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EWWD-DJYNN

1 Specifications

1-1 TECHNICAL SPECIFICATIONS				EWWD170DJYNN	EWWD210DJYNN	EWWD260DJYNN	EWWD300DJYNN	EWWD320DJYNN	EWWD380DJYNN	EWWD420DJYNN
Capacity (Eurovent conditions specified in notes)	Cooling	Nominal	kW	165.5	201.2	252.8	280.4	333.9	372.2	402.5
Capacity Steps			%	stepless 25-100	stepless 25-100	stepless 25-100	stepless 25-100	stepless 12.5-100	stepless 12.5-100	stepless 12.5-100
Nominal input (Eurovent conditions specified in notes)	Cooling		kW	42.1	50.7	64.9	75.4	84.3	93.1	101.4
EER				3,93	3,97	3,90	3,72	3,96	4,00	3,97
ESEER				5.00	5.04	4.95	4.72	5.28	5.33	5.29
Dimensions	Unit	Height	mm	1860	1860	1860	1860	1880	1880	1880
		Width	mm	3435	3435	3435	3435	4305	4305	4305
		Depth	mm	920	920	920	920	860	860	860
Weight	Unit		kg	1393	1410	1503	1503	2687	2697	2702
	Operating Weight		kg	1470	1480	1650	1650	2840	2850	2860
Water Heat Exchanger	Minimum water volume in the system (Formula)			The minimum water content per unit should be calculated with a certain approximation using this simplified formula: Q= 35.83 X (P(kW) / Delta T(°C)) where : Q = minimum water content per unit expressed in litres P = minimum cooling capacity of the unit expressed in kW Delta T = evaporator entering / leaving water temperature difference expressed in °C For more accurate determination of quantity of water, it is advisable to contact the designer of the plant.						
	Type			Shell and tube						
	Minimum water volume in the system		l	60	56	123	123	118	113	113
	Water flow rate	Min	l/min	218	220	349	349	380	425	430
		Nominal	l/min	474	577	725	804	957	1067	1154
		Max	l/min	688	694	1105	1104	1201	1344	1360
Nominal water pressure drop	Cooling	Heat exchanger	kPa	47.5	69	43	53	63.5	63	72
Water Heat Exchanger	Model	Quantity		1	1	1	1	1	1	1
	Type			Shell and tube						
	Minimum water volume in the system		l	13	15	15	15	26	28	30
	Water flow rate	Min	l/min	303	357	363	368	603	659	718
		Nominal	l/min	595	722	911	1020	1199	1334	1445
		Max	l/min	959	1128	1147	1162	1908	2083	2270
	Nominal water pressure drop	Heating	kPa	38.5	41	63	77	39.5	41	40.5
	Model	Quantity		1	1	1	1	2	2	2
Compressor	Type			Semi-hermetic single screw compressor						
	Model	Quantity		1	1	1	1	2	2	2
		Speed	rpm	2950	2950	2950	2950	2950	2950	2950
Sound Level	Sound Pressure	Cooling	dBA	69.7	69.7	69.7	69.7	71.7	71.7	71.7
Refrigerant circuit	Refrigerant type			R-134a						
	Refrigerant charge		kg	50	50	50	50	100	100	100
	No of circuits			1	1	1	1	2	2	2
	Refrigerant control			Electronic expansion valve						
Safety Devices				High pressure (pressure switch)						
				High discharge temperature on the compressor						
				Phase monitor						
				Star/delta transition failed						
				Low delta pressure between suction and discharge						
				Low pressure ratio						
				High oil pressure drop						
				Low oil pressure						
Notes				Nominal cooling capacity and power input are based on: 12/7 °C entering/leaving evaporator water temperature; 30/35 °C entering/leaving condenser water temperature.						

1 Specifications

1-1 TECHNICAL SPECIFICATIONS				EWWD460DJYNN	EWWD500DJYNN	EWWD600DJYNN	EWWD190DJYNN/A	EWWD230DJYNN/A	EWWD280DJYNN/A	EWWD320DJYNN/A
Capacity (Eurovent conditions specified in notes)	Cooling	Nominal	kW	448.3	493.7	555.7	186.4	223.3	276.5	306.7
Capacity Steps			%	stepless 12.5-100	stepless 12.5-100	stepless 12.5-100	stepless 25-100	stepless 25-100	stepless 25-100	stepless 25-100
Nominal input (Eurovent conditions specified in notes)	Cooling		kW	115.1	129.0	150.2	39.7	48.1	59.3	71.4
EER				3,89	3,83	3,70	4.70	4.64	4.66	4.30
ESEER				5.19	5.10	4.93	5,97	5,90	5,92	5,46
Dimensions	Unit	Height	mm	1880	1880	1880	1860	1860	1860	1860
		Width	mm	4305	4305	4305	3435	3435	3435	3435
		Depth	mm	860	860	860	920	920	920	920
Weight	Unit		kg	2757	2762	2762	1650	1665	1680	1680
	Operating Weight		kg	2970	2970	2970	1800	1810	1820	1820
Water Heat Exchanger	Minimum water volume in the system (Formula)			The minimum water content per unit should be calculated with a certain approximation using this simplified formula: Q= 35.83 X (P(kW) / Delta T(°C)) where : Q = minimum water content per unit expressed in litres P = minimum cooling capacity of the unit expressed in kW Delta T = evaporator entering / leaving water temperature difference expressed in °C For more accurate determination of quantity of water, it is advisable to contact the designer of the plant.						
	Type			Shell and tube						
	Minimum water volume in the system		l	173	168	168	125	120	110	110
	Water flow rate	Min	l/min	553	612	613	341	342	424	419
		Nominal	l/min	1285	1415	1593	534	640	793	879
		Max	l/min	1749	1935	1939	1080	1082	1340	1325
Nominal water pressure drop	Cooling	Heat exchanger	kPa	54	53.5	67.5	24.5	35	35	44
Water Heat Exchanger	Model	Quantity		1	1	1	1	1	1	1
	Type			Shell and tube						
	Minimum water volume in the system		l	30	30	30	22	25	25	25
	Water flow rate	Min	l/min	726	729	741	497	550	609	648
		Nominal	l/min	1615	1785	2024	648	778	963	1084
		Max	l/min	2296	2305	2344	1572	1740	1925	2048
	Nominal water pressure drop	Heating	kPa	49,5	60	74,5	17	20	25	28
	Model	Quantity		2	2	2	1	1	1	1
Compressor	Type			Semi-hermetic single screw compressor						
	Model	Quantity		2	2	2	1	1	1	1
		Speed	rpm	2950	2950	2950	2950	2950	2950	2950
Sound Level	Sound Pressure	Cooling	dBA	71.7	71.7	71.7	69.7	69.7	69.7	69.7
Refrigerant circuit	Refrigerant type			R-134a						
	Refrigerant charge		kg	100	100	100	50	50	50	50
	No of circuits			2	2	2	1	1	1	1
	Refrigerant control			Electronic expansion valve						
Safety Devices				High pressure (pressure switch)						
				High discharge temperature on the compressor						
				Phase monitor						
				Star/delta transition failed						
				Low delta pressure between suction and discharge						
				Low pressure ratio						
				High oil pressure drop						
				Low pressure ratio	Low pressure ratio	Low pressure ratio	Low oil pressure	Low oil pressure	Low oil pressure	Low oil pressure
Notes				Nominal cooling capacity and power input are based on: 12/7 °C entering/leaving evaporator water temperature; 30/35 °C entering/leaving condenser water temperature.						

1 Specifications

1-1 TECHNICAL SPECIFICATIONS				EWWD380DJYNN/A	EWWD400DJYNN/A	EWWD460DJYNN/A	EWWD500DJYNN/A	EWWD550DJYNN/A	EWWD650DJYNN/A
Capacity (Eurovent conditions specified in notes)	Cooling	Nominal	kW	366.3	408.2	443.6	496	540.5	603.9
Capacity Steps			%	stepless 12.5-100					
Nominal input (Eurovent conditions specified in notes)	Cooling		kW	79.3	87.2	95	104.8	114.4	137.7
EER				4.62	4.68	4.67	4.73	4.72	4.39
ESEER				6,15	6,24	6,23	6,31	6,30	5,85
Dimensions	Unit	Height	mm	1880	1880	1880	1880	1880	1880
		Width	mm	4305	4305	4305	4305	4305	4305
		Depth	mm	860	860	860	860	860	860
Weight	Unit		kg	2800	2945	2955	2975	2990	2990
	Operating Weight		kg	3020	3280	3290	3315	3340	3340
Water Heat Exchanger	Minimum water volume in the system (Formula)			The minimum water content per unit should be calculated with a certain approximation using this simplified formula: Q= 35.83 X (P(kW) / Delta T(°C)) where : Q = minimum water content per unit expressed in litres P = minimum cooling capacity of the unit expressed in kW Delta T = evaporator entering / leaving water temperature difference expressed in °C For more accurate determination of quantity of water, it is advisable to contact the designer of the plant.					
	Type			Shell and tube					
	Minimum water volume in the system		l	170	285	285	280	280	280
	Water flow rate	Min	l/min	606	763	760	720	726	725
		Nominal	l/min	1050	1170	1272	1422	1549	1731
		Max	l/min	1917	2414	2403	2277	2297	2293
Nominal water pressure drop	Cooling	Heat exchanger	kPa	30	23.5	28	39	45.5	57
Water Heat Exchanger	Model	Quantity		1	1	1	1	1	1
	Type			Shell and tube					
	Minimum water volume in the system		l	44	47	50	59	68	68
	Water flow rate	Min	l/min	994	1089	1202	1362	1533	1542
		Nominal	l/min	1277	1420	1544	1722	1877	2126
		Max	l/min	3145	3444	3801	4306	4847	4877
	Nominal water pressure drop	Heating	kPa	16.5	17	16.5	16	15	19
	Model	Quantity		2	2	2	2	2	2
Compressor	Type			Semi-hermetic single screw compressor					
	Model	Quantity		2	2	2	2	2	2
		Speed	rpm	2950	2950	2950	2950	2950	2950
Sound Level	Sound Pressure	Cooling	dBA	71.7	71.7	71.7	71.7	71.7	71.7
Refrigerant circuit	Refrigerant type			R-134a					
	Refrigerant charge		kg	100	100	100	100	100	100
	No of circuits			2	2	2	2	2	2
	Refrigerant control			Electronic expansion valve					
Safety Devices				High pressure (pressure switch)					
				High discharge temperature on the compressor					
				Phase monitor					
				Star/delta transition failed					
				Low delta pressure between suction and discharge					
				Low pressure ratio					
				High oil pressure drop					
				Low oil pressure	Low oil pressure	Low oil pressure	Low pressure ratio	Low pressure ratio	Low pressure ratio
Notes				Nominal cooling capacity and power input are based on: 12/7 °C entering/leaving evaporator water temperature; 30/35 °C entering/leaving condenser water temperature.					

1 Specifications

1-2 ELECTRICAL SPECIFICATIONS				EWWD170DJYNN	EWWD210DJYNN	EWWD260DJYNN	EWWD300DJYNN	EWWD320DJYNN	EWWD380DJYNN	EWWD420DJYNN
Power Supply	Name			YN						
	Phase			3	3	3	3	3	3	3
	Frequency		Hz	50	50	50	50	50	50	50
	Voltage		V	400	400	400	400	400	400	400
	Voltage Tolerance	Minimum	%	-10%						
		Maximum	%	+10%						
Unit	Starting Current		A	288	288	288	288	349	353	357
	Nominal Running Current Cooling		A	81	92	111	131	163	174	184
	Maximum Running Current		A	112	133	164	174	225	246	266
	Max unit current for wires sizing		A	124	147	165	190	248	271	294
Notes				Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.						
				Max unit starting current : Starting compressor current for unit with one compressor OR 75% of nominal absorbed current of compressor n°1 + starting current of last compressor (n°2).						
				Max unit current for wires sizing : compressor FLA (Full Load Ampere) + fans current.						

1-2 ELECTRICAL SPECIFICATIONS				EWWD460DJYNN	EWWD500DJYNN	EWWD600DJYNN	EWWD190DJYNN/A	EWWD230DJYNN/A	EWWD280DJYNN/A	EWWD320DJYNN/A
Power Supply	Name			YN						
	Phase			3	3	3	3	3	3	3
	Frequency		Hz	50	50	50	50	50	50	50
	Voltage		V	400	400	400	400	400	400	400
	Voltage Tolerance	Minimum	%	-10%						
		Maximum	%	+10%						
Unit	Starting Current		A	366	371	439	288	288	288	288
	Nominal Running Current Cooling		A	202	221	260	79	89	103	124
	Maximum Running Current		A	299	329	345	108	128	154	162
	Max unit current for wires sizing		A	312	330	380	124	147	165	190
Notes				Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.						
				Max unit starting current : Starting compressor current for unit with one compressor OR 75% of nominal absorbed current of compressor n°1 + starting current of last compressor (n°2).	Max unit starting current : Starting compressor current for unit with one compressor OR 75% of nominal absorbed current of compressor n°1 + starting current of last compressor (n°2).	Max unit starting current : Starting compressor current for unit with one compressor OR 75% of nominal absorbed current of compressor n°1 + starting current of last compressor (n°2).	Max unit starting current : Starting compressor current for unit with one compressor OR 75% of nominal absorbed current of compressor n°1 + starting current of last compressor (n°2).	Max unit starting current : Starting compressor current for unit with one compressor OR 75% of nominal absorbed current of compressor n°1 + starting current of last compressor (n°2).	Max unit starting current : Starting compressor current for unit with one compressor OR 75% of nominal absorbed current of compressor n°1 + starting current of last compressor (n°2).	Max unit starting current: Starting current of biggest compressor + 75% of nominal absorbed current of the other compressor + fans current.
				Max unit current for wires sizing : compressor FLA (Full Load Ampere) + fans current.						

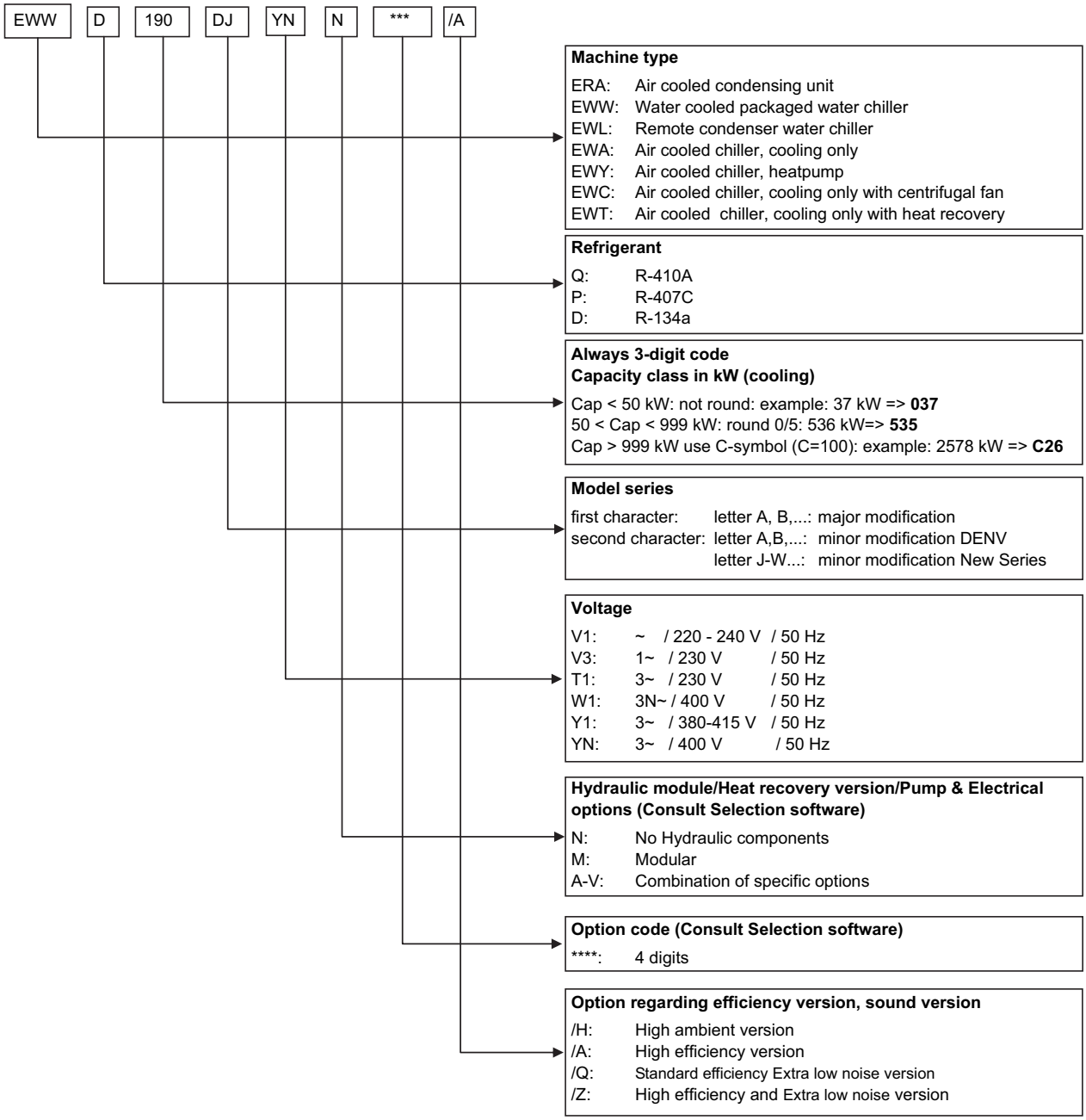
1-2 ELECTRICAL SPECIFICATIONS				EWWD380DJYNN/A	EWWD400DJYNN/A	EWWD460DJYNN/A	EWWD500DJYNN/A	EWWD550DJYNN/A	EWWD650DJYNN/A
Power Supply	Name			YN					
	Phase			3	3	3	3	3	3
	Frequency		Hz	50	50	50	50	50	50
	Voltage		V	400	400	400	400	400	400
	Voltage Tolerance	Minimum	%	-10%					
		Maximum	%	+10%					

1 Specifications

1-2 ELECTRICAL SPECIFICATIONS			EWWD380DJYNN/A	EWWD400DJYNN/A	EWWD460DJYNN/A	EWWD500DJYNN/A	EWWD550DJYNN/A	EWWD650DJYNN/A
Unit	Starting Current	A	347	351	354	359	363	430
	Nominal Running Current Cooling	A	157	167	175	188	201	238
	Maximum Running Current	A	215	234	253	276	299	313
	Max unit current for wires sizing	A	248	271	294	312	330	380
Notes			Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.					
			Max unit starting current : Starting compressor current for unit with one compressor OR 75% of nominal absorbed current of compressor n°1 + starting current of last compressor (n°2).					
			Max unit current for wires sizing : compressor FLA (Full Load Ampere) + fans current.					

