



SKADEC

Product Overview

PROPANE R290

HEAT PUMPS
WATER CHILLERS

ISOBUTANE R600A

HIGH-TEMPERATURE
HEAT PUMPS

THE GREEN COOLING


R290
NATURAL
REFRIGERANT



GREEN COOLING EFFICIENCY MEETS ECOLOGY



CONTENT

- 4-5** *Sustainable modular refrigeration technology*
- 6-7** *Natural refrigerant R290*
- 8-9** *Less HFC on the market*
- 10-11** *Intelligent machine control*
- 12-15** *The Skadec Cloud*
- 16-17** *Standard product vs. custom-built system*
- 18-25** *Air-cooled R290 heat pumps*
- 26-35** *Air-cooled R290 water chillers*
- 36-39** *Compact water-cooled R290 water chillers*
- 40-41** *Water-cooled R600a high-temperature heat pumps*
- 42-43** *Simply Skadec*



SUSTAINABLE MODULAR RE- FRIGERATION TECHNOLOGY

The name SKADEC is derived from the name **SKADI** and the designation **ECO**. Skadi is known in Norse mythology as the goddess of winter; she is associated with strength, sharpness and courage to do new things. This is exactly what has characterised our approach since the first development steps in 2012/2013. Since then, we have specialised in sustainable refrigeration and air conditioning technology with natural refrigerants, especially in systems with environmentally friendly propane (R290).

With the spin-off of Skadec from the Kratschmayer group of companies, we have been a strong partner for life cycle cost savings and demand-oriented cooling and heating for commerce and industry using energy-saving and environmentally friendly technologies since 2018.

Our corporate values are sustainability, quality and reliability. At our location in Waldenburg, we live these values in a dynamic and motivated team. We want to set an example for the future through our work in reliably providing this sustainable technology for everyone to the highest quality standard.

FOR A BETTER FUTURE



R290 – also known as propane

R290 is a natural refrigerant. It is used very efficiently in chillers and heat pumps and convinces everyone through its environmentally friendly properties. Wherever possible, we have been using the natural refrigerant R290 for years. It helps protect the ozone layer and reduce greenhouse gas emissions to a minimum. As it is abundantly available in nature, we will continue to drive research and development into R290 in the future, in order to provide you with a cost-effective alternative to the very highest standards of efficiency and quality.

- » Natural future-proof refrigerant
- » GWP* of 3, ODP** of 0.
- » High energy efficiency and high annual performance factor
- » Cost-effective: Funded by the national climate protection initiative (up to EUR 150,000 in funding)
- » Cost-effective in service and operating costs
- » Very good thermodynamic properties

The advantages of R290 in our machines

Sustainability, energy efficiency, redundancy, plant safety and life cycle costs are considered criteria in our newly developed future-proof chillers and heat pumps. They are designed in such a way that the refrigerant charge is low and high system availability is ensured. A comprehensive safety concept ensures safe operation of the systems.

- » Not subject to the F-gas Regulation, even if this is tightened in the future
- » Reduced operating costs
- » Low pressure position, below 28 bar
- » Safe operation even at high outside temperatures
- » Efficient operation in summer and winter.

*GWP (Global Warming Potential): The value of the relative global warming potential indicates the contribution of a refrigerant to global warming. The reference value is CO₂ with a GWP of 1.
**ODP (Ozone Depletion Potential): The ozone depletion potential indicates the relative effect on ozone layer depletion. All natural refrigerants have the value 0.

F-GAS REGULATION 517/2014 - REFRIGERANT PROCUREMENT RISK

Less HFC on the market

The European Green Deal has set the ambitious target of reducing net greenhouse gas emissions by at least 55% by 2030 compared to 1990. To this end, various agreements and regulations have been adopted in recent decades. The latest regulation to come into force, which affects refrigeration, air conditioning and heat pump technology the most, is the F-gas Regulation (EU) No 517/2014.

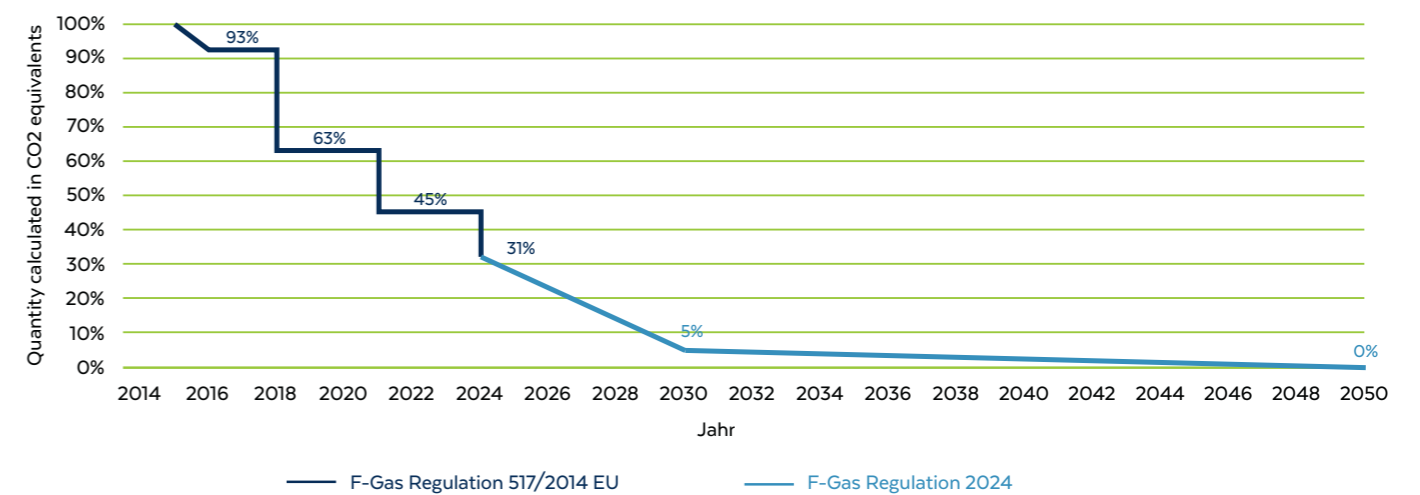
A stricter version of this regulation was adopted in January 2024 and contains even tighter rules. The F-gases put into circulation in the EU in tons of CO2 equivalent are to be reduced to zero by 2050. The reduction in the amount of HFC refrigerants available on the market will inevitably lead to supply bottlenecks and an increase in refrigerant prices, which will force conventional refrigerants out of the market.

The aim is to encourage chiller operators to rethink and invest in new technologies with future-proof refrigerants.

Short-term tightening of the amount of F-gas available

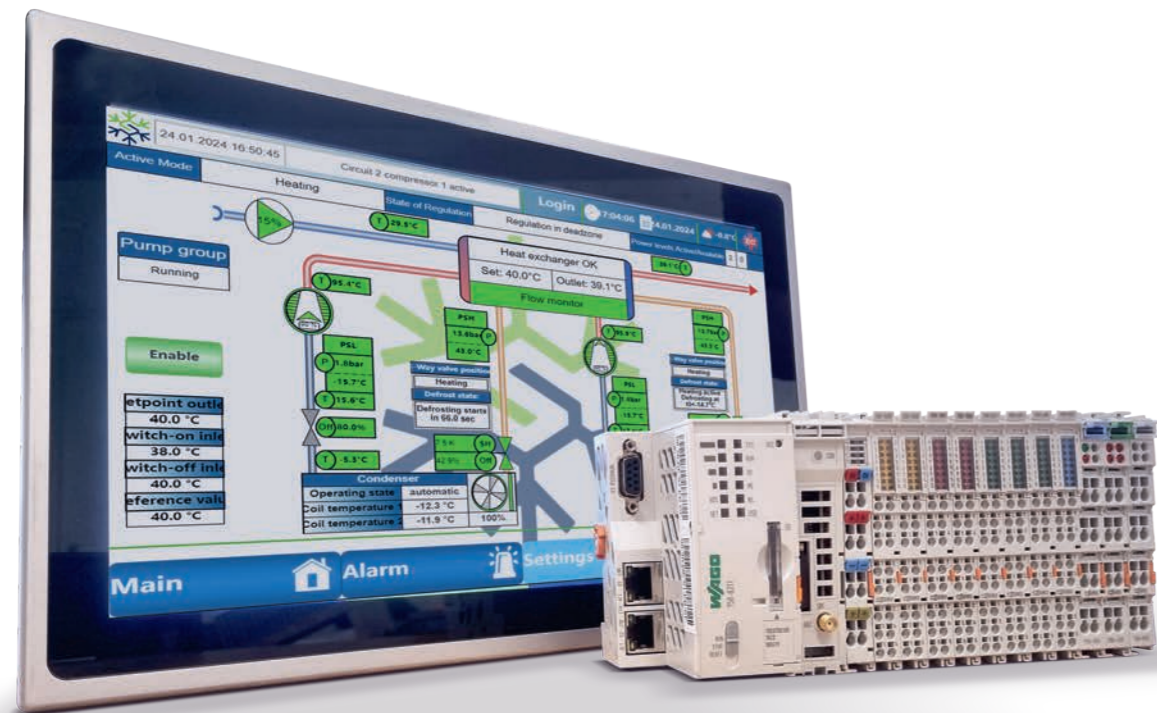
As early as 2030, the available quantity will be limited to 5% instead of the previous reduction to 21%! The switch to natural refrigerants will therefore be significantly accelerated, making a major contribution to environmental protection.

