



NECS-ST



0504 - 1204
104 - 341 kW

Air-cooled water chiller with helical fans



(The photo of the unit is indicative and may change depending on the model)

- R410A refrigerant
- Total versatility
- Shell and tube exchanger
- Hydronic unit incorporated

SUMMARY

1. Product presentation	pg. n° III
1.1 Energy indices ESEER and IPLV	pg. n° III
2. Unit description	pg. n° 1
2.1 Standard unit composition	pg. n° 1
2.2 Electronic control	pg. n° 1
2.3 Accessories	pg. n° 2
3. Technical data	pg. n° 3
3.1 General technical data	pg. n° 3
3.2 Cooling capacity performance	pg. n° 13
3.3 Desuperheater capacity perfor.	pg. n° 23
3.4 Recovery capacity performance	pg. n° 33
4. Operating range	pg. n° 43
5. Hydraulic data	pg. n° 44
5.1 Water flow and pressure drop	pg. n° 44
6. Hydronic group (optional)	pg. n° 45
7. Electrical data	pg. n° 56
8. Full load sound level	pg. n° 57
9. Dimensional drawings	pg. n° A1
10. Legend of pipe connections	pg. n° A9

**NECS-ST
0504 - 1204**

Company quality system certified to UNI EN ISO 9001

Liability disclaimer

This bulletin is not exhaustive about: installation, use, safety precautions, handling and transport. Refer to "General Manual for Installation" for further informations.

This bulletin refers to standard executions, in particular for dimension, weight, electric, hydraulic, aerualic and refrigerant connections (whereas applicable). Contact Climaveneta Commercial Office for further drawings and schemes.

Climaveneta declines any liability derived from the bulletin's use.

This bulletin is of exclusive property of Climaveneta, and all forms of copy are prohibited.

The data contained herein are subject to variation without notice.

1. PRODUCT PRESENTATION

NECS, the CLIMAVENETA R410A range

Scroll compressors, featuring high efficiency, low vibrations and low noise emissions.

Range flexibility. A good 9 size and up to 5 version are available in the 113 - 341 kW range.

Part load efficiency with EER > 4,3

New controller with QuikMind

Idrorelax, in order to realize your ideas.

Climaveneta presents its new NECS (New Evolution Climaveneta System) range of chillers (heat pumps) fitted with R410A rotary scroll compressors. Consistently with corporate culture, the NECS series exploits cutting-edge technology to achieve extremely high levels of quality, focusing on maximum energy efficiency and minimum noise emissions.

Why R410A?

Though R410A is a blend, it behaves just like a pure gas and features a negligible temperature glide. Thanks to its outstanding heat conductivity, R410A contributes towards achieving elevated system efficiency. R410A is also an ecological gas, both because its elevated efficiency reduces electricity consumption and, consequently, CO₂ emissions and because it does not

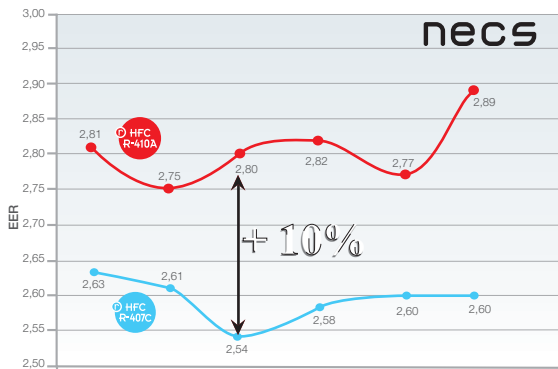
damage the ozone layer (ODP = 0). The scroll compressor has been expressly redesigned for use with the new gas and is now even more compact and silent than before.

Low-Noise Versions

Two noise reduction versions are available for all sizes: low noise and super low noise. Low noise levels are achieved by reducing fan speed while the circuitry has been optimised and the coils generously sized to ensure the unit works correctly.

The energy efficiency (EER)

The energy efficiency (EER) of these Climaveneta units is further enhanced thanks to the fact that the design of the heat exchange surfaces, coils and plate exchangers was focused on minimising running costs. Well as achieving an EER close to 2.9, this design focus achieves very high levels reliability and lengthens the working life of the compressor.



