



TECHNOLOGY BROCHURE

# Heat pumps up to 600 kW: **VITOCAL / VITOCAL PRO**

## **Vitocal heat pumps**

Heating with renewable energy from the environment – even in the higher output ranges



Futureproof and efficient heating technology  
for all requirements

In industrialised Western nations, heat generation for residential and commercial buildings accounts for the largest proportion of energy consumption – and therefore offers the greatest savings potential. Advanced and energy efficient heating systems from Viessmann are in use around the world, not only in many private households, but also in numerous major international projects, where they make an important contribution to the sustainable conservation of energy reserves.

Viessmann successfully rises to the most diverse challenges facing advanced heating technology by constantly offering innovative solutions – be it for historical listed buildings, highly productive industrial complexes or the large scale residential and commercial arena.

Viessmann has been developing and manufacturing heat pumps for international markets for almost 40 years. The product range consists of series-produced large heat pumps for industrial applications and commercial building complexes with a comprehensive selection of accessories.





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## 6 INTRODUCTION

Heating with renewable energy from the environment – even in the higher output ranges.

## 10 THE VITOCAL 350-G/ 300-G/300-A RANGE OF LARGE HEAT PUMPS

Powerful heat pumps with high flow temperatures meet the requirements for high convenience in large detached houses, apartment buildings and commercial applications.

## 22 VITOCAL PRO RANGE OF LARGE HEAT PUMPS

Large heat pumps from Viessmann facilitate heating with renewable energy from the environment, even in the higher output ranges, at all times. Even waste heat from various sources and production processes can be made usable.

## 42 SERVICE

Viessmann large heat pumps guarantee optimal interplay of components and assemblies.

## 44 REFERENCE PROJECTS

The higher the energy demand, the greater the savings achieved by Viessmann's highly efficient systems – in commercial and industrial operations, as well as in office blocks, hotels, clinics and schools.

## 46 THE COMPANY

The Viessmann family business is a leading international manufacturer of efficient energy systems.



# Heating with renewable energy from the environment – even in the higher output ranges

Natural heat is an advanced and cost effective alternative to fossil fuels. It is available free of charge and offers independence from oil and gas.

Heat pumps provide ideal conditions for reducing heating bills and achieving environmentally responsible heat generation. After all, the energy a heat pump uses is free and available in unlimited supply from the environment.

With a heat pump, up to 80 percent of the total energy demand is taken from nature, in a highly effective and environmentally responsible manner. Only 20 to 30 percent electrical energy needs to be additionally invested.

The principle is as simple as it is ingenious: the solar energy stored in the ambient air, ground and groundwater is used to efficiently heat domestic hot water and heating water.

## **Added value through cooling function and dual mode systems**

Heat pumps are also available with high outputs and are designed to meet the energy demand of larger residential complexes and commercial operations. Their operating mode can be "reversed", allowing them to be used for cooling the interior in summer too.

The idea that a heat pump only suits new build projects is outdated. On the contrary, if an existing conventional oil or gas heating system is modernised or supplemented with a heat pump (to form a dual mode system), reductions in heating costs can be achieved and emissions lowered at the same time. Independence from fossil fuels actively contributes to reducing CO<sub>2</sub> emissions and protecting the climate.

## **Recovering environmental energy**

Various natural sources are suited to heat recovery using a heat pump:

- Water – such as groundwater, river or lake water, waste water
- Ground – via geothermal probes, geothermal collectors, energy piles
- Air
- Waste heat

Not all of these heat sources can be used in all locations. It is therefore necessary to consult the relevant authorities before making a decision, and discuss the technical options with Viessmann.

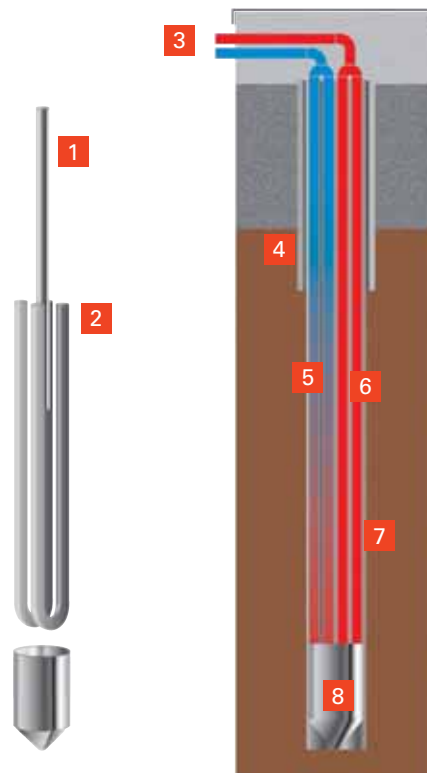
Viessmann heat pumps are designed for larger residential complexes and commercial operations.



## Heat recovery with geothermal probes: a stable and durable heat source

Brine/water heat pumps utilise the heat stored in the ground, which is both free and readily available.

Geothermal probes offer a durable and maintenance-free way to tap into this heat source. In conjunction with heat pumps, they deliver heating energy, and are also the ideal heat exchanger for natural cooling. In both cases, Viessmann brine/water heat pumps utilise the free heat stored in the ground.



- 1** Injection tube
- 2** Dual U-shaped tube probe with two separate circuits
- 3** Supply tubes
- 4** Protective tubing (if required)
- 5** Return from the heat pump (cold)
- 6** Flow to the heat pump (warm)
- 7** Bentonite/cement mixture
- 8** Protective cap

### Geothermal probe

The geothermal probe is composed of two U-shaped tubes. In the centre of this tube bundle there is an injection tube through which a bentonite/cement mixture is pressed after the probe has been installed in situ. The borehole is filled from bottom to top. This guarantees the entire probe is connected with the surrounding earth, seals off any water-carrying layers from one another and protects the probe.



### **Perfect size for all kinds of heat transfer**

Viessmann's heat pump portfolio is tailored to the needs of its customers. Flow temperatures of 35 to 40 °C are economical and cost effective for area heating systems. The series-produced large heat pumps feature efficient output modulation or multi stage refrigerant circuits, depending on their output.

Ventilation systems work with flow temperatures of up to 55 °C. If, for technical reasons, temperatures of up to 70 °C are required, heat pumps from the Vitocal 350-G PRO series offer the perfect solution.

### **Convenient DHW heating**

Frequently, DHW temperatures above 60 °C are required. However, particularly for large heat pumps, the performance proportion for DHW heating is low. In such cases, multi stage heat pumps or hot gas decoupling are a convenient solution. The use of special safety heat exchangers guarantees global potable water requirements are maintained.



Geothermal probe manifold



Vitocal 300-G PRO and Vitocal 300-G brine/  
water heat pumps

# The Vitocal 350-G/300-G/300-A range of large heat pumps

Vitocal heat pumps offer flexible use with their different output stages and modulating operation. This means they are not just suitable for newly built detached houses, but also apartment buildings or small commercial premises. The Vitocal 350-G high temperature heat pumps are ideal for larger existing buildings that are equipped with radiator heating systems. This is because they ensure high flow temperatures of up to 68 °C. They are also well suited to modernisation projects.

It is also possible to increase the heating output and cooling capacity – by creating what is known as a cascade. This means that several Vitocal heat pumps from the same model series can be connected in series.

For example, an output of up to 589 kW can be achieved with the Vitocal 300-G water/water heat pump by using the integral cascade function.



## **VITOCAL 350-G**

Type BW/BWS 351.A

Brine/water: 20.5 to 42.3 kW

Water/water: 25.4 to 52.3 kW

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## **VITOCAL 300-G**

Type BW/BWS 301.A

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)

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## **VITOCAL 300-A**

Types AWO 302.B25 and B40

(shown) and

type AWO 302.B60

Two-stage air source heat pump 13.2 to

55.8 kW

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Powerful heat pumps with high flow temperatures meet the requirements for high DHW convenience in large detached houses and apartment buildings.



**VITOCAL 350-G**  
**VITOCAL 300-G**

With its two high temperature heat pumps, the Vitocal 350-G and Vitocal 300-G, Viessmann also meets the demand for higher heating outputs. Four sizes are available up to 84.6 kilowatts.

