... my heating system

# PelletsUnit

## ETA PU 7 to 15 kW

The smart little pellet boiler.

A passion for perfection.

www.eta.co.at

# ETA PU 7 to 15 kW – small but complete

## With two taps of your finger

all heating control system functionality is accessible on the touchscreen. You can turn the heat up or down, or check the amount of pellets still in the store or the yield of the solar panels.

## Accessible anytime, anywhere

Imagine forgetting to switch off the heating system in the hectic rush before departing for your holidays. If an ETA boiler is connected to the Internet, you can reach it with a smartphone from your car and switch it to set-back mode. Even when you're still at home, you can use a smartphone or an iPad as a remote control for the boiler and the entire heating system.

Energie Genie

**Awarded the**
**Innovation Prize for 2008**
from the Austrian Ministry of Agriculture, Forestry, Environment and Water and the state of Upper Austria

## A clean solution

A clean boiler makes better use of its fuel. The patented revolving grate cleans itself, and the ash from the entire boiler is automatically transported by screws to an ash box and compacted. The ash box only needs emptying two or three times per year, and then you can quickly and easily hide it again behind the front panel.
And if you forget to empty the ash box, the PelletsUnit will remind you via e-mail.

## A complete boiler room in the boiler

A heating circuit pump (energy efficiency class A) with mixing valve, expansion tank (18 litres), safety devices and diverter valve to the hot water tank are all built into the boiler and ready for operation – a compact "boiler room" in the boiler with minimal installation costs. Even a second heating circuit inside the PelletsUnit is possible.
With its noiseless ceramic ignition, the PelletsUnit doesn't need a room of its own.

## Make your boiler room multifunctional

Since the PelletsUnit needs less space, there's more space in the new boiler room for your hobby. With an external combustion air supply, the PelletsUnit can even be operated in a living space with controlled ventilation.

## Three attractive optional front panels

The new PelletsUnit is delivered with the "ice-grey metallic" standard design – sober, puristic and elegant. But you can also add the PelletsUnit to your household in the optional "anthracite metallic", "dark wood" or "black leather" designs. The choice is yours, and if it no longer pleases you later, you can replace the front panel or design your own.

# ETA PU – convenient wood heating

## The easiest way to use a PelletsUnit

Set up the boiler and connect the heating elements, hot water tank, pellet store and chimney – the boiler room is ready. All required pumps and valves are already installed in the PU and ready for operation, including the control system. Even a second heating circuit can be added in the boiler, or solar panels can be connected to the hot water tank. The necessary control system is also already installed in the boiler.

The hot water tank need not be in the boiler room. It can be installed at a separate location, ideally as close as possible to the hot water outlets so that the hot water can flow from the taps immediately without the need to circulate. For comfort and convenience, a hot water tank volume of at least 200 litres should be chosen.

A modern pellet boiler is just as effective as an oil or gas boiler, providing heat at the touch of a button.

### The difference is in the fuel supply

Every year, more and more oil is being turned into plastic – think of the bodies of our cars, for example, or the pipework in our homes. In the face of this new demand, supplies of oil and LPG, which is also a petroleum product, are dwindling while prices are on the rise. With wood we can link into a carbon-neutral cycle. Thanks to the power of the sun, the carbon dioxide produced by burning wood is incorporated into new wood as trees grow in the forest.

The ETAtouch control system, which permits remote operation of two heating circuits (radiators or underfloor heating), buffer management, hot water supply (tank or fresh water) and a simple solar heating system, is included in the standard scope of delivery.

## Harness the power of the sun with increased winter yield

With a buffer storage tank, solar panels can be easily and effectively connected. In the winter, the solar panel struggles to reach the 60° required for hot water supply. Its effectiveness in winter is significantly increased by using it for underfloor heating, which requires lower temperatures. If the heating circuits and solar panel are connected directly to the buffer, the sun's power can be injected directly into the underfloor heating through the lower half of the buffer. When no heating is required in the summer, the heat rises upward and the sun "automatically" becomes available for the hot water supply. A combination of an 800-litre buffer and 8 to 12 m² of solar panelling is a tried-and-tested solution for a single-family home.

## Buffer storage tank?

A buffer storage tank stores the entire boiler output and provides exactly the right amount of heat for your home and your hot water supply.

