



Bosch Commercial and Industrial

Large scale solar thermal for
commercial heating and hot water



BOSCH

Invented for life



About the Bosch Group

Leading global supplier

The Bosch Group is active in the fields of automotive technology, industrial technology, consumer goods, and energy and building technology. The Bosch Group has more than 306,000 associates who generate sales of over £45 billion a year.

The Bosch Group comprises of Robert Bosch GmbH and has more than 350 subsidiaries and regional companies in some 60 countries. When sales and service partners are included, Bosch is represented in 150 countries worldwide.



We are a charitable foundation

Ninety-two percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation, while the majority of voting rights are held by Robert Bosch Industrietreuhand KG, an industrial trust.

The special ownership structure of Bosch guarantees the entrepreneurial freedom of the Bosch Group, making it possible for the company to plan over the long term and to undertake significant up-front investments in the safeguarding of its future.

Robert Bosch **Stiftung**

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Discover Bosch Commercial and Industrial...

Build the complete solution



Bosch products deliver high levels of fuel efficiency, consistent heating and hot water performance and have a notoriously long product life.

The planning and provision of heating, hot water and air-conditioning solutions will always present certain challenges, however Bosch Commercial and Industrial can offer the complete system solution from a single source.

All our projects are planned from start to finish using an integrated, systematic approach, in order to guarantee that the system will be as energy-efficient as possible.

Thanks to our comprehensive product portfolio, we can find the optimum solution to meet the precise requirements of any facility.

With an extensive history and decades of experience, place your trust in custom solutions from Europe's market leader in heating and hot water systems.

All Bosch products are subject to rigorous quality testing of each and every component, to ensure efficient, reliable and consistent performance throughout their long life. These products are supported by an unrivalled technical support team which is able to provide system design, product specification and installation query resolution.

From initial consultation to final commissioning and on-going, whole-life support, Bosch offers the complete package. Added peace of mind comes from secure guarantees and 10 year spares availability.

For added support, Bosch has BIM level 2 files that cover its entire commercial and industrial boiler range, while providing technical information for a system's lifecycle, including outputs, efficiencies, emissions, weights and dimensions. For more information, please visit bosch-industrial.co.uk/BIM.



Bosch quality solar thermal panels

For over 30 years the research, development and quality teams at Bosch have worked together to create solar products that deliver high quality and dependable performance over a long period of time. This means sourcing the best components, utilising the latest technology and adopting strict quality procedures.

Introducing our Lifestyle collectors

Lifestyle collectors offer both quality and value for investors wishing to upgrade their heating system with renewable technology. The robust fibreglass collector offers outstanding durability and a superb price/performance ratio. Excellent compatibility with existing heating equipment and straightforward rooftop installation saves time and money, and ensures a hassle free energy saving solution.

Quality, performance and life long reliability

Bosch solar panels utilise advanced light absorption technology to capture radiation from the sun and convert it into energy that can be used to provide up to 60%* of your hot water needs, or to backup your space heating and swimming pool.

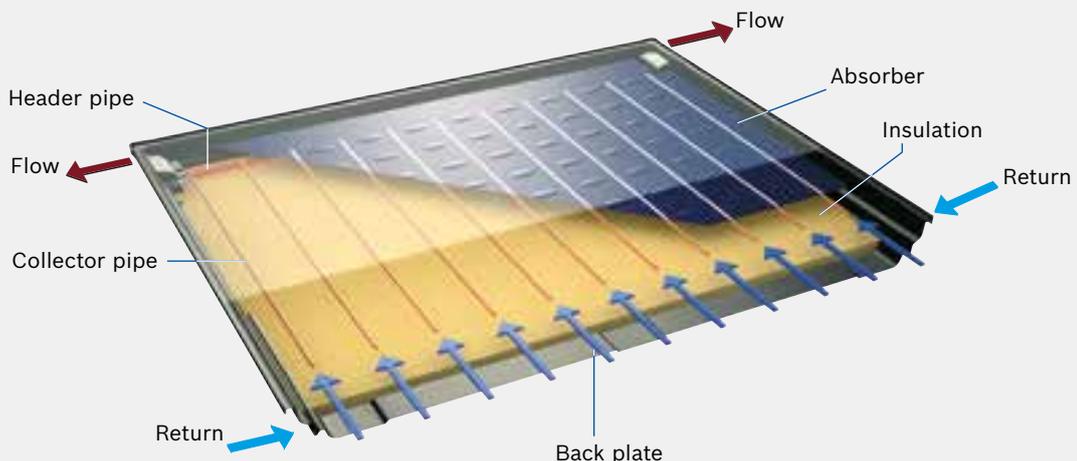
Collectors are continually exposed to the elements and so are designed to withstand the harshest weather conditions. Specially coated toughened safety glass and a robust, corrosion resistant fibreglass framework ensures a lightweight collector with high mechanical stability. Our solar panels provide superior strength, longevity and excellent all year round efficiency.

