

Heat pumps |
Oilon ChillHeat



Optimized cooling and
heating performance

Affordable, environmentally friendly energy with heat pumps

Low-temperature waste heat contains valuable energy

Communities, industry, and energy production generate huge amounts of waste heat, which cannot be directly utilized because of its low temperature. However, this waste heat can be recovered by heat pumps with high efficiency ratio, producing hot air or hot water for heating houses and domestic hot water as well as in industrial processes. It can also be sold and channeled into the district heating network. There really is a multitude of choices.



A worthwhile investment

A heat pump is an investment with short payback period. Annual savings in energy can reach up to eighty per cent – and the same goes for CO₂ emissions as well!

Extensive range and top-notch quality assurance

Our ChillHeat catalogue offers a wide range of optimized solutions to a variety of applications that are presented on the following page. All of our ChillHeat products are designed and manufactured in Finland at our Lahti and Kokkola sites. Both sites are equipped with a test bench, so every heat pump can be tested at the desired operating points before it is shipped to the customer.

Heating and cooling – made in Finland

Founded in 1961, Oilon is a Finnish family-owned energy and cleantech company. Oilon has over 50 years of experience in generating heat for private residences as well as large residential buildings, district heating networks, and for a variety of industrial processes. Oilon Scancool has nearly 30 years of experience in high-capacity heat pumps and cooling solutions. Oilon is internationally renowned as a forerunner in the heating and refrigeration fields. Oilon also offers an extensive service network, guaranteeing long and cost-effective life for the products.



Combined heating and cooling

A single ChillHeat heat pump can be used for both heating and cooling at the same time, without any extra machinery involved. Valuable heat is available virtually for free, as it is generated as a by-process of cooling. The typical COP in these applications is between 5 and 6.



Waste heat recovery at refrigeration plants (ammonia, HFC, CO₂)

ChillHeat heat pumps use recovered waste heat at refrigeration plants to generate hot water, thereby substituting valuable primary energy. The COP in these applications is typically between 4 and 6.



Heat recovery from waste water

ChillHeat heat pumps can be used to recover waste heat from municipal or industrial waste waters. The recovered heat can be used for producing hot water, to be used in industrial processes or to be sold and channeled into the district heating network. The COP in these applications is typically between 3 and 5.



Ground source heating

Ground source heat is free solar energy stored in the ground. ChillHeat heat pumps can utilize this energy for heating, replacing expensive off-site heat sources.



Flue gas heat recovery

Flue gases from power plant and central heating plant boilers can be put to good use with ChillHeat heat pumps. The recovered heat can, for example, be channeled into the district heating network, improving the efficiency of the plant and increasing the total heat output. The COP in these applications is typically between 4 and 6.



Heat recovery from industrial processes (evaporators, cooling towers, driers)

In industry, a lot of waste heat is released into the environment due to the difficult heat recovery associated with low temperatures. ChillHeat heat pumps are able to utilize these heat sources and produce valuable heating energy for industrial processes or to be sold out. The COP in these applications is typically between 4 and 6.



Heat extraction from outdoor air

Together with an outdoor cooling unit, ChillHeat products can use outdoor air as a heat source. This free heat source can be put to use for heating spaces and producing hot water, among other things. The COP in these applications is typically between 3 and 4.



Water chiller applications

ChillHeat products are an energy-efficient cooling solution for air conditioning, for cooling computer server rooms, and in industrial processes.



Refrigeration applications

ChillHeat products can provide energy-efficient refrigeration for industrial applications, ice rinks, or supermarkets



Highest temperature

The highest temperature of the generated heat, throughout the entire capacity range. An optional superheater can use part of the generated heat energy in order to raise the temperature further.

COP= coefficient of performance

COPc= cooling coefficient of performance

Oilon ChillHeat product family

One of the underlying ideas in the design of Oilon's ChillHeat product family has been to use a single machine both for cooling and heating. As a result, all ChillHeat products are well suited for heating and cooling applications, either as dedicated cooling/heating solutions or as a combined solution.

