

T4e

WOOD CHIP BOILER



- Integrated **particle separator (electrostatic precipitator)** available as an option
- Online boiler controller via app
- 7" touch display with LED status display



BETTER HEATING
INNOVATION AND
CONVENIENCE

froling



ENVIRONMENTALLY RESPONSIBLE HEATING, ECONOMICALLY ATTRACTIVE



Wood chips are a local and environmentally-friendly fuel which is not subject to the crises and fluctuations of the market. Furthermore, wood chip production provides jobs for local residents.

This is because wood chips are the optimum

fuel from the standpoints of both economical operation and ecological compatibility. There are various quality classes which are determined by the wood used.

Froling has been working for sixty years on the efficient use of wood as an energy source. Today the name Froling stands for modern biomass heating technology. Froling firewood, wood chips and pellet boilers are operating successfully all over Europe. All of our products are manufactured in our factories in Austria and Germany. The extensive Froling service network ensures 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

User-friendly, compact, economical and safe: The new T4e from Froling meets all your needs.

With the silicon carbide combustion chamber, the T4e ensures a **high degree of efficiency** with **very low emissions**. Well-planned use of energy-saving EC drives ensures **extremely low power consumption**.

Thanks to its modular construction and compact size, the Froling T4e is particularly easy to position and install. The entire boiler comes fully assembled, electrically wired and tested. Particular attention was paid to energy efficiency, durability and stability during the development of the T4e. The T4e consumes very little power during operation, thus keeping the operating costs down. This was confirmed in an impressive way when the boiler was awarded the EnergieGenie award.

The **"Energy Genie Innovation Prize"** presented by the Federal Ministry of Agriculture, Forestry, Environment and Water Management and the State of Upper Austria is awarded to new products that satisfy the criteria of innovation, energy saving and innovation.

The **"Plus X Award"** recognises high-quality innovations that make life simpler and more enjoyable while respecting the environment. The Froling T4e wood chip boiler stood out in the categories **high quality, ease of use, functionality** and **ecological compatibility**.



WOOD CHIP BOILER T4e COMFORT WITH SYSTEM

Flue pipe also available with rear connection (optional)

Speed-controlled, highly efficient EC induced draught fan for very low power consumption

Optional integrated particle separator (electrostatic precipitator)

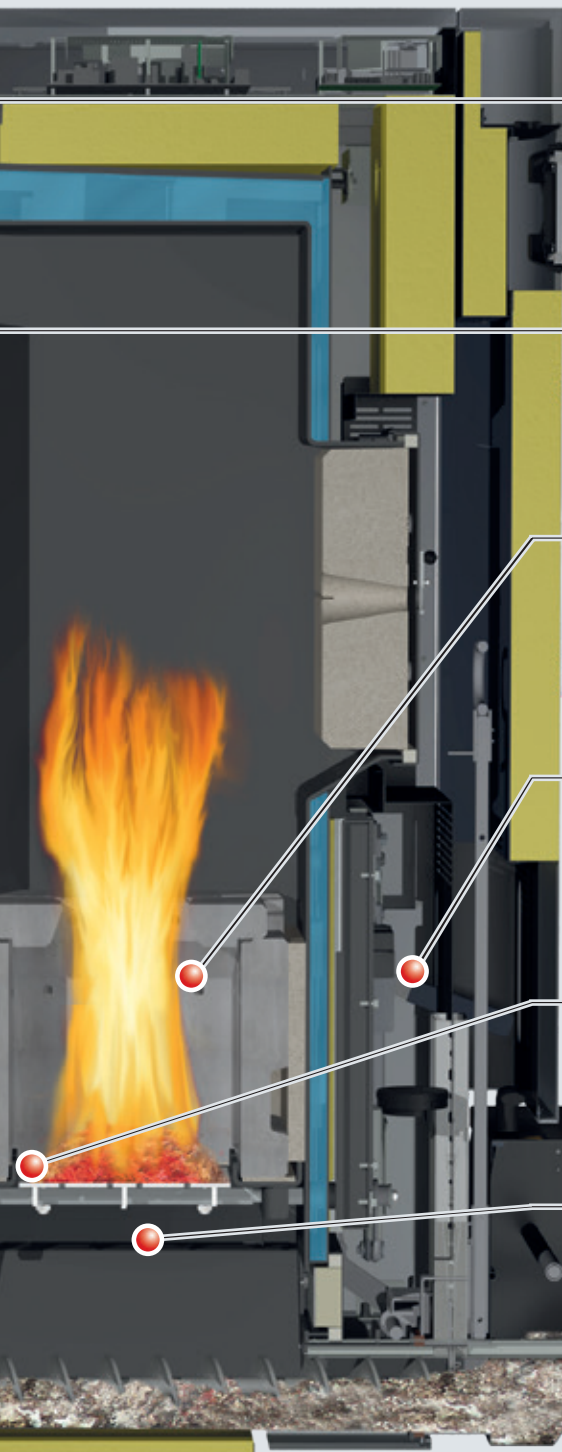
Volume-optimised Ø 200 mm two-chamber rotary valve (Ø 240 mm for T4e 200 - 350)

Sturdy foot step for easy maintenance and assembly (up to T4e 180 kW)

Stoker with generously dimensioned Ø100 mm screw and Ø150 mm screw from 200 kW

NEW!

7" touch display with
LED status illumination



Lambda probe for optimum fuel adjustment

Fully automatic cleaning of all heat exchanger pipes (right from the first pass) by means of turbulators (mechanical drive in the "cold" area)

Optimized silicon carbide combustion chamber for very low emissions and a long service life

110° tipping grate with 900N drive for the best possible cleaning of the grate

Silent, energy-efficient ceramic igniter with function monitor

Underpressure-controlled combustion with sensor-less bed of embers monitoring

Fully automatic ash removal with energy-saving combi drive (common drive for heat exchanger and ash screw combustion chamber) in large-sized mobile ash containers

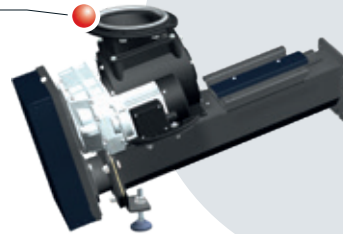
FGR (flue gas recirculation) prepared in the boiler, motor and connecting pipe for activation available as an option

A WELL-DESIGNED HOME FOR GREATER CONVENIENCE

Easy to assemble on site

The T4e is supplied assembled and wired. you just need to fit the stoker unit and connect the chosen outfeeder to the rotary valve. This saves time and money. Thanks to the well-planned layout of the units and its compact design, the T4e can also be used in very confined spaces.

- Advantages:
- Quick installation
 - Pre-wired
 - Stoker unit can be ordered on the left-hand side or right-hand side as desired
 - Return temperature control up to 350 kW integrated as standard

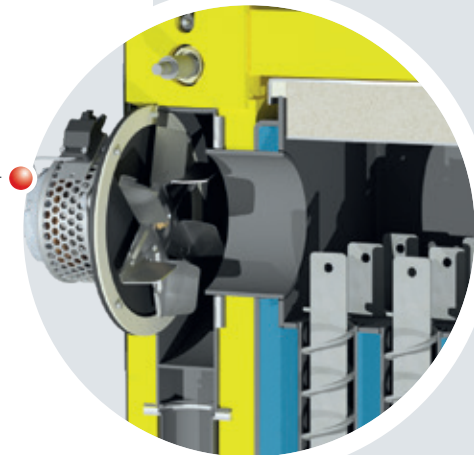


You can order a right-hand or left-hand stoker unit.

Speed-controlled induced draught fan

The speed-controlled induced draught fan ensures the exact air quantity for combustion. As the induced draught fan is speed-regulated, it stabilises combustion throughout the entire combustion time and adjusts the air quantity to the output and the respective material. Working together with the Lambda controller, 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 T4e is controlled by underpressure. Combined with the EC induced draught fan, this guarantees extremely high operating reliability. The innovative control of air distribution in the combustion zone is a new feature. Using just one actuator (up to 180 kW) or two actuators (from 200 kW), both primary and secondary air are optimally adapted to the respective conditions in the combustion chamber. This, combined with the lambda control as standard, ensures that emissions are kept to a minimum.

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



Cleaning of all heat exchanger pipes



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

The WOS (Efficiency Optimisation System) consists of special turbulators, which are placed in the heat exchanger pipes (**NEW! Even from the 1st pass**) and allow automatic cleaning of the heating surfaces. Clean heating surfaces ensure greater efficiency and thus fuel savings.

- Advantages:
- Greater efficiency
 - Savings on fuel
 - Drive mechanism in a cool zone (for low thermal stress)

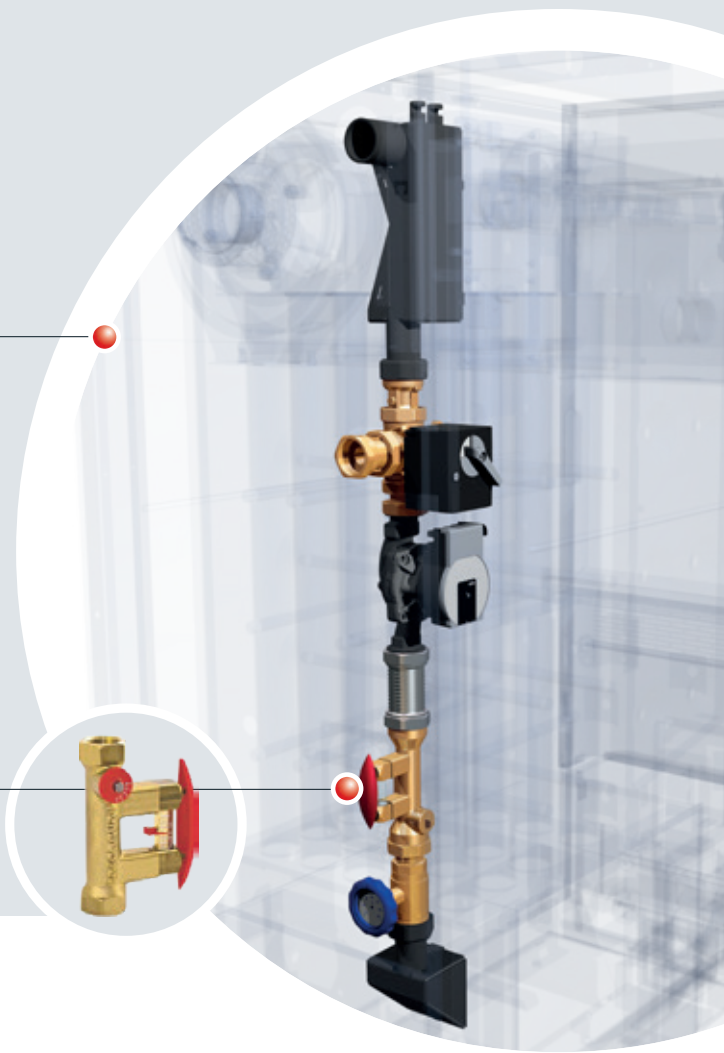
Continuously integrated return temperature control

The **integrated return temperature control** avoids unnecessary loss of radiant heat; this special feature guarantees maximum efficiency. An external return temperature control is therefore no longer necessary and saves installation time. The components are intelligently incorporated and the main parts (such as the pump) are visible from the outside and easily accessible.

