



WinPACK

HIGH EFFICIENCY

AIR-COOLED WATER CHILLERS

AND HEAT PUMPS IN R410A

Create ideal comfort seeking excellence.



Rhoss is the company specialised in the design and manufacture of products and systems for air conditioning and air handling. Founded in 1968, it immediately became the leader in the sector of steel boilers for domestic heating.

It entered the world of air-conditioning in 1971 with the production of fan coils and subsequently with cooling units.

For more than 40 years, Rhoss has been a guarantee for innovation, quality and top level service. This is what makes us an ideal partner for HVAC (Heating, Ventilation and Air Conditioning) system specialists.

Rhoss growth and development is an evolution that combines investments and projects in order to make the company a **point of reference also for international markets.**

Our renewal has followed market development and customer needs, in particular offering highly efficient products and systems that are in line with the requirements of the most modern Green Buildings.



Our **mission** is to achieve optimal climate comfort for every type of environment.

Our **objective** is to respond to new market needs in a dynamic and flexible manner with advanced and competitive products and services.

Our **choice** is to focus the range towards products with higher efficiency and low environmental impact.

Our **strategy** is to adopt the most innovative technological solutions, increase our international presence significantly and become a reference brand.



INNOVATION IS IN OUR DNA

Rhoss has always proven to be an innovative spirit throughout its history. Today, it confirms its propensity towards continuous technological evolution with

R&D Lab: a futuristic testing and inspection station of over 1000 m², among the largest in Europe, which allows new products, radiant systems and special units with capacities up to 1500 kW to be tested in the harshest operating conditions and perform operating simulations to effectively respond to customer requirements.

R&D Lab, approved to test liquid chillers and heat pumps, can verify the performance of the products according to European regulations. Furthermore, with R&D Lab, research projects are promoted and developed in collaboration with the scientific community and universities both nationally and internationally.



WinPACK

HIGH EFFICIENCY AIR-COOLED WATER CHILLERS AND HEAT PUMPS IN R410A

WinPACK: the concrete solution to the evolving HVAC market requirements!

Rhoss presents **WinPACK**, the next generation chillers and heat pumps from **100 to 340 kW** in air-cooled R410A, designed in line with the developments of the HVAC market.

WinPACK was in fact designed to meet the new standards relating to **energy efficiency and to the reduction of the amount of greenhouse gases, to offer very low noise level solutions**, to solve the problems related to the efficiency of existing systems and refitting and to allow heat pumps **to be used even in harsh climates**. **WinPACK** consists of eight different construction versions, ranging from **high efficiency energy class A units** (according to the Eurovent standard) up to the super-silenced versions with **reduced noise levels by almost 10 dB(A)**.

WinPACK is efficient all year round!

Thanks to the technology applied, **WinPACK** models feature 2 or 4 scroll compressors, with one and two cooling circuits respectively, designed and configured so as to ensure greater control **flexibility and increased energy efficiency**, even at partial loads with **high ESEER and SCOP**.

The units, which reach **class A** efficiencies, may further increase the energy indexes with the application of specific accessories, such as the **EEO (energy efficiency optimiser)** or the use of fans with **EC motor (brushless)**.



WinPACK, between technology and innovation

All models use R410A gas: therefore, they are perfect for commercial applications, hotels and medium and large buildings requiring air conditioning that provides a perfect balance between **low consumption and maximum comfort**.

Predictive AF+ technology, an innovative control software created in collaboration with the departments of applied physics and engineering at the University of Padua, is

integrated with **active heat recovery management** and **dynamic noise management**.

The **heat pumps**, which use renewable energy, become increasingly the main choice in modern systems and also thanks to the intelligent **SMART DEFROST**, increasingly reliable.

To complete the range, **WinPACK** can also be equipped with an innovative pumping system, tested in the **R&D Lab**, ensuring the creation of **variable flow systems**, reducing energy costs and simplifying the construction of the system.



ADAPTIVE
FUNCTION

VPF
VARIABLE PRIMARY FLOW

MICROCHANNEL

BRUSHLESS
EC

SILENT

ERP READY

WinPACK is environmentally friendly!

WinPACK has been designed to be **more eco-sustainable** and in particular in line with the new regulations that are becoming more restrictive in terms of greenhouse gas content.

In particular, **the chillers feature micro-channel heat exchangers**, which reduce the amount of refrigerant by 30% compared to traditional technology.

