

FLUE AND EXHAUST GAS HEAT EXCHANGERS

SAVES MORE – GIVES MORE

⊕ PRODUCT RANGE



bomat[®]
MAKING MORE OF ENERGY

SAVES
MORE.

GIVES
MORE.

MAKES MORE OF ENERGY.



ENERGY DEMAND WITH
GAS **-15%***

The energy consumption of gas boilers can be reduced by up to 15 % through the use of BOMAT flue gas heat exchangers.



ENERGY DEMAND WITH
OIL **-10%***

In the case of oil fired systems, BOMAT flue gas heat exchangers can cut energy consumption by up to 10 %. Heat is extracted from the flue gas and condensing technology utilises the condensation energy of the water vapour contained in the gas.



EMISSIONS OF
ACID **-60%***

Sulphur and sulphur compounds contained in the fuel react during combustion with the oxygen present in the air and the water vapour in the flue gas, creating sulphurous acid (acid rain). In a BOMAT heat exchanger, the acidic flue gas condenses.



EMISSIONS OF
CO₂ **-15%***

By saving energy, CO₂ is also reduced. The greater the energy saving, the greater the resultant reduction in CO₂ emissions.

* Compared to conventional boilers.

BOMAT CERAMIC HEAT EXCHANGERS.

BENEFIT FROM EFFICIENT SOLUTIONS PROVIDED BY A MARKET LEADER.

Problem: environmental pollution

Many fuels contain acidifying elements (such as sulphur) that form an aggressive vapour of acid mixed with water when burnt. In conventional heat generators this acidic vapour from combustion is expelled in the flue gas through the chimney into the environment, where it condenses and falls to the ground through precipitation (acid rain). This harms flora and fauna and can even be detrimental to buildings. In metal-based condensing heat exchangers, the condensate can become contaminated as the acids from combustion may cause small particles (metal ions) to be dissolved from the metal surfaces. These particles pass into the condensate and then into the environment and food chain through the waste water. Some of these metal ions consist of heavy metals such as chromium, nickel, etc., that pose risks to health and cannot be satisfactorily absorbed by even the best waste water treatment plants.

Solution: BOMAT ecology and ...

The ceramic pipes used in BOMAT heat exchangers offer high thermal conductivity and an exceptionally long service life. They are also completely acid-resistant, so that any condensate created is metal-free.

... economy in perfect harmony

Condensing technology cools the flue gas in heat exchangers until it condenses. This releases heat, which is passed to the heating water. Fuel consumption and operating costs are substantially reduced.

Less in, more out

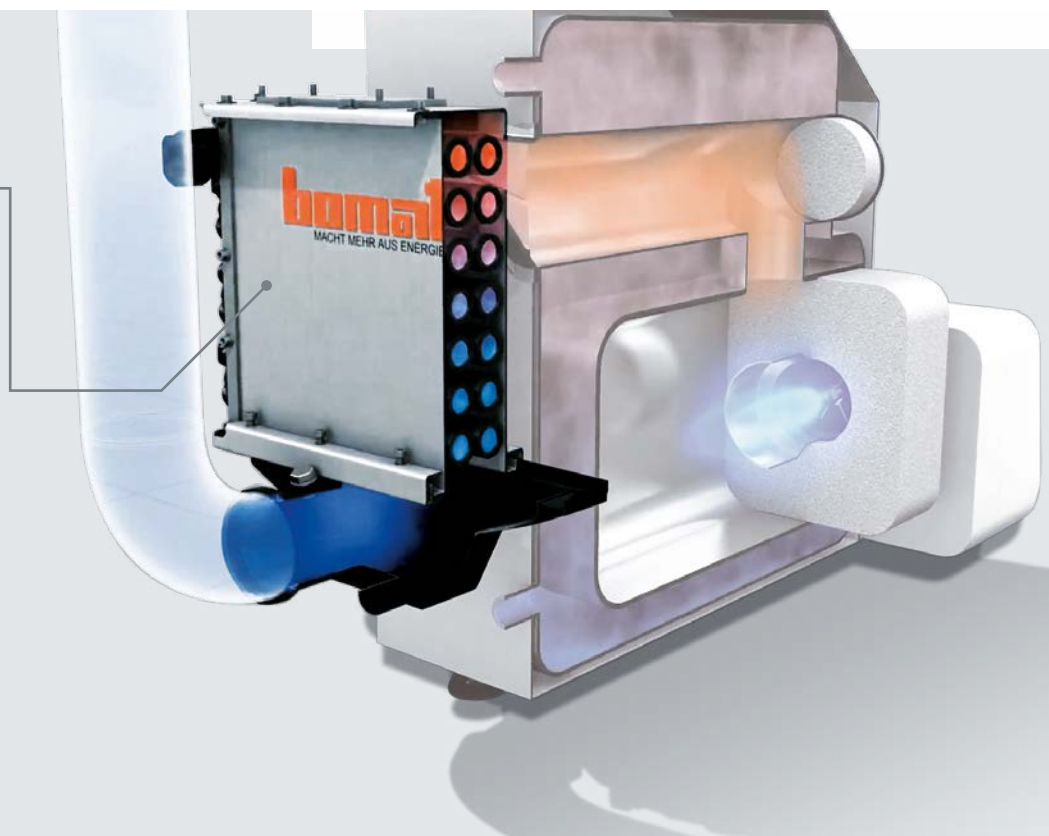
Now with even better energy utilisation, BOMAT is at the cutting edge of advanced heating technology, offering investments that are often repaid in just three years.

BOMAT quality can be summed up in three words:

Made in Germany.

SIMPLY BETTER: THE BOMAT PROFITHERM SERIES

BOMAT flue gas heat exchangers cool the flue gases to below their dew point. The thermal energy and latent heat of condensation in the flue gas are extracted and passed to the water heating cycle. Condensing technology with corrosion-free heat exchangers from BOMAT.



BOMAT: SUCCESS AND EXPERIENCE SINCE 1982.

VERSATILE IN USE AND IMPRESSIVELY EFFICIENT.

Today, BOMAT flue and exhaust gas heat exchangers are in use in a wide variety of applications.

These include

○ Heating technology

Whether in domestic boilers for the family home or large heating installations for hotels, hospitals or municipal buildings, energy consumption is reduced with BOMAT flue gas heat exchangers.

○ CHP (combined heat and power) units

Combustion engines wastefully release hot exhaust gases into the environment.

○ OEM (original equipment manufacturers)

BOMAT supplies corrosion-free flue gas heat exchangers to many leading boiler manufacturers.

○ Industrial systems

With BOMAT flue gas heat exchangers, waste heat from any source can be recovered – be it a furnace, a powder coating facility or a steam boiler. By installing a BOMAT flue gas heat exchanger, the heat from combustion in the flue gases is extracted and passed into the plant's heating circuit.



**PATENTED CERAMIC
HEAT EXCHANGERS:
LAST LONGER
AND PROTECT THE
ENVIRONMENT**

Condensing technology pioneer BOMAT is the only company to use patented ceramic heat exchangers. These ensure that condensate is free of harmful substances and resist even sulphurous acids throughout their long service life. Moreover, the condensate produced serves to clean the heat exchanger (SELF-CLEANING EFFECT).



LOW CO₂ EMISSIONS

NO HOT FLUE GASES

Optimum energy utilisation
with very little loss.





"Energy is a precious resource and its value will continue to increase. The price we ourselves and our environment will pay for it in the future depends on our investment decisions today.

Energy saving BOMAT condensing technology pays for itself in every respect. We invite you to try it and see for yourself."

Gerhard Schneider (Managing Director) and Rolf Bommer (Company Founder)



CHP AND BIOGAS PLANTS

BOMAT exhaust gas heat exchangers significantly improve the thermal efficiency of CHP units. With these corrosion-free ceramic heat exchangers it is even possible to make use of the exhaust gases from the combustion of sewer gas.



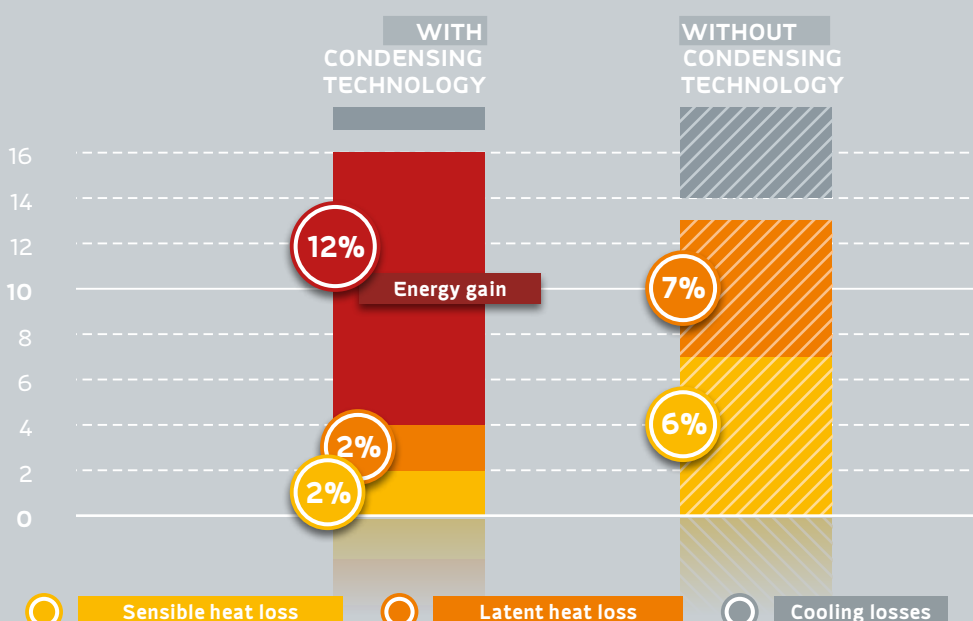
LARGE AND SMALL HEATING SYSTEMS

Tailored solutions for apartment buildings, residential complexes, public buildings, sports facilities and hotels. For boilers up to and above 2200 kW, BOMAT Profitherm units can be individually matched to each installation, and will naturally demonstrate an extremely high level of efficiency.



INDUSTRIAL SYSTEMS

Commercial and industrial enterprises often produce large volumes of flue and exhaust gases that usually pass into the environment unused. For such facilities, BOMAT offers individually tailored solutions for heat recovery from these gases.

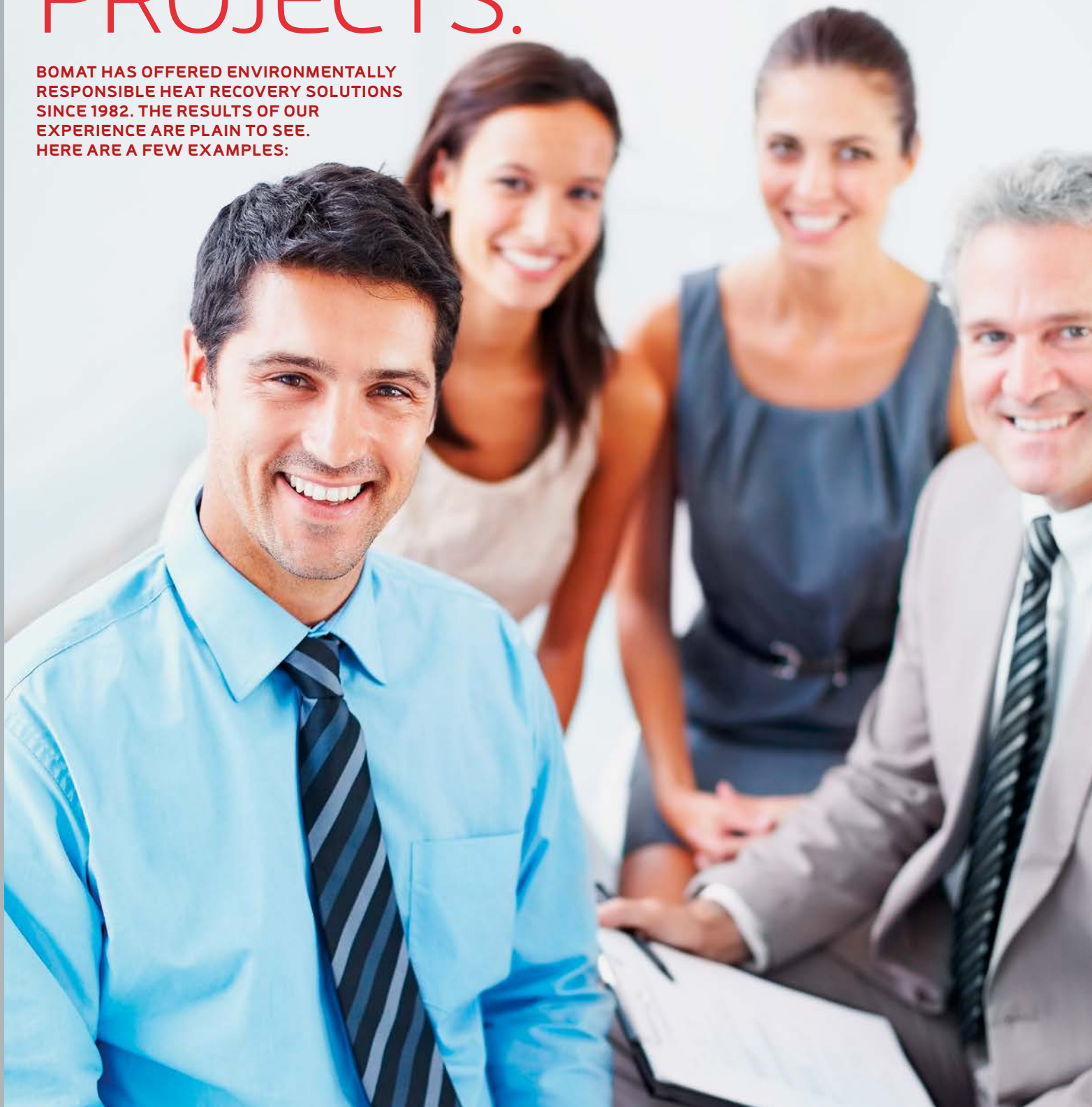


REDUCE YOUR FUEL COSTS BY UP TO 15 %!

Up to 80 % of condensation heat from the flue gas is recovered. Taking oil boilers as an example, this results in combustion efficiency levels of up to 106 % (net calorific value).

OVER 85,000 SUCCESSFUL PROJECTS.

BOMAT HAS OFFERED ENVIRONMENTALLY RESPONSIBLE HEAT RECOVERY SOLUTIONS SINCE 1982. THE RESULTS OF OUR EXPERIENCE ARE PLAIN TO SEE. HERE ARE A FEW EXAMPLES:



BOMAT: OEM SUPPLIER TO BIG-NAME BRANDS.

CUSTOM BOMAT FLUE AND EXHAUST GAS HEAT EXCHANGERS FOR OUR CUSTOMERS.

For more than 20 years we have supplied optimally designed heat exchangers to big-name manufacturers in Germany and abroad.

Our development engineers pay particular attention to the specific needs and requirements of our OEM customers. Each manufacturer receives a customised product for its heat generators.

Our customers' heat generators, fitted with BOMAT heat exchangers, attract attention for their exceptional energy efficiency.

As the market leader for ceramic heat exchangers, one requirement that we can easily satisfy is our customers' demand for efficient, low maintenance, durable products, as well as maximum sustainability and economic viability.



