

EWL(D)(H)(S) J-SS

Condenserless water cooled screw chillers

Product manual

Compact line without condenser
Suitable for any kind of remote condenser application
Available with LOW GWP refrigerant

Refrigerant: R-134a (D), R-1234ze (H) or R-513A (S)

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General characteristics

Cabinet and base frame. The cabinet is made of galvanized steel sheet and painted to provide a high resistance to corrosion. Color is Ivory White (Munsell code 5Y7.5/1) ($\pm$ RAL7044). The base frame has an eye-hook to lift the unit with ropes for an easy installation. The weight is uniformly distributed along the profiles of the base to simplify the unit installation.

Single Screw Compressor. The compressor is Daikin design semi-hermetic single-screw type with gate-rotors made of carbon impregnated engineered composite material. The compressor has a slide managed by the unit microprocessor for infinitely modulating the capacity between 100% to 25%. An integrated high efficiency oil separator maximizes the oil separation and standard start is Wye-Delta (Y- Δ) type.

Refrigerant. DAIKIN J-series is available with both HFO and HFC refrigerants:

- EWLD~J- models operating with R134a (GWP 1430)
- EWLH~J- models operating with R1234ze (GWP 7)
- EWLS~J- models operating with R513A (GWP 630)

NOTE: The fourth digit in DAIKIN nomenclature identifies the refrigerant type for the unit.

Evaporator. The unit is equipped with a direct expansion plate to plate type evaporator. This heat exchanger is made of stainless-steel brazed plates and is covered with a 20mm closed cell insulation material. Evaporator water connections are provided with Victaulic kit (as standard). The evaporator has 1 circuit (one compressor) and is manufactured in accordance to PED approval. Flow switch on evaporator standard factory mounted. Water filter is standard (it is supplied shipped loose and must be fitted on the unit by the installer).

Electronic expansion valve. Unit is equipped with latest technology electronic expansion valve to achieve precise control of refrigerant mass flow. As today's system requires improved energy efficiency, tighter temperature control and wide operating range, the application of electronic expansion valve is the recommended solution. Electronic expansion valve provides unique features such as short opening and closing times, high resolution, positive shut-off function eliminating the need for additional solenoid valve, continuous modulation of mass flow with reduced stress in the refrigerant circuit.

Refrigerant Circuit. Each unit has one independent refrigerant circuit that includes:

- Single screw compressor with integrated oil separator
- Refrigerant charge
- Evaporator
- Electronic expansion valve
- Liquid line shut off valve
- Sight glass with moisture indicator
- High pressure switch
- High pressure transducer
- Low pressure transducer
- Oil pressure transducer
- Suction temperature sensor

Electrical Panel. Power and control sections are located into the main electrical panel IP54 designed. The main panel doors are interlocked to the main switch (standard) in order guarantee safe operation when doors are opened.

Power Section The power section includes compressor protection devices and compressor starters and control circuit power supply.

MicroTech 4 Controller. The new MicroTech 4 controller is installed as standard.

MicroTech 4 built-in terminal has the following features:

- Liquid crystal display with white back lighting, supports Unicode fonts for multi-lingual;
- Key-pad consisting of 3 keys;
- Push'n'roll control for an increased usability;
- Flash memory to protect the data;
- Password access to modify the setting;
- Application security to prevent application tampering or hardware usability with third party applications;
- Alarm history memory to allow an easy fault analysis.

The controller gives the possibility to check the most relevant control parameters and modify unit set points. A built in display shows unit operating status. Additionally, temperatures and pressures of water, refrigerant, programmable values, set-points can be accessed based on a preset list of user profiles.

A sophisticated software with adaptive logic, selects the most energy efficient combination of compressors and electronic expansion valve position to keep stable operating conditions to maximize unit energy efficiency and reliability. MicroTech 4

protects critical components based on external signals from onboard sub system (such as motor temperatures, refrigerant and oil pressures and temperatures, correctness of phase sequence, pressure switches and freezing of heat exchanger). The input coming from high-pressure switches cuts all digital output from the controller in less than 50ms, as an additional security for the equipment. Fast program cycle (less than 200ms) for a precise monitoring of the system and sub systems. Floating point calculations supported for increased accuracy in Pressure / Temperature conversions.

Main control features are (for more information refer to Unit Control Manual):

- Management of the compressor stepless capacity;
- Optimized management of compressor load;
- Soft Load (optimized management of the compressor load during the start-up);
- Start at high heat exchanger water temperature;
- Re-start in case of power failure (automatic/manual);
- Visualization of:
 - outdoor ambient temperature;
 - evaporating temperature and pressure, suction and discharge superheat for each circuit;
 - hours and starts counter for compressors and pumps;
 - status safety devices;
- Return Reset (Set Point Reset based on return water temperature);
- Set point Reset (optional);
- Unit enabled to work in partial failure condition;
- Managed operations during critical conditions:
 - High ambient temperature;
 - High thermal load;
 - Startup with high and low differential operating conditions;
 - Startup with high entering water temperature in cooling mode;
 - Startup with low entering water temperature in heating mode;

Control additional features

- Application and system upgrade with commercial SD cards;
- Save/Restore of configuration parameters with a commercial SD card;
- Ethernet port for remote or local servicing using standard web browsers;
- Two different sets of default parameters could be stored for easy restore;
- Daikin on Site connectivity for cloud-based services.

Safety device / logic (for more information refer to Unit Control Manual):

- High pressure (switch);
- High pressure (transducer);
- Low pressure (transducer);
- High discharge temperature;
- High motor winding temperature;
- Low pressure ratio;
- High oil pressure differential;
- Low oil pressure;
- No pressure changes at start.

System security:

- Phase monitor;
- Freeze protection.

Regulation type: Proportional-Integral-Derivative (PID) type based on the evaporator leaving water temperature set point (cooling mode) or based on the condenser leaving water temperature set point (heating mode).

Supervising systems (on request) MicroTech 4 remote communication: MicroTech 4 controlled is capable to communicate with BMS systems based on the most common protocols such as: Modbus, LonWorks, BacNet IP and MS/TP (class 4), Ethernet TCP/IP. Communication cards (optional) are to be selected according to the required communication protocol.

S = Standard sound

Standard options (Supplied on basic unit)

Wye-Delta compressor starter (Y-D) (option 05 – STANDARD). Standard starting method used for screw chillers characterized by a low starting current than direct-on-line starting. The motor is started with Y-connection (STAR) and accelerated as far as possible, then switched to D-connection (DELTA) - *Option incompatibility: 06.*

Double set point (option 10 – STANDARD). Possibility to pre-set two different set points one for unit running in cooling mode and one for unit running in heating mode.

Phase monitor (option 13 – STANDARD). Installed in the electrical panel to protect the unit in case of phase loss or phase reversal - *Option incompatibility: 15.*

Evaporator Victaulic kit (option 20 – STANDARD). Victaulic joints and counter-pipes.

20 mm evaporator insulation (option 29 – STANDARD). Thermal insulation of the evaporator - *Option incompatibility: 08.*

Evaporator flow switch (option 58 – STANDARD). Paddle flow switch shipped loose. Refer to unit installation manual for more details.

Electronic expansion valve (option 60 – STANDARD).

