RWE Kc

WATER COOLED WATER CHILLERS

COOLING CAPACITY FROM 50 TO 475 kW 1 AND 2 COOLING CIRCUITS

RWE 3812 Kc + MT + RP

Above picture is only indicative and is not binding.

The water cooled chillers of **RWE Kc series** are designed for indoor installation and are particularly suitable for small and medium sized air conditioning systems with different applications like multiple dwellings and commercial application, whereas a water ring for heat dissipation is available. They are all available with 1 or 2 cooling circuits. The units have been designed to be extremely compact, with anyway an easy access for both ordinary and extraordinary maintenance. Thanks to their compact dimensions (for the whole range, the width is 750mm) and to the several available options, these units are particularly easy to install also in small spaces, with no building works. They are completely factory assembled and tested and supplied with refrigerant and non-freezing oil charge. Therefore, once on site, the units only need to be positioned and electrically and hydraulically connected.

The following versions are available
RWE Kc - water cooled water chiller with R410A

Water operation limits (standard units):
EVAPORATOR (out): from 5°C to 15°C
CONDENSER (out): from 30°C to 55°C

MAIN COMPONETS
Strong and compact **frame**, made of bended and RAL 7035 colored steel profiles, supporting all the main components, installed at sight. On request, the compressors can be acoustically isolated by a soundproofing cabinet with standard material (option CF) or by high density fireproof material with increased thickness (option CFU) , in order to further reduce unit sound level.

High-efficiency orbiting spirals Scroll **Compressor** working with R410A, with low sound level, internal heat protection and installed on rubber vibration dampers.

Evaporator and Condenser of weld-brazed plate type, in AISI 316 stainless steel, with pipes and patented manifold so to reach a high heat exchange coefficient, 1 or 2 circuits. Its design allows a uniform water distribution, compatibly with pressure drops. The exchanger is provided with large thickness close-cell insulating material. Max working pressure is 10 bar for water side and 42 bar for refrigerant one.

Cooling circuit composed of mechanical thermostatic expansion valve, dehydrating filter, safety valve on high pressure side, high and low pressure switches.

Electrical board in compliance with 60204-1/IEC 204-1 standard, containing all the components for the managing system and the ones required for

motors start, factory connected and tested. Made up of: structure suitable for containing power and managing devices, electronic card equipped with keyboard and 3 digit display integrated in the microprocessor for displaying all different functions, main switch, transformer for auxiliaries, automatic switches, contactors for compressors protection and managing, contacts for cumulative alarms and remote ON/OFF, spring type terminal board, interfacing pre-arrangement for BMS management.

Electronic unit management **Microprocessor** easily accessible, equipped with compressor hour counter and display installed on the external panel.

ACCESSORIES

A **Amperometer:** Electrical device for measuring the intensity of electrical current absorbed by the unit.

AE **Electrical power supply different from standard:** Mainly, 230 V three-phase, 460 V three-phase. Frequency 50/60 Hz.

CF **Soundproofed compressors with standard material:** Insulation of compressors by a cabinet made of extruded anodized aluminium profiles, with panels in aluminium alloy, coated with soundproofing material rusticated ashlar type.

CF **Soundproofed compressors cabinet with bituminous rubber coated material:** Insulation of compressors by a cabinet made of extruded anodized aluminium profiles, with panels in aluminium alloy, coated with double thickness soundproofing material with bituminous rubber material.

CS **Compressors inrush current:** Electromecanical device positioned inside the electrical board, recording the total inrush starts of compressors.

EHC **Crankcase heater:** For heating compressors oil.

IG **Watch card:** Allows the historicizing of 25 alarms, recording start and stop of each event.

IH **RS 485 Serial interface:** Electronic card to be connected to the microprocessor, to allow the connection of the unit to a Modbus supervision system, so that the unit is fully remote controllable.

IM **Seawood packing:** Fumigated seawood case and protection bag with hygroscopic salts, suitable for long sea transports.

IR **Packing with fumigated wooden pallet:** Minimal packing made of wooden pallet and transparent film wrapped all round the unit.

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 required.

