ICG
Industrial Climatic Group

INDUSTRIAL LINE



CHILLERS | CONDENSING UNITS | CONDENSERLESS UNITS
ROOF-TOP UNITS | CLOSE CONTROL UNITS

KLT
KLIMA

MAIN INDEX

CHILLERS

- AIR COOLED WATER CHILLERS AND REVERSIBLE HEAT PUMPS — PAGE 6
  - AWCV VCAEY/R410A SCROLL COMPRESSORS
  - AWCM MCAEY/R410 SCROLL COMPRESSORS
  - AWC SCAEY/R410A SCROLL COMPRESSORS
  - AWCL SCAEY-EST/R410A SCROLL COMPRESSORS
  - AWC SCAEY-HE/R410A SCROLL COMPRESSORS
  - AWC INDOOR SCACY/R410A SCROLL COMPRESSOR
  - AWCL LCAEX/R134A SCREW COMPRESSORS
  - AWCL LCAEX-HT/R134A SCREW COMPRESSORS
- AIR COOLED WATER CHILLERS FREE COOLING SYSTEM — PAGE 110
  - AWC MCAEY-FC/R410A SCROLL COMPRESSORS
  - AWCL SCAEY-FC/410A SCROLL COMPRESSORS
  - AWC2L SCAEY FC/R410A MULTISCROLL
- WATER COOLED WATER CHILLERS AND REVERSIBLE HEAT PUMPS — PAGE 138
  - WWC MCWY/R410A SCROLL COMPRESSORS
  - WWC MCWY NR/R410A SCROLL COMPRESSORS
  - WWC SCWY/R410A SCROLL COMPRESSORS
  - WWCL LCWX/R134A COMPRESSORS
  - CONDENSERLESS UNITS — PAGE 174
    - CVCL LCLX/R134A SCREW COMPRESSORS
    - CWC SCLY/R410A SCROLL COMPRESSORS
- MULTIFUNCTION UNITS FOR 4-PIPE SYSTEMS — PAGE 204
  - AWC SCAEY FOUR/R410A SCROLL COMPRESSORS
- CONDENSING UNITS — PAGE 86
  - ACCU MMAEY/R410A SCROLL COMPRESSORS
  - ACCU 2 SMAEY/R410A SCROLL COMPRESSORS
- CLOSE CONTROL UNITS — PAGE 214
  - CCA CCUY - R410A SCROLL COMPRESSORS
  - CCA CCUY THIN - R410A SCROLL COMPRESSORS
  - CCA CCU RADIAL - R410A SCROLL COMPRESSORS
- ROOF- TOP UNITS — PAGE 244
  - RTU KRSAY R410A
  - RTU KRSAY-AE R410A

1st Edition. 09.2017

CHILLERS

CHAPTER 1 AIR COOLED WATER CHILLERS AND REVERSIBLE HEAT PUMPS

AWCV VCAEY/R410A PAGE 8
AWCM MCAEY/R410 PAGE 16
AWC SCAEY/R410A PAGE 28
AWCL SCAEY-EST/R410A PAGE 42
AWC SCAEY-HE/R410A PAGE 46
AWC INDOOR SCACY/R410A PAGE 56
AWCL LCAEX/R134A PAGE 66
AWCL LCAEX-HT/R134A PAGE 76

CHAPTER 1.1 CONDENSING UNITS

ACCU MMAEY/R410A PAGE 86
ACCU 2 SMAEY/R410A PAGE 94

CHAPTER 2 AIR COOLED WATER CHILLERS FREE COOLING SYSTEM

AWC MCAEY-FC/R410A PAGE 112
AWCL SCAEY-FC/410A PAGE 122
AWC2L SCAEY FC/R410A PAGE 134

CHAPTER 3 WATER COOLED WATER CHILLERS AND REVERSIBLE HEAT PUMPS

WWC MCWY NR/R410A PAGE 140
WWC MCWY/R410A PAGE 148
WWC SCWY/R410A PAGE 154
WWCL LCWX/R134A PAGE 164

CHAPTER 3.1 CONDENSERLESS UNITS

CWC SCLY/R410A PAGE 174
CWCL LCLX/R134A PAGE 190

CHAPTER 4 MULTIFUNCTIONAL UNITS FOR 4-PIPE SYSTEMS

AWC SCAEY FOUR/R410A PAGE 206

CHAPTER 5 CLOSE CONTROL UNITS

CCA CCUY/R410A PAGE 216
CCA CCUY THIN/R410A PAGE 234
CCA CCU RADIAL/R410A PAGE 238

CHAPTER 6 ROOF-TOP UNITS

RTU KRSAY/R410A PAGE 246
RTU KRSAY-AE/R410A PAGE 258

CHILLERS

Quality management and liability in every aspect of our production and services ensured our solid reputation between top industrial chiller manufacturers in Italy and abroad. We focus on cost-effective energy saving which are essential for heating and cooling of manufacturing and commercial buildings. KLT Klima industrial chillers and reversible heat pumps from KLT Klima is a perfect solution for thermo hygrometric comfort which is the pledge of our energy-saving portfolio.

KLT Klima catalog of chillers for industrial spaces includes machines from 13 to 1.600 kW range with various type of eco refrigerants and scroll or screw compressors. Essential choice of chillers can satisfy a wide range of needs. Special series (W, J, etc.) are also available on request.

The reversible heat pumps air/water represent an excellent solution to reach both high performance and cost-effective efficiency.

Latest innovations in the field of industrial air-conditioning together with high quality materials use define our chillers on both local and international market. Particular attention to every detail as well as environmental protection awareness is only some of characteristics that contribute KLT Klima's products to stand out in the market.

Discover the wide range of industrial chillers produced by KLT Klima and contact our technical team to find the best solution in line with your demands.

AIR COOLED WATER CHILLERS AND REVERSIBLE HEAT PUMPS

AWCV VCAEY/R410A

CHAPTER 1

SCROLL COMPRESSORS / INVERTER TECHNOLOGY

- **Air cooled water chillers**
- **Air cooled reversible heat pumps**
- **from 20 kW to 130 kW**
- **Refrigerant variable speed**

MADE IN ITALY

IDENTIFICATION CODE

VCAEY–H – 60.1 – PAC1	
12345 6 7 8 9	
1 V	Scroll variable refrigerant
2 C	Chiller unit
3 A	Air cooled
4 E	Axial fans with inverter
5 Y	Refrigerant R 410A
6 H	Heat pump version
7 60	Capacity factors
8 1	Number of circuits
9 PAC	Storage tank
P1	1 inverter pump
P2	2 inverter pumps
PAC1	Storage tank + 1 inverter pump
PAC2	Storage tank + 2 inverter pumps
LN	Low noise
VLN	Very low noise



GENERAL FEATURES

FRAME

Self-supporting galvanized steel frame protected with polyester powder painting. Panels are easily removable for maintenance and service activities.

COMPRESSORS variable speed

Hermetic "scroll inverter driven", with overload protection by a klixon and complete with oil sight glass. They are installed on vibrations absorbing rubbers.

EVAPORATOR

Braze welded plate type with one or two independent refrigerant circuits and one water circuit.

The circuit is made to guarantee an homogeneous cooling of all water flow even during partial load. The insulation is made of flexible closed-cells lining. As protection, a differential pressure switch is mounted to stop the unit in case of no water circulation.

CONDENSER

Copper tube and aluminium finned coil. As option a protection grid is available.

(EC) INVERTER AXIAL FANS

Condensing control included Axial fans with aerodynamic outline blade section, directly coupled to a three phase electric motor with external rotor. A safety fan guard is fitted on air flow discharge.

REFRIGERANT CIRCUIT

Each unit is equipped with one or two refrigerant circuits.

Each circuit includes: filter dryer, sight glass, Electronic thermostatic valve, Schrader service valve. To protect the refrigerant circuit following devices are installed: man. reset high pressure switch, aut. reset low pressure switch, antifreeze thermostat.

The Heat Pump Units version contain, in addition: safety thermostat on the discharge line, 4-way valve, non-return valve, two electronic thermostatic valves, liquid receiver and, if necessary, liquid separator on the compressor suction line.

ELECTRICAL BOARD

With protection grade IP54 the el. board is mounted in the compressor chamber. Service activities can be done while the unit is in operation. It includes: main circuit automatic breaker with locking door device, compressors and fans contactors and relé, auxiliary circuit transformer.

Microprocessor to control automatically the unit with a visual system to display the function as well as failures.

Separate frequency-controlled inverter compressors mounted in special compartment.

VERSIONS

Inverter hydraulic pump P1 or P2

This version is equipped with hydraulic kit. It includes: one or two INVERTER pumps (one as stand-by), expansion vessel, gauge, flow switch, safety valve, air purger, shut off valve and hydraulic circuit insulated. In case of stand-by pump a non-return valve is mounted. Relevant electrical circuit.

As option, pumps with higher ESP are available.

PAC

This version is equipped with hydraulic kit and inertial storage tank insulated and installed.

LN

Low noise version. It includes: special soundproofing on the compressors.

VLN

Very low noise version. Further to the LN devices, this version is equipped with low speed fans.

OPTIONS

- Power factor correction
- Remote control panel
- Clock card
- RS 485 card (protocol: Lonwork, Bacnet,Trend)
- Evaporator el. heater
- El. Heater PAC version.
- Discharge and liquid line shut-off valves
- HP/LP gauges
- Epoxy coating on condenser
- Flow switch (STD in P and PAC versions)
- Pump shut off valve
- Inverter hydraulic Pumps with higher ESP
- Protection grid/filter condenser (protection grid only in H-units)
- Rubber AV mounts
- Spring antivibrator mountings
- Wooden crate

BENEFITS

"KLT Klima" introduces the new series VCAEY: air cooled chillers, heat pump version, with refrigerant R410A equipped with variable speed compressor, inverter driven.

PURPOSE

Suppling of cooling capacity with minimum abs. power , according to effective requirement of the thermal load; thanks to projects of more advanced technologies, which also allow continuous operation of unit at low operating costs.

ENERGY SAVING

Thanks to variable speed compressors the VCAEY series allows to save 20% absorbed current compared to the traditional systems.

FLEXIBILITY

The series VCAEY is designed to meet at anytime the necessary cooling capacity according to the requested load. Inverter hydraulic pump included.

TECNOLOGY

The compressor speed is controlled by a dedicated inverter that keeps the frequency between 30 to 90 Hz, so that the consumption is reduced matching the user request.

VERY LOW NOISE

The series VCAEY uses the most innovative market solutions to reduce the overall noise of the unit.





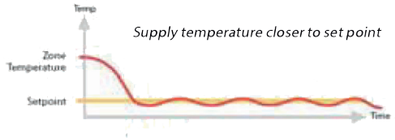


BENEFITS



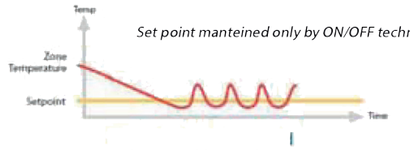
- High system efficiency to address future energy efficiency challenges
- Significant end user benefits in more comfort & lower pay-back time
- Significant noise reduction at night and during partial load condition
- Increased reliability: the number of start/stop is drastically decreased resulting in a reduction of mechanical and electrical stress and wear





Supply temperature closer to set point

with variable speed



Set point manteined only by ON/OFF technology

without variable speed

- Power factor correction and built-in compressors soft starter
- Programmable logic controller for the total system management and easy user interface
- Possibility of advanced control and monitoring of optimal operating conditions
- Possibility of supervision and communication with BMS systems



TECHNICAL DATA

SIZE			25.1	40.1	45.1	60.1	70.1
Cooling mode STD							
Max cooling capacity	(1)	kW	20	34	42	54	60
Absorbed power	(2)	kW	6.3	10.8	12.2	18.5	18.9
EER	(2)	-	3.17	3.14	3.44	2.91	3.17
EUROVENT Class			A	A	A	A	A
Heating mode							
Max heating capacity	(1)	kW	23	38	46	60	67
Absorbed power	(2)	kW	6.7	11.8	13.1	18.2	19.8
COP	(2)	-	3.43	3.22	3.51	3.29	3.38
EUROVENT Class			A	A	A	A	A
Compressors (scroll)							
Quantity ON/OFF		n°	-	-	1	1	2
Quantity INVERTER			1	1	1	1	1
Refrigerant circuits		n°	1				
Modulation capacity		%	30 - 90				
Refrigerant type		-	R410A				
Refrigerant quantity		kg	6	6	8	8	10
Plate to plate evaporator							
Water flow rate		m^3/h	3.4	5.8	7.2	9.2	10.3
Pressure drop		kPa	10	18	24	20	24
Water volume		l	1.5	1.5	4	4	4
Water connections		Ø	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
PAC Version (inverter driven pump)							
Storage tank water volume		l	100	100	200	200	200
Water pump nominal power	(3)	kW	0.37	0.55	0.75	0.75	0.75
Water pump nominal current	(3)	A	1.5	1.7	2.2	2.2	2.2
External static pressure	(3)	kPa	120	110	110	100	90
Water connections		Ø	1"1/2	1"1/2	1"1/2	1"1/2	1"1/2
Condenser (STD / EC fans)							
Axial fan		n°	1	2	2	2	2
Max abs. power		kW	0.4	0.8	0.8	1.5	1.5
Max aborbed current		A	1.7	3.4	3.4	3.2	3.2
Unit electrical data							
Max aborbed current	(4)	A	23	33	35	43	46
Max LRC	(4)	A	-	-	130	140	145
Electrical supply		V/f/Hz	400/3/50				
Sound pressure level at 1m	(4)(5)						
STD Version		dB(A)	65	67	67	69	69
LV Version		dB(A)	63	65	65	66	66
VLN Version		dB(A)	Contattare la sede - Contact factory				

Notes:
1) Cooling mode: water temperature 12°C / 7°C; air temperature 35 °C;
Heating mode : water temp. 40°C / 45°C; air temp. 7°C db, 6°C wb;
2) Compressors + fans only. No water pump(s);
3) Only for water flow declared
4) Without water pump(s), STD version;
5) Compressors side and free field.

TECHNICAL DATA

SIZE			80.1	90.2	120.2	130.2
Cooling mode STD						
Max cooling capacity	(1)	kW	71	83	111	122
Absorbed power	(2)	kW	23.5	24.3	39.8	38
EER	(2)	-	3.02	3.41	2.78	3.21
EUROVENT Class			B	A	C	A
Heating mode						
Max heating capacity	(1)	kW	78	88	119	134
Absorbed power	(2)	kW	22.9	25.7	36.7	36.3
COP	(2)	-	3.40	3.42	3.24	3.69
EUROVENT Class			A	A	A	A
Compressors (scroll)						
Quantity ON/OFF		n°	2	2	2	2
Quantity INVERTER			1	2	2	2
Refrigerant circuits		n°	2			
Modulation capacity		%	30 - 90			
Refrigerant type		-	R410A			
Refrigerant quantity		kg	16	18	20	20
Plate to plate evaporator						
Water flow rate		m^3/h	12.2	14.2	19	20.9
Pressure drop		kPa	20	18	30	30
Water volume		l	8	10	10	10
Water connections		Ø	2"1/2	2"1/2	2"1/2	2"1/2
PAC Version (inverter driven pump)						
Storage tank water volume		l	200	300	300	300
Water pump nominal power	(3)	kW	0.75	0.75	1.1	1.5
Water pump nominal current	(3)	A	2.2	2.2	3.5	5
External static pressure	(3)	kPa	80	110	85	100
Water connections		Ø	1"1/2	2"	2"	2"
Condenser (STD / EC fans)						
Axial fan		n°	2	4	4	4
Max abs. power		kW	1.5	3	3	3
Max aborbed current		A	3.2	6.4	6.4	6.4
Unit electrical data						
Max aborbed current	(4)	A	52	58	82	86
Max LRC	(4)	A	152	165	195	200
Electrical supply		V/f/Hz	400/3/50			
Sound pressure level at 1m	(4)(5)					
STD Version		dB(A)	70	74	74	74
LN Version		dB(A)	67	72	72	72
VLN Version		dB(A)	Contattare la sede - Contact factory			

Notes:
1) Cooling mode: water temperature 12°C / 7°C; air temperature 35 °C;
Heating mode : water temp. 40°C / 45°C; air temp. 7°C db, 6°C wb;
2) Compressors + fans only. No water pump(s);
3) Only for water flow declared
4) Without water pump(s), STD version;
5) Compressors side and free field.

OPERATING RANGE

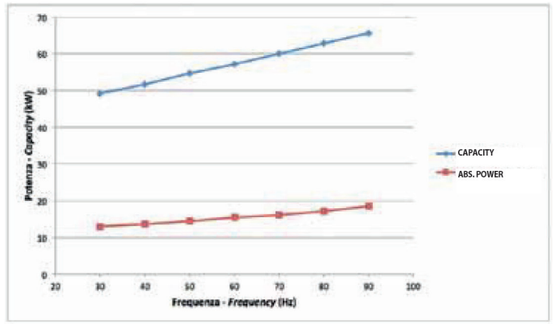
		Cooling	Heating
INLET WATER TEMPERATURE	Max °C	17	45
	Min °C	9	30
INLET WATER TEMPERATURE	Max °C	10	50
	Min °C	5	30
AMBIENT AIR TEMPERATURE	Max °C	42	20
	Min °C	-15	-5

CORRECTION FACTORS

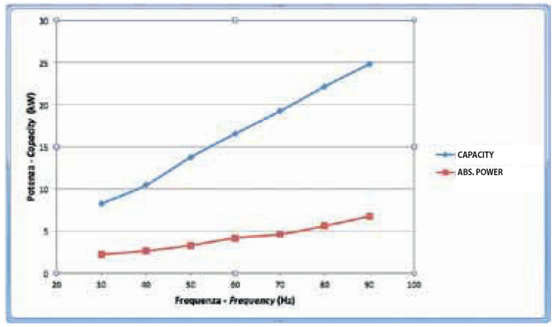
Ethylene glycol persentage by weight (%)	10	20	30
Freezing point (°C)	-3,6	-8,7	-15,3
Cooling capacity	0,986	0,980	0,973
Absorbed Power	1,000	0,995	0,990
Mixture flow rate	1,023	1,054	1,092
Pressure drop	1,061	1,114	1,190

NOTES: verify the standard hydraulic pumps with water glycol use

Unit modulation with INVERTER and ON/OFF compressors

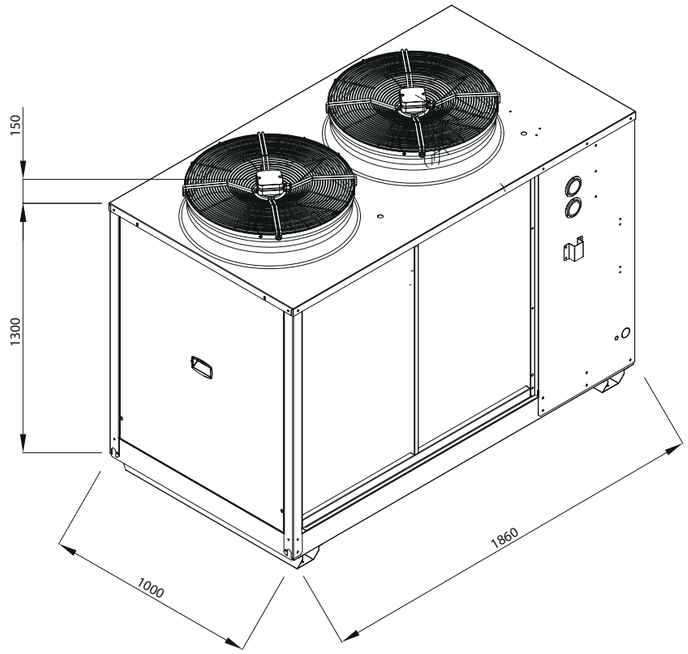


Modulazione unità con compressori INVERTER
Unit modulation with only INVERTER compressor



Example hydraulic circuit inside units





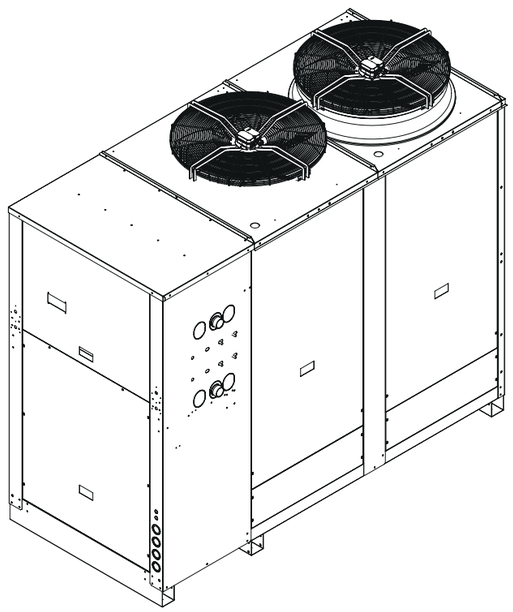
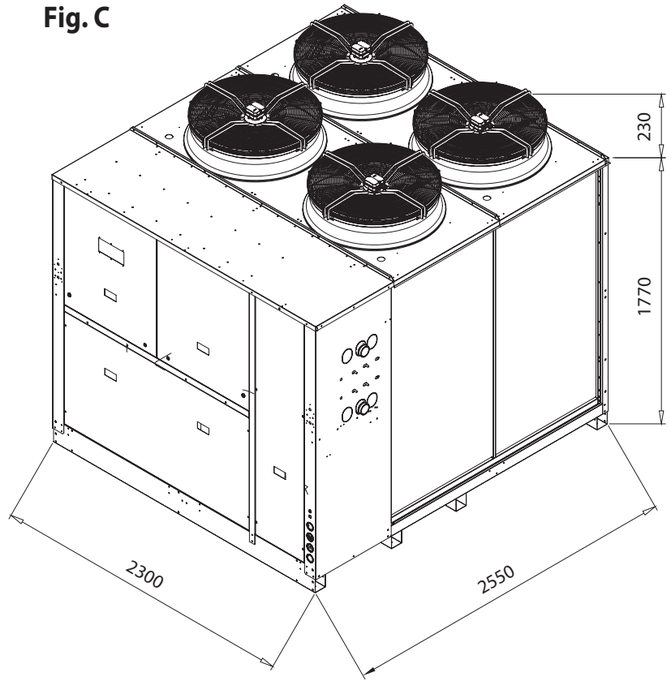


Fig. C



VERSION	STD / LN								
Mod.	**25.1**	**40.1**	**45.1**	**60.1**	**70.1**	**80.1**	**90.2**	**120.2**	**130.2**
Fig.	A	A	B	B	B	B	C	C	C
Standard									
Operation (1)	550	650	900	1000	1200	1290	1580	1620	1700
Transport	550	650	900	1000	1200	1290	1580	1620	1700
P1 Version									
Operation	575	675	980	1100	1260	1340	1620	1690	1780
Transport	575	675	980	1100	1260	1340	1620	1690	1780
PAC1 Version									
Operation	775	875	1300	1400	1630	1700	2080	2190	2250
Transport	650	735	1080	1180	1380	1480	1770	1840	1920

(1) The data has to be added to the evaporator water volume with regards to the selected model.

Technical data shown in this booklet are not binding. KLT Klima S.r.l reserves the right to modify data without any prior notice.

CHAPTER 1

SCROLL COMPRESSORS

- **Air cooled water chillers**
- **Air cooled reversible heat pumps**
- **from 13 kW to 55 kW**
- **Axial fan**

MADE IN ITALY

IDENTIFICATION CODE

M	C	A	E	Y	–	25	/	1	–	H	P	A	C
1	2	3	4	5		6		7		8	9	10	

1	**M**	Mini series < 60 kW
2	**C**	Chiller unit
3	**A**	Air cooled
4	**E**	Axial fans
5	**Y**	Refrigerant R410A
6	**-**	Scroll compressors
7	**25**	Power factors
8	**1**	Numbers of circuits
9	**-**	Cooling only version
	H	Heating pump version
10	**PAC**	Storage tank + pump
	P1	1 pump
	P2	2 pumps
	DS	Desuperheater
	LN	Low noise



GENERAL FEATURES

FRAME
Self-supporting galvanized steel frame protected with polyester powder painting. Panels are easily removable for maintenance and service activities.

COMPRESSORS
Hermetic «scroll» type with overload protection by a klixon and complete with oil sight glass. They are installed on vibrations absorbing rubber and placed within a closed compartment to reduce sound level and to allow service and maintenance activities while unit is in operation.

EVAPORATOR
Brazewelded plate type. The circuit is made to guarantee an homegeneous cooling of all the water flow even during partial load. The insulation is made of flexible closed-cells lining. It is advisable to fit a differential pressure switch which will stop the unit in case there is no water circulation on the plate to plate evaporator.

CONDENSER
Copper tube and aluminium finned coil. As option a protection grid is available.

FANS
Axial fans with aerodynamic outline blade section made of Al/Mg, directly coupled to a single-phase electric motor with external rotor. A safety fan guard is fitted on air flow discharge.

REFRIGERANT CIRCUIT
Each unit is supplied with: filter dryer, sight glass, thermostatic expansion valve, service valve. To protect the refrigerant circuit the following devices are installed: manual reset high pressure switch and automatic reset low pressure switch, antifreeze thermostat.

The heat pump units version (MCAEY…H) contain, in addition: safety thermostat on compressor discharge line, 4-ways valve, check valve, solenoid valve, liquid receiver.

ELECTRICAL BOARD
Weather proof type with protection grade IP54 installed in the compressor box to enable service and maintenance activities while unit is in operation. It includes:

• Main circuit automatic breaker with locking door device, main fuses, compressor contactor, fans fuses and contactors, auxiliary circuits trafo. Microprocessor to control automatically the unit with a visual system to display the function as well as failures.

VERSIONS

DS

Partial condensing heat recovery. It includes a desuperheater insulated and installed in series between the compressor and the condenser

RCS - RCP On request.

P

Hydraulic kit version. It includes: one pump, expansion vessel, safety valve, hydraulic circuit insulated and flowswitch. Relevant electrical circuit. As option, pumps with higher ESP are available.

PAC

Version with hydraulic kit and storage tank. It includes, further to what included in the P version, a storage tank installed on the return line.

LN

Low noise version, it includes: pressostatic fan speed control, compressor insulated with a high sound absorbing layer.

VLN On request.

Options
- Fans speed regulator
- Remote control panel
- Programmer clock
- RS 485 card
- Evaporator electric heater
- Evaporator electric heater for PAC version
- Compressor suction and liquid line shut-off valves
- HP / LP gauges
- Cu/Cu condensing coils
- Differential pressure switch (standard mounted on P and PAC versions)
- Pump shut off valve
- Water pumps with higher ESP
- Protection grid/filter condenser (protection grid only in H-units)
- Rubber AV mounts
- Spring AV mounts
- Wooden crate packing
- (EC) inverter axial fans

TECHNICAL DATA

SIZE			15/1	17/1	19/1	21/1	25/1
Cooling mode AWCM							
Cooling capacity	(1)	kW	15	17	19	21	24
Abs. power	(2)	kW	4.6	5.4	6.4	6.5	7.7
EER	(2)	-	3.2	3	3	3.2	3.1
Heating mode AWCM...H							
Heating capacity	(1)	kW	16.5	19	21.5	24	27
Abs. power	(2)	kW	5.5	6.3	7.1	7.4	8.5
COP	(2)	-	3	3	3	3.2	3.1
Compressors (scroll)							
Quantity		n°	1				
- Refrigerant circuit		n°	1				
Capacity step		n°	1				
Refrigerant		-	R410A				
- Refrigerant quantity		Kg	5	5	5	7	7
Plate to plate evaporator							
Water flow rate		m^3/h	2.5	2.9	3.3	3.6	4.1
Pressure drop		kPa	10	11	10	11	10
Water volume		l	0.5	0.6	0.7	0.8	0.9
- Water connections		Ø	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
Version							
Storage Tank water volume		l	100	100	100	100	100
Water pump nominal power	(3)	kW	0.37	0.37	0.37	0.37	0.37
Water pump nominal current	(3)	A	1.5	1.5	1.5	1.5	1.5
ESP	(3)	kPa	145	140	130	120	110
Water connections		Ø	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
Condenser (STD / LN)							
Axial fan		n°	1	1	1	1	1
Max abs. power		kW	0.5	0.5	0.5	0.5	0.5
max abs. current		A	2.5	2.5	2.5	2.5	2.5
Unit eletrical data							
Max Abs. Current	(4)	A	19	23	23	24	29
Max LRC	(4)	A	72	83	109	109	119
Electrical supply		V/f/Hz	400 / 3+N / 50				
Sound pressure level at 1m	(4) (5)						
Version STD		dB(A)	66	66	67	65	65
Version LN		dB(A)	64	64	65	63	63
Version VLN		dB(A)	Contattare sede / Contact factory				

Notes:

1) Cooling mode: water temperature 12/7°C; air temperature 35°C;
Heating mode: water temperature 40/45°C; air temperature 7°C db, 6°C wb
2) Compressors + fans only. No water pump(s)
3) Only for water flow declared
4) Without water pump(s), STD version
5) Compressor site and hemispheric free field.

TECHNICAL DATA

SIZE			30/1	35/1	40/1	45/1	50/1
Cooling mode AWCM							
Cooling capacity	(1)	kW	29.5	32.5	36	44	52.5
Abs. power	(2)	kW	8.6	9.8	11.4	13	17.7
EER	(2)	-	3.4	3.3	3.1	3.3	2.9
Heating mode AWCM...H							
Heating capacity	(1)	kW	33	36	40	48.5	59
Abs. power	(2)	kW	10.6	11.5	12.8	14.7	18.9
COP	(2)	-	3.1	3.1	3.1	3.1	3.1
Compressors (scroll)							
Quantity		n°	1				
- Refrigerant circuit		n°	1				
Capacity step		n°	1				
Refrigerant		-	R410A				
- Refrigerant quantity		Kg	8	8	10	10	10
Plate to plate evaporator							
Water flow rate		m^3/h	5.1	5.6	6.2	7.5	9
Pressure drop		kPa	15	10	15	15	17
Water volume		l	1	1.1	1.3	1.3	1.6
- Water connections		Ø	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
Version							
Storage Tank water volume		l	100	100	100	100	100
Water pump nominal power	(3)	kW	0.55	0.55	0.55	0.55	0.55
Water pump nominal current	(3)	A	1.7	1.7	1.7	1.7	1.7
ESP	(3)	kPa	130	120	105	95	60
Water connections		Ø	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
Condenser (STD / LN)							
Axial fan		n°	2	2	2	2	2
Max abs. power		kW	1	1	1	1	1
max abs. current		A	5	5	5	5	5
Unit eletrical data							
Max Abs. Current	(4)	A	32	35	41	44	50
Max LRC	(4)	A	128	128	150	184	235
Electrical supply		V/f/Hz	400 / 3+N / 50				
Sound pressure level at 1m	(4) (5)						
Version STD		dB(A)	67	67	68	68	70
Version LN		dB(A)	65	65	66	66	68
Version VLN		dB(A)	Contattare sede / Contact factory				

Notes:

1) Cooling mode: water temperature 12/7°C; air temperature 35°C;
Heating mode: water temperature 40/45°C; air temperature 7°C db, 6°C wb
2) Compressors + fans only. No water pump(s)
3) Only for water flow declared
4) Without water pump(s), STD version
5) Compressor site and hemispheric free field.

COOLING CAPACITY AND ABSORBED POWER

MOD.	EVAP	CONDENSER Ambient air temp. °C													
	Tw °C out.	26		29		32		35		38		41		44	
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
15/1	5	15,65	3,31	15,17	3,55	14,67	3,80	14,19	4,05	13,53	4,38	12,89	4,72	12,23	5,06
	6	16,10	3,34	15,60	3,58	15,09	3,58	14,60	4,08	13,94	4,41	13,28	4,75	12,62	5,09
	7	16,55	3,37	16,04	3,61	15,51	3,61	**15,00**	**4,10**	14,49	4,44	13,67	4,78	13,01	5,12
	8	17,01	3,41	16,49	3,65	15,96	3,65	15,44	4,13	14,76	4,47	14,07	4,81	13,40	5,15
	9	17,48	3,44	16,94	3,68	16,41	3,68	15,87	4,17	15,18	4,51	14,49	4,85	13,79	5,18
	10	17,94	3,48	17,39	3,71	16,85	3,71	16,31	4,20	15,60	4,54	14,90	4,88	14,19	5,22
17/1	5	17,73	3,96	17,19	4,25	16,63	4,54	16,08	4,84	15,33	5,24	14,60	5,64	13,86	6,05
	6	18,24	3,99	17,68	4,28	17,10	4,28	16,54	4,87	15,79	5,27	15,05	5,68	14,30	6,08
	7	18,75	4,03	18,17	4,32	17,58	4,32	**17,00**	**4,90**	16,42	5,31	15,49	5,71	14,74	6,12
	8	19,28	4,07	18,68	4,36	18,09	4,36	17,49	4,94	16,73	5,35	15,95	5,75	15,18	6,15
	9	19,81	4,11	19,19	4,40	18,60	4,40	17,99	4,98	17,20	5,39	16,42	5,79	15,62	6,19
	10	20,33	4,16	19,70	4,44	19,09	4,44	18,48	5,02	17,68	5,42	16,88	5,83	16,08	6,23
19/1	5	19,82	4,77	19,21	5,12	18,58	5,47	17,97	5,82	17,14	6,31	16,32	6,80	15,49	7,28
	6	20,39	4,81	19,76	5,16	19,11	5,16	18,49	5,86	17,65	6,35	16,82	6,84	15,98	7,32
	7	20,96	4,85	20,31	5,20	19,65	5,20	**19,00**	**5,90**	18,35	6,39	17,31	6,88	16,47	7,36
	8	21,55	4,90	20,88	5,25	20,22	5,25	19,55	5,95	18,70	6,44	17,82	6,93	16,97	7,41
	9	22,14	4,95	21,45	5,30	20,79	5,30	20,10	5,99	19,23	6,48	18,35	6,97	17,46	7,46
	10	22,72	5,00	22,02	5,35	21,34	5,35	20,65	6,04	19,76	6,53	18,87	7,02	17,97	7,50
21/1	5	21,90	4,85	21,23	5,20	20,54	5,56	19,87	5,92	18,94	6,41	18,04	6,91	17,12	7,40
	6	22,53	4,89	21,84	5,24	21,13	5,24	20,43	5,96	19,51	6,46	18,59	6,95	17,66	7,45
	7	23,16	4,93	22,45	5,29	21,71	5,29	**21,00**	**6,00**	20,29	6,50	19,13	7,00	18,21	7,49
	8	23,81	4,99	23,08	5,34	22,34	5,34	21,61	6,05	20,66	6,55	19,70	7,04	18,75	7,54
	9	24,47	5,03	23,71	5,39	22,97	5,39	22,22	6,10	21,25	6,59	20,29	7,09	19,30	7,58
	10	25,12	5,09	24,34	5,44	23,58	5,44	22,83	6,14	21,84	6,64	20,85	7,14	19,87	7,63
25/1	5	25,03	5,82	24,26	6,24	23,47	6,67	22,70	7,11	21,65	7,70	20,62	8,29	19,56	8,88
	6	25,75	5,87	24,96	6,29	24,14	6,29	23,35	7,16	22,30	7,75	21,24	8,34	20,18	8,94
	7	26,47	5,92	25,66	6,34	24,82	6,34	**24,00**	**7,20**	23,18	7,80	21,86	8,40	20,81	8,99
	8	27,22	5,98	26,38	6,41	25,54	6,41	24,70	7,26	23,62	7,86	22,51	8,45	21,43	9,04
	9	27,96	6,04	27,10	6,47	26,26	6,47	25,39	7,32	24,29	7,91	23,18	8,51	22,06	9,10
	10	28,70	6,11	27,82	6,52	26,95	6,52	26,09	7,37	24,96	7,97	23,83	8,57	22,70	9,16

Notes:
Tw - Outlet water temperature evaporator (delta T 5 °C)
kWf - Cooling capacity
kWa - Absorbed power

COOLING CAPACITY AND ABSORBED POWER

MOD.	EVAP	CONDENSER Ambient air temp. °C													
	Tw °C out.	26		29		32		35		38		41		44	
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
30/1	5	30,77	6,14	29,82	6,59	28,85	7,05	27,91	7,50	26,61	8,12	25,34	8,76	24,04	9,38
	6	31,65	6,19	30,68	6,64	29,68	6,64	28,70	7,55	27,41	8,18	26,11	8,81	24,81	9,43
	7	32,54	6,25	31,54	6,70	30,50	6,70	**29,50**	**7,60**	28,50	8,23	26,87	8,86	25,58	9,48
	8	33,45	6,32	32,42	6,76	31,39	6,76	30,36	7,66	29,03	8,29	27,67	8,92	26,34	9,55
	9	34,37	6,38	33,31	6,82	32,27	6,82	31,21	7,72	29,85	8,35	28,50	8,98	27,11	9,61
	10	35,28	6,44	34,19	6,89	33,13	6,89	32,07	7,78	30,68	8,41	29,29	9,04	27,91	9,67
35/1	5	33,90	7,11	32,86	7,63	31,79	8,16	30,75	8,69	29,32	9,41	27,92	10,14	26,49	10,86
	6	34,87	7,17	33,80	7,69	32,70	7,69	31,62	8,75	30,19	9,47	28,76	10,20	27,33	10,92
	7	35,85	7,23	34,74	7,75	33,61	7,75	**32,50**	**8,80**	31,40	9,53	29,61	10,26	28,18	10,98
	8	36,86	7,31	35,72	7,83	34,58	7,83	33,44	8,87	31,98	9,60	30,49	10,33	29,02	11,05
	9	37,86	7,38	36,69	7,90	35,56	7,90	34,39	8,94	32,89	9,67	31,40	10,40	29,87	11,12
	10	38,87	7,46	37,67	7,97	36,50	7,97	35,33	9,01	33,80	9,74	32,27	10,47	30,75	11,19
40/1	5	37,55	8,40	36,40	9,02	35,21	9,64	34,06	10,26	32,47	11,12	30,92	11,98	29,34	12,83
	6	38,63	8,48	37,44	9,09	36,22	9,09	35,03	10,34	33,44	11,19	31,86	12,05	30,28	12,91
	7	39,71	8,55	38,48	9,16	37,22	9,16	**36,00**	**10,40**	34,78	11,26	32,80	12,13	31,21	12,98
	8	40,82	8,64	39,56	9,26	38,30	9,26	37,04	10,48	35,42	11,35	33,77	12,21	32,15	13,06
	9	41,94	8,73	40,64	9,34	39,38	9,34	38,09	10,57	36,43	11,43	34,78	12,29	33,08	13,15
	10	43,06	8,82	41,72	9,42	40,43	9,42	39,13	10,65	37,44	11,51	35,75	12,38	34,06	13,23
45/1	5	45,89	9,70	44,48	10,40	43,03	11,12	41,62	11,84	39,69	12,83	37,80	13,82	35,86	14,81
	6	47,21	9,78	45,76	10,49	44,26	10,49	42,81	11,93	40,88	12,91	38,94	13,91	37,00	14,89
	7	48,53	9,86	47,04	10,57	45,50	10,57	**44,00**	**12,00**	42,50	13,00	40,08	13,99	38,15	14,98
	8	49,90	9,97	48,36	10,68	46,82	10,68	45,28	12,10	43,30	13,09	41,27	14,09	39,29	15,07
	9	51,26	10,07	49,68	10,78	48,14	10,78	46,55	12,19	44,53	13,19	42,50	14,18	40,44	15,17
	10	52,62	10,18	51,00	10,87	49,41	10,87	47,83	12,29	45,76	13,28	43,69	14,28	41,62	15,26
50/1	5	54,76	13,49	53,08	14,48	51,35	15,48	49,67	16,48	47,36	17,85	45,10	19,24	42,79	20,61
	6	56,33	13,61	54,60	14,60	52,82	14,60	51,08	16,60	48,77	17,97	46,46	19,36	44,15	20,72
	7	57,91	13,73	56,12	14,71	54,29	14,71	**52,50**	**16,70**	50,72	18,09	47,83	19,47	45,52	20,84
	8	59,54	13,88	57,70	14,86	55,86	14,86	54,02	16,83	51,66	18,22	49,25	19,61	46,88	20,98
	9	61,16	14,01	59,27	15,00	57,44	15,00	55,55	16,97	53,13	18,35	50,72	19,74	48,25	21,11
	10	62,79	14,16	60,85	15,13	58,96	15,13	57,07	17,10	54,60	18,49	52,13	19,87	49,67	21,24

Notes:
Tw - Outlet water temperature evaporator (delta T 5 °C)
kWf - Cooling capacity
kWa - Absorbed power

HEATING CAPACITY AND ABSORBED POWER

MOD.	COND.	EVAPORATORS Ambient air temp. °C							
	Tw °C in	10		7		4		0	
		kWt	kWa	kWt	kWa	kWt	kWa	kWt	kWa
15/1	**30**	17,0	4,1	16,4	4,0	15,2	4,0	13,8	4,0
	35	16,9	4,5	16,2	4,5	15,0	4,5	13,7	4,5
	40	16,8	5,0	**16,0**	**5,0**	15,0	5,0	13,6	5,0
	45	16,3	5,6	15,8	5,6	14,9	5,6	-	-
17/1	**30**	20,1	4,7	19,5	4,7	18,1	4,7	16,4	4,6
	35	20,1	5,2	19,2	5,2	17,9	5,2	16,3	5,2
	40	19,9	5,8	**19,0**	**5,8**	17,8	5,8	16,2	5,8
	45	19,4	6,5	18,8	6,5	17,7	6,5	-	-
19/1	**30**	22,3	5,4	21,5	5,3	20,0	5,3	18,1	5,3
	35	22,2	6,0	21,3	5,9	19,7	5,9	18,0	5,9
	40	22,0	6,6	**21,0**	**6,6**	19,6	6,6	17,9	6,6
	45	21,4	7,4	20,8	7,4	19,5	7,3	-	-
21/1	**30**	25,4	5,6	24,6	5,6	22,8	5,5	20,7	5,5
	35	25,4	6,2	24,3	6,2	22,6	6,2	20,6	6,1
	40	25,1	6,9	**24,0**	**6,9**	22,4	6,9	20,4	6,9
	45	24,5	7,7	23,8	7,7	22,3	7,7	-	-
25/1	**30**	28,6	6,6	27,7	6,5	25,7	6,5	23,3	6,5
	35	28,5	7,3	27,3	7,3	25,4	7,2	23,1	7,2
	40	28,3	8,1	**27,0**	**8,1**	25,2	8,1	23,0	8,1
	45	27,5	9,0	26,7	9,0	25,1	9,0	-	-

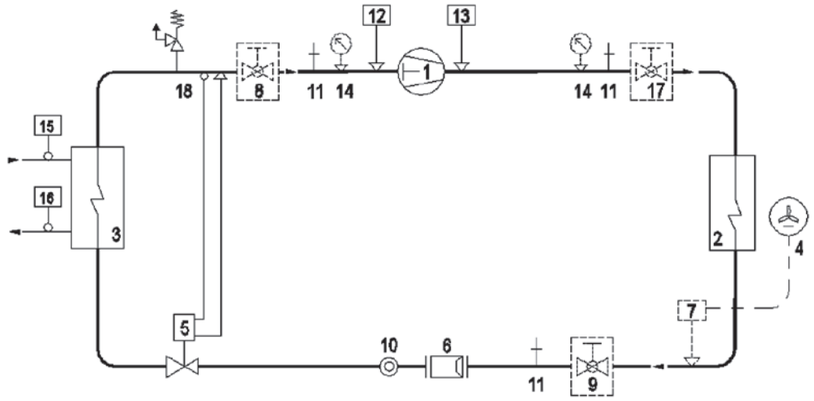
Notes:
Tw - Outlet water temperature evaporator (delta T 5 °C)
kWf - Cooling capacity
kWa - Absorbed power

HEATING CAPACITY AND ABSORBED POWER

MOD.	COND.	EVAPORATORS Ambient air temp. °C							
	Tw °C in	10		7		4		0	
		kWt	kWa	kWt	kWa	kWt	kWa	kWt	kWa
30/1	**30**	35,0	7,8	33,9	7,7	31,4	7,7	28,5	7,7
	35	34,9	8,7	33,4	8,6	31,0	8,6	28,3	8,5
	40	34,6	9,6	**33,0**	**9,6**	30,9	9,6	28,1	9,6
	45	33,7	10,7	32,7	10,7	30,7	10,7	-	-
35/1	**30**	38,2	8,5	36,9	8,5	34,2	8,4	31,1	8,4
	35	38,1	9,5	36,4	9,4	33,8	9,4	30,9	9,3
	40	37,7	10,5	**36,0**	**10,5**	33,7	10,5	30,7	10,5
	45	36,7	11,7	35,6	11,7	33,5	11,7	-	-
40/1	**30**	42,4	9,6	41,0	9,5	38,0	9,5	34,5	9,4
	35	42,3	10,6	40,5	10,6	37,6	10,5	34,3	10,5
	40	41,9	11,8	**40,0**	**11,8**	37,4	11,8	34,1	11,8
	45	40,8	13,2	39,6	13,2	37,2	13,1	-	-
45/1	**30**	50,9	11,1	49,2	11,1	45,6	11,0	41,4	11,0
	35	50,7	12,4	48,6	12,3	45,1	12,2	41,1	12,2
	40	50,3	13,7	**48,0**	**13,7**	44,9	13,6	40,9	13,6
	45	49,0	15,3	47,5	15,3	44,6	15,2	-	-
50/1	**30**	62,5	14,5	60,5	14,4	56,1	14,4	50,9	14,3
	35	62,4	16,1	59,7	16,1	55,5	16,0	50,6	15,9
	40	61,8	17,9	**59,0**	**17,9**	55,2	17,8	50,3	17,8
	45	60,2	20,0	58,4	20,0	54,9	19,9	-	-

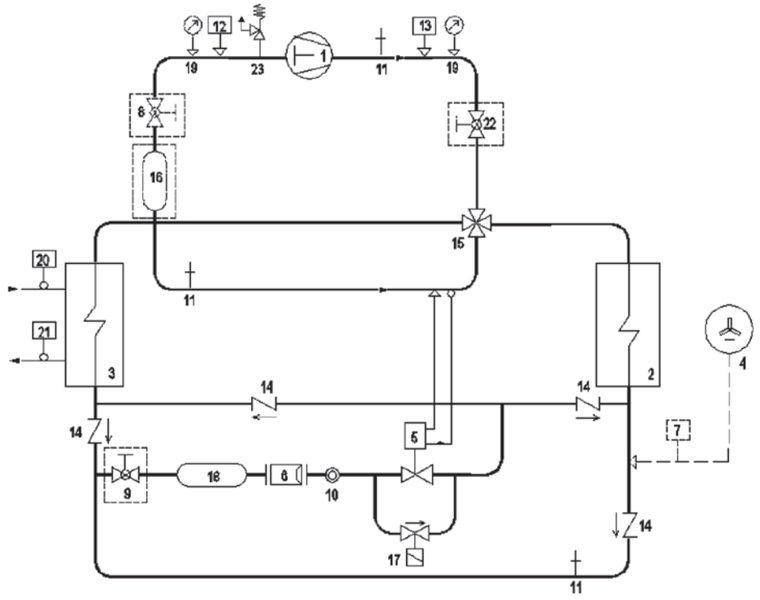
Notes:
Tw - Outlet water temperature evaporator (delta T 5 °C)
kWf - Cooling capacity
kWa - Absorbed power

REFRIGERANT CIRCUIT AWCM



1 - Compressor
2 - Condenser
3 - Evaporator
4 - Fan
5 - Expansion valve
6 - Dryer
7 - Fan speed rec *
8 - Suction line valve*
9 - Liquid line cock *
10 - Sight glass
11 - Schrader service valve
12 Low pressure switch
13 - High pressure switch
14 - Gauge *
15 - Temperature probe
16 - Antifreeze probe
17 - Supply cock*
18 - Relief valve

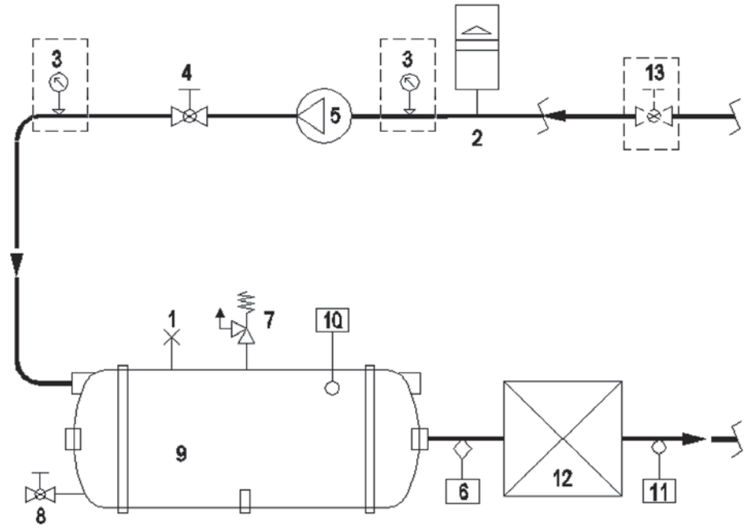
REFRIGERANT CIRCUIT AWCM...H



1 - Compressor
2 - Outdoor exchanger
3 - Indoor exchanger
4 - Fan
5 - Expansion valve
6 - Dryer
7 - Fan*
8 - Suction line valve*
9 - Liquid line cock*
10 - Sight glass
11 - Schrader service valve
12 - Low pressure switch
13 - High pressure switch
14 - Check valve
15 - 4 way valve
16 - Suction separator*
17 - Solenoid valve
18 - Liquid receiver
19 - Gauge *
20 - Temperature probe
21 - Antifreeze probe
22 - Supply cock *
23 - Relief valve

* The outlined components are optionals

REFRIGERANT CIRCUIT AWCM...PAC1



1 = Bleed valve
2 = Exp. vessel
3 = Gauge
4 = Setting valve
5 = Water pump
6 = Flow switch
7 = Relief valve
8 = Drain/fill up valve
9 = Water tank
10 = Temperature probe
11 = Antifreeze probe
12 = Evaporator
13 = Shut off valve*

*The outlined components are optional

PAC 1: N° 1 OFF PUMP

Operatine range

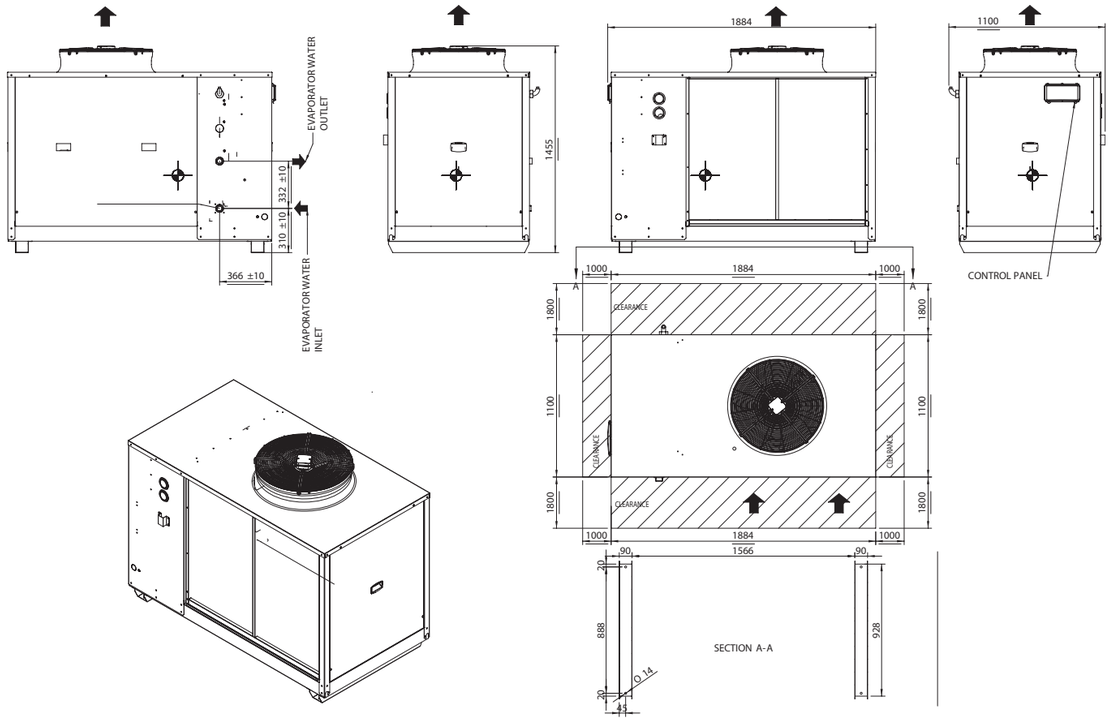
		Cooling	Heating
INLET WATER TEMP. EVAPORATOR	Max °C	17	45
	Min °C	9	30
OUTLET WATER TEMP. EVAPORATOR	Max °C	10	50
	Min °C	5	35
EXETERNAL AIR TEMPERATURE	Max °C	46	20
	Min °C	15 (1)	0

(1) This value can go down to -15°C only if the appropriate kit has been installed

CORRECTION FACTORS

Ethylene glycol persentage by weight (%)	10	20	30	40	50
Freezing point (°C)	-3,6	-8,7	-15,3	-23,5	-35,5
Cooling capacity	0,986	0,980	0,973	0,966	0,960
Power input	1,000	0,995	0,990	0,985	0,975
Mixture flow	1,023	1,054	1,092	1,140	1,200
Pressure drop	1,061	1,114	1,190	1,244	1,310

DIMENSIONS

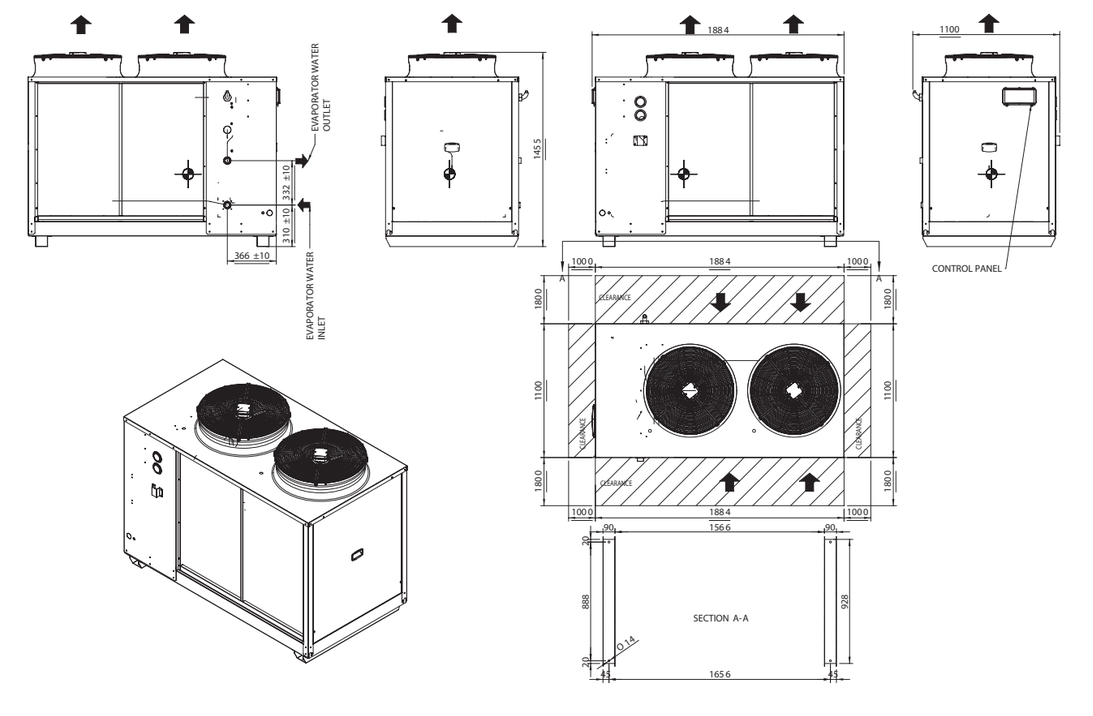


WEIGHTS Kg

VERSION	STD					LN				
Mod. - Size	**15/1**	**17/1**	**19/1**	**21/1**	**25/1**	**15/1**	**17/1**	**19/1**	**21/1**	**25/1**
Operation (1)	380	390	420	450	480	390	400	430	470	500
Transport	380	390	420	450	480	390	400	430	470	500
P Version										
Operation (1)	400	415	430	460	500	410	425	440	490	520
Transport	400	415	430	460	500	410	425	440	490	520
PAC Version										
Operation (1)	550	570	600	660	660	560	580	610	690	700
Transport	430	450	480	510	550	440	460	490	540	570

T(1) he data has to be added to the evaporator water volume with regard to the selected model.

DIMENSIONS



WEIGHTS Kg

VERSION	STD					LN				
Mod. - Size	**30/1**	**35/1**	**40/1**	**45/1**	**50/1**	**30/1**	**35/1**	**40/1**	**45/1**	**50/1**
Operation (1)	510	540	570	590	620	530	560	590	610	640
Transport	510	540	570	590	620	530	560	590	610	640
P Version										
Operation (1)	540	570	600	620	650	560	590	620	640	670
Transport	540	570	600	620	650	560	590	620	640	670
PAC Version										
Operation (1)	710	740	770	790	820	730	760	790	810	840
Transport	590	620	650	670	700	610	640	670	690	720

T(1) he data has to be added to the evaporator water volume with regard to the selected model.

Technical data shown in this booklet are not binding. KLT Klima S.r.l reserves the right to modify data without any prior notice.

SCROLL COMPRESSORS

- **Air cooled water chillers**
- **Air cooled reversible heat pumps**
- **from 50 kW to 360 kW**
- **Axial fan**

MADE IN ITALY

IDENTIFICATION CODE

S	C	A	C	Y	–	1	5	1	H	–	PAC	
1	2	3	4	5	6			7	8		9	10	11

1	**S**	Series small > 40 kW
2	**C**	Chiller unit
3	**A**	Air cooled
4	**C**	Centrifugal fans
5	**Y**	Refrigerant R410A
6	**-**	Scroll Compressors
	A	Recip. Compressors
7	**15**	Capacity factors
8	**1**	Number of circuits
9	**H**	Cooling only version
	-	Heat pump unit version
10	**-**	Plate-to-plate evaporator
11	**PAC1**	Storage tank + pump
	P1	N°1 pump
	P2	N°2 pumps
	DS	Desuperheater
	RCS	Heat recovery fitted in series (70-90%)
	RCP	Heat recovery fitted in parallel (100%)
	LN	Low Noise
	VLN	Very Low Noise



GENERAL FEATURES

FRAME

Self-supporting galvanized steel frame protected with polyester powder painting. Panels are easily removable for maintenance and service activities.

COMPRESSORS

Hermetic «scroll» type with overload protection by a klixon and complete with oil sight glass. They are installed on vibrations absorbing rubber and placed within a close compartment to reduce sound level and to allow service and maintenance activities while the unit is in operation.

EVAPORATOR

Braze welded plate type with one or two independent refrigerant circuits and one water circuit.

The circuit is made to guarantee an homogeneous cooling of all the water flow even during partial load. The insulation is made of flexible closed-cells lining. As protection, a flow switch is recommended to be mounted to stop the unit in case of no water circulation.

CONDENSER

Copper tube and aluminium finned coil. As option a filter/ protection grid is available.

FANS

Axial fans with aerodynamic outline blade section made of Al/Mg, directly coupled to a three phase electric motor with external rotor. A safety fan guard is fitted on air flow discharge.

REFRIGERANT CIRCUIT

Each unit is equipped with one or two refrigerant circuits. Each circuit includes: filter dryer, sight glass, electronic thermostatic valve, Schrader service valve.

To protect the refrigerant circuit the following devices are installed: manual reset high pressure switch, automatic reset low pressure switch, antifreeze thermostat.

The Heat Pump Units version contain, in addition: safety thermostat on the discharge line, 4-way valve, non-return valve, two electronics thermostatic valves, liquid receiver and, if necessary, li-quid separator on the compressor suction line.

ELECTRICAL BOARD

With protection grade IP54 the el. board is mounted in the compressor chamber. Service activities can be done while the unit is in operation. It includes:

- main circuit automatic breaker with locking door device, compressors and fans contactors and relé, auxiliary circuit transformer.
- Microprocessor to control automatically the unit with a visual system to display the function as well as failures.

VERSIONS

DS

Partial condensing heat recovery. Each refrigerant circuit includes: a desuperheater insulated and installed in series between the compressor and the condenser.

RCS

Condensing heat recovery from 70% to 90%. Each refrigerant circuit includes: a heat exchanger insulated and mounted in series between compressor condenser, and condensing control pressure transducer type.

RCP

100% condensing heat recovery. Each refrigerant circuit includes: a heat exchanger insulated and mounted in parallel to the condenser and solenoid valves.

P

This version is equipped with hydraulic kit. It includes: one or two pumps (one as stand-by), expansion vessel, gauges, flow switch, safety valve, air purger, shut off valve and hydraulic circuit insulated. In case of stand-by pump non-return valves are mounted. Relevant electrical circuit. As option, pumps with higher ESP are available.

PAC

Further to what included in the P version, a insulated inertial storage tank is installed.

LN

Low noise version. It includes pressostatic fan speed control and special sound proofing for the compressors.

VLN

Very low noise version. Further to the LN devices, this execution is equipped with very low speed fans.

OPTIONS

- Power factor correction
- Fan speed control
- Remote control panel
- Clock card
- RS 485 card (Protocol: low work, bacnet, trend)
- Evaporator el. heater (STD in H-version)
- El. Heater PAC version
- Compressor shut off valves
- HP/LP gauges
- Cu/Cu or Epoxy Protection Coils
- Flow switch (STD in P and PAC versions)
- Pump shut off valve
- Pumps with higher ESP
- Protection grid/filter condenser (protection grid only in H-units)
- Rubber AV mounts
- Spring AV mounts
- Wooden crate
- EC inverter axial fans

SIZE		61	71	81	91	101	121
Cooling mode AWC STD / LN							
Cooling capacity (1)	kW	51	57	65	72	87	107
Absorbed power (2)	kW	16.2	19.3	20.7	24	27.8	35.7
EER	-	3.14	2.95	3.14	3	3.12	2.99
Heating mode AWC… H							
Heating capacity (1) (9)	kW	55	62	72	80	97	120
Absorbed power (2)	kW	17	19.8	21.5	24.2	27	35.8
COP	-	3.23	3.13	3.34	3.30	3.59	3.35
Compressor (scroll)							
Quantity	n°	2					
Refrigerant circuit	n°	1					
Capacity step	n°	2					
Refrigerant	-	R410A					
Refrigerant charge	Kg	10	10	15	17	21	23
Evaporator Plate-to-plate (3)							
Water flow rate	m³/h	8.7	9.8	11.1	12.3	14.9	18.4
Pressure drop	kPa	34	43	36	44	30	41
Water volume	l	4	4	6	6	8	8
Condenser (STD - LN) (4)							
Axial fans	n°	2	2	2	2	2	2
Max absorbed power	kW	1.8	1.8	1.8	1.8	1.8	3.6
Max absorbed current	A	4	4	4	4	4	8
Condenser (VLN) (4)							
Axial fans	n°	2	2	2	2	2	2
Max absorbed power	kW	1.5	1.5	1.5	1.5	1.5	2.6
Max absorbed current	A	2.8	2.8	2.8	2.8	2.8	5
Unit electrical data (6)							
Max absorbed current	A	52,0	54,0	60,0	72,0	78,0	92,0
Max LRC	A	142,0	150,0	153,0	181,0	218,0	316,0
Voltage supply	V/f/Hz	400 / 3 / 50					
PAC Version							
Storage tank water volume	l	200	200	200	200	200	300
Water pump nominal power	kW	0,75	0,75	0,75	0,75	0,75	1,1
Water pump nominal current	A	2,2	2,2	2,2	2,2	2,2	3,5
ESP - External static pressure	kPa	100	90	85	80	115	95
DS Version (7)							
Heating capacity	kW	11	12	16	18	21	24
Water flow rate	m³/h	0.95	1	1.4	1.6	1.8	2
Pressure drop	kPa	10	10	15	15	15	15
Sound pressure level at 1m (6) (8)							
STD Version	dB(A)	69	69	70	70	70	73
LN Version	dB(A)	66	66	66	66	67	71
VLN Version	dB(A)	64	64	64	64	64	69

Notes:
1) Cooling mode: water temp. 12°C / 7°C; air temperature 35°C;
Heating mode: water temp. 40°C / 45°C; air temperature 7°C db, 6°C wb
2) Compressors + fans only. No water pump(s)
3) It becomes condenser in AWC…H (heat pump) version
4) It becomes evaporator in AWC…H (heat pump) version
5) Max air flow
6) Without water pump(s), STD version
7) Water temperature from 40 °C to 50 °C
8) Compressors site free field hemispheric

SIZE		131	141	151	161	191	222
Cooling mode AWC STD / LN							
Cooling capacity (1)	kW	113	129	133	153	176	217
Absorbed power (2)	kW	38.2	44.4	47.5	54.2	60.6	71.6
EER	-	2.95	2.90	2.80	2.82	2.90	3.03
Heating mode AWC… H							
Heating capacity (1) (9)	kW	126	146	151	175	198	240
Absorbed power (2)	kW	37.3	43.1	45.5	53.6	60.4	69.6
COP	-	3.37	3.38	3.32	3.27	3.28	3.45
Compressor (scroll)							
Quantity	n°	2					
Refrigerant circuit	n°	1					
Capacity step	n°	2					
Refrigerant	-	R410A					
Refrigerant charge	Kg	24	27	27	28	28	44
Evaporator Plate-to-plate (3)							
Water flow rate	m³/h	19.4	22.1	22.8	26.3	30.2	37.3
Pressure drop	kPa	58	48	51	45	58	48
Water volume	l	10	10	14	14	16	20
Condenser (STD - LN) (4)							
Axial fans	n°	2	3	3	3	3	4
Max absorbed power	kW	3.6	2.7	2.7	2.7	5.4	7.2
Max absorbed current	A	8	6	6	6	12	16
Condenser (VLN) (4)							
Axial fans	n°	2	3	3	3	3	4
Max absorbed power	kW	2.6	2.25	2.25	2.25	4.8	5.2
Max absorbed current	A	5	4.2	4.2	4.2	7.5	10
Unit electrical data (6)							
Max absorbed current	A	95,0	111,5	108,5	125,5	147,0	179,0
Max LRC	A	319,0	356,5	332,5	370,5	392,0	403,0
Voltage supply	V/f/Hz	400 / 3 / 50					
PAC Version							
Storage tank water volume	l	300	500	500	500	500	500
Water pump nominal power	kW	1.10	1.50	1.50	1.85	1.85	2.20
Water pump nominal current	A	3.5	5	5	5	5	6.5
ESP - External static pressure	kPa	85	95	85	110	95	115
DS Version (7)							
Heating capacity	kW	24	28	33	38	42	46
Water flow rate	m³/h	2	2.4	2.8	3.2	3.6	3.9
Pressure drop	kPa	15	18	18	20	20	20
Sound pressure level at 1m (6) (8)							
STD Version	dB(A)	74	73	73	74	75	76
LN Version	dB(A)	71	71	71	73	73	74
VLN Version	dB(A)	68	68	68	69	69	71

Notes:
1) Cooling mode: water temp. 12°C / 7°C; air temperature 35°C;
Heating mode: water temp. 40°C / 45°C; air temperature 7°C db, 6°C wb
2) Compressors + fans only. No water pump(s)
3) It becomes condenser in AWC…H (heat pump) version
4) It becomes evaporator in AWC…H (heat pump) version
5) Max air flow
6) Without water pump(s), STD version
7) Water temperature from 40 °C to 50 °C
8) Compressors site free field hemispheric

TECHNICAL DATA

SIZE		242	262	282	312	342	382
Cooling mode AWC STD / LN							
Cooling capacity (1)	kW	226	255	267	284	320	349
Absorbed power (2)	kW	74.6	88.3	88	90.6	105.4	120.9
EER	-	3.02	2.88	3.03	3.13	3.03	2.88
Heating mode AWC... H							
Heating capacity (1) (9)	kW	252	293	300	322	361	398
Absorbed power (2)	kW	73.5	82.1	87.5	92.6	103	115
COP	-	3.43	3.57	3.43	3.48	3.52	3.48
Compressor (scroll)							
Quantity	n°	4					
Refrigerant circuit	n°	2					
Capacity step	n°	4					
Refrigerant	-	R410A					
Refrigerant charge	Kg	52	57	57	72	77	77
Evaporator Plate-to-plate (3)							
Water flow rate	m³/h	38.8	43.8	45.9	48.8	55	60
Pressure drop	kPa	52	36	39	44	38	45
Water volume	l	20	24.2	24.2	24.2	31	31
Condenser (STD - LN) (4)							
Axial fans	n°	4	6	6	6	6	6
Max absorbed power	kW	7.2	5.4	10.8	10.8	10.8	10.8
Max absorbed current	A	16	12	24	24	24	24
Condenser (VLN) (4)							
Axial fans	n°	4	6	6	6	6	6
Max absorbed power	kW	5.2	4.5	7.8	7.8	7.8	7.8
Max absorbed current	A	10	8.4	15	15	15	15
Unit electrical data (6)							
Max absorbed current	A	185.0	218.0	227.0	221.0	263.0	297.0
Max LRC	A	409.0	398.0	407.0	445.0	508.0	542.0
Voltage supply	V/f/Hz	400 / 3 / 50					
PAC Version							
Storage tank water volume	l	500	500	500	500	750	750
Water pump nominal power	kW	2.20	3.00	3.00	3.00	4.00	4.00
Water pump nominal current	A	6.5	6.5	6.5	6.5	7.7	7.7
ESP - External static pressure	kPa	85	110	100	80	125	110
DS Version (7)							
Heating capacity	kW	52	62	65	75	83	88
Water flow rate	m³/h	4.4	5.3	5.5	6.4	7.2	7.5
Pressure drop	kPa	20	22	22	24	26	26
Sound pressure level at 1m (6) (8)							
STD Version	dB(A)	77	76	79	79	79	78
LN Version	dB(A)	74	74	77	77	77	76
VLN Version	dB(A)	71	71	73	73	73	72

Notes:
1) Cooling mode: water temp. 12°C / 7°C; air temperature 35°C;
Heating mode: water temp. 40°C / 45°C; air temperature 7°C db, 6°C wb
2) Compressors + fans only. No water pump(s)
3) It becomes condenser in AWC…H (heat pump) version
4) It becomes evaporator in AWC…H (heat pump) version
5) Max air flow
6) Without water pump(s), STD version
7) Water temperature from 40 °C to 50 °C
8) Compressors site free field hemispheric

PLATE-TO-PLATE EXCHANGER COOLING CAPACITY AND ABSORBED POWER

MOD.	EVAP	CONDENSER Ambient air temperature °C													
	Tw °C OUT	26		29		32		35		38		41		44	
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
61	5	53,55	11,73	51,79	12,48	49,97	13,29	48,07	14,18	46,12	15,15	44,10	16,22	42,02	17,39
	6	55,25	11,84	53,44	12,59	51,56	13,40	49,63	14,29	47,63	15,26	45,57	16,32	43,48	17,50
	7	56,96	11,96	55,10	12,71	53,18	13,52	**51,20**	**14,41**	49,17	15,38	47,08	16,44	44,95	17,61
	8	58,71	12,08	56,79	12,83	54,83	13,64	52,80	14,53	50,73	15,50	48,60	16,56	46,44	17,73
	9	60,49	12,21	58,52	12,96	56,50	13,78	54,42	14,66	52,31	15,63	50,15	16,69	47,96	17,86
	10	62,30	12,35	60,26	13,10	58,20	13,92	56,07	14,80	53,91	15,77	51,71	16,83	49,49	18,00
71	5	60,69	14,19	58,47	15,14	56,15	16,17	53,77	17,28	51,31	18,48	48,83	19,78	46,31	21,19
	6	62,57	14,33	60,30	15,28	57,92	16,31	55,48	17,43	52,99	18,63	50,43	19,93	47,86	21,34
	7	64,49	14,47	62,15	15,43	59,73	16,46	**57,23**	**17,57**	54,67	18,78	52,07	20,08	49,45	21,50
	8	66,43	14,62	64,05	15,58	61,56	16,61	59,01	17,73	56,40	18,93	53,73	20,24	51,05	21,66
	9	68,41	14,77	65,97	15,73	63,43	16,77	60,82	17,89	58,15	19,09	55,44	20,40	52,70	21,82
	10	70,42	14,93	67,91	15,89	65,33	16,93	62,66	18,05	59,92	19,26	57,17	20,57	54,39	22,00
81	5	69,13	15,41	66,76	16,40	64,32	17,46	61,79	18,60	59,16	19,81	56,43	21,11	53,62	22,48
	6	71,30	15,55	68,87	16,54	66,35	17,61	63,77	18,75	61,08	19,97	58,31	21,27	55,45	22,66
	7	73,53	15,69	71,02	16,69	68,44	17,76	**65,78**	**18,91**	63,04	20,14	60,22	21,44	57,32	22,84
	8	75,79	15,84	73,20	16,85	70,56	17,92	67,83	19,07	65,04	20,31	62,16	21,62	59,22	23,02
	9	78,09	16,00	75,44	17,01	72,72	18,09	69,92	19,24	67,07	20,48	64,14	21,80	61,16	23,21
	10	80,44	16,16	77,71	17,17	74,92	18,26	72,06	19,42	69,14	20,66	66,16	21,99	63,12	23,41
91	5	76,44	18,29	73,81	19,39	71,08	20,57	68,26	21,84	65,36	23,18	62,39	24,62	59,36	26,15
	6	78,76	18,50	76,05	19,61	73,24	20,79	70,33	22,06	67,36	23,41	64,31	24,85	61,21	26,39
	7	81,13	18,71	78,32	19,82	75,43	21,01	**72,44**	**22,28**	69,39	23,64	66,27	25,08	63,11	26,63
	8	83,53	18,93	80,64	20,04	77,65	21,24	74,59	22,51	71,46	23,87	68,26	25,32	65,03	26,87
	9	85,98	19,16	82,99	20,27	79,92	21,47	76,77	22,75	73,55	24,11	70,29	25,57	66,99	27,13
	10	88,47	19,38	85,38	20,50	82,22	21,70	78,99	22,99	75,69	24,36	72,34	25,82	68,98	27,39
101	5	92,08	21,57	88,98	22,80	85,78	24,12	82,49	25,54	79,09	27,07	75,60	28,72	72,01	30,51
	6	94,89	21,81	91,68	23,04	88,37	24,36	84,96	25,78	81,50	27,31	77,91	28,97	74,26	30,76
	7	97,73	22,04	94,41	23,28	91,01	24,61	**87,52**	**26,03**	83,95	27,57	80,28	29,22	76,55	31,02
	8	100,64	22,29	97,21	23,53	93,70	24,86	90,11	26,28	86,42	27,82	82,69	29,48	78,89	31,28
	9	103,59	22,54	100,05	23,78	96,43	25,11	92,74	26,54	88,98	28,08	85,13	29,74	81,27	31,55
	10	106,60	22,79	102,95	24,04	99,23	25,38	95,43	26,81	91,56	28,35	87,64	30,02	83,70	31,82
121	5	113,23	26,51	109,34	28,07	105,35	29,73	101,27	31,52	97,11	33,42	92,90	35,46	88,66	37,64
	6	116,74	26,79	112,74	28,35	108,63	30,02	104,42	31,81	100,15	33,72	95,84	35,77	91,51	37,96
	7	120,33	27,08	116,21	28,64	111,97	30,32	**107,66**	**32,12**	103,27	34,03	98,84	36,09	94,41	38,28
	8	123,98	27,37	119,72	28,94	115,37	30,63	110,93	32,43	106,43	34,35	101,90	36,41	97,37	38,61
	9	127,69	27,68	123,32	29,25	118,83	30,94	114,28	32,75	109,66	34,68	105,01	36,74	100,39	38,95
	10	131,48	27,98	126,97	29,57	122,36	31,26	117,68	33,07	112,94	35,01	108,20	37,08	103,47	39,30

Notes:
Tw - Evaporator outlet water temperature (delta T 5 °C)
kWf - Cooling capacity
kWa - Absorbed power (compressor only)

PLATE-TO-PLATE EXCHANGER COOLING CAPACITY AND ABSORBED POWER

MOD.	EVAP	CONDENSER Ambient air temperature °C													
	Tw °C OUT	26		29		32		35		38		41		44	
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
131	5	119,07	28,65	114,97	30,29	110,76	32,05	106,46	33,95	102,07	35,98	97,63	38,16	93,19	40,51
	6	122,73	28,96	118,50	30,61	114,16	32,37	109,75	34,27	105,25	36,31	100,69	38,50	96,13	40,85
	7	126,46	29,27	122,10	30,93	117,64	32,70	**113,09**	**34,61**	108,48	36,65	103,82	38,84	99,16	41,21
	8	130,26	29,60	125,77	31,26	121,17	33,04	116,50	34,95	111,77	37,00	107,00	39,20	102,24	41,57
	9	134,12	29,93	129,49	31,60	124,77	33,38	119,97	35,30	115,12	37,35	110,25	39,56	105,40	41,94
	10	138,04	30,27	133,28	31,94	128,44	33,74	123,51	35,66	118,55	37,72	113,57	39,93	108,62	42,32
141	5	136,96	34,41	132,12	36,40	127,18	38,55	122,15	40,88	117,06	43,39	111,92	46,10	106,77	49,06
	6	141,11	34,82	136,13	36,82	131,05	38,98	125,87	41,30	120,64	43,82	115,36	46,55	110,12	49,51
	7	145,34	35,24	140,21	37,25	134,98	39,41	**129,66**	**41,75**	124,29	44,27	118,90	47,01	113,53	49,99
	8	149,63	35,67	144,36	37,69	138,97	39,86	133,51	42,21	128,00	44,74	122,48	47,49	117,01	50,48
	9	154,01	36,11	148,56	38,14	143,02	40,33	137,43	42,68	131,78	45,23	126,14	47,99	120,56	50,99
	10	158,45	36,57	152,84	38,61	147,16	40,81	141,41	43,17	135,63	45,73	129,87	48,50	124,19	51,52
151	5	141,36	37,04	136,30	39,17	131,14	41,46	125,90	43,90	120,64	46,52	115,36	49,33	110,16	52,36
	6	145,65	37,47	140,44	39,61	135,14	41,91	129,76	44,36	124,35	47,00	118,96	49,82	113,63	52,86
	7	150,00	37,91	144,64	40,07	139,19	42,37	**133,68**	**44,84**	128,13	47,48	122,62	50,32	117,19	53,38
	8	154,43	38,37	148,91	40,53	143,32	42,85	137,67	45,32	131,98	47,98	126,36	50,83	120,82	53,91
	9	158,91	38,83	153,26	41,01	147,52	43,33	141,72	45,82	135,93	48,49	130,16	51,36	124,54	54,46
	10	163,49	39,31	157,67	41,49	151,78	43,83	145,85	46,33	139,93	49,01	134,06	51,90	128,33	55,02
161	5	162,18	42,46	156,32	44,93	150,38	47,58	144,35	50,43	138,29	53,51	132,26	56,83	126,31	60,44
	6	167,08	42,98	161,05	45,45	154,92	48,12	148,73	50,98	142,52	54,07	136,33	57,41	130,27	61,04
	7	172,07	43,51	165,85	46,00	159,56	48,68	**153,19**	**51,56**	146,82	54,66	140,50	58,02	134,31	61,66
	8	177,10	44,06	170,72	46,56	164,26	49,25	157,74	52,15	151,22	55,27	144,75	58,64	138,44	62,31
	9	182,24	44,63	175,67	47,14	169,03	49,85	162,35	52,76	155,68	55,90	149,08	59,29	142,66	62,99
	10	187,43	45,21	180,70	47,74	173,88	50,46	167,04	53,39	160,22	56,54	153,50	59,96	*	*
191	5	186,27	45,54	179,74	48,19	173,09	51,06	166,35	54,16	159,54	57,52	152,73	61,15	145,98	65,09
	6	192,05	46,06	185,33	48,73	178,47	51,61	171,52	54,72	164,53	58,08	157,54	61,72	150,63	65,68
	7	197,94	46,61	191,00	49,28	183,95	52,17	**176,80**	**55,29**	169,61	58,67	162,45	62,32	155,36	66,30
	8	203,92	47,17	196,78	49,86	189,51	52,76	182,17	55,89	174,79	59,28	167,44	62,95	160,20	66,94
	9	210,00	47,75	202,64	50,45	195,17	53,37	187,63	56,52	180,05	59,92	172,53	63,61	165,13	67,62
	10	216,17	48,35	208,60	51,07	200,93	54,00	193,18	57,16	185,42	60,58	177,73	64,29	170,17	68,32
222	5	228,58	53,19	220,72	56,30	212,65	59,64	204,37	63,20	195,94	67,02	187,42	71,09	178,87	75,45
	6	235,66	53,76	227,54	56,88	219,27	60,23	210,75	63,80	202,09	67,63	193,34	71,71	184,59	76,09
	7	242,89	54,34	234,52	57,47	225,93	60,82	**217,23**	**64,41**	208,35	68,25	199,38	72,35	190,43	76,74
	8	250,24	54,93	241,62	58,07	232,78	61,44	223,79	65,04	214,72	68,89	205,55	73,00	196,38	77,41
	9	257,72	55,54	248,84	58,69	239,75	62,07	230,52	65,68	221,16	69,54	211,83	73,67	202,47	78,10
	10	265,32	56,16	256,18	59,33	246,85	62,71	237,37	66,34	227,79	70,21	218,23	74,36	208,69	78,80

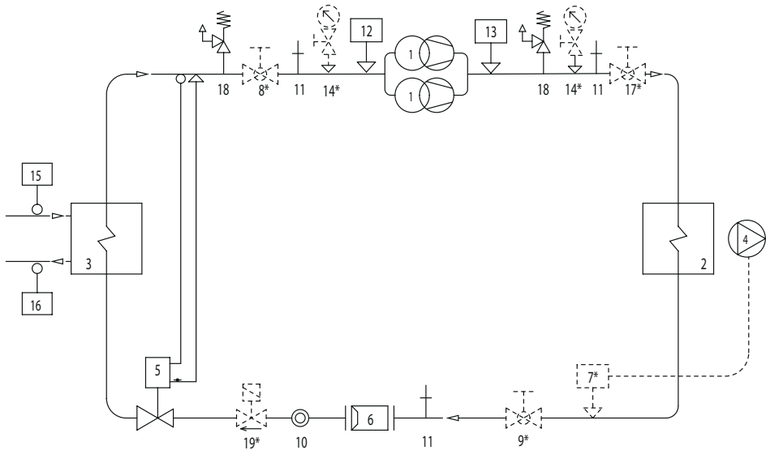
Notes:
Tw - Evaporator outlet water temperature (delta T 5 °C)
kWf - Cooling capacity
kWa - Absorbed power (compressor only)

PLATE-TO-PLATE EXCHANGER COOLING CAPACITY AND ABSORBED POWER

MOD.	EVAP	CONDENSER Ambient air temperature °C													
	Tw °C OUT	26		29		32		35		38		41		44	
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
242	5	238,83	57,35	230,59	60,64	222,11	64,16	213,52	67,95	204,71	72,01	195,78	76,37	186,81	81,07
	6	246,17	57,97	237,66	61,27	228,95	64,81	220,11	68,61	211,06	72,68	201,92	77,05	192,74	81,76
	7	253,65	58,61	244,88	61,92	235,91	65,47	**226,77**	**69,27**	217,54	73,36	208,17	77,74	198,79	82,47
	8	261,26	59,26	252,23	62,58	243,00	66,14	233,59	69,96	224,08	74,05	214,55	78,45	204,98	83,19
	9	269,00	59,92	259,69	63,26	250,20	66,83	240,55	70,66	230,80	74,76	221,02	79,18	211,30	83,94
	10	276,86	60,60	267,29	63,95	257,54	67,54	247,65	71,38	237,66	75,50	227,65	79,92	217,74	84,71
262	5	269,39	68,39	259,93	72,37	250,26	76,67	240,44	81,31	230,42	86,33	220,30	91,76	210,19	97,67
	6	277,53	69,18	267,78	73,17	257,81	77,48	247,71	82,14	237,42	87,17	227,07	92,62	216,73	98,55
	7	285,78	69,99	275,73	74,00	265,49	78,33	**255,05**	**82,99**	244,57	88,05	233,96	93,51	223,39	99,46
	8	294,20	70,83	283,83	74,85	273,29	79,20	262,58	83,88	251,75	88,95	240,96	94,44	230,18	100,41
	9	302,72	71,69	292,07	75,73	281,21	80,10	270,22	84,80	259,13	89,88	248,06	95,39	237,10	101,40
	10	311,37	72,57	300,41	76,64	289,28	81,02	277,99	85,75	266,65	90,85	255,31	96,39	244,17	102,43
282	5	280,73	63,88	271,38	67,58	261,81	71,56	252,01	75,87	242,06	80,53	231,90	85,57	221,66	91,02
	6	289,55	64,53	279,90	68,24	270,02	72,23	259,91	76,55	249,63	81,22	239,24	86,26	228,75	91,72
	7	298,51	65,20	288,57	68,92	278,38	72,93	**267,97**	**77,25**	257,39	81,93	246,74	86,98	235,97	92,45
	8	307,67	65,89	297,40	69,62	286,90	73,64	276,19	77,98	265,30	82,66	254,31	87,72	243,33	93,20
	9	316,98	66,60	306,39	70,34	295,57	74,38	284,55	78,73	273,38	83,42	262,09	88,49	250,80	93,99
	10	326,45	67,33	315,54	71,09	304,40	75,14	293,08	79,50	281,58	84,21	270,02	89,30	258,48	94,80
312	5	296,66	66,14	286,96	69,96	277,00	74,08	266,77	78,50	256,34	83,23	245,83	88,32	235,21	93,75
	6	306,11	66,75	296,12	70,59	285,83	74,71	275,31	79,14	264,58	83,89	253,73	88,98	242,88	94,44
	7	315,74	67,37	305,44	71,22	294,85	75,36	**284,00**	**79,81**	272,99	84,57	261,82	89,67	250,66	95,14
	8	325,56	68,01	314,94	71,88	304,05	76,03	292,90	80,49	281,56	85,26	270,12	90,38	258,66	95,86
	9	335,58	68,67	324,64	72,55	313,42	76,71	301,95	81,18	290,31	85,97	278,57	91,10	266,83	96,60
	10	345,77	69,34	334,50	73,23	322,97	77,41	311,18	81,89	299,24	86,69	287,19	91,84	275,19	97,35
342	5	336,16	78,23	324,75	82,77	313,15	87,66	301,24	92,93	289,17	98,61	277,01	104,72	264,89	111,31
	6	346,68	79,05	334,93	83,60	322,89	88,50	310,70	93,79	298,29	99,48	285,80	105,61	273,36	112,22
	7	357,41	79,88	345,27	84,45	332,89	89,37	**320,31**	**94,67**	307,57	100,38	294,76	106,53	282,01	113,16
	8	368,30	80,75	355,81	85,33	343,05	90,27	330,07	95,58	317,04	101,32	303,90	107,48	290,84	114,13
	9	379,40	81,63	366,53	86,23	353,41	91,19	340,07	96,53	326,62	102,27	313,21	108,47	299,87	115,14
	10	390,67	82,55	377,44	87,17	363,93	92,15	350,25	97,50	336,45	103,27	322,66	109,48	309,07	116,19
382	5	368,12	90,68	355,28	95,99	342,18	101,72	328,88	107,92	315,52	114,63	302,09	121,90	288,78	129,78
	6	379,48	91,71	366,22	97,03	352,72	102,78	339,03	109,00	325,25	115,73	311,52	123,02	297,87	130,92
	7	390,99	92,76	377,33	98,10	363,44	103,88	**349,36**	**110,12**	335,19	116,87	321,06	124,18	307,15	132,12
	8	402,71	93,86	388,66	99,22	374,35	105,02	359,88	111,29	345,34	118,06	330,83	125,39	316,60	133,37
	9	414,61	94,98	400,14	100,38	385,44	106,20	370,57	112,49	355,66	119,30	340,81	126,66	326,20	134,67
	10	426,69	96,15	411,82	101,58	396,71	107,43	381,45	113,75	366,15	120,58	350,96	127,99	336,05	136,04

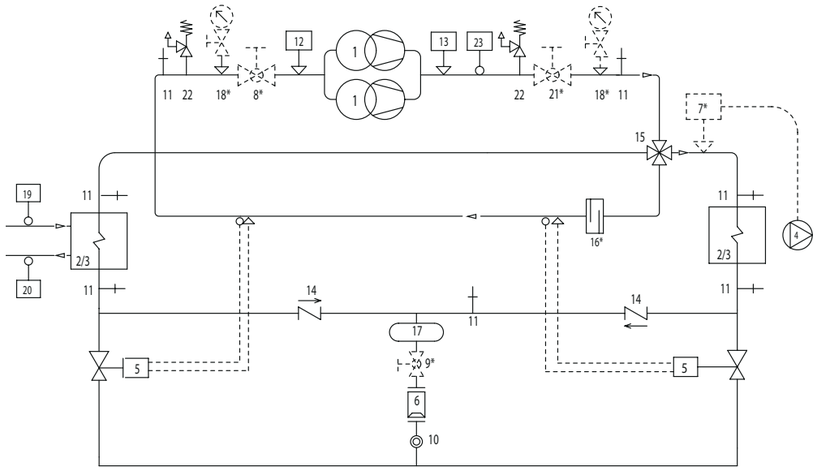
Notes:
Tw - Evaporator outlet water temperature (delta T 5 °C)
kWf - Cooling capacity
kWa - Absorbed power (compressor only)

REFRIGERANT CIRCUIT AWC



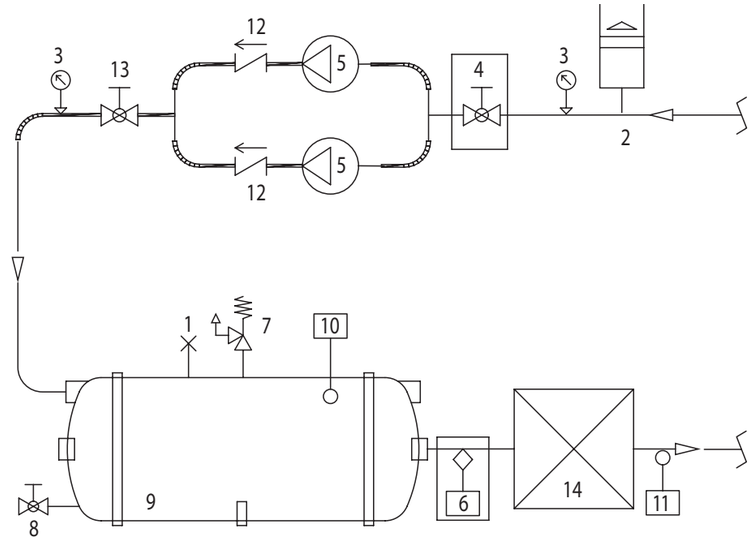
1 = Compressor
2 = Condenser
3 = Evaporator
4 = Fans
5 = Thermostatic valve
6 = Dryer
7 = Fan speed regulator*
8 = Shut off valve suction line*
9 = Shut off valve liquid line*
10 = Sight glass
11 = Schrader service valve
12 = Low pressure switch
13 = High pressure switch
14 = Gauges*
15 = Temperature probe
16 = Antifreeze probe
17 = Shut off valves discharge line*
18 = Safety valve

REFRIGERANT CIRCUIT AWC...H



1 = Compressor
2 = Condenser
3 = Evaporator
4 = Fans
5 = Thermostatic valve
6 = Dryer
7 = Fan speed regulator*
8 = Shut off valve suction line*
9 = Shut off valves liquid line*
10 = Sight glass
11 = Schrader service valve
12 = Low pressure switch
13 = High pressure switch
14 = Non-return valve
15 = 4-way valve
16 = Liquid separator suction line*
17 = Liquid receiver
18 = Gauges*
19 = Temperature probe
20 = Antifreeze probe
21 = Shut off valve discharge line*
22 = Safety valve
23 = Pressure transducer

REFRIGERANT CIRCUIT SCAEY... PAC1(PAC2)



1 = Air purger
2 = Expansion vessel
3 = Gauge
4 = Shut off valve*
5 = Pump
6 = Flow switch
7 = Safety valve
8 = Drain/fill up valve
9 = Tank
10 = Temperature probe
11 = Antifreeze probe
12 = Evaporator
13 = Non-return valve (PAC 2 only)

*The outlined components are optional

- **PAC1: n°1 off pump**
- **PAC 2 : n°2 off pumps**

In case of glycol mix > 30% contact factory.

