



*... my heating system*

## ETA PE-K

*The pellet boiler with  
technology that's built to last,  
for larger heating needs.*

*35 to 90 kW*



*A passion for perfection.*

[www.eta.co.at](http://www.eta.co.at)

## ETA PE-K

### Pellet heating for domestic and commercial use

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#### Complete control and remote maintenance

The ETA PE-K offers pellet heating output of up to 90 kW and features a complete control system that can also incorporate a solar heating system or small local heating network. The boiler features active monitoring of all functions and remote maintenance via GSM and Internet, making it ideal for ESCo contractors.

#### Active control for reliable operation

Reliability is ensured by the comprehensive measurement and reporting on the status of all boiler operations – such as draught fan speed, power consumption of electric motors, air valve position, residual oxygen in the flue gas, return riser, exhaust gas temperature and boiler temperature.

#### Remote control via Internet

The ETAtouch control system features a touchscreen to enable simple configuration and switching using self-explanatory images. This control interface can be transferred to the Internet via a LAN connection. The boiler can thus be controlled remotely by any conventional means of Internet access, e.g. PC, smartphone with touch interface (iPhone, Android ...) or SmartTV. An optional GSM modem also allows the boiler to issue fault messages via SMS.



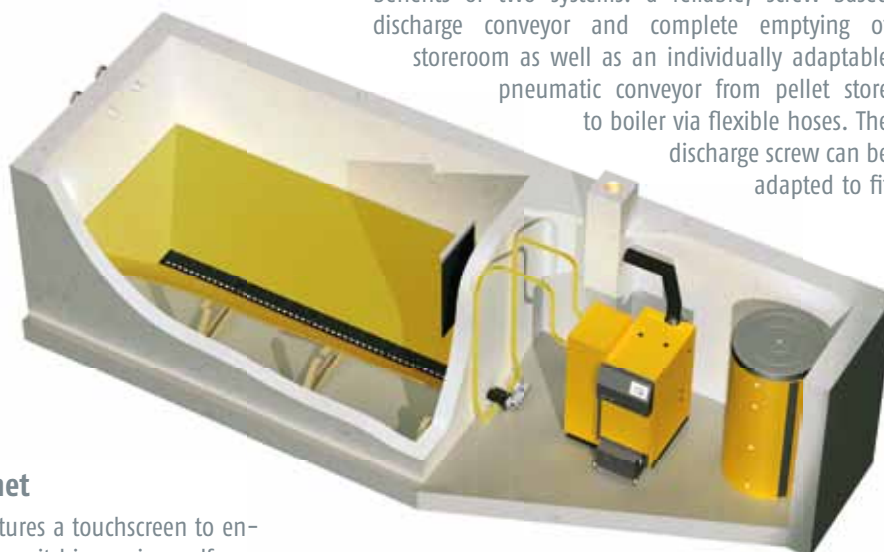
#### Intelligent bus for multiple buildings

If multiple buildings are supplied from a central heating plant or the boiler is situated in an outbuilding, the ETA PE-K is the ideal solution thanks to its bus-enabled

control system. Heating circuit control boards and hot water tanks located outside the central heating plant in other buildings can be integrated into the boiler control system via the CAN-Bus.

#### Pellet store can be up to 20 m away

Our standard solution perfectly combines the benefits of two systems: a reliable, screw-based discharge conveyor and complete emptying of storeroom as well as an individually adaptable pneumatic conveyor from pellet store to boiler via flexible hoses. The discharge screw can be adapted to fit



any room in increments of 0.5m up to a maximum auger length of 5.0m. In the case of sufficiently dimensioned storeroom walls, filling by up to 6 m is possible. The suction turbine integrated in the boiler can easily manage distances of up to 20 m or height differences of up to two floors. Thanks to the pellet bin in the boiler, the daily transport time from the store to the boiler is reduced to one or two 10 minute feeds per day for 35 kW and three to four 10 minute feeds per day for 90 kW.

