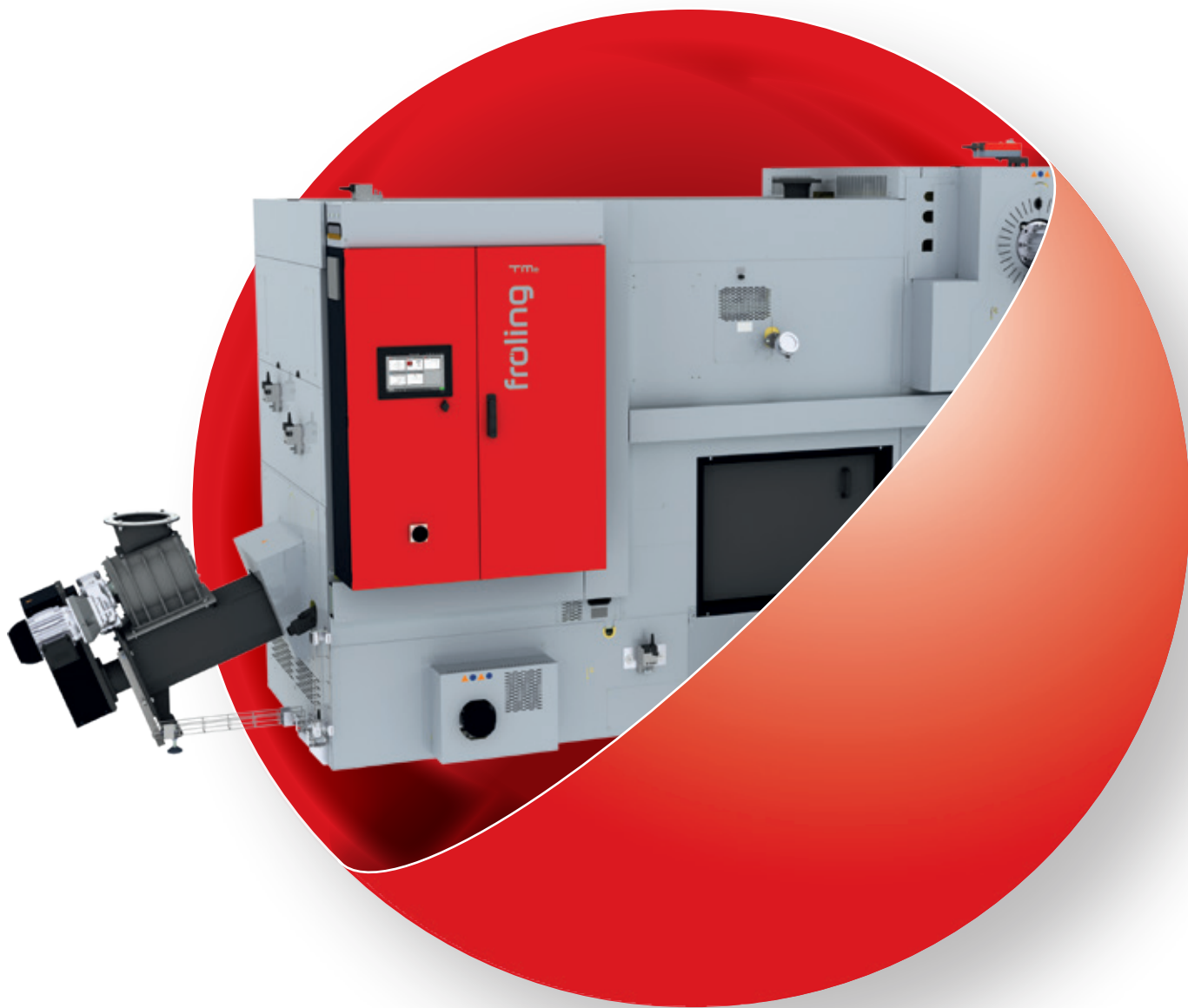


- Sturdy design
- Industrial version
- Supplied pre-wired

TMe 350 - 550 kW

WOOD CHIP BOILER AND PELLET BOILER



BETTER HEATING

INNOVATIVE AND
CONVENIENT

froling 



ENVIRONMENTALLY RESPONSIBLE HEATING, ECONOMICALLY ATTRACTIVE

Wood chips are a local and environmentally-friendly fuel, not subject to the crises and fluctuations of the market. Furthermore, wood chip production provides jobs for the local population. That is why wood chips are the perfect fuel, not just from an economic point of view, but also from the environmental aspect. The quality class is determined by the type of wood used.

Wood pellets are made of natural wood. The large volumes of wood shavings and sawdust generated by the wood-processing industry are compacted and pelleted

without being treated beforehand. Pellets have high energy density 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 fuel store.

Shavings are a waste material and a by-product of the wood-processing industry, and are therefore logically the ideal fuel. The characteristics of this exceptional dry heating material require particularly robust combustion technology.

Froling has been working for more than sixty years on 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 in successful operation all over Europe. All 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

- Ideal for local heating networks, hotels, trade, industry, agriculture and forestry, wood processing companies (carpenters, sawmills), public and residential buildings
- International pioneer in technology and design
- Sophisticated fully automatic operation
- Excellent environmental compatibility
- Environmentally responsible energy efficiency
- Renewable fuel which is CO₂-neutral
- Greater convenience and reliability



- Suitable for wood chips EN ISO 17225-4 to P63
- Operating pressure up to 8 bar

Invest in the future

The Froling TMe is a unique heating system; it employs a fully automatic wood burner which uses a wide variety of wood-based materials. Froling is a leading manufacturer of biomass heating systems, and the TMe incorporates all our Froling expertise in pioneering innovation. We were seeking to design a boiler that would be perfectly suited for burning other biomass fuels as well as wood chips.

The TMe not only boasts innovative combustion technology but also offers impressive control options. With Lambda control as standard, combustion chamber temperature monitoring and underpressure controller, perfect combustion is guaranteed for a range of materials. The convenience provided sets new standards in this output class.

All the functions are **fully automatic**, from the fuel feed and combustion control right through to cleaning and ash removal. The high-tech TMe is designed to be extremely **robust, durable and easy to service**.

TMe 350 - 550 KW

NEW!

Modular components made of silicon carbide



Air intake through the thermally insulated outer shell for combustion air preheating (= adiabatic combustion chamber)

PLC control cabinet

Mounted on the boiler and pre-wired to the electrical components installed on the boiler.

Industrial PLC with 10.1" glass touch display for easy and intuitive operation

Air-cooled slide-on duct

which guarantees minimal energy consumption in the fuel feed-in area and full flexibility for variations in the size of pieces of fuel. The drive gearbox unit to industrial standards is durable, which results in useful pre-drying of the heating material, particularly for fuels with a higher moisture content.

Stoker kit with large-volume, 2-chamber rotary valve with low installation height

High-temperature combustion chamber with 4-layer jacket

For optimum combustion even with low-quality fuel (e.g. high water content, ...) or alternative fuels. Internal structure: innovative module components made of high-temperature-resistant silicon carbide / first thermal insulation / air jacket / second thermal insulation.