Operating range

		Cooling	Heating
INLET WATER TEMPERATURE	Max °C	17	45
	Min °C	9	30
OUTLET WATER TEMPERATURE	Max °C	10	50
	Min °C	5	35
AMBIENT AIR TEMPERTURE	Max °C	46	20
	Min °C	15 (1)	-5

(1) This temperature can go down to -15 °C only if the appropriate kit has been installed

CORRECTION FACTORS

Ethylene glycol persentage by weight (%)	10	20	30	40	50
Freezing point (°C)	-3,6	-8,7	-15,3	-23,5	-35,5
Cooling capacity	0,986	0,980	0,973	0,966	0,960
Absorbed power	1,000	0,995	0,990	0,985	0,975
Mixture flow rate	1,023	1,054	1,092	1,140	1,200
Pressure drop	1,061	1,114	1,190	1,244	1,310

DIMENSIONS

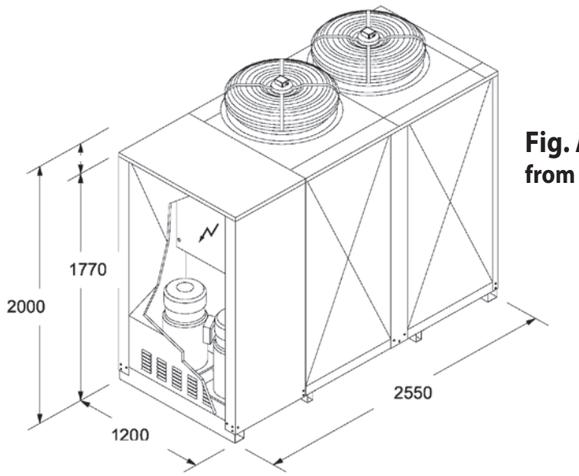


Fig. A
from 61 to 91

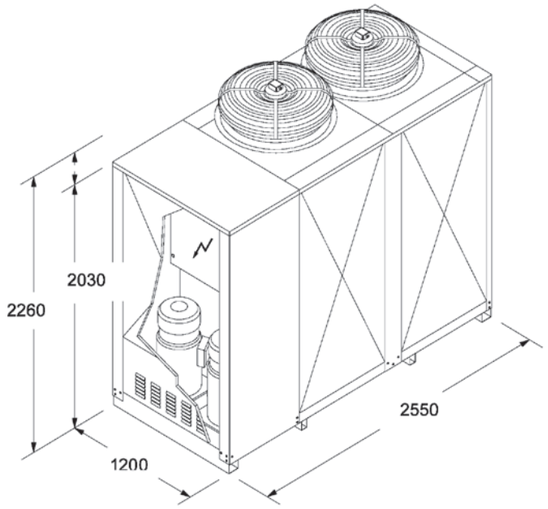


Fig. B
from 101 to 131

WEIGHTS (Kg)

VERSION	STD							LN / VLN						
Mod.	**61**	**71**	**81**	**91**	**101**	**121**	**131**	**61**	**71**	**81**	**91**	**101**	**121**	**131**
Fig.	A	A	A	A	B	B	B	A	A	A	A	B	B	B
Operation (1)	710	750	790	870	1050	1105	1200	730	775	810	888	1075	1140	1240
Transport	710	750	790	870	1050	1105	1200	730	775	810	888	1075	1140	1240
P Version														
Operation (1)	725	775	815	895	1080	1155	1260	745	795	830	910	1105	1190	1300
Transport	725	775	815	895	1080	1155	1260	745	795	830	910	1105	1190	1300
PAC Version														
Operation (1)	1035	1070	1150	1210	1505	1595	1710	1085	1120	1200	1260	1555	1645	1760
Transport	795	835	920	990	1180	1260	1380	845	885	970	1040	1230	1310	1430

(1) The data has to be added to the evaporator water volume with regard to the selected model.

DIMENSIONS

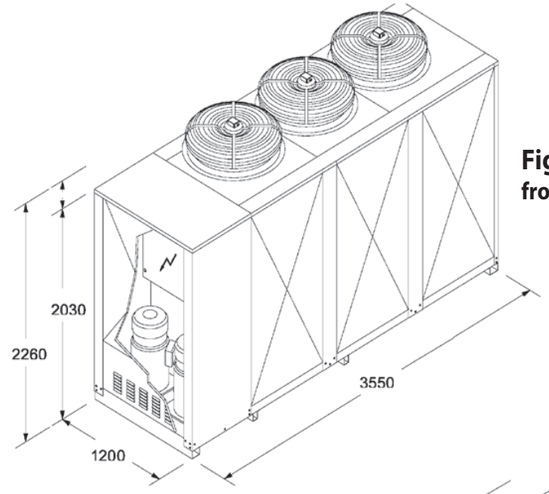


Fig. C
from 141 to 191

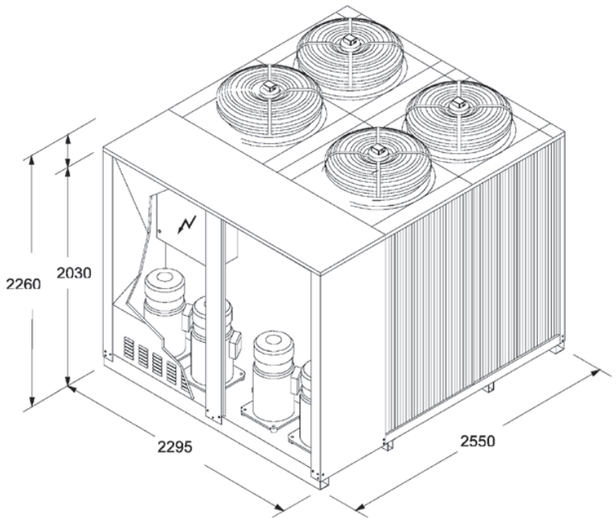


Fig. D
from 222 to 242

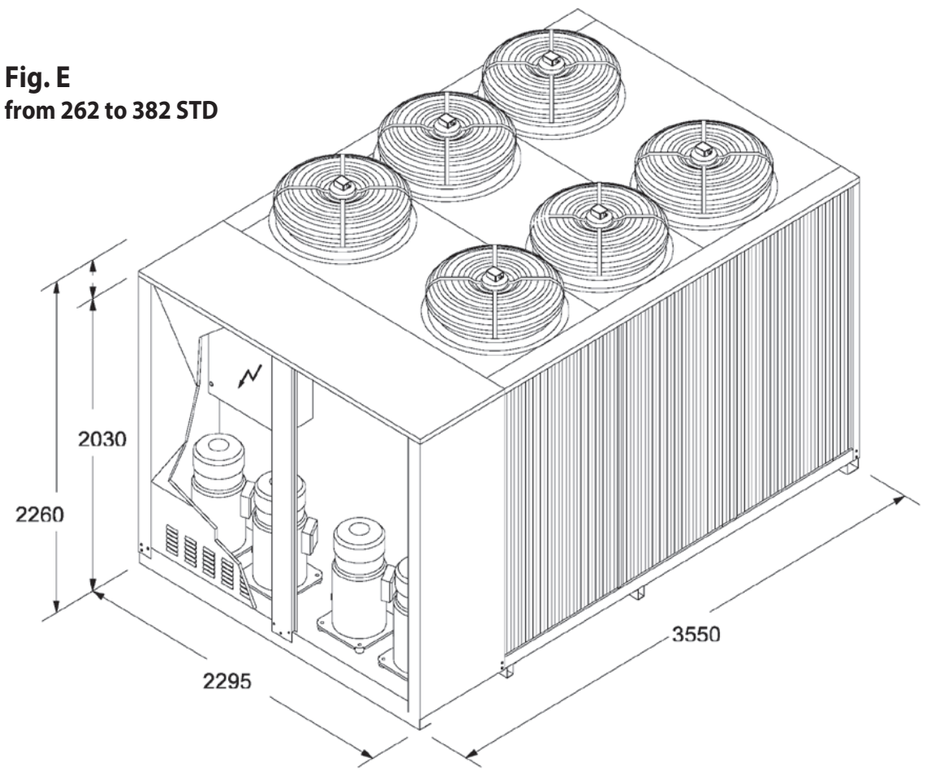
WEIGHTS (Kg)

VERSION	STD						LN / VLN					
Mod.	**141**	**151**	**161**	**191**	**222**	**242**	**141**	**151**	**161**	**191**	**222**	**242**
Fig.	C	C	C	C	D	D	C	C	C	C	D	D
Operation (1)	1280	1355	1490	1580	1970	2190	1320	1395	1530	1620	2050	2260
Transport	1280	1355	1490	1580	1970	2190	1320	1395	1530	1620	2050	2260
P Version												
Operation (1)	1320	1395	1540	1620	2030	2260	1360	1435	1580	1660	2100	2330
Transport	1320	1395	1540	1620	2030	2260	1360	1435	1580	1660	2100	2330
PAC Version												
Operation (1)	1790	2065	2190	2300	2700	2960	1840	2115	2240	2350	2750	3010
Transport	1450	1515	1660	1770	2180	2410	1500	1565	1710	1820	2230	2460

(1) The data has to be added to the evaporator water volume with regard to the selected model.

DIMENSIONS

Fig. E
from 262 to 382 STD



WEIGHTS (Kg)

VERSION	STD					LN / VLN				
Mod.	**262**	**282**	**312**	**342**	**382**	**262**	**282**	**312**	**342**	**382**
Fig.	E	E	E	E	E	E	E	E	E	E
Operation (1)	2230	2340	2590	2750	2970	2300	2410	2660	2820	3050
Transport	2230	2340	2590	2750	2970	2300	2410	2660	2820	3050
P Version										
Operation (1)	2300	2410	2670	2840	3090	2370	2470	2730	2910	3170
Transport	2300	2410	2670	2840	3090	2370	2470	2730	2910	3170
PAC Version										
Operation (1)	3020	3100	3620	3780	3990	3070	3150	3690	3860	4050
Transport	2470	2550	2820	2980	3200	2520	2600	2890	3060	3260

(1) The data has to be added to the evaporator water volume with regard to the selected model.

NOTES

AWCL SCAEY-EST/R410A

MULTISCROLL COMPRESSORS

- **Air cooled water chillers**
- **Air cooled reversible heat pumps**
- **from 350 kW to 680 kW**
- **Axial fan**

MADE IN ITALY

IDENTIFICATION CODE

S	C	A	E	Y	P	-	H	-	44	2	PAC
1	2	3	4	5	6		7		8	9	10

1	**S**	Small series < 700 kW
2	**C**	Chiller unit
3	**A**	Air cooled
4	**E**	Axial fans
5	**Y**	Refrigerant R410A
6	**P**	Exchanger Plate to plate
	F	Exchanger Shell and tube
7	**H**	Heat pump version
8	**44**	Capacity factors
9	**2**	Numbers of circuits
10	**PAC**	Storage tank
	P1	1 pump
	P2	2 pumps
	PAC1	Storage tank + 1 pump
	PAC2	Storage tank + 2 pumps
	LN	Low noise
	VLN	Very low noise



AWCL SCAEY-EST/R410A

TECHNICAL DATA **AWCL P**

SIZE			442	482	522	582	642	682
Cooling mode STD - LN								
Cooling capacity	(1)	kW	409	457	507	587	625	662
Abs power	(2)	kW	134	146	180	192	208	227
EER	(2)	-	3.05	3.13	2.81	3.05	3	2.91
Cooling mode VLN								
Cooling capacity	(1)	kW	395	440	488	564	598	631
Abs power	(2)	kW	136	150	186	195	215	235
EER	(2)	-	2.90	2.94	2.62	2.89	2.78	2.68
Heating mode								
Cooling capacity	(1)(8)	kW	458	520	581	657	700	742
Abs power	(2)	kW	130	145	173	187	200	212
COP	(2)	-	3.52	3.58	3.35	3.51	3.5	3.5
Compressors (scrooll)								
Quantity		n°	4		6			
Refrigerant circuit		n°	2		2			
Capacity step		n°	4		6			
Refrigerant		-						
Refrigerant quantity		kg	45+45	56+56	58+58	72+72	74+74	76+76
Plate to plate exchanger	(3)							
Water flow rate		m^3/h	70.3	78.6	83.9	100.9	107.5	113.8
Total pressure drop		kPa	45	56	70	63	68	72
Water volume		l	40	40	40	55	58	62
Water connections		Ø	3"	3"	3"	3"	3"	3"
PAC Version								
Tank volume		l	750	750	750	1000	1000	1000
Water pump nominal power		kW	4	4	5.5	5.5	7.5	7.5
Water pump nominal current		A	8.5	8.5	15	15	21	21
External static pressure		kPa	100	90	100	85	130	120
Water connections (victaulic)		Ø	DN100	DN100	DN100	DN125	DN125	DN125
Condenser STD - LN	(4)							
Axial fans		n°	8	8	8	10	10	10
Max abs. power		kW	14	14	14	18	18	18
Max abs. current		A	32	32	32	40	40	40
Condenser VLN	(4)							
Axial fans		n°	8	8	8	10	10	10
Max abs. power		kW	10.4	10.4	10.4	13	13	13
Max abs. current		A	17	17	17	21	21	21
Unit eletrical data	(5)							
Max Abs. Current		A	335	369	433	475	509	543
Max LRC		A	660	694	677	800	834	868
Voltage supply		V/f/Hz	400 / 3 / 50					
DS Version	(6)							
Heating capacity		kW	97	108	124	139	148	155
Water flow		m^3/h	8.3	9.2	10.6	11.9	12.7	13.3
Exchanger pressure drop		A	32	36	36	40	40	42
Sound pressure level at 1m	(5) (7)							
Version STD		dB(A)	81	83	80	82	83	84
Version LN		dB(A)	78	79	78	79	80	80
Version VLN		dB(A)	75	77	74	76	77	78

Notes:

1) Cooling mode: water temp. 12°C to 7°C / air temperature 35°C
   Heating mode: water temp. 40 °C to 45 °C / air temp. 7°C db, 6°C wb
2) Compressors + fans only. No water pump(s)
3) It becomes evaporator in SCAEY (cooling) version
4) It becomes condenser in SCAEY (cooling) version
5) Without water pump(s) STD version
6) Water temperature a 40°C to 50°C
7) Compressors site free field emisferich
8) max air flow

TECHNICAL DATA **AWCL F**

SIZE			442	482	522	582	642	682
Cooling mode STD - LN								
Cooling capacity	(1)	kW	401	447	501	560	592	631
Abs power	(2)	kW	133	145	178	187	204	223
EER	(2)	-	3.01	3.08	2.81	2.99	2.90	2.82
Cooling mode VLN								
Cooling capacity	(1)	kW	387	429	477	538	566	602
Abs power	(2)	kW	135	148	185	192	210	231
EER	(2)	-	2.86	2.89	2.57	2.80	2.69	2.60
Heating mode								
Cooling capacity	(1)(8)	kW	445	504	563	625	665	705
Abs power	(2)	kW	129	143	171	184	196	208
COP	(2)	-	3.44	3.52	3.29	3.39	3.39	3.38
Compressors (scrooll)								
Quantity		n°	4		6			
Refrigerant circuit		n°	2		2			
Capacity step		n°	4		6			
Refrigerant		-						
Refrigerant quantity		kg	45+45	56+56	58+58	72+72	74+74	76+76
Shell and tube exchanger	(3)							
Water flow rate		m^3/h	68.9	76.8	86.1	96.3	101.8	108.5
Total pressure drop		kPa	38	46	36	45	50	51
Water volume		l	110	110	120	120	120	120
Water connections (victaulic)		Ø	DN125	DN125	DN150	DN150	DN150	DN150
PAC Version								
Tank volume		l	1250	1250	1250	1250	1250	1250
Water pump nominal power		kW	4	5.5	5.5	5.5	7.5	7.5
Water pump nominal current		A	8.5	8.5	15	15	21	21
External static pressure		kPa	100	90	100	85	130	120
Water connections (victaulic)		Ø	DN125	DN125	DN125	DN125	DN125	DN125
Condenser STD - LN	(4)							
Axial fans		n°	8	8	8	10	10	10
Max abs. power		kW	14	14	14	18	18	18
Max abs. current		A	32	32	32	40	40	40
Condenser VLN	(4)							
Axial fans		n°	8	8	8	10	10	10
Max abs. power		kW	10.4	10.4	10.4	13	13	13
Max abs. current		A	17	17	17	21	21	21
Unit eletrical data	(5)							
Max Abs. Current		A	335	369	433	475	509	543
Max LRC		A	660	694	677	800	834	868
Voltage supply		V/f/Hz	400 / 3 / 50					
DS Version	(6)							
Heating capacity		kW	97	108	124	139	148	155
Water flow		m^3/h	8.3	9.2	10.6	11.9	12.7	13.3
Exchanger pressure drop		A	32	36	36	40	40	42
Sound pressure level at 1m	(5) (7)							
Version STD		dB(A)	81	83	80	82	83	84
Version LN		dB(A)	78	79	78	79	80	80
Version VLN		dB(A)	75	77	74	76	77	78

Notes:

1) Cooling mode: water temp. 12°C to 7°C / air temperature 35°C
   Heating mode: water temp. 40 °C to 45 °C / air temp. 7°C db, 6°C wb
2) Compressors + fans only. No water pump(s)
3) It becomes evaporator in SCAEY (cooling) version
4) It becomes condenser in SCAEY (cooling) version
5) Without water pump(s) STD version
6) Water temperature a 40°C to 50°C
7) Compressors site free field emisferich
8) max air flow

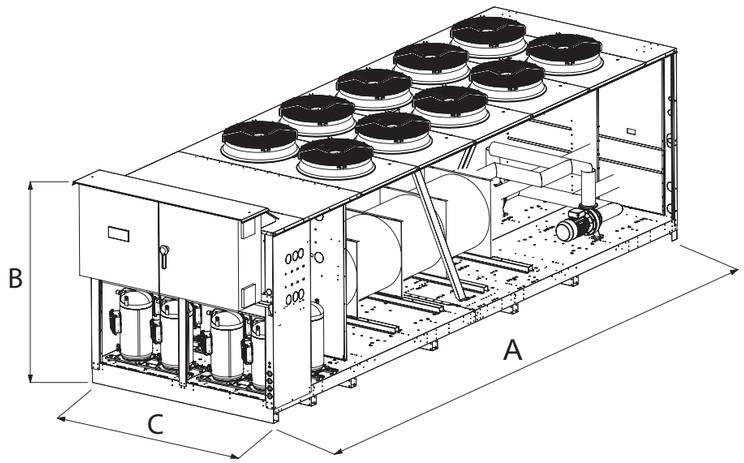
OPERATING RANGE

		Cooling	Heating
INLET WATER TEMPERATURE	Max °C	17	45
	Min °C	9	30
INLET WATER TEMPERATURE	Max °C	10	50
	Min °C	5	30
AMBIENT AIR TEMPERATURE	Max °C	42	20
	Min °C	15 (1)	-5

(1) This temperature is possible only if the appropriate kit "partial load" has been installed.

CORRECTION FACTORS

Ethylene glycol persentage by weight	**(%)**	**10**	**20**	**30**
Freezing point	(°C)	-3,6	-8,7	-15,3
Cooling capacity		0,986	0,980	0,973
Absorbed Power		1,000	0,995	0,990
Mixture flow rate		1,023	1,054	1,092
Pressure drop		1,061	1,114	1,190



WEIGHTS AND DIMENSIONS

VERSION	**STD / LN**						**VLN**					
Mod.	**442**	**482**	**522**	**582**	**642**	**682**	**442**	**482**	**522**	**582**	**642**	**682**
A (mm) + 500mm Elect. Board	5100	5100	6100	7100	7100	7100	5100	5100	6100	7100	7100	7100
B (mm)	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
C (mm)	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300
Operating kg. (1)	4550	4650	5380	6260	6700	7200	4590	4690	5440	6720	6760	7260
Transport kg.	4450	4630	5250	6110	6550	6940	4490	4670	5310	6170	6610	7000
VERSION PAC1												
Operating kg. (1)	5750	5930	6580	7660	8100	8490	5790	5970	6640	7720	8160	8550
Transport kg.	4900	5080	5730	6810	7250	7640	4940	5120	5790	6870	7310	7700

(1) The data has to be added to the evaporator and coils water volume with regard to the selected model.

Technical data show in this booklet are not binding. KLT Klima S.r.l reserves the right to modify data without any prior notice.

CHAPTER 1

SCROLL COMPRESSORS

- **Air/water High Efficiency heat pumps**
- **Air cooled water chillers**
- **from 50 to 385 kW**
- **Axial fan high efficiency**

MADE IN ITALY

IDENTIFICATION CODE		
SCAEY - HE - 121 - PAC		
12345	6	78	9	
1	S	Small series < 700 kW
2	C	Chiller unit
3	A	Air cooled
4	E	Axial fans
5	Y	Refrigerant R410A
6	P	Exchanger Plate to plate
	F	Exchanger Shell and tube
7	H	Heat pump version
8	44	Capacity factors
9	2	Numbers of circuits
10	PAC	Storage tank
	P1	1 pump
	P2	2 pumps
	PAC1	Storage tank + 1 pump
	PAC2	Storage tank + 2 pumps
	LN	Low noise
	VLN	Very low noise



GENERAL FEATURES

The new HE (High Efficiency) heat pump range has been designed to achieve and to meet the following advantages:

SAVINGS

The "KLT Klima" HE are designed to maximize the heating performances in order to reach the classe A energy rating, which means they offer high energy efficiency with top energy savings.

The energy class is determined by the COP (Coefficient Of Performance, efficiency in heating mode - heat pump) and units are rated based on their power consumption according to a scale that goes from A (most efficient) to G (least efficient).

ENVIRONMENT

For a more environmentally friendly product, "KLT Klima" have opted to run their units whits green refrigerant R-410A. This gas does not contain chlorine atoms, so it is not dangerous to the ozone layer if released. Its superior thermodynamic efficiency also makes for considerable energy savings and means more compact, units together with higher performances.

TECHNOLOGY

A electronic expansion valve managed by software, can allow the refrigerant circuit to work very efficiently and reducing the power consumption. When the heating load changes suddenly, a traditional expansion valve experiences a 2-3 minute hunting period before achieving a state of equilibrium. On the contrary we have an immediate action of an electronic expansion valve.

When a compressor starts or stops:

- The electronic driver pre-positions the valve at a point that is very close to the final equilibrium point
- The state of equilibrium is quickly achieved with minor adjustments.
- The expansion valve becomes an active part within the system instead of just a passive part.
- Hunting lasts hardly any time at all

CAPACITY CONTROL

The option of producing different cooling circuit configurations on the same size unit (in terms of capacity) means we can customize efficiency levels at full or part load.

The multi-compressor models favour high efficiency values at full load (EER and COP). Having a number of compressors allows the unit to deliver its output based on a number of capacity reduction steps, thus adjusting capacity to suit the system's actual heating load perfectly and reducing inrush currents.

INTERCONNECTIVITY

An advanced microprocessor enable:

- LAN network.
- Programming key
- All the parameters can be configured by the keypad on the front or by a hardware key and/or a serial line.

GENERAL FEATURES

FRAME

Self-supporting galvanized steel frame protected with polyester powder painting. Panels are easily removable for maintenance and service activities.

COMPRESSORS

Hermetic "scroll" type with overload protection by a klixon and complete with oil sight glass. They are installed on vibrations absorbing rubber and placed within a close compartment to reduce sound level and to allow service and maintenance activities while unit is in operation.

IN SIDE EXCHANGER (Condenser/evaporator)

Braze welded plate type with one or two independent refrigerant circuits and one water circuit.

The circuit is made to guarantee an homogeneous cooling of all the water flow even during partial load. The insulation is made of flexible closed-cells lining. As protection, a flow switch is recommended to mount to stop the unit in case of no water circulation.

OUT SIDE EXCHANGER (Evaporator/condenser)

To maximize the heating operation with copper tube and aluminium finned coil. As option a protection grid is available.

FANS

Axial fans with aerodynamic outline blade section made of Al/Mg, directly coupled to a three phase electric motor with external rotor. A safety fan guard is fitted on air flow discharge.

REFRIGERANT CIRCUIT

Each unit is equipped with one or two refrigerant circuits. Each circuit includes: filter dryer, sight glass, Schrader service valve, safety thermostat on the discharge line, 4-way valve, non-return valve, two electronic thermostatic valves, liquid receiver and, if necessary, liquid separator on the compressor suction line.

To protect the refrigerant circuit the following devices are installed: man. reset high pressure switch, aut. reset low pressure switch, antifreeze thermostat.

ELECTRICAL BOARD

With protection grade IP54 the el. board is mounted in the compressor chamber. Service activities can be done while the unit is in operation. It includes: main circuit automatic breaker with locking door device, compressors and fans contactors and relé, auxiliary circuit transformer.

Microprocessor to control automatically the unit with a visual system to display the function as well as failures.

VERSIONS

P

This version is equipped with hydraulic kit. It includes: one or two pumps (one as stand-by), expansion vessel, gauge, flow switch, safety valve, air purger, shut off valve and hydraulic circuit insulated. In case of stand-by pump a non-return valve is mounted. Relevant electrical circuit. As option, pumps with higher ESP are available.

PAC

This version is equipped with hydraulic kit and inertial storage tank insulated and installed on the return line.

LN

Low noise version. It include low speed fans.

VLN

Very low noise version. Further to the LN devices, this execution is equipped with special soundproofing on the compressors.

OPTIONS

- Power factor correction.
- Fan speed control.
- Remote control panel.
- Clock card.
- RS 485 card.
- Evaporator el. heater.
- El. Heater PAC version.
- Compressor suction and liquid line shut-off valves.
- HP/LP gauges.
- Cu/Cu or Epoxy Protection Coils
- Flow switch (STD in P and PAC versions)
- Pump shut off valve.
- Pumps with higher ESP.
- Protection grid/coils.
- Spring AV mounts.
- High sensibility AV mounts.
- Inverter for axial fans
- Wooden crate.
- Kit low temperature.

TECHNICAL DATA - HIGH EFFICIENCY HEAT PUMP

SIZE			61	71	81	91	101	121
Heating mode								
Heating capacity	(1)	kW	54	61	72	79	95	109
Absorbed power	(2)	kW	15.9	18.3	20.2	22.2	25.7	31.2
COP		-	3.39	3.33	3.56	3.55	3.69	3.4
Cooling mode								
Cooling capacity	(1)	kW	42	46	55	60	72	84
Absorbed power	(2)	kW	17.8	21.4	23	25.8	29.4	34.6
EER		-	2.35	2.14	2.4	2.32	2.44	2.42
Compressors (scroll)								
Quantity		n°	2					
Refrigerant circuits		n°	1					
Capacity step		n°	2					
Refrigerant		-	R410A					
Inside exchanger								
flow rate		m^3/h	9.2	10.4	12.3	13.5	16.3	18.7
Pressure drop		kPa	43	56	46	55	40	51
Water volume		l	2	2	2.4	2.4	4.8	4.8
PAC Version								
Storage tank water volume		l	200	200	200	200	300	300
Water pump nominal power		kW	0.75	0.75	1.1	1.1	1.5	1.5
Water pump nominal current		A	2.2	2.2	3.5	3.5	5	5
External static pressure		kPa	100	95	90	85	100	100
Outside exchanger								
axial fans		n°	2	2	2	2	2	2
Max abs. power		kW	1.8	1.8	1.8	1.8	1.8	3.6
Max abs. current		A	4	4	4	4	4	8
Unit electrical data								
Max abs. current	(3)	A	51	53	59	71	77	87
Max LRC		A	141	149	152	180	217	272
Voltage supply		V/f/Hz	400/3/50					
Sound pressure level at 1m	(3) (4)							
STD Version		dB(A)	69	69	70	70	70	73
LN Version		dB(A)	66	66	66	66	67	71
VLN Version		dB(A)	64	64	64	64	65	69

Notes:

1) Cooling mode : water temp. 12°C / 7°C - Ambient air temperature 35°C
   Heating mode : water temp. 40 °C / 45 °C; air temperature 7 °C db, 6 °C wb
2) Compressors + fans only. No water pump(s)
3) Without water pump(s) STD version
4) Compressors site and hemispheric free field

TECHNICAL DATA

SIZE			131	141	151	161	191	222
Heating mode								
Heating capacity	(1)	kW	119	134	147	170	193	217
Absorbed power	(2)	kW	34.6	37.8	42.1	47.5	55.8	62.9
COP		-	3.32	3.42	3.36	3.45	3.32	3.32
Cooling mode								
Cooling capacity	(1)	kW	92	104	111	127	150	169
Absorbed power	(2)	kW	40	43.6	49.8	56.7	63.8	69.6
EER		-	2.3	2.38	2.22	2.23	2.35	2.42
Compressors (scroll)								
Quantity		n°	2					4
Refrigerant circuits		n°	1					2
Capacity step		n°	2					4
Refrigerant		-	R410A					
Inside exchanger								
flow rate		m^3/h	20.4	23	25.2	29.2	33.1	37.3
Pressure drop		kPa	45	56	67	69	61	60
Water volume		l	6.8	6.8	6.8	8.2	8.4	9.8
PAC Version								
Storage tank water volume		l	300	500	500	500	500	500
Water pump nominal power		kW	1.5	1.85	1.85	1.85	1.85	3
Water pump nominal current		A	5	5	5	5	5	6.5
External static pressure		kPa	90	100	90	110	100	120
Outside exchanger								
axial fans		n°	2	3	3	3	3	4
Max abs. power		kW	3.6	2.7	2.7	2.7	5.4	7.2
Max abs. current		A	8	6	6	6	12	16
Unit electrical data								
Max abs. current	(3)	A	93	100	108	125	148	169
Max LRC		A	278	323	331	370	392	354
Voltage supply		V/f/Hz	400/3/50					
Sound pressure level at 1m	(3) (4)							
STD Version		dB(A)	74	73	73	74	75	76
LN Version		dB(A)	71	71	71	73	73	74
VLN Version		dB(A)	68	68	68	69	69	71

Notes:

1) Cooling mode : water temp. 12°C / 7°C - Ambient air temperature 35°C
Heating mode : water temp. 40 °C / 45 °C; air temperature 7 °C db, 6 °C wb
2) Compressors + fans only. No water pump(s)
3) Without water pump(s) STD version
4) Compressors site and hemispheric free field

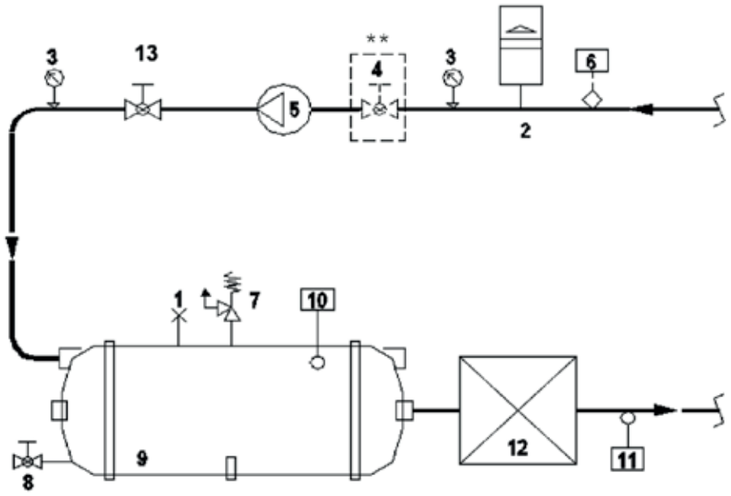
TECHNICAL DATA

SIZE			242	262	282	312	342	382
Heating mode								
Heating capacity	(1)	kW	238	260	280	310	349	385
Absorbed power	(2)	kW	70.2	75.8	82	90.8	100.5	111.6
COP		-	3.39	3.43	3.41	3.41	3.47	3.44
Cooling mode								
Cooling capacity	(1)	kW	183	208	220	244	274	301
Absorbed power	(2)	kW	80.4	87.2	87.8	95.6	111	127.6
EER		-	2.27	2.38	2.5	2.55	2.46	2.35
Compressors (scroll)								
Quantity		n°	4					
Refrigerant circuits		n°	2					
Capacity step		n°	4					
Refrigerant		-	R410A					
Inside exchanger								
flow rate		m^3/h	40.9	44.7	48.1	53.3	60	66.2
Pressure drop		kPa	72	65	68	86	75	82
Water volume		l	9.8	13	13	13	18	21
PAC Version								
Storage tank water volume		l	500	500	500	500	750	750
Water pump nominal power		kW	3	4	4	4	5.5	5.5
Water pump nominal current		A	6.5	7.7	7.7	7.7	11	11
External static pressure		kPa	100	110	100	90	120	110
Outside exchanger								
axial fans		n°	4	6	6	6	6	6
Max abs. power		kW	7.2	5.4	10.8	10.8	10.8	10.8
Max abs. current		A	16	12	24	24	24	24
Unit electrical data								
Max abs. current	(3)	A	181	194	223	223	257	290
Max LRC		A	366	417	446	446	501	535
Voltage supply		V/f/Hz	400/3/50					
Sound pressure level at 1m	(3) (4)							
STD Version		dB(A)	77	77	79	79	79	79
LN Version		dB(A)	74	74	77	77	77	77
VLN Version		dB(A)	71	71	73	73	73	73

Notes:

1) Cooling mode : water temp. 12°C / 7°C - Ambient air temperature 35°C
Heating mode : water temp. 40 °C / 45 °C; air temperature 7 °C db, 6 °C wb
2) Compressors + fans only. No water pump(s)
3) Without water pump(s) STD version
4) Compressors site and hemispheric free field

HYDRAULIC CRCUIT AWC HE PAC1 (PAC2)



1 = Air purger
2 = Expansion vessel
3 = Gauge
4 = Shut off valve*
5 = Pump
6 = Flow switch
7 = Safety valve
8 = Drain/fill up valve
9 = Tank
10 = Temperature probe
11 = Antifreeze probe
12 = Exchanger
13 = Balancing valve

* The outlined components are optional

- **PAC1: n°1 off pump**
- **PAC 2 : n°2 off pumps**

In case of glycol mix > 30% contact factory

OPERATING RANGE

		Cooling	Heating
INLET WATER TEMPERATURE	Max °C	17	50
	Min °C	9	30
INLET WATER TEMPERATURE	Max °C	10	55
	Min °C	5	35
AMBIENT AIR TEMPERATURE	Max °C	42	20
	Min °C	15 (1)	-10

(1) This temperature can go down to -15°C only if the appropriate kit has been installes

DIMENSIONS

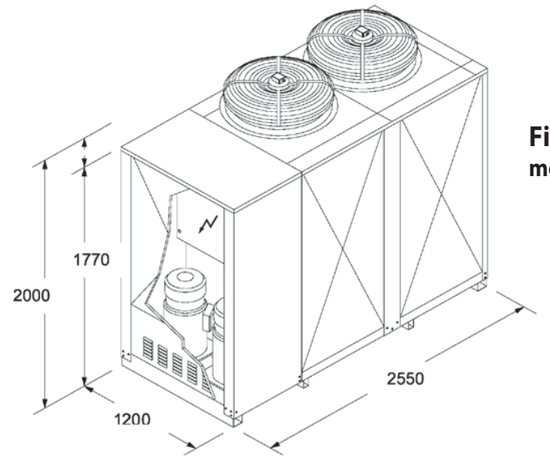


Fig. A
mod. 61 - 91

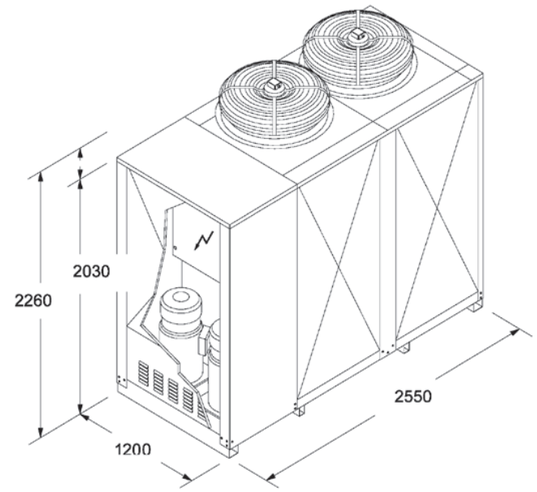


Fig. B
mod. 101 - 131

WEIGHTS (Kg)

VERSION		STD							LN / VLN						
Mod.		61	71	81	91	191	121	131	61	71	81	91	191	121	131
FIG.		A	A	A	A	B	B	B	A	A	A	A	B	B	B
VERSION STD															
Operating kg.	(1)	788	830	872	966	1155	1218	1323	767	814	851	932	1129	1197	1302
Transport kg.		788	830	872	966	1155	1218	1323	767	814	851	932	1129	1197	1302
VERSION P1															
Operating kg.	(1)	761	814	856	940	1134	1213	1323	782	835	872	956	1160	1250	1365
Transport kg.		761	814	856	940	1134	1213	1323	782	835	872	956	1160	1250	1365
VERSION PAC1															
Operating kg.	(1)	1087	1124	1208	1271	1580	1675	1796	1139	1176	1260	1323	1633	1727	1848
Transport kg.		835	877	966	1040	1239	1323	1449	887	929	1019	1092	1292	1376	1502

(1) The data has to be added to the evaporator and coils water volume with regard to the selected model.

DIMENSIONS

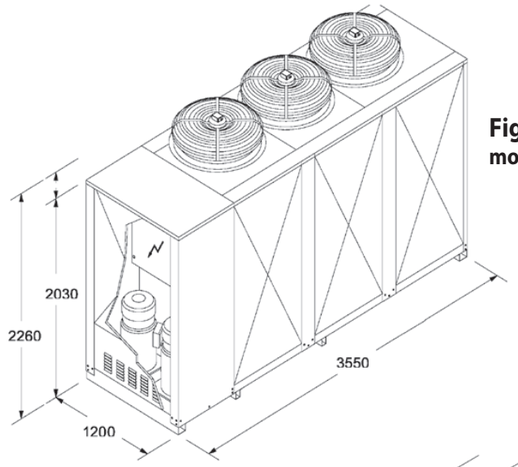


Fig. C
mod. 141 - 191

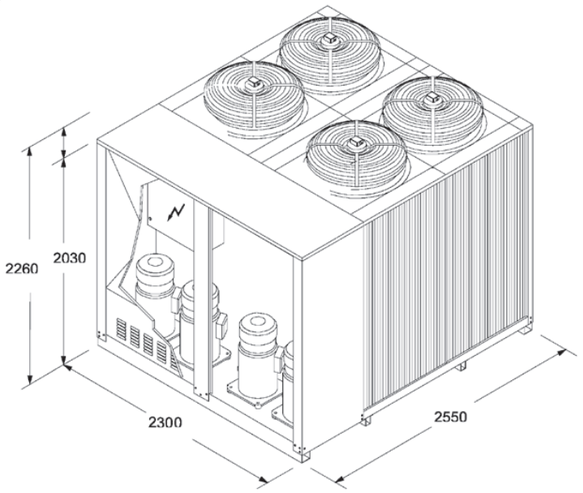


Fig. D
mod. 222 - 242

WEIGHTS (Kg)

VERSION	STD						LN / VLN					
Mod.	**141**	**151**	**161**	**191**	**222**	**242**	**141**	**151**	**161**	**191**	**222**	**242**
FIG.	**C**	**C**	**C**	**C**	**D**	**D**	**C**	**C**	**C**	**C**	**D**	**D**
VERSION STD												
Operating kg. (1)	1344	1423	1565	1659	2069	2300	1386	1465	1607	1701	2153	2373
Transport kg.	1344	1423	1565	1659	2069	2300	1386	1465	1607	1701	2153	2373
VERSION P1												
Operating kg. (1)	1386	1465	1617	1701	2132	2373	1428	1507	1659	1743	2205	2447
Transport kg.	1386	1465	1617	1701	2132	2373	1428	1507	1659	1743	2205	2447
VERSION PAC1												
Operating kg. (1)	1880	2168	2300	2415	2385	3108	1932	2221	2352	2468	2888	3161
Transport kg.	1523	1591	1743	1859	2289	2531	1575	1643	1796	1911	2342	2583

(1) The data has to be added to the evaporator and coils water volume with regard to the selected model.

DIMENSIONS

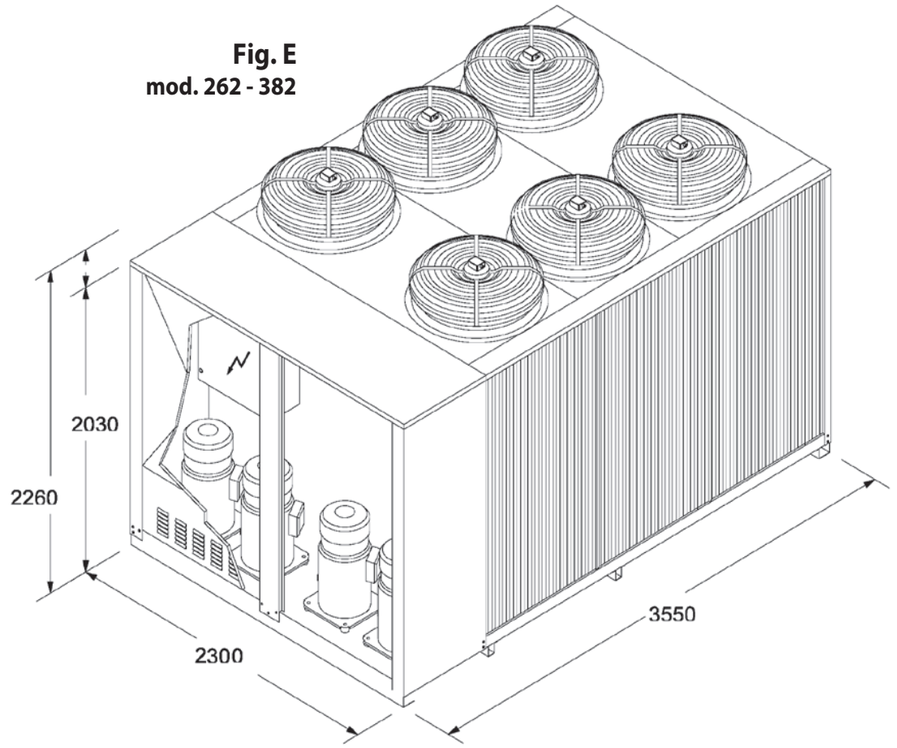


Fig. E
mod. 262 - 382

WEIGHTS (Kg)

VERSION	STD					LN / VLN				
Mod.	**262**	**282**	**312**	**342**	**382**	**262**	**282**	**312**	**342**	**382**
FIG.	**E**	**E**	**E**	**E**	**E**	**E**	**E**	**E**	**E**	**E**
VERSION STD										
Operating kg. (1)	2342	2457	2720	2888	3119	241	2531	2793	2961	3203
Transport kg.	2342	2457	2720	2888	3119	241	2531	2793	2961	3203
VERSION P1										
Operating kg. (1)	2415	2531	2804	2982	3245	2489	2594	2867	3056	3329
Transport kg.	2415	2531	2804	2982	3245	2489	2594	2867	3056	3329
VERSION PAC1										
Operating kg. (1)	3265	3381	3654	3832	3985	3315	3491	3704	3902	4065
Transport kg.	2665	2721	3054	3232	3325	2715	2831	3104	3302	3465

(1) The data has to be added to the evaporator and coils water volume with regard to the selected model.

SCROLL COMPRESSORS

- **Air cooled water chiller**
- **Air cooled reversible heat pumps**
- **from 40 kW to 320 kW**
- **Centrifugal Fan**

MADE IN ITALY

IDENTIFICATION CODE

S	C	A	C	Y	–	1	5	1	H	–	PAC
1	2	3	4	5	6		7	8		9	10 11

1	**S**	Series small > 40 kW
2	**C**	Chiller unit
3	**A**	Air cooled
4	**C**	Centrifugal fans
5	**Y**	Refrigerant R410A
6	**-**	Scroll Compressors
	A	Recip. Compressors
7	**15**	Capacity factors
8	**1**	Number of circuits
9	**H**	Cooling only version
	-	Heat pump unit version
10	**-**	Plate-to-plate evaporator
	F	Shell and tube evaporator
11	**PAC**	Storage tank + pump
	P1	1 pump
	P2	2 pumps
	DS	Desuperheater
	RCS	SHeat recovery fitted in series (70-90%)
	RCP	Heat recovery fitted in parallel (100%)
	LN	Low noise



GENERAL FEATURES

FRAME

Self-supporting galvanized steel frame protected with polyester powder painting. Panels are easily removable for maintenance and service activities

COMPRESSORS

Hermetic «scroll» type with overload protection by a klixon and complete with oil sight glass. They are installed on vibrations absorbing rubber.

EVAPORATOR

Braze welded plate type with one or two independent refrigerant circuits and one water circuit.

The circuit is made to guarantee an homogeneous cooling of all the water flow even during partial load. The insulation is made of flexible closed-cells lining.

As protection, a flow switch is recommended to mount to stop the unit in case of no water circulation.

CONDENSER

Copper tube and aluminium finned coil. As option a protection grid is available.

FANS

Centrifugal fans directly coupled to a three-phase belt driven motor.

REFRIGERANT CIRCUIT

Each unit is equipped with one or two refrigerant circuits.

Each circuit includes: filter dryer, sight glass, Electronic thermostatic valve, Schrader service valve.

To protect the refrigerant circuit the following devices are installed: man. reset high pressure switch, aut. reset low pressure switch, antifreeze thermostat.

The Heat Pump Units version contain, in addition: safety thermostat on the discharge line, 4-way valve, non-return valve, two electronic thermostatic valves, liquid receiver and, if necessary, liquid separator on the compressor suction line.

ELECTRICAL BOARD

With protection grade IP54 the el. board is mounted in the compressor chamber. Service activities can be done while the unit is in operation. It includes:

- Main circuit automatic breaker with locking door device, compressors and fans contactors and relé, auxiliary circuit transformer.
- Microprocessor to control automatically the unit with a visual system to display the function as well as failures.

VERSIONS

DS

Partial condensing heat recovery. Each refrigerant circuit includes: a desuperheater insulated and installed in series between the compressor and the condenser.

RCS

Condensing heat recovery from 70% to 90%.

Each refrigerant circuit includes: a heat exchanger insulated and mounted in series between compressor and condenser and condensing control pressure transducer type.

RCP

100% condensing heat recovery. Each refrigerant circuit includes: a heat exchanger insulated and mounted in parallel to the condenser and solenoid valves.

P

This version is equipped with hydraulic kit. It includes: one or two pumps (one as stand-by), expansion vessel, gauge, flow switch, safety valve, air purger, shut off valve and hydraulic circuit insulated. In case of stand-by pump a non-return valve is mounted. Relevant electrical circuit. As option, pumps with higher ESP are available.

PAC

This version is equipped with hydraulic kit and inertial storage tank insulated and installed on the return line.

LN

Low noise version. It includes: fan speed control (steps) through pressure transducer and a special soundproofing on the compressors.

Options

- Power factor correction
- Condensing control (steps)
- Condensing control (with inverter motor)
- Fans with higher ESP.
- Remote control panel
- Clock card
- RS 485 card. (protocol: Lonwork, Bacnet, Trend)
- Shell and tube evaporator
- Evaporator el. heater
- El Heater PAC version
- Discharge and Liquid-Line shut-off valves
- HP/LP gauges
- Cu/Cu condenser
- Flow switch loose (STD in P and PAC versions)
- Pump shut off valve
- Pumps with higher ESP
- Protection grid/filter condenser (protection grid only in H-units)
- Rubber AV mounts
- Spring antivibrator mountings
- Wooden crate

TECHNICAL DATA

SIZE			61	71	81	91	101	121
Cooling mode STD/LN								
Cooling capacity	(1)	kW	50	55	64	70	85	104
Abs power	(2)	kW	18.9	22.3	23.8	26.7	30.8	35.7
EER	(2)	-	2.64	2.46	2.68	2.62	2.75	2.91
Heating								
Heating capacity	(1)	kW	54	61	71	77	75	109
Abs power	(2)	kW	18.8	21.4	23.4	25.4	28.8	34.2
COP	(2)	-	2.87	2.85	3.03	3.03	3.29	3.18
Compressors (scrooll)								
Quantity		n°	2					
Refrigerant circuit		n°	1					
Capacity step		n°	2					
Refrigerant		-	R410A					
Refrigerant quantity		kg	15	16	17	19	21	25
Evaporator plate to plate	(3)							
Water flow rate		m^3/h	8.6	9.4	11	12	14.6	17.8
Total pressure drop		kPa	33	41	35	42	26	39
Water volume		l	2	2	2.4	2.4	4.8	4.8
PAC Version								
Tank volume		l	200	200	200	200	300	300
Water pump nominal power		kW	0.75	0.75	0.75	0.75	1.1	1.1
Water pump nominal current		A	2.2	2.2	2.2	2.2	3.5	3.5
External static pressure		kPa	110	100	90	85	120	100
Condenser STD/LN	(4)							
Centrifugal fans		n°	2	2	2	2	2	2
Nominal air flow	(5)	m^3/h	24.000	24.000	24.000	24.000	24.000	31.000
External pressure		Pa	120					
Max abs. power		n°/kW	2x1.75	2x1.75	2x1.75	2x1.75	2x1.75	2x3.1
Max abs. current		n°/A	2x4.5	2x4.5	2x4.5	2x4.5	2x1.75	2x7.7
Unit eletrical data	(4)							
Max Abs. Current		A	47	50	55	67	74	84
Max LRC		A	137	145	148	178	217	308
Voltage supply		V/f/Hz	400 / 3 / 50					
DS Version	(7)							
Heating capacity		kW	11	12	14	16	19	22
Water flow rate		m^3/h	0.9	1	1.2	1.4	1.6	1.8
Pressure drop		kPa	10	10	15	15	16	16
Sound pressure level at 1m	(6) (8)							
Version STD		dB(A)	73	73	73	73	73	75
Version LN		dB(A)	71	71	71	71	71	79
Version VLN		-	Contattare sede / Contact factory					

Notes:
1) Cooling mode: water temp. 12°C / 7°C; air temperature 35°C - Heating mode: water temp. 40°C / 45°C; air temperature 7°C db, 6°C wb
2) Compressors + fans only. No water pump(s)
3) It becomes condenser in SCACY…H (heat pump) version
4) It becomes evaporator in AWC…H (heat pump) version
5) Max air flow in case of LN version
6) Without water pump(s), STD version
7) Water temperature from 40 °C to 50 °C
8) Compressors site and ducted air discharged

AWC INDOOR SCASY/R410A

TECHNICAL DATA

SIZE			131	141	151	161	191	222
Cooling mode STD/LN								
Cooling capacity	(1)	kW	109	124	132	150	169	208
Abs power	(2)	kW	40.8	45.6	51.6	57.5	66.2	76.6
EER	(2)	-	2.67	2.71	2.56	2.60	2.55	2.71
Heating								
Heating capacity	(1)	kW	118	140	147	167	192	215
Abs power	(2)	kW	37.6	45.4	46.6	52.3	60.2	68.4
COP	(2)	-	3.13	3.08	3.15	3.19	3.18	3.14
Compressors (scrooll)								
Quantity		n°	2					4
Refrigerant circuit		n°	1					2
Capacity step		n°	2					4
Refrigerant		-	R410A					
Refrigerant quantity		kg	25	30	31	35	36	23+23
Evaporator plate to plate	(3)							
Water flow rate		m^3/h	18.7	21.3	22.7	25.8	29	35.7
Total pressure drop		kPa	34	46	49	44	56	45
Water volume		l	6.8	6.8	6.8	8.2	8.4	9.8
PAC Version								
Tank volume		l	300	300	300	300	300	500
Water pump nominal power		kW	1.1	1.5	1.5	1.85	1.85	2.2
Water pump nominal current		A	3.5	5	5	5	5	5.2
External static pressure		kPa	90	120	110	130	120	130
Condenser STD/LN	(4)							
Centrifugal fans		n°	2	3	3	3	3	4
Nominal air flow	(5)	m^3/h	31.000	38.000	38.000	38.000	46.000	46.000
External pressure		Pa	120					
Max abs. power		n°/kW	2x2.4	3x1.75	3x1.75	3x1.75	3x2.4	4x2.4
Max abs. current		n°/A	2x6.5	3x4.5	3x4.5	3x4.5	3x6.5	4x6.5
Unit eletrical data	(4)							
Max Abs. Current		A	86	104	101	121	140	161
Max LRC		A	311	349	325	363	380	387
Voltage supply		V/f/Hz	400 / 3 / 50					
DS Version	(7)							
Heating capacity		kW	24	28	33	38	42	46
Water flow rate		m^3/h	2	2.4	2.8	3.2	3.6	3.9
Pressure drop		kPa	15	18	18	20	20	20
Sound pressure level at 1m	(6) (8)							
Version STD		dB(A)	75	78	78	78	80	82
Version LN		dB(A)	71	74	74	74	76	78
Version VLN		-	Contattare sede / Contact factory					

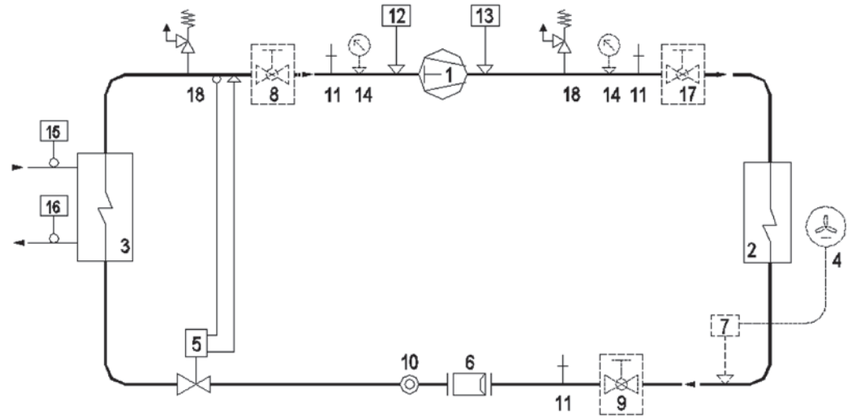
Notes:
1) Cooling mode: water temp. 12°C / 7°C; air temperature 35°C - Heating mode: water temp. 40°C / 45°C; air temperature 7°C db, 6°C wb
2) Compressors + fans only. No water pump(s)
3) It becomes condenser in AWC…H (heat pump) version
4) It becomes evaporator in AWC…H (heat pump) version
5) Max air flow in case of LN version
6) Without water pump(s), STD version
7) Water temperature from 40 °C to 50 °C
8) Compressors site and ducted air discharged

TECHNICAL DATA

SIZE			242	262	282	312	342	382
Cooling mode STD/LN								
Cooling capacity	(1)	kW	217	240	252	259	295	319
Abs power	(2)	kW	81.4	95.1	99.2	111.6	121.2	138.8
EER	(2)	-	2.66	2.52	2.54	2.32	2.43	2.29
Heating								
Heating capacity	(1)	kW	238	267	287	300	337	371
Abs power	(2)	kW	76	87.6	97.8	102.8	111.2	122
COP	(2)	-	3.13	3.04	2.93	2.91	3.03	3.04
Compressors (scrooll)								
Quantity		n°	4					
Refrigerant circuit		n°	2					
Capacity step		n°	4					
Refrigerant		-	R410A					
Refrigerant quantity		kg	25+25	29+29	31+31	34+34	36+36	38+38
Evaporator plate to plate	(3)							
Water flow rate		m³/h	37	41	43	44.5	50.7	54.8
Total pressure drop		kPa	49	34	35	38	34	40
Water volume		l	9.8	13	13	13	18	21
PAC Version								
Tank volume		l	500	500	500	500	500	500
Water pump nominal power		kW	2.2	3	3	3	4	4
Water pump nominal current		A	5.2	6.5	6.5	6.5	7.7	7.7
External static pressure		kPa	110	130	120	110	130	180
Condenser STD/LN	(4)							
Centrifugal fans		n°	4	4	4	4	5	5
Nominal air flow	(5)	m³/h	56.000	64.000	72.000	72.000	80.000	80.000
External pressure		Pa	120					
Max abs. power		n°/kW	4x2.4	4x3.2	4x4.4	4x4.4	5x3.2	5x3.2
Max abs. current		n°/A	4x6.5	4x7.7	4x11	4x11	5x7.7	5x7.7
Unit eletrical data	(4)							
Max Abs. Current		A	170	203	203	197	231	265
Max LRC		A	393	383	383	421	476	510
Voltage supply		V/f/Hz	400 / 3 / 50					
DS Version	(7)							
Heating capacity		kW	52	62	65	75	83	88
Water flow rate		m³/h	4.4	5.3	5.5	6.4	7.1	7.5
Pressure drop		kPa	20	22	22	24	26	26
Sound pressure level at 1m	(6) (8)							
Version STD		dB(A)	82	82	84	84	86	86
Version LN		dB(A)	78	78	80	80	82	82
		-	Contattare sede / Contact factory					

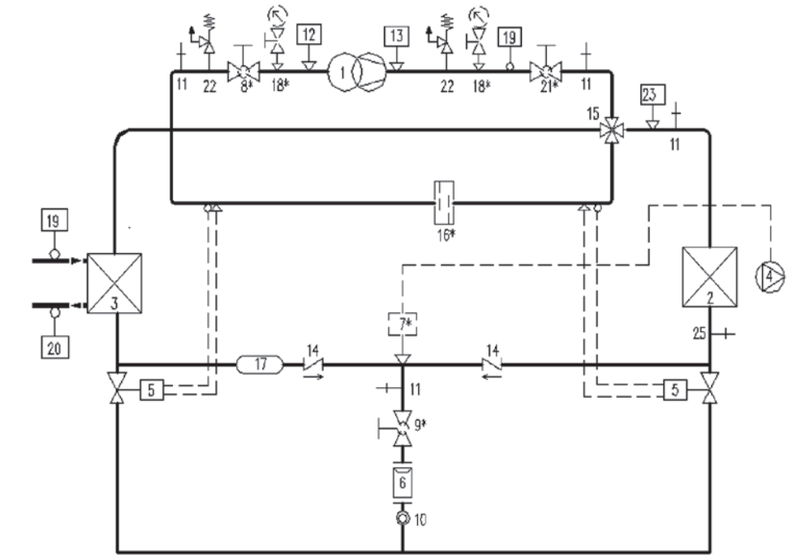
Notes:
1) Cooling mode: water temp. 12°C / 7°C; air temperature 35°C - Heating mode: water temp. 40°C / 45°C; air temperature 7°C db, 6°C wb
2) Compressors + fans only. No water pump(s)
3) It becomes condenser in AWC…H (heat pump) version
4) It becomes evaporator in AWC…H (heat pump) version
5) Max air flow in case of LN version
6) Without water pump(s), STD version
7) Water temperature from 40 °C to 50 °C
8) Compressors site and ducted air discharged

AWC REFRIGERANT CIRCUIT



1 Compressor
2 Condensator
3 Evaporator
4 Centrifugal fans
5 Electronic Thermostatic valve
6 Dryer
7 Fan speed regulator*
8 Shut off valve suction line*
9 Shut off valve liquid line*
10 Sight glass
11 Schrader service valve
12 Low pressure switch
13 High pressure switch
14 Gauges*
15 Temperature probe
16 Antifreeze probe
17 Shut off valves discharge line*
18 Safety valve

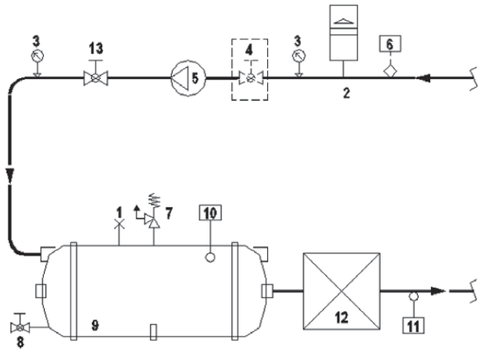
AWC ... H REFRIGERANT CIRCUIT



1 Compressor
2 Condenser
3 Evaporator
4 Centrifugal fans
5 Electronic Thermostatic valve
6 Dryer
7 Fan speed regulator*
8 Shut off valves suction line*
9 Shut off valves liquid line*
10 Sight glass
11 Schrader service valve
12 Low pressure switch
13 High pressure switch
14 No-return valve
15 4way solenoid valve
16 Liquid separator suction line*
17 Liquid receiver
18 Gauge*
19 Temperature probe
20 Antifreeze probe
21 Shut off valve discharge line*
22 Safety valve
23 Pressure transducer

*The outlined components are optional

AWC ... PAC1 (PAC2) HYDRAULIC CIRCUIT



1 Air purger
2 Expansion vessel
3 Gauge
4 Shut off valve*
5 Pump
6 Flow switch
7 Safety valve
8 Drain/fill up valve
9 Tank
10 Temperature probe
11 Antifreeze probe
12 Exchanger
13 Pressure valve

* The outlined components are optional

• PAC1: off pump - PAC2: 2 off pumps

OPERATING RANGE

EVAP. INLET WATER TEMPERATURE	Max °C	17	45
	Min °C	9	30
EVAP. INLET WATER TEMPERATURE	Max °C	10	50
	Min °C	5	30
AMBIENT AIR TEMPERATURE	Max °C	42	20
	Min °C	15 (1)	-5 (2)

(1) This temperature is possible only if the appropriate kit "partial load" has been installed.
(2) specific kit

CORRECTION FACTORS

Ethylene glycol persentage by weight (%)	**10**	**20**	**30**	**40**	**50**
Freezing point (°C)	-3,6	-8,7	-15,3	-23,5	-35,5
Cooling capacity	0,986	0,980	0,973	0,966	0,960
Absorbed Power	1,000	0,995	0,990	0,985	0,975
Mixture flow rate	1,023	1,054	1,092	1,140	1,200
Pressure drop	1,061	1,114	1,190	1,244	1,310

DIMENSIONS

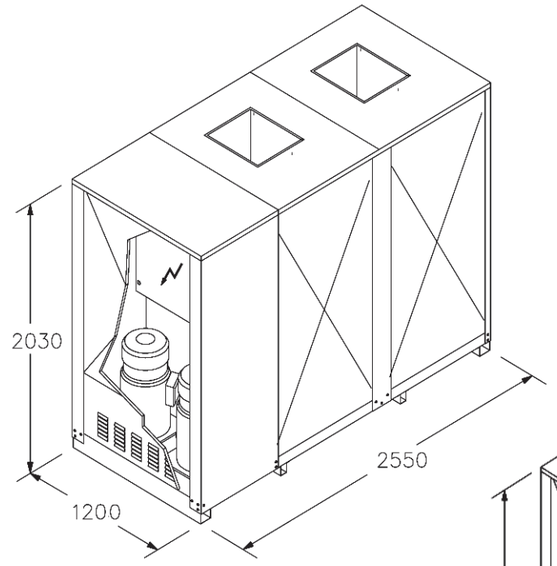


Fig. A

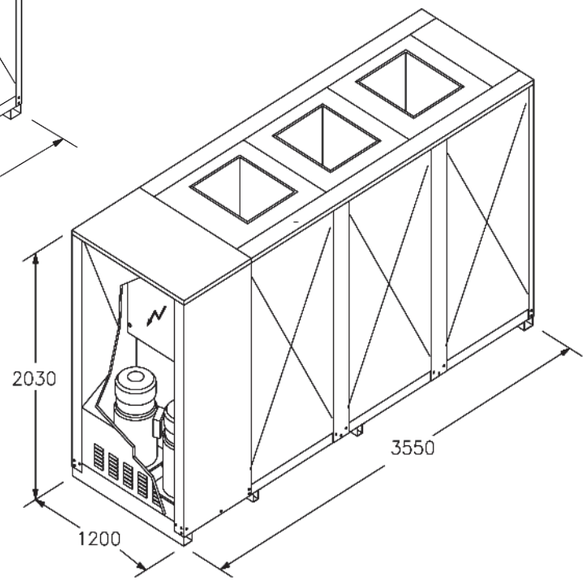


Fig. B

WEIGHTS (Kg)

VERSION	**STD**							**LN**						
Model	**61**	**71**	**81**	**91**	**101**	**121**	**131**	**61**	**71**	**81**	**91**	**101**	**121**	**131**
Fig.	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Operation (1)	710	750	790	870	1050	1105	1200	730	775	810	888	1075	1140	1240
Transport	710	750	790	870	1050	1105	1200	730	775	810	888	1075	1140	1240
Version PAC1														
Operation	1035	1070	1150	1210	1505	1595	1710	1085	1120	1200	1260	1555	1645	1760
Transport	795	835	920	990	1180	1260	1380	845	885	970	1040	1230	1310	1430

VERSION	**STD**						**LN**					
Model	**141**	**151**	**161**	**191**	**222**	**242**	**141**	**151**	**161**	**191**	**222**	**242**
Fig.	B	B	B	B	C	C	B	B	B	B	C	C
Operation (1)	1280	1355	1490	1580	1970	2190	1320	1395	1530	1620	2050	2260
Transport	1280	1355	1490	1580	1970	2190	1320	1395	1530	1620	2050	2260
Version PAC1												
Operation	1790	2065	2190	2300	2700	2960	1840	2115	2240	2350	2750	3010
Transport	1450	1515	1660	1770	2180	2410	1500	1565	1710	1820	2230	2460

(1) The data has to be added to the evaporator water volume with regards to the selected model.

DIMENSIONS

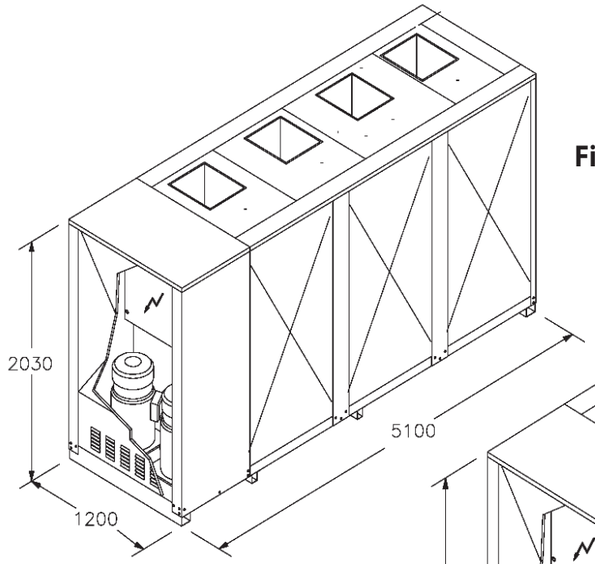


Fig. C

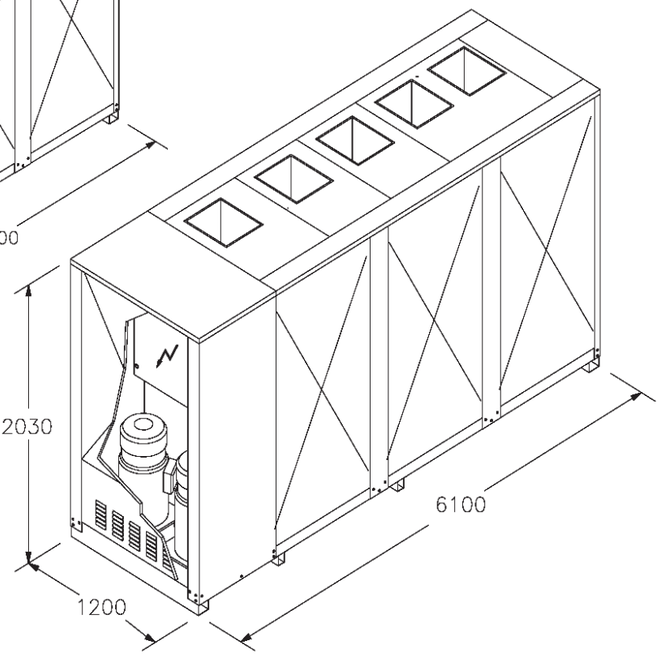


Fig. D

WEIGHTS (Kg)

VERSION	**STD**					**LN**				
Model	**262**	**282**	**312**	**342**	**382**	**262**	**282**	**312**	**342**	**382**
Fig.	C	C	C	D	D	C	C	C	D	D
Operation (1)	1280	1355	1490	1580	2190	1320	1395	1530	1620	2260
Transport	1280	1355	1490	1580	2190	1320	1395	1530	1620	2260
Version PAC1										
Operation	1790	2065	2190	2300	2960	1840	2115	2240	2350	3010
Transport	1450	1515	1660	1770	2410	1500	1565	1710	1820	2460

(1) The data has to be added to the evaporator water volume with regards to the selected model.

Technical data shown in this booklet are not binding. KLT Klima S.r.l reserves the right to modify data without any prior notice.

NOTES

SCREW COMPRESSORS

- **Air cooled water chiller**
- **Air cooled reversible heat pumps**
- **from 350 kW to 1650 kW**
- **Axial Fan**

MADE IN ITALY

IDENTIFICATION CODE

L	C	A	E	X	–	9	7	2	–	PAC
1	2	3	4	5	6	7	8		9	10

1	**L**	Large series > 350 kW
2	**C**	Chiller unit
3	**A**	Air cooled
4	**E**	Axial fans
5	**X**	Refrigerant R134a
6	**-**	Screw compressors
	A	Reciprocating compressors
7	**72**	Capacity factors
8	**2**	Numbers of circuits
9	**-**	Cooling only version
	H	Heat pump unit version
10	**PAC**	Storage tank + pump
	P1	1 pump
	P2	2 pumps
	DS	Desuperheater
	RCS	Heat recovery fitted series (70-90%)
	RCP	Heat recovery fitted in parallel (100%)
	LN	Low noise
	VLN	Very low noise



GENERAL FEATURES

FRAME

Semi-hermetic «double screw» type with a built-in thermal switch protection motor complete with: suction and discharge shut-off valves (option), oil separator, step control, crankcase heater, oil level switch (option), oil sight glass, safety thermostat, oil strainer, suction strainer, liquid injection device.

EVAPORATOR

Shell and tube type, made by copper tube and steel shell and with two independent refrigerant circuits and one water circuit. The thermal insulation is made of flexible closed-cells lining. As protection

CONDENSERS

Double circuits made of several copper tube and aluminium finned coils. They are connected to make two refrigerant circuits.

FANS

Axial fans with aerodynamic outline blade, directly couplet to a three phase electric motor with external rotor.

A safety fan guard is fitted on air flow discharge.

REFRIGERANT CIRCUITS

Each unit is supplied with two or more independent refrigerant circuits; each one includes: filter dryer, refrigerant sight glass, solenoid valve, thermostatic electronic valve with external equalizer, liquid line shut-off valve, service valve, HP/LP gauges.

To protect the refrigerant circuit the following devices are installed: automatic reset low pressure switch, manual reset high and safety pressure switches, safety valve, antifreeze thermostat.

ELECTRICAL BOARD

Weather proof type with protection grade IP 54.

It includes:

- Main circuit automatic breaker with locking door device, main fuses, compressor contactor and fuses for the star/ delta start or part winding;
- fans contactors and fuses, auxiliary circuits transformer;
- Microprocessor to control automatically the unit with a visual system to display the function as well as failures

VERSIONS

DS

Partial condensing heat recovery. Each refrigerant circuit includes a desuperheater insulated and installed in series between the compressor and the condenser.

RCS

Condensing heat recovery from 70% to 90%. Each refrigerant circuit includes a heat exchanger shell and tube type insulated and mounted in series between compressor and condenser.

Condensing control through pressure transducer.

RCP

100% condensing heat recovery. Each refrigerant circuit includes: a heat exchanger shell and tube type insulated and mounted in parallel to the condenser and the relevant solenoid valves.

P

Hydraulic kit version. It includes: one or two pumps (one as stand-by pump) expansion vessel, safety valve, air purger, hydraulic circuit insulated and with flowswitch, shut-off valves and, in case of stand-by pump, non-return pump.

Relevant electrical circuit. As option, pumps with higher ESP are available.

PAC

Version with hydraulic and inertial storage tank. It includes, further to what included in the P version, a storage tank installed on the return line. The storage tank includes the evaporator.

LN

Low noise version, it includes pressostatic fan speed control and special soundproofing for the compressor chamber.

VLN

Very low noise version. Further to the LN devices, this version is equipped with very low speed fans and extra insulated compressor box.

OPTIONS

- Power factor correction
- Fan speed control
- Remote control panel
- Clock card
- RS 485 card (Protocol: ModBus, Lon Work, Bacnet)
- Evaporator electrical heater
- El. Heater for PAC version
- Compressor shut of valves
- Cu/Cu condensing coils
- Flowswitch (STD on P and PAC versions)
- Pump shut off valve
- Oversized evaporator
- Pumps with higher ESP
- Protection grid on compressor/coils chamber
- Rubber antivibration mounts
- Spring antivibrations hountings
- Soft Starter
- Automatic Breakers
- EC axial fans with inverter

GENERAL FEATURES

TECHNOLOGY

Electronic expansion valve managed by software, can allow the refrigerant circuit to work very efficiently and reducing the power consumption. When the heating load changes suddenly, a traditional expansion valve experiences a 2-3 minute hunting period before achieving a state of equilibrium. On the contrary we have an immediate action of an electronic expansion valve.

When a compressor starts or stops:

- The electronic driver pre-positions the valve at a point that is very close to the final equilibrium point
- The state of equilibrium is quickly achieved with minor adjustments.
- The expansion valve becomes an active part within the system instead of just a passive part.
- Hunting lasts hardly any time at all.



EC-FANS INVERTERS

The inverter technology employed on axial fans (optional extra) continuously and automatically adjusts the fans power and operating speed based on condensing pressure. This means the unit can even be used when outside air temperatures are below zero.



CAPACITY CONTROL

The possibility of adjusting the cooling capacity of screw compressors means we can customize efficiency levels at full or part load. The stepless control screw compressors favour high efficiency values at full load (EER).

Having a stepless control allows the unit to deliver its output based on a number of capacity reduction steps, thus adjusting capacity to suit the system's actual heating load perfectly reducing inrush currents.



INTERCONNECTIVITY

An advanced microprocessor enable:

- LAN network
- Programming Key
- All the parameters can be configured by the key pad on the front or by a hardware key and / or a serial line.



TECHNICAL DATA

SIZE			482	562	622	702	842	972	1022	1042
Cooling mode										
Cooling capacity	(1)	kW	404	456	534	589	703	787	822	870
Absorbed power	(2)	kW	136	160	173	203	234	267	258	264
EER		-	2.98	2,86	3.09	2,9	3	2.95	3.19	3.3
Compressors										
Number of compressors		n°	2							
Number of circuits		n°	2							
Capacity steps or stepless		n°	4							
Refrigerant		-	R134a							
Refrigerant charge		Kg	93	97	129	133	164	169	193	220
Shell and Tube evaporator										
Water flow		m^3/h	69	78	92	101	121	135	141	150
Pressure drop		kPa	54	44	51	53	59	51	56	55
Water content		l	111	113	236	240	195	268	268	390
Water connections - VICTAULIC		-	DN125	DN125	DN150	DN150	DN150	DN200	DN200	DN200
Condenser (STD/LN version)										
Axial fans		n°	6	6	8	8	10	10	12	12
Max absorbed power		kW	10.5	10.5	14	14	17.5	17.5	21	21
Max absorbed current		A	24	24	32	32	40	40	48	48
Condenser (version)										
Axial fans		n°	6	6	8	8	10	10	12	12
Max absorbed power		kW	6.6	6.6	8.8	8.8	11	11	13.2	13.2
Max absorbed current		A	13.8	13.8	18.4	18.4	23	23	27.6	27.6
Unit electrical data (STD/LN version)	(2)									
Max absorbed current		A	339	393	429	465	605	665	673	673
LRC		A	623	731	845	916	761	820	828	828
Electrical supply		V/f/Hz	400/ 3 /50							
Unit electrical data (VLN version)	(2)									
Max absorbed current		A	330	384	417	453	590	650	655	655
LRC		A	614	722	833	904	746	805	810	810
Electrical supply		V/f/Hz	400/ 3 /50							
PAC version										
Storage tank water volume		l	1.250	1.250	1.250	1.500	1.500	2.000	2.000	2.000
Water pump nominal power		kW	4	4	5.5	5.5	9.2	9.2	11	11
Water pump nominal current		A	8	8	11	11	20	20	22	22
ESP		kPa	90	65	75	65	130	120	140	125
DS version	(4)									
Heating capacity		kW	104	119	139	157	184	203	215	230
Water flow		m^3/h	8.9	10.2	12	13.2	15.8	17.5	18.5	19.8
Pressure drop		kPa	26	28	32	28	34	35	38	40
Sound pressure level at 1m	(5) (1)									
STD Version		dB(A)	88	88	88	88	89	89	89	89
Version		dB(A)	85	85	86	86	87	87	87	87
VLN Version		dB(A)	79	80	80	80	81	81	81	81

Notes:

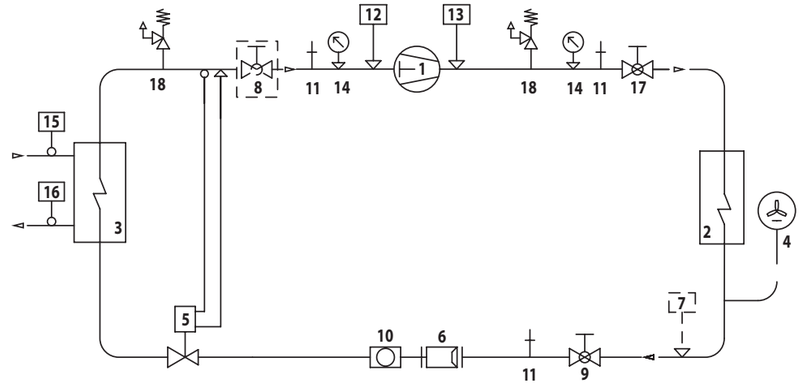
1) Cooling mode: water 12°C / 7°C; air temp. 35°C
2) Compressors + fans only. No water pump(s)
3) Max air flow in case of LN version
4) Water temp. from 40°C to 50°C
5) Compressor site and free field hemispheric (water pump(s) not included

TECHNICAL DATA

SIZE		1102	1252	1352	1472	1552	1643	1883	2063
Cooling mode									
Cooling capacity (1)	kW	921	1037	1120	1225	1258	1403	1506	1606
Absorbed power (2)	kW	311	366	403	426	431	470	542	628
EER	-	2.96	2.83	2.78	2.88	2.92	2.99	2.79	2.56
Compressors									
Number of compressors	n°	2					3		
Number of circuits	n°	2					3		
Capacity steps or stepless	n°	4					6		
Refrigerant	-	R134a							
Refrigerant charge	Kg	208	234	258	272	306	340	348	352
Shell and Tube evaporator									
Water flow	m³/h	158	178	193	211	216	241	259	276
Pressure drop	kPa	48	50	57	68	50	53	61	49
Water content	l	330	570	570	570	590	590	590	720
Water connections - VICTAULIC	-	DN200	DN200	DN200	DN200	DN200	DN200	DN200	DN200
Condenser (STD/LN version)									
Axial fans	n°	12	12	14	16	16	18	18	18
Max absorbed power	kW	21	21	24	28	28	31	31	31
Max absorbed current	A	48	48	56	64	64	72	72	72
Condenser (version)									
Axial fans	n°	12	12	14	16	16	18	18	18
Max absorbed power	kW	13.2	15.4	17.6	19.8	17.6	19.8	19.8	19.8
Max absorbed current	A	30	30	35	40	40	45	45	45
Unit electrical data (STD/LN version) (2)									
Max absorbed current	A	693	773	887	968	968	1037	1157	1316
LRC	A	959	1063	1279	1433	1433	1303	1447	1708
Electrical supply	V/f/Hz	400/ 3 /50							
Unit electrical data (VLN version) (2)									
Max absorbed current	A	675	755	866	944	944	1010	1130	1289
LRC	A	941	1045	1258	1409	1409	1276	1420	1681
Electrical supply	V/f/Hz	400/ 3 /50							
PAC version									
Storage tank water volume	l	2.000	3.000	3.000	3.000	3.000	3.000	3.000	-
Water pump nominal power	kW	11	11	15	15	18.5	18.5	18.5	18.5
Water pump nominal current	A	22	22	30	30	37	37	37	37
ESP	kPa	110	100	130	90	130	90	80	70
DS version (4)									
Heating capacity	kW	238	265	278	319	341	364	395	409
Water flow	m³/h	20.5	22.8	23.9	27.4	29.3	31.3	33.9	35.1
Pressure drop	kPa	33	32	33	36	38	40	41	40
Sound pressure level at 1m (5) (1)									
STD Version	dB(A)	90	90	92	92	92	91	92	93
LN Version	dB(A)	88	88	89	89	89	89	89	90
VLN Version	dB(A)	82	82	83	84	84	83	84	85

Notes:
1) Cooling mode: water 12°C / 7°C; air temp. 35°C
2) Compressors + fans only. No water pump(s)
3) Max air flow in case of LN version
4) Water temp. from 40°C to 50°C
5) Compressor site and free field hemispheric (water pump(s) not included

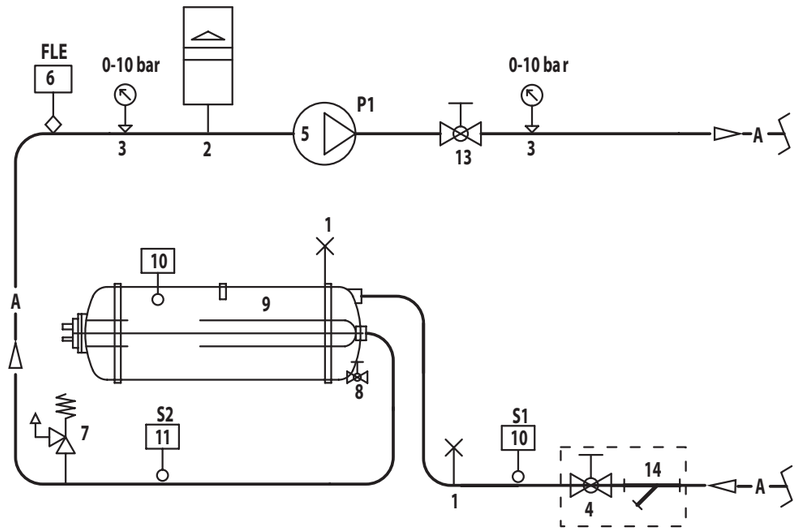
REFRIGERANT CIRCUIT



1 = Compressor
2 = Condenser
3 = Evaporator
4 = Fan
5 = Thermostatic expansion valve
6 = Refrigerant filter
7 = Fan speed regulator*
8 = Suction valve*
9 = Liquid line valve
10 = Sight glass
11 = Schrader service valve
12 = Low pressure switch
13 = High pressure switch
14 = Gauge
15 = Temperature probe
16 = Antifreeze probe
17 = Shut off valve discharge line
18 = Safety valve

AWCL PAC1 (PAC2) HYDRAULIC CIRCUIT

PAC1: - 1 off pump PAC2: - 2 off pumps



1 = Air purger
2 = Expansion vessel
3 = Gauge
4 = Shut off valve**
5 = Pump
6 = Flow switch
7 = Safety valve
8 = Drain/fill up valve
9 = Evaporator tank
10 = Temperature probe
11 = Antifreeze probe
12 = Non-return valve (only PAC2)
13 = Balancing valve
14 = Y filter

** The outlined components are optional

OPERATING RANGE

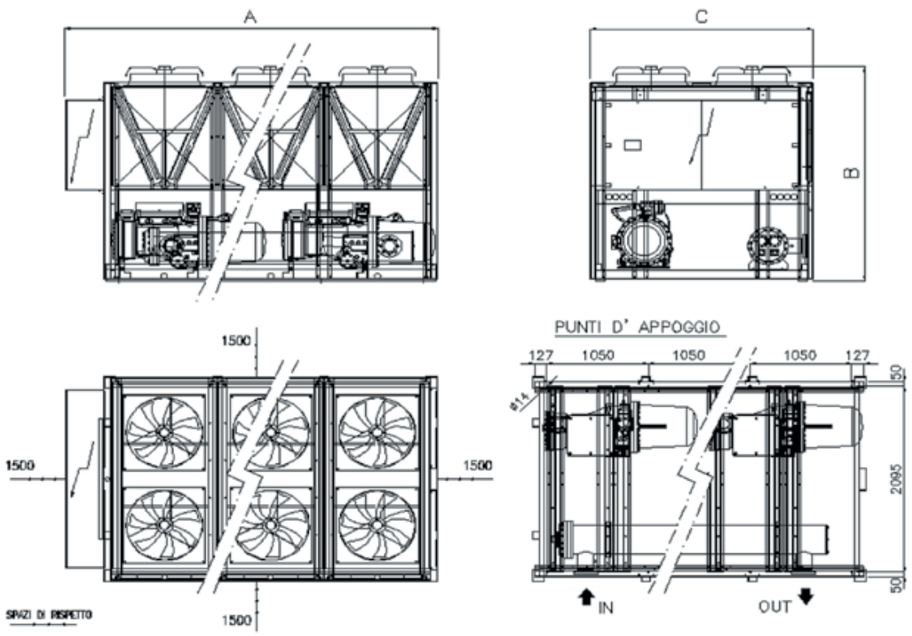
		Cooling
INLET WATER TEMPERATURE	Max °C	17
	Min °C	9
OUTLET WATER TEMPERATURE	Max °C	10
	Min °	5
AMBIENT AIR TEMPERATURE	Max °C	44
	Min °C	15 (1)

(1) This temperature can go down to –15°C / 5°F only if the appropriate kit has been installed.