BOSCH THERMOTECHNIK GMBH

Task: To adapt various BOMAT AWR units to Buderus boilers
Output range: 17–400 kW
Accessories range: Diverse neutralising systems



BRÖTJE

Task: To adapt a neutralising system to Brötje boilers. Over 28,000 units supplied!



DE DIETRICH

Task: To develop a compact AWR unit to integrate and adapt for De Dietrich boilers



GIESE

Task: To adapt various AWR models to different Giese CHP units

Output range: 16–350 kW
Since 2004 over 70,000 units have been produced
Accessories range: Diverse neutralising systems



OLYMP

Task: To adapt and develop various AWR models for different Olymp boilers
Output range: 17–40 kW



SPANNER RE²

Adapt Bomat AWR to Spanner Re² wood gasifier HKA 10



WEINMANN & SCHANZ

Heating and sanitation systems wholesaler: Neutralising systems, pumping stations and RNA maintenance packages



RIELLO

Task: To adapt various AWR models to Riello boilers
Output range: 90–500 kW



SENERTEC

Task: To develop a corrosion-resistant exhaust gas heat exchanger for CHP units driven by fuel oil and natural gas. Since 1999 over 21,000 units have been produced

Extract from the OEM reference list.

REFERENCES. BIOGAS/SEWER GAS.



Buhl biogas plant (Dornhan-Kaltenhof)

Cutting-edge agricultural technology with a biogas CHP unit

Heat generator:	550 kW CHP unit (el.)
Exhaust gas heat exchanger:	03-GG-1064-MT-4-9-3
Year of manufacture:	2011
Heat recovery per year:	Approx. 650,000 kWh
CO ₂ reduction per year:	Approx. 130,000 kg

➔ Payback period less than 3 years.



Erste Biogas Ocholt GmbH & Co. KG (Ocholt)

Biogas CHP unit utilising condensing technology

Heat generator:	Jenbacher JMS 312 GS-BL 625 kW el.
Exhaust gas heat exchanger:	07-GG-1046-MT-4-9-3
Year of manufacture:	2014
Heat recovery per year:	Approx. 840,000 kWh
CO ₂ reduction per year:	Approx. 168,000 kg

➔ Payback period less than 3 years.



Bio-Energie-Kortenberken GmbH & Co. KG (Wietmarschen)

Biogas CHP unit utilising condensing technology

Heat generator:	TAB BHKW - MAN 250 kW el.
Exhaust gas heat exchanger:	02-GG-1064-4-9-3
Year of manufacture:	2016
Heat recovery per year:	Approx. 240,000 kWh
CO ₂ reduction per year:	Approx. 48,000 kg

➔ Estimated payback period less than 3 YEARS.



Wildeshausen wastewater treatment plant (Wildeshausen)

Sewer gas CHP unit utilising condensing technology

Heat generator:	enertec et124 SG MA CHP unit
Exhaust gas heat exchanger:	02-GG-1032-MT-4-9-3
Year of manufacture:	2014
Heat recovery per year:	Approx. 90,000 kWh
CO ₂ reduction per year:	Approx. 18,000 kg

➔ Payback period less than 3 years.

REFERENCES. BIOGAS/SEWER GAS.



Bernhard Schültken-Wilsmann Biogas Plant (Delbrück)

Biogas CHP unit utilising condensing technology

Heat generator:	MTU GB 800 B5 mit 800 kW el.
Exhaust gas heat exchanger:	07-GG-1046-MT-4-9-3
Year of manufacture:	2015
Heat recovery per year:	Approx. 910,000 kWh
CO ₂ reduction per year:	Approx. 182,000 kg

➔ Payback period **less than 3 YEARS.**



Landboden Mühlingen GmbH (Bördeland OT Zens)

Biogas CHP unit utilising condensing technology

Heat generator:	Jenbacher JMS 412 B25 mit 889 kW el.
Exhaust gas heat exchanger:	07-GG-1046-MT-4-9-3
Year of manufacture:	2015
Heat recovery per year:	Approx. 1,000,000 kWh
CO ₂ reduction per year:	Approx. 200,000 kg

➔ Payback period **less than 3 YEARS.**



Biogasanlage Sudholz & Harting Gbr (Uchte)

High temperature and condensing heat exchangers in two rapid biogas CHP units

Heat generator:	2 rapid CHP units with 250 kW el. each
Exhaust gas heat exchanger:	03-VG-1072-HT-8-9-3
Year of manufacture:	2016
Heat recovery per year:	Approx. 980,000 kWh (per plant)
CO ₂ reduction per year:	Approx. 196,000 kg (per plant)

➔ Estimated payback period **less than 3 YEARS.**



Agrar-Genossenschaft Burgberg e.G. (Frauenstein)

High temperature and condensing heat exchanger in one rapid biogas CHP unit

Heat generator:	Caterpillar with 170 kW el.
Exhaust gas heat exchanger:	02-VG-1072-HT-8-9-3
Year of manufacture:	2016
Heat recovery per year:	Approx. 380,000 kWh
CO ₂ reduction per year:	Approx. 76,000 kg

➔ Estimated payback period **less than 3 YEARS.**

REFERENCES. INDUSTRY.



AEW Allgäuer Emmentaler Werk e.G. (Kimratshofen)

Cutting production costs with BOMAT condensing technology

Heat generator:	Steam boiler
Flue gas heat exchanger:	O8-GG-1024-NT-4-K-3
Year of manufacture:	2004
Heat recovery per year:	Approx. 330,000 kWh
CO ₂ reduction per year:	Approx. 85,800 kg

➔ Payback period less than **3 YEARS**.



Felder GmbH brazing and soldering (Oberhausen)

Waste heat recovery from furnace system

Heat source:	2 metal-melting furnaces each with 235 kW
Exhaust gas heat exchanger:	O2-GG-1032-MT-4-9-3
Year of manufacture:	2014
Heat recovery per year:	Approx. 150,000 kWh
CO ₂ reduction per year:	Approx. 30,000 kg

➔ Payback period less than **3 YEARS**.



PUK-WERKE KG factory (Schönecken)

Waste heat recovery from galvanizing

Heat source:	Galvanizing furnace
Exhaust gas heat exchanger:	2x O2-GG-1024-NT-4-K-3
Year of manufacture:	2005 and 2009
Heat recovery per year:	Approx. 400,000 kWh (for both plants)
CO ₂ reduction per year:	Approx. 104,000 kg (for both plants)

➔ Payback period less than **3 YEARS**.



Wutal AluminiumGuss GmbH (Stühlingen)

Waste heat recovery from industrial process in aluminium foundry

Heat source (industrial):	Aluminium melting process
Exhaust gas heat exchanger:	2x O7-GG-1046-NT-4-K-3
Year of manufacture:	2006
Heat recovery per year:	Approx. 400,000 kWh (for both plants)
CO ₂ reduction per year:	Approx. 80,000 kg (for both plants)

➔ Payback period less than **5 YEARS**.



Stumpf Metall GmbH (Wilnsdorf)

Utilising waste heat from a coating plant

Heat generator:	Enamelling plant
Flue gas heat exchanger:	O2-GG-1064-MT-4-9-3
Year of manufacture:	2015
Heat recovery per year:	Approx. 220,000 kWh
CO ₂ reduction per year:	Approx. 44,000 kg

➔ Estimated payback period less than **5 YEARS**.



Otto Schimscha Metallbau GmbH (Ravenstein-Erlenbach)

Utilising waste heat from an enamelling plant

Heat generator:	Enamelling plant
Flue gas heat exchanger:	O2-GG-1064-MT-4-9-3
Year of manufacture:	2015
Heat recovery per year:	Approx. 64,000 kWh
CO ₂ reduction per year:	Approx. 12,800 kg

➔ Estimated payback period less than **5 YEARS**.



Thannhauser Asphalt GmbH & Co. KG (Fremdingen)

Utilising waste heat from an asphalt mixing plant

Heat generator:	Asphalt mixing plant
Flue gas heat exchanger:	O2-GG-1064-MT-4-9-3
Year of manufacture:	2015
Heat recovery per year:	Approx. 80,000 kWh
CO ₂ reduction per year:	Approx. 16,000 kg

➔ Estimated payback period less than **4 YEARS**.



Bäckerei Mayer GmbH & Co. (Isny im Allgäu)

Waste heat utilisation in a thermal oil stove for a bakery

Heat source (industrial):	Heutef thermal oil stove 250 kW
Flue gas heat exchanger:	O1-GG-1064-NT-4-K-3
Year of manufacture:	2007
Heat recovery per year:	Approx. 55,000 kWh
CO ₂ reduction per year:	Approx. 11,000 kg

➔ Payback period less than **4 YEARS**.

REFERENCES. CHP (NATURAL GAS).



TETEC AG (Reutlingen)

Buderus natural gas CHP unit utilising condensing technology

Heat generator:	Buderus Loganova EN 70
Exhaust gas heat exchanger:	O2-GG-1032-MT-4-9-3
Year of manufacture:	2018
Heat recovery per year:	Approx. 136.000 kWh
CO ₂ reduction per year:	Approx. 27.200 kg

➔ Estimated payback period **less than 3 YEARS.**



Cornelis van Spronsen landscaping (Westoverledingen)

Natural gas CHP unit utilising condensing technology

Heat generator:	MTU BGS 301-438
Exhaust gas heat exchanger:	O2-GG-1064-MT-4-9-3
Year of manufacture:	2013
Heat recovery per year:	Approx. 176,700 kWh
CO ₂ reduction per year:	Approx. 35,300 kg

➔ Payback period **less than 3 YEARS.**



Klinikum am Weissenhof (Weinsberg)

Sokratherm CHP unit utilising condensing technology

Heat generator:	Sokratherm GG 237 CHP unit
Exhaust gas heat exchanger:	O2-GG-1064-MT-4-9-3
Year of manufacture:	2012
Heat recovery per year:	Approx. 115,000 kWh
CO ₂ reduction per year:	Approx. 23,000 kg

➔ Payback period **less than 3 YEARS.**



Schlossbergkellerei GmbH (Althengstett)

Sokratherm CHP unit utilising condensing technology

Heat generator:	Sokratherm GG50 CHP unit
Exhaust gas heat exchanger:	O1-GG-1522-NT-4-K-6
Year of manufacture:	2013
Heat recovery per year:	Approx. 48,000 kWh
CO ₂ reduction per year:	Approx. 9,600 kg

➔ Payback period **less than 4 YEARS.**

REFERENCES. STANDARD.



Riffelalp Resort Hotel (Zermatt)

Flue gas heat for outdoor swimming pools

Heat generator:	Oil boiler (550 kW)
Flue gas heat exchanger:	06-GG-1024-NT-4-K-3
Year of manufacture:	2003
Heat recovery per year:	Approx. 90,000 kWh
CO ₂ reduction per year:	Approx. 23,400 kg

➔ Payback period **less than 5 YEARS.**



Parkhotel St. Leonhard (Überlingen)

Flue gas heat exchanger for an oil condensing system

Heat generator:	Buderus oil boiler SE635 (280kW)
Flue gas heat exchanger:	01-GG-1064-NT-4-K-3
Year of manufacture:	2005
Heat recovery per year:	Approx. 50,000 kWh
CO ₂ reduction per year:	Approx. 13,000 kg

➔ Payback period **less than 3 YEARS.**



Gasthof Lamm brewery (Abtsgmünd)

Loos steam boiler with condensing technology

Heat generator:	Loos steam boiler U-ND 500
Flue gas heat exchanger:	01-GG-1064-NT-4-K-3
Year of manufacture:	2005
Heat recovery per year:	Approx. 50,000 kWh
CO ₂ reduction per year:	Approx. 10,000 kg

➔ Payback period **less than 5 YEARS.**



Schöneck sports college (Karlsruhe)

Three Buderus oil boilers utilising condensing technology

Heat generator:	3x Buderus GE515 (approx. 290 kW)
Flue gas heat exchanger:	3x 01-GG-1064-NT-4-K-3
Year of manufacture:	2010
Heat recovery per year:	Approx. 180,000 kWh (for all three boilers)
CO ₂ reduction per year:	Approx. 46,800 kg (for all three boilers)

➔ Payback period **less than 3 YEARS.**

REFERENCES. STANDARD.



Deutsches Zentrum für Luft- und Raumfahrt e. V. – DLR (Hardthausen)

Viessmann oil boiler utilising condensing technology

Heat generator:	Viessmann oil boiler
Flue gas heat exchanger:	06-GG-1046-NT-4-K-3
Year of manufacture:	2008
Heat recovery per year:	Approx. 100,000 kWh
CO ₂ reduction per year:	Approx. 26,000 kg

➔ Payback period **less than 6 YEARS.**

FOR FURTHER REFERENCES, SEE OUR WEBSITE.

➔ www.bomat.de/references

COMPLETE SERVICE FROM THE ENERGY SPECIALISTS.

CONSULTANCY, ENGINEERING AND
IMPLEMENTATION: AS INDIVIDUAL
AS YOUR PROJECT.



The BOMAT technical advisor: always looking out for unused potential.

Condensing technology offers a particularly high potential for savings with medium-sized and large heat generators. This is because less fuel often means annual savings of the order of thousands of pounds, meaning that a heat exchanger pays for itself relatively quickly. BOMAT technical advisors are on hand right from the start to assist you in engineering and project planning.

BOMAT PROFITHERM FOR LARGE BOILERS AND INDUSTRIAL PLANT

BOMAT Profitherm for large boilers and industrial plant achieved savings of 36,000 litres of fuel oil per year for a cheese production facility. The payback period here was less than two years.

BOMAT CONDENSING TECHNOLOGY FOR CHP.

LESS IN, MORE OUT.



CHP heat exchangers: ceramic lasts longer.

As a rule, conventional exhaust gas heat exchangers in CHP units are operated above the condensation limit. Nevertheless, condensation may occur at start-up or with low coolant

temperatures, resulting in corrosion inside the heat exchanger. Where fuels containing sulphur are burnt (oil, gas or biogas), sulphurous acid is produced. Depending on the combustion temperature and catalysing technology used, nitric acid may also form as a reaction with the condensate and NOx. Nitric and sulphurous acids are the causes of acid rain, and can even attack stainless steel. Condensate that contains heavy metals may also be produced. BOMAT utilises patented ceramic heat exchangers that are 100 % corrosion-proof. These devices produce contamination-free condensate and offer an exceptionally long service life.

Make better use of energy.

Many conventional CHP units have a thermal efficiency of about 50 %. BOMAT recovers the condensation heat contained in the exhaust gas as an additional source of heat. The addition of BOMAT condensing technology increases the thermal efficiency by up to 10 %.

By investing in this technology, you are also helping to protect the environment, as significantly fewer pollutants are expelled from the chimney.



