fröling

Lambdamat

Wood chip, shaving and pellet boiler

Lambdamat

COMMUNAL INDUSTRY

High-tech without limits

For more than 50 years, Froling has specialised in efficiently using wood as a source of energy. Today the name Froling stands for modern biomass heating technology. The 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. The extensive service network ensures that Froling can satisfy customer needs and inquiries in a timely manner.

The fuels: wood chips, shavings, pellets and more

Unlike heating oil, wood chips are a local and environmentally friendly fuel, which is not subject to the crises and fluctuations of the market. Wood chip production provides jobs for local residents. Therefore wood chips are the perfect fuel, not just economically, but also from an ecological standpoint. Leftover branches, tree tops, and sawmill waste are shredded into wood chips. The quality class is determined by the wood used.

Wood pellets are made of natural wood. The large quantity of wood shavings and sawdust produced by the industry are compacted and pelleted without being treated beforehand. Pellets have a high energy output 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, which unloads the pellets directly into the storage room.

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

Lambdamat

The result of systematic research and development!

Froling's Lambdamat is a unique, fully automatic heating system for burning wood chips, shavings and pellets. It not only offers innovative combustion technology, but also offers a high level of convenience and operational reliability. The two different types of boiler system cover the following application requirements: an "Industry" model for dry fuels and a "Communal" model for fuels with up to 50 % water content.

Lambdamat Industry

The Froling Lambdamat Industry scores with its compact design. The boiler is easy to install, even in difficult locations, since it is delivered in two separate parts. The connection to the loading systems on the right, left or rear is simple and easy to do with the reliable variable stoker connection.

Lambdamat Communal

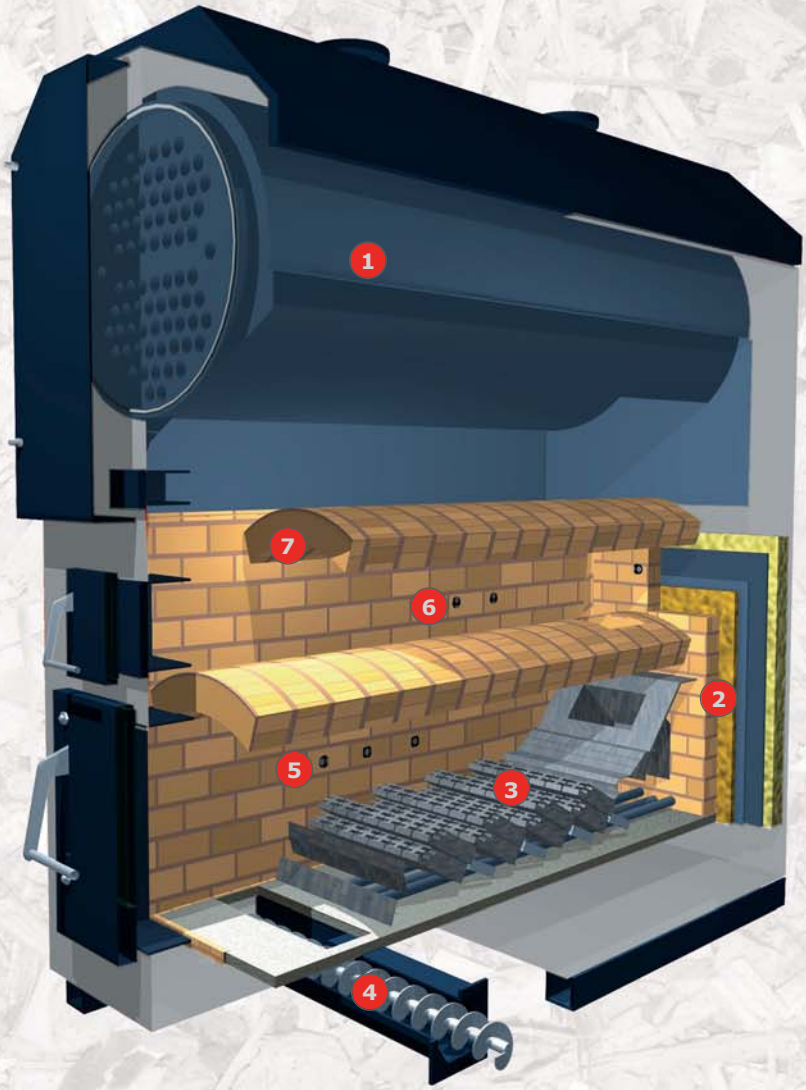
The special combustion chamber shape featured in the Froling Lambdamat Communal is ideal for burning damp fuel (up to 50 % water content possible) and high bark content. The hydraulic conveyor grate continuously transports the fuel through the combustion chamber, ensuring that even heavy fuels are completely burned. Next to full loading by feed screws, this boiler technology can also be supplied with a hydraulic loading system.

