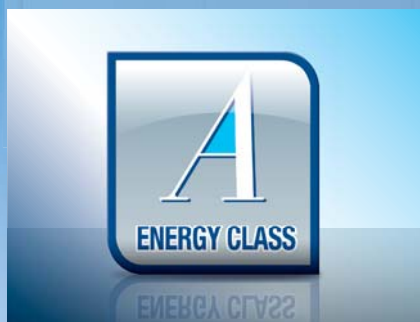


# NECS

New generation of Chillers and reversible Heat Pumps with total heat reclaim for the production of domestic hot water.



- ✓ Class A efficiency
- ✓ Full range certified performance
- ✓ Extended operation limits



# NECS

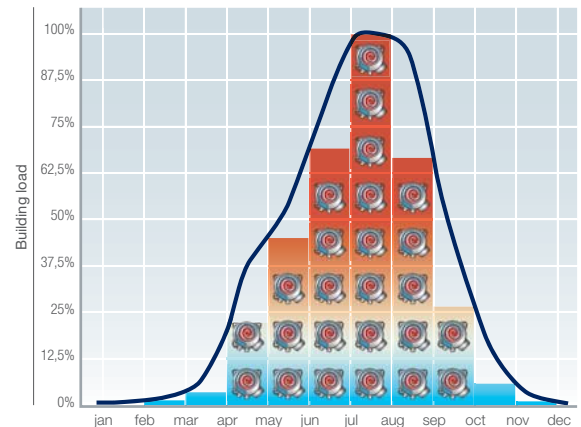
## The new range

The new NECS is a range of units for outdoor installation, suitable for the production of chilled water and also hot water for both space heating and sanitary purposes. The range is equipped with hermetic rotary Scroll compressors, ozone-friendly refrigerant R410A, axial-flow fans, shell and tube heat exchanger, full-aluminum air coils (chillers) or traditional copper tubes with aluminum fins (heat pumps) and electronic expansion valve.

## Maximum Reliability

Unit with multi-circuit chilling section (two to four, depending on the size) designed to ensure maximum efficiency both at full load and part loads, assuring uninterrupted service in the event one of the two circuits fails.

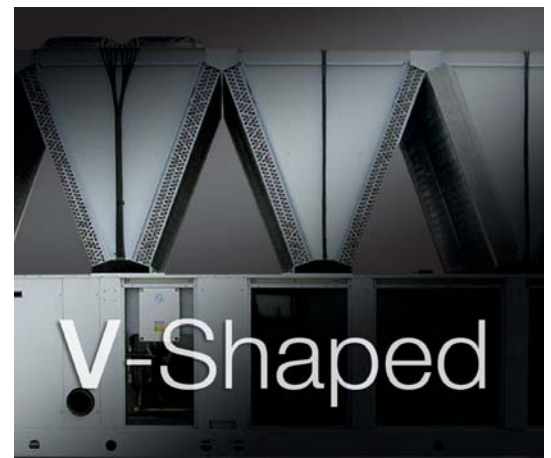
The number of compressors also ensures a precise multi-step management of the cooling and heating capacity provided by each unit.



## V-Shaped coil geometry

Open angle v-shaped coils achieve the maximum efficiency at all conditions. A specific design of the condensing modules allow a reduction in both unit footprint as well as clearances, thus facilitating service and maintenance procedures.

The structure is also designed to allow the easiest access to all the components in order to simplify maintenance work.



## Full-aluminum coil

The cooling only version is equipped as standard with full-aluminum coils. This solution allows a reduction of the refrigerant volume compared with conventional copper-aluminum coils, also reducing the overall weight of the unit.

The bigger internal heat transfers to flow area ratio, as well as the reduced air shadow of the tubes, allows more efficient condensation, increasing the unit performance.

All-aluminum micro-channel heat exchangers offer 3.5 times higher corrosion resistance than conventional coils.

The all-aluminum construction eliminates the formation of galvanic currents between aluminum and copper that are responsible for corrosion in saline or corrosive atmospheres.



## Advantages

Top quality components together with the use of the latest technologies make NECS range of units the right choice in terms of energy efficiency, simplified installation, versatility and easy integration with all Climaveneta's monitoring systems.



### Innovative fan management system

In order to improve the performance of the ventilation section, an innovative management system has been designed (patent pending).