Features and benefits of solar at a glance:

- ▶ Free renewable energy
- ▶ Minimum additional space requirements
- ▶ Less reliance on utility companies
- ▶ Straightforward modular installation
- ▶ Lower carbon footprint
- ▶ Less work for your boiler
- ▶ Visible demonstration of environmental responsibility.

Invest in future-proof technology

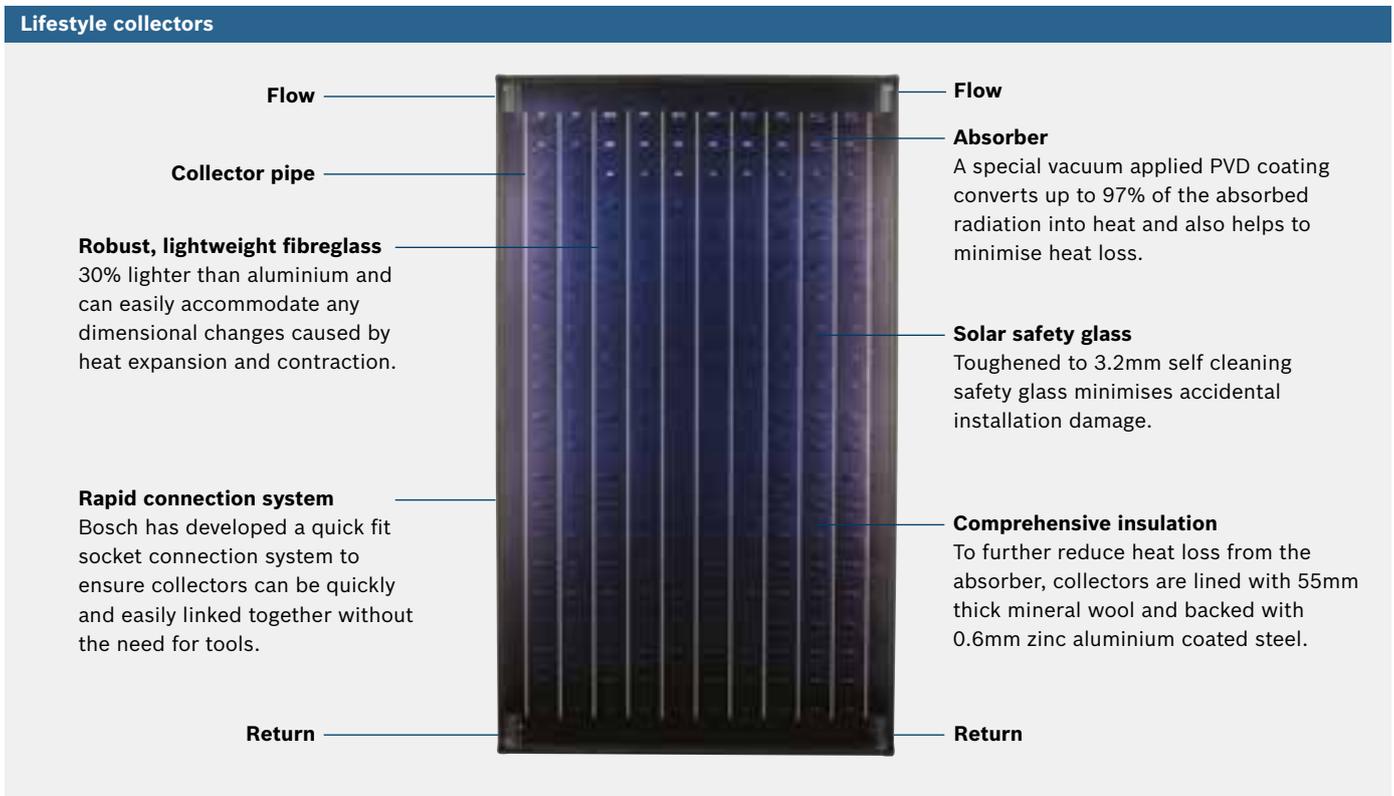
Lifestyle collector



*Subject to system design

Lifestyle collectors

Robust design, reliable performance



Multiple siting possibilities

Collectors can be combined in a variety of configurations to suit the largest of installations, either fitted on the roof, in roof, or mounted on specially angled frames where flat roof or wall mounting options are required.

