VIESSMANN

climate of innovation

Heating with airborne and geothermal heat

Heating with airborne and geothermal heat – making the best possible use of renewables

This brochure provides detailed information on sustainable and environmentally responsible heat generation using heat pumps from Viessmann. Heat pumps utilise renewable energy from the ground, the sun, the groundwater or the air. They lower consumption of fossil fuels, conserve valuable resources and reduce CO_2 emissions that damage the environment.

Viessmann heat pumps hold a further advantage – many of them feature active and natural cooling functions. Alongside their classic application as heat generators on cold days, they can also create a pleasant interior climate in summer by bringing refreshing cool air into the house.

Viessmann's extensive product range offers the right heat pump to suit every demand. Even at the planning stage, structural and geological conditions, as well as personal and individual preferences concerning heat demand can be taken into account. Viessmann heat pumps can be used in new build and modernisation projects, they can be operated together with solar thermal systems and even combined with an existing oil or gas heating system to form a multi mode system. This gives you plenty of scope for implementing your own ideas or designs.

Contents

Compliant scroll compressor

About this brochure

Heat pumps from Viessmann offer tailor-made solutions for central heating and convenient hot water supply, for both new build and modernisation. The active and natural cooling functions create a pleasant interior in the summer too.

Saving energy and protecting the climate — from page 6

By modernising your heating system, you are making an active contribution towards protecting the climate and saving fossil fuels.

Heating with heat pumps — from page 10

Viessmann heat pumps utilise the potential heating energy that nature has provided, in the form of geothermal heat, and heat from groundwater and the air, which are available free of charge.

Heating with ice — from page 38

The ice store system combined with the solar air absorber is an innovative heat source for brine/water heat pumps.

Cooling with heat pumps — from page 42

With natural and active cooling control functions, and equipped with the relevant accessories, a brine/water heat pump can also be used to cool living spaces. Most Viessmann heat pumps are already equipped with this control function.

System technology – everything matches perfectly — from page 92

State of the art system technology controls the heating system. Individual control options via mobile phone, PC and internet provide maximum operating convenience and ensure an economical operation.

Vitoset – the complete accessories package — from page 100

You can trust Viessmann quality when it comes to accessories, too. Our Vitoset range includes a wide selection of radiators, thermostatic valves, and much more.

Service – you're in expert hands — from page 102

Viessmann works closely with specialist heating contractors who can install, service and provide expert advice on all aspects concerning heat pumps.

Saving energy and protecting the climate

Viessmann is aware of its responsibility towards the sustained protection of the environment. Our company philosophy and products have been constructed with this duty in mind.

"Nothing is so good that it cannot be improved". This motto is also reflected in our company principles. In this industry, Viessmann can rightfully claim to be the leader in quality and technology, and as such, aims to continually set new standards.

Of course, this applies in particular to the company's product range, which is consistently geared towards significantly lowering the consumption of fossil fuels, and gradually replacing them with renewable sources of energy.

At around 40 percent, the heating market actually accounts for the largest proportion of energy consumption in Germany. The rest is shared by freight, personal transport and power generation, each accounting for 20 percent. These values can also be applied approximately to other industrial countries. Ever-rising energy costs mean that the emphasis is on reducing the consumption of fossil fuels as quickly as possible.

Heat from nature – heating systems from Viessmann

Heat pumps are the first choice for those who want to lower their heating bills and generate heat in a more environmentally responsible way. After all, the environment provides the heat pump with an unlimited and free supply of the energy it needs. This fully-fledged heating system needs very little power for its drives and pumps in order to make this energy available. A heat pump makes you independent of fossil fuels, and in addition, actively contributes towards reducing CO_2 emissions and protecting the climate.

As a pioneer in the field of standard heat pumps, Viessmann has been setting benchmarks in energy efficiency and durability with its advanced systems for more than 30 years. This means you also benefit from its many years of experience as a supplier of comprehensive heating systems.

Whether for modernisation or new build: Viessmann always has the right solution.

Viessmann offers energy efficient heating systems for oil, gas, solar, biomass, air and geothermal heat. The pictograms will help to guide you.

Simple principle, great result

A heat pump works in a similar way to a fridge – simply the other way round.

In a fridge, heat is transferred from the inside to the outside. With a heat pump, this happens exactly the other way round. Heat from the air or the ground is transferred into the living space via the heating system. Vapour from a refrigerant is compressed to increase the temperature, to make it high enough for central heating and DHW heating. During this process, the Vitocal 350-G reaches temperatures up to 72 °C; the Vitocal 300-A and the Vitocal 350-A up to 65 °C. These heat pumps can therefore also be used for modernisation as they can provide a sufficiently high flow temperature for central heating with radiators.

Highly efficient scroll compressor
The compression process is vital for the efficiency of a heat pump. For this, Viessmann uses a Compliant scroll compressor. It is characterised by quiet operation, low vibrations, low maintenance and an extremely long service life.

To generate heat, for example, heat is extracted from the ambient air and used to evaporate a refrigerant that boils at low temperature. The gas thereby created is compressed by the scroll compressor, which causes it to heat up. The gas heated in this way transfers its heat via the condenser to the heating water or DHW heating system, and returns into a liquid state. Finally, the refrigerant, which is still under pressure, is expanded in an expansion valve, and the cycle begins again.

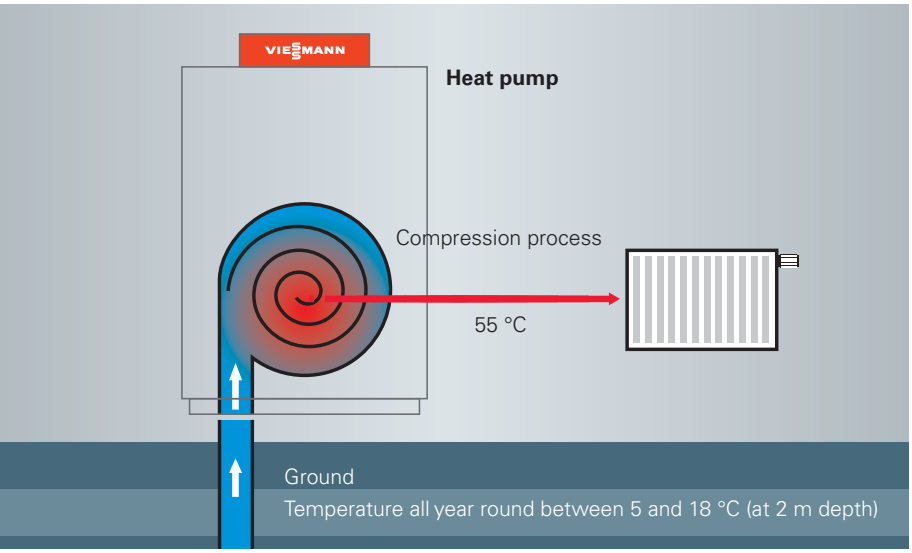
Use with various energy sources
The best heat source for each individual case depends on local conditions and the actual heat demand. Viessmann heat pumps can use various energy sources:

- Air – practically unlimited availability; lowest investment costs
- Ground – via geothermal collector, geothermal probe or ice store; very efficient
- Water – extremely efficient; observe water quality
- Waste heat – subject to availability, volume and temperature level of the waste heat

Seasonal performance factor
The coefficient of performance (COP) is the ratio of heat transfer to power consumption. Seasonal performance factor is the average of all COPs occurring in a year.

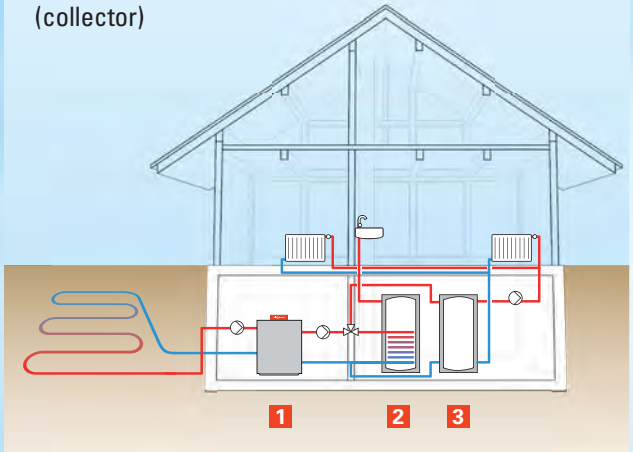
The coefficient of performance is used to compare heat pumps with regard to efficiency, yet it is derived from a particular operating point under defined temperature conditions.

When planning a system, it is necessary to consider its operation over the whole year. For this, the heat volume transferred over the year is given in relation to the overall electrical power drawn by the heat pump system over the same period. This includes the power drawn by pumps and control units, etc. The result is given as the seasonal performance factor.

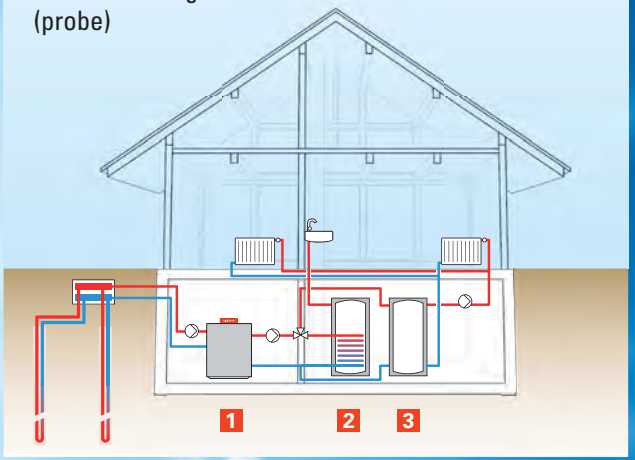


Getting hotter towards the centre: At an initial temperature of between 5 and 18 °C, a flow temperature of up to 72 °C is achieved.

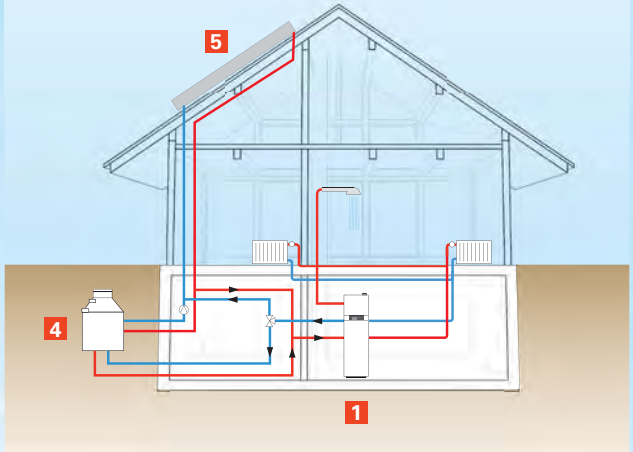
Heat from the ground (collector)



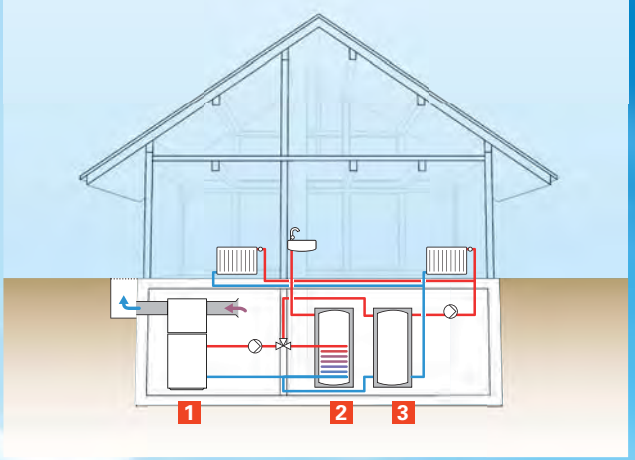
Heat from the ground (probe)



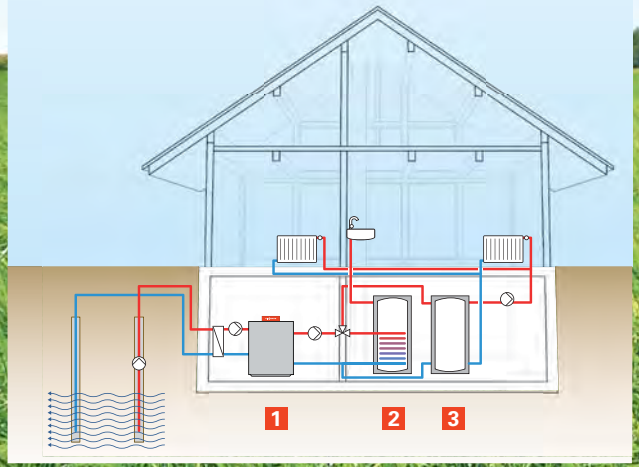
Heat from the ground, the air and the sun (ice store)



Air source



Ground source (groundwater)



1 Vitocal heat pump
2 DHW cylinder
3 Heating water buffer cylinder
4 Ice store
5 Solar/air absorber

VIESSMANN
VITOCAL 300

VITOCAL

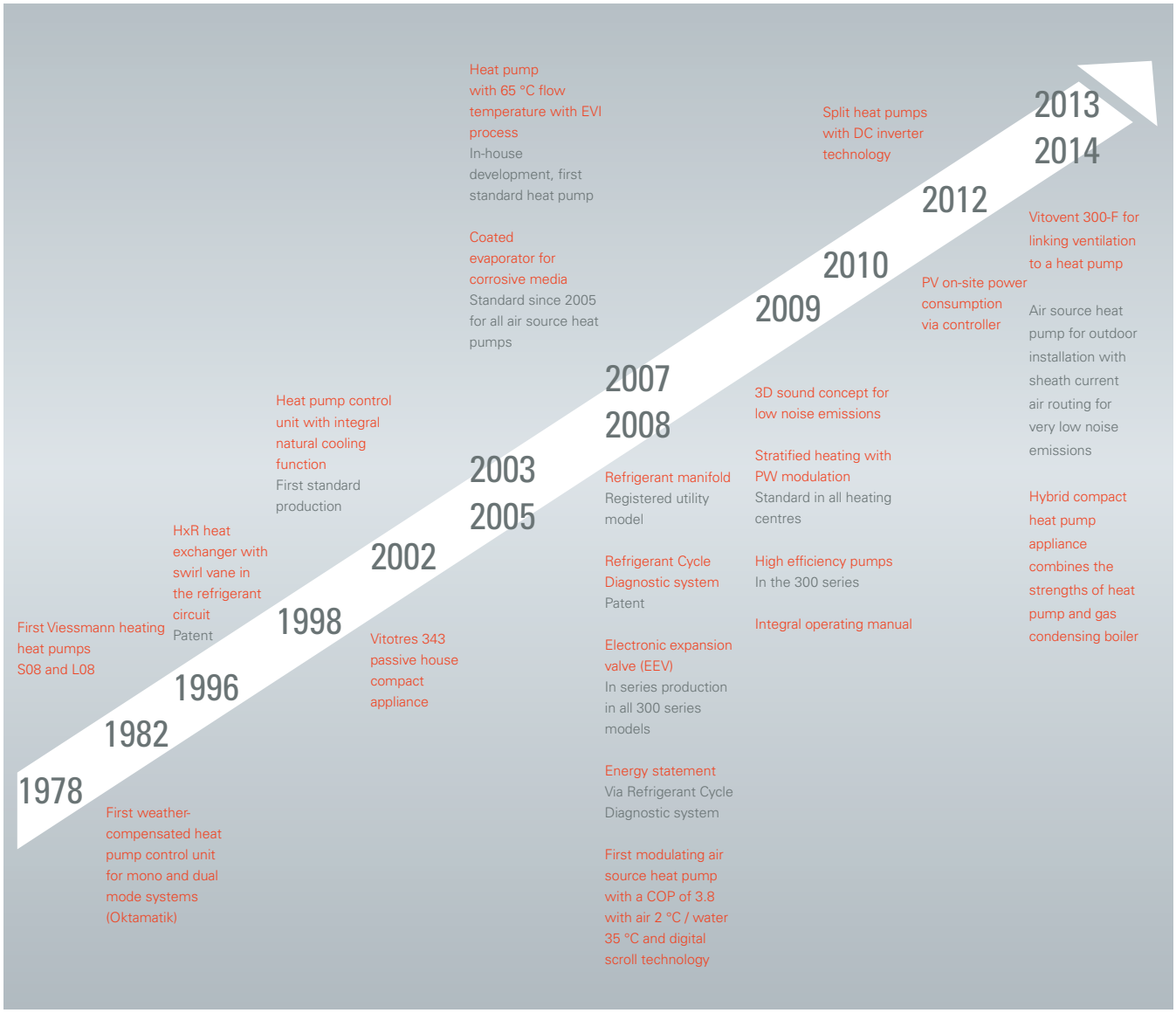
As a homeowner, it is easy to become frustrated at the constantly rising prices of fossil fuels. Why not make yourself independent of them, by relying on proven technology instead?

Vitocal heat pumps from Viessmann utilise natural heat from the environment, which is unlimited and free. This heating technology is amongst the most economical and clean of all options for heat generation. Viessmann has been constantly improving its heat pump technology to make it even more efficient.

Vitocal is always the right choice
Compared to conventional heating systems, Vitocal heat pumps have many advantages:

- Utilising environmentally responsible energy from the air and geothermal heat
- No combustion of fossil fuels
- Greater independence from rising energy prices
- Optimum combination with solar technology

Milestones in Viessmann heat pump development



Brine/water or water/water heat pumps

VITOCAL 350-G
Single stage heat pump
Brine/water heat pump: 7.35 to 18.66 kW
Water/water heat pump: 10.22 to 25.73 kW

For new build and modernisation
Detached houses

Page 16

VITOCAL 350-G
Two-stage heat pump
(master/slave)
Brine/water heat pump: 14.7 to 37.3 kW
Water/water heat pump: 20.4 to 51.4 kW

For new build and modernisation
Detached houses/apartment buildings, commercial buildings

Page 16

VITOCAL 343-G/VITOCAL 333-G
Compact heat pumps (brine/water)
5.7 to 10.4 kW
Vitocal 343-G cylinder capacity: 220 l, with solar function
Vitocal 333-G cylinder capacity: 170 l, including all components for natural cooling

For new build
Detached houses

Page 20

VITOCAL 300-G
Single stage heat pump
Brine/water heat pump: 5.7 to 42.8 kW
Water/water heat pump: 7.5 to 58.9 kW

For new build and modernisation
Detached houses/apartment buildings, commercial buildings

Page 24

VITOCAL 300-G
Two-stage heat pump
(master/slave)
Brine/water heat pump: 11.4 to 85.6 kW
Water/water heat pump: 15 to 117.8 kW

For new build and modernisation
Detached houses/apartment buildings, commercial buildings

Page 28

VITOCAL 242-G/VITOCAL 222-G
Compact heat pumps (brine/water)
5.9 to 10 kW
Vitocal 242-G cylinder capacity: 220 l, with solar function
Vitocal 222-G cylinder capacity: 170 l

For new build
Detached houses

Page 30

VITOCAL 200-G
Brine/water heat pump
5.8 to 17.2 kW

For new build
Detached houses

Page 34

Ice store system

Ice store system
Compact package, ice store with solar air absorber
for brine/water heat pumps
(outdoor, laid underground)
6 to 17 kW

Page 38

Natural and active cooling

NC-Box
Natural cooling box
Up to 5 kW cooling capacity

AC-Box
Active cooling box
Up to 13 kW cooling capacity

Page 42

Air/water heat pumps

VITOCAL 350-A
Air/water heat pump
(indoor or outdoor installation)
10.6 to 18.5 kW

For new build and modernisation
Detached houses

Page 46

VITOCAL 300-A
Air/water heat pump
(indoor or outdoor installation)
3 to 9 kW, modulating

For new build and modernisation
Detached houses
Dual mode systems

Page 50

VITOCAL 300-A
Air/water heat pump
(outdoor installation)
7 to 8.5 kW

For new build and modernisation
Detached houses

Page 54

VITOCAL 200-A
Air/water heat pump
(indoor installation)
5 or 7 kW

For new build
Detached houses

Page 58

Split air/water heat pumps

VITOCALDENS 222-F
Hybrid heat pump compact appliance (air/water)
1.3 to 19 kW
Cylinder capacity: 130 l

For new build and modernisation
Detached houses

Page 62

VITOCAL 242-S/222-S
Split compact heat pump (air/water)
3 to 9.06 kW
Vitocal 242-S cylinder capacity: 220 l, with solar function
Vitocal 222-S cylinder capacity: 170 l

For new build
Detached houses

Page 66

VITOCAL 200-S
Split air/water heat pump
3 to 9.06 kW

For new build and modernisation
Detached houses
Dual mode systems

Page 70

DHW heat pump

VITOCAL 161-A
DHW heat pump
1.67 kW
Cylinder capacity: 300 litres,
Air flow rate: up to 300 m^3/h

For new build and modernisation
Detached houses

Page 76

VIESSMANN
VITOCAL 350

VITOCAL 350-G

Heat pump with a maximum flow temperature of 72 °C.
First choice for high DHW convenience in detached houses and apartment buildings.

The single stage Vitocal 350-G heat pump reaches a high flow temperature of 72 °C. This makes it particularly suitable for convenient DHW heating.

It is available as either a brine/water or water/water heat pump. For higher heat demands in two-stage operation, it can be combined with a further heat pump of the same type, or with the Vitocal 300-G, as a master/slave setup. Both heat sources are then regulated via a control unit.

