

# CHAPTER 6

## CONDENSING UNITS

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# MHA/K 15÷151

**AIRCOOLED CONDENSING UNITS AND REVERSIBLE CONDENSING UNITS WITH AXIAL FANS AND ROTARY/SCROLL COMPRESSOR.**



The condensing units and reversible condensing units of the MHA/K 15÷151 series, with R410A refrigerant, are designed for small and medium-sized domestic or industrial systems. With a peraluman structure, these outdoor units are combined with evaporators in split system air conditioning installations, allowing the rooms to be cooled and dehumidified or to be heated. They can also be used in combination with hydronic evaporating units, generally in air conditioning applications

They are equipped with Rotary/Scroll compressors and axial fans, and they enable immediate and efficient use thanks to particular technical and design adjustments.

A wide range of accessories, factory fitted or supplied separately, completes the outstanding versatility and functionality of the series.

## VERSION

### MHA/K

Cooling only

### MHA/K/WP

Reversible Heat Pump

## FEATURES

- Structure with supporting frame, in peraluman and galvanized sheet.
- Rotary/Scroll compressor with internal overheat protection and crankcase heater, if needed.
- Axial fans with low ventilation and special wing profile, directly coupled to external rotor motors.
- Condenser in copper tubes and aluminium finned coil, complete with drain pan for WP version only (15÷81).
- R410A refrigerant.
- Electrical board includes: main switch with door lock device, fuses and compressor remote control switch.
- Microprocessor control and regulation system (WP only).

## ACCESSORIES

### FACTORY FITTED ACCESSORIES

CC	Condensing control down to -20 °C
TX	Coil with pre-coated fins
RL	Liquid receiver
VS	Solenoid valve

### LOOSE ACCESSORIES

RP	Coil protection metallic guards
AG	Rubber shock absorbers

## MHA/K 15÷151

MODEL			15	18	21	25	31	41	51	
Cooling	Cooling capacity (1)	kW	4.5	5.6	6.8	8.0	9.2	10.8	13.2	
	Absorbed power (1)	kW	1.4	1.8	2.1	2.5	2.9	3.7	4.1	
Heating	Heating capacity (2)	kW	4.8	5.9	7.3	8.4	9.7	11.3	13.7	
	Absorbed power (2)	kW	1.5	1.9	2.3	2.6	3.0	3.8	4.2	
Compressor	Quantity	n°	1	1	1	1	1	1	1	
	Type		Rotary				Scroll			
Connections	Suction line	∅ mm	16	16	16	16	16	16	18	
	Liquid line	∅ mm	10	10	10	10	10	10	12	
Electrical characteristics	Power supply	V/Ph/Hz	230/1/50						400/3+N/50	
	Max. running current	A	7	9	11	11	15	18	7	
	Max. starting current	A	37	43	62	62	79	86	58	
Sound pressure (3)		dB(A)	49	49	49	49	51	52	52	
Weights	Transport weight	Kg	81	83	83	87	90	92	109	
	Operating weight	Kg	8	84	84	88	91	93	111	

MODEL			61	71	81	91	101	131	151
Cooling	Cooling capacity (1)	kW	15.8	19.1	21.2	26.4	30.9	36.6	45.9
	Absorbed power (1)	kW	5.1	6.2	7.1	8.6	9.2	11.5	14.2
Heating	Heating capacity (2)	kW	16.8	19.9	22.0	27.4	33.2	40.9	51.9
	Absorbed power (2)	kW	5.3	6.4	7.3	8.8	9.8	11.9	15.2
Compressor	Quantity	n°	1	1	1	1	1	1	1
	Type		Scroll						
Connections	Suction line	∅ mm	18	22	22	28	28	28	28
	Liquid line	∅ mm	12	12	12	12	12	12	16
Electrical characteristics	Power supply	V/Ph/Hz	400/3+N/50						
	Max. running current	A	10	10	12	23	29	30	39
	Max. starting current	A	61	58	74	142	147	142	167
Sound pressure (3)		dB(A)	52	52	52	53	54	55	56
Weights	Transport weight	Kg	111	113	115	218	232	252	266
	Operating weight	Kg	114	116	118	221	235	256	271

DIMENSIONS			15	18	21	25	31	41	51	61	71	81	91	101	131	151
L	STD	mm	870	870	870	870	870	870	1160	1160	1160	1160	1850	1850	1850	1850
W	STD	mm	320	320	320	320	320	320	500	500	500	500	1000	1000	1000	1000
H	STD	mm	1100	1100	1100	1100	1100	1100	1270	1270	1270	1270	1300	1300	1300	1300

### CLEARANCE AREA

MHA/K 15÷41	MHA/K 51÷81	MHA/K 91÷151
200   200   800   200	200   200   800   200	500   800   800   800



### NOTES

1. Average evaporating temperature 5 °C, ambient air temperature 35 °C.
  2. Average condensing temperature 40 °C, ambient air temperature 7 °C d.b./6 °C w.b.
  3. 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.

