | 5402 | 6002 | 6502 |
|---|---|---|---|---|---|---|---|---|---|
| Amperometer | A | o | o | o | o | o | o | o | o |
| Electrical power supply different than standard | AE | o | o | o | o | o | o | o | o |
| Operation in cooling mode down to -20°C | BF | o | o | o | o | • | • | • | • |
| Operation in cooling mode down to -10°C | BT | o | o | o | o | -- | -- | -- | -- |
| Compressors inrush counter | CS | o | o | o | o | o | o | o | o |
| Axial fans with electronic commutated motor | EC | o | o | o | o | o | o | o | o |
| Condensing coil protection grid | GP | o | o | o | o | o | o | o | o |
| Anti-intrusion grid | GP1 | o | o | o | o | o | o | o | o |
| Victaulic insulation on pump side | I1 | o | o | o | o | o | o | o | o |
| Victaulic insulation buffer tank side | I2 | o | o | o | o | o | o | o | o |
| RS 485 Serial interface | IH | o | o | o | o | o | o | o | o |
| LON Protocol serial interface | IH-LON | o | o | o | o | o | o | o | o |
| Seawood packing | IM | o | o | o | o | o | o | o | o |
| TCP/IP Protocol serial interface | IWG | o | o | o | o | o | o | o | o |
| Phase monitor | MF | o | o | o | o | o | o | o | o |
| Buffer tank module | MV | o | o | o | o | o | o | o | o |
| Pump group | P1 | o | o | o | o | o | o | o | o |
| Pump + tank | P1+MV | o | o | o | o | o | o | o | o |
| Higher available pressure pump group | P1H | o | o | o | o | o | o | o | o |
| Higher available pressure pump group + tank | P1H+MV | o | o | o | o | o | o | o | o |
| Double pump group | P2 | o | o | o | o | o | o | o | o |
| Double pump group + tank | P2+MV | o | o | o | o | o | o | o | o |
| Higher available pressure double pump group | P2H | o | o | o | o | o | o | o | o |
| Higher available pressure double pump group + tank | P2H+MV | o | o | o | o | o | o | o | o |
| Rubber-type vibration dampers | PA | o | o | o | o | o | o | o | o |
| Anti-corrosive protection of the condensing coils (Powder coating) | PCP | o | o | o | o | o | o | o | o |
| Spring-type vibration dampers | PM | o | o | o | o | o | o | o | o |
| Remote display | PQ | o | o | o | o | o | o | o | o |
| In-line twin pump group (only one working) | PT | o | o | o | o | o | o | o | o |
| In-line twin pump group (only one working) + tank | PT+MV | o | o | o | o | o | o | o | o |
| Anti-freeze heater on evaporator | RA | o | o | o | o | o | o | o | o |
| Shut-off valve on compressors discharge side | RD | o | o | o | o | o | o | o | o |
| Power factor correction system cosfi ≥0,9 | RF | o | o | o | o | o | o | o | o |
| Shut-off valve on compressors suction side | RH | o | o | o | o | o | o | o | o |
| Compressor overload relays | RL | o | o | o | o | o | o | o | o |
| Electronic thermostatic valve | TE | o | o | o | • | • | • | • | • |
| Voltmeter | V | o | o | o | o | o | o | o | o |
| Brine Version | VB | o | o | o | o | o | o | o | o |
| Solenoid valve | VS | o | o | o | o | o | o | o | o |
| Partial heat recovery | RP | o | o | o | o | o | o | o | o |
| Total heat recovery | RT | o | o | o | o | o | o | o | o |

• Standard, o Optional, -- Not available

# TECHNICAL DATA

| RAE N MC Kc | | 801 | 1001 | 1301 | 1501 | 1651 | 2001 |
|---|---|---|---|---|---|---|---|
| Cooling capacity | kW | 81,7 | 103,0 | 128,0 | 146,0 | 167,0 | 201,0 |
| Total input power | kW | 25,1 | 33,1 | 44,0 | 47,4 | 55,6 | 71,0 |
| Nominal input current | A | 49,3 | 60,7 | 76,6 | 83,8 | 96,5 | 118,4 |
| EER | W/W | 3,25 | 3,11 | 2,91 | 3,08 | 3,00 | 2,83 |
| SEER (EN14825) | W/W | 4,13 | 4,30 | 4,30 | 4,21 | 4,30 | 4,10 |
| Circuits | n° | 1 | 1 | 1 | 1 | 1 | 1 |
| Compressors | n° | 2 | 2 | 2 | 2 | 2 | 2 |
| **Refrigerant data R410A** | | | | | | | |
| Refrigerant charge | kg | 12 | 12 | 13 | 17 | 18 | 18 |
| Global warming potential (GWP) | - | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 |
| Equivalent $CO_2$ charge | t | 25,2 | 25,8 | 26,6 | 35,8 | 36,8 | 38,1 |
| **Axial fans** (1) | | | | | | | |
| Quantity | n° | 2 | 2 | 2 | 3 | 3 | 3 |
| Total air flow | $m^3/h$ | 40750 | 40870 | 40900 | 60000 | 60010 | 71120 |
| Total power input | kW | 3,0 | 2,9 | 2,9 | 4,5 | 4,5 | 5,6 |
| Total input current | A | 6,4 | 6,4 | 6,3 | 9,7 | 9,6 | 8,8 |
| **Evaporator** (2) | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 1 |
| Water flow | $m^3/h$ | 14,1 | 17,7 | 22,1 | 25,2 | 28,7 | 34,6 |
| Pressure drop | kPa | 40,7 | 53 | 44,9 | 41,4 | 53,3 | 62,3 |
| **Weight** | | | | | | | |
| Transport weight | kg | 1000 | 1090 | 1170 | 1538 | 1696 | 1809 |
| Operating weight | kg | 1008 | 1100 | 1182 | 1550 | 1710 | 1825 |
| **Dimensions** | | | | | | | |
| Length | mm | 2590 | 2590 | 2590 | 3630 | 3630 | 3630 |
| Width | mm | 1370 | 1370 | 1370 | 1370 | 1370 | 1370 |
| Height | mm | 2570 | 2570 | 2570 | 2570 | 2570 | 2570 |
| **Sound data** | | | | | | | |
| Total LWA (3) | dB(A) | 85,5 | 88,4 | 89,8 | 90,8 | 91,6 | 94,3 |
| Total SPL 10m (4) | dB(A) | 55,0 | 57,9 | 59,3 | 60,2 | 61,0 | 63,7 |
| **Power supply** | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 3/400/50 | 3/400/50 | 3/400/50 | 3/400/50 | 3/400/50 | 3/400/50 |
| **General electrical data** | | | | | | | |
| Maximum input power | [kW] | 37,7 | 46,6 | 60,6 | 67,7 | 76,6 | 99,0 |
| Maximum input current | [A] | 75,8 | 90,4 | 111,4 | 125,7 | 142,9 | 176,3 |
| Inrush current | [A] | 215,8 | 329,3 | 356 | 370,3 | 468,3 | 501,7 |

(1) Ambient air temperature 35°C
(2) Fluid: Water - In/out Temperature: 12/7°C
(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 10m from the unit in free field conditions, in accordance with ISO 3744

| RAE N MC HE Kc | | 801 | 1001 | 1301 | 1501 | 1651 | 1701 | 2102 | 2402 | 2702 |
|---|---|---|---|---|---|---|---|---|---|---|
| Cooling capacity | kW | 82,6 | 105,0 | 135,0 | 148,0 | 169,0 | 165,0 | 210,0 | 239,0 | 268,0 |
| Total input power | kW | 24,3 | 32,4 | 42,0 | 46,7 | 55,1 | 48,9 | 65,6 | 73,5 | 88,6 |
| Nominal input current | A | 46,7 | 58,5 | 72,5 | 80,4 | 93,7 | 89,0 | 117,9 | 127,5 | 151,3 |
| EER | W/W | 3,40 | 3,24 | 3,21 | 3,17 | 3,07 | 3,37 | 3,20 | 3,25 | 3,02 |
| SEER (EN14825) | W/W | 4,72 | 4,80 | 4,91 | 4,70 | 4,76 | 4,77 | 4,89 | 4,83 | 4,83 |
| Circuits | n° | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 |
| Compressors | n° | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 4 | 4 |
| **Refrigerant data R410A** | | | | | | | | | | |
| Refrigerant charge | kg | 12 | 13 | 16,7 | 17 | 18 | 26 | 31 | 35 | 38 |
| Global warming potential (GWP) | - | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 |
| Equivalent $CO_2$ charge | t | 25,8 | 26,6 | 34,9 | 35,8 | 36,8 | 54,3 | 64,7 | 73,1 | 79,3 |
| **Axial fans** (1) | | | | | | | | | | |
| Quantity | n° | 2 | 2 | 3 | 3 | 3 | 2 | 4 | 4 | 4 |
| Total air flow | $m^3/h$ | 38140 | 41750 | 59900 | 62080 | 65870 | 73210 | 89020 | 93240 | 97880 |
| Total power input | kW | 1,9 | 2,5 | 3,5 | 3,9 | 4,6 | 4,9 | 5,6 | 6,3 | 7,2 |
| Total input current | A | 1,9 | 2,5 | 3,5 | 3,9 | 4,5 | 12,6 | 8,9 | 9,8 | 11,0 |
| **Evaporator** (2) | | | | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Water flow | $m^3/h$ | 14,2 | 18,2 | 23,3 | 25,5 | 29,1 | 28,4 | 36,2 | 41,1 | 46,2 |
| Pressure drop | kPa | 35,7 | 31,6 | 58,1 | 42,2 | 38,1 | 14,9 | 29,8 | 25,1 | 31,1 |
| **Weight** | | | | | | | | | | |
| Transport weight | kg | 1000 | 1090 | 1538 | 1696 | 1809 | 1598 | 1871 | 1977 | 1988 |
| Operating weight | kg | 1008 | 1100 | 1550 | 1710 | 1825 | 1609 | 1894 | 2004 | 2027 |
| **Dimensions** | | | | | | | | | | |
| Length | mm | 2590 | 2590 | 3630 | 3630 | 3630 | 2680 | 2680 | 2680 | 2680 |
| Width | mm | 1370 | 1370 | 1370 | 1370 | 1370 | 2260 | 2260 | 2260 | 2260 |
| Height | mm | 2570 | 2570 | 2570 | 2570 | 2570 | 2470 | 2470 | 2470 | 2470 |
| **Sound data** | | | | | | | | | | |
| Total LWA (3) | dB(A) | 86,5 | 88,5 | 90,8 | 92,0 | 91,8 | 91,0 | 91,0 | 93,0 | 94,0 |
| Total SPL 10m (4) | dB(A) | 56,0 | 58,0 | 60,1 | 61,4 | 61,1 | 58,9 | 58,9 | 61,0 | 61,9 |
| **Power supply** | | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 3/400/50 | 3/400/50 | 3/400/50 | 3/400/50 | 3/400/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | | |
| Maximum input power | [kW] | 39,9 | 48,8 | 65,8 | 71,0 | 79,9 | 73,5 | 97,6 | 105 | 126 |
| Maximum input current | [A] | 75,4 | 90,0 | 114,7 | 125,1 | 142,3 | 136,4 | 183,2 | 191,6 | 225,2 |
| Inrush current | [A] | 215,4 | 328,9 | 359,3 | 369,7 | 467,7 | 461,8 | 422,1 | 430,5 | 469,8 |

| RAE N MC HE Kc | | 3102 | 3502 | 4002 | 4402 | 5102 | 5602 | 6302 | 6602 |
|---|---|---|---|---|---|---|---|---|---|
| Cooling capacity | kW | 303,0 | 319,0 | 393,0 | 431,0 | 500,0 | 539,0 | 591,0 | 636,0 |
| Total input power | kW | 94,2 | 101,0 | 124,0 | 135,0 | 162,0 | 179,0 | 191,0 | 209,0 |
| Nominal input current | A | 167,4 | 177,0 | 217,2 | 243,3 | 288,2 | 313,3 | 338,1 | 363,9 |
| EER | W/W | 3,22 | 3,16 | 3,17 | 3,19 | 3,09 | 3,01 | 3,09 | 3,04 |
| SEER (EN14825) | W/W | 4,79 | 4,87 | 4,68 | 4,59 | 4,77 | 4,75 | 4,67 | 4,63 |
| Circuits | n° | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Compressors | n° | 4 | 4 | 4 | 4 | 6 | 6 | 6 | 6 |
| **Refrigerant data R410A** | | | | | | | | | |
| Refrigerant charge | kg | 44 | 49 | 56 | 63 | 74 | 80 | 89 | 94 |
| Global warming potential (GWP) | - | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2089 |
| Equivalent $CO_2$ charge | t | 91,9 | 102,3 | 116,9 | 131,5 | 154,5 | 167,0 | 185,8 | 196,4 |
| **Axial fans** (1) | | | | | | | | | |
| Quantity | n° | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 |
| Total air flow | $m^3/h$ | 124400 | 127300 | 162300 | 201700 | 214900 | 217800 | 262800 | 271700 |
| Total power input | kW | 8,0 | 8,5 | 11,8 | 13,1 | 15,3 | 15,9 | 18,1 | 20,0 |
| Total input current | A | 18,8 | 18,8 | 26,5 | 35,5 | 35,3 | 35,3 | 44,2 | 44,2 |
| **Evaporator** (2) | | | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Water flow | $m^3/h$ | 52,1 | 54,9 | 67,6 | 74,1 | 86,1 | 92,8 | 102,0 | 109,0 |
| Pressure drop | kPa | 36,8 | 40,3 | 44,0 | 54,8 | 46,3 | 50,4 | 59,5 | 57,4 |
| **Weight** | | | | | | | | | |
| Transport weight | kg | 2473 | 2478 | 2579 | 2988 | 3422 | 3488 | 3941 | 3952 |
| Operating weight | kg | 2519 | 2526 | 2639 | 3054 | 3502 | 3579 | 4037 | 4054 |
| **Dimensions** | | | | | | | | | |
| Length | mm | 4020 | 4020 | 4020 | 5360 | 5360 | 5360 | 6700 | 6700 |
| Width | mm | 2260 | 2260 | 2260 | 2260 | 2260 | 2260 | 2260 | 2260 |
| Height | mm | 2470 | 2470 | 2470 | 2470 | 2470 | 2470 | 2470 | 2470 |
| **Sound data** | | | | | | | | | |
| Total LWA (3) | dB(A) | 94,0 | 94,0 | 96,0 | 98,0 | 96,0 | 98,0 | 98,0 | 100,0 |
| Total SPL 10m (4) | dB(A) | 62,2 | 61,7 | 63,3 | 65,6 | 63,4 | 65,7 | 65,6 | 67,2 |
| **Power supply** | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | |
| Maximum input power | [kW] | 136 | 143 | 177 | 200 | 236 | 254 | 277 | 295 |
| Maximum input current | [A] | 251,4 | 265,0 | 326,9 | 371,6 | 433,6 | 468,0 | 512,7 | 547,1 |
| Inrush current | [A] | 496,0 | 590,4 | 652,3 | 697,0 | 678,2 | 793,4 | 838,1 | 872,5 |