Furthermore, the possibility of equipping the **desuperheater or heat recovery unit** for the production of hot water allows **the energy available at the compressor outlet to be recovered**, which would normally be dispersed in the environment.

There is also the possibility to check for gas leaks with an immediate notification and to monitor consumption, in order to ensure fast and targeted routine maintenance.

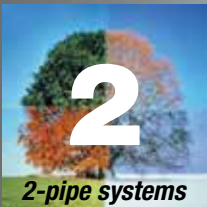


The low consumption revolution

Adaptive Function Plus predictive technology is an innovative control software, patented exclusively by Rhoss, created in collaboration with the Departments of Applied Physics and Computer Engineering at the University of Padua.

The new logic enables the cooling unit to take the information from the system regarding its load and inertia; it elaborates and optimises the work parameters in order **to reduce energy consumption** of the chillers and heat pumps.

INNOV



2-pipe systems



Intelligent recovery

Offering **condensation heat recovery systems** in cooling units, with increase in the efficiency index, has become a major priority. In air-cooled chillers, condensation heat can be recovered completely by means of **total recovery**, or partially through a **desuperheater**, with production of water at high temperature. In the new WinPack heat pumps, **total or partial heat recovery is available even in winter mode. The heat pumps with total condensation heat recovery** are therefore **multipurpose EXP units**, for application in **2-pipe systems** with production of domestic hot water.



Dynamic noise management

Noise is an essential parameter when purchasing a chiller, however, the choice is usually made to the detriment of efficiency with an increase in cost that is also considerable due to over-sizing the unit. If the need to reduce noise is fixed to limited periods during the day or night, it is possible to equip the Rhoss unit with **the option to drastically manage the noise level**. This way, the lowest noise possible is guaranteed whilst maintaining maximum cooling unit efficiency for the rest of the day.

ATTENTION



SMART DEFROST

Heat pump defrosting is an implicit operating process and if it is managed well, it minimises any possible inconveniences.

The **SMART DEFROST** function included by Rhoss in heat pumps, **optimises the number of defrost cycles**, while always keeping the battery clean.

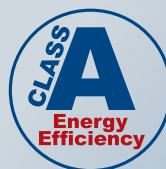
Management is based on the evaluation of various parameters including the pressure and temperature of the refrigerant gas, in relation to the external environment, anticipating the frost phenomenon and thus **increasing the efficiency of the cooling unit**.



Variable flow systems

Depending on the size and use, the systems can be made differently.

A plant engineering solution with the same kind of service that can guarantee energy saving is **VPF (Variable Primary Flow)**. This plant engineering solution was further developed by Rhoss to increase the obtainable **energy saving**, guarantee **stable long-lasting operation** and simplify the aspects of sizing by the designer.



Efficiency first of all

WinPack units, thanks to an **optimised design**, the adoption of **technical solutions and high quality components**, reach **class A** with honours.

The use of the electronic valve, of the device in heat pumps called Suction Gas Heat Exchanger, next generation exchangers, are just some of the elements used to achieve the goal.

Chillers and heat pumps can have equal efficiency at full load (EER and COP) different efficiency values at partial load.

RHOSS, always attentive to the demands of HVAC systems, **ensures high average seasonal performance** with seasonal index ESEER up to 4.3 and SCOP and SEER values that are up to the most demanding requirements.

A

B

C

D



Efficiency optimisation

The efficiency of a chiller is an index that qualitatively assesses how it is delivering cooling capacity. In each instant, the absorption of a chiller is the sum of the contributions of the compressors and fans and the factors that affect it are manifold.

Using the **EEO - Energy Efficiency Optimizer** accessory, the fan control adapts optimally to the operating conditions with **increase in ESEER up to 5%**.



Brushless fans

The fans are a major source, both in terms of absorption of noise. Using fans with **EC-Brushless** motors (standard super-silenced versions), **the efficiency of the unit can be improved**, especially at partial loads where their contribution is greater.

EC-Brushless fans also ensure the elimination of the effects of the brushes in the traditional electric motors, reducing the inrush current of the component and increasing its intrinsic efficiency.

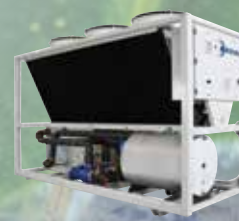


The solutions offered by RHOSS contribute significantly to improving the rating of the building in relation to the LEED® certificate, which is becoming increasingly popular as a green building design and construction symbol on an international level.



