



Water cooled chillers

HYDROCIAT LW

Screw compressors
CIAT shell and tubes
direct expansion evaporator
HPS (High Power System) equipment



Cooling capacity : 370 to 1170 kW
Heating capacity : 500 to 1400 kW



Cooling or heating



Heat recovery



USE

The latest generation of HYDROCIAT LW water-cooled water chillers offers an optimum solution for all cooling applications used in air conditioning and industrial processes.

These units are designed to be installed in mechanical rooms that are protected against freezing temperatures and inclement weather.

They feature the latest technological advances: accessible twin-screw hermetic compressors, continuous capacity control, XtraCONNECT 2 microprocessor for networked control and management, and components optimised for ozone-friendly refrigerant R134a.

The use of **HFC R134a** refrigerant fluid means that the units respond to the most stringent specifications for environmental protection, high efficiency and low electrical consumption

The units conform to regulations EN 60-204 EN 378-2 and the following European directives:

- Machine (98 / 37 EEC) modified
- CEM (89 / 336 EEC) modified 92/31 EEC - 93/68 EEC
- PED 97 / 23 EC
- Low voltage (73/23 EEC) modified 92/31 EEC - 93/68 EEC
- Pressure equipment PED 97/23/EC
 - category 3: models 1800BX (HPS) to 2800BX (HPS)
 - category 4: models 3050BX HPS to 4800BX HPS

RANGE

HYDROCIAT LW-LWP series

Cooling-only or heating-only models with water-cooled condenser

HYDROCIAT LWP

The design of the water/water **HYDROCIAT LWP heat pumps range** is identical to that of HYDROCIAT LW.

These machines produce hot water for heating applications.

They can also be used in the cooling operation by reversing the cycle on the hydraulic circuits.

Acoustic configuration

a - **STANDARD** version

b - **LOW NOISE** version

Compressor noise insulation



DESCRIPTION

HYDROCIAT LW - LWP

Compressors

- Accessible hermetic twin screw type
- Optimised profile of rotors ensuring high efficiency
- Electrical motor incorporated with star-delta starter
- Integral electronic protection of motor
- Control of the phase balance and rotation direction
- Integrated overpressure valve
- Discharge temperature control
- Lubrication under controlled pressure
- 3-stage integrated oil separator
- Crankcase heater
- Thin filter at suction
- Discharge valve
- Slide for modulating continued output capacity control
- Assembly on antivibration mounts

Evaporator

- direct-expansion shell and tube
- high-efficiency copper tube bundle
- steel shell
- corrosion-resistant baffles
- closed-cell thermal insulation foam

Water cooled condenser

- High performance copper tubes bundle
- Carbon steel shell
- Carbon steel tubular plates
- Removable cast iron headers
- Safety valves on the refrigerant circuits

HPS (High Power System) on models LW/LWP...HPS



■ The HPS system allows a significant increase in the cooling capacity, improving the performance coefficients EER and ESEER of your installation, particularly in part load, and therefore ensuring an optimal operation of the unit all year round.

Refrigerant accessories

- Filter dryers with rechargeable cartridges
- Liquid sight glasses
- Solenoid valves on liquid refrigerant lines
- Electronic expansion valves

Safety and regulation devices

- HP/LP pressure sensors
- Low and high pressure safety valves
- Chilled water control sensor (inlet or outlet)
- External temperature sensor
- Evaporator antifreeze sensor
- Compressors discharge sensor

- Evaporator water flow switch

Electrics box

- IP 21
- Electrical supply 400 V - 3 ph. - 50 Hz + earth (-10% / +10%)
- Main fused isolator with outside handle
- Transformer for control circuit
- Compressor motors contactors
- Compressor motors protection by fused circuit breakers (depending on sizes of compressors).
- General earth connection
- Phase controller (reversal, loss, over and under voltage)

Electronic module with microprocessor XTRA CONNECT 2

With the following main functions :

- chilled water or hot water temperature control
- Possibility of water temperature variation according to the outside temperature (water law)
- Low temperature ice storage control
- Second setpoint management
- Complete management of compressors with start-up sequence, timer and runtime balancing
- Self-adjusting and proactive functions with adjustment of settings drift control
- Continuous capacity reduction according to cooling or heating requirements
- Compressors anti-short cycle protection
- Management of machine's operating limitations depending on outdoor temperature
- Automatic switching from heating/cooling depending on outdoor temperatures
- Control and optimisation of operating parameters
- Diagnosis of operation and fault states
- Diagnosis and storage of the last 20 faults with operating readings at the time the fault occurred
- Master/slave management of two machines in parallel with balancing of the running times and automatic changeover if a fault occurs on one machine
- Machine timer programming
- Display and access of operating parameters via a multilingual LCD screen with 4 lines of 24 characters



Water cooled chillers

DESCRIPTION

Remote control

XTRA CONNECT 2 is equipped as standard with an RS485 serial port that allows many remote management, supervision and diagnostics possibilities over a communication bus.

Several contacts are available as standard for controlling HYDROCIAT remotely over a wired connection:

- Automatic operation control: the machine shuts off when the contact opens.
- Setpoint 1/setpoint 2: a second cooling setpoint is activated when this contact closes (e.g. energy storage mode)
- HEATING/COOLING mode selection: this input is used to switch between operating modes.

Contact closed = HEATING mode

Contact open = COOLING mode

- Setpoint adjustable via 4-20 mA signal: this input is used to adjust the HEATING or COOLING setpoint
- Compressor load shedding: closing the relevant contact(s) turns off one or more compressors and thus lowers the machine's electricity or refrigerant consumption
- Water pump 1 and 2 control: these outputs control the contactors of one or two water pumps
- Fault signalling: this contact indicates that a major fault has occurred and caused one or more refrigerating circuits to turn off

Energy metre (option)

■ Energy metre fitted in the machine's electrical cabinet measures the following:

- voltage across each phase
- total input current
- total input power
- total electricity consumption

■ The meter also enables the machine's maximum electricity consumption to be kept below a limit that can be set in the controller. This limitation can be activated:

- at all times
- by an on/off input
- over a Modbus BMS network

Capacity control

- continuous capacity control from 25 to 100%

Frame

- Frame made of painted (RAL 7024) metal panels.

LW > cooling-only version

P > heating-only version

1050B > unit size

X > R134a refrigerant

HPS > High Power System version



Models LW - LWP 3050BX HPS to 4800BX HPS



STANDARD EQUIPMENT / AVAILABLE OPTIONS

| HYDROCIAT LW - LWP | 1800BX to 4800BX HPS |
|--|----------------------|
| Fused disconnect safety switch | ● |
| Control circuit transformer | ● |
| Electrical cabinet wire numbers | ● |
| RS485 communication interface | ● |
| Water flow controller | ● |
| Star-delta starting of compressors | ● |
| Phase controller (reversal, loss, asymmetry, over and under voltage) | ● |
| Electronic expansion valve | ● |
| Low Noise Version (compressor noise insulation) | ▲ |
| Compressor intake shut-off valves | ▲ |
| Low-temperature glycol/water mix (0°C to -8°C) | ▲ |
| Partial heat recovery - Desuperheater | ▲ |
| Low-profile version (1) | ▲ |
| Energy meter | ▲ |
| Handling shackles | ■ |
| Anti-vibration mounts | ■ |
| Flexible hydraulic couplings on evaporator and condenser | ■ |
| Condenser water manifold with flexible hydraulic couplings | ■ |
| Remote control unit (remote control console) | ■ |
| Relay board with dry contacts | ■ |
| MULTICONNECT multi-unit management system | ■ |
| LonWorks gateway | ■ |
| Ethernet gateway | ■ |

● Standard supply

▲ Factory-mounted option

■ Option supplied as a kit

(1) Standard equipment for 3050BX HPS to 4800BX HPS models



Water cooled chillers

TECHNICAL CHARACTERISTICS

HYDROCIAT LW

| HYDROCIAT LW-LWP | | | 1800BX | 1800BX HPS | 2150BX | 2150BX HPS | 2500BX | 2500BX HPS | 2800BX | 2800BX HPS | |
|---------------------------|--------------------------------|---------|--|---------------|-----------|---------------|-----------|---------------|-----------|---------------|--|
| Standard Low Noise | Cooling capacity (1) | kW | 418 | 433 | 492 | 533 | 588 | 625 | 661 | 692 | |
| | Absorbed power (2) | kW | 93 | 96 | 110 | 115 | 126 | 134 | 140 | 145 | |
| | EER/ESEER | | 4.5/5.32 | 4.51/5.45 | 4.47/5.24 | 4.63/5.52 | 4.67/5.36 | 4.66/5.56 | 4.72/5.58 | 4.77/5.73 | |
| | Lw / Lp Standard (3) | dB(A) | 93/61 | | | | | | 94/62 | | |
| | Lw / Lp Low Noise (3) | dB(A) | 85/53 | | 87/55 | | 85/53 | | 86/54 | | |
| Refrigeration circuit | Refrigerant (GWP) | | R134a (1300) | | | | | | | | |
| | Number | | 2 | | | | | | | | |
| | R134a refrigerant charge kg | circ. 1 | 34 | 39 | 50 | 53 | 53 | 52 | 59 | 52 | |
| | | circ. 2 | 35 | 40 | 42 | 44 | 53 | 52 | 59 | 52 | |
| Compressor | Type | | Hermetic twin screw | | | | | | | | |
| | Number | | 2 | | | | | | | | |
| | Rotation speed | tr/mn | 2900 | | | | | | | | |
| | Capacity control | | Modulating from 25 to 100% (50 to 100% on each compressor) | | | | | | | | |
| | Type of oil for R134a | | BITZER BSE 170 | | | | | | | | |
| | Oil charge for compressor | litres | 2 x 15 | | 19 +15 | | 2 x 19 | | 2 x 19 | | |
| Evaporator | Type | | Direct expansion shell and tubes | | | | | | | | |
| | Number | | 1 | | | | | | | | |
| | Water content | litres | 171 | | | | 219 | | | | |
| | Hydraulic connections | | VICTAULIC DN 150 | | | | | | | | |
| | Maximum pressure on water side | bar | 10 | | | | | | | | |
| | Mini / maxi water flow | m³/h | 50 / 150 | | | | | | | | |
| Water cooled condenser | Type | | Shell and tubes | | | | | | | | |
| | Number | | 2 | | | | | | | | |
| | Water content | litres | 2 x 28 | | 36 + 28 | | 2 x 36 | | | | |
| | Hydraulic connections | | VICTAULIC DN 150 | | | | | | | | |
| | Maximum pressure on water side | bar | 10 | | | | | | | | |
| | Mini / maxi water flow | m³/h | 40 / 140 | | 40 / 166 | | 40 / 192 | | | | |
| Dimensions | Length | mm | 3800 | | | 4700 | | | | | |
| | Width | mm | 1320 | | | | | | | | |
| | Standard height | mm | 2450 | | | | | | | | |
| | Low-profile design | mm | 1860 | | | | 1970 | | | | |
| Weight | Weight (empty) | kg | 3130 | | 3520 | | 3830 | | 3840 | | |
| | Weight (in operation) | kg | 3360 | | 3800 | | 4110 | | 4120 | | |

(1) Cooling capacity for 12 / 7°C evaporator chilled water and 30 / 35 °C condenser hot water - EN 14511 and EUROVENT conditions

(2) Compressors' absorbed power

(3) **Lw** : Overall sound power level, as per ISO standard 3744

Lp : Overall sound pressure levels, measured at 10 metres in a free field, calculated using the formula $LP = LW - 10 \log S$



TECHNICAL CHARACTERISTICS

| HYDROCIAT LW-LWP | | | 3050BX HPS | 3500BX HPS | 3600BX HPS | 3900BX HPS | 4200BX HPS | 4500BX HPS | 4800BX HPS |
|---------------------------|--------------------------------|---------|--|---------------|---------------|---------------|---------------|---------------|---------------|
| Standard Low Noise | Cooling capacity (1) | kW | 814 | 921 | 957 | 1044 | 1078 | 1133 | 1168 |
| | Absorbed power (2) | kW | 166 | 193 | 195 | 215 | 224 | 242 | 251 |
| | EER/ESEER | | 4.9/5.98 | 4.77/5.63 | 4.91/6 | 4.86/5.92 | 4.81/5.87 | 4.68/5.71 | 4.65/5.67 |
| | Lw / Lp Standard (3) | dB(A) | 92/60 | 94/62 | 93/61 | 94/62 | | 95/63 | |
| | Lw / Lp Low Noise (3) | dB(A) | 89/57 | 90/58 | 89/57 | 90/58 | | 91/59 | |
| Refrigeration circuit | Refrigerant (GWP) | | R134a (1300) | | | | | | |
| | Number | | 2 | | | | | | |
| | R134a refrigerant charge kg | circ. 1 | 71 | 74 | 71 | 73 | 75 | 75 | 75 |
| | | circ. 2 | 60 | 60 | 71 | 72 | 73 | 74 | 75 |
| Compressor | Type | | Hermetic twin screw | | | | | | |
| | Number | | 2 | | | | | | |
| | Rotation speed | tr/mn | 2900 | | | | | | |
| | Capacity control | | Modulating from 25 to 100% (50 to 100% on each compressor) | | | | | | |
| | Type of oil for R134a | | BITZER BSE 170 | | | | | | |
| | Oil charge for compressor | litres | 30 + 19 | | 2 x 30 | | | | |
| Evaporator | Type | | Direct expansion shell and tubes | | | | | | |
| | Number | | 1 | | | | | | |
| | Water content | litres | 180 | 335 | 180 | 335 | 391 | | |
| | Hydraulic connections | | VICTAULIC DN 200 | | | | | | |
| | Maximum pressure on water side | bar | 10 | | | | | | |
| | Mini / maxi water flow | m³/h | 80 / 231 | 80 / 246 | 80 / 231 | 80 / 246 | 80 / 293 | | |
| Water cooled condenser | Type | | Shell and tubes | | | | | | |
| | Number | | 2 | | | | | | |
| | Water content | litres | 36 + 57 | | 2 x 57 | | | | |
| | Hydraulic connections | | VICTAULIC DN 150 | | | | | | |
| | Maximum pressure on water side | bar | 10 | | | | | | |
| | Mini / maxi water flow | m³/h | 43 / 232 | | 54 / 288 | | | | |
| Dimensions | Length | mm | 4538 | 4567 | 4538 | 4567 | | | |
| | Width | mm | 1500 | | | | | | |
| | Standard height | mm | 1895 | | | | | | |
| Weight | Low-profile design | kg | 4691 | 4719 | 5106 | 5234 | 5293 | 5302 | 5362 |
| | Weight (empty) | kg | 5064 | 5235 | 5502 | 5772 | 5820 | 5841 | 5901 |

(1) Cooling capacity for 12 / 7°C evaporator chilled water and 30 / 35 °C condenser hot water - EN 14511 and EUROVENT conditions

(2) Compressors' absorbed power

(3) **Lw** : Overall sound power level, as per ISO standard 3744

Lp : Overall sound pressure levels, measured at 10 metres in a free field, calculated using the formula $LP = LW - 10 \log S$



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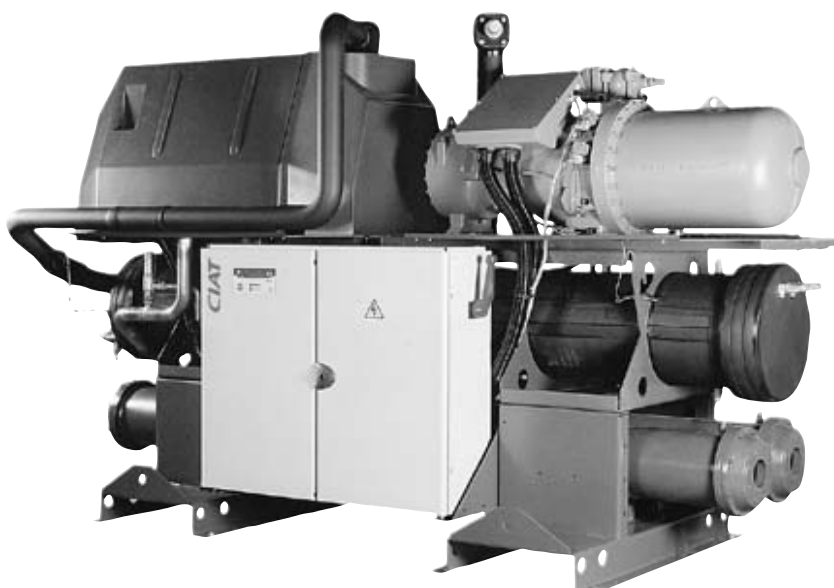
HYDROCIAT LW

ELECTRICAL CHARACTERISTICS

| HYDROCIAT LW - LWP | | 1800BX | 1800BX HPS | 2150BX | 2150BX HPS | 2500BX | 2500BX HPS | 2800BX | 2800BX HPS |
|----------------------------------|----|---------------------------------|---------------|--------------------|---------------|------------------|---------------|------------------|---------------|
| COMPRESSORS | | | | | | | | | |
| Voltage | V | 400 V - 3Ph - 50Hz (+ / - 10%) | | | | | | | |
| Maximum rated current | A | 260 (2 x 130) | | 318 (188 + 130) | | 376 (2 x 188) | | 418 (2 x 209) | |
| Star-delta starting current (1) | A | 311 | | 442 | | 484 | | 536 | |
| REMOTE CONTROL AUXILIARY CIRCUIT | | | | | | | | | |
| Voltage | V | 230 V - 1 Ph 50Hz (+ / - 10%) | | | | | | | |
| Maximum rated current | A | 4 | | | | | | | |
| Transformer power | VA | 1000 | | | | | | | |
| Machine protection index | | IP21 | | | | | | | |

| HYDROCIAT LW - LWP | | 3050BX HPS | 3500BX HPS | 3600BX HPS | 3900BX HPS | 4200BX HPS | 4500BX HPS | 4800BX HPS |
|----------------------------------|----|---------------------------------|--------------------|------------------|--------------------|--------------------|--------------------|------------------|
| COMPRESSORS | | | | | | | | |
| Voltage | V | 400 V - 3Ph - 50Hz (+ / - 10%) | | | | | | |
| Maximum rated current | A | 448 (260 + 188) | 516 (307 + 209) | 520 (2 x 260) | 567 (307 + 260) | 605 (345 + 260) | 652 (345 + 307) | 690 (2 x 345) |
| Star-delta starting current (1) | A | 589 | 718 | 638 | 759 | 823 | 849 | 871 |
| REMOTE CONTROL AUXILIARY CIRCUIT | | | | | | | | |
| Voltage | V | 230 V - 1 Ph 50Hz (+ / - 10%) | | | | | | |
| Maximum rated current | A | 5 | | | | | | |
| Transformer power | VA | 1600 | | | | | | |
| Machine protection index | | IP21 | | | | | | |