Discharge line shut-off valve (option 61 – STANDARD). Installed on the discharge line of the compressor to facilitate maintenance operations.

Suction line shut-off valve (option 62 – STANDARD). Installed on the suction line of the compressor to facilitate maintenance operations.

Hour run meter (option 68 – STANDARD). Standard functionality of unit controller to count the number of working hours of compressor.

General fault contactor (option 69 – STANDARD). Standard functionality of unit controller to communicate and give information about a general fault of the unit.

Set point reset, demand limit and alarm from an external device (option 90 – STANDARD). Standard functionality of unit controller. Set point reset: possibility to re-set the water temperature set point by means of a 4-20 mA signal. Demand Limit: possibility to limit unit capacity by means of 4-20 mA signal. Alarm from external device: unit controller capability to receive an external alarm signal. The user can decide whether this alarm signal will stop the unit controller or not. Refer to unit control manual for more information.

Main switch interlocked doors (option 97 – STANDARD). Electrical panel's doors are interlocked with the main switch isolator for safe operation.

Emergency stop (option 98 – STANDARD). Safety device placed on the control panel which can be manually activated to stop immediately the chiller in case of danger.

Master/Slave (option 128 – STANDARD). Standard controller functionality allowing to connect up to 4 units and providing basic sequencing functionalities such as balancing of working hours of unit & compressors and balancing of unit loads amongst connected units. An additional probe (PT1000 or NTC10K, not provided by Factory) must be installed on the common water header and connected to the master unit.

Options on request

MECHANICAL OPTIONS

Brine Version (option 08 – ON REQUEST). Required in case of unit operation with chilled water temperatures below +4°C. The unit must operate with glycol mixture (with ethylene or propylene glycol). Refer to the unit operating envelope for more information about minimum allowed evaporator leaving water temperatures. - *Option incompatibility: 29.*

High-pressure side manometers (option 63 – ON REQUEST).

Low-pressure side manometers (option 64 – ON REQUEST).

Compressor soundproof system (option 76-b – ON REQUEST). High performance soundproof cabinet installed around compressor and specifically designed in order to decrease unit sound levels (~-3dB(A)) - *Option incompatibility: 133.*

Double pressure relief valve with diverter (option 91 – ON REQUEST). Double pressure relief valve with diverter allows to use one valve while isolating the other from the system during maintenance operations.

High temperature kit (option 111 – ON REQUEST) Only for EWLH~J-SS R-1234ze range. Required to reach high condenser leaving water temperature (note: refer to operating envelope and to chiller selection software for detailed information). Specifically selected components are used in order to allow the unit to operate at such conditions.

Liquid receiver (option 105 – ON REQUEST). Liquid receiver with 87litres capacity, equipped with liquid valves and service valve.

Stacked installation (option 133 – ON REQUEST). Stacked installation of two units that can operate in stand-alone or with Master/Slave control - *Option incompatibility: 76b.*

ELECTRICAL OPTIONS

Soft starter (option 06 – ON REQUEST). Electronic starting device adopted to reduce the mechanical stress during compressor start-up - *Option incompatibility: 05-11.*

Compressor thermal overload relays (option 11 – ON REQUEST). This device, with also internal motor protection (thermistor probes, buried deep in each phase of the stator windings, that provide protection against high temperatures are offered as standard), delivers a high level of safety for the compressor motor - *Option incompatibility: 06-95.*

Under/over voltage control (option 15 – ON REQUEST). Electronic device to protect the unit in case of phase loss, wrong phase sequence or voltage exceeding minimum and maximum allowed values. *Option incompatibility: 13.*

Energy meter (option 16 – ON REQUEST). Electronic device installed within unit electrical panel that measures and display supply line individual phase voltage and current, active and reactive power input, active and reactive energy consumption. An integrated RS485 module allows Modbus communication to an external BMS.

Current limit (option 19 – ON REQUEST). Enabled from the unit controller, limits the maximum absorbed current of the unit to a specific value set by the user (set point can be set in the unit display or can be changed from an external 4-20 mA signal).

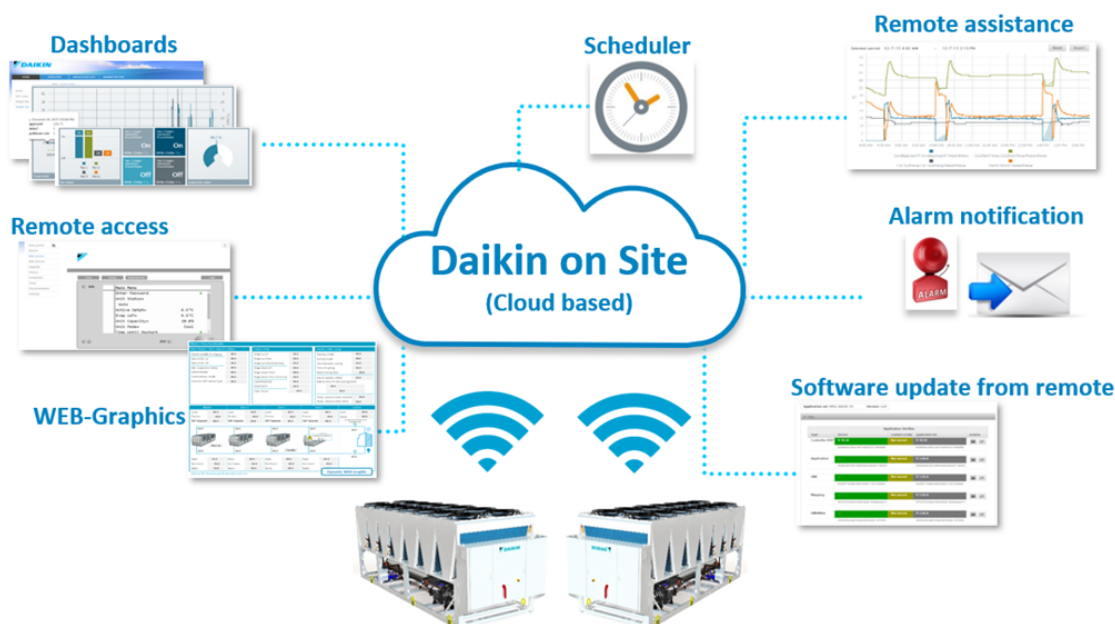
Compressor circuit breakers (option 95 – ON REQUEST). Protection device including protection from current overload and overcurrent. In case this option is selected, compressor fuses are removed - *Option incompatibility: 11.*

Ground fault relay (option 102 – ON REQUEST). Unit shuts down in case of ground fault is detected.

Daikin on site modem with antenna (opt. code 155). With Daikin On Site it is possible to have complete access to the unit controller through the cloud. The unit is equipped with a modem and a GSM card providing autonomous internet connection. As alternative, a LAN connection can be used if available. - *Option incompatibility: 182.*

The main functionalities of DoS are:

- predefined set of data points (~300 to >500 per controller/plant);
- predefined Read/Write access to data points;
- predefined set of Dashboards;
- Functionality for Users to create their own Dashboards;
- Alarm application and Alarm history;
- Alarm notification via email;
- Scheduling of Alarm notification;
- WEB-Access to local HMI;
- Dynamic WEB-Graphic;
- Possibility to upgrade firmware and software from remote (For some user roles);
- History log for cloud-based user interactions (e.g. change of a set point);
- Scheduler application;
- Documentation folder (E.g. release notes).