CORRECTION FACTORS

Ethylene glycol percentage by weight (%)	10	20	30
Freezing point (°C / °F)	-3,6 / 25.5	-8,7 / 16.3	-15,3 / 4.4
Cooling capacity	0,986	0,980	0,973
Absorbed Power	1,000	0,995	0,990
Mixture flow rate	1,023	1,054	1,092
Pressure drop	1,061	1,114	1,190

FREE SPACE



WEIGHT DISTRIBUTION TECHNICAL DATA								
Mod.	**482**	**562**	**622**	**702**	**842**	**972**	**1022**	**1042**
n° of holes (Ø 14 mm)	8	8	10	10	12	12	18	18
Mod.	**1102**	**1252**	**1352**	**1472**	**1552**	**1643**	**1883**	**2063**
n° of holes (Ø 14 mm)	18	18	22	24	24	28	28	28

WEIGHT AND DIMENSIONS (Kg)

STD Versions								
MOD.	**482**	**562**	**622**	**702**	**842**	**972**	**1022**	**1042**
A	3850	3850	4950	4950	6050	6050	7150	7150
B	2453	2435	2435	2435	2560	2560	2560	2560
C	2300	2300	2300	2300	2300	2300	2300	2300
Operating	3850	4000	4225	5288	6030	6570	6830	7500
Transport	3680	3900	4090	5060	5800	6355	6550	7150
P Version	**482**	**562**	**622**	**702**	**842**	**972**	**1022**	**1042**
A	3850	3850	4950	4950	6050	6050	7150	7150
B	2453	2435	2435	2435	2560	2560	2560	2560
C	2300	2300	2300	2300	2300	2300	2300	2300
Operating	3920	4180	4300	5375	6145	6695	6920	7630
Transport	3780	4030	4165	5145	5915	6480	6680	7280
PAC Version	**482**	**562**	**622**	**702**	**842**	**972**	**1022**	**1042**
A	3850	3850	4950	4950	6050	6050	7150	7150
B	2453	2435	2435	2435	2560	2560	2560	2560
C	2300	2300	2300	2300	2300	2300	2300	2300
Operating	5170	5515	5960	6940	7700	8275	8970	9675
Transport	3990	4160	4510	5485	6250	6820	6950	7665

LN / VLN Versions								
MOD.	**482**	**562**	**622**	**702**	**842**	**972**	**1022**	**1042**
A	3850	3850	4950	4950	6050	6050	7150	7150
B	2560	2560	2560	2560	2560	2560	2560	2560
C	2300	2300	2300	2300	2300	2300	2300	2300
Operating	4050	4300	4575	5640	6380	6920	7230	7950
Transport	3880	4100	4440	5410	6150	6700	6950	7550
P Version	**482**	**562**	**622**	**702**	**842**	**972**	**1022**	**1042**
A	3850	3850	4950	4950	6050	6050	7150	7150
B	2560	2560	2560	2560	2560	2560	2560	2560
C	2300	2300	2300	2300	2300	2300	2300	2300
Operating	4120	4480	4650	5730	6260	7035	7360	8100
Transport	3980	4330	4520	5500	6265	6815	7080	7700
PAC Version	**482**	**562**	**622**	**702**	**842**	**972**	**1022**	**1042**
A	3850	3850	4950	4950	6050	6050	7150	7150
B	2560	2560	2560	2560	2560	2560	2560	2560
C	2300	2300	2300	2300	2300	2300	2300	2300
Operating	5370	5815	6210	7200	8050	8625	9370	10070
Transport	4190	4460	4760	5740	6600	7170	7350	8070

AWCL LCAEX/R134A

WEIGHT AND DIMENSIONS (Kg)

STD Versions								
MOD.	**1102**	**1252**	**1352**	**1472**	**1552**	**1643**	**1883**	**2063**
A	7150	7150	8250	9350	9350	10550	10550	10550
B	2560	2560	2560	2560	2560	2560	2560	2560
C	2300	2300	2300	2300	2300	2300	2300	2300
Operating	7630	7960	8360	8800	9290	11100	11750	12300
Transport	7230	7520	7910	8250	8690	10500	11100	11650
P Version	**1102**	**1252**	**1352**	**1472**	**1552**	**1643**	**1883**	**2063**
A	7150	7150	8250	9350	9350	10550	10550	10550
B	2453	2435	2435	2435	2560	2560	2560	2560
C	2300	2300	2300	2300	2300	2300	2300	2300
Operating	7880	8210	8610	9050	9540	11400	12050	12650
Transport	7480	7770	8160	8500	8940	10800	11400	12000
PAC Version	**1102**	**1252**	**1352**	**1472**	**1552**	**1643**	**1883**	**2063**
A	7150	7150	8250	9350	9350	10550	10550	10550
B	2453	2435	2435	2435	2560	2560	2560	2560
C	2300	2300	2300	2300	2300	2300	2300	2300
Operating	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Transport	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

LN / VLN Versions								
MOD.	**1102**	**1252**	**1352**	**1472**	**1552**	**1643**	**1883**	**2063**
A	7150	7150	8250	9350	9350	10550	10550	10550
B	2560	2560	2560	2560	2560	2560	2560	2560
C	2300	2300	2300	2300	2300	2300	2300	2300
Operating	8030	8410	8900	9450	9890	11700	12400	12950
Transport	7630	7970	8450	8850	9290	11100	11750	12300
P Version	**1102**	**1252**	**1352**	**1472**	**1552**	**1643**	**1883**	**2063**
A	7150	7150	8250	9350	9350	10550	10550	10550
B	2560	2560	2560	2560	2560	2560	2560	2560
C	2300	2300	2300	2300	2300	2300	2300	2300
Operating	8280	8660	9110	9550	10090	12000	12650	13250
Transport	7880	8210	8610	9050	9540	11400	12050	12650
PAC Version	**1102**	**1252**	**1352**	**1472**	**1552**	**1643**	**1883**	**2063**
A	7150	7150	8250	9350	9350	10550	10550	10550
B	2560	2560	2560	2560	2560	2560	2560	2560
C	2300	2300	2300	2300	2300	2300	2300	2300
Operating	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Transport	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

The technical data in this booklet are not binding. KLT Klima reserves the right to make changes without prior notice.

NOTES

AWCL LCAEX-HT/R134A

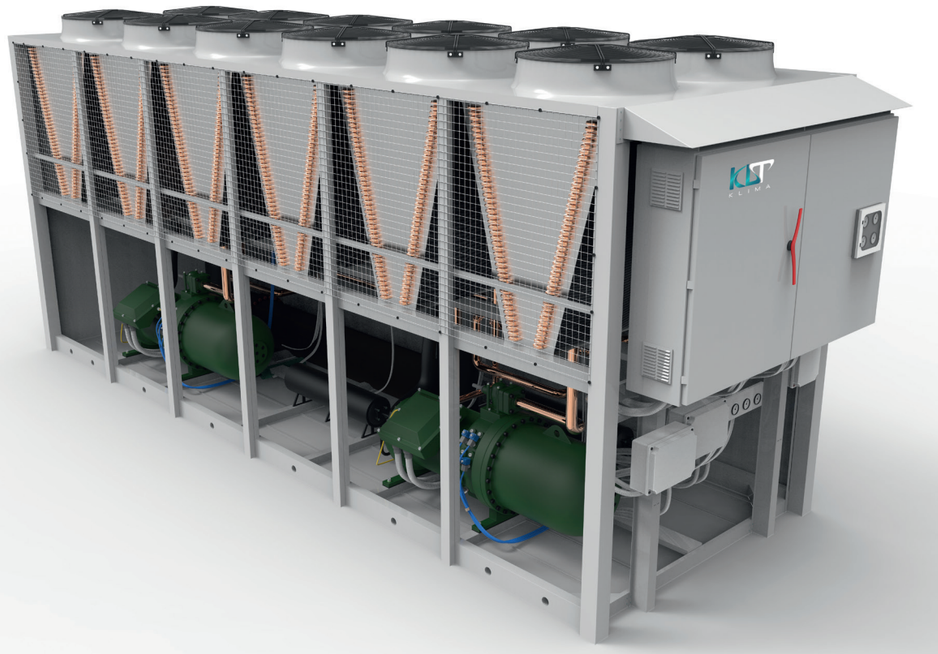
CHAPTER 1

SCREW COMPRESSORS

- **Air cooled liquid chiller suitable for high ambient air temperature**
- **from 250 kW to 1400 kW**
- **Axial Fan**

MADE IN ITALY

IDENTIFICATION CODE		
L C A E X HT 752 – PAC1		
1 2 3 4 5 6 78 9		
1	L	Large series > 300 kW
2	C	Chiller unit
3	A	Air cooled
4	E	Axial fan
5	X	Refrigerant R134a
6	HT	High temperature (external air)
7	75	Capacity factors
8	2	Numbers of circuits
9	PAC	Storage tank
	P1	1 pump
	P2	2 pumps
	PAC1	Storage tank + pump1
	PAC2	Storage tank + pump2
	LN	Low noise
	VLN	Very low noise



GENERAL FEATURES

FRAME

Open self-supporting galvanized steel frame protected with polyester powder painting. The open frame enable easy maintenance and service activities while the unit is in operation. As option a protection grid is available.

COMPRESSORS

Semi-hermetic "double screw" type with a built-in thermal switch protection motor complete with: suction (optional) and discharge shut-off valves, oil separator, step control, crankcase heater, oil level switch (option), oil sight glass, safety thermostat, oil strainer, suction strainer, liquid injection device (option).

EVAPORATOR

Shell and tube type, made by copper tube and steel shell and with two or three independent refrigerant circuits and one water circuit. The thermal insulation is made of flexible closed-cells lining. As protection, a flow switch is recommended to mount to stop the unit in case of no water circulation.

CONDENSERS

Double or triple circuits made of several copper tube and aluminium finned coils. They are connected to make two or three refrigerants circuits.

FANS

Axial fans with aerodynamic outline blade, directly coupled to a three phase electric motor with external rotor. If necessary special motors for high temperature. A safety fan guard is fitted on air flow discharge.

REFRIGERANT CIRCUIT

Each unit is supplied with two or more independent refrigerant circuits; each one includes: replaceable cartridge refrigerant filter, liquid line shut-off valve, refrigerant sight glass, solenoid valve, electronic thermostatic valve, service valve, HP/LP gauges.To protect the refrigerant circuit following devices are installed: automatic reset low pressure switch, manual reset high and safety pressure switches, safety valve, antifreeze thermostat.

ELECTRICAL BOARD

Weather proof type with protection grade IP 54. It includes: main circuit automatic breaker with locking door device, main fuses, compressor contactor and fuses for the star/ delta start or part winding; fans contactors and fuses, auxiliary circuits transformer; Microprocessor to control automatically the unit with a visual system to display the function as well as failures.

VERSIONS

DS

Partial condensing heat recovery. Each refrigerant circuit includes a plate type desuperheater insulated and installed in series between the compressor and the condenser.

RCS

Condensing heat recovery from 70% to 90%. Each refrigerant circuit includes a heat exchanger shell and tube type insulated and mounted in series between compressor and condenser. Condensing control through pressure transducer.

RCP

100% condensing heat recovery. Each refrigerant circuit includes: a heat exchanger shell and tube type insulated and mounted in parallel to the condenser and the relevant solenoid valves.

P1 and P2

Hydraulic kit version. It includes: one or two pumps (one as stand-by pump) expansion vessel, safety valve, air purger, hydraulic circuit insulated, flowswitch, shut-off valves and, in case of stand-by pump, non-return valve. Relevant electrical circuit. As option, pumps with higher ESP are available.

PAC1

Version with hydraulic and inertial storage tank. It includes, further to what included in the P version, a storage tank installed on the return line. The storage tank includes the evaporator.

LN

Low noise version, it includes pressostatic fan speed control and special soundproofing for the compressor.

VLN

Very low noise version. Further to the LN devices, this version is equipped with very low speed fans.

OPTIONS

- Power factor correction
- Fan speed control
- Cu/Cu condenser or epoxy protection coating
- Oversized evaporator
- Compressor shut-off valves (suction)
- Protection grid on compressor chamber
- Flowswitch (STD on P and PAC versions)
- Pumps with higher ESP
- RS 485 card. Protocol (Modbus-Lon work - Bacnet)
- Programmer clock
- Remote control panel
- Soft Starter
- Automatic Breakers
- Evaporator electrical heater
- El. Heater for PAC version
- Rubber antivibration mounts
- Spring antivibration mounts
- Oil level switch
- Liquid injection device

GENERAL FEATURES

TECHNOLOGY

Electronic expansion valve managed by software, can allow the refrigerant circuit to work very efficiently and reducing the power consumption. When the heating load changes suddenly, a traditional expansion valve experiences a 2-3 minute hunting period before achieving a state of equilibrium. On the contrary we have an immediate action of an electronic expansion valve.

When a compressor starts or stops:

- The electronic driver pre-positions the valve at a point that is very close to the final equilibrium point
- The state of equilibrium is quickly achieved with minor adjustments.
- The expansion valve becomes an active part within the system instead of just a passive part.
- Hunting lasts hardly any time at all.



EC-FANS INVERTERS

The inverter technology employed on axial fans (optional extra) continuously and automatically adjusts the fans power and operating speed based on condensing pressure. This means the unit can even be used when outside air temperatures are below zero.



CAPACITY CONTROL

The possibility of adjusting the cooling capacity of screw compressors means we can customize efficiency levels at full or part load.

The stepless control screw compressors favour high efficiency values at full load (EER).

Having a stepless control allows the unit to deliver its output based on a number of capacity reduction steps, thus adjusting capacity to suit the system's actual heating load perfectly reducing inrush currents.



INTERCONNECTIVITY

An advanced microprocessor enable:

- LAN network
- Programming Key
- All the parameters can be configured by the key pad on the front or by a hardware key and / or a serial line.



TECHNICAL DATA

SIZE			422	492	552	592	692	752
Cooling mode								
Cooling capacity	(1)	RT	73.5	90	96.5	106	116	139.5
Cooling capacity	(1)	kW	259	313	340	373	408	491
Absorbed power	(2)	kW	118	140	163	172	203	221
EER		-	2.19	2.24	2.09	2.16	2.01	2.22
Compressore - Compressors								
Quantity		n°	2	2	2	2	2	2
Refrigerant circuits		n°	2	2	2	2	2	2
Capacity step			4 / stepless					
Refrigerant		-	R134a					
Shell and Tube evaporator								
Water flow		m^3/h	44.5	53.8	58.4	64.1	70.1	84.4
Pressure drop		kPa	33	29	33	31	37	21
Water volume		l	81	125	125	114	114	148
Water connections - VICTAULIC		DN	125	150	150	150	150	150
Condenser (STD/LN version)	(3)							
Axial fan		n°	6	6	6	6	6	8
Max abs. power		kW	6.9	10.8	10.8	10.8	10.8	14.4
Max aborbed current		A	13.2	24	24	24	24	32
Unit electrical data	(2)							
Max aborbed current		A	342	369	389	461	520	556
LRC		A	603	677	724	856	939	1025
Electrical supply		V/f/Hz	400/3/50					
PAC version								
Tank volume		l	1.100	2.000	2.000	2.000	2.000	2.500
Water pump nominal power		kW	4	5.5	5.5	7.5	7.5	7.5
Water pump nominal current		A	7.6	10.5	10.5	14.1	14.1	14.1
ESP		kPa	105	105	100	110	120	100
DS version (plate to plate exchanger)	(4)							
Heating capacity		kW	52	63	68	75	82	98
Water flow rate		m^3/h	4.4	5.4	5.8	6.4	7	8.4
Pressure drop		kPa	10	12	12	12	12	14
Sound pressure level at 10m	(2) (5)							
STD Version		dB(A)	61	67	67	67	67	69
LN Version		dB(A)	59	65	65	65	65	67
VLN Version		dB(A)	(6)					

Notes:

1) Cooling mode : water temp. 12°C (53.6°F) / 7°C (44.6°F) Ambient air temperature 46°C (114.8°F);
2) Compressors + fans only. No water pump(s);
3) Max air flow in case of LN version
4) Water temperature from 40°C (104°F) to 50°C (122°F)
5) Compressors site and free field
6) For VLN version contact sales department

TECHNICAL DATA

SIZE			862	1012	1062	1182	1292	1382
Cooling mode								
Cooling capacity	(1)	RT	157.5	182.5	203.5	222	242	256.5
Cooling capacity	(1)	kW	555	643	717	781	852	903
Absorbed power	(2)	kW	259	288	334	317	374	356
EER		-	2.14	2.23	2.14	2.46	2.27	2.53
Compressore - Compressors								
Quantity		n°	2	2	2	2	2	2
Refrigerant circuits		n°	2	2	2	2	2	2
Capacity step			4 / stepless					
Refrigerant		-	R134a					
Shell and Tube evaporator								
Water flow		m^3/h	95.5	110.5	123.3	134.5	146.5	155.3
Pressure drop		kPa	18	23	27	16	20	22
Water volume		l	261	261	255	240	240	240
Water connections - VICTAULIC		DN	200	200	200	200	200	200
Condenser (STD/LN version)	(3)							
Axial fan		n°	8	10	10	12	12	14
Max abs. power		kW	14.4	18	18	21.6	21.6	25.2
Max aborbed current		A	32	40	40	48	48	56
Unit electrical data	(2)							
Max aborbed current		A	656	784	884	892	952	960
LRC		A	1103	1000	1114	1122	1307	1315
Electrical supply		V/f/Hz	400/3/50					
PAC version								
Tank volume		l	2.500	2.500	2.500	2.500	2.500	2.500
Water pump nominal power		kW	7.5	7.5	11	11	11	15
Water pump nominal current		A	14.1	14.1	20.2	20.2	20.2	26.6
ESP		kPa	105	100	130	120	110	140
DS version (plate to plate exchanger)	(4)							
Heating capacity		kW	111	130	144	156	171	180
Water flow rate		m^3/h	9.5	11.1	12.3	13.4	14.7	15.4
Pressure drop		kPa	14	14	16	16	16	16
Sound pressure level at 10m	(2) (5)							
STD Version		dB(A)	69	71	71	72	72	74
LN Version		dB(A)	67	69	69	70	70	72
VLN Version		dB(A)	(6)					

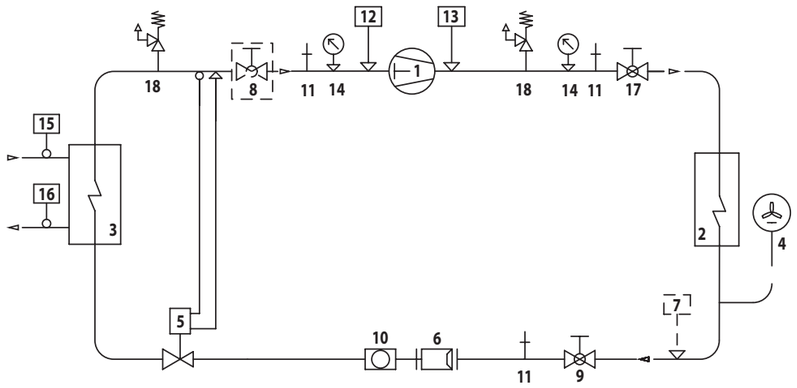
Notes:
1) Cooling mode : water temp. 12°C (53.6°F) / 7°C (44.6°F)
Ambient air temperature 46°C (114.8°F);
2) Compressors + fans only. No water pump(s);
3) Max air flow in case of LN version
4) Water temperature from 40°C (104°F) to 50°C (122°F)
5) Compressors site and free field
6) For VLN version contact sales department

TECHNICAL DATA

SIZE			1532	1602	1722	2003	2253	2583
Cooling mode								
Cooling capacity	(1)	RT	281.5	300.5	314.5	337	355	380.5
Cooling capacity	(1)	kW	990	1057	1106	1184	1249	1338
Absorbed power	(2)	kW	411	491	477	477	505	555
EER		-	2.40	2.15	2.31	2.48	2.47	2.41
Compressore - Compressors								
Quantity		n°	2	2	2	3	3	3
Refrigerant circuits		n°	2	2	2	3	3	3
Capacity step			4 / stepless			6 / stepless		
Refrigerant		-	R134a					
Shell and Tube evaporator								
Water flow		m^3/h	170	182	190	204	215	230
Pressure drop		kPa	27	28	30	33	29	29
Water volume		l	240	397	385	385	533	533
Water connections - VICTAULIC		DN	200	200	200	200	200	200
Condenser (STD/LN version)	(3)							
Axial fan		n°	14	14	16	18	18	18
Max abs. power		kW	25.2	25.2	28.8	32.4	32.4	32.4
Max aborbed current		A	56	56	64	72	72	72
Unit electrical data	(2)							
Max aborbed current		A	960	1192	1199	1335	1365	1425
LRC		A	1315	1543	1550	1565	1720	1780
Electrical supply		V/f/Hz	400/3/50					
PAC version								
Tank volume		l	2500	3000	3000	3000	3000	3000
Water pump nominal power		kW	15	15	15	18.5	18.5	18.5
Water pump nominal current		A	26.6	26.6	26.6	33	33	33
ESP		kPa	130	120	110	150	140	120
DS version (plate to plate exchanger)	(4)							
Heating capacity		kW	197	210	220	235	248	265
Water flow rate		m^3/h	16.9	18	18.8	20.2	21.3	22.8
Pressure drop		kPa	16	18	18	18	20	20
Sound pressure level at 10m	(2) (5)							
STD Version		dB(A)	74	74	74	76	76	76
LN Version		dB(A)	72	72	72	74	74	74
VLN Version		dB(A)	(6)					

Notes:
1) Cooling mode : water temp. 12°C (53.6°F) / 7°C (44.6°F)
Ambient air temperature 46°C (114.8°F);
2) Compressors + fans only. No water pump(s);
3) Max air flow in case of LN version
4) Water temperature from 40°C (104°F) to 50°C (122°F)
5) Compressors site and free field
6) For VLN version contact sales department

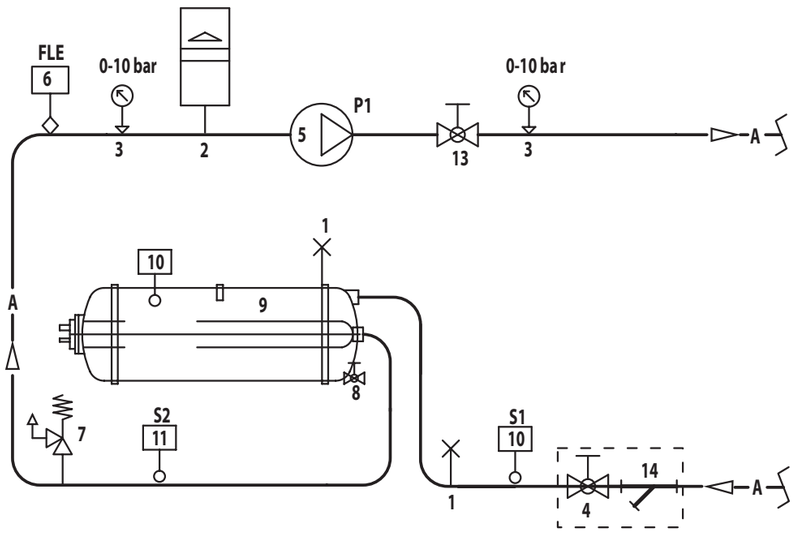
REFRIGERANT CIRCUIT



1 = Compressor
2 = Condenser
3 = Evaporator
4 = Fan
5 = Thermostatic expansion valve
6 = Refrigerant filter
7 = Fan speed regulator*
8 = Suction valve*
9 = Liquid line valve
10 = Sight glass
11 = Schrader service valve
12 = Low pressure switch
13 = High pressure switch
14 = Gauge
15 = Temperature probe
16 = Antifreeze probe
17 = Shut off valve discharge line
18 = Safety valve

AWCL PAC1 (PAC2) HYDRAULIC CIRCUIT

PAC1: - 1 off pump PAC2: - 2 off pumps



1 = Air purger
2 = Expansion vessel
3 = Gauge
4 = Shut off valve**
5 = Pump
6 = Flow switch
7 = Safety valve
8 = Drain/fill up valve
9 = Evaporator tank
10 = Temperature probe
11 = Antifreeze probe
12 = Non-return valve (only PAC2)
13 = Balancing valve
14 = Y filter

** The outlined components are optional

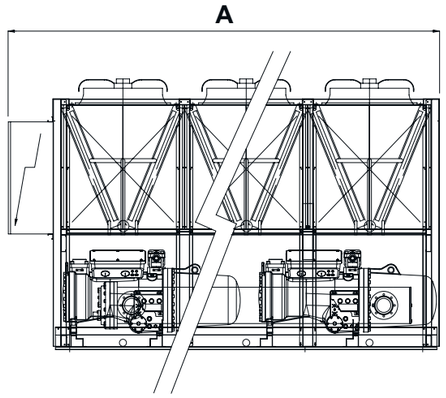
OPERATING RANGE

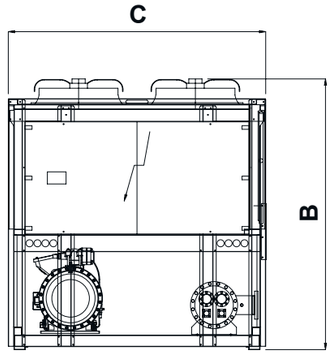
		Cooling
INLET WATER TEMPERATURE	Max °C/°F	15 / 59
	Min °C/°F	10 / 50
INLET WATER TEMPERATURE	Max °C/°F	10 / 50
	Min °C/°F	5 / 41
AMBIENT AIR TEMPERATURE	Max °C/°F	56 (1) / 132.8 (1)
	Min °C/°F	15 (2) / 53.6 (2)

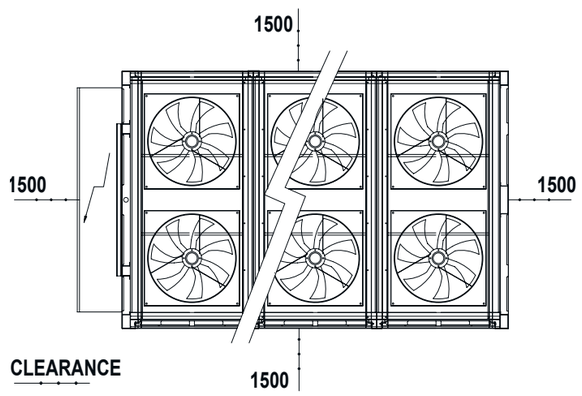
(1) This temperature is possible only if the appropriate kit "partial load" has been installed.

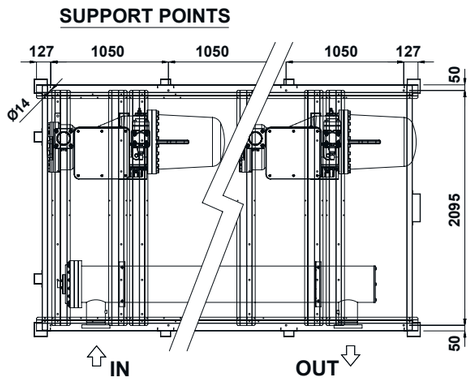
CORRECTION FACTORS

Ethylene glycol percentage by weight (%)	**10**	**20**	**30**
Freezing point (°C / °F)	-3,6 / 25.5	-8,7 / 16.3	-15,3 / 4.4
Cooling capacity	0,986	0,980	0,973
Absorbed Power	1,000	0,995	0,990
Mixture flow rate	1,023	1,054	1,092
Pressure drop	1,061	1,114	1,190









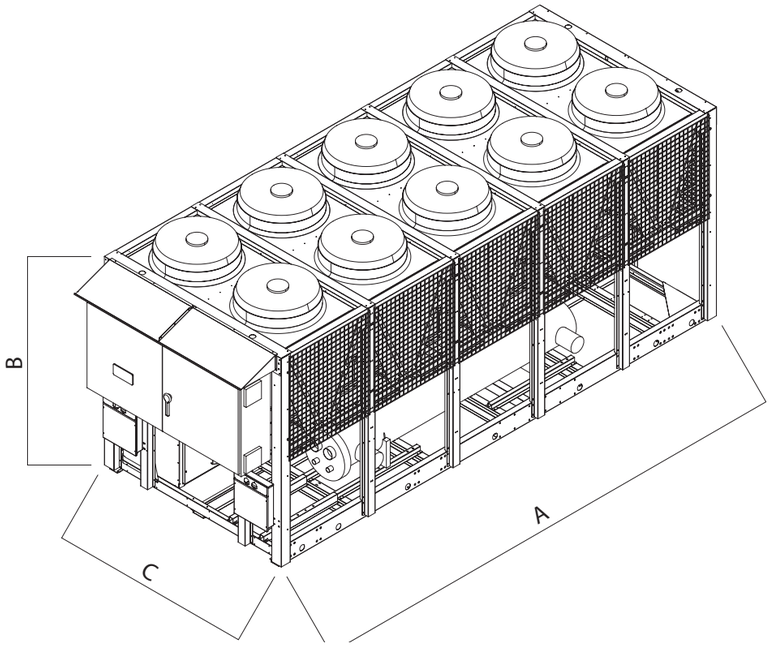
AWCL LCAEX-HT/R134A

SUPPORT POINTS

SUPPORT POINTS									
Ø	**422**	**492**	**552**	**592**	**692**	**752**	**862**	**1012**	**1062**
14mm	8	8	8	8	8	10	10	12	12
Ø	**1182**	**1292**	**1382**	**1532**	**1602**	**1722**	**2003**	**2253**	**2583**
14mm	18	18	22	22	22	24	28	28	28

WEIGHT (kg) & DIMENSIONS (mm)

LCAEX-HT STD/LN																		
MODEL	**422**	**492**	**552**	**592**	**692**	**752**	**862**	**1012**	**1062**	**1182**	**1292**	**1382**	**1532**	**1602**	**1722**	**2003**	**2253**	**2583**
A	3900	3900	3900	3900	3900	5000	5000	6100	6100	7250	7250	8350	8350	8350	9500	10600	10600	10600
B	2550	2550	2550	2550	2550	2550	2550	2550	2550	2550	2550	2550	2550	2550	2550	2550	2550	2550
C	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300
Operating	3580	3600	3680	3880	3930	4100	4450	4680	5100	5650	6050	6450	6850	7300	7750	8300	9100	9800
Transport	3480	3550	3650	3740	3800	3980	4200	4480	4880	5400	5750	6150	6550	6900	7350	7900	8550	9200
VERS.																		
A	3900	3900	3900	3900	3900	5000	5000	6100	6100	7250	7250	8350	8350	8350	9500	10600	10600	10600
B	2550	2550	2550	2550	2550	2550	2550	2550	2550	2550	2550	2550	2550	2550	2550	2550	2550	2550
C	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300
Operating	4780	5850	5950	6140	6200	6880	7200	7480	7980	8500	8850	9350	9850	10700	11300	11800	12450	13500
Transport	3780	3850	3950	4140	4200	4380	4700	4980	5480	6000	6350	6850	7350	7700	8300	8800	9450	10500



Technical data shown in this booklet are not binding. KLT Klima S.r.l reserves the right to modify data without any prior notice.

NOTES

ACCU MMAEY/R410A

CHAPTER 1.1

SCROLL COMPRESSORS

- **Air cooled condensing units**
- **Reversible heat pumps**
- **from 16kW to 64kW**

MADE IN ITALY

IDENTIFICATION CODE

M M A E Y - 1 5 / 1 - L N		
1 2 3 4 5	6	7 8 9
1	M	Mini series < 50 kW
2	M	Condensing unit
3	A	Air cooled
4	E	Axial fans
5	Y	Refrigerant R410A
6	15	Power factor
7	1	Numbers of circuits
8	-	Cooling only version
	H	Heat pump unit version
9	DS	Desuperheater
	RCS	Heat recovery fitted in series (70-90%)
	RCP	Heat recovery fitted in parallel (100%)
	LN	Low noise



GENERAL FEATURES

FRAME

Self-supporting galvanized steel frame protected with polyester powder painting. Panels are easily removable for maintenance and service activities.

COMPRESSORS

Hermetic "scroll" type with overload protection by a klixon and complete with oil sight glass. They are installed on vibrations absorbing rubber and placed within a closed compartment to reduce sound level and to allow service and maintenance activities while unit is in operation.

CONDENSER

Copper tube and aluminium finned coil. As option a protection grid is available.

FANS

Axial fans with aerodynamic outline blade section made of Al/Mg, directly coupled to a single-phase electric motor with external rotor. A safety fan guard is fitted on air flow discharge.

REFRIGERANT CIRCUIT

Each unit is complete with 2 service valves (one on the suction line and one on the discharge line).

To protect the refrigerant circuit the following devices are installed: manual reset high pressure switch and automatic reset low pressure switch. The heat pump units version (ACCU…H) contain, in addition: safety thermostat on compressor discharge line, 4-ways valve, check valve, solenoid valve.

ELECTRICAL BOARD

Weather proof type with protection grade IP54 installed in the compressor box to enable service and maintenance activities while unit is in operation. It Includes:

- Main circuit automatic breaker with locking door device
- main fuses
- compressor contactor
- fans fuses and contactors
- auxiliary circuits trafo

Microprocessor to control automatically the unit with a visual system to display the function as well as failures.

VERSIONS

DS

Partial condensing heat recovery. It includes a desuperheater insulated and installed in series between the compressor and the condenser.

RCS - RCP

On request.

LN

Low noise version, it includes: pressostatic fan speed control, compressor insulated with a high sound absorbing layer.

VLN

On request.

OPTIONS

- Liquid line kit (not mounted):
  - dryer
  - sight glass
  - solenoid valve
  - shut off valve.
- Suction/liquid line shut off valves.
- Liquid receiver.
- Solenoid valve
- T-connections for HGBP-valve.
- Thermostatic valve (not mounted).
- Thermostatic valve + Non-return valve (not mounted).
- Hot gas by-pass valve
- Power factor condensing capacitors.
- Automatic breakers
- Numbered electrical wires
- Fans speed regulator.
- Cu/Cu condensing coils.
- Coil protection grid.
- Gauges.
- Rs 485 Mod bus, Lon Work, bacnet protocol.
- Programmer clock.
- Remote control panel.
- Rubber antivibrators.
- High sensibility AV mounts.
- Wooden crate packing.
- Axial Fans with inverter EC.

SIZE			15/1	17/1	19/1	21/1	25/1
Cooling mode							
Cooling capacity	(1)	kW	16,5	19,2	22,3	24,5	28
Absorbed power	(2)	kW	4.8	5.6	6.3	6.8	7.6
EER		-	3.43	3.42	3.53	3.6	3.68
Heating mode MMAEY ...H							
Heating capacity	(1)	kW	16	18,5	21,5	23	26
Absorbed power	(2)	kW	4,9	5.6	6.3	6.8	7.7
COP		-	3.26	3.3	3.41	3.38	3.37
Compressors (scroll)							
Quantity		n°	1				
- Refrigerant circuit		n°	1				
Capacity step		n°	1				
Refrigerant		-	R410A				
Condenser STD - LN	(3)						
Refigerant	(4)	kg	5	5	5	6	6
Axial fans		n°	1	1	1	1	1
Max absorbed power		kW	0,5	0,5	0,5	0,5	0,5
Max absorbed. current		A	2,5	2,5	2,5	2,5	2,5
Unit eletrical data							
Max absorbed current		A	19	23	23	24	29
Max LRC		A	72	83	109	103	119
Voltage supply		V/f/Hz	400/3+N/50				
Sound pressure level at 1m	(5)						
Version STD		dB(A)	66	66	67	65	65
Version LN		dB(A)	64	64	65	64	64
Version VLN		dB(A)	on request				

Performances in cooling mode :
- evaporating temp. 7°C
- ambient air temperature 35°C
- subcooling 5K

Performances in heating mode :
- condensing temperature 45°C
- ambient air temperature 7°C db / 6 wb
- subcooling 5K

Notes:
1) Compressors + fans.
2) As version MMAEY…H (heat pump) it works as evaporating unit.
3) Max air flow.
4) This data has only to be considered to charge the system as the unit leaves the factory with nitrogen.
5) Compressor site free field.

The performances don't consider the outside pipes pressure drop.

SIZE			30/1	35/1	40/1	45/1	50/1
Cooling mode							
Cooling capacity	(1)	kW	33,5	37,6	42	49,5	63,5
Absorbed power	(2)	kW	9.1	10.3	11.3	13.4	16,9
EER		-	3.68	3.65	3.71	3.69	3.75
Heating mode MMAEY ...H							
Heating capacity	(1)	kW	31.5	34	39	46	55
Absorbed power	(2)	kW	9.4	10.4	11.4	13.2	16.9
COP		-	3.3	3.2	3.4	3.5	3.2
Compressors (scroll)							
Quantity		n°	1				
Refrigerant circuit		n°	1				
Capacity step		n°	1				
Refrigerant		-	R410A				
Condenser STD - LN	(3)						
Refigerant	(4)	kg	8	8	10	10	10
Axial fans		n°	2	2	2	2	2
Max absorbed power		kW	1	1	1	1	1
Max absorbed. current		A	5	5	5	5	5
Unit eletrical data							
Max absorbed current		A	32	35	41	44	50
Max LRC		A	128	128	150	184	235
Voltage supply		V/f/Hz	400/3+N/50				
Sound pressure level at 1m	(5)						
Version STD		dB(A)	67	67	68	68	70
Version LN		dB(A)	65	65	66	66	68
Version VLN		dB(A)	on request				

Performances in cooling mode :
- evaporating temp. 7°C
- ambient air temperature 35°C
- subcooling 5K

Performances in heating mode :
- condensing temperature 45°C
- ambient air temperature 7°C db / 6 wb
- subcooling 5K

Notes:
1) Compressors + fans.
2) As version MMAEY…H (heat pump) it works as evaporating unit.
3) Max air flow.
4) This data has only to be considered to charge the system as the unit leaves the factory with nitrogen.
5) Compressor site free field.

The performances don't consider the outside pipes pressure drop.

ACCU MMAEY/R410A

COOLING CAPACITY AND ABSORBED POWER

MOD.	EVAP	CONDENSER Ambient air temperature °C													
	Te °C out.	26		29		32		35		38		41		44	
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
15/1	5	17,8	3,5	17,0	3,7	16,3	4,0	15,5	4,2	14,6	4,5	13,7	4,7	12,8	5,0
	6	18,4	3,6	17,6	3,8	16,8	4,0	16,0	4,2	15,1	4,5	14,2	4,8	13,2	5,1
	7	18,9	3,6	18,1	3,8	17,3	4,1	**16,5**	**4,3**	15,5	4,6	14,6	4,9	13,6	5,1
	8	19,5	3,6	18,7	3,9	17,8	4,1	17,0	4,3	16,0	4,6	15,1	4,9	14,1	5,2
	9	20,1	3,7	19,2	3,9	18,4	4,1	17,5	4,4	16,5	4,7	15,5	4,9	14,5	5,2
	10	20,7	3,7	19,8	3,9	18,9	4,2	18,1	4,4	17,0	4,7	16,0	5,0	-	-
17/1	5	20,7	4,2	19,8	4,4	18,9	4,7	18,1	5,0	17,0	5,3	16,0	5,6	14,9	5,9
	6	21,4	4,2	20,4	4,5	19,5	4,8	18,6	5,0	17,5	5,4	16,5	5,7	15,4	6,0
	7	22,0	4,3	21,1	4,5	20,1	4,8	**19,2**	**5,1**	18,1	5,4	17,0	5,8	15,9	6,1
	8	22,7	4,3	21,7	4,6	20,8	4,9	19,8	5,2	18,7	5,5	17,5	5,8	16,4	6,1
	9	23,4	4,3	22,4	4,6	21,4	4,9	20,4	5,2	19,2	5,5	18,1	5,9	-	-
	10	24,1	4,4	23,1	4,7	22,0	5,0	21,0	5,2	19,8	5,6	18,6	5,9	-	-
19/1	5	24,1	4,7	23,0	5,0	22,0	5,3	21,0	5,7	19,8	6,0	18,6	6,4	17,4	6,7
	6	24,8	4,8	23,7	5,1	22,7	5,4	21,6	5,7	20,4	6,1	19,1	6,5	17,9	6,8
	7	25,6	4,8	24,5	5,2	23,4	5,5	**22,3**	**5,8**	21,0	6,2	19,7	6,5	18,4	6,9
	8	26,4	4,9	25,2	5,2	24,1	5,5	23,0	5,9	21,7	6,2	20,4	6,6	19,0	7,0
	9	27,2	4,9	26,0	5,3	24,8	5,6	23,7	5,9	22,3	6,3	21,0	6,7	-	-
	10	28,0	5,0	26,8	5,3	25,6	5,6	24,4	6,0	23,0	6,4	21,6	6,7	-	-
21/1	5	26,4	5,1	25,3	5,5	24,2	5,8	23,1	6,1	21,7	6,5	20,4	6,9	19,1	7,3
	6	27,3	5,2	26,1	5,5	24,9	5,9	23,8	6,2	22,4	6,6	21,0	7,0	19,7	7,4
	7	28,1	5,3	26,9	5,6	25,7	6,0	**24,5**	**6,3**	23,1	6,7	21,7	7,1	20,3	7,5
	8	29,0	5,3	27,7	5,7	26,5	6,0	25,3	6,4	23,8	6,8	22,4	7,2	20,9	7,6
	9	29,9	5,4	28,6	5,7	27,3	6,1	26,0	6,4	24,5	6,8	23,0	7,2	-	-
	10	30,8	5,4	29,4	5,8	28,1	6,1	26,8	6,5	25,3	6,9	23,7	7,3	-	-
25/1	5	30,2	5,8	28,9	6,2	27,6	6,5	26,3	6,9	24,8	7,4	23,3	7,8	21,8	8,3
	6	31,2	5,9	29,8	6,2	28,5	6,6	27,2	7,0	25,6	7,5	24,0	7,9	22,5	8,4
	7	32,1	5,9	30,7	6,3	29,3	6,7	**28,0**	**7,1**	26,4	7,6	24,8	8,0	23,2	8,5
	8	33,1	6,0	31,7	6,4	30,3	6,8	28,9	7,2	27,2	7,6	25,6	8,1	23,9	8,5
	9	34,1	6,1	32,7	6,4	31,2	6,8	29,8	7,2	28,0	7,7	26,3	8,2	-	-
	10	35,2	6,1	33,6	6,5	32,1	6,9	30,7	7,3	28,9	7,8	27,1	8,2	-	-

Notes:
Te - Evaporating temperature
kWf - Cooling capacity
kWa - Absorbed power

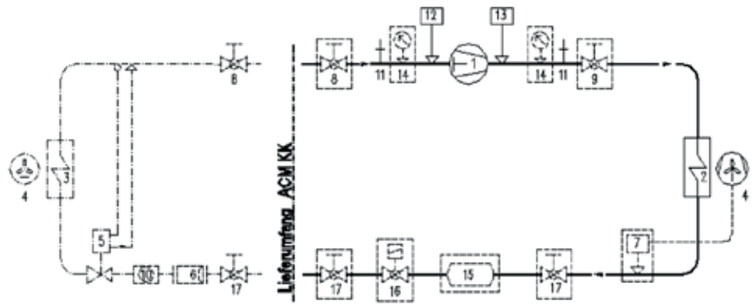
ACCU MMAEY/R410A

COOLING CAPACITY AND ABSORBED POWER

MOD.	EVAP	CONDENSER Ambient air temperature °C													
	Te °C out.	26		29		32		35		38		41		44	
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
30/1	5	36,2	6,6	34,6	7,0	33,0	7,5	31,5	7,9	29,7	8,4	27,9	8,9	26,1	9,4
	6	37,3	6,7	35,6	7,1	34,1	7,6	32,5	8,0	30,6	8,5	28,8	9,0	26,9	9,5
	7	38,4	6,8	36,7	7,2	35,1	7,7	**33,5**	**8,1**	31,6	8,6	29,6	9,1	27,7	9,7
	8	39,7	6,8	37,9	7,3	36,2	7,7	34,6	8,2	32,6	8,7	30,6	9,2	28,6	9,8
	9	40,8	6,9	39,1	7,4	37,3	7,8	35,6	8,3	33,5	8,8	31,5	9,3	29,4	9,8
	10	42,1	7,0	40,2	7,4	38,4	7,9	36,7	8,3	34,6	8,9	32,5	9,4	-	-
35/1	5	40,6	7,6	38,8	8,1	37,1	8,6	35,4	9,1	33,3	9,7	31,3	10,2	29,3	10,8
	6	41,8	7,7	40,0	8,2	38,2	8,7	36,5	9,2	34,4	9,8	32,3	10,4	30,2	11,0
	7	43,1	7,8	41,2	8,3	39,4	8,8	**37,6**	**9,3**	35,4	9,9	33,3	10,5	31,1	11,1
	8	44,5	7,9	42,6	8,4	40,7	8,9	38,8	9,4	36,6	10,0	34,3	10,6	32,1	11,2
	9	45,8	7,9	43,8	8,4	41,9	9,0	40,0	9,5	37,7	10,1	35,4	10,7	-	-
	10	47,2	8,0	45,2	8,5	43,1	9,0	41,2	9,6	38,8	10,2	36,4	10,8	-	-
40/1	5	45,3	8,4	43,4	8,9	41,4	9,5	39,5	10,1	37,2	10,7	35,0	11,3	32,7	12,0
	6	46,7	8,5	44,7	9,1	42,7	9,6	40,7	10,2	38,4	10,8	36,1	11,5	33,7	12,1
	7	48,2	8,6	46,1	9,2	44,0	9,7	**42,0**	**10,3**	39,6	11,0	37,2	11,6	34,7	12,3
	8	49,7	8,7	47,5	9,3	45,4	9,8	43,3	10,4	40,8	11,1	38,4	11,7	35,8	12,4
	9	51,2	8,8	49,0	9,4	46,8	9,9	44,6	10,5	42,1	11,2	39,5	11,9	-	-
	10	52,8	8,9	50,5	9,4	48,2	10,0	46,0	10,6	43,3	11,3	40,7	12,0	-	-
45/1	5	53,4	10,1	51,1	10,8	48,8	11,4	46,6	12,1	43,9	12,9	41,2	13,7	38,5	14,4
	6	55,1	10,2	52,7	10,9	50,3	11,6	48,0	12,3	45,2	13,0	42,5	13,8	39,7	14,6
	7	56,8	10,4	54,3	11,0	51,9	11,7	**49,5**	**12,4**	46,6	13,2	43,8	14,0	40,9	14,8
	8	58,6	10,5	56,0	11,1	53,5	11,8	51,1	12,5	48,1	13,3	45,2	14,1	42,2	14,9
	9	60,4	10,6	57,7	11,3	55,1	12,0	52,6	12,6	49,6	13,5	46,6	14,3	-	-
	10	62,2	10,7	59,5	11,4	56,8	12,1	54,2	12,8	51,1	13,6	48,0	14,4	-	-
50/1	5	68,5	13,0	65,5	13,8	62,6	14,7	59,8	15,5	56,3	16,5	52,9	17,5	49,4	18,5
	6	70,6	13,1	67,6	14,0	64,6	14,8	61,6	15,7	58,0	16,7	54,5	17,7	50,9	18,7
	7	72,8	13,3	69,7	14,2	66,5	15,0	**63,5**	**15,9**	59,8	16,9	56,2	17,9	52,5	19,0
	8	75,2	13,4	71,9	14,3	68,7	15,2	65,5	16,1	61,7	17,1	58,0	18,1	54,2	19,1
	9	77,4	13,6	74,0	14,4	70,7	15,3	67,5	16,2	63,6	17,3	59,7	18,3	-	-
	10	79,8	13,7	76,3	14,6	72,9	15,5	69,5	16,4	65,5	17,4	61,5	18,5	-	-

Notes:
Te - Evaporating temperature
kWf - Cooling capacity
kWa - Absorbed power

REFRIGERANT CIRCUIT



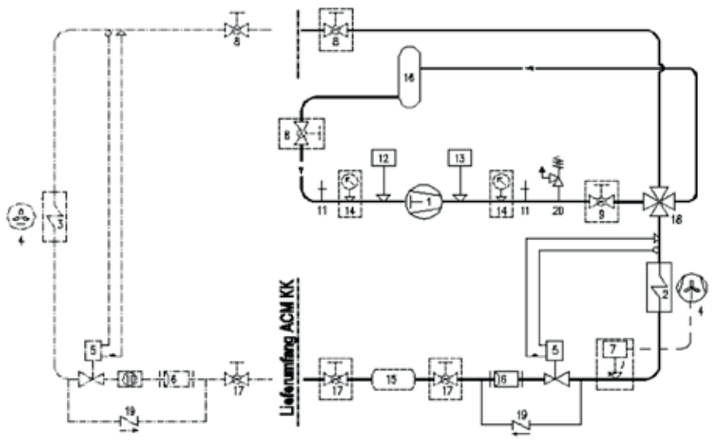
1 Compressor
2 Condensator
3 Evaporator
4 Fans *
5 Thermal expansion valve
6 Refrigerant filter
7 Fan speed regulator*
8 Suction line valve
9 Supply cock *
10 Humidity indicator
11 Schrader service valve
12 Low pressure switch
13 High pressure switch
14 Gauges*
15 Liquid receiver*
16 Solenoid valve*
17 Liquid line cock*
18 Relief valve (if necessary)

OPERATING RANGE

EVAPAPORATION TEMPERATURE	Max °C	10
	Min °C	-2
AMBIENT AIR TEMPERATURE	Max °C	44 (1)
	Min °C	15 (2)

(1) Except what indicated in the sheet pages 8 and 9.
(2) This temperature is possible only if the appropriate kit "partial load" has been installed.

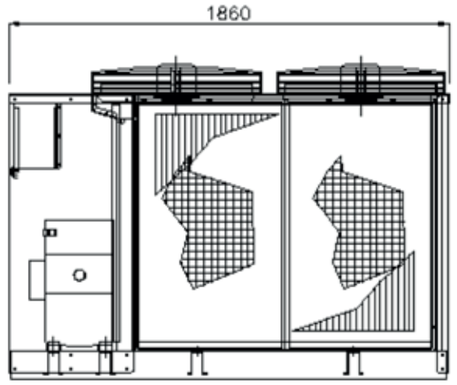
ACCU ... H - REFRIGERANT CIRCUIT

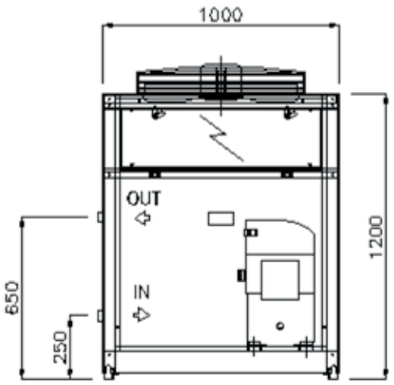


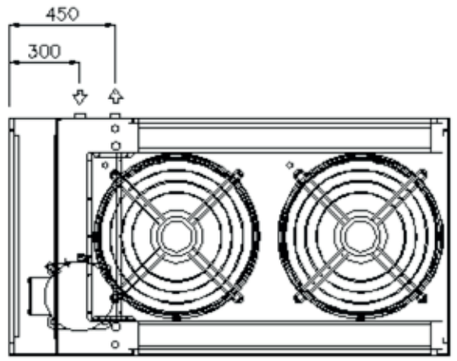
1 Compressor
2 Outdoor exchanger
3 Indoor exchanger
4 Fans
5 Thermal expansion valve
6 Refrigerant filter
7 Fan speed regulator
8 Suction line valve*
9 Supply cock *
10 Humidity indicator*
11 Schrader service valve
12 Low pressure switch
13 High pressure switch
14 Gauge*
15 Liquid receiver*
16 Suction separator*
17 Liquid line cock*
18 4way solenoid valve
19 Check valve
20 Relief valve (if necessary)

* The outlined components are optional

DIMENSIONS







ACCU 2 SMAEY/R410A

CHAPTER 1.1

SCROLL COMPRESSORS

- **Air cooled condensing units**
- **Reversible heat pumps**
- **from 50 kW to 380 kW**

MADE IN ITALY

IDENTIFICATION CODE

S	M	A	E	Y	-	1	5	1	H	L	N
1	2	3	4	5	6	7	8	9	10		

1	S	Small series > 40 kW
2	C	Chiller unit
3	A	Air cooled
4	E	Axial fans
5	Y	Refrigerant R410A
6	-	Scroll Compressors
	A	Recip. Compressor
7	15	Capacity factors
8	1	Numbers of circuits
9	-	Cooling only version
	H	Heat pump unit version
10	DS	Desuperheater
	RCS	Heat recovery fitted in series (70-90%)
	RCP	Heat recovery fitted in parallel (100%)
	LN	Low noise
	VLN	Very low noise



GENERAL FEATURES

FRAME

Self-supporting galvanized steel frame protected with polyester powder painting. Panels are easly removable for maintenance and service activities.

COMPRESSORS

Hermetic «scroll» type with overload protection by a klixon and complete with oil sight glass. They are installed on vibration absorbing rubbers and placed within a closed compartment to reduce sound level and to allow service and maintenance activities while unit is in operation.

CONDENSER / EVAPORATOR

Copper tube and aluminium finned coil. As option a protection grid is available.

FANS

Axial fans with aerodynamic outline blade section made of Al/Mg, directly coupled to a three phase electric motor with external rotor. A safety fan guard is fitted on air flow discharge.

REFRIGERANT CIRCUIT

Each unit is equipped with one or two refrigerants circuits.

Each refrigerant circuit is complete with 2 service valves: 1 off on the suction line, 1 off on the discharge line. To protect the refrigerant circuits, following devices are installed: manual reset high pressure switch and manual reset low pressure switch. Besides, where foreseen, manual reset safety pressure switches and safety valves.

In the heat pump unit (H-version) the refrigerant circuit contains, in addition: safety thermostat on compressor discharge line, 4-way-valve, thermostatic valve, dryer, noreturn valve, solenoid valve, liquid separator on compressor suction line.

ELECTRICAL BOARD

Weather proof type with protection grade IP54 installed in the compressor box to enable service and maintenance activities while unit is in operation. It includes:

- Main circuit automatic breaker with locking door device, main fuses, compressor contactor and fuses, auxiliary circuits trafo, free contact to the room thermostat. Moreover microprocessor to control automatically the unit with visual system to display the function as well as failures.

VERSIONS

DS

Partial condensing heat recovery. Each refrigerant circuit includes a desuperheater insulated and installed in series between the compressor and the condenser.

RCS

(Not available for heat pump units).

Condensing heat recovery from 70% to 90%. Each refrigerant circuit includes a heat exchanger insulated and mounted in series between compressor and condenser. Condensing control through pressure transducer.

RCP

(Not available for heat pump units).

100% condensing heat recovery. Each refrigerant circuit includes: a heat exchanger insulated and mounted in parallel to the condenser and the relevant solenoid valves.

LN

Low noise version, it includes pressostatic fan speed control and special sound proofing for the compressors.

VLN

(Not available for heat pump units).

Very low noise version. Further to the LN devices, this execution is equipped with very low speed fans.

Options

- Power factor correction
- Fans speed control
- Remote control panel
- Programmer clock
- RS 485 card (protocol: lon work, bacnet, trend)
- Compressor suction and discharge shut-off valves
- Suction/liquid line shut off valve
- Gauges with shut-off valves
- Cu/Cu or Epoxy Protection coils
- Coils protection gri.
- Liquid line kit (not mounted): dryer, sight glass, solenoid valve, shut off valv
- Liquid receiver
- T-connection for HGBP-valve
- Thermostatic valve (not mounted)
- Power factor condensing capacitors
- Solenoid valve on liquid line (units cooling only)
- Rubber antivibrators
- Spring AV mounts
- Wooden crate packing
- EC axial fans with inverter

TECHNICAL DATA

SIZE			61	71	81	91	101	121
Cooling mode STD - LN								
Cooling capacity	(1)	kW	54	60	71	76	94	117
Abs power	(2)	kW	17	21	22	26	29	37
EER	(2)	-	3.17	2.85	3.22	2.92	3.24	3.16
Cooling mode VLN								
Cooling capacity	(1)	kW	49	54	65	70	85	100
Abs power	(2)	kW	17.7	21.6	23.1	26.3	30.1	34.7
EER	(2)	-	2.76	2.5	2.81	2.66	2.84	2.88
Heating mode SMAEY ...H								
Heating capacity	(1)	kW	53	58	70	76	93	107
Abs power	(2)	kW	14.6	16.8	18.6	20.4	23.8	29.1
COP	(2)	-	3.6	3.4	3.7	3.7	3.9	3.7
Compressors (scrooll)								
Quantity		n°	2					
Refrigerant circuit		n°	1					
Capacity step		n°	2					
Refrigerant		-	R410A					
Refrigerant quantity	(5)	kg	10	10	15	17	21	23
Condenser STD - LN	(3)							
Axial fans		n°	2	2	2	2	2	2
Max abs. power		kW	1.8	1.8	1.8	1.8	1.8	3.6
Max abs. current		A	4	4	4	4	4	8
Condenser VLN	(2)							
Axial fans		n°	2	2	2	2	2	2
Max abs. power		kW	1.5	1.5	1.5	1.5	1.5	2.6
Max abs. current		A	2.8	2.8	2.8	2.8	2.8	5
Unit eletrical data								
Max Abs. Current		A	52	54	60	72	78	92
Max LRC		A	142	150	153	181	218	316
Voltage supply		V/f/Hz	400 / 3 / 50					
Sound pressure level at 1m	(4)							
Version STD		dB(A)	69	69	70	70	70	73
Version LN		dB(A)	66	66	66	66	67	71
Version VLN		dB(A)	64	64	64	64	64	69

Performances in cooling mode:
- evaporating temp. 7°C;
- ambient air temperature 35°C;
- subcooling 5K;

Performances in heating mode:
- condensing temperature 45°C;
- ambient air temperature 7°C bs / 6 bu;
- subcooling 5K;

Notes:
1) Compressors + fans.
2) As version SMAEY…H (condensing unit) it works as evaporating unit.
3) Max air flow.
4) Compressor site free field.
5) This data has only to be considered to charge the system as the unit leaves the factory with nitrogen.

The performances don't consider the outside pipes pressure drop.

SIZE			131	141	151	161	191	222
Cooling mode STD - LN								
Cooling capacity	(1)	kW	119	137	142	163	190	229
Abs power	(2)	kW	39.8	46	50.3	56.4	64.4	74
EER	(2)	-	2.98	2.97	2.82	2.89	2.95	3.09
Cooling mode VLN								
Cooling capacity	(1)	kW	113	127	135	155	180	209
Abs power		kW	40.4	45.5	51.8	59.1	66.6	69.4
EER	(2)	-	2.79	2.79	2.60	2.62	2.70	3.01
Heating mode SMAEY ...H								
Heating capacity	(1)	kW	117	132	144	165	187	214
Abs power	(2)	kW	34.8	38.5	43.4	50.2	58.2	60
COP	(2)	-	3.6	3.8	3.7	3.8	3.7	3.56
Compressors (scrooll)								
Quantity		n°	2					4
Refrigerant circuit		n°	1					2
Capacity step		n°	2					4
Refrigerant		-	R410A					
Refrigerant quantity	(5)	kg	24	27	27	28	28	44
Condenser STD - LN	(3)							
Axial fans		n°	2	3	3	3	3	4
Max abs. power		kW	3.6	2.7	2.7	2.7	5.4	7.2
Max abs. current		A	8	6	6	6	12	16
Condenser VLN	(2)							
Axial fans		n°	2	3	3	3	3	4
Max abs. power		kW	2.6	2.2	2.2	2.2	3.9	5.2
Max abs. current		A	5	4	4	4	8	10
Unit eletrical data								
Max Abs. Current		A	95	111	108	125	147	179
Max LRC		A	319	356	332	370	392	403
Voltage supply		V/f/Hz	400 / 3 / 50					
Sound pressure level at 1m	(4)							
Version STD		dB(A)	74	73	73	74	75	76
Version LN		dB(A)	71	71	71	73	73	74
Version VLN		dB(A)	68	68	68	69	69	71

Performances in cooling mode:
- evaporating temp. 7°C;
- ambient air temperature 35°C;
- subcooling 5K;

Performances in heating mode:
- condensing temperature 45°C;
- ambient air temperature 7°C bs / 6 bu;
- subcooling 5K;

Notes:
1) Compressors + fans.
2) As version SMAEY…H (condensing unit) it works as evaporating unit.
3) Max air flow.
4) Compressor site free field.
5) This data has only to be considered to charge the system as the unit leaves the factory with nitrogen.

The performances don't consider the outside pipes pressure drop.

TECHNICAL DATA

SIZE			242	262	282	312	342	382
Cooling mode STD - LN								
Cooling capacity	(1)	kW	237	262	292	324	350	379
Abs power	(2)	kW	79.6	88	92	96	111	129
EER	(2)	-	2.96	2.97	3.17	3.37	3.15	2.93
Cooling mode VLN								
Cooling capacity	(1)	kW	216	240	255	287	317	345
Abs power		kW	80.8	91	89.8	97.6	114	133
EER	(2)	-	2.67	2.63	2.83	2.94	2.78	2.59
Heating mode SMAEY ...H								
Heating capacity	(1)	kW	235	264	271	304	339	374
Abs power	(2)	kW	64.4	69.8	76	83.6	93.4	102.8
COP	(2)	-	3.64	3.78	3.56	3.63	3.62	3.63
Compressors (scrooll)								
Quantity		n°	4					
Refrigerant circuit		n°	2					
Capacity step		n°	4					
Refrigerant		-	R410A					
Refrigerant quantity	(5)	kg	52	57	57	72	77	77
Condenser STD - LN	(3)							
Axial fans		n°	4	6	6	6	6	6
Max abs. power		kW	7.2	5.4	10.8	10.8	10.8	10.8
Max abs. current		A	16	12	24	24	24	24
Condenser VLN	(2)							
Axial fans		n°	4	6	6	6	6	6
Max abs. power		kW	5.2	4.5	7.8	7.8	7.8	7.8
Max abs. current		A	10	8.4	15	15	15	15
Unit eletrical data								
Max Abs. Current		A	185	218	227	221	263	297
Max LRC		A	409	398	407	445	508	542
Voltage supply		V/f/Hz	400 / 3 / 50					
Sound pressure level at 1m	(4)							
Version STD		dB(A)	77	76	79	79	79	78
Version LN		dB(A)	74	74	77	77	77	76
Version VLN		dB(A)	71	71	73	73	73	72

Performances in cooling mode:
- evaporating temp. 7°C;
- ambient air temperature 35°C;
- subcooling 5K;

Performances in heating mode:
- condensing temperature 45°C;
- ambient air temperature 7°C bs / 6 bu;
- subcooling 5K;

Notes:
1) Compressors + fans.
2) As version SMAEY…H (condensing unit) it works as evaporating unit.
3) Max air flow.
4) Compressor site free field.
5) This data has only to be considered to charge the system as the unit leaves the factory with nitrogen.

The performances don't consider the outside pipes pressure drop.

COOLING CAPACITY AND ABSORBED POWER

MOD.	EVAP	CONDENSER Ambient air temperature °C													
	Te °C out.	26		29		32		35		38		41		44	
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
61	**5**	58	12,9	56	13,4	53	14,4	51	15,1	49	16,1	46	17,2	44	18,3
	6	60	12,9	57	13,7	55	14,5	52	15,3	50	16,2	47	17,3	45	18,4
	7	61	13,1	59	13,9	57	14,7	**54**	**15,6**	51	16,4	49	17,5	46	18,6
	8	63	13,3	60	14,0	58	14,8	55	15,8	53	16,7	50	17,6	47	18,7
	9	65	13,4	62	14,2	59	15,0	57	15,9	54	16,8	51	17,8	49	18,9
	10	67	13,7	64	14,4	61	15,1	58	16,1	56	17,0	53	18,1	-	-
71	**5**	65	16,0	62	16,7	59	17,8	56	18,8	54	20,0	51	21,3	48	22,7
	6	66	16,1	64	17,1	61	18,0	58	19,0	55	20,2	52	21,5	50	22,9
	7	68	16,3	65	17,3	63	18,2	**60**	**19,4**	57	20,4	54	21,7	51	23,1
	8	70	16,5	67	17,5	65	18,4	61	19,6	59	20,8	56	21,9	52	23,3
	9	72	16,7	69	17,7	66	18,6	63	19,8	60	21,0	57	22,1	54	23,5
	10	74	17,1	71	17,8	68	18,8	65	20,0	62	21,1	59	22,5	-	-
81	**5**	76	17,0	73	17,7	70	19,0	67	20,0	64	21,2	60	22,7	57	24,1
	6	78	17,1	75	18,1	72	19,2	69	20,2	65	21,4	62	22,9	59	24,3
	7	81	17,3	77	18,3	74	19,4	**71**	**20,6**	67	21,6	64	23,1	60	24,5
	8	83	17,5	80	18,5	76	19,6	72	20,8	70	22,0	66	23,3	62	24,7
	9	85	17,7	82	18,7	78	19,8	75	21,0	71	22,2	67	23,5	64	24,9
	10	87	18,1	84	19,0	80	20,0	77	21,2	73	22,5	70	23,9	-	-
91	**5**	82	19,6	78	20,5	75	21,9	71	23,1	68	24,5	65	26,2	61	27,8
	6	84	19,8	81	20,9	77	22,1	74	23,3	70	24,8	66	26,4	63	28,1
	7	86	20,0	83	21,2	80	22,4	**76**	**23,8**	72	25,0	68	26,7	65	28,3
	8	89	20,2	85	21,4	82	22,6	78	24,0	74	25,5	71	26,9	66	28,6
	9	91	20,5	87	21,7	84	22,8	80	24,3	76	25,7	72	27,1	68	28,8
	10	94	20,9	90	21,9	86	23,1	82	24,5	78	25,9	74	27,6	-	-
101	**5**	101	22,4	97	23,4	93	25,0	88	26,4	85	28,0	80	29,9	76	31,8
	6	104	22,6	100	23,9	95	25,3	91	26,7	86	28,3	82	30,2	78	32,1
	7	107	22,8	102	24,2	98	25,6	**94**	**27,2**	89	28,6	85	30,5	80	32,4
	8	110	23,1	105	24,5	101	25,8	96	27,5	92	29,1	87	30,7	82	32,6
	9	113	23,4	108	24,8	103	26,1	99	27,7	94	29,4	89	31,0	85	32,9
	10	116	23,9	111	25,0	106	26,4	102	28,0	97	29,6	92	31,6	-	-
121	**5**	126	27,6	121	28,7	116	30,7	110	32,4	105	34,4	99	36,7	94	39,1
	6	129	27,7	124	29,4	118	31,1	113	32,7	108	34,7	102	37,1	97	39,4
	7	133	28,1	128	29,7	122	31,4	**117**	**33,4**	111	35,1	105	37,4	99	39,7
	8	137	28,4	131	30,1	126	31,7	119	33,7	115	35,7	109	37,7	102	40,1
	9	140	28,7	135	30,4	129	32,1	123	34,1	117	36,1	111	38,1	105	40,4
	10	144	29,4	138	30,7	132	32,4	126	34,4	121	36,4	115	38,7	-	-

Notes:
Te - Evaporating temperature
kWf - Cooling capacity
kWa - Abs. power (compressors only)

ACCU 2 SMAEY/R410A

COOLING CAPACITY AND ABSORBED POWER

MOD.	EVAP	CONDENSER Ambient air temperature °C													
	Te °C out.	26		29		32		35		38		41		44	
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
131	**5**	128	29,5	123	30,8	118	32,9	112	34,7	107	36,9	101	39,4	96	41,9
	6	131	29,7	126	31,5	120	33,3	115	35,1	109	37,2	104	39,7	99	42,2
	7	135	30,1	130	31,9	125	33,7	**119**	**35,8**	113	37,6	107	40,1	101	42,6
	8	139	30,4	133	32,2	128	34,0	121	36,2	117	38,3	111	40,5	104	43,0
	9	143	30,8	137	32,6	131	34,4	125	36,5	119	38,7	113	40,8	107	43,3
	10	147	31,5	140	32,9	134	34,7	129	36,9	123	39,0	117	41,5	-	-
141	**5**	147	35,7	141	37,2	136	39,8	129	42,0	123	44,6	116	47,6	110	50,7
	6	151	35,9	145	38,1	138	40,3	133	42,4	126	45,0	119	48,1	114	51,1
	7	155	36,4	149	38,5	143	40,7	**137**	**43,3**	130	45,5	123	48,5	116	51,5
	8	160	36,8	153	39,0	148	41,1	140	43,7	134	46,3	127	48,9	119	52,0
	9	164	37,2	158	39,4	151	41,6	144	44,2	137	46,8	130	49,4	123	52,4
	10	169	38,1	162	39,8	155	42,0	148	44,6	141	47,2	134	50,2	-	-
151	**5**	153	39,1	146	40,8	141	43,6	133	46,0	128	48,8	121	52,1	114	55,5
	6	157	39,3	151	41,7	143	44,1	138	46,5	131	49,3	124	52,6	118	55,9
	7	161	39,8	155	42,2	149	44,6	**142**	**47,4**	135	49,8	128	53,1	121	56,4
	8	166	40,3	159	42,7	153	45,0	145	47,9	139	50,7	132	53,6	124	56,9
	9	170	40,8	163	43,1	156	45,5	149	48,3	142	51,2	135	54,0	128	57,4
	10	175	41,7	168	43,6	160	46,0	153	48,8	146	51,7	139	55,0	-	-
161	**5**	175	44,1	168	46,0	161	49,2	153	51,9	147	55,1	139	58,9	131	62,6
	6	180	44,4	173	47,1	165	49,8	158	52,4	150	55,6	142	59,4	135	63,1
	7	185	44,9	178	47,6	171	50,3	**163**	**53,5**	155	56,2	147	59,9	139	63,7
	8	190	45,5	183	48,2	176	50,8	166	54,0	160	57,2	152	60,5	142	64,2
	9	196	46,0	187	48,7	179	51,4	171	54,6	163	57,8	155	61,0	147	64,7
	10	201	47,1	192	49,2	184	51,9	176	55,1	168	58,3	160	62,1	-	-
191	**5**	204	48,2	196	50,2	188	53,7	179	56,6	171	60,2	162	64,2	153	68,3
	6	210	48,5	201	51,4	192	54,3	184	57,2	175	60,7	165	64,8	158	68,9
	7	216	49,1	207	52,0	199	54,9	**190**	**58,4**	181	61,3	171	65,4	162	69,5
	8	222	49,6	213	52,6	205	55,5	194	59,0	186	62,5	177	66,0	165	70,1
	9	228	50,2	219	53,1	209	56,1	200	59,6	190	63,1	181	66,6	171	70,7
	10	234	51,4	224	53,7	215	56,6	205	60,2	196	63,7	186	67,7	-	-
222	**5**	246	55,1	236	57,4	227	61,5	215	64,8	206	68,8	195	73,5	185	78,2
	6	253	55,4	243	58,8	231	62,1	222	65,5	211	69,5	199	74,1	190	78,8
	7	260	56,1	250	59,5	240	62,8	**229**	**66,8**	218	70,1	206	74,8	195	79,5
	8	267	56,8	256	60,1	247	63,5	234	67,5	224	71,5	213	75,5	199	80,2
	9	275	57,4	263	60,8	252	64,1	240	68,1	229	72,1	218	76,2	206	80,8
	10	282	58,8	270	61,5	259	64,8	247	68,8	236	72,8	224	77,5	-	-

Notes:
Te - Evaporating temperature
kWf - Cooling capacity
kWa - Abs. power (compressors only)

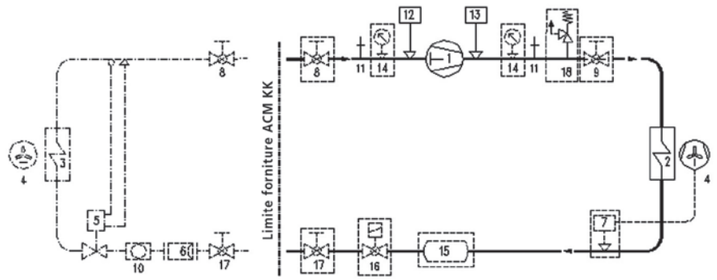
ACCU 2 SMAEY/R410A

COOLING CAPACITY AND ABSORBED POWER

MOD.	EVAP	CONDENSER Ambient air temperature °C													
	Te °C out.	26		29		32		35		38		41		44	
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
242	**5**	255	59,1	244	61,6	235	65,9	223	69,5	213	73,7	201	78,8	191	83,8
	6	262	59,4	251	63,0	239	66,6	230	70,2	218	74,5	206	79,5	197	84,5
	7	269	60,1	258	63,7	248	67,3	**237**	**71,6**	225	75,2	213	80,2	201	85,2
	8	277	60,9	265	64,4	255	68,0	242	72,3	232	76,6	220	80,9	206	85,9
	9	284	61,6	273	65,2	261	68,7	249	73,0	237	77,3	225	81,6	213	86,6
	10	292	63,0	280	65,9	268	69,5	256	73,7	244	78,0	232	83,1	-	-
262	**5**	282	67,7	270	70,5	259	75,4	246	79,5	236	84,5	223	90,2	211	95,9
	6	290	68,1	278	72,2	265	76,3	254	80,4	241	85,3	228	91,0	217	96,8
	7	297	68,9	286	73,0	274	77,1	**262**	**82,0**	249	86,1	236	91,8	223	97,6
	8	306	69,7	293	73,8	282	77,9	267	82,8	257	87,7	244	92,7	228	98,4
	9	314	70,5	301	74,6	288	78,7	275	83,6	262	88,6	249	93,5	236	99,2
	10	323	72,2	309	75,4	296	79,5	283	84,5	270	89,4	257	95,1	-	-
282	**5**	314	67,0	301	69,8	289	74,7	274	78,8	263	83,6	248	89,3	235	95,0
	6	323	67,4	310	71,5	295	75,5	283	79,6	269	84,4	254	90,1	242	95,8
	7	331	68,2	318	72,3	306	76,3	**292**	**81,2**	277	85,3	263	90,9	248	96,6
	8	341	69,0	327	73,1	314	77,1	298	82,0	286	86,9	272	91,8	254	97,4
	9	350	69,8	336	73,9	321	78,0	307	82,8	292	87,7	277	92,6	263	98,3
	10	360	71,5	345	74,7	330	78,8	315	83,6	301	88,5	286	94,2	-	-
312	**5**	348	69,3	334	72,2	321	77,3	305	81,5	292	86,5	275	92,4	261	98,3
	6	358	69,7	343	73,9	327	78,1	314	82,3	298	87,4	282	93,2	269	99,1
	7	368	70,6	353	74,8	339	79,0	**324**	**84,0**	308	88,2	292	94,1	275	100,0
	8	378	71,4	363	75,6	349	79,8	330	84,8	318	89,9	301	94,9	282	100,8
	9	389	72,2	373	76,4	356	80,6	340	85,7	324	90,7	308	95,8	292	101,6
	10	399	73,9	382	77,3	366	81,5	350	86,5	334	91,6	318	97,4	-	-
342	**5**	376	82,2	361	85,7	347	91,6	329	96,6	315	102,6	298	109,6	282	116,5
	6	387	82,7	371	87,6	354	92,6	340	97,6	322	103,6	305	110,6	291	117,5
	7	397	83,7	382	88,6	366	93,6	**350**	**99,6**	333	104,6	315	111,6	298	118,5
	8	408	84,7	392	89,6	377	94,6	357	100,6	343	106,6	326	112,5	305	119,5
	9	420	85,7	403	90,6	385	95,6	368	101,6	350	107,6	333	113,5	315	120,5
	10	431	87,6	413	91,6	396	96,6	378	102,6	361	108,6	343	115,5	-	-
382	**5**	407	96,4	390	100,4	375	107,5	356	113,3	341	120,3	322	128,5	305	136,7
	6	419	96,9	402	102,8	383	108,6	368	114,5	349	121,5	330	129,6	315	137,8
	7	430	98,1	413	104,0	397	109,8	**379**	**116,8**	360	122,6	341	130,8	322	139,0
	8	442	99,3	424	105,1	408	111,0	387	118,0	371	125,0	352	132,0	330	140,2
	9	455	100,4	436	106,3	417	112,1	398	119,1	379	126,1	360	133,2	341	141,3
	10	467	102,8	447	107,5	428	113,3	409	120,3	390	127,3	371	135,5	-	-

Notes:
Te - Evaporating temperature
kWf - Cooling capacity
kWa - Abs. power (compressors only)

REFRIGERANT CIRCUIT



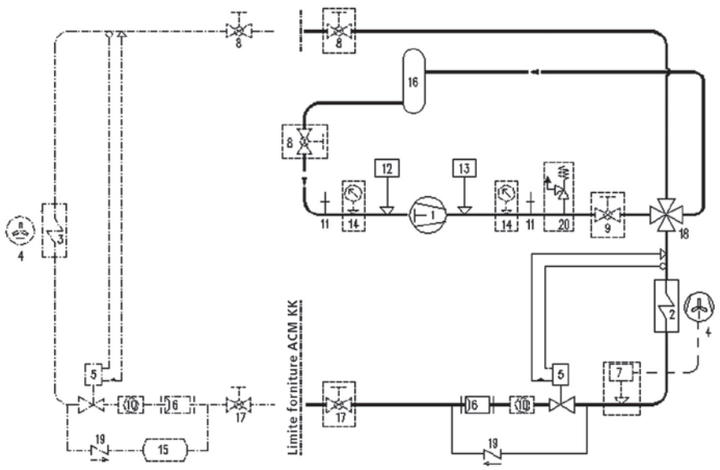
1 Compressor
2 Condensator
3 Evaporator
4 Fans
5 Thermal expansion valve
6 Refrigerant filter
7 Fan speed regulator
8 Suction line valve *
9 Supply cock *
10 Humidity indicator
11 Schrader service valve
12 Low pressure switch
13 High pressure switch
14 Gauges*
15 Liquid receiver*
16 Solenoid valve*
17 Liquid line cock*
18 Relief valve

OPERATING RANGE

EVAPAPORATION TEMPERATURE	Max °C	10
	Min °C	-2
AMBIENT AIR TEMPERATURE	Max °C	44 (1)
	Min °C	10

(1) Except what indicated in the sheet pages 7 and 9.

ACCU 2 ... H - REFRIGERANT CIRCUIT



1 Compressor
2 Outdoor exchanger
3 Indoor exchanger
4 Fans
5 Thermal expansion valve
6 Refrigerant filter
7 Fan speed regulator
8 Suction line valve *
9 Supply cock *
10 Humidity indicator
11 Schrader service valve
12 Low pressure switch
13 High pressure switch
14 Gauge*
15 Liquid receiver*
16 Suction separator*
17 Liquid line cock*
18 4way solenoid valve
19 Check valve
20 Relief valve

N.B.
Piping between the SMAEY (SMAEY…H) and the terminal unit must guarantee the oil return to the compressor.

* The outlined components are optional

PIPING SYSTEM

Fig. A

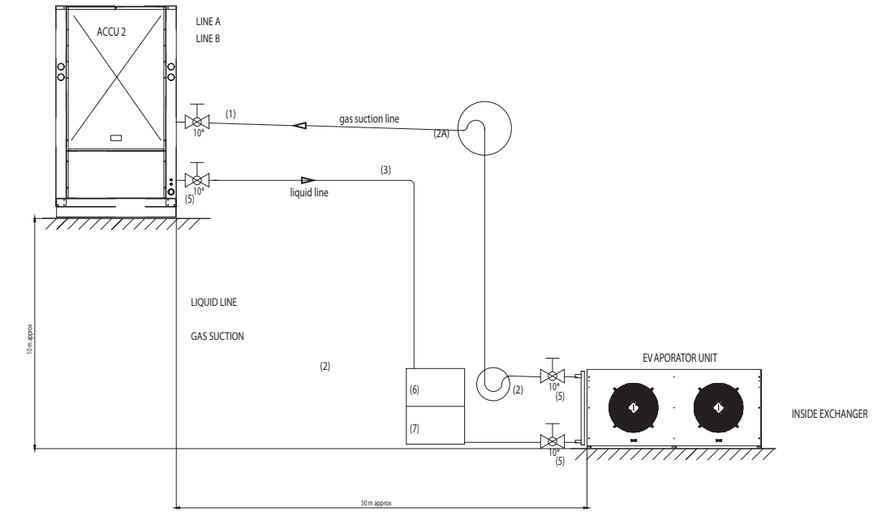
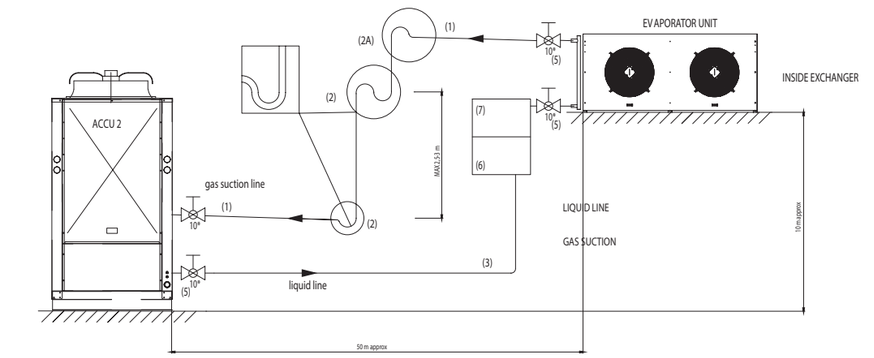


Fig. B



Model ACCU 2	Piping's equivalent length between SMAEY condensing unit and the remote evaporator					
	10 m		20 m		30 m	
	Suction line (mm)	Liquid line (mm)	Suction line (mm)	Liquid line (mm)	Suction line (mm)	Liquid line (mm)
61	35	22	35	22	35	22
71	35	22	35	22	42	22
81	35	22	35	22	42	28
91	42	28	42	28	42	28
101	42	28	42	28	42	28
121	54	35	54	35	54	35
131	54	35	54	35	54	35
141	54	35	54	35	54	35
151	54	35	54	35	54	35
161	54	35	54	35	54	42
191	54	35	54	42	67	42
222	54	35	54	35	54	35
242	54	35	54	35	54	35
262	54	35	54	35	54	35
282	54	35	54	35	54	35
312	54	35	54	35	54	35
342	54	35	54	35	54	42
382	54	35	54	42	67	42

DIMENSION

Fig. A
mod. from 61 to 91

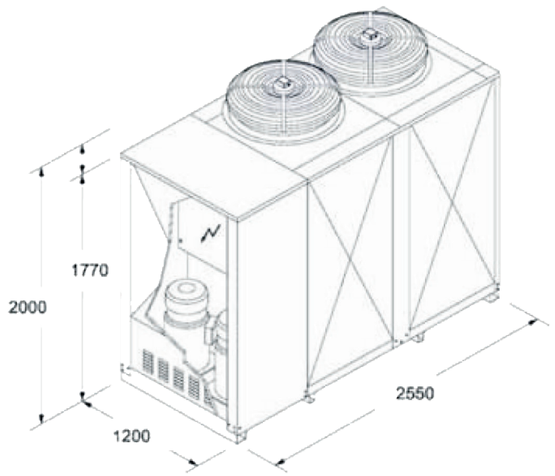
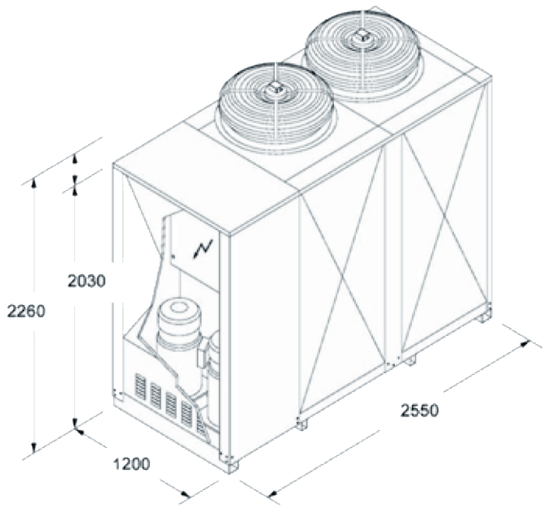


Fig. B
mod. from 101 to 131



WEIGHTS

VERSION	STD / LN							VLN						
Mod.	**61**	**71**	**81**	**91**	**101**	**121**	**131**	**61**	**71**	**81**	**91**	**101**	**121**	**131**
Fig.	A	A	A	A	B	B	B	A	A	A	A	B	B	B
Operating kg. (1)	650	680	690	730	865	1050	1090	670	700	710	750	885	1070	1110

(1) **OPERATING WEIGHT:** add to the transport weight the refrigerant charge and the accessories
(2) The data are referred to ACCU 2 cooling only; for SMAE…H increase the value of 5%.

