



Bosch Commercial and Industrial Heating **High efficiency steam boilers** (175kg/h to 55,000kg/h)



BOSCH

Invented for life



Bosch Thermotechnology Ltd.

Bosch is one of the world's leading manufacturers of heating products. In the UK, Bosch Commercial and Industrial Heating is part of Bosch Thermotechnology Ltd., a company that specialises in providing complete system solutions for the commercial and industrial heating sectors.

Bosch Commercial and Industrial Heating offers its customers shell boiler systems for all applications. Our large-scale industrial steam boiler systems are ideal for processed driven sites such as mills,

breweries, distilleries, hospitals, universities, as well as other industrial applications. All Bosch Thermotechnology Ltd. products are subject to rigorous quality testing of each and every component, to ensure efficient, reliable and consistent performance throughout their lifecycle.

This brochure gives you a detailed overview of our UNIVERSAL steam boiler products and associated services. Above all, what is important to us is perfectly fulfilling your individual heating needs.



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Up to 1,500 large-scale and industrial boiler systems are produced annually at our highly modern production sites in Gunzenhausen in Germany and in Bischofshofen in Austria.

Expertise and trust

Bosch Thermotechnology Ltd. has unrivalled customer support, offering a complete solution from system design and product specification to final commissioning and maintenance contracts.



Providing reliable energy around the world

With more than 100,000 boiler systems installed in over 140 countries, you will find our systems in practically every type of industry. Global players such as Coca Cola, BASF, Siemens, Heineken, Nestlé and Esso all rely on our innovative commercial and industrial steam boilers.

Technical pioneering that sets a global standard

Bosch Thermotechnology Ltd. has specialised in industrial boiler construction. Our strengths in innovation, quality obsession and efficiency are the benchmarks for our product range and services.

Optimum solutions through successful partnerships

As a leading manufacturer of innovative steam boiler technology, we operate efficiently alongside specialists throughout the industry. Thanks to our close co-operation with individual contractors, you will achieve an optimum and bespoke solution for your project requirements.

Industrial boilers with quality approval

Our advanced modern production facilities ensure that our systems have a quality advantage, which is underlined via adherence to an ISO9001 accredited Quality Management System.

Environment and efficiency

As a responsible and innovative boiler manufacturer, we dedicate ourselves to environmental protection and minimising resource consumption. Our sustainable and efficient systems keep CO₂ emissions low and contribute to a reduction in adverse climate change.

Highest levels of efficiency

We were one of the first manufacturers to supply industrial flame tube/smoke tube steam boilers with integrated economisers. This allows the heat contained in the flue gases to be recovered, which increases the efficiency.

Designed for less consumption

Intelligent control systems provide further energy-saving opportunities. In addition, modulating burner fans reduce the electrical power consumption considerably at times of low heat demand. The modern burner systems, controlled by oxygen or carbon monoxide trim systems, provide the optimum combustion efficiency via intelligent fuel/air ratio technology.

Lowest levels of emissions

Our boiler systems are suitable for both liquid and gaseous fuels. The modern burner systems fully comply with UK guidelines regarding the reduction of emissions. A carbon neutral operation can be achieved using bio-fuels or bio-gases.

Inherent economic viability

With our highly-efficient boiler systems and the appropriate boiler house components, it is possible to significantly reduce energy consumption and emissions. Through this reduction, the investment costs may be recouped in a few years via reduced running expenditure. For more information, to request a quotation or to book a free site visit with one of our technical consultants, please call 0844 892 3004.

Our steam boiler systems are perfectly matched to your requirements. This saves not only natural resources but your financial resources as well.



Modular quality

Reliability and long service life are particular characteristics of Bosch industrial boiler systems. The high quality of our systems is guaranteed by our advanced production techniques, strict quality controls and continuous improvements and innovations.

Working together with Bosch Commercial and Industrial Heating

A modern boiler system can reduce the expenditure of a company's heating requirements, while also adding value to the overall property. Bosch Commercial and Industrial Heating offers all the customer support you require, from initial site visits and design specification, through to commissioning and service support during and after the installation. Bosch's heritage and establishment within the market means we can provide support for the entire life of the product.

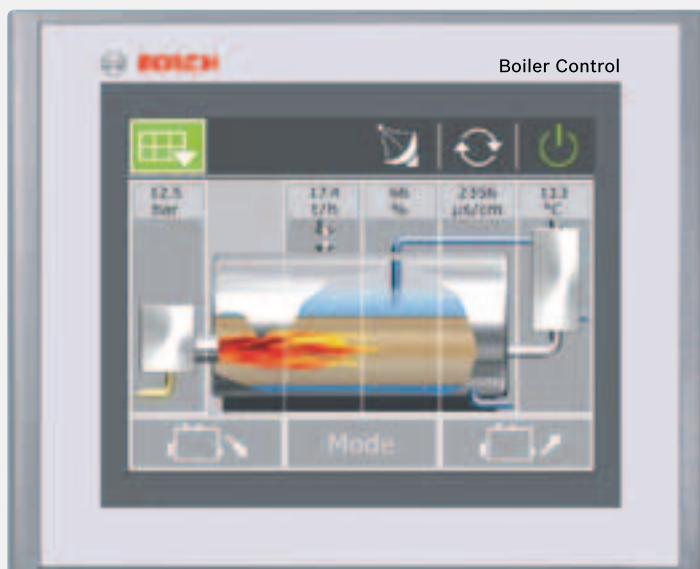
Intuitive controls

All boiler systems can be equipped with intuitive controls. The operational functions of the controls guarantee the fully automatic operation and protection of the boiler systems. The efficient BUS system technology ensures the intelligent networking of the individual components, as well as enabling an easy connection to existing building management systems.



High performance Bosch systems

Alongside an innovative boiler system, the ideal energy solution frequently includes additional heating technology such as combined heat and power, heat pumps or solar thermal. Bosch Commercial and Industrial Heating supplies this extensive range of additional system solutions technology, which enables us to combine complementary technologies to the benefit of the end user and Facilities Manager.



Intelligent control systems from Bosch Commercial and Industrial Heating provide additional energy savings, as well as making the appliance more intuitive to your needs.

UNIVERSAL steam boilers U-ND and U-HD

This compact boiler combines the benefits of shell boiler technology with the effectiveness of the flame tube/smoke tube system. The UNIVERSAL steam boilers U-ND and U-HD are suitable for small to medium steam volume requirements and operate via a reverse flame process.