For individual room temperature control in particular, there will be phases with very low heating requirements, but with conventional heating circuit control, the heating loads in spring and autumn are also very low, as they are for hot water supply in the summer. A buffer can provide these small amounts, reducing the frequency of boiler restarts and ultimately saving fuel.

## Safe hot water supply

Leaving hot water unused in the tank for an extended period of time promotes the growth of germs and bacteria in the water. With the ETA fresh water module, a heat exchanger is used to generate hot water on demand. If you install a buffer tank fitted with a fresh hot water module then you know longer require a conventional hot water tank – the additional space required is no more than 0.5 square meters.

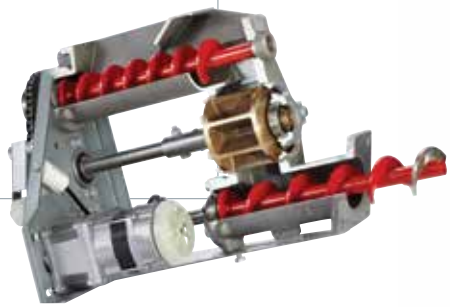
# ETA technology

## A Always clean thanks to the patented rotating grate

The boiler carries out an automatic cleaning procedure after consumption of 20-30kg of pellets. The grate rotates through a comb that removes ash and slag from the air gaps in the grate. During combustion the gentle movement of the grate keeps the firebed stoked, ensuring ideal pellet burnout with minimum ash production. All ash from the boiler is taken to the removable ash box.

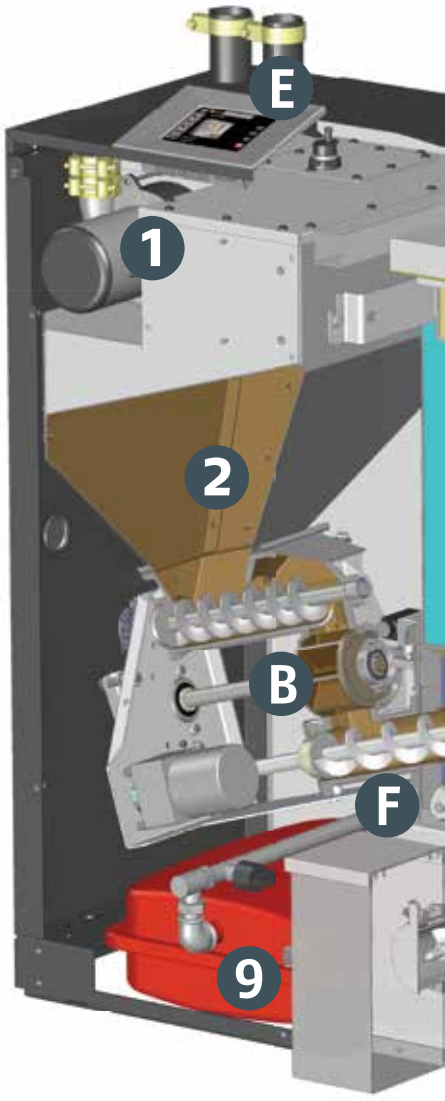
## B Rotary valve for safety

The ETA rotary valve ensures complete burn-back prevention. A metering auger feeds pellets from the bin into the rotary valve. This prevents wear on the rotary valves sealing edges because it does not need to break pellets as it turns. Resulting in burn-back prevention that can be maintained throughout the boilers service life.



## C Draft fan ensures reliable removal of flue gas

A quite, variable speed, draught fan (only 57 watts) with closed loop feedback, ensures constant low pressure in the boiler and reliable flue gas removal independent of chimney draught.
No draught stabiliser is required on chimneys with a draught up to 15Pa.



