Invented for life

BOSCH

Boiler and efficiency components

For high efficiency, durability and reliability

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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

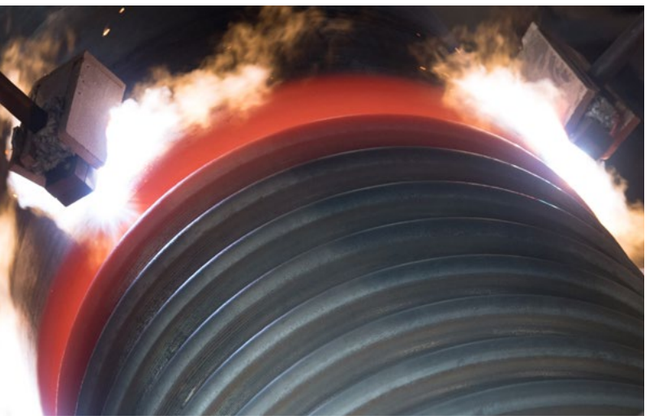
Whether it is 3D data, technical drawings or documents for tendering and approval, the experts from Bosch offer specialist support at every phase of the project – from conception through to commissioning.

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

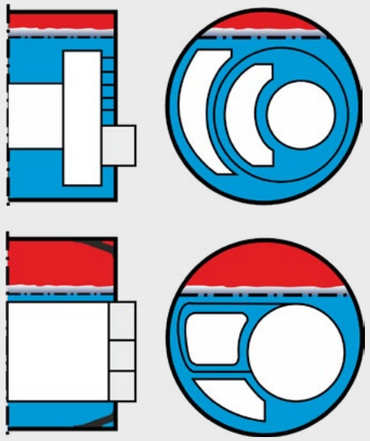
Only happy and focused employees will deliver top quality. The very latest safety concepts and equipment and materials for the work to be carried out are part of our overall manufacturing concept, just like the training and further education of our staff.

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.

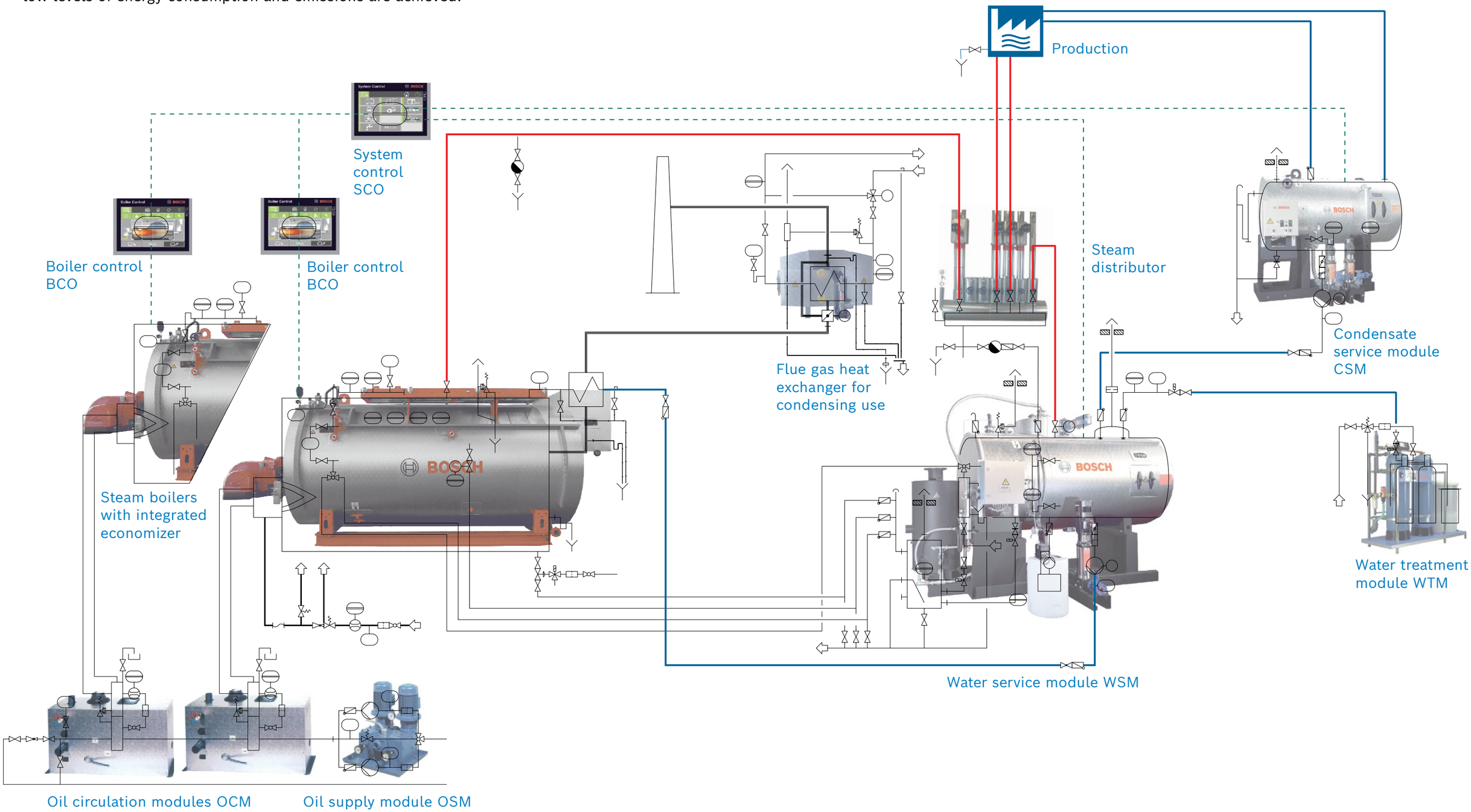
Maximum quality monitoring

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.

