DAIKIN

DAIKIN APPLIED (UK) LTD

Technically better...

EWLQ-G/L

Condenserless water cooled chillers

Product manual

SS (Standard Efficiency - Standard Noise) - Cooling Capacity from 87 to 347 kW
SS (Standard Efficiency - Standard Noise) - Cooling Capacity from 173 to 677 kW

Performance according to EN14511
Eurovent certified

Refrigerant: R 410A

CODE	CSS - Rev. 9.3
Date	April 2015
EWLQ-G/L	R3.4.5

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EWLQ-G EWLQ-L

Low operating cost and extended operating life The condenserless ranges are the result of careful design, aimed to optimize the energy efficiency of the chillers, with the objective of bringing down operating costs and improving installation profitability, effectiveness and economical management.

Flexibility The condenserless series meets all the possible request in terms of plant needs for comfort and process applications. The units are available for chilled water production. Hydronic kit, with low or high pump head, are available on request.

Wide capacity range The condenserless series covers a wide range of cooling capacities from 100 KW up to 700 kW. The introduction of the new 60 HP scroll compressor allows to reach very high capacity in the minimum space.

Wide operating range The extended operating range allows the unit to work in a very wide range of water temperatures. The electronic expansion valve (mounted as standard) guarantees a fine control of the refrigerant flow even at low condensing temperatures.

Compact Design The innovative design makes the unit easy to carry and position within technical room occupying the minimum footprint. The Modular conception allows to position one unit upon the other reaching the highest kW/m2 ratio on the market.

Plug & play installation The units is conceived in order to be connected quickly to the plant. Victaulic connection are available as option.

Superior control logic The unit controller provides an easy to use control environmental. The control logic is designed to provide maximum efficiency, to continue operation in unusual operating conditions and to provide a history of unit operation. One of the greatest benefits is the easy interface with LonWorks, Bacnet, Ethernet TCP/IP or Modbus communications. Master/Slave control is available as standard.

Code requirements – Safety and observant of laws/directives Units are designed and manufactured in accordance with applicable selections of the following:

Construction of pressure vessel	97/23/EC (PED)
Machinery Directive	2006/42/EC
Low Voltage	2006/95/EC
Electromagnetic Compatibility	2004/108/EC
Electrical & Safety codes	EN 60204–1 / EN 60335-2-40
Manufacturing Quality Stds	UNI – EN ISO 9001:2004

Certifications Units are CE marked, complying with European directives in force, concerning manufacturing and safety. On request units can be produced complying with laws in force in non European countries (ASME, GOST, etc.), and with other applications, such as naval (RINA, etc.).

Versions This range is available in one version:

STANDARD EFFICIENCY
24 sizes to cover a range 87 up to 676 kW with an EER up to 3.92.

The EER (Energy Efficiency Ratio) is the ratio of the Cooling Capacity to the Power Input of the unit. The Power Input includes: the power input for operation of the compressor, the power input of all control and safety devices.

Sound configurations STANDARD SOUND

(Compressor sound attenuation jacket or compressor sound enclosure available as option)

Cabinet and structure The cabinet is made of galvanized steel sheet and painted to provide a high resistance to corrosion. Colour Ivory White (Munsell code 5Y7.5/1) (±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 and this facilitates the arrangement of the unit.

Refrigerant Units have been optimized to operate with R-410A, refrigerant with zero ODP (Ozone Depletion Potential) and GWP (Global Warming Potential) 1890. R-410A has been the logical choice for our multiple scroll chiller because today it is one of the most promising refrigerants in terms of efficiency, stability and environmental impact. R-410A offers a small swept volume, a good heat exchange capacity and leads to reduced component sizes of items such as heat exchangers and tubing.

Compressor The compressor is hermetic orbiting scroll compressor complete with motor over-temperature and over-current devices. An oil heater, which starts automatically, keeps the oil from being diluted by the refrigerant when the compressor stops. The compressors are connected in Tandem on a single refrigerating circuit and are fitted on rubber antivibration mounts and complete with oil charge.

Evaporator (Plate Heat Exchanger) 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. The evaporator is manufactured in accordance to PED approval. Flow switch and victaulic kit are provided mounted as option.

Electronic expansion valve The unit is equipped with the most advanced electronic expansion valves to achieve precise control of refrigerant mass flow. As today's system requires improved energy efficiency, tighter temperature control, wider range of operating conditions and incorporate features like remote monitoring and diagnostics, the application of electronic expansion valves becomes mandatory.
Electronic expansion valves possess unique features: short opening and closing time, high resolution, positive shut-off function to eliminate use of additional solenoid valve, continuous modulation of mass flow without stress in the refrigerant circuit and corrosion resistance stainless steel body.
Electronic expansion valves are typically working with lower ΔP between high and low pressure side, than a thermostatic expansion valve. The electronic expansion valve allows the system to work with low condenser pressure without any refrigerant flow problems and with a perfect chilled water leaving temperature control.

Refrigerant circuit Each unit has 1 or 2 refrigerant circuit, according to the capacity, that includes:
- Compressors
- Refrigerant
- Evaporator
- Electronic expansion valve
- Liquid line shut off valve
- Filter drier
- Sight glass with moisture indicator
- High pressure switch
- High pressure transducers
- Low pressure transducers
- Suction temperature sensor

Electrical control panel Power and control are located in the main panel. The electrical panel is IP54 and (when opening the doors) internally protected with plexiglass panel against possible accidental contact with electrical components (IP20). The main panel is fitted with a main switch interlocked door.

Power Section

The power section includes compressors protection devices, compressors starters and control circuit power supply.

Unit controller

Unit controller is installed as standard; it can be used to modify unit set-points and check control parameters. A built-in display shows chiller operating status plus temperatures and pressures of water, refrigerant, programmable values, set-points. A sophisticated software with predictive logic, selects the most energy efficient combination of compressors and EEXV to keep stable operating conditions to maximise chiller energy efficiency and reliability.
The unit controller is able to protect critical components based on external signs from its system (such as motor temperatures, refrigerant gas and oil pressures, correct phase sequence, pressure switches and evaporator). The input coming from the high pressure switch cuts all digital output from the controller in less than 50ms, this is an additional security for the equipment.
Fast program cycle (200ms) for a precise monitoring of the system. Floating point calculations supported for increased accuracy in Pressure / Temperature conversions.

Control section - main features

Control Section has the following feature.

- Management of the refrigerant circuit capacity
- Chiller enabled to work in partial failure condition (only for 2 circuits unit)
- Full routine operation at condition of:
  - high thermal load
  - high evaporator entering water temperature (start-up)
- Display of evaporator entering/leaving water temperature.
- Display of condensing-evaporating temperature and pressure, suction superheat for each circuit.
- Leaving water evaporator temperature regulation .
- Compressor and pumps hours counter.
- Display of Status Safety Devices.
- Number of starts and compressor working hours.
- Optimized management of compressor load.
- Re-start in case of power failure (automatic / manual).
- Soft Load (optimized management of the compressor load during the start-up).
- Start at high evaporator water temperature.
- Return Reset (Set Point Reset based on return water temperature).
- Set point Reset (optional).
- Application and system upgrade with commercial SD cards.
- Ethernet port for remote or local servicing using standard web browsers.

Safety device / logic for each refrigerant circuit

The following devices / logics are available.

- High pressure (pressure switch).
- High pressure (transducer).
- Low pressure (transducer).
- High motor winding temperature.
- No pressure change at start

System security

The following securities are available.

- Phase monitor.
- Freeze protection.

Regulation type

Proportional + integral + derivative regulation on the evaporator leaving water output probe.

Unit controller

Unit controller built-in terminal has the following features.

- 164x44 dots 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.
- Memory to protect the data.
- General faults alarm relays.
- Password access to modify the setting.
- Application security to prevent application tampering or hardware usability with third party applications.
- Service report displaying all running hours and general conditions.
- Alarm history memory to allow an easy fault analysis.

Supervising systems (on request)

Unit controller remote communication

Unit controller is able to communicate to BMS (Building Management System) based on the most common protocols as:

- ModbusRTU
- LonWorks, now also based on the international 8040 Standard Chiller Profile and LonMark Technology.
- BacNet BTP certifief over IP and MS/TP (class 4) (Native).
- Ethernet TCP/IP.

Additional information related to F-GAS Regulation (EU) No 517/2014 OF THE European Parliament and of the Council of 16 April 2014 on fluorinated greenhouse gases and repealing Regulation (EC) No 842/2006

Unit model	Refrigerant type	Refrigerant GWP	No. of circuits	Refrigerant charge circuit 1 (kg)
EWLQ090G-SS	R410A	2087,5	1	0,0
EWLQ100G-SS	R410A	2087,5	1	0,0
EWLQ120G-SS	R410A	2087,5	1	0,0
EWLQ130G-SS	R410A	2087,5	1	0,0
EWLQ150G-SS	R410A	2087,5	1	0,0
EWLQ170G-SS	R410A	2087,5	1	0,0
EWLQ190G-SS	R410A	2087,5	1	0,0
EWLQ210G-SS	R410A	2087,5	1	0,0
EWLQ240G-SS	R410A	2087,5	1	0,0
EWLQ300G-SS	R410A	2087,5	1	0,0
EWLQ360G-SS	R410A	2087,5	1	0,0

Note: Its functioning relies on fluorinated greenhouse gases

Standard Options (supplied on basic unit)

Options (on request)

MECHANICAL

Heat Pump version reversing on water side

Evaporator victaulic kit- Hydraulic joint with gasket for an easy and quick water connection.

Water filter(*) - The water filter removes impurities from water by means of a fine physical barrier.

Evaporator flow switch (**)

Brine version - Allows the unit to operate down to -10°C leaving liquid temperature (antifreeze required). Recommended below +4°C

Suction and discharge line shut-off valve - Installed on the suction and discharge ports of the compressor's tandem to facilitate maintenance operation.

High pressure side manometers

Low pressure side manometers

Sound Proof System (Compressor Enclosure)

One centrifugal pump (low lift) - Hydronic kit consists of: single direct driven centrifugal pump, water filling system with pressure gauge, safety valve, drain valve. The motor pump is protected by a circuit breaker installed in control panel. The kit is assembled and wired to the control panel. The pipe and pump are protected from freezing with an additional electrical heater.

One centrifugal pump (high lift) Hydronic kit consists of: single direct driven centrifugal pump, water filling system with pressure gauge, safety valve, drain valve. The motor pump is protected by a circuit breaker installed in control panel. The kit is assembled and wired to the control panel. The pipe and pump are protected from freezing with an additional electrical heater.

Double pressure relief valve with diverter

(*) the installation of the filter is mandatory.

(**) the installation of the flow switch is mandatory on evaporator side.

ELECTRICAL / CONTROL

Compressor thermal overload relays - Safety electronic devices that, added to the standard protection devices, protect compressor motors against overload and current unbalance.

Phase monitor - Device that monitors input voltage and stops the chiller in case of phase loss or wrong phase sequence.

Under / Over voltage control - Electronic device that monitors and displays input voltage, and stops the chiller in case of phase loss, wrong phase sequence, or voltage exceeding minimum and maximum allowed values.

Energy meter - Device installed inside the control box that displays all chiller electrical power parameters at line input such as line voltage and phase current, input active and reactive power, active and reactive energy. An integrated RS485 module allows a Modbus communication to an external BMS.

Capacitors for power factor correction - Devices that increase the power factor of the unit. The capacitors are "dry" self-regenerating type with over pressure disconnecting safety device insulated with a no toxic dielectric mix without PCB or PCT.