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

Line balancing valve

- Advantages:
- Optimum hydraulic balancing of the heating system
 - Up to 180 kW as standard
 - From 200 kW can be optionally retrofitted at any time



INTELLIGENT DESIGN DOWN TO THE LAST DETAIL

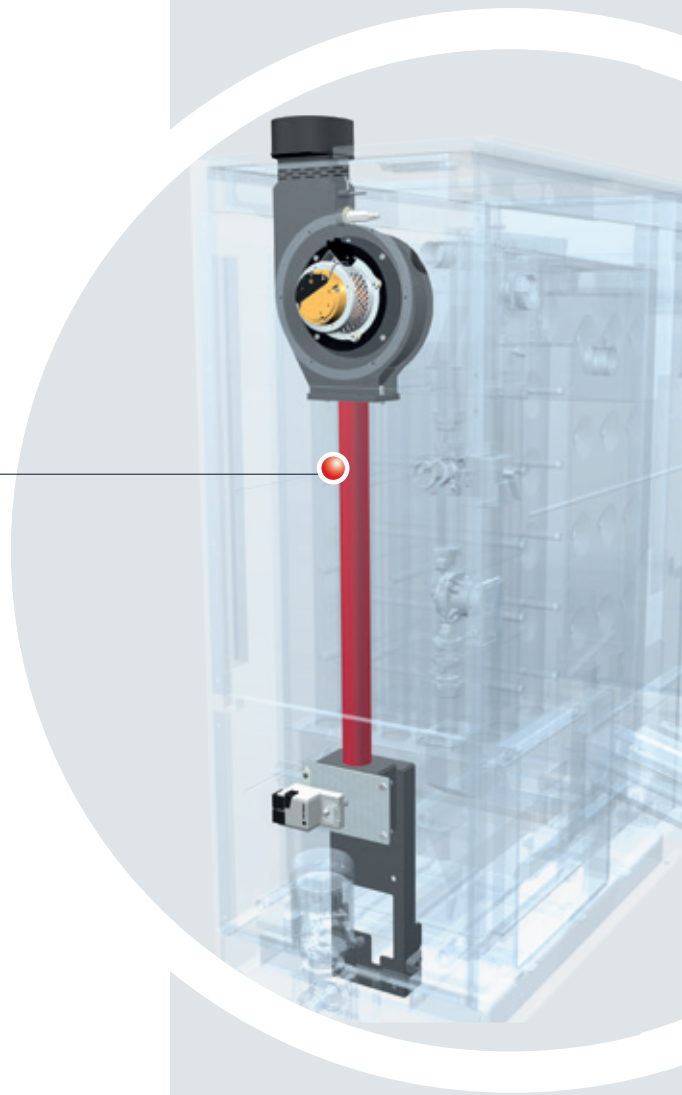
FGR flue gas recirculation system (optional or as standard from 130 kW)

The flue gas recirculation system 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 NO_x emissions. The lower combustion temperatures offer added protection for flame-swept parts.

Advantages:

- Precise adjustment via an air actuator motor
- Ideal combustion conditions
- Intelligent control of air quantity

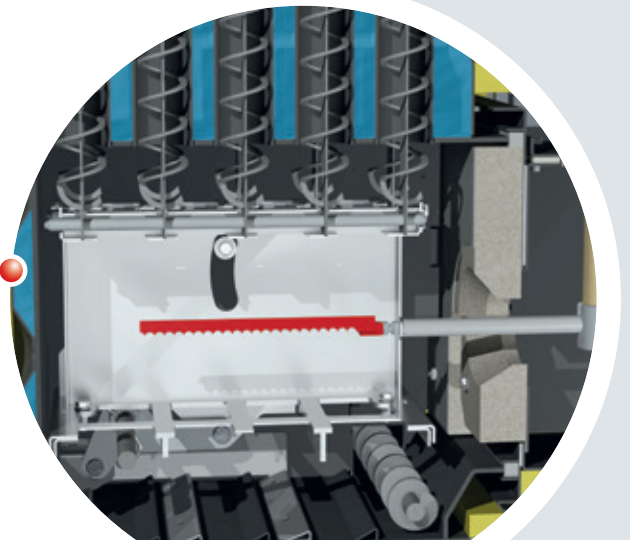


Integrated particle separator (electrostatic precipitator) available as an option

The optionally available particle separator (electrostatic precipitator) can be added at any time without additional space requirement and thereby considerably reduces the fine dust emissions from the boiler. Cleaning is carried out fully automatically in the common ash box at the front of the boiler.

Advantages:

- Can be retrofitted on site
- No additional space required
- Combined cleaning with heat exchanger optimisation system (WOS)



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 fire-proof 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 duct 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:

- Very high temperature resistance for a long working life
- Optimum emission values
- Automatic adjustment to suit varying qualities of fuel

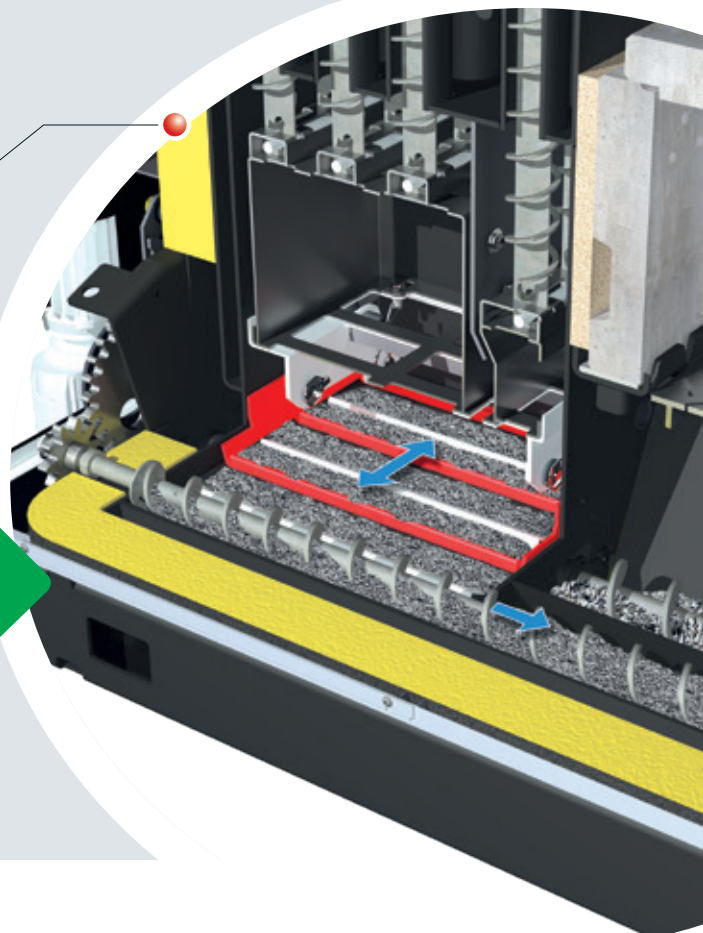
Ash discharge system with separate ash screws and ash rakes

Automatic ash removal from the combustion chamber and from the heat exchanger into the ash container is by means of two separate ash screws, which are powered by a common 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:

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



SPECIAL TIPPING GRATE TECHNOLOGY

WITH 110° INCLINATION OF THE TIPPING GRATE



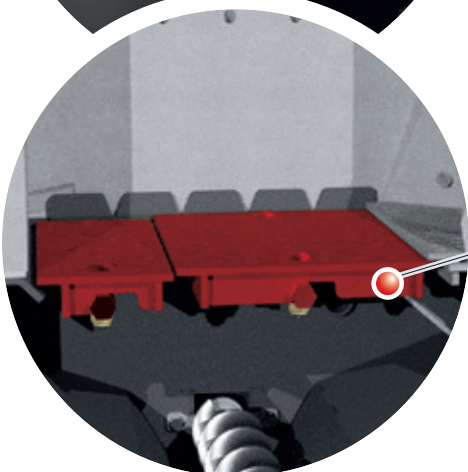
Two-part combustion grate consisting of a fixed insertion zone and automatic tipping grate guarantee energy-saving operation and lowest emissions.



Due to the 110° inclination, the ash is completely emptied from the tipping grate and discharged into the large-volume mobile ash container by means of the ash screw.

