FRÖLING
WARMTH FROM WOOD

Turbomat

The Turbomat - a fully automatic, safe and rugged design. Unique advantages. Very low emissions.

FRÖLING

The Pioneer in Wood-heating Systems

Founded in 1951, Fröling very quickly became a leader for modern heating technology. The firm has devoted itself to wood-heating technology for more than 40 years.
Our customers and the environment are the focus of all of our company efforts. In addition to production, installation, customer service, management and sales, Fröling's highly successful team is particularly involved in research and development. The company is also rightly proud of its long-established quality management system. Thanks to its pioneering innovations, Fröling has played a decisive role in bringing about advances in modern wood-heating technology:

1982 Fröling introduces the first wood-waste heating method with high-temperature combustion.

1988 Fröling introduces the FHG Turbo wood-fired boiler, setting new standards for efficiency and cost-effectiveness in wood-fired heating systems.

1991 Fröling wins an innovation award when it introduces the Ökomatic, the first wood-waste burner with Lambda technology.

1993 Fröling receives the national prize from the Federal Ministry for Economic Affairs.

1996 Fröling receives the Innovation Award at the energy conservation fair in Wels.

1999 Awarded the Austrian state seal by Federal Minister Fahrnleitner.

2001 Fröling receives the prize for innovation from the German Federal Ministry for the Environment and of the Region of Upper Austria.

STAATLICHE AUSZEICHNUNG

THE TURBOMAT

Invest in the Future!

TURBOMAT 150/220

TURBOMAT 320/500

The new Fröling Turbomat is a unique heating system with a fully automatic wood burner which will operate with a wide variety of wooden material. As a leading manufacturer of bio-mass heating systems, Fröling has incorporated all its expertise and experience into the innovative, tomorrow's worldTurbomat. Our aim was to build a boiler that would burn pellets made from any kind of wood, from workshops shavings, chippings and offcuts through to wet waste. Thanks to its conveyor grate technology and its advanced combustion technology, even damp wood-waste does not present a problem for the Turbomat.

Not only is the Turbomat visually appealing, but it can also be admired for its **optimized control technology**. The Lambda control system guarantees perfect combustion. The ease-of-use **it provides** is equal to that of an oil or gas boiler.

All Turbomat functions are **fully automatic**, from the fuel feed and combustion control, right through to cleaning and ash removal. The high-techTurbomat is designed to be easy to use and even **easier to service and maintain**.

The Tu

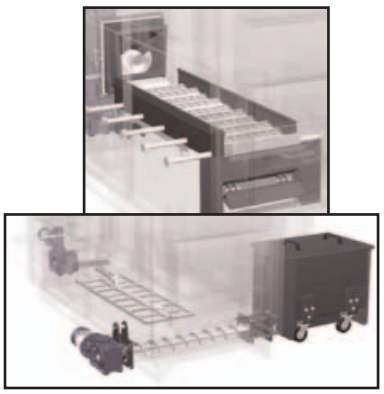
Turbomat 150/220

A Uniqu

Feature 1: **A High-temperature Combustion Chamber with a Conveyor Grate**

Advantages for you:

- **No cinder build-up**
- **Complete and thorough burning, even with wet fuel**
- **Very low emission levels (CO under 10 mg/MJ)**
- **Automatic ash removal**



Unique **feature**: The high-temperature combustion chamber is **four-shelled**, your guarantee for clean, full combustion. The jacket cooling, together with the water-cooled slide-in duct, minimize the loss of radiant heat and guarantee a high degree of efficiency. Thanks to the moving conveyor grate, boiler operation is trouble- and maintenance-free, even when using low-grade fuels which tend to form cinder. Separation of the primary air zone guarantees full, efficient combustion. This keeps emission levels very low (**CO less than 10 mg/MJ**) The ashes that fall under the grate are automatically transported to the ash container by a rake.