#### **EVI for high flow temperatures**

The Vitocal 350-G achieves high flow temperatures of up to 68 °C. This results from the use of an EVI (enhanced vapour injection) refrigerant circuit, where the injection of vapour cools the refrigerant so that it can be more densely compressed than is otherwise possible. The Vitocal 350-G also delivers sufficiently high temperatures to make it suitable for modernising apartment buildings with radiator heating systems.

#### **RCD system for highest level of efficiency**

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

#### **Perfect for a high heating output**

Vitocal 350-G/300-G is an economical solution for higher heat demands. It allows the heating flow and return lines of several heat pumps to be linked in a cascade.

A heat pump cascade consists of one lead heat pump and up to four lag heat pumps. Both the lead heat pump and the lag heat pumps can have two stages. This not only delivers the high heating output required, but 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 simultaneous room heating and DHW heating.



Energy efficiency label for Vitocal 300-G, BW 301.A21



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

#### **TAKE ADVANTAGE OF THESE BENEFITS**

- + Low running costs with the highest level of efficiency at every operating point through the innovative RCD (refrigerant cycle diagnostic) system with electronic expansion valve (EEV)
- + Mono mode operation for DHW and room heating possible
- + Master/slave solutions for higher heat demands and DHW convenience, e.g. combination of Vitocal 300-G and Vitocal 350-G
- + Extremely quiet operation through sound-optimised appliance design
- + Vitotronic 200 control unit with plain text and graphic display for weather-compensated heating mode and natural or active cooling
- + Control of Viessmann ventilation units possible
- + Prepared for use of power generated on site, e.g. from photovoltaic systems
- + Web-enabled via free ViCare app and Vitoconnect (optional)



Vitocal 350-G brine/water or water/water heat pump with a rated heating output of 20.5 to 42.3 kW



#### VITOCAL 350-G

- 1** Vitotronic 200 heat pump control unit
- 2** Condenser
- 3** Large area evaporator for efficient exchange of heat
- 4** Hermetically sealed Compliant scroll compressor with EVI process

The powerful Vitocal 350-G brine/water heat pump is one of the quietest heat generators of its kind, thanks to its low-vibration design.

Where heat demand is even higher, the Vitocal 350-G can be operated in two-stage mode with an additional heat pump of the same type, or with a Vitocal 300-G in a master/slave system and can then provide an output of up to 84.6 kilowatts. At an early stage when planning the system, this configuration allows for optimum matching of the heat pumps to the building in question.

#### Master/slave system for DHW and room heating

In a master/slave system, the Vitocal 350-G, as the master, delivers high flow temperatures for DHW heating, while the Vitocal 300-G (slave, without its own control unit) covers the required heat load.

The EVI refrigerant circuit enables the Vitocal 350-G to achieve an extremely high COP of up to 5.0, which contributes to its low running costs.

#### Vitotronic 200 control unit with communication capability

Viessmann uses the convenient Vitotronic 200 control unit to ensure standardised operation of its heat generators. Its many functions include menu-guided operation, an integral diagnostic system, control of the instantaneous heating water heater and an additional (existing) oil or gas boiler, and of course, the natural and active cooling functions.

Furthermore, the Vitotronic 200 is capable of communicating, and via the Vitocom 300 module, allows the heat pump system to be set up, monitored and optimised over the internet with the Vitotrol app on a smartphone or tablet.

#### Operation with self-generated solar power

The Vitocal 350-G heat pump is already prepared for cost effective operation with self-generated power from a photovoltaic system. An intelligent control unit ensures maximum consumption of the self-generated power and therefore lowers energy costs.

#### TAKE ADVANTAGE OF THESE BENEFITS

- + Brine/water heat pump  
Heating outputs – single-stage: 20.5 to 42.3 kW
- + Water/water heat pump  
Heating outputs – single-stage: 25.4 to 52.3 kW
- + Low running costs thanks to high COP (coefficient of performance) to EN 14511 of up to 5.0 (B0/W35)
- + Flow temperature: up to 65 °C

## Vitocal 350-G specification

Vitocal 350-G (single-stage, master) Vitocal 350-G (2-stage, slave without its own control unit)	Type Type	BW 351.B20 BWS 351.B20	BW 351.B27 BWS 351.B27	BW 351.B33 BWS 351.B33	BW 351.B42 BWS 351.B42
<b>Performance data</b> (to EN 14511, B0/W35, 5 K spread)					
<b>Rated heating output</b>	kW	20.5	28.7	32.7	42.3
<b>COP ε in heating mode</b>		4.8	4.9	5.0	4.8
<b>Maximum flow temperature</b>	°C	65	68	68	68
<b>Refrigerant circuit</b>					
<b>Refrigerant</b>		R410A	R410A	R410A	R410A
– Refrigerant charge	kg	5.5	7.3	9.0	9.25
– Global warming potential (GWP) <sup>1)</sup>		1924	1924	1924	1924
– CO <sub>2</sub> equivalent	t	10.6	14.0	17.3	17.8
<b>Dimensions</b>					
Length (depth)	mm	1085	1085	1085	1085
Width	mm	780	780	780	780
Height (control unit open)	mm	1267	1267	1267	1267
<b>Weight</b>					
Type BW	kg	270	285	310	315
Type BWS	kg	265	280	305	310
<b>Energy efficiency class <sup>2)</sup></b>	<b>III*</b>	A+++ / A**	A+++ / A**	A+++ / A**	A+++ / A**

## Vitocal 350-G

### WATER/WATER

Vitocal 350-G (single-stage, master) Vitocal 350-G (2-stage, slave without its own control unit)	Type Type	BW 351.B20 BWS 351.B20	BW 351.B27 BWS 351.B27	BW 351.B33 BWS 351.B33	BW 351.B42 BWS 351.B42
<b>Performance data</b> (to EN 14511, B10/W35)					
<b>Rated heating output</b>	kW	25.4	34.7	42.2	52.3
<b>COP ε in heating mode</b>		5.7	6.1	6.2	5.8
<b>Maximum flow temperature</b>	°C	65	68	68	68



Vitocal 300-G brine/water or water/water heat pump with a rated heating output of 21.2 to 42.8 kW

#### TAKE ADVANTAGE OF THESE BENEFITS

- + Brine/water heat pump  
Heating output – single-stage: 21.2 to 42.8 kW  
Maximum 428 kW (as a cascade)
- + Water/water heat pump  
Heating output – single-stage: 28.1 to 58.9 kW
- + Flow temperature: up to 60 °C
- + Sound power level: ≤ 44 dB(A)
- + Integral energy statement
- + Easier handling through small and light modules

The Vitocal 300-G is the specialist for large detached houses and apartment buildings. For these applications with high heating outputs, the two-stage Vitocal 300-G, based on the master/slave principle, is the right choice.

#### **Cascade operation up to 589 kilowatts**

It can deliver a heating output of 42.4 to 85.6 kilowatts (brine/water) with the ground as the primary heat source, or 56.2 to 117.8 kilowatts (water/water) when using groundwater. If this is not enough, the integral cascade function enables the output to be raised to up to 589 kilowatts (water/water) with multiple Vitocal 300-G units.

This also assures greater operational reliability for the system as a whole. The modular design, with separate compressor circuits, also ensures particularly high levels of efficiency in partial load operation, and enables simultaneous room heating and DHW heating.

#### **Powerful and reliable**

At the heart of the Vitocal 300-G lies its powerful Compliant scroll compressor. This component stands out on account of its high degree of operational safety and reliability. In conjunction with the large heat exchangers and integral refrigerant manifold, the Vitocal 300-G achieves a high COP 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.