The product family features optimal products for industrial applications, hotels, office buildings and schools, as well as for various other applications – such as waste heat recovery, ground source heating, air conditioning, or warehouse cooling.

All ChillHeat products are compact, reliable, and easy to use. The ChillHeat brand is a guarantee of high energy-efficiency. We achieve this by using only the highest quality components as well as by having a competent R&D department and a meticulous testing process. It is possible to connect several ChillHeat heat pumps in parallel for an even higher capacity heating or cooling solution. Automation is an important feature in all our ChillHeat products. A versatile automation system enables energy-efficient and easy ChillHeat operation.

For more information on our ChillHeat products, please see the following table. With low evaporator temperatures, it is recommended to check the maximum water out temperature in the actual site conditions already at the quotation stage.

ChillHeat	RE	P	S
Heating capacity EN 14511 0/35	110 - 420 kW	150 - 450 kW	180 - 2000 kW
Maximum heating temperature	65 °C*	90 °C	67 °C
Minimum cooling temperature	-15 °C	-20 °C	-15 °C
ChillHeat product suitability for various applications			
Combined cooling and heating	● ● ●	● ● ●	● ● ●
Heat recovery at refrigeration plants	●	● ● ●	● ● ●
Heat recovery from waste waters	● ●	● ● ●	● ● ●
Ground source heating	● ● ●	● ● ●**	● ●
Heat recovery from flue gases	●	● ● ●	● ● ●
Heat extraction from outdoor air	● ● ●	● ● ●	● ● ●
Heat recovery from industrial processes	●	● ● ●	● ● ●
Water chiller applications	● ● ●	●	● ●
Refrigeration applications	● ●	● ● ●	● ● ●

● ● ● Excellent

● ● Good

● Limited

* Models RE 210, RE 330 and 420 in ground source heating produced max. temperature is lt. 60 °C

** In demanding conditions

Oilon ChillHeat RE 110 - RE 420



Highest temperature 63 °C



Large residential buildings 10000-20000 m²



Combined cooling and heating



Heat extraction from outdoor air



Water chiller applications



Ground source heating



Oilon ChillHeat RE heat pumps are best suited for heating and cooling large residential buildings and industrial plants.

In our RE line, we use scroll compressors only from the most well-known and reliable compressor manufacturers.

TECHNICAL SPECIFICATIONS

		RE 110	RE 140	RE 170	RE 210	RE 330	RE 420
No. of compressors, compressor type		scroll, 2	scroll, 2	scroll, 2	scroll, 2	scroll, 3	scroll, 4
No. of refrigerant circuits		2	2	2	1	2	2
Dimensions without cover and extra legs	Height mm	1798	1798	1798	2056	2056	2056
	Width mm	1746	1746	1746	1550	2676	2676
	Depth mm	863	863	863	900	900	900
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A
Heat output, kW (ground source heating)	EN 14511 0/35 °C	107	134	168	205	308	410
COP	EN 14511 0/35 °C	3,7	3,6	3,7	4,2	4,2	4,2
Heat output, kW (heating network)	18/8 °C, 40/55 °C	136	168	208	272	409	546
COP	18/8 °C, 40/55 °C	2,8	2,8	2,8	3,6	3,6	3,6
Cooling output, kW (air conditioning)	12/7 °C, 36/42 °C	103	128	158	209	314	418
COPc	12/7 °C, 36/42 °C	2,7	2,7	2,7	3,6	3,6	3,6
Fuses *	A, 3/N/PE 400 V 50 Hz	3x125 A	3x160 A	3x200 A	3x200A	3x400A	3x400A
Weight	kg	800	900	1000	1700	2400	2600

Performances calculated with the most suitable options and presented in accordance with EN 14511.

*) Fuse size dimensioned in the most demanding conditions. Request a review dimensioning from the supplier.

COPc=cooling coefficient of performance

Specified temperatures are evaporator and condenser line in and line out temperatures.

Using this table to estimate heating or cooling output under other operating conditions is not allowed. Contact manufacturer for final specifications for your application.

Oilon Scancool may change specifications without prior notice.

