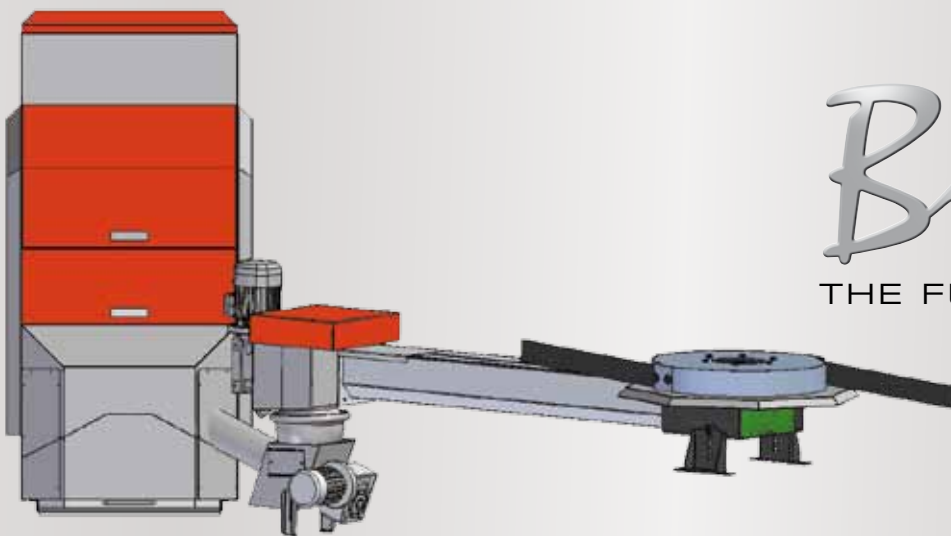




Heavy-duty Wood Chip System
35 - 2000kW

Biotech

THE FUTURE OF HEATING

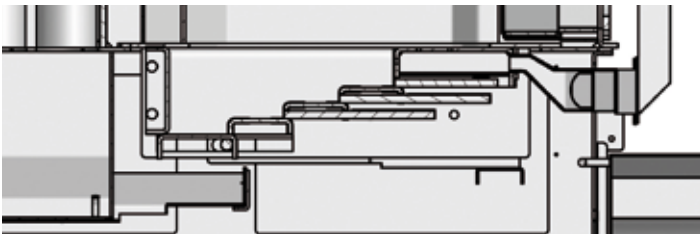


Biotech Wood Chip 35 - 1

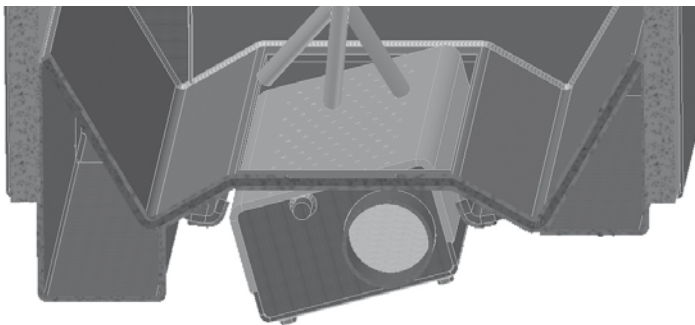


Fuel

The heating systems are suitable for use with standard wood chips up to a size of G50 and a water content of up to W35 (ÖNORM M7133)