**VITOCAL 300-G**  
21.2 to 42.8 kW (single-stage)



**VITOCAL 300-G**

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

## Vitocal 300-G specification

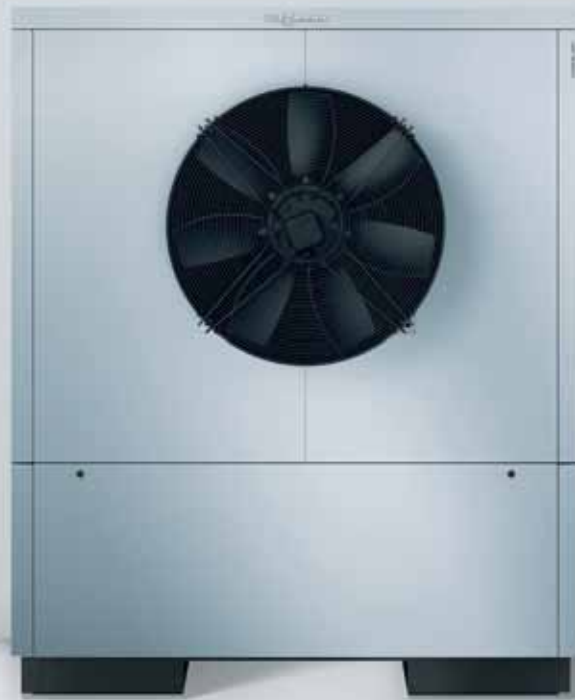
Vitocal 300-G	Type	BW 301.A21	BW 301.A29	BW 301.A45
Vitocal 300-G	Type	BWS 301.A21	BWS 301.A29	BWS 301.A45
<b>Performance data</b> (to EN 14511, B0/W35, 5 K spread)				
Rated heating output	kW	21.2	28.8	42.8
COP $\epsilon$ in heating mode		4.7	4.8	4.6
Maximum flow temperature	°C	60	60	60
<b>Refrigerant circuit</b>				
Refrigerant		R410A	R410A	R410A
– Refrigerant charge	kg	4.7	6.2	7.7
– Global warming potential (GWP) <sup>1)</sup>		1924	1924	1924
– CO <sub>2</sub> equivalent	t	9.0	11.9	14.8
<b>Dimensions</b>				
Length (depth)	mm	1085	1085	1085
Width	mm	780	780	780
Height	mm	1267	1267	1267
<b>Weight</b>				
Type BW	kg	245	272	298
Type BWS	kg	240	267	293
Energy efficiency class <sup>2)</sup>	III*	A** / A**	A** / A**	A** / A**

## Vitocal 300-G

### WATER/WATER

Vitocal 300-G	Type	BW 301.A21	BW 301.A29	BW 301.A45
Vitocal 300-G	Type	BWS 301.A21	BWS 301.A29	BWS 301.A45
<b>Performance data</b> (to EN 14511, B10/W35)				
Rated heating output	kW	28.1	37.1	58.9
COP $\epsilon$ in heating mode		5.9	6.0	5.5
Maximum flow temperature	°C	60	60	60

▶ The two-stage air source heat pumps for outdoor installation utilise the latent heat in the outdoor air for environmentally responsible and inexpensive heating ▶



**Vitocal 300-A air source heat pump (type AWO 302.B)**

Utilises the latent heat in the outdoor air for environmentally responsible and inexpensive heating

The Vitocal 300-A from Viessmann is an air source heat pump in the output range from 13.2 to 55.8 kilowatts. An output of up to 279 kilowatts is possible with a cascade of up to five Vitocal 300-A heat pumps.

**Good choice for commercial buildings**

With a high COP of up to 4.3 (A7/W35), this outdoor heat pump meets the requirements for a convenient heat supply to offices or commercial buildings. Even at outside temperatures as low as  $-22\text{ }^{\circ}\text{C}$ , this unit still achieves a flow temperature of up to  $64\text{ }^{\circ}\text{C}$ .

**Two compressors for reduced running costs**

Two output stages ensure the Vitocal 300-A operates economically. Experience has shown that approximately 70 percent of the annual heat load can be covered under partial load conditions. This means the heat pump operates with only one compressor and therefore achieves the highest COP values.

**Vitotronic 200 control unit with communication capability**

The Vitotronic 200 (WO1C) is wall mounted inside the building for easy access, which facilitates straightforward commissioning and control of the heat pump. In a dual mode system, for example in combination with a gas or oil boiler, the heat pump control unit can start the second heat generator automatically.

Furthermore, the Vitotronic 200 heat pump control unit is capable of communicating and, via the Vitocom 100 or Vitocom 300 module, allows the heat pump system to be set up, monitored and optimised over the internet with the ViCare app on a smartphone or tablet.

Where the Vitocal 300-A is used in commercial applications, it can also be linked to a building management system using Vitogate.



Vitotronic 200 (WO1C) weather-compensated control unit for wall mounting



Vitocal 300-A (AWO 302.B60)  
The Vitocal 300-A from Viessmann is an air source heat pump in the output range from 13.2 to 55.8 kW. With a cascade of up to five Vitocal 300-A heat pumps, an output of up to 279 kW is possible.



Vitocal 300-A (AWO 302.B25 and AWO 302.B40) air source heat pump

#### TAKE ADVANTAGE OF THESE BENEFITS

- + Two-stage air source heat pump with electric drive for room heating and DHW
- + For outdoor installation, 13.2 to 55.8 kW
- + Flow temperature: up to 64 °C (AWO 302.B60), and up to 55 °C (AWO 302.B25/B40)
- + Low running costs through high coefficients of performance:
  - AWO 302.B60: COP to EN 14511 of up to 4.0 at air 7 °C/water 35 °C and up to 3.6 at air 2 °C/water 35 °C
  - AWO 302.B25/B40: COP to EN 14511 of up to 4.3 at air 7 °C/water 35 °C and up to 3.7 at air 2 °C/water 35 °C in two-stage mode
- + Good partial load characteristics thanks to two-stage design
- + Low noise and low vibrations through sound-optimised appliance design
- + Efficient defrosting through refrigerant circuit reversal
- + With Vitotronic 200 heat pump control unit for wall mounting
- + Easy to use Vitotronic control unit with plain text and graphic display – with telecontrol and remote monitoring for connection to the Vitocom 100 and Vitocom 300
- + Cascade function for up to 5 heat pumps
- + Web-enabled through Vitoconnect (accessories) for operation and service via the ViCare app
- + Energy efficiency class: AWO 302.B25/B40: A<sup>++</sup>/A<sup>+</sup>, AWO 302.B60: A<sup>+</sup>/A<sup>+</sup>

## High efficiency heat pump for outdoor installation in offices and commercial buildings



**VITOCAL 300-A**  
(AWO 302.B25 and AWO 302.B40)

- 1** Evaporator
- 2** Fan
- 3** Compressor stage 1
- 4** Compressor stage 2
- 5** Condenser
- 6** Optional pipework assembly for connection at the side

### Vitocal 300-A specification

Vitocal 300-A	Type	AWO 302.B25	AWO 302.B40	AWO 302.B60
<b>Performance data</b>				
<b>Rated heating output</b>				
Operating point A2/W35 (to EN 14511)	kW	13.2 – 24.5	19.5 – 32.7	30.1 – 55.8
Operating point A-7/W35 (to EN 14511)	kW	8.5 – 16.3	11.6 – 22.6	18.8 – 38.1
<b>COP <math>\epsilon</math>, two-stage mode</b>				
Operating point A2/W35 (to EN 14511)		3.7	3.6	3.6
Operating point A7/W35 (to EN 14511)		4.3	4.1	4.0
<b>Refrigerant circuit</b>				
<b>Refrigerant</b>				
– Refrigerant charge	kg	R449A 10.2	R449A 11.8	R407C 18.0
– Global warming potential (GWP)		1397	1397	1397
– CO <sub>2</sub> equivalent	t	14.2	16.5	31.9
<b>Maximum flow temperature</b>				
	°C	Up to 55	Up to 55	Up to 64
<b>Sound power level</b>				
With reference to DIN EN ISO 12102				
– Maximum heating output	dB(A)	67	70	74
– Night mode	dB(A)	–	–	70
<b>Dimensions</b>				
Length (depth)	mm	952	952	1000
Width	mm	1600	1735	1900
Height	mm	1940	2100	2300
<b>Weight</b>				
	kg	480	555	881
<b>Energy efficiency class</b>				
As per Commission Regulation (EU) No 813/2013 for heating				
(average climatic conditions) –				
Low temperature application (W35)		A++	A++	A+
Medium temperature application (W55)		A+	A+	A+



# Vitocal PRO range of large heat pumps

Heat pumps from Viessmann not only prove their worth in detached and two-family houses, but also ensure a reliable and efficient supply of heating and cooling for properties requiring a rated heating output of up to 600 kilowatts, such as large residential buildings, commercial premises, industrial operations and local authority sites.