Robust technology with smart details

Lambdamat INDUSTRY

Highlights:

1. Multifunctional heat exchanger which features large heat exchanger surfaces. Convenient maintenance is ensured by large and easy to reach cleaning and maintenance openings.
2. Multi-layer high temperature combustion chamber for high efficiency and clean combustion.
3. The moving step grate with primary air intake system enables automatic grate cleaning and ash removal - thus almost maintenance-free operation.
4. Fully automatic ash removal in one ash container.
5. The secondary air openings ensure optimum combustion and a complete burn-out.



Highlights:

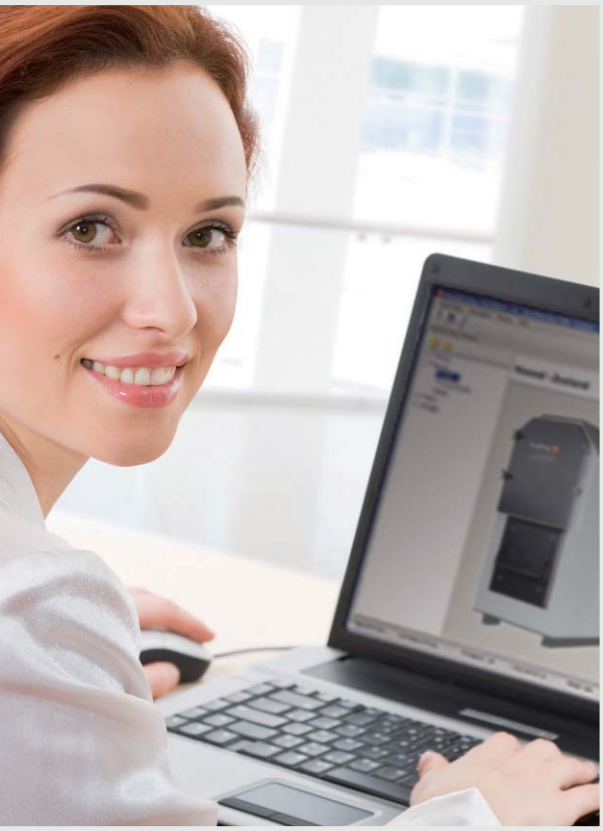
1. Multifunctional heat exchanger which features large heat exchanger surfaces. Convenient maintenance is ensured by large and easy to reach cleaning and maintenance openings.
2. Multi-layer high temperature combustion chamber for high efficiency and clean combustion.
3. The hydraulically operated conveyor grate with primary air intake system keeps the fuel moving continuously and ensures complete burn-out (even with heavy fuels).
4. Fully automatic ash removal.
5. The secondary air openings ensure optimum combustion and a complete burn-out.
6. Tertiary air vents for increased efficiency during combustion. The fully controlled flue gas recirculation AGR (optional) optimises burning (output, emissions etc.) with particularly demanding fuels.
7. The double tunnel vault guarantees the optimum burn-out of fuels with a high water content.

Systematic convenience

Feature: **Lambdatronic H 3000 controller**

Advantages:
- Exact combustion control
- Adjusts to different fuel characteristics
- Remote maintenance (optional)

The Lambdatronic's modular control concept ensures ideal combustion. The boiler automatically adjusts to the various characteristics of the fuels being used. Furthermore, the Lambdatronic control system provides weather-activated control of different heating circuits and precise control of the storage systems. Using a modem, maintenance can be carried out directly by Froling through a remote system. The Lambda control with precise primary and secondary air control, combustion chamber temperature sensor and underpressure control (monitors the strength of the ember bed) ensure perfect combustion. The Lambdamat Communal 750/1000 kW ensures with the additional tertiary air control and flue gas recirculation AGR (optional) a maximum efficiency and a perfect combustion process (output, emissions, etc.).

