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New hybrid devices from Viessmann Sustainable energy mix in one device

Hybrid

Different fuels in one device – hybrid devices use gas or oil and free ambient heat and electricity. This makes it possible to heat the living space and drinking water with the energy form that is cheapest at the moment of use. Viessmann will launch two new hybrid devices this year:

- Vitolacaldens 222-F combines the high efficiency of oil condensing technology with the use of free ambient heat. This combination in one compact device, unique in the industry, is ideally suited to the modernization of old oil heating systems.
- If individual solutions are required or for systems already renovated with condensing technology, there is also the new Vitocal 250-S, a separate heat pump module which can be retrofitted.

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Vitolacaldens 222-F: compact oil hybrid unit for modernizing oil heating systems

Hybrid

Three quarters of the almost 6 million oil heating systems in Germany are outdated, consume too much fuel and urgently require modernizing. However, many of the homeowners are unsure which type of heat generator is sustainable and so delay modernizing. Viessmann now offers an ideal solution for such cases with their new oil hybrid compact device. Vitolacaldens 222-F combines highly efficient condensing technology with the use of free ambient heat. That is why on the energy efficiency label it was classified as a Grade A++. That is unique for an oil heating system.

Consumption peaks are evened out

The compact combination between a high-efficiency oil condensing boiler and an air/water heat pump provides flexible heating with fuel oil or electricity and free heat from the outside air, depending on which fuel source is the cheapest at the moment of use. In this way, consumption peaks can be evened out.

Homeowners now no longer need to stick to one specific fuel source or another. And in the future, they will still be able to respond flexibly to trends on the energy market by specifying their operating parameters and the current energy prices in the controls, thus ensuring heating is sustainable.

Two highly efficient and proven heat generators

In the oil hybrid compact device two highly efficient and proven heat generators are combined. The heat pump module covers the heat baseload up to 10 kW and also produces the largest share of the annual heat output. The inverter-controlled compressor and the electronic expansion valve in the refrigerant cycle ensure a

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very high COP of up to 5.1 (with air 7 °C / water 35 °C as per EN 14511) and therefore high seasonal performance factors in practice.

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The oil condensing boiler with up to 23.5 kW thermal output only switches on at low temperatures and covers the peak load if the heat pump cannot do that at an economic rate. It also switches on for rapid heating of the drinking water in the integrated primary cylinder. An economical use of fuel oil is made possible by the stainless steel radial heat exchanger and the modulating compact blue-flame burner. Viessmann gives a guarantee of ten years for the heat exchanger against leaks due to corrosion (www.viessmann.de/garantie). Through the modulation of 1:2.3, the burner adapts its output exactly to the current heat demand and thus ensures low oil consumption and low CO₂ emissions. Standard utilization rate up to 98 % (H_s).

Hybrid Pro Control identifies the ideal dual-mode point

The Vitotronic 200 controller decides which of the two heat generators takes precedence based on electricity and oil prices, the current heat demand and the selected operating mode (economy for minimum operating costs, ecology for minimum CO₂ emissions, and the additionally selectable convenience function for rapid hot water heating). Hybrid Pro Control automatically identifies the respective ideal dual-mode point for the switchover. Vitolacaldens 222-F thus achieves the best results from an economic, ecological, or convenience viewpoint, depending entirely on the homeowner's preferences.

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High level of operating ease by radio, smartphone, and the Smart Home system

The Vitotronic 200 controller can be operated at home with the optional radio remote control Vitotrol 300 RF through an integrated

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radio interface. The free, optional Vitotrol app enables access via the Internet at any time, even when away from home, via a smartphone (iPhone, Android) or a tablet PC (iPad). The combination offers maximum ease of use with the new Smart Home system Vitocomfort 200. The radio-based system offers individual preset room temperatures, monitors windows and doors and enables adjustments to the lighting and window blinds.

Hybrid

Suitable for smart grid

The increasing proportion of renewable electricity from wind power and photovoltaic systems will in future lead to strongly fluctuating prices. If there is little power in the public grid, the cost for the electricity customer will rise, and if there is a large amount it will fall. The use of smart grids will in future enable favorable electricity prices to be passed on to the end consumer. Vitolacaldens 222-F is ready for use in smart grids. If electrical energy is favorable in price, the device can respond to appropriate signals from the grid and switch to heat pump operation. The hybrid device uses fuel oil at times when electricity prices are high.

Use of power generated by your own photovoltaic system

In addition, the compact oil hybrid device, like other hybrid devices from Viessmann, can be coupled to a photovoltaic system. Also, the control identifies automatically the anticipated output curve of the photovoltaic system and expected energy demand in the house, taking this into account in its operation. In this way, the use of self-generated electricity can be increased and the purchase of expensive mains electricity can be minimized.