Extremely quiet and economical operation
Its anti-vibration and sound-optimised design makes the Vitocal 350-G extremely quiet. This means the heat pump can even be sited close to living spaces without causing a problem.

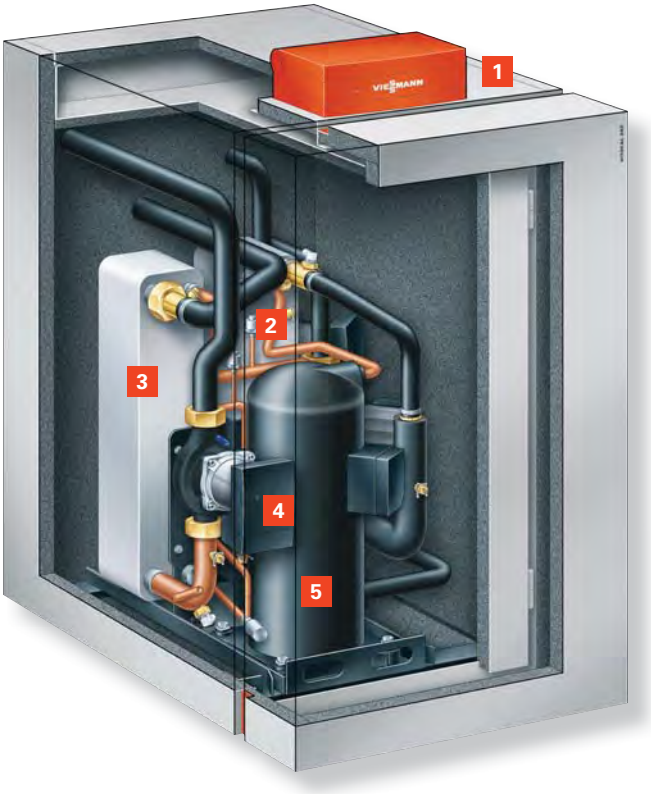
EHPA Quality Label as proof of the COP, for subsidy according to the German market incentive programme

Consistently high efficiency
The innovative RCD system, which provides continuous refrigerant cycle control, ensures high efficiency at any operating point. The use of an electronic expansion valve (EEV) and high efficiency pumps (with type BWC), as well as the high COP up to 4.67, also contribute to the low running costs. Finally, the integral energy statement for central heating and DHW provides the basis for property developers to apply for subsidies [in Germany] for their environmentally responsible investment.

Vitotronic 200 control unit with communication capability
Following a standardised operating philosophy, Viessmann now uses the convenient Vitotronic 200 control unit in all its heat generators. The extensive range of functions includes user prompts, an integral diagnostic system, control of the instantaneous heating water heater, control of an additional (existing) oil or gas boiler, and of course, the natural or active cooling functions.

Furthermore, the Vitotronic 200 is capable of communicating, and via the Vitocom 300 module, it allows the heat pump system to be set up, monitored and optimised over the internet.

In combination with solar technology
An advanced heating system should include innovative solar technology. For this, Viessmann offers the Vitocal 350-G, a perfectly matched system for utilising free solar energy for supplying DHW. On hot days electricity is then only required to run the circulation pumps.



Vitocal 350-G
Type BWC 351.A

1. Vitotronic 200 heat pump control unit
2. Condenser
3. Large area evaporator for an efficient heat exchange
4. Integral HE pumps for brine and heating circuits, plus circulation pump for cylinder heating
5. Hermetically sealed Compliant scroll compressor

Two-stage Vitocal 350-G (master/slave) as a brine/water or water/water heat pump

Vitotronic 200 heat pump control unit display

Take advantage of these benefits

- Brine/water heat pump
  Heating output, single stage: 7.35 and 18.66 kW; two-stage: 14.7 and 37.3 kW
- Water/water heat pump
  Heating output, single stage: 10.22 and 25.73 kW; two-stage: 20.4 and 51.4 kW
- Low operating costs through high coefficients of performance: COP to EN 14511 up to 4.67 (brine 0 °C/water 35 °C)
- High DHW convenience
- High efficiency all year round at any operating point through innovative RCD system (continuous refrigerant cycle control)
- Mono mode operation for DHW and central heating
- Extremely quiet operation through sound-optimised appliance design
- Even suitable for radiators thanks to flow temperatures up to 72 °C
- Possible cylinder temperatures in excess of 60 °C
- Vitotronic 200 control unit with energy statement accepted by bodies offering subsidies
- Prepared for Smart Grid and utilisation of photovoltaic power generated on site
- Master/slave solutions for higher heat demands, e.g. combination with the Vitocal 300-G

For specification, see page 78

Heat pumps

Vitocal 343-G
Vitocal 333-G

VITOCAL 343-G
VITOCAL 333-G NC
VITOCAL 333-G

System solutions for detached houses
Vitocal 343-G, including the option to connect to a solar thermal system
Vitocal 333-G NC, including all components for natural cooling
Vitocal 333-G, compact brine/water heat pump with DHW cylinder

The Vitocal 343-G and Vitocal 333-G were developed as compact and highly efficient solutions for new build. As part of this development, generously sized heat exchangers have been integrated to enable a high COP (COP = coefficient of performance) of up to 5.0 to be achieved, in accordance with EN 14511, with brine 0 °C/water 35 °C.

The seasonal performance factor specifies the relationship between the heat volume (heating energy) transferred and the energy (drive energy) supplied, over the course of a year. The innovative RCD (Refrigerant Cycle Diagnostic) system plays a vital role in the improvement of the seasonal performance factor. This system enables a highly precise and rapid control of the refrigerant circuit via an electronic expansion valve. The RCD system ensures that the heat pump operates with optimum efficiency at every operating point.

In addition, energy saving, high efficiency pumps for the brine and heating circuits ensure very low consumption costs and therefore a high seasonal performance factor in all three output sizes.

With solar cylinder or natural cooling
Vitocal 343-G is designed for the connection of a solar thermal system for DHW heating. A generously sized solar cylinder with 220 l capacity and a solar control unit have been integrated into the appliance for this purpose.

In the compact Vitocal 333-G, a DHW cylinder with 170 l capacity ensures a convenient supply of DHW. To help cool you down on hot summer days, the Vitocal 333-G is also available in a version with integral natural cooling function.

EHPA Quality Label as proof of the COP, for subsidy according to the German market incentive programme

Vitocal 343-G, compact brine/water heat pump with solar thermal system

Vitocal 343-G
Vitocal 333-G

Compact heat pumps
The Vitocal 343-G and Vitocal 333-G are offered as three models, i.e. with and without solar thermal connection and with integral natural cooling function. DHW cylinders with 170 l capacity (solar version with 220 l) are integrated to safeguard high DHW convenience. At the core of the appliance is a newly developed high efficiency heat pump module.

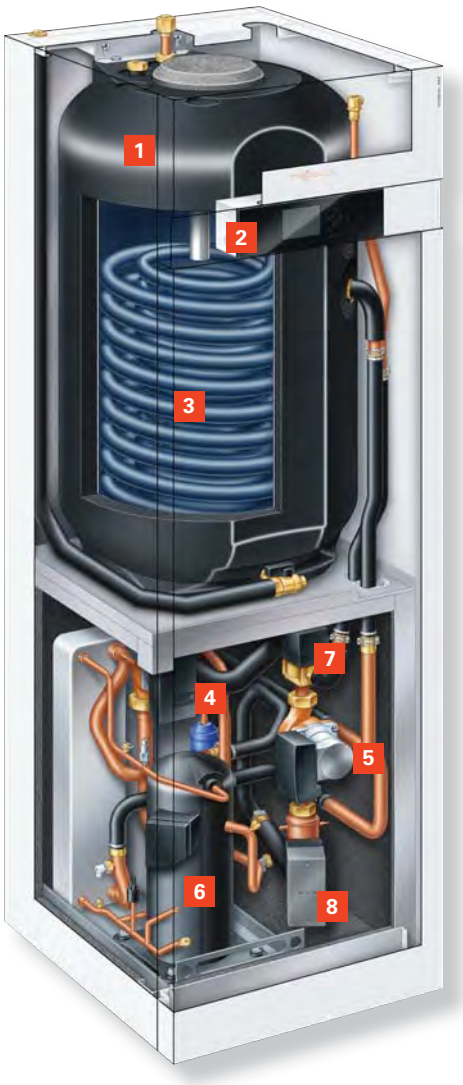
These compact appliances are particularly economical thanks to the refrigerant circuit with electronic expansion valve (EEV) and the Viessmann-developed RCD (Refrigerant Cycle Diagnostic) system, plus the standard energy saving high efficiency pumps. This is reflected in high seasonal performance factors and low running costs throughout the entire service life of the appliance.

Small footprint
With their space saving designs, the Vitocal 343-G and Vitocal 333-G are particularly suitable for situations where space is restricted. The brine circulation pump, heating circuit pump and the 3-way diverter valve are already integrated inside the compact casing that completely protects the refrigeration module/hydraulic compartment from the outside environment and, in conjunction with the three-dimensional anti-vibration mounts, minimises operating noise. These compact heat pumps are some of the quietest in their category, as they only generate 38 dB(A) at brine 0 °C/water 35 °C.

For easier handling, the height of the unit was reduced and the casing was designed to split into sections. Variable connection accessories supplied ex works make heat pump installation easier.

Extremely easy to operate
Like all our compact appliances, the Vitocal 343-G and Vitocal 333-G, too, are equipped with the user friendly Vitotronic control unit. If in doubt, help is available at the push of a button. The graphic interface will also display heating curves and solar yield.

Always accessible
Subject to demand, the Vitotronic control unit can be fitted with convenient communication technology. From Vitocom 100 to Vitocom 300, versatile remote monitoring and remote control options are available, independent of your location.



Vitocal 333-G

1. DHW cylinder, 170 l capacity
2. Vitotronic 200 heat pump control unit
3. Internal indirect coil for cylinder heating
4. Primary pump (HE pump)
5. Secondary pump (HE pump)
6. Hermetically sealed Compliant scroll compressor
7. Diverter valve, heating/DHW
8. Integral instantaneous heating water heater

The compact heat pumps Vitocal 343-G and Vitocal 333-G contain the system components for central heating and DHW heating.

The Vitotronic control unit with large, multi line, graphic display can also indicate the solar yield.

Take advantage of these benefits

- Compact brine/water heat pumps with heating outputs from 5.7 to 10.4 kW
- Low operating costs through high coefficients of performance: COP to EN 14511 up to 5.0 (brine 0 °C/water 35 °C) (COP = coefficient of performance)
- High DHW convenience through integral DHW cylinder with a 220 l capacity in the Vitocal 343-G (Vitocal 333-G with 170 l capacity)
- Maximum flow temperature of up to 65 °C for high DHW convenience
- Integral power saving HE pumps
- Very quiet thanks to a new sound insulation concept resulting in a sound power level of 38 dB(A) at brine 0 °C/water 35 °C
- Vitotronic control unit that is easy to operate with plain text display
- Ready to connect, ex works
- Easy handling through reduced height and split casing
- Convenient and compact through integral NC (natural cooling) function for the Vitocal 333-G NC
- Can be extended with convenient communication technology
- Instantaneous heating water heater integrated as standard
- Prepared for Smart Grid and utilisation of photovoltaic power generated on site

For specification, see page 79

VIESSMANN
VITOCAL 300

VITOCAL 300-G

The Vitocal 300-G heat pump taps into the renewable heat stored underground or in groundwater. A two-stage version is available for high heating outputs.

As a single stage brine/water heat pump, the Vitocal 300-G draws heat from the ground. For this, a geothermal probe, an ice store system, or a geothermal collector is installed on the property. In all these cases, the heat pump covers the entire energy demand, even on colder days.

As an alternative, depending on the location of the house, it may also be possible to utilise the heat contained in groundwater. In this case, the Vitocal 300-G is simply configured for operation as a water/water heat pump. It can be used for new build and modernisation in detached houses and apartment buildings.

The Vitocal 300-G is certified in accordance with the EHPA Quality Label for heat pumps.

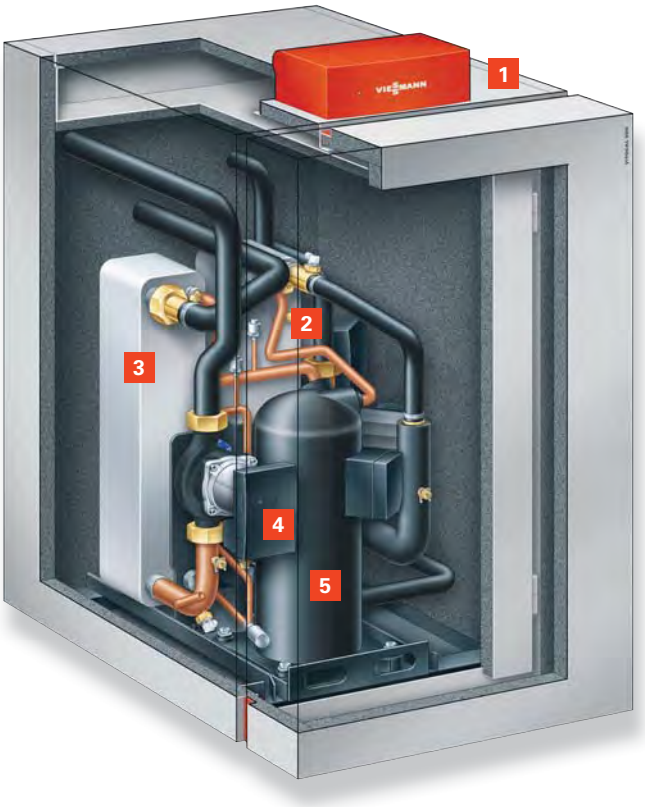
High output and quiet operation
The powerful Compliant scroll compressor fitted in the Vitocal 300-G heat pump is outstanding on account of its high operational safety, reliability and especially quiet operation. Essentially, this is due to the twin sound insulation that includes anti-vibration mounts to prevent structure-borne noise and insulates the casing against airborne noise. At the same time, the compressor guarantees the highest coefficient of performance (COP up to 5.0) and flow temperatures up to 65 °C.

The Refrigerant Cycle Diagnostic (RCD) system constantly monitors the refrigerant circuit in the Vitocal 300-G and, in conjunction with the electronic expansion valve, ensures the highest efficiency at any operating point, which results in high seasonal performance factors.

Vitotronic 200, with energy statement facility
The Vitotronic 200 is simple and intuitive to operate, thanks to the plain text user prompts and graphic display. Amongst other features, it enables an integral differentiated energy statement, which is accepted by subsidy bodies [in Germany].

Modular solution for higher heat demand
For residential buildings with a higher heat demand, the two-stage Vitocal 300-G, based on the master/slave principle is the right choice. It can also be configured for the ground or groundwater as the heat source. For this purpose, two heat pumps are linked together. This delivers the high heating output required and increases the operational reliability of the entire system. The modular design, with separate compressor circuits, also ensures particularly high levels of efficiency in partial load operation, and enables the simultaneous operation of central and DHW heating.

With five output stages as a master or master/slave version, various combinations can be realised and matched to the required heat demand. Because of this flexibility, systems can be configured so that runtimes match demand, thus saving you money. The master module regulates the slave module. Furthermore, the entire system can be equipped with high efficiency pumps.



Vitocal 300-G

1. Vitotronic 200 heat pump control unit
2. Condenser
3. Large area evaporator for efficient heat exchange
4. High efficiency pump
5. Hermetically sealed Compliant scroll compressor

The Vitocal 300-G heat pump taps into the renewable heat stored underground or in groundwater.

Two-stage heat pump Vitocal 300-G (master/slave) – a pipework set with fittings and shut-off valves is available for the hydraulic connection of the heat pump modules. Fully wired cables are used to connect the control unit.

Take advantage of these benefits

- Maximum efficiency for new build and modernisation in detached houses and apartment buildings
  Brine/water heat pump
  Heating output, single stage: 5.7 to 17.2 kW; two-stage: 11.4 to 34.4 kW water/water heat pump
  Heating output, single stage: 7.5 to 22.6 kW; two-stage: 15 to 45.2 kW
- Vitocal 300-G: with integral HE pump for brine and heating circuits, plus circulation pump for cylinder heating, safety assembly with safety valve, pressure gauge and air vent valve (for types BWC and WWC)
- Low operating costs through high coefficients of performance: COP to EN 14511 up to 5.0 (brine 0 °C/water 35 °C) and integral HE pumps (for Vitocal 300-G, types BWC and WWC)
- Maximum flow temperatures up to 65 °C
- High efficiency all year round at any operating point through innovative RCD system with electronic expansion valve
- Low noise and vibration levels thanks to sound-optimised appliance design – sound power level < 45 dB(A).
- Vitotronic 200 control unit with energy statement (meets BAFA subsidy terms [Germany])
- Prepared for Smart Grid and utilisation of photovoltaic power generated on site
- Master/slave solutions for high flexibility, for example combination of Vitocal 300-G and 350-G

For specification, see page 80

EHPA Quality Label as proof of the COP, for subsidy according to the German market incentive programme

Specialist for high output levels
The Vitocal 300-G is the specialist for large detached houses and apartment buildings. It utilises heat that's right on your doorstep, either with a single stage brine/water heat pump, from 21.2 to 42.8 kW, or with a water/water heat pump from 28.1 to 58.9 kW – tailored to the specific heat demand.

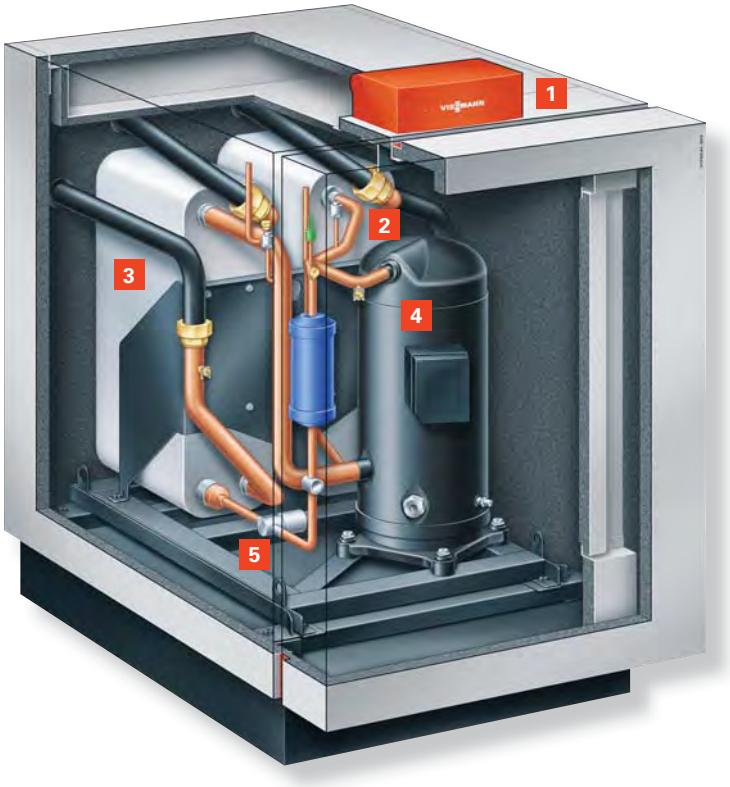
For apartment buildings or applications that require a very high output, the two-stage Vitocal 300-G, based on the master/slave principle, is the right choice. It can deliver a heating output from 42.4 to 85.6 kW (brine/water) or from 56.2 to 117.8 kW (water/water). You also have the choice between the groundwater or the ground as your preferred heat source. If this output is still insufficient, it can be increased to up to 589 kW (water/water) via the cascade function integrated into the control unit.

Powerful and reliable
At the heart of the Vitocal 300-G lies its powerful Compliant scroll compressor. This convinces with a high degree of operational safety and reliability. In conjunction with the large heat exchangers and the integral refrigerant manifold, the Vitocal 300-G achieves a high coefficient of performance and flow temperatures up to 60 °C.

Quiet operation and high output are not mutually exclusive
The hermetically sealed casing and particularly clever appliance design enable a reduction in noise emissions in the Vitocal 300-G that far exceeds expectations in this output range.

RCD system for highest level of efficiency
RCD stands for Refrigerant Cycle Diagnostic system. It provides constant monitoring of the refrigerant circuit within the Vitocal 300-G and, in conjunction with the electronic expansion valve, ensures the highest level of efficiency at any operating point.

Perfect for high heating output
Especially for a higher heat demand, the Vitocal 300-G is the first choice, because several heat pumps can be linked via the heating flow and return. This does not just deliver the higher heating output required, but it also increases the operational reliability of the entire system. The modular design, with separate compressor circuits, also ensures particularly high levels of efficiency in partial load operation, and enables the simultaneous operation of central and DHW heating.



Vitocal 300-G

1. Vitotronic 200 weather-compensated, digital heat pump control unit
2. Condenser
3. Large area evaporator for an efficient heat exchange
4. Hermetically sealed Compliant scroll compressor
5. Electronic expansion valve

Two-stage Vitocal 300-G (master/slave) as a brine/water or water/water heat pump

Modular solution in master/slave operation
With three output sizes, as master or master/slave version, various combinations can be realised, which can all be precisely matched to the actual heat demand. The availability of different versions and the ability to size according to demand enables optimised runtimes and economical operation. The master module regulates the slave module. By combining different output sizes, system users have the option of matching the environmentally responsible heating system to their specific heat demand as efficiently as possible by utilising different modules.