(1) Starting current of the biggest compressor + maximum current of other compressors at 50% load.
Nominal current for cables selection = add the maximum nominal currents indicated in the above tables



Models LW - LWP 1800BX (HPS) to 2800BX (HPS)



PERFORMANCES

HYDROCIAT LW - LWP

| R134a | LW LWP | Evaporator water outlet °C | CONDENSER WATER OUTLET TEMPERATURE °C | | | | | | | | | | | | | | | | | | |
|---------------|------------------------|----------------------------|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| | | | 35 | | | 40 | | | 45 | | | 50 | | | 55 | | | 60 | | | |
| | | | Pf kW | Pa kW | Pc kW | Pf kW | Pa kW | Pc kW | Pf kW | Pa kW | Pc kW | Pf kW | Pa kW | Pc kW | Pf kW | Pa kW | Pc kW | Pf kW | Pa kW | Pc kW | |
| 1800BX | Glycol water necessary | -8 | 220 | 81 | 301 | 206 | 90 | 296 | 190 | 98 | 288 | 174 | 109 | 283 | | | | | | | |
| | | -6 | 242 | 83 | 325 | 230 | 91 | 321 | 210 | 99 | 309 | 193 | 110 | 303 | | | | | | | |
| | | -4 | 275 | 84 | 359 | 258 | 92 | 350 | 239 | 101 | 340 | 219 | 111 | 330 | 200 | 124 | 324 | 176 | 141 | 317 | |
| | | -2 | 298 | 86 | 384 | 280 | 93 | 373 | 261 | 102 | 363 | 240 | 112 | 352 | 219 | 126 | 345 | 194 | 142 | 336 | |
| | | 0 | 323 | 87 | 410 | 304 | 95 | 399 | 284 | 104 | 388 | 262 | 114 | 376 | 239 | 127 | 366 | 216 | 143 | 359 | |
| | | 2 | 349 | 89 | 438 | 329 | 96 | 425 | 308 | 105 | 413 | 285 | 116 | 401 | 261 | 129 | 390 | 236 | 144 | 380 | |
| | Pure water | 5 | 397 | 92 | 489 | 375 | 99 | 474 | 349 | 108 | 457 | 323 | 119 | 442 | 296 | 131 | 427 | 269 | 146 | 415 | |
| | | 7 | 418 | 93 | 511 | 404 | 101 | 505 | 378 | 110 | 488 | 349 | 121 | 470 | 321 | 133 | 454 | 291 | 148 | 439 | |
| | | 10 | 476 | 96 | 572 | 451 | 105 | 556 | 424 | 114 | 538 | 393 | 124 | 517 | 362 | 137 | 499 | 329 | 151 | 480 | |
| | | 12 | 512 | 99 | 611 | 484 | 107 | 591 | 456 | 116 | 572 | 424 | 127 | 551 | 387 | 139 | 526 | 356 | 154 | 510 | |
| | | 15 | 567 | 102 | 669 | 537 | 110 | 647 | 506 | 120 | 626 | 474 | 130 | 604 | 435 | 143 | 578 | 400 | 157 | 557 | |
| | | 1800BX | Glycol water necessary | -8 | 256 | 88 | 344 | 244 | 97 | 341 | 231 | 109 | 340 | 216 | 122 | 338 | | | | | |
| | -6 | | | 276 | 89 | 365 | 265 | 98 | 363 | 252 | 109 | 361 | 238 | 123 | 361 | | | | | | |
| | -4 | | | 298 | 89 | 387 | 286 | 99 | 385 | 273 | 110 | 383 | 258 | 124 | 382 | 243 | 141 | 384 | 176 | 141 | 317 |
| | -2 | | | 320 | 90 | 410 | 308 | 100 | 408 | 294 | 111 | 405 | 279 | 125 | 404 | 262 | 142 | 404 | 194 | 142 | 336 |
| 0 | 345 | | | 91 | 436 | 331 | 101 | 432 | 317 | 112 | 429 | 300 | 126 | 426 | 283 | 143 | 426 | 216 | 143 | 359 | |
| 2 | 370 | | | 92 | 462 | 356 | 102 | 458 | 341 | 114 | 455 | 323 | 127 | 450 | 305 | 144 | 449 | 236 | 144 | 380 | |
| Pure water | 5 | | 415 | 95 | 510 | 399 | 104 | 503 | 381 | 116 | 497 | 363 | 129 | 492 | 343 | 146 | 489 | 269 | 146 | 415 | |
| | 7 | | 433 | 96 | 529 | 427 | 106 | 533 | 409 | 117 | 526 | 389 | 131 | 520 | 367 | 147 | 514 | 291 | 148 | 439 | |
| | 10 | | 489 | 99 | 588 | 471 | 108 | 579 | 452 | 120 | 572 | 430 | 133 | 563 | 406 | 149 | 555 | 329 | 151 | 480 | |
| | 12 | | 521 | 100 | 621 | 503 | 110 | 613 | 482 | 122 | 604 | 459 | 135 | 594 | 435 | 151 | 586 | 356 | 154 | 510 | |
| | 15 | | 570 | 103 | 673 | 553 | 113 | 666 | 529 | 124 | 653 | 505 | 138 | 643 | 478 | 154 | 632 | 400 | 157 | 557 | |
| | 2150BX | | Glycol water necessary | -8 | 283 | 97 | 380 | 264 | 106 | 370 | 244 | 116 | 360 | 220 | 127 | 347 | | | | | |
| -6 | | | | 308 | 98 | 406 | 289 | 107 | 396 | 268 | 117 | 385 | 246 | 129 | 375 | | | | | | |
| -4 | | | | 335 | 100 | 435 | 314 | 109 | 423 | 293 | 119 | 412 | 270 | 131 | 401 | 244 | 145 | 389 | 218 | 161 | 379 |
| -2 | | | | 363 | 101 | 464 | 341 | 110 | 451 | 319 | 121 | 440 | 295 | 133 | 428 | 269 | 147 | 416 | 241 | 163 | 404 |
| 0 | | 394 | | 103 | 497 | 370 | 112 | 482 | 347 | 123 | 470 | 322 | 135 | 457 | 295 | 150 | 445 | 265 | 166 | 431 | |
| 2 | | 425 | | 105 | 530 | 401 | 114 | 515 | 376 | 125 | 501 | 349 | 138 | 487 | 321 | 152 | 473 | 289 | 168 | 457 | |
| Pure water | | 5 | 483 | 108 | 591 | 456 | 118 | 574 | 428 | 129 | 557 | 398 | 141 | 539 | 364 | 156 | 520 | 331 | 172 | 503 | |
| | | 7 | 492 | 110 | 602 | 482 | 120 | 602 | 462 | 131 | 593 | 431 | 144 | 575 | 397 | 158 | 555 | 360 | 175 | 535 | |
| | | 10 | 578 | 114 | 692 | 549 | 124 | 673 | 517 | 135 | 652 | 483 | 148 | 631 | 447 | 162 | 609 | 408 | 179 | 587 | |
| | | 12 | 621 | 117 | 738 | 588 | 127 | 715 | 556 | 138 | 694 | 520 | 151 | 671 | 482 | 166 | 648 | 440 | 182 | 622 | |
| | | 15 | 687 | 122 | 809 | 653 | 131 | 784 | 617 | 142 | 759 | 579 | 155 | 734 | 539 | 170 | 709 | 492 | 186 | 678 | |
| | | 2150BX | Glycol water necessary | -8 | 316 | 107 | 423 | 303 | 119 | 422 | 289 | 132 | 421 | 268 | 150 | 418 | | | | | |
| -6 | | | | 341 | 107 | 448 | 327 | 120 | 447 | 313 | 134 | 447 | 295 | 151 | 446 | | | | | | |
| -4 | | | | 368 | 108 | 476 | 353 | 121 | 474 | 337 | 135 | 472 | 319 | 152 | 471 | 299 | 172 | 471 | 218 | 161 | 379 |
| -2 | | | | 396 | 110 | 506 | 381 | 122 | 503 | 364 | 137 | 501 | 344 | 154 | 498 | 324 | 174 | 498 | 241 | 163 | 404 |
| 0 | 425 | | | 111 | 536 | 409 | 123 | 532 | 391 | 138 | 529 | 372 | 155 | 527 | 349 | 176 | 525 | 265 | 166 | 431 | |
| 2 | 455 | | | 112 | 567 | 439 | 125 | 564 | 420 | 140 | 560 | 400 | 157 | 557 | 374 | 178 | 552 | 289 | 168 | 457 | |
| Pure water | 5 | | 511 | 114 | 625 | 493 | 127 | 620 | 472 | 142 | 614 | 450 | 160 | 610 | 425 | 181 | 606 | 331 | 172 | 503 | |
| | 7 | | 533 | 115 | 648 | 527 | 129 | 656 | 506 | 144 | 650 | 482 | 162 | 644 | 455 | 183 | 638 | 360 | 175 | 535 | |
| | 10 | | 601 | 119 | 720 | 582 | 132 | 714 | 558 | 147 | 705 | 533 | 165 | 698 | 505 | 186 | 691 | 408 | 179 | 587 | |
| | 12 | | 640 | 121 | 761 | 620 | 134 | 754 | 596 | 149 | 745 | 569 | 167 | 736 | 539 | 188 | 727 | 440 | 182 | 622 | |
| | 15 | | 702 | 125 | 827 | 681 | 137 | 818 | 655 | 152 | 807 | 625 | 169 | 794 | 593 | 191 | 784 | 492 | 186 | 678 | |

Pf : Cooling capacity valid a ΔT according to operating limits absorbed power

■ EN 14511 and EUROVENT conditions

Pc : Heating capacity valid a ΔT according to operating limits

■ Low temperature option necessary Pa : Compressor

□ Operation without HPS or at partial load



Water cooled chillers

PERFORMANCES

HYDROCIAT LW - LWP

HYDROCIAT LW

| LW LWP | Evaporator water outlet °C | CONDENSER WATER OUTLET TEMPERATURE °C | | | | | | | | | | | | | | | | | | |
|-------------------|----------------------------|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| | | 35 | | | 40 | | | 45 | | | 50 | | | 55 | | | 60 | | | |
| | | Pf kW | Pa kW | Pc kW | Pf kW | Pa kW | Pc kW | Pf kW | Pa kW | Pc kW | Pf kW | Pa kW | Pc kW | Pf kW | Pa kW | Pc kW | Pf kW | Pa kW | Pc kW | |
| 2500BX | Glycol water necessary | -8 | 320 | 112 | 432 | 303 | 121 | 424 | 278 | 134 | 412 | 255 | 145 | 400 | | | | | | |
| | | -6 | 350 | 113 | 463 | 330 | 123 | 453 | 304 | 135 | 439 | 278 | 147 | 425 | | | | | | |
| | | -4 | 389 | 115 | 504 | 364 | 125 | 489 | 337 | 137 | 474 | 306 | 150 | 456 | 278 | 165 | 443 | 249 | 182 | 431 |
| | | -2 | 422 | 116 | 538 | 396 | 127 | 523 | 369 | 139 | 508 | 333 | 153 | 486 | 306 | 168 | 474 | 273 | 184 | 457 |
| | | 0 | 456 | 118 | 574 | 429 | 129 | 558 | 401 | 142 | 543 | 369 | 156 | 525 | 336 | 171 | 507 | 301 | 188 | 489 |
| | Pure water | 2 | 493 | 120 | 613 | 465 | 131 | 596 | 435 | 144 | 579 | 402 | 158 | 560 | 366 | 174 | 540 | 328 | 191 | 519 |
| | | 5 | 560 | 124 | 684 | 529 | 136 | 665 | 493 | 148 | 641 | 455 | 163 | 618 | 415 | 178 | 593 | 378 | 196 | 574 |
| | | 7 | 588 | 126 | 714 | 571 | 138 | 709 | 535 | 151 | 686 | 494 | 166 | 660 | 453 | 182 | 635 | 412 | 199 | 611 |
| | | 10 | 670 | 132 | 802 | 636 | 143 | 779 | 600 | 156 | 756 | 556 | 170 | 726 | 509 | 186 | 695 | 468 | 205 | 673 |
| | | 12 | 719 | 135 | 854 | 682 | 146 | 828 | 645 | 159 | 804 | 601 | 173 | 774 | 544 | 189 | 733 | 506 | 208 | 714 |
| 15 | 795 | 141 | 936 | 758 | 152 | 910 | 716 | 164 | 880 | 673 | 178 | 851 | 622 | 195 | 817 | 568 | 214 | 782 | | |
| 2500BX | Glycol water necessary | -8 | 370 | 123 | 493 | 350 | 140 | 490 | 332 | 157 | 489 | 317 | 176 | 493 | | | | | | |
| | | -6 | 395 | 125 | 520 | 380 | 141 | 521 | 361 | 159 | 520 | 342 | 178 | 520 | | | | | | |
| | | -4 | 432 | 127 | 559 | 415 | 142 | 557 | 396 | 160 | 556 | 375 | 180 | 555 | 346 | 202 | 548 | 249 | 182 | 431 |
| | | -2 | 465 | 128 | 593 | 447 | 143 | 590 | 427 | 161 | 588 | 405 | 182 | 587 | 380 | 205 | 585 | 273 | 184 | 457 |
| | | 0 | 498 | 129 | 627 | 480 | 145 | 625 | 459 | 163 | 622 | 437 | 184 | 621 | 411 | 209 | 620 | 301 | 188 | 489 |
| | Pure water | 2 | 534 | 131 | 665 | 515 | 146 | 661 | 494 | 165 | 659 | 470 | 186 | 656 | 443 | 211 | 654 | 328 | 191 | 519 |
| | | 5 | 599 | 133 | 732 | 578 | 149 | 727 | 555 | 168 | 723 | 530 | 190 | 720 | 500 | 215 | 715 | 378 | 196 | 574 |
| | | 7 | 625 | 134 | 759 | 619 | 151 | 770 | 594 | 170 | 764 | 567 | 192 | 759 | 537 | 218 | 755 | 412 | 199 | 611 |
| | | 10 | 705 | 139 | 844 | 682 | 154 | 836 | 656 | 173 | 829 | 627 | 195 | 822 | 595 | 221 | 816 | 468 | 205 | 673 |
| | | 12 | 751 | 142 | 893 | 728 | 157 | 885 | 700 | 175 | 875 | 670 | 197 | 867 | 636 | 224 | 860 | 506 | 208 | 714 |
| 15 | 824 | 146 | 970 | 798 | 161 | 959 | 770 | 178 | 948 | 737 | 200 | 937 | 701 | 227 | 928 | 568 | 214 | 782 | | |
| 2800BX | Glycol water necessary | -8 | 366 | 125 | 491 | 340 | 136 | 476 | 313 | 151 | 464 | 289 | 168 | 457 | | | | | | |
| | | -6 | 399 | 127 | 526 | 371 | 138 | 509 | 344 | 153 | 497 | 316 | 170 | 486 | | | | | | |
| | | -4 | 434 | 128 | 562 | 405 | 140 | 545 | 375 | 155 | 530 | 345 | 172 | 517 | 315 | 192 | 507 | 286 | 215 | 501 |
| | | -2 | 470 | 130 | 600 | 442 | 143 | 585 | 408 | 157 | 565 | 375 | 174 | 549 | 344 | 194 | 538 | 313 | 217 | 530 |
| | | 0 | 509 | 132 | 641 | 480 | 145 | 625 | 443 | 159 | 602 | 411 | 177 | 588 | 377 | 197 | 574 | 342 | 220 | 562 |
| | Pure water | 2 | 551 | 134 | 685 | 520 | 147 | 667 | 484 | 162 | 646 | 446 | 179 | 625 | 407 | 200 | 607 | 372 | 223 | 595 |
| | | 5 | 627 | 138 | 765 | 585 | 150 | 735 | 545 | 165 | 710 | 495 | 185 | 680 | 447 | 202 | 649 | 404 | 226 | 630 |
| | | 7 | 661 | 140 | 801 | 627 | 153 | 780 | 582 | 167 | 749 | 553 | 188 | 741 | 490 | 206 | 696 | 452 | 230 | 682 |
| | | 10 | 752 | 144 | 896 | 710 | 157 | 867 | 660 | 173 | 833 | 609 | 190 | 799 | 564 | 212 | 776 | 517 | 236 | 753 |
| | | 12 | 806 | 147 | 953 | 764 | 160 | 924 | 710 | 175 | 885 | 650 | 192 | 842 | 605 | 215 | 820 | 556 | 240 | 796 |
| 15 | 892 | 151 | 1043 | 847 | 164 | 1011 | 794 | 180 | 974 | 730 | 198 | 928 | 678 | 221 | 899 | 626 | 245 | 871 | | |
| 2800BX | Glycol water necessary | -8 | 414 | 135 | 549 | 400 | 151 | 551 | 384 | 170 | 554 | 362 | 192 | 554 | | | | | | |
| | | -6 | 445 | 137 | 582 | 431 | 153 | 584 | 413 | 172 | 585 | 396 | 194 | 590 | | | | | | |
| | | -4 | 479 | 138 | 617 | 463 | 154 | 617 | 445 | 173 | 618 | 425 | 196 | 621 | 395 | 215 | 610 | 286 | 215 | 501 |
| | | -2 | 515 | 139 | 654 | 498 | 155 | 653 | 479 | 174 | 653 | 457 | 197 | 654 | 425 | 217 | 642 | 313 | 217 | 530 |
| | | 0 | 552 | 140 | 692 | 534 | 157 | 691 | 514 | 176 | 690 | 491 | 199 | 690 | 458 | 219 | 677 | 342 | 220 | 562 |
| | Pure water | 2 | 592 | 141 | 733 | 572 | 158 | 730 | 551 | 178 | 729 | 527 | 201 | 728 | 501 | 221 | 722 | 372 | 223 | 595 |
| | | 5 | 663 | 144 | 807 | 642 | 161 | 803 | 617 | 181 | 798 | 591 | 204 | 795 | 566 | 224 | 790 | 404 | 226 | 630 |
| | | 7 | 692 | 145 | 838 | 684 | 162 | 846 | 659 | 182 | 841 | 630 | 206 | 836 | 612 | 226 | 838 | 452 | 230 | 682 |
| | | 10 | 779 | 148 | 927 | 754 | 165 | 919 | 725 | 185 | 910 | 695 | 209 | 904 | 665 | 228 | 893 | 517 | 236 | 753 |
| | | 12 | 829 | 150 | 979 | 802 | 167 | 969 | 773 | 187 | 960 | 740 | 211 | 951 | 698 | 230 | 928 | 556 | 240 | 796 |
| 15 | 908 | 153 | 1061 | 879 | 170 | 1049 | 847 | 190 | 1037 | 811 | 214 | 1025 | 780 | 234 | 1014 | 626 | 245 | 871 | | |

