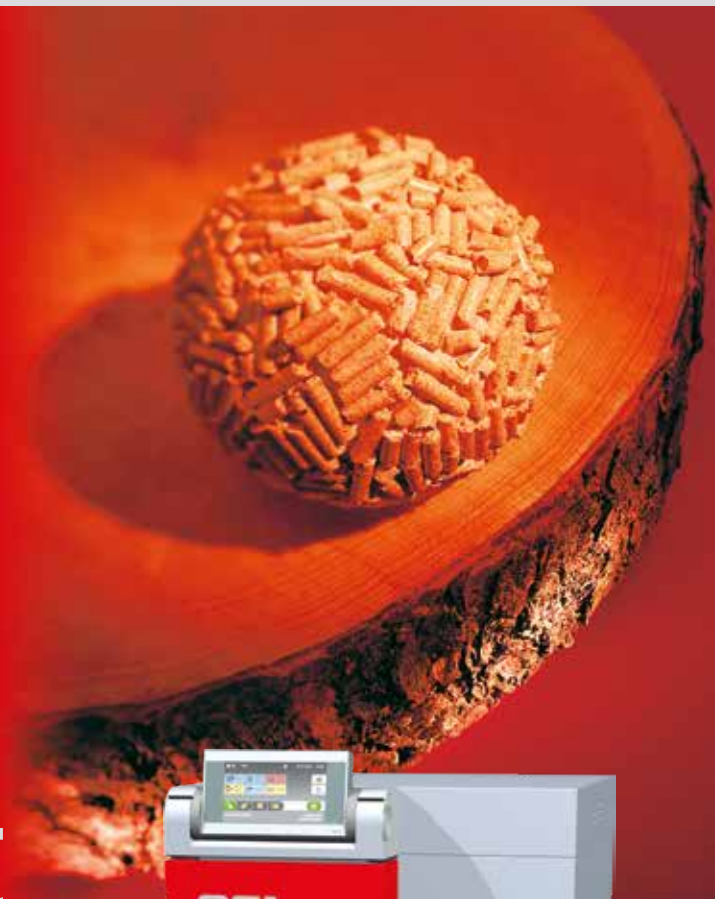


**UNIQUE. INNOVATIVE.**  
Condensing technology  
for pellet boilers

# PE1 Pellet



# Heating with pellets

For more than 50 years Froling has specialised in the efficient use of wood as a source of energy. Today the name Froling stands for modern biomass heating technology. Froling firewood, wood chip and pellet boilers are successfully in operation all over Europe. All of our products are manufactured in our factories in Austria and Germany. Our extensive service network guarantees full coverage and reliability.



## Make savings with pellets without compromising on comfort

The price changes for different energy sources in recent years show the benefits of wood pellets: the ecological way of heating is also economically attractive. Wood is a renewable energy source that is also CO<sub>2</sub>-neutral. Pellets are made of natural wood. The large volumes of wood shavings and sawdust generated by the wood-processing industry are compacted and pelleted without being treated beforehand. Pellets have a high energy output and are easy to deliver and store. These are just some of the advantages that make pellets the perfect fuel for fully automatic heating systems. Pellets are delivered by tanker and unloaded directly into your store.





## The new Froling PE1 Pellet

Occupying just 0.38 m<sup>2</sup> of space, the PE1 Pellet boiler sets new standards. The new PE1 Pellet stands out for its quiet operation and ease of use, combined with low emissions and very low energy consumption.

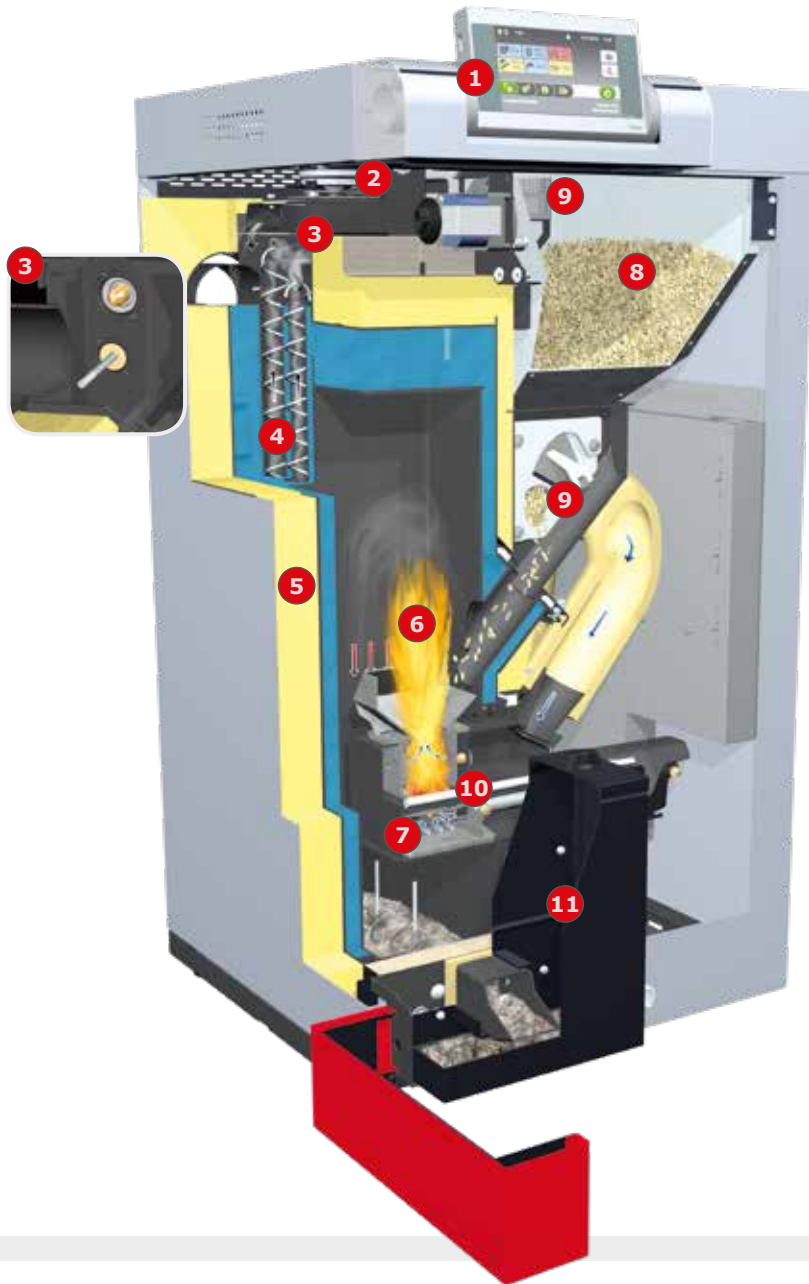
Thanks to its high energy efficiency the PE1 Pellet is particularly suitable for low-energy and passive houses.