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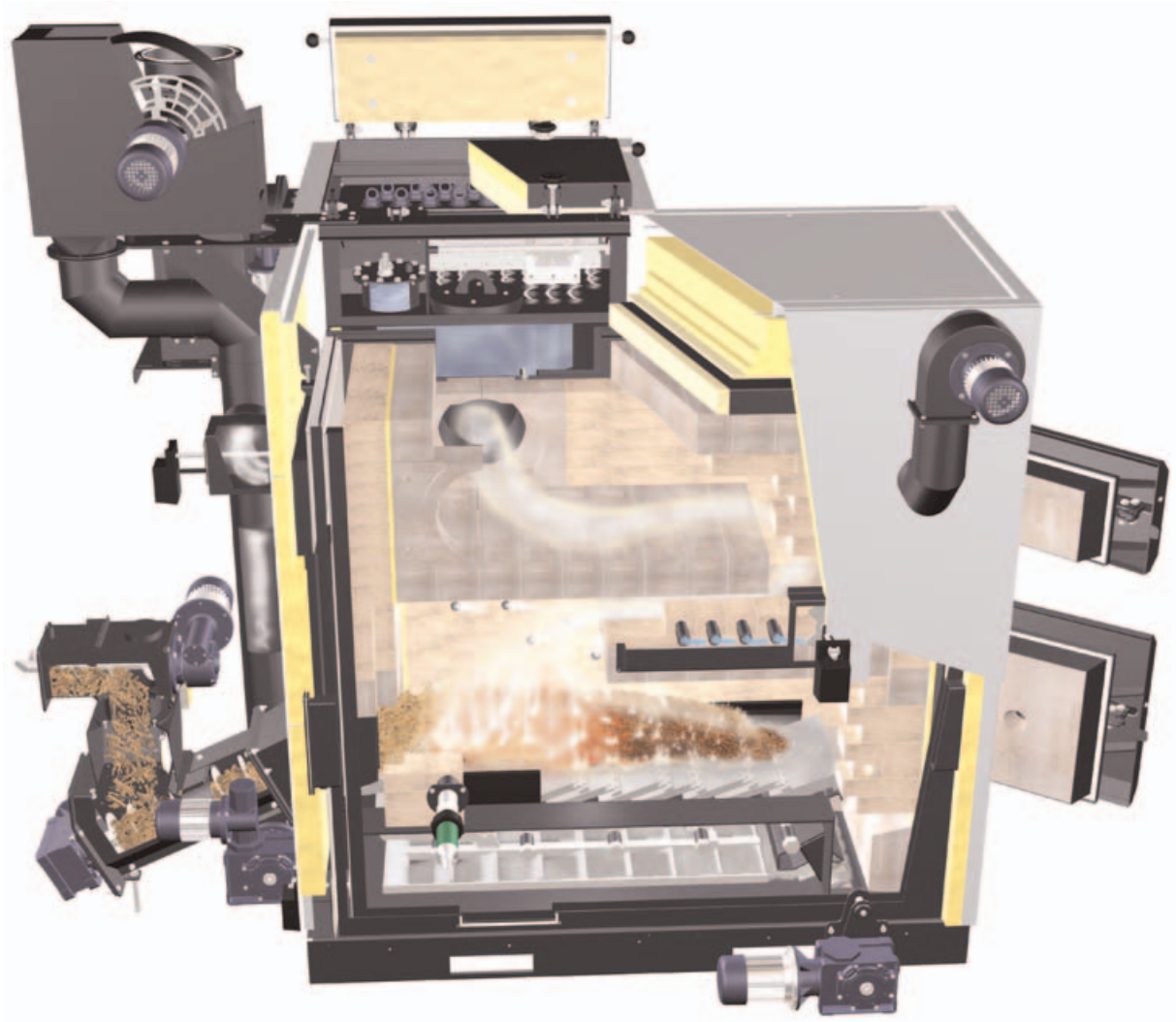
Design

Turbomat 320/500



Feature 2: **An Upright Heat-exchanger**

Advantages for you:
- **Optimal heat exchange**
- **Automatic cleaning of heating surfaces**
- **High efficiency**
- **Very low dust emissions**

The upright design means that the heat-exchanger practically cleans itself.
The heating surfaces can also be automatically cleaned. This ensures that a high-efficiency rating is maintained. The built-in safety battery prevents over-heating. The heat exchangers of the Turbocoat 320 and 500 have built-in patented multi-cyclone dust separators.
This ensures that very low dust emission levels are maintained at all times. Ash removal is performed by worm screws which feed ash straight to the ash container. This is outside the unit and is thus easy to remove and empty.

