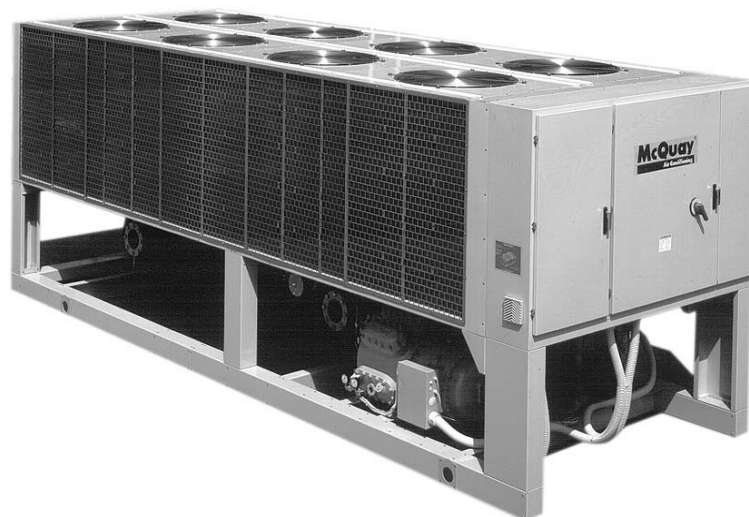


Product manual**301 B - 04/11 E**

Date: November 2004

Supersedes: **301 B - 02/05 D**

Air cooled water chillers

ALR 095.2+430.4**cooling capacity from 338 to 1514 kW****50 Hz - refrigerant: HCFC 22, HFC 407C**

McQuay is participating in the Eurovent Certification Programme. Product are as listed in the Eurovent Directory of Certified Products and on the web site www.eurovent-certification.com

**McQuay**[®]
Air Conditioning

ALR - Air cooled water chillers

The newly redesigned McQuay ALR air cooled water chillers offer you unsurpassed efficiency, flexibility, reliability, and serviceability in a total package concept. Improved to include the latest heat transfer surface design and the most advanced and efficient reciprocating compressors in the industry, the redesigned ALR chillers exceed efficiency requirements. The McQuay air cooled water chillers are completely factory assembled, piped, wired and shipped in one piece, ready for installation. Each unit consists of compressors, insulated evaporator, condenser coils with independent subcooler circuits, multiple propeller type direct drive condenser fans with independent fan motors, heavy-gauge weatherproof casing and weatherproof electrical control centre containing all necessary and operating controls and motor starting equipment.

Highly flexible design

The ALR units is available in 27 sizes covering a range from 338 to 1514 kW nominal cooling capacity when equipped with special accessories they can operate with an external air temperature of -18°C and with coolant temperature between +10°C and -8°C. Many optional features can be added to fit all installation requirements.

Low installation costs

The complete assembly of the units and function testing at the factory reduces the cost of installation on site. A rigid steel base distributes the weight of the unit to the support points and allows simple installation by an easy access to the lifting points. The units are designed with a single point three-phase mains connection for 400 Volt. A transformer, fitted as standard on the control panel, feeds the control system. The ALR units can also include a pumping set consisting of two or more coolant circulation pumps. All units are supplied complete with refrigerants HCFC 22 or HFC 407C.

Low maintenance costs

The microprocessor safety and control system allows the trouble shooting of any type of functional anomaly, enabling simpler, safer and timely intervention by the unit maintenance personnel. The oil heater in the sump on each compressor and a complete set of controls and safety devices protect the unit from abnormal operating conditions.

Code requirements

Chiller rating: EN 12055.
Pressure vessel approval: PED.
Elect. & Safety Codes: IEC 204-1 CEI 44-5.
Safety Codes: CEI-EN 60204-1.
Quality Stds: ISO 9001:2000.

Factory testing

Each unit is pressure tested, evacuated and charged with the refrigerant requested. It is then tested at the factory's test bench under the design conditions specified by the customer. Upon request, a second series of tests can be carried out witnessed by the customer (see option 92). Before shipment, each unit is re-checked for pressure and refrigerant charge control.

General characteristics

Cabinet and structure

The cabinet is made of galvanized steel sheet and painted to provide a high resistance to corrosion. The unit base

frame has holes 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's bases and the support structures. The electrical and control equipment is located inside cubicles which can be accessed by key locked doors complete with door interlocking on the power cabinet.

Semi-hermetic compressors

Compressors are reciprocating type 4, 6 or 8 cylinders with suction and discharge valves of the disc type. The forced lubrication is obtained through a reversible gear type pump. The oil heater is automatically switched on when the compressor stops to prevent oil dilution from liquid refrigerant and in order to keep the right fluidity. The electrical motors are protected against thermal over load through thermistors embedded in each of the three phases of the statoric windings. The ALR units, are equipped with McQuay 800 and 900 S compressors.

Evaporator

The evaporator is a direct expansion shell-and-tube type with water flowing in the baffled shell side and refrigerant flowing through the tubes. The ALR evaporator are designed in more separate refrigerant circuits, one for each compressor. The evaporator is manufactured with a carbon steel shell and seamless high efficiency copper tubes. Roll expansion anchors the refrigerant tubes in the heavy carbon steel tube sheet. Water baffles are polypropylene to resist corrosion. The evaporator is wrapped with closed-cell heat insulation and equipped with a removable heater to protect the evaporator against the freezing down to -18°C of ambient temperature. Available as an optional, ALR units may be equipped with one or two circulation pumps complete (two pumps only) with shut off valves, check valves and expansion tank.

Condenser coils

The new ALR units are constructed with internally enhanced seamless copper tubes arranged in a staggered row pattern and mechanically expanded into McQuay lanced and rippled aluminium condenser fins with full fin collars. An integral subcooling circuit provided sufficient sub cooling to effectively eliminate liquid flashing and increases in cooling capacity up to 8% without increasing in absorbed power.

Condenser coil fans

The condenser fans are of the helical type with wing-profile blades to achieve a better performance. The direct coupling with the electrical motor eliminates any problems as regards the application of transmission devices and reduces the vibrations caused by the functioning. The motors are supplied as standard with IP54 protection (Insulation class F) and are of the three-phase type; they are protected against overloading and short circuits by circuit breakers located inside the electrical control panel. The fans operate in formed bell shaped orifices.

Electrical control panel

The components of both the power and the control are split into two sections of one main panel, accessed by individual key locked doors to prevent unauthorised entry. The panel is manufactured to insure protection in all weather conditions and the doors are fitted with door-stays to prevent accidental closure. The power panel is fitted with a door interlocked mains isolator to prevent access while it is live.

Power section includes: This section of the panel includes

contactors, all the fuses for the compressors and the condenser fans, control circuit transformer. Additional space is provided for the installation of the various optional accessories provided to enhance the capabilities of the ALR units.

Control section includes: Microprocessor is installed as standard on all the units. Its touch sensitive keypad consists of twelve keys that can be used to alter unit set points and control commands. A display on two lines illustrates the machine's operating status & programable parameters (set-points) e.g. temperatures & pressures of fluids (water, refrigerant) controller maximise the McQuay chillers energy efficiency and reliability characteristics. It uses sophisticated software with predictive logic to select the most energy efficient combination of compressor, condenser fan to maintain stable operating conditions and maximise energy efficiency. The compressors are automatically rotated to ensure equal operating hours. Controller intervenes to protect critical components in response to external signals from its system sensors measuring: motor temperatures, refrigerant gas and oil pressures, electrical supply and evaporator.

Ambient condition

The ALR units can operate as standard with an external air temperature down to +10°C. With the fan rotation speed control the unit will function correctly also when the external air temperature is as low as -10°C (see accessory 30 and 31). All units can function with an external air temperature of up to +46°C (see Table 1 for specific unit limitation).

Refrigerant circuit

The ALR units are equipped with a complete refrigerant circuit charge HCFC22 or HFC407C. The circuit consists of insulated copper pipes on the suction line and is complete with filter driers, moisture indicators, liquid sight glass, thermostatic expansion valves.

Acoustic options

Four versions are available.

- **ALR ST** (Standard)
- **ALR CN** (Compressor noise) for a reduced sound level this unit is fitted with sound proofing cabinets around the compressors insulated with absorbent acoustic material.
- **ALR LN** (Low noise) for a reduced sound level this unit is fitted with sound proofing cabinets around the compressors, insulated with highly absorbent acoustic material. The frame, is made of aluminium profiles ensuring proper sealing of the panels, rubber anti vibration mountings on the compressors and the frame. LN version is equipped with fan running at low speed. ALR 095.2 ÷ 110.2 are equipped with fan speed modulation.
- **ALR XN** (Extremely low noise) for a very low sound level. The unit is fitted with sound proofing cabinets on the compressors insulated with highly absorbent acoustic material. The frame is made of aluminium profiles to ensure proper sealing of the panels around the compressors. Spring anti vibration mountings on the compressors and the frame, flexible connections on the discharge and suction lines, XN version is equipped with fan speed modulation. The sound levels of the XN version are based on the unit working at 35°C ambient temperature.

Accessories and Options

01. 100% total heat recovery - produced with shell and tube heat exchangers to produce hot water up to +50°C. The heat exchangers are mounted on the refrigerant circuits parallel to the condenser coils to remove all the

condensation heat (not available on ALR 095.2 ÷ 135.2).

02. Partial heat recovery - produced with plate to plate heat exchangers installed between the compressor discharge and the condenser coil. These allow hot water to be produced up to a maximum temperature of +55°C.

07. Brine double set point version (CB) - Dual leaving glycol mixture temperature setpoints. The lower setpoint can go down to -8°C.

11. Compressor thermal overload relays - Safety devices against compressor motor overloading in addition to the normal protection envisaged by the electrical windings.

15. Phase monitor - The phase monitor controls the voltage values on the supply line stopping the unit when the calibration threshold is reached ($\pm 10\%$). This safety device is automatically reset.

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

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

30. Speedtrol - Optional speedtrol head pressure control allows unit operation down to -18 °C. Speedtrol includes a variable speed motor in the first fan position for each system.

31. Fan speed regulator - This device allows the continuous variation of the fan speed, modifying the air flow according to the external temperature conditions down to -10°C (standard for XN version).

32. Condenser coil guards - Metal protection guards fixed on all the external surface of the condenser coils.

33. Compressor guards - To prevent unauthorised access to the cooling unit components.

34. Cu-Cu condensing coils - To give better protection against corrosion by aggressive environments.

35. Cu-Cu-Sn condensing coils - To give better protection against corrosion in aggressive environments and by salty air.

36. Alucoat condensing coils - Fins are protected by a special epoxy paint with a high resistance to corrosion.

42. Flow switch - Supplied separately to be wired and installed on the evaporator water piping (by the customer).

43. Water circulation pump - Contact the factory.

44. Two water circulation pumps - Contact the factory.

45. Inertial tank - Contact the factory.

60. Suction shut-off valve - Suction shut-off valve installed on the suction port.

61. Gauges - Gauges to control high and low gas pressure and lubricant oil pressure.

80. Spreader bars - Facilitate the lifting of the units keeping the ropes away from the unit's casing.

82. Wooden box packing - Self-supporting wooden box internally insulated and suitable for shipment by sea.

83. Open Cage packing - Protection with polythene and wooden cage for transport and protection before the installation.

84. Rubber type antivibration 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.

85. Spring type antivibration mounts - Supplied separately, these are positioned under the base of the unit during installation. Ideal for dampening vibrations for installation on roofs and metallic structures.

92. 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).

Table 1 - Operating limits

		HCFC 22				HFC 407C			
		ST	CN	LN	XN	ST	CN	LN	XN
Max ambient temperature	°C	42	42	40	35/38	42	42	40	35/38
Min ambient temperature	°C	10	10	10	-10	10	10	10	-18
Max entering evap. water temp. (without glycol)	°C	15	15	15	15	15	15	15	15
Min leaving evap. water temp. (without glycol)	°C	4	4	4	4	6	6	4	4
Min leaving evap. water temp. (with glycol)	°C	-8	-8	-8	-8	-5	-5	-5	-5
Max evaporator DT	°C	6	6	6	6	6	6	6	6
Min evaporator DT	°C	4	4	4	4	4	4	4	4
Max entering heat rec. cond. 100% water temp.	°C	45	45	45	45	45	45	45	45
Min leaving heat rec. cond. 100% water temp.	°C	25	25	25	25	25	25	25	25
Max heat recovery condenser 100% DT	°C	6	6	6	6	6	6	6	6
Min heat recovery condenser 100% DT	°C	4	4	4	4	4	4	4	4
Max entering heat rec. cond. 20% water temp.	°C	50	50	50	50	50	50	50	50
Min leaving heat rec. cond. 20% water temp.	°C	35	35	35	35	35	35	35	35
Max heat recovery condenser 20% DT	°C	8	8	8	8	8	8	8	8
Min heat recovery condenser 20% DT	°C	4	4	4	4	4	4	4	4

Table 2 - Fouling factor

Fouling factor m ² C/kW	Cooling capacity correction factor	Power input correction factor
0,044	1,000	1,000
0,132	0,975	0,986
0,308	0,919	0,939

Table 3 - Altitude correction factor

Elevation above sea level (m)	0	300	600	900	1200	1500	1800
Barometric pressure (mbar)	1013	977	942	908	875	843	812
Cooling cap. correction factor	1,000	0,993	0,986	0,979	0,973	0,967	0,960
Power input correction factor	1,000	1,005	1,009	1,015	1,021	1,026	1,031

Note:

If the unit is turned off in an external ambient temperature down to 0°C and the electrical power supply to the evaporator heater is not available, it is then recommended to use inside the water circuit non-freezing mixtures.

Table no. 4 here below shows the ethylene glycol percentage suggested for the different temperature values. Units with non-freezing mixtures have a slight difference in the standard performance operation. Corrective factors are reported in the table no. 4.

Table 4 - Ethylene glycol and low ambient temperature correction factors

Air ambient temperature °C	-3	-8	-14	-22	-33
% 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

Table 5 - Low temperature operation performance factors

Ethylene glycol/water leaving temperature °C	2	0	-2	-4	-6	-8
Max leaving heat rec. condenser water temp. °C	48	46	45	44	43	42
Max air ambient temperature °C	42	40	39	38	37	36
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
Min. % of ethylene glycol	10	20	20	30	30	30

Low temperature operation performance factors must be applied to the nominal performance data to have the adjusted value (12/7°C, design ambient temperature).

Water content in cooling circuits

The cooled water distribution circuits should have a minimum water content to avoid excessive intermittent operation of the compressors.

In fact, each time the compressor starts up, an excessive quantity of oil goes from the compressor's 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, McQuay has 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. The minimum installation water content envisaged should be calculated with a certain approximation using this formula:

$$(1) Q = \frac{P \times p}{25}$$

where:

Q = minimum content of the plant expressed in litres.

P = cooling capacity of the plant expressed in W

p = minimum unloading capacity percentage

A plant with a 445 kW cooling capacity in which the cooling unit ALR 120.2 ST 022 equipped with two compressors is applied, should have a minimum content of water calculated on the basis of the minimum cooling capacity, which for this type of equipment is 25% of the nominal capacity.

$$Q = \frac{445000 \times 0,25}{25} = 4450 \text{ l}$$

For a more accurate determination of the quantity of water, it is advisable to contact the designer of the plant. When the sum of the water content of the evaporator, the pipes of the hydraulic circuit and the terminals (coils, exchangers, etc.) is lower than the value obtained, it would be better to opt for a ALR McQuay cooling unit equipped with inertial tank (optional).

Installation notes

Handling

All moving and handling may damage the unit if some conditions are not scrupulously observed. The units should be lifted with a crane using long ropes anchored to the holes on the frame of the unit's base and by using the upper spacer bars (see accessory 80) to prevent the ropes from damaging the condenser coils.

Location

The ALR units are produced for outside installation on roofs, floors or below ground level on condition that the area is free from obstacles for the passage of the condensation air. The unit should be positioned on solid foundations and perfectly level; in the case of installation on roofs or floors, it may be advisable to arrange the use of suitable weight distribution beams. When the units are installed on the ground, a concrete base at least 250 mm wider and longer than the unit's footprint should be laid. Furthermore, this base should be sufficiently robust to withstand the unit weight mentioned in the technical data table. When the units are positioned in areas which are easily accessible by persons or animals, it is advisable to fit guards to protect the condenser coil guards (see accessory 32) and, when necessary, also guards to protect the compressor (see accessory 33).

Space requirements

The ALR units are air-cooled, hence it is important to observe the minimum distances which guarantee the best ventilation of the condenser coils. Limitations of space reducing the air flow could cause significant reductions in cooling capacity, an increase in electricity consumption and, in some cases, the unit may stop functioning as a result of the high condensation pressure. The fans do not allow the use of ducts which have high flow resistance, hence it

should be ensured that the output air cannot recycle itself inside the condenser coils. The units should be positioned such that there is sufficient distance between the coils and any obstacles to improve ventilation and also to facilitate inspection. When two or more units are positioned side by side it is recommended that the condenser coils are at least 3000 mm distance from one another. Smaller distances could cause the recirculation of hot air. If the units are positioned in places surrounded by walls or obstacles of the same height as the units, the units should be at least 3000 mm from said obstacles. In the event the obstacles are higher than the units, the units should be at least 3000 mm from the obstacle. For other installation solutions, consult McQuay technicians.

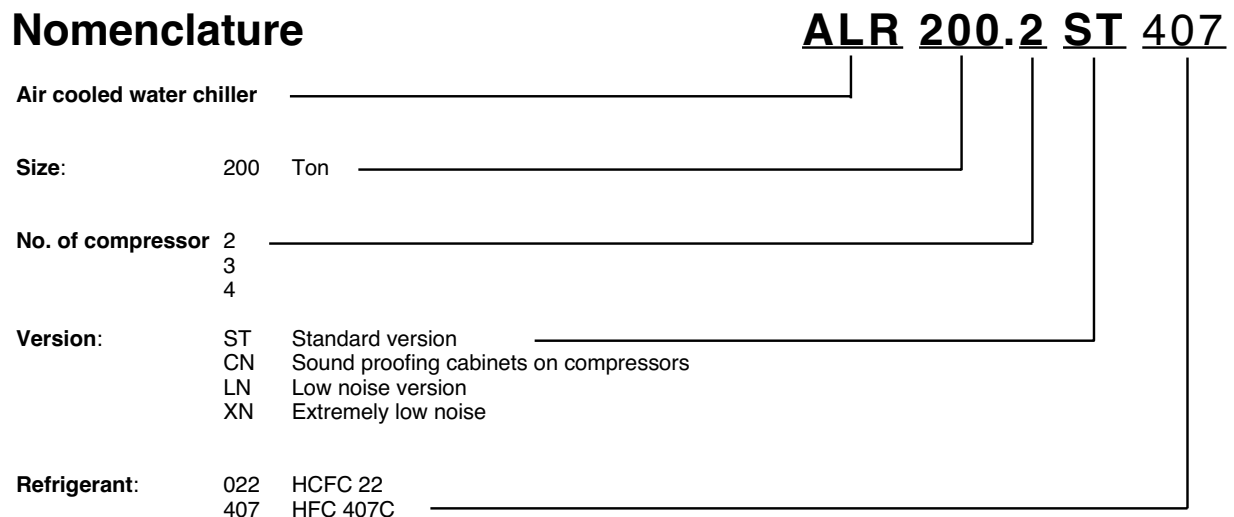
Acoustic protection

The low noise levels of the ALR units means that they meet most of the most restrictive regulations, thanks to the availability of four versions with different sound levels: the standard version (ST), the version with sound proofing cabinet on compressors (CN), the low noise version (LN) and extremely low noise version (XN). When the noise level must meet special requirements it will be necessary to pay the maximum attention to ensure the perfect insulation of the unit from the support base by applying appropriate vibration-dampening devices (see accessories 84 and 85), applying vibration-dampening mounts on the water pipes and on the electrical connections.

