

Presse

Solar heating from Viessmann: efficient systems for the utilization of solar energy

At this year's ISH, Viessmann, the leading European brand for solar heating, will present:

- the in-roof flat-plate collectors Vitosol 300-F and 200-F for vertical or horizontal integration into roofs.
- an innovative absorber coating in the flat-plate collector Vitosol 200-F that shuts down if there is a chance of overheating.
- the vacuum tube collector Vitosol 300-T with automatic temperature shut-off and double-sided anti-reflective coating.
- the new vacuum tube collector Vitosol 200-T (Type SPL). The collector is specially designed for large-scale plants and last year this novel concept was awarded 1st prize among the innovation awards at the OTTI Symposium.
- Vitosolar 300-F, the compact heating center with an integrated condensing boiler, DHW generation, and solar auxiliary heating, is now housed in a unit less tall. It is operated via a new color touch display with an energy cockpit that ensures transparency in energy consumption and solar heat recovery.

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Vitosol 300-F and 200-F: Flat-plate collectors for simple, rapid integration into roofs

The flat-plate collectors Vitosol 300-F and 200-F are now available as in-roof versions either for vertical or horizontal integration into roofs.

Roof sealing with collector panes

The new collectors have a special collector frame with a holding fixture for the covering frame. Collectors and frames are simply fastened directly on the roof sub-structure and so lie quite flat in the roof. The collector panes serve as a roof seal. The covering frame covers and protects the hydraulic connections. The whole installation can be finished in a short time with the supplied pre-assembled components.

For all common roof coverings

Vertical in-roof mounting is possible in one or two rows on all roofs with roof tiles, slate, beaver tail, or mission tile roof coverings. Horizontal in-roof mounting is possible in one row on roofs with roof tiles.

The specified order configurations for both mounting procedures contain all the required components, including the hydraulic connection parts. If static proof is required up into the roof structure, then an assembly set with screws and mounting blocks is also available.

Visually appealing integration into roofs

The matching colors of the Viessmann in-roof solutions produce a very attractive appearance: collector housing, absorbers, and covering frames are dark blue.

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Flat-plate collectors for efficient utilization of solar energy

The high level of energy efficiency of the Vitosol 300-F is based on a special, very translucent anti-reflective glass, the highly selective absorber coating and very effective thermal insulation. Its optical degree of efficiency η_0 is over 86 percent, which is much better than that of other comparable collectors on the market.

With Vitosol 200-F, the highly selective absorber coating and a special solar glass also ensure a high level of heat recovery. Its optical degree of efficiency η_0 is 83 percent.

Advantages for market partners

- Simple, rapid, accurate installation thanks to pre-assembled components
- Suitable for all common roof coverings
- TÜV (German technical supervisory association)-certified rain impermeability
- Optional assembly set for static proof of fastenings

Advantages for owners

- Visually pleasing integration through flat roof installation, with a choice of vertical or horizontal mounting
- Proven, reliable collectors Vitosol 300-F and Vitosol 200-F
- Planned support through market incentive program (MAP)

Technical specifications

- Absorber surface 2.3 m²
- Roof covering/roof inclination:
 - Roof tile 20° to 65°
 - Slate 20° to 65°
 - Beaver tail 20° to 65°
 - Mission tile 15° to 65°

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Availability

The flat-plate collectors for vertical integration into roofs are already available and horizontal integration into roofs is possible from April 2015.

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Vitosol 200-F and 300-T: Flat-plate and vacuum tube collectors with temperature shut-down

High solar coverage rates bringing substantial energy savings usually require large-scale collector surfaces. Large collector surfaces, however, cause long stagnation times especially in the warm summer period when the heat cannot be used by the homeowner, causing vapor to form. Viessmann can offer two means of reliably preventing overheating and vapor formation: one is an innovative absorber coating in the flat-plate collector Vitosol 200-F, and the second is the vacuum tube collector Vitosol 300-F with temperature shut-off.

