

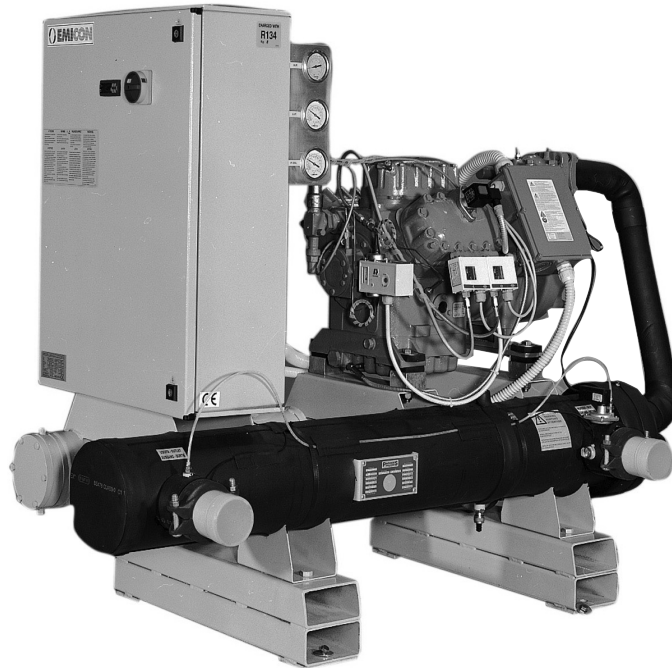
WATER CHILLERS - R407C

WATER COOLED CHILLERS WITH SEMI-HERMETIC COMPRESSORS
ONE AND TWO CIRCUITS

RWS...K

Refrigerant R407C-version K

Cooling capacities from 90 kW to 370 kW



RWS 1201 K

- Packaged chillers suitable for cooling plants in air conditioning systems and industrial premises, designed for internal installation, they are assembled in a compact housing which supports the compressors and in which the shell&tube heat exchanger are integrated
- RWS...
- Models from 1001K to 1901K:
 - 1 semihermetic compressor - 1 cooling circuit with shell & tube condenser and evaporator
- For all other models provided with:
 - 2 semihermetic compressors - 2 cooling circuits with 2 Shell & tube condensers and 1 double-circuit shell & tube evaporator
- Available versions:
 - PWS...K heat pump version with cycle inversion on the hydraulic circuits
 - RWS...K.RT version with total heat recovery

Provided with:

- High efficiency semihermetic compressors, motor speed 1450 rpm with internal heat protection, electric oil heater, lubricating pump, differential oil pressostat and dampers
- Shell & tube evaporator
- Shell & tube condensers
- Electric panel in compliance with CE norms, provided with protection fuses and safety transformer
- The cooling circuit is composed of:
 - thermostatic expansion valve, sight glass, dehydrating filter, safety device, antifreeze safety device, high and low pressure switches, high and low pressure gauges
- Microprocessor detecting and operating the alarm systems of the machine

Options:

| | |
|-------------|--|
| A | Amperometer |
| CA | Condensers for seawater |
| CC | Insulated condensers |
| CF | Soundproofing fairing |
| CS | Compressor pick-up counter |
| CU | Soundproofing fairing with lead material |
| EA | Extractable tube evaporator |
| G2/G3/G4/G6 | Control capacity steps |
| IE | Wooden cage |
| IH | Serial interface RS485 |
| IM | Seawood packing |
| IR | Packing with wooden pallet |
| KS | Lifting kit only for one circuit units |
| KT | Lifting kit with ropes |
| MA | Power supply 230V/3Ph/50Hz |
| MF | Phase monitor |
| PA | Rubber-type vibration dampers |
| PF | Safety water flow switch |
| PM | Spring-type vibration dampers |
| PQ | Remote microprocessor |
| PW | Part-winding start-up |
| RA | Antifreeze electric heater on evaporator |
| RF | Compressor rephasing |
| RP | Partial heat recovery |
| RL | Overload relays |
| RT | Total heat recovery |
| SL | Main switch with padlock |
| V | Voltmeter |
| VB | Brine version |
| VS | Solenoid valve on the gas pipe |