Hydraulic and electrical connections, start-up and maintenance

Consult the Installation and Maintenance Catalogue 301 C which you can obtain from the nearest McQuay centre for information regarding these issues.

Nomenclature



Physical data ALR ST, ALR CN 095.2+261.3

"ALR ST / CN " Unit size		095.2	100.2	110.2	120.2	135.2	145.2	161.2
Cooling capacity (HCFC 22) (1)	kW	338,4	359,3	380,2	447,2	492,5	538,5	558,4
Power input (HCFC 22) (1)	kW	104,0	110,5	117,0	132,7	147,3	158,3	177,7
Cooling capacity (HFC 407C) (1)	kW	328,2	348,5	368,8	433,8	477,8	522,4	541,6
Power input (HFC 407C) (1)	kW	104,0	110,5	117,0	132,7	147,3	158,3	177,7
McQuay compressor	No./Series	804+804	804+804	804+804	904+806	806+806	806+906	906+906
No. of refrigerant circuit		2	2	2	2	2	2	2
Refrigerant charge HCFC 22	kg	30+30	30+30	30+30	34+34	34+34	37+37	37+37
No. of reduction steps		4	4	4	4	4	4	4

Condenser fans

No. / Nominal power	kW	4/1,7	4/1,7	4/1,7	6/1,7	6/1,7	8/1,7	8/1,7
Total air flow	m3/s	32,8	31,4	30	37,4	36,8	50,7	50,7

Evaporator

No. of evaporator/Water volume	l	1 / 90	1 / 90	1 / 90	1/131	1/128	1/1/0162	1/160
Max operating pressure	bar	10,5	10,5	10,5	10,5	10,5	10,5	10,5

Condenser coil

Coil type	Lanced fins - Internally spiral wound tubes							
-----------	---	--	--	--	--	--	--	--

Weight

Operating weight (ALR ST)	kg	2930	2990	3020	3667	3798	4362	4372
Shipping weight (ALR ST)	kg	2840	2890	2930	3536	3670	4200	4212
Operating weight (ALR CN)	kg	3230	3290	3320	3967	4098	4662	4672
Shipping weight (ALR CN)	kg	3140	3190	3230	3836	3970	4500	4512

"ALR ST / CN " Unit size		171.2	185.2	200.2	215.2	235.3	251.3	261.3
Cooling capacity (HCFC 22) (1)	kW	624,5	664,6	710,8	757,0	830,8	875,3	916,8
Power input (HCFC 22) (1)	kW	183,5	197,5	212,2	227,0	243,0	271,4	268,1
Cooling capacity (HFC 407C) (1)	kW	605,8	644,6	689,4	734,3	805,8	849,0	889,3
Power input (HFC 407C) (1)	kW	183,5	197,5	212,2	227,0	243,0	271,4	268,1
McQuay compressor	No./Series	906+808	808+808	808+908	908+908	2x906+806	3x906	2x906+808
No. of refrigerant circuit		2	2	2	2	3	3	3
Refrigerant charge HCFC 22	kg	37+42	42+42	50+52	52+52	37+37+34	37+37+37	37+37+42
No. of reduction steps		4	4	4	4	6	6	6

Condenser fans

No. / Nominal power	kW	8/1,7	8/1,7	10/1,7	10/1,7	12/1,7	12/1,7	12/1,7
Total air flow	m3/s	49,9	49,1	63,3	63,3	76,0	76,0	75,2

Evaporator

No. of evaporator/Water volume	l	1/158	1/156	1/153	1/150	1/279	1/234	1/270
Max operating pressure	bar	10,5	10,5	10,5	10,5	10,5	10,5	10,5

Condenser coil

Coil type	Lanced fins - Internally spiral wound tubes							
-----------	---	--	--	--	--	--	--	--

Weight

Operating weight (ALR ST)	kg	4520	4668	4873	4882	6340	6342	6495
Shipping weight (ALR ST)	kg	4362	4512	4720	4732	6061	6068	6225
Operating weight (ALR CN)	kg	4820	4968	5173	5182	6790	6792	6945
Shipping weight (ALR CN)	kg	4662	4812	5020	5032	6511	6518	6675

Note: (1) Nominal cooling capacity and power input are based on: 12/7 °C entering/leaving evaporator water temperature; 35 °C ambient temperature. The power input is for compressor only.

Physical data ALR ST, ALR CN 270.3+430.4

"ALR ST / CN " Unit size		270.3	286.3	290.3	311.3	325.3	345.4	355.4
Cooling capacity (HCFC 22) (1)	kW	956,8	997,0	1043,0	1089,2	1144,9	1209,0	1249,1
Power input (HCFC 22) (1)	kW	282,2	296,2	311,0	325,8	340,1	352,8	381,0
Cooling capacity (HFC 407C) (1)	kW	928,1	967,0	1011,8	1056,6	1110,6	1172,8	1211,6
Power input (HFC 407C) (1)	kW	282,2	296,2	311,0	325,8	340,1	352,8	366,9
McQuay compressor No./Series		808+906+808	3x808	2x808+908	2x908+808	3x908	3x906+808	2x906+2x808
No. of refrigerant circuit		3	3	3	3	3	4	4
Refrigerant charge HCFC 22	kg	42+42+37	42+42+42	42+50+52	52+52+42	52+52+52	37+37+42+42	37+37+42+42
No. of reduction steps		6	6	6	6	6	8	8

Condenser fans

No. / Nominal power	kW	12/1,7	12/1,7	14/1,7	14/1,7	16/1,7	16/1,7	16/1,7
Total air flow	m3/s	74,4	73,6	87,1	87,9	101,3	100,5	99,8

Evaporator

No. of evaporator/Water volume	l	1/127	1/263	1/263	1/295	1/291	1/545	1/545
Max operating pressure	bar	10,5	10,5	10,5	10,5	10,5	10,5	10,5

Condenser coil

Coil type	Lanced fins - Internally spiral wound tubes							
-----------	---	--	--	--	--	--	--	--

Weight

Operating weight (ALR ST)	kg	6636	6784	7070	7054	7328	9173	9373
Shipping weight (ALR ST)	kg	6369	6521	6807	6759	7037	8628	8828
Operating weight (ALR CN)	kg	7086	7234	7520	7504	7778	9773	9973
Shipping weight (ALR CN)	kg	6819	6971	7257	7209	7487	9228	9428

"ALR ST / CN " Unit size		365.4	375.4	390.4	405.4	415.4	430.4
Cooling capacity (HCFC 22) (1)	kW	1289,2	1329,2	1375,4	1421,5	1467,7	1514,0
Power input (HCFC 22) (1)	kW	381,0	409,7	409,7	424,5	439,3	454,0
Cooling capacity (HFC 407C) (1)	kW	1250,5	1289,4	1334,2	1378,9	1423,7	1468,6
Power input (HFC 407C) (1)	kW	381,0	395,0	409,7	424,5	439,3	454,0
McQuay compressor No./Series		906+808x3	4x808	3x808+908	2x808+2x908	808+3x908	4x908
No. of refrigerant circuit		4	4	4	4	4	4
Refrigerant charge HCFC 22	kg	37+42+42+42	42+42+42+42	42+42+50+52	42+42+52+52	50+52+52+52	52+52+52+52
No. of reduction steps		8	8	8	8	8	8

Condenser fans

No. / Nominal power	kW	16/1,7	16/1,7	18/1,7	18/1,7	20/1,7	20/1,7
Total air flow	m3/s	99,0	98,2	112,4	112,4	126,6	126,6

Evaporator

No. of evaporator/Water volume	l	1/545	1/545	1/524	1/524	1/524	1/524
Max operating pressure	bar	10,5	10,5	10,5	10,5	10,5	10,5

Condenser coil

Coil type	Lanced fins - Internally spiral wound tubes							
-----------	---	--	--	--	--	--	--	--

Weight

Operating weight (ALR ST)	kg	9573	9653	9922	9922	10220	10220
Shipping weight (ALR ST)	kg	9028	9108	9398	9398	9696	9696
Operating weight (ALR CN)	kg	10173	10253	10522	10522	10820	10820
Shipping weight (ALR CN)	kg	9628	9708	9998	9998	10296	10296

Note: (1) Nominal cooling capacity and power input are based on: 12/7 °C entering/leaving evaporator water temperature; 35 °C ambient temperature. The power input is for compressor only.

Physical data ALR LN 095.2+261.2

"ALR LN " Unit size		095.2	100.2	110.2	120.2	135.2	145.2	161.2
Cooling capacity (HCFC 22) (1)	kW	324,8 (1)	353,4 (2)	373,9 (2)	429,3	472,8	517,0	544,1
Power input (HCFC 22) (1)	kW	107,1 (1)	106,7 (2)	112,9 (2)	136,7	151,7	163,0	182,5
Cooling capacity (HFC 407C) (1)	kW	315,1 (1)	342,8 (2)	362,7 (2)	416,4	458,6	501,5	527,8
Power input (HFC 407C) (1)	kW	107,1 (1)	106,7 (2)	112,9 (2)	136,7	151,7	163,0	182,5
McQuay compressor	No./Series	804+804	804+804	804+804	904+806	806+806	806+906	906+906
No. of refrigerant circuit		2	2	2	2	2	2	2
Refrigerant charge HCFC 22	kg	30+30	30+30	30+30	34+34	34+34	37+37	37+37
No. of reduction steps		4	4	4	4	4	4	4
Condenser fans								
No. / Nominal power	kW	4/0,96	4/0,96	4/0,96	6/0,96	6/0,96	8/0,96	8/0,96
Total air flow	m3/s	18,3	24,6	24	29,5	28,6	40,4	40,4
Evaporator								
No. of evaporator/Water volume	l	1/90	1/90	1/90	1/131	1/128	1/162	1/160
Max operating pressure	bar	10,5	10,5	10,5	10,5	10,5	10,5	10,5
Condenser coil								
Coil type	Lanced fins - Internally spiral wound tubes							
Weight								
Operating weight	kg	3110	3160	3200	3967	4098	4662	4672
Shipping weight	kg	3020	3070	3110	3836	3970	4500	4512

"ALR LN " Unit size		171.2	185.2	200.2	215.2	235.3	251.3	261.3
Cooling capacity (HCFC 22) (1)	kW	599,5	638,0	682,3	735,5	797,5	870,2	880,1
Power input (HCFC 22) (1)	kW	189,0	203,4	218,6	233,5	250,3	282,6	276,1
Cooling capacity (HFC 407C) (1)	kW	581,6	618,8	661,9	713,4	773,6	844,1	853,7
Power input (HFC 407C) (1)	kW	189,0	203,4	218,6	233,5	250,3	282,6	276,1
McQuay compressor	No./Series	906+808	808+808	808+908	908+908	2x906+806	3x906	2x906+808
No. of refrigerant circuit		2	2	2	2	3	3	3
Refrigerant charge HCFC 22	kg	37+42	42+42	50+52	52+52	37+37+34	37+37+37	37+37+42
No. of reduction steps		4	4	4	4	6	6	6
Condenser fans								
No. / Nominal power	kW	8/0,96	8/0,96	10/0,96	10/0,96	12/0,96	12/0,96	12/0,96
Total air flow	m3/s	39,3	38,2	50,5	50,5	60,6	60,6	59,5
Evaporator								
No. of evaporator/Water volume	l	1/158	1/156	1/153	1/150	1/279	1/274	1/270
Max operating pressure	bar	10,5	10,5	10,5	10,5	10,5	10,5	10,5
Condenser coil								
Coil type	Lanced fins - Internally spiral wound tubes							
Weight								
Operating weight	kg	4820	4968	5173	5182	6790	6792	6945
Shipping weight	kg	4662	4812	5020	5032	6511	6518	6675

Note: (1) Nominal cooling capacity and power input are based on: 12/7 °C entering/leaving evaporator water temperature; 35 °C ambient temperature. The power input is for compressor only.

Physical data ALR LN 270.3+430.4

"ALR LN " Unit size		270.3	286.3	290.3	311.3	325.3	345.4	355.4
Cooling capacity (HCFC 22) (1)	kW	918,5	957,1	1001,3	1045,7	1114,9	1160,7	1199,1
Power input (HCFC 22) (1)	kW	290,6	305,1	320,3	335,6	349,1	363,4	377,9
Cooling capacity (HFC 407C) (1)	kW	891,0	928,4	971,3	1014,3	1081,5	1125,8	1163,1
Power input (HFC 407C) (1)	kW	290,6	305,1	320,3	335,6	349,1	363,4	377,9
McQuay compressor	No./Series	808+906+808	3x808	2x808+908	2x908+808	3x908	3x906+808	2x906+2x808
No. of refrigerant circuit		3	3	3	3	3	4	4
Refrigerant charge HCFC 22	kg	42+42+37	42+42+42	42+50+52	52+52+42	52+52+52	37+37+42+42	37+37+42+42
No. of reduction steps		6	6	6	6	6	8	8
Condenser fans								
No. / Nominal power	kW	12/0,96	12/0,96	14/0,96	14/0,96	16/0,96	16/0,96	16/0,96
Total air flow	m3/s	58,4	57,3	68,5	69,6	80,9	79,8	78,7
Evaporator								
No. of evaporator/Water volume	l	1/267	1/263	1/263	1/295	1/291	1/545	1/545
Max operating pressure	bar	10,5	10,5	10,5	10,5	10,5	10,5	10,5
Condenser coil								
Coil type		Lanced fins - Internally spiral wound tubes						
Weight								
Operating weight	kg	7086	7234	7520	7504	7778	9773	9973
Shipping weight	kg	6819	6971	7257	7209	7487	9228	9428

"ALR LN " Unit size		365.4	375.4	390.4	405.4	415.4	430.4
Cooling capacity (HCFC 22) (1)	kW	1237,6	1276,1	1320,4	1364,7	1409,0	1470,8
Power input (HCFC 22) (1)	kW	392,4	406,9	422,0	437,2	452,5	467,0
Cooling capacity (HFC 407C) (1)	kW	1200,5	1237,8	1280,8	1323,7	1366,8	1426,7
Power input (HFC 407C) (1)	kW	392,4	406,9	422,0	437,2	452,5	467,0
McQuay compressor	No./Series	906+808x3	4x808	3x808+908	2x808+2x908	808+3x908	4x908
No. of refrigerant circuit		4	4	4	4	4	4
Refrigerant charge HCFC 22	kg	37+42+42+42	42+42+42+42	42+42+50+52	42+42+52+52	50+52+52+52	52+52+52+52
No. of reduction steps		8	8	8	8	8	8
Condenser fans							
No. / Nominal power	kW	16/0,96	16/0,96	18/0,96	18/0,96	20/0,96	20/0,96
Total air flow	m3/s	77,5	76,4	88,8	88,8	101,1	101,1
Evaporator							
No. of evaporator/Water volume	l	1/545	1/545	1/524	1/524	1/524	1/524
Max operating pressure	bar	10,5	10,5	10,5	10,5	10,5	10,5
Condenser coil							
Coil type		Lanced fins - Internally spiral wound tubes					
Weight							
Operating weight	kg	10173	10253	10522	10522	10820	10820
Shipping weight	kg	9628	9708	9998	9998	10296	10296

Note: (1) Nominal cooling capacity and power input are based on: 12/7 °C entering/leaving evaporator water temperature; 35 °C ambient temperature. The power input is for compressor only.

Physical data ALR XN 095.2+261.3

"ALR XN " Unit size		095.2	100.2	110.2	120.2	135.2	145.2	161.2
Cooling capacity (HCFC 22) (1)	kW	323,8	338,1	352,2	411,4	453,1	495,4	520,2
Power input (HCFC 22) (1)	kW	109,7	116,1	122,5	139,3	154,6	166,2	185,0
Cooling capacity (HFC 407C) (1)	kW	214,1	328,0	341,6	399,1	439,5	480,6	504,5
Power input (HFC 407C) (1)	kW	109,7	116,1	122,5	139,3	154,6	166,2	185,0
Condenser fans								
No. / Nominal power	kW	6/0,78	6/0,78	6/0,78	8/0,78	8/0,78	8/0,78	8/0,78
Total air flow	m3/s	18	18	18	27,6	26,4	26,4	26,4
Evaporator								
No. of evaporator/Water volume	l	1/90	1/90	1/90	1/131	1/128	1/162	1/160
Max operating pressure	bar	10,5	10,5	10,5	10,5	10,5	10,5	10,5
Condenser coil								
Coil type	Lanced fins - Internally spiral wound tubes							
Weight								
Operating weight (ALR ST)	kg	3500	3500	3500	4521	4598	4802	4812
Shipping weight (ALR ST)	kg	3415	3415	3415	4390	4470	4640	4652

"ALR XN " Unit size		171.2	185.2	200.2	215.2	235.3	251.3	261.3
Cooling capacity (HCFC 22) (1)	kW	574,6	611,4	653,9	687,9	764,3	813,7	843,4
Power input (HCFC 22) (1)	kW	192,6	207,4	222,8	238,3	255,2	282,9	281,5
Cooling capacity (HFC 407C) (1)	kW	557,3	593,1	634,3	667,3	741,4	789,3	818,1
Power input (HFC 407C) (1)	kW	192,6	207,4	222,8	238,3	255,2	282,9	281,5
Condenser fans								
No. / Nominal power	kW	10/0,78	10/0,78	10/0,78	10/0,78	12/0,78	12/0,78	14/0,78
Total air flow	m3/s	34,5	33,0	33,0	33,0	39,6	39,6	48,0
Evaporator								
No. of evaporator/Water volume	l	1/158	1/156	1/153	1/150	1/279	1/274	1/270
Max operating pressure	bar	10,5	10,5	10,5	10,5	10,5	10,5	10,5
Condenser coil								
Coil type	Lanced fins - Internally spiral wound tubes							
Weight								
Operating weight (ALR ST)	kg	5030	5106	5355	5364	7024	7026	7401
Shipping weight (ALR ST)	kg	4872	4950	5202	5214	6795	6752	7131

Note: (1) Nominal cooling capacity and power input are based on: 12/7 °C entering/leaving evaporator water temperature; 35 °C ambient temperature. The power input is for compressor only.

