

# MEE Ka / MEE Kc

## EVAPORATING UNITS WITH HOUSING AND SCROLL COMPRESSORS

COOLING CAPACITY FROM 5 TO 81 kW 1 CIRCUIT

MEE 901 Kc



Above picture is only indicative and is not binding.



The evaporating units of **MEE Kc / MEE Ka series**, to be matched to remote condensers, are designed for indoor installation and are particularly suitable for small and medium sized air conditioning systems, in residential and commercial applications. For this reason, they are made of a housing in painted steel plate. 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 refrigerant and oil charge.

The following versions are available:

- **MEE Kc** with R410A ecological refrigerant charge
- **MEE Ka** with R134a ecological refrigerant charge

**Water operation limits** (standard units):

EVAPORATOR (OUT): from 5 to 15°C

### MAIN COMPONENTS

Strong and compact **frame**, with a housing made of galvanized and RAL 7035 painted steel plate. The front and the access panels to the electrical board are easy to be opened. The main components are installed inside the housing,

which can be isolated with standard soundproofing material (option CL) or with bituminous rubber soundproofing material (option CM). When required, the hydraulic kit (buffer tank and hydraulic kit) is installed into an additional section at the bottom of the unit, so not change the overall dimensions.

**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. Higher capacity units are equipped with two scroll compressors in tandem.

**Weld-brazed plate evaporator** in AISI 316 stainless steel, with pipes and patented manifold so to reach a high heat exchange coefficient. Its design allows a uniform water distribution, compatibly with pressure drops. The exchanger is provided with close-cell insulating material.

**Cooling circuit** composed of thermostatic expansion valve, dehydrating filter, sight glass, high and low pressure switches, shut-off valve on the liquid line, shutoff valve on compressor discharge, solenoid valve.

**Electric board** in compliance with CE norms, contained in a suitable partition protected by the hinged internal safety panel, provided with protection fuses and safety transformer. In case of hydraulic kit on board, the electrical control

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of the pump group is provided.

**Unit management microprocessor** installed on the external panel, easily accessible, complete with compressors hour counter.

### ACCESSORIES

- AE Electrical power supply different from standard:** Mainly, 230V three-phase, 460V three-phase. Frequency 50/60 Hz.
- AC Electrical control for condensers:** In case the remote condenser is included in our supply, its control (regulation and power) is provided in the electrical board of the evaporating unit. On the other hand, if the remote condenser is supplied by the customer, we suggest to inform about the absorbed current of the condenser, so to provide the electric control in the electric board of the indoor unit.
- CL Soundproofing insulation with standard material:** Insulation of the compressor housing by means of soundproofing material.
- CM Soundproofing insulation with bituminous rubber material:** Insulation of the compressor housing by means of bituminous rubber coated material.
- CS Compressors inrush counter:** Electromechanical device positioned inside the electrical board, recording the total inrush starts of compressors.
- HG Hot gas by-pass:** Mechanical device for modulating cooling capacity, preventing frequent compressor' stops.
- 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.
- LR Liquid receiver** suitably sized to contain the exceeding quantity of liquid refrigerant.
- 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** for measuring circuit pressure.
- MV Buffer tank** of suitable capacity complete with expansion vessel, safety valve, water gauge, water charge and discharge valves, air purging valves.
- P1 Single pump group:** Chilled water pump group composed of single pump, expansion vessel, safety valve, water gauge, water charge and discharge valves, air purging valves, electrical control of the pump. The pump is of 2 pole centrifugal packaged type.
- P1H Higher available pressure pump group:** chilled water higher available pressure pump group composed of single pump, expansion vessel, safety valve, water gauge, water charge and discharge valves, air purging valves, electrical control of the pump. The pump is of 2 pole centrifugal packaged type.
- 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.
- PF Safety water flow switch:** Installed on evaporator, it switches off the unit in case of lack of water flow rate through the evaporator.
- 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.

- RA Anti-freeze heater on evaporator:** Electrical heater installed on the evaporator, in order to prevent freezing and provided with thermostat.
- RL Compressors overload relays:** Electromechanical protection devices against compressor's overload with displayed alarm.
- RV Personalized frame painting in RAL colour.**
- SN Main switch:** Manual switch of lock-door type, switching off the unit.
- VB Brine version:** Unit suitable for working with evaporator outlet water temperatures lower than 0°C. A 20 mm evaporator insulation will be provided.