Modbus RTU MSTP (option 180 – ON REQUEST). - *Option incompatibility: 181-182.*

BACnet MSTP (option 181 – ON REQUEST). - *Option incompatibility: 180-182.*

BACnet IP (option 182 – ON REQUEST). - *Option incompatibility: 155-180-181.*

iCM Standard (option 184 – ON REQUEST). By selecting this option is possible to achieve the control of the primary loop without need of additional control panel. The option adds much more functionalities than those provided by standard Master/Slave. Contact the factory for more detailed information.

INSTALLATION OPTIONS

Rubber antivibration mounts (option 75 – ON REQUEST). Rubber antivibration mounts to be installed under the unit base frame during installation.

OTHER OPTIONS

Container kit (option 71 – ON REQUEST). The container kit is composed by a wooden pallet structure, positioned below the unit, specially designed to ease loading/unloading operation into the container with a forklift. Kit is equipped with anchoring points in order to fix the unit and to avoid any movement during loading/unloading operation. *Option incompatibility: 112.*

Transport kit (option 112 – ON REQUEST). Transport kit is composed by a wooden pallet covered by a foam lay that is located between the unit and the pallet to increase shock absorption during transportation. With this option use of forklift is allowed. *Option incompatibility: 71.*

EWLD~J-SS

MODEL		EWLD110J -SS	EWLD130J -SS	EWLD145J -SS	EWLD165J -SS	EWLD195J -SS	EWLD235J -SS	EWLD265J -SS
COOLING PERFORMANCE ⁽¹⁾								
Capacity – Cooling	kW	109.7	127.7	142.4	163.3	191.3	236.3	264.2
Capacity control - Type		Stepless	Stepless	Stepless	Stepless	Stepless	Stepless	Stepless
Capacity control – Min capacity	%	25	25	25	25	25	25	25
Unit power input – Cooling	kW	31.2	38.4	43.8	50.4	56.0	66.0	75.3
EER		3.51	3.33	3.25	3.24	3.42	3.58	3.51
DIMENSIONS ⁽²⁾								
Height	mm	1020	1020	1020	1020	1020	1020	1020
Width	mm	913	913	913	913	913	913	913
Length	mm	2684	2684	2684	2684	2684	2684	2684
WEIGHT ⁽²⁾								
Unit Weight	kg	1124	1141	1237	1263	1305	1489	1489
Operating Weight	kg	1138	1159	1253	1281	1327	1518	1518
HEAT EXCHANGER - EVAPORATOR								
Type ⁽³⁾		PHE	PHE	PHE	PHE	PHE	PHE	PHE
Water Volume	l	14	18	14	17	20	26	26
Water flow rate ⁽¹⁾	l/s	5.2	6.1	6.8	7.8	9.2	11.3	12.6
Water pressure drop ^{(1) (4)}	kPa	14	13	39	37	33	26	32
COMPRESSOR								
Type		Single Screw	Single Screw	Single Screw	Single Screw	Single Screw	Single Screw	Single Screw
Oil charge	l	13	13	13	13	13	16	16
Quantity	No.	1	1	1	1	1	1	1
SOUND LEVEL ⁽⁵⁾								
Sound Power – Cooling	dB(A)	89	89	89	89	89	89	89
Sound Pressure@1m – Cooling	dB(A)	79	79	79	79	79	79	79
REFRIGERANT CIRCUIT								
Refrigerant type		R134a	R134a	R134a	R134a	R134a	R134a	R134a
N. of circuits	N.	1	1	1	1	1	1	1
PIPING CONNECTIONS ⁽²⁾								
Evaporator water inlet/outlet	mm	76.2	76.2	76.2	76.2	76.2	76.2	76.2
Outlet gas discharge connections	"	2 1/2	4	4	4	4	4	4

Note

- (1) Cooling performances as per EN14511:2013 (evaporator 12.0/7.0°C, condensing temperature 45°C; operating fluid=Water, fouling factor=0 m²°C/W, unit at full load). The minimum capacity indicated is referred to unit operating at the described conditions.
- (2) Dimensions and weights are for indication only and not considered binding. Before designing the installation, consult the official drawings available from the factory at request.
- (3) PHE: Plate Heat Exchanger; S&T: Single Pass Shell & Tube
- (4) The values refer to the pressure drops in the evaporator only.
- (5) Sound power level is measured in accordance with ISO 9614; the sound pressure is calculated from the sound power level and are for information only and not considered binding.

All the data are referred to standard unit without options. All data are subject to change without notice.

EWLH~J-SS

MODEL		EWLH080J -SS	EWLH100J -SS	EWLH110J -SS	EWLH130J -SS	EWLH140J -SS	EWLH170J -SS	EWLH190J -SS
COOLING PERFORMANCE ⁽¹⁾								
Capacity – Cooling	kW	84.1	101.8	108.9	126.5	142.4	174.0	192.7
Capacity control - Type		Stepless	Stepless	Stepless	Stepless	Stepless	Stepless	Stepless
Capacity control – Min capacity	%	25	25	25	25	25	25	25
Unit power input – Cooling	kW	23.3	28.1	31.8	37.0	41.5	49.6	56.3
EER		3.62	3.62	3.43	3.42	3.43	3.51	3.43
DIMENSIONS ⁽²⁾								
Height	mm	1020	1020	1020	1020	1020	1020	1020
Width	mm	913	913	913	913	913	913	913
Length	mm	2684	2684	2684	2684	2684	2684	2684
WEIGHT ⁽²⁾								
Unit Weight	kg	1124	1141	1237	1263	1305	1489	1489
Operating Weight	kg	1138	1159	1253	1281	1327	1518	1518
HEAT EXCHANGER - EVAPORATOR								
Type ⁽³⁾		PHE	PHE	PHE	PHE	PHE	PHE	PHE
Water Volume	l	14	18	14	17	20	26	26
Water flow rate ⁽¹⁾	l/s	4.0	4.9	5.2	6.0	6.8	8.3	9.2
Water pressure drop ^{(1) (4)}	kPa	9.7	9.9	17.5	17.6	16.2	15.5	18.7
COMPRESSOR								
Type		Single Screw	Single Screw	Single Screw	Single Screw	Single Screw	Single Screw	Single Screw
Oil charge	l	17	17	17	18	18	19	19
Quantity	No.	1	1	1	1	1	1	1
SOUND LEVEL ⁽⁵⁾								
Sound Power – Cooling	dB(A)	89	89	89	89	89	89	89
Sound Pressure@1m – Cooling	dB(A)	79	79	79	79	79	79	79
REFRIGERANT CIRCUIT								
Refrigerant type		R1234ze	R1234ze	R1234ze	R1234ze	R1234ze	R1234ze	R1234ze
N. of circuits	N.	1	1	1	1	1	1	1
PIPING CONNECTIONS ⁽²⁾								
Evaporator water inlet/outlet	mm	76.2	76.2	76.2	76.2	76.2	76.2	76.2
Outlet gas discharge connections	"	2 1/2	4	4	4	4	4	4

Note

- (1) Cooling performances as per EN14511:2018 (evaporator 12.0/7.0°C, condensing temperature 45°C; operating fluid=Water, fouling factor=0 m²°C/W, unit at full load). The minimum capacity indicated is referred to unit operating at the described conditions.
- (2) Dimensions and weights are for indication only and not considered binding. Before designing the installation, consult the official drawings available from the factory at request.
- (3) PHE: Plate Heat Exchanger; S&T: Single Pass Shell & Tube
- (4) The values refer to the pressure drops in the evaporator only.
- (5) Sound power level is measured in accordance with ISO 9614; the sound pressure is calculated from the sound power level and are for information only and not considered binding.

