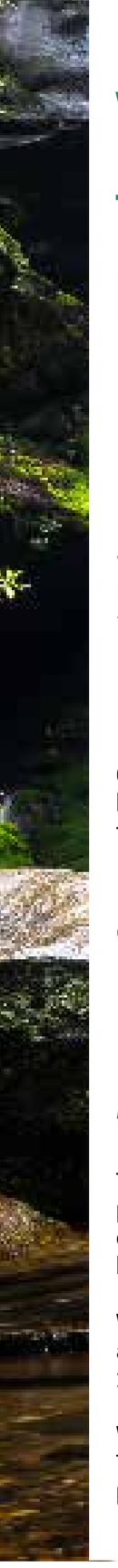
TOMLINSON ENERGY SERVICE

High-Performance Packaged Boiler

Australia's largest certified package boiler company.

The Environmental Group Limited
Engineering a Sustainable Future



Working across the **Circular Economy**

Our **Purpose**

Engineering a sustainable future.

Our **Mission**

To enable our clients to contribute to a cleaner environment by safely delivering pivotal solutions while generating value for our shareholders, staff, and partner industries.

Our **Team**

Our local experts are dedicated to reducing waste and boosting energy performance. Trusted worldwide to provide the highest standards of service and support.

Tomlinson Enegery Services

Part of The Environmental Group

Tomlinson Energy Services is Australia's leading provider of packaged boiler solutions, delivering the highest combustion efficiency to keep operating costs low and performance high.

We specialise in custom design, installation, commissioning, and national servicing and repairs, complemented by our 24/7 emergency support.

With offices and a dedicated service team across Australia, Tomlinson Energy Services ensures boilers operate at peak performance for maximum efficiency and reliability.

BOSCH
HOT WATER BOILER

Hot water boilers
Heating boilers

	Uni Condens	UT-L	UT-M	UT-H	UT-HZ
Output MW	0.8–1.2	0.6–19	0.7–19	0.8–18	13–38
Temperature max. °C	110	120	190	210	210
Pressure max. bar	6	16	16	30	30

Steam boilers

	U-ND	U-HD	U-MB	UL-S(X)	ZFR(X)
Output t/h	0.2–3.2	0.2–3.2	0.2–2	1.2–28	18–55
Temperature max. °C	110	204	204	300	300
Pressure max. bar	0.5	16	16	30	30

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

Components

Boiler and system control	Water	Steam/Condensate	Fuel supply
Control cabinet	Modules	Modules	Burner systems

Quality boilers for more than 150 years

Bosch Industriekessel 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 115,000 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 reduce operating costs by up to 25 % when compared with conventional boilers. In addition to minimizing 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 their intelligent boiler control, the availability and also the efficiency of the systems increase. Automatic control features, such as for example for cold starts or multi-boiler systems, significantly extend the lifespan of the boiler systems.

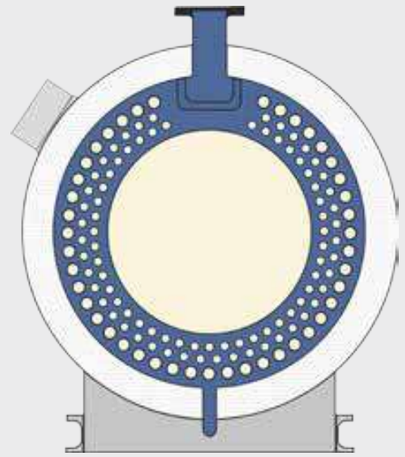
Whether it is 3D data, technical drawings or documents for tendering and approval, the experts from Bosch offer specialist support at every phase of the project – from conception through to commissioning. Trust and openness between partners ensure that mutual success is achieved. Thanks to the customised 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.

Optimum design
Due to the symmetrical design, the stress during the manufacturing process and operation is reduced to a minimum. The large flame tube and the positioning of the smoke tubes allow an efficient heat transfer with low emissions.

High level of durability
The concentrical design ensures for a steady heating-up, also from the cold state and reduces tensions in the boiler. The used design principle permits a low water content and therefore the boiler reaches its operating temperature quicker.



Low-stess 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. Up to 100 % of the welding seams are X-ray inspected.

Certified quality
Numerous product and quality management certificates enable us to deliver our boiler systems to more than 140 countries worldwide.

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

Highest level of quality monitoring
Quality has the highest priority with us. Factory inspectors, who are certified by TÜV, together with TÜV's own staff, constantly monitor and document our quality during the entire manufacturing process right up to the acceptance.

Precision and analysis
An in-house laboratory inspects welding seams and analyses materials, so that maximum transparency is maintained. Over 25,000 X-rays of welding seams are evaluated every year in our three X-ray chambers.

Health and safety
Only happy and focused staff can deliver the highest level of quality. State-of-the-art safety procedures and working equipment are a fundamental part of our entire manufacturing concept.

Promoting the next generation
Whether it is boiler welders or engineers, we constantly train and support our future employees from the start. We have our own apprentice workshop and we cooperate with technical colleges, so that our staff quickly acquire practical experience.

