

CHAPTER 1

AIRCOOLED LIQUID CHILLERS AND HEAT PUMPS FOR
RESIDENTIAL & LIGHT COMMERCIAL APPLICATION

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CHA/IK/A 21÷81

A CLASS ENERGY EFFICIENCY AIRCOOLED LIQUID CHILLERS AND HEAT PUMPS WITH AXIAL FANS, INVERTER SCROLL COMPRESSOR, PLATE EXCHANGER AND HIGH EFFICIENCY EC INVERTER CIRCULATOR.

NEW



The CHA/IK/A 21÷81 **COMPACT LINE** series is the winning choice for ideal comfort in residential and commercial environments. The range, in A CLASS energy efficiency, features Inverter technology on the compressor, for an high efficiency at partial loads. The range excels for its compact sizes, quietness and optimised water circuit, on a peraluman structure. Particular design features enable immediate and effective use, easy installation and lasting reliability. These extremely compact and high-tech units offer you ideal comfort in all seasons.

The unit features high efficiency integrated circulator with EC Inverter brushless electronic motor. The Heat Pump version is designed for **hot water production up to 55°C**.

The units are already compliant to ErP 2021 European Regulations.

COMPACT
Line

INVERTER SCROLL

VERSION

CHA/IK/A

CHA/IK/A/WP

Cooling only

Reversible Heat Pump

FEATURES

- Structure with supporting frame, in peraluman, galvanized sheet and with rubber shock absorbers on the frame.
- DC INVERTER Scroll compressor with internal overheat protection and crankcase heater.
- Axial fans with low ventilation and special wing profile, directly coupled to external rotor motors.
- Condenser made of copper tubes and aluminium finned coil, complete with drain pan for WP version only.
- Evaporator AISI 316 stainless steel braze welded plates type, complete with water differential pressure switch. On the Heat Pump units it is always installed an antifreeze heater.
- Electronic expansion valve.
- R410A refrigerant.
- Electrical board includes: main switch with door lock device, fuses, compressor and pump remote control switch.
- Condensing Control is included: electronic proportional device that ensures efficient and continuous functioning of the unit with outside air temperature down to -20 °C in cooling mode. It also allows to reduce the sound level especially at night. It consists of a fans speed controller with continuous speed regulation and high and low pressure transducers on cooling circuit.
- Functioning in heating mode with outside air temperature down to -15 °C.
- Water circuit includes: water differential pressure switch, high efficiency EC Inverter circulator, safety valve and expansion vessel.
- High efficiency circulator with EC Inverter brushless electronic motor with 3 speeds selectable by the user.
- Microprocessor control and regulation system.

ACCESSORIES

FACTORY FITTED ACCESSORIES

- TX Coil with pre-coated fins
- FE Antifreeze heater for evaporator

LOOSE ACCESSORIES

- CR Remote control panel
- IS Modbus RTU protocol, RS485 serial interface
- RP Coil protection metallic guards