(1) Ambient air temperature 35°C
(2) Fluid: Water - In/out Temperature: 12/7°C
(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 10m from the unit in free field conditions, in accordance with ISO 3744

| RAE N MC S Kc | | 801 | 1001 | 1301 | 1501 | 1651 | 1701 | 2001 | 2402 | 2702 |
|---|---|---|---|---|---|---|---|---|---|---|
| Cooling capacity | kW | 78,3 | 97,9 | 120,0 | 141,0 | 159,0 | 181,4 | 190,0 | 225,8 | 273,3 |
| Total input power | kW | 25,3 | 34,1 | 46,7 | 47,9 | 56,7 | 53,4 | 72,0 | 75,4 | 90,0 |
| Nominal input current | A | 48,0 | 60,6 | 79,2 | 82,3 | 96,22 | 92,9 | 120,2 | 130,7 | 154,8 |
| EER | W/W | 3,09 | 2,87 | 2,57 | 2,94 | 2,80 | 3,40 | 2,64 | 3,00 | 3,04 |
| SEER (EN14825) | W/W | 4,29 | 4,27 | 4,24 | 4,37 | 4,36 | 4,53 | 4,10 | 4,41 | 4,30 |
| Circuits | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |
| Compressors | n° | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 4 |
| **Refrigerant data R410A** | | | | | | | | | | |
| Refrigerant charge | kg | 12 | 12 | 13 | 17 | 18 | 12 | 18 | 22 | 22 |
| Global warming potential (GWP) | - | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 |
| Equivalent $CO_2$ charge | t | 25,2 | 25,8 | 26,6 | 35,8 | 36,8 | 25,1 | 38,1 | 45,9 | 45,9 |
| **Axial fans** (1) | | | | | | | | | | |
| Quantity | n° | 2 | 2 | 2 | 3 | 3 | 4 | 3 | 4 | 4 |
| Total air flow | $m^3/h$ | 31420 | 31440 | 31470 | 44760 | 44760 | 68440 | 50410 | 68520 | 84590 |
| Total power input | kW | 1,79 | 1,78 | 1,76 | 2,71 | 2,70 | 4,20 | 2,11 | 4,20 | 5,4 |
| Total input current | A | 3,4 | 3,3 | 3,3 | 5,1 | 5,0 | 7,9 | 3,9 | 7,9 | 10,2 |
| **Evaporator** (2) | | | | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Water flow | $m^3/h$ | 13,5 | 16,9 | 20,6 | 24,3 | 27,5 | 31,2 | 32,7 | 38,8 | 47,0 |
| Pressure drop | kPa | 37,7 | 48,6 | 39,7 | 39 | 34,4 | 16,7 | 56,4 | 37,7 | 32,5 |
| **Weight** | | | | | | | | | | |
| Transport weight | kg | 1000 | 1090 | 1170 | 1538 | 1696 | 1598 | 1809 | 2089 | 2114 |
| Operating weight | kg | 1008 | 1100 | 1182 | 1550 | 1710 | 1609 | 1825 | 2101 | 2127 |
| **Dimensions** | | | | | | | | | | |
| Length | mm | 2590 | 2590 | 2590 | 3630 | 3630 | 2680 | 3630 | 2680 | 2680 |
| Width | mm | 1370 | 1370 | 1370 | 1370 | 1370 | 2260 | 1370 | 2260 | 2260 |
| Height | mm | 2570 | 2570 | 2570 | 2570 | 2570 | 2470 | 2570 | 2470 | 2470 |
| **Sound data** | | | | | | | | | | |
| Total LWA (3) | dB(A) | 80,6 | 84,2 | 85,8 | 87,5 | 88,4 | 86,0 | 91,0 | 86,0 | 87,0 |
| Total SPL 10m (4) | dB(A) | 50,1 | 53,7 | 55,3 | 56,9 | 57,7 | 53,9 | 60,4 | 53,9 | 54,9 |
| **Power supply** | | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 3/400/50 | 3/400/50 | 3/400/50 | 3/400/50 | 3/400/50 | 400/3/50 | 3/400/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | | |
| Maximum input power | [kW] | 36,1 | 45,0 | 59,0 | 65,3 | 74,2 | 75,9 | 99,0 | 98,2 | 119,9 |
| Maximum input current | [A] | 72,0 | 86,6 | 107,6 | 120,0 | 137,2 | 141,2 | 176,3 | 183,6 | 218,8 |
| Inrush current | [A] | 212,0 | 325,5 | 352,2 | 364,6 | 462,6 | 466,6 | 501,7 | 422,5 | 463,4 |

| RAE N MC S Kc | | 3102 | 3502 | 3802 | 4002 | 5002 | 5402 | 6002 | 6502 |
|---|---|---|---|---|---|---|---|---|---|
| Cooling capacity | kW | 293,8 | 327,9 | 376,5 | 399,5 | 502,9 | 547,5 | 608,8 | 635,5 |
| Total input power | kW | 101,0 | 102,8 | 129,4 | 144,1 | 166,4 | 183,9 | 194,8 | 212,3 |
| Nominal input current | A | 172,3 | 176,2 | 218,5 | 242,9 | 283,9 | 312,2 | 331,4 | 359,2 |
| EER | W/W | 2,91 | 3,19 | 2,91 | 2,77 | 3,02 | 2,98 | 3,13 | 2,99 |
| SEER (EN14825) | W/W | 4,32 | 4,45 | 4,31 | 4,17 | 4,57 | 4,60 | 4,70 | 4,58 |
| Circuits | n° | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Compressors | n° | 4 | 4 | 4 | 4 | 6 | 6 | 6 | 6 |
| **Refrigerant data R410A** | | | | | | | | | |
| Refrigerant charge | kg | 24 | 32 | 32 | 34 | 42 | 46 | 54 | 56 |
| Global warming potential (GWP) | - | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 | 2088 |
| Equivalent $CO_2$ charge | t | 50,1 | 66,8 | 66,8 | 71,0 | 87,8 | 96,1 | 112,8 | 116,9 |
| **Axial fans** (1) | | | | | | | | | |
| Quantity | n° | 4 | 6 | 6 | 6 | 8 | 8 | 10 | 10 |
| Total air flow | $m^3/h$ | 84640 | 102750 | 102840 | 126930 | 169150 | 169200 | 211420 | 211460 |
| Total power input | kW | 5,3 | 6,3 | 6,2 | 8,0 | 10,8 | 10,7 | 13,5 | 13,5 |
| Total input current | A | 10,1 | 11,8 | 11,7 | 15,2 | 20,4 | 20,3 | 25,6 | 25,5 |
| **Evaporator** (2) | | | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Water flow | $m^3/h$ | 50,5 | 56,4 | 64,8 | 68,7 | 86,5 | 94,2 | 104,7 | 109,3 |
| Pressure drop | kPa | 32,9 | 38,0 | 41,8 | 47,4 | 64,0 | 48,4 | 55,7 | 53,7 |
| **Weight** | | | | | | | | | |
| Transport weight | kg | 2204 | 2615 | 2672 | 2724 | 3557 | 3649 | 4048 | 4109 |
| Operating weight | kg | 2223 | 2637 | 2696 | 2754 | 3590 | 3685 | 4091 | 4156 |
| **Dimensions** | | | | | | | | | |
| Length | mm | 2680 | 4020 | 4020 | 4020 | 5360 | 5360 | 6700 | 6700 |
| Width | mm | 2260 | 2260 | 2260 | 2260 | 2260 | 2260 | 2260 | 2260 |
| Height | mm | 2470 | 2470 | 2470 | 2470 | 2470 | 2470 | 2470 | 2470 |
| **Sound data** | | | | | | | | | |
| Total LWA (3) | dB(A) | 88,0 | 87,0 | 88,0 | 91,0 | 89,0 | 91,0 | 91,0 | 93,0 |
| Total SPL 10m (4) | dB(A) | 55,9 | 54,7 | 55,7 | 58,7 | 56,6 | 58,6 | 58,4 | 60,4 |
| **Power supply** | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | |
| Maximum input power | [kW] | 130,3 | 138,9 | 169,7 | 189,4 | 229,2 | 247,0 | 267,9 | 285,7 |
| Maximum input current | [A] | 239,6 | 256,6 | 311,0 | 347,8 | 415,6 | 450,0 | 490,2 | 524,6 |
| Inrush current | [A] | 484,2 | 582,0 | 636,4 | 673,2 | 660,2 | 775,4 | 815,6 | 850,0 |

(1) Ambient air temperature 35°C
(2) Fluid: Water - In/out Temperature: 12/7°C
(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 10m from the unit in free field conditions, in accordance with ISO 3744

| RAE N MC HE S Kc | | 801 | 1001 | 1301 | 1501 | 1651 |
|---|---|---|---|---|---|---|
| Cooling capacity | kW | 80,4 | 102,0 | 132,0 | 144,0 | 165,0 |
| Total input power | kW | 24,5 | 33,1 | 41,8 | 46,4 | 54,9 |
| Nominal input current | A | 46,7 | 59,4 | 72,0 | 79,8 | 93,3 |
| EER | W/W | 3,28 | 3,08 | 3,16 | 3,10 | 3,01 |
| SEER (EN14825) | W/W | 4,54 | 4,62 | 4,82 | 4,58 | 4,66 |
| Circuits | n° | 1 | 1 | 1 | 1 | 1 |
| Compressors | n° | 2 | 2 | 2 | 2 | 2 |
| **Refrigerant data R410A** | | | | | | |
| Refrigerant charge | kg | 12 | 13 | 16,7 | 17 | 18 |
| Global warming potential (GWP) | - | 2088 | 2088 | 2088 | 2088 | 2088 |
| Equivalent $CO_2$ charge | t | 25,8 | 26,6 | 34,9 | 35,8 | 36,8 |
| **Axial fans** (1) | | | | | | |
| Quantity | n° | 2 | 2 | 3 | 3 | 3 |
| Total air flow | $m^3/h$ | 32770 | 36870 | 49480 | 50950 | 53920 |
| Total power input | kW | 1,2 | 1,7 | 2,0 | 2,2 | 2,6 |
| Total input current | A | 2,3 | 3,0 | 3,8 | 4,1 | 4,6 |
| **Evaporator** (2) | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 |
| Water flow | $m^3/h$ | 13,8 | 17,5 | 22,8 | 24,8 | 28,4 |
| Pressure drop | kPa | 34,0 | 29,7 | 55,8 | 40,3 | 36,5 |
| **Weight** | | | | | | |
| Transport weight | kg | 1000 | 1090 | 1538 | 1696 | 1809 |
| Operating weight | kg | 1008 | 1100 | 1550 | 1710 | 1825 |
| **Dimensions** | | | | | | |
| Length | mm | 2590 | 2590 | 3630 | 3630 | 3630 |
| Width | mm | 1370 | 1370 | 1370 | 1370 | 1370 |
| Height | mm | 2570 | 2570 | 2570 | 2570 | 2570 |
| **Sound data** | | | | | | |
| Total LWA (3) | dB(A) | 82,5 | 85,4 | 87,1 | 87,8 | 88,6 |
| Total SPL 10m (4) | dB(A) | 52,0 | 54,9 | 56,5 | 57,1 | 58,0 |
| **Power supply** | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 3/400/50 | 3/400/50 | 3/400/50 | 3/400/50 | 3/400/50 |
| **General electrical data** | | | | | | |
| Maximum input power | [kW] | 39,9 | 48,8 | 65,8 | 71,0 | 79,9 |
| Maximum input current | [A] | 75,4 | 90,0 | 114,7 | 125,1 | 142,3 |
| Inrush current | [A] | 215,4 | 328,9 | 359,3 | 369,7 | 467,7 |

(1) Ambient air temperature 35°C
(2) Fluid: Water - In/out Temperature: 12/7°C
(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 10m from the unit in free field conditions, in accordance with ISO 3744

| RAE N MC Kr | | 801 | 1001 | 1301 | 1501 | 1651 | 2001 |
|---|---|---|---|---|---|---|---|
| Cooling capacity | kW | 80,6 | 103,0 | 129,0 | 147,0 | 167,0 | 205,0 |
| Total input power | kW | 23,8 | 32,2 | 43,8 | 46,0 | 53,4 | 66,6 |
| Nominal input current | A | 47,0 | 59,5 | 74,0 | 79,9 | 94,7 | 115,0 |
| EER | W/W | 3,39 | 3,20 | 2,95 | 3,20 | 3,13 | 3,08 |
| SEER (EN14825) | W/W | 4,24 | 4,54 | 4,39 | 4,33 | 4,43 | 4,42 |
| Circuits | n° | 1 | 1 | 1 | 1 | 1 | 1 |
| Compressors | n° | 2 | 2 | 2 | 2 | 2 | 2 |
| **Refrigerant data R454B** | | | | | | | |
| Refrigerant charge | kg | 12 | 12 | 13 | 17 | 18 | 18 |
| Global warming potential (GWP) | - | 466 | 466 | 466 | 466 | 466 | 466 |
| Equivalent $CO_2$ charge | t | 5,6 | 5,6 | 6,1 | 7,9 | 8,4 | 8,4 |
| **Axial fans** (1) | | | | | | | |
| Quantity | n° | 2 | 2 | 2 | 3 | 3 | 3 |
| Total air flow | $m^3/h$ | 38718 | 38479 | 38177 | 58225 | 57986 | 68915 |
| Total power input | kW | 3,02 | 3,00 | 2,97 | 4,48 | 4,46 | 5,59 |
| Total input current | A | 6,50 | 6,45 | 6,39 | 9,66 | 9,62 | 8,85 |
| **Evaporator** (2) | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 1 |
| Water flow | $m^3/h$ | 13,89 | 17,83 | 22,23 | 25,25 | 28,83 | 35,27 |
| Pressure drop | kPa | 41,9 | 49,5 | 54,3 | 53,9 | 55,1 | 26,3 |
| **Weight** | | | | | | | |
| Transport weight | kg | 1000 | 1090 | 1170 | 1538 | 1696 | 1809 |
| Operating weight | kg | 1008 | 1100 | 1182 | 1550 | 1710 | 1825 |
| **Dimensions** | | | | | | | |
| Length | mm | 2590 | 2590 | 2590 | 3630 | 3630 | 3630 |
| Width | mm | 1370 | 1370 | 1370 | 1370 | 1370 | 1370 |
| Height | mm | 2570 | 2570 | 2570 | 2570 | 2570 | 2570 |
| **Sound data** | | | | | | | |
| Total LWA (3) | dB(A) | 85 | 88 | 90 | 91 | 92 | 94 |
| Total SPL 10m (4) | dB(A) | 53 | 56 | 58 | 59 | 59 | 62 |
| **Power supply** | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | |
| Maximum input power | [kW] | 36,4 | 50,1 | 58,3 | 70,2 | 80,7 | 99,0 |
| Maximum input current | [A] | 64,2 | 98,0 | 115,0 | 130,0 | 180,0 | 223,0 |
| Inrush current | [A] | 233 | 296 | 353 | 368 | 418 | 461 |

