

S1 TURBO
FIREWOOD BOILER



Optional with retro-fittable pellet unit



A+

BETTER HEATING
INNOVATIVE AND
COMFORTABLE





ENVIRONMENTALLY
RESPONSIBLE HEATING,
ECONOMICALLY ATTRACTIVE



Wood is a domestic and environmentally friendly fuel that grows in large quantities, burns CO₂-neutral and makes it independent of international trouble spots. In addition, numerous jobs are

secured through the use of local wood. Therefore, wood is the optimal fuel from both an economic and an ecological point of view. There are different quality classes depending on the wood used.

For almost sixty 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. 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
- Up to 5 year Froling-warranty (subject to warranty conditions)

Two systems perfectly combined

The S1 Turbo (15 - 20 kW) combines all the features of a state-of-the-art biomass combustion system. The speed-regulated induced draught fan ensures constant high quality combustion, and the carbonisation gas extraction system prevents flue gas from escaping, even when topping up. The new S1 Turbo stands out for its high efficiency and long refilling intervals, as well as its low emissions and low energy consumption. The new air duct concept in Froling's S1 Turbo firewood boiler automatically regulates the heating, primary and secondary air with a single actuator. Thanks to the special air ducts for pre-heating, the fuel loading chamber door can be closed very soon after lighting. Heating with firewood can be that convenient!

Pellet unit can be retrofitted at any time

The S1 Turbo F with pellet flange is the ideal solution for people who are currently only burning firewood. With the S1 Turbo F with pellet flange, the pellet unit can be retrofitted later at any time.



FIREWOOD BOILER S1 TURBO



Speed-regulated induced draught fan

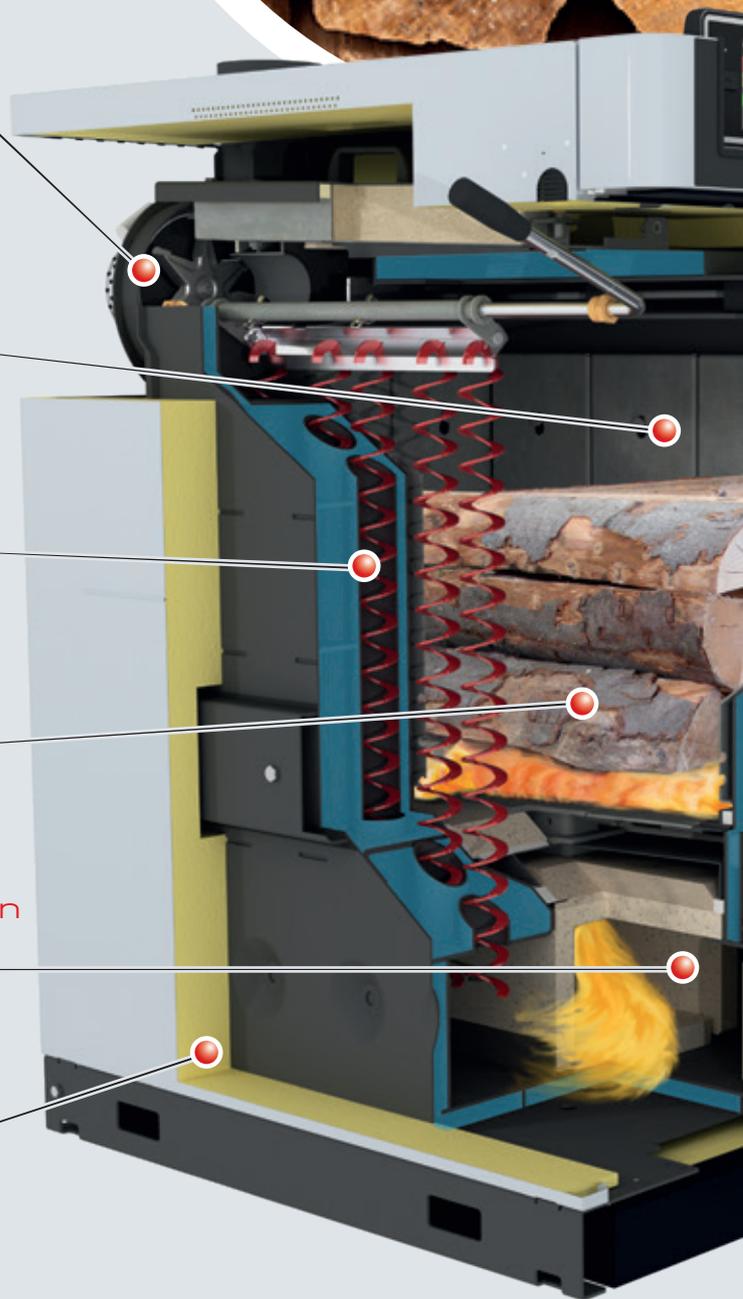
Cladding to protect the inner wall of the boiler and for a longer service life