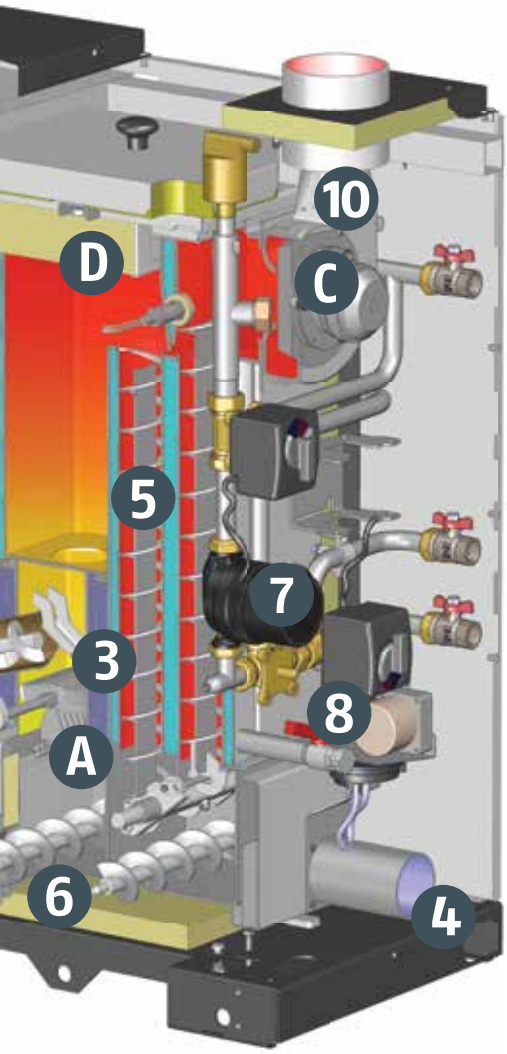

**1 Vacuum turbine for filling pellets**
from the storeroom to the boilers hopes using flexible DN50 pipe up to a range of 20m

**2 Day bin for pellets**
With 30kg pellet capacity the boilers hopper is filled in 5 minutes only once or twice a day. You can set the preferred time of the day for filling the boilers hopper

**3 Hot stainless steel combustion chamber**
minimises emissions, even under partial load

**4 Air connection**
External combustion air feed (DN 80 pipe, insulated against condensation), direct to outside the building.

**5 Automatic cleaning**
of heat exchanger by means of agitated turbulators




## D Optimised fuel usage with lambda probe

A lambda probe is fitted to the ETA PU as standard, ensuring clean combustion and maximum efficiency. The control system uses the probe to match combustion air supply with required boiler output. It also allows the boiler to compensate for varying pellet quality.

## E Complete control of your entire heating system

Boiler control, pellet feeding, buffer management, domestic hot water (tank or fresh water module), weather compensated heating with weekly program for two circuits, solar thermal, active monitoring of all functions and drives, water pressure switch-off, LAN connection for remote access via the internet (PC, Smart TV, smartphone, etc.) and USB connection.

## F Noiseless ignition with ceramic igniter

The lambda probe registers successful ignition and reduces ignition time, saving time and money.

**6 Automatic ash disposal**
compresses the ash into a removable ash box. With its 12-litre capacity, the box only needs to be emptied two to three times per heating season

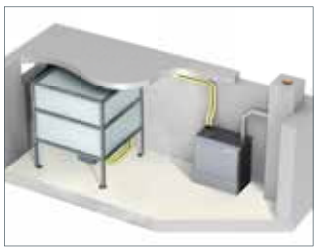
**7 Circulation pump (energy efficiency class A)**
with flow mixing valve for direct heating or return riser mixing valve for buffer operation

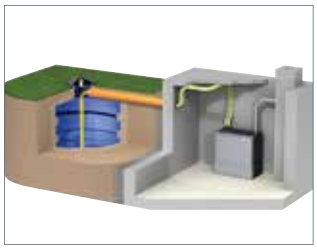
**8 Diverter valve**
for hot water tank charging

**9 All safety devices included**
An 18-litre expansion vessel, boiler safety valve, a pressure transducer with water shortage switch-off and an automatic air vent are fitted to the boiler as standard. The minimal amount of fuel in the burning chamber at any time means no thermal safety valve is required

**10 Exhaust temperature sensor**
for active operational monitoring

# *Systematic fuel storage and transport*





## Up to 20 m possible separation between boiler and store

The ETA storage concepts can be adapted to any room configuration and are combined with a suction-based transport system from the pellet store to the boiler via flexible hoses. The vacuum motor integrated in the boiler can easily overcome distances of up to 20 metres or height differences of up to two floors.

A 30-kg day bin in the boiler reduces the duration of pellet transport to 1 or 2 5-minute feeds per day, and you can set the preferred time of day for transport in the control system.

