

AIR COOLED CONDENSING UNITS WITH SCROLL COMPRESSORS AND CENTRIFUGAL FANS

REFRIGERANT R407C



MCE 482 C K



Series MCE ... C K

Cooling capacity from 46 to 219 kW - 2 circuits

The air cooled condensing units with centrifugal fans of **MCE C K series**, to be matched to remote evaporating units, are designed for indoor installation and are particularly suitable for small and medium sized air conditioning systems, in residential and commercial applications.

They are all available with 2 refrigerant circuits.

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:

Vertical air flow

MCE...C K standard version

MCE...C U K ultrasilenced version

Horizontal air flow

MCE...C.O K standard version

MCE...C.O U K ultrasilenced version

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 installed. The external panels, easy to be dismantled with a quick ¾ key turn, allow the full access to all components in case of service.

High-efficiency scroll compressor (EER 3,7 at ARI conditions), with low sound level, internal heat protection, installed on rubber vibration dampers, supplied with crankcase heater. Being 2 circuit units, in case of problem on one of the circuit, the 50% operation of the unit is anyway granted.

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.

Centrifugal fans of double suction type with electrical motor directly joined and balanced blades, suitably isolated with rubber vibration dampers and sealing on discharge. They are provided with short circuit and overload protections and external safety protection grid. The motor is of 4-pole triphase type, with belt transmission and variable pulleys, placed on slide so to speed up the pulley tension. As a standard, the unit has a vertical airflow or, on request, you can ask for a horizontal airflow (coil side).

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.

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Accessories

1M-2M	Higher available pressure for fans: bigger electrical motor, so to have a higher available pressure to fans to be ducted.	IM	Seawood packing: fumigated seawood case and protection bag with hygroscopic salts, suitable for long sea transports.
AE	Electrical power supply different from standard: mainly, 230V three-phase, 460V three-phase. Frequency 50/60 Hz.	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.
BF	Low temperature operation (-20°C) with inverter fan speed regulation: electronic device controlling the condensing pressure through an inverter, modulating the frequency of the fans electrical supply.	MP	Oversized microprocessor: compared to the standard microprocessor, it allows a multi-language display reading, a more detailed description of parameters, the possibility to manage up to 8 units, to manage non standard communication protocols, a better access to the program (available from size 842).
BFa-BFb	Low temperature operation (-20°C) with inverter fan speed regulation (with option 1M and 2M): electronic device controlling the condensing pressure through an inverter, modulating the frequency of the fans electrical supply.	MT	High and low pressure gauges for measuring circuit pressure.
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 (not available for size 822).	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.
BTa	Low temperature operation (-20°C) (with option 1M): electronic device for the continuous modulating voltage control of the condensing pressure through the variation of the fan rotation speed (not available for size 822).	PM	Spring-type vibration dampers: spring-type vibration dampers support, for insulating the unit (supplied in kit), mainly indicated for installation in difficult and aggressive environments. Made of two steel plates containing a suitable quantity of harmonic steel springs (available from size 842).
CF	Soundproofed compressors cabinet: Insulation of compressors by a cabinet coated with soundproofing material and vibration dampers under compressors (included on ultrasilenced version).	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.
CI	Soundproofing jacket on compressors: made of soundproofing material, wrapped all around compressors so to further reduce the overall sound level of the unit (already included on ultrasilenced version).	RL	Compressors overload relays: electromechanical protection devices against compressor's overload.
CS	Compressors inrush counter: Electromechanical device positioned inside the electrical board, recording the total inrush starts of compressors.	RM	Condensing coil with pre-painted fins: superficial treatment of the condensing coils with epoxy coating.
G4	Cooling capacity control with 4 steps (available from size 962).	RR	Copper/copper condensing coils: special execution of the condensing coils with copper pipe and fins.
GP	Condensing coil protection grid: metal protection grid against accidental impacts.	RV	Personalized frame painting in RAL colour
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.	VS	Solenoid valve: electromagnetic solenoid valve on each cooling circuit to prevent refrigerant migrations and consequent flooding of compressors.

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Technical data - Standard version

