

NECS-Q

INTEGRA unit for 4-pipe systems, air source for outdoor installation

0604 - 1204 142,0-310,8 kW



Multi-purpose outdoor unit for use in 4-pipe systems for the simultaneous production of chilled and hot water by means of two independent hydronic circuits. These units are able to satisfy the demand for hot and cold water simultaneously through a system that does not require seasonal switching and is therefore a valid alternative to traditional plants with chiller and boiler. This unit is equipped with hermetic rotary Scroll compressors, with R410A, axial fans, braze-welded plate-type exchanger and thermal expansion valve. External panels in Peraluman and base in galvanised sheet steel with paint finish. The range includes two-compressor and four-compressor versions, both with two independent refrigerant circuits.

Control



W3000SE Large

The W3000SE Large controller offers advanced functions and algorithms.

The keypad features an easy-to-use interface and a complete LCD display, allowing to consult and intervene on the unit by means of a multi-level menu, with selectable language setting.

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 includes a complete alarm management, with the "black-box" and alarm logging functions for enhanced analysis of the unit operation.

For multiple units' systems, the regulation of the resources, via optional proprietary devices, can be implemented. Energy metering, for both consumption and capacity, can also be developed. 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, Echelon LonWorks.

Compatibility with the remote keyboard managing up to 10 units.

Availability of an internal real time clock for operation scheduling (4-day profiles with 10 hour belts).

The defrost adopts a proprietary self-adaptive logic, which features the monitoring of numerous operational parameters. This allows to reduce the number and duration of the defrost cycles, with a benefit for the overall energy efficiency.

Refrigerant



Versions

B Basic SL Super-low noise version
LN Low noise

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

CUTTING-EDGE ELECTRONICS

The Energy Raiser units are fitted with an evolved electronic unit that allows fully automatic management of the best type of operation to meet the load requirements

VENTILATION CONTROL FOR LOW-TEMPERATURE OPERATION

The standard units come fitted with pressure-operated control of ventilation, which allows the unit to produce cold water with an external air temperature down to -10°C

INTEGRATED HYDRONIC GROUP

The built-in hydronic module already contains the main water circuit components; it is available with single or twin in-line pump, for achieving both low or high head, available for both plant and recovery circuits (up to 4 pumps).

Accessories

- Set-up for remote connectivity with ModBus/Echelon protocol cards
- Remote control keyboard (distance to 200m and to 500m)
- Soft starters
- Rubber anti-vibration mounting kit

