

PE1e PELLET

PELLET BOILER



- Integrated particle separator (electrostatic precipitator) available as an option
- Also available as a pellet-fuelled condensing boiler
- Online boiler control via app
- 7" touchscreen with LED status display



BETTER HEATING

INNOVATIVE AND
CONVENIENT

froling

ENVIRONMENTALLY RESPONSIBLE HEATING

Wood is a home-grown and environmentally friendly fuel, that is highly sustainable. It is **CO₂-neutral** and is not affected by international crises. The production of firewood and pellets ensures stable jobs in the industry. Looking at it from an environmental and economical point of view, wood is the ideal fuel. The quality class is determined by the type of wood used.

Heating that doesn't cost the earth



Pellets

approx. **50%**
cheaper

Heating oil



Firewood

approx. **60%**
cheaper

Heating oil



Wood
chips

approx. **70%**
cheaper

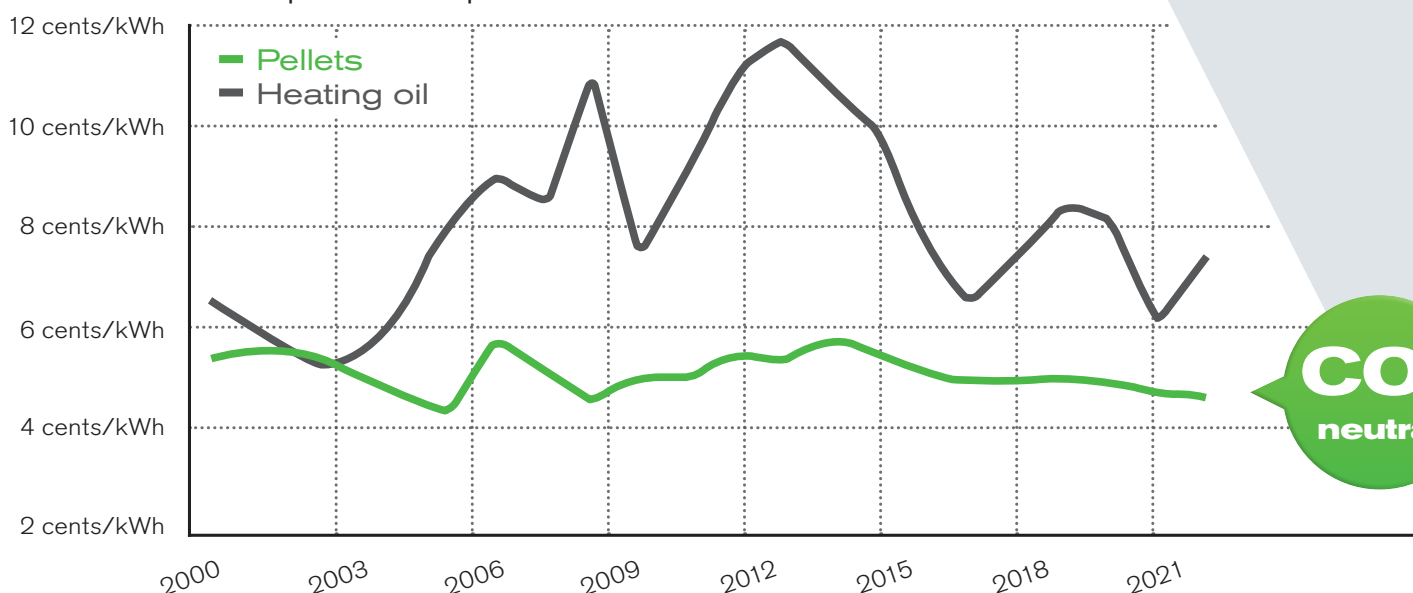
Heating oil

The price changes for different energy sources in recent years show the benefits of wood pellets: the environmentally clean way of heating is also economically attractive.

The large quantity of wood shavings and sawdust produced by the 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.

Average annual prices of heating oil compared to pellets*



CO₂
neutral

Froling has been working on the efficient use of wood as a source of energy for sixty years. Today the name Froling stands for modern biomass heating technology. Our 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. Froling's extensive service network ensures that we can handle all enquiries quickly.

GUARANTEED QUALITY AND RELIABILITY FROM AUSTRIA

- International pioneer in technology and design
- Sophisticated fully automatic operation
- Excellent environmental compatibility
- Environmentally responsible energy efficiency
- Renewable and CO₂-neutral fuel
- Ideal for all types of house
- More convenience and reliability

The new PE1e Pellet is available as a heating or a condensing boiler and can be fitted with an optional electrostatic particle separator to keep dust emissions to a minimum.

Thanks to the integrated return temperature control, the boiler always runs within the optimal temperature range, thus increasing efficiency. A storage tank can be heated by way of the hydraulic pump fitted as standard.

Froling's PE1e Pellet was awarded the **"EnergieGenie Innovation Prize"** in 2022. This prize awarded by the Federal Ministry of Agriculture, Forestry, Environment and Water Management and the State of Upper Austria lauds new products according to the criteria of innovation, energy savings and degree of novelty.



PELLET BOILER WITH

7" touchscreen for simple and intuitive operation

Large pellet container

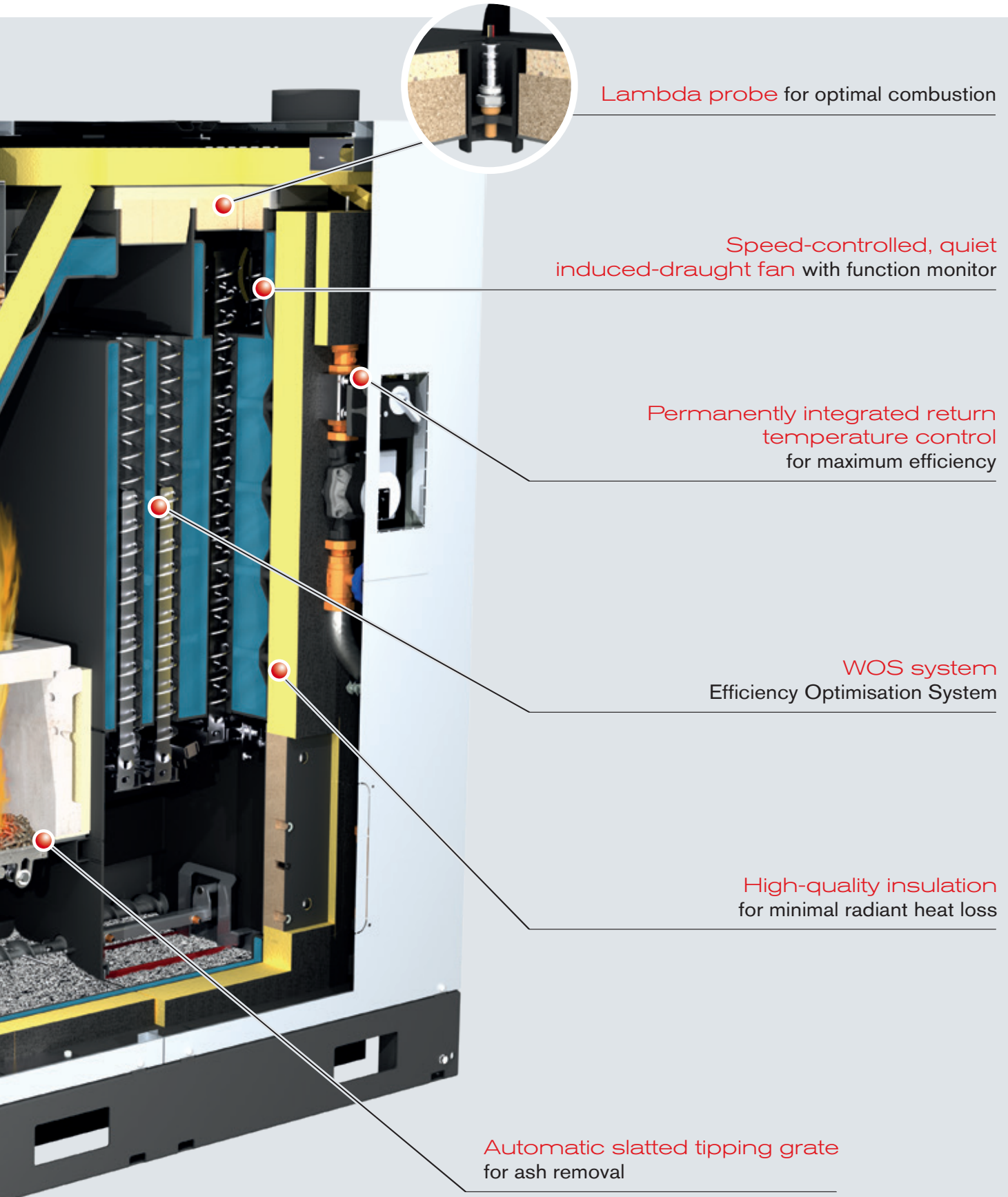
High-quality pellet burner made of silicon carbide