#### Pellets and wood chips

If you intend to use wood chip and pellet, we recommend the ETA HACK with flue gas recirculation for pellet operation. Since the ETA HACK employs a floor agitator and screw to transport the fuel to the boiler, the "fuel silo" must be directly adjacent to the boiler room with this option. More information can be found in the ETA HACK brochure.

### Hot combustion chamber with tilting grate

A ceramic-lined combustion chamber with secondary air turbulence guarantees a clean fire with a high burnout temperature, while the flue gas recirculation minimises the grate temperatures to prevent slag formation. The pellets are pushed onto the side of the grate without diversion or narrowing. At specific, output-based time intervals, the grate is tilted by 90° following a controlled burnout phase in order to remove ash from the combustion chamber.

### Combustion in low temperature window

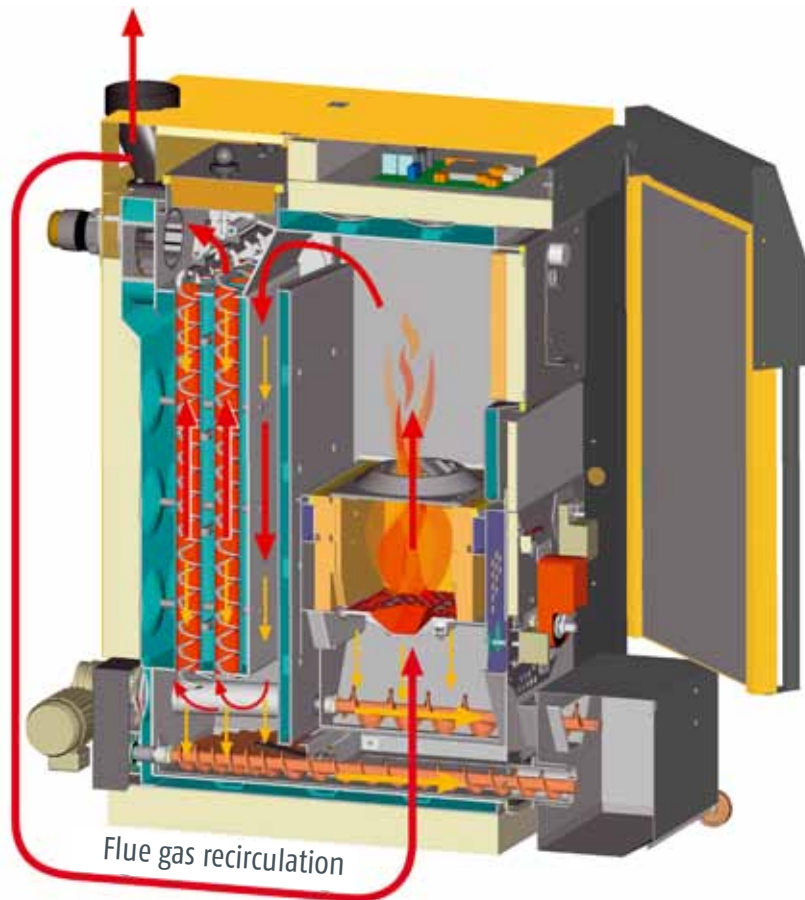
The ETA PE-K features flue gas recirculation from the boiler exhaust spigot into the combustion chamber. This increases the flow of gas both through the grate and through the fire, while ensuring better cooling of the grate. The distribution of the fire's heat over a larger gas volume helps to achieve a lower and more stable temperature window. Temperatures are held safely above 800°C for complete, clean combustion and safely under 1000°C, far below the melting point of wood ash. This prevents slag formation on the grate when burning pellets.

### Optimised ignition

After brief combustion intervals, the refractory combustion chamber remains sufficiently hot for newly added fuel to be ignited by the remaining embers. The ignition fan only needs to be activated after longer periods without combustion. To save electricity, the ignition fan is deactivated immediately after successful ignition, as indicated by the lambda probe and exhaust temperature.

