

ROTEX gas condensing/solar combination

a member of **DAIKIN** group

ROTEX



Compact and efficient

The **gas condensing/solar combination** GCU compact by ROTEX offers outstanding heating convenience and maximum water hygiene on a very small footprint.

System efficiency with Solar*:



A⁺



A⁺⁺

* ROTEX system consisting of:
GCU compact 515 Biv, RoCon control,
4 solar collectors V26P

The energy combination for heating and domestic hot water with solar option

The best answer to ever-increasing prices: efficiency

The value and the cost of energy is constantly increasing. Choosing the boiler for your heating is a decision for the next 15 to 25 years. In this period the fuel costs of your heating system will amount to several multiples of the procurement cost. For this reason, the decision about a new heating system needs to be made very carefully. Design and maintenance of the system should be as simple as possible, it should offer flexibility for combination with other heat sources – including renewables – and be outstanding in terms of efficiency.

A perfect team

The ROTEX GCU compact combines modern gas condensing technology with a thermal store and solar storage tank in the smallest possible space. Due to its integrated design and special features, the ROTEX GCU compact enables you to make the most of your energy saving options, as it can also be used as an efficient thermal store for other heat sources. In addition to the solar thermal system, it can for example also be linked to a wood burning stove with back boiler for hot water and central heating backup.

Systematic condensing technology

With modern condensing technology converts the GCU compact the fuel used into usable heat virtually without loss. This is both good for the environment and your wallet, since lower energy consumption means lower heating costs, less use of energy resources and a reduction in CO₂ emissions. During this process, flue gases are cooled to the extent that the steam they contain is condensed. The energy that is generated is used as heating energy.

The heat stays inside

The storage tank is a twin layer structure made entirely from plastic. The space between the inside and outside container has excellent foam heat insulation. This extreme heat insulation ensures low overall heat losses for the ROTEX GCU compact.

„When we decided to modernise our heating system, our heating installer recommended the gas/solar combination GCU compact by ROTEX: efficient technology, compatible with a solar system and with compact dimensions. It was not just the sight of the final invoice that confirmed that we had made the right choice.“

Steffi and Thomas Klar, home owners



Optimum domestic hot water hygiene

Integral thermal store with hygienic freshwater technology.

Futureproof and flexible

Direct combination with solar or existing heating systems possible.

Space saving

Gas condensing boiler and thermal store combined to form one unit.

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

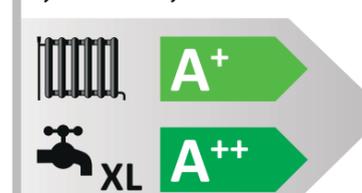
Every building is different. Your choice of a new heating system, especially as part of modernisation, should not be based solely on the efficiency rating. Depending on the characteristics of your building, a heating system with a low efficiency rating may consume less energy than a system with a higher 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 condensing and solar

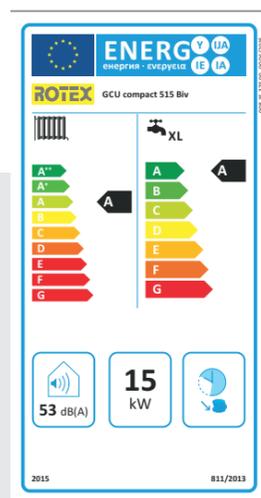
Excellent package label ratings

Hooking up a solar thermal system is the most effective way to reach a higher overall system efficiency class. The ROTEX GCU compact is already optimised for linking up with a solar thermal system – when you connect it to a ROTEX Solaris, 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:
GCU compact 515 Biv, RoCon control,
4 solar collectors V26P

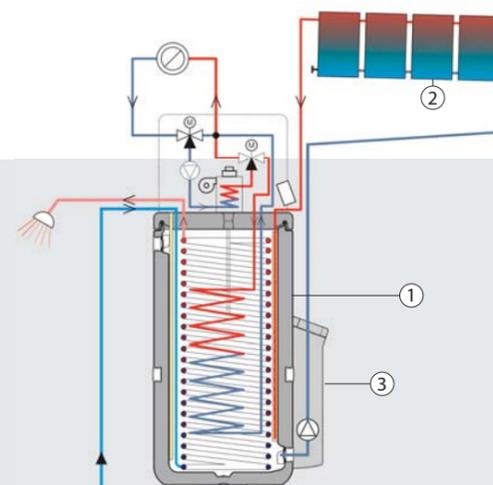


Product label
GCU compact 515 Biv

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: GCU compact with solar thermal