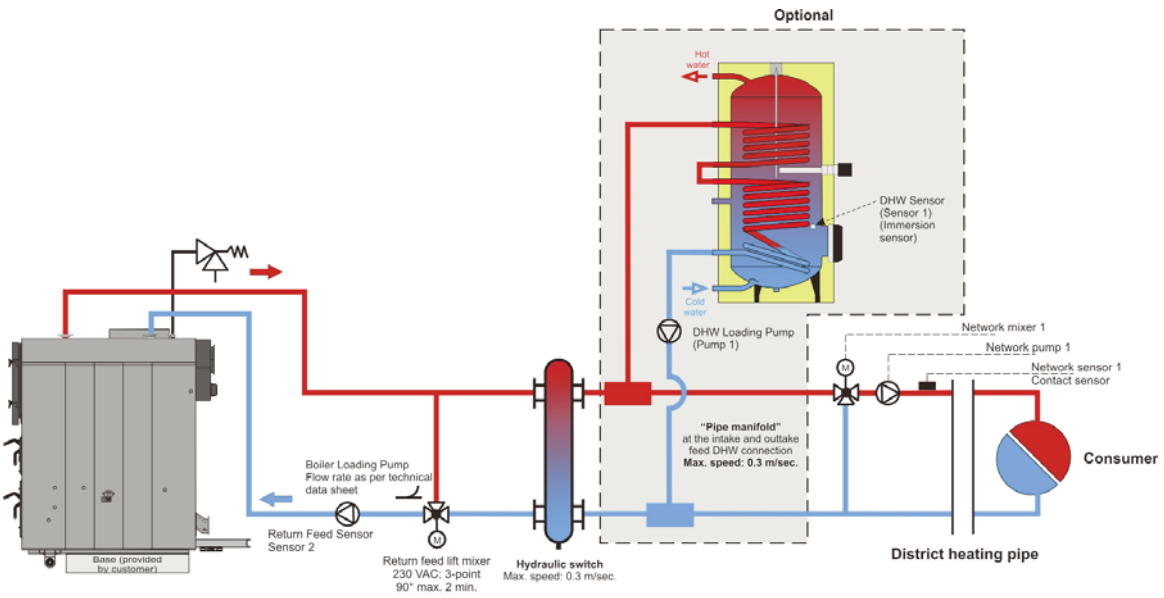


Feature: **Froling visualisation software 3200**

Advantages:
- Monitoring and operation from your PC
- Boiler data is recorded
- Remote control via modem

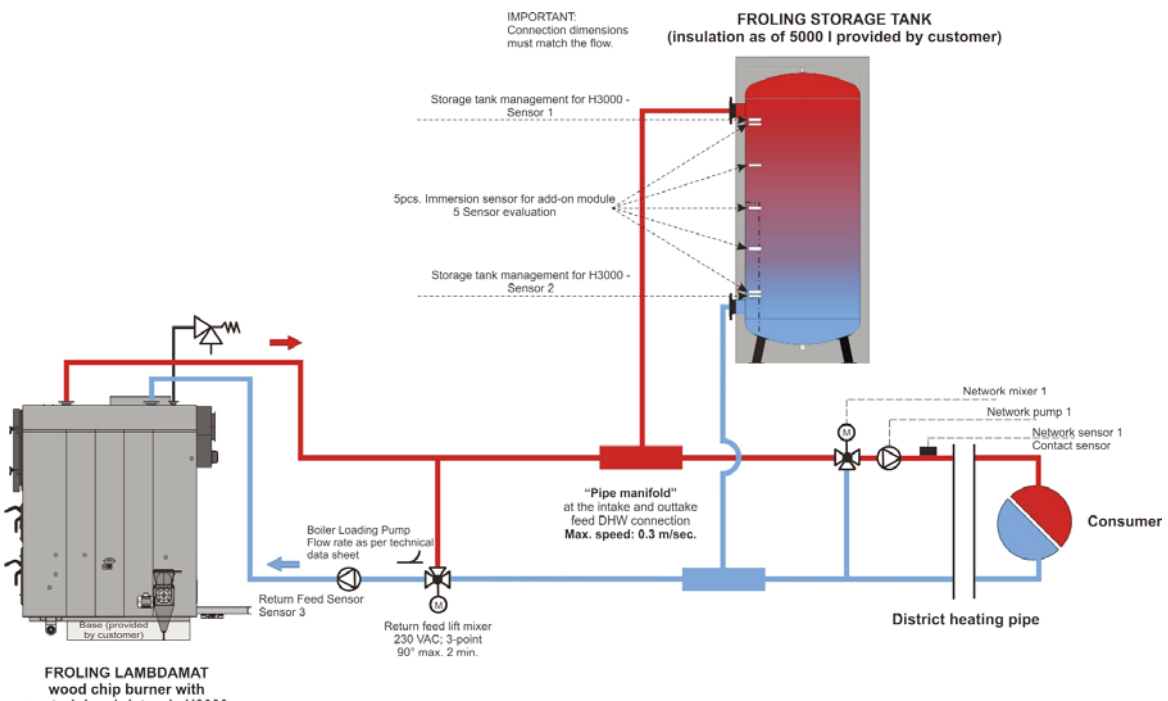
The optional boiler visualisation software enables easy boiler control from a computer. The desired operating conditions and customer parameters can be displayed and adjusted as necessary. Easy programming is guaranteed through the Windows interface menu with its easy set-up.

