

# neCS-C / neCS-CN

Air cooled liquid chillers and heat pumps  
with scroll compressors for indoor installation  
from 37 to 325 kW



High energy efficiency  
at partial loads



Integrated  
pump kit



High performance  
centrifugal fans



# NECS-C / NECS-CN

## The new NECS-C units

Climaveneta introduces its new NECS-C range of chillers and heat pumps with scroll compressors and R-410A. The range includes sizes with both one-circuit two compressors and two-circuit four compressors, focused on maximum efficiency and minimum noise emission.

## Why R-410A?

Although R-410A is a blend, it behaves just like a pure gas and features a negligible temperature glide. Thanks to its outstanding heat conductivity, R-410A contributes towards achieving elevated system efficiency.

R-410A is also an ecological gas because its elevated efficiency reduces electricity consumption and consequently CO<sub>2</sub> emissions and because it does not damage the ozone layer (ODP = 0). The scroll compressor has been expressly redesigned for use with the new gas and is now even more compact and silent than before.



## Complete versatility

NECS-C and NECS-CN units are designed to fully satisfy any application need thanks to a complete range of models, versions and configurations. In fact, NECS-C is available in partial (D) and total (R) recovery and in B (base) HT (high temperature / high efficiency). Additionally, the low temperature accessory that permits heating down to -10°C outdoor temperature is available.



## Elevated efficiency at part loads

Climaveneta has designed NECS-C units with the goal of guaranteeing high efficiency at part load. The result achieved in the single-circuit dual-compressor is an ESEER > 4.1, equivalent to a 38% saving in seasonal energy consumption compared to the previous R-407C version.



## Advantages

The technological choices aimed to provide the maximum overall quality and the use of the most innovative technologies make NECS-C a unit able to ensure maximum energy efficiency, easy installation thanks to its compact size, versatility and settings for integration in the Idrorelax centralized hydronic system ([www.idrorelax.it](http://www.idrorelax.it)).



### Heat pumps with SMART DEFROST

All NECS-C units are available as NECS-CN heat pump model. Innovating the control of traditional heat pump units, Climaveneta has developed SMART DEFROST: a defrost control logic that reduces both unit downtime and defrost energy consumption to a minimum.



### High performance centrifugal fans

The NECS-C units are equipped with dual suction fans, statically and dynamically balanced and coupled by belts and pulleys adjustable to their relevant three-phase motors assembled on turnbuckle runners.

Working static head up to 180Pa is available, upon request, at nominal capacity.



### Integrated pump unit

NECS-C was designed to minimize installation work. The integrated pump unit is an option that incorporates all the hydraulic components, thus optimizing installation space, time and costs.

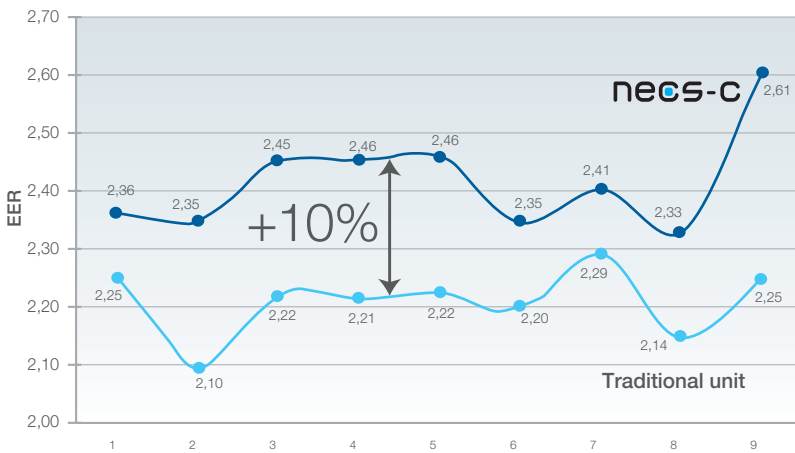
The choice of either a single or dual high or low head pump makes NECS-C units plug & play.

