

ROTEX HPSU Range of heat pumps – Heating with air, solar energy and ROTEX.



ROTEX –

heat pumps for new build
and refurbishment.



ROTEX
The heating!

Your first step into the renewable heating age:

Heating with air and solar energy.

An inexhaustible source of heat right outside your door

The sun is our natural energy supplier. Take advantage of this free heat source for your house.

If you use environmental heat from the air and solar heat for heating your home, then this source of energy is free and also inexhaustible. The ROTEX HPSU (HeatPumpSolarUnit) is a heat pump installation which exploits the environmental heat available to supply heat to your house with maximum efficiency. Combined with a ROTEX solar installation, ROTEX air-to-water heat pumps provide unbeatable solar heating.

When it is incorporated into the ROTEX EcoHybrid® complete heating system, you will have a heating system which provides the highest levels of heating and hot water comfort, which is adaptable and future-proof and which will reduce your heating costs to a minimum.

ROTEX HPSU (HeatPumpSolarUnit)

- Regenerative air-to-water heat pump
- Use free environmental energy from sunlight and air
- For hot water and heating
- Without expensive drilling and excavation work
- Direct combination with solar
- Compact and quiet
- Optimum water hygiene

The functional principle – tried and tested a million times

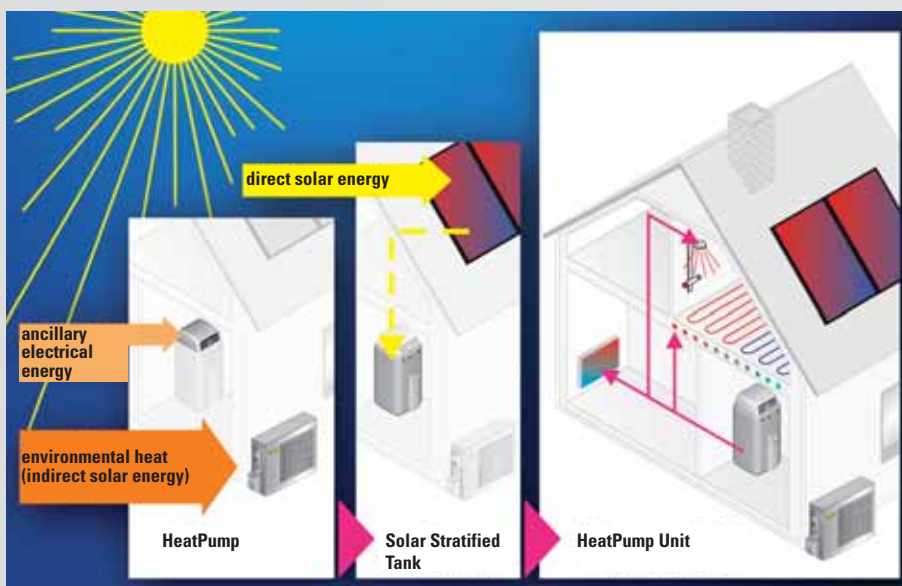
In an air/water heat pump, auxiliary electrical energy is used to transfer heat from the ambient air into the heating system. This principle has been used millions of times in reverse in air-conditioning units and fridges.



A fridge extracts heat from its contents and dissipates it into the environment. A heat pump extracts heat from the environment and dissipates it into the heating system.

We use the ambient air as our heat source, which ultimately takes its heat from the sun.

We have therefore called our air/water heat pump: the **HeatPumpSolarUnit**



The name **HPSU** comes from **HeatPumpSolarUnit**. In other words, a heat pump unit which can be directly combined with solar panels.

The heat pump for new build and modernisation.

The single stage heat pump for low system temperatures

In a refrigeration circuit, a heat pump can only achieve a certain temperature difference.



New builds can manage with low flow temperatures. For this reason the ROTEX HPSU single stage heat pump is ideal.

The two stage heat pump for modernisation

Older heating systems using radiators are set up for higher flow temperatures (at least 55 °C, up to 80 °C).



A technical trick is used to achieve this: The HPSU^{hi-temp} operates with a second cooling

circuit, in other words a second stage.

This is located in the inner unit where it takes the heat from the external cooling circuit at a temperature of around 25 degrees and heats it up to a maximum of 80 degrees.

Modern inverter technology in the external unit, and also in the internal unit, provide for economical and whisper-quiet operation.

Climate change and its causes

Everybody's talking about climate protection. Investigations have shown that heating makes up more than 60 % of the energy consumption in domestic households. In comparison, we use just 31 % for our motor vehicles. Your heating system therefore consumes more energy than your car.

What you can do to counteract this

You can use your bicycle for short journeys instead of taking the car. This will save fuel. With a conventional heating system it is virtually impossible to reduce energy consumption without compromising on comfort. The only answer is to use high-efficiency heating technology.

Intelligent heating and saving costs

What is high-efficiency heating technology? It enables the best possible utilisation of renewable energies and also ensures that the remaining residue of primary energy required is used to maximum efficiency.

„My heating system uses air, solar energy and ROTEX.“



The output modulating heat pump.