Pf : Cooling capacity valid a ΔT according to operating limits absorbed power

■ EN 14511 and EUROVENT conditions

Pc : Heating capacity valid a ΔT according to operating limits

■ Low temperature option necessary Pa : Compressor

□ Operation without HPS or at partial load



Water cooled chillers

HYDROCIAT LW

PERFORMANCES

HYDROCIAT LW - LWP

| R134a | LW LWP | Evaporator water outlet °C | CONDENSER WATER OUTLET TEMPERATURE °C | | | | | | | | | | | | | | | | | | |
|------------|------------------------------|-------------------------------|---------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----|
| | | | 35 | | | 40 | | | 45 | | | 50 | | | 55 | | | 60 | | | |
| | | | Pf kW | Pa kW | Pc kW | Pf kW | Pa kW | Pc kW | Pf kW | Pa kW | Pc kW | Pf kW | Pa kW | Pc kW | Pf kW | Pa kW | Pc kW | Pf kW | Pa kW | Pc kW | |
| 3050BX | Glycol water necessary | -8 | 410 | 152 | 562 | 389 | 170 | 559 | 366 | 188 | 554 | 342 | 209 | 551 | | | | | | | |
| | | -6 | 445 | 154 | 599 | 424 | 171 | 595 | 400 | 191 | 591 | 375 | 212 | 587 | 342,0 | 233,0 | 575 | | | | |
| | | -4 | 484 | 155 | 639 | 463 | 173 | 636 | 438 | 193 | 631 | 413 | 215 | 628 | 382 | 236 | 618 | | | | |
| | | -2 | 543 | 157 | 700 | 519 | 176 | 695 | 493 | 196 | 689 | 465 | 219 | 684 | 429 | 243 | 672 | | | | |
| | | 0 | 588 | 158 | 746 | 563 | 177 | 740 | 535 | 198 | 733 | 505 | 221 | 726 | 467 | 246 | 713 | 388 | 244 | 632 | |
| | | 2 | 681 | 161 | 842 | 656 | 180 | 836 | 628 | 202 | 830 | 597 | 226 | 823 | 548 | 251 | 799 | 425 | 248 | 673 | |
| | Pure water | 5 | 762 | 164 | 926 | 735 | 183 | 918 | 704 | 205 | 909 | 670 | 229 | 899 | 622 | 256 | 878 | 496 | 255 | 751 | |
| | | 7 | 814 | 166 | 980 | 786 | 185 | 971 | 754 | 207 | 961 | 719 | 231 | 950 | 671 | 260 | 931 | 539 | 258 | 797 | |
| | | 10 | 905 | 169 | 1074 | 874 | 188 | 1062 | 840 | 210 | 1050 | 802 | 235 | 1037 | 760 | 262 | 1022 | 612 | 264 | 876 | |
| | | 12 | 964 | 172 | 1136 | 933 | 190 | 1123 | 896 | 212 | 1108 | 857 | 237 | 1094 | 813 | 265 | 1078 | 662 | 268 | 930 | |
| | | 15 | 1055 | 175 | 1230 | 1026 | 194 | 1220 | 987 | 215 | 1202 | 944 | 240 | 1184 | 896 | 268 | 1164 | 743 | 274 | 1017 | |
| | | 3500BX | Glycol water necessary | -8 | 439 | 173 | 612 | 410 | 193 | 603 | 380 | 214 | 594 | 368 | 238 | 606 | | | | | |
| | -6 | | | 486 | 175 | 661 | 460 | 194 | 654 | 430 | 216 | 646 | 410 | 241 | 651 | 373 | 269 | 642 | | | |
| | -4 | | | 530 | 176 | 706 | 508 | 196 | 704 | 481 | 219 | 700 | 466 | 245 | 711 | 428 | 274 | 702 | | | |
| | -2 | | | 584 | 179 | 763 | 566 | 200 | 766 | 547 | 223 | 770 | 518 | 249 | 767 | 476 | 276 | 752 | | | |
| 0 | 654 | | | 181 | 835 | 628 | 202 | 830 | 613 | 225 | 838 | 575 | 251 | 826 | 530 | 278 | 808 | 418 | 278 | 696 | |
| 2 | 768 | | | 187 | 955 | 732 | 207 | 939 | 705 | 229 | 934 | 673 | 256 | 929 | 600 | 284 | 884 | 491 | 284 | 775 | |
| Pure water | 5 | | 862 | 191 | 1053 | 831 | 211 | 1042 | 796 | 235 | 1031 | 757 | 261 | 1018 | 688 | 289 | 977 | 568 | 291 | 859 | |
| | 7 | | 921 | 193 | 1114 | 890 | 214 | 1104 | 852 | 238 | 1090 | 811 | 265 | 1076 | 767 | 294 | 1061 | 614 | 296 | 910 | |
| | 10 | | 1027 | 198 | 1225 | 991 | 219 | 1210 | 951 | 243 | 1194 | 908 | 270 | 1178 | 861 | 302 | 1163 | 700 | 304 | 1004 | |
| | 12 | | 1095 | 201 | 1296 | 1057 | 222 | 1279 | 1016 | 247 | 1263 | 970 | 274 | 1244 | 920 | 306 | 1226 | 760 | 308 | 1068 | |
| | 15 | | 1205 | 206 | 1411 | 1163 | 228 | 1391 | 1118 | 253 | 1371 | 1068 | 281 | 1349 | 1014 | 313 | 1327 | 850 | 316 | 1166 | |
| | 3600BX | | Glycol water necessary | -8 | 544 | 186 | 730 | 519 | 209 | 728 | 492 | 234 | 726 | 467 | 261 | 728 | 407 | 286 | 693 | | |
| -6 | | | | 591 | 187 | 778 | 565 | 211 | 776 | 537 | 236 | 773 | 507 | 264 | 771 | 465 | 290 | 755 | | | |
| -4 | | | | 638 | 189 | 827 | 613 | 212 | 825 | 583 | 238 | 821 | 553 | 267 | 820 | 513 | 296 | 809 | 362 | 289 | 651 |
| -2 | | | | 693 | 190 | 883 | 667 | 214 | 881 | 639 | 240 | 879 | 609 | 269 | 878 | 576 | 301 | 877 | 428 | 296 | 724 |
| 0 | | 744 | | 191 | 935 | 718 | 215 | 933 | 688 | 242 | 930 | 656 | 271 | 927 | 622 | 303 | 925 | 476 | 300 | 776 | |
| 2 | | 804 | | 192 | 996 | 776 | 216 | 992 | 745 | 243 | 988 | 711 | 273 | 984 | 675 | 306 | 981 | 524 | 305 | 829 | |
| Pure water | | 5 | 897 | 194 | 1091 | 868 | 218 | 1086 | 834 | 245 | 1079 | 797 | 276 | 1073 | 750 | 309 | 1059 | 599 | 311 | 910 | |
| | | 7 | 957 | 195 | 1152 | 927 | 219 | 1146 | 892 | 246 | 1138 | 853 | 277 | 1130 | 811 | 311 | 1122 | 649 | 314 | 963 | |
| | | 10 | 1062 | 198 | 1260 | 1029 | 221 | 1250 | 988 | 250 | 1238 | 948 | 279 | 1227 | 903 | 314 | 1217 | 736 | 320 | 1056 | |
| | | 12 | 1131 | 199 | 1330 | 1097 | 223 | 1320 | 1057 | 250 | 1307 | 1012 | 281 | 1293 | 963 | 315 | 1278 | 795 | 324 | 1119 | |
| | | 15 | 1238 | 202 | 1440 | 1204 | 226 | 1430 | 1161 | 253 | 1414 | 1113 | 284 | 1397 | 1060 | 319 | 1379 | 888 | 330 | 1218 | |
| | | 3900BX | Glycol water necessary | -8 | 560 | 200 | 760 | 535 | 223 | 758 | 507 | 248 | 755 | 478 | 276 | 754 | 442 | 304 | 746 | | |
| -6 | | | | 609 | 201 | 810 | 582 | 225 | 807 | 552 | 250 | 802 | 520 | 279 | 799 | 486 | 306 | 792 | | | |
| -4 | | | | 678 | 204 | 882 | 649 | 227 | 876 | 617 | 254 | 871 | 583 | 283 | 866 | 537 | 314 | 851 | 377 | 304 | 681 |
| -2 | | | | 753 | 206 | 959 | 724 | 230 | 954 | 692 | 257 | 949 | 656 | 287 | 943 | 602 | 318 | 920 | 459 | 312 | 771 |
| 0 | 810 | | | 208 | 1018 | 780 | 232 | 1012 | 745 | 259 | 1004 | 709 | 289 | 998 | 662 | 322 | 984 | 498 | 316 | 814 | |
| 2 | 876 | | | 210 | 1086 | 845 | 234 | 1079 | 809 | 261 | 1070 | 771 | 292 | 1063 | 712 | 326 | 1038 | 553 | 321 | 874 | |
| Pure water | 5 | | 979 | 213 | 1192 | 945 | 237 | 1182 | 906 | 265 | 1171 | 864 | 296 | 1160 | 792 | 331 | 1123 | 642 | 328 | 970 | |
| | 7 | | 1044 | 215 | 1259 | 1011 | 240 | 1251 | 970 | 267 | 1237 | 926 | 299 | 1225 | 878 | 334 | 1212 | 698 | 333 | 1031 | |
| | 10 | | 1163 | 219 | 1382 | 1125 | 244 | 1369 | 1080 | 272 | 1352 | 1032 | 303 | 1335 | 980 | 339 | 1319 | 790 | 340 | 1130 | |
| | 12 | | 1240 | 222 | 1462 | 1199 | 247 | 1446 | 1153 | 275 | 1428 | 1102 | 306 | 1408 | 1047 | 342 | 1389 | 853 | 345 | 1198 | |
| | 15 | | 1361 | 226 | 1587 | 1318 | 252 | 1570 | 1268 | 280 | 1548 | 1214 | 311 | 1525 | 1154 | 347 | 1501 | 954 | 354 | 1308 | |

Pf : Cooling capacity valid a ΔT according to operating limits
absorbed power

EN 14511 and EUROVENT conditions

Pc : Heating capacity valid a ΔT according to operating limits

Low temperature option necessary Pa : Compressor

Operation without HPS or at partial load



Water cooled chillers

PERFORMANCES

HYDROCIAT LW - LWP

| R134a | LW LWP | Evaporator water outlet °C | CONDENSER WATER OUTLET TEMPERATURE °C | | | | | | | | | | | | | | | | | | |
|------------|------------------------------|-------------------------------|---------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|------|
| | | | 35 | | | 40 | | | 45 | | | 50 | | | 55 | | | 60 | | | |
| | | | Pf kW | Pa kW | Pc kW | Pf kW | Pa kW | Pc kW | Pf kW | Pa kW | Pc kW | Pf kW | Pa kW | Pc kW | Pf kW | Pa kW | Pc kW | Pf kW | Pa kW | Pc kW | |
| 4200BX | Glycol water necessary | -8 | 600 | 207 | 807 | 570 | 230 | 800 | 540 | 258 | 798 | 510 | 286 | 796 | 480 | 322 | 802 | | | | |
| | | -6 | 633 | 209 | 842 | 613 | 232 | 845 | 582 | 260 | 842 | 550 | 290 | 840 | 512 | 326 | 838 | | | | |
| | | -4 | 695 | 211 | 906 | 666 | 234 | 900 | 643 | 264 | 907 | 610 | 295 | 905 | 563 | 327 | 890 | | | | |
| | | -2 | 776 | 214 | 990 | 747 | 239 | 986 | 714 | 267 | 981 | 680 | 297 | 977 | 625 | 330 | 955 | 489 | 332 | 821 | |
| | | 0 | 834 | 216 | 1050 | 803 | 241 | 1044 | 769 | 270 | 1039 | 730 | 301 | 1031 | 692 | 333 | 1025 | 538 | 336 | 874 | |
| | | 2 | 902 | 218 | 1120 | 870 | 243 | 1113 | 835 | 272 | 1107 | 797 | 304 | 1101 | 755 | 339 | 1094 | 593 | 341 | 934 | |
| | Pure water | 5 | 1008 | 221 | 1229 | 973 | 247 | 1220 | 934 | 276 | 1210 | 892 | 308 | 1200 | 848 | 344 | 1192 | 680 | 348 | 1028 | |
| | | 7 | 1078 | 224 | 1302 | 1041 | 250 | 1291 | 1000 | 279 | 1279 | 956 | 311 | 1267 | 908 | 347 | 1255 | 728 | 352 | 1080 | |
| | | 10 | 1196 | 228 | 1424 | 1157 | 254 | 1411 | 1113 | 283 | 1396 | 1064 | 316 | 1380 | 1011 | 353 | 1364 | 835 | 361 | 1196 | |
| | | 12 | 1275 | 231 | 1506 | 1235 | 257 | 1492 | 1187 | 287 | 1474 | 1136 | 320 | 1456 | 1080 | 356 | 1436 | 904 | 365 | 1269 | |
| | | 15 | 1400 | 236 | 1636 | 1356 | 262 | 1618 | 1306 | 292 | 1598 | 1250 | 325 | 1575 | 1189 | 362 | 1551 | 1011 | 373 | 1384 | |
| | 4500BX | Glycol water necessary | -8 | 625 | 219 | 844 | 595 | 244 | 839 | 565 | 272 | 837 | 535 | 304 | 839 | | | | | | |
| | | | -6 | 673 | 221 | 894 | 650 | 246 | 896 | 620 | 274 | 894 | 585 | 306 | 891 | 547 | 337 | 884 | | | |
| | | | -4 | 742 | 226 | 968 | 711 | 252 | 963 | 676 | 280 | 956 | 640 | 312 | 952 | 595 | 344 | 939 | 460 | 344 | 804 |
| | | | -2 | 815 | 229 | 1044 | 784 | 255 | 1039 | 750 | 283 | 1033 | 714 | 315 | 1029 | 672 | 352 | 1024 | 509 | 347 | 856 |
| | | | 0 | 877 | 232 | 1109 | 844 | 257 | 1101 | 809 | 286 | 1095 | 770 | 318 | 1088 | 728 | 355 | 1083 | 564 | 351 | 915 |
| | | | 2 | 949 | 235 | 1184 | 914 | 261 | 1175 | 877 | 290 | 1167 | 836 | 322 | 1158 | 792 | 359 | 1151 | 621 | 357 | 978 |
| | | Pure water | 5 | 1062 | 240 | 1302 | 1025 | 266 | 1291 | 983 | 295 | 1278 | 935 | 329 | 1264 | 887 | 366 | 1253 | 698 | 363 | 1061 |
| | | | 7 | 1133 | 242 | 1375 | 1097 | 269 | 1366 | 1053 | 299 | 1352 | 1005 | 332 | 1337 | 952 | 370 | 1322 | 770 | 371 | 1141 |
| | | | 10 | 1265 | 248 | 1513 | 1221 | 276 | 1497 | 1172 | 306 | 1478 | 1120 | 339 | 1459 | 1064 | 377 | 1441 | 874 | 381 | 1255 |
| | | | 12 | 1349 | 252 | 1601 | 1303 | 280 | 1583 | 1252 | 310 | 1562 | 1197 | 344 | 1541 | 1137 | 382 | 1519 | 943 | 387 | 1330 |
| 15 | 1483 | 259 | 1742 | 1434 | 287 | 1721 | 1379 | 318 | 1697 | 1318 | 352 | 1670 | 1254 | 390 | 1644 | 1054 | 398 | 1452 | | | |
| 4800BX | Glycol water necessary | -8 | 650 | 227 | 877 | 620 | 254 | 874 | 590 | 284 | 874 | 560 | 318 | 878 | | | | | | | |
| | | -6 | 707 | 232 | 939 | 677 | 258 | 935 | 645 | 288 | 933 | 611 | 322 | 933 | | | | | | | |
| | | -4 | 766 | 234 | 1000 | 734 | 261 | 995 | 700 | 291 | 991 | 664 | 325 | 989 | 622 | 363 | 985 | 490 | 363 | 853 | |
| | | -2 | 838 | 237 | 1075 | 807 | 264 | 1071 | 773 | 294 | 1067 | 737 | 328 | 1065 | 689 | 365 | 1054 | 533 | 366 | 899 | |
| | | 0 | 901 | 240 | 1141 | 869 | 267 | 1136 | 832 | 297 | 1129 | 795 | 330 | 1125 | 753 | 369 | 1122 | 589 | 371 | 960 | |
| | | 2 | 975 | 243 | 1218 | 940 | 270 | 1210 | 902 | 300 | 1202 | 862 | 334 | 1196 | 818 | 372 | 1190 | 646 | 375 | 1021 | |
| | Pure water | 5 | 1092 | 248 | 1340 | 1053 | 275 | 1328 | 1011 | 306 | 1317 | 965 | 340 | 1305 | 918 | 379 | 1297 | 740 | 384 | 1124 | |
| | | 7 | 1168 | 251 | 1419 | 1127 | 279 | 1406 | 1083 | 310 | 1393 | 1024 | 344 | 1368 | 984 | 383 | 1367 | 802 | 389 | 1191 | |
| | | 10 | 1298 | 257 | 1555 | 1254 | 286 | 1540 | 1205 | 317 | 1522 | 1153 | 352 | 1505 | 1097 | 391 | 1488 | 908 | 400 | 1308 | |
| | | 12 | 1385 | 261 | 1646 | 1338 | 290 | 1628 | 1287 | 322 | 1609 | 1231 | 357 | 1588 | 1171 | 396 | 1567 | 978 | 407 | 1385 | |
| 15 | 1522 | 268 | 1790 | 1472 | 298 | 1770 | 1416 | 330 | 1746 | 1355 | 365 | 1720 | 1290 | 405 | 1695 | 1092 | 419 | 1511 | | | |

Pf : Cooling capacity valid a ΔT according to operating limits absorbed power

EN 14511 and EUROVENT conditions

Pc : Heating capacity valid a ΔT according to operating limits

Low temperature option necessary Pa : Compressor

Operation without HPS or at partial load

DESUPERHEATER EXCHANGER LW - LWP

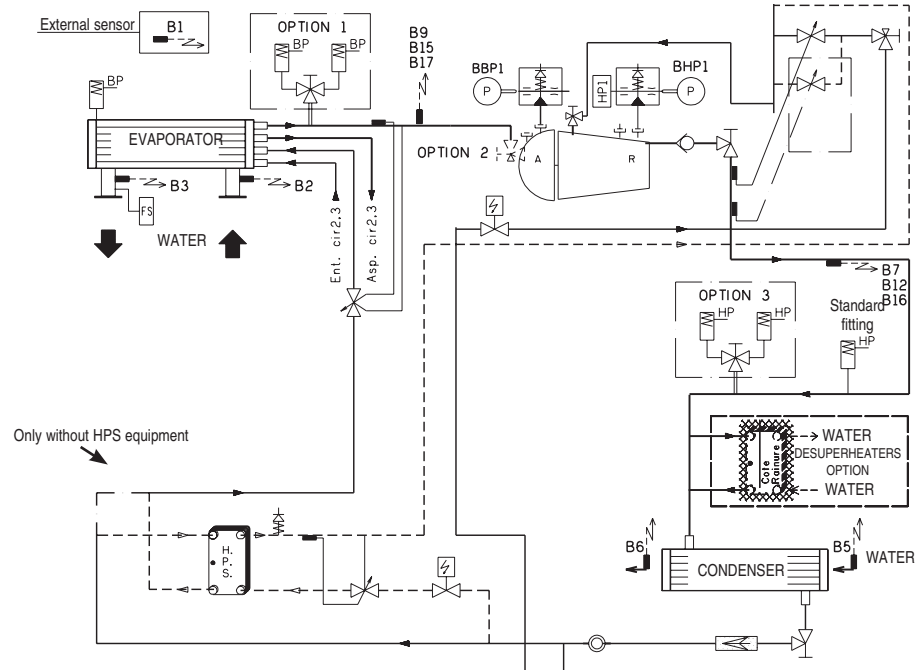
The system consists in a hot water supplying by an heat recovery system on the compressors discharge gas, on an auxiliary desuperheater exchanger mounted in the unit. This optional equipment is only available on request, and factory mounted.