Setpoint reset, Demand limit and Alarm from external device - Setpoint Reset: The leaving water temperature set-point can be overwritten with an external 4-20mA, through the ambient temperature, or through the evaporator water temperature ΔT. Demand Limit: Chiller capacity can be limited through an external 4-20mA signal or via network. Alarm from external device: The unit controller is able to receive an external alarm signal. The user can decide whether this alarm signal will stop the unit or not.

Compressors circuit breakers Safety devices that include in a single device all safety functions otherwise provided by standard fuses and optional thermal relays, such as protection against overcurrent, overload, current unbalance.

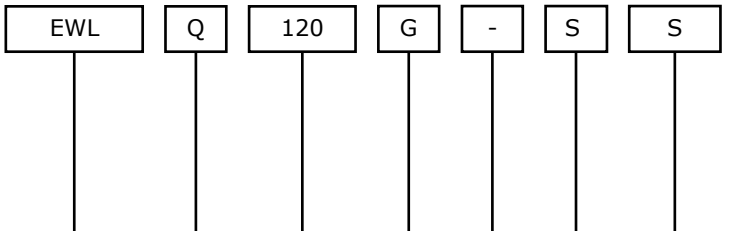
INSTALLATION

Rubber anti vibration mounts - Supplied separately, these are positioned under the base of the unit during installation. Ideal to reduce the vibrations when the unit is floor mounted.

Container Kit: wooden pallet structure positioned below the unit specially designed to ease the chiller (un)load in the container with a forklift.

Witness test

Acoustic test



Machine type

EWL = Condenserless unit

Refrigerant

Q = R-410A

Capacity class in kW (Cooling)

Always 3-digit code

Model series

G,L G=single circuit
L=dual circuit

Inverter

- = Non inverter

Efficiency level

S = Standard Efficiency

Sound level

S = Standard sound

EWLQ G-SS

MODEL		090	100	120	130	150	170	190	210
Capacity - Cooling (1)	kW	86.5	98.4	110	125	139	160	181	206
Capacity control - Type	---	Step	Step	Step	Step	Step	Step	Step	Step
Capacity control - Minimum capacity	%	50.0	43.0	50.0	44.0	50.0	45.0	50.0	43.0
Unit power input - Cooling (1)	kW	22.4	25.8	29.2	33.0	36.8	42.0	47.0	54.2
EER (1)	---	3.86	3.81	3.78	3.79	3.79	3.80	3.86	3.80
CASING									
Colour	---	IW	IW	IW	IW	IW	IW	IW	IW
Material (2)	---	GPSS	GPSS	GPSS	GPSS	GPSS	GPSS	GPSS	GPSS
DIMENSIONS									
Height	mm	1066	1066	1066	1066	1066	1066	1066	1066
Width	mm	928	928	928	928	928	928	928	928
Length	mm	2743	2743	2743	2743	2743	2743	2743	2743
WEIGHT									
Unit Weight	kg	525	615	729	760	791	826	863	901
Operating Weight	kg	494	578	686	714	742	773	807	838
HEAT EXCHANGER - EVAPORATOR									
Type (3)	---	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE
Water Volume	l	6	8	8	10	12	13	15	17
Nominal water flow rate	l/s	4.2	4.7	5.3	6.0	6.7	7.7	8.7	9.8
Nominal Water pressure drop	kPa	44	44	35	29	29	31	33	30
Insulation material (4)		CC	CC	CC	CC	CC	CC	CC	CC
COMPRESSOR									
Type	---	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	7	8	9	11	14	13	13	13
Quantity	No.	2	2	2	2	2	2	2	2
SOUND LEVEL									
Sound Power - Cooling	dB(A)	80	83	85	87	88	88	88	90
Sound Pressure - Cooling (5)	dB(A)	64	67	69	70	72	72	72	74
REFRIGERANT CIRCUIT									
Refrigerant type	---	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	0	0	0	0	0	0	0	0
N. of circuits	No.	1	1	1	1	1	1	1	1
PIPING CONNECTIONS									
Evaporator water inlet/outlet		1" 1/2	1" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2
Outlet gas discharge connections		1" 5/8	1" 5/8	1" 5/8	1" 5/8	1" 5/8	1" 5/8	1" 5/8	1" 5/8

Fluid: Water
(1) Cooling capacity, unit power input and EER are based on the following conditions: evaporator 12.0/7.0°C; condensing temperature 45.0, unit at full load operation;
(2) GPSS: Galvanized and Painted Steel Sheet; (3) PHE: Plate Heat Exchanger --- S&T: Single Pass Shell & Tube
(4) CC: Closed Cell; (5) The values are according to ISO 3744 and are referred to: evaporator 12.0/7.0°C, condensing temperature 45.0, full load operation.

EWLQ G-SS

MODEL		240	300	360					
Capacity - Cooling (1)	kW	231	290	346					
Capacity control - Type	---	Step	Step	Step					
Capacity control - Minimum capacity	%	50.0	40.0	50.0					
Unit power input - Cooling (1)	kW	59.9	75.6	91.8					
EER (1)	---	3.85	3.84	3.77					
CASING									
Colour	---	IW	IW	IW					
Material (2)	---	GPSS	GPSS	GPSS					
DIMENSIONS									
Height	mm	1066	1186	1186					
Width	mm	928	928	928					
Length	mm	2743	2743	2743					
WEIGHT									
Unit Weight	kg	916	1044	1134					
Operating Weight	kg	852	967	1046					
HEAT EXCHANGER - EVAPORATOR									
Type (3)	---	PHE	PHE	PHE					
Water Volume	l	17	27	34					
Nominal water flow rate	l/s	11.1	13.9	16.6					
Nominal Water pressure drop	kPa	38	41	41					
Insulation material (4)		CC	CC	CC					
COMPRESSOR									
Type	---	Scroll	Scroll	Scroll					
Oil charge	l	13	13	13					
Quantity	No.	2	2	2					
SOUND LEVEL									
Sound Power - Cooling	dB(A)	92	93	93					
Sound Pressure - Cooling (5)	dB(A)	76	76	77					
REFRIGERANT CIRCUIT									
Refrigerant type	---	R410A	R410A	R410A					
Refrigerant charge	kg	0	0	0					
N. of circuits	No.	1	1	1					
PIPING CONNECTIONS									
Evaporator water inlet/outlet		2" 1/2	3"	3"					
Outlet gas discharge connections		1" 5/8	2" 1/8	2" 1/8					

Fluid: Water
(1) Cooling capacity, unit power input and EER are based on the following conditions: evaporator 12.0/7.0°C; condensing temperature 45.0, unit at full load operation;
(2) GPSS: Galvanized and Painted Steel Sheet; (3) PHE: Plate Heat Exchanger --- S&T: Single Pass Shell & Tube
(4) CC: Closed Cell; (5) The values are according to ISO 3744 and are referred to: evaporator 12.0/7.0°C, condensing temperature 45.0, full load operation.

EWLQ L-SS

MODEL		180	205	230	260	290	330	380	430
Capacity - Cooling (1)	kW	173	197	224	249	279	317	361	409
Capacity control - Type	---	Step	Step	Step	Step	Step	Step	Step	Step
Capacity control - Minimum capacity	%	25.0	21.0	25.0	22.0	25.0	23.0	25.0	21.0
Unit power input - Cooling (1)	kW	44.3	51.1	57.9	65.6	73.2	83.8	93.5	108
EER (1)	---	3.91	3.86	3.87	3.79	3.81	3.78	3.86	3.79
CASING									
Colour	---	IW	IW	IW	IW	IW	IW	IW	IW
Material (2)	---	GPSS	GPSS	GPSS	GPSS	GPSS	GPSS	GPSS	GPSS
DIMENSIONS									
Height	mm	1970	1970	1970	1970	1970	1970	1970	1970
Width	mm	928	928	928	928	928	928	928	928
Length	mm	2801	2801	2801	2801	2801	2801	2801	2801
WEIGHT									
Unit Weight	kg	894	1081	1292	1345	1436	1486	1547	1638
Operating Weight	kg	832	1007	1202	1252	1333	1380	1432	1511
HEAT EXCHANGER - EVAPORATOR									
Type (3)	---	PHE	PHE	PHE	PHE	PHE	PHE	PHE	PHE
Water Volume	l	19	22	29	29	35	35	41	49
Nominal water flow rate	l/s	8.3	9.5	10.7	11.9	13.4	15.2	17.3	19.6
Nominal Water pressure drop	kPa	25	25	20	25	22	29	29	29
Insulation material (4)		CC	CC	CC	CC	CC	CC	CC	CC
COMPRESSOR									
Type	---	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	14	16	19	23	27	26	25	25
Quantity	No.	4	4	4	4	4	4	4	4
SOUND LEVEL									
Sound Power - Cooling	dB(A)	83	86	88	90	91	91	91	93
Sound Pressure - Cooling (5)	dB(A)	65	68	70	72	74	74	73	76
REFRIGERANT CIRCUIT									
Refrigerant type	---	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	0	0	0	0	0	0	0	0
N. of circuits	No.	2	2	2	2	2	2	2	2
PIPING CONNECTIONS									
Evaporator water inlet/outlet		3"	3"	3"	3"	3"	3"	3"	3"
Outlet gas discharge connections		1" 5/8-1" 5/8	1" 5/8-1" 5/8	1" 5/8-1" 5/8	1" 5/8-1" 5/8	1" 5/8-1" 5/8	1" 5/8-1" 5/8	1" 5/8-1" 5/8	1" 5/8-1" 5/8

Fluid: Water
(1) Cooling capacity, unit power input and EER are based on the following conditions: evaporator 12.0/7.0°C; condensing temperature 45.0, unit at full load operation;
(2) GPSS: Galvanized and Painted Steel Sheet; (3) PHE: Plate Heat Exchanger --- S&T: Single Pass Shell & Tube
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EWLQ L-SS

MODEL		480	540	600	660	720			
Capacity - Cooling (1)	kW	459	511	571	624	676			
Capacity control - Type	---	Step	Step	Step	Step	Step			
Capacity control - Minimum capacity	%	25.0	22.0	20.0	18.0	25.0			
Unit power input - Cooling (1)	kW	119	135	152	168	184			
EER (1)	---	3.84	3.78	3.76	3.71	3.67			
CASING									
Colour	---	IW	IW	IW	IW	IW			
Material (2)	---	GPSS	GPSS	GPSS	GPSS	GPSS			
DIMENSIONS									
Height	mm	1970	2090	2210	2210	2210			
Width	mm	928	928	928	928	928			
Length	mm	2801	2801	2801	2801	2801			
WEIGHT									
Unit Weight	kg	1690	1741	1844	1990	2120			
Operating Weight	kg	1560	1609	1694	1833	1957			
HEAT EXCHANGER - EVAPORATOR									
Type (3)	---	PHE	PHE	PHE	PHE	PHE			
Water Volume	l	49	49	62	62	62			
Nominal water flow rate	l/s	21.9	24.5	27.3	29.9	32.4			
Nominal Water pressure drop	kPa	36	45	44	52	62			
Insulation material (4)		CC	CC	CC	CC	CC			
COMPRESSOR									
Type	---	Scroll	Scroll	Scroll	Scroll	Scroll			
Oil charge	l	25	25	25	25	25			
Quantity	No.	4	4	4	4	4			
SOUND LEVEL									
Sound Power - Cooling	dB(A)	95	95	95	96	96			
Sound Pressure - Cooling (5)	dB(A)	77	77	78	78	78			
REFRIGERANT CIRCUIT									
Refrigerant type	---	R410A	R410A	R410A	R410A	R410A			
Refrigerant charge	kg	0	0	0	0	0			
N. of circuits	No.	2	2	2	2	2			
PIPING CONNECTIONS									
Evaporator water inlet/outlet		3"	3"	3"	3"	3"			
Outlet gas discharge connections		1" 5/8-1" 5/8	1" 5/8-2" 1/8	2" 1/8-2" 1/8	2" 1/8-2" 1/8	2" 1/8-2" 1/8			