## The compact solution for the boiler room

A unique design: The new PE1 Pellet is optionally available with **DHW tank block for hot water** and **hydraulic block** with heating circuit pumps, heating circuit mixing valve and DHW tank loading. These two modules make the PE1 Pellet the compact all-round solution for the boiler room.



# The latest technology



- 1 Lambdatronic P 3200 control with 7" touch display and innovative bus technology
- 2 Speed-controlled, quiet induced-draught fan with function monitor for maximum operational reliability.
- 3 Broadband lambda probe for optimal combustion.
- 4 WOS technology (efficiency optimisation system) for maximum efficiency.
- 5 High-quality insulation.
- 6 High-quality pellet burner.
- 7 Automatic sliding grate for ash removal. The movement of the grate controls the secondary air and the integrated chimney cut-off at the same time.
- 8 Large pellet container.
- 9 Double protection system for maximum burn back protection.
- 10 Automatic ignition.
- 11 Automatic ash removal in a closed ash container (Ash container volume: 13 litres with 7 - 10 kW, 28 litres with 25 - 35 kW).



## Smart positioning and installation

**Feature:**    **Modular design**

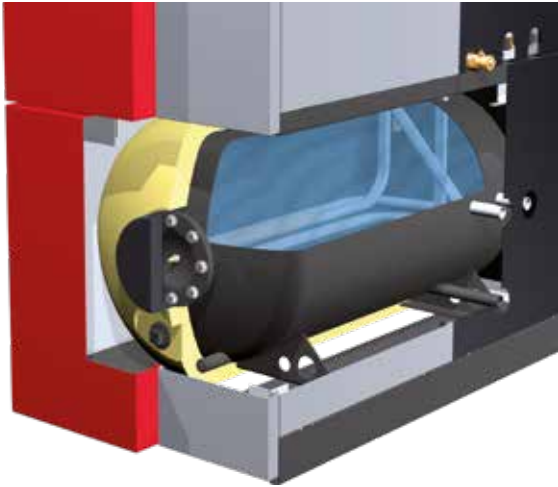
- Advantages:
- compact design
  - optional DHW tank block and hydraulic block

The PE1 Pellet has important advantages even before it is put into the boiler room. Thanks to its particularly compact dimensions - 60 x 64 x 120 cm (W x L x H) - assembly is child's play, even in confined boiler rooms. The PE1 Pellet boiler unit is completely insulated and wired so all you need to do is plug it in.

Thanks to its modular construction, the DHW tank block and hydraulic block on the PE1 Pellet (7 - 20 kW) can be dismantled when installation space is tight and transported separately to the boiler room as individual components.



# A well-designed inside



**Feature: Optional DHW tank block and hydraulic block (7 - 20 kW)**

- Advantages:
- Optimal hot water preparation
  - Best possible heating circuit control
  - Intelligent complete solution

### DHW tank block

The vacuum-enamelled DHW tank block has impressively compact dimensions and high-quality solid foam insulation, and with a capacity of approx. 130L, it is the ideal solution for hot water preparation. The DHW tank block also has an insulated magnesium anode and a connection for an electrical heating cartridge.

### Hydraulic block

The hydraulic block contains up to two heating circuit pumps, two heating circuit mixers, an expansion tank, a line regulating valve, a safety group (with pressure gauge, quick vent valve and safety valve) and an optional loading group.

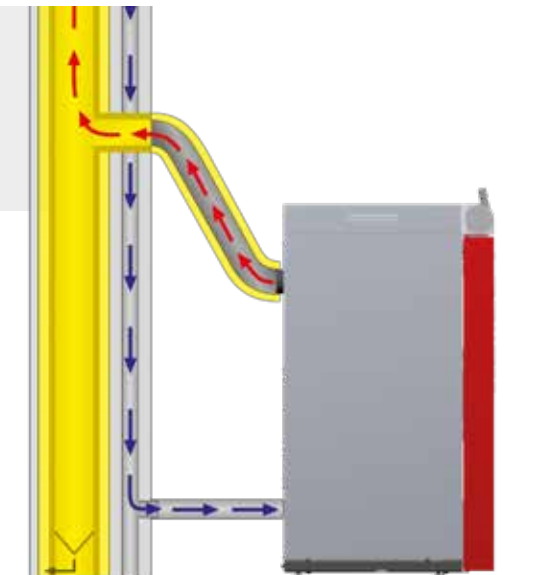
The PE1 Pellet (7 - 20 kW) is optionally available as a PE1 Pellet Unit with DHW tank block and hydraulic block.



**Feature: Room air-independent operation**

- Advantages:
- Perfectly suited for low-energy houses
  - Maximum efficiency

Energy-saving houses often have a closed building shell. In traditional boiler rooms there can be uncontrolled heat loss from the necessary ventilation openings. This is avoided with room air-independent boilers because of the direct air connection. The combustion air that is fed in is also pre-heated with an integrated system, increasing the efficiency of the system.





**Feature: Large pellet container**

- Advantages:
- Easy loading
  - Efficient operation

The large pellet container with a capacity of 32 - 76 L (depending on output size) reduces the frequency of pellet feed. The pellet container is filled fully automatically with an external suction turbine.

**Feature: Double protection system**

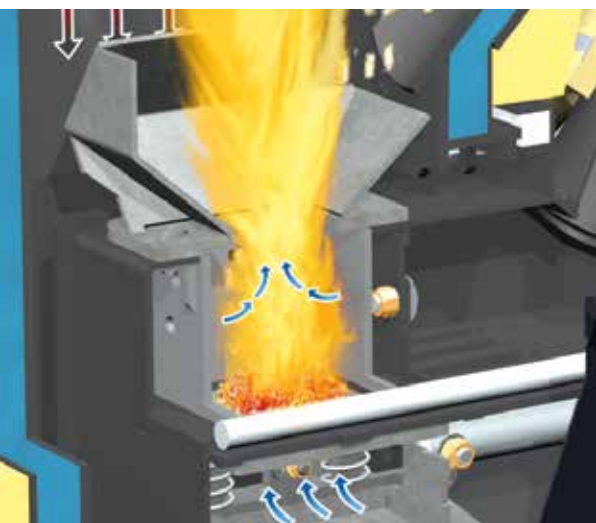
- Advantages:
- The highest possible operating safety
  - Maximum burn back protection

The gate valve for the store **1** and the gate valve for the burner **2** provide a double valve system ensuring maximum operating safety.

When fuel is fed from the store to the pellet container, the store gate valve opens. The gate valve for the burner closes simultaneously.

In this way the double protection system ensures a reliable closure between the store and the pellet burner, guaranteeing maximum burn back protection.