WATER CHILLERS - R407C

WATER COOLED CHILLERS WITH SEMI-HERMETIC COMPRESSORS ONE AND TWO CIRCUITS

RWS...K Technical data

| MODEL | RWS...K | 1001 K | 1201 K | 1301 K | 1601 K | 1901 K | 1802 K | 2002 K | 2102 K | 2602 K | 2902 K | 3102 K | 3402 K | 3702 K | |
|---|---------|--------------------------|--------|--------|--------|--------|--------------|--------|--------|--------|--------|--------|--------|--------|--|
| Cooling capacity 1) | kW | 87.9 | 104.9 | 127.7 | 152.7 | 184.1 | 175.8 | 192.8 | 209.7 | 255.5 | 280.5 | 305.4 | 336.8 | 368.2 | |
| Absorbed capacity | kW | 23.9 | 28.2 | 33.2 | 40.1 | 48.6 | 47.7 | 52.1 | 56.4 | 66.4 | 73.3 | 80.2 | 88.7 | 97.2 | |
| Heating capacity 4) | kW | 104.3 | 124.1 | 149.9 | 179.7 | 216.9 | 208.6 | 228.5 | 248.3 | 299.8 | 329.6 | 359.4 | 396.6 | 433.8 | |
| [Shell and Tube evaporator] | | | | | | | | | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| Circuits water/refrigerant | n° | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | |
| Water flow | l/s | 4.20 | 5.01 | 6.10 | 7.30 | 8.79 | 8.40 | 9.21 | 10.02 | 12.21 | 13.40 | 14.59 | 16.09 | 17.59 | |
| Pressure drop | kPa | 37 | 43 | 38 | 33 | 49 | 40 | 47 | 44 | 41 | 40 | 39 | 37 | 33 | |
| Water volume | l | 29 | 28 | 45 | 60 | 60 | 58 | 57 | 56 | 96 | 94 | 92 | 141 | 138 | |
| [Shell and Tube condenser] | | | | | | | | | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | |
| Water flow | l/s | 5.34 | 6.36 | 7.69 | 9.21 | 11.12 | 10.68 | 11.70 | 12.72 | 15.38 | 16.90 | 18.42 | 20.33 | 22.23 | |
| Pressure drop | kPa | 7 | 7 | 7 | 7 | 7 | 7 | 9 | 8 | 7 | 8 | 7 | 8 | 7 | |
| Water volume | l | 15 | 18 | 22 | 26 | 31 | 30 | 30 | 34 | 43 | 43 | 53 | 53 | 60 | |
| Refrigerant charge | kg | 24 | 23 | 22 | 21 | 40 | 48 | 49 | 47 | 44 | 80 | 83 | 84 | 82 | |
| Sound pressure level 2) | dB(A) | 73 | 74 | 77 | 77 | 78 | 75 | 75 | 76 | 79 | 79 | 79 | 80 | 80 | |
| [Semi-hermetic compressors] | | | | | | | | | | | | | | | |
| Number of compressors | n.° | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | |
| Circuits | n.° | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | |
| Capacity steps - standard | % | 0 / 100 | | | | | 0 / 50 / 100 | | | | | | | | |
| Capacity steps - optional | % | G2 | | G3 | | | G4 | | | G4-G6 | | | | | |
| Nominal input current | A | 44 | 48 | 66 | 79 | 95 | 87 | 92 | 97 | 131 | 145 | 159 | 175 | 191 | |
| Max input current | A | 66 | 71 | 92 | 112 | 130 | 131 | 136 | 141 | 184 | 204 | 224 | 242 | 260 | |