Fluid: Water
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EWLQ G-SS

MODEL		090	100	120	130	150	170	190	210
Power supply									
Phases	---	3	3	3	3	3	3	3	3
Frequency	Hz	50	50	50	50	50	50	50	50
Voltage	V	400	400	400	400	400	400	400	400
Voltage tollerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tollerance Maximum	%	+10%	+10%	+10%	+10%	+10%	+10%	+10%	+10%
Unit									
Maximum starting current	A	204	255	261	308	316	354	368	466
Nominal running current cooling	A	39	42	45	51	57	64	70	81
Maximum running current	A	59	66	72	80	88	102	116	131
Maximum current for wires sizing	A	65	72	79	88	96	112	128	144
Compressors									
Phases	No.	3	3	3	3	3	3	3	3
Voltage	V	400	400	400	400	400	400	400	400
Voltage tollerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tollerance Maximum	%	+10%	+10%	+10%	+10%	+10%	+10%	+10%	+10%
Maximum running current	A	59	66	72	80	88	102	116	131
Starting method	---	DOL	DOL	DOL	DOL	DOL	DOL	DOL	DOL

EWLQ G-SS

MODEL		240	300	360
Power supply				
Phases	---	3	3	3
Frequency	Hz	50	50	50
Voltage	V	400	400	400
Voltage tollerance Minimum	%	-10%	-10%	-10%
Voltage tollerance Maximum	%	+10%	+10%	+10%
Unit				
Maximum starting current	A	481	640	677
Nominal running current cooling	A	88	111	135
Maximum running current	A	145	183	221
Maximum current for wires sizing	A	160	201	243
Compressors				
Phases	No.	3	3	3
Voltage	V	400	400	400
Voltage tollerance Minimum	%	-10%	-10%	-10%
Voltage tollerance Maximum	%	+10%	+10%	+10%
Maximum running current	A	145	183	221
Starting method	---	DOL	DOL+PW	PW

Fluid: Water
Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.
Maximum starting current: starting current of biggest compressor + current of the compressor at 75% maximum load
Nominal current in cooling mode is referred to the following conditions: evaporator 12/7°C; condenser 30/35°C; compressors current
Maximum running current is based on max compressor absorbed current in its envelope
Maximum unit current for wires sizing is based on minimum allowed voltage
Maximum current for wires sizing: (compressors full load ampere) x 1,1.

EWLQ L-SS

MODEL		180	205	230	260	290	330	380	430
Power supply									
Phases	---	3	3	3	3	3	3	3	3
Frequency	Hz	50	50	50	50	50	50	50	50
Voltage	V	400	400	400	400	400	400	400	400
Voltage tollerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tollerance Maximum	%	+10%	+10%	+10%	+10%	+10%	+10%	+10%	+10%
Unit									
Maximum starting current	A	263	320	333	388	403	456	484	597
Nominal running current cooling	A	78	84	90	102	114	128	141	161
Maximum running current	A	118	131	144	160	175	205	232	262
Maximum current for wires sizing	A	130	144	159	176	193	225	255	288
Compressors									
Phases	No.	3	3	3	3	3	3	3	3
Voltage	V	400	400	400	400	400	400	400	400
Voltage tollerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tollerance Maximum	%	+10%	+10%	+10%	+10%	+10%	+10%	+10%	+10%
Maximum running current	A	59 59	66 66	72 72	80 80	88 88	102 102	116 116	131 131
Starting method	---	DOL	DOL	DOL	DOL	DOL	DOL	DOL	DOL

EWLQ L-SS

MODEL		480	540	600	660	720			
Power supply									
Phases	---	3	3	3	3	3			
Frequency	Hz	50	50	50	50	50			
Voltage	V	400	400	400	400	400			
Voltage tollerance Minimum	%	-10%	-10%	-10%	-10%	-10%			
Voltage tollerance Maximum	%	+10%	+10%	+10%	+10%	+10%			
Unit									
Maximum starting current	A	626	785	822	860	898			
Nominal running current cooling	A	176	199	223	246	269			
Maximum running current	A	290	328	366	403	441			
Maximum current for wires sizing	A	319	361	402	444	485			
Compressors									
Phases	No.	3	3	3	3	3			
Voltage	V	400	400	400	400	400			
Voltage tollerance Minimum	%	-10%	-10%	-10%	-10%	-10%			
Voltage tollerance Maximum	%	+10%	+10%	+10%	+10%	+10%			
Maximum running current	A	145 145	145 183	183 183	183 221	221 221			
Starting method	---	DOL	DOL	DOL+PW	DOL+PW	PW			

Fluid: Water
Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.
Maximum starting current: starting current of biggest compressor + current of the compressor at 75% maximum load
Nominal current in cooling mode is referred to the following conditions: evaporator 12/7°C; condenser 30/35°C; compressors current
Maximum running current is based on max compressor absorbed current in its envelope
Maximum unit current for wires sizing is based on minimum allowed voltage
Maximum current for wires sizing: (compressors full load ampere) x 1,1.

EWLQ G-SS

	Sound pressure level at 1 m from the unit (rif. 2 x 10-5 Pa)								Power
MODEL	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dB(A)	dB(A)
090	59.0	61.0	50.2	59.9	58.6	56.5	54.3	52.3	64.0	80.0
100	62.4	64.4	60.3	60.3	58.6	63.1	54.5	49.1	67.0	83.0
120	65.2	67.0	63.5	62.1	60.2	66.1	56.2	47.3	69.0	85.0
130	63.0	64.9	62.9	61.8	65.0	66.4	57.9	53.6	70.0	87.0
150	60.8	62.7	63.1	62.2	67.6	67.3	59.6	56.4	72.0	88.0
170	61.1	63.1	65.4	64.4	68.0	67.1	60.0	55.8	72.0	88.0
190	60.6	62.6	66.6	65.6	67.6	65.6	59.6	53.6	72.0	88.0
210	60.7	62.7	66.0	63.9	71.4	68.1	60.2	54.2	74.0	90.0
240	61.1	63.1	65.8	62.1	73.3	69.7	60.9	54.9	76.0	92.0
300	58.8	60.8	62.8	57.9	74.6	69.8	59.0	53.0	76.0	93.0
360	57.9	59.9	61.3	54.9	75.3	70.1	58.5	52.5	77.0	93.0

EWLQ L-SS

	Sound pressure level at 1 m from the unit (rif. 2 x 10-5 Pa)								Power
MODEL	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dB(A)	dB(A)
180	60.6	62.6	51.8	61.5	60.2	58.1	55.9	53.9	65.0	83.0
205	64.0	66.0	62.0	62.0	60.2	64.7	56.1	50.7	68.0	86.0
230	65.6	67.6	64.1	62.7	60.8	66.7	56.8	47.9	70.0	88.0
260	64.6	66.6	64.6	63.4	66.7	68.0	59.6	55.3	72.0	90.0
290	62.3	64.3	64.7	63.8	69.2	68.9	61.2	58.0	74.0	91.0
330	62.6	64.6	66.9	66.0	69.6	68.6	61.6	57.4	74.0	91.0
380	62.2	64.2	68.2	67.2	69.2	67.2	61.2	55.2	73.0	91.0
430	62.3	64.3	67.6	65.5	73.0	69.7	61.8	55.8	76.0	93.0
480	62.7	64.7	67.4	63.7	74.9	71.3	62.5	56.5	77.0	95.0
540	60.9	62.9	65.2	61.0	75.4	70.9	60.9	54.9	77.0	95.0
600	60.1	62.1	64.1	59.2	75.9	71.1	60.3	54.3	78.0	95.0
660	59.8	61.8	63.5	57.9	76.5	71.5	60.2	54.2	78.0	96.0
720	59.5	61.5	62.9	56.5	76.9	71.7	60.1	54.1	78.0	96.0

EWLQ G-SS

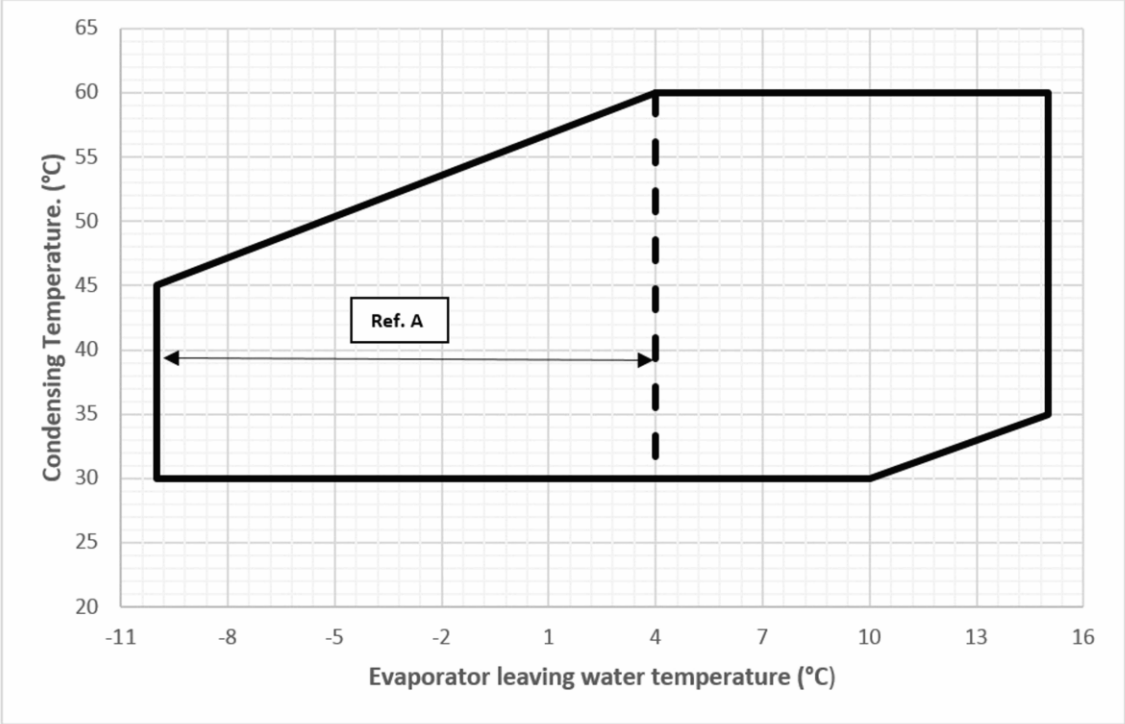
	SOUND PRESSURE LEVEL FOR DIFFERENT DISTANCES (dB(A))						
MODEL	1 m	5 m	10 m	15 m	20 m	25 m	50 m
090	64.0	54.3	49.0	45.7	43.4	41.5	35.7
100	67.0	57.3	52.0	48.7	46.4	44.5	38.7
120	69.0	59.3	54.0	50.7	48.4	46.5	40.7
130	70.0	60.3	55.0	51.7	49.4	47.5	41.7
150	72.0	62.3	57.0	53.7	51.4	49.5	43.7
170	72.0	62.3	57.0	53.7	51.4	49.5	43.7
190	72.0	62.3	57.0	53.7	51.4	49.5	43.7
210	74.0	64.3	59.0	55.7	53.4	51.5	45.7
240	76.0	66.3	61.0	57.7	55.4	53.5	47.7
300	76.0	66.4	61.1	57.9	55.5	53.7	47.8
360	77.0	67.4	62.1	58.9	56.5	54.7	48.8

EWLQ L-SS

	SOUND PRESSURE LEVEL FOR DIFFERENT DISTANCES (dB(A))						
MODEL	1 m	5 m	10 m	15 m	20 m	25 m	50 m
180	65.0	56.1	50.9	47.8	45.4	43.6	37.8
205	68.0	59.1	53.9	50.8	48.4	46.6	40.8
230	70.0	61.1	55.9	52.8	50.4	48.6	42.8
260	72.0	63.1	57.9	54.8	52.4	50.6	44.8
290	74.0	65.1	59.9	56.8	54.4	52.6	46.8
330	74.0	65.1	59.9	56.8	54.4	52.6	46.8
380	73.0	64.1	58.9	55.8	53.4	51.6	45.8
430	76.0	67.1	61.9	58.8	56.4	54.6	48.8
480	77.0	68.1	62.9	59.8	57.4	55.6	49.8
540	77.0	68.1	63.1	59.9	57.5	55.7	49.9
600	78.0	69.2	64.2	61.0	58.7	56.8	51.0
660	78.0	69.2	64.2	61.0	58.7	56.8	51.0
720	78.0	69.2	64.2	61.0	58.7	56.8	51.0

Fluid: Water
Note: The values are according to ISO 3744 and are referred to: evaporator 12/7° C, air ambient 35°C, full load operation

Operating Limits



Note
The above graphic represents a guideline about the operating limits of the range. Please refer to Chiller Selection Software (CSS) for real operating limits working conditions for each size.