2 Nomenclature

EWWD-DJYNN



3 Specification text

To supply and install, where specified in the project n° ……. unit(s) water cooled chiller with cooling capacity of ……. kW, to cool ……. l/sec. of water from ……. °C to ……. °C, condenser entering water temperature ……. °C, condenser leaving water temperature .....°C.

The unit should work with electricity at ……. V, 3ph, 50Hz. The electrical power absorbed should not exceed ……. kW. The units COP will be at least ……. at the working conditions of the project. Part load COP will be at least ……. at the working conditions of the project.

The units will have 1 or 2 independent refrigerant circuits, and the respective electronic microprocessor will allow the starting of the compressors. Each chiller will be factory assembled and protected by an epoxy paint.

The unit will be tested at full load in the factory at the nominal working conditions and water temperatures. Before shipment a full test will be held to avoid any losses. Chiller will be delivered to the job site completely assembled and charged with refrigerant and oil.

Comply with the manufacturer instructions for rigging and handling equipment.

GENERAL

All units should be designed and manufactured in accordance with applicable selections of the following which are equivalent to American Air-conditioning industry applicable codes:

Rating of chillers	**EN 12055**
Construction of pressure vessel	**TUV Standards (on request)**
Electrical codes	**IEC 204-1 CEI 44-5 Elect. & Safety Codes**
Safety Codes	**CEI-EN 60204–1 Codes**
Manufacturing Quality Stds	**ISO9001:2000**

REFRIGERANT

Only R-134a will be accepted.

UNIT DESCRIPTION

Each chiller consist of single or multiple semi-hermetic rotary screw compressor, direct expansion avaporator, water cooled condenser section, control system and all components necessary for safe and controlled unit operation.

NOISE LEVEL AND VIBRATIONS

Sound pressure level at 1 meter distance in free field, semispheric conditions, shall not exceed ……dBA. The sound pressure levels must be rated in accordance to ISO 3744. Other types of rating unacceptable. Vibration level should not exceed 2 mm/s.

DIMENSIONS

Unit length shall not exceed ……. mm, unit width shall not exceed ……. mm, unit height shall not exceed ……. mm.

CHILLER COMPONENTS

Compressors

- ✓ The compressors shall be field serviceable, semi-hermetic, single-screw type with one main helical rotor meshing with two opposed gaterotor. Twin-screw compressor will no accepted because of the large bearing loads inherent with this design. For a Single-screw compressor the two exactly opposed gaterotors create two exactly opposed compression cycles which results in balanced forces acting on the rotor compressor. The gaterotors will be constructed of a carbon impregnated engineered composite material. The gaterotor supports will be constructed of cast iron.
- ✓ The oil injection shall be used for these compressors in order to get high COP also at high condensing pressure and low sound pressure levels in each load condition.
- ✓ Refrigerant system differential pressure shall provide oil flow throught service replaceble, 0.5 micron, full flow, cartridge type oil filter internal to compressor. Filter bypass or oil pump not acceptable.
- ✓ The compressor's oil cooling must be realized by liquid injection. External dedicated heat exchanger and additional piping to carry the oil from the compressor to heat exchanger and viceversa will be not accepted.
- ✓ The compressor shall be provided with a integrated high efficiency, oil separator and with built-in oil filter. The oil separator shall be provided with two sight-glasses, one each side, to check the level of oil in the reservoir at the bottom of the separator.
- ✓ The compressor shall be direct electrical drive, without gear transmission between the screw and the electrical motor. The motor's compressor shall be designed for star/delta. Soft start should be available as option.
- ✓ The compressor casing shall be provided with ports to realize economized refrigerant cycles.
- ✓ Shall be present two thermal protection realized by a thermistor for high temperature protection to motor and a thermistor for discharge gas high temperature protection.
- ✓ The compressor shall be provided with an automatic spring return of capacity control valve to the minimum load position to ensure compressor starting always at minimum motor load so with the minimum mechanical stress.
- ✓ The compressor discharge connection shall be fitted with a check valve and with a stop valve.
- ✓ The compressor discharge shall be fitted with a head pressure control valve.

3 Specification text

Evaporator

- ✓ The units shall be supplied with shell and tubes counter-flow evaporator single refrigerant pass. It will be direct expansion with refrigerant inside the tubes and water outside (shell side) with carbon steel tube sheets, with straight copper tubes that are spirally wound internally for higher efficiencies, expanded on the tube plates.
- ✓ The external shell, shall be linked with an electrical heater to prevent freezing up to -28°C ambient temperature, commanded by a thermostat and shall be insulated with flexible, closed cell polyurethane insulation material.
- ✓ The evaporator will have 1 or 2 circuits, one for each compressor and shall be single refrigerant pass to ensure a simplier oil circulation so to ensure always a perfect oil return to the compressor.
- ✓ Evaporator is manufactured in accordance to PED approval.

Condensers

- ✓ Condensers will be shell and cleanable, through-tube type.
- ✓ The unit will have one condensers per circuit.
- ✓ Each condenser shall have a carbon steel and seamless, integrally finned high efficiency copper tubes, roll expanded into heavy carbon steel tube sheets.
- ✓ Water heads shall be removable and include vent and drain plugs.
- ✓ Condensers will come complete with liquid shut-off valve, spring loaded relief valve.

Refrigerant circuit

- ✓ The unit must have refrigerant circuits completely independent of each other with one compressor per circuit.
- ✓ Each circuit shall include: electronic expansion valve, exthernal high efficiency oil separator, compressor discharge shut-off valve, a liquid line shut-off valve with charging connection, replaceable core filter-drier, sight glass with moisture indicator and insulated suction line. Suction line shut-off valve should be available as option.

Regulation of cooling capacity

- ✓ Each unit will have a microprocessor for the control of compressor slide valve's position (2 slide valves, one for each compressor's cycles).
- ✓ The slides shall have a stepless motion that allows a unit's operation with infinitely variable capacity control down to 25% (1 compressor) or down to 12,5% (2 compressors) of the cooling capacity. The chiller shall be capable of stable operation to a minimum of 25% (1 compressor) or to a minimum of 12,5% (2 compressors) of full load without hot gas bypass.
- ✓ Step unloading unacceptable because of evaporator leaving water temperature fluctuation and low compressor's efficiency at partial load.
- ✓ The system shall stage the unit based on the leaving water temperature.

Electronic expansion valve

- ✓ Electronic expansion valve allows a simple and perfect control system that quickly interacts at load variations. This valve combines two functions: liquid solenoid and electronic expansion valve.
- ✓ It is managed directly by a microprocessor to mach exactly the plant thermal load.
- ✓ Thermostatic valve unacceptable because of:
- ✓ its limited load range;
  - higher refrigerant pressure drop;
  - because of leaving evaporator water temperature control less good than an electronic device;
  - thermal expansion device needs a higher differential pressure between high pressure side and low pressure side to work correctly. This doesn't allow to work with low condensing pressure and therefore doesn't allow to reach the money saving that is possible to have with these chiller working conditions.

Control panel

- ✓ Field power connections, control interlock terminals, and unit control system should be centrally located in an electric panel (IP43).
- ✓ The Power components and control equipment shall be separately mounted in different compartments of the control panel.
- ✓ The Compressor starting method will be star/delta, with an option for Softstart.
- ✓ Power and starting controls should include fuses and contactors for the compressor and fan motor windings.
- ✓ Operating and safety controls should include energy saving; emergency stop switch; thermal overload protection for each compressor motor; high and low pressure cut-out switch (for each refrigerant circuit); anti-freeze thermostat; cut-out switch for each compressor.
- ✓ All of the information regarding the unit shall be shown on a display with a built-in calendar and clock that will provide unit scheduling throughout the year.
- ✓ The following features and functions shall be included:
  - resetting chilled water temperature by controlling the return water temperature or by a remote 4-20 mA DC signal;
  - soft load function to prevent the system from operating at full load during the chilled fluid pulldown period;
  - password protection of critical parameters of control;
  - start-to-start and stop-to-start timers to provide minimum compressor off-time with maximum motor protection;
  - communication capability with a PC or remote monitoring;
  - lead-lag selection by manual or automatically by circuit run hours;
  - double set point for brine unit version;
  - scheduling via internal time clock to allow programming of a yearly start-stop;
  - schedule accommodating weekends and holidays.

3 Specification text

Display Capabilities

The controller as a minimum shall be capable of monitoring and displaying the following data:

Operating Conditions	Alarms
Ent./ Lvg. Evaporator fluid Temp.	Phase Monitor
Ent.ering Condenser fluid Temp.	Freeze Protection
Operating Chilled Fluid Setpoint	Evaporator Flow
Oil / Discharge gas Press. (per comp.)	Low Gas Pressure (per comp.)
Condensing Press. (per comp.)	Transition Fault, (per comp.)
Evaporator Press. (per comp.)	Oil Diff. press. (per comp.)
Unit Enabled	Low Oil Pressure (per comp.)
Compressor Enabled	High Gas Pressure Trip (per comp.)
Water Setpoint Reset	Motor Overload, (per comp.)
Demand Limit or Current Limit	Transducer faults
(Site Selectable)	Units Off-Line
	External fault
	Processor Faults
	Maintenance requirements

Standard Customer Interfaces

The controller as a minimum shall be capable of providing the following interlocks: -

Chiller Enable Signal: Digital Input,
customer contact must be capable of handling 24Volts, 50HZ, 1Amp.

Chiller Common Fault: Volt free, normally open, digital contact,
Must be capable of switching 250V, 50HZ, 10Amp.

Pump Enable Signal: Volt free, normally open, digital contact,
Must be capable of switching 250V, 50HZ, 10Amp.

Setpoint Override: 4 – 20 mA DC analoque input signal.

Demand Limit: 4 – 20 mA DC analoque input signal.

or

Current Limit: 4 – 20 mA DC analoque input signal.

Optional Customer Interfaces

Compressor Running Signals: Volt free, normally open, digital contact,
Capable of switching 250V, 50HZ, 10Amp.

Optional High Level Communications Interface

Using ModBus, Lonworks or Bacnet protocols

4 Options

OPTIONS

100% total heat recovery (OPTR) - Produced with tube bundle placed in a single shell with the water condensers. Heat exchangers heads are provided with 2 connections for entering/leaving heat recovery water and 2 separate connections for condensing water.

Partial heat recovery (OPPR) - Produced with plate to plate heat exchangers installed on discharge side of compressor hot gas. These allow hot water to be produced up to a maximum temperature of + 50°C.

Ammeter and voltmeter (OP57) - Digital meters of unit drawn amperes and voltage values, installed on the electrical control panel.

Condenser power factor correction (OPPF) - Installed on the electrical control panel to ensure it conforms to the plant rules. (DAIKIN advices maximum 0,9).

Suction line shut off valve (OP12) - Suction shut-off valve installed on the suction port of the compressor to facilitate maintenance operation.

Cu-Ni 90-10 condenser (OPNI) - To work with sea water the heat exchangers are fitted with Cu-Ni tubes and special protection inside the end covers.

Sound proof cabinet (OPLN) - Made of sheet metal and internally insulated, the sound proof cabinet is around the compressor/s to reach the best performance in noise reduction.

Witness tests - The units are normally tested at the test bench prior to the shipment. On request, a second test can be carried out, at customer's presence, in accordance with the procedures indicated on the test form. (Not available for units with Glycol mixtures).

Soft start (OPSS) - Electronic starting device to reduce inrush current. An overload protection is included (no need of compressors thermal relays).

5 Capacity tables

5 - 1 Cooling capacity tables

EWWD170-320DJYNN

Unit size	LWE	Entering condenser water temperature °C									
		25		30		35		40		45	
		CC	PI	CC	PI	CC	PI	CC	PI	CC	PI
170	4	157,6	36,5	151,1	41,2	144,3	46,2	137,4	51,7	130,1	57,6
	5	162,4	36,8	155,8	41,5	148,9	46,5	141,8	52,0	134,4	58,0
	6	167,4	37,0	160,6	41,8	153,6	46,8	146,4	52,4	138,7	58,3
	7	172,3	37,3	165,5	42,1	158,4	47,2	151,0	52,7	143,3	58,7
	8	177,5	37,6	170,5	42,3	163,3	47,5	155,6	53,0	147,8	59,0
	9	182,6	37,8	175,5	42,6	168,1	47,8	160,5	53,4	152,4	59,4
210	4	191,5	44,0	183,6	49,6	175,5	55,7	166,9	62,3	157,7	69,4
	5	197,3	44,3	189,4	50,0	181,1	56,1	172,3	62,7	162,9	69,8
	6	203,4	44,7	195,3	50,4	186,7	56,5	177,8	63,1	168,3	70,2
	7	209,5	45,0	201,2	50,7	192,5	56,9	183,4	63,5	173,8	70,6
	8	215,7	45,3	207,2	51,1	198,4	57,3	189,1	63,9	179,2	71,1
	9	222,0	45,6	213,3	51,5	204,4	57,7	194,9	64,4	184,9	71,5
260	4	240,7	56,3	230,4	63,3	219,8	70,8	208,5	79,0	196,6	87,8
	5	248,2	56,8	237,7	63,8	226,8	71,4	215,4	79,6	203,1	88,4
	6	255,9	57,3	245,1	64,4	234,0	72,0	222,3	80,2	209,8	89,0
	7	263,6	57,8	252,8	64,9	241,3	72,6	229,4	80,8	216,6	89,6
	8	271,5	58,3	260,4	65,5	248,7	73,2	236,5	81,4	223,5	90,3
	9	279,5	58,8	268,2	66,1	256,3	73,8	243,8	82,1	230,5	91,0
300	4	267,2	66,3	255,5	72,1	243,5	78,7	230,9	86,1	217,7	94,4
	5	275,8	67,5	263,4	73,2	251,2	79,7	238,3	87,1	224,8	95,3
	6	284,5	68,6	271,8	74,3	259,0	80,8	245,9	88,1	232,1	96,3
	7	293,5	69,8	280,4	75,4	266,9	81,9	253,6	89,2	239,5	97,4
	8	304,8	71,3	289,2	76,6	275,3	83,0	261,4	90,3	247,1	98,5
	9	314,3	72,6	300,6	78,2	283,9	84,2	269,3	91,4	254,8	99,6
320	4	317,9	73,2	304,7	82,5	291,1	92,6	276,9	103,5	262,0	115,4
	5	327,6	73,7	314,3	83,1	300,3	93,2	285,8	104,2	270,8	116,1
	6	337,7	74,2	324,0	83,7	309,8	93,9	295,1	104,9	279,7	116,8
	7	347,8	74,7	333,9	84,3	319,5	94,5	304,5	105,6	288,8	117,5
	8	358,2	75,3	344,0	84,9	329,3	95,2	313,9	106,3	298,1	118,3
	9	368,8	75,8	354,3	85,5	339,3	95,9	323,6	107,0	307,5	119,0

SYMBOLS

CC: Cooling Capacity (kW)
PI: Power input (kW)
LWE: Leaving Water Evaporator (°C)

NOTE

1 Nominal cooling capacity and power input are based on:
- ΔT=5°C entering/leaving condenser water temperature
- evaporator fouling factor=0,0176 m^2 °C/kW
- condenser fouling factor=0,0440 m^2 °C/kW.