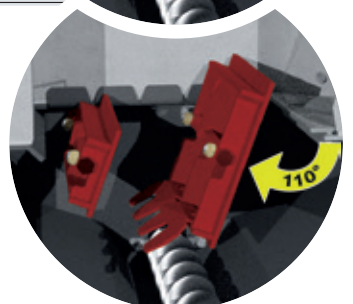
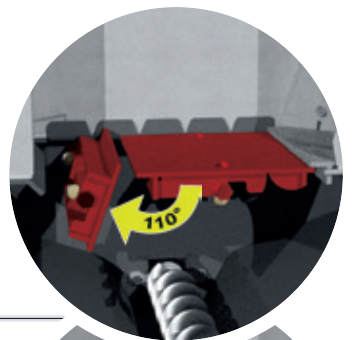


1 tipping grate (20 - 60 kW)



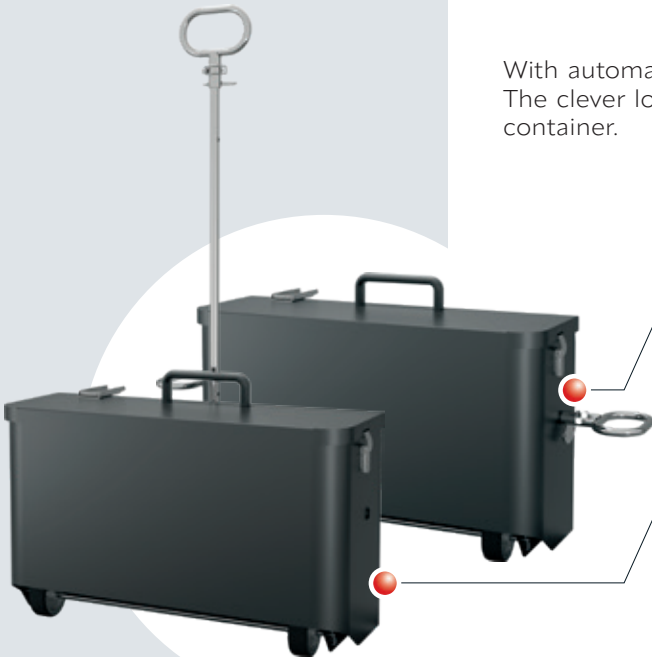
2 tipping grates (80 - 250 kW)

3 tipping grates (300 - 350 kW)



EXTRA CONVENIENCE WITH THE EXTERNAL ASH BOX

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.



Side carrying handles for quick handling

Easy removal by means of transport rollers

The side carrying handles also allow the ash box to be transported comfortably by pallet forks (e.g. a front loader, forklift truck, etc.)*



Practical hydraulic device for transporting with the tractor and easy emptying (tipping)*

* available up to T4e 180 kW

Optionally: Ash discharge into a standard dustbin or a 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 from which it can easily be emptied. This ensures long emptying intervals and maximum convenience.



Standard dustbin (240 litres)

Flap-bottomed container (330 litres)

OPTIMISED FUEL TRANSPORT

No sloping sides
necessary!

Sturdy agitator head

Maintenance-free agitator gearbox

Powerful spring piles for even
fuel transport (for wood chips up
to P31s / G50)

Temperature monitoring device in the
fuel store (only required in Austria).

Monitored gravity shaft cover

Inspection opening for easy access
to the shear edge.

Sturdy stoker screw for reliable fuel feed
with automatic reversal

No sloping sides necessary

None of the Froling discharge systems require sloping sides. Without sloping sides, the raising plate fitted to the trough ensures simple operation.

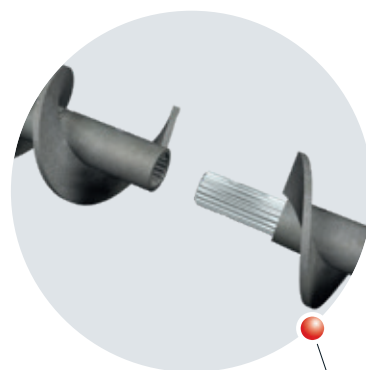
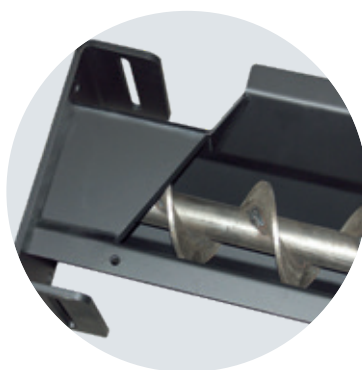
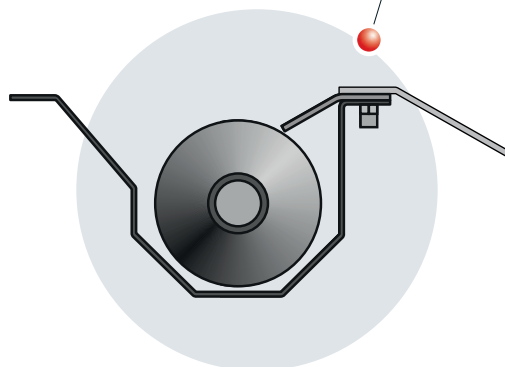
Shear edge

The robust shear plate with cutting edge breaks up larger pieces of fuel guaranteeing continuous fuel feed.

Progressive metering screw and
special trapezoidal duct for minimal
force

The modular screw system with standard extension pieces between 100 and 2,000 mm (increments every 100 / 200 mm) simplifies installation and flexible positioning of the system in the boiler room.

Special trapezoidal duct



Plug-in screw system



Flexible ball joint

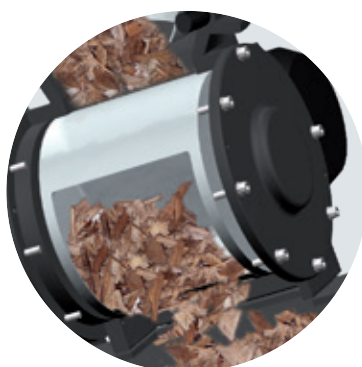
The ball joint is a flexible connecting piece between the discharge screw and the stoker unit. Offering continuous adjustment of the inclinations (up to 15°) and angles, the ball joint allows flexible planning.

High volume rotary valve

The rotary valve with two large chambers offers maximum burn back protection and continuous material transport.

Highly efficient spur gears

The **powerful, energy-saving spur gears** with a drive power of 0.25 kW ensure that even larger wood chip pieces can be shredded and transported. This design strikes the perfect balance between power and service life.



Energy-saving drive motor (only 0.25 kW)

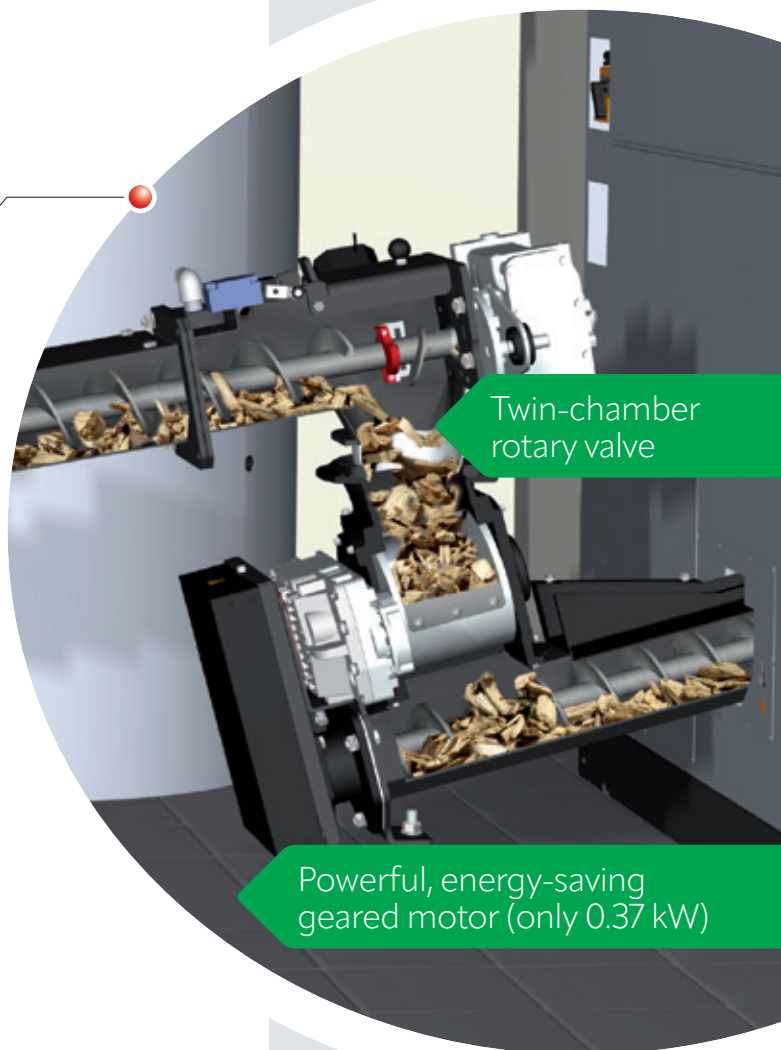


Sturdy stoker unit

The extremely compact stoker unit of the Froling T4e in combination with the rotary valve guarantees maximum burn back protection and reliable fuel feed to the combustion zone. The stoker unit is driven together with the rotary valve by an energy-saving geared motor (highly efficient spur gears with just 0.37 kW power consumption, only 0.55 kW from 80 kW), thus guaranteeing maximum energy efficiency.

The Froling stoker screw with Ø 100 mm or Ø 150 mm (for T4e 200-350) is the optimum solution for safe fuel transport of wood chips up to P31s (formerly G50).

- Advantages:
- Flexible set-up
 - Very high burn-back protection
 - Low power consumption
 - Great space saving due to the low design height of the stoker unit



Progressive metering screw with modular plug-in system

The progressive feed screw guarantees reliable fuel transport. Thanks to the progressively increasing screw pitch, the material does not become compacted and can always be transported easily. This ensures less force and energy consumption.

The modular design of the feed screw with standard extension pieces between 100 and 2,000 mm (increments of 100 / 200 mm) allows easy assembly and flexible positioning of the system in the boiler room.

The Froling feed screw does not require sloping sides.