All the data are referred to standard unit without options. All data are subject to change without notice.

EWLS~J-SS

MODEL		EWLS110J -SS	EWLS130J -SS	EWLS150J -SS	EWLS170J -SS	EWLS200J -SS	EWLS240J -SS	EWLS270J -SS
COOLING PERFORMANCE ⁽¹⁾								
Capacity – Cooling	kW	110.8	131.6	149.8	174.5	200.1	236.1	267.6
Capacity control - Type		Stepless	Stepless	Stepless	Stepless	Stepless	Stepless	Stepless
Capacity control – Min capacity	%	25	25	25	25	25	25	25
Unit power input – Cooling	kW	32.2	38.7	44.7	51.2	58.2	69.4	78.8
EER		3.44	3.40	3.35	3.41	3.44	3.40	3.40
DIMENSIONS ⁽²⁾								
Height	mm	1020	1020	1020	1020	1020	1020	1020
Width	mm	913	913	913	913	913	913	913
Length	mm	2684	2684	2684	2684	2684	2684	2684
WEIGHT ⁽²⁾								
Unit Weight	kg	1124	1141	1237	1263	1305	1489	1489
Operating Weight	kg	1138	1159	1253	1281	1327	1518	1518
HEAT EXCHANGER - EVAPORATOR								
Type ⁽³⁾		PHE	PHE	PHE	PHE	PHE	PHE	PHE
Water Volume	l	14	18	14	17	20	26	26
Water flow rate ⁽¹⁾	l/s	5.3	6.3	7.2	8.3	9.6	11.3	12.8
Water pressure drop ^{(1) (4)}	kPa	15.9	15.8	31.0	31.4	29.9	26.9	33.7
COMPRESSOR								
Type		Single Screw	Single Screw	Single Screw	Single Screw	Single Screw	Single Screw	Single Screw
Oil charge	l	16	16	16	18	18	19	19
Quantity	No.	1	1	1	1	1	1	1
SOUND LEVEL ⁽⁵⁾								
Sound Power – Cooling	dB(A)	89	89	89	89	89	89	89
Sound Pressure@1m – Cooling	dB(A)	79	79	79	79	79	79	79
REFRIGERANT CIRCUIT								
Refrigerant type		R1234ze	R1234ze	R1234ze	R1234ze	R1234ze	R1234ze	R1234ze
N. of circuits	N.	1	1	1	1	1	1	1
PIPING CONNECTIONS ⁽²⁾								
Evaporator water inlet/outlet	mm	76.2	76.2	76.2	76.2	76.2	76.2	76.2
Outlet gas discharge connections	"	2 1/2	4	4	4	4	4	4

Note

- (1) Cooling performances as per EN14511:2018 (evaporator 12.0/7.0°C, condensing temperature 45°C; operating fluid=Water, fouling factor=0 m²°C/W, unit at full load). The minimum capacity indicated is referred to unit operating at the described conditions.
- (2) Dimensions and weights are for indication only and not considered binding. Before designing the installation, consult the official drawings available from the factory at request.
- (3) PHE: Plate Heat Exchanger; S&T: Single Pass Shell & Tube.
- (4) The values refer to the pressure drops in the evaporator only.
- (5) Sound power level is measured in accordance with ISO 9614; the sound pressure is calculated from the sound power level and are for information only and not considered binding.

All the data are referred to standard unit without options. All data are subject to change without notice.

EWLD~J-SS

MODEL		EWLD110J -SS	EWWD130 J-SS	EWWD145 J-SS	EWWD165 J-SS	EWWD195 J-SS	EWWD235 J-SS	EWWD265 J-SS
POWER SUPPLY								
Phases	N.	3	3	3	3	3	3	3
Frequency ⁽²⁾	Hz	50	50	50	50	50	50	50
Voltage ⁽²⁾	V	400	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10	-10	-10	-10	-10	-10	-10
Voltage tolerance Maximum	%	+10	+10	+10	+10	+10	+10	+10
UNIT								
Maximum inrush current	A	151	151	195	195	195	288	288
Nominal running current cooling ⁽¹⁾	A	52	62	72	81	91	107	120
Maximum running current ⁽³⁾	A	76	97	107	122	143	167	189
Maximum current for wires sizing ⁽⁴⁾	A	84	107	118	134	157	184	208
Starting method		Y-Δ	Y-Δ	Y-Δ	Y-Δ	Y-Δ	Y-Δ	Y-Δ

EWLH~J-SS

MODEL		EWLH080J -SS	EWLH100J -SS	EWLH110J -SS	EWLH130J -SS	EWLH140J -SS	EWLH170J -SS	EWLH190J -SS
POWER SUPPLY								
Phases	N.	3	3	3	3	3	3	3
Frequency ⁽²⁾	Hz	50	50	50	50	50	50	50
Voltage ⁽²⁾	V	400	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10	-10	-10	-10	-10	-10	-10
Voltage tolerance Maximum	%	+10	+10	+10	+10	+10	+10	+10
UNIT								
Maximum inrush current	A	153	153	197	197	197	290	290
Nominal running current cooling ⁽¹⁾	A	42	48	59	65	71	84	92
Maximum running current ⁽³⁾	A	75	90	100	114	143	158	178
Maximum current for wires sizing ⁽⁴⁾	A	83	100	112	127	159	176	198
Starting method		Y-Δ	Y-Δ	Y-Δ	Y-Δ	Y-Δ	Y-Δ	Y-Δ

EWLS~J-SS

MODEL		EWLS110J -SS	EWLS130J -SS	EWLS150J -SS	EWLS170J -SS	EWLS200J -SS	EWLS240J -SS	EWLS270J -SS
POWER SUPPLY								
Phases	N.	3	3	3	3	3	3	3
Frequency ⁽²⁾	Hz	50	50	50	50	50	50	50
Voltage ⁽²⁾	V	400	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10	-10	-10	-10	-10	-10	-10
Voltage tolerance Maximum	%	+10	+10	+10	+10	+10	+10	+10
UNIT								
Maximum inrush current	A	154	154	198	198	198	291	291
Nominal running current cooling ⁽¹⁾	A	54	64	75	84	94	111	125
Maximum running current ⁽³⁾	A	81	96	108	122	141	164	185
Maximum current for wires sizing ⁽⁴⁾	A	89	107	120	136	158	183	207
Starting method		Y-Δ	Y-Δ	Y-Δ	Y-Δ	Y-Δ	Y-Δ	Y-Δ

Note

(1) Nominal running current in cooling is referred to the following conditions: evaporator 12.0/7.0°C, condensing temperature 45°C; operating fluid=Water, fouling factor=0 m²/C/W, unit at full load.

(2) Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.

(3) Maximum running current is based on max compressor absorbed current in its envelope.