Available as a high or low pressure steam boiler

Bosch Commercial and Industrial Heating can provide the UNIVERSAL steam boiler for high or low pressure steam production. Our large volume flame and smoke tube combination is perfectly matched to each other, providing a compact construction.

Energy-saving accessories

For an energy-saving and efficient operation, the compact UNIVERSAL steam boiler U-ND and U-HD can be equipped with an economiser, a continuous feed water control and other heat recovery devices. Investing in these energy-saving measures optimises system efficiency whilst minimising running costs.

The UNIVERSAL steam boilers U-ND and U-HD are an ideal solution in particular for smaller manufacturing businesses and processing companies as well as the service industry.

Benefits at a glance:

- ▶ Intuitive boiler control
- ▶ Effective thermal insulation – minimising heat losses
- ▶ Automatic start-up, standby and shutdown control
- ▶ Suitable for a variety of burner systems
- ▶ Pollutant reduced combustion thanks to the use of highly developed firing systems and careful matching of the boiler and burner
- ▶ Easy maintenance – simple to inspect on both the flue gas and water side
- ▶ Robust, reliable and durable
- ▶ All high pressure boiler systems are certified in accordance with the European Pressure Equipment Directive
- ▶ Simple extension options due to modular technology – spreading out investment
- ▶ Simple commissioning due to factory set operating parameters
- ▶ Plug-in connections for easy wiring on site – labour saving

Technical data

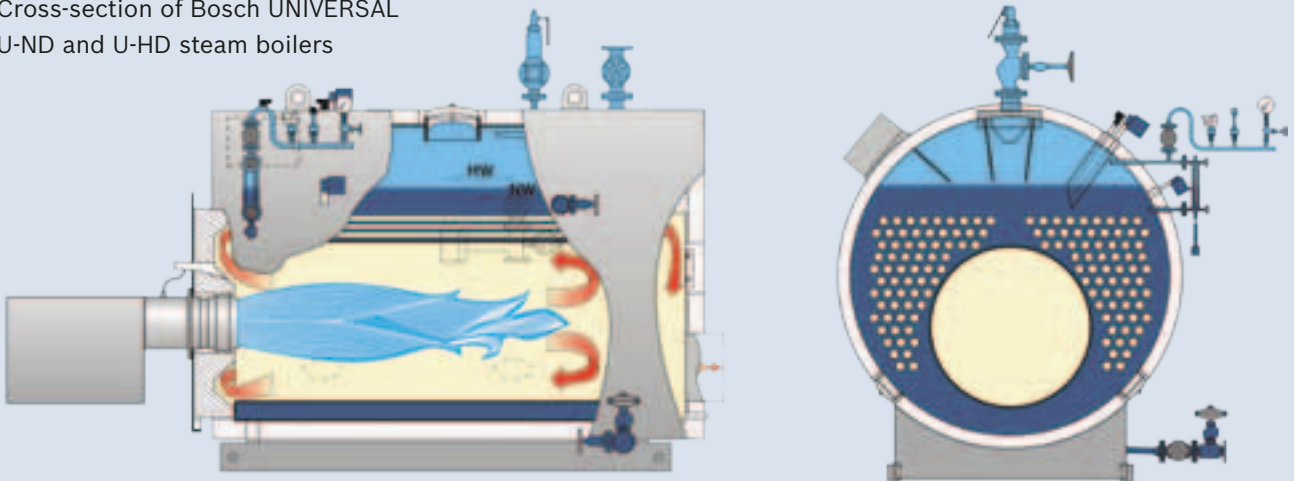
Type	U-ND	U-HD
Heat transfer medium	Low pressure saturated steam	High pressure saturated steam
Design	Flame tube/smoke tube technology	Flame tube/smoke tube technology
Capacity in kg/hour	175 to 3,200	175 to 1,250
Safety design overpressure in bar	up to 0.5	up to 16
Max. flow temperature in °C	110	204
Fuel	Gas, oil	Gas, oil

Construction

The cost-effective steam shell boiler has an impressive compact construction and a technically-efficient functionality. The large, centrally-located flame tube ensures that there is excellent combustion of the fuels and the smoke tubes are arranged around the flame tube to provide an optimum heat transfer.

Using a reverse flame principle, the smoke gases in the flame tube are diverted to the front, and then deflected in the reversing chamber to the smoke tube sections. The boiler front door can be manufactured to open either on the right or left to address plant room restrictions, increase siting flexibility and facilitate quick and easy servicing. The high quality mineral wool insulation that covers the body of the boiler, coupled with the special heat-insulation material located at the front of the door, minimises standby heat losses.