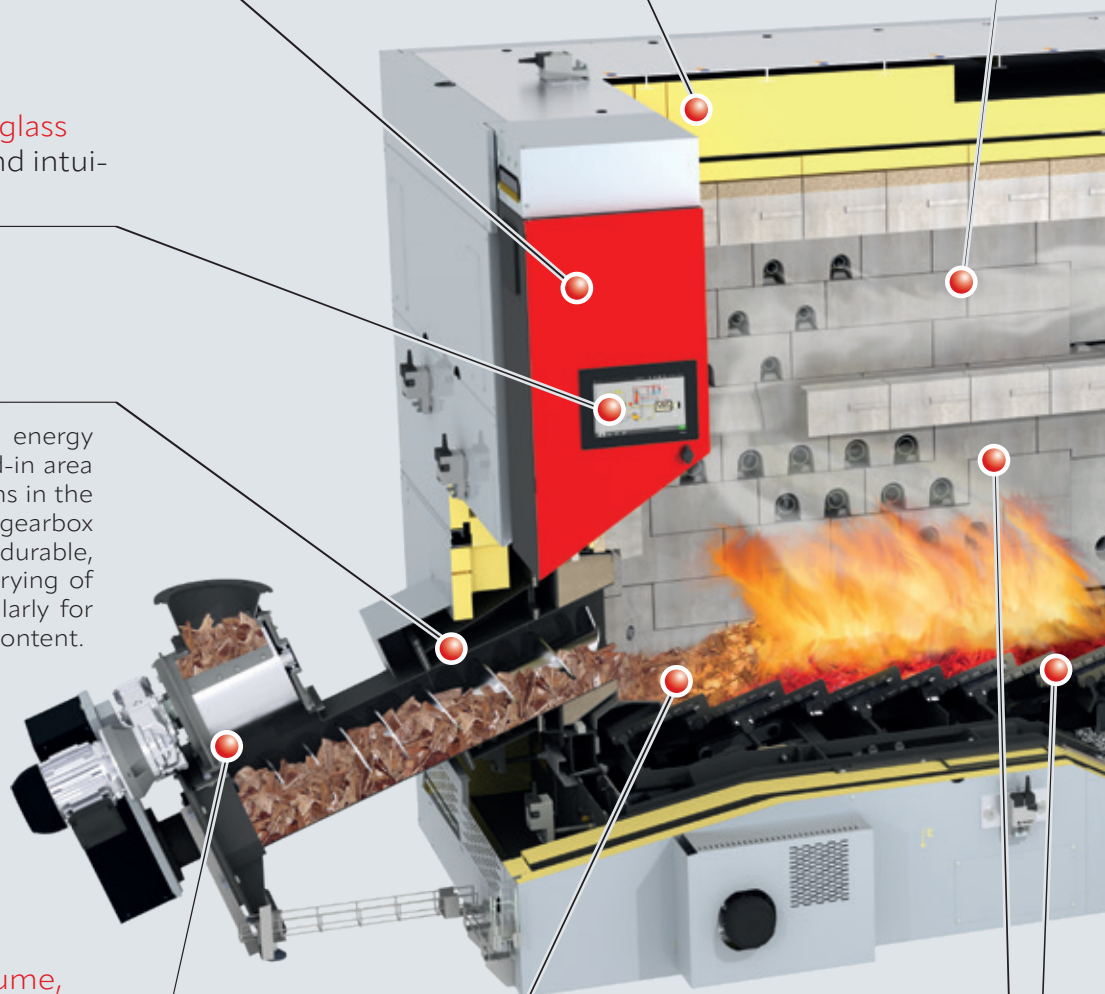
High temperature combustion zone

This increases efficiency even further, particularly with poor quality fuels.

Automatic ignition

Optional second ignition fan can be fitted for fuels of materials that are difficult to light (due for instance to high water content).

Actuated moving grate Split primary air zone



A DESIGN WITH UNIQUE BENEFITS

Vertical 3-pass heat exchanger

With integrated efficiency optimisation system (WOS) with automatic cleaning function. Operating pressure 6 bar (8 bar on request).

High-temperature flue gas recirculation FGR

Optimises the results of the combustion process (output, emissions, etc.) for particularly demanding fuels such as pellets, shavings, etc.

Combined electrostatic precipitator - EFZ multicyclone unit

Combination of electric filter and multicyclone separator for guaranteed very low emission values.

Speed-controlled and monitored induced draught fan

Optionally integrated at three positions directly on the boiler. Can also be installed flexibly at an external position.

Bypass flap

For optimised partial load operation and flue gas temperature control.

Collective ash removal from the combustion chamber and fly ash

Self-contained or for connection to further centralised ash removal system.

Generously dimensioned grate ash screw

Large combustion chamber doors on both sides

FUEL FEED-IN WITH BURN-BACK PROTECTION

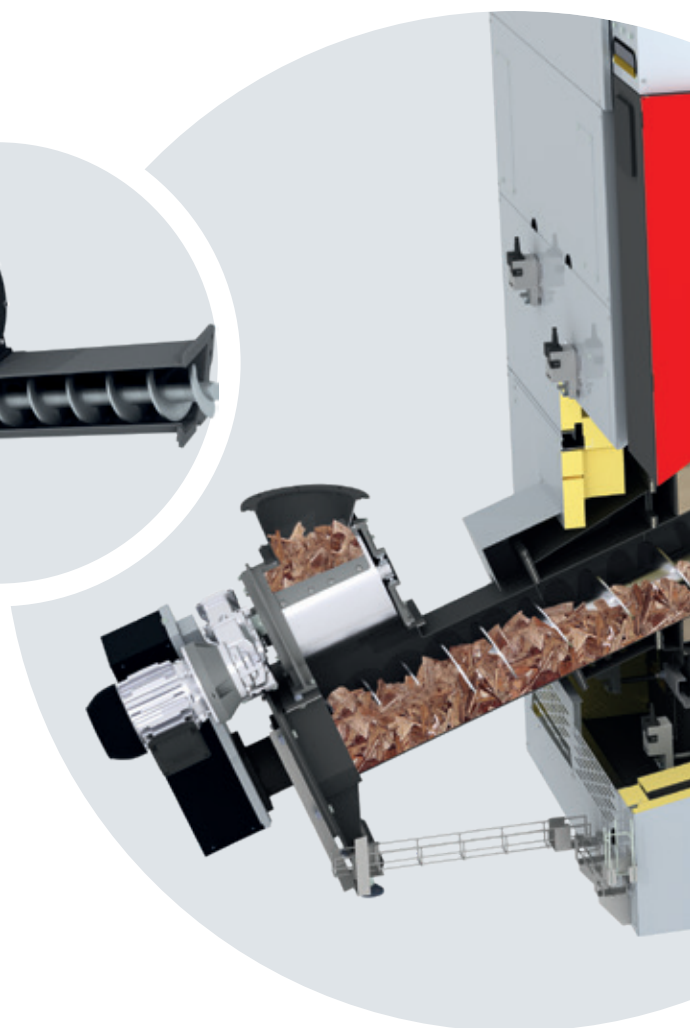
Large-volume 2-chamber rotary valve (RV)

The rotary valve offers maximum burn-back protection and continuous transport of material. With double chamber rotary valve and pressurised silos.



Screw feed loading

Fuel from TMe 350 P45s
(formerly G80)

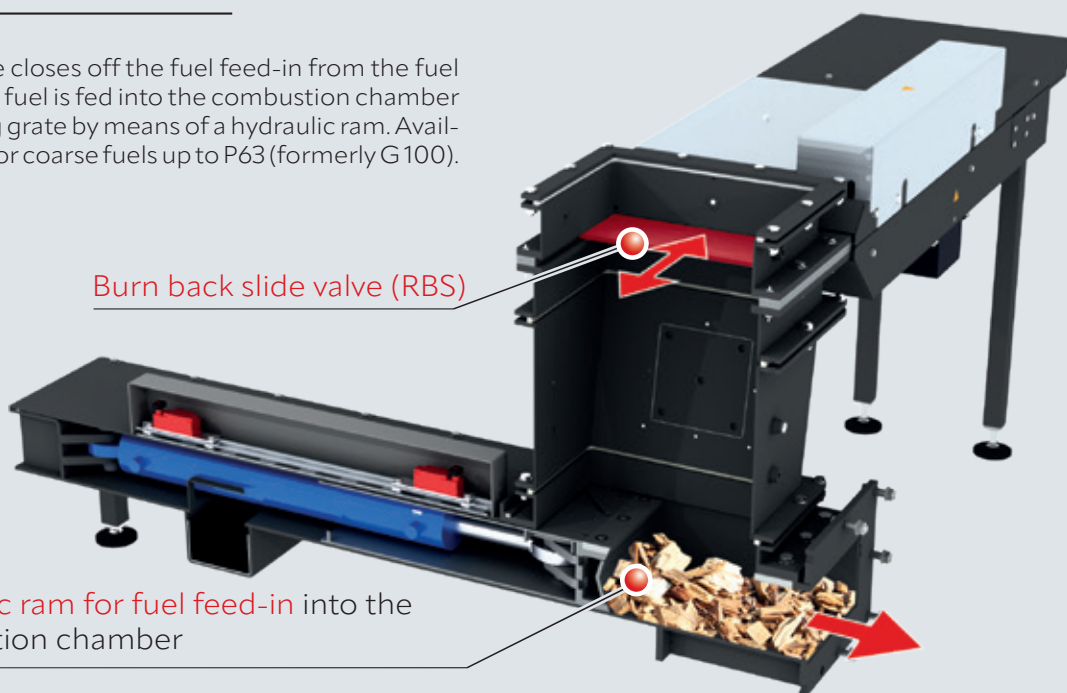


HYDRAULIC LOADING

The burn back slide valve closes off the fuel feed-in from the fuel store compartment. The fuel is fed into the combustion chamber directly on to the moving grate by means of a hydraulic ram. Available from TMe 350 kW. For coarse fuels up to P63 (formerly G100).