In the future, a recurring leakage test is to be carried out for refrigerants weighing as little as 1 kg. This will also entail extended requirements for specialists and the associated personal certificates.



INTELLIGENT MACHINE CONTROL

As control systems we use freely programmable controllers. They are ideally suited to combining our many years of experience in refrigeration and air-conditioning technology with our special-purpose control algorithms. In the design of our control software, the main focus of our in-house programming department is on user friendliness, high availability and system efficiency.



Control system

The heart of the machine control system is the programmed algorithm which ensures efficient and trouble-free operation of the system. Thanks to "condition monitoring", the constant monitoring and analysis of all components and process data, emerging problems can be spotted as soon as they arise. As a result, for example, maintenance can be planned in advance. However, should any faults or malfunctions occur, the machine responds automatically, ensuring the maximum possible output in emergency operation despite the impairment.

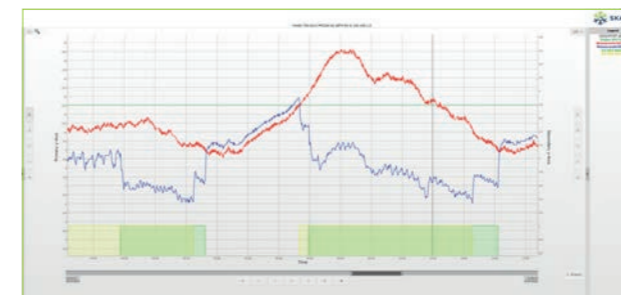
Whether directly at the touch screen of the machine or remotely on a tablet, mobile phone or PC, the schematic representation of the system makes all important process data visible at a glance. You can see immediately how your plant is performing by the colour coding of each actuator. Faults and irregularities are indicated directly at the relevant part of the system and displayed as full text in the alarm list. The intuitive operating concept enables the user to interact easily with the machine.



Designed to make your work easy

Data logger / Data plotter

Recording and analysis of a wide range of process data is becoming increasingly important. For this purpose, our PLC provides the user with a freely configurable data logger. By default, the controller saves more than 60 values per day on an SD memory card as a *.csv file every 5 seconds. To be able to conveniently analyse the often large amounts of process data, the data plotter converts the values into meaningful line graphs.



Open to communicate

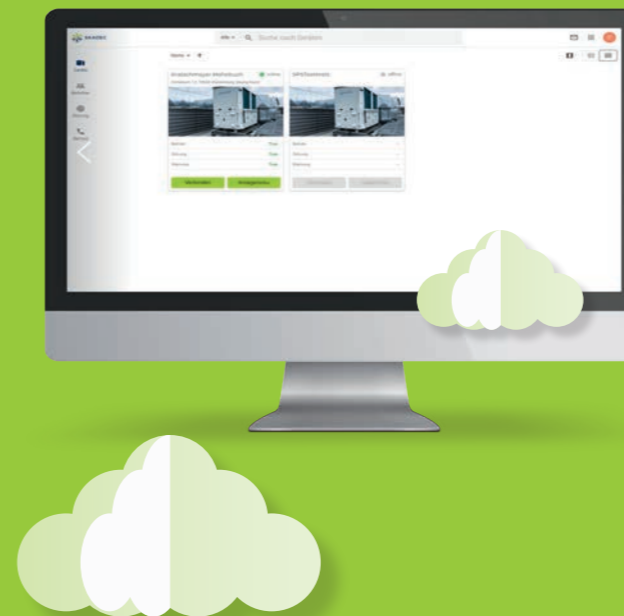
Networking of individual components is essential for the correct functioning and efficient performance of an overall system. Thanks to the implementation of various bus interfaces, our products systems can be easily integrated into existing process control systems. Available interfaces are among others Industrial Ethernet, Profibus, Modbus RTU, Modbus TCP and CANopen.



THE SKADEC CLOUD - FORWARD- LOOKING REMO- TE MAINTENANCE

*Access anywhere
anytime*

Whether from the office or on the road, using a desktop PC, tablet or smartphone, the Skadec cloud ensures you always have full control of your machine. No matter if it's for adjusting set points, just a quick check or a detailed analysis, your machine is just one click away. With the cloud solution from Skadec, you have continuous access to all the relevant data and functions.



Creating added value for yourself and your customers

With the integrated Fleet Manager, you can centrally manage and monitor all the Skadec machines you are responsible for. The Global Alarm Manager provides a detailed overview of all upcoming maintenance and pending errors.

Individual access to each module down to the actuator level allows that occurring errors can be analysed, narrowed down and even rectified remotely. If an on-site visit is nevertheless required, spare parts can be organized in advance and the service technician can be informed about the problem and possible causes before he reaches the machine. This saves time, money and a lot of stress! And should you not be able to find the cause of the fault by yourself, the competent and reliable Skadec Customer Service is at your side to support you via remote access.

ADVANTAGES OF THE SKADEC CLOUD



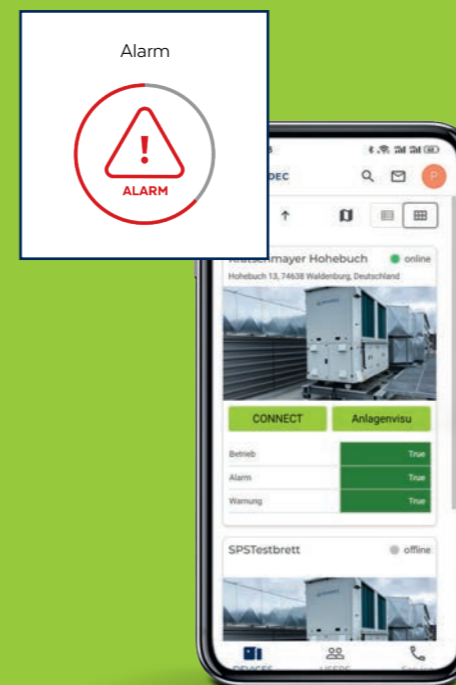
Advanced remote maintenance solution

Remote service and maintenance
Use your technician's valuable time more efficiently. Up to 80% of the problems can be solved remotely.

Status monitoring
Gain an insight into performance and current operational behaviour from real-time machine data.



Alarm-Management
Reduce your response time. Through alarm notification, the cloud informs you via push messaging directly to your smartphone or by email about malfunctions or critical situations of your Skadec machine.



Preventive maintenance
How did the Skadec Chiller actually perform in August? Discover patterns in the machine data. Comprehensive data logging saves all the important operating values from the previous seven years.





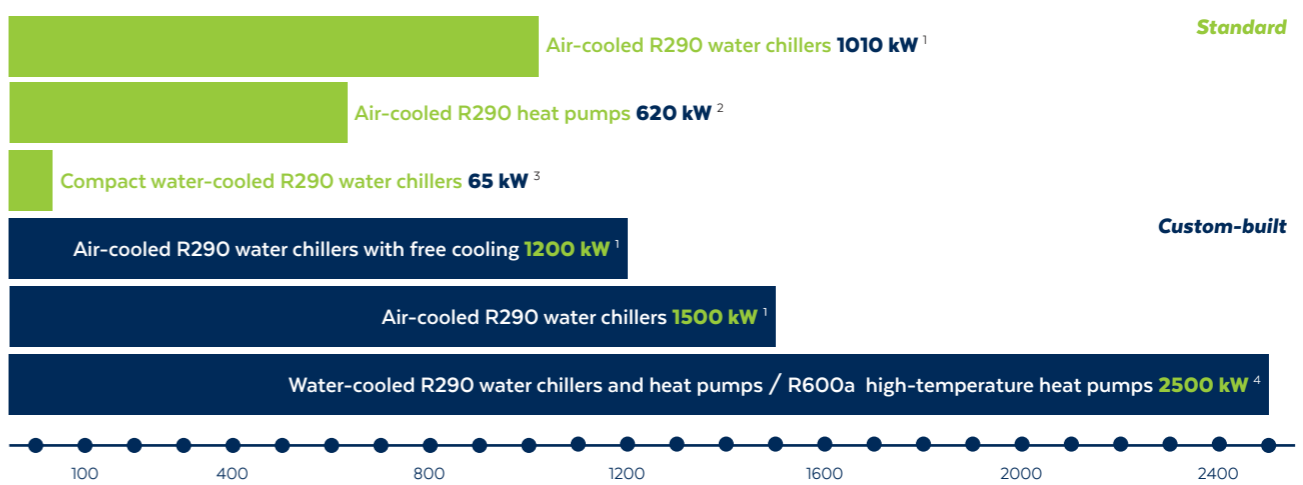
STANDARD PRODUCT VS. CUSTOMISED DESIGN

Customised system configuration

In addition to a wide range of standard chillers and heat pumps, the Skadec product portfolio includes extensive customised solutions and project-specific systems. The plant configuration can be adapted individually to the customer's requirements. As a standard, all machines are equipped with a PLC controller. This control system, specially developed for high machine availability and ease of service, offers unprecedented flexibility compared to our competitors.