The future is GREEN

WinPack has been designed to be more **eco-sustainable** and in line with the new regulations that are becoming more restrictive in terms of greenhouse gas content. In particular, **the chillers feature micro-channel heat exchangers**, which reduce the amount of refrigerant by 30% compared to traditional technology; in addition, for aggressive environments, batteries with e-coating treatment are available.



Consumption management

If increasing efficiency is Rhoss's Mission in the design of cooling units, keeping consumption under control is an opportunity that is offered by the **EEM accessory**. The Energy Meter thus allows you to monitor absorption and ensure targeted and fast routine maintenance without waste. In addition, adding the **FDL accessory** (limiting power consumption) allows you to keep the maximum power consumption under control, when explicitly requested.



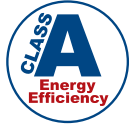
Preventive control

Gas leaks can turn into inefficiency and damage to the environment. Rhoss offers the possibility to detect any leaks, using the **LDK - Leak Detector** accessory, with immediate notification of the problem, which blocks the chiller or heat pump

Low consumption WinPACK HE-A

Cooling capacity: 91,6÷345 kW - Heating capacity: 110,5÷357 kW

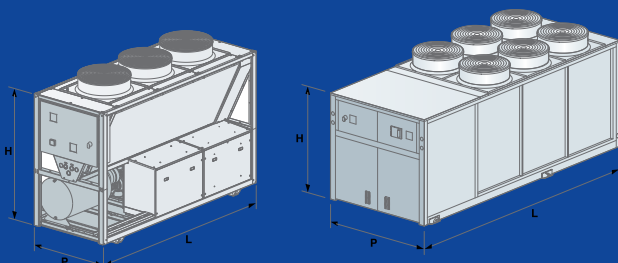
TCAEQY-THAEY



- High performance range with extended working limits
- ESEER up to 4,32
- A class water chillers and heat pumps



TCAEQY-TCAEQY MODEL		2110	2120	2140	2150	2170	2200	2220	4240	4270	4310	4340	
❶	Nominal cooling capacity	kW	110,5	121,5	138,4	156,4	175,4	200,3	223,2	241,3	276,3	309,1	345,1
❶	Nominal cooling capacity	kW	100,6	108,6	126,5	140,5	155,5	181,4	199,4	218,4	251,4	280,2	318,2
❶	E.E.R.		3,13	3,1	3,13	3,11	3,1	3,11	3,1	3,1	3,11	3,1	3,1
❶	E.E.R.		2,73	2,6	2,69	2,65	2,6	2,64	2,61	2,57	2,68	2,62	2,63
❶	E.S.E.E.R.		4,28	4,32	4,13	4,22	4,28	4,18	4,21	4,3	4,28	4,25	4,23
❶	E.S.E.E.R.+		5,02	5,09	4,96	4,98	5,04	4,89	4,95	5,1	5,06	5	5,03
❶	Absorbed power	kW	35,3	39,2	44,2	50,3	56,6	64,4	72	77,8	88,8	99,7	111,3
❶	Absorbed power	kW	36,8	41,8	47	53	59,8	68,7	76,4	85	93,8	106,9	121
THAEY-THAEY MODEL		2110	2120	2140	2150	2170	2200	2220	4240	4270	4310	4340	
❷	Nominal heating capacity	kW	114,5	124,5	141,6	161,6	181,7	204,8	233,9	249,8	282,8	321	357
❷	Nominal heating capacity	kW	110,5	118,5	136,5	153,6	171,6	194,7	221,8	236,7	266,7	301	341,9
❷	C.O.P.		3,22	3,22	3,21	3,22	3,23	3,22	3,21	3,2	3,2	3,2	3,2
❷	C.O.P.		3,28	3,29	3,27	3,26	3,26	3,23	3,26	3,12	3,11	2,95	3,08
❶	Nominal cooling capacity	kW	101,6	112,6	126,5	145,4	161,4	186,3	209,3	231,3	263,3	301,1	334,1
❶	Nominal cooling capacity	kW	91,6	100,6	118,6	130,6	144,5	169,5	187,4	206,5	238,4	270,3	302,2
❷	Absorbed power	kW	35,6	38,7	44,1	50,2	56,3	63,6	72,9	78,1	88,4	100,3	111,6
❷	Absorbed power	kW	33,7	36	41,7	47,1	52,6	60,3	68	75,9	85,8	102	111
TCAEQY-TCAEQY-THAEY-THAEY MODEL		2110	2120	2140	2150	2170	2200	2220	4240	4270	4310	4340	
❸	TCAEQY sound pressure	dB(A)	55	56	57	57	58	59	58	60	60	62	
❸	THAEY sound pressure	dB(A)	53	54	55	55	56	57	58	60	60	62	
❸	TCAEQY-THAEY sound pressure	dB(A)	47	47	48	48	49	50	51	53	53	54	
❹	TCAEQY sound power	dB(A)	87	88	89	89	90	91	91	90	92	92	94
❹	THAEY sound power	dB(A)	85	86	87	87	88	89	89	90	92	92	94
❹	TCAEQY-THAEY sound power	dB(A)	79	79	80	80	81	82	82	83	85	85	86
	Scroll/step compressor	n.	2/3	2/3	2/2	2/3	2/2	2/3	2/2	4/4	4/4	4/4	4/4
	Circuits	n.	1	1	1	1	1	1	1	2	2	2	2
	Electric power supply	V-ph-Hz	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50
SIZES AND WEIGHTS		2110	2120	2140	2150	2170	2200	2220	4240	4270	4310	4340	
	L - Width	mm	3.600	3.600	3.600	3.600	4.550	4.550	4.800	4.800	5.300	5.300	
	H - Height	mm	2.440	2.440	2.440	2.440	2.440	2.440	2.030	2.030	2.030	2.030	
	P - Depth	mm	1.350	1.350	1.350	1.350	1.350	1.350	2.090	2.090	2.090	2.090	
❺	TCAEQY weight	kg	1.090	1.100	1.110	1.130	1.280	1.300	1.320	2.290	2.390	2.520	2.640
❺	TCAEQY weight	kg	1.250	1.260	1.270	1.290	1.440	1.460	1.480	2.420	2.520	2.650	2.770
❺	THAEY weight	kg	1.380	1.410	1.420	1.500	1.670	1.690	1.780	2.470	2.570	2.720	2.840
❺	THAEY weight	kg	1.420	1.450	1.460	1.540	1.710	1.730	1.820	2.600	2.700	2.850	2.970



