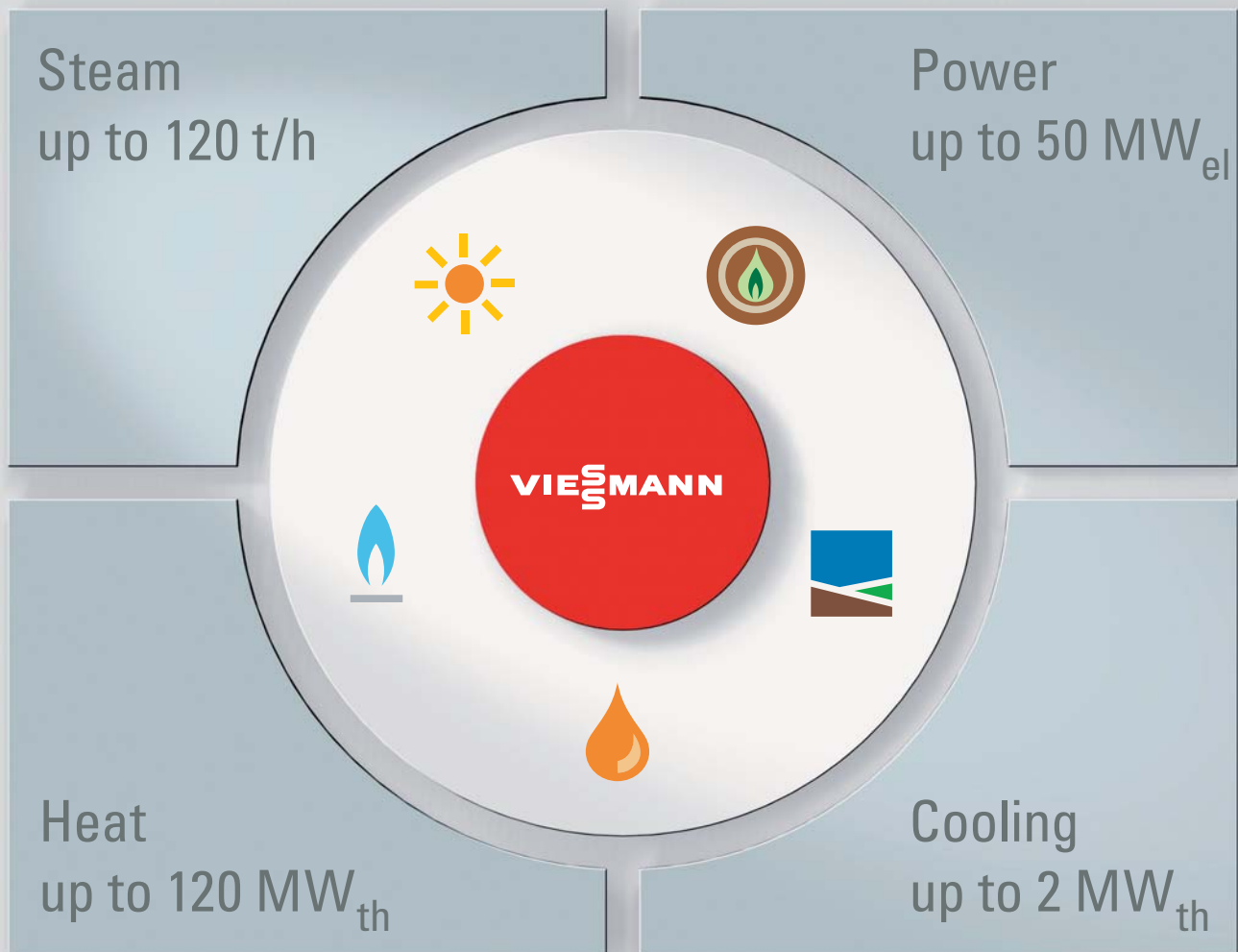


References



Heating systems
Industrial systems ◀
Refrigeration systems



In the four energy areas of steam, power, heating and cooling, Viessmann offers a comprehensive range of products and services for industry, commerce and local authorities.

Solutions for generating energy for industry, commerce and local authorities

Applications that are highly energy intensive require innovative solutions. Economic studies indicate substantial energy saving potentials both for new installations as well as for modernisation projects in the heating and process heat sectors, which up until now have hardly been tapped.

