NECS-W / NECS-WN

Water cooled indoor chillers and heat pumps
with scroll compressors from 43 to 371kW.

High efficiency
at part load

Complete
versatility

Precise and
reliable operation

CLIMAVENETA
SUSTAINABLE COMFORT

NECS-W

The range

The Climaveneta NECS-W range of chillers and heat pumps with scroll compressors, plate exchangers and R-410A, with both one-circuit two compressors and two-circuit four compressors, focused on maximum efficiency and minimum noise emission.

Precise and reliable operation

Premium efficiency, precision and reliable operation with all the working conditions are the key features of NECS-W units.

All the components have been carefully selected and the algorithms have been specifically developed for these units, in order to ensure maximum reliability and meet the most challenging application requirements.

Complete versatility

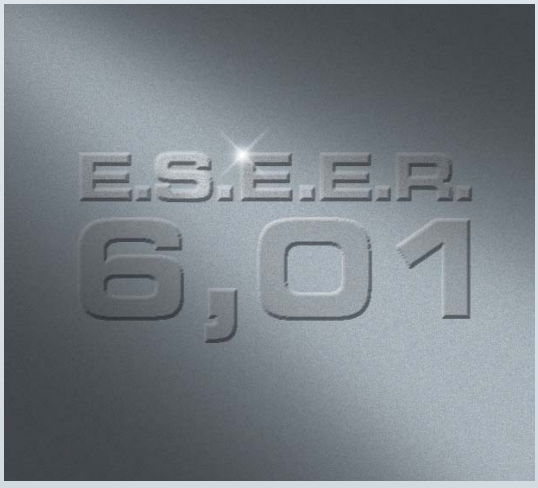
NECS-W units are designed to fully satisfy any application or installation needs throughout a complete range of models, hydronic configurations and accessories.

NECS-W is available in chiller mode (chilled water production), heat pump for hot water production (plus possible water side reversal) NECS-WH and finally heat pump with “refrigerant side reversal” NECS-WN (chilled/hot water production).

High efficiency at partial

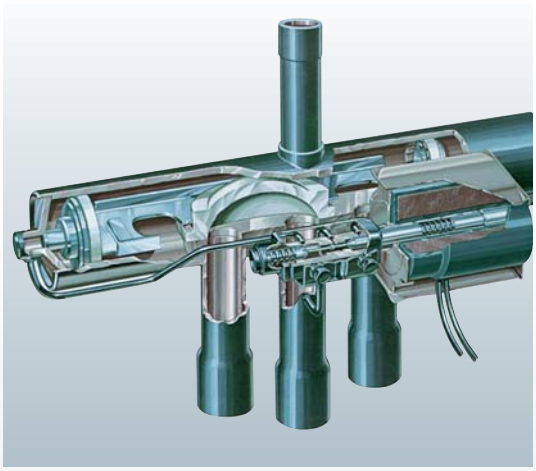
Climaveneta has designed NECS-W units with the goal of guaranteeing high efficiency at part load.

The result achieved in the new single-circuit dual-compressor is an ESEER up to 6.01, equivalent to a 33% saving in seasonal energy consumption compared to traditional R-407C double-circuit unit.



Technological choices

Technological choices aimed to provide the maximum overall quality and the use of the most innovative technologies make NECS-W a unit able to ensure maximum energy efficiency, easy installation thanks to its compact size, versatility and settings for integration in all kinds of indoor ambient, also those with the strictest requirements.



Reversible heat pumps

All NECS-W are available as NECS-WN heat pump model; this model completes the Climaveneta water cooled units range.

Making a comparison between NECS-WN and a traditional “water side reversal” heat pump, reductions in installation spaces and an easier water connection layout are achieved. It means saving in installation costs and time.

Condensing pressure control device:

NECS-W electronic control can manage the best suitable condensing pressure control device for every application: pressostatic valve, 2 or 3 way modulating valve and inverter on the condenser pumps.

NECS-W can be selected to work with: dry-cooler, cooling tower, geothermal probes; cooling water from open loop can be used as well (e.g. Waterworks, draw-well, ground water).

Kit pumps available on hot/cold side

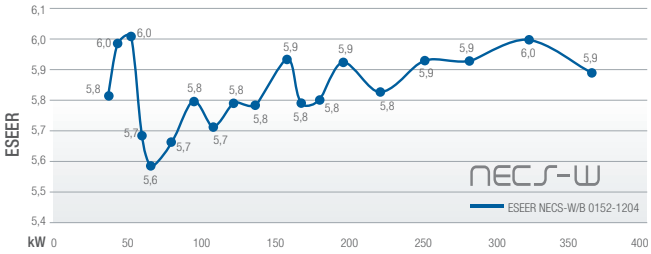
NECS-W units are designed in order to minimize installation time. Units are available with both evaporator /condenser hydronic kit. Hydronic kits are fully accessorized with every hydronic device in order to obtain: space reduction, installation costs saving and shortening installation time.