2110÷4340

Low consumption WinPACK SE

Cooling capacity: 97,6÷328,6 kW - Heating capacity: 109,5÷354,6 kW



- High performance range with extended working limits
- Rich range of accessories
- B compact version for replacement markets.



OUTDOOR
INSTALLATION



TCAEBY-TCAESY MODEL		2110	2120	2140	2150	2170	2200	2220	4240	4270	4310	4340
① Nominal cooling capacity	kW	106,5	114,4	127,4	147,3	165,2	188,1	212,1	229,2	256	299,9	328,7
① Nominal cooling capacity	kW	102,5	110,4	122,4	142,3	159,2	183,2	205,1	224,2	250,1	291	319,7
① E.E.R.		2,81	2,79	2,8	2,81	2,81	2,8	2,8	2,8	2,8	2,81	2,76
① E.E.R.		2,72	2,67	2,65	2,71	2,7	2,66	2,7	2,68	2,66	2,68	2,61
● E.S.E.E.R.		3,91	3,94	3,96	3,85	3,93	4	3,87	4,07	4,11	3,98	3,98
⊕ E.S.E.E.R.+		4,62	4,63	4,66	4,52	4,61	4,75	4,57	4,8	4,84	4,7	4,69
① Absorbed power	kW	37,9	41	45,5	52,4	58,8	67,2	75,8	81,9	91,4	106,7	119,1
① Absorbed power	kW	37,7	41,3	46,2	52,5	59	68,9	76	83,7	94	108,6	122,5
THAEBY-THAESY MODEL												
⊕ Nominal heating capacity	kW	112,6	123,7	139,7	158,8	176,9	198	229,1	249	281,4	319,3	354,6
⊕ Nominal heating capacity	kW	109,5	121,7	135,7	155,8	173,9	195,9	226	245	278,3	315,2	345,5
⊕ C.O.P.		3,05	3,08	3,08	3,04	3,06	3,07	3,07	3,03	3,01	3,01	2,98
⊕ C.O.P.		3,1	3,13	3,1	3,13	3,1	3,09	3,13	3,09	3,05	3,07	3,03
① Nominal cooling capacity	kW	99,5	110,4	123,4	142,3	159,3	182,2	206,1	227,1	253,9	295,9	324,7
① Nominal cooling capacity	kW	97,6	106,5	117,5	136,4	152,3	175,3	199,2	220,2	248	286,1	313,8
⊕ Absorbed power	kW	36,9	40,2	45,4	52,2	57,8	64,5	74,6	82,2	93,5	106,1	119
⊕ Absorbed power	kW	35,3	38,9	43,8	49,8	56,1	63,4	72,2	79,3	91,2	102,7	114