Energy-saving system technology

Highly efficient boiler systems with perfectly matched boiler house components ensure low energy consumption and low emissions.

Save energy costs through the firing ...

... up to 40 % by switching fuel
Switching to another fuel can often have a pay-back period of only a few months while generating savings over decades. If multi-fuel firing is retrofitted, peak loads can be covered by a second fuel or own biogas can be used.

... up to 4 % by optimising the firing
Combustion control balances out changes in operating conditions such as temperature, pressure and gas quality. An intelligent system control and a high modulation range reduce unnecessary cold starts and pre-ventilation losses when starting up.

... reduce the power consumption by up to 75 % through efficient electrical consumers
Conventional firing fans do not adapt their output to the boiler load. Speed-controlled motors and a burner control not only save you power, the boiler will also be significantly quieter at partial load.

Save fuel costs through heat recovery ...

... from flue gas up to 14 %
The flue gas temperature can be reduced by more than 100 K through the use of a flue gas heat exchanger (economizer). A downstream condensation heat exchanger extracts further energy from heat and condensation.

Maximum availability of the system ...

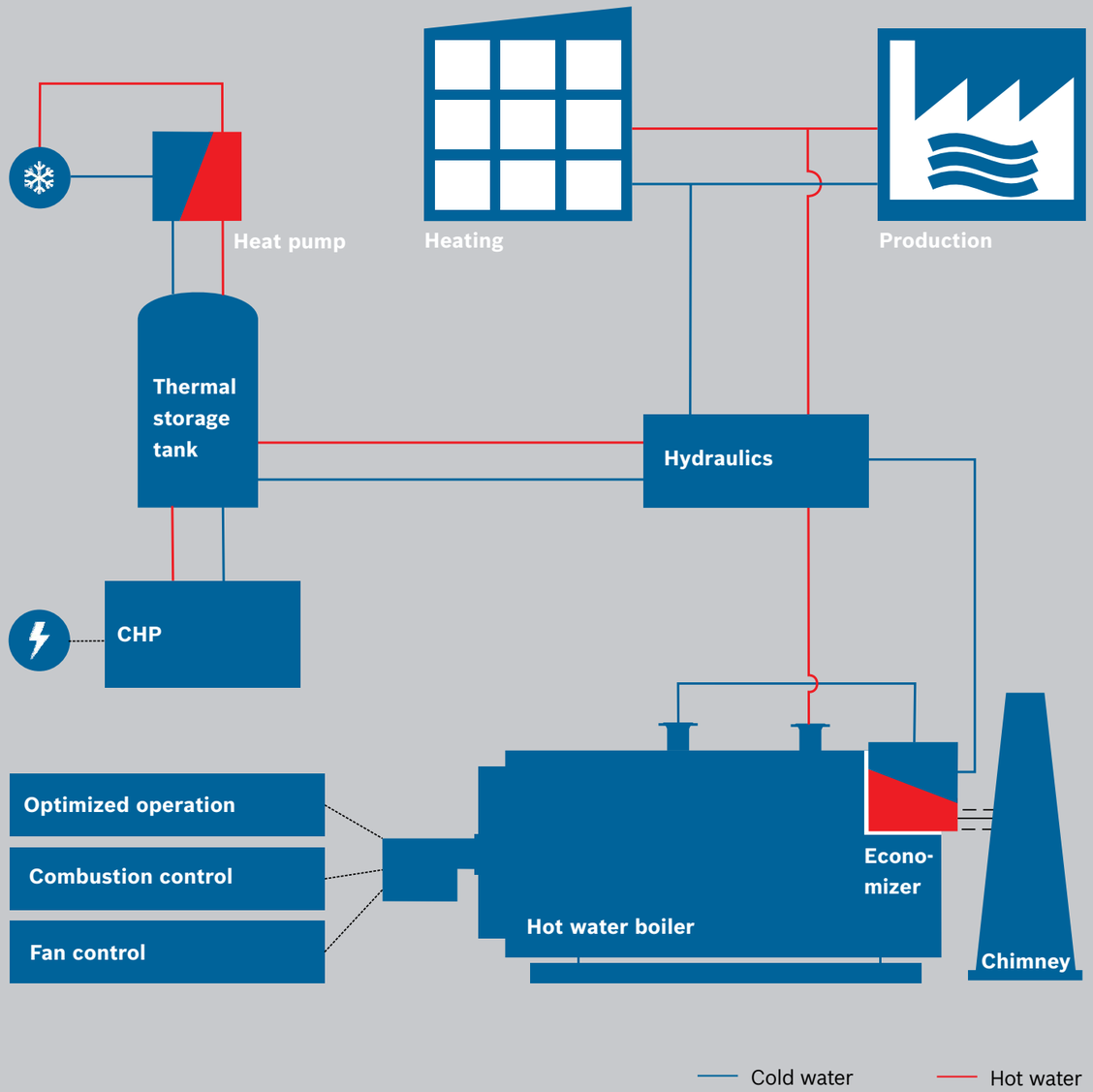
... through remote service
On the customer's demand a Bosch service expert can gain direct access to the system via a secure connection to identify e.g. false parameters quickly. In some cases these faults can be eliminated remotely, or the service technician is able to provide the correct spare part at the first on-site visit.