Connection to the visualisation software can be done by using a telephone network modem By using this option the heating system can be monitored from any location. Additionally, it is also possible to connect to an existing LAN by using an optional adapter.



FROLING LAMBDAMAT wood chip burner with control: Lambdatronic H3000

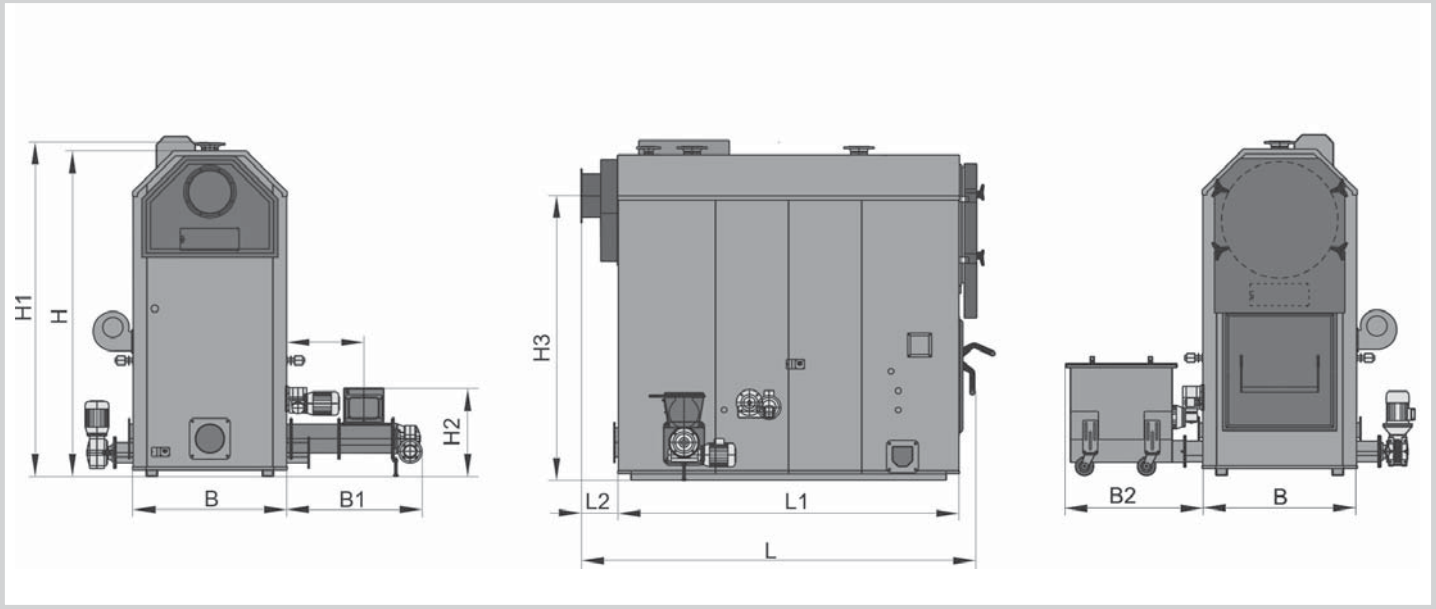
IMPORTANT: Using a hydraulic switch instead of a storage tank requires a continuous and a constant or slightly variable power consumption!



