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Energy from Biomass

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BINDER combustion systems

Sophisticated Boiler Systems - for more than 30 years!

Quality Made in Austria

With thousands of units installed from Canada to Japan BINDER is one of the leading manufacturers of renewable heating solutions in the world.

At the factory with a total area of approx. 11 ha and 6,200 m² production area, about 200 boilers are manufactured each year. Our service team at the head office in Bärnbach provides top of the range service and maintenance support, **with service and sales offices and partners all over the world.**

Cooperation with universities and similar organizations as well as the expertise of our highly qualified engineers ensures top technological standard throughout the world. Operating out of Austria – a country with one of the strictest environmental regulations of the world – BINDER developes products which meet the principle of sustainability and are ecologically and economically worthwhile.

Business activities

- honest and fair long-term partnerships with our customers and suppliers
- continuus improvements of our systems
- appreciation of teamwork, initiative and self-motivated employees
- resource-efficient manufacturing of our products which are designed for durability
- long tradition of a business with solid growthand sound foundation.

We don't aim at short-term profits, but long-term growth and sustained development.

We look forward to working with you and your organisation

Standard Fuels

BINDER offers a wide variety of different combustions systems for different fuels. Below an overview of the various systems.

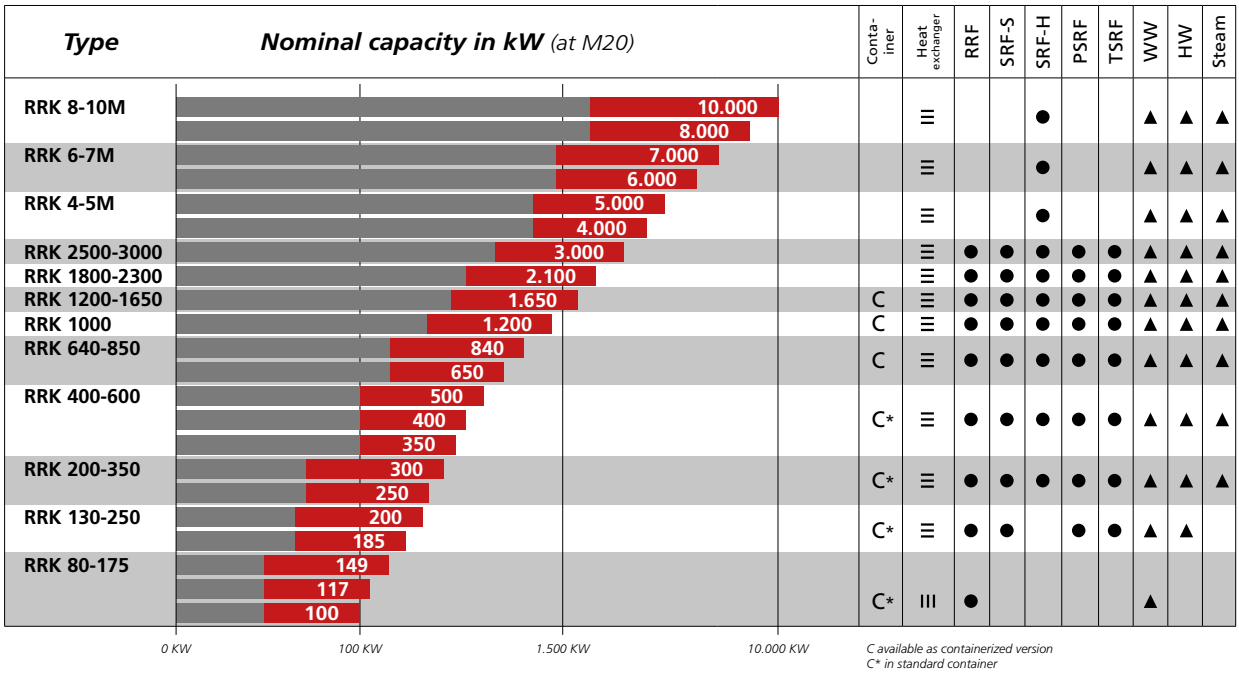
We are happy to test your fuel in our test center and will advise you an optimum combustion system.

