

ROTEX gas hybrid heat pump

a member of **DAIKIN** group

ROTEX



A strong team

The new ROTEX HPU hybrid **gas hybrid heat pump** always selects the most favourable heating mode automatically.

System efficiency with Solar*:



A++



A+++

* ROTEX system consisting of:
HPU hybrid 8/32 kW H/C, HYC 544/32/0-DB,
4 solar collectors V26P



“For a long time the general opinion was that a heat pump was not an economical option for our house. But the ROTEX hybrid heat pump proved to be the perfect way for us to use renewables. We were able to fully integrate all existing radiators and the intelligent control system always selects the most favourable operating mode. Now we can be sure that we are well set up for the future – irrespective of rising energy prices.”

Stefanie and Jochen Sinner, home renovators

Modernising the smart way with heat pump and gas

The hybrid combination from ROTEX – efficient, convenient and reliable

The use of a heat pump in existing buildings is often restricted by the need for high flow temperatures. When modernising buildings with an existing gas heating system, therefore, the question frequently arises as to whether a heat pump can perform this task. The ROTEX HPU hybrid combines an air source heat pump utilising renewables with energy efficient gas condensing technology.

The indoor unit, consisting of the gas condensing boiler and the internal part of the heat pump, does not usually take up any more space than a conventional gas boiler. With flow temperatures of 25 °C to 80 °C, the ROTEX HPU hybrid is suitable for any kind of building. The ROTEX hybrid unit is impressively reliable, flexible, extremely convenient and uses renewables.

Fast and straightforward installation

Featuring components that are perfectly matched to each other prior to delivery, the ROTEX HPU hybrid system opens up undreamt-of possibilities for modernisation. The system can be integrated into existing heating systems – when replacing an old gas boiler. All existing radiators or underfloor heating systems can be retained. Combining it with a store for heating domestic hot water is also straightforward. Even alternative, future heating systems that use renewables can be flexibly integrated into the system. The work takes place almost exclusively in the boiler room. Additional effort is only required for the installation of the outdoor unit of the heat pump. The effort required to select the correct components and install the system is minimal and this process is extremely quick and easy.



Powerful performance – on the smallest footprint

The indoor unit of the ROTEX HPU hybrid requires no more space than a conventional gas boiler, whilst the compact outdoor unit – with its space saving design – can be flexibly installed outside the building.

Efficiency made transparent

September 2015: New energy efficiency labels for heating systems
 We're familiar with these labels on fridges, televisions and other electrical appliances. From 26 September 2015, heat generators and water heaters will bear their own EU energy efficiency labels. These labels will make it easier to compare individual heating products and decide which ones to buy.

How the energy efficiency classes are determined
 The product's seasonal energy efficiency will determine its energy efficiency class. Put simply, this indicates the relationship between the total energy input and the useful heat output. The greater the proportion of renewable energy used to generate heat, the higher the efficiency class. As a result, heat pumps are usually in the top efficiency classes (A+ and above), followed by gas and oil condensing boilers, with conventional boilers bringing up the rear, as they tend to perform comparatively poorly against the relevant criteria.

Efficiency classes for products and systems
 Individual heat generators will each bear a product label. The efficiency of a heating system depends not only on the heat generator, but on several components. That is why the combination or package label was introduced. This covers the heat generator plus other components such as the controller, cylinders, solar thermal systems and/or an additional heat generator. The combination label is calculated from the efficiency values of the individual appliances and devices.

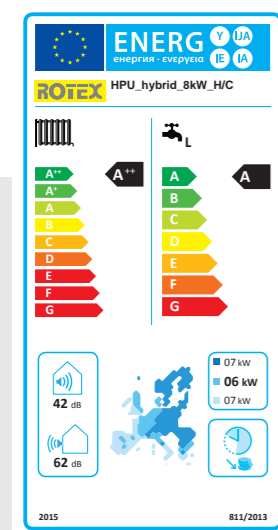
Expert advice
 Every building is different. Your choice of a new heating system, especially as part of modernisation, should not be based solely on the efficiency rating. Depending on the characteristics of your building, a heating system with a low efficiency rating may consume less energy than a system with a higher rating. Consequently it's important to get expert advice and help with sizing: that's where your ROTEX partner comes in useful.