Cross-section of Bosch UNIVERSAL U-ND and U-HD steam boilers



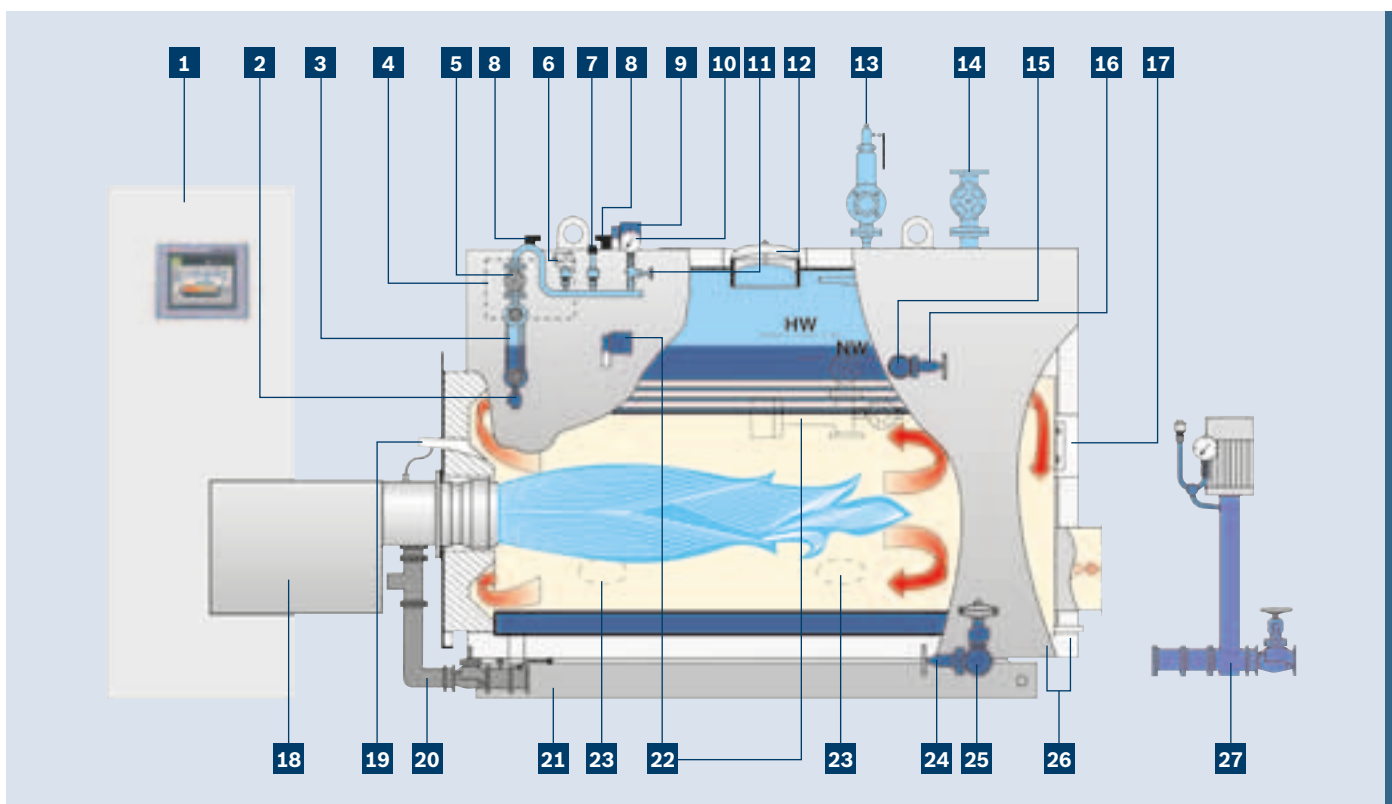
Associated boiler house components:

- ▶ Water treatment module
- ▶ Water service module
- ▶ Condensate service module
- ▶ Expansion and heat recovery module
- ▶ Expansion, heat recovery and blow-down module
- ▶ Pump module
- ▶ Flue gas heat exchanger ECO 3, stand-alone
- ▶ Vapour cooler
- ▶ Gas regulation module
- ▶ Oil circulation module
- ▶ Oil supply module
- ▶ System control

Manufacturing – comprehensive and bespoke

Our shell boilers are supplied pre-made* to the requirements of individual projects. The high quality basic equipment level includes the boiler pressure vessel, control and safety technology, burner unit, a pump module, a terminal box and the control switchgear cabinet.

All the sensors and actuators of the boiler are pre-wired into the integrated terminal box, while the pre-assembled plug-in and coded cable bundles simplify the electrical wiring installation between the boiler control cabinet and the terminal box. The free-standing or wall-mounted switchgear cabinet can be adapted and set up to best suit the on-site requirements.



- | | |
|---|---|
| 1 Control switchgear cabinet with boiler control | 15 Feed water non-return valve |
| 2 Sight glass drain valve (PRV) | 16 Feed water isolation valve – maintenance-free |
| 3 Reflective water level indicator | 17 Inspection opening – flue gas side |
| 4 Terminal box | 18 Burner |
| 5 Manostat tube shut-off valve – maintenance-free | 19 Sight hole |
| 6 Pressure limiter | 20 Gas regulation module |
| 7 Pressure transducer (4-20 mA) | 21 Base frame |
| 8 Low-level limiter electrode | 22 Fully automatic conductivity measurement and desalination |
| 9 Level transducer (4-20 mA) | 23 Inspection opening – water side |
| 10 Pressure gauge | 24 Drain shut-off valve – maintenance-free |
| 11 Pressure gauge shut-off valve with testing flange | 25 Automatic drain valve |
| 12 Inspection opening – steam side | 26 Insulation with protective shell |
| 13 Full-lift safety valve | 27 Pump module with flanges – ease of installation |
| 14 Steam removal valve | |

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

UNIVERSAL Modular steam boiler – U-MB

The product model U-MB stands for 'UNIVERSAL Modular Boiler', a 3-pass steam boiler in modular construction. The U-MB is ideal where small to medium size steam volumes are required and consists of several modules, that satisfy individual project requirements perfectly.

Flexibility from a modular system

The U-MB steam boiler is configured to provide low emissions, high quality steam and optimum energy efficiency. Thanks to its modular construction and component commonality across the range, the U-MB offers an attractive price-performance ratio.

Universal applications

The 3-pass U-MB steam boiler can satisfy a full range of applications. Naturally, it can be combined with all the other available system components from our modular range for fuel and water supply, waste water disposal, water analysis and heat recovery. The U-MB steam boiler's touchscreen control, teleservice capability and various other additional components are all identical with that of Bosch's large industrial boiler series.

Classic areas of application are the food and drinks industries, hospitals and cleaning companies, as well as smaller industrial companies.

Benefits at a glance:

- ▶ Cost-effective shell boiler and 3-pass technology
- ▶ High level of efficiency due to the integrated economiser
- ▶ Comprehensive equipment across the range
- ▶ Intuitive touchscreen operation control
- ▶ Compact footprint – flexibility of siting
- ▶ Simple commissioning due to its factory set operating parameters
- ▶ Easy wiring on site due to plug-in connections
- ▶ Automatic start-up, standby and shutdown control
- ▶ Simple installation due to individual modules being supplied with associated equipment integrated – the equipment, firing system and economiser all fitted at the Bosch factory
- ▶ Modular construction for easier logistics and plant room access

Technical data

Type	U-MB
Heat transfer medium	High pressure saturated steam
Design	3-pass flame tube/smoke tube technology
Capacity in kg/hour	200 to 2,000
Safety design overpressure in bar	up to 16
Max. flow temperature in °C	204
Fuel	Natural gas and heating oil



Construction

The UNIVERSAL steam boiler U-MB is designed as a 3-pass flame tube with a single smoke tube. It consists of several modules, the heat generating section in a 3-pass construction, the steam chamber above this, and an integrated economiser (ECO). As a 3-pass boiler, there is no requirement for flow components in the smoke tubes.