Take advantage of these benefits

- Brine/water heat pump
  Heating output, single stage: 21.2 to 42.8 kW; two-stage: 42.4 to 85.6 kW; maximum 428 kW (as cascade)
- Water/water heat pump
  Heating output, single stage: 28.1 to 58.9 kW; two-stage: 56.2 to 117.8 kW; maximum 589 kW (as cascade)
- Low operating costs through high coefficients of performance: COP to EN 14511 up to 4.8 (brine 0 °C/water 35 °C) (COP = coefficient of performance)
- Flow temperatures up to 60 °C
- Mono mode operation for DHW and central heating
- Low operating costs with the highest level of efficiency at any operating point due to the innovative Refrigerant Cycle Diagnostic (RCD) system with electronic expansion valve (EEV)
- Low noise and vibration levels thanks to sound-optimised appliance design, sound power level ≤ 44 dB(A)
- With integral energy statement
- Vitotronic 200 heat pump control unit with user prompts for weather-compensated heating operation
- Prepared for Smart Grid and utilisation of photovoltaic power generated on site
- Easier handling through small and light modules

For specification, see page 81

Heat pumps

Vitocal 242-G
Vitocal 222-G

VITOCAL 242-G
VITOCAL 222-G

Compact brine/water heat pumps with DHW cylinder and, as an alternative, the option to connect a solar thermal system.

Complete and extremely compact – the compact Vitocal 242-G and Vitocal 222-G heat pumps are fully equipped with all of the components required for DHW and central heating. With heating outputs of between 5.9 and 10.0 kW, they are designed for use in detached houses, and flow temperatures up to 60 °C mean they can also be used with conventional radiators.

The Vitocal 242-G and Vitocal 222-G are attractively priced alternatives to the compact appliances of the 300 series. Equipped with a Compliant scroll compressor and a thermostatically controlled expansion valve, they achieve coefficients of performance up to 4.3 (to EN 14511 at brine 0 °C/water 35 °C). For the heating and brine circuits, three-stage adjustable circulation pumps are integrated into the appliances.

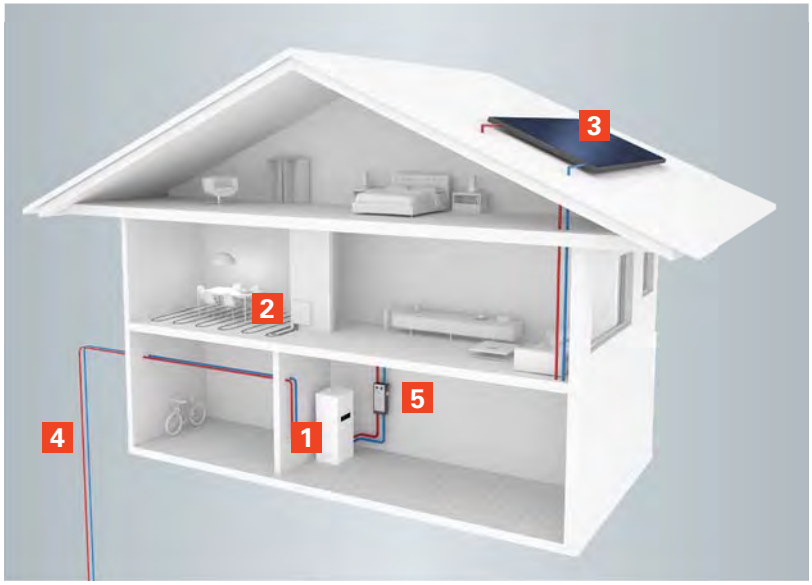
Operating the appliances is extremely easy thanks to the Vitotronic control unit.

Vitocal 242-G fully prepared for solar operation
The Vitocal 242-G is fully prepared for the connection of a solar thermal system for DHW heating. A 220 l solar cylinder and a solar control unit enable high solar yields to be achieved.

Vitocal 222-G with large DHW cylinder
The Vitocal 222-G compact heat pump offers high levels of DHW convenience thanks to its 170 l DHW cylinder, which is heated via an internal indirect coil.

Vitocal 242-G, compact brine/water heat pump with solar thermal system

1. Compact heat pump (brine/water)
2. Underfloor heating system
3. Vitosol solar collectors
4. Geothermal probe
5. Solar-Divicon pump station



Vitocal 242-G
Vitocal 222-G

Natural heat for modern detached houses
The Vitocal 242-G and Vitocal 222-G compact heat pumps are specifically designed for detached houses. With their extremely compact dimensions of just over 0.4 square metres, they take up only a small floor area. With integral DHW cylinder, brine and heating circuit pumps, plus a 3-way diverter valve, these compact appliances are quick and easy to install. They are offered in two different versions: The Vitocal 242-G with solar function and a generously sized DHW cylinder with 220 l capacity, and the Vitocal 222-G which has a 170 l cylinder. Both heat pumps offer high DHW convenience.

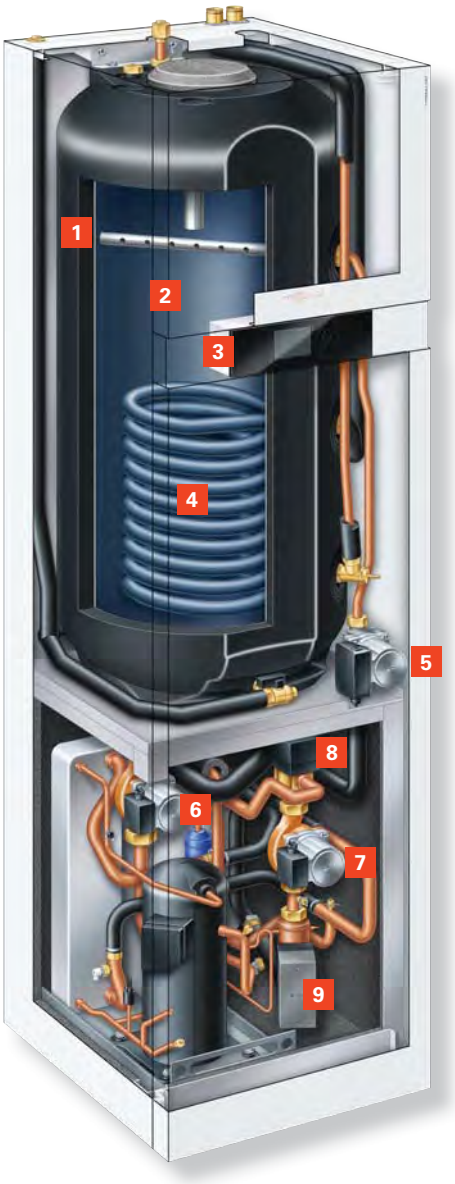
Extremely easy to operate
Like all compact appliances, the Vitocal 222–G is equipped with the new user friendly Vitotronic control unit. If in doubt, help is available at the push of a button. The graphic interface will also display heating curves and switching times.

Particularly quiet operation
The sound-optimised appliance design makes these compact heat pumps particularly quiet so that they can even be installed close to the living space.

Compact and ready to connect
The casing may be split for easier handling. The heat pump is supplied ready to connect. Variable connection accessories ensure an easy installation on site.

Heating naturally – naturally cooling as well
The compact heat pumps can provide a pleasant climate in a low energy house, even on hot summer days. The natural cooling function brings cool underground temperatures into the home. For this, the Viessmann NC-Box is required as an accessory.

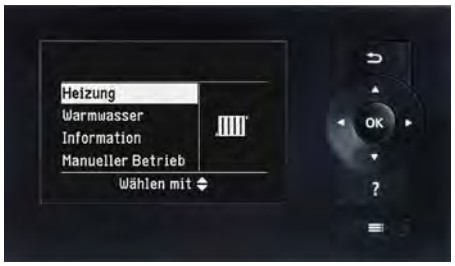
Vitocal 242-G including optional utilisation of solar energy
With the Vitocal 242-G, the connections for a solar thermal system are already in place, with the required hydraulic connections and the control unit integrated. The powerful collectors and matching system components from Viessmann back up the heat pump – meaning in an average year, 50 to 60 percent of energy usually spent on DHW heating can be saved.



Vitocal 242-G

1. Heating lance
2. Enamelled DHW cylinder
3. Vitotronic 200 heat pump control unit
4. Integral solar indirect coil
5. PWM-controlled cylinder loading pump (pulse width modulation)
6. Circulation pump, primary
7. Circulation pump, secondary
8. Diverter valve, heating/DHW
9. Integral instantaneous heating water heater

The compact heat pumps fully live up to their reputation: Their low space requirements and lack of service clearances to the side mean they fit easily into the tightest of recesses.



Easy to operate Vitotronic control unit with straightforward navigation and clear menu tree.

Take advantage of these benefits

- Compact brine/water heat pumps with heating outputs from 5.9 to 10.0 kW
- Low operating costs through high coefficients of performance: COP to EN 14511 up to 4.3 (brine 0 °C/water 35 °C) (COP = coefficient of performance)
- Maximum flow temperature: 60 °C
- High DHW convenience through integral DHW cylinder with a 220 l capacity in the Vitocal 242-G (Vitocal 222-G with 170 l capacity)
- Very quiet thanks to the sound-optimised appliance design with a sound power level of 43 dB(A) at 0/35 °C
- Vitotronic control unit that is easy to operate with plain text display
- Ready to connect, ex works
- Easy handling through small footprint, reduced height and split casing
- Easy installation through variable connection accessories
- Prepared for Smart Grid and utilisation of photovoltaic power generated on site
- Instantaneous heating water heater integrated as standard
- Optimised for using power from photovoltaic systems generated on site

For specification, see page 82

Vitocal 200-G

VITOCAL 200-G

Attractively priced heat pump for uncomplicated heat supply and high level of DHW convenience in new build.

With its excellent price/performance ratio, the Vitocal 200-G compact brine/water heat pump is ideally suited to detached houses. With its output spectrum of 5.8 to 17.2 kW in mono mode, it delivers a convenient heat supply all year round.

Thanks to innovative technology, including an efficient Compliant scroll compressor, the Vitocal 200-G achieves a maximum flow temperature of 60 °C and is therefore also suitable for central heating with radiators. High DHW convenience is also ensured. This makes the Vitocal 200-G an excellent entry model for new build.

The Vitocal 200-G is certified in accordance with the EHPA Quality Label for heat pumps.

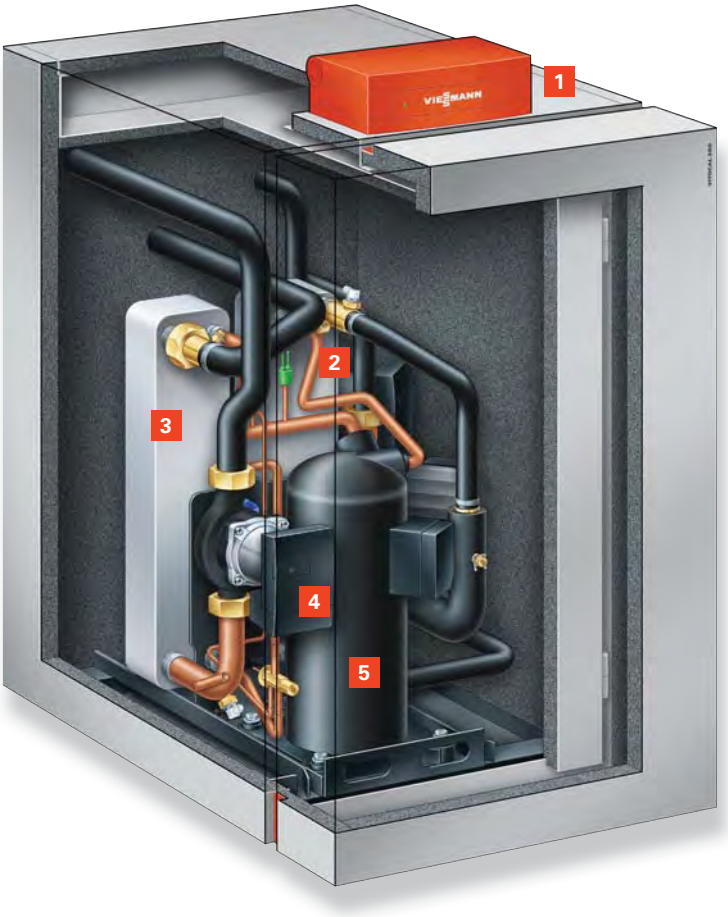
Two heating circuits for individual heating convenience
The convenient brine/water heat pump offers all functions required for using a heat pump in a new detached home. The weather-compensated Vitotronic 200 control unit allows two separate heating circuits to be connected.

Prepared for subsidies
With the installation of an optional heat meter, the purchase of the Vitocal 200-G heat pump can be subsidised by public grants [in Germany]. It would then meet the requirements of the Renewable Energies Heat Act (EEWärmeG).

Installation and assembly made easy
The Vitocal 200-G is delivered complete with integral HE pumps for the brine and heating circuits, circulation pump for cylinder heating, and the safety assembly. This means the heating contractor can complete the installation quickly and inexpensively.

A further benefit lies in the option to temporarily fit a booster heater, for example for screed drying. The heating contractor can fit the booster heater for a specific period using a multi connect system.

Easy to use Vitotronic 200 control unit
The Vitotronic 200 heat pump control unit, with its graphic interface, is straightforward and intuitive to use. The most important values can be seen at a glance. The natural cooling function is already integrated. To use this, the Vitocal 200-G must be extended by means of an NC-Box from the range of accessories.



Vitocal 200-G

1. Vitotronic 200 heat pump control unit
2. Condenser
3. Large area evaporator for an efficient heat exchange
4. High efficiency pump
5. Hermetically sealed Compliant scroll compressor

Attractively priced Vitocal 200-G brine/water heat pump

Vitotronic 200 heat pump control unit display

Take advantage of these benefits

- Brine/water heat pump with heating output from 5.8 to 17.2 kW
- Affordable entry model for detached houses
- Low operating costs through high coefficients of performance: COP to EN 14511 up to 4.5 (brine 0 °C/water 35 °C) (COP = coefficient of performance)
- Provides all DHW and central heating in mono mode operation all year round
- Maximum flow temperature up to 60 °C
- Quiet operation with low vibrations thanks to sound-optimised appliance design; sound power level ≤ 45 dB(A)
- Vitotronic 200 control unit with user prompts, plain text and graphic display for weather-compensated mode and natural cooling
- Heat pump is fully fitted and equipped at the factory; high efficiency circulation pump for brine and heating circuits, plus circulation pump for cylinder heating, are already integrated
- Easy to install through complete equipment level and pre-assembly
- Heat meter can be retrofitted (option)
- Prepared for Smart Grid and utilisation of photovoltaic power generated on site

For specification, see page 82

Heating with ice

Innovative energy source for brine/water heat pumps

The use of an ice store as an energy source is a particularly innovative solution. The ice store consists of a tank with built-in heat exchangers which is buried in the garden and filled with ordinary tap water. Special solar air absorbers are installed on the roof of the house, which collect the heat from the ambient air and from solar radiation and supply it to the cylinder. The ice store also draws heat directly from the ground.

Using crystallisation energy for heating
The heat pump extracts the energy required for central heating and DHW heating from the water stored in the tank as needed. If the temperature in the tank falls to freezing point, more energy is obtained from the freezing of the water – hence the term ice store. During the transition from water to ice, the amount of crystallisation energy released is equivalent to that required for the inverse process of thawing. With an ice store measuring twelve cubic metres – the standard size for a detached house – this corresponds to the energy content of 120 litres of fuel oil.

The key difference being that the fuel oil is entirely consumed to generate heat, while the water content of the ice store represents an almost limitless heat source that is continuously regenerated with energy from the sun and air.

Ice formation around the heat exchanger in the ice store.

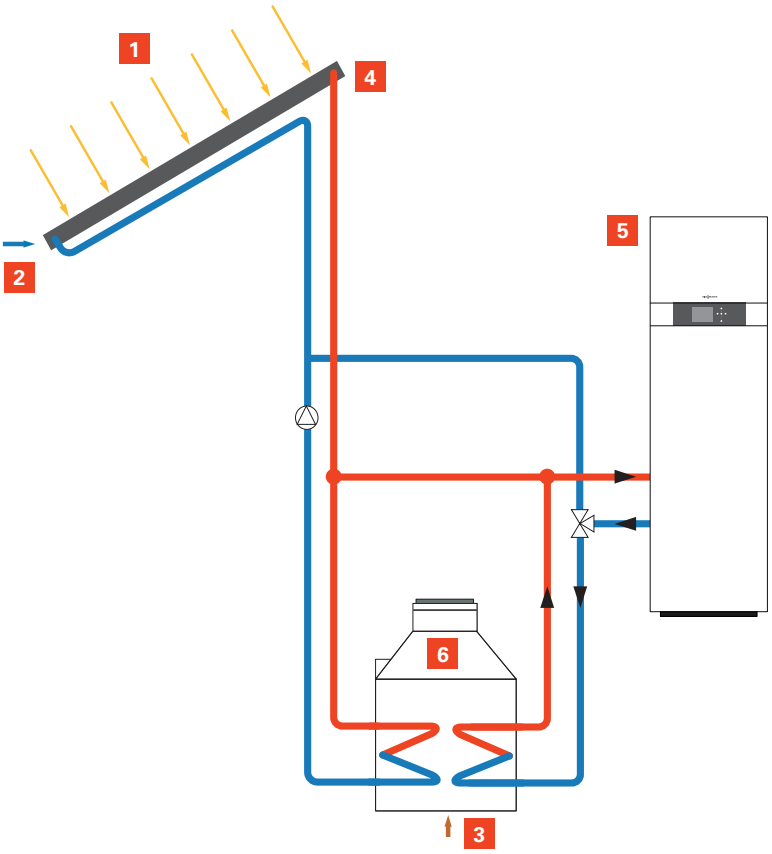
Ice store system

Ice store tank with 10 m³ water content. The water acts as the storage medium and freezes under controlled conditions when required.

Package solutions for easy installation
Viessmann is the only heat pump manufacturer to offer the innovative ice store system. For houses with a maximum heat load of 17 kW, various standardised system packages are currently available which greatly facilitate planning and the ordering of components. These packages comprise an ice store with built-in heat exchangers, solar air absorbers with a roof mounting system and the requisite heat transfer medium for the primary circuit. Larger properties with a greater heat demand require a customised ice store and solar air absorbers. Viessmann offers the relevant support for this.

Precisely tailored system components
Each system is designed so the available heat sources outdoor air, solar energy and geothermal heat are used as efficiently as possible. For this, all components are precisely tailored to each other. This ensures that the heat pump always works efficiently, no matter what the temperature in the ice store.

No official permits required
Another advantage of the ice store is that it does not require the costly drilling that is needed for tapping geothermal energy from deep in the ground, or the extensive groundwork involved when laying geothermal collectors over a large area. Nor does it require any official permits, as the ice store has no impact on the groundwater.



Ice store system

1. Insolation
2. Heat from the ambient air
3. Heat from the ground
4. Solar air absorber
5. Vitocal heat pump
6. Ice store

Complete ice store package with solar air absorber for brine/water heat pumps with an output of 6 to 17 kW.

Solar air absorber as a direct heat source for the heat pump or for regenerating the ice store

Take advantage of these benefits

- Combined utilisation of ambient air, the ground and insolation as heat source
- No drilling – no environmental risk, no permits required
- Low operating costs thanks to the high COP of the heat pumps, up to 5.0 (B0/W35) to EN 14511
- Particularly high efficiency thanks to intelligent heat source management and heat pump with RCD (Refrigerant Cycle Diagnostic) system with electronic expansion valve (EEV)
- Easy to use Vitotronic control unit integrated in the heat pump

Cooling with heat pumps

Besides producing a high level of heating comfort and reliable DHW heating, heat pumps also create a pleasant interior in hot weather.

No-one would turn on the central heating on a hot summer day. With a Viessmann heat pump, the situation is different, as some types offer an additional cooling function.

Passive or active cooling
There are two different ways to cool a building:

- Passive cooling:
  This is where the brine medium or the groundwater absorbs the energy from the heating circuit via a heat exchanger and transfers it outside. This function is also called natural cooling, as it uses the natural ambient temperature. Apart from the control unit and circulation pump, the heat pump remains switched off.

- Active cooling:
  For this, the function of the heat pump is simply reversed. This method of cooling can be achieved with reverse operation. This means that the refrigerant circuit is reversed internally or reversal is achieved by an external changeover of the primary and secondary circuits. As with a fridge, cooling is then actively generated by the heat pump. This is called active cooling.

Natural cooling – naturally
While the ground or groundwater is used in winter to provide energy for heating, in summer it can be used for natural cooling. With the natural cooling function, the control unit only starts the primary pump and heating circuit pump. This means the relatively hot water from the underfloor heating system can transfer its heat via the heat exchanger to the brine in the primary circuit. This extracts heat from all rooms that are connected, which makes natural cooling a particularly energy efficient and affordable way to cool interiors.

NC-Box
Optional equipment for Viessmann heat pumps to provide passive cooling
Page 44

AC-Box
Optional equipment for Viessmann heat pumps to provide active cooling
Page 45

NC-Box

Energy efficient and affordable cooling with the NC-Box
The Viessmann NC-Box helps heat pumps to provide cooling in a completely natural and really quite simple way. On hot summer days, the temperatures inside the house are higher than those in the ground or groundwater. The heat pump control unit switches to natural cooling, and uses the ground or groundwater to dissipate the heat from the living space.