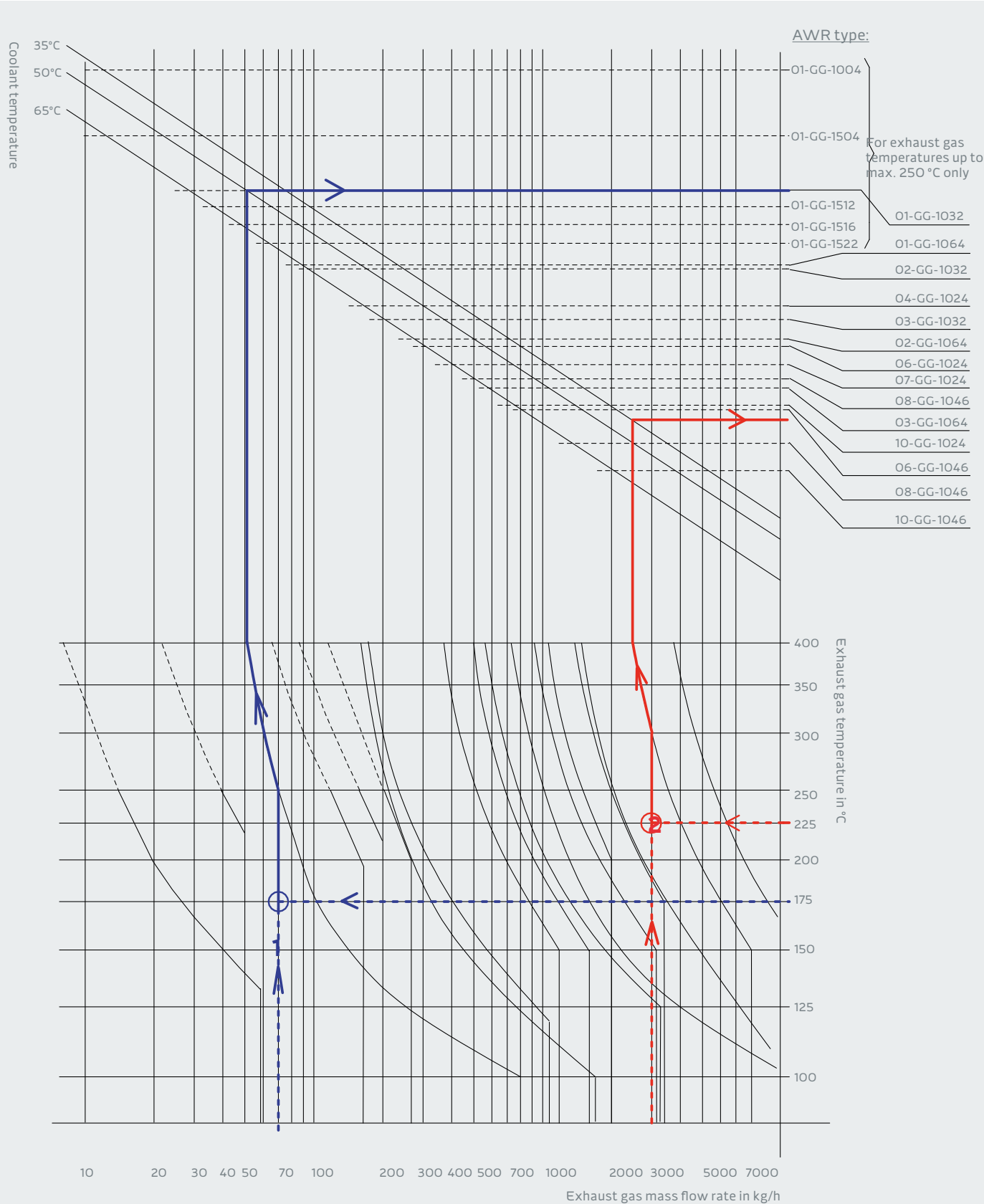
FOR ALL-PURPOSE USE WITH ANY OF THESE FUELS

- Fuel oil
- Natural gas
- Sewer gas
- Biogas

- Low pressure losses on the exhaust gas side
- Fully corrosion-resistant
- Short payback periods

CHP NOMOGRAM.

TO AID SELECTION OF EXHAUST GAS HEAT EXCHANGERS FOR CHP.



Basis of calculations

Fuel: Natural gas

Exhaust gas outlet temperature downstream of heat exchanger: 80 °C

Exhaust gas side pressure loss in AWR: <10 mbar

Example 1

Exhaust gas mass flow rate in CHP unit: 70 kg/h

Exhaust gas temperature: 175 °C

Coolant temperature: 50 °C

» Heat exchanger: 01-GG-1032-MT-4-9-6



Example 2

Exhaust gas mass flow rate in CHP unit: 3000 kg/h

Exhaust gas temperature: 225 °C

Coolant temperature: 35 °C

» Heat exchanger: 08-GG-1046-MT-4-9-6



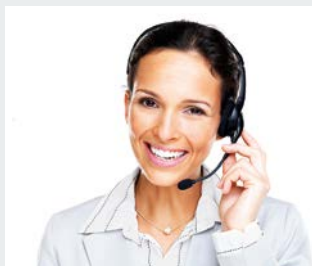
Approximate calculation of sensible heating output of heat exchanger

Exhaust gas mass flow rate in kg/h \times 0.0003 \times (exhaust gas temperature – 80 °C)

Example 2 shows:

3000 kg/h \times 0.0003 \times (225 °C – 80 °C) = 130.5 kW

Through condensation, the heating output may be increased by up to 50 %.



If you would like us to provide individual calculations or designs, please contact us:

info@bomat.de

T +49(0)7551.809970

F +49(0)7551.809971

List of information required. for designing condensing heat exchangers.

In order for BOMAT to design a suitable heat exchanger, the following data is required:

- **Fuel:** Fuel oil, natural gas, biogas, sewer gas or
- **Exhaust gas mass flow rate in CHP unit:** If the exhaust gas mass flow rate is not known, the volume flow may be provided instead, together with the exhaust gas temperature
- **Exhaust gas temperature:** Temperature of exhaust gas at entry to BOMAT heat exchanger
- **Coolant temperature:** The colder the coolant in the heat exchanger, the higher the energy yield. In order to exploit the condensing effect, the coolant temperature must be below the dew point of the exhaust gas.
- **Maximum possible exhaust heat exchanger pressure loss:** We usually design the exhaust gas heat exchanger such that the pressure loss of the heat exchanger on the exhaust gas side is less than 10 mbar.

THE BOMAT SOLUTION TO COMBUSTION ACIDS: NEUTRALISATION.

HELP PROTECT THE ENVIRONMENT WITH OUR RNA SERIES.

Condensate from condensing systems causes environmental pollution.

For each litre of fuel oil, 0.8 l acidic condensate (diluted acid) is created; per m³ natural gas this is about 1.5 l. This acid causes immense damage to the environment (e.g. acid rain).

Acidic condensate damages drainage pipes.

Many waste water and drainage pipes are made of materials that are not acid-resistant in the long term (e.g. concrete or grey cast iron). Acidic condensate from a condensing system may attack these and even destroy such pipes.

RECOMMENDATION

Code of Practice ATV-DVWK-A 251 governs the use of neutralising systems for condensate from condensing boilers. In general, however, the use of a neutralising system is recommended for the treatment of condensate before it is introduced into public waste water systems.

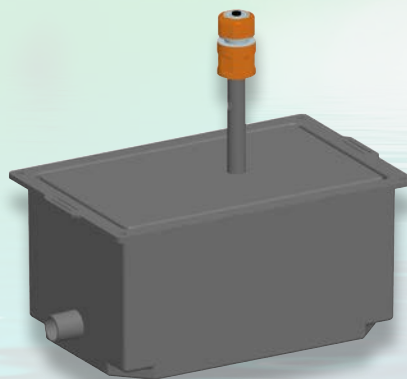
The solution

BOMAT RNA CLEANING AND NEUTRALISING SYSTEM

BOMAT has been producing cleaning and neutralising systems (RNA) for over 30 years. In that time over 40,000 units have been installed. These systems exhibit high reliability, a long service life and ease of maintenance.

RNA COMFORT

This unit features a patented backflushing system to regenerate the neutralising granulate, removable filter baskets and removable pre-filters to assure simple maintenance, and an integrated siphon for a high level of safety. These RNA units can also be fitted with condensate pumps to overcome height differences.



Specifications of our neutralising and cleaning systems can be found on pages 32–33.

FLUE AND EXHAUST GAS HEAT EXCHANGERS

SPECIFICATION

BOMAT PROFITHERM UP TO 160 kW	22
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FLUE AND EXHAUST GAS HEAT EXCHANGERS. THE RIGHT DEVICE FOR EVERY REQUIREMENT.





BOMAT PROFITHERM UP TO 160 kW COMBUSTION OUTPUT

Heat exchangers for flue gas heat recovery, for boilers with pressure-jet gas or oil burners (other applications on request). For water-side integration into dual circuit system or boiler return.



Illustration contains optional special paint and labelling

01-GG-0314-NT-4-K-3 ▲

01-GG-0524-NT-4-K-3 ▲

01-GG-1024-NT-4-K-3 ▲

▲ 01-GG-0514-NT-4-K-3

Profitherm			Product number
01-GG-0314-NT-4-K-3	up to 22 kW* combustion output	Flue gas inlet: Dint 130 Flue gas outlet: DN80 coupling	94 510 00
01-GG-0514-NT-4-K-3**	up to 45 kW* combustion output	Flue gas inlet: Dint 150 Flue gas outlet: DN125 coupling	94 709 00
01-GG-0514-NT-4-K-3**	up to 45 kW* combustion output	Flue gas inlet: Dint 130 Flue gas outlet: DN125 coupling	94 710 00
01-GG-0524-NT-4-K-3**	up to 60 kW* combustion output	Flue gas inlet: Dint 150 Flue gas outlet: DN125 coupling	94 708 00
01-GG-0524-NT-4-K-3**	up to 60 kW* combustion output	Flue gas inlet: Dint 130 Flue gas outlet: DN125 coupling	94 725 00
01-GG-1024-NT-4-K-3	up to 160 kW* combustion output Upright brackets are included for freestanding installation.	Flue gas inlet: Dint 180 Flue gas outlet: DN160 coupling	94 711 00

FEATURES

- Ceramic heat exchanger
- Height-adjustable feet
- Condensate drain
- Insulation
- White coated sheet steel casing
- Flue gas outlet with coupling
- AWR safety unit with 120°C safety temperature limiter for flue pipe and 80°C thermostat for heating water
- Cleaning apertures at flue gas connector and heat exchanger

ACCESSORIES

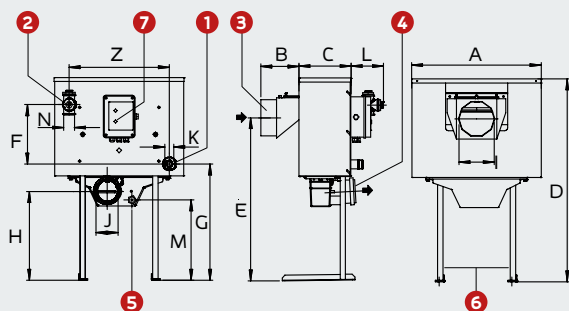
→ see page 36

* Design basis: 160°C flue gas inlet temperature, 40°C average coolant temperature, Lambda 1.2.
To optimise energy savings the water inlet temperature should be in the 30–40°C range under operating conditions.

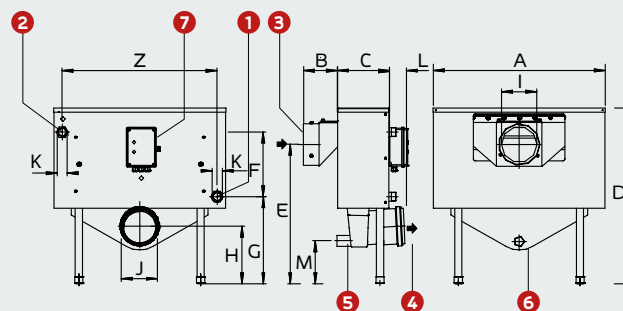
** **Please note:** The heat exchanger is mounted behind the boiler and must be sealed on site using flue gas sleeve gaskets. Freestanding installation is only possible if the requisite upright bracket set, product no. 90 790 00, is additionally ordered.

FOOTPRINT AND CONNECTION DIMENSIONS

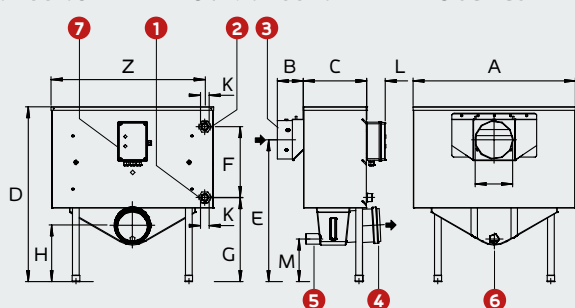
01-GG-0314-NT-4-K-3 SERIES



01-GG-0514-NT-4-K-3 SERIES



01-GG-0524-NT-4-K-3 and 01-GG-1024-NT-4-K-3 SERIES

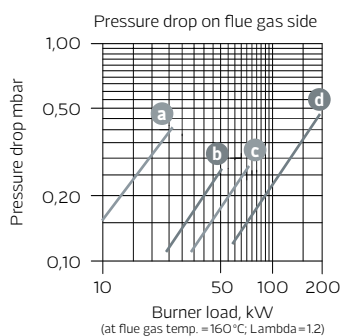
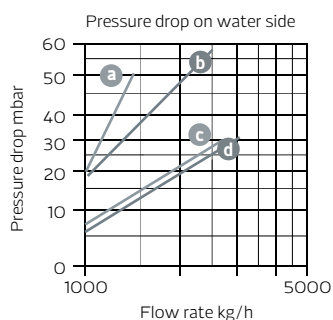


Key

- 1 Water inlet
- 2 Water outlet
- 3 Flue gas inlet *
- 4 Flue gas outlet *
- 5 Condensate outlet Dint 40 mm
- 6 Insertable, height-adjustable foot
- 7 Control panel with 120°C high limit safety cut-out and max. 80°C heating water thermostat

Profitherm 01-GG →		0314-NT	0514-NT	0524-NT	1024-NT
Boiler size (max. combustion output)	kW	22	45	60	160
Water capacity	litres	2,3	5,5	8,6	14
Flue gas HLSC, max. setting	°C	120	120	120	120
Permissible operating pressure	bar	3	3	3	3
Max. permiss. flue gas inlet temp.	°C	250	250	250	250
Max. permiss. water outlet temp.	°C	80	80	80	80
Max. permiss. flue pressure drop	Pa	100	100	100	100
Weight	kg	33	35	44	71
Dimensions (mm)	A	482	640	650	1205
	B	140	130	110	130
	C	194	195	240	240
	D min	690	655	695	730
	D max	880	805	845	1180
	E min	540	520	530	530
	E max	730	670	680	880
	F	220	240	270	270
	G min	366	325	315	375
	G max	556	475	465	725
	H min	262	215	210	230
	H max	452	365	360	580
Flue gas inlet	I int.**	130	130/150	130/150	180
Flue gas outlet	J int. (coupling)	80	125	125	160
Water connections	K	R1 (DN25)	R1 (DN25)	R1 (DN25)	R1 (DN25)
	L	120	65	55	55
	M* min	155	155	155	155
	M max	420	305	305	505
	N	Rc 1 (DN25)	-	-	-
	Z	372	576	612	1171

* Note the neutralising system inlet height. ** Selectable; please specify when ordering.
All data is without guarantee. Subject to change without notice.



Key

- a 01-GG-0314-NT
- b 01-GG-0514-NT
- c 01-GG-0524-NT
- d 01-GG-1024-NT

BOMAT PROFITHERM UP TO 350 kW COMBUSTION OUTPUT

Heat exchangers for flue gas heat recovery, for boilers with pressure-jet gas or oil burners (other applications on request).



