



Air-cooled reciprocating chiller

RAS MC Kp: Packaged air-cooled reciprocating chillers for outdoor use

Cooling capacity from 54 kW to 350 kW



Air
Condensed



AC Axial fans



Semihermetic
reciprocating
compressors



Plate
exchangers



Microchannel
aluminium coils



EC Axial fans
(Option)



Outdoor
installation



Inverter
technology



Natural
Refrigerant



High efficiency
(Option)

HVAC

R290 Chillers

EMICON's propane packaged air-cooled reciprocating chillers for outdoor use, suitable for HVAC and high temperature process cooling applications. Microchannel condenser coils mean only a minimal charge of highly sustainable R290 refrigerant is required.

FEATURES

- 1 or 2 independent cooling circuits equipped with 1 or 2 compressors for each circuit
- Possibility to interface to BMS system
- Leak sensor turns off the compressors and activates the extraction fan in case of a refrigerant leak

OPTIONS

- Operation in cooling mode down to -10°C (Opt. BT) or -20°C (Opt. BF)
- Soundproofed compressors cabinet with higher thickness material
- Partial heat recovery
- Electronic thermostatic valve
- Part-Winding compressor start-up system
- Advanced Cascade system - up to n.6 units
- BACNET or TCP/IP Protocol serial interface with RS 485
- Inverter for pump
- Hiweb supervision system

APPLICATION



Hospitality



Office building



Healthcare



Shopping mall



IT cooling



Airport



Sports & Leisure



Food processing

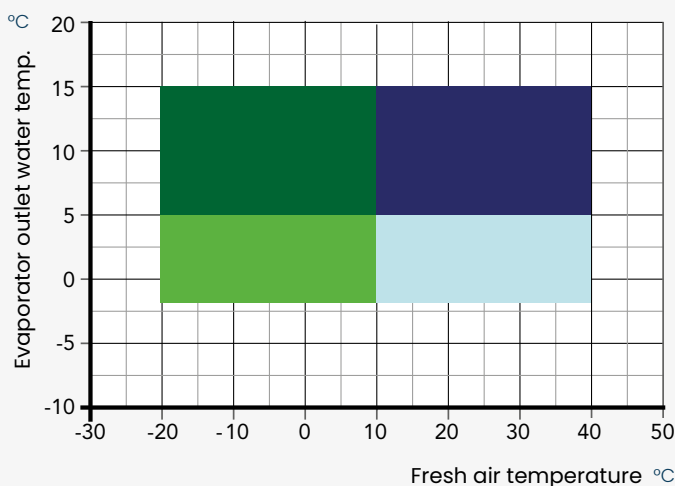


Industry



District cooling

Operating range



- Cooling mode with condensing pressure control
- Cooling mode
- Cooling mode with glycol
- Cooling mode with condensing pressure control and glycol

ERAS MC VS Kp



AIR-COOLED WATER CHILLERS FOR OUTDOOR INSTALLATION WITH SEMI-HERMETIC PISTON COMPRESSORS AND AXIAL FANS

Cooling capacity from 54 to 353 kW

R290



AIR



ERP
2021



The ERAS MC VS Kp series air-cooled packaged chillers are designed for outdoor installation and are particularly suitable for cooling pure liquid solutions used in industrial processes or for air conditioning applications, where excellent performance and minimal environmental impact are required.

The refrigerant used is propane, a non-toxic hydrocarbon, even at high concentrations, with zero ozone depletion potential, negligible global heating potential, and thermodynamic properties that allow for high efficiency values.

The units are designed for outdoor installation in compliance with European standards EN 378 and subsequent updates.

Depending on the required cooling capacity, they are available in versions with 1 or 2 independent refrigeration circuits, with 1 or 2 compressors per circuit (tandem configuration).

Thanks to the several options available, these units are particularly flexible and easily adapt to any installation requiring chilled water production.

All units are fully assembled and tested at the factory, supplied with a refrigerant charge and non-freezing oil. Once on site, however, they simply need to be positioned and connected to the electrical and hydraulic networks.