Automatic ignition for minimal effort

Automatic ash removal into two closed ash containers (external ash removal optional)



OPTIONAL CONDENSER TECHNOLOGY

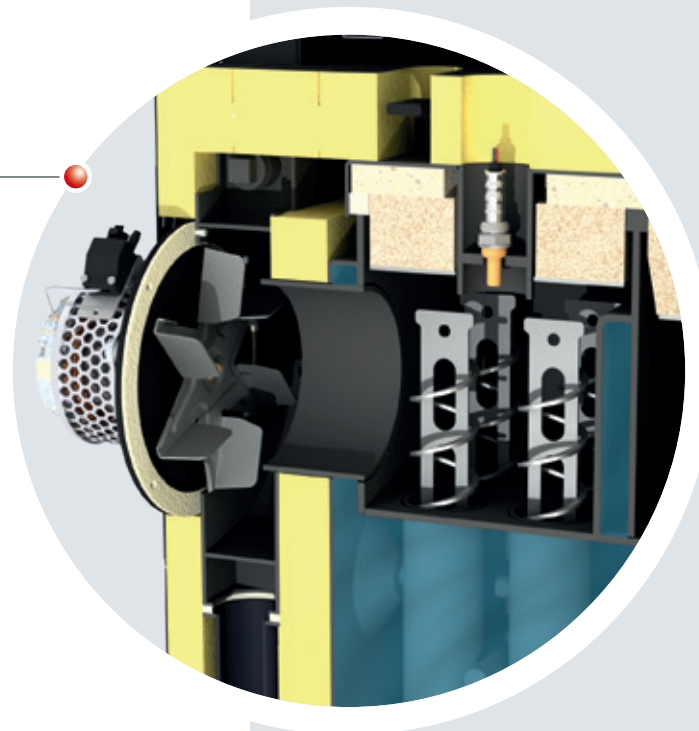


A WELL-DESIGNED HOME FOR MORE COMFORT

Speed regulated EC induced draught fan

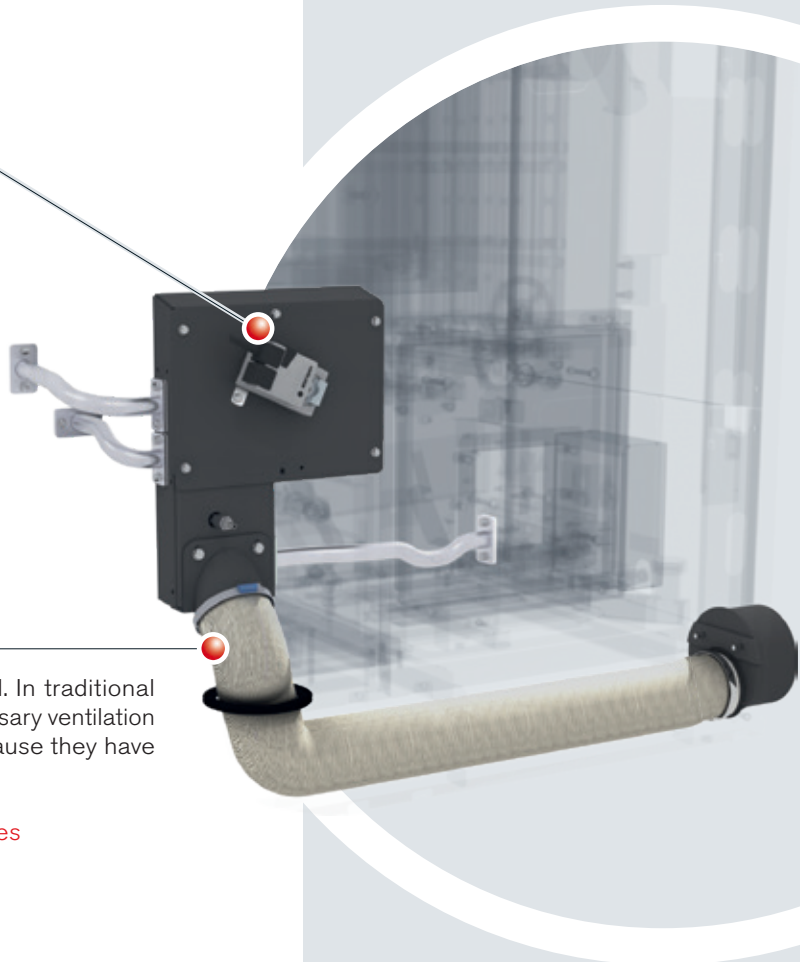
The speed-regulated EC induced draught fan ensures the exact air quantity for combustion. As the induced draught fan is speed-regulated, it stabilises combustion throughout and adjusts the air quantity to the output and the respective material. Working together with the lambda control, it ensures optimum combustion conditions. The EC induced draught fan has a significantly higher efficiency than conventional induced draught fans with AC motors. This results in significant power savings, especially in partial load conditions.

- Advantages:
- Maximum ease of use
 - Continuous optimisation of combustion
 - Up to 40% less power consumption



Precise primary and secondary air control

Combustion in the PE1e Pellet is controlled by underpressure. Combined with the EC induced draught fan, this guarantees extremely high operating safety. The innovative control of air distribution in the combustion zone is a new feature. Primary and secondary air are optimally adjusted to the conditions in the combustion chamber with only one actuator. This, combined with the lambda controller which comes as standard, ensures that emissions are kept to a minimum.



Room air independent operation

Energy-saving houses often have a closed building shell. In traditional boiler rooms there can be uncontrolled heat loss from necessary ventilation openings. Boilers independent of room air avoid this, because they have a direct air intake connection.

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



Gate valve to fuel store

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

Double protection system

The gate valve to the store and the gate valve to the burner provide a double valve system ensuring maximum operating safety.

- Advantages:
- Maximum operating safety
 - Maximum burn back protection

Large pellet container

The large pellet container with a capacity of 175 litres reduces the frequency of pellet feed. The pellet container is filled automatically by the external suction turbine.

- Advantages:
- Easy loading
 - Efficient operation



Gate valve to burner

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



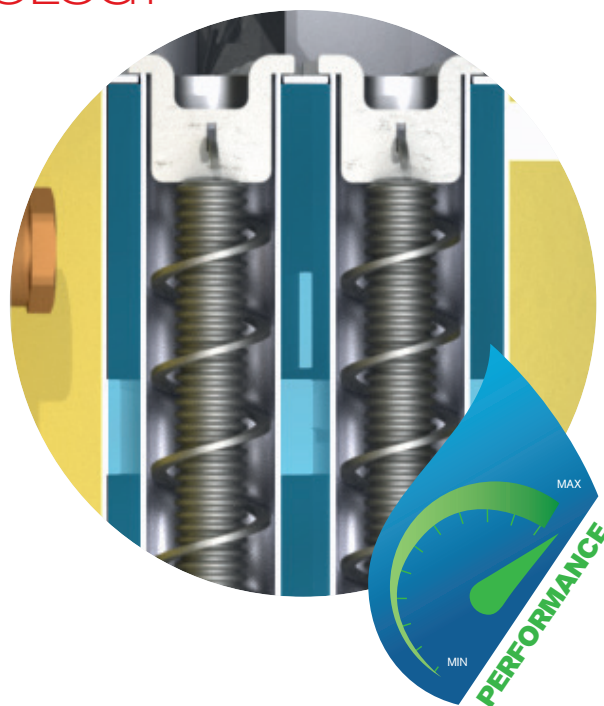
Fast, energy-saving ignition

The silent ceramic igniter ensures safe and energy-saving ignition of the fuel. Thanks to the hot combustion zone, after short periods in idle mode the fuel is automatically reignited by the residual embers. It is only necessary to start the igniter after longer combustion pauses.