... through preventive condition monitoring
The intelligent boiler control evaluates sensor signals during operation to detect wear or the need of maintenance at an early stage. These notifications enable higher reliability of the system and trouble-free operation.

... through automatic functions that reduce wear on materials
Frequent cold starts at high load levels create stress for boilers and their components. Automatic boiler start functions and control algorithms for reducing burner starts increase the service life of the system.

... through remote monitoring
An immediate message on a cell phone in the case of a fault makes it possible to react quickly – so that operation remains interruption-free.

TOMLINSON ENERGY SERVICE



UNIMAT heating boiler UT-L

The UNIMAT heating boiler UT-L is an ideal solution for heating plants for various different applications – from office buildings up to district heating grids.

Technical data of the type UT-L	
Heat transfer medium	Low-pressure hot water
Design	3-pass flame tube/smoke tube technology
Output in kW	650 to 19,200
Safety pressure in bar	up to 16
Max. temperature in °C	120 (EU: 110)
Fuel	Oil, gas, multi-fuel firing

High level of efficiency for reduced operating costs

The UNIMAT three-pass design has been used in thousands of applications. The heating boiler is offered in various sizes and can be operated as an intelligent controlled boiler cascade. Versatile applications are possible at low temperature and pressure levels.

- An effective three-pass design and special thermal insulation concept minimise heat radiation and ensure a high efficiency
- Standard utilization ratio without flue gas heat exchanger up to 95 % or up to 105 % with condensing heat exchanger
- Pollutant-reduced combustion thanks to the use of highly developed firing systems and careful matching of the best boiler and burner combination
- Flexible and efficient use: for heating supply in hospitals, homes, office buildings and residential complexes, for hot water supply in the industry, as a reserve and peak load boiler at heating plants and in combination with CHP units

User-friendly operating concept

- Compact and affordable Control 8000 with intuitive touchscreen
- Alternatively the boiler control BCO can be selected for complex boiler systems

Reliable performance and customised equipment

The three-pass heating boiler can be combined with all the other available system components from our modular range for fuel supply and heat recovery.

- Comprehensive, series-wide basic equipment
- Approved for low return flow temperatures from 50 °C
- Suitable for all burner systems
- CE certified and built and equipped in accordance with European gas appliances directive and European pressure equipment directive
- Robust, reliable and unsurpassed in its durability
- No minimum burner load specification avoid internal condensation on the flue gas side
- High permissible temperature spread up to 50 K

Quick installation and effective maintenance

- Compact construction for bringing the boiler into site easily if space is limited
- Simple commissioning due to pre-parameterised boiler control
- Easy wiring on-site thanks to plug-in connections
- 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 wetback 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 compo-site 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.

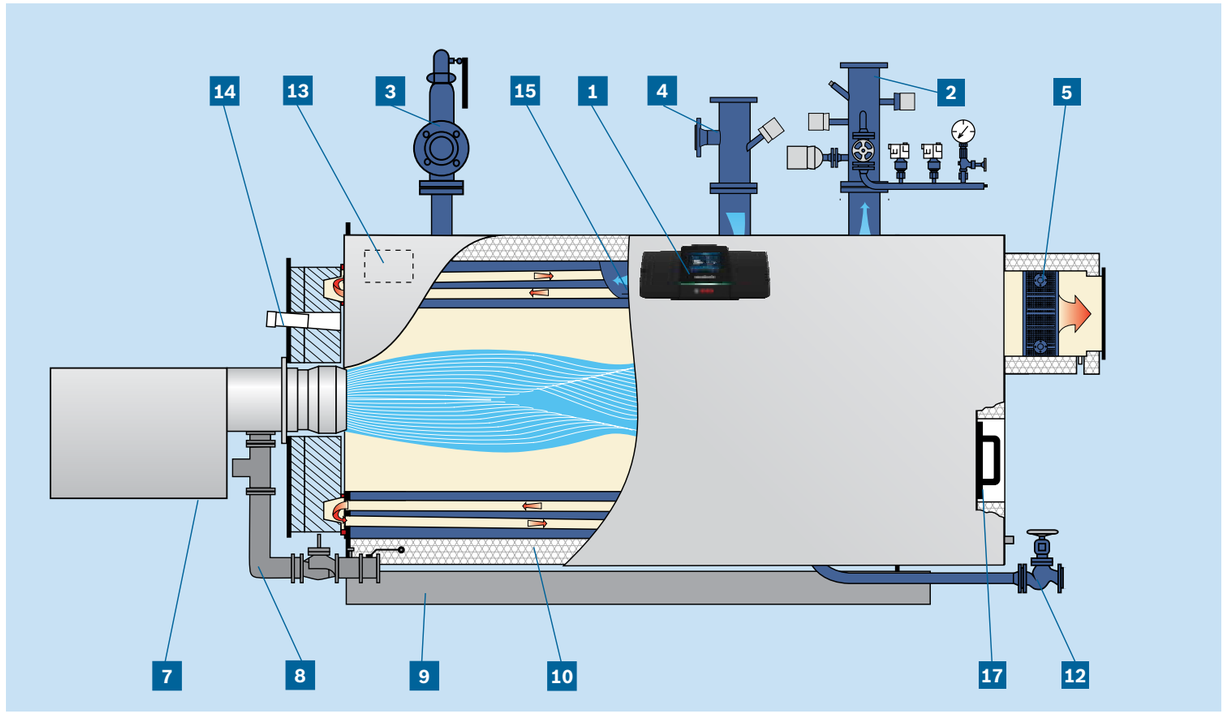
Associated boiler house components

- Water treatment module WTM
- Flue gas heat exchanger ECO 1/7
- Flue gas heat exchanger ECO 6 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
- System control SCO