NECS-Q / B		0604	0704	0804	0904	1004	1104	1204
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE								
COOLING ONLY (GROSS VALUE)								
Cooling capacity	(1) kW	149,9	166,2	188,8	211,0	240,0	277,0	310,8
Total power input	(1) kW	58,92	68,96	75,78	85,23	95,63	107,4	120,5
EER	(1) kW/kW	2,545	2,409	2,491	2,477	2,510	2,579	2,579
COOLING ONLY (EN14511 VALUE)								
Cooling capacity	(1)(2) kW	149,2	165,5	188,0	210,1	239,0	275,9	309,6
EER	(1)(2) kW/kW	2,500	2,370	2,450	2,440	2,470	2,540	2,540
ESEER	(1)(2) kW/kW	-	-	-	-	-	-	-
HEATING ONLY (GROSS VALUE)								
Total heating capacity	(3) kW	167,3	185,4	209,3	234,2	266,5	306,3	343,9
Total power input	(3) kW	58,03	64,93	72,14	79,79	91,97	104,1	116,3
COP	(3) kW/kW	2,884	2,857	2,903	2,935	2,897	2,942	2,957
HEATING ONLY (EN14511 VALUE)								
Total heating capacity	(2)(3) kW	168,2	186,4	210,4	235,4	268,0	307,9	345,7
COP	(2)(3) kW/kW	2,860	2,830	2,870	2,910	2,870	2,910	2,930
COOLING WITH TOTAL HEAT RECOVERY								
Cooling capacity	(4) kW	151,0	172,7	194,1	219,9	246,0	280,5	316,6
Total power input	(4) kW	49,79	57,06	64,48	72,13	79,79	92,81	104,6
Recovery heat exchanger capacity	(4) kW	197,8	226,3	254,7	287,7	321,0	367,7	415,0
TER	kW/kW	7,004	6,988	6,958	7,039	7,104	6,985	6,994
ENERGY EFFICIENCY								
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)								
Ambient refrigeration								
Prated,c	(11) kW	-	-	-	-	-	-	-
SEER	(11)(12)	-	-	-	-	-	-	-
Performance ηs	(11)(13) %	-	-	-	-	-	-	-
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)								
PDesign	(5) kW	127	143	157	172	205	231	255
SCOP	(5)(14)	3,25	3,24	3,34	3,20	3,21	3,27	3,25
Performance ηs	(5)(15) %	127	127	131	125	125	128	127
Seasonal efficiency class	(16)	-	-	-	-	-	-	-
EXCHANGERS								
HEAT EXCHANGER USER SIDE IN REFRIGERATION								
Water flow	(1) l/s	7,166	7,949	9,028	10,09	11,48	13,25	14,86
Pressure drop	(1) kPa	41,9	43,0	43,7	42,8	44,4	47,3	47,2
HEAT EXCHANGER USER SIDE IN HEATING								
Water flow	(3) l/s	8,074	8,950	10,10	11,30	12,86	14,79	16,60
Pressure drop	(3) kPa	56,9	59,2	61,4	61,9	66,5	65,7	67,5
REFRIGERANT CIRCUIT								
Compressors nr.	N°	4	4	4	4	4	4	4
No. Circuits	N°	2	2	2	2	2	2	2
Refrigerant charge	kg	42,6	42,7	60,2	63,7	67,2	80,5	108
NOISE LEVEL								
Sound Pressure	(6) dB(A)	60	60	60	61	62	63	63
Sound power level in cooling	(7)(8) dB(A)	92	92	92	93	94	95	95
Sound power level in heating	(7)(9) dB(A)	92	92	92	93	94	95	95
SIZE AND WEIGHT								
A	(10) mm	3110	3110	3110	4110	4110	4110	4110
B	(10) mm	2220	2220	2220	2220	2220	2220	2220
H	(10) mm	2150	2150	2150	2150	2150	2150	2150
Operating weight	(10) kg	1600	1840	2120	2320	2480	2680	2860

Notes

- Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C.
- Values in compliance with EN14511
- Plant (side) heat exchanger water (in/out) 40°C/45°C; Source (side) heat exchanger air (in) 7°C - 87% R.H.
- Plant (side) cooling exchanger water (in/out) 12°C/7°C; Plant (side) heat exchanger water (in/out) 40°C/45°C.
- Parameter calculated for LOW-TEMPERATURE application in AVERAGE climate conditions according to [REGULATION (EU) N. 813/2013]
- 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.
- Sound power on the basis of measurements made in compliance with ISO 9614.
- Sound power level in cooling, outdoors.
- Sound power level in heating, outdoors.
- Unit in standard configuration/execution, without optional accessories.
- Parameter calculated according to [REGULATION (EU) N. 2016/2281]
- Seasonal energy efficiency ratio
- Seasonal space cooling energy efficiency
- Seasonal coefficient of performance
- Seasonal space heating energy efficiency
- Energy efficiency class referred to LOW-TEMPERATURE application in AVERAGE climate conditions according to [REGULATION (EU) N. 811/2013]

The units highlighted in this publication contain HFC R410A [GWP₁₀₀ 2088] fluorinated greenhouse gases.
Certified data in EUROVENT