The compressor – the heart of the heat pump

What the engine is to the automobile, the compressor is to the heat pump. This has a decisive role in the energy efficiency of the entire heat pump.

ROTEX is one of the leading global companies in the field of air-conditioning and heat pump technology. The compressors in the ROTEX heat pump are developed and manufactured within the group. This means that we can draw upon the know-how provided by many millions of compressors produced by the leader in the field of this technology.

They are precisely designed for this application and are optimised for energy consumption.

Economical and quiet as a result of output-modulating operation

The heat demand in a building will fluctuate greatly depending on the prevailing weather and the behaviour of the user.

All ROTEX heat pumps use so-called inverter technology. This is used to operate the compressor in an output range variable between 50 and 100 %, and this means that the output of the heat pump is continuously matched to the demand.

In the HPSU^{hitemp} two stage heat pump, this modern inverter technology is actually used twice.

This power output is managed for you by the internal digital control electronics automatically without requiring human intervention. It all depends on the correct mixture.

This significantly increases the energy efficiency of ROTEX heat pumps, in the same way as you will be familiar with from your car when you back off the accelerator.

This output management leads to whisper-quiet operation.



The energy store for optimum water hygiene.

Convenient control system

The digital control system in the internal unit is particularly simple to operate.

It can be used to control the heating system and (if fitted) the cooling system to match your requirements.

The heating water temperature is controlled depending on the outside temperature. The control system itself detects winter and summer automatically and switches the heating system on and off in accordance with the demand.



The integrated digital timer provides individually adjustable daily and weekly programmes for all

applications. In this way the temperature is automatically reduced at night or when you are away on holiday, and when you get up or come back home the house will be pleasantly warm again.

The system achieves maximum efficiency by keeping the water temperature as low as possible. The heat pump can even be controlled from your living room using the convenient remote control.

Hot water and solar hot water storage tank

The heart of the HPSU system is the heat storage system. It stores the heat obtained and then transfers it to the heating system at the required time. We developed the HybridCube® specially for the HPSU.

The ROTEX HybridCube® is a corrosion-free plastic hot water storage tank with a stainless steel corrugated pipe heat exchanger which transfers the captured heat particularly well. It is a combination of hot water storage tank and instantaneous hot water heater with outstanding water hygiene for you and your family.

Our experience – for your health

As a matter of principle, the ROTEX HybridCube® with its integrated HPSU storage tank has been optimised from a water-hygiene point of view by virtue of its design.

For more than 25 years, ROTEX has been manufacturing hot water storage tanks on this principle - for optimum water hygiene - for 25 years. The design of all generations of storage tank means that the heated up water only has a short dwell time in the storage tank.



Thanks to this design, deposits cannot form in the potable water. This means that the HybridCube® and the integrated storage tank of the HPSU compact are entirely maintenance-free and provide no breeding ground for germs.

The outstanding water hygiene advantages of this type of hot water storage tank were confirmed by extensive research carried out by the hygiene institute of Tübingen university.



The single stage heat pump for low system temperatures.

ROTEX HPSU compact – The new compact heat pump

ROTEX is now offering an especially compact and innovative comprehensive solution in the form of the new Unit heat pump.

The HPSU compact is a space-saving solution that incorporates the indoor modul of the heat pump into the solar stratified storage tank. This compact unit has a footprint of just 79 x 79 cm. With the HPSU compact, a solar stratified storage tank with a capacity of 500 l plus all necessary technical systems are combined on an area of only 0.62 m².

The indoor unit

The indoor modul inside the building transfers the heat in the heat transfer medium (refrigerant) to the heating/DHW system. The compact unit can be installed in any suitable location. You do not need a separate utility room. In addition, no expensive drilling or excavation work is required. Your garden remains intact.

The outdoor unit

The outdoor unit extracts heat from the ambient air which is then absorbed by the heat transfer medium (refrigerant) and transferred to the indoor unit. The compact outdoor unit can be placed inconspicuously outside new buildings or existing residential buildings.



Indoor unit HPSU compact

Perfect climate: Heating in the winter – cooling in the summer

The HPSU compact can not only provide heating but can also cool if required.

Open for all energy types

Heat from other sources can also be efficiently stored in the HPSU compact indoor unit. The indoor unit can also be supported by other sources of heat apart from a solar system; oil and gas-fired boilers, pellet-fired boilers or wood fired stoves with backboilers can easily be connected.

The heat fed in supports the heating as well as the production of hot water, all with the highest level of energy efficiency.

ROTEX HPSU monobloc – everything in one unit.

In addition to the ROTEX HPSU systems with an outdoor and indoor unit, ROTEX has introduced a 'Monobloc' version, in which all the hydraulic components have been integrated in the outdoor unit. In this new system, water pipes lead from the outdoor unit to the building instead of refrigerant lines.

Outdoor unit



ROTEX HPSU monobloc



Flexible handling and easy to install.