- Advantages:
- Flexible set-up
 - Reliable material transport
 - Low forces involved





High volume twin-chamber rotary valve

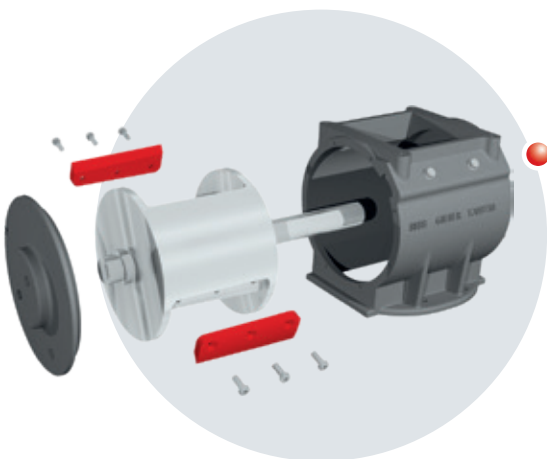
The twin-chamber rotary valve offers maximum operating reliability. The rotary valve forms a reliable separation between the discharge system and the feed unit, providing optimal burn back protection. The advanced system design with two spacious chambers ensures that the fuel is transported continuously to the combustion zone. This optimal fuel metering ensures the best possible combustion values.

The rotary valve is extremely quiet and uses only minimal power.

- Advantages:
- Continuous flow of material
 - Very high burn-back protection
 - Suitable for P31S (formerly G50) wood chips
 - 200 mm rotor diameter or 240 mm for T4e 200 - 350



The two large chambers are especially suitable for transporting wood chips up to P31S (formerly G50). High resistance is recognised automatically. The rotary valve and screw move backwards (several times depending on the parameters set) until transport can be re-started.

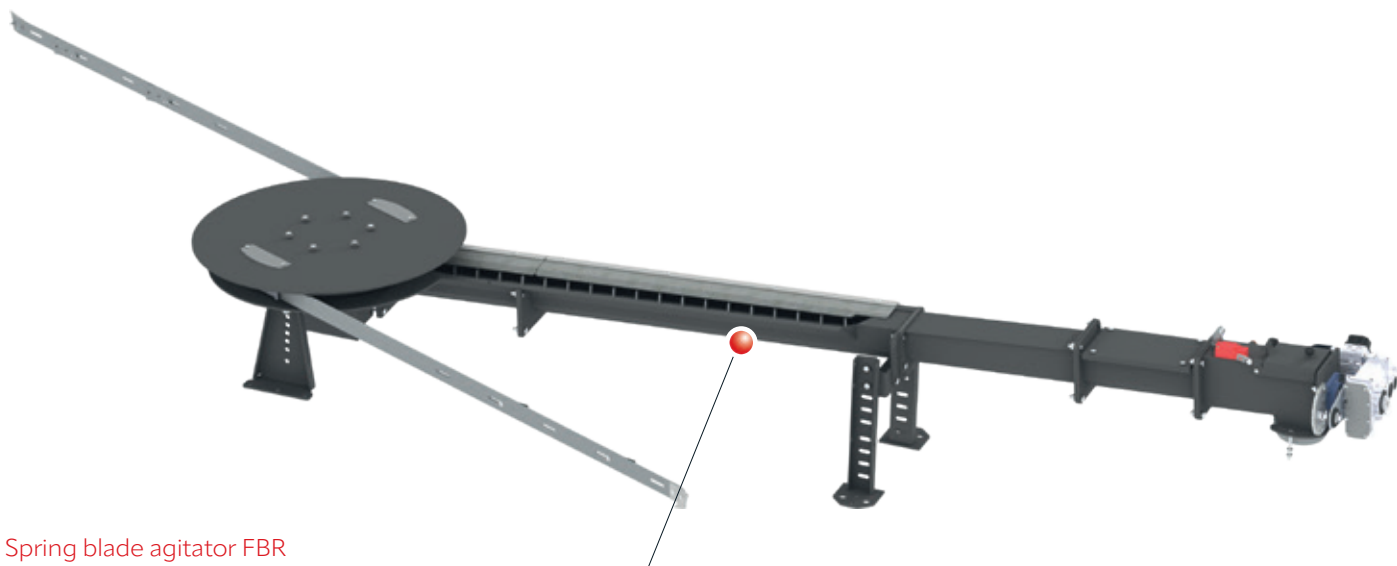


Replaceable blades

The high-quality cutting edges of the blades can also easily cut through coarser pieces of wood chip. The blades both in the rotor and the housing can be simply removed and sharpened if necessary.

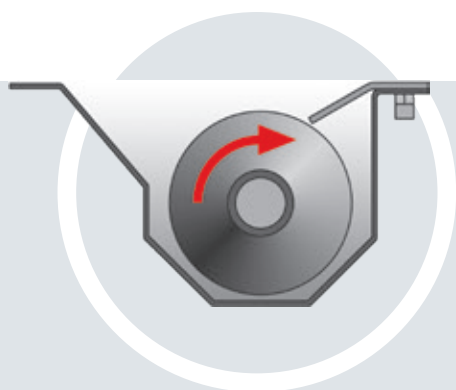
ROTARY AGITATOR DISCHARGE SYSTEMS WITH COMBINED DRIVE

The simple and effective design of the Froling rotary agitator discharge systems ensures smooth operation. Any disruption of the fuel feed (due for instance to foreign bodies) is automatically detected and removed by reversing the screws (reversal control). The feed screw with progressive screw raise ensures low energy consumption.



Spring blade agitator FBR

Maintenance-free system with a max. working diameter of up to 5 metres. Designed for wood chips P16s/P31s to M35, formerly G30/G50 to W35 for example.



Special trapezoidal duct

The special trapezoidal shape of the trough ensures that fuel is transported smoothly. The system is easy to operate so it saves energy even when feeding in the maximum amount of pellets.



Optional fibre shredder

If the material is particularly fibrous, the optional fibre shredder can shred long parts, thus ensuring reliable transportation of the material.



Rotary agitator arms with tearing hooks

The powerful rotary agitator arms move towards the agitator head during filling and then swing back out when fuel is removed. Together with the sturdy tearing hooks that loosen the fuel, they ensure that the fuel store is emptied.

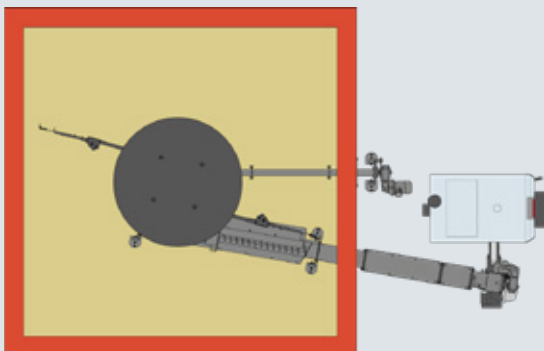
ROTARY AGITATOR DISCHARGE SYSTEMS WITH SEPARATE DRIVE

Froeling rotary agitator discharge systems with separate drive offer even greater flexibility. In the FBR-G the rotary agitator is powered independently of the discharge screw. This allows flexible installation and variable adjustment of the feed output. The discharge screws can be positioned on both the left and right of the rotary agitator.

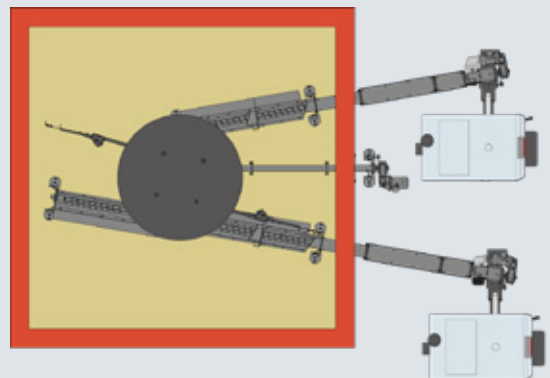


EXAMPLES OF INSTALLATION VARIANTS

One discharge screw on the left



Two discharge screws, one standard, one extra-long



For more information, see our
"Fuel store filling systems" and
"Energy containers" brochures!

Vertical feed screw

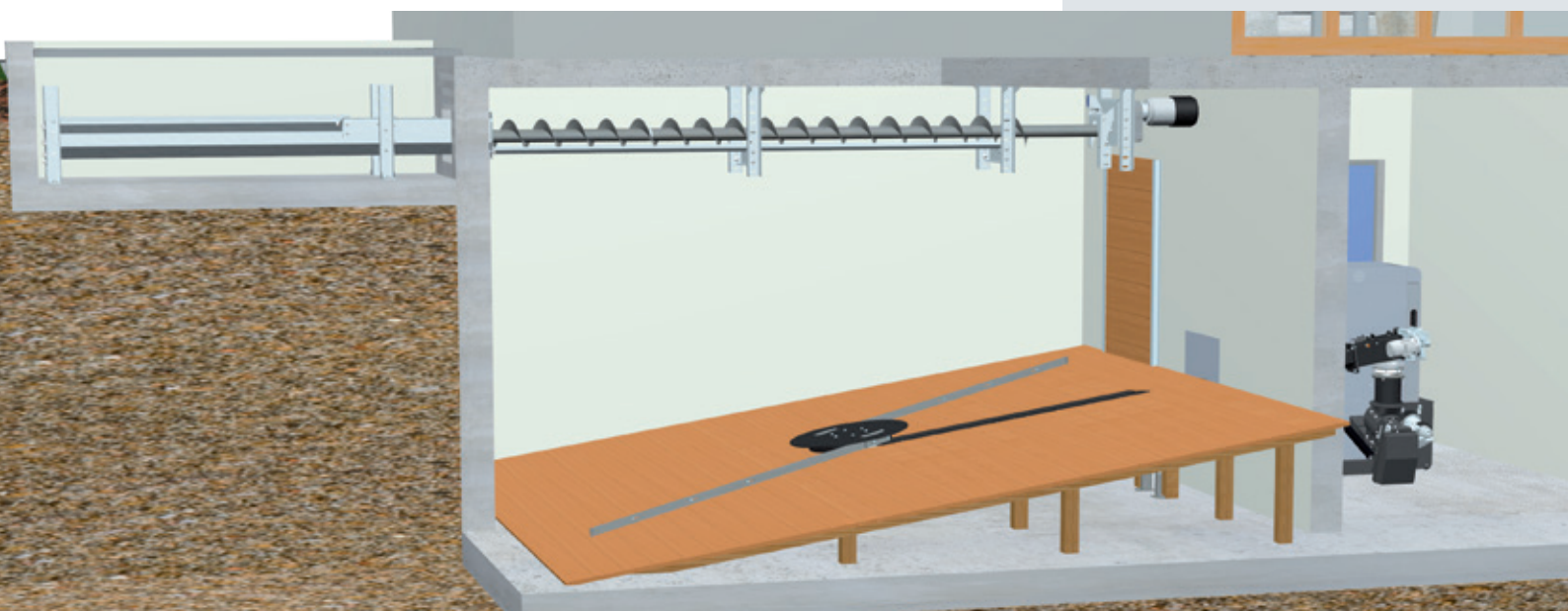
The Froling vertical feed screw sets new standards for feed output (up to 30m³/h depending on the wood chips used), operating reliability and effective distribution. The wood chips are pushed from the tipping gutter into the vertical feed system with a screw, which transports the fuel to the desired height for the distribution device. In this way, the vertical feed screw enables dust-free filling of the fuel store, guaranteeing even distribution of the fuel.