Strong system solution: gas hybrid heat pump and solar

Excellent package label ratings
 Hooking up a solar thermal system is the most effective way to reach a higher overall system efficiency class. The ROTEX HybridCube thermal store is already optimised for hooking up with a solar thermal system, and provides the ideal complement to the ROTEX HPSU hybrid. When linked up to a ROTEX Solaris, this system will become your own personal, solar heater'. The integral central heating backup and large storage volume will raise your system's energy efficiency ratings for both domestic hot water and space heating.

System efficiency with Solar*:

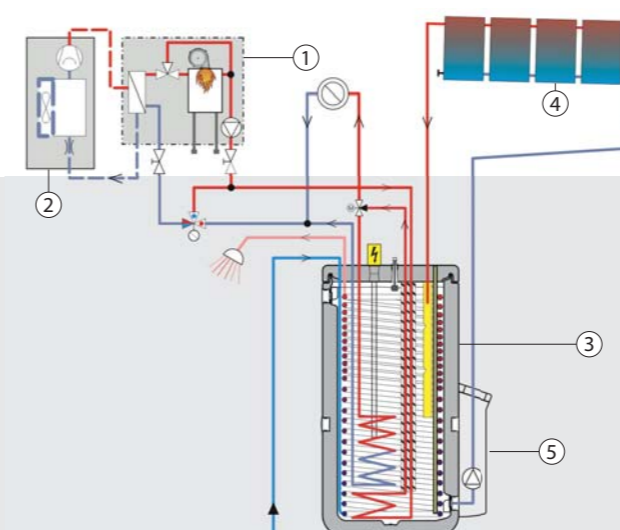
* ROTEX system consisting of:
 HPU hybrid 8/32 kW H/C, HVC 544/32/0-DB,
 4 solar collectors V26P



Product label
 HPU hybrid
 8 kW H/C

Safe in the knowledge it's ROTEX
 All ROTEX products are tested and meet the criteria in the Ecodesign Directive. For both individual products and packaged solutions, energy labels are a reliable indicator of efficiency class.

Perfectly matched in terms of their individual components, our complete systems provide both maximum convenience and the highest safety standards.



System diagram: HPSU hybrid with thermal store and solar thermal

- 1 Internal unit of the gas hybrid heat pump consisting of the internal part of the heat pump and the gas condensing boiler
- 2 Heat pump external unit
- 3 Thermal store
- 4 Solar thermal collectors
- 5 Solar pump station

Maximum energy utilisation

Outstanding efficiency – at all times and all temperatures

The ROTEX gas hybrid heat pump achieves optimum energy efficiency thanks to its dual-mode parallel and alternative operation. The heat pump is activated for as long as possible, or both appliances work in parallel, resulting in cost benefits. The gas boiler is only used when it is really needed, i.e. when high temperatures are required. The ROTEX gas hybrid heat pump therefore ensures maximum efficiency at all times in any operating mode.

Always the best value heat generation

Current electricity and gas prices are easily entered into the controller of the ROTEX gas hybrid heat pump. This device then automatically selects the most favourable heat generator in every operating mode. This allows you to maintain control over your heating bills. Alternatively, you can choose an operating mode with ecological bias. The controller will then always select the energy source with the least environmental impact (highest primary energy efficiency).

Maximum DHW hygiene

For domestic hot water heating, you can choose between the hygienic instantaneous water heater principle or a combination with a convenient ROTEX thermal store.

Heating in the winter – cooling in the summer

The HPU hybrid can not only provide heating but can optional also cool if required in rooms with underfloor heating. Your feel-good climate in every season.

Your benefits with the ROTEX HPU hybrid gas hybrid heat pump

Outstanding efficiency

- Optimum use of free, renewable, environmentally responsible energy from the sun and air in combination with a gas condensing system
- Up to 30% more efficient DHW heating than with standard gas condensing boilers

Innovative technology

- The most efficient mode for every outside temperature. The ROTEX hybrid logic controller always selects the most favourable operating mode based on current electricity and gas prices
- All components are perfectly matched to each other prior to delivery

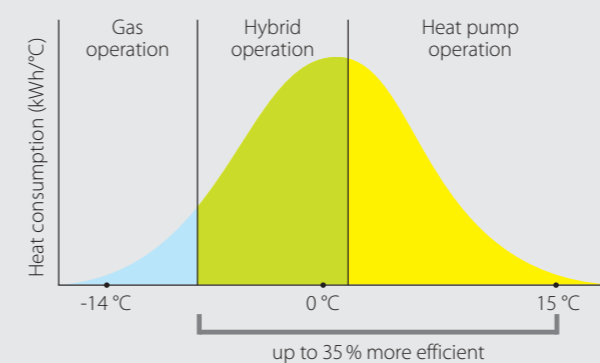
Meets your needs

- High output and high temperatures guarantee heat at any time
- Easy integration into existing heating systems
- Economical and quiet to run
- Compact dimensions, easy installation – on a very small footprint
- Optional cooling