Large heat pumps are designed for highly efficient operation – they achieve and even exceed stringent European standards. They are notable for their compact design, with low noise and vibration levels. Depending on the model, the appliances can be extended and therefore quickly and easily adapted to any heating and cooling demand.

Heat sources may include waste heat from a wide variety of sources, the ground and groundwater. Alternatively, an ice energy store can be used to generate heat.



## **VITOCAL 200-G PRO**

Brine/water heat pump  
75.4 and 101 kW (B0/W35)  
95.7 and 126.5 kW (W10/W35)\*

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## **VITOCAL 300-G PRO**

Brine/water heat pump  
84.9 to 222.2 kW (B0/W35)  
107.2 to 283 kW (W10/W35)\*

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## **VITOCAL 350-G PRO**

Brine/water heat pump  
27.3 to 197.9 kW (B0/W35)

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## **VITOCAL 350-HT PRO**

Brine/water heat pump  
56.6 to 144.9 kW (B0/W35)  
133.3 to 351.5 kW (W45/W90)\*

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\* In water/water operation with intermediate brine circuit



**VITOCAL 200-G PRO**

Compact design – even  
suitable for corner  
installation



## Vitocal 200-G PRO brine/water heat pumps for residential and commercial buildings

The Vitocal 200-G PRO heat pump with up to 101 kilowatts is an attractively priced solution for conventional heating applications. With its output, it reliably meets many of the requirements arising in residential and commercial buildings – for new build and modernisation projects alike. These appliances are standardised, enabling quick and comprehensive planning, as well as transparent cost calculation parameters.



Vitocal 200-G PRO with fitted side panels

### TAKE ADVANTAGE OF THESE BENEFITS

- + Large brine/water heat pump
- + Rated heating output: 75.4 and 101 kW (B0/W35)
- + Flow temperature: up to 60 °C
- + Low running costs thanks to high COP to EN 14511: 4.5 (B0/W35)
- + Low noise and vibration levels thanks to sound-optimised appliance design, sound power level (with anti-vibration casing): < 70 dB(A) (B0/W55)
- + Compact dimensions (length x width x height): 1753 x 800 x 1457 mm
- + Suitable for corner installation
- + Easy to use Vitotronic 200 control unit with plain text and graphic display
- + Easy access to components simplifies maintenance
- + Electronic soft starter system for a lower starting current and less power drawn from the mains
- + Ready to use connection for fail-safe primary and secondary pumps
- + Reliable commissioning following function test at the factory

### Compact design – even suitable for corner installation

The design with hermetically sealed scroll compressors requires little space for installation. As for the entrance to the installation location, a width of just 850 millimetres is sufficient. The heat pump is available with connections on the long side on both the left and right, which means it can be installed in various corner areas.

### Pre-assembled electrical equipment

The electrical equipment is already integrated inside the heat pump casing. Factory-fitted contactors for fail-safe primary and secondary pumps, as well as protection for the

compressors, reduce installation effort and enable rapid heat pump installation. Maintenance and service on the Vitocal 200-G PRO are accordingly straightforward as well.

### Proven and reliable technology

The control unit has been adopted from the Vitocal series for detached and two-family houses. Here too, the RCD (refrigerant cycle diagnostic) system checks efficiency continuously and ensures reliable function at every operating point through the interaction between the EEV (electronic expansion valve) and the extensive sensor technology.

### Easy to operate Vitotronic control unit with plain text and graphic display

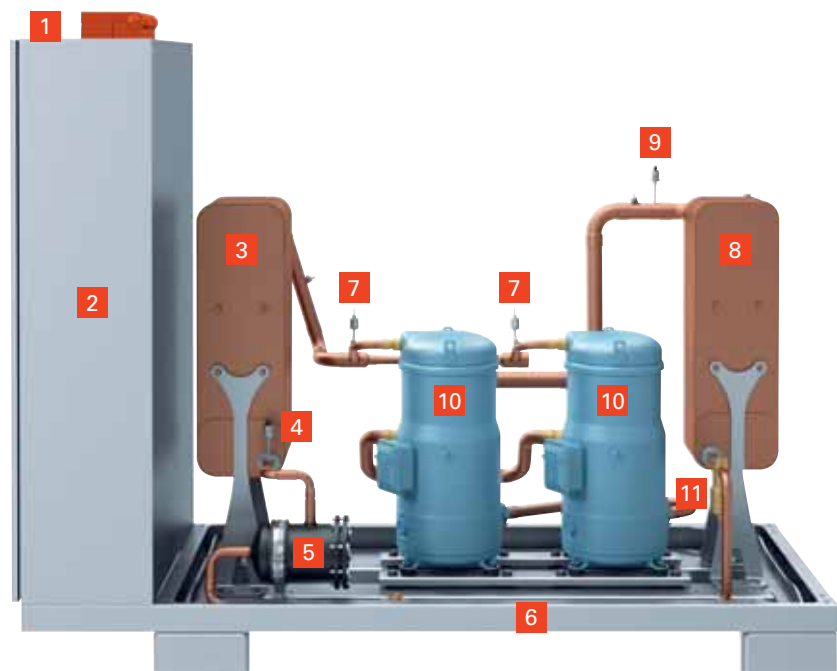
The Vitotronic 200 regulates up to three heating circuits and, thanks to its natural cooling function, ensures a pleasant room climate on hot summer days. An extensive range of monitoring and system optimisation settings can be adjusted from anywhere, via the internet or a smartphone, utilising the Vitocom 300 communication module that is available as an option.



Easy to operate Vitotronic control unit with plain text and graphic display

### VITOCAL 200-G PRO

- 1 Vitotronic control unit
- 2 Control panel
- 3 Condenser
- 4 HP pressure sensor
- 5 Filter dryer
- 6 Sight glass
- 7 Pressure switch
- 8 Evaporator
- 9 LP pressure sensor
- 10 Compressor
- 11 Electronic expansion valve (EEV)



# Vitocal 200-G PRO specification



<b>Vitocal 200-G PRO</b>	Type	BW 202.A080	BW 202.A100
<b>Performance data</b> (to EN 14511, B0/W35, 5 K spread)			
<b>Rated heating output</b>	kW	75.4	101.0
<b>Cooling capacity</b>	kW	59.0	79.0
<b>Power consumption</b>	kW	16.59	22.28
<b>COP <math>\epsilon</math> in heating mode</b>		4.55	4.53
<b>Performance data*</b> (to EN 14511, W10/W35, 5 K spread)			
<b>Rated heating output</b>	kW	95.7	126.5
<b>Cooling capacity</b>	kW	79.3	104.6
<b>Power consumption</b>	kW	16.35	21.92
<b>COP <math>\epsilon</math> in heating mode</b>		5.85	5.77
<b>Dimensions</b>			
Length	mm	1753	1753
Width	mm	800	800
Height	mm	1457	1457
<b>Weight</b>			
	kg	452	538
<b>Number of compressors</b>			
	pce	2	2

\* In water/water operation with intermediate brine circuit

**VITOCAL 300-G PRO**

These appliances are standardised, enabling quick and straightforward system planning, as well as transparent cost calculation parameters

# Vitocal 300-G PRO brine/water heat pumps for residential and commercial buildings

The Vitocal 300-G PRO heat pumps with up to 222.2 kilowatts are manufactured in series. The PRO series features all the characteristics of the highly efficient Vitocal 300-G series. With five output sizes, most requirements from residential and commercial buildings can be reliably met.

These appliances are standardised, enabling quick and comprehensive planning as well as transparent cost calculation parameters. Higher output levels can be achieved through higher-level control with up to five Vitocal 300-G PRO heat pumps in a cascade.

## Space efficient design

The hermetically sealed design with new scroll technology requires little space. At only 850 millimetres wide, with removable casing panels and a clearance at the bottom to enable transportation by pallet truck, the appliance is very easy to manoeuvre.

## Use of groundwater with an intermediate circuit

The water/water application with an intermediate brine circuit provides a reliable solution for the direct use of groundwater. An intermediate exchanger protects the standard unit against contamination and reduces the maintenance work for the heat pump.