Bosch can assist with this by undertaking site visits to provide advice and recommendations to support the installation requirements of each project.

Bosch can provide the necessary pumps, controls and accessories to allow up to 50 panels to be installed in a single field.

Features and benefits of Lifestyle collectors at a glance

- ▶ High quality, robust and stylish panel design
- ▶ High efficiency collector maintains heat gathered
- ▶ Simple controls – easy to see solar system performance and settings
- ▶ Solar Keymark certified (equivalent to Microgeneration Certification Scheme (MCS)) – panel is eligible for payback incentives administered by the MCS organisation
- ▶ Built in carry handles on panel – easier to handle, transport and manoeuvre
- ▶ One piece fibre glass casing – light and robust panel (<40kg)
- ▶ Angled side brackets for easier application of allen key – aids installation
- ▶ Green indicator system on centre bracket connection – aids installation
- ▶ Greased connection hoses aids installation
- ▶ First and second fix kits available: first fix for roofers and second fix for heating installers – equipment only on site when needed
- ▶ SAP collector performance factor of over 80% – can help achieve Dwelling Emission Rate.

Lifestyle solar thermal – technical data

Collector type	Lifestyle	Lifestyle
Orientation	Portrait	Landscape
Dimensions (mm)	1175 x 2017 x 87	2017 x 1175 x 87
Gross collector area (m ²)	2.37	2.37
Aperture area (m ²)	2.25	2.25
Absorber area (m ²)	2.18	2.18
Absorber volume (litres)	0.94	1.35
Weight empty (kg)	40	41
Absorption (%)	95 ± 2	95 ± 2
Emissions (%)	5 ± 2	5 ± 2
η_0 (%)	77.0	77.0
a1 (W/m ² k)	3.216	3.871
a2 (W/m ² k ²)	0.015	0.012
1,000 W/m ² $\Delta T = 0K$ (W/m ²)	1,725	1,735
1,000 W/m ² $\Delta T = 30K$ (W/m ²)	1,478	1,450
1,000 W/m ² $\Delta T = 50K$ (W/m ²)	1,279	1,233
Stagnation temperature tstg. (°C)	199.3	199.3
Max. operation pressure pmax (bar)	6	6
Nominal flow rate [l/h]	50	50
Incident Angle Modifier (50T)	0.92	0.92
MCS certification number	011 7S 1610F	011 7S 1720F
Part number	8 718 530 950	8 718 530 951

W = power (instant power)

Comprehensive energy management

With the Bosch range of solar controls, pump groups and accessories your heating system can operate at maximum efficiency all year round. Servicing, maintenance, system diagnostics, heat distribution and temperature settings can be quickly and easily managed from a single controls platform that communicates with all components in your Bosch heating system.

Our controllers are a user friendly range of independent solar controls that provide comprehensive solar functionality – the perfect solution to complement any third party conventional or standalone boiler control system.

B-sol100-2 Controller

The B-sol100-2 provides control for systems with one solar storage cylinder. Collector and cylinder temperatures, pump speed and run hours can all be displayed in real-time, using the simple “push & turn” menu and animated LCD screen. This controller communicates with a fully modulating, low energy pump station, ensuring minimised energy usage at standby to full power, and every stage in between.

CS200 plus MS200

The Bosch CS200 Solar Controller, used in conjunction with the MS200 Intelligent Solar Module allows for the control of pumps and sensors within advanced solar thermal systems. The CS200 does not control other elements of a heating system. The MS200 can control 2 pumps for multiple collector fields, for example an East/West split. The module will also receive input via sensors recording solar collector and hot water cylinder temperatures. The MS200 can also be used within swimming pool installations.

Solar pump station

The Bosch range of solar pump stations provide circulation of the heated solar fluid from the collector panels to the water storage cylinder, and thus optimise the flow rate of each panel. With 4 different pump group sizes available we can cater for all solar system sizes. For example, single installations of up to 50 collectors per field, with up to 10 collectors per row can be achieved when using an AGS10e-2 or an AGS10-2.