MCE		482 CK	562 CK	702 CK	822 CK	842 CK	962 CK	1102 CK	1402 CK	1502 CK	1602 CK	2302 CK	2402 CK	2602 CK		
Cooling capacity																
Cooling capacity	kW	46,5	53,6	65,4	80,7	78,0	83,1	92,5	121,4	128,3	143,9	191,8	206,5	219,2		
Nominal input power	kW	16,4	18,6	23,5	28,4	28,9	33,8	40,4	47,0	53,4	59,7	73,8	78,0	85,0		
EER		2,83	2,88	2,78	2,84	2,70	2,46	2,29	2,58	2,40	2,41	2,60	2,65	2,58		
Centrifugal fans																
Quantity	n.	2				3			4			6				
Air flow	m ³ /h	16'700	20'900	24'600	28'400	40'000	37'500		50'000		48'000		73'200			
Air flow	l/s	4'639	5'806	6'834	7'889	11'110	10'415		13'890		13'300		20'330			
STD Version																
Available pressure	Pa	80				50	70			100	80					
Rotation speed	rpm	782	919	640	745	920	900		915		935		920			
Motor input power	kW	4,4	8,0	6,0	11,0	12,0			16,0			24,0				
Nominal input current	A	10,6	18,8	13,4	24,0	28,2			37,6			56,4				
Sound pressure level	dB(A)	65	66	68		70			72		73		74			
1M Version																
Available pressure	Pa	120				100	180		190		240	220				
Rotation speed	rpm	830	959	669	769	970	1'030			1'065		1'050				
Motor input power	kW	4,4	8,0		11,0	12,0			16,0			24,0				
Nominal input current	A	10,6	18,8		24,0	28,2			37,6			56,4				
Sound pressure level	dB(A)	66	68	71	72		71	72	74		75		78			
2M Version																
Available pressure	Pa	200				260	270		350		355	350				
Rotation speed	rpm	923	1'037	725	819	1'110	1'100			1'170						
Motor input power	kW	6,0	8,0		11,0	15,5			22,0			33,0				
Nominal input current	A	13,4	18,8		24,0	36,0			48,0			72,0				
Sound pressure level	dB(A)	67		71	74	75			76		77		78			
Scroll compressors																
Quantity	n.	2					4									
Circuits	n.							2								
Standard capacity steps	n.							2								
Optional capacity steps	n.	-					4									
Nominal input current	A	30,0	32,0	38,0	46,0	48,0	57,0	68,0	77,0	89,0	93,0	117,0	126,0	139,0		
Maximum input current	A	40,0	44,0	54,0	64,0		80,0	88,0	108,0	118,0	128,0	164,0	186,0	208,0		
Inrush current	A	143,0	149,0	194,0	230,0		183,0	193,0	248,0	284,0	294,0	348,0	406,0	428,0		
Electrical data																
Total input power	kW	20,8	26,6	29,5	39,4	40,9	45,8	52,4	63,0	69,4	75,7	97,8	102,0	109,0		
Dimensions																
Length	mm	2'120		2'280		2'610			3'460			5'150				
Width	mm	778			990			1'245								
Height	mm	1'570			1'845			1'995								
Transport weight	kg	752	782	856	929	1'334	1'449	1'456	1'800	1'840	1'940	2'400	2'450	2'540		
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) with ducted air suction and discharge

- In case of a different available pressure, included between the standard pressure and the values indicated for 1M or 2M options, however not higher 2M, it is necessary to order the higher pressure option, clearly stating the pressure value effectively requested on site. In the factory we will adjust the motor's pulley accordingly.

AIR COOLED CONDENSING UNITS WITH SCROLL COMPRESSORS AND CENTRIFUGAL FANS

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Technical data - Ultrasilenced version

MCE C.U		482 K	562 K	702 K	842 K	962 K	1102 K	1402 K	1502 K	1602 K	2302 K	2402 K	2602 K	
Cooling capacity														
Cooling capacity	kW	46,2	53,5	65,4	72,0	81,0	91,0	122,0	132,0	142,0	196,0	203,4	215,5	
Nominal input power	kW	16,5	18,9	23,5	30,1	34,8	40,6	46,3	52,1	61,0	71,7	80,0	86,2	
EER		2,80	2,83	2,78	2,39	2,33	2,24	2,63	2,53	2,33	2,73	2,54	2,50	
Centrifugal fans														
Quantity	n.	2			3		4	6			8			
Air flow	m ³ /h	14'700	18'000	20'700	21'300	28'800		43'800			54'400			
Air flow	l/s	4'083	5'000	5'750	5'920	8'000		12'170			15'110			
STD Version														
Available pressure	Pa	80			60	70						100		
Rotation speed	rpm	460	509	585	590	760	590	610			650			
Motor input power	kW	3,0		4,4	3,3	6,6	4,4	6,6			8,8			
Nominal input current	A	7,4		10,6	8,4	15,9	11,2	16,8			22,4			
Sound pressure level	dB(A)	60	58		60	64	60	61			64			
1M Version														
Available pressure	Pa	120			160	190	160	250						
Rotation speed	rpm	508	548	616	750	890	720	880			870			
Motor input power	kW	3,0		4,4	3,3	6,6	4,4	9,0			12,0			
Nominal input current	A	7,4		10,6	8,4	15,9	11,2	22,2			29,6			
Sound pressure level	dB(A)	61	63	66	65		66	68	69	74			74	
2M Version														
Available pressure	Pa	200			250	270		360			370			
Rotation speed	rpm	599	626	684	870	975	870	1'015						
Motor input power	kW	3,0	4,4	6,0	4,5	9,0	6,0	13,2			17,6			
Nominal input current	A	7,4	10,6	13,4	11,1	20,1	14,8	31,8			42,4			
Sound pressure level	dB(A)	62	64	66	67	68		69			74		75	
Scroll compressors														
Quantity	n.	2								4				
Circuits	n.					2								
Standard capacity steps	n.					2								
Optional capacity steps	n.	-								4				
Nominal input current	A	30,0	32,0	38,0	49,6	59,1	69,8	78,8	89,2	97,2	118,6	132,6	144,6	
Maximum input current	A	40,0	44,0	54,0	64,0	80,0	88,0	108,0	118,0	128,0	164,0	186,0	208,0	
Inrush current	A	143,0	149,0	194,0	230,0	183,0	193,0	248,0	284,0	294,0	348,0	406,0	428,0	
Electrical data														
Total input power	kW	19,5	21,9	27,9	33,4	41,4	45,0	52,9	58,7	67,6	80,5	88,8	95,0	
Dimensions														
Length	mm	2'280			2'610		3'460	5'150			6'840			
Width	mm	990						1'245						
Height	mm	1'845						1'995						
Transport weight	kg	825		869	1'352	1'467	1'757	2'485	2'525	2'535	2'980	3'000	3'020	
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) with ducted air suction and discharge

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