## Pre-assembled electrical equipment

The electrical equipment is already integrated inside the heat pump casing. Factory-fitted contactors for fail-safe primary and secondary pumps, as well as protection for the compressors, reduce installation effort and ensure rapid heat pump installation.

## Proven and reliable technology

The control philosophy has been adopted from the Vitocal series for detached and two-family houses. Here too, the RCD (refrigerant cycle diagnostic) system checks efficiency continuously and ensures reliable function at every operating point through the interaction between the EEV (electronic expansion valve) and the extensive sensor technology.

## Easy to operate Vitotronic control unit with plain text and graphic display

The Vitotronic 200 regulates up to three heating circuits and, thanks to its natural cooling function, ensures a pleasant room climate on hot summer days. An extensive range of monitoring and system optimisation settings can be adjusted from anywhere, via the internet or a smartphone, utilising the Vitocom 300 communication module that is available as an option.

## TAKE ADVANTAGE OF THESE BENEFITS

- + Brine/water heat pump, two-stage
- + Heating output: 84.9 to 222.2 kW (B0/W35), maximum 1111 kW (in a cascade)
- + Water/water application
- + Heating output: 107.2 to 283 kW (W10/W35), maximum 1415 kW (in a cascade)
- + Low running costs thanks to high COP to EN 14511 of up to 4.6 (brine 0 °C/water 35 °C) and up to 5.8 (water 10 °C/water 35 °C)
- + Maximum flow temperature: 60 °C (brine 5 °C) for all sizes
- + Low noise and low vibrations through sound-optimised appliance design
- + Low running costs with the highest level of efficiency at every operating point through the innovative RCD (refrigerant cycle diagnostic) system with electronic expansion valve (EEV)
- + Easy to operate Vitotronic control unit with plain text and graphic display
- + Ready to use connection for fail-safe primary and secondary pumps
- + Electronic soft starter for lower starting current and less power drawn from the mains
- + Only 850 mm wide doorway required for delivery
- + Exceptionally quiet operation for this output range
- + Total sound power level of between 57 and 69 dB(A) at rated heating output (B0/W35)
- + Series with PLC-based Vitotronic control unit with additional functionalities



Brine/water heat pump with a rated heating output of 84.9 to 222.2 kW

#### Vitotronic 200 control unit

Easy to use control unit with plain text and graphic display



#### Vitotronic SPS control unit, type 2.0

Large colour touchscreen with additional functionalities



## VITOCAL 300-G PRO

84.9 to 222.2 kW

Up to 1111 kW (in a cascade)

### Series with PLC-based Vitotronic control unit

All output sizes are also available with a PLC (programmable logic controller). Data communication via Modbus/BACnet (optional) or LAN in particular provides options for even more targeted integration into building management systems. The Vitotronic SPS type 2.0 also allows management of dry coolers and control of a second heat pump without its own control unit (slave heat pump). The master heat pump handles the control of the slave heat pump, which ensures

efficient cascade control with two heat pumps.

### Combination with air/brine heat exchanger

In conjunction with an air/brine heat exchanger, the Vitocal 300-G PRO offers both cooling operation and the use of air as a heat source.

The air/brine heat exchanger is connected to the heat pump via a brine circuit and enables heat recovery at an air temperature of down to  $-5\text{ }^{\circ}\text{C}$ . Below  $-5\text{ }^{\circ}\text{C}$ , a second heat

generator takes over the heat supply in dual alternative mode. This allows for flexible system design and the formation of a robust system together with a second heat generator.

For such air/water applications, both the Vitocal 300-G PRO and the air/brine heat exchanger designed for this purpose are available. An attractive solution from a single source.

## Vitocal 300-G PRO specification



Vitocal 300-G PRO	Type BW	302.D090	302.D110	302.D140	302.D180	302.D230
Vitocal 300-G PRO	Type BWR/BWS	302.DS090	302.DS110	302.DS140	302.DS180	302.DS230
<b>Performance data</b> (to EN 14511, B0/W35, 5 K spread)						
<b>Rated heating output</b>	kW	84.9	108.7	135.3	174.9	222.2
<b>Cooling capacity</b>	kW	67.4	86.1	106.4	138.5	177.1
<b>Power consumption</b>	kW	18.65	24.22	31.10	38.93	48.3
<b>COP <math>\epsilon</math> in heating mode</b>		4.55	4.49	4.35	4.49	4.60
<b>Performance data*</b> (to EN 14511, W10/W35, 5 K spread)						
<b>Rated heating output</b>	kW	107.2	139.8	175.0	227.0	283.0
<b>Cooling capacity</b>	kW	89.6	116.8	146.0	189.6	235.0
<b>Power consumption</b>	kW	18.66	24.20	30.50	38.90	50.20
<b>COP <math>\epsilon</math> in heating mode</b>		5.74	5.78	5.74	5.84	5.64
<b>Dimensions</b>						
Length	mm	1383	1383	1972	1972	1972
Width	mm	911	911	911	911	911
Handling width	mm	850	850	850	850	850
Height	mm	1650	1650	1650	1650	1650
<b>Weight</b>						
	kg	680	860	1150	1250	1425
<b>Number of compressors</b>						
	pce	2	2	2	2	2

\* In water/water operation with intermediate brine circuit

## Air as heat source: Ideal in dual mode systems or for cooling

When the Vitocal 300-G PRO is used as an air source heat pump, the outdoor air fulfils two tasks: for heating, the heat pump utilises the outdoor air at a temperature of down to 5 °C, managing to cover up to 50 percent of the annual heat load in a particularly efficient way. For cooling demand, on the other hand, the excess heat inside the building is discharged into the outdoor air.

### **Split design comprising a heat pump and a cooler**

Air source heat pumps in the high output range comprise two units: the indoor heat pump and the dry cooler, which is installed outdoors. Both units of this split design are connected by hydraulic lines carrying brine.

A system of this magnitude is operated as part of a dual mode energy system. From a specific outside temperature, a second heat generator assists with or wholly assumes more efficient heat generation. The system is controlled by a common control unit.

### **Heating and cooling with high efficiency**

Air source heat pumps from Viessmann are designed for heating and cooling. In both cases, the highest level of efficiency is guaranteed thanks to variable speed DC fans. The special design of the air heat exchangers, with gaps twice as wide as in conventional chillers, optimises heat transfer. It also lowers the pressure drop of the air stream, ensures a fast defrost process and reduces noise.

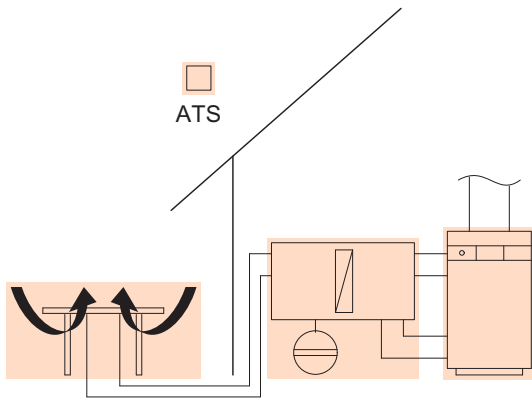


**VITOCAL 300-G PRO**

84.9 to 222.2 kW

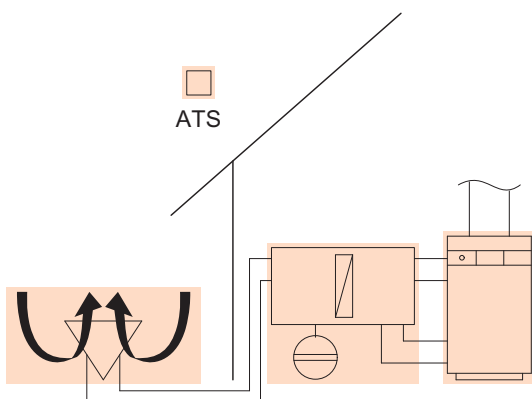
Up to 1111 kW (in a cascade)

## Air/water application

**System components**

- 1 heat pump
- 1 hydraulic module defrost box
- 1 air/brine heat exchanger, standard (table shape)
- 1 heating circuit without mixer
- Up to 4 heating/cooling circuits with mixer