# Intelligent features



## **Feature: Automatic ignition**

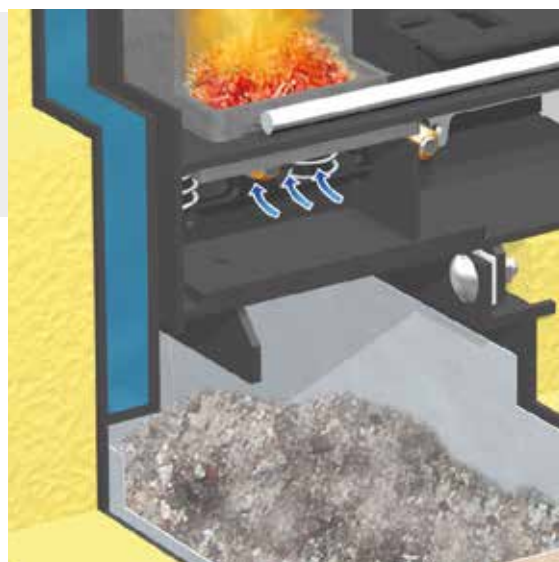
- Advantages:
- quiet operation
  - low energy consumption

The new glow ignition is particularly suitable for low boiler outputs. As it is operated without an additional blower fan, the glow ignition is extremely quiet and saves a lot of energy.

## **Feature: Pellet burner with automatic sliding grate and chimney cut-off**

- Advantages:
- high efficiency
  - automatic ash removal

The burner is perfectly adapted to pellet fuel and its requirements, enabling a particularly high level of efficiency. The sliding grate ensures automatic ash removal into the large ashcan. The grate drive also controls the secondary air during combustion and after shutdown it works in combination with the integrated chimney cut-off to prevent quick cooling of the boiler due to the chimney draught.

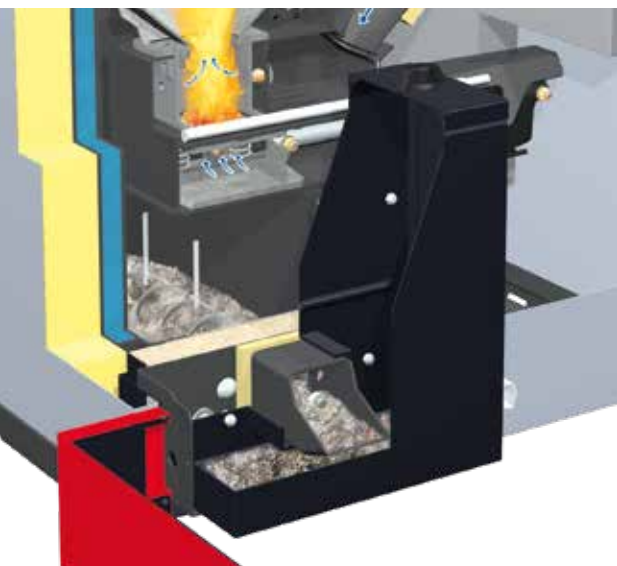


## **Feature: Comfort ash removal**

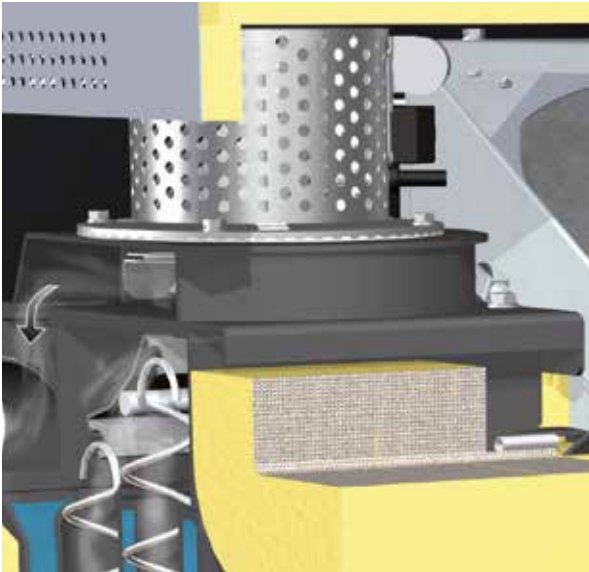
- Advantages:
- Long emptying intervals
  - Convenient emptying

We never compromise on convenience. The ash that accumulates is automatically conveyed into the large ashcan where it can be easily emptied.

The ash removal takes place automatically in a closed ash container by means of an ash screw.



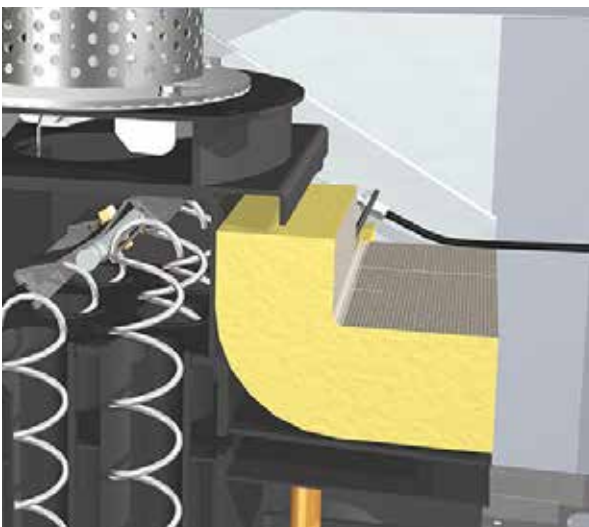




**Feature: Speed-controlled induced draught fan and lambda control with broadband probe**

- Advantages:
- Maximum ease of use
  - Constant optimisation of combustion

The speed-regulated induced draught fan, which comes as standard, ensures the exact air quantity for combustion. As the induced draught fan is speed-regulated, it stabilises combustion throughout and adjusts the output to requirements. Working together with the lambda control, it ensures optimum combustion conditions. The induced draught fan also runs very quietly and energy efficiently.



**Feature: WOS system as standard**

- Advantages:
- Even greater efficiency
  - Fuel savings

The WOS (Efficiency Optimisation System), which comes as standard, consists of special turbulators, which are placed in the heat exchanger pipes. The lever mechanism is controlled together with the double protection system. An additional benefit: clean heating surfaces ensure higher efficiency and thus lower fuel consumption.

Efficiencies of  
up to 105.8%

## Innovative: Condensing technology for pellet boilers



A variant of the Fröling PE1 Pellet boiler with innovative condensing technology is also available for power ratings from 15-20 kW. The hidden energy in flue gas which escapes unused through the chimney in conventional solutions is harnessed by an additional heat exchanger located at the rear of the boiler and fed to the heating system. The Fröling PE1 boiler series thus achieves a **boiler efficiency of up to 105.8 percent (Hu)**. Already back in 1996, Fröling received the Innovation Award at the energy saving fair Wels for a calorific value application in the biomass sector, and the company is thus considered a pioneer in the field. The heat exchanger is made from high-quality stainless steel. It is cleaned via a water rinsing system. The module can be retrofitted optionally.