Combustion systems →	RRF	SRF-S	SRF-H	TSRF	PSRF
 Swarf	●			●	
Saw dust	●			●	
 Shavings- millings	●	●		●	
Chipboard, MDF	●	●		●	
 Virgin wood chips	●	●		●	
Chip from landscape nagment		●	●		
Industrial wood chips		●	●		

Combustion systems →	RRF	SRF-S	SRF-H	TSRF	PSRF
 Bark			●		
Shredded demolition & packaging wood			●		
 Wood baes energy crops (chaffed)		●		●	
Pomace, juice production residues		●		●	
 Wood pellets	●				●
Industrial pellets	●				●
Turf pellets, agro-pellets					●

Boiler range

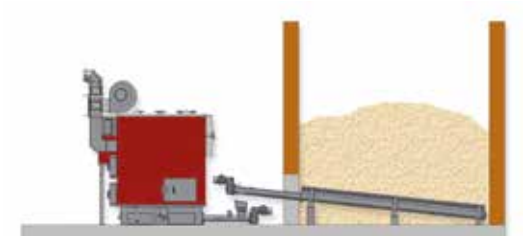
BINDER offers boilers with a nominal capacity from 100 kW to produce warm- and hotwater, saturated steam up to a working pressure of 10 barG as a standard.
The biggest advantage of BINDER is total flexibility. True to the motto „Nothing is impossible“ our engineers will seek to provide an optimum solution for your requirements. For international markets like North America, and Canada BINDER offers ASME H-Stamp compliant boilers.



WW = Warm water: max operating pressure: 10 barG; max. Operating temperature: 110°C
HW = Hot water: max. operating pressure: 10 barG; max. Operating temperature: 165°C
Steam = Saturated steam: max. operating pressure: 10 barG; max. Operating temperature: 185°C
Special solutions on request!

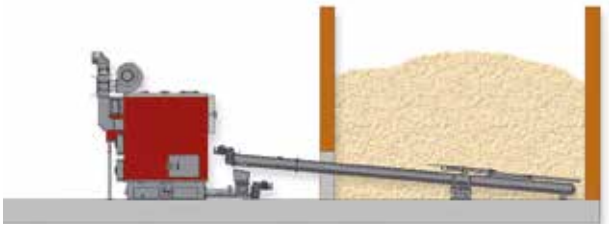
Extraction systems

PS - Pellet Extract Auger



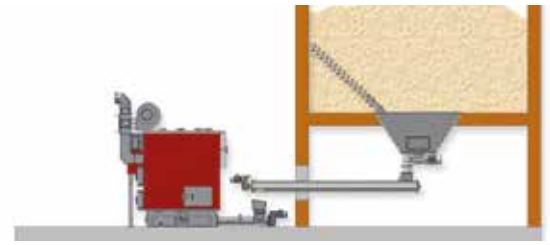
- *with adjustable pressure relief device for rectangular silos*
- *suitable for the transport and silo discharge of wood pellets*

KA - Sweep Arm Agitator



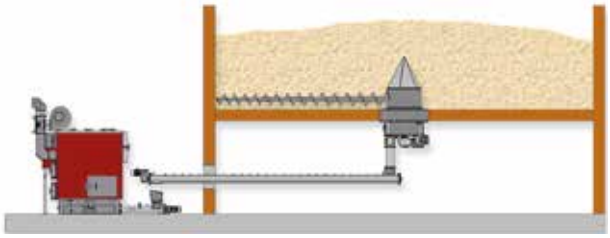
- *for granulated fuels up to P63**
- *Filling height up to 7m (depending on fuel bulk density)*

SS - Tapered Sweep Auger



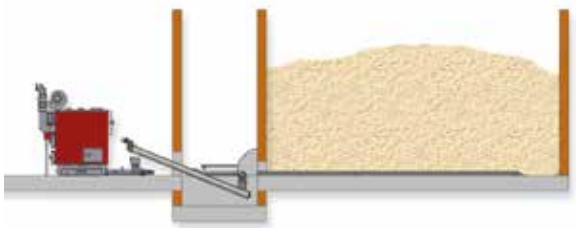
- *for granulated fuels up to P63**
- *For silos accessible from the bottom up to 7m ø*
- *Filling height up to 20m**