The solar pump station supports hot water requirements and is integrated with SC solar controls.

B-sol100-2 Controller



CS200



Solar pump station



Heating system integration

Combining a Bosch heating system with Bosch solar panels can provide significant efficiency and performance benefits and is the best way to ensure that your panels and boiler work in harmony, rather than separately.



Bosch 4000 series boiler controls can be fitted with the intelligent FM443 solar module (as shown above) to allow optimum solar and heating functionality. With this fully integrated energy management system, the Bosch boiler recognises the solar output and delays the boiler firing for as long as possible by continuously monitoring changes in heat demand. This not only minimises the wear and tear on the heating system, by reducing burner start ups by up to 24%, but can also provide an additional 10% of energy savings.

Consistency between the operating systems will allow the solar and boiler circuits to continually communicate, working together or independently, in order to maximise energy savings and reduce wear and tear. Investing in products from the same source will also simplify the specification process and increase system design options.



Thermal storage and filling pump

Bosch has three stratified, highly efficient thermal stores in its PR range: 500 litres, 750 litres and 1,000 litres. These can be used individually or joined together for very large systems. All are available with 80mm thermal insulation as standard to keep the heat where it should be. 120mm thick insulation is also available resulting in extremely low standby losses.



PR500 - PR1000

The vertical feed tube within the thermal storage unit contains many outlets. Heated water entering the unit rises up the special tube until it is surrounded by water of an equal buoyancy and then flows through the nearest outlet into the body of stored water. 80mm or 120mm insulation prevents heat transfer from the stored water to external surroundings, so the stored water remains hot. Naturally stratifying the thermal storage saves energy and optimises running costs. The PR buffer storage needs to be installed with an external heat exchanger to separate the anti freeze from the water circuit and is for primary water only.

Solar filling pump

This portable unit is simply attached to the solar pumping station. Not only does it fill the solar circuit with the solar fluid, it can also be used to cleanse the pipework and thoroughly flush out any debris prior to commissioning. For smaller installations, the air separator in the pump station prevents the need for any automatic air vents in the collector field.

Training – keeping you up to speed with the latest technology

Bosch Thermotechnology Ltd. is as renowned for the quality of its training as it is for the quality of its products. Training that enables specifiers and installers to keep up to speed with the latest regulations, as well as the most recent products to enter the market.



Many Bosch training courses are LOGIC approved



Bosch offers CHP, District Heating and BIM Fundamental CPD training

Our technical training officers, who have many years' experience as heating technicians, combine practical installation tips with heating theory and legislative requirements, ensuring a thorough understanding of all aspects of the application.

State-of-the-art facilities

The home of our training operations is at our purpose-built training facility in Worcester. The Worcester expanded facility includes life-size single-storey buildings with working appliances to simulate real installations.

Bosch also has Training and Assessment academies at West Thurrock and a brand new £1.2 million facility in Wakefield.

All aspects of assembly, installation, fluing and control options are explained in detail. With our help, you will be equipped with the skills to ensure that both you and your customers achieve the maximum benefit from our product range.

We also run certified commercial ACS courses equipping installers with the relevant qualifications for the changeover from domestic to commercial gas work.

Onsite training

As part of our customer offering, we are happy to deliver one-to-one training onsite for commissioning and setting up of controls.

CPD training

Bosch Commercial and Industrial now offers a CIBSE accredited Continuing Professional Development (CPD) for CHP, District Heating and BIM Fundamentals. The training courses, which count towards your CIBSE CPD requirement, can be held at your premises as well as being tailored to meet your exact requirements.

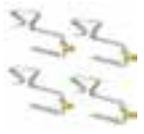
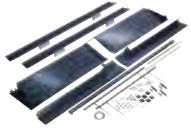
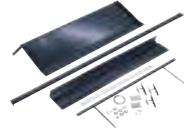
Apply now

If you would like further information, or to book a place, you can contact our training team on **0330 123 0166** or email **training@uk.bosch.com**



