



ERAH MC VS HE Ke

AIR COOLED CHILLERS FOR OUTDOOR INSTALLATION

WITH SCREW COMPRESSORS AND AXIAL FANS

Cooling capacity from 483 to 1260 kW



VERSION

HE: High efficiency version

Units with full load efficiency Eurovent class A EER ≥ 3.1 .

The air-cooled chillers of this serie are suitable for outdoor installation and are particularly suitable for cooling liquid solutions, used for industrial applications or air conditioning systems, in which it is necessary to ensure excellent performance and low environmental impact. The machines are designed as outdoor units in compliance with European standards EN378 and its updates and are able to meet the seasonal efficiency requirements established by Regulation (EU) 2016/2281-LOT21.

The units of this series are equipped with two screw compressors, each with a continuous control of the cooling capacity, realized thanks to an in-built inverter. Each compressor operates on a single totally independent circuit, thus ensuring the maximum reliability.

All the units are totally factory assembled and tested, following specific quality procedures. Besides, they are totally hydraulic, cooling and electrical connected, permitting a quick installation once on site. Before the test, the cooling circuits of each unit are subject to a pressure tightness test and then charged with Refrigerant and non-freezing oil. Therefore, once on site, the units must be only positioned and electrically and hydraulically connected.

MAIN COMPONENTS

STRUCTURE

Realized with frame made up of hot galvanized steel sheet and RAL 7035 painted, suitable to resist to atmospheric agents. Compressors and main components are easily accessible and suitably placed in the technical room.

COMPRESSORS

Semi-hermetic screw type, controlled by frequency inverter, allowing to adapt the power to the load variations ensuring at the same time the maximum efficiency at different operating conditions. The compressors are provided with motor thermal protection, rotation direction control, crankcase heater, oil filter, oil service valve, POE oil charge and vibration dumpers kit. Compressors lubrication is of forced type without pump, to avoid excessive oil migrations to the cooling circuit, compressors are equipped with oil separator on discharge side. Both compressors are equipped with an oil flow safety switch, an optoelectronic device operating in case the oil flow inside the compressor falls below the minimum threshold.

EVAPORATOR

Of "single" or "dual" circuit type, with high thickness close cell insulation and UV ray-proof. The max operating pressure limits are 6 bar for water side and 45 bar for refrigerant side. The evaporator is also equipped with safety water flow switch switching off the unit in case of low water flow through the evaporator.

COILS

Micro channel condensing Coils totally made up of aluminum alloy to grant a perfect and continuous contact among tubes and fins optimizing the thermal exchange and reducing dimensions and the refrigerant charge.

The high passivation degree of the used alloy, besides the peculiar assembling way, avoids the possibility to have galvanic corrosion phenomena.

FANS

With external rotor directly coupled to a three-phase electronically commutated motor (EC) they have the possibility of a continuous regulation of the speed by means of a 0-10V signal completely managed by the microprocessor. Aluminum blades with

wings profile are suitably designed to avoid any turbulence in the air detachment zone, granting in this way the max efficiency with the minimum noise level. The fan is equipped with galvanized steel protection grid painted after the construction. Thanks to a more accurate adjustment of air flow, they allow operation of the unit with external temperature down to -20 °C.

COOLING CIRCUIT

Made up of electronic thermostatic expansion valve, sight glass, high pressure safety device, anti-freeze protection on evaporator, high and low pressure switches, non return valve in-built on compressors discharge side, dehydrating filter with replaceable cartridges, shut-off valve on liquid line. Each compressor operates on an independent circuit granting in this way, a considerable reliability.