Vitosol 200-F with “switching” absorber coating

Viessmann, as manufacturer of the absorbers, has developed and patented a coating that reliably shuts down the collector before it overheats. The "switching" absorber layer functions on a purely physical basis through temperature-dependent alteration of the crystal structures. At collector temperatures above about 75 °C, irradiation from incoming solar radiation rises. This causes much lower stagnation temperatures in the collector, vapor formation is reliably prevented and the solar medium and all other components of the system are protected. The change in crystal structure is reversible at any time and the function is therefore permanently available.

Vitosol 300-T with automatic temperature shut-off

The Vitosol 300-T is a highly efficient vacuum tube collector based on the heat pipe principle. The temperature shut-off is based on the fact that the medium in the tube condenses only up to a certain maximum temperature. Thus the temperature shut-off becomes active if over a longer period with high solar radiation no heat is

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removed. The water/glycol mixture is thus reliably protected against harmful excess temperatures and vapor formation.

Advantages for market partners

- High level of operational reliability via reduction of stagnation temperature
- Independent of control settings, power cuts, and mechanical equipment
- Much reduced wear on all system components
- Simpler component choice (smaller expansion vessels, insulation materials etc.)

Advantages for users

- Increase in solar coverage for auxiliary heating and DHW generation through the use of larger collector surfaces
- No overheating problems in summer or during prolonged absence
- Re-start after system standstill possible immediately
- Planned support through market incentive program (MAP)

Technical specifications

- absorber surface: 1.51 and 3.03 m² (Vitosol 300-T)
2.3 m² (Vitosol 200-F)

Availability

The new absorber coating will be introduced with the flat-plate collectors Vitosol 200-F and 300-F from the second half of 2015.

The vacuum tube collector Vitosol 300-T is already available.

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Vitosol 200-T (Type SPL): Innovative vacuum tube collector for large-scale solar heating plants

Vitosol 200-T (Type SPL) is a vacuum tube collector new to the market that is specially designed for collector surfaces of over 200 square meters. It facilitates the efficient utilization of solar heat in heating networks at collector temperatures between 60 and 120 °C and also offers features such as low pressure loss, low maintenance costs, simple, rapid installation, and high outputs. This collector is responsible for the lowest heat production costs by far within the trade and industry sector. As a result of its innovative concept, the collector was last year awarded 1st prize from the East Bavarian Technology Transfer Institute e. V. (OTTI). Viessmann will supply the collector as a component or will provide the complete solar heating unit, as required.

Heat pipe collector for use around the world

The heat pipe of the new collector is based on roll bond technology. The lower section of the heat pipe is embedded into a vacuum pipe and acts as an evaporator while the upper section is used as a condenser in the collecting main. Six evaporator sections form one joint condenser that is simply laid around the collector tube installed on site. Expert knowledge is not required for the installation since it is easy to carry out, and this technology can be used around the world.

Rapid installation through modular collector concept

The collector system and the whole hydraulics system can be mounted separately. After the supporting structure has been built from prefabricated profiles, preferably outside or on flat roofs, the collecting main made of standard DN 50 steel piping is installed.

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Six vacuum tubes form a collector module that is delivered pre-assembled and mounted on the collector tube. The whole mounting process takes only a few minutes per module.

Because of the modular design, large collector fields, as required for solar local heating and process heat generation, can also be constructed quickly.

Particularly suitable for system temperatures over 80 °C

The technology of the Vitosol 200-T (Type SPL) produces a much higher collector output with low outside temperatures than standard collectors. This makes it very suitable for system temperatures over 80 °C. The collectors can thus be used, for example, to pre-warm the boiler return flow. It runs economically with total costs of 4 – 4.5 Euro cents per kW/h. It reduces the consumption of fossil fuels and lowers CO₂ emissions.