WOS system
Efficiency Optimisation System

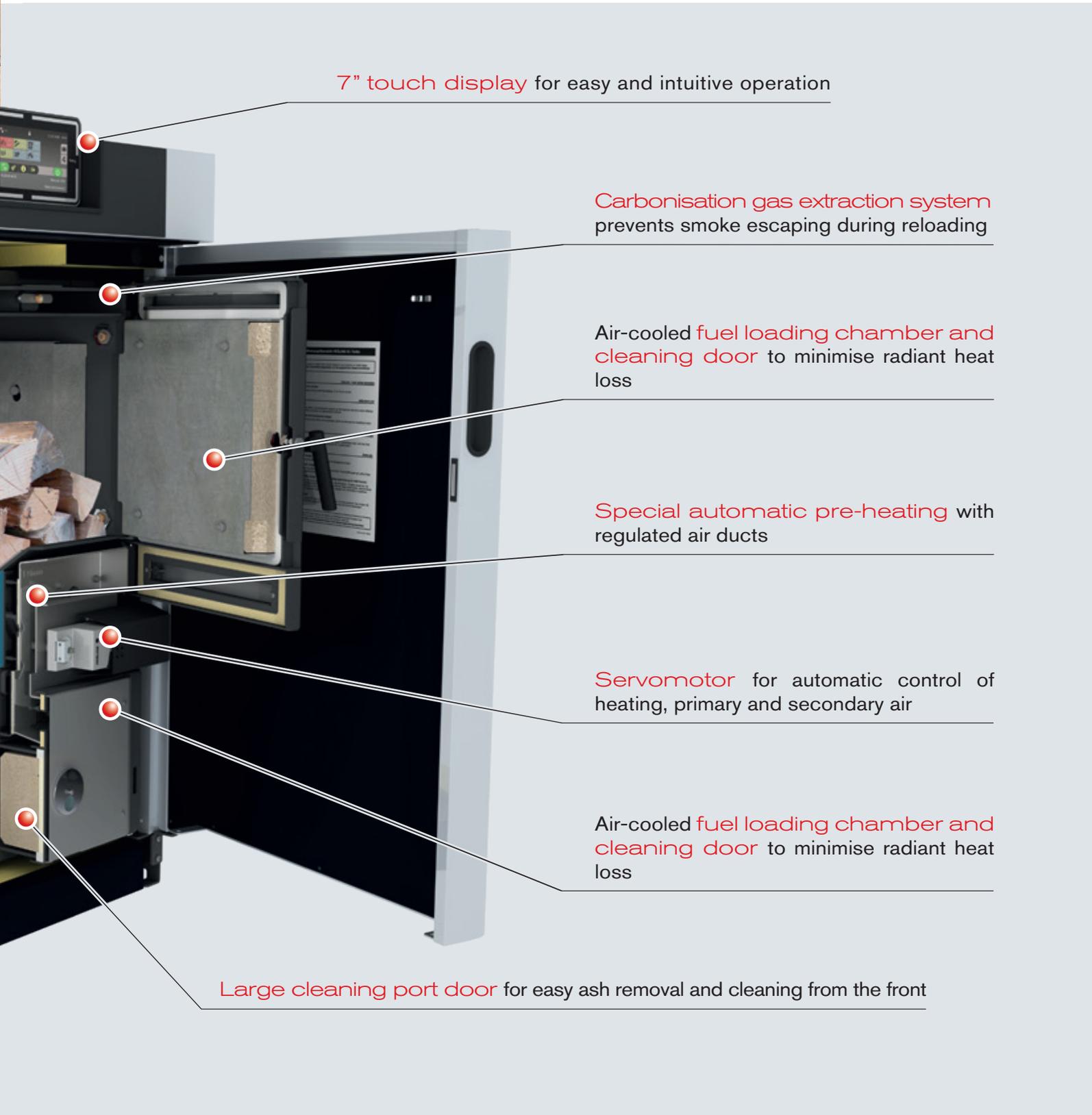
Large fuel loading chamber
for logs up to 56 cm in length

