

NECS-N

0202T - 0612T 48,00-150,5 kW

Reversible unit, air source for outdoor installation



Outdoor reversible heat pump for the production of chilled/hot water with hermetic rotary Scroll compressors, axial-flow fans, shell and tubes heat exchanger and thermostatic expansion valve. External panels in Peraluman and structure in aluminium sections. The range is equipped with two compressors on two independent refrigerant circuits.

Control



W3000 Base – W3000SE Compact

Two different versions of controllers are available:

W3000 Base: complete with keypad, easy-to-use interface and LCD display, menu with up to three languages (Italian and English come standard, a further language can be chosen within French, Spanish, German, Russian and Swedish)

W3000SE Compact: complete with keypad, easy-to-use interface and LCD display, multi-language menu, with selectable language setting on site. Internal clock also included. Both W3000 electronic controllers offer 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. Regulation based on the exclusive QuickMind algorithm, including self-adaptive control logics, beneficial in low water content systems. As alternatives the proportional- or proportional- integral regulations are also available. Complete alarm management, with the "black-box" and alarm logging functions for enhanced analysis of the unit operation (available on W3000SE Compact only).

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 and supervision can be executed 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. The internal real time clock allows to manage a weekly schedule operating on 4-day profiles with 10 hour belts (available on W3000SE Compact only, optional on W3000 Base controller).

Refrigerant



Versions

B Basic LN Low noise

Features

REFRIGERANT GAS R410A

The use of R410A allowed to achieve better energy efficiencies with environment full respect (ODP = 0)

EXCHANGER

The shell and tube exchanger allows to achieve the highest flexibility on the units installation, keeping the efficiency at the maximum level. For this reason, NECS represents the best choice for all the hydronic application on the residential, commercial and industrial markets.

INTEGRATED HYDRONIC GROUP

The built-in hydronic module already contains the main water circuit components; it is available with single or twin in-line, for achieving both low or high head.

MAXIMUM RELIABILITY

Unit with two independent refrigerant circuit, designed to ensure maximum efficiency at full load, ensuring uninterrupted operation even in the event of temporary stop of one of the two circuits.

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
- Compact keyboard with LCD display and multi-language user interface (referred to the shown picture)