■ Diagram of the refrigerant circuit

The following refrigeration diagram describes an example of a CIAT unit, with desuperheater (on each refrigerant circuit).

The heat recovery is possible only if the machine is running.

For the same cooling or heating capacity, the desuperheater system allows a free heating of hot water with a reduction of the total input power of the machine.



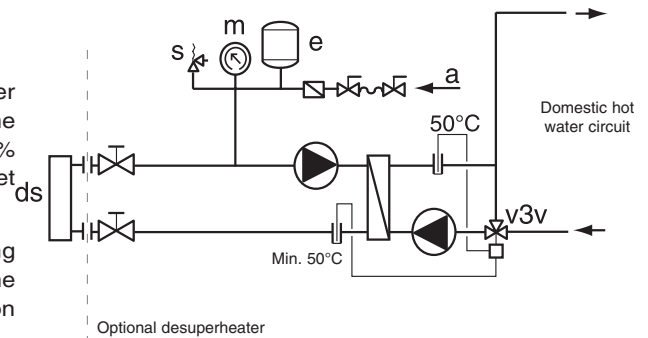
Circuit 2 and 3 same conception than circuit 1
 --- HPS equipment

- OPTION 1 : 3 ways valve fitting
- OPTION 2 : Compressor valve
- OPTION 3 : 3 ways valve fitting

■ Principle and precautions of hydraulic connection

To start and to run the machine under good conditions, the water loop must be as short as possible, and the water flow of the desuperheater must start slowly with a water flow equal to 10% of its nominal value, and must be calculated for a hot water inlet temperature of **+50°C**.

Thus, it is recommended to have a hydraulic diagram making it possible to obtain hot water very quickly at the inlet of the desuperheater (3-way valve + controller + temperature sensor on the exchanger water inlet)



The controller set point must be adjusted to +50°C minimum.

Note: particular attention must be given when selecting the expansion tank because the recovery water circuit can reach a temperature of 115°C if the accelerator pump stops or hot water is not consumed.

■ Recovery example on desuperheater

| HYDROCIAT LW - LWP | Cooling capacity Pf (kW) | Compressor absorbed Pa (kW) | Recovery Pr (kW) | Water flow qv (m³/h) | Pressure drop dP (mmCE) |
|--------------------|--------------------------|-----------------------------|------------------|----------------------|-------------------------|
| 1800BX | 418 | 93 | 21 | 3.6 | 30 |
| 1800BX HPS | 433 | 96 | 22 | 3.8 | 33 |
| 2150BX | 492 | 110 | 25 | 4.3 | 40 |
| 2150BX HPS | 533 | 115 | 27 | 4.6 | 45 |
| 2500BX | 588 | 126 | 29 | 5 | 50 |
| 2500BX HPS | 625 | 134 | 31 | 5.3 | 60 |
| 2800BX | 661 | 140 | 33 | 5.7 | 65 |
| 2800BX HPS | 692 | 145 | 35 | 6 | 70 |
| 3050BX HPS | 814 | 166 | 41 | 7 | 63 |
| 3500BX HPS | 921 | 193 | 46 | 8 | 82 |
| 3600BX HPS | 957 | 195 | 48 | 8.2 | 56 |
| 3900BX HPS | 1044 | 215 | 52 | 9 | 67 |
| 4200BX HPS | 1078 | 224 | 54 | 9.3 | 72 |
| 4500BX HPS | 1133 | 242 | 57 | 9.7 | 78 |
| 4800BX HPS | 1168 | 251 | 58 | 10 | 83 |

Note : heat recovery performances for :
 machine running in full load, chilled water = +12/+7°C and condenser hot water = 30°C / 35°C
 hot water temperature on recovery = +55/+60°C



Water cooled chillers

PARTIAL HEAT RECOVERY CAPACITY

HYDROCIAT LW

| LW LWP | Evaporator water outlet temp. °C | Desuperheater water inlet and outlet temperature In °C | CONDENSER WATER OUTLET TEMPERATURE °C | | | | | | | | | | | | | | | | | | | |
|----------------|-------------------------------------|---|---------------------------------------|----------|-----------|-------------|----------|----------|-----------|-------------|----------|----------|-----------|-------------|----------|----------|-----------|-------------|----------|----------|-----------|-------------|
| | | | 35 | | | | 40 | | | | 45 | | | | 50 | | | | 55 | | | |
| | | | Pf kW | Pa kW | Pde kW | Qde m³/h | Pf kW | Pa kW | Pde kW | Qde m³/h | Pf kW | Pa kW | Pde kW | Qde m³/h | Pf kW | Pa kW | Pde kW | Qde m³/h | Pf kW | Pa kW | Pde kW | Qde m³/h |
| 1800 BX | 50 °C / 55 °C | 5 | 397 | 92 | 32 | 5,5 | 375 | 99 | 45 | 7,7 | 349 | 108 | 56 | 9,6 | 323 | 119 | 65 | 11,1 | 296 | 131 | 77 | 13,2 |
| | | 7 | 418 | 93 | 33 | 5,8 | 404 | 101 | 48 | 8,3 | 378 | 110 | 60 | 10,4 | 349 | 121 | 70 | 12,0 | 321 | 133 | 83 | 14,4 |
| | | 10 | 476 | 96 | 38 | 6,5 | 451 | 105 | 54 | 9,3 | 424 | 114 | 68 | 11,7 | 393 | 124 | 79 | 13,5 | 362 | 137 | 94 | 16,2 |
| | | 12 | 512 | 99 | 41 | 7,0 | 484 | 107 | 58 | 10,0 | 456 | 116 | 73 | 12,5 | 424 | 127 | 85 | 14,6 | 387 | 139 | 101 | 17,3 |
| | | 15 | 567 | 102 | 45 | 7,8 | 537 | 110 | 64 | 11,1 | 506 | 120 | 81 | 13,9 | 474 | 130 | 95 | 16,3 | 435 | 143 | 113 | 19,5 |
| | 55 °C / 60 °C | 5 | 397 | 92 | 20 | 3,4 | 375 | 99 | 34 | 5,8 | 349 | 108 | 42 | 7,2 | 323 | 119 | 45 | 7,8 | 296 | 131 | 47 | 8,1 |
| | | 7 | 418 | 93 | 21 | 3,6 | 404 | 101 | 36 | 6,3 | 378 | 110 | 45 | 7,8 | 349 | 121 | 49 | 8,4 | 321 | 133 | 51 | 8,8 |
| | | 10 | 476 | 96 | 24 | 4,1 | 451 | 105 | 41 | 7,0 | 424 | 114 | 51 | 8,8 | 393 | 124 | 55 | 9,5 | 362 | 137 | 58 | 10,0 |
| | | 12 | 512 | 99 | 26 | 4,4 | 484 | 107 | 44 | 7,5 | 456 | 116 | 55 | 9,4 | 424 | 127 | 59 | 10,2 | 387 | 139 | 62 | 10,7 |
| | | 15 | 567 | 102 | 28 | 4,9 | 537 | 110 | 48 | 8,3 | 506 | 120 | 61 | 10,4 | 474 | 130 | 66 | 11,4 | 435 | 143 | 70 | 12,0 |
| 1800 BX | 50 °C / 55 °C | 5 | 415 | 95 | 33 | 5,7 | 399 | 104 | 48 | 8,2 | 381 | 116 | 61 | 10,5 | 363 | 129 | 73 | 12,5 | 343 | 146 | 89 | 15,3 |
| | | 7 | 433 | 96 | 35 | 6,0 | 427 | 106 | 51 | 8,8 | 409 | 117 | 65 | 11,3 | 389 | 131 | 78 | 13,4 | 367 | 147 | 95 | 16,4 |
| | | 10 | 489 | 99 | 39 | 6,7 | 471 | 108 | 57 | 9,7 | 452 | 120 | 72 | 12,4 | 430 | 133 | 86 | 14,8 | 406 | 149 | 106 | 18,2 |
| | | 12 | 521 | 100 | 42 | 7,2 | 503 | 110 | 60 | 10,4 | 482 | 122 | 77 | 13,3 | 459 | 135 | 92 | 15,8 | 435 | 151 | 113 | 19,5 |
| | | 15 | 570 | 103 | 46 | 7,8 | 553 | 113 | 66 | 11,4 | 529 | 124 | 85 | 14,6 | 505 | 138 | 101 | 17,4 | 478 | 154 | 124 | 21,4 |
| | 55 °C / 60 °C | 5 | 415 | 95 | 21 | 3,6 | 399 | 104 | 36 | 6,2 | 381 | 116 | 46 | 7,9 | 363 | 129 | 51 | 8,7 | 343 | 146 | 55 | 9,4 |
| | | 7 | 433 | 96 | 22 | 3,7 | 427 | 106 | 38 | 6,6 | 409 | 117 | 49 | 8,4 | 389 | 131 | 54 | 9,4 | 367 | 147 | 59 | 10,1 |
| | | 10 | 489 | 99 | 24 | 4,2 | 471 | 108 | 42 | 7,3 | 452 | 120 | 54 | 9,3 | 430 | 133 | 60 | 10,4 | 406 | 149 | 65 | 11,2 |
| | | 12 | 521 | 100 | 26 | 4,5 | 503 | 110 | 45 | 7,8 | 482 | 122 | 58 | 9,9 | 459 | 135 | 64 | 11,1 | 435 | 151 | 70 | 12,0 |
| | | 15 | 570 | 103 | 29 | 4,9 | 553 | 113 | 50 | 8,6 | 529 | 124 | 63 | 10,9 | 505 | 138 | 71 | 12,2 | 478 | 154 | 76 | 13,2 |
| 2150 BX | 50 °C / 55 °C | 5 | 483 | 108 | 39 | 6,6 | 456 | 118 | 55 | 9,4 | 428 | 129 | 68 | 11,8 | 398 | 141 | 80 | 13,7 | 364 | 156 | 95 | 16,3 |
| | | 7 | 492 | 111 | 39 | 6,8 | 492 | 120 | 59 | 10,2 | 462 | 131 | 74 | 12,7 | 431 | 144 | 86 | 14,8 | 397 | 158 | 103 | 17,8 |
| | | 10 | 578 | 114 | 46 | 8,0 | 549 | 124 | 66 | 11,3 | 517 | 135 | 83 | 14,2 | 483 | 148 | 97 | 16,6 | 447 | 162 | 116 | 20,0 |
| | | 12 | 621 | 117 | 50 | 8,5 | 588 | 127 | 71 | 12,1 | 556 | 138 | 89 | 15,3 | 520 | 151 | 104 | 17,9 | 482 | 166 | 125 | 21,6 |
| | | 15 | 687 | 122 | 55 | 9,5 | 653 | 131 | 78 | 13,5 | 617 | 142 | 99 | 17,0 | 579 | 155 | 116 | 19,9 | 539 | 170 | 140 | 24,1 |
| | 55 °C / 60 °C | 5 | 483 | 108 | 24 | 4,2 | 456 | 118 | 41 | 7,1 | 428 | 129 | 51 | 8,8 | 398 | 141 | 56 | 9,6 | 364 | 156 | 58 | 10,0 |
| | | 7 | 492 | 111 | 25 | 4,2 | 492 | 120 | 44 | 7,6 | 462 | 131 | 55 | 9,5 | 431 | 144 | 60 | 10,4 | 397 | 158 | 64 | 10,9 |
| | | 10 | 578 | 114 | 29 | 5,0 | 549 | 124 | 49 | 8,5 | 517 | 135 | 62 | 10,7 | 483 | 148 | 68 | 11,6 | 447 | 162 | 72 | 12,3 |
| | | 12 | 621 | 117 | 31 | 5,3 | 588 | 127 | 53 | 9,1 | 556 | 138 | 67 | 11,5 | 520 | 151 | 73 | 12,5 | 482 | 166 | 77 | 13,3 |
| | | 15 | 687 | 122 | 34 | 5,9 | 653 | 131 | 59 | 10,1 | 617 | 142 | 74 | 12,7 | 579 | 155 | 81 | 13,9 | 539 | 170 | 86 | 14,8 |
| 2150 BX | 50 °C / 55 °C | 5 | 511 | 114 | 41 | 7,0 | 493 | 127 | 59 | 10,2 | 472 | 142 | 76 | 13,0 | 450 | 160 | 90 | 15,5 | 425 | 181 | 111 | 19,0 |
| | | 7 | 533 | 116 | 43 | 7,3 | 527 | 129 | 63 | 10,9 | 506 | 144 | 81 | 13,9 | 482 | 162 | 96 | 16,6 | 455 | 183 | 118 | 20,3 |
| | | 10 | 601 | 119 | 48 | 8,3 | 582 | 132 | 70 | 12,0 | 558 | 147 | 89 | 15,4 | 533 | 165 | 107 | 18,3 | 505 | 186 | 131 | 22,6 |
| | | 12 | 640 | 121 | 51 | 8,8 | 620 | 134 | 74 | 12,8 | 596 | 149 | 95 | 16,4 | 569 | 167 | 114 | 19,6 | 539 | 188 | 140 | 24,1 |
| | | 15 | 702 | 125 | 56 | 9,7 | 681 | 137 | 82 | 14,1 | 655 | 152 | 105 | 18,0 | 625 | 169 | 125 | 21,5 | 593 | 191 | 154 | 26,5 |
| | 55 °C / 60 °C | 5 | 511 | 114 | 26 | 4,4 | 493 | 127 | 44 | 7,6 | 472 | 142 | 57 | 9,7 | 450 | 160 | 63 | 10,8 | 425 | 181 | 68 | 11,7 |
| | | 7 | 533 | 116 | 27 | 4,6 | 527 | 129 | 47 | 8,2 | 506 | 144 | 61 | 10,4 | 482 | 162 | 67 | 11,6 | 455 | 183 | 73 | 12,5 |
| | | 10 | 601 | 119 | 30 | 5,2 | 582 | 132 | 52 | 9,0 | 558 | 147 | 67 | 11,5 | 533 | 165 | 75 | 12,8 | 505 | 186 | 81 | 13,9 |
| | | 12 | 640 | 121 | 32 | 5,5 | 620 | 134 | 56 | 9,6 | 596 | 149 | 72 | 12,3 | 569 | 167 | 80 | 13,7 | 539 | 188 | 86 | 14,8 |
| | | 15 | 702 | 125 | 35 | 6,0 | 681 | 137 | 61 | 10,5 | 655 | 152 | 79 | 13,5 | 625 | 169 | 88 | 15,1 | 593 | 191 | 95 | 16,3 |

Pf : Cooling capacity valid a DT according to operating limits
Pa : Compressors + fans absorbed power