DHW heating that's up to 30% more efficient

The special 2-in-1 heat exchanger of the ROTEX HPU hybrid gas hybrid heat pump is used for domestic hot water (DHW) and space heating. Because it heats the domestic hot water directly, employing the hygienic instantaneous water heating principle, the appliance still works within the condensing range for DHW heating. This leads to increased efficiency of up to 30% compared with conventional gas condensing boilers.



Heat intelligently and reliably all year round

The ROTEX HPU hybrid heat pump optimises parallel operation with the heat pump. This results in the gas boiler starting to cover the heat demand of the building on its own much later than would otherwise be the case. This system is up to 35% more efficient than a gas condensing boiler on its own. This means that, over the course of a year, 60 to 70% of the energy for central heating is supplied by the heat pump.

Think DHW hygiene when buying a heating system

ROTEX HybridCube - the hygienic thermal store

The ROTEX thermal store is a combination of domestic hot water tank and instantaneous water heater. The heat is not stored in the domestic hot water itself, but in the clearly separated tank water. Optimum tank stratification ensures that the provision of hot water is always guaranteed.

The drinking water is contained in a high-performance heat exchanger made of durable stainless steel (INO_x). Your drinking water remains perfectly hygienic.

The storage tank water is added at commissioning and serves only for thermal storage. It is not exchanged and consumed. The inner and outer walls are impact-resistant polypropylene, the space in-between is filled with highly heat insulating foam. This results in very good heat insulation values and minimum surface losses.

Your benefits with the ROTEX HybridCube thermal store

Outstanding efficiency

- Efficient energy saving thanks to full thermal insulation made from PU rigid foam

Hygiene

- Highest level of hygiene by the separation of the storage tank water from the domestic water
- No deposits, no legionella generation

Meets your needs

- Minimum space requirement and simple installation due to compact design and low weight
- Long-life and safe as a result of the used materials plastic and stainless steel
- Low scaling
- Sophisticated innovative technology, with 25 years' experience
- Modular system: Interconnection of several storage tanks possible for high-volume hot water demand
- Connection to the most varied of heat generators and heat sources



The first thing we need for foodstuffs is clean water

The hygienic ROTEX thermal store principle: The domestic water to be heated is conveyed and heated through a separate high-performance heat exchanger made of stainless steel. Water that is charged first is also the first to be removed (first-in first-out principle).

Solar systems by ROTEX

ROTEX Solaris: 2 possibilities - always the first choice

ROTEX Solaris is available in two different variants, that meet all structural conditions and individual requirements.

1. The pressurised solar system (Solaris-P)

The pressurised solar system impresses with its simple installation and is suitable for all applications and buildings. It operates efficiently and safely at any desired length of pipes and feed height. The well-engineered structure of the ROTEX solar thermal store means that an additional plate heat exchanger is not required. A bivalency heat exchanger for pressurised solar or other heat sources is already incorporated. That makes the system simple and flexible.

2. The direct Drain-Back system (Solaris-DB)

If the constructional conditions permit, we recommend the unpressurised and direct Drain-Back system. The water in the store is supplied directly and without heat exchanger to the solar panels, heated and then stratified into the store. This considerably increases the efficiency of the solar collectors and the entire utilisation of the installation. Since the system is unpressurised, components which would otherwise be required are not necessary, such as the expansion tank, pressure relief valve, pressure gauge and heat exchanger.

The Solaris solar panels are only filled if there is enough heat from the sun and if the thermal store can absorb heat. The fully-automatic control system controls the system independently to provide optimum utilisation of the solar energy. If the sunshine is insufficient, or if the solar thermal store does not need any more heat, the feed pump switches off and the entire solar system drains into the thermal store. The addition of antifreeze agents is not required since the panel surface is not filled with water when the system is not operating. This is a further plus from the environmental perspective. The principle functions only if the connection pipes in the building and on the roof are installed with a constant gradient. If this is not possible, the pressurised solar system is the optimum alternative.