ROTEX HPSU compact

- Split system, consisting of outdoor unit, indoor unit with integrated energy storage tank
- For new build
- For existing building with underfloor heating system
- Direct combination with solar possible
- Integrated (thermal) mixing valve for solar application
- Heating and cooling



ROTEX HPSU

- Split system consisting of the outdoor unit, indoor unit and energy storage tank
- For new build
- For existing building with underfloor heating system
- Direct combination with solar possible
- Heating and cooling



ROTEX HPSU monobloc

- Standalone unit for installation outdoors with energy storage tank
- For new build
- For existing building with underfloor heating system
- Direct combination with solar possible
- Heating and cooling

HeatPumps for every application.

ROTEX heat pump	Single stage up to approx. 55 °C flow temperature			Two stage up to approx. 80 °C flow temperature	
	HPSU compact	HPSU	HPSU monobloc	HPSU ^{hitemp}	HPU compact ^{hitemp}
New build	●	●	●		
Existing building with underfloor heating system	●	●	●		
Existing building with radiator				●	●
Combination with solar (also for retrofitting)	●	●	●	●	
Heating and hot water	●	●	●	●	●
Cooling function	●	●	●		
The components					
Outdoor unit	●	●	●	●	●
Indoor unit	●	●		●	●
Energy storage tank with solar option	integrated	●	●	●	
Stainless steel storage tank					●

The two stage heat pump for modernisation.

NEW: ROTEX HPSU^{hitemp} The heat pump for modernisation

The ROTEX HPSU^{hitemp} is a high temperature heat pump unit which utilises the solar heat available from the ambient air with maximum efficiency. In doing so it achieves a flow temperature of up to 80 °C.



Flexible application and simple installation



The Outdoor unit

The external unit extracts the heat from the ambient air which is taken up by the heating medium (refrigerant) and transferred to the internal unit.

The compact external unit can be mounted unobtrusively on the outside of new buildings or existing residential buildings. A separate plant room is not required.

In addition, no expensive drilling and excavation work is required. Your garden will remain completely untouched.



The Indoor unit

Using a second inverter-controlled refrigerant circuit in the internal unit, the internal unit increases the temperature level up to 80 °C and transfers this energy to the heating and hot water system.

The internal unit, together with the heat storage tank, can be installed at any suitable location.



Old boiler out – ROTEX heat pump in

Until now, energy-saving heat pumps have been restricted to new build and existing buildings with underfloor heating systems because of the low heating water temperatures (flow temperature). ROTEX sets completely new standards with the HPSU^{hitemp}.

With the HPSU^{hitemp} heat pump you can replace your existing boiler with complete confidence: boiler out and HPSU^{hitemp} in.

Your existing radiators will simply be integrated into the new heating system.

Full performance at low cost

Providing it is configured correctly, the HPSU^{hitemp} can provide a heating water temperature (flow temperature) of up to 80 °C without additional electric heating even at extremely low outdoor temperatures of -20 °C.

With or without solar energy utilisation: It's your choice.

Highest levels of hot water comfort with integrated solar option = ROTEX HPSU^{hitemp}

- Internal unit
- External unit
- HybridCube® energy storage tank with solar heating option

Direct solar energy utilisation is simply included in the deal

The ROTEX HybridCube® hot water storage tank is already supremely equipped for the utilisation of solar energy. If you do not wish to install a solar system at this stage, it is easy and quick to retrofit. With the ROTEX HybridCube® you will be ready for the future.



Compact design = ROTEX HPU compact^{hitemp}

- Internal unit
- External unit
- with mounted on or adjacent stainless steel hot water storage tank



Bivalent heat pump

Using a special control system, an existing heating boiler can be operated in an energy-saving mode in addition to the heat pump. The boiler is then only switched into the circuit when the outside temperature is very low. The point at which this occurs depends largely on the heat demand and the heat insulation of the building and on the performance of the heat pump. As a cost-effective auxiliary heating system, the air heat pump alone provides the heat for heating and hot water in the summer months and in the mild transition periods. In the winter the existing boiler installation provides heat for the house either additionally or exclusively.

Two items which belong together: the heat pump + solar energy.

Low expenditure - big yield

At its peak, 80 % of solar energy can be converted into usable heat. The extremely high efficiency of ROTEX flat solar panels makes this possible.

Solar energy and heat pumps complement each other ideally in this application.

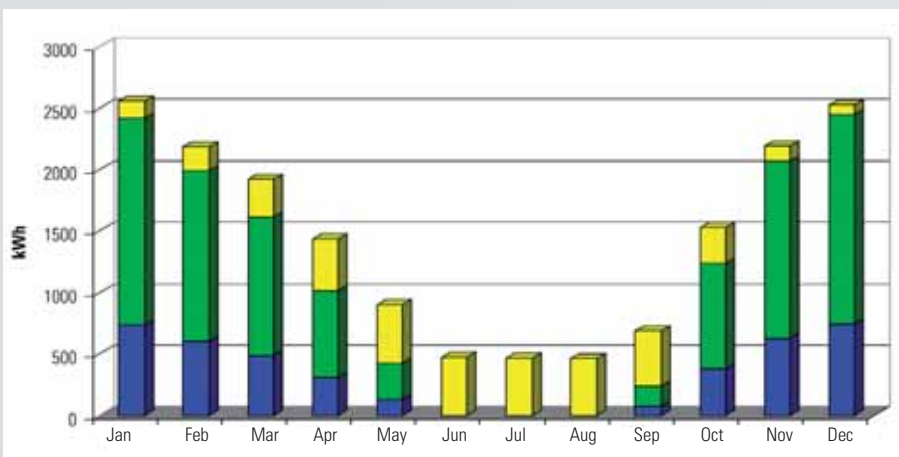
The heat pump adds the required amount of heat to the heating system to meet the demand.