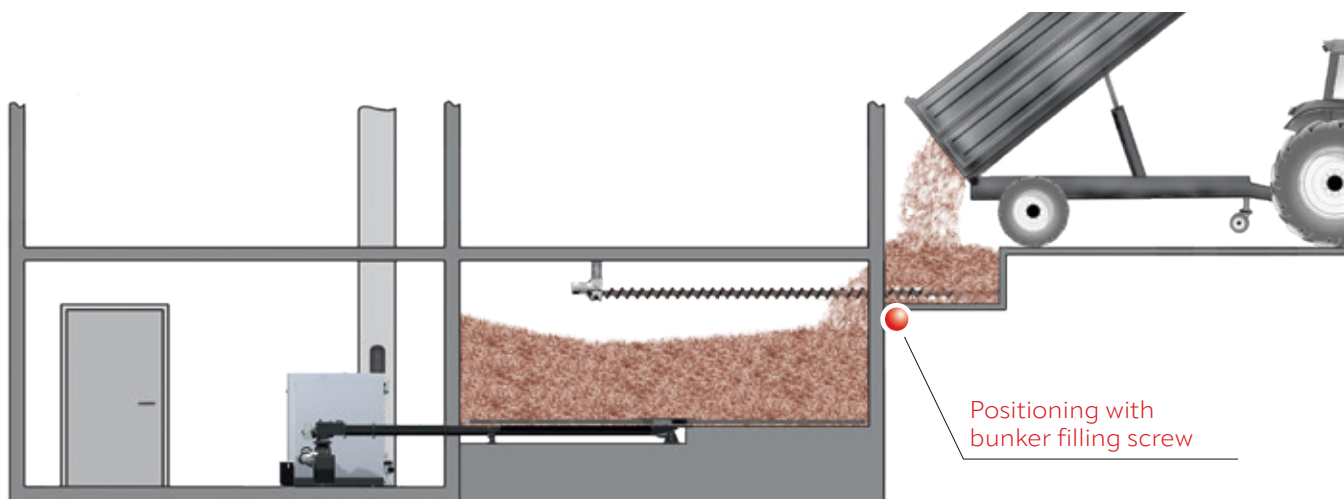
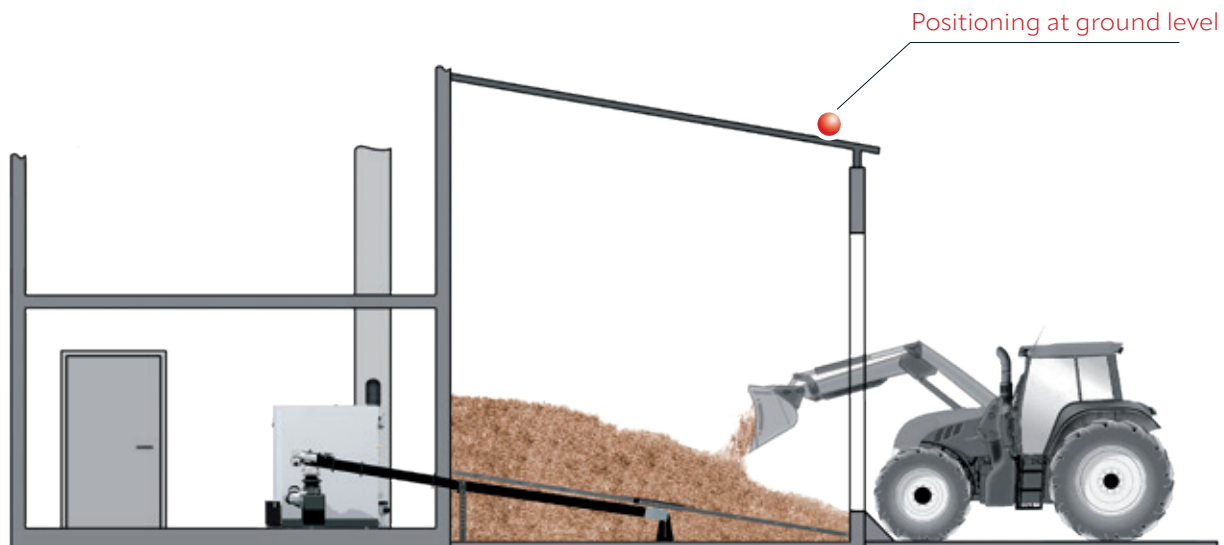
Also available with horizontal distributor screw



Bunker filling screw

The fuel is transported using the bunker filling screw into the store space via the bulk chute located outside the fuel store. The bunker filling screw stops automatically when the fuel store is full.



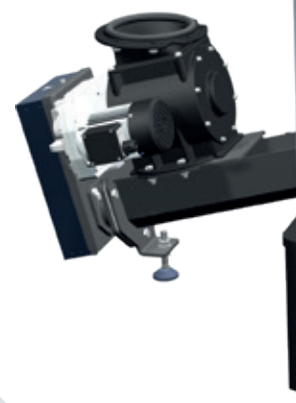


INDIVIDUAL CONTROLLER FOR THE HEATING SYSTEM

Lambdatronic H 3200 control

With the Lambdatronic H 3200 boiler controller and the new 7" touch display, Froling is taking a step into the future. Intelligent control management makes it possible to connect up to 18 heating circuits, 4 storage tanks and 8 hot water 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 controller using a Lambda probe
 - Connection for up to 18 heating circuits, 8 water heaters and 4 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

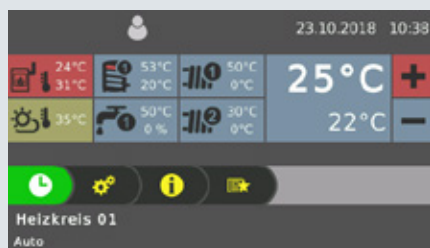


Fig. 1 General overview of heating circuit (start screen)



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

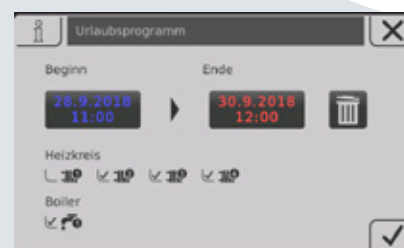


Fig. 3 Overview of new holiday mode



EVERYTHING AT A GLANCE AT ALL TIMES WITH FRÖLING CONNECT

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 (such as when the ash box should be emptied or in the event of faults).

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

SMART HOME

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

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 using the Loxone Smart Home.

Advantages: Easy operation and viewing of the heating circuit via the Loxone Miniserver, immediate notification of changes of status 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 Froling 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 so that it either does or does not influence the room temperature. 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 values are clearly displayed 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 module

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



Hydraulic module

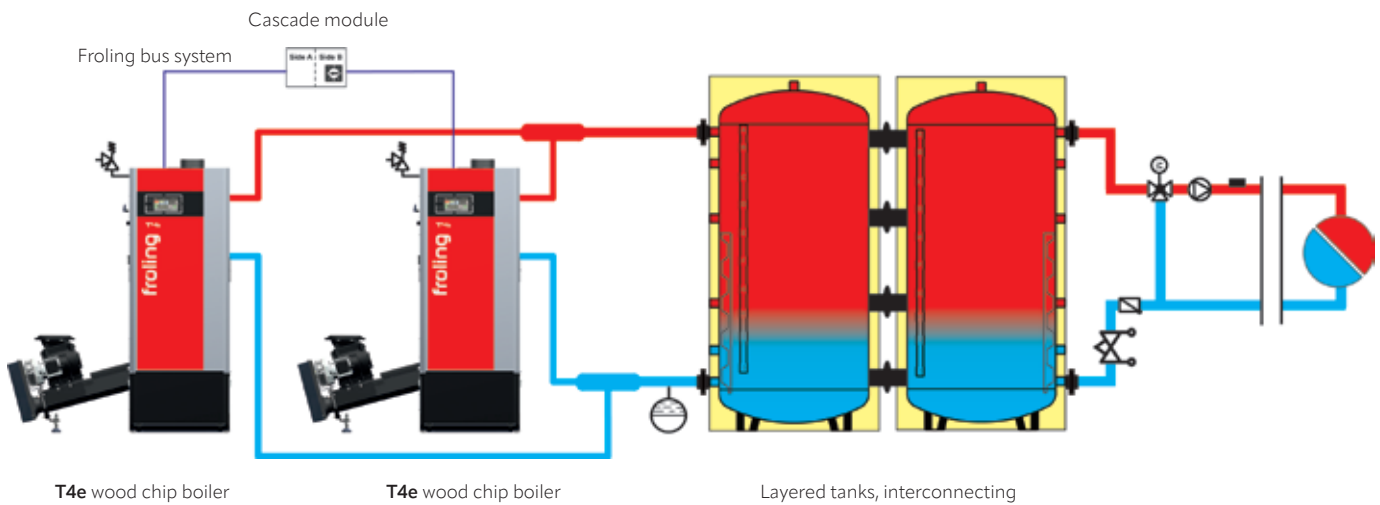
With wall casing and two immersion sensors to control one or two pumps and one isolating valve with up to six sensors.



