Invented for life

BOSCH

Heating and hot water boiler systems from Bosch

Highly efficient heating and process heat

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Hot water boilers
Heating boilers







	ELHB	UT-L	UT-M	UT-H	UT-HZ
Output MW	0.25–5.5	0.65–25	0.75–19.2	0.82–18.3	13–38
Temperature max. °C	190	110	190	225	225
Pressure max. bar	16	16	16	30	30
	100 % electric	H_2 / Biofuels	H_2 / Biofuels	H_2 / Biofuels	H_2 / Biofuels

Steam boilers







	ELSB	U-MB	CSB	UL-S(X)	ZFR(X)
Output t/h	0.35–8.3	0.2–2	0.3–23.6	1.25–28	18–55
Temperature max. °C	224	204	204	300	300
Pressure max. bar	24	16	16	30	30
	100 % electric	H_2 / Biofuels	H_2 < 20 % / Biofuels	H_2 / Biofuels / Hybrid	H_2 / Biofuels

Efficiency






Heat recovery boiler HRSB	4-pass boiler with burner	3-pass boiler without burner	Recovery and use
Heat recovery steam boiler	Heat recovery boiler steam/hot water		Waste heat
	H_2 / Biofuels		

Components






Boiler and system controls	Water	Steam and condensate	Fuel supply
Control cabinet	Modules	Modules	Burner systems

Quality through 150 years of experience

Bosch Industrial Boilers is renowned worldwide as a specialist supplier of boiler systems in all sizes and output categories. For over 150 years we have been providing innovation in industrial boiler construction.



The company, which began in 1865 as a small boiler maker under the Loos family name, has developed in recent decades into a leading global system supplier for industrial boilers. More than 120,000 boiler systems supplied to over 140 countries worldwide confirm the renowned quality, reliability and efficiency of our industrial boilers, which are manufactured in Gunzenhausen (Germany) and Bischofshofen (Austria).

Efficient systems
Our modular boiler systems can significantly reduce operating costs compared to conventional boilers. In addition to minimising fuel consumption, our boiler systems also reduce the consumption of water, chemicals and electric power as well as the work involved in operation and supervision.

Perfectly controlled
Thanks to the intelligent Bosch control systems, the availability and also the efficiency of the boiler plants increase. Smart control features, such as for example for cold starts or for multi-boiler systems, significantly extend the service life of the boiler systems.



Competence in every phase

Whether it is 3D data, technical drawings or documents for tendering and approval, the experts from Bosch offer specialist support at every phase of the project – from conception through to commissioning.

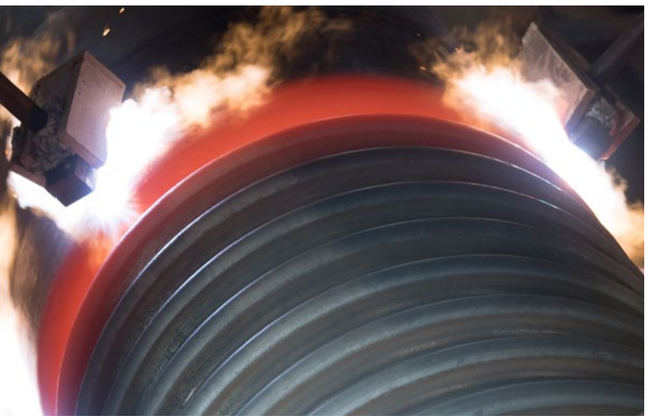
Trust and openness between partners ensure that mutual success is achieved. Thanks to the customised dimensioning and equipping of the boiler systems, individual solutions can be created and modules retrofitted easily.



Precision due to welding in ideal position

Thanks to horizontal welding with highly modern welding processes, a more homogeneous structure, a deeper root penetration and notch-free welding surfaces are achieved.

Use of welding robots
Semi-automatic and fully automatic welding robots are used for consistently high quality on highly-stressed welding seams.



Low-stress materials

Modern plasma and laser cutting systems ensure smooth metal processing and cutting. This means that our boilers have higher stress reserves during operation.

In-house manufacture of flame tubes
All smooth and corrugated flame tubes are manufactured in-house and are subject to the most stringent quality requirements.



Health and safety at work and promotion of young talent

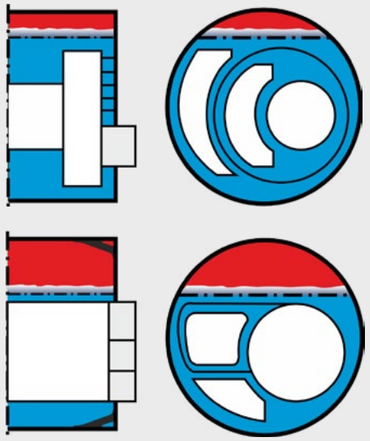
Only happy and focused employees will deliver top quality. The very latest safety concepts and equipment and materials for the work to be carried out are part of our overall manufacturing concept, just like the training and further education of our staff.

Experts with certified knowledge
Our nearly 200 boiler welders have more than 1,000 welding exam qualifications. This means that welding of the highest level in accordance with internationally recognised standards is achieved.

Optimum design

Thanks to an ideal ratio between water content and steam chamber, Bosch boilers are optimised in their design for rapid heating and a high level of steam quality. Ideal temperature distribution and release of vapour bubbles enables the boilers to be operated very efficiently even during periods of dynamic loads. Compared to other boiler designs, the Bosch design with its high steam chamber minimises high-water shutdowns and water entrainment. Our intelligent three-component control, combined with pilot signals from large consumers and less frequent pre-ventilation (burner starts), also enables the boiler to react particularly quickly and reliably to load peaks.

High level of durability
The boiler design traditionally used in old steam locomotives has been continuously developed. The design with its fully inserted flame tube and without stud bolts offers the maximum level of robustness and an increased resistance to cold starts.



Old boiler construction with stud bolts (upper drawing). Boiler construction from Bosch (bottom drawing): With optimised steam chamber and optimised power transmission between flame tube and boiler body for long service life.



Certified quality

We manufacture our products in line with current standards and in accordance with the relevant applicable specifications for over 140 countries. The quality management systems in our factories are certified in accordance with strict guidelines. At the customer's request, we also carry out additional checks.



Maximum quality monitoring

We consider quality to be a top priority. Plant inspectors certified by TÜV and TÜV employees monitor and document our quality during manufacture and through to acceptance.

Precision and analysis
An in-house laboratory for welded seam inspections and material analysis provides maximum transparency. Up to 100 % of the welding seams of the pressure vessel are X-ray inspected. In total, more than 25,000 X-ray images are analysed in our three X-ray chambers every year.

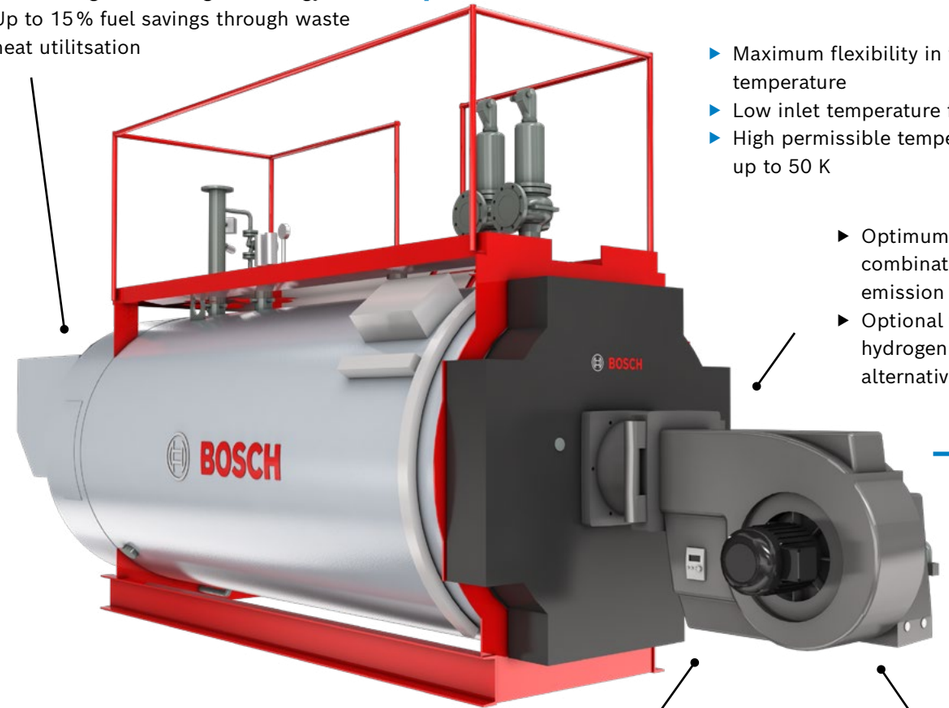
Future-proof and energy-efficient boiler systems

Future-proof boiler systems for heating and hot water from Bosch. Project-specific solutions with perfectly matched modules and smart control systems optimise energy consumption, improve the CO_2 balance and achieve complete automation for high operational reliability.