A measure of the situation: SCOP

It describes how many more times you are gaining on heat energy over the year with respect to the auxiliary energy expended.

The higher the SCOP, the higher the efficiency of the heat pump. The ROTEX heat pump in combination with our solar installation achieves an SCOP of up to 4,3. That means that you are getting 4 times more heat energy for heating and hot water than you expend in auxiliary energy.

The ROTEX HPSU sets completely new standards in the field of air/water heat pumps.



The diagram shows the monthly energy consumption of an average single occupancy family house.

- Solar energy utilisation for hot water and heating
- Heat pump (Environmental heat)
- Auxiliary energy

Practically unbeatable: heat pump + solar energy!

In the example shown the energy contribution is sub-divided as follows:

- Solar energy: approx. 20 %
- Heat pump (Environmental heat) approx. 55 %
- Auxiliary energy approx. 25 %

The SCOP in this example is: **SCOP = 4.0**

(SCOP = **S**easonal **C**oefficient of **P**erformance)



Direct solar energy utilisation simply included.



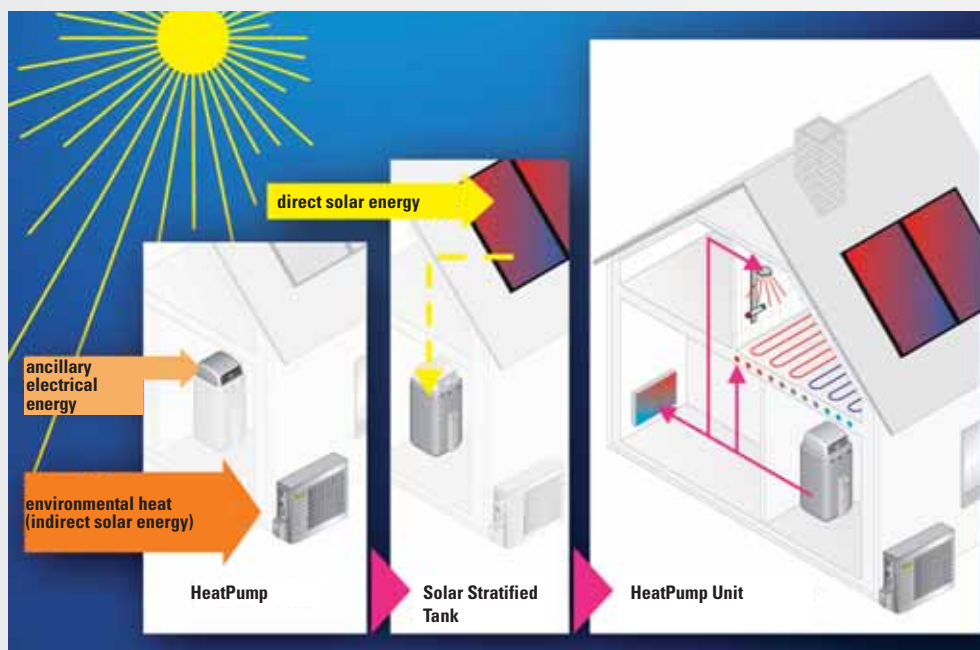
A strong team:

The ROTEX HPSU compact comes ideally equipped for use with solar energy.

If you want to delay installation of a solar energy installation, this can be rapidly and simply retrofitted.

ROTEX Solaris – Solar energy for heating and hot water

- Solar energy utilisation for hot water and heating assistance
- Highest level of energy utilisation by an optimised complete system
- High performing flat solar panels (flexible application in three sizes)
- High level of solar utilisation by optimum temperature stratification in the hot water storage tank
- Doubly environmentally friendly by the omission of antifreeze and the avoidance of environmentally damaging materials
- The storage tank and solar installation are virtually maintenance-free



Heating systems.



ROTEX EcoHybrid® – The complete heating system.

The word "hybrid" originates from Greek and means "mixed, from two origins". A hybrid heating system is a heating system which uses several types of energy.

EcoHybrid® is the heating system you would want today: Consistent utilisation of renewable energies and virtually unsurpassable efficiency.



In the ROTEX EcoHybrid® system, heat distribution is also taken into account. The preferred room heating surface in conjunction with the heat pump is the ROTEX underfloor heating system. There is also a facility for incorporation of radiators.