High-temperature firebrick-lined combustion chamber (easy to replace parts)

Top quality insulation
to minimise radiant heat loss



THE LATEST TECHNOLOGY



7" touch display for easy and intuitive operation

Carbonisation gas extraction system prevents smoke escaping during reloading

Air-cooled fuel loading chamber and cleaning door to minimise radiant heat loss

Special automatic pre-heating with regulated air ducts

Servomotor for automatic control of heating, primary and secondary air

Air-cooled fuel loading chamber and cleaning door to minimise radiant heat loss

Large cleaning port door for easy ash removal and cleaning from the front

Large fuel loading chamber for logs up to 56 cm in length

The S1 Turbo can burn firewood up to a length of 56 cm. It is conveniently filled from the front, and the large loading chamber ensures long intervals between reloading. The aprons protect the interior walls of the boiler, guaranteeing a long service life.

- Advantages:
- Easy loading
 - Long combustion time
 - Long reloading intervals

Unique air duct system

A unique design: both the primary and secondary air, as well as the heating air, are automatically regulated in the new S1 Turbo with just one servomotor. This means that in every stage of the heating process - from heating up to burnout - the exact amount of air is supplied, creating the perfect combustion conditions. Furthermore, thanks to the regulated air supply for pre-heating, the door can be closed just a short time after lighting. Heating with firewood can be that easy!

- Advantages:
- Regulated supply of air for pre-heating
 - Optimal combustion conditions

High-temperature firebrick-lined combustion chamber

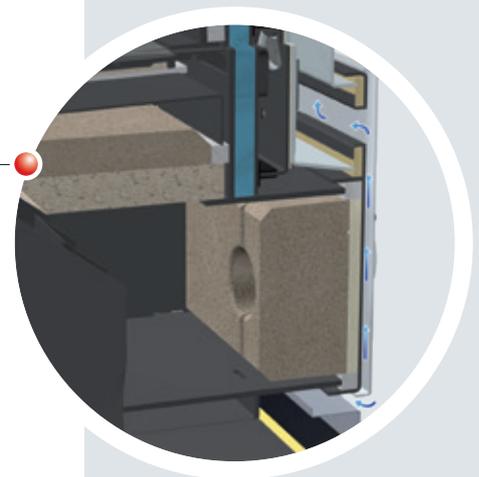
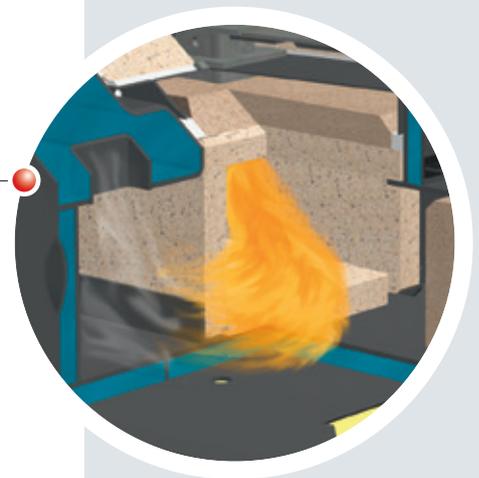
The hot combustion zone in the combustion chamber keeps emissions levels low. The new shape of the combustion chamber makes it especially easy to clean. Furthermore, its new construction makes maintaining the combustion chamber a breeze as the firebricks are very easy to replace.

- Advantages:
- Low emissions
 - Easy cleaning
 - Long lifespan

Air-cooled fuel loading chamber and cleaning doors

Thanks to the new air duct concept, the combustion air is taken in via the fuel loading chamber and combustion chamber doors. This air cooling ensures low temperatures at the boiler's operating elements, thus offering optimum convenience for the user. Furthermore, the low radiant heat losses guarantee excellent efficiency.