Saving while cooling
The natural cooling function does not use all the technology of the brine/water heat pump. This means that, apart from the control unit and circulation pumps, all other functions remain off. Only a very small amount of power is therefore consumed for operation. This makes natural cooling a particularly energy efficient and affordable method for cooling buildings.

All in one box
In the Viessmann natural cooling box, all components are prefitted. This makes the thermally insulated box not only compact, but also particularly simple and quick to install.

With or without mixer
Depending on the sort of cooling needed, the natural cooling box comes in two different versions, either with or without mixer. The integral mixer enables continuous operation without falling below the dew point.

The effective thermal insulation of the NC-Box prevents the formation of condensate.

The AC-Box efficiently combines heating and cooling
The Viessmann AC-Box combines active and natural cooling in heat pump systems, thus making them even more versatile and convenient. The system changes over automatically according to the required room temperature. If only a low cooling capacity is required, natural cooling is sufficient, however, when that is no longer enough, active cooling is added.

Cooling using tiny amounts of energy
With natural cooling, the compressor circuit is not required. Only the brine and heating circuit pumps are operational and utilise the temperature differential between the rooms and the ground or groundwater. In this way, rooms can be cooled very cost effectively.

Keeping cool when it's hot outside
With active cooling, the compressor circuit starts to work. However, it does not provide heating – the internal control unit, in conjunction with the AC-Box, reverses the output and input functions to actively transfer heat out of the building to the geothermal probe. Cold water then flows through the heating circuit itself – cooled down to 7 °C if required.

Utilising extracted energy
Incidentally, direct use can also be made of the heat transferred from the interior in this way, for example for DHW heating or to heat a swimming pool. This means cooling and heating functions can be combined extremely effectively.

Well developed technology: The AC-Box (to the left of the heat pump) simply starts the relevant heat pump function – either active or the natural cooling, depending on the actual cooling demand.

VIESMANN
VITOCAL 350

VITOCAL 350-A

This air source heat pump can handle high flow temperatures and is therefore ideal for modernisation projects.

The Vitocal 350-A air source heat pump with a rated heating output from 10.6 to 18.5 kW is particularly suitable for modernisation projects. Thanks to enhanced vapour injection in the compression process (EVI cycle), developed by Viessmann, flow temperatures of up to 65 °C can be achieved – even at wintry outside temperatures. This means the Vitocal 350-A is also suitable for installation in older heating systems with radiators. For higher efficiency still, we would recommend replacing individual radiators with ultra-low temperature ones.

The Vitotronic 200 heat pump control unit has an integral cascade function for up to five air source heat pumps. Cumulative heating outputs of up to 92.5 kW are therefore possible to cover a high heat demand.

RCD system for particularly high efficiency
The electronic expansion valve and RCD system also ensure an extremely high level of efficiency for the Vitocal 350-A all year round. For air source heat pumps, the Vitocal 350-A offers a high coefficient of performance of up to 3.6 (in accordance with EN 14511 at air 2 °C/water 35 °C). This results in high seasonal performance factors and very low operating costs.

Space saving thanks to outdoor installation
The Vitocal 350-A can be installed either indoors or outdoors. The three-stage radial fan in the heat pump, as well as the flow-optimised air routing and the sound insulated casing together make the Vitocal 350-A extremely quiet. During night operation the multi stage fan control unit reduces the fan speed and thus the noise emissions even further.

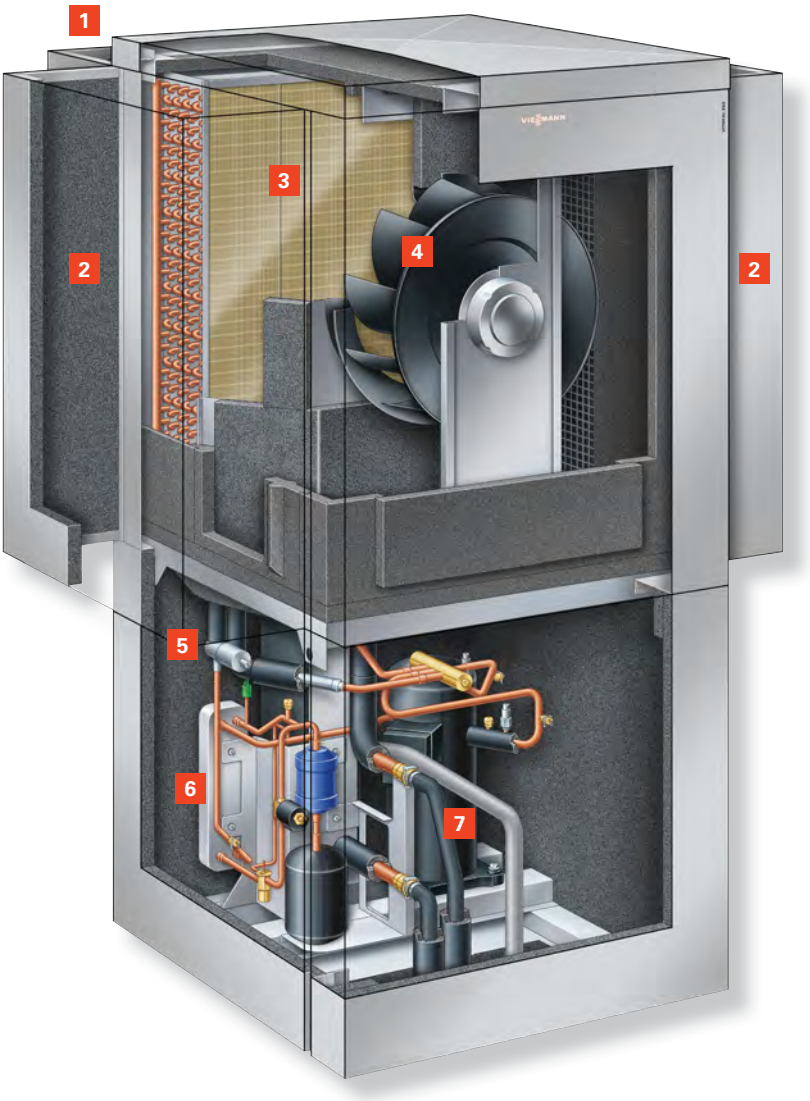
The Vitocal 350-A is certified in accordance with the EHPA Quality Label for heat pumps.

Ideal for modernisation
The Vitocal 350-A air source heat pump makes modernising easy. The additional vapour injection in the compression process (EVI cycle) enables a flow temperature of up to 65 °C. It is therefore ideal for older heating systems with existing radiators. For this, the heat pump draws its energy from the ambient air.

High DHW convenience
Subject to system version, a higher flow temperature enables a water temperature of up to 55 °C inside the DHW cylinder. This allows the Vitocal 350-A to deliver a particularly high level of DHW convenience. The Vitocal 350-A achieves the high flow temperature of 65 °C, even at outside temperatures of minus 10 °C.

RCD guarantees efficient operation
RCD stands for Refrigerant Cycle Diagnostic system. In the Vitocal 350-A, it is responsible for permanently monitoring the refrigerant circuit. This, in conjunction with the electronic expansion valve (EEV), ensures the highest efficiency at every operating point. Alongside this, important operating parameters are saved and called up, when required, for diagnosis, optimisation, energy statements and to calculate the seasonal performance factor (SPF).

Spot on
If the heat pump is installed outside, the heat needs to be "transported" to the interior of the house. For this, you can rely on Viessmann's competence in heating systems. All the pipework required for routing underground, as well as the entire range of accessories, are provided from one single source, and are perfectly matched to one another.



Vitocal 350-A

1. Intake side
2. Discharge side
3. Evaporator
4. Radial fan
5. Electronic expansion valve
6. Evaporator for intermediate injection
7. Hermetically sealed Compliant scroll compressor with vapour injection (EVI)

Impressive qualities: High operational safety, reliability and low noise emissions due to the Compliant scroll compressor

Vitocal 350-A for indoor installation

Take advantage of these benefits

- Air source heat pump, mono mode with a heating output of 10.6 to 18.5 kW for DHW and central heating
- Particularly suitable for modernisation through 65 °C flow temperature, even at low outside temperatures in winter
- DHW temperature subject to system version up to 55 °C
- Low running costs thanks to a high COP (COP = coefficient of performance) of up to 3.6 to EN 14511 (air 2 °C/water 35 °C)
- High efficiency all year round at any operating point and therefore low running costs through the innovative RCD (Refrigerant Cycle Diagnostic) system, with an electronic bi-flow expansion valve (EEV)
- Low operating noise through radial fan, sound-optimised appliance design and night operation with reduced fan speed
- Easy to operate Vitotronic 200 heat pump control unit with telecontrol and remote monitoring for connection to the Vitocom 100, 200 or 300, plus cascade function for up to five heat pumps
- Installation indoors or outdoors with matching accessories
- As an option with HE pump for the heating circuit in the case of the Vitocal 350-A (indoor installation)
- Efficient defrosting through circuit reversal
- With integral energy statement

For specification, see page 84

Vitocal 300-A

VITOCAL 300-A

With modulating air source heat pumps, advanced technology guarantees the highest level of efficiency in any operating state.

The energy available in the air is extremely easy to use for heating buildings and domestic hot water. It is even possible at low temperatures in winter, when the demand for heat is high. Even in these situations the Vitocal 300-A air source heat pump runs quietly and with high efficiency.

Heating efficiently with air
The Vitocal 300-A air source heat pump is extremely efficient and achieves high seasonal performance factors. Its output is sufficient for both central and DHW heating. This consigns fossil fuel bills to the past. Only electrical power for the heat pump system is required.

Higher convenience, lower investment
No additional investment is required to install a Vitocal 300-A air source heat pump. There is no drilling work for geothermal probes or effort required to lay geothermal collectors. You may not need a costly buffer cylinder or cylinder loading system either, thanks to output matched to demand and optimum operation.

Finally, depending on the building structure, the Vitocal 300-A can be sited outdoors or indoors.

The Vitocal 300-A is certified in accordance with the EHPA Quality Label for heat pumps.

Vitocal 300-A – suitable for outdoor installation

Top technology for top performance
The Vitocal 300-A is the first air source heat pump with digital scroll technology and an electronic bi-flow expansion valve. This means it achieves an extremely high COP value (COP = coefficient of performance) of 3.9 (at air 2 °C/water 35 °C), enabling exceptionally high seasonal performance factors. What's more, this makes the Vitocal 300-A particularly reliable where heat supply is concerned yet very frugal when it comes to running costs.

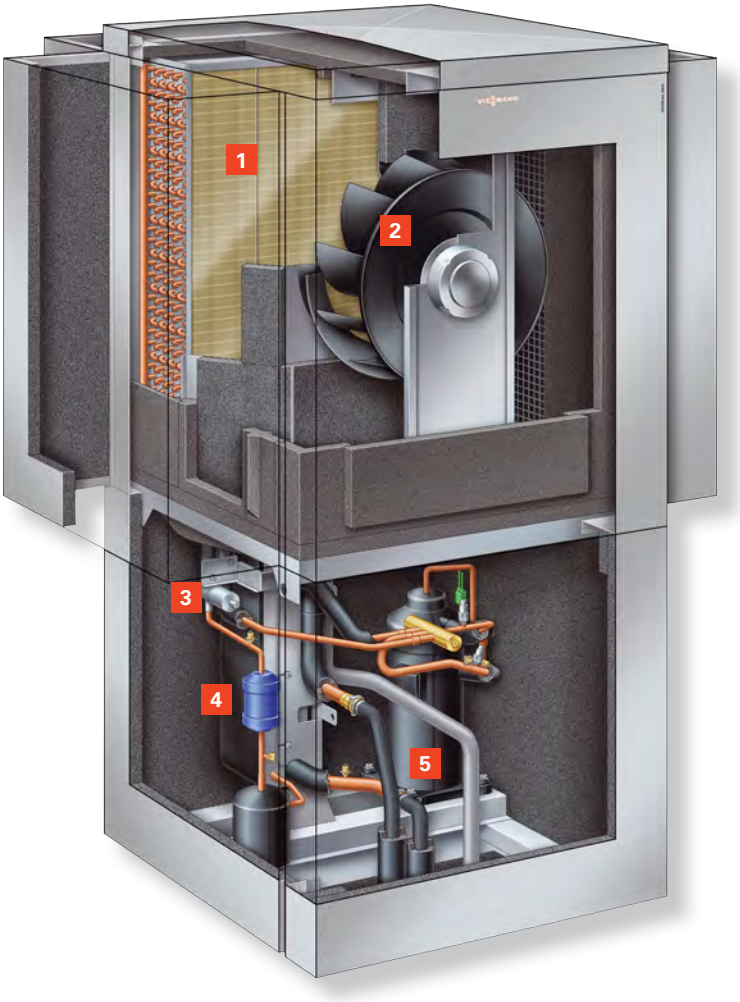
RCD system for an optimum heat pump operation
RCD stands for Refrigerant Cycle Diagnostic system. It provides constant monitoring of the refrigerant circuit within the Vitocal 300-A and, in conjunction with the electronic expansion valve, ensures the highest level of efficiency at any operating point.

Not only quiet at night
Particularly quiet operation is ensured by a radial fan with variable speed control and a reduced fan speed for night operation.

Suitable for every demand
Every household has different heat demands, and the conditions for installing a heat pump also vary from case to case. Accordingly, the range of accessories for the Vitocal 300-A is suitably flexible and comprehensive. Subject to demand, the heat pump can be supplied fully equipped. This means the HE pump and 3-way diverter valve have already been fully fitted. Even the modular electric instantaneous heating water heater can be easily integrated.

Monitor and control from wherever you are
The heat pump can simply be connected to the Vitocom 100, 200 or 300 via the control unit. The heating system can then be conveniently controlled via mobile devices.

Cooling in summer – no problem
Reversible operation turns the Vitocal 300-A into a convenient cooling system for hot summer months. Convectors or surface cooling systems with a cooling capacity of up to 9.4 kW offer the flexibility to make the temperature in living areas even more pleasant.



Vitocal 300-A

1. Evaporator
2. Radial fan
3. Electronic expansion valve
4. Condenser
5. Digital scroll compressor

The RCD system, the digital scroll technology and the electronic bi-flow expansion valve guarantee the highest level of efficiency at every operating point.

Take advantage of these benefits

- Reversible air source heat pump for heating and cooling, for indoor or outdoor installation
- Variable output control from 3.0 to 9.0 kW
- Low running costs thanks to a high COP (COP = coefficient of performance) to EN 14511: 3.9 (air 2 °C/water 35 °C), 4.4 (air 7 °C/water 35 °C)
- Maximum flow temperature up to 60 °C at 6 °C outside temperature
- High efficiency all year round at any operating point and therefore low running costs through the innovative RCD (Refrigerant Cycle Diagnostic) system, with an electronic bi-flow expansion valve (EEV)
- Low operating noise through radial fan, sound-optimised appliance design and night operation with reduced fan speed
- Easy to operate Vitotronic 200 heat pump control unit with telecontrol and remote monitoring for connection to the Vitocom 100, 200 or 300, plus cascade function for up to five heat pumps
- Integral HE pump for the heating circuit in the case of the Vitocal 300-A (indoor installation)
- Efficient defrosting through circuit reversal
- With integral energy statement
- Particularly quiet as silent version (with additional sound insulation set)
- Active cooling mode possible through reversible refrigerant circuit

For specification, see page 84

Heat pumps

Vitocal 300-A
Outdoor installation

VITOCAL 300-A

The Vitocal 300-A air source heat pump uses ambient air for heating and features an attractive contemporary design.

The new Vitocal 300-A air source heat pump is characterised by its contemporary design. With a maximum flow temperature of 65 °C for central heating and convenient DHW heating, this appliance is particularly suitable for modernising detached and two-family houses. The Vitocal 300-A is extremely efficient and achieves high seasonal performance factors. Low electricity costs are the only running costs accrued.

Flexible and quiet
The Vitocal 300-A air source heat pump is installed outside the building and uses free ambient air. Thanks to its variable speed DC fan, modulating compressor and sound-optimised design with sheath current air routing, the heat pump is exceptionally quiet, with a maximum sound power level below 54 dB(A). The fan speed can also be reduced at night.

The Vitocal 300-A meets the requirements of the EHPA Quality Label and the SG Ready label.

reddot design award

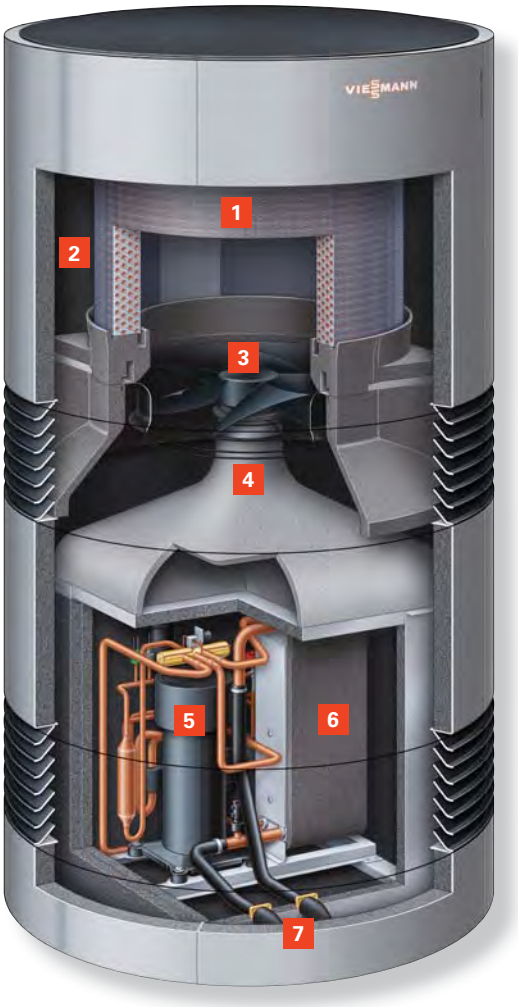
The Vitocal 300-A won the prestigious red dot design award at the "Design Zentrum Nordrhein-Westfalen" in 2014.

High COP for reliable heat supply
The variable speed scroll compressor with brushless permanent magnet motor and vapour injection, as well as the electronic bi-flow expansion valve, contribute to the high COP of up to 5.0 (air 7 °C/water 35 °C). Vapour injection improves the efficiency and output, particularly at high flow temperatures. The Vitocal 300-A provides a reliable heat supply and considerably reduces operating costs, most notably in partial load operation.

Easy cooling in summer
The Vitocal 300-A is pre-set for reversible operation to provide cooling during the warmer months. When high temperatures occur in summer, convectors or surface cooling systems make the interior feel pleasantly cool.

Wireless or app operation
The Vitocal 300-A is equipped with the Vitotronic 200 heat pump control unit (type WO1C). It is pre-set for wireless remote operation and allows convenient control from the living space. In conjunction with the Vitotrol app, the system can also be controlled via a smartphone or tablet with internet connection.

Pre-set for operation with photovoltaic power and Smart Grid
Linking the Vitocal 300-A to a photovoltaic system enables further savings on operating costs. The power generated on site can, for example, be used to run compressors, control units, pumps and the fan of the Vitocal 300-A. The Vitocal 300-A is also equipped for the Smart Grid.



Vitocal 300-A

1. Coated evaporator
2. Sheath current air routing
3. Variable speed DC fan
4. Flow optimisation
5. Variable speed scroll compressor
6. Condenser
7. Hydraulic connections

The Vitocal 300-A air source heat pump in contemporary design for outdoor installation

Weather-compensated Vitotronic 200 heat pump control unit (type WO1C)

Take advantage of these benefits

- Reversible air/water heat pump for heating and cooling, for outdoor installation
- Ideal for modernising detached houses
- Variable output control via DC inverter for high efficiency in the partial load range, and precise matching of output to heat demand
- Low running costs thanks to a high COP (COP = coefficient of performance)
- Maximum flow temperature up to 65 °C at-7 °C outside temperature
- Low operating noise thanks to sound optimised DC fan, reduced fan speed in night mode and sound optimised appliance design
- Efficient defrosting through refrigerant circuit reversal
- Vitotronic 200 heat pump control unit (type WO1C)
- Optional wireless remote control and monitoring with Vitotrol app
- Prepared for Smart Grid and utilisation of photovoltaic power generated on site
- Contemporary design

For specification, see page 85

VITOCAL 200-A
VIESMANN

VITOCAL 200-A

The modulating Vitocal 200-A air source heat pump is ideal for new build. It uses ambient air for heating and guarantees the highest level of efficiency in every operating mode.

Compared to ground source heat pump systems, investment in an air source heat pump is lower, as the effort required to install a geothermal collector or drill holes for geothermal probes is not required. This heat pump, designed for indoor installation, is remarkably compact. Its output and equipment level make it a particularly advantageous choice for new build.

Heating and cooling – with electricity from the photovoltaic system where appropriate
The Vitocal 200-A achieves maximum flow temperatures of 60 °C. But on hot summer days it can also be run in reverse for interior cooling.

This is done to best effect with electricity generated by a photovoltaic system on site. After all, photovoltaic systems generate large amounts of electricity on summer days as a result of intensive insolation; often this cannot be used in the house and has to be exported to the grid at a relatively low feed-in tariff. This surplus solar power can be used on site to cool the building with the Vitocal 200-A.

