

BREC



Air-cooled water chillers with axial fans for outdoor installation

Range:

Cooling capacity: 400 ÷ 1200 kW

Available versions:

- Low noise
- Ultra-low noise

Refrigerant R134a

Double screw compressors

STANDARD FEATURES

- Self-supporting frame in galvanized steel with panels finished in epoxy powders (colour RAL7037)
- Two semi-hermetic double screw compressors with internal thermal protection, discharge shut-off valve, oil heaters and anti-vibration supports
- Two refrigerant circuits conforming to EC norms (PED 97/23/EC) in copper tubes including: filter dryer, flow indicator, electronic expansion valve managed by the Uniflair control system, valve on the liquid line, pressure switches, transducers and manometers of high and low pressure
- High efficiency shell & tube single passage evaporator. The heat exchanger is insulated with UV-resistant closed-cell expanded neoprene
- Air side exchange coil with aluminium fins and internally grooved copper tubes
- Water flow differential pressure switch
- Acousti-composite fans: Sickle-blade axial fans, statically and dynamically balanced, made from composite materials for high efficiency and low acoustic impact, with safety protection grilles
- Modulating condensation control with fan speed regulation
- Electrical panel conforming to EC Norms (Directive 2006/95/EC and EMC 2004/108/EC, IP54) with general cut-off switch, electric bars distribution for power supply, acquisition of absorbed current, maximum internal temperature control, magneto-thermal cut-off switch on the fans and auxiliaries, fuses for the compressors
- Sequence phase, minimum and maximum power supply monitoring
- Microprocessor control system UPC1m including:
 - local user terminal with external accessibility
 - outlet chilled water temperature regulation by means of an exclusive PID algorithm
 - electronic expansion valve managed by the control system
 - advanced control of cooling capacity by automatic set-point sensitivity regulation
 - refrigerant charge monitoring
 - monitoring of the absorbed current and checking of eventual malfunctions
 - advanced anti-freeze protection on evaporator
 - integrated LAN card for local network connection of a group of chillers
 - integrated clock card
 - rotation of pump group setting functioning and start of pump in stand-by in the event of pump breakdown
- Microprocessor control system in addition allows:
 - management of double set-point from remote control
 - limiting of absorbed current on pre-set value or external signal
 - rapid "Quick Start" procedure to reach total cooling capacity within 3 minutes
 - free-contact for general alarm and 2 for addressable alarms
 - remote ON-OFF switch
 - ability to interface with Modbus protocol directly on RS485 serial card
 - ability to interface with main external communication protocols: Bacnet, Lonworks, Trend, Metasys, TCP/IP and SNMP

TECHNICAL DATA

| BREC MODEL | | 1602A | 1802A | 2202A | 2502A | 2802A | 3202A | 3602A | 4202A | 4802A |
|--------------------------------|-----------|------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Power supply | V/ph/Hz | 400 / 3 / 50 | | | | | | | | |
| Compressors / circuits | nr. x mod | 2 x double screw | | | | | | | | |
| Evaporator | nr. x mod | 1 x Shell & Tube | | | | | | | | |
| Fans | nr. | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 12 | 12 |
| Unit without economizer | | | | | | | | | | |
| Cooling capacity (1) | kW | 365 | 458 | 519 | 547 | 666 | 732 | 847 | 937 | 1046 |
| Absorbed power (1) | kW | 107.7 | 140.7 | 155.4 | 167.5 | 204.0 | 225.0 | 262.0 | 288.2 | 325.0 |
| E.E.R. | | 3.39 | 3.25 | 3.34 | 3.27 | 3.23 | 3.25 | 3.22 | 3.25 | 3.21 |
| E.S.E.E.R. | | 4.11 | 4.24 | 4.19 | 4.21 | 4.29 | 4.41 | 4.61 | 4.29 | 4.47 |
| I.P.L.V. | | 4.68 | 4.83 | 4.78 | 4.82 | 4.94 | 5.17 | 5.46 | 4.98 | 5.31 |
| Unit with economizer | | | | | | | | | | |
| Cooling capacity (2) | kW | 392 | 495 | 560 | 592 | 721 | 787 | 910 | 1014 | 1127 |
| Absorbed power (2) | kW | 119.2 | 158.4 | 173.1 | 188.4 | 237.0 | 259.0 | 297.0 | 324.4 | 369.0 |
| E.E.R. | | 3.92 | 3.13 | 3.23 | 3.14 | 3.05 | 3.04 | 3.06 | 3.12 | 3.05 |
| E.S.E.E.R. | | 4.23 | 4.31 | 4.28 | 4.26 | 4.38 | 4.50 | 4.68 | 4.36 | 4.55 |
| I.P.L.V. | | 4.78 | 4.91 | 4.85 | 4.89 | 5.00 | 5.21 | 5.49 | 5.03 | 5.33 |
| Noise pressure levels | | | | | | | | | | |
| Low noise version (3) | dB(A) | 61.0 | 61.1 | 61.2 | 60.1 | 60.9 | 62.1 | 60.3 | 62.8 | 63.3 |
| Ultra low noise version (3) | dB(A) | 55.0 | 55.2 | 55.6 | 54.8 | 55.0 | 56.3 | 55.0 | 56.8 | 57.4 |
| Dimensions | | | | | | | | | | |
| Height | mm | 2525 | 2525 | 2525 | 2525 | 2525 | 2525 | 2525 | 2525 | 2525 |
| Length | mm | 4931 | 4931 | 6357 | 6357 | 6357 | 8890 | 8890 | 10320 | 10320 |
| Width | mm | 2200 | 2200 | 2200 | 2200 | 2200 | 2200 | 2200 | 2200 | 2200 |