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## Technical data sheet - MEE 151-601 Ka

MEE		151 Ka	181 Ka	211 Ka	271 Ka	311 Ka	351 Ka	421 Ka	521 Ka	601 Ka
<b>Cooling capacity</b>										
Cooling capacity 1)	kW	13,5	16,3	18,8	24,7	28,0	31,9	38,3	47,8	54,5
Absorbed power	kW	3,2	3,8	4,4	5,9	6,7	7,7	9,0	11,8	13,8
EER		4,23	4,27	4,28	4,22	4,18	4,12	4,24	4,05	3,96
<b>Scroll compressors</b>										
Quantity	n	1	1	1	1	1	2	2	2	2
Standard steps capacity	n	1	1	1	1	1	2	2	2	2
Nominal absorbed current	A	9,3	10,5	12,1	14,9	16,9	21,1	24,2	29,7	33,8
Maximum absorbed current	A	17,0	20,0	22,0	27,0	32,0	40,0	44,0	54,0	64,0
Inrush current	A	99,0	123,0	127,0	167,0	198,0	143,0	149,0	194,0	230,0
Sound pressure level 2)	dB(A)	56	57	57	58	58	59	59	60	60
<b>Brazed plate evaporator</b>										
Quantity	n	1	1	1	1	1	1	1	1	1
Circuits	n	1	1	1	1	1	1	1	1	1
Water flow rate	m <sup>3</sup> /h	2,3	2,8	3,2	4,2	4,8	5,5	6,6	8,2	9,4
Water flow rate	l/s	0,64	0,78	0,90	1,18	1,34	1,53	1,83	2,28	2,60
Pressure drop	kPa	21	32	33	25	22	17	18	27	23
<b>Pumps</b>										
Available pressure with P1	kPa	72	87	75	71	110	111	110	96	92
Motor power with P1	kW	0,55	0,55	0,55	0,55	0,75	0,55	0,55	0,55	0,55
Available pressure with P1H	kPa	103	118	107	104	152	164	165	152	150
Motor power with P1H	kW	0,75	0,75	0,75	0,75	1,1	0,75	0,75	0,75	0,75
Buffer tank water volume	l	80	80	80	80	80	110	110	110	110
<b>Sound pressure level</b>										
Sound pressure level 2)	dB(A)	56	57	57	58	58	59	59	60	60
<b>Dimensions</b>										
Length	mm	800	800	800	800	800	1.600	1.600	1.600	1.600
Length with MV included	mm	800	800	800	800	800	1.600	1.600	1.600	1.600
Width	mm	500	500	500	500	500	750	750	750	750
Width with MV included	mm	500	500	500	500	500	750	750	750	750
Height	mm	960	960	960	960	960	960	960	960	960
Height with MV included	mm	1.430	1.430	1.430	1.430	1.430	1.340	1.340	1.340	1.340
Transport weight	kg	170	180	181	198	210	290	287	337	358
Weight with empty MV included	kg	220	230	231	248	260	450	447	497	518
<b>Power supply</b>										
Power supply	V / ph / Hz	400 V / 50 Hz / 3 Ph + T + N								
<b>NOTES</b>										
1) Nominal condition referred to: Chilled water 7/12 °C - Condensing temperature 47 °C.										
2) Measured at 1 m in open field (ISO 3746).										

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### Technical data sheet - MEE 61-311 Kc