- Advantages:
- Silent ceramic igniter for reliable ignition
 - Automatic ignition by residual embers
 - No separate blower fan required

CONDENSING BOILER TECHNOLOGY FOR PELLET BOILER

The PE1e Pellet is also available with innovative condensing boiler technology. With conventional solutions, the energy contained in the flue gas escapes up the chimney, unused. Thanks to an additional heat exchanger positioned on the back of the boiler, this energy is now supplied to the heating system. This results in more effective operation and greater efficiency. Froling won the innovation prize at the ExpoEnergy trade fair in Wels for condensing boiler technology in the biomass sector as early as 1996, making it a pioneer in the field. The heat exchanger is made of high-quality stainless steel. It is cleaned using a water flushing system.



Advantages:

- Lower fuel costs
- Filtered flue gas
- Reduced emissions
- Automatic cleaning

Requirements for optimal use:

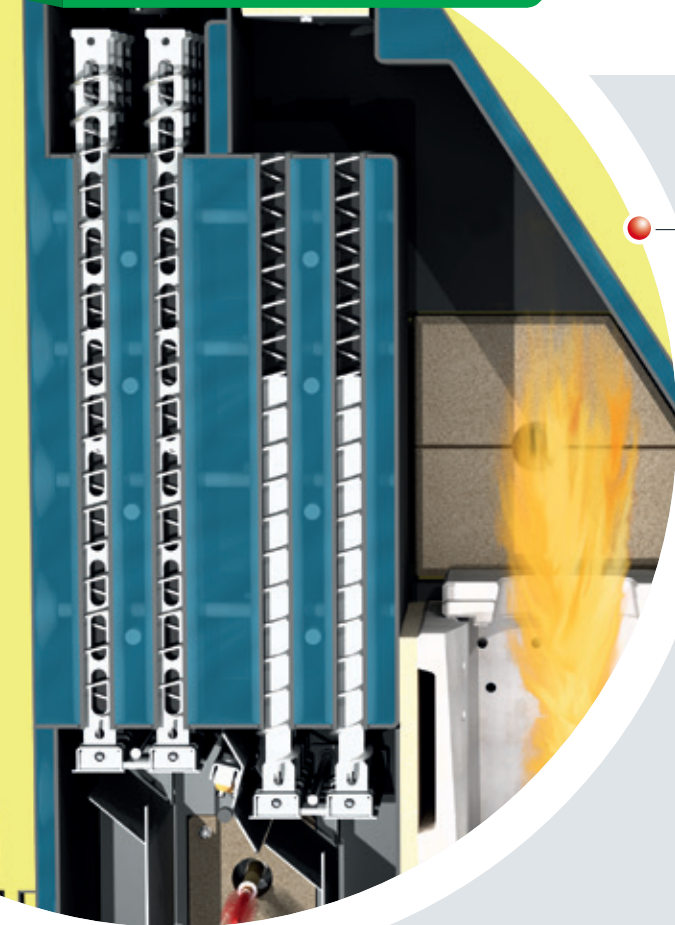
- Lowest possible return temperature (e.g. floor or wall heating)
- Moisture-resistant and soot fire-resistant flue gas system
- Duct connection for drainage of condensation and flushing water

SPACE-SAVING & SMART CONNECTION OPTION

- 1 Pellet suction hose connection from above
- 2 Flue pipe connection and discharge drain, rear
- 3 Perfect connection to the flue using the FRÖLING connection pipe FAR



Cleaning of all heat exchanger pipes



Heat exchanger with automatic cleaning (WOS) of all passes and lower drive

The integrated WOS (Efficiency Optimisation System) - which comes as standard - consists of special turbulators, which are installed in the heat exchanger pipes and clean them by moving up and down. This means clean heating surfaces and thus greater efficiency and lower fuel consumption.

- Advantages:
- Greater efficiency
 - Fuel economy
 - Drive mechanism in cold zone (low thermal load)

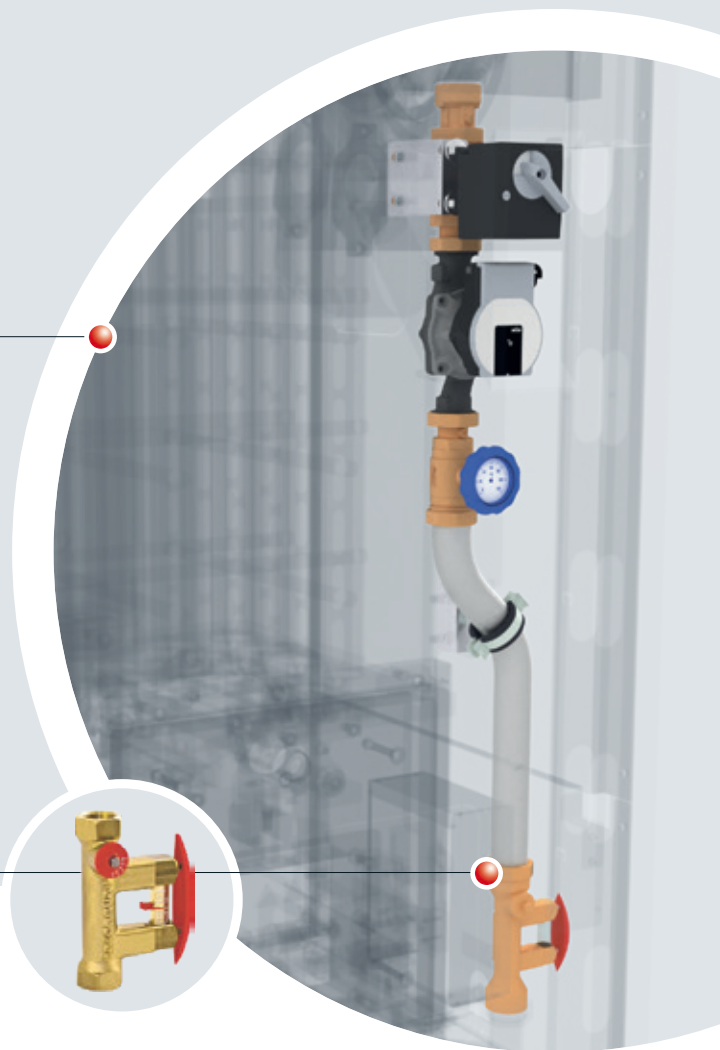
Permanently integrated return temperature control

The room temperature control integrated as standard avoids unnecessary radiant heat loss, thus guaranteeing maximum efficiency. An external return temperature control is therefore no longer necessary and saves installation time. The components are intelligently built-in and the main parts (e.g. pump) are visible from the outside and easily accessible.