Heat pump + underfloor heating

As the entire floor area acts as a heating surface, the underfloor heating system can operate with a much lower surface temperature than radiators. This makes it the ideal partner for the heat pump.

The consistent mild heat radiation provides balanced temperature distribution. Underfloor heating systems transfer most of their heat via thermal radiation.

As a result, the air temperature in rooms heated using underfloor heating systems can be maintained at a significantly lower temperature than rooms heated by conventional heating systems while delivering the same perceived temperature.

Perfect climate: Heating in the winter - Cooling in the summer

The single stage HPSU heat pump does not only heat, but, as an option, it can cool as well. The underfloor heating system is suitable for both heating and cooling. Its use means that your house is at a pleasant temperature all year round.

Ready for the future

HPSU + EcoHybrid® – variable and extendable

No matter how you enter the world of hybrid technology: the good thing about EcoHybrid® is that you can always extend the system at any time. The ROTEX heat storage tank is at the heart of the system. It permits the interaction of various different types of energy, such as a heat pump and solar energy, and also the integration of other types of energy, such as oil-fired condensing technology, gas-fired condensing technology, pellet or wood boilers. You will be equipped and ready for the future.

Manufacturer's expertise

ROTEX is the sole manufacturer of all the major system components of the EcoHybrid® heating system. You can therefore rest assured that all components are optimally matched to each other, thus ensuring the highest levels of energy efficiency and comfort.

ROTEX, as the system manufacturer, stands for know-how in development and manufacture and for decades of system experience.

Your heating is our profession!

ROTEX EcoHybrid® – Safety and cosiness for your future!



Technical data of HPSU compact indoor unit

Typ Indoor Modul
Fpr Outdoor unit

6-8 kW
Heating & cooling

11-16 kW
Heating & cooling



¹⁾ **Reheating time** = The time needed to reheat the hot water storage tank to a temperature of 50 °C after a certain quantity of DHW has been discharged.

Basic data

Dimensions H/W/D	mm	1810/790/790	1810/790/790
Weight	kg	124	126
Operating range, flow temperature (heating)	°C	Min: 15 / Max: 50	Min: 15 / Max: 55
Operating range, flow temperature (cooling)	°C	Min: 5 / Max: 22	Min: 5 / Max: 22

Connection refrigerant line

Gas pipe		5/8" 15,9 mm	5/8" 15,9 mm
Liquid line		1/4" 6,4 mm	3/8" 9,5 mm

Storage tank data

Total capacity of storage tank	litres	500	500
Max. permissible storage water temperature	°C	85	85
Standby heat consumption at 60°C	kWh/24h	1,4	1,4

Domestic hot water

Potable water capacity	litres	29,0	29,0
Maximum operating pressure	bar	6	6
Domestic hot water heat exchanger material		stainless steel	stainless steel
Domestic hot water heat exchanger surface area	m ²	6,0	6,0
Average specific thermal output	W/K	2 900	2 900

Storage tank charging heat exchanger (stainless steel)

Water capacity heat exchanger	litres	12,6	20,7
Surface of charging heat exchanger	m ²	2,5	4,3
Average specific thermal output	W/K	1 200	2 090

Solar heating support (stainless steel)

Water capacity heat exchanger	litres	8,6	8,6
Heat exchanger surface area	m ²	1,8	1,8
Average specific thermal output	W/K	870	870

Thermal output data

Hot water volume without reheating at 8 l/min/12 l/min Draw-off rate (T _{KW} = 10 °C/T _{WW} = 40 °C/T _{SP} = 50 °C)	litres	338 / 272	338 / 272
Hot water volume without reheating at 8 l/min / 12 l/min Draw-off rate (T _{KW} = 10 °C/T _{WW} = 40 °C/T _{SP} = 60 °C)	litres	527 / 468	527 / 468
Hot water volume without reheating at 8 l/min / 12 l/min Draw-off rate (T _{KW} = 10 °C/T _{WW} = 40 °C/T _{SP} = 65 °C)	litres	614 / 560	614 / 560
Re-heating time ¹⁾			
Draw-off volume 140 l -> 5820 Wh (bath)	min	45	25
Re-heating time ¹⁾			
Draw-off volume 90 l -> 3660 Wh (shower)	min	30	17

Pipe connections

Cold and hot water	inches	1" outer thread	1" outer thread
Heating flow and return	inches	1" internal thread	1" internal thread

Optional accessories: auxiliary heating

		Backupheater	Boosterheater
Output	kW	9	3
Power supply, phase		3~*	1~
Power supply, frequency	Hz	50	50
Power supply, voltage	V	400	230
Operating current	A	3 x 13,1	13,1