1.1 Energy indices ESEER and IPLV

Increasingly closer attention is being paid towards the power consumption of air-conditioning equipment, both in Europe and elsewhere.

For many years in the United States, reference has not just been made to efficiency at rated conditions. A valuation index is also used which considers marginal operation of the unit at rated conditions as well as increased usage in part load conditions when the external air temperature is lower than the rated value and when the separation stages of the cooling compressors are used.

The valuation index adopted in the United States is called IPLV (Integrated Part Load Value) and is defined in the regulations issued by ARI (American Refrigeration Institute).

ARI Standard

$$IPLV_{ARI} = (1 \cdot EER_{100\%} + 42 \cdot EER_{75\%} + 45 \cdot EER_{50\%} + 12 \cdot EER_{25\%}) / 100$$

where $EER_{100\%}$, $EER_{75\%}$, $EER_{50\%}$ and $EER_{25\%}$ are the efficiencies of the chiller in the various load conditions (100% - 75% - 50% and 25% respectively), calculated in the external air temperature conditions shown below.

The temperature of the water leaving the evaporator is considered constant at 6.7°C in all load conditions, with a delta of 5°C in the full load condition.

The multipliers 1, 42, 45 e 12 are the cooling performance coef-

ficients in various load conditions statistically calculated by ARI on the basis of surveys conducted, for various types of buildings and operating conditions, in 29 American cities.

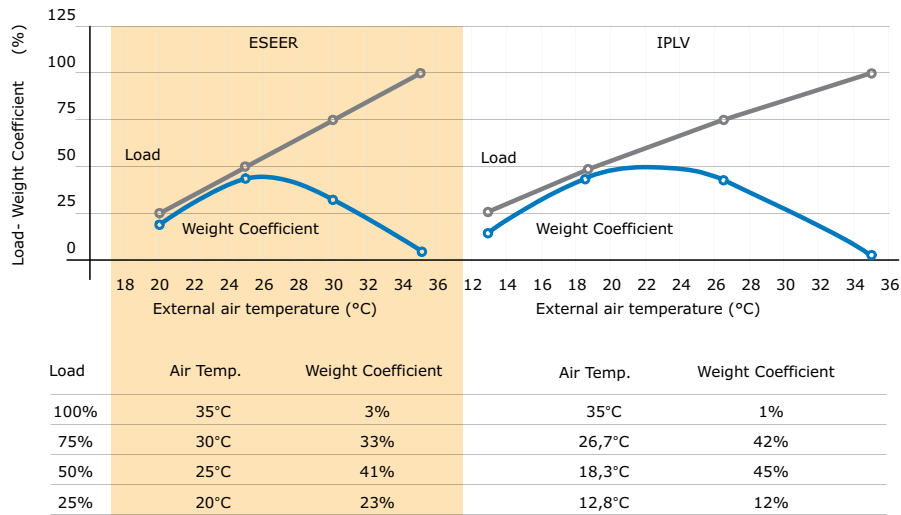
Evaporator temp. leaving	6,7°C constant			
DeltaT full load	5°C			
Load	100%	75%	50%	25%
External air temp.	35°C	26,7°C	18,3°C	12,8°C

In Europe there is a proposal for EECCAC (Energy Efficiency and Certification of Central Air Conditioner)

Proposal EECCAC

$$ESEER = (3 \cdot EER_{100\%} + 33 \cdot EER_{75\%} + 41 \cdot EER_{50\%} + 23 \cdot EER_{25\%}) / 100$$

Evaporator temp. leaving	6,7°C			
DeltaT full load	5°C			
Load	100%	75%	50%	25%
External air temp.	35°C	30°C	25°C	20°C



Energy = percentage of total power produced in the various conditions

Using the energy indices

After establishing which index to use and estimating the total power required by the system in the summer mode (in kWh), we can calculate seasonal electricity consumption (in kWh) using the following formula:

$$\text{Power absorbed} = \text{Power requested} / \text{Index of efficiency}$$

The real power calculation can be obtained more correctly in a “dynamic” form, that is, considering the load performance curve at different external temperatures, the location and the

reference number of operating hours.

