



# S4 Turbo




# Heating with firewood

For over 50 years, Froling has specialised in using wood as an efficient source of energy. Today the name Froling represents 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 inquiries quickly.



froling



## The fuel: firewood (up to 56 cm)

Wood is a home-grown and environmentally friendly fuel, that is highly sustainable. It is CO<sub>2</sub> 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.

## S4 Turbo: The new generation of firewood boilers

Discover the world of modern firewood boiler technology! Our experienced engineers have set themselves high targets for the S4 Turbo, and they have implemented them:

- Efficiency Optimisation System (WOS) as standard.
- Durable silicon carbide chamber with long combustion zone for very low emissions.
- Quick heating-up with special air ducts (optional: automatic ignition device).
- Easy cleaning and ash removal from the front of the boiler.
- Modular control technology with bus system.
- Pellet unit can be added at any time on the S4 Turbo F. (15-40 kW)



S4 Turbo F with pellet flange (optional)

## Pellet unit can be added any time

The S4 Turbo F with pellet flange is the ideal solution for people who are currently only burning firewood. It can easily be converted to a dual fuel boiler by fitting the pellet unit at any time (up to 40 kW).

## Modular design

The S4 Turbo F has important advantages even before it is put into the boiler room. It is so compact that installing it is child's play even in confined boiler rooms. Due to the modular construction, the S4 Turbo F with pellet flange can be fitted with a pellet unit at any time.

# The latest technology





## The firewood boiler with special benefits:

- 1 Broadband lambda probe for optimal combustion.
- 2 Speed-regulated, low-noise induced draught fan for maximum ease of use.
- 3 WOS system (Efficiency Optimisation System) as standard, for high efficiency and user-friendly cleaning from outside.
- 4 Servo-motors as standard for automatic control of primary and secondary air.
- 5 Large maintenance openings for easy cleaning from the front.
- 6 Lambdatronic S 3200 control with 7" touch display and innovative bus technology
- 7 Carbonisation gas extraction system prevents smoke escaping during reloading.
- 8 Cladding to protect the inner wall of the boiler and for a longer service life.
- 9 Large fuel loading chamber for logs up to 56 cm in length guarantees longer periods between refilling.
- 10 Automatic heat up with special air ducts for faster heat up. (optional: automatic ignition device)
- 11 Durable silicon combustion chamber with long combustion zone for very low emissions.
- 12 Large fuel loading chamber doors for easy and convenient loading of firewood.

# The next generation



**Feature:** Large fuel loading chamber for half-metre pieces (up to 56 cm) with hot cladding

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

The S4 Turbo allows burning of firewood up to a length of 56 cm even from an output of 15 kW. It is filled conveniently from the front of the unit and due to a large fuel loading chamber long refilling intervals are possible. Often it is only necessary to fill the boiler once a day. A cladding, which can be removed easily for cleaning purposes, protects the interior walls of the boiler, guaranteeing a long service life.

**Feature:** New combustion chamber shape

- Advantages:
- Very long combustion zone
  - Reduced emissions
  - Much more environmentally friendly

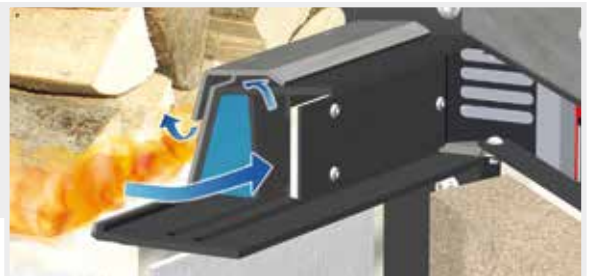
Froling has refined the traditional cylindrical combustion chamber shape and is setting new standards with an optimised heating gas duct. The exceptionally long combustion zone guarantees very low emissions. By using this firewood boiler technology, you are making a considerable contribution to maintaining clean air in our environment. The robust construction and the use of silicon carbide as a material for the high temperature combustion chamber enable a longer service life.