ROTEX Solaris solar panels - flexible assembly

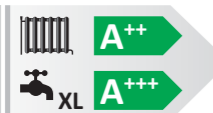
The Solaris solar panels convert almost all of the shortwave solar radiation into heat through their highly selective coating. The three different solar panel sizes mean there is flexibility in adapting to roof characteristics. Since all buildings are different, there are various installation options for fitting the ROTEX flat solar panels onto the roof. The solar panels can be fitted onto the tiles (on-roof), into the roof (in-roof) or also with a special substructure onto a flat roof.



Specification

System efficiency with Solar*:

* ROTEX system consisting of:
 HPU hybrid 8/32 kW H/C,
 H/C 544/32/0-DB,
 4 solar collectors V26P



| ROTEX HPU hybrid | HPU hybrid | HPU hybrid 5 kW | HPU hybrid 8 kW | |
|--|-----------------------|-----------------|--------------------|-------------------|
| Internal unit | Gas condensing boiler | | Heat pump | |
| | heating | heating | heating | heating & cooling |
| Energy efficiency class | | | | |
| Space heating (flow temperature 55 °C) | | A++ | A++ | A++ |
| Space heating with integrated control (flow temperature 55 °C) | | A++ | A++ | A++ |
| Water heating energy efficiency (tapping profile) | | A (L) | A (L) | A (L) |
| Basic data | | | | |
| Rated thermal load | kW | 7,6 – 27,0* | – | – |
| Nominal heating output A2/W35 | kW | – | 3,27 | 5,8 |
| Max. heating output A2/W35 | kW | – | 4,8 | 7,7 |
| Nominal COP A2/W35 | | – | 4,02 | 3,53 |
| Nominal heating output A7/W35 | kW | – | 4,4 | 7,4 |
| Max. heating output A7/W35 | kW | – | 5,1 | 10,2 |
| Nominal COP A7/W35 | | – | 5,04 | 4,45 |
| Heating operating range (outside temperature) | °C | – | Min: -25 / Max: 25 | |
| Max. cooling output A35 / W18 | kW | – | – | 8,43 |
| Nominal EER A35 / W18 | | – | – | 3,42 |
| Cooling operating range (outside temperature) | °C | – | – | Min: 10 / Max: 43 |
| Internal unit | | | | |
| Type | | RHYKOMB33AA2 | RHYHBH05AAV3 | RHYHBH08AAV3 |
| Betriebsbereich Vorlauftemperatur Heizen | °C | 15 – 80 | 25 – 55 | 15 – 55 |
| Betriebsbereich Vorlauftemperatur Kühlen | °C | – | – | 15 – 22 |
| Abmessungen Gerät (BxTxH)** | mm | 450 x 400 x 970 | | |
| Gewicht | kg | 36 | 30 | 32 |
| External unit | | | | |
| Type | | RVLQ05CAV3 | RVLQ08CAV3 | RVLQ08CAV3 |
| Output | kW | – | 5 | 8 |
| Dimensions (WxDxH) | mm | – | 832 x 307 x 735 | |
| Weight | kg | – | 54 | 56 |
| Sound power level heating | dB (A) | – | 61 | 62 |
| Sound power level cooling | dB (A) | – | – | 63 |
| Sound pressure level heating ³⁾ | dB (A) | – | 48 | 49 |
| Sound pressure level cooling ³⁾ | dB (A) | – | – | 50 |
| Refrigerant | | – | R410A | |
| Refrigerant charge | kg | – | 1,45 | 1,6 |
| GWP | | – | 2087,5 | |
| TCO _{eq} | | – | 3,03 | 3,3 |

* For the use of maximum heating capacity of the boiler please check available ESP (External Static Pressure) of the internal pump.

** Total height with automatic air vent valve and connection lines: 1075 mm

1) The HPU hybrid is not only designed for heating, but also optionally for cooling when combined with an underfloor heating system. Your customised climate 365 days a year.

2) The "ROTEX HPU hybrid" product range has been recognised with the Plus X Award for high quality, functionality and ecology.