WS - Horizontal Sweep Auger



- *for granulated fuels up to P63**
- *For silos accessible from the bottom*
- *Filling height up to 30m**

SBA - Walking Floor

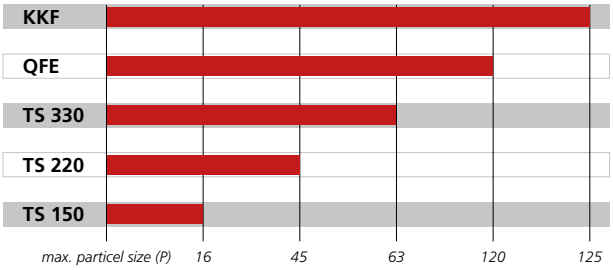


- *for coarse and shredded fuels up to size class P125* (slivers up to 35cm long) with hydraulic ram infeed*
- *with transport auger up to P63**

Transport systems

BINDER offers different types of transport systems like Transport auger (TS), direct hydraulic ram (QFE), and chain conveyors (KKF).

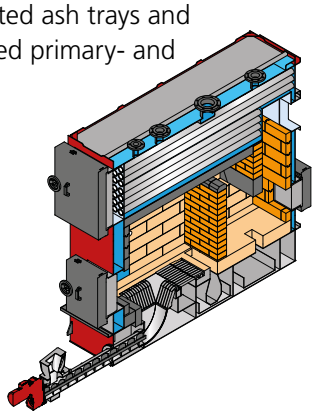
These systems are suitable for the following max. size classes (acc. To ÖNORM EN 14961):



*)…Size class specifications and storage heights are for guidance only, as they depend on the actual kind of fuel and design variant. Beware of bridging which might occur on a storage height that exceeds twice the silo width.

Underfed Hearth Combustion Unit RRF

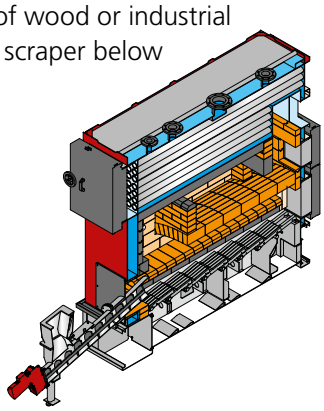
Combustion with hearth and rear grate section with hinged cast steel elements. Integrated ash trays and optional de-ashing with auger. Completely refractory lined and stochiometrically designed primary- and secundary combustion air zones.



max. fuel water content	up to M30
max. fuel ash content	≤ 1,5%
Available	from 100 kW nominal capacity

Pellets Moving Grate Combustion Unit PSRF

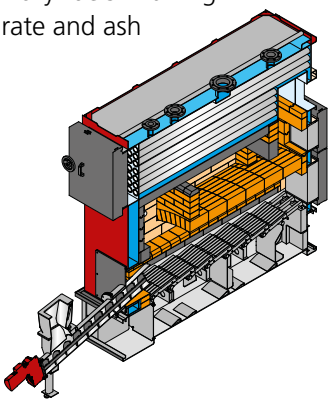
Combustion with hydraulically or electro-mechanically operated grate, for combustion of wood or industrial pellets (with high ash contents). Fully automatic de-ashing of combustion unit with ash scraper below grate and ash auger. Alternatively with auger or hydraulic infeed.



max. fuel water content	up to M15
max. fuel ash content	≤ 7%
Optimized	for use with pellets
Available	from 150 kW nominal capacity

Moving Grate Combustion Unit for Dry Fuels TSRF

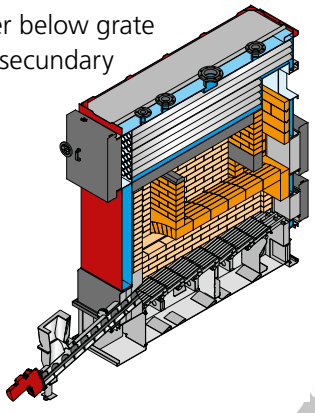
Combustion with hydraulically or electro-mechanically operated grate, for combustion of dry fuels with high ash content. Fully automatic de-ashing of the combustion unit with ash scraper below grate and ash auger. Alternatively with auger or hydraulic infeed.