Smart energy saving

Highly efficient boiler systems with perfectly matched boiler house components ensure that low levels of energy consumption and emissions are achieved.



Modules for steam boilers

Our modules for steam boilers allow you to equip your system according to your requirements. They ensure maximum operating safety as well as long service life and a high level of efficiency under the specific operating conditions.

Water service module WSM

The water service module supplies steam boilers with degassed and chemically conditioned feed water and disposes of the desalting and waste water.

- Feed in and storage of condensate and make-up water
- Thermal partial deaeration of the feed water with WSM-T
- Thermal full deaeration of the feed water with WSM-V
- Chemical conditioning of the feed water
- Expansion and cooling of the desalting and waste water
- Cooling of the water samples
- PLC control and visualisation of
  - water level in the tank
  - feed water temperature for the WSM-T
  - tank pressure for the WSM-V
  - blow-down temperature
- Control for chemical dosing
- Dry running protection feed pump module
- Overflow protection

Construction

All components are piped, thermally insulated and electrically wired into a multi-functional assembly unit. Complex scaffold constructions are not necessary: The compact module is mounted on a stable support device and designed for installing at ground level. The PLC-based control with touch display controls all relevant functions automatically.

Water service module WSM-V for full deaeration for all steam boiler systems with outputs ranging from 2,000 to approx. 100,000 kg/h.

Water service module WSM-T for partial deaeration for all steam boiler systems with outputs of up to 8,000 kg/h.

Equipment level

The module consists of the steam heated feed water tank, the chemical dosing device, the blow-down and expansion tank, a water sample cooler and the associated fittings as well as the control cabinet. Optionally, there are additional components such as a heat recovery facility for desalting water, a second chemical dosing device or feed pump modules available. For the WSM-V is a spray or trickle deaerator mounted on the feed water tank.

Benefits

- Fast and easing planning, installation and acceptance
- No need for positive suction head, ground level installation
- Ready for operation with just a few connections
- Easy commissioning, maintenance and operation
- Complete warranty unit
- Reliable spare parts supply
- Easy transportation and relocation
- High degassing efficiency with WSM-T
- Highest degassing efficiency with WSM-V
- Reduced consumption of chemicals with WSM-V
- Trouble-free and reliable boiler and system operation

Steam accumulator module SAM

The module is used for storing a defined energy content that is available as expansion steam during pressure reduction. The application area is the covering of peak loads e. g. if the capacity of a steam generator is exceeded briefly. The greater the water content of the accumulator, the greater the re-evaporation heat is.

The steam accumulator is filled 50 % with water and is heated up with steam to the boost pressure. The accumulator is discharged by opening the shut-off devices on the consumer side. Always the exact same steam quantity that was removed previously is fed into the accumulator. As a result, it is generally not necessary to feed additional feed water into the steam accumulator during operation. A float condensate trap is provided to prevent an increasing water level.

Construction

The steam accumulator consists of a horizontal cylindrical tank with a built-in steam nozzle pipe.

Equipment level

The module is thermally insulated and delivered with assembled equipment ready for operation. The module is fitted with a venting, drain shut-off, filling shut-off, steam inlet and outlet valves, an overflow and overpressure protection, a direct temperature display as well as a water level indicator.

Benefits

- Balance of brief peak loads
- Reduction of water entrainment and its negative effects
- Reduction of switching frequency of the steam generators
- Reduction of the energy consumption and wear

Condensate service module CSM
Condensate high-pressure plant CHP

Condensate from steam consumers is channeled, collected and temporarily stored in the condensate service module. A condensate pump pumps the condensate back into the feed water deaeration plant if the corresponding need for water arises. Unpressurised condensate service modules are usually installed near the consumer.

With the condensate high-pressure plant the condensate is kept at pressure and temperature so that expansion steam losses are prevented or significantly reduced. The condensate is fed directly to the steam boiler via the condensate pump when required. Deaeration once again of the high-pressure condensate is not necessary. Condensate high-pressure plants should always be used if the discharge into the feed water tank or into unpressurized condensate service modules would be accompanied by high expansion steam losses due to the condensate parameters.

Construction
All components are piped, thermally insulated and electrically wired into a multi-functional assembly unit. The unpressurised condensate service module is mounted on a stable support device and designed for installing at ground level. The condensate high-pressure plant is prepared for open installation and needs a positive suction head of at least 1.5 meters. The intelligent control with touch display controls all relevant functions automatically.

Equipment level
The system consists of the components condensate tank, condensate pump module, control cabinet and equipment accessories. The system's piping and thermal insulation is pre-installed ex works.

Benefits
- Decrease in energy and water consumption by reducing make-up water quantities
- Minimisation of expansion steam losses, desalting and blow-down quantities, less chemical consumption and reduced corrosion potential in the steam-condensate-system when using condensate high-pressure plants

The unpressurised condensate service module collects the condensate streams and channels them back into the water/steam circuit via the deaeration system.

The amount of fuel, make-up water requirement and use of chemical dosing agents for the water treatment can be reduced drastically by a condensate high-pressure plant.

Blow-down, expansion and cooling module BEM

The purpose of the blow-down, expansion and cooling module BEM is the intake of all hot waste water of a steam boiler system. This waste water is collected, expanded and cooled down to the permitted, set discharge temperature. The module is designed for multi-boiler systems with a max. of three steam boilers.