5 Capacity tables

5 - 1 Cooling capacity tables

EWWD380-600DJYNN

Unit size	LWE	ENTERING CONDENSER WATER TEMPERATURE °C									
		25		30		35		40		45	
		CC	PI	CC	PI	CC	PI	CC	PI	CC	PI
380	4	354,2	80,8	339,5	91,1	324,2	102,2	308,3	114,3	291,5	127,3
	5	365,2	81,4	350,2	91,8	334,6	102,9	318,4	115,0	301,3	128,1
	6	376,5	82,0	361,1	92,4	345,3	103,7	328,7	115,8	311,2	128,9
	7	387,8	82,6	372,2	93,1	356,1	104,4	339,1	116,6	321,4	129,7
	8	399,4	83,2	383,6	93,8	367,0	105,1	349,8	117,4	331,7	130,5
	9	411,3	83,8	395,0	94,5	378,2	105,9	360,6	118,2	342,2	131,3
420	4	383,2	88,1	367,5	99,3	351,1	111,5	333,9	124,6	315,6	138,8
	5	394,9	88,7	378,9	100,0	362,3	112,2	344,7	125,4	326,1	139,6
	6	407,0	89,3	390,7	100,7	373,7	113,0	355,8	126,2	336,8	140,4
	7	419,1	90,0	402,5	101,4	385,2	113,8	367,0	127,0	347,6	141,3
	8	431,6	90,6	414,6	102,2	397,0	114,6	378,3	127,9	358,6	142,2
	9	444,1	91,3	426,8	102,9	408,9	115,4	390,0	128,8	369,9	143,1
460	4	426,9	99,9	409,2	112,5	390,8	126,1	371,3	140,8	350,7	156,8
	5	440,0	100,7	422,0	113,4	403,1	127,0	383,4	141,8	362,3	157,7
	6	453,4	101,5	435,0	114,2	415,8	128,0	395,6	142,8	374,1	158,8
	7	467,0	102,3	448,3	115,1	428,7	129,0	408,0	143,8	386,1	159,8
	8	480,8	103,1	461,6	116,1	441,7	129,9	420,7	144,9	398,3	160,9
	9	494,8	103,9	475,3	117,0	455,0	131,0	433,4	145,9	410,7	162,0
500	4	470,5	111,8	450,7	125,8	430,2	140,9	408,6	157,2	385,5	174,8
	5	484,9	112,8	464,8	126,8	443,8	142,0	421,8	158,3	398,3	176,0
	6	499,6	113,8	479,2	127,9	457,7	143,1	435,2	159,5	411,2	177,2
	7	514,5	114,7	493,7	129,0	471,8	144,3	448,8	160,7	424,3	178,4
	8	529,7	115,7	508,4	130,1	486,2	145,4	462,6	161,9	437,6	179,7
	9	545,1	116,7	523,3	131,2	500,7	146,6	476,7	163,2	451,1	181,0
600	4	524,8	131,5	501,1	143,0	476,3	156,1	451,6	170,9	426,2	187,5
	5	541,6	133,6	517,3	145,1	492,0	158,1	465,9	172,8	440,0	189,4
	6	563,7	136,5	533,9	147,3	508,0	160,3	481,1	174,8	454,2	191,3
	7	581,7	138,9	555,7	150,2	524,4	162,5	496,8	177,0	468,4	193,3
	8	600,0	141,3	573,4	152,6	541,0	164,7	512,8	179,2	483,4	195,4
	9	618,6	143,8	591,4	155,1	563,2	167,8	529,2	181,5	499,1	197,6

SYMBOLS

CC: Cooling Capacity (kW)
PI: Power input (kW)
LWE: Leaving Water Evaporator (°C)

NOTE

1 Nominal cooling capacity and power input are based on:
- ΔT=5°C entering/leaving condenser water temperature
- evaporator fouling factor=0,0176 m^2 °C/kW
- condenser fouling factor=0,0440 m^2 °C/kW.

5 Capacity tables

5 - 1 Cooling capacity tables

EWWD190-380DJYNN/A

Unit size	LWE	ENTERING CONDENSER WATER TEMPERATURE °C									
		25		30		35		40		45	
		CC	PI	CC	PI	CC	PI	CC	PI	CC	PI
190	4	176,3	34,6	168,8	39,1	161,1	44,0	153,1	49,3	144,8	55,0
	5	182,2	34,7	174,6	39,3	166,7	44,3	158,4	49,6	150,0	55,3
	6	188,3	34,9	180,5	39,5	172,3	44,5	164,0	49,8	155,3	55,5
	7	194,5	35,0	186,4	39,7	178,2	44,7	169,6	50,1	160,8	55,8
	8	200,9	35,2	192,6	39,9	184,1	45,0	175,4	50,4	166,3	56,1
	9	207,2	35,3	198,9	40,1	190,1	45,2	181,3	50,6	172,0	56,4
230	4	211,4	41,9	202,5	47,3	193,3	53,2	183,8	59,6	173,7	66,5
	5	218,4	42,1	209,3	47,6	199,9	53,5	190,1	59,9	179,8	66,8
	6	225,6	42,3	216,3	47,9	206,7	53,8	196,6	60,3	186,2	67,1
	7	232,9	42,5	223,3	48,1	213,5	54,1	203,3	60,6	192,6	67,5
	8	240,3	42,7	230,6	48,4	220,5	54,5	210,1	60,9	199,2	67,8
	9	247,8	42,9	237,9	48,7	227,6	54,8	217,0	61,3	205,9	68,2
280	4	261,6	51,6	250,6	58,3	239,2	65,5	227,3	73,2	214,8	81,6
	5	270,4	51,9	259,0	58,6	247,4	65,9	235,3	73,7	222,5	82,0
	6	279,2	52,2	267,7	59,0	255,7	66,3	243,3	74,1	230,2	82,5
	7	288,3	52,5	276,5	59,3	264,3	66,7	251,5	74,5	238,1	82,9
	8	297,5	52,8	285,4	59,7	273,0	67,1	260,0	75,0	246,3	83,4
	9	306,9	53,0	294,6	60,1	281,8	67,5	268,5	75,4	254,5	83,9
320	4	291,0	63,1	278,8	68,3	266,0	74,2	252,8	80,9	239,0	88,4
	5	300,4	64,2	287,9	69,3	275,0	75,2	261,5	81,8	247,3	89,3
	6	309,9	65,2	297,2	70,3	283,9	76,1	270,2	82,7	255,7	90,2
	7	319,7	66,3	306,7	71,4	293,2	77,1	279,0	83,7	264,4	91,1
	8	329,6	67,4	316,4	72,4	302,5	78,2	288,2	84,7	273,2	92,1
	9	339,7	68,6	326,1	73,5	312,1	79,3	297,4	85,7	282,2	93,1
380	4	346,6	68,9	332,1	78,1	317,0	87,8	301,5	98,4	285,4	109,8
	5	358,0	69,3	343,2	78,5	327,8	88,3	312,0	98,9	295,6	110,3
	6	369,8	69,6	354,6	78,9	338,9	88,8	322,7	99,4	305,9	110,8
	7	381,7	69,9	366,3	79,3	350,2	89,2	333,6	99,9	316,5	111,4
	8	394,0	70,2	378,1	79,7	361,7	89,7	344,7	100,4	327,3	112,0
	9	406,4	70,5	390,2	80,0	373,5	90,2	356,2	101,0	338,4	112,5

SYMBOLS

CC: Cooling Capacity (kW)
PI: Power input (kW)
LWE: Leaving Water Evaporator (°C)

NOTE

1 Nominal cooling capacity and power input are based on:
- ΔT=5°C entering/leaving condenser water temperature
- evaporator fouling factor=0,0176 m^2 °C/kW
- condenser fouling factor=0,0440 m^2 °C/kW.

5 Capacity tables

5 - 1 Cooling capacity tables

EWWD400-650DJYNN/A

unit size	LWE	ENTERING CONDENSER WATER TEMPERATURE °C									
		25		30		35		40		45	
		CC	PI	CC	PI	CC	PI	CC	PI	CC	PI
400	4	386,1	75,9	370,0	85,9	353,3	96,7	335,9	108,3	317,8	120,8
	5	399,0	76,2	382,4	86,4	365,3	97,2	347,6	108,8	329,1	121,4
	6	412,2	76,6	395,2	86,8	377,7	97,7	359,6	109,4	340,6	122,0
	7	425,5	76,9	408,2	87,2	390,3	98,2	371,7	110,0	352,5	122,6
	8	439,2	77,3	421,5	87,7	403,1	98,7	384,3	110,6	364,5	123,2
	9	453,1	77,6	435,0	88,1	416,3	99,3	397,0	111,2	376,9	123,8
460	4	419,9	82,7	402,5	93,6	384,5	105,3	365,8	118,0	346,0	131,6
	5	433,7	83,1	415,9	94,1	397,6	105,9	378,4	118,6	358,2	132,2
	6	447,8	83,4	429,6	94,5	410,9	106,4	391,3	119,2	370,7	132,9
	7	462,3	83,8	443,6	95,0	424,5	107,0	404,5	119,8	383,5	133,5
	8	476,9	84,2	457,9	95,5	438,3	107,5	417,9	120,4	396,4	134,2
	9	491,9	84,6	472,5	96,0	452,4	108,1	431,6	121,0	409,7	134,9
500	4	469,4	91,2	450,0	103,3	430,0	116,2	409,2	130,2	387,3	145,2
	5	484,8	91,6	465,0	103,8	444,7	116,8	423,3	130,8	401,0	145,9
	6	500,7	92,1	480,4	104,3	459,5	117,4	437,8	131,5	415,0	146,6
	7	516,8	92,5	496,0	104,8	474,7	118,0	452,5	132,2	429,2	147,3
	8	533,1	92,9	512,0	105,3	490,2	118,6	467,5	132,8	443,7	148,0
	9	549,8	93,3	528,3	105,8	506,0	119,2	482,9	133,5	458,6	148,8
550	4	511,7	99,6	490,9	112,7	469,5	126,9	447,1	142,1	423,6	158,6
	5	528,4	100,0	507,2	113,2	485,2	127,5	462,5	142,8	438,5	159,3
	6	545,4	100,4	523,8	113,8	501,4	128,1	478,0	143,5	453,5	160,1
	7	562,7	100,9	540,5	114,4	517,8	128,8	494,0	144,2	469,0	160,8
	8	580,3	101,3	557,7	114,9	534,5	129,4	510,2	144,9	484,6	161,6
	9	598,3	101,7	575,4	115,4	551,6	130,1	526,7	145,7	500,6	162,4
650	4	571,0	121,8	547,8	132,0	523,6	143,6	498,5	156,8	472,2	171,6
	5	590,1	123,8	565,6	133,8	540,9	145,3	515,2	158,4	488,4	173,1
	6	610,1	125,9	584,1	135,7	558,6	147,0	532,4	160,0	505,0	174,7
	7	630,1	128,0	603,9	137,7	576,6	148,9	549,7	161,8	521,9	176,3
	8	650,6	130,2	623,9	139,8	595,9	150,9	567,5	163,6	539,0	178,0
	9	671,6	132,4	644,2	141,9	615,8	152,9	585,9	165,5	556,6	179,8

SYMBOLS

CC: Cooling Capacity (kW)
PI: Power input (kW)
LWE: Leaving Water Evaporator (°C)

NOTE

1 Nominal cooling capacity and power input are based on:
- ΔT=5°C entering/leaving condenser water temperature
- evaporator fouling factor=0,0176 m^2 °C/kW
- condenser fouling factor=0,0440 m^2 °C/kW.

5 Capacity tables

5 - 2 Capacity correction factor

EWWD-DJYNN

Evaporator fouling factors

Fouling factors $m^2°C / kW$	Cooling capacity correction factor	Power input corretion factor	COP correction factor
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

Condenser fouling factors

Fouling factors $m^2°C / kW$	Cooling capacity correction factor	Power input corretion factor	COP correction factor
0,0440	1,000	1,000	1,000
0,0880	0,990	1,018	0,973
0,1320	0,981	1,036	0,945

Ethylene glycol and low ambient temperature correction factors

Air ambient temperature °C	-3	-8	-15	-23	-35
% of ethylene glycol by weight	10	20	30	40	50
Cooling capacity correction factor	0,991	0,982	0,972	0,961	0,946
Power input correction factor	0,996	0,992	0,986	0,976	0,966
Flow rate correction factor	1,013	1,040	1,074	1,121	1,178
Water pressure drops correction factor	1,070	1,129	1,181	1,263	1,308

Low temperature operation performance factors

Ethylene glycol/water leaving temperature °C	2	0	-2	-4	-6	-8
Min. % of ethylene glycol	10	20	20	30	30	30
Cooling capacity correction factor	0,842	0,785	0,725	0,670	0,613	0,562
Power input compressors correction factor	0,95	0,94	0,92	0,89	0,87	0,84

5 Capacity tables

5 - 3 Partial heat recovery ratings

EWWD170-600DJYNN

Unit	LWPR °C	Entering condenser water temperature °C				
		30	35	40	45	50
		HC	HC	HC	HC	HC
170	45	21	22	23	24	25
	50	10	18	22	23	24
	55	6	11	17	20	21
210	45	22	29	30	31	32
	50	17	23	28	29	30
	55	10	16	24	26	27
260	45	35	36	37	38	39
	50	28	34	35	36	37
	55	19	30	31	32	33
300	45	48	43	44	45	46
	50	39	45	42	43	44
	55	28	44	38	38	39
320	45	42	44	46	48	50
	50	20	36	44	46	48
	55	12	22	34	40	42
380	45	43	51	53	55	57
	50	27	41	50	52	54
	55	16	27	41	46	48
420	45	44	58	60	62	64
	50	34	46	56	58	60
	55	20	32	48	52	54
460	45	57	65	67	69	71
	50	45	57	63	65	67
	55	29	46	55	58	60
500	45	70	72	74	76	78
	50	56	68	70	72	74
	55	38	60	62	64	66
600	45	96	86	88	90	92
	50	78	90	84	86	88
	55	56	88	76	76	78

SYMBOLS

HC: Heating Capacity (kW)
LWPR: Leaving desuper-heaters water temperature (°C)

NOTE

1 • Leaving evaporator water temperature 7°C - ΔT 5°C
• ΔT condenser water temperature 5°C.

Heating capacity correction factors for different evaporator leaving water temp.

Evaporator leaving water temp.	9	8	7	6	5	4
Heating capacity correction factor	1,062	1,029	1,000	0,973	0,941	0,914

5 Capacity tables

5 - 4 Total heat recovery ratings

EWWD170-320DJYNN

Unit size	LWE	LWTR											
		35			40			45			50		
		CC	PI	TRC	CC	PI	TRC	CC	PI	TRC	CC	PI	TRC
170	4	151,6	37,5	189,1	145,2	42,3	187,5	138,6	47,5	186,1	131,7	53,1	184,8
	5	156,4	37,7	194,1	149,9	42,5	192,4	143,2	47,6	190,8	136,1	53,3	189,4
	6	161,4	37,8	199,2	154,7	42,6	197,3	147,8	47,8	195,6	140,7	53,5	194,2
	7	166,4	38,0	204,4	159,6	42,8	202,4	152,6	48,0	200,6	145,3	53,7	199,0
	8	171,5	38,1	209,6	164,6	43,0	207,6	157,4	48,2	205,6	150,0	53,9	203,9
	9	176,7	38,3	215,0	169,7	43,2	212,9	162,4	48,5	210,9	154,8	54,1	208,9
210	4	184,5	45,0	229,5	176,8	50,8	227,6	168,7	57,0	225,7	160,2	63,7	223,9
	5	190,4	45,2	235,6	182,5	51,0	233,5	174,3	57,2	231,5	165,6	64,0	229,6
	6	196,4	45,4	241,8	188,4	51,2	239,6	180,0	57,5	237,5	171,2	64,2	235,4
	7	202,5	45,6	248,1	194,3	51,4	245,7	185,8	57,7	243,5	176,8	64,5	241,3
	8	208,7	45,8	254,5	200,4	51,7	252,1	191,7	58,0	249,7	182,5	64,7	247,2
	9	215,0	46,0	261,0	206,5	51,9	258,4	197,7	58,2	255,9	188,3	65,0	253,3
260	4	234,2	55,9	290,1	224,2	63,0	287,2	213,7	70,6	284,3	202,7	78,8	281,5
	5	241,8	56,2	298,0	231,6	63,3	294,9	220,9	70,9	291,8	209,6	79,1	288,7
	6	249,6	56,5	306,1	239,1	63,6	302,7	228,2	71,3	299,5	216,7	79,5	296,2
	7	257,5	56,8	314,3	246,8	63,9	310,7	235,7	71,6	307,3	223,9	79,9	303,8
	8	265,5	57,0	322,5	254,6	64,3	318,9	243,3	72,0	315,3	231,3	80,3	311,6
	9	273,7	57,3	331,0	262,6	64,6	327,2	251,0	72,4	323,4	238,8	80,7	319,5
300	4	269,9	65,4	335,3	257,4	71,1	328,5	245,2	77,7	322,9	232,4	85,1	317,5
	5	279,0	66,3	345,3	266,3	72,0	338,3	253,3	78,5	331,8	240,3	85,9	326,2
	6	288,4	67,3	355,7	275,4	72,9	348,3	261,8	79,4	341,2	248,5	86,7	335,2
	7	297,9	68,3	366,2	284,6	73,9	358,5	270,8	80,3	351,1	256,6	87,5	344,1
	8	307,5	69,3	376,8	294,0	74,9	368,9	280,0	81,2	361,2	265,3	88,4	353,7
	9	317,3	70,3	387,6	303,7	75,9	379,6	289,2	82,2	371,4	274,2	89,3	363,5
320	4	305,9	75,1	381,0	292,9	84,7	377,6	279,5	95,0	374,5	265,5	106,2	371,7
	5	315,7	75,4	391,1	302,5	85,0	387,5	288,8	95,4	384,2	274,5	106,6	381,1
	6	325,7	75,7	401,4	312,2	85,4	397,6	298,2	95,8	394,0	283,7	107,1	390,8
	7	335,9	76,0	411,9	322,2	85,7	407,9	307,9	96,2	404,1	293,1	107,5	400,6
	8	346,3	76,3	422,6	332,3	86,1	418,4	317,7	96,6	414,3	302,6	107,9	410,5
	9	356,8	76,6	433,4	342,5	86,5	429,0	327,7	97,0	424,7	312,4	108,4	420,8

SYMBOLS

CC: Cooling Capacity (kW)
PI: Power input (kW)
TRC: Total Heat Recovery Capacity (kW)
LWE: Leaving Water Evaporator (°C)
LWTR: Leaving Water Total Heat Recovery (°C)

NOTE

1 Values are based on:
- ΔT=5°C entering/leaving condenser water temperature
- ΔT=5°C entering/leaving evaporator water temperature and with evaporator fouling factor=0,0176 m^2 °C/kW
- condenser fouling factor=0,0440 m^2 °C/kW.