* Single phase connection (3 x 230 V / 50 Hz) possible

Single stage heat pump up to approx. 55 °C flow temperature

Technical data for HPSU outdoor unit

~1/230 V

~1/400 V

~3/400 V

Type: Outdoor module

6 kW 7 kW 8 kW

11 kW 14 kW 16 kW

11 kW 14 kW 16 kW



EU environmental label for HPSU in combination with underfloor heating



Basic data

		6 kW	7 kW	8 kW	11 kW	14 kW	16 kW	11 kW	14 kW	16 kW
Nominal heat output A-7/W35	kW	4,20	5,13	5,69	6,63	7,84	8,77	6,56	8,52	9,18
Nominal heat output A2/W35	kW	5,49	6,55	7,18	7,86	9,71	10,90	8,20	10,07	10,73
Nominal heat output A10/W35	kW	8,63	10,13	11,02	12,10	15,14	17,26	11,82	14,93	16,40
Nominal COP A-7/W35		2,66	2,64	2,59	2,70	2,52	2,41	2,63	2,66	2,57
Nominal COP A2/W35		3,43	3,29	3,16	3,29	3,18	3,16	3,35	3,31	3,20
Nominal COP A10/W35		4,68	4,35	4,11	4,96	4,79	4,49	4,72	4,52	4,42
Nominal cooling output A35/W18	kW	7,20	8,16	8,37	13,90	17,30	17,80	15,05	16,06	16,76
Nominal cooling output A35/W7	kW	5,12	5,86	6,08	10,00	12,50	13,10	11,72	12,55	13,12

Dimensions H/W/T	mm	735 / 825 / 300	1170 / 900 / 320	1345 / 900 / 320
Weight	kg	56	103	110 (W18)

Operating range, outside temperature (heating)	°C	Min: -20 / Max: 25	Min: -20 / Max: 35	Min: -20 / Max: 35
Operating range, outside temperature (cooling)	°C	Min: 10 / Max: 43	Min: 10 / Max: 46	Min: 10 / Max: 46
Operating range, outside temperature (DHW)	°C	Min: -20 / Max: 43	Min: -20 / Max: 43	Min: -20 / Max: 43

Noise level - heating (measured at a distance of 10 m)	dB(A)	28	28	29	29	31	33	31	31	32
Noise level - cooling (measured at a distance of 10 m)	dB(A)	28	28	30	30	32	34	30	32	34

Power supply Phase		1~	1~	3~		
Power supply Frequency	Hz	50	50	50		
Power supply Voltage	V	230	230	400		
Inrush current	A	11	22,8	27,4	31,9	13,5

Refrigerant		R 410a	R 410a	R 410a
Volume of refrigerant		1,7 kg	3,7 kg *2	2,95 kg

Connection refrigerant line

Gas line		5/8" 15,9 mm	5/8" 15,9 mm	5/8" 15,9 mm
Liquid line		1/4" 6,4 mm	3/8" 9,5 mm	3/8" 9,5 mm

Refrigerant line length max.		30 m	75 m	75 m
Refrigerant line length min.		3 m	5 m	5 m
with pre-filled refrigerant volume		10 m	30 m	10 m





Nominal heating output / Nominal COP /
Nominal cooling output

A = Outside temperature °C

W = Outlet temperature at condenser
(flow temperature) °C

Single stage heat pump up to approx. 55 °C flow temperature

Technical data for HPSU indoor unit

Type - Indoor Module For outdoor unit	6-8 kW Heating	6-8 kW Heating & cooling	11-16 kW Heating	11-16 kW Heating & cooling
				
Basic data				
Dimensions H/W/T	mm	922 / 502 / 361	922 / 502 / 362	
Weight	kg	50	55	
Operating range, flow temperature (heating)		Min: 15 / Max: 50	Min: 15 / Max: 55	
Operating range, flow temperature (cooling)		Min: 5 / Max: 22	Min: 5 / Max: 22	
Connection refrigerant line				
Gas lines		5/8" 15,9 mm	5/8" 15,9 mm	
Liquid line		1/4" 6,4 mm	3/8" 9,5 mm	

Type Backup Heater		3V3	6WN	9WN
Basic data				
Heating output	kW	3	6	9
Power supply Phase		1~	3~	3~
Power supply Frequency	Hz	50	50	50
Power supply Voltage	V	230	400	400
Operating current	A	13	8,7	13

Technical data for ROTEX HPSU monobloc

External unit			Heating			Heating and cooling		
Three phase	with base plate strip heater		~3 /400 V			~3 /400 V		
			11 kW	14 kW	16 kW	11 kW	14 kW	16 kW
Nominal output	Heating	kW	11,20	14,00	16,00	11,20	14,00	16,00
	Cooling	kW				12,85	15,99	16,73
Power consumption	Heating	kW	2,51	3,22	3,72	2,51	3,22	3,72
	Cooling	kW				3,78	5,32	6,06
COP			4,46	4,35	4,30	4,46	4,35	4,30
EER						3,39	3,01	2,76
Operating range outside air temperature	Heating	°C	-15 ~ 35 ⁽¹⁾ *			-15 ~ 35 ⁽¹⁾ *		
	Cooling	°C	-			10 ~ 46		
	Hot water	°C	-15 ~ 35 ⁽¹⁾⁽²⁾ *			-15 ~ 35 ⁽¹⁾⁽²⁾ *		
Noise level **	Heating	dB(A)	29	31	33	29	31	33
	Weight	kg	180			180		
Refrigerant fill weight	R-410A	kg	2,95			2,95		
Power supply			3N~ / 400 V / 50 Hz			3N~ / 400 V / 50 Hz		
Recommended fuses		A	20			20		

