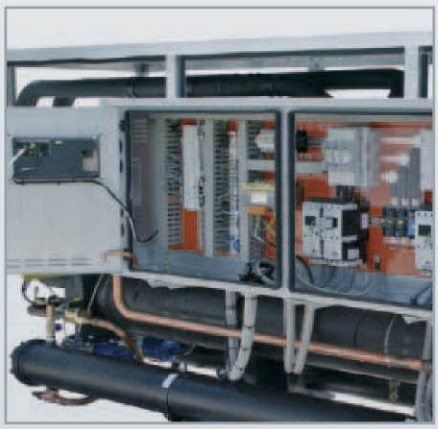
CSRHY PSRHHY

Liquid chillers from 99 kW to 2773 kW
heat pumps from 110 kW to 3054 kW
water-cooled
with R-134a

HFC R-134a

High energy efficiency

Total reliability



Absolute versatility

CLIMAVENETA

CSRHY PSRHHY

A complete series of water/water liquid chillers and heat pumps with screw compressors and asymmetric dry-expansion evaporator featuring high energy efficiency rates.

HFC R-134a

CSRHY-PSRHHY
0401-1902

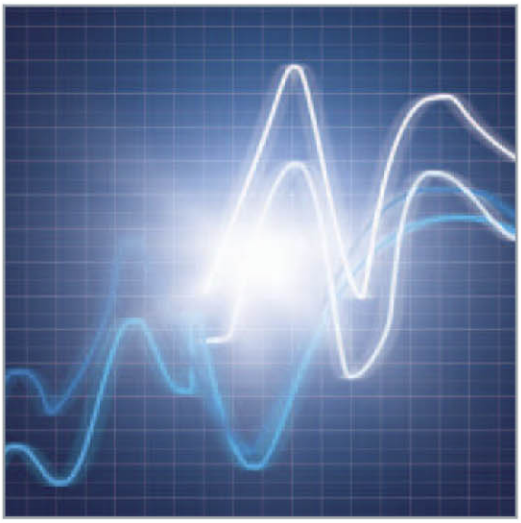
Cooling capacity
from 99 kW to 510 kW

Heating capacity
from 110 kW to 564 kW

CSRHY-PSRHHY
1001-9604

Cooling capacity
from 265 kW to 2773 kW

Heating capacity
from 304 kW to 3054 kW



High energy efficiency

The units in the CSRHY R134a series have been developed to provide outstanding energy efficiency in all operating conditions.

When working at part loads, representing the operating requirements of the system for over 90% of the time, the CSRHY R134a units boast an extremely elevated IPLV.
These outstanding results come from the company's awareness of the critical nature of power consumption and the constant research and development activities focused on energy savings.

Total reliability

All the components of CSRHY R134a units are subject to strict quality controls and are fitted with all the devices required to ensure both efficiency and maximum reliability.

Just like all Climaveneta units, the CSRHY R134a units are certified ISO 9001 and comply with directive 97/23/EC.

Absolute versatility

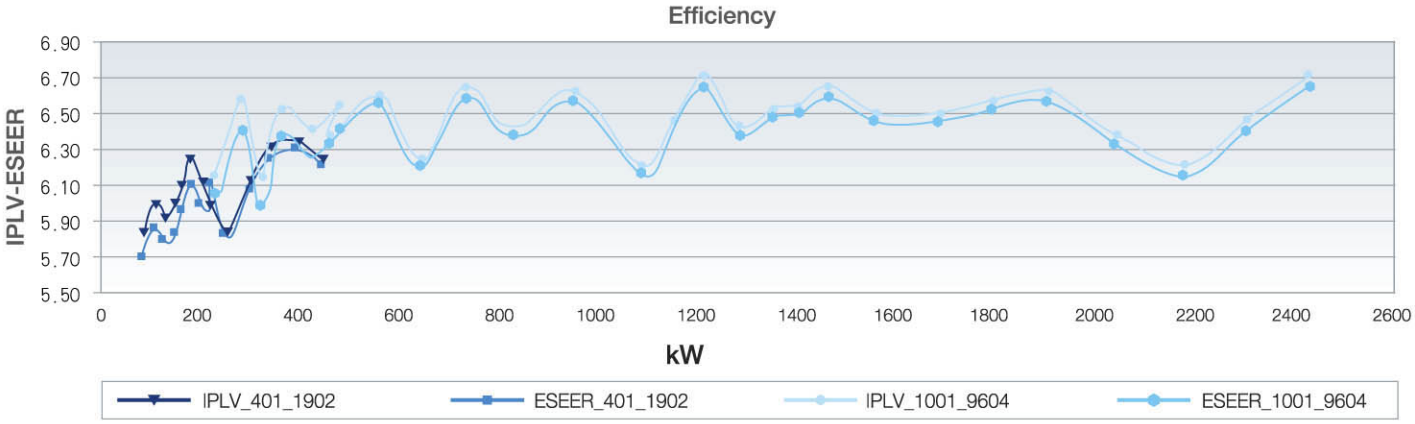
The CSRHY R134a units are available in over 40 sizes covering from 99 kW to 2773 kW range.