| Inrush current (direct) | A | 227 | 278 | 355 | 435 | 480 | 271 | 321 | 326 | 421 | 501 | 515 | 559 | 575 | |
| Inrush current (part-winding) | A | 185 | 226 | 289 | 354 | 390 | 228 | 269 | 274 | 354 | 419 | 433 | 469 | 485 | |
| [Dimensions] | | | | | | | | | | | | | | | |
| Length | mm | 1980 | 1980 | 1980 | 1980 | 2020 | 2570 | 2650 | 2650 | 2650 | 2638 | 2638 | 2660 | 2660 | |
| Width | mm | 750 | 750 | 750 | 750 | 750 | 660 | 660 | 660 | 660 | 880 | 880 | 880 | 880 | |
| Height | mm | 1575 | 1575 | 1575 | 1575 | 1615 | 1735 | 1710 | 1710 | 1785 | 1845 | 1845 | 1920 | 1920 | |
| Transport weight 3) | kg | 626 | 738 | 876 | 976 | 1034 | 1316 | 1349 | 1395 | 1594 | 1657 | 1785 | 1910 | 1971 | |
| Weight during operation | kg | 670 | 784 | 943 | 1063 | 1125 | 1434 | 1465 | 1518 | 1776 | 1838 | 1982 | 2156 | 2229 | |
| [Version with total heat recovery] | | | | | | | | | | | | | | | |
| Cooling capacity 4) | kW | 77.4 | 92.3 | 112.4 | 134.4 | 162.0 | 154.7 | 169.6 | 184.6 | 224.8 | 246.8 | 268.8 | 296.4 | 324.0 | |
| Absorbed capacity | kW | 27.0 | 31.9 | 37.5 | 45.3 | 54.9 | 53.9 | 58.8 | 63.7 | 75.0 | 82.8 | 90.6 | 100.2 | 109.8 | |
| Heating capacity | kW | 104.3 | 124.1 | 149.9 | 179.7 | 216.9 | 208.6 | 228.5 | 248.3 | 299.8 | 329.6 | 359.4 | 396.6 | 433.8 | |
| Water flow at evaporator | l/s | 3.7 | 4.4 | 5.4 | 6.4 | 7.7 | 7.4 | 8.1 | 8.8 | 10.7 | 11.8 | 12.8 | 14.2 | 15.5 | |
| Evaporator pressure drop | kPa | 28 | 34 | 30 | 26 | 38 | 31 | 37 | 34 | 32 | 31 | 30 | 29 | 26 | |
| Water flow at recuperator | l/s | 5.0 | 5.9 | 7.2 | 8.6 | 10.4 | 10.0 | 10.9 | 11.9 | 14.3 | 15.7 | 17.2 | 18.9 | 20.7 | |
| Recuperator pressure drop | kPa | 7 | 6 | 6 | 6 | 6 | 6 | 7 | 6 | 5 | 6 | 5 | 5 | 6 | |
| Refrigerant charge | kg | 39 | 36 | 34 | 63 | 58 | 92 | 93 | 89 | 82 | 168 | 160 | 155 | 156 | |
| [Dimensions] | | | | | | | | | | | | | | | |
| Length | mm | 2020 | 2020 | 2020 | 2060 | 2060 | 3230 | 3230 | 3230 | 3230 | 3310 | 3310 | 2660 | 3310 | |
| Width | mm | 750 | 750 | 750 | 850 | 850 | 660 | 660 | 660 | 660 | 880 | 880 | 880 | 880 | |
| Height | mm | 1605 | 1605 | 1605 | 1660 | 1660 | 1735 | 1735 | 1735 | 1785 | 1870 | 1870 | 1920 | 1920 | |
| Transport weight 3) | kg | 811 | 861 | 1001 | 1229 | 1267 | 1476 | 1509 | 1558 | 1767 | 2072 | 2129 | 2277 | 2292 | |
| Weight during operation | kg | 869 | 924 | 1088 | 1339 | 1388 | 1593 | 1624 | 1682 | 1949 | 2253 | 2326 | 2538 | 2550 | |
| Power supply | | 400 V / 50 Hz / 3 Ph + T | | | | | | | | | | | | | |

