

AIR COOLED CONDENSING UNITS WITH SCROLL COMPRESSORS AND AXIAL FANS

REFRIGERANT R407C



MCE 181 K



Series MCE ... K

Cooling capacity from 4 to 39 kW - 1 circuit

The air cooled condensing units of **MCE K series**, to be matched to remote evaporating units, are designed for outdoor installation and are particularly suitable for small and medium sized air conditioning systems, in residential and commercial applications. Therefore during their design, it has been given a particular care for dimensions and sound level, so to have compact and silent units at the same time.

They are all available with 1 refrigerant circuit.

Thanks to their compact dimensions and to the several options available, these units are particularly easy to install in small spaces.

They are completely assembled and tested in the factory and supplied with nitrogen and oil charge.

The following versions are available:

MCE...K standard version

Horizontal air flow for models from 41 to 101

Vertical air flow for models from 131 to 421

MCE...U K ultrasilenced version (from size 201)

Operation limits: (standard units): external air temperature from 15 to 45°C.

Main components:

Frame made of galvanized steel plate, suitably treated to resist to external agents and then painted in RAL 7035 colour. The compressor section is completely closed and suitably isolated from the air flow; inside of it, the compressor and the main components are placed so to facilitate also the service operations. The external panels, easy to be dismantled, allow the full access in case of service. For size from 41 to 101, the compressor section is still insulated with close-cell polyurethane foam material.

High-efficiency **scroll compressor** (EER 3.37 under ARI conditions), with low sound level, internal heat protection, installed on rubber vibration dampers, supplied with crankcase heater when necessary. Sizer 41 is provided with hermetic piston compressor.

Heat-exchange external coil with copper tube and specially corrugated aluminium fins for a better efficiency. It is suitably sized with a wide exchange surface, so to allow the unit operation also at very high external air temperatures. On request, in case of installation in aggressive environments, several coil protection treatments are available.

Low rpm axial fans, of directly coupled type, with 6-8 pole electrical motor complete with in-built overload protection, electronic balance, low sound level blades with wing profile and safety protection grid. On request, it is available the modulating fans speed regulation (option BT).

Cooling circuit composed of dehydrating filter, sight glass, safety device, high and low pressure switches, shut-off valve on discharge side, liquid receiver.

Electric board in compliance with CE norms, contained in a suitable partition protected by the internal safety panel, provided with a main switch and an external panel to be opened. It is complete with remote switches, overload protections, transformer for auxiliaries and terminal board.

Unit management microprocessor installed on the internal safety panel of the electrical board, complete with compressors hour counter.

AIR COOLED CONDENSING UNITS WITH SCROLL COMPRESSORS AND AXIAL FANS

REFRIGERANT R407C

Accessories

AE	Electrical power supply different from standard: mainly, 230V three-phase, 460V three-phase. Frequency 50/60 Hz.
BT	Low temperature operation (-20°C): electronic device for the continuous modulating voltage control of the condensing pressure through the variation of the fan rotation speed.
CS	Compressors inrush counter: Electromechanical device positioned inside the electrical board, recording the total inrush starts of compressors (from size 201).
GP	Condensing coil protection grid: metal protection grid against accidental impacts.
HG	Hot gas by-pass (from model 131): mechanical device for modulating cooling capacity.
IH	RS 485 serial interface: electronic card to be connected to microprocessor, to allow communication between the units and a Carel supervision system. It is possible to fully control the unit from remote. For connection to other supervision systems, the protocol of the controlled parameters is available on request.
IM	Seawood packing: fumigated seawood case and protection bag with hygroscopic salts, suitable for long sea transports.
MF	Phase monitor: electronic device controlling the correct sequence and/or the eventual lack of one of the 3 phases, switching off the unit if necessary.

MT	High and low pressure gauges (from size 131) for measuring circuit pressure.
PA	Rubber-type vibration dampers: bell-shaped vibration dampers supports for insulating the unit (supplied in kit), made of base and bell in galvanized steel and natural rubber mixture.
PQ	Remote microprocessor: remote terminal, allowing to display the temperature and humidity values detected by probes, the alarm digital inputs, the outputs and the remote ON/OFF of the unit, to change and program of the parameters, the sound signal and the display of the present alarms.
RL	Compressors overload relays: electromechanical protection devices against compressor's overload.
RM	Condensing coil with pre-painted fins: superficial treatment of the condensing coils with epoxy coating.
RR	Copper/copper condensing coils: special execution of the condensing coils with copper pipe and fins.
RV	Personalized frame painting in RAL colour
SC	Insulated compressors housing with sound proofing material (available from size 201 and included on ultrasilenced version).
VS	Solenoid valve: electromagnetic solenoid valve on each cooling circuit to prevent refrigerant migrations and consequent flooding of compressors.