### Combustion intervals with minimal heat loss

The fire is regulated between minimum and maximum output. In autumn or spring, when heating requirements are very small, the output is adapted by means of com-



bustion intervals. To avoid smouldering fires during these periods, which would cause tar build-up in the boiler and flue, the fire is extinguished in a regulated manner. The closing of the primary and secondary air valves ensures that no air can flow through the stationary boiler, thus preventing unused heat from being drawn into the flue.

### Automatic ash removal

Fully automated operation also includes fully automatic removal of ash from the entire boiler, from the grate to the heat exchanger.

The heat exchanger tubes are automatically cleaned by means of agitated turbulators. The fire grate is also tilted on a regular basis. Two discharge screws, simultaneously driven by a single motor, transport the ash from the ash collecting area below the grate and from the reversing chamber below the tubular heat exchanger into the ash box, which is situated at the front of the boiler for easy removal.

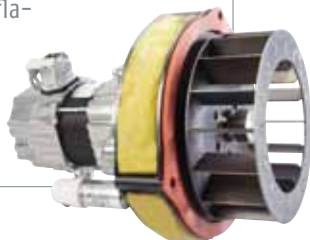
# ETA PE-K

## For reliable operation

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### Induced draught fan

Speed-controlled, quiet and efficient, just 76 W, output independent of flue draught, no positive pressure in combustion chamber – no risk of deflagration.



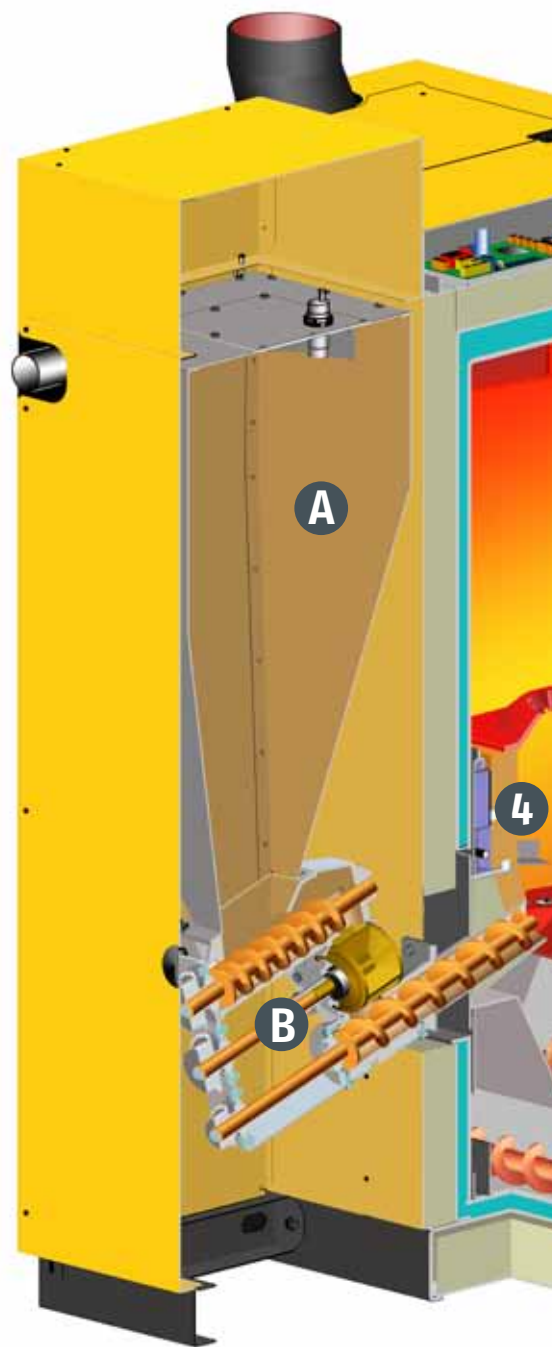
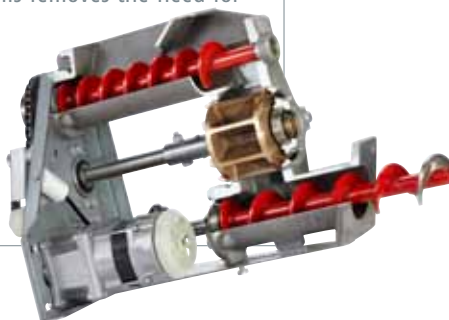
### A Pellet hopper