# MHA/K 182÷604

**AIRCOOLED CONDENSING UNITS AND REVERSIBLE CONDENSING UNITS WITH AXIAL FANS AND SCROLL COMPRESSORS.**



The condensing units and reversible condensing units of the MHA/K 182÷604 series, with R410A refrigerant, are designed to satisfy the needs of medium and large-sized domestic or industrial systems.

These outdoor units are combined with evaporators in split system air conditioning installations, allowing the rooms to be cooled and dehumidified or to be heated. They can also be used in combination with hydronic evaporating units in both air conditioning and industrial process cooling applications.

They are equipped with Scroll compressors and axial fans, and they enable immediate and efficient use thanks to particular technical and design adjustments.

A wide range of accessories, factory fitted or supplied separately, completes the outstanding versatility and functionality of the series.

## VERSION

### MHA/K

Cooling only

### MHA/K/WP

Reversible Heat Pump

### MHA/K/SSL

Super silenced cooling only

### MHA/K/WP/SSL

Super silenced reversible Heat Pump

## 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 in copper tubes and aluminium finned coil.
- R410A refrigerant.
- Electrical board includes: main switch with door safety interlock, fuses, thermal protection relays for compressors and thermocontacts for fans.
- Microprocessor control and regulation system.

## ACCESSORIES

### FACTORY FITTED ACCESSORIES

IM	Automatic circuit breakers
SL	Unit silencing
RFM	Cooling circuit shut-off valve on discharge line
RFL	Cooling circuit shut-off valve on liquid line
CT	Condensing control down to 0 °C
CC	Condensing control down to -20 °C
EC	EC Inverter fans
TX	Coil with pre-coated fins
RL	Liquid receiver
VS	Solenoid valve
BP	Hot gas by-pass valve
FF	Dryer filter and sight glass
SS	Soft start

IS	Modbus RTU protocol, RS485 serial interface
CP	Potential free contacts

### LOOSE ACCESSORIES

MN	High and low pressure gauges
CR	Remote control panel
RP	Coil protection metallic guards
AG	Rubber shock absorbers
AM	Spring shock absorbers

## MHA/K 182÷604

MODEL			182	202	242	262	302	363	393	453	524	604
Cooling	Cooling capacity (1)	kW	50.6	58.6	66.9	77.2	88.4	102	117	134	156	188
	Absorbed power (1)	kW	17.4	19.7	22.5	25.8	29.5	34.2	39.2	45.6	53.2	63.2
Heating	Heating capacity (2)	kW	55.5	63.5	73.6	83.9	94.5	109	125	142	162	193
	Absorbed power (2)	kW	14.7	16.0	19.1	21.7	24.4	27.9	32.7	36.6	41.7	49.5
Compressor	Quantity	n°	2	2	2	2	2	3	3	3	4	4
	Refrigerant circuits	n°	1	1	1	1	1	1	1	1	2	2
	Capacity steps	n°	2						3			4
Connections	Suction line	∅ mm	1x35	1x35	1x35	1x35	1x35	1x42	1x42	1x42	2x35	2x35
	Liquid line	∅ mm	1x22	1x22	1x22	1x22	1x22	1x28	1x28	1x28	2x22	2x22
Electrical characteristics	Power supply	V/Ph/Hz	400/3/50									
	Max. running current	A	40	43	52	56	65	75	85	98	111	132
	Max. starting current	A	163	165	175	188	232	199	218	265	243	299
Sound pressure	STD version (3)	dB(A)	56	56	60	60	60	61	61	61	61	61
	With SL accessory (3)	dB(A)	54	54	58	58	58	58	59	59	59	59
	SSL version (3)	dB(A)	52	52	56	56	56	55	55	55	56	---
Weights	Transport weight	Kg	550	575	615	625	670	770	800	830	980	1090
	Operating weight	Kg	560	585	625	635	680	785	815	845	1005	1120