- Advantages:
- Maximum ease of use
 - Low radiant heat losses
 - High levels of efficiency

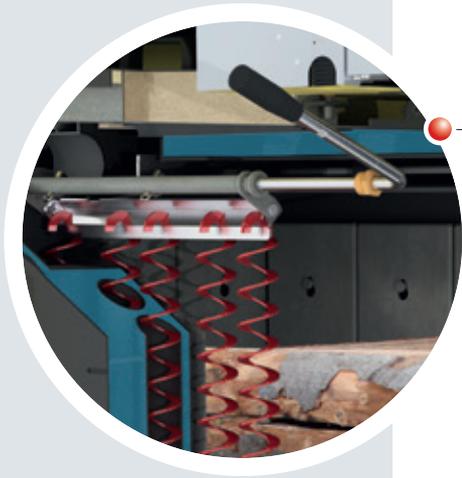




Speed-regulated induced draught fan

The speed-controlled induced draught fan is a standard component of the unit, which further enhances the reliability of the S1 Turbo. This means that the boiler can be started easily even if the chimney is cold. The speed regulation device in the induced draught fan stabilises combustion throughout the heating process and adjusts the output according to requirements.

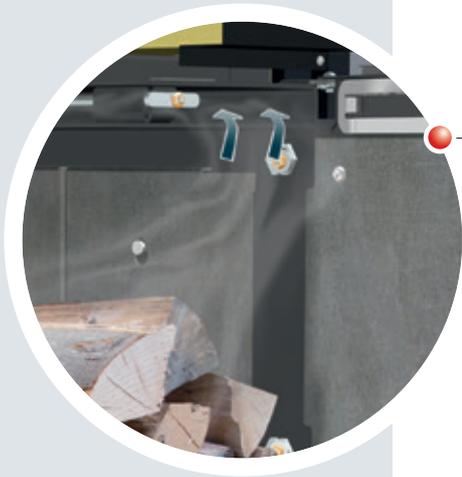
- Advantages:**
- Maximum ease of use
 - Smooth boiler start
 - Constant stabilisation during combustion



WOS system as standard

We never compromise on convenience. The WOS (Efficiency Optimization System), a standard part of the S1 Turbo, consists of special turbulators which are placed in the heat exchanger pipes. The lever arm mechanism ensures easy cleaning of the heating surfaces from the outside. An additional benefit of this mechanism is that it ensures higher efficiency and fuel savings.

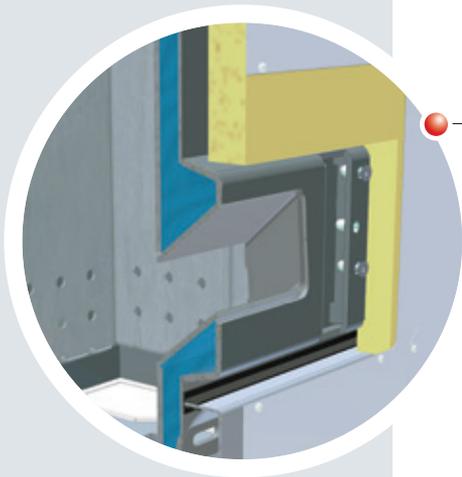
- Advantages:**
- Even more efficient
 - Easy cleaning from outside
 - Fuel economy



Special carbonisation gas extraction system

The integrated carbonisation gas duct flap makes preheating even easier. The flap is closed manually before lighting to provide a better draught during the pre-heating process. The carbonisation gas duct flap opens automatically when the fuel loading chamber door is closed. This then reactivates the carbonisation gas extraction system, thus preventing smoke and gas from escaping when reloading.

- Advantages:**
- Easy pre-heating
 - No flue gas escapes during reloading
 - Boiler room stays clean



Pellet flange for the S1 Turbo F (optional)

The S1 Turbo F with pellet flange is the ideal solution for people who are currently only burning firewood. With the S1 Turbo F with pellet flange, the pellet unit can be retrofitted at any time.

- Advantages:**
- Pellet unit can be retrofitted at any time
 - Two systems perfectly combined

INDIVIDUAL CONTROL UNIT OF THE HEATING SYSTEM

Lambdatronic S 3200 control unit

Fröling provides a future-oriented Lambdatronic S 3200 and a new 7" touch display. Intelligent control management makes it possible to connect up to 18 heating circuits, up to 4 storage tanks and up to 8 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.