Thanks to ETA's modular fuel conveying systems, any existing room can be converted into an ideal pellet store – including an oil tank room.

## ETA's standard solution - the discharge auger

An auger, up to 5 m long, extends across the entire store, emptying it safely and completely. The separation of the discharge auger and the vacuum stream means it is possible to clear the hoses each time the boiler completes the filling cycle. The vacuum can handle height differences of up to two floors.

## When an auger is impractical: pneumatic fuel conveyor

When installing an auger into a store is not possible, ETA offer a pneumatic fuel conveyance system using up to three suction heads. These are combined into a single system using an automatic switching unit. For stores up to 2 m² and an annual pellet consumption less than 2 tons, a single suction head is also possible.

## ETAbox – for a small store in a big room

If there is enough space available (pay attention to local regulations), we recommend the use of our ETAbox bag silo system. This offers a major advantage in that it is flood proof. The store room walls will not burst due to water swollen pellets if the worst happens. The ETAbox is suitable for outside installation only if adequate weather and UV protection is provided.

## And if there's really no room in the house: an underground tank

An underground pellet tank is available from www.geoplast.com, for example.

### Usable cross-section of pellet storeroom in square metres

40° floor tilt, upper clearance of 0.40 m

| **Width** of store in metres | Height of store in metres | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2,0 | 2,2 | 2,4 | 2,6 | 2,8 | 3,0 | 3,2 | 3,4 | 3,6 |
| 2,0 | 2,10 | 2,50 | 2,90 | 3,30 | 3,70 | 4,10 | 4,50 | 4,90 | 5,30 |
| 2,4 | 2,32 | 2,80 | 3,28 | 3,76 | 4,24 | 4,72 | 5,20 | 5,68 | 6,16 |
| 2,8 | 2,47 | 3,03 | 3,59 | 4,15 | 4,71 | 5,27 | 5,83 | 6,39 | 6,95 |
| 3,2 | | 3,20 | 3,84 | 4,48 | 5,12 | 5,76 | 6,40 | 7,04 | 7,68 |
| 3,6 | | | | 4,73 | 5,45 | 6,17 | 6,89 | 7,61 | 8,33 |
| 4,0 | | | | | | 6,52 | 7,32 | 8,12 | 8,92 |

Cross-section x **room length** (screw axis) = store volume
Store volume x 0.650 ton/m³ = pellet store in tons

**Heating value** of pellets = 4.9 kWh / kg
**Density** of pellets = 650 kg / m³

### Rules of thumb for pellet requirements

9 kW heating load / 3 = 3 tons of pellets per year
9 kW heating load / 2 = 4.5 cubic metres per year

1,470 l heating oil x 2.04 = 3,000 kg of pellets
1,550 m³ natural gas x 1.94 = 3,000 kg of pellets
2,220 l LPG x 1.35 = 3,000 kg of pellets
1,820 kg coke x 1.65 = 3,000 kg of pellets

Ground source heat pump with COP 3.4
4,230 kWh of electricity x 0.71 = 3,000 kg of pellets
Air source heat pump with COP 1.8
8,110 kWh of electricity x 0.37 = 3,000 kg of pellets

# ETAtouch – Accessible anytime, anywhere

## With two taps of your finger

you can reach your goal with the ETAtouch control system's touchscreen. The icons on the screen are self-explanatory. With the first tap, you select the part of the heating system you want to change. With the second, you select the function to change. And you get this convenience for the entire heating system, including solar panels.

## Remote control with ETAtouch

With ETAtouch, a boiler can be remotely operated via smartphone, tablet or PC if the boiler room has an Internet-enabled LAN connection.

## Convenient holiday function

You can already enter your departure and return dates into the control system days before your holiday. During this time, the heating system will switch to set-back mode and start up again before your return. With remote control via smartphone, you can still change to set-back after your departure. And sometimes things don't go as planned. If you have to end your holiday prematurely, you can restart the heating system earlier via smartphone.

## Worldwide access via "myETA"

Remote access is possible via the "myETA" Internet platform, which is free of charge for ETA customers. After registering on this platform, you can access the boiler from anywhere in the world: from a tablet PC on the sofa in your living room to a hotel PC and of course any smartphone. And of course access to the boiler is protected by user name and password.