The 60 kg pellet hopper on the boiler reduces the duration of pellet transport from the store to the boiler to one or two ten minute feeds for 35 kW and three to four ten minute feeds for 90 kW per day.



### B Rotary valve for safety

The ETA rotary valve ensures absolute burn-back protection. A metering screw feeds the pellets from the hopper into the rotary wheel. This removes the need for cutting pellets while preventing wear to the sealing edges. The burn-back protection is thus maintained throughout the entire service life of the boiler.



1 Tilting grate

2 Secondary air valve actuator

3 Hot, ceramic-lined combustion chamber

4 Overfill protection

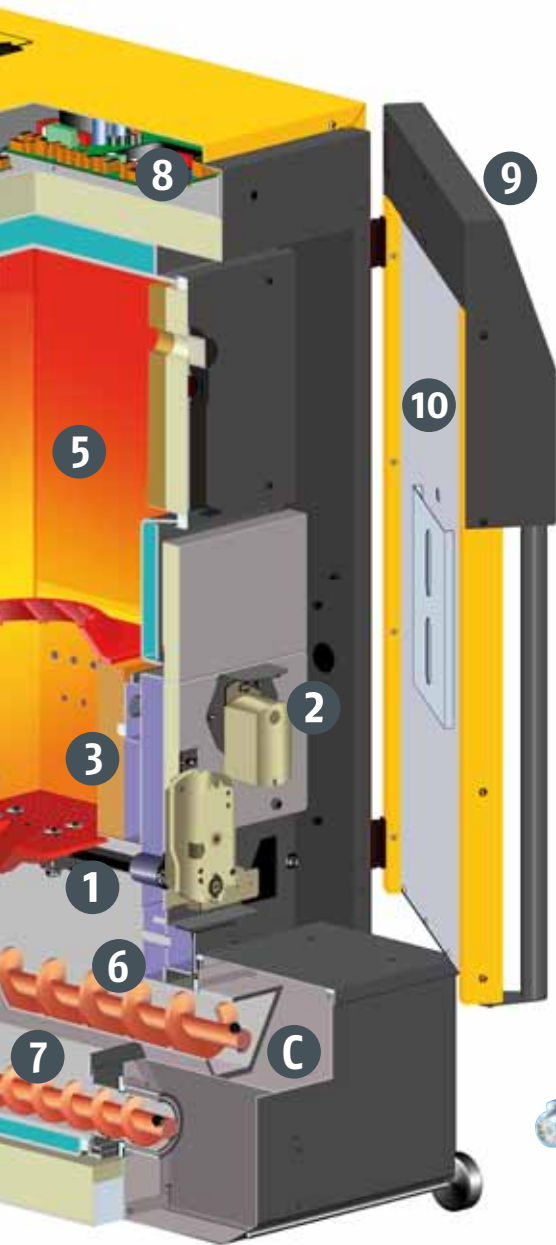
5 Flame room

6 Grate ash discharge screw

# ETA PE-K

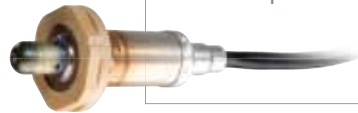
With fully automatic cleaning and ash removal

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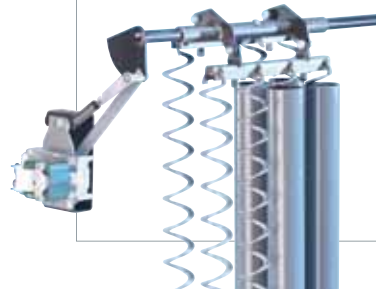
### Optimum fuel efficiency with lambda probe

A lambda probe is fitted as standard to ensure clean combustion and high efficiency. The probe is used by the control system to optimise the air supply on an output basis. The different burnout behaviour of varying pellet qualities is also compensated.