Training courses	Content	Duration
Commercial ACS course CODNC01	Changeover qualification from domestic to commercial, including CIGA1.	5 days
CHP overview course	Product overview, systems and controls.	1 day
CHP CPD	Product overview, module sizing, installation considerations, legislation incentives	2 hours
GB162	Features and benefits, energy efficiency and legislation requirements.	1 day
Heat Interface Unit	Product overview, systems, controls, installation and commissioning.	1 day
District Heating CPD	Technology overview, design considerations, integration of renewables, grant funding and guidance available for Local Authorities.	2 hours
Continuous flow water heater	Product overview, installation, commissioning, servicing and maintenance.	1 day
Gas Absorption Heat Pump	Product overview, systems, controls, installation and commissioning.	1 day
Solar thermal	Installation of panels, system design, Bosch solar components, commissioning, servicing, basic fault finding.	1 day
Commercial controls	Guide to the varied range of Bosch control options that are available with the commercial boiler range. Controls covered: RC25, RC35, 4000.	2 days
BIM Fundamentals CPD	BIM overview, who it applies to and how to use BIM files	1 hour

Solar parts and accessories

<p>TF2 temperature sensor NTC 20K</p>  <p>7 747 009 880</p>	<p>Solar FM443 integrated 4000 module</p>  <p>7 747 300 910</p>	<p>Solar Lifestyle collector – portrait</p>  <p>8 718 530 950</p>	<p>Solar Lifestyle collector – landscape</p>  <p>8 718 530 951</p>	<p>Roof connection – tile/plain tile</p>  <p>8 718 531 023</p>
<p>Roof connection – slate/shingle</p>  <p>8 718 531 024</p>	<p>Roof connection – corrugated/tin roof</p>  <p>8 718 531 025</p>	<p>Snow load profile – tile/plain tile</p>  <p>8 718 531 028</p>	<p>Snow load profile – corrugated/tin roof</p>  <p>8 718 531 030</p>	<p>Flat roof support basic set vertical</p>  <p>8 718 531 031</p>
<p>Flat roof support extension set vertical</p>  <p>8 718 531 032</p>	<p>Flat roof support basic set horizontal</p>  <p>8 718 531 033</p>	<p>Flat roof support extension set horizontal</p>  <p>8 718 531 034</p>	<p>Flat roof support loading tray set</p>  <p>8 718 531 035</p>	<p>Auxiliary rail flat roof support vertical</p>  <p>8 718 531 036</p>
<p>Auxiliary rail flat roof support horizontal</p>  <p>8 718 531 037</p>	<p>In roof tiles single</p>  <p>8 718 530 980</p>	<p>ICD roof integr set 1 row, 2 panel vertical</p>  <p>8 718 530 981</p>	<p>ICD roof integr extension set, 1 row vertical</p>  <p>8 718 530 982</p>	<p>ICD roof integr one collector, 1 row horizontal</p>  <p>8 718 530 986</p>
<p>ICD roof integr set, 1 row 2 panel horizontal</p>  <p>8 718 530 987</p>	<p>ICD roof integr extension set, 1 row horizontal</p>  <p>8 718 530 988</p>	<p>On roof basic set vertical</p>  <p>8 718 531 017</p>	<p>On roof extension set vertical</p>  <p>8 718 531 018</p>	<p>On roof basic set horizontal</p>  <p>8 718 531 019</p>
<p>On roof extension set horizontal</p>  <p>8 718 531 022</p>	<p>Auxiliary rail on roof basic set vertical</p>  <p>8 718 531 026</p>	<p>Solar service kit UK</p>  <p>7 739 300 397</p>	<p>Accessory solar fluid L10</p>  <p>8 718 660 880</p>	<p>Accessory solar fluid L20</p>  <p>8 718 660 881</p>

<p>Solar expansion vessel</p>  <p>SAG 18 7 739 300 100 SAG 25 7 739 300 119 SAG 35 7 739 300 120</p>	<p>Solar expansion vessel connection AAS1</p>  <p>7 739 300 331</p>	<p>Pre cooling vessel VSG6</p>  <p>7 747 010 472</p>	<p>Solar 12 litre pre cooling vessel</p>  <p>7 747 010 473</p>
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Supporting accessories

<p>B-sol100-2 controller</p>  <p>7 735 600 072</p>	<p>Bosch CS200 solar controller</p>  <p>7 738 111 070</p>	<p>MS200 intelligent solar module</p>  <p>7 738 110 146</p>	<p>Solar buffer vessel</p>  <p>PR500 – 80mm 7 747 304 156 PR750 – 80mm 7 747 304 157 PR500 – 120mm 7 747 304 159 PR750 – 120mm 7 747 304 160 PR1000 – 120mm 7 747 304 161</p>	<p>Solar pump station</p>  <p>AGS10e 2 7 735 600 033 AGS10 2 7 735 600 034 AGS20 2 7 735 600 038 AGS50 2 7 735 600 039</p>
<p>Auxiliary rail on roof extension set vertical</p>  <p>8 718 531 027</p>	<p>Snow load profile slate/shingle</p>  <p>8 718 531 029</p>			