- Advantages:
- Precise combustion control by a Lambda control using a Lambda probe
 - Connection for up to 18 heating circuits, 8 water heaters and up to 4 storage tank management systems
 - Integration capability for a solar panel system
 - LED frame for status display with illuminated presence detection
 - Simple and intuitive operation
 - Various smart home options (such as Loxone)
 - Remote control from the living room (remote control 3200 and RGB 3200 Touch) or via Internet (froeling-connect.com)



SIMPLE & INTUITIVE OPERATION



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



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

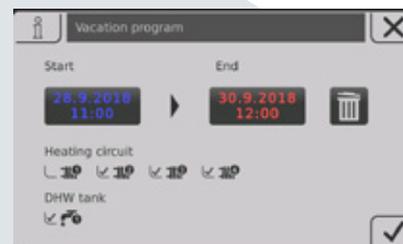


Fig. 3 Overview of the new holiday mode



KEEP TRACK OF EVERYTHING WITH THE FROLING APP

The Froling App allows you to check and control your Froling 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 is to be emptied or in the event of a fault message).

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

SMART HOME

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

Loxone

Combine your Froling heating system with the Loxone Miniserver and the new Froling 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

Via the Froling modbus interface, the system can be integrated into a building management system.



RELOAD CALCULATION FOR FIREWOOD

Efficient heating with intelligent reload calculation from Fröling. The current status of the system is visible at all times via the 7" touch display and can be used through simple parameterization of the storage tank type and the storage tank volume.

Taking into account the current storage tank charge, the boiler control calculates the missing energy. When the boiler door is opened, the required amount of fuel for loading the storage tank is displayed in kilograms.

Wood types

Different types of wood with the same water content differ mainly in terms of weight. There are lighter (softwood) and heavy (hardwood) types of wood. In relation to weight, all types of wood have an almost identical heating value with the same water content.

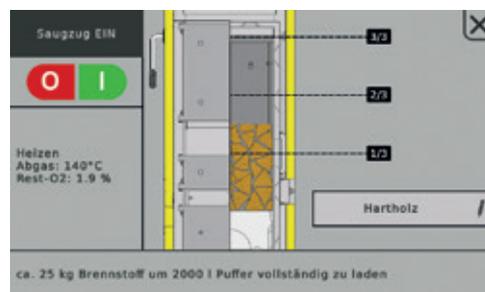
In order to achieve the same heating value, more softwood is needed than hardwood. For customers who only have limited storage capacity, hardwood is therefore particularly suitable for heating.

Examples of softwood: spruce, fir, pine, larch, poplar, willow
Examples of hardwood: oak, copper beech, ash, maple, birch, bird cherry

Display for softwood



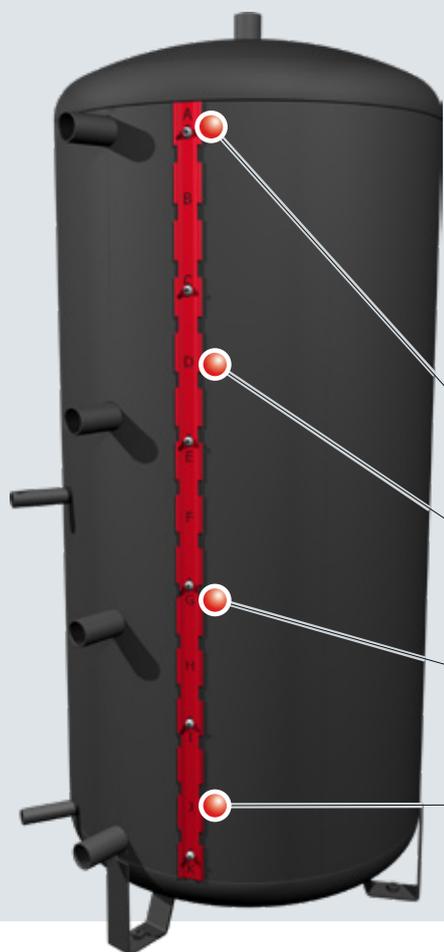
Display for hardwood



Fröling tank systems with sensor strip

Fröling layered tanks have a terminal strip for optimal positioning of the sensors. This allows multiple sensors to be positioned at any height and moved without having to empty the tank. The labelling of the sensor strip and corresponding Fröling connection diagrams makes the sensors extremely easy to position and offer lots of different options.

To enable an exact calculation of the reload quantities, a total of 4 sensors (positions A, D, G, I) are attached to the terminal strip.



1. Sensor, position A

2. Sensor, position D

3. Sensor, position G

4. Sensor, position I



Correct positioning of the sensors on the terminal strip is crucial for optimal operation of the system!

SYSTEM CONVENIENCE



FRA room temperature sensor

By using the just 8x8 cm FRA room temperature sensor, 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

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.