1) Chilled water: 12/7 °C; Condensing water: 30/35 °C

2) Sound pressure level at 1 m in free field (ISO 3746)

3) Weight for unit charged with oil and refrigerant

4) Chilled water: 12/7 °C; Condensing water 40/45 °C.

Notes:

Operation limits and correction factors for performances at temperatures different than nominal ones are on page 84

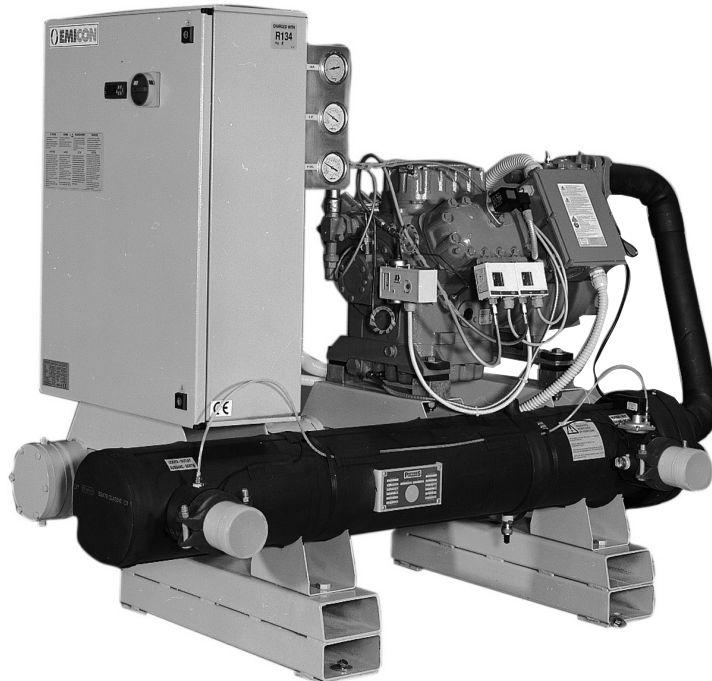
WATER CHILLERS - R134a

WATER COOLED CHILLERS WITH SEMI-HERMETIC COMPRESSORS
ONE AND TWO CIRCUITS

RWS...Ka

Refrigerant R134a-version Ka

Cooling capacities from 65 kW to 205 kW



RWS 781 Ka

- Packaged chillers suitable for cooling plants in air conditioning systems and industrial premises, designed for internal installation, they are assembled in a compact housing which supports the compressors and in which the shell&tube heat exchanger are integrated
- RWS...Ka
- Models from 651Ka to 1101Ka:
1 semi-hermetic compressor - 1 cooling circuit with shell & tube condenser and evaporator
- For all other models:
2 semi-hermetic compressors - 2 cooling circuits with 2 Shell & tube condensers and 1 double-circuit shell & tube evaporator
- Available versions:
PWS...Ka heat pump version with cycle inversion on the hydraulic circuit
RWS...Ka.RT version with total heat recovery

Provided with:

- High efficiency semihermetic compressors, motor speed 1450 rpm with internal heat protection, electric oil heater, lubricating pump, differential oil pressostat and dampers, installed in a suitable housing
- Shell & tube evaporator
- Shell & tube condensers
- Electric panel in compliance with CE norms, provided with protection fuses and safety transformer
- The cooling circuit is composed of:
thermostatic expansion valve, sight glass, dehydrating filter, safety device, antifreeze safety device, high and low pressure switches, high and low pressure gauges
- Microprocessor detecting and operating the alarm systems of the machine

Options:

| | |
|-------------|--|
| A | Amperometer |
| CA | Condensers for seawater |
| CC | Insulated condensers |
| CF | Soundproofing fairing |
| CS | Compressor pick-up counter |
| CU | Soundproofing fairing with lead material |
| EA | Extractable tube evaporator |
| G2/G3/G4/G6 | Control capacity steps |
| IE | Wooden cage |
| IH | Serial interface RS485 |
| IM | Seawood packing |
| IR | Packing with wooden pallet |
| KS | Lifting kit only for one circuit units |
| KT | Lifting kit with ropes |
| MA | Power supply 230V/3Ph/50Hz |
| MF | Phase monitor |
| PA | Rubber-type vibration dampers |
| PF | Safety water flow switch |
| PM | Spring-type vibration dampers |
| PQ | Remote microprocessor |
| PW | Part-winding start-up |
| RA | Antifreeze electric heater on evaporator |
| RF | Compressor rephasing |
| RL | Overload relays |
| RP | Partial head recovery |
| RT | Total heat recovery |
| SL | Main switch with padlock |
| V | Voltmeter |
| VB | Brine version |
| VS | Solenoid valve on the gas pipe |