The units are plug&play thanks to the feasibility to install 1 or 2 pumps on board, high and low pressure head on both evaporator and condenser sides.

necs-w / necs-wn

Maximum energy efficiency

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



ESEER		
Load	**Water temp.**	**Weight**
100%	30°C	3%
75%	26°C	33%
50%	22°C	41%
25%	18°C	23%

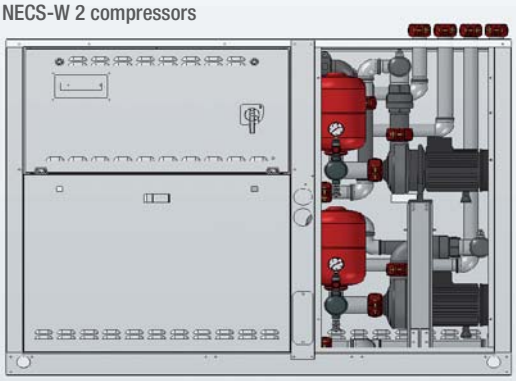
Weight= quantity of energy produced in the respective load conditions

Energy efficiency at part load

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

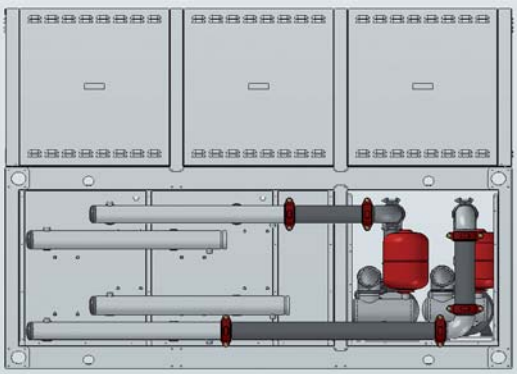
The installed chiller unit works at full load only for extremely short periods of time while most of the energy is produced with part loads between 50 and 75%. The ESEER parameter proposed by Eurovent, takes part load operating conditions into account when assessing unit efficiency

NECS-W 2 compressors



Configuration: 2 evaporator pumps + 2 condenser pumps

NECS-W 4 compressors



Configuration: 1 evaporator pump + 1 condenser pump

Kit pumps available on hot/cold side

The new NECS-W units can be equipped with evaporator and / or condenser hydronic kits. The kit incorporates the main hydraulic components thus optimizing hydraulic and electrical installation space, time and costs. Moreover, NECS-W can be provided with INVERTER pumps on the condenser side. This device enables the condensing pressure control, through the variable speed pump, reducing pump energy consumption.

Hydronic kit configuration:

- Hydronic kit 1 pump 2 poles low head
- Hydronic kit 1 pump 2 poles high head
- Hydronic kit 2 pumps 2 poles low head
- Hydronic kit 2 pumps 2 poles high head

Units can be equipped with up to 4 pumps: two on the evaporator and two on the condenser side.

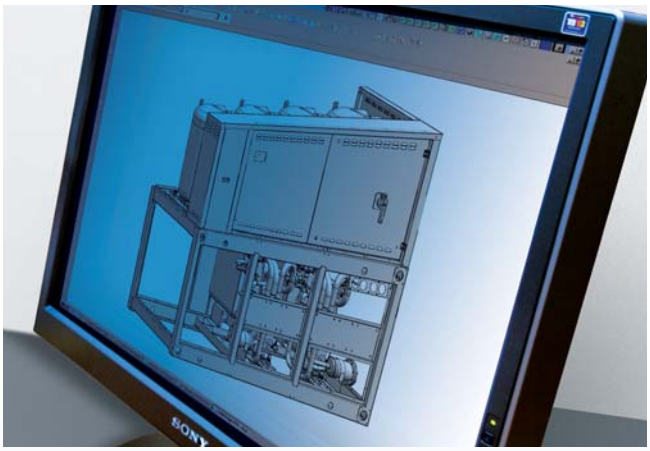
2 Poles low heat pump
Horizontal close-coupled centrifugal electric pump, single impeller, with end suction and radial discharge, ideal for continuous operations, 100 kPa external static pressure available.

2 Poles high heat pump
Horizontal close-coupled centrifugal electric pump, single impeller, with end suction and radial discharge, ideal for continuous operations, 200 kPa external static pressure available.