This ensures outstanding performance in terms of efficiency in all the operating conditions, thanks to:

- elimination of the reciprocal dependency on adjacent circuits
- ability to manage independent defrost cycles at different times in different circuits
- a more accurate fan speed management and, consequently, a lower power consumption.



### Heat Pumps at -12°C outdoor temperature

NECS-N and NECS-NR heat pump models host several leading edge implementations, focused on efficiency and extended operation in winter mode, even with harsh outdoor conditions.

Heat pumps can in fact be equipped with the LT low temperature option. This includes a specific regulation which activates sufficient refrigerant injection, allowing operation to -10°C for the SL versions and -12°C for the CA versions.



### Extended operation limits in chiller mode

An advanced fan speed management as well as the adoption of electronic expansion valves on all units, allows the new NECS to extend the operating conditions even with external temperature seasonal limits.

NECS can in fact achieve up to +46°C outdoor temperature, as well as up to -12°C of leaving water temperature. This is the reason why NECS can meet the most demanding project requirements, for comfort applications as well as for industrial processes.

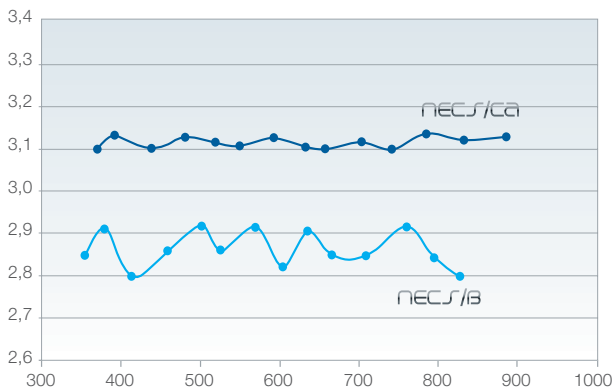
# NECS



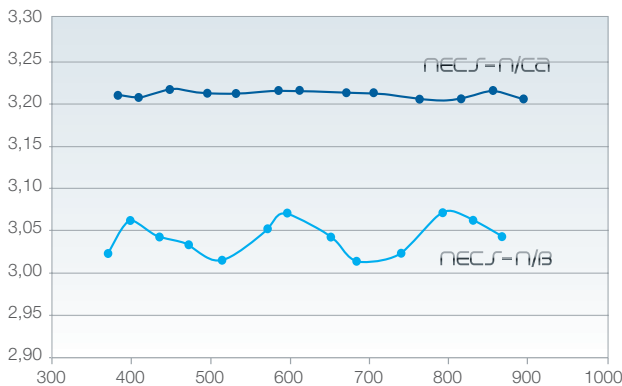
## Maximum Energy Efficiency

Consistent with corporate culture, the NECS series was designed to offer extremely high quality products with leading-edge technology focusing on maximum energy efficiency at both full (EER and COP) and part load (ESEER) conditions.

**NECS EER Full load efficiency**  
(standard and Class A versions)



**NECS-N COP Full load efficiency**  
(standard and Class A versions)



### Energy efficiency at all conditions

NECS units stand out for their particularly high energy efficiency index. This result was achieved by focusing on the design of both the finned condenser coils and the evaporators.

These construction choices have both increased efficiency and provided extremely high levels of reliability while significantly increasing compressor working life.

An advanced fan speed management as well as the adoption of electronic expansion valves on all units, allows the new NECS to operate at the best working conditions, reducing the unit's noise also extending the operating conditions even with external temperature seasonal limits.

The new range of NECS units is also available in the CA version, with Class A efficiency levels according to the Eurovent performance tables.

NECS achieve the minimum efficiency levels in summer mode with an EER 3.1.

NECS-N exceeds the minimum efficiency requirement in winter mode assuring a COP 3.2, while in the summer mode it assures an EER 2.9.

### Full range certified performance

All NECS units, as well as the complete range of Climaveneta air-cooled liquid chillers up to 1.500 kW, are certified by the Eurovent program for units with capacities over 600kW. Climaveneta brand products are among the few units which participate in this non compulsory certification program.

This is consistent with the company commitment for transparency as the best guarantee of quality and reliability for our partners and customers.