(1) Ambient air temperature 35°C
(2) Fluid: Water - In/out Temperature: 12/7°C
(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 10m from the unit in free field conditions, in accordance with ISO 3744

| RAE N MC S Kr | | 801 | 1001 | 1301 | 1501 | 1651 | 1701 | 2001 | 2402 | 2702 |
|---|---|---|---|---|---|---|---|---|---|---|
| Cooling capacity | kW | 79,0 | 101,0 | 125,0 | 143,0 | 161,0 | 171,0 | 198,0 | 22,3 | 264,0 |
| Total input power | kW | 23,4 | 32,2 | 44,9 | 46,4 | 54,5 | 50,9 | 67,1 | 75,1 | 86,9 |
| Nominal input current | A | 44,9 | 58,0 | 74,3 | 78,4 | 94,1 | 89,6 | 116,0 | 130,0 | 146,0 |
| EER | W/W | 3,38 | 3,14 | 2,78 | 3,08 | 2,95 | 3,36 | 2,95 | 2,97 | 3,04 |
| SEER (EN14825) | W/W | 4,59 | 4,66 | 4,44 | 4,51 | 4,57 | 4,83 | 4,28 | 4,72 | 4,75 |
| Circuits | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |
| Compressors | n° | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 4 |
| **Refrigerant data R454B** | | | | | | | | | | |
| Refrigerant charge | kg | 12 | 12 | 13 | 17 | 18 | 16 | 18 | 26 | 28 |
| Global warming potential (GWP) | - | 466 | 466 | 466 | 466 | 466 | 466 | 466 | 466 | 466 |
| Equivalent $CO_2$ charge | t | 5,6 | 5,6 | 6,1 | 7,9 | 8,4 | 7,5 | 8,4 | 12,1 | 13,0 |
| **Axial fans** (1) | | | | | | | | | | |
| Quantity | n° | 2 | 2 | 2 | 3 | 3 | 4 | 3 | 4 | 4 |
| Total air flow | $m^3/h$ | 29491 | 29256 | 28975 | 43036 | 42800 | 58859 | 51587 | 58142 | 77348 |
| Total power input | kW | 1,81 | 1,80 | 1,78 | 2,71 | 2,70 | 3,62 | 2,57 | 3,56 | 5,45 |
| Total input current | A | 3,39 | 3,36 | 3,32 | 5,08 | 5,05 | 6,67 | 4,62 | 6,67 | 10,3 |
| **Evaporator** (2) | | | | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Water flow | $m^3/h$ | 13,61 | 17,34 | 21,52 | 24,54 | 27,76 | 29,38 | 34,01 | 38,45 | 45,46 |
| Pressure drop | kPa | 40,4 | 47,1 | 51,0 | 51,0 | 51,5 | 57,0 | 24,6 | 39,9 | 31,8 |
| **Weight** | | | | | | | | | | |
| Transport weight | kg | 1000 | 1090 | 1170 | 1538 | 1696 | 1598 | 1809 | 2089 | 2114 |
| Operating weight | kg | 1008 | 1100 | 1182 | 1550 | 1710 | 1690 | 1825 | 2101 | 2127 |
| **Dimensions** | | | | | | | | | | |
| Length | mm | 2590 | 2590 | 2590 | 3630 | 3630 | 2680 | 3630 | 2680 | 2680 |
| Width | mm | 1370 | 1370 | 1370 | 1370 | 1370 | 2260 | 1370 | 2260 | 2260 |
| Height | mm | 2570 | 2570 | 2570 | 2570 | 2570 | 2470 | 2570 | 2470 | 2470 |
| **Sound data** | | | | | | | | | | |
| Total LWA (3) | dB(A) | 81 | 84 | 86 | 87 | 88 | 86 | 91 | 86 | 87 |
| Total SPL 10m (4) | dB(A) | 49 | 52 | 54 | 55 | 56 | 54 | 59 | 54 | 55 |
| **Power supply** | | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | | |
| Maximum input power | [kW] | 34,8 | 48,5 | 56,7 | 67,8 | 78,3 | 79,4 | 99,0 | 104,0 | 115,0 |
| Maximum input current | [A] | 60,4 | 94,2 | 111,0 | 124,0 | 174,0 | 176,0 | 223,0 | 234,0 | 226,0 |
| Inrush current | [A] | 229 | 292 | 349 | 362 | 412 | 414 | 461 | 432 | 464 |

| RAE N MC S Kr | | 3102 | 3502 | 3802 | 4002 | 5002 | 5402 | 6002 | 6502 |
|---|---|---|---|---|---|---|---|---|---|
| Cooling capacity | kW | 286,0 | 303,0 | 364,0 | 410,0 | 481,0 | 528,0 | 586,0 | 626,0 |
| Total input power | kW | 95,2 | 98,2 | 121,0 | 132,0 | 155,0 | 171,0 | 180,0 | 196,0 |
| Nominal input current | A | 161,0 | 170,0 | 204,0 | 230,0 | 257,0 | 289,0 | 311,0 | 343,0 |
| EER | - | 3,00 | 3,09 | 3,01 | 3,11 | 3,10 | 3,09 | 3,26 | 3,19 |
| SEER (EN14825) | - | 4,84 | 5,18 | 5,02 | 4,83 | 4,88 | 5,00 | 5,00 | 5,10 |
| Circuits | n° | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Compressors | n° | 4 | 4 | 4 | 4 | 6 | 6 | 6 | 6 |
| **Refrigerant data R454B** | | | | | | | | | |
| Refrigerant charge | kg | 30 | 40 | 42 | 44 | 54 | 58 | 70 | 72 |
| Global warming potential (GWP) | - | 466 | 466 | 466 | 466 | 466 | 466 | 466 | 466 |
| Equivalent $CO_2$ charge | t | 14,0 | 18,6 | 19,6 | 20,5 | 25,2 | 27,0 | 32,6 | 33,6 |
| **Axial fans** (1) | | | | | | | | | |
| Quantity | n° | 4 | 6 | 6 | 6 | 8 | 8 | 10 | 10 |
| Total air flow | $m^3/h$ | 77050 | 87655 | 87105 | 115897 | 155023 | 154731 | 194003 | 193551 |
| Total power input | kW | 5,42 | 5,38 | 5,34 | 8,16 | 10,9 | 10,9 | 13,7 | 13,7 |
| Total input current | A | 10,2 | 10,1 | 9,99 | 15,4 | 20,7 | 20,6 | 25,9 | 25,9 |
| **Evaporator** (2) | | | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Water flow | $m^3/h$ | 44,19 | 52,05 | 62,63 | 70,50 | 82,84 | 90,88 | 100,8 | 107,8 |
| Pressure drop | kPa | 33,0 | 38,0 | 44,3 | 43,6 | 58,3 | 48,5 | 53,5 | 50,8 |
| **Weight** | | | | 2672 | | | | | |
| Transport weight | kg | 2204 | 2615 | 2696 | 2724 | 3557 | 3649 | 4048 | 4109 |
| Operating weight | kg | 2223 | 2637 | | 2754 | 3590 | 3685 | 4091 | 4156 |
| **Dimensions** | | | | | | | | | |
| Length | mm | 2680 | 4020 | 4020 | 4020 | 5360 | 5360 | 6700 | 6700 |
| Width | mm | 2260 | 2260 | 2260 | 2260 | 2260 | 2260 | 2260 | 2260 |
| Height | mm | 2470 | 2470 | 2470 | 2470 | 2470 | 2470 | 2470 | 2470 |
| **Sound data** | | | | | | | | | |
| Total LWA (3) | dB(A) | 88 | 87 | 88 | 91 | 89 | 91 | 91 | 93 |
| Total SPL 10m (4) | dB(A) | 56 | 55 | 56 | 59 | 56 | 59 | 59 | 60 |
| **Power supply** | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | |
| Maximum input power | [kW] | 135,0 | 137,0 | 166,0 | 189,0 | 220,0 | 241,0 | 265,0 | 286,0 |
| Maximum input current | [A] | 248,0 | 326,0 | 337,0 | 441,0 | 362,0 | 461,0 | 566,0 | 665,0 |
| Inrush current | [A] | 486 | 564 | 575 | 679 | 599 | 699 | 804 | 903 |

(1) Ambient air temperature 35°C
(2) Fluid: Water - In/out Temperature: 12/7°C
(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 10m from the unit in free field conditions, in accordance with ISO 3744

| RAE N MC HE Kr | | 801 | 1001 | 1301 | 1501 | 1651 | 1701 | 2102 | 2402 | 2702 |
|---|---|---|---|---|---|---|---|---|---|---|
| Cooling capacity | kW | 81,9 | 106,0 | 134,0 | 146,0 | 167,0 | 163,0 | 214,0 | 244,0 | 271,0 |
| Total input power | kW | 23,3 | 32,1 | 42,2 | 46,1 | 53,7 | 48,0 | 63,8 | 74,5 | 87,2 |
| Nominal input current | A | 44,8 | 57,9 | 73,9 | 80,6 | 95,2 | 87,7 | 116,0 | 129,0 | 145,0 |
| EER | W/W | 3,52 | 3,30 | 3,18 | 3,17 | 3,11 | 3,40 | 3,35 | 3,28 | 3,11 |
| SEER (EN14825) | W/W | 5,19 | 5,26 | 4,99 | 4,86 | 4,91 | 4,93 | 5,46 | 5,13 | 5,01 |
| Circuits | n° | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 |
| Compressors | n° | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 4 | 4 |
| **Refrigerant data R454B** | | | | | | | | | | |
| Refrigerant charge | kg | 12 | 13 | 17 | 17 | 18 | 26 | 31 | 35 | 38 |
| Global warming potential (GWP) | - | 466 | 466 | 466 | 466 | 466 | 466 | 466 | 466 | 466 |
| Equivalent $CO_2$ charge | t | 5,6 | 6,1 | 7,9 | 7,9 | 8,4 | 12,1 | 14,4 | 16,3 | 17,7 |
| **Axial fans** (1) | | | | | | | | | | |
| Quantity | n° | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 4 | 4 |
| Total air flow | $m^3/h$ | 38594 | 42420 | 55105 | 56934 | 58196 | 69350 | 84713 | 89684 | 90543 |
| Total power input | kW | 2,37 | 3,15 | 3,92 | 4,32 | 4,60 | 5,39 | 6,26 | 7,33 | 7,55 |
| Total input current | A | 4,05 | 5,13 | 9,99 | 9,97 | 9,92 | 12,9 | 10,2 | 11,6 | 11,9 |
| **Evaporator** (2) | | | | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Water flow | $m^3/h$ | 14,11 | 18,28 | 23,07 | 25,20 | 28,74 | 28,02 | 36,88 | 42,02 | 46,61 |
| Pressure drop | kPa | 33,1 | 39,1 | 59,2 | 54,4 | 55,9 | 53,4 | 29,2 | 25,2 | 30,6 |
| **Weight** | | | | | | | | | | |
| Transport weight | kg | 1000 | 1090 | 1538 | 1696 | 1809 | 1598 | 1871 | 1977 | 1988 |
| Operating weight | kg | 1008 | 1100 | 1550 | 1710 | 1825 | 1609 | 1894 | 2004 | 2027 |
| **Dimensions** | | | | | | | | | | |
| Length | mm | 2590 | 2590 | 3630 | 3630 | 3630 | 2680 | 2680 | 2680 | 2680 |
| Width | mm | 1370 | 1370 | 1370 | 1370 | 1370 | 2260 | 2260 | 2260 | 2260 |
| Height | mm | 2570 | 2570 | 2570 | 2570 | 2570 | 2470 | 2470 | 2470 | 2470 |
| **Sound data** | | | | | | | | | | |
| Total LWA (3) | dB(A) | 86 | 88 | 91 | 92 | 92 | 91 | 91 | 93 | 94 |
| Total SPL 10m (4) | dB(A) | 54 | 56 | 59 | 60 | 60 | 59 | 59 | 61 | 62 |
| **Power supply** | | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | | |
| Maximum input power | [kW] | 38,6 | 52,3 | 60,2 | 70,2 | 80,7 | 72,6 | 105,0 | 112,0 | 121,0 |
| Maximum input current | [A] | 63,8 | 97,6 | 119,0 | 130,0 | 180,0 | 173,0 | 195,0 | 241,0 | 230,0 |
| Inrush current | [A] | 233 | 296 | 357 | 368 | 418 | 411 | 393 | 439 | 467 |

| RAE N MC HE Kr | | 3102 | 3502 | 4002 | 4402 | 5102 | 5602 | 6302 | 6602 |
|---|---|---|---|---|---|---|---|---|---|
| Cooling capacity | kW | 303,0 | 323,0 | 380,0 | 433,0 | 497,0 | 540,0 | 593,0 | 641,0 |
| Total input power | kW | 90,5 | 97,9 | 116,0 | 128,0 | 155,0 | 170,0 | 181,0 | 195,0 |
| Nominal input current | A | 160,0 | 175,0 | 205,0 | 235,0 | 265,0 | 294,0 | 323,0 | 351,0 |
| EER | W/W | 3,35 | 3,30 | 3,28 | 3,38 | 3,21 | 3,18 | 3,28 | 3,29 |
| SEER (EN14825) | W/W | 5,21 | 5,39 | 5,12 | 4,86 | 4,93 | 4,94 | 4,95 | 4,89 |
| Circuits | n° | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Compressors | n° | 4 | 4 | 4 | 4 | 6 | 6 | 6 | 6 |
| **Refrigerant data R454B** | | | | | | | | | |
| Refrigerant charge | kg | 44 | 49 | 56 | 63 | 74 | 80 | 89 | 94 |
| Global warming potential (GWP) | - | 466 | 466 | 466 | 466 | 466 | 466 | 466 | 466 |
| Equivalent $CO_2$ charge | t | 20,5 | 22,8 | 26,1 | 29,4 | 34,5 | 37,3 | 41,5 | 43,8 |
| **Axial fans** (1) | | | | | | | | | |
| Quantity | n° | 6 | 6 | 6 | 8 | 8 | 8 | 10 | 10 |
| Total air flow | $m^3/h$ | 111063 | 113902 | 147692 | 185522 | 196170 | 201742 | 241042 | 247922 |
| Total power input | kW | 8,17 | 8,86 | 11,4 | 15,3 | 16,0 | 16,4 | 19,7 | 20,2 |
| Total input current | A | 19,9 | 19,9 | 26,8 | 36,1 | 35,8 | 35,8 | 44,8 | 44,7 |
| **Evaporator** (2) | | | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Water flow | $m^3/h$ | 52,10 | 55,64 | 65,39 | 74,43 | 85,58 | 92,84 | 102,1 | 110,2 |
| Pressure drop | kPa | 36,1 | 40,6 | 38,6 | 48,8 | 44,3 | 47,0 | 55,6 | 53,8 |
| **Weight** | | | | | | | | | |
| Transport weight | kg | 2473 | 2478 | 2579 | 2988 | 3422 | 3488 | 3941 | 3952 |
| Operating weight | kg | 2519 | 2526 | 2639 | 3054 | 3502 | 3579 | 4037 | 4054 |
| **Dimensions** | | | | | | | | | |
| Length | mm | 4020 | 4020 | 4020 | 5360 | 5360 | 5360 | 6700 | 6700 |
| Width | mm | 2260 | 2260 | 2260 | 2260 | 2260 | 2260 | 2260 | 2260 |
| Height | mm | 2470 | 2470 | 2470 | 2470 | 2470 | 2470 | 2470 | 2470 |
| **Sound data** | | | | | | | | | |
| Total LWA (3) | dB(A) | 94 | 94 | 96 | 98 | 96 | 98 | 98 | 100 |
| Total SPL 10m (4) | dB(A) | 62 | 62 | 63 | 66 | 63 | 66 | 66 | 67 |
| **Power supply** | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | |
| Maximum input power | [kW] | 140,0 | 141,0 | 174,0 | 200,0 | 227,0 | 248,0 | 574,0 | 295,0 |
| Maximum input current | [A] | 260,0 | 337,0 | 356,0 | 465,0 | 380,0 | 479,0 | 588,0 | 688,0 |
| Inrush current | [A] | 498 | 575 | 594 | 703 | 617 | 717 | 826 | 926 |