MODEL			21	31	41	51	61	71	81
Cooling	Cooling capacity (1)	kW	6.0	7.6	9.3	12.4	15.7	19.0	22.4
	Absorbed power (1)	kW	1.8	2.4	3.0	3.8	4.9	6.0	7.2
	EER (1)		3.33	3.17	3.10	3.26	3.20	3.17	3.11
Cooling (EN14511)	Cooling capacity (1)	kW	6.0	7.6	9.3	12.4	15.6	18.9	22.5
	Absorbed power (1)	kW	1.8	2.4	3.0	3.8	4.9	6.0	7.2
	EER (1)		3.33	3.17	3.10	3.26	3.18	3.15	3.13
	ESEER		4.61	4.29	4.25	4.84	4.82	4.76	4.56
	EUROVENT Class		A	A	A	A	A	A	A
	SEER (2)		4.12	4.11	4.10	4.68	4.74	4.71	4.72
	Energy Efficiency (2)	%	162	161	161	184	187	185	186
Heating	Heating capacity (3)	kW	6.7	8.8	10.9	14.1	17.5	20.9	24.8
	Absorbed power (3)	kW	1.9	2.5	3.2	4.0	4.9	5.9	7.0
	COP (3)		3.53	3.52	3.41	3.53	3.57	3.54	3.54
Heating (EN14511)	Heating capacity (3)	kW	6.7	8.8	10.9	14.1	17.5	20.9	24.8
	Absorbed power (3)	kW	1.9	2.5	3.2	4.0	4.9	5.9	7.0
	COP (3)		3.53	3.52	3.41	3.53	3.57	3.54	3.54
	EUROVENT Class		A	A	A	A	A	A	A
	SCOP (4)		3.49	3.34	3.45	3.42	3.56	3.60	3.85
	Energy Efficiency (4)	%	136	131	135	134	139	141	151
	Energy Class (4)		A+	A+	A+	A+	A+	A+	A++
Compressor	Quantity	n°	1	1	1	1	1	1	1
Electrical characteristics	Power supply	V/Ph/Hz	230/1/50			400/3+N/50			
	Max. running current	A	16	16	16	13	13	15	18
	Max. starting current	A	10	10	10	8	8	9	10
Water circuit	Water flow	l/s	0.29	0.36	0.44	0.59	0.75	0.91	1.07
	Pump available static pressure	kPa	53	56	52	76	82	70	60
	Water connections	"G	1"	1"	1"	1"1/4	1"1/4	1"1/4	1"1/4
Sound pressure (5)		dB(A)	49	49	52	53	53	53	53
Weights	Transport weight	Kg	101	113	123	195	197	199	201
	Operating weight	Kg	126	138	148	245	247	249	251

DIMENSIONS			21	31	41	51	61	71	81
L	STD	mm	870	870	870	1160	1160	1160	1160
W	STD	mm	320	320	320	500	500	500	500
H	STD	mm	1100	1100	1100	1270	1270	1270	1270

CLEARANCE AREA

CHA/IK/A 21÷41



CHA/IK/A 51÷81



NOTES

- Chilled water from 12 to 7 °C, ambient air temperature 35 °C.
 - Seasonal energy efficiency of cooling at low temperature. According to EU Regulation n. 2016/2281.
 - Heated water from 40 to 45 °C, ambient air temperature 7 °C d.b./6 °C w.b.
 - Seasonal energy efficiency of heating at low temperature with average climatic conditions. According to EU Regulation n. 811/2013.
 - Sound pressure level measured in free field conditions at 1 m from the unit. According to ISO 3744.
- N.B. Weights of WP version are specified on technical brochure.

FROM 11 KW TO 23 KW.

CHA/ML/ST 41÷71

A CLASS ENERGY EFFICIENCY AIRCOOLED DEDICATED HEAT PUMPS WITH DOMESTIC HOT WATER PRODUCTION, AXIAL FANS, SCROLL COMPRESSOR, PLATE EXCHANGER AND HYDRONIC KIT.



MIDYLINE is the line of Heat Pumps dedicated to **hot water production up to 60 °C** and operations up to -20 °C external air temperature, with Scroll compressors, axial fans and integrated hydronic kit. The unit, featuring A CLASS energy efficiency, is designed to singly handle winter heating, summer air conditioning and the production of high temperature hot water, making use of the electrical energy and heat accumulated in the clean air source, free and infinite, which can also transfer heat to homes. Flexibility is the main feature of the MIDYLINE series, which is also combined with heating units and managed by the innovative, intelligent AQUALOGIK control system, optimizing the water setpoint and regulating power supply voltage to the pump and fans, making use of an inertial tank unnecessary. This results in performance with elevated energy efficiency, silent functioning, optimized dimensions and costs. MIDYLINE is also able to operate in extreme conditions where the external air temperature is very low, as well as intelligently managing integrated elements such as furnaces and electrical heaters. Based on the external air sensor, the microprocessor activates the single integration elements in the system.