## Precision and Reliability

Every single technological choice of NECS aims at achieving the highest efficiency. This is the reason why each component has been chosen with precise attention and the algorithm has carefully designed and tested in the field, to ensure the highest level of reliability in order to satisfy the most demanding project requirements, for comfort applications as well as for industrial processes.



### Advanced control system

The W3000Compact control unit with liquid crystal display (LCD) is fitted on all the units. This keypad uses a user interface with a choice of seven European languages: Italian, English, French, German, Spanish, Swedish and Russian. This allows the control unit interface to be chosen to suit the country of destination or, thanks to English, to be completely independent for all geographical areas.

This type of operator panel is also available as a remote keypad, to be connected to the unit by means of a serial connection up to a maximum distance of 200 metres without a power supply (in this case, power is supplied by the unit), or a maximum of 500 metres with a dedicated local power supply.



### Internal clock

The Internal Clock manages a weekly schedule organised into time bands in order to optimise unit performance by minimising power consumption. Up to 10 daily time bands can be associated with different operating setpoints.

As a result, power production is optimised during daily peaks of demand and minimised during periods of inactivity, such as during the night. If there is no demand for hot or chilled water, the clock can switch the unit off and switch it back on later.



### Integrated hydronic module

The full NECS range has been designed to reduce installation work to a minimum. The integrated hydronic module incorporates all the hydraulic components, thus optimizing installation space, time and costs. On all versions we can select single or twin pumps suitable for low and high pressure according to the installation needs. A built-in buffer tank is also available, 700 or 1000 litres according to the unit's size. Automatic pump rotation system in the event of a breakdown without interrupting operation (only in units with a twin pump). NECS is equipped with a multi-circuit shell and tube heat exchanger, designed and manufactured internally, with low pressure drops, ideal for use with particularly hard water or for industrial processes. The Climaveneta's 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 represents the best choice for all the hydronic application on the residential, commercial and industrial markets.



# General technical data

NECS 1314 ... 3218 /B			1314	1414	1614	1715	1816	2015	2116	2316	2416	2418	2618	2818	3018	3218
<b>COOLING MODE</b>																
Cooling capacity	Pf	kW (1)	354,3	378,8	413,4	458,2	501,3	525,6	569,4	603,7	634,9	665,3	707,9	759,4	793,5	826,6
Unit power input	Pat	kW (1)	124,4	130,2	147,8	160,4	171,9	183,9	195,4	214,1	218,6	233,7	248,8	260,5	279,1	295,6
Full Load Performance	EER	(1)	2,85	2,91	2,8	2,86	2,92	2,86	2,91	2,82	2,9	2,85	2,85	2,92	2,84	2,8
Part Load Performance	ESEER		4,16	4,24	4,04	4,19	4,21	4,07	4,18	4,11	4,08	4,12	4,18	4,27	4,2	4,07
<b>REFRIGERATION CIRCUIT</b>																
Maximum operating temperature at full load	AE	°C	46	46	45	45	46	45	46	45	46	46	46	46	45	45
Sound Power Level	Lw	dB(A) (3)	96	96	96	96	97	97	97	97	98	98	98	99	99	99
Sound Pressure Level		dB(A) (4)	64	64	64	64	65	65	64	64	65	65	65	66	66	66
Number of circuits	Tot		2	2	2	2	2	2	2	3	2	4	4	4	4	4
Number of steps	Nr		2	2	2	2	3	3	3	2	3	2	2	2	2	2
<b>DIMENSIONS</b>																
Length		mm	3905	3905	3905	5080	5080	5080	6255	6255	6255	7430	7430	7430	7430	7430
Width		mm	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260
Height		mm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450

