Combined heat and power plants

PowerBloc

Hoval

Responsibility for energy and environment

Profitable power and heat generation for medium-sized and large buildings, as well as for local heating schemes.
Efficient, compact, complete.

PowerBloc.
Advantages at a glance.

Europe is calling for a significant reduction in greenhouse gas emissions. At the same time, there is an interest in using fossil fuels more sparingly and in increasing the use of regenerative and renewable energies from sources such as the sun, wind, water and biomass. Against this background, energy from combined heat and power plants will become significantly more important and in just a few short years will represent a key technology.

Economical

Profitable investment

- **Reduced energy costs**
  through cogeneration and the direct use of energy for power and heat
- **Higher overall efficiency**
  due to more efficient utilisation of the established primary energy source
- **Flexible system planning**
  increases efficiency and saves money

Sophisticated

Compact and complete

- **Comprehensive ready-to-connect solution**
  designed and produced to order
- **Assistance from design to implementation**
  by Hoval comprehensive service experts
- **Wide range of applications**
  from commercial buildings to sports and recreation centres

Ecological

Significantly lower emissions

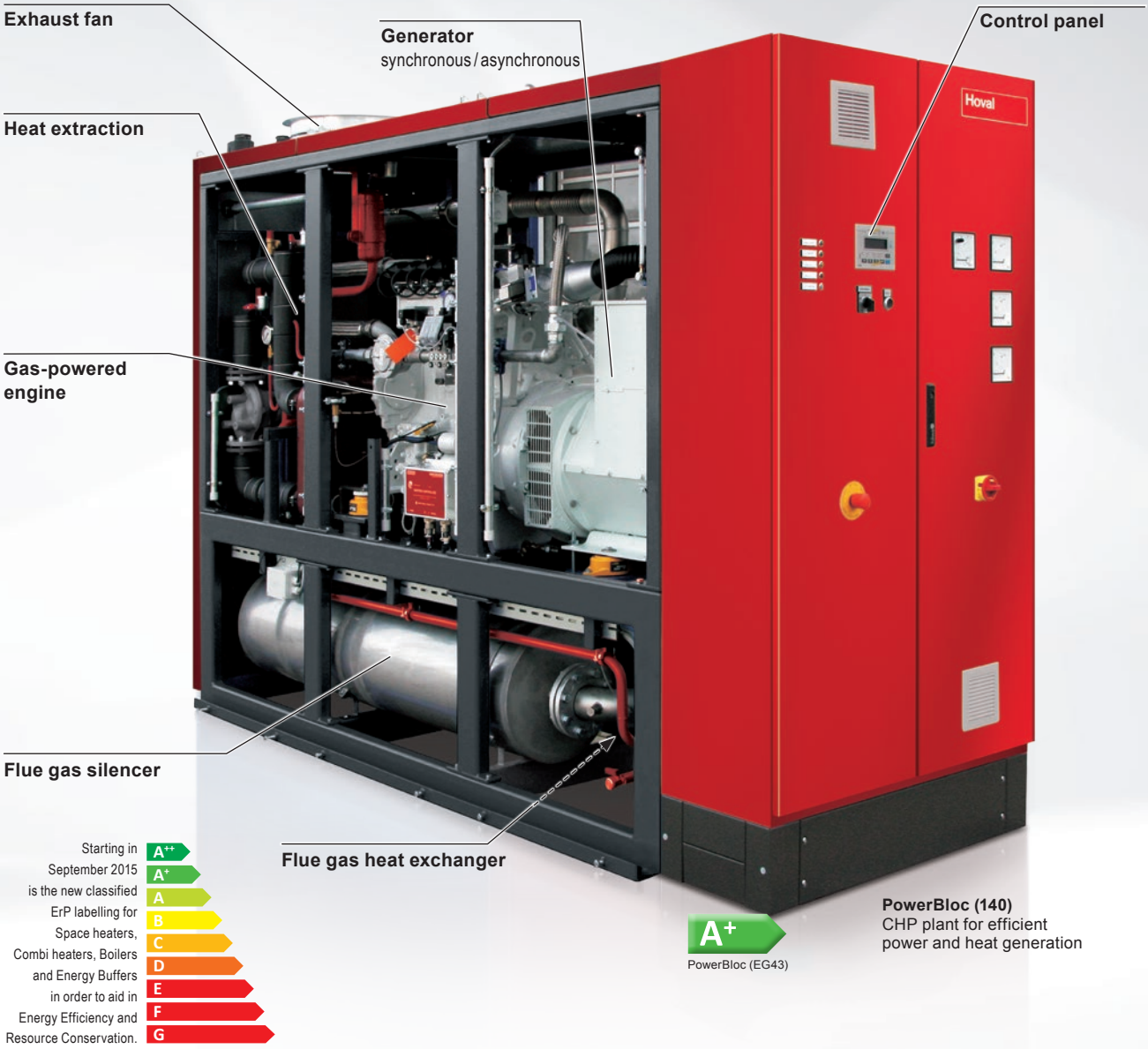
- **Significant reduction in emissions**
  compared with centralised, large-scale power plants and decentralised heat production
- **Efficient power and heat production**
  right where the energy is needed
- **High degree of efficiency,** up to 90 %
- **Low-emission low NO_x models**
  available on request