- | | | |
|---|--|---|
| <p>Heat pumps</p> <ul style="list-style-type: none"> » Air-cooled heat pumps » Water-cooled heat pumps » Water-cooled hydraulically reversible heat pumps » Water-cooled heat pumps with reversible refrigeration technology » Custom-built systems in container design | <p>Water chillers</p> <ul style="list-style-type: none"> » Air-cooled water chillers » Water-cooled water chillers » Custom-built systems in container design » With free cooling | <p>High-temperature heat pumps</p> <ul style="list-style-type: none"> » Water-cooled R600a heat pumps |
|---|--|---|

OPERATING RANGE



R290 heat pump

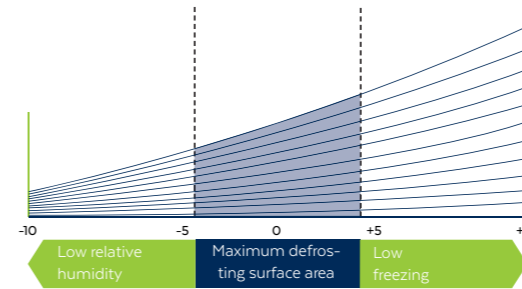


Water chiller/heat pump in container



R290 water chiller with free cooling

¹Cooling capacity A35/W7 ²Heating capacity A7/W45 ³Cooling capacity W45/W7 ⁴Heating capacity W35/W80



Integrated defrosting management

- » Increased overall efficiency due to reduced defrosting frequency
- » Defrosting on demand
- » Minimum defrosting cycles through sliding defrosting function
- » Pressure monitoring depending on the outside air temperature

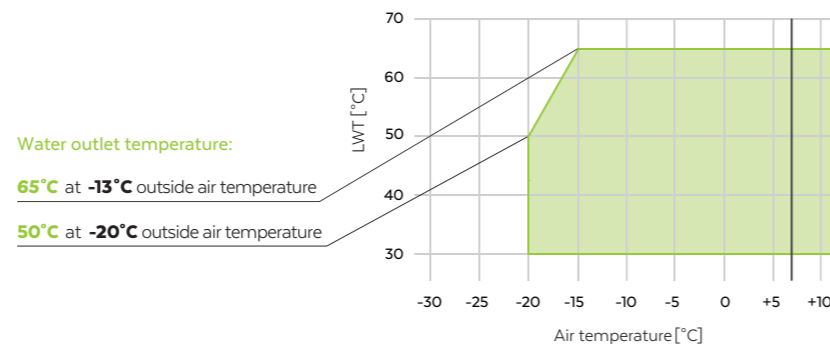
Our multi-circuit heat pumps, designed with separate air and cold sides, provide a defrosting function independent of the circuit used, leading to the following advantages:

- » The heating function is always guaranteed. While one circuit is defrosting, the second circuit continues to generate heat.
- » Increased safety for hot water heating
- » Higher efficiency due to the targeted defrosting function

AIR-COOLED R290 HEAT PUMPS

Optimised heat pump

Skadec heat pumps are specially optimised for heating operation. The advantage of these components is that they significantly improve the performance and efficiency in heating operations. Cold water provision can also be achieved using the highly efficient heat pump. The optimised housing ensures controlled drainage of condensation water. Most suppliers of heat pumps, on the other hand, focus on the cooling mode, which is why these pumps are also known as „reversible chillers“.

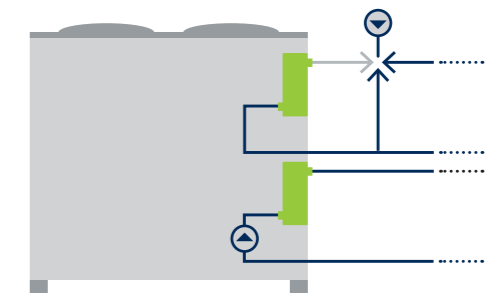
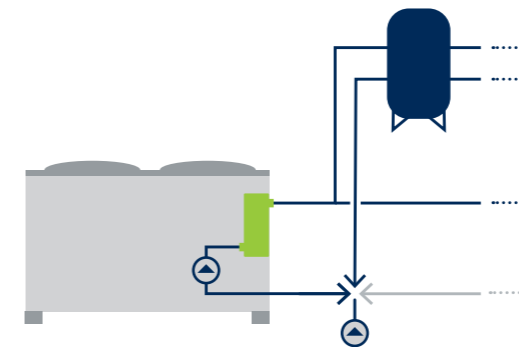


Service hot water heating (optional)

In classic operation, heat pumps work predominantly purely for comfort applications. In addition to comfort applications, domestic hot water can also be heated by the heat pump. The heat pump then operates in two operating points and at two temperature levels. A 3-way valve installed outside the unit is controlled via the heat pump.

Heat recovery in refrigeration mode (optional)

The heat pump has an optional second heat exchanger for heat recovery in cooling mode. The excess heat can be used, for example, to heat drinking water. In this case, the system has four hydraulic connections. A constant flow can be ensured via an externally installed 3-way valve.



Manufacturing quality / components from well-known manufacturers

Skadec heat pumps are manufactured to German industrial standards. Great emphasis is placed on high quality of workmanship. Our heat pumps are exclusively equipped with Bitzer and Bock reciprocating compressors. The German products stand for the highest quality and reliability.

Automation / VDE-wired control cabinet

As standard, we use PLC controllers in all heat pumps. The control cabinets of the heat pumps are wired and tested according to VDE guidelines. We attach great importance to a standard-compliant load distribution and vibration-proof design.



Advantages

- » High efficiency due to inverter-controlled reciprocating compressors
- » Natural refrigerant propane (R290) without ozone depletion potential and low global warming potential (GWP=3).
- » Not subject to F-gas regulation
- » High-efficiency EC axial fans (standard)
- » Control cabinet separated from the compressor area
- » Compact size
- » Control cabinet wired according to VDE
- » Powerful PLC controller



Versions / Options

Machines and refrigeration circuits

- » Low-noise design (standard)
- » Frequency converter for all compressors (standard)
- » Improved sound-insulation for housing SH.B
- » Lamella anti-corrosion coating
- » Spring vibration damper
- » Housing colour as requested in RAL
- » Monitoring package consisting of cooling and energy meters
- » Double safety valve with shuttle valve

Hydraulic module

- » Pump group includes pump, dirt filter, safety valve, drain, vent, expansion tank
- » Standard pump (high or low discharge head)
- » Frequency-controlled pump (high or low discharge head)
- » Standard double pump (high or low discharge head)
- » Frequency-controlled double pump (high or low discharge head)
- » Heat tracing (medium water)
- » Check valve upstream of the pump
- » Pressure transmitter (downstream or upstream of the pump)

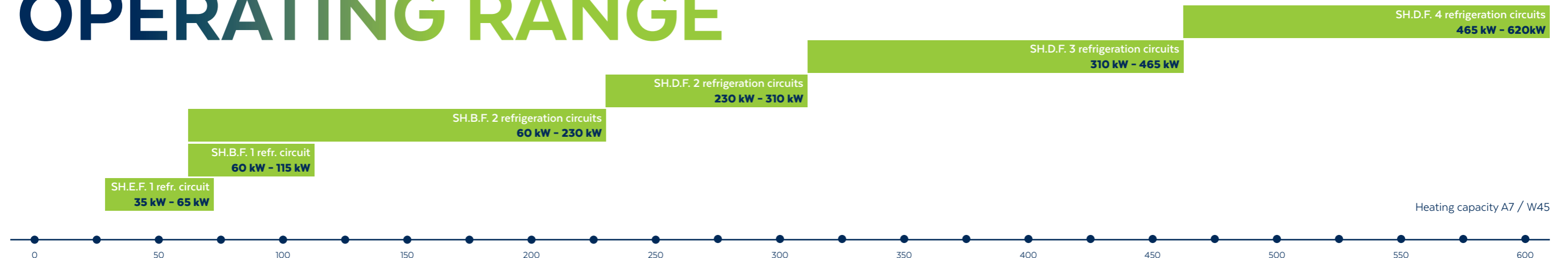
Heat recovery

- » Service hot water heating in cooling mode
- » Mixing valve for constant flow
- » Heat tracing (medium water)

Automation

- » WAGO PLC PFC (standard)
- » Siemens S7-S1200 or S7-1500
- » Industrial VPN Cloud & remote maintenance router
- » Modbus TCP interface (standard)
- » Interfaces: Bacnet IP, Modbus RTU, Profibus, Profinet (further interfaces on request)
- » 7" touch screen (standard)
- » 10" touch screen
- » 15" touch screen

OPERATING RANGE



Air-cooled R290 heat pumps

Type Skadec SH

E.F.031.S.1.1 E.F.039.S.1.1 E.F.048.S.1.1 E.F.055.S.1.1 E.F.061.S.1.1 B.F.056.S.1.1 B.F.062.S.1.1 B.F.067.S.1.1

Standard version

Refrigeration capacity ¹	kW	31	38,9	47,7	54,7	61,5	56,3	62,3	67,55
Power consumption	kW	9,4	12,6	16,39	19,33	22,12	17,7	20,29	22,44
EER		3,31	3,09	2,91	2,83	2,78	3,18	3,07	3,01
Heating capacity ²	kW	36,2	45,4	54,7	55,3	65,2	66,2	73,35	74,3
Power consumption	kW	9,7	12,4	16,23	16,17	19,06	17,42	19,56	19,55
COP		3,74	3,66	3,37	3,42	3,42	3,8	3,75	3,8
$\eta_{s,h}$	%	227,6	227,6	195,1	164,6	176	200,9	200,5	197,8
SCOP ³		5,76	5,76	4,95	4,48	4,48	5,1	5,09	5,02
SEER		5,31	5,53	4,63	4,31	4,48	4,69	4,7	4,66
$\eta_{s,c}$		209,3	218,3	171,3	169,3	176	184,6	185	183,5