The heat generating section of the U-MB is based on the proven UNIMAT boiler design that has been tried and tested throughout Europe. The impressively-sized flame tube geometry enables an efficient combustion process to be carried out.

The design of the steam chamber has a critical influence on steam quality and the U-MB's large chamber size provides an optimised amount of residual steam moisture.

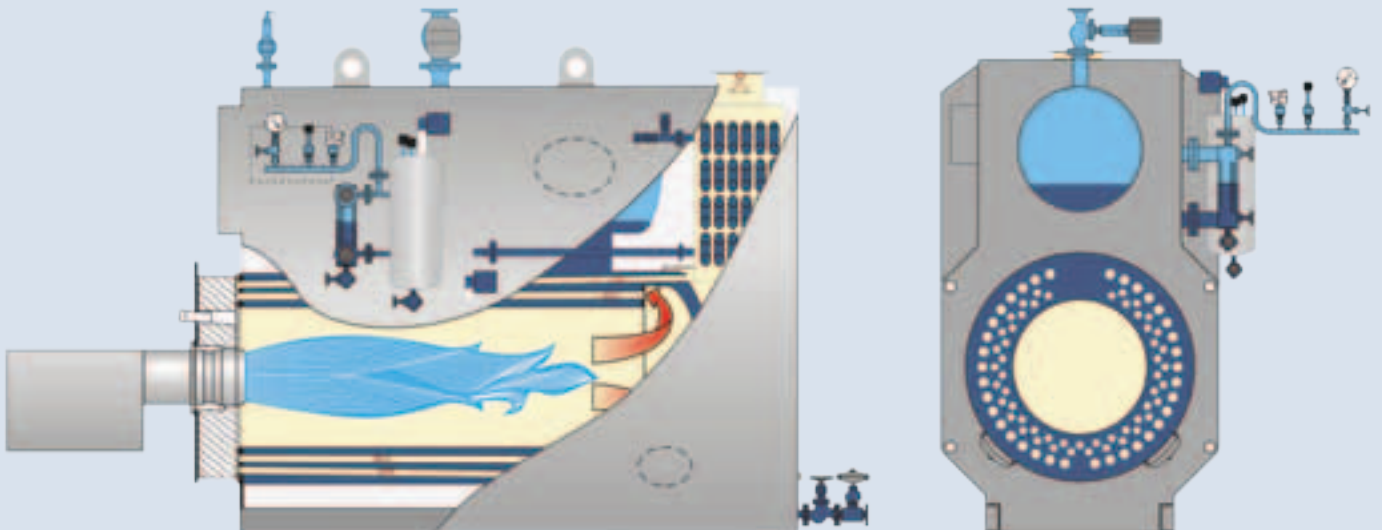
The integrated economiser has a strong influence on a steam boiler's energy-efficiency. The heat contained in the flue gases is used for the preheating of the boiler feed water, and it is therefore largely recovered, meaning that overall system fuel consumption and emissions are minimised.

The steam generator is tested for type examination and is manufactured to the strict guidelines of the Module D Quality Assurance System of the Pressure Equipment Directive, whilst adhering to strict ISO9001 Quality Assurance standards.

Associated boiler house components:

- ▶ Water treatment module
- ▶ Water service module
- ▶ Condensate service module
- ▶ Expansion and heat recovery module
- ▶ Pump module
- ▶ Expansion, heat recovery and blow-down module
- ▶ Gas regulation module
- ▶ Oil circulation module
- ▶ Oil supply module
- ▶ System control

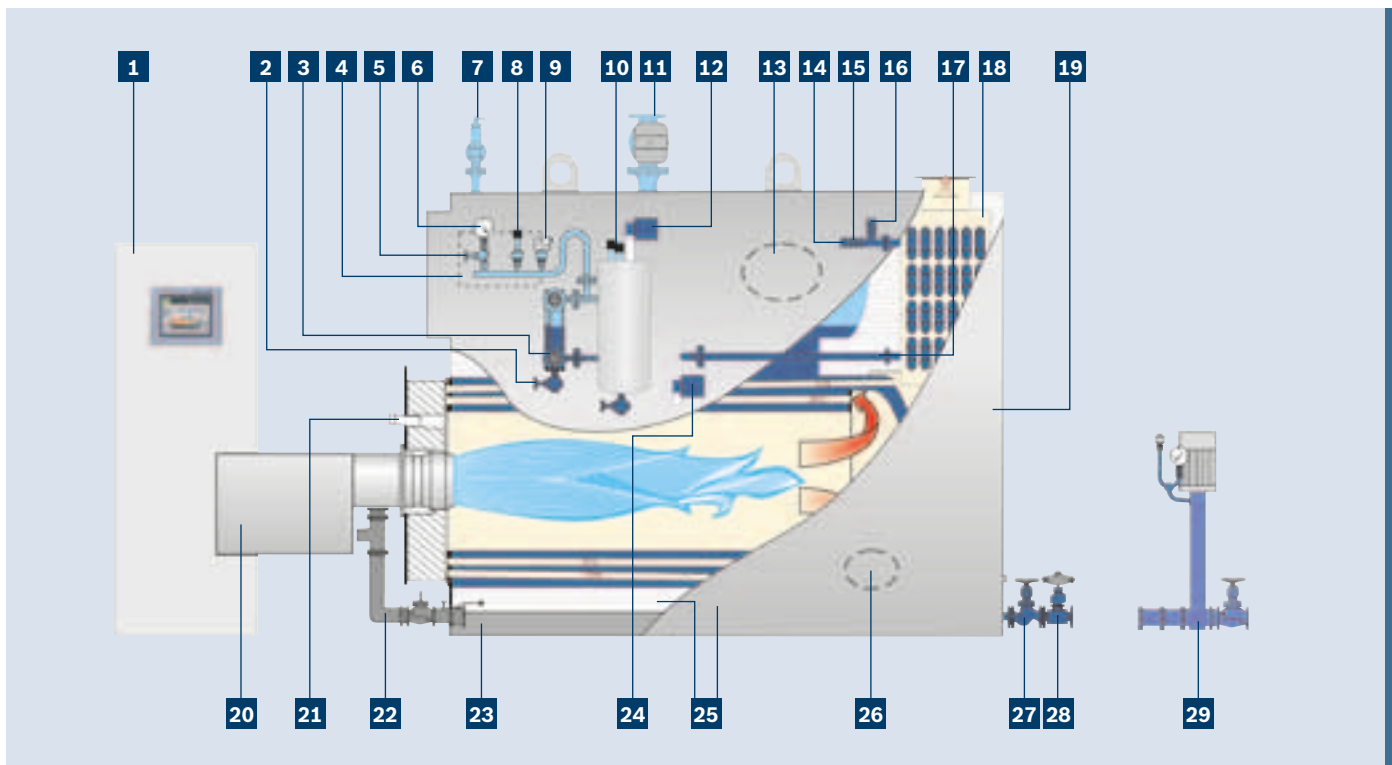
Cross-section of a Bosch U-MB UNIVERSAL steam boiler