max. fuel water content	up to M30
max. fuel ash content	≤ 7%
Available	from 150 kW nominal capacity

Moving Grate Combustion Unit SRF

Combustion unit with hydraulically or electro-mechanically operated grate, for combustion of wet materials with high ash content. Fully automatic de-ashing of the combustion unit with ash scraper below grate and ash auger. Completely refractory lined and stochiometrically designed primary- and secundary combustion air zones. Alternatively with auger or hydraulic infeed.



max. fuel water content	up to M50 (more than M50 on request)
max. fuel ash content	≤ 7%
Available	from 150 kW nominal capacity

Warm and Hotwater Systems

1 Boiler tubes
best-practise chamfered and root welded, individually replaceable if required

2 Refractory
with standard firebricks instead of manufacturer specific moulded bricks: simple and cheap to replace

3 Heat Exchanger Cleaning
- unique high-velocity flue gas circulation-system
- avoids emission peaks generated by compressed air blasts
- automatic de-ashing in preset intervals, with cleaning effect over the entire tube length
- no interference with combustion process

4 Water-cooled Boiler Jacket
- absorbs the heat from the combustion chamber (heat exchanger's first pass)
- preheats the return flow via a duct along the boiler jacket

5 Secondary Air Supply
λ-controlled, with optimized arrangement of nozzles for superior turbulent flow

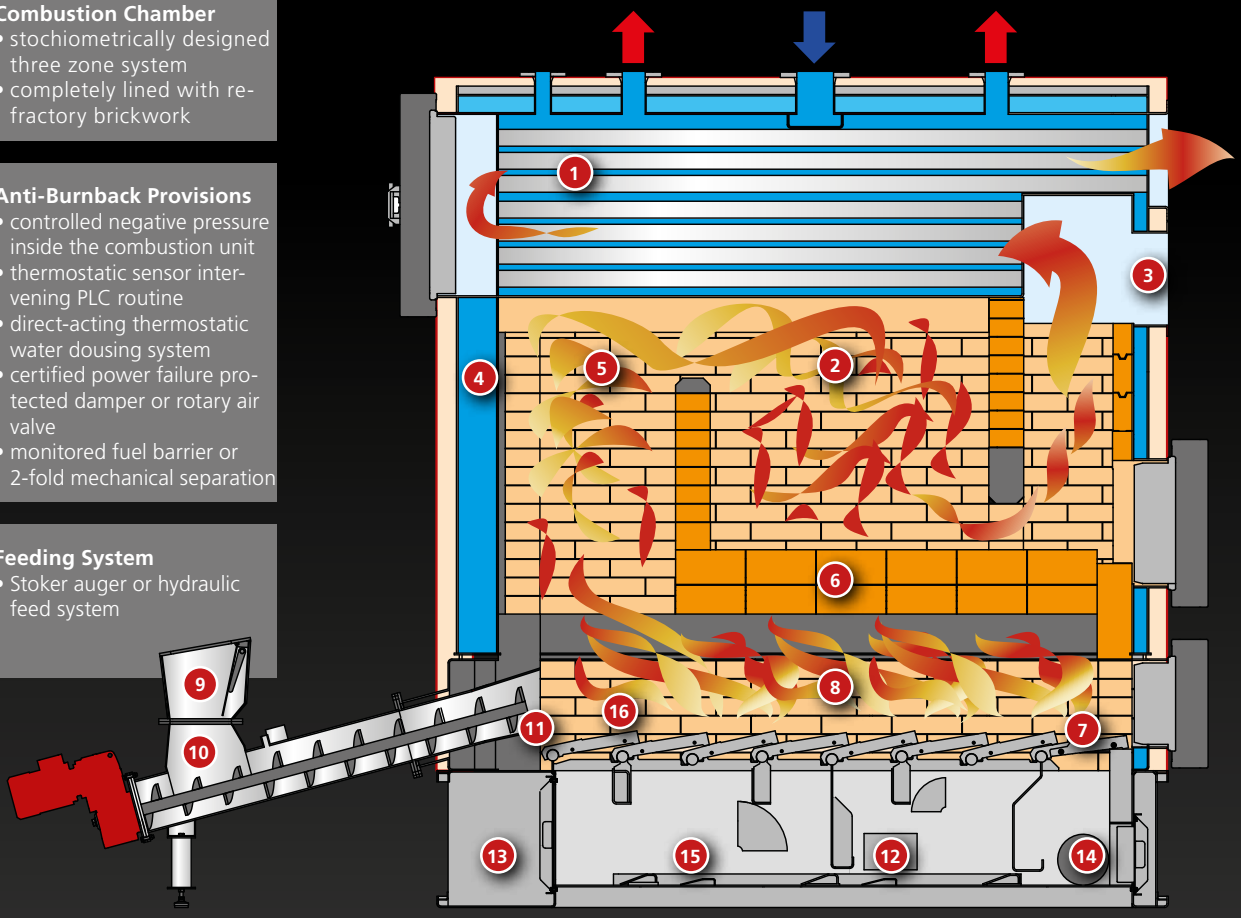
6 Radiation Arch
optimized air flow, completely lined with refractory brickwork