Return temperature control for additional flexibility in temperature spread and return temperature

- Flue gas temperature below 54 °C when using condensing technology
- Up to 15 % fuel savings through waste heat utilitsation



- Maximum flexibility in flow and return temperature
- Low inlet temperature from 50 °C
- High permissible temperature spread up to 50 K

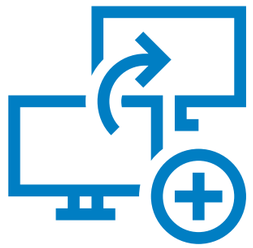
- Optimum boiler/burner combination for lowest emission values
- Optional use of bio-fuels or hydrogen or for later switch to alternative fuels

- Optimised combustion with CO_2/CO controls
- High modulation range reduces energy-intensive cold starts and pre-ventilation losses

- Speed-controlled burner fans for maximum efficiency in partial load operation
- Up to 75 % reduction in electricity consumption

Prepared for connection to the automation system, compatible with all common protocols

- Secure remote access via Industrial Boiler Assist
- Remote visualisation of the boiler control
- Fast support from Bosch experts

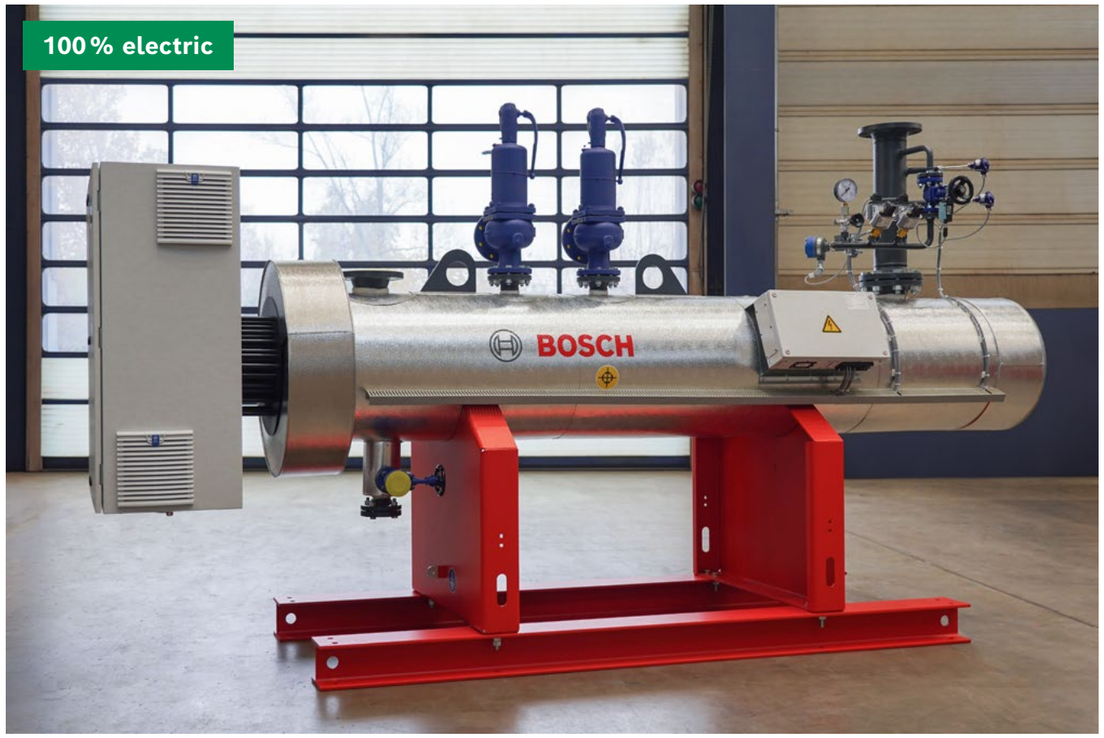




- Fully automated boiler operation
- Integrated protection functions
- High transparency of operating data

Bosch electric boiler for heating and hot water ELHB

The electric boiler ELHB for low voltage generates hot water and heating energy with outputs of up to 5.5 MW per appliance at up to 16 bar. A versatile power-to-heat solution from Bosch for local and district heating, building heating, process heat or as redundancy for other energy generators.



Technical data of the type ELHB

Heat transfer medium	Hot water
Output in kW	250 to 5,500
Safety pressure in bar	up to 16
Max. temperature in °C	190
Energy source	Electricity (380/400/690 V)

Flexibility, operational safety and reliability

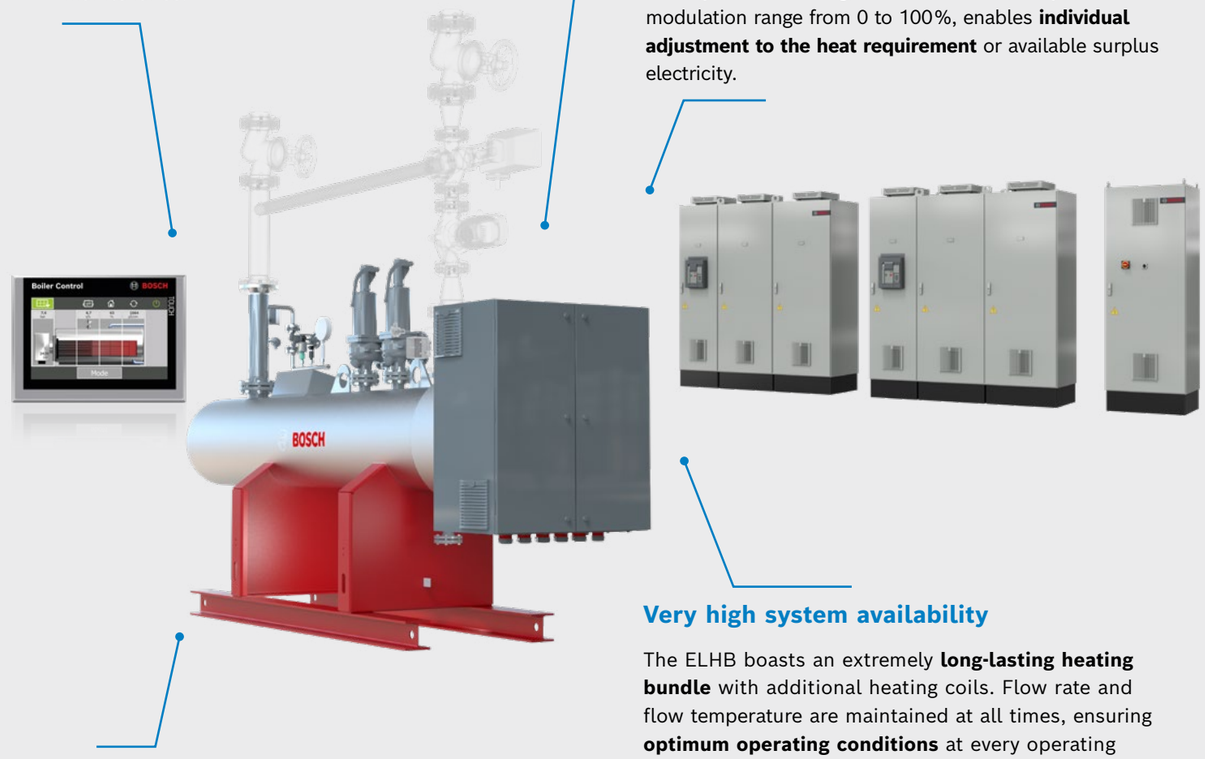
The electric boiler system by Bosch can be **seamlessly integrated into your existing infrastructure**. As a standalone electric solution, in a cascade or as a multivalent system combined with existing heat generators. **You get a system** consisting of a boiler with a heating bundle, power cabinet and control system. The absence of any flue gas equipment saves you time and costs.

Your customised electric heat solution

We work together to adapt your electric boiler system **to your processes and on-site requirements**. This includes hardware, boiler control, remote options, customer-specific functions and interfaces with the automation system provided by the customer. Our Bosch industry experts are on hand to provide you with **service support**, such as commissioning and maintenance.

Fast and flexible heat availability

The electric boiler **is ready** for operation from cold start and standby **in next to no time**, which is especially useful for covering peak loads. It operates **fully automatically** and the flow temperature is continuously controlled. The thyristor switching, which has an infinitely variable modulation range from 0 to 100%, enables **individual adjustment to the heat requirement** or available surplus electricity.



Made in Germany

The electric boiler system ELHB features **state-of-the-art safety equipment** in its hydraulics, mechanics and control system. The boiler shell is designed, produced and tested according to **PED or EN standards** at the Bosch factory in Germany. TÜV Süd, an independent monitoring association, **continuously monitors quality** during manufacturing on site at our production facilities.

Very high system availability

The ELHB boasts an extremely **long-lasting heating bundle** with additional heating coils. Flow rate and flow temperature are maintained at all times, ensuring **optimum operating conditions** at every operating point. The combination of power cabinet, intelligent control system and system-specific parametrisation **protects against unwanted backcoupling** into the power grid.



