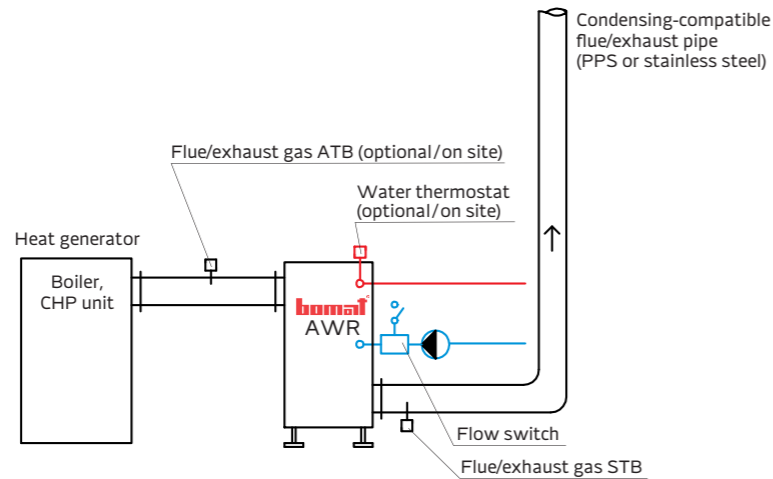


BOMAT ENGINEERING INFORMATION

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

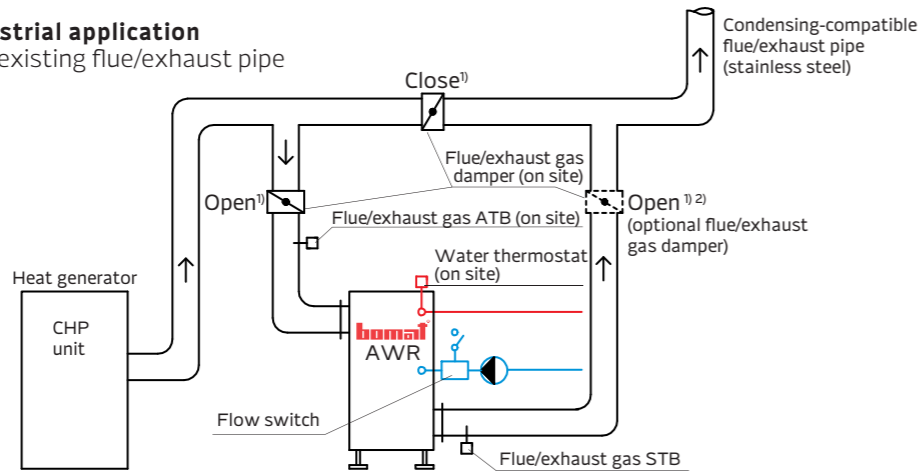
A1

Boiler/CHP unit
Standard application



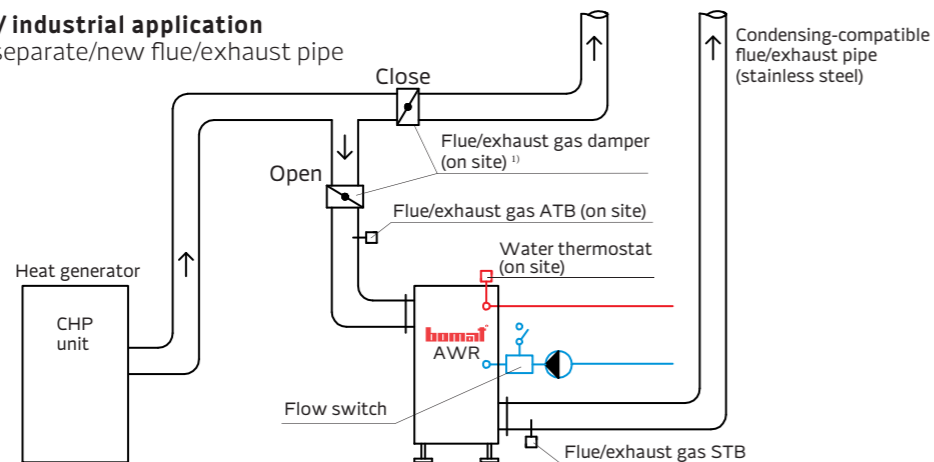
A2

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



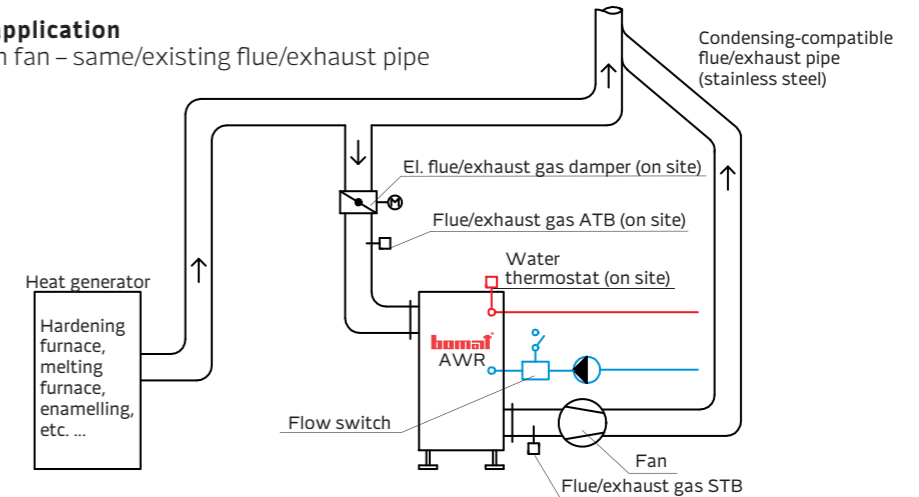
A3

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