Construction
A closed, upright container mounted on a supporting structure, with various feed and drain connections. The lower half of the module is filled with water during operation, the upper half is expansion space. The prevailing media temperature is recorded and converted to an electrical signal with the temperature measuring transducer in the lower part of the module. Mixed cooling is achieved by the supply of cold, softened make-up water and the waste water is safely drained off when the permitted discharge temperature is reached. The discharge temperature can be controlled by the control system of the water service module.

Equipment level
The module comprises a vertical cylinder sealed with plates at both ends and a protection against contact. It is offered thermally insulated and fully assembled ex works with all necessary fittings.

Benefits
- Quick and easy assembly, ready for immediate operation with few connections
- Exact compliance with official guidelines thanks to automatic operating mode

Expansion and heat recovery module EHM

The module recovers a substantial amount of the heat quantity contained within the hot water (desalting water/condensate) of a boiler system. In the expansion tank the water that is under pressure is expanded. The expansion steam produced thereby supports the heating of the feed water tank. In the downstream heat exchanger the make-up water of the boiler system is preheated and the desalting water/condensate is cooled to a temperature of approx. 35 °C.

Construction
The module comprises an expansion tank, an integrated heat exchanger for heat recovery, the supporting structure and the necessary equipment.

Equipment level
The module is offered thermally insulated and fully assembled ex works with all necessary fittings.

Benefits
- Quick and easy assembly, ready for immediate operation with few connections
- Increase in efficiency of the system
- Reduction of the fuel, cooling water and waste water costs

Expansion, heat recovery and blow-down module EHB

The module comprises the combination of the expansion and heat recovery module EHM with the blow-down, expansion and cooling module BEM. Its purpose is therefore the recovery of the energy contained within the hot water (desalting water/ condensate) and the discharge of waste water taking into account the permitted discharge temperature.

Construction
The module consists of an expansion tank as well as a waste water and cooling tank. A heat exchanger with associated fittings is integrated for heat recovery.

Equipment level
Two cylinders one above the other sealed with plates at both ends, a collecting station, all necessary fittings, the internal piping and thermal insulation are included in the scope of delivery and are offered ex works fully assembled.

Benefits
- Quick and easy assembly, ready for immediate operation with few connections
- Exact compliance with official guidelines thanks to automatic operating mode
- Increase in efficiency of the system
- Reduced fuel, cooling water and waste water costs

Vapour cooler VC

In thermal full deaeration systems, exhaust vapour accumulates inherently. Without a vapour cooler, exhaust vapour would be dissipated into the open air. In the vapour cooler, however, the exhaust vapour condenses by means of a heat exchanger. The released thermal energy generated during the cooling of the exhaust vapour is used to heat up the make-up water.

Construction
Plate-type heat exchanger with threaded connections, wetted parts are made of stainless steel.

Equipment level
The module comprises a heat exchanger with associated fittings.

Benefits
- Heat recovery and thus efficiency improvement
- Useable energy for additional heating or for transfer to separate water circuit
- Reduced fuel consumption

Pump module PM

The module is used for pumping the feed water from the feed water tank into the steam boiler or for pumping the condensate from the condensate tank into the deaeration plant. The pump module is optionally equipped with a motor with frequency converter for infinitely variable, demand-related water quantity control.

Construction
The supplied pumps are vertical multi-stage high-pressure centrifugal pumps with a fully enclosed, fan-cooled motor. They are designed especially for use in shell boilers.

Equipment level
The pump module is delivered fully assembled ex works on a console with pressure indicator, shut-off, filter and non-return valves.

Benefits
- Pre-assembled for quick installation
- Speed-controlled version for increasing the efficiency of the flue gas heat exchanger
- Reduction in power consumption and increase in operating convenience

Feed water regulation module RM

If no speed-controlled feed pump is available, continuous regulation with the feed water regulation module RM is recommended as an alternative for all boilers fitted with modulating burners and flue gas heat exchangers. The module ensures longer flow-through times of the flue gas heat exchanger and thus optimum heat recovery from the boiler flue gases. At the same time, the minimum quantity required for the feed pump cooling is ensured via the feed water regulation module.

The prefabricated module is used at a suitable location in the feed water pressure line. It is switched as supply flow control.

Equipment level
The feed water regulation module for infinitely variable control consists of a feed water control valve, discharge device, dirt trap device and two shut-off valves as well as a bypass device.

Benefits
- Increase in efficiency of the flue gas heat exchanger
- Reduction of the pump switches
- Constant boiler water level
- Reliable minimum flow rate for cooling the feed pump

Flue gas heat exchanger ECO stand-alone

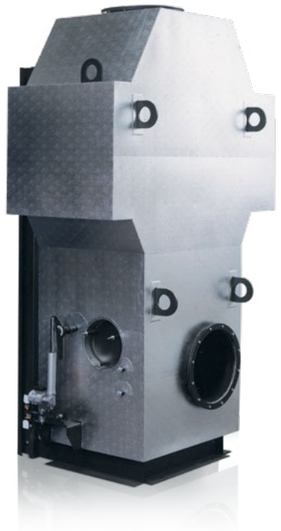
A flue gas heat exchanger, also called an economiser, is part of the standard equipment for energy-optimised and environmentally friendly boiler operation.