Ref.:
A = operation with glycol (below 4°C Evaporator LWT)

Table 1 - Water heat exchanger - Minimum and maximum water Δt

A - Δt	°C	8
B - Δt	°C	4
C - Δt	°C	8
D - Δt	°C	4

Legend:
A = Max evaporator water Δt
B = Min evaporator water Δt
C = Max condenser water Δt
D = Min condenser water Δt

Table 2 - Water heat exchanger - Evaporator Fouling factors

A	B	C	D
0.0176	1.000	1.000	1.000
0.0440	0.978	0.986	0.992
0.0880	0.957	0.974	0.983
0.1320	0.938	0.962	0.975

Table 2 - Water heat exchanger - Condenser Fouling factors

A	B	C	D
0.0176	1.006	0.989	1.016
0.0440	1.000	1.000	1.000
0.0880	0.957	0.974	0.983
0.1320	0.938	0.962	0.975

Legend:
A = Fouling factors (m2 °C / kW)
B = Cooling capacity correction factor
C = Power input correction factor
D = EER correction factor

Water content in cooling circuits The cooled water distribution circuits should have minimum water content to avoid excessive compressors start and stop. In fact, each time the compressor starts up, an excessive quantity of oil goes from the compressor sump and simultaneously there is a rise in the temperature of the compressor motor's stator due to the inrush current during the start-up. To prevent damage to the compressors, have been envisaged the application of a device to limit frequent stops and restarts.
During the span of one hour there will be no more than 6 starts of the compressor. The plant side should therefore ensure that the overall water content allows a more constant functioning of the unit and consequently greater environmental comfort.

Water charge, flow and quality

Water charge, flow and quality

Items (1) (6)			Cooling Water			Cooled Water		Heated water (2)				Tendency if out of criteria
			Circulating System		Once Flow			Low temperature		High temperature		
			Circulating water	Supply water (4)	Flowing water	Circulating water [Below 20°C]	Supply water (4)	Circulating water [20°C ~ 60°C]	Supply water (4)	Circulating water [60°C ~ 80°C]	Supply water (4)	
Items to be controlled:	pH	at 25°C	6.5 ~ 8.2	6.0 ~ 8.0	6.0 ~ 8.0	6.8 - 8.0	6.0 ~ 8.0	7.0 ~ 8.0	7.0 ~ 8.0	7.0 ~ 8.0	7.0 ~ 8.0	Corrosion + Scale
	Electrical conductivity	[mS/m] at 25°C	Below 80	Below 30	Below 40	Below 80	Below 80	Below 30	Below 30	Below 30	Below 30	Corrosion + Scale
		(μS/cm) at 25°C	(Below 800)	(Below 300)	(Below 400)	(Below 800)	(Below 800)	(Below 300)	(Below 300)	(Below 300)	(Below 300)	Corrosion + Scale
	Chloride ion	[mgCl^{2-}/l]	Below 200	Below 50	Below 50	Below 200	Below 50	Below 50	Below 50	Below 30	Below 30	Corrosion
	Sulfate ion	[mgSO^{2-}_4/l]	Below 200	Below 50	Below 50	Below 200	Below 50	Below 50	Below 50	Below 30	Below 30	Corrosion
	M-alkalinity (pH4.8)	[mg$CaCO_3$/l]	Below 100	Below 50	Below 50	Below 100	Below 50	Below 50	Below 50	Below 50	Below 50	Scale
	Total hardness	[mg$CaCO_3$/l]	Below 200	Below 70	Below 70	Below 200	Below 70	Below 70	Below 70	Below 70	Below 70	Scale
	Calcium harness	[mg$CaCO_3$/l]	Below 150	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Scale
	Silca ion	[mgSiO_2/l]	Below 50	Below 30	Below 30	Below 30	Below 30	Below 30	Below 30	Below 30	Below 30	Scale
	Oxygen	(mg O2 /l)	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Corrosion
	Particole size	(mm)	Below 0.5	Below 0.5	Below 0.5	Below 0.5	Below 0.6	Below 0.5	Below 0.6	Below 0.5	Below 0.6	Erosion
	Total dissolved solids	(mg / l)	Below 1000	Below 1000	Below 1000	Below 1000	Below 1001	Below 1000	Below 1001	Below 1000	Below 1001	Erosion
	Ethykene, Propylene Glycol (weight conc.)		Below 60%	Below 60%	---	Below 60%	Below 60%	Below 60%	Below 60%	Below 60%	Below 60%	--
Items to be referred to:	Nitrate ion	(mg NO3- /l)	Below 100	Below 100	Below 100	Below 100	Below 101	Below 100	Below 101	Below 100	Below 101	Corrosion
	TOC Total organic carbon	(mg /l)	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Scale
	Iron	[mgFe/l]	Below 1.0	Below 0.3	Below 1.0	Below 1.0	Below 0.3	Below 1.0	Below 0.3	Below 1.0	Below 0.3	Corrosion + Scale
	Copper	[mgCu/l]	Below 0.3	Below 0.1	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 0.1	Below 1.0	Below 0.1	Corrosion
	Sulfite ion	[mgS^{2-}/l]	Not detectable	Not detectable	Not detectable	Not detectable	Not detectable	Not detectable	Not detectable	Not detectable	Not detectable	Corrosion
	Ammonium ion	[mgNH^{+}_4/l]	Below 1.0	Below 0.1	Below 1.0	Below 1.0	Below 0.1	Below 0.3	Below 0.1	Below 0.1	Below 0.1	Corrosion
	Remaining chloride	[mgCL/l]	Below 0.3	Below 0.3	Below 0.3	Below 0.3	Below 0.3	Below 0.25	Below 0.3	Below 0.1	Below 0.3	Corrosion
	Free carbide	[mgCO_2/l]	Below 4.0	Below 4.0	Below 4.0	Below 4.0	Below 4.0	Below 0.4	Below 4.0	Below 0.4	Below 4.0	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.
Especially when the iron materials is in direct contact with water without any protection shields, it is desireable to give the valid measure for corrosion. E.g. chemical measure

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 representable items in corrosion and scale cases.

6 The limits above have to be considered as a general prescription and con not totallu assure the absence of corrossion 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.

EWLQ G-SS

			090						100					
Twe		**Tc**	**30**	**35**	**40**	**45**	**50**	**55**	**30**	**35**	**40**	**45**	**50**	**55**
5	CC	kW	93.3	89.7	85.6	81.1	76.3	71.1	107	102	97.4	92.2	86.6	80.9
	PI	kW	16.6	18.5	20.3	22.2	24.3	26.7	19.4	21.3	23.4	25.6	28.2	31.3
	qwe	l/s	4.5	4.3	4.1	3.9	3.7	3.4	5.1	4.9	4.7	4.4	4.2	3.9
	dpwe	kPa	51	47	43	39	34	29	52	47	43	38	34	29
7	CC	kW	99.1	95.3	91.1	86.5	81.4	76	114	109	104	98.4	92.6	86.6
	PI	kW	16.6	18.5	20.4	22.4	24.5	26.8	19.5	21.5	23.5	25.8	28.4	31.4
	qwe	l/s	4.8	4.6	4.4	4.2	3.9	3.6	5.5	5.2	5.0	4.7	4.4	4.2
	dpwe	kPa	57.7	53.3	48.7	43.8	38.8	33.7	58.4	53.5	48.6	43.6	38.6	33.7
9	CC	kW	105	101	96.8	92	86.8	81.1	121	116	110	105	98.9	92.5
	PI	kW	16.6	18.6	20.6	22.6	24.7	27	19.6	21.6	23.7	26	28.6	31.6
	qwe	l/s	5.1	4.9	4.7	4.4	4.2	3.9	5.8	5.6	5.3	5.0	4.8	4.4
	dpwe	kPa	65	60	55	50	44	39	66	61	55	50	44	39
11	CC	kW		107	103	97.7	92.3	86.4		123	117	111	105	98.7
	PI	kW	27	18.6	20.7	22.7	24.9	27.2	31.6	21.7	23.9	26.2	28.8	31.8
	qwe	l/s		5.2	4.9	4.7	4.4	4.2		5.9	5.6	5.4	5.1	4.7
	dpwe	kPa		68	62	56	50	44		68	62	56	50	44
13	CC	kW		114	109	104	98	91.9		130	124	118	112	105
	PI	kW	27.2	18.6	20.7	22.9	25	27.4	31.8	21.9	24	26.4	29	31.9
	qwe	l/s		5.5	5.2	5.0	4.7	4.4		6.3	6.0	5.7	5.4	5.1
	dpwe	kPa		76	70	63	57	50		77	70	64	57	50
15	CC	kW		120	115	110	104	97.6		138	132	125	119	112
	PI	kW	27.4	18.6	20.8	23	25.2	27.6	31.9	22	24.2	26.6	29.2	32.1
	qwe	l/s		5.8	5.6	5.3	5.0	4.7		6.7	6.3	6.1	5.7	5.4
	dpwe	kPa		86	79	71	64	56		87	79	72	64	57