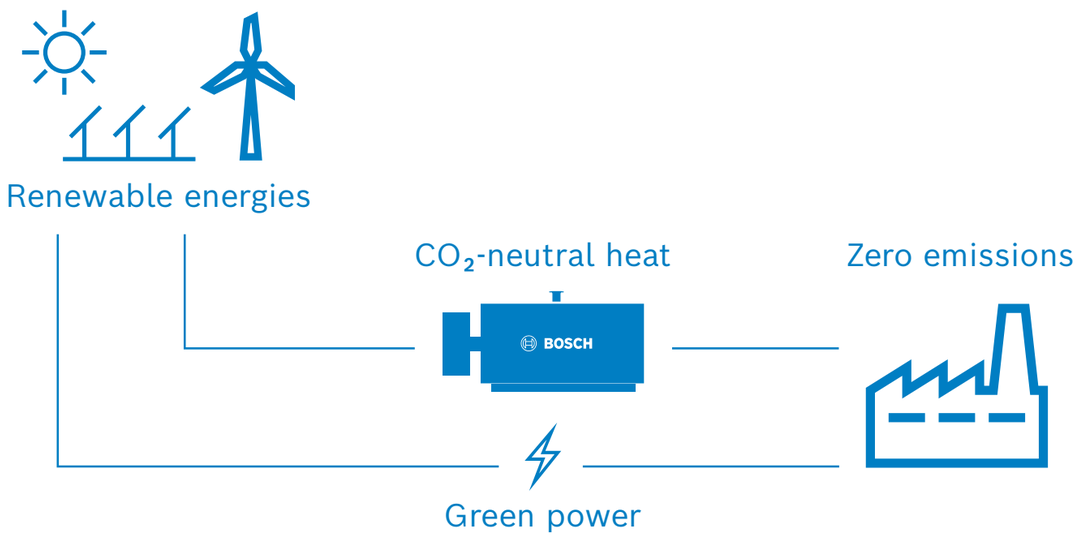
Generate heating and process heat with green electricity

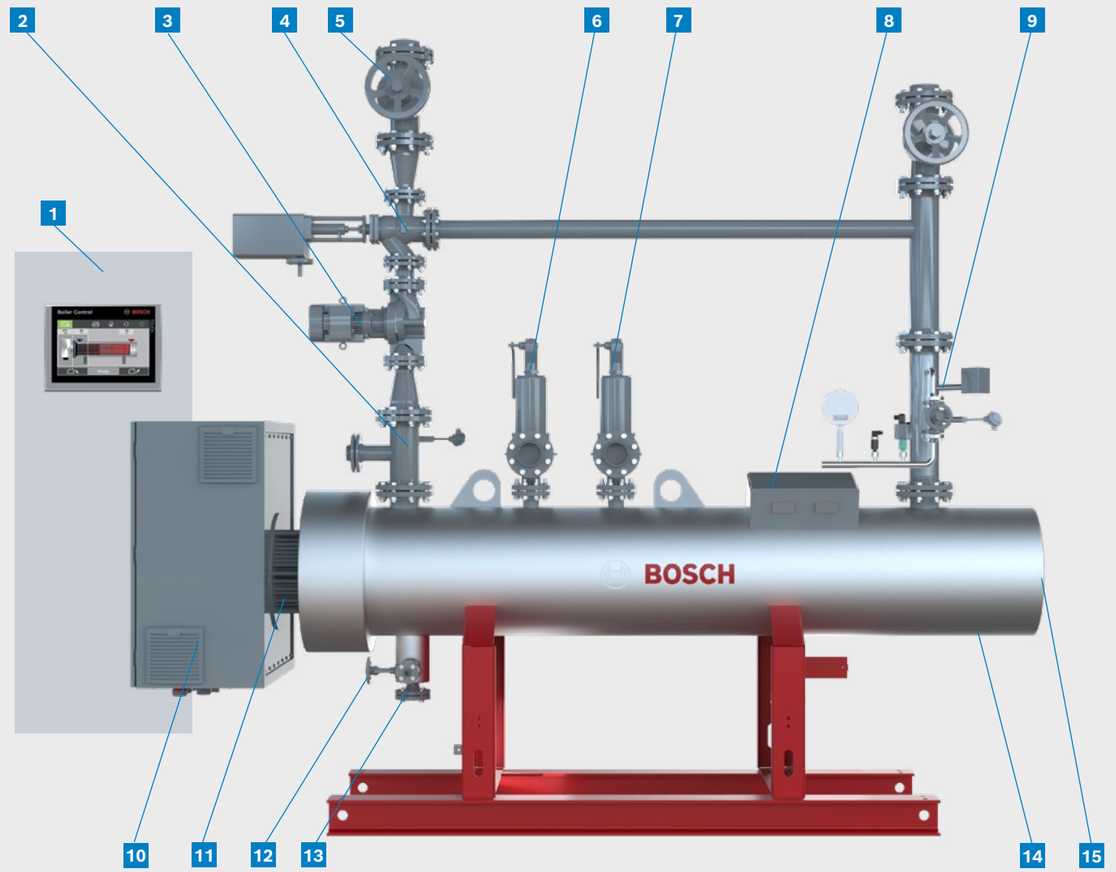
Generating heat 100 % electrically – without any flue gas

No flue gas emissions are generated when producing heat electrically with the ELHB. If green energy is used, you benefit from a greatly **improved CO_2 balance**. **Renewable energy** from the sun, wind or water can be perfectly combined with the electric boiler by Bosch. This provides the basis for decarbonising heating energy and process heat at your site.

Reducing CO_2 emissions: Using surplus power from photovoltaics, hydropower and wind power

The electric boiler system can utilise locally generated **surplus electricity** with an intelligent control system from Bosch. The reduces the need to purchase other energy sources and the amount of fossil fuels used. Based on the **power-to-heat principle**, the ELHB is extremely efficient at converting the energy used into heat and achieves an efficiency of **up to 99.6 %**.





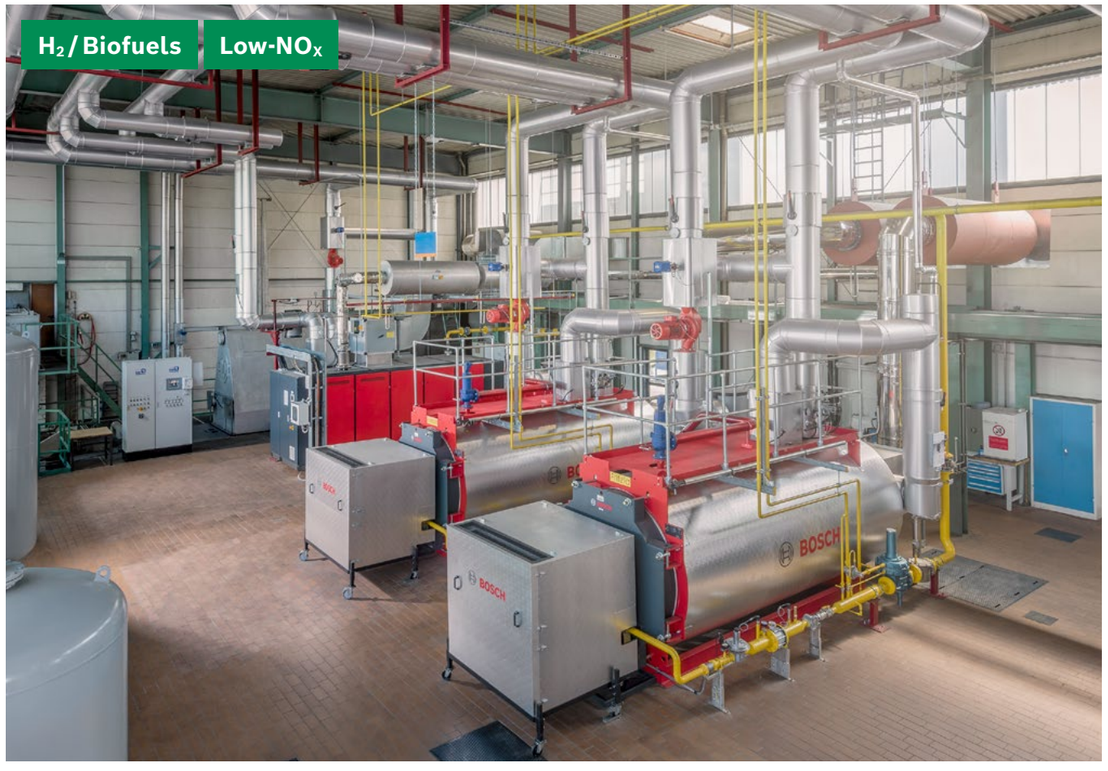
1 Control cabinet with boiler control BCO
2 Return flow adapter piece
3 Speed-controlled pump
4 3-way-valve
5 Shut-off valve
6 Full-lift safety valve
7 Full-lift safety valve 2 (optional)
8 Terminal box
9 Supply flow adapter piece with
- temperature limiter
- flow monitor
- temperature controller
- level limiter
- pressure indicator
- pressure limiter (max.)
- manostat tube shut-off valve

10 Terminal box for the heating bundle
11 Heating bundle
12 Drain shut-off valve
13 Dirt trap
14 Insulation with protective shell
15 Inspection opening, water side

The equipment level is variable and can be freely configured to customer requirements.

UNIMAT heating boiler UT-L

The UNIMAT boiler UT-L optimises your energy costs and achieves high level of efficiencies of up to 105 %. It can be used flexibly, for example, for heat supply in hospitals, homes, office buildings or residential complexes, for hot water supply in industries, as a reserve and peak load boiler at heating plants or in combination with CHP units.



Technical data of the type UT-L

Heat transfer medium	Low-pressure hot water
Design	Three-pass flame tube/smoke tube technology
Output in kW	650 to 25,000
Safety pressure in bar	up to 16
Max. temperature in °C	110
Energy source	Oil, gas, multi-fuel firing Biogas, bio-oil, hydrogen, special fuels

High level of efficiency for reduced operating costs

Efficiency components such as a flue gas or condensing heat exchanger are part of the standard equipment for energy-optimised and environmentally friendly boiler operation. With the effective recovery of waste heat from the flue gas, you can save up to 15 % on fuel and, at the same time, reduce emissions.