Flue gases contain significant heat potential at high temperature. Economizer modules with their highly-efficient heat recovery surfaces utilise this heat potential and thus increase the boiler efficiency of new or existing steam boiler systems significantly. The flue gas heat exchanger is installed downstream of the boiler and is used for “dry” operation for heating up feed water. To use the condensing heat, the flue gas condensation can take place in an additional down-stream flue gas heat exchanger module and make-up water can be heated up.

Construction
In the lower part, the flue gases are collected and flow through the integrated heat exchanger in the upper part for heat recovery.

Equipment level
Servo drive, piping of the connections, flue gas control and drain shut-off valves are fully assembled and included in the scope of delivery as well as the thermal insulation ex works.

Benefits
- Effective waste heat recovery increases boiler efficiency
- High fuel savings and reduced CO_2 emissions
- Integrated into the boiler or as a stand-alone version for easy retrofitting



Steam distributor SD

In the distributor, the generated steam mass flow is distributed to the consumer and residual moisture is separated and drained.

Construction
A collecting pipe with an order-related number of pipe outlets is fully assembled with flange connections and all necessary fittings into a module unit.

Equipment level
The distributors are fitted with pressure indicators, shut-off, non-return and condensate drain valves and will be delivered thermally insulated.

Benefits
- Reduction of network losses by centralised distribution for systems with complex consumer structures
- Savings thanks to centralised operation and maintenance

Air preheating system APH

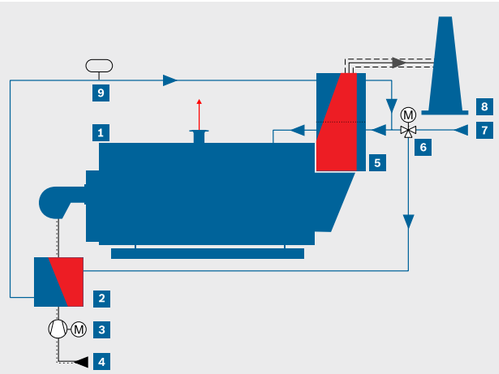
By means of this system the combustion air is preheated and the flue gas temperature is reduced. The efficiency is increased.

When installing a new steam boiler system with economizer, air preheating is the ideal solution for increasing efficiency, particularly in cases where the integration of a flue gas condenser is impractical for process reasons. The Bosch air preheating system is available for single-flame or double-flame tube boilers with duoblock burners. The system is economically viable from a boiler capacity of around five tonnes of steam per hour. The fan can be installed on the top of the boiler, this means that the compact system requires little space for installation. Return-on-investment (ROI) is generally achieved after 1.5 to 2 years.

Construction
In the Bosch system, a part of the heated feed water flow is utilised for increasing the temperature of the combustion air. The hereby cooled feed water increases efficiency by further reducing the flue gas temperature in the downstream, combined economizer.

Equipment level
The air preheating system consists of a three-way valve, a combined flue gas heat exchanger and an air-side heat exchanger. In comparison with conventional two-circuit systems, it is now possible to omit the circulation pump, the expansion vessel and various electronic safety and control systems. This reduces not only investment costs, but also the recurrent costs for maintenance and replacement parts.

Benfits
- Increased system efficiency
- Reduced fuel consumption
- Reduced emissions
- Lower investment costs in comparison with conventional solutions
- Lower maintenance and servicing costs
- Shorter period of amortisation
- Superior quality standardised system from Bosch



Water/Condensate
Steam
Flue gas

1 Steam boiler
2 Combustion air heat exchanger
3 Fan
4 Combustion air
5 Combined flue gas heat exchanger
6 3-way valve
7 Feed water
8 Chimney
9 Temperature controller

Extremely simplified diagram

Feed water cooling module FWM

The flue gas temperature is an important criterion for assessing the efficiency of a steam boiler system. Older and smaller systems have often relatively high flue gas temperatures, which is accompanied by unnecessary high fuel costs. For systems with medium to high operating hours technical solutions for reducing the flue gas losses such as condensing heat exchangers or air preheating systems pays off quickly. However, the feed water cooling module is the most cost-effective alternative for systems with lower operating hours. It is easy to retrofit and particularly suitable for:

- Boilers with low to medium condensate recirculation
- Systems without modules for fresh water preheating
- In the case of continual hot water demand, e. g. for office buildings or industrial processes
- Boiler systems with economizers but without downstream condensing heat exchangers
- Boilers with low operating hours, e. g. production with single-shift operation
- Boilers with an output < 10 t/h

Construction

Cold make-up water is heated up in the feed water cooling module by using the warm feed water in a heat exchanger. As a result of the feed water cooling down, there is a larger temperature difference between the water and flue gas in the economizer. The flue gas outlet temperature decreases due to the better heat transfer in the economizer. The firing efficiency is thus enhanced by up to 1.8 %. The control of the module ensures that the temperatures and flow rates are always within the permitted range.

It thereby prevents:

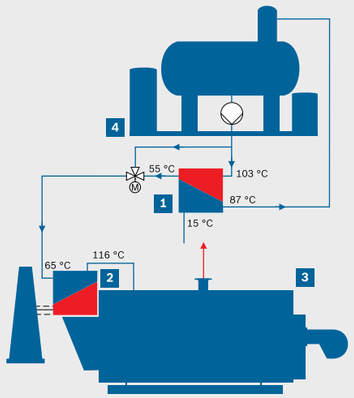
- Thermal stresses caused by too cold feed water flowing into the boiler
- Corrosion caused by unwanted condensation of the flue gas when it is cooled down too much

Equipment level

The feed water cooling module consists of an insulated plate-type heat exchanger, valves, pipe connection pieces and temperature sensors. It is delivered installation-ready on a base frame. The dimensioning of the module and the parameterisation of the control are made specifically to order – based on the system's mode of operation.