Stepped Grate



Tipping Grate

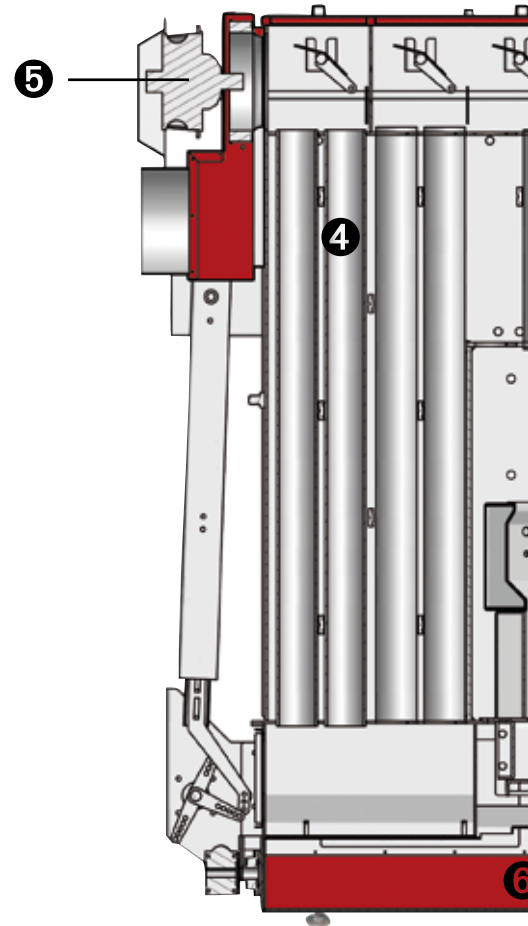
Operating Safety

The stepped grate and tipping grate ensure a high level of operating safety, even with a variable fuel qualities.



Lambda Sensor

Measures the residual oxygen in the exhaust gas and thus enables optimised combustion values in all service areas.



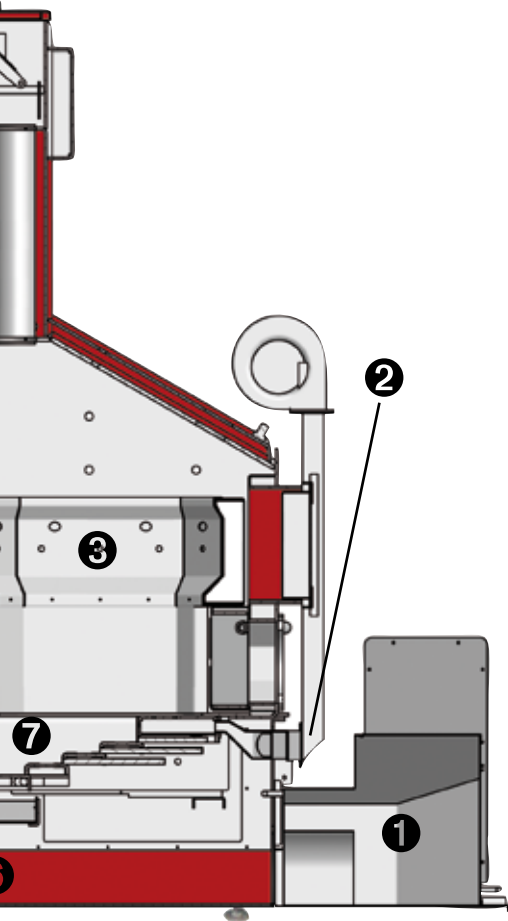
- ❶ Stoker conveyor
- ❷ Primary air source
- ❸ Secondary air source
- ❹ Tube heat exchanger
- ❺ Induced draught fan
- ❻ Ash container
- ❼ Stepped grate HZ100 / HZ150
Tipping grate HZ 35 / HZ 50

150 kW Heating Systems



Simple Operation

Simply and clearly designed operation, with modern micro-processor control and LCD display.



Observation window in combustion chamber

HZ 100 / HZ 150

DCS Combustion Chamber Negative Pressure Measuring System

Prevents a backlog of exhaust fumes, enables adjustment of the actual prevailing flue draught and constant combustion ratios in the combustion chambers.

WOOD CHIP HEATING PROCEDURE

The stoker conveyor conveys the fuel into the combustion chamber - the fill level is monitored by a material quantity sensor - ignition occurs by means of a hot air blower. The primary air is supplied through the grate by an infinitely variable speed-controlled primary fan. The secondary air is blown in thorough the afterburner element by an infinitely variable speed-controlled secondary fan. The boiler output, lambda value and the negative pressure of the combustion chamber are regulated. Exhaust fumes flow through the multiple tube heat exchangers and, with the help of cleaning tabs, provide energy for the boiler water. The induced draught fan produces the required negative pressure, which is monitored and regulated by the negative pressure measuring device. The accumulating ash is transported from the cleaning elements to the ash removal conveyor.