Physical data ALR XN 270.3+430.4

"ALR XN " Unit size		270.3	286.3	290.3	311.3	325.3	345.4	355.4
Cooling capacity (HCFC 22) (1)	kW	880,3	917,2	959,6	1002,1	1044,9	1112,3	1149,1
Power input (HCFC 22) (1)	kW	296,3	311,0	326,5	342,1	357,2	370,5	385,3
Cooling capacity (HFC 407C) (1)	kW	853,9	889,7	930,8	972,0	1013,6	1078,9	1114,7
Power input (HFC 407C) (1)	kW	296,3	311,0	326,5	342,1	357,2	370,5	385,3
McQuay compressor	No./Series	808+906+808	3x808	2x808+908	2x908+808	3x908	3x906+808	2x906+2x808
No. of refrigerant circuit		3	3	3	3	3	4	4
Refrigerant charge HCFC 22	kg	42+42+37	42+42+42	42+50+52	52+52+42	52+52+52	37+37+42+42	37+37+42+42
No. of reduction steps		6	6	6	6	6	8	8
Condenser fans								
No. / Nominal power	kW	14/0,78	16/0,78	16/0,78	16/0,78	16/0,78	18/0,78	18/0,78
Total air flow	m3/s	49,2	54,4	54,4	54,4	54,4	60,9	59,4
Evaporator								
No. of evaporator/Water volume	l	1/267	1/263	1/263	1/295	1/291	1/545	1/545
Max operating pressure	bar	10,5	10,5	10,5	10,5	10,5	10,5	10,5
Condenser coil								
Coil type	Lanced fins - Internally spiral wound tubes							
Weight								
Operating weight (ALR ST)	kg	7482	7788	7876	8012	8068	10331	10411
Shipping weight (ALR ST)	kg	7215	7525	7613	7717	7777	9786	9866

"ALR XN " Unit size		365.4	375.4	390.4	405.4	415.4	430.4
Cooling capacity (HCFC 22) (1)	kW	1186,1	1222,9	1265,4	1307,8	1350,3	1381,7
Power input (HCFC 22) (1)	kW	400,0	414,8	430,2	445,7	461,2	476,8
Cooling capacity (HFC 407C) (1)	kW	1150,5	1186,2	1227,4	1268,6	1309,8	1340,2
Power input (HFC 407C) (1)	kW	400,0	414,8	430,2	445,7	461,2	476,8
McQuay compressor	No./Series	906+808x3	4x808	3x808+908	2x808+2x908	808+3x908	4x908
No. of refrigerant circuit		4	4	4	4	4	4
Refrigerant charge HCFC 22	kg	37+42+42+42	42+42+42+42	42+42+50+52	42+42+52+52	50+52+52+52	52+52+52+52
No. of reduction steps		8	8	8	8	8	8
Condenser fans							
No. / Nominal power	kW	20/0,78	20/0,78	20/0,78	20/0,78	20/0,78	20/0,78
Total air flow	m3/s	67,5	66,0	66,0	66,0	66,0	66,0
Evaporator							
No. of evaporator/Water volume	l	1/545	1/545	1/524	1/524	1/524	1/524
Max operating pressure	bar	10,5	10,5	10,5	10,5	10,5	10,5
Condenser coil							
Coil type	Lanced fins - Internally spiral wound tubes						
Weight							
Operating weight	kg	10789	10869	11052	11054	11206	11210
Shipping weight	kg	10244	10324	10528	10530	10682	10686

Note: (1) Nominal cooling capacity and power input are based on: 12/7 °C entering/leaving evaporator water temperature; 35 °C ambient temperature. The power input is for compressor only.

Electrical data ALR ST, CN, LN, XN 095.2+430.4 (HCFC 22, HFC 407C)

"ALR ST/CN/LN/XN" Unit size		095.2	100.2	110.2	120.2	135.2	145.2	161.2
Standard voltage		400 V - 3f - 50 Hz (1)						
Max absorbed current compr. (FLA) (2)	A	196,0	212,0	228,0	277,0	310,0	333,0	356,0
Max bigger compressors inrush current	A	345,0	537,0	537,0	585,0	585,0	620,0	620,0
Absorbed current fans	A	16,8	16,8	16,8	22,8	22,8	30,4	30,4
Max unit absorbed current	A	212,8	228,8	244,8	299,8	332,8	363,4	386,4
Max unit inrush current	A	459,0	651,0	667	718,4	751,4	790,2	813,2

"ALR ST/CN/LN/XN" Unit size		171.2	185.2	200.2	215.2	235.3	251.3	261.3
Standard voltage		400 V - 3f - 50 Hz (1)						
Max absorbed current compr. (FLA) (2)	A	388,0	420,0	445,0	470,0	511,0	534,0	566,0
Max bigger compressors inrush current	A	750,0	750,0	750,0	750,0	620,0	620,0	750,0
Absorbed current fans	A	30,4	30,4	38,0	38,0	45,6	45,6	45,6
Max unit absorbed current	A	418,4	450,4	483,0	508,0	556,6	579,6	611,6
Max unit inrush current	A	943,2	975,2	979,0	1004,0	983,4	1006,4	1136,4

"ALR ST/CN/LN/XN" Unit size		270.3	286.3	290.3	311.3	325.3	345.4	355.4
Standard voltage		400 V - 3f - 50 Hz (1)						
Max absorbed current compr. (FLA) (2)	A	598,0	630,0	635,0	680,0	705,0	744,0	776,0
Max bigger compressors inrush current	A	750,0	750,0	750,0	750,0	750,0	750,0	750,0
Absorbed current fans	A	45,6	45,6	53,2	53,2	60,8	60,8	60,8
Max unit absorbed current	A	643,6	675,6	708,2	733,2	765,8	804,8	836,8
Max unit inrush current	A	1168,4	1200,4	1205,4	1230,5	1260,5	1329,6	1361,6

"ALR ST/CN/LN/XN" Unit size		365.4	375.4	390.4	405.4	415.4	430.4	
Standard voltage		400 V - 3f - 50 Hz (1)						
Max absorbed current compr. (FLA) (2)	A	808,0	840,0	865,0	890,0	915,0	940,0	
Max bigger compressors inrush current	A	750,0	750,0	750,0	750,0	750,0	750,0	
Absorbed current fans	A	60,8	68,4	68,4	68,4	76,0	76,0	
Max unit absorbed current	A	868,8	908,4	933,4	958,4	991,0	1016,0	
Max unit inrush current	A	1393,6	1431,3	1431,4	1456,3	1487,0	1512,0	

Note: (1) Allowed voltage tolerance $\pm 10\%$.

(2) Absorbed current max condition.

Sound pressure level ALR ST 095.2+430.4

ALR ST Unit size	Sound pressure level at 1 m from the unit in free field (rif. 2×10^{-5})								
	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dBA
095.2	76,5	78,5	79,5	79,5	78,0	74,5	71,0	69,5	82,5
100.2	76,5	78,5	79,5	79,5	78,0	74,5	71,0	69,5	82,5
110.2	76,5	78,5	79,5	79,5	78,0	74,5	71,0	69,5	82,5
120.2	76,5	78,5	79,5	79,5	78,0	74,5	71,0	69,5	82,5
135.2	76,5	78,5	79,5	79,5	78,0	74,5	71,0	69,5	82,5
145.2	77,5	79,5	80,5	80,5	79,0	75,5	72,0	70,5	83,5
161.2	77,5	79,5	80,5	80,5	79,0	75,5	72,0	70,5	83,5
171.2	77,5	79,5	80,5	80,5	79,0	75,5	72,0	70,5	83,5
185.2	77,5	79,5	80,5	80,5	79,0	75,5	72,0	70,5	83,5
200.2	77,5	79,5	80,5	81,5	80,0	76,0	72,0	70,5	83,5
215.2	77,5	79,5	80,5	81,5	80,0	76,0	72,0	70,5	83,5
235.3	77,5	79,5	80,5	81,5	80,0	76,0	72,0	70,5	84,0
251.3	77,5	79,5	80,5	81,5	80,0	76,0	72,0	70,5	84,0
261.3	77,5	79,5	80,5	80,5	79,0	75,5	72,0	70,5	84,0
270.3	77,5	79,5	80,5	80,5	79,0	75,5	72,0	70,5	84,0
286.3	77,5	79,5	80,5	80,5	79,0	75,5	72,0	70,5	84,0
290.3	77,5	79,5	80,5	80,5	79,0	75,5	72,0	70,5	84,0
311.3	77,5	79,5	80,5	80,5	79,0	75,5	72,0	70,5	84,0
325.3	77,5	79,5	80,5	80,5	79,0	75,5	72,0	70,5	84,0
345.4	77,5	79,5	80,5	80,5	79,0	75,5	72,0	70,5	83,5
355.4	77,5	79,5	80,5	80,5	79,0	75,5	72,0	70,5	83,5
365.4	77,5	79,5	80,5	80,5	79,0	75,5	72,0	70,5	83,5
375.4	77,5	79,5	80,5	80,5	79,0	75,5	72,0	70,5	83,5
390.4	77,5	79,5	80,5	80,5	79,0	75,5	72,0	70,5	83,5
405.4	77,5	79,5	80,5	80,5	79,0	75,5	72,0	70,5	83,5
415.4	77,5	79,5	80,5	80,5	79,0	75,5	72,0	70,5	83,5
430.4	77,5	79,5	80,5	80,5	79,0	75,5	72,0	70,5	83,5

Note: Average sound pressure level rated in accordance to ISO 3744, free field conditions.
12/7 °C entering/leaving evaporator water temperature; 35 °C ambient temperature.

Sound pressure level ALR CN 095.2+430.4

ALR CN Unit size	Sound pressure level at 1 m from the unit in free field (rif. 2×10^{-5})								
	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dBA
095.2	73,5	75,5	76,5	76,5	75,0	71,5	68,0	66,5	79,5
100.2	73,5	75,5	76,5	76,5	75,0	71,5	68,0	66,5	79,5
110.2	73,5	75,5	76,5	76,5	75,0	71,5	68,0	66,5	79,5
120.2	73,5	75,5	76,5	76,5	75,0	71,5	68,0	66,5	79,5
135.2	73,5	75,5	76,5	76,5	75,0	71,5	68,0	66,5	79,5
145.2	74,5	76,5	77,5	77,5	76,0	72,5	69,0	67,5	80,5
161.2	74,5	76,5	77,5	77,5	76,0	72,5	69,0	67,5	80,5
171.2	74,5	76,5	77,5	77,5	76,0	72,5	69,0	67,5	80,5
185.2	74,5	76,5	77,5	77,5	76,0	72,5	69,0	67,5	80,5
200.2	74,5	76,5	77,5	78,5	77,0	73,0	69,0	67,5	80,5
215.2	74,5	76,5	77,5	78,5	77,0	73,0	69,0	67,5	80,5
235.3	74,5	76,5	77,5	78,5	77,0	73,0	69,0	67,5	81,0
251.3	74,5	76,5	77,5	78,5	77,0	73,0	69,0	67,5	81,0
261.3	74,5	76,5	77,5	77,5	76,0	72,5	69,0	67,5	81,0
270.3	74,5	76,5	77,5	77,5	76,0	72,5	69,0	67,5	81,0
286.3	74,5	76,5	77,5	77,5	76,0	72,5	69,0	67,5	81,0
290.3	74,5	76,5	77,5	77,5	76,0	72,5	69,0	67,5	81,0
311.3	74,5	76,5	77,5	77,5	76,0	72,5	69,0	67,5	81,0
325.3	74,5	76,5	77,5	77,5	76,0	72,5	69,0	67,5	81,0
345.4	74,5	76,5	77,5	77,5	76,0	72,5	69,0	67,5	80,5
355.4	74,5	76,5	77,5	77,5	76,0	72,5	69,0	67,5	80,5
365.4	74,5	76,5	77,5	77,5	76,0	72,5	69,0	67,5	80,5
375.4	74,5	76,5	77,5	77,5	76,0	72,5	69,0	67,5	80,5
390.4	74,5	76,5	77,5	77,5	76,0	72,5	69,0	67,5	80,5
405.4	74,5	76,5	77,5	77,5	76,0	72,5	69,0	67,5	80,5
415.4	74,5	76,5	77,5	77,5	76,0	72,5	69,0	67,5	80,5
430.4	74,5	76,5	77,5	77,5	76,0	72,5	69,0	67,5	80,5

Note: Average sound pressure level rated in accordance to ISO 3744, free field conditions.
12/7 °C entering/leaving evaporator water temperature; 35 °C ambient temperature.

Sound pressure level ALR LN 095.2+430.4

ALR LN Unit size	Sound pressure level at 1 m from the unit in free field (rif. 2×10^{-5})								
	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dBA
095.2	74,0	75,0	74,5	71,5	68,5	64,5	59,5	52,5	74,0
100.2	74,0	75,0	74,5	71,5	68,5	64,5	59,5	52,5	74,0
110.2	74,0	75,0	74,5	71,5	68,5	64,5	59,5	52,5	74,0
120.2	74,0	75,0	74,5	71,5	68,5	64,5	59,5	52,5	74,0
135.2	74,0	75,0	74,5	71,5	68,5	64,5	59,5	52,5	74,0
145.2	75,0	76,0	75,5	72,5	69,5	65,5	60,5	53,5	75,0
161.2	75,0	76,0	75,5	72,5	69,5	65,5	60,5	53,5	75,0
171.2	75,0	76,0	75,5	72,5	69,5	65,5	60,5	53,5	75,0
185.2	75,0	76,0	75,5	72,5	69,5	65,5	60,5	53,5	75,0
200.2	75,0	76,0	75,5	72,5	69,5	65,5	60,5	53,5	75,0
215.2	75,0	76,0	75,5	72,5	69,5	65,5	60,5	53,5	75,0
235.3	76,0	77,0	76,5	73,5	70,0	66,0	60,5	53,5	75,5
251.3	76,0	77,0	76,5	73,5	70,0	66,0	60,5	53,5	75,5
261.3	76,0	77,0	76,5	73,5	70,0	66,0	60,5	53,5	75,5
270.3	76,0	77,0	76,5	73,5	70,0	66,0	60,5	53,5	75,5
286.3	76,0	77,0	76,5	73,5	70,0	66,0	60,5	53,5	75,5
290.3	76,0	77,0	76,5	73,5	70,0	66,0	60,5	53,5	75,5
311.3	76,0	77,0	76,5	73,5	70,0	66,0	60,5	53,5	75,5
325.3	76,0	77,0	76,5	73,5	70,0	66,0	60,5	53,5	75,5
345.4	76,0	77,5	77,0	74,0	70,5	66,5	61,0	54,0	76,0
355.4	76,0	77,5	77,0	74,0	70,5	66,5	61,0	54,0	76,0
365.4	76,0	77,5	77,0	74,0	70,5	66,5	61,0	54,0	76,0
375.4	76,0	77,5	77,0	74,0	70,5	66,5	61,0	54,0	76,0
390.4	76,0	77,5	77,0	74,0	70,5	66,5	61,0	54,0	76,0
405.4	76,0	77,5	77,0	74,0	70,5	66,5	61,0	54,0	76,0
415.4	76,0	77,5	77,0	74,0	70,5	66,5	61,0	54,0	76,0
430.4	76,0	77,5	77,0	74,0	70,5	66,5	61,0	54,0	76,0

Note: Average sound pressure level rated in accordance to ISO 3744, free field conditions.
12/7 °C entering/leaving evaporator water temperature; 35 °C ambient temperature.

Sound pressure level ALR XN 095.2+430.4

ALR XN Unit size	Sound pressure level at 1 m from the unit in free field (rif. 2×10^{-5})								
	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dBA
095.2	69,5	68,0	66,5	63,5	61,0	57,0	52,5	41,5	66,0
100.2	69,5	68,0	66,5	63,5	61,0	57,0	52,5	41,5	66,0
110.2	69,5	68,0	66,5	63,5	61,0	57,0	52,5	41,5	66,0
120.2	71,5	72,0	71,0	66,0	62,5	58,5	52,5	42,5	68,5
135.2	71,5	72,0	71,0	66,0	62,5	58,5	52,5	42,5	68,5
145.2	72,5	73,0	72,0	67,0	63,5	59,5	53,5	43,5	69,5
161.2	72,5	73,0	72,0	67,0	63,5	59,5	53,5	43,5	69,5
171.2	72,5	73,0	72,0	67,0	63,5	59,5	53,5	43,5	69,5
185.2	72,5	73,0	72,0	67,0	63,5	59,5	53,5	43,5	69,5
200.2	72,5	73,0	72,0	67,0	63,5	59,5	53,5	43,5	69,5
215.2	72,5	73,0	72,0	67,0	63,5	59,5	53,5	43,5	69,5
235.3	74,0	74,5	73,5	68,0	64,0	59,5	53,5	43,5	70,0
251.3	74,0	74,5	73,5	68,0	64,0	59,5	53,5	43,5	70,0
261.3	74,0	74,5	73,5	68,0	64,0	59,5	53,5	43,5	70,0
270.3	74,0	74,5	73,5	68,0	64,0	59,5	53,5	43,5	70,0
286.3	74,0	74,5	73,5	68,0	64,0	59,5	53,5	43,5	70,0
290.3	74,0	74,5	73,5	68,0	64,0	59,5	53,5	43,5	70,0
311.3	74,0	74,5	73,5	68,0	64,0	59,5	53,5	43,5	70,0
325.3	74,0	74,5	73,5	68,0	64,0	59,5	53,5	43,5	70,0
345.4	73,5	74,0	75,0	69,5	64,5	60,0	53,5	43,5	71,0
355.4	73,5	74,0	75,0	69,5	64,5	60,0	53,5	43,5	71,0
365.4	73,5	74,0	75,0	69,5	64,5	60,0	53,5	43,5	71,0
375.4	73,5	74,0	75,0	69,5	64,5	60,0	53,5	43,5	71,0
390.4	73,5	74,0	75,0	69,5	64,5	60,0	53,5	43,5	71,0
405.4	73,5	74,0	75,0	69,5	64,5	60,0	53,5	43,5	71,0
415.4	73,5	74,0	75,0	69,5	64,5	60,0	53,5	43,5	71,0
430.4	73,5	74,0	75,0	69,5	64,5	60,0	53,5	43,5	71,0

Note: Average sound pressure level rated in accordance to ISO 3744, free field conditions.
12/7 °C entering/leaving evaporator water temperature; 35 °C ambient temperature.