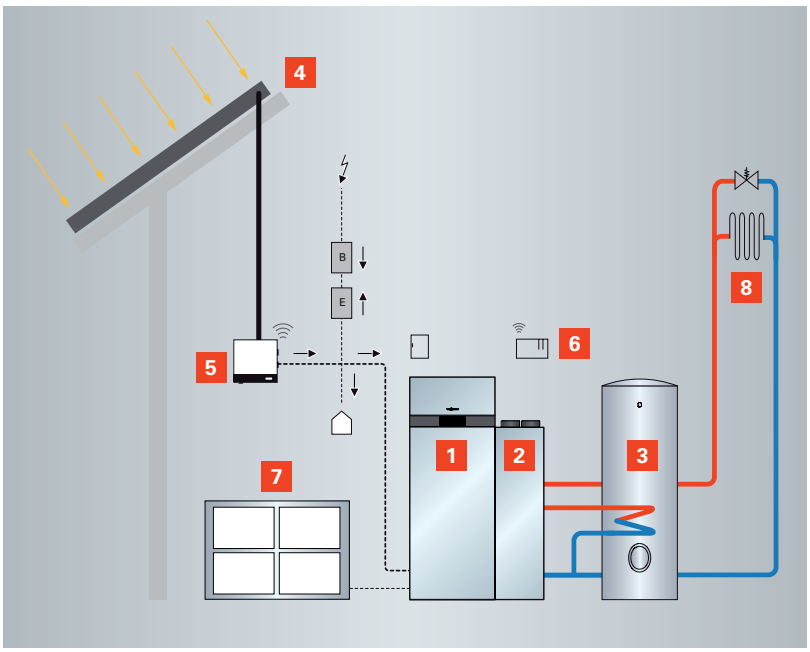
Mechanical ventilation – ideal in new build
As the ideal complement to the Vitocal 200-A, Viessmann offers the Vitovent 300-F mechanical ventilation system. This delivers an air change rate of up to 280 cubic metres per hour – just the right amount to keep the occupants healthy and protect the fabric of the building. Virtually no valuable heat is lost this way. The Vitovent 300-F recovers up to 98 percent of the heat from the extract air and feeds it right back into the interior. Matching in terms of design and colour, the Vitovent 300-F and the Vitocal 200-A heat pump form one single compact unit.

System components

1. Vitocal 200-A air source heat pump
2. Vitovent 300-F ventilation tower
3. Vitocell 100-V DHW cylinder
4. Vitovolt 200 photovoltaic module
5. Inverter
6. Home Manager
7. Battery storage system with inverter
8. Heating circuit

Power connection

E = Feed-in meter
B = Electricity meter
Domestic power circuit
Public grid



Power generated by the PV system (4) is transformed by the inverter (5) into AC power, which drives pumps or fans in the heat pump (1) or in the ventilation tower (2). Surplus power is stored in the battery block (7).

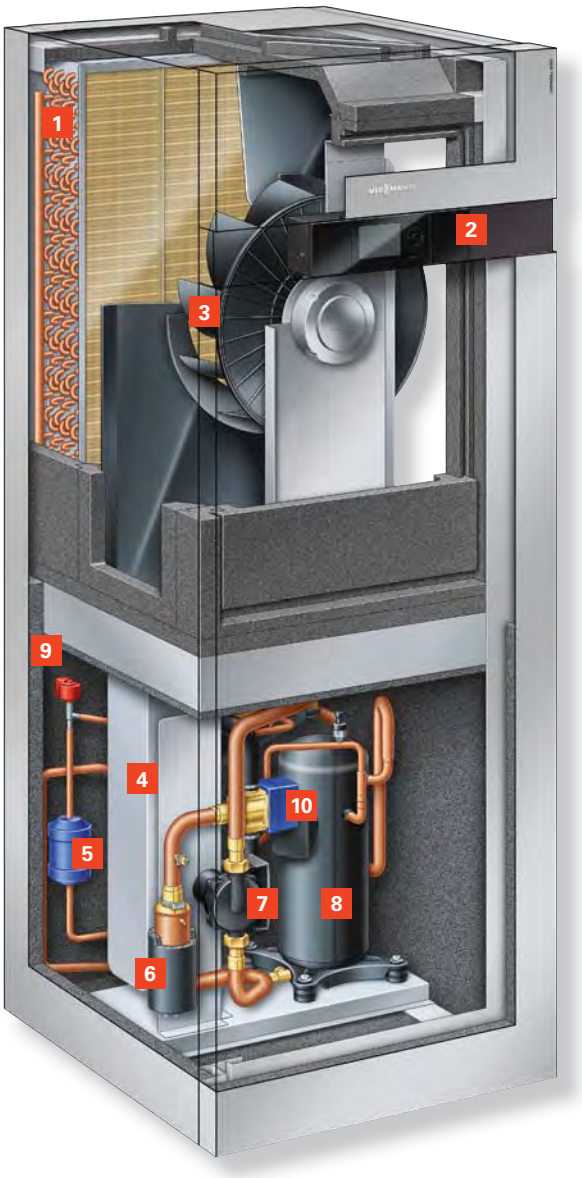
Inverter technology for real economy
The Vitocal 200-A operates with astonishing economy in partial load operation. To this end, the appliance makes full use of the benefits offered by its inverter-controlled compressor. With variable speed control, it matches the heat pump output to the actual heat demand of the building whilst simultaneously saving on power. The variable speed HE pump and DC fan further contribute to its economical operation.

This inverter technology, in conjunction with the electronic expansion valve, achieves high COP levels of up to 3.8 (at air 2 °C / water 35 °C) as well as high seasonal performance factors.

With the new Vitotronic 200 control unit (type WO1C), the Vitocal 200-A can even utilise power generated by a photovoltaic system on site, and is also suitable for use in Smart Grids.

Installation and operation
With its monoblock design, the Vitocal 200-A is easy to handle and quick to install. It can be sited and operated near living areas as the heat pump runs extremely quietly. With its modulating compressor and by adapting the output to the current heat load, it is even possible to do without a heating water buffer cylinder, for example.

Vitotrol app
By using the Vitotrol app as a remote control for Viessmann heat generators, it is easy to control the Vitocal 200-A from anywhere.



Vitocal 200-A

1. Evaporator
2. Vitotronic 200 control unit (type WO1C)
3. Variable speed radial DC fan
4. Condenser
5. Filter dryer
6. Instantaneous heating water heater
7. High efficiency pump
8. Compressor with output control
9. Electronic expansion valve
10. 3-way diverter valve

The modulating Vitocal 200-A air source heat pump is ideal for new build.

Vitotronic 200 heat pump control unit – the display indicates the solar yield and proportion of power generated on site

Take advantage of these benefits

- Reversible air source heat pump for heating and cooling, for indoor installation
- Nominal rating 5 or 7 kW at A2/W35
- Low running costs thanks to a high COP (COP = coefficient of performance) to EN 14511: 3.8 (air 2 °C/water 35 °C)
- Maximum flow temperature up to 60 °C at 5 °C air intake temperature
- Quiet running thanks to variable speed fan and compressor with multiple anti-vibration mounts
- Easy to use, integral Vitotronic 200 (type WO1C) heat pump control unit
- Optimised utilisation of power generated by a photovoltaic system on site
- Integral HE pump with low power consumption for the heating circuit
- Electronic expansion valve for highest possible seasonal performance factor
- Monoblock technology for easy handling and installation
- Prepared for Smart Grid and utilisation of photovoltaic power generated on site

For specification, see page 86

Hybrid heat pump Vitocaldens 222-F

VITOCALDENS 222-F

Compact hybrid appliance comprising split air source heat pump, gas condensing boiler and DHW loading cylinder

The Vitocaldens 222-F is a complete heating system is complete that fits into the smallest of spaces. The internal unit houses the heat pump, the gas condensing boiler and a 130 l DHW loading cylinder. This compact unit, offering a heating output of 9 kW (heat pump module) and 19 kW (gas condensing module) is perfect for modernisation projects.

During operation, the heat pump covers the base load with a high proportion of free ambient heat. For this, the external unit extracts the heat from the outdoor air and, via the compressor, heats it to a flow temperature of up to 55 °C.

The gas condensing boiler is only activated when this is beneficial in terms of the pre-set operating mode, i.e. when it results in reduced operating costs for the system user, or lower CO_2 emissions, or increased DHW convenience.

At up to 80 percent, the heat pump covers a high proportion of the annual heat load, resulting in exceptionally low operating costs for this system.

10-year guarantee*

on stainless steel heat exchangers for oil or gas condensing boilers up to 150 kW

* For conditions and product overview, see www.viessmann.de/garantie

Pre-selectable operating modes for low running costs
Pre-selectable preferences allow flexible operation of the Vitocaldens 222-F, with a choice between operating modes for economy, ecology or comfort.

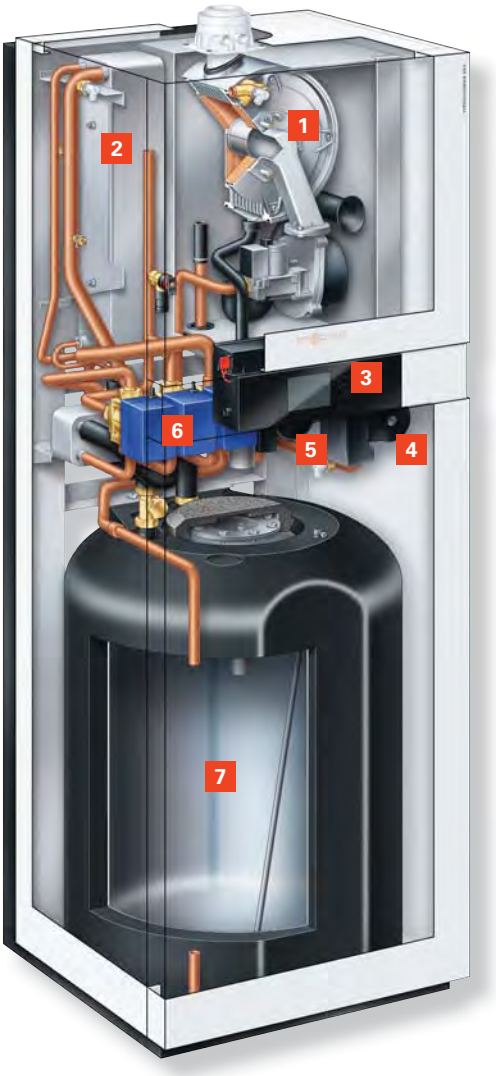
The two heat generators are optimally matched to each other for this purpose. In accordance with inputs made by the user (including gas and electricity prices and the primary energy factor), the energy manager automatically determines which of the two heat generators should be given priority, or whether parallel operation is beneficial, and regulates this according to demand. For this, the current outside temperature, the required output and the required flow temperature are all taken into account.

High level of DHW convenience thanks to an integral loading cylinder
With an integral 130-litre DHW loading cylinder, DHW provision via the heat pump is particularly cheap during the summer months. When DHW demand is high, the gas condensing boiler can be optionally activated to guarantee a high level of convenience, even when supplying more than one draw-off point.

High operating convenience via wireless connection or smartphone
When at home, the Vitotronic 200 heat pump control unit (type WO1C) can be controlled with the Vitotrol 300 RF wireless remote control via an integral wireless interface.

The system can also be accessed via the internet whenever you are away from home using a smartphone (iPhone, Android) or tablet (iPad) in conjunction with the Vitotrol app.

Using photovoltaic power generated on site
The Vitocaldens 222-F hybrid heat pump is equipped to utilise power generated on site by a photovoltaic system. This enables the cost-efficient operation of the heating centre's electrical components.



Vitocaldens 222-F

1. Gas condensing boiler with Inox-Radial heat exchanger surfaces and modulating MatriX cylinder burner
2. Condenser
3. Vitotronic control unit
4. HE heating circuit pump
5. DHW loading pump
6. 3-way diverter valves
7. 130-litre DHW loading cylinder

Vitocaldens 222-F split air source heat pump with external unit

Vitocaldens 222-F compact hybrid heat pump appliance

Take advantage of these benefits

- Heat pump with output control via DC inverter and electronic expansion valve for high efficiency in partial load operation
- Gas condensing boiler with Inox-Radial heat exchanger and MatriX cylinder burner
- Standard seasonal efficiency [to DIN] up to 98 % (H_s) [gross cv] / 109 % (H_i) [net cv]
- 130-litre DHW loading cylinder
- Output: up to 10.9 kW for A2/W35 (heat pump), 19 kW (gas condensing boiler)
- Low operating costs for heat pump unit thanks to a high COP and a high proportion of the annual heat load covered by heat pump
- COP to EN 14511: up to 5.1 with air 7 °C/water 35 °C and up to 3.8 with air 2 °C/water 35 °C
- Integral power saving high efficiency pumps
- High operational reliability due to two integrated heat generators
- Condensing peak load boiler for high DHW convenience
- Prepared for Smart Grid and utilisation of photovoltaic power generated on site
- The integral energy manager automatically determines the most suitable operating mode (economy, ecology or comfort)

For specification, see page 87

Heat pumps

Vitocal 242-S
Vitocal 222-S

VITOCAL 242-S
VITOCAL 222-S

Compact split air source heat pumps for new build and modernisation, with integral DHW cylinder for a high level of DHW convenience.

Split heat pumps are characterised by a separation into a quiet internal unit and an air handling external unit. This design does not require extensive wall outlets and routing of air ducts. As systems for heating only, or as systems that provide heating and cooling, these units are ideal for new build.

With the Vitocal 242-S, Viessmann offers a split heat pump with integral solar function for solar DHW heating. The cylinder capacity is 220 litres. With the Vitocal 222-S (without solar function), the DHW cylinder holds 170 litres.

A high proportion of pre-fitted components makes these compact heating centres easy for heating contractors to install, which reduces installation costs.

The Vitocal 242-S and Vitocal 222-S are certified in accordance with the EHPA Quality Label for heat pumps.

Vitocal 242-S
Vitocal 222-S

Compact internal units
With their timeless design and a width of just 60 cm, these internal units can be sited close to the living space (e.g. in the utility room). They contain hydraulic components such as a heat exchanger (condenser), DHW cylinder, HE pump, instantaneous heating water heater, 3-way diverter valve, and Vitotronic 200 control unit.

Heat pump control unit with user prompts
The Vitotronic 200 is structured logically, and its displays are easy to follow. The large backlit display offers good contrast, making it easy to read. The graphic user interface also displays heating and cooling curves.

If a solar thermal system is connected to the Vitocal 242-S, the solar yield is shown as well.

Efficient and economical
Split heat pumps operate with astonishing efficiency in partial load operation. The inverter technology accurately matches the compressor output to the current heat demand by modulating, resulting in high efficiency at every operating point.

Extensive service from Viessmann
The external and internal units are connected by the refrigerant lines on site to form a sealed refrigerant circuit. Consequently, statutes specify that the installation must be carried out by qualified personnel only. Heating contractors can acquire the relevant expertise in accordance with the Chemical Safety Ordinance [Germany] as part of a one-week course at Viessmann. The system can also be commissioned by Viessmann's Technical Service department.

Prepared for subsidies
With the installation of an optional heat meter, the purchase of Vitocal 242-S/222-S heat pumps can be subsidised by public grants [in Germany].

Vitocal 242-S
Internal unit (left)

1. Heating lance
2. Enamelled DHW cylinder
3. Vitotronic 200 heat pump control unit
4. Integral solar indirect coil
5. Diverter valve, heating/DHW
6. High efficiency pump
7. Condenser
8. Integral instantaneous heating water heater

Vitocal 200-S
External unit (right)

1. Evaporator
2. Fan
3. Compressor

Vitocal 242-S split air/water heat pump

Vitotronic 200 heat pump control unit display

Take advantage of these benefits

- Attractively priced split air/water heat pump with heating output between 3.0 and 9.06 kW (air 2 °C/water 35 °C at the nominal operating point) or 10.7 kW (air 7 °C/water 35 °C)
- Inverter compressor for optimum output matching to the heating and cooling demand
- Low running costs thanks to a high COP (COP = coefficient of performance) to EN 14511 of up to 5.1 (air 7 °C/water 35 °C) and 3.8 (air 2 °C/water 35 °C)
- Maximum flow temperature up to 55 °C at-15 °C outside temperature (with reduced output)
- High DHW convenience through integral DHW cylinder with a 220 l capacity in the case of the Vitocal 242-S (Vitocal 222-S with 170 l capacity)
- Solar connection for DHW heating with the Vitocal 242-S
- Convenient through reversible version that enables heating and cooling
- High efficiency in partial load operation through output-controlled compressor
- Low sound power level of the external unit in partial load operation through variable speed fan and compressor
- Refrigerant pipework requires no frost protection
- Vitotronic 200 control unit that is easy to operate with plain text and graphic display
- Low investment outlay
- Easy and affordable installation without major wall outlets
- Prepared for Smart Grid and utilisation of photovoltaic power generated on site

For the specification, see pages 88 and 89

Vitocal 200-S

VITOCAL 200-S

The affordable alternative for new build and modernisation, which can also be easily combined with existing heat generators.

Heating and cooling system with internal and external unit
The Vitocal 200-S split air source heat pump is available either as a heating system only or as a system for heating and cooling.

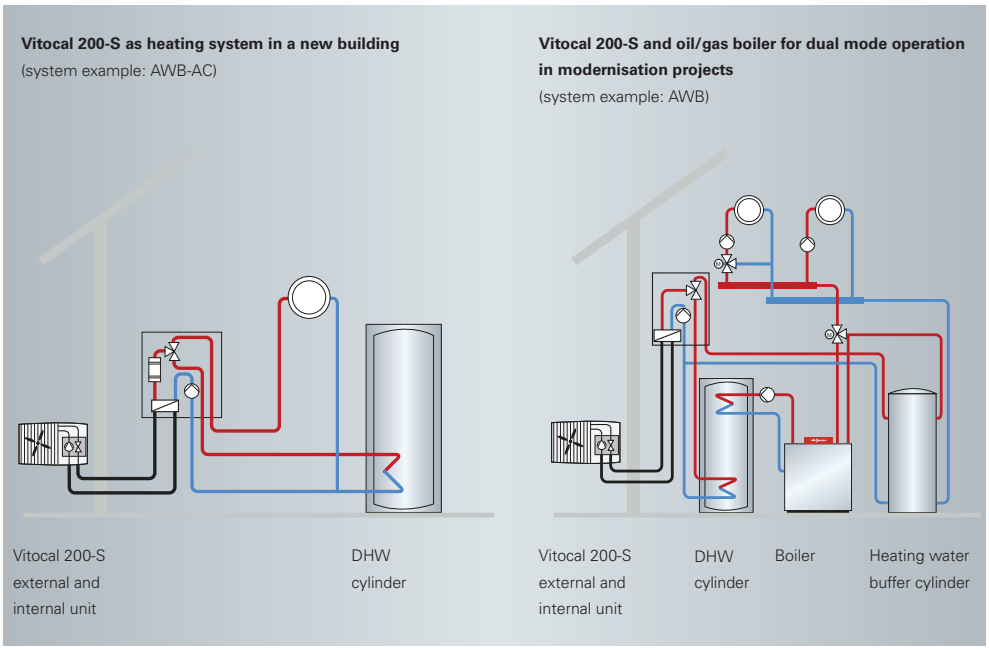
The Vitocal 200-S utilises the latent heat in the outdoor air. The weather-resistant external unit can be sited where required and is easy to install, even on external walls, thanks to its compact dimensions. A freestanding installation next to the building or on a flat roof is also possible.

As with other heating systems, the internal unit is sited in a cellar or utility room inside the building. It is comprised of the hydraulics, the heat exchanger, a high efficiency circulation pump and a 3-way diverter valve for convenient supply of heating water and DHW. The Vitocal 200-S, type AWB-AC, also includes a three-stage instantaneous heating water heater.

In summer, the Vitocal 200-S, type AWB-AC, can also be used to cool the interior. For this, fan convectors or an underfloor heating/cooling system can be used.

The Vitocal 200-S is certified in accordance with the EHPA Quality Label for heat pumps.

Schematic diagram of a heating system including Vitocal 200-S in a new building (left) and for modernisation



Efficient and economical
The Vitocal 200-S operates with astonishing efficiency, particularly in partial load mode. To this end, the appliance makes full use of the benefits offered by a DC inverter. Through modulation it matches the compressor output precisely to the prevailing demand and thereby maintains the required temperature.

When it comes to modernisation, the split heat pump is ideally suited for efficient dual mode operation. Under these circumstances, the existing system remains in operation to cover peak loads.

Quiet operation through variable speed control
The modulating operation of the Vitocal 200-S reduces the frequency of system starting and stopping. In addition, the variable speed fans and compressor are significantly less noisy than those that run at constant operation at top speed.

Convenient Vitotronic control unit
Contractors and system users benefit equally from the easy-to-use Vitotronic 200 control unit: The control unit, with users prompts, is structured logically and is easy to follow. The large backlit display offers good contrast, making it easy to read. A help function informs users of the next steps to perform.

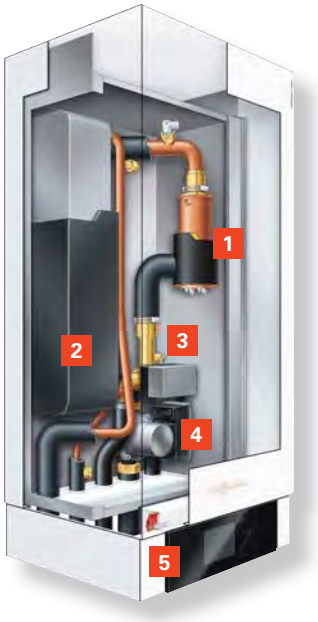
The graphic user interface also displays heating and cooling curves. Additional components from the comprehensive range can be easily controlled.