Easy to use

Independent power generation

- **Direct use of energy produced**
  covers needs efficiently and inexpensively
- **Independence**
  from electricity companies as a stand-alone system

Whether using a CHP plant to generate power and heat for one block of flats, for an entire housing development, a commercial building or an industrial process, Hoval offers solutions designed for exceptionally cost-effective operation with natural gas or biogas: 43 to 532 kW electrical output and 65 to 655 kW thermal output. PowerBloc EG (210, 355, 530) available in standard design and low NO_x design.



Technical data PowerBloc (43-530)				
Output		**Electrical**	**Thermal**	**Total input**
Natural gas (type EG)	kW	43–532	65–687	129–1367
Biogas (type BG)	kW	46–531	67–595	145–1358
Efficiency				
Natural gas (type EG)	%	33.3–39.6	47.2–55.9	83.7–90.4
Biogas (type BG)	%	31.7–40.1	40.6–49.0	77.9–84.8

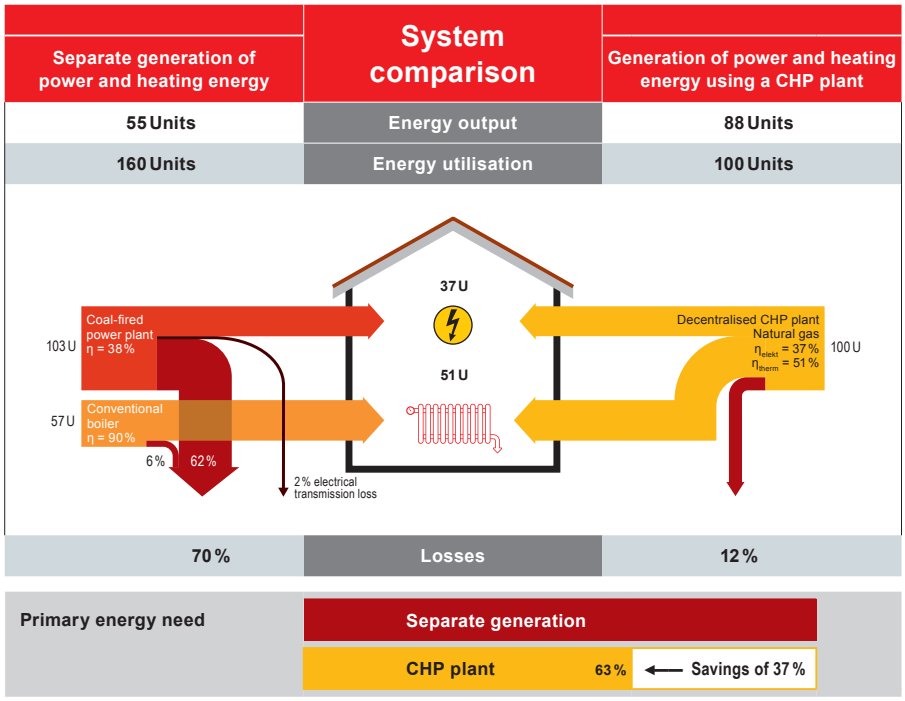
There are 14 different PowerBloc EG and 14 PowerBloc BG models

Subject to modification

The principle of cogeneration. Producing and using energy efficiently.

High degree of efficiency

Combined heat and power (CHP) plants take advantage of cogeneration to generate both electricity and usable heat. This takes place as close to the heat consumer as possible. The result is a very high degree of primary energy efficiency of up to 90 %. By comparison, conventional power plants such as large-scale gas-fired power plants only achieve a primary energy efficiency of 30 to 50% and lose the majority of the energy as waste heat. This waste heat is used in the CHP plant as heating energy to heat water, for instance, or as process heat for industrial operations. The electricity produced is used in the plant's own building or fed into the public utility grid in return for remuneration from the energy supplier.