Components	Part number
Solar expansion vessel 50L 6bar blue	8 043 206 6
Solar expansion vessel 80L 6bar blue	8 043 206 8
LFIX expansion vessel CH 100 blue 6bar	8 065 708 0
LFIX expansion vessel CH 140 blue 6bar	8 065 708 2
LFIX expansion vessel CH 200 blue 6bar	8 065 708 4
LFIX expansion vessel CH 250 blue 6bar	8 065 708 6
LFIX expansion vessel CH 300 blue 6bar	8 065 708 8
LFIX expansion vessel CH 400 blue 6bar	8 065 709 0
LFIX expansion vessel CH 500 blue 6bar	8 065 709 2
Solar collector suction handle	7 747 025 483
Pump signal converter PSW basic	7 735 600 194
Accessory air vent set	8 718 531 048
Solar basic frost protection tester	8 301 340 0
Solar storage sensor – 9mm (AS1)	5 991 384
Solar storage sensor – 6mm (AS1.6)	6 301 283 1

Overview of the **complete product range**

With an extensive product range of energy-efficient cast iron boilers, stainless steel boilers, the latest aluminium condensing boilers and an extensive renewable range, we can provide the complete heating and hot water solution. For more information please call **0330 123 3004** or visit **www.bosch-industrial.co.uk**

Condensing wall hung boilers



- ▶ **GB162 (50 - 100kW)**
The GB162 is a stylish and remarkably compact condensing gas boiler. Up to 110% efficiency, quiet and easy to install and maintain.
- ▶ **GB162 Cascades (up to 800kW)**
Boilers can be installed in an innovative in-line or back-to-back cascade system of up to 8 boilers, with just 4 boilers back-to-back giving a 400kW output in just 1m².

Continuous flow water heater



- ▶ **CW47 (50kW)**
With an output of 50kW, the CW47 instantaneous water heater is ideal for use in high-end residential, and both small and large commercial applications.
- ▶ **CW47 Cascades (up to 600kW)**
Up to 12 appliances can be cascaded in parallel, offering a combined flow rate of up to 250 lts/min.

Heat interface unit



- ▶ **Heat Interface Unit (HIU)**
The Heat Interface Unit (HIU) provides domestic hot water and space heating to properties that are serviced from district heating or centralised boiler plants.

The HIU comprises of two heat exchangers, one for providing instant domestic hot water at a regulated temperature and the second for space heating within the property.

Floor standing boilers

Condensing pre-mix aluminium



- ▶ **GB312 (90 - 280kW)**
A compact floor standing, condensing gas boiler, the GB312 is suitable for room-sealed or open flue systems and is fitted with a cast aluminium heat exchanger.
- ▶ **GB312 Cascades (180 - 560kW)**
Available as a two boiler cascade where higher outputs are required.
- ▶ **GB402 (320 - 620kW)**
A floor standing, condensing gas boiler, the GB402 is fitted with a cast aluminium heat exchanger and thermally-insulated boiler body.
- ▶ **GB402 Cascades (640 - 1,240kW)**
Can be used as a multiple boiler cascade where higher outputs are required.

Condensing stainless steel



- ▶ **SB745 (800 - 1,200kW)**
High-performance gas condensing boilers with precision-engineered condensing heat exchangers made of high-quality stainless steel and with compact dimensions for easy installation.

High efficiency cast iron



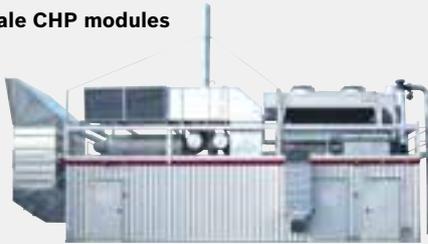
- ▶ **GE515 (455 - 510kW)**
 - ▶ **GE615 (511 - 1,200kW)**
- The GE range is particularly well suited for replacement boilers, or where access to the boiler room is restricted. They offer high efficiency and allow very simple, cost-effective hydraulic system design.