NECS-Q / LN		0604	0704	0804	0904	1004	1104	1204
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE								
COOLING ONLY (GROSS VALUE)								
Cooling capacity	(1) kW	143,1	157,1	177,2	199,1	227,3	260,7	290,7
Total power input	(1) kW	58,82	70,21	78,43	87,81	96,52	110,2	125,3
EER	(1) kW/kW	2,434	2,238	2,260	2,268	2,355	2,366	2,320
COOLING ONLY (EN14511 VALUE)								
Cooling capacity	(1)(2) kW	142,5	156,4	176,5	198,3	226,4	259,7	289,6
EER	(1)(2) kW/kW	2,400	2,210	2,230	2,240	2,320	2,340	2,290
ESEER	(1)(2) kW/kW	-	-	-	-	-	-	-
HEATING ONLY (GROSS VALUE)								
Total heating capacity	(3) kW	159,5	176,0	198,0	225,4	253,5	290,2	323,9
Total power input	(3) kW	54,01	60,78	67,86	75,69	85,84	97,89	110,1
COP	(3) kW/kW	2,954	2,895	2,916	2,978	2,955	2,964	2,942
HEATING ONLY (EN14511 VALUE)								
Total heating capacity	(2)(3) kW	160,3	176,9	199,0	226,5	254,8	291,6	325,5
COP	(2)(3) kW/kW	2,920	2,870	2,890	2,950	2,930	2,940	2,910
COOLING WITH TOTAL HEAT RECOVERY								
Cooling capacity	(4) kW	151,0	172,7	194,1	219,9	246,0	280,5	316,6
Total power input	(4) kW	49,79	57,06	64,48	72,13	79,79	92,81	104,6
Recovery heat exchanger capacity	(4) kW	197,8	226,3	254,7	287,7	321,0	367,7	415,0
TER	kW/kW	7,004	6,988	6,958	7,039	7,104	6,985	6,994
ENERGY EFFICIENCY								
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)								
Ambient refrigeration								
Prated,c	(11) kW	-	-	-	-	-	-	-
SEER	(11)(12)	-	-	-	-	-	-	-
Performance ηs	(11)(13) %	-	-	-	-	-	-	-
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)								
PDesign	(5) kW	117	128	154	144	186	229	255
SCOP	(5)(14)	3,33	3,34	3,41	3,37	3,34	3,48	3,49
Performance ηs	(5)(15) %	130	131	134	132	130	136	136
Seasonal efficiency class	(16)	-	-	-	-	-	-	-
EXCHANGERS								
HEAT EXCHANGER USER SIDE IN REFRIGERATION								
Water flow	(1) l/s	6,842	7,513	8,472	9,522	10,87	12,47	13,90
Pressure drop	(1) kPa	38,2	38,4	38,5	38,1	39,8	41,9	41,3
HEAT EXCHANGER USER SIDE IN HEATING								
Water flow	(3) l/s	7,700	8,498	9,556	10,88	12,24	14,01	15,63
Pressure drop	(3) kPa	51,8	53,3	54,9	57,4	60,2	59,0	59,9
REFRIGERANT CIRCUIT								
Compressors nr.	N°	4	4	4	4	4	4	4
No. Circuits	N°	2	2	2	2	2	2	2
Refrigerant charge	kg	42,6	42,7	60,2	63,7	67,2	80,5	108
NOISE LEVEL								
Sound Pressure	(6) dB(A)	54	54	54	55	56	57	57
Sound power level in cooling	(7)(8) dB(A)	86	86	86	87	88	89	89
Sound power level in heating	(7)(9) dB(A)	87	87	87	88	89	90	90
SIZE AND WEIGHT								
A	(10) mm	3110	3110	3110	4110	4110	4110	4110
B	(10) mm	2220	2220	2220	2220	2220	2220	2220
H	(10) mm	2150	2150	2150	2150	2150	2150	2150
Operating weight	(10) kg	1600	1840	2120	2320	2480	2680	2860

