RWS Kp

WATER COOLED CHILLERS FOR INDOOR INSTALLATION
WITH SEMIHERMETIC RECIPROCATED COMPRESSORS

Cooling capacity from 60 kW to 390 kW

VERSIONS

RWS Kp - standard version

The packaged water cooled chillers of RWS Kp series are suitable for internal or external installation and are particularly indicated to cool fluid solutions for industrial applications or air conditioning systems of the service industry, where it is necessary to grant excellent performances at very low environmental impact.
The refrigerant used is propane, a non-toxic hydrocarbon, even at high concentrations, with an almost null ozone depletion potential, negligible global warming potential and thermodynamic properties which allow to reach high efficiency values.
For this reason the units are designed as group for internal installation, in compliance with the European standard EN378 and updates; Unit to install inside of engine rooms responding to safety regulations.

Depending on the capacity required the units are available with 1, 2 or 4 independents cooling circuits equipped with 1 compressor for every circuit.

Thanks to the many available options, these chillers are particularly versatile and are easily adaptable to the different types of plants, where production of chilled water is required.
All the units are completely factory assembled, tested and supplied with refrigerant and non-freezing oil charge; so, once on installation site, they only need to be positioned and connected to the hydraulic and power supply lines.

Units CE certified in compliance with the European regulation 2016/2281 ERP 2021.

MAIN COMPONENTS

FRAME
Strong and compact structure, made of base and frame with high-thickness galvanized and painted steel elements, aluminium tubular elements and galvanized steel panels.
All galvanized steel surfaces externally positioned are superficially coated by an oven powder-painting with color RAL7035. The technical section which contains compressors and all the cooling circuit elements is closed in a cabinet; if a refrigerant leak occurs the technician vane is automatically airy using an external axial fan which is able to clean all the air inside the cabinet 4 time/minute.
To reduce the sound level the compressors cabinet is insulated with a sound and fire proof mattress.

COMPRESSORS
Semi hermetic alternative type optimized to operate with the hydrocarbons and realized in compliance with the regulation on safety in force. The electrical motor, arranged for starts with low inrush current (PW option), is equipped with thermal protection module (installed in the electrical cabinet); the lubricating system, of forced type, is equipped with oil filters and check valves to survey the lubricating pressure and is made through a high pressure pump.
Each compressor is installed on rubber type vibration dampers and is provided with switch-off valve on suction and discharge side, electronic differential pressure switch for the oil level control, crankcase heater and temperature probe on discharge side to control the compressor's discharge temperature.

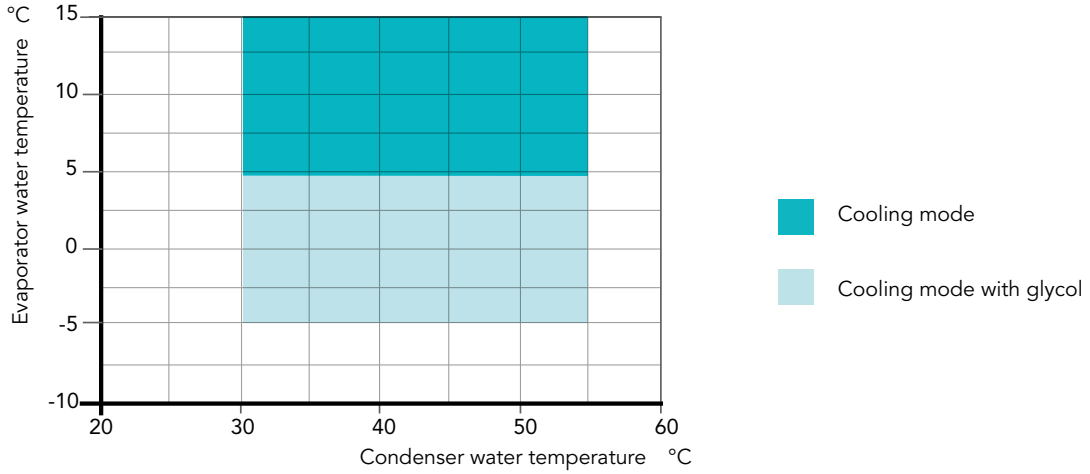
EVAPORATOR/CONDENSER
Plates AISI 316 stainless steel type evaporator and condenser mono or bi-circuit.
The evaporator is thermally insulated using a closed cells flexible mattress of a great thickness and is provided a safety differential pressure switch on the water side which does not allows the unit operation in case of water flow lack or reduction.