Burn back slide valve (RBS)

Hydraulic ram for fuel feed-in into the
combustion chamber





High temperature combustion chamber with moving grate

The high-temperature combustion chamber has a 4-layer jacket, guaranteeing clean combustion. Thanks to the moving grate, boiler operation is reliable and maintenance-free, even when using low-grade fuels which tend to form cinders. Separation of the primary air zone guarantees full, efficient burnout. This keeps emission levels very low. The ashes that fall under the grate are transported fully automatically to the ash container by a rake.

- Advantages:
- No build-up of cinders
 - Optimum burnout
 - Very low emissions
 - Automatic ash removal



Innovative module components made of silicon carbide

State of the art technology!



Upright heat exchanger

The upright design means that the heat exchanger practically cleans itself. In addition the heating surfaces are cleaned automatically. This ensures high operational efficiency. The safety heat exchanger fitted as standard prevents overheating. The optional electrostatic precipitator multicyclone dust separator attached to the TMe heat exchanger ensures compliance with the lowest dust emission limits. Ash removal is by robust screws which transport the ash into the collection ash pan.

- Advantages:
- Optimal heat transfer
 - Automatic cleaning of heating surfaces
 - High efficiency
 - Very low dust emissions
 - Highly effective mechanical, continuous dust separation without generating emission traces
 - No compressed air required

Over 100° C flow temperature (on request)



High-temperature flue gas recirculation (FGR)

Some of the flue gas is fed back into the combustion by a speed-controlled FGR blower fan. The residual oxygen in the flue gas is fed back to the combustion system by automatic progressive rotary slide valves serving as the FGR primary and secondary flue gas. This reduces the NOx emissions. It also helps to protect the fireclay lining when high-quality dry fuels are used, whilst optimising combustion and output for both damp and dry fuels.

- Advantages:
- Combustion optimisation
 - Protects the parts swept by the flames

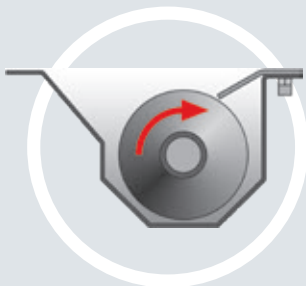
For more information see our
"Fuel store filling systems" brochure!



BFSV-H vertical feed
screw bunker filling
system



Special
trapezoidal duct



Fibre shredder



Rotary agitator arms
with tearing hooks



Shear edge





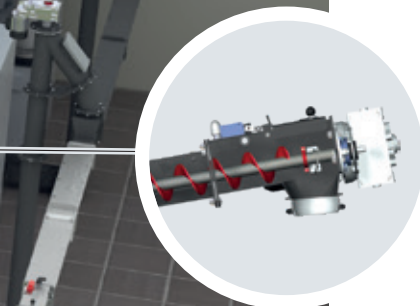
FBR-G with separate rotary agitator

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.



GAR-G system with separate rotary agitator

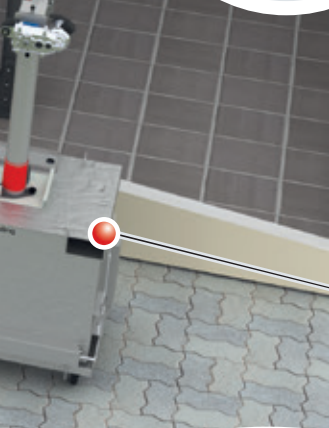
Sturdy articulated arm discharge unit for coarse grain fuels and for fuels with a low propensity to trickle. Torsion-resistant industrial quality ensures a long working life and optimum discharge.



Progressive metering screw with modular plug-in system

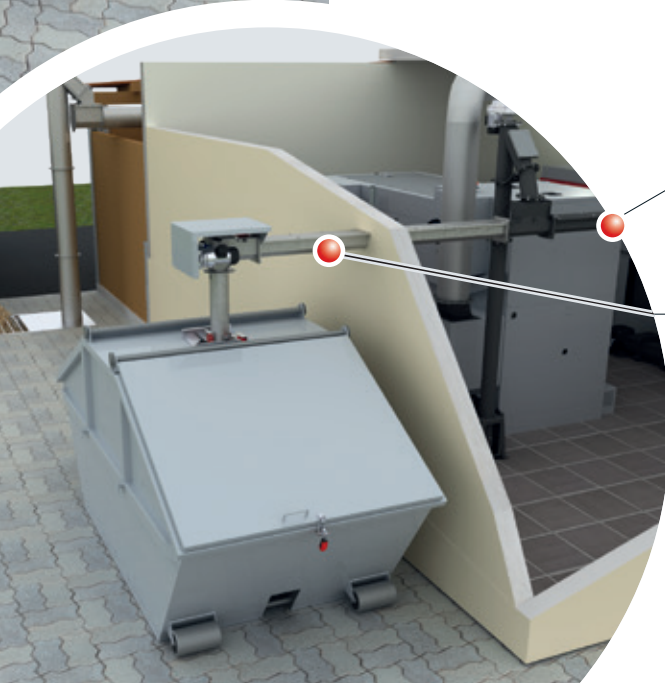
The progressive feed screw guarantees reliable fuel transport. Thanks to the progressive screw pitch, the material does not become compacted and can always be transported easily. This ensures less force and energy consumption. The modular design of the feed screw with standard extension pieces between 100 and 2,000 mm (increments of 100/200 mm) allows easy assembly and flexible positioning of the system in the boiler room. The Froeling feed screw does not require sloping sides.

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



Flap-bottomed container (galvanised for exterior installation)

The ash is automatically conveyed into the flap-bottomed container whence it can easily be emptied. This ensures long emptying intervals and maximum convenience. Available in sizes 330, 500 or 1000 ltr.



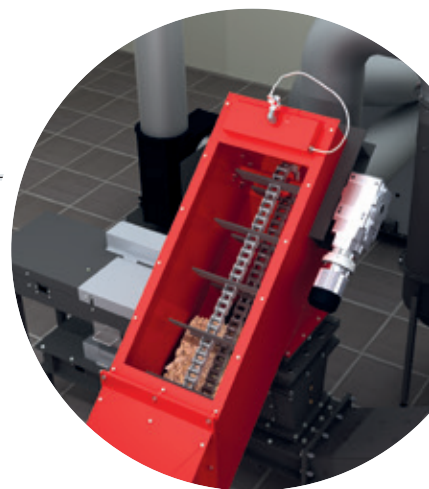
Vertical ash removal system

Central ash removal

Froeling will plan an individual central ash removal system to the customer's requirements. Collecting screws are employed to gather the ash from various points (such as the heat exchanger, grate, etc.) and convey it to a central external point. Standard ash container (240 ltr, 1100 ltr), flap-bottomed container (500, 1000 ltr) or ash pit (7000 ltr, 10,000 ltr, ...).

Suitable for coarse wood chips P63 (previously G100)

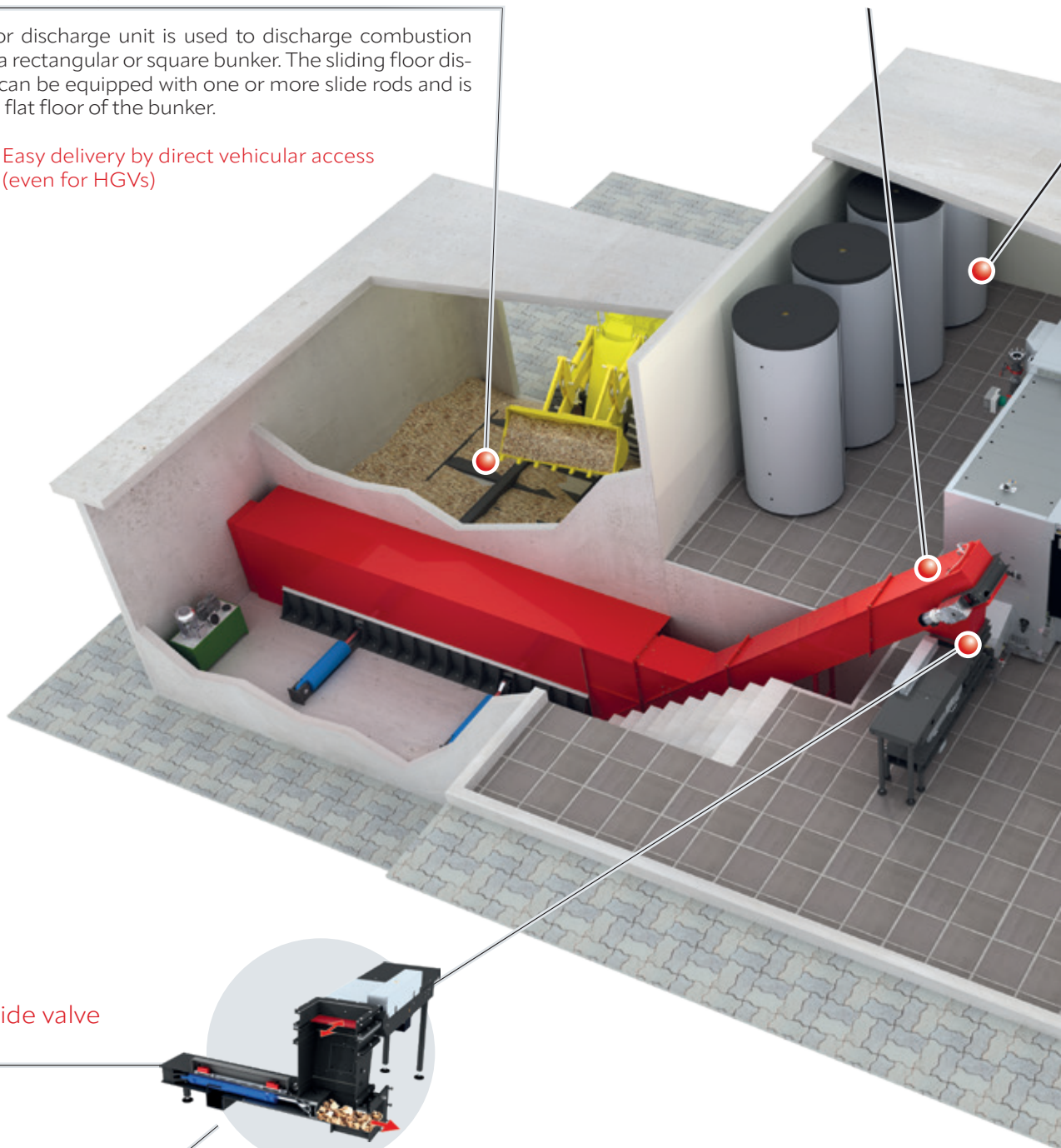
Depending on the application, raking chain conveyors, conveyor belts or hydraulic cross feeders may be used, with the option of connection of sprinklers.