			120						130					
Twe		**Tc**	**30**	**35**	**40**	**45**	**50**	**55**	**30**	**35**	**40**	**45**	**50**	**55**
5	CC	kW	121	115	109	103	96.9	90.6	138	131	124	117	109	101
	PI	kW	22.1	24.1	26.3	29	32.1	35.8	24.9	27.2	29.8	32.8	36.3	40.3
	qwe	l/s	5.8	5.5	5.2	4.9	4.6	4.3	6.6	6.3	5.9	5.6	5.2	4.8
	dpwe	kPa	42	38	34	31	27	24	36	32	29	26	22	19
7	CC	kW	129	123	117	110	104	97.1	147	140	133	125	117	108
	PI	kW	22.3	24.3	26.5	29.2	32.3	35.9	25.1	27.4	30	33	36.4	40.4
	qwe	l/s	6.2	5.9	5.6	5.3	5.0	4.7	7.1	6.7	6.4	6.0	5.6	5.2
	dpwe	kPa	48.0	43.6	39.2	35.0	31.0	27.1	40.8	37.0	33.2	29.4	25.8	22.1
9	CC	kW	137	131	125	118	111	104	157	149	142	134	125	116
	PI	kW	22.6	24.5	26.8	29.4	32.4	36.1	25.4	27.6	30.2	33.1	36.6	40.6
	qwe	l/s	6.6	6.3	6.0	5.7	5.3	5.0	7.5	7.2	6.8	6.4	6.0	5.6
	dpwe	kPa	55	50	45	40	36	31	46	42	38	34	30	25
11	CC	kW		140	133	126	118	111		159	151	143	134	124
	PI	kW	36.1	24.8	27	29.6	32.6	36.2	40.6	27.9	30.4	33.4	36.8	40.7
	qwe	l/s		6.7	6.4	6.0	5.7	5.3		7.6	7.3	6.8	6.4	6.0
	dpwe	kPa		56	51	46	41	36		48	43	38	34	29
13	CC	kW		148	141	134	126	118		169	161	152	142	133
	PI	kW	36.2	25	27.2	29.8	32.8	36.4	40.7	28.1	30.6	33.6	37	40.9
	qwe	l/s		7.1	6.8	6.4	6.1	5.7		8.1	7.7	7.3	6.8	6.4
	dpwe	kPa		64	58	52	46	41		54	49	44	38	33
15	CC	kW		158	150	142	134	126		179	170	161	152	141
	PI	kW	36.4	25.3	27.5	30.1	33.1	36.6	40.9	28.4	30.9	33.8	37.2	41.1
	qwe	l/s		7.6	7.2	6.8	6.5	6.1		8.6	8.2	7.8	7.3	6.8
	dpwe	kPa		72	65	59	52	46		61	55	49	44	38

EWLQ G-SS

			150						170					
Twe		**Tc**	**30**	**35**	**40**	**45**	**50**	**55**	**30**	**35**	**40**	**45**	**50**	**55**
5	CC	kW	153	146	138	130	122	113	175	167	158	149	140	130
	PI	kW	27.6	30.2	33.2	36.6	40.5	44.8	31.6	34.6	37.9	41.8	46.3	51.4
	qwe	l/s	7.3	7.0	6.6	6.2	5.8	5.4	8.4	8.0	7.6	7.2	6.7	6.2
	dpwe	kPa	35	32	29	25	22	19	37	34	30	27	24	20
7	CC	kW	163	155	148	139	130	121	186	178	169	160	150	139
	PI	kW	27.9	30.5	33.4	36.8	40.6	45	31.9	34.8	38.2	42	46.5	51.5
	qwe	l/s	7.8	7.4	7.1	6.7	6.2	5.8	8.9	8.5	8.1	7.7	7.2	6.6
	dpwe	kPa	39.9	36.3	32.7	29.1	25.5	21.9	42.1	38.3	34.6	30.8	27.0	23.3
9	CC	kW	173	166	157	149	139	129	199	190	180	170	160	148
	PI	kW	28.2	30.7	33.6	37	40.8	45.1	32.3	35.1	38.5	42.3	46.7	51.7
	qwe	l/s	8.3	7.9	7.6	7.1	6.7	6.2	9.5	9.1	8.6	8.2	7.7	7.1
	dpwe	kPa	45	41	37	33	29	25	48	44	39	35	31	27
11	CC	kW		176	168	158	148	138		202	192	181	170	158
	PI	kW	45.1	31	33.8	37.1	40.9	45.3	51.7	35.5	38.8	42.6	46.9	51.9
	qwe	l/s		8.5	8.1	7.6	7.1	6.6		9.7	9.2	8.7	8.2	7.6
	dpwe	kPa		47	42	38	33	29		50	45	40	35	30
13	CC	kW		187	178	169	158	147		215	204	193	181	169
	PI	kW	45.3	31.2	34.1	37.4	41.1	45.4	51.9	35.8	39.1	42.8	47.2	52.2
	qwe	l/s		9.0	8.6	8.1	7.6	7.1		10.3	9.8	9.3	8.7	8.1
	dpwe	kPa		53	48	43	38	33		56	51	45	40	35
15	CC	kW		199	189	179	168	157		228	217	205	193	179
	PI	kW	45.4	31.5	34.3	37.6	41.3	45.6	52.2	36.2	39.4	43.2	47.5	52.4
	qwe	l/s		9.6	9.1	8.6	8.1	7.5		11.0	10.4	9.9	9.3	8.6
	dpwe	kPa		60	54	49	43	37		63	57	51	45	39

			190						210					
Twe		**Tc**	**30**	**35**	**40**	**45**	**50**	**55**	**30**	**35**	**40**	**45**	**50**	**55**
5	CC	kW	197	189	179	170	159	149	226	215	204	193	180	167
	PI	kW	35.3	38.6	42.3	46.7	51.7	57.4	41.5	45.1	49.2	53.8	59.3	65.6
	qwe	l/s	9.4	9.0	8.6	8.1	7.6	7.1	10.8	10.3	9.8	9.2	8.6	8.0
	dpwe	kPa	39	36	32	29	26	22	36	33	29	26	23	20
7	CC	kW	210	201	191	181	170	159	241	230	218	206	192	178
	PI	kW	35.7	38.9	42.6	47	51.9	57.6	41.9	45.5	49.5	54.2	59.5	65.8
	qwe	l/s	10.1	9.6	9.2	8.7	8.2	7.6	11.5	11.0	10.4	9.8	9.2	8.5
	dpwe	kPa	44.5	40.7	36.9	33.0	29.2	25.5	40.8	37.2	33.5	29.8	26.1	22.4
9	CC	kW	224	214	204	193	182	170	256	245	232	219	205	190
	PI	kW	36	39.3	43	47.2	52.2	57.9	42.4	45.9	49.9	54.5	59.8	66
	qwe	l/s	10.7	10.3	9.8	9.3	8.7	8.1	12.3	11.7	11.1	10.5	9.8	9.1
	dpwe	kPa	51	46	42	38	33	29	47	42	38	34	30	26
11	CC	kW		228	217	206	194	182		260	248	234	219	203
	PI	kW	57.9	39.7	43.3	47.6	52.5	58.1	66	46.4	50.3	54.9	60.1	66.3
	qwe	l/s		10.9	10.4	9.9	9.3	8.7		12.5	11.9	11.2	10.5	9.7
	dpwe	kPa		53	48	43	38	33		48	43	39	34	29
13	CC	kW		242	231	219	207	194		277	263	249	233	216
	PI	kW	58.1	40.1	43.7	47.9	52.8	58.5	66.3	46.8	50.8	55.3	60.5	66.5
	qwe	l/s		11.6	11.1	10.5	9.9	9.3		13.3	12.6	11.9	11.2	10.4
	dpwe	kPa		59	54	49	43	38		54	49	44	39	33
15	CC	kW		257	245	233	220	206		294	280	264	248	230
	PI	kW	58.5	40.6	44.2	48.4	53.2	58.8	66.5	47.3	51.2	55.7	60.8	66.8
	qwe	l/s		12.4	11.8	11.2	10.6	9.9		14.1	13.4	12.7	11.9	11.1
	dpwe	kPa		67	61	55	49	43		62	56	50	44	38

EWLQ G-SS

			240						300					
Twe		**Tc**	**30**	**35**	**40**	**45**	**50**	**55**	**30**	**35**	**40**	**45**	**50**	**55**
5	CC	kW	250	240	228	216	204	190	314	301	287	272	256	239
	PI	kW	45.6	49.6	54.1	59.4	65.3	72	57.2	62.3	68.2	75.1	83	92
	qwe	l/s	12.0	11.5	10.9	10.3	9.7	9.1	15.0	14.4	13.7	13.0	12.2	11.4
	dpwe	kPa	44	40	37	33	29	25	48	44	40	36	32	28
7	CC	kW	266	255	243	231	217	203	335	321	306	290	274	256
	PI	kW	46.4	50.2	54.7	59.9	65.8	72.5	58	63	68.8	75.6	83.4	92.3
	qwe	l/s	12.8	12.2	11.7	11.1	10.4	9.7	16.0	15.4	14.7	13.9	13.1	12.3
	dpwe	kPa	50.1	46.0	41.8	37.6	33.3	29.1	54.9	50.5	45.9	41.3	36.6	32.0
9	CC	kW	283	272	259	246	232	217	356	341	326	310	292	273
	PI	kW	47.3	51	55.4	60.5	66.4	73	58.9	63.8	69.5	76.2	83.9	92.7
	qwe	l/s	13.6	13.0	12.4	11.8	11.1	10.4	17.1	16.4	15.6	14.9	14.0	13.1
	dpwe	kPa	57	52	48	43	38	33	62	57	52	47	42	37
11	CC	kW		289	276	262	247	232		363	347	330	311	292
	PI	kW	73	51.9	56.2	61.2	67	73.6	92.7	64.7	70.3	76.8	84.5	93.2
	qwe	l/s		13.9	13.2	12.6	11.9	11.1		17.4	16.6	15.8	14.9	14.0
	dpwe	kPa		59	54	49	43	38		65	59	54	48	42
13	CC	kW		306	293	278	263	247		385	368	350	332	311
	PI	kW	73.6	52.8	57	62	67.6	74.1	93.2	65.6	71.1	77.6	85.1	93.7
	qwe	l/s		14.7	14.1	13.4	12.6	11.9		18.5	17.7	16.9	15.9	14.9
	dpwe	kPa		67	61	55	49	43		73	67	61	54	48
15	CC	kW		325	311	296	279	262		408	391	372	352	331
	PI	kW	74.1	53.9	58	62.8	68.4	74.8	93.7	66.7	72	78.4	85.8	94.3
	qwe	l/s		15.6	15.0	14.2	13.4	12.6		19.7	18.8	17.9	17.0	15.9
	dpwe	kPa		75	69	62	56	49		83	76	68	61	54

			360											
Twe		**Tc**	**30**	**35**	**40**	**45**	**50**	**55**	**Ta1**	**Ta2**	**Ta3**	**Ta4**	**Ta5**	**Ta6**
5	CC	kW	374	359	342	324	306	286						
	PI	kW	69	75.3	82.8	91.4	101	113						
	qwe	l/s	17.9	17.1	16.4	15.5	14.6	13.6						
	dpwe	kPa	48	44	40	36	32	28						
7	CC	kW	398	382	365	346	326	305						
	PI	kW	69.8	76	83.3	91.8	102	113						
	qwe	l/s	19.1	18.3	17.5	16.6	15.6	14.6						
	dpwe	kPa	54.8	50.4	45.9	41.3	36.7	32.1						
9	CC	kW	423	406	388	369	348	326						
	PI	kW	70.7	76.7	83.9	92.3	102	113						
	qwe	l/s	20.3	19.5	18.6	17.7	16.7	15.6						
	dpwe	kPa	62	57	52	47	42	37						
11	CC	kW		432	413	393	371	348						
	PI	kW	113	77.6	84.6	92.9	102	113						
	qwe	l/s		20.7	19.8	18.9	17.8	16.7						
	dpwe	kPa		65	59	53	48	42						
13	CC	kW		458	438	417	395	371						
	PI	kW	113	78.5	85.4	93.5	103	114						
	qwe	l/s		22.0	21.1	20.0	19.0	17.8						
	dpwe	kPa		73	67	61	54	48						
15	CC	kW		486	465	443	420	395						
	PI	kW	114	79.6	86.3	94.2	104	114						
	qwe	l/s		23.4	22.4	21.3	20.2	19.0						
	dpwe	kPa		82	75	68	61	54						

Fluid: Water
Twe: Evaporator leaving water temperature (Δt 5°C); Tc: Condensing temperature;
qwc: Fluid flow rate at condenser; dpwc: Fluid pressure drop at condenser
** For working condition where dpw value is "Italic-Red Color" please contac factory*

