



Bosch Commercial and Industrial Combined heat and power modules

CE 12 NA - CE 400 NA

12kWe - 400kWe (24kWth - 500kWth)



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 is part of Bosch Thermotechnology Ltd., a company that specialises in providing complete system solutions for the commercial and industrial heating sectors with individual outputs from 50kW to 38,000kW.

Bosch Commercial and Industrial offers an extensive product range of energy-efficient steel shell, cast iron, stainless steel and aluminium condensing boilers, as well as an extensive renewable range.

For well over a hundred years, the name Bosch has stood for first-class technology, innovation and excellent customer service. Forward-looking combined heat and power (CHP) modules are one of the many areas of expertise at Bosch.

As one of the leading providers worldwide, we endeavour to support you with our wide range of products and services used for indoor climate, hot water and decentralized energy management systems.

Bosch Parkhaus, Stuttgart, is currently one of the largest neon signs in the world and has the second largest lettering to the unlit Hollywood sign. A symbol of Bosch's global brand awareness.



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Discover Bosch...

Complete heating technology solutions



At Bosch, all our projects are planned from start to finish using an integrated, systematic approach, in order to guarantee that the heating and hot water systems 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.

Bosch Thermotechnology Ltd. is renowned for providing energy efficient products and comprehensive support services, working in partnership with heating engineers, contractors and consultants. We pride ourselves on delivering tailored heating solutions that provide tangible benefits to the end-user in the most efficient and practical way possible, across a wide range of markets and industries.

All Bosch Thermotechnology Ltd. products are subject to rigorous quality testing of each and every component, to ensure efficient, reliable and consistent performance throughout its long life. These products are supported by an unrivalled technical support team which is able to help with system design, product specification and installation queries. This ensures our system technology is perfectly matched to meet the precise requirements of each project. From initial consultation to final commissioning, as well as on-going whole-life support, we offer the complete package. Added peace of mind comes from secure guarantees and 10 year spares availability.



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Expertise and trust

As a leading manufacturer and innovator, Bosch specialises in providing energy-efficient commercial heating solutions. Whether it be condensing boiler technology, solar thermal energy, heat pumps, biomass boilers or combined heat and power, our innovative solutions and outstanding quality ensure that you can generate heat and hot water in an efficient and environmentally friendly way. Bosch is a name you can trust.



Bosch – a strong brand

It is not only our CHP modules that stand out for their high quality, but also the wide variety of other products and services we offer. Meeting your needs and expectations is our top priority. It is exactly for this reason that we call upon all our knowledge and experience, while measuring ourselves against international standards and our own strict quality guidelines. This enables us to reaffirm our brand's promises every day.

Bosch – we pride ourselves in innovation

Bosch has a long tradition for new, innovative ideas within the commercial and industrial heating industry. This is thanks to thousands of researchers, engineers and technicians, whose knowledge, dedication and creativity allows us to continue to move forward. We focus our attention equally on developing new products and systematically optimising our existing products. With an average of 16 patents applied for every working day, Bosch is one of the world's most innovative companies.

Environment and efficiency

As a responsible and innovative manufacturer, we dedicate ourselves to environmental protection and the saving of resources. Our sustainable and efficient systems keep CO₂ emissions low and contribute to a reduction in climate change.

Bosch CHP modules deliver efficiency at a whole new level

By simultaneously delivering both heat and electricity, Bosch CHP modules boast particularly high efficiency levels and significantly reduce your energy consumption and costs. When compared with conventional heating systems, Bosch CHP modules can amount to savings of up to 30%. Bosch CHP modules achieve a total efficiency of up to 94%, which compares more than favourably with the average 38% to 52% efficiency achieved when generating electricity using conventional power units and producing heat from a traditional boiler. Such high levels of efficiency mean that your initial investment costs can be paid back within as little as 2 to 3 years.

Good for both the environment and the climate

Bosch CHP modules not only help to reduce your energy costs, they also make a positive impact on the environment. This is because less gas is required to generate the same output as a conventional solution and so emissions are also lower. This not only applies to CO₂ emissions, as both overall NO_x and CO emissions are also significantly reduced.



Bosch CHP modules are perfectly matched to your requirements. This saves not only natural resources, but your financial resources as well.

Bosch CHP delivers a range of benefits

The typical efficiency of a large power station ranges from 38% to 52%, as most of the heat produced in the process is wasted.

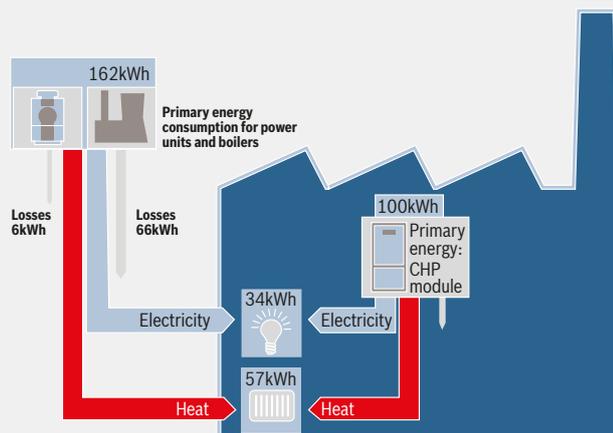
Reduced carbon emissions for both power and heat

According to the Carbon Trust, when compared to using conventional boiler systems and mains electricity, CHP has the potential to reduce carbon dioxide emissions for power and heat generation by around 30%. In utilising the waste heat from the power generation process, Bosch CHP delivers energy utilisation of around 92%, of which around 33% is in the form of higher value electrical energy.