Viessmann's highly efficient systems achieve even greater savings the higher the energy demand, in other words, in commercial and industrial operations, as well as in office blocks, hotels, clinics and schools.

Even in the short term, the significant efficiency differentials between the older and the new system will achieve remarkable savings in terms of energy consumption and costs. Payback periods are similarly short.

Viessmann offers industry, commerce and local authorities perfectly matching system solutions: Regenerative energy systems that cover the base load and which are combined with peak load boilers that operate with fossil fuels. So as to ensure everything works together perfectly to achieve maximum efficiency, all system components are assembled according to individual requirements.

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Steam up to 120 t/h



Fresh steam plant for Sembcorp
Utilities, Wilton International, Teeside,
Middlesbrough, Great Britain



Four double flame tube boilers for supplying an industrial estate with steam

The international energy group, Sembcorp Utilities, safeguards a steam output of up to 120 t/h for several chemical companies on an industrial estate in Wilton on the east coast of England.

For this, four Viessmann Vitomax D HS double flame tube boilers, each with a steam output of 30 t/h, were installed.

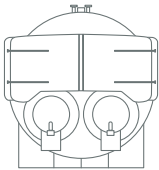
Subject to design, these boilers deliver saturated or hot steam at a rate of 12 to 58 t/h, as well as warm or hot water from 10 to 38 MW. For even greater efficiency, an economiser can be installed downstream of the boiler, as an option. This utilises the waste heat to heat the feed or return water, thereby reducing energy bills.

Expansion of green energy generation

Sembcorp customers are mainly to be found in the chemical and petro-chemical industry; some are also active in the biofuel and recycling industries. Sembcorp takes account of this wide range of applications by focusing its services on energy utilisation from renewable resources.

Plant overview

Boiler type	Vitomax D HS
Fuel type	Natural gas
Steam output	4 x 30 t/h
Fresh steam temperature	300 °C
Operating pressure	17 bar
Feedwater temperature	105 °C
Boiler efficiency	91 % (without economiser)



Vitomax D HS
Double flame
tube boiler

Shipment by sea

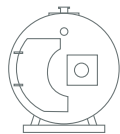
"The plant was completed on time. The location of the site near a harbour made shipping by sea viable. Numerous boiler components were already factory-fitted, and their perfect function had been tested by the manufacturer. Our customers now have a powerful energy system that can cover

additional load peaks when necessary. For this purpose, a reserve capacity of 60 t/h was provided that acts as redundant capacity for service periods. This guarantees 100 percent of the energy provision of the linked enterprises at all times."

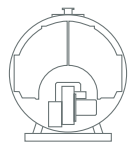


Elton Willis,
Chief Engineer

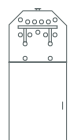
Steam up to 120 t/h



Vitomax 200-HS
Steam boiler



Vitomax 200-LW
Hot water boiler



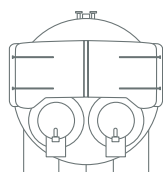
Vitoflex 300-FSR
Biomass boiler



The Schwarzwald-Baar clinic, Villingen-Schwenningen, Germany

Two Vitoflex 300-FSR biomass boilers separately generate energy for domestic hot water, heating and pasteurisation in the new Schwarzwald-Baar clinic. Both are equipped with hydraulically operated flat moving grates (FSR). Two Vitomax 200-LW hot water

boilers, and one Vitomax 200-HS steam boiler with gas burners, cover peak loads and offer redundancy. Subject to outside temperature, flow temperatures reach between 75 °C and 85 °C.



Vitomax D HS
Double flame
tube boiler



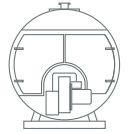
Shipping a double flame tube boiler for Iggesund Paperboard SA, Workington, Great Britain

Two of the world's largest double flame tube boilers are used in a paper mill in Great Britain. The Vitomax D HS boilers deliver up to 115 tonnes of steam per hour. The burner output per flame tube is around 19 MW. This results in a total output of 76 MW under full load conditions – sufficient to produce 200,000 tonnes of chromo board per annum.