NECS 1314 ... 3218 /SL			1314	1414	1614	1715	1816	2015	2116	2316	2416	2418	2618	2818	3018	3218
<b>COOLING MODE</b>																
Cooling capacity	Pf	kW (1)	333,6	358,1	397,4	431,5	465	497,6	532,3	579,3	595,9	615,8	666,4	717,7	757,8	794,6
Unit power input	Pat	kW (1)	129,2	137,3	153,1	168,1	182,7	191,6	206	220	229,7	244,6	258,3	274,8	288,4	306,2
Full Load Performance	EER	(1)	2,58	2,61	2,6	2,57	2,55	2,6	2,58	2,63	2,59	2,52	2,58	2,61	2,63	2,6
Part Load Performance	ESEER		4,29	4,31	4,21	4,33	4,36	4,26	4,37	4,38	4,29	4,32	4,39	4,36	4,39	4,27
<b>REFRIGERATION CIRCUIT</b>																
Maximum operating temperature at full load	AE	°C (5)	37	38	37	37	37	37	37	38	37	37	37	38	38	37
Sound Power Level	Lw	dB(A) (3)	86	86	86	87	87	87	87	88	88	88	89	90	90	90
Sound Pressure Level		dB(A) (4)	54	54	54	54	54	54	54	55	55	55	56	57	57	57
Number of circuits	Tot		2	2	2	2	2	2	2	3	2	4	4	4	4	4
Number of steps	Nr		2	2	2	2	3	3	3	2	3	2	2	2	2	2
<b>DIMENSIONS</b>																
Length		mm	5080	5080	5080	6255	6255	6255	7430	7430	7430	7430	8605	9780	9780	9780
Width		mm	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260
Height		mm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450

NECS 1314 ... 3218 /CA			1314	1414	1614	1715	1816	2015	2116	2316	2416	2418	2618	2818	3018	3218
<b>COOLING MODE</b>																
Cooling capacity	Pf	kW (1)	370,4	391,4	438,4	481,1	517,5	549,2	591,4	632,7	657,3	701,5	740	784,6	830,6	884,7
Unit power input	Pat	kW (1)	119,6	125,1	141,5	154	166,3	177	189,4	204	212,3	225	239	250,4	266,5	283
Full Load Performance	EER	(1)	3,1	3,13	3,1	3,12	3,11	3,1	3,12	3,1	3,1	3,11	3,1	3,13	3,12	3,13
Part Load Performance	ESEER		4,45	4,48	4,39	4,54	4,5	4,42	4,48	4,48	4,37	4,44	4,46	4,5	4,49	4,45
<b>REFRIGERATION CIRCUIT</b>																
Maximum operating temperature at full load	AE	°C	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Sound Power Level	Lw	dB(A) (3)	97	97	97	97	98	98	98	99	99	99	99	100	100	100
Sound Pressure Level		dB(A) (4)	65	65	65	64	65	65	65	66	66	66	66	67	67	67
Number of circuits	Tot		2	2	2	2	2	2	2	3	2	4	4	4	4	4
Number of steps	Nr		2	2	2	2	3	3	3	2	3	2	2	2	2	2
<b>DIMENSIONS</b>																
Length		mm	5080	5080	5080	6255	6255	6255	7430	7430	7430	9780	9780	9780	9780	9780
Width		mm	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260
Height		mm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450

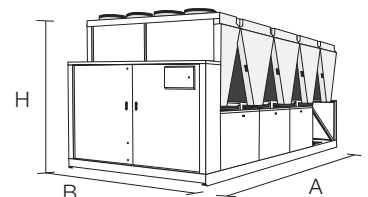
NECS 1314 ... 3218 /SL-CA			1314	1414	1614	1715	1816	2015	2116	2316	2416	2418
<b>COOLING MODE</b>												
Cooling capacity	Pf	kW (1)	370,5	394,3	440,1	480,8	521,5	550,4	591,6	638,3	662,5	695,3
Unit power input	Pat	kW (1)	119,1	126,3	141,6	154,3	167,1	176,7	189,3	204,3	213,3	222,8
Full Load Performance	EER	(1)	3,11	3,12	3,11	3,12	3,12	3,11	3,13	3,12	3,11	3,12
Part Load Performance	ESEER		4,57	4,56	4,44	4,54	4,58	4,52	4,6	4,59	4,53	4,58
<b>REFRIGERATION CIRCUIT</b>												
Maximum operating temperature at full load	AE	°C (5)	44	44	44	44	44	43	43	43	43	44
Sound Power Level	Lw	dB(A) (3)	86	86	86	87	87	87	87	88	88	88
Sound Pressure Level		dB(A) (4)	54	54	54	54	54	54	54	55	55	55
Number of circuits	Tot		2	2	2	2	2	2	2	3	2	4
Number of steps	Nr		2	2	2	2	3	3	3	2	3	2
<b>DIMENSIONS</b>												
Length (A)		mm	6255	6255	6255	7430	7430	7430	8605	8605	8605	9780
Width (B)		mm	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260
Height (H)		mm	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450

## Note

- (1) Evaporator water (in/out) = 12/7 °C; Condenser air (in) = 35°C.
- (2) Condenser water (in/out) = 40/45 °C; Evaporator air (in) = 7°C - U.R. 87%.
- (3) Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units
- (4) Average sound pressure level, at 10m distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level.
- (5) Maximum Temperature in silent mode. For maximum working temperature at full load, refer to the relative /B version.

