UNITS FOR SIMULTANEOUS AND INDEPENDENT PRODUCTION OF HOT AND COLD WATER

ERACS2-WQ 0802 - 1502

INTEGRA unit for 4-pipe systems, water source 189-363 kW

Multi-purpose indoor unit for use in 4-pipe systems for the simultaneous production of chilled and hot water by means of two independent water circuits. These units are able to satisfy the demand for hot and cold water simultaneously through a system that does not require seasonal switching. Each circuit works with a semi-hermetic screw compressor using R134a, and three tube nest heat exchangers, a cold exchanger on the user side shared by both circuits that acts as an evaporator in the production of cold water, a heat exchanger on the user side that words as a condenser in the production of hot water, and a source side exchanger that works as either condenser or evaporator as required by the loads.

Version

- Basic

Features

UNIQUE PROPOSAL

Unit designed to satisfy the cold and the hot side requirements simultaneously, for 4-pipe systems without any particular operation mode setting

ENERGY SAVING

Energy saving guaranteed by the advanced operation's logic. The best operation mode is set completely automatically and independently by the unit's controller, in order to minimize the absorbed energy whatever the cooling and/or heating demand might be

WIDE OPERATING RANGE

Supply of hot water in use up to 55°C, offering maximum versatility with respect to different plant engineering solutions

INTEGRATED CONDENSATION´S CONTROL

A 2 way valve is supplied as standard for the condensing pressure control. For all the applications in which a constant waterflow through the condenser is needed, a 3-way valve option is also available under request.

Accessory

- Integral acoustical enclosure (type base or plus)
- Several devices for condensation´s control
- Electronic expansion valve
- Set-up for remote connectivity with ModBus/Echelon protocol cards

Controls

Electronic control W3000TE

The W3000TE controller offers advanced functions and algorithms.

The LARGE keyboard with a large format and the wide LCD display favour an easy and safe access to the machine setup and a complete view of unit's staus. The assessment and intervention on the unit is managed through a multi-level menu, with selectable user's language. The led icons immediately show the operating status of the circuits, as well as of the fans and of the water pumps (if present). In addition to or as an alternative at Large Keyboard, the KIPlink - Keyboard In Your Pocket - is the innovative user interface based on WiFi technology that allows one to operate on the unit directly from the smartphone or tablet.

The regulation operates on both water circuits featuring the step-wise regulation referred to the return water temperature with proportional logic. This allows to satisfy simultaneously the different requests of both cooling and heating, with no need of mode setting.

The diagnostics comprises a complete alarm management system, with the "black-box" (via PC) and the alarm history display (via display or also PC) for enhanced analysis of the unit operation

Optional proprietary devices can perform the adjustment of the resources in systems made of several units. Consumption metering and performance measurement are possible as well.

Supervision can be easily developed via proprietary devices or the integration in third party systems by means of the most common protocols as ModBus, Bacnet, Bacnet-over-IP, LonWorks.

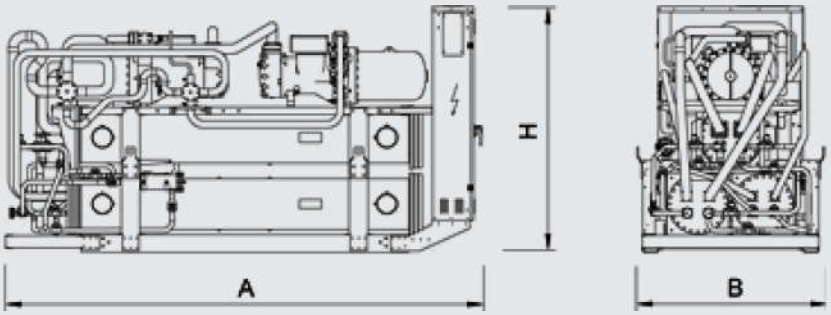
Compatibility with the remote keyboard (up to 8 units).

The programmable timer manages a weekly schedule organised into time bands to optimise unit performance by minimising power consumption during periods of inactivity. Up to 10 daily time bands can be associated with different operating set points.

The defrosting (air source reversible unit only) follows a proprietary self-adaptive logic, which features the monitoring of several operational parameters. This allows to reduce the number and duration of the defrost cycles, with a benefit for the overall energy efficiency.