**Feature:** Unique automatic heating-up

- Advantages:
- Load the boiler, light the fuel, close the door and feel the heat
  - No smoke is produced in the boiler room
  - Automatic ignition device (optional)

A unique design: The ignition door on the S4 Turbo can be closed immediately after ignition due to a special primary air duct. A striking difference to traditional systems.

And to make life even easier, you can choose the optional **automatic ignition**. Heating with firewood can be so convenient!





**Feature: WOS system as standard**

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

We never compromise on convenience. The WOS (Efficiency Optimization System), a standard part of the S4 Turbo, consists of special turbulators which are placed in the heat exchanger pipes. The lever arm mechanism ensures convenient and easy cleaning of the heating surfaces from the outside. An additional benefit of this mechanism is that it ensures higher efficiency and fuel savings.

**Feature: Special carbonisation gas extraction system**

- Advantages:
- No smoke escapes during reloading.
  - The boiler room stays clean

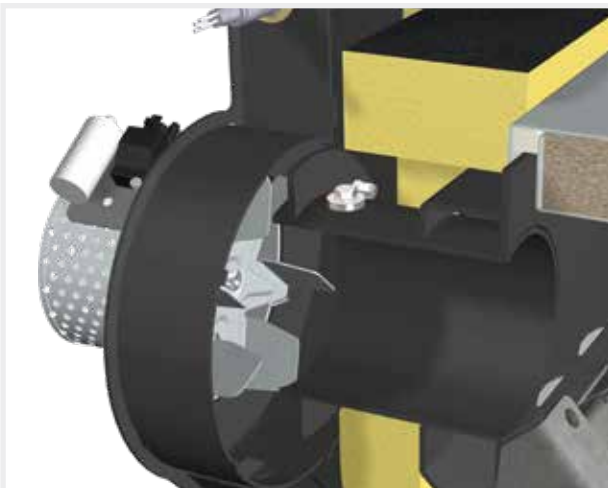
The specialised carbonisation gas extraction system prevents smoke from escaping even while topping off during refill. This is applicable at every stage of combustion.



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

- Advantages:
- Maximum ease of use
  - Constant stabilisation during combustion

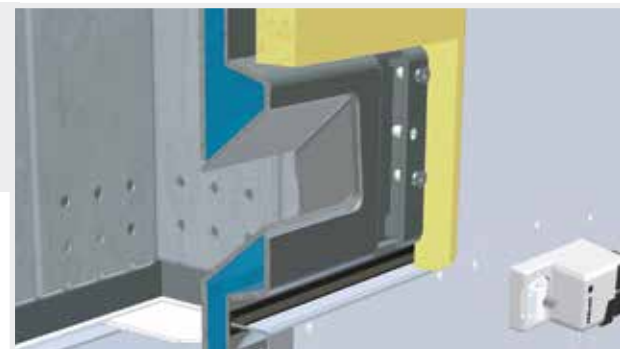
The speed-regulated induced draught fan is a standard component of the unit, which ensures exact air quantity and constant underpressure throughout combustion. This means that the boiler can be started easily even if the chimney is cold. The speed regulation device in the induced draught fan stabilises combustion throughout the heating process and adjusts the output according to requirements. The induced draught fan also runs very quietly and energy efficiently.



**Feature: Pellet flange for the S4 Turbo F (optional)**

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

The S1 Turbo F with pellet flange is the ideal solution for people who are currently only burning firewood. With the S4 Turbo F 15-40 with pellet flange, the pellet unit can be retrofitted at any time.



Efficiency rates  
up to 101.1%

# Innovative: Condensing boiler technology for firewood boilers



The Froling S4 Turbo (28 kW) is the only firewood boiler in the world, which is also available with **innovative condensing boiler technology** (optional). The flue gas contains energy, which escapes unused up the chimney with conventional solutions, but an additional heat exchanger positioned on the back of the boiler makes use of it for the heating system. This increases the **boiler efficiency to over 101,1 percent (Hu)**, an unprecedented level for firewood boilers. 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. The module can also be retrofitted.