Advantages for market partners

- On-site installation of collector tube (local value creation)
- Easy to fit thanks to pre-assembled building groups
- Simple hydraulic connection
- Flexible unit size thanks to modular design
- Pressure testing of collector tube without mounted collector components
- Vacuum tubes can be exchanged without emptying the unit thanks to the dry connection of the heat pipes

Advantages for owners

- Low operating costs, simple hydraulic construction and low pressure loss
- Higher collector temperature and output than with standard collectors

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- Reduction of energy costs for fossil fuels through use of solar heat
- Simple expansion of units thanks to modular design
- Robust design ensures a long service life and reliable operation around the world
- Largely self-sufficient solar running possible in summer without post-heating of the heat generator (depending on design of unit)
- Planned support through market incentive program (MAP)

Technical specifications

- Absorber surface (per section) 215 m²
- Temperature range 60 to 120 °C
- Angle of inclination of under-frame 23°, 31°, 39° and 48° (open space and flat roof)

Availability

The new vacuum tube collector Vitosol 200-T (Type SPL) is already available.

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Vitosolar 300-F: Smart heating with condensing technology and solar auxiliary heating in one device

The compact heating center Vitosolar 300-F with solar DHW generation and auxiliary heating offers the option of an integrated gas or oil condensing boiler. The height has been reduced in all versions so that the device now fits into cellar rooms that are two meters high. Thermal insulation in the combination cylinder has also been improved. The smart cylinder makes the charge function transparent in combination with the energy cockpit of the Vitodens 300-W. This can also be achieved via the Internet with a smartphone at any time and also from outside the home.

Highly efficient complete system

All system components, such as the gas or oil condensing boiler, 750-liter combination cylinder, the complete pipeworks, mixer, high-efficiency pumps, and the controller, are collected together in one compact unit with the Vitosolar 300-F. The highly efficient condensing technology offers high standard utilization rates up to 98 % (H_s). The coverage rate of the solar auxiliary heating stands at over 25 percent in new buildings, while in existing buildings more than 12 percent can be achieved. A reliable heat supply can therefore be provided at a low operating cost.

Smart energy management with a new energy cockpit

If Vitosolar 300-F is combined with the gas condensing boiler Vitodens 300-W, the whole system can be conveniently operated with the new color touch display. Color diagrams of the functions and clearly structured menus make it very easy to use. The new display, used as an energy cockpit, also gives comprehensive and easy-to-read information about gas and power consumption in the

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condensing boiler and about solar heat recovery. All energy consumption and solar yield entries are detailed in the form of color diagrams over periods of a day, a week, 12 months, or as a comparison over two years, as required. That gives a high degree of transparency to the energy consumption of the heating system and DHW generation.

Information about the operating status of the combination cylinder is also provided. This includes cylinder charge state, temperature distribution and its history, and temperature layering. The display relating to the charge state, for example, can be used as information for the additional operation of a further heat generator.

Internet-inside

The heating center Vitosolar 300-F, in combination with the gas condensing boiler Vitodens 300-W, has an integrated LAN interface for direct connection to a DSL router. So almost unlimited communication via the Internet is possible without extra components. The Internet-inside solution allows access to all the information that the color touch display on the device offers, via an optional Vitotrol app and smartphone or tablet. It can also be used to start heating programs and define target values in the heating center and up to three heating circuits from outside locations.

Smart Home system for greatest ease of use

If the heating center Vitosolar 300-F is combined with the optional new Smart Home system Vitocomfort 200, then further usages are possible: Freely programmable home scenarios such as "Get up", "Party" and "Sleep", control of lighting and window blinds and the permanent monitoring of doors and windows ensure the highest level of home comfort and security. The Vitocomfort app can do this remotely, too.

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"Plug and play" and an electronic assistant for simple installation and commissioning

The heating center is prepared at the factory for simple, rapid installation as a "Plug and play" solution. The installation console comes pre-assembled with heating circuit junction, Solar Divicon, thermally insulated piping, and shut-off valves. The connection of a second heating circuit junction is just as feasible as the integration of a second heat generator, for example, a wood-fired boiler. All connections can be set up either on the left-hand or right-hand side of the device, depending on the room available at the installation site.

An integrated assistant function for the start-up procedure supports the technician with all the important settings. The start-up assistant starts automatically after the unit is switched on and carries out all the necessary procedures independently. It identifies all the connected system components and knows automatically whether forward and return flow of the collectors were correctly connected. Codes can be automatically set through system diagrams stored in the controller.