INNOVATIVE HEATING SOLUTIONS FROM PROFESSIONALS

Biotech wood chip heating systems can be used for heating individual houses or larger buildings, such as residential blocks and municipal buildings, with natural wood heating. Our systems are characterised by exceptional economy, low emissions and compact construction.

Environmentally Friendly and Attractively Priced

Heating with wood is environmentally friendly and generates local employment and regional added value. By using wood heating, you are contributing to the reduction of greenhouse gases and are protecting our climate! Chips are obtained from weak and residual sources of wood such as knots and branches. The wood is mechanically chopped and then stored in order to dry it. Biotech wood chip heating systems can be used to burn wood of sizes G30 - G50: „G30“ indicates a wood chip size of 30 mm and „G50“ indicates a size of 50 mm. Biotech wood chip heating systems are constructed using modern technology and the latest expertise relating to environmental protection.

Perfect Combustion

The wood chips, monitored by a fire-bed sensor, are transferred to the combustion chamber via lateral injection. Ash is automatically removed following combustion via a tipping or stepped grate. The amount of fuel, primary and secondary air required for optimal combustion is detected and processed via a control unit using fire-bed sensors, lambda sensors and temperature sensors - the operation of the system is thus automatically regulated. The heating material is ignited fully automatically by hot air blowers.

Automatic Cleaning

For optimum heat utilisation, a multi-draw tube heat exchanger is connected, which is cleaned automatically. This ensures that the level of efficiency always remains high and the exhaust gas temperature low. This saves fuel and preserves the environment.

Quick Installation

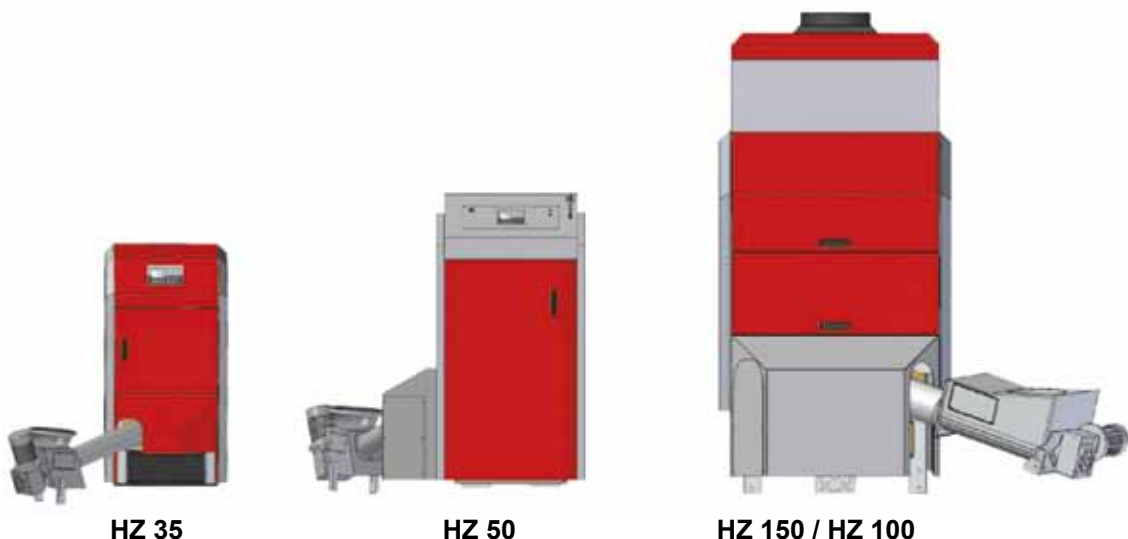
Compact dimensions, flexible layout arrangements and a pre-installed, integrated control system all make the installation of your heating system a fun experience, and goes easy on your purse strings. With the simple and quick assembly, you're saving before you even switch the heating system on.

Operating Safety

A burn-back flap in the falling shaft guarantees that the fire stays where it belongs. It closes automatically during ignition, 'keep lit' mode and in the event of malfunction or shut-down of the system - this ensures the system is as safe as possible. The safety temperature limiter and the temperature sensor fitted to the upper side of the stoker conveyor channel close the burn-back flap and ensure that the content of the stoker conveyor is transferred to the combustion chamber. The integrated exhaust fan takes care of negative pressure and exhaust gas routing in the chamber. At the same time, the operating modes are monitored and controlled via a sophisticated microprocessor control system.