AW package (air/water application)	Type	90 Std	120 Std	140 Std	190 Std
<b>Performance data</b>					
Operation: air/water (A2/W35) heat recovery					
<b>Rated heating output</b>	kW	91.4	116.5	149.4	192.2
<b>Cooling capacity</b>	kW	67.8	86.6	111.2	144.8
<b>Power consumption</b>	kW	27.5	33.7	41.8	51.2
<b>COP ε in heating mode</b>		3.32	3.46	3.58	3.76

**System components**

- 1 heat pump
- 1 hydraulic module defrost box
- 1 air/brine heat exchanger, low-noise (V shape)
- 1 heating circuit without mixer
- Up to 4 heating/cooling circuits with mixer

AW package (air/water application)	Type	90 LN	120 LN	140 LN	190 LN
<b>Performance data</b>					
Operation: air/water (A2/W35) heat recovery					
<b>Rated heating output</b>	kW	91.4	116.5	149.4	192.2
<b>Cooling capacity</b>	kW	67.8	86.6	111.2	144.8
<b>Power consumption</b>	kW	25.3	31.7	40.1	49.5
<b>COP ε in heating mode</b>		3.61	3.67	3.73	3.88



**VITOCAL 350-G PRO**

Two or three-stage  
large heat pump

# Vitocal 350-G PRO brine/water heat pumps with flow temperatures of up to 73 °C

The frame design of the brine/water heat pump makes the powerful and efficient Vitocal 350-G PRO easier to handle and install. The sound-insulated casing (supplied separately) offers a snug fit and reduces the transport weight by around 200 kilograms. The unit is ideal for modernising heating systems with high flow temperatures.

## Hygienic DHW heating

With high flow temperatures of up to 73 °C, the Vitocal 350-G Pro series meets the requirements for hygienic DHW heating. The special temperature maintaining facility guarantees hot inlet temperatures at all times, even during the loading cycle.

## Reliable technology and straightforward operation

Depending on the output, two or three compressors are integrated into the refrigerant circuit by way of a compound connection. This guarantees high levels of efficiency, even in partial load operation.

The utmost reliability is achieved through the use of electronic injection valves, which are self-closing at zero volt to ensure maximum safety if there is a power failure, for example. Additionally, the hermetically sealed design with fewer threaded connections, and the absence of safety valves in the refrigerant circuit, guarantee leakproofing and a long service life.

For optimum control of the system and refrigerant circuit, the Vitocal 350-G Pro features a PLC-based Vitotronic control unit. The large graphic touchscreen enables

intuitive operation. Its full colour mode highlights the different way that functions and operation are displayed.

## Remote monitoring and communication

The control unit recognises numerous data communication options. From a simple analogue modem to a LAN-based system: Modbus technology and BACnet (both optional) can be used to enable the system to be accessed via the internet for remote maintenance and communication purposes.

## Appliance design optimised for quiet operation

As is the case for all heat pumps, the compressors generate noise in the 50 to 60 Hertz range. Due to the very high quality construction of the appliance frame and sound insulation, it has been possible to compensate for noise within the casing.

Vibrations on the base support are barely perceptible, as the 3D anti-vibration design is specifically constructed to dissipate vibrations. The sound power level of 65 dB(A) for the 197 kilowatt heat pump is very good for this market segment.

## Optional factory-fitted equipment

The electrical equipment is already fully integrated inside the heat pump. The contactors for the circulation pumps are prefitted and easily accessible. In addition, the heat pump offers a wide range of control extensions, which are directly integrated at the factory.



Vitocal 350-G PRO brine/water heat pump with a rated heating output of 27.2 to 197 kW

**VITOCAL 350-G PRO**

- 1** Vitotronic 200 PLC control unit (type 2.0)
- 2** Condenser/evaporator
- 3** Compressor
- 4** Highly attenuating sound insulation



Large colour touchscreen for the Vitotronic SPS 2.0 control unit, with clear display

**TAKE ADVANTAGE OF THESE BENEFITS**

- + Brine/water heat pump, two or three-stage
- + Rated heating output: 27.3 to 197.9 kW (B0/W35)
- + High flow temperatures: up to 73 °C
- + Low running costs thanks to high COP to EN 14511 of up to 4.4 (brine 0 °C/water 35 °C)
- + Viable under partial load conditions due to the use of two or three compressors with an equal rating
- + Low noise and low vibrations through sound-optimised appliance design
- + Intuitive operation of the control unit via touchscreen with schematics
- + Electronic soft starter for lower starting current and less power drawn from the mains
- + Classic heating/cooling function with heating water/coolant buffer cylinder
- + PLC-based Vitotronic control unit with Modbus and BACnet communication interface (optional)

## Vitocal 350-G PRO specification

Vitocal 350-G PRO	Type	BW 352.B027	BW 352.B034	BW 352.B056	BW 352.B076	BW 352.B097
<b>Performance data</b> (to EN 14511, B0/W35, 5 K spread)						
<b>Rated heating output</b>	kW	27.3	33.6	57.1	76.2	93.5
<b>Cooling capacity</b>	kW	21.0	26.5	45.0	54.5	70.4
<b>Power consumption</b>	kW	6.83	8.40	13.50	19.00	23.36
<b>COP <math>\epsilon</math> in heating mode</b>		4.0	4.0	4.2	4.0	4.1
<b>Dimensions</b>						
Length	mm	1848	1848	1848	2153	2153
Width	mm	811	811	811	911	911
Handling width	mm	750	750	750	850	850
Height	mm	1450	1450	1450	1650	1650
<b>Weight</b>	kg	555	672	723	963	1065
<b>Number of compressors</b>	pce	2	2	2	2	2
<b>Energy efficiency class LT/HT**</b>		A+ / A+	A+ / A+	A+ / A+	-	-
<b>Vitocal 350-G PRO</b>						
Type	BW 352.B114	BW 352.B132	BW 352.B156	BW 353.B172	BW 353.B198	
<b>Performance data</b> (to EN 14511, B0/W35, 5 K spread)						
<b>Rated heating output</b>	kW	114.3	131.8	156.0	171.6	197.9
<b>Cooling capacity</b>	kW	81.0	96.0	106.2	125.0	143.0
<b>Power consumption</b>	kW	27.20	32.90	40.50	41.50	49.00
<b>COP <math>\epsilon</math> in heating mode</b>		4.2	4.0	3.9	4.1	4.0
<b>Dimensions</b>						
Length	mm	2153	2153	2153	2816	2816
Width	mm	911	911	911	911	911
Handling width	mm	850	850	850	850	850
Height	mm	1650	1650	1650	1650	1650
<b>Weight</b>	kg	1113	1209	1260	1604	1678
<b>Number of compressors</b>	pce	2	2	2	3	3

Types BW 352.A027SA to BW353.A198SA come fitted as standard with electronic soft starters with integral rotary field monitoring

\* In water/water operation with intermediate brine circuit

\*\* LT at B0/W35; HT at B0/W55

## Vitocal 350-G PRO brine/water heat pumps with compact rotary screw compressor up to 600 kW (on request)



Vitocal 350-G PRO  
Type BW 351.B600

**VITOCAL 350-HT PRO**

High temperature  
heat pump for utilisation  
of waste heat in  
renewable heat for  
the commercial sector

# Vitocal 350-HT PRO brine/water heat pumps with flow temperatures of up to 90 °C

The use of renewable heat in commercial applications is determined by the need for high flow temperatures.

## Heat pump with flow temperatures up to 90 °C

As a heat pump from standard production, the Vitocal 350-HT PRO high temperature heat pump delivers flow temperatures up to 90 °C and utilises heat source temperatures up to 45 °C. This makes it particularly suitable for the utilisation of waste heat and for the generation of high temperatures for industrial and commercial processes, or for older district heating networks.



Easy to operate PLC control unit with colour touchscreen

## Remote monitoring and communication

In addition, the control unit features many communication options. LAN-supported systems as well as Modbus and BACnet interfaces can be used. These make the system accessible for remote monitoring and integration into building management systems.