Sliding floor discharge unit

The sliding floor discharge unit is used to discharge combustion materials from a rectangular or square bunker. The sliding floor discharge system can be equipped with one or more slide rods and is installed on the flat floor of the bunker.

Advantage: • Easy delivery by direct vehicular access (even for HGVs)



Burn back slide valve (RBS)

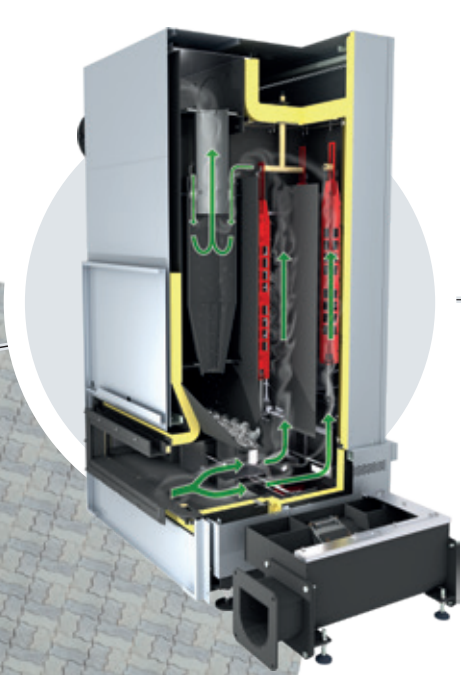
Hydraulic fuel feed-in





Fröling storage tank systems with sensor strip

Fröling storage tank systems are available in various sizes and are also ideal for combining with other energy systems.



EFZ 350-550 kW electrostatic precipitator cyclone

The modular electrostatic precipitator system combines the function of electrostatic charging of dust particles and the centrifugal separation of a multicyclone to reduce fine dust emissions.



Alternatively an interchangeable sliding floor container can be used

Example:
Discharge: SB container
Fuel: Wood chips

Pellet fuel store systems

Froling fuel store systems are impressively easy to install and make full use of the available storage space. The Pellet Mole® draws the pellets down from above, ensuring an optimum fuel feed to the boiler.

Steel silo



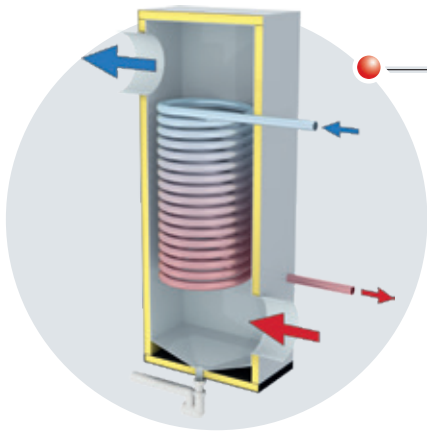
GRP silo



Sheet metal silos as an alternative storage option for exterior use



Froling can plan individual storage and feed systems!



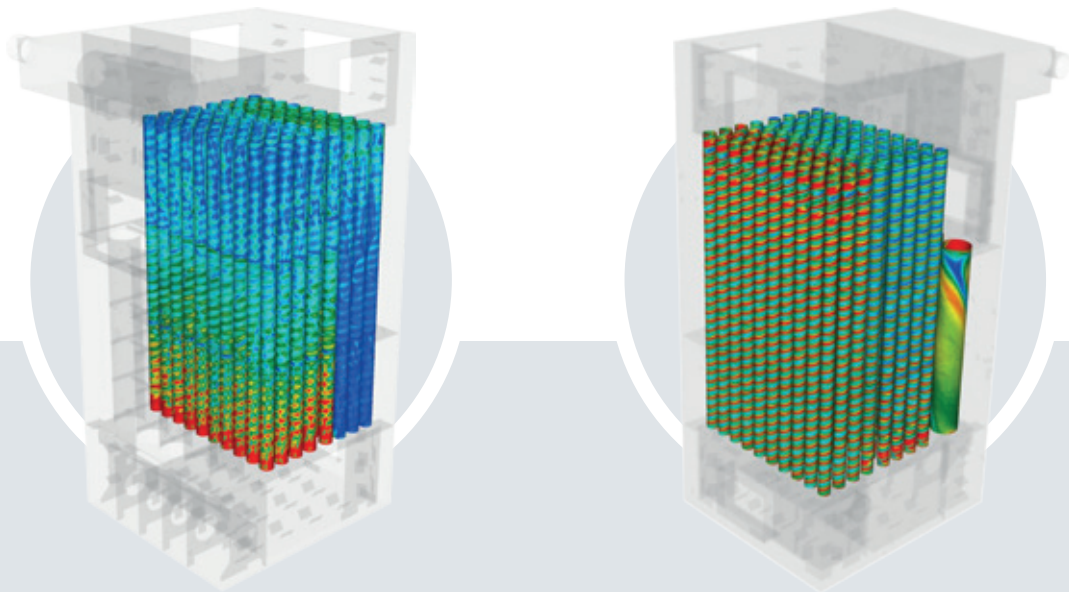
Flue gas heat exchanger

The otherwise unused residual heat from the flue gas, which escapes unused through the chimney in conventional solutions, is captured by additional heat exchangers and is fed into 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. The module can also be retrofitted.

Recommended return
temperature < 50 °C

Advantages:

- Lower fuel costs
- Filtered flue gas
- Reduced emissions
- Automatic cleaning
- Increased efficiency of the overall system



Optimised system through CFD simulation

During the development of the boiler system, modern, computer-aided CFD simulation processes were also used to optimise heat distribution, resulting in ideal combustion and maximum efficiency across all load levels.

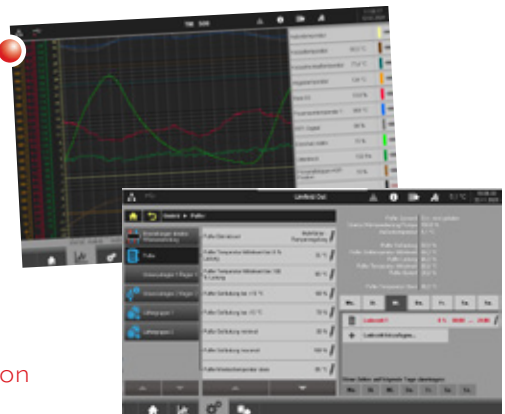
Advantages:

- Optimum heat distribution
- Ideal combustion
- Very high efficiency at nominal load and partial load

Froling PLC 4000 controller

The PLC 4000 is built using high-quality industry-standard components. The clear, user-friendly control system offers a wide range of different settings and visualisation options for individual, efficient and stable operation. The Froling PLC 4000 offers numerous functional options such as multi-sensor storage tank management, heating circuit and network temperature control, external output specifications, cascade function, integration, monitoring and control of additional peripheral components.