These figures will allow plant consultants and designers to make their evaluations depending on the type of building, the place of installation and the type of heat load etc..

They can also determine the energy index using the method that best reflects plant requirements and can make comparisons between similar or equivalent systems using the same reference unit.

NECS-ST	IPLV	ESEER
0504 B	4,24	4,10
0524 B	3,51	3,60
0604 B	3,83	3,79
0704 B	3,80	3,91
0804 B	4,20	4,08
0904 B	4,13	4,15
1004 B	4,04	3,96
1104 B	4,14	4,10
1204 B	4,20	4,16
0504 HL	3,95	3,93
0524 HL	3,93	4,04
0604 HL	4,07	4,02
0704 HL	4,05	4,15
0804 HL	4,08	4,02
0904 HL	4,00	4,04
1004 HL	4,22	4,14
1104 HL	4,41	4,37
1204 HL	4,20	4,16
0504 HT	3,64	3,63
0524 HT	3,63	3,76
0604 HT	3,91	3,90
0704 HT	3,89	4,02
0804 HT	3,87	3,82
0904 HT	4,00	3,86
1004 HT	4,13	4,08
1104 HT	4,29	4,25
1204 HT	4,12	4,08

NECS-ST	IPLV	ESEER
0504 LN	4,13	3,93
0524 LN	3,77	3,84
0604 LN	3,99	3,91
0704 LN	3,97	4,01
0804 LN	4,14	3,99
0904 LN	4,10	4,07
1001 LN	4,11	4,01
1104 LN	4,19	4,15
124 LN	4,10	4,06
0504 SL	4,10	4,02
0524 SL	4,08	4,14
0604 SL	4,23	4,14
0704 SL	4,12	4,13
0804 SL	4,19	4,08
0904 SL	4,09	4,08
1004 SL	4,26	4,10
1104 SL	4,43	4,39
1204 SL	4,23	4,19

CONTROL UNIT with LED display

The new “W3000SE Compact” control unit with “user friendly” LCD interface is installed on all units. This interface is also available in a version with a remote-control feature.

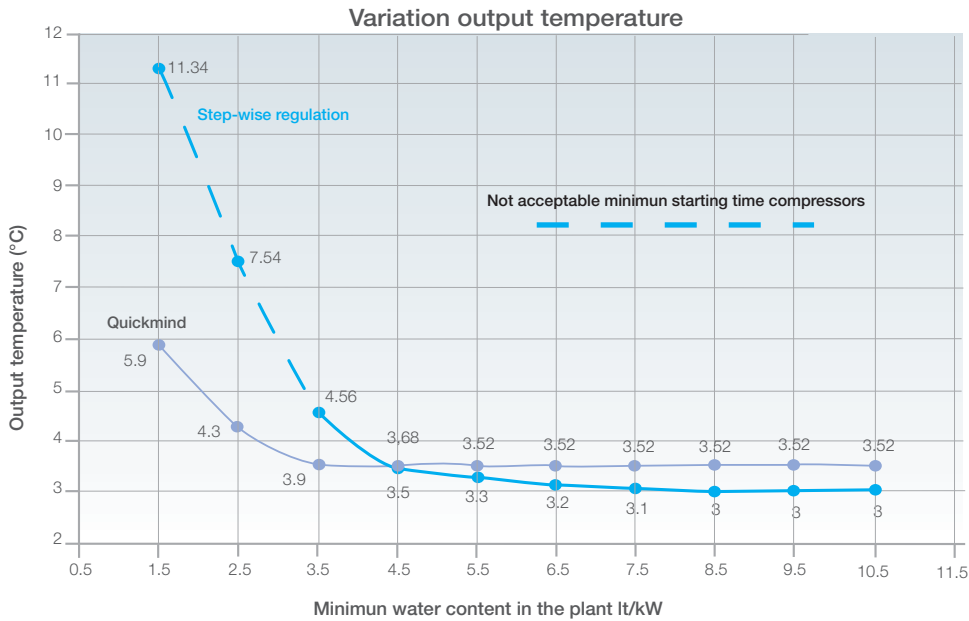
Main functions: QuickMind, local and remote FWS supervision, dual setpoint management, etc., confirm Climaveneta’s commitment to continually developing its electronics technology. The heat pumps, moreover, are fitted with the original Climaveneta defrosting control system called “Autotuning Defrost” which considerably reduces defrosting times, thus improving the energy performance of the unit. Interfaces with BMS systems: METASYS®, MODBUS®, LONWORKS®, SIEMENS®, TREND®.