Safe and secure energy supply

Electrical and thermal energy lost during transportation from power stations is also avoided through on-site generation. The ability to generate electricity on-site provides enhanced security against disruption of the mains electrical supply.

Environmental assessment of a CHP module in comparison to separate energy provision



Bosch CHP delivers a fast return on investment in several ways:

- ▶ Improved energy efficiency, therefore reducing the requirement to purchase energy from utility companies
- ▶ Locally generating electricity with a Bosch gas powered CHP is more cost-effective than buying mains electricity as the cost of mains gas is considerably lower
- ▶ Tax benefits: fuel inputs to CHP are exempt from the Climate Change Levy (CCL)*
- ▶ Money saving: Bosch CHP plant and machinery is eligible for Enhanced Capital Allowances (ECA)*
- ▶ Carbon Allowance: qualifies for favourable allocations under Phase II of the EU Emissions Trading Scheme (EU ETS)*
- ▶ Business Rate Exemption: Bosch CHP power generation plant and machinery is exempt from Business Rates*.

*Benefit depends on achieving certain CHPQA quality CHP statuses.

Why choose **Bosch CHP?**

Energy efficient

Bosch CHP are highly efficient generators of both electricity and heat energy, with overall net efficiencies of up to 94%.

Individual Bosch CHP modules can modulate outputs from 50% to 100% to match the building's daily heating requirements.

Quality and reliability assured

Bosch CHP modules benefit from a manufacturing quality which ensures a robust product with a long, reliable life in line with the company's strict internal quality processes. This is combined with the best-in-class engines from Volkswagen (CE 12 NA and CE 19 NA), MAN (CE 50 NA to CE400 NA), MWM and MTU (CE600N and above) providing further peace of mind for the end user.

Low environmental impact

Bosch CHP modules feature a three-way catalyst and lambda control, ensuring low emissions and enhanced efficiency. They also produce very low noise levels through their integrated sound insulation.

Energy centres

Typically, CHP is combined with other heat sources in an energy centre – an arrangement that enables system designers to achieve maximum energy efficiency. CHP will act as the main heat generator with peak load boilers making up the demand.

Bosch offers a comprehensive range of heating technologies, backed by intelligent controls and expert technical support to ensure that mixed heat sources are optimised for maximum energy efficiency.

CHP Remote Monitoring System

Bosch CHP includes the option of a Remote Monitoring System for centralised monitoring of single or multiple CHP systems using either transmitted data or online web portal access. Using the Remote Monitoring System facilitates system monitoring, performance analysis and

fault detection/diagnosis, as well as automatically providing advance notice of servicing requirements.

Optional service contracts

Bosch combined heat and power modules are supported with a choice of optional 10* year service contracts – Premium and Premium Plus – which are designed to offer the user complete peace of mind. The contracts are transferable with the ownership of the property, and include scheduled engine overhauls, incorporating parts, labour and engine replacement if necessary, as well as disposing of waste oil in an environmentally friendly manner.

The Premium Plus option is a fully transparent rolling contract, which enables the customer to budget for maintenance and repairs, providing control of the whole life costs of the CHP module from the outset.

If you would like more information about combined heat and power contracts from Bosch, please call **0330 123 3004**.