- Advantages:
- Powerful PLC controller with 10.1" colour touch display
 - Simple and reliable remote access via Froling visualisation software
 - Numerous functional options



NEW! Desktop version with even more options



EVERYTHING AT A GLANCE AT ALL TIMES WITH THE FRÖLING-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 set which status messages you would like to be informed about (e.g. when the ash box needs to be emptied or in the event of faults). A Fröling 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.

- 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)



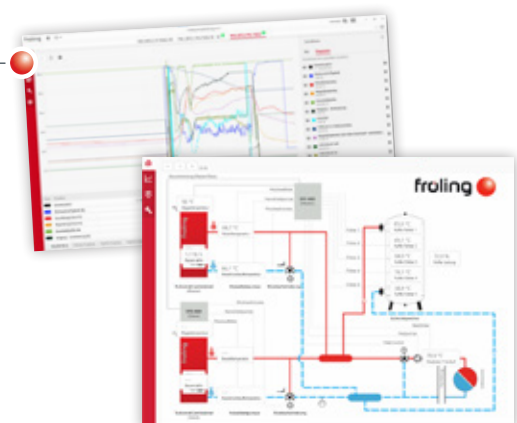
Modbus

The system can be integrated into a building management system via the Froling Modbus interface.

Froling Visualisation Software

The boiler display software enables convenient remote control of the system from a computer. Froling visualisation software offers transparency thanks to its trend, status and alarm recording features. All operating values and customer parameters can be displayed and modified. The familiar Windows interface and clear menu structure make it easy to use. This means that the heating system can be monitored from any location.

- Advantages:
- Monitor and operate from your PC
 - Record boiler data
 - Remote control



PERMITTED FUELS

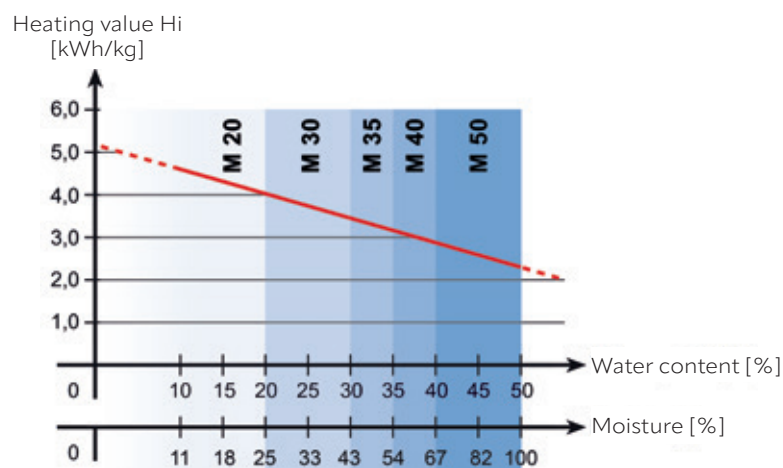


Wood chip fuel	Description		TMe 350-550 (screw feed loaded)	TMe 350-550 (hydraulically loaded)
Wood chips to EN-ISO 17225-4 Bulk density approx. 210 - 250 kg/bcm Energy content approx. 3.5 kWh/kg	P16s	Size 3.15 - 16 mm (at least 60%) Max. Length 45 mm	✓	✓
	P31s	Size 3.15 - 31 mm (at least 60%) Max. length 120 mm	✓	✓
	P45s	Size 3.15 - 45 mm (at least 60%) Max. length 200 mm	✓	✓
	P63	Size 3.15 - 63 mm (at least 60%) Max. length 350 mm		✓



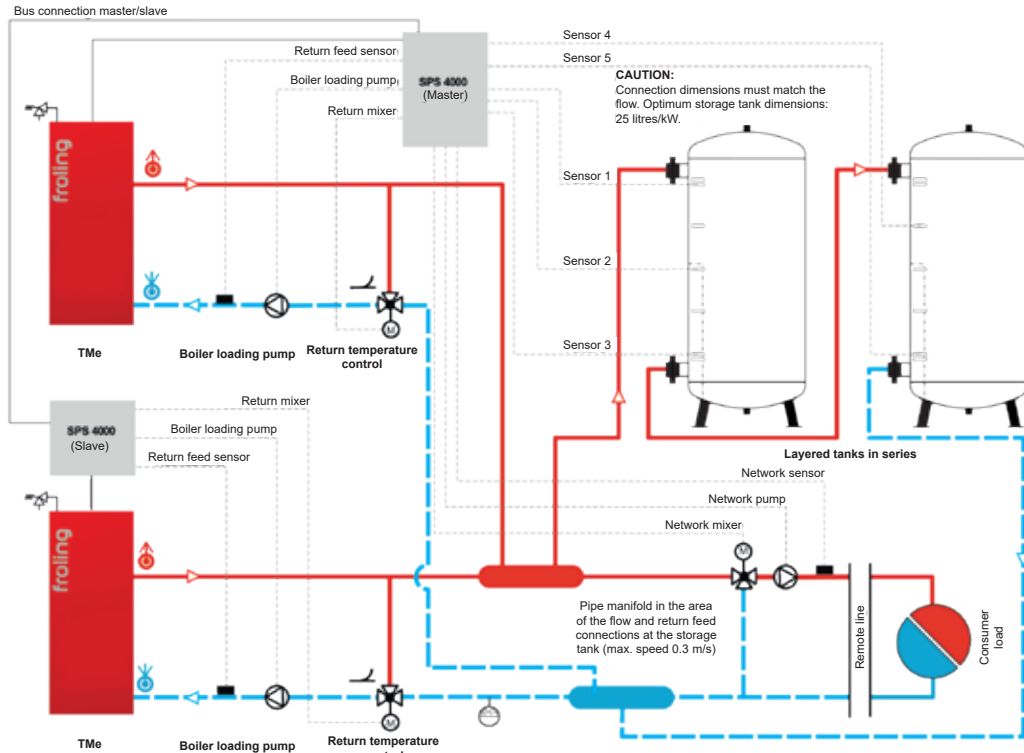
Fuel pellets	Description	TMe 350-550 (screw feed loaded)	TMe 350-550 (hydraulically loaded)
Pellets to EN-ISO 17225-2 Bulk weight approx. 650 kg/m ³ Energy content approx. 4.9 kWh/kg	Length 3.15 - 40 mm Diameter 6 mm	✓	

Heating values depending on water content and moisture

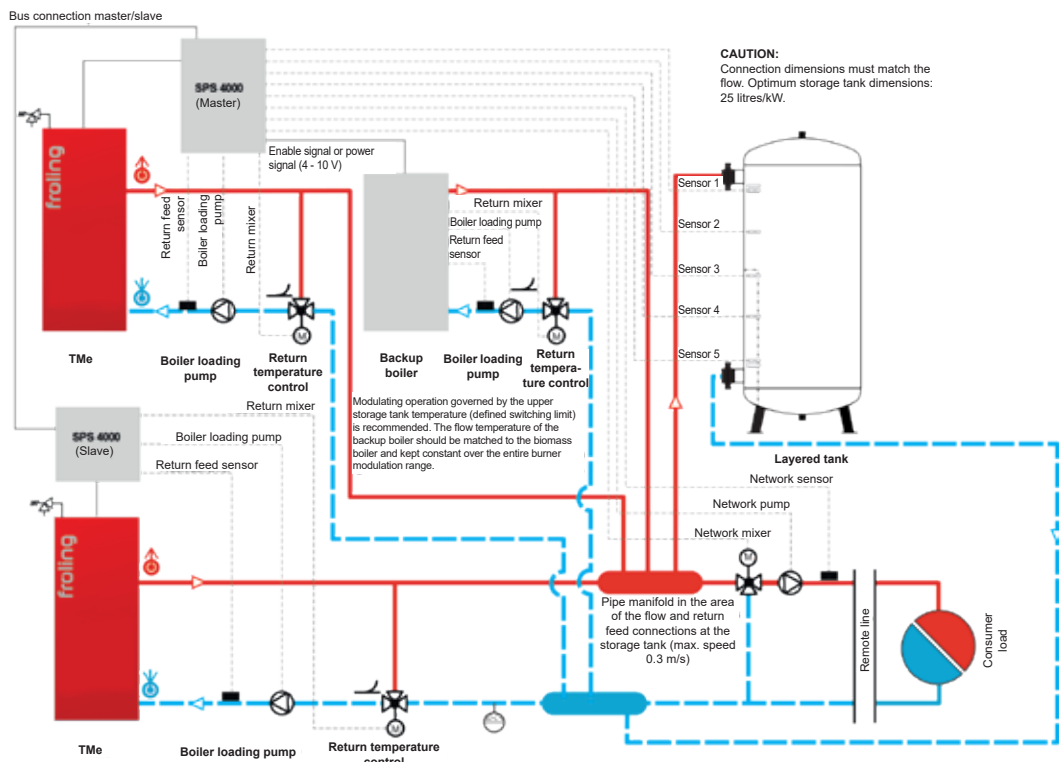


HYDRAULIC CONNECTIONS

TMe as a double boiler system in cascade with two storage tanks in series



TMe as a double boiler system in cascade with one backup boiler and one storage tank