Easy Operation

The microprocessor control system with its user-friendly control panel ensures fully automatic, year-round operation. 3 main operating modes and their sub-menus enable a large variety of control variants. Personal parameters for buffers, the boiler and the heating circuit can easily be initiated using the clear menu layout.



System Type	HZ35	HZ50	HZ150 / HZ 100
Nominal heat output (kW)	35.00	49.90	164,00 / 99,9
Peak capacity (kW)	37.00	50.00	167,00
Partial load (kW)	11.00	15.00	49,30
Efficiency at full load (%)	95.30	92.40	92,80
Efficiency at partial load (%)	93.80	91.80	93,80
Maximum adjustable boiler temperature (°C)	85	85	85
Permitted operating pressure (bar)	3	3	3
CE marking in accordance with Low Voltage Directives	CE	CE	CE
Total batch weight (kg)	450	570	1350
Dimensions			
Boiler width (mm)	700	754	990
Boiler depth (mm)	1020 ¹	1200 ¹	1520 ¹
Overall depth (mm)	1100 ⁴	1280 ⁴	2210 ⁴
Boiler height (mm)	1310 ²	1480 ²	1970 ²
Exhaust flue connection height (mm)	840	940	1730
Flow line height (mm)	1165	1300	1800
Return-flow height (mm)	365	570	440
Exhaust height (mm)	1165	1300	1800
Exhaust flue connection diameter (mm)	180	200	250 / 300
Water side			
Water content (litres)	55	145	225
Fuel			
Ash container volume (litres)	45	120	150
Wood chips - size	G 30 -G 50	G 30 -G 50	G 30 -G 50
Water content	W 35	W 35	W 35
Ash removal			
Ash removal	autom. tipping grate	autom. tipping grate	autom. stepped grate

1) excl. induced draught and Stoker unit 2) excl. fume exhaust unit
 3) Emissions values are 13% O2 when dry 4) incl. induced draught

Testing institute for all heating systems:
BLT Wieselburg HZ35 = 079/07 HZ50 = 071/07
 HZ100 = 076/07
TÜV Süd HZ150 = 2210083-1