Return flow temperature safeguard RTS

Equipment

The UNIMAT 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 compact Control 8000. Alternatively the boiler control BCO with control switchgear cabinet can be selected. The integrated terminal box is already wired. Pre-assembled, plug-in and coded cable bundles simplify the electrical wiring between the boiler control cabinet and the terminal box.



1 Control 8000 (alternatively: boiler control BCO in the switchgear cabinet)
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

UNIMAT hot water boiler UT-M

The UNIMAT hot water boiler UT-M is a further development of the successful UT boiler construction. It is used in areas where medium to high temperatures are required.

Technical data of the type UT-M	
Heat transfer medium	High-pressure hot water
Design	Three-pass single-flame tube/smoke tube technology
Output in kW	750 up to 19,200
Safety pressure in bar	up to 16
Max. temperature in °C	up to 190
Fuel	Oil, gas, multi-fuel firing

High level of efficiency for reduced operating costs

Our proven UNIMAT three-pass design has been used for decades – with overwhelming success. The hot water boiler UT-M is offered in various sizes and can be operated as an intelligent controlled boiler cascade.

- An effective three-pass design and special thermal insulation concept minimise heat radiation and ensure a high efficiency
- Standard utilization ratio without flue gas heat exchanger up to 95 % or up to 105 % with condensing heat exchanger
- Pollutant-reduced combustion thanks to the use of highly developed firing systems and careful matching of the best boiler and burner combination
- Flexible and efficient use: for district heating and a wide variety of commercial and industrial heating applications

User-friendly operating concept

- Intuitive touchscreen operation and PLC control
- Can be integrated into all common bus systems

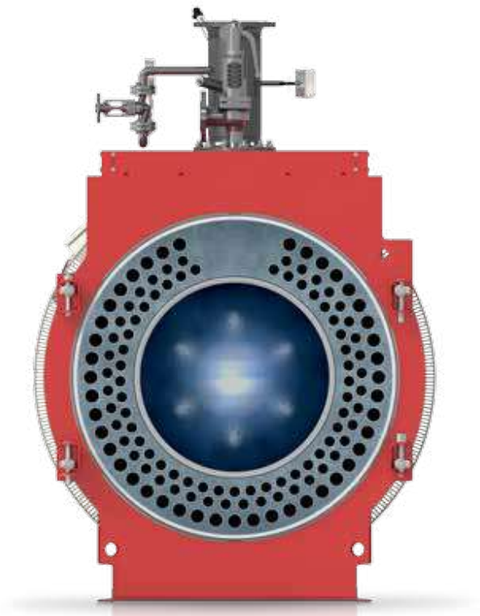
Reliable performance and customised equipment

The three-pass hot water boiler can be combined with all the other available system components from our modular range for fuel supply and heat recovery.

- Comprehensive, series-wide basic equipment
- Approved for low return flow temperatures from 50 °C
- Suitable for all burner systems
- CE certified and built and equipped in accordance with European pressure equipment directive
- Robust, reliable and unsurpassed in its durability
- No minimum burner load specification avoid internal condensation on the flue gas side
- High permissible temperature spread up to 50 K

Quick installation and effective maintenance

- Compact construction for bringing the boiler into site easily if space is limited
- Simple commissioning due to pre-parameterised boiler control
- Easy wiring on-site thanks to plug-in connections
- 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 wetback 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 max. of 190 °C.