- Advantages:
- Minimum radiant heat loss
 - Maximum efficiency
 - No external return temperature control required
 - Saves space in the boiler room

Line regulating valve

- Advantages:
- Optimal hydraulic balancing of the heating system

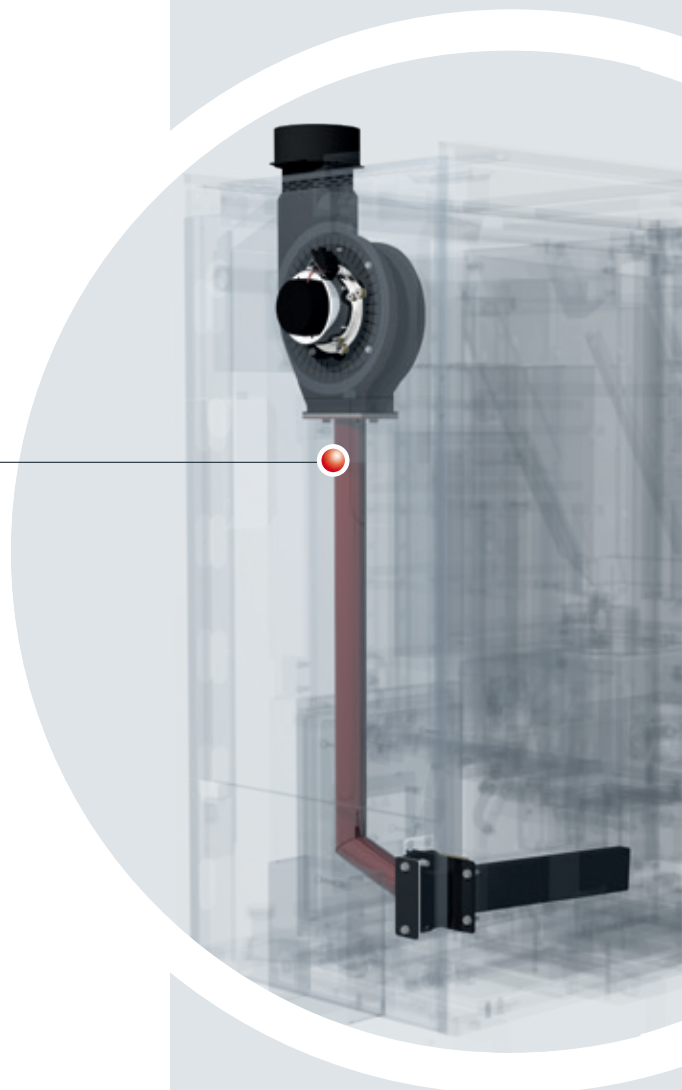


INTELLIGENT DESIGN DOWN TO THE LAST DETAIL

Flue gas recirculation (FGR)

The flue gas recirculation system (FGR) mixes part of the flue gas with the combustion air and returns it to the combustion zone. The FGR optimises combustion and performance, and also reduces NOx emissions. The lower combustion temperatures offer added protection for flame-swept parts.

- Advantages:**
- Ideal combustion conditions
 - Intelligent control of air quantity



Optional integrated particle separator (electrostatic precipitator)

The optionally available particle separator (electrostatic precipitator) can be added at any time to considerably reduce the fine dust emissions from the boiler. Cleaning is carried out automatically in a separate ash box at the front of the boiler.

- Advantages:**
- Can be retrofitted on site
 - Combined cleaning with heat exchanger optimisation system (WOS)
 - Quick installation



NEW! Integrated particle separator (electrostatic precipitator) can be added at any time



High-temperature silicon carbide combustion chamber and perfect combustion control

The firebricks are made entirely of high-quality fireproof material (silicon carbide). The hot combustion zone ensures optimal combustion and very low emissions.

Patented firebrick!

The patented shaping of the firebrick stones gives the air supply in the combustion chamber particularly good airtightness without the need to use expensive wearing seals. The new shape of the stones also considerably simplifies the maintenance of the combustion chamber as they can be removed easily.

Advantages:

- Highest temperature resistance for durability
- Optimum emission values

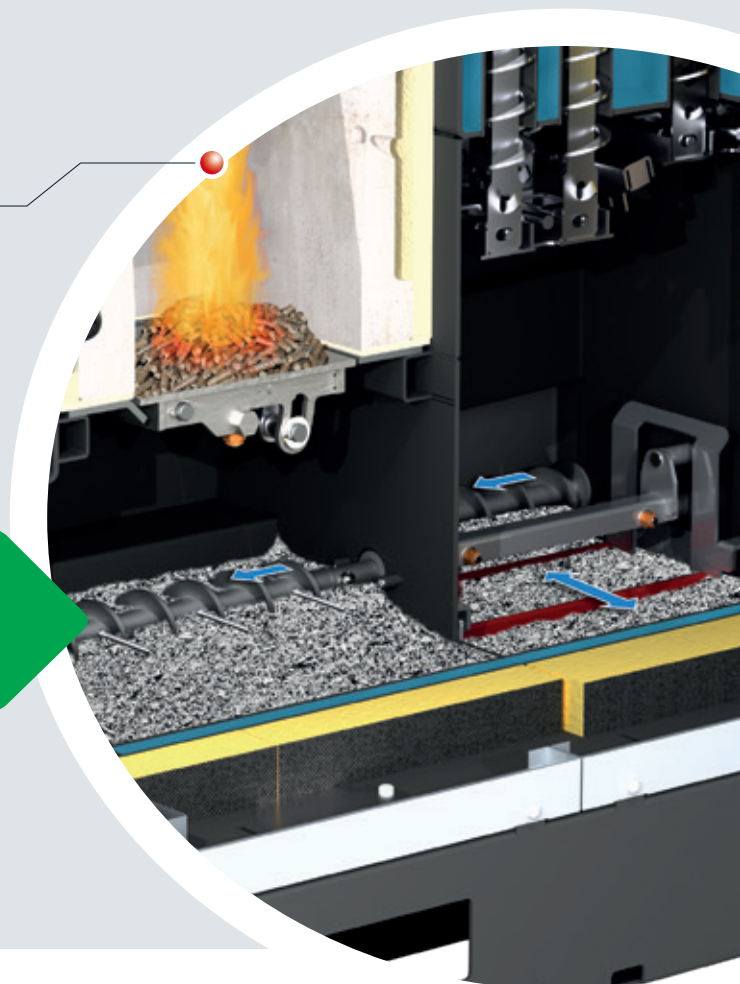
Ash discharge system with separate ash screws and ash rakes

Ash is automatically emptied from the combustion chamber and the heat exchanger into the ash container using two separate ash screws, which are powered by a communal geared motor. This ensures a clear separation and absolute tightness between the combustion chamber and the heat exchanger and eliminates the risk of air leaks. The ash screws are speed controlled. The boiler automatically generates a warning message when the ash box is too full.

At the same time, the joint geared motor drives the ash rake (tested for many years in Froling large-scale boiler systems) in the lower reversing chamber, which transports the heat exchanger ash reliably to the side ash screw.

Advantages:

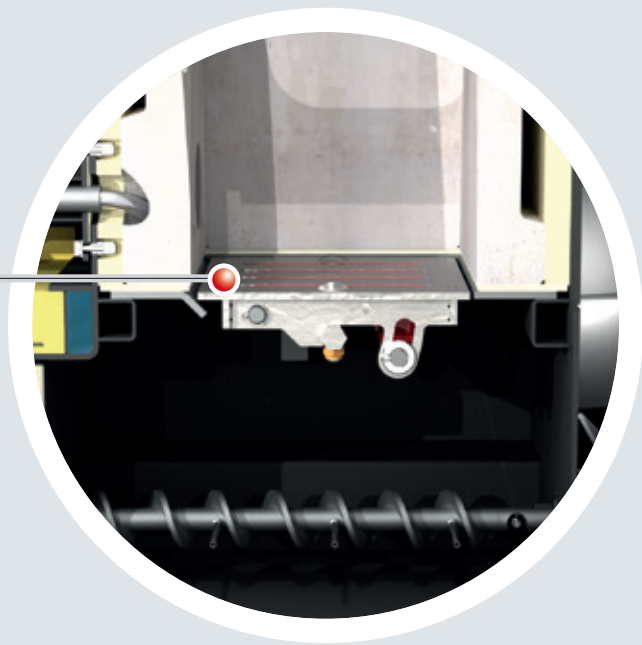
- Optimal emptying
- No risk of air leakage thanks to twin-chamber ash container
- Just one common drive



NO COMPROMISES WITH CONVENIENT ASH REMOVAL

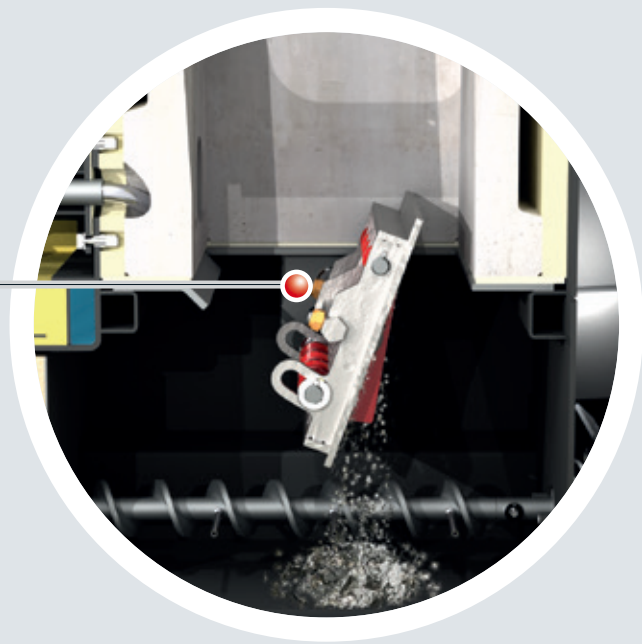
Special technology for optimal cleaning

The patent pending slatted tipping grate ensures optimal cleaning thanks to its special shape. It offers consistent air conditions to achieve optimal combustion.