Black Box logs data relative to 200 alarm events which can be printed with a personal computer.



QuickMind is a special control unit which monitors the main operating parameters, predicts system behaviour and anticipates unit settings in order to constantly optimise performance; it allows both return and delivery water temperatures to be chosen as adjustment parameters. It can reduce outlet temperature fluctuations even with a small amount of water in the system. When, for dual compressor chillers featuring a maximum of 12 start-ups per hour and using a traditional adjustment system, the minimum recommended water content is 5.5 l/kW, QuickMind ensures the same chiller operates correctly even with a water content of just 2.5 l/kW and considerably reduces outlet temperature fluctuations.

The following graph shows that outlet temperature fluctuations with QuickMind are limited to 4.3°C as opposed to 7.54°C if the traditional adjustment system were used, without even ensuring an acceptable minimum compressor start time.



Integrated Hydronic Unit (Optional).

Compact PLUG and PLAY units.

NECS has been designed to reduce installation work to a minimum.

The integrated hydronic unit incorporates all the hydraulic components, thus optimising installation space, time and costs.

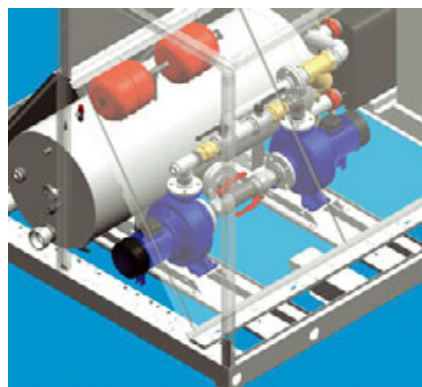
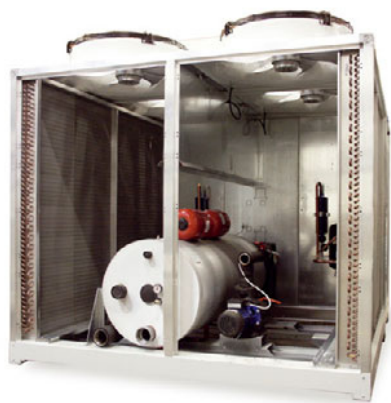
The integrated hydronic unit can be composed of:

- In-line single or Twin centrifugal pump
- Discharge valve
- Inlet water temperature probe
- Leaving water temperature probe
- Air vent

Available configurations

- Hydronic kit 2 poles low head pump
- Hydronic kit 2 poles high head pump
- Hydronic kit 4 poles low head pump
- Hydronic kit 2 poles low head twin pumps
- Hydronic kit 2 poles high head twin pumps
- Hydronic kit 4 poles low head twin pumps

For more details, see the “Hydronic Unit” section

**IDRORELAX**

The NECS range of chillers with heat pump is available in the IR configuration; this allows units to be combined with IDRORELAX, a centralised hydronic system for managing cooling and heating requirements and producing hot running water for residential, hotel and office applications.

Further information on the IDRORELAX system can be obtained by consulting the relative documentation.

IdroRelax®
REALIZZA LE TUE IDEE

2. UNIT DESCRIPTION

NECS. State of the art system

NECS is a new series of heat pumps and water chillers which are ideal for low-to-medium power air-conditioning systems and particularly suitable for installations with a limited water content.

NECS is a step beyond other systems thanks to its exclusive QuickMind control system, specifically developed by Climaveneta.

Thanks to the innovative QuickMind control, the NECS system has been designed to work on plants with a low water content where, unlike traditional controls, it minimises the variations in inlet water temperature even in extremely variable load conditions. It is a highly professional alternative to the installation of storage tanks.