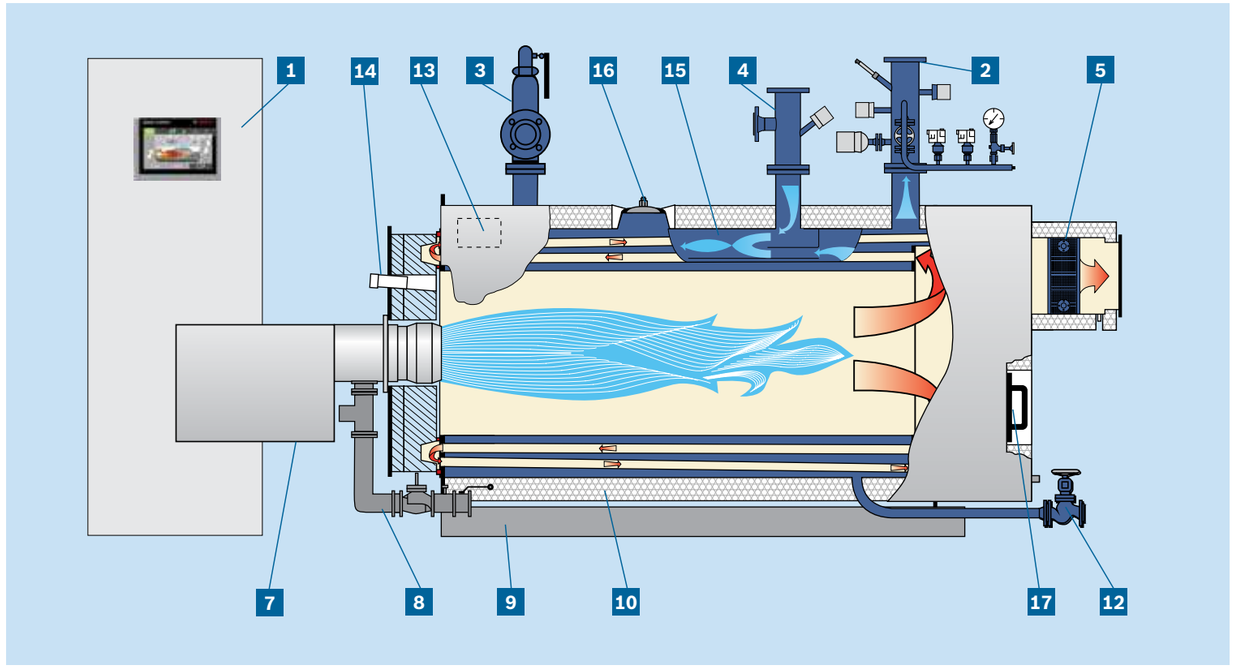
Associated boiler house components

- Water treatment module WTM
- Flue gas heat exchanger ECO 1/7
- Flue gas heat exchanger ECO 6 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
- System control SCO

Gas regulation module GRM

Equipment

The UNIMAT 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 switchgear cabinet including the easy-to-operate boiler control BCO. The integrated terminal box is already wired. Pre-assembled, plug-in and coded cable bundles simplify the electrical wiring between the boiler control cabinet and the terminal box.



1 Control switchgear cabinet with 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

UNIMAT hot water boiler UT-H

The UNIMAT hot water boiler UT-H is used in the case of high pressure and high temperature requirements for district heating or process heating applications.

Technical data of the type UT-H	
Heat transfer medium	High-pressure hot water
Design	Three-pass single-flame tube/smoke tube technology
Output in kW	820 up to 18,300
Safety pressure in bar	up to 30
Max. temperature in °C	up to 210
Fuel	Oil, gas, multi-fuel firing

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. While flue gases flow through the flame tube and smoke tubes, heat is transferred to the water that surrounds them. The flame tube, the internal rear wetback flue gas reversing chamber as well as the first and second smoke tube passes, are all arranged for optimum flow within the horizontal cylindrical pressure vessel. A flue gas heat exchanger from our modular product range can be used for heat recovery.

- High level of efficiency due to three-pass technology and integrated flue gas heat exchanger
- Effective thermal insulation concept for minimised heat radiation
- 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
- Pollutant-reduced combustion thanks to the use of highly developed firing systems and careful matching of the best boiler and burner combination
- Flexible and efficient use: for heating and hot water supply in public buildings, in commercial and industrial companies and as base load, peak load and back-up boilers at district heating plants

User-friendly operating concept

- Intuitive boiler control on PLC basis with very high transparency of operating data
- Prepared for connection to automation systems
- Compatible with the remote maintenance system MEC Remote

Reliable performance and customised equipment

- Acceptance in accordance with European pressure equipment directive, can be applied almost worldwide
- Suitable for all burner systems
- Robust, reliable and unsurpassed in its durability
- Simple extension options thanks to module technology
- High permissible temperature spread up to 40 K
- The boiler can be equipped with a separate fourth pass for waste heat use
- The boiler body can also be used as a pure waste heat boiler downstream of CHP units or gas turbines

Quick installation and effective maintenance

- Simple commissioning due to pre-parameterised boiler control
- Easy wiring on-site thanks to plug-in connections
- 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

Design

For decades our three-pass patent has formed the basis – as with the steam technology – 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 asymmetric design enables their integration into an extremely compact pressure vessel. 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.