Oilon ChillHeat P 150 - P 450



Highest temperature 90 °C



Large residential buildings 5000-15000m²



Combined cooling and heating



Heat recovery at refrigeration plant
(ammonia, HFC, CO₂)



Heat recovery from industrial processes
(evaporators, cooling towers, and driers)



Heat recovery from waste waters



Oilon Chill Heat P heat pumps generate hot water up to 90 °C very efficiently even when running at partial capacity.

A culmination of years of research and development work, energy-efficient and reliable piston compressors keep the operating and maintenance costs down.

TECHNICAL SPECIFICATIONS

		P 150	P 220	P 300	P 380	P 450
No. of compressors, compressor type		piston, 2	piston, 3	piston, 4	piston, 5	piston, 6
No. of refrigerant circuits		1	2	2	1	1
Dimensions, without cover and extra legs *	Height mm	2056	2056	2056	2056	2056
	Width mm	1550	2676	2676	3841	3841
	Depth mm	900	900	900	900	900
Refrigerant		R134A	R134A	R134A	R134A	R134A
Heat output, kW (ground source heating)	EN 14511 0/35 °C	145	218	290	363	435
COP	EN 14511 0/35 °C	4,0	4,0	4,0	4,0	4,0
Heat output, kW (heating network)	18/8 °C, 40/55 °C	197	296	395	493	592
COP	18/8 °C, 40/55 °C	3,7	3,7	3,7	3,7	3,7
Heat output, kW	18/8 °C, 50/65 °C	174	263	350	437	525
COP	18/8 °C, 50/65 °C	3,1	3,1	3,1	3,1	3,1
Heat output, kW (heating network, high temperature)	18/8 °C, 55/75 °C	159	238	317	396	475
COP	18/8 °C, 55/75 °C	2,7	2,7	2,7	2,7	2,7
Cooling output, kW (air conditioning)	12/7 °C, 36/42 °C	157	234	313	391	469
COPc	12/7 °C, 36/42 °C	3,4	3,4	3,4	3,4	3,4
Fuses **	A, 3/N/PE 400 V 50 Hz	3x200A	3x250A	3x400A	3x500A	3x630A
Weight	kg	1600	2300	2600	3100	3700

Performances calculated with the most suitable options and presented in accordance with EN 14511.

*) Dimensions without frequency converter.

**) Fuse size dimensioned in the most demanding conditions. Request a review dimensioning from the supplier.

COPc= cooling coefficient of performance

Temperatures are evaporator and condenser line in and line out temperatures.

Using this table to estimate heating or cooling output under other operating conditions is not allowed. Contact manufacturer for final specifications for your application.

Oilon Scancool may change specifications without prior notice.

Oilon ChillHeat S 180 – S 2000



Highest temperature 67 °C



Large residential buildings 5000-25000m²



Heat recovery at refrigeration plants
(ammonia, HFC, CO₂)



Heat recovery from combustion gases



Refrigeration applications



Heat recovery from industrial processes
(evaporators, cooling towers, driers)



Oilon ChillHeat S heat pumps generate hot water up to 67 °C very efficiently.

The S series heat pumps come equipped with energy-efficient rotary compressors, proven to be reliable.

TECHNICAL SPECIFICATIONS

		S 180	S 280	S 380	S 490
No. of compressors, compressor type		screw, 1	screw, 1	screw, 1	screw, 1
No. of refrigerant circuits		1	1	1	1
Dimensions, without cover and extra legs *	Height mm	2056	2056	2056	2056
	Width mm	2676	2676	2676	2676
	Depth mm	900	900	900	900
Refrigerant		R134A	R134A	R134A	R134A
Heat output, kW (ground source heating)	EN 14511 0/35 °C	191	300	404	516
COP	EN 14511 0/35 °C	4,1	4,2	4,3	4,4
Heat output, kW (heating network)	18/8 °C, 40/55 °C	241	379	506	665
COP	18/8 °C, 40/55 °C	3,6	3,6	3,7	3,8
Heat output, kW (heating network, high temperature)	18/8 °C, 50/65 °C	226	364	473	623
COP	18/8 °C, 50/65 °C	2,7	2,8	2,9	3,0
Cooling output kW (air conditioning)	12/7 °C, 36/42 °C	201	315	394	549
COPc	12/7 °C, 36/42 °C	3,6	3,6	3,7	3,8
Fuses **	A, 3/N/PE 400 V 50 Hz	3x250A	3x355A	3x400A	3x500A
Weight	kg	2300	2900	3600	4000

Performances calculated with the most suitable options and presented in accordance with EN 14511.