DIMENSION

Fig. C
mod. from 141 to 191

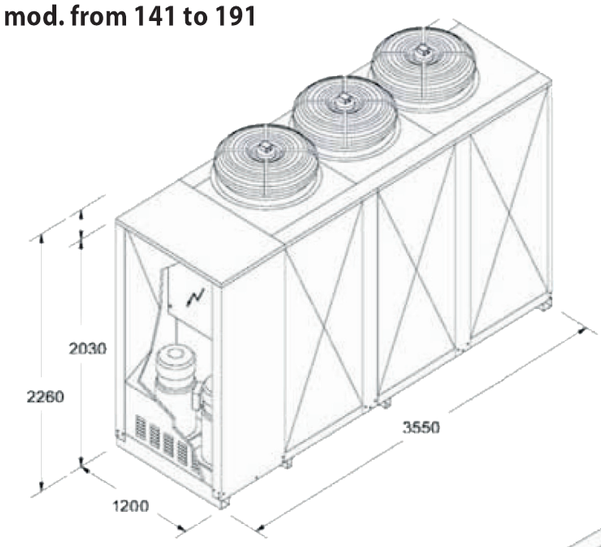
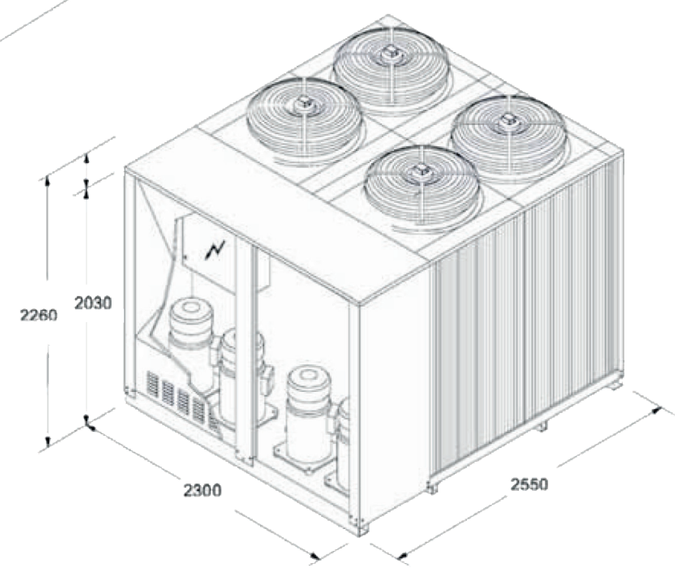


Fig. D
mod. from 222 to 242



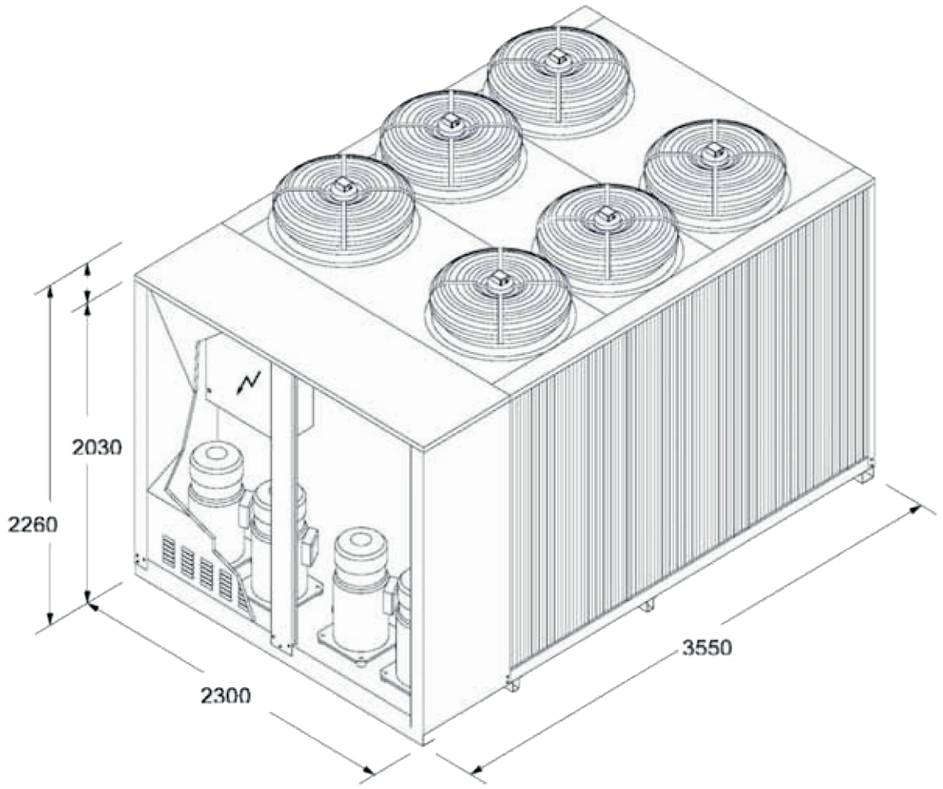
WEIGHTS

VERSION	STD / LN						VLN					
Mod.	**141**	**151**	**161**	**191**	**222**	**242**	**141**	**151**	**161**	**191**	**222**	**242**
Fig.	C	C	C	C	D	D	C	C	C	C	D	D
Operating kg. (1)	1150	1260	1440	1530	1920	2120	1180	1290	1480	1570	1980	2200

(1) **OPERATING WEIGHT:** add to the transport weight the refrigerant charge and the accessories
(2) The data are referred to ACCU 2 cooling only; for SMAE…H increase the value of 5%.

DIMENSION

Fig. E
mod. from 262 to 382



WEIGHTS

VERSIONE - VERSION		STD / LN					VLN				
Mod.		**262**	**282**	**312**	**342**	**382**	**262**	**282**	**312**	**342**	**382**
Fig.		E	E	E	E	E	E	E	E	E	E
Operating kg.	(1)	2180	2290	2540	2690	2910	2260	2380	2620	2770	2990

(1) **OPERATING WEIGHT:** add to the transport weight the refrigerant charge and the accessories
(2) The data are referred to ACCU 2 cooling only; for SMAE…H increase the value of 5%.

CLEARANCE AND SUPPORT POINTS

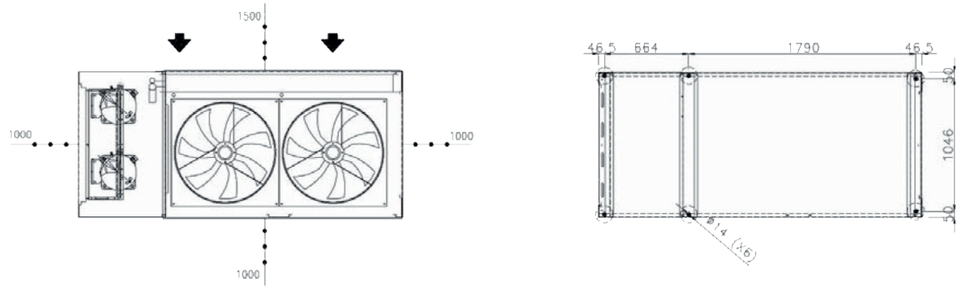
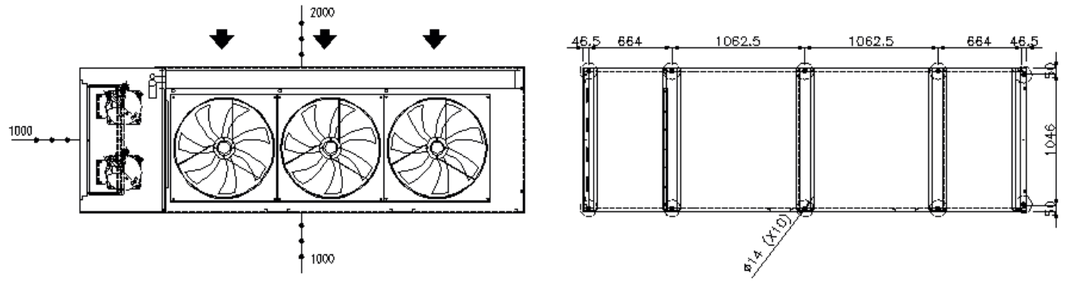


Fig. B
mod. from 121 to 191



ACCU 2 SMAEY/R410A

CLEARANCE AND SUPPORT POINTS

Fig. C
mod. from 222 to 242

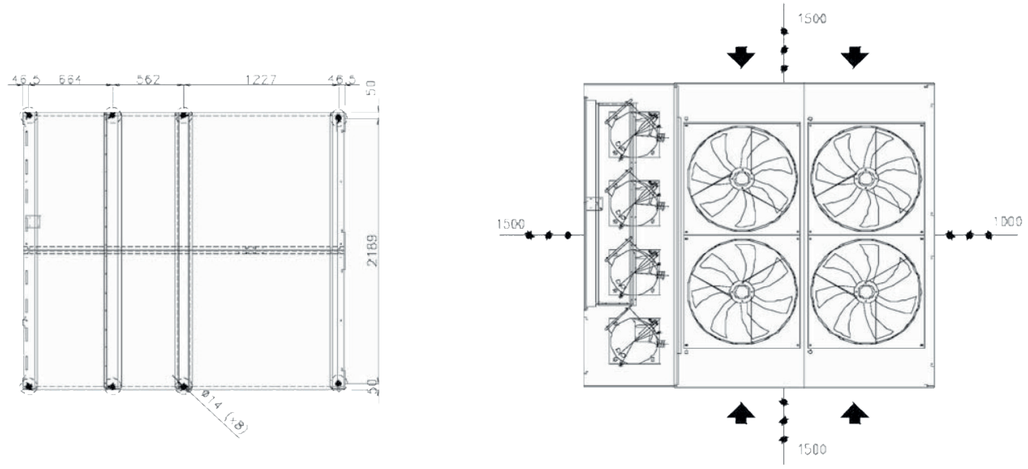
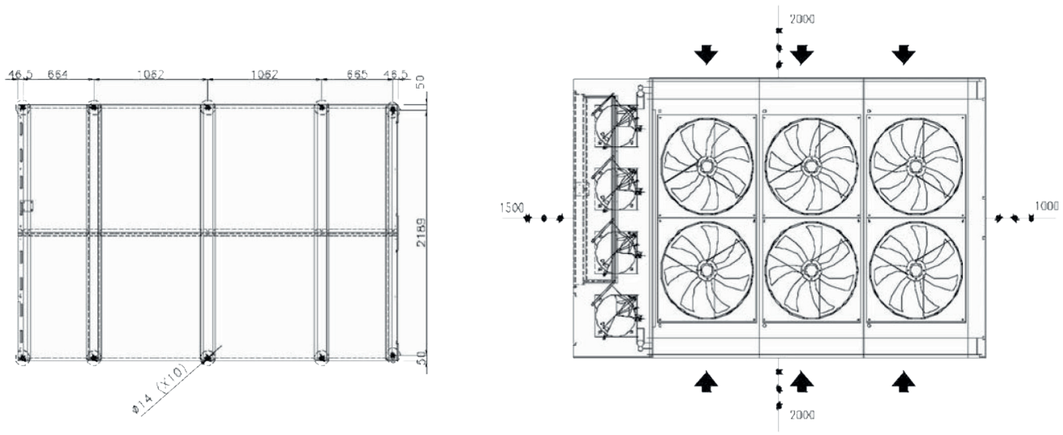


Fig. D
mod. from 262 to 382



Technical data show in this booklet are not binding. KLT Klima S.r.l reserves the right to modify data without any prior notice.

NOTES

KLIMA

AIR COOLED WATER CHILLERS FREE COOLING SYSTEM

AWC MCAEY-FC/R410A

CHAPTER 2

SCROLL COMPRESSORS

- **Air cooled liquid chiller**
- **from 13 to 55 kW**
- **Free-Cooling**

MADE IN ITALY

IDENTIFICATION CODE		
M C A E Y 35/1 – FC PAC		
1 2 3 4 5 6 7 8 9		
1	M	Mini series < 60 kW
2	C	Chiller unit
3	A	Air cooled
4	E	Axial fans
5	Y	Refrigerant R410A
6	35	Capacity factors
7	1	Numbers of circuits
8	FC	Free-cooling
9	PAC	Storage tank
	P1	1 pump
	P2	2 pumps
	PAC1	Storage tank + 1 pump
	LN	Low noise



GENERAL FEATURES

GENERAL

The MCAE/FC free-cooling units are particularly suitable where chilled water all year long is required, so also by low ambient air temperature. The free-cooling system utilises the low outside temperature for chilling water in the coil starting from 15 °C ambient air temperature.

THE FREE-COOLING PRINCIPLE

The units series MCAEY/FC are designed to cool down water/ glycol fluid.

This units are equipped, further to the chiller components such as compressors, condensers, evaporator, thermostatic valves, with a water free-cooling coil. The control system consists of a modulating three-way valve and of a certain number of probes allowing the water coil functioning and therefore the "free-cooling" operation. In the standard chiller the return water/glycol fluid is cooled down through the shell and tube evaporator. In the MCAEY/FC units working in free-cooling mode, the water/glycol fluid runs through the free-cooling coil which is cooled by means of the external air, thus reducing the load on the compressors or even completely substituting them. The control system consists of a microprocessor, an inlet water temperature probe, an external air temperature probe, a working probe and a nofreezing probe.

OPERATION IN SUMMER

When the ambient air temperature is higher than the return water glycol temperature the cooling capacity is guaranteed by the compressors (10); the 3-way valve (9) allows the water/glycol to go into the evaporator (12); the free-cooling coil (11) is not working. The absorbed power is the same as a traditional electric air cooled chiller.

OPERATION IN WINTER

When the ambient air temperature is lower than 3-0°C, the chiller operates in free cooling mode: the 3-way valve (9) allows the water/ glycol mix to go into the free-cooling coil (11), the probe (5) switch off the compressor (10). The fans (13) keep working to guarantee the air flow through the freecooling coil (11). By the external air decreasing, the microprocessor (15) activates the 3 way valve. By reaching the set point the fans decreas the speed.

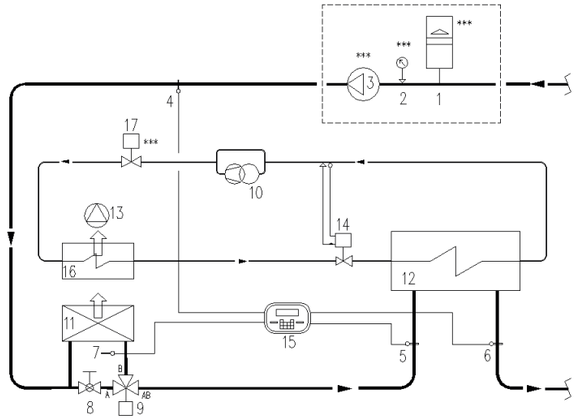
OPERATION IN MID SEASON

It's a combination of free-cooling and traditional chiller. The free-cooling operation starts when the external air temperature is at least 2 °C lower than the return liquid temperature; so, normally at 15-10 °C. The liquid is pre-cooled in the free-cooling coil (11). The performance is completed by the compressors. The water temperature probe (5) controls the compressor (10) capacity steps.

BENEFITS

- Your overheads would reduce in the mid season
- Your free cooling system could run automatically when required
- There would be less wear and tear due to the reduced hours of operation
- Your maintenance costs would reduce

FREE-COOLING CIRCUIT



1 = Expansion vessel
2 = Gauge
3 = Pump
4 = Inlet water probe
5 = Probe
6 = Antifreeze probe
7 = External air temperature probe
8 = Shut-off valve
9 = 3-way valve
10 = Compressor
11 = Free-cooling coil
12 = Evaporator
13 = Fan
14 = Thermostatic valve
15 = Microprocessor
16 = Condenser
17 = Compressor pressure control valve
*** = Options

GENERAL FEATURES

TECHNOLOGY

A electronic expansion valve managed by software, can allow the refrigerant circuit to work very efficiently and reduce the power consumption. When the heating load changes suddenly, a traditional expansion valve experiences a 2-3 minute hunting period before achieving a state of equilibrium. On the contrary we have an immediate action of an electronic expansion valve.

When a compressor starts or stops:

- The electronic driver pre-positions the valve at a point that is very close to the final equilibrium point
- The state of equilibrium is quickly achieved with few adjustments.
- The expansion valve becomes an active part within the system instead of just a passive part.
- Hunting lasts hardly any time at all.



FAN INVERTERS

The inverter technology employed on axial fans (optional extra) continuously adjusts automatically and the fans power and operating speed based on condensing pressure. This means the unit can even be used when the outside air temperature is below zero.

Furthermore, in free-cooling mode, the inverter controls the speed of the fans depending on water temperature.



CAPACITY CONTROL

The option of producing different cooling circuit configurations on the same size unit (in terms of capacity) means we can customize efficiency levels at full or part load.

The multi-compressor models favour high efficiency values at full load (EER). Having a number of compressors allows the unit to deliver its output based on a number of capacity reduction steps, thus adjusting capacity to suit the system's actual heating load perfectly reducing inrush currents.

INTERCONNECTIVITY

An advanced microprocessor enable:

- LAN network
- Programming Key
- All the parameters can be configured by the key pad on the front or by a hardware key and / or a serial line.



FRAME

Self-supporting, galvanized steel frame protected with polyester powder painting. Panels are easily removable for maintenance and service activities.

COMPRESSORS

Hermetic "scroll" type with overload protection by a klixon and complete with oil sight glass. They are installed on vibration absorbing rubber and placed within a closed compartment to reduce sound level and to allow service and maintenance activities while unit is in operation.

EVAPORATOR

Braze-welded plate type with one refrigerant circuit and one water circuit.

The circuit are made to guarantee an homogeneous cooling of all the water flow even during partial load. The insulation is made of flexible closed-cells lining.

As protection, a flow switch is recommended to mount to stop the unit in case of no water circulation.Standard diff. pressure switch supplied.

CONDENSER / FREE-COOLING

Condenser: one condenser made of copper tubes and aluminium finned coils.

Water free-cooling coil: one coil made of copper tubes and aluminium finned coils.

FANS

Axial fans with aerodynamic outline blade section directly coupled to a mono phase (three phase option) electric motor with external rotor.

A safety fan guard is fitted on air flow discharge.

REFRIGERANT CIRCUIT

Each unit is supplied with one refrigerant circuit; includes: filter dyer, sight glass, electronic thermostatic expansion valve, service valve.

To protect the refrigerant circuit the following devices are installed: man. reset HP-switch, aut. reset LP-switch and anti- freeze thermostat. Besides, if necessary: man. reset safety pressure switch and safety valve.

ELECTRICAL BOARD

With protection grade IP54 the el. board is mounted in the compressor chamber. Service activities can be done while the unit is in operation. It includes: main circuit automatic breaker with locking door device, compressors and fans contactors and relé, auxiliary circuit transformer.

Microprocessor to control automatically the unit with a visual system to display the function as well as failures.

VERSIONS

P

This version is equipped with hydraulic kit. It includes: one or two pumps (one as stand-by), expansion vessel, gauge, flow switch, safety valve, air purger, shut off valve and hydraulic circuit insulated. In case of stand-by pump a non-return valve is mounted. Relevant electrical circuit. As option, pumps with higher ESP are available.

PAC

This version is equipped with "P" hydraulic kit and inertial storage tank insulated and installed.

LN

Low noise version, it includes fan speed control and special soundproofing for the compressors chamber.

Options

- Power factor correction
- Fan speed control
- Remote control panel
- Clock card
- RS 485 card (protocol mod. BUS, lon work, backnet)
- Evaporator el. heater
- El. Heater PAC version
- Discharge and liquid shut-off valves
- HP/LP gauges
- Cu/Cu or Epoxy Protection coils
- Flow switch (STD in P and PAC versions)
- Pump shut off valve
- Pumps with higher ESP
- Protection grid/filter condenser
- Spring AV mounts
- High sensibility AV mounts
- Inverter for axial EC fans
- Wooden crate

SIZE		15/1	17/1	19/1	21/1	25/1
Cooling mode STD						
Cooling capacity (1)	kW	16	18	22	23	27
Abs power (2)	kW	4.5	5.3	5.9	6.4	7.6
EER (2)	-	3.55	3.39	3.72	3.59	3.55
Free-cooling mode						
Amb. temp. (50% FC-capacity)	°C	9	8	9	8	9
Amb. temp. (100% FC-capacity)	°C	1	0	1	0	2
Absorbed power (3)	kW	0.6	0.6	0.6	0.6	1.2
Compressors (scrooll)						
Quantity	n°	1				
Refrigerant circuit	n°	1				
Capacity step	n°	1				
Refrigerant	-	R410A				
Refrigerant quantity	kg	2.5	2.5	2.5	3.5	3.5
Plate to plate exchanger						
Water flow rate 30% glycol	m^3/h	2.2	2.5	3.1	3.2	3.8
Total pressure drop	kPa	45	60	50	62	52
Water volume	l	0.5	0.5	0.8	0.8	0.9
Water connections	Ø	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
Version						
Tank volume	l	50	50	50	50	50
Water pump nominal power	kW	0.37	0.37	0.55	0.55	0.55
Water pump nominal current	A	1.5	1.5	1.65	1.65	1.65
External static pressure	kPa	120	100	100	80	70
Water connections	Ø	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
Condenser/Free-cooling						
Axial fans	n°	1	1	1	1	2
Max abs. Power	kW	0.68	0.68	0.68	0.68	1.35
Max abs. Current	A	3	3	3	3	6
Unit eletrical data (4)						
Max Abs. Current	A	20	24	24	24	30
Max LRC	A	72	84	110	110	120
Voltage supply	V/f/Hz	400 / 3N / 50				
Sound pressure level at 1m (4) (5)						
Version STD	dB(A)	65	65	65	65	67
Version LN	dB(A)	63	63	63	63	65
Version VLN	dB(A)	Contattare sede / Contact factory				

Notes:
1) Water temp. 16 °C / 10 °C; air temperature 32 °C
2) Compressors + fans only. No water pump(s)
3) Abs. Power in free-cooling operation; except pumps
4) Without water pump(s)
5) Compressors site and free field

GRANDEZZA UNITÁ - SIZE		30/1	35/1	40/1	45/1	50/1
Raffreddamento / Cooling mode STD						
Potenzialità frigorifera - Cooling capacity (1)	kW	31	35	39	46	55
Potenza assorbita - Abs power (2)	kW	8.4	9.7	11.2	13.2	18.1
EER (2)	-	3.69	3.60	3.48	3.48	3.03
Free-cooling / Free-cooling mode						
Temp. aria esterna 50% FC - Amb. temp. (50% FC-capacity)	°C	9	9	8	7	7
Temp. aria esterna 100% FC - Amb. temp. (100% FC-capacity)	°C	1	1	0	-1	-1
Potenza assorbita - Absorbed power (3)	kW	1.2	1.2	1.2	1.2	1.2
Compressore - Compressors (scrooll)						
Quantità - Quantity	n°	1				
Circuiti frigo - Refrigerant circuit	n°	1				
Gradini di parzializzazione - Capacity step	n°	1				
Refrigerante - Refrigerant	-	R410A				
Carica Refrigerante - Refrigerant quantity	kg	3.5	3.5	3.5	6	6
Evaporatore a Piastre - Plate to plate exchanger						
Portata acqua 30% glicole - Water flow rate 30% glycol	m^3/h	4.4	5	5.5	6.5	7.8
Perdita di carico totale circuito - Total pressure drop	kPa	66	51	65	66	89
Contenuto acqua - Water volume	l	1	1.1	1.3	1.3	1.6
Attacchi idraulici - Water connections	Ø	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
Versione PAC - Version						
Contenuto serbatoio - Tank volume	l	100	100	100	100	100
Potenza pompa - Water pump nominal power	kW	0.55	0.75	0.75	1.1	1.1
Corrente pompa - Water pump nominal current	A	1.6	1.9	1.9	2.5	2.5
Prevalenza utile - External static pressure	kPa	80	90	70	130	80
Attacchi idraulici - Water connections	Ø	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
Condensatore Free-cooling - Condenser/Free-cooling						
Ventilatore assiale - Axial fans	n°	2	2	2	2	2
Potenza max. assorbita - Max abs. Power	kW	1.35	1.35	1.35	1.35	1.35
Corrente max. assorbita - Max abs. Current	A	6	6	6	6	6
Dati elettrici unità - Unit eletrical data (4)						
Max corrente assorbita - Max Abs. Current	A	34	37	43	46	52
Max corrente di spunto - Max LRC	A	130	130	152	186	237
Alimentazione elettrica - Voltage supply	V/f/Hz	400 / 3N / 50				
Pressione sonora - Sound pressure level at 1m (4) (5)						
Versione STD - Version STD	dB(A)	67	67	68	68	70
Versione LN - Version LN	dB(A)	65	65	66	66	68
Versione VLN - Version VLN	dB(A)	Contattare sede / Contact factory				

Notes:
1) Water temp. 16 °C / 10 °C; air temperature 32 °C
2) Compressors + fans only. No water pump(s)
3) Abs. Power in free-cooling operation; except pumps
4) Without water pump(s)
5) Compressors site and free field

DIMENSIONS

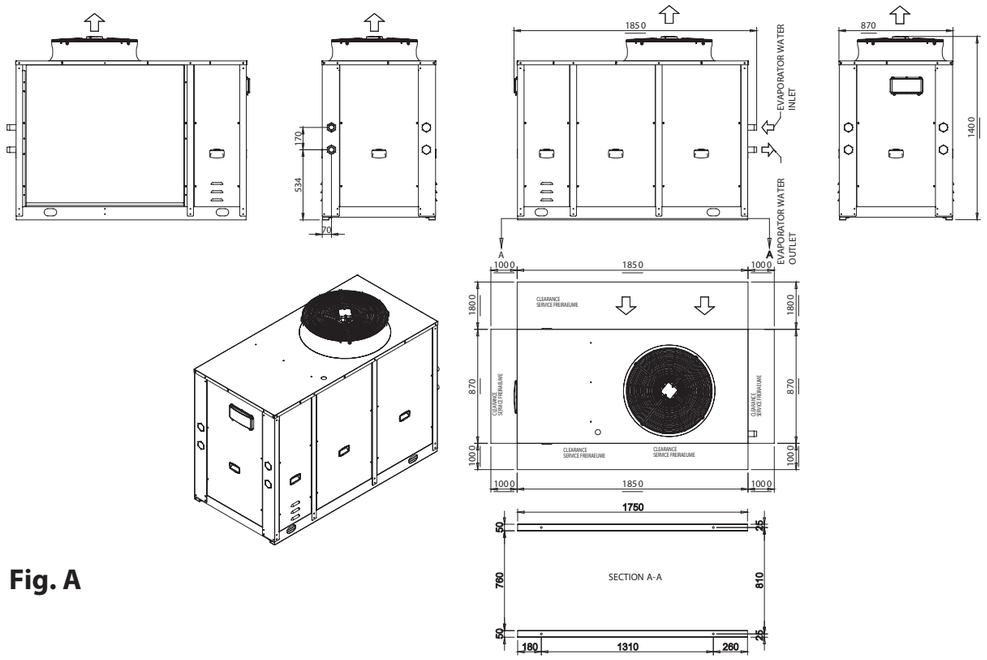


Fig. A

WEIGHTS (Kg)

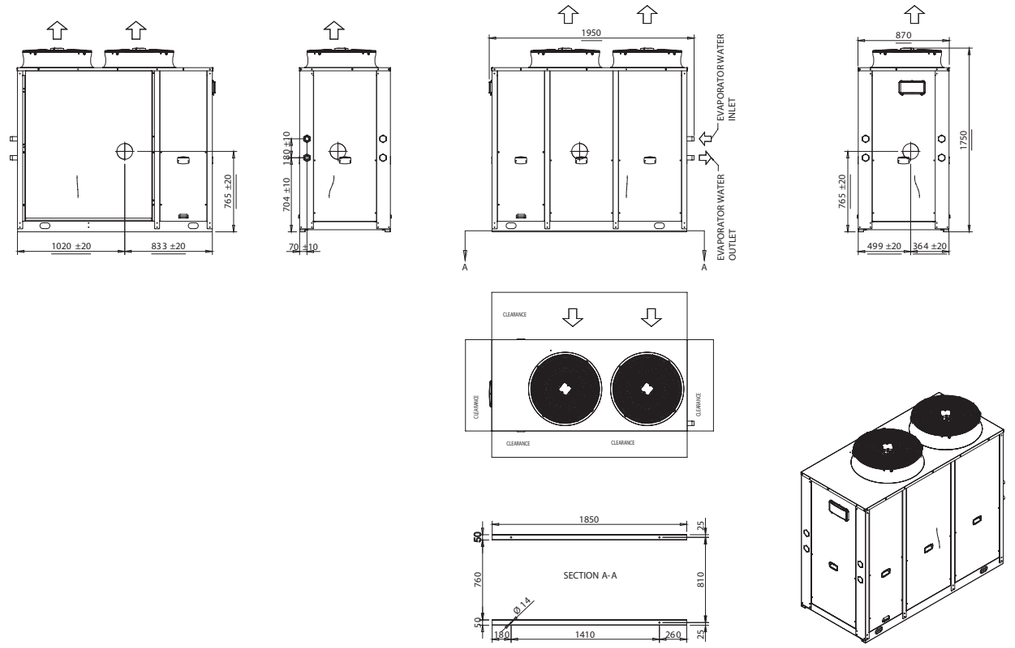
VERSION	STD					STD				
Picture	**A**	**A**	**A**	**A**	**B**	**B**	**C**	**C**	**C**	**C**
Mod.	**15**	**17**	**19**	**21**	**25**	**30**	**35**	**40**	**45**	**50**
Operating kg. (1)	550	570	590	600	620	650	680	710	785	815
VERSION PAC1										
Operating kg. (1)	690	710	750	780	790	860	910	1020	1135	1165
Transport kg.	635	655	675	690	720	735	775	795	910	940

(1) The data has to be added to the evaporator and coils water volume with regard to the selected model.

OPERATING RANGE

INLET WATER TEMPERATURE	Max °C	25
	Min °C	10
OUTLET WATER TEMPERATURE	Max °C	18
	Min °C	5
AMBIENT AIR TEMPERATURE	Max °C	40
	Min °C	-15

DIMENSIONS



WEIGHTS (Kg)

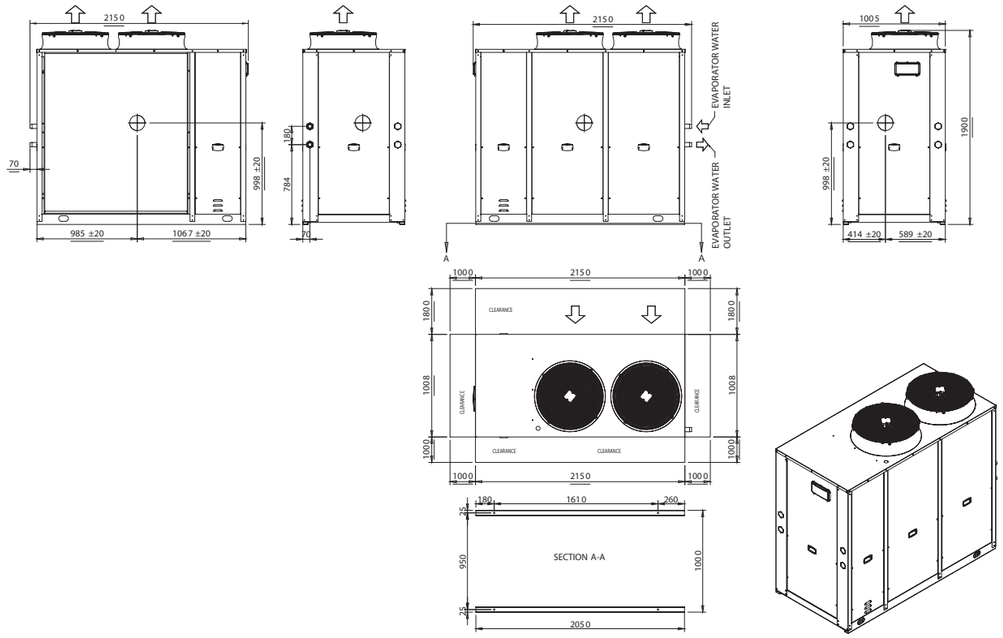
VERSION	STD					STD				
Picture	**A**	**A**	**A**	**A**	**B**	**B**	**C**	**C**	**C**	**C**
Mod.	**15**	**17**	**19**	**21**	**25**	**30**	**35**	**40**	**45**	**50**
Operating kg. (1)	550	570	590	600	620	650	680	710	785	815
Transport kg.	550	570	590	600	620	650	680	710	785	815
VERSION PAC1										
Operating kg. (1)	690	710	750	780	790	860	910	1020	1135	1165
Transport kg.	635	655	675	690	720	735	775	795	910	940

(1) The data has to be added to the evaporator and coils water volume with regard to the selected model.

AWC MCAEY-FC/R410A

DIMENSIONS

Fig. C



WEIGHTS (Kg)

VERSION		STD					STD				
Picture		**A**	**A**	**A**	**A**	**B**	**B**	**C**	**C**	**C**	**C**
Mod.		**15**	**17**	**19**	**21**	**25**	**30**	**35**	**40**	**45**	**50**
Operating kg.	(1)	550	570	590	600	620	650	680	710	785	815
Transport kg.		550	570	590	600	620	650	680	710	785	815
VERSION PAC1											
Operating kg.	(1)	690	710	750	780	790	860	910	1020	1135	1165
Transport kg.		635	655	675	690	720	735	775	795	910	940

(1) The data has to be added to the evaporator and coils water volume with regard to the selected model.

Technical data shown in this booklet are not binding. KLT Klima S.r.l reserves the right to modify data without any prior notice.

NOTES

AWCL SCAEY-FC/410A

CHAPTER 2

SCROLL COMPRESSORS

- **Air cooled liquid chiller**
- **from 45 to 385 kW**
- **Free-Cooling**
- **Axial Fan**

MADE IN ITALY

IDENTIFICATION CODE		
S C A E Y – 111 – FC PAC		
1 2 3 4 5 6 7 8 9 10		
1	S	Small series < 360 kW
2	C	Chiller unit
3	A	Air cooled
4	E	Axial fans
5	Y	Refrigerant R410A
6	11	Power factor
7	1	Number of circuits
8	–	Cooling only version
9	FC	Free-Cooling
10	PAC	Storage tank + Pump
	P1	1 pump
	P2	2 pumps
	RCP	Heat recovery mounted in parallel (100%)
	LN	Low noise



GENERAL FEATURES

GENERAL FEATURES

The AWCL/FC free-cooling units are particularly suitable where chilled water all year long is required, so also by low ambient air temperature. The free-cooling system utilises the low outside temperature for chilling water in the coil starting from 15 °C ambient air temperature.

THE FREE-COOLING PRINCIPLE

The units series SCAEY/FC are designed to cool down water/glycol fluid.

This units are equipped, further to the chiller components such as compressors, condensers, evaporator, thermostatic valves, with a water free-cooling coil. The control system consists of a modulating three-way valve and of a certain number of probes allowing the water coil functioning and therefore the "free-cooling" operation. In the standard chiller the return water/glycol fluid is cooled down through the shell and tube evaporator. In the AWCL/FC units working in freecooling mode, the water/glycol fluid runs through the freecooling coil which is cooled by means of the external air, thus reducing the load on the compressors or even completely substituting them. The control system consists of a microprocessor, an inlet water temperature probe, an external air temperature probe, a working probe and a no-freezing probe.

OPERATION IN SUMMER

When the ambient air temperature is higher than the return water/glycol temperature the cooling capacity is guaranteed by the compressors (10); the 3-way valve (9) allows the water/glycol to go into the evaporator (12); the free-cooling coil (11) is not working. The absorbed power is the same as a traditional electric air cooled chiller.

OPERATION IN WINTER

When the ambient air has a temperature lower or around 0 °C, the chiller operates in free cooling mode: the 3-way valve (9) allows the water/glycol to go into the free-cooling coil (11), the probe (5) switch off the compressors (10). The fans (13) keep working to guarantee the air flow through the free-cooling coil (11). By the external air decreasing, the microprocessor (15) activates, by reaching the set point, the fans modulate.

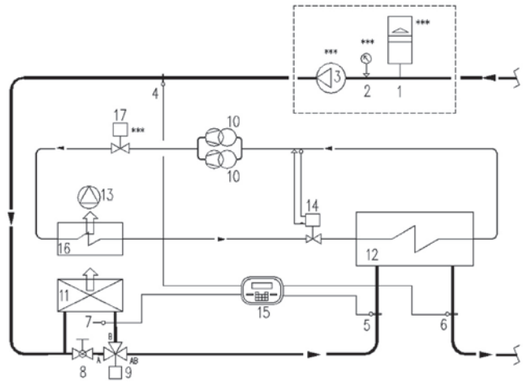
OPERATION IN MID SEASON

It's a combination of free-cooling and traditional electric chiller. The free-cooling operation starts when the external air temperature is at least 2 °C lower than the return liquid temperature; so, normally at 15-10 °C. The liquid is pre-cooled in the free-cooling coil (11). The performance is completed by the compressors. The water temperature probe (5) controls the compressor (10) capacity steps.

BENEFITS

- Your overheads would reduce in the mid season.
- Your free cooling system could run automatically when required.
- There would be less wear and tear due to the reduced hours of operation.
- Your maintenance costs would reduce.

FREE-COOLING CIRCUIT



1 = Expansion vessel
2 = Gauge
3 = Pump
4 = Inlet water probe
5 = Probe
6 = Antifreeze probe
7 = External air temperature
8 = Shut-off valve
9 = 3-way valve
10 = Compressor
11 = Free-cooling coil
12 = Evaporator
13 = Fan
14 = Thermostatic valve
15 = Microprocessor
16 = Condenser
17 = Compressor pressure control valve

***** = Options**

TECNICHAL FEATURES

A electronic expansion valve managed by software, can allow the refrigerant circuit to work very efficiently and reduce the power consumption. When the heating load changes suddenly, a traditional expansion valve experiences a 2-3 minute hunting period before achieving a state of equilibrium.

On the contrary we have an immediate action of an **electronic expansion valve.**

When a compressor starts or stops:

- The electronic driver pre-positions the valve at a point that is very close to the final equilibrium point
- The state of equilibrium is quickly achieved with few adjustments.
- The expansion valve becomes an active part within the system instead of just a passive part.
- Hunting lasts hardly any time at all.



FAN INVERTERS

The inverter technology employed on axial fans (optional extra) continuously adjusts automatically and the fans power and operating speed based on condensing pressure. This means the unit can even be used when the outside air temperature is below zero.

Furthermore, in free-cooling mode, the inverter controls the speed of the fans depending on water temperature.



CAPACITY CONTROL

The option of producing different cooling circuit configurations on the same size unit (in terms of capacity) means we can customize efficiency levels at full or part load.

The multi-compressor models favour high efficiency values at full load (EER). Having a number of compressors allows the unit to deliver its output based on a number of capacity reduction steps, thus adjusting capacity to suit the system's actual heating load perfectly reducing inrush currents.



INTERCONNECTIVITY

An advanced microprocessor enable:

- LAN network
- Programming Key
- All the parameters can be configured by the key pad on the front or by a hardware key and / or a serial line.



FRAME

Self-supporting, galvanized steel frame protected with polyester powder painting. Panels are easily removable for maintenance and service activities.

COMPRESSORS

Hermetic «scroll» type with overload protection by a klixon and complete with oil sight glass. They are installed on vibration absorbing rubber and placed within a closed compartment to reduce sound level and to allow service and maintenance activities while unit is in operation.

EVAPORATOR

Braze-welded plate type with one or two independent refrigerant circuits and one water circuit.

The circuit are made to guarantee an homogeneous cooling of all the water flow even during partial load. The insulation is made of flexible closed-cells lining. As protection, a flow switch is recommended to mount to stop the unit in case of no water circulation.

CONDENSER / FREE-COOLING

Condenser: one or two condensers made of copper tubes and aluminium finned coils.

Water free-cooling coil: one or two coils made of copper tubes and aluminium finned coils.

FANS

Axial fans with aerodynamic outline blade section directly coupled to a three phase electric motor with external rotor.

A safety fan guard is fitted on air flow discharge.

REFRIGERANT CIRCUIT

Each unit is supplied with one or two independent refrigerant circuits; each one includes: filter dryer, sight glass, electronic thermostatic expansion valve, service valve.

To protect the refrigerant circuit the following devices are installed: man. reset HP-switch, aut. reset LP-switch and antifreeze thermostat. Besides, if necessary: man. reset safety pressure switch and safety valve.

ELECTRICAL BOARD

With protection grade IP54 the el. board is mounted in the compressor chamber. Service activities can be done while the unit is in operation. It includes: main circuit automatic breaker with locking door device, compressors and fans contactors and relé, auxiliary circuit transformer.

Microprocessor to control automatically the unit with a visual system to display the function as well as failures.

VERSIONS

RCP

100% condensing heat recovery. Each refrigerant circuit includes: a heat exchanger insulated and mounted in parallel to the condenser. Moreover the relevant solenoid valves.

P

This version is equipped with hydraulic kit. It includes: one or two pumps (one as stand-by), expansion vessel, gauge, flow switch, safety valve, air purger, shut off valve and hydraulic circuit insulated. In case of stand-by pump a non-return valve is mounted. Relevant electrical circuit. As option, pumps with higher ESP are available.

PAC

This version is equipped with hydraulic kit and inertial storage tank insulated and installed on the return line.

LN

Low noise version, it includes fan speed control and special soundproofing for the compressors chamber.

Options

- Power factor correction.
- Soft starter
- Fan speed control.
- Remote control panel.
- Clock card.
- RS 485 card. (Protocol: Mod Bus, Lon Work, Bacnet)
- Evaporator el. heater
- El. heater PAC version.
- Compressor shut off valves.
- HP/LP gauges.
- Cu/Cu or Epoxy Protection Coils
- Flow switch (STD in P and PAC versions)
- Pump shut off valve.
- Pumps with higher ESP.
- Protection grid condenser
- Rubber AV mounts.
- Spring AV mounts.
- Inverter for axial fans (Ec)
- Wooden crate.

GENERAL FEATURES

WORKING CONDITIONS

The technical data are referred to the following working conditions :

SUMMER OPERATION

- Inlet water temperature +16°C
- Outlet water temperature +10°C
- Ambient air temperature +32°C

FREE-COOLING OPERATION

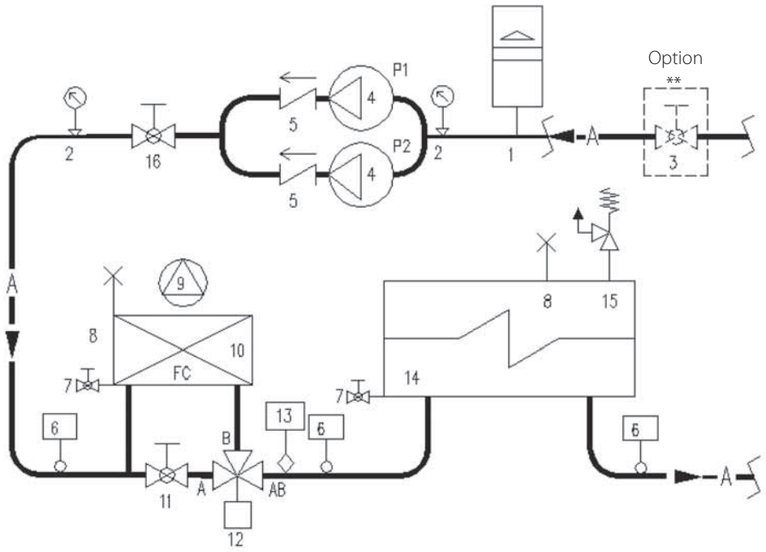
- Inlet water temperature +16°C
- Outlet water temperature +10°C

SOUND PRESSURE LEVEL

Free field sound pressure level taken at 1 m from the unit and 1,5 m from its base, compressors side and full operating unit. The sound pressure level may change according to the various installation and has a + / - 3 dB(A) tolerance according to ISO3744.

The electrical power supply is 400V/3Ph/50Hz; the auxiliary electrical supply is 230V/1Ph/50Hz.

HYDRAULIC CIRCUIT AWCL / FC... PAC 2 (PAC 1)



1 = Expansion vessel
2 = Gauge
3 = Shut-off valve**
4 = Pump
5 = Non-return valve
6 = Temperature probe
7 = Drain/fill up valve
8 = Bleed valve
9 = Fan
10 = Free-cooling coil
11 = Shut-off valve
12 = 3 way valve
13 = Flowswitch
14 = Tank
15 = Safety valve
16 = Balancing valve

OPERATING RANGE

INLET WATER TEMPERATURE	Max °C	25
	Min °C	10
OUTLET WATER TEMPERATURE	Max °C	18
	Min °C	5
AMBIENT AIR TEMPERATURE	Max °C	40
	Min °C	-15

TECHNICAL DATA

SIZE		61	71	81	91	101	121
COOLING MODE							
Nominal cooling capacity (1)	kW	52	58	68	74	90	108
Abs. power(2)	kW	16.1	19.4	20.9	23.8	28.2	36.2
EER	-	3.22	2.98	3.25	3.1	3.19	2.98
FREE-COOLING							
Amb. temp. (50% FC-capacity)	°C	8	8	7	6.5	6	5.9
Amb. temp. (100% FC-capacity)	°C	1.5	0.5	-2	-2.5	-3.5	-4
Abs. spower(3)kW1.81.81.81.81.83.6							
COMPRESSOR (scroll)							
Quantity	n°	2					
Refrigerant circuit	n°	1					
Capacity steps	n°	2					
Refrigerant	-	R410A					
Carica refrigerante	kG.	8	8	10	10	16	16
HYDRAULIC CIRCUIT – PLATE-TO-PLATE EVAPORATOR							
Water flow - 30% glycol	m³/h	8	8.9	10.5	11.6	14.1	16.9
Pressure drop	kPa	36	45	38	45	30	38
Water/glycol volume	l	6	6	8	8	10	10
PAC - VERSION							
Tank volume	l	200	200	200	200	200	300
Pump abs. power	kW	2.2	2.2	2.2	3	2.2	4
Pump abs. current	A	4.2	4.2	4.2	6	4.2	7.8
ESP pump	kPa	100	100	140	130	140	130
CONDENSING SECTION / FREE-COOLING							
Axial fans	n°	2	2	2	2	2	2
Max abs. power	kW	1.8	1.8	1.8	1.8	1.8	3.6
Max abs. current	A	3.5	3.5	3.5	3.5	3.5	7
UNIT EL. DATA	(4)						
Max operating abs. current	A	52	54	60	72	78	92
Max LRC	A	142	150	153	181	218	316
El. supply	V/f/Hz	400/3/50					
SOUND PRESSURE LEVEL @ 1 m (5)							
STD Version	dB(A)	70	70	70	70	70	74
LN Version	dB(A)	68	68	69	69	68	71

Notes:

1) Water temp. 16 °C / 10 °C; ambient air temp. 32 °C; glycol 30%;
2) Compressor + fans; except pumps.
3) Abs. Power in free-cooling operation; except pumps.
4) Except pumps.
5) Compressor side free field atmospheric.

AWCL SCAEY-FC/410A

TECHNICAL DATA

SIZE		131	141	151	161	191	222
COOLING MODE							
Nominal cooling capacity (1)	kW	114	133	136	158	170	218
Abs. power(2)	kW	39.2	44.4	47.4	52.9	64.3	72.8
EER	-	2.90	2.99	2.86	2.98	2.64	2.99
FREE-COOLING							
Amb. temp. (50% FC-capacity)	°C	5.5	7	6.5	7	6.5	6
Amb. temp. (100% FC-capacity)	°C	-5	-2.5	-2.5	-2.0	-3.5	-4
Abs. spower(3)	kW	3.6	2.7	2.7	2.7	5.2	7
COMPRESSOR (scroll)							
Quantity	n°	2					4
Refrigerant circuit	n°	1					2
Capacity steps	n°	2					4
Refrigerant		R410A					
Carica refrigerante	kG.	16	20	20	20	22	16+16
HYDRAULIC CIRCUIT – PLATE-TO-PLATE EVAPORATOR							
Water flow - 30% glycol	m^3/h	17.8	20.8	21.3	24.7	26.6	34
Pressure drop	kPa	34	46	49	44	51	45
Water/glycol volume	l	10	12	12	12	14	20
PAC - VERSION							
Tank volume	l	300	500	500	500	500	500
Pump abs. power	kW	4	3	3	4	4	5.5
Pump abs. current	A	7.8	6	6	7.8	7.8	11
ESP pump	kPa	130	110	110	140	110	110
CONDENSING SECTION / FREE-COOLING							
Axial fans	n°	2	3	3	3	3	4
Max abs. power	kW	3.6	2.7	2.7	2.7	5.2	7
Max abs. current	A	7	5.2	5.2	12	12	16
UNIT EL. DATA	(4)						
Max operating abs. current	A	95	111	108	130	147	179
Max LRC	A	319	356	332	375	392	403
El. supply	V/f/Hz	400/3/50					
SOUND PRESSURE LEVEL @ 1 m (5)							
STD Version	dB(A)	74	73	74	75	75	76
LN Version	dB(A)	72	71	72	73	73	74

Notes:
1) Water temp. 16 °C / 10 °C; ambient air temp. 32 °C; glycol 30%;
2) Compressor + fans; except pumps.
3) Abs. Power in free-cooling operation; except pumps.
4) Except pumps.
5) Compressor side free field atmospheric.

AWCL SCAEY-FC/410A

TECHNICAL DATA

SIZE		242	262	282	312	342	382
COOLING MODE							
Nominal cooling capacity (1)	kW	227	262	278	285	349	382
Abs. power(2)	kW	78.4	88.2	88.8	94.3	102	116
EER	-	2.89	2.97	3.13	3.02	3.42	3.29
FREE-COOLING							
Amb. temp. (50% FC-capacity)	°C	5.5	7	7.5	7.5	8	7.5
Amb. temp. (100% FC-capacity)	°C	-5	-2.5	-0.5	-1	0	-0.5
Abs. spower(3)	kW	7	5.2	10.5	10.5	14	14
COMPRESSOR (scroll)							
Quantity	n°	4					
Refrigerant circuit	n°	2					
Capacity steps	n°	4					
Refrigerant	-	R410A					
Carica refrigerante	kG.	16+16	20+20	20+20	20+20	30+30	30+30
HYDRAULIC CIRCUIT – PLATE-TO-PLATE EVAPORATOR							
Water flow - 30% glycol	m^3/h	35.5	40.9	43.5	44.7	54.6	59.7
Pressure drop	kPa	50	36	40	42	42	50
Water/glycol volume	l	20	25	26	26	32	32
PAC - VERSION							
Tank volume	l	500	500	500	500	750	750
Pump abs. power	kW	5.5	5.5	5.5	5.5	7.5	7.5
Pump abs. current	A	11	11	11	11	14	14
ESP pump	kPa	100	120	110	100	105	90
CONDENSING SECTION / FREE-COOLING							
Axial fans	n°	4	6	6	6	8	8
Max abs. power	kW	7	5.2	10.5	10.5	14	14
Max abs. current	A	16	15	24	24	24	24
UNIT EL. DATA (4)							
Max operating abs. current	A	185	218	227	221	263	287
Max LRC	A	409	398	407	445	508	542
El. supply	V/f/Hz	400/3/50					
SOUND PRESSURE LEVEL @ 1 m (5)							
STD Version	dB(A)	77	75	77	79	79	79
LN Version	dB(A)	75	73	75	77	77	77

Notes:
1) Water temp. 16 °C / 10 °C; ambient air temp. 32 °C; glycol 30%;
2) Compressor + fans; except pumps.
3) Abs. Power in free-cooling operation; except pumps.
4) Except pumps.
5) Compressor side free field atmospheric.

DIMENSIONS

Fig. A
Mod. from **61** to **91**

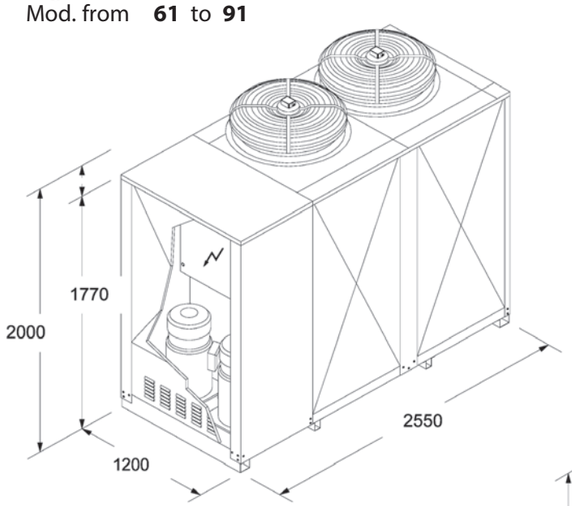
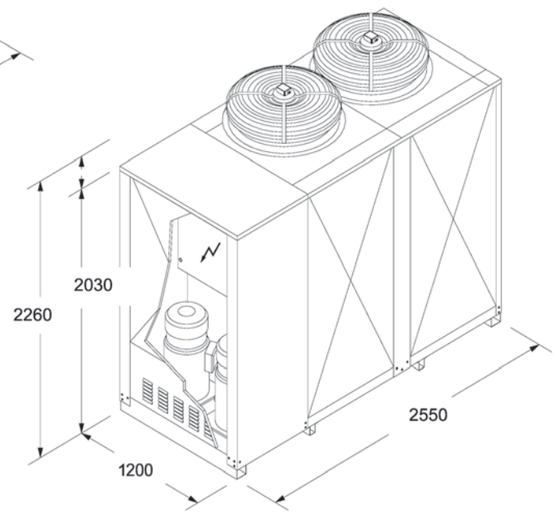


Fig. B
Mod. from **101** to **131**



WEIGHTS (Kg)

VERSIONS	STD							LN						
Mod.	**61**	**71**	**81**	**91**	**101**	**121**	**131**	**61**	**71**	**81**	**91**	**101**	**121**	**131**
Fig.	A	A	A	A	B	B	B	A	A	A	A	B	B	B
Kg. Operation (1)	710	750	790	870	1050	1105	1200	730	775	810	888	1075	1140	1240
Kg. Transport	710	750	790	870	1050	1105	1200	730	775	810	888	1075	1140	1240
"P1" Vers.														
Kg. Operation (1)	725	775	815	895	1080	1155	1260	745	795	830	910	1105	1190	1300
Kg. Transport	725	775	815	895	1080	1155	1260	745	795	830	910	1105	1190	1300
"PAC1 Vers.														
Kg. Operation	1035	1070	1150	1210	1505	1595	1710	1085	1120	1200	1260	1555	1645	1760
Kg. Transport	795	835	920	990	1180	1260	1380	845	885	970	1040	1230	1310	1430

(1) The data has to be added to the evaporator water volume with regard to the selected model.

DIMENSIONS

Fig. C
Mod. from **141** to **191**

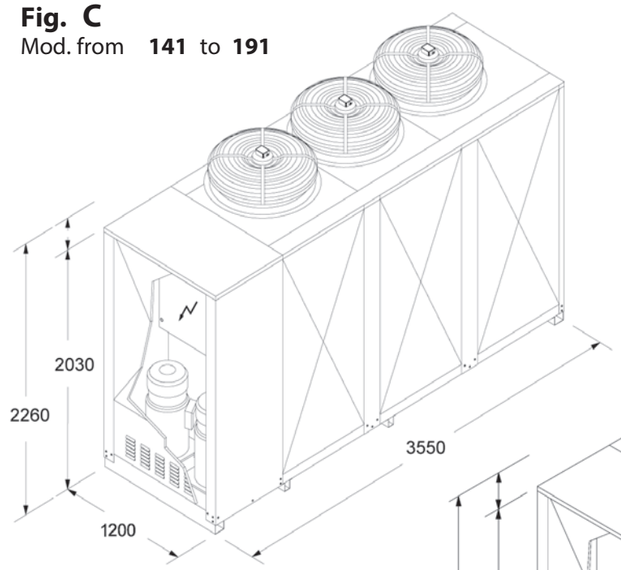
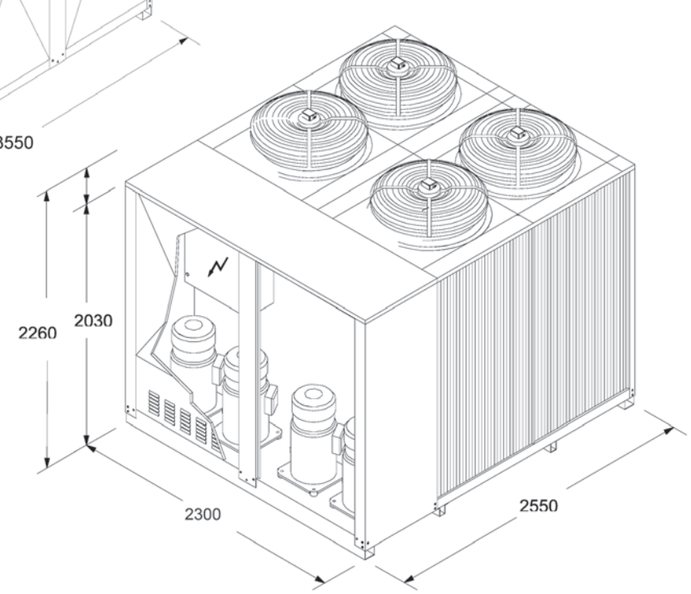


Fig. D
Mod. from **222** to **242**



WEIGHTS (Kg)

VERSIONS	STD						LN					
Mod.	**141**	**151**	**161**	**191**	**222**	**242**	**141**	**151**	**161**	**191**	**222**	**242**
Fig.	C	C	C	C	D	D	C	C	C	C	D	D
Kg. Operation (1)	1280	1355	1490	1580	1970	2190	1320	1395	1530	1620	2050	2260
Kg. Transport	1280	1355	1490	1580	1970	2190	1320	1395	1530	1620	2050	2260
"P1" Vers.												
Kg. Operation (1)	1320	1395	1540	1620	2030	2260	1360	1435	1580	1660	2100	2330
Kg. Transport	1320	1395	1540	1620	2030	2260	1360	1435	1580	1660	2100	2330
"PAC1" Vers.												
Kg. Operation	1790	2065	2190	2300	2700	2960	1840	2115	2240	2350	2750	3010
Kg. Transport	1450	1515	1660	1770	2180	2410	1500	1565	1710	1820	2230	2460

(1) The data has to be added to the evaporator water volume with regard to the selected model.

AWCL SCAEY-FC/410A

DIMENSIONS

Mod. from **262** to **312 STD**

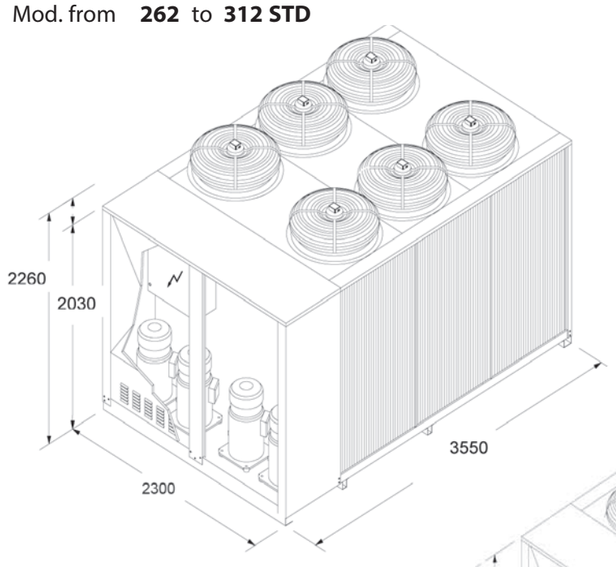
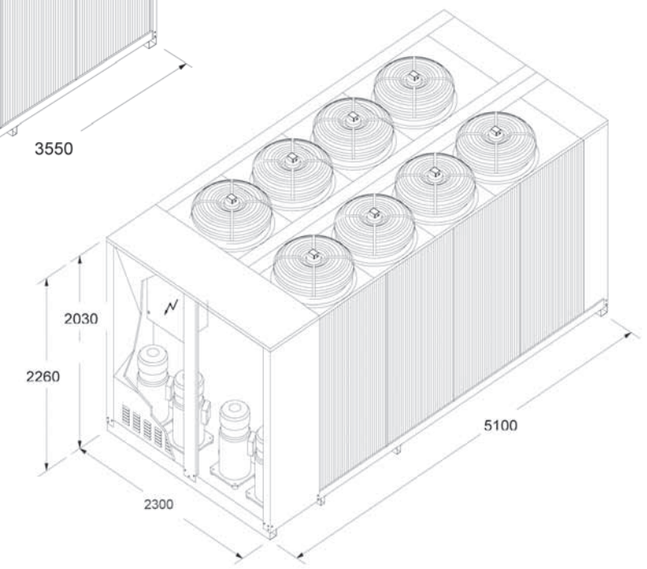


Fig. F

Mod. from **342** to **382 STD**



WEIGHTS (Kg)

VERSIONS	STD					LN				
Mod.	**262**	**282**	**312**	**342**	**382**	**262**	**282**	**312**	**342**	**382**
Fig.	E	E	E	F	F	E	E	E	F	F
Kg. Operation (1)	2230	2340	2590	2750	2970	2300	2410	2660	2820	3050
Kg. Transport	2230	2340	2590	2750	2970	2300	2410	2660	2820	3050
"P1" Vers.										
Kg. Operation (1)	2300	2410	2670	2840	3090	2370	2470	2730	2910	3170
Kg. Transport	2300	2410	2670	2840	3090	2370	2470	2730	2910	3170
"PAC1" Vers.										
Kg. Operation	3020	3100	3620	3780	3990	3070	3150	3690	3860	4050
Kg. Transport	2470	2550	2820	2980	3200	2520	2600	2890	3060	3260

(1) The data has to be added to the evaporator water volume with regard to the selected model.

NOTES

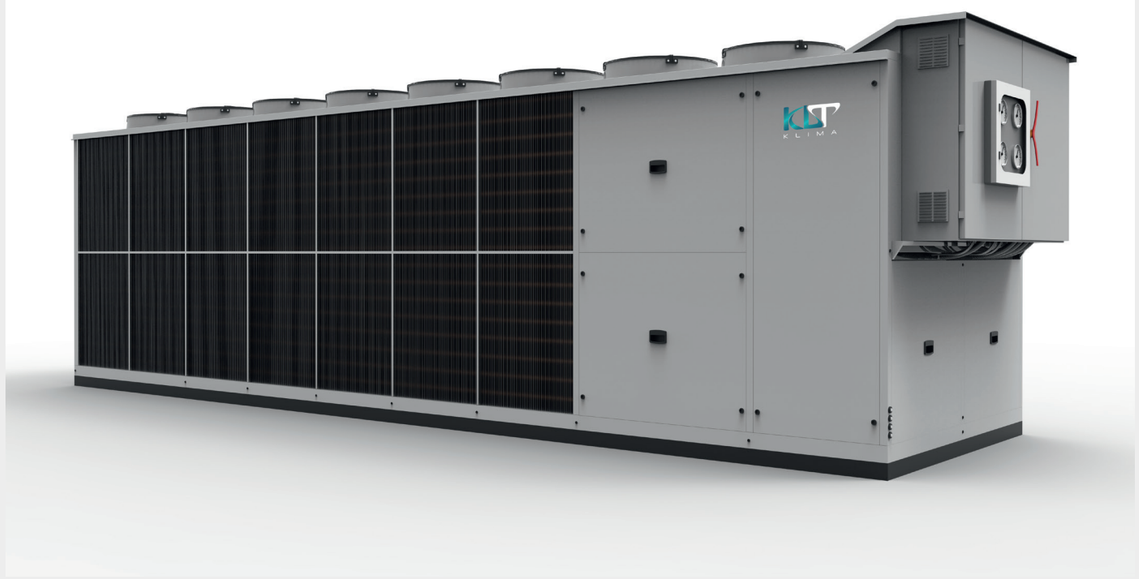
AWC2L SCAEY FC/R410A

MULTISCROLL COMPRESSORS

- **Air cooled liquid chiller**
- **from 400 to 690 kW**
- **Free-Cooling**
- **Axial Fan**

MADE IN ITALY

IDENTIFICATION CODE		
S C A E Y – 442 – FC PAC		
1 2 3 4 5 6 7 8 9 10		
1	S	Small series < 70 kW
2	C	Chiller unit
3	A	Air cooled
4	E	Axial fans
5	Y	Refrigerant R410A
6	44	Capacity factors
7	2	Numbers of circuits
8	-	Cooling only version
9	FC	Free-cooling
10	PAC	Storage tank
	P1	1 pump
	P2	2 pumps
	PAC1	Storage tank + 1 pump
	PAC2	Storage tank + 2 pumps
	RCP	Heat recovery mounted in parallel (100%)
	LN	Low noise



AWC2L SCAEY FC/R410A

GENERAL FEATURES

GENERAL

The SCAE-FC free-cooling units are particularly suitable where chilled water all year long is required, so also by low ambient air temperature. The free-cooling system utilises the low outside temperature for chilling water in the coil starting from 15°C ambient air temperature.

THE FREE-COOLING PRINCIPLE

The units series SCAEY-FC are designed to cool down water/ glycol fluid.

This units are equipped, further to the chiller components such as compressors, condensers, evaporator, thermostatic valves, with a water free-cooling coil. The control system consists of a modulating three-way valve and of a certain number of probes allowing the water coil functioning and therefore the "free-cooling" operation. In the standard chiller the return water/glycol fluid is cooled down through the shell and tube evaporator. In the AWC2L-FC units working in free-cooling mode, the water/glycol fluid runs through the free-cooling coil which is cooled by means of the external air, thus reducing the load on the compressors or even completely substituting them. The control system consists of a microprocessor, an inlet water temperature probe, an external air temperature probe, a working probe and a nofreezing probe.

OPERATION IN SUMMER

When the ambient air temperature is higher than the return water/ glycol temperature the cooling capacity is guaranteed by the compressors (10); the 3-way valve (9) allows the water/ glycol to go into the evaporator (12); the free-cooling coil (11) is not working. The absorbed power is the same as a traditional electric air cooled chiller.

OPERATION IN WINTER

When the ambient air temperature is lower 3-0°C, the chiller operates in free cooling mode: the 3-way valve (9) allows the water/glycol to go into the free-cooling coil (11), the probe (5) switch off the compressors (10). The fans (13) keep woring to guarantee the air flow through the free-cooling coil (11). By the external air decreasing, the microprocessor (15) activates by reaching the set point the fans switch off.

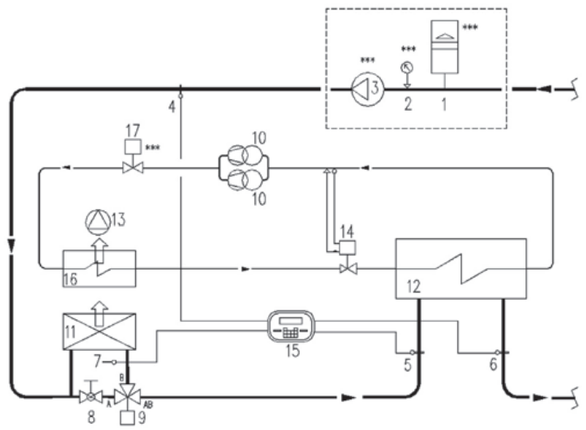
OPERATION IN MID SEASON

It's a combination of free-cooling and traditional electric chiller. The free-cooling operation starts when the external air temperature is at least 2°C lower than the return liquid temperature; so, normally at 15-10°C. The liquid is precooled in the free-cooling coil (11). The performance is completed by the compressors. The water temperature probe (5) controls the compressor (10) capacity steps.

BENEFITS

- Your overheads would reduce in the mid season.
- Your free cooling system could run automatically when required.
- There would be less wear and tear due to the reduced hours of operation.
- Your maintenance costs would reduce.

FREE-COOLING CIRCUIT



1 = Expansion vessel
2 = Gauge
3 = Pump
4 = Inlet water probe
5 = Probe
6 = Antifreeze probe
7 = External air temperature
8 = Shut-off valve
9 = 3-way valve
10 = Compressor
11 = Free-cooling coil
12 = Evaporator
13 = Fan
14 = Thermostatic valve
15 = Microprocessor
16 = Condenser
17 = Compressor pressure control valve

***** = Options**

AWC2L SCAEY FC/R410A

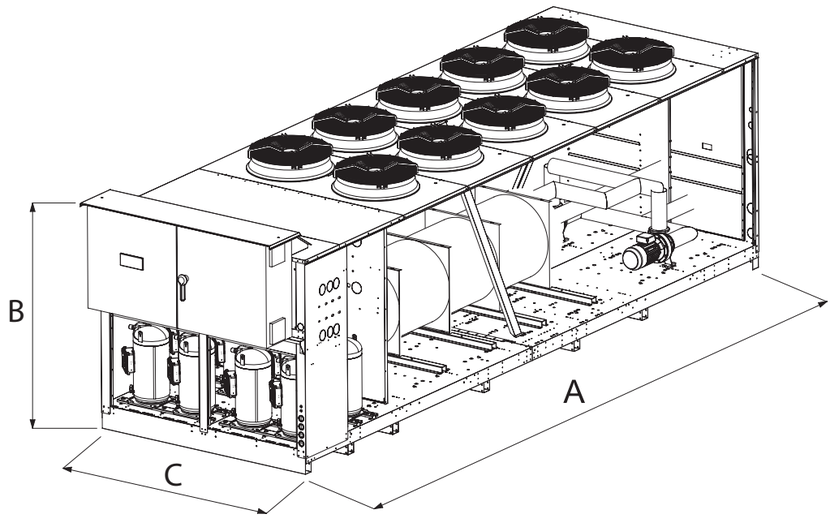
TECHNICAL DATA

SIZE			442	482	522	582	642	682
Cooling mode STD								
Cooling capacity	(1)	kW	440	474	528	616	645	675
Abs power	(2)	kW	132.8	151.9	187	195	217	238.6
EER	(2)	-	3.31	3.12	2.82	3.15	2.97	2.82
Free-cooling mode								
Amb. temp. (50% FC-capacity)		°C	8,3	7,7	8,2	8	7,7	8,1
Amb. temp. (100% FC-capacity)		°C	-0,5	-1,6	-0,8	-1	-1,8	-1
Absorbed power	(3)	kW	15,2	15,2	15,2	19	19	19
Compressors (scroll)								
Quantity		n°	4		6			
Refrigerant circuit		n°	2		2			
Capacity step		n°	4		6			
Refrigerant		-						
Refrigerant quantity		kg	54+54	56+56	58+58	62+62	66+66	68+68
Plate to plate exchanger								
Water flow rate		m³/h	68,1	73,3	81,7	95,3	99,8	104,4
Total pressure drop		kPa	145	165	165	165	145	155
Water volume		l	320	320	380	350	350	540
Water connections		Ø	DN100	DN100	DN100	DN125	DN125	DN125
Version								
Tank volume		l	750	750	750	1000	1000	1000
Water pump nominal power		kW	11	11	11	15	15	15
Water pump nominal current		A	21	21	21	26	26	26
External static pressure		kPa	110	85	75	105	100	85
Water connections Victaulic		Ø	DN100	DN100	DN100	DN125	DN125	DN125
Condenser/Free-cooling								
Axial fans		n°	8	8	8	10	10	10
Max abs. Power		kW	15,2	15,2	15,2	19	19	19
Max abs. Current		A	32	32	32	40	40	40
Unit eletrical data	(4)							
Max Abs. Current		A	335	369	433	475	509	543
Max LRC		A	660	694	677	800	834	868
Voltage supply		V/f/Hz	400 / 3 / 50					
Sound pressure level at 1m	(4) (5)							
Version STD		dB(A)	81	83	80	82	83	84
Version LN		dB(A)	78	79	78	79	80	80
Version VLN		dB(A)	Contattare sede / Contact factory					

Notes:
1) Water temp. 16 °C / 10 °C; air temperature 32 °C
2) Compressors + fans only. No water pump(s)
3) Abs. Power in free-cooling operation; except pumps
4) Without water pump(s)
5) Compressors site and free field

AWC2L SCAEY FC/R410A

DIMENSIONS



WEIGHTS (Kg)

VERSION		STD						LN					
Mod.		**442**	**482**	**522**	**582**	**642**	**682**	**442**	**482**	**522**	**582**	**642**	**682**
A (mm) + 500mm Elect. Board		5100	5100	6100	7100	7100	7100	5100	5100	6100	7100	7100	7100
B (mm)		2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350	2350
C (mm)		2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300
Operating kg.	(1)	5000	5180	5850	6660	7100	7680	5100	5280	5950	6760	7200	7780
Transport kg.		4650	4830	5450	6310	6750	7140	4750	4930	5550	6410	6850	7240
VERSION	**PAC1**												
Operating kg.	(1)	6550	6730	7350	8300	8750	9140	6650	6830	7450	8400	8850	9240
Transport kg.		5150	5330	5950	6900	7350	7740	5250	5430	6050	7000	7450	7840

(1) The data has to be added to the evaporator and coils water volume with regard to the selected model.

OPERATING RANGE

INLET WATER TEMPERATURE	Max °C	25
	Min °C	10
OUTLET WATER TEMPERATURE	Max °C	18
	Min °C	5
AMBIENT AIR TEMPERATURE	Max °C	40
	Min °C	-15

Technical data shown in this booklet are not binding. KLT Klima S.r.l reserves the right to modify data without any prior notice.

WATER COOLED WATER CHILLERS AND REVERSIBLE HEAT PUMPS

WWC MCWY NR/R410A

CHAPTER 3

SCROLL COMPRESSORS

- **Water / water**
- **Not Reversible heat pumps**
- **from 18 kW to 75 kW**

MADE IN ITALY

IDENTIFICATION CODE		
M C W Y - 1 5 / 1 NR PAC		
1 2 3 4 5 6 7 8		
1	M	Mini series < 50 kW
2	C	Chiller unit
3	W	Water cooled
4	Y	Refrigerant R410A
5	15	Power factor
6	1	Numbers of circuits
7	NR	Not reversible heat pump version
8	PAC1	Storage tank
	P1	1 pump
	P2	2 pumps
	LN	Low noise
	VLN	Very low noise



GENERAL FEATURES

FRAME

Self-supporting, galvanized steel frame coated with polyester powder paint.

COMPRESSORS

Hermetic "scroll" type with crankcase heater and klixon for overload protection. The compressors are mounted on rubber shock absorbers.

EVAPORATOR

Braze welded plate to plate type.

This serie is a independent refrigerant circuits and a water circuit. The insulation is with a flexible closed-cell lining. It is advisable to fit a differential pressure switch which will stop the unit in case there is no water circulation on the plate to plate evaporator.

CONDENSER

Braze welded plate to plate type.

This serie is a independent refrigerant circuits and a water circuit. The insulation is with a flexible closed-cell lining.

REFRIGERANT CIRCUIT

Each unit include: filter dryer, sight glass, thermostatic expansion valve, service valve. To protect the refrigerant circuit the following devices are fitted: manual reset high pressure switch, automatic reset low pressure switch, antifreeze thermostat.

ELECTRICAL BOARD

Weather proof type protected to IP54 standard. It Includes: main circuit automatic breaker switch with door locking device, main fuses, compressor contactor, auxiliary circuits transformer. Microprocessor to automatically control the unit with a display to indicate the functions as well as alarm conditions.

VERSIONS

P1

This version is equipped with hydraulic kit. It includes: one or two pumps (one as stand-by), expansion vessel, flow switch, safety valve, air purger, shut off valve and hydraulic circuit insulated. In case of stand-by pump a non-return valve is mounted. Relevant electrical circuit. As option, pumps with higher ESP are available.

PAC1

This version is equipped with hydraulic kit and inertial storage tank insulated and installed on the return line.

LN

Low noise version equipped with soundproof material covering the compressors.

VLN

Very low noise version. In addition to the LN devices is equipped with insulated panels on the compressor box.

Options

- Power factor condensing capacitors
- Differential pressure switch
- Oversized evaporator
- Condensing control pressost. valve
- Flowswitch not mounted (standard mounted on MCWY NR…PAC and P1 versions)
- Shut off valves
- Water pumps with higher ESP
- Compressor discharge and liquid shut-off valves
- Gauges with shut-off valves
- Programmable clock
- Remote control panel
- RS 485 Modbus protocol
- Evaporator electric heater
- Rubber shock absorbers
- Electronic thermostatic valve
- Solenoid valve
- Spring rubbers
- Wooden crate packing

TECHNICAL DATA

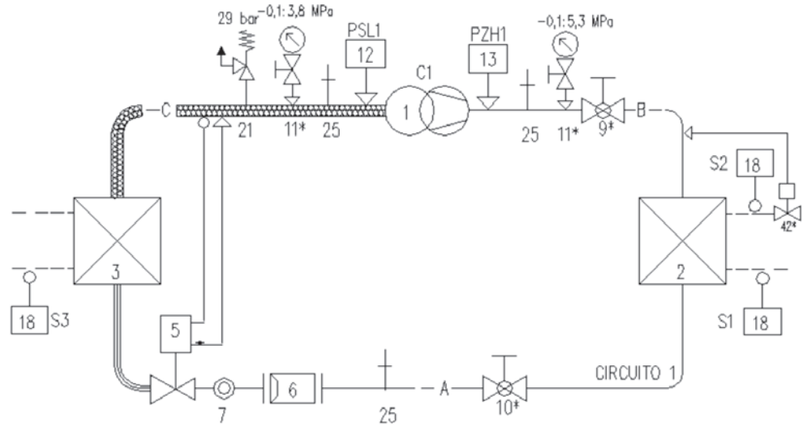
SIZE			15/1	17/1	19/1	21/1	25/1
Heating mode							
Heating capacity	(1)	kW	20,5	24	27,5	30	35
Cooling capacity	(1)	kW	16,2	18,9	21,7	23,8	28
Abs power	(2)	kW	4,3	5,1	5,8	6,2	7
COP		-	4,77	4,7	4,74	4,83	5
Heating mode							
Heating capacity	(3)	kW	19	21	24	26	30,5
Cooling capacity	(3)	kW	13,9	15	17,2	18,8	22,2
Abs power	(2)	kW	5,1	6	6,8	7,2	8,3
COP		-	3,72	3,5	3,52	3,61	3,67
Compressors (scroll type)							
Quantity		n°	1				
Refrigerant circuit		n°	1				
Capacity step		n°	1				
Refrigerant		-	R410A				
Well water	(1)						
Water flow		m³/h	2,7	3,2	3,7	4	4,8
Pressure drop		kPa	27	35	35	40	30
Water volume		l	1,8	1,8	2	2	2,2
Water connections		Ø	1" 1/4	1" 1/4	1" 1/4	1" 1/4	1" 1/4
User	(1)						
Water flow		m³/h	3,5	4,1	4,7	5,1	6
Pressure drop		kPa	46	61	59	69	50
Water volume		l	1,8	1,8	2	2	2,2
Water connections		Ø	1" 1/4	1" 1/4	1" 1/4	1" 1/4	1" 1/4
Unit eletrical data							
Max Abs. Current		A	16	20	20	21	26
Max LRC		A	69	80	106	100	116
Electrical supply		V/f/Hz	400/3/50				
Sound pressure level at 1m	(4)						
Version STD		dB(A)	59	59	61	61	61
Version LN		dB(A)	57	57	58	58	58
Version VLN		dB(A)	55	55	56	56	56

Notes:
1) Heating mode: user circuit inlet water temperature 40/45°C;
well water temperature 15/10°C
2) Compressors only.
3) Heating mode EUROVENT conditions: user circuit inlet water temperature 47/55°C
well water temperature 10/7°C
4) Sound pressure free field

SIZE			30/1	35/1	40/1	45/1	50/1
Heating mode							
Heating capacity	(1)	kW	40	44	50,5	59,5	75
Cooling capacity	(1)	kW	33,2	34,8	39,9	47,4	59,3
Abs power	(2)	kW	8,3	9,2	10,6	12,1	15,7
COP		-	4,81	4,78	4,76	4,91	4,77
Heating mode							
Heating capacity	(3)	kW	35	39	44	52	66
Cooling capacity	(3)	kW	25,3	28,3	31,8	38,1	47,8
Abs power	(2)	kW	10	11,1	12,8	14,6	18,9
COP		-	3,5	3,51	3,43	3,56	3,49
Compressors (scroll type)							
Quantity		n°	1				
Refrigerant circuit		n°	1				
Capacity step		n°	1				
Refrigerant		-	R410A				
Well water	(1)						
Water flow		m³/h	5,7	5,9	6,8	8,1	10
Pressure drop		kPa	40	34	43	32	35
Water volume		l	4,7	5,2	6,1	7,6	9
- Water connections		Ø	1" 1/4	1" 1/4	1" 1/4	1" 1/4	1" 1/4
User	(1)						
Water flow		m³/h	6,8	7,5	8,6	10,2	12,9
Pressure drop		kPa	68	59	75	55	60
Water volume		l	4,7	5,2	6,1	7,6	9
Water connections		Ø	1" 1/4	1" 1/4	1" 1/4	1" 1/4	1" 1/4
PAC1 Version	(1)						
Storage tank water volume		L	100	100	100	100	100
Water pump nominal power		kW	0,55	0,55	0,55	0,75	1,10
Water pump nominal current		A	1,58	1,58	1,58	2,17	2,70
External static pressure		kPa	130	120	110	130	120
Water connections		Ø	1" 1/4	1" 1/4	1" 1/4	1" 1/4	1" 1/4
Unit eletrical data							
Max Abs. Current		A	27	30	36	39	45
Max LRC		A	123	123	145	179	230
Electrical supply		V/f/Hz	400/3/50				
Sound pressure level at 1m	(4)						
Version STD		dB(A)	58	60	60	61	66
Version LN		dB(A)	51	52	53	54	60
Version VLN		dB(A)	48	49	50	51	57

Notes:
1) Heating mode: user circuit inlet water temperature 40/45°C;
well water temperature 15/10°C
2) Compressors only.
3) Heating mode EUROVENT conditions: user circuit inlet water temperature 47/55°C
well water temperature 10/7°C
4) Sound pressure free field

REFRIGERANT CIRCUIT NOT REVERSIBLE



1 Compressor
2 Condensator
3 Evaporator
21 Relief valve
5 Thermal expansion valve
6 Refrigerant filter
10 Liquid line cock*
7 Humidity indicator
10 Schrader service valve
12 Low pressure switch
13 High pressure switch
11 Gauge *
25 Schrader service valve
42 Water pressure valve*

* The outlined components are optional

OPERATING RANGE

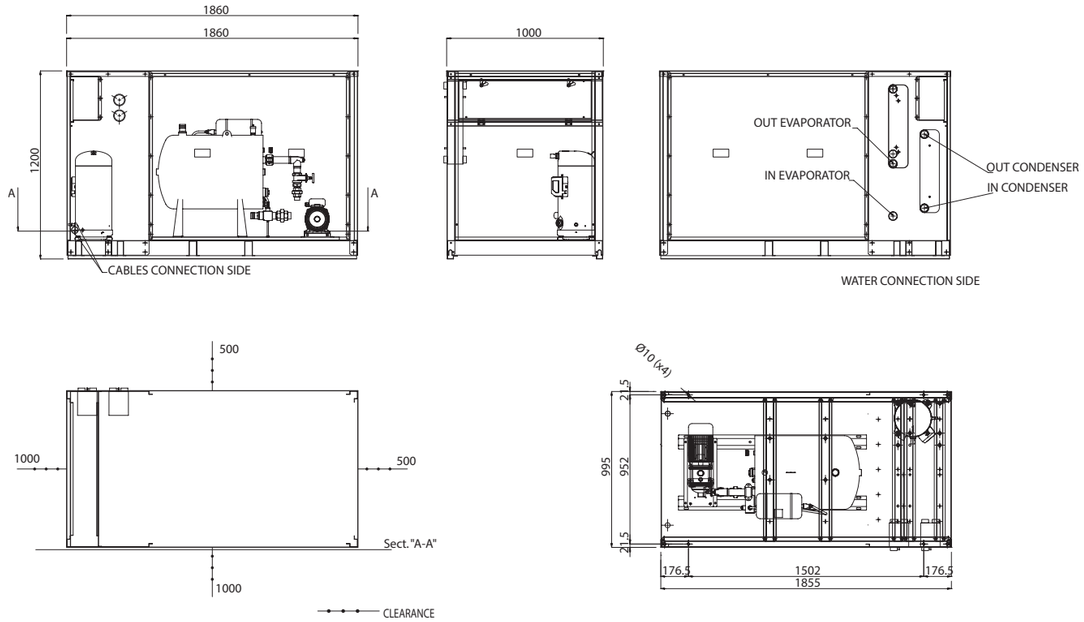
EVAPORATOR INLET WATER TEMP.	Max °C	20
	Min °C	-3*
EVAPORATOR OUTLET WATER TEMP.	Max °C	15
	Min °C	-6*
CONDENSER INLET WATER TEMP.	Max °C	50
	Min °C	25
CONDENSER OUTLET WATER TEMP.	Max °C	55
	Min °C	30

* water glycole use

CORRECTION FACTORS

Ethylene glycol percentage by weight (%)	**10**	**20**	**30**	**40**	**50**
Freezing point (°C)	-3,6	-8,7	-15,3	-23,5	-35,5
Cooling capacity	0,986	0,980	0,973	0,966	0,960
Power input	1,000	0,995	0,990	0,985	0,975
Mixture flow	1,023	1,054	1,092	1,140	1,200
Pressure drop	1,061	1,114	1,190	1,244	1,310

DIMENSIONS FIG A.



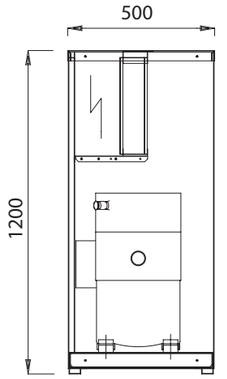
WEIGHTS (Kg)

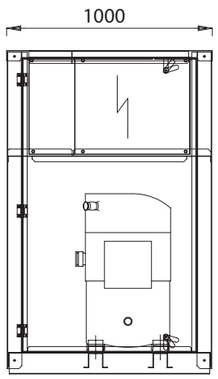
SIZE		**15/1**	**17/1**	**19/1**	**21/1**	**25/1**
PAC1 Version						
Storage tank water volume	L	100	100	100	100	100
Water pump nominal power	kW	0,37	0,37	0,37	0,55	0,55
Water pump nominal current	A	1,45	1,45	1,45	1,58	1,58
External static pressure	kPa	150	140	135	150	145
Water connections	Ø	1" 1/4	1" 1/4	1" 1/4	1" 1/4	1" 1/4

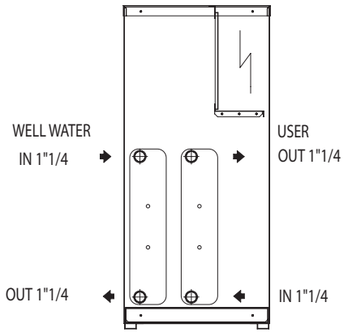
SIZE		**30/1**	**35/1**	**40/1**	**45/1**	**50/1**
PAC1 Version						
Storage tank water volume	L	100	100	100	100	100
Water pump nominal power	kW	0,55	0,55	0,55	0,75	1,10
Water pump nominal current	A	1,58	1,58	1,58	2,17	2,70
External static pressure	kPa	130	120	110	130	120
Water connections	Ø	1" 1/4	1" 1/4	1" 1/4	1" 1/4	1" 1/4

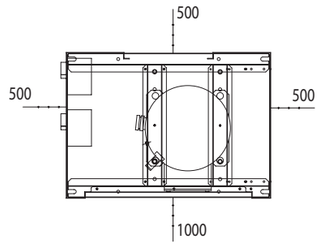
WWC MCWY NR/R410A

DIMENSIONS FIG. B



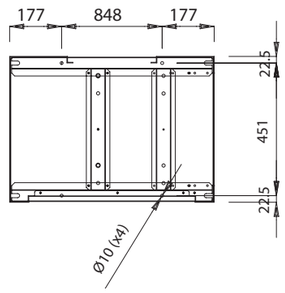






CLEARANCE

PLANE VIEW



WEIGHT (kg)

VERSION	STD					LN					VLN				
Size	**30/1**	**35/1**	**40/1**	**45/1**	**50/1**	**30/1**	**35/1**	**40/1**	**45/1**	**50/1**	**30/1**	**35/1**	**40/1**	**45/1**	**50/1**
Fig.	A	A	B	B	B	A	A	B	B	B	A	A	B	B	B
Operating kg.	455	485	505	555	610	455	505	525	575	630	515	535	555	605	660
Transport kg.	420	450	475	510	565	450	470	495	520	585	480	500	525	550	615

(1) The data has to be added to the evaporator and condensers water volume with regard to the selected model.