Pde: Desuperheater heating capacity recovered
Qde : Desuperheater water flow

R134a



PARTIAL HEAT RECOVERY CAPACITY

| LW LWP | Desuperheater water inlet and outlet temperature In °C | Evaporator water outlet temp. °C | CONDENSER WATER OUTLET TEMPERATURE °C | | | | | | | | | | | | | | | | | | | |
|----------------|---|-------------------------------------|---------------------------------------|----------|-----------|-------------|----------|----------|-----------|-------------|----------|----------|-----------|-------------|----------|----------|-----------|-------------|----------|----------|-----------|-------------|
| | | | 35 | | | | 40 | | | | 45 | | | | 50 | | | | 55 | | | |
| | | | Pf kW | Pa kW | Pde kW | Qde m³/h | Pf kW | Pa kW | Pde kW | Qde m³/h | Pf kW | Pa kW | Pde kW | Qde m³/h | Pf kW | Pa kW | Pde kW | Qde m³/h | Pf kW | Pa kW | Pde kW | Qde m³/h |
| 2500 BX | 50 °C / 55 °C | 5 | 560 | 124 | 45 | 7,7 | 529 | 136 | 63 | 10,9 | 493 | 148 | 79 | 13,6 | 455 | 163 | 91 | 15,7 | 415 | 178 | 108 | 18,6 |
| | | 7 | 588 | 127 | 47 | 8,1 | 571 | 138 | 69 | 11,8 | 535 | 151 | 86 | 14,7 | 494 | 166 | 99 | 17,0 | 453 | 182 | 118 | 20,3 |
| | | 10 | 670 | 132 | 54 | 9,2 | 636 | 143 | 76 | 13,1 | 600 | 156 | 96 | 16,5 | 556 | 170 | 111 | 19,1 | 509 | 186 | 132 | 22,8 |
| | | 12 | 719 | 135 | 58 | 9,9 | 682 | 146 | 82 | 14,1 | 645 | 159 | 103 | 17,8 | 601 | 173 | 120 | 20,7 | 544 | 189 | 141 | 24,3 |
| | | 15 | 795 | 141 | 64 | 10,9 | 758 | 152 | 91 | 15,6 | 716 | 164 | 115 | 19,7 | 673 | 178 | 135 | 23,2 | 622 | 195 | 162 | 27,8 |
| | 55 °C / 60 °C | 5 | 560 | 124 | 28 | 4,8 | 529 | 136 | 48 | 8,2 | 493 | 148 | 59 | 10,2 | 455 | 163 | 64 | 11,0 | 415 | 178 | 66 | 11,4 |
| | | 7 | 588 | 127 | 29 | 5,1 | 571 | 138 | 51 | 8,8 | 535 | 151 | 64 | 11,0 | 494 | 166 | 69 | 11,9 | 453 | 182 | 72 | 12,5 |
| | | 10 | 670 | 132 | 34 | 5,8 | 636 | 143 | 57 | 9,8 | 600 | 156 | 72 | 12,4 | 556 | 170 | 78 | 13,4 | 509 | 186 | 81 | 14,0 |
| | | 12 | 719 | 135 | 36 | 6,2 | 682 | 146 | 61 | 10,6 | 645 | 159 | 77 | 13,3 | 601 | 173 | 84 | 14,5 | 544 | 189 | 87 | 15,0 |
| | | 15 | 795 | 141 | 40 | 6,8 | 758 | 152 | 68 | 11,7 | 716 | 164 | 86 | 14,8 | 673 | 178 | 94 | 16,2 | 622 | 195 | 100 | 17,1 |
| 2500 BX | 50 °C / 55 °C | 5 | 599 | 133 | 48 | 8,2 | 578 | 149 | 69 | 11,9 | 555 | 168 | 89 | 15,3 | 530 | 190 | 106 | 18,2 | 500 | 215 | 130 | 22,4 |
| | | 7 | 625 | 135 | 50 | 8,6 | 619 | 151 | 74 | 12,8 | 594 | 170 | 95 | 16,3 | 567 | 192 | 113 | 19,5 | 537 | 218 | 140 | 24,0 |
| | | 10 | 705 | 139 | 56 | 9,7 | 682 | 154 | 82 | 14,1 | 656 | 173 | 105 | 18,1 | 627 | 195 | 125 | 21,6 | 595 | 221 | 155 | 26,6 |
| | | 12 | 751 | 142 | 60 | 10,3 | 728 | 157 | 87 | 15,0 | 700 | 175 | 112 | 19,3 | 670 | 197 | 134 | 23,0 | 636 | 224 | 165 | 28,4 |
| | | 15 | 824 | 146 | 66 | 11,3 | 798 | 161 | 96 | 16,5 | 770 | 178 | 123 | 21,2 | 737 | 200 | 147 | 25,4 | 701 | 227 | 182 | 31,3 |
| | 55 °C / 60 °C | 5 | 599 | 133 | 30 | 5,2 | 578 | 149 | 52 | 8,9 | 555 | 168 | 67 | 11,5 | 530 | 190 | 74 | 12,8 | 500 | 215 | 80 | 13,8 |
| | | 7 | 625 | 135 | 31 | 5,4 | 619 | 151 | 56 | 9,6 | 594 | 170 | 71 | 12,3 | 567 | 192 | 79 | 13,7 | 537 | 218 | 86 | 14,8 |
| | | 10 | 705 | 139 | 35 | 6,1 | 682 | 154 | 61 | 10,6 | 656 | 173 | 79 | 13,5 | 627 | 195 | 88 | 15,1 | 595 | 221 | 95 | 16,4 |
| | | 12 | 751 | 142 | 38 | 6,5 | 728 | 157 | 66 | 11,3 | 700 | 175 | 84 | 14,4 | 670 | 197 | 94 | 16,1 | 636 | 224 | 102 | 17,5 |
| | | 15 | 824 | 146 | 41 | 7,1 | 798 | 161 | 72 | 12,4 | 770 | 178 | 92 | 15,9 | 737 | 200 | 103 | 17,7 | 701 | 227 | 112 | 19,3 |
| 2800 BX | 50 °C / 55 °C | 5 | 627 | 138 | 50 | 8,6 | 685 | 150 | 70 | 12,1 | 545 | 165 | 87 | 15 | 495 | 185 | 99 | 17 | 447 | 202 | 116 | 20 |
| | | 7 | 661 | 140 | 53 | 9,1 | 627 | 153 | 75 | 12,9 | 582 | 167 | 93 | 16 | 553 | 188 | 111 | 19 | 490 | 206 | 127 | 22 |
| | | 10 | 752 | 144 | 60 | 10,3 | 710 | 157 | 85 | 14,7 | 660 | 173 | 106 | 18,2 | 609 | 190 | 122 | 21 | 564 | 212 | 147 | 25,2 |
| | | 12 | 806 | 147 | 64 | 11,1 | 764 | 160 | 92 | 15,8 | 710 | 175 | 114 | 19,5 | 650 | 192 | 130 | 22,4 | 605 | 215 | 157 | 27,1 |
| | | 15 | 892 | 151 | 71 | 12,3 | 847 | 164 | 102 | 17,5 | 794 | 180 | 127 | 21,9 | 730 | 198 | 146 | 26,1 | 678 | 221 | 176 | 30,3 |
| | 55 °C / 60 °C | 5 | 627 | 138 | 31 | 5,4 | 585 | 150 | 53 | 9,1 | 545 | 165 | 65 | 11,2 | 495 | 185 | 69 | 11,9 | 447 | 202 | 72 | 12,3 |
| | | 7 | 661 | 140 | 33 | 5,7 | 627 | 153 | 56 | 9,7 | 582 | 167 | 70 | 12 | 553 | 188 | 77 | 13,3 | 490 | 206 | 78 | 13,5 |
| | | 10 | 752 | 144 | 38 | 6,5 | 710 | 157 | 64 | 11 | 660 | 173 | 79 | 13,6 | 609 | 190 | 85 | 14,7 | 564 | 212 | 90 | 15,5 |
| | | 12 | 806 | 147 | 40 | 6,9 | 764 | 160 | 69 | 11,8 | 710 | 175 | 85 | 14,7 | 650 | 192 | 91 | 15,7 | 605 | 215 | 97 | 16,6 |
| | | 15 | 892 | 151 | 45 | 7,7 | 847 | 164 | 76 | 13,1 | 794 | 180 | 95 | 16,4 | 730 | 198 | 102 | 17,6 | 678 | 221 | 108 | 18,7 |
| 2800 BX | 50 °C / 55 °C | 5 | 663 | 144 | 53 | 9,1 | 642 | 161 | 77 | 13,3 | 617 | 181 | 99 | 17 | 591 | 204 | 118 | 20,3 | 566 | 224 | 147 | 25,3 |
| | | 7 | 692 | 146 | 55 | 9,5 | 684 | 162 | 82 | 14,1 | 659 | 182 | 105 | 18,1 | 630 | 206 | 126 | 21,7 | 612 | 226 | 159 | 27,4 |
| | | 10 | 779 | 148 | 62 | 10,7 | 754 | 165 | 90 | 15,6 | 725 | 185 | 116 | 20 | 695 | 209 | 139 | 24 | 665 | 228 | 173 | 29,7 |
| | | 12 | 829 | 150 | 66 | 11,4 | 802 | 167 | 96 | 16,6 | 773 | 187 | 124 | 21,3 | 740 | 211 | 148 | 25,5 | 698 | 230 | 181 | 31,2 |
| | | 15 | 908 | 153 | 73 | 12,5 | 879 | 170 | 105 | 18,1 | 847 | 190 | 136 | 23,3 | 811 | 214 | 162 | 27,9 | 780 | 234 | 203 | 35 |
| | 55 °C / 60 °C | 5 | 663 | 144 | 33 | 5,7 | 642 | 161 | 58 | 9,9 | 617 | 181 | 74 | 12,7 | 591 | 204 | 83 | 14,2 | 566 | 224 | 91 | 15,6 |
| | | 7 | 692 | 146 | 35 | 6 | 684 | 162 | 62 | 10,6 | 659 | 182 | 79 | 13,6 | 630 | 206 | 88 | 15,2 | 612 | 226 | 98 | 16,8 |
| | | 10 | 779 | 148 | 39 | 6,7 | 754 | 165 | 68 | 11,7 | 725 | 185 | 87 | 15 | 695 | 209 | 97 | 16,7 | 665 | 228 | 106 | 18,3 |
| | | 12 | 829 | 150 | 41 | 7,1 | 802 | 167 | 72 | 12,4 | 773 | 187 | 93 | 16 | 740 | 211 | 104 | 17,8 | 698 | 230 | 112 | 19,2 |
| | | 15 | 908 | 153 | 45 | 7,8 | 879 | 170 | 79 | 13,6 | 847 | 190 | 102 | 17,5 | 811 | 214 | 114 | 19,5 | 780 | 234 | 125 | 21,5 |

Pf : Cooling capacity valid a DT according to operating limitst
Pa : Compressors + fans absorbed power

Pde: Desuperheater heating capacity recovered
Qde : Desuperheater water flow



Water cooled chillers

PARTIAL HEAT RECOVERY CAPACITY

HYDROCIAT LW

| LW LWP | Evaporator water outlet temp. °C | Desuperheater water inlet and outlet temperature In °C | CONDENSER WATER OUTLET TEMPERATURE °C | | | | | | | | | | | | | | | | | | | |
|----------------|-------------------------------------|---|---------------------------------------|----------|-----------|-------------|----------|----------|-----------|-------------|----------|----------|-----------|-------------|----------|----------|-----------|-------------|----------|----------|-----------|-------------|
| | | | 35 | | | | 40 | | | | 45 | | | | 50 | | | | 55 | | | |
| | | | Pf kW | Pa kW | Pde kW | Qde m³/h | Pf kW | Pa kW | Pde kW | Qde m³/h | Pf kW | Pa kW | Pde kW | Qde m³/h | Pf kW | Pa kW | Pde kW | Qde m³/h | Pf kW | Pa kW | Pde kW | Qde m³/h |
| 3050 BX | 50 °C / 55 °C | 5 | 762 | 164 | 61 | 10,5 | 735 | 183 | 88 | 15,2 | 704 | 205 | 113 | 19,4 | 670 | 229 | 134 | 23,0 | 622 | 256 | 162 | 27,8 |
| | | 7 | 814 | 166 | 65 | 11,2 | 786 | 185 | 94 | 16,2 | 754 | 207 | 121 | 20,8 | 719 | 231 | 144 | 24,7 | 671 | 260 | 174 | 30,0 |
| | | 10 | 905 | 169 | 72 | 12,5 | 874 | 188 | 105 | 18,0 | 840 | 210 | 134 | 23,1 | 802 | 235 | 160 | 27,6 | 760 | 262 | 198 | 34,0 |
| | | 12 | 964 | 172 | 77 | 13,3 | 933 | 190 | 112 | 19,3 | 896 | 212 | 143 | 24,7 | 857 | 237 | 171 | 29,5 | 813 | 265 | 211 | 36,4 |
| | | 15 | 1055 | 175 | 84 | 14,5 | 1026 | 194 | 123 | 21,2 | 987 | 215 | 158 | 27,2 | 944 | 240 | 189 | 32,5 | 896 | 268 | 233 | 40,1 |
| | 55 °C / 60 °C | 5 | 762 | 164 | 38 | 6,6 | 735 | 183 | 66 | 11,4 | 704 | 205 | 84 | 14,5 | 670 | 229 | 94 | 16,1 | 622 | 256 | 100 | 17,1 |
| | | 7 | 814 | 166 | 41 | 7,0 | 786 | 185 | 71 | 12,2 | 754 | 207 | 90 | 15,6 | 719 | 231 | 101 | 17,3 | 671 | 260 | 107 | 18,5 |
| | | 10 | 905 | 169 | 45 | 7,8 | 874 | 188 | 79 | 13,5 | 840 | 210 | 101 | 17,3 | 802 | 235 | 112 | 19,3 | 760 | 262 | 122 | 20,9 |
| | | 12 | 964 | 172 | 48 | 8,3 | 933 | 190 | 84 | 14,4 | 896 | 212 | 108 | 18,5 | 857 | 237 | 120 | 20,6 | 813 | 265 | 130 | 22,4 |
| | | 15 | 1055 | 175 | 53 | 9,1 | 1026 | 194 | 92 | 15,9 | 987 | 215 | 118 | 20,4 | 944 | 240 | 132 | 22,7 | 896 | 268 | 143 | 24,7 |
| 3500 BX | 50 °C / 55 °C | 5 | 862 | 191 | 69 | 11,9 | 831 | 211 | 100 | 17,2 | 796 | 235 | 127 | 21,9 | 757 | 261 | 151 | 26,0 | 688 | 289 | 179 | 30,8 |
| | | 7 | 921 | 193 | 74 | 12,7 | 890 | 214 | 107 | 18,4 | 852 | 238 | 136 | 23,4 | 811 | 265 | 162 | 27,9 | 767 | 294 | 199 | 34,3 |
| | | 10 | 1027 | 198 | 82 | 14,1 | 991 | 219 | 119 | 20,5 | 951 | 243 | 152 | 26,2 | 908 | 270 | 182 | 31,2 | 861 | 302 | 224 | 38,5 |
| | | 12 | 1095 | 201 | 88 | 15,1 | 1057 | 222 | 127 | 21,8 | 1016 | 247 | 163 | 28,0 | 970 | 274 | 194 | 33,4 | 920 | 306 | 239 | 41,1 |
| | | 15 | 1205 | 206 | 96 | 16,6 | 1163 | 228 | 140 | 24,0 | 1118 | 253 | 179 | 30,8 | 1068 | 281 | 214 | 36,7 | 1014 | 313 | 264 | 45,3 |
| | 55 °C / 60 °C | 5 | 862 | 191 | 43 | 7,4 | 831 | 211 | 75 | 12,9 | 796 | 235 | 96 | 16,4 | 757 | 261 | 106 | 18,2 | 688 | 289 | 110 | 18,9 |
| | | 7 | 921 | 193 | 46 | 7,9 | 890 | 214 | 80 | 13,8 | 852 | 238 | 102 | 17,6 | 811 | 265 | 114 | 19,5 | 767 | 294 | 123 | 21,1 |
| | | 10 | 1027 | 198 | 51 | 8,8 | 991 | 219 | 89 | 15,3 | 951 | 243 | 114 | 19,6 | 908 | 270 | 127 | 21,9 | 861 | 302 | 138 | 23,7 |
| | | 12 | 1095 | 201 | 55 | 9,4 | 1057 | 222 | 95 | 16,4 | 1016 | 247 | 122 | 21,0 | 970 | 274 | 136 | 23,4 | 920 | 306 | 147 | 25,3 |
| | | 15 | 1205 | 206 | 60 | 10,4 | 1163 | 228 | 105 | 18,0 | 1118 | 253 | 134 | 23,1 | 1068 | 281 | 150 | 25,7 | 1014 | 313 | 162 | 27,9 |
| 3600 BX | 50 °C / 55 °C | 5 | 897 | 194 | 72 | 12,3 | 868 | 218 | 104 | 17,9 | 834 | 245 | 133 | 23,0 | 797 | 276 | 159 | 27,4 | 750 | 309 | 195 | 33,5 |
| | | 7 | 957 | 195 | 77 | 13,2 | 927 | 219 | 111 | 19,1 | 892 | 246 | 143 | 24,5 | 853 | 277 | 171 | 29,3 | 811 | 311 | 211 | 36,3 |
| | | 10 | 1062 | 198 | 85 | 14,6 | 1029 | 221 | 123 | 21,2 | 988 | 250 | 158 | 27,2 | 948 | 279 | 190 | 32,6 | 903 | 314 | 235 | 40,4 |
| | | 12 | 1131 | 199 | 90 | 15,6 | 1097 | 223 | 132 | 22,6 | 1057 | 250 | 169 | 29,1 | 1012 | 281 | 202 | 34,8 | 963 | 315 | 250 | 43,1 |
| | | 15 | 1238 | 202 | 99 | 17,0 | 1204 | 226 | 144 | 24,9 | 1161 | 253 | 186 | 32,0 | 1113 | 284 | 223 | 38,3 | 1060 | 319 | 276 | 47,4 |
| | 55 °C / 60 °C | 5 | 897 | 194 | 45 | 7,7 | 868 | 218 | 78 | 13,4 | 834 | 245 | 100 | 17,2 | 797 | 276 | 112 | 19,2 | 750 | 309 | 120 | 20,6 |
| | | 7 | 957 | 195 | 48 | 8,2 | 927 | 219 | 83 | 14,3 | 892 | 246 | 107 | 18,4 | 853 | 277 | 119 | 20,5 | 811 | 311 | 130 | 22,3 |
| | | 10 | 1062 | 198 | 53 | 9,1 | 1029 | 221 | 93 | 15,9 | 988 | 250 | 119 | 20,4 | 948 | 279 | 133 | 22,8 | 903 | 314 | 144 | 24,9 |
| | | 12 | 1131 | 199 | 57 | 9,7 | 1097 | 223 | 99 | 17,0 | 1057 | 250 | 127 | 21,8 | 1012 | 281 | 142 | 24,4 | 963 | 315 | 154 | 26,5 |
| | | 15 | 1238 | 202 | 62 | 10,6 | 1204 | 226 | 108 | 18,6 | 1161 | 253 | 139 | 24,0 | 1113 | 284 | 156 | 26,8 | 1060 | 319 | 170 | 29,2 |
| 3900 BX | 50 °C / 55 °C | 5 | 979 | 213 | 78 | 13,5 | 945 | 237 | 113 | 19,5 | 906 | 265 | 145 | 24,9 | 864 | 296 | 173 | 29,7 | 792 | 331 | 206 | 35,4 |
| | | 7 | 1044 | 215 | 84 | 14,4 | 1011 | 240 | 121 | 20,9 | 970 | 267 | 155 | 26,7 | 926 | 299 | 185 | 31,9 | 878 | 334 | 228 | 39,3 |
| | | 10 | 1163 | 219 | 93 | 16,0 | 1125 | 244 | 135 | 23,2 | 1080 | 272 | 173 | 29,7 | 1032 | 303 | 206 | 35,5 | 980 | 339 | 255 | 43,8 |
| | | 12 | 1240 | 222 | 99 | 17,1 | 1199 | 247 | 144 | 24,7 | 1153 | 275 | 184 | 31,7 | 1102 | 306 | 220 | 37,9 | 1047 | 342 | 272 | 46,8 |
| | | 15 | 1361 | 226 | 109 | 18,7 | 1318 | 252 | 158 | 27,2 | 1268 | 280 | 203 | 34,9 | 1214 | 311 | 243 | 41,8 | 1154 | 347 | 300 | 51,6 |
| | 55 °C / 60 °C | 5 | 979 | 213 | 49 | 8,4 | 945 | 237 | 85 | 14,6 | 906 | 265 | 109 | 18,7 | 864 | 296 | 121 | 20,8 | 792 | 331 | 127 | 21,8 |
| | | 7 | 1044 | 215 | 52 | 9,0 | 1011 | 240 | 91 | 15,7 | 970 | 267 | 116 | 20,0 | 926 | 299 | 130 | 22,3 | 878 | 334 | 140 | 24,2 |
| | | 10 | 1163 | 219 | 58 | 10,0 | 1125 | 244 | 101 | 17,4 | 1080 | 272 | 130 | 22,3 | 1032 | 303 | 144 | 24,9 | 980 | 339 | 157 | 27,0 |
| | | 12 | 1240 | 222 | 62 | 10,7 | 1199 | 247 | 108 | 18,6 | 1153 | 275 | 138 | 23,8 | 1102 | 306 | 154 | 26,5 | 1047 | 342 | 168 | 28,8 |
| | | 15 | 1361 | 226 | 68 | 11,7 | 1318 | 252 | 119 | 20,4 | 1268 | 280 | 152 | 26,2 | 1214 | 311 | 170 | 29,2 | 1154 | 347 | 185 | 31,8 |