System data

Refrigerant	Type	R290							
Number of compressors	n	1							
Number of independent refrigeration circuits	n	1							
Refrigerant capacity per circuit ⁴	kg	7	8	8	8,5	8,5	11	12	12
Sound pressure level in 10m ⁵	dB(A)	49	50	56	56	57	51	51	52

Fan

Type		EC							
Number of fans	n	3				2			
Air flow	m ³ /h	20076	20076	25749	25749	25749	27920	27920	27920

Plate heat exchanger

Number of plate heat exchangers	n	1							
Flow rate cooling	m ³ /h	5,31	6,66	8,17	9,37	10,53	9,64	10,67	11,57
Pressure drop cooling	kPa	13,8	20,7	29,9	9,45	11,7	9,95	11,9	13,8
Flow rate heating	m ³ /h	6,24	7,83	9,43	9,53	11,24	11,42	12,65	12,81
Pressure drop heating	kPa	3,6	5,6	8,1	4,1	11,4	6,1	14,2	14,5

Power supply

Max. power consumption	A	33,2	33,2	39,9	44,9	55,7	38,9	42,9	49,7
Start-up current	A	< 33,2	< 33,2	< 39,9	< 44,9	< 55,7	< 38,9	< 42,9	< 49,7

Dimensions and weight

Length	mm	2614	2614	2614	2614	2614	3118	3118	3118
Width	mm	946	946	946	946	946	1234	1234	1234
Height	mm	1733	1733	1733	1733	1733	2238	2238	2238
Operating weight ⁶	kg	810	810	830	835	860	1350	1390	1400

New series up to 70 kW, energy efficiency label in process

¹ Outside air temperature 35°C, medium temperature 12/7°C, medium water. The values conform to the EN 14511 standard.

² Outside air temperature 7°C, medium temperature 40/45°C, medium water. The values conform to the EN 14511 standard.

³ SCOP specified according to EN14825, average climate, application at low temperatures

⁴ Theoretical values refer to the basic unit. The actual amount of gas charged in the unit may differ.

⁵ Sound pressure level at a distance of 10m in the free field and at the extended point (enveloping surface method according to ISO 3744), tolerance +/- 2 dB(A)

⁶ Individual values may differ. Data based on the basic version without accessories.

Subject to change without notice. We assume no liability for printing errors.

Type Skadec SH

B.F.070.S.1.1 B.F.071.S.1.1 B.F.089.S.1.1 B.F.048.S.2.2 B.F.052.S.2.2 B.F.059.S.2.2 B.F.066.S.2.2 B.F.086.S.2.2

Standard version

Refrigeration capacity ¹	kW	69,75	71,25	88,8	48,3	52,5	58,8	65,8	74,9
Power consumption	kW	22,94	23,59	30,55	15,2	17,1	18,6	21,6	25,9
EER		3,04	3,02	2,91	3,17	3,08	3,15	3,04	2,89
Heating capacity ²	kW	94,8	109,1	115	62,3	76,2	90,2	100	113,4
Power consumption	kW	25,9	30,56	34,23	16,8	21,3	25,0	28,01	32,31
COP		3,66	3,57	3,36	3,71	3,58	3,61	3,57	3,51
$\eta_{s,h}$	%	188,3	190,9	186,3	189,5	189,5	199,9	206,4	193,8
SCOP ³		4,78	4,85	4,73	4,81	4,81	5,07	5,23	4,99
SEER		4,57	4,43	4,4	4,22	4,22	4,16	4,14	4,09
$\eta_{s,c}$		179,7	174,1	173,1	165,9	165,9	163,3	162,8	160,8

System data

Refrigerant	Type	R290							
Number of compressors	n	1				2			
Number of independent refrigeration circuits	n	1				2			
Refrigerant capacity per circuit ⁴	kg	14	14	14	6	7	8,5	11	11
Sound pressure level in 10m ⁵	dB(A)	54	55	56	50	50	51	52	54

Fan

Type		EC							
Number of fans	n	2							
Air flow	m ³ /h	27920	27920	47646	28600	28600	28600	28600	28600

Plate heat exchanger

Number of plate heat exchangers	n	1							
Flow rate cooling	m ³ /h	11,95	12,2	15,21	8,27	8,99	10,07	11,27	12,83
Pressure drop cooling	kPa	14,6	15,2	22,7	16	18,5	22,7	13,2	16,7
Flow rate heating	m ³ /h	16,23	18,81	19,83	10,74	13,14	15,55	17,24	19,55
Pressure drop heating	kPa	22,4	29,9	33,2	22,4	33,1	46	25,3	32,3

Power supply

Max. power consumption	A	56,9	67,8	67,8	46,1	46,1	55,9	62,1	72,1
Start-up current	A	< 56,9	< 67,8	< 67,8	< 46,1	< 46,1	< 55,9	< 62,1	< 72,1

Dimensions and weight

Length	mm	3118	3118	3118	3425	3425	3425	3425	3425
Width	mm	1234	1234	1234	1147	1147	1147	1147	1147
Height	mm	2238	2238	2238	2418	2418	2418	2418	2418
Operating weight ⁶	kg	1410	1410	1480	1650	1690	1780	1790	1850

New series up to 70 kW, energy efficiency label in process

¹ Outside air temperature 35°C, medium temperature 12/7°C, medium water. The values conform to the EN 14511 standard.

² Outside air temperature 7°C, medium temperature 40/45°C, medium water. The values conform to the EN 14511 standard.

³ SCOP specified according to EN14825, average climate, application at low temperatures

⁴ Theoretical values refer to the basic unit. The actual amount of gas charged in the unit may differ.

⁵ Sound pressure level at a distance of 10m in the free field and at the extended point (enveloping surface method according to ISO 3744), tolerance +/- 2 dB(A)

⁶ Individual values may differ. Data based on the basic version without accessories.

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Air-cooled R290 heat pumps

Type Skadec SH

B.F.113.S.2.2 B.F.125.S.2.2 B.F.135.S.2.2 B.F.139.S.2.2 B.F.142.S.2.2 B.F.178.S.2.2 D.F.206.S.2.2 D.F.216.S.2.2

Standard version

Refrigeration capacity ¹	kW	112,6	124,6	135,1	139,5	142,5	177,6	206,5	216,5
Power consumption	kW	35,41	40,59	44,88	45,89	47,19	61,10	69,76	73,89
EER		3,18	3,07	3,01	3,04	3,02	2,91	2,96	2,93
Heating capacity ²	kW	132,4	146,7	148,6	189,6	218,2	230	238,9	255,74
Power consumption	kW	34,84	39,12	39,11	51,8	61,12	68,45	68,65	73,7
COP		3,8	3,75	3,8	3,66	3,57	3,36	3,48	3,47
$\eta_{s,h}$	%	200	191,8	187	189,4	207,4	175,7	183	186,7
SCOP ³		5,08	4,87	4,75	4,81	5,26	4,47	4,65	4,77
SEER		4,76	5,19	5,07	5,07	5,07	4,35	4,34	4,39
$\eta_{s,c}$		187,5	204,5	200	199,8	199,8	170,9	170,5	172,4

System data

Refrigerant	Type	R290							
Number of compressors	n	2							
Number of independent refrigeration circuits	n	2							
Refrigerant capacity per circuit ⁴	kg	11,5	12	12	13	13	14	18	18,5
Sound pressure level in 10 m ⁵	dB(A)	54	54	55	57	58	59	60	60

Fan

Type		EC							
Number of fans	n	4							
Air flow	m ³ /h	55840	55840	55840	55840	55840	95292	112848	112848

Plate heat exchanger

Number of plate heat exchangers	n	1							
Flow rate cooling	m ³ /h	19,28	21,34	23,14	23,89	24,4	30,42	35,36	37,08
Pressure drop cooling	kPa	34,8	20,5	23,8	25,2	26,2	13,9	18,3	20
Flow rate heating	m ³ /h	22,83	25,3	25,62	32,69	37,59	39,66	41,2	44,1
Pressure drop heating	kPa	43,6	25,1	25,7	41,4	54,4	20,2	21,6	24,5

Power supply

Max. power consumption	A	76,3	84,3	97,9	112,3	134,1	139,5	138,5	143,1
Start-up current	A	< 76,3	< 84,3	< 97,9	< 112,3	< 134,1	< 139,5	< 138,5	< 143,1

Dimensions and weight

Length	mm	5755	5755	5755	5755	5755	5755	4505	4505
Width	mm	1224	1224	1224	1224	1224	1224	2283	2283
Height	mm	2310	2310	2310	2310	2310	2310	2395	2395
Operating weight ⁶	kg	2610	2610	2640	2680	2690	2630	2950	2960

¹ Outside air temperature 35°C, medium temperature 12/7°C, medium water. The values conform to the EN 14511 standard.

² Outside air temperature 7°C, medium temperature 40/45°C, medium water. The values conform to the EN 14511 standard.

³ SCOP specified according to EN14825, average climate, application at low temperatures

⁴ Theoretical values refer to the basic unit. The actual amount of gas charged in the unit may differ.

⁵ Sound pressure level at a distance of 10m in the free field and at the extended point (enveloping surface method according to ISO 3744), tolerance +/-2 dB(A)

⁶ Individual values may differ. Data based on the basic version without accessories.