7 Grate Screen
prevents ash-auger damage by falling debris

8 Combustion Chamber
- stochiometrically designed three zone system
- completely lined with refractory brickwork

9 Anti-Burnback Provisions
- controlled negative pressure inside the combustion unit
- thermostatic sensor intervening PLC routine
- direct-acting thermostatic water dousing system
- certified power failure protected damper or rotary air valve
- monitored fuel barrier or 2-fold mechanical separation

10 Feeding System
- Stoker auger or hydraulic feed system



11 Moving Grate Boiler >150 kW
- industrial-scale solution available for commercial applications
- fuel is evenly distributed and pre dried
- automatic de-ashing into a single ash receptacle
- powered by heavy-duty hydraulic or electro-mechanical unit

12 Primary Air supply
λ-controlled, with load-dependent distribution to combustion and burnout zone

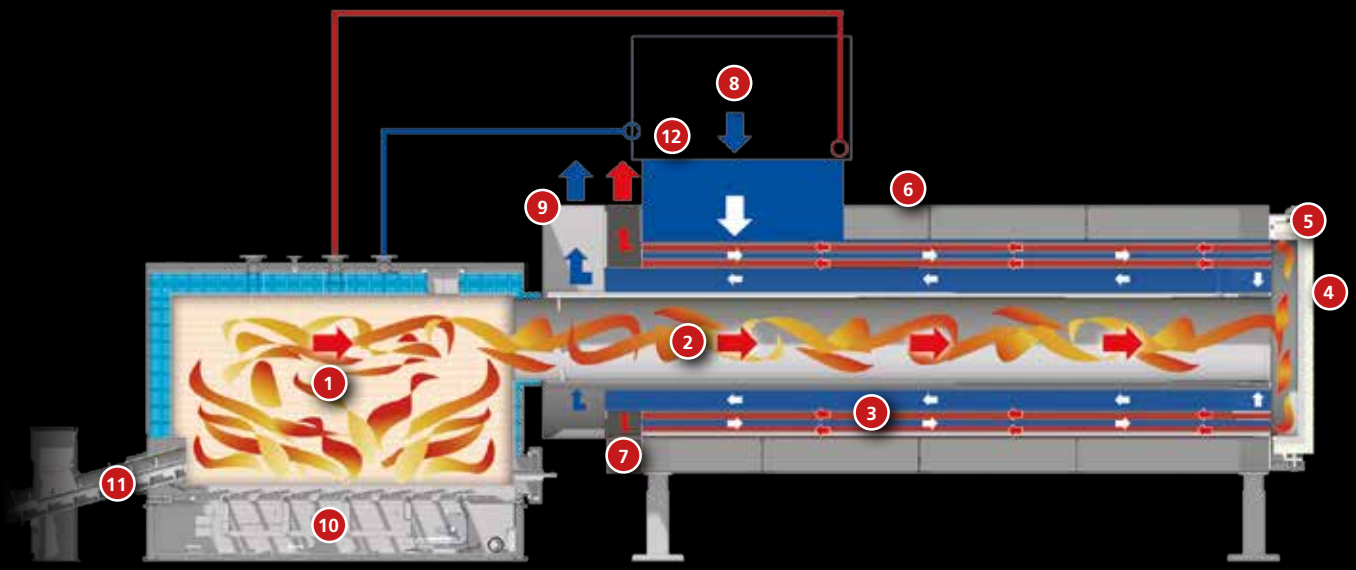
13 Industrial Quality
- Wall thickness (standard):
  Heat Exchanger 6 mm
  Boiler base 10 resp. 5 mm
- heavy-duty cleaning doors and inspection apertures, functionally arranged