This versatility is supported by several accessories for adapting the units to all requirements in order to be used in the most complex and special installations.
These advantages are completed by a range of partial and total heat recovery units, as well as heat pumps with water-side inversion cycle.

CSRHY PSRHHY

High energy efficiency
Record-breaking performance with record-breaking savings

The high efficiency, outcome of an accurate design of refrigeration circuit, generates major reductions in system operating costs, significantly improving profitability and lowering running costs.



ESEER			IPLV		
Load	Water temp.	Weight	Load	Water temp.	Weight
100%	30°C	3 %	100%	29,4°C	1 %
75%	26°C	33 %	75%	23,9°C	42 %
50%	22°C	41 %	50%	18,3°C	45 %
25%	18°C	23 %	25%	18,3°C	12 %

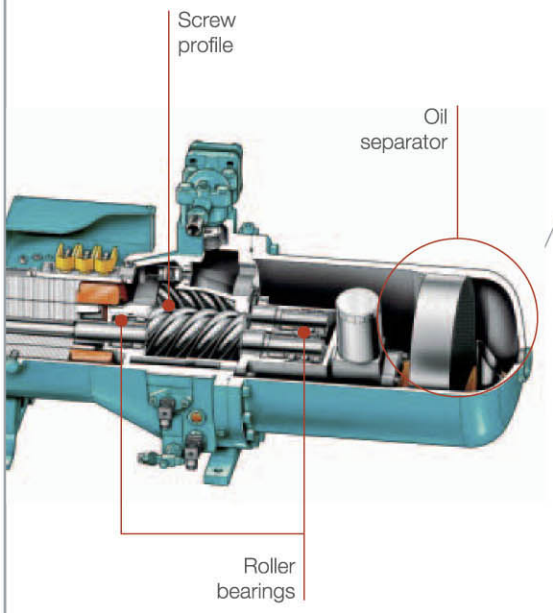
Weight= quantity of energy produced in the respective load conditions

The graph shows the IPLV and ESEER indices of the entire CSRHY R134a range.
The IPLV (Integrated Part Load Value) index is defined by ARI (America Refrigeration Institute) standards.

Evaporator outlet water: 6,7°C constant
Temperature difference at full load: 5°C

The ESEER (European Seasonal Energy Efficiency Ratio) index as proposed by EECCAC (Energy Efficiency and Certification of Central Air Conditioners).

Evaporator outlet water: 6,7°C
Temperature difference at full load: 5°C



New generation stepless **adjustment** screw compressor

An improved generation of screw compressors featuring an extremely compact structure and optimised for R134a has allowed the volumetric displacement to be substantially increased without modifying the shape of the compressor. Elevated cooling capacities can thus be achieved with improved volumetric efficiency.

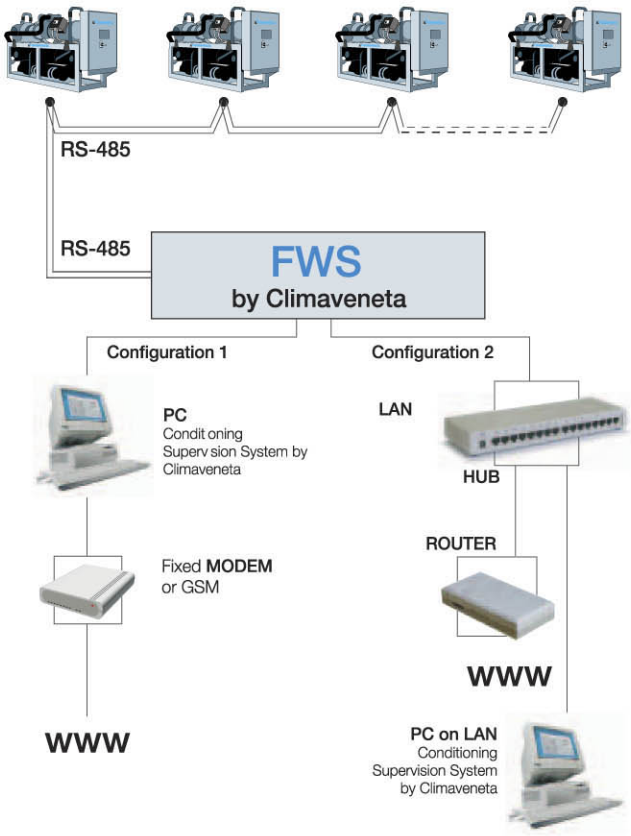
Screw profile: dual rotor design. Compared with a traditional screw compressor, the profile has been modified so that the increased volumetric flow rate requires just a 10% increase in size, a fundamental aspect of rotors. It was therefore possible to modify the body without affecting the external shape of the compressor.