WATER CHILLERS - R134a

WATER COOLED CHILLERS WITH SEMI-HERMETIC COMPRESSORS ONE AND TWO CIRCUITS

RWS...Ka Technical data

| MODEL | RWS...K a | 651 Ka | 781 Ka | 901 Ka | 1101 Ka | 1302 Ka | 1502 Ka | 1602 Ka | 1802 Ka | 2002 Ka | 2102 Ka |
|---|--------------|-------------------------|--------|--------|---------|---------|--------------|---------|---------|---------|---------|
| Cooling capacity 1) | kW | 64.2 | 77.4 | 89.8 | 101.7 | 128.5 | 141.6 | 154.8 | 179.6 | 191.6 | 203.5 |
| Absorbed capacity | kW | 16.5 | 19.9 | 22.3 | 27.1 | 33.0 | 36.4 | 39.8 | 44.5 | 49.3 | 54.2 |
| Heating capacity 4) | kW | 73.7 | 88.7 | 102.0 | 117.7 | 147.3 | 162.4 | 177.5 | 204.1 | 219.7 | 235.4 |
| [Shell and tube evaporator] | | | | | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Circuits water/refrigerant | n° | 1/1 | 1/1 | 1/1 | 1/1 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 |
| Water flow | l/s | 3.07 | 3.70 | 4.29 | 4.86 | 6.14 | 6.77 | 7.40 | 8.58 | 9.15 | 9.72 |
| Pressure drop | kPa | 20 | 28 | 38 | 49 | 65 | 45 | 54 | 58 | 48 | 54 |
| Water volume | l | 29 | 29 | 29 | 29 | 28 | 47 | 47 | 45 | 58 | 58 |
| [Shell and Tube condenser] | | | | | | | | | | | |
| Quantity | n° | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| Water flow | l/s | 3.86 | 4.65 | 5.35 | 6.16 | 7.72 | 8.51 | 9.30 | 10.71 | 11.51 | 12.31 |
| Pressure drop | kPa | 29 | 34 | 31 | 27 | 29 | 35 | 34 | 31 | 36 | 27 |
| Water volume | l | 11 | 6 | 14 | 9 | 22 | 22 | 23 | 28 | 14 | 18 |
| Refrigerant charge | kg | 9 | 14 | 8 | 12 | 16 | 17 | 17 | 16 | 27 | 25 |
| Sound pressure level 2) | dB(A) | 71 | 72 | 75 | 75 | 73 | 73 | 74 | 77 | 77 | 77 |
| [Semi-hermetic compressors] | | | | | | | | | | | |
| Number of compressors | n.° | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| Circuits | n.° | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| Capacity steps - standard | % | 0 / 100 | | | | | 0 / 50 / 100 | | | | |
| Capacity steps - optional | % | G2 | | G3 | | G4 | | | G4-G6 | | |
| Nominal input current | A | 28 | 34 | 48 | 58 | 57 | 63 | 69 | 95 | 105 | 115 |
| Max input current | A | 42 | 51 | 63 | 77 | 83 | 93 | 102 | 126 | 140 | 154 |
| Inrush current (direct) | A | 128 | 174 | 286 | 355 | 156 | 203 | 209 | 333 | 403 | 413 |
| Inrush current (part-winding) | A | 104 | 142 | 232 | 289 | 132 | 170 | 176 | 280 | 336 | 346 |
| [Dimensions] | | | | | | | | | | | |
| Length | mm | 1980 | 1980 | 1980 | 1980 | 2585 | 2585 | 2585 | 2570 | 2585 | 2585 |
| Width | mm | 750 | 750 | 750 | 750 | 600 | 600 | 600 | 660 | 600 | 600 |
| Height | mm | 1535 | 1575 | 1535 | 1535 | 1595 | 1595 | 1595 | 1735 | 1655 | 1655 |
| Transport weight 3) | kg | 434 | 499 | 550 | 589 | 708 | 789 | 835 | 980 | 1081 | 1105 |
| Weight during operation | kg | 475 | 535 | 593 | 628 | 780 | 880 | 929 | 1081 | 1167 | 1198 |
| [Version with total heat recovery] | | | | | | | | | | | |
| Cooling capacity 4) | kW | 55.2 | 66.6 | 77.2 | 87.5 | 110.5 | 121.8 | 133.1 | 154.5 | 164.7 | 175.0 |
| Absorbed capacity | kW | 18.4 | 22.2 | 24.8 | 30.2 | 36.8 | 40.6 | 44.3 | 49.6 | 55.0 | 60.4 |
| Heating capacity 4) | kW | 73.7 | 88.7 | 102.0 | 117.7 | 147.3 | 162.4 | 177.5 | 204.1 | 219.7 | 235.4 |
| Water flow at evaporator | l/s | 2.6 | 3.2 | 3.7 | 4.2 | 5.3 | 5.8 | 6.4 | 7.4 | 7.9 | 8.4 |
| Evaporator pressure drop | kPa | 14 | 21 | 28 | 36 | 48 | 34 | 40 | 43 | 36 | 40 |
| Water flow at recuperator | l/s | 3.5 | 4.2 | 4.9 | 5.6 | 7.0 | 7.8 | 8.5 | 9.8 | 10.5 | 11.2 |
| Recuperator pressure drop | kPa | 27 | 31 | 28 | 24 | 27 | 26 | 31 | 28 | 33 | 24 |
| Refrigerant charge | kg | 26 | 25 | 24 | 23 | 43 | 50 | 50 | 48 | 49 | 46 |
| [Dimensions] | | | | | | | | | | | |
| Length | mm | 1980 | 1980 | 1980 | 1980 | 2585 | 2585 | 2585 | 2570 | 2570 | 2615 |
| Width | mm | 750 | 750 | 750 | 750 | 660 | 660 | 600 | 660 | 660 | 660 |
| Height | mm | 1575 | 1575 | 1575 | 1575 | 1705 | 1705 | 1705 | 1735 | 1735 | 1735 |
| Transport weight 3) | kg | 656 | 704 | 778 | 804 | 1145 | 1240 | 1284 | 1436 | 1497 | 1533 |
| Weight during operation | kg | 696 | 744 | 820 | 850 | 1193 | 1309 | 1353 | 1508 | 1582 | 1625 |
| Power supply | | 400 V / 50 Hz / 3Ph + T | | | | | | | | | |