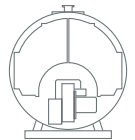




Vitomax steam and hot water boilers in the heating centre of the hotel



Vitomax 200-HS
Steam boiler



Vitomax 200-LW
Hot water boiler

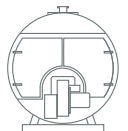


Kempinski-Hotel, Yinchuan, China

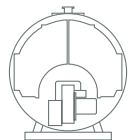
The Kempinski Hotel, the first five star hotel in the major Chinese city of Yinchuan, opened in 2010. This impressive building is heated by five Vitomax 200-LW, each delivering 2.6 MW. Two further Vitomax 200-HS boilers deliver process steam, each at a rate of up to 2.9 t/h, required primarily in the kitchen and the laundry.



Dacia factory, Pitesti, Romania



Vitomax 200-HS
Steam boiler



Vitomax 200-HW
Hot water boiler

The largest heating system in the country was installed in the factory of the Romanian car manufacturer, Dacia, in 2007. It delivers 70 MW of output. Two Vitomax 200-HS steam boilers generate steam for the paintshop. Meanwhile, two Vitomax 200-HW

hot water boilers supply heat for central heating and DHW for the site's 50 buildings. This efficient energy system cut energy consumption by 17 percent compared to the previous system and reduced CO₂ emissions by 20,000 tonnes a year.

Steam up to 120 t/h

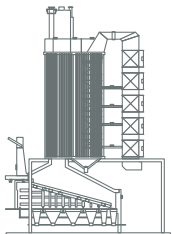


Crimean Soda Plant, Crimea



In May 2014, a powerful waste heat boiler started operation at the Crimean Soda Plant on the Crimean peninsula. The boiler, built by Viessmann in the Netherlands, delivers around 21 tonnes of steam per hour with a

permissible operating pressure of 45 bar. Hot waste gases from a 14.4 MW turbine used by Crimean soda to cover around 90 percent of its power demand, are used as energy source.



Biomass plant



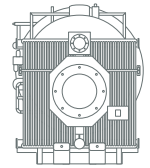
HKB biomass plant AVR, Duiven, Netherlands

"Cradle to Cradle" is a process where the material used for production is recovered at the end of its useful life in order to produce new products of higher quality. The Dutch manufacturer, AVR, specialises in this process. In its plant at Duiven, paper sludge from the recycling process is combusted. The resulting flue gas, including ash, is channelled

through the boiler and subsequently filtered. The material derived from this process is finally used in road building. The biomass plant is 40 metres high and was installed inside a 60 m high building.



Water tube/shell boiler Purac, Rayong, Thailand



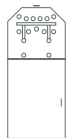
Combined water tube
and shell boiler

The Dutch manufacturer, Purac, is a producer of ingredients for the food processing industry with a worldwide reputation. Lactic acid is produced at Rayong, Thailand, which requires a temperature of 200 °C. Viessmann makes

boiler plants suitable for this process. To expand production in Rayong, a further boiler with a steam output of 25 t/h was installed in 2011.



Müritz Milch Waren, Germany



Vitoflex 300-FSR
Wood boiler

Vast amounts of steam are required for a germ-free production environment at Müritz Milch in Waren (Mecklenburg). For this purpose, a saturated steam plant employing a Vitoflex 300-FSR biomass boiler with 2600 kW output was installed in 2010. It delivers 4 t/h and covers approximately 80 percent of the required amount of steam. An economiser installed downstream raises the return temperature and so makes its contribution towards lower fuel consumption. Compared to the previous plant that operated with fuel oil, this large scale dairy was able to reduce its energy bill significantly after installing the biomass heating centre.



The heating centre with multi-cyclone
and integral electrostatic filter (l.h.),
the woodchip store is in the foreground

Power up to 50 MW



Head office of the Deutschen
Gesetzlichen Unfallversicherung
(DGUV) in St. Augustin



CHP units for the supply of power and air conditioning in office complexes

The energy centre at the Deutschen Gesetzlichen Unfallversicherung (DGUV) in St. Augustin near Bonn was hopelessly out of date. It still generated heat using six hot water boilers that were installed in the early 1980s. The refrigeration plants that provided the air conditioning and cooling of the IT centre consumed way more energy than the current average.

Combined heat and power pays for itself

Following initial calculations for a replacement of the energy equipment for the 160 m² large computer centre, it soon became apparent that the deployment of a CHP unit would, in many ways, pay for itself.

The simultaneous generation of heat and power by means of a CHP unit also offered the opportunity of securing the power required to run the IT centre.