EWLQ L-SS

			180						205					
Twe		**Tc**	**30**	**35**	**40**	**45**	**50**	**55**	**30**	**35**	**40**	**45**	**50**	**55**
5	CC	kW	187	180	171	162	153	142	215	206	195	185	174	162
	PI	kW	32.7	36.4	40.2	44.1	48.3	53.1	38.3	42.1	46.2	50.8	56.1	62.2
	qwe	l/s	8.9	8.6	8.2	7.8	7.3	6.8	10.3	9.8	9.3	8.8	8.3	7.8
	dpwe	kPa	30	27	25	22	20	17	29	27	24	21	19	17
7	CC	kW	199	191	183	173	163	152	229	219	209	197	186	174
	PI	kW	32.7	36.5	40.4	44.3	48.6	53.4	38.4	42.3	46.5	51.1	56.4	62.5
	qwe	l/s	9.5	9.1	8.7	8.3	7.8	7.3	11.0	10.5	10.0	9.4	8.9	8.3
	dpwe	kPa	33.6	31.0	28.2	25.4	22.5	19.6	33.0	30.2	27.3	24.5	21.7	18.9
9	CC	kW	211	203	194	184	174	162	244	233	222	211	198	186
	PI	kW	32.5	36.6	40.6	44.6	48.9	53.7	38.5	42.5	46.8	51.5	56.7	62.7
	qwe	l/s	10.1	9.7	9.3	8.8	8.3	7.8	11.7	11.2	10.6	10.1	9.5	8.9
	dpwe	kPa	38	35	32	29	26	22	37	34	31	28	25	22
11	CC	kW		216	206	196	185	173		248	236	224	211	198
	PI	kW	53.7	36.6	40.7	44.9	49.2	54	62.7	42.8	47.1	51.8	57	63
	qwe	l/s		10.4	9.9	9.4	8.9	8.3		11.9	11.3	10.8	10.1	9.5
	dpwe	kPa		40	36	33	29	25		39	35	32	28	25
13	CC	kW		229	219	208	197	184		263	251	238	225	211
	PI	kW	54	36.5	40.8	45.1	49.5	54.3	63	42.9	47.3	52.1	57.4	63.3
	qwe	l/s		11.0	10.5	10.0	9.4	8.8		12.6	12.1	11.4	10.8	10.1
	dpwe	kPa		45	41	37	33	29		44	40	36	32	28
15	CC	kW		242	232	221	209	196		279	267	253	239	225
	PI	kW	54.3	36.3	40.8	45.3	49.8	54.6	63.3	43.1	47.6	52.4	57.7	63.7
	qwe	l/s		11.6	11.1	10.6	10.0	9.4		13.4	12.8	12.2	11.5	10.8
	dpwe	kPa		50	46	42	37	33		49	45	41	36	32

			230						260					
Twe		**Tc**	**30**	**35**	**40**	**45**	**50**	**55**	**30**	**35**	**40**	**45**	**50**	**55**
5	CC	kW	246	234	222	209	197	184	274	261	247	233	218	202
	PI	kW	43.8	47.7	52.3	57.6	63.9	71.3	49.4	54	59.2	65.3	72.3	80.4
	qwe	l/s	11.7	11.2	10.6	10.0	9.4	8.8	13.1	12.5	11.8	11.1	10.4	9.6
	dpwe	kPa	24	22	20	18	16	14	30	28	25	22	19	17
7	CC	kW	262	250	237	224	210	197	292	278	264	249	233	216
	PI	kW	44.1	48.1	52.6	57.9	64.2	71.5	49.8	54.4	59.6	65.6	72.6	80.6
	qwe	l/s	12.5	11.9	11.3	10.7	10.1	9.4	14.0	13.3	12.6	11.9	11.1	10.3
	dpwe	kPa	27.8	25.2	22.7	20.3	17.9	15.7	34.5	31.3	28.2	25.0	22.0	18.9
9	CC	kW	279	266	253	239	225	211	311	296	281	265	249	231
	PI	kW	44.6	48.5	53	58.3	64.5	71.8	50.3	54.8	60	65.9	72.9	80.9
	qwe	l/s	13.4	12.8	12.1	11.4	10.8	10.1	14.9	14.2	13.5	12.7	11.9	11.1
	dpwe	kPa	32	29	26	23	21	18	39	36	32	29	25	22
11	CC	kW		284	269	255	240	225		315	299	283	265	247
	PI	kW	71.8	48.9	53.4	58.6	64.8	72.1	80.9	55.2	60.3	66.3	73.2	81.2
	qwe	l/s		13.6	12.9	12.2	11.5	10.8		15.1	14.4	13.6	12.7	11.8
	dpwe	kPa		33	30	26	24	21		41	37	33	29	25
13	CC	kW		302	287	272	256	240		335	319	301	283	263
	PI	kW	72.1	49.4	53.8	59	65.2	72.4	81.2	55.7	60.8	66.7	73.5	81.4
	qwe	l/s		14.5	13.8	13.0	12.3	11.5		16.1	15.3	14.4	13.6	12.6
	dpwe	kPa		37	34	30	27	24		46	41	37	33	28
15	CC	kW		320	305	289	273	256		356	338	320	301	281
	PI	kW	72.4	49.9	54.3	59.5	65.6	72.7	81.4	56.3	61.3	67.1	73.9	81.7
	qwe	l/s		15.4	14.6	13.9	13.1	12.3		17.1	16.3	15.4	14.4	13.5
	dpwe	kPa		42	38	34	30	27		52	47	42	37	32

EWLQ L-SS

			290						330					
Twe		**Tc**	**30**	**35**	**40**	**45**	**50**	**55**	**30**	**35**	**40**	**45**	**50**	**55**
5	CC	kW	306	292	277	261	244	226	346	330	314	297	278	258
	PI	kW	54.9	60.1	66.1	72.9	80.7	89.5	62.8	68.8	75.6	83.4	92.3	103
	qwe	l/s	14.6	13.9	13.2	12.5	11.7	10.8	16.5	15.8	15.0	14.2	13.3	12.3
	dpwe	kPa	27	25	22	20	17	15	34	31	28	25	22	19
7	CC	kW	326	311	296	279	261	242	369	352	335	317	297	276
	PI	kW	55.3	60.5	66.4	73.2	80.9	89.7	63.4	69.3	76	83.8	92.7	103
	qwe	l/s	15.6	14.9	14.1	13.4	12.5	11.6	17.6	16.9	16.0	15.1	14.2	13.2
	dpwe	kPa	30.6	27.9	25.2	22.4	19.6	16.9	39.2	35.7	32.3	28.8	25.4	21.9
9	CC	kW	347	332	315	298	279	259	392	375	357	337	317	294
	PI	kW	55.8	60.9	66.8	73.5	81.2	89.9	64.1	69.9	76.5	84.2	93	103
	qwe	l/s	16.6	15.9	15.1	14.3	13.4	12.4	18.8	18.0	17.1	16.2	15.2	14.1
	dpwe	kPa	35	32	29	26	22	19	45	41	37	33	29	25
11	CC	kW		353	336	317	298	277		399	380	359	337	314
	PI	kW	89.9	61.4	67.2	73.9	81.5	90.2	103	70.5	77.1	84.7	93.5	104
	qwe	l/s		16.9	16.1	15.2	14.3	13.3		19.1	18.2	17.2	16.2	15.0
	dpwe	kPa		36	33	29	26	22		46	42	37	33	28
13	CC	kW		375	357	338	317	295		423	403	382	359	334
	PI	kW	90.2	61.9	67.6	74.2	81.8	90.4	104	71.2	77.7	85.3	94	104
	qwe	l/s		18.0	17.1	16.2	15.2	14.1		20.3	19.4	18.3	17.2	16.0
	dpwe	kPa		41	37	33	29	25		52	47	42	37	32
15	CC	kW		398	379	359	337	314		450	428	405	381	355
	PI	kW	90.4	62.5	68.1	74.6	82.1	90.7	104	71.9	78.4	85.9	94.5	104
	qwe	l/s		19.1	18.2	17.2	16.2	15.1		21.6	20.6	19.5	18.3	17.1
	dpwe	kPa		46	42	37	33	29		59	53	48	42	37

			380						430					
Twe		**Tc**	**30**	**35**	**40**	**45**	**50**	**55**	**30**	**35**	**40**	**45**	**50**	**55**
5	CC	kW	393	376	357	338	318	297	448	428	407	384	359	333
	PI	kW	70.2	76.7	84.3	93	103	115	82.6	89.8	98	107	118	131
	qwe	l/s	18.8	18.0	17.1	16.2	15.2	14.2	21.4	20.5	19.4	18.3	17.2	15.9
	dpwe	kPa	34	31	28	25	22	19	35	32	29	25	22	19
7	CC	kW	419	401	382	361	340	318	478	456	434	409	384	356
	PI	kW	70.9	77.4	84.8	93.5	103	115	83.5	90.6	98.7	108	119	131
	qwe	l/s	20.0	19.2	18.3	17.3	16.3	15.2	22.9	21.8	20.8	19.6	18.3	17.0
	dpwe	kPa	38.7	35.4	32.1	28.7	25.4	22.2	39.5	36.0	32.5	29.0	25.4	21.8
9	CC	kW	446	427	407	385	363	339	508	486	462	436	409	380
	PI	kW	71.6	78.1	85.5	94.1	104	115	84.3	91.4	99.5	109	119	132
	qwe	l/s	21.4	20.5	19.5	18.5	17.4	16.3	24.4	23.3	22.1	20.9	19.6	18.2
	dpwe	kPa	44	40	37	33	29	25	45	41	37	33	29	25
11	CC	kW		454	433	410	387	362		516	491	464	435	405
	PI	kW	115	78.8	86.2	94.7	105	116	132	92.3	100	109	120	132
	qwe	l/s		21.8	20.8	19.7	18.5	17.4		24.8	23.5	22.3	20.9	19.4
	dpwe	kPa		46	42	37	33	29		46	42	37	33	28
13	CC	kW		482	460	437	412	386		548	522	493	463	431
	PI	kW	116	79.6	86.9	95.4	105	116	132	93.2	101	110	121	133
	qwe	l/s		23.2	22.1	21.0	19.8	18.5		26.3	25.0	23.7	22.2	20.7
	dpwe	kPa		52	47	42	38	33		52	47	42	37	32
15	CC	kW		512	489	464	438	411		582	554	524	492	458
	PI	kW	116	80.5	87.8	96.2	106	117	133	94.1	102	111	121	133
	qwe	l/s		24.6	23.5	22.3	21.0	19.7		28.0	26.6	25.2	23.6	22.0
	dpwe	kPa		58	53	48	43	37		59	53	48	42	37