FROLING LAMBDAMAT wood chip burner with control: Lambdatronic H3000

Technical specifications

Lambdamat Industry



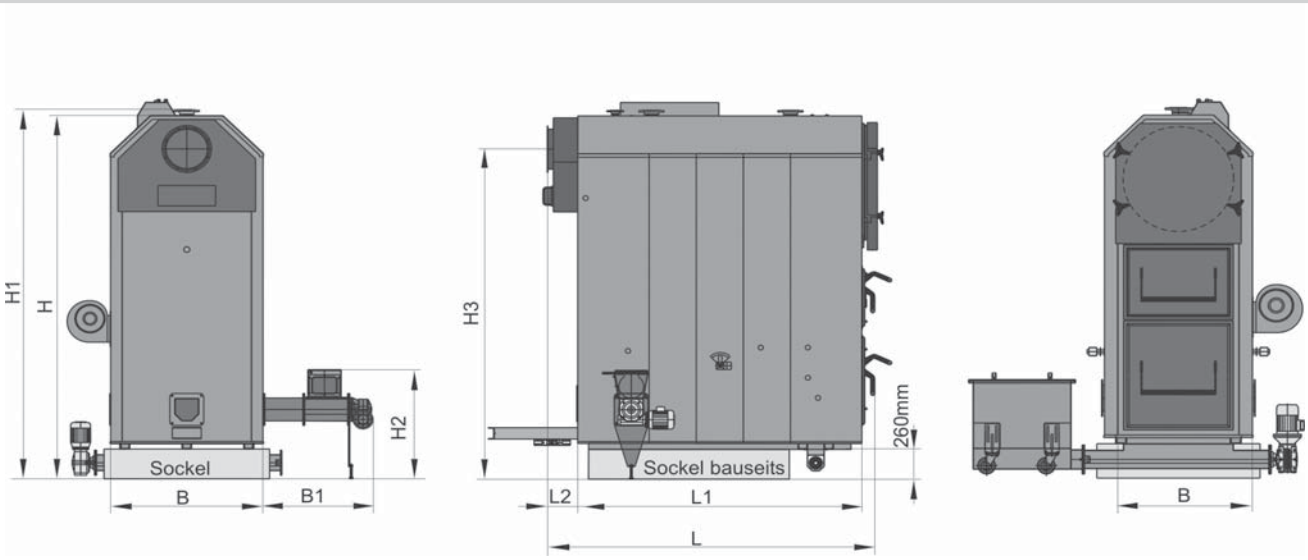
DIMENSIONS			150	220	320	500	750
H	Boiler height[1)]	[mm]	1971	2243	2243	2501	2867
H1	Height, intake & outtake	[mm]	2030	2300	2300	2550	2930
H2	Height, Stoker	[mm]	609	609	609	675	705
H2	Height, flue gas pipe	[mm]	1709	1961	1961	2207	2520
B	Boiler width	[mm]	926	1066	1066	1266	1500
B1	Width, stoker incl. gears	[mm]	960	970	970	970	950
B2	Width, ash can 180 l / 300 l	[mm]	975 / 1038	975 / 1040	975 / 1040	975 / 1039	993/996
L	Total length	[mm]	2165	2715	2715	2760	3070
L1	Boiler length	[mm]	1806	2356	2356	2356	2710
L2	Length, flue gas collection box	[mm]	254	257	257	302	250

1) Height, excl. safety heat exchanger.
2) Length, incl. door and flue gas collection box.

TECHNICAL SPECIFICATIONS		150	220	320	500	750
Rated heat output[1)]	[kW]	150	200	300	499	750
Required fuel consumption at G50/W20	[kg/h]	45	70	100	155	230
Flue gas pipe diameter	[mm]	200	250	300	350	400
Weight - boiler	[kg]	2166	3693	3878	5019	8510
Boiler capacity (water)	[l]	440	850	760	1060	1740
Maximum permitted operating temperature	[°C]	110	110	110	110	110
Permitted operating pressure	[bar]	4	4	4	4	4
Flue gas temperature	[°C]	220	220	220	220	220

1) The use of dry fuels (pellets, carpentry materials (shavings), etc.) can result in a limited output range.