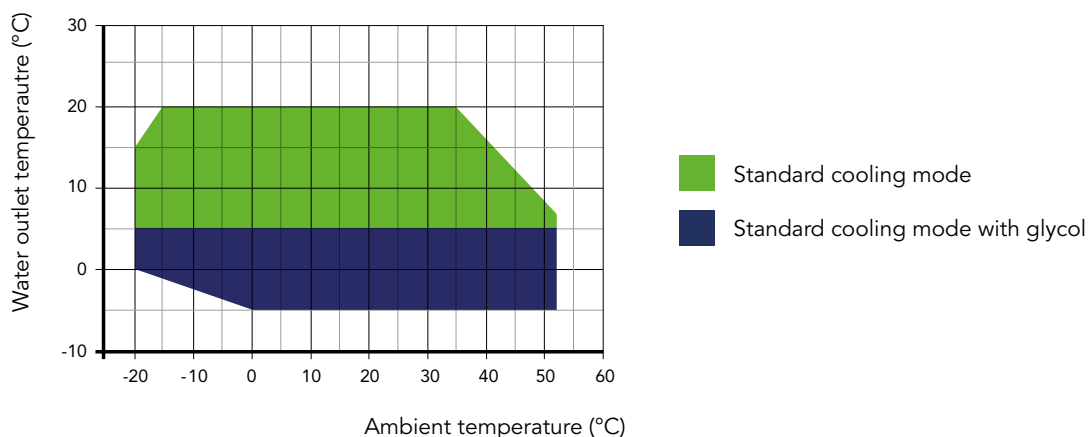
ELECTRICAL BOARD

In compliance with CE Norms, contained in a suitable section protected by internal safety panel, provided with a lock-door main switch. Inside all the control and protection components are suitably placed, together with terminal board and auxiliaries. The electrical board also includes the control device for power supply phases to prevent the compressor wrong side rotation. Microprocessor and relevant display are also placed inside the electrical cabinet.

MICROPROCESSOR

For unit management installed inside the electrical cabinet, with double evaporator in/out control of the chilled water temperature, as well as control of working parameters and equalization of compressors working hours, failures auto-detection system, alarm log, start and set point timeslot programming, possibility of remote management and supervision by enabling standard communication protocols management, complete with compressors hour counter.

OPERATING RANGE



ACCESSORIES

ERAH MC VS HE KE		4820	5520	5920	6520	7020
Soundproofed compressors cabinet with higher thickness material	CFU	●	●	●	●	●
Compressors inrush counter	CS	○	○	○	○	○
Anti-corrosive protection of the condensing coils	ECP	○	○	○	○	○
Condensing coil protection grid	GP	○	○	○	○	○
Anti-intrusion grid	GP1	○	○	○	○	○
RS 485 Serial interface	IH	○	○	○	○	○
BACNET Protocol serial interface	IH-BAC	○	○	○	○	○
Buffer tank module	MV	○	○	○	○	○
Pump group	P1	○	○	○	○	○
Pump + tank	P1+MV	○	○	○	○	○
Higher available pressure pump group	P1H	○	○	○	○	○
Higher available pressure pump group + tank	P1H+MV	○	○	○	○	○
Double pump group	P2	○	○	○	○	○
Double pump group + tank	P2+MV	○	○	○	○	○
Higher available pressure double pump group	P2H	○	○	○	○	○
Higher available pressure double pump group + tank	P2H+MV	○	○	○	○	○
Rubber-type vibration dampers	PA	○	○	○	○	○
Anti-corrosive protection of the condensing coils	PCP	○	○	○	○	○
Spring-type vibration dampers	PM	○	○	○	○	○
Remote display	PQ	○	○	○	○	○
Anti-freeze heater on evaporator	RA	○	○	○	○	○
Shut-off valve on compressors discharge side	RD	○	○	○	○	○
Shut-off valve on compressors suction side	RH	○	○	○	○	○
Partial heat recovery	RP	○	○	○	○	○
Brine Version	VB	○	○	○	○	○

ERAH MC VS HE KE		8120	9020	10420	11620	12520
Soundproofed compressors cabinet with higher thickness material	CFU	●	●	●	●	●
Compressors inrush counter	CS	○	○	○	○	○
Anti-corrosive protection of the condensing coils	ECP	○	○	○	○	○
Condensing coil protection grid	GP	○	○	○	○	○
Anti-intrusion grid	GP1	○	○	○	○	○
RS 485 Serial interface	IH	○	○	○	○	○
BACNET Protocol serial interface	IH-BAC	○	○	○	○	○
Buffer tank module	MV	○	○	○	○	○
Pump group	P1	○	○	○	○	○
Pump + tank	P1+MV	○	○	○	○	○
Higher available pressure pump group	P1H	○	○	○	○	○
Higher available pressure pump group + tank	P1H+MV	○	○	○	○	○
Double pump group	P2	○	○	○	○	○
Double pump group + tank	P2+MV	○	○	○	○	○
Higher available pressure double pump group	P2H	○	○	○	○	○
Higher available pressure double pump group + tank	P2H+MV	○	○	○	○	○
Rubber-type vibration dampers	PA	○	○	○	○	○
Anti-corrosive protection of the condensing coils	PCP	○	○	○	○	○
Spring-type vibration dampers	PM	○	○	○	○	○
Remote display	PQ	○	○	○	○	○
Anti-freeze heater on evaporator	RA	○	○	○	○	○
Shut-off valve on compressors discharge side	RD	○	○	○	○	○
Shut-off valve on compressors suction side	RH	○	○	○	○	○
Partial heat recovery	RP	○	○	○	○	○
Brine Version	VB	○	○	○	○	○