NECS assures a precise water temperature control even at just 2.5 litres/kW.

Technical start-up and operating times have been reduced.

During the start-up phase, just the temperature set point needs setting.

The possibility integration of the hydronic-pump-group inside the unit simplifies the water and electrical power circuits of the system.

QuickMind continuously adapts its system settings to the various requirements of the plant.

Air-cooled water chillers

Air-cooled water chiller with axial fans for outdoor installation. The unit is supplied with anti-freeze oil and refrigerant and has been factory tested. On-site installation therefore just involves making connections to the mains power and water supplies.

Unit charged with R410A ecological refrigerant.

2.1 Standard unit composition

Structure

Basement composed of hot galvanized sheet steel painted with polyester epoxy powder, supporting frame composed of aluminium bars.

Panelling

External panels composed of aluminium alloy offer an outstanding protection against corrosion, also ensuring ease of access to all the internal unit's components.

Compressors

Hermetic scroll compressors equipped with crankcase heaters, electronic overheating protection with manual reset, two-poles electric motor.

Water heat exchanger

Direct expansion shell and tube exchanger with asymmetric refrigerant circuits for keeping the refrigerant at the correct speed inside the tubes during the change from the liquid to the gaseous phase. The steel shell is insulated with a closed-cell condensation proof lining in foamed elastomer. The copper pipes are internally grooved to improve heat exchange and are mechanically expanded onto the tube plate ends.

Water heat exchanger

Finned coil exchanger made from copper tubes and aluminium fins.

The aluminium fins are correctly spaced to guarantee optimum heat exchange efficiency.

Fans

Axial electric fans, protected to IP 54, with external rotor and plastic-coated aluminium blades. Housed in aerodynamic hoods complete with safety grille. 6-pole electric motor with built-in thermal protection. The fan chamber is divided into two sections. This improves efficiency with partial loads as the fans of the idle circuit can be stopped.

Refrigerant circuit

Main components of the refrigerant circuit:

- control circuit transformer,
- general door lock isolator,
- fuses and contactors for compressors and fans,
- terminals for cumulative alarm block (BCA),
- remote ON/OFF terminals,
- spring-type control circuit terminal board,
- electric panel with double door and seals for outdoor installation,
- electronic controller.

Electric power and control panel

Electric power and control panel, compliant with EN 60204-1/EC 204-1 standards, complete with:

- control circuit transformer,
- general door lock isolator,
- fuses and contactors for compressors and fans,
- terminals for cumulative alarm block (BCA),
- remote ON/OFF terminals,
- spring-type control circuit terminal board,
- electric panel with double door and seals for outdoor installation,
- electronic controller.

2.2 Electronic control

The W3000SE compact controller features sophisticated functions and adjustments, developed directly by Climaveneta. The keypad stands out for its pleasing design, its functional controls and its rational LCD display. The latter allows the unit to be consulted and controlled through a multi-level menu, with a choice of language settings.

Heat adjustment is based on the exclusive QuickMind algorithm, featuring a self-adaptive logic which is useful for systems with a low water content. Alternatively, proportional or proportional-integral adjustments can be set.

The diagnostics comprises a complete alarm management system, including "black box" (via PC) functions and an alarm log (via display or also PC) for optimised analysis of unit performance. The diagnostics includes full management of alarms with black-box functions and alarm record for better analysis of unit performance. Supervision is easy through Climaveneta devices or with various options for interfacing to ModBus, Bacnet, Echelon LonTalk protocols. Compatibility with remote keyboard (management up to 10 units). Clock for operation scheduling (4 typical days and 10 time bands).

Available as an optional alternative to the W3000-base on units with two compressors. The /R units require the W3000SE-large controller.

Basic model

Unit without heat recovery.

Model with partial heat recovery (D)

Air cooled chiller with partial heat recovery. Compared with the basic configuration, this version features an additional refrigerant/water heat exchanger on the gas delivery line. This heat exchanger, fitted in series before the traditional cooling circuit condenser, is large enough to recover heat for the production of medium-to-high temperature water for domestic hot water and the like. The heating capacity of the heat recovery circuit is approximately equal to the power input of the compressor.

