

neCS-W / neCS-Wn

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

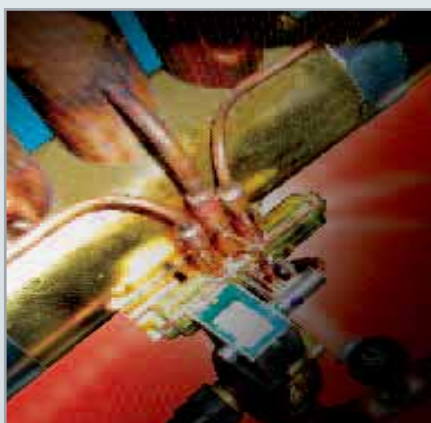
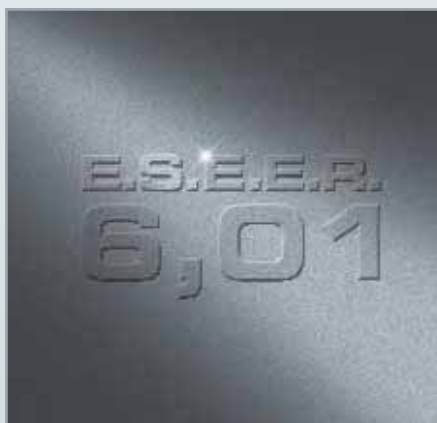
HFC
R-410A



High efficiency
at part load

Refrigerant side
reversible heat pumps

Pumps available on hot/cold
side also with inverter technology



NECS-W / NECS-WN

The new NECS-W units

Climaveneta introduces its new 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.

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 high system efficiency.

R-410A is also an ecological gas because its high efficiency reduces electricity consumption and consequently CO2 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-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).



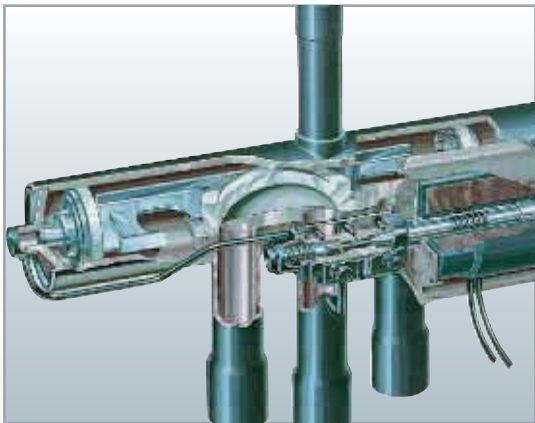
High efficiency at partial load

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.



Advantages

The 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 the Idrorelax centralized hydronic system (www.idrorelax.it).



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 applications: 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 (es. 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.

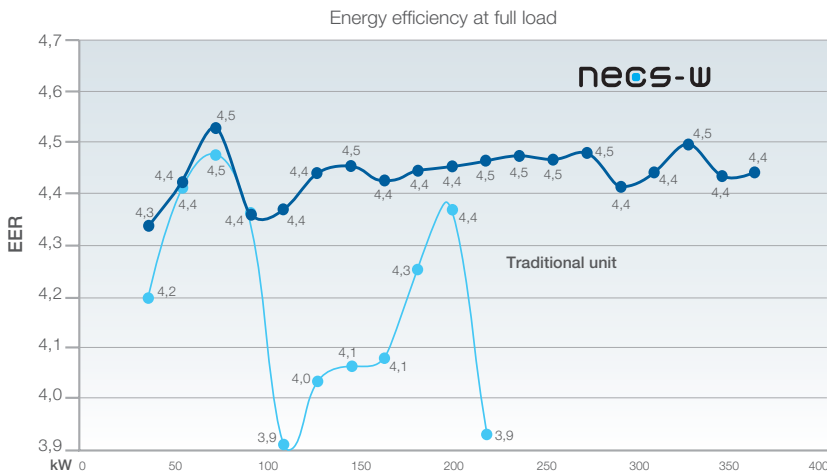
The units are plug&play thanks to the feasibility to install 1 or 2 pumps on board, high and low pressure head on both evaporator and condenser sides.