Manufacturing – comprehensive and bespoke

The UNIVERSAL U-MB steam boiler is fully insulated and supplied as a comprehensive unit to the requirements of individual projects*. The control and pressure relief valve are also included and can be ordered pre-wired with the integrated terminal box. Pre-assembled plug-in and coded cable

bundles simplify the electrical installation between the boiler control cabinet and the terminal box. The free-standing or wall-mounted switchgear cabinet can be adapted and set up to best suit on-site requirements.



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|--|---|
| 1 Control switchgear cabinet with boiler control | 16 Vent shut-off valve – ECO |
| 2 Sight glass drain valve | 17 Connection piping ECO to boiler |
| 3 Reflective water level indicator | 18 Flue gas heat exchanger ECO |
| 4 Terminal box | 19 Inspection opening – flue gas side |
| 5 Pressure gauge shut-off valve with testing flange | 20 Burner |
| 6 Pressure gauge | 21 Sight hole |
| 7 Full-lift safety valve | 22 Gas regulation module |
| 8 Pressure transducer (4-20 mA) | 23 Base frame |
| 9 Pressure limiter | 24 Fully automatic conductivity measurement and desalination |
| 10 Low-level limiter electrode | 25 Insulation with protective shell |
| 11 Steam removal valve | 26 Inspection opening – water side |
| 12 Level transducer (4-20 mA) | 27 Drain isolation valve – maintenance-free |
| 13 Inspection opening – steam side | 28 Quick shut-off blow-down valve |
| 14 Feed water non-return valve | 29 Pump module with flanges – ease of installation |
| 15 Feed water isolation valve – maintenance-free | |

*The boiler equipment supplied is variable and can be freely configured to customer requirements

UNIVERSAL steam boiler – UL-S series

The UNIVERSAL steam boiler UL-S series is a 3-pass shell boiler which fulfils all the requirements in the medium to high output ranges.

Precision down to the finest detail

The flame tube, the internal wet-back rear smoke gas reversing chamber, as well as the first smoke tube and second smoke tube, are all arranged for optimum flow within the cylindrical pressure vessel. Together the radiant and convection heat surfaces generate, in tandem, a rapid water circulation, accelerating the transportation of the steam to the steam chamber. The transferred fuel heat is converted into steam quickly and efficiently through an even heat transfer. The large water chamber offers sufficient storage volume to be able to support sudden peaks in demand.

Optimised efficiency

The flue gas flow from the UL-S steam boiler contains significant heat potential. For increased efficiency, the UL-S steam boiler can be supplied as a UL-SX boiler with an integrated economiser for flue gas heat recovery.

In addition, the optional modules for continuous feed water control, burner fan speed and O₂ or CO control should also be used to achieve a more efficient and environmentally-friendly operation.

The UNIVERSAL steam boiler UL-S can be used wherever steam or heat is required in a medium to high output range, such as for example in processing industries, in the commercial sector or in communal blocks.

Benefits at a glance:

- ▶ Intuitive boiler control
- ▶ High level of efficiency due to 3-pass technology, an integrated economiser (UL-SX steam boiler) and effective insulation
- ▶ Consistent high level of pressure and steam quality even with a widely fluctuating steam demand
- ▶ Can be equipped with a separate fourth pass for further heat recovery
- ▶ The boiler body can also be used as a pure waste heat boiler in combination with Combined Heat and Power modules or gas turbines
- ▶ Automatic start-up, standby and shutdown control
- ▶ Suitable for all burner systems
- ▶ Pollutant-minimised combustion with a highly-developed firing systems and careful matching of the best boiler and burner combination
- ▶ Simple commissioning due to factory-set operating parameters
- ▶ Easy wiring on site due to plug-in connections

Technical data

Type	UL-S	UL-SX
Heat transfer medium	High pressure saturated steam	High pressure superheated steam
Design	3-pass single-flame tube/ smoke tube technology	3-pass single-flame tube/ smoke tube technology
Capacity in kg/hour	1,250 up to 28,000	2,600 up to 28,000
Safety design overpressure in bar	up to 30	up to 30
Max. flow temperature in °C	235	300
Fuel	Gas and oil	Gas and oil



The UL-SX Universal Steam Boiler is eligible for the Enhanced Capital Allowance scheme due to representation on the ETL.

Construction

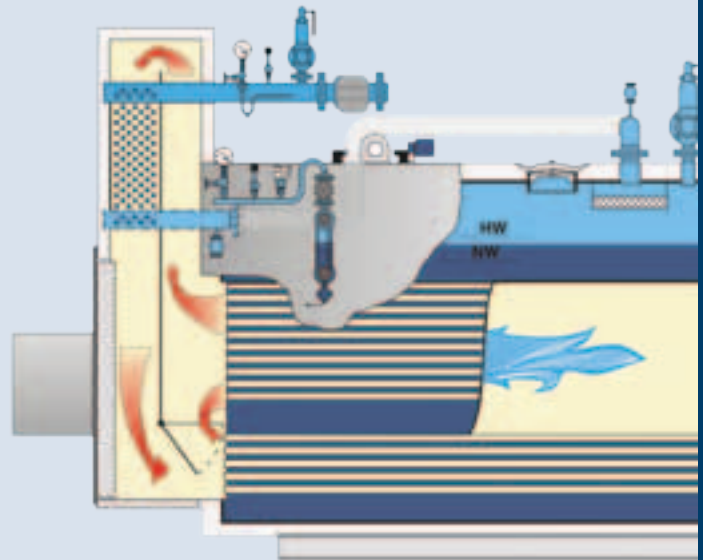
Bosch's patented 3-pass technology, dating back over 50 years, forms the basis for the outstanding and ongoing success of the UNIVERSAL steam boiler series. The flame tube (first pass) and two combined smoke tubes (second and third passes) are integrated with the wet-back rear reversing chamber inside the pressure vessel.