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Type Skadec SH

D.F.236.S.2.2 D.F.257.S.2.2 D.F.309.S.3.3 D.F.325.S.3.3 D.F.354.S.3.3 D.F.360.S.3.3

Standard version

Refrigeration capacity ¹	kW	236	257	309,7	324,8	353,9	359,4
Power consumption	kW	81,66	90,81	104,63	110,85	122,46	123,08
EER		2,89	2,83	2,96	2,93	2,89	2,92
Heating capacity ²	kW	281	310,1	358,4	373,5	421,5	465,2
Power consumption	kW	80,98	89,88	102,99	107,64	121,47	134,84
COP		3,47	3,45	3,48	3,47	3,47	3,45
$\eta_{s,h}$	%	173,8	172,1	189,1	196	185,1	180,4
SCOP ³		4,42	4,38	4,82	4,97	4,7	4,59
SEER		4,36	4,27	4,45	4,46	4,46	4,39
$\eta_{s,c}$		171,4	167,6	175	175,5	175,5	172,5

System data

Refrigerant	Type	R290					
Number of compressors	n	2			3		
Number of independent refrigeration circuits	n	2			3		
Refrigerant capacity per circuit ⁴	kg	19	19	18	18,5	19	19
Sound pressure level in 10 m ⁵	dB(A)	61	61	61	61	62	61

Fan

Type		EC					
Number of fans	n	4			6		
Air flow	m ³ /h	112848	112848	169272	169272	169272	169272

Plate heat exchanger

Number of plate heat exchangers	n	1			3		
Flow rate cooling	m ³ /h	40,42	44,01	53,02	55,64	60,62	61,55
Pressure drop cooling	kPa	23,4	27,3	29,7	32,5	37,9	39
Flow rate heating	m ³ /h	48,46	53,46	61,82	64,41	72,68	80,24
Pressure drop heating	kPa	29,2	35	9,9	10,7	13,3	15,9

Power supply

Max. power consumption	A	162,1	206,7	207	213,9	242,4	309,3
Start-up current	A	< 162,1	< 206,7	< 207	< 213,9	< 242,4	< 309,3

Dimensions and weight

Length	mm	4505	4505	6010	6010	6010	6010
Width	mm	2283	2283	2283	2283	2283	2283
Height	mm	2395	2395	2355	2355	2355	2355
Operating weight ⁶	kg	2980	3080	4400	4450	4480	4490

¹ Outside air temperature 35°C, medium temperature 12/7°C, medium water. The values conform to the EN 14511 standard.

² Outside air temperature 7°C, medium temperature 40/45°C, medium water. The values conform to the EN 14511 standard.

³ SCOP specified according to EN14825, average climate, application at low temperatures

⁴ Theoretical values refer to the basic unit. The actual amount of gas charged in the unit may differ.

⁵ Sound pressure level at a distance of 10m in the free field and at the extended point (enveloping surface method according to ISO 3744), tolerance +/-2 dB(A)

⁶ Individual values may differ. Data based on the basic version without accessories.

Subject to change without notice. We assume no liability for printing errors.



AIR-COOLED R290 WATER CHILLERS

PLC control | Software development

We use PLC controls in all our water chillers as standard. You can choose between WAGO PFC and Siemens S7 controllers. These powerful automation solutions guarantee high system availability, low operating costs and service-friendly operation. All our application software is programmed in-house at Skadec!



Manufacturing quality | Components from well-known manufacturers

Skadec water chillers are manufactured to German industrial standards. Great emphasis is placed on high quality of workmanship. Our water chillers are exclusively equipped with Bitzer and Bock reciprocating and screw compressors. The German products stand for the highest quality and reliability.



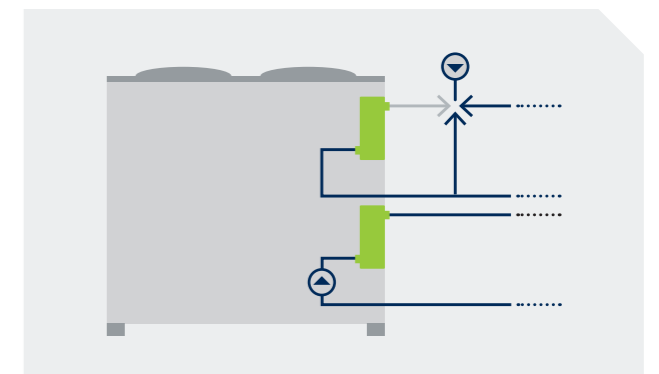
Machine housing | Safety

Safety is a top priority at Skadec. Our chillers have a closed machine housing with explosion-proof gas monitoring and explosion-proof housing ventilation. In the event of a gas alarm, all components that are not EX-protected are de-energised. We are available to advise plant operators on how to prepare risk assessments.



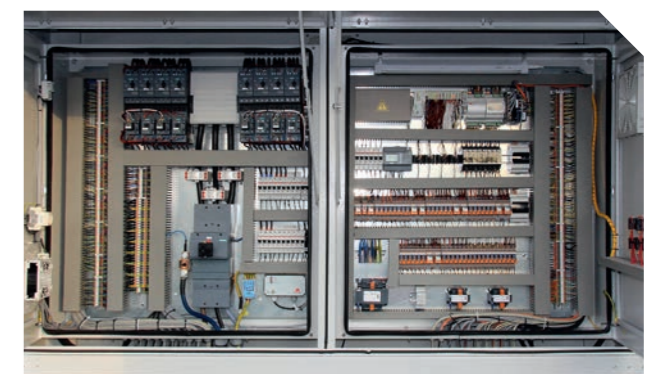
Heat recovery in refrigeration mode

As an option, the chiller can be equipped with a second heat exchanger for all-year-round heat recovery. In refrigeration mode, the excess heat can be used, for example, to heat tap water. The chiller then has four hydraulic connections. Optionally, a constant flow can be ensured via an external 3-way valve.



VDE wired control cabinet

Circuit diagrams and flow charts are created on a project-specific basis. The chiller control cabinets are wired and tested according to VDE guidelines. We attach great importance to a standard-compliant load distribution and vibration-proof design.





Advantages

- » High efficiency due to inverter-controlled reciprocating compressors
- » Natural refrigerant propane (R290) without ozone depletion potential and low global warming potential (GWP=3).
- » Not subject to F-gas regulation
- » High-efficiency EC axial fans (standard)
- » Control cabinet separated from the compressor area
- » Compact size
- » Control cabinet wired according to VDE
- » Powerful PLC controller



Versions / Options

- » Low-noise version
- » Free cooling
- » Lamella anti-corrosion coating
- » Spring vibration damper
- » Housing colour as requested in RAL
- » Housing enlargement for buffer tank and hydraulics
- » Monitoring package consisting of refrigeration and energy meters
- » Double safety valve with shuttle valve
- » Frequency converter for all compressors
- » Performance regulation for all compressors

Hydraulic module

- » Pump group includes pump, dirt filter, safety valve, drain, vent, expansion tank
- » Standard pump (high or low discharge head)
- » Frequency-controlled pump (high or low discharge head)
- » Standard double pump (high or low discharge head)
- » Frequency-controlled double pump (high or low discharge head)
- » Heat tracing (medium water)
- » Check valve downstream of the pump
- » Pressure transmitter (downstream or upstream of the pump)
- » 3-way valve for constant inlet temperature
- » Buffer storage in series connection
- » Buffer tank as hydraulic separator

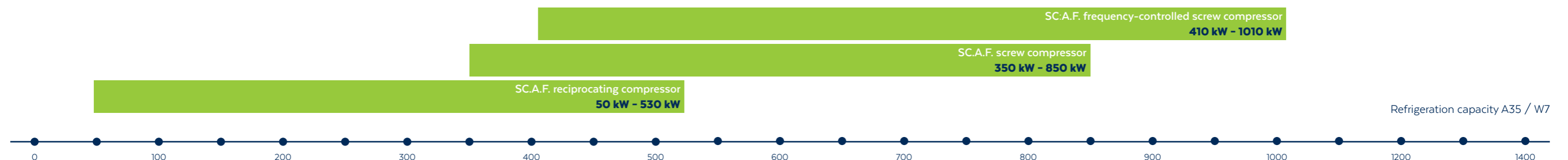
Heat recovery

- » Service water heating
- » Full heat recovery (30°C/40°C, water, 100%)
- » Hydraulic module for heat recovery
- » 3-way valve for constant feed temperature
- » Heat recovery heat tracing

Automation

- » WAGO PLC PFC (standard)
- » Siemens PLC S7-S1200 or S7-1500
- » Industrial VPN Cloud & remote maintenance router
- » Modbus TCP interface (standard)
- » Interfaces: Bacnet IP, Modbus RTU, Profibus, Profinet (further interfaces on request)
- » 7" touch screen (standard)
- » 10" touch screen
- » 15" touch screen

OPERATING RANGE



Air-cooled R290 water chillers

Frequency controlled reciprocating compressors

Type Skadec SC.A.F 052.S.1.1 079.S.1.1 090.S.1.1 101.S.1.1 051.S.2.2 075.S.2.2 095.S.2.2 111.S.2.2

Standard version

Refrigeration capacity ¹	kW	52,2	78,5	90,3	101	50,5	75,4	94,7	111,1
Power consumption	kW	16,2	24,2	28,4	32,3	15,8	22,5	28,7	34,4
EER		3,23	3,25	3,18	3,13	3,19	3,35	3,3	3,23
η_{sc}	%	179,9	188,4	193,5	189,4	161,4	168,1	171,2	170,5
SEER		4,57	4,78	4,91	4,81	4,11	4,28	4,35	4,34

System data

Refrigerant	Type	R290							
Number of compressors	n	1				2			
Number of independent refrigeration circuits	n	1				2			
Performance regulation		Frequency-controlled							
Refrigerant charge per circuit ²	kg	3,5	5,0	5,0	5,0	5,5	5,5	5,5	5,5
Sound pressure level in 10 m ³	dB(A)	49	54	56	57	52	52	53	54

Fan

Type		EC							
Number of fans	n	2							
Flow rate	m ³ /h	41558	41558	41558	41558	41558	41558	41558	41558

Plate heat exchanger

Number of plate heat exchangers	n	1							
Flow rate	m ³ /h	8,75	13,44	15,46	17,3	8,65	12,91	16,22	19,03
Pressure drop	kPa	46	18,1	23,4	28,6	17,3	10,3	15,6	20,9

Power supply

Max. power consumption	A	30,5	43,9	51	62,8	56,8	61,7	60,5	81,7
Start-up current	A	< 30,5	< 43,9	< 51	< 62,8	101,6	136,7	131,5	162,7

Dimensions and weight

Length	mm	2607	2607	2607	2607	2607	2607	2607	2607
Width	mm	1275	1275	1275	1275	1275	1275	1275	1275
Height	mm	2409	2409	2409	2409	2409	2409	2409	2409
Operating weight ⁴	kg	1230	1300	1300	1310	1280	1380	1490	1520

¹ Outside air temperature 35°C, medium temperature 12/7°C, medium water. The values conform to standard EN 14511.