COMPONENTS

STRUCTURE

Robust and compact structure, made of a base and a frame made of thick galvanized steel elements, assembled with galvanized steel rivets. All galvanized steel surfaces are protected by RAL 7035 powder coating. The technical compartment and the remaining part of the refrigeration circuit, except the condensing section, are hermetically insulated and, in the event of a refrigerant leak, a centrifugal fan installed outside the compartment ensures forced ventilation (up to 4 air exchanges per minute). To reduce noise emissions, it is possible to insulate the technical compartment with standard or enhanced type fireproof and soundproofing material (CFU option).

COMPRESSORS

Semi-hermetic reciprocating compressors, designed and optimized for operation with hydrocarbons and manufactured in compliance with current safety directives. The electric motor, designed for low-current starting (PW option), is equipped with thermal protection (installed in the electrical panel). The forced lubrication system is equipped with oil filters and fittings for measuring lubricant pressure using a high-pressure pump. Each compressor is mounted on rubber dampers and equipped with pads and taps on the discharge and suction sides, electronic differential pressure switch for oil level control, crankcase heater and temperature sensor on the discharge side for compressor discharge temperature control. In circuits where the compressors are mounted in parallel (tandem configuration), each compressor is equipped with an oil level sensor and a refrigerant recovery line; The system is automatically activated if the lubricant level in one of the two compressors falls below the minimum value.

EVAPORATOR

Single-circuit or dual-circuit stainless steel plate evaporator, thermally insulated with thick, closed-cell flexible material. The evaporator is also equipped with a differential pressure switch on the water side that prevents the unit from operating in the event of low flow rate or insufficient water in the evaporator.

COILS

The air/freon heat exchange coils are made of extruded aluminum tubes with micro-channels and brazed-welded aluminum fins. Thanks to their reduced volume and large external surface area, these coils significantly reduce the refrigerant charge and provide high heat exchange capacity.

FANS

6-blade axial fans with an external rotor electric motor directly coupled to the propeller. The blades are made of aluminum, with airfoil profiles specifically designed to minimize turbulence, reduce noise emissions, and increase efficiency. Each fan is equipped with a protective grille, painted after construction. The motors are fully enclosed, have an IP54 protection rating, and a protective thermostat incorporated into the windings.

REGENERATOREXCHANGER

Gas/liquid plate regenerative heat exchanger, installed on each circuit to ensure an adequate superheat value for the gas drawn in by the compressor and a correct oil temperature, and, in the meantime, to increase the efficiency of the refrigeration cycle by subcooling the liquid at the outlet of the condensing section. Thermally insulated with thick, flexible closed-cell material.

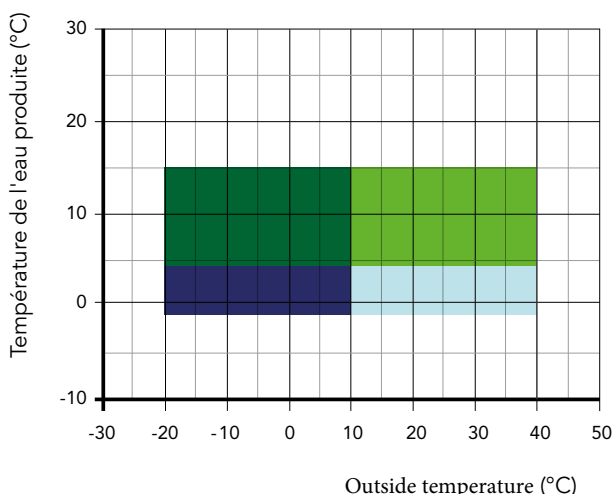
REFRIGERATION CIRCUITS

Independent refrigeration circuits, complete with a service valve for refrigerant introduction, an antifreeze probe, a liquid and humidity sight glass, a filter drier for R290 with a large filtration surface, a high-pressure safety switch equipped with a fitting for connection to the refrigerant discharge pipe, an electronic thermostatic expansion valve for size 10010 and from size 24020, and dedicated high and low pressure switches and gauges for R290. All units are equipped with a leak detector, which activates by stopping the compressors and activating an air expulsion fan in the event of a refrigerant leak.