Within its compact dimensions, the flame tubes are positioned laterally and the horizontal rear and vertical front gas tubes produce a large heating surface.

High pressure superheated steam

If superheated steam is required instead of saturated steam, a superheater module can be placed on the front reversing chamber (UL-SX steam boiler). A bypass flap constantly controls the temperature of the superheated steam over a large load range.

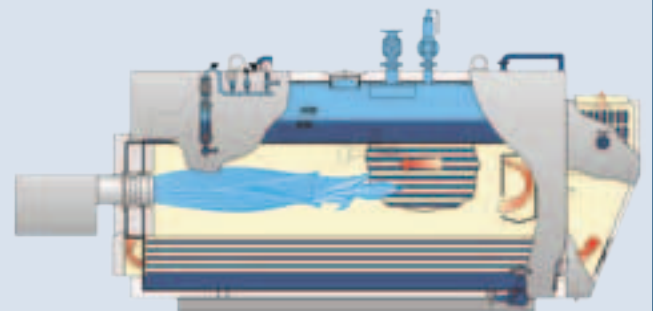
- ▶ Modular system – controlled on the flue gas side, no injection water required for temperature control of the superheated steam
- ▶ Easy maintenance and installation – simple cleaning of the second and third boiler pass
- ▶ Extensive product life – low thermal loading of the heat exchanger



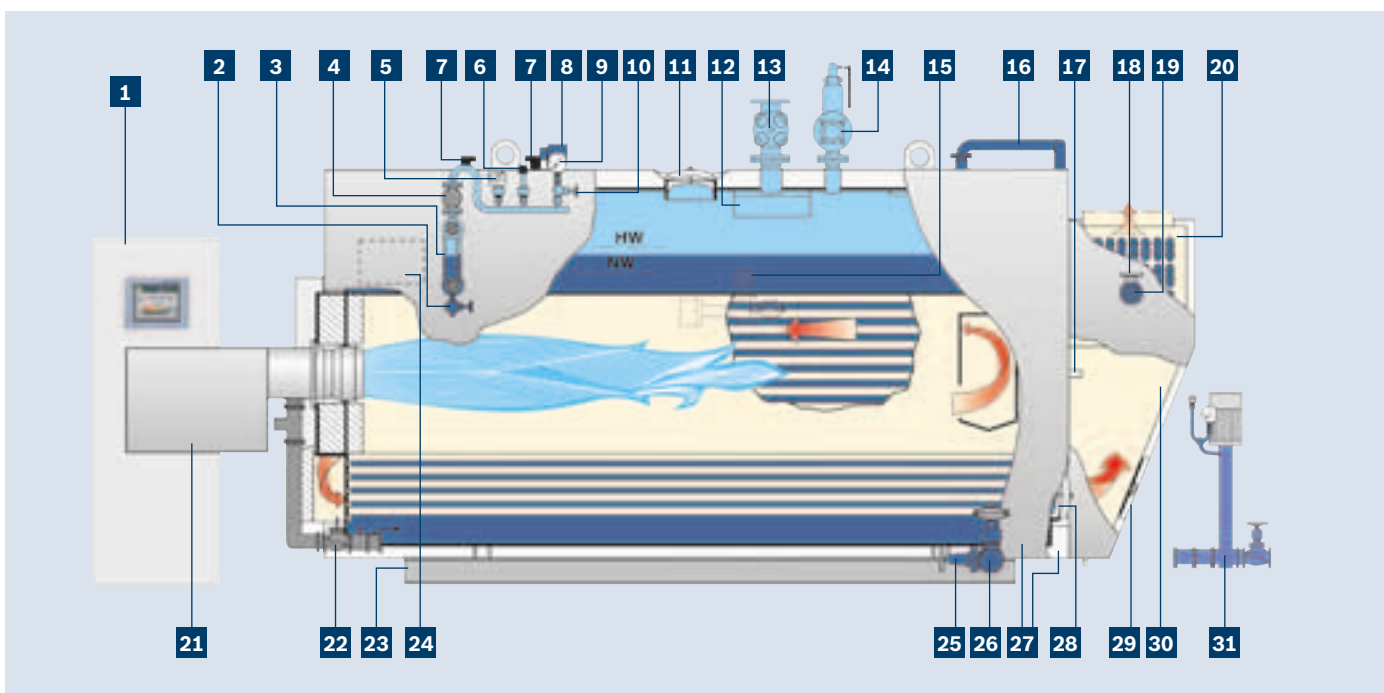
Manufacturing – comprehensive and bespoke

All Bosch UNIVERSAL steam boilers can be delivered complete as a fully-functioning unit. The basic equipment level supplied by Bosch includes a boiler pressure vessel, control and safety technology, burner unit, pump module, terminal box and the control switchgear cabinet including our easily operated boiler control. The integrated terminal box is pre-wired. Pre-assembled, plug-in and coded cable bundles simplify the electrical wiring installation between the boiler control cabinet and the terminal box, delivering ease of installation.

Cross-section of a Bosch UL-S series UNIVERSAL steam boiler



- | | |
|---|---|
| 1 Control switchgear cabinet with boiler control | 16 Connection piping ECO to boiler |
| 2 Sight glass drain valve | 17 Sight hole |
| 3 Reflective water level indicator | 18 Feed water non-return valve |
| 4 Manostat tube shut-off valve – maintenance-free | 19 Feed water isolation valve – maintenance-free |
| 5 Pressure limiter | 20 Flue gas heat exchanger ECO |
| 6 Pressure transducer (4-20 mA) | 21 Burner |
| 7 Low-level limiter electrode | 22 Gas regulation module |
| 8 Level transducer (4-20 mA) | 23 Base frame |
| 9 Pressure gauge | 24 Terminal box |
| 10 Pressure gauge shut-off valve with testing flange | 25 Drain isolation valve – maintenance-free |
| 11 Inspection opening – steam side | 26 Quick isolation valve blow-down valve |
| 12 Steam dryer | 27 Insulation with protective shell |
| 13 Steam removal valve | 28 Inspection opening – water side |
| 14 Full-lift safety valve | 29 Inspection opening – flue gas side |
| 15 Fully automatic conductivity measurement and desalination | 30 Flue gas collection chamber |
| | 31 Pump module with flanges – ease of installation |



Associated boiler house components:

- | | |
|--|---|
| ▶ Water treatment module | ▶ Expansion, heat recovery and blow-down module |
| ▶ Water service module | ▶ Vapour cooler |
| ▶ Condensate service module | ▶ Gas regulation module |
| ▶ Water analyser | ▶ Oil circulation module |
| ▶ Flue gas heat exchanger ECO 1, stand-alone | ▶ Oil supply module |
| ▶ Flue gas heat exchanger ECO 6 for condensing use | ▶ Oil pre-heater module |
| ▶ Expansion and heat recovery module | ▶ System control |
| ▶ Pump module | |

UNIVERSAL steam boiler – ZFR series

The UNIVERSAL steam boiler ZFR series is a shell boiler that uses patented 3-pass technology with two flame tubes as well as a completely separate smoke gas passage. The ZFR series is used when a high output of steam is required and ideally suited for a range of process-driven industries with high pressure requirements.