Improved emptying

Due to the 110° tilt, the ash is completely emptied from the tipping grate and discharged into the large-volume ash container with the help of the ash screw.



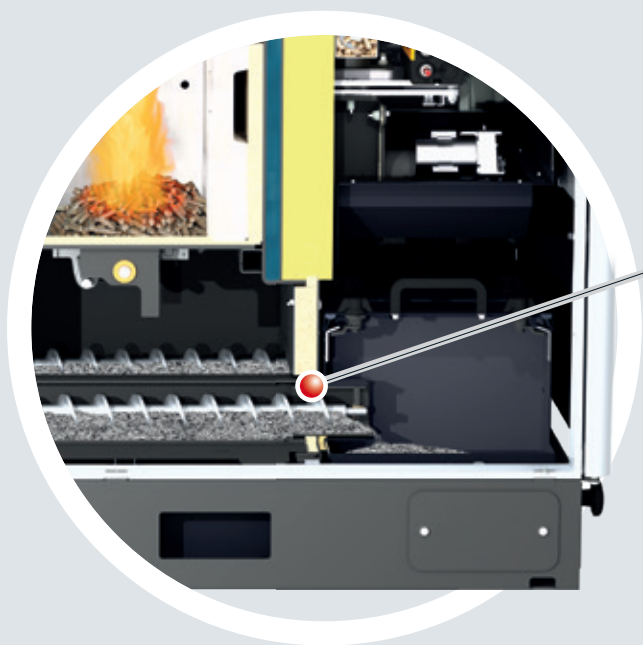
With automatic ash removal, the ash is fed into an external ash container. The clever locking mechanism makes it quick and easy to remove the ash container.



Convenient ash clearance

We never compromise on convenience. The ash that gathers is automatically fed into two enclosed ash containers via the ash screw. The time of emptying can be seen on the screen.

- Advantages:
- Interval between emptying
 - Convenient emptying



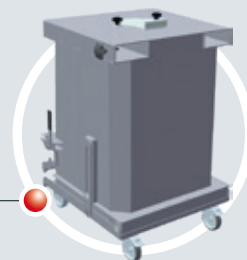
Optional: Ash discharge into standard dustbin or flap-bottomed container

For added convenience, ash can optionally be emptied into a standard 240 litre dustbin or 330 litre flap-bottomed container. The ash is automatically conveyed into the dustbin/flap-bottomed container where it can be easily emptied. This ensures long emptying intervals and maximum convenience.



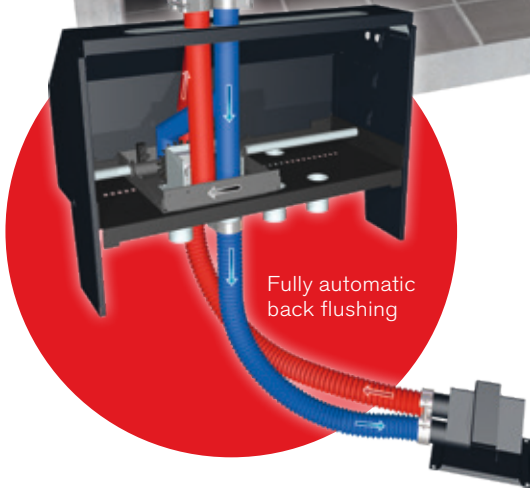
Standard dustbin (240 litres)

Flap-bottomed container (330 litres)



Manual four suction probe system

The RS 4 manual pellet suction system creates more space in your fuel store. 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. The switchover between suction probes is manual. Rule of thumb: Plan for one suction probe for every 1 m² pellet storage area.



Automatic special choice

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 supply (back flushing).



External suction module

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

Pellet filler 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.



RS 4

RS 8

RS 4 / RS 8 pellet suction system

Design as above, however with the difference of automatic switchover between the suction probes.



Pyramid for fuel store optimisation

Advantages at a glance:

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

Bag silo

The bag silo system is a flexible, simple way of storing pellets. Available in 9 different footprints (from 1.5 m x 1.25 m to 2.9 m x 2.9 m) with a capacity of between 1.6 and 7.4 tonnes, depending on the bulk density. 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

The Fröling suction delivery 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 Fröling it also enables flexible boiler installation.



Pellet supply bin Cube 330/Cube 500S

The Cube 330/500S is the optimal and most cost-effective solution for low fuel requirements. With its sturdy cardboard cladding (Cube 330) or galvanised steel plate (Cube 500S) it guarantees a clean pellet feed and saves space in the fuel store. Manually filled (e.g. pellets in sacks) it can store a total of 330 kg or 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.



INDIVIDUAL CONTROL UNIT OF THE HEATING SYSTEM

Lambdatronic P 3200 control unit

Froling is looking to the future with its Lambdatronic P 3200 boiler controller and new 7" touchscreen. Intelligent control management makes it possible to connect up to 18 heating circuits, four storage tanks and eight hot water storage tanks. The control unit ensures that the operating statuses are clearly shown. The menu structure is ideally organised to allow easy operation. All essential functions can be selected by simply pressing icons on the large colour display.

- Advantage:**
- Precise combustion control by a Lambda control using a Lambda probe
 - Connection for up to 18 heating circuits, eight water heaters and four storage tank management systems
 - Integration capability for a solar panel system
 - LED frame for status display with illuminated presence detection
 - Simple, intuitive operation
 - Various smart home options (e.g. Loxone)
 - Remote control from the living room (room console RBG 3200 and RGB 3200 Touch) or via internet (froeling-connect.com/App)



SIMPLE & INTUITIVE OPERATION

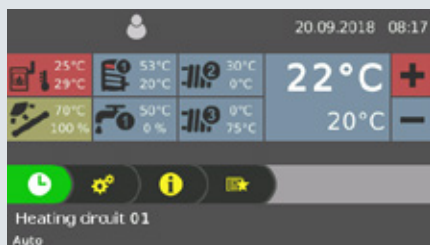


Fig. 1 General overview of heating circuit (start screen)



Fig. 2 View of the heating times (individually adjustable)

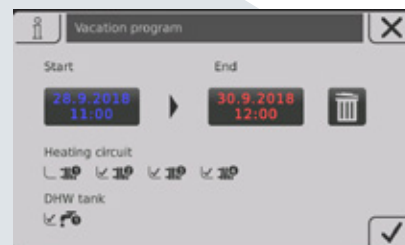


Fig. 3 Overview of the new holiday mode

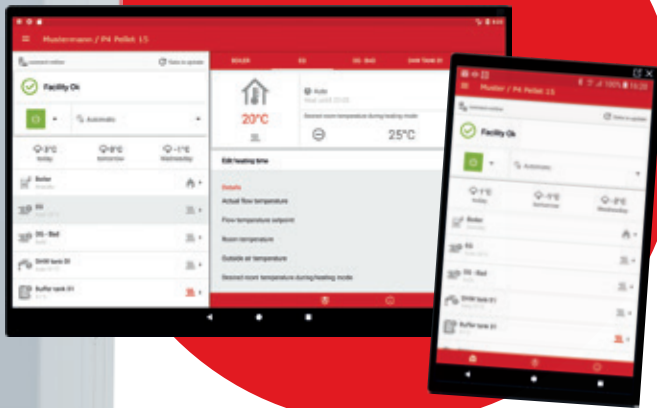


EVERYTHING AT A GLANCE 24/7 WITH THE FROLING APP

The Fröling App allows you to check and control your Fröling boiler online from anywhere, at any time. You can read and modify the main status information and settings easily and conveniently online. You can also specify which status messages you want to be informed about via SMS or e-mail (e.g. when the ash box should be emptied or in the event of faults).