Pf : Cooling capacity valid a DT according to operating limits
Pa : Compressors + fans absorbed power

Pde: Desuperheater heating capacity recovered
Qde : Desuperheater water flow

R134a



Water cooled chillers

HYDROCIAT LW

PARTIAL HEAT RECOVERY CAPACITY

| LW LWP | Evaporator water outlet temp. °C | Desuperheater water inlet and outlet temperature In °C | CONDENSER WATER OUTLET TEMPERATURE °C | | | | | | | | | | | | | | | | | | | | |
|-----------|-------------------------------------|---|---------------------------------------|----------|-----------|-------------|----------|----------|-----------|-------------|----------|----------|-----------|-------------|----------|----------|-----------|-------------|----------|----------|-----------|-------------|------|
| | | | 35 | | | | 40 | | | | 45 | | | | 50 | | | | 55 | | | | |
| | | | Pf kW | Pa kW | Pde kW | Qde m³/h | Pf kW | Pa kW | Pde kW | Qde m³/h | Pf kW | Pa kW | Pde kW | Qde m³/h | Pf kW | Pa kW | Pde kW | Qde m³/h | Pf kW | Pa kW | Pde kW | Qde m³/h | |
| 4200 BX | 50 °C / 55 °C | HPS | 5 | 1008 | 221 | 81 | 13,9 | 973 | 247 | 117 | 20,1 | 934 | 276 | 149 | 25,7 | 892 | 308 | 178 | 30,7 | 848 | 344 | 220 | 37,9 |
| | | | 7 | 1078 | 224 | 86 | 14,8 | 1041 | 250 | 125 | 21,5 | 1000 | 279 | 160 | 27,5 | 956 | 311 | 191 | 32,9 | 908 | 347 | 236 | 40,6 |
| | | | 10 | 1196 | 228 | 96 | 16,5 | 1157 | 254 | 139 | 23,9 | 1113 | 283 | 178 | 30,6 | 1064 | 316 | 213 | 36,6 | 1011 | 353 | 263 | 45,2 |
| | | | 12 | 1275 | 231 | 102 | 17,5 | 1235 | 257 | 148 | 25,5 | 1187 | 287 | 190 | 32,7 | 1136 | 320 | 227 | 39,1 | 1080 | 356 | 281 | 48,3 |
| | | | 15 | 1400 | 236 | 112 | 19,3 | 1356 | 262 | 163 | 28,0 | 1306 | 292 | 209 | 35,9 | 1250 | 325 | 250 | 43,0 | 1189 | 362 | 309 | 53,2 |
| | 55 °C / 60 °C | HPS | 5 | 1008 | 221 | 50 | 8,7 | 973 | 247 | 88 | 15,1 | 934 | 276 | 112 | 19,3 | 892 | 308 | 125 | 21,5 | 848 | 344 | 136 | 23,3 |
| | | | 7 | 1078 | 224 | 54 | 9,3 | 1041 | 250 | 94 | 16,1 | 1000 | 279 | 120 | 20,6 | 956 | 311 | 134 | 23,0 | 908 | 347 | 145 | 25,0 |
| | | | 10 | 1196 | 228 | 60 | 10,3 | 1157 | 254 | 104 | 17,9 | 1113 | 283 | 134 | 23,0 | 1064 | 316 | 149 | 25,6 | 1011 | 353 | 162 | 27,8 |
| | | | 12 | 1275 | 231 | 64 | 11,0 | 1235 | 257 | 111 | 19,1 | 1187 | 287 | 142 | 24,5 | 1136 | 320 | 159 | 27,4 | 1080 | 356 | 173 | 29,7 |
| | | | 15 | 1400 | 236 | 70 | 12,0 | 1356 | 262 | 122 | 21,0 | 1306 | 292 | 157 | 27,0 | 1250 | 325 | 175 | 30,1 | 1189 | 362 | 190 | 32,7 |
| 4500 BX | 50 °C / 55 °C | HPS | 5 | 1062 | 240 | 85 | 14,6 | 1025 | 266 | 123 | 21,2 | 983 | 295 | 157 | 27,1 | 935 | 329 | 187 | 32,2 | 887 | 366 | 231 | 39,7 |
| | | | 7 | 1133 | 242 | 91 | 15,6 | 1097 | 269 | 132 | 22,6 | 1053 | 299 | 168 | 29,0 | 1005 | 332 | 201 | 34,6 | 952 | 370 | 248 | 42,6 |
| | | | 10 | 1265 | 248 | 101 | 17,4 | 1221 | 276 | 147 | 25,2 | 1172 | 306 | 188 | 32,3 | 1120 | 339 | 224 | 38,5 | 1064 | 377 | 277 | 47,6 |
| | | | 12 | 1349 | 252 | 108 | 18,6 | 1303 | 280 | 156 | 26,9 | 1252 | 310 | 200 | 34,5 | 1197 | 344 | 239 | 41,2 | 1137 | 382 | 296 | 50,8 |
| | | | 15 | 1483 | 259 | 119 | 20,4 | 1434 | 287 | 172 | 29,6 | 1379 | 318 | 221 | 38,0 | 1318 | 352 | 264 | 45,3 | 1254 | 390 | 326 | 56,1 |
| | 55 °C / 60 °C | HPS | 5 | 1062 | 240 | 53 | 9,1 | 1025 | 266 | 92 | 15,9 | 983 | 295 | 118 | 20,3 | 935 | 329 | 131 | 22,5 | 887 | 366 | 142 | 24,4 |
| | | | 7 | 1133 | 242 | 57 | 9,7 | 1097 | 269 | 99 | 17,0 | 1053 | 299 | 126 | 21,7 | 1005 | 332 | 141 | 24,2 | 952 | 370 | 152 | 26,2 |
| | | | 10 | 1265 | 248 | 63 | 10,9 | 1221 | 276 | 110 | 18,9 | 1172 | 306 | 141 | 24,2 | 1120 | 339 | 157 | 27,0 | 1064 | 377 | 170 | 29,3 |
| | | | 12 | 1349 | 252 | 67 | 11,6 | 1303 | 280 | 117 | 20,2 | 1252 | 310 | 150 | 25,8 | 1197 | 344 | 168 | 28,8 | 1137 | 382 | 182 | 31,3 |
| | | | 15 | 1483 | 259 | 74 | 12,8 | 1434 | 287 | 129 | 22,2 | 1379 | 318 | 165 | 28,5 | 1318 | 352 | 185 | 31,7 | 1254 | 390 | 201 | 34,5 |
| 4800 BX | 50 °C / 55 °C | HPS | 5 | 1092 | 248 | 87 | 15,0 | 1053 | 275 | 126 | 21,7 | 1011 | 306 | 162 | 27,8 | 965 | 340 | 193 | 33,2 | 918 | 379 | 239 | 41,1 |
| | | | 7 | 1168 | 251 | 93 | 16,1 | 1127 | 279 | 135 | 23,3 | 1083 | 310 | 173 | 29,8 | 1024 | 344 | 205 | 35,2 | 984 | 383 | 256 | 44,0 |
| | | | 10 | 1298 | 257 | 104 | 17,9 | 1254 | 286 | 150 | 25,9 | 1205 | 317 | 193 | 33,2 | 1153 | 352 | 231 | 39,7 | 1097 | 391 | 285 | 49,1 |
| | | | 12 | 1385 | 261 | 111 | 19,1 | 1338 | 290 | 161 | 27,6 | 1287 | 322 | 206 | 35,4 | 1231 | 357 | 246 | 42,3 | 1171 | 396 | 304 | 52,4 |
| | | | 15 | 1522 | 268 | 122 | 20,9 | 1472 | 298 | 177 | 30,4 | 1416 | 330 | 227 | 39,0 | 1355 | 365 | 271 | 46,6 | 1290 | 405 | 335 | 57,7 |
| | 55 °C / 60 °C | HPS | 5 | 1092 | 248 | 55 | 9,4 | 1053 | 275 | 95 | 16,3 | 1011 | 306 | 121 | 20,9 | 965 | 340 | 135 | 23,2 | 918 | 379 | 147 | 25,3 |
| | | | 7 | 1168 | 251 | 58 | 10,0 | 1127 | 279 | 101 | 17,4 | 1083 | 310 | 130 | 22,4 | 1024 | 344 | 143 | 24,7 | 984 | 383 | 157 | 27,1 |
| | | | 10 | 1298 | 257 | 65 | 11,2 | 1254 | 286 | 113 | 19,4 | 1205 | 317 | 145 | 24,9 | 1153 | 352 | 161 | 27,8 | 1097 | 391 | 176 | 30,2 |
| | | | 12 | 1385 | 261 | 69 | 11,9 | 1338 | 290 | 120 | 20,7 | 1287 | 322 | 154 | 26,6 | 1231 | 357 | 172 | 29,6 | 1171 | 396 | 187 | 32,2 |
| | | | 15 | 1522 | 268 | 76 | 13,1 | 1472 | 298 | 132 | 22,8 | 1416 | 330 | 170 | 29,2 | 1355 | 365 | 190 | 32,6 | 1290 | 405 | 206 | 35,5 |

Pf : Cooling capacity valid a DT according to operating limits
Pa : Compressors + fans absorbed power

Pde : Desuperheater heating capacity recovered
Qde : Desuperheater water flow



Water cooled chillers

SOUND LEVELS

Standard version (without acoustically lined housing compressors)

■ Sound pressure levels ref 2×10^{-5} Pa \pm 3 dB (Lp)

| LW - LWP | SOUND PRESSURE LEVEL SPECTRUM (dB) | | | | | | | Total pressure level dB (A) |
|---------------------|------------------------------------|--------|--------|--------|---------|---------|---------|-----------------------------|
| | 63 Hz | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | |
| 1800BX / 1800BX HPS | 31 | 29 | 38 | 50 | 60 | 56 | 45 | 61 |
| 2150BX / 2150BX HPS | 39 | 37 | 48 | 54 | 59 | 55 | 42 | 61 |
| 2500BX / 2500BX HPS | 42 | 40 | 51 | 57 | 59 | 54 | 36 | 61 |
| 2800BX / 2800BX HPS | 45 | 42 | 50 | 59 | 59 | 53 | 38 | 62 |
| 3050BX HPS | 52 | 50 | 58 | 57 | 59 | 53 | 40 | 60 |
| 3500BX HPS | 51 | 49 | 62 | 59 | 58 | 53 | 36 | 62 |
| 3600BX HPS | 55 | 53 | 61 | 58 | 59 | 51 | 42 | 61 |
| 3900BX HPS | 54 | 52 | 63 | 59 | 58 | 52 | 40 | 62 |
| 4200BX HPS | 54 | 52 | 62 | 58 | 60 | 52 | 42 | 62 |
| 4500BX HPS | 53 | 51 | 64 | 59 | 59 | 53 | 40 | 63 |
| 4800BX HPS | 54 | 52 | 63 | 59 | 60 | 53 | 43 | 63 |

■ Sound power levels ref 10^{-12} W \pm 3 dB (Lw)

| LW - LWP | SOUND POWER LEVEL SPECTRUM (dB) | | | | | | | Total power level dB(A) |
|---------------------|---------------------------------|--------|--------|--------|---------|---------|---------|-------------------------|
| | 63 Hz | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | |
| 1800BX / 1800BX HPS | 63 | 61 | 70 | 82 | 92 | 88 | 77 | 93 |
| 2150BX / 2150BX HPS | 71 | 69 | 80 | 86 | 91 | 87 | 74 | 93 |
| 2500BX / 2500BX HPS | 74 | 72 | 83 | 89 | 91 | 86 | 68 | 93 |
| 2800BX / 2800BX HPS | 77 | 75 | 82 | 91 | 91 | 85 | 70 | 94 |
| 3050BX HPS | 84 | 82 | 90 | 89 | 91 | 85 | 72 | 92 |
| 3500BX HPS | 83 | 81 | 94 | 91 | 90 | 85 | 68 | 94 |
| 3600BX HPS | 87 | 85 | 93 | 90 | 91 | 83 | 74 | 93 |
| 3900BX HPS | 86 | 84 | 95 | 91 | 90 | 84 | 72 | 94 |
| 4200BX HPS | 86 | 84 | 94 | 90 | 92 | 84 | 74 | 94 |
| 4500BX HPS | 85 | 83 | 96 | 91 | 91 | 85 | 72 | 95 |
| 4800BX HPS | 86 | 84 | 95 | 91 | 92 | 85 | 75 | 95 |

Pressure levels are calculated following ISO 3744 regulation $L_p = L_w - 10 \log S$, in free field and at 10 meters from the unit.

We remind you that the sound pressure levels are given as an indication and only the sound power levels are comparable and certified.



SOUND LEVELS

LOW NOISE version (with acoustically lined housing compressors)

■ Sound pressure levels ref 2×10^{-5} Pa \pm 3 dB (Lp)

| LW - LWP | SOUND PRESSURE LEVEL SPECTRUM (dB) | | | | | | | Total pressure level dB (A) |
|---------------------|------------------------------------|--------|--------|--------|---------|---------|---------|-----------------------------|
| | 63 Hz | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | |
| 1800BX / 1800BX HPS | 31 | 29 | 35 | 43 | 49 | 49 | 39 | 53 |
| 2150BX / 2150BX HPS | 39 | 37 | 45 | 48 | 48 | 49 | 37 | 55 |
| 2500BX / 2500BX HPS | 42 | 40 | 48 | 50 | 48 | 48 | 31 | 53 |
| 2800BX / 2800BX HPS | 45 | 42 | 47 | 53 | 49 | 47 | 33 | 54 |
| 3050BX HPS | 52 | 50 | 57 | 51 | 53 | 50 | 38 | 57 |
| 3500BX HPS | 51 | 49 | 60 | 53 | 53 | 50 | 34 | 58 |
| 3600BX HPS | 55 | 53 | 59 | 51 | 53 | 48 | 40 | 57 |
| 3900BX HPS | 54 | 52 | 62 | 52 | 53 | 49 | 38 | 58 |
| 4200BX HPS | 54 | 52 | 61 | 52 | 54 | 49 | 40 | 58 |
| 4500BX HPS | 53 | 51 | 62 | 53 | 54 | 50 | 38 | 58 |
| 4800BX HPS | 54 | 52 | 61 | 52 | 54 | 50 | 41 | 59 |

■ Sound power levels 10^{-12} W \pm 3 dB (Lw)

| LW - LWP | SOUND POWER LEVEL SPECTRUM (dB) | | | | | | | Total power level dB(A) |
|---------------------|---------------------------------|--------|--------|--------|---------|---------|---------|-------------------------|
| | 63 Hz | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | |
| 1800BX / 1800BX HPS | 63 | 61 | 67 | 75 | 81 | 81 | 71 | 85 |
| 2150BX / 2150BX HPS | 71 | 69 | 77 | 80 | 80 | 81 | 69 | 87 |
| 2500BX / 2500BX HPS | 74 | 72 | 80 | 82 | 80 | 90 | 63 | 85 |
| 2800BX / 2800BX HPS | 77 | 75 | 79 | 85 | 81 | 79 | 65 | 86 |
| 3050BX HPS | 84 | 82 | 89 | 83 | 85 | 82 | 70 | 89 |
| 3500BX HPS | 83 | 81 | 92 | 85 | 85 | 82 | 66 | 90 |
| 3600BX HPS | 87 | 85 | 91 | 83 | 85 | 80 | 72 | 89 |
| 3900BX HPS | 86 | 84 | 94 | 84 | 85 | 81 | 70 | 90 |
| 4200BX HPS | 86 | 84 | 93 | 84 | 86 | 81 | 72 | 90 |
| 4500BX HPS | 85 | 83 | 94 | 85 | 86 | 82 | 70 | 90 |
| 4800BX HPS | 86 | 84 | 93 | 84 | 87 | 82 | 73 | 91 |

Pressure levels are calculated following ISO 3744 regulation $L_p = L_w - 10 \log S$, in free field and at 10 meters from the unit.

We remind you that the sound pressure levels are given as an indication and only the sound power levels are comparable and certified.

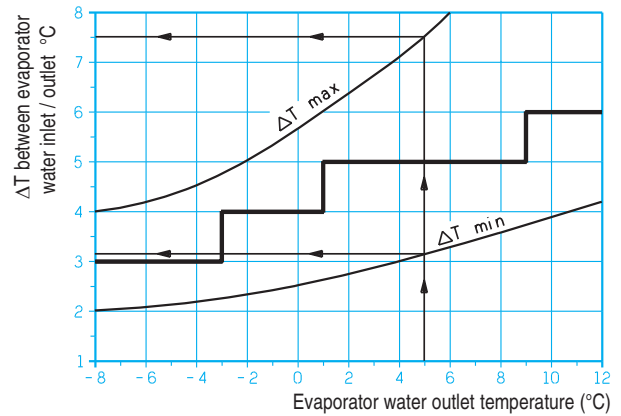


Water cooled chillers

EVAPORATOR LIMITS

The curve below represents the min. and max. admissible temperature differences on pure water or glycol water as a function of the fluid outlet temperature at the evaporator.

Check also minimum and maximum temperature differences according to minimum and maximum flow (see curves on «Hydraulic characteristics» page).



— Difference of temperature for performances calculation tables

Example :

For a water outlet : + 5 °C (ΔT for performances calculation 5 °C)
 ΔT minimum : 3,1 °C Water temp : 8,1 / 5 °C
 ΔT maximum : 7,2 °C Water temp : 12,2 / 5 °C

CONDENSER LIMITS

IMPORTANT : For the LW - LWP units to operate efficiently, particularly during start-up, it is necessary to fit a device which allows the condenser water inlet temperature to reach 20°C very quickly (fitting of 3-way valves for example).

| HYDROCIAT | LW | LWP |
|--------------------|----|-----|
| ΔT mini °C | 5 | |
| ΔT maxi °C | 10 | |

CORRECTION FACTOR FOR ETHYLENE GLYCOL

■ Evaporator and condenser

| Mass concentration % | Multiplying coefficient | | |
|----------------------|-------------------------|------------|----------------|
| | Cooling capacity | Water flow | Pressure drops |
| 10 | 0.99 | 1.05 | 1.05 |
| 20 | 0.985 | 1.10 | 1.10 |
| 30 | 0.98 | 1.15 | 1.15 |
| 40 | 0.97 | 1.20 | 1.23 |

■ Glycol concentration necessary

| Mass concentration % | | 0 | 10 | 20 | 30 | 40 |
|----------------------|-------------------------|---|----|-----|-----|-----|
| Ethylene glycol | Freezing point °C | 0 | -4 | -10 | -18 | -27 |
| | Minimum water outlet °C | 5 | 3 | -1 | -7 | -14 |
| Propylene glycol | Freezing point °C | 0 | -4 | -9 | -16 | -25 |
| | Minimum water outlet °C | 5 | 4 | 1 | -4 | -9 |

MINIMUM CHILLED WATER VOLUMES

HYDROCIAT LW - LWP

A Xtra Connect microprocessor fitted on HYDROCIAT units allows a very flexible adjustment of the operation in relation to the drift of parameters, especially for hydraulic installation with low water volume.