Benefits

- Reduced fuel costs
- Easy retrofitting to older systems thanks to a small space requirement and simple piping
- Matched control for safe operation of the boiler and components
- Quick amortisation, even on systems with few operating hours
- Ready for operation with just a few connections
- Simple commissioning, operation and maintenance



Water/Condensate
Steam
Flue gas

1 Feed water cooling module
2 Economizer
3 Steam boiler
4 Water service module

Extremely simplified diagram

Reduce fuel consumption and CO_2 emissions

Flue gas heat exchanger

up to 7 %
less fuel

Condensing heat exchanger

up to 7 %
less fuel

Condensate high-pressure plant

up to 12 %
less fuel

Air preheating system

up to 2.5 %
less fuel

Feed water cooling module

up to 1.8 %
less fuel

Heat recovery module desalting/condensate

up to 2%
less fuel

TDS control and low salt operation

up to 3.4 %
less fuel

Vapour cooler (deaerator heat)

up to 0.5 %
less fuel

O_2 and/or CO controls

up to 0.5 %
less fuel

Speed control (combustion air fan)

up to 75 %
less electricity

The savings potential is plant-specific and depends on the operating mode. Many of the measures can be combined.

Increase automation, reliability and longlivity

Water service module, water treatment module, blow-down module

Boiler and system controls incl. software

Feed water regulation and pump modules

Steam accumulator module

Steam distributor

Fuel supply modules

Modules for hot water boilers

Our modules for hot water boilers facilitate installation and ensure safe operation of your system. They are pre-assembled ready to be installed and optimally suitable for retrofitting.

Supply flow adapter piece SP

A flange adapter including safety equipment for closed systems.

Construction
A tube with flange connections for the supply line with mounting of the safety equipment.

Equipment level
The supply flow adapter piece is fitted with a built-on level limiter, maximum pressure limiter, pressure indicator, manostat tube with shut-off valve, shut-off valves (emptying, test function) and shut-off valve with test connection.

Benefits
- Pre-assembled for quick installation
- Exact compliance with official guidelines

Return flow adapter piece RP

Flange adapter for installation at the return flow nozzle.

Construction
A T-tube with various flange connections and a connection for the temperature monitoring.

Equipment level
On this return flow adapter piece a flange connection for the expansion line as well as a connection for a thermometer or temperature sensor is already provided.

Benefits
- Pre-assembled for quick installation
- Exact compliance with official guidelines

Return flow temperature safeguard RTS

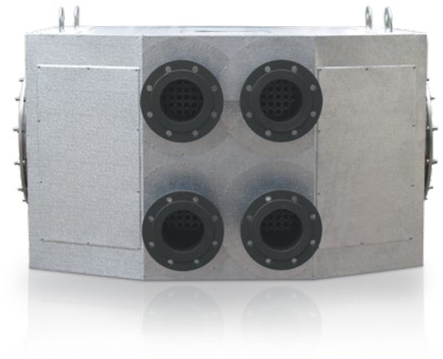
The return flow temperature safeguard of a hot water generator can be realised by means of temperature maintaining or temperature boosting.

Construction
All individual accessory parts such as supply flow adapter piece with safety equipment, return flow adapter piece, supply and return flow fittings, circulation pump and motor three-way valve are pre-assembled into the ready-to-install RTS module.

Equipment level
The return flow temperature maintenance consists of:
- Boiler circulation pump
- Three-way control valve
- Return temperature control
- Shut-off valves supply flow/return flow

The return flow temperature boosting consists of:
- Admixing pump
- Shut-off valve, suction side
- Shut-off valve, pressure side
- Non-return valve, pressure side
- Motor shut-off valve boiler return flow
- Shut-off valve boiler supply flow

Benefits
- Short assembly time of just a few hours
- Problem-free compliance with operating conditions



Flue gas heat exchanger ECO stand-alone

The flue gas flows at the boiler outlet inherently have heat potential at a high temperature level. A heat exchanger extracts heat from the hot flue gas and, in return, preheats return water. The stand-alone retrofit variants are available without bypass for gas-fired heating boilers as well as with bypass and flue gas control damper for hot water boilers with oil/gas dual-firings.

If a separate water circuit is available, the use of condensing technology by means of a stainless steel flue gas condenser is recommended.

Construction
Heat exchanger in welded construction for installation downstream of the boiler, with connecting pieces for water inlet, water outlet and drainage, and including inspection openings on the flue gas side. With the bypass version, the hot flue gases are controlled by means of control dampers.

Equipment level
The module is fully assembled. Lifting lugs, feet or transport rails and a flue gas control valve are included in the scope of delivery ex works as well as the thermal insulation.

Benefits
- Improved energy efficiency
- High fuel savings and CO_2 reduction
- Integrated into the boiler or as a stand-alone version for easy retrofitting

Modules for supplies to the boiler and intelligent control systems

You can setup the operation of hot water and steam boilers according to your needs with our ready-to-install modules for supplies to the boiler. Our smart control technology enables maximum automation, energy efficiency and reliability.

Water treatment module WTM

To avoid boiler scale, it is only permissible to operate boiler systems with softened feed water. In the guidelines on water characteristics, the permitted total hardness for different types of boilers and operational modes is limited. For softening water, raw water is filtered and make-up water is generated by means of the ion exchange process. The hardening components calcium and magnesium ions are replaced by sodium ions.