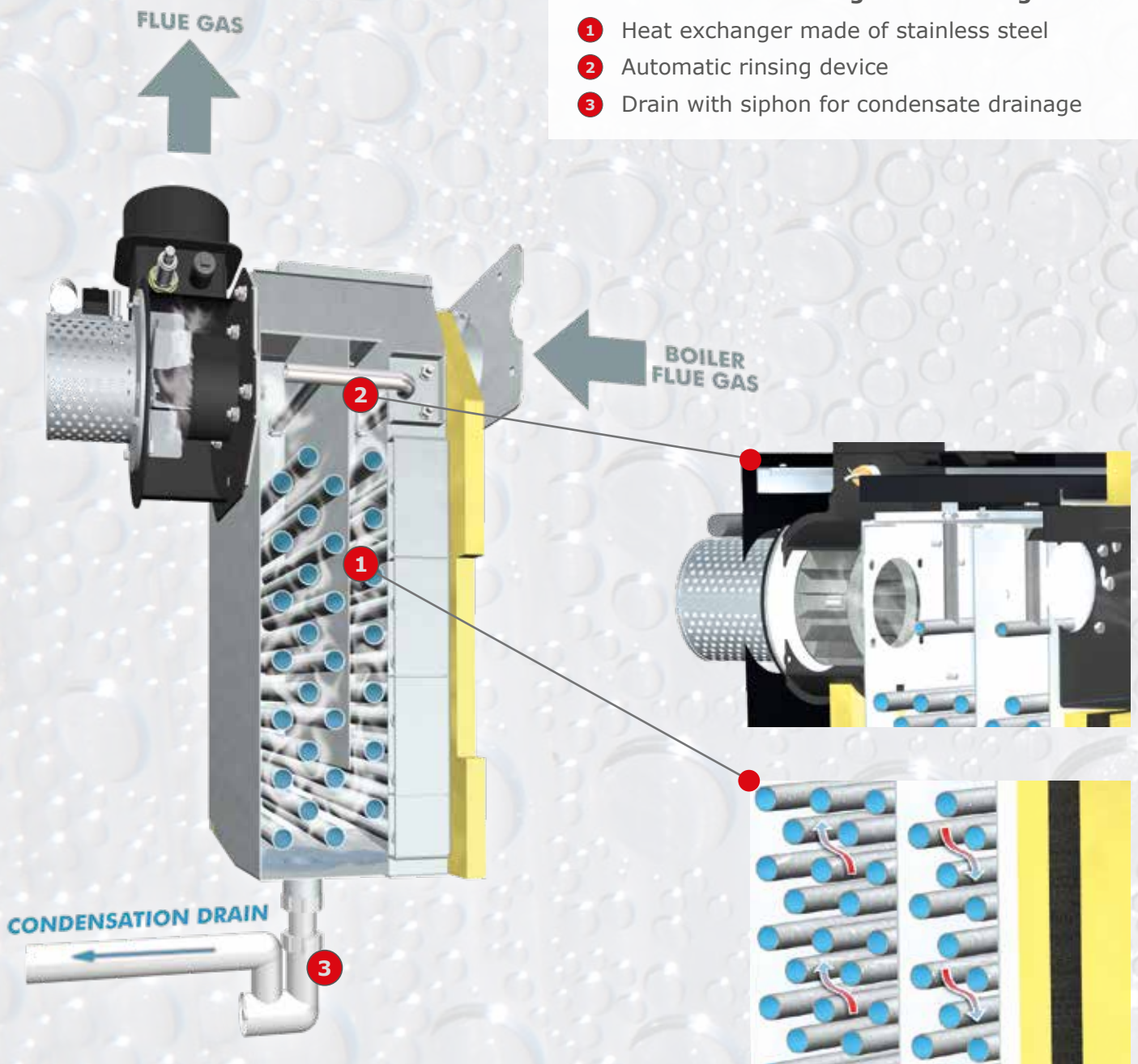


### Advantages

- Lower fuel costs
- Filtration of the flue gas
- Reduced emissions
- Automatic cleaning
- The condensing module can also be retrofitted at any time

## Overview of condensing heat exchanger:

- 1 Heat exchanger made of stainless steel
- 2 Automatic rinsing device
- 3 Drain with siphon for condensate drainage