NECS-N / B		0202T	0252T	0302T	0352T	0412T	0452T	0512T	0552T	0612T	
Power supply		V/ph/Hz 400/3+N/50 400/3+N/50 400/3+N/50 400/3+N/50 400/3+N/50 400/3+N/50 400/3+N/50 400/3+N/50 400/3+N/50 400/3+N/50									
PERFORMANCE											
COOLING ONLY (GROSS VALUE)											
Cooling capacity	(1)	kW	50,26	57,51	72,05	82,47	93,87	106,6	120,1	137,6	150,5
Total power input	(1)	kW	18,42	20,40	28,03	32,01	35,96	39,84	43,96	50,37	58,90
EER	(1)	kW/kW	2,734	2,819	2,571	2,578	2,608	2,678	2,730	2,730	2,555
ESEER	(1)	kW/kW	3,520	3,590	3,310	3,300	3,310	3,390	3,450	3,460	3,260
COOLING ONLY (EN14511 VALUE)											
Cooling capacity	(1)(2)	kW	50,20	57,40	71,80	82,30	93,70	106,3	119,8	137,2	150,0
EER	(1)(2)	kW/kW	2,710	2,800	2,550	2,560	2,590	2,650	2,700	2,700	2,530
ESEER	(1)(2)	kW/kW	3,480	3,530	3,250	3,250	3,260	3,330	3,390	3,380	3,180
Cooling energy class			C	C	D	D	D	D	C	C	D
HEATING ONLY (GROSS VALUE)											
Total heating capacity	(3)	kW	55,10	65,16	81,04	93,45	105,4	120,7	135,7	156,5	172,5
Total power input	(3)	kW	18,47	21,23	26,10	29,77	33,91	37,89	42,29	48,36	54,39
COP	(3)	kW/kW	2,978	3,075	3,103	3,138	3,109	3,185	3,208	3,233	3,171
HEATING ONLY (EN14511 VALUE)											
Total heating capacity	(3)(2)	kW	55,20	65,30	81,20	93,80	105,7	121,1	136,1	157,0	173,1
COP	(3)(2)	kW/kW	2,970	3,060	3,090	3,120	3,090	3,160	3,190	3,210	3,150
Cooling energy class			C	B	B	B	B	B	B	A	B
ENERGY EFFICIENCY											
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)											
Ambient refrigeration											
Prated,c	(10)	kW	-	-	-	-	-	-	-	-	-
SEER	(10)(11)		-	-	-	-	-	-	-	-	-
Performance ηs	(10)(12)	%	-	-	-	-	-	-	-	-	-
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)											
PDesign	(4)	kW	42,2	47,8	60,6	71,7	76,5	91,3	97,5	117	132
SCOP	(4)(13)		3,22	3,24	3,22	3,27	3,21	3,30	3,29	3,36	3,31
Performance ηs	(4)(14)	%	126	127	126	128	125	129	129	131	129
Seasonal efficiency class	(15)		A+	A+	A+	-	-	-	-	-	-
EXCHANGERS											
HEAT EXCHANGER USER SIDE IN REFRIGERATION											
Water flow	(1)	l/s	2,404	2,750	3,445	3,944	4,489	5,100	5,744	6,580	7,199
Pressure drop	(1)	kPa	5,60	7,29	11,6	15,1	11,9	15,4	14,1	19,6	23,4
HEAT EXCHANGER USER SIDE IN HEATING											
Water flow	(3)	l/s	2,660	3,145	3,912	4,511	5,089	5,824	6,551	7,556	8,329
Pressure drop	(3)	kPa	6,86	9,54	14,9	19,8	15,3	20,0	18,4	25,8	31,4
REFRIGERANT CIRCUIT											
Compressors nr.		N°	2	2	2	2	2	2	2	2	2
No. Circuits		N°	2	2	2	2	2	2	2	2	2
Refrigerant charge		kg	17,4	20,4	20,5	23,0	23,1	27,5	30,9	35,6	41,2
NOISE LEVEL											
Sound Pressure	(5)	dB(A)	68	68	68	69	69	69	69	69	69
Sound power level in cooling	(6)(7)	dB(A)	85	85	85	86	86	86	87	87	87
Sound power level in heating	(6)(8)	dB(A)	85	85	85	86	86	86	87	87	87
SIZE AND WEIGHT											
Operating weight	(9)	kg	645	670	710	800	985	1030	1175	1220	1265
A	(9)	mm	2195	2195	2195	2195	2745	2745	3245	3245	3245
B	(9)	mm	1120	1120	1120	1120	1120	1120	1120	1120	1120
H	(9)	mm	1465	1465	1465	1465	1465	1465	1665	1665	1665

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.
- Parameter calculated for LOW-TEMPERATURE application in AVERAGE climate conditions according to [REGULATION (EU) N. 813/2013]
- Average sound pressure level at 1m 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