(1) Ambient air temperature 35°C
(2) Fluid: Water - In/out Temperature: 12/7°C
(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 10m from the unit in free field conditions, in accordance with ISO 3744

| RAE N MC HE S Kr | | 801 | 1001 | 1301 | 1501 | 1651 |
|---|---|---|---|---|---|---|
| Cooling capacity | kW | 80,7 | 103,0 | 134,0 | 146,0 | 166,0 |
| Total input power | kW | 23,6 | 32,6 | 41,1 | 45,0 | 52,6 |
| Nominal input current | A | 45,3 | 58,6 | 68,9 | 76,2 | 91,3 |
| EER | W/W | 3,42 | 3,16 | 3,26 | 3,24 | 3,16 |
| SEER (EN14825) | W/W | 4,74 | 4,86 | 5,07 | 4,93 | 4,95 |
| Circuits | n° | 1 | 1 | 1 | 1 | 1 |
| Compressors | n° | 2 | 2 | 2 | 2 | 2 |
| **Refrigerant data R454B** | | | | | | |
| Refrigerant charge | kg | 12 | 13 | 17 | 17 | 18 |
| Global warming potential (GWP) | - | 466 | 466 | 466 | 466 | 466 |
| Equivalent $CO_2$ charge | t | 5,6 | 6,1 | 7,9 | 7,9 | 8,4 |
| **Axial fans** (1) | | | | | | |
| Quantity | n° | 2 | 2 | 3 | 3 | 3 |
| Total air flow | $m^3/h$ | 28048 | 29230 | 50778 | 52187 | 51964 |
| Total power input | kW | 1,73 | 1,79 | 2,40 | 2,60 | 2,59 |
| Total input current | A | 3,38 | 3,36 | 4,38 | 4,68 | 4,65 |
| **Evaporator** (2) | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 |
| Water flow | $m^3/h$ | 13,90 | 17,83 | 23,12 | 25,08 | 28,65 |
| Pressure drop | kPa | 31,6 | 36,4 | 58,5 | 53,6 | 54,6 |
| **Weight** | | | | | | |
| Transport weight | kg | 1000 | 1090 | 1538 | 1696 | 1809 |
| Operating weight | kg | 1008 | 1100 | 1550 | 1710 | 1825 |
| **Dimensions** | | | | | | |
| Length | mm | 2590 | 2590 | 3630 | 3630 | 3630 |
| Width | mm | 1370 | 1370 | 1370 | 1370 | 1370 |
| Height | mm | 2570 | 2570 | 2570 | 2570 | 2570 |
| **Sound data** | | | | | | |
| Total LWA (3) | dB(A) | 83 | 85 | 57 | 88 | 89 |
| Total SPL 10m (4) | dB(A) | 51 | 53 | 55 | 56 | 56 |
| **Power supply** | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | |
| Maximum input power | [kW] | 34,8 | 48,5 | 63,5 | 73,5 | 84,0 |
| Maximum input current | [A] | 60,4 | 94,2 | 118,0 | 130,0 | 179,0 |
| Inrush current | [A] | 229 | 292 | 356 | 367 | 417 |

(1) Ambient air temperature 35°C
(2) Fluid: Water - In/out Temperature: 12/7°C
(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 10m from the unit in free field conditions, in accordance with ISO 3744

# RAE F Kc/Kr

## AIR COOLED CHILLERS FOR OUTDOOR INSTALLATION
WITH INTEGRATED FREE COOLING, EQUIPPED WITH SCROLL COMPRESSORS AND AXIAL FANS

Cooling capacity from 91 kW to 853 kW

## VERSIONS

**RAE F -** standard version
**RAE F HE -** high efficiency version
**RAE F S e U** - silenced and ultra-silenced versions **on request**

Packaged air cooled chillers of RAE F series with integrated free cooling section are suitable for outdoor installation and can be used to cool glycol fluid solutions for air conditioning or in industrial applications.
Multiscroll technology allows to reach great efficiency improvements at part load, if compared to the other traditional systems for cooling capacity control.

The integrated free cooling section allows to partially or totally recover cooling capacity from external air without big consumption of energy. Units are equipped with an additional coil crossed by the liquid to be chilled and invested by the complete air flow generated by the condenser fans.
These units have been designed considering limited space requirements and keeping, at the same time, high cooling performances. Such result has been attained with high-quality and up-to-date components.
All units are completely assembled and tested in the factory with specific quality procedures and are already equipped with all necessary hydraulic, refrigerant and electrical connections for a quick installation on site.

Before factory testing, cooling circuits are tested under pressure and then supplied with refrigerant and a non-freezing oil charge.

**Units CE certified in compliance with the European regulation 2016/2281 ERP 2021.**

# MAIN COMPONENTS

**STRUCTURE**
Structure made of a base and a chassis manufactured in high-thickness galvanised steel, assembled with stainless steel rivets. All galvanised steel surfaces are powder-coated with colour RAL 7035.

**SCROLL COMPRESSOR**
Scroll compressors operating on one or two independent circuits in single, tandem or trio version. The compressors are installed on rubber isolation dampers, provided with direct-start motors cooled by suction gas and fitted with both overload protection and crankcase heaters. They are charged with polyester oil and the terminal board is IP54. The on-board microprocessor automatically controls the individual compressors to regulate the cooling capacity.

**STAINLESS STEEL PLATE EVAPORATOR**
Of "single" or "dual" circuit type, with high thickness close cell insulation and UV ray-proof. The max operating pressure limits are 6 bar for water side and 45 bar for refrigerant side. The evaporator is also equipped with safety water flow switch switching off the unit in case of low water flow through the evaporator.

**EXTERNAL CONDENSING COIL**
Multisection type, with micro-finned copper tubes, positioned in staggered rows and mechanically expanded into an aluminum finned pack. Fins are designed with such a shape providing the highest heat exchange efficiency (turbo-fin).The max operating pressure refrigerant side is 45 relative bar.

**EXTERNAL FREE COOLING COILS**
Made of copper tubes with optimized section so to reduce the pressure drops glycol side and aluminum finned pack. Fins are designed with such a shape providing the highest heat exchange efficiency (turbo-fin).The max operating pressure fluid side of free cooling coils is 10 relative bar.
As soon as the external air temperature is lower than the temperature of the fluid at the inlet of the unit (return from the plant), free cooling is going to be activated allowing the fans system to achieve the maximum cooling capacity recovered at the above conditions.
The benefit obtained by the free cooling system is much bigger as much lower is the external air temperature in respect to the temperature value of fluid to be chilled. That's why such kind of units are suitable to be installed on air conditioning and refrigeration plants located on places where the weather annual profile is characterized by medium and low external temperatures and where the cooling demand is significant and for long periods of time.
It is almost always recommended that free cooling coils are supplied with glycol mixtures so to prevent the freezing of the fluid to be chilled and to avoid relevant breakages of exchangers.
On applications where is not possible to directly use glycol mixtures, it is possible to add a "GLYCOL LOOP" circuit (option GYL) with wich an hydraulic separation is obtained between the free cooling coils and the whole remaining part of the plant. That circuit provides the separation thanks to an additional water/glycol heat exchanger and is complete of a water pump for the internal fluid circulation. That pump is switched on only during free cooling operation.

**AXIAL FANS**
With external rotor directly coupled to a three-phase electronically commutated motor (EC) they have the possibility of a continuous regulation of the speed by means of a 0-10V signal completely managed by the microprocessor. Aluminum blades with wings profile are suitably designed to avoid any turbulence in the air detachment zone, granting in this way the max efficiency with the minimum noise level. The fan is equipped with galvanized steel protection grid painted after the construction. These fans, thanks to a more accurate regulation of the airflow, allow the unit to operate with an external air temperature up to - 20 °C.

**INDEPENDENT COOLING CIRCUITS**
Each provided with a shut-off valve for refrigerant charge, anti-freeze sensor, shut-off valves on liquid lines, sight glass, dehydrating filter, high-pressure safety device on high pressure refrigerant side and mechanical thermostatic expansion valve up to 3602 model and electronic type for all remaining sizes, as well as high and low pressure switches and gauges and pressure transducer on high pressure side for the automatic condensing pressure regulation. Provided with three-way water valve ON/OFF to activate the free-cooling mode, automatic air vent valves on plate coils and exchangers, glycol solution charge and/or discharge valves, anti-freeze probe.

**ELECTRICAL BOARD**
In compliance with CE Norms, contained in a suitable section protected by internal safety panel, provided with a lock-door main switch. Inside all the control and protection components are suitably placed, together with terminal board and auxiliaries. The electrical board also includes the control device for power supply phases to prevent the compressor wrong side rotation. Microprocessor and relevant display are also placed inside the electrical cabinet.

# ACCESSORIES

| RAE F Kc/Kr | | 801 | 1001 | 1301 | 1501 | 1701 | 2001 | 2302 | 2602 | 3002 |
|---|---|---|---|---|---|---|---|---|---|---|
| Amperometer | **A** | o | o | o | o | o | o | o | o | o |
| Electrical power supply different than standard | **AE** | □ | □ | □ | □ | □ | □ | □ | □ | □ |
| Operation in cooling mode down to -20°C | **BF** | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Operation in cooling mode down to -10°C | **BT** | o | o | o | o | o | o | o | o | o |
| Soundproofed compressors cabinet with standard material | **CF** | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Overall compressor and technical compartment cabinet | **CFT** | o | o | o | o | o | o | o | o | o |
| Soundproofed compressors cabinet with polyester material | **CFU** | o | o | o | o | o | o | o | o | o |
| Compressors inrush counter | **CS** | o | o | o | o | o | o | o | o | o |
| Axial fans with electronic commutated motor | **EC** | o | o | o | o | o | o | o | o | o |
| Condensing coil protection grid | **GP** | o | o | o | o | o | o | o | o | o |
| Anti-intrusion grid | **GP2** | o | o | o | o | o | o | o | o | o |
| Anti-intrusion grid with compressors cabinet | **GP3** | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Glycol loop | **GYL** | □ | □ | □ | □ | □ | □ | □ | □ | □ |
| Victaulic insulation on pump side | **I1** | o | o | o | o | o | o | o | o | o |
| Victaulic insulation buffer tank side | **I2** | o | o | o | o | o | o | o | o | o |
| RS 485 Serial interface | **IH** | o | o | o | o | o | o | o | o | o |
| LON Protocol serial interface | **IH-LON** | o | o | o | o | o | o | o | o | o |
| Seawood packing | **IM** | o | o | o | o | o | o | o | o | o |
| TCP/IP Protocol serial interface | **IWG** | o | o | o | o | o | o | o | o | o |
| Phase monitor | **MF** | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Buffer tank module | **MV** | □ | □ | □ | □ | □ | □ | □ | □ | □ |
| Pump group | **P1** | o | o | o | o | o | o | o | o | o |
| Higher available pressure pump group | **P1H** | o | o | o | o | o | o | o | o | o |
| Double pump group | **P2** | o | o | o | o | o | o | o | o | o |
| Higher available pressure double pump group | **P2H** | o | o | o | o | o | o | o | o | o |
| Rubber-type vibration dampers | **PA** | o | o | o | o | o | o | o | o | o |
| Safety water flow switch | **PF** | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Spring-type vibration dampers | **PM** | o | o | o | o | o | o | o | o | o |
| Remote display | **PQ** | o | o | o | o | o | o | o | o | o |
| In-line twin pump group (only one working) | **PT** | o | o | o | o | o | o | o | o | o |
| Anti-freeze heater on evaporator | **RA** | o | o | o | o | o | o | o | o | o |
| Shut-off valve on compressors discharge side | **RD** | o | o | o | o | o | o | o | o | o |
| Power factor correction system cosfi ≥0,9 | **RF** | o | o | o | o | o | o | o | o | o |
| Shut-off valve on compressors suction side | **RH** | o | o | o | o | o | o | o | o | o |
| Compressor overload relays | **RL** | o | o | o | o | o | o | o | o | o |
| Condensing coil with pre-painted fins | **RM** | o | o | o | o | o | o | o | o | o |
| Partial heat recovery | **RP** | o | o | o | o | o | o | o | o | o |
| Copper/Copper coil | **RR** | o | o | o | o | o | o | o | o | o |
| Total heat recovery | **RT** | □ | □ | □ | □ | □ | □ | □ | □ | □ |
| Personalized frame painting in alternative RAL colour | **RV** | o | o | o | o | o | o | o | o | o |
| Coil with double layer treatment | **TDS** | o | o | o | o | o | o | o | o | o |
| Electronic thermostatic valve | **TE** | o | o | o | o | o | o | o | o | o |
| Electronic thermostatic valve with solenoid valve | **TE+VS** | o | o | o | o | o | o | o | o | o |
| Voltmeter | **V** | o | o | o | o | o | o | o | o | o |
| Brine Version | **VB** | o | o | o | o | o | o | o | o | o |
| Solenoid valve | **VS** | o | o | o | o | o | o | o | o | o |