MIDYLINE

AQUALOGIK

VERSION

CHA/ML/ST

Heat Pump with AQUALOGIK technology

CHA/ML/WP/ST

Reversible Heat Pump with AQUALOGIK technology

FEATURES

- Structure with supporting frame, in peraluman, galvanized sheet and with rubber shock absorbers on the frame.
- Scroll compressor with internal overheat protection and crankcase heater.
- Axial fans with low ventilation and special wing profile, directly coupled to external rotor motors.
- Condenser made of copper tube and aluminium finned coil, complete with drain pan.
- Evaporator AISI 316 stainless steel braze welded plates type, completed with water differential pressure switch and antifreeze heater.
- R407C refrigerant.
- Electrical board includes: main switch with door lock device, fuses and compressor remote control switch.
- Condensing Control is included: electronic proportional device that ensures efficient and continuous functioning of the unit with outside air temperature down to -20 °C in cooling mode. It also allows to reduce the sound level especially at night. It consists of a fans speed controller with continuous speed regulation, an high/low pressure transducer on cooling circuit and an electrical heater on electrical board.
- Functioning in heating mode with outside air temperature down to -20 °C.
- The production of hot water up to 60 °C is reachable with outside air temperature down to -15 °C. With outside air temperature of -20 °C the reachable production of hot water is up to 45 °C.
- Water circuit includes: variable speed circulating pump, safety valve, gauge and expansion vessel.
- Microprocessor control and regulation system with AQUALOGIK technology.

ACCESSORIES

FACTORY FITTED ACCESSORIES

EH	Supplementary electrical heater
KC	Gas burner integration Kit
TX	Coil with pre-coated fins

LOOSE ACCESSORIES

HW	Storage tank for domestic hot water production
CR	Remote control panel
IS	Modbus RTU protocol, RS485 serial interface
RP	Coil protection metallic guards

MODEL			41*	51*	41**	51**	71
Heating	Heating capacity (1)	kW	11.5	16.0	11.5	16.0	22.5
	Absorbed power (1)	kW	3.2	4.6	3.2	4.6	6.5
	COP (1)		3.59	3.48	3.59	3.48	3.46
	Heating capacity (2)	kW	11.3	15.8	11.3	15.8	22.4
	Absorbed power (2)	kW	2.7	3.8	2.7	3.8	5.4
	COP (2)		4.19	4.16	4.19	4.16	4.15
Heating (EN14511)	Heating capacity (1)	kW	11.9	16.4	11.9	16.4	23.0
	Absorbed power (1)	kW	3.2	4.6	3.2	4.6	6.5
	COP (1)		3.72	3.57	3.72	3.57	3.54
	EUROVENT Class		A	A	A	A	A
	SCOP (3)		4.71	4.95	4.71	4.95	5.12
	Energy Efficiency (3)	%	185	195	185	195	202
	Energy Class (3)		A++	A++	A++	A++	A+
Cooling	Cooling capacity (4)	kW	7.3	10.5	7.3	10.5	16.0
	Absorbed power (4)	kW	2.5	3.6	2.5	3.6	5.2
	EER (4)		2.92	2.92	2.92	2.92	3.08
	Cooling capacity (5)	kW	10.8	15.5	10.8	15.5	21.2
	Absorbed power (5)	kW	2.7	4.0	2.7	4.0	6.1
	EER (5)		4.00	3.88	4.00	3.88	3.48
Cooling (EN14511)	Cooling capacity (4)	kW	7.0	10.2	7.0	10.2	15.6
	Absorbed power (4)	kW	2.8	3.9	2.8	3.9	5.6
	EER (4)		2.50	2.62	2.50	2.62	2.79
	ESEER		2.80	3.12	2.80	3.12	3.11
	EUROVENT Class		E	D	E	D	C
Compressor	Quantity	n°	1	1	1	1	1
Supplementary electrical heater	Power supply	V/Ph/Hz	230/1/50				
	Heating capacity	kW	4/6	4/6	4/6	4/6	4/6
	Absorbed current	A	18/26	18/26	18/26	18/26	18/26
	Steps	n°	2	2	2	2	2
Electrical characteristics	Power supply	V/Ph/Hz	230/1/50		400/3+N/50		
	Max. running current	A	26	35	13	15	19
	Max. starting current	A	102	165	45	69	106
Water circuit	Water flow	l/s	0.54	0.75	0.54	0.75	1.07
	Pump available static pressure	kPa	231	185	231	185	156
	Water connections	"G	1"	1"	1"	1"	1"
Sound pressure (6)		dB(A)	52	52	52	52	52
Weights	Transport weight	Kg	205	208	205	208	210
	Operating weight	Kg	209	212	209	212	214