# NECS-C / NECS-CN



## Maximum energy efficiency

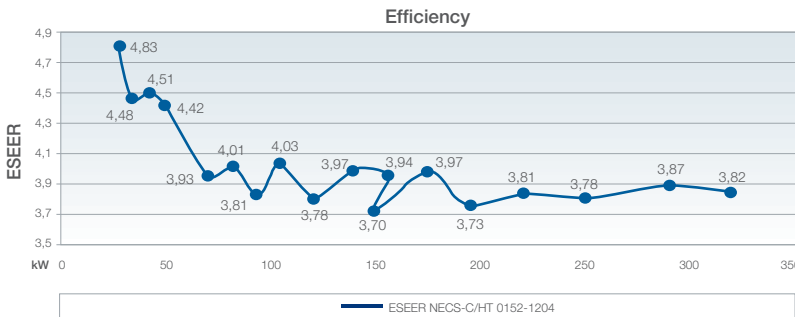
Consistent with corporate culture, the NECS-C series was designed to offer extremely high quality products with cutting-edge technology focusing on maximum energy efficiency at both full (EER) and part load (ESEER).



### Energy efficiency at full load

NECS-C units stand out for their particularly high EER energy efficiency index. This result was achieved by focusing on the design of both the finned batteries and the plate exchangers.

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



### Energy efficiency at part load

Attention to energy consumption is continually gaining importance, even on the European level.

The installed chiller unit works at full load only for extremely short periods of time while most of the energy is produced with part loads between 50 and 75%. The ESEER parameter proposed by Eurovent, takes part load operating conditions into account when assessing unit efficiency.

Based on this parameter, the general EER weight at nominal load is only 3%.

Load	ESEER	Temp. Air	Weight
100%		35°C	3 %
75%		30°C	33 %
50%		25°C	41 %
25%		20°C	23 %

Weight= quantity of energy produced in the respective load conditions

	SINGLE-CIRCUIT NECS-C 302 B R410A unit	traditional two-circuit R407C unit with two scroll compressors	Δ% Energy efficiency NECS-C 302 B unit vs. Traditional NECS unit
EER 100%	2,68	2,44	+ 10%
EER 75%	3,68	2,71	+ 36%
EER 50%	4,56	3,21	+ 42%
EER 25%	4,42	3,27	+ 35%
ESEER	4,18	3,04	<b>+ 38%</b>

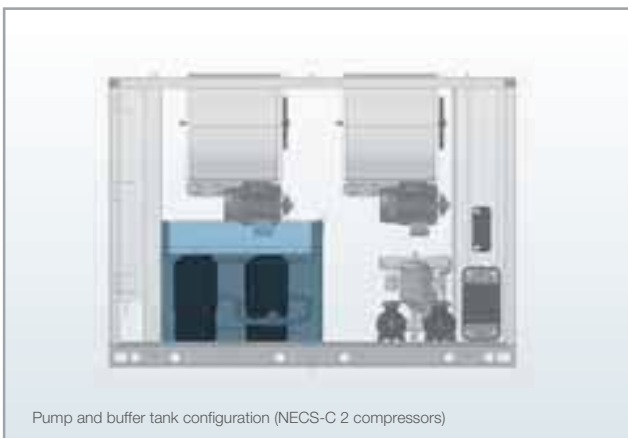
### ESEER Comparison: NECS-C single-circuit vs. traditional dual-circuit unit

The comparison proves that the new single-circuit NECS-C units with R-410A feature significantly greater energy efficiency (ESEER + 38%) over traditional dual-circuit units with R-407C.

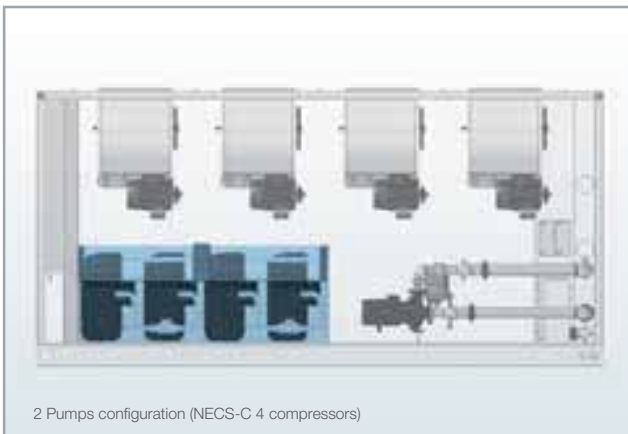


## Integrated hydronic kit

The new NECS-C units can be equipped with the hydronic kit that incorporates the main hydraulic components thus optimizing hydraulic and electrical installation space, time and costs. The innovative QuickMind regulation featured on NECS-C units was designed to operate in low water content systems thus providing highly professional alternatives to the installation of units with accumulation groups.