(4) Maximum current for wires sizing is based on minimum allowed voltage.

All the data are referred to standard unit without options. All data are subject to change without notice. Please refer to unit nameplate data.

EWL(D)(H)(S)~J-SS

EWLD~J-	Sound pressure level at 1 m from the unit (rif. 2 x 10 ⁻⁵ Pa)									Power dB (A)
MODEL	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dB(A)	
110	64.6	69.1	74.1	78.5	73.6	71.2	58.6	55.7	79	89
130	64.6	69.1	74.1	78.5	73.6	71.2	58.6	55.7	79	89
145	64.6	69.1	74.1	78.5	73.6	71.2	58.6	55.7	79	89
165	64.6	69.1	74.1	78.5	73.6	71.2	58.6	55.7	79	89
195	64.6	69.1	74.1	78.5	73.6	71.2	58.6	55.7	79	89
235	67.3	67.3	72.8	77.8	72.3	73.3	62.3	58.8	79	89
265	67.3	67.3	72.8	77.8	72.3	73.3	62.3	58.8	79	89

EWLH~J-	Sound pressure level at 1 m from the unit (rif. 2 x 10 ⁻⁵ Pa)									Power dB (A)
MODEL	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dB(A)	
080	64.6	69.1	74.1	78.5	73.6	71.2	58.6	55.7	79	89
100	64.6	69.1	74.1	78.5	73.6	71.2	58.6	55.7	79	89
110	64.6	69.1	74.1	78.5	73.6	71.2	58.6	55.7	79	89
130	64.6	69.1	74.1	78.5	73.6	71.2	58.6	55.7	79	89
140	64.6	69.1	74.1	78.5	73.6	71.2	58.6	55.7	79	89
170	67.3	67.3	72.8	77.8	72.3	73.3	62.3	58.8	79	89
190	67.3	67.3	72.8	77.8	72.3	73.3	62.3	58.8	79	89

EWLS~J-	Sound pressure level at 1 m from the unit (rif. 2 x 10 ⁻⁵ Pa)									Power dB (A)
MODEL	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dB(A)	
110	64.6	69.1	74.1	78.5	73.6	71.2	58.6	55.7	79	89
130	64.6	69.1	74.1	78.5	73.6	71.2	58.6	55.7	79	89
150	64.6	69.1	74.1	78.5	73.6	71.2	58.6	55.7	79	89
170	64.6	69.1	74.1	78.5	73.6	71.2	58.6	55.7	79	89
200	64.6	69.1	74.1	78.5	73.6	71.2	58.6	55.7	79	89
240	67.3	67.3	72.8	77.8	72.3	73.3	62.3	58.8	79	89
270	67.3	67.3	72.8	77.8	72.3	73.3	62.3	58.8	79	89

Note:

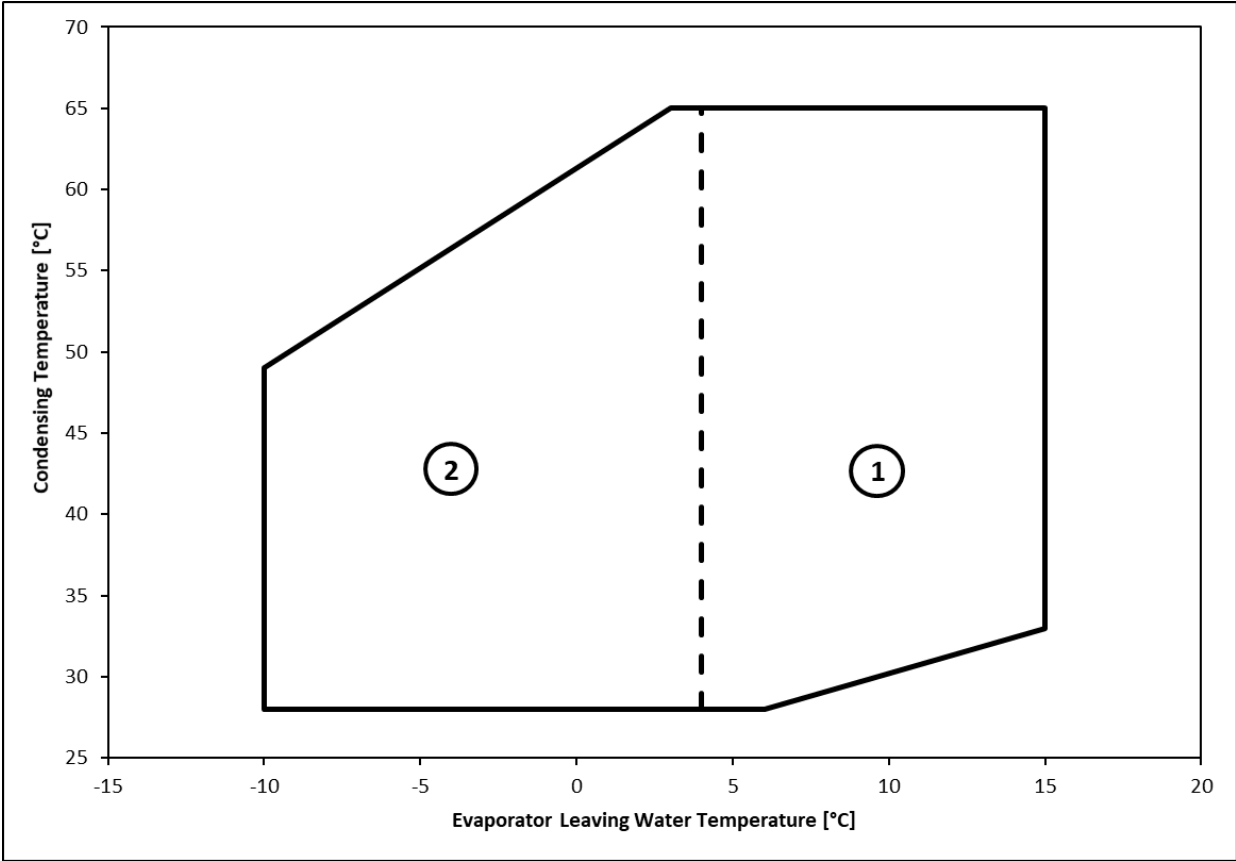
Sound power level (referred to Water Side Heat Exchanger 12.0/7.0 °C, condensing temperature 45°C; operating fluid=Water, fouling factor=0 m²°C/W, unit at full load) are measured in accordance with ISO 9614.

The sound data in the Octave band spectrum is for intended for reference only and not considering binding.

The sound pressure is calculated from the sound power level and are for information only and not considered binding.

The data are referred to the standard unit without options.