DIMENSIONS			41*	51*	41**	51**	71
L	STD	mm	1160	1160	1160	1160	1160
W	STD	mm	500	500	500	500	500
H	STD	mm	1270	1270	1270	1270	1270

CLEARANCE AREA

CHA/ML/ST 41*÷71

200 | 200 | 800 | 200



NOTES

1. Heated water from 40 to 45 °C, ambient air temperature 7 °C d.b./6 °C w.b.
 2. Heated water from 30 to 35 °C, ambient air temperature 7 °C d.b./6 °C w.b.
 3. Seasonal energy efficiency of heating at low temperature with average climatic conditions. According to EU Regulation n. 811/2013.
 4. Chilled water from 12 to 7 °C, ambient air temperature 35 °C.
 5. Chilled water from 23 to 18 °C, ambient air temperature 35 °C.
 6. Sound pressure level measured in free field conditions at 1 m from the unit. According to ISO 3744.
- N.B. Weights of WP version are specified on technical brochure.
 N.B. * = Single phase
 N.B. ** = Three phase

CHA/ML/ST 91÷151

A CLASS ENERGY EFFICIENCY AIRCOOLED DEDICATED HEAT PUMPS WITH DOMESTIC HOT WATER PRODUCTION, AXIAL FANS, SCROLL COMPRESSOR, PLATE EXCHANGER AND HYDRONIC KIT.



MIDYLINE, featuring A CLASS energy efficiency, is the innovative series of Heat Pumps dedicated to **hot water production up to 60 °C** and operation up to -20 °C external air temperature, with Scroll compressors, axial fans and integrated hydronic unit. The unit, designed to originate and control – throughout the year – the best comfort conditions in rooms with a high rate of daily attendance, such as enclosed areas destined to the activities of the service sector, autonomously handles winter heating, summer air conditioning and the production of high temperature sanitary hot water. The MIDYLINE series, designed with an extremely compact structure for simple installation operations, uses only the electric energy and the heat accumulated in the air, to transfer heat to the rooms, thus allowing considerable energy savings, a high rate of reliability and the shortest start-up times. Flexibility is the main feature of the MIDYLINE series, which is indeed combined with Fan Coil units and managed by the innovative, intelligent AQUALOGIK control and optimization system, which makes the use of an inertial tank unnecessary and guarantees performances with elevated energy efficiency and silent functioning.

MIDYLINE

AQUALOGIK

VERSION

CHA/ML/ST

Heat Pump with AQUALOGIK technology

CHA/ML/WP/ST

Reversible Heat Pump with AQUALOGIK technology

FEATURES

- Structure with supporting frame, in peraluman and galvanized sheet.
- Scroll compressors with oil sight glass, internal overheat protection and crankcase heater.
- Axial fans with low ventilation and special wing profile, directly coupled to external rotor motors.
- Condenser made of copper tubes and aluminium finned coils.
- Evaporator AISI 316 stainless steel braze welded plates type, completed with water differential pressure switch and antifreeze heater.
- R407C refrigerant.
- Electrical board includes: main switch with door lock device, fuses and compressor remote control switch.
- Condensing Control is included: electronic proportional device that ensures efficient and continuous functioning of the unit with outside air temperature down to -20 °C in cooling mode. It also allows to reduce the sound level especially at night. It consists of a fans speed controller with continuous speed regulation, an high/low pressure transducer on cooling circuit and an electrical heater on electrical board.
- Functioning in heating mode with outside air temperature down to -20 °C.
- The production of hot water up to 60 °C is reachable with outside air temperature down to -15 °C. With outside air temperature of -20 °C the reachable production of hot water is up to 45 °C.
- Water circuit includes: variable speed circulating pump, safety valve, gauge and expansion vessel.
- Microprocessor control and regulation system with AQUALOGIK technology.