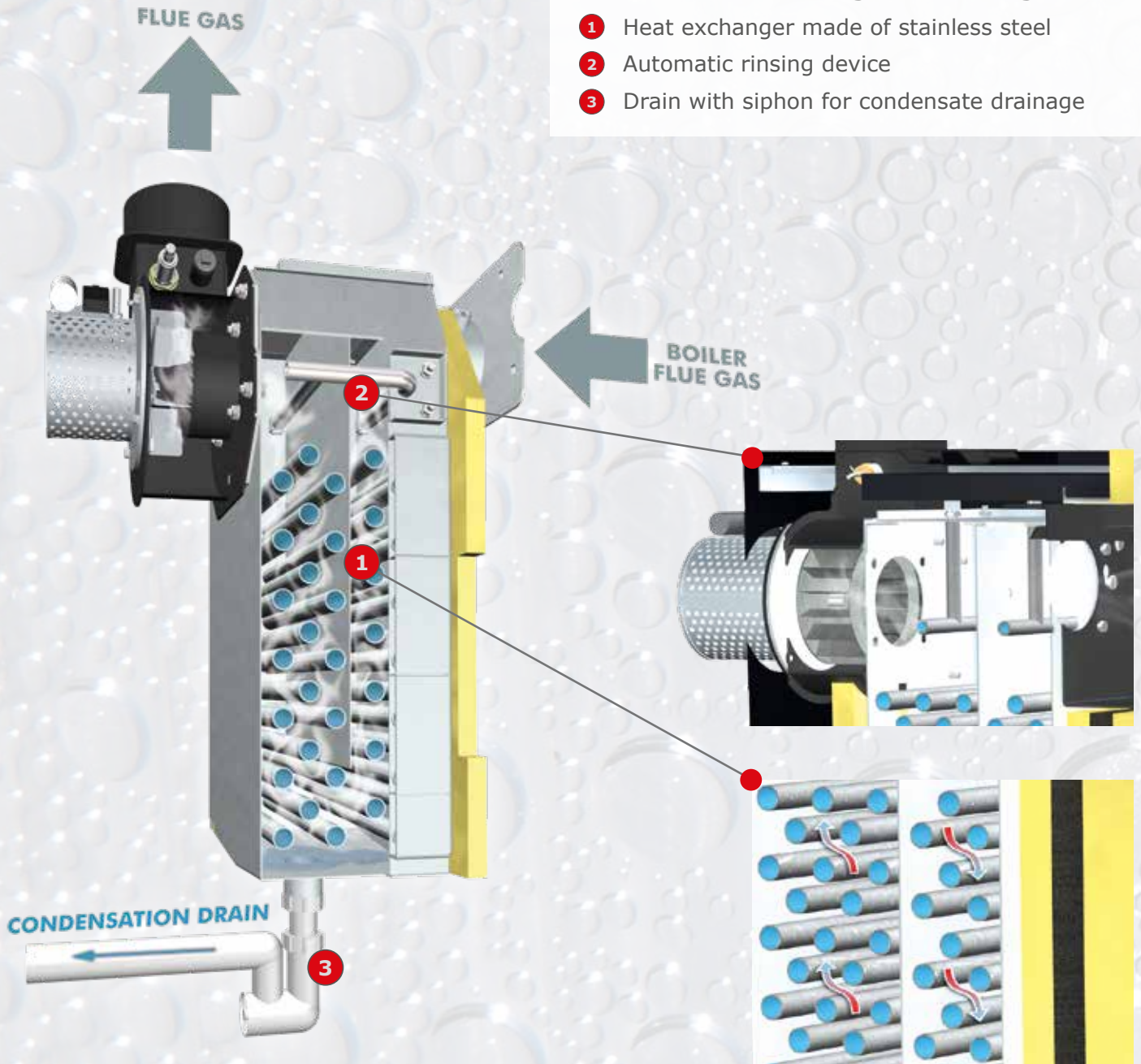
## Advantages

- 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

# System convenience

## Lambdatronic S 3200 control

With the new Lambdatronic S 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 S 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 Easy modifying of heating times



Fig. 3 Overview of the new holiday mode

### Firewood reload calculation

Too much firewood can result in fuel that is not completely burnt despite the storage tank being loaded. The integrated reload calculation 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 kilogrammes.