EWLQ L-SS

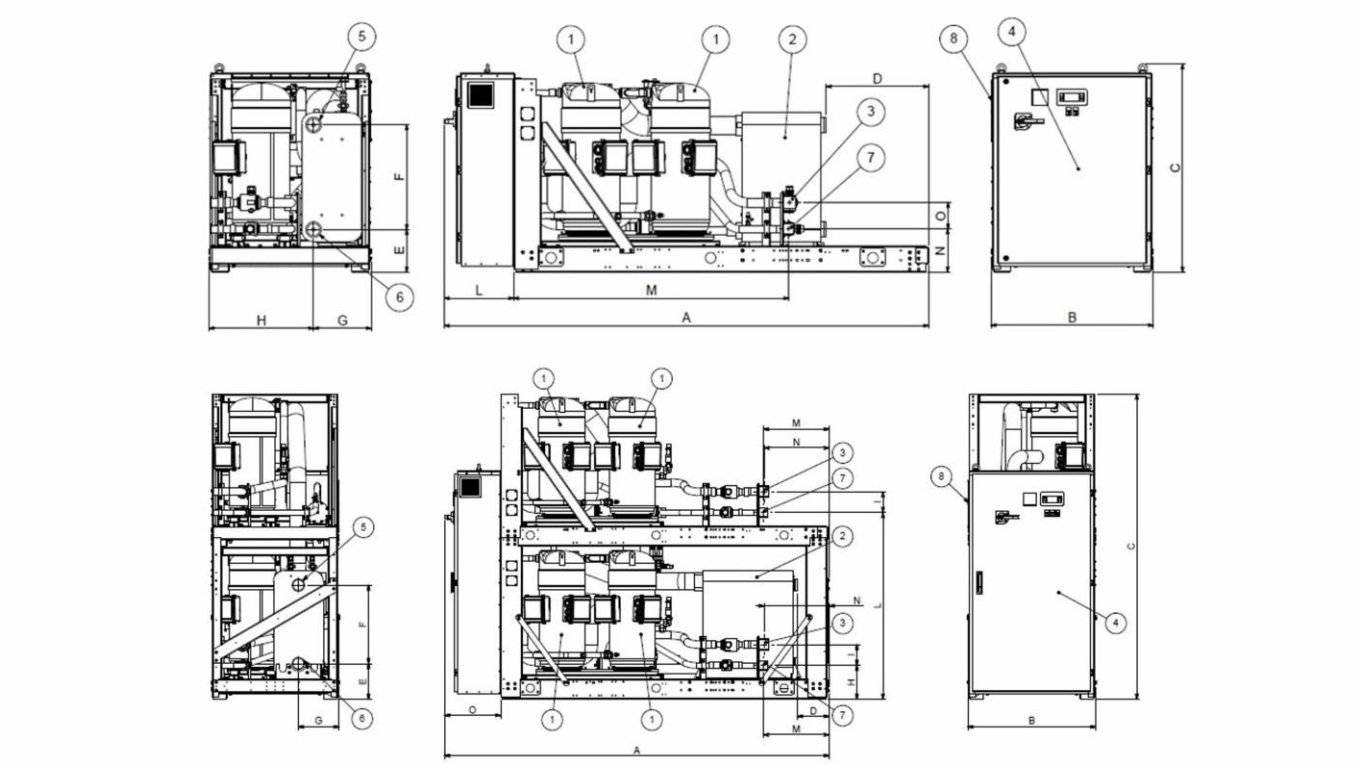
			480						540					
Twe		**Tc**	**30**	**35**	**40**	**45**	**50**	**55**	**30**	**35**	**40**	**45**	**50**	**55**
5	CC	kW	496	476	454	430	405	379	552	530	506	480	453	424
	PI	kW	90.7	98.7	108	118	130	144	102	111	122	134	148	164
	qwe	l/s	23.7	22.7	21.7	20.6	19.4	18.1	26.4	25.3	24.2	23.0	21.6	20.3
	dpwe	kPa	43	39	36	32	28	25	53	49	44	40	35	31
7	CC	kW	528	506	483	459	432	405	587	563	538	511	483	453
	PI	kW	92.3	100	109	119	131	145	104	113	123	135	149	165
	qwe	l/s	25.3	24.2	23.1	21.9	20.7	19.4	28.1	27.0	25.8	24.5	23.1	21.7
	dpwe	kPa	48.3	44.4	40.4	36.4	32.3	28.3	59.7	55.0	50.1	45.3	40.3	35.4
9	CC	kW	561	538	514	488	461	432	623	598	572	544	514	482
	PI	kW	93.9	102	110	121	132	146	106	114	125	136	150	166
	qwe	l/s	26.9	25.8	24.6	23.4	22.1	20.7	29.9	28.7	27.4	26.1	24.6	23.1
	dpwe	kPa	55	50	46	41	37	32	68	62	57	51	46	40
11	CC	kW		571	546	519	490	460		635	607	578	546	513
	PI	kW	146	103	112	122	134	147	166	116	126	138	151	166
	qwe	l/s		27.4	26.2	24.9	23.5	22.0		30.5	29.2	27.7	26.2	24.6
	dpwe	kPa		57	52	47	42	37		70	64	58	52	46
13	CC	kW		606	579	551	521	489		673	644	613	581	546
	PI	kW	147	105	113	123	135	148	166	118	128	139	152	168
	qwe	l/s		29.1	27.8	26.5	25.0	23.5		32.4	31.0	29.5	27.9	26.2
	dpwe	kPa		64	59	53	47	42		79	73	66	59	52
15	CC	kW		642	614	585	553	520		713	683	651	616	580
	PI	kW	148	107	115	125	136	149	168	120	129	141	154	169
	qwe	l/s		30.9	29.5	28.1	26.6	25.0		34.4	32.9	31.3	29.6	27.9
	dpwe	kPa		72	66	60	53	47		89	82	74	66	59

			600						660					
Twe		**Tc**	**30**	**35**	**40**	**45**	**50**	**55**	**30**	**35**	**40**	**45**	**50**	**55**
5	CC	kW	617	592	565	536	505	473	672	645	617	586	553	518
	PI	kW	115	125	137	151	167	185	126	138	151	167	185	205
	qwe	l/s	29.5	28.3	27.0	25.6	24.2	22.6	32.2	30.9	29.5	28.0	26.4	24.8
	dpwe	kPa	51	47	43	39	34	30	61	56	51	46	41	36
7	CC	kW	656	629	601	571	539	505	714	686	656	624	589	553
	PI	kW	116	126	138	152	168	186	128	139	153	168	186	206
	qwe	l/s	31.4	30.1	28.8	27.3	25.8	24.2	34.3	32.9	31.4	29.9	28.2	26.5
	dpwe	kPa	57.9	53.3	48.6	43.8	39.0	34.2	68.8	63.4	57.9	52.3	46.7	41.0
9	CC	kW	696	669	639	608	574	538	758	728	697	663	627	589
	PI	kW	118	128	139	153	169	186	130	141	154	169	186	206
	qwe	l/s	33.4	32.1	30.6	29.1	27.5	25.8	36.4	35.0	33.4	31.8	30.1	28.2
	dpwe	kPa	65	60	55	50	44	39	78	72	66	59	53	47
11	CC	kW		709	679	646	611	573		773	740	704	667	627
	PI	kW	186	129	141	154	170	187	206	142	155	170	187	207
	qwe	l/s		34.1	32.6	31.0	29.3	27.5		37.2	35.5	33.8	32.0	30.1
	dpwe	kPa		68	62	56	50	44		81	74	67	60	53
13	CC	kW		752	720	685	649	610		819	784	747	708	666
	PI	kW	187	131	142	155	171	188	207	144	157	171	189	208
	qwe	l/s		36.2	34.6	32.9	31.2	29.3		39.4	37.7	35.9	34.0	32.0
	dpwe	kPa		77	70	64	57	50		91	84	76	68	60
15	CC	kW		797	763	727	689	648		868	831	792	751	707
	PI	kW	188	133	144	157	172	189	208	146	159	173	190	209
	qwe	l/s		38.4	36.7	35.0	33.1	31.2		41.8	40.0	38.2	36.2	34.0
	dpwe	kPa		86	79	72	64	57		103	94	85	77	68

EWLQ L-SS

			720											
Twe		**Tc**	**30**	**35**	**40**	**45**	**50**	**55**	**Ta1**	**Ta2**	**Ta3**	**Ta4**	**Ta5**	**Ta6**
5	CC	kW	728	699	668	635	600	563						
	PI	kW	138	151	166	183	203	225						
	qwe	l/s	34.9	33.5	32.0	30.4	28.7	26.9						
	dpwe	kPa	71	66	60	54	48	43						
7	CC	kW	773	743	710	676	639	600						
	PI	kW	140	152	167	184	204	226						
	qwe	l/s	37.1	35.6	34.1	32.4	30.6	28.7						
	dpwe	kPa	80.6	74.4	68.0	61.5	55.0	48.4						
9	CC	kW	820	788	754	718	680	639						
	PI	kW	142	154	168	185	204	227						
	qwe	l/s	39.4	37.8	36.2	34.5	32.6	30.6						
	dpwe	kPa	91	84	77	70	62	55						
11	CC	kW		836	800	762	722	680						
	PI	kW	227	156	170	186	205	227						
	qwe	l/s		40.2	38.5	36.6	34.7	32.6						
	dpwe	kPa		95	87	79	71	62						
13	CC	kW		886	849	809	767	722						
	PI	kW	227	158	171	188	206	228						
	qwe	l/s		42.7	40.9	38.9	36.9	34.7						
	dpwe	kPa		107	98	89	80	71						
15	CC	kW		938	899	858	814	767						
	PI	kW	228	160	173	189	208	229						
	qwe	l/s		45.3	43.4	41.3	39.2	36.9						
	dpwe	kPa		120	110	100	90	80						

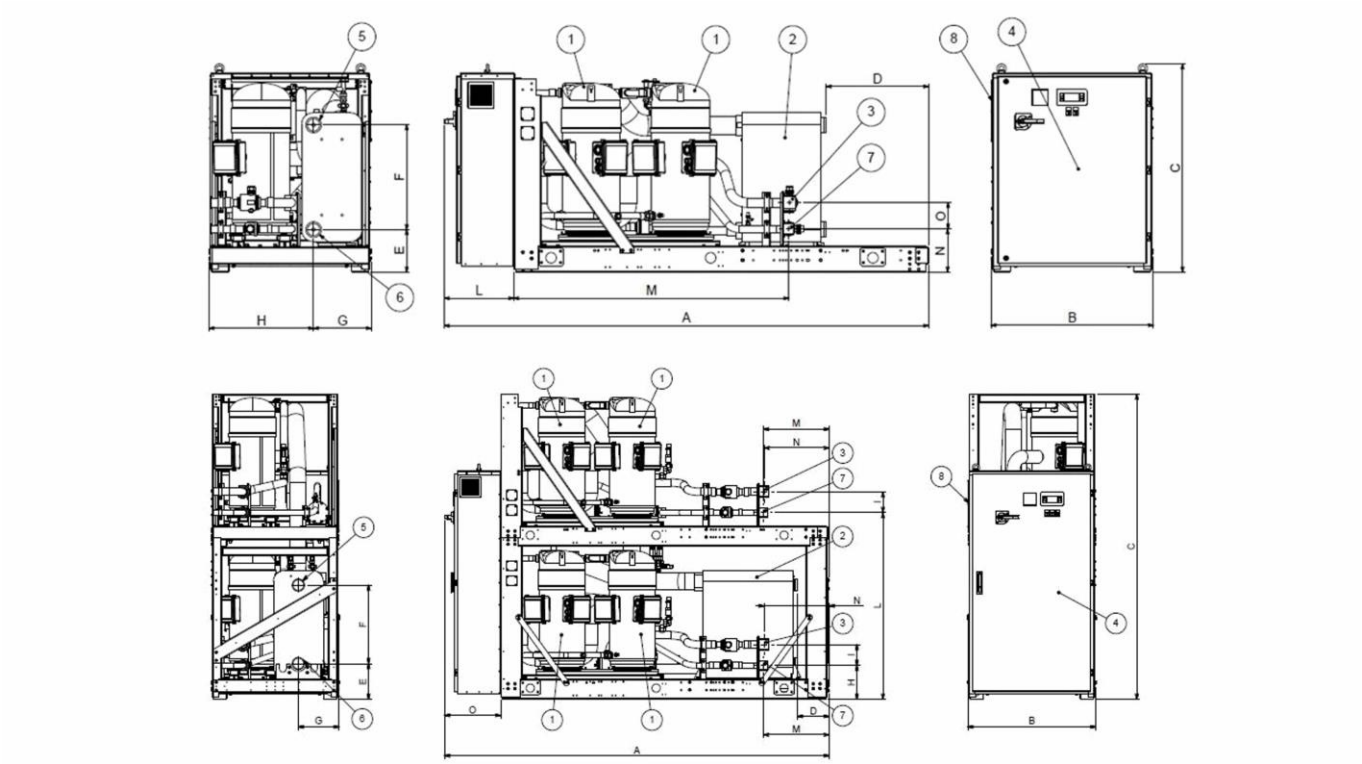
Fluid: Water
Twe: Evaporator leaving water temperature (Δt 5°C); Tc: Condensing temperature;
qwc: Fluid flow rate at condenser; dpwc: Fluid pressure drop at condenser
** For working condition where dpw value is "Italic-Red Color" please contac factory*