HEAT PUMPS NECS-N

Reversible unit, air source for outdoor installation

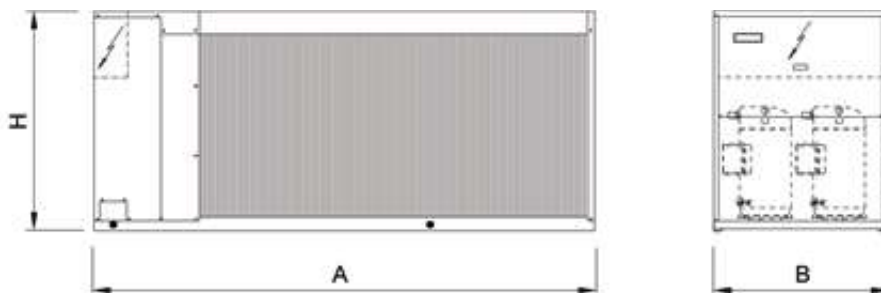
0202T - 0612T 48,00-150,5 kW

NECS-N / LN		0202T	0252T	0302T	0352T	0412T	0452T	0512T	0552T	0612T	
Power supply		V/ph/Hz 400/3+N/50 400/3+N/50 400/3+N/50 400/3+N/50 400/3+N/50 400/3+N/50 400/3+N/50 400/3+N/50 400/3+N/50 400/3+N/50									
PERFORMANCE											
COOLING ONLY (GROSS VALUE)											
Cooling capacity	(1)	kW	48,00	54,63	73,17	83,52	93,89	103,2	118,9	131,7	143,1
Total power input	(1)	kW	19,05	21,35	27,18	31,94	35,95	41,59	44,56	53,33	62,75
EER	(1)	kW/kW	2,526	2,563	2,691	2,618	2,608	2,481	2,666	2,471	2,282
ESEER	(1)	kW/kW	3,520	3,310	3,460	3,330	3,330	3,170	3,380	3,160	2,930
COOLING ONLY (EN14511 VALUE)											
Cooling capacity	(1)(2)	kW	47,90	54,50	73,00	83,30	93,70	102,9	118,6	131,4	142,7
EER	(1)(2)	kW/kW	2,510	2,550	2,660	2,600	2,590	2,460	2,640	2,450	2,260
ESEER	(1)(2)	kW/kW	3,260	3,260	3,390	3,270	3,270	3,110	3,320	3,110	2,880
Cooling energy class			D	D	D	D	D	E	D	E	F
HEATING ONLY (GROSS VALUE)											
Total heating capacity	(3)	kW	54,05	63,60	84,07	96,18	108,9	120,6	137,5	153,9	169,4
Total power input	(3)	kW	18,07	20,63	26,05	30,42	34,10	37,89	42,38	48,27	54,25
COP	(3)	kW/kW	2,989	3,087	3,222	3,164	3,194	3,182	3,243	3,186	3,120
HEATING ONLY (EN14511 VALUE)											
Total heating capacity	(3)(2)	kW	54,20	63,70	84,30	96,50	109,2	121,0	137,9	154,4	170,0
COP	(3)(2)	kW/kW	2,980	3,070	3,200	3,140	3,170	3,160	3,220	3,160	3,100
Heating energy class			C	B	A	B	B	A	B	B	B
ENERGY EFFICIENCY											
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)											
Ambient refrigeration											
Prated,c	(10)	kW	-	-	-	-	-	-	-	-	-
SEER	(10)(11)		-	-	-	-	-	-	-	-	-
Performance ηs	(10)(12)	%	-	-	-	-	-	-	-	-	-
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)											
PDesign	(4)	kW	38,3	45,3	59,2	66,7	79,5	90,6	103	116	130
SCOP	(4)(13)		3,32	3,37	3,44	3,33	3,47	3,45	3,51	3,32	3,27
Performance ηs	(4)(14)	%	130	132	135	130	136	135	138	130	128
Seasonal efficiency class	(15)		A+	A+	A+	A+	-	-	-	-	-
EXCHANGERS											
HEAT EXCHANGER USER SIDE IN REFRIGERATION											
Water flow	(1)	l/s	2,295	2,613	3,499	3,994	4,490	4,937	5,686	6,298	6,842
Pressure drop	(1)	kPa	5,11	6,58	11,9	15,5	11,9	14,4	13,8	17,9	21,2
HEAT EXCHANGER USER SIDE IN HEATING											
Water flow	(3)	l/s	2,609	3,070	4,058	4,643	5,257	5,824	6,636	7,429	8,176
Pressure drop	(3)	kPa	6,60	9,09	16,1	20,9	16,4	20,0	18,8	25,0	30,2
REFRIGERANT CIRCUIT											
Compressors nr.		N°	2	2	2	2	2	2	2	2	2
No. Circuits		N°	2	2	2	2	2	2	2	2	2
Refrigerant charge		kg	17,4	20,4	20,5	29,9	33,9	27,5	41,2	41,2	41,2
NOISE LEVEL											
Sound Pressure	(5)	dB(A)	63	63	64	65	65	65	66	66	66
Sound power level in cooling	(6)(7)	dB(A)	80	80	81	83	83	83	84	84	84
Sound power level in heating	(6)(8)	dB(A)	81	81	82	84	84	84	85	85	85
SIZE AND WEIGHT											
Operating weight	(9)	kg	645	670	795	935	1060	1065	1230	1220	1265
A	(9)	mm	2195	2195	2745	2745	2745	2745	3245	3245	3245
B	(9)	mm	1120	1120	1120	1120	1120	1120	1120	1120	1120
H	(9)	mm	1465	1465	1465	1665	1665	1665	1665	1665	1665