From partial to total solution

These benefits made a persuasive case for expanding plans to cover the provision of the entire DGUV, which has a floor area of 80,000 m². With an annual operating time in excess of 7000 hours, the CHP unit is highly economical, and it offers rapid amortisation as a result of savings in bills for fossil fuel and electricity.

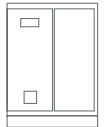
It was finally decided to build a new office and technology block. The energy centre, including five Vitobloc 200 CHP units, was accommodated in the basement. The generated power is used in the building itself.

The heat generated by the CHP plant is mainly used for operating absorption refrigeration units and for heating the building. When required, the Vitoplex 300 low temperature oil boiler supplies additional heat.

Overall control of the multi mode plant is exercised by the Vitocontrol 300-M supplied by Viessmann.

Plant overview

CHP unit	5 x Vitobloc 200 EM 238 kW _{el} /363 kW _{th}
Low temperature oil boiler	Vitoplex 300, 1250 kW
Fuel type	Natural gas, oil



Vitobloc 200
CHP unit



Vitoplex 300
Low temperature boiler

Positive result for the operators thanks to the combined heat and power installation

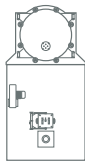
"Our viability study made the key difference for this client, helping them to decide in favour of replacing both old heating centres with six boilers and the old cooling centre with three refrigeration units, all in a new energy centre based on trigeneration, i.e. combined heat, power and refrigeration. Positive for the

environment, as CO₂ reductions of almost 5000 tonnes were achieved. The operator benefits from a full maintenance contract and a rapid payback time of only ten years, since the power generated by the CHP units significantly reduced operating costs, i.e. compared to conventional technology by substantially more than €100,000 per annum."



Walter Ploenes,
Design engineers
Josef Niehsen

Power up to 50 MW



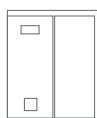
Biomass boiler
Vitoflex 300-FSR



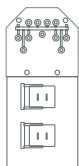
Wood combined heat and power station in
Hövelhof, Germany

Formaplan in Hövelhof built a reputation as supplier to the furniture trade. Every day up to 40,000 components come off their assembly line. Chipboard cut-offs from production are combusted in a Vitoflex 300-FSR biomass boiler which is part of their own combined heat and power station. The heat generated by this process is transferred to a sealed OCR

module where evaporating silicon oil drives a turbine. The production facilities continuously make use of waste heat and power from the plant. Emissions are very low compared to statutory limits (in brackets): max. 75 mg (150) CO₂, 10 mg (20) dust, 300 mg (400) NO_x.



Vitobloc 200
CHP unit



Vitoflex 300-FSB
Biomass boiler



Vitobloc 200 CHP unit, local heating network, Memmingen, Germany

The Memmingen combined heat and power station ensures the provision of heat for three companies in an industrial estate by means of a local heating network. The total output of 8500 kW is partially generated by a Vitoflex 200 wood combustion system with 3300 kW and a Vitobloc 200 CHP unit with 200 kW_{th}. The power generated by the CHP unit of 140 kW_{el} is partially used to cover the demand of the combined heat and power

station itself. Waste heat from the engine is fed into the local heating network. The use of an economiser (exhaust gas heat exchanger) with 260 kW output helps to achieve a boiler efficiency in excess of 90 percent. A local company supplies woodchips for the wood combustion system sourced in the region. Here, in excess of 80 percent of the energy demand is covered by wood fuel.

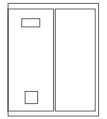


The Schwarzwald Badeparadies spa and waterpark complex, Titisee-Neustadt, Germany

The heat demand of 13,000 MW is covered all year round by a Vitobloc 200 CHP unit and, during the colder seasons, by an additional Vitoflex 300-SRT biomass boiler. At around 8000 hours operation per annum, the CHP unit primarily generates power that is used in the leisure park itself. The heat being generated simultaneously is used for central heating and DHW heating. In summer these processes are covered by up to 90 percent.



Vitobloc 200 CHP unit and
Vitoplex 300 low temperature boiler



Vitobloc 200
CHP unit



Vitoflex 300-SRT
Biomass boiler

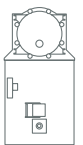


Vitoplex 300
Low temperature boiler



Karl Pedross AG, Latsch, South Tyrol (Italy)

In Latsch, South Tyrol, Karl Pedross AG produces skirting boards, profiles and flooring accessories. Environmental protection and sustainability are held high amongst the company principles. It is for that reason that wood remnants from production are used to supply the facility with heat and power. For this, a combustion system suitable for the combustion of dry fuel with the consistency



Vitoflex 350-VFE
Biomass boiler

of dust was required. The Vitoflex 350-VFE biomass boiler, with a heating output of 2.9 MW, meets these demands. A direct firing system distributes the fuel evenly across the combustion chamber for maximum burnout, and the full refractory lining results in a stable combustion process that ensures reliable compliance with emission regulations.