Advantages for market partners

- Problem-free start-up procedure thanks to the assistant function with automatic control of the connections for collector forward and return flow
- Operating behavior of the system easy to evaluate thanks to temperature layering with minimum and maximum figures and history
- Visualization of operating status and solar yield by remote monitoring, Vitotrol app, and Internet allow service contracts to be carried out
- Installation also possible in low spaces (e.g. cellar) thanks to reduced height

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Advantages for owners

- Visualization of the operating behavior of the solar thermal system via color touch display, remote control and Vitotrol app
- Clearly arranged, easy-to-understand display of the system operating status in the energy cockpit
- Information about the charge state of the combination cylinder
- Identification and description of the solar yield over periods of either 7 days, 12 months, or 2 years
- Low heat losses in the combination cylinder thanks to effective thermal insulation

Technical specifications

- Outputs: 1.9 to 35.0 kW (Vitodens 300-W)
3.2 to 35.0 kW (Vitodens 200-W)
10.3 to 23.5 kW (Vitodens 300-W)
- Standard utilization rate 98 % (H_s)
- Contents of combination cylinder: 750 l

Availability

The heating center Vitosolar 300-F with reduced height, effective thermal insulation, color touch display with energy cockpit, and integrated LAN interface will be available from April 2015 (in combination with the gas condensing boiler Vitodens 300-W).

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Comprehensive range of products for all fuel sources

Solar thermal systems are an ideal addition to the heat generators in the Viessmann comprehensive range of products. The comprehensive range of products also contains individual solutions with efficient systems and outputs from 1.0 to 120,000 kW 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}. Also part of this portfolio are systems for renewables including solar thermal systems and photovoltaic systems as well as biomass boilers from 2.4 to 50,000 kW for wood logs, chips, and pellets as well as heat pumps from 1.7 to 2,000 kW that use heat from the ground, groundwater, or ambient air.

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



Image 1: The Viessmann flat-plate collectors Vitosol 300-F and Vitosol 200-F are now also available as in-roof versions for vertical and horizontal integration into roofs. They are mounted together with the covering frame directly onto the roof sub-structure.



Image 2: The Vitosol 300-T from Viessmann is very reliable in operation with its automatic temperature shut-off as a protection against stagnation.

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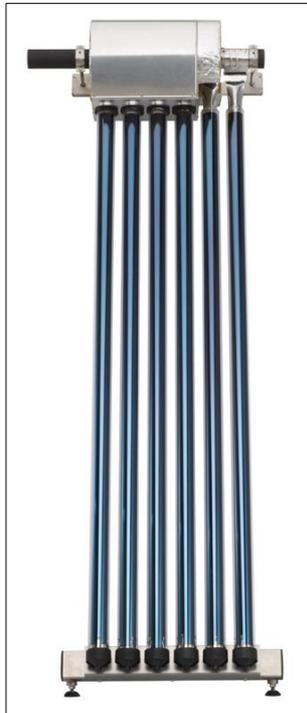


Image 3: Vitosol 200-T (Type SPL) is a new vacuum tube collector launched by Viessmann that is specially designed for collector surfaces of over 200 square meters.



Image 4: The innovative vacuum tube collector Vitosol 200-T (Type SPL) from Viessmann is based on roll bond technology and is simply laid around the collector tube already installed.

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Image 5: The Vitosolar 300-F heating center from Viessmann has an integrated condensing boiler and solar auxiliary heating as well as being reduced in height so that it fits into low cellar rooms.

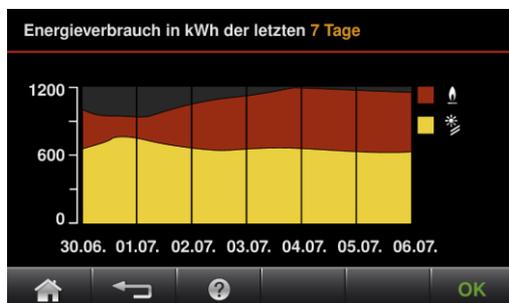


Image 6: The new color touch display of the heating center Vitosolar 300-F from Viessmann offers ease of use in its function as an energy cockpit and a high level of transparency for energy consumption and solar heat recovery (in combination with the Vitodens 300-W).

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