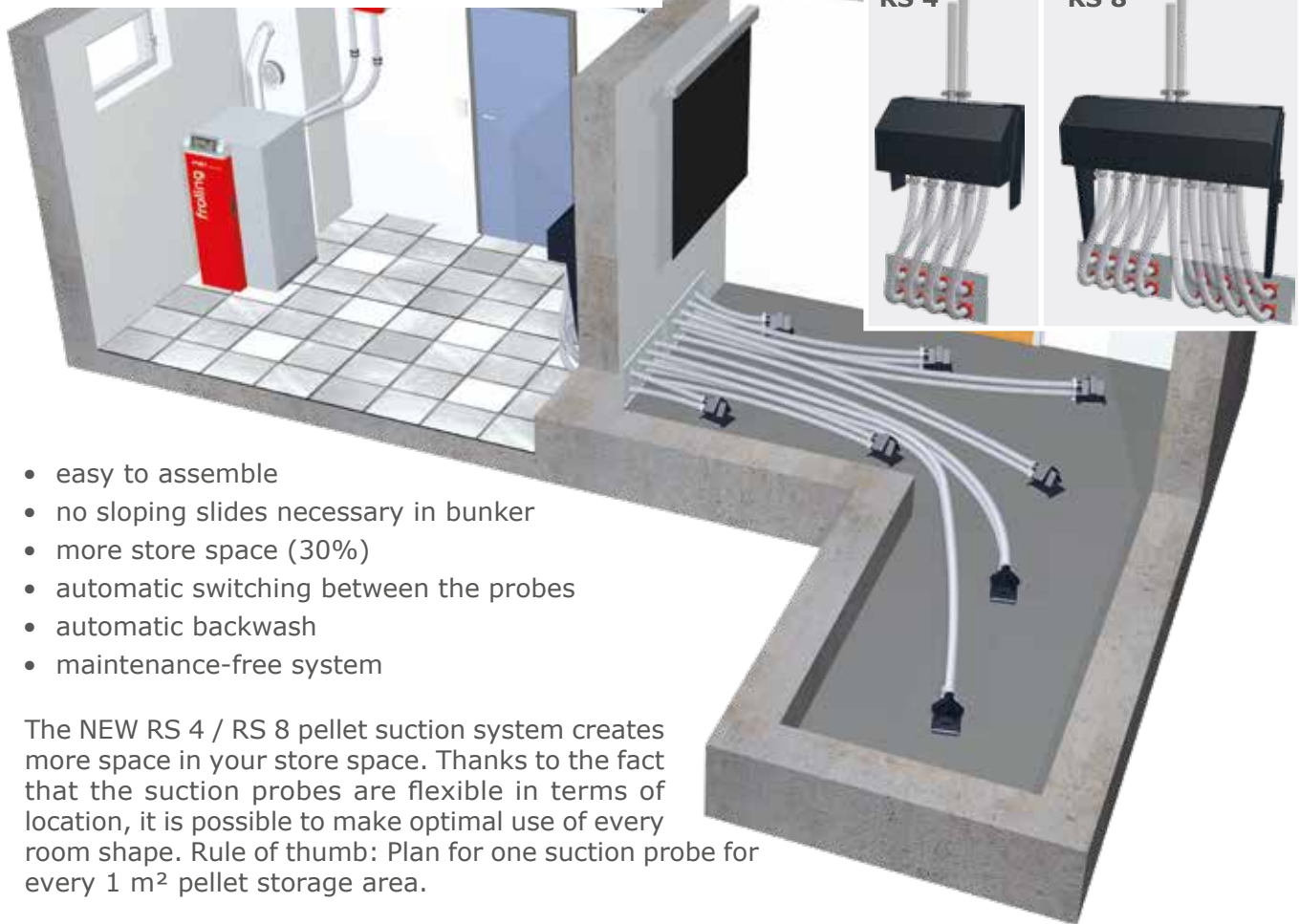


## Requirements for optimal use of condensing technology:

- The return temperature should be as low as possible (e.g. floor or wall heating)
- Moisture-resistant and soot-fire-resistant exhaust system (W3G approval)
- Duct connection for condensate drainage and drainage of the rinse water

# Feed systems

## RS 4 / RS 8 pellet suction system



- easy to assemble
- no sloping slides necessary in bunker
- more store space (30%)
- automatic switching between the probes
- automatic backwash
- maintenance-free system

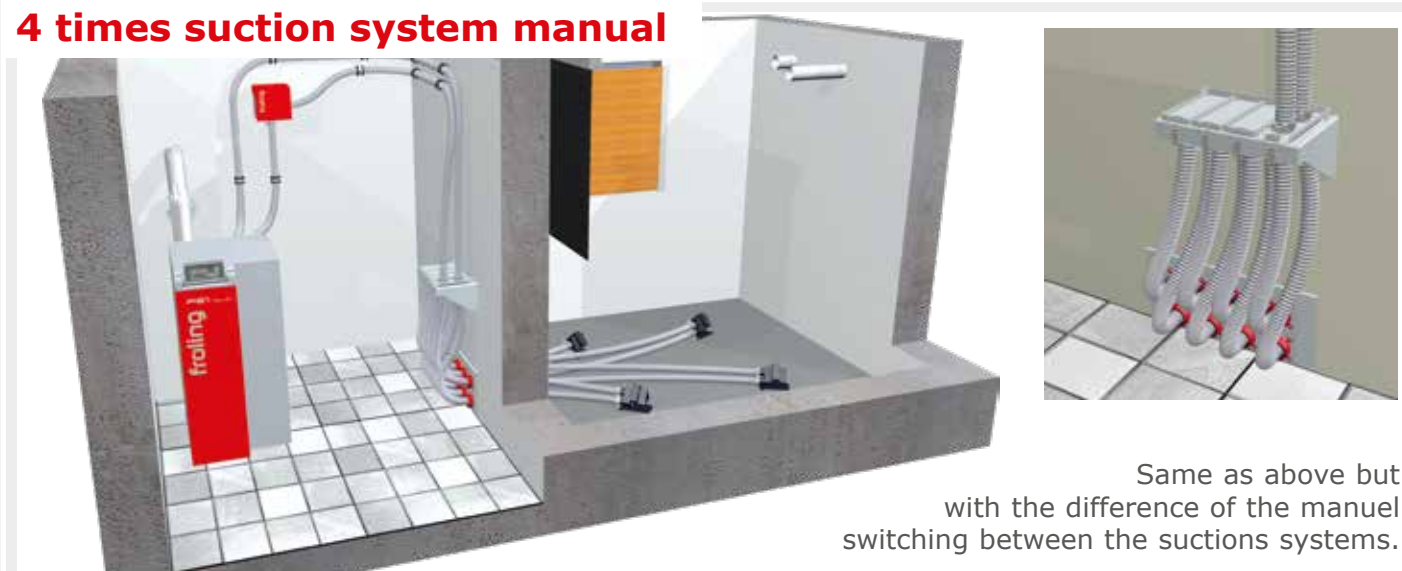
The NEW RS 4 / RS 8 pellet suction system creates more space in your store space. Thanks to the fact that the suction probes are flexible in terms of location, it is possible to make optimal use of every room shape. Rule of thumb: Plan for one suction probe for every 1 m<sup>2</sup> pellet storage area.



It automatically selects 4 or 8 suction probes in specified cycles, it is controlled by the pellet boiler. If, however, the suction probe fails unexpectedly, it is remedied by a **fully automatic reversal of the air flow (backwash)**.

Depiction: fully automatic reversal of flow

## 4 times suction system manual



Same as above but with the difference of the manual switching between the suction systems.

## Bag silo



The bag silo systems come in eight different sizes and offer a flexible, simple way of storing pellets.

There are other advantages to using a bag silo. It is easy to assemble and dustproof. You can also fit rainproof and sunproof covers and install the silo outside.

## Suction screw system



The Froling suction screw system is the ideal solution for rectangular rooms with front-end removal.

The deep and horizontal position of the discharge screw means the space in the room is used optimally and complete emptying of the store is guaranteed. Combined with a suction system from Froling it also enables flexible boiler installation.

**For more information see our "Outfeeders for pellets" brochure**



## Cube 330/500S pellet supply bin

The Cube 330/500S is the optimal and most cost-effective solution for low fuel requirements. Manually filled (e.g. pellets in sacks) it can store a total of 330 kg/495 kg of pellets. The pellets are transported to the boiler by means of a suction probe, which is also included in delivery.



## Pellet Mole®

This pellet discharge system is easy to install and makes full use of the store space. The Pellet Mole® draws the pellets from above, ensuring an optimum fuel feed to the boiler. The Pellet Mole moves automatically into every corner of the store to empty it as efficiently as possible.



## External suction module

An external suction module is used for automatic fuel feed from the store to the pellet container. The suction module is fitted in the return line in any position.



## Pellet filling pipes

The pellets are delivered by tanker and blown into the store through a filling pipe. The second pipe is used for controlled and dust free removal of the escaping air.