3) at 1 m separation



| Thermal store with solar option | | H/C 343/19/0-P | H/C 544/19/0-P | H/C 5 544/32/0-P | H/C 343/19/0-DB | H/C 544/32/0-DB | H/C 544/32/0-DB |
|---|--------|------------------|------------------|------------------|------------------|------------------|------------------|
| Energy efficiency class | | B | B | B | B | B | B |
| Basic data | | | | | | | |
| Total storage capacity | Liters | 300 | 500 | 500 | 300 | 500 | 500 |
| Empty weight | kg | 64 | 92 | 98 | 59 | 87 | 93 |
| Total filled weight | kg | 364 | 592 | 598 | 359 | 587 | 593 |
| Dimensions (W x D x H) | mm | 595 x 615 x 1646 | 790 x 790 x 1658 | 790 x 790 x 1658 | 595 x 615 x 1658 | 790 x 790 x 1658 | 790 x 790 x 1658 |
| Potable water capacity | Liters | 27,9 | 29,0 | 29,0 | 27,9 | 29,0 | 29,0 |
| Hygienic hot water generation on the instantaneous heater principle | | • | • | • | • | • | • |
| Solar combination | | | | | | | |
| Drain-Back combination | | | | | • | • | • |
| Pressurized solar combination | | • | • | • | | | |
| Solar heating support | | | • | • | | • | • |



| Solaris flat solar panels | V 21 P | V 26 P | H 26 P |
|--|---|---------------------|---------------------|
| Dimensions (W x D x H) | 1006 x 85 x 2000 mm | 1300 x 85 x 2000 mm | 2000 x 85 x 1300 mm |
| Gross surface area | 2,01 m ² | 2,60 m ² | 2,60 m ² |
| Water content | 1,3 litres | 1,7 litres | 2,1 litres |
| Absorber | Harp-shaped CU pipe register with highly selective coated aluminium plate welded on | | |
| Coating | Miro-Therm (absorption max. 96%, emission approx. 5% ± 2%) | | |
| Glazing | Single pane safety glass, transmission approx. 92% | | |
| Possible inclination min. – max. on-roof and flat roof | 15° – 80° | | |
| Possible inclination min. – max. in-roof | 15° – 80° | | |

The solar panels are standstill resistant in the long-term and are tested for thermal shock. Minimum collector yield over 525 kWh/m² at 40% covering proportion, (location Würzburg, Germany).

| Solaris accessories | | Control and pump unit RPS4 for Drain-Back use | Pressurised solar regulator DSR 1 for Solaris-P | Pressure station RDS 2 |
|---|--------|--|--|------------------------|
| Dimensions (L x W x H) | mm | 230 x 142 x 815 | 145 x 95 x 60 | 240 x 410 x 130 |
| Operating voltage | V / Hz | 230 / 50 | 230 / 50 | 230 / 50 |
| mains voltage in accordance with DIN IEC 60 038 | V | ~230 (+10/-15%) | ~230 (+10/-15%) | ~230 (+10/-15%) |
| Switching capacity of the relay | V | ~250 (AC 2 (2) A) | ~250 (AC 2 (2) A) | – |
| Maximum electrical power consumption | W | 65 (modulating*15–65) | 5 (max.) | 45 (modulating 2–45) |
| Protection rating in accordance with DIN EN 60529 | | – | IP 40 | – |
| Control | | Digital temperature difference controller with plain text display and PWM output | Digital temperature difference controller with plain text display and PWM output | – |
| Feed temperature and flow sensor | | FLS 20* with PT 1000 (included in the set) | – | – |
| Feed temperature sensor | | – | PT 1000 | – |
| Permissible ambient temperature in operation | °C | 5 - 40 | 0 - 50 | – |
| Probe resistances | | PTC | PT 1000 | – |

* Modulating operation only possible with FLS.

a member of **DAIKIN** group

ROTEX

What makes ROTEX different?

We offer individual solutions for optimum living and working that are straightforward, intelligent, and futureproof.

ROTEX is a manufacturer and supplier of complete innovative and environmentally responsible heating systems – building on decades of experience. Since 1973, ROTEX has stood for innovation and know-how in the field of heat generation, storage and distribution. In the development of products for our high grade and perfectly matched components we focus on user benefits.

The ROTEX product range extends from heat pumps, condensing boilers for oil and gas, solar thermal systems and thermal stores, not forgetting underfloor heating, heating oil tanks and rainwater tanks, right up to a comprehensive installation system for all sanitary and heating equipment. Innovative systems that facilitate the optimum use of conventional and alternative fuel types in both modernisation and new build projects. ROTEX products stand for unique cost efficiency with maximum environmental compatibility and the highest levels of flexibility.

ROTEX Heating Systems GmbH is a wholly owned subsidiary of Daikin Europe NV, making it a member of the DAIKIN Group, the world's leading manufacturer and supplier of products for heating, ventilation and climate control. Our combined competence generates optimum product solutions to meet the highest user aspirations.

ROTEX Heating Systems GmbH

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