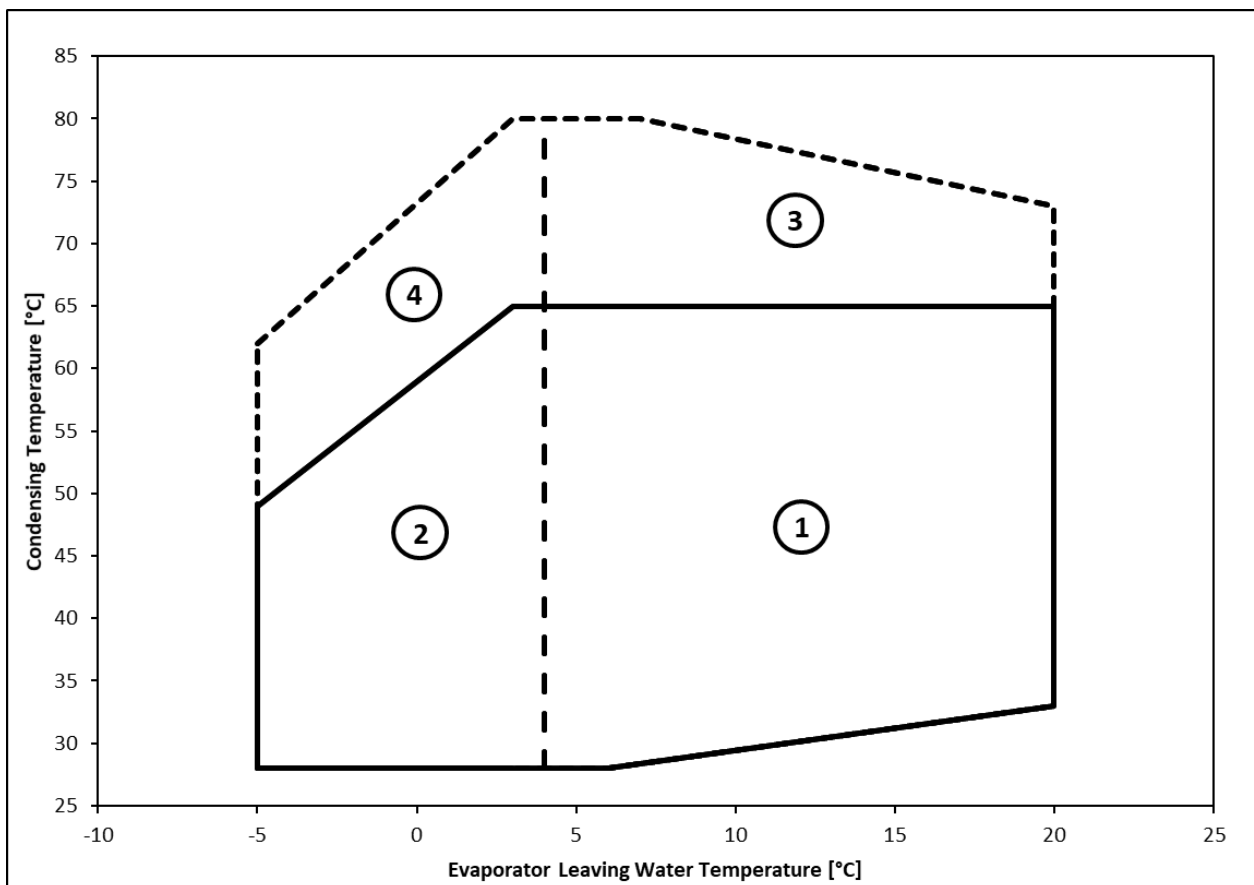
Operating Limits - EWLD-J-SS (R-134a)



Legend:

Ref. 1: Standard Unit.

Ref. 2: Standard Unit + Brine Version (option 08 - on request).

Operating Limits - EWLH-J-SS (R-1234ze)**Legend:**

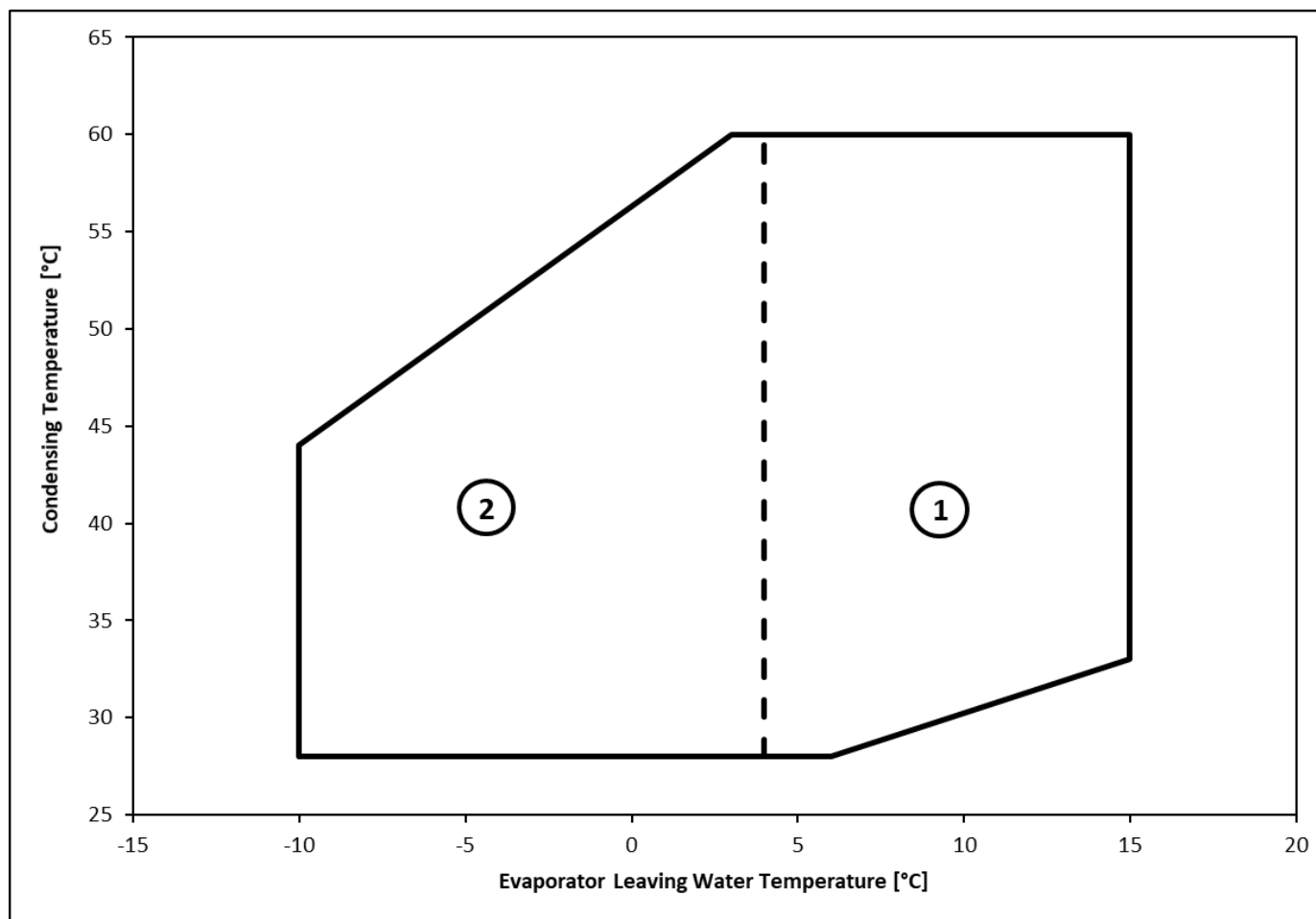
Ref. 1: Standard Unit.

Ref. 2: Standard Unit + Brine Version (option 08 - on request).