TECHNICAL DATA

TMe 350 - 550 kW

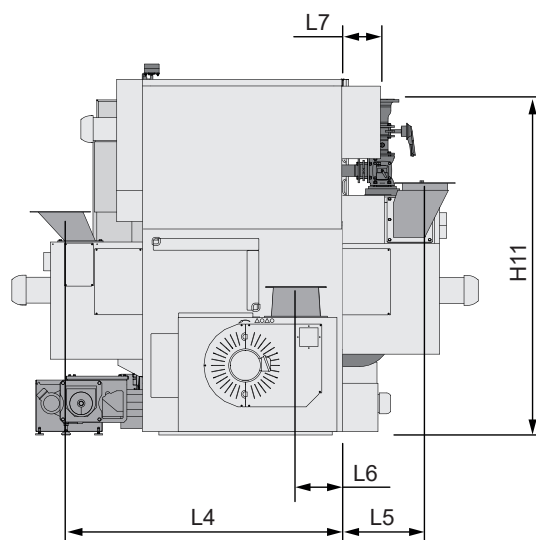
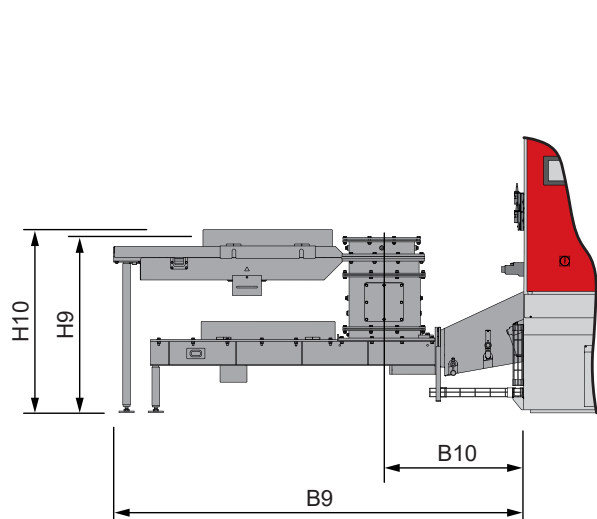
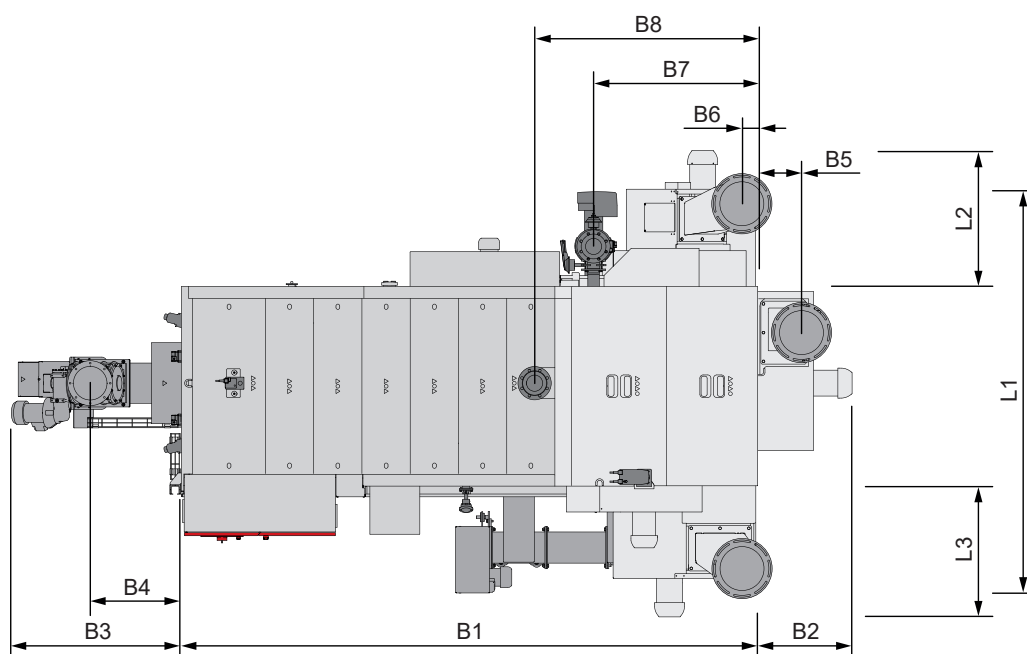
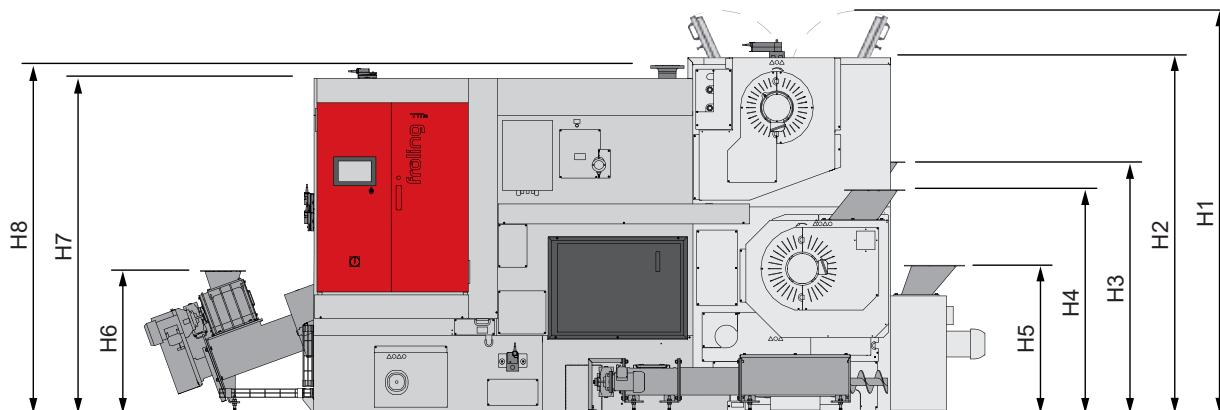
Technical specifications - TMe		350	400	450	500	550
Rated heat output	[kW]	349	399	449	499	549
Output range	[kW]	104.7 - 349	119.7 - 399	134.7 - 449	149.7 - 499	165 - 549
Rated thermal input of fuel with wood chips	[kW]	366.2	418.2	470	535	589
Nominal thermal input of fuel with pellets	[kW]	361.3	413	465	521	-
Required fuel quantity at nominal load for NL wood chips / pellets	[kg/h]	101 / 71	116 / 81	131 / 95	145 / 102	160 / -
Electrical connection		400V / 50Hz / C35A or as shown on the circuit diagram				
Max. permissible operating pressure	[bar]	6 8 ¹	6 8 ¹	6 8 ¹	6 8 ¹	6 8 ¹
Total dry weight including attachments	[kg]	7475	7475	7475	7475	7475
Weight - combustion chamber incl. SiC modules	[kg]	4316	4316	4316	4316	4316
Weight of SiC modules	[kg]	2063	2063	2063	2063	2063
Weight - heat exchanger	[kg]	1858	1858	1858	1858	1858
Combustion chamber installation dimensions (L x W x H) incl. collision protection and insulating sheet panelling	[mm]	2779 x 1461 x 2278	2779 x 1461 x 2278	2779 x 1461 x 2278	2779 x 1461 x 2278	2779 x 1461 x 2278
Dimensions required for heat exchanger installation (L x W x H)	[mm]	1560 x 1345 x 2301	1560 x 1345 x 2301	1560 x 1345 x 2301	1560 x 1345 x 2301	1560 x 1345 x 2301
Flue spigot diameter	[mm]	300	300	300	300	300
Heat exchanger water capacity	[ltr]	1040	1040	1040	1040	1040
Minimum boiler return temperature	[°C]	65	65	65	65	65
Max. permitted operating temperature	[°C]	>100 ²	>100 ²	>100 ²	>100 ²	>100 ²
Flue gas temperature (at nominal load / at partial load) [°C]		140 / 110	140 / 110	140 / 110	140 / 110	140 / 110
Permitted fuel as per EN ISO 17225		Part 4: Wood chips P16s - P45s class A1 + A2 P63 with hydraulic loading Part 2: Wood pellets, D06 / class A1 + A2				