01-GG-1032-NT-4-K-3 ▲

01-GG-1064-NT-4-K-3 ▲

Illustration contains optional special paint and labelling

Profitherm

01-GG-1032-NT-4-K-3	up to 200 kW* combustion output
01-GG-1064-NT-4-K-3	up to 350 kW* combustion output

Flue gas inlet: Dint 185
Flue gas outlet: DN160 coupling
Flue gas inlet: Dint 255
Flue gas outlet: DN200 coupling

Product number

90 700 20
90 672 10

FEATURES

- Ceramic heat exchanger
- Flow switch
- Deaerator
- Flue gas outlet in polypropylene with coupling
- Condensate drain
- Insulation
- White coated sheet steel casing
- Water connections
- Flue gas inlet with connector
- BOMAT safety control panel incl. 120°C flue gas temperature limiter; AWR pump control with cable and plug

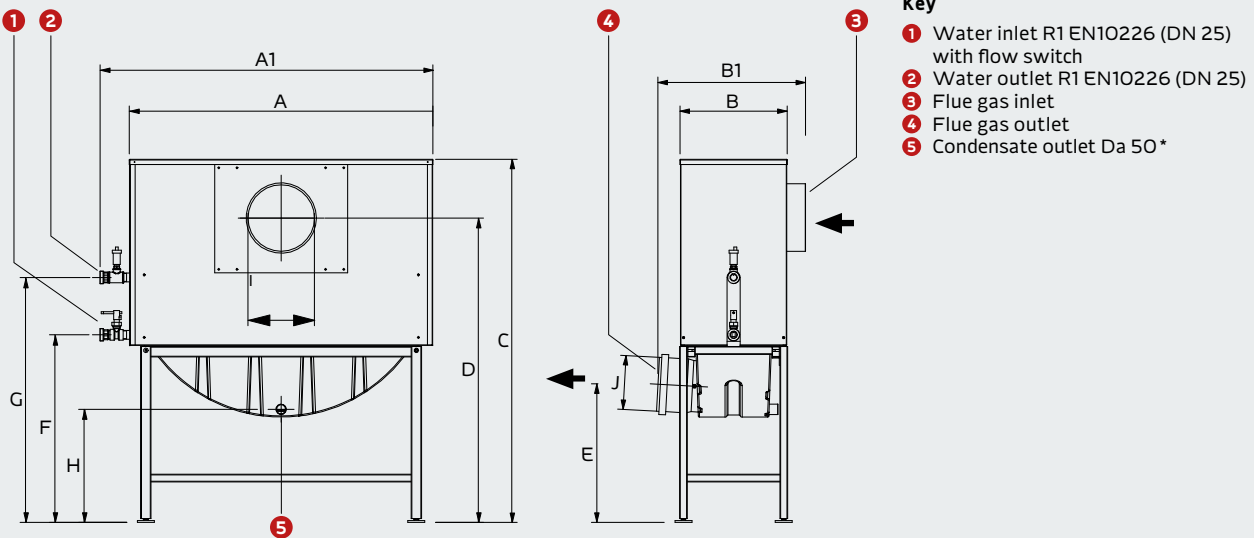
ACCESSORIES

→ see page 36

* Design basis: 200°C flue gas inlet temperature, 70°C flue gas outlet temperature, 40°C average coolant temperature, Lambda 1.2.
To optimise energy savings the water inlet temperature should be in the 30–40°C range under operating conditions.

FOOTPRINT AND CONNECTION DIMENSIONS

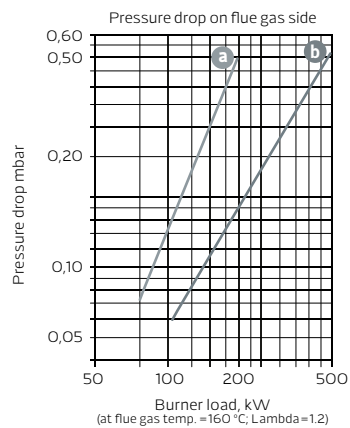
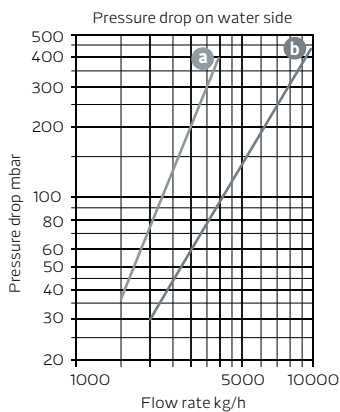
01-GG-1032-NT-4-K-3, 01-GG-1064-NT-4-K-3 SERIES



Profitherm 01-GG- →		1032-NT	1064-NT
Boiler size (max. combustion output)	kW	200	350
Water capacity	litres	7,7	17,5
Flue gas HLSC, max. setting	°C	120	120
Permissible operating pressure	bar	3	3
Max. permiss. flue gas inlet temp.	°C	250	250
Max. permiss. water outlet temp.	°C	80	80
Max. permiss. flue pressure drop	Pa	100	100
Weight	kg	90	146
Dimensions (mm)	A	1190	1165
	A1	1205	1195
	B	290	400
	B1	405	565
	C	1255	1405
	D	1240	1180
	E	470	540
	F	640	730
	G	860	950
	H	395	445
	I	Di 185	Di 255
	J	DN 160	DN 200

Height-adjustable +/-10 mm using adjustable feet.

All data is without guarantee. Subject to change without notice.



BOMAT PROFITHERM

UP TO 1000 kW COMBUSTION OUTPUT

Heat exchangers for flue gas heat recovery, for boilers with pressure-jet gas or oil burners (other applications on request).



▲ 06-GG-1024-NT-4-K-3

Illustration contains optional special paint and labelling

Profitherm			Product number
04-GG-1024-NT-4-K-3	up to 400 kW** combustion output	Flue gas inlet: Dint 255 Flue gas outlet: DN250 coupling	94 693 20
05-GG-1024-NT-4-K-3	up to 600 kW** combustion output	Flue gas inlet: Dint 255 Flue gas outlet: DN250 coupling	94 694 20
06-GG-1024-NT-4-K-3	up to 800 kW** combustion output	Flue gas inlet: Dint 255 Flue gas outlet: DN250 coupling	94 695 20
07-GG-1024-NT-4-K-3	up to 1000 kW** combustion output	Flue gas inlet: Dint 305 Flue gas outlet: DN315 coupling	94 696 20
08-GG-1024-NT-4-K-3	up to 1200 kW** combustion output	Flue gas inlet: Dint 305 Flue gas outlet: DN315 coupling	94 697 20

FEATURES

- Ceramic heat exchanger
- Flow switch
- Deaerator
- 3-flange* flue gas outlet in polypropylene
- Condensate drain
- Insulation
- White coated sheet steel casing
- Water connections
- 3-flange* flue gas inlet
- BOMAT safety control panel incl. 120 °C flue gas temperature limiter; AWR pump control with cable and plug

ACCESSORIES

→ see page 37

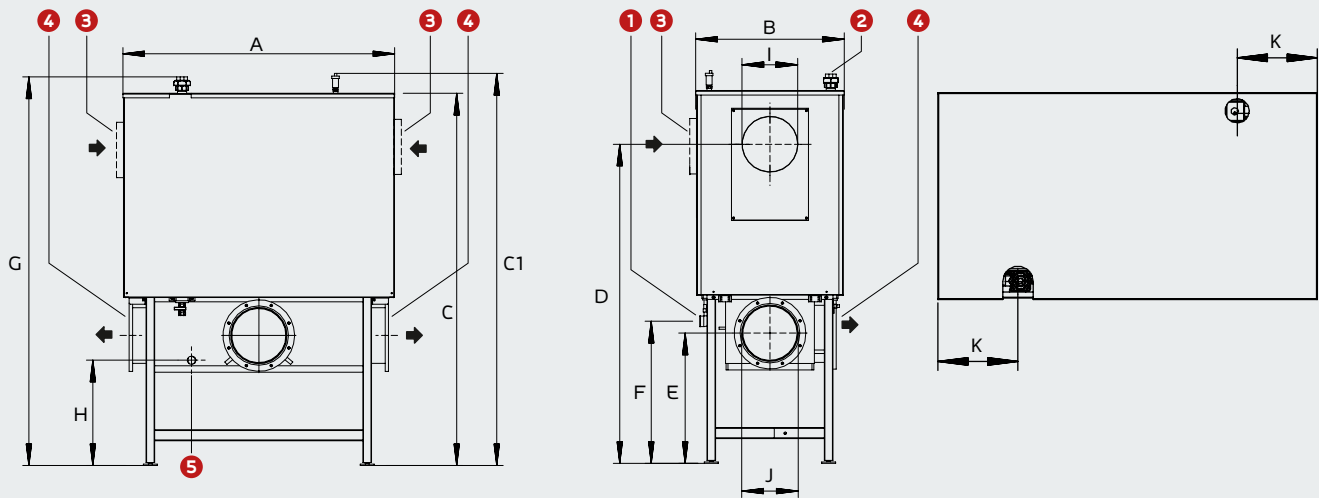
* Choice of connection options

** Design basis: 160 °C flue gas inlet temperature, 40 °C average coolant temperature, Lambda 1.2.

To optimise energy savings the water inlet temperature should be in the 30-40 °C range under operating conditions.

FOOTPRINT AND CONNECTION DIMENSIONS

04-GG-1024-NT-4-K-3 bis 08-GG-1024-NT-4-K-3 Series

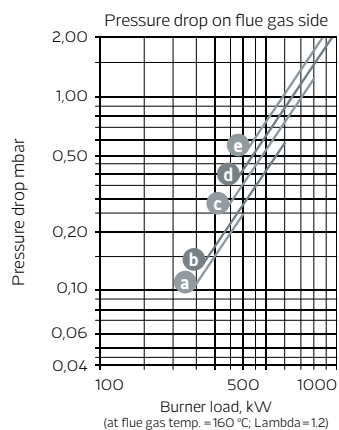
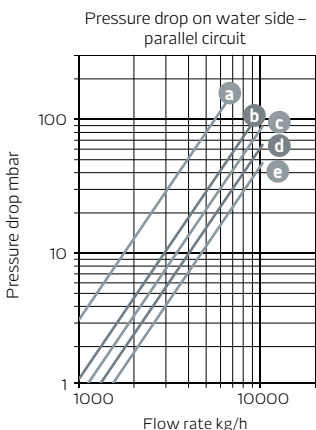


Key

- 1 Water inlet R1 ½ EN 10226
- 2 Water outlet R1 ½ EN 10226 with flow switch in top module
- 3 Flue gas inlet
- 4 Flue gas outlet
- 5 Condensate outlet DN50

	Profitherm →	04-GG-1024-NT	05-GG-1024-NT	06-GG-1024-NT	07-GG-1024-NT	08-GG-1024-NT
Boiler size (max. combustion output)	kW	400	600	800	1000	1200
Water capacity	Liter	32,5	40,5	48,5	56,5	64,5
Flue gas HLSC, max. setting	°C	120	120	120	120	120
Permissible operating pressure	bar	3	3	3	3	3
Max. permiss. flue gas inlet temp.	°C	250	250	250	250	250
Max. permiss. water outlet temp.	°C	80	80	80	80	80
Max. permiss. flue pressure drop	Pa	100	100	100	100	100
Weight	kg	228	262	289	327	365
Dimensions (mm)	A	1255	1255	1255	1255	1255
	B	685	685	685	685	685
	C	1730	1730	1730	1890	1890
	C1	1820	1820	1820	1970	1970
	D	1320	1400	1480	1570	1650
	E	610	610	610	610	610
	F	670	670	670	670	670
	G	1795	1795	1795	2045	2045
	H	495	495	495	440	440
	I	Di 255	Di 255	Di 255	Di 305	Di 305
	J	DN 250	DN 250	DN 250	DN 315	DN 315
	K	265	265	265	265	265

Height-adjustable +/-10 mm using adjustable feet. All data is without guarantee. Subject to change without notice.



Key

- a 04-GG-1024-NT-4-K-3
- b 05-GG-1024-NT-4-K-3
- c 06-GG-1024-NT-4-K-3
- d 07-GG-1024-NT-4-K-3
- e 08-GG-1024-NT-4-K-3

BOMAT PROFITHERM

UP TO 2200 kW COMBUSTION OUTPUT

Heat exchangers for flue gas heat recovery, for boilers with pressure-jet gas or oil burners (other applications on request).



07-GG-1046-NT-4-K-6 ▲

Illustration contains optional special paint and labelling

Profitherm			Product number
06-GG-1046-NT-4-K-6	up to 1400 kW** combustion output	Flue gas inlet: Dint 355 Flue gas outlet: DN355 connector	94 679 20
07-GG-1046-NT-4-K-6	up to 1800 kW** combustion output	Flue gas inlet: Dint 405 Flue gas outlet: DN355 connector	94 680 20
08-GG-1046-NT-4-K-6	up to 2200 kW** combustion output	Flue gas inlet: Dint 405 Flue gas outlet: DN400 connector	94 681 20

Higher output ranges on request

FEATURES

- Ceramic heat exchanger
- Flow switch
- Deaerator
- 3-flange* flue gas outlet in polypropylene
- Condensate drain incl. condensate hose
- Insulation
- White coated sheet steel casing
- Water connections
- 3-flange* flue gas inlet
- BOMAT safety control panel incl. 120 °C flue gas temperature limiter for flue pipe; AWR pump control with cable and plug

ACCESSORIES

→ see page 37

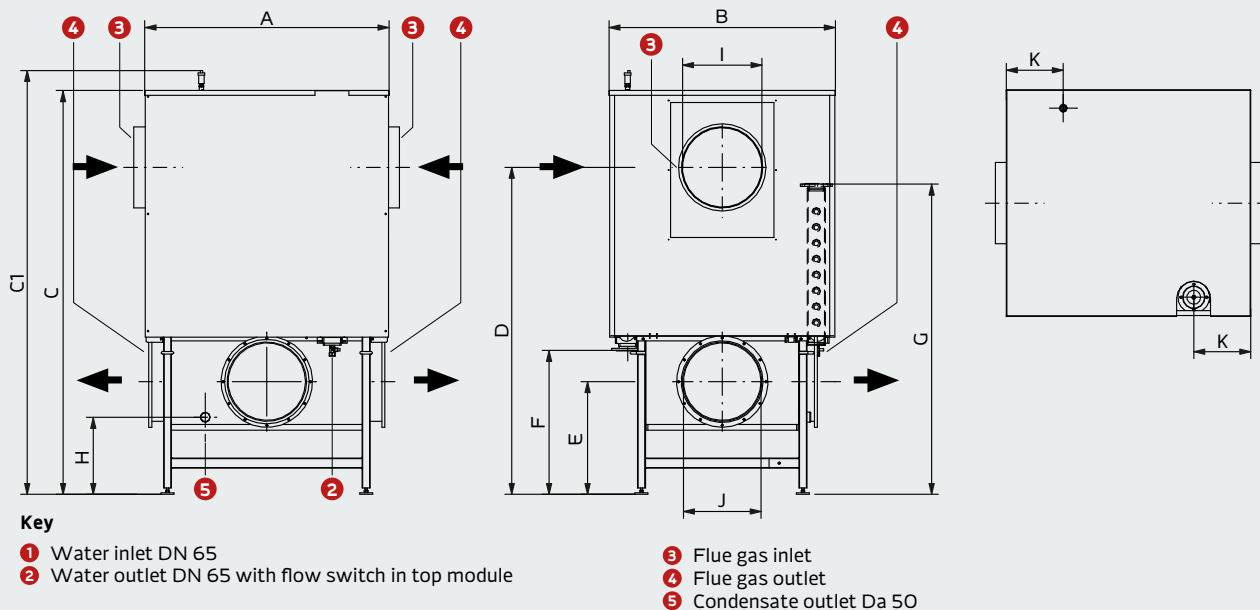
* Choice of connection options

** Design basis: 160 °C flue gas inlet temperature, 40 °C average coolant temperature, Lambda 1.2.

To optimise energy savings the water inlet temperature should be in the 30-40 °C range under operating conditions.