NECS-W / NECS-WN



Maximum energy efficiency

Consistent with corporate culture, the NECS-W 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).

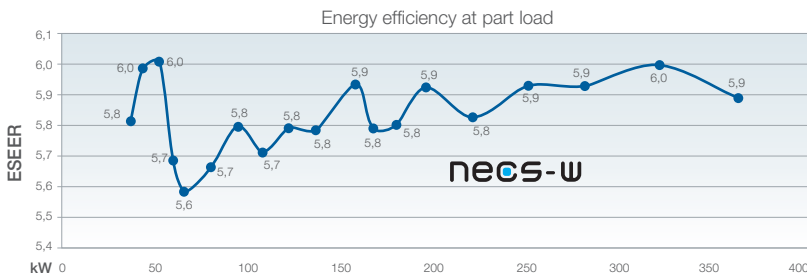


Energy efficiency at full load

NECS-W units stand out for their particularly high EER energy efficiency index.

This result was achieved by focusing on the design of plate exchangers both on the condenser side and on the evaporator side.

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 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.

— ESEER NECS-W/B 0152-1204

ESEER		
Load	Temp. Air	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

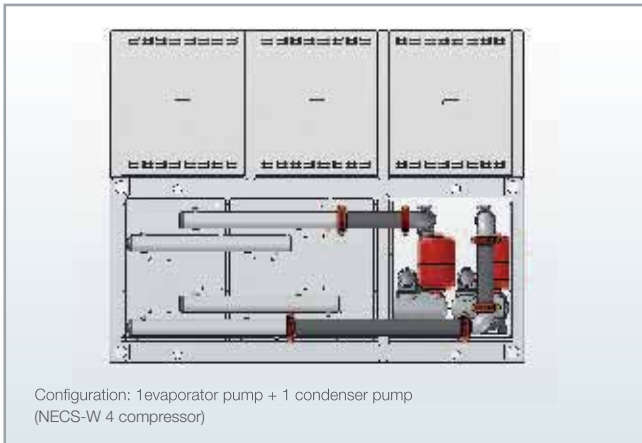
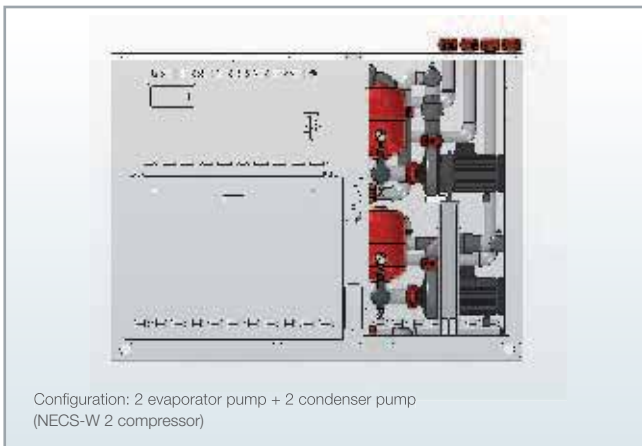
	SINGLE-CIRCUIT NECS-W 202 R-410A unit	traditional two-circuit R407C unit with two scroll compressors	Δ% Energy efficiency NECS-W 202 unit vs Traditional NECS unit
EER 100%	4,53	4,48	+ 1%
EER 75%	5,55	4,55	+ 22%
EER 50%	6,55	4,48	+ 46%
EER 25%	5,88	4,55	+ 29%
ESEER	6,01	4,52	+ 33%

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

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

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.



Evaporator and / or condenser hydronic kit can be provided with following configurations:

- 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 head 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 head 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.