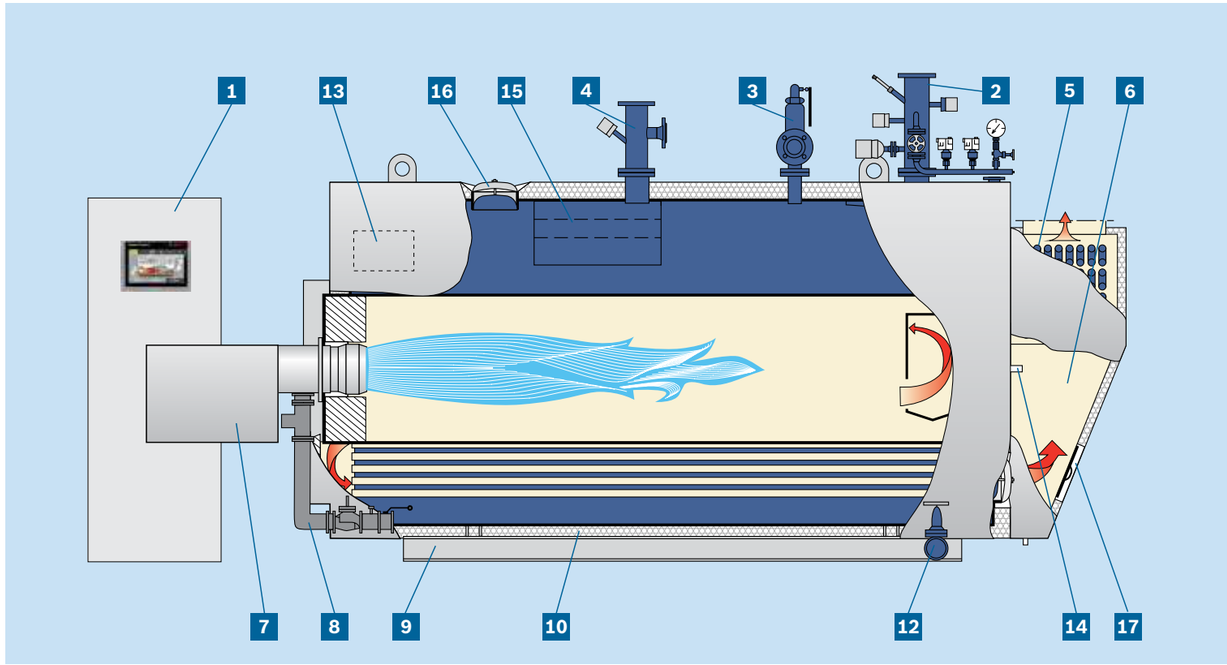
Associated boiler house components

- Water treatment module WTM
- Flue gas heat exchanger ECO 1
- Flue gas heat exchanger ECO 6 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
- System control SCO

Oil circulation module OCM

Equipment

The UNIMAT 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 switchgear cabinet including the easy-to-operate boiler control BCO. The integrated terminal box is already wired. Pre-assembled, plug-in and coded cable bundles simplify the electrical wiring between the boiler control cabinet and the terminal box.



1 Control switchgear cabinet with 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
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

UNIMAT hot water boiler UT-HZ

The UNIMAT hot water boiler UT-HZ can be used in all areas where very large amounts of heat are required.

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	up to 210
Fuel	Oil, gas, multi-fuel firing

High level of efficiency for reduced operating costs

The UNIMAT hot water boiler UT-HZ is a shell boiler in three-pass technology with two flame tubes and completely separate smoke gas passages.

- High level of efficiency due to three-pass technology, an integrated flue gas heat exchanger and effective heat insulation materials
- 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
- Pollutant-reduced combustion thanks to the use of highly developed firing systems and careful matching of the best boiler and burner combination
- Double modulation range due to two flame tubes permits a particularly high efficiency, also in partial load operation
- Flexible and efficient use: for heating and hot water supply in public buildings, in commercial and industrial companies and as base load, peak load and back-up boilers at district heating plants

User-friendly operating concept

- Intuitive boiler control on PLC basis with very high transparency of operating data
- Prepared for connection to automation systems
- Compatible with the remote maintenance system MEC Remote

Reliable performance and customised equipment

The double-flame tube/smoke tube boiler with separate smoke gas paths is also suitable for operation with just one burner. The 3-pass principle with a horizontal rear flue gas reversing chamber positioned in the water chamber was patented in 1952. Thanks to the modular design, an economizer can easily be added. The dimensions of the flame tubes, smoke tube bundles and water chamber are thermodynamically optimised.

- Acceptance in accordance with European pressure equipment directive, can be applied almost worldwide
- Suitable for all burner systems
- Simple extension options thanks to module technology, e.g. for waste heat recovery
- High permissible temperature spread up to 40 K

Quick installation and effective maintenance

- Simple commissioning due to pre-parameterised boiler control
- Easy wiring on-site thanks to plug-in connections
- 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, unnecessary energy losses can be reduced.