# System convenience



## Lambdatronic P 3200 control

With the new Lambdatronic P 3200 boiler controller, Froling is taking a step into the future. The control unit is optimised to suit any requirement. An individually adjustable viewing angle ensures that all operating statuses are clearly displayed. Exact combustion control thanks to lambda control **with broadband probe** as standard. The menu structure is ideally organised to ensure easy operation. All essential functions can be selected by simply pressing a button.

### Lambdatronic P 3200 control

Advantages:

- Exact combustion control with broadband probe lambda control
- Large, clear control unit

### NEW! 7" Touch-Display

Advantages:

- Individual installation of your own heating system
- Even more comfortable operation of the boiler thanks to a larger touch screen

## NEW! SIMPLIFICATION OF BOILER SOFTWARE



Fig. 1 General overview of heating circuit



Fig. 2 View of the chimney sweeper function



Fig. 3 Overview of the new holiday mode

Online controller  
**froeling-connect.com**



Froeling's new online control, [froeling-connect.com](http://froeling-connect.com), allows you to check and control your Froeling boiler with boiler touchscreen anytime, anywhere. You can read or modify the main status information and settings easily and conveniently online (from your PC, smartphone, tablet PC, etc.). You can also specify which status messages you would like to receive by text message or e-mail. The new [froeling-connect.com](http://froeling-connect.com) service allows the owner of the heating system to enable additional users - for example the installer, a neighbour, etc. - to access the boiler and monitor the heating system, during holidays for instance.



Customer  
Installer  
Customer service

Individual access  
rights



Platform-  
independent  
Operate the heating  
system online



System requirements:

- Froeling boiler (core module software version V54.04, B05.09) with boiler touchscreen (software version V60.01, B01.20)
- broadband internet connection
- Froeling boiler internet connection via network
- web-enabled terminal device (smartphone/tablet PC/laptop/PC) with web browser

# System convenience

## Accessories for even greater ease of use



### FRA room temperature sensor

By using the Froling FRA room temperature sensor (measuring only 8x8 cm), the main modes of the corresponding heating circuit can be easily selected and adjusted. The FRA room temperature sensor can be connected with or without affecting the room area. The adjusting wheel allows you to change the room temperature by up to  $\pm 3^{\circ}\text{C}$ .



### RBG 3200 room console

The RBG 3200 room console makes the system even easier to use. The heating system is conveniently controlled from your living room. All important system data is clearly displayed on the 19x8 cm console and settings can be changed at the push of a button.



### RBG 3200 Touch room console

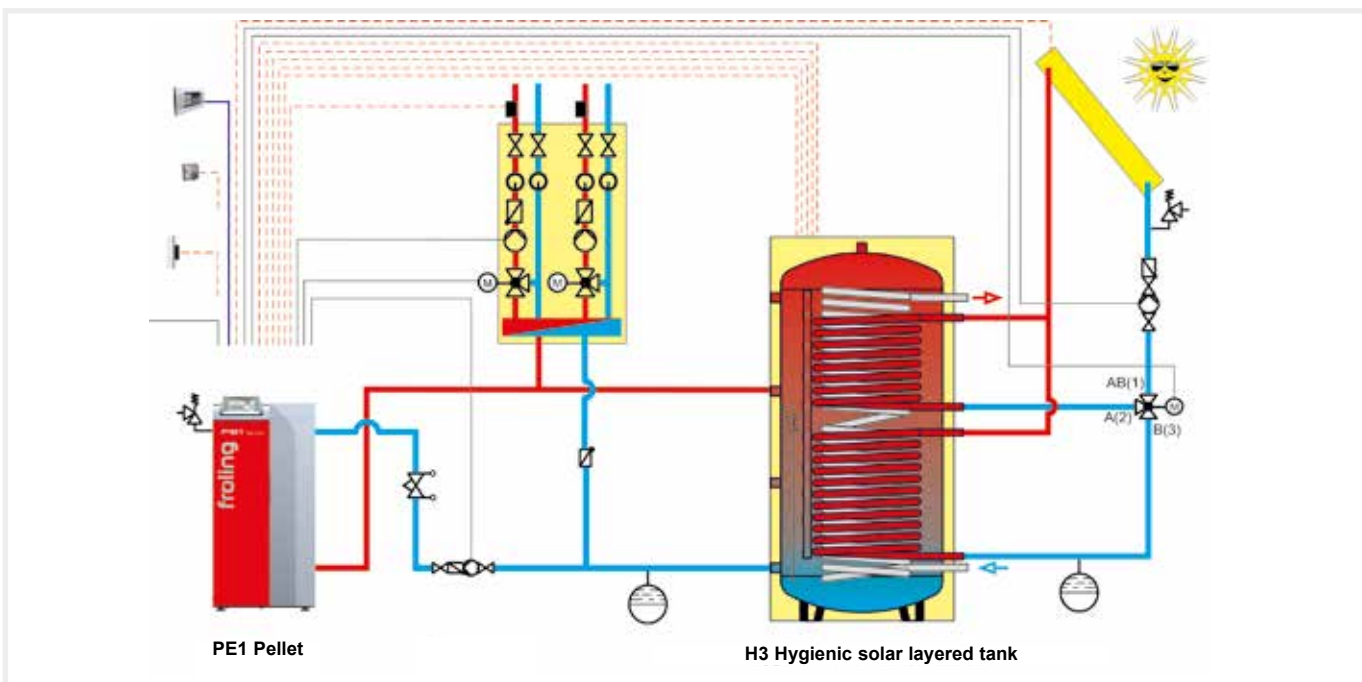
The RBG 3200 Touch has an impressive touchpad interface. The menu structure means it is intuitive and easy to use. The 17x10 cm console with colour screen shows the most important functions at a glance and automatically adjusts the background lighting to the conditions. The room consoles are connected to the boiler controller using a bus cable.