- 1 Gas condensing/solar unit with integral thermal store and built-in electronic controller
- 2 Solar thermal collectors
- 3 Solar pump station



Made-to-measure for your home

Dream dimensions for your heating: heating and hot water over an area of only 0.36 m²

The GCU compact sets completely new standards with regard to extra space and energy exploitation. An area of only 0.36 m² (GCU compact 315/324) or 0.64 m² (GCU compact 515/524/533) is sufficient to accommodate the complete heating, hot water generation and solar stratified storage tank.

Clear separation – clear benefit

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.

Integral solar option

The ROTEX GCU compact is optimally equipped for the utilisation of solar energy right from the start. So, if you decide to install a solar thermal system at a later date, it can be retrofitted quickly and easily.

Your advantages with the ROTEX GCU compact- Gas condensing/solar combination

Highest efficiency

- Energy-saving gas condensing technology with an effectivity up to 108%

Innovative technology

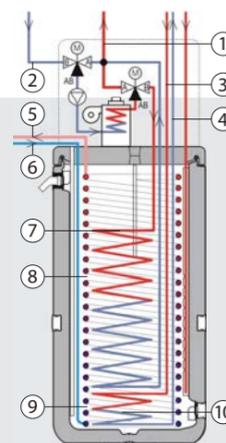
- Integration of boiler and thermal store
- Adaptive Lambda-Gx combustion system for optimum fuel utilisation even for variable gas quality
- Intuitive electronic regulation

Domestic water hygiene

- Highest level of hygiene by separation of store and potable water
- No deposits, no legionella production

As if made just for you

- For heating and hot water
- Compact dimensions, simple installation in the smallest space
- Flexible use, direct combination with solar system or existing fireplace with water pocket is possible



GCU compact

- 1 Heating flow
- 2 Heating return
- 3 Solar flow
- 4 Solar return
- 5 DHW outlet
- 6 Cold water inlet
- 7 Tank loading and central heating backup heat exchanger
- 8 DHW indirect coil
- 9 Non-pressurised tank water
- 10 Biv/solar indirect coil

The hybrid heating centre – open to all energy types

The GCU compact internal unit can furthermore be used as an efficient thermal store for additional heat sources. Apart from a solar thermal system, it can also be backed up for example by oil, gas and pellet boilers or wood burning stoves with back boilers. If you do not install a solar thermal system immediately, one can be retrofitted quickly and easily at any time.

Smart technology for your convenience

Intelligent Store Management (ISM)

Using Intelligent Store Management for gas condensing boilers and thermal stores simultaneously, maximises energy efficiency, as well as heating and DHW convenience. It can also cover the energy demand of low energy houses and highly insulated new buildings, which is minimal. In existing housing stock, intelligent control systems optimise burner runtimes and thus reduce emissions, while increasing energy efficiency.

Lambda-Gx

The GCU compact gas condensing boiler/solar combination is fitted with an automated combustion controller. This means the system is able to adapt to different gas types, so enabling the gas condensing boiler to be operated efficiently. It ensures that the combustion of most types of gas, including LPG, can be very tightly controlled. Consistent application of condensing technology and the combination of a condensing boiler and thermal store, work together to keep energy consumption low.

Everything under control

The digital RoCon controller meets the highest aspirations and is easy to operate. The display shows values and parameters in plain text. All operating modes and operating parameters can be set and modified easily and quickly. Important system parameters can be accessed and adapted to suit by your heating engineer. The heating water temperature is regulated subject to temperature. The controller automatically recognises summer and wintertime and switches the heating mode on and off to suit demand. It has individually adjustable timer programs for convenient control of the heating circuit and DHW generation, and can be supplemented by a room controller, which can be used conveniently to control and monitor the heating system.



