

WATER CHILLERS R407C – R22

AIR COOLED WATER CHILLERS

WITH SCROLL COMPRESSORS AND AXIAL FANS



RAE 421 + MV + P1

RAE... Series

1 refrigerant circuit - cooling capacities from 19 to 42 kW

Water chillers suitable for small and medium size air conditioning systems and for water cooling plants

Designed for external installation

Axial fans

Coated with pre-painted zinc steel plates

1 cooling circuit

Operating conditions from +15 °C to +45 °C for standard models

The following versions are available:

RAE...K with R407C ecological gas

RAE... standard version

RAE...U K ultra-silenced version with R407C ecological gas

RAE...U ultra-silenced version

Made up of:

High-efficiency scroll compressor (COP 3.37 under ARI conditions), with low sound level (on average 6dB(A) less than the hermetic compressors), internal heat protection, installed on rubber vibration dampers, supplied with oil sump heater when necessary.

Heat-exchange external coil with high-efficiency aluminium fins and copper pipe designed for cooling fluids.

Low rpm axial fans directly coupled provided with heat protection, low sound level blades with wing profile and safety protection grid.

Weld-brazed plate evaporator with heat insulation.

Electric panel, in compliance with CE norms, supplied with a main switch and both overload and short circuit protections at each electrical components.

The cooling circuit is composed of: thermostatic expansion valve, dehydrating filter, sight glass, safety device, antifreeze thermostat, high and low pressure switches

Unit management microprocessor for all models

The available water accessories, like pump and buffer tank, are installed inside the unit including electric control device of the pump.

Compressors hour counter.

Accessories

| | |
|-----|--|
| AE | Electrical power supply different from standard |
| BT | Low temperature operation (-20°C) with modulating fan speed regulation |
| CS | Compressor inrush counter |
| GP | Condensing coil protection grid |
| HG | Hot gas by-pass |
| IH | RS 485 serial interface |
| IM | Seawood packing |
| MF | Phase monitor |
| MT | High and low pressure gauges |
| MV | Buffer tank/expansion vessel/safety valve/water gauge/water charge and discharge valves/air discharge valves |
| P1 | Pump group/expansion vessel/safety valve/water gauge/water charge and discharge valves/air discharge valve |
| P1H | High head pump group/expansion vessel/safety valve/water gauge/water charge and discharge valves/air discharge valve |
| PA | Rubber-type vibration dampers |
| PF | Safety water flow switch on evaporator |
| PQ | Remote microprocessor |
| RA | Anti-freeze heater on evaporator |
| RL | Compressors overload relays |
| RM | Epoxy coating of condensing coil for sea environment |
| RP | Partial heat recovery |
| RR | Condensing coil with copper/copper fins |
| RT | Total heat recovery (it is necessary to order option BT) |
| RV | Personalized RAL paint |
| SC | Soundproofed compressors housing (included on ultra-silenced version) |
| VB | Brine version (water temperature < 0°C) |
| VS | Solenoid valve |

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AIR COOLED WATER CHILLERS

WITH SCROLL COMPRESSORS AND AXIAL FANS

RAE... Technical data

| MODEL | RAE... | 201 | 241 | 281 | 361 | 421 |
|---------------------------------|-------------------|----------------------------------|--------|--------|--------|--------|
| Cooling capacity with R407C | kW | 18,7 | 22,2 | 26,4 | 34,1 | 40,4 |
| Absorbed power with R407C | kW | 6,5 | 8,4 | 9,3 | 10,6 | 13,3 |
| Cooling capacity with R22 | kW | 19,5 | 23,3 | 27,4 | 34,7 | 41,5 |
| Absorbed power with R22 | kW | 6,1 | 7,3 | 8,2 | 9,7 | 11,9 |
| Axial fans | | | | | | |
| Quantity | n | 2 | 2 | 2 | 2 | 2 |
| Rotation speed | rpm | 900 | 900 | 900 | 860 | 860 |
| Motors power | kW | 0,74 | 0,74 | 0,74 | 1,26 | 1,26 |
| Total air flow | l/s | 3.111 | 3.111 | 2.833 | 4.445 | 4.445 |
| Total air flow | m ³ /h | 11.200 | 11.200 | 10.200 | 16.000 | 16.000 |
| Nominal absorbed current | A | 3,4 | 3,4 | 3,4 | 6 | 6 |
| Sound pressure level 2) | dB(A) | 65 | 65 | 65 | 70 | 70 |
| Brazed plate evaporator | | | | | | |
| Quantity | n | 1 | 1 | 1 | 1 | 1 |
| Water flow rate with R407C | l/s | 0,89 | 1,06 | 1,25 | 1,64 | 1,92 |
| Water flow rate with R407C | m ³ /h | 3,20 | 3,80 | 4,50 | 5,90 | 6,90 |
| Pressure drop with R407C | kPa | 38 | 43 | 44 | 48 | 68 |
| Water flow rate with R22 | l/s | 0,93 | 1,11 | 1,31 | 1,66 | 1,98 |
| Water flow rate with R22 | m ³ /h | 3,30 | 4,00 | 4,70 | 6,00 | 7,10 |
| Pressure drop with R22 | kPa | 38 | 41 | 44 | 46 | 64 |
| Pumps | | | | | | |
| Available pressure with P1 | kPa | 162 | 149 | 127 | 144 | 134 |
| Motor power with P1 | kW | 0,55 | 0,55 | 0,55 | 0,55 | 0,55 |
| Available pressure with P1H | kPa | 207 | 194 | 167 | 184 | 169 |
| Motor power with P1H | kW | 0,55 | 0,55 | 0,55 | 0,75 | 0,75 |
| Buffer tank water volume | l | 80 | 80 | 80 | 180 | 180 |
| Scroll compressors | | | | | | |
| Quantity | n | 1 | 1 | 1 | 1 | 1 |
| Circuits | n | 1 | 1 | 1 | 1 | 1 |
| Standard steps capacity | % | 0/100 | | | | |
| Nominal absorbed current | A | 12,2 | 14,9 | 16,7 | 18,5 | 23,3 |
| Maximum absorbed current | A | 20 | 23 | 32 | 41 | 41 |
| Inrush current | A | 102 | 133 | 133 | 141 | 204 |
| Total absorbed power with R407C | kW | 7,2 | 9,1 | 10,0 | 11,9 | 14,6 |
| Total absorbed power with R22 | kW | 6,8 | 8,0 | 8,9 | 10,9 | 13,2 |
| Dimensions | | | | | | |
| Length | mm | 1.600 | 1.600 | 1.600 | 2.000 | 2.000 |
| Width | mm | 750 | 750 | 750 | 850 | 850 |
| Height | mm | 1.260 | 1.260 | 1.260 | 1.650 | 1.650 |
| Weight | kg | 250 | 255 | 295 | 400 | 415 |
| Weight with empty MV included | kg | 300 | 305 | 345 | 465 | 480 |
| Refrigerant charge | kg | 4,2 | 4,3 | 6,3 | 10 | 11 |
| Power supply | | 400 V/ 50Hz / 3Ph + N + T | | | | |