Stand-by pump
Stand-by, low or high head, pump ready to start in case of failure of the running pump. The pumps have a time based change-over and the stand-by pump will start automatically in case of failure of the running one.

Versatility and design flexibility

The NECS-W range includes three models for the production of hot, cold and hot/cold water in 2-pipe tubes.
NECS-W offers a wide array of accessories that can be easily integrated in order to allow the unit to work both with water sources (well, ground water) and with a close circuit (dry cooler, evaporating tower ad geothermal probes) in order to meet any kind of installation request.



Models

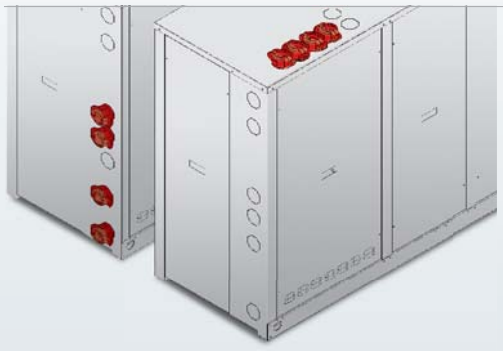
NECS-W
cooling only standard unit

NECS-WH
Hydraulic circuit reversible heat pump unit (plus possible water-side reversal).

NECS-WN
Refrigerant circuit reversible heat pump unit.

All models are available as low noise versions.

NECS-W: 2 compressors unit with hydronic kit



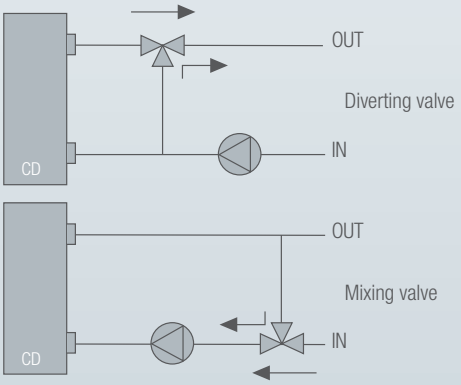
Sideward/Upward external water connections

2 compressors NECS-W units with hydronic kit installed onboard are available with both side and up external water connections.

Standard units with external side water connections, up-wards type is made to order. Upwards water connections type is suitable for technical rooms with room-top water piping; reduced installation spaces.

And saving costs will be obtained. This solution must be remarked especially for Scandinavian market.

Logic scheme: NECS-W with 3-way valve modulating valve installed



Condensing pressure control device

NECS-W electronic control can manage the best suitable condensing pressure control device for every applications: pressostatic valve, 2 or 3 way modulating valve and inverter control on the condenser pumps.

Soluzions	NECS-W			NECS-WN		
	Waterworks draw-well	Dry-cooler	Geothermal probes	Waterworks draw-well	Dry-cooler	Geothermal probes
Pressostatic valve	•	–	–	–	–	–
2-way valve	•	–	–	•	–	–
3-way valve	–	•	•	–	–	•
Inverter control	–	•	•	–	–	•

Precision and reliability

NECS-W units have been designed to ensure the highest efficiency and realiable in all the working conditions.
All the components have been carefully selected and the algorithms have been specifically developed for these units.

Advanced control system

The W3000 Compact control with LCD display is available for all the units (optional for some models). The controller features an easy-to-use interface with seven selectable languages: Italian, English, French, German, Spanish, Swedish and Russian.
This ensures to have a dedicated version for each country or a general and independent English version for all the countries.

Remote keypad

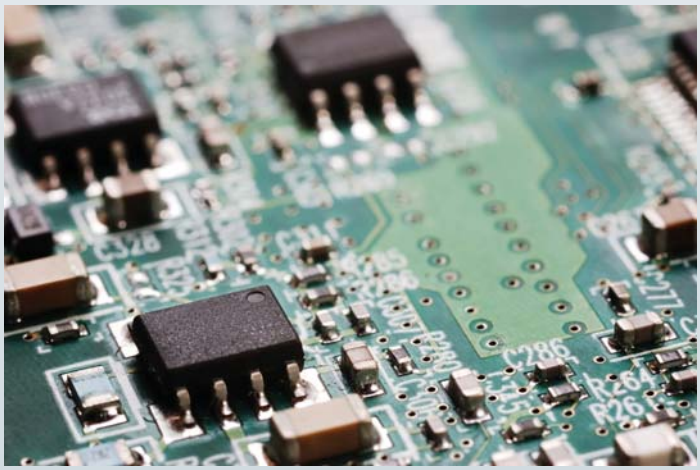
The controller is available with remote keypad that can be connected to the unit at a distance of 200m thanks to the remote connection without power supply (in this case it is supplied by the unit) or up to 500m with local dedicated power supply.