Fully automatic versions simplify operation, prevent operating errors, enable continuous operation and ensure increased utilisation of capacity when using the same raw water hardness.

Construction

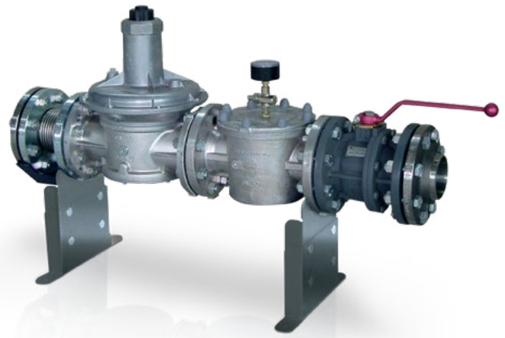
On a support structure, all elements of the water softening plant are clearly and functionally arranged fully assembled. The WTM is suitable for all boiler sizes.

Equipment level

The WTM consists of the water softening system and a salt-softening receptacle. A drainage water connection, sampling device, pressure indicator as well as control fittings, shut-off and filter valves complete the module.

Benefits

- Constant softened feed water for preventing calcification of the boiler heating surfaces
- Good heat transfer, high efficiency and long service life of the boiler
- High degree of operational reliability
- Quality-controlled version allows external hardness monitoring to be dispensed with – e. g. for improved utilisation of capacity and without the need for permanent supervision of operation even in the case of varying raw water hardness



Gas regulation module GRM

The module regulates the constant gas pressure upstream of the burner – irrespective of the level of the input pressure and gas flow rate. Ensures against inadmissible gauge pressure and inadmissible gas flow rate.

Construction

All elements included in the scope of delivery are arranged in the necessary order and delivered fully assembled on a support structure.

Equipment level

The gas regulation module GRM includes all fittings such as filter, ball valve, shut-off valve etc., which are necessary for the gas-side fuel supply of the burner.

Benefits

- Pre-assembled for quick installation
- Exact compliance with official guidelines
- Increase of operating safety

Oil circulation module OCM

The oil circulation module prepares liquid fuels and records the throughput. As a ready-to-connect extraction module for each burner for easy installation in ring lines with an upstream pressure of at least 1.5 bar. The two-chamber oil collector vessel is designed for light and heavy fuel oil pressure atomising burners with a return nozzle system.

Construction

The oil circulation module is combined into a fully assembled compact unit on a carrier plate and is delivered with a protective cover.

Equipment level

The module includes a two-chamber collector vessel, a filter valve, the oil quantity indicator, a shut-off valve, pressure safeguard valve, vent shut-off valve and two drain plugs. For heavy fuel oil operation there is also a heater cartridge for the filter and vessel.

Benefits

- Pre-assembled for quick installation
- Reliable recording of the oil throughput

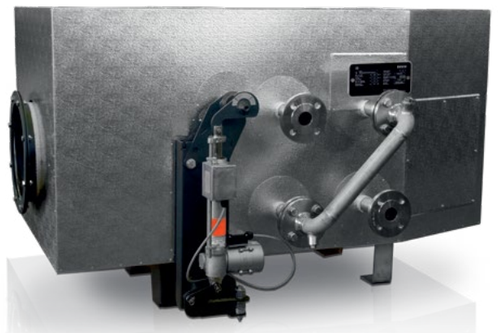
Oil supply module OSM

The oil supply module is used for pumping and filtering fossil fuels in ring lines for supplying one or more burners.

Construction
It is pre-assembled in an oil collection tray as a single or double station with all fittings for easy installation in the ring line.

Equipment level
Double stations enable filter cleaning without interruption of operations and offer 100 % reserve. The heavy fuel oil pump module is fitted with electric or combination heating for steam or hot water.

Benefits
- Can be used for all Bosch boiler systems with oil firing and ring line supply
- Pre-assembled for quick installation



Stand-alone flue gas heat exchanger with flue gas condensation

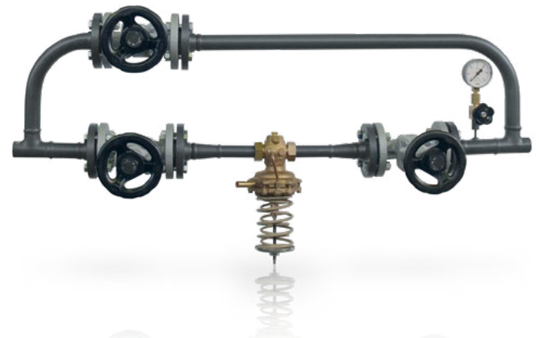
Using condensing technology, this flue gas heat exchanger recovers energy from the residual heat of the boiler flue gas.

The operating mode is the same as a normal economizer. The flue gas heat exchanger recovers heat from the hot boiler flue gas, while cool water flows through the heat exchanger tubes and reduces the flue gas temperature. The energy gained through flue gas condensation gives a higher level of boiler efficiency and therefore reduces fuel consumption and flue gas emissions.

Construction
Stainless steel heat exchanger in welded construction for installation downstream of the boiler, with connection pieces for water inlet, water outlet and drainage, and including inspection openings on the flue gas side. For the model with bypass, the hot flue gases are controlled by means of control dampers.

Equipment level
The module is fully fitted with lifting lugs and feet as well as a flue gas control valve and heat insulation.