Lambdamat Communal



DIMENSIONS			320	500	750	1000
H	Boiler height[1]	[mm]	2745	3174	3597	3849
H1	Height, intake & outtake[1]	[mm]	2802	3224	3656	3910
H2	Height, stoker (incl. BBF)[1]	[mm]	950	950	1270	1040
H3	Height, flue gas pipe[1]	[mm]	2210	2880	3150	3300
B	Boiler width	[mm]	1070	1270	1630	1630
B1	Length, stoker incl. gears	[mm]	912	900	1260	1011
L	Total length[2]	[mm]	2715	2715	3070	3740
L1	Boiler length	[mm]	2350	2350	2710	3350
L2	Length, flue gas collection box	[mm]	257	257	257	257

1) Height incl. base to be constructed on-site (H = 260 mm).
2) Length, incl. door and flue gas collection box.

TECHNICAL SPECIFICATIONS		320	500	750	1000
Rated heat output[1]	[kW]	300	499	750	999
Required fuel consumption at G50/W20	[kg/h]	100	155	230	305
Flue gas pipe diameter	[mm]	300	350	400	450
Weight - boiler	[kg]	5780	7350	11440	13950
Boiler capacity (water)	[l]	790	1100	1840	2390
Maximum permitted operating temperature	[°C]	110	110	110	110
Permitted operating pressure	[bar]	4	4	4	4
Flue gas temperature	[°C]	220	220	220	220

1) The use of dry fuels (pellets, carpentry materials (shavings), etc.) can result in a limited output range.

Fuel discharge systems

Froling discharge systems - design development perfected over decades

Froling has expertise designing discharge systems spanning many years. Covering systems which are large or small, Froling provides sturdy feeder systems, which meet the highest technical standards. For example, the Lambdamat Communal can be connected to a hydraulic feeder system, which is ideal for bulky or bundled fuels.

Torsion arm agitator (TGR)

For discharge of fuels from bunkers with a maximum working diameter of 6 metres. The system is low maintenance and is especially designed for fuels with increased discharged output due to their limited ability to flow. The patented design guarantees quiet and effective operation. The feed screw with progressive screw blade ensures low energy consumption.

Inclined screw feeding unit

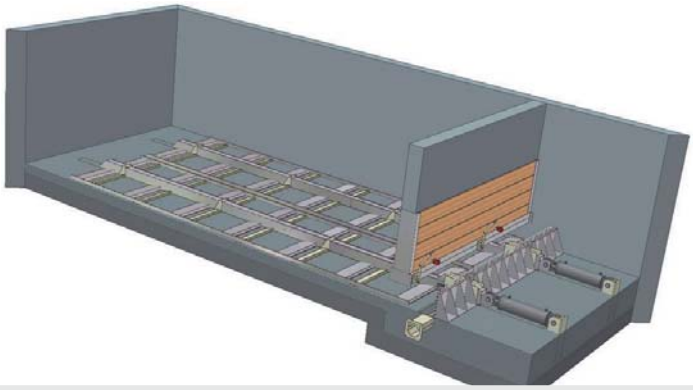
Mainly used as a silo discharge screw in the wood-processing industry. Provides even and reliable fuel discharge from high silos.

Froling discharge silo systems

Horizontal screw feeding unit

Sturdy construction to take in extremely high feed loads when discharging from high silos. Especially designed for shavings and large diameter bunkers.

Sliding floor feeding unit



Optional design for rectangular storage rooms. Suitable for all common biomass fuels. The sliding floor feeding unit is extremely sturdy and has proven to be specifically suitable for discharging fuels from large wood chip stores.

Furthermore, there are numerous flexible solutions available for individual fuel transport, such as scraper chain conveyors, conveyor belts, vertical transport systems, feeder systems without screws, fully hydraulic loading systems, etc.

Please contact our sales engineers for further details.

In operation across Europe

FRANCE - Angers municipal nursery

Boiler:	2x Lambdamat Industry 500 kW - double boiler system
Discharge unit:	2x articulted arm feeding units / diameter 5.7 metres
Fuel:	Wood chips

ITALY - Idrochianti

Boiler:	Lambdamat Industry 320 kW
Discharge unit:	Articulated arm feeding unit / diameter 3.0 metres
Fuel:	Wood chips

AUSTRIA - Ritzlhof College

Boiler:	Lambdamat Communal 750 kW and Turbomat 500 kW
Discharge unit:	Sliding floor feeding unit
Fuel:	Wood chips

GERMANY - Zschadraß Christian social welfare organisation

Boiler:	Lambdamat Industry 999 kW
Discharge unit:	Hydraulic pusher discharge unit with transverse conveyor screw
Fuel:	Wood chips

Further technical details on request.
Always at your disposal to advise you.

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