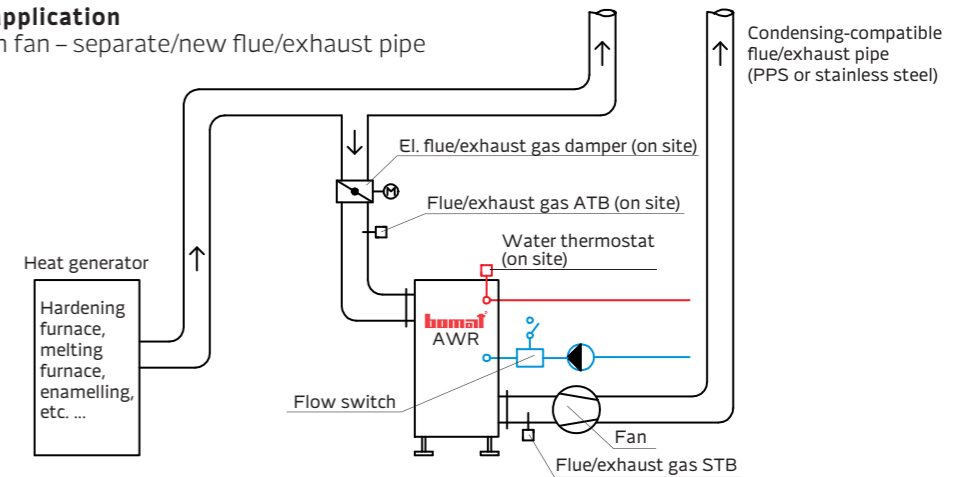
A4

Industrial application
Bypass with fan – same/existing flue/exhaust pipe



A5

Industrial application
Bypass with fan – separate/new flue/exhaust pipe



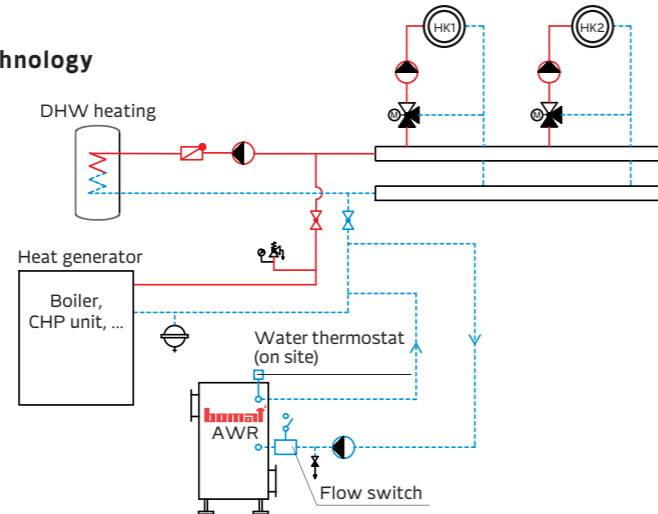
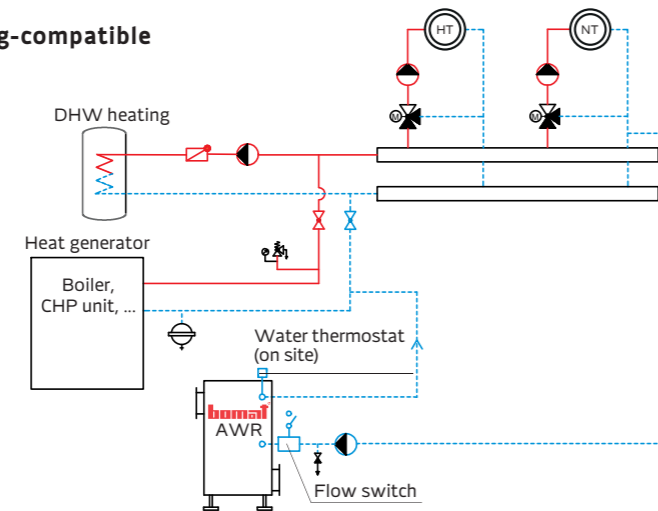
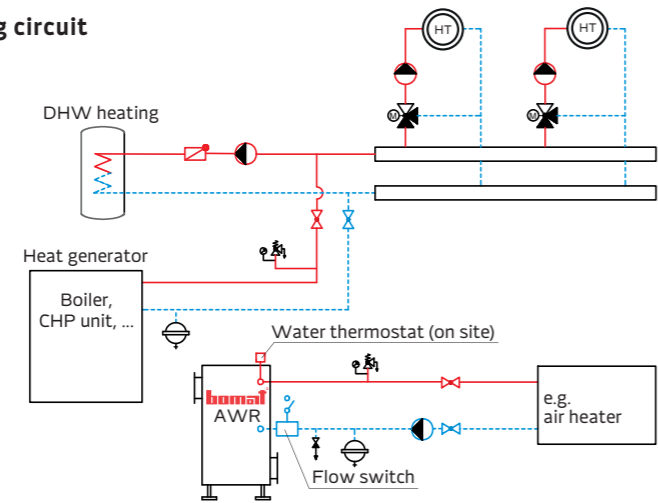
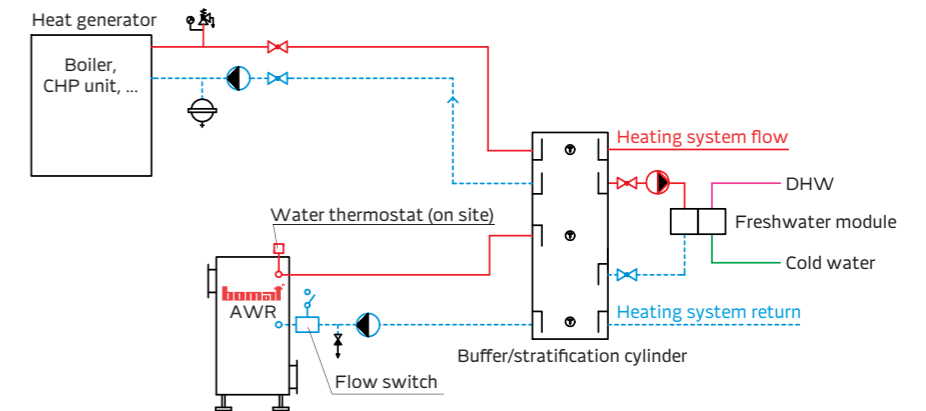
ATB = Flue/exhaust gas temperature limiter
 HK = Heating circuit
 HT = High temperature heating circuit
 M = Motor/actuator
 NT = Low temperature heating circuit
 STB = High limit safety cut-out

- 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.

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

W4
Connection to buffer/stratification cylinder


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.

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.