To see how remote operation of your boiler could work, visit www.meinETA.at.

## If you forget your boiler, it sends you an e-mail.

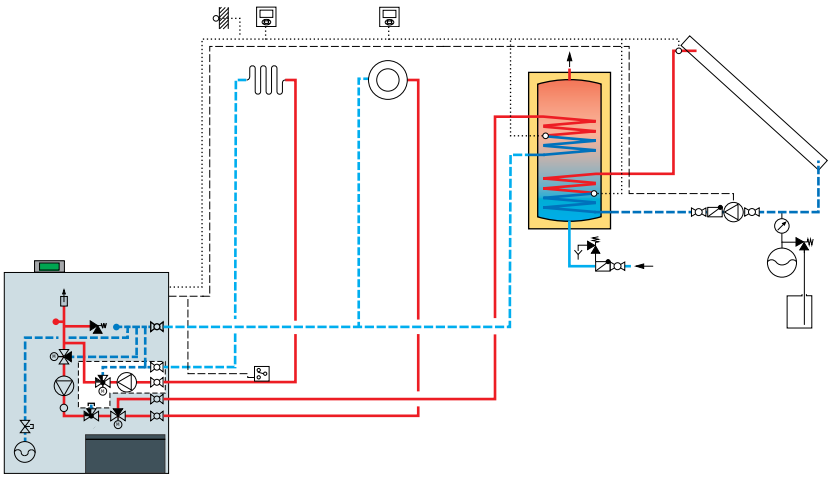
Since the ash box only needs emptying once or twice a year, when the boiler is running faultlessly you won't need to look after it every day. But if it does need human intervention, it will send you an e-mail.

## Better preparation for service

In the event of a malfunction, you can grant the heating technician or customer service remote access to the boiler. Then every service call can be better prepared, and the service technician can be assured of bringing the right spare parts. An expert can intervene via remote access, often making a service call unnecessary as smaller problems can often be diagnosed remotely by the expert and solved by the customer with over-the-phone assistance from the expert.

# ETAtouch – everything under control

Supplied as standard, the ETAtouch control system includes all functions for two heating circuits, domestic hot water supply (tank or fresh water module), solar thermal and even a LAN connection port for remote operation via PC, iPad, iPhone or smartphone.