- Effective three-pass design and special thermal insulation concept for minimised radiant heat losses
- High level of efficiency without flue gas heat exchanger up to 95 % or up to 105 % with condensing heat exchanger
- Low-emission combustion thanks to the use of highly developed firing systems and careful matching of the best boiler and burner combination

User-friendly operating concept

- Intuitive Control 8000 for heating applications
- Compact control CWC for heating and hot water boiler systems
- Individually configurable boiler control BCO for complex requirements
- Ready to connect to automation systems
- Secure remote access via Industrial Boiler Assist

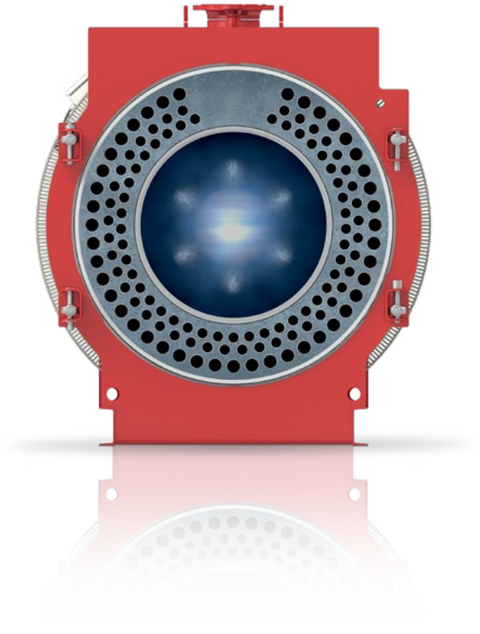
Reliable performance and customised equipment

We manufacture the boiler in different capacity sizes according to your individual requirements. The UT-L can be operated as an intelligently controlled cascade of several boilers and can be used in a variety of applications at low temperature and pressure levels.

- CE certified
- Comprehensive, series-wide basic equipment
- Universally applicable with different fuels and multi-fuel firing
- No minimum burner load specification avoids internal condensation on the flue gas side
- Approved for low return temperatures from 50 °C
- High permissible temperature spread up to 50 K
- Robust, reliable and unsurpassed in its durability

Quick installation and effective maintenance

- Compact construction for bringing the boiler into site easily if space is limited
- Simplified wiring on-site thanks to plug-in connections
- Smooth commissioning due to pre-parameterised boiler control
- Easy to maintain thanks to fully hinged boiler front door
- Smoke tube passes are free of flow components



Design

The inserted flame tube ends in an inner, fully wet-back smoke gas reversing chamber, which leads into the first smoke tube pass. The first smoke tube pass and second smoke tube pass are free of flow components. The functional round design ensures optimal pressure resistance. Combustion chamber, water chamber volume, radiant and convection heating surfaces are perfectly dimensioned and matched to each other.

The boiler front door can be fully hinged, optionally opening to the right or left. The entire cross section of the boiler is freely accessible. Maintenance, cleaning and inspection are thus easily possible. The high-quality mineral wool insulation over the entire boiler body, combined with the special insulating materials in the front door, keep radiant heat losses at a low level. In contrast to the classic refractory lining, the Bosch insulation composite has superior insulation values. Another benefit is that this insulation composite is designed to last the entire boiler lifetime when operated correctly. The heating boiler can already be fitted with an integrated flue gas heat exchanger or condensing heat exchanger in the factory on request.

Compatible products

- Water treatment module WTM
- Flue gas heat exchanger ECO
- Flue gas heat exchanger ECO for condensing use
- Supply/Return flow adapter piece SP/RP
- Return flow temperature safeguard RTS
- Gas regulation module GRM
- Oil circulation module OCM
- Oil supply module OSM
- Controls for optimising combustion
- Control 8000 for heating boilers
- Compact hot water boiler control CWC
- Boiler control BCO
- System control SCO
- Remote management Industrial Boiler Assist

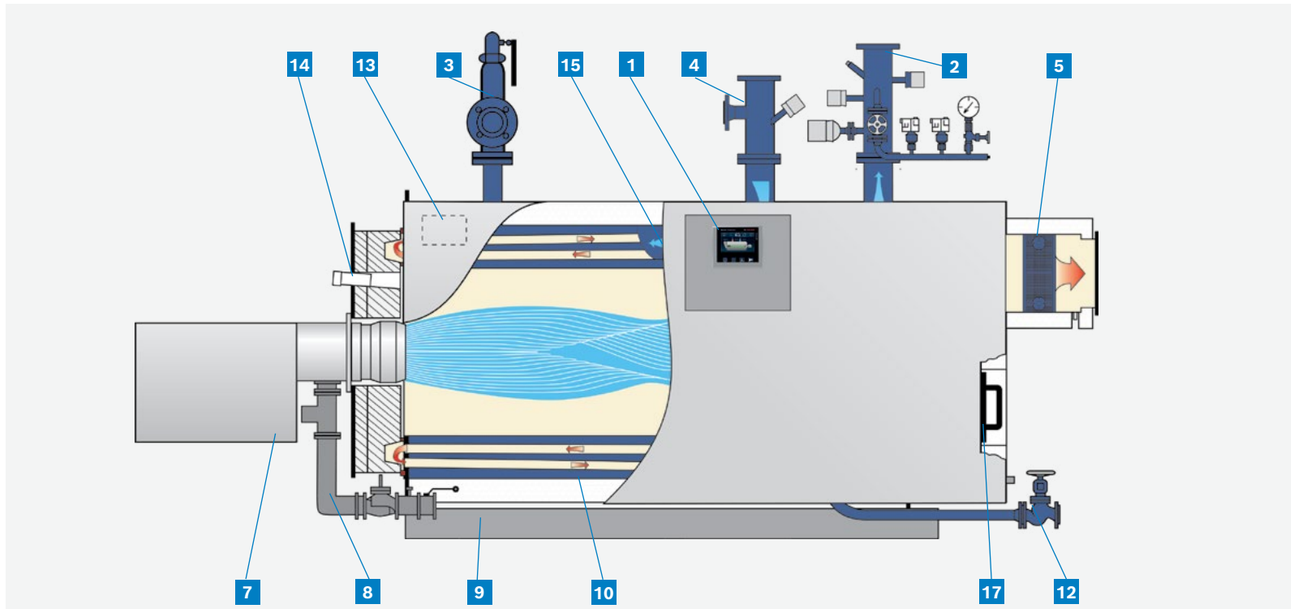
For further information please see our brochure ‘Boiler and efficiency components’.



Return flow temperature safeguard RTS

Equipment

The heating boiler UT-L is offered as a complete boiler system including equipment*. The basic equipment includes the boiler pressure vessel, the burner unit, the flue gas heat exchanger or condensing heat exchanger, a terminal box, the control and safety components and the control cabinet including the compact control CWC or boiler control BCO for complex requirements. Alternatively you can also select the Control 8000 for heating boilers. The sensors, actuators and country-specific safety devices are already wired and combined in the terminal box. Pre-assembled, plug-in and coded cable bundles simplify the connection between the boiler control cabinet and the terminal box during installation.



1 Control cabinet with compact hot water boiler control CWC or boiler control BCO (Control 8000 as an alternative)
2 Supply flow adapter piece with
- temperature limiter
- temperature controller
- level limiter
- pressure indicator
- pressure limiter (max.)
- manostat tube shut-off valve

3 Full-lift safety valve
4 Return flow adapter piece
- temperature monitor
- connection for safety expansion line

5 Flue gas heat exchanger ECO – alternatively the flue gas connection can also be realised lateral or upwards
7 Burner
8 Gas regulation module
9 Base frame
10 Insulation with protective shell
12 Drain shut-off valve, maintenance-free
13 Terminal box
14 Sight hole
15 Injector device for inner temperature boosting
17 Inspection opening, flue gas side

*The equipment level is variable and can be freely configured to customer requirements.

UNIMAT hot water boiler UT-M

With the UNIMAT hot water boiler UT-M you can rely on an extremely reliable heat and hot water supply. The highly efficient boiler is the ideal solution for medium and high temperature requirements, such as in central heating plants for local and district heating supply or for commercial and industrial heating and process heat applications in a wide range of industries.



Technical data of the type UT-M

Heat transfer medium	High-pressure hot water
Design	Three-pass flame tube/smoke tube technology
Output in kW	750 to 19,200
Safety pressure in bar	up to 16
Max. temperature in °C	190
Energy source	Oil, gas, multi-fuel firing Biogas, bio-oil, hydrogen, special fuels

High level of efficiency for reduced operating costs

When using efficiency components such as a flue gas heat exchanger or condensing heat exchanger you not only optimise the efficiency of your boiler system. You can also save up to 15 % on fuel and, at the same time, improve your CO_2 balance sustainably.