1) Chilled water: 12/7 °C; Condensing water: 30/35 °C

2) Sound pressure level at 1 m in free field (ISO 3746)

3) Weight for unit charged with oil and refrigerant

4) Chilled water: 12/7 °C; Condensing water 40/45 °C.

Notes:

- Operation limits and correction factors for performances at temperatures different than nominal ones are on page 84

WATERCOOLED CHILLER RWE - RWS

OPERATION LIMITS - ABSORPTION AND CAPACITY CORRECTION FACTORS

OPERATION LIMITS

EVAPORATOR WATER TEMP.: The operation temperature ranges from a minimum of +4 and a maximum of +20 °C. By adding glycole in the water circuit, you can reach a minimum temperature of -8 °C (to be required when ordering).

CONDENSING WATER TEMP.: The operation temperature ranges from a minimum of 14°C and a maximum of 50°C.

CORRECTION FACTORS FOR COOLING CAPACITY AND ABSORPTION

RWE... - 61 - 191, 61K - 201K,

| Te °C | WATER CONDENSING TEMPERATURE °C | | | | | | | | | |
|----------|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 14/30 | | 30/35 | | 35/40 | | 40/45 | | 45/50 | |
| | kwf | kwa | kwf | kwa | kwf | kwa | kwf | kwa | kwf | kwa |
| 5 | 0.930 | 1.004 | 0.889 | 1.132 | 0.845 | 1.272 | 0.801 | 1.428 | — | — |
| 6 | 9.964 | 1.002 | 0.923 | 1.129 | 0.879 | 1.269 | 0.832 | 1.425 | — | — |
| 7 | 1 | 1 | 0.957 | 1.127 | 0.911 | 1.268 | 0.866 | 1.423 | — | — |
| 8 | 1.036 | 0.998 | 0.993 | 1.123 | 0.945 | 1.263 | 0.897 | 1.420 | 0.845 | 1.595 |
| 9 | 1.074 | 0.995 | 1.028 | 1.120 | 0.979 | 1.261 | 0.930 | 1.417 | 0.877 | 1.594 |
| 10 | 1.113 | 0.992 | 1.066 | 1.118 | 1.016 | 1.257 | 0.964 | 1.414 | 0.911 | 1.591 |

RWE... - 221 - 1802, 221K - 1802K, 151Ka -1302Ka

| Te °C | WATER CONDENSING TEMPERATURE °C | | | | | | | | | |
|----------|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 14/30 | | 30/35 | | 35/40 | | 40/45 | | 45/50 | |
| | kwf | kwa | kwf | kwa | kwf | kwa | kwf | kwa | kwf | kwa |
| 5 | 0.972 | 0.892 | 0.929 | 1.005 | 0.884 | 1.129 | 0.838 | 1.268 | — | — |
| 6 | 1.008 | 0.89 | 0.964 | 1.002 | 0.918 | 1.127 | 0.87 | 1.266 | — | — |
| 7 | 1.045 | 0.888 | 1 | 1 | 0.953 | 1.126 | 0.904 | 1.264 | — | — |
| 8 | 1.083 | 0.886 | 1.037 | 0.997 | 0.988 | 1.122 | 0.937 | 1.261 | 0.884 | 1.417 |
| 9 | 1.123 | 0.884 | 1.075 | 0.995 | 1.024 | 1.120 | 0.972 | 1.259 | 0.917 | 1.415 |
| 10 | 1.163 | 0.881 | 1.113 | 0.993 | 1.062 | 1.147 | 1.008 | 1.256 | 0.952 | 1.412 |