ELECTRICAL PANEL

Electrical panel compliant with EN 61439-1 and EN 60204 standards, which houses all the components of the control system and those required for motor starting and thermal protection, factory-wired and tested. It is housed in a watertight enclosure with IP65/66 cable glands. Inside the box, the following components are also installed: control and power devices, microprocessor electronic board with keyboard and display to view the various functions, general circuit breaker with door lock system, transformer for powering auxiliary circuits, automatic switches, fuses and remote switches for compressor and fan motors, terminal blocks for general alarm and remote ON/OFF, terminal block for spring-type control circuits, possibility of interfacing with BMS management systems.

LIMITES DE FONCTIONNEMENT



ACCESSOIRES

ERAS MC VS Kp		5210	5910	7210	8710	10010
Ampèremètre + Voltmètre	A+V	o	o	o	o	o
Diffuseur pour ventilateur axial	AXT	o	o	o	o	o
Fonctionnement en froid jusqu'à -20°C	BF	o	o	o	o	o
Fonctionnement en froid jusqu'à -10°C	BT	o	o	o	o	o
Cabinet insonorisant compresseurs avec matériel polyester plus épais	CFU	o	o	o	o	o
Compteur de démarrage compresseur	CS	o	o	o	o	o
Ventilateurs hélicoïdes avec moteur à commutation électronique	EC	o	o	o	o	o
Protection par électrodéposition des batteries de condensation	ECP	o	o	o	o	o
Grille de protection de la batterie de condensation	GP	o	o	o	o	o
Double pressostat de sécurité côté haute pression	HRV2	o	o	o	o	o
Isolement Victaulic côté pompe	I1	o	o	o	o	o
Isolement Victaulic côté réservoir	I2	o	o	o	o	o
Carte série RS 485	IH	o	o	o	o	o
Interface série pour protocole BACNET	IH-BAC	o	o	o	o	o
Interface série pour protocole SNMP ou TCP/IP	IWG	o	o	o	o	o
Moniteur de phase	MF	o	o	o	o	o
Réservoir	MV	o	o	o	o	o
Group pompe individuelle	P1	o	o	o	o	o
Group pompe individuelle + Réservoir	P1+MV	o	o	o	o	o
Group pompe individuelle à haute pression	P1H	o	o	o	o	o
Group pompe individuelle à haute pression + Réservoir	P1H+MV	o	o	o	o	o
Group pompes en parallèle	P2	o	o	o	o	o
Group pompes en parallèle + Réservoir	P2+MV	o	o	o	o	o
Group pompe en parallèle haute pression disponible	P2H	o	o	o	o	o
Group pompe en parallèle haute pression disponible + Réservoir	P2H+MV	o	o	o	o	o
Supports anti-vibratiles en caoutchouc	PA	o	o	o	o	o
Protection anti-corrosion des batteries de condensation	PCP	o	o	o	o	o
Supports anti-vibratiles à ressort	PM	o	o	o	o	o
Interface de programmation à distance	PQ	o	o	o	o	o
Système de démarrage Part-Winding	PW	o	o	o	o	o
Résistance électrique sur l'évaporateur	RA	o	o	o	o	o
Système de mise en phase cosφ ≥ 0,9	RF	o	o	o	o	o
Relais thermiques des compresseurs	RL	●	●	●	●	●
Récupération partielle	RP	o	o	o	o	o
Vanne thermostatique électronique	TE	o	o	o	o	--
Inverseur sur compresseur	VSC	--	--	--	--	--
Inverter pompe individuelle	VSP1	o	o	o	o	o
Inverter groupe pompe à haute pression	VSP1H	o	o	o	o	o
Inverter groupe pompes en parallèle (une pompe en fonction)	VSP2	o	o	o	o	o
Inverter groupe pompe à haute pression (une pompe en fonction)	VSP2H	o	o	o	o	o