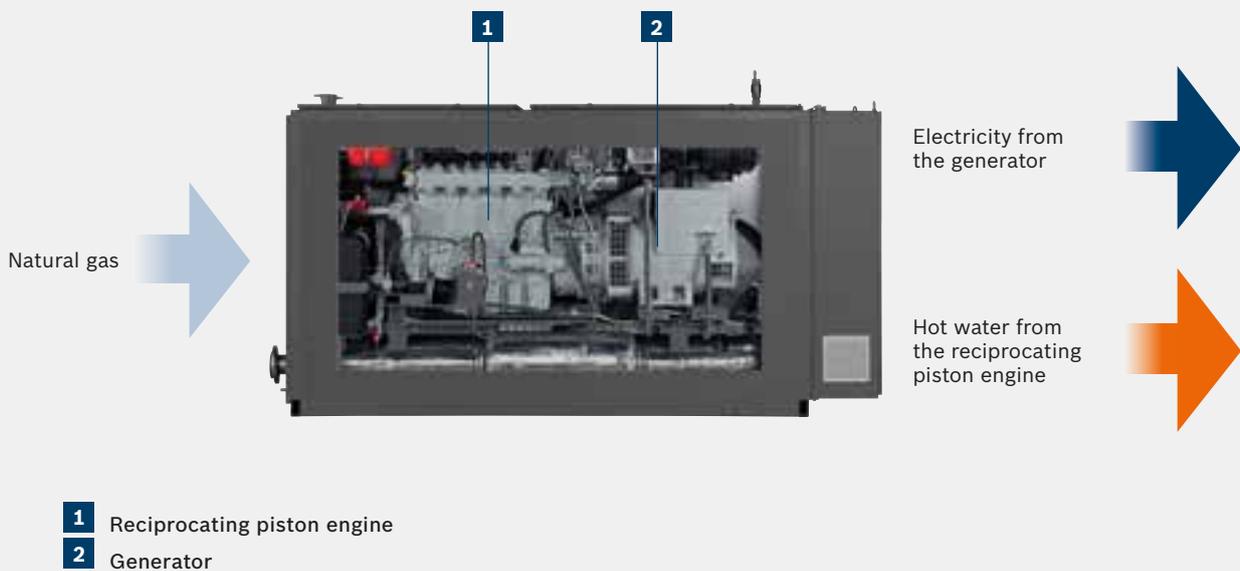
Typical applications

- ▶ Property heating
 - Apartment buildings
 - Hotels, conference centres and restaurants
 - Retirement and nursing homes.
- ▶ Public heating
 - Administration and municipal buildings
 - Hospitals
 - Sports complexes or schools with sports facilities
 - Indoor and outdoor pools.
- ▶ Industrial heating
 - Commercial buildings – supermarkets, shops etc
 - Production plants, breweries, garden centres etc.
- ▶ District and centralised heating (wide-area supply)
 - Residential areas or blocks
 - Business parks
 - Holiday resorts.

Bosch combined heat and power

Total system solution CHP with high efficiency boilers provides electricity, heat and hot water

Bosch combined heat and power (CHP) offers a more efficient way to generate heat and electrical power, compared to conventional methods.



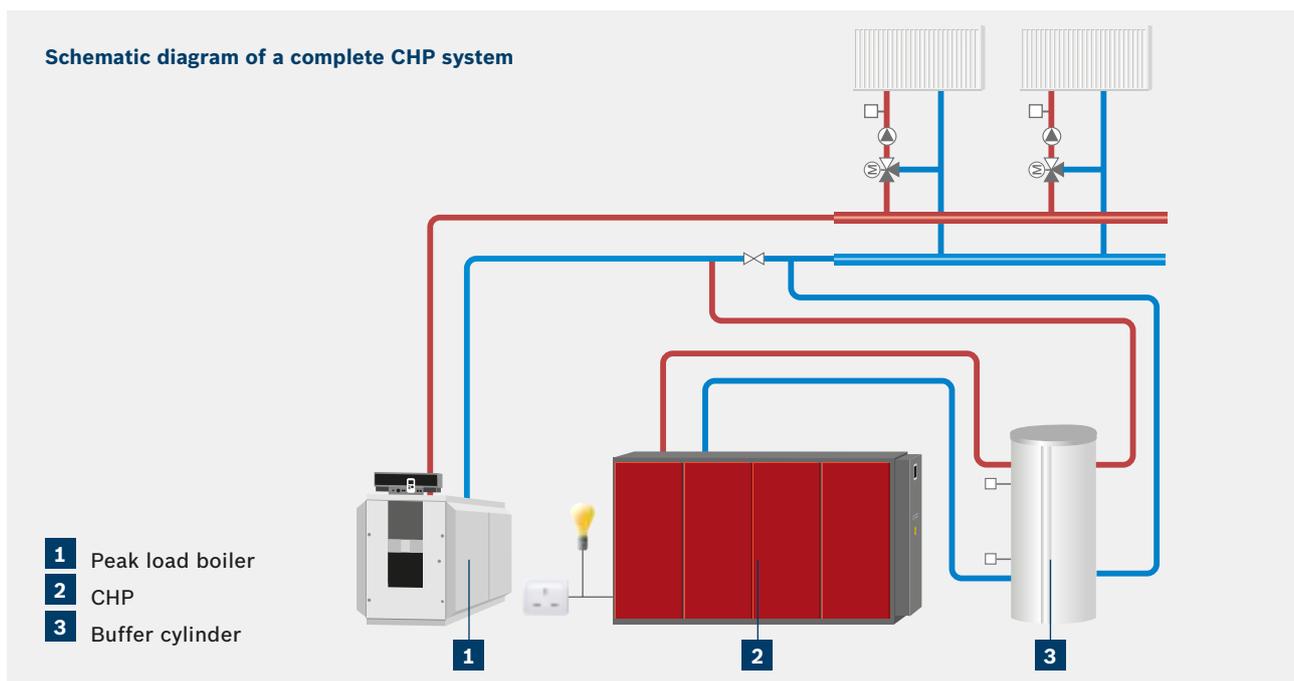
A Bosch CHP module consists of a gas engine, a generator and a heat exchange system. The gas engine drives the generator to produce three-phase electrical power, which feeds into the main low voltage distribution system, where it can be used locally or exported to the national grid.

Heat is produced as a by-product of the power generated, which in a conventional power station

would be wasted. However, the heat generated by a Bosch CHP module is used to generate hot water via the integral heat exchangers. This hot water may be used for space heating, process heating or heating of domestic hot water (DHW).

When the hot water is not required immediately, it can be stored in a suitable storage vessel for later use.

CHP systems should be sized upon the thermal base load of the project to ensure maximum efficiency. In order to satisfy peak heating loads, combining the Bosch CHP with Bosch Thermotechnology Ltd. high efficiency boilers, allows for total cost effectiveness to be achieved.