LEGEND

1: COMPRESSOR
2: EVAPORATOR
3: COMPRESSOR DISCHARGE
4: EELECTRICAL PANEL
5: EVAPORATOR WATER INLET CONNECTION (VICTAULIC AS OPTION)
6: EVAPORATOR WATER OUTLET CONNECTION (VICTAULIC AS OPTION)
7: LIQUID LINE INLET
8: POWER CONNECTIONS SLOT 150X200

	A N	B O	C	D	E	F	G	H	I	L	M
EWLQ090G-SS	2743 245	928 150	1066	736	227	470	221	707		371	1573
EWLQ100G-SS	2743 245	928 150	1066	683	227	470	221	707		371	1573
EWLQ120G-SS	2743 245	928 150	1066	822	231	450	273	655		371	1573
EWLQ130G-SS	2743 245	928 150	1066	785	231	450	273	655		371	1573
EWLQ150G-SS	2743 245	928 150	1066	757	231	450	273	655		371	1573
EWLQ170G-SS	2743 245	928 150	1066	725	231	450	273	655		371	1573
EWLQ190G-SS	2743 245	928 150	1066	692	231	450	273	655		371	1573
EWLQ210G-SS	2743 245	928 150	1066	657	231	450	273	655		371	1573
EWLQ240G-SS	2743 245	928 150	1066	657	231	450	273	655		371	1573
EWLQ300G-SS	2743 245	928 150	1186	658	242	597	330	598		371	1573
EWLQ360G-SS	2743 245	928 150	1186	585	242	597	330	598		371	1573
EWLQ180L-SS	2801 238	928 421	1970	643	258	568	295	245	150	1352	395
EWLQ205L-SS	2801 238	928 421	1970	613	258	568	295	245	150	1352	395
EWLQ230L-SS	2801 185	928 421	1970	553	258	568	295	245	150	1352	448
EWLQ260L-SS	2801 185	928 421	1970	553	258	568	295	245	150	1352	448
EWLQ290L-SS	2801 185	928 421	1970	492	258	568	295	245	150	1352	448



LEGEND

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	A N	B O	C	D	E	F	G	H	I	L	M
EWLQ330L-SS	2801 185	928 421	1970	492	258	568	295	245	150	1352	448
EWLQ380L-SS	2801 185	928 421	1970	432	258	568	295	245	150	1352	448
EWLQ430L-SS	2801 185	928 421	1970	351	258	568	295	245	150	1352	448
EWLQ480L-SS	2801 185	928 421	1970	351	258	568	295	245	150	1352	448
EWLQ540L-SS	2801 165	928 421	2090	351	258	568	295	245	150	1352	468
EWLQ600L-SS	2801 165	928 421	2210	230	258	568	295	245	150	1352	468
EWLQ660L-SS	2801 165	928 421	2210	230	258	568	295	245	150	1352	468
EWLQ720L-SS	2801 165	928 421	2210	230	258	568	295	245	150	1352	468

Warning Installation and maintenance of the unit must to 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. Do not push or pull the unit from any part other than the basis. 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 inserting a hook in each corner, where there are holes for lifting (see the following drawings instruction). During the lifting phase to verify that the ropes and / or the lifting chains do not touch the electrical panel and / or piping. If moving the machine, you had the sleds or skates, push only on the basis of the machine without touching the pipes of copper, steel, compressors and / or the electrical panel.

Location All units are designed for indoor installation. A leveled and sufficiently strong floor is required. If necessary, additional structural members should be provided to transfer the weight of the unit to nearest 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 machine 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 vibration-dampening devices on the unit, on the water pipes and on the electrical connections.

Storage The environment conditions have to be in the following limits:

Minimum ambient temperature: Maximum ambient temperature: Maximum R.H.:	-20°C +57°C 95% not condensing

The above recommended information are representative of a general installation. A specific evaluation should be done by the contractor case by case.
For complete information refer to the installation manual.

General The unit will be designed and manufactured in accordance with the following European directives:

- Construction of pressure vessel 97/23/EC (PED)
- Machinery Directive 2006/42/EC
- Low Voltage 2006/95/EC
- Electromagnetic Compatibility 2004/108/EC
- Electrical & Safety codes EN 60204–1 / EN 60335-2-40
- Manufacturing Quality Standards UNI – EN ISO 9001:2004

To avoid any losses, the unit will be tested at full load in the factory (at the nominal working conditions and water temperatures). The chiller will be delivered to the job site completely assembled and charged with refrigerant and oil. The installation of the chiller must comply with the manufacturer's instructions for rigging and handling equipment.

The unit will be able to start up and operate (as standard) at full load with:
- evaporator leaving fluid temperature between ..... °C and ..... °C
- condensing temperature ..... °C

Refrigerant Only HFC 410A can be used.

Performance The unit shall supply the following performances:
- Number : ..... unit(s)
- Cooling capacity for single unit : …… kW
- Power input for single chiller in cooling mode : ..... kW
- Evaporator heat exchanger entering water temperature in cooling mode : ..... °C
- Evaporator heat exchanger leaving water temperature in cooling mode : ..... °C
- Evaporator heat exchanger water flow : ..... l/s

Operating voltage range should be 400V ±10%, 3ph, 50Hz, voltage unbalance maximum 3%, without neutral conductor and shall only have one power connection point.

Unit description The unit shall include as standard: one or two refrigerant circuit, two or four hermetic type rotary scroll compressors (according to the capacity), electronic expansion device (EEXV), refrigerant direct expansion plate to plate heat exchangers, R-410A refrigerant, motor starting components, control system and all components necessary for a safe and stable unit operation.
The chiller will be factory assembled on a robust base frame made of galvanized steel, protected by an epoxy paint.

Sound level and vibrations Sound pressure level at 1 meter distance in free field, hemispheric conditions, shall not exceed ……dB(A). The sound pressure levels must be rated in accordance to ISO 3744 (other types of rating can not be used).
Vibration on the base frame should not exceed 2 mm/s.

Dimensions Unit dimensions shall not exceed following indications:
- Unit length ..... mm
- Unit width ..... mm
- Unit height ..... mm

Compressors The units shall be equipped with:
- High performance hermetic scroll compressors optimized to work with R410a, with reduced vibration and sound emissions. High efficiency values shall be guaranteed:

-by high volumetric efficiency in the whole range of application, through the continuous contact between the fixed and the orbiting scroll deleting the dead space and the re-expansion of the refrigerant gas;
-by low pressure drops due to the absence of inlet and discharge valves and to the uniform compression cycle;
-reduction of the heat exchange between the gas during suction and discharge due to the separation of gas flows;

- The reduced noise shall be obtained: -for the absence of the inlet and discharge valves

-for the uniform compression cycle
-for the absence of pistons which ensures reduced vibration and pulsation of the refrigerant

- The engine shall be cooled by the suction refrigerant fluid.
- The terminal shall be contained in a casing with protection degree IP 54.
- The compressors shall be provided with crankcase heater to prevent the dilution of refrigerant and oil the during the stops of the unit;
- Shall be present an electronic thermal protection for the three phases complete with sensors on the stator windings to avoid overheating caused by lack of phase, insufficient cooling, mechanical locks, power supply out of tolerance;
- The compressors shall be connected in Tandem on a single refrigerating circuit.
- The compressors shall be fitted on rubber antivibration mounts.
- The compressors shall be provided complete with oil charge.

Evaporator (PHE) The units shall be equipped with a direct expansion plate to plate type evaporator.
• The evaporator will be made of stainless steel brazed plates closed cell polyurethane insulation material (20-mm thick).
•The evaporator will have 1 or 2 refrigerant circuit.
•The evaporator will be manufactured in accordance to PED approval.
•Flow switch must be installed on plant.
•Water filter must be installed on plant.

Refrigerant circuit The unit shall have one or two refrigerant circuits according to the capacity.
•The circuits shall include as standard: electronic expansion device piloted by unit's microprocessor control, liquid line shut-off valve, sight glass with moisture indicator, filter drier, charging valves, high pressure switch, high and low pressure transducers and insulated suction line.

Condensation control The controller automatically unloads the circuit when abnormal high condensing pressure is detected. This to prevent the shutdown of the refrigerant circuit (shutdown of the unit) due to a high pressure fault.

Hydronic kit options (on request) The hydronic module shall be integrated in the unit chassis without increasing its dimensions and includes the following elements: centrifugal pump with motor protected by a circuit breaker installed in control panel with pressure gauge, safety valve, drain valve.
•The hydronic module shall be assembled and wired to the control panel.
•The water piping shall be protected against corrosion and insulated to prevent condensation.

Electrical control panel Power and control shall be located in the main panel that will be manufactured to ensure protection against all weather conditions.
• The electrical panel shall be IP54 and (when opening the doors) internally protected against possible accidental contact with live parts.
• The main panel shall be fitted with a main switch interlocked door that shuts off power supply when opening.
• The power section will include compressors and funs protection devices, compressors and fans starters and control circuit power supply.

Controller The controller will be installed as standard and it will be used to modify unit set-points and check control parameters.
• A built-in display will shows chiller operating status plus temperatures and pressures of water, refrigerant and air, programmable values, set-points.
• A sophisticated software with predictive logic, will select the most energy efficient combination of compressors, EEXV and condenser fans to keep stable operating conditions to maximize chiller energy efficiency and reliability.
• The controller will be able to protect critical components based on external signals from its system (such as motor temperatures, refrigerant gas and oil pressures, correct phase sequence, pressure switches and evaporator). The input coming from the high pressure switch cuts all digital output from the controller in less than 50ms, this will be an additional security for the equipment.
• Fast program cycle (200ms) for a precise monitoring of the system.

Controller main features Controller shall be guarantee following minimum functions:
• Management of the circuit capacity.
•Chiller enabled to work in partial failure condition (for 2 circuit units).
• Full routine operation at condition of:
- high thermal load
-high evaporator entering water temperature (start-up)
•Display of evaporator entering/leaving water temperature.
•Display of condensing-evaporating temperature and pressure, suction superheat for each circuit.
•Leaving water evaporator temperature regulation.
•Compressor and evaporator pumps hours counter.
•Display of Status Safety Devices.
•Number of starts and compressor working hours.
•Optimized management of compressor load.
•Fan management according to condensing pressure (for condenserless units).
•Re-start in case of power failure (automatic / manual).
•Soft Load (optimized management of the compressor load during the start-up).
• Start at high evaporator water temperature.
•Return Reset (Set Point Reset based on return water temperature).
•Set point Reset (optional).
• Application and system upgrade with commercial SD cards.
•Ethernet port for remote or local servicing using standard web browsers.

High Level Communications Interface (on request) The chiller shall be able to communicate to BMS (Building Management System) based on the most common protocols as:
- ModbusRTU
- LonWorks, now also based on the international 8040 Standard Chiller Profile and LonMark Technology
- BacNet BTP certifief over IP and MS/TP (class 4) (Native)
- Ethernet TCP/IP.

For more information email **info@daikinapplied.uk** or visit **www.daikinapplied.uk**

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0345 565 2700

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