*) Dimensions without frequency converter.

**) Fuse size dimensioned in the most demanding conditions. Request a review dimensioning from the supplier.

COPc= cooling coefficient of performance

Specified temperatures are evaporator and condenser line in and line out temperatures.

Using this table to estimate heating or cooling output under other operating conditions is not allowed. Contact manufacturer for final specifications for your application.

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TECHNICAL SPECIFICATIONS

		S 600	S 800	S 1000	S 1200	S 1500	S 2000
No. of compressors, compressor type		screw, 2	screw, 2	screw, 2	screw, 2	screw, 2	screw, 2
No. of refrigerant circuits		2	2	2	2	2	2
Dimensions, without cover and extra legs *	Height mm	2071	2071	2071	2071	2200	2200
	Width mm	4246	4246	4246	4246	4500	4500
	Depth mm	1005	1005	1005	1005	1200	1200
Refrigerant		R134A	R134A	R134A	R134A	R134A	R134A
Heat output, kW (ground source heating)	EN 14511 0/35 °C	638	889	1105	1306	1697	2298
COP	EN 14511 0/35 °C	4,2	4,3	4,4	4,4	4,4	4,4
Heat output, kW (heating network)	18/8 °C, 40/55 °C	740	1032	1283	1516	1971	2668
COP	18/8 °C, 40/55 °C	3,6	3,7	3,8	3,8	3,8	3,8
Heat output, kW (heating network, high temperature)	18/8 °C, 50/65 °C	729	1014	1259	1488	1934	2619
COP	18/8 °C, 50/65 °C	2,8	2,9	3,0	3,0	3,0	3,0
Cooling output kW (air conditioning)	12/7 °C, 36/42 °C	696	971	1211	1432	1862	2521
COPc	12/7 °C, 36/42 °C	3,6	3,7	3,8	3,8	3,8	3,8
Fuses **	A, 3/N/PE 400 V 50 Hz	2x 3x400A	2x 3x400A	2x 3x630A	2x 3x630A	2x 3x800A	2x 3x1000A
Weight	kg	3700	4500	5300	5900	7800	10400

Performances calculated with the most suitable options and presented in accordance with EN 14511.

*) Dimensions without frequency converter.

**) Fuse size dimensioned in the most demanding conditions. Request a review dimensioning from the supplier.

COPc= cooling coefficient of performance

Specified temperatures are evaporator and condenser line in and line out temperatures.

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ChillHeat products and optional equipment

Oilon ChillHeat products are compact, yet easy to service. The versatility of the heat pumps can be further extended with optional extra equipment, making them suitable for a wide range of different applications. Having the same design language as the actual heat pump itself, extension modules can be used to equip the heat pump with extra pump and valve groups.

The following options can be specified by the customer, or they can be included in our tender at the design phase.

- Free cooling can be used for refrigeration using cool outdoor air.
- A frequency converter can be used for faster, more precise adjustments.
- Energy measurement option can be used for measuring COP of the unit.
- A superheater can be used for producing domestic hot water.
- Common bus connections enable connection to other automation systems.



Automation

– an important aspect of energy efficiency

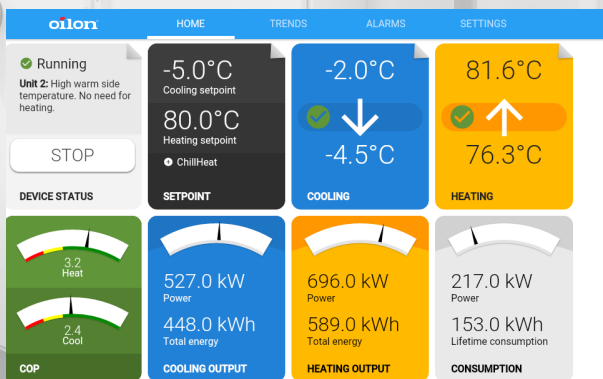
A versatile automation system enables the energy-efficient and easy operation of the ChillHeat function, which generates both heating and cooling either separately or concurrently.