• Standard, o Optional, -- Not available

| RAE F Kc/Kr | | 3302 | 3602 | 4002 | 4802 | 5202 | 5402 | 5602 | 6002 |
|---|---|---|---|---|---|---|---|---|---|
| Amperometer | **A** | o | o | o | o | o | o | o | o |
| Electrical power supply different than standard | **AE** | □ | □ | □ | □ | □ | □ | □ | □ |
| Operation in cooling mode down to -20°C | **BF** | • | • | • | • | • | • | • | • |
| Operation in cooling mode down to -10°C | **BT** | o | o | o | o | o | o | o | o |
| Soundproofed compressors cabinet with standard material | **CF** | • | • | • | • | • | • | • | • |
| Overall compressor and technical compartment cabinet | **CFT** | -- | -- | -- | -- | -- | -- | -- | -- |
| Soundproofed compressors cabinet with polyester material | **CFU** | o | o | o | o | o | o | o | o |
| Compressors inrush counter | **CS** | o | o | o | o | o | o | o | o |
| Axial fans with electronic commutated motor | **EC** | o | o | o | o | o | o | o | o |
| Condensing coil protection grid | **GP** | o | o | o | o | o | o | o | o |
| Anti-intrusion grid | **GP2** | -- | -- | -- | -- | -- | -- | -- | -- |
| Anti-intrusion grid with compressors cabinet | **GP3** | o | o | o | o | o | o | o | o |
| Glycol loop | **GYL** | □ | □ | □ | □ | □ | □ | □ | □ |
| Victaulic insulation on pump side | **I1** | o | o | o | o | o | o | o | o |
| Victaulic insulation buffer tank side | **I2** | o | o | o | o | o | o | o | o |
| RS 485 Serial interface | **IH** | o | o | o | o | o | o | o | o |
| LON Protocol serial interface | **IH-LON** | o | o | o | o | o | o | o | o |
| Seawood packing | **IM** | o | o | o | o | o | o | o | o |
| TCP/IP Protocol serial interface | **IWG** | o | o | o | o | o | o | o | o |
| Phase monitor | **MF** | • | • | • | • | • | • | • | • |
| Buffer tank module | **MV** | □ | □ | □ | □ | □ | □ | □ | □ |
| Pump group | **P1** | o | o | o | o | o | o | o | o |
| Higher available pressure pump group | **P1H** | o | o | o | o | o | o | o | o |
| Double pump group | **P2** | o | o | o | o | o | o | o | o |
| Higher available pressure double pump group | **P2H** | o | o | o | o | o | o | o | o |
| Rubber-type vibration dampers | **PA** | o | o | o | o | o | o | o | o |
| Safety water flow switch | **PF** | • | • | • | • | • | • | • | • |
| Spring-type vibration dampers | **PM** | o | o | o | o | o | o | o | o |
| Remote display | **PQ** | o | o | o | o | o | o | o | o |
| In-line twin pump group (only one working) | **PT** | o | o | o | o | o | o | o | o |
| Anti-freeze heater on evaporator | **RA** | o | o | o | o | o | o | o | o |
| Shut-off valve on compressors discharge side | **RD** | o | o | o | o | o | o | o | o |
| Power factor correction system cosfi ≥0,9 | **RF** | o | o | o | o | o | o | o | o |
| Shut-off valve on compressors suction side | **RH** | o | o | o | o | o | o | o | o |
| Compressor overload relays | **RL** | o | o | o | o | o | o | o | o |
| Condensing coil with pre-painted fins | **RM** | o | o | o | o | o | o | o | o |
| Partial heat recovery | **RP** | o | o | o | o | o | o | o | o |
| Copper/Copper coil | **RR** | o | o | o | o | o | o | o | o |
| Total heat recovery | **RT** | □ | □ | □ | □ | □ | □ | □ | □ |
| Personalized frame painting in alternative RAL colour | **RV** | o | o | o | o | o | o | o | o |
| Coil with double layer treatment | **TDS** | o | o | o | o | o | o | o | o |
| Electronic thermostatic valve | **TE** | o | o | o | o | o | • | • | • |
| Electronic thermostatic valve with solenoid valve | **TE+VS** | o | o | o | o | o | -- | -- | -- |
| Voltmeter | **V** | o | o | o | o | o | o | o | o |
| Brine Version | **VB** | o | o | o | o | o | o | o | o |
| Solenoid valve | **VS** | o | o | o | o | o | o | o | o |

• Standard, o Optional, -- Not available

| RAE F HE Kc/Kr | | 801 | 1001 | 1301 | 1501 | 1701 | 2001 | 2302 | 2602 | 3002 |
|---|---|---|---|---|---|---|---|---|---|---|
| Amperometer | **A** | o | o | o | o | o | o | o | o | o |
| Electrical power supply different than standard | **AE** | □ | □ | □ | □ | □ | □ | □ | □ | □ |
| Soundproofed compressors cabinet with standard material | **CF** | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Overall compressor and technical compartment cabinet | **CFT** | o | o | o | o | o | o | -- | -- | -- |
| Soundproofed compressors cabinet with polyester material | **CFU** | o | o | o | o | o | o | o | o | o |
| Compressors inrush counter | **CS** | o | o | o | o | o | o | o | o | o |
| Axial fans with electronic commutated motor | **EC** | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Condensing coil protection grid | **GP** | o | o | o | o | o | o | o | o | o |
| Anti-intrusion grid | **GP2** | o | o | o | o | o | o | -- | -- | -- |
| Anti-intrusion grid with compressors cabinet | **GP3** | -- | -- | -- | -- | -- | -- | o | o | o |
| Glycol loop | **GYL** | □ | □ | □ | □ | □ | □ | □ | □ | □ |
| Victaulic insulation on pump side | **I1** | o | o | o | o | o | o | o | o | o |
| Victaulic insulation buffer tank side | **I2** | o | o | o | o | o | o | o | o | o |
| RS 485 Serial interface | **IH** | o | o | o | o | o | o | o | o | o |
| LON Protocol serial interface | **IH-LON** | o | o | o | o | o | o | o | o | o |
| Seawood packing | **IM** | o | o | o | o | o | o | o | o | o |
| TCP/IP Protocol serial interface | **IWG** | o | o | o | o | o | o | o | o | o |
| Phase monitor | **MF** | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Buffer tank module | **MV** | □ | □ | □ | □ | □ | □ | □ | □ | □ |
| Pump group | **P1** | o | o | o | o | o | o | o | o | o |
| Higher available pressure pump group | **P1H** | o | o | o | o | o | o | o | o | o |
| Double pump group | **P2** | o | o | o | o | o | o | o | o | o |
| Higher available pressure double pump group | **P2H** | o | o | o | o | o | o | o | o | o |
| Rubber-type vibration dampers | **PA** | o | o | o | o | o | o | o | o | o |
| Safety water flow switch | **PF** | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Spring-type vibration dampers | **PM** | o | o | o | o | o | o | o | o | o |
| Remote display | **PQ** | o | o | o | o | o | o | o | o | o |
| In-line twin pump group (only one working) | **PT** | o | o | o | o | o | o | o | o | o |
| Anti-freeze heater on evaporator | **RA** | o | o | o | o | o | o | o | o | o |
| Shut-off valve on compressors discharge side | **RD** | o | o | o | o | o | o | o | o | o |
| Power factor correction system cosfi ≥0,9 | **RF** | o | o | o | o | o | o | o | o | o |
| Shut-off valve on compressors suction side | **RH** | o | o | o | o | o | o | o | o | o |
| Compressor overload relays | **RL** | o | o | o | o | o | o | o | o | o |
| Condensing coil with pre-painted fins | **RM** | o | o | o | o | o | o | o | o | o |
| Partial heat recovery | **RP** | o | o | o | o | o | o | o | o | o |
| Copper/Copper coil | **RR** | o | o | o | o | o | o | o | o | o |
| Total heat recovery | **RT** | □ | □ | □ | □ | □ | □ | □ | □ | □ |
| Personalized frame painting in alternative RAL colour | **RV** | o | o | o | o | o | o | o | o | o |
| Coil with double layer treatment | **TDS** | o | o | o | o | o | o | o | o | o |
| Electronic thermostatic valve | **TE** | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Voltmeter | **V** | o | o | o | o | o | o | o | o | o |
| Brine Version | **VB** | o | o | o | o | o | o | o | o | o |
| Solenoid valve | **VS** | o | o | o | o | o | o | o | o | o |

• Standard, o Optional, -- Not available

| RAE F HE Kc/Kr | | 3302 | 3602 | 4002 | 4802 | 5202 | 5402 | 5602 | 6002 |
|---|---|---|---|---|---|---|---|---|---|
| Amperometer | A | o | o | o | o | o | o | o | o |
| Electrical power supply different than standard | AE | □ | □ | □ | □ | □ | □ | □ | □ |
| Soundproofed compressors cabinet with standard material | CF | ● | ● | ● | ● | ● | ● | ● | ● |
| Overall compressor and technical compartment cabinet | CFT | -- | -- | -- | -- | -- | -- | -- | -- |
| Soundproofed compressors cabinet with polyester material | CFU | o | o | o | o | o | o | o | o |
| Compressors inrush counter | CS | o | o | o | o | o | o | o | o |
| Axial fans with electronic commutated motor | EC | ● | ● | ● | ● | ● | ● | ● | ● |
| Condensing coil protection grid | GP | o | o | o | o | o | o | o | o |
| Anti-intrusion grid | GP2 | -- | -- | -- | -- | -- | -- | -- | -- |
| Anti-intrusion grid with compressors cabinet | GP3 | o | o | o | o | o | o | o | o |
| Glycol loop | GYL | □ | □ | □ | □ | □ | □ | □ | □ |
| Victaulic insulation on pump side | I1 | o | o | o | o | o | o | o | o |
| Victaulic insulation buffer tank side | I2 | o | o | o | o | o | o | o | o |
| RS 485 Serial interface | IH | o | o | o | o | o | o | o | o |
| LON Protocol serial interface | IH-LON | o | o | o | o | o | o | o | o |
| Seawood packing | IM | o | o | o | o | o | o | o | o |
| TCP/IP Protocol serial interface | IWG | o | o | o | o | o | o | o | o |
| Phase monitor | MF | ● | ● | ● | ● | ● | ● | ● | ● |
| Buffer tank module | MV | □ | □ | □ | □ | □ | □ | □ | □ |
| Pump group | P1 | o | o | o | o | o | o | o | o |
| Higher available pressure pump group | P1H | o | o | o | o | o | o | o | o |
| Double pump group | P2 | o | o | o | o | o | o | o | o |
| Higher available pressure double pump group | P2H | o | o | o | o | o | o | o | o |
| Rubber-type vibration dampers | PA | o | o | o | o | o | o | o | o |
| Safety water flow switch | PF | ● | ● | ● | ● | ● | ● | ● | ● |
| Spring-type vibration dampers | PM | o | o | o | o | o | o | o | o |
| Remote display | PQ | o | o | o | o | o | o | o | o |
| In-line twin pump group (only one working) | PT | o | o | o | o | o | o | o | o |
| Anti-freeze heater on evaporator | RA | o | o | o | o | o | o | o | o |
| Shut-off valve on compressors discharge side | RD | o | o | o | o | o | o | o | o |
| Power factor correction system cosfi ≥0,9 | RF | o | o | o | o | o | o | o | o |
| Shut-off valve on compressors suction side | RH | o | o | o | o | o | o | o | o |
| Compressor overload relays | RL | o | o | o | o | o | o | o | o |
| Condensing coil with pre-painted fins | RM | o | o | o | o | o | o | o | o |
| Partial heat recovery | RP | o | o | o | o | o | o | o | o |
| Copper/Copper coil | RR | o | o | o | o | o | o | o | o |
| Total heat recovery | RT | □ | □ | □ | □ | □ | □ | □ | □ |
| Personalized frame painting in alternative RAL colour | RV | o | o | o | o | o | o | o | o |
| Coil with double layer treatment | TDS | o | o | o | o | o | o | o | o |
| Electronic thermostatic valve | TE | ● | ● | ● | ● | ● | ● | ● | ● |
| Voltmeter | V | o | o | o | o | o | o | o | o |
| Brine Version | VB | o | o | o | o | o | o | o | o |
| Solenoid valve | VS | o | o | o | o | o | o | o | o |