² Theoretical values refer to the basic unit. The actual amount of gas charged in the unit may differ.

³ Sound pressure level at a distance of 10m in the free field and at the extended point (enveloping surface method according to ISO 3744), tolerance +/-2 dB(A).

⁴ Individual values may differ. Data based on the basic version without accessories.

Subject to change without notice. We assume no liability for printing errors.

Type Skadec SC.A.F 162.S.2.2 171.S.2.2 202.S.2.2 218.S.2.2 233.S.2.2 248.S.2.2 276.S.2.2 315.S.2.2

Standard version

Refrigeration capacity ¹	kW	161,5	170,5	202,2	218	233	248	276	315
Power consumption	kW	50,1	51,8	60,3	67,5	72,1	76,32	84	98,1
EER		3,22	3,29	3,35	3,23	3,23	3,25	3,29	3,21
η_{sc}	%	184,9	177,4	182,1	180,8	179,4	192,2	187,9	177,4
SEER		4,7	4,51	4,63	4,59	4,56	4,88	4,77	4,51

System data

Refrigerant	Type	R290							
Number of compressors	n	2							
Number of independent refrigeration circuits	n	2							
Performance regulation		Frequency-controlled							
Refrigerant charge per circuit ²	kg	5,5	5,0	8,0	8,0	8,0	8,5	10,0	10,0
Sound pressure level in 10 m ³	dB(A)	58	58	59	59	59	61	61	61

Fan

Type		EC							
Number of fans	n	4				6			
Flow rate	m ³ /h	83116	83116	83116	83116	83116	124674	124674	124674

Plate heat exchanger

Number of plate heat exchangers	n	1							
Flow rate	m ³ /h	27,66	29,2	34,63	37,33	39,9	42,47	47,27	53,95
Pressure drop	kPa	41,4	45,6	17,6	20,2	22,8	25,6	31,2	39,8

Power supply

Max. power consumption	A	122,3	120,8	142,3	154,1	170,8	163,5	187,1	236,5
Start-up current	A	201,2	251,5	263,3	289,3	306	< 163,5	< 187,1	563,5

Dimensions and weight

Length	mm	2877	2877	2877	2877	2877	4082	4082	4082
Width	mm	2321	2321	2321	2321	2321	2321	2321	2321
Height	mm	2520	2520	2520	2520	2520	2520	2520	2520
Operating weight ⁴	kg	2000	2100	2160	2160	2230	2870	2860	3130

¹ Outside air temperature 35°C, medium temperature 12/7°C, medium water. The values conform to standard EN 14511.

² Theoretical values refer to the basic unit. The actual amount of gas charged in the unit may differ.

³ Sound pressure level at a distance of 10m in the free field and at the extended point (enveloping surface method according to ISO 3744), tolerance +/-2 dB(A).

⁴ Individual values may differ. Data based on the basic version without accessories.

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Air-cooled R290 water chillers

Frequency controlled reciprocating compressors

Type Skadec SC.A.F 378.S.2.2 436.S.2.2 498.S.2.2 229.S.3.3 271.S.3.3 298.S.3.3 351.S.3.3 390.S.3.3

Standard version

Refrigeration capacity ¹	kW	378	436	498	228,6	270,9	298,2	351	390
Power consumption	kW	113,6	130,6	156,3	68,9	85,1	95,3	111,5	128,6
EER		3,33	3,34	3,19	3,32	3,18	3,13	3,15	3,03
η_{sc}	%	187	187,9	184,8	187,9	197	189,1	195,5	181,6
SEER		4,75	4,77	4,7	4,77	5	4,8	4,96	4,61

System data

Refrigerant	Type	R290							
Number of compressors	n	2				3			
Number of independent refrigeration circuits	n	2				3			
Performance regulation		Frequency-controlled							
Refrigerant charge per circuit ²	kg	10,0	10,0	10,5	5,5	5,5	6,5	7,0	7,0
Sound pressure level in 10 m ³	dB(A)	61	62	62	58	61	61	62	63

Fan

Type		EC							
Number of fans	n	8	10			6			
Flow rate	m ³ /h	166232	207790	207790	124674	124674	124674	124674	124674

Plate heat exchanger

Number of plate heat exchangers	n	1			3				
Flow rate	m ³ /h	64,73	74,67	85,28	39,15	46,39	51,07	60,11	66,79
Pressure drop	kPa	30,6	40	51,3	17,2	23,4	27,8	23,6	28,6

Power supply

Max. power consumption	A	274	321,1	347,7	131,7	153	188,4	238,5	273,9
Start-up current	A	585	696,5	< 347,7	< 131,7	< 153	< 188,4	< 238,5	< 273,9

Dimensions and weight

Length	mm	5286	6492	6492	4082	4082	4082	4082	4082
Width	mm	2321	2321	2321	2321	2321	2321	2321	2321
Height	mm	2520	2520	2520	2520	2520	2520	2520	2520
Operating weight ⁴	kg	3790	4190	4370	3010	3010	3050	3320	3300

¹ Outside air temperature 35°C, medium temperature 12/7°C, medium water. The values conform to standard EN 14511.

² Theoretical values refer to the basic unit. The actual amount of gas charged in the unit may differ.

³ Sound pressure level at a distance of 10m in the free field and at the extended point (enveloping surface method according to ISO 3744), tolerance +/-2 dB(A).

⁴ Individual values may differ. Data based on the basic version without accessories.

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Type Skadec SC.A.F 404.S.4.4 436.S.4.4 466.S.4.4 498.S.4.4 530.S.2.4

Standard version

Refrigeration capacity ¹	kW	404,4	436	466	498	530
Power consumption	kW	120,7	135,1	144,3	158,1	165,7
EER		3,35	3,23	3,23	3,13	3,2
η_{sc}	%	181,4	179,2			196,9
SEER		4,61	4,55	SEPR 5,65	SEPR 5,63	5

System data

Refrigerant	Type	R290				
Number of compressors	n	4				
Number of independent refrigeration circuits	n	4				2
Performance regulation		Frequency-controlled				
Refrigerant charge per circuit ²	kG	8,5	8,5	8,5	10,0	18,0
Sound pressure level in 10 m ³	dB(A)	62	62	63	61	60

Fan

Type		EC				
Number of fans	n	8				10
Flow rate	m ³ /h	166232	166232	166232	166232	207790

Plate heat exchanger

Number of plate heat exchangers	n	2				1
Flow rate	m ³ /h	69,26	74,67	79,8	85,28	90,7
Pressure drop	kPa	17,6	20,2	22,8	25,8	39,5

Power supply

Max. power consumption	A	284,6	308,2	341,6	374	402,1
Start-up current	A	405,6	443,4	476,8	493	521,1

Dimensions and weight

Length	mm	5286	5286	5286	5286	6492
Width	mm	2321	2321	2321	2321	2321
Height	mm	2520	2520	2520	2520	2520
Operating weight ⁴	kg	4290	4280	4430	4420	4770

¹ Outside air temperature 35°C, medium temperature 12/7°C, medium water. The values conform to standard EN 14511.

² Theoretical values refer to the basic unit. The actual amount of gas charged in the unit may differ.

³ Sound pressure level at a distance of 10m in the free field and at the extended point (enveloping surface method according to ISO 3744), tolerance +/-2 dB(A).

⁴ Individual values may differ. Data based on the basic version without accessories.