Benefits
- Improvement of the efficiency level
- High fuel savings
- Easy retrofitting to existing systems
- Can be used with both steam and hot water systems

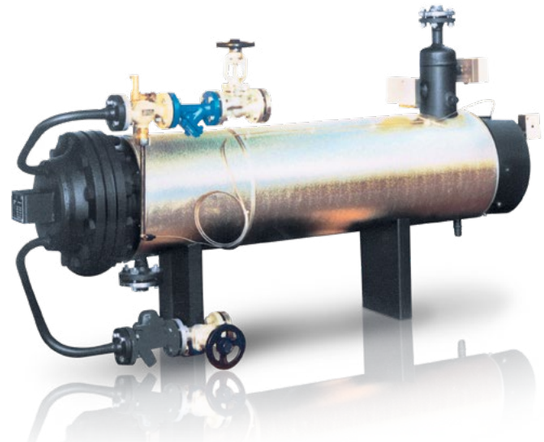


Oil pressure regulation module ORM

Pressure controlling device for maintaining the pressure in the oil ring line.

Construction
The oil pressure control module consists of a controller, including connection parts such as manometer, manometer valve and a bypass valve.

Benefits
- Pre-assembled for quick installation
- Increase of operating safety



Oil preheater module OPM

The oil preheater module preheats the pumpable heavy fuel oil to the atomizer temperature of the respective burner.

Construction
A cylindrical heat exchanger is combined into a compact unit assembled with fittings and delivered on a stable support structure.

Equipment level
The heat exchanger with an extendible tube bundle can optionally be fitted with steam or steam/electrical heating. The module, including the heating control, thermal insulation and all fittings, is pre-assembled ready to connect.

Benefits
- Can be used for all Bosch boiler systems with oil firing and ring line supply
- Increase of operating safety

Boiler control BCO

The PLC-based boiler control BCO can be combined with all Bosch steam and hot water boilers. Configured according to project-specific requirements, the BCO offers maximum operating data transparency and intelligent control features for fully automatic boiler operation. Bosch supplies the control system in a completely wired floor-standing or wall-mounted cabinet. Compatible with all common control systems for easy connection to central automation systems.

Benefits

- Project-specific pre-configured and intuitive to use
- Comprehensive control functions such as output/level control, low load control, operating hours counter, number of burner starts, operating and fault messages
- Simple connection to automation systems
- Storage of all operationally relevant measured values for maximum data transparency
- Integrated protective functions for high supply and operational reliability
- Condition and efficiency monitoring
- On request with fully automatic start-up control SUC (steam)
- Ideal water conditions due to automatic, conductivity-controlled desalting/blow-down removal (steam)
- Optional remote connection via MEC Remote

System control SCO

The system control SCO networks all controls of a boiler plant to an energy-efficient overall system. The individual programming ex works enables an adaptation to customer-specific requirements. Multi-boiler systems can be controlled dynamically and fully automatically with the integrated sequence control. The SCO supplies all relevant data to the system's control technology via common, pre-configured protocols.

Benefits

- Efficient, fully automatic control of a boiler system
- Intelligent sequence control for multi-boiler systems
- Integration of water analyses, deaeration systems, dosing pumps and oil supply equipment
- Integration of condensate systems/foreign matter monitoring
- Various pressure and temperature controls
- Extensive storage of operating parameters and operating messages
- Integrated monitoring and protection functions
- Simple connection to automation systems
- Optional remote connection via MEC Remote for remote visualisation of the system control

Compact hot water boiler control CWC

The compact hot water boiler control CWC can be combined with all Bosch single-flame tube hot water boilers and heating boilers. With its integrated power supply and pre-configurable control technology interface, the CWC is a reliable and cost-effective alternative to individual solutions. It includes all important functions for automated boiler operation. The integrated sequence control combines up to four CWC units into an optimised cascade. The wired control cabinet with preprogrammed control is available as a stand-alone or wall-mounted cabinet or installed on the boiler (up to 9 MW).

Benefits

- Modular complete solution
- Intelligent sequence control for up to four boilers
- Intuitive operation via colour touch display and function keys for quick access
- Pre-configured for quick commissioning
- Integrated power supply for all actuators and sensors in a compact control cabinet
- Compatible with all common automation system protocols
- Optional remote access via MEC Remote

Compact steam boiler control CSC

The compact steam boiler control unit CSC is the ideal solution for steam boilers with capacities up to 4,000 kg/h steam. All the essential basic functions for convenient control and operation are included. Compared to the BCO boiler control for more complex systems, the CSC is a cost-effective alternative for single steam boilers.

Benefits

- Compact control solution for steam boilers up to 4,000 kg/h
- Colour touch display for easy operation and clear visualisation of operating states
- Flexible installation and low space requirement: Installed on the boiler ex works or as a wall-mounted control cabinet, pre-wired and functionally tested
- Power electronics for fuel supply, feed water pump, blow-down removal and desalting
- Ideal water conditions through fully automatic, conductivity-controlled desalting and blow-down removal

Control 8000 for heating boilers

Can be used for heating applications up to 110 °C. The convenient operating unit with innovative design enables simple control of several heating circuits. The power supply is required on site.

Remote access MEC Remote

Using MEC Remote, operators can gain remote access to their boiler system conveniently and securely. This means the entire boiler and system control can be visualised using standard Internet-enabled devices.

MEC Remote is the ideal solution for all companies:
- In which the supervising personnel cannot be on-site constantly
- Operating single or multi-boiler systems requiring supervision
- With on-call service, e. g. at the weekends

Using the overview map of MEC Remote, you can monitor all your boiler systems around the world. The secure remote access allows you to visualise the surface of the control system and retrieve all relevant boiler data.