5 Capacity tables

5 - 4 Total heat recovery ratings

EWWD380-600DYJNN

Unit size	LWE	LWTR											
		35			40			45			50		
		CC	PI	TH	CC	PI	TH	CC	PI	TH	CC	PI	TH
380	4	341,2	82,7	423,9	326,7	93,2	419,9	311,7	104,6	416,3	295,9	117,0	412,9
	5	352,2	83,1	435,3	337,5	93,6	431,1	322,1	105,1	427,2	306,0	117,4	423,4
	6	363,4	83,4	446,8	348,4	94,1	442,5	332,7	105,5	438,2	316,3	117,9	434,2
	7	374,8	83,8	458,6	359,5	94,5	454,0	343,5	106,0	449,5	326,8	118,4	445,2
	8	386,5	84,1	470,6	370,8	94,9	465,7	354,5	106,4	460,9	337,5	118,9	456,4
	9	398,3	84,4	482,7	382,3	95,3	477,6	365,7	106,9	472,6	348,4	119,4	467,8
420	4	369,2	90,1	459,3	353,8	101,6	455,4	337,6	114,0	451,6	320,6	127,5	448,1
	5	381,0	90,5	471,5	365,2	102,0	467,2	348,8	114,5	463,3	331,4	127,9	459,3
	6	393,0	90,8	483,8	376,9	102,4	479,3	360,2	115,0	475,2	342,5	128,4	470,9
	7	405,2	91,2	496,4	388,8	102,9	491,7	371,7	115,4	487,1	353,7	129,0	482,7
	8	417,6	91,6	509,2	400,9	103,3	504,2	383,5	115,9	499,4	365,2	129,5	494,7
	9	430,2	92,0	522,2	413,2	103,8	517,0	395,5	116,4	511,9	376,9	130,0	506,9
460	4	413,3	100,7	514,0	395,9	113,5	509,4	377,8	127,3	505,1	358,6	142,3	500,9
	5	426,5	101,2	527,7	408,8	114,0	522,8	390,3	127,9	518,2	370,8	142,9	513,7
	6	439,9	101,7	541,6	421,9	114,6	536,5	403,0	128,5	531,5	383,1	143,5	526,6
	7	453,6	102,1	555,7	435,2	115,1	550,3	416,0	129,0	545,0	395,7	144,1	539,8
	8	467,5	102,6	570,1	448,8	115,6	564,4	429,2	129,6	558,8	408,5	144,7	553,2
	9	481,7	103,0	584,7	462,6	116,2	578,8	442,6	130,2	572,8	421,6	145,4	567,0
500	4	457,3	111,4	568,7	438,0	125,5	563,5	417,9	140,7	558,6	396,7	157,2	553,9
	5	471,9	112,0	583,9	452,3	126,1	578,4	431,7	141,4	573,1	410,1	157,8	567,9
	6	486,8	112,5	599,3	466,8	126,7	593,5	445,8	142,0	587,8	423,8	158,5	582,3
	7	502,0	113,1	615,1	481,5	127,4	608,9	460,2	142,7	602,9	437,7	159,2	596,9
	8	517,4	113,6	631,0	496,5	128,0	624,5	474,8	143,4	618,2	451,8	160,0	611,8
	9	533,0	114,2	647,2	511,8	128,6	640,4	489,6	144,1	633,7	466,2	160,7	626,9
600	4	529,5	129,8	659,3	505,4	141,4	646,8	480,5	154,5	635,0	454,2	169,3	623,5
	5	547,0	131,5	678,5	522,6	143,0	665,6	497,0	156,1	653,1	470,4	170,8	641,2
	6	564,9	133,3	698,2	540,1	144,8	684,9	514,0	157,8	671,8	486,8	172,4	659,2
	7	583,2	135,2	718,4	557,9	146,6	704,5	531,3	159,5	690,8	503,5	174,0	677,5
	8	601,8	137,2	739,0	576,0	148,4	724,4	548,9	161,3	710,2	520,6	175,7	696,3
	9	621,2	139,2	760,4	594,4	150,4	744,8	566,8	163,1	729,9	538,0	177,5	715,5

SYMBOLS

CC: Cooling Capacity (kW)
PI: Power input (kW)
TH: Total Heat Capacity (kW)
LWE: Leaving Water Evaporator (°C)
LWTR: Leaving Water Total Heat Recovery (°C)

NOTE

1 Values are based on:
- ΔT=5°C entering/leaving condenser water temperature
- ΔT=5°C entering/leaving evaporator water temperature and with evaporator fouling factor=0,0176 m^2 °C/kW
- condenser fouling factor=0,0440 m^2 °C/kW.

5 Capacity tables

5 - 4 Total heat recovery ratings

EWWD190-380DJYNN/A

Unit size	LWE	ENTERING CONDENSER WATER TEMPERATURE °C											
		35			40			45			50		
		CC	PI	TH	CC	PI	TH	CC	PI	TH	CC	PI	TH
190	4	167,1	37,1	204,2	159,6	41,9	201,5	151,9	47,0	198,9	143,9	52,6	196,5
	5	172,9	37,2	210,1	165,2	42,0	207,2	157,3	47,2	204,5	149,2	52,8	202,0
	6	178,8	37,3	216,1	171,0	42,2	213,2	162,9	47,4	210,3	154,6	53,0	207,6
	7	184,8	37,4	222,2	176,8	42,3	219,1	168,6	47,5	216,1	160,1	53,1	213,2
	8	191,0	37,5	228,5	182,8	42,5	225,3	174,4	47,7	222,1	165,7	53,3	219,0
	9	197,3	37,6	234,9	189,0	42,6	231,6	180,4	47,9	228,3	171,5	53,5	225,0
230	4	200,8	44,6	245,4	192,0	50,4	242,4	182,8	56,6	239,4	173,2	63,2	236,4
	5	207,7	44,8	252,5	198,7	50,6	249,3	189,3	56,8	246,1	179,5	63,4	242,9
	6	214,7	44,9	259,6	205,5	50,7	256,2	195,9	57,0	252,9	185,9	63,7	249,6
	7	221,8	45,1	266,9	212,4	50,9	263,3	202,6	57,2	259,8	192,4	63,9	256,3
	8	229,1	45,2	274,3	219,5	51,1	270,6	209,5	57,4	266,9	199,1	64,1	263,2
	9	236,6	45,3	281,9	226,7	51,3	278,0	216,5	57,6	274,1	205,8	64,4	270,2
280	4	248,9	54,7	303,6	237,9	61,7	299,6	226,6	69,3	295,9	214,7	77,4	292,1
	5	257,4	54,9	312,3	246,2	62,0	308,2	234,6	69,5	304,1	222,4	77,7	300,1
	6	266,1	55,1	321,2	254,7	62,2	316,9	242,8	69,8	312,6	230,3	78,0	308,3
	7	275,0	55,3	330,3	263,3	62,5	325,8	251,2	70,1	321,3	238,4	78,3	316,7
	8	284,1	55,5	339,6	272,1	62,7	334,8	259,7	70,4	330,1	246,7	78,6	325,3
	9	293,4	55,7	349,1	281,1	63,0	344,1	268,4	70,7	339,1	255,1	78,9	334,0
320	4	287,4	64,6	352,0	274,8	70,1	344,9	261,8	76,3	338,1	248,1	83,4	331,5
	5	296,9	65,5	362,4	284,1	71,0	355,1	270,8	77,1	347,9	256,9	84,1	341,0
	6	306,6	66,5	373,1	293,6	71,8	365,4	280,0	78,0	358,0	265,8	84,9	350,7
	7	316,6	67,5	384,1	303,3	72,8	376,1	289,4	78,8	368,2	275,0	85,7	360,7
	8	326,7	68,5	395,2	313,1	73,7	386,8	299,0	79,7	378,7	284,2	86,6	370,8
	9	337,1	69,5	406,6	323,1	74,7	397,8	308,8	80,7	389,5	293,7	87,5	381,2
380	4	328,4	74,1	402,5	314,0	83,7	397,7	299,0	93,9	392,9	283,5	105,1	388,6
	5	339,6	74,3	413,9	324,8	83,9	408,7	309,5	94,3	403,8	293,7	105,4	399,1
	6	351,1	74,5	425,6	336,0	84,2	420,2	320,3	94,6	414,9	304,2	105,7	409,9
	7	362,8	74,7	437,5	347,3	84,5	431,8	331,3	94,9	426,2	314,9	106,1	421,0
	8	374,7	74,9	449,6	358,9	84,8	443,7	342,6	95,2	437,8	325,8	106,5	432,3
	9	386,9	75,1	462,0	370,8	85,0	455,8	354,1	95,6	449,7	336,9	106,8	443,7

SYMBOLS

CC: Cooling Capacity (kW)
PI: Power input (kW)
TH: Total Heat Capacity (kW)
LWE: Leaving Water Evaporator (°C)
LWTR: Leaving Water Total Heat Recovery (°C)

NOTE

1 Values are based on:
- ΔT=5°C entering/leaving condenser water temperature
- ΔT=5°C entering/leaving evaporator water temperature and with evaporator fouling factor=0,0176 m^2 °C/kW
- condenser fouling factor=0,0440 m^2 °C/kW.

5 Capacity tables

5 - 4 Total heat recovery ratings

EWWD400-650DJYNN/A

Unit size	LWE	LWTR											
		35			40			45			50		
		CC	PI	TH	CC	PI	TH	CC	PI	TH	CC	PI	TH
400	4	366,0	81,5	447,5	349,9	92,0	441,9	333,2	103,4	436,6	315,8	115,6	431,4
	5	378,6	81,8	460,4	362,1	92,3	454,4	345,0	103,7	448,7	327,2	115,9	443,1
	6	391,4	82,0	473,4	374,5	92,7	467,2	357,1	104,1	461,2	338,9	116,3	455,2
	7	404,4	82,2	486,6	387,2	93,0	480,2	369,4	104,4	473,8	350,8	116,7	467,5
	8	417,8	82,5	500,3	400,2	93,3	493,5	381,9	104,8	486,7	363,0	117,1	480,1
	9	431,4	82,7	514,1	413,4	93,6	507,0	394,8	105,2	500,0	375,5	117,6	493,1
460	4	398,0	88,8	486,8	380,7	100,3	481,0	362,7	112,6	475,3	343,8	125,9	469,7
	5	411,5	89,1	500,6	393,8	100,6	494,4	375,5	113,0	488,5	356,2	126,3	482,5
	6	425,3	89,4	514,7	407,2	101,0	508,2	388,5	113,4	501,9	368,8	126,8	495,6
	7	439,4	89,6	529,0	420,9	101,3	522,2	401,7	113,8	515,5	381,7	127,2	508,9
	8	453,7	89,8	543,5	434,8	101,6	536,4	415,2	114,2	529,4	394,8	127,6	522,4
	9	468,3	90,1	558,4	449,0	101,9	550,9	429,1	114,6	543,7	408,2	128,1	536,3
500	4	444,8	98,1	542,9	425,5	110,8	536,3	405,5	124,4	529,9	384,6	139,1	523,7
	5	459,9	98,4	558,3	440,2	111,2	551,4	419,8	124,8	544,6	398,4	139,6	538,0
	6	475,3	98,7	574,0	455,2	111,5	566,7	434,3	125,3	559,6	412,5	140,0	552,5
	7	491,0	99,0	590,0	470,4	111,9	582,3	449,1	125,7	574,8	426,8	140,5	567,3
	8	507,0	99,2	606,2	486,0	112,2	598,2	464,3	126,1	590,4	441,5	141,0	582,5
	9	523,4	99,5	622,9	501,9	112,6	614,5	479,7	126,6	606,3	456,5	141,5	598,0
550	4	484,8	107,3	592,1	464,1	121,1	585,2	442,7	136,1	578,8	420,2	152,2	572,4
	5	501,0	107,6	608,6	479,9	121,5	601,4	458,0	136,5	594,5	435,1	152,6	587,7
	6	517,6	107,9	625,5	496,1	121,9	618,0	473,7	137,0	610,7	450,3	153,1	603,4
	7	534,5	108,2	642,7	512,5	122,3	634,8	489,7	137,4	627,1	465,8	153,6	619,4
	8	551,7	108,5	660,2	529,3	122,7	652,0	506,0	137,9	643,9	481,6	154,1	635,7
	9	569,3	108,8	678,1	546,4	123,1	669,5	522,7	138,3	661,0	497,7	154,6	652,3
650	4	561,0	126,1	687,1	537,3	137,0	674,3	512,4	149,4	661,8	486,4	163,4	649,8
	5	580,0	127,8	707,8	555,2	138,5	693,7	529,9	150,8	680,7	503,4	164,8	668,2
	6	600,3	129,6	729,9	573,6	140,1	713,7	547,7	152,3	700,0	520,7	166,2	686,9
	7	621,0	131,5	752,5	593,6	141,9	735,5	565,9	153,9	719,8	538,4	167,6	706,0
	8	641,8	133,5	775,3	614,2	143,8	758,0	585,1	155,6	740,7	556,4	169,1	725,5
	9	663,0	135,5	798,5	634,9	145,7	780,6	605,5	157,4	762,9	574,7	170,7	745,4

SYMBOLS

CC: Cooling Capacity (kW)
PI: Power input (kW)
TH: Total Heat Capacity (kW)
LWE: Leaving Water Evaporator (°C)
LWTR: Leaving Water Total Heat Recovery (°C)

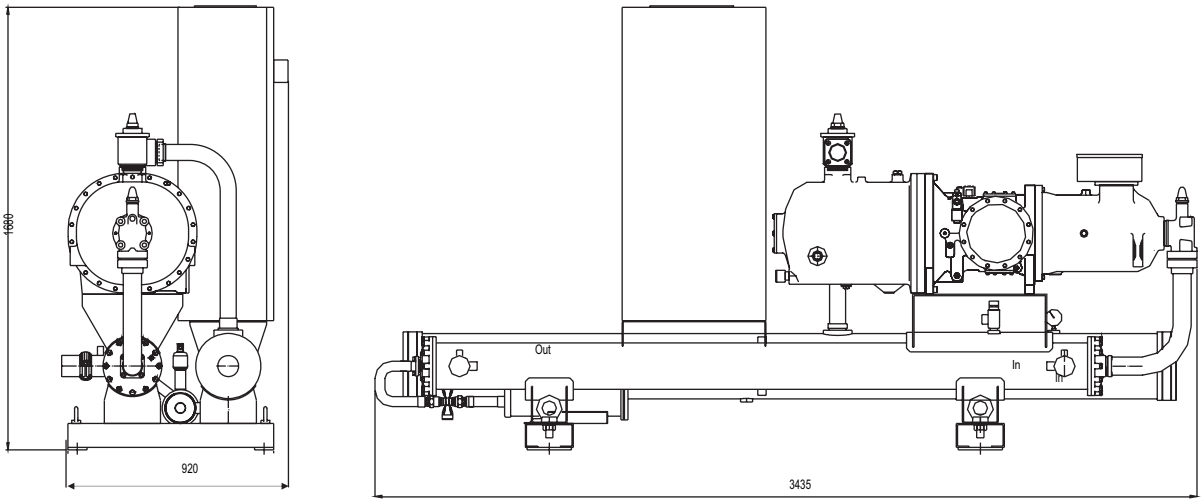
NOTE

1 Values are based on:
- ΔT=5°C entering/leaving condenser water temperature
- ΔT=5°C entering/leaving evaporator water temperature and with evaporator fouling factor=0,0176 m^2 °C/kW
- condenser fouling factor=0,0440 m^2 °C/kW.

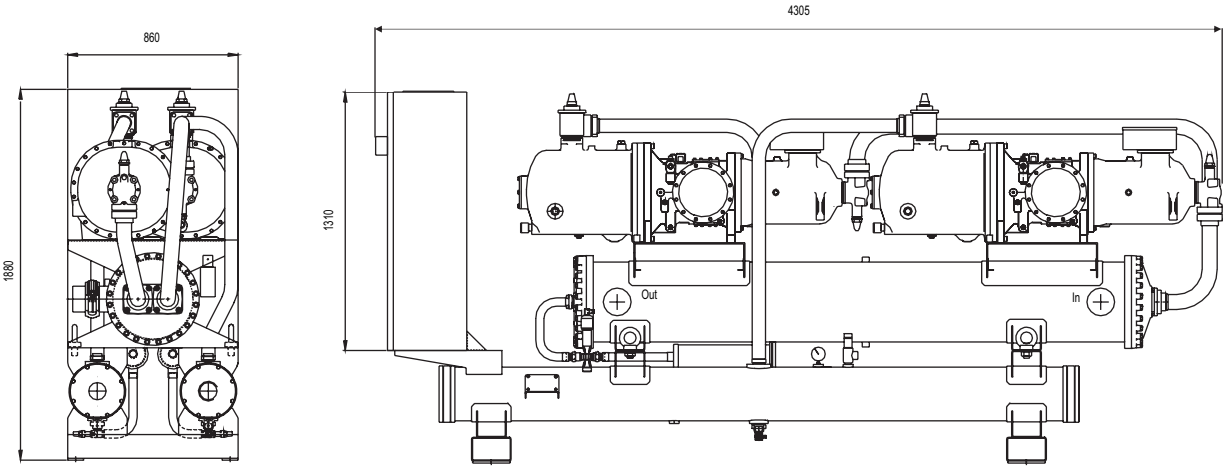
6 Dimensional drawing

6 - 1 Dimensional drawing

EWWD170-300DJYNN
EWWD190-380DJYNN/A



EWWD320-600DJYNN
EWWD380-650DJYNN/A



7 Installation

7 - 1 Installation method

EWWD-DJYNN

Warning

Installation and maintenance are to be performed only by qualified personnel who are familiar with local codes and regulations, and who are experienced with this type of equipment. Must be avoided the unit installation in places that could be considered dangerous for all the maintenance operations.