REGENERATIVE EXCHANGER
Heat regenerative exchanger gas/fluid of plates type, installed on each circuit to grant a suitable overheating value to the compressor sucked gas and at the same time to increase the cooling circuit efficiency thanks to higher sub-cooling of condensing coil leaving fluid.
Insulated thermally using a close cells mattress of great thickness.

COOLING CIRCUIT
Indipendent cooling circuits, each provided with a shut-off valve for refrigerant charge, antifreeze probe, sight glass, dehydrating filter for R290 with wide filtering surface, high pressure side safety valve equipped with connector to the discharge refrigerant conveying piping, electronic thermostatic valve (size 871, 1001 and 2102), pressure switches and high/low pressure gauges for R290 specifically. All the units are equipped with a leak sensor which is able to turn off the compressors and turn on the extraction fan in case of a refrigerant leak occurs.

ELECTRICAL BOARD
Built in compliance with 61439-1 standards, inside of which all the control system elements and the ones required for electrical motors starting and protection are located, all the components are factory connected and testes.
The electrical cabinet has got a watertight structure, equipped with cable glands with protection factor of IP65/66.
Besides the electrical cabinet contains all the power and control devices, microprocessor electronic board complete with keyboard and display for visualizing several function available, main switch of lock-door type, isolation transformer for auxiliary circuits, automatic switches, fuses and protection switches for compressors and fans motors, terminals for general alarm and unit remote ON/OFF, spring type terminal board and the possibility to interface to BMS system.

OPERATING RANGE



ACCESSORIES

RWS Kp		521	591	721	871	1001	1402
0-10 V for condensation control	0-10 V	o	o	o	o	o	o
Amperometer + Voltmeter	A+V	o	o	o	o	o	o
Electrical power supply different than standard	AE	□	□	□	□	□	□
Atex fan deduction with declaration	ATEX F.D.	o	o	o	o	o	o
Atex fan on the top	ATOP	o	o	o	o	o	o
Soundproofed compressors cabinet with higher thickness material	CFU	•	•	•	•	•	•
Compressors inrush counter	CS	o	o	o	o	o	o
User connections on top	CTOP	o	o	o	o	o	o
Refrigerant leakage detector	DR	•	•	•	•	•	•
High pressure double safety valve	HRV2	o	o	o	o	o	o
RS 485 Serial interface	IH	o	o	o	o	o	o
BACNET Protocol serial interface	IH-BAC	o	o	o	o	o	o
TCP/IP Protocol serial interface	IWG	o	o	o	o	o	o
Phase monitor	MF	o	o	o	o	o	o
MP advanced control for MSC - up to n.2 units	MP ADV	o	o	o	o	o	o
Up to two units	MS	o	o	o	o	o	o
Advanced Cascade system - up to n.6 units	MSC	o	o	o	o	o	o
Remote monitoring for units in cascade	MSHWEV	o	o	o	o	o	o
Pressure gauges	MT	•	•	•	•	•	•
Panel porthole for display	OPX	o	o	o	o	o	o
Rubber-type vibration dampers	PA	◊	◊	◊	◊	◊	◊
Spring-type vibration dampers	PM	◊	◊	◊	◊	◊	◊
Remote display	PQ	◊	◊	◊	◊	◊	◊
Part-Winding	PW	o	o	o	o	o	o
Heating control and condenser insulation	PWS	o	o	o	o	o	o
Anti-freeze heater on evaporator	RA	o	o	o	o	o	o
Shut-off valve on compressors discharge side	RD	•	•	•	•	•	•
Power factor correction system cosfi ≥0,9	RF	o	o	o	o	o	o
Shut-off valve on compressors suction side	RH	•	•	•	•	•	•
Compressor overload relays	RL	o	o	o	o	o	o
Partial heat recovery	RP	o	o	o	o	o	o
Personalized frame painting	RV	□	□	□	□	□	□
Electronic thermostatic valve	TE	o	o	o	•	•	o
Inverter on compressor	VSC	•	•	•	•	•	o
HiWeb	XW	o	o	o	o	o	o