WMZ solar package

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

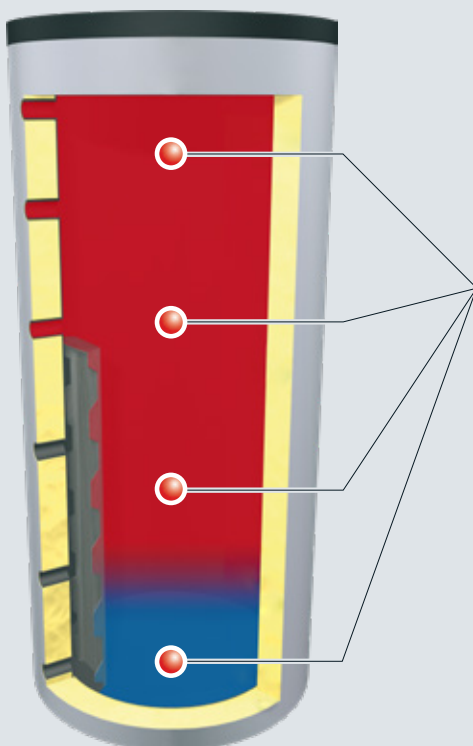
FRÖLING CASCADE CONTROLLER



T4e with layered tank, interconnecting

Heating requirements vary considerably, especially in large buildings such as hotels or public buildings. Fröling offers the necessary flexibility with a cascade. This smart solution allows you to combine up to four T4e wood chip boilers. You can also see the benefits of a cascade during summer months. If the heat requirement is low, one boiler is often sufficient for hot water preparation. This provides a particularly efficient and economical heating solution. A further advantage is the increased reliability of operation, as the heat is provided by several boilers.

MULTI-SENSOR STORAGE TANK MANAGEMENT



Precise storage tank level with four sensors

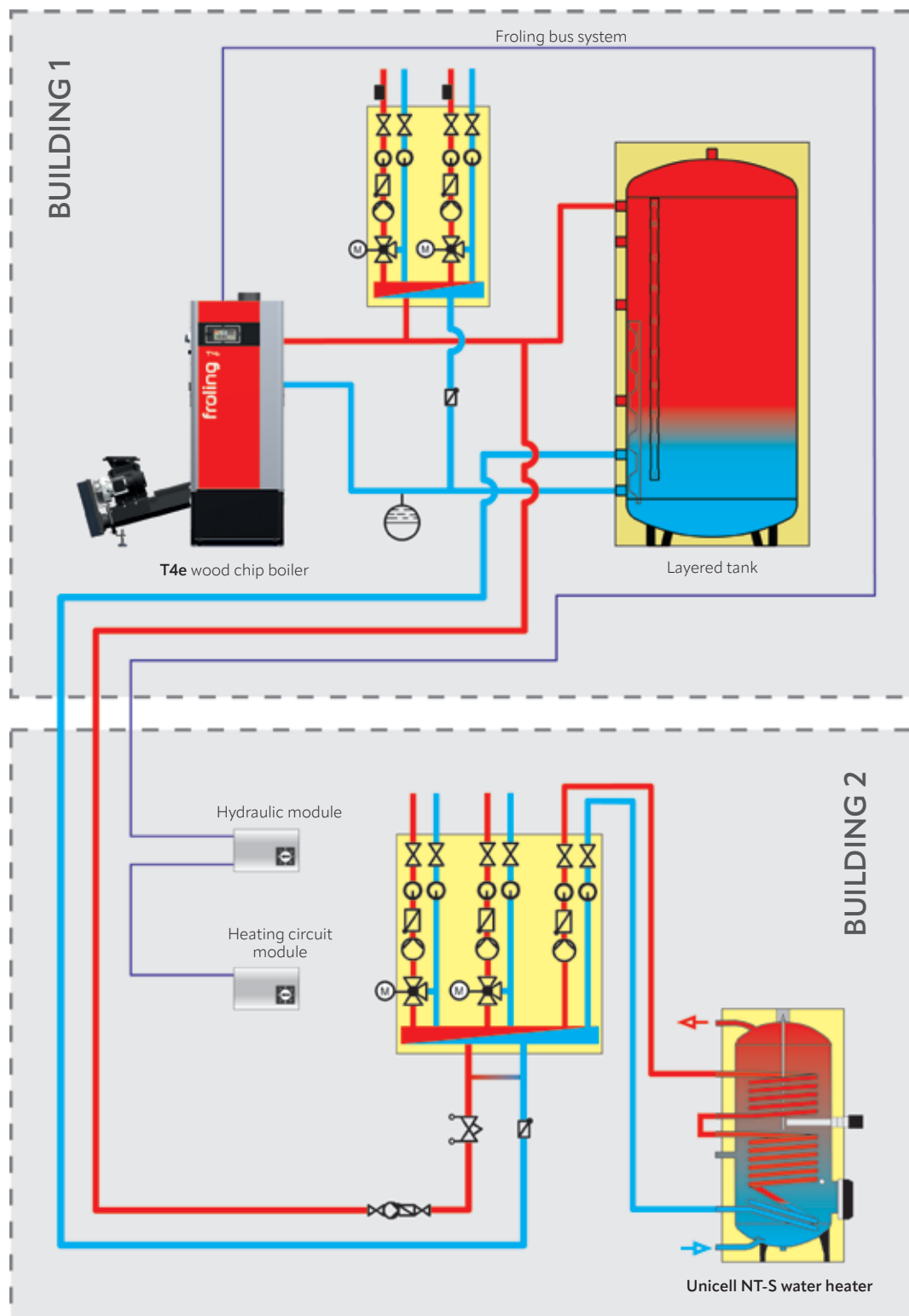
In addition to conventional storage tank management with two sensors, Fröling also offers the option of multi-sensor storage tank management. For this function four sensors are distributed along the entire height of the storage tank. The controller then uses these to determine the storage tank fill level. The controller can thus quickly identify load changes and adjust the boiler output early on. Fewer start-stop cycles result in a long boiler life and maximise the system efficiency.

- Few stop-start cycles
- High system efficiency
- Optimised for cascade systems

TECHNOLOGY SAVES MORE ENERGY

The Froling bus system allows installation of extension modules at any location. The local controls can be installed wherever they are needed: at the boiler, at the heat distributor, at the tank, in the living room or in the house next door. Additionally, electric cables are kept to a minimum.

T4e with multiple house system



CALCULATING THE FUEL REQUIREMENT



Wood chip fuel specification

P16s woodchips (formerly G30)

Size	3.15 – 16 mm (min. 60%)
Max. length	45 mm
Max. Cross-section	2 cm ²

P31s woodchips (formerly G50)

Size	3.15 – 31.5 mm (min. 60%)
Max. length	150 mm
Max. Cross-section	4 cm ²

water content	max. 35%
Bulk density approx.	210 - 250 kg/bcm
Energy content	3.5 kWh / kg



Pellets fuel data

length	3.15 - 40 mm
Diameter	6 mm
Water content	max. 10%
Bulk density	approx. 650 kg/m ³
Ash content	max. 0.5%
Energy content	4.9 kWh/kg

The fuel requirement depends on the fuel quality. The following rule of thumb can be used to make a rough estimate:

Wood chips:

P16s/M30 hardwood (formerly G30 / W30): 2.0 bcm per kW heating load
P16s/M30 softwood (formerly G30/W30): 2.5 bcm per kW heating load

Pellets:

1 m³ per kW heating load

Annual wood chip requirement in bulk cubic metres

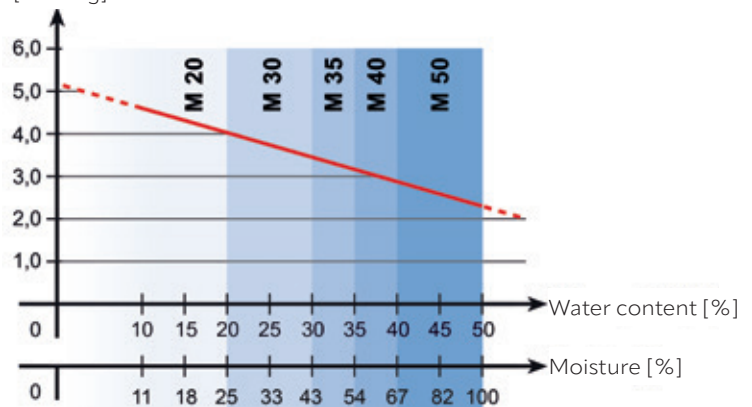
Source: Bavarian Forestry Authority

For instance: annual consumption approx. 57,500 kWh (T4e 30 kW, 1,600 full load hours, 93.5% efficiency, M30 wood chips formerly W30)