Handling

The chiller is mounted on heavy wooden skids to protect the unit from accidental damage and to permit easy handling and moving. It is recommended that all moving and handling be performed with the skids under the unit when possible and that the skids not be removed until the unit is in the final location.

Spreader bars must be used to protect the control cabinet and the other areas of the chiller.

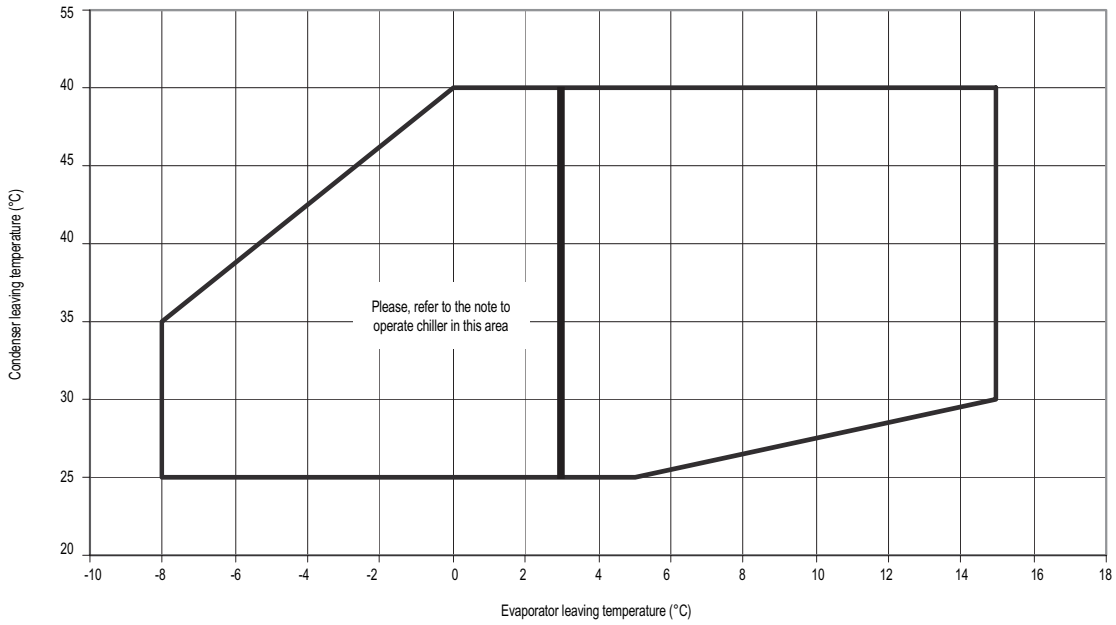
Location

A levelled and sufficiently strong floor is required. If necessary, additional structural members should be provided to transfer the weight of the unit to the nearest beams.

Rubber-in-shear isolators are 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 are recommended to avoid straining the piping and transmitting vibration and noise.