TCAEBY-TCAESY-THAEBY-THAESY MODEL		2110	2120	2140	2150	2170	2200	2220	4240	4270	4310	4340
⊕ TCAEBY sound pressure	dB(A)	55	56	56	57	58	58	59	60	60	60	61
⊕ THAEBY sound pressure	dB(A)	53	54	54	55	56	56	57	58	60	60	61
⊕ TCAESY sound pressure	dB(A)	49	50	50	51	52	52	53	54	54	56	57
⊕ THAESY sound pressure	dB(A)	49	50	50	51	52	52	53	54	55	56	57
⊕ TCAEBY sound power	dB(A)	87	88	88	89	90	90	91	92	92	92	93
⊕ THAEBY sound power	dB(A)	85	86	86	87	88	88	89	90	92	92	93
⊕ TCAESY sound power	dB(A)	81	82	82	83	84	84	85	86	86	88	89
⊕ THAESY sound power	dB(A)	81	82	82	83	84	84	85	86	87	88	89
Scroll/step compressor	n.	2/3	2/3	2/2	2/3	2/2	2/3	2/2	4/4	4/4	4/4	4/4
Circuits	n.	1	1	1	1	1	1	1	2	2	2	2
Electric power supply	V-ph-Hz	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50
SIZES AND WEIGHTS												
L - TCAEBY-TCAESY width	mm	2.650	2.650	2.650	3.600	3.600	3.600	4.550	4.550	4.550	4.800	4.800
L - THAEBY-THAESY width	mm	2.650	2.650	2.650	3.600	3.600	3.600	4.550	4.800	4.800	4.800	4.800
H - TCAEBY-TCAESY height	mm	2.440	2.440	2.440	2.440	2.440	2.440	2.440	2.440	2.440	2.030	2.030
H - THAEBY-THAESY height	mm	2.440	2.440	2.440	2.440	2.440	2.440	2.440	2.030	2.030	2.030	2.030
P - TCAEBY-TCAESY depth	mm	1.350	1.350	1.350	1.350	1.350	1.350	1.350	1.350	1.350	2.090	2.090
P - THAEBY-THAESY depth	mm	1.350	1.350	1.350	1.350	1.350	1.350	1.350	2.090	2.090	2.090	2.090
⊕ TCAEBY weight	kg	990	1.000	1.010	1.160	1.180	1.180	1.340	1.670	1.690	2.400	2.410
⊕ TCAESY weight	kg	1.110	1.120	1.130	1.280	1.300	1.300	1.460	1.830	1.850	2.440	2.450
⊕ THAEBY weight	kg	1.250	1.310	1.320	1.470	1.480	1.565	1.730	2.375	2.460	2.580	2.595
⊕ THAESY weight	kg	1.250	1.310	1.320	1.470	1.480	1.565	1.730	2.415	2.500	2.620	2.635

Details under the following conditions:

- ① Air: 35°C - Water: 12/7°C.
- ⊕ Air: 7°C, B.S. 6°C B.U. - Water: 40/45°C.
- ⊕ 10 m from the unit in free field (Q = 2).
- ① Total sound power level in dB(A) on the basis of measurements taken in accordance with UNI EN-ISO 9614.
- ⊕ Weight refers to the non-accessorised unit when empty.
- ESEER (European Seasonal EER) - Average European seasonal efficiency.
- ⊕ ESEER with Adaptive Function Plus software. ESERR+ is not Eurovent certified.
- TCAEQY-THAESY super silenced versions.
- TCAESY-THAESY silenced versions. Performance according to EN 14511:2013.



+RHOSSOfficial



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RHOSS



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RHOSS partecipa al programma di certificazione Eurovent.
I prodotti interessati figurano nella guida dei prodotti certificati Eurovent consultabile all'indirizzo internet
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