Standard ratings ALR XN 095.2+270.3 (HCFC 22)

ALR unit size	Leaving chilled water temp. °C	AMBIENT TEMPERATURE - °C									
		25		28		30		35 (*)		38 (**)	
		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
ALR 095.2	4	326,9	85,1	318,9	91,8	313,5	96,3	300,2	107,1	293,1	111,1
	5	334,7	85,7	326,6	92,5	321,2	97,0	307,9	108,1	300,9	112,1
	6	342,5	86,4	334,4	93,1	329,0	97,6	315,7	109,0	308,7	113,0
	7	350,6	86,7	342,5	93,6	337,1	98,2	323,8	109,7	316,8	113,9
	8	358,7	87,2	350,6	94,2	345,2	98,9	331,9	110,5	325,0	114,6
ALR 100.2	4	341,3	90,0	332,8	97,1	327,2	101,9	313,4	113,4	311,2	118,1
	5	349,4	90,7	341,0	97,8	335,4	102,6	321,5	114,4	319,5	119,1
	6	357,6	91,4	349,1	98,5	343,5	103,3	329,6	115,3	327,8	120,1
	7	366,0	91,8	357,6	99,1	352,0	104,0	338,1	116,1	336,4	121,0
	8	374,5	92,3	366,0	99,7	360,4	104,7	346,5	116,9	345,0	121,8
ALR 110.2	4	355,6	95,0	346,8	102,5	341,0	107,5	326,5	119,6	329,3	125,0
	5	364,1	95,7	355,3	103,3	349,4	108,3	335,0	120,6	338,1	126,1
	6	372,5	96,5	363,7	104,0	357,9	109,0	343,4	121,7	346,9	127,1
	7	381,3	96,8	372,5	104,5	366,7	109,7	352,2	122,5	356,0	128,1
	8	390,2	97,4	381,4	105,2	375,5	110,4	361,1	123,4	365,1	129,0
ALR 120.2	4	413,3	118,3	402,1	122,7	394,7	125,7	375,7	133,1	380,2	135,0
	5	426,3	120,3	414,8	124,8	407,1	127,8	387,6	135,2	392,2	137,0
	6	439,3	122,2	427,4	126,8	419,6	129,9	399,4	137,3	404,1	139,1
	7	451,7	124,4	439,5	129,0	431,4	132,1	411,4	139,3	416,8	140,9
	8	464,6	126,4	452,2	131,0	443,9	134,0	423,5	141,3	429,1	143,0
ALR 135.2	4	455,2	131,3	442,9	136,2	434,7	139,5	413,8	147,7	418,7	149,8
	5	469,5	133,5	456,8	138,5	448,4	141,8	426,8	150,1	431,9	152,1
	6	483,8	135,6	470,8	140,7	462,1	144,1	439,9	152,4	445,1	154,3
	7	497,4	138,1	484,1	143,2	475,2	146,6	453,1	154,6	459,0	156,4
	8	511,7	140,3	498,0	145,4	488,9	148,8	466,4	156,9	472,6	158,7
ALR 145.2	4	526,1	142,1	512,1	147,4	502,7	151,0	478,9	159,3	484,8	161,2
	5	497,7	141,2	484,2	146,4	475,3	149,9	452,4	158,8	457,8	161,0
	6	513,3	143,5	499,5	148,8	490,3	152,4	466,7	161,3	472,2	163,4
	7	529,0	145,8	514,7	151,3	505,2	154,9	481,0	163,8	486,7	165,9
	8	543,9	148,4	529,3	153,9	519,5	157,6	495,4	166,2	501,9	168,1
ALR 161.2	4	559,4	150,7	544,5	156,2	534,6	159,9	510,0	168,6	516,7	170,5
	5	575,2	152,7	559,9	158,4	549,7	162,2	523,6	171,2	530,1	173,3
	6	522,6	157,1	508,4	163,0	499,0	166,9	475,1	176,8	481,8	180,2
	7	539,0	159,7	524,5	165,7	514,8	169,7	490,0	179,5	497,0	183,0
	8	555,4	162,3	540,5	168,4	530,5	172,4	505,0	182,3	512,2	185,7
ALR 171.2	4	571,1	165,2	555,7	171,3	545,5	175,4	520,2	185,0	528,2	188,2
	5	587,4	167,8	571,7	173,9	561,3	178,0	535,5	187,7	543,8	190,9
	6	604,0	170,0	587,9	176,4	577,2	180,6	549,8	190,6	557,9	194,0
	7	577,2	163,6	561,6	169,7	551,2	173,8	524,7	184,1	530,9	186,6
	8	593,3	166,3	579,3	172,5	568,6	176,7	541,2	186,9	547,7	189,4
ALR 185.2	4	613,5	169,0	597,0	175,3	586,0	179,6	557,8	189,8	564,4	192,3
	5	630,8	172,0	613,8	178,4	602,5	182,6	574,6	192,6	582,1	194,8
	6	648,8	174,7	631,5	181,1	620,0	185,3	591,4	195,4	599,3	197,6
	7	667,1	177,0	649,3	183,6	637,5	188,0	607,3	198,5	614,8	200,8
	8	614,2	176,1	597,6	182,7	586,5	187,1	558,3	198,2	565,0	200,9
ALR 200.2	4	633,5	179,0	616,4	185,7	605,0	190,2	575,9	201,3	582,8	203,9
	5	652,8	181,9	635,2	188,7	623,5	193,3	593,5	204,4	600,6	207,0
	6	671,2	185,2	653,2	192,0	641,1	196,6	611,4	207,4	619,4	209,8
	7	690,4	188,1	672,0	195,0	659,7	199,5	629,3	210,4	637,7	212,8
	8	709,9	190,6	691,0	197,7	678,4	202,4	646,2	213,7	654,2	216,2
ALR 215.2	4	656,9	189,2	639,1	196,3	627,3	201,0	597,2	212,9	604,2	215,8
	5	677,5	192,3	659,3	199,5	647,1	204,3	616,0	216,2	623,3	219,1
	6	698,2	195,4	679,4	202,8	666,9	207,7	634,8	219,6	642,4	222,4
	7	717,9	199,0	698,6	206,3	685,7	211,2	653,9	222,8	662,4	225,4
	8	738,4	202,1	718,7	209,5	705,6	214,4	673,1	226,0	682,0	228,6
ALR 235.3	4	759,2	204,7	739,0	212,4	725,5	217,5	691,1	229,6	699,7	232,3
	5	691,0	202,4	672,4	210,0	659,9	215,0	628,2	227,7	651,3	230,6
	6	712,8	205,7	693,5	213,4	680,7	218,6	648,0	231,3	671,9	234,1
	7	734,5	209,0	714,7	216,9	701,5	222,1	667,8	234,8	692,4	237,6
	8	755,2	212,8	734,9	220,7	721,3	225,9	687,9	238,3	714,0	240,8
ALR 251.3	4	776,8	216,1	756,1	224,0	742,2	229,3	708,1	241,8	735,2	244,2
	5	798,7	219,0	777,4	227,2	763,2	232,6	727,1	245,5	754,2	248,2
	6	767,8	216,7	747,0	224,8	733,2	230,2	698,0	243,8	706,3	247,2
	7	791,9	220,3	770,6	228,5	756,3	234,0	720,0	247,6	728,5	250,9
	8	816,0	223,8	794,1	232,2	779,4	237,9	742,0	251,5	750,8	254,7
ALR 261.3	4	839,1	227,9	816,5	236,3	801,5	241,9	764,3	255,2	774,3	258,1
	5	863,0	231,5	840,0	239,9	824,7	245,5	786,7	258,9	797,1	261,8
	6	887,4	234,5	863,7	243,3	848,0	249,1	807,8	262,9	817,8	266,1
	7	817,4	240,3	795,3	249,3	780,6	255,2	743,1	270,3	770,6	279,1
	8	843,1	244,2	820,4	253,4	805,2	259,5	766,5	274,6	794,9	283,3

(*) For ALR 120.2 +430.3 fan speed control devices sets up fan speed increasing cooling capacity when air temperature is higher than +35 °C.

(**) For ALR 095.2 +110.2 fan speed control devices sets up fan speed increasing cooling capacity when air temperature is higher than +38 °C.

Note: the power input is for compressor only

Standard ratings ALR XN 270.3+430.4 (HCFC 22)

ALR unit size	Leaving chilled water temp. °C	AMBIENT TEMPERATURE - ° C									
		25		28		30		35 (*)		38	
		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
ALR 270.3	4	884,3	251,6	860,4	261,0	844,5	267,3	803,9	283,1	813,4	287,0
	5	912,1	255,7	887,5	265,3	871,1	271,7	829,2	287,5	839,1	291,3
	6	939,9	259,8	914,6	269,6	897,7	276,2	854,6	292,0	864,7	295,7
	7	966,4	264,5	940,4	274,3	923,1	280,9	880,3	296,3	891,7	299,7
	8	994,0	268,7	967,5	278,5	949,8	285,0	906,1	300,6	918,1	304,0
ALR 286.3	4	921,4	264,2	896,5	274,0	879,9	280,6	837,6	297,2	847,5	301,3
	5	950,3	268,5	924,7	278,5	907,6	285,3	864,0	301,8	874,3	305,8
	6	979,3	272,8	952,9	283,1	935,4	289,9	890,4	306,5	901,0	310,4
	7	1.006,9	277,7	979,8	288,0	961,8	294,9	917,2	311,0	929,2	314,6
	8	1.035,7	282,1	1.008,1	292,4	989,7	299,2	944,1	315,5	956,6	319,1
ALR 290.3	4	964,0	277,4	937,9	287,7	920,6	294,6	876,3	312,0	886,7	316,3
	5	994,3	281,9	967,5	292,5	949,6	299,5	904,0	316,9	914,7	321,1
	6	1.024,6	286,4	997,0	297,2	978,6	304,4	931,6	321,8	942,6	325,9
	7	1.053,5	291,6	1.025,1	302,4	1.006,3	309,6	959,6	326,5	972,1	330,3
	8	1.083,6	296,2	1.054,7	307,0	1.035,4	314,2	987,7	331,3	1.000,8	335,1
ALR 311.3	4	1.006,7	290,5	979,5	301,4	961,3	308,6	915,1	326,9	926,0	331,4
	5	1.038,3	295,3	1.010,3	306,4	991,7	313,7	944,0	332,0	955,2	336,4
	6	1.070,0	300,0	1.041,2	311,3	1.022,0	318,9	972,9	337,1	984,4	341,4
	7	1.100,1	305,5	1.070,5	316,8	1.050,8	324,3	1.002,1	342,1	1.015,2	346,0
	8	1.131,6	310,3	1.101,4	321,6	1.081,3	329,1	1.031,5	347,1	1.045,2	351,0
ALR 325.3	4	1.049,7	303,4	1.021,3	314,7	1.002,4	322,3	954,2	341,3	987,3	344,7
	5	1.082,7	308,3	1.053,5	319,9	1.034,0	327,6	984,3	346,7	1.018,4	350,0
	6	1.115,6	313,3	1.085,6	325,1	1.065,6	333,0	1.014,4	352,0	1.049,6	355,2
	7	1.147,1	319,0	1.116,3	330,8	1.095,7	338,6	1.044,9	357,2	1.082,4	360,0
	8	1.179,9	324,0	1.148,4	335,8	1.127,4	343,7	1.075,5	362,4	1.114,4	365,2
ALR 345.4	4	1.117,4	314,7	1.087,2	326,4	1.067,0	334,3	1.015,8	354,0	1.027,8	358,9
	5	1.152,5	319,8	1.121,4	331,8	1.100,7	339,8	1.047,8	359,6	1.060,2	364,3
	6	1.187,6	325,0	1.155,7	337,2	1.134,3	345,4	1.079,8	365,1	1.092,7	369,8
	7	1.221,1	330,8	1.188,3	343,1	1.166,4	351,2	1.112,3	370,5	1.126,8	374,8
	8	1.256,0	336,1	1.222,5	348,3	1.200,2	356,5	1.144,9	375,9	1.160,1	380,2
ALR 355.4	4	1.291,4	340,5	1.257,0	353,2	1.234,1	361,7	1.175,6	381,8	1.190,1	386,3
	5	1.154,4	327,2	1.123,2	339,4	1.102,4	347,6	1.049,4	368,1	1.061,9	373,2
	6	1.190,7	332,6	1.158,5	345,0	1.137,1	353,3	1.082,5	373,9	1.095,3	378,8
	7	1.226,9	337,9	1.193,9	350,6	1.171,9	359,1	1.115,6	379,6	1.128,8	384,5
	8	1.261,5	344,0	1.227,6	356,7	1.205,0	365,2	1.149,1	385,3	1.164,1	389,7
ALR 365.4	4	1.297,6	349,4	1.263,0	362,2	1.239,9	370,7	1.182,8	390,9	1.198,5	395,3
	5	1.334,2	354,0	1.298,7	367,3	1.275,0	376,1	1.214,6	397,0	1.229,5	401,7
	6	1.191,5	339,7	1.159,3	352,4	1.137,8	360,9	1.083,1	382,2	1.096,0	387,5
	7	1.228,9	345,3	1.195,8	358,2	1.173,7	366,9	1.117,3	388,2	1.130,5	393,4
	8	1.266,4	350,8	1.232,3	364,1	1.209,6	372,9	1.151,4	394,2	1.165,1	399,2
ALR 375.4	4	1.302,1	357,2	1.267,1	370,4	1.243,7	379,2	1.186,1	400,0	1.201,5	404,6
	5	1.339,3	362,8	1.303,6	376,0	1.279,8	384,9	1.220,8	405,8	1.237,0	410,4
	6	1.377,1	367,6	1.340,4	381,3	1.316,0	390,5	1.253,6	412,2	1.269,1	417,1
	7	1.228,5	352,3	1.195,3	365,4	1.173,1	374,2	1.116,8	396,3	1.130,0	401,8
	8	1.267,1	358,0	1.232,9	371,5	1.210,1	380,4	1.152,0	402,5	1.165,7	407,9
ALR 390.4	4	1.305,7	363,8	1.270,6	377,5	1.247,1	386,6	1.187,2	408,7	1.201,3	414,0
	5	1.342,5	370,4	1.306,4	384,1	1.282,3	393,2	1.222,9	414,8	1.238,8	419,6
	6	1.380,9	376,2	1.344,1	389,9	1.319,5	399,1	1.258,8	420,8	1.275,5	425,6
	7	1.419,8	381,1	1.382,0	395,4	1.356,8	404,9	1.292,5	427,4	1.308,5	432,5
	8	1.271,2	365,4	1.236,8	379,0	1.213,9	388,1	1.155,6	411,0	1.169,3	416,7
ALR 405.4	4	1.311,1	371,3	1.275,8	385,3	1.252,2	394,6	1.192,0	417,5	1.206,2	423,0
	5	1.351,1	377,3	1.314,7	391,5	1.290,5	401,0	1.228,5	423,9	1.243,0	429,4
	6	1.389,2	384,1	1.351,8	398,3	1.326,9	407,8	1.265,4	430,2	1.281,9	435,2
	7	1.428,9	390,2	1.390,8	404,4	1.365,4	413,9	1.302,5	436,4	1.319,8	441,4
	8	1.469,2	395,3	1.430,1	410,1	1.404,0	420,0	1.337,4	443,3	1.353,9	448,5
ALR 415.4	4	1.313,8	378,6	1.278,3	392,7	1.254,6	402,1	1.194,3	425,9	1.208,5	431,8
	5	1.355,1	384,7	1.318,5	399,2	1.294,2	408,8	1.232,0	432,6	1.246,6	438,3
	6	1.396,3	390,9	1.358,8	405,7	1.333,7	415,5	1.269,6	439,2	1.284,7	444,9
	7	1.435,7	398,0	1.397,1	412,7	1.371,4	422,5	1.307,8	445,7	1.324,9	450,9
	8	1.476,8	404,3	1.437,4	419,0	1.411,1	428,8	1.346,2	452,2	1.364,0	457,3
ALR 430.4	4	1.518,4	409,6	1.478,0	424,9	1.451,0	435,1	1.382,3	459,3	1.399,3	464,7
	5	1.356,5	391,8	1.319,8	406,4	1.295,4	416,1	1.233,1	440,7	1.247,8	446,8
	6	1.399,1	398,2	1.361,4	413,1	1.336,2	423,0	1.272,0	447,6	1.287,1	453,6
	7	1.441,7	404,6	1.402,9	419,8	1.377,1	430,0	1.310,9	454,5	1.326,5	460,4
	8	1.482,4	411,9	1.442,5	427,1	1.416,0	437,3	1.350,3	461,2	1.367,9	466,6

(*) For ALR 120.2 +430.3 fan speed control devices sets up fan speed increasing cooling capacity when air temperature is higher than + 35 °C.