Ref. 3: Standard Unit + High temperature kit (option 111 - on request).

Ref. 4: Standard Unit + High temperature kit (option 111 - on request) + Brine Version (option 08 - on request).

Operating Limits - EWLS-J-SS (R-513A)



Legend:

Ref. 1: Standard Unit.

Ref. 2: Standard Unit + Brine Version (option 08 - on request).

Notes:

- The above graphs represent a guideline about the operating limits. Please refer to Chiller Selection Software (CSS) for real operating limits working conditions for each size.
- For operation with EWLT below 4°C, the unit must operate with glycol mixture. The glycol percentage must be provided according to the minimum ELWT needed.

Water heat exchangers - maximum/maximum water Δt

The minimum and maximum standard allowed Δt at full load standard conditions are respectively 4°C and 8°C. These values represent a guideline, please refer to the latest Chiller Selection Software (CSS) for real minimum and maximum allowed Δt each size.

Requirements for operation and storage

Unit is designed for indoor installation only.

Environmental conditions must be within the following limits:

Limits for storage:

- Maximum ambient temperature 55°C
- Minimum ambient temperature: 5°C
- Maximum relative humidity: 95% not condensing

Storage below the minimum temperature may cause damage to components.

Storage above the maximum temperature causes opening of safety valves.

Storage in condensing atmosphere may damage electronic components.

Water treatment

Before putting the unit into operation, clean the water circuit. Dirt, scales, corrosion debris and other materials can accumulate inside the heat exchanger and reduce its heat exchanging capacity. Pressure drops can increase as well, thus reducing water flow. Proper water treatment therefore reduces the risk of corrosion, erosion, scaling, etc.. The most appropriate water treatment must be determined locally, according to the type of system and water characteristics. The manufacturer is not responsible for damage to or malfunctioning of equipment caused by improperly treated water.

Water charge, flow and quality

Items ^{(1) (6)}	Cooling Water				Cooled Water		Heated water ⁽²⁾		Tendency if out of criteria	
	Circulating system		Once Flow	Supply water ⁽⁴⁾	Low temperature		High temperature			
	Circulating water	Supply water ⁽⁴⁾			Circulating water ⁽⁴⁾	Supply water ⁽⁴⁾	Circulating water	Supply water ⁽⁴⁾		
Items to be controlled:	pH	6.5 ~ 8.2	6.0 ~ 8.0	6.0 ~ 8.0	6.0 ~ 8.0	7.0 ~ 8.0	7.0 ~ 8.0	7.0 ~ 8.0	Corrosion + Scale	
	Electrical conductivity	Below 80 [Below 800]	Below 30 [Below 300]	Below 40 [Below 400]	Below 80 [Below 800]	Below 30 [Below 300]	Below 30 [Below 300]	Below 30 [Below 300]	Corrosion + Scale	
	Chloride ion	Below 200 [mgCl ⁻ /l]	Below 50 [mgSO ²⁻ ₄ /l]	Below 50 [mgSO ²⁻ ₄ /l]	Below 200 [mgSO ²⁻ ₄ /l]	Below 50 [mgSO ²⁻ ₄ /l]	Below 30 [mgSO ²⁻ ₄ /l]	Below 30 [mgSO ²⁻ ₄ /l]	Corrosion	
	Sulfate ion	Below 200 [mgSO ²⁻ ₄ /l]	Below 50 [mgSO ²⁻ ₄ /l]	Below 50 [mgSO ²⁻ ₄ /l]	Below 200 [mgSO ²⁻ ₄ /l]	Below 50 [mgSO ²⁻ ₄ /l]	Below 30 [mgSO ²⁻ ₄ /l]	Below 30 [mgSO ²⁻ ₄ /l]	Corrosion	
	M-alkalinity (pH, δ)	Below 100 [mgCaCO ₃ /l]	Below 50 [mgCaCO ₃ /l]	Below 50 [mgCaCO ₃ /l]	Below 100 [mgCaCO ₃ /l]	Below 50 [mgCaCO ₃ /l]	Below 50 [mgCaCO ₃ /l]	Below 50 [mgCaCO ₃ /l]	Scale	
	Total hardness	Below 200 [mgCaCO ₃ /l]	Below 70 [mgCaCO ₃ /l]	Below 70 [mgCaCO ₃ /l]	Below 200 [mgCaCO ₃ /l]	Below 70 [mgCaCO ₃ /l]	Below 70 [mgCaCO ₃ /l]	Below 70 [mgCaCO ₃ /l]	Scale	
	Calcium hardness	Below 150 [mgCaCO ₃ /l]	Below 50 [mgCaCO ₃ /l]	Below 50 [mgCaCO ₃ /l]	Below 150 [mgCaCO ₃ /l]	Below 50 [mgCaCO ₃ /l]	Below 50 [mgCaCO ₃ /l]	Below 50 [mgCaCO ₃ /l]	Scale	
	Silica ion	Below 50 [mgSiO ₂ /l]	Below 30 [mgSiO ₂ /l]	Below 30 [mgSiO ₂ /l]	Below 50 [mgSiO ₂ /l]	Below 30 [mgSiO ₂ /l]	Below 30 [mgSiO ₂ /l]	Below 30 [mgSiO ₂ /l]	Scale	
	Oxygen	Below 1.0 [mg O ₂ /l]	Below 1.0 [mg O ₂ /l]	Below 1.0 [mg O ₂ /l]	Below 1.0 [mg O ₂ /l]	Below 1.0 [mg O ₂ /l]	Below 1.0 [mg O ₂ /l]	Below 1.0 [mg O ₂ /l]	Corrosion	
	Particle size	Below 0.5 [mm]	Below 0.5 [mm]	Below 0.5 [mm]	Below 0.5 [mm]	Below 0.5 [mm]	Below 0.5 [mm]	Below 0.5 [mm]	Erosion	
	Total dissolved solids	Below 1000 [mg/l]	Below 1000 [mg/l]	Below 1000 [mg/l]	Below 1000 [mg/l]	Below 1000 [mg/l]	Below 1000 [mg/l]	Below 1000 [mg/l]	Erosion	
	Ethylene, Propylene Glycol (weight conc.)	Below 60%	Below 60%	Below 60%	Below 60%	Below 60%	Below 60%	Below 60%	—	
	Items to be recommended to:	Nitrate ion	Below 100 [mg NO ₃ ⁻ /l]	Below 100 [mg NO ₃ ⁻ /l]	Below 100 [mg NO ₃ ⁻ /l]	Below 100 [mg NO ₃ ⁻ /l]	Below 100 [mg NO ₃ ⁻ /l]	Below 100 [mg NO ₃ ⁻ /l]	Below 100 [mg NO ₃ ⁻ /l]	Corrosion
		TOC Total organic carbon	Below 1.0 [mg/l]	Below 1.0 [mg/l]	Below 1.0 [mg/l]	Below 1.0 [mg/l]	Below 1.0 [mg/l]	Below 1.0 [mg/l]	Below 1.0 [mg/l]	Scale
Iron		Below 1.0 [mgFe/l]	Below 0.3 [mgFe/l]	Below 1.0 [mgFe/l]	Below 1.0 [mgFe/l]	Below 0.3 [mgFe/l]	Below 1.0 [mgFe/l]	Below 0.3 [mgFe/l]	Corrosion + Scale	
Copper		Below 0.3 [mgCu/l]	Below 0.1 [mgCu/l]	Below 1.0 [mgCu/l]	Below 1.0 [mgCu/l]	Below 0.1 [mgCu/l]	Below 1.0 [mgCu/l]	Below 0.1 [mgCu/l]	Corrosion	
Sulfide ion		Not detectable	Not detectable	Not detectable	Not detectable	Not detectable	Not detectable	Not detectable	Corrosion	
Ammonium ion		Below 1.0 [mgNH ₄ ⁺ /l]	Below 0.1 [mgNH ₄ ⁺ /l]	Below 1.0 [mgNH ₄ ⁺ /l]	Below 1.0 [mgNH ₄ ⁺ /l]	Below 0.1 [mgNH ₄ ⁺ /l]	Below 0.1 [mgNH ₄ ⁺ /l]	Below 0.1 [mgNH ₄ ⁺ /l]	Corrosion	
Remainning chloride		Below 0.3 [mgCl ₂ /l]	Below 0.3 [mgCl ₂ /l]	Below 0.3 [mgCl ₂ /l]	Below 0.3 [mgCl ₂ /l]	Below 0.25 [mgCl ₂ /l]	Below 0.1 [mgCl ₂ /l]	Below 0.1 [mgCl ₂ /l]	Corrosion	
Free carboxide	Below 4.0 [mgCO ₂ /l]	Below 4.0 [mgCO ₂ /l]	Below 4.0 [mgCO ₂ /l]	Below 4.0 [mgCO ₂ /l]	Below 0.4 [mgCO ₂ /l]	Below 0.4 [mgCO ₂ /l]	Below 4.0 [mgCO ₂ /l]	Corrosion		
Stability Index	6.0 ~ 7.0	—	—	—	—	—	—	Corrosion + Scale		