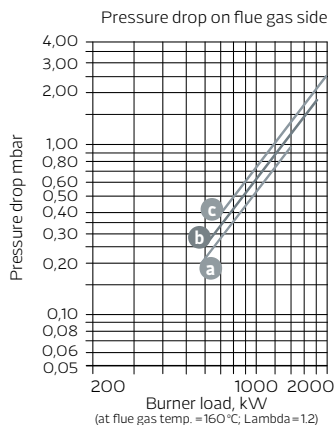
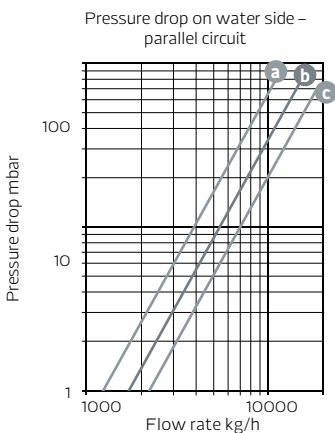
FOOTPRINT AND CONNECTION DIMENSIONS

06-GG-1046-NT-4-K-6 bis 08-GG-1046-NT-4-K-6 Series



Profitherm →		06-GG-1046-NT	07-GG-1046-NT	08-GG-1046-NT
Boiler size (max. combustion output)	kW	1400	1800	2200
Water capacity	litres	98	112	127
Flue gas HLSC, max. setting	°C	120	120	120
Permissible operating pressure	bar	6	6	6
Max. permiss. flue gas inlet temp.	°C	250	250	250
Max. permiss. water outlet temp.	°C	80	80	80
Max. permiss. flue pressure drop	Pa	100	100	100
Weight	kg	542	595	647
Dimensions (mm)	A	1230	1230	1230
	B	1140	1140	1140
	C	2035	2035	2035
	C1	2135	2135	2135
	D	1565	1645	1725
	E	565	565	565
	F	725	725	725
	G	1560	1560	1560
	H	390	390	390
	I	Di 355	Di 405	Di 405
	J	Di 355	Di 355	Di 400
	K	285	285	285

Height-adjustable +/-10 mm using adjustable feet. All data is without guarantee. Subject to change without notice.



Key

- a 06-GG-1046-NT-4-K-6
- b 07-GG-1046-NT-4-K-6
- c 08-GG-1046-NT-4-K-6

BOMAT MINITHERM CHP SERIES

Minitherm exhaust gas heat exchangers for heat recovery from CHP units.



Minitherm		Product number
O1-GG-1504-NT-4-K-3	Exhaust gas inlet: Rp1 (DN25)*	99 614 20
O1-GG-1504-NT-4-K-3	Exhaust gas inlet: Rp2 (DN50)*	99 614 50
O1-GG-1012-NT-4-K-6	Exhaust gas inlet: Ø selectable (see accessories)	94 650 00
O1-GG-1016-NT-4-K-6	Exhaust gas inlet: Ø selectable (see accessories)	94 651 00
O1-GG-1022-NT-4-K-6	Exhaust gas inlet: Ø selectable (see accessories)	94 652 00
O1-GG-1512-NT-4-K-6	Exhaust gas inlet: Ø selectable (see accessories)	94 653 00
O1-GG-1516-NT-4-K-6	Exhaust gas inlet: Ø selectable (see accessories)	94 654 00
O1-GG-1522-NT-4-K-6	Exhaust gas inlet: Ø selectable (see accessories)	99 636 20

FEATURES

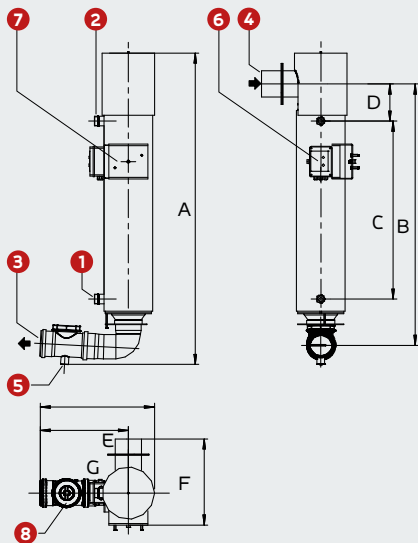
- Rotatable exhaust gas inlet header* with cleaning cover and flange adaptor for different exhaust pipe Ø
- Incl. protective cover
- Rotatable exhaust gas outlet bend with coupling and gasket to connect to exhaust pipe, incl. cleaning cover and condensate drain
- AWR safety unit, 230 V, with indicator lights, 80 °C temperature limiter for water temperature plus 120 °C high limit safety cut-out to protect exhaust pipe
- Cleaning brush for heat exchanger pipes
- Welded mounting plate for height-adjustable base frame or wall fixture (please order accessories separately)

ACCESSORIES

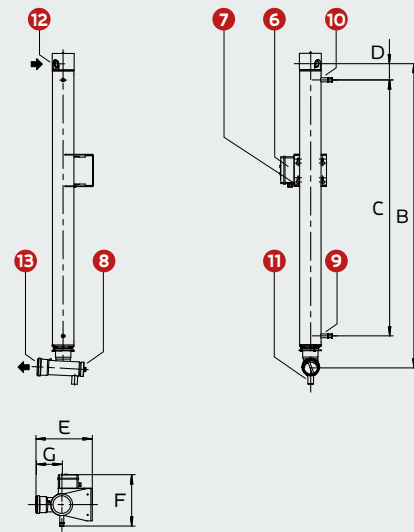
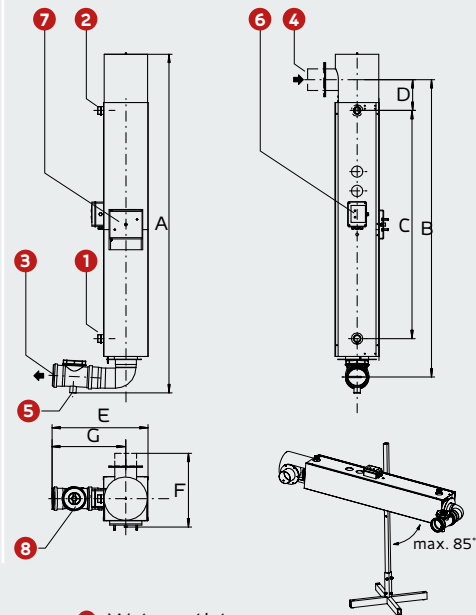
→ see page 38

* Rotatable in 90° increments – connector Rp1 (DN25)/ Rp2 (DN25)

FOOTPRINT AND CONNECTION DIMENSIONS

01-GG-1012-NT-4-K-6 and
01-GG-1022-NT-4-K-6 Series

01-GG-1504-NT-4-K-3 Series

01-GG-1512-NT-4-K-6 and
01-GG-1522-NT-4-K-6 Series

Key

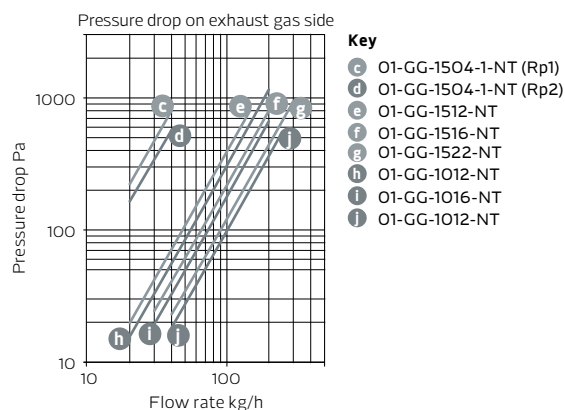
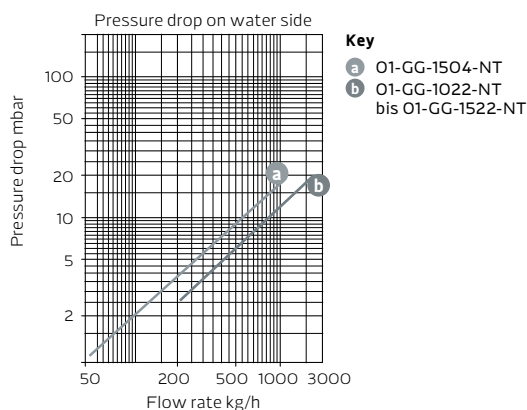
- 1 Water inlet
R 1 1/2 EN 10226 (DN 40)
- 2 Water outlet
R 1 1/2 EN 10226 (DN 40)
- 3 Exhaust gas outlet *, rotatable
(coupling DN 125 PP)
- 4 Exhaust gas inlet *, rotatable
(exhaust gas inlet connector = accessory)

- 5 DN40 condensate outlet
- 6 AWR safety unit
- 7 Mounting panel (for wall mounting bracket
or base frame = accessory)
- 8 Cleaning aperture (2nd cleaning aperture
at top under protective cover, but not on
01-GG-1504-NT-4-K-6)
- 9 Water inlet R 1/2 EN 10226 (DN 15)

- 10 Water outlet
R 1/2 EN 10226 (DN 15)
 - 11 DN32 condensate outlet
 - 12 Exhaust gas inlet Rc1 (DN 25)
 - 13 Exhaust gas outlet (coupling DN 80 PP)
- * make connections free of weight and free
of vibrations (for example with conduit pipes
or compensators)

Minitherm 01-GG- →		1504-NT (Rp1)	1504-NT (Rp2)	1012-NT	1016-NT	1022-NT	1512-NT	1516-NT	1522-NT
Water capacity	litres	3,9	3,9	16	15	13	24	23	21
Exhaust gas HLSC, max. setting	°C	120	120	120	120	120	120	120	120
Permissible operating pressure	bar	3	3	6	6	6	6	6	6
Max. perm. exhaust gas inlet temp.	°C	250	250	250	250	250	250	250	250
Max. perm. water outlet temp.	°C	85	85	85	85	85	85	85	85
Max. perm. exhaust pressure drop	Pa	5000	5000	5000	5000	5000	5000	5000	5000
Weight	kg	25	25	67	69,5	74,5	76,5	80	80
Dimensions (mm)									
A		1875	1875	1605	1605	1605	2105	2105	2105
B		1705	1705	1350	1350	1350	1850	1850	1850
C		1430	1430	920	920	920	1420	1420	1420
D		90	105	195	195	195	195	195	195
E		320	320	590	590	590	595	595	595
F		290	290	470	470	470	470	470	470
G		150	150	460	460	460	460	460	460

Pressure drop on exhaust gas side < 10 mbar. Maximum permissible exhaust gas sound pressure level 70 dB(A). Provide suitable protection on site if sound pressure is higher. All data is without guarantee. Subject to change without notice.



BOMAT PROFITHERM CHP INDUSTRY SERIES

Profitherm exhaust gas heat exchanger for heat recovery from CHP units.



03-GG-1064-MT-4-9-3 ▲

▲ 01-GG-1032-MT-4-9-3

Illustration contains optional special paint and labelling

Profitherm		Product number
01-GG-1032-MT-4-9-3	Exhaust gas inlet: DN 150 Exhaust gas outlet: DN 150	90 100 00
02-GG-1032-MT-4-9-3	Exhaust gas inlet: DN 150 Exhaust gas outlet: DN 150	90 100 10
03-GG-1032-MT-4-9-3	Exhaust gas inlet: DN 150 Exhaust gas outlet: DN 150	90 100 20
01-GG-1064-MT-4-9-3	Exhaust gas inlet: DN 250 Exhaust gas outlet: DN 250	90 200 00
02-GG-1064-MT-4-9-3	Exhaust gas inlet: DN 250 Exhaust gas outlet: DN 250	90 200 10
03-GG-1064-MT-4-9-3	Exhaust gas inlet: DN 250 Exhaust gas outlet: DN 250	90 200 20

FEATURES

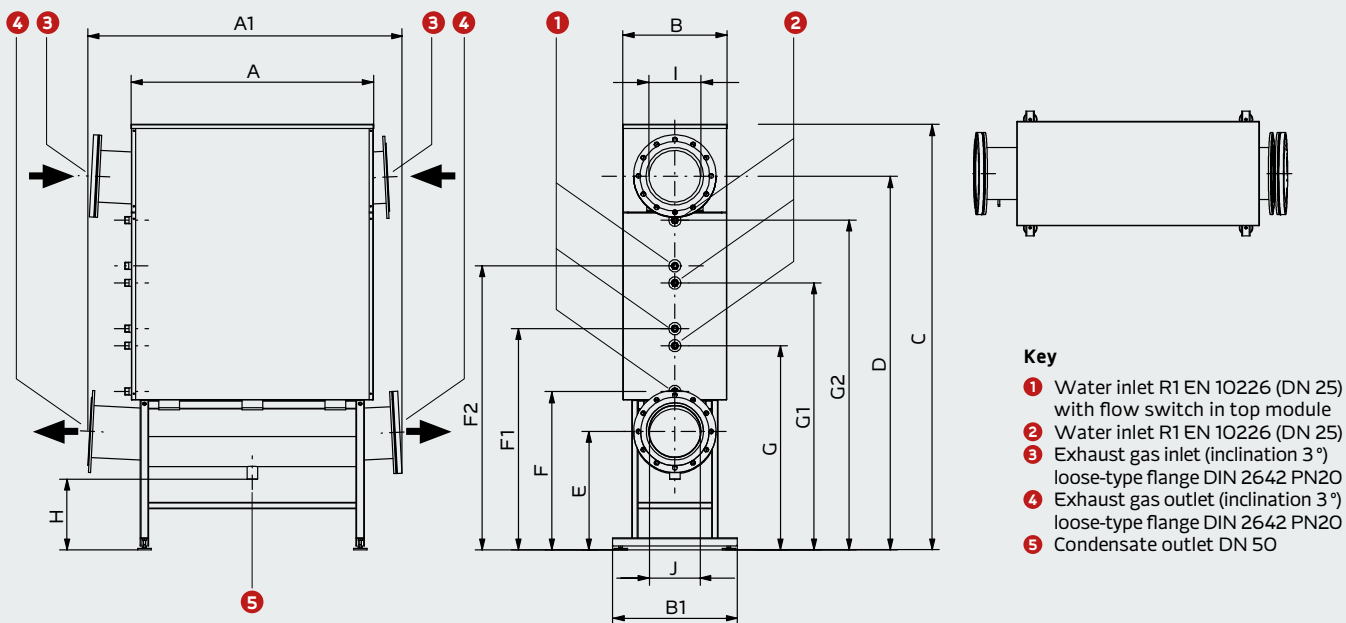
○ Exhaust gas inlet chamber made from stainless steel with cleaning cover and flange
 ○ Exhaust gas outlet chamber made from stainless steel with cleaning cover, condensate drain connector and flange
 ○ Modular condensing heat exchanger design with ceramic pipes
 ○ Flow switch on coolant side
 ○ Injection cleaning for easy manual maintenance (included)
 ○ Mineral wool insulation and powder-coated sheet steel casing
 ○ Max. permissible exhaust gas sound pressure level 70 dB(A); provide suitable protection on site if sound pressure is higher