Note: the power input is for compressor only

Standard ratings ALR XN 095.2+261.3 (HFC 407C)

ALR unit size	Leaving chilled water temp. °C	AMBIENT TEMPERATURE - °C									
		25		28		30		35 (**)		38 (***)	
		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
ALR 095.2	4*	317,1	85,1	309,3	91,8	304,1	96,3	291,3	107,1	284,4	111,1
	5*	324,6	85,7	316,8	92,5	311,5	97,0	298,7	108,1	291,9	112,1
	6	332,2	86,4	324,3	93,1	319,1	97,6	306,3	109,0	299,5	113,0
	7	340,1	86,7	332,2	93,6	327,0	98,2	314,1	109,7	307,3	113,9
	8	347,9	87,2	340,1	94,2	334,9	98,9	322,0	110,5	315,2	114,6
9	355,4	87,7	347,6	94,8	342,4	99,5	329,5	111,2	322,6	115,5	
ALR 100.2	4*	331,0	90,0	322,8	97,1	317,4	101,9	304,0	113,4	301,9	118,1
	5*	338,8	90,7	330,7	97,8	325,3	102,6	311,8	114,4	309,9	119,1
	6	346,8	91,4	338,6	98,5	333,2	103,3	319,7	115,3	318,0	120,1
	7	355,0	91,8	346,8	99,1	341,4	104,0	327,9	116,1	326,3	121,0
	8	363,2	92,3	355,0	99,7	349,6	104,7	336,2	116,9	334,7	121,8
9	371,0	92,8	362,8	100,3	357,4	105,3	344,0	117,7	342,5	122,8	
ALR 110.2	4*	344,9	95,0	336,4	102,5	330,7	107,5	316,7	119,6	319,4	125,0
	5*	353,2	95,7	344,6	103,3	338,9	108,3	325,0	120,6	328,0	126,1
	6	361,3	96,5	352,8	104,0	347,1	109,0	333,1	121,7	336,5	127,1
	7	369,9	96,8	361,4	104,5	355,7	109,7	341,7	122,5	345,3	128,1
	8	378,5	97,4	370,0	105,2	364,3	110,4	350,2	123,4	354,1	129,0
9	386,6	97,9	378,1	105,8	372,4	111,1	358,4	124,2	362,4	130,0	
ALR 120.2	4*	400,9	118,3	390,1	122,7	382,8	125,7	364,4	133,1	368,8	135,0
	5*	413,5	120,3	402,3	124,8	394,9	127,8	375,9	135,2	380,4	137,0
	6	426,1	122,2	414,6	126,8	407,0	129,9	387,4	137,3	392,0	139,1
	7	438,1	124,4	426,3	129,0	418,5	132,1	399,1	139,3	404,3	140,9
	8	450,6	126,4	438,6	131,0	430,6	134,0	410,8	141,3	416,2	143,0
9	463,3	128,0	451,0	132,8	442,8	136,0	421,8	143,6	427,0	145,3	
ALR 135.2	4*	441,5	131,3	429,6	136,2	421,6	139,5	401,4	147,7	406,1	149,8
	5*	455,4	133,5	443,1	138,5	434,9	141,8	414,0	150,1	419,0	152,1
	6	469,3	135,6	456,7	140,7	448,2	144,1	426,7	152,4	431,8	154,3
	7	482,5	138,1	469,5	143,2	460,9	146,6	439,5	154,6	445,3	156,4
	8	496,3	140,3	483,1	145,4	474,3	148,8	452,4	156,9	458,4	158,7
9	510,3	142,1	496,7	147,4	487,7	151,0	464,6	159,3	470,3	161,2	
ALR 145.2	4*	482,8	141,2	469,7	146,4	461,0	149,9	438,9	158,8	444,1	161,0
	5*	497,9	143,5	484,5	148,8	475,6	152,4	452,7	161,3	458,1	163,4
	6	513,1	145,8	499,3	151,3	490,1	154,9	466,5	163,8	472,1	165,9
	7	527,6	148,4	513,4	153,9	503,9	157,6	480,6	166,2	486,8	168,1
	8	542,7	150,7	528,2	156,2	518,5	159,9	494,7	168,6	501,2	170,5
9	558,0	152,7	543,1	158,4	533,2	162,2	507,9	171,2	514,2	173,3	
ALR 161.2	4*	506,9	157,1	493,2	163,0	484,1	166,9	460,8	176,8	467,4	180,2
	5*	522,8	159,7	508,7	165,7	499,3	169,7	475,3	179,5	482,1	183,0
	6	538,8	162,3	524,3	168,4	514,6	172,4	489,9	182,3	496,8	185,7
	7	554,0	165,2	539,1	171,3	529,1	175,4	504,6	185,0	512,4	188,2
	8	569,8	167,8	554,6	173,9	544,5	178,0	519,4	187,7	527,5	190,9
9	585,8	170,0	570,3	176,4	559,9	180,6	533,3	190,6	541,2	194,0	
ALR 171.2	4*	559,9	163,6	544,7	169,7	534,7	173,8	509,0	184,1	515,0	186,6
	5*	577,5	166,3	561,9	172,5	551,5	176,7	525,0	186,9	531,2	189,4
	6	595,1	169,0	579,0	175,3	568,4	179,6	541,1	189,8	547,5	192,3
	7	611,8	172,0	595,4	178,4	584,4	182,6	557,3	192,6	564,6	194,8
	8	629,3	174,7	612,5	181,1	601,4	185,3	573,7	195,4	581,3	197,6
9	647,1	177,0	629,9	183,6	618,4	188,0	589,1	198,5	596,3	200,8	
ALR 185.2	4*	595,8	176,1	579,7	182,7	568,9	187,1	541,6	198,2	548,0	200,9
	5*	614,5	179,0	597,9	185,7	586,9	190,2	558,7	201,3	565,3	203,9
	6	633,2	181,9	616,2	188,7	604,8	193,3	575,7	204,4	582,6	207,0
	7	651,1	185,2	633,6	192,0	621,9	196,6	593,1	207,4	600,8	209,8
	8	669,7	188,1	651,8	195,0	639,9	199,5	610,4	210,4	618,5	212,8
9	688,6	190,6	670,2	197,7	658,0	202,4	626,8	213,7	634,6	216,2	
ALR 200.2	4*	637,2	189,2	620,0	196,3	608,5	201,0	579,2	212,9	586,1	215,8
	5*	657,2	192,3	639,5	199,5	627,7	204,3	597,5	216,2	604,6	219,1
	6	677,2	195,4	659,0	202,8	646,9	207,7	615,8	219,6	623,1	222,4
	7	696,3	199,0	677,6	206,3	665,1	211,2	634,3	222,8	642,6	225,4
	8	716,2	202,1	697,1	209,5	684,4	214,4	652,9	226,0	661,6	228,6
9	736,4	204,7	716,8	212,4	703,7	217,5	670,4	229,6	678,7	232,3	
ALR 215.2	4*	670,3	202,4	652,2	210,0	640,1	215,0	609,4	227,7	631,8	230,6
	5*	691,4	205,7	672,7	213,4	660,3	218,6	628,6	231,3	651,7	234,1
	6	712,4	209,0	693,3	216,9	680,5	222,1	647,8	234,8	671,6	237,6
	7	732,5	212,8	712,8	220,7	699,7	225,9	667,3	238,3	692,6	240,8
	8	753,5	216,1	733,4	224,0	720,0	229,3	686,8	241,8	713,1	244,2
9	774,7	219,0	754,1	227,2	740,3	232,6	705,3	245,5	731,5	248,2	
ALR 235.3	4*	744,7	216,7	724,6	224,8	711,2	230,2	677,0	243,8	685,1	247,2
	5*	768,2	220,3	747,4	228,5	733,6	234,0	698,4	247,6	706,7	250,9
	6	791,6	223,8	770,3	232,2	756,1	237,9	719,7	251,5	728,3	254,7
	7	813,9	227,9	792,0	236,3	777,4	241,9	741,4	255,2	751,0	258,1
	8	837,2	231,5	814,8	239,9	799,9	245,5	763,1	258,9	773,2	261,8
9	860,8	234,5	837,8	243,3	822,6	249,1	783,6	262,9	793,2	266,1	
ALR 251.3	4*	792,9	240,3	771,5	249,3	757,2	255,2	720,8	270,3	747,5	279,1
	5*	817,8	244,2	795,8	253,4	781,1	259,5	743,5	274,6	771,1	283,3
	6	842,7	248,1	820,0	257,5	804,9	263,7	766,2	278,8	794,6	287,5
	7	866,5	252,6	843,2	262,0	827,7	268,2	789,3	282,9	819,5	291,4
	8	891,3	256,6	867,5	266,0	851,6	272,2	812,4	287,0	843,7	295,6
9	916,4	260,0	892,0	269,7	875,7	276,2	834,2	291,5	865,5	300,4	
ALR 261.3	4*	821,9	239,1	799,7	248,0	784,8	254,0	747,1	269,0	756,0	272,7
	5*	847,7	243,0	824,8	252,1	809,6	258,2	770,7	273,2	779,8	276,8
	6	873,5	246,9	850,0	256,2	834,3	262,4	794,2	277,4	803,7	281,0
	7	898,2	251,4	874,0	260,7	857,9	266,9	818,1	281,5	828,8	284,8
	8	923,8	255,3	899,2	264,6	882,8	270,8	842,1	285,6	853,3	288,8
9	949,9	258,7	924,6	268,4	907,7	274,8	864,7	290,1	875,4	293,5	

(*) 10% glycol must be added. **Note:** the power input is for compressor only

(**) For ALR 120.2 +261.3 LN fan speed control devices sets up fan speed increasing cooling capacity when air temperature is higher than +35 °C.

(***) For ALR 095.2 +110.2 LN fan speed control devices sets up fan speed increasing cooling capacity when air temperature is higher than +38 °C.

Standard ratings ALR XN 270.3+430.4 (HFC 407C)

ALR unit size	Leaving chilled water temp. °C	AMBIENT TEMPERATURE - ° C									
		25		28		30		35 (**)		38	
		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
ALR 270.3	4*	857,8	251,6	834,6	261,0	819,1	267,3	779,8	283,1	789,0	287,0
	5*	884,7	255,7	860,9	265,3	844,9	271,7	804,3	287,5	813,9	291,3
	6	911,7	259,8	887,1	269,6	870,8	276,2	828,9	292,0	838,8	295,7
	7	937,4	264,5	912,2	274,3	895,4	280,9	853,9	296,3	865,0	299,7
	8	964,2	268,7	938,5	278,5	921,3	285,0	878,9	300,6	890,6	304,0
9	991,4	272,2	965,0	282,4	947,4	289,2	902,5	305,3	913,6	308,9	
ALR 286.3	4*	893,7	264,2	869,6	274,0	853,5	280,6	812,5	297,2	822,1	301,3
	5*	921,8	268,5	897,0	278,5	880,4	285,3	838,1	301,8	848,0	305,8
	6	949,9	272,8	924,4	283,1	907,3	289,9	863,7	306,5	874,0	310,4
	7	976,7	277,7	950,4	288,0	932,9	294,9	889,7	311,0	901,3	314,6
	8	1.004,6	282,1	977,8	292,4	960,0	299,2	915,8	315,5	927,9	319,1
9	1.032,9	285,8	1.005,4	296,5	987,1	303,6	940,3	320,5	951,9	324,3	
ALR 290.3	4*	935,1	277,4	909,8	287,7	892,9	294,6	850,0	312,0	860,1	316,3
	5*	964,4	281,9	938,4	292,5	921,1	299,5	876,8	316,9	887,2	321,1
	6	993,8	286,4	967,1	297,2	949,3	304,4	903,6	321,8	914,4	325,9
	7	1.021,9	291,6	994,4	302,4	976,1	309,6	930,8	326,5	943,0	330,3
	8	1.051,1	296,2	1.023,0	307,0	1.004,3	314,2	958,1	331,3	970,8	335,1
9	1.080,7	300,1	1.051,9	311,3	1.032,8	318,8	983,8	336,5	995,9	340,5	
ALR 311.3	4*	976,5	290,5	950,1	301,4	932,5	308,6	887,7	326,9	898,2	331,4
	5*	1.007,2	295,3	980,0	306,4	961,9	313,7	915,7	332,0	926,5	336,4
	6	1.037,9	300,0	1.009,9	311,3	991,3	318,9	943,7	337,1	954,9	341,4
	7	1.067,1	305,5	1.038,4	316,8	1.019,3	324,3	972,0	342,1	984,7	346,0
	8	1.097,6	310,3	1.068,4	321,6	1.048,8	329,1	1.000,6	347,1	1.013,8	351,0
9	1.128,6	314,3	1.098,5	326,1	1.078,5	333,9	1.027,4	352,5	1.040,1	356,7	
ALR 325.3	4*	1.018,2	303,4	990,7	314,7	972,3	322,3	925,6	341,3	957,7	344,7
	5*	1.050,2	308,3	1.021,9	319,9	1.003,0	327,6	954,8	346,7	987,9	350,0
	6	1.082,2	313,3	1.053,1	325,1	1.033,6	333,0	984,0	352,0	1.018,1	355,2
	7	1.112,7	319,0	1.082,8	330,8	1.062,8	338,6	1.013,6	357,2	1.049,9	360,0
	8	1.144,5	324,0	1.114,0	335,8	1.093,6	343,7	1.043,3	362,4	1.080,9	365,2
9	1.176,8	328,2	1.145,4	340,5	1.124,5	348,7	1.071,3	368,1	1.108,9	371,1	
ALR 345.4	4*	1.083,9	314,7	1.054,6	326,4	1.035,0	334,3	985,3	354,0	997,0	358,9
	5*	1.117,9	319,8	1.087,8	331,8	1.067,7	339,8	1.016,4	359,6	1.028,4	364,3
	6	1.152,0	325,0	1.121,0	337,2	1.100,3	345,4	1.047,4	365,1	1.059,9	369,8
	7	1.184,5	330,8	1.152,6	343,1	1.131,4	351,2	1.078,9	370,5	1.093,0	374,8
	8	1.218,3	336,1	1.185,8	348,3	1.164,2	356,5	1.110,6	375,9	1.125,3	380,2
9	1.252,7	340,5	1.219,3	353,2	1.197,1	361,7	1.140,4	381,8	1.154,4	386,3	
ALR 355.4	4*	1.119,7	327,2	1.089,5	339,4	1.069,3	347,6	1.017,9	368,1	1.030,0	373,2
	5*	1.154,9	332,6	1.123,8	345,0	1.103,0	353,3	1.050,0	373,9	1.062,5	378,8
	6	1.190,1	337,9	1.158,1	350,6	1.136,7	359,1	1.082,1	379,6	1.095,0	384,5
	7	1.223,7	344,0	1.190,8	356,7	1.168,8	365,2	1.114,7	385,3	1.129,2	389,7
	8	1.258,7	349,4	1.225,1	362,2	1.202,7	370,7	1.147,4	390,9	1.162,6	395,3
9	1.294,2	354,0	1.259,7	367,3	1.236,7	376,1	1.178,1	397,0	1.192,7	401,7	
ALR 365.4	4*	1.155,7	339,7	1.124,5	352,4	1.103,7	360,9	1.050,6	382,2	1.063,1	387,5
	5*	1.192,1	345,3	1.159,9	358,2	1.138,5	366,9	1.083,8	388,2	1.096,6	393,4
	6	1.228,4	350,8	1.195,3	364,1	1.173,3	372,9	1.116,9	394,2	1.130,2	399,2
	7	1.263,0	357,2	1.229,1	370,4	1.206,4	379,2	1.150,5	400,0	1.165,5	404,6
	8	1.299,1	362,8	1.264,5	376,0	1.241,4	384,9	1.184,2	405,8	1.199,9	410,4
9	1.335,7	367,6	1.300,2	381,3	1.276,5	390,5	1.216,0	412,2	1.231,0	417,1	
ALR 375.4	4*	1.191,6	352,3	1.159,4	365,4	1.137,9	374,2	1.083,3	396,3	1.096,1	401,8
	5*	1.229,1	358,0	1.195,9	371,5	1.173,8	380,4	1.117,4	402,5	1.130,7	407,9
	6	1.266,5	363,8	1.232,4	377,5	1.209,7	386,6	1.151,6	408,7	1.165,3	414,0
	7	1.302,2	370,4	1.267,2	384,1	1.243,9	393,2	1.186,2	414,8	1.201,7	419,6
	8	1.339,5	376,2	1.303,7	389,9	1.279,9	399,1	1.221,0	420,8	1.237,2	425,6
9	1.377,2	381,1	1.340,6	395,4	1.316,1	404,9	1.253,7	427,4	1.269,2	432,5	
ALR 390.4	4*	1.233,0	365,4	1.199,7	379,0	1.177,5	388,1	1.120,9	411,0	1.134,2	416,7
	5*	1.271,8	371,3	1.237,5	385,3	1.214,6	394,6	1.156,3	417,5	1.170,0	423,0
	6	1.310,5	377,3	1.275,3	391,5	1.251,8	401,0	1.191,6	423,9	1.205,8	429,4
	7	1.347,5	384,1	1.311,3	398,3	1.287,1	407,8	1.227,4	430,2	1.243,4	435,2
	8	1.386,0	390,2	1.349,1	404,4	1.324,4	413,9	1.263,4	436,4	1.280,2	441,4
9	1.425,1	395,3	1.387,2	410,1	1.361,9	420,0	1.297,3	443,3	1.313,3	448,5	
ALR 405.4	4*	1.274,4	378,6	1.239,9	392,7	1.217,0	402,1	1.158,5	425,9	1.172,2	431,8
	5*	1.314,4	384,7	1.279,0	399,2	1.255,3	408,8	1.195,0	432,6	1.209,2	438,3
	6	1.354,5	390,9	1.318,0	405,7	1.293,7	415,5	1.231,5	439,2	1.246,2	444,9
	7	1.392,7	398,0	1.355,2	412,7	1.330,2	422,5	1.268,6	445,7	1.285,1	450,9
	8	1.432,5	404,3	1.394,3	419,0	1.368,8	428,8	1.305,8	452,2	1.323,1	457,3
9	1.472,9	409,6	1.433,6	424,9	1.407,5	435,1	1.340,8	459,3	1.357,3	464,7	
ALR 415.4	4*	1.315,8	391,8	1.280,2	406,4	1.256,5	416,1	1.196,1	440,7	1.210,3	446,8
	5*	1.357,1	398,2	1.320,5	413,1	1.296,1	423,0	1.233,8	447,6	1.248,5	453,6
	6	1.398,5	404,6	1.360,8	419,8	1.335,8	430,0	1.271,6	454,5	1.286,7	460,4
	7	1.437,9	411,9	1.399,3	427,1	1.373,5	437,3	1.309,8	461,2	1.326,9	466,6
	8	1.479,0	418,4	1.439,6	433,6	1.413,3	443,8	1.348,2	467,9	1.366,1	473,3
9	1.520,7	423,9	1.480,2	439,7	1.453,2	450,3	1.384,4	475,3	1.401,5	480,9	
ALR 430.4	4*	1.346,4	405,0	1.310,0	420,1	1.285,7	430,2	1.223,9	455,6	1.263,4	461,2
	5*	1.388,7	411,6	1.351,2	427,0	1.326,3	437,3	1.262,5	462,7	1.303,2	468,2
	6	1.431,0	418,2	1.392,5	434,0	1.366,8	444,5	1.301,1	469,9	1.343,1	475,1
	7	1.471,4	425,8	1.431,8	441,5	1.405,4	452,0	1.340,2	476,8	1.385,1	481,6
	8	1.513,4	432,5	1.473,0	448,2	1.446,1	458,7	1.379,6	483,7	1.426,0	488,5
9	1.556,1	438,2	1.514,6	454,5	1.487,0	465,5	1.416,6	491,3	1.462,9	496,4	

(*) 10% glycol must be added.