The hybrid control RoCon

The hybrid control RoCon also takes over the entire management of the thermal store, the heart of the hybrid heating system, alongside the regulation of the gas condensing boiler GCU compact. This comprehensive hybrid management ensures the highest system efficiency and optimum convenience for heating and hot water. Simple and consistent handling for the ROTEX GCU compact with intuitive menu navigation and control via your smartphone with the ROTEX App.

Think DHW hygiene when buying a heating system

The first thing we need for foodstuffs is clean water

Hot and fresh water is indispensable for every household. Whether for showering, bathing, cooking or hand washing. Having hot water available in the desired volume and at the desired temperature is a significant constituent of our modern life. The fact that this water is also hygienic is, of course, a prerequisite. Conventional hot water heaters often fail to meet these requirements today. We have therefore placed special emphasis on water hygiene!

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.

Unadulterated enjoyment – every day

The ROTEX thermal store was conceived in accordance with the latest thermal technology and water hygiene requirements. Its structure is fundamentally different from normal large volume hot water storage tanks. As a result of its design concept it delivers hygienically perfect hot water at any time. In the storage tank water which is clearly separated from it. The optimum tank layering ensures that a supply of hot water is always available.



Optimum water hygiene – day after day

Thanks to its construction, the GCU compact has an integral, state-of-the-art stratification store for hygienic water provision. Sludge and rust deposits, sedimentation and even the growth of dangerous legionella bacteria, as can occur in many large containers, are now no longer possible.



„I was surprised to see the deposits that can accumulate in a thermal store. Luckily our installer recommended an integrated ROTEX unit. The benefits in terms of hot water hygiene won me over immediately, now I can enjoy every last drop of water.“

Sabine Hiller about her experiences using the GCU compact gas condensing / solar combination

A perfect combination: condensing + solar

Sunny outlook

ROTEX Solaris utilises free solar energy to back up the heating system. High performance solar collectors developed and produced in-house at ROTEX can be installed in a variety of ways and offer the highest levels of energy efficiency.

Low expenditure – high yield

At peak levels, 80 % of the solar energy that has been captured can be converted into usable heat. The high efficiency of ROTEX flat-plate collectors makes this possible. Solar energy and the gas condensing boiler/solar combination ROTEX GCU compact complement each other perfectly. Depending on demand, the condensing boiler contributes the necessary amount of heat to the heating system.

Stock up on solar energy with the ROTEX thermal store

ROTEX Solaris uses solar energy for domestic hot water heating and provides effective backup for central heating. Alongside solar DHW heating, solar central heating backup is integrated ready for connection on the GCU compact with 500-litre tank capacity. If heat from the sun is not employed immediately, the ROTEX thermal store can store large amounts of solar energy. Heat for DHW or central heating can be used more than a day later.

Your advantages with the ROTEX Solaris solar system

- Efficient utilisation of free solar energy for hot water and heating
- Hygienic hot water generation
- Optimum temperature stratification in the ROTEX solar thermal store increases solar use
- Perfect incorporation with the most varied of heating systems



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.

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.

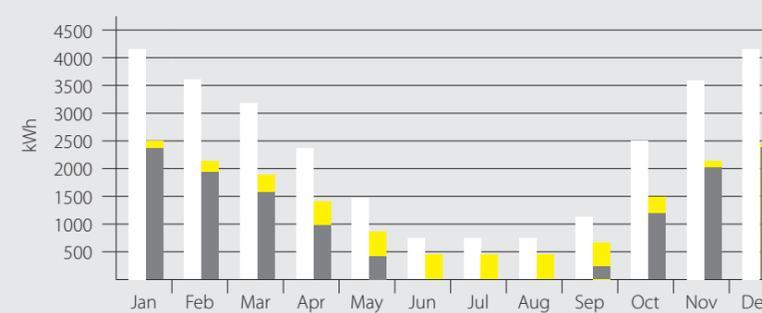
1. The pressurised solar system (Solaris-P)

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.