Model with total heat recovery (R)

Air cooled chiller with total heat recovery. Compared with the basic configuration, this version features an additional refrigerant/water heat exchanger on the gas delivery line. This heat exchanger, fitted in parallel with the traditional cooling circuit condenser, is large enough to recover heat for the production of domestic hot water and the like. The heating capacity of the heat recovery circuit is approximately equal to the cooling power plus the power input of the compressors.

AVAILABLE VERSIONS**B (base)**

Standard unit.

HL (High Temperature - Low Noise)

High efficiency low-noise version.

HT (High Temperature)

Version suitable for operation with high condenser input air temperatures. This version features an oversized condensing section in order to ensure that heat is correctly exchanged even in particularly tough environmental conditions. As a result, when working at normal air temperatures, an increase in cooling capacity and a decrease in power input is obtained, thereby improving the cooling efficiency ratio (E.E.R.).

LN (Low Noise)

Low noise version. This configuration features special soundproofing for the compressor chamber and reduced fan speed. Fan speed is automatically increased if environmental conditions are particularly tough.

SL (Super Low Noise)

Super low noise version. This configuration features special soundproofing for the compressor chamber, reduced fan speed, an oversized condensing section. Fan speed is automatically increased if environmental conditions are particularly tough.

2.3 Accessories

- Increased noise insulation (std on SL units)
- Noise insulation (for B/HT units)
- Spring type anti-vibration kit
- Rubber type anti-vibration kit
- DP (Low Temperature Pressure Device)
- DVV (Low Temperature Variable Speed Device)
- Compressor discharge valves
- Compressor suction valves
- Copper/copper-Cu/Cu coils
Recommended for applications where good corrosion resistance is required
- Condensing coils with epoxy-coated fins
Treatment recommended for applications in slightly aggressive atmospheres
- Condensing coils with Fin Guard Silver treatment
Treatment recommended for applications in marine, highly polluted or otherwise aggressive atmospheres
- Coil protection with wire net.
- External evaporator water connections
- External desuperheater water connections
- External recuperator water connections
- Evaporator water flow switch (supplied separately)
- Automatic circuit breakers
- Voltage-free contacts for compr. operation signalling
- Numbered wires
- Remote phase-sequence control
- Liquid line solenoid valve
- Remote keyboard (supplied separately)
- Water pump kit with or without storage tank
- Water tank anti-freeze heater (when available)