(**) For ALR 120.2+261.3 LN fan speed control devices sets up fan speed increasing cooling capacity when air temperature is higher than + 35 °C.

Note: the power input is for compressor only.

Total heat recovery ratings ALR 145.2+290.3 (HCFC 22)

ALR unit size	Leaving chilled water temp. °C	LEAVING HEAT RECOVERY CONDENSER WATER TEMPERATURE - °C					
		40			45		
		Cooling capacity kW	Power Input kW	Heating capacity kW	Cooling capacity kW	Power Input kW	Heating capacity kW
ALR 145.2	4	532,1	139,9	638,4	506,5	148,2	622,0
	5	548,9	142,3	656,6	522,5	150,5	639,4
	6	565,7	144,6	674,7	538,5	152,9	656,8
	7	581,6	147,1	692,2	554,7	155,1	674,3
	8	598,5	149,2	710,3	570,9	157,4	691,9
ALR 161.2	4	615,4	151,4	728,5	586,2	159,8	708,8
	5	551,8	157,1	673,4	525,2	166,4	657,1
	6	569,1	159,7	692,4	541,8	169,0	675,3
	7	586,5	162,3	711,4	558,4	171,6	693,5
	8	603,1	165,1	729,8	575,2	174,1	711,8
ALR 171.2	9	620,6	167,5	748,7	592,0	176,7	730,3
	4	638,1	170,0	767,7	607,9	179,4	748,0
	5	617,1	162,2	740,3	587,4	171,8	721,3
	6	636,6	164,9	761,4	606,0	174,5	741,4
	7	656,0	167,6	782,4	624,5	177,2	761,6
ALR 185.2	8	674,5	170,4	802,7	643,3	179,8	781,9
	9	694,1	173,0	823,7	662,1	182,4	802,3
	4	713,7	175,5	844,8	679,9	185,2	821,9
	5	656,7	174,6	789,7	625,1	184,9	769,5
	6	677,4	177,5	812,1	644,8	187,8	791,0
ALR 200.2	7	698,1	180,4	834,6	664,5	190,7	812,5
	8	717,8	183,5	856,2	684,5	193,6	834,2
	9	738,6	186,2	878,6	704,6	196,4	855,9
	4	759,5	189,0	901,0	723,5	199,4	876,8
	5	702,3	187,6	845,4	668,6	198,7	823,9
ALR 215.2	6	724,4	190,7	869,4	689,6	201,8	846,9
	7	746,6	193,8	893,4	710,7	204,9	869,9
	8	767,7	197,1	916,6	732,1	207,9	893,0
	9	789,9	200,1	940,5	753,6	211,0	916,3
	4	812,3	203,0	964,5	773,8	214,3	938,6
ALR 235.3	5	748,0	200,7	901,3	712,0	212,6	878,4
	6	771,6	204,0	926,8	734,5	215,9	902,9
	7	795,2	207,4	952,4	756,9	219,2	927,4
	8	817,6	210,9	977,1	779,7	222,5	952,1
	9	841,3	214,0	1.002,6	802,6	225,7	976,9
ALR 251.3	4	865,1	217,2	1.028,2	824,1	229,2	1.000,7
	5	820,9	214,9	984,0	781,4	227,6	958,5
	6	846,8	218,4	1.011,9	806,1	231,1	985,3
	7	872,6	222,0	1.039,9	830,7	234,7	1.012,1
	8	897,3	225,8	1.066,9	855,7	238,2	1.039,2
ALR 261.3	9	923,3	229,1	1.094,8	880,8	241,6	1.066,3
	4	949,4	232,5	1.122,8	904,4	245,4	1.092,3
	5	864,9	240,0	1.049,6	823,3	254,1	1.023,6
	6	892,2	243,9	1.079,3	849,3	258,1	1.052,0
	7	919,4	247,9	1.109,0	875,2	262,1	1.080,5
ALR 270.3	8	945,4	252,1	1.137,7	901,6	266,0	1.109,2
	9	972,8	255,9	1.167,2	928,0	269,8	1.137,9
	4	1.000,3	259,6	1.196,9	952,9	274,1	1.165,6
	5	905,9	237,0	1.085,8	862,3	251,0	1.057,7
	6	934,4	241,0	1.116,6	889,5	255,0	1.087,3
ALR 286.3	7	963,0	244,9	1.147,5	916,7	258,9	1.116,9
	8	990,2	249,1	1.177,3	944,3	262,7	1.146,7
	9	1.018,9	252,8	1.208,1	972,0	266,6	1.176,6
	4	1.047,7	256,5	1.239,0	998,0	270,7	1.205,3
	5	945,4	249,5	1.135,1	900,0	264,2	1.106,0
ALR 290.3	6	975,2	253,6	1.167,4	928,4	268,3	1.136,9
	7	1.005,0	257,8	1.199,7	956,7	272,5	1.167,8
	8	1.033,4	262,1	1.230,8	985,5	276,5	1.198,9
	9	1.063,4	266,0	1.262,9	1.014,4	280,5	1.230,2
	4	1.093,4	269,9	1.295,2	1.041,6	284,9	1.260,2
ALR 290.3	5	985,1	261,9	1.184,6	937,7	277,4	1.154,4
	6	1.016,1	266,2	1.218,3	967,3	281,7	1.186,6
	7	1.047,2	270,6	1.251,9	996,9	286,1	1.218,8
	8	1.076,8	275,2	1.284,4	1.026,9	290,3	1.251,3
	9	1.108,0	279,3	1.317,9	1.057,0	294,5	1.283,9
ALR 290.3	4	1.139,3	283,4	1.351,6	1.085,3	299,1	1.315,2
	5	1.030,6	275,0	1.240,3	981,1	291,2	1.208,7
	6	1.063,1	279,5	1.275,5	1.012,0	295,8	1.242,4
	7	1.095,6	284,1	1.310,7	1.043,0	300,3	1.276,2
	8	1.126,6	288,9	1.344,7	1.074,3	304,8	1.310,2
ALR 290.3	9	1.159,2	293,2	1.379,8	1.105,8	309,2	1.344,3
	4	1.192,0	297,5	1.415,0	1.135,5	314,0	1.377,1

Total heat recovery ratings ALR 311.3+430.4 (HCFC 22)

ALR unit size	Leaving chilled water temp. °C	LEAVING HEAT RECOVERY CONDENSER WATER TEMPERATURE - °C					
		40			45		
		Cooling capacity kW	Power Input kW	Heating capacity kW	Cooling capacity kW	Power Input kW	Heating capacity kW
ALR 311.3	4	1.076,3	288,0	1.296,1	1.024,6	305,1	1.263,1
	5	1.110,2	292,8	1.332,9	1.056,9	309,8	1.298,4
	6	1.144,2	297,6	1.369,7	1.089,2	314,6	1.333,6
	7	1.176,5	302,7	1.405,2	1.121,9	319,3	1.369,1
	8	1.210,6	307,2	1.441,8	1.154,8	323,9	1.404,8
	9	1.244,8	311,7	1.478,6	1.185,8	329,0	1.439,0
ALR 325.3	4	1.131,3	300,7	1.360,4	1.076,9	318,5	1.325,6
	5	1.166,9	305,7	1.399,0	1.110,9	323,5	1.362,6
	6	1.202,6	310,7	1.437,6	1.144,8	328,5	1.399,6
	7	1.236,6	316,0	1.474,9	1.179,2	333,3	1.436,9
	8	1.272,4	320,7	1.513,4	1.213,8	338,1	1.474,4
	9	1.308,4	325,4	1.552,1	1.246,4	343,4	1.510,3
ALR 345.4	4	1.194,6	312,0	1.431,3	1.137,2	330,4	1.394,2
	5	1.232,3	317,2	1.472,0	1.173,1	335,6	1.433,2
	6	1.270,0	322,3	1.512,7	1.208,9	340,8	1.472,2
	7	1.305,8	327,8	1.552,0	1.245,3	345,8	1.511,5
	8	1.343,7	332,7	1.592,5	1.281,8	350,8	1.551,0
	9	1.381,7	337,6	1.633,3	1.316,2	356,3	1.588,9
ALR 355.4	4	1.234,2	324,4	1.480,7	1.174,9	343,6	1.442,5
	5	1.273,1	329,8	1.522,7	1.211,9	349,0	1.482,8
	6	1.312,0	335,2	1.564,8	1.249,0	354,3	1.523,1
	7	1.349,1	340,9	1.605,5	1.286,5	359,6	1.563,8
	8	1.388,2	345,9	1.647,4	1.324,3	364,8	1.604,6
	9	1.427,4	351,0	1.689,5	1.359,8	370,5	1.643,8
ALR 365.4	4	1.273,9	336,8	1.530,1	1.212,6	356,7	1.490,9
	5	1.314,0	342,4	1.573,6	1.250,9	362,3	1.532,5
	6	1.354,2	348,0	1.617,1	1.289,1	367,9	1.574,2
	7	1.392,4	353,9	1.659,0	1.327,9	373,3	1.616,2
	8	1.432,8	359,2	1.702,4	1.366,8	378,8	1.658,3
	9	1.473,3	364,5	1.745,9	1.403,5	384,7	1.698,8
ALR 375.4	4	1.313,4	349,3	1.579,5	1.250,3	369,9	1.539,2
	5	1.354,8	355,1	1.624,4	1.289,7	375,7	1.582,1
	6	1.396,2	360,9	1.669,2	1.329,1	381,5	1.625,1
	7	1.435,7	367,0	1.712,5	1.369,1	387,1	1.668,4
	8	1.477,3	372,4	1.757,2	1.409,3	392,7	1.711,9
	9	1.519,0	377,9	1.802,1	1.447,1	398,9	1.753,6
ALR 390.4	4	1.359,1	362,2	1.635,2	1.293,7	383,6	1.593,5
	5	1.401,9	368,3	1.681,7	1.334,5	389,7	1.638,0
	6	1.444,8	374,3	1.728,1	1.375,3	395,7	1.682,5
	7	1.485,6	380,6	1.772,9	1.416,7	401,5	1.727,3
	8	1.528,6	386,3	1.819,2	1.458,2	407,3	1.772,3
	9	1.571,8	392,0	1.865,6	1.497,4	413,7	1.815,5
ALR 405.4	4	1.404,6	375,3	1.690,9	1.337,1	397,5	1.647,9
	5	1.448,9	381,5	1.738,9	1.379,3	403,7	1.693,8
	6	1.493,2	387,8	1.786,9	1.421,4	410,0	1.739,8
	7	1.535,4	394,4	1.833,2	1.464,2	416,0	1.786,2
	8	1.579,8	400,2	1.881,1	1.507,1	422,0	1.832,7
	9	1.624,5	406,1	1.929,1	1.547,5	428,6	1.877,4
ALR 415.4	4	1.450,3	388,4	1.746,7	1.380,6	411,3	1.702,3
	5	1.496,0	394,8	1.796,3	1.424,1	417,8	1.749,8
	6	1.541,7	401,3	1.845,9	1.467,6	424,2	1.797,3
	7	1.585,3	408,1	1.893,7	1.511,8	430,5	1.845,1
	8	1.631,2	414,2	1.943,1	1.556,1	436,8	1.893,2
	9	1.677,3	420,3	1.992,7	1.597,8	443,6	1.939,3
ALR 430.4	4	1.496,0	401,4	1.802,5	1.424,1	425,1	1.756,7
	5	1.543,1	408,1	1.853,7	1.469,0	431,8	1.805,7
	6	1.590,3	414,7	1.904,8	1.513,9	438,5	1.854,7
	7	1.635,2	421,8	1.954,2	1.559,4	444,9	1.904,1
	8	1.682,6	428,1	2.005,1	1.605,2	451,4	1.953,7
	9	1.730,2	434,3	2.056,3	1.648,2	458,4	2.001,3

Total heat recovery ratings ALR 145.2+290.3 (HFC 407C)

ALR unit size	Leaving chilled water temp. °C	LEAVING HEAT RECOVERY CONDENSER WATER TEMPERATURE - ° C					
		40			45		
		Cooling capacity kW	Power Input kW	Heating capacity kW	Cooling capacity kW	Power Input kW	Heating capacity kW
ALR 145.2	4*	516,1	139,9	623,3	491,3	148,2	607,6
	5*	532,4	142,3	640,9	506,8	150,5	624,5
	6	548,7	144,6	658,6	522,3	152,9	641,4
	7	564,2	147,1	675,7	538,0	155,1	658,5
	8	580,5	149,2	693,3	553,8	157,4	675,6
ALR 161.2	4*	535,2	157,1	657,7	509,5	166,4	642,1
	5*	552,1	159,7	676,2	525,5	169,0	659,8
	6	569,0	162,3	694,7	541,6	171,6	677,6
	7	585,0	165,1	712,6	557,9	174,1	695,4
	8	602,0	167,5	731,0	574,3	176,7	713,4
ALR 171.2	4*	598,6	162,2	722,7	569,8	171,8	704,5
	5*	617,5	164,9	743,2	587,8	174,5	724,1
	6	636,3	167,6	763,7	605,8	177,2	743,8
	7	654,3	170,4	783,5	624,0	179,8	763,6
	8	673,3	173,0	803,9	642,3	182,4	783,4
ALR 185.2	4*	637,0	174,6	771,0	606,3	184,9	751,7
	5*	657,0	177,5	792,8	625,5	187,8	772,6
	6	677,1	180,4	814,7	644,6	190,7	793,6
	7	696,2	183,5	835,8	664,0	193,6	814,6
	8	716,4	186,2	857,5	683,4	196,4	835,8
ALR 200.2	4*	681,2	187,6	825,4	648,5	198,7	804,8
	5*	702,7	190,7	848,8	668,9	201,8	827,2
	6	724,2	193,8	872,1	689,4	204,9	849,6
	7	744,6	197,1	894,7	710,1	207,9	872,2
	8	766,2	200,1	918,0	731,0	211,0	894,8
ALR 215.2	4*	725,5	200,7	879,9	690,7	212,6	858,1
	5*	748,4	204,0	904,8	712,5	215,9	881,9
	6	771,3	207,4	929,7	734,2	219,2	905,8
	7	793,1	210,9	953,8	756,3	222,5	929,8
	8	816,1	214,0	978,6	778,5	225,7	954,0
ALR 235.3	4*	796,2	214,9	960,6	758,0	227,6	936,3
	5*	821,3	218,4	987,8	781,9	231,1	962,4
	6	846,5	222,0	1.015,0	805,8	234,7	988,5
	7	870,4	225,8	1.041,3	830,0	238,2	1.014,8
	8	895,6	229,1	1.068,5	854,4	241,6	1.041,2
ALR 251.3	4*	838,9	240,0	1.024,9	798,6	254,1	1.000,1
	5*	865,4	243,9	1.053,9	823,8	258,1	1.027,8
	6	891,8	247,9	1.082,8	849,0	262,1	1.055,5
	7	917,0	252,1	1.110,7	874,5	266,0	1.083,5
	8	943,6	255,9	1.139,5	900,2	269,8	1.111,5
ALR 261.3	4*	878,7	237,0	1.059,9	836,5	251,0	1.033,1
	5*	906,4	241,0	1.090,0	862,8	255,0	1.061,9
	6	934,1	244,9	1.120,1	889,2	258,9	1.090,7
	7	960,5	249,1	1.149,1	916,0	262,7	1.119,8
	8	988,3	252,8	1.179,0	942,8	266,6	1.148,9
ALR 270.3	4*	917,1	249,5	1.108,2	873,0	264,2	1.080,3
	5*	946,0	253,6	1.139,6	900,5	268,3	1.110,4
	6	974,9	257,8	1.171,0	928,0	272,5	1.140,5
	7	1.002,4	262,1	1.201,3	956,0	276,5	1.170,8
	8	1.031,5	266,0	1.232,6	984,0	280,5	1.201,3
ALR 286.3	4*	955,5	261,9	1.156,6	909,6	277,4	1.127,6
	5*	985,7	266,2	1.189,3	938,3	281,7	1.159,0
	6	1.015,8	270,6	1.222,1	967,0	286,1	1.190,4
	7	1.044,5	275,2	1.253,7	996,1	290,3	1.222,0
	8	1.074,7	279,3	1.286,3	1.025,3	294,5	1.253,8
ALR 290.3	4*	999,7	275,0	1.210,9	951,7	291,2	1.180,7
	5*	1.031,2	279,5	1.245,2	981,7	295,8	1.213,6
	6	1.062,8	284,1	1.279,5	1.011,7	300,3	1.246,4
	7	1.092,8	288,9	1.312,6	1.042,1	304,8	1.279,5
	8	1.124,4	293,2	1.346,8	1.072,7	309,2	1.312,8
	9	1.156,2	297,5	1.381,1	1.101,4	314,0	1.344,7

(*) 10% glycol must be added.