DIMENSIONS			182	202	242	262	302	363	393	453	524	604
L	STD	mm	2350	2350	2350	2350	2350	2350	2350	2350	3550	3550
	SSL	mm	2350	2350	2350	2350	2350	2350	3550	3550	3550	---
W	STD/SSL	mm	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100
H	STD/SSL	mm	1920	1920	1920	1920	2220	2220	2220	2220	2220	2220

### CLEARANCE AREA

MHA/K 182÷604

300 | 800 | 800 | 1800



### NOTES

1. Average evaporating temperature 5 °C, ambient air temperature 35 °C.
  2. Average condensing temperature 40 °C, ambient air temperature 7 °C d.b./6 °C w.b.
  3. Sound pressure level measured in free field conditions at 1 m from the unit. According to ISO 3744.
- N.B.** Weights of SSL and WP versions are specified on technical brochure.

FROM 4,5 KW TO 37 KW.

## MRA/K 15÷131

**AIRCOOLED CONDENSING UNITS AND REVERSIBLE CONDENSING UNITS WITH RADIAL FANS AND ROTARY/SCROLL COMPRESSOR FOR INDOOR DUCTED INSTALLATION**



The indoor condensing units and reversible condensing units of the MRA/K 15÷131 series, with R410A refrigerant, are intended to satisfy the needs of small and medium-sized domestic or industrial systems with particular difficulty in positioning units outside the building. With a prepainted plate structure, these units are combined with evaporators in split system air conditioning installations, allowing the rooms to be cooled and dehumidified or to be heated. They can also be used in combination with hydronic evaporating units, generally in air-conditioning applications.

They are equipped with Rotary/Scroll compressors and radial fans, with appreciable useful head, and they enable immediate and efficient use thanks to particular technical and design adjustments. A wide range of accessories, factory fitted or supplied separately, completes the outstanding versatility and functionality of the series.

### VERSION

#### MRA/K

Cooling only

#### MRA/K/WP

Reversible Heat Pump

### FEATURES

- Self-supporting prepainted steel frame.
- Rotary/Scroll compressor with internal overheat protection and crankcase heater, if needed.
- Double inlet radial fan statically and dynamically balanced directly driven by a electric motor (15-81) or belt driven connected to a three-phase electric motor (91÷131).
- Condenser in copper tubes and aluminium finned coil, complete with drain pan for WP version only.
- R410A refrigerant.
- Electrical board includes: main switch with door safety interlock, fuse and compressors remote control switch.
- Microprocessor control and regulation system (WP only).

### ACCESSORIES

#### FACTORY FITTED ACCESSORIES

CC	Condensing control down to -20 °C
TX	Coil with pre-coated fins
RL	Liquid receiver
VS	Solenoid valve

#### LOOSE ACCESSORIES

RP	Coil protection metallic guards
AG	Rubber shock absorbers

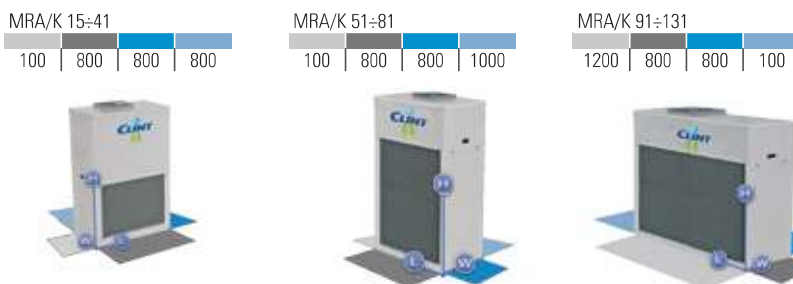
## MRA/K 15÷131

MODEL			15	18	21	25	31	41	51	
Cooling	Cooling capacity (1)	kW	4.5	5.6	6.8	8.0	9.2	10.8	13.2	
	Absorbed power (1)	kW	1.5	1.9	2.2	2.6	3.0	3.8	4.9	
Heating	Heating capacity (2)	kW	4.8	5.9	7.3	8.4	9.7	11.3	13.7	
	Absorbed power (2)	kW	1.6	2.0	2.4	2.7	3.1	3.9	5.0	
Compressor	Quantity	n°	1	1	1	1	1	1	1	
	Type		Rotary				Scroll			
Connections	Suction line	Ø mm	16	16	16	16	16	16	18	
	Liquid line	Ø mm	10	10	10	10	10	10	12	
Available static pressure		Pa	90	90	80	80	80	80	115	
Electrical characteristics	Power supply	V/Ph/Hz	230/1/50						400/3+N/50	
	Max. running current	A	10	12	13	14	17	21	11	
	Max. starting current	A	40	46	65	65	82	89	61	
Sound pressure (3)		dB(A)	49	49	49	49	51	52	52	
Weights	Transport weight	Kg	120	121	123	126	131	133	190	
	Operating weight	Kg	121	122	124	127	132	134	192	