(1) Data refer to nominal conditions: water temperature 12/7°C; external temperature 35°C; glycol 0%; refrigerant R134a

(2) Data refer to unit equipped with economizer in nominal conditions: water temperature 12/7°C; external temperature 35°C; glycol 0%; refrigerant R134a

(3) Measured in free field conditions 10 m from the unit, coil side (Q=2)

CONSTRUCTION OPTIONS

- Unit supplied with touch screen graphic user terminal
- Double power supply with automatic integrated management on the active line
- Fans with electronic commutation motors (EC)
- Power phase correction capacitors
- Economizer (permits an increase in both capacity and E.E.R.)
- Operation possible with external temperature upto 50°C at full load
- Low external temperature option: unit works down to -20°C
- Ultra-low noise version with sound-proof casing of the compressors
- Production of glycol water mixture at low temperatures option (down to -10°C)
- Partial condensation heat recovery
- Suction shut-off valves on compressor
- Integrated hydronic system with 1 or 2 circulation pumps (1 + 1 stand-by)
- Anti-freeze protection on evaporator and pump group
- Condensing coils equipped with metal safety grilles and filters
- Coil manifolds protection panels
- Condensing coil cataphoresis or pre-painting treatment (*)

(*) on request

OPTIONS

The units can be supplied with the following external accessories:

- Remote user terminal mP20 II (up to 200 metres with shielded cable) for:
 - entering of commands
 - display unit status of alarms
- Touch screen remote graphic user terminal (up to 200 metres with shielded cable) for:
 - entering of commands
 - display unit status of alarms
- Spring anti-vibration kit
- Flanged type hydraulic connection
- RS485 serial adaptor used to communicate with the Uniflair supervisory system or to interface with external BMS
- LON FTT10 serial adaptor used to communicate with external BMS managed with LON protocol
- TCP/IP serial adaptor used to communicate with external BMS managed with SNMP protocol

BREF



Air-cooled water chillers with axial fans and free-cooling system

Range:

Cooling capacity: 400 ÷ 1200 kW

Available versions:

- Low noise
- Ultra-low noise

Refrigerant R134a

Double screw compressors

STANDARD FEATURES

- Exclusive Uniflair free-cooling system completely managed by the microprocessor control
- Self-supporting frame in galvanized steel with panels finished in epoxy powders (colour RAL7037)
- Two semi-hermetic double screw compressors with internal thermal protection, discharge shut-off valve, oil heaters and anti-vibration supports
- Two refrigerant circuits conforming to EC norms (PED 97/23/EC) in copper tubes including: filter dryer, flow indicator, electronic expansion valve managed by the control system, electrovalve on the liquid line, pressure switches, transducers and manometers of high and low pressure
- Possibility of operation with external temperatures as low as -25°C
- High efficiency shell & tube single passage evaporator. The heat exchanger is insulated with UV-resistant closed-cell expanded neoprene
- Air side exchange coil with aluminium fins and internally grooved copper tubes
- Water flow differential pressure switch
- Acousti-composite fans: Sickle-blade axial fans, statically and dynamically balanced, made from composite materials for high efficiency and low acoustic impact, with safety protection grilles
- Modulating condensation control with fan speed regulation
- Electrical panel conforming to EC Norms (Directive 2006/95/EC and EMC 2004/108/EC, IP54) with general cut-off switch, power supply electric bars distribution, acquisition of absorbed current, minimum and maximum internal temperature control, magneto-thermal cut-off switch on the fans and auxiliaries, fuses for the compressors
- Sequence phase, minimum and maximum power supply monitoring
- Free-cooling pump regulated by microprocessor control
- Microprocessor control system UPC1m including:
 - local user terminal with external accessibility
 - outlet chilled water temperature regulation by means of an exclusive PID algorithm
 - electronic expansion valve managed by the control system
 - advanced control of cooling capacity by automatic set-point sensitivity regulation
 - refrigerant charge monitoring
 - monitoring of the absorbed current and checking of eventual malfunctions
 - advanced anti-freeze protection on evaporator
 - integrated LAN card for local network connection of a group of chillers
 - integrated clock card
 - rotation of pump group setting functioning and start of pump in stand-by in the event of pump breakdown.
- Microprocessor control system in addition allows:
 - management of double set-point from remote control
 - limiting of absorbed current on pre-set value or external signal
 - rapid "Quick Start" procedure to reach total cooling capacity within 3 minutes.
 - free-contact for general alarm and 2 for addressable alarms
 - remote ON-OFF switch
 - ability to interface with Modbus protocol directly on RS485 serial card
 - ability to interface with main external communication protocols: Bacnet, Lonworks, Trend, Metasys, TCP/IP and SNMP