Heating circuit

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



Hydraulic module

With wall housing and two immersion sensors for controlling one or two pumps and a changeover valve with up to six sensors.



Solarpackage WMZ

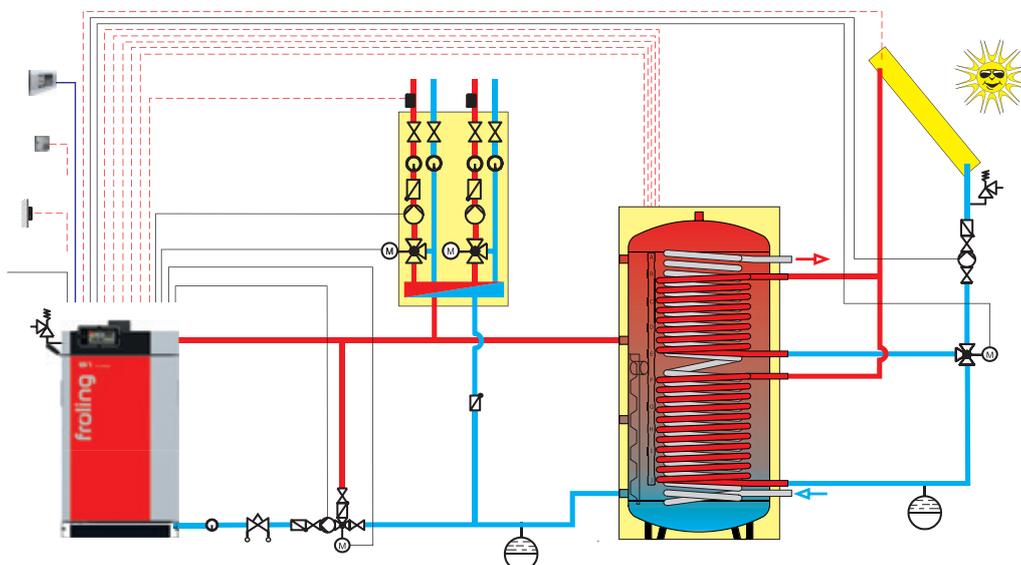
Set for heat quantity measurement, consisting of a volume pulse generator ETW-S 2.5 one Collector sensor and two contact sensors for flow and return temperature measurement.

SYSTEMS ENGINEERING FOR OPTIMUM ENERGY CONSUMPTION

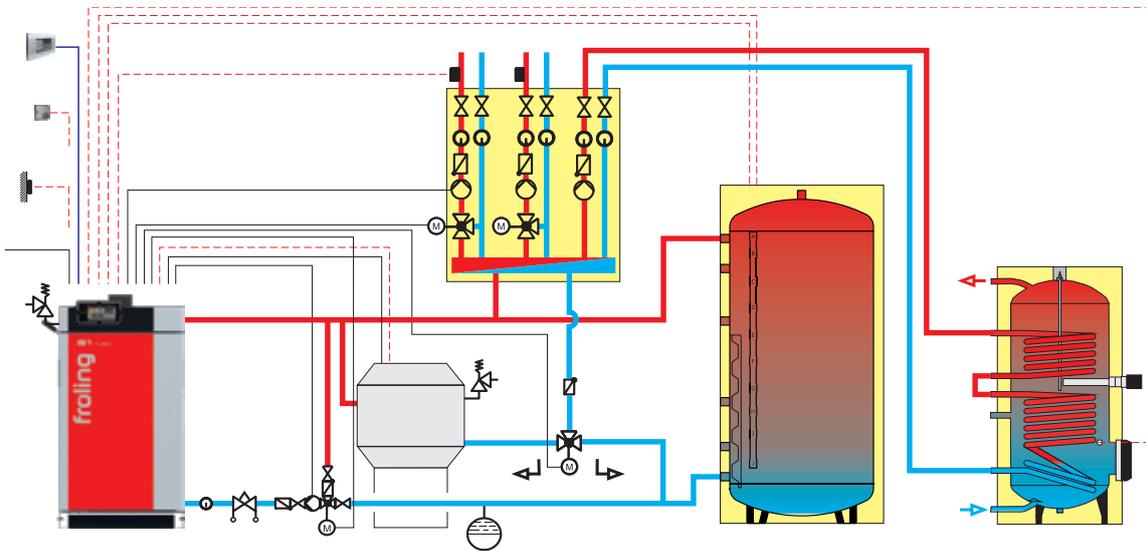
Froling systems engineering offers efficient energy management. Up to 4 storage tanks, 8 hot water tanks and 18 heating circuits can help manage the heating. You can also benefit from the ability to integrate other means of energy production such as solar panel systems.