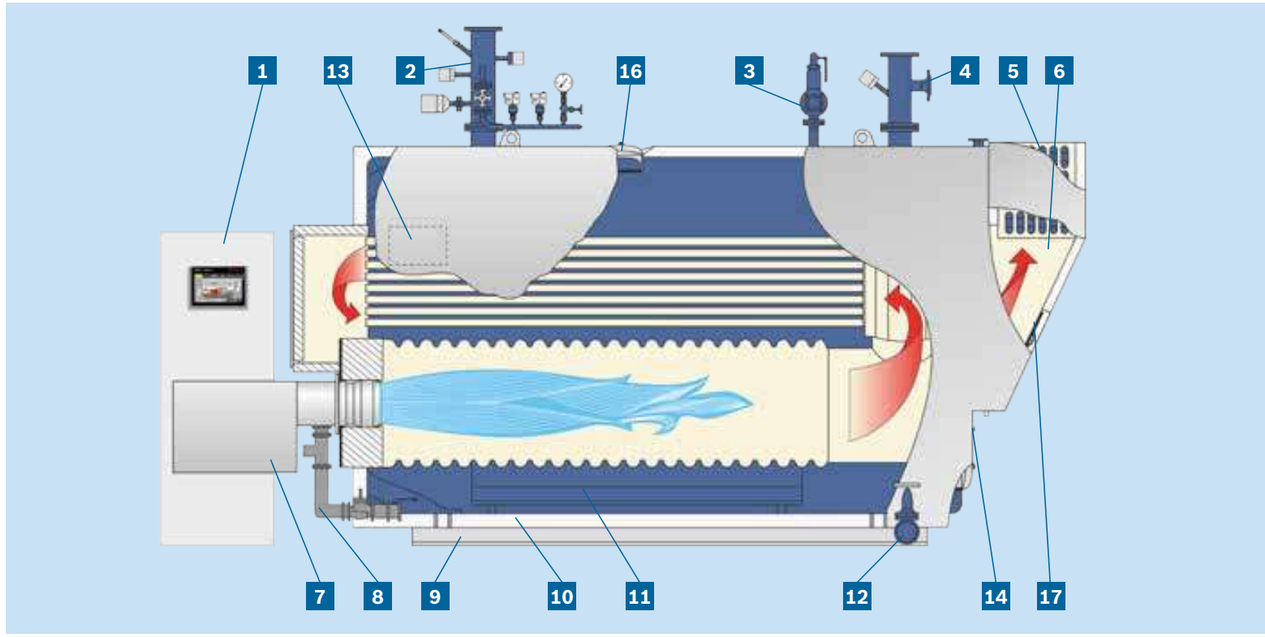
Associated boiler house components

- Water treatment module WTM
- Flue gas heat exchanger ECO 1
- Flue gas heat exchanger ECO 6 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
- System control SCO

Flue gas heat exchanger ECO 1

Equipment

The UNIMAT 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 switchgear cabinet including the easy-to-operate boiler control BCO. The integrated terminal box is already wired. Pre-assembled, plug-in and coded cable bundles simplify the electrical wiring between the boiler control cabinet and the terminal box.



1 Control switchgear cabinet with 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
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

4-pass boiler with burner

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

Technical data of the 4-pass boiler, type 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 kW	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 kWel	approx. 200 to 4,000
Fuel of the boiler firing	Gas, oil, multi-fuel firing

Benefits at a glance

- Improved efficiency and environmental friendliness through the use of waste heat sources
- High supply reliability thanks own firing
- Matched, modular system for easy planning and fast installation
- Complete system including CHP unit on request
- Intuitive boiler control based on PLC with very high transparency of operating data
- Simple commissioning due to pre-parameterised boiler control
- Easy 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 3-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 4th pass uses hot flue gases from upstream combustion processes to support the generation of thermal heat.

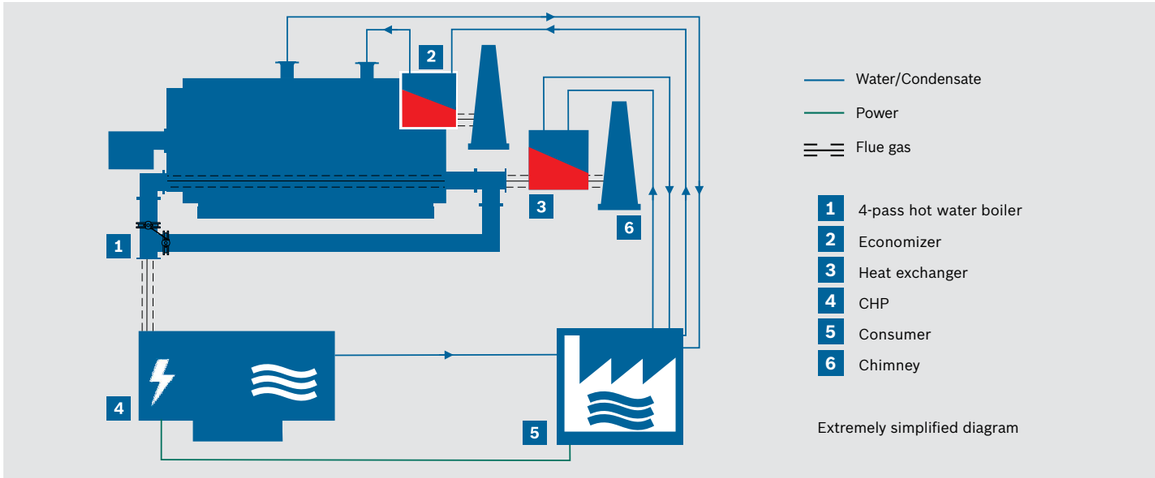
Additional peak load boilers are normally required if waste heat boilers without burner are used. It is often superfluous due to the self-firing functionality. Furthermore, the need of heat exchangers in the flue gas system of the CHP is reduced. This allows huge amounts of money, space and equipment to be saved.