ACCESSORIES

→ see page 39

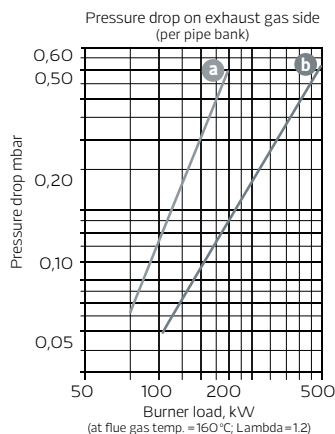
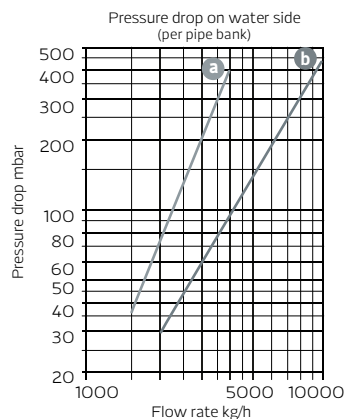
FOOTPRINT AND CONNECTION DIMENSIONS

01-GG-1032-MT-4-9-3 to 03-GG-1032-MT-4-9-3, 01-GG-1064-MT-4-9-3 to 03-GG-1064-MT-4-9-3 Series



Profitherm →		01-GG-1032-MT	02-GG-1032-MT	03-GG-1032-MT	01-GG-1064-MT	02-GG-1064-MT	03-GG-1064-MT
Water capacity	litres	7,7	15,4	23,5	17,5	35,0	52,5
Exhaust gas HLSC, max. setting	°C	120	120	120	120	120	120
Permissible operating pressure	bar	3	3	3	3	3	3
Max. permiss. exhaust gas inlet	°C	400	400	400	400	400	400
Max. permiss. water outlet temp.	°C	80	80	80	80	80	80
Max. permiss. exhaust pressure drop	Pa	5000	5000	5000	5000	5000	5000
Weight	kg	90	153	216	146	248	350
Dimensions (mm)	A	1190	1190	1190	1170	1170	1170
	A1	1410	1410	1410	1490	1490	1490
	B	288	288	288	500	500	500
	B1	600	600	600	600	600	600
	C	1270	1550	1845	1440	1740	2030
	D	1075	1375	1675	1185	1485	1785
	E	485	485	485	560	560	560
	F	660	660	660	755	755	755
	F1	x	960	960	x	1055	1055
	F2	x	x	1260	x	x	1355
	G	880	880	880	975	975	975
	G1	x	1180	1180	x	1275	1275
	G2	x	x	1480	x	x	1575
	H	330	330	330	330	330	330
	I	DN 150	DN 150	DN 150	DN 250	DN 250	DN 250
	J	DN 150	DN 150	DN 150	DN 250	DN 250	DN 250

Height-adjustable +/-10 mm using adjustable feet. All data is without guarantee. Subject to change without notice.



Key

- a 01-GG-1032-MT-4-9-3
- b 01-GG-1064-MT-4-9-3

BOMAT PROFITHERM CHP INDUSTRY SERIES

Profitherm exhaust gas heat exchangers for heat recovery from CHP units and industrial applications.



▲ 08-GG-1046-MT-4-9-6

Illustration contains optional special paint and labelling

Profitherm		Product number
06-GG-1046-MT-4-9-6	Exhaust gas inlet: DN 250 Exhaust gas outlet: DN 250	90 400 30
07-GG-1046-MT-4-9-6	Exhaust gas inlet: DN 250 / optional DN 350 Exhaust gas outlet: DN 250	90 400 40
08-GG-1046-MT-4-9-6	Exhaust gas inlet: DN 250 / optional DN 350 Exhaust gas outlet: DN 250	90 400 50

FEATURES

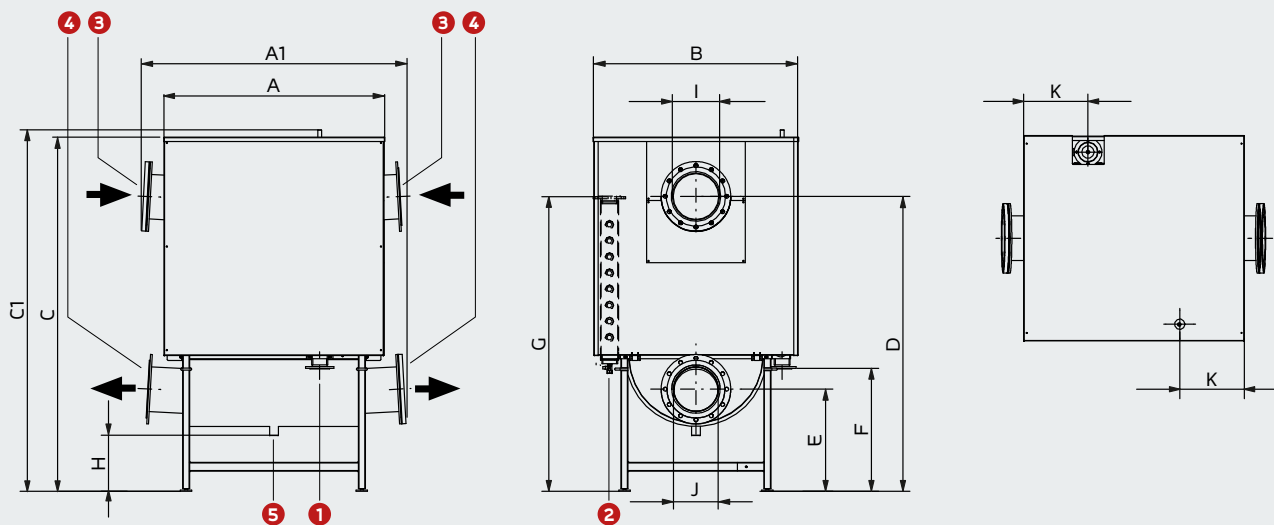
- Exhaust gas inlet chamber made from stainless steel with cleaning cover and flange
- Exhaust gas outlet chamber made from stainless steel with cleaning cover, condensate drain connector and flange
- Modular condensing heat exchanger design with ceramic pipes
- Flow switch on coolant side
- Injection cleaning for easy manual maintenance (included)
- Mineral wool insulation and powder-coated sheet steel casing
- Max. permissible exhaust gas sound pressure level 70 dB(A); provide suitable protection on site if sound pressure is higher

ACCESSORIES

→ see page 39

FOOTPRINT AND CONNECTION DIMENSIONS

06-GG-1046-MT-4-9-6 to 08-GG-1046-MT-4-9-6 Series



Key

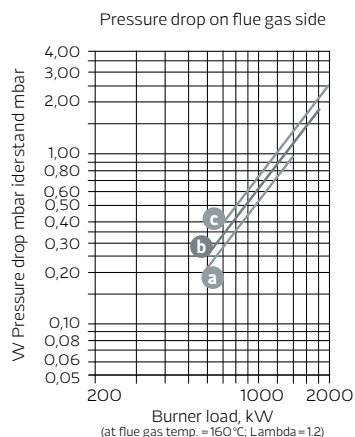
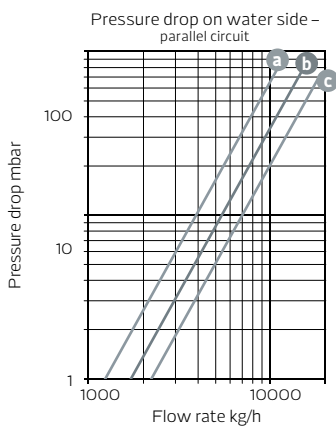
- 1 Water inlet DN 65
2 Water outlet DN 65
with flow switch in top module

- 3 Exhaust gas inlet (inclination 3°)
loose-type flange DIN 2642 PN20
4 Exhaust gas outlet (inclination 3°)
loose-type flange DIN 2642 PN20

- 5 Condensate outlet Da 50

Profitherm →		06-GG-1046-MT	07-GG-1046-MT	08-GG-1046-MT
Water capacity	Liter	98	112	127
Exhaust gas HLSC, max. setting	°C	120	120	120
Permissible operating pressure, heating water side	bar	6	6	6
Max. permiss. exhaust gas inlet temp.	°C	400	400	400
Max. permiss. water outlet temp.	°C	80	80	80
Max. permiss. exhaust pressure drop	Pa	5000	5000	5000
Weight	kg	700	750	800
Dimensions (mm)	A	1255	1255	1255
	A1	1475	1475	1475
	B	1170	1170	1170
	C	2030	2030	2030
	C1	2075	2075	2075
	D	1535	1615	1695
	E	600	600	600
	F	715	715	715
	G	1555	1555	1555
	H	335	335	335
	I	DN 250	DN 250	DN 250
	J	DN 250	DN 250	DN 250
	K	370	370	370

Height-adjustable +/-10 mm using adjustable feet. All data is without guarantee. Subject to change without notice.



Key

- a 06-GG-1046-MT-4-9-6
b 07-GG-1046-MT-4-9-6
c 08-GG-1046-MT-4-9-6

ACCESSORIES FOR...

BOMAT PROFITHERM UP TO 160 kW COMBUSTION OUTPUT



Accessories	Product number
Upright bracket set for freestanding installation of heat exchangers	90 790 00
Flue gas widener coupling DN 110, insertion end DN 80, material: PP	95 157 10
Flue gas reducer coupling DN 110, insertion end DN 125, material: PP	95 634 00
Flue widening adaptor from 80 to 200 mm (material: stainless steel)	80 093 00
Flue gas sleeve gasket Ø 130	92 369 00
Flue gas sleeve gasket Ø 150	92 370 00
Flue gas sleeve gasket Ø 180	92 371 00
Cleaning kit for O1-GG-0514-NT-4-K-3 to O1-GG-0524-NT-4-K-3	94 713 00
Cleaning kit for O1-GG-1024-NT-4-K-3	94 714 00
DN 40 condensate hose kit	95 317 10
Maintenance kit	Product number
Maintenance kit for GG-0314-NT	90 748 30
Maintenance kit for GG-0514-NT	90 748 20
Maintenance kit for GG-0524-NT	90 748 10
Maintenance kit for GG-1024-NT	90 748 00
Optional	
BOMAT special paint and labelling (see images)	

BOMAT PROFITHERM UP TO 350 kW COMBUSTION OUTPUT



Accessories	Product number
Flue gas sleeve gasket Ø 150	92 370 00
Flue gas sleeve gasket Ø 180	92 371 00
DN40 condensate hose kit	95 317 10
DN50 condensate hose kit	95 317 20
Maintenance kit	Product number
Maintenance kit for O1-GG-1032-NT and O1-GG-1064-NT	90 785 00
Optional	
6 bar permissible operating pressure, water side	
BOMAT special paint and labelling (see images)	

BOMAT PROFITHERM

UP TO 1000 kW COMBUSTION OUTPUT



Accessories	Product number
DN40 condensate hose kit	95 317 10
DN50 condensate hose kit	95 317 20

Maintenance kit	Product number
Maintenance kit for O4-GG-1024-NT to O6-GG-1024-NT	90 786 00
Maintenance kit for O7-GG-1024-NT to O8-GG-1024-NT	90 788 00

Optional
6 bar permissible operating pressure, heating water side
BOMAT special paint and labelling (see images)

BOMAT PROFITHERM

UP TO 2200 kW COMBUSTION OUTPUT



Accessories	Product number
DN40 condensate hose kit	95 317 10
DN50 condensate hose kit	95 317 20





Maintenance kit	Product number
Maintenance kit for GG-1046-NT	90 787 00

Optional
BOMAT special paint and labelling (see images)

ACCESSORIES FOR...

BOMAT MINITHERM CHP SERIES



Accessories		Product number
	Exhaust gas inlet connector, stainless steel, incl. M14 test port and gasket	
	DN 50 (Ø 57x2,6)	80 160 65
	DN 65 (Ø 76x2,6)	80 160 25
	DN 80 (Ø 88,9x3,2)	80 160 45
	Ø 100 (Ø 104x2)	80 120 40
	Ø 125 (Ø 129x2)	80 130 40
	DN 65 adaptor to DIN 2642 PN10 flange	80 160 75
	DN 80 adaptor to DIN 2642 PN10 flange	80 160 85
Exhaust gas reducer		
DN125/DN80		95 634 10
DN125/DN110		95 634 00
	Wall mounting bracket with swivel function (adjustable from 0–85°)	80 340 20
	for vertical or horizontal mounting of BOMAT AWR Minitherm; dimensions: 320x220x74	
	Base frame with swivel function (angle adjustable from 0–85°)	79 380 50
	for vertical or horizontal mounting of BOMAT AWR Minitherm; dimensions: 800x800x1720	
Height adjustable:		
Vertical position: Exhaust gas outlet: min. 260 mm, max. 740 mm		
Horizontal position: Exhaust gas outlet: min. 465 mm, max. 1595 mm		
DN 40 condensate hose connection kit		95 317 20

** DN32 condensate hose

Optional

BOMAT special paint and labelling (see images)

BOMAT PROFITHERM CHP INDUSTRY SERIES



Accessories	Product number
Safety control panel	96 804 00
Flow control switch on HT module	80 538 00
Maintenance kit (DN 150) for GG-1032-MT	90 789 00
Maintenance kit (DN 250) for GG-1064-MT	90 789 10
Optional	
Condensate pan, plastic or 1.4571	
Spray unit for cleaning	
6 bar permissible operating pressure, heating water side	
High temperature version, up to 700 °C exhaust gas temperature	
BOMAT special paint and labelling (see images)	

BOMAT PROFITHERM CHP INDUSTRY SERIES



Accessories	Product number
Maintenance kit (DN 250) for GG-1046-MT	90 789 10
Optional	
Condensate pan, plastic or 1.4571	
With spray unit for cleaning	
With safety control panel	
For high temperatures up to 700 °C	
BOMAT special paint and labelling (see images)	

RNA





BOMAT RNA CLEANING AND NEUTRALISING SYSTEMS FOR HEATING, INDUSTRIAL AND CHP APPLICATIONS

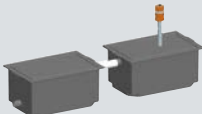
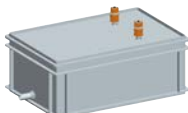

The acidifying elements contained in fuel oil or natural gas (e.g. sulphur) cause aggressive acids (such as sulphuric acid) to be formed during combustion and subsequent condensation. BOMAT neutralising and cleaning systems treat (neutralise) this acidic condensate so that it is suitable to be fed into the public waste water system.

Note: In Germany, Code of Practice ATV-DVWK-A 251 regulates the discharge of condensate from combustion equipment. Acidic condensate from condensing systems can destroy waste water pipework.