Extensive service from Viessmann
The external and internal units are connected to the refrigerant lines on site to form a sealed refrigerant circuit. Consequently, statutes specify that installation should be carried out by qualified personnel only. Heating contractors can acquire the relevant expertise in accordance with the Chemical Safety Ordinance [Germany] as part of a one-week course at Viessmann. The system can also be commissioned by Viessmann's Technical Service department.

With design software developed by Viessmann in accordance with VDI 4650, heating contractors can calculate whether public subsidies are available for the relevant system wherever required.

Vitocal 200-S, internal unit

1. Integral instantaneous heating water heater
2. Heat exchanger (condenser)
3. 3-way diverter valve
4. High efficiency pump
5. Vitotronic 200



Vitocal 200-S, external unit

6. Evaporator
7. Fan
8. Compressor

Vitocal 200-S split air/water heat pump

External unit, type AWS_AC110

Take advantage of these benefits

- Attractively priced split air/water heat pump with heating outputs between 3.0 and 9.06 kW (air 2 °C/water 35 °C at the nominal operating point)
- Output control and DC inverter for high efficiency in partial load operation
- Low running costs thanks to a high COP (COP = coefficient of performance) to EN 14511 of up to 5.1 (air 7 °C/water 35 °C) and 3.8 (air 2 °C/water 35 °C)
- Maximum flow temperature up to 55 °C at-15 °C outside temperature (with reduced output)
- Weather-resistant external unit with evaporator, compressor, expansion valve and fan
- Internal unit with high efficiency circulation pump, heat exchanger, 3-way diverter valve, safety assembly and control unit; for heating/cooling version with integral instantaneous heating water heater
- Vitotronic 200 heat pump control unit that is easy to operate with plain text and graphic display
- Convenient thanks to reversible version that enables heating and cooling
- Prepared for Smart Grid and utilisation of photovoltaic power generated on site

For specification, see page 90

Dual mode heating systems: Saving twice is better still

Anyone who has purchased an advanced oil or gas boiler in the last few years can now make considerable savings and reduce emissions with a dual mode heating system.

A heat pump is the ideal way to supplement the heat supplied by an existing oil or gas heating system. Running costs are lowered through the use of free energy from the environment, causing a simultaneous reduction in dependence on fossil fuels. However, a dual mode heating system has even more benefits:

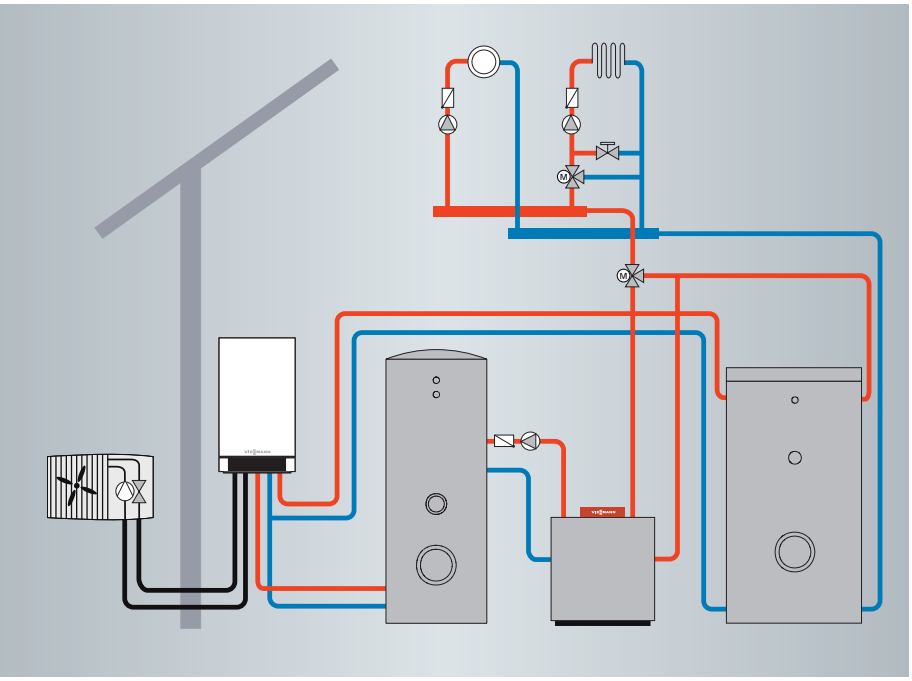
- Oil storage space and amount of oil to be stored can be reduced
- The operating times of the existing system are reduced so the service life is extended
- Power for heat pumps can be obtained at special tariffs
- The existing DHW heating system can continue to be used

Low effort, great effect
A dual mode heating system requires the following:

- Three-phase power supply with 400 V
- Installation area for heat pump and heating water buffer cylinder, approx. 4 m^2
- Radiator heating system < 65 °C
- Boiler thermostat setting max. 65 °C
- Options for drawing in outdoor and exhaust air when installed indoors
- Space to install the special heat pump meter
- Power supply to the heat pump meter

Dual mode systems with many benefits

- Utilise the strengths of different heat generators
- Reduce consumption and running costs
- Utilise free environmental energy as much as possible
- Reduce environmentally damaging CO_2 emissions
- High security of supply
- Greater independence from fossil fuels
- Reduce the operating times of existing systems



The Vitocal 200-S utilises the outdoor air heated by the sun – and on cold days, a second heat generator can be switched on automatically by the heat pump control unit.

Two thirds less fuel oil

	Initial situation	Dual mode system	
	Oil boiler	Oil boiler &	heat pump
Output	18 kW	18 kW	10 kW
Proportion of annual heating load	100 %	20 %	80 %
Annual heat demand	32,400 kWh	6480 kWh	25,920 kWh
Efficiency when heating	90 %	90 %	330 % (SPF 3.3)
Energy demand	36,000 kWh	7200 kWh	7855 kWh
Proportion of DHW	3000 kWh	3000 kWh	—
Energy consumption	3900 litres oil	1020 litres oil	7855 kWh (power)
Energy price*	€0.85 per litre	€0.85 per litre	€0.18 per kWh (HP)
Consumption costs*	€3315	€867	€1414
Total*	€3315	€2281	
Savings	—	approx. €1034	

* Average value

Example: Heating system with 55 °C maximum flow temperature, 1800 full utilisation hours, 18 kW heat load of the building. DHW heating by the boiler. House with 150 m^2 and an annual heating energy consumption of approx. 39,000 kWh incl. DHW heating (3000 kWh).

Label for heat pumps with control technology that enables them to be incorporated into a Smart Grid.

reddot design award

The Vitocal 161-A won the prestigious red dot design award at the "Design Zentrum Nordrhein-Westfalen" in 2013.

The Vitocal 161-A DHW heat pump heats the domestic hot water, independently from any other central heating system affordably and energy-efficiently, by utilising ambient air from the interior.

The compact Vitocal 161-A heat pump is equipped with all components required for efficient DHW heating. The space efficient casing houses the heat pump module, as well as a 300 l DHW cylinder, plus the control unit.

The Vitocal 161-A utilises indoor air to heat DHW economically. It is as suitable for detached houses as for smaller commercial enterprises. Ideal application areas include bakeries and situations where the indoor air needs to be cooled (for example in a wine cellar or a cooled larder).

As an option, the heat pump may be supplied without internal indirect coil for mono mode operation or with integral indirect coil for use in a dual mode heating system, for example in combination with a solar thermal system.

As option available for recirculating or extract air

The recirculation air version, Vitocal 161-A, uses air straight from the room where it is installed. Part of the heat from the air that is drawn in is extracted and raised by the heat pump to a useful temperature level (up to 65 °C for better DHW hygiene). Humidity and noxious substances are removed from the interior, thus protecting the fabric of the building and improving quality of life for all concerned.

By replacing the recirculation air cover with an extract air cover (accessory), the Vitocal 161-A can be made to draw in warm extract air via ducts from other rooms, such as the bathroom or kitchen.

Vitocal 161-A

1. Highly efficient compressor
2. Large area evaporator for an efficient heat exchange
3. Control unit
4. 300 l DHW cylinder with Ceraprotect enamel coating
5. Magnesium anode
6. Internal indirect coil (type WWKS)

The compact DHW heat pump, Vitocal 161-A, can operate independently from other heat generators.

Take advantage of these benefits

- Attractively priced DHW heat pump for recirculation or extract air mode, with option of internal indirect solar coil and solar control unit for connecting flat-plate and tube collectors
- Output 1.67 kW
- Cylinder capacity 300 litres
- Extract air version with maximum flow rate of 300 m^3/h
- High COP of 3.7 (COP = coefficient of performance) to EN 255 (at air 15 °C/ water 15-45 °C)
- Fully wired system and preset control unit for easy commissioning
- DHW temperature with heat pump up to 65 °C
- Quick heat-up function with optional immersion heater
- Prepared for optimised consumption of PV power generated on site
- Prepared for Smart Grid and utilisation of photovoltaic power generated on site

For specification, see page 91

Vitocal 350-G single stage brine/water heat pump

Vitocal 350-G	Type	BWC 351.A07	BW 351.A07	BW 351.A18
Output data				
(to EN 14511, B0/W35 °C, 5 K spread)*				
Rated heating output	kW	7.45	7.35	18.66
Cooling capacity	kW	5.77	5.83	14.52
Power consumption	kW	1.68	1.63	4.14
Coefficient of performance ε (COP) in heating mode		4.67	4.50	4.49
Flow temperature	°C	72	72	72
Dimensions				
Length (depth)	mm	844	844	1085
Width	mm	600	600	780
Height (programming unit open)	mm	1155	1155	1267
Weight	kg	146	136	312

Vitocal 300-G single stage water/water heat pump**

Vitocal 350-G	Type	BWC 351.A07	BW 351.A07	BW 351.A18
Output data				
(to EN 14511, W10/W35 °C, 5 K spread) *				
Rated heating output	kW	10.26	10.22	25.73
Cooling capacity	kW	8.69	8.59	21.45
Power consumption	kW	1.69	1.75	4.60
Coefficient of performance ε (COP) in heating mode		6.07	5.83	5.40
Flow temperature	°C	72	72	72
Dimensions				
Length (depth)	mm	844	844	1085
Width	mm	600	600	780
Height (programming unit open)	mm	1155	1155	1267
Weight	kg	146	136	312

Vitocal 350-G heat pump as stage 2 (slave)

Vitocal 350-G	Type	BWS 351.A07	BWS 351.A18
Output data			
(to EN 14511, B0/W35 °C, 5 K spread)*			
Rated heating output	kW	7.35	18.66
Cooling capacity	kW	5.83	14.52
Power consumption	kW	1.63	4.14
Coefficient of performance ε (COP) in heating mode		4.50	4.49
Flow temperature	°C	72	72
Dimensions			
Length (depth)	mm	844	1085
Width	mm	600	780
Height	mm	962	1074
Weight	kg	132	307

* In conjunction with an HE pump
** Brine/water heat pump with conversion kit (accessory) to convert to water/water heat pump

Vitocal 343-G brine/water heat pump

Vitocal 343-G	Type	BWT 341.B06	BWT 341.B08	BWT 341.B10
Output data				
(to EN 14511, B0/W35 °C, 5 K spread)				
Rated heating output	kW	5.72	7.64	10.41
Cooling capacity	kW	4.57	6.16	8.48
Power consumption	kW	1.24	1.59	2.08
Coefficient of performance ε (COP) in heating mode		4.60	4.80	5.00
Dimensions				
Length (depth)	mm	680	680	680
Width	mm	600	600	600
Height	mm	2075	2075	2075
Cylinder capacity	litres	220	220	220
N_L performance factor		1.5	1.5	1.6
Weight	kg	258	259	266

Vitocal 333-G/Vitocal 333-G NC brine/water heat pump

Vitocal 333-G	Type	BWT 331.B06	BWT 331.B08	BWT 331.B10
Vitocal 333-G NC	Type	BWT_NC 331.B06	BWT_NC 331.B08	BWT_NC 331.B10
Output data				
(to EN 14511, B0/W35 °C, 5 K spread)				
Rated heating output	kW	5.72	7.64	10.41
Cooling capacity	kW	4.57	6.16	8.48
Power consumption	kW	1.24	1.59	2.08
Coefficient of performance ε (COP) in heating mode		4.60	4.80	5.00
Dimensions				
Length (depth)	mm	680	680	680
Width	mm	600	600	600
Height	mm	1829	1829	1829
Cylinder capacity	litres	170	170	170
N_L performance factor		1.0	1.1	1.3
Weight				
Vitocal 333-G	kg	248	249	256
Vitocal 333-G NC	kg	253	254	261

Vitocal 300-G single stage brine/water heat pump

Vitocal 300-G	Type Type	BW 301.B06 BWC 301.B06	BW 301.B08 BWC 301.B08	BW 301.B10 BWC 301.B10	BW 301.B13 BWC 301.B13	BW 301.B17 BWC 301.B17
Output data						
(to EN 14511, B0/W35 °C, 5 K spread)*						
Rated heating output	kW	5.69	7.64	10.36	12.99	17.24
Cooling capacity	kW	4.54	6.13	8.43	10.57	13.85
Power consumption	kW	1.24	1.62	2.07	2.60	3.65
Coefficient of performance ε (COP) in heating mode		4.60	4.71	5.01	5.00	4.73
Flow temperature	°C	65	65	65	65	65
Dimensions						
Length (depth)	mm	844	844	844	844	844
Width	mm	600	600	600	600	600
Height (programming unit open)	mm	1155	1155	1155	1155	1155
Weight						
Type BW	kg	113	117	129	135	148
Type BWC	kg	123	127	139	145	158

Vitocal 300-G single stage water/water heat pump**

Vitocal 300-G	Type Type	BW 301.B06 BWC 301.B06	BW 301.B08 BWC 301.B08	BW 301.B10 BWC 301.B10	BW 301.B13 BWC 301.B13	BW 301.B17 BWC 301.B17
Output data						
to EN 14511 (W10/W35 °C, spread 5 K)*						
Rated heating output	kW	7.51	10.18	13.51	16.89	22.59
Cooling capacity	kW	6.35	8.74	11.60	14.46	19.17
Power consumption	kW	1.24	1.55	2.05	2.61	3.68
Coefficient of performance (COP) in heating mode		6.05	6.58	6.58	6.46	6.15
Flow temperature	°C	65	65	65	65	65
Dimensions						
Length (depth)	mm	844	844	844	844	844
Width	mm	600	600	600	600	600
Height (programming unit open)	mm	1155	1155	1155	1155	1155
Weight						
Type BW	kg	113	117	129	135	148
Type BWC	kg	123	127	139	145	158

Vitocal 300-G as stage 2 (slave)

Vitocal 300-G	Type	BWS 301.B06	BWS 301.B08	BWS 301.B10	BWS 301.B13	BWS 301.B17
Output data						
(to EN 14511, B0/W35 °C, 5 K spread)*						
Rated heating output	kW	5.69	7.64	10.36	12.99	17.24
Cooling capacity	kW	4.54	6.13	8.43	10.57	13.85
Power consumption	kW	1.24	1.62	2.07	2.60	3.65
Coefficient of performance ε (COP) in heating mode		4.60	4.71	5.01	5.00	4.73
Flow temperature	°C	65	65	65	65	65
Dimensions						
Length (depth)	mm	844	844	844	844	844
Width	mm	600	600	600	600	600
Height (programming unit open)	mm	1155	1155	1155	1155	1155
Weight	kg	109	113	125	131	144

* In conjunction with an HE pump
** Brine/water heat pump with conversion kit (accessory) to convert to water/water heat pump

Vitocal 300-G single stage brine/water heat pump

Vitocal 300-G	Type	BW 301.A21	BW 301.A29	BW 301.A45
Output data				
(to EN 14511, B0/W35 °C, 5 K spread)*				
Rated heating output	kW	21.2	28.8	42.8
Cooling capacity	kW	17.0	23.3	34.2
Power consumption	kW	4.48	5.96	9.28
Coefficient of performance ε (COP) in heating mode		4.73	4.83	4.6
Flow temperature	°C	60	60	60
Dimensions				
Length (depth)	mm	1085	1085	1085
Width	mm	780	780	780
Height	mm	1267	1267	1267
Weight	kg	245	272	298

Vitocal 300-G single stage water/water heat pump**

Vitocal 300-G	Type	BW 301.A21	BW 301.A29	BW 301.A45
Output data				
to EN 14511 (W10/W35 °C, spread 5 K)*				
Rated heating output	kW	28.1	37.1	58.9
Cooling capacity	kW	23.7	31.4	48.9
Power consumption	kW	4.73	6.2	10.7
Coefficient of performance ε (COP) in heating mode		5.94	6.0	5.5
Flow temperature	°C	60	60	60
Dimensions				
Length (depth)	mm	1085	1085	1085
Width	mm	780	780	780
Height	mm	1267	1267	1267
Weight	kg	245	272	298

Vitocal 300-G as stage 2 (slave)

Vitocal 300-G	Type	BWS 301.A21	BWS 301.A29	BWS 301.A45
Output data				
(to EN 14511, B0/W35 °C, 5 K spread)*				
Rated heating output	kW	21.2	28.8	42.8
Cooling capacity	kW	17.0	23.3	34.2
Power consumption	kW	4.48	5.96	9.28
Coefficient of performance ε (COP) in heating mode		4.73	4.83	4.6
Flow temperature	°C	60	60	60
Dimensions				
Length (depth)	mm	1085	1085	1085
Width	mm	780	780	780
Height	mm	1074	1074	1074
Weight	kg	240	267	293

* In conjunction with an HE pump
** Brine/water heat pump with conversion kit (accessory) to convert to water/water heat pump

Vitocal 242-G brine/water heat pump

Vitocal 242-G	Type	BWT 241.A06	BWT 241.A08	BWT 241.A10
Output data				
(to EN 14511, B0/W35 °C, 5 K spread)				
Rated heating output	kW	5.9	7.7	10.0
Cooling capacity	kW	4.6	6.0	7.8
Power consumption	kW	1.40	1.87	2.35
Coefficient of performance ε (COP) in heating mode		4.2	4.2	4.3
Dimensions				
Length (depth)	mm	680	680	680
Width	mm	600	600	600
Height	mm	2075	2075	2075
Cylinder capacity	litres	220	220	220
N_L performance factor		1.5	1.5	1.6
Weight	kg	260	260	266

Vitocal 222-G brine/water heat pump

Vitocal 222-G	Type	BWT 221.A06	BWT 221.A08	BWT 221.A10
Output data				
(to EN 14511, B0/W35 °C, 5 K spread)				
Rated heating output	kW	5.9	7.7	10.0
Cooling capacity	kW	4.6	6.0	7.8
Power consumption	kW	1.40	1.87	2.35
Coefficient of performance (COP) in heating mode		4.2	4.2	4.3
Dimensions				
Length (depth)	mm	680	680	680
Width	mm	600	600	600
Height	mm	1829	1829	1829
Cylinder capacity	litres	170	170	170
N_L performance factor		1.0	1.1	1.3
Weight	kg	250	250	256

Vitocal 200-G brine/water heat pump

Vitocal 200-G	Type	BWC 201.A06	BWC 201.A08	BWC 201.A10	BWC 201.A13	BWC 201.A17
Output data						
(to EN 14511, B0/W35 °C, 5 K spread)						
Rated heating output	kW	5.76	7.63	9.74	13.0	17.2
Cooling capacity	kW	4.51	6.01	7.69	10.34	13.66
Power consumption	kW	1.34	1.74	2.21	2.86	3.81
Coefficient of performance (COP) in		4.3	4.4	4.41	4.54	4.52
heating mode, flow temperature	°C	60	60	60	60	60
Dimensions						
Length (depth)	mm	844	844	844	844	844
Width	mm	600	600	600	600	600
Height (programming unit open)	mm	1155	1155	1155	1155	1155
Weight	kg	113	117	129	135	148

Natural cooling NC-Box

Performance data		
Cooling capacity subject to the heat pump output for Vitocal 343-G/333-G/350-G/300-G/242-G/222-G/200-G	kW	approx. 1.25–5.0
Dimensions		
Length (depth)	mm	520
Width	mm	580
Height	mm	420
Weight without mixer	kg	25
Weight with mixer	kg	28

Active cooling AC-Box

The maximum cooling capacity is limited by the integral heat pump (for Vitocal 350-G/300-G).		
Dimensions		
Length (depth)	mm	717
Width	mm	350
Height	mm	973
Weight	kg	80

Vitocal 350-A air/water heat pump

Vitocal 350-A (indoor installation)	Type	AWHI 351.A10	AWHI 351.A14	AWHI 351.A20
Output data (to EN 14511, A2/W35 °C)				
Rated heating output	kW	10.6	14.5	18.5
Power consumption	kW	2.9	4.2	5.8
Coefficient of performance ε (COP) in heating mode		3.6	3.5	3.2
Flow temperature	°C	65	65	65
Dimensions				
Length (depth)	mm	946	946	946
Width	mm	880	1030	1200
Height	mm	1870	1870	1870
Weight	kg	287	297	361

Vitocal 350-A air/water heat pump

Vitocal 350-A (outdoor installation)	Type	AWHO 351.A10	AWHO 351.A14	AWHO 351.A20
Output data (to EN 14511, A2/W35 °C)				
Rated heating output	kW	10.6	14.5	18.5
Power consumption	kW	2.9	4.2	5.8
Coefficient of performance ε (COP) in heating mode		3.6	3.5	3.2
Flow temperature	°C	65	65	65
Dimensions				
Length (depth)	mm	1265	1265	1265
Width	mm	1380	1530	1700
Height	mm	1885	1885	1885
Weight	kg	325	335	400