**NEW:**

## EVERYTHING AT A GLANCE WITH THE NEW FROLING APP

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



With the new Froling App, you can 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).

With optimized tablet view!

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. 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.



**SMART  
HOME**

## FLEXIBLE SOLUTION

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.)



**Mod bus:** Via the Froling mod bus interface, the system can be integrated into a building management system.

# 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.



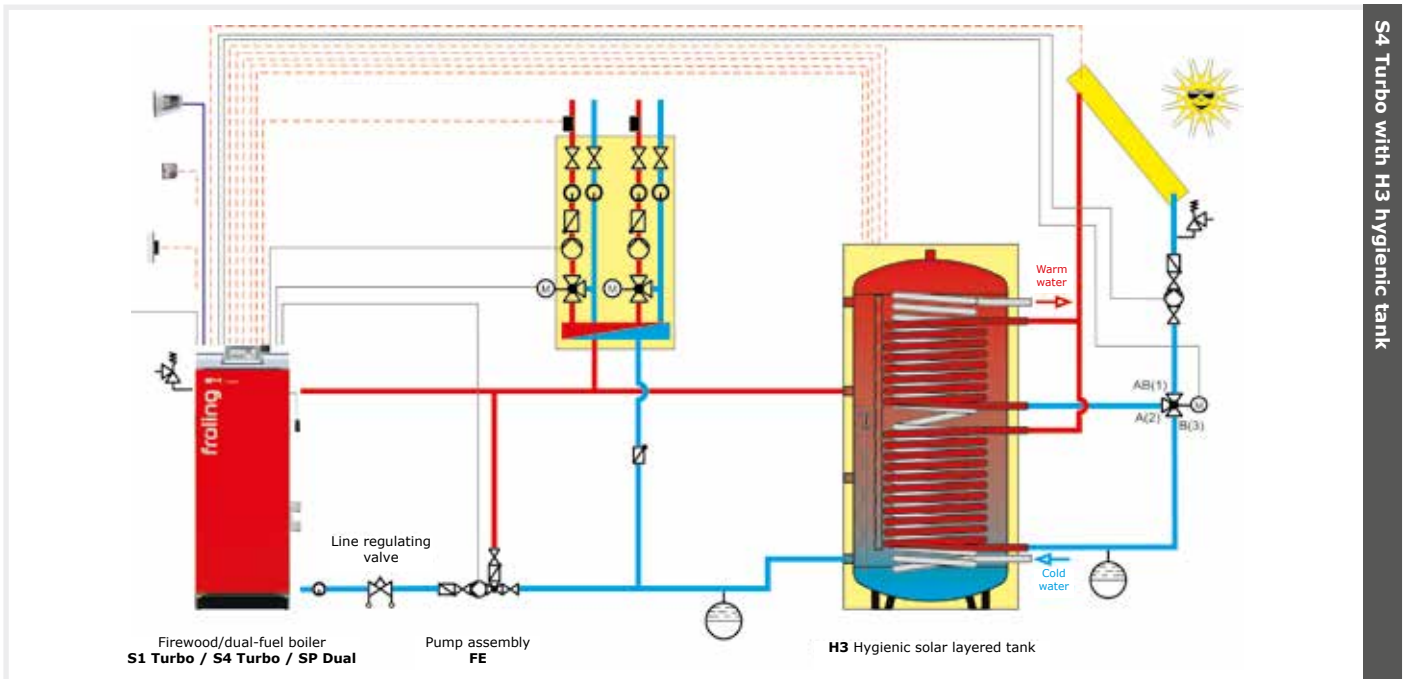
### RBG 3200 Touch room console

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.