Roller bearings: thanks to the favourable torque load and the reduced pressure difference, the bearings work in easier conditions and therefore last longer.

Oil separator: the compressors contain an integrated three-stage oil separator which can guarantee extremely high separation levels, in spite of the increase in volumetric flow. This is achieved thanks to the fact that the limited density of the vapour and the outlet temperature of the R134a allow outstanding oil separation.

Total reliability

Just like all other Climaveneta products, the CSRHY PSRHHY series are characterized for their very high reliability. TÜV certification, together with systematic quality controls performed on the units and on each of their components guarantee the excellent performance of this series.



Enhanced controls

Special control algorithms optimise energy saving and guarantee maximum system reliability. The dedicated software designed by Climaveneta allows compressors start/stop management with hourly rotation + FIFO, management of available resources, variation and control of operating parameters, monitoring of critical temperatures and phase sequences. The controller offers modulating control of unit capacity from 100% to a minimum which, depending on its size, can be as little as 12.5%.
An additional device which allows CSRHY PSRHHY units to be connected together for a total management of a system is also available.

Compatibility

Compatible with the supervision systems of Climaveneta, De'Longhi and many other BMS systems available in the market: METASYS®, MODBUS®, LONWORKS®, SIEMENS®, TREND®.

FWS supervision

The controller is also compatible with the innovative Climaveneta FWS (Field Web Server) supervision system.

Service

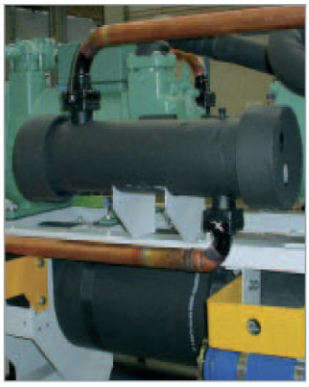
The new "black box" logs data relative to 200 variables, acquired every 30 seconds during the 10 minutes preceding an event, for 400 separate events. The software is compatible with the Climaveneta Service programme: through a remote Internet link it is possible to monitor the unit, implement preventive and corrective action and consequently offer a more effective and higher quality of service.

User **interface**

The unit control works with all Climaveneta monitoring system and with most used BMS systems in the market. It is positioned in an easily accessible area on the outside of the unit and protected by a transparent cover. It integrates a graphics display with a multilanguage menu for reading and setting parameters, a synoptic panel which, by now a traditional feature of Climaveneta, offers an immediate view of compressor status.

Absolute versatility

The capability of a unit to adapt to all kind of systems is fundamental for optimising perfomances and allowing the system to constantly provide high levels of comfort. The CSRHY PSRHHY units have been designed to guarantee excellent versatility of use thanks to a wide range of sizes, the availability of many special versions and models and a vast series of accessories.



Sizes

The CSRHY PSRHHY units are available in over 40 sizes, from 99 kW to 2773 kW, for a complete coverage of all market requirements.

Versions

Model with partial heat recovery (CSRHYD)
This version can recover 20% of condensation heat to produce domestic hot water

Model with total heat recovery (CSRHYR)
This version can recover all condensation heat to produce domestic hot water

Model with heat pump (PSRHHY)
PSRHHY is the heat pump version with water-side inversion cycle

55 °C of hot water
The three listed versions provide hot water at 55°C both for heating and for the production of domestic hot water.

Total soundproofing
Thanks to their integral casing (optional), these CSRHY PSRHHY units reduce noise levels by 8 dB(A) compared with the standard version

Electronic valve
The electronic thermostatic valve (optional) optimises adjustment and fully exploits the continual power modulation of the compressor achieved by a slide valve.