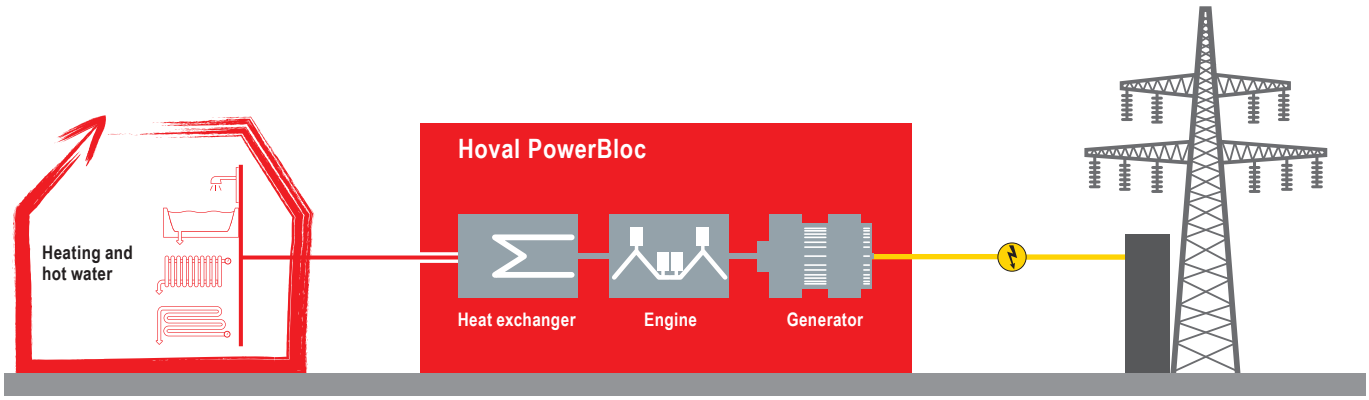


Source: ASUE, own calculation

CHP plants offer a more efficient utilisation of energy than generating power and heat separately.

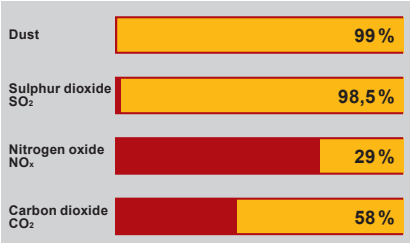
Cogeneration therefore obtains power and heat from the established primary energy source

CHP plants consist of an engine that drives a generator. The waste heat from the engine is removed via heat exchangers and made available as usable energy. The heat can be distributed to individual consumers via the heating network and used as hot water or thermal heat. Thus a centralised heating system that receives energy from a CHP plant replaces the heat generators of many individual heaters and also produces electricity at the same time. By using the established primary energy source in two ways, CHP plants are over 30% more efficient than a large-scale power plant for generating electricity (e.g. gas or coal-fired) combined with decentralised gas heaters.



Functional principle of cogeneration in a CHP plant for using the primary energy in two ways: an engine drives a generator, the waste heat is used as thermal heat.

PowerBloc.
Individually designed and ready to install.



Cogeneration results in fewer emissions compared to separate power and heat generation using hard coal and EL heating oil.

Lower emissions thanks to cogeneration

The Hoval PowerBloc saves energy because it is highly efficient. Using resources wisely also means significantly reducing pollutants and CO_2 emissions. A natural gas-operated PowerBloc produces almost 60% less CO_2 than would be the case with separate power and heat generation using hard coal and EL heating oil. The Hoval PowerBloc can also be operated using biogas.

Proven, robust technology for a long service life

The PowerBloc is equipped with proven technology. The central component is a robust, durable industrial gas-powered engine from MAN, but all the other parts are also designed to provide a long service life and stable operation.

Economically attractive investment

Correctly configured and planned, CHP plants can generate excellent returns. For the most efficient operation, the Hoval specialists work on scenarios with different models and create detailed cost/benefit analysis calculations, based on all conditions and situations, that you can use for planning purposes.

Individually designed complete systems

Hoval PowerBloc plants are complete systems tailored by Hoval to meet individual project requirements and adapted to the type of energy used for operation. All assemblies are housed in a space-saving compact, resistant casing. The systems are delivered ready for connection and can be installed by Hoval specialists upon request.

Predictable maintenance costs

Hoval also offers complete maintenance and service packages so you can plan your long-term costs. Various services can be covered by a maintenance contract, fully in line with your requirements. Three maintenance packages providing different services – from basic maintenance up to a full package dealing with every conceivable aspect of servicing – ensure operational safety and preserve your investment.

PowerBloc.
Complete tailored solutions for flexible use.