MP **Oversized microprocessor:** Compared to the standard microprocessor, it allows a multi-language display reading, a more detailed parameters description, the management of non standard communication protocols (LON WORKS, TCP/IP, BACNET) and a better accessibility to control and set parameters.

MT **High and low pressure gauges:** Used for measuring compressors suction and discharge pressure.

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 switched off the unit in case of lack of water flow rate through the evaporator.

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.

PQ **Remote microprocessor:** Allows the displaying of the parameters detected by the installed probes, of the digital inputs, the outputs as well as the remote ON/OFF of the unit, parameters modification and setting, sound signal, displaying and reset of available alarms.

RA **Anti-freeze heater evaporator:** Electrical heater installed on the evaporator, in order to prevent freezing and provided with thermostat.

RD **Shut-off valve on discharge side:** They are used to isolate compressors during service operations.

RF **Power factor correction system cosfi ≥ 0,9:** Electrical device made of suitable condensers for compressors rephasing, ensuring a cosfi value ≥0,9 , so to reduce the power absorption from the electrical network.

RH **Shut-off valve on suction side:** They are use to isolate compressors during service operations.

RL **Compressors overload relays:** Electromechanical protection devices against compressor's overload with displayed alarm.

RP **Partial heat recovery:** (about 20%) of condensing heat through a refrigerant/water plate exchanger (desuperheater) always in series to the compressors. It is used when you want to partially recover condensing heat capacity for production of sanitary water.

RT **Total heat recovery:** (100%) of condensing heat by refrigerant/water shell&tube heat exchanger in alternative and in parallel to the condensing air section. It is used when you want to completely recover condensing heat capacity for production of sanitary water or for heating applications.

SF **Soft-Starter:** Electronic device for a soft starting which allows the reduction of compressors inrush current.

TE **Electronic Thermostatic valve:** Reduces the reaction time of the unit. Useful for frequent variations of cooling charge, or for increasing the efficiency of the unit.

V **Voltmeter:** Electrical device measuring the electrical voltage of the unit power supply.

VB **Brine Version:** Unit suitable for working with evaporator outlet water temperatures lower than 0°C. A 20 mm evaporator insulation will be provided.

VS **Solenoid valve:** Electromagnetic solenoid valve on each cooling circuit to cut off the liquid line at compressors switch-off, avoiding a possible consequent flooding of the same.

Technical data sheet - RWE 511-1452 Kc

RWE		511 Kc	611 Kc	771 Kc	891 Kc	772 Kc	892 Kc	1192 Kc	1452 Kc
Cooling capacity									
Cooling capacity 1)	kW	51,1	61,1	77,1	89,2	77,1	89,2	118,9	144,5
Absorbed power	kW	11,7	13,0	16,6	20,6	16,5	20,5	27,4	33,0
EER		4,37	4,70	4,64	4,33	4,64	4,33	4,34	4,38
Heating capacity	kW	62,8	74,1	93,7	109,8	93,6	109,7	146,3	177,5
Scroll compressors (tandem)									
Quantity	n	2	2	2	2	2	2	2	2
Standard steps capacity	n	2	2	2	2	2	2	2	2
Circuits	n	1	2	2	2	2	2	2	2
Nominal absorbed current	A	23,3	25,8	32,0	34,5	31,8	34,3	46,2	54,1
Maximum absorbed current	A	41,6	44,8	56,0	66,0	56,0	66,0	88,0	106,0
Inrush current	A	122,7	130,9	156,0	171,2	156,0	171,2	233,1	237,0
Brazed plate evaporator									
Quantity	n	1	1	1	1	1	1	1	1
Circuits	n	1	1	1	1	1	1	1	1
Water flow rate	m^3/h	8,8	10,5	13,3	15,3	13,3	15,3	20,5	24,9
Water flow rate	l/s	2,4	2,9	3,7	4,3	3,7	4,3	5,7	6,9
Pressure drop	kPa	45	44	50	51	50	56	64	69
Brazed plate condenser									
Quantity	n	1	1	1	1	1	1	1	1
Water flow rate	m^3/h	10,8	12,7	16,1	18,9	16,1	18,9	25,2	30,5
Water flow rate	l/s	3,0	3,5	4,5	5,2	4,5	5,2	7,0	8,5
Pressure drop	kPa	45	45	49	50	47	50	49	59
Sound pressure level									
Sound pressure level 2)	dB(A)	65,5	64,8	66,0	76,6	66,0	76,6	76,6	76,7
Dimensions									
Length	mm	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
Width	mm	750	750	750	750	750	750	750	750
Height	mm	1.600	1.600	1.800	1.800	1.800	1.800	1.800	1.800
Transport weight 3)	kg	431	444	462	615	478	629	703	729
Weight in operation	kg	436	451	470	624	486	638	714	743
Refrigerant charge for each circuit	kg	3	4	5	5	5	5	7	8
Power supply									
Power supply	V / ph / Hz	400 V / 50 Hz / 3 Ph + T + N							
NOTES									