\* Images of the unit in this document are indicative and might vary according to the model. All the technical data and references included in this document are not binding. The company reserves the right to discontinue, or change at any time, specifications or designs, without notice or without incurring obligations.

The units highlighted in this publication contain HFC R410A [GWP<sub>100</sub> 2088] fluorinated greenhouse gases.





NECS-N 1314 ... 3218 /B				1314	1414	1614	1716	1816	2016	2116	2416	2418	2618	2818	3018	3218
<b>COOLING MODE</b>																
Cooling capacity	Pf	kW	(1)	339,4	363,4	396,4	434,9	477,8	525,7	546,2	594,3	637,7	678	728,4	760,9	792,4
Unit power input	Pat	kW	(1)	126,4	132	151,4	164,6	177,8	190,4	198,1	227,1	237,1	252,7	264,2	283,2	302,8
Full Load Performance	EER		(1)	2,69	2,75	2,62	2,64	2,69	2,76	2,76	2,62	2,69	2,68	2,76	2,69	2,62
Part Load Performance	ESEER			3,8	3,88	3,79	3,88	3,78	3,89	3,91	3,77	3,78	3,8	3,92	3,88	3,78
<b>HEATING MODE</b>																
Heating capacity	Pc	kW	(2)	371	398	435,7	472,9	514,6	572,2	597,2	653,6	686,2	742	796,3	834,3	871,4
Unit power input	Pat	kW	(2)	122,4	129,7	142,7	157,2	170,6	187,2	194,1	214,3	227,2	245,2	258,7	272,2	285,6
Full Load Performance	COP		(2)	3,03	3,07	3,05	3,01	3,02	3,06	3,08	3,05	3,02	3,03	3,08	3,07	3,05
<b>REFRIGERATION CIRCUIT</b>																
Maximum operating temperature at full load	AE	°C		46	46	45	44,5	46	46	46	45	46	46	46	45	45
Sound Power Level	Lw	dB(A)	(3)	96	96	96	96	97	97	97	98	98	98	99	99	99
Sound Pressure Level		dB(A)	(4)	64	64	64	64	65	65	65	66	65	65	66	66	66
Number of circuits				2	2	2	3	3	3	3	3	4	4	4	4	4
Number of steps				4	4	4	6	6	6	6	6	8	8	8	8	8
<b>DIMENSIONS</b>																
Length		mm		3905	3905	3905	4515	5690	5690	5690	5690	7430	7430	7430	7430	7430
Width		mm		2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260
Height		mm		2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450

NECS-N 1314 ... 3218 /SL				1314	1414	1614	1716	1816	2016	2116	2416	2418	2618	2818	3018	3218
<b>COOLING MODE</b>																
Cooling capacity	Pf	kW	(1)	319,6	343,2	382,8	412,6	444,5	493,1	515,8	574	593,2	638,5	687,8	726,2	765,4
Unit power input	Pat	kW	(1)	131,2	138,1	154,5	170,4	185	199,5	207,3	231,7	246,7	262,3	276,4	292,8	308,9
Full Load Performance	EER		(1)	2,44	2,49	2,48	2,42	2,4	2,47	2,49	2,48	2,4	2,43	2,49	2,48	2,48
Part Load Performance	ESEER			3,99	4	3,97	4,05	3,99	4,07	4,06	3,95	4	4,05	4,06	4,06	3,96
<b>HEATING MODE</b>																
Heating capacity	Pc	kW	(2)	368,3	390,5	441,8	474,3	512,9	564,1	585,9	662,7	683,9	736,5	781,2	838,1	883,6
Unit power input	Pat	kW	(2)	117,3	125,3	139,1	152,3	164,5	179,8	187,5	208,8	219	234,9	250	264,5	278,4
Full Load Performance	COP		(2)	3,14	3,12	3,18	3,11	3,12	3,14	3,12	3,17	3,12	3,14	3,12	3,17	3,17
<b>REFRIGERATION CIRCUIT</b>																
Maximum operating temperature at full load	AE	°C	(5)	38,1	38,6	38,2	37,5	37,5	38,3	38,6	38,2	37,5	38,3	38,6	38,4	38,2
Sound Power Level	Lw	dB(A)	(3)	88	88	88	89	89	90	90	91	91	91	92	92	92
Sound Pressure Level		dB(A)	(4)	56	56	56	57	57	57	57	58	58	58	59	59	59
Number of circuits				2	2	2	3	3	3	3	3	4	4	4	4	4
Number of steps				4	4	4	6	6	6	6	6	8	8	8	8	8
<b>DIMENSIONS</b>																
Length		mm		4515	5080	5080	5690	5690	6865	7430	7430	7430	8605	9780	9780	9780
Width		mm		2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260
Height		mm		2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450