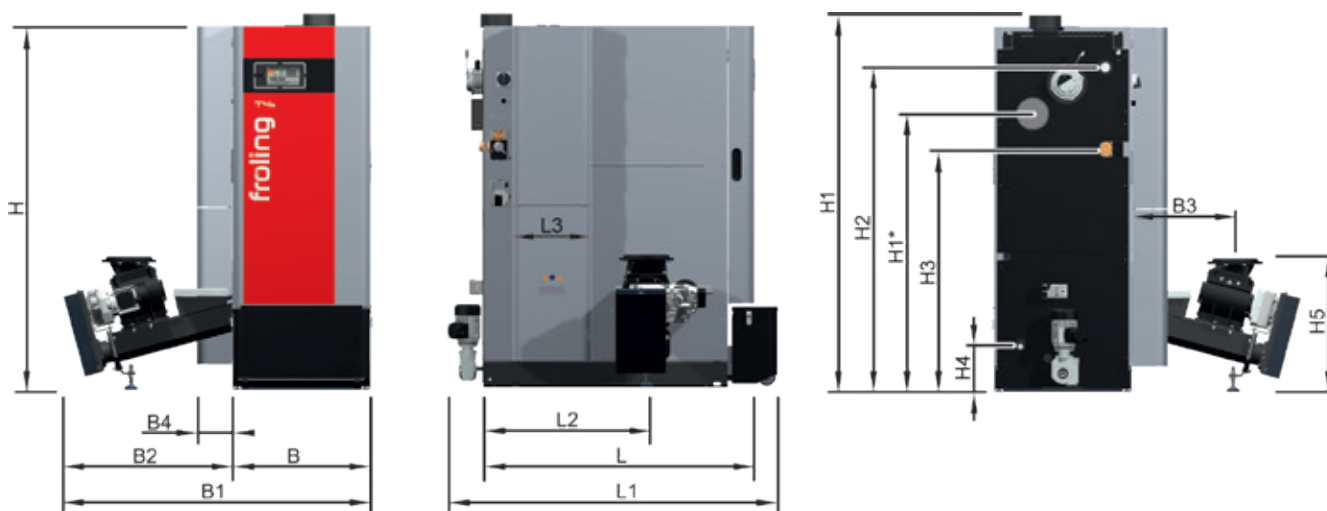
Heating values depending on water content and moisture

Heating value Hi
[kWh/kg]



T4e DIMENSIONS

20 - 180 kW

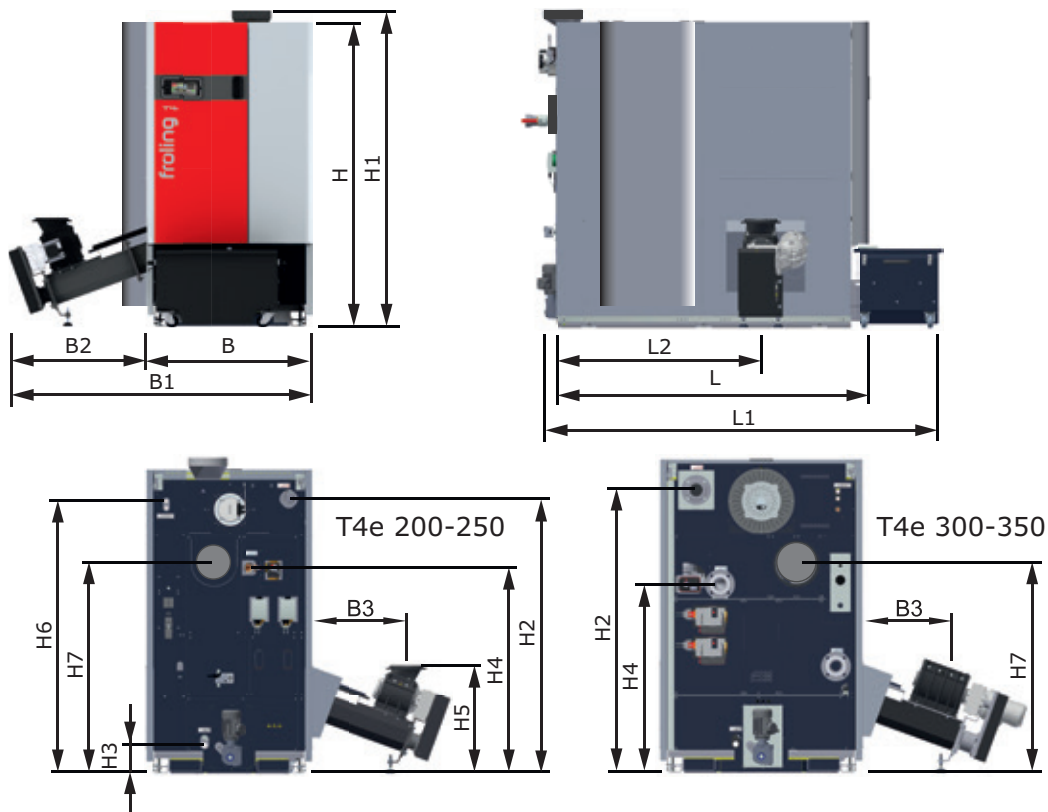


Dimensions [mm]	20 - 35	45 - 60	80 - 110	130 - 180
H Boiler height	1490	1690	1740	1840
H1 Total height incl. flue pipe connection	1545	1745	1790	1895
H1* Optional flue pipe connection	960	1160	1210	1290
H2 Height of flow connection	1305	1505	1545	1660
H3 Height, return connection with integrated return feed boost	955	1155	1135	1210
H4 Height of drainage connection	210	210	200	200
H5 Height, rotary valve connection	615	615	615	615
B Boiler width	640	640	790	790
Width without insulation (inward transport)	-	-	-	-
B1 Total width with stoker unit	1410	1410	1570	1570
B2 Width of stoker unit	770	770	780	780
B3 Distance from boiler side to stoker connection	470	470	480	480
B4 Width of particle separator / electrostatic precipitator (optional)	165	165	165	165
L Boiler length	1170	1270	1420	1770
L1 Total length	1475	1550	1795	2105
L2 Length, back of boiler to stoker connection	690	770	890	1160
L3 Length of particle separator / electrostatic precipitator (optional)	370	370	550	715
Flue pipe diameter	149	149	179	199
Diameter boiler flow / boiler return	1 1/4"	1 1/4"	2"	2"
Drainage	1/2"	1/2"	1"	1"

CAUTION: With the T4e 20-180, the flow and return connection is on the stoker side, and the flue-pipe connection at the rear (optional) is fitted on the opposite side.

T4e DIMENSIONS

200 - 350 kW



Dimensions [mm]	200 - 250	300 - 350
H Boiler height	1950	1980
H1 Total height incl. flue pipe connection	2025	--
H2 Height of flow connection	1770	1790
H3 Height of drainage connection	180	180
H4 Height, return connection with integrated return feed boost	1320	1390
H5 Height, rotary valve connection	775	775
H6 Height, safety heat exchanger	1720	1755
H7 Rear flue pipe connection (optional for T4e 200 - 250)	1350	1420
B Boiler width	1060	1280
Width without insulation (inward transport)	980	1195
B1 Total width with stoker unit	2110	2325
B2 Width of stoker unit	1045	1045
B3 Distance from boiler side to stoker connection	610	540
L Boiler length	2005	2195
L1 Total length	2550	2720
L2 Length, back of boiler to stoker connection	1310	1475
Flue pipe diameter	249	249
Diameter boiler flow / boiler return	2 1/2"	DN 80 / PN 6
Drainage	1"	1"

TECHNICAL DATA

Technical specifications - T4e		20	25	30
Rated heat output	[kW]	19.9	25.1	30
Thermal output range	[kW]	5.95 - 19.9	7.51 - 25.1	9 - 30
Power connection	[V/Hz/A]	400V / 50Hz / fused C16A		
Power consumption wood chip operation Nominal Load / Partial Load	[W]	48 / 39	55 / 39	59 / 39
Power consumption pellet mode Nominal Load / Partial Load	[W]	55 / 42	60 / 40	73 / 43
Weight of boiler (including stoker, without water)	[kg]	740	740	740
Boiler capacity (water)	[l]	117	117	117
Maximum boiler temperature setting	[°C]	90	90	90
Permitted operating pressure	[bar]	4	4	4
Permitted fuel as per EN ISO 17225 ¹		Part 2: Wood pellets class A1 / D06 Part 4: Wood chips class A1+A2 / P16s-P31s M35 Additional for Germany: Fuel class 4 (§3 of the First Federal Emissions Protection Ordinance (BImSchV) in the last amended version)		

		35	45	50
Rated heat output	[kW]	35	45	49.9
Thermal output range	[kW]	10.5 - 35	13.5 - 45	14.9 - 49.9
Power connection	[V/Hz/A]	400V / 50Hz / fused C16A		
Power consumption wood chip operation Nominal Load / Partial Load	[W]	63 / 38	85 / 61	94 / 61
Power consumption pellet mode Nominal Load / Partial Load	[W]	84 / 46	96 / 49	97 / 49
Weight of boiler (including stoker, without water)	[kg]	740	850	850
Boiler capacity (water)	[l]	117	155	155
Maximum boiler temperature setting	[°C]	90	90	90
Permitted operating pressure	[bar]	4	4	4
Permitted fuel as per EN ISO 17225 ¹		Part 2: Wood pellets class A1 / D06 Part 4: Wood chips class A1+A2 / P16s-P31s M35 Additional for Germany: Fuel class 4 (§3 of the First Federal Emissions Protection Ordinance (BImSchV) in the last amended version)		

		60	80	90
Rated heat output	[kW]	60	80	90
Thermal output range	[kW]	18 - 60	24 - 80	27 - 90
Power connection	[V/Hz/A]	400V / 50Hz / fused C16A		
Power consumption wood chip operation Nominal Load / Partial Load	[W]	113 / 61	114 / 47	126 / 51
Power consumption pellet mode Nominal Load / Partial Load	[W]	99 / 49	102 / 48	116 / 49
Weight of boiler (including stoker, without water)	[kg]	850	1160	1160
Boiler capacity (water)	[l]	155	228	228
Maximum boiler temperature setting	[°C]	90	90	90
Permitted operating pressure	[bar]	4	4	4
Permitted fuel as per EN ISO 17225 ¹		Part 2: Wood pellets class A1 / D06 Part 4: Wood chips class A1+A2 / P16s-P31s M35 Additional for Germany: Fuel class 4 (§3 of the First Federal Emissions Protection Ordinance (BImSchV) in the last amended version)		

		100	110	130
Rated heat output	[kW]	100	110	130
Thermal output range	[kW]	30 - 100	33 - 110	39 - 130
Power connection	[V/Hz/A]	400V / 50Hz / fused C16A		
Power consumption wood chip operation Nominal Load / Partial Load	[W]	138 / 56	138 / 57	136 / 59
Power consumption pellet mode Nominal Load / Partial Load	[W]	129 / 48	128 / 49	124 / 52
Weight of boiler (including stoker, without water)	[kg]	1160	1160	1500
Boiler capacity (water)	[l]	228	228	320
Maximum boiler temperature setting	[°C]	90	90	90
Permitted operating pressure	[bar]	4	4	4
Permitted fuel as per EN ISO 17225 ¹		Part 2: Wood pellets class A1 / D06 Part 4: Wood chips class A1+A2 / P16s-P31s M35 Additional for Germany: Fuel class 4 (§3 of the First Federal Emissions Protection Ordinance (BImSchV) in the last amended version)		