Compatibility with BMS systems

The compatibility with BMW systems thanks to the protocols BACnet, OverIP, ModBUS and LonWorks. The Black Box saves up to 200 alarm events that can be easily printed.

Internal Clock

The Internal Clock manages a weekly schedule organized into time bands in order to optimise unit performance by minimising power consumption during periods of inactivity, such as during the night.
Up to 10 daily time bands can be associated with different operating set points.
Energy production is therefore optimized during daily peaks, reducing the consumption when the unit is off.
If there isn't request of hot and cold water, it is possible to manage the switching off of the unit, planning the following operation.



Technical data

NECS-W / B			0152	0182	0202	0252	0262	0302	0352	0412	0452	0512	0552	0612	0604	0704	0804	0904	1004	1104	1204
Power supply		V/ph/Hz	400/3/50																		
PERFORMANCE																					
COOLING ONLY (GROSS VALUE)																					
Cooling capacity	(1)	kW	43,4	50,1	58,9	66,4	72,6	86,7	101	115	129	144	165	186	174	203	228	258	288	329	371
Total power input	(1)	kW	10,00	11,3	13,0	15,2	16,6	19,5	22,7	25,9	28,9	32,2	36,9	41,6	38,9	45,2	51,6	58,0	64,0	74,0	83,5
EER	(1)		4,34	4,43	4,53	4,37	4,37	4,45	4,46	4,43	4,45	4,46	4,47	4,48	4,47	4,48	4,42	4,45	4,50	4,44	4,44
ESEER	(1)		5,81	5,98	6,01	5,69	5,59	5,66	5,80	5,71	5,79	5,78	5,93	5,80	5,79	5,92	5,82	5,93	5,93	5,99	5,89
COOLING ONLY (EN14511 VALUE)																					
Cooling capacity	(1)(2)	kW	43,0	49,7	58,5	66,0	72,1	86,3	101	114	128	143	164	186	173	202	227	257	287	328	370
EER	(1)(2)		4,04	4,15	4,24	4,10	4,08	4,23	4,26	4,22	4,25	4,27	4,29	4,29	4,29	4,32	4,25	4,29	4,35	4,30	4,28
ESEER	(1)(2)		4,98	5,17	5,22	5,02	4,88	5,13	5,23	5,19	5,24	5,29	5,40	5,30	5,20	5,33	5,27	5,34	5,40	5,47	5,33
Cooling energy class			D	D	D	D	D	D	C	D	C	C	C	C	C	C	C	C	C	C	C
COMPRESSORS																					
Compressors nr.		N°	2	2	2	2	2	2	2	2	2	2	2	2	4	4	4	4	4	4	4
No. Circuits		N°	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
NOISE LEVEL																					
Noise Pressure	(4)	dB(A)	42	43	43	43	44	45	46	46	47	47	48	48	54	55	56	57	58	59	59
Noise Power	(5)	dB(A)	73	74	74	74	75	76	77	77	78	78	79	79	86	87	88	89	90	91	91
SIZE AND WEIGHT																					
A	(6)	mm	1055	1055	1055	1055	1055	1222	1222	1222	1222	1222	1222	1222	2227	2227	2227	2227	2227	2227	2227
B	(6)	mm	649	649	649	649	649	873	873	873	873	873	873	873	877	877	877	877	877	877	877
H	(6)	mm	1255	1255	1255	1255	1255	1496	1496	1496	1496	1496	1496	1496	1780	1780	1780	1780	1780	1780	1780
Operating weight	(6)	kg	285	300	310	320	325	570	610	640	680	725	770	800	1050	1125	1190	1270	1355	1445	1510