¹ on request

² Higher boiler temperatures on request

DIMENSIONS

TMe 350 - 550 kW



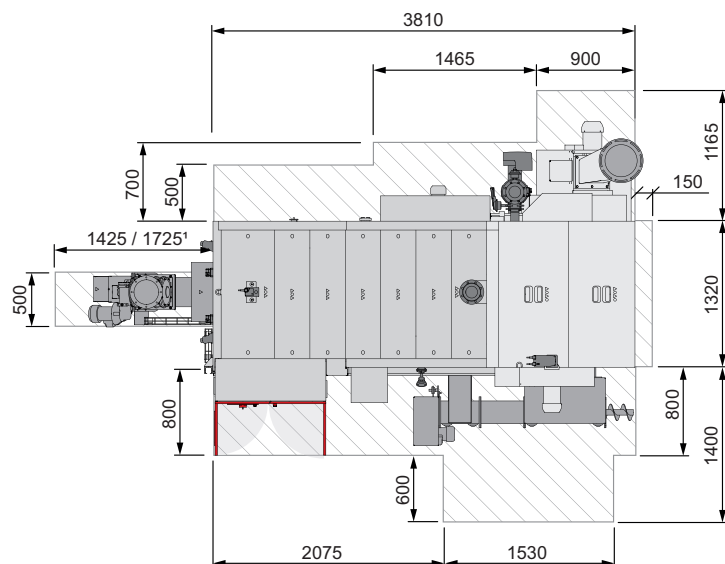
DIMENSIONS

TMe 350 - 550 kW

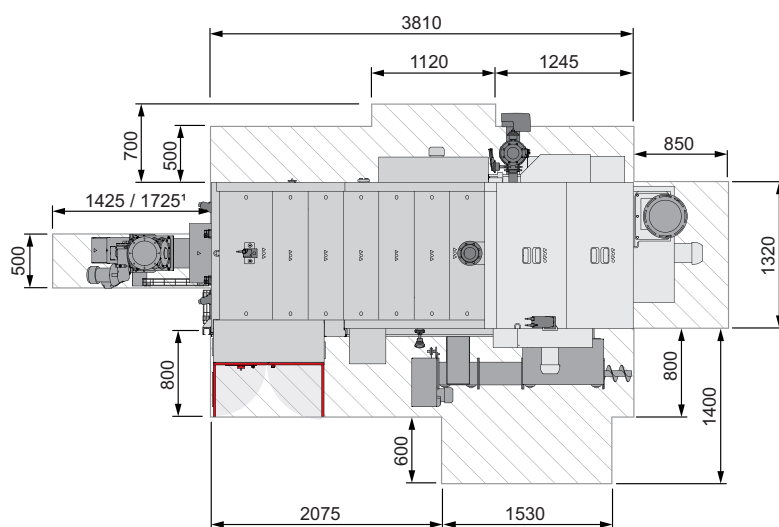
All dimensions in mm - TMe	350	400	450	500	550
L1 Overall length incl. collective ash removal and return temperature control	2670	2670	2670	2670	2670
L2 Length of induced draught fan (opposite control cabinet)	890	890	890	890	890
L3 Length of induced draught fan (control cabinet side)	865	865	865	865	865
L4 Distance between flue gas pipe connection (control cabinet side) and side of boiler	1860	1860	1860	1860	1860
L5 Distance between flue gas pipe connection (opposite to the control cabinet) to boiler side	550	550	550	550	550
L6 Distance between flue gas pipe connection (opposite the stoker) and side of boiler	300	300	300	300	300
L7 Distance between return connection and back of boiler	265	265	265	265	265
B1 Total width	3815	3815	3815	3815	3815
B2 Width of induced draught fan (opposite stoker)	625	625	625	625	625
B3 Width of stoker (screw-fed)	1120	1120	1120	1120	1120
B4 Distance between stoker and side of boiler	600	600	600	600	600
B5 Distance between flue gas pipe connection (opposite the stoker) and side of boiler	290	290	290	290	290
B6 Distance between flue gas pipe connection (opposite the control cabinet and control cabinet side) and side of boiler	105	105	105	105	105
B7 Distance between return connection and side of boiler	1090	1090	1090	1090	1090
W8 Distance between flow connection and side of boiler	1475	1475	1475	1475	1475
B9 Width of hydraulic stoker	2710	2710	2710	2710	2710
B10 Distance between the hydraulic stoker connection and side of boiler	940	940	940	940	940
H1 Height of inspection cover on the heat exchanger	2690	2690	2690	2690	2690
H2 Height of heat exchanger	2350	2350	2350	2350	2350
H3 Height of flue gas pipe connection (opposite the control cabinet)	1670	1670	1670	1670	1670
H4 Height of stoker connection (control cabinet side)	1480	1480	1480	1480	1480
H5 Height of stoker connection (opposite stoker)	980	980	980	980	980
H6 Height of stoker connection (screw-fed)	945	945	945	945	945
H7 Combustion chamber height	2215	2215	2215	2215	2215
H8 Height of connection for flow	2300	2300	2300	2300	2300
H9 Height of hydraulic stoker connection	1160	1160	1160	1160	1160
H10 Burn back slide valve	1210	1210	1210	1210	1210
H11 Height of return connection	2215	2215	2215	2215	2215

OPERATING & MAINTENANCE AREAS

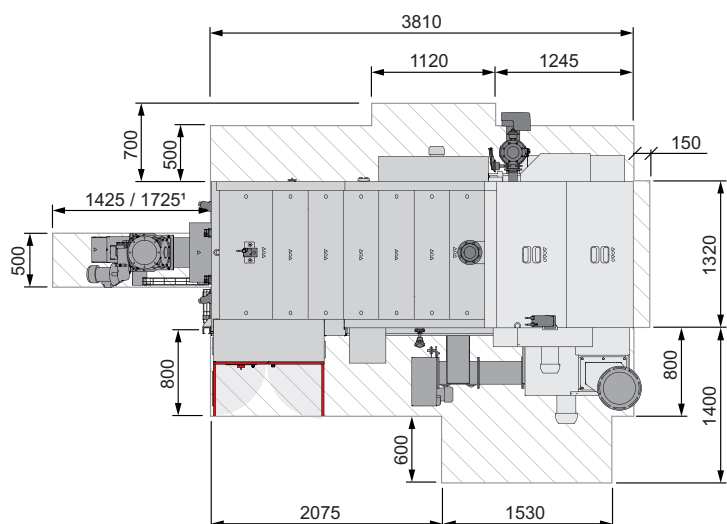
The illustrations show collective ash removal on the control cabinet side.



View of induced draught fan opposite the control cabinet



View of induced draught fan opposite the stoker

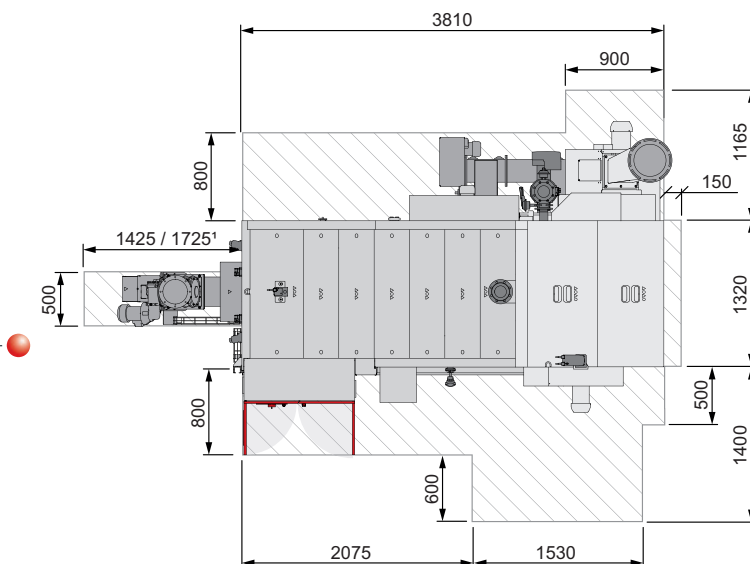


View of induced draught fan on the control cabinet side

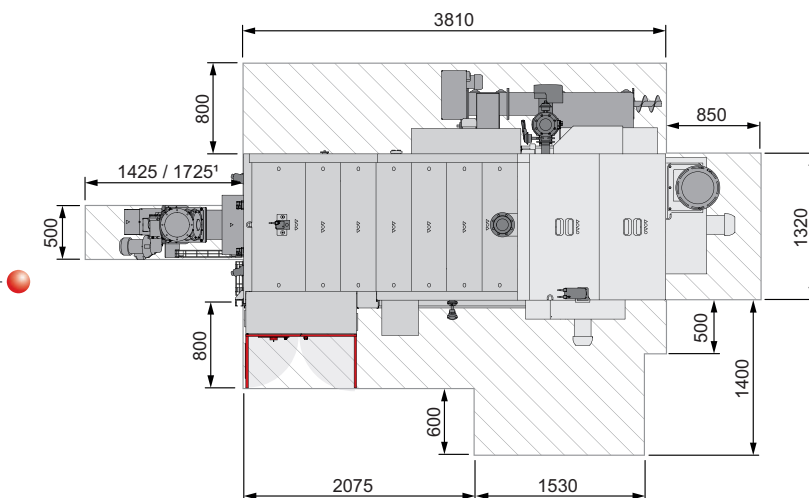
The illustrations show collective pocket opposite the control cabinet.