● Standard, ○ Optional, -- Not available

TECHNICAL DATA

ERAH MC VS HE Ka		4820	5520	5920	6520	7020
Cooling capacity	kW	483	540	602	650	703
Total input power	kW	167	182	213	222	240
Nominal input current	A	267	299	334	345	374
EER	W/W	2,89	2,97	2,83	2,93	2,93
SEER	W/W	5,51	5,42	5,32	5,51	5,38
Circuits	n°	2	2	2	2	2
Compressors	n°	2	2	2	2	2
Refrigerant data R134A						
Refrigerant charge	kg	72	80	90	102	116
Global warming potential (GWP)	-	573	573	573	573	573
Equivalent CO ₂ charge	t	41,2	45,8	51,6	58,4	66,5
Fans ⁽¹⁾						
Quantity	n°	8	8	10	12	12
Total air flow	m ³ /h	190965	190274	238677	280178	285991
Total power input	kW	20,1	19,9	25,0	28,5	30,0
Total input current	A	29,5	29,4	36,9	42,1	44,4
Evaporator ⁽²⁾						
Quantity	n°	1	1	1	1	1
Water flow	m ³ /h	83,0	92,7	103,7	111,5	120,9
Pressure drop	kPa	12,4	17,6	21,6	20,1	33,9
Weight						
Transport weight	kg	4124	4188	4536	4878	5368
Operating weight	kg	4214	4298	4646	4998	5642
Dimensions						
Length	mm	5060	5060	6200	7340	7340
Width	mm	2260	2260	2260	2260	2260
Height	mm	2650	2650	2650	2650	2650
Sound data						
Total LWA ⁽³⁾	dB(A)	103	102	103	103	104
Total SPL 10m ⁽⁴⁾	dB(A)	70	70	71	70	71
Power supply						
Voltage/phase/frequency	V/ph/Hz	3/400/50	3/400/50	3/400/50	3/400/50	3/400/50
General electrical data						
Maximum input power	[kW]	285	285	365	371	371
Maximum input current	[A]	478	478	568	578	578
Inrush current	[A]	278	278	328	338	338

ERAH MC VS HE Ka		8120	9020	10420	11620	12520
Cooling capacity	kW	785	872	1040	1130	1260
Total input power	kW	265	305	360	394	438
Nominal input current	A	402	463	568	617	689
EER	W/W	2,96	2,86	2,89	2,87	2,88
SEER	W/W	5,55	5,43	5,31	5,42	5,40
Circuits	n°	2	2	2	2	2
Compressors	n°	2	2	2	2	2
Refrigerant data R134A						
Refrigerant charge	kg	134	148	158	180	186
Global warming potential (GWP)	-	573	573	573	573	573
Equivalent CO ₂ charge	t	76,8	84,8	90,5	103,1	106,6
Fans ⁽¹⁾						
Quantity	n°	14	14	16	18	18
Total air flow	m ³ /h	331742	333799	380922	429094	427498
Total power input	kW	35,1	35,5	39,5	44,6	44,3
Total input current	A	50,9	51,6	58,9	66,4	66,1
Evaporator ⁽²⁾						
Quantity	n°	1	1	1	1	1
Water flow	m ³ /h	134,6	150,3	178,9	194,1	214,6
Pressure drop	kPa	22,6	20,9	28,6	34,4	33,4
Weight						
Transport weight	kg	5902	6174	7292	7746	7946
Operating weight	kg	6190	6546	7664	8142	8400
Dimensions						
Length	mm	8480	8480	9620	10760	10760
Width	mm	2260	2260	2260	2260	2260
Height	mm	2650	2650	2650	2650	2650
Sound data						
Total LWA ⁽³⁾	dB(A)	104	106	106	106	108
Total SPL 10m ⁽⁴⁾	dB(A)	71	73	73	73	74
Power supply						
Voltage/phase/frequency	V/ph/Hz	3/400/50	3/400/50	3/400/50	3/400/50	3/400/50
General electrical data						
Maximum input power	[kW]	377	439	550	556	636
Maximum input current	[A]	587	747	917	926	1070
Inrush current	[A]	347	427	517	526	596