AIR COOLED CONDENSING UNITS WITH SCROLL COMPRESSORS AND AXIAL FANS

REFRIGERANT R407C

Technical data - Standard version

MCE		41 K	71 K	101 K	131 K	151 K	161 K	181 K	201 K	241 K	281 K	361 K	421 K	
Cooling capacity														
Cooling capacity	kW	4,4	6,7	7,7	10,3	12,2	15,8	16,6	18,0	21,4	25,4	32,9	39,0	
Nominal input power	kW	1,6	2,7	3,2	3,6	4,7	5,6	6,2	6,9	8,9	9,9	11,2	14,2	
EER		2,75	2,48	2,41	2,86	2,59	2,82	2,68	2,61	2,40	2,56	2,94	2,75	
Axial fans														
Quantity	n.	1				2								
Rotation speed	rpm	900												
Air flow	m ³ /h	3'600	3'850		7'500		6'984		11'200		10'200		16'000	
Air flow	l/s	1'000	1'069		2'083		1'940		3'111		2'833		4'445	
Motor input power	kW	0,15				0,29				0,74				
Input current	A	0,6				1,3				3,4				
Scroll compressors														
Quantity	n.	1												
Circuits	n.	1												
Standard capacity steps	%	0 / 100												
Nominal input current	A	3,0	6,2	5,5	5,4	6,3	9,0	10,3	12,2	14,9	16,7	18,5	23,3	
Maximum input current	A	6,0	7,0	10,0	12,0	14,0	16,0	18,0	17,0	20,0	22,0	27,0	32,0	
Inrush current	A	18,0	26,0	46,0	56,0	68,0	77,0	81,0	99,0	123,0	127,0	167,0	198,0	
Electrical data														
Total input power	kW	1,7	2,8	3,3	3,9	5,0	5,9	6,5	7,6	9,6	10,6	12,5	15,5	
Sound pressure level														
Sound pressure at 1 m	dB(A)	50			54	55		56		62		67		
Dimensions														
Length	mm	980				1'100				1'600				2'000
Width	mm	325				750				850				
Height	mm	715				1'100				1'260				1'650
Transport weight	kg	122	125	128	205	209	226	228	250	255	295	400	415	
Electrical power supply														
Electrical power supply	V / ph / Hz	400 / 3 / 50 + N + T												

REMARKS:
- Operating conditions: External air temperature 35°C; evaporating temperature 2°C
- Sound pressure level at 1 m in open field (ISO 3744).

Technical data - Ultrasilenced version

MCE		201 U K		241 U K		281 U K		361 U K		421 U K	
Cooling capacity											
Cooling capacity	kW	17,5		21,6		26,4		31,9		38,0	
Nominal input power	kW	7,2		8,8		9,3		11,8		14,8	
EER		2,43		2,45		2,84		2,70		2,57	
Axial fans											
Quantity	n.	2						3			
Rotation speed	rpm	680						650			
Air flow	m ³ /h	8'000		7'000		11'200		17'400			
Air flow	l/s	2'222		1'944		3'111		4'833			
Motor input power	kW	0,44				0,62		0,93			
Input current	A	2,2				3,1		4,7			
Scroll compressors											
Quantity	n.	1									
Circuits	n.	1									
Standard capacity steps	%	0 / 100									
Nominal input current	A	12,5		14,8		16,0		19,3		24,1	
Maximum input current	A	17,0		20,0		22,0		27,0		32,0	
Inrush current	A	99,0		123,0		127,0		167,0		198,0	
Electrical data											
Total input power	kW	7,6		9,2		9,9		12,4		15,7	
Sound pressure level											
Sound pressure at 1 m	dB(A)	55				59				61	
Dimensions											
Length	mm	1'600				2'000				2'130	
Width	mm	750				850				1'100	
Height	mm	1'260				1'650				1'760	
Transport weight	kg	256		261		370		400		570	
Electrical power supply											
Electrical power supply	V / ph / Hz	400 / 3 / 50 + N + T									

REMARKS:
- Operating conditions: External air temperature 35°C; evaporating temperature 2°C
- Sound pressure level at 1 m in open field (ISO 3744).