ERACS2-WQ			0802	1002	1102	1302	1502
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE							
COOLING ONLY (GROSS VALUE)							
Cooling capacity	(1)	kW	189	234	268	318	363
Total power input	(1)	kW	35,7	44,9	50,6	59,7	68,7
EER	(1)	kW/kW	5,31	5,22	5,30	5,32	5,29
COOLING ONLY (EN14511 VALUE)							
Cooling capacity	(1)(2)	kW	189	233	267	317	362
EER	(1)(2)	kW/kW	5,19	5,09	5,15	5,20	5,18
HEATING ONLY (GROSS VALUE)							
Total heating capacity	(3)	kW	205	255	291	344	393
Total power input	(3)	kW	45,7	56,9	65,8	76,3	86,9
COP	(3)	kW/kW	4,49	4,48	4,43	4,51	4,52
HEATING ONLY (EN14511 VALUE)							
Total heating capacity	(2)(3)	kW	206	256	293	346	394
COP	(2)(3)	kW/kW	4,42	4,40	4,33	4,42	4,44
COOLING WITH TOTAL HEAT RECOVERY							
Cooling capacity	(4)	kW	162	201	229	272	311
Total power input	(4)	kW	45,7	56,9	65,8	76,3	86,9
Recovery heat exchanger capacity	(4)	kW	205	255	291	344	393
TER		kW/kW	8,05	8,01	7,91	8,08	8,10
ENERGY EFFICIENCY							
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)							
Ambient refrigeration							
Prated,c	(12)	kW	-	-	-	-	349
SEER	(12)(13)		-	-	-	-	5,15
Performance ηs	(12)(14)	%	-	-	-	-	198
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)							
PDesign	(5)	kW	249	309	353	418	-
SCOP	(5)(15)		5,59	5,56	5,18	5,45	-
Performance ηs	(5)(16)	%	215	214	199	210	-
Seasonal efficiency class	(5)		-	-	-	-	-
PDesign	(6)	kW	220	274	315	368	
SCOP	(6)(15)		4,33	4,46	3,97	4,26	
Performance ηs	(6)(16)	%	165	170	151	162	
Seasonal efficiency class	(6)		-	-	-	-	-
EXCHANGERS							
HEAT EXCHANGER USER SIDE IN REFRIGERATION							
Water flow	(1)	l/s	9,06	11,20	12,82	15,20	17,38
Pressure drop	(1)	kPa	27,6	34,9	46,8	40,4	36,5
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION							
Water flow	(1)	l/s	3,34	4,14	4,73	5,61	6,41
Pressure drop	(1)	kPa	3,76	4,78	6,38	5,50	4,98
HEAT EXCHANGER USER SIDE IN HEATING							
Water flow	(4)	l/s	9,91	12,30	14,06	16,61	18,96
Pressure drop	(4)	kPa	33,1	42,1	56,3	48,3	43,5
HEAT EXCHANGER SOURCE SIDE IN HEATING							
Water flow	(3)	l/s	5,55	6,88	7,83	9,31	10,63
Pressure drop	(3)	kPa	10,4	13,2	17,5	15,2	13,7
REFRIGERANT CIRCUIT							
Compressors nr.		N°	2	2	2	2	2
No. Circuits		N°	2	2	2	2	2
Refrigerant charge		kg	46,0	56,0	56,0	58,0	75,0
NOISE LEVEL							
Sound Pressure	(7)	dB(A)	62	63	65	65	65
Sound power level in cooling	(8)(9)	dB(A)	94	95	97	97	97
Sound power level in heating	(8)(10)	dB(A)	94	95	97	97	0
SIZE AND WEIGHT							
A	(11)	mm	3680	3680	3680	3680	3680
B	(11)	mm	1170	1170	1170	1170	1170
H	(11)	mm	1950	1950	1950	1950	1950
Operating weight	(11)	kg	2420	2470	2880	3580	3690

Notes:
1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger water (in/out) 14°C/30°C.
2 Values in compliance with EN14511-3:2013.
3 Plant (side) heat exchanger water (in/out) 40°C/45°C; Source (side) heat exchanger water (in/out) 14°C/7°C.
4 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Plant (side) heat exchanger water (in/out) 40°C/45°C.
5 Seasonal space heating energy efficiency class LOW TEMPERATURE in AVERAGE climate conditions [REGULATION (EU) N. 813/2013]
6 Seasonal space heating energy efficiency class MEDIA TEMPERATURE in AVERAGE climate conditions [REGULATION (EU) N. 813/2013]
7 Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
8 Sound power on the basis of measurements made in compliance with ISO 9614.
9 Sound power level in cooling, indoors.
10 Sound power level in heating, indoors.
11 Unit in standard configuration/execution, without optional accessories.
12 Seasonal energy efficiency of the cooling environment [REGULATION (EU) N. 2016/2281]
13 Seasonal space heating energy index
14 Seasonal energy efficiency of the space cooling
15 Seasonal performance coefficient
16 Seasonal space heating energy efficiency
The units highlighted in this publication contain HFC R134a [GWP_{100} 1430] fluorinated greenhouse gases.


H
A
B