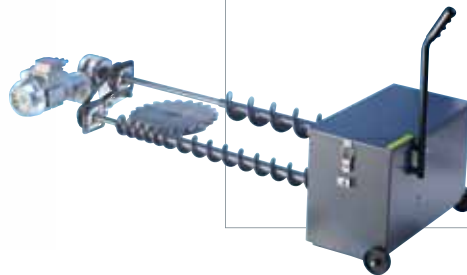
### Automatic heat exchanger cleaning

Fully automated with turbulators that do more than just scrub. During the cleaning process the turbulator mechanism is pushed upwards against a spring by the motor, at the top of the cycle the spring is released jolting the turbulators downwards again removing any gathered fly ash in the process.



### C Full ash removal into a detachable ash box

Two discharge screws automatically transport grate and fly ash into a removable ash box without bottlenecks.



7 Heat exchanger ash discharge screw

8 Control board

9 Control panel on front door

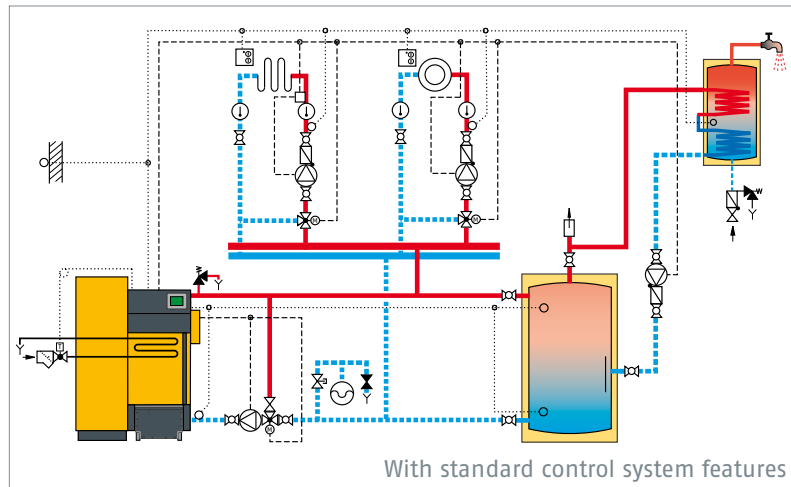
10 Insulated door

# ETAtouch

## Everything under control

### Standard features of ETAtouch control system

- 11 Output modulated by a variable speed induced draught fan
- 11 Combustion regulated by lambda controlled fuel adaption
- 11 Continuous monitoring of operating state, incl. lambda and exhaust temperature, boiler and tank temperatures, return riser, drive current monitoring, reporting of draught fan speed, reporting of position of tilting grate and air valve actuators, reporting of firebed and fuel levels; plain text notification of faults and troubleshooting instructions
- 11 Automatic ignition with lambda-controlled ignition time reduction
- 11 Speed-controlled buffer pump with output management
- 11 Return riser via mixing valve
- 11 Two weather based, heating circuit pump outputs with weekly programme, three daily time slots, come-and-go function, holiday reduced mode; optionally expandable with room sensors and remote control
- 11 Water heating with tank, fresh water water module or internal water heat exchanger in a buffer with a weekly programme
- 11 Hot water circulation pump output with time programme or, in case of fresh