• Standard, o Optional, ◊ Optional (external kit)-- Not available, □ Contact sales department

RWS Kp		1702	2102	2404	2904	3404
0-10 V for condensation control	0-10 V	o	o	o	o	o
Amperometer + Voltmeter	A+V	o	o	o	o	o
Electrical power supply different than standard	AE	□	□	□	□	□
Atex fan deduction with declaration	ATEX F.D.	o	o	o	o	o
Atex fan on the top	ATOP	o	o	o	o	o
Soundproofed compressors cabinet with higher thickness material	CFU	•	•	•	•	•
Compressors inrush counter	CS	o	o	o	o	o
User connections on top	CTOP	o	o	--	--	--
Refrigerant leakage detector	DR	•	•	•	•	•
High pressure double safety valve	HRV2	o	o	o	o	o
RS 485 Serial interface	IH	o	o	o	o	o
BACNET Protocol serial interface	IH-BAC	o	o	o	o	o
TCP/IP Protocol serial interface	IWG	o	o	o	o	o
Phase monitor	MF	o	o	o	o	o
MP advanced control for MSC - up to n.2 units	MP ADV	o	o	o	o	o
Up to two units	MS	o	o	o	o	o
Advanced Cascade system - up to n.6 units	MSC	o	o	o	o	o
Remote monitoring for units in cascade	MSHWEV	o	o	o	o	o
Pressure gauges	MT	•	•	•	•	•
Panel porthole for display	OPX	o	o	o	o	o
Rubber-type vibration dampers	PA	◊	◊	◊	◊	◊
Spring-type vibration dampers	PM	◊	◊	◊	◊	◊
Remote display	PQ	◊	◊	◊	◊	◊
Part-Winding	PW	o	o	o	o	o
Heating control and condenser insulation	PWS	o	o	o	o	o
Anti-freeze heater on evaporator	RA	o	o	o	o	o
Shut-off valve on compressors discharge side	RD	•	•	•	•	•
Power factor correction system cosfi ≥0,9	RF	o	o	o	o	o
Shut-off valve on compressors suction side	RH	•	•	•	•	•
Compressor overload relays	RL	o	o	o	o	o
Partial heat recovery	RP	o	o	o	o	o
Personalized frame painting	RV	□	□	□	□	□
Electronic thermostatic valve	TE	o	•	o	o	o
Inverter on compressor	VSC	•	•	•	•	•
HiWeb	XW	o	o	o	o	o

• Standard, o Optional, ◊ Optional (external kit)-- Not available, □ Contact sales department