Technical data show in this booklet are not binding. KLT Klima S.r.l reserves the right to modify data without any prior notice.

NOTES

WWC MCWY/R410A

SCROLL COMPRESSORS

- **Water cooled water chillers**
- **Reversible heat pumps**
- **from 14 kW to 60 kW**

MADE IN ITALY

IDENTIFICATION CODE

M	C	W	Y	-	1 5	/	1	H	PAC
1	2	3	4		5		6	7	8

1	**M**	Mini series < 50 kW
2	**C**	Chiller unit
3	**W**	Water cooled
4	**Y**	Refrigerant R410A
5	**15**	Power factor
6	**1**	Numbers of circuits
7	**H**	Heat pump version
8	**PAC1**	Storage tank
	P1	1 pump
	P2	2 pumps
	LN	Low noise
	VLN	Very low noise
	DS	Desuperheater
	RCS	Heating recovering (70-90%)
	RCP	Heating recovering (100%)



GENERAL FEATURES

FRAME

Self-supporting, galvanized steel frame coated with polyester powder paint.

COMPRESSORS

Hermetic "scroll" type with crankcase heater and klixon for overload protection. The compressors are mounted on rubber shock absorbers.

EVAPORATOR

Braze welded plate to plate type.

This serie is a independent refrigerant circuits and a water circuit. The insulation is with a flexible closed-cell lining. It is advisable to fit a differential pressure switch which will stop the unit in case there is no water circulation on the plate to plate evaporator.

CONDENSER

Braze welded plate to plate type.

This serie is a independent refrigerant circuits and a water circuit. Ground water version for well water use on condenser (option).

REFRIGERANT CIRCUIT

Each unit include: filter dryer, sight glass, thermostatic expansion valve, service valve.

To protect the refrigerant circuit the following devices are fitted: manual reset high pressure switch, automatic reset low pressure switch, antifreeze thermostat. The heat pump units version contain, in addition: crankase heater, safety thermostat on compressor discharge line, 4-ways valve, check valve, solenoid valve, liquid receiver.

ELECTRICAL BOARD

Weather proof type protected to IP54 standard.

It Includes: main circuit automatic breaker switch with door locking device, main fuses, compressor contactor, auxiliary circuits transformer. Microprocessor to automatically control the unit with a display to indicate the functions as well as alarm conditions.

VERSIONS

DS

Partial condensing heat recovery. Each refrigerant circuit includes a desuperheater insulated and installed in series between the compressor and the condenser.

RCS

Condensing heat recovery from 70% to 90%. Each refrigerant circuit includes a heat exchanger insulated and mounted in series between compressor and condenser.

RCP

100% condensing heat recovery. Each refrigerant circuit includes: a heat exchanger insulated and mounted in parallel to the condenser and the relevant solenoid valves.

PAC1

Version with hydraulic kit and storage tank installed on the return line. This includes, insulated storage tank, one or two pumps (one as stand-by), expansion vessel, safety valve, air release valve, setting valves and, in case of two pumps, non return valve. Relevant electrical circuit. As an option, pumps with higher ESP are available.

LN

Low noise version equipped with soundproof material covering the compressors.

VLN

Very low noise version. In addition to the LN devices is equipped with insulated panels on the compressor box.

Options

- Power factor condensing capacitors
- Differential pressure valve
- Oversized evaporator
- Condensing control pressost. valve
- Flowswitch not mounted (standard mounted on MCWY (P1 and PAC versions)
- Shut off valves
- Water pumps with higher ESP
- Compressor discharge and liquid shut-off valves
- Gauges with shut-off valves
- Programmable clock
- Remote control panel
- RS 485 Modbus protocol
- Evaporator electric heater
- Rubber shock absorbers
- Spring rubbers
- Wooden crate packing
- Solenoide valve
- Eletronic thermostatic expansion valve

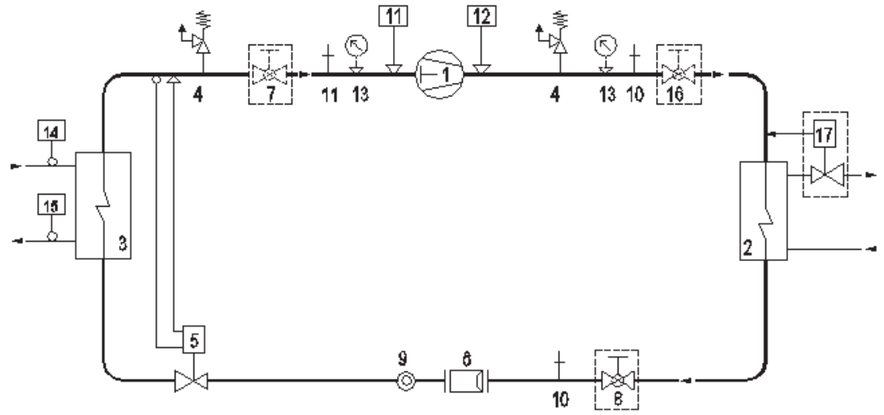
TECHNICAL DATA

SIZE			30/1	35/1	40/1	45/1	50/1
Cooling mode							
Cooling capacity	(1)	kW	31	35	40	48	60
Abs power	(2)	kW	6,6	7,4	8,6	10	13,2
EER		-	4,69	4,72	4,65	4,8	4,54
Heating mode							
Heating capacity	(3)	kW	35	40	45	54	68
Abs power	(2)	kW	8,5	9,4	10,7	12,4	16,3
COP		-	4,11	4,25	4,20	4,35	4,17
Compressors (scroll type)							
Quantity		n°	1				
Refrigerant circuit		n°	1				
Capacity step		n°	1				
Refrigerant		-	R410A				
Tower water	(1)						
Water flow		m^3/h	6,4	7,2	8,3	9,9	12,5
Pressure drop		kPa	22	20	25	23	36
Water volume		l	2,2	3,4	3,4	5,6	5,6
Water connections		Ø	1" 1/4	1" 1/4	1" 1/4	1" 1/4	1" 1/4
User	(1)						
Water flow		m^3/h	5,3	6	6,8	8,2	10,3
Pressure drop		kPa	15	13	16	15	23
Water volume		l	2,2	3,4	3,4	5,6	5,6
Water connections		Ø	1" 1/4	1" 1/4	1" 1/4	1" 1/4	1" 1/4
PAC1 Version							
Contenuto serbatoio - Tank volume		l	100	100	100	100	100
Potenza pompa - Water pump nominal power		kW	0,55	0,55	0,55	0,75	1,10
Corrente pompa - Water pump nominal current		A	1,58	1,58	1,58	2,17	2,70
Prevalenza utile - External static pressure		kPa	131	130	110	120	120
Attacchi idraulici - Water connections		Ø	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
Dati elettrici unità - Unit eletrical data	(5)						
Max corrente assorbita - Max Abs. Current		A	25	28	34	37	43
Max corrente di spunto - Max LRC		A	121	121	143	177	228
Alimentazione elettrica - Electrical supply		V/f/Hz	400/3/50				
Pressione sonora - Sound pressure level at 1m	(4) (5)						
Versione STD - Version STD		dB(A)	58	60	60	61	66
Versione LN - Version LN		dB(A)	51	52	53	54	60
Versione VLN - Version VLN		dB(A)	48	49	50	51	57

Notes:

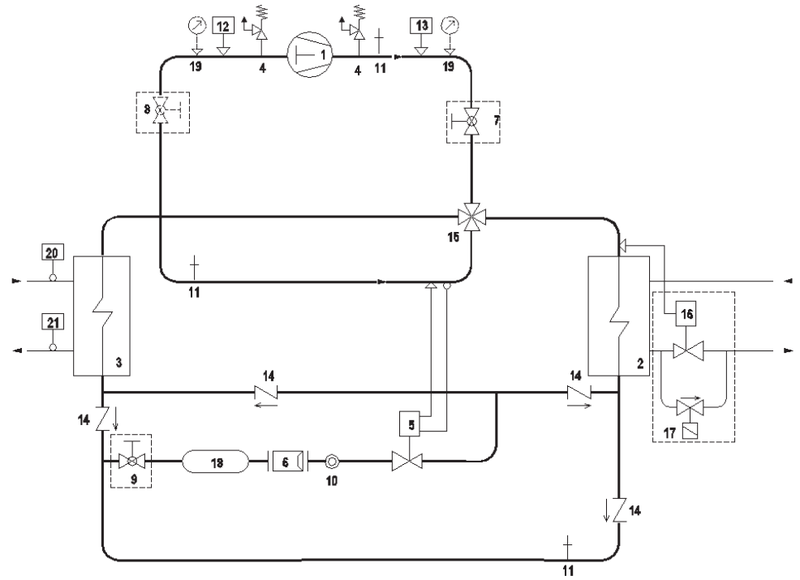
1) Cooling mode conditions: user circuit inlet water temperature 12/7°C; tower water temperature 30/35°C
2) Compressors only.
3) Heating mode conditions: user circuit inlet water temperature 40/45°C; well water temperature 10/7°C
4) Sound pressure free field.
5) Without pumps.

WWC REFRIGERANT CIRCUIT



1 Compressor
2 Condensator
3 Evaporator
4 Relief valve
5 Thermal expansion valve
6 Refrigerant filter
7 Suction line valve*
8 Liquid line cock *
9 Humidity indicator
10 Schrader service valve
11 Low pressure switch
12 High pressure switch
13 Gauge *
14 Temperature probe
15 Probe antifreeze
16 Supply cock *
17 Water pressure valve

WWC... H REFRIGERANT CIRCUIT



1 Compressor
2 Exchanger
3 Indoor exchanger
4 Relief valve
5 Thermal expansion valve
6 Refrigerant filter
7 Supply cock *
8 Suction line valve *
9 Liquid line cock *
10 Humidity indicator
11 Schrader service valve
12 Low pressure switch
13 High pressure switch
14 Check valve
15 4way solenoid valve
16 Water pressure valve
17 Solenoid valve
18 Liquid receiver
19 Gauge *
20 Temperature probe
21 Probe antifreeze

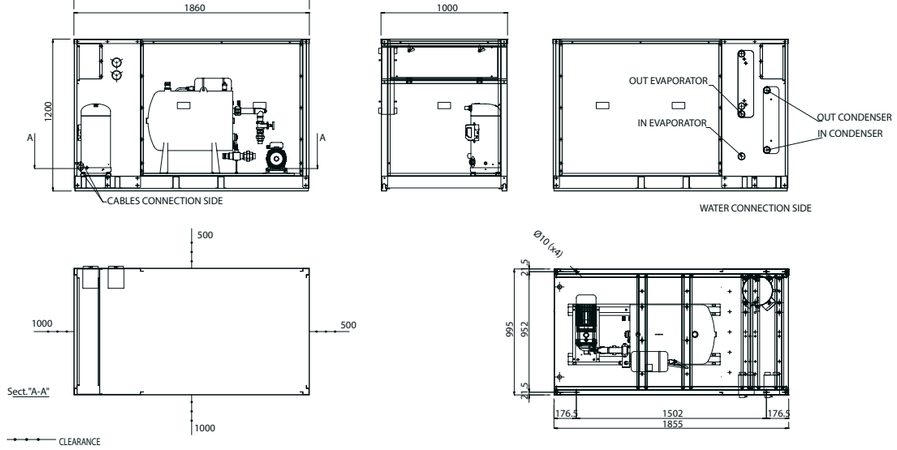
OPERATING RANGE

EVAPORATOR INLET WATER TEMP.	Max °C	7
	Min °C	9
EVAPORATOR OUTLET WATER TEMP.	Max °C	10
	Min °C	5
CONDENSER INLET WATER TEMP.	Max °C	50
	Min °C	10
CONDENSER OUTLET WATER TEMP.	Max °C	55
	Min °C	30

CORRECTION FACTORS

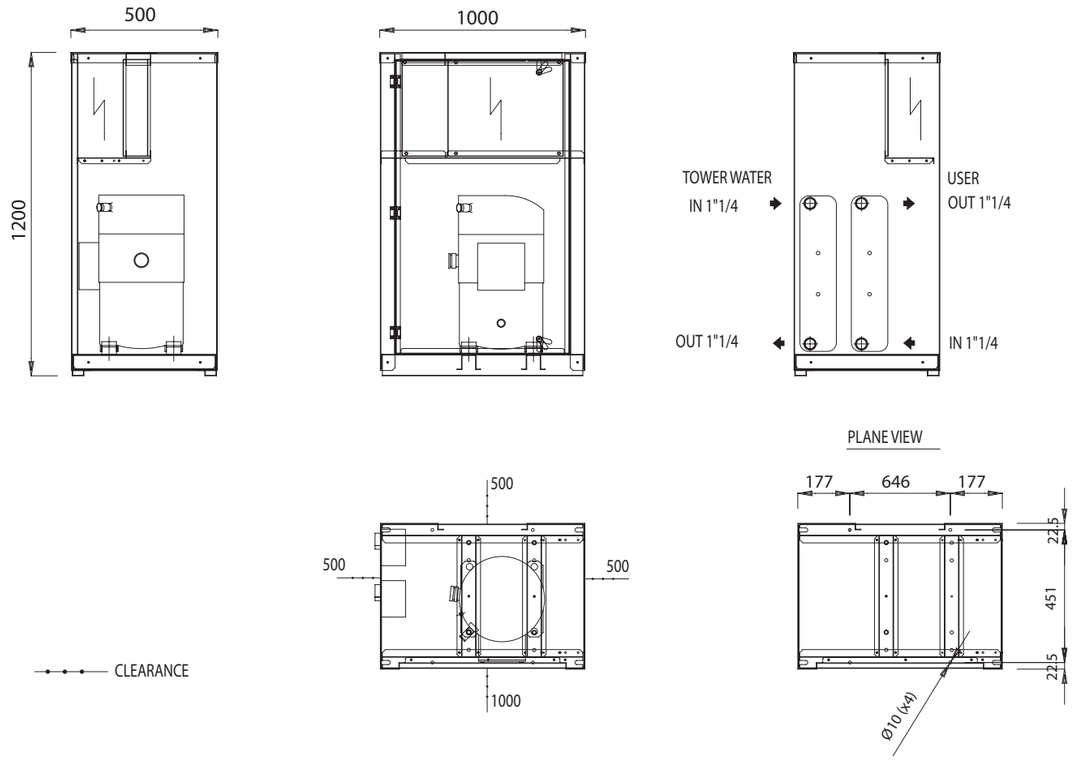
Ethylene glycol percentage by weight (%)	**10**	**20**	**30**	**40**	**50**
Freezing point (°C)	-3,6	-8,7	-15,3	-23,5	-35,5
Cooling capacity	0,986	0,980	0,973	0,966	0,960
Power input	1,000	0,995	0,990	0,985	0,975
Mixture flow	1,023	1,054	1,092	1,140	1,200
Pressure drop	1,061	1,114	1,190	1,244	1,310

WEIGHTS AND DIMENSIONS UNITS **PAC** VERSION



VERSION	**STD**					**LN**					**VLN**				
Size	**15/1**	**17/1**	**19/1**	**21/1**	**25/1**	**15/1**	**17/1**	**19/1**	**21/1**	**25/1**	**15/1**	**17/1**	**19/1**	**21/1**	**25/1**
Fig.	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Operating kg.	475	502	515	547	558	498	538	555	597	608	520	555	595	628	648
Transport kg.	365	392	405	437	448	388	428	445	487	498	410	445	485	518	538
VERSION	**STD**					**LN**					**VLN**				
Size	**30/1**	**35/1**	**40/1**	**45/1**	**50/1**	**30/1**	**35/1**	**40/1**	**45/1**	**50/1**	**30/1**	**35/1**	**40/1**	**45/1**	**50/1**
Fig.	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Operating kg.	590	620	645	680	735	620	640	670	690	760	650	670	695	720	785
Transport kg.	480	510	535	570	625	510	530	560	580	650	540	560	585	610	675

DIMENSIONS



WEIGHTS (Kg)

VERSION	**STD**					**LN**					**VLN**				
Size	**15/1**	**17/1**	**19/1**	**21/1**	**25/1**	**15/1**	**17/1**	**19/1**	**21/1**	**25/1**	**15/1**	**17/1**	**19/1**	**21/1**	**25/1**
Fig.	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Operating kg.	330	357	370	400	420	353	393	410	440	460	395	410	440	488	502
Transport kg.	315	342	355	387	398	338	378	395	437	448	360	395	435	468	488
Size	**30/1**	**35/1**	**40/1**	**45/1**	**50/1**	**30/1**	**35/1**	**40/1**	**45/1**	**50/1**	**30/1**	**35/1**	**40/1**	**45/1**	**50/1**
Fig.	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Operating kg.	445	485	505	555	610	455	505	525	575	630	515	535	555	605	660
Transport kg.	420	450	475	510	565	450	470	495	520	585	480	500	525	550	615

(1) The data has to be added to the evaporator and condensers water volume with regard to the selected model.

Technical data show in this booklet are not binding. KLT Klima S.r.l reserves the right to modify data without any prior notice.

WWC SCWY/R410A

CHAPTER 3

SCROLL COMPRESSORS

- **Water cooled water chillers**
- **Reversible heat pumps**
- **from 50 kW to 500 kW**

MADE IN ITALY

IDENTIFICATION CODE

SCWY P – 121 – PAC1
1 2 3 4 5 6 7 8 9 10

1	**S**	Small series <45 kW
2	**C**	Chiller unit
3	**W**	Water Chiller
4	**Y**	Refrigerant R 410A
5	**P**	Exchanger plate to plate
	F	Exchanger shell and tube
6	**-**	Scroll compressors
A		Alternative compressors
7	**12**	Capacity factors
8	**1**	Number of circuits
9	**-**	Cooling mode
	H	Heat pump mode
	W	Version of well water
10	**PAC1**	Storage tank + Pump
	P1	1 pump
	P2	2 pumps
	DS	Partial Heat recovery
	RCS	Heat recovery fitted in series (70-90%)
	RCP	Heat recovery fitted in parallel (100%)
	LN	Low noise
	VLN	Very low noise



GENERAL FEATURES

FRAME

WWC/P: self-supporting, galvanized steel frame coated with polyester powder paint.

COMPRESSORS

Hermetic «scroll» type with crankcase heater and klixon for overload protection. The compressors are mounted on rubber shock absorbers.

EVAPORATOR

WWC/P: braze welded plate to plate type.

WWC/F: Shell and tube type (option)

Both series are with one or two independent refrigerant circuits and one water circuit. The insulation is with a flexible closed-cell lining. It is advisable to fit a differential pressure switch which will stop the unit in case there is no water circulation on the plate to plate evaporator.

CONDENSERS

One or two depending on the model.

WWC/P: plate to plate condensers.

WWC/F: shell and tube condensers (option).

Ground water version for well water use on condenser, both plate to plate and shell and tube type.

REFRIGERANT CIRCUIT

Each unit is supplied with one or two independent refrigerantcircuits; each one includes: filter dryer, sight glass, electronic thermostatic expansion valve, service valve. To protect the refrigerant circuit the following devices are fitted: manual reset high pressure switch, automatic reset low pressure switch, antifreeze thermostat. Besides, if necessary:manual-reset safety pressure switches and safety valve.

ELECTRICAL BOARD

Weather proof type protected to IP54 standard.

It Includes: main circuit automatic breaker switch with door locking device, main fuses, compressor contactor, auxiliary circuits transformer. Microprocessor to automatically control the unit with a display to indicate the functions as well as alarm conditions.

VERSIONS

DS

Partial condensing heat recovery. Each refrigerant circuit

includes a desuperheater insulated and installed in series between the compressor and the condenser.

RCS

Condensing heat recovery from 70% to 90%. Each refrigerant circuit includes a heat exchanger insulated and mounted in series between compressor and condenser.

RCP

100% condensing heat recovery. Each refrigerant circuit includes: a heat exchanger insulated and mounted in parallel to the condenser and the relevant solenoid valves.

PAC1

Version with hydraulic kit and storage tank installed on the return line. This includes, insulated storage tank, one or two pumps (one as stand-by), expansion vessel, safety valve, air release valve, setting valves and, in case of two pumps, non return valve. Relevant electrical circuit. As an option, pumps with higher ESP are available.

LN

Low noise version equipped with soundproof material

covering the compressors.

VLN

Very low noise version. In addition to the LN devices are equipped with insulated panels on the compressor box.

Options

- Power factor condensing capacitors
- Numbered elect. wires
- Differential pressure valve (supplied loose)
- Oversized evaporator.
- Flowswitch not mounted (standard mounted on SCWY…PAC and P versions)
- Hydraulic shut off valves.
- Water pumps with higher ESP
- Compressor discharge and liquid line shut-off valves
- Gauges
- Programmable clock
- Remote control panel
- RS485 protocol: modbus, lonwork, bacnet, trend
- Evaporator electric heater
- Evaporator electric heater for PAC version
- Rubber shock absorbers
- Spring rubbers
- Wooden crate packing

SIZE			61	71	81	91	101	121
City water 15-30°C								
Cooling capacity	(1)	kW	57	67	77	85	99	113
Abs. power	(2)	kW	10.1	11.5	13.1	14.9	18	20.7
EER		-	5.64	5.82	5.87	5.7	5.5	5.47
Evaporator								
Water flow rate		m³/h	9.8	11.5	13.2	14.6	17	19.4
Pressure drop		kPa	52	51	48	49	52	68
Water volume		l	2.9	3.4	3.8	4.7	7	7
Water connections		Ø	2"	2"	2"	2"	2"	2"
Condenser								
Water flow rate		m³/h	3.8	4.5	5.1	5.7	6.7	7.6
Pressure drop		kPa	12	13	13	13	6	15
Water volume		l	3	3.5	3.9	4.7	7.1	7.1
Water connections		Ø	2"	2"	2"	2"	2"	2"
Tower water 30-35°C								
Cooling capacity	(1)	kW	54	64	70	81	95	106
Abs. power	(2)	kW	11.2	12.9	14.6	16.5	20	23
EER		-	4.82	4.96	4.70	4.9	4.75	4.6
Evaporator								
Water flow rate		m³/h	9.2	11	12	13.9	16.3	18.2
Pressure drop		kPa	47	46	43	44	49	61
Water volume		l	2.9	3.4	3.8	4.7	7	7
Water connections		Ø	2"	2"	2"	2"	2"	2"
Condenser								
Water flow rate		m³/h	11.2	13.2	14.5	16.7	19.7	22.1
Pressure drop		kPa	12	13	13	13	6	15
Water volume		l	3.1	3.6	4	4.9	7.3	7.3
Water connections		Ø	2"	2"	2"	2"	2"	2"
Dry Cooler water/glycol 30% 40-45°C								
Cooling capacity	(1)	kW	48	56	63	71	84	94
Abs. power	(2)	kW	13.9	16.3	18.5	20.5	24.4	28.1
EER		-	3.45	3.43	3.4	3.46	3.44	3.34
Evaporator								
Water flow rate		m³/h	8.2	9.6	10.8	12.2	14.4	16.1
Pressure drop		kPa	37	35	33	34	38	48
Water volume		l	2.9	3.4	3.8	4.7	7	7
Water connections		Ø	2"	2"	2"	2"	2"	2"
Condenser								
Water flow rate		m³/h	11	13.5	15.2	17.1	20.2	22.8
Pressure drop		kPa	37	41	19	19	21	26
Water volume		l	3.1	3.6	4	4.9	7.3	7.3
Water connections		Ø	2"	2"	2"	2"	2"	2"
Compressor								
Quantity		n°	2					
Capacity steps		n°	2					
Refrigerant circuit		n°	1					
Refrigerant		-	R410A					
Unit electric data	(3)							
Max abs. current		A	47	49	55	67	73	77
Max LRC		A	137	145	148	176	213	267
Voltage supply		V/f/Hz	400/3/50					
Sound pressure 1m	(3)							
Version STD		dB(A)	62	62	63	63	64	70
Version LN		dB(A)	55	55	55	56	57	64
Version VLN		dB(A)	52	52	52	53	54	61

Notes: 1) Cooling mode: evaporator water temperature 12/7 °C 2) Compressors only, no water pump(s) 3) Without water pump(s)

SIZE			131	141	151	161	191	222
City water 15-30°C								
Cooling capacity	(1)	kW	130	143	159	185	205	227
Abs. power	(2)	kW	23.4	26.7	29.8	33.9	38.4	41.8
EER		-	5.55	5.35	5.33	5.45	5.33	5.43
Evaporator								
Water flow rate		m³/h	22.3	24.6	27.3	31.8	35.8	39
Pressure drop		kPa	46	56	53	44	54	57
Water volume		l	9.2	12	12	15.1	15.1	18
Water connections		Ø	2"	2"	2"	2"	2"	2"
Condenser								
Water flow rate		m³/h	8.8	9.7	10.8	12.5	13.9	15.4
Pressure drop		kPa	6	8	8	8	10	9
Water volume		l	7.8	9	9	12	12	14
Water connections		Ø	2"	2"	2"	2"	2"	2"
Tower water 30-35°C								
Cooling capacity	(1)	kW	121	134	151	177	196	216
Abs. power	(2)	kW	25.4	28.9	32.8	36.8	41.6	45.9
EER		-	4.76	4.63	4.6	4.8	4.71	4.7
Evaporator								
Water flow rate		m³/h	20.8	23	25.9	30.4	33.7	37.1
Pressure drop		kPa	41	50	48	40	49	52
Water volume		l	9.2	12	12	15.1	15.1	18
Water connections		Ø	2"	2"	2"	2"	2"	2"
Condenser								
Water flow rate		m³/h	25.1	28	31.6	36.7	40.8	45
Pressure drop		kPa	24	29	31	29	36	41
Water volume		l	10	14	14	17.2	17.2	19.8
Water connections		Ø	2"	2"	2"	2"	2"	2"
Dry Cooler water/glycol 30% 40-45°C								
Cooling capacity	(1)	kW	108	119	133	156	173	190
Abs. power	(2)	kW	31.5	35.8	40	44.9	50.8	55.8
EER		-	3.4	3.3	3.3	3.47	3.4	3.4
Evaporator								
Water flow rate		m³/h	18.5	20.4	22.	26.8	29.7	32.6
Pressure drop		kPa	32	39	37	31	38	40
Water volume		l	9.2	12	12	15.1	15.1	18
Water connections		Ø	2"	2"	2"	2"	2"	2"
Condenser								
Water flow rate		m³/h	26.1	28.9	32.2	37.6	41.9	45.9
Pressure drop		kPa	24	31	32	30	37	43
Water volume		l	10	14	14	17.2	17.2	19.8
Water connections		Ø	2"	2"	2"	2"	2"	2"
Compressor								
Quantity		n°	2					4
Capacity steps		n°	2					4
Refrigerant circuit		n°	1					2
Refrigerant		-	R410A					
Unit electric data	(3)							
Max abs. current		A	85	91	99	119	133	151
Max LRC		A	268	315	323	364	381	336
Voltage supply		V/f/Hz	400/3/50					
Sound pressure 1mt	(3)							
Version STD		dB(A)	70	70	72	72	72	73
Version LN		dB(A)	64	64	67	67	67	67
Version VLN		dB(A)	61	61	64	64	64	64

Notes: 1) Cooling mode: evaporator water temperature 12/7 °C 2) Compressors only, no water pump(s) 3) Without water pump(s)

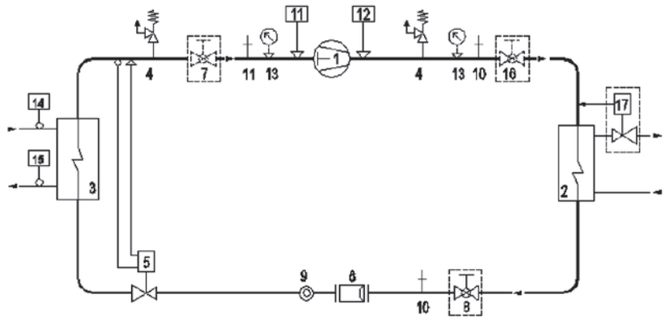
SIZE			242	282	312	342	382	442	482
City water 15-30°C	**15-30°C**								
Cooling capacity	(1)	kW	250	285	311	371	415	466	518
Abs. power	(2)	kW	47.8	53.6	60.2	67.3	76.4	87.2	99.2
EER		-	5.23	5.31	5.16	5.51	5.43	5.34	5.22
Evaporator									
Water flow rate		m³/h	43	49	53.4	63.8	71.3	80.1	89.09
Pressure drop		kPa	69	68	82	54	56	71	73
Water volume		l	21	23	23	25.6	26.6	26.6	28.6
Water connections		Ø	2″	2″	2″	3″	3″	3″	3″
Condenser									
Water flow rate		m³/h	17	19.4	21.2	25	28	31.7	35.3
Pressure drop		kPa	11	11	13	13	16	19	23
Water volume		l	16	18	18	22	22	24	24
Water connections		Ø	2″	2″	2″	2″	2″	2″	2″
Tower water 30-35°C	**30-35°C**								
Cooling capacity	(1)	kW	238	268	295	348	394	445	497
Abs. power	(2)	kW	52	59.3	66.2	74.6	83.6	94.4	106.8
EER		-	4.57	4.51	4.45	4.66	4.71	4.71	4.65
Evaporator									
Water flow rate		m³/h	40.9	46	50.7	59.8	67.7	76.5	85.4
Pressure drop		kPa	63	61	74	48	51	65	67
Water volume		l	21	23	23	25.6	26.6	26.6	28.6
Water connections		Ø	2″	2″	2″	3″	3″	3″	3″
Condenser									
Water flow rate		m³/h	49.8	56.2	62.1	36.3+36.3	41+41	46.3+46.3	51.9+51.9
Pressure drop		kPa	51	61	67	37+37	42+42	39+39	49+49
Water volume		l	22.6	25	25	14+14	14+14	16+16	16+16
Water connections		Ø	2″	2″	2″	2″+2″	2″+2″	2″+2″	2″+2″
Dry Cooler water/glycol 30% 40-45°C									
Cooling capacity	(1)	kW	210	237	262	308	347	395	440
Abs. power	(2)	kW	63.4	72.1	80	91.1	102.4	114.6	128.8
EER		-	3.3	3.28	3.27	3.37	3.38	3.44	3.41
Evaporator									
Water flow rate		m³/h	36.1	40.7	45	52.9	59.6	67.9	75.6
Pressure drop		kPa	49	47	58	37	40	51	53
Water volume		l	21	23	23	25.6	26.6	26.6	28.6
Water connections		Ø	2″	2″	2″	3″	3″	3″	3″
Condenser									
Water flow rate		m³/h	51.2	57.8	64	37.3+37.3	42+42	47.7+47.7	53.3+53.3
Pressure drop		kPa	53	64	71	39+39	44+44	41+41	48+48
Water volume		l	22.6	25	25	14+14	14+14	16+16	16+16
Water connections		Ø	2″	2″	2″	2″+2″	2″+2″	2″+2″	2″+2″
Compressor									
Quantity		n°	4						
Capacity steps		n°	4						
Refrigerant circuit		n°	2						
Refrigerant		-	R410A						
Unit electric data	(3)								
Max abs. current		A	165	179	199	233	267	302	336
Max LRC		A	348	403	423	478	512	627	661
Voltage supply		V/f/Hz	400/3/50						
Sound pressure 1mt	(3)								
Version STD		dB(A)	73	73	75	75	75	79	81
Version LN		dB(A)	67	67	70	70	70	72	74
Version VLN		dB(A)	64	64	64	67	67	69	71

Notes: 1) Cooling mode: evaporator water temperature 12/7 °C 2) Compressors only, no water pump(s) 3) Without water pump(s)

SIZE			61	71	81	91	101	121
City water 15-30°C								
Cooling capacity	(1)	kW	60	72	81	89	107	120
Abs. power	(2)	kW	9.5	10.9	12.6	14.5	17.6	22.2
EER		-	6.3	6.6	6.42	6.13	6.07	5.40
Evaporator								
Water flow rate		m³/h	10.3	12.3	13.9	15.3	18.4	20.6
Pressure drop		kPa	45	59	40	48	58	83
Water volume		l	16	20	22	22	29	29
Water connections		Ø	1½″	1½″	2″	2″	2″	2″
Condenser								
Water flow rate		m³/h	3.9	4.7	5.3	5.9	7.1	8.1
Pressure drop		kPa	9	13	16	19	26	33
Water volume		l	18	22	24	24	31	31
Water connections		Ø	2″	2″	2″	2″	2″	2″
Tower water 30-35°C								
Cooling capacity	(1)	kW	56	67	76	84	100	112
Abs. power	(2)	kW	10.8	12.5	14.3	16.3	20.2	23.3
EER		-	5.1	5.36	5.31	5.15	4.95	4.8
Evaporator								
Water flow rate		m³/h	9.6	11.5	13	14.4	17.2	19.2
Pressure drop		kPa	39	52	34	43	51	71
Water volume		l	16	20	22	22	29	29
Water connections		Ø	1½″	1½″	2″	2″	2″	2″
Condenser								
Water flow rate		m³/h	11.4	13.6	15.5	17.2	20.6	23.5
Pressure drop		kPa	9	12	15	18	25	32
Water volume		l	18	22	24	24	31	31
Water connections		Ø	2″	2″	2″	2″	2″	2″
Dry Cooler water/glycol 30% 40-45°C								
Cooling capacity	(1)	kW	48	7	64	70	84	93
Abs. power	(2)	kW	14.1	16.7	19.2	21.6	26.2	33.3
EER		-	3.41	3.41	3.33	3.24	3.2	2.79
Evaporator								
Water flow rate		m³/h	8.5	10.2	11.5	12.5	14.9	16.4
Pressure drop		kPa	24	37	25	31	36	50
Water volume		l	16	20	22	22	29	29
Water connections		Ø	1½″	1½″	2″	2″	2″	2″
Condenser								
Water flow rate		m³/h	11.8	14.1	15.9	17.5	20.9	23.4
Pressure drop		kPa	10	13	16	20	27	34
Water volume		l	18	22	24	24	31	31
Water connections		Ø	2″	2″	2″	2″	2″	2″
Compressor								
Quantity		n°	2					
Capacity steps		n°	2					
Refrigerant circuit		n°	1					
Refrigerant		-	R410A					
Unit electric data	(3)		**vedi unità Scambiatore Piastre / see at pg 06**					
PAC SHELL and TUBE Version OPTIONAL								
Storage tank water volume		l	200	200	200	200	470	470
Water pump nominal power		kPa	0.75	0.75	1.1	1.1	1.5	1.5
Water pump nominal current		A	2.3	2.3	3	3	4.3	4.3
ESP pump		kPa	100	90	90	85	110	100
Sound pressure 1m	(3)							
Version STD		dB(A)	67	67	70	72	74	74
Version LN		dB(A)	62	62	65	67	69	69
Version VLN		dB(A)	59	59	62	64	66	66

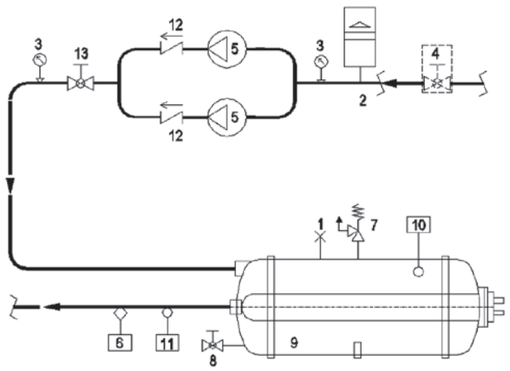
Notes: 1) Cooling mode: evaporator water temperature 12/7 °C 2) Compressors only, no water pump(s) 3) Without water pump(s)

REFRIGERANT CIRCUIT



1 Compressor
2 Condenser
3 Evaporator
4 Safety valve
5 Thermal expansion valve
6 Refrigerant filter
7 Suction line valve **
8 Liquid line cock **
9 Humidity indicator
10 Schrader service valve
11 Low pressure switch
12 High pressure switch
13 Gauge **
14 Temperature probe
15 Antifreeze probe
16 Supply cock **
17 Water pressure valve

WWC... PAC2 (PAC1) HYDRAULIC CIRCUIT



1 Bleed valve
2 Expansion vessel
3 Gauge
4 Shut off valve **
5 Pump
6 Flowswitch
7 Safety valve
8 Drain/fill up valve
9 Exchanger with tank
10 Temperature probe
11 Antifreeze probe
12 Evaporator (only PAC2)
13 Setting valve

** The outlined components are optional
In case of glycol mix > 30% contact factory

PAC 1: 1 off pump / PAC 2: 2 off pumps

OPERATING RANGE

INLET WATER TEMP. EVAPORATOR	Max °C	17
	Min °C	9
OUTLET WATER TEMP. EVAPORATOR	Max °C	10
	Min °C	5
INLET WATER TEMP. CONDENSER	Max °C	50
	Min °C	10
OUTLET WATER TEMP. CONDENSER	Max °C	55
	Min °C	30

CORRECTION FACTORS

Ethylene glycol percentage by weight (%)	**10**	**20**	**30**	**40**	**50**
Freezing point (°C)	-3,6	-8,7	-15,3	-23,5	-35,5
Cooling capacity	0,986	0,980	0,973	0,966	0,960
Power input	1,000	0,995	0,990	0,985	0,975
Mixture flow	1,023	1,054	1,092	1,140	1,200
Pressure drop	1,061	1,114	1,190	1,244	1,310

DIMENSIONS FIG A.

Fig. A

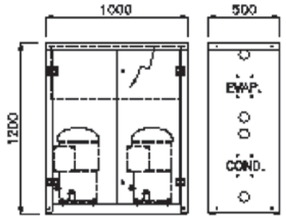


Fig. B

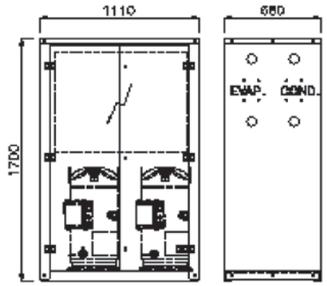


Fig. C

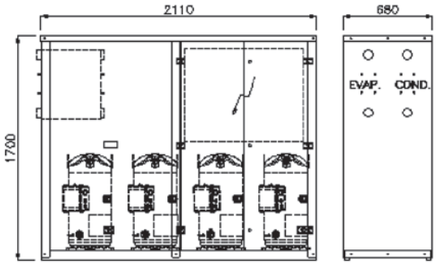
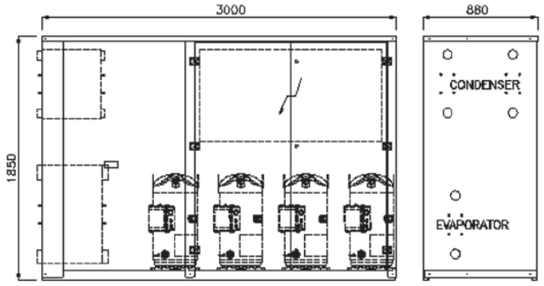


Fig. D



WEIGHTS (Kg)

VERSIONS	**STD**									**LN**								
Mod.	**61**	**71**	**81**	**91**	**101**	**121**	**131**	**141**	**151**	**61**	**71**	**81**	**91**	**101**	**121**	**131**	**141**	**151**
Fig.	A	A	A	B	B	B	B	B	B	A	A	A	B	B	B	B	B	B
Operating (1)	400	450	495	530	650	700	765	845	950	420	470	515	550	670	730	795	875	1030
Transport	400	450	495	530	650	700	765	845	950	420	470	515	550	670	730	795	875	1030
Vers. "P1" (2)	Disponibile a richiesta - On request									Disponibile a richiesta - On request								

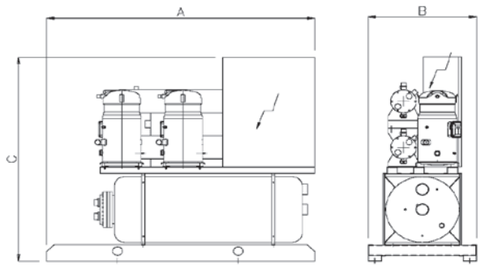
VERSIONS	**STD**										**LN**									
Mod.	**161**	**191**	**222**	**242**	**282**	**312**	**342**	**382**	**442**	**482**	**161**	**191**	**222**	**242**	**282**	**312**	**342**	**382**	**442**	**482**
Fig.	B	B	C	C	C	C	D	D	D	D	B	B	C	C	C	C	D	D	D	D
Operating (1)	1150	1300	1530	1580	1730	1770	1980	2080	2250	2450	1250	1400	1630	1680	1830	1870	2080	2180	2350	2550
Transport	1100	1250	1480	1530	1680	1720	1880	1980	2150	2350	1200	1350	1580	1630	1780	1820	1980	2080	2250	2450
Vers. "P1" (2)	Disponibile a richiesta - On request										Disponibile a richiesta - On request									

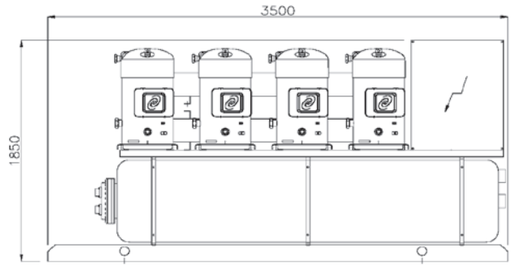
(1) The data has to be added to the evaporator water volume with regard to the selected model.
(2) Sales department ACM KK.

NOTES: VLN versions available on request

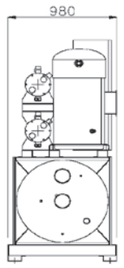
WWC SCWY/R410A

DIMENSIONS SHELL AND TUBE





Modello	A	B	C
SCWY/PAC 61 SCWY/PAC 71	2450	750	1610
SCWY/PAC 81 SCWY/PAC 91 SCWY/PAC 101 SCWY/PAC 121 SCWY/PAC 131 SCWY/PAC 141 SCWY/PAC 151 SCWY/PAC 161 SCWY/PAC 191	3200	750	1700



SCWY/PAC 222
SCWY/PAC 242
SCWY/PAC 282
SCWY/PAC 312
SCWY/PAC 342
SCWY/PAC 382
SCWY/PAC 442
SCWY/PAC 482

WEIGHT (kg)

VERSIONS	STD										LN									
Mod.	**61**	**71**	**81**	**91**	**101**	**121**	**131**	**141**	**151**	**161**	**61**	**71**	**81**	**91**	**101**	**121**	**131**	**141**	**151**	**161**
Operating Kg (1)	810	880	1300	1380	1560	1660	1760	1840	1910	2020	850	930	1350	1430	1610	1710	1810	1890	1960	2070
Transport Kg	510	580	600	680	860	910	1060	1140	1210	1320	550	630	650	730	910	960	1100	1190	1260	1370
Vers. "PAC1"																				
Operating Kg (1)	910	980	1400	1480	1660	1760	1960	2040	2110	2220	950	1030	1450	1530	1710	1810	2010	2090	2160	2270
Transport Kg	610	680	700	780	960	1010	1260	1340	1410	1520	650	730	750	830	1010	1060	1310	1390	1460	1570

VERSIONS	STD									LN								
Mod.	**191**	**222**	**242**	**282**	**312**	**342**	**382**	**442**	**482**	**191**	**222**	**242**	**282**	**312**	**342**	**382**	**442**	**482**
Operating Kg (1)	2100	2350	2480	2600	2750	2830	2900	3080	3300	2100	2350	2480	2600	2750	2830	2900	3080	3300
Transport Kg	1400	1650	1780	1900	2050	2130	2200	2380	2600	1400	1650	1780	1900	2050	2130	2200	2380	2600
Vers. "PAC1"																		
Operating Kg (1)	2300	2550	2680	2800	3000	3080	3150	3330	3650	2350	2650	2780	2900	3100	3180	3250	3430	3750
Transport Kg	1600	1850	1980	2100	2300	2380	2450	2630	2850	1650	1950	2080	2200	2400	2480	2550	2730	2950

(1) The data has to be added to the evaporator water volume with regard to the selected model.

The technical data in this booklet are not binding. KLT Klima reserves the right to make changes without prior notice.

NOTES

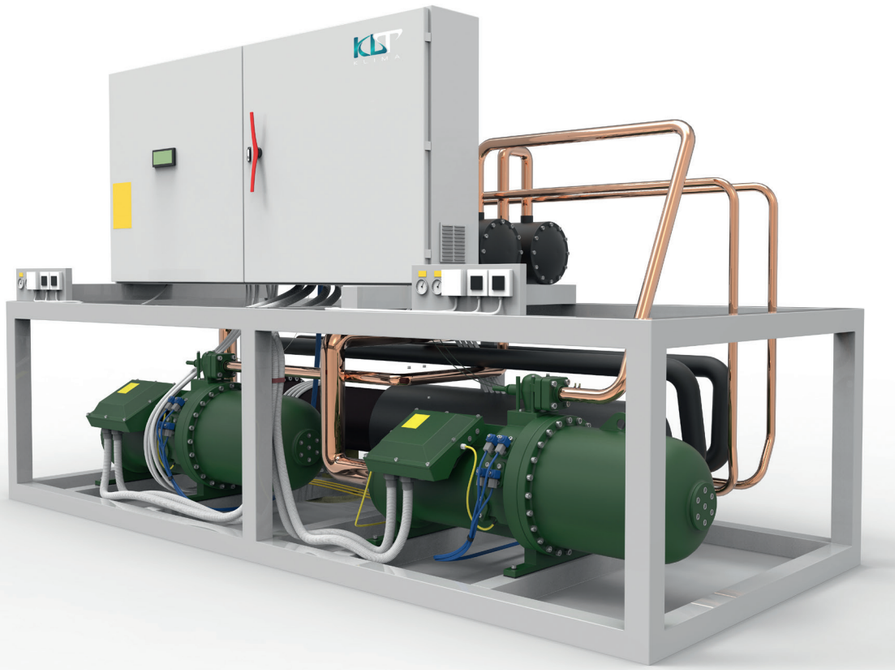
CHAPTER 3

SCREW COMPRESSORS

- **Water cooled water chillers**
- **from 200 kW to 1550 kW**

MADE IN ITALY

IDENTIFICATION CODE		
L C W X – 402 – PAC1		
1 2 3 4 5 6 7 8 9		
1	L	Large series >200 kW
2	C	Chiller unit
3	W	Air cooled
4	X	Refrigerant R134a
5	–	Screw compressors
A		Alternative compressors
6	40	Capacity factors
7	2	Number of circuits
8	–	Cooling only version
9	PAC1	Storage tank + pump
	P1	1 pump
	P2	2 pumps
	DS	Desuperheater
	RCS	Heat recovery fitted in series (70-90%)
	RCP	Heat recovery fitted in parallel (100%)
	LN	Low Noise
	VLN	Very Low Noise



GENERAL FEATURES

SELF-SUPPORTING STRUCTURE

Made of strong welded steel frame protected with polyester powder painting.

COMPRESSORS

"Screw" type they are mounted on rubber shock absorbers and equipped with an electronic integrate module to protect against overheating, discharge shut off valve and crankcase heater.

EVAPORATOR

With shell and tube evaporator with one or two refrigerant circuits and one water circuit. The insulation is with a flexible closed-cell lining. As protection the end user or the installer will foresee a flowswitch or differential pressure switch in order to stop the compressors in case of no water flow.

CONDENSERS

One or two shell and tube type.

As Option, is available condenser for well water and of sea water.

REFRIGERNT CIRCUIT

Each unit is supplied with one or two independent refrigerant circuits; filter dryer, sight glass, thermostatic expansion valve with buffer battery, service schrader valve, liquid line valve, gauges A/B pression with shut off valves and discharge shut off valve.

To protect the refrigerant circuit the following devices are fitted: man. reset high pressure switch, man. reset safety switch, aut. reset low pressure switch, antifreeze thermostat and safety valve.

ELECTRICAL BOARD

Weather proof type protected to IP44. It includes: main circuit automatic breaker switch with door locking device, main fuses, compressor contactor, auxiliary circuits transformer. Microprocessor to automatically control the unit with a display to indicate the functions as well as alarm conditions.

VERSIONS

DS

Partial condensing heat recovery. Each refrigerant circuit includes a desuperheater insulated and installed in series between the compressors and the condenser.

RCS

Condensing heat recovery from 70% to 90%. Each refrigerant circuit includes: a heat exchanger insulated and mounted in series to the condenser.

RCP

100% condensing heat recovery. Each refrigerant circuit includes: a heat exchanger insulated and mounted in parallel to the condenser and the relevant solenoid valves.

P

Version with hydraulic kit includes: one or two pumps (one as stand-by), expansion vessel, safety valve, air release valve, relevant hydraulic circuit suitably insulated and equipped with gauges, shut off valves and, in case of two pumps, non return valve. Moreover: relevant electrical circuit. As option, pumps with higher ESP are available.

LN

Low noise version equipped with soundproof material for the compressor chamber.

VLN

Very low noise version. In addition to the LN devices and are equipped with insulated panels on the compressor box.

Options

- Power factor condensing capacitors.
- Soft starter.
- Automatic breakers.
- Numbered electrical wires.
- Pressostatic valves.
- Oversized exchangers.
- Evaporator double insulation.
- Flowswitch not mounted. (standard mounted on LCWX….PAC version).
- Water pumps with higher ESP.
- Hydraulic valve.
- Compressor suction shut off valves.
- Remote control panel.
- RS 485 protocol: Modbus- Lonwork - Bacnet -Trend.
- Evaporator electric heater.
- Evaporator electric heater for PAC version.
- Potential free contacts.
- Double set point.
- Evap.hydraulic connections with Flange.
- Double safety valve.
- Rubber antivibrators.
- Spring AV mounts.
- Wooden crate packing.

SIZE		201	231	291	302	321	352
COOLING MODE							
Cooling capacity (1)	kW	201	233	293	309	320	356
Abs. power (2)	kW	41.2	46	57.3	63.4	63.7	72.2
EER	-	4.87	5.06	5.11	4.87	5.02	4.93
EVAPORATOR							
Water flow	m3/h	34.5	40	50.3	53.1	55	61.2
Pressure drop	kPa	45	57	38	42	45	46
Water volume	l	105	82	143	143	143	111
Water connections	Ø	DN100	DN100	DN125	DN125	DN125	DN125
CONDENSER							
Water flow	m3/h	41.6	47.9	60.2	32+32	65.9	36.8+36.8
Pressure drop	kPa	45	40	60	52	52	55
Water volume	l	22	30	32	16+16	36	18+18
Water connections	Ø	2" 1/2	DN80	DN80	2" 1/2	DN80	2" 1/2
COMPRESSOR							
Quantity	n°	1	1	1	2	1	2
Capacity step	n°	2	2	2	4	2	4
Refrigerant	-	R134a					
UNIT ELECTRICAL DATA (3)		400/3/50					
Max operating abs. current	A	149	167	187	201	204	253
Max LRC	A	355	428	525	370	616	432
PAC VERSION							
Tank volume	l	660	660	1100	1100	1100	1100
Water pump nominal power	kW	2.2	2.2	3	3	3	4
Water pump nominal current	A	5	5	6.5	6.5	6.5	8.1
ESP	kPa	110	90	120	115	110	120
DS VERSION (4)							
Heating capacity	kW	40	47	59	62	64	72
Water flow	m3/h	3.4	4	5	5.3	5.5	6.1
Pressure drop	kPa	10	11	12	12	12	14
SOUND PRESSURE LEVEL at 1 m (3) (5)							
STD Version	dB(A)	75	75	77	79	77	79
LN Version	dB(A)	72	72	74	76	74	76
VLN Version	dB(A)	69	69	71	73	71	73

Note:

1) Cooling mode : evaporator water temp. 12 °C / 7 °C; condenser water temp. 30 °C / 35 °C.
2) Compressor only, no water pump(s).
3) Without water pump(s).
4) Water temperature 40°C / 50°C.

SIZE		361	402	421	452	491	562
COOLING MODE							
Cooling capacity (1)	kW	369	400	432	462	505	568
Abs. power(2)	kW	72.3	82	85.3	91.8	96.8	113.6
EER	-	5.1	4.8	5.06	5	5.21	5
EVAPORATOR							
Water flow	m3/h	63.4	68.8	74.3	79.4	86.8	97.6
Pressure drop	kPa	52	58	42	48	49	62
Water volume	l	111	111	113	113	87	113
Water connections	Ø	DN125	DN125	DN125	DN125	DN150	DN125
CONDENSER							
Water flow	m3/h	75.9	20.7+20.7	88.9	23.8+23.8	103.5	58.6+58.6
Pressure drop	kPa	51	57	60	39	52	57
Water volume	l	42	21+21	45	30+30	55	30+30
Water connections	Ø	DN80	2" 1/2	DN80	DN80	DN100	DN80
COMPRESSOR							
Quantity	n°	1	2	1	2	1	2
Capacity step	n°	2	4	2	4	2	4
Refrigerant	-	R134a					
UNIT ELECTRICAL DATA (3)		400/3/50					
Max operating abs. current	A	219	293	285	329	315	369
Max LRC	A	669	499	441	590	470	707
PAC VERSION							
Tank volume	l	1100	1100	1250	1250	1250	1250
Water pump nominal power	kW	4	4	4	5.5	5.5	5.5
Water pump nominal current	A	8.2	8.2	8.2	11	11	11
ESP	kPa	110	100	100	120	110	85
DS VERSION (4)							
Heating capacity	kW	74	80	87	93	101	114
Water flow	m3/h	6.3	6.8	7.4	7.9	8.6	9.8
Pressure drop	kPa	14	14	16	16	16	18
SOUND PRESSURE LEVEL at 1 m (3) (5)							
STD Version	dB(A)	77	82	79	82	79	82
LN Version	dB(A)	74	79	76	79	76	79
VLN Version	dB(A)	71	76	73	76	73	76

Note:

1) Cooling mode : evaporator water temp. 12 °C / 7 °C; condenser water temp. 30 °C / 35 °C.
2) Compressor only, no water pump(s).
3) Without water pump(s).
4) Water temperature 40°C / 50°C.

WWCL LCWX/R134A

TECHNICAL DATA

SIZE		561	622	631	681	712	741
COOLING MODE							
Cooling capacity (1)	kW	570	631	651	692	720	751
Abs. power(2)	kW	111	126.8	124.3	144.2	143.8	153.3
EER	-	5.13	4.97	5.23	4.79	5	4.89
EVAPORATOR							
Water flow	m3/h	98	108.5	111.9	119	123.8	129.1
Pressure drop	kPa	54	66	56	61	68	69
Water volume	l	102	240	127	127	195	138
Water connections	Ø	DN150	DN150	DN150	DN150	DN150	DN150
CONDENSER							
Water flow	m3/h	117.1	65.1+65.1	133.3	143.8	74.2+74.2	155.5
Pressure drop	kPa	55	50	45	52	49	48
Water volume	l	60	35+35	80	80	40+40	89
Water connections	Ø	DN100	DN80	DN100	DN100	DN80	DN125
COMPRESSOR							
Quantity	n°	1	2	1	1	2	1
Capacity step	n°	2	4	2	2	4	2
Refrigerant	-	R134a					
UNIT ELECTRICAL DATA (3)		400/3/50					
Max operating abs. current	A	325	397	365	418	433	452
Max LRC	A	591	813	655	810	884	922
PAC VERSION							
Tank volume	l	1500	1500	1500	1500	1500	1500
Water pump nominal power	kW	5.5	7.5	7.5	7.5	7.5	11
Water pump nominal current	A	11	14.6	14.6	14.6	14.6	21.2
ESP	kPa	95	120	120	110	105	150
DS VERSION (4)							
Heating capacity	kW	114	126	130	140	144	150
Water flow	m3/h	9.8	10.8	11.1	12	12.3	12.9
Pressure drop	kPa	16	18	18	18	18	20
SOUND PRESSURE LEVEL at 1 m (3) (5)							
STD Version	dB(A)	80	83	80	81	83	81
LN Version	dB(A)	77	80	77	78	80	78
VLN Version	dB(A)	74	77	74	75	77	75

Note:

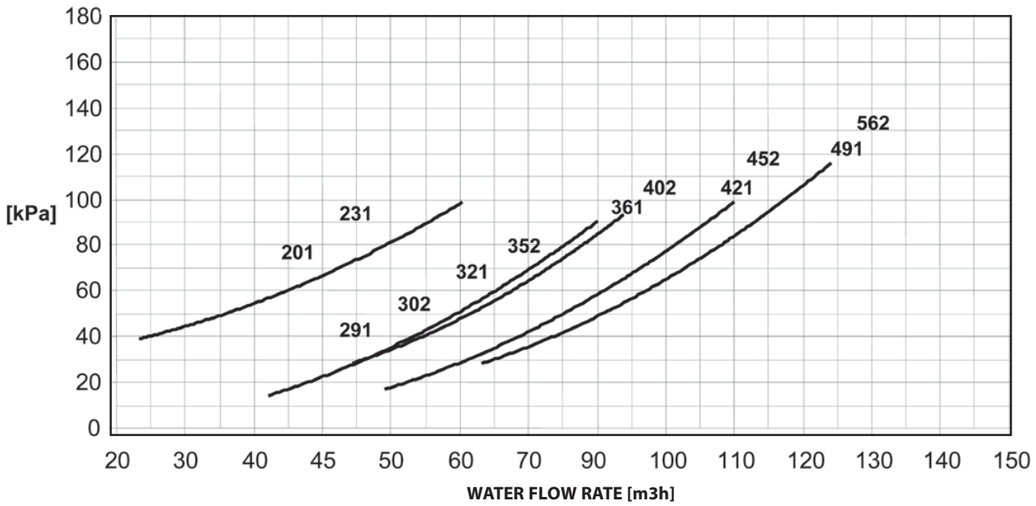
1) Cooling mode : evaporator water temp. 12 °C / 7 °C; condenser water temp. 30 °C / 35 °C..
2) Compressor only, no water pump(s).
3) Without water pump(s).
4) Water temperature 40°C / 50°C.

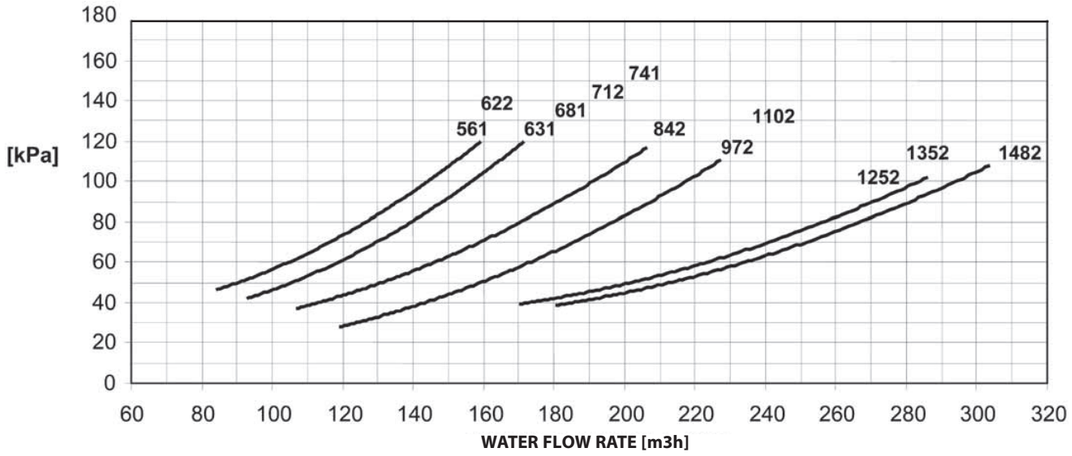
SIZE		842	972	1102	1252	1352	1482
COOLING MODE							
Cooling capacity (1)	kW	843	995	1135	1302	1393	1510
Abs. power(2)	kW	169.6	192.4	221.8	248.6	289.4	306.6
EER	-	4.97	5.17	5.11	5.23	4.81	4.92
EVAPORATOR							
Water flow	m3/h	144.9	171.1	195.2	223.9	239.5	259.7
Pressure drop	kPa	64	60	71	61	67	75
Water volume	l	268	330	570	540	550	550Water
Water connections	Ø	DN200	DN200	DN200	DN200	DN200	DN200
CONDENSER							
Water flow	m3/h	87.1+87.1	102.1+102.1	116.6+116.6	133.3+133.3	144.6+144.6	156.2+156.2
Pressure drop	kPa	57	50	54	45	53	48
Water volume	l	44+44	54+54	60+60	78+78	78+78	86+86
Water connections	Ø	DN80	DN100	DN100	DN125	DN125	DN125
COMPRESSOR							
Quantity	n°	2	2	2	2	2	2
Capacity step	n°	4	4	4	4	4	4
Refrigerant	-	R134a					
UNIT ELECTRICAL DATA (3)		400/3/50					
Max operating abs. current	A	565	625	645	725	831	899
Max LRC	A	721	780	911	1015	1223	1369
PAC VERSION							
Tank volume	l	2000	2000	-	-	-	-
Water pump nominal power	kW	11	11	15	22	22	22
Water pump nominal current	A	21.5	21.5	28.6	40.5	40.5	40.5
ESP	kPa	130	110	130	140	140	120
DS VERSION (4)							
Heating capacity	kW	170	200	227	260	280	302
Water flow	m3/h	14.6	17.2	19.5	22.3	24	25.9
Pressure drop	kPa	20	22	22	24	26	28
SOUND PRESSURE LEVEL at 1 m (3) (5)							
STD Version	dB(A)	82	82	83	83	83	83
LN Version	dB(A)	79	79	80	80	80	80
VLN Version	dB(A)	76	76	77	77	77	77

Note:

1) Cooling mode : evaporator water temp. 12 °C / 7 °C; condenser water temp. 30 °C / 35 °C.
2) Compressor only, no water pump(s).
3) Without water pump(s).
4) Water temperature 40°C / 50°C.

PRESSURE DROP SHELL AND TUBE EVAPORATOR

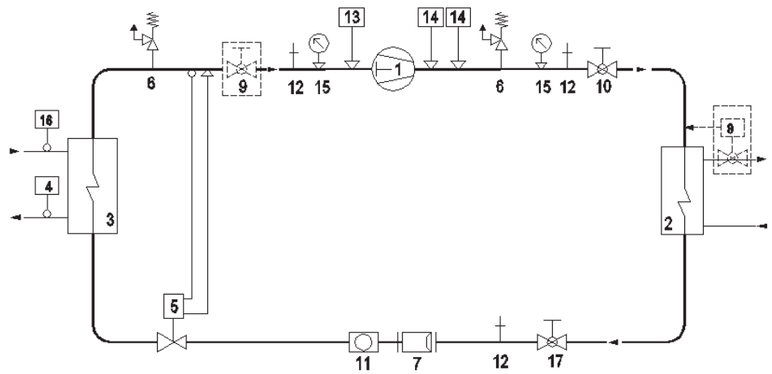




CORRECTION FACTORS

Ethylene glycol percentage by weight (%)	10	20	30	40	50
Freezing point (°C)	-3,6	-8,7	-15,3	-23,5	-35,5
Cooling capacity	0,986	0,980	0,973	0,966	0,960
Power input	1,000	0,995	0,990	0,985	0,975
Mixture flow	1,023	1,054	1,092	1,140	1,200
Pressure drop	1,061	1,114	1,190	1,244	1,310

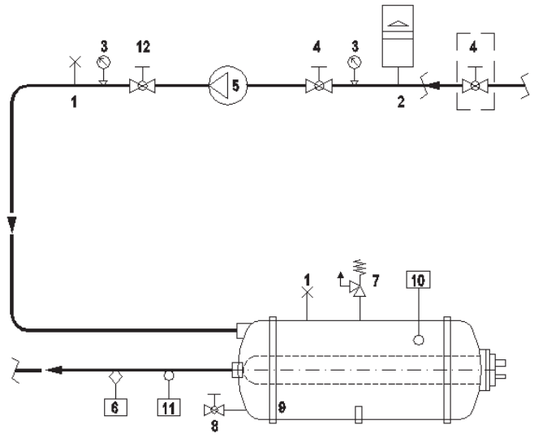
WWCL REFRIGERANT CIRCUIT



1 = Compressor
2 = Condenser
3 = Evaporator
4 = Antifreeze probe
5 = Thermostatic valve
6 = Safety valve
7 = Dryer
8 = Water pressure valve **
9 = Shut off valve suction line **
10 = Shut off valve discharge line
11 = Sight glass
12 = Schrader valve
13 = LP switch
14 = HP switch
15 = Gauge
16 = Temperature probe
17 = Shut off valve liquid line

** The outlined components are optional

WWCL... PAC.1 HYDRAULIC CIRCUIT



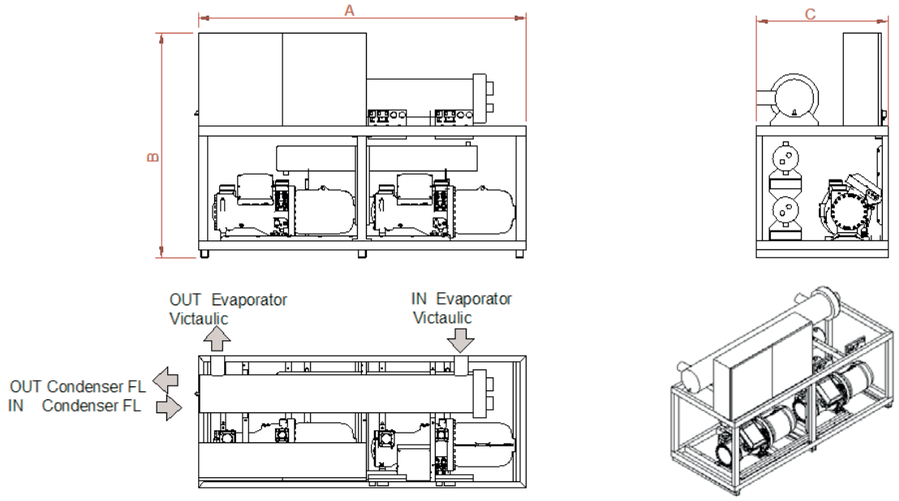
1 = Bleed valve
2 = Expansion vessel
3 = Gauge
4 = Shut off valve **
5 = Pump
6 = Flowswitch
7 = Safety valve
8 = Drain/fill up valve
9 = Exchanger with tank
10 = Temperature probe
11 = Antifreeze probe
12 = Setting valve

** The outlined components are optional

OPERATING RANGE

INLET WATER TEMP. EVAPORATOR	Max °C	17
	Min °C	9
OUTLET WATER TEMP. EVAPORATOR	Max °C	10
	Min °C	5
INLET WATER TEMP. CONDENSER	Max °C	50
	Min °C	10
OUTLET WATER TEMP. CONDENSER	Max °C	55
	Min °C	30

DIMENSIONS AND WEIGHTS

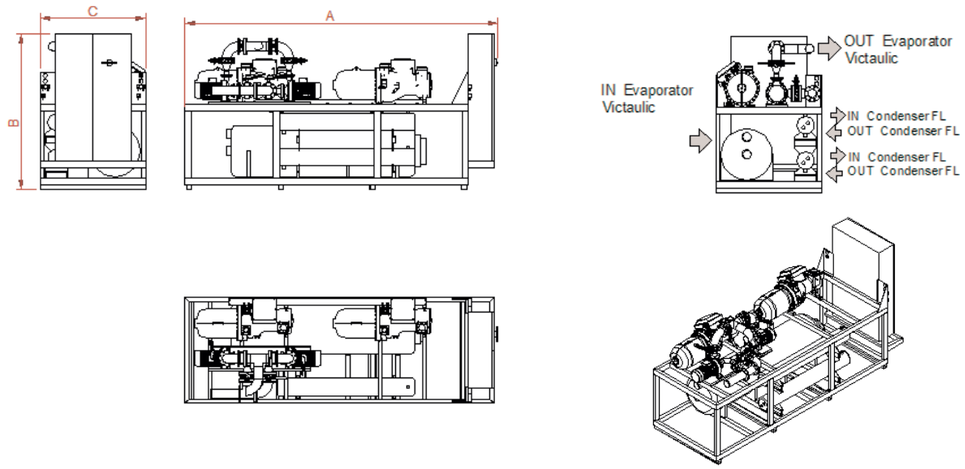


Mod.	201*	231*	291*	302	321*	352	361*	402	421*	452	491*	562
A	3000	3000	3000	3200	3000	3200	3000	3200	3200	3200	3600	3500
B	1900	1900	1900	2000	1900	2000	1900	2000	2000	2200	2000	2200
C	1150	1150	1150	1200	1200	1200	1200	1200	1300	1200	1200	1200
VERSION	STD											
Operating kg.	1880	2250	2730	2850	2970	3210	3400	3560	3960	4150	4550	5070
Transport kg.	1750	2100	2550	2670	2790	3060	3250	3440	3800	3980	4400	4900
VERSION	LN											
Operating kg.	1980	2350	2830	3050	3070	3410	3600	3760	4160	4350	4750	5270
Transport kg.	1850	2200	2650	2870	2890	3260	3450	3640	4000	4180	4600	5100

Mod.	561*	622	631*	681*	712	741*	842	972	1102	1252	13521	482
A	3600	3500	3600	3600	3500	3800	4200	4200	4500	4500	4500	4500
B	2000	2200	2000	2000	2200	2000	2200	2200	2200	2300	2300	2300
C	1400	1400	1400	1400	1400	1400	1400	1600	1600	1800	1800	1800
VERSION	STD											
Operating kg.	5130	5740	5880	6230	6265	6780	6640	7000	7330	7600	7880	8580
Transport kg.	4960	5430	5670	5820	5990	6030	6280	6450	6640	6900	7170	7850
VERSION	LN											
Operating kg.	5330	6040	6080	6430	6565	6980	6940	7300	7630	7900	8180	8880
Transport kg.	5160	5730	5870	6020	6290	6230	6580	6750	6940	7200	7470	8150

(*) One compressor version

DIMENSIONS AND WEIGHTS



Mod.	201*	231*	291*	302	321*	352	361*	402	421*	452	491*	562
A	4200	4200	4200	4200	4200	4200	4200	4200	4200	4600	4600	4900
B	2100	2100	2100	2100	2100	2100	2100	2100	2100	2200	2200	2400
C	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1650
VERSION	STD											
Operating kg.	2750	3100	4200	4320	4440	4710	4900	5090	5750	5930	6350	6850
Transport kg.	2000	2350	3000	3120	3240	3510	3700	3890	4400	4580	5000	5500
VERSION	LN											
Operating kg.	2850	3200	4300	4520	4540	4910	5100	5290	5950	6130	6550	7050
Transport kg.	2100	2450	3100	3320	3340	3710	3900	4090	4600	4780	5200	5700

Mod.	561*	622	631*	681*	712	741*	842	972	1102	1252	1352	1482
A	4900	4900	4900	4900	4900	4900	4900	4900	n.d.	n.d.	n.d.	n.d.
B	2400	2400	2400	2400	2400	2400	2400	2400	n.d.	n.d.	n.d.	n.d.
C	1650	1650	1650	1650	1650	1650	1650	1650	n.d.	n.d.	n.d.	n.d.
VERSION	STD											
Operating kg.	7160	7630	7870	8020	8190	8230	9080	9250	n.d.	n.d.	n.d.	n.d.
Transport kg.	5560	6030	6270	6420	6590	6630	6980	7150	n.d.	n.d.	n.d.	n.d.
VERSION	LN											
Operating kg.	7260	7830	8070	8320	8490	8530	9380	9550	n.d.	n.d.	n.d.	n.d.
Transport kg.	5760	6230	6570	6720	6890	6930	7280	7450	n.d.	n.d.	n.d.	n.d.

(*) One compressor version

CWC SCLY/R410A

CHAPTER 3.1

SCROLL COMPRESSORS

- **Condenserless chillers for indoor installation**
- **from 45 kW to 360 kW**

MADE IN ITALY

IDENTIFICATION CODE		
SCWY P – 121 – PAC1		
1234 5 6 7 8 9 10		
1	S	Small series <45 kW
2	C	Chiller unit
3	W	Water Chiller
4	Y	Refrigerant R 410A
5	P	Exchanger plate to plate
	F	Exchanger shell and tube
6	-	Scroll compressors
	A	Alternative compressors
7	12	Capacity factors
8	1	Number of circuits
9	-	Cooling mode
	H	Heat pump mode
	W	Version of well water
10	PAC1	Storage tank + Pump
	P1	1 pump
	P2	2 pumps
	DS	Partial Heat recovery
	RCS	Heat recovery fitted in series (70-90%)
	RCP	Heat recovery fitted in parallel (100%)
	LN	Low noise
	VLN	Very low noise



GENERAL FEATURES

FRAME

SCLY/P: self-supporting, galvanized steel frame coated with polyester paint.

SCLY/F e SCLY/F…PAC steel frame.

COMPRESSORS

Hermetic «scroll» type with crankcase heater and klixon for overload protection.

EVAPORATOR

SCLY/P: braze welded plate to plate type.

SCLY/F: shell and tube type.

Both series are with two independent refrigerant circuits and one water circuit. The insulation is with a flexible closed-cell lining. It is recommended to fit a differential pressure switch which will stop the unit in case there is no water circulation on the evaporator.

REFRIGERANT CIRCUIT

Each unit is supplied with one or two independent refrigerant circuits; each one includes: filter dyer, sight glass, electronic thermostatic expansion valve, service valve.

To protect the refrigerant circuit the following devices are installed: man. reset HP-switch, aut. reset LP-switch and antifreeze thermostat. Besides, if necessary: man. reset safety pressure switch and safety valve.

ELECTRICAL BOARD

Weather proof type protected to IP54 standard it includes: main circuit automatic breaker switch with door locking device, main fuses, compressor contactor, auxiliary circuits transformer.

Microprocessor to automatically control the unit with a display to indicate the functions as well as alarm conditions.

VERSIONS

DS

Partial condensing heat recovery. Each refrigerant circuit includes a desuperheater insulated and installed in series between the compressors and the condenser.

RCS

Condensing heat recovery from 70% to 90%. Each refrigerant circuit includes: a heat exchanger insulated and mounted in parallel to the condenser between compressor and condenser.

RCP

Condensing heat recovery from 70% to 90%. Each refrigerant circuit includes: a heat exchanger insulated and mounted in parallel to the condenser between compressor and condenser.

PAC1

Available as SCLY/F version only. It includes hydraulic kit and storage tank installed on the return line. This includes: insulated storage tank, one or two pumps (one as stand-by), expansion vessel, safety valve, air release valve, shut-off valves and, in case of two pumps, non return valve.

Relevant electrical circuit. As an option, pumps with higher ESP are available.

LN

Low noise version equipped with soundproof material cove ring the compressors.

VLN

Very low noise version. In addition to the LN devices are equipped with insulated panels on the compressor box.

Options

- Power factor correction.
- Oversized evaporator.
- Remote control panel.
- Clock card.
- RS 485 card.
- Evaporator el. heater
- El. Heater PAC version.
- Compressor suction and liquid line shut off valves.
- HP/LP gauges.
- Flow switch (STD in P1 and PAC1 versions).
- Pump shut off valve.
- Pumps with higher ESP.
- Rubber AV mounts.
- Spring rubbers.
- Differential pressure switch.
- Wooden crate.

CWC SCLY/R410A

TECHNICAL DATA

SIZE			61	71	81	91	101	121
Cooling capacity SCLY-F	(1)	kW	48	57	63	71	83	96
Cooling capacity SCLY-P	(1)	kW	51	59	66	75	90	103
Absorbed power	(2)	kW	14,1	16,4	18,6	20,6	24,6	28
EER - SCLY-F		-	3.4	3.47	3.38	3.44	3.37	3.42
EER - SCLY-P		-	3.56	3.59	3.54	3.64	3.65	3.67
Compressors (scroll)								
Quantity		n°	2					
Refrigerant circuits		n°	1					
Capacity step		n°	2					
Refrigerant charge	(4)	-	R 410A					
Evaporator plate-to-plate CWC/P								
flow rate		m^3/h	8.8	10.1	11.3	12.9	15.4	17.7
Pressure drop		kPa	35	47	38	48	30	38
Water volume		l	1,7	2	2,2	2,6	3	3
Water volume		Ø	2½"	2½"	2½"	2½"	2½"	2½"
Refrigerant charge	(4)	kg	1,1	1,1	1,1	2,2	2,7	2,7
Evaporator shell and tube CWC/F								
flow rate		m^3/h	8,2	9.8	10.8	11.8	14.2	16.5
Pressure drop		kPa	26	34	41	30	40	50
Water volume		l	16	19	19	21	23	26
Water volume		Ø	1½"	1½"	1½"	2"	2"	2½"
Refrigerant charge	(4)	kg	2,4	2,8	3,2	3,4	4,2	4,2
Unit electrical data	(2)							
Max abs. current		A	47	49	55	67	73	77
Max LRC		A	137	145	148	176	213	267
Voltage supply		V/f/Hz	400/3/50					
PAC Version Shell and tube								
Storage tank water volume		l	200	200	200	200	470	470
Water pump nominal power		kW	0.75	0.75	0.75	0.75	1.1	1.1
Water pump nominal current		A	2.2	2.2	2.2	2.2	3.5	3.5
External static pressure		kPa	120	120	110	105	130	130
DS version								
Heating capacity		kW	11	12	16	18	21	24
Water flow		m^3/h	1.8	2	2.7	3	3.6	4.1
Pressure drop		kPa	10	10	15	15	15	15
Sound pressure level at 1m SCLY-P	(2)							
STD Version		dB(A)	62	62	63	63	64	70
LN Version		dB(A)	55	55	55	56	57	64
VLN Version		dB(A)	52	52	52	53	54	61

Notes:
1) Evaporator: water temp. 12°C / 7°C - Condensing temp. 50°C, subcooling 5K
2) Compressors only, except pumps.
3) Water temperature 40°C / 45°C.
4) This data has only to be considered to charge the system as the unit leaves the factory charged with nitrogen.

CWC SCLY/R410A

TECHNICAL DATA

SIZE			131	141	151	161	191	222
Cooling capacity SCLY-F	(1)	kW	109	123	133	158	177	199
Cooling capacity SCLY-P	(1)	kW	116	131	145	168	188	205
Absorbed power	(2)	kW	31.6	35.7	39.9	45.4	51	56.1
EER - SCLY-F		-	3.44	3.44	3.33	3.48	3.47	3.54
EER - SCLY-P		-	3.67	3.66	3.63	3.70	3.68	3.65
Compressors (scroll)								
Quantity		n°	2					4
Refrigerant circuits		n°	1					2
Capacity step		n°	2					4
Refrigerant charge	(4)	-	R 410A					
Evaporator plate-to-plate SCLY/P								
flow rate		m^3/h	19.9	22.5	24.9	28.8	32.3	35.2
Pressure drop		kPa	30	35	45	40	50	55
Water volume		l	5	5	5	7	8.8	9.8
Water volume		Ø	2½"	2½"	2½"	2½"	2½"	2½"
Refrigerant charge	(4)	kg	3.2	3.2	4	4	4.8	2x3
Evaporator shell and tube SCLY/F								
flow rate		m^3/h	18.7	21.1	22,8	27,1	30,4	34.2
Pressure drop		kPa	40	50	45	30	30	30
Water volume		l	29	32	32	38	42	42
Water volume		Ø	2½"	2½"	2½"	3"	3"	3"
Refrigerant charge	(4)	kg	4.2	4.7	4.7	5.7	6.2	2x4
Unit electrical data	(2)							
Max abs. current		A	85	91	99	119	133	151
Max LRC		A	268	315	323	364	381	336
Voltage supply		V/f/Hz	400/3/50					
PAC Version Shell and tube								
Storage tank water volume		l	660	660	660	660	660	660
Water pump nominal power		kW	1.1	1.5	1.5	1.85	1.85	2.2
Water pump nominal current		A	3.5	5	5	5	5	5.2
External static pressure		kPa	110	130	120	130	120	130
DS version								
Heating capacity		kW	26	28	32	38	42	46
Water flow		m^3/h	4.4	4.8	5.5	6.5	7.2	7.9
Pressur edrop		kPa	16	16	16	18	18	18
Sound pressure level at 1m SCLY-P	(2)							
STD Version		dB(A)	70	70	72	72	72	73
LN Version		dB(A)	64	64	67	67	67	67
VLN Version		dB(A)	61	61	64	64	64	64

Notes:
1) Evaporator: water temp. 12°C / 7°C - Condensing temp. 50°C, subcooling 5K
2) Compressors only, except pumps.
3) Water temperature 40°C / 45°C.
4) This data has only to be considered to charge the system as the unit leaves the factory charged with nitrogen.

CWC SCLY/R410A

TECHNICAL DATA

SIZE			242	262	282	312	342	382
Cooling capacity SCLY-F	(1)	kW	218	238	252	273	300	360
Cooling capacity SCLY-P	(1)	kW	229	260	277	288	328	370
Absorbed power	(2)	kW	63.2	71.4	64.4	79.8	90.9	102
EER - SCLY-F		-	3.44	3.33	3.91	3.42	3.3	3.52
EER - SCLY-P		-	3.63	3.64	4.30	3.60	3.60	3.62
Compressors (scroll)								
Quantity		n°	4					
Refrigerant circuits		n°	2					
Capacity step		n°	4					
Refrigerant charge	(4)	-	R 410A					
Evaporator plate-to-plate SCLY/P								
flow rate		m³/h	39.3	44.7	47.6	49.5	56.4	63.6
Pressure drop		kPa	65	70	80	85	40	40
Water volume		l	25	32	45	45	45	51
Water volume		Ø	2½"	2½"	2½"	2½"	2½"	2½"
Refrigerant charge	(4)	kg	2x3	2x3.5	2x3.5	2x4.2	2x4.2	2x4.8
Evaporator shell and tube SCLY/F								
flow rate		m³/h	37,4	40,9	43,3	46,9	51,6	61,9
Pressure drop		kPa	35	40	45	49	30	30
Water volume		l	47	57	57	57	57	72
Water volume		Ø	100	100	100	100	100	125
Refrigerant charge	(4)	kg	2x4	2x4.5	2x4.5	2x5	2x5	2x5.5
Unit electrical data	(2)							
Max abs. current		A	165	179	179	199	233	267
Max LRC		A	350	403	403	423	478	512
Voltage supply		V/f/Hz	400/3/50					
PAC Version Shell and tube								
Storage tank water volume		l	660	660	660	660	660	660
Water pump nominal power		kW	2.2	3	3	3	4	4
Water pump nominal current		A	5.2	6.5	6.5	6.5	7.7	7.7
External static pressure		kPa	110	130	120	110	120	110
DS version								
Heating capacity		kW	54	60	64	68	74	86
Water flow		m³/h	9.2	10.3	11	11.6	12.7	14.7
Pressur edrop		kPa	18	20	20	20	22	24
Sound pressure level at 1m SCLY-P	(2)							
STD Version		dB(A)	73	73	73	75	75	75
LN Version		dB(A)	67	67	67	70	70	70
VLN Version		dB(A)	64	64	64	67	67	67

Notes:
1) Evaporator: water temp. 12°C / 7°C - Condensing temp. 50°C, subcooling 5K
2) Compressors only, except pumps.
3) Water temperature 40°C / 45°C.
4) This data has only to be considered to charge the system as the unit leaves the factory charged with nitrogen.