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

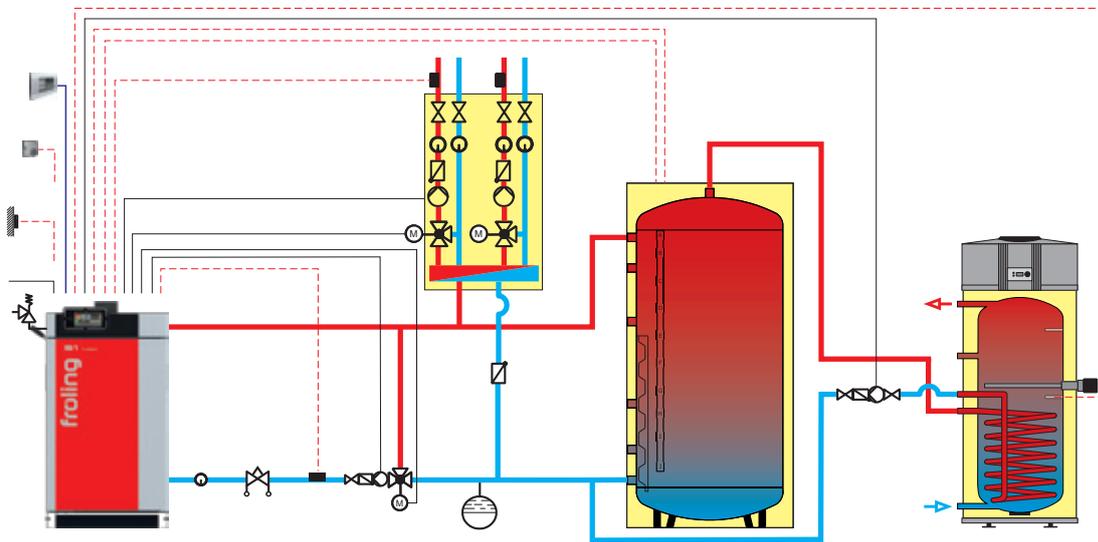
S1 Turbo with H3 hygienic solar layered tank



S1 Turbo with oil/gas boiler, layered tank and water heater



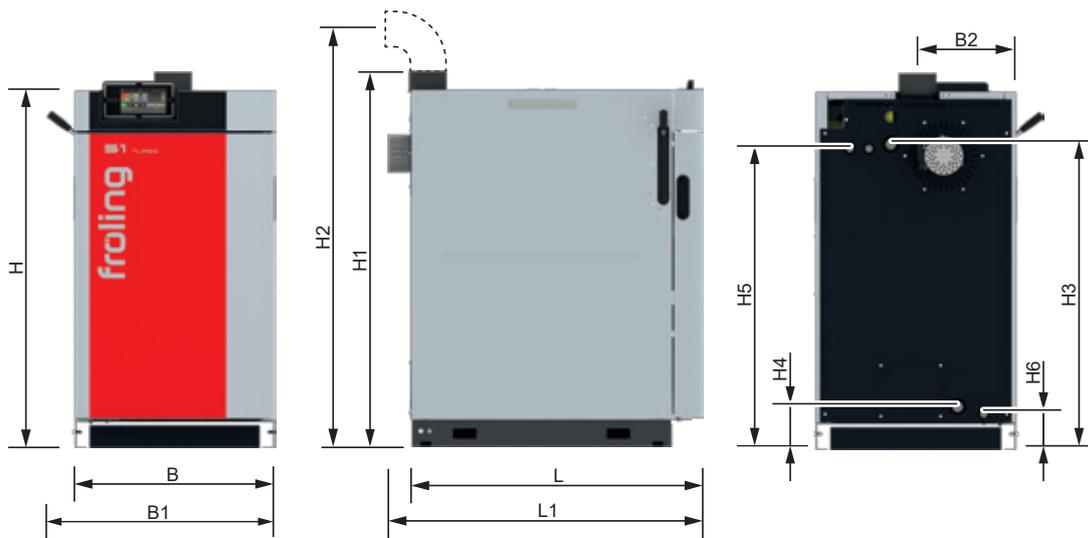
S1 Turbo with layered tank and hot water heat pump



THE PERFECT COMBINATION

Please also see our "Tank systems" brochure.