MEE		61 Kc	111 Kc	161 Kc	191 Kc	221 Kc	271 Kc	311 Kc
<b>Cooling capacity</b>								
Cooling capacity 1)	kW	5,3	9,7	14,4	17,2	20,1	24,5	28,0
Absorbed power	kW	1,6	2,8	4,2	5,3	6,2	7,3	8,3
EER		3,30	3,49	3,39	3,27	3,26	3,35	3,36
<b>Scroll compressors</b>								
Quantity	n	1	1	1	1	1	1	1
Standard steps capacity	n	1	1	1	1	1	1	1
Nominal absorbed current	A	8,9	15,5	7,6	8,4	11,8	13,3	15,3
Maximum absorbed current	A	11,0	23,0	11,0	13,0	17,0	20,0	22,0
Inrush current	A	47,0	100,0	66,0	72,0	99,0	123,0	127,0
<b>Brazed plate evaporator</b>								
Quantity	n	1	1	1	1	1	1	1
Circuits	n	1	1	1	1	1	1	1
Water flow rate	m <sup>3</sup> /h	0,9	1,7	2,5	3,0	3,4	4,2	4,8
Water flow rate	l/s	0,25	0,47	0,69	0,82	0,94	1,17	1,34
Pressure drop	kPa	21	26	22	33	40	45	46
<b>Pumps</b>								
Available pressure with P1	kPa	66	44	64	80	64	70	93
Motor power with P1	kW	0,18	0,18	0,55	0,55	0,55	0,55	0,75
Available pressure with P1H	kPa	86	71	99	114	96	99	134
Motor power with P1H	kW	0,18	0,18	0,75	0,75	0,75	0,75	1,1
Buffer tank water volume	l	80	80	80	80	80	80	80
<b>Sound pressure level</b>								
Sound pressure level 2)	dB(A)	57	58	58	59	59	60	60
<b>Dimensions</b>								
Length	mm	800	800	800	800	800	800	800
Length with MV included	mm	800	800	800	800	800	800	800
Width	mm	500	500	500	500	500	500	500
Width with MV included	mm	500	500	500	500	500	500	500
Height	mm	960	960	960	960	960	960	960
Height with MV included	mm	1.430	1.430	1.430	1.430	1.430	1.430	1.430
Transport weight	kg	113	121	134	138	172	183	183
Weight with empty MV included	kg	163	171	184	188	222	233	233
<b>Power supply</b>								
Power supply	V / ph / Hz	230 V/50 Hz / 1Ph + N + T			400V / 50 Hz / 3Ph + N + T			

#### NOTES

1) Nominal condition referred to: Chilled water 7/12 °C - Condensing temperature 49 °C.

2) Measured at 1 m in open field (ISO 3746).

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## Technical data sheet - MEE 391-901 Kc

MEE		391 Kc	461 Kc	521 Kc	601 Kc	771 Kc	901 Kc
<b>Cooling capacity</b>							
Cooling capacity 1)	kW	35,7	42,5	48,2	54,6	71,2	83,2
Absorbed power	kW	11,1	12,8	14,6	16,5	22,1	25,6
EER		3,23	3,32	3,29	3,31	3,22	3,25
<b>Scroll compressors</b>							
Quantity	n	1	1	2	2	2	2
Standard steps capacity	n	1	1	2	2	2	2
Nominal absorbed current	A	17,8	21,8	26,6	30,7	35,6	43,6
Maximum absorbed current	A	27,0	32,0	40,0	44,0	54,0	64,0
Inrush current	A	167,0	198,0	143,0	149,0	194,0	230,0
<b>Brazed plate evaporator</b>							
Quantity	n	1	1	1	1	1	1
Circuits	n	1	1	1	1	1	1
Water flow rate	m <sup>3</sup> /h	6,1	7,3	8,3	9,4	12,2	14,3
Water flow rate	l/s	1,71	2,03	2,30	2,61	3,40	3,98
Pressure drop	kPa	48	67	21	24	21	22
<b>Pumps</b>							
Available pressure with P1	kPa	83	85	104	98	74	57
Motor power with P1	kW	0,75	0,75	0,55	0,55	0,55	0,55
Available pressure with P1H	kPa	123	130	159	156	139	120
Motor power with P1H	kW	1,1	1,1	0,75	0,75	0,75	0,75
Buffer tank water volume	l	80	80	110	110	110	110
<b>Sound pressure level</b>							
Sound pressure level 2)	dB(A)	61	61	62	62	63	63
<b>Dimensions</b>							
Length	mm	800	800	1.600	1.600	1.600	1.600
Length with MV included	mm	800	800	1.600	1.600	1.600	1.600
Width	mm	500	500	750	750	750	750
Width with MV included	mm	500	500	750	750	750	750
Height	mm	960	960	960	960	960	960
Height with MV included	mm	1.430	1.430	1.340	1.340	1.340	1.340
Transport weight	kg	200	215	299	304	351	372
Weight with empty MV included	kg	250	265	459	464	511	532
<b>Power supply</b>							
Power supply	V / ph / Hz	400V / 50 Hz / 3Ph + N + T					

NOTES  
 1) Nominal condition referred to: Chilled water 7/12 °C - Condensing temperature 49 °C.  
 2) Measured at 1 m in open field (ISO 3746).