8 Operation range

EWWD-DJYNN



Min ΔT evaporator/condenser water	°C	4
Max ΔT evaporator/condenser water	°C	8

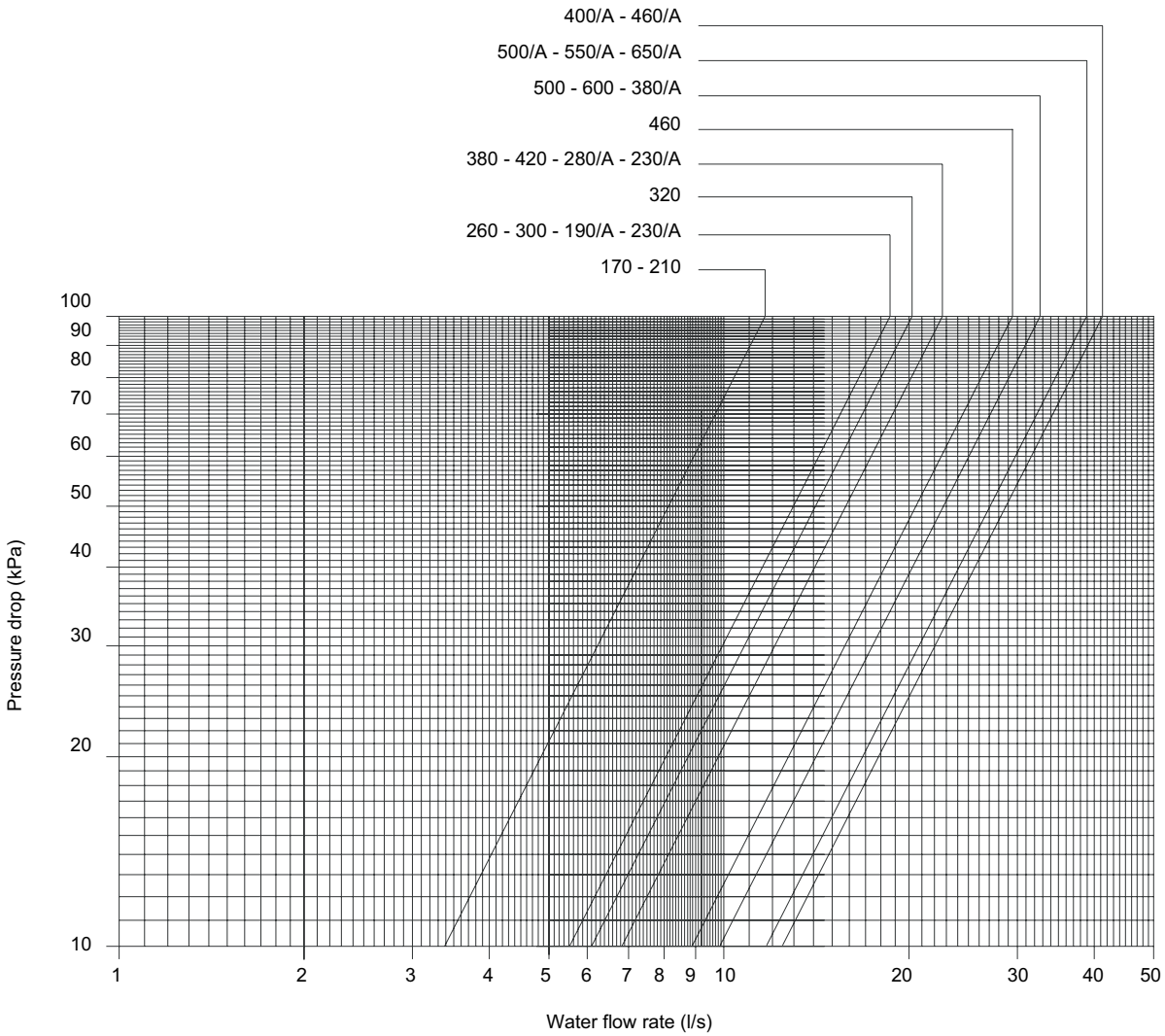
NOTE

1 The use of glycol is necessary for evaporator leaving water temperature below +3°C.

9 Hydraulic performance

9 - 1 Water pressure drop curve evaporator

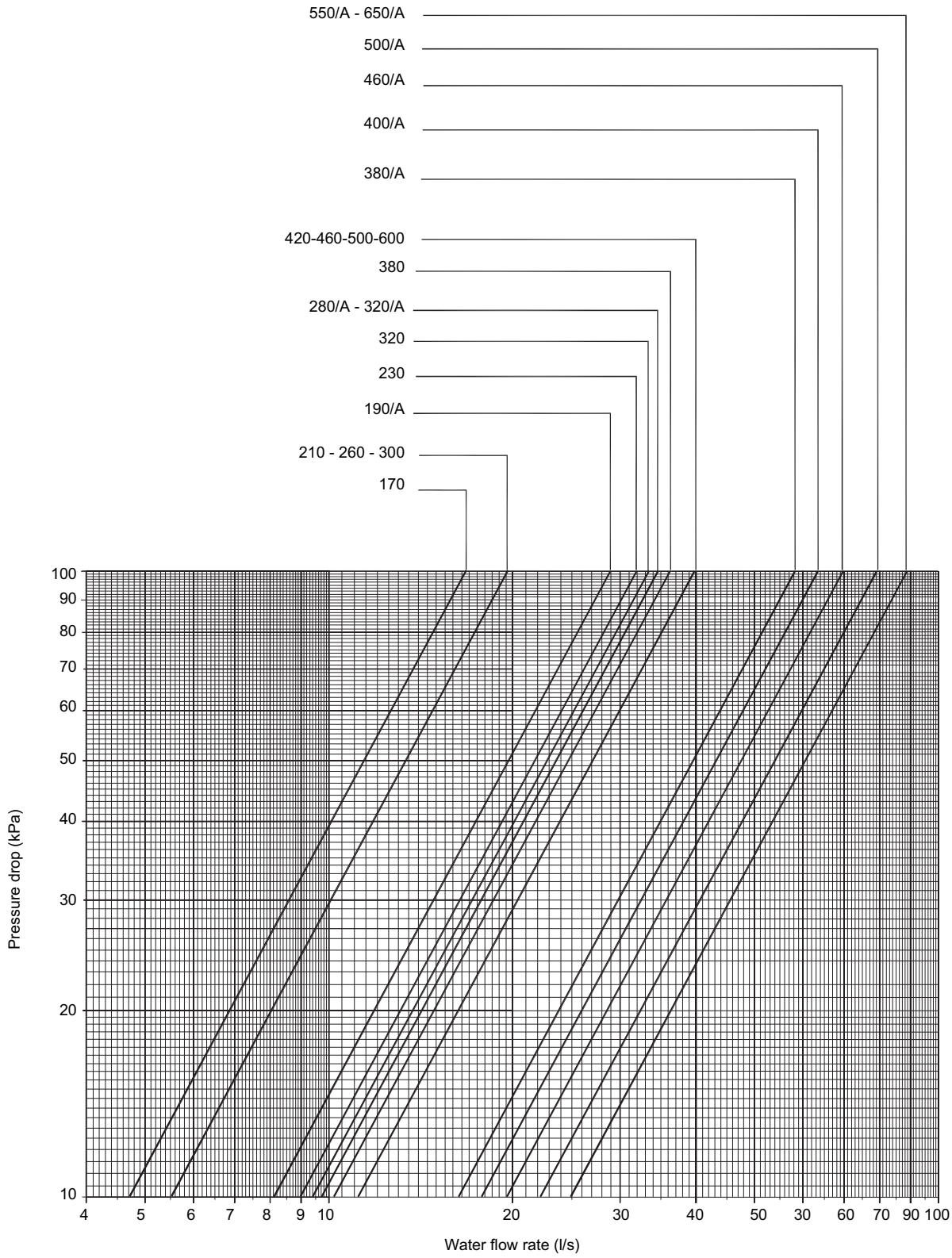
EWWD170-600DJYNN
EWWD190-650DJYNNA



9 Hydraulic performance

9 - 2 Water pressure drop curve condenser

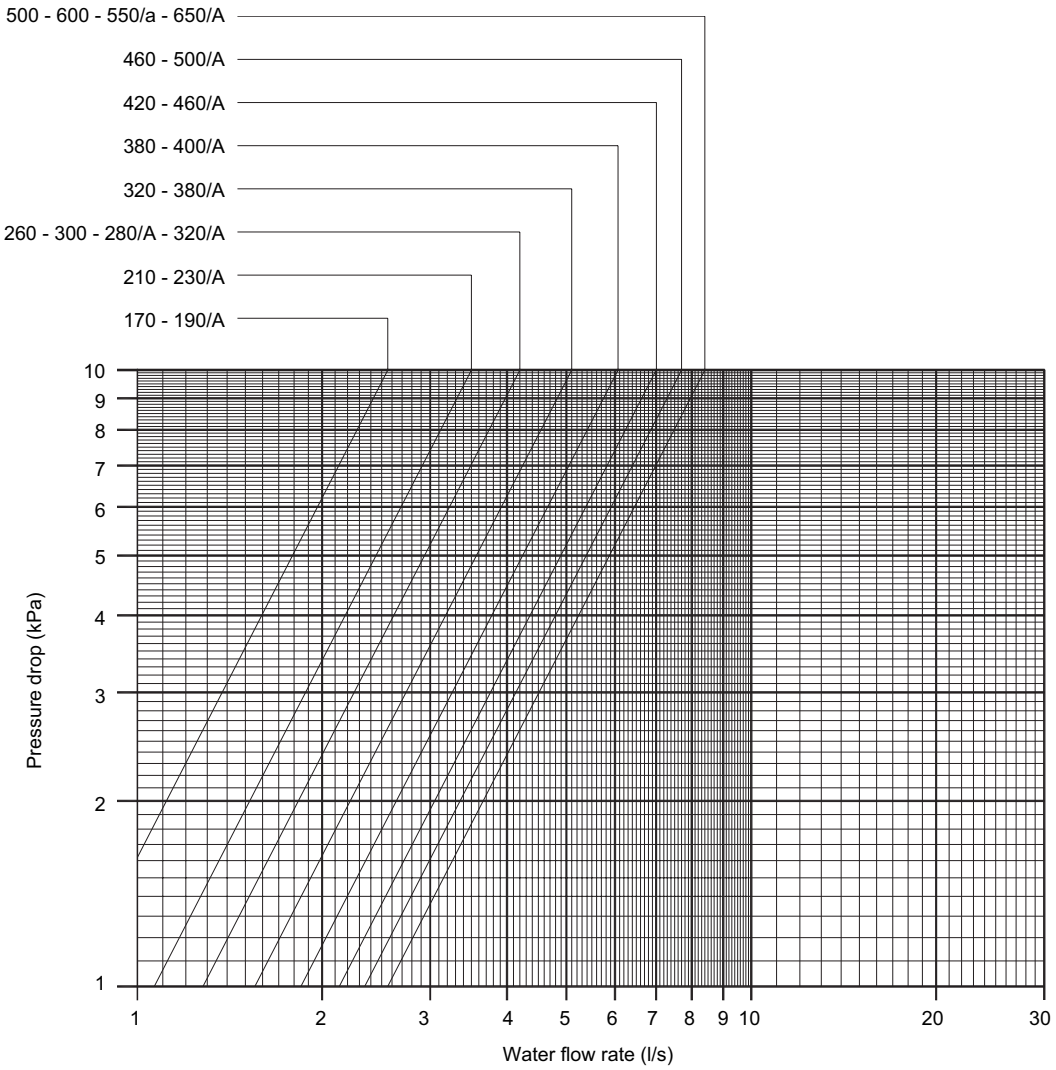
EWWD170-600DJYNN
EWWD190-650DJYNN/A



9 Hydraulic performance

9 - 3 Partial heat recovery pressure drop

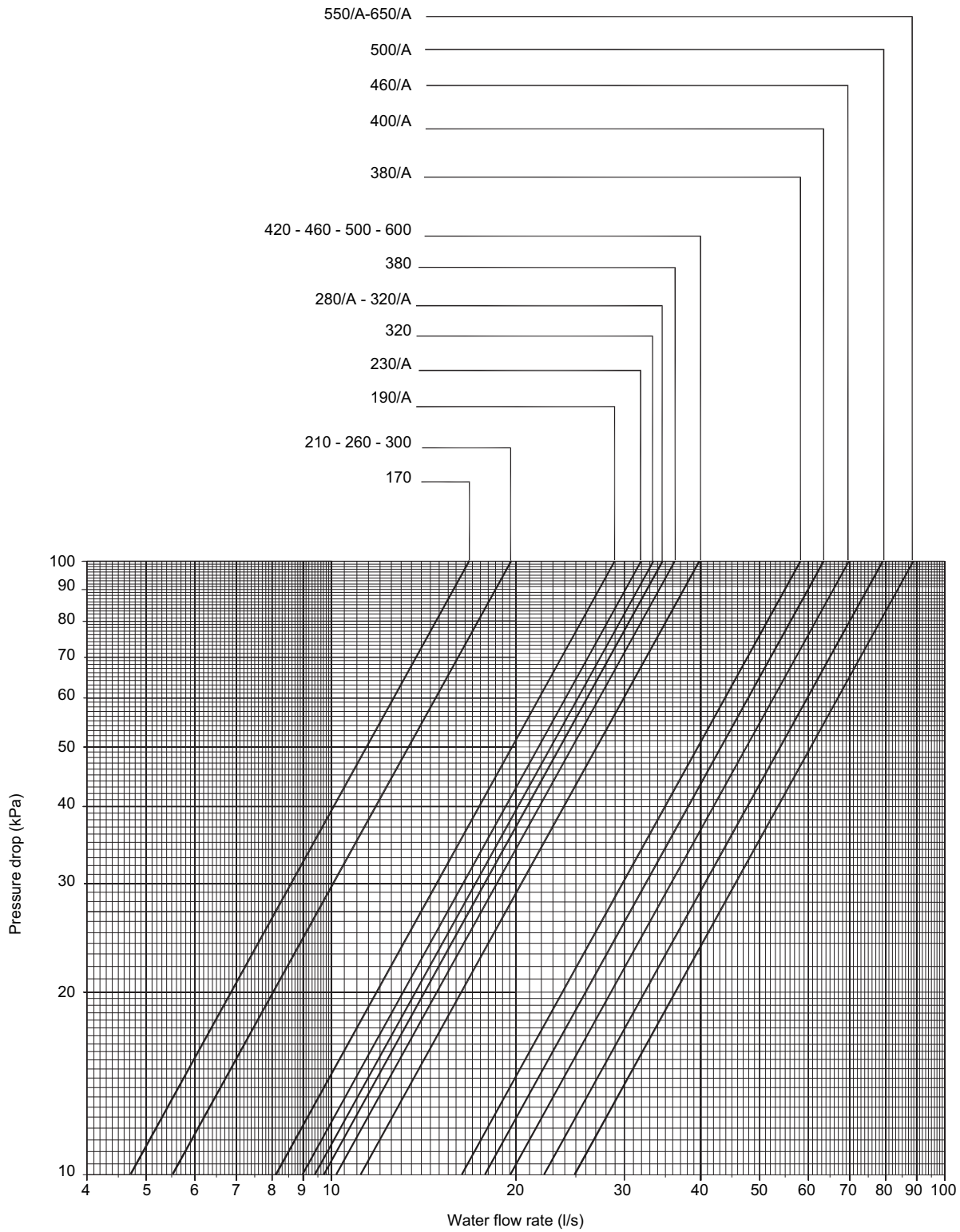
EWWD170-600DJYNN
EWWD190-650DJYNN/A



9 Hydraulic performance

9 - 4 Total heat recovery pressure drop

EWWD170-600DJYNN
EWWD190-650DJYNN/A



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EWLD-DJYNN

1 Specifications

1-1 TECHNICAL SPECIFICATIONS				EWLD160 DJYNN	EWLD190 DJYNN	EWLD240 DJYNN	EWLD280 DJYNN	EWLD320 DJYNN	EWLD360 DJYNN	EWLD380 DJYNN	EWLD420 DJYNN
Capacity (Eurovent)	Cooling	Nominal	kW	160.6	189	244	270.4	315.5	352.2	381.1	428.3
Capacity Steps			%	25-100 (stepless)				12.5-100 (stepless)			
Nominal input (Eurovent)	Cooling		kW	45.4	54.3	65.9	74.6	90.6	99.7	108.6	120
EER				3.54	3.48	3.70	3.62	3.48	3.53	3.51	3.57
Casing	Colour			RAL7032							
	Material			Galvanized and painted steel sheet							
Dimensions	Unit	Height	mm	1,860				1,942			
		Width	mm	1,000				1,100			
		Depth	mm	3,700				4,400			
Weight	Unit		kg	1,280	1,280	1,398	1,398	2,442	2,446	2,446	2,501
	Operating Weight		kg	1,337	1,337	1,516	1,516	2,560	2,560	2,560	2,670
Water Heat Exchanger Evaporator	Type			Shell and tube - direct expansion							
	Minimum water volume in the system		l	1,151	1,354	1,749	1,938	1,130	1,262	1,365	1,535
	Water flow rate	Min	l/min	230.20	270.90	349.74	387.58	452.22	504.83	546.25	613.90
		Nominal	l/min	460.39	541.81	699.47	775.16	904.44	1,009.65	1,092.50	1,227.81
		Max	l/min	649.15	763.95	986.26	1,092.97	1,275.27	1,423.61	1,540.42	1,731.21
Nominal water pressure drop	Cooling	Heat exchanger	kPa	48	69	43	53	64	63	72	54
Water Heat Exchanger Evaporator	Insulation material			Closed cell foam elastomer							
	Model	Quantity		1	1	1	1	1	1	1	1
		Model		EV19270055	EV19270055	EV27270066	EV27270066	EV27270077	EV27270088	EV27270088	EV32270088
Compressor	Type			Semi-hermetic single screw compressor							
	Refrigerant oil type			ICI Emkarate RL 68 H							
	Refrigerant oil charge		l	16	16	16	16	32	32	32	32
	Model	Quantity		1	1	1	1	2	2	2	2
		Model		HSS3216	HSS3218	HSS3220	HSS3221	HSS3216/ HSS3216	HSS3216/ HSS3218	HSS3218/ HSS3218	HSS3218/ HSS3220
		Speed	rpm	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
		Crankcase Heater	W	250	250	250	250	250	250	250	250
Sound level	Sound Power	Cooling	dBA	88	88	88	88	90.5	90.5	90.5	90.5
	Sound Pressure	Cooling	dBA	69.7	69.7	69.7	69.7	71.7	71.7	71.7	71.7
	Sound Pressure + OPLN	Cooling	dBA	64.7	64.7	64.7	64.7	66.7	66.7	66.7	66.7
Cooling	Evaporator	Min	°CDB	-8							
		Max	°CDB	15							
	Condensor	Min	°CDB	25							
		Max	°CDB	50							
Refrigerant circuit	Refrigerant type			R-134a							
	Refrigerant charge		kg	5				10			
	No of circuits			1				2			
	Refrigerant control			Electronic expansion valve							
Piping connections	Evaporator water inlet/outlet			88.9		114.3					139.7
Safety Devices				High pressure (pressure switch)							
				Low pressure (pressure switch)							
				High discharge temperature on the compressor							
				Phase monitor							
				Low pressure ratio							
				High oil pressure drop							
				Low oil pressure							

1 Specifications

1-1 TECHNICAL SPECIFICATIONS				EWLD480DJYNN	EWLD550DJYNN
Capacity (Eurovent)	Cooling	Nominal	kW	475.7	525.9
Capacity Steps			%	12.5-100 (stepless)	
Nominal input (Eurovent)	Cooling		kW	131.5	148
EER				3.62	3.55
Casing	Colour			RAL7032	
	Material			Galvanized and painted steel sheet	
Dimensions	Unit	Height	mm	1,942	
		Width	mm	1,100	
		Depth	mm	4,400	
Weight	Unit		kg	2,506	
	Operating Weight		kg	2,670	
Water Heat Exchanger Evaporator	Type			Shell and tube - direct expansion	
	Minimum water volume in the system		l	1,704	1,884
	Water flow rate	Min	l/min	681.84	753.80
		Nominal	l/min	1,363.69	1,507.60
		Max	l/min	1,922.80	2,125.71
Nominal water pressure drop	Cooling	Heat exchanger	kPa	54	68
Water Heat Exchanger Evaporator	Insulation material			Closed cell foam elastomer	
	Model	Quantity		1	1
		Model		EV32270099	
Compressor	Type			Semi-hermetic single screw compressor	
	Refrigerant oil type			ICI Emkarate RL 68 H	
	Refrigerant oil charge		l	32	32
	Model	Quantity		2	2
		Model		HSS3220/HSS3220	HSS3221/HSS3221
		Speed	rpm	3,000	3,000
		Crankcase Heater	W	250	250
Sound level	Sound Power	Cooling	dBA	90.5	90.5
	Sound Pressure	Cooling	dBA	71.7	71.7
	Sound Pressure + OPLN	Cooling	dBA	66.7	66.7
Cooling	Evaporator	Min	°CDB	-8	
		Max	°CDB	15	
	Condensor	Min	°CDB	25	
		Max	°CDB	50	
Refrigerant circuit	Refrigerant type			R-134a	
	Refrigerant charge		kg	10	
	No of circuits			2	
	Refrigerant control			Electronic expansion valve	
Piping connections	Evaporator water inlet/outlet			139.7	
Safety Devices				High pressure (pressure switch)	
				Low pressure (pressure switch)	
				High discharge temperature on the compressor	
				Phase monitor	
				Low pressure ratio	
				High oil pressure drop	
				Low oil pressure	

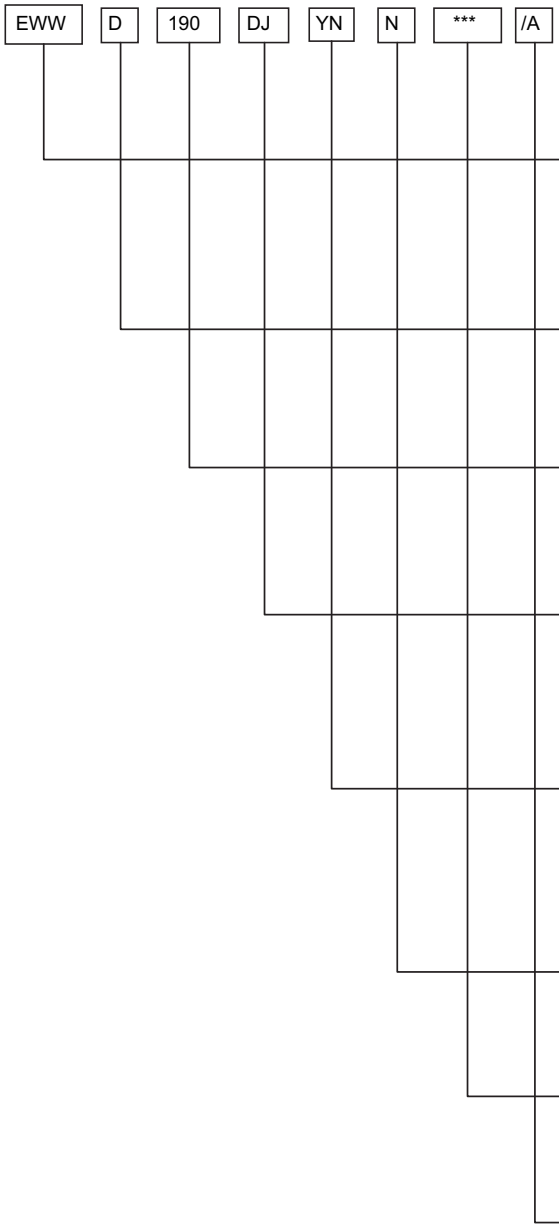
1 Specifications

1-2 ELECTRICAL SPECIFICATIONS				EWLD160 DJYNN	EWLD190 DJYNN	EWLD240 DJYNN	EWLD280 DJYNN	EWLD320 DJYNN	EWLD360 DJYNN	EWLD380 DJYNN	EWLD420 DJYNN
Power Supply	Name			YN							
	Phase			3~							
	Frequency		Hz	50							
	Voltage		V	400							
	Voltage Tolerance	Minimum	%	-10%							
		Maximum	%	+10%							
Unit	Starting Current		A	288.4	288.4	288.4	288.4	288.4	288.4	288.4	288.4
	Maximum starting current		A	288.4	288.4	288.4	288.4	372.3	385.6	385.6	404.4
	Starting current soft start		A	336	402	483	546	420	499	580	662
	Nominal Running Current Cooling		A	79	90	107	120	157	169	181	197
	Power factor at nominal conditions		A	0.83	0.87	0.89	0.89	0.83	0.85	0.87	0.88
	Maximum Running Current		A	112	134	161	182	224	246	268	295
	Max unit current for wires sizing		A	123	147	177	200	246	271	295	325
	Recommended fuses according to IEC standard 269-2			3x200 A gG	3x250 A gG	3x315 A gG	3x355 A gG	3x250 A gG	3x315 A gG	3x315 A gG	3x355 A gG
Compressor	Phase			3~							
	Voltage		V	400							
	Voltage Tolerance	Minimum	%	-10%							
		Maximum	%	+10%							
	Starting current		A	288	288	288	288	288	288	288	288
	Nominal running current (RLA)		A	79	90	107	120	79	79	90	901
	Maximum Running Current		A	112	134	161	182	112	112	134	134
	Power factor			0.87	0.89	0.89	0.89	0.83	0.83	0.87	0.87
	Starting Method			Wye - Delta							
	Recommended fuses			Factory installed							
Compressor	Phase							3~			
	Voltage		V					400			
	Voltage Tolerance	Minimum	%					-10%			
		Maximum	%					+10%			
	Starting current		A					288			
	Nominal running current (RLA)		A					79	90	90	107
	Maximum Running Current		A					112	134	134	161
	Power factor							0.83	0.87	0.87	0.89
	Starting Method							Wye - Delta			
	Recommended fuses							Factory installed			
Control Circuit	Phase			1~							
	Frequency		Hz	50							
	Voltage		V	120							
	Recommended fuses			Factory installed							
	Crankcase heater (E1/2HC)		W	250W - 400V							
Evaporator Heater Tape	Supply Voltage		V	120							
	Capacity		W	150							
	Voltage Tolerance	Minimum	%	-10%							
		Maximum	%	+10%							
	Recommended fuses			Factory installed							
Notes				Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.							
				Nominal current in heating mode is referred to installation with 25kA short circuit current and is based on the following conditions: evaporator 12°C/7°C; 45°C saturated discharge temperature							
				Maxium unit inrush current: inrush compressor current for unit with one compressor OR starting current of the biggest compressor + current at 75 % full load of the other compressor							
				Maximum current for wires sizing (compressor full load ampere) x 1.1							

1 Specifications

1-2 ELECTRICAL SPECIFICATIONS				EWLD480DJYNN	EWLD550DJYNN
Power Supply	Name			YN	
	Phase			3~	
	Frequency		Hz	50	50
	Voltage		V	400	400
	Voltage Tolerance	Minimum	%	-10%	
		Maximum	%	+10%	
Unit	Starting Current		A	288.4	288.4
	Maximum starting current		A	404.4	415.7
	Starting current soft start		A	536	626
	Nominal Running Current Cooling		A	214	239
	Power factor at nominal conditions		A	0.89	0.89
	Maximum Running Current		A	322	364
	Max unit current for wires sizing		A	354	400
	Recommended fuses according to IEC standard 269-2			3x400 A gG	3x500 A gG
Compressor	Phase			3~	
	Voltage		V	400	400
	Voltage Tolerance	Minimum	%	-10%	
		Maximum	%	+10%	
	Starting current		A	288	288
	Nominal running current (RLA)		A	107	119
	Maximum Running Current		A	161	182
	Power factor			0.89	
	Starting Method			Wye - Delta	
	Recommended fuses			Factory installed	
Compressor	Phase			3~	
	Voltage		V	400	400
	Voltage Tolerance	Minimum	%	-10%	
		Maximum	%	+10%	
	Starting current		A	288	288
	Nominal running current (RLA)		A	107	119
	Maximum Running Current		A	161	182
	Power factor			0.890.89	
	Starting Method			Wye - Delta	
	Recommended fuses			Factory installed	
Control Circuit	Phase			1~	
	Frequency		Hz	50	50
	Voltage		V	120	120
	Recommended fuses			Factory installed	
	Crankcase heater (E1/2HC)		W	250W - 400V	
Evaporator Heater Tape	Supply Voltage		V	120	120
	Capacity		W	150	150
	Voltage Tolerance	Minimum	%	-10%	
		Maximum	%	+10%	
	Recommended fuses			Factory installed	
Notes				Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.	
				Nominal current in heating mode is referred to installation with 25kA short circuit current and is based on the following conditions: evaporator 12°C/7°C; 45°C saturated discharge temperature	
				Maxium unit inrush current: inrush compressor current for unit with one compressor OR starting current of the biggest compressor + current at 75 % full load of the other compressor	
				Maximum current for wires sizing (compressor full load ampere) x 1.1	

2 Nomenclature



Machine type

ERA:	Air cooled condensing unit
EWW:	Water cooled packaged water chiller
EWL:	Remote condenser water chiller
EWA:	Air cooled chiller, cooling only
EWY:	Air cooled chiller, heatpump
EWC:	Air cooled chiller, cooling only with centrifugal fan
EWT:	Air cooled chiller, cooling only with heat recovery

Refrigerant

Q:	R-410A
P:	R-407C
D:	R-134a

Always 3-digit code
Capacity class in kW (cooling)

Cap < 50 kW: not round: example: 37 kW => **037**
50 < Cap < 999 kW: round 0/5: 536 kW=> **535**
Cap > 999 kW use C-symbol (C=100): example: 2578 kW => **C26**

Model series

first character:	letter A, B,...:	major modification
second character:	letter A,B,...:	minor modification DENV
	letter J-W...:	minor modification New Series

Voltage

V1:	~ / 220 - 240 V	/ 50 Hz
V3:	1~ / 230 V	/ 50 Hz
T1:	3~ / 230 V	/ 50 Hz
W1:	3N~ / 400 V	/ 50 Hz
Y1:	3~ / 380-415 V	/ 50 Hz
YN:	3~ / 400 V	/ 50 Hz

Hydraulic module/Heat recovery version/Pump & Electrical options (Consult Selection software)

N:	No Hydraulic components
M:	Modular
A-V:	Combination of specific options

Option code (Consult Selection software)

****:	4 digits

Option regarding efficiency version, sound version

/H:	High ambient version
/A:	High efficiency version
/Q:	Standard efficiency Extra low noise version
/Z:	High efficiency and Extra low noise version

3 Specification text

To supply and install, where specified in the project n° ……. unit(s) water cooled chiller with cooling capacity of ……. kW, to cool ……. l/sec. of water from ……. °C to ……. °C, condenser entering water temperature ……. °C, condenser leaving water temperature .....°C.

The unit should work with electricity at ……. V, 3ph, 50Hz. The electrical power absorbed should not exceed ……. kW. The units COP will be at least ……. at the working conditions of the project. Part load COP will be at least ……. at the working conditions of the project.

The units will have 1 or 2 independent refrigerant circuits, and the respective electronic microprocessor will allow the starting of the compressors. Each chiller will be factory assembled and protected by an epoxy paint.

The unit will be tested at full load in the factory at the nominal working conditions and water temperatures. Before shipment a full test will be held to avoid any losses. Chiller will be delivered to the job site completely assembled and charged with refrigerant and oil.

Comply with the manufacturer instructions for rigging and handling equipment.

GENERAL

All units should be designed and manufactured in accordance with applicable selections of the following which are equivalent to American Air-conditioning industry applicable codes:

Rating of chillers	**EN 12055**
Construction of pressure vessel	**TUV Standards (on request)**
Electrical codes	**IEC 204-1 CEI 44-5 Elect. & Safety Codes**
Safety Codes	**CEI-EN 60204–1 Codes**
Manufacturing Quality Stds	**ISO9001:2000**

REFRIGERANT

Only R-134a will be accepted.