Pump and buffer tank configuration (NECS-C 2 compressors)



2 Pumps configuration (NECS-C 4 compressors)

The hydronic kit can be requested with the following configurations for all versions:

- 2-pole single low static head single pump hydronic kit
- 2-pole single high static head single pump hydronic kit
- 2-pole dual low static head pump hydronic kit
- 2-pole dual high static head pump hydronic kit

### **2-pole low static head pump**

Monobloc centrifugal horizontal electrical pump with axial suction and radial exhaust, fit for continual service

### **2-pole high static head pump**

Available for all versions

### **Second pump**

Stand-by low or high static pump with programmed hourly rotation; automatic start in the event of working pump fault.



The pumping kit includes:

- Expansion tank with 8 lt. capacity and 1.5 bar pre-load
- Pressure gauge
- 3-bar calibrated safety valve
- Drain cock
- Air purge valve
- Victaulic fittings
- Check valve (only for dual pump units)
- Mechanical filter, water side (optional)



## Maximum versatility

The NECS-C series includes a wide range of models and versions to fully meet any application need always ensuring the highest reliability, and design flexibility.



### Models

#### **NECS-C, NECS-CN**

cooling only or heat pump standard unit

#### **NECS-CD, NECS-CND**

cooling only or heat pump unit complete with partial heat recovery section

#### **NECS-CR**

cooling only unit complete with full heat recovery section (model available for 4-compressor units only)



### Versions

#### **NECS-C/B, NECS-CN/B**

Standard unit version

#### **NECS-C/HT (High Temperature or High Efficiency)**

Version suited for operations in high air temperature climates. This version includes the use of an increased condensation section to guarantee operations even in severe weather conditions. Thus, the benefit of increased cooling power is obtained at nominal air temperature with a reduction in absorbed power and therefore improved cooling efficiency (EER).



### Horizontal or vertical air supply

The design for the 4 compressor unit includes the possibility of selecting the unit with air supply best suited to specific installation needs (vertical / horizontal), thus reducing time and costs.

The horizontal air supply kit is available for 2 compressor versions.

The horizontal supply solution is especially efficient in installations that do not permit traditional vertical supply.

# General technical specifications

NECS-C 0152-1204		Ver.	0152	0182	0202	0252	0302	0352	0412	0452	0512	0552	0612	0604	0704	0804	0904	1004	1104	1204	
Cooling capacity (1)	kW	B	37,1	43,0	50,5	57,0	74,8	86,4	97,9	109	121	138	159	152	172	195	222	244	281	312	
		HT	39,0	45,5	52,7	59,4	80,0	91,5	103	114	130	148	165	158	183	203	228	257	296	325	
Total power input (1)	kW	B	15,7	18,3	20,6	23,2	30,4	36,8	40,7	46,8	51,5	58,0	61,0	62,5	73,1	83,5	89,6	101,6	115	133	
		HT	14,8	17,3	20,0	22,5	30,6	34,5	39,8	44,0	50,9	57,9	64,7	61,2	69,0	79,9	89,1	99,3	112	128	
Compressors / circuits		B	2/1											4/2							
	HT	2/1											4/2								
Air flow rate (4)		B	16000	18000	18000	18000	20000	32000	32000	34000	34000	34000	51000	48000	51000	68000	64000	68000	68000	85000	85000
	HT	16000	19000	19000	19000	32000	32000	34000	34000	51000	51000	51000	51000	51000	64000	68000	68000	85000	85000	85000	
Total EER		B	2,363	2,35	2,451	2,457	2,461	2,348	2,405	2,329	2,35	2,379	2,607	2,432	2,353	2,335	2,478	2,402	2,443	2,346	
	HT	2,635	2,63	2,635	2,64	2,614	2,652	2,588	2,591	2,554	2,556	2,55	2,582	2,652	2,541	2,559	2,588	2,643	2,539		
ESEER		B	4,61	4,3	4,46	4,35	4,18	3,86	3,88	3,73	3,74	4,17	3,94	3,86	3,72	3,61	3,97	3,77	3,88	3,74	
	HT	4,83	4,48	4,51	4,42	3,93	4,01	3,81	4,03	3,78	3,97	3,94	3,70	3,97	3,73	3,81	3,78	3,87	3,82		
Sound power level (3)		B	85											97							
	HT	85	89	89	89	95	95	96	96	98	98	98	98	98	98	99	99	100	100	100	