GENERAL TECHNICAL DATA
**NECS-ST
SL**

SIZE		0504	0524	0604	0704	0804	0904	1004
NECS-ST								
COOLING (1)								
Cooling capacity	kW	113	130	147	161	193	211	235
Total power input (unit)	kW	45,1	51,9	58,9	70,8	75,3	87,2	96,4
EER		2,50	2,50	2,49	2,28	2,56	2,42	2,43
ESEER		4,02	4,14	4,14	4,13	4,08	4,08	4,1
Heat exchanger water flow	m ³ /h	19,4	22,4	25,3	27,8	33,2	36,3	40,4
Heat exchanger pressure drop	kPa	15,8	14,5	18,6	22,3	44,3	32,9	40,6
NECS-ST-D								
COOLING WITH PARTIAL RECOVERY (2)								
Cooling capacity	kW	117	135	152	167	200	219	243
Total power input (unit)	kW	43,7	50,2	56,9	68,4	72,8	84,3	93,2
Heat exchanger water flow	m ³ /h	19,4	22,4	25,3	27,8	33,2	36,3	40,4
Heat exchanger pressure drop	kPa	15,8	14,5	18,6	22,3	44,3	32,9	40,6
Heat recovery thermal capacity	kW	37,2	43,2	49,5	60,1	62,6	73,2	81,5
Heat exchanger recovery water flow	m ³ /h	6,47	7,51	8,60	10,4	10,9	12,7	14,2
Plant side heat exchanger recovery pressure drop	kPa	21,7	29,3	23,3	34,4	37,3	40,4	50,1
NECS-ST-R								
COOLING WITH TOTAL RECOVERY (3)								
Cooling capacity	kW	118	138	158	181	204	231	258
Total power input (unit)	kW	38,7	44,1	49,4	56,9	64,5	72,1	79,8
Heat exchanger water flow	m ³ /h	19,4	22,4	25,3	27,8	33,2	36,3	40,4
Heat exchanger pressure drop	kPa	15,8	14,5	18,6	22,3	44,3	32,9	40,6
Heat recovery thermal capacity	kW	155	179	204	234	264	299	333
Heat exchanger recovery water flow	m ³ /h	26,9	31,2	35,4	40,7	45,9	51,9	57,9
Plant side heat exchanger recovery pressure drop	kPa	77,2	76,4	79,0	87,0	87,4	87,3	87,2
COMPRESSORS								
Number	N°.	4	4	4	4	4	4	4
Number of capacity	N°.	4	4	4	4	4	4	4
Number of circuits	N°.	2	2	2	2	2	2	2
Type of regulation		STEPS	STEPS	STEPS	STEPS	STEPS	STEPS	STEPS
Minimum capacity steps	%	25	25	25	25	25	25	25
Type of refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg.	18	31	40	41	46	47	62
Oil charge	kg.	13	13	13	16	19	27	26
FANS								
Number	N°.	4	4	4	4	6	6	6
Air flow	m ³ /s	9,33	11,9	11,2	11,2	17,9	17,9	16,8
Singol power input	kW	0,86	0,86	0,86	0,86	0,86	0,86	0,86
NOISE LEVELS (4)								
Total sound power	dB(A)	82	82	82	82	83	83	83
Total sound pressure	dB(A)	50	50	50	50	51	51	51
DIMENSIONS AND WEIGHTS (5)								
Length	mm.	3110	3110	3110	3110	4110	4110	4110
Width	mm.	2220	2220	2220	2220	2220	2220	2220
Height	mm.	1700	2150	2150	2150	2150	2150	2150
Weight	kg.	1490	1620	1680	1880	2250	2310	2440

1 Plant (side) cooling exchanger water (in/out) 12/7 °C
Source (side) heat exchanger air (in) 35 °C

2 Plant (side) cooling exchanger water (in/out) 12/7 °C
Source (side) heat exchanger air (in) 35 °C

3 Plant (side) heat exchanger recovery water (in/out) 40/45 °C
Plant (side) cooling exchanger water (in/out) 12/7 °C
Plant (side) heat exchanger recovery water (in/out) 40/45 °C

4 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
Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained
from the sound power level