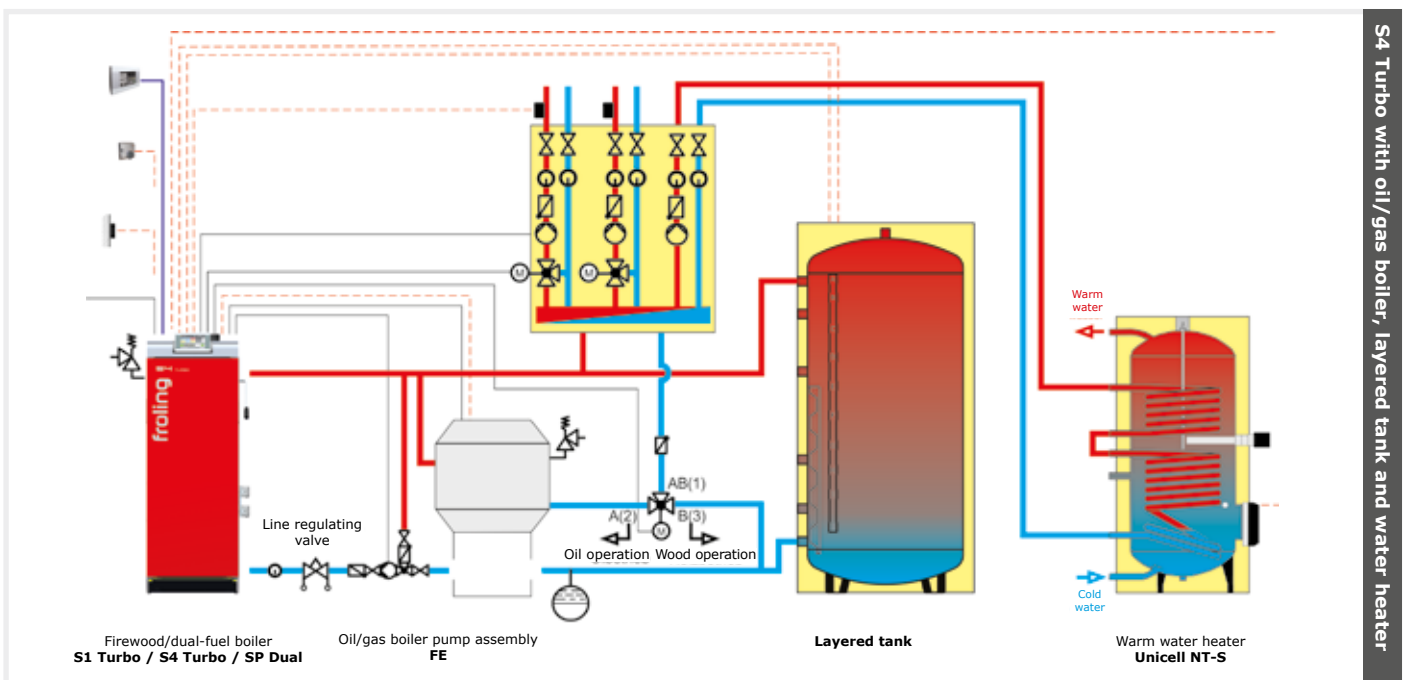
**Feature: Systems engineering for optimum energy consumption**

- Advantages:
- Complete solution for all requirements
  - Components work perfectly together
  - Incorporation of solar power

Froeling systems engineering offers efficient energy management. Up to 4 storage tanks, 8 hot water tanks, and 18 heating circuits can influence the heat management system. An additional benefit is the ability to integrate alternative means of energy production, such as solar panels.