- Effective three-pass design and special thermal insulation concept for minimised radiant heat losses
- High level of efficiency without flue gas heat exchanger up to 93 % or up to 105 % with condensing heat exchanger
- Low-emission combustion thanks to the use of highly developed firing systems and careful matching of the best boiler and burner combination

User-friendly operating concept

- Compact control CWC for heating and hot water boiler systems
- Individually configurable boiler control BCO for complex requirements
- Ready to connect to automation systems
- Secure remote access via Industrial Boiler Assist

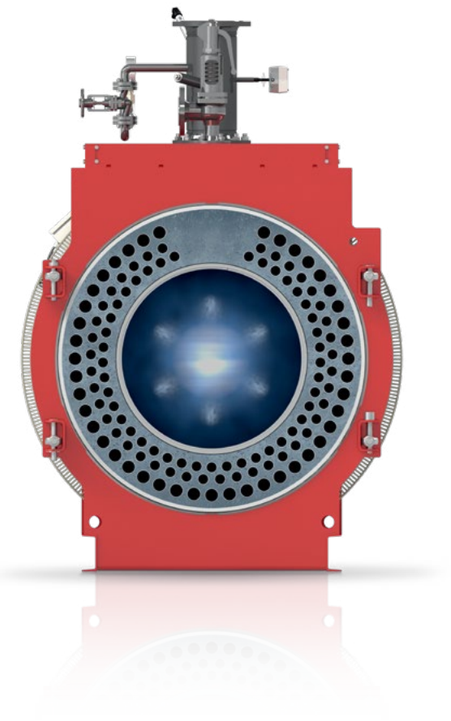
Reliable performance and customised equipment

We offer you the high-pressure hot water boiler in various capacities up to 19.2 MW. The heat output can be increased by intelligent cascading of several boilers. Perfectly matched components, such as for fuel supply and return temperature increase, optionally supplement the system.

- CE certified
- Comprehensive, series-wide basic equipment
- Universally applicable with different fuels and multi-fuel firing
- No minimum burner load specification avoids internal condensation on the flue gas side
- Approved for low return temperatures from 50 °C
- High permissible temperature spread up to 50 K
- Robust, reliable and unsurpassed in its durability

Quick installation and effective maintenance

- Compact construction for bringing the boiler into site easily if space is limited
- Simplified wiring on-site thanks to plug-in connections
- Smooth commissioning due to pre-parameterised boiler control
- Easy to maintain thanks to fully hinged boiler front door
- Smoke gas passes are free of flow components



Design

The inserted flame tube ends in an inner, fully wet-back smoke gas reversing chamber, which leads into the first smoke tube pass. The first smoke tube pass and second smoke tube pass are free of flow components. The functional round design ensures optimal pressure resistance. Combustion chamber, water chamber volume, radiant and convection heating surfaces are perfectly dimensioned and matched to each other.

The boiler front door can be fully hinged, optionally opening to the right or left. The entire cross section of the boiler is freely accessible. This ensures simple and easy maintenance, cleaning and inspection. The high-quality mineral wool insulation over the entire boiler body, combined with the special insulating materials in the front door, keep radiant heat losses at a low level. In contrast to the classic refractory lining, the Bosch insulation composite has superior insulation values. Another benefit is that this insulation composite is designed to last the entire boiler lifetime when operated correctly. The hot water boiler can already be fitted with an integrated flue gas heat exchanger or condensing heat exchanger in the factory on request.

The certification in accordance with European pressure equipment directive ensures a high operating and safety temperature level up to a maximum of 190 °C.

Compatible products

- Water treatment module WTM
- Flue gas heat exchanger ECO
- Flue gas heat exchanger ECO for condensing use
- Supply/Return flow adapter piece SP/RP
- Return flow temperature safeguard RTS
- Gas regulation module GRM
- Oil circulation module OCM
- Oil supply module OSM
- Controls for optimising combustion
- Compact hot water boiler control CWC
- Boiler control BCO
- System control SCO
- Remote management Industrial Boiler Assist

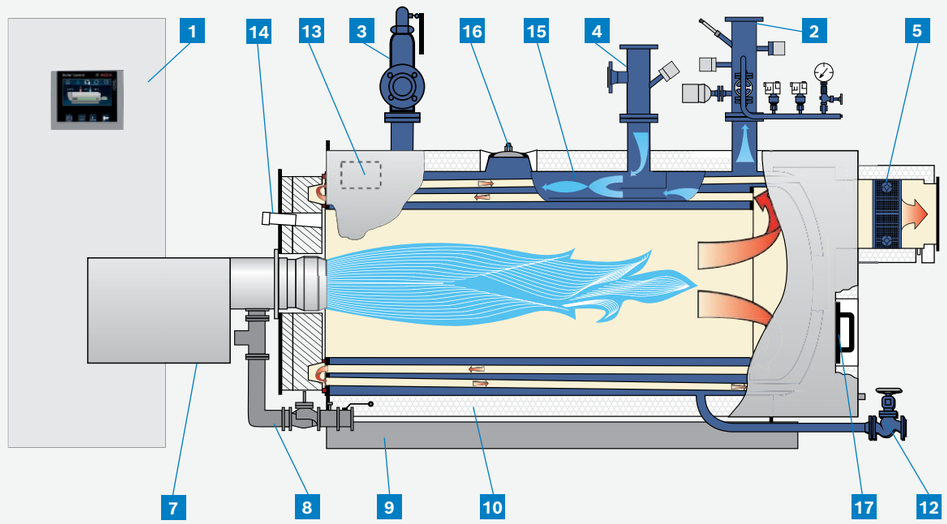
For further information please see our brochure ‘Boiler and efficiency components’.



Flue gas heat exchanger ECO for condensing use

Equipment

The hot water boiler UT-M is offered as a complete boiler system including equipment*. The basic equipment includes the boiler pressure vessel, the control and safety components, the burner unit, the flue gas heat exchanger or condensing heat exchanger, a terminal box and the control cabinet including the compact control CWC or boiler control BCO for complex requirements. The sensors, actuators and country-specific safety devices are already wired and combined in the terminal box. Pre-assembled, plug-in and coded cable bundles simplify the connection between the boiler control cabinet and the terminal box during installation.



1 Control cabinet with compact hot water boiler control CWC or boiler control BCO
2 Supply flow adapter piece with
- temperature limiter
- flow monitor
- temperature controller
- level limiter
- pressure indicator
- pressure limiter (max.)
- manostat tube shut-off valve

3 Full-lift safety valve
4 Return flow adapter piece
- temperature monitor
- connection for safety expansion line

5 Flue gas heat exchanger ECO – alternatively the flue gas connection can also be realised lateral or upwards
7 Burner
8 Gas regulation module
9 Base frame
10 Insulation with protective shell
12 Drain shut-off valve, maintenance-free
13 Terminal box
14 Sight hole
15 Injector device for inner temperature boosting
16 Inspection opening, water side
17 Inspection opening, flue gas side

*The equipment level is variable and can be freely configured to customer requirements.

UNIMAT hot water boiler UT-H

With the UNIMAT hot water boiler UT-H you generate energy-efficient process heat in the high pressure and temperature range. Flexible and reliable in use for heat and hot water supply in commercial companies, industries, municipal facilities or as a base load, peak load and reserve boiler in district heating plants.



Technical data of the type UT-H

Heat transfer medium	High-pressure hot water
Design	Three-pass flame tube/smoke tube technology
Output in kW	820 up to 18,300
Safety pressure in bar	up to 30
Max. temperature in °C	225
Energy source	Oil, gas, multi-fuel firing Biogas, bio-oil, hydrogen, special fuels

High level of efficiency for reduced operating costs

The UNIMAT hot water boiler UT-H is a shell boiler with one flame tube, built in three-pass design. Highly efficient as single or multi-boiler system. Combined with an integrated flue gas heat exchanger and efficiency components for combustion optimisation, you can maximise the efficiency level of your system.

- Effective three-pass design and special thermal insulation concept for minimised radiant heat losses
- Up to 93 % boiler efficiency without flue gas heat exchanger, up to 96 % boiler efficiency with flue gas heat exchanger and up to 105 % with condensing heat exchanger
- Low-emission combustion thanks to the use of highly developed firing systems and careful matching of the best boiler and burner combination
- Also available as waste heat boiler for cost-efficient and environmentally friendly use of waste heat sources, for example in combination with CHP units or gas turbines

User-friendly operating concept

- Compact control CWC for heating and hot water boiler systems
- Individually configurable boiler control BCO for complex requirements
- Ready to connect to automation systems
- Secure remote access via Industrial Boiler Assist

Quick installation and effective maintenance

- Simplified wiring on-site thanks to plug-in connections
- Smooth commissioning due to pre-parameterised boiler control
- Easy to maintain – convenient accessible on both the flue gas side as well as the water side
- Smoke tube passes are free of flow components

Reliable performance and customised equipment

The proven three-pass design provides highest quality, durability and operational safety. We manufacture the high-pressure hot water boiler UT-H according to customer requirements for outputs up to 18.3 MW. You can optimise your boiler operation with perfectly matched components, such as for fuel supply and return temperature increase.

- CE certified
- Universally applicable with different fuels and multi-fuel firing
- High permissible temperature spread up to 40 K
- Available as waste heat boiler with fourth pass and firing system or as pure waste heat boiler
- Simple extension options thanks to module technology
- Robust, reliable and unsurpassed in its durability



Design

As with the steam technology, for decades our three-pass patent has formed the basis for the outstanding and ongoing success of this series, which is still unsurpassed today. The two smoke tube bundles (2nd and 3rd pass) are positioned next to the flame tube (1st pass) and all of them are connected by a fully wetback reversing chamber. This arrangement results in a large heating surface with compact external dimensions. The floors are anchored rigidly by the large continuous flame tube, and they are connected to the boiler shell by means of the cleverly devised use of corner anchors for even load distribution. In contrast to outdated designs with stud bolts, there is greater robustness and durability.