UNIT DESCRIPTION

Each chiller consist of single or multiple semi-hermetic rotary screw compressor, direct expansion avaporator, water cooled condenser section, control system and all components necessary for safe and controlled unit operation.

NOISE LEVEL AND VIBRATIONS

Sound pressure level at 1 meter distance in free field, semispheric conditions, shall not exceed ……dBA. The sound pressure levels must be rated in accordance to ISO 3744. Other types of rating unacceptable. Vibration level should not exceed 2 mm/s.

DIMENSIONS

Unit length shall not exceed ……. mm, unit width shall not exceed ……. mm, unit height shall not exceed ……. mm.

CHILLER COMPONENTS

Compressors

- ✓ The compressors shall be field serviceable, semi-hermetic, single-screw type with one main helical rotor meshing with two opposed gaterotor. Twin-screw compressor will no accepted because of the large bearing loads inherent with this design. For a Single-screw compressor the two exactly opposed gaterotors create two exactly opposed compression cycles which results in balanced forces acting on the rotor compressor. The gaterotors will be constructed of a carbon impregnated engineered composite material. The gaterotor supports will be constructed of cast iron.
- ✓ The oil injection shall be used for these compressors in order to get high COP also at high condensing pressure and low sound pressure levels in each load condition.
- ✓ Refrigerant system differential pressure shall provide oil flow throught service replaceble, 0.5 micron, full flow, cartridge type oil filter internal to compressor. Filter bypass or oil pump not acceptable.
- ✓ The compressor's oil cooling must be realized by liquid injection. External dedicated heat exchanger and additional piping to carry the oil from the compressor to heat exchanger and viceversa will be not accepted.
- ✓ The compressor shall be provided with a integrated high efficiency, oil separator and with built-in oil filter. The oil separator shall be provided with two sight-glasses, one each side, to check the level of oil in the reservoir at the bottom of the separator.
- ✓ The compressor shall be direct electrical drive, without gear transmission between the screw and the electrical motor. The motor's compressor shall be designed for star/delta. Soft start should be available as option.
- ✓ The compressor casing shall be provided with ports to realize economized refrigerant cycles.
- ✓ Shall be present two thermal protection realized by a thermistor for high temperature protection to motor and a thermistor for discharge gas high temperature protection.
- ✓ The compressor shall be provided with an automatic spring return of capacity control valve to the minimum load position to ensure compressor starting always at minimum motor load so with the minimum mechanical stress.
- ✓ The compressor discharge connection shall be fitted with a check valve and with a stop valve.
- ✓ The compressor discharge shall be fitted with a head pressure control valve.

3 Specification text

Evaporator

- ✓ The units shall be supplied with shell and tubes counter-flow evaporator single refrigerant pass. It will be direct expansion with refrigerant inside the tubes and water outside (shell side) with carbon steel tube sheets, with straight copper tubes that are spirally wound internally for higher efficiencies, expanded on the tube plates.
- ✓ The external shell, shall be linked with an electrical heater to prevent freezing up to -28°C ambient temperature, commanded by a thermostat and shall be insulated with flexible, closed cell polyurethane insulation material.
- ✓ The evaporator will have 1 or 2 circuits, one for each compressor and shall be single refrigerant pass to ensure a simplier oil circulation so to ensure always a perfect oil return to the compressor.
- ✓ Evaporator is manufactured in accordance to PED approval.

Refrigerant circuit

- ✓ The unit must have refrigerant circuits completely independent of each other with one compressor per circuit.
- ✓ Each circuit shall include: electronic expansion valve, exthernal high efficiency oil separator, compressor discharge shut-off valve, a liquid line shut-off valve with charging connection, replaceable core filter-drier, sight glass with moisture indicator and insulated suction line. Suction line shut-off valve should be available as option.

Regulation of cooling capacity

- ✓ Each unit will have a microprocessor for the control of compressor slide valve's position (2 slide valves, one for each compressor's cycles).
- ✓ The slides shall have a stepless motion that allows a unit's operation with infinitely variable capacity control down to 25% (1 compressor) or down to 12,5% (2 compressors) of the cooling capacity. The chiller shall be capable of stable operation to a minimum of 25% (1 compressor) or to a minimum of 12,5% (2 compressors) of full load without hot gas bypass.
- ✓ Step unloading unacceptable because of evaporator leaving water temperature fluctuation and low compressor's efficiency at partial load.
- ✓ The system shall stage the unit based on the leaving water temperature.

Electronic expansion valve

- ✓ Electronic expansion valve allows a simple and perfect control system that quickly interacts at load variations. This valve combines two functions: liquid solenoid and electronic expansion valve.
- ✓ It is managed directly by a microprocessor to mach exactly the plant thermal load.
- ✓ Thermostatic valve unacceptable because of:
- ✓ its limited load range;
  - higher refrigerant pressure drop;
  - because of leaving evaporator water temperature control less good than an electronic device;
  - thermal expansion device needs a higher differential pressure between high pressure side and low pressure side to work correctly. This doesn't allow to work with low condensing pressure and therefore doesn't allow to reach the money saving that is possible to have with these chiller working conditions.

Control panel

- ✓ Field power connections, control interlock terminals, and unit control system should be centrally located in an electric panel (IP43).
- ✓ The Power components and control equipment shall be separately mounted in different compartments of the control panel.
- ✓ The Compressor starting method will be star/delta, with an option for Softstart.
- ✓ Power and starting controls should include fuses and contactors for the compressor and fan motor windings.
- ✓ Operating and safety controls should include energy saving; emergency stop switch; thermal overload protection for each compressor motor; high and low pressure cut-out switch (for each refrigerant circuit); anti-freeze thermostat; cut-out switch for each compressor.
- ✓ All of the information regarding the unit shall be shown on a display with a built-in calendar and clock that will provide unit scheduling throughout the year.
- ✓ The following features and functions shall be included:
  - resetting chilled water temperature by controlling the return water temperature or by a remote 4-20 mA DC signal;
  - soft load function to prevent the system from operating at full load during the chilled fluid pulldown period;
  - password protection of critical parameters of control;
  - start-to-start and stop-to-start timers to provide minimum compressor off-time with maximum motor protection;
  - communication capability with a PC or remote monitoring;
  - lead-lag selection by manual or automatically by circuit run hours;
  - double set point for brine unit version;
  - scheduling via internal time clock to allow programming of a yearly start-stop;
  - schedule accommodating weekends and holidays.

3 Specification text

Display Capabilities

The controller as a minimum shall be capable of monitoring and displaying the following data:

Operating Conditions	Alarms
Ent./ Lvg. Evaporator fluid Temp.	Phase Monitor
Ent.ering Condenser fluid Temp.	Freeze Protection
Operating Chilled Fluid Setpoint	Evaporator Flow
Oil / Discharge gas Press. (per comp.)	Low Gas Pressure (per comp.)
Condensing Press. (per comp.)	Transition Fault, (per comp.)
Evaporator Press. (per comp.)	Oil Diff. press. (per comp.)
Unit Enabled	Low Oil Pressure (per comp.)
Compressor Enabled	High Gas Pressure Trip (per comp.)
Water Setpoint Reset	Motor Overload, (per comp.)
Demand Limit or Current Limit	Transducer faults
(Site Selectable)	Units Off-Line
	External fault
	Processor Faults
	Maintenance requirements

Standard Customer Interfaces

The controller as a minimum shall be capable of providing the following interlocks: -

Chiller Enable Signal: Digital Input,
customer contact must be capable of handling 24Volts, 50HZ, 1Amp.

Chiller Common Fault: Volt free, normally open, digital contact,
Must be capable of switching 250V, 50HZ, 10Amp.

Pump Enable Signal: Volt free, normally open, digital contact,
Must be capable of switching 250V, 50HZ, 10Amp.

Setpoint Override: 4 – 20 mA DC analoque input signal.

Demand Limit: 4 – 20 mA DC analoque input signal.

or

Current Limit: 4 – 20 mA DC analoque input signal.

Optional Customer Interfaces

Compressor Running Signals: Volt free, normally open, digital contact,
Capable of switching 250V, 50HZ, 10Amp.

Optional High Level Communications Interface

Using ModBus, Lonworks or Bacnet protocols

4 Options

OPTIONS (available on request)

100% total heat recovery (OPTR) - Produced with tube bundle placed in a single shell with the water condensers. Heat exchangers heads are provided with 2 connections for entering/leaving heat recovery water and 2 separate connections for condensing water.

Partial heat recovery (OPPR) - Produced with plate to plate heat exchangers installed on discharge side of compressor hot gas. These allow hot water to be produced up to a maximum temperature of + 50°C.

Ammeter and voltmeter (OP57) - Digital meters of unit drawn amperes and voltage values, installed on the electrical control panel.

Condenser power factor correction (OPPF) - Installed on the electrical control panel to ensure it conforms to the plant rules. (DAIKIN advices maximum 0,9).

Suction line shut off valve (OP12) - Suction shut-off valve installed on the suction port of the compressor to facilitate maintenance operation.

Cu-Ni 90-10 condenser (OPNI) - To work with sea water the heat exchangers are fitted with Cu-Ni tubes and special protection inside the end covers.

Sound proof cabinet (OPLN) - Made of sheet metal and internally insulated, the sound proof cabinet is around the compressor/s to reach the best performance in noise reduction.

Witness tests - The units are normally tested at the test bench prior to the shipment. On request, a second test can be carried out, at customer's presence, in accordance with the procedures indicated on the test form. (Not available for units with Glycol mixtures).

Soft start (OPSS) - Electronic starting device to reduce inrush current. An overload protection is included (no need of compressors thermal relays).

Liquid Receiver (OPLR) – available on EWLD-DJYNN only, the capacity is 170 Lt.

5 Capacity tables

5 - 1 Cooling capacity tables

EWLD160-320DJYNN / EWLD160-320DJYNN + OPLR

EWLD~ DJYNN unit size	Evaporator leaving water temp. (°C)	SATURATED DISCHARGE TEMPERATURE °C (at the compressor)									
		35		40		45		50		55	
		Cooling capacity (kW)	Power input (kW)	Cooling capacity (kW)	Power input (kW)	Cooling capacity (kW)	Power input (kW)	Cooling capacity (kW)	Power input (kW)	Cooling capacity (kW)	Power input (kW)
160	4	158.8	35.4	152.2	40.1	145.3	45.1	138.2	50.5	130.9	56.4
	5	164.0	35.5	157.3	40.1	150.3	45.2	143.1	50.6	135.5	56.5
	6	169.4	35.5	162.5	40.2	155.4	45.3	148.0	50.7	140.3	56.6
	7	174.8	35.6	167.8	40.3	160.6	45.4	153.0	50.8	145.2	56.7
	8	180.4	35.6	173.3	40.4	165.8	45.5	158.2	50.9	150.2	56.8
	9	186.1	35.6	178.8	40.4	171.2	45.6	163.4	51.1	155.3	57.0
190	4	186.8	42.3	179.3	47.9	171.5	53.9	163.2	60.4	154.5	67.5
	5	192.8	42.4	185.2	48.0	177.2	54.0	168.8	60.5	159.9	67.6
	6	199.0	42.5	191.2	48.1	183.0	54.1	174.5	60.7	165.4	67.7
	7	205.2	42.6	197.3	48.2	189.0	54.3	180.3	60.8	171.1	67.8
	8	211.6	42.6	203.5	48.3	195.0	54.4	186.2	60.9	176.8	68.0
	9	218.1	42.7	209.8	48.4	201.2	54.5	192.2	61.1	182.7	68.1
240	4	240.9	51.4	231.0	58.1	220.7	65.4	210.0	73.3	198.7	81.8
	5	248.9	51.5	238.8	58.3	228.3	65.6	217.4	73.5	205.8	82.0
	6	257.1	51.6	246.8	58.4	236.1	65.7	224.9	73.6	213.1	82.2
	7	265.4	51.6	254.9	58.5	244.0	65.9	232.6	73.8	220.5	82.3
	8	273.9	51.7	263.2	58.6	252.1	66.0	240.4	74.0	228.1	82.5
	9	282.5	51.7	271.6	58.7	260.3	66.1	248.4	74.1	235.9	82.7
280	4	267.4	61.2	256.5	66.5	245.0	72.6	233.1	79.5	220.6	87.3
	5	276.1	61.9	265.0	67.2	253.3	73.3	241.1	80.1	228.4	87.8
	6	285.0	62.7	273.6	67.9	261.8	73.9	249.3	80.7	236.4	88.4
	7	294.1	63.5	282.5	68.7	270.4	74.6	257.7	81.3	244.5	88.9
	8	303.3	64.3	291.5	69.4	279.2	75.3	266.3	82.0	252.8	89.5
	9	312.7	65.2	300.6	70.2	288.1	76.1	275.0	82.7	261.3	90.2
320	4	312.0	70.7	299.2	80.0	285.9	90.0	272.1	100.9	257.7	112.7
	5	322.2	70.9	309.1	80.2	295.6	90.2	281.5	101.1	266.9	112.9
	6	332.5	71.0	319.2	80.3	305.4	90.4	291.1	101.3	276.2	113.1
	7	343.1	71.1	329.5	80.5	315.5	90.6	300.8	101.5	285.7	113.3
	8	353.9	71.2	340.1	80.7	325.7	90.8	310.8	101.8	295.4	113.6
	9	364.9	71.2	350.8	80.8	336.2	91.0	321.0	102.0	305.3	113.8

Note: Nominal CC and power input are based on ΔT=5°C entering/leaving condenser water temperature; evaporator fouling factor=0,0176 m^2 °C/kW; condenser fouling factor=0,0440 m^2 °C/kW.

5 Capacity tables

5 - 1 Cooling capacity tables

EWLD360-550DJYNN / EWLD360-550DJYNN + OPLR

EWLD~ DJYNN unit size	Evaporator leaving water temp. (°C)	SATURATED DISCHARGE TEMPERATURE °C (at the compressor)									
		35		40		45		50		55	
		Cooling capacity (kW)	Power input (kW)	Cooling capacity (kW)	Power input (kW)	Cooling capacity (kW)	Power input (kW)	Cooling capacity (kW)	Power input (kW)	Cooling capacity (kW)	Power input (kW)
360	4	348.2	77.8	333.9	88.0	319.1	99.0	303.5	111.0	287.2	123.9
	5	359.6	77.9	345.0	88.2	329.9	99.2	314.1	111.2	297.5	124.1
	6	371.3	78.0	356.4	88.4	340.9	99.5	324.8	111.4	307.9	124.4
	7	383.1	78.1	368.0	88.5	352.2	99.7	335.8	111.7	318.6	124.6
	8	395.2	78.2	379.8	88.7	363.7	99.9	347.0	111.9	329.5	124.9
	9	407.6	78.3	391.8	88.8	375.4	100.1	358.4	112.2	340.6	125.1
380	4	376.7	84.7	361.4	95.8	345.6	107.9	328.9	120.9	311.2	135.0
	5	388.9	84.9	373.3	96.0	357.2	108.1	340.2	121.2	322.2	135.2
	6	401.3	85.0	385.5	96.2	369.0	108.3	351.7	121.4	333.4	135.5
	7	414.0	85.1	397.8	96.4	381.1	108.6	363.5	121.7	344.8	135.7
	8	426.9	85.2	410.4	96.6	393.3	108.8	375.4	121.9	356.5	136.0
	9	440.1	85.3	423.3	96.8	405.9	109.0	387.6	122.2	368.4	136.3
420	4	423.2	93.7	406.1	106.0	388.3	119.3	369.6	133.7	349.8	149.2
	5	437.0	93.8	419.5	106.2	401.3	119.5	382.3	133.9	362.2	149.5
	6	451.0	94.0	433.2	106.4	414.7	119.8	395.3	134.2	374.8	149.8
	7	465.3	94.1	447.1	106.6	428.3	120.0	408.6	134.5	387.7	150.1
	8	479.9	94.2	461.4	106.8	442.2	120.3	422.1	134.8	400.8	150.4
	9	494.7	94.4	475.8	107.0	456.3	120.5	435.8	135.1	414.2	150.7
480	4	469.9	102.7	450.8	116.1	431.1	130.7	410.5	146.4	388.7	163.5
	5	485.2	102.8	465.8	116.4	445.7	131.0	424.7	146.7	402.4	163.8
	6	500.8	103.0	481.1	116.6	460.6	131.2	439.1	147.0	416.4	164.1
	7	516.7	103.1	496.6	116.8	475.7	131.5	453.9	147.4	430.8	164.4
	8	532.9	103.3	512.4	117.0	491.2	131.8	468.9	147.7	445.3	164.7
	9	549.4	103.4	528.6	117.2	506.9	132.1	484.2	148.0	460.2	165.1
550	4	520.3	121.2	499.3	132.0	477.4	144.3	454.5	158.3	430.5	173.9
	5	536.9	122.6	515.6	133.3	493.3	145.5	469.9	159.3	445.5	174.9
	6	553.8	124.0	532.1	134.6	509.4	146.7	485.7	160.5	460.8	175.9
	7	571.0	125.5	549.0	136.0	525.9	148.0	501.7	161.7	476.4	177.0
	8	588.6	127.0	566.1	137.5	542.6	149.4	518.0	162.9	492.2	178.1
	9	606.4	128.7	583.6	139.0	559.7	150.8	534.6	164.2	508.4	179.3

Note: Nominal CC and power input are based on ΔT=5°C entering/leaving condenser water temperature; evaporator fouling factor=0,0176 m^2 °C/kW; condenser fouling factor=0,0440 m^2 °C/kW.