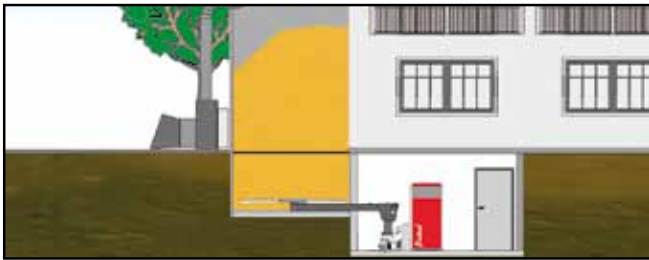
WOOD CHIP STORAGE



Ascending Screw Conveyor



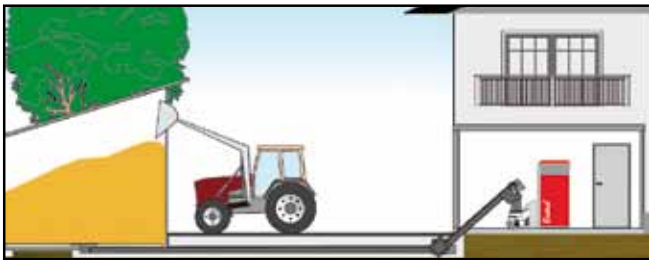
Filling using front-loader



Filling using blower



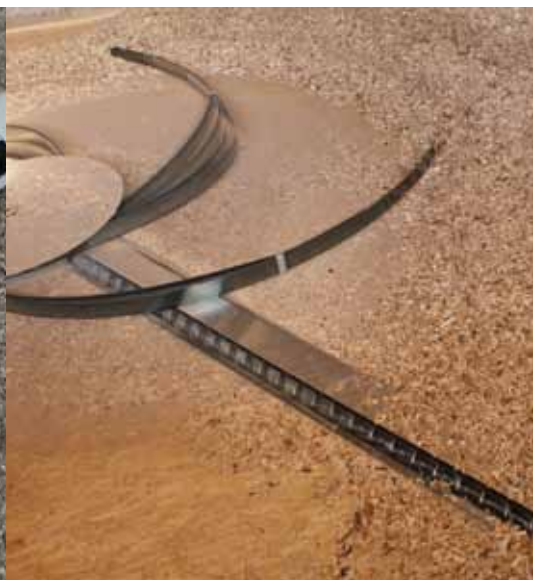
Downpipe



Conveyor channel length of up to max. 12 metres possible (several component parts)

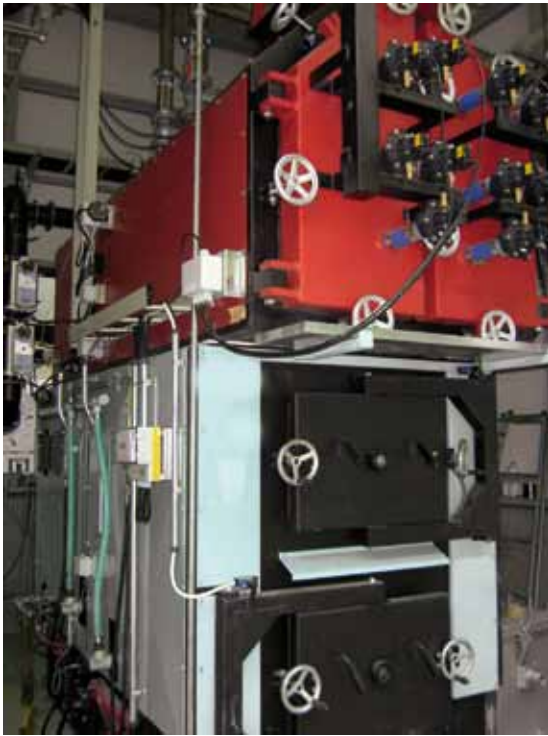
The store conveyor in Biotech wood chip heating systems consists of a stoker conveyor incl. a falling shaft with a certified burn-back flap, a conveyor channel and an agitator with spring plate. If necessary, height differences can be balanced using a downpipe. This enables an optimal and safe solution for all storage situations.

Figures from left to right: conveyor channel, agitator with spring plate, stoker conveyor incl. downpipe.



Combustion Systems from 300 to 2000 kW (single boiler output)

These heavy-duty units are especially suited for local and remote heating networks, as well as trade and industrial use.



Biotech systems for industrial and trade use (300 - 2000 kW) operate fully automatically in heating mode: from the injection of the biomass to control and regulation of combustion, dust removal and the controlling of the pumps.

Warm or hot water is used as the heat carrier. The systems can be used for heating and process heat.



Features of the Biotech systems for industrial and trade use

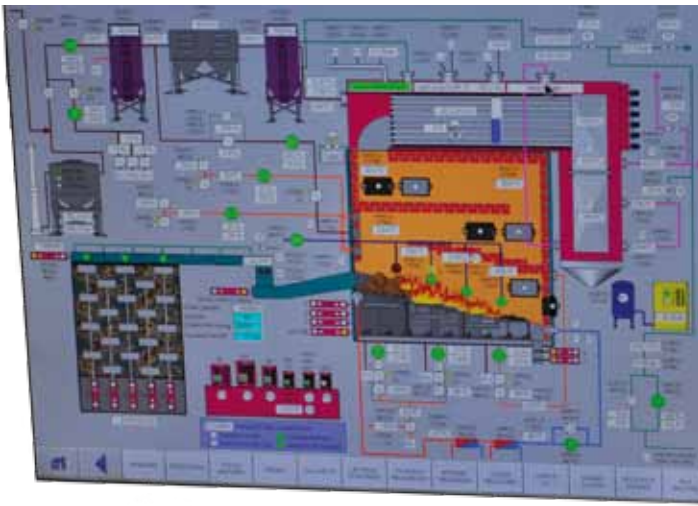
- Improved efficiency through preheating of the air and a heat exchanger installed downstream.
- Recirculation of the exhaust fumes
- Removal of dust from exhaust fumes using a multi-cyclone
- Combustion procedure: Cocurrent flow, counter flow or main flow (depending on quality of fuel)

Fuels to be used

The special construction and design of the combustion chamber geometry and control unit makes it possible to use not only wood for low-emission energy generation, but also agricultural byproducts and all kinds of biomass. The following fuels can thus be combusted.