Compatible products

- Water treatment module WTM
- Flue gas heat exchanger ECO
- Flue gas heat exchanger ECO for condensing use
- Supply/Return flow adapter piece SP/RP
- Return flow temperature safeguard RTS
- Gas regulation module GRM
- Oil circulation module OCM
- Oil supply module OSM
- Controls for optimising combustion
- Compact hot water boiler control CWC
- Boiler control BCO
- System control SCO
- Remote management Industrial Boiler Assist

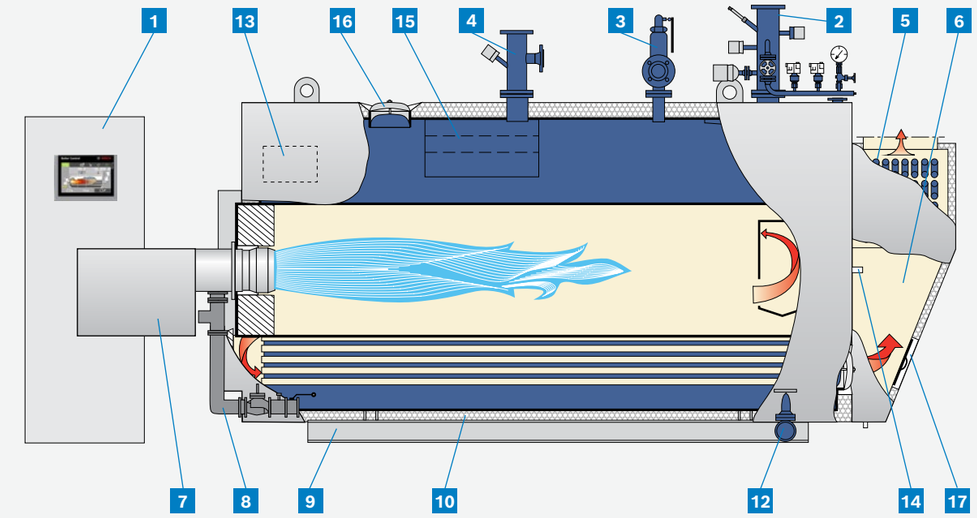
For further information please see our brochure ‘Boiler and efficiency components’.



Boiler control BCO

Equipment

The hot water boiler UT-H is offered as a complete boiler system including equipment*. The basic equipment includes the boiler pressure vessel, the control and safety components, the burner unit, the flue gas heat exchanger or condensing heat exchanger, a terminal box and the control cabinet including the boiler control BCO for complex requirements or compact control CWC. The sensors, actuators and country-specific safety devices are already wired and combined in the terminal box. Pre-assembled, plug-in and coded cable bundles simplify the connection between the boiler control cabinet and the terminal box during installation.



1 Control cabinet with boiler control BCO or compact hot water boiler control CWC
2 Supply flow adapter piece with
- temperature limiter
- flow monitor
- temperature controller
- level limiter
- pressure indicator
- pressure limiter (max.)
- manostat tube shut-off valve

3 Full-lift safety valve
4 Return flow adapter piece
- temperature monitor
- connection for safety expansion line

5 Flue gas heat exchanger ECO
6 Flue gas collection chamber
7 Burner
8 Gas regulation module
9 Base frame
10 Insulation with protective shell
12 Drain shut-off valve, maintenance-free
13 Terminal box
14 Sight hole
15 Injector device for inner temperature boosting
16 Inspection opening, water side
17 Inspection opening, flue gas side

*The equipment level is variable and can be freely configured to customer requirements.

UNIMAT hot water boiler UT-HZ

With the UNIMAT hot water boiler UT-HZ you benefit from an energy-efficient and low-emission heat and hot water supply in the high capacity range. The double-flame tube design provides an extremely wide modulation range and is the ideal solution for district heating plants, manufacturing industries and municipal facilities.



Technical data of the type UT-HZ

Heat transfer medium	High-pressure hot water
Design	Three-pass double-flame tube/smoke tube technology
Output in kW	13,000 up to 38,000
Safety pressure in bar	up to 30
Max. temperature in °C	225
Energy source	Oil, gas, multi-fuel firing Biogas, bio-oil, hydrogen, special fuels

High level of efficiency for reduced operating costs

The hot water boiler UT-HZ offers an extremely wide modulation range with constant high energy efficiency. Combined with an integrated flue gas heat exchanger, components for combustion optimisation and low-NO_x burners, you can maximise the energy efficiency of your plant and reduce emissions sustainably.

- Double modulation range allows particularly high efficiency even in partial load operation
- Effective three-pass design and special thermal insulation concept for minimised radiant heat losses
- Up to 93 % boiler efficiency without flue gas heat exchanger, up to 96 % boiler efficiency with flue gas heat exchanger and up to 105 % with condensing heat exchanger
- Low-emission combustion thanks to the use of highly developed firing systems and careful matching of the best boiler and burner combination

User-friendly operating concept

- Individually configurable boiler control BCO for complex requirements
- Ready to connect to automation systems
- Secure remote access via Industrial Boiler Assist

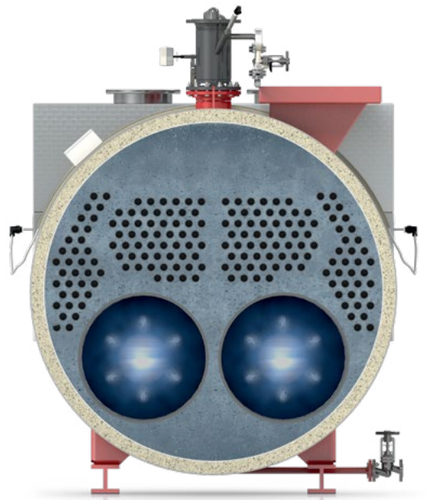
Reliable performance and customised equipment

The double-flame tube boiler with separate smoke gas paths is also suitable for operation with just one burner. The dimensions of the flame tubes, smoke tube bundles and water chamber are thermo-dynamically optimised. We manufacture the UT-HZ project-specifically for capacities up to 38 MW. Perfectly matched components, such as for fuel sup-ply and return temperature increase, optionally sup-plement the system and optimise your boiler opera-tion.

- CE certified
- Extreme load flexibility due to unrestricted single burner operation
- Universally applicable with different fuels and multi-fuel firing
- High permissible temperature spread up to 40 K
- Simple extension options thanks to module technology

Quick installation and effective maintenance

- Simplified wiring on-site thanks to plug-in connections
- Smooth commissioning due to pre-parameterised boiler control
- Easy to maintain – convenient accessible on both the flue gas side as well as the water side
- Smoke gas passes are free of flow components



Design

Its suitability for the unrestricted parallel or single operation of its firing units is not only due to the stable separation on the flue gas side. The special design measures for neutralising the tension forces in single-flame tube operation are crucial for permanent stability. The flame tubes are pushed through in the front and rear floors and welded tightly all around. In contrast to boiler designs with stud bolts, inadmissible bending stresses are avoided. The integrated rear flue gas chamber thus offers the advantages of the fully wetback cooling while significantly reducing its mechanical stress.

The unrestricted single operation provides high load flexibility. The modulation range is doubled and unnecessary energy losses can be reduced.

Compatible products

- Water treatment module WTM
- Flue gas heat exchanger ECO
- Flue gas heat exchanger ECO for condensing use
- Supply/Return flow adapter piece SP/RP
- Return flow temperature safeguard RTS
- Gas regulation module GRM
- Oil circulation module OCM
- Oil supply module OSM
- Controls for optimising combustion
- Boiler control BCO
- System control SCO
- Remote management Industrial Boiler Assist

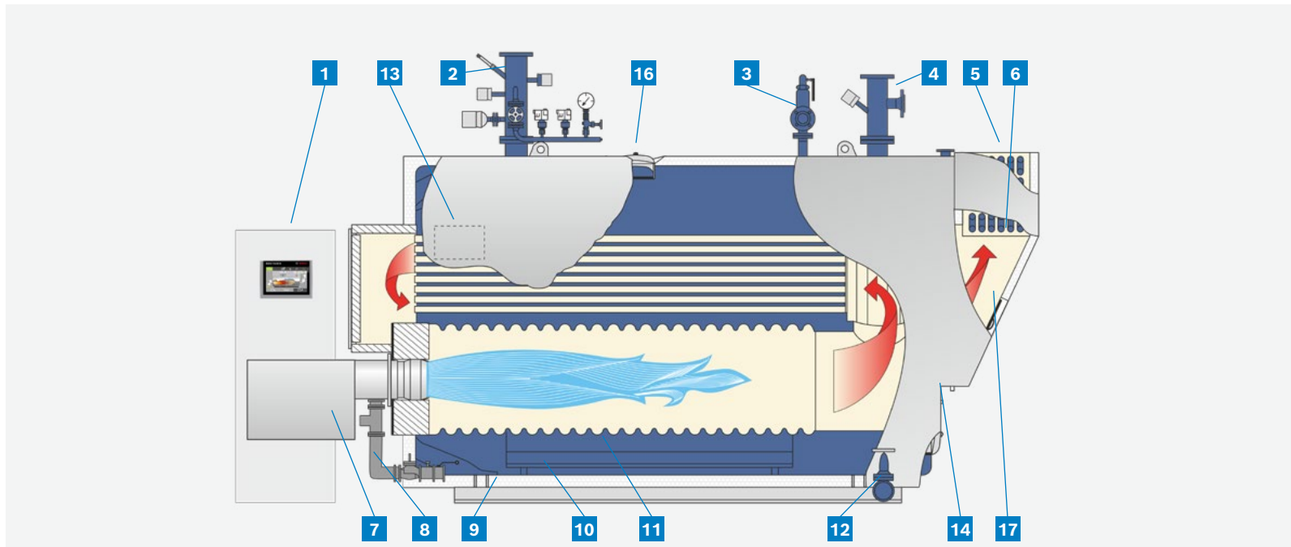
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Flue gas heat exchanger ECO

Equipment

The hot water boiler UT-HZ is offered as a complete boiler system including equipment*. The basic equipment includes the boiler pressure vessel, the control and safety components, the burner unit, the flue gas heat exchanger or condensing heat exchanger, a terminal box and the control cabinet including the individual configurable boiler control BCO. The sensors, actuators and country-specific safety devices are already wired and combined in the terminal box. Pre-assembled, plug-in and coded cable bundles simplify the connection between the boiler control cabinet and the terminal box during installation.