Nominal condition referred to: air 35 °C - chilled water 7/12 °C
2) Measured at 1 m in open field (ISO 3746)

RAE...U Technical data

| MODEL | RAE...U | 201 | 241 | 281 | 361 | 421 |
|---------------------------------|-------------------|----------------------------------|-------|--------|--------|--------|
| Cooling capacity with R407C | kW | 18,2 | 22,4 | 27,4 | 33,1 | 39,4 |
| Absorbed power with R407C | kW | 6,8 | 8,3 | 8,7 | 11,2 | 13,9 |
| Cooling capacity with R22 | kW | 19,3 | 23,4 | 28,0 | 34,1 | 41,0 |
| Absorbed power with R22 | kW | 6,1 | 7,3 | 7,9 | 10,0 | 12,3 |
| Axial fans | | | | | | |
| Quantity | n | 2 | 2 | 2 | 2 | 3 |
| Rotation speed | rpm | 680 | 680 | 650 | 650 | 650 |
| Motors power | kW | 0,44 | 0,44 | 0,62 | 0,62 | 0,93 |
| Total air flow | l/s | 2.222 | 1.944 | 3.111 | 3.111 | 4.833 |
| Total air flow | m ³ /h | 8.000 | 7.000 | 11.200 | 11.200 | 17.400 |
| Nominal absorbed current | A | 2,2 | 2,2 | 3,1 | 3,1 | 4,7 |
| Sound pressure level 2) | dB(A) | 58 | 58 | 62 | 62 | 64 |
| Brazed plate evaporator | | | | | | |
| Quantity | n | 1 | 1 | 1 | 1 | 1 |
| Water flow rate with R407C | l/s | 0,86 | 1,06 | 1,31 | 1,58 | 1,89 |
| Water flow rate with R407C | m ³ /h | 3,10 | 3,80 | 4,70 | 5,70 | 6,80 |
| Pressure drop with R407C | kPa | 36 | 44 | 47 | 45 | 65 |
| Water flow rate with R22 | l/s | 0,92 | 1,12 | 1,34 | 1,63 | 1,96 |
| Water flow rate with R22 | m ³ /h | 3,30 | 4,00 | 4,80 | 5,90 | 7,00 |
| Pressure drop with R22 | kPa | 38 | 42 | 46 | 44 | 63 |
| Pumps | | | | | | |
| Available pressure with P1 | kPa | 162 | 149 | 127 | 144 | 134 |
| Motor power with P1 | kW | 0,55 | 0,55 | 0,55 | 0,55 | 0,55 |
| Available pressure with P1H | kPa | 207 | 194 | 167 | 184 | 169 |
| Motor power with P1H | kW | 0,55 | 0,55 | 0,55 | 0,75 | 0,75 |
| Buffer tank water volume | l | 80 | 80 | 180 | 180 | 180 |
| Scroll compressors | | | | | | |
| Quantity | n | 1 | 1 | 1 | 1 | 1 |
| Circuits | n | 1 | 1 | 1 | 1 | 1 |
| Standard steps capacity | % | 0/100 | | | | |
| Nominal absorbed current | A | 12,5 | 14,8 | 16,0 | 19,3 | 24,1 |
| Maximum absorbed current | A | 17 | 20 | 24 | 29 | 33 |
| Inrush current | A | 101 | 132 | 133 | 178 | 203 |
| Total absorbed power with R407C | kW | 7,2 | 8,7 | 9,3 | 11,8 | 14,8 |
| Total absorbed power with R22 | kW | 6,5 | 7,7 | 8,5 | 10,6 | 13,2 |
| Dimensions | | | | | | |
| Length | mm | 1.600 | 1.600 | 2.000 | 2.000 | 2.130 |
| Width | mm | 750 | 750 | 850 | 850 | 1.100 |
| Height | mm | 1.260 | 1.260 | 1.650 | 1.650 | 1.760 |
| Weight | kg | 256 | 261 | 370 | 400 | 570 |
| Weight with empty MV included | kg | 305 | 310 | 435 | 465 | 635 |
| Refrigerant charge | kg | 4,2 | 6,2 | 10 | 10 | 9,4 |
| Power supply | | 400 V/ 50Hz / 3Ph + N + T | | | | |

Nominal condition referred to: air 35 °C - chilled water 7/12 °C
2) Measured at 1 m in open field (ISO 3746)