The systems are produced specifically for the fuel type to be combusted, and each system can be configured for up to 3 kinds of fuel.





SPS Controller

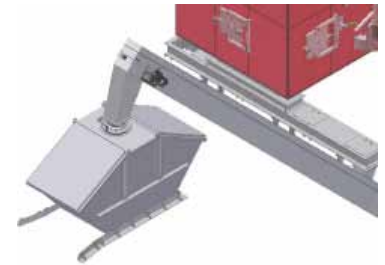
The systems are fitted with an SPS controller, which takes into account the influence of oxygen, combustion chamber temperature, recirculation of primary and secondary air, exhaust gas temperature, combustion air temperature, material quantity, material humidity, flow and return-flow temperature and the diminution of individual loads in the network.

Visualisation and control software enables on-site or remote access to the control system at all times and displays all system-relevant data in a clear overview.

Ash Removal

The ash produced during combustion drops into the ash container at the end of the grate, or is transported into a standard container via an ash transporting device. The ash that falls through when the grate moves is also automatically transported out of the zone underneath.

Ash removal from connected devices, such as the exhaust air pre-heaters, multi-cyclone dust removers etc., also occurs fully automatically.



Hydraulic Reciprocating Grate

The combustion systems are fitted with reciprocating grates, which enables an optimal burn-out and combustion process, particularly with wet material (water content above 40%) and also with badly contaminated fuel (ash intensive, e.g. bark). For this, the primary combustion air is directed in the correct dose to the individual combustion areas. The secondary combustion air is blown directly into the flames through the refractory lining. Ash is constantly removed from the primary air area by a dedicated ash push rod. A build-up of bed ash is prevented by the movement of the grate surface.

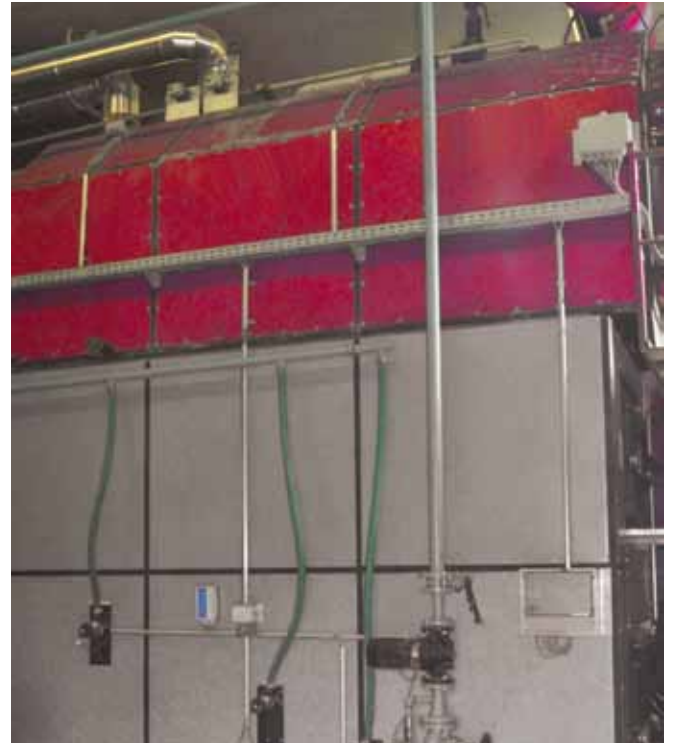
Combustion is spread over 3 areas: the combustion material is pre-dried in the first zone. In the second, gas is removed from the fuel with the help of combustion air geometry. In the third, and last zone, the injected fuel is burned completely.