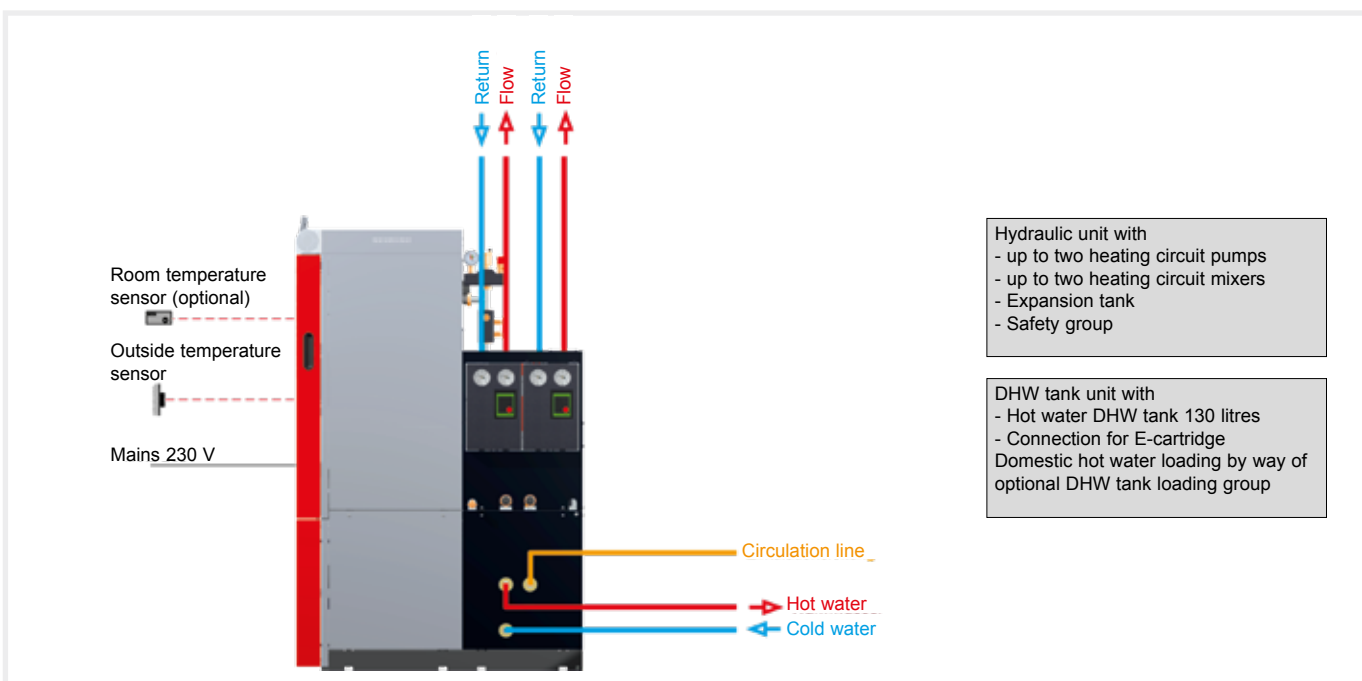
**Feature: systems engineering for optimum energy consumption**

- Advantages:
- complete solutions for all requirements
  - the components work perfectly together
  - integrated solar power

Froiling systems engineering offers efficient energy management. Up to 4 storage tanks, 8 hot water tanks and 18 heating circuits can help manage the heating. You can also benefit from the ability to integrate other means of energy production such as solar panel systems.

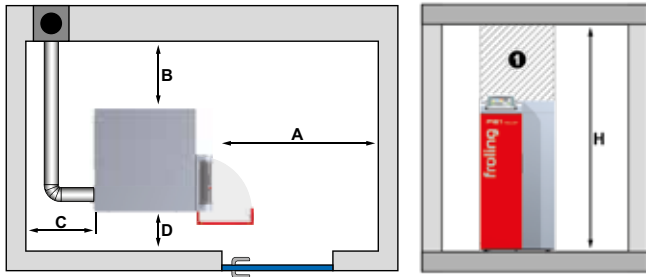


PE1 Pellet with H3 hygienic solar layered tank

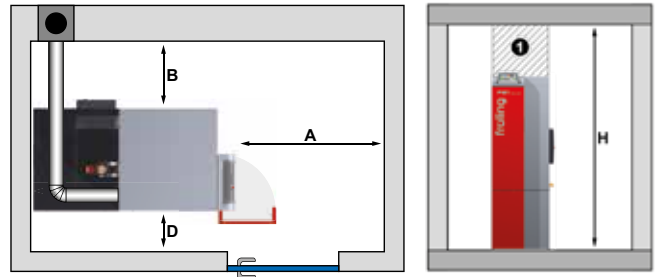


PE1 Pellet with DHW tank block and hydraulic block

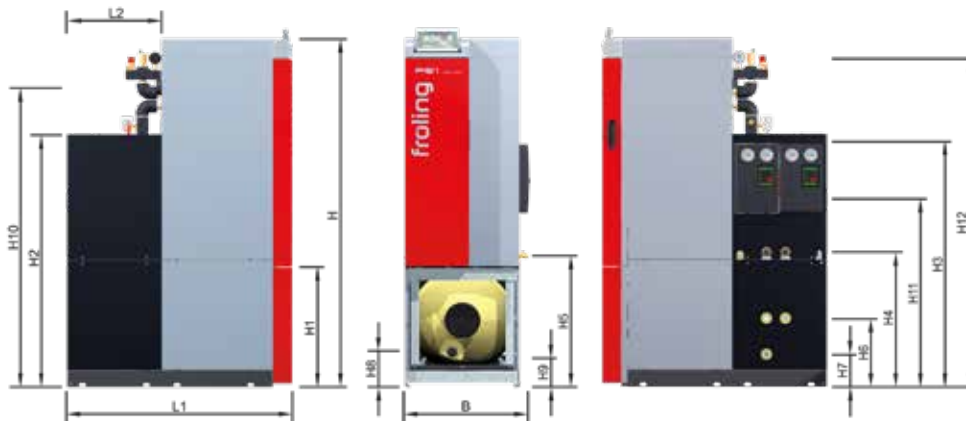
PE1 Pellet



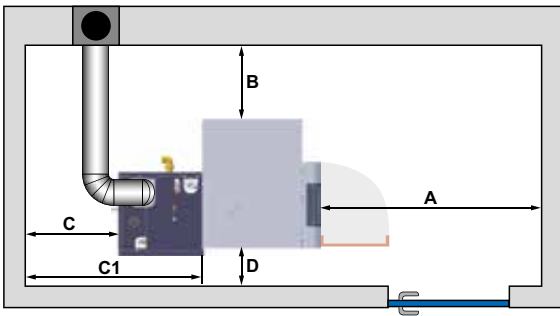
PE1 Pellet with DHW tank block



Minimum distances in the boiler room - PE1 Pellet		without DHW tank block and hydraulic block	with DHW tank block and hydraulic block	
A	Distance between insulated door and wall	[mm]	600	600
B	Distance between side of boiler and wall	[mm]	300	300
C	Distance between rear of boiler and wall	[mm]	300	-
D	Distance between side of boiler and wall	[mm]	100	100
	Minimum space (length x width) 7 - 10 kW	[mm]	1550 x 1000	1750 x 1000
	Minimum space (length x width) 15 - 20 kW		1550 x 1150	1750 x 1150
	Minimum space (length x width) 25 - 35 kW		1750 x 1150	-
H	Minimum room height incl. maintenance area	[cm]	190 190 220	250