NECS-N 1314 ... 3218 /CA				1314	1414	1614	1716	1816	2016	2116	2416	2418	2618	2818	3018	3218
<b>COOLING MODE</b>																
Cooling capacity	Pf	kW	(1)	351,7	371,8	416,8	453,2	504,4	537,6	559	624,8	666,7	709,6	745,4	789,3	833,2
Unit power input	Pat	kW	(1)	121,2	127,8	143,4	155,5	172,6	184,7	191,7	215	228,2	242,3	255,7	269,9	286,7
Full Load Performance	EER		(1)	2,9	2,91	2,91	2,91	2,92	2,91	2,92	2,91	2,92	2,93	2,92	2,92	2,91
Part Load Performance	ESEER			4,12	4,2	4,07	4,19	4,08	4,18	4,17	4,09	4,09	4,14	4,18	4,17	4,09
<b>HEATING MODE</b>																
Heating capacity	Pc	kW	(2)	383,2	409,4	449,2	496,7	533,2	586,5	614,1	673,6	708,5	766,4	818,9	860	898,4
Unit power input	Pat	kW	(2)	119,5	127,8	139,8	154,8	166,2	182,6	191,2	209,9	221,3	239,4	254,9	268,7	279,8
Full Load Performance	COP		(2)	3,21	3,2	3,21	3,21	3,2	3,21	3,21	3,21	3,2	3,2	3,21	3,2	3,21
<b>REFRIGERATION CIRCUIT</b>																
Maximum operating temperature at full load	AE	°C		46	46	46	46	46	46	46	46	46	46	46	46	46
Sound Power Level	Lw	dB(A)	(3)	97	97	97	97	98	98	98	99	99	99	100	100	100
Sound Pressure Level		dB(A)	(4)	65	65	65	65	66	66	66	67	66	66	67	67	67
Number of circuits				2	2	2	3	3	3	3	3	4	4	4	4	4
Number of steps				4	4	4	6	6	6	6	6	8	8	8	8	8
<b>DIMENSIONS</b>																
Length (A)		mm		5080	5080	5080	6255	7430	7430	7430	7430	9780	9780	9780	9780	9780
Width (B)		mm		2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260
Height (H)		mm		2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450

## Models

### NECS

Cooling only version.

### NECS-N

Reversible heat pump unit for the production of chilled and hot water.

### NECS-NR

Reversible heat pump unit with total heat reclaim for the production of chilled and hot water, for both space heating and sanitary purposes.

## Versions

**NECS(-N) 1314..3218 /B,**  
Standard unit.

**NECS(-N) 1314..3218 /SL,**  
Very low noise version.

**NECS(-N) 1314..3218 /CA,**  
High efficiency unit working in Class A according to Eurovent requirements.

**NECS 1314..3218 /SL-CA,**  
Very Low noise version and high efficiency unit working in Class A according to Eurovent requirements.

## Silent versions

Combined with the Class A versions, the sound power level is also a distinctive feature on the new NECS range.

The new SL-CA version unifies in fact a premium efficiency level as well as a quiet operation at all working conditions.

All standard units can also be provided with compressors acoustical enclosure that can reduce the sound power level by 2dB(A)



for a greener tomorrow

Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.



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