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Air-cooled R290 water chillers

Frequency controlled screw compressors

Type Skadec SC.A.F 434.S.2.2 490.S.2.2 572.S.2.2 654.S.2.2 695.S.2.2 803.S.2.2 870.S.2.2 M10.S.2.2

Standard version

Refrigeration capacity ¹	kW	434	490,4	572,4	653,9	694,6	803,2	870	1014,8
Power consumption	kW	130,59	149,59	174,02	189,15	211,12	240,48	273,58	300,24
EER		3,32	3,28	3,29	3,3	3,29	3,34	3,18	3,38
η_{sc}	%	187,3	184,2	180,8	180,4	183	185,3	180	187,8
SEER		4,76	4,68	4,59	4,58	4,65	4,71	4,57	4,77

System data

Refrigerant	Type	R290							
Number of compressors	n	2							
Number of independent refrigeration circuits	n	2							
Performance regulation		Frequency converter per screw compressor							
Refrigerant charge per circuit ²	kg	14,0	14,0	18,5	18,5	21,0	28,0	28,0	33,5
Sound pressure level in 10 m ³	dB(A)	68	69	70	71	72	72	73	73

Fan

Type		EC							
Number of fans	n	8	10	12	14	16	20		
Flow rate	m ³ /h	161101	201376	241652	281927	281927	322202	322202	402753

Plate heat exchanger

Number of plate heat exchangers	n	1							
Flow rate	m ³ /h	74,3	83,9	98,0	111,9	118,9	137,5	148,9	173,78
Pressure drop	kPa	39,6	49,8	31,9	41	46	28,8	33,6	45

Power supply

Max. power consumption	A	306	342	362,5	387	463,5	528	556	665
Start-up current	A	< 306	< 342	< 362,5	< 387	< 463,5	< 528	< 556	< 665

Dimensions and pipe connection

Length	mm	5786	6992	8195	9398	9398	10604	10604	13016
Width	mm	2203	2203	2203	2203	2203	2203	2203	2203
Height	mm	2289	2289	2289	2289	2289	2289	2289	2289
Operating weight ⁴	kg	4320	4990	5560	6220	6880	7690	8190	8850

¹ Outside air temperature 35°C, medium temperature 12/7°C, medium water. The values conform to standard EN 14511.

² Theoretical values refer to the basic unit. The actual amount of gas charged in the unit may differ.

³ Sound pressure level at a distance of 10m in the free field and at the extended point (enveloping surface method according to ISO 3744), tolerance +/-2 dB(A).

⁴ Individual values may differ. Data based on the basic version without accessories.

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Screw compressor with capacity slide valve

Type Skadec SC.A.F 362.S.2.2 419.S.2.2 484.S.2.2 543.S.2.2 574.S.2.2 672.S.2.2 731.S.2.2 855.S.2.2

Standard version

Refrigeration capacity ¹	kW	361,6	418,6	483,8	543,2	574	672	730,8	854,4
Power consumption	kW	105,95	121,39	139,83	159,29	168,82	195,92	220,1	249,76
EER		3,41	3,45	3,46	3,41	3,4	3,43	3,32	3,42
SEPR		5,36	5,55	5,57	5,62	5,81	5,63	5,5	5,8

System data

Refrigerant	Type	R290							
Number of compressors	n	2							
Number of independent refrigeration circuits	n	2							
Performance regulation		Capacity slide valve							
Refrigerant charge per circuit ²	kg	11,5	11,5	14,0	14,0	18,5	18,5	23,0	27,0
Sound pressure level in 10 m ³	dB(A)	63	63	64	65	66	66	67	67

Fan

Type		EC							
Number of fans	n	8	10	12	14	16			
Flow rate	m ³ /h	161101	201376	201376	241652	241652	281927	281927	322202

Plate heat exchanger

Number of plate heat exchangers	n	1							
Flow rate	m ³ /h	59,2	66,0	76,6	84,4	92,1	103	116,1	134,6
Pressure drop	kPa	25,9	31,7	41,9	50,3	28,4	35	28,6	37,8

Power supply

Max. power consumption	A	301,5	337,5	358	378	454,5	514,5	542,5	651,5
Start-up current	A	507,5	598,5	667	714	850,5	933,5	1011,5	1098,5

Dimensions and pipe connection

Length	mm	5286	6492	6492	7695	7695	8898	8898	10104
Width	mm	2203	2203	2203	2203	2203	2203	2203	2203
Height	mm	2289	2289	2289	2289	2289	2289	2289	2289
Operating weight ⁴	kg	4310	4970	4990	5560	5570	6890	68910	8210

¹ Outside air temperature 35°C, medium temperature 12/7°C, medium water. The values conform to standard EN 14511.

² Theoretical values refer to the basic unit. The actual amount of gas charged in the unit may differ.

³ Sound pressure level at a distance of 10m in the free field and at the extended point (enveloping surface method according to ISO 3744), tolerance +/-2 dB(A).

⁴ Individual values may differ. Data based on the basic version without accessories.

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COMPACT WATER-COOLED R290 WATER CHILLERS

The solution for energy-efficient cooling and heating with a wide range of applications.

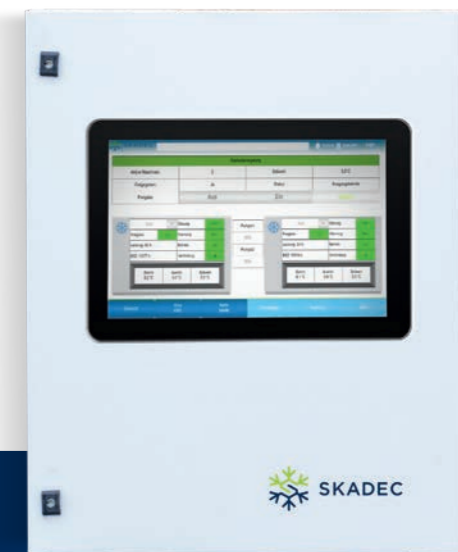
Thanks to the use of natural refrigerants such as R290, R1270 and R600a, a variety of performances can be achieved on a small footprint. Using a fill-quantity optimised heat exchanger, a refrigeration performance* of 7 kW up to 85 kW per module can be achieved, with a fill quantity of less than 0.4 to 2.0 kg. The compact design and sophisticated safety concept facilitates installation in buildings** with a reduced amount of space.

* Depending on the required target temperature
** Installation in a machine room or non-public area



Key facts

- » Modular and space-saving design
- » No intervention in the refrigeration circuit required for installation
- » Low refrigerant charge < 2.2 kg
- » Installation in a building possible
- » Improved performance coefficients thanks to high-quality components
- » Intelligent machine control
- » Simple integration in hydraulic and existing systems



Versions / Options

Automation

- » WAGO PLC PFC (standard)
- » Siemens PLC S7-S1200 or S7-1500
- » Industrial VPN Cloud & remote maintenance router
- » Modbus TCP interface (standard)
- » Interfaces: Bacnet IP, Modbus RTU, Profibus, Profinet (further interfaces on request)
- » 7" touch screen (standard)
- » 10" touch screen
- » 15" touch screen

Maschine and refrigeration circuit

- » Low-noise version
- » Spring vibration damper
- » Housing colour as requested in RAL
- » Monitoring package consisting of cooling and energy meters
- » Frequency converter for all compressors
- » Performance regulation for compressors
- » 3-way valve for condensation pressure control

Separately supplied hydraulic modules

- » Delivery possible according to customer specification
- » Standard pump (high or low discharge head)
- » Frequency-controlled pump (high or low discharge head)
- » Standard double pump (high or low discharge head)
- » Frequency-controlled double pump (high or low discharge head)
- » Heat tracing (medium water)
- » Pressure transmitter (downstream or upstream of pump)
- » Buffer tank

Compact water-cooled R290 water chillers

Intelligent control thanks to many years of experience

The industry-standard PLC controls installed as standard ensure that the amount of cooling or heating is provided as needed. Each module has its own control system and functions independently. In the event of a malfunction in one of the other units, self-sufficient operation of the compact chillers is ensured at all times. Several systems connected in parallel can be intuitively operated and managed centrally from a master controller. The entire plant is visualised and clearly displayed at the common master control. During the development of the control system, great emphasis was placed on a high level of service-friendliness. In addition to the chillers, the master control also handles the integration of other plant components such as recoolers, motor valves and pumps.

Highest operational reliability

Thanks to its modular design and intelligent control system, the compact chiller ensures operational reliability at the highest level. The intrinsically functional refrigeration system combined with permanent monitoring of the process data allows deviations from the target state to be detected at an early stage, thus avoiding system failures.

All refrigerant-carrying components are located in a well-ventilated housing, clearly separated from the electrical switching components. The housing is equipped with gas monitoring and permanent ventilation. For maintenance and servicing work, the modules can be disconnected hydraulically and electrically from the overall system in a few easy steps. Interventions in the refrigeration circuit may be performed outside or directly at the manufacturer's factory.