General techical data

CSRHY PSRHHY SIZES 0401-1902

CSRHY		0401	0501	0551	0651	0751	0802	1002	0401	1102	1302	1502	1702	1902
Cooling capacity(1)	[kW]	99	122	148	168	188	202	247	99	286	340	388	448	510
Power input(1)	[kW]	20	24	28	33	37	39	49	20	56	66	74	85	100
EER Total		5.06	4.96	5.28	5.14	5.09	5.15	5.03	5.06	5.12	5.18	5.21	5.25	5.12
CSRHYD		0401	0501	0551	0651	0751	0802	1002	0401	1102	1302	1502	1702	1902
Cooling capacity(1)	[kW]	103	126	154	174	195	210	257	103	297	352	402	465	529
Desuperheater heating capacity(2)	[kW]	17	22	25	29	33	35	44	17	50	59	66	76	89
Power input(1)	[kW]	19	24	27	32	36	38	47	19	54	63	72	82	96
EER Total		5.44	5.34	5.68	5.52	5.47	5.53	5.41	5.44	5.51	5.57	5.60	5.64	5.50
CSRHYR		0401	0501	0551	0651	0751	0802	1002	0401	1102	1302	1502	1702	1902
Cooling capacity(3)	[kW]	88	109	132	149	168	180	221	88	254	302	346	397	453
Heat recovery capacity(3)	[kW]	110	136	164	186	209	224	276	110	318	376	429	493	564
Power input(3)	[kW]	23	29	34	39	44	47	59	23	68	79	89	102	118
EER Total		3.76	3.71	3.86	3.81	3.81	3.82	3.76	3.76	3.74	3.84	3.91	3.88	3.83
PSRHHY		0401	0501	0551	0651	0751	0802	1002	0401	1102	1302	1502	1702	1902
Heating capacity(4)	[kW]	110	136	164	186	209	224	276	110	318	376	429	493	564
Power input(4)	[kW]	23	29	34	39	44	47	59	23	68	79	89	102	118
COP Total		4.70	4.65	4.80	4.75	4.75	4.76	4.70	4.70	4.68	4.78	4.85	4.82	4.77
Sound power level	[dB(A)]	91	92	94	94	94	94	95	91	97	97	97	97	97
Sound pressure level(5)	[dB(A)]	74	75	77	77	77	77	78	74	80	80	80	80	80
Dimensions	A [mm]	2300	2500	2500	2500	2500	3200	3200	2300	3200	3500	3500	3500	3500
	B [mm]	1000	1000	1000	1000	1000	1200	1200	1000	1200	1200	1200	1200	1200
	H [mm]	1500	1500	1500	1500	1500	1500	1500	1500	1500	1800	1800	1800	1800
Operating Weight(6)	[kg]	800	840	1160	1180	1190	1470	1490	800	1930	2220	2260	2320	2720