Proven for decades and still pioneering

The double-flame smoke tube boiler with separate smoke gas passages is suitable for operations that require only single firing. The 3-pass principle with a rear smoke gas reversing chamber that is held within the water chamber holds a Bosch patent. The economiser and superheater can be integrated easily due to its simple modular construction (ZFR-X steam boiler).

The dimensions of the flame tubes, smoke tube bundles, water chamber and steam chamber are designed to provide optimum thermodynamics. Radiant and convection heating surfaces will generate a special dynamic in conjunction with the possibility of single-flame tube operation. The fed fuel heat is transferred evenly by means of flow components mounted on the water side of the steam boiler, and is then converted into steam without any thermal stress, thus contributing to system longevity.

Efficiency optimising accessories

The modulating output regulator for an 'unrestricted' single-flame or double-flame tube operation, and for continuous feed water control, is available as standard with the UNIVERSAL ZFR steam boiler. In order to achieve additional potential savings, we can offer you, subject to the system conditions, the following optional modules for increased efficiency:

- ▶ Variable speed burner fan
- ▶ O₂ controls
- ▶ CO controls

Benefits at a glance:

- ▶ Intuitive boiler control
- ▶ High level of efficiency due to patented 3-pass technology, an integrated economiser and effective heat insulation
- ▶ Consistent high level of pressure and steam quality even with widely fluctuating steam demand
- ▶ Automatic start-up, standby and shutdown control
- ▶ Suitable for all burner systems
- ▶ Pollutant-minimised combustion with a highly-developed firing system and optimal matching of boiler and burner
- ▶ Simple to inspect on both the flue gas side as well as the water side for easy maintenance
- ▶ Robust, reliable and unsurpassed in its durability
- ▶ Compliant with the European Pressure Equipment Directive – applied worldwide
- ▶ Wide control range thanks to its single-flame tube operation
- ▶ Simple extension options thanks to its integrated module technology – spread capital investment
- ▶ Simple commissioning due to factory boiler control
- ▶ Easy wiring on site due to plug-in connections

Technical data

Type	ZFR	ZFR-X
Heat transfer medium	High pressure saturated steam	High pressure superheated steam
Design	3-pass double-flame tube/ smoke tube technology	3-pass double-flame tube/ smoke tube technology
Capacity in kg/hour	18,000 up to 55,000	18,000 up to 55,000
Safety design overpressure in bar	up to 30	up to 30
Max. flow temperature in °C	235	300
Fuel	Gas and oil	Gas and oil

Construction

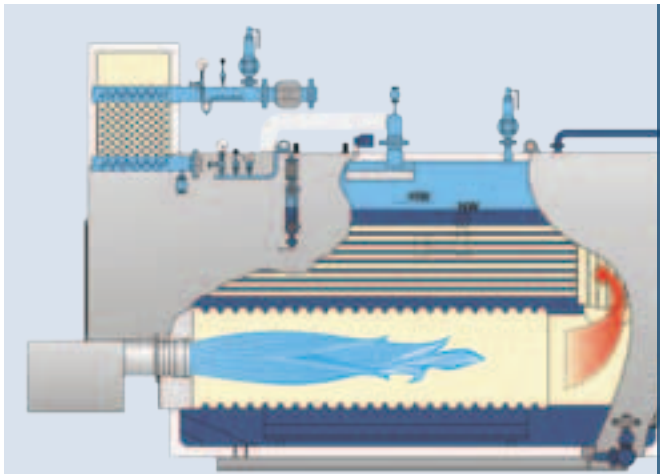
Our patented 3-pass technology, dating back over 50 years, forms the basis for the outstanding and ongoing success of the UNIVERSAL ZFR series. Its suitability for the single or parallel operation of the firing units is due to both the stable separation on the flue gas side and the special design measures for neutralising the tension forces in single-flame operation. The flame tubes are pushed through and are welded tightly to the front and rear floors. The wet-back rear smoke gas reversing chamber is separated by a tube wall which is fastened to the rear floor and has water flowing through it. Water circulation and heat are efficiently transported by means of guide profiles on the boiler base, and are additionally accelerated by the flow gases between the flame tubes and the smoke tube areas alongside one another.

Flexibility in operation

A fully automatic operation with one or both burners is made possible without any restrictions due to the approved single-flame operation. Different fuels in both firing units do not present any barriers. The control range is doubled and each low load phase is run with one burner to provide an improved efficiency level.

Manufacturing – comprehensive and bespoke

All Bosch UNIVERSAL steam boilers can be delivered complete as a fully-functioning unit. The basic equipment level supplied by Bosch includes a boiler pressure vessel, control and safety technology, burner unit, pump module, terminal box and the control switchgear cabinet including our easily operated boiler control. The integrated terminal box is pre-wired. Pre-assembled, plug-in and coded cable bundles simplify the electrical wiring installation between the boiler control cabinet and the terminal box for ease of installation.