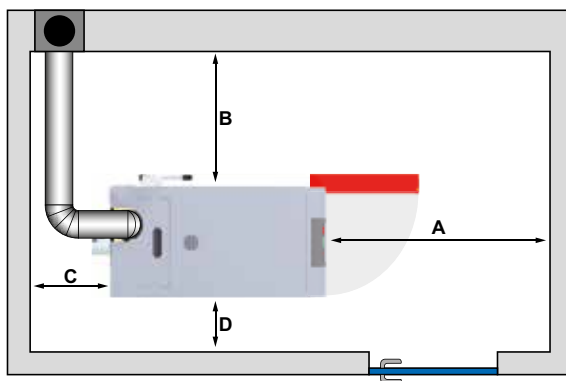


S4 Turbo with H3 hygienic tank



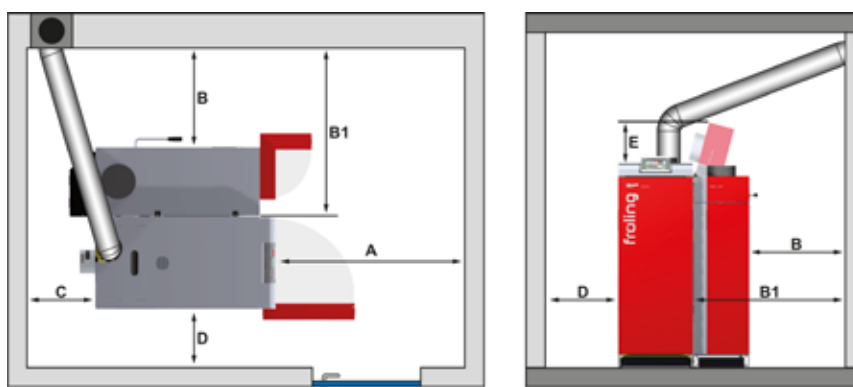
S4 Turbo with oil/gas boiler, layered tank and water heater

# Minimum distances in the boiler room



Distances - S4 Turbo		
A	Distance – front of boiler to wall	[mm] 800
B	Distance between side of boiler and wall*	[mm] 800 (200)
C	Distance - back to wall of S4 Turbo 15-40 Distance - back to wall of S4 Turbo 50-60	[mm] 500 800
D	Distance between side of boiler and wall*	[mm] 200 (800)

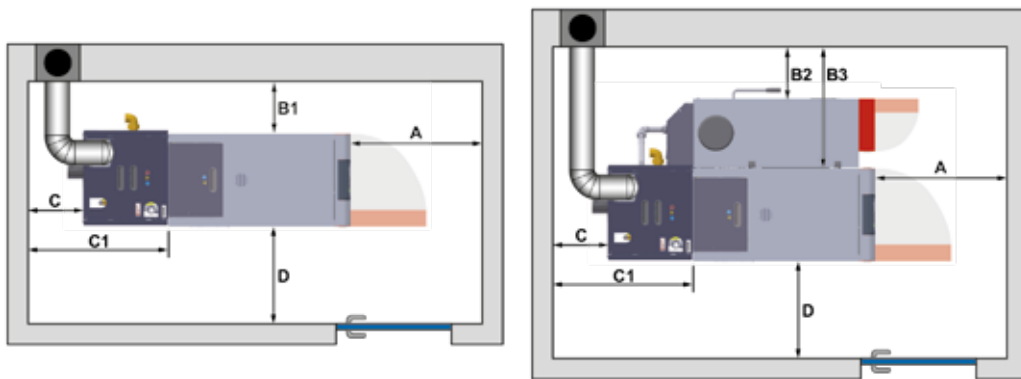
\* Position the boiler on the side of the WOS lever (B or D) at a distance of at least 800 mm from the wall to allow easy access for connecting the appliance and for maintenance work (e.g. induced draught).