Effective service support

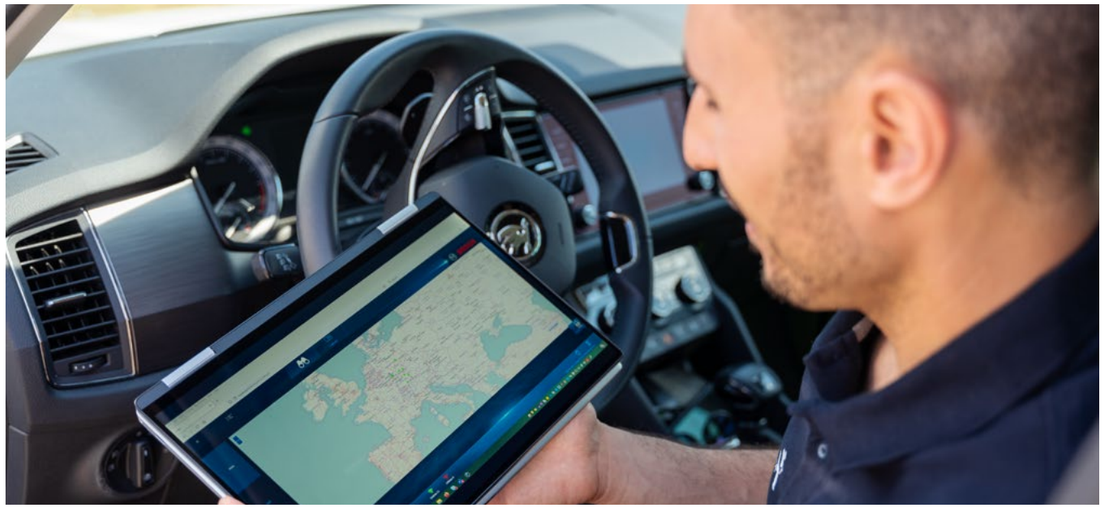
On request also the Bosch experts can use the remote access to perform extended parametrisation, programming (PLC) and fault analysis directly on your system. If components fail, the service experts can utilise remote analysis to narrow down the cause and ensure they arrive with the appropriate equipment. This optimises service costs and increases system availability.

Secure remote access

We provide a sophisticated role concept that controls both access authorisation and approved visualisation levels. The remote access function itself has a multi-level security concept. The external data connection can be turned on or off on the hardware at any time in the boiler house using a key. The operating data from the industrial boilers are only saved locally on the system, not in a cloud.

Benefits

- Access to operating data, any time, anywhere
- Overview of all boiler systems at all locations
- Quick, convenient and cost-effective monitoring of system data
- Secure transmission thanks to a multi-level security concept
- If required, remote support from Bosch Industrial Service



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

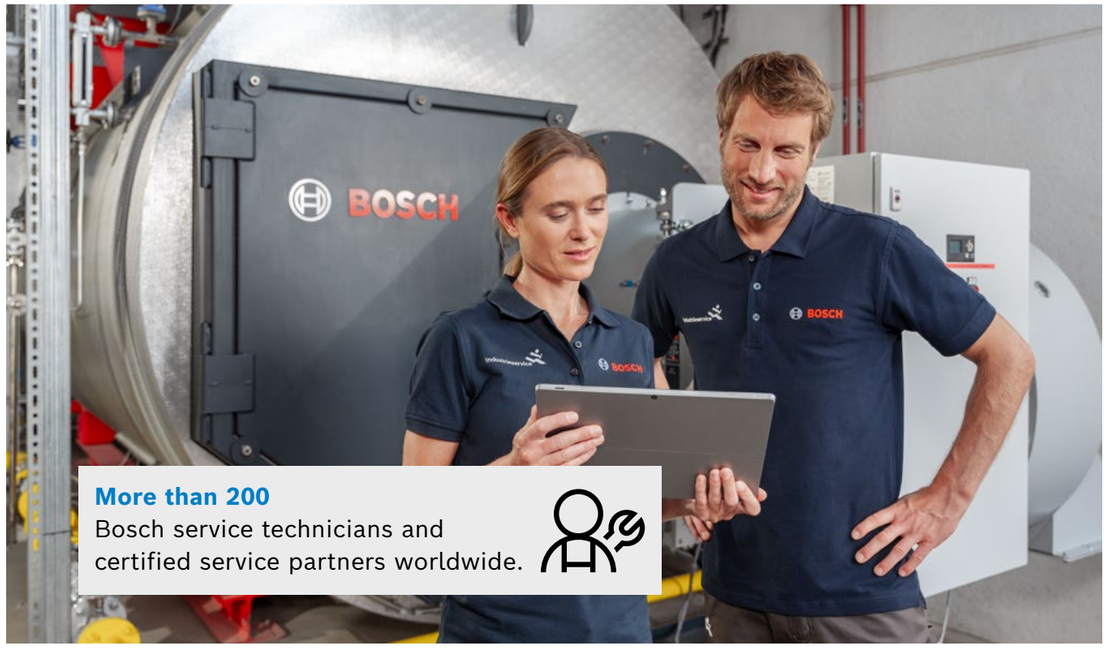
Our boiler service covers the entire life cycle of your plant from commissioning to regular maintenance. Service access via MEC Remote provides fast and cost-efficient remote support. Not sure whether your boiler system is still state-of-the-art and working efficiently? Here too, our experts provide 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
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* EUR 0.14/min from German landline; maximum mobile phone price: 0.42 Euro/min
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