1 Control cabinet with boiler control BCO
2 Supply flow adapter piece with
- temperature limiter
- flow monitor
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- level limiter
- pressure indicator
- pressure limiter (max.)
- manostat tube shut-off valve

3 Full-lift safety valve
4 Return flow adapter piece
- temperature monitor
- connection for safety expansion line

5 Flue gas heat exchanger ECO
6 Flue gas collection chamber
7 Burner
8 Gas regulation module
9 Base frame
10 Insulation with protective shell
11 Water circulation guide profiles
12 Drain shut-off valve, maintenance-free
13 Terminal box
14 Sight hole
16 Inspection opening, water side
17 Inspection opening, flue gas side

*The equipment level is variable and can be freely configured to customer requirements.

Four-pass boiler with burner

The conventional fired boiler generates thermal and process heat while simultaneously utilising the heat potential from waste heat sources.



Technical data of the 4-pass boiler UT-H

Heat transfer medium	High-pressure hot water
Design	Three-pass flame tube/smoke tube boiler with integrated fourth smoke tube pass
Output in kg/h	820 up to 18,300
Safety pressure in bar	Up to 30
Max. flue gas temperature of the waste heat source in °C	550
Min. flue gas volumes of the waste heat source in kg/h	500
Max. flue gas volumes of the waste heat source in kg/h	23,500
Fuel of the waste heat source	Natural gas (other flue gas types on request)
Output range of combinable CHP units in MW_{el}	Approx. 0.2 to 4
Fuel of the boiler firing	Oil, gas, multi-fuel firing Biogas, bio-oil, hydrogen, special fuels

Benefits

- Generates up to 15 % of the nominal output by using waste heat sources via its fourth pass
- Improved efficiency level, less fuel consumption and reduced emissions
- High supply reliability thanks to own firing
- Normally no peak load boiler needed – saves space, equipment and costs
- Matched, modular system for easy planning and fast installation
- Intelligent boiler control ensures automated and reliable operation
- Smooth commissioning due to pre-parameterised boiler control
- Simplified wiring on-site thanks to plug-in connections
- Robust, reliable and durable
- Reduced component diversity with regard to spare parts inventory
- Service from a single source

These hot water boilers are conventionally-fired boilers based on a three-pass design, with an additional integrated smoke tube pass for waste heat utilisation. They are primarily used in combination with CHP units or gas turbines. The fourth pass uses hot flue gases from upstream combustion processes to support the generation of thermal and process heat.

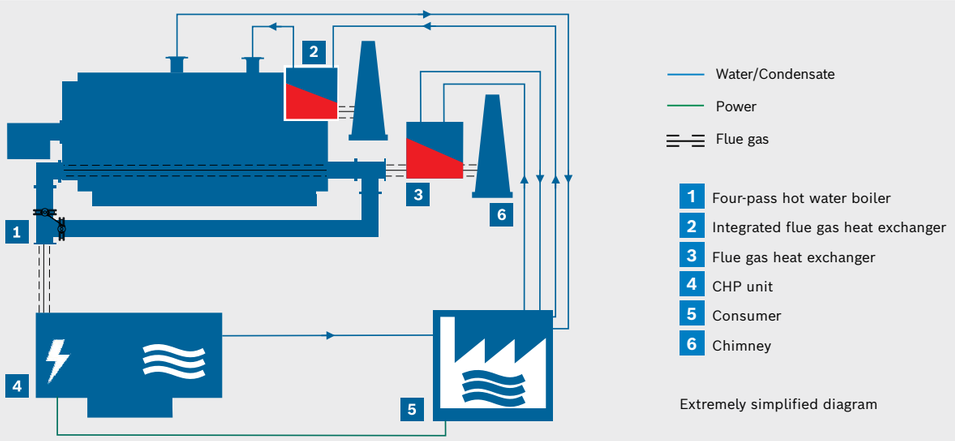
When using waste heat boilers without firing, additional peak load boilers are usually required. With the design variant with own firing system, the fourth pass supplies the base load, and the firing system switches on when demand increases. There is no need for a further pressure vessel with complete safety technology and the associated space requirement and investment costs. In addition, the use of heat exchangers in the flue gas system of the CHP is reduced.

Design

The design of our waste heat boilers with burner corresponds to the basic design of the UT-H series. We manufacture the boilers with an additional integrated smoke tube pass (fourth pass) for waste heat utilisation.

Equipment

The equipment options are identical to that available for the UT-H hot water boiler series.

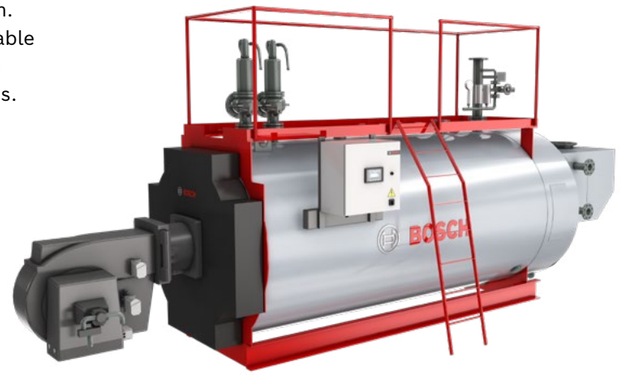


Compact hot water boiler control CWC

The hot water boiler control CWC can be combined with all series of Bosch single-flame tube boilers for hot and warm water. The CWC is characterised by intuitive handling, extensive functions and simple installation.

The compact PLC-based boiler control offers you all of the key functions for automated boiler operation. With its integrated power supply and pre-configurable control technology interface, the CWC is a reliable and cost-effective alternative to individual solutions.





The integrated sequence control combines up to four CWC units into an optimised cascade. The lag boilers switch on automatically based on the network flow temperature.

The control and software are completely pre-configured ex works. All components are wired ready to plug in and enable fast and error-free commissioning. The control cabinet is available as a wall cabinet or installed on the boiler (up to 9 MW).

Benefits

- Modular complete solution for all Bosch single-flame tube hot water and heating boilers
- Intelligent sequence control for up to four boilers
- Intuitive operation via colour touch display and function keys for quick access
- Pre-configured for fast commissioning
- Integrated power supply for all actuators and sensors in a compact control cabinet
- Compatible with all common automation system protocols



Control 8000 for heating boilers

For heating applications up to 110 °C, we offer the Control 8000 as an alternative. The comfortable operating unit with innovative design allows easy control of several heating circuits. The power supply is required on site.

Boiler control BCO

The individually configurable boiler control BCO optimises your boiler operation and ensures a high level of operational safety. An intelligent control solution for all Bosch industrial heating and hot water boilers.

The BCO offers fully automatic and energy-efficient boiler operation with smart control features. At the same time, integrated safety devices ensure high availability of your heat supply.

The BCO collects and stores all important operating data and visualises a wide range of information such as operating states, operating data and measured values. The integrated Condition Monitoring software analyses these values and uses a traffic light model to indicate uneconomic operating modes. In addition, you can monitor your plants reliably with the optional remote connection Industrial Boiler Assist.

The control system is supplied fully wired and tested in a free-standing or wall-mounted cabinet. Its compatibility with all common protocols enables you to easily connect to central automation systems. In conjunction with the system control SCO, you can network up to six boilers and all system components via one operating unit.



Control functions

- Output and level control
- Low load control
- Condition and efficiency monitoring
- Operating hours counter for boilers, pumps and burners
- Diagnostics function and message history
- Recording of number of burner starts
- Plain text display of operating signals and fault messages
- Display and intermediate storage of all relevant measured values and states

The BCO can be expanded with additional, customer-specific control features.



Benefits

- Pre-configured according to customers requirements, wired and tested for quick commissioning
- Smart control features for fully automated boiler operation
- Intuitive operation via colour touch display and easy optimisation of all measuring and control functions
- Storage of all operationally relevant measured values for maximum operating data transparency
- High supply and operational reliability thanks to integrated monitoring and protection functions
- Condition monitoring software for consistently high system efficiency and availability
- Compatible with all common automation protocols for easy connection
- Optional remote access to the boiler control system via Industrial Boiler Assist

Industrial Boiler Assist

Industrial Boiler Assist is the central platform for the remote management of boiler systems. Benefit from efficient remote support, continuous real-time monitoring and proactive alerts – ensuring a very high level of operational safety and availability for your steam and heat supply.