MODEL			61	71	81	91	101	131
Cooling	Cooling capacity (1)	kW	15.8	19.1	21.2	26.4	30.9	36.6
	Absorbed power (1)	kW	5.9	7.0	7.9	10.3	10.4	13.5
Heating	Heating capacity (2)	kW	16.8	19.9	22.0	27.4	33.2	40.9
	Absorbed power (2)	kW	6.1	7.2	8.1	10.5	11.0	13.9
Compressor	Quantity	n°	1	1	1	1	1	1
	Type		Scroll					
Connections	Suction line	Ø mm	18	22	22	28	28	28
	Liquid line	Ø mm	12	12	12	12	12	12
Available static pressure		Pa	115	115	115	150	150	160
Electrical characteristics	Power supply	V/Ph/Hz	400/3+N/50					
	Max. running current	A	14	14	15	27	33	36
	Max. starting current	A	64	61	77	146	151	148
Sound pressure (3)		dB(A)	52	53	62	62	62	63
Weights	Transport weight	Kg	200	202	204	313	319	334
	Operating weight	Kg	203	205	207	316	322	338

DIMENSIONS			15	18	21	25	31	41	51	61	71	81	91	101	131
L	STD	mm	900	900	900	900	900	900	900	900	900	900	1500	1500	1500
W	STD	mm	550	550	550	550	550	550	690	690	690	690	800	800	800
H	STD	mm	1425	1425	1425	1425	1425	1425	1725	1725	1725	1725	1425	1425	1425

### CLEARANCE AREA



### NOTES

1. Average evaporating temperature 5 °C, ambient air temperature 35 °C.
  2. Average condensing temperature 40 °C, ambient air temperature 7 °C d.b./6 °C w.b.
  3. 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.

# MRA/K 182÷604

**AIRCOOLED CONDENSING UNITS AND REVERSIBLE CONDENSING UNITS WITH RADIAL FANS AND SCROLL COMPRESSORS.**



The indoor condensing units and reversible condensing units of the MRA/K 182÷604 series, with R410A refrigerant, are designed to satisfy the needs of medium-sized domestic or industrial systems with particular difficulty in positioning units outside the building. These units are combined with evaporators in split system air conditioning installations, allowing the rooms to be cooled and dehumidified or to be heated. They can also be used in combination with hydronic evaporating units in both air conditioning and industrial process cooling applications.

They are equipped with Scroll compressors and radial fans even in a high ESP version, and they enable immediate and efficient use thanks to particular technical and design adjustments. A wide range of accessories, factory fitted or supplied separately, completes the outstanding versatility and functionality of the series.

## VERSION

### MRA/K

Cooling only

### MRA/K/AP

Cooling only with high ESP fans

### MRA/K/WP

Reversible Heat Pump

### MRA/K/WP/AP

Reversible Heat Pump with high ESP fans

## 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.
- Radial fans coupled to 3-phase motors by V belt and variable pulley.
- Condenser with finned coil with copper pipes and aluminium fins
- R410A refrigerant.
- Electrical board includes: main switch with door safety interlock, fuses, thermal protection relays for compressors and thermocontacts for fans.
- Microprocessor control and regulation system.

## ACCESSORIES

### FACTORY FITTED ACCESSORIES

IM	Automatic circuit breakers
SL	Unit silencing
RFM	Cooling circuit shut-off valve on discharge line
RFL	Cooling circuit shut-off valve on liquid line
CC	Condensing control down to -20 °C
TX	Coil with pre-coated fins
RL	Liquid receiver
VS	Solenoid valve
BP	Hot gas by-pass valve
FF	Dryer filter and sight glass
SS	Soft start
IS	Modbus RTU protocol, RS485 serial interface
CP	Potential free contacts

### LOOSE ACCESSORIES

MN	High and low pressure gauges
CR	Remote control panel
RP	Coils protection metallic guards
AG	Rubber shock absorbers
AM	Spring shock absorbers