TECHNICAL DATA

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|--------------------------------------|-----------|------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Power supply | V/ph/Hz | 400 / 3 / 50 | | | | | | | | |
| Compressors / circuits | nr. x mod | 2 x double screw | | | | | | | | |
| Evaporator | nr. x mod | 1 x Shell & Tube | | | | | | | | |
| Fans | nr. | 6 | 6 | 8 | 8 | 8 | 10 | 10 | 12 | 12 |
| Unit without economizer | | | | | | | | | | |
| Cooling capacity (1) | kW | 400 | 481 | 557 | 590 | 696 | 759 | 883 | 983 | 1091 |
| Absorbed power (1) | kW | 115.0 | 150.0 | 165.3 | 178.0 | 218.0 | 235.0 | 279.0 | 307.0 | 347.0 |
| E.E.R. (1) | | 3.47 | 3.20 | 3.37 | 3.31 | 3.19 | 3.23 | 3.16 | 3.20 | 3.14 |
| Cooling capacity in free-cooling (3) | kW | 256 | 308 | 347 | 351 | 417 | 443 | 522 | 619 | 630 |
| Absorbed power in free-cooling (3) | kW | 16.7 | 17.6 | 23.9 | 24.1 | 25.4 | 28.6 | 29.4 | 38.3 | 38.6 |
| E.E.R. in free-cooling (3) | | 15.34 | 17.52 | 14.50 | 14.53 | 16.43 | 15.52 | 17.73 | 16.17 | 16.32 |
| Unit with economizer | | | | | | | | | | |
| Cooling capacity (2) | kW | 416 | 517 | 590 | 628 | 764 | 827 | 964 | 1076 | 1200 |
| Absorbed power (2) | kW | 124.0 | 165.5 | 184.0 | 197.0 | 251.0 | 273.0 | 319.0 | 352.0 | 400.0 |
| E.E.R. (2) | | 3.35 | 3.12 | 3.21 | 3.19 | 3.04 | 3.03 | 3.02 | 3.06 | 3.01 |
| Cooling capacity in free-cooling (3) | kW | 260 | 312 | 352 | 356 | 423 | 450 | 530 | 619 | 639 |
| Absorbed power in free-cooling (3) | kW | 16.9 | 17.7 | 24.2 | 24.5 | 25.8 | 28.8 | 29.6 | 38.6 | 38.7 |
| E.E.R. in free-cooling (3) | | 15.42 | 17.63 | 14.54 | 14.56 | 16.44 | 15.64 | 17.90 | 16.06 | 16.51 |
| Noise pressure levels | | | | | | | | | | |
| Low noise version (4) | dB(A) | 61.0 | 61.1 | 61.2 | 60.1 | 60.9 | 62.1 | 60.3 | 62.8 | 63.3 |
| Ultra low noise version (4) | dB(A) | 55.0 | 55.2 | 55.6 | 54.8 | 55.0 | 56.3 | 55.0 | 56.8 | 57.4 |
| Dimensions | | | | | | | | | | |
| Height | mm | 2525 | 2525 | 2525 | 2525 | 2525 | 2525 | 2525 | 2525 | 2525 |
| Length | mm | 4931 | 4931 | 6357 | 6357 | 6357 | 8890 | 8890 | 10320 | 10320 |
| Width | mm | 2200 | 2200 | 2200 | 2200 | 2200 | 2200 | 2200 | 2200 | 2200 |

(1) Data refer to nominal conditions: water temperature 15/10°C; external temperature 35°C; glycol 20%; refrigerant R134a

(2) Data refer to unit equipped with economizer in nominal conditions: water temperature 15/10°C; external temperature 35°C; glycol 20%; refrigerant R134a

(3) Data refer to nominal conditions: inlet water temperature 15°C; external temperature 5°C; glycol 20%

(4) Measured in free field conditions 10 m from the unit, coil side (Q = 2)

CONSTRUCTION OPTIONS

- Unit supplied with touch screen graphic user terminal
 - Double power supply with automatic integrated management on the active line
 - Fans with electronic commutation motors (EC)
 - Power phase correction capacitors
 - Economizer (permits an increase in both capacity and E.E.R.)
 - Operation possible with external temperature upto 50°C at full load
 - Ultra-low noise version with sound-proof casing of the compressors
 - Intelligent Free-cooling for an increase in efficiency with unit in stand-by
 - Free-cooling without glycol (*)
 - Partial condensation heat recovery
 - Suction shut-off valves on compressor
 - Integrated hydronic system with 1 or 2 circulation pumps (1+1 stand-by)
 - Condensing and free-cooling coils equipped with metal safety grilles and filters
 - Coil manifolds protection panels
 - Condensing and free-cooling coil cataphoresis or pre-painting treatment (*)
- (*) on request

OPTIONS

The units can be supplied with the following external accessories:

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