Total heat recovery ratings ALR 311.3+430.4 (HFC 407C)

ALR unit size	Leaving chilled water temp. °C	LEAVING HEAT RECOVERY CONDENSER WATER TEMPERATURE - °C					
		40			45		
		Cooling capacity kW	Power Input kW	Heating capacity kW	Cooling capacity kW	Power Input kW	Heating capacity kW
ALR 311.3	4*	1.044,0	288,0	1.265,4	993,8	305,1	1.233,9
	5*	1.076,9	292,8	1.301,3	1.025,2	309,8	1.268,3
	6	1.109,8	297,6	1.337,1	1.056,5	314,6	1.302,6
	7	1.141,2	302,7	1.371,7	1.088,3	319,3	1.337,2
	8	1.174,2	307,2	1.407,3	1.120,2	323,9	1.371,9
	9	1.207,4	311,7	1.443,2	1.150,2	329,0	1.405,2
ALR 325.3	4*	1.097,3	300,7	1.328,1	1.044,6	318,5	1.294,9
	5*	1.131,9	305,7	1.365,7	1.077,5	323,5	1.330,9
	6	1.166,5	310,7	1.403,4	1.110,5	328,5	1.367,0
	7	1.199,5	316,0	1.439,7	1.143,9	333,3	1.403,3
	8	1.234,2	320,7	1.477,2	1.177,4	338,1	1.439,8
	9	1.269,1	325,4	1.514,8	1.209,0	343,4	1.474,8
ALR 345.4	4*	1.158,8	312,0	1.397,2	1.103,1	330,4	1.361,8
	5*	1.195,3	317,2	1.436,9	1.137,9	335,6	1.399,8
	6	1.231,9	322,3	1.476,5	1.172,7	340,8	1.437,8
	7	1.266,7	327,8	1.514,8	1.207,9	345,8	1.476,0
	8	1.303,4	332,7	1.554,3	1.243,4	350,8	1.514,5
	9	1.340,2	337,6	1.593,9	1.276,7	356,3	1.551,4
ALR 355.4	4*	1.197,2	324,4	1.445,5	1.139,6	343,6	1.409,0
	5*	1.234,9	329,8	1.486,5	1.175,6	349,0	1.448,3
	6	1.272,7	335,2	1.527,4	1.211,5	354,3	1.487,6
	7	1.308,6	340,9	1.567,0	1.247,9	359,6	1.527,1
	8	1.346,5	345,9	1.607,8	1.284,5	364,8	1.566,9
	9	1.384,6	351,0	1.648,8	1.319,0	370,5	1.605,0
ALR 365.4	4*	1.235,6	336,8	1.493,8	1.176,3	356,7	1.456,3
	5*	1.274,6	342,4	1.536,2	1.213,3	362,3	1.496,9
	6	1.313,6	348,0	1.578,5	1.250,4	367,9	1.537,4
	7	1.350,7	353,9	1.619,4	1.288,0	373,3	1.578,3
	8	1.389,8	359,2	1.661,5	1.325,8	378,8	1.619,4
	9	1.429,1	364,5	1.703,9	1.361,4	384,7	1.658,8
ALR 375.4	4*	1.274,0	349,3	1.542,1	1.212,8	369,9	1.503,5
	5*	1.314,2	355,1	1.585,8	1.251,0	375,7	1.545,4
	6	1.354,4	360,9	1.629,4	1.289,3	381,5	1.587,2
	7	1.392,6	367,0	1.671,6	1.328,0	387,1	1.629,4
	8	1.433,0	372,4	1.715,1	1.367,0	392,7	1.671,7
	9	1.473,5	377,9	1.758,8	1.403,7	398,9	1.712,4
ALR 390.4	4*	1.318,3	362,2	1.596,5	1.254,9	383,6	1.556,6
	5*	1.359,9	368,3	1.641,7	1.294,5	389,7	1.600,0
	6	1.401,4	374,3	1.686,9	1.334,1	395,7	1.643,3
	7	1.441,0	380,6	1.730,6	1.374,2	401,5	1.686,9
	8	1.482,8	386,3	1.775,6	1.414,5	407,3	1.730,8
	9	1.524,7	392,0	1.820,8	1.452,4	413,7	1.772,8
ALR 405.4	4*	1.362,5	375,3	1.650,9	1.297,0	397,5	1.609,8
	5*	1.405,4	381,5	1.697,6	1.337,9	403,7	1.654,5
	6	1.448,4	387,8	1.744,4	1.378,8	410,0	1.699,3
	7	1.489,3	394,4	1.789,5	1.420,3	416,0	1.744,4
	8	1.532,4	400,2	1.836,1	1.461,9	422,0	1.789,8
	9	1.575,8	406,1	1.882,8	1.501,1	428,6	1.833,3
ALR 415.4	4*	1.406,7	388,4	1.705,4	1.339,1	411,3	1.663,0
	5*	1.451,1	394,8	1.753,7	1.381,4	417,8	1.709,2
	6	1.495,5	401,3	1.801,9	1.423,6	424,2	1.755,4
	7	1.537,7	408,1	1.848,5	1.466,4	430,5	1.802,1
	8	1.582,3	414,2	1.896,6	1.509,4	436,8	1.848,9
	9	1.627,0	420,3	1.944,9	1.549,9	443,6	1.893,8
ALR 430.4	4*	1.451,1	401,4	1.759,9	1.381,4	425,1	1.716,2
	5*	1.496,9	408,1	1.809,7	1.424,9	431,8	1.763,9
	6	1.542,6	414,7	1.859,5	1.468,5	438,5	1.811,6
	7	1.586,2	421,8	1.907,6	1.512,6	444,9	1.859,7
	8	1.632,1	428,1	1.957,2	1.557,0	451,4	1.908,0
	9	1.678,3	434,3	2.007,0	1.598,8	458,4	1.954,3

(*) 10% glycol must be added.

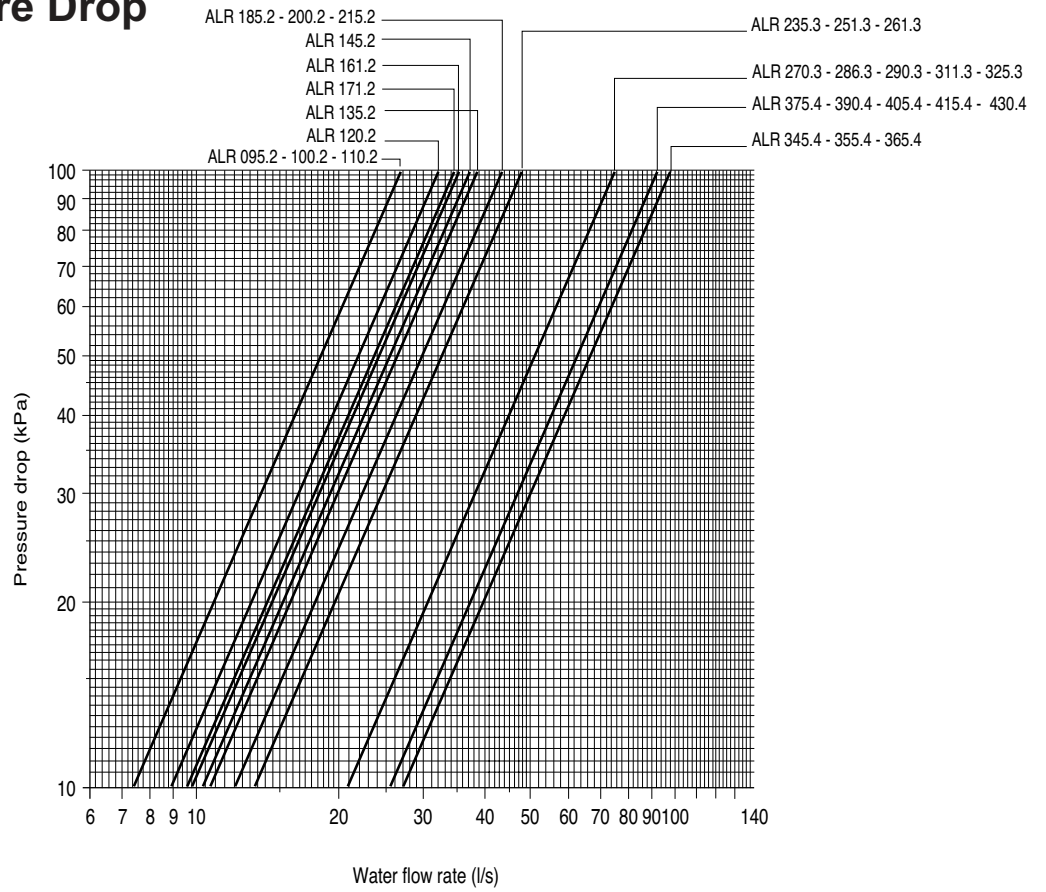
Partial heat recovery ratings ALR 095.2+430.4

ALR Unit size HCFC 22		LEAVING DESUPERHEATERS WATER TEMPERATURE °C		
		40 Heating capacity kW	45 Heating capacity kW	50 Heating capacity kW
095.2	Leaving chilled water temperature 7° DT 5 °C - Ambient tempereaure °C	72,2	61,4	51,8
100.2		75,2	64,0	54,0
110.2		78,3	66,5	56,0
120.2		95,5	81,1	68,4
135.2		105,2	89,3	75,4
145.2		115,0	97,7	82,4
161.2		119,2	101,3	85,5
171.2		133,3	113,3	95,6
185.2		141,9	120,5	101,7
200.2		151,8	128,9	108,8
215.2		161,6	137,3	115,8
235.3		177,4	150,7	127,1
251.3		186,9	158,8	133,9
261.3		195,8	166,3	140,3
270.3		204,3	173,5	146,4
286.3		212,9	180,8	152,6
290.3		222,7	189,2	159,6
311.3		232,6	197,6	166,7
325.3		244,5	207,7	175,2
345.4		258,1	219,3	185,0
355.4	266,7	226,6	191,2	
365.4	275,3	233,8	197,3	
375.4	283,8	241,1	203,4	
390.4	293,7	249,5	210,5	
405.4	303,5	257,8	217,5	
415.4	313,4	266,2	224,6	
430.4	232,3	274,6	231,7	

ALR Unit size HFC 407C		LEAVING DESUPERHEATERS WATER TEMPERATURE °C		
		40 Heating capacity kW	45 Heating capacity kW	50 Heating capacity kW
095.2	Leaving chilled water temperature 7°C DT 5 °C - Ambient temperature 35 °C	62,8	52,0	41,0
100.2		65,4	54,0	42,6
110.2		68,0	56,2	44,4
120.2		83,0	68,5	54,1
135.2		91,4	75,4	59,6
145.2		99,9	82,5	65,1
161.2		103,6	85,5	67,5
171.2		115,8	95,7	75,5
185.2		123,3	101,8	80,4
200.2		131,9	108,9	86,0
215.2		140,4	116,0	91,6
235.3		154,1	127,3	100,5
251.3		162,4	134,1	105,9
261.3		170,1	140,4	110,9
270.3		177,5	146,6	115,7
286.3		184,9	152,7	120,8
290.3		193,5	159,8	126,2
311.3		202,1	166,9	131,8
325.3		212,4	175,4	138,5
345.4		224,3	185,2	146,2
355.4	231,7	191,3	151,1	
365.4	239,2	197,5	155,9	
375.4	246,6	203,6	160,8	
390.4	255,1	210,7	166,4	
405.4	263,7	217,8	171,9	
415.4	272,3	224,8	177,5	
430.4	280,9	231,9	183,1	

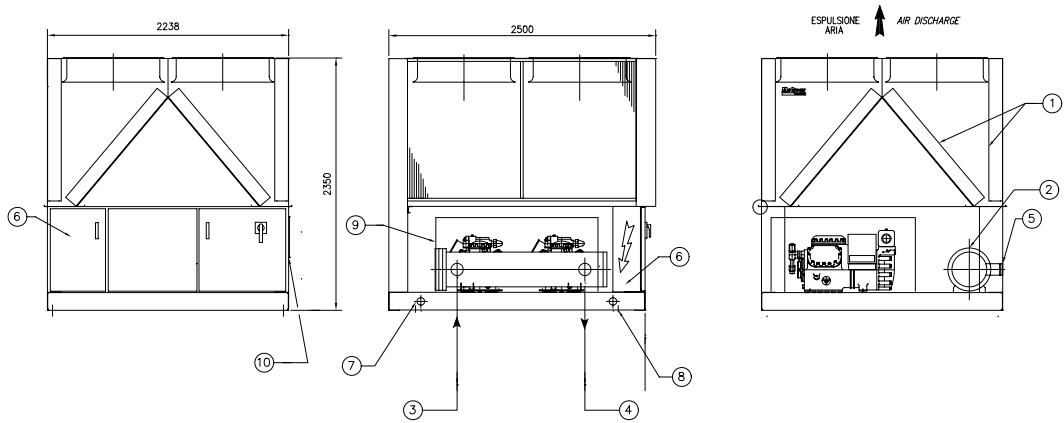
Water Pressure Drop

**HFC 407C;
HCFC 22**



Dimensions

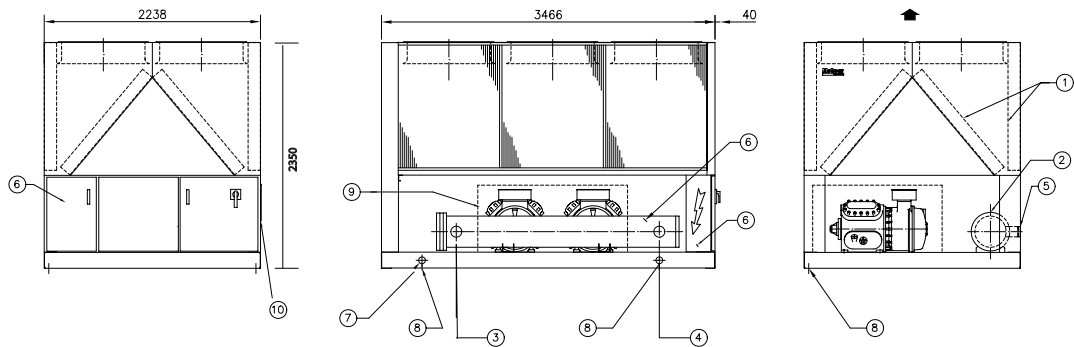
ALR 095.2+110.2 ST, LN



Legend

- 1 Coil
- 2 Exchanger
- 3 Evaporator entering water
- 4 Evaporator leaving water
- 5 5" victaulic connections for 139,7 O.D. tube

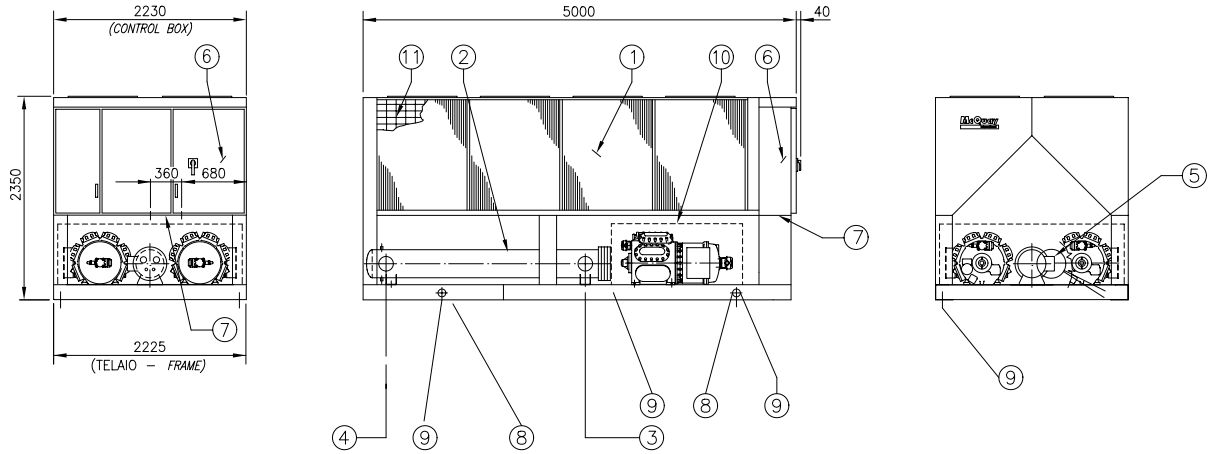
ALR 120.2-135.2 ST, CN, LN - ALR 095.2+110.2 XN



Legend

- 1 Condenser coil
- 2 Evaporator
- 3 Evaporator water inlet
- 4 Evaporator water outlet
- 5 5" victaulic connections for 139,7 O.D. tube
- 6 Operating and control panel
- 7 No. 4 lifting holes Ø 70 mm
- 8 No. 4 isolator mounting holes Ø 22 mm
- 9 Compressor enclosure (std. on CN, LN and XN versions)
- 10 360x160 slot for power and control panel connection

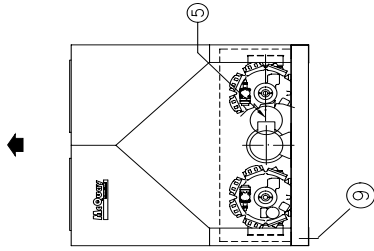
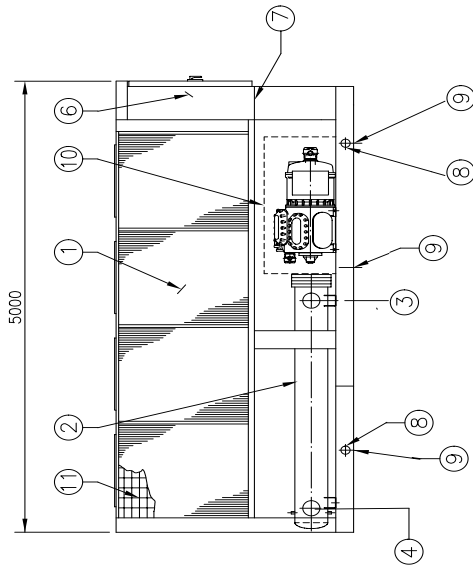
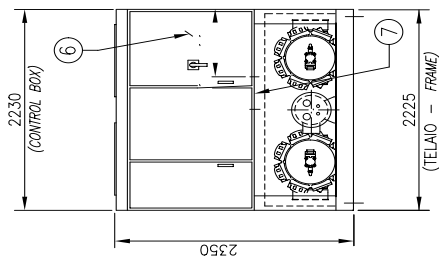
ALR 120.2-135.2 XN



Legend

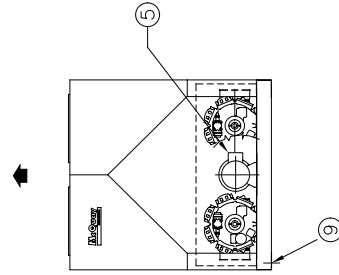
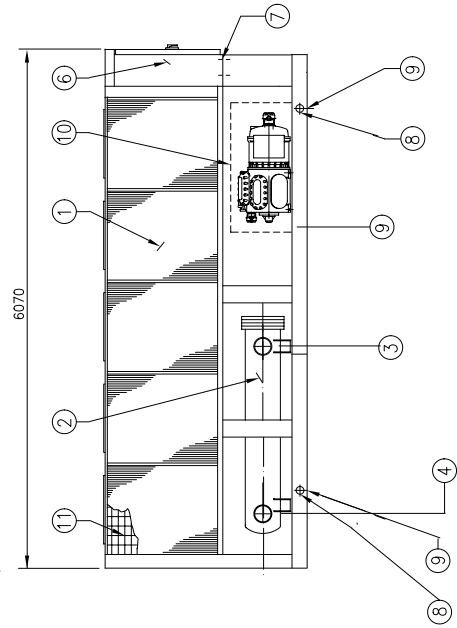
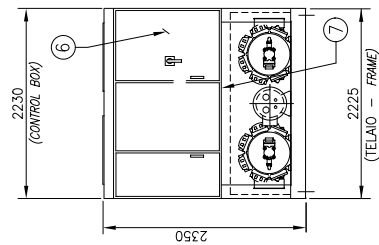
- 1 Condenser coil
- 2 Evaporator
- 3 Evaporator water inlet
- 4 Evaporator water outlet
- 5 5" victaulic connections for 139,7 O.D. tube
- 6 Operating and control panel
- 7 360x150 slot for power and control connection
- 8 No. 4 lifting holes Ø 90 mm
- 9 No. 6 isolator mounting holes Ø 25 mm
- 10 Compressor enclosure (std. on CN, LN and XN versions)
- 11 Coil protection guards (optional)