RWS...

| Te °C | WATER CONDENSING TEMPERATURE °C | | | | | | | | | |
|----------|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 14/30 | | 30/35 | | 35/40 | | 40/45 | | 45/50 | |
| | kwf | kwa | kwf | kwa | kwf | kwa | kwf | kwa | kwf | kwa |
| 5 | 0.984 | 0.907 | 0.925 | 0.982 | 0.867 | 1.058 | 0.811 | 1.29 | 0.757 | 1.2 |
| 6 | 1.023 | 0.913 | 0.962 | 0.991 | 0.902 | 1.069 | 0.845 | 1.142 | 0.788 | 1.216 |
| 7 | 1.063 | 0.92 | 1 | 1 | 0.938 | 1.080 | 0.879 | 1.156 | 0.82 | 1.231 |
| 8 | 1.104 | 0.924 | 1.039 | 1.009 | 0.976 | 1.089 | 0.913 | 1.169 | 0.853 | 1.244 |
| 9 | 1.146 | 0.929 | 1.079 | 1.016 | 1.013 | 1.100 | 0.949 | 1.182 | 0.886 | 1.260 |
| 10 | 1.19 | 0.933 | 1.12 | 1.022 | 1.052 | 1.109 | 0.986 | 1.193 | 0.921 | 1.282 |

OPERATION FACTORS WITH WATER-GLYCOL MIXTURE TO THE EVAPORATOR

| | | | | | | | | |
|--|-------|-------|-------|-------|-------|-------|-------|-------|
| Ethylene glycol percentage | 5% | 10% | 15% | 20% | 25% | 30% | 35% | 40% |
| Freezing point | -2.1 | -4.5 | -7 | -10 | -13 | -17 | -21 | -25 |
| Nominal performances correction factors | | | | | | | | |
| Cooling drop | 0.993 | 0.988 | 0.982 | 0.978 | 0.973 | 0.968 | 0.958 | 0.948 |
| Increase on water flow rate | 1.006 | 1.015 | 1.025 | 1.040 | 1.060 | 1.080 | 1.113 | 1.142 |
| Increase on pressure drops | 1.040 | 1.090 | 1.125 | 1.187 | 1.250 | 1.312 | 1.375 | 1.460 |

If the machine runs with an external air temperature below 0°C, it is advisable to use water added with glycol in the percentages listed in the above table. Emicon S.p.a. disclaims all responsibilities in case of damages deriving from violation of this suggestion.

Te = Evaporator outlet water temperature

kwf = Correction factor for cooling capacity

kwa = Correction factor for compressors' input power

For the highlighted operating conditions, you should foresee an oversized condenser

Please contact our Sales Department

WATERCOOLED HEAT PUMPS PWE... - PWS...

OPERATION LIMITS AND CORRECTION FACTORS FOR CAPACITY AND ABSORPTION

OPERATION LIMITS

EVAPORATOR WATER TEMPERATURE: The operation temperatures range from a minimum of +4 to a maximum of +20 °C. By adding glycole in the hydraulic circuit it is possible to reach a minimum temperature of -8 °C (to be required when ordering).

CONDENSER WATER TEMPERATURE: The operation temperatures range from a minimum of +14 to a maximum of +50 °C.

CORRECTION FACTORS FOR COOLING CAPACITY AND ABSORPTION

PWE - 61 - 191, 61K - 201K,

| Te °C | WATER CONDENSING TEMPERATURE °C | | | | | | | | | |
|----------|---------------------------------|-------|-------|--------|-------|-------|-------|-------|-------|-------|
| | 14/30 | | 30/35 | | 35/40 | | 40/45 | | 45/50 | |
| | kwf | kwa | kwf | kwa | kwf | kwa | kwf | kwa | kwf | kwa |
| 5 | 0,930 | 1,004 | 0,889 | 1,1132 | 0,845 | 1,272 | 0,801 | 1,428 | — | — |
| 6 | 9,964 | 1,002 | 0,923 | 1,129 | 0,879 | 1,269 | 0,832 | 1,425 | — | — |
| 7 | 1 | 1 | 0,957 | 1,127 | 0,911 | 1,268 | 0,866 | 1,423 | — | — |
| 8 | 1,036 | 0,998 | 0,993 | 1,123 | 0,945 | 1,263 | 0,897 | 1,420 | 0,845 | 1,59 |
| 9 | 1,074 | 0,995 | 1,028 | 1,120 | 0,979 | 1,261 | 0,930 | 1,417 | 0,877 | 1,59 |
| 10 | 1,113 | 0,992 | 1,066 | 1,118 | 1,016 | 1,257 | 0,964 | 1,414 | 0,911 | 1,591 |