• Standard, o Optional, -- Not available

# TECHNICAL DATA

| RAE F Kc | | 801 | 1001 | 1301 | 1501 | 1701 | 2001 | 2302 | 2602 | 3002 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cooling mode (R410A) (1)** | | | | | | | | | | |
| Cooling capacity | kW | 91,4 | 118,0 | 147,4 | 170,1 | 192,8 | 245,0 | 265,0 | 294,0 | 340,2 |
| Compressor input power | kW | 22,3 | 27,9 | 34,7 | 40,5 | 46,2 | 60,2 | 62,6 | 69,4 | 80,9 |
| Total input power | kW | 26,7 | 32,7 | 40,0 | 47,1 | 53,5 | 68,2 | 71,4 | 78,6 | 90,6 |
| Nominal input current | A | 47,0 | 57,7 | 70,5 | 83,0 | 94,2 | 120,1 | 125,8 | 138,5 | 159,6 |
| EER Gross | W/W | 4,10 | 4,23 | 4,25 | 4,20 | 4,17 | 4,07 | 4,23 | 4,24 | 4,21 |
| EER Net | W/W | 3,42 | 3,60 | 3,68 | 3,61 | 3,61 | 3,59 | 3,71 | 3,74 | 3,75 |
| Flow rate (4) | $m^3/h$ | 17,0 | 21,9 | 27,4 | 31,6 | 35,9 | 45,6 | 49,3 | 54,7 | 63,3 |
| Pressure drop | kPa | 66,8 | 70,4 | 72,5 | 63,7 | 64,4 | 74,4 | 70,4 | 69,9 | 65,3 |
| Circuits | n° | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 |
| Compressors | n° | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 4 | 4 |
| **Free Cooling (2)** | | | | | | | | | | |
| Cooling capacity | kW | 82,7 | 85,2 | 87,7 | 124,0 | 127,8 | 131,6 | 165,4 | 170,4 | 175,5 |
| Input power | kW | 4,4 | 4,8 | 5,3 | 6,6 | 7,3 | 8,0 | 8,8 | 9,2 | 9,7 |
| Input current | A | 8,4 | 9,3 | 10,2 | 12,7 | 13,9 | 15,3 | 16,9 | 17,7 | 18,6 |
| EER | W/W | 18,8 | 17,6 | 16,5 | 18,8 | 17,6 | 16,5 | 18,8 | 18,4 | 18,1 |
| Flow rate (4) | $m^3/h$ | 15,7 | 16,1 | 16,6 | 23,5 | 24,2 | 24,9 | 31,3 | 32,3 | 33,2 |
| Pressure drop | kPa | 154,7 | 136,1 | 124,6 | 133,2 | 127,4 | 120,3 | 126,4 | 122,3 | 116,0 |
| **Free Cooling (3)** | | | | | | | | | | |
| Cooling capacity | kW | 57,03 | 58,75 | 60,51 | 85,55 | 88,12 | 90,76 | 114,07 | 117,49 | 121,01 |
| Input power | kW | 4,4 | 4,8 | 5,3 | 6,6 | 7,3 | 8,0 | 8,8 | 9,2 | 9,7 |
| Input current | A | 8,4 | 9,3 | 10,2 | 12,7 | 13,9 | 15,3 | 16,9 | 17,7 | 18,6 |
| EER | W/W | 13,0 | 12,1 | 11,4 | 13,0 | 12,1 | 11,4 | 13,0 | 12,7 | 12,5 |
| Flow rate (4) | $m^3/h$ | 10,8 | 11,1 | 11,5 | 16,2 | 16,7 | 17,2 | 21,6 | 22,3 | 22,9 |
| Pressure drop | kPa | 73,6 | 64,7 | 59,3 | 63,3 | 60,6 | 57,2 | 60,1 | 58,2 | 55,2 |
| **Axial fans** | | | | | | | | | | |
| Quantity | n° | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 4 |
| Total air flow | $m^3/h$ | 41100 | 44400 | 46700 | 61500 | 66400 | 69700 | 81500 | 88100 | 92400 |
| Total power input | kW | 4,4 | 4,8 | 5,3 | 6,6 | 7,3 | 8,0 | 8,8 | 9,2 | 9,7 |
| Total input current | A | 8,4 | 9,3 | 10,2 | 12,7 | 13,9 | 15,3 | 16,9 | 17,7 | 18,6 |
| **Weight** | | | | | | | | | | |
| Transport weight | kg | 1340 | 1390 | 1506 | 1735 | 1810 | 1916 | 2190 | 2310 | 2440 |
| Operating weight | kg | 1358 | 1408 | 1524 | 1762 | 1837 | 1943 | 2226 | 2346 | 2476 |
| **Dimensions** | | | | | | | | | | |
| Length | mm | 2770 | 2770 | 2770 | 3810 | 3810 | 3810 | 4850 | 4850 | 4850 |
| Width | mm | 1370 | 1370 | 1370 | 1370 | 1370 | 1370 | 1370 | 1370 | 1370 |
| Height | mm | 2420 | 2420 | 2420 | 2420 | 2420 | 2420 | 2420 | 2420 | 2420 |
| **Sound data** | | | | | | | | | | |
| Total LWA (5) | dB(A) | 96,4 | 96,7 | 97 | 98,1 | 98,7 | 99,1 | 100,3 | 100,5 | 100,9 |
| Total SPL 1m (6) | dB(A) | 77,8 | 78,1 | 78,4 | 78,9 | 79,5 | 79,9 | 80,6 | 80,8 | 81,2 |
| **Power supply** | | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | | |
| Maximum input power | [A] | 77 | 86 | 109 | 126 | 145 | 185 | 192 | 212 | 246 |
| Maximum input current | [A] | 218 | 282 | 347 | 370 | 394 | 509 | 443 | 485 | 545 |

(1) Water in/out: 15/10°C - Ambient air temperature 30°C
(2) Water in/out: 15/10°C - Ambient air temperature 0°C
(3) Water in/out: 15/10°C - Ambient air temperature 5°C
(4) Hydraulic data referred to fluid Glycol 30%

(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 1m from the unit in free field conditions, in accordance with ISO 3744

| RAE F Kc | | 3302 | 3602 | 4002 | 4802 | 5202 | 5402 | 5602 | 6002 |
|---|---|---|---|---|---|---|---|---|---|
| **Cooling mode (R410A) (1)** | | | | | | | | | |
| Cooling capacity | kW | 385,0 | 437,8 | 490,0 | 530,3 | 578,4 | 630,6 | 682,8 | 735,0 |
| Compressor input power | kW | 92,4 | 105,6 | 118,8 | 169,2 | 138,6 | 151,8 | 165,0 | 178,2 |
| Total input power | kW | 105,6 | 120,1 | 136,4 | 188,5 | 158,8 | 174,0 | 191,4 | 207,2 |
| Nominal input current | A | 186,0 | 211,6 | 240,3 | 332,2 | 279,8 | 306,6 | 337,2 | 365,1 |
| EER Gross | W/W | 4,17 | 4,15 | 4,12 | 3,13 | 4,17 | 4,15 | 4,14 | 4,12 |
| EER Net | W/W | 3,65 | 3,64 | 3,59 | 2,81 | 3,64 | 3,62 | 3,57 | 3,55 |
| Flow rate (4) | $m^3/h$ | 71,6 | 81,4 | 91,1 | 98,6 | 107,6 | 117,3 | 127,0 | 136,7 |
| Pressure drop | kPa | 64,8 | 73,4 | 76,6 | 64,8 | 57,1 | 66,8 | 64,4 | 66,3 |
| Circuits | n° | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Compressors | n° | 4 | 4 | 4 | 6 | 6 | 6 | 6 | 6 |
| **Free Cooling (2)** | | | | | | | | | |
| Cooling capacity | kW | 276,0 | 284,3 | 368,0 | 379,0 | 460,0 | 473,8 | 552,0 | 568,6 |
| Input power | kW | 13,2 | 14,5 | 17,6 | 19,4 | 20,2 | 22,2 | 26,4 | 29,0 |
| Input current | A | 25,3 | 27,8 | 33,8 | 37,1 | 38,7 | 42,6 | 50,6 | 55,7 |
| EER | W/W | 20,9 | 19,6 | 20,9 | 19,6 | 22,8 | 21,3 | 20,9 | 19,6 |
| Flow rate (4) | $m^3/h$ | 52,3 | 53,8 | 69,7 | 71,8 | 87,1 | 89,7 | 104,6 | 107,7 |
| Pressure drop | kPa | 132,5 | 130,1 | 142,8 | 132,4 | 135,4 | 137,1 | 141,7 | 139,1 |
| **Free Cooling (3)** | | | | | | | | | |
| Cooling capacity | kW | 190,34 | 196,06 | 253,79 | 261,41 | 317,24 | 326,76 | 380,69 | 392,11 |
| Input power | kW | 13,2 | 14,5 | 17,6 | 19,4 | 20,2 | 22,2 | 26,4 | 29,0 |
| Input current | A | 25,3 | 27,8 | 33,8 | 37,1 | 38,7 | 42,6 | 50,6 | 55,7 |
| EER | W/W | 14,4 | 13,5 | 14,4 | 13,5 | 15,7 | 14,7 | 14,4 | 13,5 |
| Flow rate (4) | $m^3/h$ | 36,1 | 37,1 | 48,1 | 49,5 | 60,1 | 61,9 | 72,1 | 74,3 |
| Pressure drop | kPa | 63,0 | 61,9 | 67,9 | 63,0 | 64,4 | 65,2 | 67,4 | 66,2 |
| **Axial fans** | | | | | | | | | |
| Quantity | n° | 6 | 6 | 8 | 8 | 10 | 10 | 12 | 12 |
| Total air flow | $m^3/h$ | 107800 | 116500 | 143200 | 153600 | 178300 | 188900 | 211900 | 228800 |
| Total power input | kW | 13,2 | 14,5 | 17,6 | 19,4 | 20,2 | 22,2 | 26,4 | 29,0 |
| Total input current | A | 25,3 | 27,8 | 33,8 | 37,1 | 38,7 | 42,6 | 50,6 | 55,7 |
| **Weight** | | | | | | | | | |
| Transport weight | kg | 3425 | 3684 | 4065 | 4318 | 4425 | 4825 | 5130 | 5536 |
| Operating weight | kg | 3481 | 3741 | 4140 | 4394 | 4518 | 4919 | 5242 | 5649 |
| **Dimensions** | | | | | | | | | |
| Length | mm | 3775 | 3775 | 4750 | 4750 | 5720 | 5720 | 6700 | 6700 |
| Width | mm | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 |
| Height | mm | 2560 | 2560 | 2560 | 2560 | 2560 | 2560 | 2560 | 2560 |
| **Sound data** | | | | | | | | | |
| Total LWA (5) | dB(A) | 99,4 | 100,2 | 101,6 | 102,2 | 103,6 | 104,1 | 105,2 | 105,7 |
| Total SPL 1m (6) | dB(A) | 79,6 | 80,4 | 81,3 | 81,9 | 82,9 | 83,4 | 84,1 | 84,6 |
| **Power supply** | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | |
| Maximum input power | [A] | 285 | 323 | 364 | 429 | 468 | 487 | 512 | 552 |
| Maximum input current | [A] | 569 | 648 | 689 | 674 | 791 | 813 | 838 | 877 |

(1) Water in/out: 15/10°C - Ambient air temperature 30°C
(2) Water in/out: 15/10°C - Ambient air temperature 0°C
(3) Water in/out: 15/10°C - Ambient air temperature 5°C
(4) Hydraulic data referred to fluid Glycol 30%

(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 1m from the unit in free field conditions, in accordance with ISO 3744

| RAE F HE Kc | | 801 | 1001 | 1301 | 1501 | 1701 | 2001 | 2302 | 2602 | 3002 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cooling mode (R410A) (1)** | | | | | | | | | | |
| Cooling capacity | kW | 107,9 | 137,8 | 174,5 | 201,8 | 230,7 | 283,3 | 311,0 | 358,9 | 415,0 |
| Compressor input power | kW | 21,6 | 27,1 | 35,3 | 40,9 | 46,6 | 58,0 | 61,9 | 71,5 | 83,1 |
| Total input power | kW | 25,4 | 31,3 | 41,0 | 47,2 | 54,2 | 66,4 | 73,3 | 83,5 | 95,6 |
| Nominal input current | A | 44,7 | 55,1 | 72,3 | 83,1 | 95,5 | 117,0 | 129,2 | 147,1 | 168,5 |
| EER Gross | W/W | 5,00 | 5,08 | 4,94 | 4,93 | 4,95 | 4,88 | 5,02 | 5,02 | 5,00 |
| EER Net | W/W | 4,25 | 4,40 | 4,25 | 4,28 | 4,26 | 4,27 | 4,24 | 4,30 | 4,34 |
| Flow rate (4) | $m^3/h$ | 20,1 | 25,6 | 32,5 | 37,5 | 42,9 | 52,7 | 57,8 | 66,8 | 77,2 |
| Pressure drop | kPa | 71,8 | 75,3 | 79,7 | 70,4 | 72,4 | 77,5 | 74,6 | 81,7 | 76,2 |
| Circuits | n° | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 |
| Compressors | n° | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 4 | 4 |
| **Free Cooling (2)** | | | | | | | | | | |
| Cooling capacity | kW | 85,3 | 85,6 | 126,0 | 133,2 | 158,7 | 166,5 | 278,8 | 288,6 | 291,3 |
| Input power | kW | 3,8 | 4,2 | 5,7 | 6,3 | 7,6 | 8,4 | 11,4 | 12,0 | 12,6 |
| Input current | A | 7,3 | 8,0 | 10,9 | 12,0 | 14,6 | 16,0 | 21,9 | 23,0 | 24,1 |
| EER | W/W | 22,5 | 20,5 | 22,1 | 21,2 | 20,9 | 19,9 | 24,5 | 24,1 | 23,2 |
| Flow rate (4) | $m^3/h$ | 16,2 | 16,2 | 23,9 | 25,2 | 30,1 | 31,5 | 52,8 | 54,7 | 55,2 |
| Pressure drop | kPa | 144,6 | 128,1 | 141,1 | 129,8 | 133,5 | 125,8 | 160,2 | 152,8 | 137,0 |
| **Free Cooling (3)** | | | | | | | | | | |
| Cooling capacity | kW | 58,84 | 59,01 | 86,90 | 91,86 | 109,45 | 114,83 | 192,28 | 199,03 | 200,90 |
| Input power | kW | 3,8 | 4,2 | 5,7 | 6,3 | 7,6 | 8,4 | 11,4 | 12,0 | 12,6 |
| Input current | A | 7,3 | 8,0 | 10,9 | 12,0 | 14,6 | 16,0 | 21,9 | 23,0 | 24,1 |
| EER | W/W | 15,5 | 14,1 | 15,2 | 14,7 | 14,4 | 13,7 | 16,9 | 16,6 | 16,0 |
| Flow rate (4) | $m^3/h$ | 11,1 | 11,2 | 16,5 | 17,4 | 20,7 | 21,8 | 36,4 | 37,7 | 38,1 |
| Pressure drop | kPa | 68,8 | 60,9 | 67,1 | 61,7 | 63,5 | 59,8 | 76,2 | 72,7 | 65,1 |
| **Axial fans** | | | | | | | | | | |
| Quantity | n° | 2 | 2 | 3 | 3 | 4 | 4 | 6 | 6 | 6 |
| Total air flow | $m^3/h$ | 42400 | 44600 | 63900 | 68700 | 80400 | 87200 | 110400 | 118200 | 121200 |
| Total power input | kW | 3,8 | 4,2 | 5,7 | 6,3 | 7,6 | 8,4 | 11,4 | 12,0 | 12,6 |
| Total input current | A | 7,3 | 8,0 | 10,9 | 12,0 | 14,6 | 16,0 | 21,9 | 23,0 | 24,1 |
| **Weight** | | | | | | | | | | |
| Transport weight | kg | 1340 | 1390 | 1690 | 1787 | 2020 | 2145 | 3180 | 3225 | 3296 |
| Operating weight | kg | 1358 | 1408 | 1717 | 1814 | 2055 | 2181 | 3236 | 3282 | 3353 |
| **Dimensions** | | | | | | | | | | |
| Length | mm | 2770 | 2770 | 3810 | 3810 | 4850 | 4850 | 3775 | 3775 | 3775 |
| Width | mm | 1370 | 1370 | 1370 | 1370 | 1370 | 1370 | 2300 | 2300 | 2300 |
| Height | mm | 2420 | 2420 | 2420 | 2420 | 2420 | 2420 | 2560 | 2560 | 2560 |
| **Sound data** | | | | | | | | | | |
| Total LWA (5) | dB(A) | 94,6 | 94,9 | 95,2 | 96,3 | 96,9 | 97,3 | 98,5 | 98,7 | 99,1 |
| Total SPL 1m (6) | dB(A) | 76,0 | 76,3 | 76,6 | 77,1 | 77,7 | 78,1 | 78,8 | 79,0 | 79,4 |
| **Power supply** | | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | | |
| Maximum input power | [A] | 76 | 85 | 110 | 125 | 146 | 186 | 197 | 217 | 251 |
| Maximum input current | [A] | 217 | 281 | 348 | 369 | 395 | 510 | 448 | 490 | 550 |