● Standard, o Optional, -- Non disponible

ERAS MC Kp		14020	17020	21020	24020	29020	34020
Ampèremètre + Voltmètre	A+V	o	o	o	o	o	o
Diffuseur pour ventilateur axial	AXT	o	o	o	o	o	o
Fonctionnement en froid jusqu'à -20°C	BF	o	o	o	o	o	o
Fonctionnement en froid jusqu'à -10°C	BT	o	o	o	o	o	o
Cabinet insonorisant compresseurs avec matériel polyester plus épais	CFU	o	o	o	o	o	o
Compteur de démarrage compresseur	CS	o	o	o	o	o	o
Ventilateurs hélicoïdes avec moteur à commutation électronique	EC	o	o	o	o	o	o
Protection par électrodéposition des batteries de condensation	ECP	o	o	o	o	o	o
Grille de protection de la batterie de condensation	GP	o	o	o	o	o	o
Double pressostat de sécurité côté haute pression	HRV2	o	o	o	o	o	o
Isolement Victaulic coté pompe	I1	o	o	o	o	o	o
Isolement Victaulic coté réservoir	I2	o	o	o	o	o	o
Carte série RS 485	IH	o	o	o	o	o	o
Interface série pour protocole BACNET	IH-BAC	o	o	o	o	o	o
Interface série pour protocole SNMP ou TCP/IP	IWG	o	o	o	o	o	o
Moniteur de phase	MF	o	o	o	o	o	o
Réservoir	MV	o	o	o	o	o	o
Groupe pompe individuelle	P1	o	o	o	o	o	o
Groupe pompe individuelle + Réservoir	P1+MV	o	o	o	o	o	o
Groupe pompe individuelle à haute pression	P1H	o	o	o	o	o	o
Groupe pompe individuelle à haute pression + Réservoir	P1H+MV	o	o	o	o	o	o
Groupe pompes en parallèle	P2	o	o	o	o	o	o
Groupe pompes en parallèle + Réservoir	P2+MV	o	o	o	o	o	o
Groupe pompe en parallèle haute pression disponible	P2H	o	o	o	o	o	o
Groupe pompe en parallèle haute pression disponible + Réservoir	P2H+MV	o	o	o	o	o	o
Supports anti-vibratiles en caoutchouc	PA	o	o	o	o	o	o
Protection anti-corrosion des batteries de condensation	PCP	o	o	o	o	o	o
Supports anti-vibratiles à ressort	PM	o	o	o	o	o	o
Interface de programmation à distance	PQ	o	o	o	o	o	o
Système de démarrage Part-Winding	PW	o	o	o	o	o	o
Résistance électrique sur l'évaporateur	RA	o	o	o	o	o	o
Système de mise en phase cosφ ≥ 0,9	RF	o	o	o	o	o	o
Relais thermiques des compresseurs	RL	o	o	o	o	o	o
Récupération partielle	RP	o	o	o	o	o	o
Vanne thermostatique électronique	TE	o	o	o	--	--	--
Inverseur sur compresseur	VSC	o	o	o	o	o	o
Inverter pompe individuelle	VSP1	o	o	o	o	o	o
Inverter groupe pompe à haute pression	VSP1H	o	o	o	o	o	o
Inverter groupe pompes en parallèle (une pompe en fonction)	VSP2	o	o	o	o	o	o
Inverter groupe pompe à haute pression (une pompe en fonction)	VSP2H	o	o	o	o	o	o