Feature 3:

The Lambdatronic Control System

Advantages for you:

- **Optimum combustion control**
- **Adjustment to various fuel characteristics**
- **Savings through optional remote servicing**

The unique modular design of the Lambdatronic control system ensures optimized combustion. The boiler automatically adjusts to the particular characteristics of the fuel being used. The Lambdatronic control system provides trouble-free, weather-activated control of heating circuits and precise control over the various storage systems. All of the settings and parameters can be called up and modified via modem and personal computer. Using a modem, servicing can be done remotely by Fröling. This not only saves you time, but it will save you money as well.

The Lambda control system with precision primary, secondary and tertiary air control, the furnace body temperature monitoring system, the under-pressure control system (which monitors the intensity of the glowing ember bed) and the flue gas recirculation system all ensure optimum combustion.

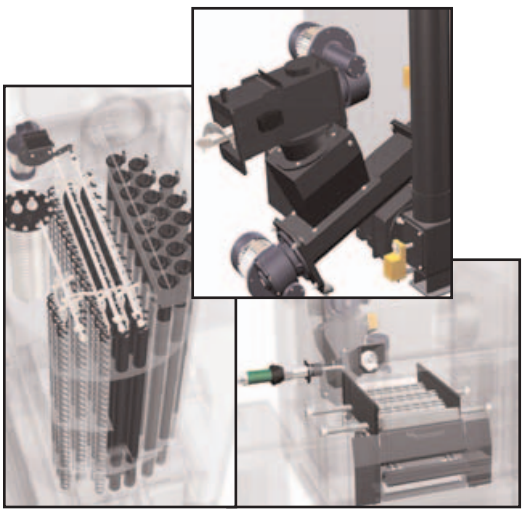
The **flue gas recirculation system** reduces emissions and ensures optimized combustion and output when burning damp fuels. It also increases the life-span of the boiler due to low furnace body temperatures and protects the fire-clay lining when burning high-grade, dry fuels.

Feature 4:

Maintenance-friendly, Rugged Design

Advantages for you:

- **Maintenance work reduced to the minimum**
- **Easy to replace components**
- **Costs savings**
- **The highest level of safety**



The high-tech Turbomat is designed to be easy to use and even easier to service and maintain. All components, from the fire bricks to the grate elements, are easy to replace and are inexpensive, too.

The built-in blow-back flap, the rotary valve and the under-pressure monitoring system all work together to reduce the danger of a blow-back.

The Turbomat 320 and 500 are available in versions with a second chamber; this is designed for use with very dry fuels such as wood-working workshop waste. In the event of a feed screw failure **you can continue emergency operation by connecting up an oil burner or a gas burner**.

Turbomat

Fröling Loading Systems

Perfected over Decades

Fröling has many years of experience designing loading, charging and batching systems. Regardless of whether the systems are large or small, Fröling provides rugged infeed systems, which meet the highest technical standards. For example, it is possible to connect a **hydraulic infeed system** to the Turbomat 320 or 500, which is especially well suited for bulky or bundled fuels.

Industrial Articulated Arm Feed Unit:

Provides trouble-free, fully automatic, dust-free operation. The energy and maintenance costs are kept to a minimum.

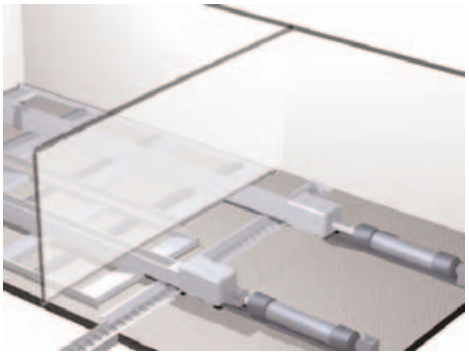
The unique, trapezoidal feed duct prevents clogging and consumes very little energy.