14 Ash Auger
for removal of ash into the central receptacle optional with ash lock or hydraulic de-ash-ram

15 Ash Scraper
for de-ashing of the entire boiler-base

16 Grate Element
made of high temperature cast chromium alloy, separately replaceable

Air Heat Exchanger



1 Water-cooled Boiler Jacket
completey lined with refractory brickwork
controlled combustion with primary and secondary air intake

2 Flame tube
large scaled flame tube, free on one side
optimized flow velocity to reduce dust deposition

3 Boiler tubes
Concentrically arranged around the Flame Tube
Industrial quality with material thickness of 4.5mm

4 Cleaning Door
Optimum access to the boiler tubes
Space saving rotation and paning hinges

5 Turning Chamber
Turning of the flue gases out of the Flame Tube
Integrated in Cleaning Door

6 Air-to-air Heat Exchanger
Large scaled single pass heat exchanger
Proven counter flow principle to avoid contamination of the fresh air

7 Exhaus gas outlet
Individual orientation as required
Transfer of the flue gases to a cleaning system

8 Fresh air inlet
Individual orientation as required
Preheated fresh air blown in the heat exchanger

9 Fresh air outlet
max. output temperature: approx. 240°C

10 Combustion unit
Combinable with every BINDER combustion system depending on the fuel

11 Feeding System
Stoker auger or hydraulic feed system

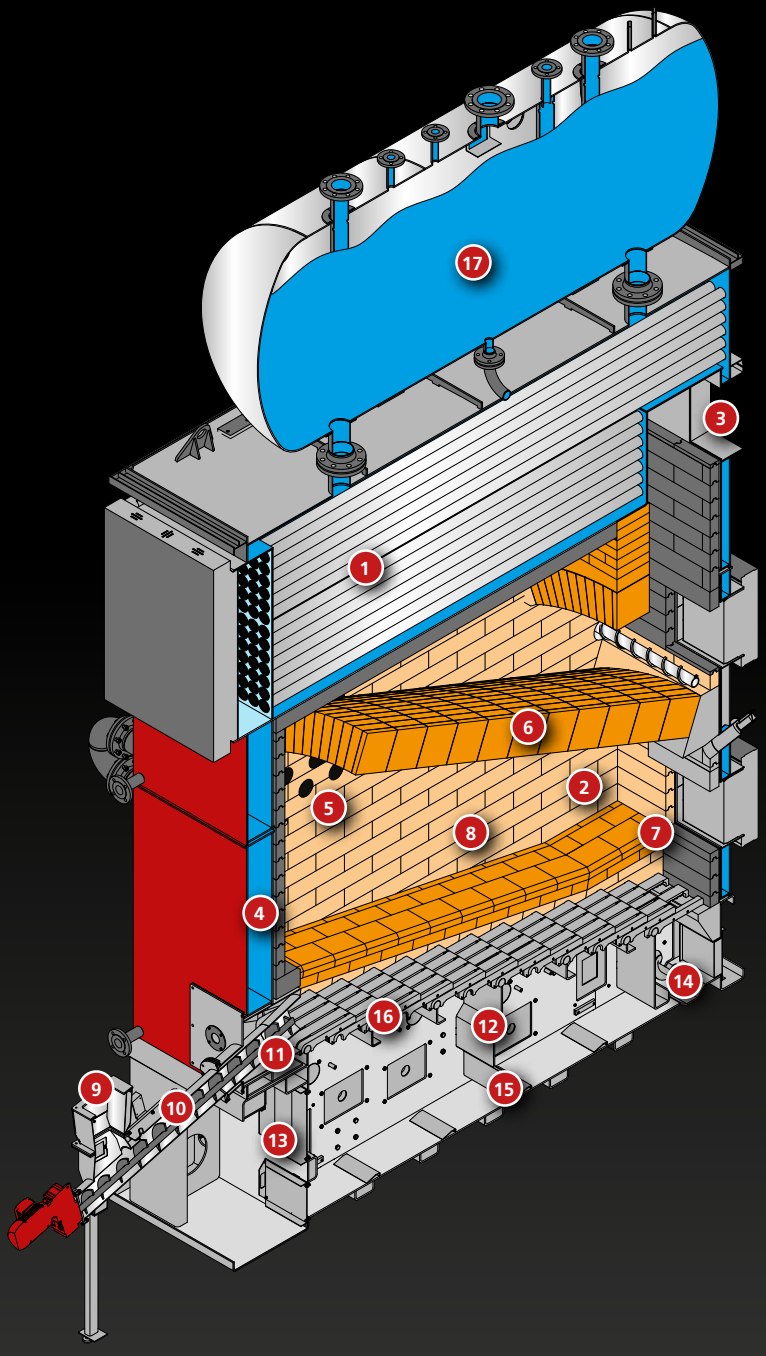
12 Fresh air pre-heating
Pre-heating of the fresh air via water-to-air heat exchanger.
Heat of the burning chamber is used to pre-heat the fresh air and optimizing the efficiency