Heat up to 120 MW



Brine/water heat pump Vitocal 300-G Pro (r.h.) and Vitocal 300-G (l.h.)



The scroll compressor is the heart of these heat pumps



The new Mammut logistics centre in Memmingen

A perfect match: Top products for extreme sport and environmentally responsible energy

The prominent Mammut logo on the outside of the logistics centre on the motorway near Memmingen can be seen from far and wide. The outdoor equipment specialist relies on top quality that can cope even with the most arduous expeditions, such as those to Mount Everest or to the North Pole.

It is, therefore, quite natural that a company, the customer base of which sees itself as closely linked to nature, should bank on the utilisation of natural and renewable energies when it comes to the selection of an energy system.

European logistics centre

The covered area of the new European logistics centre is the size of one and a half football pitches. From here, up to 100 employees direct the re-supply of flagship stores and other outlets. Offices, showroom and dispatch areas must be supplied with comfortable heating energy and hot water, even if the bulk of the covered area of 150,000 cubic meters is taken up by a fully automated high stack warehouse.

Standard heat pumps

Alois Müller, Memmingen, installed three Viessmann heat pumps with a combined heating output of 450 kW in its heating centre. These units are largely pre-assembled

from standard production and are consequently straightforward to install.

The Vitocal 300-G Pro and Vitocal 300-G brine/water heat pumps draw heat from groundwater through a 60 m deep well and raise its level to a flow temperature level of 50 °C.

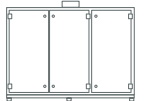
Heat distribution via ceiling and floor

Heat reaches the interior by different routes: The showroom and other operating areas on the ground floor are fitted with underfloor heating. Radiant ceiling panels temper the large picking and dispatch areas. The offices are supplied by a ventilation system installed in the suspended ceiling.

Highly efficient and economical

Large windows in the offices make best use of the solar energy available in winter. In summer, the only power required to provide pleasant cooling of the interior is that needed to run the pumps for circulating cold groundwater.

Energy efficient structural components contribute to the fact that during spring and autumn, only the Vitocal 300-G with 28 kW output is required to supply the office block with heat.



Vitocal 300-G/-W Pro
Brine/water
heat pump



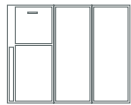
Vitocal 300-G
Single stage brine/water
heat pump

Ernst Schweble, Managing Director

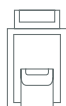
"One of the core claims of our brand is: 'We care' – for society and the preservation of our planet. To this end, we invest in social and ecological projects and manufacture our products with due care for people and the environment. So it is perfectly natural for us to install this environmentally friendly heating system in our new buildings."



Heat up to 120 MW



Large heat pump



Vitoplex 300
Low temperature boiler

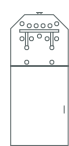


Großgärtnerei Peschl, Pocking, Germany

A large Viessmann heat pump with an output of 1560 kW provides efficient and environmentally responsible ground heating inside the greenhouses and in the loading shed. For this, more than 80 percent of free energy is drawn from the groundwater. A Vitoplex low temperature gas boiler with 1950 kW is available for space heating.



Large heat pump



Vitoflex 300-FSB
Biomass boiler

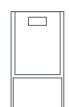


Vitoplex 200
Low temperature boiler



Combined heat and power station for the local heating network in Memmingen

In Memmingen, a local heating network supplies the inner city with heat from a multi mode combined heat and power station which is primarily operated with biomass. The woodchips for the Vitoplex 300-FSB with an output of 900 kW are primarily sourced from forestry owned by the parish itself. Storm damage and waste wood with a moisture content of up to 40 percent (M40) is adequate for this purpose. At full load, the weekly demand is around 170 m³. The fine dust particles in the flue gas are reduced to a minimum by the integral electrostatic filter.