Fröling boiler (software core module from version V50.04 B05.16) with boiler touch display (from version V60.01 B01.34), a (broadband) internet connection and a tablet/smartphone with IOS or Android operating system are required. Once the boiler has been connected to the internet and activated, the system can be accessed 24/7 from anywhere using a web-enabled device (mobile, tablet, PC, etc.). The app is available in the Android Play Store and iOS App Store.

NEW! Desktop version
with even more options



- Simple and intuitive boiler operation
- Status information can be called up and changed within seconds
- Individual naming of the heating circuits
- Users are notified directly of status changes (e.g. via e-mail or push notifications)
- No additional hardware required (such as an Internet gateway)

SMART HOME

Enjoy smart, convenient and peace-of-mind living with the Smart Home connection options from Fröling.

Loxone

Combine your Fröling heating system with the Loxone Miniserver and the new Fröling Extension and implement individual boiler control on the basis of the single room control of the Loxone Smart Home.

Advantages: Easy operation and viewing of the heating circuit via the Loxone Miniserver, immediate notification of status changes and individual operating modes for each situation (presence, holiday, economy mode, etc.)

Modbus

The system can be integrated into a building management system via the Fröling mod bus interface.



ACCESSORIES FOR EVEN GREATER CONVENIENCE

FRA room temperature sensor

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



RBG 3200 room console

For even more convenience you can use the RBG 3200 room console and the new RBG 3200 Touch. You can control the heating system easily from your living room. Important system data is clearly displayed and settings can be changed at the push of a button.



RBG 3200 Touch room console

The RBG 3200 Touch room console impresses with its 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.



Heating circuit module

With wall casing and contact sensor as heating circuit control for up to two mixer heating circuits.



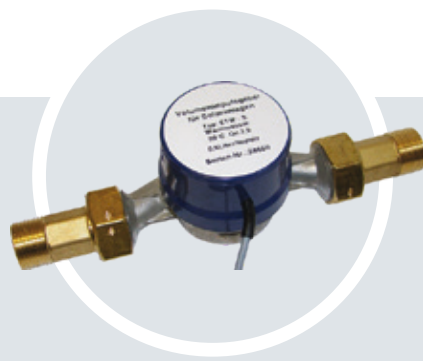
Hydraulic module

With wall casing and two immersion sensors to control one or two pumps and one isolating valve with up to six sensors.



WMZ solar package kit

Kit for measuring heat quantity, consisting of a volume pulse transmitter ETW-S 2.5, a collector sensor and two contact sensors for recording flow and return temperature.

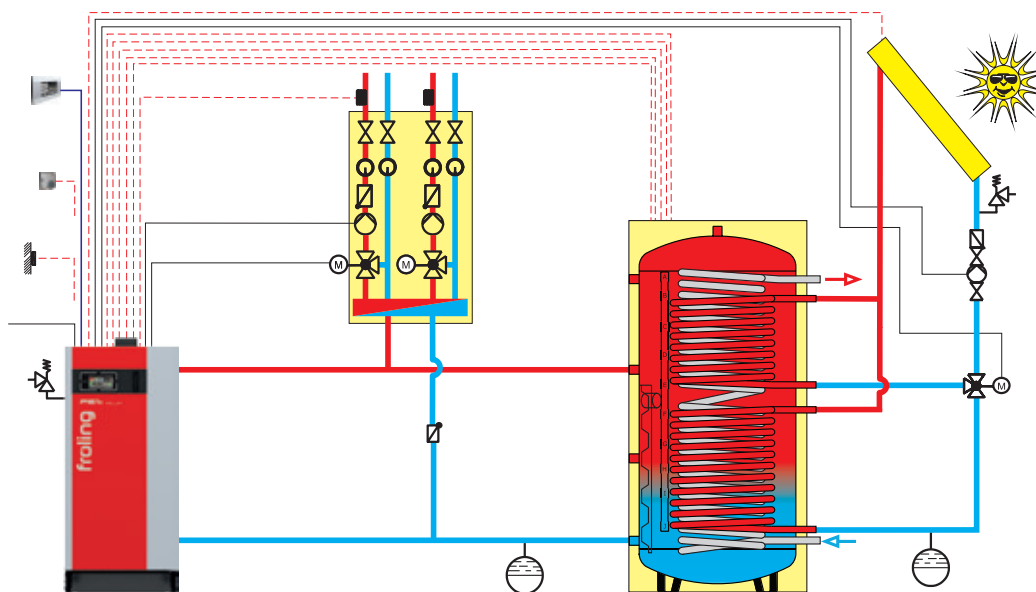


Froeling systems engineering offers efficient energy management. Up to 4 storage tanks, 8 hot water tanks and 18 heating circuits can help manage the heating. You can also benefit from the ability to integrate other means of energy production such as solar panel systems.

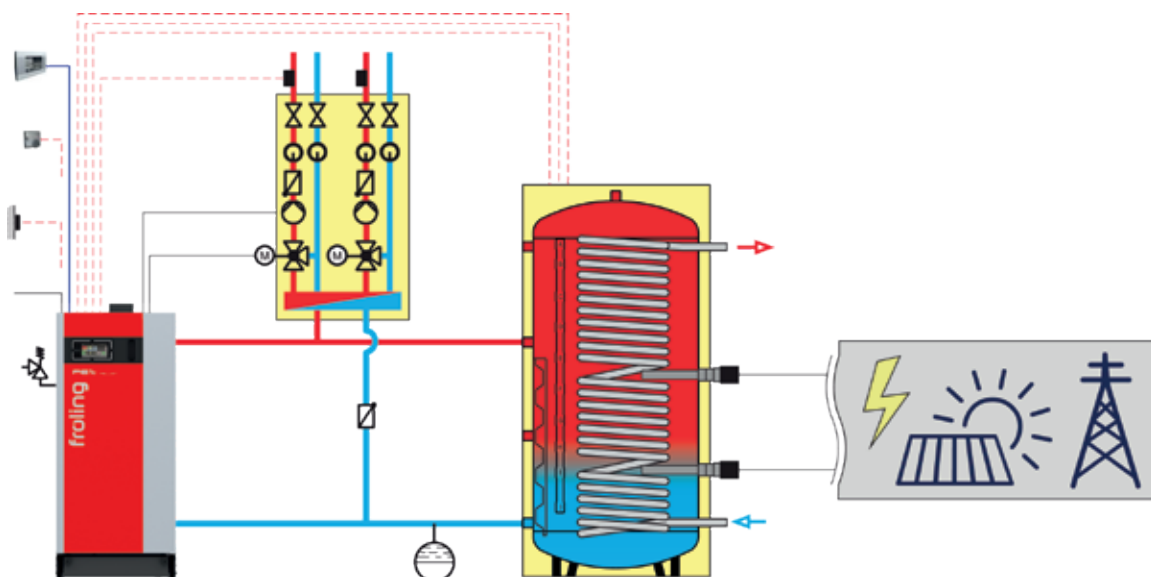
- Advantages:**
- Complete solution for all requirements
 - Components work perfectly together
 - Integrated solar power