Steam Boiler

Saturated steam boiler

Avaiable from nominal capacity of 200 kW upwards, combinable with all BINDER combustion systems, for the production of saturated steam. Working pressure up to 22 barG available, higher pressure on demand.

1. Boiler tubes
2. Refractory
3. Heat exchanger cleaning
4. Water-cooled boiler jacket
5. Secondary Air Supply
6. Radiation Arch
7. Grate screen
8. Combustion chamber
9. Anti-Burnback Provisions
10. Infeed
11. Moving grate boiler >150 kW
12. Primary Air supply
13. Industrial quality
14. Ash auger
15. Ash scraper
16. Grate element
17. Steam dome



Combustion Chamber

Available from nominal capacity of 200 kW upwards, combinable with all BINDER combustion systems, for the production of hot flue gases, optional with flow optimized mixing chamber.





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Energy from Biomass

A One Stop-Shop


Consulting


Planing


Manufacturing


Delivery


Assembling


Commissioning

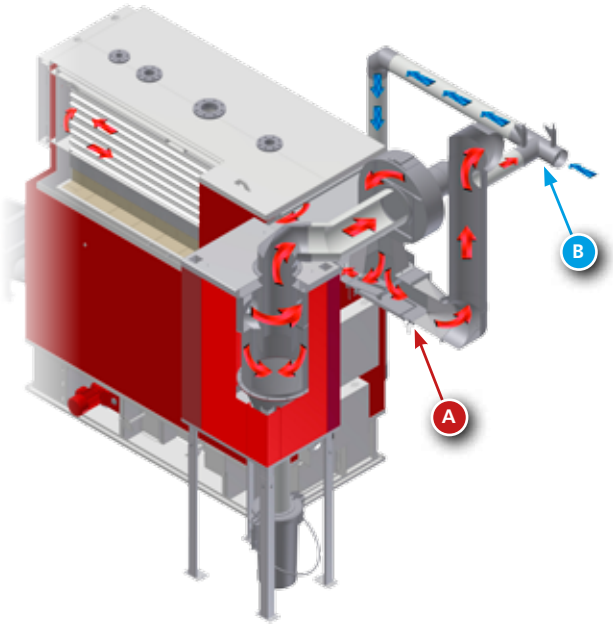

Support

Automatic High Velocity Cleaning System HV A

With the HV system the cleaned flue gases (after passing the cyclon separator) are blown back into the heat exchanger through a non-return flap at high speeds to clean the heat exchanger tubes.

High velocity cleaning at preset intervals without interfering with normal operation.

- prevents dust deposition over the whole length of the heat exchanger pipes, maintaining a constant high efficiency
- reduces maintenance to 1-2 basic procedures per year
- protects against boiler corrosion



Capacity- and Combustion Control CVP

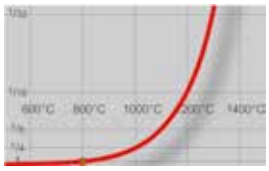
Features a fully modulating computer control that permanently assess the actual load, adjust the fuel feed accordingly and match it with the continuously variable air supply

- Reacts dynamically to changes in the combustion process through the Lambda O2 control
- Variable air volumens are automatically compensated by the integrated negative pressure control
- Speed-controlled fans minimise electric power consumption
- Provides an optimal efficiency over the entire output range of the boiler

Flue Gas Recirculation B

Depending on the temperature in the combustion chamber the recirculation system adds a regulated amount of flue gas to the combustion air.