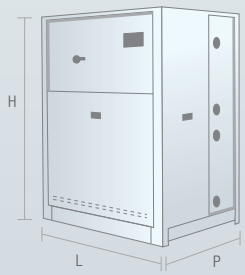
NECS-WN / B			0152	0182	0202	0252	0262	0302	0352	0412	0452	0512	0552	0612	0604	0704	0804	0904	1004	1104	1204
Power supply		V/ph/Hz	400/3/50																		
PERFORMANCE																					
COOLING ONLY (GROSS VALUE)																					
Cooling capacity	(1)	kW	43,4	50,1	58,9	66,4	72,6	86,7	101	115	129	144	165	186	174	203	228	258	288	329	371
Total power input	(1)	kW	10,2	11,5	13,3	15,5	17,0	19,9	23,1	26,4	29,5	32,8	37,6	42,5	39,7	46,1	52,6	59,1	65,3	75,4	85,2
EER	(1)		4,25	4,36	4,43	4,28	4,27	4,36	4,38	4,34	4,36	4,38	4,39	4,38	4,38	4,40	4,33	4,36	4,41	4,36	4,36
ESEER	(1)		5,67	5,86	5,88	5,59	5,52	5,54	5,72	5,61	5,69	5,66	5,80	5,70	5,69	5,81	5,72	5,82	5,81	5,89	5,78
COOLING ONLY (EN14511 VALUE)																					
Cooling capacity	(1)(2)	kW	43,2	49,9	58,6	66,0	72,2	86,4	101	114	128	143	164	186	173	202	227	257	287	328	370
EER	(1)(2)		4,02	4,12	4,19	4,03	4,00	4,17	4,20	4,17	4,17	4,21	4,22	4,22	4,23	4,25	4,20	4,20	4,27	4,22	4,22
ESEER	(1)(2)		5,05	5,21	5,23	4,93	4,81	5,08	5,17	5,16	5,16	5,22	5,33	5,27	5,18	5,30	5,24	5,23	5,32	5,38	5,30
Cooling energy class			D	D	D	D	D	D	D	D	D	D	D	D	D	C	D	D	C	D	D
HEATING ONLY (GROSS VALUE)																					
Total heating capacity	(3)	kW	49,8	57,3	67,0	75,9	83,8	99,4	115	130	146	163	187	211	199	230	259	293	327	373	422
Total power input	(3)	kW	12,9	14,3	16,7	19,2	21,0	24,6	28,3	32,1	35,9	39,9	45,7	51,6	49,1	56,5	63,9	71,9	79,3	91,7	104
COP			3,86	4,01	4,01	3,95	3,99	4,04	4,07	4,05	4,07	4,09	4,10	4,10	4,06	4,08	4,05	4,07	4,12	4,07	4,07
HEATING ONLY (EN14511 VALUE)																					
Total heating capacity	(3)(2)	kW	50,1	57,6	67,4	76,4	84,4	99,8	116	131	147	164	4,10	4,10	4,06	4,08	4,05	4,07	4,12	4,07	4,07
COP	(3)(2)		3,71	3,85	3,85	3,78	3,80	3,91	3,94	3,93	3,93	3,97	3,98	3,98	3,95	3,98	3,95	3,96	4,02	3,98	3,97
Cooling energy class			D	D	D	D	D	D	C	D	C	C	C	C	C	C	C	C	C	C	C
COMPRESSORS																					
Compressors nr.		N°	2	2	2	2	2	2	2	2	2	2	2	2	4	4	4	4	4	4	4
No. Circuits		N°	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
NOISE LEVEL																					
Noise Pressure	(4)	dB(A)	58	59	59	59	60	60	61	61	62	62	63	63	69	70	71	72	73	74	74
Noise Power	(5)	dB(A)	73	74	74	74	75	76	77	77	78	78	79	79	86	87	88	89	90	91	91
SIZE AND WEIGHT																					
A	(6)	mm	1055	1055	1055	1055	1055	1222	1222	1222	1222	1222	1222	1222	2227	2227	2227	2227	2227	2227	2227
B	(6)	mm	649	649	649	649	649	873	873	873	873	873	873	873	877	877	877	877	877	877	877
H	(6)	mm	1255	1255	1255	1255	1255	1496	1496	1496	1496	1496	1496	1496	1780	1780	1780	1780	1780	1780	1780
Operating weight	(6)	kg	300	315	325	335	340	595	630	675	705	755	805	850	1100	1175	1255	1310	1415	1520	1600

Notes:

1) Plant (side) cooling exchanger water (in/out) 12°C/7°C;
   Source (side) heat exchanger water (in/out) 30°C/35°C
2) Values in compliance with EN14511-3:2011
3) Plant (side) heating exchanger water (in/out) 40°C/45°C;
   Source (side) heat exchanger water (in/out) 10°C/* °C (flow rate as in cooling)
4) Average sound pressure level, at 1m distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level.
5) Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units; in compliance with ISO 3744 for non-certified units.
6) Unit in standard configuration/execution, without optional accessories.

Main accessories:

- Set-up for remote connectivity with ModBus/Echelon protocol cards
- Condensing control device: two or three-way modulating pressure-controlled valve and inverter on pumps
- Water connections directed upwards (for 2 compressors units only)
- Acoustical enclosure to reduce the noise emissions
- Rubber anti-vibration mounting kit. Spring anti-vibration mounting kit (4 compressors models only)



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