PWE - 221 - 1802, 221K - 1802K, 151Ka -1302Ka

| Te °C | WATER CONDENSING TEMPERATURE °C | | | | | | | | | |
|----------|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 14/30 | | 30/35 | | 35/40 | | 40/45 | | 45/50 | |
| | kwf | kwa | kwf | kwa | kwf | kwa | kwf | kwa | kwf | kwa |
| 5 | 0,972 | 0,892 | 0,929 | 1,005 | 0,884 | 1,129 | 0,838 | 1,268 | — | — |
| 6 | 1,008 | 0,89 | 0,964 | 1,002 | 0,918 | 1,127 | 0,87 | 1,266 | — | — |
| 7 | 1,045 | 0,88 | 1 | 1 | 0,953 | 1,126 | 0,904 | 1,264 | — | — |
| 8 | 1,083 | 0,886 | 1,037 | 0,997 | 0,988 | 1,122 | 0,937 | 1,261 | 0,884 | 1,417 |
| 9 | 1,123 | 0,884 | 1,075 | 0,995 | 1,024 | 1,12 | 0,972 | 1,259 | 0,917 | 1,415 |
| 10 | 1,163 | 0,881 | 1,113 | 0,993 | 1,062 | 1,117 | 1,008 | 1,256 | 0,952 | 1,412 |

PWS...

| Te °C | WATER CONDENSING TEMPERATURE °C | | | | | | | | | |
|----------|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 14/30 | | 30/35 | | 35/40 | | 40/45 | | 45/50 | |
| | kwf | kwa | kwf | kwa | kwf | kwa | kwf | kwa | kwf | kwa |
| 5 | 0,984 | 0,907 | 0,925 | 0,982 | 0,867 | 1,058 | 0,811 | 1,29 | 0,757 | 1,2 |
| 6 | 1,023 | 0,913 | 0,962 | 0,991 | 0,902 | 1,069 | 0,845 | 1,142 | 0,788 | 1,216 |
| 7 | 1,063 | 0,92 | 1 | 1 | 0,938 | 1,08 | 0,879 | 1,156 | 0,82 | 1,231 |
| 8 | 1,104 | 0,924 | 1,039 | 1,009 | 0,976 | 1,089 | 0,913 | 1,169 | 0,853 | 1,244 |
| 9 | 1,146 | 0,929 | 1,079 | 1,016 | 1,013 | 1,1 | 0,949 | 1,182 | 0,886 | 1,26 |
| 10 | 1,19 | 0,933 | 1,12 | 1,022 | 1,052 | 1,109 | 0,986 | 1,193 | 0,921 | 1,282 |

OPERATION FACTORS WITH WATER-GLYCOL FLOW TO THE EVAPORATOR

| Ethylenic glycol percentage | 5% | 10% | 15% | 20% | 25% | 30% | 35% | 40% |
|---|-------|-------|-------|-------|-------|-------|-------|-------|
| Freezing point | -2,1 | -4,5 | -7 | -10 | -13 | -17 | -21 | -25 |
| Nominal performances correction factors | | | | | | | | |
| Cooling drop | 0,993 | 0,988 | 0,982 | 0,978 | 0,973 | 0,968 | 0,958 | 0,948 |
| Increase on water flow | 1,006 | 1,015 | 1,025 | 1,040 | 1,060 | 1,080 | 1,113 | 1,142 |
| Increase on pressure drops | 1,040 | 1,090 | 1,125 | 1,187 | 1,25 | 1,312 | 1,375 | 1,460 |

If the machine runs with an external air temperature below 0°, it is advisable to use water added with glycol in the percentages listed in the above table. Emicon S.p.a. disclaims all responsibilities in case of damages deriving from violation of this suggestion.

Te =Evaporator outlet water temperature

kwf =Correction factor of cooling capacity

kwa =Correction factor of power absorbed by the compressors

At the highlighted conditions, you should foreseen an oversized condenser.Please, ask our Sales Office