BENEFITS OF BOMAT RNA SYSTEMS

Integral siphon Integral oil separator Replaceable absorber element for particle separation Large sedimentation volume for sludge settling Easy maintenance thanks to backflushing function and removable filter basket for neutralising granulate Compact construction and wide range of accessories

RNA		Product number
	RNA Aktiv 60(SD) (up to 60 kW boiler output) Vessel with 2 connectors, Ø 25: condensate inlet (bottom), outlet (top), filter basket with activated charcoal, filter basket with granulate, hinged cover Inlet height: 35 mm, outlet height: 115 mm Dimensions: LxBxH 322 x 200 x 150 mm	90 838 35
	Also available with backflushing function (up to 100 kW boiler output) but with sliding cover Dimensions: LxBxH 322 x 200 x 297 mm	90 838 40
	Maintenance package	90 816 30
	RNA-Komfort oil/gas (up to 100 kW boiler output) with backflushing function Vessel with 2 connectors: Condensate inlet (bottom), outlet (top), filter basket with granulate, filter foam, fast-coupling backflushing unit, cover with hole Inlet height: 35 mm, outlet height: 115 mm Dimensions: LxWxH 322 x 200 x 177 mm	90 830 40
	Maintenance package	90 831 20
	RNA-Komfort XL oil/gas (up to 500 kW boiler output) with backflushing function Vessel with 2 connectors: Condensate inlet (bottom), outlet (top), filter basket with filter holder and granulate, filter foam, fast-coupling backflushing unit, cover Inlet height: 45 mm, outlet height: 160 mm Dimensions: LxWxH 515 x 330 x 266 mm	90 830 60
	Maintenance package	90 831 30
	RNA-Komfort XL oil/gas (up to 500 kW boiler output) with backflushing function and integral condensate pump Vessel with connectors for condensate inlet (bottom), filter basket with filter holder and granulate, filter foam, condensate pump (230 V/50 Hz with standard plug), fast-coupling backflushing unit, cover, incl. float switch and potential-free fault indicator output (pump diagram on request), 192 l/h with 3 m delivery head Inlet height: 45 mm Dimensions: LxWxH 485 x 330 x 310 mm	90 830 50
	Maintenance package	90 831 30

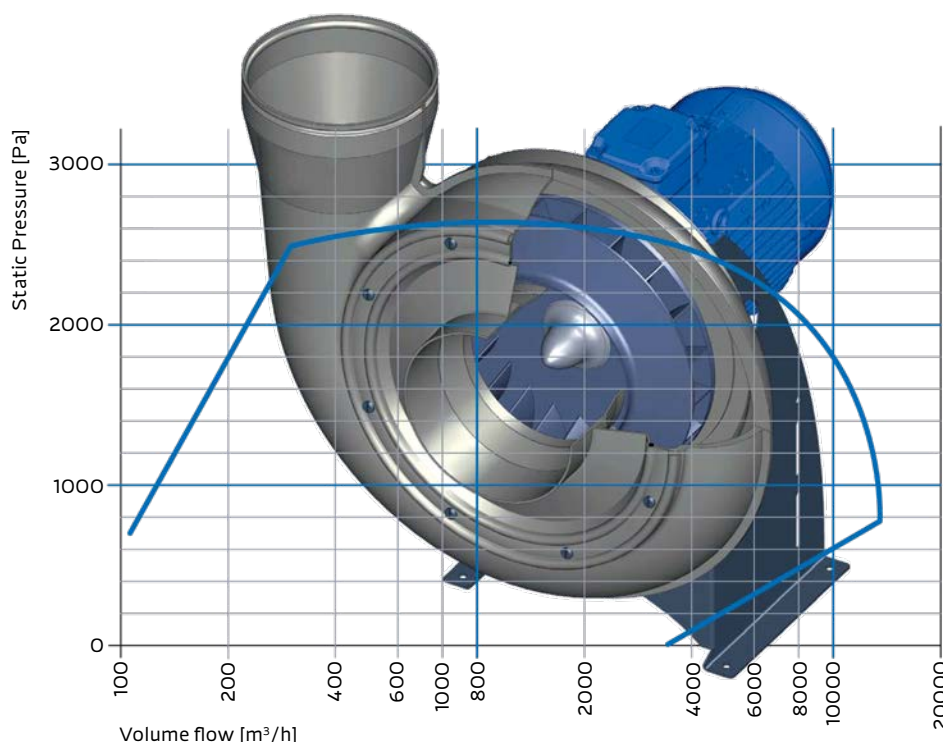
RNA		Product number
	Komfort SE CHP (max. condensate rate 6 l/h) 1st condensate pre-cleaning stage with siphon effect* consisting of vessel with filter basket, activated charcoal filling, cover, undergravel filter, absorber, 2x connectors for condensate inlet and overflow in 2nd vessel 2nd neutralising stage, consisting of vessel with filter basket, granulate filling, cover, 2x connectors ext. Ø 25 mm for condensate inlet and outlet. Fast-coupling flushing unit, incl. 150 mm connecting hose for the two vessels. Inlet height: 35 mm, outlet height: 115 mm Dimensions: LxWxH 717 x 200 x 177 mm	90 840 00
	Maintenance package	90 831 10
	RNA Maxi CHP (max. condensate rate 15 l/h) Vessel with cover, condensate inlet and outlet connectors, Dext. 25 1st settlement chamber with siphon effect* for sedimentation of solid combustion products 2nd condensate pre-cleaning stage consisting of 2 clipped-in filter baskets with charcoal filling and undergravel filter 3rd neutralising stage, consisting of 2 clipped-in filter baskets with granulate filling, 2x fast-coupling flushing units 4th settlement chamber with siphon effect Inlet height: 35 mm, outlet height: 115 mm Dimensions: LxWxH 695 x 400 x 265 mm	90 850 00
	Maintenance package	90 831 40
Accessories		Product number
	Condensate pump with vessel Incl. float switch and potential-free fault message output (pump diagram on request), 192 l/h with 3 m delivery head, 230 V/50 Hz with standard plug Dimensions: LxWxH 315 x 200 x 250 mm	90 730 20
	Condensate hose kit DN 40, consisting of: 1.5 m NW 19 condensate hose 1 adaptor DN 40 x 25 Silicone hose section 2 adaptors DN 25 2 hose clamps Ø 40	95 317 10
	Condensate hose kit DN 50, consisting of: 1.5 m NW 19 condensate hose 1 adaptor DN 50 x 25 Silicone hose section 2 adaptors DN 25 2 hose clamps Ø 50	95 317 20
	Condensate hose NW 19, by the metre as required	32 860 05
	Adaptor for condensate hose NW 19 to DN 25	32 850 60

* Siphon seal water height = 110 mm

Note: Since higher exhaust gas pressures may occur in CHP units, an additional siphon may have to be provided on site.

FANS

MEDIUM PRESSURE CENTRIFUGAL FANS MADE FROM PLASTIC



Specification

Flow rate

Min. 150 m³/h to max. 13,500 m³/h

Static pressure

Min. 50 Pa to max. 3000 Pa

Efficiency

Max. 75 %

Intake and discharge Ø

125, 160, 200, 250, 315, 400 mm

Casing material

PPs

Impeller material

PVDF

Properties

Heat-resistant up to 90 °C

Highly resistant to salts, acids and alkalis

Flame resistant

Accessories (included)

Shaft sleeves with stainless steel band clamps

Condensate drain

Anti-vibration mounts for floor and ceiling mounting

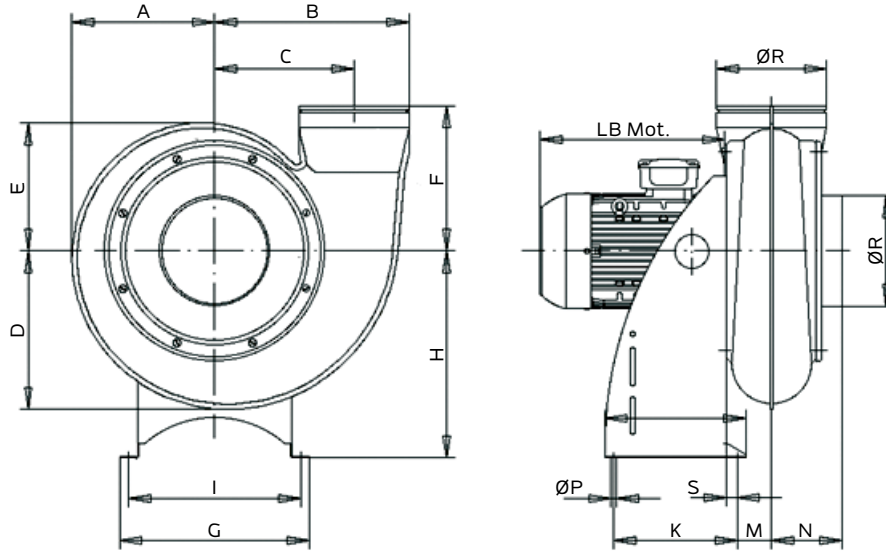
Shatter protection

Accessories (optional)

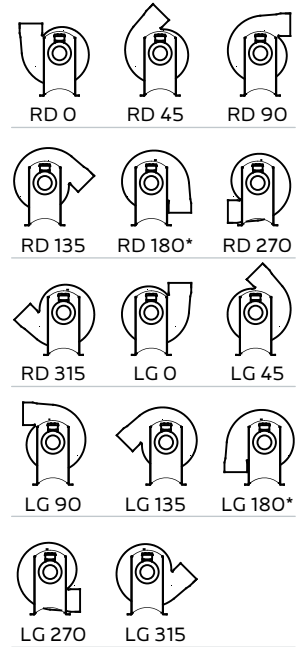
95 °C high limit safety cut-out including sensor well

Frequency converter

FOOTPRINT AND CONNECTION DIMENSIONS MEDIUM PRESSURE CENTRIFUGAL FANS



DISCHARGE POSITIONS



* On request

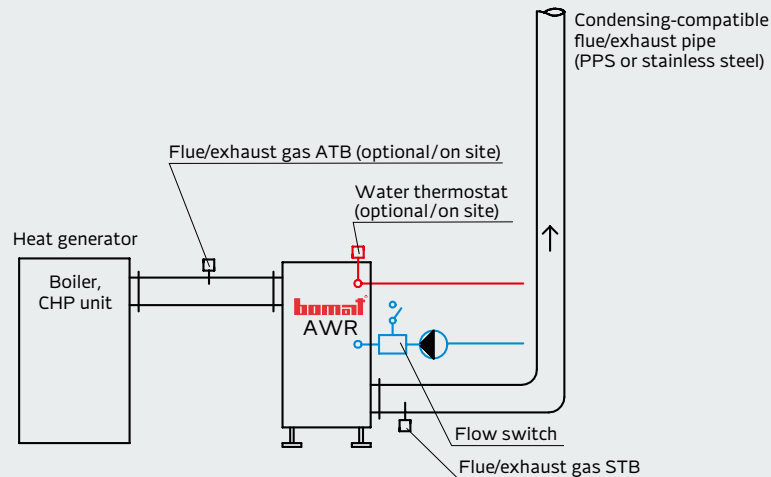
Intake and discharge Ø→		125	160	200	250	315	400
Dimensions (mm)	A	188	226	275	336	415	452
	B	227	286	355	441	554	641
	C	164	206	255	316	396	441
	D	206	252	310	380	471	527
	E	170	200	241	293	359	378
	F	200	225	275	330	400	425
	G	270	290	380	430	480	580
	H	250	310	380	470	580	670
	I	240	260	350	390	440	540
	K	220	220	260	275	325	360
	L	250	250	290	315	365	400
	M	35	47	64	78	102	133
	N	110	120	140	160	190	220
	ØP	10	10	10	10	10	10
	ØR	125	160	200	250	315	400
	S	15	15	15	20	20	20

BOMAT ENGINEERING INFORMATION

INTEGRATION OF FLUE AND EXHAUST GAS HEAT EXCHANGERS ON THE GAS SIDE

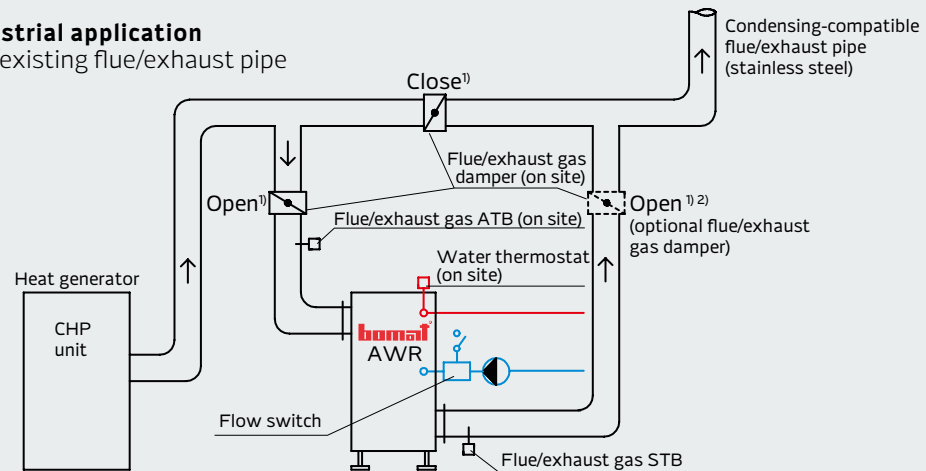
A1

Boiler/CHP unit
Standard application



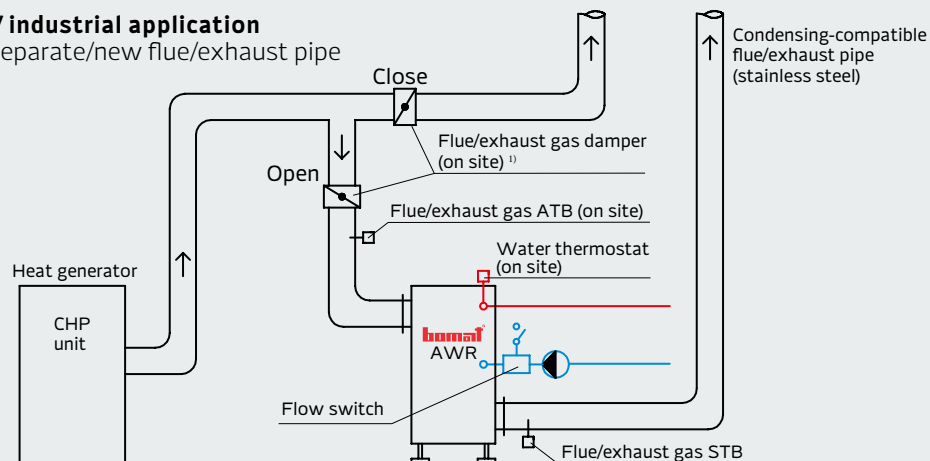
A2

CHP unit / industrial application
Bypass – same/existing flue/exhaust pipe



A3

CHP unit / industrial application
Bypass – separate/new flue/exhaust pipe



ATB = Flue/exhaust gas
temperature limiter
HK = Heating circuit
HT = High temperature heating circuit
M = Motor/actuator
NT = Low temperature heating circuit
STB = High limit safety cut-out

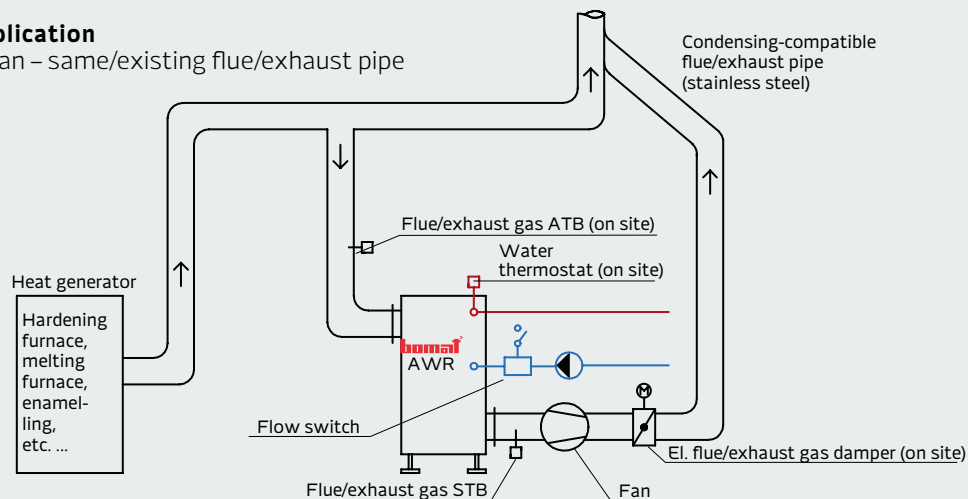
- 1) The flue/exhaust gas path must always be open in one direction.
A CHP unit must not be operated with dampers closed.
- 2) This damper must only be closed during maintenance.