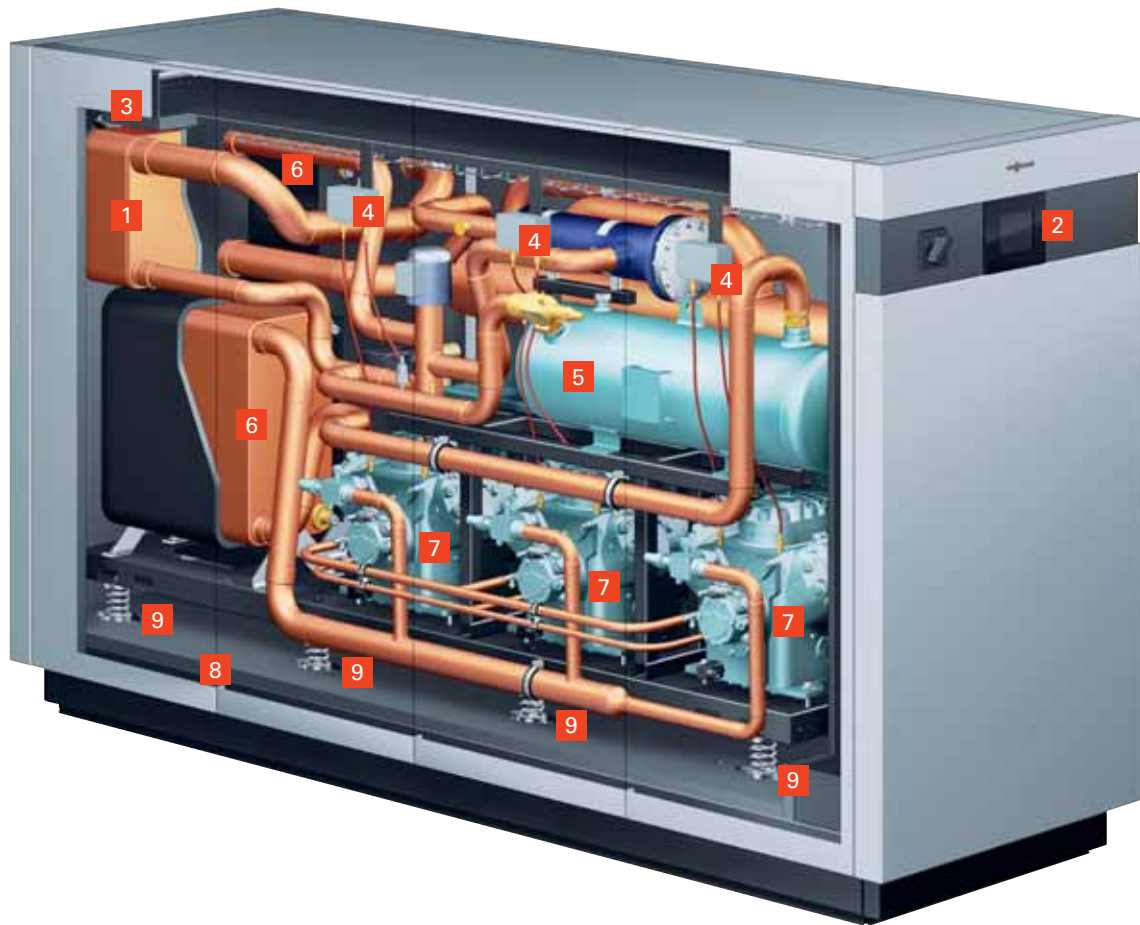
The 5.7 inch colour touchscreen offers intuitive operation and easy control.



Vitocal 350-HT PRO  
Rated heating output: 56.6 to 144.9 kW

## TAKE ADVANTAGE OF THESE BENEFITS

- + High temperature heat pump for utilisation of waste heat in renewable heat for the commercial sector
- + Brine/water rated heating output: 56.6 to 144.9 kW (B0/W35)  
Water/water rated heating output: 133.3 to 351.5 kW (W45/W90)
- + COP at B0/W35: up to 4.3 and COP at W50/W90: up to 3.4
- + Maximum flow temperature: 90 °C
- + High permissible primary source temperature up to 45 °C: optimum utilisation of waste heat
- + Sound power level: < 66 dB(A)
- + PLC control unit, intuitive operation via colour touchscreen
- + 10 bar pressure stage for industrial applications
- + Menu-guided assistant for straightforward commissioning
- + Factory tests at operating temperature including function and output
- + Automatic leakage monitoring for lower service costs
- + Low running costs with the highest level of efficiency at every operating point through the innovative RCD (refrigerant cycle diagnostic) system with electronic expansion valve (EEV)

**VITOCAL 350-HT PRO**

- 1 COP boosted by internal heat exchanger
- 2 PLC control unit with colour touchscreen
- 3 Circulator
- 4 Pressure monitoring
- 5 Refrigerant receiver for large temperature application range
- 6 Condenser/evaporator
- 7 Piston compressor
- 8 Highly attenuating sound insulation
- 9 Anti-vibration mounts



# Vitocal 350-HT PRO specification

<b>Vitocal 350-HT PRO</b>	Type	BW 352.AHT058	BW 352.AHT071	BW 352.AHT084	BW 352.AHT096	BW 352.AHT119
<b>Number of compressors</b>		2	2	2	2	2
<b>Compressor type</b>		Piston	Piston	Piston	Piston	Piston
<b>Performance data</b> (to EN 14511, B0/W35, 5 K spread)						
<b>Rated heating output</b>	kW	56.6	72.4	83.2	96.6	116.8
<b>Cooling capacity</b>	kW	43.4	55.4	63.6	73.4	88.4
<b>Power consumption</b>	kW	13.2	17.0	19.6	23.2	28.4
<b>COP <math>\epsilon</math> in heating mode</b>		4.3	4.3	4.2	4.2	4.1
<b>Performance data</b> (to EN 14511, W45/W90, 10 K spread)						
<b>Rated heating output</b>	kW	133.3	174.7	202.2	234.4	262.8
<b>Cooling capacity</b>	kW	92.1	120.9	138.4	160.0	180.0
<b>Power consumption</b>	kW	41.2	53.8	63.8	74.4	82.8
<b>COP <math>\epsilon</math> in heating mode</b>		3.2	3.2	3.2	3.2	3.2
<b>Dimensions</b>						
Length	mm	2153	2153	2153	2153	2153
Width	mm	911	911	911	911	911
Handling width	mm	850	850	850	850	850
Height	mm	1650	1650	1650	1650	1650
<b>Weight</b>	kg	1077	1195	1251	1357	1426

<b>Vitocal 350-HT PRO</b>	Type	BW 353.AHT126	BW 353.AHT147
<b>Number of compressors</b>		3	3
<b>Compressor type</b>		Piston	Piston
<b>Performance data</b> (to EN 14511, B0/W35, 5 K spread)			
<b>Rated heating output</b>	kW	124.8	144.9
<b>Cooling capacity</b>	kW	95.4	110.1
<b>Power consumption</b>	kW	29.4	34.8
<b>COP <math>\epsilon</math> in heating mode</b>		4.2	4.2
<b>Performance data</b> (to EN 14511, W45/W90, 10 K spread)			
<b>Rated heating output</b>	kW	303.3	351.5
<b>Cooling capacity</b>	kW	207.6	239.9
<b>Power consumption</b>	kW	95.7	111.6
<b>COP <math>\epsilon</math> in heating mode</b>		3.2	3.2
<b>Dimensions</b>			
Length	mm	2816	2816
Width	mm	911	911
Height	mm	1650	1650
<b>Weight</b>	kg	1779	1865

## Engineering, service and monitoring

Following installation of a large heat pump, Viessmann engineers or authorised service contractors commission the system, check its performance and reliability, document all the work carried out, and instruct the future operators.

As the only heat pump manufacturer with full in-house manufacturing, Viessmann guarantees optimum interaction of components and assemblies.

### **Service round the clock**

Large heat pumps can be monitored on a contractual basis from the Viessmann control centre. Data communication and remote maintenance are used to detect irregularities early during operation and enable appropriate steps to rectify them to be initiated.

These services are particularly appropriate for large residential complexes, commercial and industrial buildings, restaurants, hotels, and communal facilities such as schools and swimming pools, etc. This, of course, also includes dual mode systems, such as a combination of heat pump and oil/gas boiler to cover peak loads.

The results for the user are a high level of serviceability, top quality and maximum flexibility. Additional building technology can be integrated, providing the perfect finishing touches to the range of services on offer.



Internet data communication enables an energy centre to be monitored at any time, and parameters to be adjusted for efficient operation.