The auto adaptive control of the units and modulating capacity control on each compressor means that the use of the anti-short cycle function and the installation of buffer tank is not necessary.

| LW- LWP | 1800BX | 1800BX HPS | 2150BX | 2150BX HPS | 2500BX | 2500BX HPS | 2800BX | 2800BX HPS | 3050BX HPS | 3500BX HPS | 3600BX HPS | 3900BX HPS | 4200BX HPS | 4500BX HPS | 4800BX HPS |
|--|--------|------------|--------|------------|--------|------------|--------|------------|------------|------------|------------|------------|------------|------------|------------|
| Minimum volume of installations (liters) | 1327 | 1381 | 1544 | 1691 | 1888 | 2021 | 2150 | 2261 | 2737 | 2965 | 3249 | 3406 | 3472 | 3669 | 3794 |

Minimum chilled water volumes calculation for the following conditions :

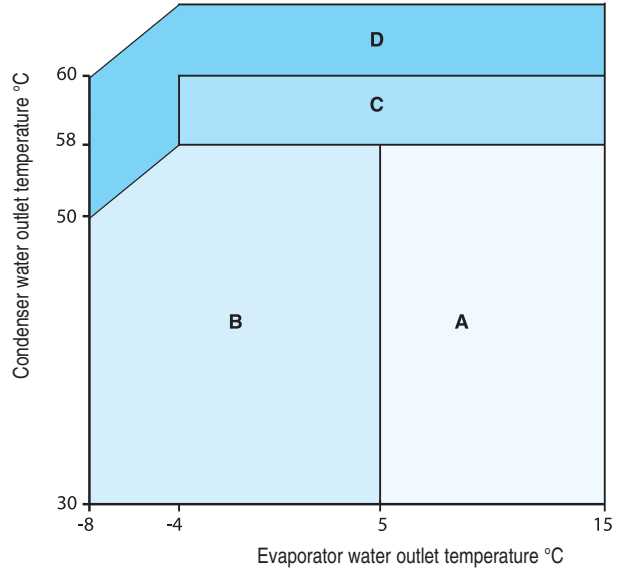
- Evaporator chilled water temperature : 12°C / 7°C
- Condenser hot water temperature : 30°C / 35°C

Note : Installations with important thermal variation or some industrial process designed to supply very constant water temperature, should be equipped with a buffer tank.

OPERATION RANGES

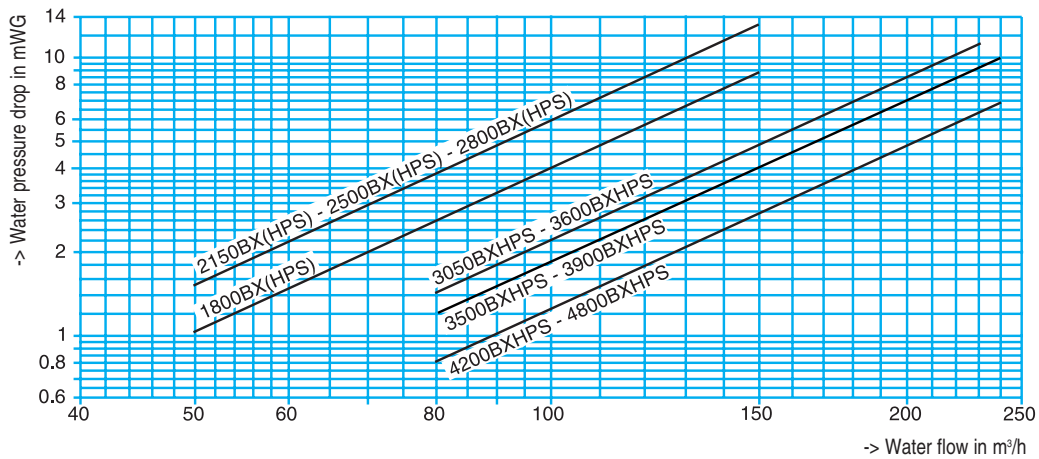
LW - LWP operation range

- A - Full load operation with pure water
- B - Full load operation with glycol compulsory
- C - Operation without HPS
- D - Part load operation (AUTOADAPTATIF)



HYDRAULIC SPECIFICATIONS

■ HYDROCIAT LW - LWP evaporator water pressure drop

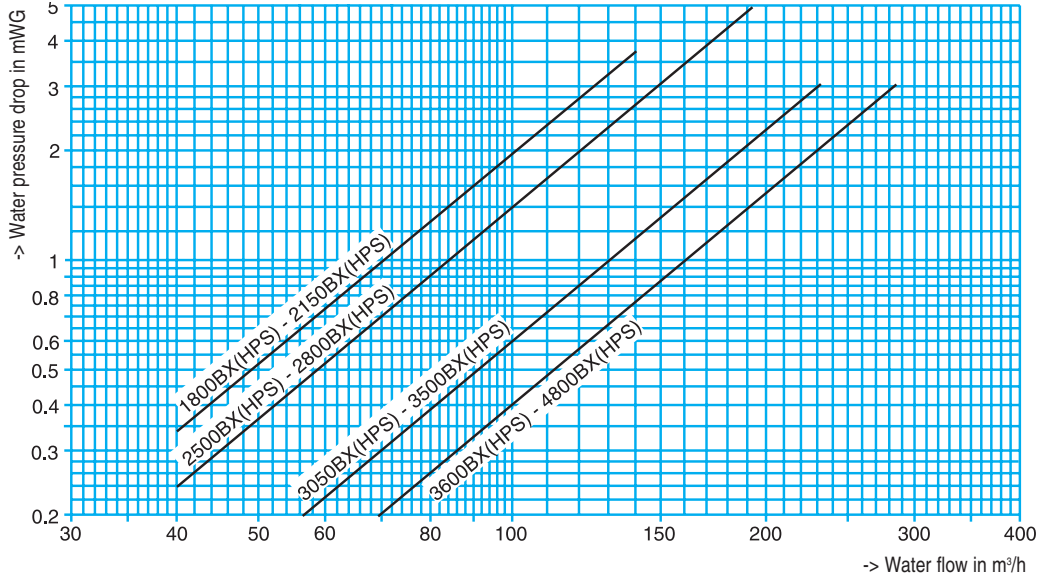




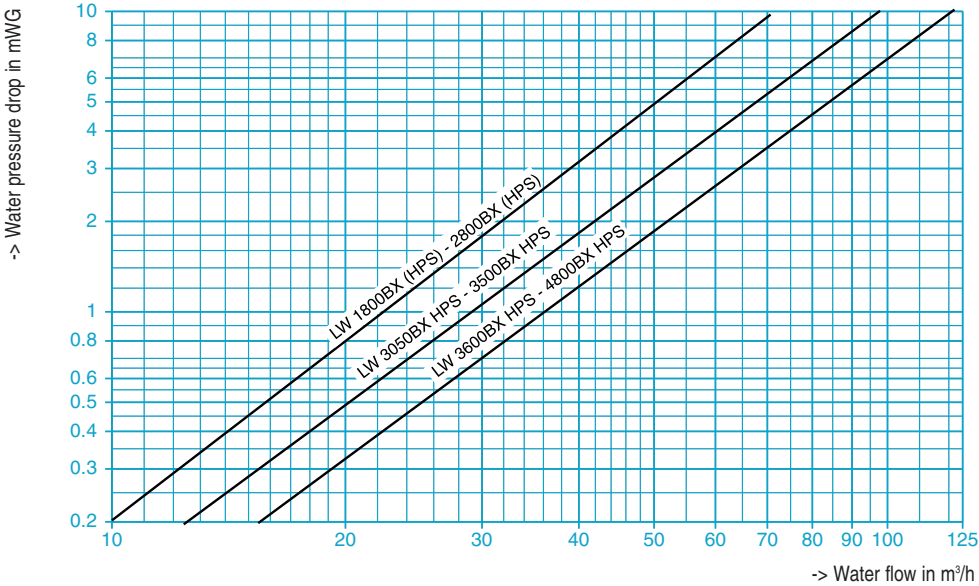
Water cooled chillers

HYDRAULIC SPECIFICATIONS

■ HYDROCIAT LW - LWP condenser water pressure drop



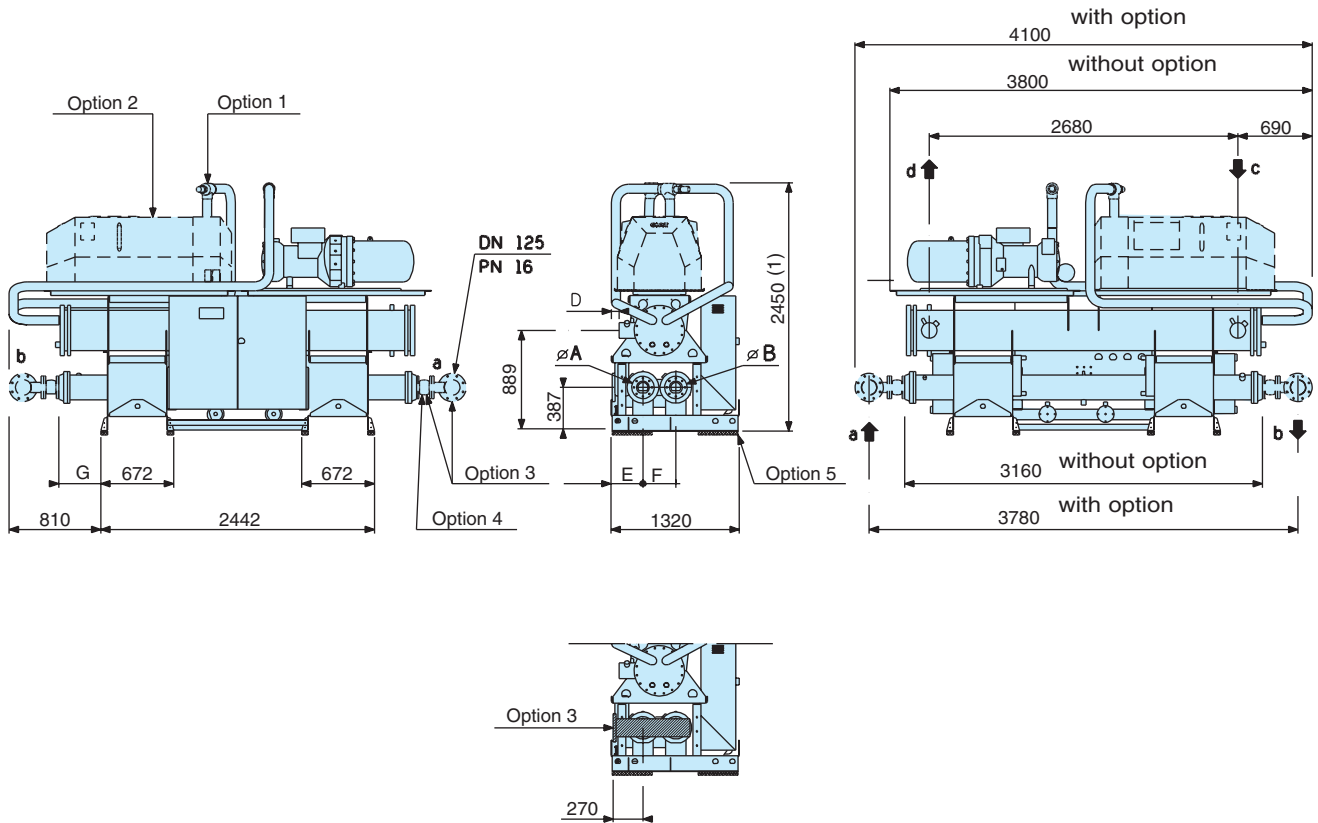
■ Desuperheater water pressure drops



Do not extrapolate the values. Minimum and maximum water flow must be respected.

DIMENSIONS

Model 1800BX (HPS)



- a : cooling water inlet
- b : cooling water outlet
- c : chilled water inlet
- d : chilled water outlet

Option 1 : compressor suction valve

Option 2 : acoustically-lined housing

Option 3 : condensers headers (flexible hydraulic sleeves and flange/Victaulic adapter included)

Option 4 : hydraulic flexible connections (flange/Victaulic adapter included)

Option 5 : 8 antivibration mounts 400 x 70 x 25

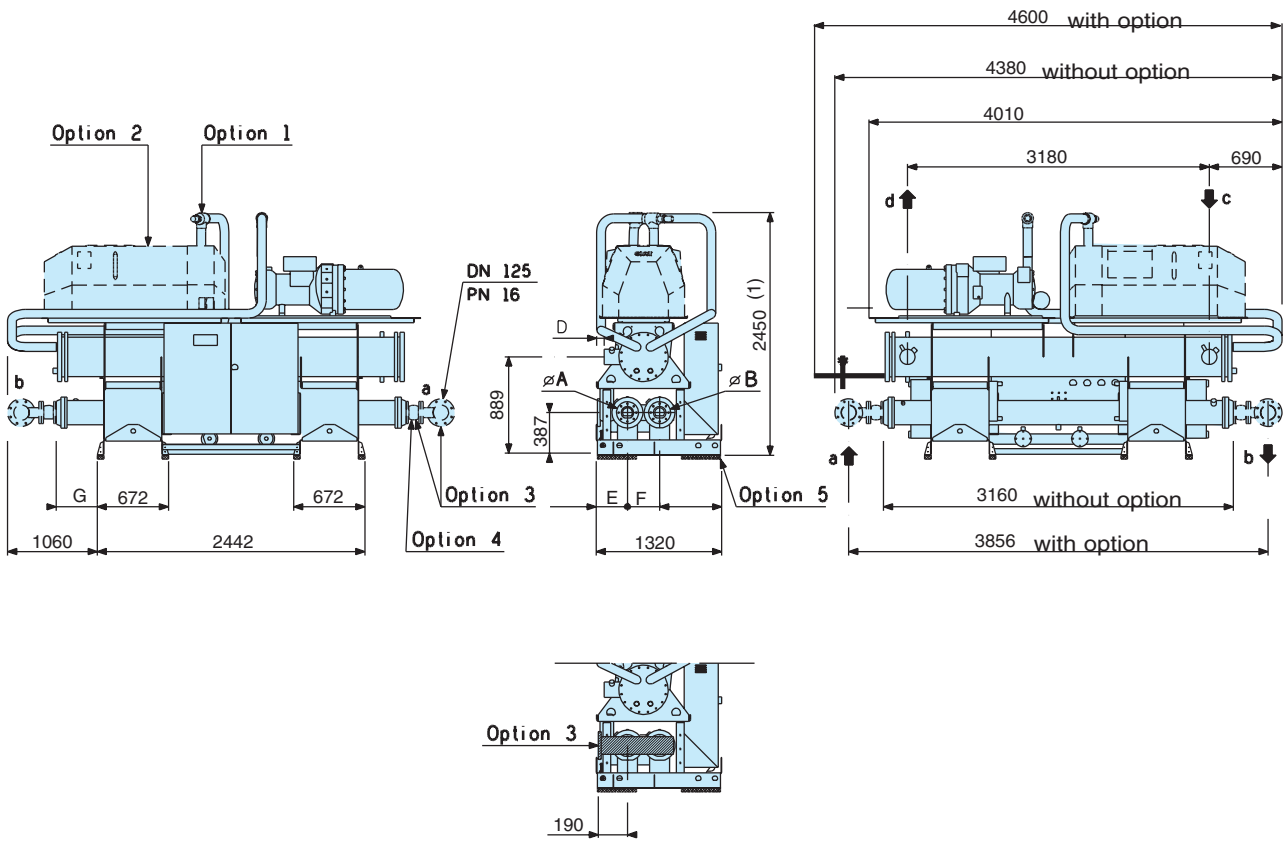
NOTE : the electrical wiring is on the right of the panel through the bottom
Dimensions in mm

(1) 1860 for reduced height version. Compressor suction valve mounted as standard and acoustically-lined housing not available for this version.

| LW - LWP | A - B Victaulic | c - d Victaulic | D | E | F | Weight in kg | |
|--------------|--------------------|--------------------|-----|-----|-----|--------------|--------------|
| | | | | | | empty | in operation |
| 1800BX (HPS) | PN 16 DN 150 | PN 16 DN 150 | 180 | 411 | 290 | 3130 | 3360 |

DIMENSIONS

Models 2150BX (HPS) to 2800BX (HPS)



- a : cooling water inlet
- b : cooling water outlet
- c : chilled water inlet
- d : chilled water outlet

- Option 1 :** compressor suction valve
- Option 2 :** acoustically-lined housing
- Option 3 :** condensers headers (flexible hydraulic sleeves and flange/Victaulic adapter included)
- Option 4 :** hydraulic flexible connections (flange/Victaulic adapter included)
- Option 5 :** 8 antivibration mounts 400 x 70 x 25