Bosch CHP key features and benefits:

- ▶ High efficiency
 - Overall net efficiencies of up to 91.8%, with higher efficiencies available through optional condensing technology
 - Modulation of output between 50% and 100%
- ▶ Highest environmental standards
 - Energy savings
 - CO₂ reduction and primary energy savings through simultaneous use of heat and power
 - Built in catalyser as standard for low NOx
- ▶ Proven quality and reliability
 - Bosch renowned standards for manufacturing quality
 - Tried-and-tested components
- ▶ Cost-efficient supply of energy on site
- ▶ Effective monitoring
 - Communication via remote monitoring router
 - Interfaces for integration with Building Management Systems
- ▶ Quietness
 - Noise levels of 44 dB(A) can be achieved with optional air and exhaust silencers (CE 50-400 NA modules); and 44 dB(A) with optional secondary exhaust silencer on CE 12-19 NA modules)
- ▶ Trigeneration
 - Absorption cooling operation is possible with CE 50 NA - CE 400 NA
 - The additional heat load for an absorption chiller allows the plant to operate more efficiently
 - It extends the CHP running time and offers an all year round heat demand
- ▶ Bosch Service Support
 - Bosch specialist team providing system designs, product specification and installation queries
 - Choice of service and maintenance plans.

Features overview

Bosch's highly effective CHP modules are compact power units which, through the clever combination of the reciprocating engine and generator, optimised hydraulics and an intelligent control system, makes them an energy efficient technology for today and tomorrow.

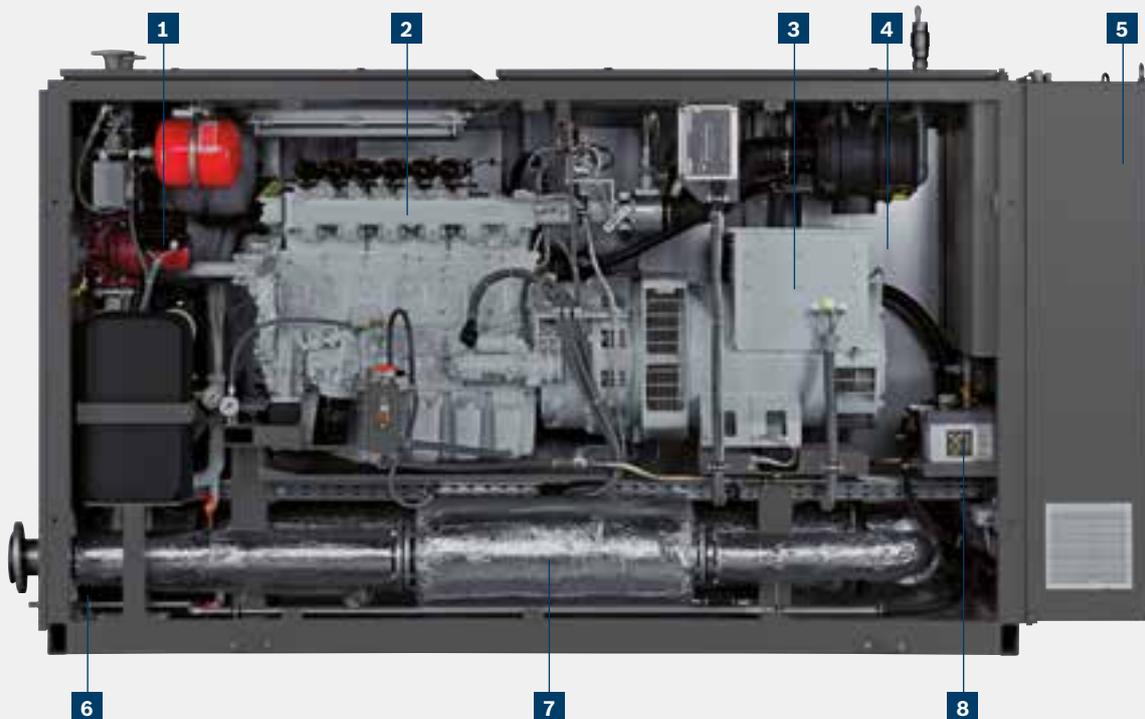
CE 70 NA module



Bosch CHP complete module technology

- ▶ High efficiency gas combustion engine from Volkswagen (CE 12 NA and CE 19 NA modules) and MAN (CE 50 NA module and above)
- ▶ Heat harvesting via the engine coolant and exhaust gas heat exchangers
- ▶ Highly efficient air-cooled synchronous (CE 50 NA module and above) and asynchronous (CE 12 NA and CE 19 NA modules) generator
- ▶ Integrated control cabinet with touch screen display and options for remote monitoring
- ▶ Primary noise reduction within the acoustic lined module
- ▶ Options for additional secondary (CE 12 - 400 NA modules) and tertiary silencing (CE 50 - 240 NA modules) to reduce further noise levels
- ▶ Primary and secondary air outlet silencers available to provide additional noise reduction (CE 50 NA module and above)
- ▶ Integrated lubricated reservoir and starter batteries for security and space saving.

CE 70 NA module



1 Advanced temperature control
Fully equipped: heating circuit pump, 3-way valve with actuator, expansion vessel, safety valve and control unit (optional)*.