CWC SCLY/R410A

COOLING CAPACITY AND ABSORBED POWER

MOD.	EVAP	CONDENSER Condensing temperature °C													
	Tw °C out.	46		48		50		52		54		56		58	
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
61	5	50,5	12,8	49,1	13,5	47,6	14,1	46,2	14,9	44,6	15,6	42,8	16,4	41,0	17,2
	6	52,2	12,8	50,7	13,5	49,3	14,1	47,8	14,8	46,3	15,6	44,4	16,4	42,4	17,2
	7	53,8	12,8	52,4	13,5	**51,0**	**14,1**	49,5	14,8	48,0	15,6	46,0	16,4	44,0	17,2
	8	55,7	12,8	54,3	13,5	52,8	14,1	51,2	14,8	49,7	15,6	47,6	16,4	45,4	17,2
	9	57,7	12,8	56,1	13,4	54,5	14,1	52,9	14,8	51,4	15,5	49,2	16,3	46,9	17,2
	10	59,5	12,8	57,9	13,4	56,3	14,1	54,6	14,8	52,9	15,5	50,7	16,3	48,6	17,2
71	5	58,4	14,9	56,8	15,7	55,1	16,4	53,4	17,3	51,6	18,1	49,5	19,1	47,4	20,1
	6	60,4	14,9	58,7	15,7	57,1	16,4	55,3	17,3	53,6	18,1	51,3	19,1	49,1	20,0
	7	62,2	14,9	60,7	15,6	**59,0**	**16,4**	57,3	17,3	55,5	18,1	53,2	19,1	50,9	20,0
	8	64,5	14,9	62,8	15,6	61,1	16,4	59,2	17,2	57,5	18,1	55,0	19,0	52,6	20,0
	9	66,8	14,9	64,9	15,6	63,1	16,4	61,2	17,2	59,4	18,0	56,9	19,0	54,3	20,0
	10	68,8	14,9	67,0	15,6	65,1	16,4	63,2	17,2	61,2	18,0	58,7	19,0	56,2	20,0
81	5	65,3	16,9	63,5	17,8	61,6	18,6	59,7	19,6	57,8	20,6	55,4	21,7	53,0	22,7
	6	67,5	16,9	65,7	17,8	63,8	18,6	61,9	19,6	59,9	20,6	57,4	21,6	54,9	22,7
	7	69,6	16,9	67,8	17,7	**66,0**	**18,6**	64,1	19,6	62,1	20,6	59,5	21,6	56,9	22,7
	8	72,1	16,9	70,2	17,7	68,3	18,6	66,3	19,5	64,3	20,5	61,6	21,6	58,8	22,7
	9	74,7	16,9	72,6	17,7	70,6	18,6	68,5	19,5	66,5	20,5	63,6	21,6	60,7	22,7
	10	77,0	16,9	74,9	17,7	72,9	18,6	70,7	19,5	68,5	20,5	65,7	21,6	62,8	22,7
91	5	74,3	18,7	72,2	19,7	70,1	20,6	67,9	21,7	65,6	22,8	62,9	24,0	60,2	25,2
	6	76,7	18,7	74,6	19,7	72,5	20,6	70,4	21,7	68,1	22,8	65,3	24,0	62,4	25,2
	7	79,1	18,7	77,1	19,7	**75,0**	**20,6**	72,8	21,7	70,6	22,8	67,6	23,9	64,7	25,1
	8	82,0	18,7	79,8	19,7	77,6	20,6	75,3	21,7	73,1	22,7	70,0	23,9	66,8	25,1
	9	84,9	18,7	82,5	19,6	80,2	20,6	77,9	21,6	75,5	22,7	72,3	23,9	69,0	25,1
	10	87,5	18,7	85,1	19,6	82,8	20,6	80,3	21,6	77,9	22,7	74,6	23,9	71,4	25,1
101	5	89,1	22,4	86,6	23,5	84,1	24,6	81,5	25,9	78,8	27,2	75,5	28,6	72,3	30,1
	6	92,1	22,4	89,6	23,5	87,0	24,6	84,4	25,9	81,7	27,2	78,3	28,6	74,9	30,0
	7	95,0	22,4	92,5	23,5	**90,0**	**24,6**	87,4	25,9	84,7	27,2	81,1	28,6	77,6	30,0
	8	98,4	22,3	95,8	23,5	93,2	24,6	90,4	25,9	87,7	27,1	84,0	28,5	80,2	30,0
	9	101,9	22,3	99,0	23,4	96,2	24,6	93,4	25,8	90,6	27,1	86,8	28,5	82,8	30,0
	10	104,9	22,3	102,2	23,4	99,4	24,6	96,4	25,8	93,4	27,1	89,6	28,5	85,7	30,0
121	5	102,0	25,5	99,1	26,8	96,2	28,1	93,2	29,5	90,1	30,9	86,4	32,6	82,7	34,2
	6	105,4	25,5	102,5	26,7	99,6	28,0	96,6	29,5	93,5	30,9	89,6	32,6	85,7	34,2
	7	108,7	25,5	105,9	26,7	**103,0**	**28,0**	100,0	29,5	96,9	30,9	92,8	32,5	88,8	34,1
	8	112,6	25,4	109,6	26,7	106,6	28,0	103,4	29,4	100,3	30,9	96,1	32,5	91,8	34,1
	9	116,6	25,4	113,3	26,7	110,1	28,0	106,9	29,4	103,7	30,8	99,3	32,5	94,8	34,1
	10	120,1	25,4	116,9	26,7	113,7	27,9	110,3	29,4	106,9	30,8	102,5	32,5	98,1	34,1

Notes :
Tw - Evaporator leaving water temperature (delta T 5°C)
kWf - Cooling capacity
kWa - Absorbed power (only compressor)
Condensing temperature °C - Subcooling 5K

CWC SCLY/R410A

COOLING CAPACITY AND ABSORBED POWER

MOD.	EVAP	CONDENSER Condensing temperature °C													
	Tw °C out.	46		48		50		52		54		56		58	
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
131	5	107,9	28,8	104,9	30,2	101,8	31,7	98,6	33,3	95,4	34,9	91,5	36,8	87,5	38,6
	6	111,5	28,7	108,5	30,2	105,4	31,6	102,2	33,3	99,0	34,9	94,8	36,8	90,7	38,6
	7	115,0	28,7	112,1	30,1	**109,0**	**31,6**	105,8	33,3	102,6	34,9	98,2	36,7	94,0	38,5
	8	119,1	28,7	116,0	30,1	112,8	31,6	109,4	33,2	106,2	34,9	101,7	36,7	97,1	38,5
	9	123,4	28,7	119,9	30,1	116,5	31,6	113,1	33,1	109,8	34,8	105,1	36,6	100,3	38,5
	10	127,1	28,7	123,7	30,1	120,3	31,5	116,7	33,1	113,1	34,8	108,5	36,6	103,8	38,5
141	5	129,7	32,5	126,0	34,1	122,4	35,8	118,6	37,6	114,6	39,4	109,9	41,6	105,2	43,7
	6	134,0	32,5	130,3	34,1	126,7	35,7	122,9	37,6	118,9	39,4	114,0	41,5	109,0	43,6
	7	138,2	32,5	134,7	34,1	**131,0**	**35,7**	127,2	37,6	123,3	39,4	118,0	41,5	112,9	43,5
	8	143,2	32,4	139,4	34,1	135,6	35,7	131,5	37,5	127,6	39,4	122,2	41,4	116,7	43,5
	9	148,3	32,4	144,1	34,0	140,0	35,7	136,0	37,4	131,9	39,3	126,3	41,4	120,5	43,5
	10	152,7	32,4	148,7	34,0	144,6	35,6	140,3	37,4	136,0	39,3	130,3	41,4	124,7	43,5
151	5	143,6	36,3	139,5	38,1	135,4	40,0	131,2	42,1	126,9	44,1	121,7	46,4	116,4	48,8
	6	148,3	36,3	144,3	38,1	140,2	39,9	136,0	42,0	131,7	44,1	126,2	46,4	120,6	48,7
	7	153,0	36,3	149,1	38,1	**145,0**	**39,9**	140,8	42,0	136,4	44,1	130,6	46,4	125,0	48,6
	8	158,5	36,2	154,3	38,1	150,1	39,9	145,6	41,9	141,2	44,0	135,3	46,3	129,2	48,6
	9	164,1	36,2	159,5	38,0	155,0	39,9	150,5	41,9	146,0	43,9	139,8	46,2	133,4	48,6
	10	169,1	36,2	164,6	38,0	160,1	39,8	155,3	41,9	150,5	43,9	144,3	46,2	138,0	48,6
161	5	166,3	41,3	161,6	43,4	156,9	45,5	152,0	47,9	147,0	50,2	141,0	52,8	134,9	55,5
	6	171,9	41,3	167,2	43,4	162,5	45,4	157,6	47,8	152,5	50,2	146,2	52,8	139,8	55,4
	7	177,2	41,3	172,7	43,3	**168,0**	**45,4**	163,1	47,8	158,1	50,2	151,4	52,8	144,8	55,3
	8	183,6	41,2	178,8	43,3	173,9	45,4	168,7	47,7	163,6	50,1	156,7	52,7	149,7	55,3
	9	190,2	41,2	184,8	43,3	179,6	45,4	174,4	47,6	169,2	49,9	162,0	52,6	154,6	55,3
	10	195,9	41,2	190,7	43,3	185,5	45,3	179,9	47,6	174,4	49,9	167,2	52,6	159,9	55,3
191	5	186,1	46,4	180,9	48,8	175,6	51,1	170,1	53,8	164,5	56,4	157,7	59,4	151,0	62,4
	6	192,3	46,4	187,1	48,7	181,8	51,1	176,3	53,7	170,7	56,4	163,6	59,3	156,4	62,3
	7	198,3	46,4	193,3	48,7	**188,0**	**51,0**	182,5	53,7	176,9	56,4	169,4	59,3	162,1	62,1
	8	205,5	46,3	200,0	48,7	194,6	51,0	188,8	53,6	183,1	56,3	175,4	59,2	167,5	62,1
	9	212,8	46,3	206,8	48,6	201,0	50,9	195,1	53,5	189,3	56,1	181,2	59,1	173,0	62,1
	10	219,2	46,3	213,4	48,6	207,6	50,9	201,3	53,5	195,1	56,1	187,1	59,1	179,0	62,1
222	5	203,0	51,1	197,2	53,6	191,5	56,2	185,5	59,1	179,4	62,0	172,0	65,3	164,6	68,6
	6	209,7	51,0	204,0	53,6	198,2	56,2	192,3	59,1	186,1	62,0	178,4	65,2	170,6	68,5
	7	216,3	51,0	210,7	53,5	**205,0**	**56,1**	199,1	59,1	192,9	62,0	184,7	65,2	176,7	68,3
	8	224,1	50,9	218,1	53,5	212,2	56,1	205,8	59,0	199,7	61,9	191,3	65,1	182,7	68,3
	9	232,1	50,9	225,5	53,5	219,1	56,0	212,8	58,8	206,4	61,7	197,6	65,0	188,6	68,3
	10	239,0	50,9	232,7	53,5	226,3	56,0	219,6	58,8	212,8	61,7	204,0	65,0	195,2	68,3

Notes :
Tw - Evaporator leaving water temperature (delta T 5°C)
kWf - Cooling capacity
kWa - Absorbed power (only compressor)
Condensing temperature °C - Subcooling 5K

CWC SCLY/R410A

COOLING CAPACITY AND ABSORBED POWER

MOD.	EVAP	CONDENSER Condensing temperature °C													
	Tw °C out.	46		48		50		52		54		56		58	
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
242	5	226,7	57,5	220,3	60,4	213,9	63,3	207,2	66,6	200,4	69,8	192,1	73,6	183,9	77,3
	6	234,3	57,4	227,9	60,4	221,4	63,3	214,8	66,5	207,9	69,8	199,2	73,5	190,5	77,2
	7	241,6	57,4	235,4	60,3	**229,0**	**63,2**	222,4	66,5	215,5	69,8	206,3	73,4	197,4	77,0
	8	250,3	57,4	243,7	60,3	237,0	63,2	229,9	66,4	223,0	69,7	213,7	73,3	204,0	77,0
	9	259,2	57,4	251,9	60,2	244,8	63,1	237,7	66,3	230,6	69,5	220,8	73,2	210,7	77,0
	10	267,0	57,4	259,9	60,2	252,8	63,1	245,3	66,3	237,7	69,5	227,9	73,2	218,0	77,0
262	5	257,4	65,0	250,1	68,3	242,8	71,5	235,3	75,3	227,5	78,9	218,1	83,1	208,8	87,3
	6	266,0	64,9	258,7	68,2	251,4	71,5	243,9	75,2	236,1	78,9	226,2	83,0	216,3	87,2
	7	274,3	64,9	267,3	68,1	**260,0**	**71,4**	252,5	75,2	244,7	78,9	234,3	83,0	224,1	87,0
	8	284,2	64,8	276,6	68,1	269,1	71,4	261,0	75,0	253,2	78,8	242,6	82,8	231,7	87,0
	9	294,3	64,8	286,0	68,0	277,9	71,3	269,9	74,9	261,8	78,5	250,6	82,8	239,2	87,0
	10	303,2	64,8	295,1	68,0	287,0	71,3	278,5	74,9	269,9	78,5	258,7	82,8	247,5	87,0
282	5	274,2	58,6	266,5	61,6	258,7	64,5	250,7	67,9	242,4	71,2	232,4	75,0	222,4	78,8
	6	283,4	58,5	275,6	61,5	267,9	64,5	259,8	67,8	251,5	71,2	241,0	74,9	230,5	78,6
	7	292,2	58,5	284,8	61,4	**277,0**	**64,4**	269,0	67,8	260,7	71,2	249,6	74,8	238,8	78,4
	8	302,8	58,5	294,7	61,4	286,7	64,4	278,1	67,7	269,8	71,0	258,4	74,7	246,8	78,4
	9	313,6	58,5	304,7	61,4	296,1	64,3	287,5	67,6	278,9	70,8	267,0	74,6	254,8	78,4
	10	323,0	58,5	314,4	61,4	305,8	64,3	296,7	67,6	287,5	70,8	275,6	74,6	263,7	78,4
312	5	285,1	72,6	277,1	76,3	269,0	80,0	260,6	84,1	252,0	88,2	241,6	92,9	231,3	97,6
	6	294,6	72,5	286,6	76,2	278,5	79,9	270,1	84,0	261,5	88,2	250,6	92,8	239,6	97,4
	7	303,8	72,5	296,1	76,1	**288,0**	**79,8**	279,6	84,0	271,0	88,2	259,5	92,7	248,3	97,2
	8	314,8	72,5	306,4	76,1	298,1	79,8	289,2	83,9	280,5	88,0	268,7	92,6	256,6	97,2
	9	326,0	72,5	316,8	76,0	307,9	79,7	298,9	83,7	290,0	87,8	277,6	92,5	265,0	97,2
	10	335,8	72,5	326,9	76,0	318,0	79,6	308,4	83,7	298,9	87,8	286,6	92,5	274,2	97,2
342	5	324,7	82,7	315,5	86,9	306,4	91,1	296,8	95,8	287,0	100,4	275,2	105,8	263,4	111,2
	6	335,5	82,6	326,4	86,8	317,2	91,0	307,7	95,7	297,8	100,4	285,4	105,7	272,9	111,0
	7	346,0	82,6	337,2	86,7	**328,0**	**90,9**	318,5	95,7	308,6	100,4	295,5	105,6	282,7	110,7
	8	358,5	82,5	349,0	86,7	339,5	90,9	329,3	95,5	319,5	100,3	306,0	105,4	292,2	110,7
	9	371,3	82,5	360,8	86,6	350,6	90,8	340,5	95,4	330,3	100,0	316,2	105,4	301,8	110,7
	10	382,4	82,5	372,3	86,6	362,1	90,7	351,3	95,4	340,5	100,0	326,4	105,4	312,3	110,7
382	5	366,3	92,8	355,9	97,5	345,6	102,2	334,9	107,5	323,8	112,7	310,4	118,7	297,1	124,7
	6	378,5	92,7	368,2	97,4	357,8	102,1	347,1	107,4	336,0	112,7	321,9	118,6	307,8	124,5
	7	390,4	92,7	380,4	97,3	**370,0**	**102,0**	359,3	107,4	348,2	112,7	333,4	118,5	318,9	124,2
	8	404,4	92,6	393,7	97,3	383,0	102,0	371,5	107,2	360,4	112,5	345,2	118,3	329,7	124,2
	9	418,8	92,6	407,0	97,2	395,5	101,9	384,1	107,0	372,6	112,2	356,7	118,2	340,4	124,2
	10	431,4	92,6	420,0	97,2	408,5	101,8	396,3	107,0	384,1	112,2	368,2	118,2	352,2	124,2

Notes :
Tw - Evaporator leaving water temperature (delta T 5°C)
kWf - Cooling capacity
kWa - Absorbed power (only compressor)
Condensing temperature °C - Subcooling 5K

CWC SCLY/R410A

COOLING CAPACITY AND ABSORBED POWER

MOD.	EVAP	CONDENSER Condensing temperature °C													
	Tw °C out.	46		48		50		52		54		56		58	
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
61	5	47,5	12,8	46,2	13,5	44,8	14,1	43,4	14,9	42,0	15,6	40,3	16,4	38,5	17,2
	6	49,1	12,8	47,8	13,5	46,4	14,1	45,0	14,8	43,6	15,6	41,8	16,4	39,9	17,2
	7	50,6	12,8	49,3	13,5	**48,0**	**14,1**	46,6	14,8	45,2	15,6	43,2	16,4	41,4	17,2
	8	52,5	12,8	51,1	13,5	49,7	14,1	48,2	14,8	46,8	15,6	44,8	16,4	42,8	17,2
	9	54,3	12,8	52,8	13,4	51,3	14,1	49,8	14,8	48,3	15,5	46,3	16,3	44,2	17,2
	10	56,0	12,8	54,5	13,4	53,0	14,1	51,4	14,8	49,8	15,5	47,8	16,3	45,7	17,2
71	5	56,4	14,9	54,8	15,7	53,2	16,4	51,6	17,3	49,9	18,1	47,8	19,1	45,8	20,1
	6	58,3	14,9	56,7	15,7	55,1	16,4	53,5	17,3	51,8	18,1	49,6	19,1	47,4	20,0
	7	60,1	14,9	58,6	15,6	**57,0**	**16,4**	55,3	17,3	53,6	18,1	51,4	19,1	49,1	20,0
	8	62,3	14,9	60,6	15,6	59,0	16,4	57,2	17,2	55,5	18,1	53,2	19,0	50,8	20,0
	9	64,5	14,9	62,7	15,6	60,9	16,4	59,2	17,2	57,4	18,0	54,9	19,0	52,4	20,0
	10	66,5	14,9	64,7	15,6	62,9	16,4	61,0	17,2	59,2	18,0	56,7	19,0	54,3	20,0
81	5	62,4	16,9	60,6	17,8	58,8	18,6	57,0	19,6	55,1	20,6	52,9	21,7	50,6	22,7
	6	64,4	16,9	62,7	17,8	60,9	18,6	59,1	19,6	57,2	20,6	54,8	21,6	52,4	22,7
	7	66,5	16,9	64,8	17,7	**63,0**	**18,6**	61,2	19,6	59,3	20,6	56,8	21,6	54,3	22,7
	8	68,9	16,9	67,0	17,7	65,2	18,6	63,3	19,5	61,4	20,5	58,8	21,6	56,1	22,7
	9	71,3	16,9	69,3	17,7	67,3	18,6	65,4	19,5	63,4	20,5	60,7	21,6	58,0	22,7
	10	73,5	16,9	71,5	17,7	69,6	18,6	67,5	19,5	65,4	20,5	62,7	21,6	60,0	22,7
91	5	70,3	18,7	68,3	19,7	66,3	20,6	64,3	21,7	62,1	22,8	59,6	24,0	57,0	25,2
	6	72,6	18,7	70,6	19,7	68,7	20,6	66,6	21,7	64,5	22,8	61,8	24,0	59,1	25,2
	7	74,9	18,7	73,0	19,7	**71,0**	**20,6**	68,9	21,7	66,8	22,8	64,0	23,9	61,2	25,1
	8	77,6	18,7	75,5	19,7	73,5	20,6	71,3	21,7	69,2	22,7	66,2	23,9	63,3	25,1
	9	80,4	18,7	78,1	19,6	75,9	20,6	73,7	21,6	71,5	22,7	68,4	23,9	65,3	25,1
	10	82,8	18,7	80,6	19,6	78,4	20,6	76,0	21,6	73,7	22,7	70,6	23,9	67,6	25,1
101	5	82,2	22,4	79,8	23,5	77,5	24,6	75,1	25,9	72,6	27,2	69,6	28,6	66,6	30,1
	6	84,9	22,4	82,6	23,5	80,3	24,6	77,9	25,9	75,4	27,2	72,2	28,6	69,1	30,0
	7	87,6	22,4	85,3	23,5	**83,0**	**24,6**	80,6	25,9	78,1	27,2	74,8	28,6	71,5	30,0
	8	90,7	22,3	88,3	23,5	85,9	24,6	83,3	25,9	80,8	27,1	77,4	28,5	74,0	30,0
	9	94,0	22,3	91,3	23,4	88,7	24,6	86,2	25,8	83,6	27,1	80,0	28,5	76,4	30,0
	10	96,8	22,3	94,2	23,4	91,6	24,6	88,9	25,8	86,2	27,1	82,6	28,5	79,0	30,0
121	5	95,0	25,5	92,4	26,8	89,7	28,1	86,9	29,5	84,0	30,9	80,5	32,6	77,1	34,2
	6	98,2	25,5	95,5	26,7	92,8	28,0	90,0	29,5	87,2	30,9	83,5	32,6	79,9	34,2
	7	101,3	25,5	98,7	26,7	**96,0**	**28,0**	93,2	29,5	90,3	30,9	86,5	32,5	82,8	34,1
	8	104,9	25,4	102,1	26,7	99,4	28,0	96,4	29,4	93,5	30,9	89,6	32,5	85,5	34,1
	9	108,7	25,4	105,6	26,7	102,6	28,0	99,6	29,4	96,7	30,8	92,5	32,5	88,3	34,1
	10	111,9	25,4	109,0	26,7	106,0	27,9	102,8	29,4	99,6	30,8	95,5	32,5	91,4	34,1

Notes :
Tw - Evaporator leaving water temperature (delta T 5°C)
kWf - Cooling capacity
kWa - Absorbed power (only compressor)
Condensing temperature °C - Subcooling 5K

CWC SCLY/R410A

COOLING CAPACITY AND ABSORBED POWER

MOD.	EVAP	CONDENSER Condensing temperature °C													
	Tw °C out.	46		48		50		52		54		56		58	
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
131	5	107,9	28,8	104,9	30,2	101,8	31,7	98,6	33,3	95,4	34,9	91,5	36,8	87,5	38,6
	6	111,5	28,7	108,5	30,2	105,4	31,6	102,2	33,3	99,0	34,9	94,8	36,8	90,7	38,6
	7	115,0	28,7	112,1	30,1	**109,0**	**31,6**	105,8	33,3	102,6	34,9	98,2	36,7	94,0	38,5
	8	119,1	28,7	116,0	30,1	112,8	31,6	109,4	33,2	106,2	34,9	101,7	36,7	97,1	38,5
	9	123,4	28,7	119,9	30,1	116,5	31,6	113,1	33,1	109,8	34,8	105,1	36,6	100,3	38,5
	10	127,1	28,7	123,7	30,1	120,3	31,5	116,7	33,1	113,1	34,8	108,5	36,6	103,8	38,5
141	5	121,8	32,5	118,3	34,1	114,9	35,8	111,3	37,6	107,6	39,4	103,2	41,6	98,8	43,7
	6	125,8	32,5	122,4	34,1	118,9	35,7	115,4	37,6	111,7	39,4	107,0	41,5	102,3	43,6
	7	129,8	32,5	126,4	34,1	**123,0**	**35,7**	119,4	37,6	115,7	39,4	110,8	41,5	106,0	43,5
	8	134,4	32,4	130,9	34,1	127,3	35,7	123,5	37,5	119,8	39,4	114,8	41,4	109,6	43,5
	9	139,2	32,4	135,3	34,0	131,5	35,7	127,7	37,4	123,9	39,3	118,6	41,4	113,2	43,5
	10	143,4	32,4	139,6	34,0	135,8	35,6	131,7	37,4	127,7	39,3	122,4	41,4	117,1	43,5
151	5	131,7	36,3	127,9	38,1	124,2	40,0	120,4	42,1	116,4	44,1	111,6	46,4	106,8	48,8
	6	136,1	36,3	132,3	38,1	128,6	39,9	124,8	42,0	120,8	44,1	115,7	46,4	110,7	48,7
	7	140,3	36,3	136,7	38,1	**133,0**	**39,9**	129,1	42,0	125,2	44,1	119,8	46,4	114,6	48,6
	8	145,4	36,2	141,5	38,1	137,7	39,9	133,5	41,9	129,5	44,0	124,1	46,3	118,5	48,6
	9	150,6	36,2	146,3	38,0	142,2	39,9	138,1	41,9	133,9	43,9	128,2	46,2	122,4	48,6
	10	155,1	36,2	151,0	38,0	146,8	39,8	142,4	41,9	138,1	43,9	132,3	46,2	126,6	48,6
161	5	156,4	41,3	152,0	43,4	147,6	45,5	143,0	47,9	138,3	50,2	132,6	52,8	126,9	55,5
	6	161,6	41,3	157,2	43,4	152,8	45,4	148,2	47,8	143,5	50,2	137,5	52,8	131,5	55,4
	7	166,7	41,3	162,4	43,3	**158,0**	**45,4**	153,4	47,8	148,7	50,2	142,4	52,8	136,2	55,3
	8	172,7	41,2	168,1	43,3	163,5	45,4	158,6	47,7	153,9	50,1	147,4	52,7	140,8	55,3
	9	178,9	41,2	173,8	43,3	168,9	45,4	164,0	47,6	159,1	49,9	152,3	52,6	145,4	55,3
	10	184,2	41,2	179,3	43,3	174,4	45,3	169,2	47,6	164,0	49,9	157,2	52,6	150,4	55,3
191	5	175,2	46,4	170,3	48,8	165,3	51,1	160,2	53,8	154,9	56,4	148,5	59,4	142,1	62,4
	6	181,1	46,4	176,1	48,7	171,2	51,1	166,0	53,7	160,7	56,4	154,0	59,3	147,3	62,3
	7	186,7	46,4	182,0	48,7	**177,0**	**51,0**	171,9	53,7	166,6	56,4	159,5	59,3	152,6	62,1
	8	193,5	46,3	188,3	48,7	183,2	51,0	177,7	53,6	172,4	56,3	165,1	59,2	157,7	62,1
	9	200,4	46,3	194,7	48,6	189,2	50,9	183,7	53,5	178,2	56,1	170,6	59,1	162,8	62,1
	10	206,4	46,3	200,9	48,6	195,4	50,9	189,6	53,5	183,7	56,1	176,1	59,1	168,5	62,1
222	5	197,0	51,1	191,4	53,6	185,9	56,2	180,1	59,1	174,1	62,0	167,0	65,3	159,8	68,6
	6	203,6	51,0	198,0	53,6	192,4	56,2	186,7	59,1	180,7	62,0	173,1	65,2	165,6	68,5
	7	209,9	51,0	204,6	53,5	**199,0**	**56,1**	193,2	59,1	187,3	62,0	179,3	65,2	171,5	68,3
	8	217,5	50,9	211,7	53,5	206,0	56,1	199,8	59,0	193,8	61,9	185,7	65,1	177,3	68,3
	9	225,3	50,9	218,9	53,5	212,7	56,0	206,6	58,8	200,4	61,7	191,8	65,0	183,1	68,3
	10	232,0	50,9	225,9	53,5	219,7	56,0	213,1	58,8	206,6	61,7	198,0	65,0	189,4	68,3

Notes :
Tw - Evaporator leaving water temperature (delta T 5°C)
kWf - Cooling capacity
kWa - Absorbed power (only compressor)
Condensing temperature °C - Subcooling 5K

COOLING CAPACITY AND ABSORBED POWER

MOD.	EVAP	CONDENSER Condensing temperature °C													
	Tw °C out.	46		48		50		52		54		56		58	
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
242	5	215,8	57,5	209,7	60,4	203,6	63,3	197,3	66,6	190,8	69,8	182,9	73,6	175,1	77,3
	6	223,0	57,4	216,9	60,4	210,8	63,3	204,5	66,5	197,9	69,8	189,7	73,5	181,4	77,2
	7	230,0	57,4	224,1	60,3	**218,0**	**63,2**	211,7	66,5	205,1	69,8	196,4	73,4	187,9	77,0
	8	238,3	57,4	232,0	60,3	225,6	63,2	218,9	66,4	212,3	69,7	203,4	73,3	194,2	77,0
	9	246,8	57,4	239,8	60,2	233,0	63,1	226,3	66,3	219,5	69,5	210,2	73,2	200,6	77,0
	10	254,2	57,4	247,4	60,2	240,7	63,1	233,5	66,3	226,3	69,5	216,9	73,2	207,5	77,0
262	5	235,6	65,0	229,0	68,3	222,3	71,5	215,4	75,3	208,3	78,9	199,7	83,1	191,1	87,3
	6	243,5	64,9	236,8	68,2	230,1	71,5	223,2	75,2	216,1	78,9	207,1	83,0	198,0	87,2
	7	251,1	64,9	244,7	68,1	**238,0**	**71,4**	231,1	75,2	224,0	78,9	214,4	83,0	205,2	87,0
	8	260,1	64,8	253,2	68,1	246,3	71,4	239,0	75,0	231,8	78,8	222,1	82,8	212,1	87,0
	9	269,4	64,8	261,8	68,0	254,4	71,3	247,0	74,9	239,7	78,5	229,4	82,8	219,0	87,0
	10	277,5	64,8	270,1	68,0	262,8	71,3	254,9	74,9	247,0	78,5	236,8	82,8	226,6	87,0
282	5	249,5	58,6	242,4	61,6	235,4	64,5	228,1	67,9	220,5	71,2	211,4	75,0	202,4	78,8
	6	257,8	58,5	250,7	61,5	243,7	64,5	236,4	67,8	228,8	71,2	219,2	74,9	209,7	78,6
	7	265,9	58,5	259,1	61,4	**252,0**	**64,4**	244,7	67,8	237,1	71,2	227,1	74,8	217,2	78,4
	8	275,4	58,5	268,1	61,4	260,8	64,4	253,0	67,7	245,4	71,0	235,1	74,7	224,5	78,4
	9	285,3	58,5	277,2	61,4	269,4	64,3	261,6	67,6	253,8	70,8	242,9	74,6	231,8	78,4
	10	293,8	58,5	286,0	61,4	278,2	64,3	269,9	67,6	261,6	70,8	250,7	74,6	239,9	78,4
312	5	270,3	72,6	262,6	76,3	255,0	80,0	247,1	84,1	238,9	88,2	229,0	92,9	219,2	97,6
	6	279,3	72,5	271,6	76,2	264,0	79,9	256,1	84,0	247,9	88,2	237,5	92,8	227,1	97,4
	7	288,0	72,5	280,6	76,1	**273,0**	**79,8**	265,1	84,0	256,9	88,2	246,0	92,7	235,3	97,2
	8	298,4	72,5	290,5	76,1	282,6	79,8	274,1	83,9	265,9	88,0	254,7	92,6	243,2	97,2
	9	309,0	72,5	300,3	76,0	291,8	79,7	283,4	83,7	274,9	87,8	263,2	92,5	251,2	97,2
	10	318,3	72,5	309,9	76,0	301,4	79,6	292,4	83,7	283,4	87,8	271,6	92,5	259,9	97,2
342	5	297,0	82,7	288,6	86,9	280,2	91,1	271,5	95,8	262,5	100,4	251,7	105,8	240,9	111,2
	6	306,9	82,6	298,5	86,8	290,1	91,0	281,4	95,7	272,4	100,4	261,0	105,7	249,6	111,0
	7	316,5	82,6	308,4	86,7	**300,0**	**90,9**	291,3	95,7	282,3	100,4	270,3	105,6	258,6	110,7
	8	327,9	82,5	319,2	86,7	310,5	90,9	301,2	95,5	292,2	100,3	279,9	105,4	267,3	110,7
	9	339,6	82,5	330,0	86,6	320,7	90,8	311,4	95,4	302,1	100,0	289,2	105,4	276,0	110,7
	10	349,8	82,5	340,5	86,6	331,2	90,7	321,3	95,4	311,4	100,0	298,5	105,4	285,6	110,7
382	5	356,4	92,8	346,3	97,5	336,2	102,2	325,8	107,5	315,0	112,7	302,0	118,7	289,1	124,7
	6	368,3	92,7	358,2	97,4	348,1	102,1	337,7	107,4	326,9	112,7	313,2	118,6	299,5	124,5
	7	379,8	92,7	370,1	97,3	**360,0**	**102,0**	349,6	107,4	338,8	112,7	324,4	118,5	310,3	124,2
	8	393,5	92,6	383,0	97,3	372,6	102,0	361,4	107,2	350,6	112,5	335,9	118,3	320,8	124,2
	9	407,5	92,6	396,0	97,2	384,8	101,9	373,7	107,0	362,5	112,2	347,0	118,2	331,2	124,2
	10	419,8	92,6	408,6	97,2	397,4	101,8	385,6	107,0	373,7	112,2	358,2	118,2	342,7	124,2

Notes :

Tw - Evaporator leaving water temperature (delta T 5°C)

kWf - Cooling capacity

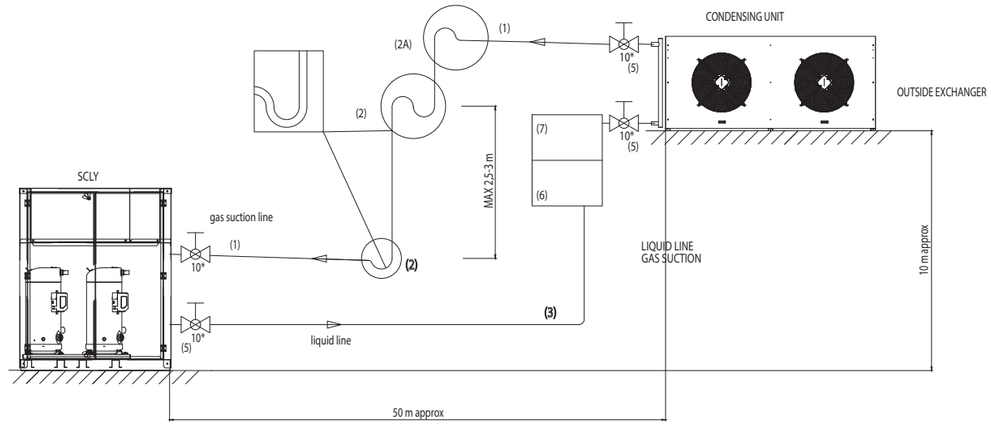
kWa - Absorbed power (only compressor)

Condensing temperature °C - Subcooling 5K

PIPING SYSTEM

NOTES
1- MINIMUN PITCH GAS DISCHARGE LINE 3%
2- INSTALL OIL TRAP EVERY 2,5 - 3 m HEIGHT
2A - U-SHAPED TRAP ON THE EXCHANGER
3- INSULATED LIQUID LINE PIPE (9mm minimum thickness)
4- CHECK VALVE (option)
5- SHUT OFF VALVE (option)
6- LIQUID LINE KIT (option, unassembled)
7-TERMOSTATIC EXPANSION VALVE (option, loose)

MORE DETAILS ARE IN THE REFRIGERANT CIRCUIT DRAFT

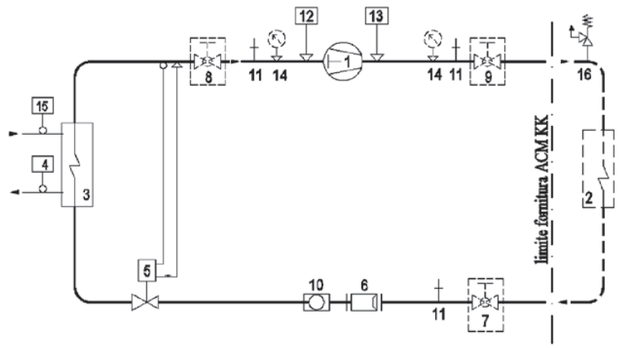


ATTENTION

ALL INFORMATION IN THIS DOCUMENT MUST BE CONSIDERED AS AN INDICATION, THE INSTALLER IS NOT EXEMPTED BY APPLYCATION OF PIPE DESIGN METHODS AND INSTALLATION REQUIREMENTS ACCORDING TO STATE OF ART AND THECNICAL RULES.

Mod. SCLY	Piping's equivalent length between SCLY evaporating unit and the remote condenser					
	10 m		20 m		30 m	
	Discharge line [mm]	Liquid line [mm]	Discharge line [mm]	Liquid line [mm]	Discharge line [mm]	Liquid line [mm]
61	28	22	28	22	28	22
71	28	22	28	22	28	22
81	28	22	28	22	28	28
91	35	28	35	28	35	28
101	35	28	35	28	35	28
121	35	35	35	35	35	35
131	35	35	35	35	35	35
141	35	35	35	35	42	35
151	42	35	42	35	42	35
161	42	35	42	35	42	42
191	42	35	42	42	42	42
222	35	35	35	35	35	35
242	35	35	35	35	35	35
262	35	35	35	35	42	35
282	35	35	35	35	42	35
312	42	35	42	35	42	35
342	42	35	42	35	42	42
382	42	35	42	42	42	42

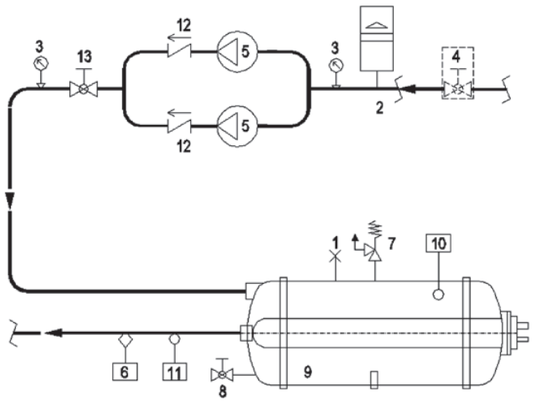
REFRIGERANT CIRCUIT



1 Compressor
2 Condenser
3 Evaporator
4 Antifreeze probe
5 Thermostatic valve
6 Dryer
7 Shut-off valve, liquid line*
8 Shut-off valve, suction line *
9 Shut-off valve, discharge line *
10 Sight glass
11 Service valve
12 Low pressure switch
13 High pressure switch
14 Gauges*
15 Temperature probe
16 Safety valve (not included)

* The outlined components are optional

CWC... PAC2 (PAC1) HYDRAULIC CIRCUIT



1 bleed valve
2 pressurisation-tank
3 Gauge
4 shuttoff valve *
5 water pump
6 flow switch
7 Relief valve
8 drain/fill up valve
9 water tank
10 temperature probe
11 Antifreeze probe
12 Check valve (Only PAC2)
13 Setting valve

* The outlined components are optional

OPERATING RANGE

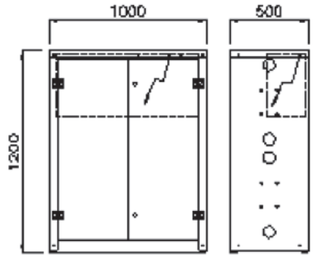
INLET WATER TEMPERATURE	Max °C	17
	Min °C	9
INLET WATER TEMPERATURE	Max °C	10
	Min °C	5
CONDENSING TEMPERATURE	Max °C	62
	Min °C	35

CORRECTION FACTORS

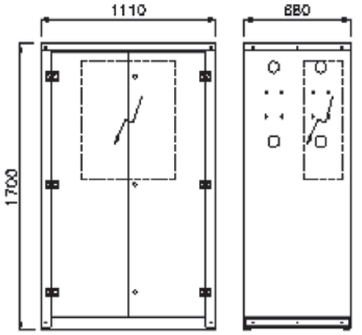
Ethylene glycol persentage by weight (%)	10	20	30	40	50
Freezing point (°C)	-3,6	-8,7	-15,3	-23,5	-35,5
Cooling capacity	0,986	0,980	0,973	0,966	0,960
Absorbed power	1,000	0,995	0,990	0,985	0,975
Mixture flow	1,023	1,054	1,092	1,140	1,200
Pressure drop	1,061	1,114	1,190	1,244	1,310

DIMENSIONS

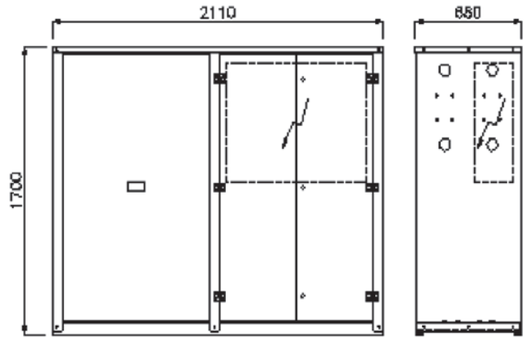
Fig. A



SCLY/P 61
SCLY/P 71
SCLY/P 81



SCLY/P 91
SCLY/P 101
SCLY/P 121
SCLY/P 131
SCLY/P 141
SCLY/P 151
SCLY/P 161
SCLY/P 191



SCLY/P 222
SCLY/P 242
SCLY/P 262
SCLY/P 282
SCLY/P 312
SCLY/P 342
SCLY/P 382

WEIGHTS (Kg)

VERSION		STD									LN								
Mod.		61	71	81	91	101	121	131	141	151	61	71	81	91	101	121	131	141	151
FIG.		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Operating kg	(1)	350	380	395	430	550	600	665	745	850	375	420	440	500	590	635	690	760	870
Transport kg		350	380	395	430	550	600	665	745	850	375	420	440	500	590	635	690	760	870
VERSION P1	(2)	- On request									- On request								

VERSION		STD									LN								
Mod.		161	191	222	242	262	282	312	342	382	161	191	222	242	262	282	312	342	382
FIG.		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Operating kg	(1)	880	915	1035	1060	1090	1170	1210	1290	1380	910	950	1075	1100	1140	1210	1250	1340	1420
Transport kg		880	915	1035	1060	1090	1170	1210	1290	1380	910	950	1075	1100	1140	1210	1250	1340	1420
VERSION P1	(2)	- On request									- On request								

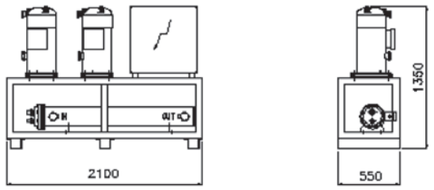
(1) The data has to be added to the evaporator water volume with regards to the selected model.
(2) Sales department KLT Klima.

NOTE: VLN versions available on request

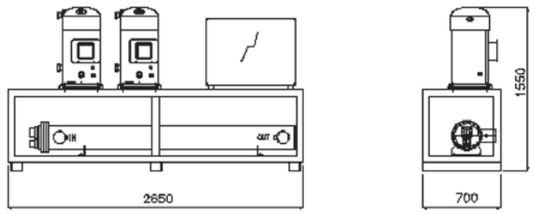
DIMENSIONS

Fig. B

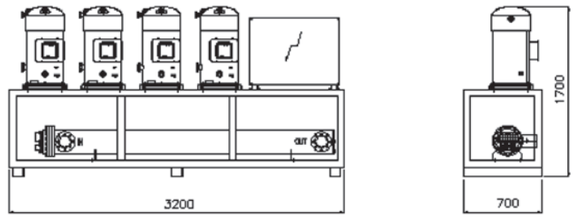
MOD. SCLY/F 51–61–81



MOD. SCLY/F 91–101–121–131–141–151–161–191



MOD. SCLY/F 222–242–262–282–312–342–382



WEIGHTS (Kg)

VERSION		STD									LN								
Mod.		**61**	**71**	**81**	**91**	**101**	**121**	**131**	**141**	**151**	**61**	**71**	**81**	**91**	**101**	**121**	**131**	**141**	**151**
FIG.		**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**
Operating kg	(1)	565	645	680	760	930	1040	1125	1185	1230	585	665	700	780	950	1060	1145	1205	1250
Transport kg		545	625	660	740	910	1020	1105	1165	1210	565	645	680	760	930	1040	1125	1185	1230
VERSION P1	(2)	- On request									- On request								

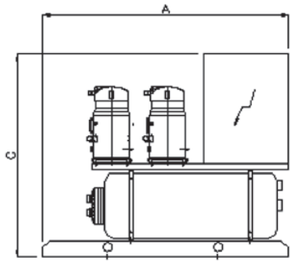
VERSION		STD									LN								
Mod.		**161**	**191**	**222**	**242**	**262**	**282**	**312**	**342**	**382**	**161**	**191**	**222**	**242**	**262**	**282**	**312**	**342**	**382**
FIG.		**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**
Operating kg	(1)	1390	1520	1670	1790	1910	1960	2020	2310	2560	1410	1540	1690	1810	1930	1980	2040	2330	2580
Transport kg		1350	1480	1630	1750	1870	1920	1980	2230	2460	1370	1500	1650	1770	1890	1940	2000	2250	2480
VERSION P1	(2)	- On request									- On request								

(1) The data has to be added to the evaporator water volume with regards to the selected model.
(2) Sales department KLT Klima.

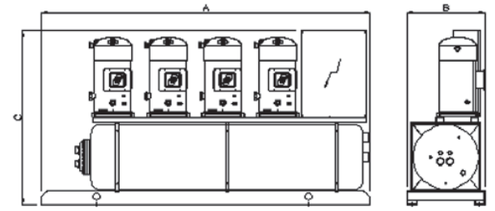
NOTE: VLN versions available on request

DIMENSIONS

Fig. C



Mod.	A	B	C
SCLY/F PAC 61	2200	750	1500
SCLY/F PAC 71			
SCLY/F PAC 81			
SCLY/F PAC 91			
SCLY/F PAC 101	2400	750	1600
SCLY/F PAC 121			



* n° 2 compressors

Mod.	A	B	C
SCLY/F PAC 131*	3200	750	1500
SCLY/F PAC 141*			
SCLY/F PAC 151*			
SCLY/F PAC 161*			
SCLY/F PAC 191*			
SCLY/F PAC 222			
SCLY/F PAC 242			
SCLY/F PAC 262			
SCLY/F PAC 282			
SCLY/F PAC 312			
SCLY/F PAC 342			
SCLY/F PAC 382			

WEIGHTS (Kg)

VERSION		STD									LN								
FIG.		**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**
Operating kg	(1)	805	885	920	1000	1420	1530	1775	1825	1860	825	905	940	1020	1440	1550	1795	1845	1880
Transport kg		505	585	620	700	870	980	1075	1125	1160	525	605	640	720	890	1000	1095	1145	1180
VERSION P1	(2)	- On request									- On request								

VERSION		STD									LN								
Mod.		**161**	**191**	**222**	**242**	**262**	**282**	**312**	**342**	**382**	**161**	**191**	**222**	**242**	**262**	**282**	**312**	**342**	**382**
FIG.		**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**
Operating kg	(1)	1980	2120	2280	2400	2510	2580	2630	2760	2980	2000	2140	2320	2440	2550	2620	2680	2800	3020
Transport kg		1280	1420	1580	1700	1810	1880	1930	2060	2280	1300	1440	1620	1740	1850	1920	1970	2100	2320
VERSION P1	(2)	- On request									- On request								

(1) The data has to be added to the evaporator water volume with regards to the selected model.
(2) Sales department ACM KK.

NOTE: VLN versions available on request

CWCL LCLX/R134A

SCREW COMPRESSORS

- **Condenserless chillers for indoor installation**
- **from 170 kW to 1350 kW**

MADE IN ITALY

IDENTIFICATION CODE		
L C W X – 402 – PAC1		
1 2 3 4 5 6 7 8 9		
1	L	Large series >200 kW
2	C	Chiller unit
3	W	Air cooled
4	X	Refrigerant R134a
5	–	Screw compressors
A		Alternative compressors
6	40	Capacity factors
7	2	Number of circuits
8	–	Cooling only version
9	PAC1	Storage tank + pump
	P1	1 pump
	P2	2 pumps
	DS	Desuperheater
	RCS	Heat recovery fitted in series (70-90%)
	RCP	Heat recovery fitted in parallel (100%)
	LN	Low Noise
	VLN	Very Low Noise



GENERAL FEATURES

FRAME

Made of strong welded steel frame protected with polyester powder painting.

COMPRESSORS

"Screw" type they are mounted on rubber shock absorbers and equipped with an electronic integrate module to protect against overheating, discharge shut off valve and crankcase heater.

EVAPORATOR

With shell and tube evaporator with one or two refrigerant circuits and one water circuit. The insulation is with a flexible closed-cell lining. As protection the end user or the installer will foresee a flowswitch or differential pressure switch in order to stop the compressors in case of no water flow.

REFRIGERANT CIRCUIT

Each unit is supplied with one or two independent refrigerant circuits; filter dryer, sight glass, thermostatic expansion valve with buffer battery, service schrader valve, liquid line valve, gauges HP/LP with shut off valves and discharge shut off valve.

To protect the refrigerant circuit the following devices are fitted: man. reset high pressure switch, man. reset safety switch, aut. reset low pressure switch, antifreeze thermostat and safety valve.

ELECTRICAL BOARD

Weather proof type protected to IP44. It includes: main circuit automatic breaker switch with door locking device, main fuses, compressor contactor, auxiliary circuits transformer. Microprocessor to automatically control the unit with a display to indicate the functions as well as alarm conditions.

VERSIONS

DS

Partial condensing heat recovery. Each refrigerant circuit includes a desuperheater insulated and installed in series between the compressors and the condenser.

RCS

Condensing heat recovery from 70% to 90%. Each refrigerant circuit includes: a heat exchanger insulated and mounted in series to the condenser.

RCP

100% condensing heat recovery. Each refrigerant circuit includes: a heat exchanger insulated and mounted in parallel to the condenser and the relevant solenoid valves.

P

Version with hydraulic kit includes: one or two pumps (one as stand-by), expansion vessel, safety valve, air release valve relevant hydraulic circuit suitably insulated and equipped with gauges, shut off valves and, in case of two pumps, non return valve. Moreover: relevant electrical circuit. As option, pumps with higher ESP are available.

PAC

Version with hydraulic kit and storage tank. This includes, in addition to what is included in the P version, a storage tank installed on the return line.

LN

Low noise version equipped with soundproof material for the compressor chamber.

VLN

Very low noise version. In addition to the LN devices and are equipped with insulated panels on the compressor box.

Options

- Power factor condensing capacitors
- Remote air condensers (STD o low noise version)
- Soft starter
- Automatic breakers
- Numbered electrical wires
- Pressostatic valves
- Oversized exchangers
- Evaporator double insulation
- Flow switch not mounted (STD in LCLX….PAC version)
- Pump shut off valve
- Water pumps with higher ESP
- Compressors suction shut-off valves
- Liquid shut-off valves
- Remote control panel
- RS 485 card (Lon Work - Mod Bus - Bacnet -Trend)
- Evaporator electrical heater
- Elettrical heater PAC version
- Potential free contacts
- Double safety valve
- Evap.hydraulic connections with Flange
- Spring AV mounts
- Wooden crate

CWCL LCLX/R134A

TECHNICAL DATA

SIZE			201	231	291	302	321	352
Cooling mode								
Cooling capacity	(1)	kW	177	204	258	267	280	308
Abs power	(2)	kW	49.4	56.4	69.1	77	77.5	87.6
EER		-	3.58	3.61	3.73	3.46	3.61	3.51
Evaporator								
Water flow rate		m^3/h	30.4	35	44.3	45.9	48.1	52.9
Pressure drop		kPa	35	44	30	32	35	35
Water volume		l	105	82	143	143	143	111
VICTAULIC Connections		Ø	DN100	DN100	DN125	DN125	DN125	DN125
STD remote condenser								
Model		CDS	636BT	636CT	1003CT	903AT	904CT	803BT
Sound pressure at 10 m F.F.		dB(A)	56	56	56	57	56	54
Low noise remote cond.								
Model		CDS	903BT	803CT	1004CT	1002AT	1004CT	1004BT
Sound pressure at 10 m F.F.		dB(A)	49	52	52	51	52	51
Compressors								
Quantity		n°	1	1	1	2	1	2
Capacity step		n°	2	2	2	4	2	4
Refrigerant		-	R134a					
Unit electrical data	(3)							
Max abs. current		A	149	167	187	201	204	253
Max LRC		A	355	428	525	370	616	432
Version								
Tank volume		l	660	660	1100	1100	1100	1100
Water pump nominal power		kW	2.2	2.2	3	3	3	4
Water pump nominal current		A	5	5	6,5	6,5	6,5	8.1
ESP		kPa	110	90	120	115	110	120
Version	(4)							
Heating capacity		kW	40	47	59	62	64	72
Water flow rate		m^3/h	3.4	4	5	5.3	5.5	6.1
Pressure drop		kPa	10	11	12	12	12	14
Sound pressure level at 1m	(3) (5)							
STD Version		dB(A)	75	75	77	79	77	79
LN Version		dB(A)	72	72	74	76	74	76
VLN Version		dB(A)	69	69	71	73	71	73

Notes:
1) Cooling mode: evaporator: water temperature from 12°C to 7°C
Condensing tempemperature 50°C - subcooling 5 K
2) Only compressors, whitout water pumps
3) Without water pumps
4) Water temperature from 40°C to 50°C
5) Suond pressure free field

SIZE			361	402	421	452	491	562
Cooling mode								
Cooling capacity	(1)	kW	320	350	377	400	442	475
Abs power	(2)	kW	88.3	98.8	103.4	112.6	115.5	136.8
EER		-	3.62	3.54	3.64	3.55	3.82	3.47
Evaporator								
Water flow rate		m^3/h	55	60.2	64.8	68.8	76	81.7
Pressure drop		kPa	50	54	58	62	69	74
Water volume		l	111	111	113	113	87	113
VICTAULIC Connections		Ø	DN125	DN125	DN125	DN125	DN150	DN125
STD remote condenser								
Model		CDS	805CT	903BT	903CT	903CT	904BT	904CT
Sound pressure at 10 m F.F.		dB(A)	54	57	57	57	58	58
Low noise remote cond.								
Model		CDS	1004CT	1003BT	904BT	904BT	904CT	1004BT
Sound pressure at 10 m F.F.		dB(A)	52	53	52	52	52	54
Compressors								
Quantity		n°	1	2	1	2	1	2
Capacity step		n°	2	4	2	4	2	4
Refrigerant		-	R134a					
Unitelectrical data	(3)							
Max abs. current		A	219	293	285	329	315	369
Max LRC		A	669	499	441	590	470	707
PAC Version								
Tank volume		l	1100	1100	1250	1250	1250	1250
Water pump nominal power		kW	4	4	4	5.5	5.5	5.5
Water pump nominal current		A	8.2	8.2	8.2	11	11	11
ESP		kPa	110	100	100	120	110	85
DS Version	(4)							
Heating capacity		kW	74	80	87	93	101	114
Water flow rate		m^3/h	6.3	6.8	7.4	7.9	8.6	9.8
Pressure drop		kPa	14	14	16	16	16	18
Sound pressure level at 1m	(3) (5)							
STD Version		dB(A)	77	82	79	82	79	82
LN Version		dB(A)	74	79	76	79	76	79
VLN Version		dB(A)	71	76	73	76	73	76

Notes:
1) Cooling mode: evaporator: water temperature from 12°C to 7°C
Condensing tempemperature 50°C - subcooling 5 K
2) Only compressors, whitout water pumps
3) Without water pumps
4) Water temperature from 40°C to 50°C
5) Suond pressure free field

CWCL LCLX/R134A

TECHNICAL DATA

SIZE			561	622	631	681	712	741
Cooling mode								
Cooling capacity	(1)	kW	504	550	573	609	627	661
Abs power	(2)	kW	134.4	144.6	152	172.4	176	184.9
EER		-	3.75	3.8	3.76	3.53	3.56	3.57
Evaporator								
Water flow rate		m^3/h	86.6	94.6	98.5	104.7	107.8	113.6
Pressure drop		kPa	43	51	44	49	52	54
Water volume		l	102	240	127	127	195	138
VICTAULIC Connections		Ø	DN150	DN150	DN150	DN150	DN150	DN150
STD remote condenser								
Model		CDS	904CT	805CT	805CT	1004CT	1004CT	806BT
Sound pressure at 10 m F.F.		dB(A)	58	56	56	59	59	57
Low noise remote cond.								
Model		CDS	1004BT	806CT	806CT	1006BT	1006BT	807BT
Sound pressure at 10 m F.F.		dB(A)	54	50	50	53	53	50
Compressors								
Quantity		n°	1	2	1	1	2	1
Capacity step		n°	2	4	2	2	4	2
Refrigerant		-	R134a					
Unit electrical data	(3)							
Max abs. current		A	325	397	365	418	433	452
Max LRC		A	591	813	655	810	884	922
Version								
Tank volume		l	1500	1500	1500	1500	1500	1500
Water pump nominal power		kW	5.5	7.5	7.5	7.5	7.5	11
Water pump nominal current		A	11	14..6	14..6	14.6	14..6	21.2
ESP		kPa	95	120	120	110	105	150
Version	(4)							
Heating capacity		kW	114	126	130	140	144	150
Water flow rate		m^3/h	9.8	10.8	11,1	12	12.3	12.9
Pressure drop		kPa	16	18	18	18	18	20
Sound pressure level at 1m	(3) (5)							
STD Version		dB(A)	80	83	80	81	83	81
LN Version		dB(A)	77	80	77	78	80	78
VLN Version		dB(A)	74	77	74	75	77	75

Notes:
1) Cooling mode: evaporator: water temperature from 12°C to 7°C
Condensing tempemperature 50°C - subcooling 5 K
2) Only compressors, whitout water pumps
3) Without water pumps
4) Water temperature from 40°C to 50°C
5) Suond pressure free field

CWCL LCLX/R134A

TECHNICAL DATA

SIZE			842	972	1102	1252	1352	1482
Cooling mode								
Cooling capacity	(1)	kW	735	863	1000	1146	1228	1322
Abs power	(2)	kW	206.2	230.2	268.6	304	345.2	369.8
EER		-	3.56	3.74	3.72	3.76	3.55	3.57
Evaporator								
Water flow rate		m^3/h	126.4	148.4	172	197.1	211.2	227.3
Pressure drop		kPa	49	46	54	48	51	59
Water volume		l	268	330	570	540	550	550
VICTAULIC Connections		Ø	DN200	DN200	DN200	DN200	DN200	DN200
STD remote condenser								
Model		CDS	1005CT	807CT	908CT	1007CT	1007CT	2X806BT
Sound pressure at 10 m F.F.		dB(A)	60	57	61	61	61	60
Low noise remote cond.								
Model		CDS	808BT	808CT	1007CT	2X806CT	2X806CT	2X1007BT
Sound pressure at 10 m F.F.		dB(A)	51	51	56	53	53	54
Compressors								
Quantity		n°	2	2	2	2	2	2
Capacity step		n°	4	4	4	4	4	4
Refrigerant		-	R134a					
Unitelectrical data	(3)							
Max abs. current		A	565	625	645	725	831	899
Max LRC		A	721	780	911	1015	1223	1369
PAC Version								
Tank volume		l	2000	2000	-	-	-	-
Water pump nominal power		kW	11	11	15	22	22	22
Water pump nominal current		A	21.5	21.5	28.6	40.5	40.5	40.5
ESP		kPa	130	110	130	140	140	120
DS Version	(4)							
Heating capacity		kW	170	200	227	260	280	302
Water flow rate		m^3/h	14.6	17.2	19.5	22.3	24	25.9
Pressure drop		kPa	20	22	22	24	26	28
Sound pressure level at 1m	(3) (5)							
STD Version		dB(A)	82	82	83	83	83	83
LN Version		dB(A)	79	79	80	80	80	80
VLN Version		dB(A)	76	76	77	77	77	77

Notes:
1) Cooling mode: evaporator: water temperature from 12°C to 7°C
Condensing tempemperature 50°C - subcooling 5 K
2) Only compressors, whitout water pumps
3) Without water pumps
4) Water temperature from 40°C to 50°C
5) Suond pressure free field

CWCL LCLX/R134A

COOLING CAPACITY AND ABSORBED POWER

MOD.	EVAP	Condensing temperature °C													
	Tw °C out.	46		48		50		52		54		56		58	
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
201	5	173,8	45,0	168,9	46,9	163,2	48,9	158,2	51,0	153,5	53,2	148,1	55,6	142,7	58,1
	6	181,1	45,3	175,4	47,2	170,5	49,2	165,5	51,3	159,7	53,5	154,2	55,9	149,2	58,4
	7	187,6	45,5	182,0	47,4	**177,0**	**49,4**	172,0	51,6	166,4	53,8	160,4	56,1	155,4	58,7
	8	194,9	45,8	190,1	47,7	184,3	49,7	178,6	51,8	172,9	54,0	167,3	56,4	161,6	58,9
	9	203,0	46,1	197,4	48,0	191,7	50,0	186,0	52,1	179,5	54,3	173,8	56,7	168,0	59,2
	10	210,5	46,4	204,8	48,3	198,9	50,3	192,6	52,4	186,7	54,6	181,1	57,0	174,5	59,5
231	5	200,3	51,4	194,6	53,5	188,1	55,8	182,4	58,2	176,9	60,7	170,7	63,5	164,4	66,4
	6	208,7	51,7	202,2	53,9	196,5	56,2	190,7	58,5	184,0	61,1	177,7	63,8	172,0	66,7
	7	216,2	51,9	209,7	54,1	**204,0**	**56,4**	198,3	58,9	191,8	61,4	184,8	64,1	179,1	67,1
	8	224,6	52,3	219,1	54,4	212,4	56,7	205,8	59,1	199,3	61,7	192,8	64,4	186,3	67,3
	9	234,0	52,6	227,5	54,8	220,9	57,1	214,4	59,4	206,9	62,0	200,3	64,7	193,6	67,6
	10	242,6	53,0	236,0	55,1	229,3	57,4	222,0	59,8	215,2	62,3	208,7	65,1	201,1	68,0
291	5	253,4	63,0	246,1	65,6	237,9	68,4	230,7	71,3	223,7	74,4	215,9	77,8	207,9	81,3
	6	263,9	63,4	255,7	66,0	248,5	68,8	241,2	71,7	232,7	74,8	224,7	78,2	217,5	81,7
	7	273,5	63,6	265,2	66,3	**258,0**	**69,1**	250,8	72,1	242,5	75,2	233,7	78,5	226,5	82,2
	8	284,1	64,1	277,1	66,7	268,6	69,5	260,3	72,4	252,1	75,6	243,8	78,9	235,6	82,4
	9	295,9	64,5	287,7	67,1	279,4	69,9	271,2	72,8	261,6	75,9	253,4	79,3	244,8	82,9
	10	306,8	64,9	298,5	67,5	290,0	70,3	280,7	73,2	272,2	76,4	263,9	79,7	254,4	83,3
302	5	262,2	70,1	254,7	73,1	246,2	76,2	238,7	79,5	231,5	82,9	223,5	86,7	215,2	90,6
	6	273,1	70,6	264,6	73,5	257,1	76,7	249,6	79,9	240,8	83,4	232,6	87,2	225,1	91,1
	7	283,0	70,9	274,5	73,8	**267,0**	**77,0**	259,5	80,4	251,0	83,9	241,9	87,5	234,4	91,6
	8	294,0	71,4	286,8	74,3	277,9	77,5	269,4	80,7	260,9	84,2	252,3	87,9	243,8	91,9
	9	306,2	71,8	297,7	74,8	289,2	77,9	280,6	81,2	270,7	84,6	262,2	88,4	253,4	92,3
	10	317,5	72,3	308,9	75,2	300,1	78,4	290,5	81,6	281,7	85,1	273,1	88,9	263,3	92,8
321	5	275,0	70,6	267,1	73,5	258,2	76,7	250,3	80,0	242,8	83,5	234,4	87,3	225,7	91,2
	6	286,4	71,1	277,5	74,0	269,6	77,2	261,8	80,4	252,6	83,9	243,9	87,7	236,0	91,7
	7	296,8	71,4	287,8	74,3	**280,0**	**77,5**	272,2	80,9	263,2	84,4	253,7	88,0	245,8	92,1
	8	308,3	71,8	300,7	74,8	291,5	78,0	282,5	81,2	273,6	84,8	264,6	88,5	255,6	92,5
	9	321,2	72,3	312,2	75,3	303,2	78,4	294,3	81,7	283,9	85,2	275,0	89,0	265,7	92,9
	10	332,9	72,8	324,0	75,7	314,7	78,9	304,6	82,2	295,4	85,6	286,4	89,4	276,1	93,4
352	5	302,5	79,8	293,8	83,1	284,0	86,7	275,4	90,4	267,0	94,3	257,8	98,6	248,2	103,1
	6	315,1	80,3	305,2	83,7	296,6	87,2	288,0	90,9	277,8	94,9	268,3	99,2	259,6	103,6
	7	326,5	80,7	316,6	84,0	**308,0**	**87,6**	299,4	91,5	289,5	95,4	279,0	99,5	270,4	104,2
	8	339,1	81,2	330,8	84,5	320,6	88,1	310,8	91,8	300,9	95,8	291,1	100,0	281,2	104,5
	9	353,3	81,7	343,4	85,1	333,6	88,7	323,7	92,3	312,3	96,3	302,5	100,6	292,3	105,0
	10	366,2	82,3	356,4	85,6	346,2	89,2	335,1	92,9	324,9	96,8	315,1	101,1	303,7	105,6

Notes:
Tw - Evaporator outlet water temperature (delta T 5°C)
kWf - Cooling capacity
kWa - Abs. power (compressors only)

CWCL LCLX/R134A

COOLING CAPACITY AND ABSORBED POWER

MOD.	EVAP	Condensing temperature °C													
	Tw °C out.	46		48		50		52		54		56		58	
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
361	5	314,2	80,4	305,3	83,8	295,0	87,4	286,1	91,1	277,4	95,1	267,8	99,4	257,9	103,9
	6	327,4	81,0	317,1	84,3	308,2	87,9	299,2	91,7	288,6	95,6	278,7	100,0	269,8	104,5
	7	339,2	81,3	329,0	84,7	**320,0**	**88,3**	311,0	92,2	300,8	96,2	289,9	100,3	281,0	105,0
	8	352,3	81,9	343,7	85,2	333,1	88,8	322,9	92,5	312,6	96,6	302,4	100,8	292,2	105,3
	9	367,0	82,4	356,8	85,7	346,6	89,4	336,3	93,1	324,5	97,0	314,2	101,4	303,7	105,9
	10	380,5	82,9	370,2	86,3	359,7	89,9	348,2	93,6	337,6	97,6	327,4	101,9	315,5	106,4
402	5	343,7	90,0	333,9	93,8	322,7	97,8	312,9	102,0	303,5	106,4	293,0	111,2	282,1	116,3
	6	358,1	90,6	346,9	94,4	337,1	98,4	327,3	102,6	315,7	107,0	304,9	111,8	295,1	116,9
	7	371,0	91,0	359,8	94,7	**350,0**	**98,8**	340,2	103,1	329,0	107,6	317,1	112,2	307,3	117,5
	8	385,4	91,6	375,9	95,3	364,4	99,4	353,2	103,5	342,0	108,1	330,8	112,8	319,6	117,9
	9	401,5	92,2	390,3	95,9	379,1	100,0	367,9	104,1	354,9	108,6	343,7	113,4	332,2	118,5
	10	416,2	92,8	405,0	96,5	393,4	100,6	380,8	104,7	369,3	109,2	358,1	114,0	345,1	119,1
421	5	370,2	94,2	359,7	98,1	347,6	102,4	337,0	106,7	326,9	111,4	315,5	116,4	303,9	121,7
	6	385,7	94,8	373,6	98,7	363,1	103,0	352,5	107,3	340,1	112,0	328,4	117,0	317,8	122,3
	7	399,6	95,2	387,6	99,2	**377,0**	**103,4**	366,4	107,9	354,4	112,6	341,6	117,5	331,0	122,9
	8	415,1	95,9	404,9	99,8	392,5	104,0	380,4	108,4	368,3	113,1	356,3	118,1	344,2	123,4
	9	432,4	96,5	420,4	100,4	408,3	104,6	396,2	109,0	382,3	113,6	370,2	118,7	357,8	124,0
	10	448,3	97,1	436,2	101,0	423,7	105,3	410,2	109,6	397,7	114,3	385,7	119,3	371,7	124,6
452	5	392,8	102,6	381,6	106,9	368,8	111,5	357,6	116,2	346,8	121,3	334,8	126,8	322,4	132,5
	6	409,2	103,3	396,4	107,5	385,2	112,1	374,0	116,9	360,8	121,9	348,4	127,5	337,2	133,2
	7	424,0	103,7	411,2	108,0	**400,0**	**112,6**	388,8	117,6	376,0	122,6	362,4	127,9	351,2	133,9
	8	440,4	104,4	429,6	108,7	416,4	113,3	403,6	118,0	390,8	123,2	378,0	128,6	365,2	134,3
	9	458,8	105,1	446,0	109,3	433,2	114,0	420,4	118,7	405,6	123,7	392,8	129,3	379,6	135,0
	10	475,6	105,7	462,8	110,0	449,6	114,6	435,2	119,4	422,0	124,4	409,2	129,9	394,4	135,7
491	5	434,0	105,2	421,7	109,6	407,5	114,3	395,1	119,2	383,2	124,4	370,0	130,1	356,3	135,9
	6	452,2	105,9	438,0	110,3	425,6	115,0	413,3	119,9	398,7	125,1	385,0	130,7	372,6	136,6
	7	468,5	106,4	454,4	110,8	**442,0**	**115,5**	429,6	120,6	415,5	125,8	400,5	131,2	388,1	137,3
	8	486,6	107,1	474,7	111,5	460,1	116,2	446,0	121,0	431,8	126,4	417,7	131,9	403,5	137,8
	9	507,0	107,8	492,8	112,2	478,7	116,9	464,5	121,7	448,2	126,9	434,0	132,6	419,5	138,5
	10	525,5	108,5	511,4	112,8	496,8	117,6	480,9	122,4	466,3	127,6	452,2	133,3	435,8	139,2
562	5	466,5	124,6	453,2	129,8	438,0	135,4	424,7	141,2	411,8	147,3	397,6	154,0	382,9	161,0
	6	485,9	125,4	470,7	130,6	457,4	136,3	444,1	142,0	428,5	148,2	413,7	154,9	400,4	161,8
	7	503,5	126,0	488,3	131,2	**475,0**	**136,8**	461,7	142,8	446,5	149,0	430,4	155,4	417,1	162,7
	8	523,0	126,8	510,2	132,0	494,5	137,6	479,3	143,4	464,1	149,7	448,9	156,2	433,7	163,2
	9	544,8	127,6	529,6	132,8	514,4	138,4	499,2	144,2	481,7	150,3	466,5	157,0	450,8	164,0
	10	564,8	128,5	549,6	133,7	533,9	139,3	516,8	145,0	501,1	151,2	485,9	157,9	468,4	164,8

Notes:
Tw - Evaporator outlet water temperature (delta T 5°C)
kWf - Cooling capacity
kWa - Abs. power (compressors only)

CWCL LCLX/R134A

COOLING CAPACITY AND ABSORBED POWER

MOD.	EVAP	Condensing temperature °C													
	Tw °C out.	46		48		50		52		54		56		58	
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
561	5	494,9	122,4	467,4	133,2	464,7	133,1	450,6	138,7	424,7	151,1	421,8	151,3	406,2	158,2
	6	515,6	123,2	485,5	134,0	485,4	133,9	471,2	139,5	441,9	152,0	439,0	152,1	424,9	159,0
	7	534,2	123,8	503,6	134,6	**504,0**	**134,4**	489,9	140,3	460,5	152,8	456,6	152,7	442,5	159,8
	8	554,9	124,6	526,1	135,4	524,7	135,2	508,5	140,9	478,6	153,5	476,3	153,5	460,2	160,3
	9	578,1	125,4	546,2	136,2	545,8	136,0	529,7	141,7	496,7	154,2	494,9	154,3	478,3	161,1
	10	599,3	126,2	566,8	137,1	566,5	136,8	548,4	142,5	516,8	155,0	515,6	155,1	496,9	162,0
622	5	540,1	131,7	510,0	143,3	507,1	143,2	491,7	149,2	463,5	162,6	460,4	162,8	443,3	170,2
	6	562,7	132,6	529,8	144,2	529,7	144,0	514,3	150,1	482,2	163,5	479,1	163,7	463,7	171,1
	7	583,0	133,2	549,6	144,8	**550,0**	**144,6**	534,6	151,0	502,5	164,4	498,3	164,3	482,9	171,9
	8	605,6	134,0	574,2	145,7	572,6	145,5	555,0	151,5	522,3	165,2	519,8	165,1	502,2	172,5
	9	630,9	134,9	596,1	146,6	595,7	146,3	578,1	152,4	542,1	165,9	540,1	166,0	522,0	173,4
	10	654,0	135,8	618,5	147,5	618,2	147,2	598,4	153,3	564,0	166,8	562,7	166,9	542,3	174,2
631	5	562,7	138,5	531,3	150,6	528,3	150,5	512,3	156,9	482,9	170,9	479,6	171,2	461,8	178,9
	6	586,2	139,4	551,9	151,5	551,8	151,4	535,8	157,8	502,4	171,9	499,1	172,1	483,0	179,8
	7	607,4	140,0	572,6	152,2	**573,0**	**152,0**	557,0	158,7	523,5	172,8	519,1	172,7	503,1	180,7
	8	630,9	140,9	598,2	153,1	596,5	152,9	578,2	159,3	544,1	173,6	541,5	173,6	523,1	181,3
	9	657,2	141,8	621,0	154,1	620,6	153,8	602,2	160,2	564,8	174,4	562,7	174,5	543,8	182,2
	10	681,3	142,7	644,4	155,0	644,1	154,7	623,4	161,1	587,6	175,4	586,2	175,4	565,0	183,2
681	5	598,0	157,1	564,7	170,8	561,5	170,7	544,4	177,9	513,2	193,8	509,7	194,1	490,9	202,9
	6	623,0	158,1	586,6	171,9	586,5	171,7	569,4	179,0	533,9	194,9	530,4	195,2	513,4	203,9
	7	645,5	158,8	608,5	172,6	**609,0**	**172,4**	591,9	180,0	556,4	196,0	551,8	195,8	534,7	205,0
	8	670,5	159,8	635,8	173,7	634,0	173,4	614,5	180,7	578,3	196,9	575,5	196,9	556,0	205,7
	9	698,5	160,8	660,0	174,8	659,5	174,5	640,1	181,7	600,2	197,8	598,0	197,9	577,9	206,7
	10	724,1	161,9	684,9	175,8	684,5	175,5	662,6	182,7	624,5	198,9	623,0	198,9	600,5	207,7
712	5	615,7	160,3	581,4	174,4	578,1	174,2	560,5	181,6	528,4	197,9	524,8	198,2	505,4	207,2
	6	641,4	161,4	604,0	175,5	603,8	175,3	586,2	182,7	549,7	199,0	546,1	199,2	528,6	208,2
	7	664,6	162,1	626,5	176,2	**627,0**	**176,0**	609,4	183,7	572,9	200,1	568,1	199,9	550,5	209,3
	8	690,3	163,2	654,5	177,3	652,7	177,1	632,6	184,4	595,4	201,0	592,5	201,0	572,5	210,0
	9	719,2	164,2	679,5	178,4	679,0	178,1	659,0	185,5	618,0	201,9	615,7	202,0	595,0	211,0
	10	745,5	165,3	705,1	179,5	704,7	179,2	682,2	186,6	643,0	203,0	641,4	203,1	618,2	212,1
741	5	649,1	168,4	612,9	183,2	609,4	183,1	590,9	190,8	557,0	207,9	553,3	208,2	532,8	217,6
	6	676,2	169,6	636,7	184,3	636,5	184,2	618,0	191,9	579,5	209,1	575,7	209,3	557,2	218,7
	7	700,7	170,3	660,5	185,1	**661,0**	**184,9**	642,5	193,0	603,9	210,2	598,9	210,0	580,4	219,8
	8	727,8	171,4	690,0	186,3	688,1	186,0	666,9	193,8	627,7	211,2	624,6	211,2	603,5	220,6
	9	758,2	172,5	716,4	187,4	715,9	187,1	694,7	194,9	651,5	212,1	649,1	212,3	627,3	221,7
	10	785,9	173,6	743,4	188,6	743,0	188,2	719,2	196,0	677,8	213,3	676,2	213,4	651,7	222,8

Notes:
Tw - Evaporator outlet water temperature (delta T 5°C)
kWf - Cooling capacity
kWa - Abs. power (compressors only)

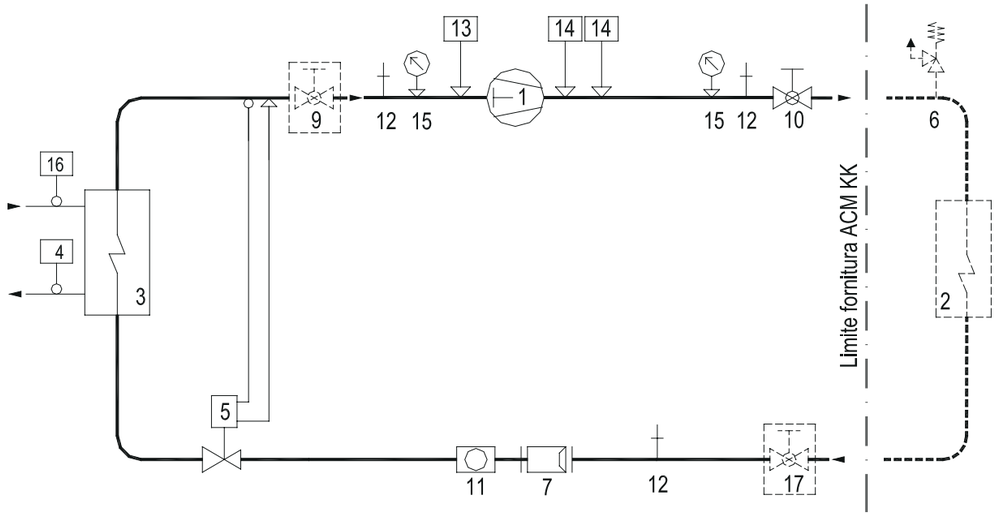
CWCL LCLX/R134A

COOLING CAPACITY AND ABSORBED POWER

MOD.	EVAP	Condensing temperature °C													
	Tw °C out.	46		48		50		52		54		56		58	
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
842	5	721,8	187,8	681,6	204,3	677,7	204,1	657,1	212,8	619,4	231,8	615,2	232,2	592,4	242,7
	6	751,9	189,1	708,0	205,6	707,8	205,4	687,2	214,0	644,4	233,1	640,2	233,4	619,6	243,9
	7	779,1	189,9	734,4	206,4	**735,0**	**206,2**	714,4	215,3	671,6	234,4	665,9	234,2	645,3	245,2
	8	809,2	191,1	767,3	207,7	765,1	207,4	741,6	216,1	698,0	235,5	694,6	235,5	671,1	246,0
	9	843,0	192,4	796,6	209,0	796,0	208,7	772,5	217,3	724,4	236,6	721,8	236,7	697,5	247,2
	10	873,9	193,6	826,6	210,3	826,1	209,9	799,7	218,6	753,7	237,9	751,9	238,0	724,7	248,5
972	5	847,5	209,7	800,2	228,1	795,7	227,9	771,5	237,6	727,3	258,8	722,3	259,2	695,6	270,9
	6	882,8	211,1	831,3	229,5	831,1	229,3	806,9	238,9	756,6	260,3	751,7	260,6	727,5	272,3
	7	914,8	212,0	862,3	230,5	**863,0**	**230,2**	838,8	240,3	788,5	261,7	781,9	261,5	757,7	273,7
	8	950,2	213,4	900,9	231,9	898,4	231,6	870,8	241,2	819,5	262,9	815,5	262,9	787,9	274,6
	9	989,9	214,8	935,3	233,4	934,6	233,0	907,0	242,6	850,6	264,1	847,5	264,3	819,0	276,0
	10	1.026,1	216,2	970,5	234,8	970,0	234,3	938,9	244,0	885,0	265,6	882,8	265,7	850,9	277,4
1102	5	982,0	244,7	927,3	266,1	922,0	265,9	894,0	277,2	842,7	302,0	837,0	302,4	806,0	316,1
	6	1.023,0	246,3	963,3	267,8	963,0	267,5	935,0	278,8	876,7	303,7	871,0	304,1	843,0	317,8
	7	1.060,0	247,4	999,2	268,9	**1.000,0**	**268,6**	972,0	280,4	913,7	305,4	906,0	305,1	878,0	319,4
	8	1.101,0	249,0	1.043,9	270,6	1.041,0	270,2	1.009,0	281,5	949,6	306,8	945,0	306,7	913,0	320,4
	9	1.147,0	250,6	1.083,8	272,3	1.083,0	271,8	1.051,0	283,1	985,6	308,2	982,0	308,4	949,0	322,1
	10	1.189,0	252,2	1.124,6	274,0	1.124,0	273,4	1.088,0	284,7	1.025,5	309,9	1.023,0	310,0	986,0	323,7
1252	5	1.125,4	276,9	1.062,7	301,2	1.056,6	301,0	1.024,5	313,7	965,8	341,8	959,2	342,3	923,7	357,8
	6	1.172,4	278,8	1.103,9	303,1	1.103,6	302,8	1.071,5	315,6	1.004,7	343,7	998,2	344,1	966,1	359,6
	7	1.214,8	280,0	1.145,1	304,4	**1.146,0**	**304,0**	1.113,9	317,4	1.047,1	345,6	1.038,3	345,3	1.006,2	361,5
	8	1.261,7	281,8	1.196,3	306,3	1.193,0	305,8	1.156,3	318,6	1.088,3	347,2	1.083,0	347,2	1.046,3	362,7
	9	1.314,5	283,6	1.242,0	308,2	1.241,1	307,6	1.204,4	320,4	1.129,5	348,8	1.125,4	349,0	1.087,6	364,5
	10	1.362,6	285,5	1.288,8	310,1	1.288,1	309,5	1.246,8	322,2	1.175,2	350,7	1.172,4	350,8	1.130,0	366,3
1352	5	1.205,9	314,5	1.138,7	342,0	1.132,2	341,7	1.097,8	356,2	1.034,9	388,1	1.027,8	388,7	989,8	406,3
	6	1.256,2	316,5	1.182,9	344,2	1.182,6	343,8	1.148,2	358,3	1.076,6	390,3	1.069,6	390,8	1.035,2	408,4
	7	1.301,7	317,9	1.227,0	345,6	**1.228,0**	**345,2**	1.193,6	360,4	1.122,0	392,5	1.112,6	392,1	1.078,2	410,4
	8	1.352,0	320,0	1.281,9	347,8	1.278,3	347,3	1.239,1	361,8	1.166,2	394,3	1.160,5	394,2	1.121,2	411,8
	9	1.408,5	322,1	1.330,9	349,9	1.329,9	349,3	1.290,6	363,8	1.210,3	396,1	1.205,9	396,3	1.165,4	413,9
	10	1.460,1	324,1	1.381,0	352,1	1.380,3	351,4	1.336,1	365,9	1.259,3	398,2	1.256,2	398,4	1.210,8	416,0
1482	5	1.298,2	336,9	1.225,9	366,4	1.218,9	366,1	1.181,9	381,6	1.114,1	415,8	1.106,5	416,4	1.065,5	435,3
	6	1.352,4	339,1	1.273,4	368,7	1.273,1	368,3	1.236,1	383,9	1.159,1	418,1	1.151,5	418,6	1.114,4	437,5
	7	1.401,3	340,6	1.321,0	370,2	**1.322,0**	**369,8**	1.285,0	386,1	1.207,9	420,4	1.197,7	420,1	1.160,7	439,7
	8	1.455,5	342,8	1.380,1	372,6	1.376,2	372,0	1.333,9	387,6	1.255,4	422,4	1.249,3	422,3	1.207,0	441,2
	9	1.516,3	345,0	1.432,8	374,9	1.431,7	374,2	1.389,4	389,8	1.303,0	424,3	1.298,2	424,5	1.254,6	443,4
	10	1.571,9	347,2	1.486,7	377,2	1.485,9	376,5	1.438,3	392,0	1.355,7	426,6	1.352,4	426,7	1.303,5	445,6

Notes:
Tw - Evaporator outlet water temperature (delta T 5°C)
kWf - Cooling capacity
kWa - Abs. power (compressors only)

REFRIGERANT CIRCUIT



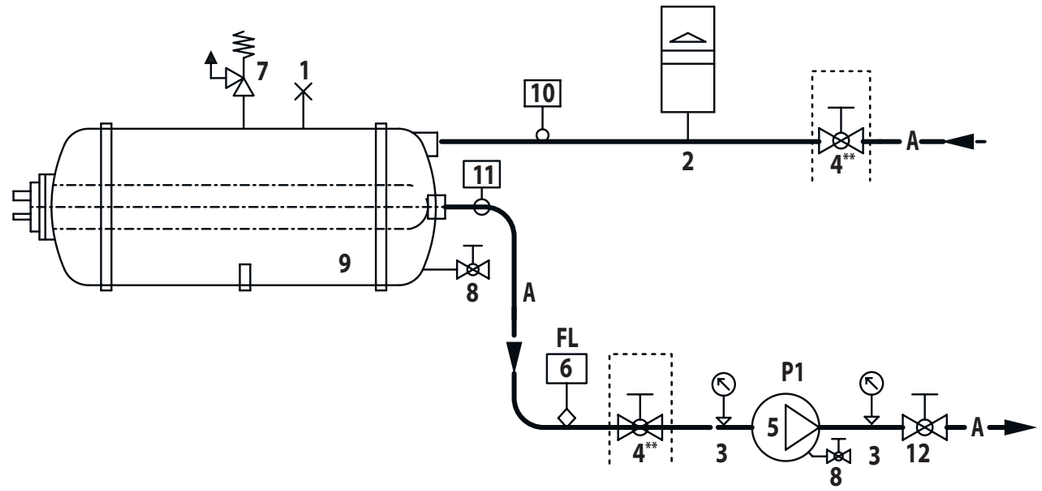
1 = Compressor
2 = Condenser **
3 = Evaporator
4 = Antifreeze probe
5 = Thermostatic valve
6 = Safety valve
7 = Dryer
9 = Shut off valve suction line **
10 = Shut off valve discharge line
11 = Sight glass
12 = Schrader valve
13 = LP switch
14 = HP switch
15 = Gauge
16 = Temperature probe
17 = Shut off valve liquid line **

** The outlined components are optional

CORRECTION FACTORS

Ethylene glycol percentage by weight (%)	**10**	**20**	**30**	**40**	**50**
Freezing point (°C)	-3,6	-8,7	-15,3	-23,5	-35,5
Cooling capacity	0,986	0,980	0,973	0,966	0,960
Power input	1,000	0,995	0,990	0,985	0,975
Mixture flow	1,023	1,054	1,092	1,140	1,200
Pressure drop	1,061	1,114	1,190	1,244	1,310

HYDRAULIC CIRCUIT ... PAC1



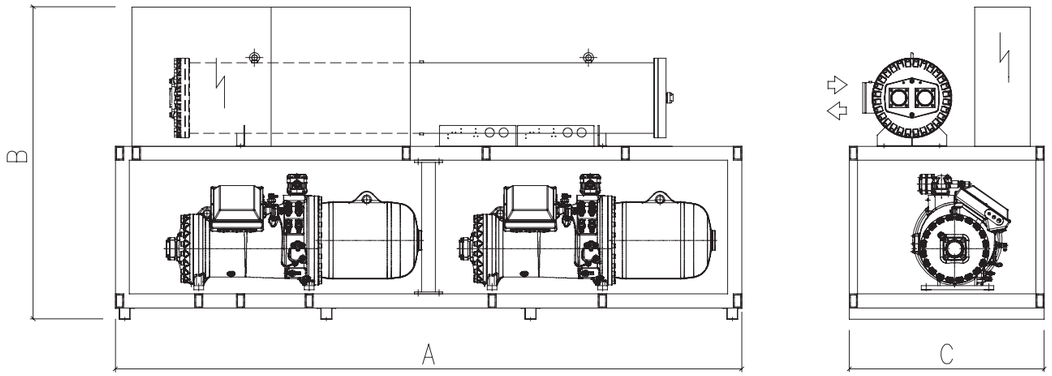
1 = Bleed valve
2 = Expansion vessel
3 = Gauge
4 = Shut off valve **
5 = Pump
6 = Flowswitch
7 = Safety valve
8 = Drain/fill up valve
9 = Exchanger with tank
10 = Temperature probe
11 = Antifreeze probe
12 = Setting valve

** The outlined components are optional

OPERATING RANGE

TEMP. INGRESSO ACQUA EVAPORATORE - INLET WATER TEMP. EVAPORATOR	Max °C	17
	Min °C	9
TEMP. USCITA ACQUA EVAPORATORE - OUTLET WATER TEMP. EVAPORATOR	Max °C	10
	Min °C	5
TEMPERATURA DI CONDENSAZIONE - CONDENSING TEMPERATURE	Max °C	64
	Min °C	35

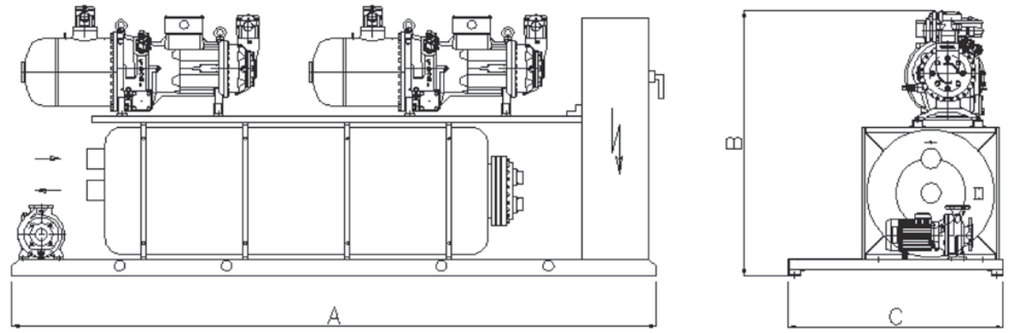
WEIGHTS AND DIMENSION UNITS



Mod.	201*	231*	291*	302	321*	352	361*	402	421*	452	491*	562
A	3000	3000	3000	3200	3000	3200	3000	3200	3200	3200	3600	3500
B	1900	1900	1900	2000	1900	2000	1900	2000	2000	2000	2000	2000
C	1150	1150	1150	1200	1200	1200	1200	1200	1300	1200	1200	1200
VERSION	STD											
Operating kg.	1780	2150	2630	2750	2870	3110	3200	3360	3760	3950	4350	4870
Transport kg.	1650	2000	2450	2570	2690	2960	3050	3240	3600	3780	4200	4700
VERSION	LN											
Operating kg.	1880	2250	2730	2950	2970	3310	3400	3560	3960	4150	4550	5070
Transport kg.	1750	2100	2550	2770	2790	3160	3250	3440	3800	3980	4400	4900

Mod.	561*	622	631*	681*	712	741*	842	972	1102	1252	1352	1482
A	3600	3500	3600	3600	3500	3800	4200	4200	4200	4200	4500	4500
B	2000	2000	2000	2000	2000	2000	2200	2200	2200	2300	2300	2300
C	1400	1400	1400	1400	1400	1400	1400	1600	1600	1600	1600	1600
VERSION	STD											
Operating kg.	4930	5540	5680	5830	6065	6380	6440	6590	7030	7200	7480	8180
Transport kg.	4760	5230	5470	5620	5790	5930	6080	6150	6240	6500	6870	7350
VERSION	LN											
Operating kg.	5130	5840	5880	6230	6365	6780	6740	6990	7230	7500	7780	8480
Transport kg.	4960	5530	5670	5820	6090	6130	6380	6350	6540	6700	7170	7750

WEIGHTS AND DIMENSION UNITS



Mod.	201*	231*	291*	302	321*	352	361*	402	421*	452	491*	562
A	4200	4200	4200	4200	4200	4200	4200	4200	4600	4600	4600	4900
B	2100	2100	2100	2100	2100	2100	2100	2100	2100	2200	2200	2440
C	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
VERSION	STD											
Operating kg.	1780	2150	2630	2750	2870	3110	3200	3360	3760	3950	4350	4870
Transport kg.	1650	2000	2450	2570	2690	2960	3050	3240	3600	3780	4200	4700
VERSION	LN											
Operating kg.	1880	2250	2730	2950	2970	3310	3400	3560	3960	4150	4550	5070
Transport kg.	1750	2100	2550	2770	2790	3160	3250	3440	3800	3980	4400	4900

Mod.	561*	622	631*	681*	712	741*	842	972	1102	1252	1352	1482
A	4900	4900	4900	4900	4900	4900	4900	4900	5200	5200	5200	5200
B	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400
C	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1600
VERSION	STD											
Operating kg.	4930	5540	5680	5830	6065	6380	6440	6590	7030	7200	7480	8180
Transport kg.	4760	5230	5470	5620	5790	5930	6080	6150	6240	6500	6870	7350
VERSION	LN											
Operating kg.	5130	5840	5880	6230	6365	6780	6740	6990	7230	7500	7780	8480
Transport kg.	4960	5530	5670	5820	6090	6130	6380	6350	6540	6700	7170	7750

MULTIFUNCTION UNITS FOR 4-PIPE SYSTEMS

AWC SCAEY FOUR/R410A

SCROLL COMPRESSORS

- **Multifunction unit for 4-pipe systems**
- **from 50 to 455 kW**
- **Multiscroll Compressor**

MADE IN ITALY

IDENTIFICATION CODE

SCAEY FOUR – 382 – PAC
12345 6 7 8 9

1	S	Small series <700 kW
2	C	Chiller unit
3	A	Air cooled
4	E	Axiall fans
5	Y	Refrigerant R 410A
6	FOUR	4 Pipe system
7	38	Capacity factors
8	2	Number of circuits
9	PAC	Storage tank
	P1	1 pump
	P2	2 pumps
	PAC1	Storage tank + Pump 1
	PAC2	Storage tank + Pump 2
	LN	Low noise
	DS	Partial heat recovery



GENERAL FEATURES

The new multi functions units SCAEY FOUR (4 pipe system) have been designed to achieve and deliver the following advantages:

SAVINGS

The "KLT Klima" SCAEY FOUR UNITS are designed to maximize the heating and cooling performances at the same time, which means they offer high energy efficiency with top energy savings. The SCAEY-FOUR units are the heat pump chiller air - water with axial fans, equipped with two independed hydraulic circuits, to supply simultaneously or separately hot water and chilled water. They are particularly suitable for use in four-pipe systems.