Flexible data access for seamless remote monitoring

- Keep an eye on your boiler system in real time, at all times, wherever you are
- Mirror the user interface of your control systems 1:1, navigate seamlessly through all menus, and securely access your process data
- Monitor multiple systems at different locations simultaneously

Simple integration with a free choice of network connection

- Fast and efficient integration into both new and existing Bosch control systems (BCO, SCO)
- Minimal effort thanks to preconfigured remote technology
- Easy access via the Internet or company network – flexible use on all standard devices such as PCs and mobile phones

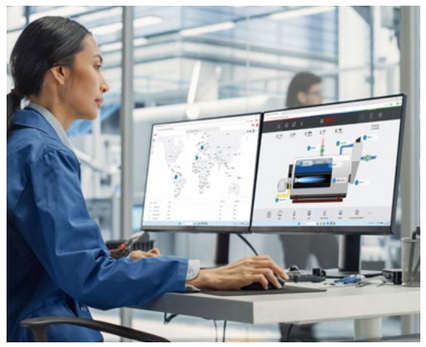
Fast and cost-effective remote support from Bosch experts

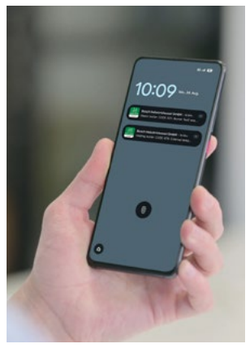
- Enable secure online service access for Bosch experts on demand
- Fault diagnosis, parameterisation, and programming can be carried out quickly and directly online
- On-site service calls can be reduced through digital pre-identification of spare parts

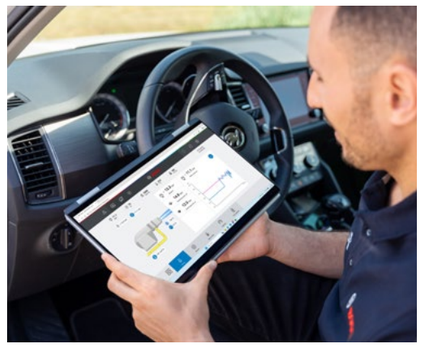
Very high system availability thanks to proactive alerting

- Immediate notification in the event of irregularities to safeguard your processes
- Receive predefined status updates directly via push notification or e-mail









Certified cyber security for your remote access

- **Multi-level security:** Reliable protection against unauthorised access through latest encryption, two-factor authentication and regular security audits
- **Certified to strict standards:** for cybersecurity, data protection and cloud computing – ISO/IEC 27001, 27017, 27701 and IEC 62443-4-1, 62443-4-2
- **Future-proof regulatory compliance:** The system has been developed in accordance with the requirements of the Cyber Resilience Act (CRA)

Bosch Industrial Service

Our industrial service for steam boilers and hot water boilers ensures plant availability even in the most demanding situations. You can rely on us.

Always there for you

We offer our customers a 24/7 service and ensure the shortest response times through a close network of service areas. During normal working hours you can get in touch directly with your responsible service technician. You will find the contact details on the control cabinet of your boiler system. For emergencies and outside business hours, the 24-hour hotline is available:

Service Hotline Germany/International:
+49 180 5667468*
Service Hotline Austria:
+43 810 810300**

Commissioning up to remote analysis

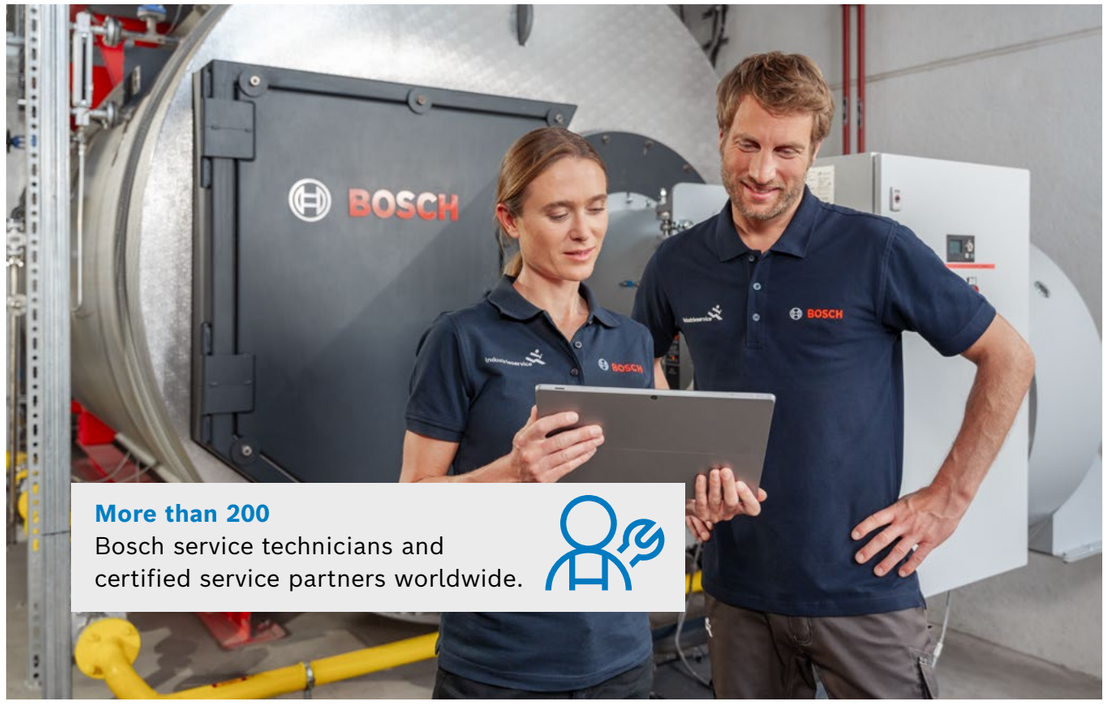
Our boiler service supports you throughout the entire lifecycle of your system – from commissioning to regular maintenance. Fast and cost-effective remote support is ensured by secure service access via the Industrial Boiler Assist. Not sure whether your boiler system is still state-of-the-art and working efficiently? Here too, our experts provide support and evaluate potential modernisation measures based on your specific situation.

Reliable spare parts supply

Several thousand parts are available immediately from the factory. We are happy to support you with professional installation of the spare parts. For highest system availability and shortest reaction times we recommend to use our customised spare parts packages.

Spare Parts Hotline Germany/International:
+49 180 5010540*

* 0.14 euros/min. from the German fixed network; mobile phone maximum price 0.42 Euro/min.
** max. 0.10 euros/min. from the Austrian fixed network
Costs for calls from mobile networks and international connections may vary.



More than 200
Bosch service technicians and certified service partners worldwide.

Reference Dunakeszi heating plant in Hungary

Bosch boilers heat the town of Dunakeszi.

Around 40,000 people live in the town of Dunakeszi, near Budapest (Hungary). For many years, more than 2,300 households and eight public establishments of the town have been enjoying the benefits of the district heating supply provided by the company Dunakeszi Közüzemi Kft. In order to maintain 100 % supply reliability and to optimise efficiency the energy supplier has undertaken comprehensive refurbishment. The measures include the modernisation of the complete boiler house. The local Bosch partner, Kazantrade Kft., offered the optimum solution for the renewal of the energy generation plants. The three Bosch UT-L boilers used in the project are impressive in their high energy efficiency and extremely reliable heat supply.



Dunakeszi Közüzemi Kft. heating plant during the modernisation phase.

Energy-efficient operation

The compact UT-L boilers consume less fuel and protect the environment thanks to integrated condensing heat exchangers. Other components such as modulating firing systems, speed-controlled burner fans for reduced electricity costs and O_2 controls for optimised combustion further increase efficiency. The boilers achieve a very high efficiency level of almost 98 %. The boiler controls BCO and modules for fuel supply and return temperature protection complete the overall system.



Brought up to current state-of-the-art technology with new Bosch heating boilers.

Reference Pieter Wiersma heating plant in the Netherlands

Low-NO_x hot water boilers for complex district heating grid.

Two Bosch hot water boilers, each with 20 MW, are in operation at the Pieter Wiersma heating plant in Lent (the Netherlands). Thanks to innovative boiler and burner technology, it is one of the cleanest plants of this type in Europe. It feeds heat into the Nijmegen district heating network and supplies up to 14,000 households. The base load is generated by means of heat from a waste recycling plant. The Bosch boilers support the district heating network at peak loads in winter and serve as back-up in emergencies. This ensures that the heat supply to the inhabitants is uninterrupted.



Highly modern and innovative: the Pieter Wiersma heating plant in Lent.

NO_x emissions below 50 mg/Nm³

Compared with heating that is produced in individual households, up to 70 % of the CO_2 emissions can be saved by using the district heating network. The Bosch hot water boilers also contribute to this. In the case of all four burners, the NO_x emissions are under 50 mg/Nm³ irrespective of the load range. In addition, the boilers with their double-flame tube design can react very dynamically to load fluctuations and generate heat in a consistently energy-efficient manner even at low load.



The NO_x values are under 50 mg/Nm³ at the customised boiler system in the Pieter Wiersma heating plant.

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youtube.com/@BoschIndustrialHeat

* EUR 0.14/min from German landline; maximum mobile phone price: 0.42 Euro/min
** max. EUR 0.10/min from Austrian landline
Different charges may apply for calls from mobile networks and for international calls.

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Subject to technical modifications | 09/2026 | VP-IN/MKT_en_P-HotWater_06