OPERATING & MAINTENANCE AREAS

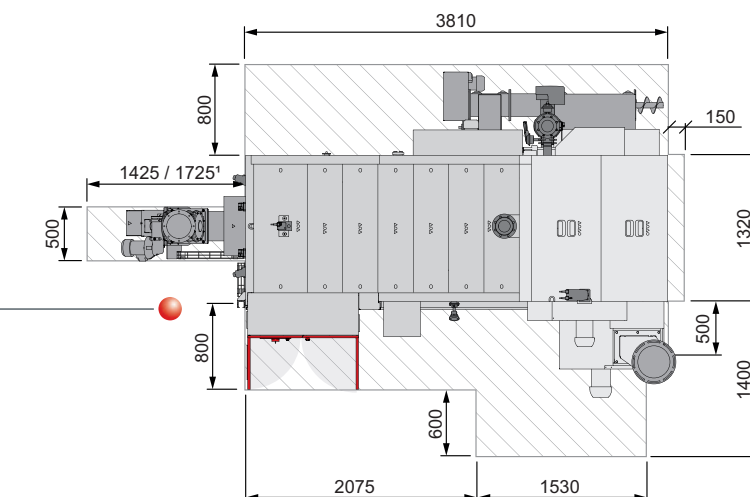
View of induced draught fan opposite the control cabinet



View of induced draught fan opposite the stoker

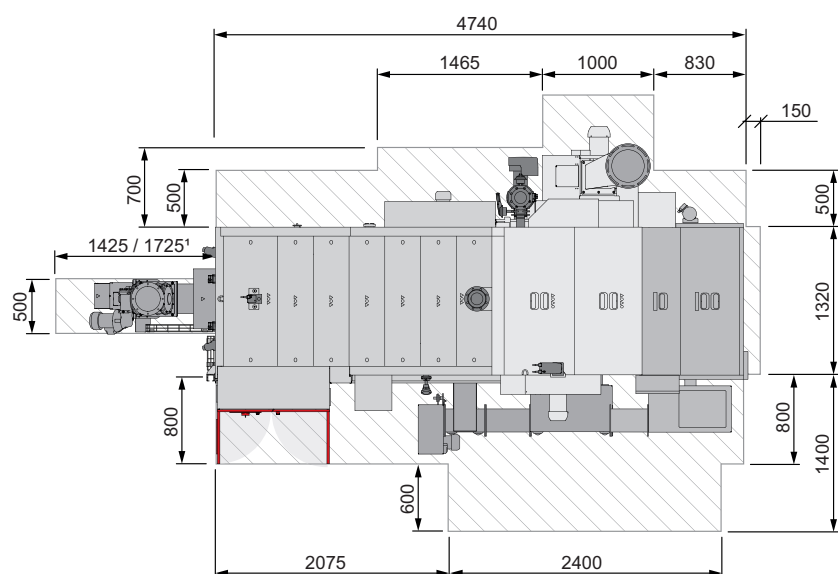


View of induced draught fan on the control cabinet side

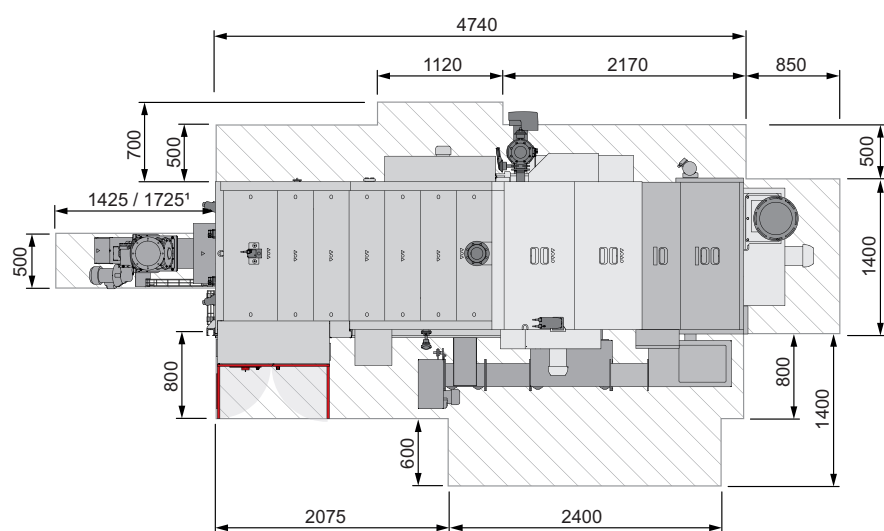


OPERATING & MAINTENANCE AREAS

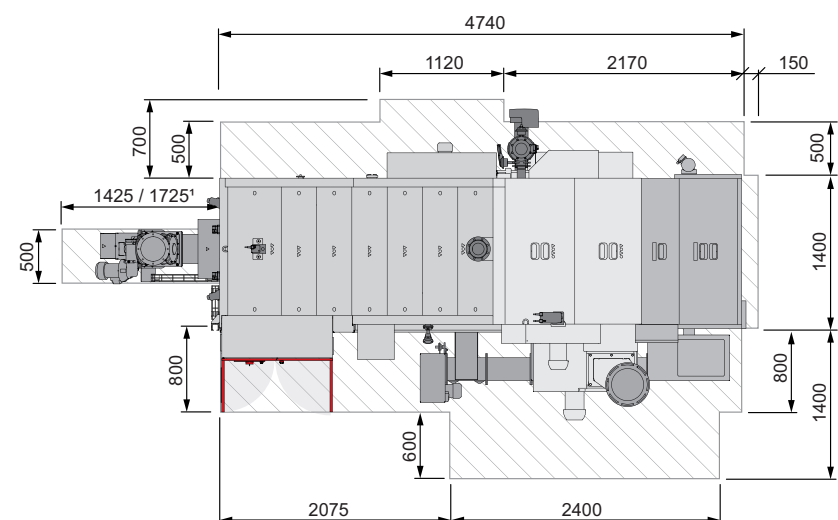
The illustrations show the TMe with EFZ and collective ash removal on the control cabinet side.



View of induced draught fan opposite the control cabinet



View of induced draught fan opposite the stoker



View of induced draught fan on the control cabinet side



Pellet boiler

PE1 Pellet	7 - 35 kW	P4 Pellet	80 - 105 kW
PE1c Pellet	16 - 22 kW	PT4e	100 - 350 kW
PE1e Pellet	45 - 60 kW		

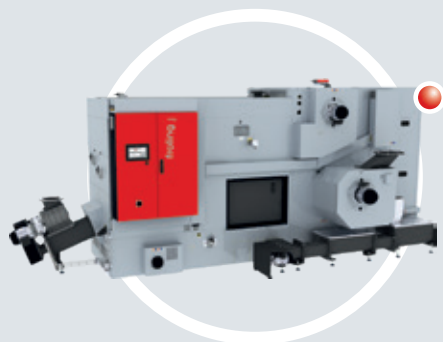


Firewood boiler

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

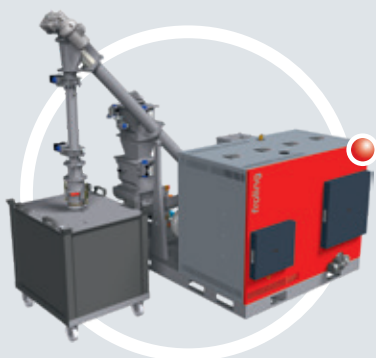
Dual fuel boiler

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



Wood chip boiler / large systems

T4e	20 - 350 kW	Lambdamat	650 - 1500 kW
TMe	350 - 550 kW		



Heat and electricity from wood

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

Your Fröling partner

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