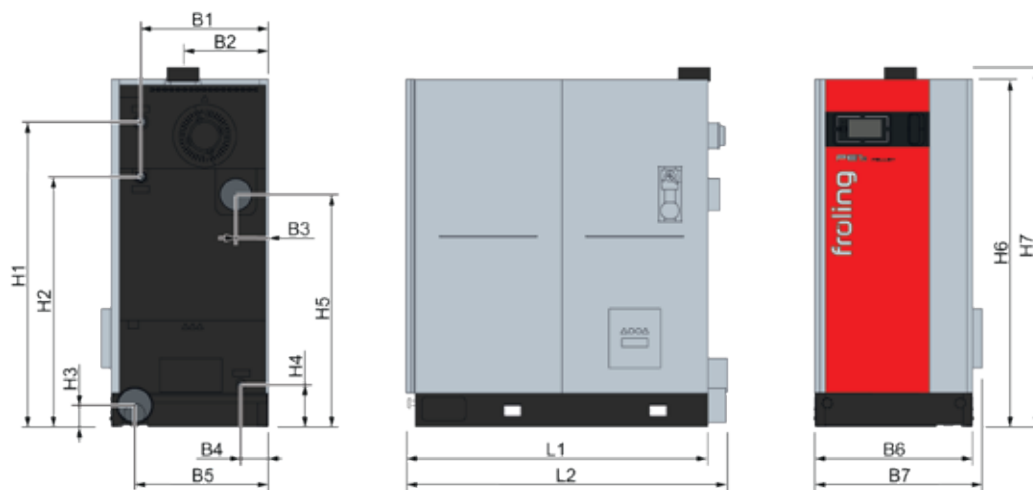
SYSTEMS ENGINEERING FOR OPTIMUM ENERGY CONSUMPTION

PE1e Pellet with H3 hygienic solar layered tank



PE1e Pellet with H2 hygienic layered tank and double electric heating cartridge

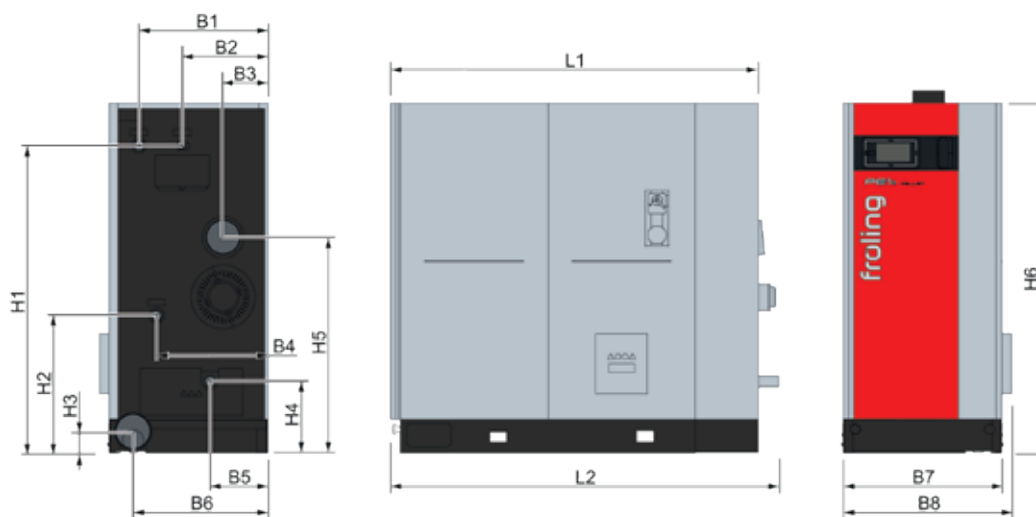




Measurements - PE1e Pellet [mm]		45	50	55	60
L1	Boiler length	1400	1400	1400	1400
L2	Total length incl. flue gas pipe connection	1490	1490	1490	1490
B1	Distance of flow/return connection from side of boiler	590	590	590	590
B2	Distance between flue gas pipe connection and side of boiler	395	395	395	395
B3	Distance from rear flue gas pipe connection to side of boiler (optional)	150	150	150	150
B4	Distance from drainage to side of boiler	130	130	130	130
B5	Distance of supply air connection to side of boiler (optional)	620	620	620	620
B6	Boiler width	730	730	730	730
B7	Boiler width incl. cover for electrostatic particle separator (optional)	810	810	810	810
H1	Height, flow connection	1425	1425	1425	1425
H2	Height, return connection	1175	1175	1175	1175
H3	Height of supply air connection (optional)	100	100	100	100
H4	Height of drainage connection	195	195	195	195
H5	Height of rear flue gas pipe connection (optional)	1090	1090	1090	1090
H6	Boiler height	1620	1620	1620	1620
H7	Overall height	1675	1675	1675	1675
Flue spigot diameter, outside		149	149	149	149

Technical specifications - PE1e Pellet		45	50	55	60
Nominal heat output	[kW]	45	50	55	60
Power consumption (NL/PL)	[W]	65 / 30	68 / -	72 / -	75 / -
Energy label ¹⁾		A ⁺⁺	A ⁺⁺	A ⁺⁺	A ⁺⁺
Electrical connection	[V/Hz/A]	230V / 50Hz / fused C16A			
Weight	[kg]	650	650	650	650
Total boiler capacity (water)	[l]	113	113	113	113
Pellet container capacity	[l]	175	175	175	175
Ash container capacity combustion chamber / heat exchanger	[l]	37 / 12	37 / 12	37 / 12	37 / 12

¹ Efficiency label (boiler + controller)



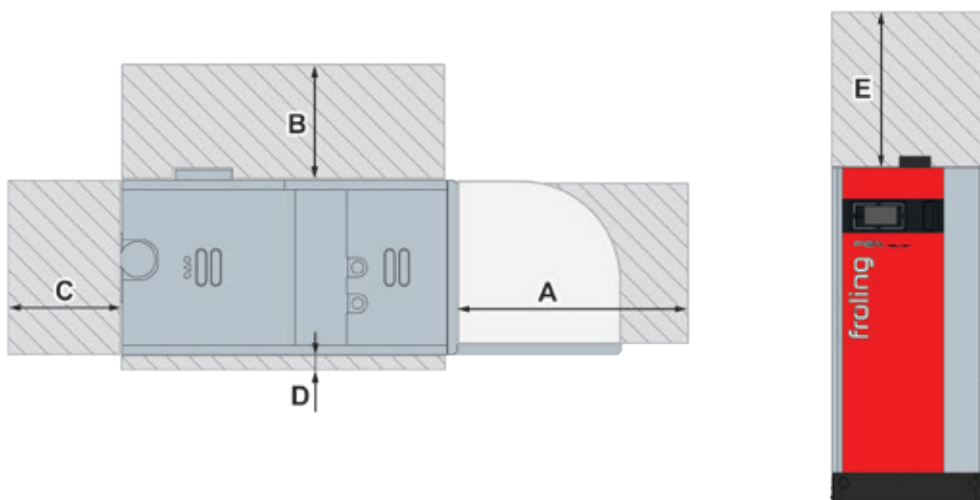
Measurements - PE1e Pellet with condensing boiler technology [mm]		45	50	55	60
L1	Boiler length	1690	1690	1690	1690
L2	Total length incl. flue gas pipe connection	1780	1780	1780	1780
B1	Distance between flow connection and side of boiler	590	590	590	590
B2	Distance between fresh water connection and side of boiler	395	395	395	395
B3	Distance between flue gas pipe connection and side of boiler	205	205	205	205
B4	Distance between return connection and side of boiler	510	510	510	510
B5	Distance between condensation drain connection and side of boiler	270	270	270	270
B6	Distance between supply air connection to side of boiler (optional)	560	560	560	560
B7	Boiler width	730	730	730	730
B8	Boiler width incl. cover for electrostatic particle separator (optional)	810	810	810	810
H1	Height of flow connection / fresh water	1425	1425	1425	1425
H2	Height, return connection	645	645	645	645
H3	Height of supply air connection (optional)	100	100	100	100
H4	Height, condensation drain connection	330	330	330	330
H5	Height, flue gas pipe connection	1025	1025	1025	1025
H6	Boiler height	1620	1620	1620	1620
Flue spigot diameter, outside		149	149	149	149

Technical specifications - PE1e Pellet with condensing boiler technology		45	50	55	60
Rated heat output ¹	[kW]	49.5	55	60.5	66
Power consumption (NL/PL)	[W]	85 / 35	93 / -	102 / -	110 / -
Energy label ²⁾		A ⁺⁺	A ⁺⁺	A ⁺⁺	A ⁺⁺
Electrical connection	[V/Hz/A]	230V / 50Hz / fused C16A			
Weight	[kg]	750	750	750	750
Total boiler capacity (water)	[l]	145	145	145	145
Pellet container capacity	[l]	175	175	175	175
Ash container capacity combustion chamber / heat exchanger	[l]	37 / 12	37 / 12	37 / 12	37 / 12