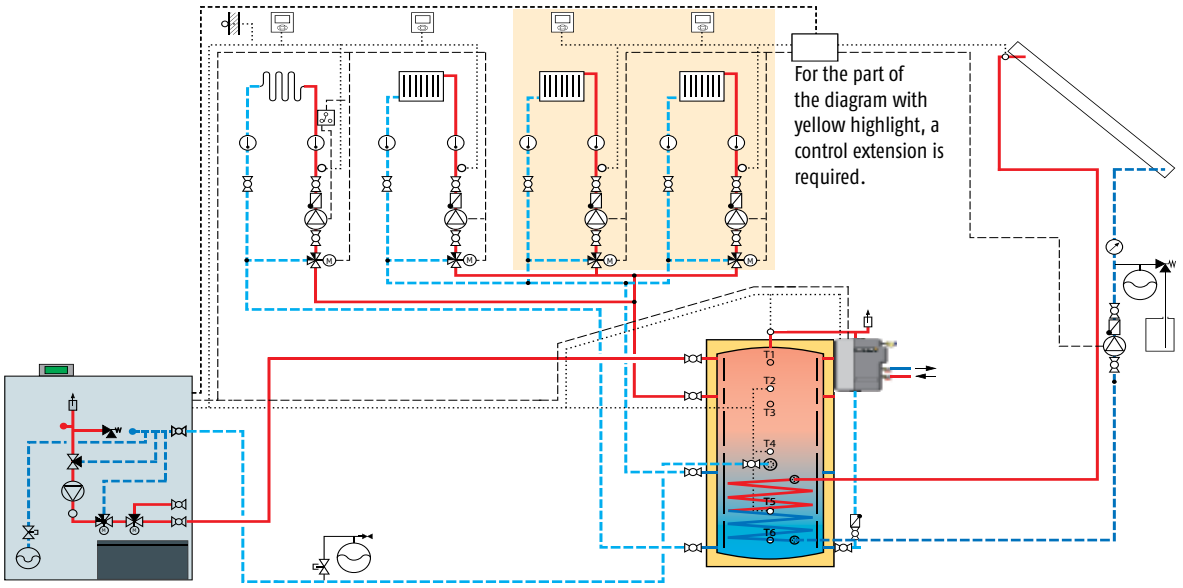


## Standard features

- Regulated boiler output using a variable speed draught fan in conjunction with boiler, buffer and flue gas temperatures
- Regulated fuel combustion through use of lambda probe
- Real-time monitoring of boiler operation, including; lambda and exhaust temperature, boiler and tank temperatures, return riser valve, closed loop draught fan speed control, rotating grate position, fire-bed fuel level, water pressure. Simple text fault notification with troubleshooting instructions
- Automatic ignition with duration control by lambda probe
- Variable-speed buffer charging pump with output management
- Return riser via mixing valve with residual heat utilisation
- Two weather compensated heating circuits with weekly programming, three daily time/temperature slots, come-and-go function, holiday set-back mode. Option to add remote room state with control switch
- Domestic hot water heating using tank, fresh water module or combi buffer tank – with weekly program
- Secondary hot water circulation pump control with time/duration programming. In the case of a fresh water module, start with brief opening of tap with flow switch
- Solar heating system with variable speed pump control and simple solar heat metering
- Peak-load management or control system for multiple pellet boilers
- If heat is supplied from an external source, circuits can be switched over automatically
- Extra configurable thermostat or differential thermostat
- Five extra terminals for temperature sensors
- LAN connection for remote control via Internet
- USB connection

## Option to expand using wall mounted panel

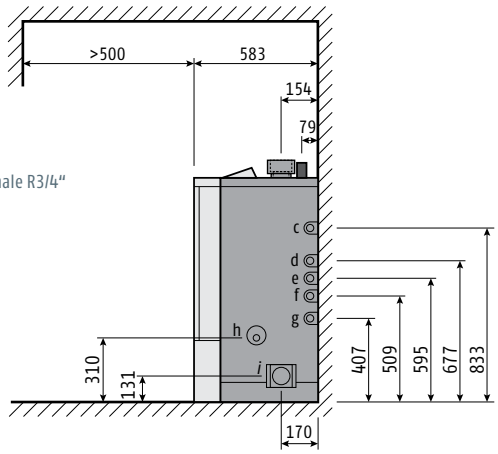
- Two additional heating circuits
- External heat demand with constant boiler flow temperature
- Complex solar heating systems with stratified charging or two tanks
- Pump for heating pipeline (or external consumers) with/without mixing valve

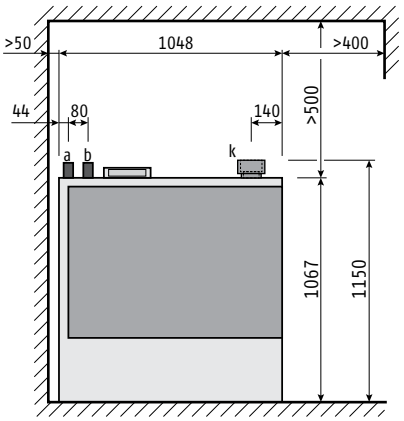


## PelletsUnit ETA PU 7 to 15 kW

PelletsUnit 7-15 kW

a Pellet suction connection DN50 hose
b Pellet back air connection DN50 hose
c Return heating circuit 1 and hot water tank, female R3/4“
d Return optional heating circuit 2, female R3/4“
e Flow optional heating circuit 2, female R3/4“
f Flow hot water tank, female R3/4“
g Flow heating circuit 1, female R3/4“
h Drain equiped with valve R1/2“
i Connection for external air supply, DN80
k Flue, PU7-11: female Ø113 or Ø100 mm
PU15: female Ø110 or Ø113 mm