Inclined Screw Feed Unit:

Mainly used as a silo discharge screw in the wood-processing industry. Ensures uniform and trouble-free fuel feed.

Horizontal Screw Feed Unit:

Solid construction to withstand extremely high feed loads when discharging high silos. This is especially used for damp shavings and large diameter bunkers.



Pusher Feed Unit:

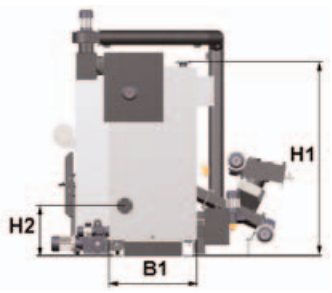
Variant for rectangular stores. Suited to all materials. The pusher feed unit has proven especially useful for loading heavy materials such as bark and wood chips.

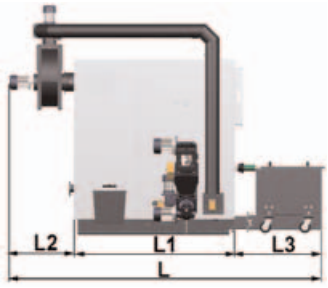
Turbomat

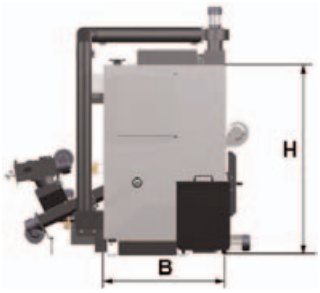
Promoting wood-fired heating

Wood-fired heating is environment friendly and cost-effective. No surprise then that many government authorities have programs for promoting its use. You will find the latest information about promotional initiatives and other activities promoting wood-fired heating at www.froeling.com. Your local Fröling installer will also be glad to help with any questions you might have.

Technical specifications and dimensions, Turbomat 150 and 220:



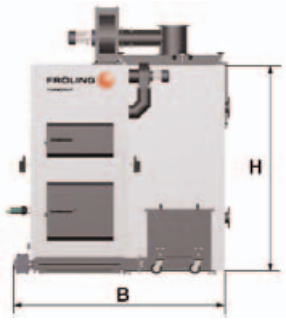


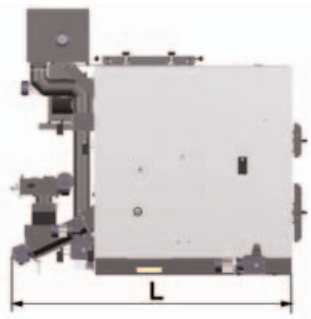


Turbomat		150	220
Rated thermal output	kW	150	220
Flue pipe diameter	mm	200	250
Boiler depth (L)	mm	3240	3390
Boiler width (B)	mm	1210	1490
Boiler height (H)	mm	1870	1870
Height of outfeed/return feed (H1/H2)	mm	1930/495	1930/495
Boiler length (L1)	mm	1710	1750
Length of induced draught fan (L2)	mm	600	710
Heat-exchanger width (B1)	mm	870	870
Length of ash trolley for removing ash from the chamber (L3)	mm	930	930
Minimum height/width required	mm	1950/1000	1950/1000

We reserve the right to make changes to dimensions.

Technical specifications and dimensions, Turbomat 320 and 500:





Turbomat	kW	320	500
Rated thermal output	mm	320	
Flue pipe diameter	mm	300	
Length of boiler, including the stoker (L)	mm	3250	
Width of boiler, including attachments (B)	mm	2500	
Height of boiler (H)	mm	2440	
Diameter of stoker screw	mm	150	
Heat-exchanger surface area	m^2	19.04	
Boiler contents (water)	l	560	
Weight of boiler (dry)	kg	5070	
Minimum room height	mm	3000	

upon request

We reserve the right to make changes to dimensions.

Edition October 2003

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WARMTH FROM WOOD
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