Note:

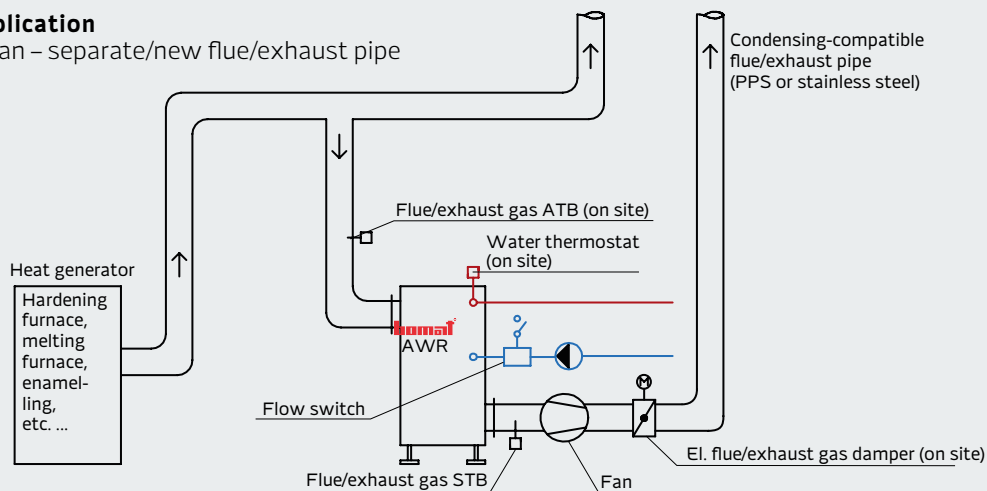
The images shown are intended as examples only and merely provide a greatly simplified illustration.

A4**Industrial application**

Bypass with fan – same/existing flue/exhaust pipe

**A5****Industrial application**

Bypass with fan – separate/new flue/exhaust pipe

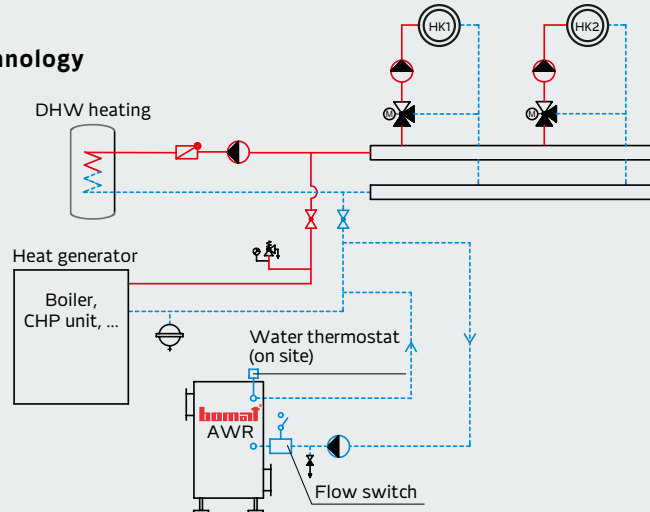


BOMAT ENGINEERING INFORMATION

INTEGRATION OF FLUE AND EXHAUST GAS HEAT EXCHANGERS ON THE WATER SIDE

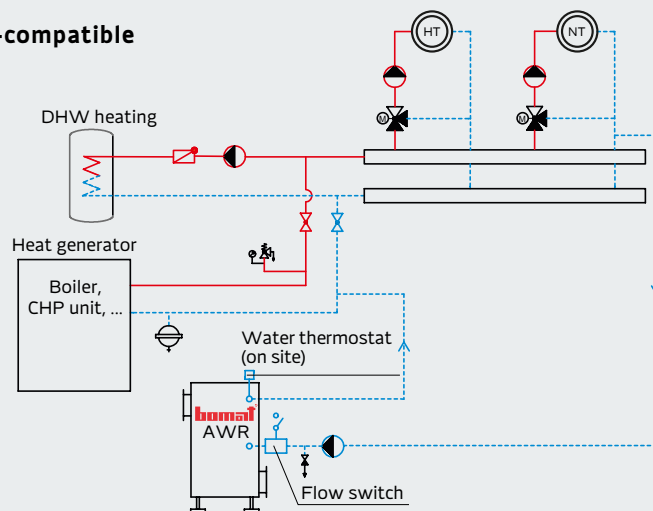
W1

Main return is suitable for use of condensing technology



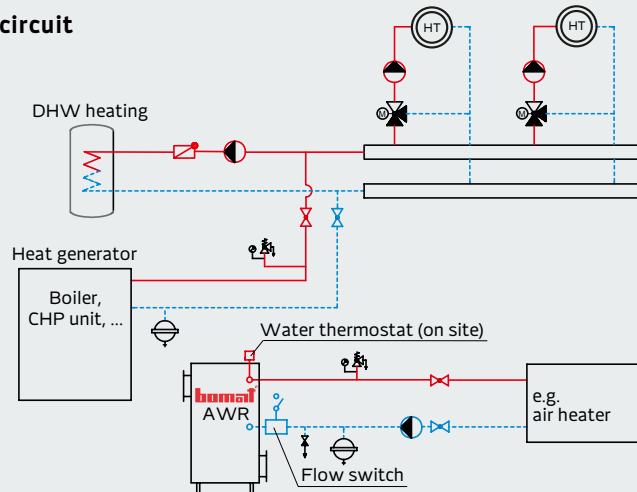
W2

Connection to condensing-compatible partial mass flow



W3

Using an external heating circuit



ATB = Flue/exhaust gas
temperature limiter
HK = Heating circuit
HT = High temperature heating circuit
M = Motor/actuator
NT = Low temperature heating circuit
STB = High limit safety cut-out

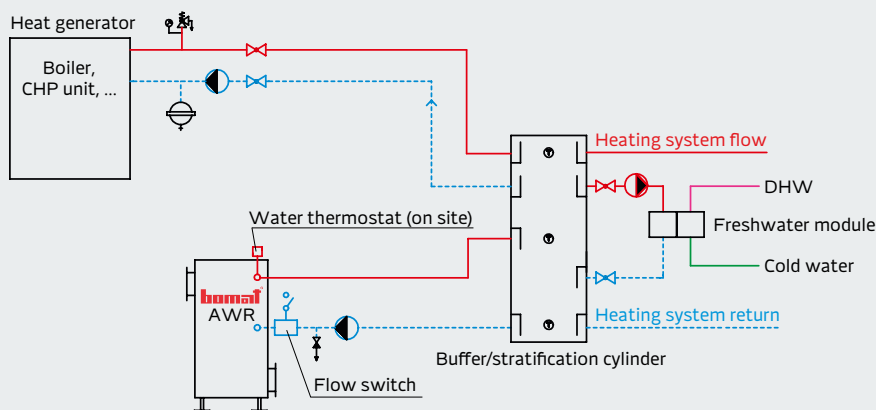
Please note:

The colder the return temperature at the heat exchanger inlet, the higher the energy yield

Note:

The images shown are intended as examples only and merely provide a greatly simplified illustration.

W4

Connection to buffer/stratification cylinder

ADDITIONAL BENEFIT INDUSTRIAL AND PROCESS HEAT RECOVERY

The use of waste heat from industrial processes is one of the most lucrative applications in the field of energy saving. BOMAT flue gas heat exchangers enable waste heat even from complex industrial processes to be recovered and fed into the heating circuit.

The benefits are as follows:**○ Bypass**

If the flue gas heat exchanger is connected to the bypass, the process heat source is not affected by the heat exchanger being switched on/off.

○ Operational reliability

Regardless of whether heat is recovered, the heat exchanger is serviced or faults occur, the operational reliability of the process heat source is not affected.

○ Design

The flue gas heat exchanger is not sized according to the amount of heat available in the flue gas, but rather to the output of the heat consumer. This allows long runtimes for the heat recovery system and therefore economical operation.

○ Hydraulics

BOMAT flue gas heat exchangers can also supply heat to an independent heating circuit separate from the rest of the system. It is also possible to connect heating circuits containing glycol, e.g. for pre-heating stages of ventilation equipment, to BOMAT flue gas heat exchangers (the colder the coolant through the heat exchanger, the higher the energy yield).

○ Condensing technology and self-cleaning

If the coolant temperature is below the dew point of the flue gas, condensation occurs in the heat exchanger. This results in increased heat recovery, while the condensate also cleans the heat exchanger.

BOMAT ENGINEERING INFORMATION

Efficiency improvement

In condensing and flue gas heat recovery systems, the water-side temperature level at which the heat exchanger is operated is decisive for efficiency. The colder the return (coolant mass flow), the better the energy yield and the better the heat exchanger self-cleaning effect that occurs as a result of condensation.

EXAMPLE

A 100 kW boiler system has a combustion efficiency without BOMAT heat exchanger of about 91%.

With a BOMAT heat exchanger the efficiency increases to 101%.

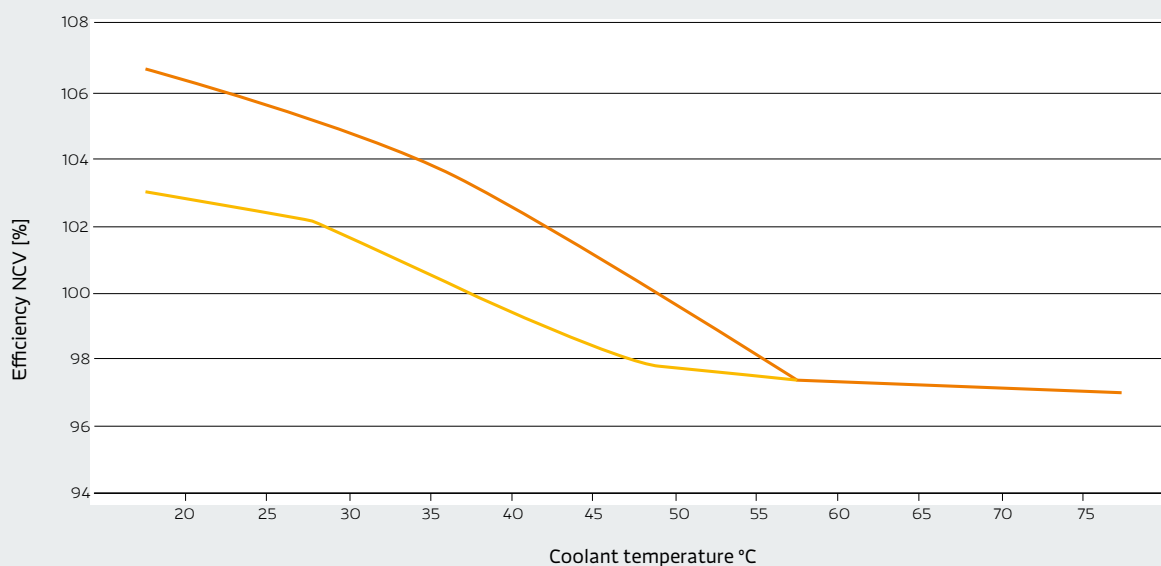
The heat exchanger output is
 $100 \text{ kW} \times 10\% = 10 \text{ kW}$.

For a temperature differential between the heat exchanger flow and return of 10 K, the AWR pump must provide a mass flow rate of 861 kg/h.

Design of AWR pump

- The mass flow rate required to cool the flue gas heat exchanger is calculated for a temperature differential between the heat exchanger inlet and outlet of 5–10 K (standard applications).
- The water-side pressure drop of the heat exchanger can be found in the relevant datasheets.
- The output of the flue gas heat exchanger can be found from the efficiency improvement of the system; see diagram below.
- The required minimum water volume of the heat exchanger should be borne in mind when selecting the pump.

EFFICIENCY AS A FUNCTION OF COOLANT TEMPERATURE



Profitherm – oil fired



Profitherm – gas fired

BOMAT ENGINEERING INFORMATION

Condensing / flue pipes

In heat generators that use condensing technology, the flue gas is removed via a flue pipe. This flue pipe may be drawn through an existing chimney or suitable shaft. Flue pipes can also be fitted on the outer walls of the building. Flue pipes must be pressure-tight, moisture-resistant, corrosion-resistant and approved by the building standards inspectorate. The connection from the flue pipe to the heat exchanger must be free of any loading or stress. Before installing the flue pipe, the agreement of the senior flue gas inspector responsible for the district should be obtained.

Pressure

BOMAT flue gas heat exchangers are normally operated in overpressure on the flue gas side. All flue pipes must be constructed so as to be pressure-tight.

Siting / installation

BOMAT flue gas heat exchangers can, depending on space requirements, also be installed beside or above heat generators. The installation height should be selected such that all condensate has a sufficient fall to flow into the neutralising unit and then into the waste water system. If this is not possible, a condensate pump (accessory) can be used.

Condensate drain

The condensate drain between the BOMAT heat exchanger and the neutralising system, and between the neutralising system and the waste water network must be routed with a constant fall. Any sagging of pipes or hoses must be avoided as particles could settle there and cause eventual blockages. Depending on the application (e.g. CHP), an additional siphon with a larger seal water height should be provided.

Maintenance port

When installing a BOMAT Profitherm flue gas heat exchanger, ensure that the maintenance and inspection ports are accessible.

Connecting line between heat generator and heat exchanger

The flue connection between the heat generator and heat exchanger must be pressure-tight. Connection points to bends, inspection ports, boiler flue outlets and heat exchanger connectors must also be pressure-tight (e.g. use conically sealing stainless steel pipe). All joining elements must be free of loading or stress. Suitable insulation must also be fitted to prevent heat loss and condensate formation.

HOW CAN WE HELP YOU? WE LOOK FORWARD TO YOUR ENQUIRY.

Today, our flue and exhaust gas heat exchangers are in use in a wide range of industries. We have the right solution for all applications and requirements.

JUST GET IN TOUCH WITH US.

➡ T +49 (0) 75 51.80 99 70 ➡ info@bomat.de