Everything from a single source: a centralised heating system with PowerBloc and gas condensing technology

A CHP plant from Hoval has the advantage that all system components are designed and supplied from a single source. Since all of the system's parts interact in the best way possible, this makes the system more efficient and lowers the design costs.

The perfect partner for the Hoval PowerBloc is the Hoval UltraGas® condensing boiler, which can also be connected in a cascade for the very highest power outputs.

Heat pumps improve the efficiency by using the radiant heat from the CHP unit.

Cogeneration of heat and power with highest efficiency for the municipal heating network of Triesen, FL (School and administrative building, kindergarten, indoor pool, retirement/ care homes and 6 multi dwellings):

- 2 Hoval PowerBloc to supplement the electricity generated from hydropower and the sun
- 2 Hoval heat pumps improve the efficiency by multiplying radiant heat from the CHP unit for heat generation
- Hoval condensing gas- and oil-boilers for peak loads and redundancy.

Through clever combination this system solution achieves an overall efficiency of over 95%..

The most advanced technology in-situ at the Mercedes-Benz commercial vehicle centre in Frankfurt: centralised heating system with a PowerBloc CHP plant, an UltraGas® gas condensing boiler, buffer storage tanks and other system components

Tailored and quick to install: PowerBloc in a container

As a variant for indoor installation, the centralised heating system with the Hoval PowerBloc and all necessary components can also be housed outside the building within a container. The compact container and all required buffer storage tanks are erected quickly and the system – since it is delivered ready for connection – is installed just as fast.

Compact and complete: PowerBloc in a container

Tailored and quick to install: centralised heating system as a container system.

Hoval systems technology.
Complete tailored solutions with the PowerBloc.

Hoval is a full-service supplier and, in addition to offering high-quality, efficient cogeneration systems, the company also develops all of the necessary system components for smooth operation all the way down to the individual energy consumer.

Hoval offers its systems expertise in all areas: from a gas or biogas-fired heat generator, to the transfer station for distribution within a building, all the way down to the calorifiers and buffer storage tanks for the building's individual units. This ensures coordinated processes that increase operating efficiency and reduce the costs involved from design to implementation.

A CHP plant from Hoval provides an efficient solution to the issue of energy supply. The economical as well as ecological advantages can be seen in the proven technology which is designed, implemented and provided ready to install from a single source.

The complete system is a profitable investment for those involved in the decision-making process who want to have control of their energy costs and who want to maintain independence and flexibility when designing their systems.

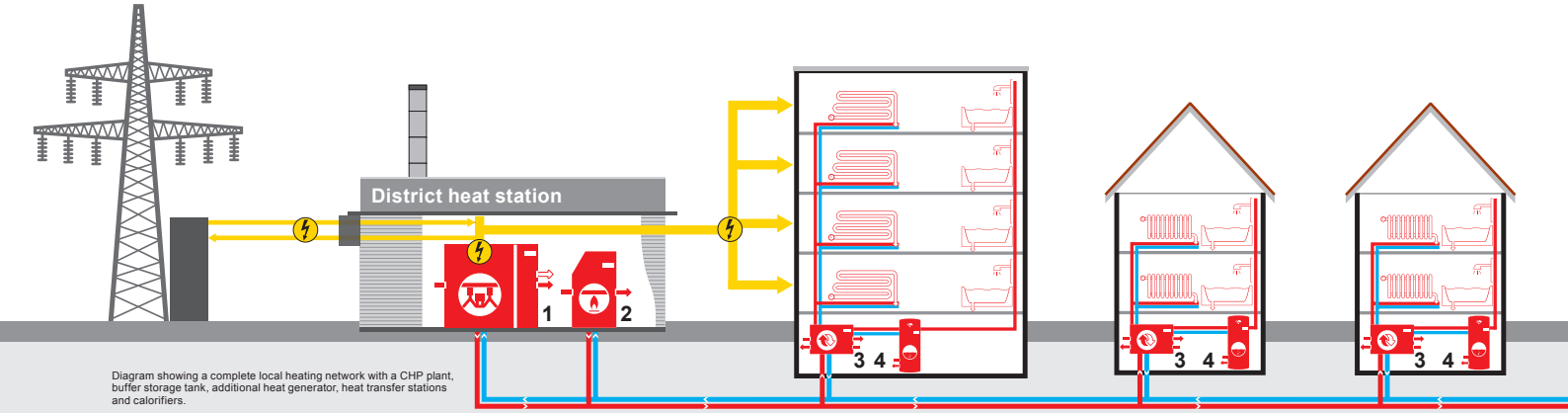


Diagram showing a complete local heating network with a CHP plant, buffer storage tank, additional heat generator, heat transfer stations and calorifiers.