5 Capacity tables

5 - 2 Capacity correction factor

EWLD-DJYNN

Evaporator fouling factors

Fouling factors $m^2°C / kW$	Cooling capacity correction factor	Power input corretion factor	COP correction factor
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

Condenser fouling factors

Fouling factors $m^2°C / kW$	Cooling capacity correction factor	Power input corretion factor	COP correction factor
0,0440	1,000	1,000	1,000
0,0880	0,990	1,018	0,973
0,1320	0,981	1,036	0,945

Ethylene glycol and low ambient temperature correction factors

Air ambient temperature °C	-3	-8	-15	-23	-35
% of ethylene glycol by weight	10	20	30	40	50
Cooling capacity correction factor	0,991	0,982	0,972	0,961	0,946
Power input correction factor	0,996	0,992	0,986	0,976	0,966
Flow rate correction factor	1,013	1,040	1,074	1,121	1,178
Water pressure drops correction factor	1,070	1,129	1,181	1,263	1,308

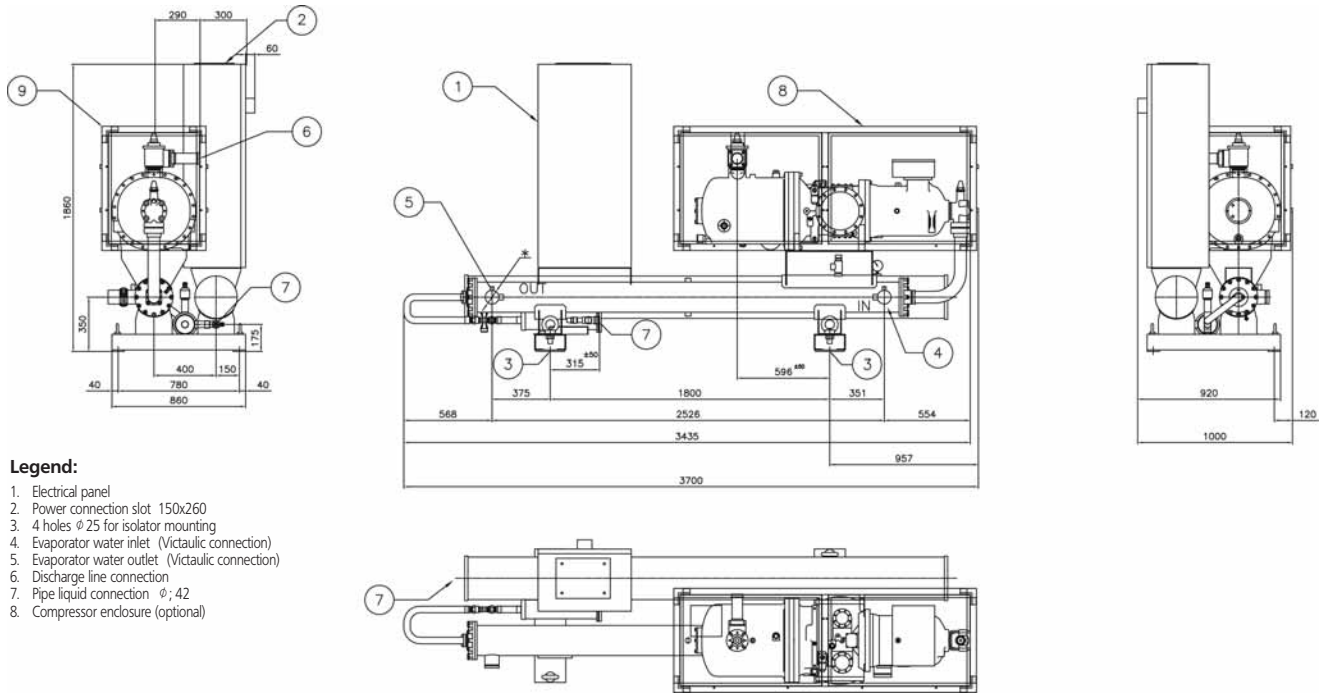
Low temperature operation performance factors

Ethylene glycol/water leaving temperature °C	2	0	-2	-4	-6	-8
Min. % of ethylene glycol	10	20	20	30	30	30
Cooling capacity correction factor	0,842	0,785	0,725	0,670	0,613	0,562
Power input compressors correction factor	0,95	0,94	0,92	0,89	0,87	0,84

6 Dimensional drawing

6 - 1 Dimensional drawing

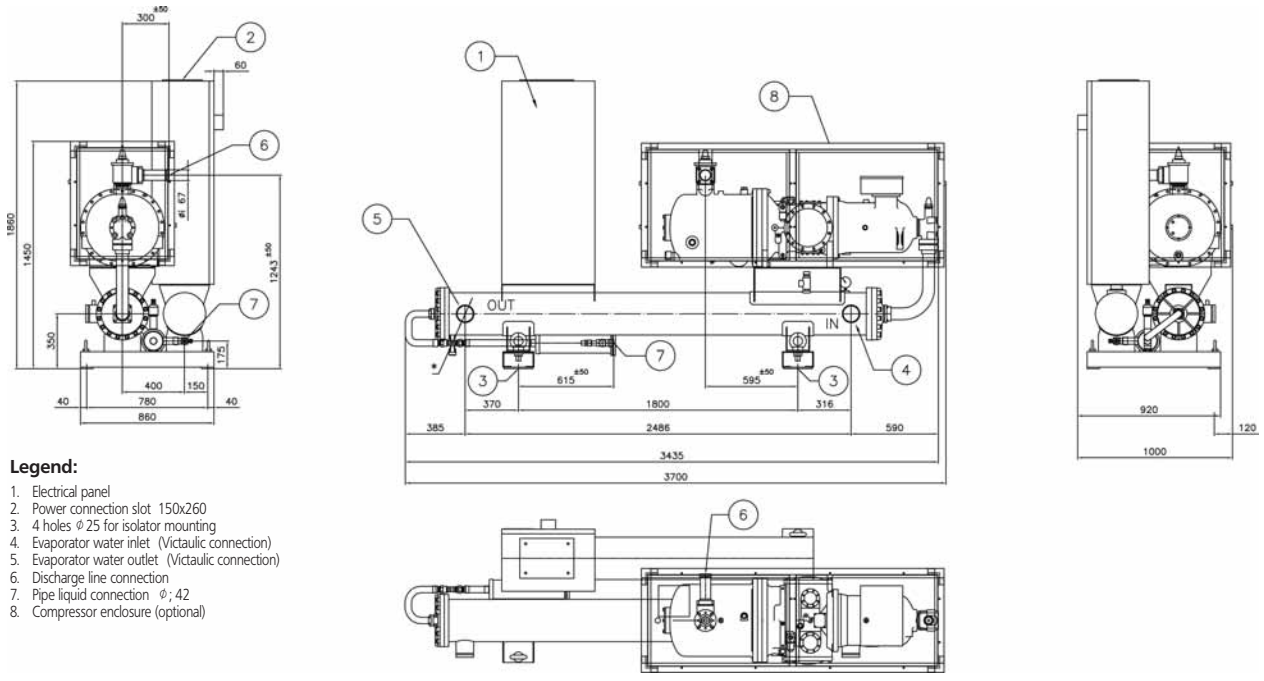
EWLD160-190DJYNN



Legend:

1. Electrical panel
2. Power connection slot 150x260
3. 4 holes ⌀25 for isolator mounting
4. Evaporator water inlet (Victaulic connection)
5. Evaporator water outlet (Victaulic connection)
6. Discharge line connection
7. Pipe liquid connection ⌀; 42
8. Compressor enclosure (optional)

EWLD240-280DJYNN



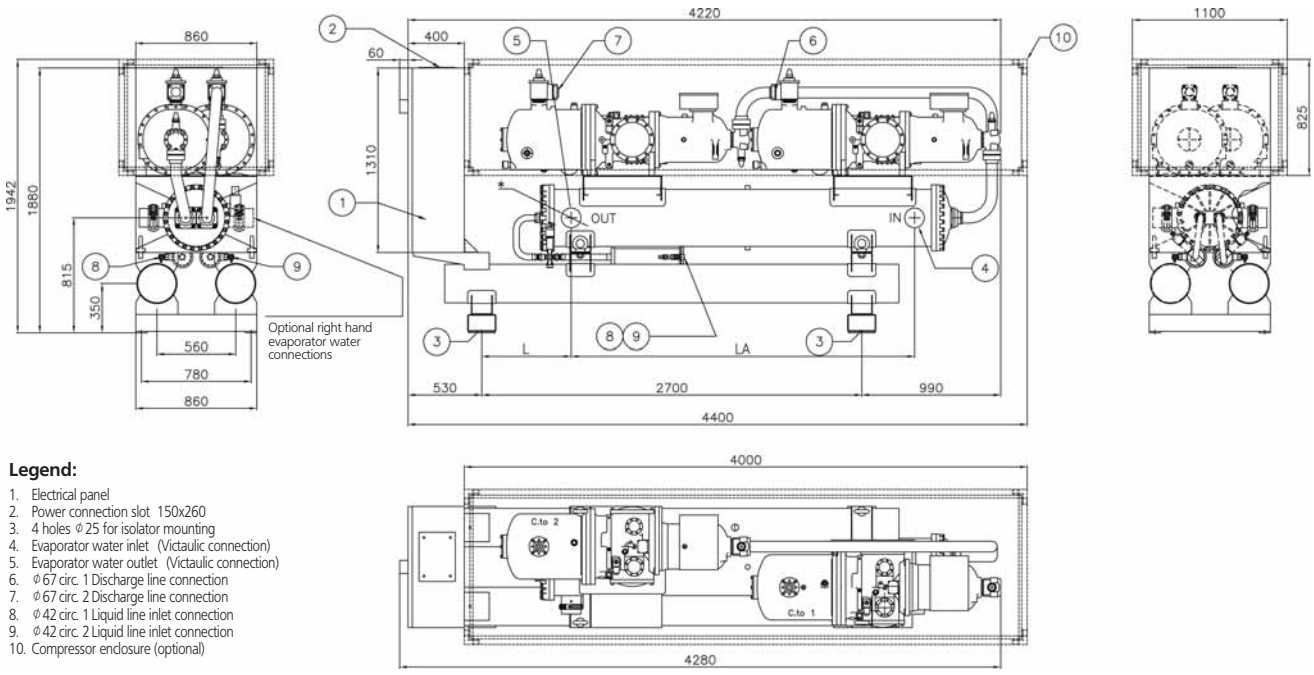
Legend:

1. Electrical panel
2. Power connection slot 150x260
3. 4 holes ⌀25 for isolator mounting
4. Evaporator water inlet (Victaulic connection)
5. Evaporator water outlet (Victaulic connection)
6. Discharge line connection
7. Pipe liquid connection ⌀; 42
8. Compressor enclosure (optional)

6 Dimensional drawing

6 - 1 Dimensional drawing

EWLD320-550DJYNN



Legend:

1. Electrical panel
2. Power connection slot 150x260
3. 4 holes ⌀25 for isolator mounting
4. Evaporator water inlet (Victaulic connection)
5. Evaporator water outlet (Victaulic connection)
6. ⌀67 circ. 1 Discharge line connection
7. ⌀67 circ. 2 Discharge line connection
8. ⌀42 circ. 1 Liquid line inlet connection
9. ⌀42 circ. 2 Liquid line inlet connection
10. Compressor enclosure (optional)

7 Sound data

7 - 1 Sound level data

Sound pressure level EWLD-DJYNN

EWLD-DJYNN Unit size	Sound pressure level at 1 m from the in free field (rif. 2 x 10 $^{-5}$)								
	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dBA
160	58	58	63,5	68,5	63	64	53	49,5	**69,7**
190	58	58	63,5	68,5	63	64	53	49,5	**69,7**
240	58	58	63,5	68,5	63	64	53	49,5	**69,7**
280	58	58	63,5	68,5	63	64	53	49,5	**69,7**
320	60	60	65,5	70,5	65	66	55	51,5	**71,7**
360	60	60	65,5	70,5	65	66	55	51,5	**71,7**
380	60	60	65,5	70,5	65	66	55	51,5	**71,7**
420	60	60	65,5	70,5	65	66	55	51,5	**71,7**
480	60	60	65,5	70,5	65	66	55	51,5	**71,7**
550	60	60	65,5	70,5	65	66	55	51,5	**71,7**

Note: Average sound pressure level rated in accordance to ISO 3744, at free field semispherical conditions.

Sound pressure level EWLD-DJYNN

EWLD-DJYNN Unit size	Sound pressure level at 1 m from the in free field (rif. 2 x 10 $^{-5}$)								
	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dBA
160	55,9	55,2	59,6	63,9	57,7	58,5	47,7	44,2	**64,7**
190	55,9	55,2	59,6	63,9	57,7	58,5	47,7	44,2	**64,7**
240	55,9	55,2	59,6	63,9	57,7	58,5	47,7	44,2	**64,7**
280	55,9	55,2	59,6	63,9	57,7	58,5	47,7	44,2	**64,7**
320	57,9	57,2	61,6	65,9	59,7	60,5	49,7	46,2	**66,7**
360	57,9	57,2	61,6	65,9	59,7	60,5	49,7	46,2	**66,7**
380	57,9	57,2	61,6	65,9	59,7	60,5	49,7	46,2	**66,7**
420	57,9	57,2	61,6	65,9	59,7	60,5	49,7	46,2	**66,7**
480	57,9	57,2	61,6	65,9	59,7	60,5	49,7	46,2	**66,7**
550	57,9	57,2	61,6	65,9	59,7	60,5	49,7	46,2	**66,7**

Note: Average sound pressure level rated in accordance to ISO 3744, at free field semispherical conditions.

Sound pressure level correction factor for different distances

EWLD-DJYNN Unit size	Distance (m)					
	1	5	10	15	20	25
160	0	8,7	13,7	16,9	19,2	21,1
190	0	8,7	13,7	16,9	19,2	21,1
240	0	8,7	13,7	16,9	19,2	21,1
280	0	8,7	13,7	16,9	19,2	21,1
320	0	8,7	13,7	16,9	19,2	21,1
360	0	8,4	13,4	16,5	18,8	20,6
380	0	8,3	13,3	16,4	18,7	20,5
420	0	8,3	13,3	16,4	18,7	20,5
480	0	8,3	13,3	16,4	18,7	20,5
550	0	8,3	13,3	16,4	18,7	20,5

8 Installation

8 - 1 Installation method

EWLD-DJYNN

Warning

Installation and maintenance are to be performed only by qualified personnel who are familiar with local codes and regulations, and who are experienced with this type of equipment. Must be avoided the unit installation in places that could be considered dangerous for all the maintenance operations.

Handling

The chiller is mounted on heavy wooden skids to protect the unit from accidental damage and to permit easy handling and moving. It is recommended that all moving and handling be performed with the skids under the unit when possible and that the skids not be removed until the unit is in the final location.

Spreader bars must be used to protect the control cabinet and the other areas of the chiller.

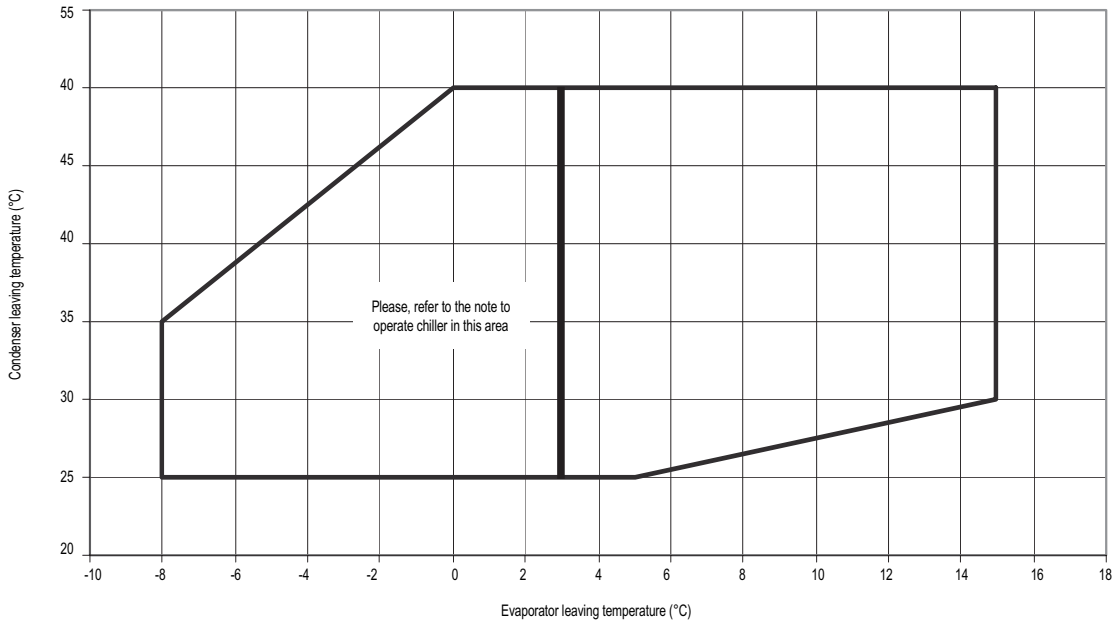
Location

A levelled and sufficiently strong floor is required. If necessary, additional structural members should be provided to transfer the weight of the unit to the nearest beams.

Rubber-in-shear isolators are 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 are recommended to avoid straining the piping and transmitting vibration and noise.

9 Operation range

EWLD-DJYNN



Min ΔT evaporator/condenser water	°C	4
Max ΔT evaporator/condenser water	°C	8

NOTE

1 The use of glycol is necessary for evaporator leaving water temperature below +3°C.

10 Hydraulic performance

10 - 1 Water pressure drop curve evaporator

EWWD170-600DJYNN
EWWD190-650DJYNNA
EWLD160-550DJYNN