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.
 - Parameter calculated for LOW-TEMPERATURE application in AVERAGE climate conditions according to [REGULATION (EU) N. 813/2013]
 - Average sound pressure level at 1m 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

Dimensional drawing





Outdoor heat pump for the production of chilled/hot water with hermetic rotary Scroll compressors, ozone-friendly refrigerant R410A, axial-flow fans, shell and tubes exchanger and electronic expansion valve. The range is composed by units equipped with four, six and eight compressors in multi-circuit configuration.

Control



W3000SE Compact

W3000SE Compact offers advanced functions and algorithms. The keypad features an easy-to-use interface and a LCD display, allowing to consult and intervene on the unit by means of a multi-level menu, with selectable language setting. Regulation based on the exclusive QuickMind algorithm, including self-adaptive control logics, beneficial in low water content systems. As alternatives the proportional- or proportional-integral regulations are also available. 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.

- Internal real time clock available 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	CA	High efficiency version
SL	Super-low noise version		

Configurations

-	Basic function	D	Partial condensing heat recovery function
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Features

REFRIGERANT GAS R410A

The use of R410A allowed to achieve better energy efficiencies with environment full respect (ODP = 0)

EXCHANGER

The shell and tube exchanger allows to achieve the highest flexibility on the unit's installation, keeping the efficiency at the maximum level. For this reason, NECS-N represents the best choice for all the hydronic application on the residential, commercial and industrial markets.

ELECTRONIC EXPANSION VALVE SUPPLIED STANDARD

The use of the electronic expansion valve generates considerable benefits, especially in cases of variable demand and different external conditions. It was introduced into these units as a result of accurate design choices concerning the cooling circuit and the optimisation of operation in various different working conditions

INTEGRATED HYDRONIC GROUP

The optional built-in hydronic module already contains the main water circuit components; it is available with single or twin in-line, for achieving both low or high head.

Accessories

- Soft starters
- Set-up for remote connectivity with ModBus, Echelon LonTalk, Bacnet protocol board
- Remote control keyboard (distance to 200m and to 500m)
- LT kit for extending the operating limits in heat pump mode down to -10 °C (/SL-CA versions) and -12 °C (/CA versions)

NECS-N / B		1314	1414	1614	1716	1816
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	339,4	363,4	396,4	434,9	477,8
Total power input	(1) kW	126,4	132,0	151,4	164,6	177,8
EER	(1) kW/kW	2,685	2,753	2,618	2,642	2,687
ESEER	(1) kW/kW	3,800	3,880	3,790	3,880	3,780
COOLING ONLY (EN14511 VALUE)						
Cooling capacity	(1)(2) kW	338,0	362,1	394,7	433,6	476,2
EER	(1)(2) kW/kW	2,640	2,720	2,580	2,610	2,650
ESEER	(1)(2) kW/kW	3,640	3,730	3,640	3,740	3,640
Cooling energy class		D	C	D	D	D
HEATING ONLY (GROSS VALUE)						
Total heating capacity	(3) kW	371,0	398,0	435,7	472,9	514,6
Total power input	(3) kW	122,4	129,7	142,7	157,2	170,6
COP	(3) kW/kW	3,031	3,069	3,053	3,008	3,016
HEATING ONLY (EN14511 VALUE)						
Total heating capacity	(3)(2) kW	372,8	399,7	437,9	474,5	516,6
COP	(3)(2) kW/kW	3,000	3,040	3,020	2,990	2,990
Cooling energy class		B	B	B	C	C
ENERGY EFFICIENCY						
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)						
Ambient refrigeration						
Prated,c	(10) kW	-	-	-	-	-
SEER	(10)(11)	-	-	-	-	-
Performance ηs	(10)(12) %	-	-	-	-	-
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)						
PDesign	(4) kW	274	311	358	373	387
SCOP	(4)(13)	3,47	3,54	3,44	3,59	3,49
Performance ηs	(4)(14) %	136	139	134	141	137
Seasonal efficiency class	(15)	-	-	-	-	-
EXCHANGERS						
HEAT EXCHANGER USER SIDE IN REFRIGERATION						
Water flow	(1) l/s	16,23	17,38	18,95	20,80	22,85
Pressure drop	(1) kPa	49,5	43,4	51,7	35,3	42,6
HEAT EXCHANGER USER SIDE IN HEATING						
Water flow	(3) l/s	17,91	19,21	21,03	22,83	24,84
Pressure drop	(3) kPa	60,3	53,1	63,6	42,5	50,4
REFRIGERANT CIRCUIT						
Compressors nr.	N°	4	4	4	6	6
No. Circuits	N°	2	2	2	3	3
Refrigerant charge	kg	72,0	76,0	76,0	93,0	97,0
NOISE LEVEL						
Sound Pressure	(5) dB(A)	76	76	76	76	76
Sound power level in cooling	(6)(7) dB(A)	96	96	96	96	97
Sound power level in heating	(6)(8) dB(A)	96	96	96	96	97
SIZE AND WEIGHT						
Operating weight	(9) kg	3170	3250	3280	4220	4610
A	(9) mm	3905	3905	3905	4515	5690
B	(9) mm	2260	2260	2260	2260	2260
H	(9) mm	2450	2450	2450	2450	2450