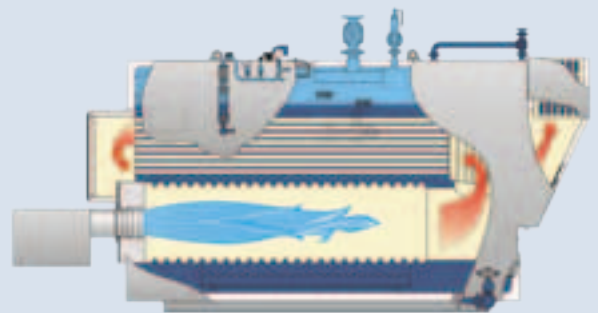


High pressure superheated steam

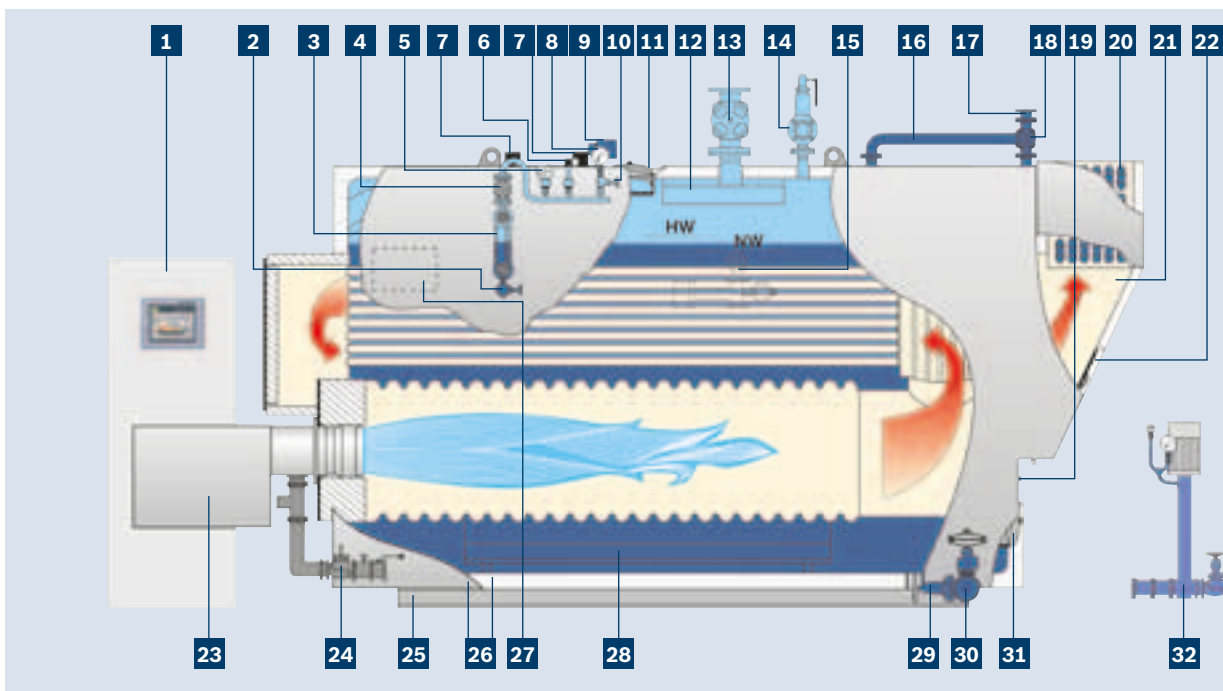
For applications where superheated steam is necessary instead of saturated steam. A superheater module can be placed on the front reversing chamber, resulting in an upgrade to the ZFR-X steam boiler and a bypass flap constantly controls the temperature of the superheated steam over a large load range. The smoke tube areas remain easily accessible.

- ▶ Modular system – controlled on the flue gas side – no injection water required for temperature control of the superheated steam
- ▶ Easy maintenance and installation – simple cleaning with the second and third boiler pass
- ▶ Extensive product life – low thermal stress on the heat exchanger

Cross-section of a Bosch ZFR series UNIVERSAL steam boiler



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|---|---|
| 1 Control switchgear cabinet with boiler control | 17 Feed water non-return valve |
| 2 Sight glass drain valve | 18 Feed water isolation valve – maintenance-free |
| 3 Reflective water level indicator | 19 Sight hole |
| 4 Manostat tube shut-off valve, maintenance-free | 20 Flue gas heat exchanger ECO |
| 5 Pressure limiter | 21 Flue gas collection chamber |
| 6 Pressure transducer (4-20 mA) | 22 Inspection opening – flue gas side |
| 7 Low-level limiter electrode | 23 Burner |
| 8 Pressure gauge | 24 Gas regulation module |
| 9 Level transducer (4-20 mA) | 25 Base frame |
| 10 Pressure gauge shut-off valve with testing flange | 26 Insulation with protective shell |
| 11 Inspection opening – steam side | 27 Terminal box |
| 12 Steam dryer | 28 Water circulation guide profiles |
| 13 Steam removal valve | 29 Drain isolation valve – maintenance-free |
| 14 Full-lift safety valve | 30 Quick shut-off blow-down valve |
| 15 Fully automatic conductivity measurement and desalination | 31 Inspection opening – water side |
| 16 Connection piping ECO to boiler | 32 Pump module with flanges – ease of installation |



Associated boiler house components:

- | | |
|---|--|
| ▶ Water treatment module | ▶ Gas regulation module |
| ▶ Water service module | ▶ Oil circulation module |
| ▶ Condensate service module | ▶ Oil supply module |
| ▶ Pump module | ▶ Oil pre-heater module |
| ▶ Expansion, heat recovery and blow-down module | ▶ System control |
| ▶ Vapour cooler | ▶ Flue gas heat exchanger ECO 1, stand-alone |
| ▶ Water analyser | ▶ Flue gas heat exchanger ECO 6 for condensing use |
| ▶ Expansion and heat recovery module | |

A high performance boiler with a first class service to match

With Bosch Commercial and Industrial Heating and our first class service, you are always on the safe side.

Always there for you

Our customer service is there for you and because of our close-knit service support network, we can ensure the quickest possible reaction times. Along with maintenance services, fault finding and repairs, we also offer support with the regular inspection of your system. Bosch after-sales support also allows us to analyse your system and upgrade it if required.

Customer service

Email: commercial.enquiry@uk.bosch.com
or telephone 0330 123 3004.

Opening times

Monday - Friday: 7.00am - 8.00pm

Saturday: 8.00am - 5.00pm

Sunday: 9.00am - 12 noon

Reliable supply of spare parts

Genuine spare parts for all supported Bosch appliances are readily available either from stock on a next day delivery basis or delivered direct from Germany.

Opening times

Monday - Friday: 7.00am - 8.00pm

Saturday: 8.30am - 4.00pm

Email: spares.mailbox@uk.bosch.com
or telephone 0330 123 9779.





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