ACCESSORIES

FACTORY FITTED ACCESSORIES

EH	Supplementary electrical heater
KC	Gas burner integration Kit
TX	Coil with pre-coated fins

LOOSE ACCESSORIES

HW	Storage tank for domestic hot water production
CR	Remote control panel
IS	Modbus RTU protocol, RS485 serial interface
RP	Coil protection metallic guards
AG	Rubber shock absorbers

MODEL			91	101	151
Heating	Heating capacity (1)	kW	30.7	40.2	52.6
	Absorbed power (1)	kW	8.0	10.9	13.6
	COP (1)		3.84	3.69	3.87
	Heating capacity (2)	kW	29.8	40.0	50.2
	Absorbed power (2)	kW	6.7	9.2	11.4
	COP (2)		4.45	4.35	4.40
Heating (EN14511)	Heating capacity (1)	kW	31.4	41.1	53.5
	Absorbed power (1)	kW	8.0	10.9	13.6
	COP (1)		3.93	3.77	3.93
	EUROVENT Class		A	A	A
	SCOP (3)		4.42	4.32	4.27
	Energy Efficiency (3)	%	174	170	168
	Energy Class (3)		A++	A++	A++
Cooling	Cooling capacity (4)	kW	20.4	28.9	37.3
	Absorbed power (4)	kW	6.6	9.3	11.7
	EER (4)		3.09	3.11	3.19
	Cooling capacity (5)	kW	27.6	39.3	47.8
	Absorbed power (5)	kW	7.7	10.7	12.8
	EER (5)		3.58	3.67	3.73
Cooling (EN14511)	Cooling capacity (4)	kW	19.8	28.2	36.5
	Absorbed power (4)	kW	7.2	10.0	12.5
	EER (4)		2.75	2.82	2.92
	ESEER		3.11	3.16	3.27
	EUROVENT Class		C	C	B
Compressor	Quantity	n°	1	1	1
Supplementary electrical heater	Power supply	V/Ph/Hz	400/3/50		
	Heating capacity	kW	6/10	6/10	6/10
	Absorbed current	A	26/43	26/43	26/43
	Steps	n°	2	2	2
Electrical characteristics	Power supply	V/Ph/Hz	400/3+N/50		
	Max. running current	A	28	36	42
	Max. starting current	A	109	139	179
	Water flow	l/s	1.47	1.92	2.51
Water circuit	Pump available static pressure	kPa	230	227	195
	Water connections	"G	2"	2"	2"
	Sound pressure (6)	dB(A)	61	62	64
Weights	Transport weight	Kg	220	235	265
	Operating weight	Kg	224	239	269

DIMENSIONS			91	101	151
L	STD	mm	1850	1850	1850
W	STD	mm	1000	1000	1000
H	STD	mm	1300	1300	1300

CLEARANCE AREA

CHA/ML/ST 91÷151



NOTES

1. Heated water from 40 to 45 °C, ambient air temperature 7 °C d.b./6 °C w.b.
 2. Heated water from 30 to 35 °C, ambient air temperature 7 °C d.b./6 °C w.b.
 3. Seasonal energy efficiency of heating at low temperature with average climatic conditions. According to EU Regulation n. 811/2013.
 4. Chilled water from 12 to 7 °C, ambient air temperature 35 °C.
 5. Chilled water from 23 to 18 °C, ambient air temperature 35 °C.
 6. Sound pressure level measured in free field conditions at 1 m from the unit. According to ISO 3744.
- N.B. Weights of WP version are specified on technical brochure.