NECS-CN 0152-1204		Ver.	0152	0182	0202	0252	0302	0352	0412	0452	0512	0552	0612	0604	0704	0804	0904	1004	1104	1204
Cooling capacity (1)	kW	B	36,4	42,3	49	55,3	73	84,1	94,9	107	119	137	154	146	164	187	213	237	274	303
Total power input (1)	kW	B	14,9	17,1	19,7	22,4	31,2	35,0	39,0	43,8	49,5	57,9	64,4	60,3	71,6	79,0	87,2	99,8	113	131
Heating capacity (2)	kW	B	42,4	48	56,1	63,7	81,6	94,6	107	122	135	153	173	165	185	208	235	261	302	336
Total power input (2)	kW	B	14,8	16,8	19,4	22,1	29,8	33,7	37,6	42,2	47,4	55,3	61,8	57,8	66,3	74,4	82,6	94,3	108	122
Compressors/circuits		B	2/1											4/2						
Air flow rate (4)	m³/h	B	15000	17000	17000	17000	30000	30000	30000	32000	35000	48000	48000	45000	48000	60000	60000	68000	80000	85000
Total COP		B	2,86	2,86	2,89	2,88	2,74	2,81	2,85	2,89	2,85	2,77	2,80	2,85	2,79	2,80	2,85	2,77	2,80	2,75
Sound power level (3)	dB(A)	B	84	86	86	86	93	93	93	95	97	97	97	95	97	97	97	99	99	100

## Dimensions

### NECS-C 0152 -1204

Dimensions (5)		Ver.	0152	0182	0202	0252	0302	0352	0412	0452	0512	0552	0612	0604	0704	0804	0904	1004	1104	1204
A	mm	B	2200	2200	2200	2200	2200	2602	2602	2602	2602	3602	3602	3602	3602	4602	4602	4602	4602	5602
		HT	2200	2200	2200	2200	2602	2602	2602	3602	3602	3602	3602	3602	4602	4602	4602	4602	5602	5602
B	mm	B	920	920	920	920	1104	1104	1104	1104	1104	1104	1104	1277	1277	1277	1277	1277	1277	1277
		HT	920	920	920	920	1104	1104	1104	1104	1104	1104	1104	1277	1277	1277	1277	1277	1277	1277
H	mm	B	1642	1642	1642	1642	1642	1927	1927	1927	1927	1927	1927	1900	1900	2235	2235	2235	2235	2235
		HT	1642	1642	1642	1642	1927	1927	1927	1927	1927	1927	1927	1900	2235	2235	2235	2235	2235	2235
Operating weight	kg	B	670	670	700	720	880	1100	1170	1210	1260	1440	1540	1845	1940	2310	2445	2515	2695	2885
		HT	690	710	730	760	1090	1150	1230	1400	1490	1560	1620	1920	2320	2380	2580	2845	3055	3115

### NECS-CN 0152-1204

Dimensions (5)		Ver.	0152	0182	0202	0252	0302	0352	0412	0452	0512	0552	0612	0604	0704	0804	0904	1004	1104	1204
A	mm	B	2200	2200	2200	2200	2602	2602	2602	3602	3602	3602	3602	3602	4602	4602	4602	4602	5602	5602
B	mm	B	920	920	920	920	1104	1104	1104	1104	1104	1104	1104	1277	1277	1277	1277	1277	1277	
H	mm	B	1642	1642	1642	1642	1927	1927	1927	1927	1927	1927	1900	1900	2235	2235	2235	2235	2235	
Operating weight	kg	B	720	730	750	790	1080	1170	1230	1470	1490	1600	1660	1980	2055	2475	2630	2725	3145	3205

#### Data referred to:

- 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
- 3) Total fan acoustic power as stated by the manufacturer referred to nominal rotation speed and 120 Pa working static head on supply side
- 4) With 120 Pa working static head
- 5) Free space required around the NECS-C/NECS-C/N 0152-0512 unit:  
Electrical panel side 1000 mm  
Opposite side from electrical panel 1000 mm  
Condensation coil side 2000 mm
- 6) Free space required around the NECS-C/NECS-C/N 0552-1204 unit:  
Electrical panel side 800 mm  
Opposite side from electrical panel 800 mm  
Condensation coil side 1500 mm

The information contained in this document may be modified without notice and refers to units designed for the European Market.