1) Nominal conditions referred to: chilled water 7/12 °C - condensing water 30/35 °C.
2) Measured at 1 m in open field (ISO 3746).
3) Oil and refrigerant charge included.

Technical data sheet - RWE 1022-4782 Kc

RWE		1022 Kc	1222 Kc	1542 Kc	1782 Kc	2382 Kc	2892 Kc	3812 Kc	4182 Kc	4782 Kc
Cooling capacity										
Cooling capacity 1)	kW	102,2	122,3	154,2	178,4	237,8	289,4	381,5	417,1	474,8
Absorbed power	kW	22,4	25,9	33,2	41,2	54,8	66,0	84,3	94,1	104,2
EER		4,56	4,72	4,64	4,33	4,34	4,38	4,53	4,43	4,56
Heating capacity	kW	124,6	148,2	187,4	219,6	292,6	355,4	465,8	511,2	579,0
Scroll compressors (tandem)										
Quantity	n	4	4	4	4	4	4	4	4	4
Standard steps capacity	n	4	4	4	4	4	4	4	4	4
Circuits	n	2	2	2	2	2	2	2	2	2
Nominal absorbed current	A	46,8	51,5	64,0	68,8	92,3	107,8	139,7	166,6	174,3
Maximum absorbed current	A	83,2	89,6	112,0	132,0	176,0	212,0	264,0	304,0	324,0
Inrush current	A	146,1	156,7	188,0	205,6	279,3	291,0	392,0	391,8	428,8
Brazed plate evaporator										
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^3/h	17,6	21,0	26,5	30,7	40,9	49,8	65,6	71,7	81,7
Water flow rate	l/s	4,9	5,8	7,4	8,5	11,4	13,8	18,2	19,9	22,7
Pressure drop	kPa	56	62	71	73	66	81	85	81	81
Brazed plate condenser										
Quantity	n	1	1	1	1	1	1	1	1	1
Water flow rate	m^3/h	21,4	25,5	32,2	37,8	50,3	61,1	80,1	87,9	99,6
Water flow rate	l/s	6,0	7,1	9,0	10,5	14,0	17,0	22,3	24,4	27,7
Pressure drop	kPa	49	50	54	55	62	65	65	80	79
Sound pressure level										
Sound pressure level 2)	dB(A)	68,5	67,8	69,0	79,6	79,6	79,7	81,6	80,7	82,9
Dimensions										
Length	mm	2.500	2.500	2.500	3.000	3.000	3.000	3.000	3.000	3.000
Width	mm	750	750	750	750	750	750	750	800	800
Height	mm	1.800	1.800	1.800	1.800	2.030	2.030	2.030	2.030	2.030
Transport weight 3)	kg	727	746	799	1.113	1.211	1.284	1.363	1.402	1.507
Weight in operation	kg	738	758	814	1.131	1.237	1.322	1.411	1.453	1.567
Refrigerant charge for each circuit	kg	6	7	9	10	14	19	24	25	30
Power supply										
Power supply	V / ph / Hz	400 V / 50 Hz / 3 Ph + T + N								
NOTES										

1) Nominal conditions referred to: chilled water 7/12 °C - condensing water 30/35 °C.
2) Measured at 1 m in open field (ISO 3746).
3) Oil and refrigerant charge included.