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Easy installation and commissioning

Vitolacaldens 222-F is the only compact oil hybrid device on the market as simple and quick to install as conventional split-design heat pumps. All important components are pre-installed. That

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allows a very short installation time and avoids installation errors. Only oil and exhaust gas lines have to be added on the building side. The external unit of the heat pump module is connected to the unit inside using refrigerant piping, so that there is no risk of freezing in winter.

Hybrid

Ready for automatic flow balancing

With Vitoflow, Viessmann gives the technician the chance to carry out the flow balancing of the entire heating system in a very short time in automated mode, very simply and safely. The TÜV-certified (German technical supervisory association) process does not require data like the length and diameter of the piping, details that are often not known and difficult to find out when modernizing systems. Vitolacaldens 222-F is already prepared for this. All that is needed is a laptop with the service software Vitosoft 300 and a service set with radio-controlled servomotor that is a one-off purchase.

Simple, rapid servicing

The Vitotronic 200 controller of the compact oil hybrid device is equipped with comprehensive diagnostic functions, such as reading target and actual values of the system components and for diagnosis of the refrigerant cycle. This enables simple, rapid servicing. This allows service technicians to establish the system status quickly and professionally.

Advantages for market partners

- Short installation time thanks to fully pre-installed electrical and hydraulic components
- External unit connected via refrigerant piping, therefore no risk of freezing
- Preset controller Vitotronic 200 with Hybrid Pro Control (automatic dual-mode point adaption)

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- Simple service thanks to the controller's comprehensive diagnostic functions and service support
- Existing maintenance contracts can be continued

Hybrid

Advantages for owners

- High operational reliability thanks to heat generators operated independently of one another
- Low operating costs due to use of the most favorably priced fuel source
- Optimum DHW convenience thanks to oil peak load boiler
- Compact internal unit dimensions in kitchen grid
- Flexible, future-proof solution based on the use of variable electricity rates in smart grids and self-generated photovoltaic power

Technical specifications

- Heat pump module output: 1.1 to 10.0 kW
- COP up to 5.1 (air 7 °C/water 35 °C, as per EN 14511)
- Oil condensing boiler output: 10.3 to 23.5 kW
- Modulation range 1: 2.3
- Standard utilization rate 98 % (H_s)
- Primary cylinder capacity: 100 l
- Internal unit dimensions (H x W x D):
1,625 x 600 x 595 mm

Availability

The compact oil hybrid unit Vitolacaldens 222-F will be launched in October 2015.

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Vitocal 250-S: split-design air/heat pump for use with oil and gas boilers

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The new split-design air/heat pump Vitocal 250-S can be combined with floor-standing and wall-mounted condensing boilers up to an output of 30 kW. In this way, matched individual solutions can be produced exactly for the current requirements.

Heating systems that have already been upgraded with an oil or gas condensing boiler can also be retrofitted with a Vitocal 250-S unit. The split-design air/heat pump saves costs by producing the major share of the annual heat output. The boiler only switches on when temperatures are very low and for rapid heating of drinking water.

Up to 80 percent of annual heat output from ambient heat

The split-design air/heat pump has an output of up to 16 kW, according to the output level selected. It can cover up to 80 percent of the annual heat output in a single-family home with free ambient heat and electricity. External units are also available for very high living comfort even on warm summer days. They can go into reverse operation and also be used for cooling buildings. Inverter-controlled compressors and the electronic expansion valve in the refrigerant cycle ensure a very high COP of up to 5.1 (with air 7 °C / water 35 °C as per EN 14511).

Vitotronic 200 controller with Hybrid Pro Control

The Vitotronic 200 controller regulates and manages the operation of both the split-design heat pump and the existing boiler. It coordinates how the two heat generators work together as per the homeowner's preferences:

- economical mode for minimum operating costs or

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- ecological mode for minimum CO₂ emissions.

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The comfort function can also be selected to swiftly heat water in the boiler.

Hybrid Pro Control uses the selected operating mode, electricity and fuel prices, and the current heat demand to determine the ideal dual-mode point automatically and then starts up the corresponding heat generator. It thus ensures that the wishes of the homeowner are perfectly met in terms of profitability and environmental compatibility.

Always connected to the heating system – even away from home

If desired, the heating system can be operated very conveniently by means of the radio-controlled remote control Vitotrol 300 RF from the living quarters. In addition, remote control and monitoring is possible when away from home using Vitocom 100, Vitotrol app, and smartphone (iPhone, Android) or a tablet PC (iPad).

The combination offers maximum ease of use with the new smart home system Vitocomfort 200. This radio-based home automation system allows temperature sequences to be given for individual rooms and, for example, the lights and window blinds to be controlled at any time, even from outside the home.

Ready for use in smart electricity grids

Electricity prices fluctuate due to the increased importance of solar and wind power. As soon as smart grids become available, it is possible to automatically react to these prices. Prices will fall if there is a large amount of electricity from renewable sources and low demand at the same time, but if the supply is low and demand is high they will rise. Vitocal 250-S is already suitable for use in smart grids and is able to respond to changes in electricity prices.