DIMENSIONS & TECHNICAL SPECIFICATIONS



Dimension - S1 Turbo [mm]		15 / 20
L	Length of boiler	1000
L1	Total length incl. induced draught fan	1080
B	Width, boiler	685
B1	Width of boiler incl. WOS lever	790
B2	Clearance from flue pipe connection to side of boiler	340
H	Height, boiler	1235
H1	Total height including flue pipe nozzle	1300
H2	Height flue pipe connection ¹	1395
H3	Height, flow connection	1055
H4	Height, return connection	150
H5	Height, safety heat exchanger connection	1040
H6	Height, drainage connection	125
Abgasrohrdurchmesser		129

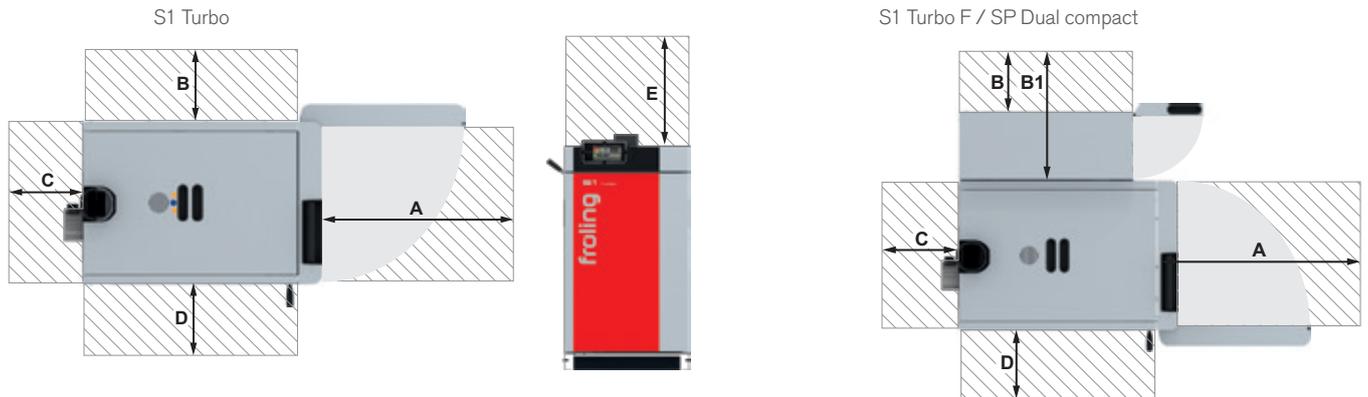
¹ When using the optional flue pipe nozzle for low chimney connections

Technical specifications - S1 Turbo		15	20
Nominal output	[kW]	15	20
Energy label*		A*	A*
Electrical connection	[V/Hz/A]	230 V / 50 Hz / fused C16A	
Power consumption at nominal load	[W]	37	42
Weight of boiler incl. insulation and control	[kg]	455	465
Fuel loading door dimensions (width / height)	[mm]	350 / 360	
Total boiler capacity (water)	[l]	80	

* Configuration label (boiler + control + calorific value)

The ecodesign requirements according to VO (EU) 2015/1189, Annex II, point 1. are met.

OPERATING AND MAINTENANCE AREAS



Minimum distances - S1 Turbo [mm]	15 / 20
A Distance between front of boiler and wall	800
B Distance between side of boiler and wall	200
C Distance between rear of boiler and wall	400
D Distance between side of boiler and wall	500 (200 ¹)
E Maintenance area to expand the WOS springs upwards	500

Mindestabstände - S1 Turbo F (SP Dual compact) [mm]	15 / 20
A Distance between front of boiler and wall	800
B Distance between side of boiler with heat exchanger lever and pellet unit and wall	500
B1 Distance between side of boiler without pellet unit and wall	815
C Distance between rear of boiler and wall	400
D Distance between side of boiler with WOS lever and wall	500 (200 ¹)
E Maintenance area to expand the WOS springs upwards	500

¹ Maintenance work to boiler's heat exchanger only possible from front



Pellet boiler

PE1 Pellet	7 - 35 kW
PE1c Pellet	16 - 22 kW
P4 Pellet	48 - 105 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 / Large boilers

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



Wood combined heat and power

Fixed-bed gasifier CHP	45 - 500 kWel
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Your Fröling partner

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