# Using waste water and waste heat from production processes as heat sources

Waste water and waste heat contain a considerable amount of latent energy, which is still too rarely utilised. The fuel to generate this heat has already been paid for. Using a large Viessmann heat pump enables this heat to be utilised efficiently.

## DHW heating in hotels

Waste water from hotels and leisure complexes is usually at a residual temperature of 25 to 35 °C. However, a large amount of fresh hot water is also required for showers and spas. Before the warm waste water reaches the sewer system, a heat pump extracts the residual heat latent in the water and compresses it to a flow temperature of 60 °C or above.

## Utilising waste heat for heating

Heating doesn't always come first. In many sectors of industry, process water has to be cooled, for which cooling towers are often used. However, a heat pump is generally a more efficient and economical solution, especially when the heat extracted from this process can be re-used elsewhere.

For both application areas, Viessmann develops and builds large heat pumps, which have been used successfully in many energy systems for a number of years.



In the 5 star Ritz Carlton Hotel in St Moritz, heat is recovered from waste water.



This waste water shaft is used as a primary source for DHW heating.



This waste water heat pump with 150 kW output is used for DHW heating.

## Groundwater and surface water: heat sources for high efficiency

For heat pumps, groundwater in a temperature range of 8 to 12 °C is a very rich heat source, as the temperature level is high all year round.

### Energy from water at 4 °C

With brine/water heat pumps and using an intermediate brine circuit, heat can still be generated down to a minimum water temperature of 4 °C. Viessmann must be consulted before using water directly in the primary circuit of a brine/water heat pump.



### Heat from groundwater

#### Mammut, Memmingen

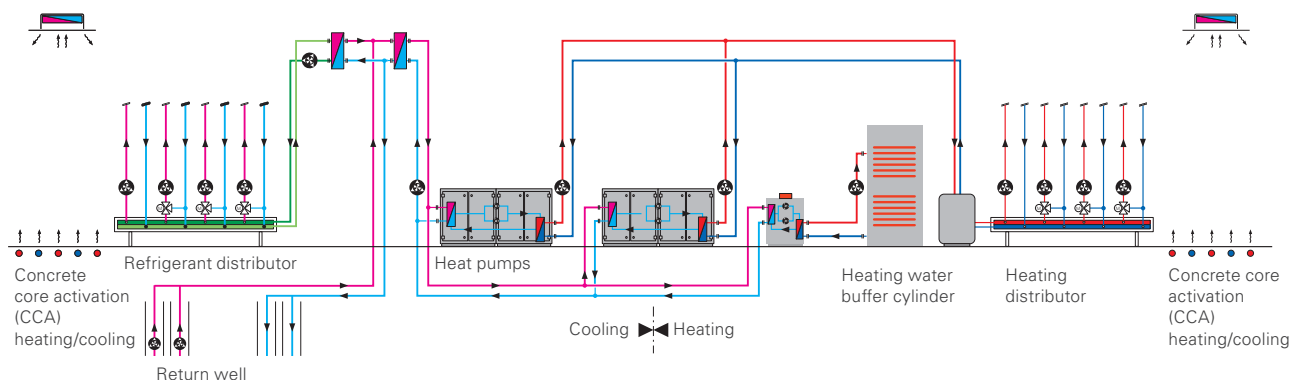
Two brine/water heat pumps draw heat from groundwater through wells that are up to 60 metres deep.

- Heat pumps from series production
- Total heating output: 450 kW
- Flow temperature: 50 °C
- No. of heat pumps: 3
- Total heating output installed: 1060 kW



Vitocal 300-G PRO (right) and Vitocal 300-G (left) heat pumps

### Schematic diagram



## Heat from waste heat

### Erfstverband, Bergheim

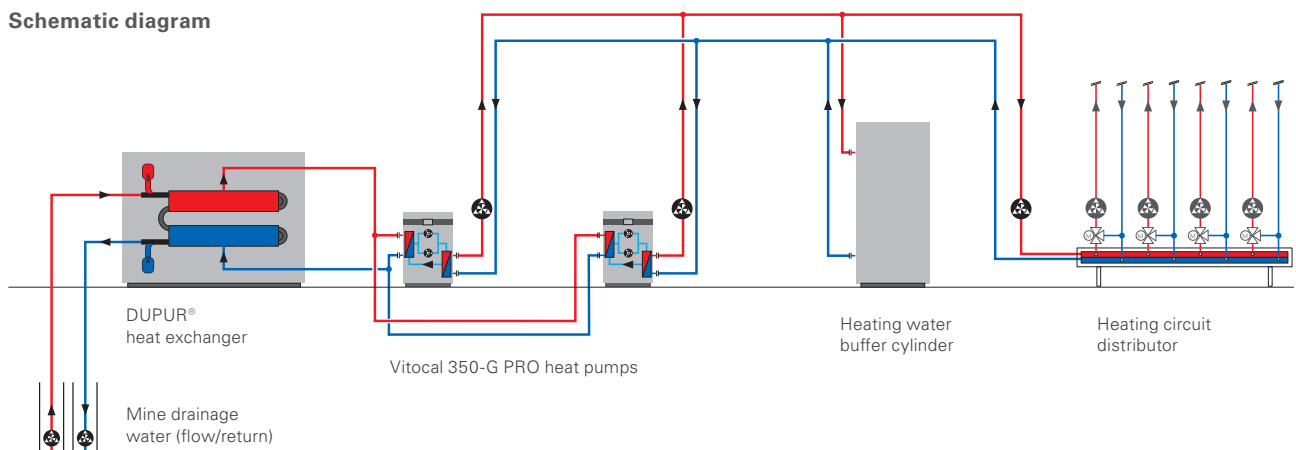
Groundwater must be pumped from depths as low as 500 metres to keep the mine dry. The water at around 26 °C serves as the primary energy source.

- Free heat from mine drainage water
- Self-cleaning heat exchanger system
- High energy savings
- No. of heat pumps: 2
- Total heating output installed: 620 kW



Vitocal 350-G PRO heat pumps with a total output of 620 kW

### Schematic diagram





Viessmann One Base networks digital services with complete energy systems, including heat pumps, ventilation systems, power storage units and photovoltaic systems.

**VISSMANN  
ONE BASE**

<b>Value added services</b>	Wärme Leads ViShare* Service Plus Strom Logistik Plus FörderProfi ...
<b>Digital services</b>	ViCare ViGuide ViScada ...
<b>Connectivity &amp; platforms</b>	Connectivity Inside Energy Management Inside Vitoconnect Vitocontrol @wbutler GridBox ...
<b>Products &amp; systems</b>	

Seamless integration of products and systems with digital services and value added services for system users and trade partners

\* The operator and contractual partner of the ViShare Energy Community is Energy Market Solutions GmbH (EMS), a subsidiary of the Viessmann Group.

We are Viessmann, a family business. Founded in 1917 as a heating technology manufacturer, today we are the world's leading provider of sustainable climate (heating, cooling and air quality) and renewable energy solutions.

Our integrated range of solutions seamlessly connects products and systems via digital platforms and services, creating an individualised feel-good climate for our users. All our activities are driven by the corporate mission statement: "We create living spaces for generations to come." This is the responsibility that we, the 13,000 members of the Viessmann family, take on every day together with our (trade) partners.



**We create living spaces  
for generations to come.**



Number 1 Trade Partner – for the 16th consecutive time

**Practical partnership**

As part of its comprehensive range, Viessmann also offers a wide selection of value added services. These include an extensive training and further development programme for trade partners at the well equipped training facilities of the Viessmann Academy.

With its new digital services, Viessmann offers innovative solutions such as the operation and monitoring of heating systems by smartphone. Users benefit from greater reassurance and convenience, whilst contractors can keep a constant eye on the systems for which they are responsible.



As a family company in its fourth generation, we take a long term view: we create living spaces for generations to come. This mission statement guides the actions of all employees in the large Viessmann family.

#### VISSMANN GROUP IN FIGURES

1917	— Viessmann was founded
13 000	— employees
3.4	— Group turnover in billions of euros
54	— export share in percent
22	— manufacturing sites in 12 countries
74	— sales companies in 43 countries
120	— sales offices worldwide



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**Your trade partner**

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