Notes

- Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C.
- Values in compliance with EN14511
- Plant (side) heat exchanger water (in/out) 40°C/45°C; Source (side) heat exchanger air (in) 7°C - 87% R.H.
- Plant (side) cooling exchanger water (in/out) 12°C/7°C; Plant (side) heat exchanger water (in/out) 40°C/45°C.
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- Seasonal space cooling energy efficiency
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- Seasonal space heating energy efficiency
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NECS-Q / SL		0604	0704	0804	0904	1004	1104	1204	
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	
PERFORMANCE									
COOLING ONLY (GROSS VALUE)									
Cooling capacity	(1)	kW	142,0	159,7	183,4	200,8	225,3	260,7	293,9
Total power input	(1)	kW	58,03	67,45	75,42	87,31	95,50	108,2	123,4
EER	(1)	kW/kW	2,448	2,369	2,432	2,300	2,359	2,409	2,382
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2)	kW	141,4	159,0	182,6	200,0	224,4	259,7	292,8
EER	(1)(2)	kW/kW	2,410	2,330	2,400	2,270	2,330	2,380	2,350
ESEER	(1)(2)	kW/kW	-	-	-	-	-	-	-
HEATING ONLY (GROSS VALUE)									
Total heating capacity	(3)	kW	159,0	178,0	205,2	226,3	252,9	294,5	329,9
Total power input	(3)	kW	52,62	59,54	68,66	76,10	83,76	96,06	110,0
COP	(3)	kW/kW	3,023	2,992	2,987	2,974	3,018	3,065	2,999
HEATING ONLY (EN14511 VALUE)									
Total heating capacity	(2)(3)	kW	159,8	178,9	206,3	227,4	254,2	296,0	331,6
COP	(2)(3)	kW/kW	2,990	2,960	2,960	2,940	2,990	3,030	2,970
COOLING WITH TOTAL HEAT RECOVERY									
Cooling capacity	(4)	kW	151,0	172,7	194,1	219,9	246,0	280,5	316,6
Total power input	(4)	kW	49,79	57,06	64,48	72,13	79,79	92,81	104,6
Recovery heat exchanger capacity	(4)	kW	197,8	226,3	254,7	287,7	321,0	367,7	415,0
TER		kW/kW	7,004	6,988	6,958	7,039	7,104	6,985	6,994
ENERGY EFFICIENCY									
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)									
Ambient refrigeration									
Prated,c	(11)	kW	-	-	-	-	-	-	-
SEER	(11)(12)		-	-	-	-	-	-	-
Performance ηs	(11)(13)	%	-	-	-	-	-	-	-
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)									
PDesign	(5)	kW	125	141	137	149	200	229	257
SCOP	(5)(14)		3,72	3,76	3,48	3,50	3,72	3,84	3,71
Performance ηs	(5)(15)	%	146	148	136	137	146	151	145
Seasonal efficiency class	(16)		-	-	-	-	-	-	-
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1)	l/s	6,790	7,638	8,768	9,600	10,77	12,47	14,05
Pressure drop	(1)	kPa	37,6	39,7	41,3	38,7	39,1	41,9	42,2
HEAT EXCHANGER USER SIDE IN HEATING									
Water flow	(3)	l/s	7,675	8,591	9,906	10,93	12,21	14,22	15,93
Pressure drop	(3)	kPa	51,5	54,5	59,0	57,9	59,9	60,8	62,1
REFRIGERANT CIRCUIT									
Compressors nr.		N°	4	4	4	4	4	4	4
No. Circuits		N°	2	2	2	2	2	2	2
Refrigerant charge		kg	55,0	70,1	70,2	70,3	82,0	110	110
NOISE LEVEL									
Sound Pressure	(6)	dB(A)	50	50	51	51	51	53	54
Sound power level in cooling	(7)(8)	dB(A)	82	82	83	83	83	85	86
Sound power level in heating	(7)(9)	dB(A)	83	83	84	84	84	86	87
SIZE AND WEIGHT									
A	(10)	mm	3110	3110	4110	4110	4110	5110	5110
B	(10)	mm	2220	2220	2220	2220	2220	2220	2220
H	(10)	mm	2150	2150	2150	2150	2150	2150	2150
Operating weight	(10)	kg	1700	1960	2350	2420	2590	2950	3100

Notes

- Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C.
- Values in compliance with EN14511
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Dimensional drawing

