HERZ biomass boilers 100 to 20,000 kW

- Warmwater boilers
- Hotwater boilers
- Steam boilers
- Hot-air systems

HERZ®
HERZ Armaturen GmbH - The company
Founded in 1896, Herz has been continuously active in the market for more than 118 years. With 9 sites within Austria, another 15 in Europe and more than 2,400 employees at home and abroad, HERZ is the only Austrian manufacturer that produces equipment for the entire heating and installation industry and is one of the most important internationally.

HERZ Energietechnik GmbH
HERZ Energietechnik employs more than 230 staff in production and sales. At the company sites in Pinkafeld, Burgenland and Sebersdorf, Styria, there is state-of-the-art production as well as a research institute for new, innovative products. As a result, proven cooperations with research and educational institutions can be intensified. Over the years, HERZ has established itself as a specialist in renewable energy systems. HERZ places a great importance on modern, cost-effective and environmentally friendly heating systems with the highest level of convenience and user-friendliness.

HERZ for the environment
All HERZ biomass systems fall below the strictest emission regulations. Numerous environmental endorsements bear witness to this.

HERZ quality
HERZ designers are in constant contact with recognised research institutes in order to improve the very high standards even further.
Standard Fuels

HERZ 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.

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal capacity in kW (at M20)</th>
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<tbody>
<tr>
<td></td>
<td>RRK 8-10M</td>
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<td>RRK 130-250</td>
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<td>RRK 80-175</td>
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<thead>
<tr>
<th>Type</th>
<th>Nominal capacity in kW (at M20)</th>
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<tr>
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<td>TSRF</td>
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<td>PSRF</td>
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<td>WW</td>
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<td></td>
<td>HW</td>
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<tr>
<td></td>
<td>Steam</td>
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</table>

Boiler range

HERZ 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 HERZ is total flexibility. True to the motto „Nothing is impossible“ our engineers will seek to provide an optimum solution for your requirements.

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!

assumes no liability for the information, subject to change without notice
HERZ 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):

```
<table>
<thead>
<tr>
<th>KKF</th>
<th>QFE</th>
<th>TS 330</th>
<th>TS 220</th>
<th>TS 150</th>
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<tr>
<td>max. particle size (P)</td>
<td>16</td>
<td>45</td>
<td>63</td>
<td>120</td>
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*1...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 secondary 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 M40 (up to M50 with air preheater Luvo)
- **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 secondary combustion air zones. Alternatively with auger or hydraulic infeed.

- **max. fuel water content**: up to M50 (up to M60 and higher with air preheater Luvo)
- **max. fuel ash content**: ≤ 7%
- **Available**: from 150 kW nominal capacity
Boiler tubes
- best-practise chamfered and root welded, individually replaceable if required

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

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

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

Feeding System
- Stoker auger or hydraulic feed system

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

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

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

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

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

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

Grate Screen
- prevents ash-auger damage by falling debris

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

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

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

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

Warm and Hotwater Systems
**Water-cooled Boiler Jacket**
- Completely lined with refractory brickwork
- \(\lambda\)-controlled combustion with primary and secondary air intake

**Flame tube**
- Large scaled flame tube, free on one side
- Optimized flow velocity to reduce dust deposition

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

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

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

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

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

**Fresh air outlet**
- Individual orientation as required
- Transfer of the flue gases to a cleaning system

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

**Fresh air outlet**
- Max. output temperature: approx. 240°C

**Feeding System**
- Stoker auger or hydraulic feed system

**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
Saturated steam boiler
Available from nominal capacity of 200 kW upwards, combinable with all HERZ 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
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 different HERZ combustion systems, for the production of hot flue gases, optional with flow optimized mixing chamber.
HERZ Customer-orientated...
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

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 HERZ 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 HERZ 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

HERZ boilers achieve efficiency ratings of over 92 percent¹

- 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

¹audit 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. HERZ offers optimized filtration systems for your need.

References

<table>
<thead>
<tr>
<th>Boiler type</th>
<th>Capacity</th>
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<tbody>
<tr>
<td>RRK 400-600 SRF</td>
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