ENVIRONMENT

For a more environment friendly product, "KLT Klima" have opted to run their units on green refrigerant R-410A. This refrigerant does not contain chlorine atoms, so it is not dangerous to the ozone layer if released. Its hight thermodynamic efficiency also makes for considerable energy savings and means more compact units with higher performances.

TECHNOLOGY

Electronic expansion valve managed by software, can allow the refrigerant circuit to work very efficiently reducing the power consumption. When the heating load changes suddenly, a traditional expansion valve experiences a 2-3 minute hunting period before achieving a state of equilibrium. On the contrary we have an immediate action of an electronic expansion valve.

When a compressor starts or stops:

- The electronic driver pre-positions the valve at a point that is very close to the final equilibrium point
- The state of equilibrium is quickly achieved with minor adjustments.
- The expansion valve becomes an active part within the system instead of just a passive part.
- Hunting lasts hardly any time at all

CAPACITY CONTROL

The option of producing different cooling circuit configurations on the same size unit (in terms of capacity) means we can customize efficiency levels at full or partial load.

The multi-compressor models favour high efficiency values at full load (EER and COP). Having a number of compressors allows the unit to deliver its output based on a number of capacity reduction steps, thus adjusting capacity to suit the system's actual heating load perfectly and reducing inrush currents.

INTERCONNECTIVITY

An advanced microprocessor enable:

- LAN network
- The WEB kit to read and set data via a remote PC by accessing the IP address of the unit or unit network.

OPERATING

The units SCAEY-FOUR are chillers / heat pumps equipped with three heat exchangers: an evaporator for the production of chilled water, a condenser for the production of hot water, a finned coil which acts, depending on the requests, from condenser or as an evaporator to dispose of, or withdraw, the difference from the outside of the heat is not required by the plant.

A dedicated microprocessor, with temperature sensors on the two hydraulic circuits, responsible for the management of the units. The circulation of water to the two heat exchangers must always be guaranteed, even if the users do not require.

Request chilled water only

The four-way valve directs the refrigerant toward the finned coil which acts as a condenser by disposing outside all the heat. The unit acts accordingly as a traditional air cooled water chiller.

Request only hot water

The 4-way valve directs the refrigerant to the condenser by heating the hot water circuit of the plant. The unit operates like a traditional air-water heat pump, in heating cycle. When it is required defrosting the four-way valve is switched so that the hot gas enters battery and provides to defrost the same. Once executed defrosting restores the heating cycle previously described.

Request simultaneously of hot and cold water

The four-way valve directs the refrigerant to the condenser by heating the hot water circuit of the plant. The condensed refrigerant flows through the solenoid valve, electronic thermostatic and enters the evaporator where it evaporates it cools the cold water circuit system. The unit operates accordingly as a traditional water chiller water cooled.

Each unit consists of two independent refrigerant circuits, each of them can work in cooling mode only, heating only or heating cooling simultaneously so you can satisfied both application of cold to hot regardless of their relationship: for example, you can have a circuit that works in cooling mode only and the other switches work only with that warm the coldest cold.

GENERAL FEATURES

FRAME

Self-supporting galvanized steel frame protected with polyester powder painting. Panels are easily removable for maintenance and service activities.

COMPRESSORS

Hermetic "scroll" type with overload protection by a klixon and complete with oil sight glass and crankcase heater. They are installed on vibrations absorbing rubber and placed within a close compartment to reduce sound level and to allow service and maintenance activities while unit is in operation.

COOLING EXCHANGER

Braze welded plate type with two independent refrigerant circuits and one water circuit. The circuit is made to guarantee an homogeneous cooling of all the water flow even during partial load.

The insulation is made of flexible closed-cells lining. As protection, a flow switch is recommended to mount to stop the unit in case of no water circulation.

HEATING EXCHANGER

Braze welded plate type with two independent refrigerant circuits and one water circuit. The insulation is made of flexible closed-cells lining. As protection, a flow switch is recommended to mount to stop the unit in case of no water circulation.

OUTSIDE EXCHANGER

To maximize the heating operation with copper tube and aluminium finned coil. As option a protection grid is available.

FANS

Axial fans with aerodynamic outline blade section made of Al/Mg, directly coupled to a three phase electric motor with external rotor. Included fans speed regulation (condenser control). A safety fan guard is fitted on air flow discharge.

REFRIGERANT CIRCUIT

Each unit is equipped with two refrigerant circuits. Each circuit includes: filter dryer, sight glass, Schrader service valve, safety thermostat on the discharge line, 4-way valve, nonreturn valve, two electronic thermostatic valves, solenoid valve, liquid receiver and liquid separator on the compressor suction line. To protect the refrigerant circuit the following devices are installed: man. reset high pressure switch, aut. reset low pressure switch, antifreeze thermostat.

ELECTRICAL BOARD

With protection grade IP54 the el. board is mounted in the compressor chamber. Service activities can be done while the unit is in operation. It includes: main circuit automatic breaker with locking door device, compressors and fans contactors and relé, auxiliary circuit transformer.

Microprocessor to control automatically the unit with a visual system to display the function as well as failures.

VERSIONS

DS

Partial condensing heat recovery. Each refrigerant circuit includes: a desuperheater insulated and installed between compressor and the condenser. To request domestic hot water only when used the recovery.

P

This version is equipped with hydraulic kit. It includes: one or two pumps (one as stand-by), expansion vessel, gauges, flow switch, safety valve, air purger, shut off valve and hydraulic circuit insulated. In case of stand-by pump nonreturn valves are mounted. Relevant electrical circuit. As option, pumps with higher ESP are available.

PAC

This version is equipped with hydraulic kit and inertial storage tank insulated and installed on the return line.

LN

Low noise version. It include low speed fans.

VLN

Very low noise version. Further to the LN devices, this execution is equipped with special soundproofing on the compressors.

Options

- Power factor correction
- Remote control panel
- Clock card
- RS 485 card
- Shell and tube evaporator
- Evaporator el. heater (STD in H-version)
- El. Heater PAC version
- Compressor shut off valves
- HP/LP gauges
- Cu/Cu condenser
- Flow switch or diff. press. switch (STD in P and PAC versions)
- Pump shut off valve
- Pumps with higher ESP
- Protection grid/filter condenser (protection grid only in H-units)
- Rubber AV mounts
- Spring antivibrators
- Inverter for axial fans
- Wooden crate

TECHNICAL DATA - AWC FOUR

SIZE			62	92	132	152	192	202
Cooling mode								
Cooling capacity	(1)	kW	54	81	105	132	171	218
Abs. power	(2)	kW	18.4	27.6	36.3	47.7	58	75.4
EER	(2)	-	2.93	2.93	2.89	2.76	2.94	2.89
Cooling mode with recovery								
Cooling capacity	(1)	kW	57	86	109	137	177	227
Heating capacity	(1)	kW	73	110	140	176	228	292
Only compr. absorbed power		kW	16.5	24	31	39.5	51.5	65
EER	(2)	-	3.45	3.58	3.51	3.46	3.43	3.49
COP	(2)	-	4.42	4.58	4.51	4.45	4.42	4.49
Heating mode								
Heating capacity	(1)	kW	61	91	116	147	189	242
Absorbed power	(2)	kW	17.5	26.5	34.6	45.5	55	72.1
COP	(2)	-	3.48	3.43	3.35	3.23	3.43	3.35
Compressors (scroll)								
Quantity		n°	2					
Refrigerant circuit		n°	2					
Capacity step		n°	2					
Refrigerant		-	R410A					
Refrigerant quantity		Kg	12+12	16+16	22+22	28+28	32+32	36+36
COOLING exchanger								
20% Glycol water flow rate		m^3/h	10.2	15.5	19.6	24.7	31.9	40.9
Pressure drop		kPa	44	40	46	53	54	58
Water volume		l	2.4	4.8	6.8	8.2	9.8	13
Water connections		Ø	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	3"
HEATING exchanger								
20% Glycol water flow rate		m^3/h	13.1	19.8	25.2	31.7	41.1	52.7
Pressure drop		kPa	38	40	42	45	54	56
Water volume		l	4.8	6.8	8.2	9.8	13	13
Water connections		Ø	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	3"
PAC Vers. heating and cooling circuit								
Storage tank water volume		l	100	100	200	200	200	200
Water pump nominal power		kW	0.75	2	2	2.2	2.2	3
Water pump nominal current		A	1.6	3.7	3.7	5	5	6.3
External static press COOLING		kPa	100	130	110	150	120	120
External static press HEATING		kPa	90	100	80	120	80	100
Water connections		Ø	1"1/2	2"	2"	2"1/2	2"1/2	3" victaulic
Condenser STD								
Axial fans		n°	2	2	3	3	4	4
Max absorbed power		kW	1.8	1.8	2.7	5.4	3.6	7.2
Max absorbed current		A	4	4	6	12.3	8	16
Unit electrical data	(3)							
Max abs. current		A	52	72	95	108	147	187
Max LRC		A	142	181	278	332	392	512
Voltage supply		V/f/Hz	400 / 3 / 50					
Sound pressure level at 1m	(3) (4)							
Version STD		dB(A)	70	71	74	75	76	77
Version LN		dB(A)	67	68	71	72	74	75
Version VLN		dB(A)	Contattare sede / Contact factory					

Notes:

1) Cooling mode: water glycol temp. 12 °C / 7 °C; air temperature 35 °C
   Heating mode: water glycol temp. 40 °C /45 °C; air 7 °C db, 6 °C wb
2) Compressors + fans only. No water pump(s)
3) Without water pump(s), STD version
4) Compressors site and free field

TECHNICAL DATA - AWC FOUR

SIZE			262	312	342	382	442	482
Cooling mode								
Cooling capacity	(1)	kW	236	263	303	341	389	437
Abs. power	(2)	kW	81.4	95.4	107.4	123	136.9	150.9
EER	(2)	-	2.89	2.75	2.82	2.77	2.84	2.89
Cooling mode with recovery								
Cooling capacity	(1)	kW	245	273	313	354	404	453
Heating capacity	(1)	kW	316	353	404	457	520	583
Only compr. absorbed power		kW	71.7	80.5	91.1	102.8	116.4	130
EER	(2)	-	3.41	3.39	3.43	3.44	3.47	3.48
COP	(2)	-	4.40	4.38	4.43	4.44	4.46	4.48
Heating mode								
Heating capacity	(1)	kW	263	293	340	378	431	483
Absorbed power	(2)	kW	75.6	89.2	100	114.4	127	139.6
COP	(2)	-	3.47	3.28	3.4	3.30	3.39	3.45
Compressors (scroll)								
Quantity		n°	4					
Refrigerant circuit		n°	2					
Capacity step		n°	4					
Refrigerant		-	R410A					
Refrigerant quantity		Kg	42+42	51+51	54+54	57+57	76+76	79+79
COOLING exchanger								
20% Glycol water flow rate		m³/h	44.2	49.3	56.5	63.9	72.9	81.8
Pressure drop		kPa	55	52	60	56	58	60
Water volume		l	13	22	22	68	70	74
Water connections		Ø	2"1/2	2"1/2	3"	3"	3"	3"
HEATING exchanger								
20% Glycol water flow rate		m³/h	57	63.7	2x36.4	2x41.2	2x46.9	2x52.6
Pressure drop		kPa	56	52	50	54	58	60
Water volume		l	64	74	84	103	120	120
Water connections		Ø	2"1/2	3"	4"	4"	4"	4"
PAC Vers. heating and cooling circuit								
Storage tank water volume		l	300	300	300	300	500	500
Water pump nominal power		kW	3	4	4	5.5	5.5	7.5
Water pump nominal current		A	6.3	8.2	8.2	11	11	14.6
External static press COOLING		kPa	110	130	120	125	120	150
External static press HEATING		kPa	90	100	85	100	90	120
Water connections		Ø	3"	4"	4"	4"	4"	4"
Condenser STD								
Axial fans		n°	6	6	6	8	8	8
Max absorbed power		kW	5.4	10.8	10.8	14.4	14.4	14.4
Max absorbed current		A	12	25	25	34	34	34
Unit electrical data	(3)							
Max abs. current		A	196	221	263	297	335	365
Max LRC		A	420	445	508	542	660	695
Voltage supply		V/f/Hz	400 / 3 / 50					
Sound pressure level at 1m	(3) (4)							
Version STD		dB(A)	78	79	79	81	81	83
Version LN		dB(A)	75	77	77	79	79	81
Version VLN		dB(A)	Contattare sede / Contact factory					

Notes:
1) Cooling mode: water glycol temp. 12 °C / 7 °C; air temperature 35 °C
Heating mode: water glycol temp. 40 °C /45 °C; air 7 °C db, 6 °C wb
2) Compressors + fans only. No water pump(s)
3) Without water pump(s), STD version
4) Compressors site and free field

DIMENSIONS

Fig. A

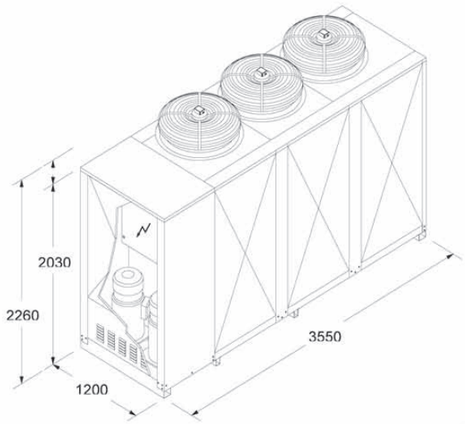
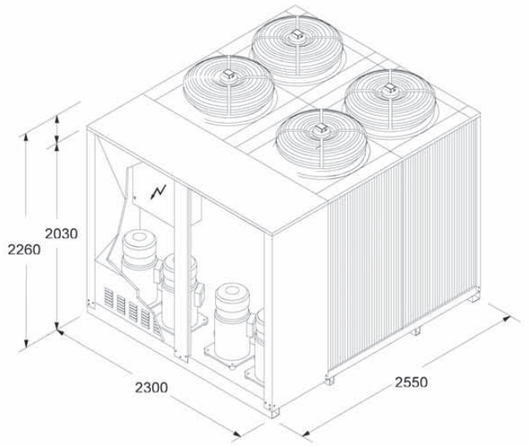


Fig. B



WEIGHTS (Kg)

VERSION		STD						LN					
MOD.		**62**	**92**	**132**	**152**	**192**	**202**	**62**	**92**	**132**	**152**	**192**	**202**
Picture		**A**	**A**	**A**	**A**	**A**	**A**	**A**	**A**	**A**	**A**	**A**	**A**
Operating kg.	(1)	1320	1395	1530	1620	2050	2260	1370	1455	1580	1670	2100	2310
Transport kg		1320	1395	1530	1620	2050	2260	1370	1455	1580	1670	2100	2310
VERS. "PAC1 f" + "PAC1 c"													
Picture		**A**	**A**	**B**	**B**	**B**	**B**	**A**	**A**	**B**	**B**	**B**	**B**
Operating kg.		2100	2165	2650	2720	3030	3260	2150	2205	2660	2770	3080	3310
Transport kg		1800	1865	2110	2220	2530	2760	1850	1915	2160	2270	2580	2810

(1) The data has to be added to the evaporator water volume with regard to the selected model.

AWC SCAEY FOUR/R410A

DIMENSIONS

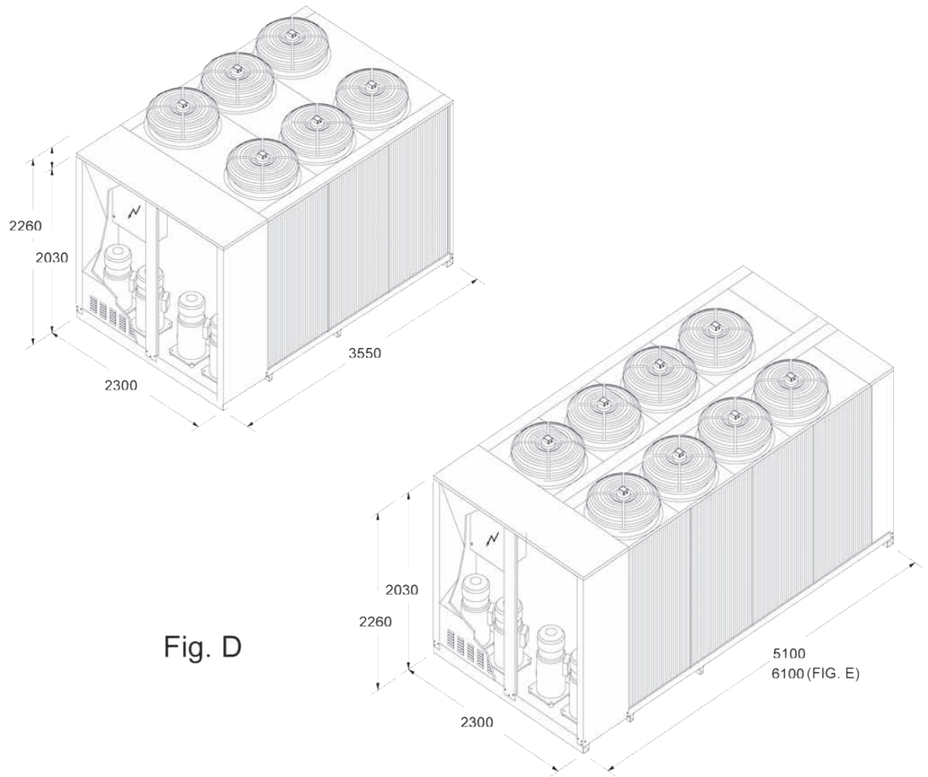


Fig. D

WEIGHTS (Kg)

VERSION	STD						LN					
MOD.	**262**	**312**	**342**	**382**	**442**	**482**	**262**	**312**	**342**	**382**	**442**	**482**
Picture	**C**	**C**	**C**	**D**	**D**	**D**	**C**	**C**	**C**	**D**	**D**	**D**
Operating kg. (1)	2490	2750	2870	3070	3200	3320	2550	2810	2930	3130	3260	3380
Transport kg	2490	2750	2870	3070	3200	3320	2550	2810	2930	3130	3260	3380
VERS. "PAC1 f" + "PAC1 c"												
Picture	**D**	**D**	**D**	**E**	**E**	**E**	**D**	**D**	**D**	**E**	**E**	**E**
Operating kg.	3490	3750	3870	4070	4700	4820	3550	3810	3930	4130	4760	4880
Transport kg	2890	3150	3270	3470	3700	3820	2950	3210	3330	3530	3760	3880

(1) The data has to be added to the evaporator water volume with regard to the selected model.

Technical data shown in this booklet are not binding. KLT Klima S.r.l reserves the right to modify data without any prior notice.

NOTES



CLOSE CONTROL UNITS

The air conditioner close control unit is an excellent solution to solve the cooling problems in the most technological applications, like server farms, data centers, control rooms and in every situation in which a concentration of electronic machines requires a refrigeration of the air to ensure their correct function.

KLT Klima plans and produces different types of air conditioner close control units, able to satisfy a wide range of needs. All of them are characterized by an innovative design that allows to exploit the space and to reduce at minimum their dimensions.

In order to guarantee versatility, reliability and durability of all the KLT Klima's solutions, the best materials and the latest technological innovations are used to realize the air conditioner close control units. They are planned also to allow a quick inspection during the maintenance operations.

The low weight of each close control unit makes it very easy to move it. Special precautions are considered also to reduce the noise and vibrations during the operation phase.

CCA CCUY/R410A

CLOSE CONTROL AIR CONDITIONER FROM 5 TO 100 KW SCROLL COMPRESSOR

Powerful close control air conditioners for:

- **Telecommunications and GSM/UMTS centres**
- **Internet service providers server farms**
- **Database centres and storage datawarehouses**

MADE IN ITALY



INNOVATIVE DESIGN
The self-supporting galvanized steel frame protected with polyester powder painting with neutral colors and quality components, guarantee a perfect acclimatisation of the air conditioner into architectural interior design and a minim um visual impact.
Internal insulation minimises noise and vibrations.

SELFSUPPORTING FRAME
In strong steel to guarantee maximum strength

Close control unit CCUY are to be seen as the most advanced solution to all problems of air conditioning in all technological applications, like server farms, UMTS and GSM broadcasting power amplifiers, NOCs (Network Operation Centers), computer racks cooling, control rooms, power equipment, and in general wherever heat loads are critically high. Front panels are hinged so that access is totally from the front; most modern technical solutions and best components.

Grant our air conditioners maximum versatility and longest reliability for mission critical applications. The self-supporting galvanized steel frame protected with polyester powder painting allow all panels and front door to be removed, reducing total weight for easiest installation. Double panels (inner plate and insulated panel on the outside) reduce noise and vibration escape to the room to a minimum. The self supporting to allow maximum lifespan also in severe environment locations.

In precision applications, generated heat is mainly dry and input humidity is very low, with subsequent sensible heat ratio close to 85-95%. Having this in mind, we designed our air conditioners to supply an extremely high heat ratio, increasing overall system efficiency. Server and computer rooms are constantly expanding, and air conditioners have to be flexible into satisfying needs, such as conditioner relocation, accessories add-up, etc. Our air conditioners can be easily repositioned, because weight is reduced to a minimum, thanks to the aluminum frame and to the panels removal system. Furthermore, all plates are already drilled for positioning and installation of all accessories, reserving the right for the customer to install further accessories at any time after the purchase.

Our air conditioners are highly reliable; nevertheless a good designing pratice must assume some downtime. All systems have to be designed having in mind air conditioning redundancy, in order to supply continuous cooling during programmed maintenance. All our air conditioners are already preset in order to manage a cyclic redundancy of up to 6 or 8 units [(1)].

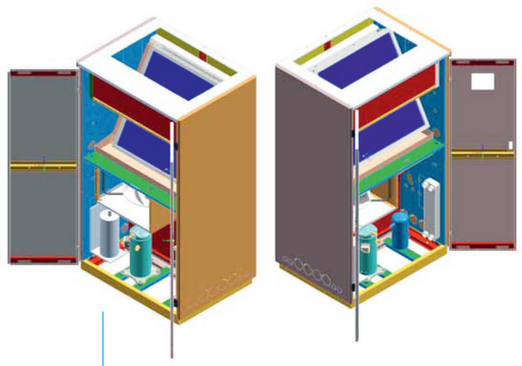
[(1)] depending on microprocessor

GENERAL FEATURES

IDENTIFICATION CODE

X	T	T	Y	0	157	A	C
1		2	3	4	5	6	7

1	X	Air cooled direct expansion
	H	Water cooled direct expansion
	W	Chilled water coil
2	S	Small size
	M	Medium size
	L	Large size
3	T	Top air discarge
	B	Bottom air discarge
4	Y	Refrigerant R410A
	X	Refrigerant R134a (special unit)
5	0	Chilled water unit
	1	One compressor
	2	Two compressors
	4	Four compressors
6	157	Unit size
7	P	pCO3 microprocessor
	A	C.PCO microprocessor (standard)
	N	no microprocessor
8	C	Cooling only
	E	Cooling+heating
	U	Cooling+humidification
	D	Cooling+heating+humidif.+dehumidif



TECHNICAL COMPARTMENT
Positioned in the lower section for easiest maintenance

Technical data, photos, drawings and dimensions are not binding.
We reserve the right for changes and/or modifications without notice

COMPACT UNIT

Innovative design technology with computer aided tridimensional modeling allowed us to produce units with the best internal space exploitation

ELECTRICAL BOX.

The switchboard is constructed so as to resist the temperature and dynamic stresses caused by normal use over many years. It is protected against short circuit currents by means of automatic switches i nstalled on all power loads.

The main back plates and cables are arranged so that it is impossible to produce a short circuit in ordinary service conditions. The auxiliary circuits are protected against short circuit and are designed to guarantee that earth currents do not cause damage to equipment or injury to persons.

Connections between power components are made with means that assure a permanent contact without suffering alterations due to over heating, aging of the i ns ulating materials, thermal shock, expansion, etc, that are produced during normal operation.

Insulated conductors are always adequately sized to rated voltage, and between two devices wire routing doesn't have any welding or junction. The active parts of the s witchboard are always completely covered with an insulator that cannot be removed without destroying it, and in a position to resist the stresses (thermal, mechanical and electrical) to which it is subject during service over time.

Parts of any component that normally need to be operated by hand are constructed with insulating material. The assemblies, dev eloped following a specific plan, are al ways electrically tested.

Every cabinet is subjected to numerous tests, including:

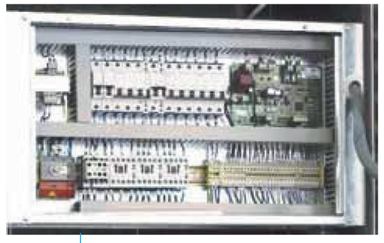
- wiring control/check and an electrical operation test
- test of applied or verified tension of the isolation resistance
- verification of the electric al continuity of the protection circuit.

The air conditioner is always equipped with electronic and electrical wiring outline and with all the necessary instructions for connection to the electrical network. All the conductors are identified by means of figures with the correct identification shown on the outlines and tables.

The electrical scheme is composed of a power load part and a control logic part, and includes i nformation about the type of cable or harness, wire section and the number assigned to every connection. Moreover the cable arrangement in the terminal block (with highlighted numbers of the inputs, outputs and clips), function and name of the installed equipment and legend.

The switchboard is s upplied complete with:

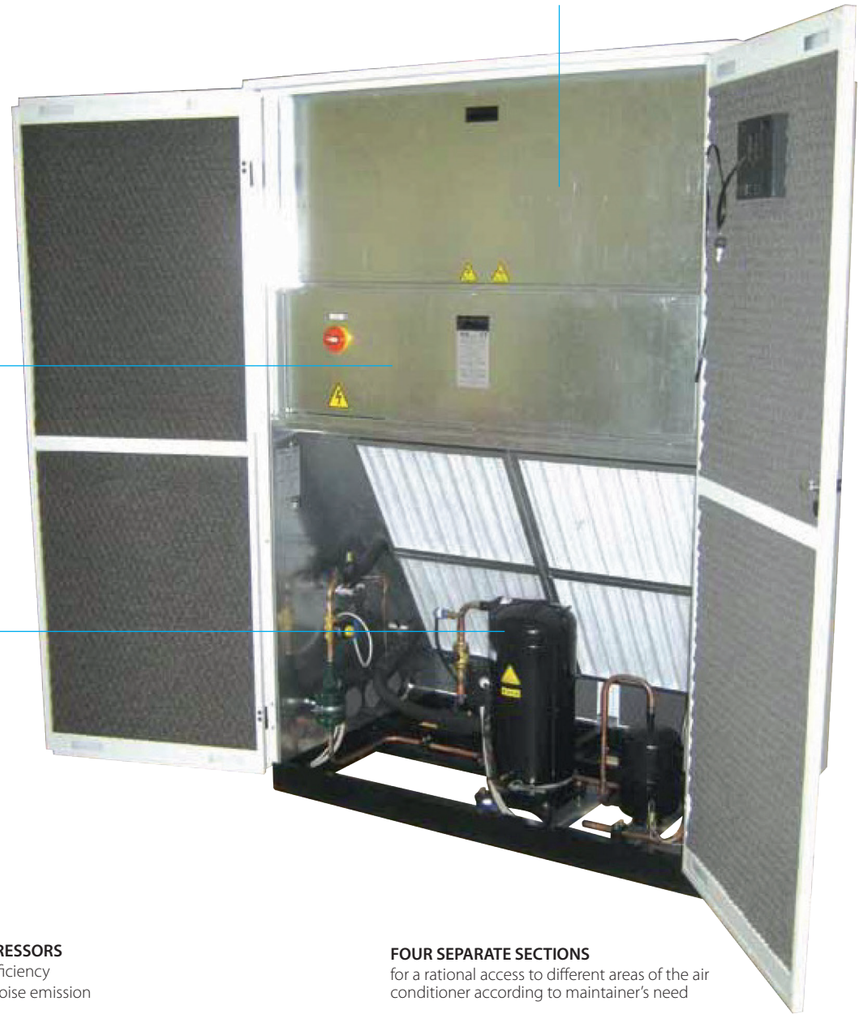
- Unit main switch of machine from 16A to 125A
- Thermal protection s witches for every load (transformer, compressor, fans, etc.) of modular type, being capable of a minimum 10KA interruption with D type curve
- Auxiliary transformer (normally 24Vac) with clip for grounding
- Command relays and the auxiliary relay of tripolar type
- Electronic regulator or microprocessor and accessories
- Back plate for the compone nt installation
- Modular type clips for connection of power loads to switchboard
- Terminal board accessories
- Self extinguishing cabl e trunking, plastic type (PVC) with tight teeth
- Wiring with rope N07V-K type with a minimal section of 1 mm^2



Modular electrical cabinet



EC RADIAL FANS
with high efficiency and low noise emission



SCROLL COMPRESSORS
for maximum efficiency and minimum noise emission

FOUR SEPARATE SECTIONS
for a rational access to different areas of the air conditioner according to maintainer's need

Compressors

The scroll compressor consists of two involutes or Archimedean spirals. Ones piral is positioned inside the other to form a series of rescent-shaped pockets. During compression the upper spiral remains stationary and the lower one, being eccentrically mounted on the drive shaft, describes an orbital rather than a simple rotary motion. In this way refrigerant gas is induced into the two large, diametrically opposite pockets which progressively close off as they reach the centre of the spiral thus compressing the gas. When the pockets reach the centre of the spiral the gas attains its discharge pressure and leaves the compressor through a centre discharge port in the fixed scroll. With every r evolution of the spiral all the different pockets are subject to simultaneous and symmetrical compression, creating a uniform process free of pulsation.

From the suction phase (on the periphery of the spiral) to the discharge phase (at the centre) the process is virtually continuous. This process gives to scroll compressor few unique features that can be highlight ed as follows:

- Absence of suction and discharge valves. This confers two important advantages compared with reciprocating compressors:
  - elimination of pressure drop caused by these valves with a consequentincrease in energy efficiency of the cycle
  - elimination of noise caused by valve impact against seatings leadingto reduced overall noise level
- Absence of dead space, resulting in a volumetric efficiency approachingaround 100% for the compressor
- Fewer working parts, leading to lower failure rate

Fans EC Radial

Wheel high-performance composite material backward curved blades with aerodynamic profile. Suction mouthpiece version equipped with the pressure outlet for the measurement of the volumetric flow. Modules for compact installation of equipment for horizontal or vertical airflow. Whell with diffuser to ensure high levels of efficiency and very low noise emissions.

Tonal noise very low thanks to special three-dimensional geometry of the blades. The high quality material allows the use at temperatures comprised between -35°C and 80 C with good corrosion resistance.

External rotor motors with integrated controller using inverter technology calibrated specifically on the fan.

Finned coils

The standard fin pack is made of aluminium fins (copper, tinned copper and prepainted epoxy is available on request) with spacing rings, these guarantee a perfect fin spacing and contact with the expanded copper tubes.

The aluminium frame (FeZn, Cu, stainless steel are available) is built with an appropriate thickness all around the heat exchanger to assure a perfect protection of the finned pack, the copper bends and the headers. The aluminium fin is an optimal compromise between efficiency and pressure drop. Condensation drainage is improved, and the exclusive fin design can reach a 20% increase in heat exchange surface. The tubes are chosen acco rding the specific use of the heat exchanger and are made in pure Copper Before the headers and bends are fitted, every coil is carefully washed and degreased internally and externally.

After the coils have been welded (in inert atmosphere) they are immersed into warm water to undergo a pressure test with dry air at 30 Bar.

Control valves

Control valves ensure your comfort by providing the right amount of heating or cooling energy. They perform their task invisibly and inaudibly in perfect reliability for many years.

Today our products are based on the combined expertise of leading developers and manufacturers in the field.

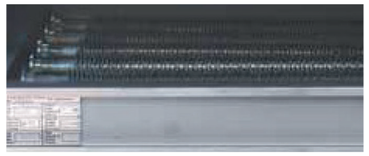
Differential pressure switches

Low air pressure acts on a diaphragm which, in turn, actuates the micro switch. The design of the switch is such that the internal volume of air required is minimum.

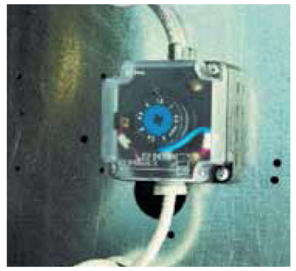
This allows the switch to actuate with very little air displacement, and actuation occurs without delay.

CONSTRUCTION DETAILS





Electric heater available in several sizes and stages



Differential air pressure switches



Removable doors mounted on hinges



Humidifier



Water flooding sensor



SCROLL Compressor

MICROPROCESSORS



Standard C.PCO microprocessor

C.PCO is a controller for precision air-conditioning systems management, with the flexibility to control both direct expansio n units (with 1 or 2 compressors), chilled water units (with 3-way or 2-way valve), electric heating (with 1 or 2 stages) or warm water heating (with 3-way or 2- way valve). C.PCO offers complete humidity control with proportional control of the humidifier and various dehumidification configurations.

Main functions:

- Control of the t emperature and humidity of the intake and (optionally) discharge air
- Dehumidification control
- Supply-air fan: speed controlled (optional)
- Complete alarm management, including a log file (optional)
- Automatic rotation of up to 6 units in a master and slave network
- Temperature control
- Optional serial connection RS485 to a supervisory system to a supervisory system (WEB GATE)
- Automatic management of free-coolin system (if the air system allows)

Controlled devices:

- 1 or 2 com pressors or 3-way valve for chilled water cooling
- 1 or 2 heaters or valve for warm water heating
- Main fan: with ON/OFF or proportional control (optional)
- Humidifier with proportional control
- Dehumidification with ON/OFF control
- Alarm device

Options:

- Serial board RS485
- Clock card for time management and alarm log file
- Fan s peed control module
- Programming key

Programming key:

- All the parameters can be configured by the keypad on t he front or by a hardw are key and/or a serial line. CCUY

Optional pCO3 microprocessor

The pCO3 represents a big evolution for multiple applications in the fields of air-conditioning. It features a 16-bit microprocessor and up to 2 MByte of FLASH memory, guaranteeing high performance in terms of speed and available memory.

Characteristics:

- 16-bit microprocessor, MHz, internal registers and 32 bit operation, 512 Byte internal RAM
- Up to 2 MByte FLASH MEMORY per program
- 128 kByte static RAM, upon prior request expandable to 256 MB
- 1 RS485 serial port for pLAN
- Ready for connection to RS485 supervisory network
- Telephone connector for pCO terminals
- Telephone connector for synoptic
- LED power signal

The application software developed for the pCO3 for the control of air-conditioning units includes all the solutions used by the leading manufacturers in the sector: temperature regulation, humidity regulation, freecooling, energysaving, running and stand-by, condensation fan speed regulation.

Main functions:

- Display and control of the ambient temperature and humidity
- Dehumidification performed by activating the compressors, opening the cooling valves or reducing the speed of the main fan
- Management of the safety features for all controlled devices
- Management of units with energy-saving battery
- Management of units with freecooling damper
- Up to 8 units can be connected in a pLAN network to manage the units in Running & Stand-by or change-over mode

Controlled Devices:

- Main fan
- Up to 2 capacity-controlled compressors (if partialisation available)
- Up to 3 heating elements
- 0/10 V modulating cooling valve
- 3-point modulating cooling valve
- 0/10 V modulating heating valve
- 3 point modulating heating valvei
- Steam humidifier (in this case the pCO manages the power contactor and water fill and drain electrovalves directly)
- Condensation fans logic for direct expansion units

Components:

- pCO3 Medium
- Individual clock
- Temperature and humidity probe

CONSTRUCTION DETAILS



Air filter replacement detail



Humidity and temperature sensors

ACCESSORIES AVAILABLE ON REQUEST

Description	XST/B-1053	XST/B-1064	XST/B-1087	XST/B-1118	XST/B-1139	XMT/B-1161	XMT/B-1214	XMT/B-1225	XMT/B-1293	XMT/B-2313	XMT/B-1323	XMT/B-2343	XMT/B-1368	XMT/B-2390	XMT/B-1413	XMT/B-2426	XMT/B-2462	XMT/B-2525	XMT/B-2587	XMT/B-2645	XLT/B-2720	XLT/B-2796	XLT/B-2890	XLT/B-2983	XLT/B-4013	XLT/B-4036	XLT/B-4115	XLT/B-4168	XLT/B-4178	XLT/B-4189
Clogged filter alarm	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Water flooding alarm	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fan foult alarm	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Smoke alarm	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fire alarm	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Clock for programmable start/stop	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Serial Port RS485	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
pCO3 microprocessor (1)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Modbus-jbus or Webgate gateway (1) only with Pico3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Adjustable baseframe with vibration dampers (2)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
warm water coil with 3-way valve	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Single stage 3 kW electric heater (400/3/50)	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Two stage 6 kW electric heater (400/3/50)	X	X	X	X	X	X	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Two stage 9 kW electric heater (400/3/50)	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Two stage 12 kW electric heater (400/3/50)	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Two stage 15 kW electric heater (400/3/50)	-	-	-	-	-	-	-	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Two stage 18 kW electric heater (400/3/50)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X
Two stage 24 kW electric heater (400/3/50)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X
6 row cooling coil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Single fan damper (suction for Bottom version)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Multiple fan damper (version Top only)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fresh air intake with damper and filter	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Electrode steam humidifier 1-3 kg/h (400/3/50)	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrode steam humidifier 5-8 kg/h (400/3/50)	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Electrode steam humidifier 10-15 kg/h (400/3/50)	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Upflow air discarge plenum (versions T only) (3)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Upflow air discarge plenum with adjustable grilles (versions T only) (3)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Air intake plenum (versions B only) (3)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Air intake plenum with adjustable grilles (versions B only) (3)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Remote condenser control device	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Remote condenser	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Pressostatic valve for condensing control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Noise abatement panels and compressors lining	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Not standard Ral	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Discharge fan speed regulation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Condensate lifting pump (cold water only)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Touch-screen display	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
High ESP fans (EC)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Notes:
(1) Available only with RS485 (Lonk Work, Mod-Bus, Bachet, Trend)
(2) Height 400 mm
(3) Height 400 mm
(4) Ambient air 32°C
(5) Leaving Condensing water 35°C

X = available
- = not available

ACCESSORIES AVAILABLE ON REQUEST

Description	HST/B-1056	HST/B-1067	HST/B-1091	HST/B-1125	HST/B-1149	HMT/B-1168	HMT/B-1227	HMT/B-1238	HMT/B-1308	HMT/B-2326	HMT/B-1344	HMT/B-2371	HMT/B-1398	HMT/B-2418	HMT/B-1438	HMT/B-2451	HMT/B-2487	HMT/B-2565	HMT/B-2616	HLT/B-2690	HLT/B-2820	HLT/B-2838	HLT/B-2900	HLT/B-2999	HLT/B-4053	HLT/B-4096	HLT/B-4215	HLT/B-4268	HLT/B-4278	HLT/B-4299
Clogged filter alarm	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Water flooding alarm	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fan foult alarm	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Smoke alarm	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fire alarm	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Clock for programmable start/stop	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Serial Port RS485	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
pCO3 microprocessor (1)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Modbus-jbus or Webgate gateway (1) only with Pico3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Adjustable baseframe with vibration dampers (2)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
warm water coil with 3-way valve	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Single stage 3 kW electric heater (400/3/50)	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Two stage 6 kW electric heater (400/3/50)	X	X	X	X	X	X	-	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Two stage 9 kW electric heater (400/3/50)	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Two stage 12 kW electric heater (400/3/50)	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Two stage 15 kW electric heater (400/3/50)	-	-	-	-	-	-	X	X	X	X	X	X	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Two stage 18 kW electric heater (400/3/50)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X
Two stage 24 kW electric heater (400/3/50)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X
6 row cooling coil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Single fan damper (suction for Bottom version)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Multiple fan damper (version Top only)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fresh air intake with damper and filter	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Electrode steam humidifier 1-3 kg/h (400/3/50)	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrode steam humidifier 5-8 kg/h (400/3/50)	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Electrode steam humidifier 10-15 kg/h (400/3/50)	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Upflow air discarge plenum (versions T only) (3)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Upflow air discarge plenum with adjustable grilles (versions T only) (3)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Air intake plenum (versions B only) (3)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Air intake plenum with adjustable grilles (versions B only) (3)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Remote condenser control device	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Remote condenser (4)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pressostatic valve for condensing control (5)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Noise abatement panels and compressors lining	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Not standard Ral	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Discharge fan speed regulation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Condensate lifting pump (cold water only)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Touch-screen display	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
High ESP fans (EC)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Notes:
(1) Available only with RS485 (Lonk Work, Mod-Bus, Bachet, Trend)
(2) Height 400 mm
(3) Height 400 mm
(4) Ambient air 32°C
(5) Leaving Condensing water 35°C

X = available
- = not available

CCA CCUY/R410A

ACCESSORIES AVAILABLE ON REQUEST

Description	WST/B-0074	WST/B-0088	WST/B-0122	WMT/B-0157	WMT/B-0187	WMT/B-0217	WMT/B-0245	WMT/B-0273	WLT/B-0303	WLT/B-0336	WST/B-0339	WST/B-0402	WST/B-0433	WMT/B-0465	WMT/B-0534	WMT/B-0603	WMT/B-0655	WMT/B-0707	WLT/B-0759	WMT/B-0799	WMT/B-0839	WMT/B-0879	WMT/B-0919	WMT/B-0959	WLT/B-0999
Clogged filter alarm	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Water flooding alarm	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fan foult alarm	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Smoke alarm	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fire alarm	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Clock for programmable start/stop	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Serial Port RS485	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
pCO3 microprocessor (1)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Modbus-jbus or Webgate gateway (1) only with Pico3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Adjustable baseframe with vibration dampers (2)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
warm water coil with 3-way valve	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Single stage 3 kW electric heater (400/3/50)	X	X	X	-	-	-	-	-	-	-	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-
Two stage 6 kW electric heater (400/3/50)	X	X	X	X	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-
Two stage 9 kW electric heater (400/3/50)	-	-	-	X	X	X	X	X	X	X	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X
Two stage 12 kW electric heater (400/3/50)	-	-	-	X	X	X	X	X	X	X	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X
Two stage 15 kW electric heater (400/3/50)	-	-	-	-	X	X	X	X	X	X	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X
Two stage 18 kW electric heater (400/3/50)	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	X	X	-	-	X	X	X	X
Two stage 24 kW electric heater (400/3/50)	-	-	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	X	X	-	-	X	X	X	X
6 row cooling coil	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Single fan damper (suction for Bottom version)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Multiple fan damper (version Top only)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fresh air intake with damper and filter	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Electrode steam humidifier 1-3 kg/h (400/3/50)	X	X	X	-	-	-	-	-	-	-	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-
Electrode steam humidifier 5-8 kg/h (400/3/50)	-	-	-	X	X	X	X	X	X	X	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X
Electrode steam humidifier 10-15 kg/h (400/3/50)	-	-	-	X	X	X	X	X	X	X	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X
Upflow air discarge plenum (versions T only) (3)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Upflow air discarge plenum with adjustable grilles (versions T only) (3)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Air intake plenum (versions B only) (3)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Air intake plenum with adjustable grilles (versions B only) (3)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Remote condenser control device	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Remote condenser (4)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pressostatic valve for condensing control (5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Noise abatement panels and compressors lining	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not standard Ral	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Discharge fan speed regulation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Condensate lifting pump (cold water only)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Touch-screen display	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
High ESP fans (EC)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Notes:
(1) Available only with RS485 (Lonk Work, Mod-Bus, Bachet, Trend)
(2) Height 400 mm
(3) Height 400 mm
(4) Ambient air 32°C
(5) Leaving Condensing water 35°C

X = available
- = not available

TECHNICAL DATA **W SERIES** - CHILLED WATER COIL AIR CONDITIONERS

Description		WST WSB 0074	WST WSB 0088	WST WSB 0122	WST WSB 0157	WST WSB 0187	WMT WMB 0217	WMT WMB 0245	WMT WMB 0273	WMT WMB 0303	WMT WMB 0336	WMT WMB 0369	WMT WMB 0402	WMT WMB 0433	WMT WMB 0465
Cooling capacity chilled coil (total/sensible)															
Return air 24°C / 50% r.h.	kW	8 / 6	10 / 8	12 / 10	13 / 10	19 / 15	23 / 18	26 / 21	31 / 24	34 / 27	40 / 31	44 / 35	49 / 39	53 / 42	60 / 46
Fan section															
EC Fan inverter included	Type	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial
Number of motors / Fans	n°	1	1	1	1	1	1	1	2	2	2	2	2	2	2
Air volume range	m³/h	1500	2000	2500	3000	3650	4350	5050	5900	6700	7600	8600	9600	10700	11800
External static pressure	Pa	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Nominal power consumpition fan motor (Each)	kW	0,25	0,25	0,25	0,5	0,5	0,5	0,75	0,5	0,5	0,75	0,75	0,75	0,75	0,75
Nominal current consumpition fan motor (Each)	A	1,1	1,1	1,1	2,2	2,2	2,2	3,3	2,2	2,2	3,3	3,3	3,3	3,3	3,3
Filter section															
Filter	Type	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4
Number of filters T type	n°	2	2	2	2	4	4	4	4	4	4	4	6	6	6
Number of filters B type	n°	1	1	1	1	2	4	4	4	4	4	4	6	6	6
Chilled water coil circuit															
Water temperature (In/Out) nominal	°C	7/12	7/12	7/12	7/12	7/12	7/12	7/12	7/12	7/12	7/12	7/12	7/12	7/12	7/12
Glycol content	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Chilled water flow	l/s	0,35	0,45	0,54	0,58	0,81	0,99	1,14	1,32	1,46	1,73	1,9	2,1	2,3	2,6
Total pressure drop (Coil + 3-way valve)	kPa	38	37	37	30	39	34	37	40	30	29	27	25	27	33
Chilled water coil connections	Ø	1"	1"	1"1/4	1"1/2	1"1/2	1"1/2	1"1/2	2"	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2
Dimensions / weight		PR1	PR1	PR1	PR1	PR2	PR2	PR2	PR2	PR3	PR3	PR3	PR4	PR4	PR5
Widht	mm	710	710	710	710	1060	1060	1060	1060	1360	1360	1360	1740	1740	1890
Depth	mm	750	750	750	750	850	850	850	850	850	850	850	850	850	850
Height	mm	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Weight (± 5)	kg	195	200	200	230	310	310	310	310	350	350	350	431	431	460
Noise levels															
Noise level at 2 m. in f.f. T type	db(A)	45,5	46	46,5	49,5	50	52	54	54,5	55	55	55,5	56,5	57	57,5
Noise level at 2 m. in f.f. B type	db(A)	43,5	44	44,5	47,5	48	50	52	52,5	53	53	53,5	54,5	55	55,5
Warm water reheat															
Water temperature (In/Out) nominal	°C	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60
Capacity	kW	7	9	11	14	16	20	24	27	30	33	37	43	46	52
Warm water coil connections	Ø	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1"	1"	1"
Electrical reheating max															
Number of stages max	n°	1	1	1	1	2	2	2	2	2	2	2	2	2	2
Capacity per stage	kW	3	3	3	3	3/3	3/3	3/3	3/3	6/3	6/3	6/3	6/3	6/3	6/3
Current consumpition per stage	A/A	4,6	4,6	4,6	4,6	4,6/4,6	4,6/4,6	4,6/4,6	4,6/4,6	8,7/4,6	8,7/4,6	8,7/4,6	8,7/4,6	8,7/4,6	8,7/4,6
Max Humidification															
Steam humidifier capacity	kg/h	1–3	1–3	1–3	1–3	5–8	5–8	5–8	5–8	5–8	5–8	5–8	5–8	5–8	5–8
Max power consumpition	kW	2,3	2,3	2,3	2,3	6	6	6	6	6	6	6	6	6	6
Max current consumpition	A	3,2	3,2	3,2	3,2	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7
Fill/drain water connections	Ø	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm

Notes :

(1) Cooling capacity calculated at specified air volumes and external static pressures. 20 to 100 Pa external static pressure available at recalculated air flows and performances

(2) db(A) is the overall noise level, measured on the A scale, at given distance from the unit, without reverberation, in nominal working conditions

(3) Free field calculation with fans at maximun speed. In applied field, eventual noise reverberation / attenuation is to be considered

(4) Electrical voltage supply 400 / 3 /50

CCA CCUY/R410A

TECHNICAL DATA **W SERIES** - CHILLED WATER COIL AIR CONDITIONERS

Description		WMT WMB 0534	WLT WLB 0603	WLT WLB 0655	WLT WLB 0707	WLT WLB 0759	WLT WLB 0799	WLT WLB 0839	WLT WLB 0879	WLT WLB 0919	WLT WLB 0959	WLT WLB 0999
Cooling capacity chilled coil (total/sensible)												
Return air 24°C / 50% r.h.	kW	67 / 52	78 / 61	84 / 66	91 / 72	95 / 78	102 / 83	110 / 90	123 / 97	138/ 106	145 / 111	155 / 119
Fan section												
EC Fan inverter included	Type	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial
Number of motors / Fans	n°	3	3	3	3	3	3	3	3	3	3	3
Air volume range	m³/h	13000	14300	15600	16900	18300	19800	21300	22900	24600	26300	28500
External static pressure	Pa	100	100	100	100	100	100	100	100	100	100	100
Nominal power consumpition fan motor (Each)	kW	0,75	0,75	0,75	0,75	1,35	1,35	1,35	1,35	1,35	1,35	1,35
Nominal current consumpition fan motor (Each)	A	3,3	3,3	3,3	3,3	2,1	2,1	2,1	2,1	2,1	2,1	2,1
Filter section												
Filter	Type	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4
Number of filters T type	n°	6	8	8	8	8	8	8	10	10	10	10
Number of filters B type	n°	6	8	8	8	10	10	10	10	10	10	10
Chilled water coil circuit												
Water temperature (In/Out) nominal	°C	7/12	7/12	7/12	7/12	7/12	7/12	7/12	7/12	7/12	7/12	7/12
Glycol content	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Chilled water flow	l/s	2,9	3,4	3,6	3,96	4,1	4,4	4,7	5,3	5,95	6,28	6,7
Total pressure drop (Coil + 3-way valve)	kPa	33	33	36	38	31	34	36	46	60	66	73
Chilled water coil connections	Ø	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2
Dimensions / weight		PR5	PR6	PR6	PR6	PR7	PR7	PR7	PR8	PR8	PR8	PR8
Widht	mm	1890	2390	2390	2390	2920	2920	2920	3370	3370	3370	3370
Depth	mm	850	850	850	850	850	850	850	850	850	850	850
Height	mm	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Weight (± 5)	kg	460	525	525	525	625	625	625	750	750	750	750
Noise levels												
Noise level at 2 m. in f.f. T type	db(A)	58	59	60	60,5	62	62,5	63	64	65	67	69
Noise level at 2 m. in f.f. B type (2) (3)	db(A)	56	57	58	58,5	60	60,5	61	62	63	65	67
Warm water reheat												
Water temperature (In/Out) nominal	°C	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60
Capacity	kW	58	62	65	71	80	82	91	98	101	105	111
Warm water coil connections	Ø	1"	1"	1"	1"	1"	1"	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
Electrical reheating max												
Number of stages max	n°	2	2	2	2	2	2	2	2	2	2	2
Capacity per stage	kW	6/3	6/6	6/6	6/6	9/9	9/9	9/9	9/9	9/9	9/9	9/9
Current consumpition per stage	A/A	8,7/4,6	8,7/8,7	8,7/8,7	8,7/8,7	13/13	13/13	13/13	13/13	13/13	13/13	13/13
Max Humidification												
Steam humidifier capacity	kg/h	5–8	10–15	10–15	10–15	10–15	10–15	10–15	10–15	10–15	10–15	10–15
Max power consumpition	kW	6	11,3	11,3	11,3	11,3	11,3	11,3	11,3	11,3	11,3	11,3
Max current consumpition	A	8,7	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2
Fill/drain water connections	Ø	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm

Notes :

(1) Cooling capacity calculated at specified air volumes and external static pressures. 20 to 100 Pa external static pressure available at recalculated air flows and performances

(2) db(A) is the overall noise level, measured on the A scale, at given distance from the unit, without reverberation, in nominal working conditions

(3) Free field calculation with fans at maximun speed. In applied field, eventual noise reverberation / attenuation is to be considered

(4) Electrical voltage supply 400 / 3 /50

TECHNICAL DATA **X SERIES** - AIR COOLED DIRECT EXPANSION AIR CONDITIONERS

Description		XSTY XSBY 1053	XSTY XSBY 1064	XSTY XSBY 1087	XSTY XSBY 1118	XSTY XSBY 1139	XSTY XSBY 1161	XMTY XMBY 1214	XMTY XMBY 1225	XMTY XMBY 1293	XMTY XMBY 2313	XMTY XMBY 1323	XMTY XMBY 2343	XMTY XMBY 1368	XMTY XMBY 2390	XMTY XMBY 1413
Cooling capacity direct exp. coil (tot/sens) for remote air cooled condenser																
Return air 24°C / 50% r.h.	kW	6,5/5,5	8,5/7,2	10/8	12/10	15/12	19/15,5	20/17	24/20	30/24,5	30/25	34,5/28	34/28	39/32	38/31,5	44/31,5
Fan section																
EC Fan inverter included	Type	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial
Number of motors / Fans	n°	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
Air volume range	m^3/h	1500	2000	2500	2500	3000	3650	4350	5050	5900	5900	6700	6700	7600	7600	8600
External static pressure	Pa	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Nominal power consumpition fan motor (Each)	kW	0,25	0,25	0,25	0,25	0,5	0,5	0,75	0,5	0,5	0,5	0,5	0,5	0,75	0,75	0,75
Nominal current consumpition fan motor (Each)	A	1,1	1,1	1,1	1,1	2,2	2,2	3,3	2,2	2,2	2,2	2,2	2,2	3,3	3,3	3,3
Filter section																
Filter	Type	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4
Number of filters T type	n°	2	2	2	2	4	4	4	4	4	4	4	4	4	4	6
Number of filters B type	n°	1	1	1	1	2	2	4	4	4	4	4	4	4	4	6
Refrigerant circuit																
Compressor	Type	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Number of compressors	n°	1	1	1	1	1	1	1	1	1	2	1	2	1	2	1
Nominal power consumpition of compressor motor	kW	1,72	2,2	2,49	2,86	3,62	4,08	4,87	5,54	6,75	7,24	7,82	8,21	8,86	8,99	9,9
Nominal current input of compressor motor	A	3,19	4,09	4,79	4,88	6,05	7,3	8,59	10,55	12,75	12,12	14,72	14,68	15,99	16,16	18,25
Locked rotor current of compressor motor (Compr. + Fan.)	A	28	38	46	43	51,5	64	75	101	111	57,56	118	74,44	118	72,08	140
Max running current of compressor motor (Comp. + Vent.)	A	4,7	6,5	7	8	10,3	11,8	15	15	21	20,6	22	22	25	23,6	31
Liquid/gas pipe size	mm	10/12	10/12	10/12	12/16	12/16	16/22	16/22	16/22	16/22	2x 12/16	16/22	2x 12/16	22/28	2 x 16/22	22/28
Required condenser (not included)																
Condenser capacity (External air 32° C)	kW	8,2	11	12,5	15	19	23,5	25,5	29,5	37	2x 19	43	2x 22	49	2x 24	54
Temperature of condensation	°C	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Dimensions / weight		PR1	PR1	PR1	PR1	PR1	PR2	PR2	PR2	PR2	PR2	PR3	PR3	PR3	PR3	PR3
Widht	mm	710	710	710	710	710	1060	1060	1060	1060	1060	1360	1360	1360	1360	1360
Depth	mm	750	750	750	750	750	750	850	850	850	850	850	850	850	850	850
Height	mm	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Weight (± 5)	kg	220	225	230	283	290	298	350	400	420	440	445	455	465	490	530
Noise levels																
Noise level at 2 m. in f.f. T type (2) (3)	db(A)	46,5	49,5	50	52	54	54,5	55	55	55,5	56,5	57	57,5	58	59	60
Noise level at 2 m. in f.f. B type (2) (3)	db(A)	44,5	47,5	48	50	52	52,5	53	53	53,5	54,5	55	55,5	56	57	58
Warm water reheat																
Water temperature (In/Out) nominal	°C	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60
Capacity	kW	7	9	11	11	14	16	20	24	27	27	30	30	33	33	37
Warm water coil connections	Ø	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1"
Electrical reheating max																
Number of stages max	n°	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
Capacity per stage	kW	3	3	3	3	3	3	3/3	3/3	3/3	6/6	6/6	6/6	6/6	6/6	6/6
Current consumpition per stage	A/A	4,6	4,6	4,6	4,6	4,6	4,6	4,6/4,6	4,6/4,6	4,6/4,6	8,7/8,7	8,7/8,7	8,7/8,7	8,7/8,7	8,7/8,7	8,7/8,7
Max Humidification																
Steam humidifier capacity	kg/h	1–3	1–3	1–3	1–3	1–3	1–3	5–8	5–8	10–15	10–15	10–15	10–15	10–15	10–15	10–15
Max power consumpition	kW	2,3	2,3	2,3	2,3	2,3	2,3	6	6	11,3	11,3	11,3	11,3	11,3	11,3	11,3
Max current consumpition	A	3,2	3,2	3,2	3,2	3,2	3,2	8,7	8,7	16,2	16,2	16,2	16,2	16,2	16,2	16,2
Fill/drain water connections	Ø	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm

Notes :
(1) Cooling capacity calculated at specified air volumes and external static pressures. 20 to 100 Pa external static pressure available at recalculated air flows and performances
(2) db(A) is the overall noise level, measured on the A scale, at given distance from the unit, without reverberation, in nominal working conditions
(3) Free field calculation with fans at maximun speed. In applied field, eventual noise reverberation / attenuation is to be considered
(4) Electrical voltage supply 400 / 3 /50

TECHNICAL DATA **X SERIES** - AIR COOLED DIRECT EXPANSION AIR CONDITIONERS

Description		XMTY XMBY 2426	XMTY XMBY 2462	XMTY XMBY 2525	XMTY XMBY 2587	XMTY XMBY 2645	XLTY XLBY 2720	XLTY XLBY 2796	XLTY XLBY 2890	XLTY XLBY 2983	XLTY XLBY 4013	XLTY XLBY 4036	XLTY XLBY 4115	XLTY XLBY 4168	XLTY XLBY 4178	XLTY XLBY 4189
Cooling capacity direct exp. coil (tot/sens) for remote air cooled condenser																
Return air 24°C / 50% r.h.	kW	45,5/36	49/38,5	54/44	58/48	68/55	75/63	84/70	92/74	100/81	107/87	114/94	124/103	134/110	141/116	148/123
Fan section																
EC Fan inverter included	Type	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial
Number of motors / Fans	n°	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3
Air volume range	m^3/h	8600	9600	10700	11800	13000	14300	15600	16900	18300	19800	21300	22900	24600	26300	28500
External static pressure	Pa	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Nominal power consumpition fan motor (Each)	kW	0,75	0,75	0,75	0,75	0,75	0,75	0,75	0,75	1,35	1,35	1,35	1,35	1,35	1,35	1,35
Nominal current consumpition fan motor (Each)	A	3,3	3,3	3,3	3,3	3,3	3,3	3,3	3,3	2,1	2,1	2,1	2,1	2,1	2,1	2,1
Filter section																
Filter	Type	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4
Number of filters T type	n°	6	6	6	8	8	8	8	8	10	10	10	10	10	10	10
Number of filters B type	n°	6	6	6	8	8	8	10	10	10	10	10	10	10	10	10
Refrigerant circuit																
Compressor	Type	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Number of compressors	n°	2	2	2	2	2	2	2	2	2	4	4	4	4	4	4
Nominal power consumpition of compressor motor	kW	11,06	11,82	12,69	13,55	15,59	17,61	20,14	21,88	23,62	25,37	27,08	29,13	31,19	33,2	35,21
Nominal current input of compressor motor	A	21,07	21,42	23,12	24,82	27,99	30,89	35,17	40,26	45,33	46,22	49,6	52,8	55,98	58,88	61,78
Locked rotor current of compressor motor (Compr. + Fan.)	A	111,54	111,71	121,71	123,41	132	133,5	157,6	191,6	197	145	149	158	161	162	165
Max running current of compressor motor (Comp. + Vent.)	A	30	32,4	37,2	42	44	50	62	65	68	74,4	84	86	88	94	100
Liquid/gas pipe size	mm	2x16/22	2x16/22	2x16/22	2x16/22	2x16/22	2x16/22	2x22/28	2x22/28	2x22/28	2x22/28	2x28/35	2x28/35	2x28/35	2x28/35	2x28/35
Required condenser (not included)																
Condenser capacity (External air 32° C)	kW	2x 29	2x 31	2x 33,5	2x 36	2x 42	2x 46,5	2x 52	2x 57	2x 62	2x 66,5	2x 29	2x 77	2x 83	2x 87,5	2x 92
Temperature of condensation	°C	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Dimensions / weight		PR3	PR4	PR4	PR5	PR5	PR6	PR6	PR6	PR7	PR7	PR7	PR8	PR8	PR8	PR8
Widht	mm	1360	1740	1740	1890	1890	2390	2390	2390	2920	2920	2920	3370	3370	3370	3370
Depth	mm	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850
Height	mm	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Weight (± 5)	kg	550	645	665	710	715	805	825	850	960	980	995	1050	1080	1095	1120
Noise levels																
Noise level at 2 m. in f.f. T type	db(A)	60,5	62	62,5	63	64	65	67	69	69,5	71	71	72	72	73	73
Noise level at 2 m. in f.f. B type	db(A)	58,5	60	60,5	61	62	63	65	67	67,5	69	69	70	70	71	
Warm water reheat																
Water temperature (In/Out) nominal	°C	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60
Capacity	kW	37	43	46	52	58	62	65	71	80	82	91	98	101	105	111
Warm water coil connections	Ø	1"	1"	1"	1"	1"	1"	1"	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
Electrical reheating max																
Number of stages max	n°	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Capacity per stage	kW	6/6	6/6	6/6	6/9	6/9	9/9	9/9	9/9	9/9	9/9	9/9	9/9	9/9	9/9	9/9
Current consumpition per stage	A/A	8,7/8,7	8,7/8,7	8,7/8,7	8,7/13	8,7/13	13/13	13/13	13/13	13/13	13/13	13/13	13/13	13/13	13/13	13/13
Max Humidification																
Steam humidifier capacity	kg/h	10–15	10–15	10–15	10–15	10–15	10–15	10–15	10–15	10–15	10–15	10–15	10–15	10–15	10–15	10–15
Max power consumpition	kW	11,3	11,3	11,3	11,3	11,3	11,3	11,3	11,3	11,3	11,3	11,3	11,3	11,3	11,3	11,3
Max current consumpition	A	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2
Fill/drain water connections	Ø	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm

Notes :
(1) Cooling capacity calculated at specified air volumes and external static pressures. 20 to 100 Pa external static pressure available at recalculated air flows and performances
(2) db(A) is the overall noise level, measured on the A scale, at given distance from the unit, without reverberation, in nominal working conditions
(3) Free field calculation with fans at maximun speed. In applied field, eventual noise reverberation / attenuation is to be considered
(4) Electrical voltage supply 400 / 3 /50

CCA CCUY/R410A

TECHNICAL DATA **H SERIES** - WATER COOLED DIRECT EXPANSION AIR CONDITIONERS

Description		HSTY HSBY 1056	HSTY HSBY 1067	HSTY HSBY 1091	HSTY HSBY 1125	HSTY HSBY 1149	HSTY HSBY 1168	HMTY HMBY 1227	HMTY HMBY 1238	HMTY HMBY 1308	HMTY HMBY 2326	HMTY HMBY 1344	HMTY HMBY 2371	HMTY HMBY 1398	HMTY HMBY 2418	HMTY HMBY 1438
Cooling capacity direct exp. coil (tot/sens) for remote air cooled condenser																
Return air 24°C / 50% r.h.	kW	6,5/5,5	9/7,5	10,5/9	12/9,5	16/12,5	19/16	22/18	25,5/21	32/25,5	31/24	38/30	34/27	42,5/34	37/30	47/38
Fan section																
EC Fan inverter included	Type	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial
Number of motors / Fans	n°	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
Air volume range	m³/h	1500	2000	2500	2500	3000	3650	4350	5050	5900	5900	6700	7600	6700	6700	7600
External static pressure	Pa	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Nominal power consumpition fan motor (Each)	kW	0,25	0,25	0,25	0,25	0,5	0,5	0,75	0,5	0,5	0,5	0,5	0,5	0,75	0,5	0,75
Nominal current consumpition fan motor (Each)	A	1,1	1,1	1,1	1,1	2,2	2,2	3,3	2,2	2,2	2,2	2,2	2,2	3,3	2,2	3,3
Filter section																
Filter	Type	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4
Number of filters T type	n°	2	2	2	2	4	4	4	4	4	4	4	4	4	4	6
Number of filters B type	n°	1	1	1	1	2	2	4	4	4	4	4	4	4	4	6
Refrigerant circuit																
Compressor	Type	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Number of compressors	n°	1	1	1	1	1	1	1	1	1	2	1	2	1	2	1
Nominal power consumpition of compressor motor	kW	1,3	1,95	2,16	2,54	3,2	3,84	4,07	4,61	5,67	5,99	6,52	6,94	7,34	7,54	8,39
Nominal current input of compressor motor	A	2,93	3,77	4,38	4,39	5,43	6,45	7,49	9,35	11,3	10,2	12,92	12,8	13,84	14	16,11
Locked rotor current of compressor motor (Compr. + Fan.)	A	28	38	46	43	51,5	64	75	101	111	61,8	118	75,8	118	87	140
Max running current of compressor motor (Comp. + Vent.)	A	4,7	6,5	7	8	10,3	11,8	15	15	21	20,6	22	23,6	25	26	31
Buit-in water cooled condenser																
Condensing water temp. (In/out) nominal	°C	30/35	30/35	30/35	30/35	30/35	30/35	30/35	30/35	30/35	30/35	30/35	30/35	30/35	30/35	30/35
Condensing water flow	l/s	0,37	0,52	0,61	0,9	0,88	1,08	1,22	1,41	1,80	1,75	2,11	1,94	2,38	2,11	2,63
Condensing water pressure drop	kPa	27	32	27	35	48	65	49	46	48	30	54	29	49	27	60
Condenser connetion	Ø	1"	1"	1"	1"	1"	1"1/4	1"1/4	1"1/2	1"1/2	2x1"	2"1/2	2x1"	2"1/2	2x1"	2"1/2
Dimensions / weight		PR1	PR1	PR1	PR1	PR1	PR2	PR2	PR2	PR2	PR2	PR3	PR3	PR3	PR3	PR3
Larghezza -	mm	710	710	710	710	710	1060	1060	1060	1060	1060	1360	1360	1360	1360	1360
Depth	mm	750	750	750	750	750	850	850	850	850	850	850	850	850	850	850
Height	mm	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Weight (± 5)	kg	220	225	230	283	283	298	350	400	445	490	530	550	560	575	580
Noise levels																
Noise level at 2 m. in f.f. T type	db(A)	46,5	49,5	50	52	54	54,5	55	55	55,5	56,5	57	57,5	58	59	60
Noise level at 2 m. in f.f. B type	db(A)	44,5	47,5	48	50	52	52,5	53	53	53,5	54,5	55	55,5	56	57	58
Warm water reheat																
Water temperature (In/Out) nominal	°C	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60
Capacity	kW	7	9	11	11	14	16	20	24	27	27	30	30	33	33	37
Warm water coil connections	Ø	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1"
Electrical reheating max																
Number of stages max	n°	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
Capacity per stage	kW	3	3	3	3	3	3	3/3	3/3	6/6	6/6	6/6	6/6	6/6	6/6	6/6
Current consumpition per stage	A/A	4,6	4,6	4,6	4,6	4,6	4,6	4,6/4,6	4,6/4,6	8,7/8,7	8,7/8,7	8,7/8,7	8,7/8,7	8,7/8,7	8,7/8,7	8,7/8,7
Max Humidification																
Steam humidifier capacity	kg/h	1–3	1–3	1–3	1–3	1–3	1–3	5–8	5–8	10–15	10–15	10–15	10–15	10–15	10–15	10–15
Max power consumpition	kW	2,3	2,3	2,3	2,3	2,3	2,3	6	6	11,3	11,3	11,3	11,3	11,3	11,3	11,3
Max current consumpition	A	3,2	3,2	3,2	3,2	3,2	3,2	8,7	8,7	16,2	16,2	16,2	16,2	16,2	16,2	16,2
Fill/drain water connections	Ø	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm

Notes :

(1) Cooling capacity calculated at specified air volumes and external static pressures. 20 to 100 Pa external static pressure available at recalculated air flows and performances
(2) db(A) is the overall noise level, measured on the A scale, at given distance from the unit, without reverberation, in nominal working conditions
(3) Free field calculation with fans at maximun speed. In applied field, eventual noise reverberation / attenuation is to be considered
(4) Electrical voltage supply 400 / 3 /50

CCA CCUY/R410A

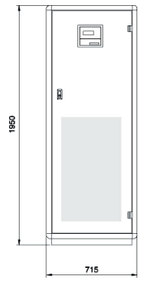
TECHNICAL DATA **H SERIES** - WATER COOLED DIRECT EXPANSION AIR CONDITIONERS

Description		HMTY HMBY 2451	HMTY HMBY 2487	HMTY HMBY 2565	HMTY HMBY 2616	HMTY HMBY 2690	HLTY HLBY 2820	HLTY HLBY 2838	HLTY HLBY 2900	HLTY HLBY 2999	HLTY HLBY 4053	HLTY HLBY 4096	HLTY HLBY 4215	HLTY HLBY 4268	HLTY HLBY 4278	HLTY HLBY 4299
Cooling capacity direct exp. coil (tot/sens) for remote air cooled condenser																
Return air 24°C / 50% r.h.	kW	48,5/39	53,5/49	57/46,5	64/54	71/60	80/65,5	90/73	99/77	106/87	114/90	122,5/98	134/105	145/115	152/121	159/128
Fan section																
EC Fan inverter included	Type	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial	Radial
Number of motors / Fans	n°	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3
Air volume range	m³/h	8600	9600	10700	11800	13000	14300	15600	16900	18300	19800	21300	22900	24600	26300	28500
External static pressure	Pa	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Nominal power consumpition fan motor (Each)	kW	0,75	0,75	0,75	0,75	0,75	0,75	0,75	0,75	1,35	1,35	1,35	1,35	1,35	1,35	1,35
Nominal current consumpition fan motor (Each)	A	3,3	3,3	3,3	3,3	3,3	3,3	3,3	3,3	2,1	2,1	2,1	2,1	2,1	2,1	2,1
Filter section																
Filter	Type	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4	EU4
Number of filters T type	n°	6	6	6	8	8	8	8	8	10	10	10	10	10	10	10
Number of filters B type	n°	6	6	6	8	8	8	10	10	10	10	10	10	10	10	10
Refrigerant circuit																
Compressor	Type	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Number of compressors	n°	2	2	2	2	2	2	2	2	2	4	4	4	4	4	4
Nominal power consumpition of compressor motor	kW	9,43	10,17	10,98	11,56	13,25	15,24	17,38	19,14	20,59	21,78	23,13	24,68	26,23	28,12	30,03
Nominal current input of compressor motor	A	18,96	19,62	21,22	27,24	25,06	27,64	31,12	35,95	40,98	42,28	45,18	47,26	49,38	51,44	54,68
Locked rotor current of compressor motor (Compr. + Fan.)	A	110,48	110,81	120,85	122,29	130,44	131,82	155,72	189,94	194,57	142,07	145,11	151,9	155,32	155,32	159,46
Max running current of compressor motor (Comp. + Vent.)	A	30	32,4	37,2	42	44	50	62	65	68	74,4	84	86	88	94	100
Buit-in water cooled condenser																
Condensing water temp. (In/out) nominal	°C	30/35	30/35	30/35	30/35	30/35	30/35	30/35	30/35	30/35	30/35	30/35	30/35	30/35	30/35	30/35
Condensing water flow	l/s	2,75	3,05	3,22	4,25	4	4,52	5,11	5,61	6	6,47	6,97	7,58	8,16	8,58	9,02
Condensing water pressure drop	kPa	49	38	44	40	50	52	44	44	50	49	49	48	48	53	58
Condenser connetion	Ø	2x1"	2x1"	2x1"	2x1"	2x1"	2x2"1/2	2x2"1/2	2x2"1/2	2x2"1/2	2x2"1/2	2x2"1/2	2x2"1/2	2x2"1/2	2x2"1/2	2x2"1/2
Dimensions / weight		PR3	PR4	PR4	PR5	PR5	PR6	PR6	PR6	PR7	PR7	PR7	PR8	PR8	PR8	PR8
Widht	mm	1360	1740	1740	1890	1890	2390	2390	2390	2920	2920	2920	3370	3370	3370	3370
Depth	mm	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850
Height	mm	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Weight (± 5)	kg	585	645	660	710	715	805	830	850	960	980	1010	1040	1080	1130	1190
Noise levels																
Noise level at 2 m. in f.f. T type	db(A)	60,5	62	62,5	63	64	65	67	69	69,5	71	71	72	72	73	73
Noise level at 2 m. in f.f. B type	db(A)	58,5	60	60,5	61	62	63	65	67	67,5	69	69	70	70	71	71
Warm water reheat																
Water temperature (In/Out) nominal	°C	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60	80/60
Capacity	kW	37	43	46	52	58	62	65	71	80	82	91	98	101	105	111
Warm water coil connections	Ø	1"	1"	1"	1"	1"	1"	1"	1"	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
Electrical reheating max																
Number of stages max	n°	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Capacity per stage	kW	6/6	6/6	6/6	6/9	6/9	9/9	9/9	9/9	9/9	9/9	9/9	9/9	9/9	9/9	9/9
Current consumpition per stage	A/A	8,7/8,7	8,7/8,7	8,7/8,7	8,7/13	8,7/13	13/13	13/13	13/13	13/13	13/13	13/13	13/13	13/13	13/13	13/13
Max Humidification																
Steam humidifier capacity	kg/h	10–15	10–15	10–15	10–15	10–15	10–15	10–15	10–15	10–15	10–15	10–15	10–15	10–15	10–15	10–15
Max power consumpition	kW	11,3	11,3	11,3	11,3	11,3	11,3	11,3	11,3	11,3	11,3	11,3	11,3	11,3	11,3	11,3
Max current consumpition	A	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2
Fill/drain water connections	Ø	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm	3/4" 30mm

Notes :

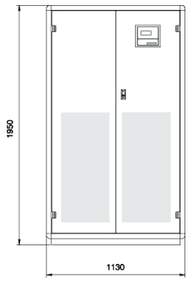
(1) Cooling capacity calculated at specified air volumes and external static pressures. 20 to 100 Pa external static pressure available at recalculated air flows and performances
(2) db(A) is the overall noise level, measured on the A scale, at given distance from the unit, without reverberation, in nominal working conditions
(3) Free field calculation with fans at maximun speed. In applied field, eventual noise reverberation / attenuation is to be considered
(4) Electrical voltage supply 400 / 3 /50

TOP AIR DISCHARGE (T)



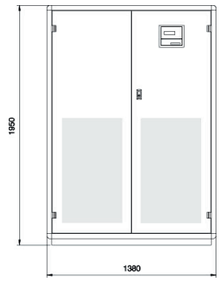
PR1





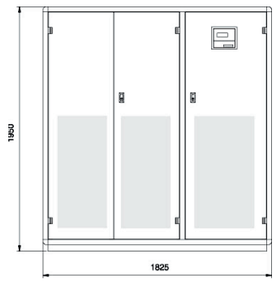
PR2



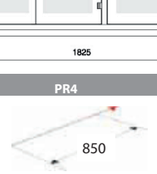


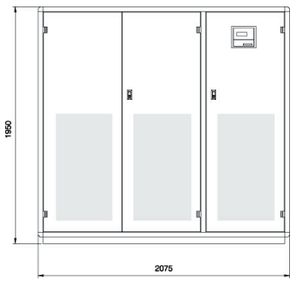
PR3



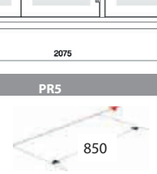


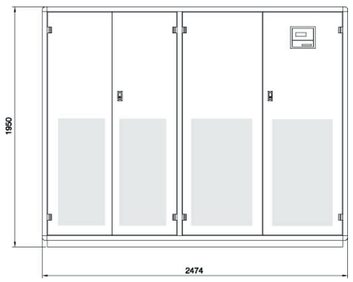
PR4



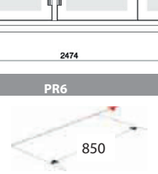


PR5





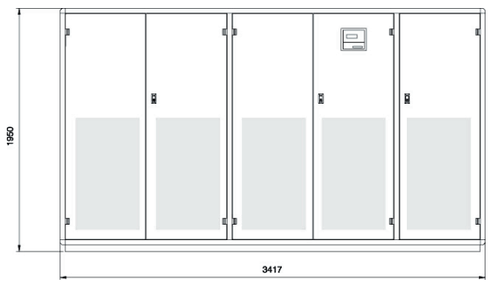
PR6





PR7

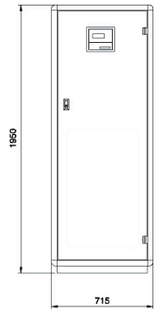




PR8

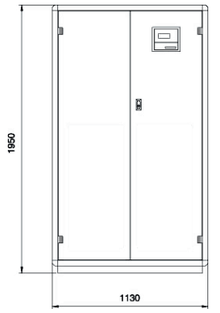


BOTTOM AIR DISCHARGE (B)

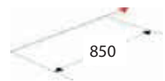


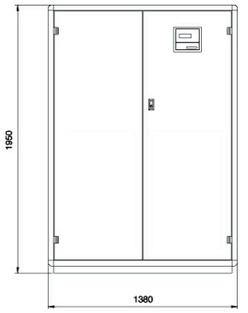
PR1





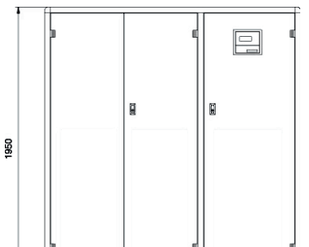
PR2



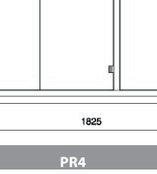


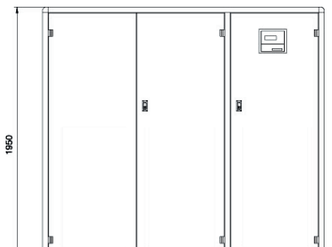
PR3



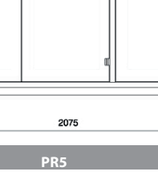


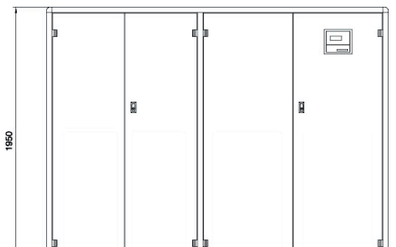
PR4





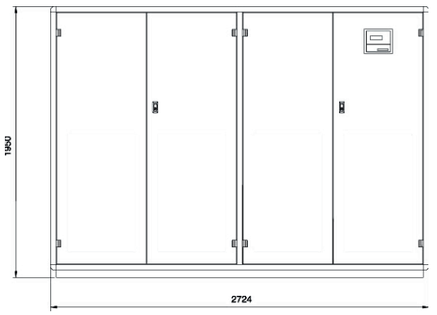
PR5





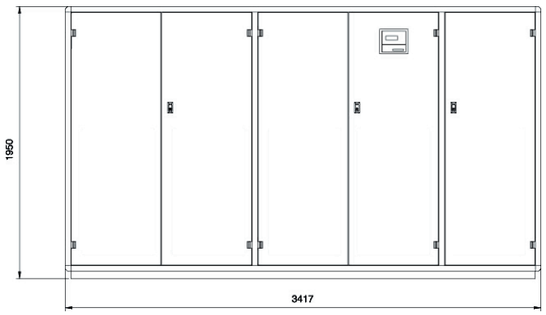
PR6



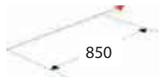


PR7





PR8



Technical data shown in this booklet are not binding. KLT Klima S.r.l reserves the right to modify data without any prior notice.

CCA CCUY THIN/R410A

CLOSE CONTROL AIR CONDITIONERS FROM 5 TO 20 KW

Close control air conditioners

- **W version - chilled water**
- **X version - air cooled direct expansion**
- **H version - water cooled direct expansion**

MADE IN ITALY

The CCUY THIN air conditioners are to be regarded as the utmost solution to control the conditions in technology centres such as server farms, halls of amplifiers broadcaster UMTS and GSM, NOCs (Network Operation Centers), cooling of racks of computers of control rooms, power electronic equipment, and generally everywhere heat load is extremely high.

GENERAL FEATURES

STANDARD EQUIPMENT FOR ALL VERSIONS

µAC Microprocessor
Direct driven double inlet centrifugal fan
High efficiency air filter housed in a metal frame
Temperature/humidity probe
Cooling coil with an oversized exchange surface with copper pipes and aluminium fins
Electrical panel in a separate compartment in accordance with 2006/95/CE
Complete front accessibility
Steel frame with epoxy powder RAL 7035 (available as option black RAL 9005)

STANDARD EQUIPMENT DIRECT EXPANSION UNIT

Scroll compressor
Refrigerant R410A
Refrigerant circuit including: high and low pressure switch, filter dryer, sight glass, thermostatic valve, liquid receiver
Shut off valves

X version only

Terminal block for connection to remote condenser

H version only

Plate to plate condenser

STANDARD EQUIPMENT W VERSION

Three-way modulating control mixing valve complete with actuator

IDENTIFICATION CODE

X	T	T	Y	0	174	A	C
1		2	3	4	5	6	7

1	X	Air cooled direct expansion
	H	Water cooled direct expansion
	W	Chilled water coil
2	T	Top air discarge
	B	Bottom air discarge
3	Y	Refrigerant R410A
	-	Refrigerant R407C
4	0	Chilled water unit
	1	Single compressor
	2	Two compressors
5	174	Unit size
6	A	µAC Microprocessor
	N	no Microprocessor
7	C	Cooling only
	E	Cooling+heating
	U	Cooling+humidification
	D	Cooling+heating+humidif.+dehumidif.