2 Full power
Industrial gas engines provide reliable power with modulating output.

3 Always in sync
Both synchronous (CE 50 NA and above) and asynchronous (CE 12 NA and CE 19 NA) generator enables mains substitution. The standby operation is available as an accessory (CE 50 NA and above).

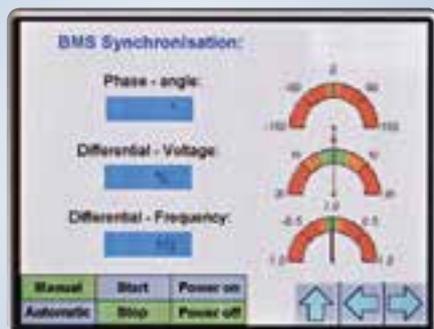
4 Gently does it
The Bosch CHP module offers low noise levels thanks to its acoustic lined module casing.

5 Integrated controls
Integral touch screen panel for control and monitoring at a glance.

6 Tightly sealed
Floor tray is sealed to prevent lubricating oil leakage.

7 Low noise
Effective silencers are utilised to increase noise protection even further.

8 Perfect start
Starter batteries enable equipment to be started without mains electrical supply or loading.

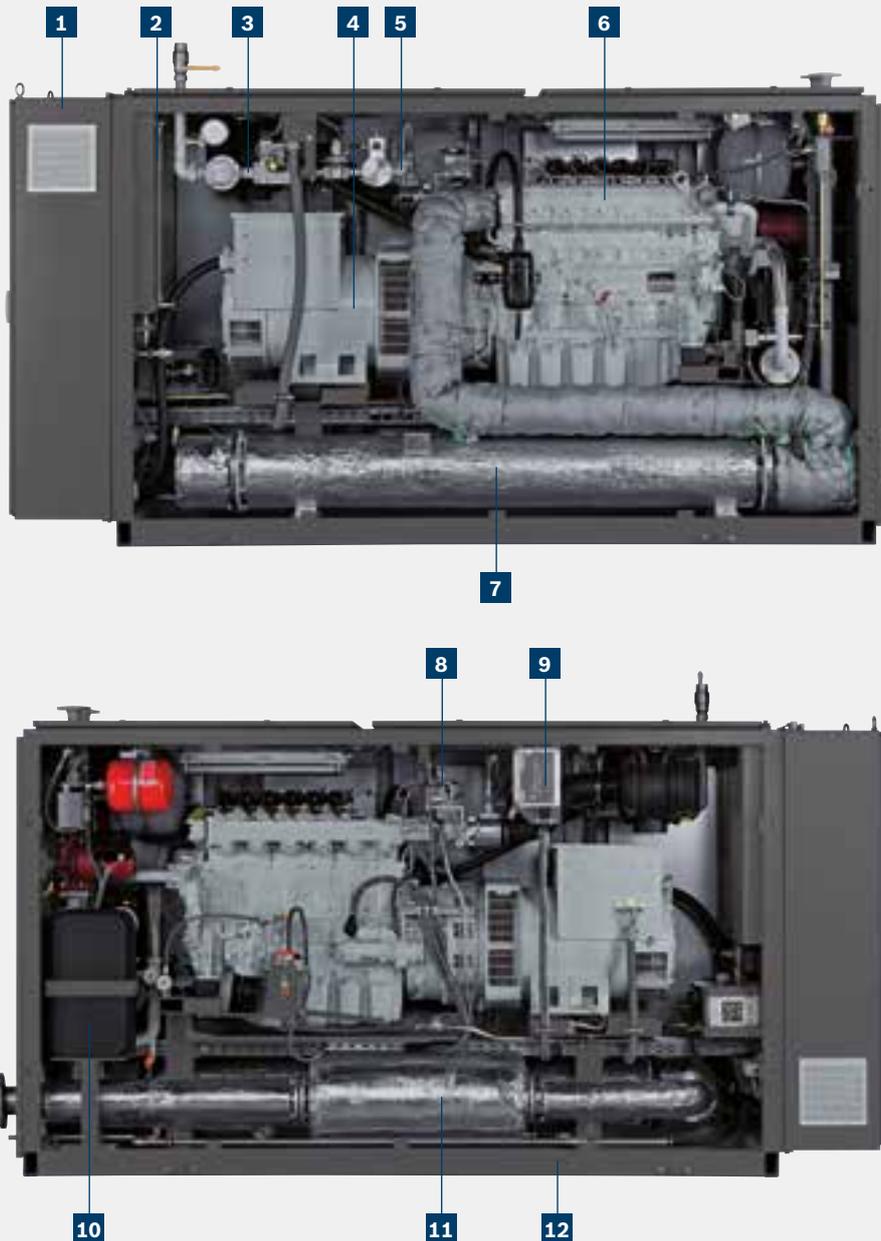


Integrated intelligent control system
Once commissioned, all Bosch CHP module settings, from synchronisation through to maintenance, can be monitored via the colour touch screen display.

*Represents maximum equipment level – standard accessories and options differ between modules.