Measurement conditions: Heating Ta 7 °C / - TVL 35 °C (DT = 5 °C) - Cooling Ta 35 °C - TVL18 °C (DT = 5 °C)

⁽¹⁾ Models E(DD/B)L* can achieve up to -20 °C / Models E(D/B)L*6W1 can achieve up to -25 °C, this performance is not guaranteed however

⁽²⁾ Operation of the additional heater from 35 °C upwards *Outside temperature ** measured at a distance of 10 m

Two stage heat pump up to approx. 80 °C flow temperature

Technical data for HPSU ^{hitemp}	External unit						Internal unit					
Unit	11 kW 1~230V	14 kW 1~230V	16 kW 1~230V	11 kW 3~400V	14 kW 3~400V	16 kW 3~400V	11 kW 1~230V	14 kW 1~230V	16 kW 1~230V	11 kW 3~400V	14 kW 3~400V	16 kW 3~400V



Performance data													
Heating output*	kW	11	14	16	11	14	16	11	14	16	11	14	16
Power consumption*	kW	3,57	4,66	5,57	3,57	4,66	5,57	/	/	/	/	/	/
COP*		3,08	3	2,88	3,08	3	2,88	/	/	/	/	/	/

* Condition 1: TRL: 55 °C; TVL: 65 °C; (dT: 10 °C); Ambient conditions: TA 7 °C

Dimensions													
Width	mm	900			900			600			600		
Height	mm	1345			1345			705			705		
Depth	mm	320			320			695			695		

Weight													
Mass Net	kg	120	120	120	120	120	120	144			147		
Mass Gross	kg	130	130	130	130	130	130	153			156		

Compressor													
Motor Type		Fully hermetic scroll compressor											

Operating range													
Outside temperature (Heating)	°C	-20 to a +20 °C						-20 to a +20 °C					
Outside temperature (Hot water generation)	°C	-20 to a +35 °C						-20 to a +35 °C					
Flow max.	°C							80	80	80	80	80	80
Flow min.	°C							25	25	25	25	25	25
HW temperature min.	°C							25	25	25	25	25	25
HW temperature max.	°C							80	80	80	80	80	80






Noise level													
SPL (measured at 10 m distance)	dB(A)	32	33	35	32	33	35						

Refrigerant													
Type		R410a						R410a and R134a					
Control		Electronic expansion valve											
Line length maximum	m	50											
Height difference max	m	30											
Defrost method		Process inversion											
Output control		Inverter controlled											
Power supply		V1			Y1			V1			Y1		
Phases		1~			3~			1~			3~		
Frequency	Hz	50	50	50	50	50	50	50	50	50	50	50	50
Voltage	V	220-240			380-415			220-240			380-415		

Power consumption													
Maximum operating current	A	27	27	27	13,5	13,5	13,5	21,7	21,7	21,7	12,5	12,5	12,5
Recommended fuses	A	32	32	32	16	16	16	32	32	32	16	16	16

Pump													
Nominal ESP	kPa							94	91,9	89,7	94	91,9	89,7
Power consumption	W							87	95	101	87	95	101




Water side													
Nominal flow rate	l/min							15,8	20,1	22,9	15,8	20,1	22,9

Technical data – Storage tank for heat pumps		Energy storage tank with solar option			Stainless steel hot water storage tank ¹⁾	
Type		HYC 343/19/0	HYC 544/19/0	HYC 544/32/0	RKHTSP 200	RKHTSP 260
						