Air conditioning application +12/+7 °C

		SI190	SI215	SI255	SI315	SI380	SI475	SI565	SI665	SI770	SI850	SI995
Refrigeration capacity ¹	kW	12,9	14,2	16,8	20,9	25,9	31,6	37,8	43,8	50,9	56,3	65,5
Refrigeration capacity ²	kW	14,6	16,2	19,1	23,6	29,1	36	42,8	49,9	57,9	64	76,6
Power consumption ¹	kW	3,86	4,17	4,92	6,02	7,48	8,3	9,88	11,4	13,4	14,7	17,2
EER ¹		3,34	3,31	3,41	3,46	3,46	3,81	3,82	3,82	3,8	3,53	3,81

Process application +22/+16 °C

Refrigeration capacity ¹	kW	16,5	18,3	21,6	26,7	33	40,7	48,6	56,5	65,4	72,4	84,5
Refrigeration capacity ²	kW	18,5	20,7	24,3	30	36,8	45,9	54,7	63,7	73,9	81,7	95,3
Power consumption ¹	kW	4,03	4,38	5,16	6,29	7,74	8,61	10,2	11,9	13,9	15,3	17,8

Cold brine application -4/-8 °C

Refrigeration capacity ¹	kW	7,13	7,59	9,09	11,4	14,3	17,1	20,5	23,7	27,7	30,7	35,4
Refrigeration capacity ²	kW	8,12	8,86	10,6	13,2	16,3	19,9	23,7	27,5	32	35,5	41,1
Power consumption ¹	kW	3,13	3,34	3,97	4,49	6,15	6,86	8,2	9,45	11	12,2	14,1
EER ¹		2,28	2,27	2,29	2,31	2,33	2,49	2,5	2,5	2,5	2,5	2,51

Dimensions and weight

Length ³	mm	900	900	900	900	900	1200	1200	1200	1200	1200	1200
Width	mm	540	540	540	540	540	540	540	540	540	540	540
Height	mm	630	630	630	630	630	630	630	630	630	630	630
Weight ³	kg	190	200	200	220	220	310	310	320	320	380	380

System data

Sound power level ⁴	dB(A)	67-70	66-69	67-70	67-71	67-72	75-77	76-78	76-78	76-80	77-83	78-86
SEPR (-8°C)		4,01	4,05	4,05	4,03	3,98	3,94	3,95	3,92	3,92	3,95	3,92
SEPR (+7°C)		6,81	6,76	6,79	6,74	6,70	7,19	7,21	7,18	7,20	7,18	7,12
SEER (+7°C) ⁵		5,11	5,19	5,31	5,30	5,31	5,40	5,30	5,44	5,46	5,33	5,29
η_{sc}		201,3	204,5	209,3	209,0	209,3	213,2	209,0	214,6	215,3	210,0	209

¹ Re-cooling temperature +40/+45°C

² Re-cooling temperature +30/+35°C

³ Dimensions may vary depending on the project.

⁴ Values without enclosure. Two-number noise emission values according to ISO 4871 with uncertainties KWA = 2.5 dB and KpA = 2.5 dB. The values apply at 50 Hz mains operation with refrigerant R404A at the corresponding standard reference points according to EN 12900.

⁵ Outdoor heat exchanger Cooling tower, indoor heat exchanger Variable outlet

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R600A HIGH-TEMPERATURE HEAT PUMPS

High supply temperatures of 60 to 90°C with sustainable heat generation thanks to efficient heat pump technology with natural refrigerant

High-temperature heat pumps for long-term, energy-optimised use to recover waste heat for process and service water use.

Replacement* of existing heating systems with high system temperatures can be carried out easily using a high-temperature booster. Existing heat exchangers and ventilation systems can thus be retained.

Individual booster solutions can cover capacities from 10 kW to 1000 kW per refrigeration circuit. Control of several modules in parallel can be performed via a central master control.

Use cases:

- » Service water preparation
- » Replacement of gas or oil heating systems
- » Process water production
- » Waste heat utilisation
- » Heating and cooling networks

Heat source:

- » Low temperature heating systems
- » Process waste heat
- » Exhaust air
- » River water
- » Geothermal energy

Thanks to the combination of special compressor technology with a wide range of applications and optimised Skadec software, hot water temperatures of up to 90°C can be achieved depending on the application.

* In combination with another heat source such as an air-to-water heat pump

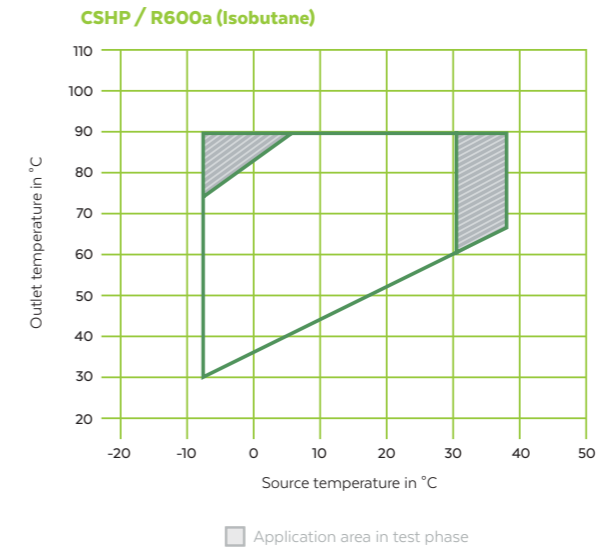


R600a heat pump in container

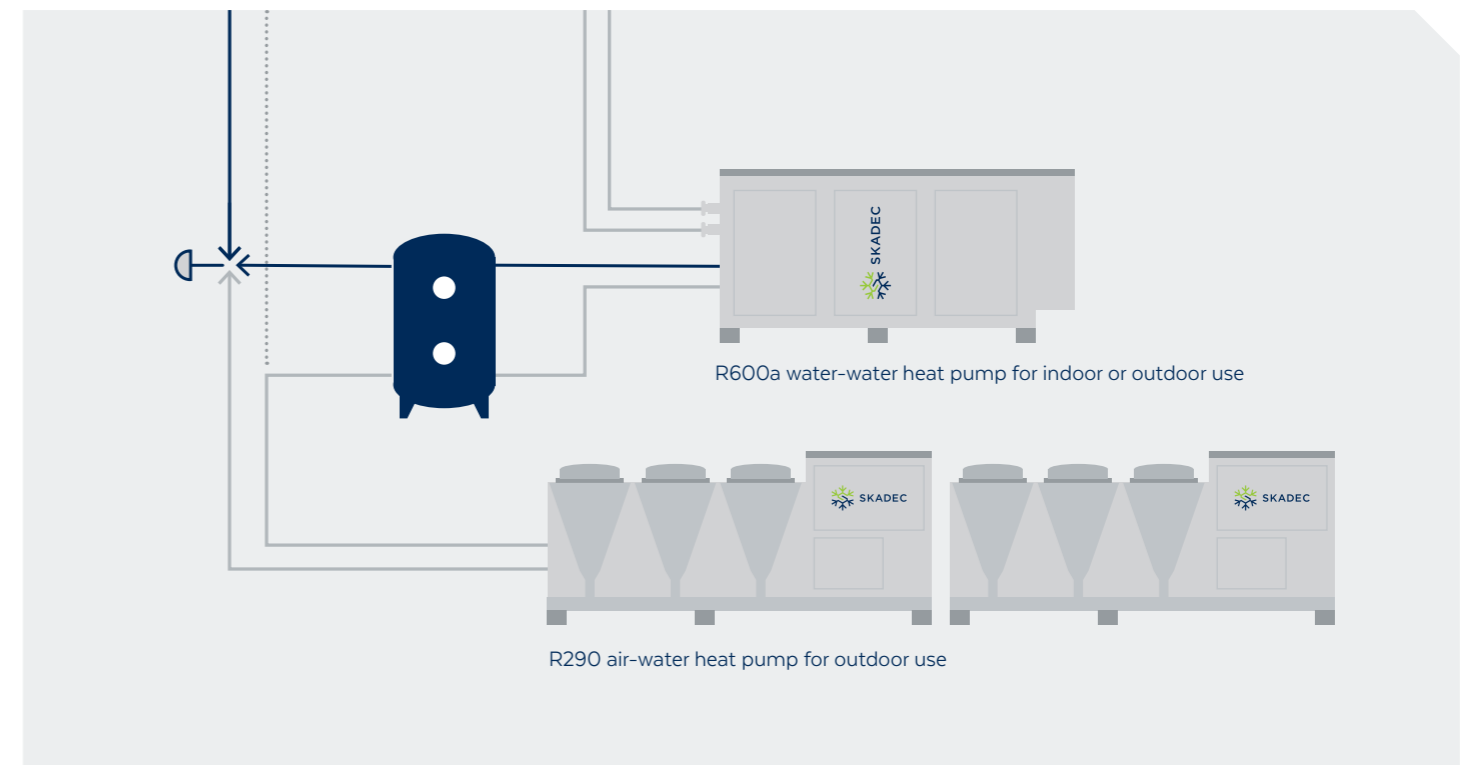
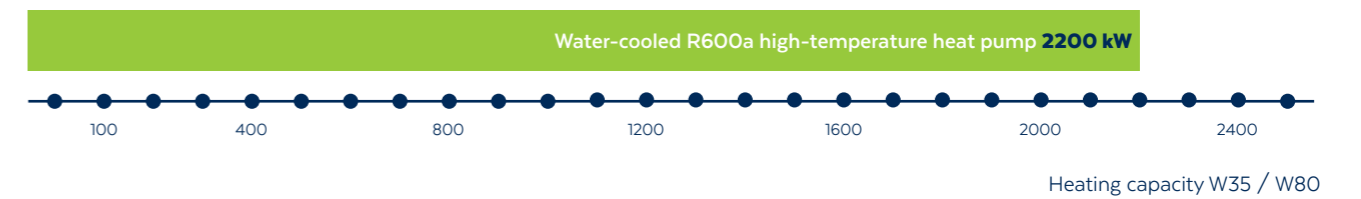


R600a heat pump

Areas of application of high-temperature heat pumps



OPERATION RANGE



RELIABLE. SUSTAINABLE. EFFICIENT. SIMPLY SKADEC.

Our products are used in numerous industries and for a multitude of applications

Skadec water chillers and heat pumps stand for highest quality, reliability, sustainability and energy efficiency. Wherever possible, we rely exclusively on natural refrigerants such as R290, R1270, R600a or CO₂.

Our customers include globally renowned industrial and commercial groups. Our broad product portfolio offers solutions for all applications in the small and large capacity range. Our flexible and efficient production enables us to deliver systems tailored to customers' needs and application areas with short delivery times.

We are proud of

- » Over 500 implemented projects
- » 85 MW installed refrigeration capacity
- » The equivalent of 13,000 tonnes of CO₂ saved



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