Distances - S4 Turbo F / SP Dual		15-28	32-40
A	Distance - insulated door to wall	[mm] 800	
B	Distance – boiler side with heat exchanger lever and pellet unit to wall	[mm] 600	700
B1	Distance – boiler side without pellet unit to wall	[mm] 1030	1130
C	Distance – back to wall	[mm] 500	
D	Distance between side of boiler and wall <sup>2</sup>	[mm] 200 (800)	
E	Space required for open cover (to be taken into account if the flue gas can only be channelled to the right)	[mm] 300	

<sup>1</sup> When using the optional articulated WOS lever

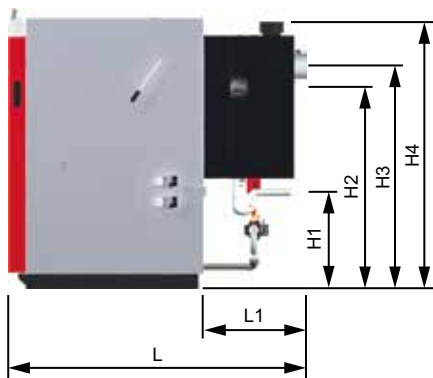
<sup>2</sup> When using the WOS lever on the left-hand side, position the boiler at a distance of at least 800 mm from the wall



Distances - S4 Turbo / SP Dual with condensing boiler technology		15-28	32-40	
A	Distance – front of boiler to wall	[mm]	800	
B1	Distance - boiler side to wall – S4 Turbo <sup>1</sup>	[mm]	800 (200)	
B2	Distance - boiler side to wall – SP Dual <sup>2</sup>	[mm]	600	700
B3	Distance - boiler side to wall – S4 Turbo, if pellet unit is retrofitted <sup>2</sup>	[mm]	1030	1130
C	Space required incl. maintenance area for induced draught fan with calorific value heat exchanger	[mm]	350	
C1	Space required to retrofit a calorific value heat exchanger	[mm]	1125	
D	Distance - boiler side to wall <sup>1</sup>	[mm]	200 (800)	

<sup>1</sup> Position the boiler on the side of the WOS lever (B1 or D) at a distance of at least 800 mm from the wall to allow easy access for connecting the appliance and for maintenance work (e.g. induced draught).

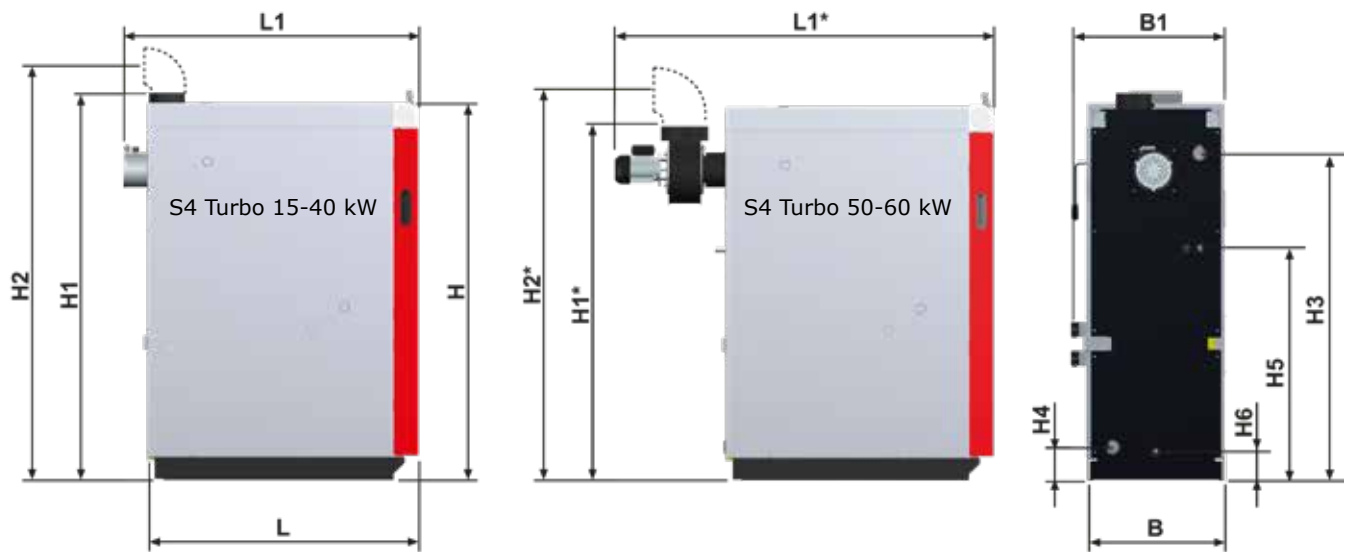
<sup>2</sup> When using the optional articulated WOS lever