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The unit thus switches to heat pump mode when electricity prices are favorable and uses the alternative fuel when prices are high and the alternative is cheaper.

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Operation with photovoltaic power

In addition, the hybrid heat pump can also be operated with self-generated electricity from a photovoltaic system. The anticipated output curve of the photovoltaic system and the heat demand are automatically taken into account so as to maximize own use of solar power.

Quick installation and convenient service support

The split-design air/heat pump can be simply and quickly installed. Its compact internal unit has a width of 450 millimeters and fits into tight corners, being attached to the wall. All the important hydraulic and control components are already pre-assembled. Clearance at the sides is not necessary since all the components to be serviced are easily accessible from the front. The existing heat generator can be quickly integrated using the integrated control valve without elaborate additional pipework. The external unit of the split-design heat pump is connected via refrigerant piping to the internal unit.

Split-design air/heat pump Vitocal 250-S is ready for Vitoflow

With Vitoflow, Viessmann offers the technician responsible for the start-up a special service. This enables the flow balancing of the entire heating system to be automatically carried out in a short space of time. Specialist knowledge is not required. Data like the length and diameter of the piping, details that are often not known and difficult to find out with older heating systems, do not have to be given. The split-design air/heat pump Vitocal 250-S is prepared for automatic flow balancing. All that is needed is a laptop with the service software Vitosoft 300 and a service set with radio-controlled servomotor.

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The diagnostic function of the Vitotronic controller supports the service by making available e.g. the target and actual values of all the important system components. In this way, the service technician can obtain on the spot a detailed overview of the status of the system and does not even need additional equipment.

Advantages for market partners

- Short installation times thanks to fully pre-fitted electric and hydraulic systems in the internal unit
- Flexible combination options with floor-standing and wall-mounted boilers up to 30 kW for oil and gas
- External unit connected via refrigerant piping, therefore no risk of freezing
- Preset controller Vitotronic 200 with Hybrid Pro Control (automatic dual-mode point adaption)
- Optimum reliability for layout planning, implementation, and operation due to an optimized, time-tested system
- Simple service thanks to the controller's comprehensive diagnostic functions and service support
- Existing maintenance contracts can be continued

Advantages for owners

- Low operating costs thanks to Hybrid Pro Control ensure use of the cheaper fuel source
- Attractively priced modernization of existing heating systems with a heat pump
- High operational reliability thanks to heat generators operated separately from one another
- Optimum comfort thanks to cooling function in conjunction with external reverse-operation heat pump unit
- Internal unit easy to integrate into living space as a result of compact dimensions

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- Flexible, sustainable solution based on the use of variable electricity rates in smart grids and self-generated solar power

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Technical specifications

- Heat pump module output: 1.2 to 16 kW
- COP up to 5.1 (air 7° C/water 35 C, as per EN 14511)
- Internal unit dimensions (H x W x D): 900 x 450 x 360 mm
- Output from boiler for oil or gas: up to 30 kW

Availability

The split-design air/heat pump Vitocal 250-S is available from October 2015.

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Comprehensive range of products for all fuel sources

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Whether oil or gas and free ambient heat – the use of two fuel sources makes the heating of single- and two-family homes with the hybrid devices from Viessmann highly sustainable. In addition, the comprehensive range of products from Viessmann offers many other individual solutions with efficient systems for all areas of application and all fuel sources. This includes wall-mounted condensing boilers from 1.9 to 150 kW and floor-standing condensing boilers from 1.0 to 6,000 kW and combined heating and power (CHP) units from 0.75 to 530 kW_{el} and from 1.0 to 660 kW_{th}. The efficient use of renewable energy is made possible by solar thermal systems with flat-plate and vacuum tube collectors for DHW generation and auxiliary heating, biomass boilers from 2.4 to 50,000 kW for logs, woodchips and wood pellets, heat pumps from 1.7 to 2,000 kW and photovoltaic systems.

Comprehensive services portfolio

Furthermore, Viessmann supports their market partners with a comprehensive services portfolio. This includes a flexible logistics concept, the customer-oriented service concept of the Technical Service department, the demand-oriented training program of the Viessmann Academy, event-related advertising materials, the online portal and advance sales through brand presence in winter sport activities.

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Images / captions

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Image 1: The new Viessmann compact oil hybrid unit Vitolacaldens 222-F provides flexible heating with fuel oil or electricity and free heat from the outside air, depending on which fuel source is cheapest at the moment of use.



Image 2: In the internal unit of the new compact oil hybrid device Vitolacaldens 222-F from Viessmann, oil condensing boiler, heat exchanger, 100-liter primary cylinder and all the important hydraulics components are compactly housed.

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Image 3: The new split-design air/heat pump Vitocal 250-S from Viessmann is designed for flexible combination with a wall-mounted or floor-standing oil or gas boiler.

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