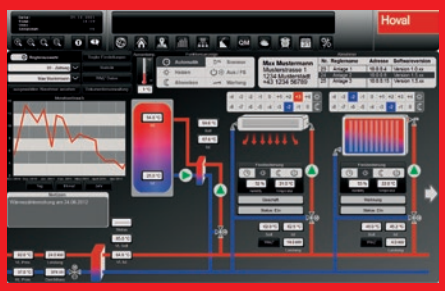
PowerBloc
Decentralised energy system for producing electricity and heat.

UltraGas®
Space-saving and exceptionally economical even in the highest performance classes.

TransTherm
Hoval district heat transfer stations are the link between the district heating network and the heating system in the building. They ensure that the thermal heat is distributed to the individual buildings as required.

Calorifiers
Hoval calorifiers provide a reliable hot water supply at the right temperature. They are available in capacities ranging from 200–2000 litres.

Buffer storage tanks
Hoval buffer storage tanks store the heat energy and keep it ready for use in room and/or water heating.



Total control over the local and district heating network

In complex local and district heating networks, the control and communication unit TopTronic® supervisor handles higher-level control tasks and communicates with the control unit of the TransTherm transfer stations.
The system also uses energy efficiently when generating heat. It monitors and controls the heating network and the transfer to the utilities management system and continuously provides all relevant operational data, which can be conveniently monitored and analysed on the screen.

Solutions you can rely on.

Hoval

Responsibility for energy and environment.

The Hoval brand is internationally recognised as one of the leading suppliers of indoor climate control solutions. Around 70 years of experience have given us the necessary capabilities and motivation to continuously develop exceptional solutions and technically superior equipment.
Maximising energy efficiency and thus protecting the environment are both our conviction and our incentive. Hoval has established itself as an expert provider of intelligent heating and climate control systems that are exported to over 50 countries worldwide.

Hoval indoor climate systems

Indoor climate systems ensure top air quality and economical usability. Hoval has been installing decentralised systems for many years. The key to its work is using combinations of multiple air conditioning units (even those of different types) that can be controlled individually, but also together as a single system. This enables Hoval to respond flexibly to a wide range of requirements for heating, cooling and ventilation.

Design support from experts.

Take advantage of the expertise of our experienced specialists. We will be happy to support you throughout all project phases when designing your system.
Working in close cooperation with you and taking into account all the specifications of the energy supplier, we develop the most efficient and cost-effective solution for you.

Hoval service expertise.

Hoval systems are professionally commissioned by specially trained and experienced Hoval service technicians, ensuring that the systems will operate perfectly from day one. Maintenance and troubleshooting are performed on-site by an expert customer service team.

The entire Hoval world at a click:

Hoval.com | Hoval.tv | Hoval 360° App | Facebook.com/Hoval | YouTube.com/HovalTV

Hoval Group

Switzerland
Hoval AG
8706 Feldmeilen ZH
www.hoval.ch

Austria
Hoval Gesellschaft m.b.H
4614 Marchtrenk
www.hoval.at

Germany – Heating Technology
Hoval GmbH
85609 Aschheim-Dornach
www.hoval.de

Germany – Climate Technology
Hoval GmbH
72108 Rottenburg/Neckar
www.hoval.de

United Kingdom
Hoval Ltd.
Newark Notts. NG 24 1JN
www.hoval.co.uk

Italy
Hoval s.r.l.
24050 Zanica (BG)
www.hoval.it

France
Hoval SAS
67118 Geispolsheim
www.hoval.fr

Denmark
Hoval a/s
8660 Skanderborg
www.hoval.dk

Bulgaria
Hoval Corporation - Branch Bulgaria
1797 Sofia
www.hoval.com

Croatia
Hoval d.o.o.
10 000 Zagreb
www.hoval.hr

Czech Republic
Hoval spol. s r.o.
312 04 Plzeň
www.hoval.cz

Poland
Hoval Sp. z o.o.
62-002 Suchy Las
www.hoval.pl

Romania
Hoval s.r.l.
Voluntari 077190
www.hoval.ro

Slovakia
Hoval SK spol. s r.o.
04001 Košice
www.hoval.sk

China
Hoval Ltd.
100016 Beijing P.R. China
www.hoval.com.cn

Singapore
Hoval Corporation
Singapore 187966
www.hoval.com

07/2015

Your Hoval Partner:

Puškarićeva 11E
10 250 Lučko
Hrvatska
www.hoval.hr