CSRHY PSRHHY SIZES 1001-9604

CSRHY		1001	1201	1301	1351	1601	1801	2002	2402	2602	2702	3202	3602	4202	4502	4802	5003	5203	5403	5414	5904	6404	6804	7204	7804	8404	9004	9604
Cooling capacity(1)	[kW]	265	323	366	413	483	546	525	638	733	836	942	1086	1241	1314	1386	1463	1542	1600	1671	1779	1923	2049	2173	2329	2483	2629	2773
Power input(1)	[kW]	51	60	68	74	89	102	99	119	137	148	176	204	233	242	251	278	291	306	297	325	354	381	408	436	465	484	503
EER Total		5.25	5.41	5.37	5.58	5.45	5.35	5.32	5.35	5.37	5.63	5.34	5.32	5.34	5.43	5.52	5.27	5.29	5.23	5.63	5.48	5.43	5.38	5.32	5.34	5.34	5.43	5.52
CSRHYD		1001	1201	1301	1351	1601	1801	2002	2402	2602	2702	3202	3602	4202	4502	4802	5003	5203	5403	5414	5904	6404	6804	7204	7804	8404	9004	9604
Cooling capacity(1)	[kW]	275	335	380	428	501	567	544	662	761	867	977	1127	1288	1364	1438	1518	1600	1660	1734	1845	1995	2126	2254	2416	2576	2728	2877
Desuperheater heating capacity(2)	[kW]	45	53	61	66	79	91	88	106	122	132	157	182	208	216	224	248	260	273	265	290	316	340	364	389	415	432	449
Power input(1)	[kW]	49	58	66	71	86	99	95	115	132	143	170	197	224	233	243	268	281	295	286	313	342	368	394	421	449	467	485
EER Total		5.64	5.82	5.77	6.00	5.86	5.75	5.72	5.75	5.77	6.06	5.75	5.72	5.74	5.84	5.93	5.67	5.69	5.62	6.06	5.89	5.84	5.78	5.72	5.74	5.74	5.84	5.93
CSRHYR		1001	1201	1301	1351	1601	1801	2002	2402	2602	2702	3202	3602	4202	4502	4802	5003	5203	5403	5414	5904	6404	6804	7204	7804	8404	9004	9604
Cooling capacity(3)	[kW]	245	290	326	369	430	490	467	572	653	747	839	975	1107	1174	1241	1308	1382	1437									
Heat recovery capacity(3)	[kW]	304	359	403	453	529	608	577	710	806	915	1038	1210	1367	1447	1527	1623	1715	1789									
Power input(3)	[kW]	62	73	81	89	106	125	117	146	162	179	211	250	277	290	304	336	355	375									
EER Total		3.96	3.96	4.03	4.13	4.05	3.91	3.98	3.91	4.03	4.17	3.97	3.89	4.00	4.05	4.08	3.89	3.89	3.83									
PSRHHY		1001	1201	1301	1351	1601	1801	2002	2402	2602	2702	3202	3602	4202	4502	4802	5003	5203	5403	5414	5904	6404	6804	7204	7804	8404	9004	9604
Heating capacity(4)	[kW]	304	359	403	453	529	608	577	710	806	915	1038	1210	1367	1447	1527	1623	1715	1789	1830	1954	2109	2265	2420	2577	2734	2895	3054
Power input(4)	[kW]	62	73	81	89	106	125	117	146	162	179	211	250	277	290	304	336	355	375	358	391	424	462	501	526	553	581	608
COP Total		4.90	4.90	4.97	5.07	4.99	4.85	4.92	4.85	4.97	5.11	4.91	4.83	4.94	4.99	5.02	4.83	4.83	4.77	5.11	5.00	4.97	4.90	4.83	4.90	4.94	4.99	5.02
Sound power level	[dB(A)]	94	97	97	97	97	97	97	99	99	99	99	99	99	99	99	101	101	101	102	102	102	102	102	102	102	102	102
Sound pressure level(5)	[dB(A)]	77	80	80	80	80	80	80	81	81	81	81	81	81	81	81	82	82	82	83	83	83	83	83	83	83	83	83
Dimensions	A [mm]	2800	3600	3600	3600	3600	3600	3600	3600	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
	B [mm]	900	900	900	900	900	900	1120	1150	1150	1150	1150	1150	1150	1150	1150	1700	1700	1700	2250	2250	2250	2250	2250	2250	2250	2250	2250
	H [mm]	1735	1750	1750	1750	1950	1950	1900	1900	1900	1900	1900	2150	2150	2150	2150	2100	2100	2100	2050	2050	2250	2250	2250	2250	2250	2250	2250
Operating Weight(6)	[kg]	1610	2070	2100	2120	3160	3180	3050	3680	4000	4040	5160	5850	6270	6320	6360	7890	7930	7960	8280	9380	11410	11460	11520	11930	12350	12430	12520

NOTES

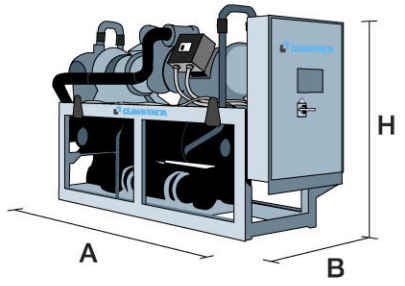
(1) Evaporator water (in/out) = 12°C / 7°C Condenser water (in/out) = 30°C / 35°C
(2) Desuperheater water (in/out) = 40°C / 45°C
(3) Evaporator water (in/out) = 12°C / 7°C Recuperator water = 40°C / 45°C
(4) Condenser water (in/out) = 40°C / 45°C - Evaporator water = 12°C / 7°C
(5) Sound pressure level at 1 m
(6) Operating weight of PSRHHY

VERSIONS

Model with partial heat recovery (CSRHYD)
Model with total heat recovery (CSRHYR)
Model with heat pump and water-s de inversion cycle (PSRHHY)

ACCESSORIES

Soundproof boxes
Rubber vibration dampers
Compressor suction shut-off valve
Oversized evaporator insulation
Condensers in Cu/Ni
Flanged evaporator connectors
Evaporator water flow switch (supplied separately)
Pressure switch valve for well water (14/30 °C)
Compressor circuit breakers
Voltage free contact for compressors funct on signalling
Remote keyboard (supplied separately)
Pump relay
Numbered cables
Electronic expansion valve



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