TECHNICAL DATA

RWS Kp		521	591	721	871	1001
Cooling capacity	kW	60,3	67,8	81,6	97,5	114,0
Total input power	kW	13,3	15,3	18,4	22,3	27,0
Nominal input current	A	27,0	28,7	32,2	39,5	48,9
EER	W/W	4,54	4,45	4,43	4,37	4,22
SEER (EN14825)	W/W	5,38	5,25	5,48	5,35	5,25
Circuits	n°	1	1	1	1	1
Compressors	n°	1	1	1	1	1
Refrigerant R290						
Refrigerant charge	kg	3	3	4,5	4,5	5
Global warming potential (GWP)	-	0,02	0,02	0,02	0,02	0,02
Equivalent CO_2 charge	kg	0,06	0,06	0,09	0,09	0,1
Condenser (1)						
Quantity	n°	1	1	1	1	1
Water flow	m^3/h	12,7	14,3	17,2	20,6	24,3
Pressure drop	kW	25,2	31,3	16,1	22,2	29,9
Evaporator (2)						
Quantity	n°	1	1	1	1	1
Water flow	m^3/h	10,4	11,7	14,0	16,8	19,7
Pressure drop	kPa	31,9	39,5	17,5	24,1	32,2
Weight						
Transport weight	kg	716	718	798	876	882
Operating weight	kg	720	722	804	882	888
Dimensions						
Length	mm	1930	1930	1930	1930	1930
Width	mm	1050	1050	1050	1050	1050
Height	mm	1650	1650	1650	1650	1650
Sound data						
Total LWA (3)	dB(A)	78	81	81	85	85
Total SPL 10m (4)	dB(A)	47	49	49	54	54
Power supply						
Voltage/phase/frequency	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
General electrical data						
Maximum input power	[kW]	20	24	27	35	42
Maximum input current	[A]	36,9	44	47	61	74,6
Inrush current	[A]	36,9	44	47	61	74,6

(1) Fluid: water- in/out temperature: 30/35°C.
(2) Fluid: water - in/out temperature: 12/7°C.
(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 10 mt from the unit in free field conditions in accordance with ISO 3744.

RWS Kp		1402	1702	2102	2404	2904	3404
Cooling capacity	kW	162,0	184,0	234,0	286,0	326,0	389,0
Total input power	kW	36,7	43,6	52,8	58,5	71,9	86,7
Nominal input current	A	63,6	77,1	95,7	113,0	126,0	154,0
EER	W/W	4,41	4,45	4,43	4,89	4,53	4,49
SEER (EN14825)	W/W	5,23	5,26	5,12	5,45	5,30	5,25
Circuits	n°	2	2	2	4	4	4
Compressors	n°	2	2	2	4	4	4
Refrigerant R290							
Refrigerant charge	kg	8	8,5	11	13	17	17
Global warming potential (GWP)	-	0,02	0,02	0,02	0,02	0,02	0,02
Equivalent CO_2 charge	kg	0,16	0,17	0,22	0,26	0,34	0,34
Condenser (1)							
Quantity	n°	1	1	1	2	2	2
Water flow	m^3/h	34,2	40,8	49,3	59,2	68,5	81,8
Pressure drop	kW	44,3	39,6	55,5	34,2	28,9	39,6
Evaporator (2)							
Quantity	n°	1	1	1	2	2	2
Water flow	m^3/h	28,0	33,4	40,3	49,2	56,1	66,9
Pressure drop	kPa	20,9	28,8	27,5	16,6	21,1	28,8
Weight							
Transport weight	kg	1262	1390	1490	2504	2596	2788
Operating weight	kg	1276	1404	1516	2534	2626	2818
Dimensions							
Length	mm	3420	3420	3420	5650	5650	5650
Width	mm	1050	1050	1050	1200	1200	1200
Height	mm	1650	1650	1650	1650	1650	1650
Sound data							
Total LWA (3)	dB(A)	86	88	88	90	90	91
Total SPL 10m (4)	dB(A)	55	57	57	58	58	59
Power supply							
Voltage/phase/frequency	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
General electrical data							
Maximum input power	[kW]	52	68	84	96	104	136
Maximum input current	[A]	94	122	149	176	188	244
Inrush current	[A]	286	334	396	356	380	456

(1) Fluid: water- in/out temperature: 30/35°C.
(2) Fluid: water - in/out temperature: 12/7°C.
(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 10 mt from the unit in free field conditions in accordance with ISO 3744.