ALR 145.2+185.2 ST, CN, LN - ALR 145.2-161.2 XN

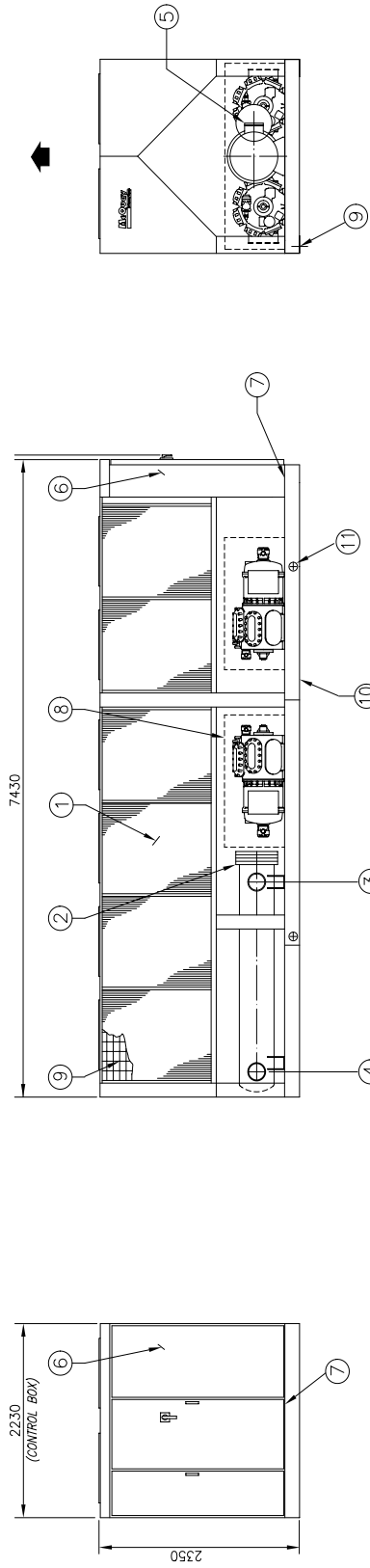


- Legend**
- 1 Condenser coil
 - 2 Evaporator
 - 3 Evaporator water inlet
 - 4 Evaporator water outlet
 - 5 8" vitaulic connections for 219,1 O.D. tube
 - 6 Operating and control panel
 - 7 360x150 slot for power and control connection
 - 8 No. 4 lifting holes Ø 90 mm
 - 9 No. 6 isolator mounting holes Ø 25 mm
 - 10 Compressor enclosure (std. on CN, LN and XN versions)
 - 11 Coil protection guards (optional)

ALR 200.2-215.2 ST, CN, LN - ALR 171.2+215.2 XN

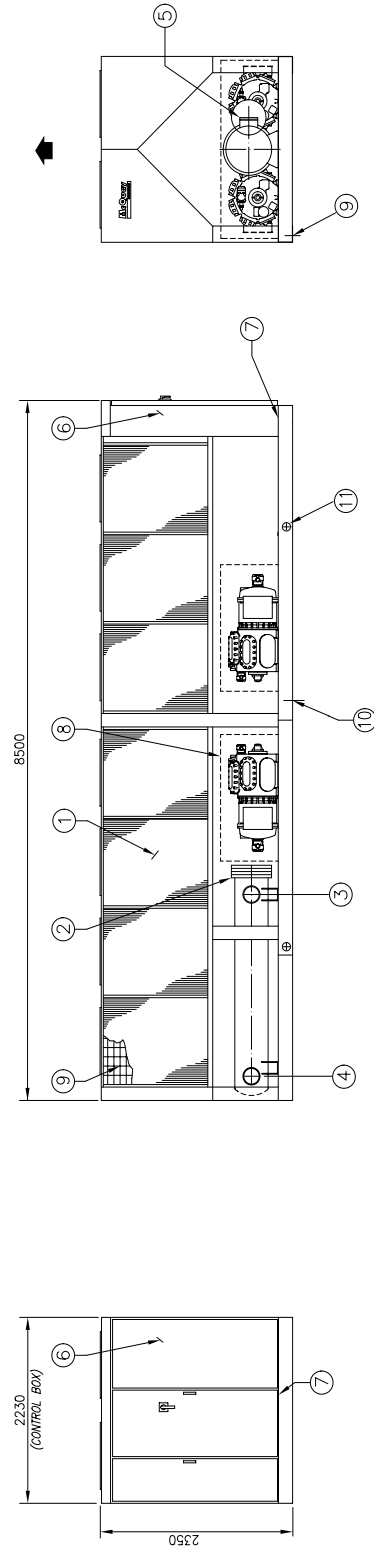


ALR 235.3+286.3 ST, CN, LN - ALR 235.3-251.3 XN

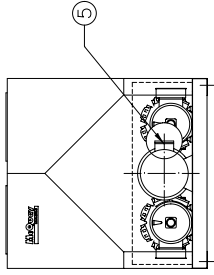
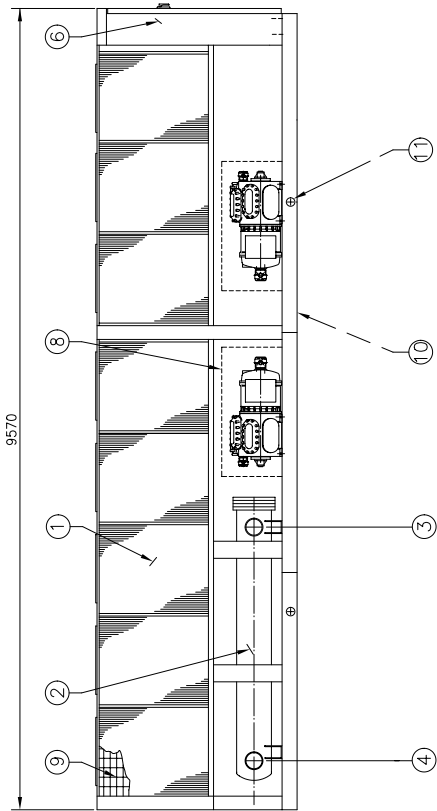
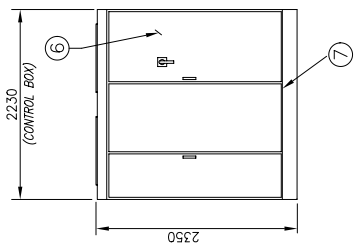


- Legend**
- 1 Condenser coil
 - 2 Evaporator
 - 3 Evaporator water inlet
 - 4 Evaporator water outlet
 - 5 8" victaulic connections for 219; 1 O.D. tube
 - 6 Operating and control panel
 - 7 360x150 slot for power and control connection
 - 8 No. 4 lifting holes \varnothing 90 mm
 - 9 No. 8 isolator mounting holes \varnothing 25 mm
 - 10 Compressor enclosure (std. on CN, LN and XN versions)
 - 11 Coil protection guards (optional)

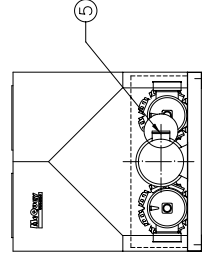
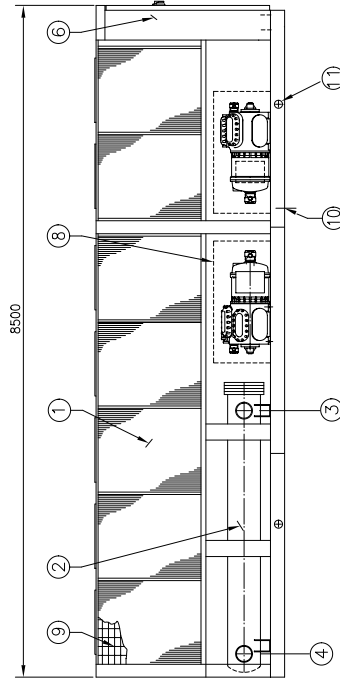
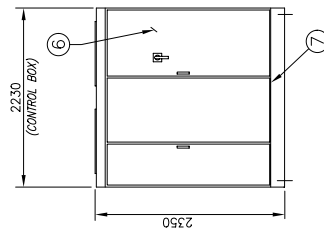
ALR 290.3 ST, CN, LN - ALR 261.3-270.3 XN



ALR 286.3-290.3 XN



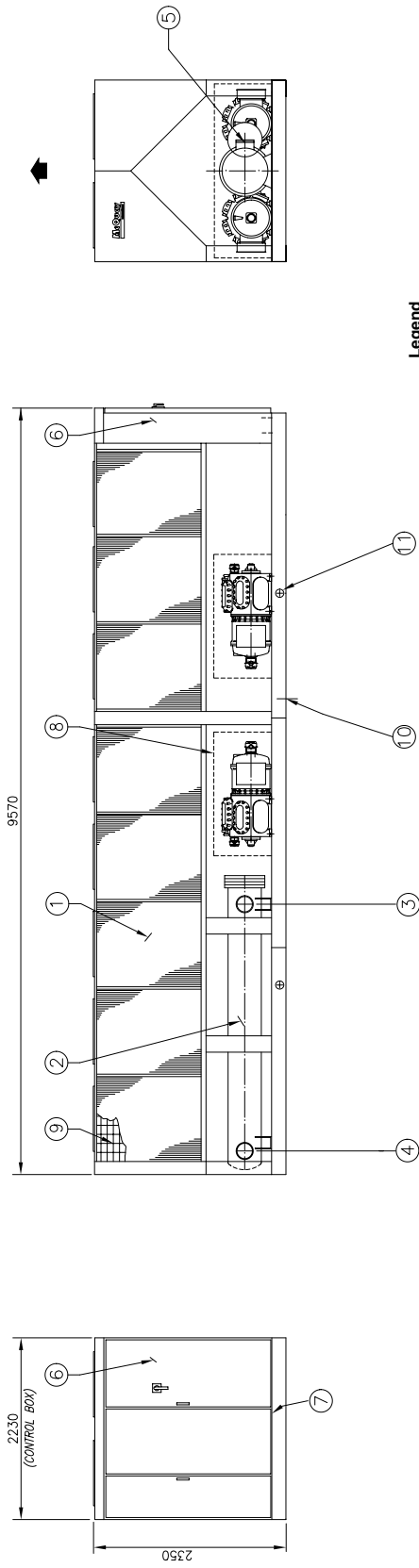
ALR 311.3 ST, CN, LN



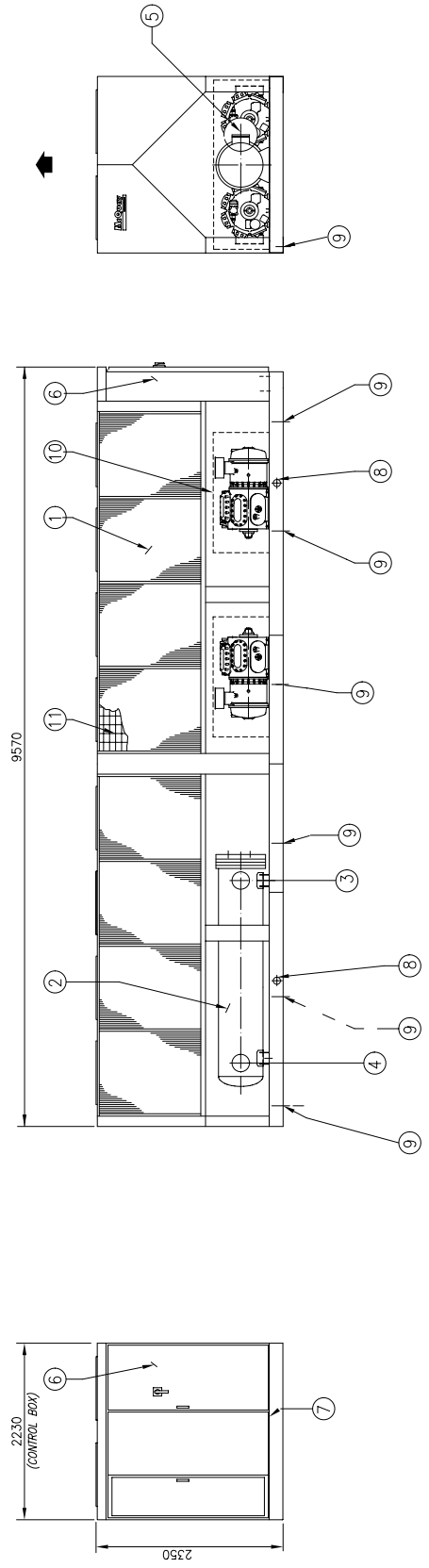
Legend

- 1 Condenser coil
- 2 Evaporator
- 3 Evaporator water inlet
- 4 Evaporator water outlet
- 5 8" victaulic connections for 219, 1 O.D. tube
- 6 Operating and control panel
- 7 360x150 slot for power and control connection
- 8 No. 4 fitting holes Ø 90 mm
- 9 No. 8 isolator mounting holes Ø 25 mm
- 10 Compressor enclosure (std. on CN, LN and XN versions)
- 11 Coil protection guards (optional)

ALR 325.3 ST, CN, LN - ALR 311.3-325.3 XN

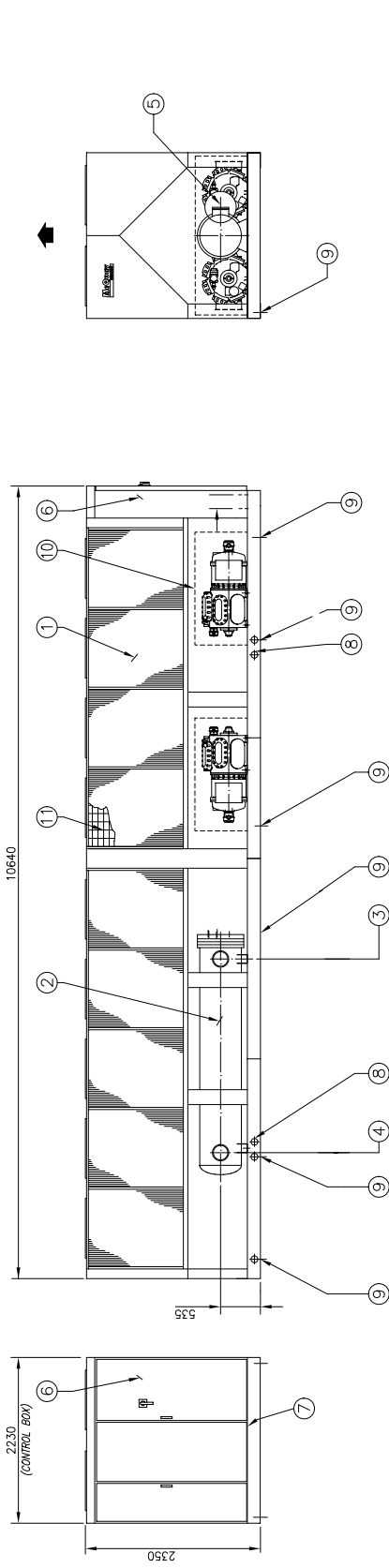


ALR 345.4+375.4 ST, CN, LN



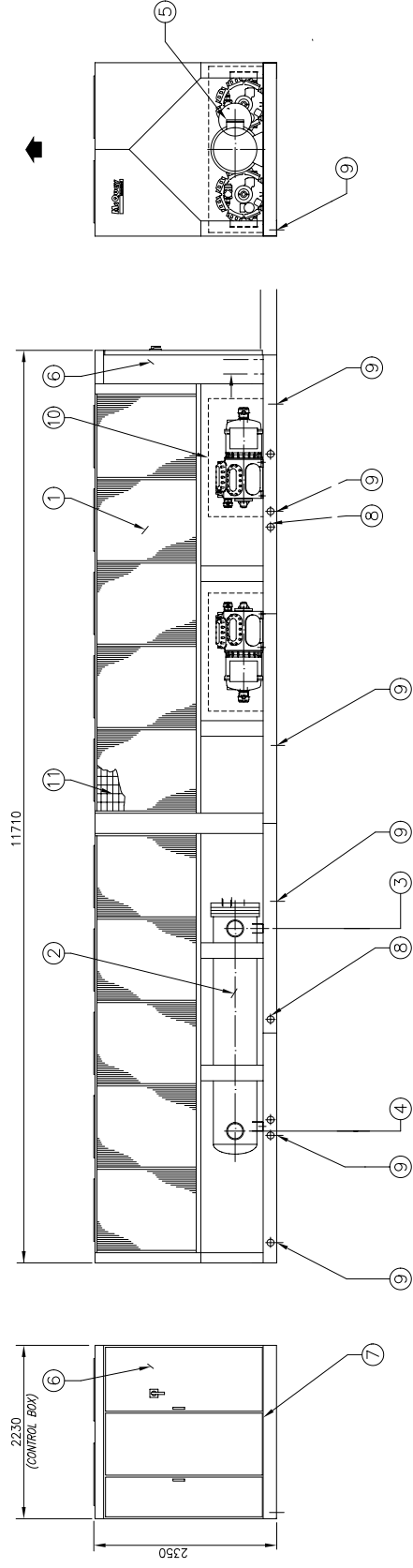
We reserve the right to make changes in design and construction at any time without notice, thus the cover picture is not binding.

ALR 390.4-405.4 ST, CN, LN - ALR 345.4+455.4 XN



- Legend**
- 1 Condenser coil
 - 2 Evaporator
 - 3 Evaporator water inlet
 - 4 Evaporator water outlet
 - 5 Victaulic connections for 219, 1 O.D. tube
 - 6 Operating and control panel
 - 7 360x150 slot for power and control connection
 - 8 No. 4 lifting holes Ø 90 mm
 - 9 No. 12 isolator mounting holes (std. on CN, LN and XN versions)
 - 10 Compressor enclosure (std. on CN, LN and XN versions)
 - 11 Coil protection guards (optional)

ALR 415.4-430.4 ST, CN, LN - ALR 365.4+430.4 XN



We reserve the right to make changes in design and construction at any time without notice, thus the cover picture is not binding.

McQuay partecipa al programma di
Certificazione Eurovent.
I prodotti interessati figurano nella Guida
Eurovent dei Prodotti Certificati.



McQuay is participating in the Eurovent
Certification Programme
Product are as listed in the Eurovent
Directory of Certified Products

McQuay[®]
International

McQuay Italia S.P.A.
S.S. Nettunense, km 12+300 – 00040 Cecchina (Roma) Italia – Tel. (06) 937311 – Fax (06) 9374014