| PelletsUnit | | 7 | 11 | 15 |
|---|---|---|---|---|
| Rated capacity | kW | 2,3 - 7,7 | 2,3 - 11,2 | 4,4 - 14,9 |
| Boiler efficiency partial/nominal load* (installation outside living area) | % | 89,3 / 93,4 | 89,3 / 92,5 | 95,7 / 93,5 |
| Radiation losses in the installation room partial/nominal load | % | 8,2 / 3,6 | 8,2 / 4,0 | 1,7 / 1,9 |
| Combustion efficiency (installation within the living area) | % | 97,5 / 97,0 | 97,5 / 96,5 | 97,4 / 95,4 |
| Exhaust gas losses partial/nominal load | % | 2,5 / 3,0 | 2,5 / 3,5 | 2,6 / 4,6 |
| Boiler dimensions W x D x H | mm | 1.048 x 583 x 1.067 | | |
| Weight | kg | 246 | | |
| Water content | Litres | 27 | | |
| Free remaining conveying height of the pump ΔT=7°C | mWS / m³/h | 2,8 / 0,9 | 1,9 / 1,3 | 2,0 / 1,8 |
| 100 m maximum, better 80 m underfloor heating pipe length per distributor outlet for radiators depending on flow temperature speed-controlled | | | | |
| Pellet bin on boiler (net) | | 30 kg (147 kWh) | | |
| Maximum distance of boiler pellet store | m | 20 | | |
| Ash box volume | Litres | 12 | | |
| Flue gas mass flow rate partial/full load | g/s | 1,9 / 4,4 | 1,9 / 6,4 | 2,8 / 8,4 |
| CO2-content in dry flue gas partial/full load | % | 10 / 14 | 10 / 14,5 | 12 / 14 |
| Exhaust temperature partial/full load* | °C | 75 / 100 | 75 / 110 | 70 / 120 |
| Flue draught | 1 Pa for partial load / 3 Pa for full load required over 15 Pa draught limiter required | | | |
| Carbon monoxide (CO) emissions partial/full load* | mg/MJ<br>mg/m³ 13%02 | 88 / 8<br>134 / 13 | 88 / 6<br>134 / 10 | 19 / 4<br>29 / 6 |
| Dust emissions partial/full load* | mg/MJ<br>mg/m³ 13%02 | 6 / 6<br>9 / 9 | 6 / 8<br>9 / 12 | 11 / 9<br>17 / 14 |
| Unburned hydrocarbons (CxHy) partial/full load* | mg/MJ<br>mg/m³ 13%02 | < 1 / < 1<br>1 / < 1 | < 1 / < 1<br>1 / 1 | < 1 / < 1<br>< 1 / < 1 |
| Electrical power consumption partial/full load* | W | 46 / 61 | 46 / 63 | 66 / 95 |

| | | | |
|---|---|---|---|
| Maximum permissible operating pressure | 3 bar | Boiler rating | 5 according EN 303-5:2012 |
| Temperature adjustment range | 30 – 85°C | Suitable fuels | Pellets ÖNORM M 7135, DIN 51731, DIN Plus, EN plus-A1, EN 14961-2-A1 |
| Maximum permissible operating temperature | 95°C | Electrical connection | 1 x 230 V / 50 Hz / 13 A |

*Data from test reports of BLT Wieselburg, log numbers 022/09, 023/09 and 036/09.
The test reports of BLT Wieselburg can be found on the Internet at: blt.josephinum.at

Conforms to EU standards
BLT Wieselburg Austria
TÜV South Germany
Quality seal of Holzenergie Schweiz
Austrian ecolabel
Der Blaue Engel
Institute for Fire Protection
Listed on the Energy Technology List
The Certification Mark for Onsite Sustainable Energy Technologies


ETA PU PelletsUnit 7 to 15 kW
(7, 11 and 15 kW)


ETA PC PelletsCompact 20 to 32 kW
(20, 25 and 32 kW)


ETA PE-K pellet boiler 35 to 90 kW
(35, 50, 70 and 90 kW)


ETA SH wood gasification boiler 20 to 60 kW
(20, 30, 40, 50 and 60 kW)


ETA SH-P wood gasification boiler
20 and 30 kW
with ETA TWIN bellet burner 20 and 26 kW


ETA HACK wood chip boiler 20 to 200 kW
(20, 25, 35, 50, 70, 90, 130 and 200 kW)

ETA HACK wood chip boiler with moving grate 350kW

ETA stratified buffer SP and SPS
(600, 825, 1.000, 1.100, 1.650 and 2.200 litres)
with fresh water and stratified charging module

Your heating specialist will be happy to advise you:

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