Vitobloc 200
Combined heat and power unit

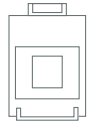


Two Vitoplex 200 low temperature gas boilers, Vitobloc 200 CHP unit and Vitoflex 300-FSB woodchip boiler with an output of 900 kW (l to r)

To cover peak loads, and to create redundancy, two Vitoplex 200 low temperature gas boilers were installed with 1100 and 1600 kW output respectively. A Vitobloc 200 EM-140/207 CHP unit with condensing technology provides an additional heat source, the waste heat of which, generated by a continuous process, is also fed into the local heating network. The generated power is exported to the grid.



Kompetenzzentrum Metall, OBO Bettermann, Menden, Germany



Vitocrossal 300
Gas condensing boiler

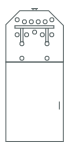


Vitocrossal 300
Gas condensing boiler

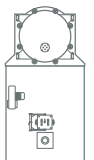
Energy efficiency for the 30,000 m² competence centre of OBO Bettermann in Menden: Three Vitocrossal 300 gas condensing boilers each with 895 kW output provide central heating and DHW heating inside the facility for manufacturing cable trays. Two additional gas condensing boilers provide central heating and DHW for the logistics centre of this electrical equipment manufacturer.



Biomass combined heat and power station at Elektrizitätswerke Frastanz, Austria



Vitoflex 300-FSB
Biomass boiler



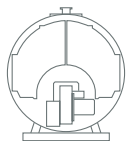
Vitoflex 300-FSR
Biomass boiler

Near the centre of Frastanz, Austria, a biomass combined heat and power station with local heating network was built in 2008/2009. It supplies natural heat derived from woodchips to private, public and commercial buildings all year round. The biomass for this combined heat and power station is sourced from the immediate vicinity of Frastanz. This installation saves around 450,000 l fuel oil per annum.



Two Vitoflex 300-FSB and 300-FSR boilers
with a total output of 1650 kW

Heat up to 120 MW



Vitomax 200-HW
Hot water boiler



Sky Soho, Shanghai, China. The complex, covering some 350,000 m², is heated by six Vitomax boilers with a total output of 24 MW.



On a plot 480 meters long and 250 meters wide, 12 buildings are under construction which are to be linked by 16 bridges.

The Sky Soho is the new Shanghai landmark. Depending on the angle from which it is viewed, the sweeping lines of its dynamic-futuristic architecture brings a canyon to mind. The integrated concept of building envelope and plant technology ensures a low energy demand. Heating is provided by six Vitomax hot water boilers, three delivering 3.5 MW output each, and three delivering 4.5 MW each. These boilers are distinguished by their high efficiency, operational reliability and long service life.



Vitoflex 300-FSR
Biomass boiler



One of the two Vitoflex 300-FSR biomass boilers with a total output of 10 MW



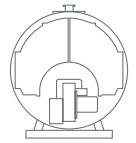
The boiler house at Nolte Küchen, Melle, Germany

The combustion system at Nolte Küchen in Melle, converts various types of fuel such as shavings, wood dust as well as woodchips from chipboard and MDF boards efficiently and cleanly into heat. The Vitoflex 300-FSR

biomass boiler with flat moving grate combustion offers the perfect solution for this. The boiler achieves an output of up to 13 MW and high efficiency levels of up to 92 percent.



Olympic mountain village of Krasnaja Poljana, Russia, Winter Games 2014

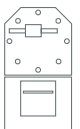


Vitomax 200-HW
Hot water boiler

During the 2014 winter games, Viessmann heating technology provided seven major buildings with pleasant temperatures and domestic hot water: 13 Vitomax industrial/commercial boilers and 300 solar collectors were installed at the airport and main railway station, the Olympic village and the media village, as well as in two hotels and a large laundry.



La Cité Verte Quebec City, Canada



Vitoflex 300-UF
Wood boiler with
underfeed combustion



Vitoflex 300-UF wood boiler with underfeed combustion

The most advanced biomass district heating network in North America supplies an estate of more than 800 residential units with heat and domestic hot water in line with the "Green City" concept.

Cooling capacity
up to 2 MW



A museum and a flagship store were also incorporated on the lower ground floor of the new administrative building of Leica Camera AG in Wetzlar, Germany.



Vitobloc 200 CHP unit with an output of 238 kW_{el} and 363 kW_{th}



Compact Vitobloc 200 CHP unit with an output of 140 kW_{el} and 207 kW_{th}



If required, a Vitocrossal 200 gas condensing boiler cuts in.