Technical overview

CE 70 NA module shown



- 1** Module control cabinet with controls
- 2** Module oil tank
- 3** Safety gas train (natural gas)
- 4** Synchronous generator
- 5** Lambda control (natural gas)
- 6** Gas fuelled reciprocating piston engine

- 7** Exhaust gas heat exchanger
- 8** Speed/output control
- 9** Ignition unit
- 10** Heat exchanger for engine coolant
- 11** Exhaust gas silencer
- 12** Base

CE 70 NA module shown



- 1** Enclosure lighting switch
- 2** Reset button
- 3** Service key switch
- 4** Ventilation air grille for control cabinet
- 5** Touch screen operation terminal

- 6** Extract air grille for control cabinet
- 7** Switch to enable standby operation (optional)
- 8** Emergency stop push button
- 9** Special lock for module control cabinet

Technical data – CE 12 NA to CE 400 NA

		CE12NA	CE19-2NA	CE50-3NA (80/60)	CE50-3NA (90/70)
Engine manufacturer	–	VW	VW	MAN	MAN
Aspiration type	–	Natural	Natural	Natural	Natural
Electrical output [$\varphi=1$]	kW	12	19	50	50
Thermal output [$\pm 7\%$]	kW	23.6	32	81.5	79
Total heat output (condensing) [$\pm 7\%$]	kW	27.5	36	89	n/a
Fuel input [$+5\%$]	kW	39.7	56	146	146
Modulation range	%	50-100	50-100	50-100	50-100
Electrical efficiency	%	30.2	33.9	34.3	34.3
Thermal efficiency	%	59.4	57.1	55.8	54.1
Total efficiency	%	89.7	91.1	90.1	88.4
Thermal efficiency (condensing)	%	69.3	64.3	61.0	n/a
Total efficiency (condensing)	%	99.5	98.2	95.2	n/a
Gas pressure (min/max)	mbar	18/65	18/65	15/80	15/80
CHP module noise ²	dB(A) at 1m	56.2	55.8	63.0	63.0
Exhaust noise with secondary silencer ²	dB(A) at 1m	44.0	44.0	46.0	46.0
Ventilation noise with attenuators 1 & 2 ²	dB(A) at 1m	–	–	42.6	42.6
NOx ¹	mg/Nm ³	<95	<95	<95	<95
CO	mg/Nm ³	<150	<150	<150	<150
Weight (dry)	kg	900	990	2030	2030
Weight (wet) maximum equipment	kg	925	1010	2175	2175
Length	mm	1800	1800	2700	2700
Width	mm	882	882	960	960
Height (without fan)	mm	1334	1334	1655	1655
Fan height	mm	–	–	670	670
Container option available		No	No	Yes	Yes

¹ NOx levels tested in accordance with TA-Luft, converted to 5% O₂ content and measured at the point of manufacturing.

² Noise levels are stated in Sound Pressure Levels (SPL).

CHP Remote Monitoring System

The CHP Remote Monitoring System enables centralised monitoring of single or multiple CHP systems from a central location, providing online monitoring and diagnostics. Use of the system helps to avoid unnecessary call-outs and assists engineers in identifying any spares they may require should a site visit be necessary.

CHP Remote Monitoring System



Performance monitoring

Run hours data provides advance notice of service requirements to facilitate the planning of engineers' visits.

Monitoring of current and historical performance data provides information on key parameters such as run hours and electricity generation, so that the system can be optimised to deliver a faster return on investment. This data also helps facilities and energy managers build a bank of knowledge in support of financial analysis and future procurement.

Information transmission

Data from the CHP can be transmitted via the 3G network or a router. The router option should be considered over 3G in cases where connection availability and consistency are jeopardised; potentially by the building's design and location of the plant room. Information is sent automatically via email or text and a log is built up of the message history, including fault warnings.

Information can also be accessed online via the Web Portal.

Technical requirements

To use the Remote Monitoring System the CHP must be equipped with an industrial router for data transfer, using either a data-enabled SIM card, a direct DSL connection or via a Local Area Network (LAN) connection. Where no DSL or LAN connection is available, the data is transmitted via GSM.