Combined heat and power

CHP modules



Large-scale CHP modules



CHP CE NA (12 - 400kWe)

- ▶ CE12 NA
- ▶ CE19 NA
- ▶ CE50 NA
- ▶ CE70 NA
- ▶ CE140 NA
- ▶ CE240 NA
- ▶ CE365 NA
- ▶ CE400 NA

Combined heat and power (CHP) offers a more efficient way of generating heat and electrical power compared to conventional methods.

CHP modules (600kWe - 2MWe)

Available with outputs up to 2MWe, this bespoke solution can generate heat and electricity by using natural gas, biogas, sewage gas and landfill gas.

Floor standing industrial boilers

High efficiency steel



▶ Uni 3000 F (420 - 1,850kW)

Extremely reliable multi-fuel steel hot water boilers with the flexibility to make them suitable for a wide range of commercial applications, including district heating schemes when used in conjunction with condensing peak load boilers and CHP modules.

▶ UNIMAT UT-L and UT-M (650 - 19,200kW)

A versatile multi-fuel boiler for larger industrial applications. Has an internal/external stainless steel or galvanised steel condensing heat exchanger.

▶ UNIMAT UT-H and UT-HZ (820 - 38,000kW)

The UT-H and UT-HZ boiler type ensures a reliable and efficient heat supply in the high output range.

Floor standing steam boilers

High efficiency steam boilers



▶ UNIVERSAL U-ND (175 - 3,200kg/hr)

▶ UNIVERSAL U-HD (175 - 1,250kg/hr)

▶ UNIVERSAL U-MB (200 - 2,000kg/hr)

▶ UNIVERSAL ULS (1,250kg/hr)

▶ UNIVERSAL UL-SX (2,600 - 28,000kg/hr)

▶ UNIVERSAL ZFR (18,000 - 55,000kg/hr)

▶ UNIVERSAL ZFR-X (18,000 - 55,000kg/hr)

The high efficiency shell boilers of the proven and reliable UNIVERSAL series over the full spectrum of steam capacities from 175 to 55,000kg/hr.

▶ Heat recovery steam boilers (400 - 4,170kg/hr)

Designed to recover the accumulated flue gas heat from combined heat and power (CHP) plant by converting it into process steam.

Air conditioning technology

Variable Refrigeration Flow (VRF) systems



Climate 5000

- ▶ SDCI Series (All DC Inverter Heat Pump)
- ▶ MDCI Series (All DC Inverter Mini VRF)
- ▶ RDCI Series (All DC Inverter Heat Recovery)

Bosch Climate 5000 VRF range incorporates a host of advanced features, including a brushless DC compressor control, an innovative heat exchanger and several high performance parts, to deliver exceptional energy efficiency for cooling and heating.

Renewable technology

Gas absorption heat pumps



▶ GHP AWO 38 (38.3kW)

The GWPL 38 is a low carbon solution for the delivery of highly efficient, renewable heating for commercial, industrial and residential applications.

▶ GHP AWO 38 Cascade System (76.6 - 205.5kW)

For higher heat demands, the GWPL 38 is supplied in a factory-assembled rig-mounted multi heat pump cascade of up to 205.5kW, and larger cascade systems are available if required.

Solar thermal collectors



▶ Lifestyle

Flat plate collectors using high specification solar technology to maximise the amount of heat captured from the sun.

Comprehensive service: Nationwide and close to you

Our aim is to deliver world class customer service ensuring maximum availability and efficiency of your Bosch system. Our highly skilled service technicians are fully trained on all of the products that we supply. Our focus is to ensure that your equipment is operating safely and in accordance with the applicable regulations and manufacturer's instructions.

Nationwide

Our Bosch service engineers are located nationwide and are there to support you should you need us to maintain your boiler or if you have any issues.

Should a technical issue arise we are there to provide immediate technical support minimising downtime.

Contact Centre

Open 364 days per year we have a dedicated UK contact centre team who can handle all of your enquiries ranging from, spare parts, maintenance, breakdowns, commissioning visits or any other general support.

Our contact centre is open 7 days per week, from:

- ▶ 7am till 8pm Monday to Friday
- ▶ 8am till 5pm on Saturdays
- ▶ 9am till 12 midday Sundays
- ▶ 8am till 4:30pm on Bank Holidays.

Training

All of our experienced service technicians are directly employed by Bosch UK. They are trained on all Bosch products and components and hold industry recognised qualifications.

Equipment

As the original manufacturer, we have the facility to capture and record all relevant information relating to your boiler, from point of manufacture, including all service and maintenance activities, and throughout its entire life.







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