Monthly energy consumption of an average single-family house

The diagram shows the monthly energy consumption of an average single-family home. It compares two system types: The white bar represents the energy consumption using an old boiler. The grey/yellow bar shows a system with the ROTEX GCU compact with 4 solar panels.

□ Old system ■ Condensing boiler ■ Use of solar energy

Specification

System efficiency with Solar*:

* ROTEX system consisting of:
 GCU compact 515 Biv,
 RoCon control,
 4 solar collectors V26P



Gas condensing / solar combination		GCU compact 315	GCU compact 324	GCU compact 515	GCU compact 524	GCU compact 533
Energy efficiency class*						
Space heating (flow temperature 55 °C)		A	A	A	A	A
Space heating with integrated control (flow temperature 55 °C)		A	A	A	A	A
DHW heating (tapping profile)		A (L)	A (L)	A (XL)	A (XL)	A (XL)
Basic data						
Storage tank capacity	litres	300	300	500	500	500
Empty weight	kg	86	86	124	124	124
Total filled weight	kg	386	386	624	624	624
Dimensions (W x D x H)	mm	595 x 615 x 1950	595 x 615 x 1950	790 x 790 x 1950	790 x 790 x 1950	790 x 790 x 1950
Max. permissible storage water temperature	°C	85	85	85	85	85
Standby heating power	kWh / 24h	1,7	1,7	1,8	1,8	1,8
Control		RoCon				
Circulation pump		highly efficient, regulated – ErP ready (EEI < 0.23) ¹⁾				
DHW heating						
Potable water capacity	litres	19	19	24,5	24,5	24,5
Maximum operating pressure	bar	6	6	6	6	6
Material of domestic drinking water heat exchanger		stainless steel				
ISM characteristic data						
Output	kW	0,5 – 15	0,5 – 24	0,5 – 15	0,5 – 24	0,5 – 33
Heat generator characteristic data						
Nominal output	kW	6,5 – 15	6,5 – 24	6,5 – 15	6,5 – 24	6,5 – 33
Rated thermal load	kW	6,5 – 15,7	6,5 – 25,3	6,5 – 15,7	6,5 – 25,3	6,5 – 32,5 (30,0) ³⁾
Device type		B23 / B23P / B33 / B33P / B53 / B53P / C13x / C33x / C43x / C53x / C63x / C83x / C93x				
Maximum permissible operating pressure	bar	3	3	3	3	3
Maximum permitted operating temperature	°C	85	85	85	85	85
Maximum boiler efficiency	%	108	108	108	108	108
Flue gas / air infeed connection diameter	mm	DN 60/100 (mit Anschluss-Set Nr. 155079.17 DN 80/125)				
Solar combination						
Drain-back combination		•	•	•	•	•
Pressurised solar combination		• (Version Biv)	• (Version Biv)	• (Version Biv)	• (Version Biv)	• (Version Biv)
Solar heating support						
Bivalency solution (combination with additional heat generator or swimming pool)		• (Version Biv)	• (Version Biv)	• (Version Biv)	• (Version Biv)	• (Version Biv)

* The energy efficiency classes are valid for the standard version H/C and for the version Biv.

1) The European Ecodesign and ErP Guidelines stipulate that, as of 2015, only pumps may be used in heating boilers that have an energy-efficiency coefficient EEI < 0.23. From 2020, these requirements will also apply to spare parts. All ROTEX A1 and GCU compact condensing boilers are already fitted with pumps that will be permitted from 2020 and beyond.

2) The product series „ROTEX compact class“ has been granted the Plus X Award for innovation, high quality, design, functionality and ecology.

3) Liquefied petroleum gas (LPG)



Solaris flat solar panels		V 21 P	V 26 P	H 26 P
Dimensions (W x D x H)	mm	1006 x 85 x 2000	1300 x 85 x 2000	2000 x 85 x 1300
Gross surface area	m ²	2.01	2.60	2.60
Water content	litres	1.3	1.7	2.
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.

Information in printed materials subject to correction and technical modification.

From 26 September 2015, energy efficiency labels and current product datasheets can be obtained using the Energy Label Generator at www.rotex-heating.com.

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

Langwiesenstraße 10
D-74363 Güglingen
www.rotex-heating.com