Dimensions - PE1 Pellet with DHW tank block and hydraulic block [mm]	7 - 10	15 - 20
L1 Length, DHW tank block	1150	1150
L2 Length, hydraulic block	500	500
B Width of boiler with hydraulic block	660	810
H Overall height of boiler with DHW tank block	1810	1810
H1 Height, DHW tank block	630	630
H2 Height, DHW tank block and hydraulic block	1330	1330
H3 Height of flow/return connection of the heating circuits	1260	1260
H4 Height of flow/return connection of the boiler	710	710
H5 Height of the drainage connection of boiler	690	690
H6 Height of the hot water/circulation connection of the DHW tank block	350	350
H4 Height of the cold water supply of the DHW tank block	160	160
H8 Height, electronic heating cartridge	185	185
H9 Height, drainage connection of DHW tank block	165	165
H10 Height, flue pipe connection	1570	1550
H11 Height of supply air connection (for room air-independent operation)	980	970
H12 Height, suction system connection	1720	1720



Minimum distances in the boiler room - PE1 Pellet with condensing technology			15 - 20
A	Distance from insulated door to wall	[mm]	600
B	Distance from boiler side to wall (control side)	[mm]	300
C	Space requirements including maintenance area for draft fan with condensing heat exchanger	[mm]	250
C1	Space requirements for retrofitting a condensing heat exchanger	[mm]	1000
D	Distance from boiler side to wall (door stop side)	[mm]	100

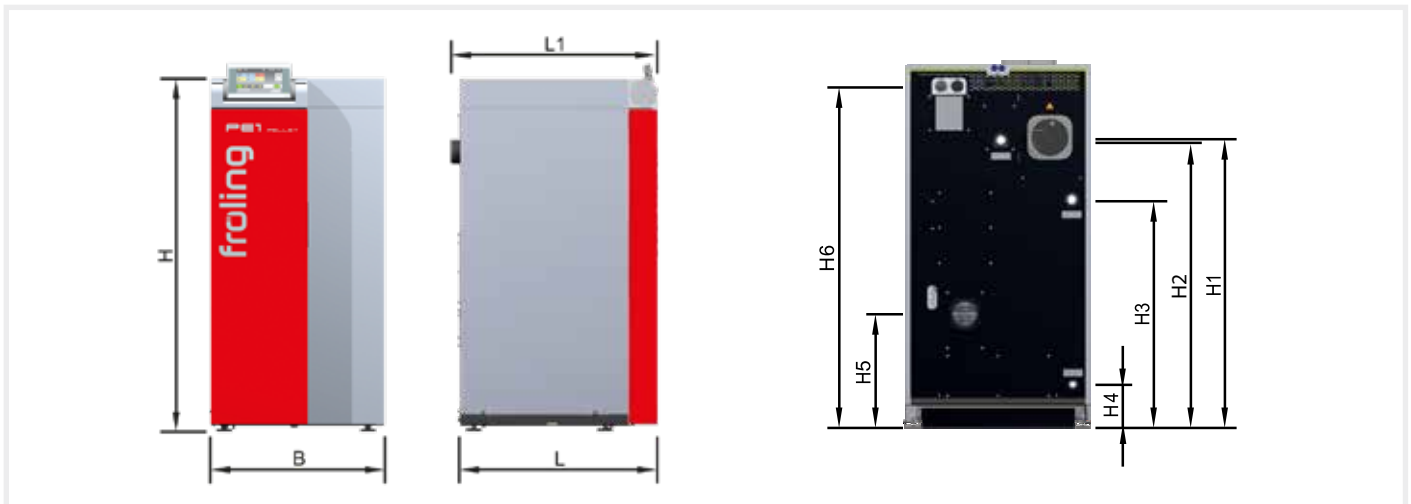


Dimensions - PE1 Pellet with condensing technology			15-20
B1	Distance from condensate drain to boiler side	[mm]	290
B2	Width of condensing heat exchanger	[mm]	590
B3	Width of boiler with condensing heat exchanger	[mm]	800
L	Length of boiler with condensing heat exchanger	[mm]	1185
L1	Length of condensing heat exchanger	[mm]	495
H1	Height of condensate drain connection	[mm]	150 - 320
H2	Height of return connection	[mm]	809
H3	Height of exhaust pipe connection	[mm]	1175
	Exhaust pipe connection (inner diameter)	[mm]	132

Technical data - PE1 Pellet with condensing technology		15	20
Nominal heat output	[kW]	16.3	21.6
Output range	[kW]	4.8 - 16.3	6.4 - 21.6
Boiler efficiency	[%]	105.8/103	105/103
Electrical connection	[V/Hz/A]	230 V / 50 Hz / fused C16 A	
Electrical power	[W]	49	57
Dust (with 13% residual O2)	[mg/MJ]	11.4 / 10.9	13.5 / 10.9
Water content	[l]	44	44
Boiler weight	[kg]	295	295
Energy label PE1 Pellet **		A <sup>+</sup>	A <sup>+</sup>

\* Configuration label (boiler + control + calorific value)

# Technical data



Dimensions - PE1 Pellet			7 - 10	15 - 20	25 - 35
L	Length of boiler	[mm]	690	690	850
L1	Total length incl. flue gas pipe connection	[mm]	760	740	890
B	Width of boiler	[mm]	650	750	750
H	Height of boiler	[mm]	1200	1200	1470
H1	Height, flue gas pipe connection	[mm]	940	940	1170
H2	Height, ventilation connection	[mm]	930	930	1160
H3	Height, return connection	[mm]	750	750	920
H4	Height of drainage connection	[mm]	95	95	175
H5	Height, supply air connection (for room air-independent operation)	[mm]	390	390	460
H6	Height, suction system connection	[mm]	1110	1110	1380
	Flue spigot diameter	[mm]	99/129*	129	149

\* Both flue spigot diameter without adapter possible.

Technical specifications - PE1 Pellet		7	10	15	20	25	30	35
Nominal output	[kW]	7	10	15	20	25	30	35
Output range	[kW]	2 - 7	2 - 10	4,5 - 15	4,5 - 20	7,2 - 25	7,2 - 30	7,2 - 35
Energy (ErP) label*		A <sup>+</sup>	A <sup>+</sup>	A <sup>+</sup>	A <sup>+</sup>	A <sup>++</sup>	A <sup>++</sup>	A <sup>++</sup>
Power connection	[V/Hz/A]	230V / 50Hz / fused C16A						
Weight	[kg]	approx. 200	approx. 200	approx. 250	approx. 250	approx. 380	approx. 380	approx. 380
Total boiler capacity (water)	[l]	approx. 25	approx. 25	approx. 38	approx. 38	approx. 60	approx. 60	approx. 60
Pellet container capacity	[l]	35	35	41	41	76	76	76
Ashcan / ash box capacity	[l]	14,5	14,5	18	18	28	28	28
Domestic hot water volume with optional DHW tank block	[l]	122	122	122	122	-	-	-

\* Composite label (boiler + controls)

Your Froling partner:



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