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.
- Parameter calculated for LOW-TEMPERATURE application in AVERAGE climate conditions according to [REGULATION (EU) N. 813/2013]
- Average sound pressure level at 1m 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]

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Certified data in EUROVENT

NECS-N / SL		1314	1414	1614	1716	1816	2016	2116
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	319,6	343,2	382,8	412,6	444,5	493,1	515,8
Total power input	(1) kW	131,2	138,1	154,5	170,4	185,0	199,5	207,3
EER	(1) kW/kW	2,436	2,485	2,478	2,421	2,403	2,472	2,488
ESEER	(1) kW/kW	3,990	4,000	3,970	4,050	3,990	4,070	4,060
COOLING ONLY (EN14511 VALUE)								
Cooling capacity	(1)(2) kW	318,4	342,1	381,3	411,5	443,1	491,7	514,2
EER	(1)(2) kW/kW	2,400	2,460	2,440	2,400	2,380	2,450	2,460
ESEER	(1)(2) kW/kW	3,830	3,870	3,810	3,920	3,840	3,930	3,910
Cooling energy class		E	E	E	E	E	E	E
HEATING ONLY (GROSS VALUE)								
Total heating capacity	(3) kW	368,3	390,5	441,8	474,3	512,9	564,1	585,9
Total power input	(3) kW	117,3	125,3	139,1	152,3	164,5	179,8	187,5
COP	(3) kW/kW	3,140	3,117	3,176	3,114	3,118	3,137	3,125
HEATING ONLY (EN14511 VALUE)								
Total heating capacity	(3)(2) kW	370,1	392,1	444,0	476,0	514,9	566,1	588,1
COP	(3)(2) kW/kW	3,110	3,090	3,140	3,090	3,090	3,110	3,100
Cooling energy class		B	B	B	B	B	B	B
ENERGY EFFICIENCY								
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)								
Ambient refrigeration								
Prated,c	(10) kW	-	-	-	-	-	-	-
SEER	(10)(11)	-	-	-	-	-	-	-
Performance ηs	(10)(12) %	-	-	-	-	-	-	-
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)								
PDesign	(4) kW	221	254	350	282	390	352	380
SCOP	(4)(13)	3,54	3,58	3,65	3,55	3,77	3,61	3,59
Performance ηs	(4)(14) %	139	140	143	139	148	141	140
Seasonal efficiency class	(15)	-	-	-	-	-	-	-
EXCHANGERS								
HEAT EXCHANGER USER SIDE IN REFRIGERATION								
Water flow	(1) l/s	15,28	16,41	18,31	19,73	21,26	23,58	24,66
Pressure drop	(1) kPa	43,9	38,7	48,2	31,8	36,9	34,6	37,8
HEAT EXCHANGER USER SIDE IN HEATING								
Water flow	(3) l/s	17,78	18,85	21,33	22,90	24,76	27,23	28,28
Pressure drop	(3) kPa	59,4	51,1	65,4	42,8	50,0	46,1	49,8
REFRIGERANT CIRCUIT								
Compressors nr.	N°	4	4	4	6	6	6	6
No. Circuits	N°	2	2	2	3	3	3	3
Refrigerant charge	kg	79,9	82,3	94,7	107	118	125	126
NOISE LEVEL								
Sound Pressure	(5) dB(A)	68	68	68	68	68	69	69
Sound power level in cooling	(6)(7) dB(A)	88	88	88	89	89	90	90
Sound power level in heating	(6)(8) dB(A)	89	89	89	90	90	91	91
SIZE AND WEIGHT								
Operating weight	(9) kg	3400	3530	3680	4720	4860	5160	5270
A	(9) mm	4515	5080	5080	5690	5690	6865	7430
B	(9) mm	2260	2260	2260	2260	2260	2260	2260
H	(9) mm	2450	2450	2450	2450	2450	2450	2450