• Standard, o Optional, -- Non disponible

DONNÉES TECHNIQUES

ERAS MC VS Kp		5210	5910	7210	8710	10010
Puissance frigorifique	kW	54,2	61,0	74,8	92,9	107,1
Puissance absorbée	kW	16,4	19,2	23,3	29,2	34,1
Intensité absorbée nominale	A	35,1	38,2	42,5	52,1	63,2
EER	W/W	3,30	3,19	3,21	3,18	3,15
SEPR ⁽⁵⁾	W/W	4,17	4,12	4,24	4,17	4,14
Circuits	n°	1	1	1	1	1
Compresseurs	n°	1	1	1	1	1
Réfrigérant R290						
Charge fréon	kg	4	4	8	8	8
Potentiel réchauffement global (GWP)	-	3	3	3	3	3
Tonnes équivalent CO ₂	t	12	12	24	24	24
Ventilateurs Axiaux ⁽¹⁾						
Quantité	n°	2	2	2	2	2
Débit d'air	m ³ /h	17760	17690	20020	40220	40070
Puissance absorbée	kW	1,2	1,2	1,2	3,9	3,9
Intensité absorbée	A	5,2	5,2	5,2	7,8	7,8
Evaporateur à plaques ⁽²⁾						
Quantité	n°	1	1	1	1	1
Débit d'eau	m ³ /h	9,3	10,5	12,9	16,0	18,4
Perte de charge	kPa	29	35	17	24	31
Poids						
Poids de transport	kg	1094	1096	1206	1304	1310
Poids en exploitation	kg	1098	1100	1212	1310	1316
Dimensions						
Longueur	mm	2590	2590	2590	2590	2590
Largeur	mm	1370	1370	1370	1370	1370
Hauteur	mm	2570	2570	2570	2570	2570
Niveaux sonores						
Puissance sonore ⁽³⁾	dB(A)	86,3	88,1	88,1	92,2	92,2
Pression sonore 10m ⁽⁴⁾	dB(A)	54,3	56,1	56,1	60,2	60,2
Alimentation électrique						
Voltage/phase/fréquence	V/ph/Hz	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE
Données électriques						
Puissance absorbée max	[kW]	21.2	25.2	28.2	37.9	45.9
Intensité absorbée max	[A]	42.3	49.4	52.4	68.8	82.4
Intensité de démarrage	[A]	42.3	49.4	52.4	68.8	82.4

ERAS MC Kp		14020	17020	21020	24020	29020	34020
Puissance frigorifique	kW	155,5	182,8	215,7	252,1	289,7	352,9
Puissance absorbée	kW	47,5	56,4	68,2	77,0	96,5	114,1
Intensité absorbée nominale	A	85,5	103,7	126,6	145,5	166,3	205,7
EER	W/W	3,27	3,24	3,16	3,28	3,00	3,09
SEPR ⁽⁵⁾	W/W	4,15	4,14	4,12	4,26	4,13	4,24
Circuits	n°	2	2	2	2	2	2
Compresseurs	n°	2	2	2	4	4	4
Réfrigérant R290							
Charge fréon	kg	15	15	17	17	16	21
Potentiel réchauffement global (GWP)	-	3	3	3	3	3	3
Tonnes équivalent CO ₂	t	45	45	51	51	48	63
Ventilateurs Axiaux ⁽¹⁾							
Quantité	n°	4	4	4	4	4	6
Débit d'air	m ³ /h	80770	80470	80110	79850	79400	119920
Puissance absorbée	kW	7,8	7,8	7,8	7,8	7,8	11,6
Intensité absorbée	A	15,6	15,6	15,6	15,6	15,6	23,4
Evaporateur à plaques ⁽²⁾							
Quantité	n°	1	1	1	1	1	1
Débit d'eau	m ³ /h	26,7	31,4	37,1	43,4	49,8	60,7
Perte de charge	kPa	21	28	26	33	26	36
Poids							
Poids de transport	kg	2002	2098	2156	2522	2598	3100
Poids en exploitation	kg	2016	2112	2178	2544	2630	3132
Dimensions							
Longueur	mm	4840	4840	4840	4840	4840	4430
Largeur	mm	1370	1370	1370	1370	1370	2260
Hauteur	mm	2570	2570	2570	2570	2570	2480
Niveaux sonores							
Puissance sonore ⁽³⁾	dB(A)	92,6	95,7	95,7	96,0	96,0	99,2
Pression sonore 10m ⁽⁴⁾	dB(A)	60,4	63,4	63,4	63,7	63,7	66,9
Alimentation électrique							
Voltage/phase/fréquence	V/ph/Hz	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE
Données électriques							
Puissance absorbée max	[kW]	59.8	75.8	91.8	104	112	148
Intensité absorbée max	[A]	110	138	165	192	204	267
Intensité de démarrage	[A]	302	350	412	372	396	479