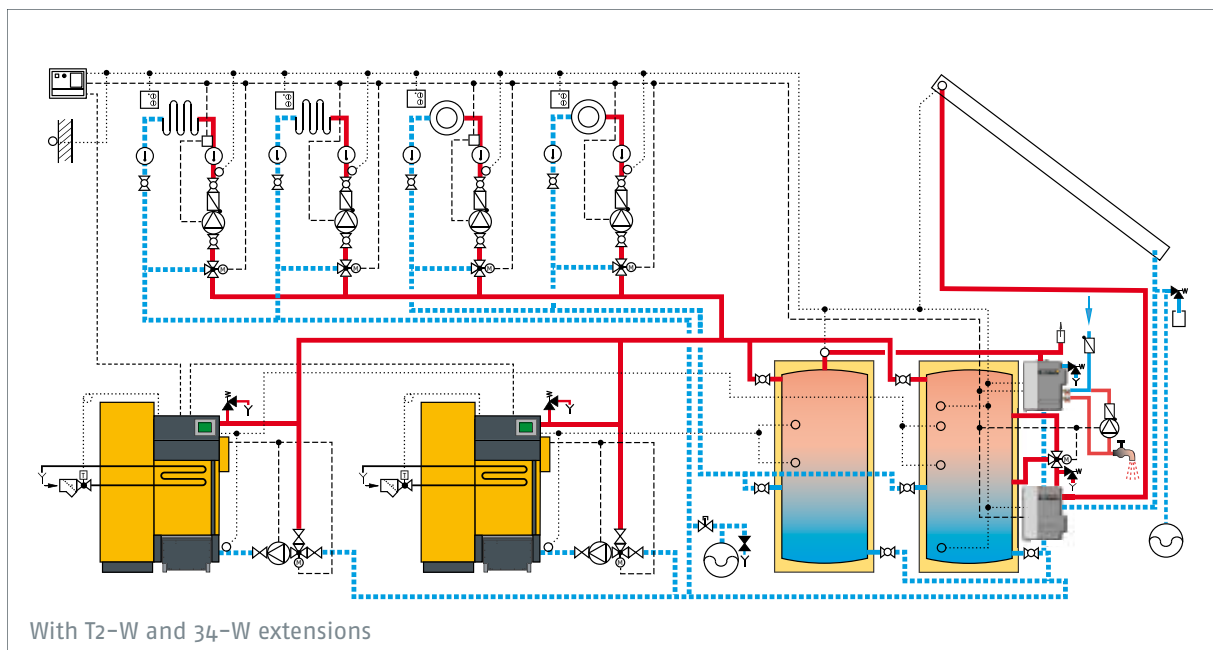


water module, start with brief opening of tap by flow switch

- 11 Simple solar heating system control with pump output and solar heat flow meter calculation
- 11 Peak-load management or cascade control for multiple pellet boilers
- 11 If an external heat source is available, the boiler can be disabled and the heating system switched to the other source
- 11 Up to five programmable temperature readings available
- 11 Standard LAN connection for remote control via Internet, optional GSM modem for SMS notifications