Design

The design of our waste heat boilers with burner corresponds to the basic design of the UT-H series. The boilers are fitted with an additional integrated smoke tube pass (4th pass) for waste heat utilisation.

Equipment

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



MEC Remote

The new Bosch remote maintenance system MEC Remote (Master Energy Control) replaces the former Teleservice for industrial boilers. In the past, this service offered access for the Bosch service experts only. With the new MEC Remote also operators can now access their steam and hot water boilers convenient and safely from a distance. This enables visualizing the boiler and system control via the browser of all common internet-connected devices.

MEC Remote is thus the ideal solution for all companies:

- where the operator cannot be on site all the time
- that operate multi-boiler systems with mandatory supervision
- with on-call duty e.g. on weekends

Bosch's boiler controls are compatible with all common automation systems. MEC Remote can also be used for boilers that are not connected to building or production automation systems.

Thanks to an overview map several boilers in different sites all around the world can be monitored at the same time. The optional SMS module sends out defined push notifications whenever an error occurs. This reduces the effort for supervision of plants with especially high reliability requirements, e.g. in 24/7 operation.

Another advantage for operators is the optional remote support by the Bosch Industrial Service. The experts can perform extended parametrization, programming (PLC) and failure analysis directly via MEC Remote. In case of malfunction of components the root cause can be analyzed and the service technician can prepare for the specific situation. Boiler down times and service costs thus can be reduced to a minimum.

Highest safety is one of the most crucial requirements to a remote system. The role-based access control concept determines the allowed actions for each user. The remote connection itself is secured mainly by three safety measures: The hardware connection can be activated or terminated at any time via a switch in the boiler house that requires a key. In addition to the login with username and password via a secure connection (https) a mobileTAN system is used. It sends out an one-time access code to the operator, similar to the standards used for online banking.

For privacy reasons, the boiler's operation data is stored locally in the boiler house instead of in a data cloud. The security concept for MEC Remote was established by ESCRYPT. To maintain the high level of security, regular audits are performed by the external company Cirosec.

Boiler control BCO

The intuitive boiler control based on PLC offers very high transparency of operating data for optimum boiler operation.

The boiler control BCO provides all necessary functions for operating hot water boilers according to customers requirements. Extensive information regarding operating states, operating data and measured values can be viewed on its touchscreen display. Diverse system data are analysed, evaluated and transparently displayed via a traffic light model using the Condition Monitoring integrated software. Operating characteristics that could lead to a drop in efficiency, increased wear or unplanned downtimes can be determined at an early stage and thereby avoided. A consistently high efficiency and availability of the boiler systems is achieved. The diagnostics function, which is included as standard, supports the boiler operating company or the service technician in quickly localising and rectifying irregularities in operation. This results in a further increase in transparency and operating safety.

As an alternative to the BCO it is also possible to use the affordable Control 8000 for heating boilers without customer-specific control requirements. This control device is also compatible with the remote maintenance system MEC Remote.

Benefits at a glance

- Intuitive operation with graphical symbols and state of-the-art touchscreen displays
- Simple optimisation of all measuring and control functions
- Maximum supply and operating reliability thanks to integrated monitoring and protection functions
- Easy connection to higher-level visualisation and control systems
- Ready for use with remote maintenance system MEC Remote
- Condition Monitoring for consistently high system efficiency and availability of steam, hot water and heating boiler systems

Equipment

- Output control
- Low load control
- Condition Monitoring – preventive condition and efficiency monitoring
- Boiler hours run meter
- Diagnostics function
- Burner hours run meter
- Recording of number of burner starts
- Plain text display of operating signals and fault messages
- Message history
- Intuitive, menu-driven operation via touch-sensitive graphic display
- Display and intermediate storage of all relevant measured values and states

In addition to the basic functions, further options and functions can be added to the BCO control.

Contact Us

TOMLINSON ENERGY SERVICE

Maximising Energy Efficiencies for a Sustainable Future

admin@egl.com.au www.environmental.com.au 03 9541 8699

Office Locations

Melbourne
Tomlinson Energy Services
Suite 2.01 | Level 2
315 Ferntree Gully Road
Mount Waverley VIC 3149
P: 03 8560 0416
E: energyservice.melbourne@tomlinsonenergy.com.au

Sydney
Tomlinson Energy Services
A2, 26 Power Road
Seven Hills NSW 2417
P: 02 9681 4177
E: energyservice.sydney@tomlinsonenergy.com.au

Brisbane
Tomlinson Energy Services
1/48 Commerce Circuit
Yatala QLD 4207
P: 07 3462 0159
E: energyservice.brisbane@tomlinsonenergy.com.au

South Australia
Tomlinson Energy Services
26 Phillips Street
Thebarton SA 5031
P: 08 8297 9688
E: energyservice.adelaide@tomlinsonenergy.com.au

Western Australia
Tomlinson Energy Services
40 Sorbonne Crescent
Canning Vale WA 6155
P: 08 9455 5511
E: energyservice.perth@tomlinsonenergy.com.au

The Environmental Group Limited
Engineering a Sustainable Future