Dimensions - S4 Turbo with condensing boiler technology		28	
L	Length of boiler + condensing boiler heat exchanger	[mm]	1745
L1	Length of condensing boiler heat exchanger	[mm]	610
B	Boiler width	[mm]	570
B1	Distance between condensation drain and side of boiler	[mm]	365
B2	Width condensing heat exchanger	[mm]	705
H1	Height, drainage connection	[mm]	490 - 610
H2	Height, return connection	[mm]	1160
H3	Height connection induced draft fan	[mm]	1285
H4	Height, flue pipe connection	[mm]	1540
Flue gas pipe diameter		[mm]	132
Nominal output		[kW]	32
Boiler efficiency		[%]	100,1
Power consumption		[W]	55 - 72
Fuel loading chamber capacity		[l]	145
Fuel loading door (width/height)		[mm]	380/360
Water capacity of condensing boiler heat exchanger		[l]	9
Condensing boiler heat exchanger weight		[kg]	90
Energy (ErP) label for S4 Turbo 28*			A+

\* Composite label (boiler + controls + condensing heat exchanger)

# Technical data



Dimensions - S4 Turbo / S4 Turbo F	15	22	28	34	40	50	60
L Length, boiler	1125	1125	1125	1215	1215	1215	1215
L1 Total length including induced draft fan / L1*	1300	1300	1300	1390	1390	1680	1680
B Width of boiler	570	570	570	670	670	670	670
B1 Total width incl. actuators	635	635	635	735	735	735	735
H Height of boiler	1565	1565	1565	1565	1565	1565	1565
H1 Total height including flue gas pipe / H1*	1610	1610	1610	1610	1610	1480	1480
H2 Height of flue gas pipe connection middle / H2* with flue gas nozzle 85°	1830/1715	1830/1715	1830/1715	1830/1715	1830/1715	1700/1585	1700/1585
H3 Flow connection	1360	1360	1360	1360	1360	1360	1360
H4 Return connection	140	140	140	140	140	140	140
H5 Safety heat exchanger connection	970	970	970	970	970	960	960
Flue pipe diameter	149	149	149	149	149	149	149

<sup>1)</sup> dimensions indicated for S4 Turbo 50/60 only; all dimensions in mm

Tech. specs - S4 Turbo / S4 Turbo F	15	22	28	34	40	50	60
Nominal heat output [kW]	15	22	28 <sup>1)</sup>	34 <sup>1)</sup>	40	49,9	60
Energy (ErP) label <sup>2)</sup>	A <sup>+</sup>	A <sup>+</sup>	A <sup>+</sup>	A <sup>+</sup>	A <sup>+</sup>	A <sup>+</sup>	A <sup>+</sup>
Boiler efficiency [%]	92,3	92,7	92,8 <sup>1)</sup>	92,9 <sup>1)</sup>	93	94 <sup>1)</sup>	94,9
Power consumption [W]	40	50-105	50-105	50-105	50-105	100-140	100-165
Fuel loading chamber capacity [l]	145	145	145	190	190	200	200
Fuel loading door (width/height) [mm]	380/360	380/360	380/360	380/360	380/360	380/360	380/360
Water capacity [l]	115	115	115	175	175	170	170
Boiler weight [kg]	640	645	650	735	745	793	803

Technical performance data in accordance with the test report from TÜV Austria Services GmbH

<sup>1)</sup> Values interpolated according to EN 303-5 Pt.5.1.4

<sup>2)</sup> Composite label (boiler + controls)

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