### Option of additional wall box

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



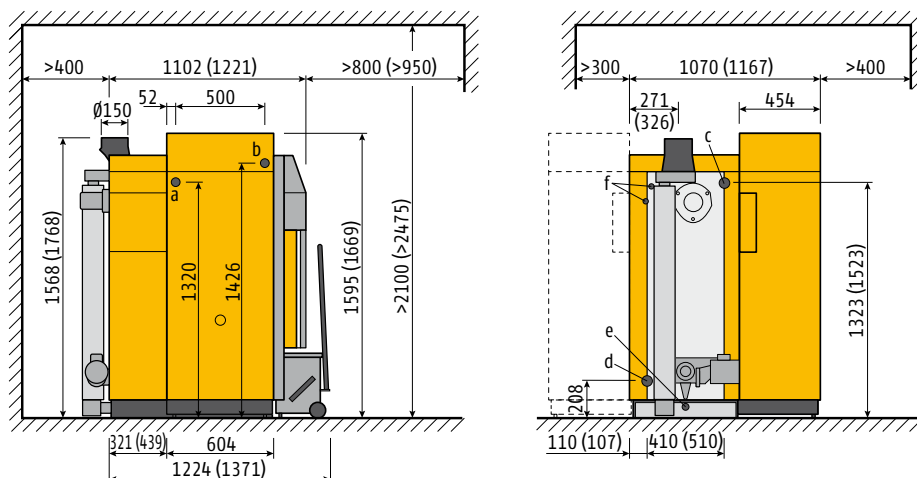
## ETA PE-K pellet boiler 35 to 90 kW

The boiler can be supplied with left or right-mounted pellet feed.  
Numbers in brackets for 70 and 90 kW.

### PE-K 35-50 kW (70-90 kW)

Boiler can be supplied with left or right mounted pellet feed

- a Pellet suction connection DN50 hose
- b Pellet back air connection DN50 hose
- c Flow R5/4" female (R6/4")
- d Return R5/4" female (R6/4")
- e Drain R1/2" female
- f Safety heat exchanger R1/2" male



Pellet boiler PE-K		35	50	70	90
Rated capacity	kW	9,4 - 35	14,1 - 49	21 - 70	28,4 - 95
Wood pellet efficiency, partial/full load*	%	90,8 / 94,1	93,1 / 93,5	92,3 / 93,3	91,6 / 93,0
Dimensions without housing, W x D x H	mm	610 x 1.100 x 1.568		710 x 1.249 x 1.768	
Weight with/without stoker unit	kg	705 / 601	706 / 602	965 / 861	967 / 863
Water content	Litres	117		196	
Waterside resistance ( $\Delta T = 20^\circ C$ )	Pa / mWs	280 / 0,028	550 / 0,055	480 / 0,048	880 / 0,088
Pellet bin on boiler (net)		60 kg (294 kWh)			
Maximum distance of boiler pellet store	m	20			
Ash box volume	Litres	35		44	
Flue gas mass flow rate, partial/full load	g / s	8,3 / 21,3	11,5 / 30	17,5 / 42,8	21,8 / 58
CO <sub>2</sub> -content in dry flue gas, partial/full load*	%	9 / 13	9,5 / 13	10 / 14	11 / 14
Exhaust temperature, partial/full load*	°C	80 / 115	85 / 140	85 / 140	90 / 145
Flue draught		2 Pa for partial load / 5 Pa for full load required a draught limiter is always required			
Carbon monoxide (CO) emissions Partial/full load*	mg/MJ mg/m <sup>3</sup> 13%O <sub>2</sub>	55 / 16 84 / 24	50 / 13 76 / 20	36 / 8 55 / 12	24 / 3 38 / 4
Dust emissions full load*	mg/MJ mg/m <sup>3</sup> 13%O <sub>2</sub>	4 8	12 18	10 16	4 / 8 7 / 13
Unburned hydrocarbons (CxHy) Partial/full load*	mg/MJ mg/m <sup>3</sup> 13%O <sub>2</sub>	1 / <1 2 / 1	1 / <1 1 / <1	<1 / <1 <1 / <1	<1 / <1 <1 / <1
Electrical power consumption Partial/full load*	W	69 / 159	78 / 153	90 / 190	95 / 206
Maximum permissible operating pressure	3 bar	Boiler rating 3 according EN 303-5			
Temperature adjustment range	70 - 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			
Minimum return temperature	60°C				

\*Data from test reports of BLT Wieselburg, log numbers 053/06, 054/06 and 043/10.  
The test reports of BLT Wieselburg can be found on the Internet at: [blt.josephinum.at](http://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 pellet burner 15 and 25 kW



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



ETA HACK wood chip boiler 200 kW



ETA SP and SPS stratified buffer  
(825, 1000, 1100, 1650 and 2200 litres)



ETA SP and SPS stratified buffer  
with fresh water and stratified  
charging module

Your heating specialist will be happy to advise you:



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