Vitocal 300-A air/water heat pump

Vitocal 300-A	Type	AWCI-AC 301.A09 Indoor installation	AWO-AC 301.A09 Outdoor installation	AWO-AC 301.A09 Outdoor installation (silent version)
Output data (to EN 14511, A2/W35 °C)				
Rated heating output	kW	3 – 9	3 – 9	3 – 9
Power consumption	kW	2.31	2.31	2.31
Coefficient of performance ε (COP) in heating mode		3.9	3.9	3.9
Cooling capacity at A27/W7 °C	kW	8.6	8.6	8.6
Dimensions				
Length (depth)	mm	946	946	1265
Width	mm	880	880	1380
Height	mm	1870	1885	1885
Weight	kg	289	279	309

Vitocal 300-A air/water heat pump

Vitocal 300-A	Type	AWO-AC 301.B11	AWO-AC 301.B14
Heating output data			
to EN 14511 (A2/W35 °C)			
Rated heating output	kW	7.00	8.50
Power consumption	kW	1.79	2.18
Coefficient of performance ε (COP)		3.90	3.90
Heating output data			
to EN 14511 (A7/W35 °C, 5 K spread)			
Rated heating output	kW	7.21	7.97
Power consumption	kW	1.44	1.59
Coefficient of performance ε (COP)		5.00	5.00
Heating output data			
to EN 14511 (A–7/W35 °C)			
Rated heating output	kW	10.50	12.00
Power consumption	kW	3.38	4.00
Coefficient of performance ε (COP)		3.11	3.00
Cooling capacity data			
to EN 14511 (A35/W18 °C)			
Rated cooling capacity	kW	8.10	9.00
Power consumption	kW	3.01	3.45
Energy efficiency ratio EER		2.70	2.65
Cooling capacity data			
to EN 14511 (A35/W7 °C)			
Rated cooling capacity	kW	6.30	7.23
Power consumption	kW	3.15	3.71
Energy efficiency ratio EER		2.00	1.96
Maximum flow temperature	°C	up to 65	up to 65
Dimensions			
Length (depth) x width x height	mm	1100 x 1100 x 1980	
Total weight	kg	250	250

Vitocal 200-A air/water heat pump

Vitocal 200-A	Type	AWCI-AC 201.A07	AWCI-AC 201.A10
Heating output data			
to EN 14511 (A2/W35 °C)			
Rated heating output	kW	4.98	7.00
Power consumption	kW	1.32	1.97
Coefficient of performance ε (COP)		3.76	3.55
Heating output data			
to EN 14511 (A7/W35 °C, 5 K spread)			
Rated heating output	kW	5.16	7.48
Power consumption	kW	1.08	1.59
Coefficient of performance ε (COP)		4.77	4.70
Heating output data at 100 %			
to EN 14511 (A–7/W35 °C)			
Rated heating output	kW	7.49	10.12
Power consumption	kW	2.65	3.89
Coefficient of performance ε (COP)		2.82	2.60
Cooling capacity data			
to EN 14511 (A35/W18 °C)			
Rated cooling capacity	kW	5.32	8.80
Power consumption	kW	1.66	2.75
Energy efficiency ratio EER		3.21	3.20
Output control	kW	3.20 – 9.40	5.00 – 12.75
Power consumption	kW	0.87 – 4.70	1.25 – 6.64
Energy efficiency ratio EER		3.66 – 2.00	4.00 – 1.92
Cooling capacity data			
to EN 14511 (A35/W7 °C)			
Rated cooling capacity	kW	4.10	6.70
Power consumption	kW	1.60	2.48
Energy efficiency ratio EER		2.56	2.70
Output control	kW	2.30 – 7.33	4.00 – 10.35
Power consumption	kW	0.82 – 4.07	1.42 – 6.05
Energy efficiency ratio EER		2.80 – 1.80	2.80 – 1.71
Dimensions			
Length (depth) x width x height	mm	790 x 700 x 1850	
Total weight	kg	232	254

Vitocaldens 222-F hybrid heat pump compact appliance

Vitocaldens 222-F (230 V~)	Type	HAWB-M 222.A26	HAWB-M 222.A29	
Vitocaldens 222-F (400 V~)	Type			HAWB 222.A29
Heat pump module/appliance				
Heating output data				
to EN 14511 (A2/W35 °C)				
Rated heating output	kW	5.6	7.7	7.57
Fan speed	rpm	650	650	600
Power consumption	kW	1.73	2.20	2.00
Coefficient of performance ε (COP)		3.24	3.50	3.79
in heating mode		1.3 – 7.7	4.4 – 9.9	2.73 – 10.92
Output control	kW			
Heating output data				
to EN 14511 (A7/W35 °C, 5 K spread)				
Rated heating output	kW	8.39	10.9	10.16
Fan speed	rpm	650	650	600
Air flow rate	m^3/h	3600	4210	3456
Power consumption	kW	1.96	2.36	2.00
Coefficient of performance ε (COP) in heating mode		4.28	4.62	5.08
Heating output data				
to EN 14511 (A–7/W35 °C, 5 K spread)				
Rated heating output	kW	6.60	8.72	9.50
Power consumption	kW	2.68	3.46	3.06
Coefficient of performance ε (COP)				
in heating mode		2.49	2.55	3.10
Gas condensing module				
Rated heating output range (to EN 677)				
Heating water temperature (50/30 °C)	kW	3.2 (4.8) – 19.0	3.2 (4.8) – 19.0	3.2 (4.8) – 19.0
Heating water temperature (80/60 °C)	kW	2.9 (4.3) – 17.2	2.9 (4.3) – 17.2	2.9 (4.3) – 17.2
Integral DHW loading cylinder				
Cylinder capacity	l	130	130	130
Rated heating output for				
DHW heating	kW	2.9 (4.3) – 17.2	2.9 (4.3) – 17.2	2.9 (4.3) – 17.2
Dimensions, internal unit				
Total length	mm	595	595	595
Total width	mm	600	600	600
Total height	mm	1625	1625	1625
Dimensions, external unit				
Total length	mm	340	340	340
Total width	mm	1040	900	975
Total height	mm	865	1255	1255
Total weight				
External unit	kg	66	110	113
Internal unit	kg	148	148	148
Internal unit with filled loading cylinder	kg	278	278	278

Vitocal 242-S split compact air/water heat pump

Vitocal 242-S, type AWT-AC		241.A04	241.A07	241.A10	241.B10	241.B13
Heating output data						
to EN 14511 (A2/W35 °C)						
Rated heating output	kW	3.0	5.6	7.7	7.57	9.06
Fan speed	rpm	870	650	650	600	690
Power consumption	kW	0.91	1.73	2.20	2.00	2.45
Coefficient of performance ε (COP) in htg. mode		3.27	3.24	3.50	3.79	3.70
Output control	kW	1.1 – 3.8	1.3 – 7.7	4.4 – 9.9	2.73 – 10.92	3.30 – 12.29
Heating output data						
to EN 14511 (A7/W35 °C, 5K spread)						
Rated heating output	kW	4.5	8.39	10.9	10.16	12.07
Fan speed	rpm	870	650	650	600	690
Air flow rate	m^3/h	2090	3600	4210	3456	4217
Power consumption	kW	0.97	1.96	2.36	2.00	2.57
Coefficient of performance ε (COP) in htg. mode		4.64	4.28	4.62	5.08	4.69
Output control	kW	1.2 – 5.3	1.8 – 9.5	5.0 – 14.0	5.2 – 15.0	6.2-16.5
Heating output data						
to EN 14511 (A–7/W35 °C)						
Rated heating output	kW	3.20	6.60	8.72	9.50	10.70
Power consumption	kW	1.27	2.68	3.46	3.06	3.69
Coefficient of performance ε (COP) in heating mode		2.58	2.49	2.55	3.10	2.90
Cooling capacity data						
to EN 14511 (A35/W7 °C, 5 K spread)						
Rated cooling capacity	kW	3.2	6.2	7.4	9.14	10.75
Fan speed	rpm	870	650	650	600	690
Power consumption	kW	1.08	2.40	2.69	3.37	4.15
Energy efficiency ratio EER		2.96	2.58	2.75	2.71	2.59
Output control	kW	1.2 – 3.8	1.6 – 8.0	2.4 – 8.5	1.96 – 9.85	2.14 – 11.45
Cooling capacity data						
to EN 14511 (A35/W18 °C, spread 5 K)						
Rated cooling capacity	kW	4.2	8.8	10.0	8.83	12.83
Fan speed	rpm	870	650	650	600	690
Power consumption	kW	1.13	2.63	2.8	1.98	3.45
Energy efficiency ratio EER		3.72	3.35	3.57	4.46	3.72
Cylinder capacity	l	220	220	220	220	220
Dimensions, internal unit						
Length (depth) x width x height	mm	680 x 600 x 2075				
Dimensions, external unit						
Length (depth)	mm	290	340	340	340	340
Width	mm	869	1040	900	975	975
Height	mm	610	865	1255	1255	1255
Total weight						
Internal unit	kg	204	204	207	207	207
External unit	kg	43	66	110	66	66

Vitocal 222-S split compact air/water heat pump

Vitocal 222-S, type AWT-AC		221.A04	221.A07	221.A10	221.B10	221.B13
Heating output data						
to EN 14511 (A2/W35 °C)						
Rated heating output	kW	3.0	5.6	7.7	7.57	9.06
Fan speed	rpm	870	650	650	600	690
Power consumption	kW	0.91	1.73	2.20	2.00	2.45
Coefficient of performance ε (COP) in htg. mode		3.27	3.24	3.50	3.79	3.70
Output control	kW	1.1 – 3.8	1.3 – 7.7	4.4 – 9.9	2.73 – 10.92	3.30 – 12.29
Heating output data						
to EN 14511 (A7/W35 °C, 5 K spread)						
Rated heating output	kW	4.5	8.39	10.9	10.16	12.07
Fan speed	rpm	870	650	650	600	690
Air flow rate	m^3/h	2090	3600	4210	3456	4217
Power consumption	kW	0.97	1.96	2.36	2.00	2.57
Coefficient of performance ε (COP) in htg. mode		4.64	4.28	4.62	5.08	4.69
Output control	kW	1.2 – 5.3	1.8 – 9.5	5.0 – 14.0	5.2 – 15.0	6.2-16.5
Heating output data						
to EN 14511 (A–7/W35 °C)						
Rated heating output	kW	3.20	6.60	8.72	9.50	10.70
Power consumption	kW	1.27	2.68	3.46	3.06	3.69
Coefficient of performance ε (COP) in heating mode		2.58	2.49	2.55	3.10	2.90
Cooling capacity data						
to EN 14511 (A35/W7 °C, 5 K spread)						
Rated cooling capacity	kW	3.2	6.2	7.4	9.14	10.75
Fan speed	rpm	870	650	650	600	690
Power consumption	kW	1.08	2.40	2.69	3.37	4.15
Energy efficiency ratio EER		2.96	2.58	2.75	2.71	2.59
Output control	kW	1.2 – 3.8	1.6 – 8.0	2.4 – 8.5	1.96 – 9.85	2.14 – 11.45
Cooling capacity data						
to EN 14511 (A35/W18 °C, spread 5 K)						
Rated cooling capacity	kW	4.2	8.8	10.0	8.83	12.83
Fan speed	rpm	870	650	650	600	690
Power consumption	kW	1.13	2.63	2.8	1.98	3.45
Energy efficiency ratio EER		3.72	3.35	3.57	4.46	3.72
Cylinder capacity	l	170	170	170	170	170
Dimensions, internal unit						
Length (depth) x width x height	mm	680 x 600 x 1829				
Dimensions, external unit						
Length (depth)	mm	290	340	340	340	340
Width	mm	869	1040	900	975	975
Height	mm	610	865	1255	1255	1255
Total weight						
Internal unit	kg	194	194	197	197	197
External unit	kg	43	66	110	113	113

Vitocal 200-S split air/water heat pump

Vitocal 200-S, type AWB/AWB-AC		201.B04	201.B07	201.B10	201.C10	201.C13
Heating output data						
to EN 14511 (A2/W35 °C)						
Rated heating output	kW	3.0	5.6	7.7	7.57	9.06
Fan speed	rpm	870	650	650	600	690
Power consumption	kW	0.91	1.73	2.20	2.00	2.45
Coefficient of performance ε (COP) in htg. mode		3.30	3.24	3.50	3.79	3.70
Output control	kW	1.1 – 3.8	1.3 – 7.7	4.4 – 9.9	2.73 – 10.92	3.30 – 12.29
Heating output data						
to EN 14511 (A7/W35 °C, 5 K spread)						
Rated heating output	kW	4.5	8.39	10.9	10.16	12.07
Fan speed	rpm	870	650	650	600	690
Air flow rate	m^3/h	2090	3600	4210	3456	4217
Power consumption	kW	0.97	1.96	2.36	2.00	2.57
Coefficient of performance ε (COP) in htg. mode		4.64	4.28	4.62	5.08	4.69
Output control	kW	1.2 – 5.3	1.8 – 9.5	5.0 – 14.0	5.2 – 15.0	6.2-16.5
Heating output data						
to EN 14511 (A–7/W35 °C)						
Rated heating output	kW	3.20	6.60	8.72	9.50	10.70
Power consumption	kW	1.27	2.68	3.46	3.06	3.69
Coefficient of performance ε (COP) in heating mode		2.58	2.49	2.55	3.10	2.90
Cooling capacity data						
to EN 14511 (A35/W7 °C, 5 K spread)						
Rated cooling capacity	kW	3.2	6.2	7.4	9.14	10.75
Fan speed	rpm	870	650	650	600	690
Power consumption	kW	1.08	2.40	2.69	3.37	4.15
Energy efficiency ratio EER		2.96	2.58	2.75	2.71	2.59
Output control	kW	1.2 – 3.8	1.6 – 8.0	2.4 – 8.5	1.96 – 9.85	2.14 – 11.45
Cooling capacity data						
to EN 14511 (A35/W18 °C, spread 5 K)						
Rated cooling capacity	kW	4.2	8.8	10.0	8.83	12.83
Fan speed	rpm	870	650	650	600	690
Power consumption	kW	1.13	2.63	2.8	1.98	3.45
Energy efficiency ratio EER		3.72	3.35	3.57	4.46	3.72
Dimensions, internal unit						
Length (depth) x width x height	mm			360 x 450 x 905		
Dimensions, external unit						
Length (depth)	mm	290	340	340	340	340
Width	mm	869	1040	900	975	975
Height	mm	610	865	1255	1255	1255
Total weight						
External unit	kg	43	66	110	113	113
Internal unit type AWB	kg	34	34	37	37	37
External unit type AWB-AC	kg	38	38	42	42	42

Vitocal 161-A DHW heat pump

Vitocal 161-A	Type	WWK 161.A02	WWKS 161.A02
Output during DHW heating from 15 to 45 °C and 15 °C air temperature	kW	1.67	1.67
Power consumption	kW	0.51	0.51
Coefficient of performance ε (COP)		3.7	3.7
Air flow rate **Nominal ventilation (standard ventilation)**	m^3/h	50 – 300	50 – 300
Max. power consumption of booster heater (accessory)	kW	1.50	1.50
Cylinder capacity	litres	308	300
Weight	kg	145	160
Dimensions			
Length (Ø)	mm	666	666
Width	mm	761	761
Height	mm	1812	1812

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VITOCELL 300
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VITOCELL 300
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A perfect match – system technology

The convenient controls and perfectly matched Viessmann system technology offer the user maximum reliability, flexibility and efficiency.

Viessmann offers users of its heating systems far more than individual components that meet high standards of quality and reliability. The same high standards also apply to Viessmann system technology, where all components fit together perfectly.

Viessmann system technology includes the knowledge of what it takes to make a reliable and economical heating system, namely the Vitotronic heat pump control unit with wireless remote control and the highly capable Vitocell DHW cylinders for optimum DHW convenience.

DHW cylinders
DHW convenience for every demand – the Vitocell range of cylinders offers an enormous selection and allows great design flexibility.
Page 94

Control convenience
Clear, convenient, intelligent – the Vitotronic offers you perfect functionality for fast and precise control over your heating system.
Page 96

The Vitocell range from Viessmann offers the right DHW cylinder for every demand.

DHW convenience for every demand

With its Vitocell DHW cylinders, Viessmann offers a convenient hot water solution – the perfect extension to a new heat pump.

The demand for hot water is completely different in every household. One factor is the number of residents and another is their bathing and showering habits. For example, if three members of a family set off for work and school at the same time, lots of hot water needs to be continuously available for the shower in short order. Those who prefer a bath will also want to have enough hot water to fill the tub. The DHW cylinder should also be able to provide sufficient water if water is drawn from more than one outlet at the same time, such as in apartment blocks for example. Vitocell DHW cylinders fulfil these requirements in every respect and are also robust enough to cope with constant demand.

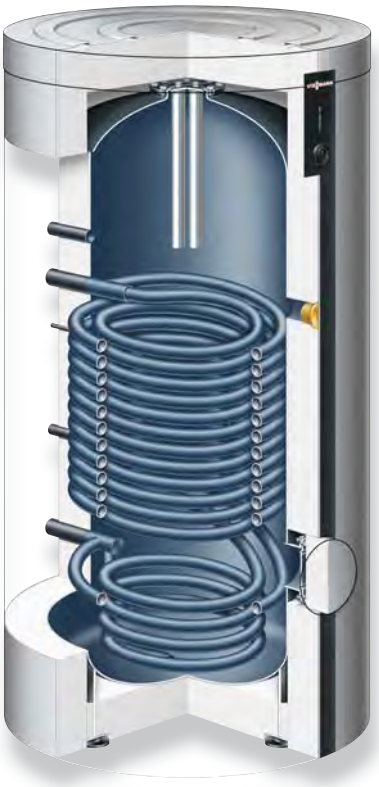
Optimally matched for use with heat pumps
Viessmann system solutions from one single source make optimum use of the energy captured by a heat pump. For example, there are suitable DHW cylinders especially for heat pumps that are specifically designed for the requirements of detached and two-family homes when using a Vitocal 350, 300 or 200.

DHW convenience that's as individual as you are
Some DHW cylinders are prepared for the connection of a solar thermal system or the installation of one or two additional booster heaters with up to 6 kW output for raising the DHW temperature.

Squeaky clean: The Vitocell 300 DHW cylinders are made of stainless steel – a material that meets the highest hygiene standards.

Strong inner values
Viessmann's product range includes the Vitocell 300 and Vitocell 100 models. All Vitocell 300 cylinders are made of stainless steel and meet the most stringent hygiene requirements. Known for its anti-bacterial properties, it is no coincidence that this material is also used in the food processing industry, in kitchens and in hospitals.

Alternatively, the inner surfaces of the Vitocell 100 are lastingly protected against corrosion with the proven Ceraprotect enamel coating. All DHW cylinders are protected against heat loss with high grade insulation. Internal indirect coils, drawn low down to the cylinder floor, enable quick and energy efficient heating of the entire cylinder content.



Viessmann Vitocell 100-V DHW cylinders: perfectly designed for use with heat pumps

Vitotronic control units, with their well thought-out electronic management system, ensure the economical and safe operation of your Viessmann heating system.

Vitotronic – everything perfectly under control

With the Vitotronic control unit, operating your Viessmann heat pump is as simple as making a phone call.

Vitotronic – technology that thinks for you
Vitotronic control units provide you with every opportunity for really convenient heating, regulated to suit you personally. Once adjusted to your needs, the Vitotronic runs many functions automatically and saves a great deal of energy. Individual adjustments are simplified by the clear Vitotronic user interface with backlit keys and large display showing plain text messages.