(1) Water in/out: 15/10°C - Ambient air temperature 30°C
(2) Water in/out: 15/10°C - Ambient air temperature 0°C
(3) Water in/out: 15/10°C - Ambient air temperature 5°C
(4) Hydraulic data referred to fluid Glycol 30%

(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 1m from the unit in free field conditions, in accordance with ISO 3744

| RAE F HE Kc | | 3302 | 3602 | 4002 | 4802 | 5202 | 5402 | 5602 | 6002 |
|---|---|---|---|---|---|---|---|---|---|
| **Cooling mode (R410A) (1)** | | | | | | | | | |
| Cooling capacity | kW | 458,8 | 509,2 | 568,2 | 678,0 | 733,7 | 770,5 | 793,6 | 853,5 |
| Compressor input power | kW | 92,7 | 103,4 | 114,2 | 139,5 | 148,6 | 156,1 | 160,4 | 171,2 |
| Total input power | kW | 107,9 | 120,1 | 133,2 | 160,4 | 171,4 | 181,1 | 187,0 | 200,5 |
| Nominal input current | A | 190,0 | 211,7 | 234,7 | 282,6 | 302,0 | 319,1 | 329,5 | 353,2 |
| EER Gross | W/W | 4,95 | 4,92 | 4,97 | 4,86 | 4,94 | 4,94 | 4,95 | 4,99 |
| EER Net | W/W | 4,25 | 4,24 | 4,27 | 4,23 | 4,28 | 4,25 | 4,24 | 4,26 |
| Flow rate (4) | $m^3/h$ | 85,3 | 94,7 | 105,7 | 126,1 | 136,4 | 143,3 | 147,6 | 158,7 |
| Pressure drop | kPa | 72,2 | 77,3 | 80,8 | 82,4 | 71,3 | 76,0 | 68,0 | 69,8 |
| Circuits | n° | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Compressors | n° | 4 | 4 | 4 | 6 | 6 | 6 | 6 | 6 |
| **Free Cooling (2)** | | | | | | | | | |
| Cooling capacity | kW | 374,5 | 382,4 | 464,8 | 477,2 | 560,4 | 576,2 | 665,4 | 673,2 |
| Input power | kW | 15,2 | 16,7 | 19,0 | 20,9 | 22,8 | 25,1 | 26,6 | 29,3 |
| Input current | A | 29,2 | 32,1 | 36,4 | 40,1 | 43,7 | 48,1 | 51,0 | 56,1 |
| EER | W/W | 24,6 | 22,9 | 24,5 | 22,8 | 24,6 | 23,0 | 25,0 | 23,0 |
| Flow rate (4) | $m^3/h$ | 70,9 | 72,4 | 88,0 | 90,4 | 106,1 | 109,1 | 126,0 | 127,5 |
| Pressure drop | kPa | 147,9 | 143,2 | 154,1 | 140,4 | 141,1 | 142,1 | 147,6 | 143,1 |
| **Free Cooling (3)** | | | | | | | | | |
| Cooling capacity | kW | 258,28 | 263,72 | 320,55 | 329,10 | 386,45 | 397,38 | 458,90 | 464,28 |
| Input power | kW | 15,2 | 16,7 | 19,0 | 20,9 | 22,8 | 25,1 | 26,6 | 29,3 |
| Input current | A | 29,2 | 32,1 | 36,4 | 40,1 | 43,7 | 48,1 | 51,0 | 56,1 |
| EER | W/W | 17,0 | 15,8 | 16,9 | 15,7 | 16,9 | 15,8 | 17,3 | 15,9 |
| Flow rate (4) | $m^3/h$ | 48,9 | 50,0 | 60,7 | 62,3 | 73,2 | 75,3 | 86,9 | 87,9 |
| Pressure drop | kPa | 70,3 | 68,1 | 73,3 | 66,8 | 67,1 | 67,6 | 70,2 | 68,0 |
| **Axial fans** | | | | | | | | | |
| Quantity | n° | 8 | 8 | 10 | 10 | 12 | 12 | 14 | 14 |
| Total air flow | $m^3/h$ | 148800 | 158400 | 184000 | 192000 | 217200 | 232800 | 263200 | 273000 |
| Total power input | kW | 15,2 | 16,7 | 19 | 20,9 | 22,8 | 25,1 | 26,6 | 29,3 |
| Total input current | A | 29,2 | 32,1 | 36,4 | 40,1 | 43,7 | 48,1 | 51,0 | 56,1 |
| **Weight** | | | | | | | | | |
| Transport weight | kg | 3925 | 4098 | 4296 | 4415 | 4990 | 5124 | 5620 | 5760 |
| Operating weight | kg | 4000 | 4174 | 4390 | 4510 | 5103 | 5238 | 5752 | 5893 |
| **Dimensions** | | | | | | | | | |
| Length | mm | 4750 | 4750 | 5720 | 5720 | 6700 | 6700 | 7670 | 7670 |
| Width | mm | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 |
| Height | mm | 2560 | 2560 | 2560 | 2560 | 2560 | 2560 | 2560 | 2560 |
| **Sound data** | | | | | | | | | |
| Total LWA (5) | dB(A) | 97,6 | 98,4 | 99,8 | 100,4 | 101,8 | 102,3 | 103,4 | 103,9 |
| Total SPL 1m (6) | dB(A) | 77,8 | 78,6 | 79,5 | 80,1 | 81,1 | 81,6 | 82,3 | 82,8 |
| **Power supply** | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | |
| Maximum input power | [A] | 289 | 327 | 366 | 432 | 473 | 492 | 512 | 552 |
| Maximum input current | [A] | 573 | 652 | 691 | 677 | 796 | 818 | 838 | 877 |

(1) Water in/out: 15/10°C - Ambient air temperature 30°C
(2) Water in/out: 15/10°C - Ambient air temperature 0°C
(3) Water in/out: 15/10°C - Ambient air temperature 5°C
(4) Hydraulic data referred to fluid Glycol 30%

(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 1m from the unit in free field conditions, in accordance with ISO 3744

| RAE F Kr | | 801 | 1001 | 1301 | 1501 | 1701 | 2001 | 2302 | 2602 | 3002 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cooling mode (R454B) (1)** | | | | | | | | | | |
| Cooling capacity | kW | 99,5 | 128,0 | 162,2 | 187,6 | 214,4 | 262,3 | 286,2 | 333,6 | 385,7 |
| Compressor input power | kW | 21,1 | 26,3 | 34,3 | 39,7 | 45,3 | 56,4 | 61,1 | 69,5 | 80,7 |
| Total input power | kW | 25,5 | 31,2 | 39,6 | 46,3 | 52,5 | 64,4 | 69,9 | 78,7 | 90,4 |
| Nominal input current | A | 44,9 | 54,9 | 69,8 | 81,6 | 92,5 | 113,4 | 123,2 | 138,6 | 159,2 |
| EER Gross | W/W | 4,72 | 4,86 | 4,73 | 4,72 | 4,74 | 4,65 | 4,68 | 4,80 | 4,78 |
| EER Net | W/W | 3,91 | 4,11 | 4,09 | 4,05 | 4,08 | 4,07 | 4,09 | 4,24 | 4,27 |
| Flow rate (4) | $m^3/h$ | 18,5 | 23,8 | 30,2 | 34,9 | 39,9 | 48,8 | 53,2 | 62,0 | 71,7 |
| Pressure drop | kPa | 83,2 | 87,2 | 92,3 | 81,5 | 83,8 | 89,7 | 86,3 | 94,6 | 88,3 |
| Circuits | n° | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 |
| Compressors | n° | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 4 | 4 |
| **Free Cooling (2)** | | | | | | | | | | |
| Cooling capacity | kW | 82,7 | 85,2 | 87,7 | 124,0 | 127,8 | 131,6 | 165,4 | 170,4 | 175,5 |
| Input power | kW | 4,4 | 4,8 | 5,3 | 6,6 | 7,3 | 8,0 | 8,8 | 9,2 | 9,7 |
| Input current | A | 8,4 | 9,3 | 10,2 | 12,7 | 13,9 | 15,3 | 16,9 | 17,7 | 18,6 |
| EER | W/W | 18,8 | 17,6 | 16,5 | 18,8 | 17,6 | 16,5 | 18,8 | 18,4 | 18,1 |
| Flow rate (4) | $m^3/h$ | 15,7 | 16,1 | 16,6 | 23,5 | 24,2 | 24,9 | 31,3 | 32,3 | 33,2 |
| Pressure drop | kPa | 157,6 | 138,0 | 126,0 | 135,0 | 128,9 | 121,4 | 127,9 | 123,6 | 116,9 |
| **Free Cooling (3)** | | | | | | | | | | |
| Cooling capacity | kW | 57,03 | 58,75 | 60,51 | 85,55 | 88,12 | 90,76 | 114,07 | 117,49 | 121,01 |
| Input power | kW | 4,4 | 4,8 | 5,3 | 6,6 | 7,3 | 8,0 | 8,8 | 9,2 | 9,7 |
| Input current | A | 8,4 | 9,3 | 10,2 | 12,7 | 13,9 | 15,3 | 16,9 | 17,7 | 18,6 |
| EER | W/W | 13,0 | 12,1 | 11,4 | 13,0 | 12,1 | 11,4 | 13,0 | 12,7 | 12,5 |
| Flow rate (4) | $m^3/h$ | 10,8 | 11,1 | 11,5 | 16,2 | 16,7 | 17,2 | 21,6 | 22,3 | 22,9 |
| Pressure drop | kPa | 75,0 | 65,7 | 59,9 | 64,2 | 61,3 | 57,8 | 60,8 | 58,8 | 55,6 |
| **Axial fans** | | | | | | | | | | |
| Quantity | n° | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 4 |
| Total air flow | $m^3/h$ | 41100 | 44400 | 46700 | 61500 | 66400 | 69700 | 81500 | 88100 | 92400 |
| Total power input | kW | 4,4 | 4,8 | 5,3 | 6,6 | 7,3 | 8,0 | 8,8 | 9,2 | 9,7 |
| Total input current | A | 8,4 | 9,3 | 10,2 | 12,7 | 13,9 | 15,3 | 16,9 | 17,7 | 18,6 |
| **Weight** | | | | | | | | | | |
| Transport weight | kg | 1340 | 1390 | 1506 | 1735 | 1810 | 1916 | 2190 | 2310 | 2440 |
| Operating weight | kg | 1358 | 1408 | 1524 | 1762 | 1837 | 1943 | 2226 | 2346 | 2476 |
| **Dimensions** | | | | | | | | | | |
| Length | mm | 2770 | 2770 | 2770 | 3810 | 3810 | 3810 | 4850 | 4850 | 4850 |
| Width | mm | 1370 | 1370 | 1370 | 1370 | 1370 | 1370 | 1370 | 1370 | 1370 |
| Height | mm | 2420 | 2420 | 2420 | 2420 | 2420 | 2420 | 2420 | 2420 | 2420 |
| **Sound data** | | | | | | | | | | |
| Total LWA (5) | dB(A) | 96,4 | 96,7 | 97 | 98,1 | 98,7 | 99,1 | 100,3 | 100,5 | 100,9 |
| Total SPL 1m (6) | dB(A) | 77,8 | 78,1 | 78,4 | 78,9 | 79,5 | 79,9 | 80,6 | 80,8 | 81,2 |
| **Power supply** | | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | | |
| Maximum input power | [A] | 77 | 86 | 109 | 126 | 145 | 185 | 192 | 212 | 246 |
| Maximum input current | [A] | 218 | 282 | 347 | 370 | 394 | 509 | 443 | 485 | 545 |

(1) Water in/out: 15/10°C - Ambient air temperature 30°C
(2) Water in/out: 15/10°C - Ambient air temperature 0°C
(3) Water in/out: 15/10°C - Ambient air temperature 5°C
(4) Hydraulic data referred to fluid Glycol 30%

(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 1m from the unit in free field conditions, in accordance with ISO 3744