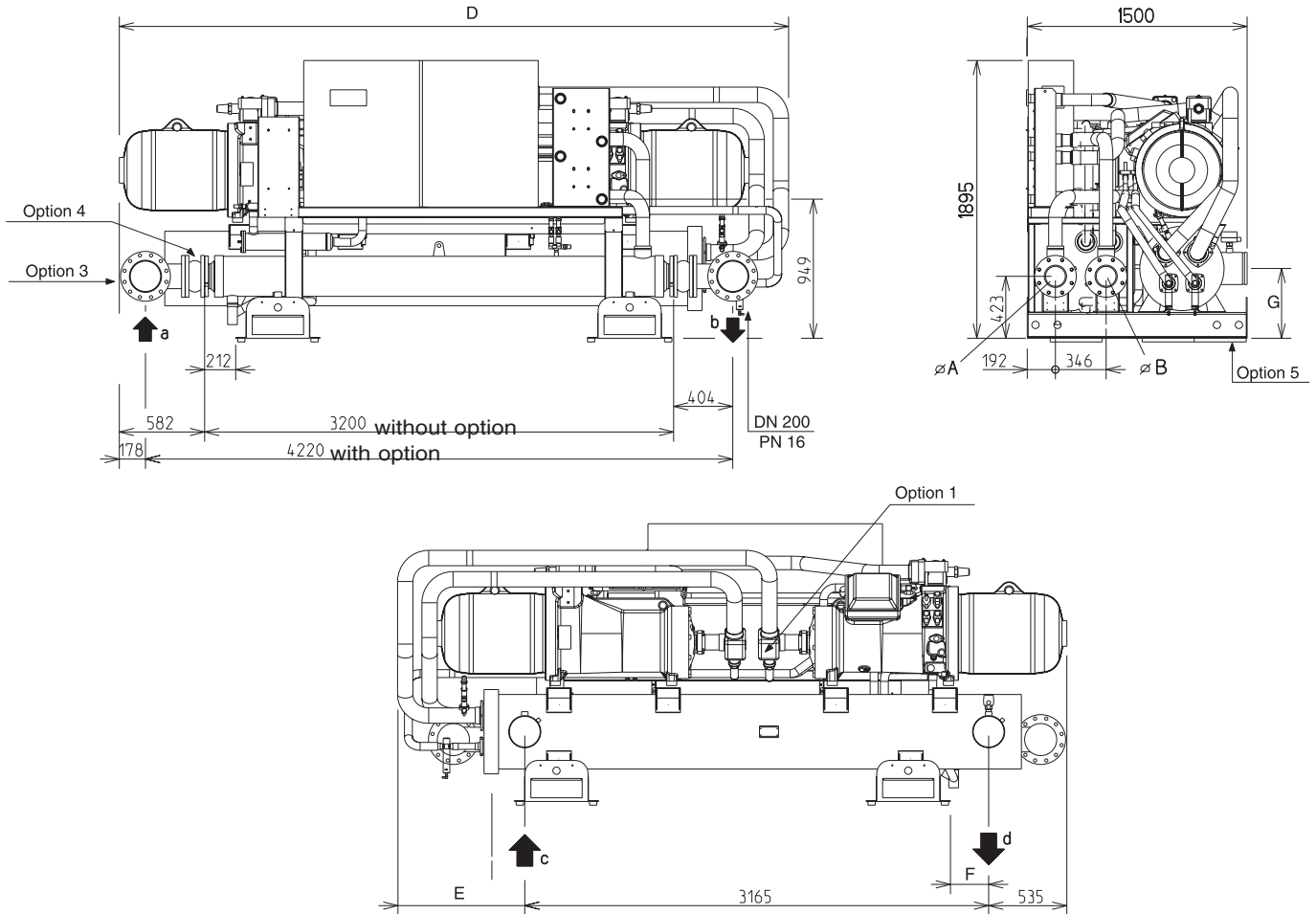
NOTE : the electrical connection is on the right of the panel through the bottom
Dimensions in mm

(1) 1970 for reduced height version. Compressor suction valve mounted as standard and acoustically-lined housing not available for this version.

| LW - LWP | A - B Victaulic | c - d Victaulic | D | E | F | Weight in kg | |
|--------------|--------------------|--------------------|-----|-----|-----|--------------|--------------|
| | | | | | | empty | in operation |
| 2150BX (HPS) | PN 16 DN 150 | PN 16 DN 150 | 180 | 383 | 346 | 3520 | 3800 |
| 2500BX (HPS) | PN 16 DN 150 | PN 16 DN 150 | 180 | 383 | 346 | 3830 | 4110 |
| 2800BX (HPS) | PN 16 DN 150 | PN 16 DN 150 | 180 | 383 | 346 | 3840 | 4120 |

DIMENSIONS

Models 3050BX HPS to 4800BX HPS



- a :** cooling water inlet
- b :** cooling water outlet
- c :** chilled water inlet
- d :** chilled water outlet

Option 1 : compressor suction valve

Option 3 : condensers headers (flexible hydraulic sleeves and flange/Victaulic adapter included)

Option 4 : hydraulic flexible connections (flange/Victaulic adapter included)

Option 5 : 12 antivibration mounts 35 x 50 x 25

NOTE : the electrical connection is on the right of the panel through the bottom
Dimensions in mm

| LW - LWP | A - B Victaulic | c - d Victaulic | D | E | F | G | Weight in kg | |
|------------|--------------------|--------------------|------|-----|-----|-----|--------------|--------------|
| | | | | | | | empty | in operation |
| 3050BX HPS | PN 16 DN 150 | PN 16 DN 200 | 4538 | 838 | 267 | 451 | 4691 | 5064 |
| 3500BX HPS | PN 16 DN 150 | PN 16 DN 200 | 4567 | 868 | 260 | 476 | 4759 | 5275 |
| 3600BX HPS | PN 16 DN 150 | PN 16 DN 200 | 4538 | 838 | 267 | 451 | 5106 | 5502 |
| 3900BX HPS | PN 16 DN 150 | PN 16 DN 200 | 4567 | 868 | 260 | 476 | 5274 | 5812 |
| 4200BX HPS | PN 16 DN 150 | PN 16 DN 200 | 4567 | 868 | 260 | 476 | 5293 | 5820 |
| 4500BX HPS | PN 16 DN 150 | PN 16 DN 200 | 4567 | 868 | 260 | 476 | 5342 | 5905 |
| 4800BX HPS | PN 16 DN 150 | PN 16 DN 200 | 4567 | 868 | 260 | 476 | 5362 | 5925 |

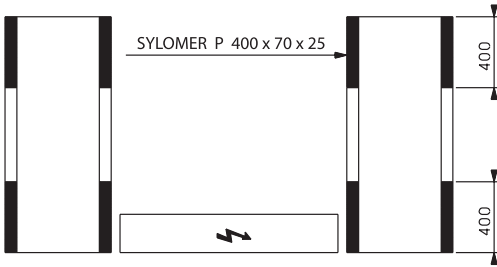


Water cooled chillers

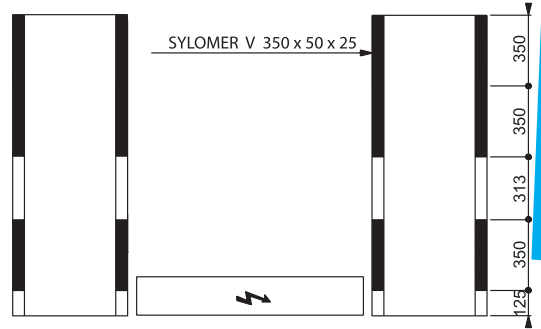
LW-LWP ANTI-VIBRATION MOUNTS (OPTIONAL)

Anti-vibration mounts must be installed beneath the unit for applications that generate extremely low vibrations. The mounts must be placed at the locations illustrated below.

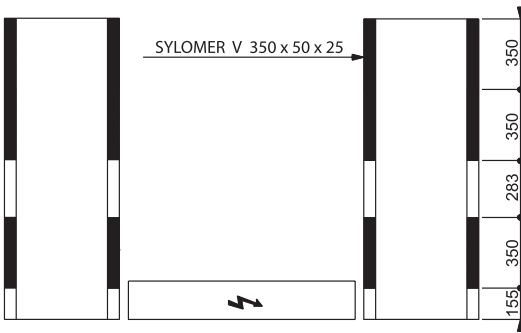
■ Models 1800BX (HPS) to 2800BX (HPS)



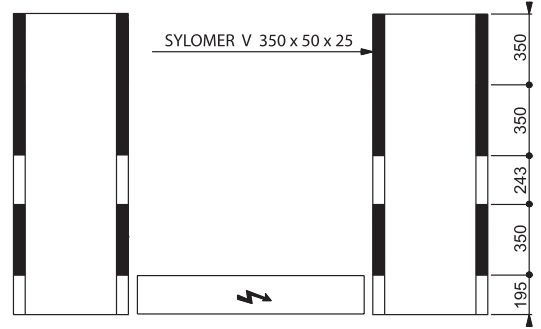
■ Models 3500BX HPS



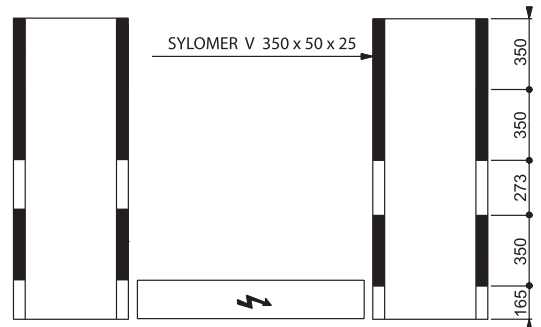
■ Models 3050BX HPS and 3900BX HPS



■ Models 3600BX HPS

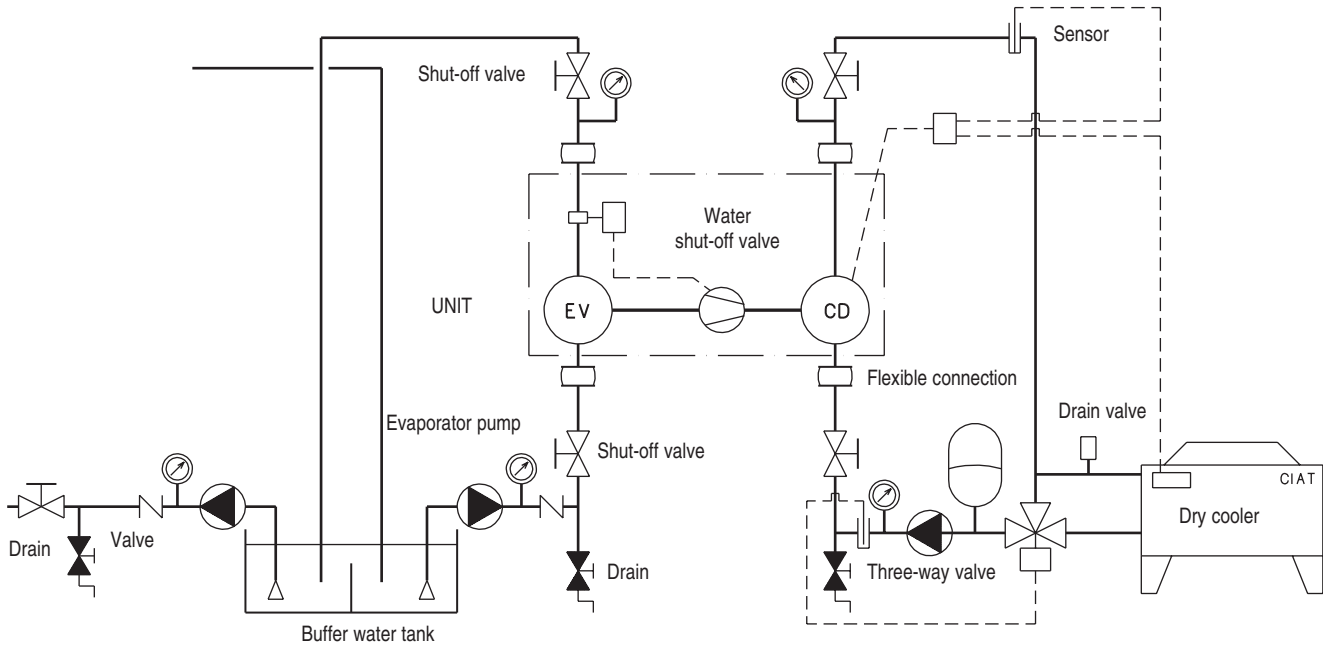


■ Models 4200BX HPS to 4800BX HPS



COOLING SYSTEM PIPING DIAGRAM

■ Cooling with a dry cooler

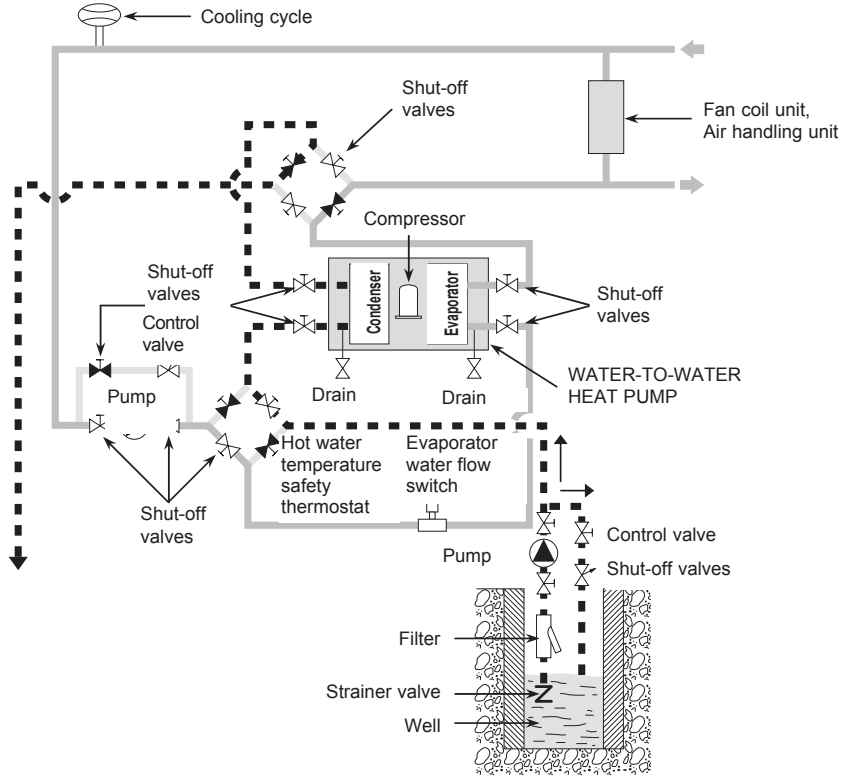




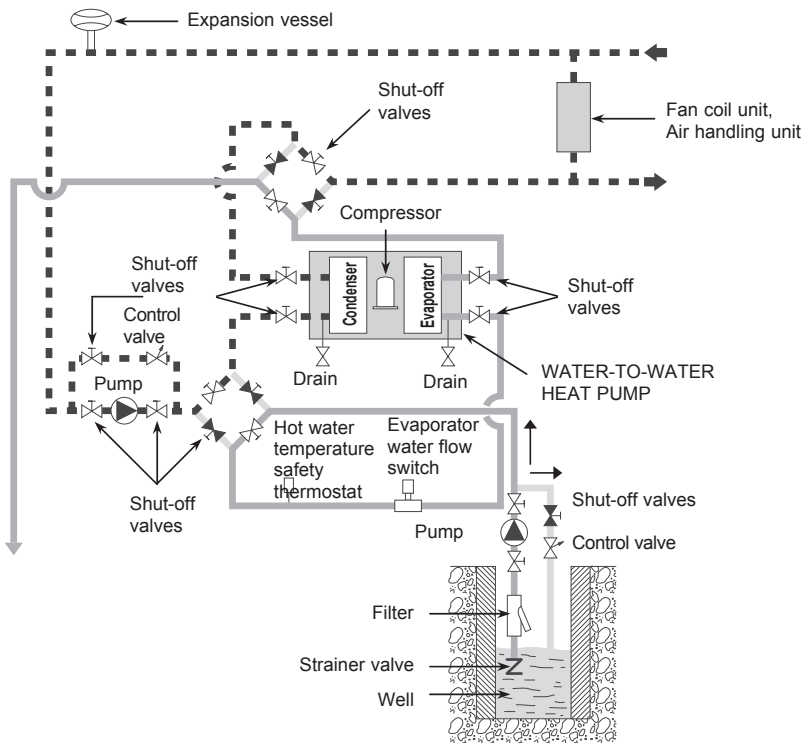
Water cooled chillers

COOLING AND HEATING SYSTEM PIPING DIAGRAM

■ Cooling cycle



■ Heating cycle





RECOMMENDATIONS FOR ASSEMBLY

HYDROCIAT LW - LWP

Installation

HYDROCIAT LW - LWP are designed for indoor installation and must be protected from adverse weather and frost.

- A free space of 1 meter must be left all around the unit for access to the electrical panel and other components.
- A free space on one side is also necessary (equal to the length of the unit) in case one of heat exchangers needs to be removed.
- Sound level problems should be studied in detail. Before installing the unit, study and if necessary treat (with the assistance of a sound technician) the various possible noise transmissions in relation to the premises and its structure. If necessary the machine should be equipped with anti-vibration mounts and flexible connections (recommended and proposed as an option).

Electrical connections

All the indications necessary for the electrical connections are mentioned on the electrical diagram enclosed with the unit (to be respected).

- These connections will be made in accordance with accepted engineering practice and conform to the regulations in force.

- Leave the control circuit switched on to allow operation of the crankcase heater.
- The electrical mains supply must be fitted with fuse or circuit breaker protection (to be supplied by the fitter).

Hydraulic connections

- Water connections must be made in accordance with good engineering practice.
- Provide the accessories necessary for hydraulic circuits :
 - Expansion vessel,
 - Drain cocks at low points,
 - Isolating valves,
 - Air vents at high points, etc ...,
 - Check that the water content in the installation is sufficient,
 - Provide, if required, a buffer tank.

Commissioning

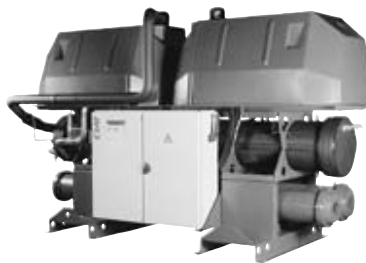
- In accordance with our installation and maintenance brochure.

Maintenance

- See our operating and maintenance guide.
- Subscribe a maintenance contract.



XTRACONNECT 2 CONTROL



USER-FRIENDLY INTERFACE CONSOLE

- Multilingual LCD (4 lines of 24 characters each)
- Temperature and pressure readings
- - Diagnosis of operation and fault states
- Master/slave control of two machines in parallel
- Fault memory management
- Pump management
- Programmable operation times

Voltage free contact card:

- Inputs:**
- Automatic pump and machine control
 - Selection of setpoints 1 and 2
 - Setpoint adjustable via a 4-20 mA signal
 - Heating/cooling mode selection
 - Compressor load shedding

- Outputs:**
- General fault signalling
 - Circuit fault signalling
 - Pump control

RS485 OUTPUT FOR BMS AS STANDARD

- MODBUS-JBUS open Protocol (standard)**
- LONWORKS Protocol (option)**
- ETHERNET gateway (option)**

FREE CONTACTS RELAY CARD (OPTION)

Available outputs:

- Water flow fault
- Frost protection fault
- Pump fault
- Low and high pressure fault
- Compressor safety fault
- Compressor overheat fault
- Compressor lubrication fault
- Discharge temperature fault
- Compressor operation status

REMOTE CONTROL UNIT (OPTION)

Operation and design same as display console in room

MULTICONNECT MULTI-UNIT MANAGEMENT (OPTION)

Main functions available:

- Management of up to 8 units on a single water loop
- Management in cooling mode (water chiller) or heating mode (heat pump)
- Management of chilled-water or hot-water pumps
- Centralised management of a backup unit
- Machine load shedding
- System time programming
- Energy storage mode management
- Machine running time balancing
- Modbus/Jbus protocol RS485 output for BMS link

This document is non-contractual. As part of its policy of continual product improvement, CIAT reserves the right to make any technical modification it feels appropriate without prior notification.

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