5 Standard configuration

- Not available

COOLING CAPACITY PERFORMANCE

**NECS-ST
SL**

0904																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	235	221	215	205	200	194	242	227	221	211	206	200	248	233	227	229	212	-
Pat	71,6	78,5	81,5	86,2	83,6	86,9	72,5	79,5	82,5	87,2	84,5	87,8	73,4	80,4	83,4	77,4	85,3	-
Qev	40,4	38,0	36,9	35,3	34,5	33,3	41,6	39,0	38,0	36,3	35,5	34,3	42,7	40,1	39,0	39,3	36,5	-
Dpev	40,7	35,9	34,0	31,1	29,6	27,7	43,1	38,0	35,9	32,9	31,4	29,4	45,5	40,1	37,9	38,5	33,2	-
Tev	9						10						11					
Pf	255	239	233	235	218	-	261	245	239	241	224	-	268	251	245	247	230	-
Pat	74,3	81,3	84,3	78,2	86,1	-	75,1	82,2	85,2	79,0	86,9	-	76,0	83,1	86,1	79,7	87,7	-
Qev	43,9	41,2	40,1	40,4	37,6	-	45,0	42,3	41,1	41,5	38,6	-	46,1	43,3	42,2	42,6	39,6	-
Dpev	47,9	42,3	40,0	40,7	35,1	-	50,4	44,5	42,1	43,0	37,1	-	53,0	46,7	44,3	45,3	39,1	-
1004																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	262	246	239	228	224	217	269	253	245	235	231	223	276	259	252	256	237	-
Pat	79,3	87,0	90,3	95,5	92,4	96,0	80,2	88,0	91,3	96,4	93,2	96,8	81,1	88,9	92,2	85,4	94,0	-
Qev	45,1	42,3	41,1	39,3	38,6	37,3	46,3	43,5	42,3	40,4	39,7	38,4	47,6	44,6	43,4	44,0	40,8	-
Dpev	50,6	44,6	42,1	38,5	37,1	34,7	53,5	47,1	44,5	40,6	39,2	36,7	56,4	49,6	46,9	48,3	41,4	-
Tev	9						10						11					
Pf	284	266	258	263	243	-	291	272	265	269	249	-	298	279	271	276	256	-
Pat	82,1	89,8	93,1	86,2	94,7	-	83,0	90,7	94,0	86,9	95,5	-	83,8	91,6	94,9	87,7	96,1	-
Qev	48,8	45,8	44,5	45,2	41,9	-	50,1	46,9	45,6	46,4	43,0	-	51,3	48,1	46,7	47,6	44,1	-
Dpev	59,4	52,2	49,3	50,9	43,7	-	62,4	54,9	51,8	53,6	46,0	-	65,5	57,6	54,4	56,4	48,4	-
1104																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	307	289	282	270	262	254	316	298	290	278	270	261	325	306	298	285	277	269
Pat	87,3	95,8	99,4	105	104	108	88,3	96,9	101	106	105	109	89,3	97,9	102	107	106	110
Qev	52,9	49,8	48,5	46,5	45,1	43,7	54,4	51,2	49,9	47,8	46,4	45,0	55,9	52,6	51,3	49,1	47,7	46,2
Dpev	37,7	33,5	31,8	29,2	27,5	25,8	39,9	35,4	33,6	30,9	29,1	27,3	42,2	37,4	35,5	32,6	30,8	28,9
Tev	9						10						11					
Pf	333	314	306	293	285	276	342	322	313	314	292	283	350	330	321	323	300	290
Pat	90,4	99,0	103	108	107	111	91,3	100,0	104	98,1	108	112	92,3	101	105	98,9	109	113
Qev	57,4	54,0	52,6	50,5	49,1	47,5	58,9	55,4	54,0	54,2	50,4	48,8	60,4	56,8	55,4	55,6	51,7	50,0
Dpev	44,5	39,4	37,4	34,4	32,5	30,5	46,8	41,5	39,4	39,6	34,2	32,1	49,2	43,6	41,4	41,7	36,0	33,8
1204																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	346	326	317	304	295	285	356	335	326	313	303	294	365	344	335	322	312	302
Pat	99,8	109	113	120	118	123	101	111	115	121	119	124	102	112	116	122	120	125
Qev	59,5	56,1	54,6	52,4	50,7	49,1	61,2	57,7	56,2	53,9	52,2	50,6	62,9	59,3	57,7	55,4	53,7	52,0
Dpev	47,8	42,4	40,3	37,1	34,7	32,6	50,6	44,9	42,6	39,2	36,8	34,5	53,5	47,4	45,0	41,4	38,9	36,5
Tev	9						10						11					
Pf	375	353	344	330	320	310	385	363	353	353	329	319	395	372	362	362	337	-
Pat	103	113	117	124	121	126	104	114	118	111	123	127	106	115	120	113	124	-
Qev	64,6	60,9	59,3	56,9	55,2	53,4	66,3	62,5	60,8	60,9	56,6	54,9	68,0	64,0	62,4	62,5	58,1	-
Dpev	56,4	50,0	47,5	43,7	41,1	38,6	59,4	52,7	50,0	50,0	43,3	40,7	62,4	55,3	52,5	52,7	45,6	-

Ta [°C] - Air temperature
 Tev [°C] - Plant (side) cooling exchanger output water temperature
 Pf [kW] - Cooling capacity
 Pat [kW] - Total power input
 Qev [m³/h] - Plant (side) heat exchanger water flow
 Dpev [kPa] - Plant (side) cooling exchanger pressure drop
 '-' Conditions outside the operating range
 Waterflow and pressure drop on heat exchangers calculated with 5°C of delta T
 NOTE: Data on grey background: unit switched to non-silenced operation