Because of the greater volume of flue gas in the combustion chamber, more heat is dissipated from here towards the heat exchanger.



Lower temperatures also increase the lifespan of refractory and the grate.

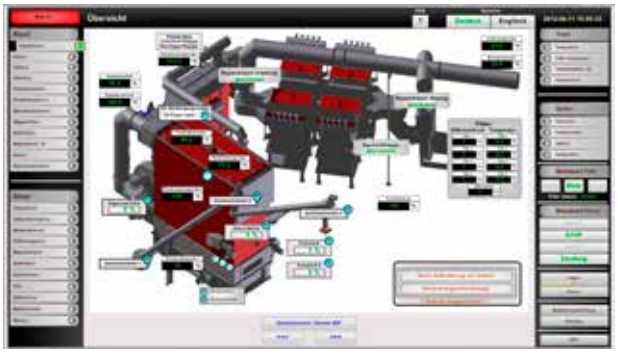
The flue gas recirculation system is particularly recommended for fuels with either a high calorific value, low ash fusion point, or a high nitrogen content.

3D Visualization

The innovative **BINDER 3D Visualization** is created from your individual layout plan.

Individual designed setting windows and the included data logging, and also the possibility to integrate the BINDER combustion chamber camera are completing the package.

If Internet connection is available it is possible to log in the boiler control unit and make adjustments at any time you want.



High Overall Efficiency Across the Output Range

BINDER boilers achieve efficiency ratings of over 92 percent[1]

- The CVP control package gives fully modulating capacity control from 20-100%
- Speed-control on all fans minimises the electric power consumption
- The Lambda O2 regulation improves efficiency and brings out the most of your fuel

- High quality engineering with a minimum on maintenance required provides for high availability

1)…audit report A-1211-1/18d-06, NUA Umweltanalytik GmbH

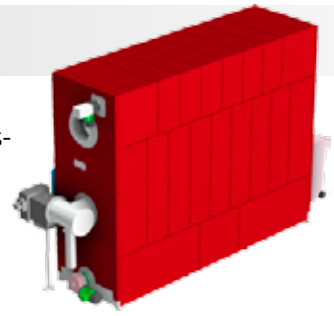
Lambda O2 Regulation

Uses the the exhaust O2 level as an efficient indicator for complete combustion:

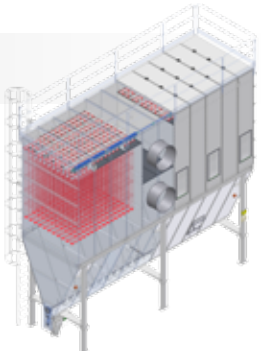
- Reacts to fuel variations by automatically adjusting the air intake and/or fuel supply
- Provides a stable combustion without emissions peaks even where fuel quality varies.

Flue Gas Cleaning

To comply with the legal emission limits, special filters have to be used. BINDER offers optimized filtration systems for your need.



Electrostatic precipitators



Metal Sleeve filters

References

Boiler type: DK 1800-2300 | **Capacity: 1950kW / Steam ca. 3,3to/h**

Boiler type: DK 640-850 SRF | **Capacity: 840kW / Steam ca. 1,3to/h**

Boiler type: RRK 400-600 RRF | **Capacity: 500kW**

Boiler type: RRK 200-350 u. RRK 1000 | **Capacity: 300kW a. 1200 kW**

Boiler type: RRK 400-600 SRF | **Capacity: 500kW**

Boiler type: RRK 200-350 TSRF | **Capacity: 300kW**

Boiler type: 4x RRK 200-350 and 2x RRK 200-600 SRF

Boiler type: 1200-1650 SRF | **Capacity: 1600kW**

Boiler type: 2500-3000 SRF | **Capacity: 3000kW**

Boiler type: 6-7M TSRF | **Capacity: 7000kW**

Our Localpartner

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