1 Names, definitions and units are according to JIS K 0101. Units and figures between brackets are old units published as reference only.
2 In case of using heated water (more than 40°C), corrosion is generally noticeable.
3 In the cooling water using hermetic cooling tower, close circuit water is according to heated water standard, and scattered water is according to cooling water standard.
4 Supply water is considered drink water, industrial water and ground water except for genuine water, neutral water and soft water.
5 The above mentioned items are representative items in corrosion and scale cases.
6 The limits above have to be considered as a general prescription and can not totally assure the absence of corrosion and erosion.
Some particular combinations of elements or the presence of components not listed in the table or factors not considered may trigger corrosion phenomena.

Installation notes

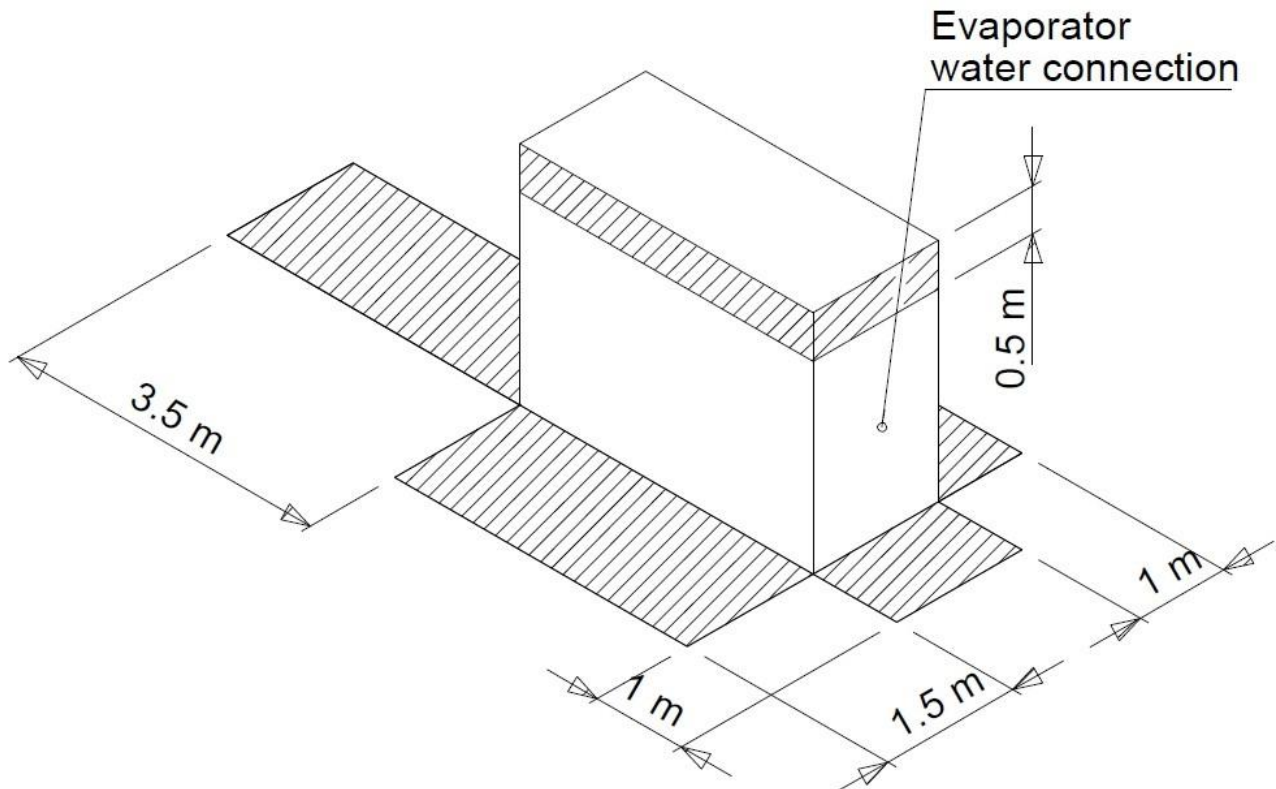
Warning Installation and maintenance of the unit must be performed only by qualified personnel who have knowledge with local codes and regulations, and experience with this type of equipment. Must be avoided the unit installation in places that could be considered dangerous for all the maintenance operations.

Handling Avoid bumping and/or jolting during loading/unloading unit from the truck and moving it. Secure the unit inside the truck to prevent it from moving and causing damages. Do not allow any part of the unit to fall during transportation or loading/unloading.

Use extreme caution when handling the unit to prevent damage to the control or the refrigerant piping. The unit must be lifted by attaching cables or chains at the lifting holes in each corner. For more information please refer to the unit Installation Manual.

Location Unit is designed for indoor installation only. The unit must be mounted on a leveled base of concrete or steel. The unit must be installed on a robust and perfectly leveled foundation; it might be necessary to use weight distribution beams. Rubber-in-shear isolators can be furnished and field placed under each corner of the package. A rubber anti-skid pad should be used under isolators if hold-down bolts are not used. Vibration isolator in all water piping connected to the chiller is recommended to avoid straining the piping and transmitting vibration and noise.

Space requirements Every side of the unit must be accessible for all post installation maintenance activities. The minimum space required is shown on the following drawing:



Acoustic protection When noise level must meet special requirements, it is necessary to pay the maximum attention to ensure the perfect insulation of the unit from the support base by applying appropriate anti-vibration devices on the unit, on the water pipes and on the electrical connections.

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