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.
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 - Average sound pressure level at 1m 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
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NECS-N / CA		1314	1414	1614	1716	1816	2016	2116
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	351,7	371,8	416,8	453,2	504,4	537,6	559,0
Total power input	(1) kW	121,2	127,8	143,4	155,5	172,6	184,7	191,7
EER	(1) kW/kW	2,902	2,909	2,907	2,914	2,922	2,911	2,916
ESEER	(1) kW/kW	4,120	4,200	4,070	4,190	4,080	4,180	4,170
COOLING ONLY (EN14511 VALUE)								
Cooling capacity	(1)(2) kW	350,2	370,4	414,9	451,8	502,5	535,8	557,1
EER	(1)(2) kW/kW	2,850	2,870	2,860	2,880	2,880	2,870	2,880
ESEER	(1)(2) kW/kW	3,930	4,020	3,870	4,030	3,900	4,010	4,000
Cooling energy class		C	C	C	C	C	C	C
HEATING ONLY (GROSS VALUE)								
Total heating capacity	(3) kW	383,2	409,4	449,2	496,7	533,2	586,5	614,1
Total power input	(3) kW	119,5	127,8	139,8	154,8	166,2	182,6	191,2
COP	(3) kW/kW	3,207	3,203	3,213	3,209	3,208	3,212	3,212
HEATING ONLY (EN14511 VALUE)								
Total heating capacity	(3)(2) kW	385,1	411,2	451,5	498,6	535,4	588,8	616,6
COP	(3)(2) kW/kW	3,170	3,170	3,180	3,180	3,180	3,180	3,180
Heating energy class		B	B	B	B	B	B	B
ENERGY EFFICIENCY								
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)								
Ambient refrigeration								
Prated,c	(10) kW	-	-	-	-	-	536	557
SEER	(10)(11)	-	-	-	-	-	4,18	4,17
Performance ηs	(10)(12) %	-	-	-	-	-	164	164
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)								
PDesign	(4) kW	275	309	353	368	381	-	-
SCOP	(4)(13)	3,65	3,73	3,63	3,78	3,68	-	-
Performance ηs	(4)(14) %	143	146	142	148	144	-	-
Seasonal efficiency class	(15)	-	-	-	-	-	-	-
EXCHANGERS								
HEAT EXCHANGER USER SIDE IN REFRIGERATION								
Water flow	(1) l/s	16,82	17,78	19,93	21,67	24,12	25,71	26,73
Pressure drop	(1) kPa	53,2	45,5	57,1	38,4	47,5	41,1	44,4
HEAT EXCHANGER USER SIDE IN HEATING								
Water flow	(3) l/s	18,50	19,76	21,68	23,98	25,74	28,31	29,64
Pressure drop	(3) kPa	64,3	56,2	67,6	46,9	54,1	49,9	54,7
REFRIGERANT CIRCUIT								
Compressors nr.	N°	4	4	4	6	6	6	6
No. Circuits	N°	2	2	2	3	3	3	3
Refrigerant charge	kg	90,0	96,0	96,5	121	125	138	148
NOISE LEVEL								
Sound Pressure	(5) dB(A)	77	77	77	76	77	77	77
Sound power level in cooling	(6)(7) dB(A)	97	97	97	97	98	98	98
Sound power level in heating	(6)(8) dB(A)	97	97	97	97	98	0	0
SIZE AND WEIGHT								
Operating weight	(9) kg	3490	3580	3610	4840	5120	5270	5350
A	(9) mm	5080	5080	5080	6255	7430	7430	7430
B	(9) mm	2260	2260	2260	2260	2260	2260	2260
H	(9) mm	2450	2450	2450	2450	2450	2450	2450