CHA/ML/ST 182-P÷302-P

A CLASS ENERGY EFFICIENCY AIRCOOLED DEDICATED HEAT PUMPS WITH DOMESTIC HOT WATER PRODUCTION, AXIAL FANS, SCROLL COMPRESSORS, PLATE EXCHANGER AND HYDRONIC KIT.



MIDYLINE, featuring A CLASS energy efficiency, is the innovative series of Heat Pumps dedicated to **hot water production up to 60 °C** and operation up to -20 °C external air temperature, with Scroll compressors, axial fans and integrated hydronic unit. The unit, designed to originate and control – throughout the year – the best comfort conditions in rooms with a high rate of daily attendance, such as enclosed areas destined to the activities of the service sector, autonomously handles winter heating, summer air conditioning and the production of high temperature sanitary hot water. The MIDYLINE series, designed with an extremely compact structure for simple installation operations, uses only the electric energy and the heat accumulated in the air, to transfer heat to the rooms, thus allowing considerable energy savings, a high rate of reliability and the shortest start-up times. Flexibility is the main feature of the MIDYLINE series, which is indeed combined with Fan Coil units and managed by the innovative, intelligent AQUALOGIK control and optimization system, which makes the use of an inertial tank unnecessary and guarantees performances with elevated energy efficiency and silent functioning.

Are available as option the new **EC Inverter fans with high available static pressure and efficiency for indoor ducted installation.**

MIDYLINE

AQUALOGIK

VERSION

CHA/ML/ST

Heat Pump with AQUALOGIK technology

CHA/ML/WP/ST

Reversible Heat Pump with AQUALOGIK technology

CHA/ML/SSL/ST

Super silenced Heat Pump with AQUALOGIK technology

CHA/ML/WP/SSL/ST

Super silenced reversible Heat Pump with AQUALOGIK technology

FEATURES

- Self-supporting galvanized steel frame protected with additional protection achieved via polyester powder painting.
- Scroll compressors with oil sight glass, internal overheat protection and crankcase heater.
- Axial fans directly coupled to an electric motor with external rotor.
- Condenser made of copper tubes and aluminium finned coil.
- Evaporator AISI 316 stainless steel braze welded plates type with two independent circuits on the refrigerant side and one on the water side, complete with flow switch and antifreeze heater.
- R407C refrigerant.
- Electrical board includes: main switch with door safety interlock, fuses, thermal protection relays for compressors and pump and thermocontacts for fans.
- Condensing Control is included: electronic proportional device that ensures efficient and continuous functioning of the unit with outside air temperature down to -20 °C in cooling mode. It also allows to reduce the sound level especially at night. It consists of a fans speed controller with continuous speed regulation, an high/low pressure transducer on cooling circuit and an electrical heater on electrical board.
- Functioning in heating mode with outside air temperature down to -20 °C.
- The production of hot water up to 60 °C is reachable with outside air temperature down to -15 °C. With outside air temperature of -20 °C the reachable production of hot water is up to 45 °C.
- Water circuit includes: INVERTER circulating pump, safety valve and expansion vessel.
- Microprocessor control and regulation system with AQUALOGIK technology.

ACCESSORIES

FACTORY FITTED ACCESSORIES

IM	Automatic circuit breakers
SL	Unit silencement
RFM	Cooling circuit shut-off valve on discharge line
RFL	Cooling circuit shut-off valve on liquid line

EC	EC Inverter fans
ECH	EC Inverter fans with high available static pressure
DS	Desuperheater
KC	Gas burner integration Kit
SS	Soft start
TX	Coil with pre-coated fins
IS	Modbus RTU protocol, RS485 serial interface

LOOSE ACCESSORIES

HW	Storage tank for domestic hot water production
MN	High and low pressure gauges
CR	Remote control panel
RP	Coil protection metallic guards
AG	Rubber shock absorbers
AM	Spring shock absorbers