Viewing window in the combustion chamber



Combustion chamber



A high-performance boiler made of steel is connected to the tubular boiler, with the boiler pressure hull, which is insulated with mineral wool, being fully arc welded.

Fuel Storage

The fuel can be drawn from

- quadratic, rectangular bins (dump bins)
- circular silos (or high-rise silos; with spring core delivery, tapered conveyors, hydraulic or pneumatic)
- storage containers

The injection of materials takes place, depending on fuel type and local conditions, via a screw conveyor or a hydraulic injection system.



Flat store with a floor conveyor. Delivery occurs via rods, which either push or draw.

Hydraulic cylinder and conveyor.

With fuel stores, the design depends on the following parameters:

- fuel quality
- bulk weight (max 4m, loosely packed, not compacted)
- length, width, dumping height
- heat output of combustion



TECHNICAL DETAILS

Combustion uni:

Length (mm)	
Width (mm)	
Height (mm / without boiler)	
Weight (kg / without boiler)	

Combustion air blower

Primary air blower (piece)	
Secondary air blower (piece)	

Heat exchanger:

Type: Double-draw smoke tube boiler
TÜV approved in accordance with TRD, AD200 Pressure equipment directives PED 97/23 EG Cat. IV

Length (mm)	
Width (mm)	
Height (mm)	
Weight (kg)	
max. operating temperature (°C)	
max operating temperature (bar/ü)	
Heat exchanger surface area (m ²)	
Water content of heat exchanger	
Weight of heat exchanger without H ₂ O	
VL/RL Connecting piece PN16 DIN 2633	
Flue tube - connection (mm)	
Recirculation connection (mm)	

Boiler fittings

Multi-cyclone with ash container

Number of cyclones	
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Cleaning of compressed boiler air

Without compressor	
Number of valves	

Ash lock

	300kW	400kW	500kW	600kW	700kW
Hydraulic reciprocating grate with grate frame cooling I					
	2.980	2.980	2.980	2.980	3.970
	1.400	1.400	1.400	1.400	1.800
	2.400	2.550	2.750	2.750	3.450
	10.400	11.200	11.700	11.200	25.000
	1	1	1	1	1
	1	1	1	1	1
	3.065	3.215	3.230	3.430	3.630
	1.250	1.250	1.400	1.400	1.400
	1.250	1.250	1.400	1.400	1.400
	2.320	2.500	3.100	3.420	3.800
	120	120	120	120	120
	3	3	3	3	3
	30	36	44	53	61
	1.300	1.330	1.340	1.570	1.710
	2.320	2.500	3.100	3.420	3.800
	80 / 100	80 / 100	125	125	125
	200	250	250	250	320
	120	120	180	180	180
	Included!!				
	3	4	5	6	7
	10	10	14	14	14
	Yes	Yes	Yes	Yes	Yes

800kW	900kW	1.000kW	1.200kW	1.400kW	1.600kW	1.800kW	2.000kW
3.970	3.970	3.970	4.470	4.500	4.500	4.680	4.680
1.800	1.800	1.800	1.800	1.920	1.920	2.300	2.300
3.450	3.600	3.600	3.950	4.300	4.300	4.200	4.200
25.000	26.000	26.000	31.000	35.000	35.000	40.000	40.000
1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1
3.655	3.785	3.785	4.115	4.070	4.270	4.460	4.460
1.600	1.600	1.600	1.600	1.800	1.800	2.100	2.100
1.600	1.600	1.600	1.600	1.800	1.800	1.975	1.975
5.100	5.670	5.670	6.160	6.500	6.900	8.950	9.300
120	120	120	120	120	120	120	120
3	3	3	3	3	3	3	3
77	87	87	98	113	128	147	162
2.400	2.700	2.700	3.000	3.650	3.800	4.850	4.650
5.100	5.670	5.670	6.160	6.500	6.900	8.950	9.300
125	125	125	125	150	150	200	200
350	350	350	350	400	400	450	450
200	200	200	200	225	225	250	250
8	9	10	12	14	16	18	20
18	18	20	20	26	28	32	32
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Biotech
THE FUTURE OF HEATING



Your heating expert would be glad to offer advice:



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