Brine/water heat pump for cooling in production processes

Leica Camera AG in Wetzlar moved into their new production and administrative building in 2014, a project totally focused on efficiency. In the generously sized energy centre on the lower ground floor a highly advanced energy system delivers heat and cooling for the entire building complex.

Multi mode technology from Viessmann

Two Vitobloc 200 CHP units with $238 \text{ kW}_{\text{el}}/363 \text{ kW}_{\text{th}}$ and $140 \text{ kW}_{\text{el}}/207 \text{ kW}_{\text{th}}$ respectively, generate the power required on site. The heat generated by the process covers the base demand for central heating as well as the operation of an absorption refrigeration unit.

Absorption refrigeration unit generates cooling from heat

Through the use of an absorption refrigeration unit, cooling can be generated from heat. As a priority, this generates the cold water required for production, utilising the waste heat generated by the CHP unit.

Large heat pump for cooling in production processes

Alongside the generation of heat, a reliable provision of cooling plays a major role. For this purpose, a large brine/water heat pump made by Viessmann was installed. In summer, the heat pump regularly supplements the operation of the absorption refrigeration unit

with a cooling capacity of around 480 kW.

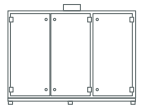
For heating purposes, the heat pump draws its energy from the sprinkler tank which acts as a heat sink for production machinery. Additional heat from the environment is supplied by 80 ground probes that were set 120 meters deep into the ground. Two air cooled refrigeration units cover peak loads at times of high cooling demand.

CHP unit in mains substitution mode

Should the power fail, the CHP units will take over the power supply, thereby safeguarding continued production.

Plant overview

Heat pump type	Brine/water
CHP units	2x Vitobloc 200 EM-238/363, EM-140/207
Peak load boiler	Vitocrossal 200
Absorption refrigeration unit	
total cooling capacity	approx. 1.65 MW
Total heating output	approx. 1.49 MW
Energy types	Natural gas, electricity



Large brine/water
heat pump



Vitobloc 200
Combined heat
and power unit



Vitocrossal 200
Gas condensing boiler



Brine/water heat pump, with 448 kW
heating output and 348 kW cooling capacity



Dry cooler for the heat pump on the roof of the
building

Cooling capacity up to 2 MW



Large heat pump



Steca Elektronik GmbH, Memmingen, Germany

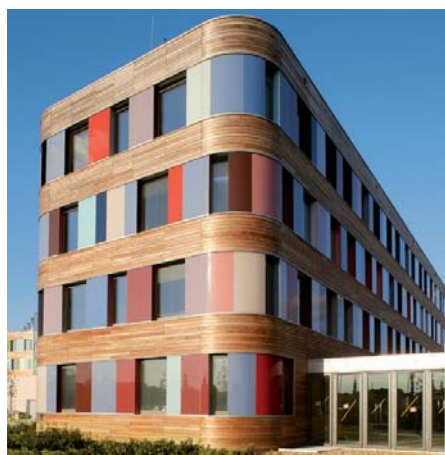
The move away from fossil fuels towards environmentally responsible heat pumps is in line with the Steca claim – "Service provider of products for an ecological future". It therefore follows that the company invested in two Vitocal 350-G Pro heat pumps. These provide background heating for the R&D department, laboratories, the administration section and production facility, all year round at a pleasant temperature of 21 °C. The total heating output for this amounts to 484 kW, the cooling capacity racks up 384 kW.



Vitocal 350-G brine/water heat pumps



Vitosol 200-T
Vacuum tube
collector



Umweltbundesamt Dessau, Germany

An adsorption refrigeration system that generates cooling from heat was installed at the Umweltbundesamt (Federal Environment Agency) in Dessau to condition the interior. Highly efficient Vitosol 200-T vacuum tube collectors deliver the heat required for this process. A total of 115 collectors with an absorber area of 3 m² each are mounted on the flat roof.

A special feature of this process is that the collectors provide most heat in high summer when lots of energy is required for cooling. The Fraunhofer Institut für solare Energiesysteme has identified the 100 days of the year with most insolation, enabling the refrigeration unit to run at full load during those times.

The solar thermal system should deliver a heat yield of 400 kW/m² per year. Excess heat during spring and autumn that is not required for cooling, can be fed into the heating system.