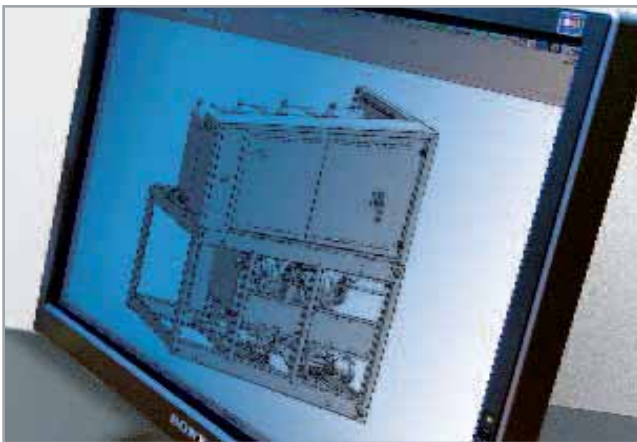
The pump kit includes:

- Pre-pressurized diaphragm-type expansion tank
- Pressure gauge
- 3 bar set pressure safety valve
- Discharge shut-off valve
- Air vent valve
- Evaporator/condenser external water connections victaulic suitable
- One-way valve (available only for 2 pump hydronic kit)
- Water filter supply loose (opt.)



Maximum versatility

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



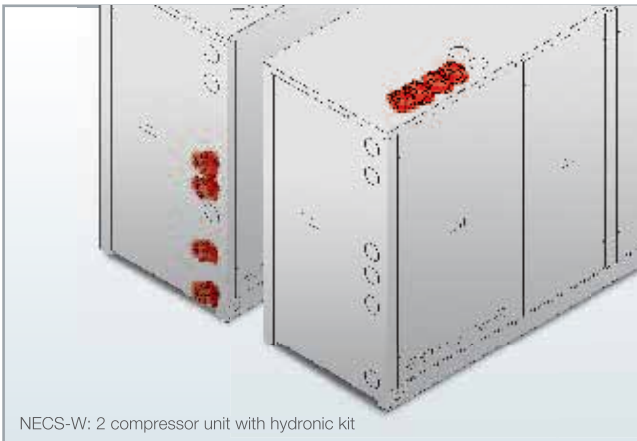
Models

NECS-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.



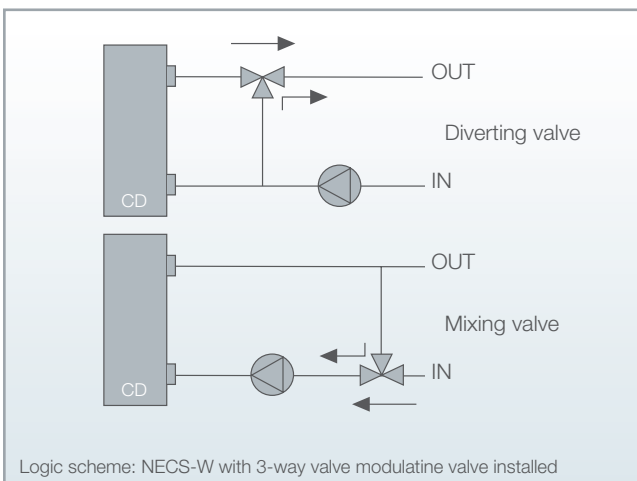
NECS-W: 2 compressor unit with hydronic kit

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-upwards type is made to order.

Up-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.

Solutions	NECS-W			NECS-WN			NECS-WH		
	Waterworks draw-well	Dry-cooler	Geothermal probes	Waterworks draw-well	Dry-cooler	Geothermal probes	Waterworks draw-well	Dry-cooler	Geothermal probes
Pressostatic valve	•	-	-	• + by pass	-	-	• + by pass	-	-
2-way valve	•	-	-	• + by pass	-	-	• + by pass	-	-
3-way valve	-	•	•	-	•	-	-	-	•
Inverter control	-	•	•	-	•	-	-	-	•