Notes

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NECS-N / CA		2416	2418	2618	2818	3018	3218
Power supply	V/ph/Hz	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	624,8	666,7	709,6	745,4	789,3	833,2
Total power input	(1) kW	215,0	228,2	242,3	255,7	269,9	286,7
EER	(1) kW/kW	2,906	2,922	2,929	2,915	2,924	2,906
ESEER	(1) kW/kW	4,090	4,090	4,140	4,180	4,170	4,090
COOLING ONLY (EN14511 VALUE)							
Cooling capacity	(1)(2) kW	622,5	664,3	706,7	743,1	786,6	830,1
EER	(1)(2) kW/kW	2,860	2,880	2,880	2,880	2,890	2,860
ESEER	(1)(2) kW/kW	3,920	3,920	3,940	4,020	4,000	3,910
Cooling energy class		C	C	C	C	C	C
HEATING ONLY (GROSS VALUE)							
Total heating capacity	(3) kW	673,6	708,5	766,4	818,9	860,0	898,4
Total power input	(3) kW	209,9	221,3	239,4	254,9	268,7	279,8
COP	(3) kW/kW	3,209	3,202	3,201	3,213	3,201	3,211
HEATING ONLY (EN14511 VALUE)							
Total heating capacity	(3)(2) kW	676,4	711,4	770,0	821,9	863,4	902,3
COP	(3)(2) kW/kW	3,180	3,170	3,170	3,190	3,170	3,180
Heating energy class		B	B	B	B	B	B
ENERGY EFFICIENCY							
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)							
Ambient refrigeration							
Prated,c	(10) kW	622	664	707	743	787	830
SEER	(10)(11)	4,11	4,10	4,11	4,17	4,18	4,11
Performance ηs	(10)(12) %	161	161	162	164	164	161
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)							
PDesign	(4) kW	-	-	-	-	-	-
SCOP	(4)(13)	-	-	-	-	-	-
Performance ηs	(4)(14) %	-	-	-	-	-	-
Seasonal efficiency class	(15)	-	-	-	-	-	-
EXCHANGERS							
HEAT EXCHANGER USER SIDE IN REFRIGERATION							
Water flow	(1) l/s	29,88	31,88	33,93	35,65	37,75	39,84
Pressure drop	(1) kPa	47,4	48,7	55,2	41,2	46,2	51,4
HEAT EXCHANGER USER SIDE IN HEATING							
Water flow	(3) l/s	32,52	34,20	36,99	39,53	41,51	43,36
Pressure drop	(3) kPa	56,2	56,1	65,6	50,6	55,8	60,9
REFRIGERANT CIRCUIT							
Compressors nr.	N°	6	8	8	8	8	8
No. Circuits	N°	3	4	4	4	4	4
Refrigerant charge	kg	148	168	180	192	193	195
NOISE LEVEL							
Sound Pressure	(5) dB(A)	78	77	77	78	78	78
Sound power level in cooling	(6)(7) dB(A)	99	99	99	100	100	100
Sound power level in heating	(6)(8) dB(A)	0	0	0	0	0	0
SIZE AND WEIGHT							
Operating weight	(9) kg	5400	6610	6760	6940	6970	7000
A	(9) mm	7430	9780	9780	9780	9780	9780
B	(9) mm	2260	2260	2260	2260	2260	2260
H	(9) mm	2450	2450	2450	2450	2450	2450

Notes

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Dimensional drawing