Vitosol 200-T tube collectors



Lotte World Tower, Seoul, South Korea

The 555 m high Lotte World Tower in the South Korean capital Seoul is a skyscraper that defines superlatives. When completed later this year, the tower will accommodate residential and commercial areas, as well as a hotel, on its 129 floors.



One of the twelve large Viessmann heat pumps installed at the Lotte World Tower.

Twelve large Viessmann heat pumps provide the building's heating and air conditioning. Six brine/water heat pumps, each with 1.7 MW heating output and 1.9 MW cooling capacity, will be supplied by 720 geothermal probes. Six additional water/water heat pumps will each deliver 2 MW heating output and 1.7 MW cooling capacity. The total installed heating output runs to 22.2 MW, the cooling capacity to 20.4 MW. The heating centre of this plant covers approximate 8000 m².

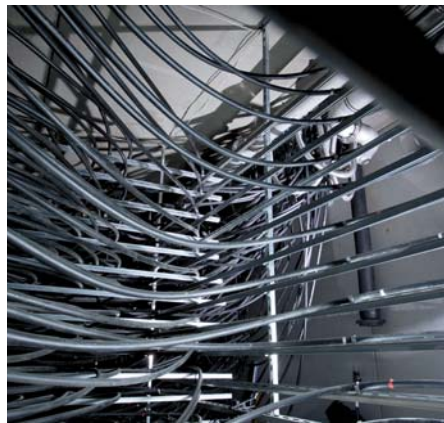


Large heat pump



Ecolab, Monheim, Germany

Compared to a conventional system, an ice store can reduce energy bills by more than 50 percent. At the Ecolab in Monheim, the system with 1.8 million litres capacity is installed under the car park and, in conjunction with two brine/water heat pumps, provides the central heating and air conditioning of the building that accommodates 900 employees. Of its type, this is the largest plant in the world. This is how it works: Energy generated when water freezes is utilised for heating by means of a heat pump. In addition, the heat pump "taps" into further sources of renewable



Ice store with 1800 m³ capacity



Large heat pump



Ice store



Heat pumps utilise the energy of the ice store.

energy: solar and air via rooftop collectors and natural geothermal heat in the immediate vicinity of the subterranean ice store.



Viessmann is represented by sales
offices and agents in 74 countries.

Always nearby

Proximity to customers and rapid availability are important criteria for the design and implementation of energy systems for industry and commerce. Viessmann is represented by sales offices and agents in 74 countries. These ensure that every energy system is tailored specifically to individual requirements. This includes ongoing support after successful commissioning.

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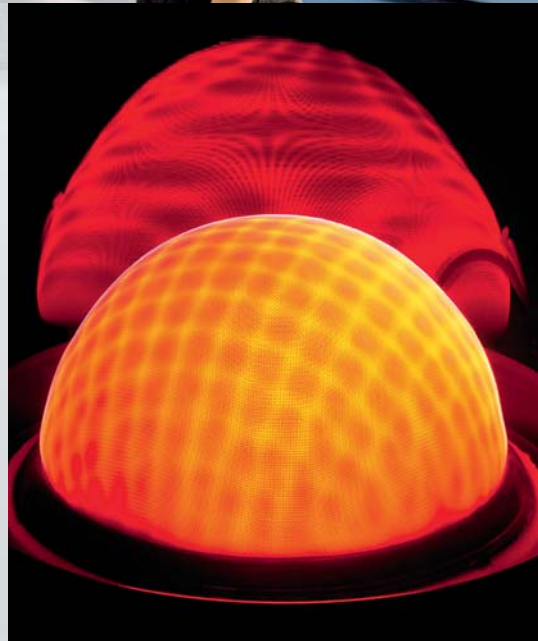
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The company



Viessmann – climate of innovation

Viessmann is one of the world's leading manufacturers of intelligent, convenient and efficient systems for heating, 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 to harmonise ecology, economy and social responsibility so that the needs of

today are met without compromising the quality of life of future generations.

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
- CO₂ 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/Resource
Efficiency



Energy Efficiency Award 2010

Viessmann Group

Company details

- Established in: 1917
- Employees: 11,400
- Group turnover: 2.1 billion euros
- Export share: 55 percent
- 27 production companies in 11 countries
- 74 countries with sales companies and representation
- 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
- Photovoltaics
- Accessories
- Refrigeration technology



climate of innovation

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