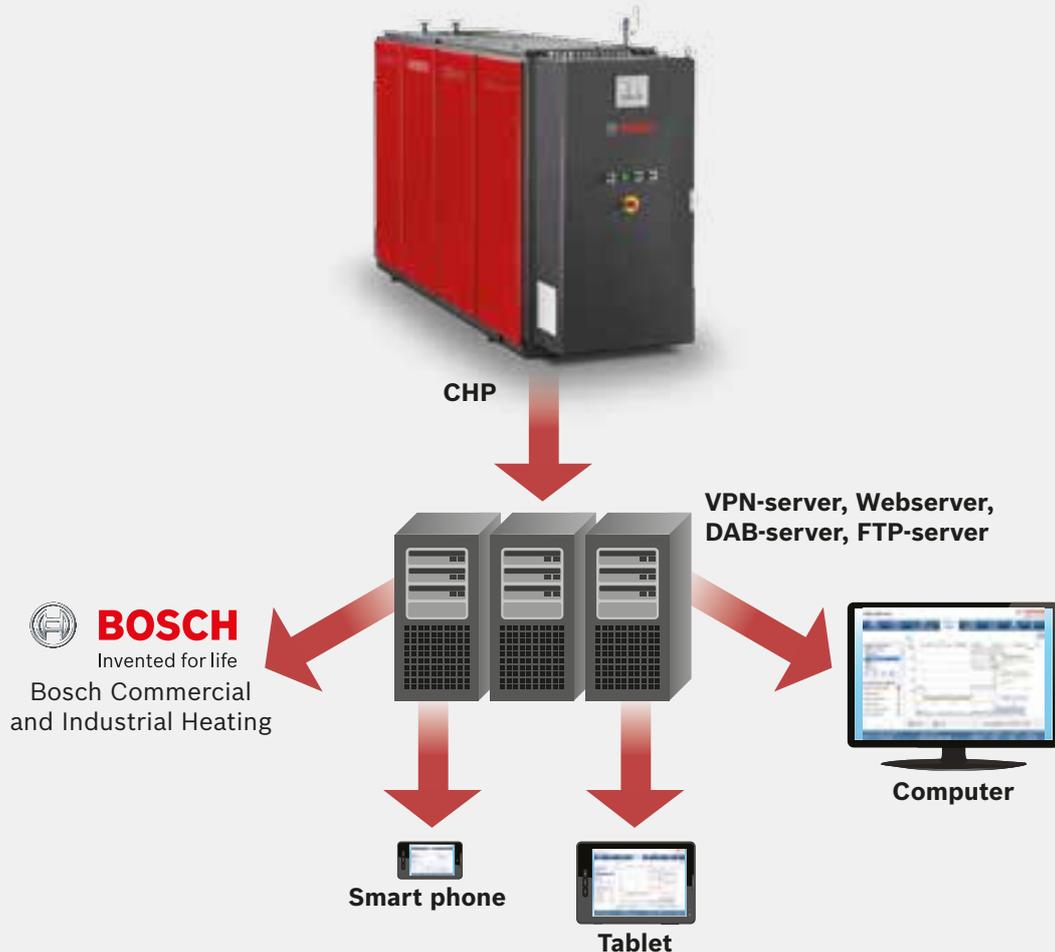
Web portal

The web portal provides easy access to key CHP data via an Open Virtual Private Network (VPN), using a PC, tablet or smartphone at any time. The portal is browser-based, allowing use from any software platform, and features an intuitive interface for ease of use. The inherent security of the VPN, combined with password-protected login, ensures a high level of security for all CHP data.

CHP Remote Monitoring System benefits:

Using this online service, users and their service providers can monitor CHP performance and detect faults and errors to ensure a swift response to issues. This arrangement delivers a number of key benefits, including:

- ▶ Management of multiple CHP sites from a central location
- ▶ Improved visibility of CHP performance
- ▶ Performance analysis in support of future investment
- ▶ Enhanced performance analysis for system fine-tuning
- ▶ Improved payback periods
- ▶ Remote fault diagnosis
- ▶ Increased frequency of first-time fixes
- ▶ Service intervals aligned to run hours
- ▶ Engagement of Bosch Commercial and Industrial Technical Support for CHP advice and interaction.

How CHP Remote Monitoring System works

Everything is under control with **Bosch BMS controls**

Bosch Thermotechnology Ltd. offers a range of controls for single and multi-module systems which can be easily connected into an existing Building Management System (BMS).

4000 controller

For single modules where a standard solution is needed, the 4000 controller using an FM444 module can be used. This off the shelf control seamlessly integrates a CHP module with back up boilers, whilst controlling DHW, multiple mixed heating circuits and solar, using expandable modules.

Standard buffer control

The standard buffer control module is for single units where the overall control is from a BMS. The package contains two sensors, top and bottom of a buffer vessel, as well as a matched software module.

Premium buffer control

This module controls up to two CHP modules under overall BMS control. The package contains three buffer vessel sensors, top, middle and bottom, as well as a common flow sensor and matched software module.

Optional BUS connection

With the optional data BUS connection, the CHP can be connected to a higher control unit such as a BMS, using Modbus RS485.

Multi-Module System control (MMS)

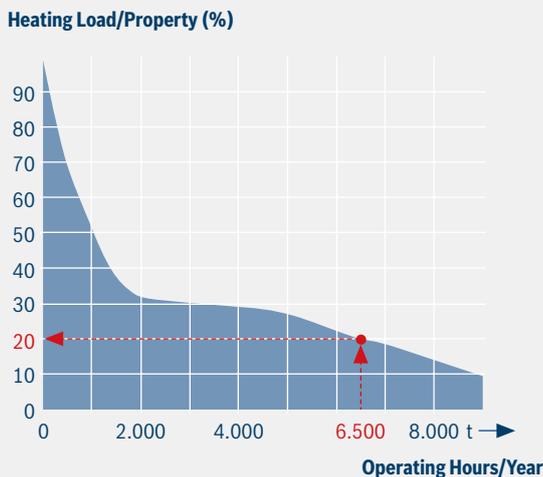
When a modular configuration of up to three CHP modules are being used, the modules and any auxiliary heat sources can be controlled via the MMS (multi-module system).

The MMS is housed in a separate control cabinet, with its own touch screen, and supplied complete with a wide range of standard functions to accommodate the majority of project requirements. When also required, the MMS can be configured to control back up boilers and heat rejection (if required).

Minimising the risk of cycling

Unless there is a constant flow demand, Bosch always recommends the use of a buffer vessel with CHP systems to minimise the risk of cycling.

Typical annual load curve



Individual Bosch CHP modules can modulate their output between 50% and 100% to match the base heating load of a building.