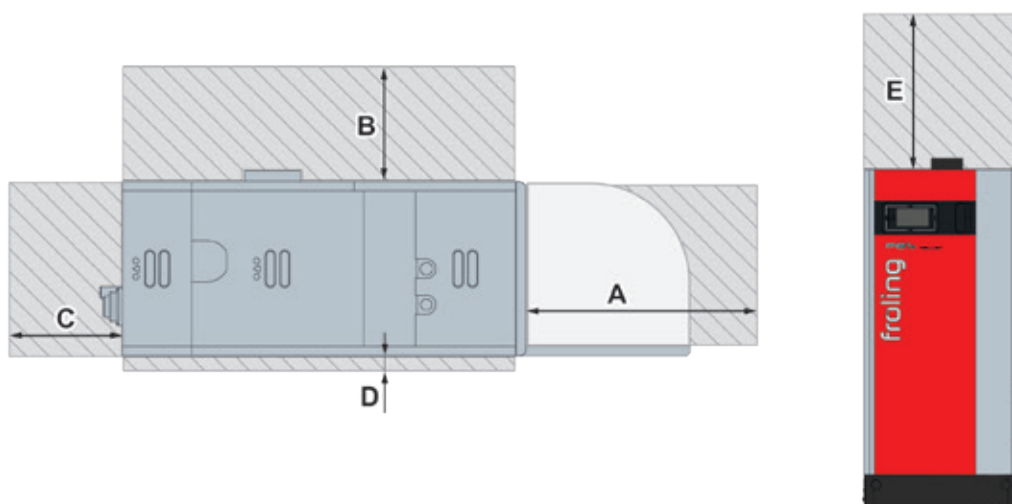
¹ Please note the eligible storage tank content for Germany! Please observe the BAFA guidelines with regards to the required storage tank (eligibility).

² Efficiency label (boiler + controller + condenser)

OPERATING AND MAINTENANCE AREAS

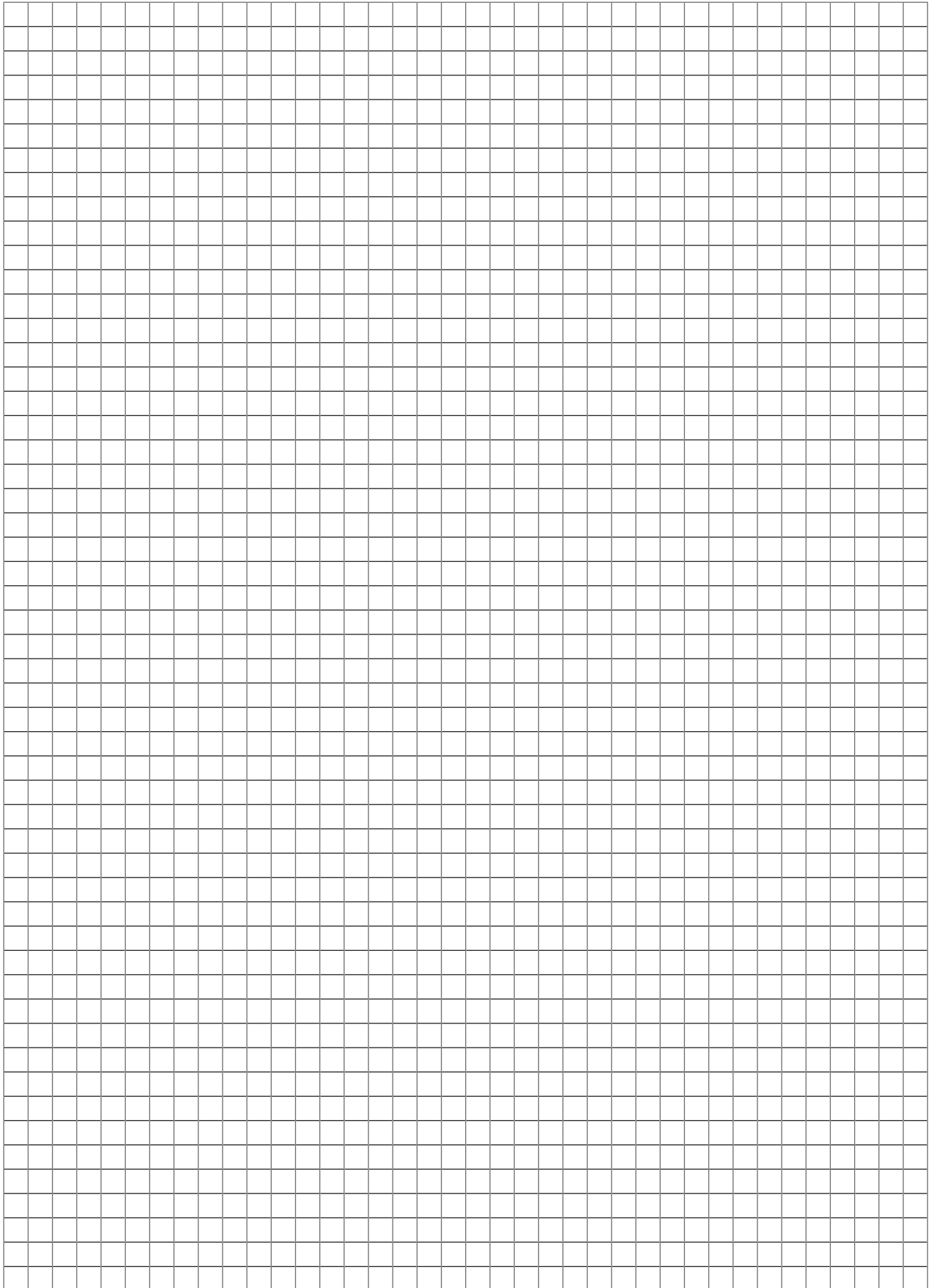


Minimum distances - PE1e Pellet [mm]	45	50	55	60
A Insulated door to wall	730	730	730	730
B Side of boiler to wall	500	500	500	500
C Back of boiler to wall	500	500	500	500
D Stoker to wall	30	30	30	30
E Maintenance area above the boiler ¹	500	500	500	500
Minimum room height	2150	2150	2150	2150



Minimum distances - PE1e Pellet with condensing boiler technology [mm]	45	50	55	60
A Insulated door to wall	730	730	730	730
B Side of boiler to wall	500	500	500	500
C Back of boiler to wall	500	500	500	500
D Stoker to wall	30	30	30	30
E Maintenance area above the boiler ¹	500	500	500	500
Minimum room height	2150	2150	2150	2150

¹ Maintenance area to expand the WOS springs upwards





Pellet boiler

PE1 Pellet	7 - 35 kW	P4 Pellet	48 - 105 kW
PE1c Pellet	16 - 22 kW	PT4e	120 - 250 kW
PE1e Pellet	45 - 60 kW		



Firewood boiler

S1 Turbo	15 - 20 kW
S3 Turbo	20 - 45 kW
S4 Turbo	22 - 60 kW

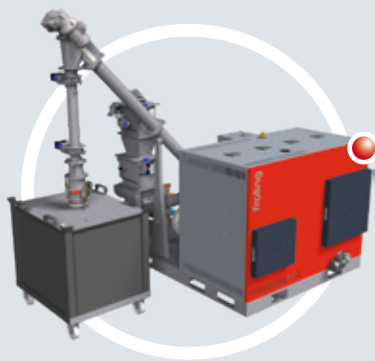
Dual fuel boiler

SP Dual compact	15 - 20 kW
SP Dual	22 - 40 kW



Wood chip boiler / large systems

T4e	20 - 350 kW	TI	350 kW
Turbomat	150 - 550 kW	Lambdamat	750 - 1500 kW



Heat and electricity from wood

Fixed bed gasifier CHP	46 - 56 kW (power consumption)
	95 - 115 kW (thermal output)

Your Fröling partner

Fröling Heizkessel- und Behälterbau Ges.m.b.H.
A-4710 Grieskirchen, Industriestr. 12

AT: Tel +43 (0) 7248 606-0
Fax +43 (0) 7248 606-600

DE: Tel +49 (0) 89 927 926-0
Fax +49 (0) 89 927 926-219

Email: info@froeling.com
Internet: www.froeling.com