T4e WOOD CHIP BOILER

		140	150	160
Rated heat output	[kW]	140	150	160
Thermal output range	[kW]	42 - 140	45 - 150	48 - 160
Power connection	[V/Hz/A]	400V / 50Hz / fused C16A		
Power consumption wood chip operation Nominal Load / Partial Load	[W]	137 / 58	136 / 59	136 / 60
Power consumption pellet mode Nominal Load / Partial Load	[W]	125 / 51	124 / 52	124 / 52
Weight of boiler (including stoker, without water)	[kg]	1500	1500	1500
Boiler capacity (water)	[l]	320	320	320
Maximum boiler temperature setting	[°C]	90	90	90
Permitted operating pressure	[bar]	4	4	4
Permitted fuel as per EN ISO 17225 ¹		Part 2: Wood pellets class A1 / D06 Part 4: Wood chips class A1+A2 / P16s-P31s M35 Additional for Germany: Fuel class 4 (§3 of the First Federal Emissions Protection Ordinance (BImSchV) in the last amended version)		

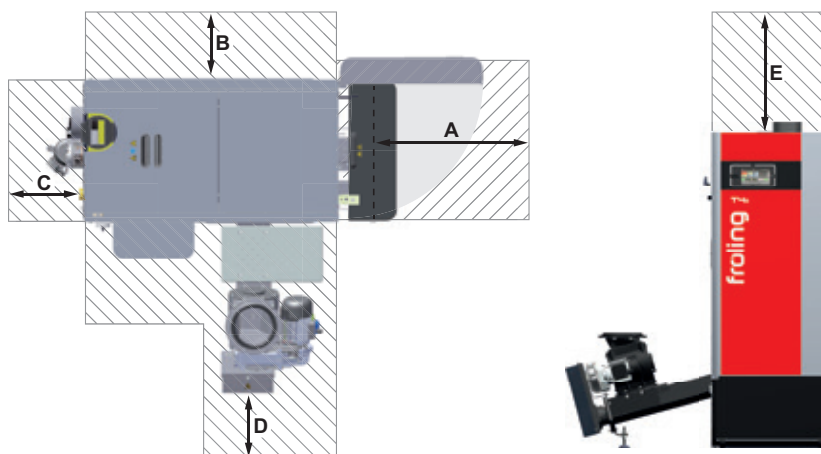
		170	180	200
Rated heat output	[kW]	170	180	199
Thermal output range	[kW]	51 - 170	59 - 180	59 - 199
Power connection	[V/Hz/A]	400V / 50Hz / fused C16A		
Power consumption wood chip operation Nominal Load / Partial Load	[W]	136 / 60	136 / 61	135 / 62
Power consumption pellet mode Nominal Load / Partial Load	[W]	123 / 53	122 / 54	120 / 55
Weight of boiler (including stoker, without water)	[kg]	1500	1500	2500
Boiler capacity (water)	[l]	320	320	438
Maximum boiler temperature setting	[°C]	90	90	90
Permitted operating pressure	[bar]	4	4	4
Permitted fuel as per EN ISO 17225 ¹		Part 2: Wood pellets class A1 / D06 Part 4: Wood chips class A1+A2 / P16s-P31s M35 Additional for Germany: Fuel class 4 (§3 of the First Federal Emissions Protection Ordinance (BImSchV) in the last amended version)		

		250	300	350
Rated heat output	[kW]	250	300	350
Thermal output range	[kW]	75 - 250	90 - 300	105 - 350
Power connection	[V/Hz/A]	400V / 50Hz / fused C16A	400V / 50Hz / fused C25A	
Power consumption wood chip operation Nominal Load / Partial Load	[W]	214 / 62	310 / 100	395 / 133
Power consumption pellet mode Nominal Load / Partial Load	[W]	162 / 55	224 / 78	286 / 100
Weight of boiler (including stoker, without water)	[kg]	2500	3175	3175
Boiler capacity (water)	[l]	438	783	783
Maximum boiler temperature setting	[°C]	90	90	90
Permitted operating pressure	[bar]	4	4	4
Permitted fuel as per EN ISO 17225 ¹		Part 2: Wood pellets class A1 / D06 Part 4: Wood chips class A1+A2 / P16s-P31s M35 Additional for Germany: Fuel class 4 (§3 of the First Federal Emissions Protection Ordinance (BImSchV) in the last amended version)		

¹ Detailed information on the fuel is included in the operating instructions, in the section on "Permitted fuels"

This satisfies the ecological design requirements of VO (EU) 2015/1189, Annex II, Point 1.

OPERATING AND



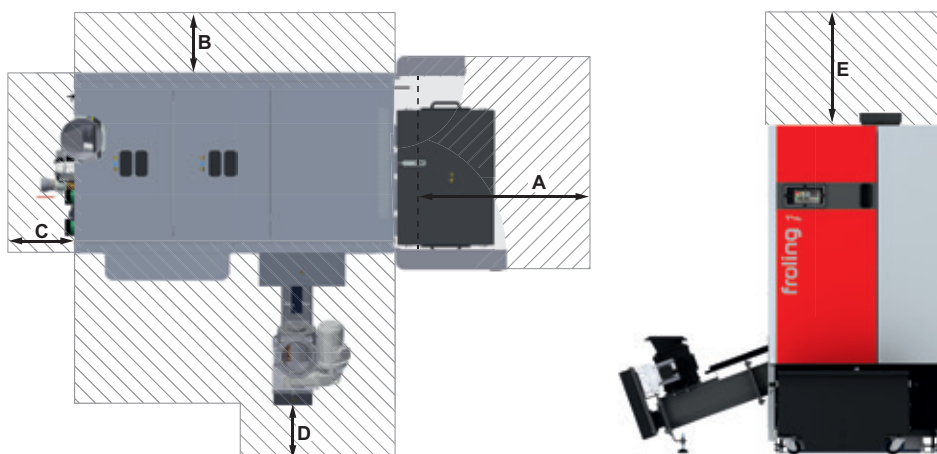
Minimum clearances [mm]	20	25	30	35	45
A Insulated door to the wall	700	700	700	700	700
B Side of boiler to the wall	150	150	150	150	150
C Back of the boiler to the wall	500	500	500	500	500
D stoker to wall	300	300	300	300	300
E Maintenance area above the boiler	500	500	500	500	500
Minimum store height	1800	1800	1800	1800	2000

	50	60	80	90	100
A Insulated door to the wall	700	700	800	800	800
B Side of boiler to the wall	150	150	150	150	150
C Back of the boiler to the wall	500	500	500	500	500
D stoker to wall	300	300	300	300	300
E Maintenance area above the boiler	500	500	500	500	500
Minimum store height	2000	2000	2100	2100	2100

	110	130	140	150	160
A Insulated door to the wall	800	800	800	800	800
B Side of boiler to the wall	150	150	150	150	150
C Back of the boiler to the wall	500	500	500	500	500
D stoker to wall	300	300	300	300	300
E Maintenance area above the boiler	500	500	500	500	500
Minimum store height	2100	2350	2350	2350	2350

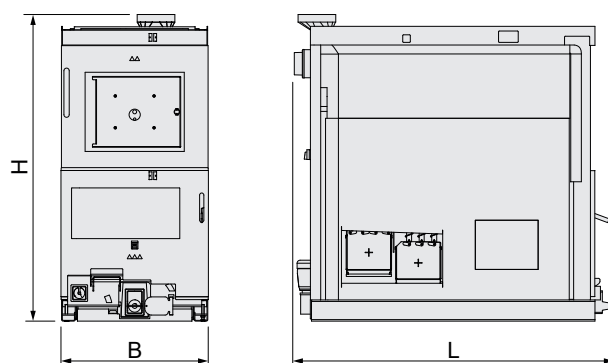
	170	180
A Insulated door to the wall	800	800
B Side of boiler to the wall	150	150
C Back of the boiler to the wall	500	500
D stoker to wall	300	300
E Maintenance area above the boiler	500	500
Minimum store height	2350	2350

MAINTENANCE AREAS



	200 - 250	300 - 350
A Insulated door to the wall	900	900
B Side of boiler to the wall	150	700
C Back of the boiler to the wall	500	800
D stoker to wall	300	300
E Maintenance area above the boiler	500	500
Minimum store height	2500	2500

TRANSPORT DIMENSIONS AFTER DISMANTLING



	200 - 250	300 - 350
L Boiler length	2210	2340
B Boiler width	980	1195
H Boiler height	2030	1980



Pellet boiler

PE1 Pellet	7 - 35 kW	P5 Pellet	12 - 105 kW
PE1c Pellet	16 - 22 kW	PT4e	100 - 350 kW



Firewood boiler

S2 Turbo	15 - 20 kW
S3v Turbo	22 - 45 kW
S5 Turbo	22 - 48 kW

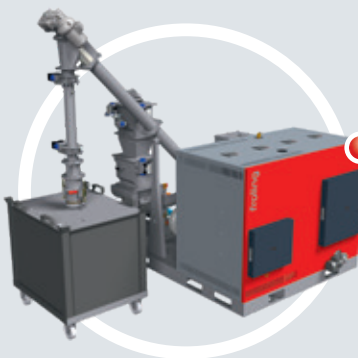
Dual fuel boiler

S2 Dual compact	15 - 20 kW
S5 Dual	22 - 48 kW



Wood chip boiler / large systems

T4e	20 - 350 kW	TMe	350 - 550 kW
Turbomat	150 - 550 kW	LMe	800 - 1200 kW
Lambdamat	650 - 1500 kW		



Heat and electricity from wood

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

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