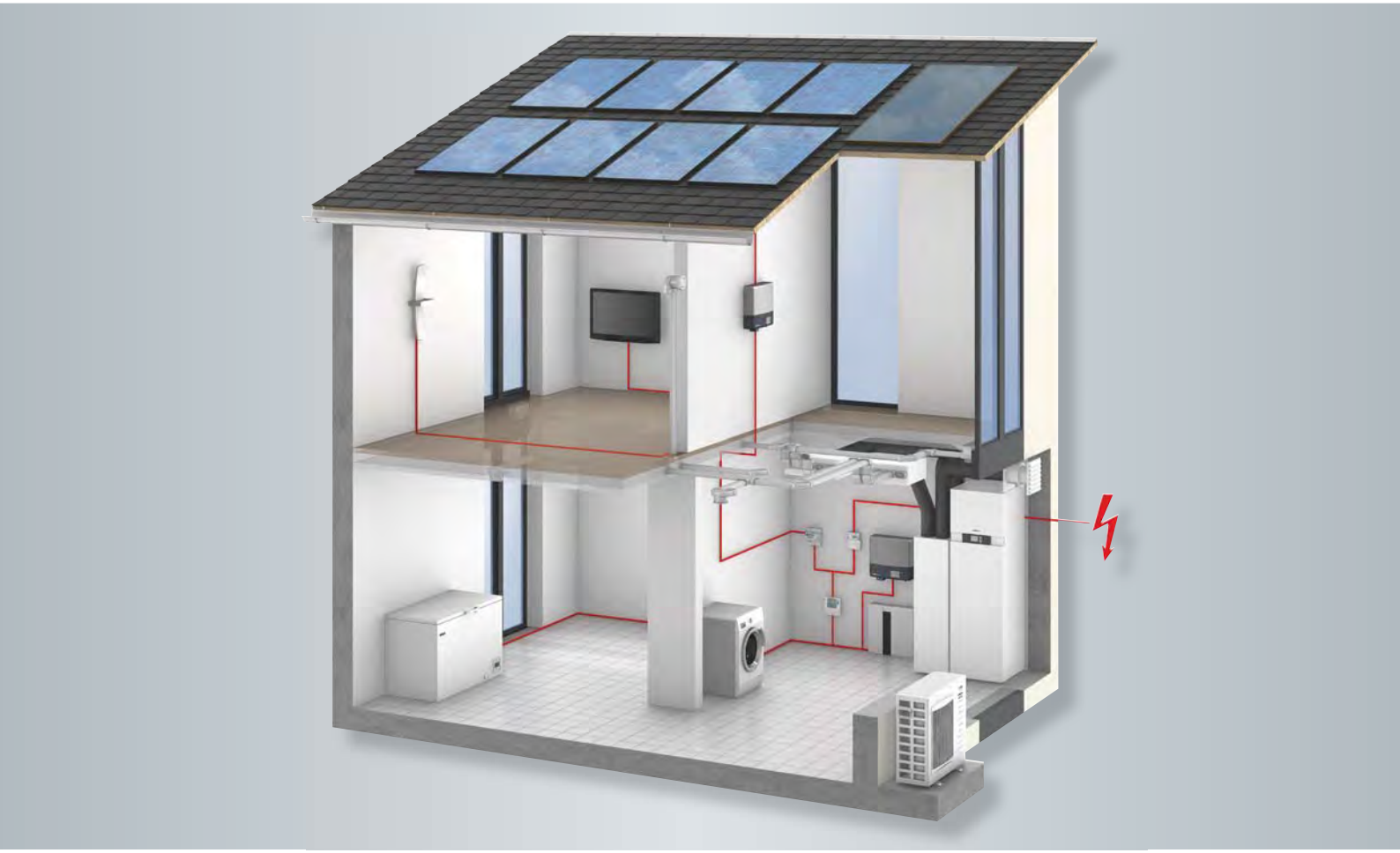
Options for the future
The Vitotronic control unit is designed to accommodate future changes. Whether you want to build an extension in the near future, or extend your heating system by means of a solar thermal system, the Vitotronic will always keep up with the times.

Saving energy made easy
The Vitotronic automatically changes over between winter and summertime, and responds to outside temperature fluctuations as a weather-compensated control unit. There are plenty of convenience functions, such as the party button that cancels energy saving night setback or the economy and holiday programs. These can all be called up quickly and easily at the touch of a button, either on the heat pump itself, or by using the optional remote control from your living space, which has an identical user interface.

The Vitotrol 300 is a convenient remote control unit to regulate your heat pump from any room in your apartment or house.

Vitocom 100 (type LAN1) operated with the Vitotrol app
The Vitotrol app for controlling the heating system is available for iOS and Android devices. For this purpose, the regular Vitotronic must be extended by the Vitocom 100 LAN interface (type LAN1) and must be connected to the ADSL router on site. Configuration of the DSL router is not required. Messages from the boiler are sent by email to the terminal device. Up to three heating circuits can be assigned to the Vitotrol app. The app is a convenient tool for operating your heating system.

Everything under control with the Vitotrol app – from wherever you are

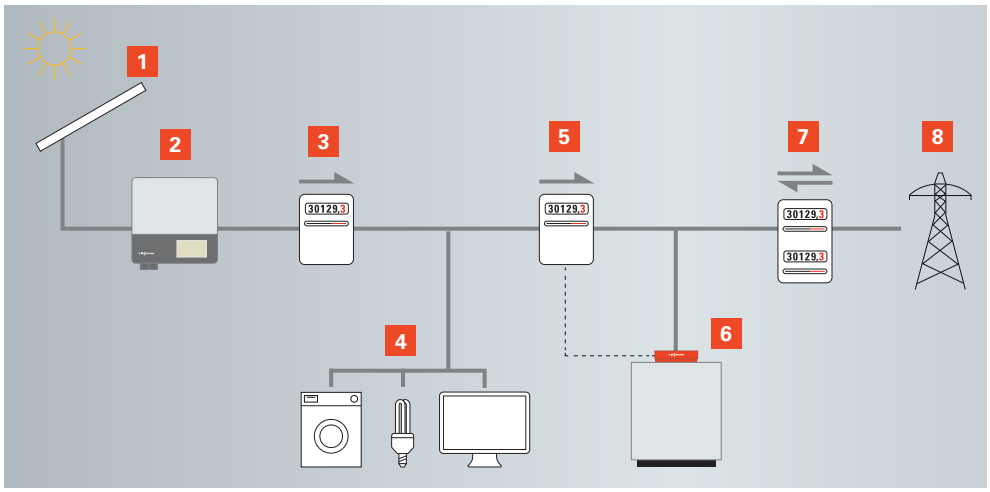


Efficient on-site consumption of solar power via heat pump

Increase the on-site consumption rate of solar power through combination with a heat pump

There are currently two ways in which the solar power generated by a rooftop photovoltaic system can be used: It can either be fed into the grid in its entirety, or it can be partially or completely consumed on site. The most efficient way to generate heat from power is the heat pump. With a heat pump, one kilowatt-hour of electricity can provide up to four kilowatt-hours of heat by using free natural heat from the surroundings.

By meeting the energy demand for room heating and DHW heating with the help of a heat pump, the user can significantly increase the on-site consumption rate of solar power, while also enjoying reduced heating costs by making use of the low cost solar power. Those intending to combine a photovoltaic system with a heat pump should select a heat pump that specifically optimises on-site consumption and can be adapted to match the generating patterns of the PV system. For this purpose Viessmann has developed a correspondingly matched system comprising photovoltaics and heat pump.



Since generating solar power on-site is cheaper than drawing power from the grid, on-site consumption offers financial advantages. An optimised system concept with perfectly matched components ensures this high level of on-site consumption.

1 Photovoltaic (PV) system
2 PV inverter
3 PV meter
4 consumer(s)
5 Heat pump meter
6 Heat pump with Vitotronic 200 (type WO1C)
7 Consumption and feed-in meter
8 Public grid

Optimised system concept with Viessmann heat pumps

Via an energy meter, the heat pump control unit detects whether the PV system is supplying sufficient amounts of power – which is then used by the heat pump to heat the DHW and heating water. The heat gained during the day via photovoltaics is held in a well-insulated DHW cylinder and can be used as domestic hot water and for heating as and when required.

With the Viessmann Vitotronic 200 heat pump control unit, on-site consumption of solar power is automatically increased. Combining the Viessmann heat pump with a photovoltaic system also offers the option of integrating additional components that increase own consumption of the solar power generated on site, such as ventilation equipment, for example. Before the heat pump is activated, priority is given to meeting the power demand for the electrical household appliances with the solar power generated on site. An energy meter records the amount of solar power remaining after the household appliances have been supplied and communicates this to the heat pump. Via the heat pump, the solar surplus can then be stored in the form of thermal energy and made available when it is required. This raises the level of on-site consumption and makes use of the solar energy while it is available. Thanks to the targeted increase in the proportion of on-site consumption, the economic viability of the photovoltaic system is substantially increased. Using low cost solar power also makes the heat pump more economically attractive.

Take advantage of these benefits

- The combination of photovoltaic system and heat pump increases on-site consumption of low cost solar power and therefore reduces the cost of heating and cooling
- The system is suitable for the integration of other renewable energy sources
- When combined with an ice store system for example, heat source management can be further optimised

	Brine/water							Air/water (split)				Air/water monobloc			
Switching the control function	**Vitocal 200-G**	**Vitocal 222-G**	**Vitocal 242-G**	**Vitocal 300-G**	**Vitocal 333-G**	**Vitocal 343-G**	**Vitocal 350-G**	**Vitocal 200-S**	**Vitocal 222-S**	**Vitocal 242-S**	**Vitocaldens 222-F**	**Vitocal 200-A**	**Vitocal 300-A** AWC/AWO and 300.1 A	**Vitocal 300-A** 300.1 B	**Vitocal 350-A** AWC/AWO
Optimising on-site consumption of PV power	■		■	■	■	■	■	■	■	■	■	■		■	
Solar DHW heating (including optimisation through reheating suppression)	■		■	■		■	■	■		■		■	■	■	■
Active cooling				■ [2]			■ [2]	■ [1]	■	■		■	■	■	
Vitovent 300-F ventilation unit		■	■		■	■		■	■	■	■	■		■	
Ice store system				■	■	■	■								
External heat generator	■			■			■	■				■	■	■	■
Vitotrol app	■	■	■	■	■	■	■	■	■	■	■	■		■	

Extract from the function overview of heat pumps with the Vitotronic 200

■ Function available, may require accessories

1 Only in "-AC" version
2 BW, BWC; only single stage

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System accessories from Viessmann – complete heating systems from a single source

All products in the Vitoset range come from a single source to operate the heating system in complete safety.

Every Vitoset product meets the high quality standards that are typical for Viessmann. Why settle for anything less? The range of accessories works perfectly with all other Viessmann heating systems. Here is an overview:

Universal radiators
The quality of radiators is characterised by the high grade, long lasting paint finish. Thanks to their neutral finish in white RAL 9016, Viessmann universal radiators will blend easily into any room. On request, all universal radiators can also be supplied in special colours.

Panel radiators
Their brilliant, smooth design makes these flat panel radiators an exceptionally aesthetic design feature, which is subtle yet effective. The technical concept behind them is optimised for the demands of energy efficient heating. The resistant, plastic-coated surface is easy to clean and gleams in white RAL 9016.

Bathroom radiators
These innovative Vitoset bathroom radiators with their slender pipe elements look elegant and light. They will help you to make your bathroom stylish, and will keep your towels nice and warm. Alongside their connection to the heating system, the bathroom radiators can also be operated electrically. It's even possible to combine both techniques, i.e. using the central heating connection for the heating season, and the internal heater rod for cooler summer days.

Underfloor heating systems
Energy efficient, safe, convenient Vitoset underfloor heating systems from Viessmann provide an extremely pleasant interior due to the even transfer of heat throughout the room. Furthermore, Viessmann has designed the control technology especially for heat pumps, regulating both heating and cooling operation in summer.

Ultra-low temperature radiators
Ultra-low temperature radiators are especially suitable for the efficient use of heat pumps in radiator systems. The effective heat distribution through activators enables low flow temperatures.

Beautifully finished and pleasing to the eye: Bathroom radiators come in many different sizes and colours. They also make a stylish design statement.

With our trade partners, you're in good hands

At Viessmann, proximity to trade partners is the basis of the company's success. Everyone can benefit from their expertise by choosing a Viessmann heat pump.

Property developers and system users can receive advice and support regarding sales, installation and customer service exclusively via Viessmann trade partners, who receive regular training at the Viessmann Academy, and have an in-depth knowledge of the company's products.

Every system user benefits from the comprehensive service that all installation contractors offer as standard.

Some service examples

- Free, no-obligation and individual advice, even on site
- Clear calculation of heating cost savings after the modernisation of your heating system – also in combination with solar collectors, of course
- Calculation of the payback period, after which the new heating system will have paid for itself through energy savings
- Calculation of the actual heating and DHW demand for your household or property
- Information about the economical combination of a new heating system with a solar thermal system for central heating backup and DHW heating
- Up to date information about public subsidy programmes that could subsidise your new heat pump system and solar thermal system
- Support when applying for subsidies

Technology from Viessmann – public subsidies

You don't just save on running costs. Energy-saving and environmentally responsible heating technology is also financially supported by local, regional and national bodies, as well as by your local power supply utility. So find out more about the various subsidies that may be on offer. Up to date information can be found on the internet at www.viessmann.de/foerderprogramme, or ask your heating contractor.

Attractive finance – invest now and save on heating costs immediately

With the Viessmann finance model, you can start saving straight away, and turn your plans into reality. The fast and reliable process with no red tape makes your modernisation project easier, and your financial planning remains flexible. The special advantage for you is that with Viessmann's favourable terms, you generally save much more on heating costs than you spend on finance.

Please note

Applications for subsidies and finance must be made before the heating and/or solar thermal system is purchased. Subsidies and finance agreements cannot be arranged retrospectively. Detailed information regarding the Viessmann finance model can be obtained from your local heating contractor.

Creditplus BANK
CRÉDIT AGRICOLE GROUP

Terms and conditions to shout about

If you invest now in a solar thermal system for your property, you may be eligible for an attractive finance package from Viessmann in conjunction with Creditplus bank: Just 3.99 percent* effective APR.

* Over 24 months

Viessmann online offers detailed information about products, subsidy opportunities and services.

Always there for you

As a globally active family business, Viessmann is involved in constant dialogue with its trade partners and system users.

Viessmann trade partners are local, professional and committed contacts who are always pleased to offer the necessary support for all questions relating to heating systems and modernisation. In personal consultations, the best solutions for an efficient heating system are sought from the Viessmann comprehensive range.

Viessmann online
You can find a great deal of further information on Viessmann products and services at www.viessmann.com.

www.viessmann.de

Quick help via the internet
For the latest information on Viessmann products and on the subject of heating in general, visit www.viessmann.com. There, you can find comprehensive information round the clock on all Viessmann heating systems and their output levels, a technical glossary and much more.

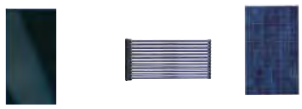
Subsidy programmes
You will also find the latest information on subsidies [Germany] for environmentally responsible heating systems from Viessmann at www.viessmann.de.

Of course, individual and competent advice can also be obtained from all Viessmann sales offices or directly from your heating contractor.

Competent local contact
It is extremely easy to find local Viessmann trade partners using the quick search function at www.viessmann.de.

Simply click on "Partner vor Ort" to show contractors in your area.

The comprehensive product range from the Viessmann Group

	Boilers for oil up to 116 MW heat or up to 120 t/h steam	Boilers for gas up to 116 MW heat or up to 120 t/h steam	Solar thermal and photovoltaic
Detached houses			
Apartment buildings			
Industry/commerce/ municipal			
Local heating networks			

Individual solutions with efficient systems

The comprehensive range of products and services from Viessmann offers individual solutions with efficient systems for all fuel types and application areas. As one of the world's leading manufacturers, Viessmann offers intelligent, convenient and efficient systems for heating, air conditioning/ ventilation, cooling and decentralised power generation. Viessmann products and systems are synonymous with the very highest levels of efficiency and reliability.

Our comprehensive product range offers top technology and sets new benchmarks. By focusing on using energy efficiently, we can help cut costs, save natural resources and protect the environment.

Everything from a single source
The Viessmann range offers the right products and systems for every requirement. Our heating systems can be wall mounted or floorstanding and are suitable for detached houses, large residential buildings, commercial and industrial premises or local heating networks. Whether for modernisation or new build, Viessmann is always the right partner for providing heating, cooling, steam and power.

The wide ranging expertise we have at our disposal in the Group enables us to provide our trade partners with perfect solutions. Our product portfolio is rounded off with a full range of services.

Wood combustion technology, combined heat and power generation and biogas production up to 50 MW

Heat pumps for brine, water and air

up to 2 MW

Heating system accessories

Refrigeration technology

The comprehensive Viessmann product range: Individual solutions with efficient systems for all energy sources and applications

The product range for all energy sources and output ranges

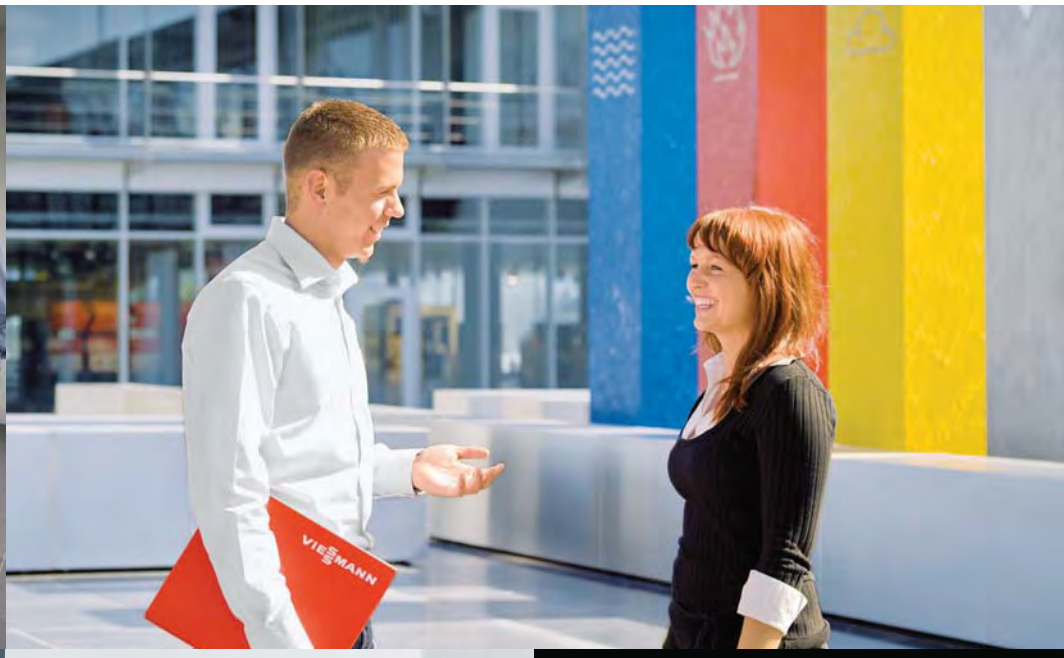
- Boilers for oil and gas up to 116 MW heat or 120 t/h steam
- Combined heat and power generation up to 50 MW_{el}
- Heat pumps up to 2 MW
- Wood combustion technology up to 50 MW
- Biogas production plants from 18 kW_{el} to 20 MW_{gas}
- Biogas upgrading plants up to 3000 m^3/h
- Solar thermal systems
- Photovoltaic systems
- Accessories
- Refrigeration technology

Maintenance and service

Whether it concerns commissioning, maintenance or troubleshooting – trade partners can count on the Viessmann Group for professional support. Our team will be more than happy to talk to you on the phone or in person. Our online tools can provide you with valuable tips, and if necessary spare parts can be delivered the next morning.

Training

The Viessmann Academy offers a wide range of courses, from business management seminars to technical training, designed to keep our trade partners abreast of the very latest developments in our industry.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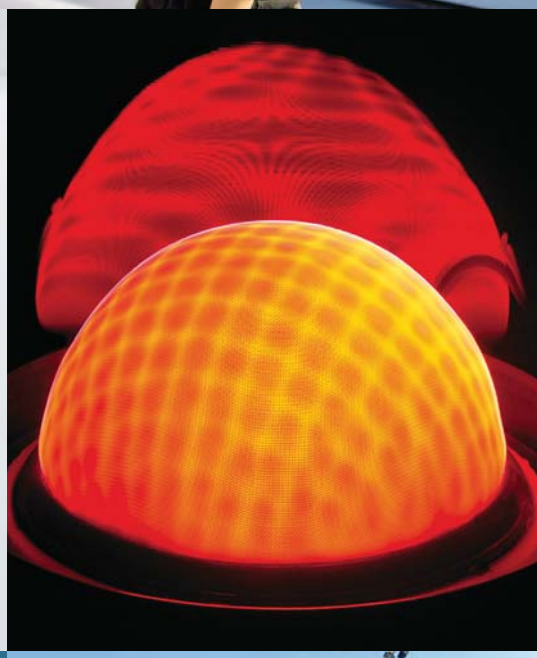

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Viessmann – climate of innovation

Viessmann is one of the world's leading manufacturers of intelligent, convenient and efficient systems for heating, air conditioning/ventilation, cooling and decentralised power generation.

As a third generation family run business, Viessmann has been supplying highly efficient and clean heating systems for many decades.

A strong brand creates trust
Together with our brand label, our key brand message is an identifying feature throughout the world. "Climate of innovation" is a promise on three levels: It is a commitment to a culture of innovation. It is also a promise of enhanced product benefits and, at the same time, an obligation to protect the environment.

Acting in a sustainable manner
For Viessmann, taking responsibility signifies a commitment to acting sustainably.

This means bringing ecology, economy and social responsibility into harmony with each other, ensuring that current needs are satisfied without compromising the quality of life for the generations to come.

We consider climate protection, environmental responsibility and resource efficiency to be key priorities throughout our company, which has more than 11,400 employees worldwide.

Example of Best Practice
With its strategic sustainability project, Viessmann demonstrates at its own head office in Allendorf (Eder) that the energy and climate policy goals set for 2050 can in fact be achieved today with commercially available technology. The results speak for themselves:

- Expansion of renewables to 60 percent
- CO_2 emissions reduced by 80 percent

The long-term goal is for the company to sustainably meet all of its own heating energy requirements.

2009/2011/2013:
German Sustainability Award for production, brand, efficiency with resources

Energy Efficiency Award 2010

Viessmann Group

Company details
- Established in: 1917
- Employees: 11,400
- Group turnover: €2.1 billion
- Export share: 55 percent
- 27 production companies in 11 countries
- Sales companies and representations in 74 countries
- 120 sales offices worldwide

The comprehensive product range from the Viessmann Group for all energy sources and output ranges
- Boilers for oil or gas
- Combined heat and power units
- Heat pumps
- Wood combustion technology
- Biogas production plants
- Biogas upgrading plants
- Solar thermal systems
- Photovoltaic systems
- Accessories
- Refrigeration technology

climate of innovation

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