| RAE F Kr | | 3302 | 3602 | 4002 | 4802 | 5202 | 5402 | 5602 | 6002 |
|---|---|---|---|---|---|---|---|---|---|
| **Cooling mode (R454B)** [1] | | | | | | | | | |
| Cooling capacity | kW | 426,4 | 471,5 | 528,0 | 627,3 | 678,3 | 705,8 | 735,9 | 791,5 |
| Compressor input power | kW | 90,0 | 102,2 | 114,1 | 135,5 | 147,4 | 153,3 | 159,3 | 171,2 |
| Total input power | kW | 103,2 | 116,8 | 131,7 | 154,9 | 167,6 | 175,6 | 185,7 | 200,2 |
| Nominal input current | A | 181,8 | 205,7 | 232,1 | 272,9 | 295,3 | 309,3 | 327,2 | 352,7 |
| EER Gross | W/W | 4,74 | 4,61 | 4,63 | 4,63 | 4,60 | 4,60 | 4,62 | 4,62 |
| EER Net | W/W | 4,13 | 4,04 | 4,01 | 4,05 | 4,05 | 4,02 | 3,96 | 3,95 |
| Flow rate [4] | $m^3/h$ | 79,3 | 87,7 | 98,2 | 116,7 | 126,1 | 131,3 | 136,9 | 147,2 |
| Pressure drop | kPa | 83,6 | 89,5 | 93,5 | 95,5 | 82,5 | 88,0 | 78,7 | 80,8 |
| Circuits | n° | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Compressors | n° | 4 | 4 | 4 | 6 | 6 | 6 | 6 | 6 |
| **Free Cooling** [2] | | | | | | | | | |
| Cooling capacity | kW | 276,0 | 284,3 | 368,0 | 379,0 | 460,0 | 473,8 | 552,0 | 568,6 |
| Input power | kW | 13,2 | 14,5 | 17,6 | 19,4 | 20,2 | 22,2 | 26,4 | 29,0 |
| Input current | A | 25,3 | 27,8 | 33,8 | 37,1 | 38,7 | 42,6 | 50,6 | 55,7 |
| EER | W/W | 20,9 | 19,6 | 20,9 | 19,6 | 22,8 | 21,3 | 20,9 | 19,6 |
| Flow rate [4] | $m^3/h$ | 52,3 | 53,8 | 69,7 | 71,8 | 87,1 | 89,7 | 104,6 | 107,7 |
| Pressure drop | kPa | 134,3 | 131,8 | 145,1 | 134,1 | 137,4 | 139,2 | 143,9 | 141,3 |
| **Free Cooling** [3] | | | | | | | | | |
| Cooling capacity | kW | 190,34 | 196,06 | 253,79 | 261,41 | 317,24 | 326,76 | 380,69 | 392,11 |
| Input power | kW | 13,2 | 14,5 | 17,6 | 19,4 | 20,2 | 22,2 | 26,4 | 29,0 |
| Input current | A | 25,3 | 27,8 | 33,8 | 37,1 | 38,7 | 42,6 | 50,6 | 55,7 |
| EER | W/W | 14,4 | 13,5 | 14,4 | 13,5 | 15,7 | 14,7 | 14,4 | 13,5 |
| Flow rate [4] | $m^3/h$ | 36,1 | 37,1 | 48,1 | 49,5 | 60,1 | 61,9 | 72,1 | 74,3 |
| Pressure drop | kPa | 63,9 | 62,7 | 69,0 | 63,8 | 65,3 | 66,2 | 68,5 | 67,2 |
| **Axial fans** | | | | | | | | | |
| Quantity | n° | 6 | 6 | 8 | 8 | 10 | 10 | 12 | 12 |
| Total air flow | $m^3/h$ | 107800 | 116500 | 143200 | 153600 | 178300 | 188900 | 211900 | 228800 |
| Total power input | kW | 13,2 | 14,5 | 17,6 | 19,4 | 20,2 | 22,2 | 26,4 | 29,0 |
| Total input current | A | 25,3 | 27,8 | 33,8 | 37,1 | 38,7 | 42,6 | 50,6 | 55,7 |
| **Weight** | | | | | | | | | |
| Transport weight | kg | 3425 | 3684 | 4065 | 4318 | 4425 | 4825 | 5130 | 5536 |
| Operating weight | kg | 3481 | 3741 | 4140 | 4394 | 4518 | 4919 | 5242 | 5649 |
| **Dimensions** | | | | | | | | | |
| Length | mm | 3775 | 3775 | 4750 | 4750 | 5720 | 5720 | 6700 | 6700 |
| Width | mm | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 |
| Height | mm | 2560 | 2560 | 2560 | 2560 | 2560 | 2560 | 2560 | 2560 |
| **Sound data** | | | | | | | | | |
| Total LWA [5] | dB(A) | 99,4 | 100,2 | 101,6 | 102,2 | 103,6 | 104,1 | 105,2 | 105,7 |
| Total SPL 1m [6] | dB(A) | 79,6 | 80,4 | 81,3 | 81,9 | 82,9 | 83,4 | 84,1 | 84,6 |
| **Power supply** | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | |
| Maximum input power | [A] | 285 | 323 | 364 | 429 | 468 | 487 | 512 | 552 |
| Maximum input current | [A] | 569 | 648 | 689 | 674 | 791 | 813 | 838 | 877 |

(1) Water in/out: 15/10°C - Ambient air temperature 30°C
(2) Water in/out: 15/10°C - Ambient air temperature 0°C
(3) Water in/out: 15/10°C - Ambient air temperature 5°C
(4) Hydraulic data referred to fluid Glycol 30%

(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 1m from the unit in free field conditions, in accordance with ISO 3744

| RAE F HE Kr | | 801 | 1001 | 1301 | 1501 | 1701 | 2001 | 2302 | 2602 | 3002 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cooling mode (R454B) (1)** | | | | | | | | | | |
| Cooling capacity | kW | 93,1 | 118,9 | 150,6 | 174,1 | 199,1 | 244,5 | 268,3 | 309,7 | 358,1 |
| Compressor input power | kW | 19,3 | 24,3 | 31,7 | 36,7 | 41,8 | 52,0 | 55,5 | 64,1 | 74,4 |
| Total input power | kW | 23,1 | 28,5 | 37,4 | 42,9 | 49,4 | 60,4 | 66,9 | 76,1 | 87,0 |
| Nominal input current | A | 40,8 | 50,2 | 65,8 | 75,6 | 87,0 | 106,4 | 117,9 | 134,0 | 153,3 |
| EER Gross | W/W | 4,81 | 4,89 | 4,76 | 4,75 | 4,77 | 4,70 | 4,83 | 4,83 | 4,81 |
| EER Net | W/W | 4,02 | 4,18 | 4,03 | 4,06 | 4,03 | 4,05 | 4,01 | 4,07 | 4,12 |
| Flow rate (4) | $m^3/h$ | 17,3 | 22,1 | 28,0 | 32,4 | 37,0 | 45,5 | 49,9 | 57,6 | 66,6 |
| Pressure drop | kPa | 52,8 | 55,4 | 58,6 | 51,8 | 53,2 | 57,0 | 54,8 | 60,1 | 56,1 |
| Circuits | n° | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 |
| Compressors | n° | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 4 | 4 |
| **Free Cooling (2)** | | | | | | | | | | |
| Cooling capacity | kW | 85,3 | 85,6 | 126,0 | 133,2 | 158,7 | 166,5 | 278,8 | 288,6 | 291,3 |
| Input power | kW | 3,8 | 4,2 | 5,7 | 6,3 | 7,6 | 8,4 | 11,4 | 12,0 | 12,6 |
| Input current | A | 7,3 | 8,0 | 10,9 | 12,0 | 14,6 | 16,0 | 21,9 | 23,0 | 24,1 |
| EER | W/W | 22,5 | 20,5 | 22,1 | 21,2 | 20,9 | 19,9 | 24,5 | 24,1 | 23,2 |
| Flow rate (4) | $m^3/h$ | 16,2 | 16,2 | 23,9 | 25,2 | 30,1 | 31,5 | 52,8 | 54,7 | 55,2 |
| Pressure drop | kPa | 144,0 | 127,8 | 140,6 | 129,4 | 133,1 | 125,4 | 159,4 | 152,1 | 136,5 |
| **Free Cooling (3)** | | | | | | | | | | |
| Cooling capacity | kW | 58,84 | 59,01 | 86,90 | 91,86 | 109,45 | 114,83 | 192,28 | 199,03 | 200,90 |
| Input power | kW | 3,8 | 4,2 | 5,7 | 6,3 | 7,6 | 8,4 | 11,4 | 12,0 | 12,6 |
| Input current | A | 7,3 | 8,0 | 10,9 | 12,0 | 14,6 | 16,0 | 21,9 | 23,0 | 24,1 |
| EER | W/W | 15,5 | 14,1 | 15,2 | 14,7 | 14,4 | 13,7 | 16,9 | 16,6 | 16,0 |
| Flow rate (4) | $m^3/h$ | 11,1 | 11,2 | 16,5 | 17,4 | 20,7 | 21,8 | 36,4 | 37,7 | 38,1 |
| Pressure drop | kPa | 68,5 | 60,8 | 66,9 | 61,6 | 63,3 | 59,7 | 75,8 | 72,4 | 64,9 |
| **Axial fans** | | | | | | | | | | |
| Quantity | n° | 2 | 2 | 3 | 3 | 4 | 4 | 6 | 6 | 6 |
| Total air flow | $m^3/h$ | 42400 | 44600 | 63900 | 68700 | 80400 | 87200 | 110400 | 118200 | 121200 |
| Total power input | kW | 3,8 | 4,2 | 5,7 | 6,3 | 7,6 | 8,4 | 11,4 | 12,0 | 12,6 |
| Total input current | A | 7,3 | 8,0 | 10,9 | 12,0 | 14,6 | 16,0 | 21,9 | 23,0 | 24,1 |
| **Weight** | | | | | | | | | | |
| Transport weight | kg | 1340 | 1390 | 1690 | 1787 | 2020 | 2145 | 3180 | 3225 | 3296 |
| Operating weight | kg | 1358 | 1408 | 1717 | 1814 | 2055 | 2181 | 3236 | 3282 | 3353 |
| **Dimensions** | | | | | | | | | | |
| Length | mm | 2770 | 2770 | 3810 | 3810 | 4850 | 4850 | 3775 | 3775 | 3775 |
| Width | mm | 1370 | 1370 | 1370 | 1370 | 1370 | 1370 | 2300 | 2300 | 2300 |
| Height | mm | 2420 | 2420 | 2420 | 2420 | 2420 | 2420 | 2560 | 2560 | 2560 |
| **Sound data** | | | | | | | | | | |
| Total LWA (5) | dB(A) | 94,6 | 94,9 | 95,2 | 96,3 | 96,9 | 97,3 | 98,5 | 98,7 | 99,1 |
| Total SPL 1m (6) | dB(A) | 76,0 | 76,3 | 76,6 | 77,1 | 77,7 | 78,1 | 78,8 | 79,0 | 79,4 |
| **Power supply** | | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | | |
| Maximum input power | [A] | 76 | 85 | 110 | 125 | 146 | 186 | 197 | 217 | 251 |
| Maximum input current | [A] | 217 | 281 | 348 | 369 | 395 | 510 | 448 | 490 | 550 |

(1) Water in/out: 15/10°C - Ambient air temperature 30°C
(2) Water in/out: 15/10°C - Ambient air temperature 0°C
(3) Water in/out: 15/10°C - Ambient air temperature 5°C
(4) Hydraulic data referred to fluid Glycol 30%

(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 1m from the unit in free field conditions, in accordance with ISO 3744

| RAE F HE Kr | | 3302 | 3602 | 4002 | 4802 | 5202 | 5402 | 5602 | 6002 |
|---|---|---|---|---|---|---|---|---|---|
| **Cooling mode (R454B)** [1] | | | | | | | | | |
| Cooling capacity | kW | 395,9 | 439,4 | 490,2 | 585,0 | 633,0 | 664,8 | 684,7 | 736,5 |
| Compressor input power | kW | 83,1 | 92,7 | 102,4 | 125,0 | 133,2 | 139,9 | 143,8 | 153,5 |
| Total input power | kW | 98,3 | 109,4 | 121,4 | 145,9 | 156,0 | 164,9 | 170,4 | 182,7 |
| Nominal input current | A | 173,1 | 192,8 | 213,8 | 257,1 | 274,8 | 290,6 | 300,2 | 321,9 |
| EER Gross | W/W | 4,77 | 4,74 | 4,79 | 4,68 | 4,75 | 4,75 | 4,76 | 4,80 |
| EER Net | W/W | 4,03 | 4,02 | 4,04 | 4,01 | 4,06 | 4,03 | 4,02 | 4,03 |
| Flow rate [4] | $m^3/h$ | 73,6 | 81,7 | 91,2 | 108,8 | 117,7 | 123,6 | 127,3 | 137,0 |
| Pressure drop | kPa | 53,1 | 56,9 | 59,4 | 60,6 | 52,4 | 55,9 | 50,0 | 51,4 |
| Circuits | n° | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Compressors | n° | 4 | 4 | 4 | 6 | 6 | 6 | 6 | 6 |
| **Free Cooling** [2] | | | | | | | | | |
| Cooling capacity | kW | 374,5 | 382,4 | 464,8 | 477,2 | 560,4 | 576,2 | 665,4 | 673,2 |
| Input power | kW | 15,2 | 16,7 | 19,0 | 20,9 | 22,8 | 25,1 | 26,6 | 29,3 |
| Input current | A | 29,2 | 32,1 | 36,4 | 40,1 | 43,7 | 48,1 | 51,0 | 56,1 |
| EER | W/W | 24,6 | 22,9 | 24,5 | 22,8 | 24,6 | 23,0 | 25,0 | 23,0 |
| Flow rate [4] | $m^3/h$ | 70,9 | 72,4 | 88,0 | 90,4 | 106,1 | 109,1 | 126,0 | 127,5 |
| Pressure drop | kPa | 147,3 | 142,7 | 153,4 | 139,8 | 140,6 | 141,6 | 147,0 | 142,5 |
| **Free Cooling** [3] | | | | | | | | | |
| Cooling capacity | kW | 258,28 | 263,72 | 320,55 | 329,10 | 386,45 | 397,38 | 458,90 | 464,28 |
| Input power | kW | 15,2 | 16,7 | 19,0 | 20,9 | 22,8 | 25,1 | 26,6 | 29,3 |
| Input current | A | 29,2 | 32,1 | 36,4 | 40,1 | 43,7 | 48,1 | 51,0 | 56,1 |
| EER | W/W | 17,0 | 15,8 | 16,9 | 15,7 | 16,9 | 15,8 | 17,3 | 15,9 |
| Flow rate [4] | $m^3/h$ | 48,9 | 50,0 | 60,7 | 62,3 | 73,2 | 75,3 | 86,9 | 87,9 |
| Pressure drop | kPa | 70,1 | 67,9 | 73,0 | 66,5 | 66,9 | 67,3 | 69,9 | 67,8 |
| **Axial fans** | | | | | | | | | |
| Quantity | n° | 8 | 8 | 10 | 10 | 12 | 12 | 14 | 14 |
| Total air flow | $m^3/h$ | 148800 | 158400 | 184000 | 192000 | 217200 | 232800 | 263200 | 273000 |
| Total power input | kW | 15,2 | 16,7 | 19 | 20,9 | 22,8 | 25,1 | 26,6 | 29,3 |
| Total input current | A | 29,2 | 32,1 | 36,4 | 40,1 | 43,7 | 48,1 | 51,0 | 56,1 |
| **Weight** | | | | | | | | | |
| Transport weight | kg | 3925 | 4098 | 4296 | 4415 | 4990 | 5124 | 5620 | 5760 |
| Operating weight | kg | 4000 | 4174 | 4390 | 4510 | 5103 | 5238 | 5752 | 5893 |
| **Dimensions** | | | | | | | | | |
| Length | mm | 4750 | 4750 | 5720 | 5720 | 6700 | 6700 | 7670 | 7670 |
| Width | mm | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 | 2300 |
| Height | mm | 2560 | 2560 | 2560 | 2560 | 2560 | 2560 | 2560 | 2560 |
| **Sound data** | | | | | | | | | |
| Total LWA [5] | dB(A) | 97,6 | 98,4 | 99,8 | 100,4 | 101,8 | 102,3 | 103,4 | 103,9 |
| Total SPL 1m [6] | dB(A) | 77,8 | 78,6 | 79,5 | 80,1 | 81,1 | 81,6 | 82,3 | 82,8 |
| **Power supply** | | | | | | | | | |
| Voltage/phase/frequency | V/ph/Hz | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 | 400/3/50 |
| **General electrical data** | | | | | | | | | |
| Maximum input power | [A] | 289 | 327 | 366 | 432 | 473 | 492 | 512 | 552 |
| Maximum input current | [A] | 573 | 652 | 691 | 677 | 796 | 818 | 838 | 877 |

(1) Water in/out: 15/10°C - Ambient air temperature 30°C
(2) Water in/out: 15/10°C - Ambient air temperature 0°C
(3) Water in/out: 15/10°C - Ambient air temperature 5°C
(4) Hydraulic data referred to fluid Glycol 30%

(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 1m from the unit in free field conditions, in accordance with ISO 3744