The automation system in our ChillHeat products lays the basis for highly efficient operation and excellent usability.

Ease of use and high quality combined with an adaptive algorithm guarantee our customers trouble free operation and the full benefit of their investment.

Our automation solutions offer versatile options for communication between different automation systems. We support the most common fieldbus protocols, such as Modbus, Profibus, BACnet and Profinet, among others.

The ability to monitor and program the equipment remotely ensures trouble free operation and cost-effective service and support as well as easy implementation of future process.

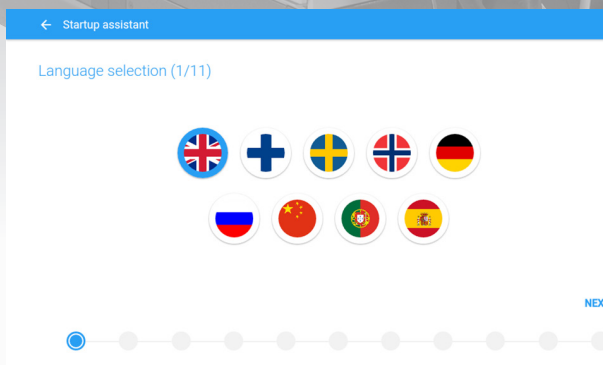


ChillHeat MobileDrive

- Clear, easy to use graphical user interface and a reliable, programmable industrial controller enable controlling multiple ChillHeat units.
- Modbus, Profibus, BACnet and Profinet protocols available
- Remote monitoring and programming option
- You can download the application to the most common mobile devices.

ADVANCE for controlling industrial processes

- An industrial PC and reliable programmable industrial controller enable clear process views and versatile process control options.
- Modbus, Profibus, BACnet and Profinet protocols supported
- Remote monitoring and programming option
- Process event logging enables comprehensive reporting and trend monitoring.



Co-operation, research and development

Cold technology has been, and will continue to be, under ongoing pressure to change. New refrigerants are entering the market every year due to ever more stringent environmental legislation, necessitating changes in technical components that are used as well as in the overall design of equipment.

We carry out intense research and development work and actively cooperate with our refrigerant and component suppliers in order to guarantee energy-efficient operation of our equipment under the most demanding conditions, while also taking future environmental legislation demands into account.

At the Kokkola plant and in the renewable energy research center in Lahti, we test different configuration, refrigerant and component options in modern test facilities. We also test different aggregates of said configurations and hardware in various operating conditions to offer the best products for different needs.

When looking for the best solution for different operating conditions, several important factors need to be taken into consideration

- Required capacity
- Reliability
- Adjustability
- Minimum partial load
- Energy efficiency
- Required floor space
- Noise level
- Competitive pricing.

Through continuous R&D work and learning we are able to offer our clients the best possible equipment, tailored to their specific needs.

Quality assurance and product development

We are renowned for the high quality and operational reliability of our products, as well as the extensive maintenance service that we offer. Before any product is shipped to the customer, we run it through a full spectrum of tests in our test bench under the same operational conditions that it will be expected to perform under, thereby ensuring reliable operation and optimal performance. Thorough testing also minimizes the time required for installing and setting up the system, giving the customer full benefit of the system as quickly as possible.

In the rapidly evolving heat pump business, the test bench is an important tool for R&D work as well. It provides us with a cost-effective, fast means to test computer-simulated solutions and to assess the compatibility of new components in various systems. We are continuously researching ever more energy-efficient, economical, and environmentally friendly solutions for our customers' needs.



Oilon Oy Scancool
Yrittäjätie 6, 67100 KOKKOLA, FINLAND
Tel.. +358 (0)207 281 868
info@oilon.com, www.oilon.com