Basic data						
Total storage capacity	litres	300	500	500	201	258
Empty weight	kg	59	86	92	81	89
Total filled weight	kg	359	586	592	282	347
Dimensions (L x B x H)	cm	59,5 x 61,5 x 159	79 x 79 x 159	79 x 79 x 159	69,5 x 60 x 133,5	69,5 x 60 x 161
Max. permissible storage water temperature	°C	85	85	85	75	75
Standby heat consumption at 60 °C kWh/24h		1,3	1,4	1,4	1,2	1,5
Domestic hot water						
Domestic water capacity	litres	27,8	29,0	29,0	193,5	250,5
Maximum operating pressure	bar	6	6	6	10	10
Domestic water heat exchanger material		Stainless steel	Stainless steel	Stainless steel		
Domestic water heat exchanger surface	m ²	6,2	6,5	6,5	/	/
Average specific thermal output	W/K	2790	2920	2920		
Storage tank charging heat exchanger (stainless steel)						
Water content heat exchanger	litres	13,3	9,6	18,6	7,5	7,5
Surface of charging heat exchanger	m ²	3,0	2,1	4,2	1,56	1,56
Average specific thermal output	W/K	1330	960	1870	/	/
Solar heating support (stainless steel)						
Water content heat exchanger	litres	/	4,7	4,7	/	/
Heat exchanger surface area	m ²	/	0,7	0,7	/	/
Average specific thermal output	W/K	/	320	320	/	/
Thermal output data						
Hot water volume without re-heating at 8 l/min / 12 l/min draw off rate (TKW = 10 °C/TWW = 40 °C/TSP = 50 °C)	litres	213 / 187	338 / 272	338 / 272	255 / 251	330 / 326
Hot water volume without re-heating at 8 l/min / 12 l/min draw off rate (TKW = 10 °C/TWW = 40 °C/TSP = 60 °C)	litres	283 / 249	527 / 468	527 / 468	320 / 316	415 / 411
Hot water volume without re-heating at 8 l/min / 12 l/min draw off rate (TKW = 10 °C/TWW = 40 °C/TSP = 65 °C)	litres	332 / 292	614 / 560	614 / 560	352 / 348	457 / 453
Re-heating time	min	45	45	25	30	40
Draw off volume 140 l -> 5820 Wh (bath draw off)		(HPSU 008)	(HPSU 008)	(HPSU 016)	(HPSU ^{hitemp} 016)	(HPSU ^{hitemp} 016)
Re-heating time	min	30	30	17		
Draw off volume 90 l -> 3660 Wh (shower draw off)		(HPSU 008)	(HPSU 008)	(HPSU 016)	/	/
Pipe connections						
Hot and cold water	inches	1"male	1"male	1"male	3/4"female	3/4"female
Heating flow and return flow	inches	1"male	1"male	1"male	3/4"female	3/4"female

Re-heating time = The time required to bring the hot water storage tank back up to the storage tank temperature of 50 °C after drawing off a specific volume of hot water.

¹⁾ Only in combination with the HPU compact^{hitemp} 2-stage heat pump

T_{KW}= temperature cold water, T_{WW}= temperature warm water, T_{SP}= temperature storage tank

Solaris flat plate collector	V 21 P	V 26 P	H 26 P
			
Dimensions L x B x H	2000 x 1006 x 85 mm	2000 x 1300 x 85 mm	1300 x 2000 x 85 mm
Gross surface area	2,01 m ²	2,60 m ²	2,60 m ²
Aperture surface area	1,79 m ²	2,35 m ²	2,35 m ²
Absorber surface area	1,80 m ²	2,36 m ²	2,36 m ²
Weight	35 kg	42 kg	42 kg
Water content	1,3 Litres	1,7 Litres	2,1 Litres
Absorber	Harp-shaped Cu pipe matrix with welded on highly selectively coated aluminium sheet		
Coating	Miro-Therm Miro-Therm (absorption max. 96 %, emission approx. 5 % 6 2 %)		
Glazing	Single pane safety glass, Transmission approx. 92 %		
Heat insulation	Rock wool 50 mm		
Max. pressure drop at 100 l/min	3,5 mbar	3,0 mbar	0,5 mbar
Possible pitch min. - max.	15° - 80°		
On-roof and flat roof			
Possible pitch min. - max.	15° - 80°		
In-roof			
Max. standstill temperature	approx 200 °C		
Max. operating pressure	6 bar		
	The solar panels are standstill resistant in the long-term and are tested for thermal shock. Minimum solar panel yield over 525 kWh/m ² a at 40 % solar fraction, (Location Würzburg)		

Control and pump unit RPS 3



Dimensions W x D x H	230 x 142 x 815 mm
Operating voltage	230 V/50 Hz
Max. electrical power consumption	245 W (modulating* 20-120 W)
Control	digital difference temperature controller with plain text display
Solar panel temperature sensor	Pt 1000
Storage tank and return sensor	PTC
Flow temperature and flow rate sensor (Accessory)	FLS 20
* modulating operation only possible with FLS	

For pressure applications, please use the RPS3 P.





ROTEX EcoHybrid® – the complete heating system.

What is EcoHybrid®?

The word "hybrid" originates from Greek and means "mixed, from two different origins". A hybrid heating system allows the different types of energy to work together, such as heat pumps and solar energy, but also allows other types of energy to be integrated, such as oil, gas, pellet, or even log burning boilers. This means you are equipped to face any contingencies in the future. Consistent use of renewable energies and efficiency that is practically impossible to surpass.

Everything from a single source

ROTEX manufactures all the important system components for the EcoHybrid® heating system itself. This means you can rely on the fact that all components are optimally made to work together and thus guarantee the greatest energy efficiency and highest level of comfort. As a system manufacturer for know-how in development and manufacturing, ROTEX stands for decades of system experience. Your heating is our profession!

ROTEX EcoHybrid® – variable and extendable

Regardless of the way in which you start using hybrid technology today, the good thing about the EcoHybrid® is that you can extend the system at a later date.

ROTEX EcoHybrid® – Safety and comfort for your future!

The entire system from a single source:

- Regenerative air / water heat pump
- Modern calorific value technology
- Thermal solar plant for heating and hot water
- Hygienic hot water storage tank
- Cosy underfloor heating system
- Odour-locked safety heating oil tank
- A plastic pipework connection system suitable for both domestic water and heating installations.

You can find additional information at www.rotex.de.



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