To satisfy peak seasonal heat demands, our 4000 controls take the demand communicated from a BMS and optimise the need for back up boilers to ensure maximum CHP run times.

The Bosch CHP system should be sized to approximately 20% of a project's heat load. It will then reliably and efficiently cover the project's heating base load, which corresponds to the majority of the hours run each year. High efficiency boiler systems are then only needed to cover peak heating loads.

Bosch offers a free feasibility study for any potential site to ensure the system is sized correctly in order to maximise efficiency.

Bosch MoSys (Modular System) CHP

The Bosch Modular System (MoSys) CHP provides all the benefits of a standard CHP module but with the added flexibility of a bespoke design that will meet a specification that cannot be achieved with a standard module.

The modular arrangement typically consists of 7 main components:

- ▶ Combined diesel engine and electricity generator with acoustic enclosure and ventilation fan
- ▶ Skid mounted exhaust comprising of the exhaust gas heat exchangers, silencers and catalyst
- ▶ Engine and heating water skid
- ▶ Heat rejection skid with radiator(s)
- ▶ Ventilation silencers
- ▶ Oil tanks
- ▶ Control panel.

Each of the skids is configurable to suit the practical requirements of the individual project. For example, if you want to reduce the exhaust noise output the exhaust skid can be pre-configured with extra attenuation.

Alternatively, you may not need heat rejection, in which case this skid and any radiators can be omitted from the module.

The benefit of the modular system is that you are not constrained by plant room size or shape as the skids can be positioned to suit whatever shape and size of plant room you have. In addition, skid drawings are available from the outset of the project allowing you to plan and optimise the position of the CHP at the concept stage, removing the need for possible additional work onsite. A further advantage is that the skids can be positioned and piped during the construction phase prior to delivery, allowing for quicker installation.



MoSys (Modular Systems)

Technical data – CE600N to CE2145LN

Core product range

As with our standard CHP modules each MoSys CHP has the option for the inclusion of a condensing exhaust heat exchanger which increases the thermal output by up to 15%.

Reducing the NO_x levels below <250mg/Nm³ is also straightforward. A Selective Catalytic Reduction (SCR) system can be easily installed between the engine and

heat exchangers without any change to the CHP unit's design.

MoSys systems can also be easily combined with waste heat steam boilers or 4 pass steam boilers when the site isn't running on Low Temperature Hot Water (LTHW).

Low voltage (400V)

		CE600N	CE600LN	CE800N	CE800LN	CE854LN	CE1200N
Engine manufacturer	–	MWM	MWM	MWM	MWM	MTU	MWM
Aspiration type	–	Turbo	Turbo	Turbo	Turbo	Turbo	Turbo
Electrical output [$\varphi=1$]	kW	600	600	800	800	854	1200
Thermal output ² [$\pm 8\%$]	kW	670	708	876	939	931	1206
Fuel input [+5%]	kW	1438	1481	1898	1970	2053	2750
Modulation range	%	50-100	50-100	50-100	50-100	50-100	50-100
Electrical efficiency	%	41.7	40.5	42.1	40.6	41.6	43.6
Thermal efficiency	%	46.6	47.8	46.2	47.7	45.3	43.9
Total efficiency	%	88.3	88.3	88.3	88.3	86.9	87.5
Gas pressure (min/max)	mbar	80/200	80/200	80/200	80/200	170/250	80/200
NO _x ¹	mg/Nm ³	<500	<250	<500	<250	<250	<500
CO	mg/Nm ³	<300	<300	<300	<300	<300	<300

High voltage (11,000V / 11kV)

		CE600N	CE600LN	CE800N	CE800LN	CE854LN	CE1200N
Engine manufacturer	–			not available in HV			MWM
Aspiration type	–			not available in HV			Turbo
Electrical output [$\varphi=1$]	kW			not available in HV			1200
Thermal output ² [$\pm 8\%$]	kW			not available in HV			1211
Fuel input [+5%]	kW			not available in HV			2763
Modulation range	%			not available in HV			50-100
Electrical efficiency	%			not available in HV			43.4
Thermal efficiency	%			not available in HV			43.8
Total efficiency	%			not available in HV			87.3
Gas pressure (min/max)	mbar			not available in HV			80/200
NO _x ¹	mg/Nm ³			not available in HV			<500
CO	mg/Nm ³			not available in HV			<300

¹ NO_x levels are referenced at 5% O₂ content. Lower levels (<10mg/Nm³) can be achieved with the use of Selective Catalytic Reduction (SCR) system.

² Condensing heat exchangers are available on request and provide up to 15% increase in thermal output.

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

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 **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



- ▶ **CWi47 (50kW)**
With an output of 50kW, the CWi47 instantaneous water heater is ideal for use in high-end residential, and both small and large commercial applications.
- ▶ **CWi47 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
- ▶ CE100 NA
- ▶ CE140 NA
- ▶ CE200 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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Bosch Thermotechnology Ltd. has a policy of continuous research and development and this may necessitate alterations to this specification from time to time. Therefore before preparing for the installation of the appliance it is important that the instructions issued with the unit are carefully read and adhered to. The statutory rights of the customer are not affected. Photographs shown are used for illustrative purpose only. All information is correct at time of going to press. Bosch Thermotechnology Ltd. reserves the right to alter any information where necessary. E&OE.