General technical data

NECS-W 0152-1204	Ver.	0152	0182	0202	0252	0262	0302	0352	0412	0452	0512	0552	0612	0604	0704	0804	0904	1004	1104	1204		
Cooling capacity (1)	kW	B	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	B	10,0	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	74	83,5	
Compressors / circuits	B		2/1										4/2									
EER	B		4,3	4,4	4,5	4,4	4,4	4,4	4,4	4,4	4,5	4,5	4,5	4,5	4,5	4,5	4,4	4,4	4,5	4,4	4,4	
ESEER	B		5,8	6,0	6,0	5,7	5,6	5,7	5,8	5,7	5,8	5,8	5,9	5,8	5,8	5,9	5,8	5,9	5,9	6,0	5,9	
Sound power level (3)	dB(A)	B	69	70	70	70	71	72	73	73	74	74	75	75	76	77	78	79	80	81	81	
Dimensions (4) (5)																						
A (6)	mm	B	1055	1055	1055	1055	1055	1222	1222	1222	1222	1222	1222	1222	2227	2227	2227	2227	2227	2227	2227	
A (7)	mm	B	1706	1706	1706	1706	1706	2000	2000	2000	2000	2000	2000	2000	2962	2962	2962	2962	2962	2962	2962	
B	mm	B	649	649	649	649	649	873	873	873	873	873	873	873	877	877	877	877	877	877	877	
H	mm	B	1255	1255	1255	1255	1255	1496	1496	1496	1496	1496	1496	1496	1780	1780	1780	1780	1780	1780	1780	
Operating weight	kg	B	280	295	300	310	315	565	605	635	675	715	765	795	1055	1130	1190	1270	1355	1450	1510	

NECS-WN 0152-1204	Ver.	0152	0182	0202	0252	0262	0302	0352	0412	0452	0512	0552	0612	0604	0704	0804	0904	1004	1104	1204		
Cooling capacity (1)	kW	B	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	B	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	
Heating capacity (2)	kW	B	50,5	58,1	68,0	77,0	85,0	101	117	132	148	166	190	215	202	234	263	297	332	379	428	
Total power input (2)	kW	B	12,9	14,3	16,7	19,2	21,1	24,7	28,4	32,2	36,0	40,0	45,9	51,8	49,2	56,6	64,1	72,1	79,5	91,9	104	
Compressors/circuits	B		2/1										4/2									
COP	B		3,9	4,1	4,1	4,0	4,0	4,1	4,1	4,1	4,1	4,2	4,1	4,2	4,1	4,1	4,1	4,1	4,2	4,1	4,1	
ESEER	B		5,7	5,9	5,9	5,6	5,5	5,5	5,7	5,6	5,7	5,7	5,8	5,7	5,7	5,8	5,7	5,8	5,8	5,9	5,8	
Sound power level (3)	dB(A)	B	69	70	70	70	71	72	73	73	74	74	75	75	76	77	78	79	80	81	81	
Dimensions (4) (5)																						
A (6)	mm	B	1055	1055	1055	1055	1055	1222	1222	1222	1222	1222	1222	1222	2227	2227	2227	2227	2227	2227	2227	
A (7)	mm	B	1706	1706	1706	1706	1706	2000	2000	2000	2000	2000	2000	2000	2962	2962	2962	2962	2962	2962	2962	
B	mm	B	649	649	649	649	649	873	873	873	873	873	873	873	877	877	877	877	877	877	877	
H	mm	B	1255	1255	1255	1255	1255	1496	1496	1496	1496	1496	1496	1496	1780	1780	1780	1780	1780	1780	1780	
Operating weight	kg	B	290	305	315	325	330	585	620	660	685	740	790	830	1090	1165	1245	1290	1395	1500	1585	

Data refers to:

- Evaporator water temperature (in/out) = 12°C / 7°C
Condenser water temperature (in/out) = 30°C / 35°C
- Condenser water temperature (in/out) = 40°C / 45°C
Evaporator water temperature (in/out) = 7°C / 12°C
- Sound power data according to ISO 3744 and Eurovent 8/1
Low noise data refer to: 2 compressors unit with extra noise insulation material, 4 compressors units with acoustical enclosure
- Free space required around the unit
NECS-W / NECS-WN 0152-0612
Electrical panel side 800mm
Right/Left side 600 mm
- Free space required around the unit
NECS-W / NECS-WN 0604-1204
Electrical panel side 1000mm
Electrical panel opposite side 1000mm
Right/Left side 1000 mm
- 2 compressors unit with hydronic kit; 4 compressors unit up to 2 pumps installed onboard
- 2 compressors unit with hydronic kit; 4 compressors unit with 3/4 pumps installed onboard