TECHNICAL DATA **X VERSION** AND **H VERSION** - DIRECT EXPANSION AIR CONDITIONERS

X model	XTTY/B	1054	1063	1085	1098	1113	1140	1167	1186	2181
Cooling capacity (total/sensible)										
Return air 24° C/50% r.h. (1)	kW / kW	6,4/5,5	7,5/6	8,7/8,7	10,5/10	11,5/10,3	12,6/12	16,6/15,2	18,5/15,9	19,2/16,38
Abs. Power compressor	kW	1,67	2,03	2,01	2,50	2,82	2,8	4,09	4,86	5,02
Refrigerant circuit										
Abs. Power compressor	Ø	10/12	10/12	10/12	10/12	10/12	12/16	12/16	16/18	16/18
Recquired condenser (on request) (2)										
Condenser capacity	kW	8,1	9,6	10,7	13	14,4	15,4	20.7	23,7	24,2
Remote condeser base model (3)		CDH351B	CDH351B	CDSH351B	CDSH352A	CDSH352A	CDSH353B	CDSH353B	CDSH353B	CDSH353B
H model	**HTTY/B**	**1055**	**1065**	**1089**	**1102**	**1116**	**1147**	**1173**	**1194**	**2188**
Cooling capacity (total/sensible)										
Return air 24° C/50% r.h. (1)	kW / kW	6,7/5,7	7,8/6,3	9,2/9,2	11/10,1	12/10,7	13,5/13	17,5/15,5	19,5/16,6	20,1/16,8
Abs. Power compressor	kW	1,46	1,84	1,73	2,23	2,54	2,36	3,63	4,37	4,52
Buit-in-water cooled condenser (water 30-35° C; 0% glicol)										
Condensing water flow	mc/h	1,15	1,34	1,59	1,89	2,06	2,32	3,01	3,35	3,46
Condenser pressure drop	kPa	15	20	15	22	27	5	9	12	13
Condenser conections	Ø	1"	1"	1"	1"	1"	1"	1"	1"	1"
General Features										
Fan section with direct coupling fans										
Nominal air flow	m3/h	1600	1600	3000	3000	3000	4500	4500	4500	4500
External static pressure	Pa	20	20	20	20	20	20	20	20	20
Nominal power consumpition fan motor	W	245	245	500	500	500	2x 500	2x 500	2x 500	2x 500
Filter section										
Filter x Number of filters	Type x Nr	EU4 x 1	EU4 x 1	EU4 x 1	EU4 x 1	EU4 x 1	EU4 x 2	EU4 x 2	EU4 x 2	EU4 x 2
Scroll compressors										
Number of Scroll compressors	Nr	1	1	1	1	1	1	1	1	2
Abs current	A	4,7	6	6	7	8	8	11,5	15	14
Current LRA	A	28	38	38	46	43	43	64	75	46
Sound pressure level										
Sound pressure level at 2m in f.f (4) (5)	dB (A)	48	48	54	54	54	57	57	57	57
Dimensions										
Widht	[A] mm	550	550	830	830	830	1200	1200	1200	1200
Depht	[B] mm	490	490	550	550	550	550	550	550	550
Height	[C] mm	1750	1750	1780	1780	1780	1780	1780	1780	1780
Weight (±5)	kg	205	210	220	230	255	275	280	290	305

Options

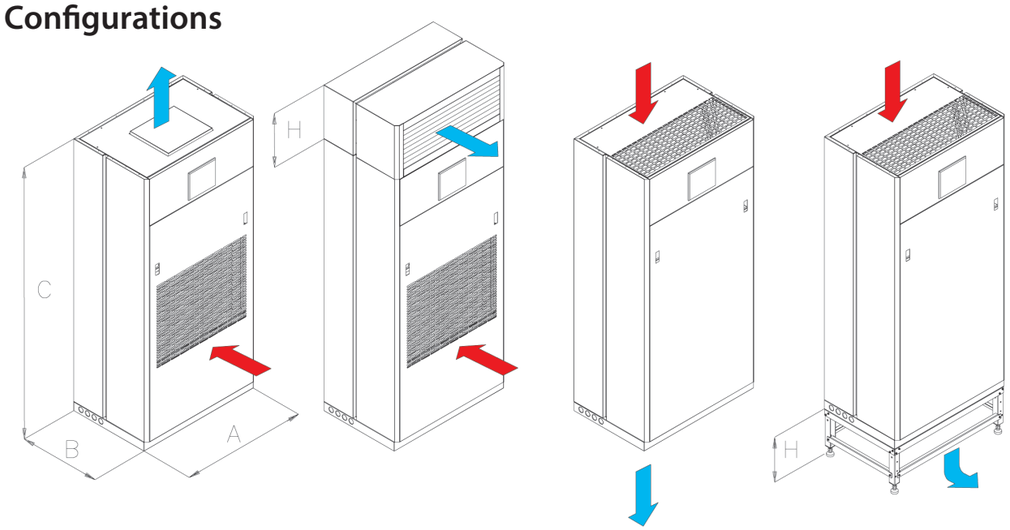
Low noise execution
Air flow alarm
Dirty filter alarm
Water leak detector
Clock card
Interface card RS485
Discharge fan speed regulation
Electric heater(230/1/50)
Steam humidifier (HTT/B 1055 and 1065 not available) (400/3/50)
Standard remote condenser (X version only)
Low Noise version for remote condenser (X version only)
Vertical flow kit for remote condenser (only with remote condenser option)
Remote condenser control device (only with remote condenser option)
Pressostatic valve (H version only)
Fresh air intake
Discharge plenum H=350mm
Adjustable base frame with vibration damper H=300mm

CCA CCUY THIN/R410A

TECHNICAL DATA **W VERSION** - CHILLED WATER COIL AIR CONDITIONERS

W Model	WTT/B	0068	0080	0124	0148	0174	0210
Cooling capacity (total/sensible)							
Return air 24°C / 50% r.h.(1)	**kW/kW**	**5,8 / 5,3**	**6,7 / 5,8**	**10,6 / 9,9**	**12,9 / 11,2**	**18,1 / 15,8**	**22,3 / 19,3**
Chilled water coil circuit [IN 7°C - OUT 12°C; 0% glicol]							
Chilled water flow	mc/h	1,16	1,37	2,13	2,54	2,98	3,72
Total pressure drop	kPa	35	30	35	28	30	29
Chilled water connections	Ø	1/2"	1/2"	3/4"	3/4"	1"	1"
Sound pressure level							
Sound pressure level at 2m in f.f. (2)(3)	dB (A)	45	45	54	54	56	56
Fan section with direct coupling fans							
Air volume range	m^3/h	1650	1450	3250	2800	5200	4500
External static pressure	Pa	30	30	30	40	40	30
Nominal power consumpition fan motor	W	245	245	500	500	2x 500	2x 500
Filter section							
Filter x Number of filters	Type x Nr	EU4 x 1	EU4 x 1	EU4 x 1	EU4 x 1	EU4 x 2	EU4 x 2
Dimensions							
Widht	[A] mm	550	550	830	830	1200	1200
Depth	[B] mm	490	490	550	550	550	550
Height	[C] mm	1750	1750	1780	1780	1780	1780
Weight (± 5)	Kg	170	175	185	195	210	230

Configurations



NOTES:
(1) Cooling capacity calculated at specified air volumes and external static pressures. 20 to 100 Pa external static pressure available at recalculated air flows and performances
(2) Average condensino temperature +48°C
(3) Air ambient temperature +32°C
(4) dB(A) is the overall noise level, measured on the A scale, at given distance from the unit, without reverberation, in nominal working conditions
(5) Free field calculation with fans at maximum speed. In applied field, eventual noise reverberation / attenuation is to be considered
(6) W version - elettrical supply 230/1+N/50
(7) X and H version - electrical supply 400/3+N/50

Technical data, photos, drawings and dimensions are not binding.
We reserve the right for changes and/or modifications without notice.

NOTES

CCA CCU RADIAL/R410A

CHAPTER 5

CLOSE CONTROL UNIT – FANS INVERTER TECNOLOGY FROM 5 TO 45 KW

Close control air conditioners with fans inverter technology (EC)

- **W version - chilled water**
- **X version - air cooled direct expansion**
- **H version - water cooled direct expansion**

MADE IN ITALY



GENERAL FEATURES

STANDARD EQUIPMENT FOR ALL VERSIONS

µAC Microprocessor
EC Inverter controlled with Plug Fan
High efficiency air filter housed in a metal frame
Temperature/humidity probe
Cooling coil with an oversized exchange surface with copper pipes and aluminium fins
Electrical panel in a separate compartment in accordance with 2006/95/CE
Complete front accessibility
Steel frame with epoxy powder RAL 7035 (available as option black colour RAL 9005)

STANDARD EQUIPMENT DIRECT EXPANSION UNIT

Scroll compressor
Refrigerant R410A
Refrigerant circuit including: high and low pressure switch, filter dryer, sight glass, thermostatic valve, liquid receiver
Shut off valves

X version only

Terminal block for connection to remote condenser (External air 32° C)

H version only

Plate to plate condenser

STANDARD EQUIPMENT W VERSION

Three-way modulating control mixing valve complete with actuator

VOLTAGE SUPPLY

400/3+N/50

IDENTIFICATION CODE

W	S	T	0	157	A	C	-	R
1	2	3	4	5	6	7		8

1	**X**	Air cooled direct expansion
	H	Water cooled direct expansion
	W	Chilled water coil
2	**M**	Medium size S = Small size
3	**T**	Top air discarge
	B	Bottom air discarge
4	**0**	Chilled water unit
	1	Single compressor
	2	Two compressors (one circuit)
5	**157**	Unit size
6	**A**	µAC Microprocessor
	N	no Microprocessor
	P	pCO1 Microprocessor
7	**C**	Cooling only
	E	Cooling + heating
	U	Cooling + humidification
	D	Cooling + heating +humidifier+dehumidifier
8	**R**	Plug Fan

GENERAL FEATURES

Close control unit CCU are to be seen as the most advanced solution to all problems of air conditioning in all technological applications, like server farms, UMTS and GSM broadcasting power amplifiers, NOCs (Network Operation Centers), computer racks cooling, control rooms, power equipment, and in general wherever heat loads are critically high.

Front panels are hinged so that access is totally from the front; most modern technical solutions and best components grant our air conditioners maximum versatility and longest reliability for mission critical applications.

The self-supporting galvanized steel frame protected with polyester powder painting allow all panels and front door to be removed, reducing total weight for easiest installation. Double panels (inner plate and insulated panel on the outside) reduce noise and vibration escape to the room to a minimum. Extruded aluminum frame (1) is anodized to allow maximum lifespan also in severe environment locations.

In precision applications, generated heat is mainly dry and input humidity is very low, with subsequent sensible heat ratio close to 85-95%. Having this in mind, we designed our air conditioners to supply an extremely high heat ratio, increasing overall system efficiency.

Server and computer rooms are constantly expanding, and air conditioners have to be flexible into satisfying needs, such as conditioner relocation, accessories add-up, etc. Our air conditioners can be easily repositioned, because weight is reduced to a minimum, thanks to the aluminum frame and to the panels removal system. Furthermore, all plates are already drilled for positioning and installation of all accessories, reserving the right for the customer to install further accessories at any time after the purchase.

Our air conditioners are highly reliable; nevertheless a good designing pratice must assume some downtime. All systems have to be designed having in mind air conditioning redundancy, in order to supply continuous cooling during programmed maintenance. All our air conditioners are already preset in order to manage a cyclic redundancy of up to 6 or 8 units (2).

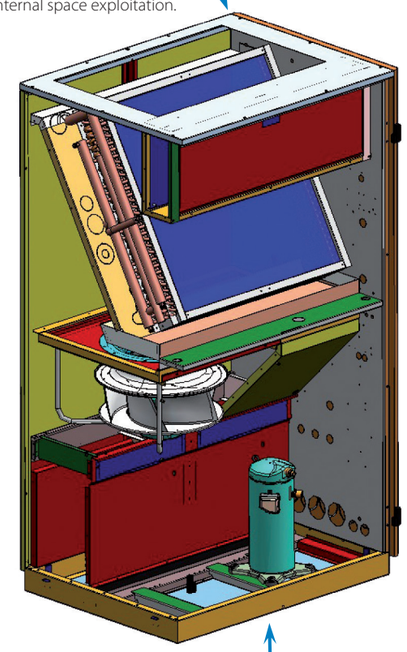
1)Used models with a width exceeding 1800mm
2)depending on microprocessor



INNOVATIVE DESIGN
- the self-supporting galvanized steel frame protected with polyester powder painting with neutral colors and quality components, ensure that it fits a perfectly in the architectural design and a minimum visual impact. Internal insulation minimises noise and vibrations.

SELFSUPPORTING FRAME
In strong steel to guarantee maximum strength

COMPACT UNIT
- The innovative threedimensional computer-aided design has allowed the realisation of units with the better use of interior space Allowed us to produce units with the best internal space exploitation.



TECHNICAL COMPARTMENT
- Positioned in the lower section for easy maintenance

Inverter technology on the plug fans continuously and automatically adjusts the power and speed of operation of the fans, generating the following benefits.

- Low electrical absorption on the ambient air temperature requested
- High static pressure
- Air flow flexibility

TECHNICAL DATA **X SERIES** - AIR COOLED DIRECT EXPANSION AIR CONDITIONERS

Description		XST XSB 1053	XST XSB 1064	XST XSB 1087	XST XSB 1118	XST XSB 1161	XST XSB 1214	XST XSB 1225
Cooling capacity direct exp. coil (tot/sens) for remote air cooled condenser								
Return air 24°C / 50% r.h.(1)	kW/kW	5,3/5,1	6,4/6,3	8,7/7,2	11,8/11,8	16,1/13,5	22,0/17,8	23,8/17,8
Fan section								
Plug Fan (EC Inverter)	Tipo Type	Radiale Radial	Radiale Radial	Radiale Radial	Radiale Radial	Radiale Radial	Radiale Radial	Radiale Radial
Number of motors/fans	N° Nb	1	1	1	1	1	1	1
Air volume range	m^3/h	1550	2000	2000	3800	3800	5250	5250
External static pressure	Pa	50-350	50-350	50-350	50-350	50-350	50-350	50-350
Nominal power consumpition fan motor	kW	0,95	0,95	0,95	0,95	0,95	1	1
Nominal current consumpition fan motor	A	1,8	1,8	1,8	1,8	1,8	1,9	1,9
Filter section								
Filter	Tipo Type	EU4	EU4	EU4	EU4	EU4	EU4	EU4
Number of filters T Type	N° Nb	2	2	2	4	4	4	4
Number of filters B Type	N° Nb	1	1	1	2	2	4	4
Refrigerant circuit								
Compressor	Tipo Type	Scroll*	Scroll*	Scroll*	Scroll*	Scroll*	Scroll*	Scroll*
Number of compressors	N° Nb	1	1	1	1	1	1	1
Nominal power consumpition of compressor motor	kW	1,2	1,5	2,5	2,8	4,3	5,7	6,4
Nominal current input of compressor motor	A	5,7	2,8	4,6	5,1	8,1	10,7	12,1
Locked rotor current of compressor motor	A	35	22	39	44	62	96	94
Maximum running current of compressor motor	A	9,1	6,2	8	8,5	11,5	16,6	18
Liquid/gas pipe size	mm	10/12	10/12	10/12	12/16	12/16	16/22	16/22
Required condenser (not included)								
Condenser capacity	kW	6,5	7,9	11,2	14,6	20,4	27,7	30,2
Average temperature of condensation	°C	48	48	48	48	48	48	48
Dimensions/weight		PR1	PR1	PR1	PR1	PR1	PR2	PR2
Widht	mm	715	715	715	715	715	1130	1130
Depth	mm	750	750	750	750	750	850	850
Height	mm	1950	1950	1950	1950	1950	1950	1950
Weight	kg	260	265	270	320	340	415	465
Noise levels								
Noise level at 2m in f.f. T type (2)(3)	db (A)	47,7	52,5	52,5	56,5	57	57,7	58,7
Noise level at 2m in f.f. B type (2)(3)	db (A)	45,7	50,5	50,5	54,5	55	55,7	56,7
Warm water reheat								
Water temperature (in/out) nominal	°C	80 / 60	80 / 60	80 / 60	80 / 60	80 / 60	80 / 60	80 / 60
Capacity	kW	7,3	8,3	8,3	13,7	13,7	19,2	19,2
Warm water coil connections	Pollici Diam	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
Eletrical reheatig max								
Number of stages max	N° Nb	1	1	1	2	2	2	2
Capacity per stage	kW/kW	3	3	3	3 / 3	3 / 3	6 / 6	6 / 6
Current consumpitio per stage	A/A	4,5	4,5	4,5	4,5 / 4,5	4,5 / 4,5	8,7 / 8,7	8,7 / 8,7
Humidification								
Steam humidifier capacity	kg/h	5	5	5	13	13	13	13
Max power consumpition	kW	3,6	3,6	3,6	9,4	9,4	9,4	9,4
Max current consumption	A	5,5	5,5	5,5	14,3	14,3	14,3	14,3
Fill/drain water connections	Pollici Diam	3/4"-30 mm	3/4"-30 mm	3/4"-30 mm	3/4"-30 mm	3/4"-30 mm	3/4"-30 mm	3/4"-30 mm

1) Cooling capacity calculated at specified air volumes and external static pressures. 20 to 400 Pa external static pressure available at recalculated air flows and performances
2) db(A) is the overall noise level, measured on the A scale, at given distance from the unit, without reverberation, in nominal working conditions
3) Free field calculation with fans at maximum speed. In applied field, eventual noise reverberation / attenuation is to be considered

TECHNICAL DATA **W SERIES** - CHILLED WATER COIL AIR CONDITIONERS

Description		HST HSB 1056	HST HSB 1067	HST HSB 1091	HST HSB 1125	HST HSB 1168	HST HSB 1227	HST HSB 1238
Cooling capacity direct exp coil (tot/sens) with built in water cooled condenser								
Return air 24°C / 50% r.h.(1)	kW/kW	5,6/5,2	6,7/6,4	9,1/7,4	12,5/12,1	16,8/13,9	22,7/18,9	23,8/19,4
Fan section								
Plug Fan (EC inverter)	Tipo Type	Radiale Radial	Radiale Radial	Radiale Radial	Radiale Radial	Radiale Radial	Radiale Radial	Radiale Radial
Number of motors/fans	N° Nb	1	1	1	1	1	1	1
Air volume range	m^3/h	1550	2000	2000	3800	3800	5250	5250
External static pressure	Pa	50-350	50-350	50-350	50-350	50-350	50-350	50-350
Nominal power consumpition fan motor	kW	0,95	0,95	0,95	0,95	0,95	1	1
Nominal current consumpition fan motor	A	1,8	1,8	1,8	1,8	1,8	1,9	1,9
Filter section								
Filter	Tipo Type	EU4	EU4	EU4	EU4	EU4	EU4	EU4
Number of filters T Type	N° Nb	2	2	2	4	4	4	4
Number of filters B Type	N° Nb	1	1	1	2	2	4	4
Refrigerant circuit								
Compressor	Tipo Type	Scroll*	Scroll*	Scroll*	Scroll*	Scroll*	Scroll*	Scroll*
Number of compressors	N° Nb	1	1	1	1	1	1	1
Nominal power consumpition of compressor motor	kW	1,2	1,5	2,5	2,8	4,3	5,7	6,4
Nominal current input of compressor motor	A	5,7	2,8	4,6	5,1	8,1	10,7	12,1
Locked rotor current of compressor motor	A	35	22	39	44	62	96	94
Maximum running current of compressor motor	A	9,1	6,2	8	8,5	11,5	16,6	18
Buit-in water cooled condenser								
Condensing water temp. (in/out) nominal	°C	30/35	30/35	30/35	30/35	30/35	30/35	30/35
Condensing water flow	l/s	0,32	0,38	0,54	0,71	0,99	1,32	1,41
Condensing water pressure drop	kPa	10	10	14	7	13	50	58
Condenser connection	Pollici Diam	1"	1"	1"	1"	1"	1"	1"
Dimensions/weight		PR1	PR1	PR1	PR1	PR1	PR2	PR2
Widht	mm	715	715	715	715	715	1130	1130
Depth	mm	750	750	750	750	750	850	850
Height	mm	1950	1950	1950	1950	1950	1950	1950
Weight	kg	260	265	270	320	340	415	465
Noise levels								
Noise level at 2m in f.f. T type (2)(3)	db (A)	47,7	52,5	52,5	56,5	57	57,7	58,7
Noise level at 2m in f.f. B type (2)(3)	db (A)	45,7	50,5	50,5	54,5	55	55,7	56,7
Warm water reheat								
Water temperature (in/out) nominal	°C	80 / 60	80 / 60	80 / 60	80 / 60	80 / 60	80 / 60	80 / 60
Capacity	kW	7,3	8,3	8,3	13,7	13,7	19,2	19,2
Warm water coil connections	Pollici Diam	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
Eletrical reheating max								
Number of stages max	N° Nb	1	1	1	2	2	2	2
Capacity per stage	kW/kW	3	3	3	3 / 3	3 / 3	6 / 6	6 / 6
Current consumpitio per stage	A/A	4,5	4,5	4,5	4,5 / 4,5	4,5 / 4,5	8,7 / 8,7	8,7 / 8,7
Humidification								
Steam humidifier capacity	kg/h	5	5	5	13	13	13	13
Max power consumpition	kW	3,6	3,6	3,6	9,4	9,4	9,4	9,4
Max current consumption	A	5,5	5,5	5,5	14,3	14,3	14,3	14,3
Fill/drain water connections	Pollici Diam	3/4"-30 mm	3/4"-30 mm	3/4"-30 mm	3/4"-30 mm	3/4"-30 mm	3/4"-30 mm	3/4"-30 mm

CCA CCU RADIAL/R410A

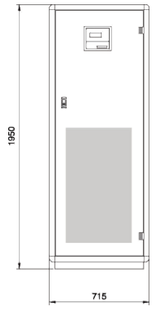
TECHNICAL DATA **W SERIES** - CHILLED WATER COIL AIR CONDITIONERS

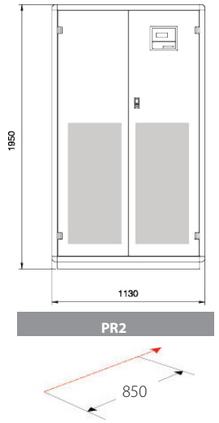
Description		WST WSB 0074	WST WSB 0088	WST WSB 0157	WST WSB 0217	WST WSB 0303	WST WSB 0402	WST WSB 0465
Cooling capacity chilled coil (total/sensible)								
Return air 24°C / 50% r.h.(1)	kW/kW	7,4/6,2	8,8/7,6	15,7/13,4	21,7/19,3	30,3/26,3	40,2/36,1	46,5/40,6
Fan section								
Plug Fan (EC Inverter)	Tipo Type	Radiale Radial	Radiale Radial	Radiale Radial	Radiale Radial	Radiale Radial	Radiale Radial	Radiale Radial
Number of motors/fans	N° Nb	1	1	1	1	1	2	2
Air volume range	m^3/h	1550	2000	3500	5250	7000	9900	10800
External static pressure	Pa	50-350	50-350	50-350	50-350	50-350	50-350	50-350
Nominal power consumpition fan motor	kW	0,95	0,95	0,95	1	2,5	2	5
Nominal current consumpition fan motor	A	1,8	1,8	1,8	1,9	3,9	3,8	7,8
Filter section								
Filter	Tipo Type	EU4	EU4	EU4	EU4	EU4	EU4	EU4
Number of filters T Type	N° Nb	2	2	4	4	4	6	6
Number of filters B Type	N° Nb	1	1	2	4	4	6	6
Chilled water coil circuit								
Water temperature (in/out) nominal	°C	7 / 12	7 / 12	7 / 12	7 / 12	7 / 12	7 / 12	7 / 12
Glycol content	%	0	0	0	0	0	0	0
Chilled water flow	l/s	0,35	0,41	0,73	1,01	1,41	1,86	2,16
Total pressure drop	kPa	51	58	95	50	73	44	50
Connexions eau glacée	Pollici Diam	1"	1"	1"1/4	1"1/2	1"1/2	1"1/2	1"1/2
Dimensions/weight		PR1	PR1	PR1	PR2	PR3	PR4	PR5
Widht	mm	715	715	715	1130	1380	1825	2075
Depth	mm	750	750	750	850	850	850	850
Height	mm	1950	1950	1950	1950	1950	1950	1950
Weight	kg	235	240	270	375	415	530	595
Noise levels								
Noise level at 2m in f.f. T type (2)(3)	db (A)	52	56	64	62	62	66	66
Noise level at 2m in f.f. B type (2)(3)	db (A)	49	53	61	59	59	63	63
Warm water reheat								
Water temperature (in/out) nominal	°C	80 / 60	80 / 60	80 / 60	80 / 60	80 / 60	80 / 60	80 / 60
Capacity	kW	7,3	8,3	13,7	19,2	25,8	37,7	42,3
Warm water coil connections	Pollici Diam	3/4"	3/4"	3/4"	3/4"	3/4"	1"	1"
Eletrical reheating max								
Number of stages max	N° Nb	1	1	2	2	2	2	2
Capacity per stage	kW/kW	3	3	3 / 3	6 / 6	6 / 6	6 / 9	6 / 9
Current consumpitio per stage	A/A	4,5	4,5	4,5 / 4,4	8,7 / 8,7	8,7 / 8,7	8,7 / 13	8,7 / 13
Humidification								
Steam humidifier capacity	kg/h	5	5	13	13	13	13	13
Max power consumpition	kW	3,6	3,6	9,4	9,4	9,4	9,4	9,4
Max current consumption	A	5,5	5,5	14,3	14,3	14,3	14,3	14,3
Fill/drain water connections	Pollici Diam	3/4"-30 mm	3/4"-30 mm	3/4"-30 mm	3/4"-30 mm	3/4"-30 mm	3/4"-30 mm	3/4"-30 mm

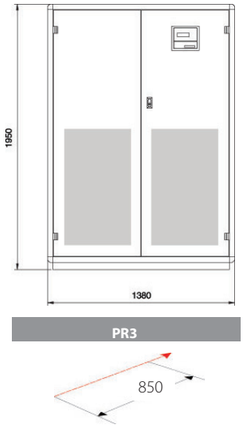
1) Cooling capacity calculated at specified air volumes and external static pressures. 20 to 400 Pa external static pressure available at recalculated air flows and performances
2) db(A) is the overall noise level, measured on the A scale, at given distance from the unit, without reverberation, in nominal working conditions
3) Free field calculation with fans at maximum speed. In applied field, eventual noise reverberation / attenuation is to be considered

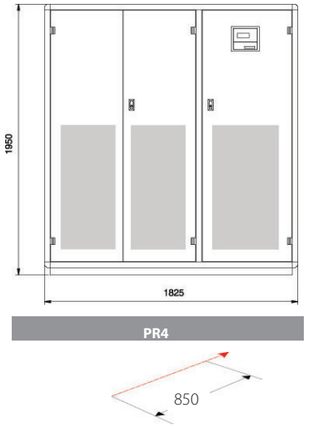
CCA CCU RADIAL/R410A

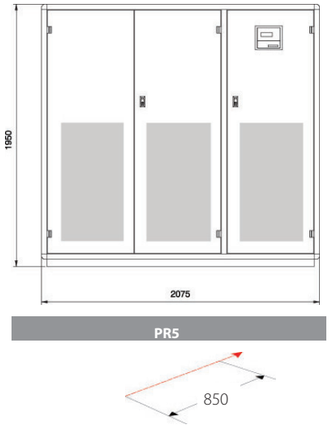
TOP AIR DISCHARGE (T) - BOTTOM AIR DISCHARGE (B)



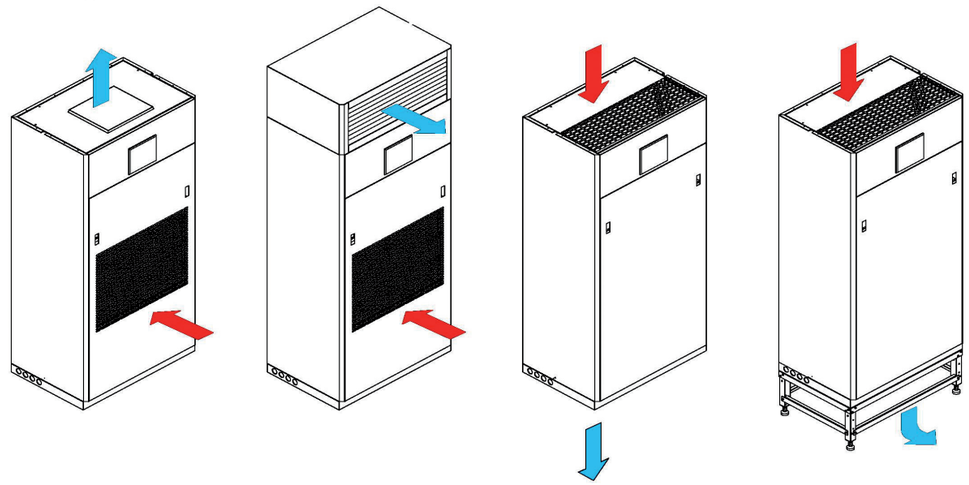








Configurations



ROOF-TOP UNITS

Thanks to efficient production models our roof-top air-conditioning equipment fully conforms to Italian and international standards. Together with quality management standards KLT Klima develops own product portfolio offering essential selection of standard roof top equipment and tailor made solutions in line with client's requirements. Scroll compressors for heating and cooling of industrial and commercial buildings are made using high quality materials and brilliant ideas of our engineering team.

Roof positioning of these air-conditioning machines is possible thanks to a particular construction calculated to be set on the top floor of the industrial buildings. Installation space helps to overtake some limits of the cabinet systems: roof-top air-conditioning are more powerful thanks to its size, and more silent thanks to its external placement.

KLT Klima products are planned to obtain an excellent environmental comfort with minimum energy consumption: latest advanced technologies ensure stable cost-effective solution for bigger spaces.

One of the substantial advantages of roof-based KLT Klima air-conditioners is its low environmental impact: in addition to considerable energy savings, our housetop solutions use the green R410A refrigerant that doesn't damage the ozone layer, as it is free from chlorine atoms.

High quality materials and attention to details make our roof-top air-conditioning solutions reliable and durable in any operating conditions.

RTU KRSAY/R410A

SCROLL COMPRESSORS

- **Roof-top air conditioner**
- **from 30 kW to 350 kW**

MADE IN ITALY

IDENTIFICATION CODE		
KRSAY	J	Roof - Top series
1	L	Roof - Top series
2	A	Axial fan
3	Y	Refrigerant R410A
4	J	Special version
5	–	cooling only
6	12	Capacity factors
7	1	Numbers of circuits
8	H	Heat pump version
	HE	High efficiency heat pump version
	AC	High efficiency Class A
9	-	Recirculation
	M / M1	Mixing section
	EM	Exhaust air fan and free-cooling section
	COMPACT	EM vertical version
10	V	Steam humidifier
	BE	Electrical heater
	BC	Hot water coil
	REC	Heat recovery cross-flow
	EC	Radial fans with integrate inverter
	LN	Low noise
	VLN	Very low noise



RTU KRSAY/R410A

The new ROOF-TOP range has been designed to achieve and deliver optimal COMFORT with minimum energy consumption, with projects of more advanced technologies, which also allow continuous operation of unity at low operating costs.

ENVIRONMENT

For a more environmentally friendly product, "KLT Klima" have opted to run their units on green refrigerant R-410A. This gas does not contain chlorine atoms, so it is not dangerous to the ozone layer if released. Its superior thermodynamic efficiency also makes for considerable energy savings and means more compact, with higher performances.

TECHNOLOGY

Electronic expansion valve managed by software, it allow the refrigerant circuit to work very efficiently and reducing the power consumption. When the heating load changes suddenly, a traditional expansion valve experiences a 2-3 minute hunting period before achieving a state of equilibrium. On the contrary we have an immediate action of an **electronic expansion valve.**

CAPACITY CONTROL

The option of producing different cooling circuit configurations on the same size unit (in terms of capacity) means we can customize efficiency levels at full or partial load. The multi-compressor models favour high efficiency values at full load (EER and COP). Having a number of compressors allows the unit to deliver its output based on a number of capacity reduction steps, thus adjusting capacity to suit the system's actual heating load perfectly and reducing inrush currents.

INTERCONNETIVITY

An advanced microprocessor enable:

- LAN network

- the WEB kit to read and set data via a remote PC by accessing the IP address of the unit or unit network.

FIELD OF USE

- **Production of direct expansion systems ducted:** our units have constructive technical devices for optimal installation of systems as: restaurants, supermarkets, shopping centers, industrial buildings, museums, etc..
- **Complete automation:** the ACM roof-top new generation allows fully autonomous automatic reverse cycle, from summer to winter.

MAIN FEATURES

- **free-cooling device:** 3 motorized dampers which allows considerable energy savings when not in use compressors.
- **Variable air flow:** using special INVERTER that modulate the air flow according to the internal heat load (temperature control and air quality sensor on request).
- **Recovery of exhaust air:** device that allows to recover the return ambient air (winter and summer) by sending it to the external heat exchangers optimizing the efficiency.
- **Heat pumps high efficiency:** by means of special devices as hot gas system kit (external coil) defrosting ice and recovery of exhaust air, the units are optimized to operate at -10°C outside air.

INNOVATIONS

- **Defrosting:** using the appropriate devices and external heat exchangers increased subcooling with "V" have been minimized and especially for a very short duration. Also, the configuration allows the operation of the units also with adverse weather conditions (snow accumulations).
- **Personalization:** thanks to the high modularity of the sections, is possible to adapt the machine to the various needs of plant or in case of replacement.







TECHNICAL DATA

SIZE			21	31	41	51	61	71
Cooling mode								
Cooling capacity	(1)	kW	38	43	47	54	60	71
Compr. abs. power	(1)	kW	8.5	10.7	12.7	13.1	15.5	16.4
EER	(1)	-	4.47	4.01	3.70	4.12	3.87	4.32
Heat pump mode								
Heating capacity	(1)	kW	37	42	47	53	59	73
Compr. abs. power	(1)	kW	7.3	8.4	9.6	10.5	12.2	13.4
COP	(1)	-	5.06	5	4.89	5.04	4.83	5.44
Condensing section								
Compressor (scroll)								
Quantity		n°	2					
Refrigerant circuit		n°	1					
Capacity step		n°	2					
Refrigerant		-	R410a					
Refrigerant quantity		kg	10	10	12	14	16	18
Axial fan		n°	1	1	1	1	1	2
Max abs power		kW	0.9	0.9	0.9	0.9	0.9	1.8
Max abs current		A	2.1	2.1	2.1	2.1	2.1	4.2
Air handling section								
Discharge fan (centrifugal)		n°	1					
Nominal air flow		Mc/h	6.800	7.600	8.300	9.600	10.500	13.000
EPS		Pa	200					
Motor abs. power		kW	1.2	1.3	1.4	1.7	2.1	2.6
EM version (extracted air)								
Return fan (centrifugal)		n°	1					
Nominal air flow		Mc/h	6.200	6.900	7.500	8.700	9.600	11.700
EPS		Pa	150					
Motor abs. power		kW	0.7	0.8	0.9	1.2	1.5	1.9
Electrical data M e M1 version								
Max abs. current		A	31	38	40	42	53	59
Max LRC		A	83	98	126	127	143	155
Electrical data EM version								
Max abs. current		A	33	40	43	45	58	64
Max LRC		A	85	100	129	130	148	160
Voltage supply		V/f/Hz	400/3/50					
Sound pressure level at 10m	(2)							
Version STD		dB(A)	50	50	50	52	52	54
Version LN		dB(A)	48	48	48	50	50	52
Version VLN		dB(A)	45	45	45	47	47	49

Notes:
1) Cooling mode: ambient air temp. 35°C - coil inlet air temp. 27°C/50% R.U.
Heating mode: ambient air temp. 7°C/87% - coil inlet air temp. 20°C/50% R.U.
2) Sound pressure level measured in free field at 10 m (air suction on condensing section) and 1,5 m from the ground; air handling section ducted, both on return air and on discharge air

SIZE			81	91	101	121	131	151
Cooling mode								
Cooling capacity	(1)	kW	76	86	104	113	133	148
Compr. abs. power	(1)	kW	19.2	22	25.3	33	36.8	40.6
EER	(1)	-	3.95	3.90	4.11	3.42	3.61	3.64
Heat pump mode								
Heating capacity	(1)	kW	82	89	107	126	134	159
Compr. abs. power	(1)	kW	15.5	17.6	21.4	26.7	27.1	32.1
COP	(1)	-	5.29	5.05	5	4.71	4.94	4.95
Condensing section								
Compressor (scroll)								
Quantity		n°	2					
Refrigerant circuit		n°	1					
Capacity step		n°	2					
Refrigerant		-	R410a					
Refrigerant quantity		kg	21	24	26	32	36	39
Axial fan		n°	2	2	2	2	2	3
Max abs power		kW	1.8	1.8	1.8	3.8	3.8	2.7
Max abs current		A	4.2	4.2	4.2	8.2	8.2	6.3
Air handling section								
Discharge fan (centrifugal)		n°	1					
Nominal air flow		Mc/h	14.000	15.000	18.500	21.000	24.000	28.500
EPS		Pa	200					
Motor abs. power		kW	2.6	2.9	4	4.1	5.8	6.9
EM version (extracted air)								
Return fan (centrifugal)		n°	1					
Nominal air flow		Mc/h	12.600	13.500	16.700	19.000	21.600	26.000
EPS		Pa	150					
Motor abs. power		kW	1.9	2.1	2.6	3.4	3.5	5.1
Electrical data M e M1 version								
Max abs. current		A	65	77	86	102	105	130
Max LRC		A	158	186	226	325	328	374
Electrical data EM version								
Max abs. current		A	70	83	94	98	108	119
Max LRC		A	163	192	234	283	293	343
Voltage supply		V/f/Hz	400/3/50					
Sound pressure level at 10m	(2)							
Version STD		dB(A)	54	55	56	58	58	61
Version LN		dB(A)	52	53	54	56	56	59
Version VLN		dB(A)	49	50	51	53	53	56

Notes:
1) Cooling mode: ambient air temp. 35°C - coil inlet air temp. 27°C/50% R.U.
Heating mode: ambient air temp. 7°C/87% - coil inlet air temp. 20°C/50% R.U.
2) Sound pressure level measured in free field at 10 m (air suction on condensing section) and 1,5 m from the ground; air handling section ducted, both on return air and on discharge air

TECHNICAL DATA

SIZE			172	182	202	242	302	312	342
Cooling mode									
Cooling capacity	(1)	kW	178	193	201	239	301	310	349
Compr. abs. power	(1)	kW	43.6	49	54.2	65.8	80.4	85.7	97
EER	(1)	-	4.08	3.93	3.70	3.63	3.74	3.61	3.59
Heat pump mode									
Heating capacity	(1)	kW	182	195	209	253	316	328	377
Compr. abs. power	(1)	kW	34.5	38.8	42.2	54.3	66.5	70.8	83.7
COP	(1)	-	5.2	5	4.92	4.65	4.75	4.63	4.50
Condensing section									
Compressor (scroll)									
Quantity		n°	4						
Refrigerant circuit		n°	2						
Capacity step		n°	4						
Refrigerant		-	R410a						
Refrigerant quantity		kg	22+22	25+25	28+28	32+32	36+36	38+38	41+41
Axial fan		n°	4	4	4	4	6	6	6
Max abs power		kW	3.6	3.6	3.6	7.6	11.4	11.4	11.4
Max abs current		A	8.4	8.4	8.4	16.4	24.6	24.6	24.6
Air handling section									
Discharge fan (centrifugal)		n°	1						
Nominal air flow		Mc/h	31.000	34.000	36.000	42.000	52.000	54.000	59.000
EPS		Pa	200						
Motor abs. power		kW	7.8	9.1	9.2	11.7	13.9	15	17.9
EM version (extracted air)									
Return fan (centrifugal)		n°	1						
Nominal air flow		Mc/h	28.400	31.000	32.500	38.000	47.000	49.000	54.000
EPS		Pa	150						
Motor abs. power		kW	4.6	5.7	6.4	7.2	8.6	9.4	12.2
Electrical data M e M1 version									
Max abs. current		A	157	163	177	209	257	259	293
Max LRC		A	266	303	317	432	501	482	537
Electrical data EM version									
Max abs. current		A	168	178	192	231	279	289	323
Max LRC		A	277	318	332	454	523	512	367
Voltage supply		V/f/Hz	400/3/50						
Sound pressure level at 10m	(2)								
Version STD		dB(A)	61	62	62	64	64	64	66
Version LN		dB(A)	59	60	60	62	62	62	64
Version VLN		dB(A)	56	57	57	59	59	59	61

Notes:
1) Cooling mode: ambient air temp. 35°C - coil inlet air temp. 27°C/50% R.U.
Heating mode: ambient air temp. 7°C/87% - coil inlet air temp. 20°C/50% R.U.
2) Sound pressure level measured in free field at 10 m (air suction on condensing section) and 1,5 m from the ground; air handling section ducted, both on return air and on discharge air

TECHNICAL DATA

SIZE			21	31	41	51	61	71
Heat recovery croos-flow								
Summer recovery capacity	(1)	kW	10	12	13	14	17	20
Winter recovery capacity	(2)	kW	34	36	38	42	4	60
Electric heaters								
Heating capacity		kW	3+6	3+6	6+6	6+6	6+9	6+9
Steam humidification								
Steam capacity		kg/h	3	3	5	5	5	5
Abs. power 400/3/50 Hz		kW	2.3	2.3	3.8	3.8	3.8	3.8
Hot water coil								
Heating capacity	(3)	kW	66	71	77	84	91	108
Heating capacity	(3)	kW	41	44	47	52	58	68
Radial discharge fan EC		N°	1					
EPS		Pa	50-400	50-300	50-400	50-500	50-450	50-350
Motor nominal capacity		kW	2	2	2.9	5.2	5.2	5.3
Nominal current		A	3.3	3.3	4.8	8.5	8.5	8.5

SIZE			81	91	101	121	131	151
Heat recovery croos-flow								
Summer recovery capacity	(1)	kW	22	24	26	30	35	37
Winter recovery capacity	(2)	kW	65	68	82	95	120	125
Electric heaters								
Heating capacity		kW	9+9	9+9	12+12	15+15	18+18	24+24
Steam humidification								
Steam capacity		kg/h	10	10	10	10	20	20
Abs. power 400/3/50 Hz		kW	7.5	7.5	7.5	7.7	15	15
Hot water coil								
Heating capacity	(3)	kW	127	150	167	197	227	260
Heating capacity	(3)	kW	8'	94	104	122	140	161
Radial discharge fan EC		N°	1	1	1	1	1	1
EPS		Pa	50-350	50-250	50-350	50-350	50-300	50-300
Motor nominal capacity		kW	4.9	4.9	4.5	4.5	5.7	6.3
Nominal current		A	7.9	7.9	7.2	12	12	12

SIZE			172	182	202	242	302	312	342
Heat recovery croos-flow									
Summer recovery capacity	(1)	kW	42	47	52	58	c.f.	c.f.	c.f.
Winter recovery capacity	(2)	kW	140	160	178	190	c.f.	c.f.	c.f.
Electric heaters									
Heating capacity		kW	24+24	24+24	36+36	36+36	48+48	48+48	48+48
Steam humidification									
Steam capacity		kg/h	20	30	30	30	48	48	48
Abs. power 400/3/50 Hz		kW	15	27	27	27	36	36	36
Hot water coil									
Heating capacity	(3)	kW	277	291	317	345	394	463	545
Heating capacity	(3)	kW	171	182	197	214	242	285	335
Radial discharge fan EC		N°	c.f.						

Notes:
1) Ambient air temp. 35°C, return air. 27°C/50% R.U.- 100% air flow
N°2 steps 400/3/50 Hz
2) Ambient air temp. 7°C / 87% R.U.; return air 20°C - 100% air flow
3) Water temp. from 80/70°C; air inlet 20°C
Water temp. from 60/50°C; air inlet 20°C
c.f. = contact factory

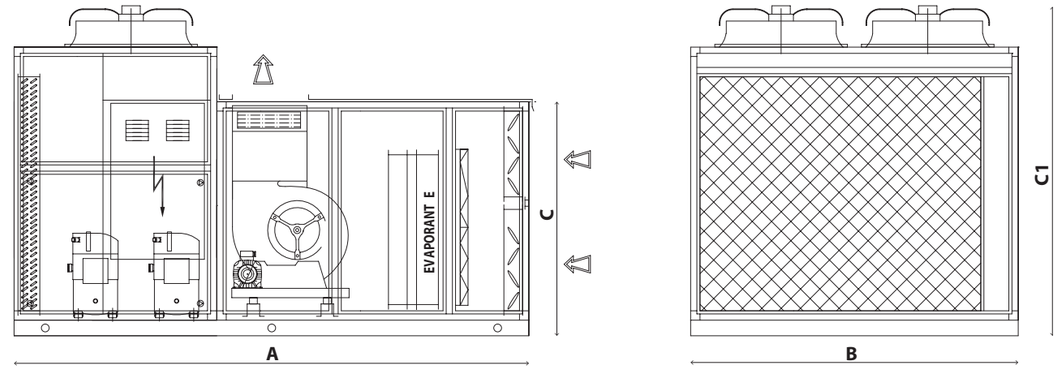
TECHNICAL DATA

MODEL		21	31	41	51	61	71	81	91	101
CHAMBER COMBUSTION										
Hearter output	kW	45			70		116			
Useful heat output	kW	39			60		98			
MODEL		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**101**
SINGLE-STEP BURNER										
Single-step capacity	kW	16-52			35-91		65-200			
Nominal pressure	Mbar	20								
Absorbed power	kW	0,2			0,35					
Electrical power supply	V/f/Hz	230/1/50								
MODEL		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**101**
TWO-STEP BURNER										
Two-step capacity	kW	16/19-52			35/40-91		65/80-200			
Nominal pressure	Mbar	20								
Absorbed power	kW	0,2			0,35					
Electrical power supply	V/f/Hz	230/1/50								
MODEL		**21**	**31**	**41**	**51**	**61**	**71**	**81**	**91**	**101**
MODULAR BURNER										
Hearter output	kW	26/91					48-195			
Nominal pressure	Mbar	20								
Absorbed power	kW	0,35								
Electrical power supply	V/f/Hz	230/1/50								

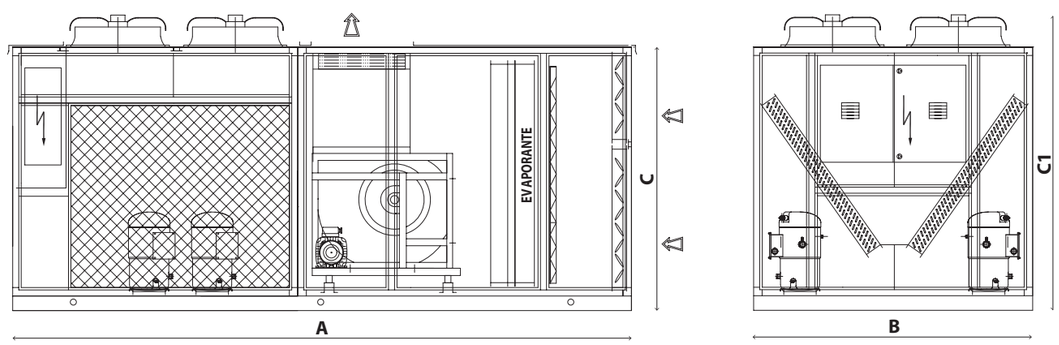
MODEL		121	131	151	172	182	202	242	302	312	342
CHAMBER COMBUSTION											
Hearter output	kW	165			210		270		390		
Useful heat output	kW	140			178		230		330		
MODEL		**121**	**131**	**151**	**172**	**182**	**202**	**242**	**302**	**312**	**342**
SINGLE-STEP BURNER											
Single-step capacity	kW	65-200			110-250		160-330		100-550		
Nominal pressure	Mbar	20									
Absorbed power	kW	0,35			0,6		0,7		0,8		
Electrical power supply	V/f/Hz	230/1/50									
MODEL		**121**	**131**	**151**	**172**	**182**	**202**	**242**	**302**	**312**	**342**
TWO-STEP BURNER											
Two-step capacity	kW	65/80-200			110/140-250		160/208-345		80/203-550		
Nominal pressure	Mbar	20									
Absorbed power	kW	0,35			0,6		0,7		0,8		
Electrical power supply	V/f/Hz	230/1/50									
MODEL		**121**	**131**	**151**	**172**	**182**	**202**	**242**	**302**	**312**	**342**
MODULAR BURNER											
Hearter output	kW	48/195			68/250		45/390		80/550		
Nominal pressure	Mbar	20									
Absorbed power	kW	0,35			0,6		0,7		0,8		
Electrical power supply	V/f/Hz	230/1/50									

VERSION M1

SIZE to 21 from 151



SIZE to 172 from 342



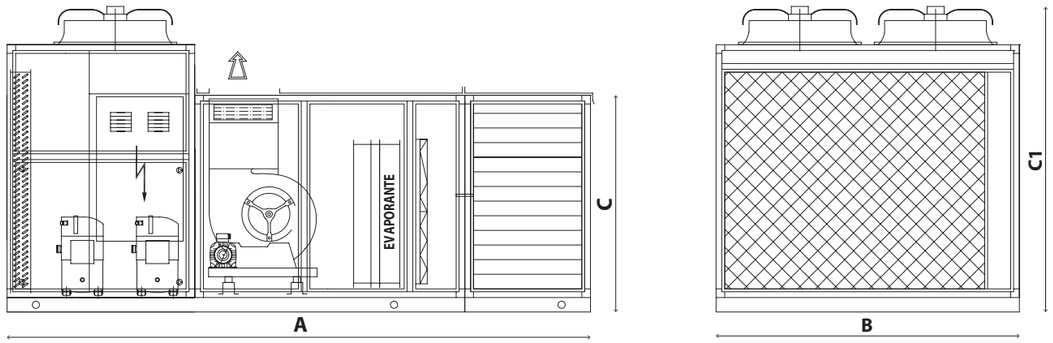
MOD.	21	31	41	51	61	71	81	91	101	121	131	151	172	182	202	242	302	312	342
A	2900	2900	2900	3100	3100	3300	3500	3350	3500	3600	3800	4800	5100	5250	5450	5800	7600	7900	8300
B	1500	1500	1500	1800	1800	2100	2100	2100	2100	2250	2250	2250	2250	2250	2300	2300	2300	2300	2300
C	1250	1250	1250	1250	1250	1500	1500	1500	1600	1600	2070	2070	2170	2170	2420	2420	2420	2420	2420
C1	2115	2115	2115	2115	2115	2115	2115	2115	2315	2315	2360	2360	2435	2435	2435	2435	2435	2435	2435
Transport kg (1)	850	850	850	1000	1000	1100	1200	1200	1900	2050	2200	2600	2800	2880	2950	3200	3380	3560	3720

(1) Table valid for KRSA cooling only; in the case of KRSA…H increase by 5%

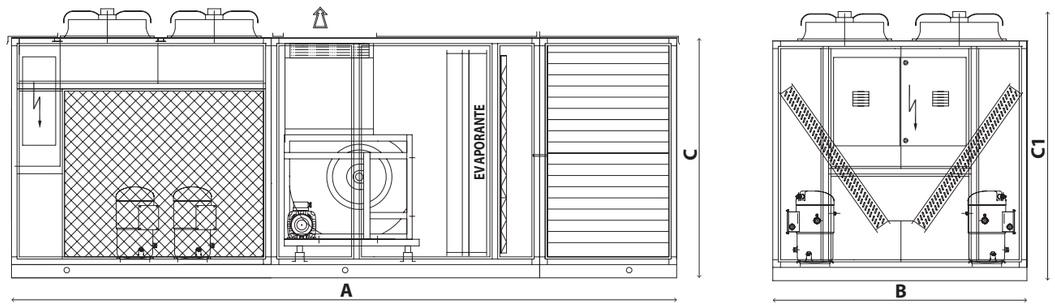
RTU KRSAY/R410A

VERSION M

SIZE to 21 from 151



SIZE to 172 from 342

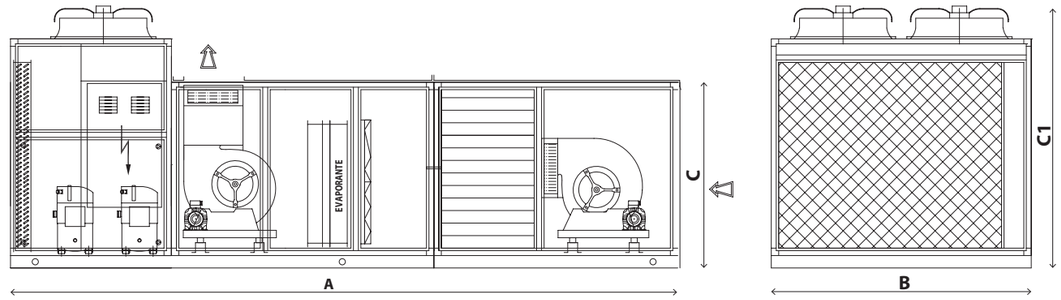


MOD.	21	31	41	51	61	71	81	91	101	121	131	151	172	182	202	242	302	312	342
A	3400	3400	3400	3740	3740	4040	4130	4130	4330	4500	4670	5700	6020	6200	6440	6900	8600	8900	9300
B	1500	1500	1500	1800	1800	2100	2100	2100	2100	2250	2250	2250	2250	2250	2300	2300	2300	2300	2300
C	1250	1250	1250	1250	1250	1500	1500	1500	1600	1600	2070	2070	2170	2170	2420	2420	2420	2420	2420
C1	2115	2115	2115	2115	2115	2115	2115	2115	2315	2315	2360	2360	2435	2435	2435	2435	2435	2435	2435
Transport kg (1)	980	980	1020	1100	1100	1200	1300	1300	2000	2150	2300	2600	2900	3020	3100	3350	3680	3890	4100

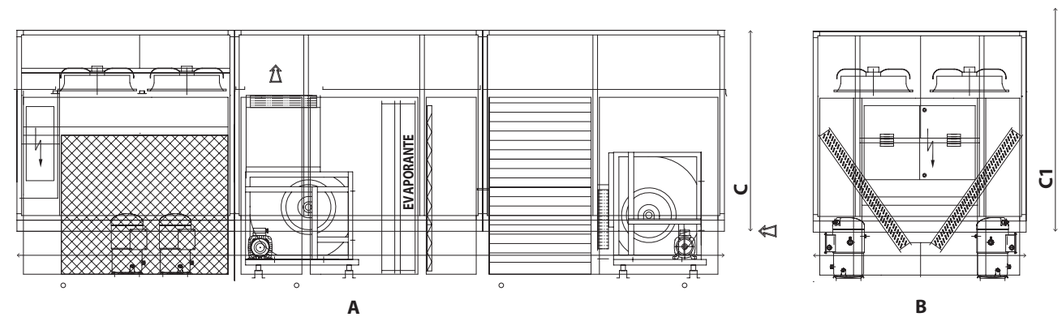
(1) Table valid for KRSA cooling only; in the case of KRSA…H increase by 5%

VERSION EM

SIZE to 21 from 151



SIZE to 172 from 342



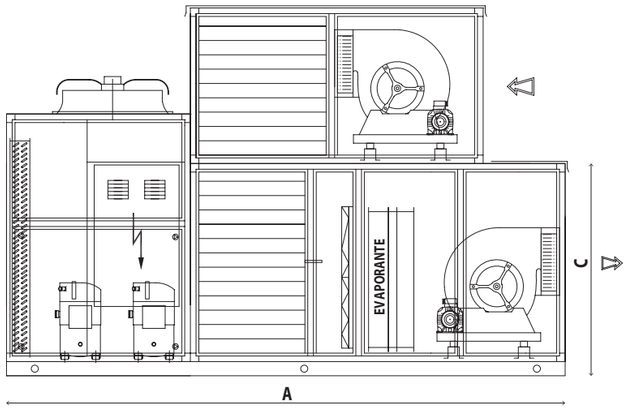
MOD.	21	31	41	51	61	71	81	91	101	121	131	151	172	182	202	242	302	312	342
A	4400	4400	4400	4920	4920	5390	5430	5480	5730	5950	6260	7350	7640	7950	8210	8700	10500	11100	11900
B	1500	1500	1500	1800	1800	2100	2100	2100	2100	2250	2250	2250	2250	2250	2300	2300	2300	2300	2300
C	1250	1250	1250	1250	1250	1500	1500	1500	1600	1600	2070	2070	2170	2170	2420	2420	2430	2430	2420
C1	2115	2115	2115	2115	2115	2115	2115	2115	2315	2315	2360	2360	2435	2435	2435	2435	2435	2435	2435
Transport kg (1)	1250	1250	1280	1400	1400	1550	1700	1700	2400	2650	2800	3100	3400	3650	3800	4800	5550	5850	6430

(1) Table valid for KRSA cooling only; in the case of KRSA…H increase by 5%

RTU KRSAY/R410A

VERSION EM COMPACT

SIZE to 21 from 151



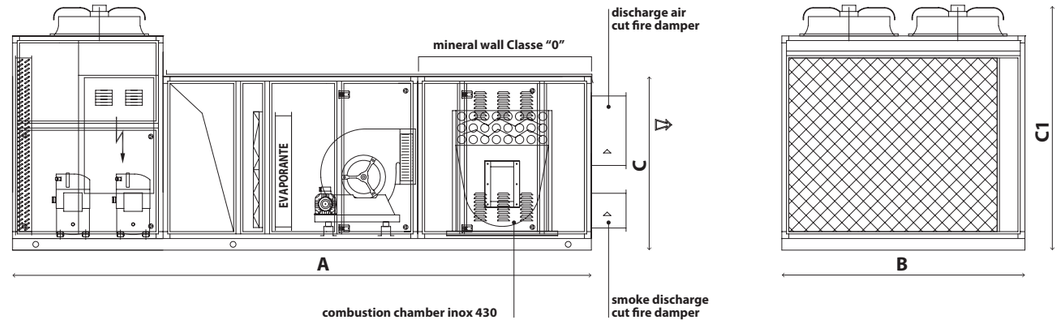
SIZE to 172 from 342

MOD.	21	31	41	51	61	71	81	91	101	121	131	151	172	182	202	242	302	312	342
A	3350	3350	3500	3700	3700	3950	4040	4040	4250	4400	4500	5450	5800	5950	6200	6700	8500	8800	9150
B	1500	1500	1500	1800	1800	2100	2100	2100	2100	2250	2250	2250	2250	2250	2300	2300	2300	2300	2300
C	1250	1250	1250	1250	1250	1500	1500	1500	1600	1600	2070	2070	2170	2170	2420	2420	2420	2420	2420
C1	2150	2150	2150	2250	2250	2600	2700	2700	2850	2850	3520	3520	3720	3720	4120	4120	4400	4400	4480
Transport kg (1)	950	950	1050	1350	1350	1510	1670	1670	2260	2640	2740	2970	3300	3550	3700	4700	5450	5750	6350

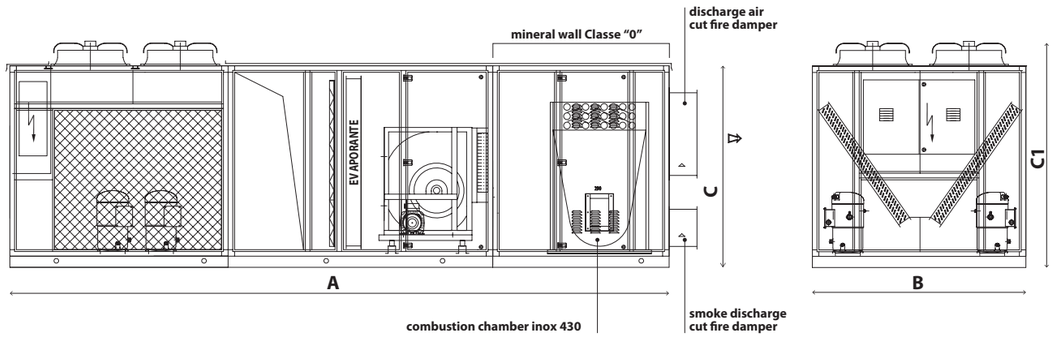
(1) Table valid for KRSA cooling only; in the case of KRSA…H increase by 5%

VERSION G

SIZE to 21 from 151



SIZE to 172 from 342



MOD.	21	31	41	51	61	71	81	91	101	121	131	151	172	182	202	242	302	312	342
A	4500	4500	4500	5150	5150	5300	5450	5450	5750	5950	6150	7000	7400	7900	8050	8200	10400	10900	11200
B	1500	1500	1500	1800	1800	2100	2100	2100	2100	2250	2250	2250	2250	2250	2300	2300	2300	2300	2300
C	1250	1250	1250	1250	1250	1500	1500	1500	1600	1600	2070	2070	2170	2170	2420	2420	2420	2420	2420
C1	2115	2115	2115	2115	2115	2115	2115	2115	2315	2315	2360	2360	2435	2435	2435	2435	2435	2435	2435
Transport kg (1)	1150	1150	1200	1300	1300	1550	1670	1670	2400	2490	2600	2980	3200	3320	3400	3650	4180	4490	4750

(1) Table valid for KRSA cooling only; in the case of KRSA…H increase by 5%
The tecnical data in this booket are not binding. KLT Klima reserves the right to make changes without prior notice.

RTU KRSAY-AE/R410A

CHAPTER 6

SCROLL COMPRESSORS

- **Roof-top air conditioner**
- **100% fresh air**
- **from 30 kW to 150 kW**

MADE IN ITALY

IDENTIFICATION CODE		
KRSAY-	A	E - 1 2 1 H M G
1 2 3	4	5 6 7 8 9 10
1	**KRS**	Roof - Top series
2	**A**	Axial fan
3	**Y**	Refrigerant R410A
4	**AE**	100% fresh air
5	**–**	cooling only
6	**12**	Capacity factors
7	**1**	Numbers of circuits
8	**H**	Heat pump version
9	**M**	Mixing section
COMPACT		Vertical version
10	**G**	Combustion chamber
	BC	Hot water coil
	REC	Rotary recovery
	LN	Low noise
	VLN	Very low noise



The new ROOF-TOP Series has been designed to work with 100% FRESH AIR to achieve and deliver optimal COMFORT with minimum energy consumption, thanks to projects of more advanced technologies, which also allow continuous operation of unit in low operating costs.

ENVIRONMENT

For a more environmentally friendly product, ACM Kälte Klima has opted to run their units on green refrigerant R-410A. This gas does not contain chlorine atoms, so it is not dangerous to the ozone layer if released. Its superior thermodynamic efficiency also enables considerable energy savings and means more compacts, units forgheter with higher performances.

TECHNOLOGY

The electronic expansion valve managed by software, the can allow the refrigerant circuit to work very efficiently and reducing the power consumption. When the heating load changes suddenly, a traditional expansion valve experiences a 2-3 minute hunting period before achieving a state of equilibrium. On the contrary we have an immediate action of an electronic expansion valve.

CAPACITY CONTROL

The option of producing different cooling circuit configurations on the same size unit (in terms of capacity) means we can customize efficiency levels at full or part load.
The multi-compressor models favour high efficiency values at full load (EER and COP). Having a number of compressors allows the unit to deliver its output based on a number of capacity reduction steps, thus adjusting the capacity to suit the system's actual heating load perfectly and reducing inrush currents.

INTERCONNETIVITY

An advanced microprocessor enable:
- LAN network
- the WEB kit to read and set data via a remote PC by accessing the IP address of the unit or unit network.

FIELD OF USE

• Production of direct expansion systems ducted:
Our units have constructive technical devices for optimal installation of systems as: restaurants, bar, disco, cinema, food industry which requires a total change of air.
• Complete automation:
the roof-top new generation "KLT Klima" allows fully autonomous automatic reverse cycle, from summer to winter.

MAIN FEATURES

• **AE system:**
by EC PLUG-FANS on the return and supply is guaranteed total change inside air.

• **Variable flow volume:**
using special INVERTER that modulate the flow air according to the internal heat load and reaching the set point.

• **Recovery of exhaust air:**
device that allows you to recover the exaust air (winter and summer) by suppling it to the external heat exchangers optimizing the efficiency.

• **Heat pumps high efficiency:**
by means of special devices such as system kit hot gas (external coil) defrosting ice, recovery of exhaust air and electrical coil the units are optimized to operate at low outside air temperature.

GENERAL FEATURES

FRAME

The supporting frame of the unit is made of extruded aluminium profiles, connected with 3 way joints - no use is made of any screws that protrude from the framework. The frame sits on a base of galvanised steel spars. The frame is fitted with polyurethane injected sandwich panels - the outer steel surface has been pre-painted RAL 9002. The seal is guaranteed by specific long-duration gaskets ensuring that the panels remain perfectly airtight in time despite the pressure that is created during normal operation.

CONDENSING SECTION

COMPRESSORS

Hermetic scroll compressors equipped with crankase heater and klixon for overload protection and complete with oil sight glass. The compressors are mounted on rubber shock absorbers.

CONDENSER (EVAPORATOR in the H version)

Copper tube and aluminium finned equipped with a protection grill.

AXIAL FANS

With aerodynamic designed blades manufactured in Al/Mg, directly coupled to a three phase electric motor with external rotor and fitted with thermal contact. A safety fan guard is fitted on air flow discharge.

REFRIGERANT CIRCUIT

The refrigerant circuit includes: dryer, sightglass, thermostatic valve "schrader" valve.
To protect the refrigerant circuit, following devices are fitted: manual reset high pressure switch, automatic reset low pressure switch. Furthermore, where required, manual reset safety pressure switch and safety valve are also fitted.
In the heat pump unit version (H) the refrigerant circuit also has the following fitted: safety thermostat on the compressor discharge line, 4-way valve, non-return valve, solenoid valve, liquid receiver.

ELECTRICAL BOARD

Weather proof to IP54 protection level. The board is fitted with: main interlocking automatic circuit breaker, main fuses, compressor contactor, auxiliary circuit transformer, air handling section control.
The board also has a microprocessor to automatically control the unit, complete with a display of the operating status as well as all alarm situations.

Air handling section - Versions

STANDARD AE

This section can provide: air discharge downwards, upwards or through the side; return air from below or through the side. The section includes: extracted PLU-FAN EC (with inverter technology included), the entire assembly is mounted on rubber shock absorbers to reduce to a minimum vibrations and consequently the sound level; Return air damper, aluminium grid for thermodynamic recovery external exchanger. 100% external air inlet with grid and damper aluminium; filter section with G4 rated pleated filters; heat exchanger with copper tubes and aluminium fins, stainless steel condensate tray complete with drain, section to accommodate post-heating (water,gas electric); Supply PLUG-FAN EC (with inverter technology included), the entire assembly is mounted on rubber shock absorbers to reduce to a minimum vibrations and consequently the sound level.

M -AE + Mix chamber

This section allows outside air to be mixed with the back return air with to by fitting an aluminium damper.

G - AE + Gas burner section

This section contains a combustion chamber with two smoke passes (STAINLESS STEEL AISI 430) that has with a tubular exchanger with a large exchange surface and inspection points on the smoke pipes, damper cut fire; a single/dual/modular burner complete with gas ramp. This section is totally insulated with sandwich panels with class 0 lining. This section can be integrated with the previous versions.

COMPACT – EM Vertical version

This is a variation of the EM design in which the sections are positioned on top of the base section, therefore having a vertical structure and consequently having a very small footprint.

GENERAL FEATURES

OPTIONS Condensing section

LN

This section includes a condensing control using a pressure switch and sound attenuating covers over the compressors.

VLN - Very low noise version

In addition to the LN devices, this version has a condensing section that has been increased in size with fans running at low speeds.

- Discharge and Liquid line shut-off valves (included refrigerant filter)
- PFCCs cos φ 0.9
- Fan speed control using a pressure switch (already included in LN and VLN versions) to allow a control of the condensing pressure in case of ambient temperatures below 15 °C.
- Cu/Cu coils
- HP/LP gauges
- Epoxy protection con condensing coils
- Programmable clock allowing time settings for start and stop of the unit
- Remote control panel
- RS 485 (modbus, Lon Work, Bacnet, Trend protocol)
- Rubber antivibrators
- Spring antivibrators
- Axial fans EC type

OPTIONS Air handling section

- Th. 45mm panels
- Actuators on dampers
- M version with damper (included in heat pump version)
- Rigid bag filters efficiency F7, F8, F9
- Steam humidifyer
- Hot water heating or post-heating coil
- Electric heaters (included heat pump version)
- Modular or two steps type gas burner
- Broken belt alarm
- Plenum for supply air fan (air supply through side panels)
- Differential pressure switch for dirty filter alarm
- Protection grill on fan section further to removable panels
- Smoke kit on heating section with gas burner
- 3-way water valve with actuator
- Rotary Heat recovery

RTU KRSAY-AE/R410A

TECHNICAL DATA

SIZE			21	31	41	51	61	71
Cooling mode								
Cooling capacity	(1)	kW	43	47	53	58	65	81
Compr. abs. power	(1)	kW	8.1	10.4	12.4	12.8	15.1	15.5
EER	(1)	-	5.3	4.5	4.2	4.5	4.3	5.2
Heat pump mode								
Heating capacity	(1)	kW	38	43	47	54	60	75
Compr. abs. power	(1)	kW	5.4	6.3	7.2	8.2	9.4	10.1
COP	(1)	-	7	6.8	6.5	6.5	6.3	7.4
Electrical coil included		kW	3+6	3+6	6+6	6+6	6+9	6+9
Condensing section								
Compressor (scroll)								
Quantity		n°	2					
Refrigerant circuit		n°	1					
Capacity step		n°	2					
Refrigerant type		-	R410a					
Refrigerant quantity		kg	10	10	12	14	16	18
Axial fan		n°	1	1	1	1	1	2
Max abs power		kW	0.9	0.9	0.9	0.9	0.9	1.8
Max abs current		A	2.1	2.1	2.1	2.1	2.1	4.2
Air handling section								
Discharge fan (plug-fan)		n°	1					
Nominal air flow		Mc/h	6.800	7.600	8.300	9.600	10.500	13.000
ESP		Pa	50-250					
Motor abs. power EC inverter		kW	1.3	1.8	1.8	2.3	2.3	3.4
Return fan (plug-fan)		n°	1					
Nominal air flow		Mc/h	6.800	7.600	8.300	9.300	10.600	13.000
ESP		Pa	50-150					
Motor abs. power EC inverter		kW	0.85	0.95	0.95	0.95	2.5	2.9
Electrical data	(2)							
Max abs. current		A	35	42	45	47	62	64
Max LRC		A	87	102	131	132	152	160
Voltage supply		V/f/Hz	400/3/50					
Sound pressure level at 10m	(3)							
Version STD		dB(A)	50	50	50	52	52	54
Version LN		dB(A)	48	48	48	50	50	52
Version VLN		dB(A)	45	45	45	47	47	49

Notes:
1) Cooling mode: ambient air temp. 32°C,
Evaporator coil inlet air temp. 32°C/50% R.U.
Heating mode: ambient air temp. 7°C / 87% R.U.
Condenser inlet air temp. 7°C.
2) Heating mod: add electric coil absorbed current.
3) Sound pressure level measured in free field at 10m (air suction on con
densing section) and 1,5m from the ground; air handling section ducted,
both on return air and on discharge air.

RTU KRSAY-AE/R410A

TECHNICAL DATA

SIZE			81	91	101	121	131
Cooling mode							
Cooling capacity	(1)	kW	92	99	118	138	150
Compr. abs. power	(1)	kW	18.6	21.5	24.8	32.2	35.7
EER	(1)	-	4.9	4.6	4.7	4.28	4.2
Heat pump mode							
Heating capacity	(1)	kW	83	90	108	127	135
Compr. abs. power	(1)	kW	11.9	13.5	16.7	20.7	21.2
COP	(1)	-	6.9	6.6	6.4	6.1	6.3
Electrical coil included		kW	9+9	9+9	12+12	15+15	18+18
Condensing section							
Compressor (scroll)							
Quantity		n°	2				
Refrigerant circuit		n°	1				
Capacity step		n°	2				
Refrigerant type		-	R410a				
Refrigerant quantity		kg	21	24	26	32	36
Axial fan		n°	2	2	2	2	2
Max abs power		kW	1.8	1.8	1.8	3.8	3.8
Max abs current		A	4.2	4.2	4.2	8.2	8.2
Air handling section							
Discharge fan (plug-fan)		n°	1	1	2	2	2
Nominal air flow		Mc/h	14.000	15.000	18.500	21.000	24.000
ESP		Pa	50-250				
Motor abs. power EC inverter		kW	4.9	4.9	2,4+2,4	2,8+2,8	2,9+2,9
Return fan (plug-fan)		n°	1	1	2	2	2
Nominal air flow		Mc/h	14.000	15.000	18.500	21.000	24.000
ESP		Pa	50-150				
Motor abs. power EC inverter		kW	2.8	2.8	1,3+1,3	2,4+2,4	2,4+2,4
Electrical data	(2)						
Max abs. current		A	73	86	97	114	119
Max LRC		A	167	195	237	337	341
Voltage supply		V/f/Hz	400/3/50				
Sound pressure level at 10m	(3)						
Version STD		dB(A)	54	55	58	60	60
Version LN		dB(A)	52	53	56	58	58
Version VLN		dB(A)	49	50	53	55	55

Notes:
1) Cooling mode: ambient air temp. 32°C,
Evaporator coil inlet air temp. 32°C/50% R.U.
Heating mode: ambient air temp. 7°C / 87% R.U.
Condenser inlet air temp. 7°C.
2) Heating mod: add electric coil absorbed current.
3) Sound pressure level measured in free field at 10m (air suction on con
densing section) and 1,5m from the ground; air handling section ducted,
both on return air and on discharge air.

TECHNICAL DATA

SIZE			21	31	41	51	61	71
Rotary heat recovery								
Summer recovery capacity	(1)	kW	8	10	12	13	14	18
Winter recovery capacity	(2)	kW	32	36	39	46	52	60
Electric heaters								
Heating capacity	(3)	kW	3+6	3+6	6+6	6+6	6+9	6+9
Hot water coil								
Heating capacity	(4)	kW	66	71	77	84	91	108
Heating capacity	(5)	kW	41	44	47	52	58	68

SIZE			81	91	101	121	131
Rotary heat recovery							
Summer recovery capacity	(1)	kW	20	22	26	29	34
Winter recovery capacity	(2)	kW	68	78	90	105	112
Electric heaters							
Heating capacity	(3)	kW	9+9	9+9	12+12	15+15	18+18
Hot water coil							
Heating capacity	(4)	kW	127	150	167	197	227
Heating capacity	(5)	kW	80	94	104	122	140

Notes:
1) Ambient air temp. 32°C, return air. 26°C / 50% R.U.- 100% air flow
2) Ambient air temp. 0°C / 90% R.U.; return air 20°C - 100% air flow
3) n°2 steps 400/3/50 Hz - included heat pump version
4) Water temperature from 80 / 70°C - air inlet 7°C
5) Water temperature from 60 / 50°C - air inlet 7°C

OPERATING RANGE

		summer	winter
AMBIENT AIR TEMPERATURE	Max °C	38	18
	Min °C	20	5 (1)

(1) This temperature can go down to 0°C only with electrical coil operating.

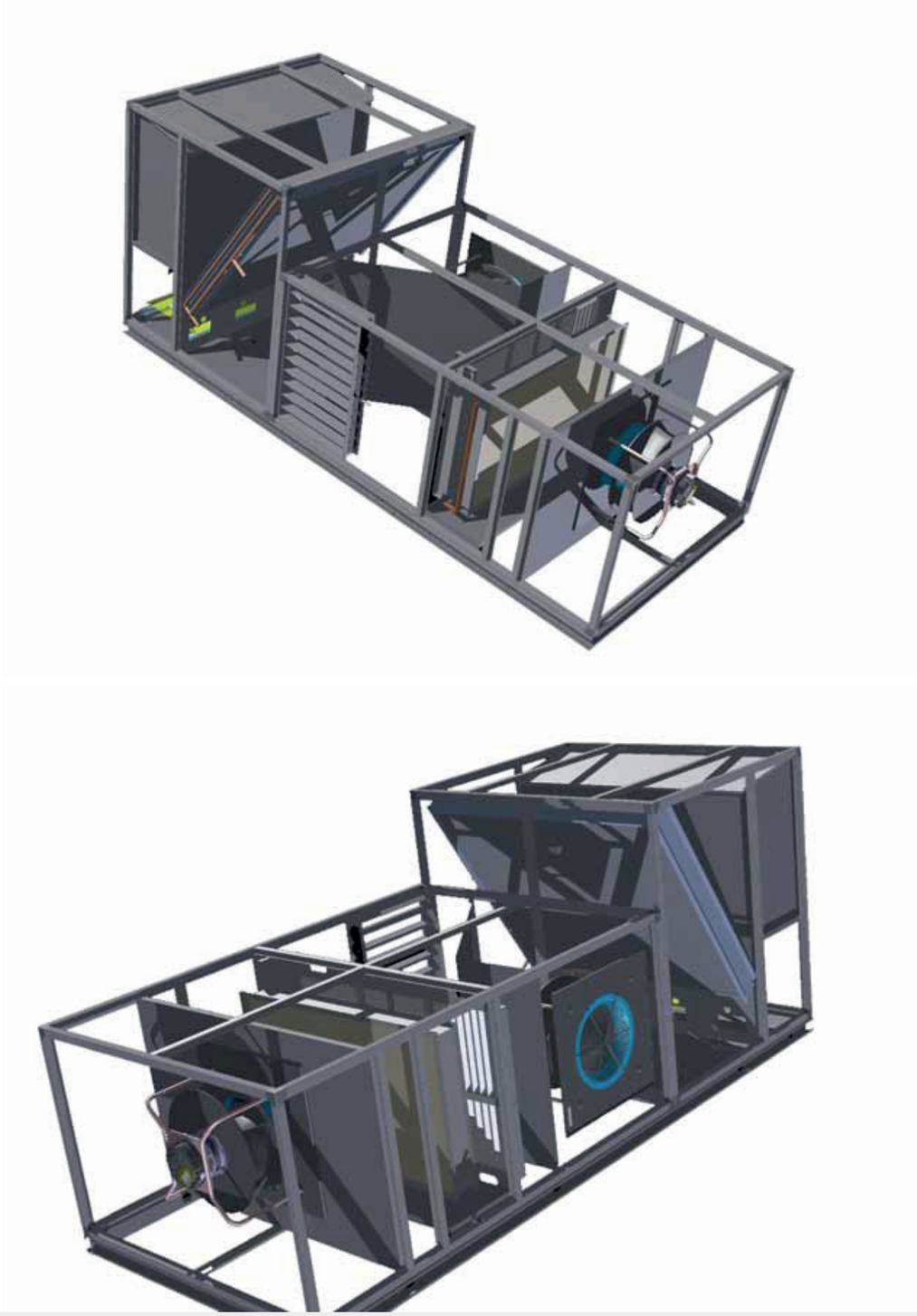
Camber combustion model		21	31	41	51	61	71	81	91	101	121	131
Hearter output	kW	45			70		116				165	
Useful heat output	kW	39			60		98				140	

Single-step burner		21	31	41	51	61	71	81	91	101	121	131
Heating capacity	kW	16-52			35-91		65-200				65-200	
Nominal pressure	Mbar	20										
Absorbed power	W	0.2			0.35							
Electrical power supply	V/f/Hz	230 / 1 / 50										

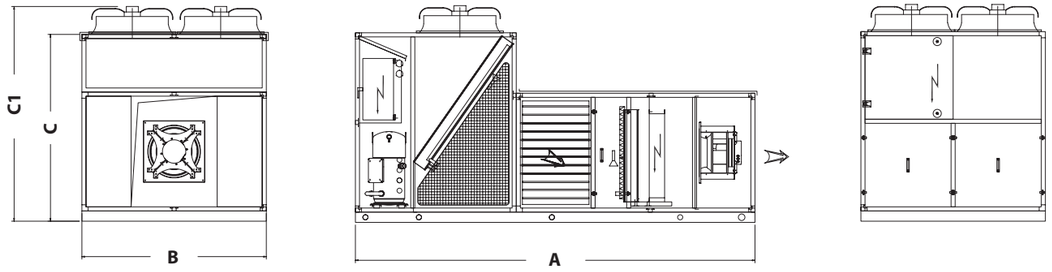
Two-step burner		21	31	41	51	61	71	81	91	101	121	131
Heating capacity	kW	16/19-52			35/40-91		65/80-200				65/80-200	
Nominal pressure	Mbar	20										
Absorbed power	W	0.2			0.35							
Electrical power supply	V/f/Hz	230 / 1 / 50										

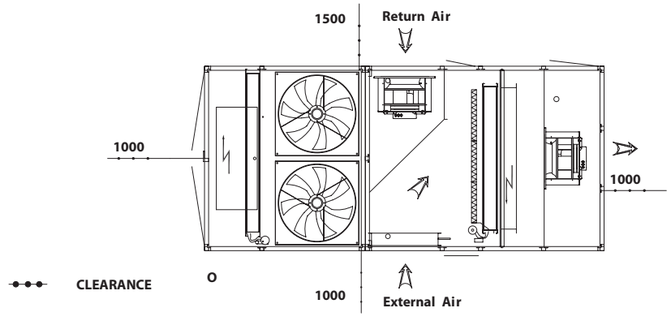
Modular burner		21	31	41	51	61	71	81	91	101	121	131
Heating capacity	kW	26-91			26-91		48-195				48-195	
Nominal pressure	Mbar	20										
Absorbed power	W	0.2			0.35							
Electrical power supply	V/f/Hz	230 / 1 / 50										

CONSTRUCTION TYPE



VERSION EXHAUST AIR RECOVERY



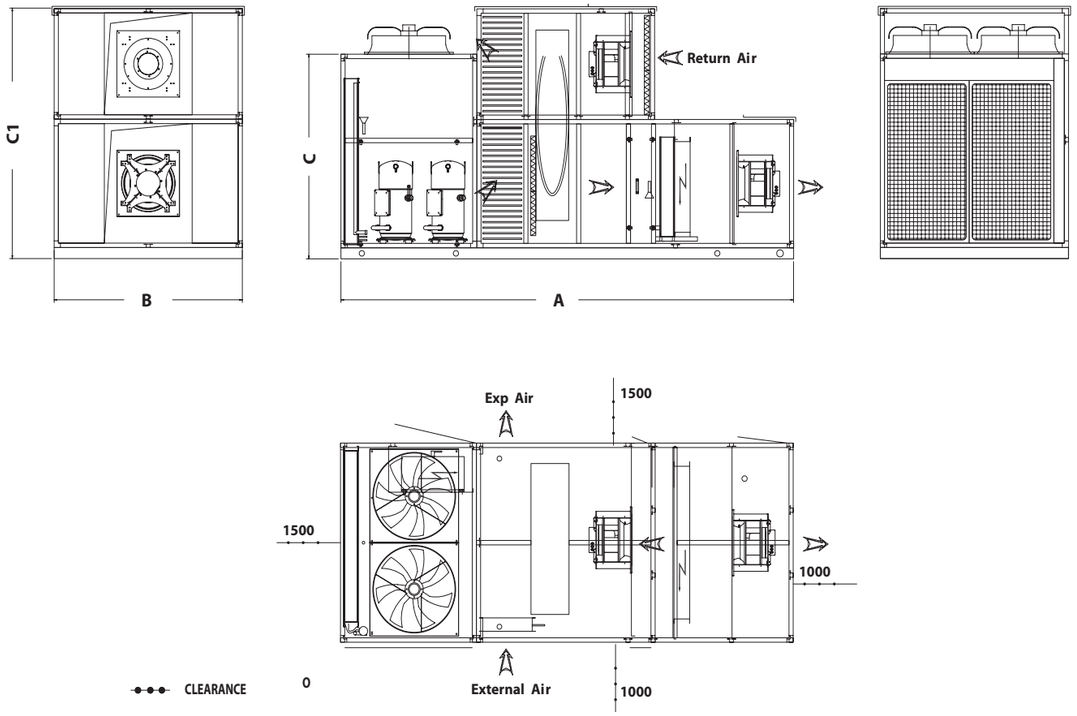


MOD.	21	31	41	51	61	71	81	91	101	121	131
A	3900	3900	3900	4300	4300	4550	4600	4800	5000	5150	5300
B	1500	1500	1500	1800	1800	2100	2100	2100	2250	2250	2250
C	1250	1250	1250	1250	1250	1500	1500	1500	1600	1600	2070
C1	2115	2115	2115	2115	2115	2115	2115	2115	2315	2315	2360
Transport kg (1)	1200	1200	1300	1380	1380	1500	1600	1680	2350	2580	2770

(1) Data sheet valid for cooling version only; in the case of heat pump version increase by 5%

RTU KRSAY-AE/R410A

VERSION ROTARY RECOVERY

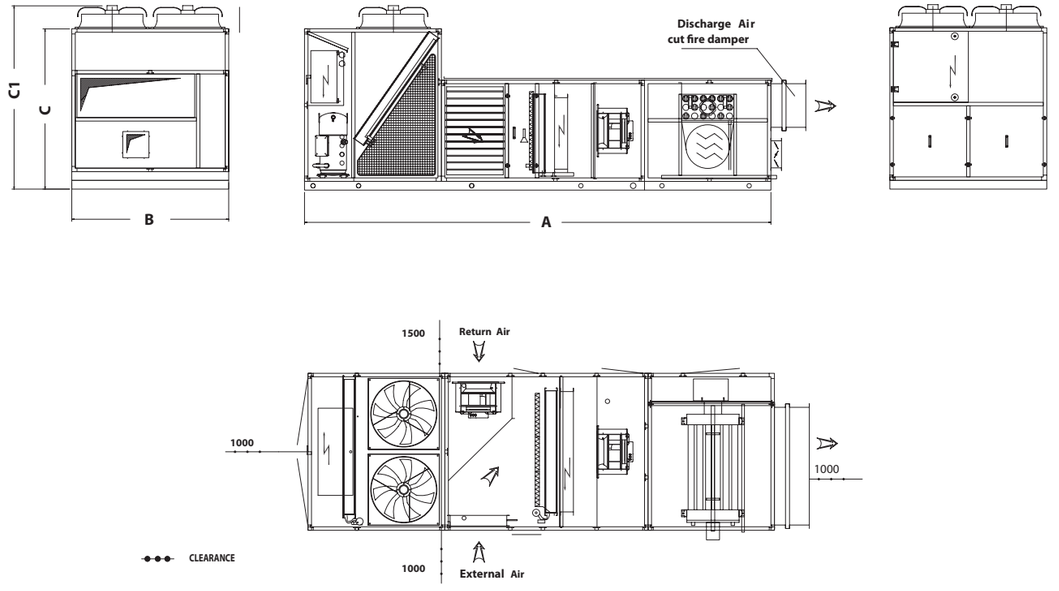


MOD.	21	31	41	51	61	71	81	91	101	121	131
A	4300	4300	4500	4700	4700	4950	5050	5050	5300	5450	5600
B	1500	1500	1500	1800	1800	2100	2100	2100	2250	2250	2250
C	1250	1250	1250	1250	1250	1500	1500	1500	1600	1600	2070
C1	2150	2150	2115	2200	2200	2115	2500	2600	2700	2900	3400
Transport kg (1)	1380	1380	1480	1600	1680	1750	1900	2000	2550	2780	2970

(1) Data sheet valid for cooling version only; in the case of heat pump version increase by 5%

RTU KRSAY-AE/R410A

VERSION G



MOD.	21	31	41	51	61	71	81	91	101	121	131
A	5200	5200	5300	5800	5800	5900	6100	6100	6600	6750	6900
B	1500	1500	1500	1800	1800	2100	2100	2100	2250	2250	2250
C	1250	1250	1250	1250	1250	1500	1500	1500	1600	1600	2070
C1	2115	2115	2115	2115	2115	2115	2115	2115	2315	2315	2360
Transport kg (1)	1400	1400	1500	1580	1680	1800	1900	1980	2650	2930	3120

(1) Data sheet valid for cooling version only; in the case of heat pump version increase by 5%

NOTES

INDUSTRIAL CLIMATIC GROUP is not responsible for possible mistakes of this catalogue and can change the present data without previous notice

KLIMA

HEADQUARTERS

Vējziedi 10, Dreiliņi, LV-2130, Latvia
Phone: +(371) 20009148
E-mail: info@icg-international.com