Heating with **wood chips & wood pellets**

YOUR RELIABLE PARTNER
Herz since 1896
Present on the market for over 120 years

firematic
20 - 60 kW

firematic
80 - 301 kW

Herz®

Competence is our success ...

HERZ **FACTS:**

- 22 companies
- Group headquarter in Austria
- Research & development in Austria
- Austrian owner
- 2.400 employees in over 85 countries
- 24 production sites

HERZ Armaturen GmbH - The company
Founded in 1896, Herz has been continuously active in the market for more than 120 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 morn, 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
Our HERZ design engineers are in permanent contact with acknowledged research institutions in order to improve the very high standards continuously.

Convenient heating...

Boilers available in left or right version!

Decades of experience

- Internal development and test centre
- Austrian quality with world-wide sales
- Comprehensive service
- ISO 9001 certification
- FMEA approved boiler production

Economical and convenient heating with wood chips and wood pellets

The cleanest combustion due to the lambda probe control even with different fuel qualities.

The quiet operation of the boiler is based on high-quality system components.

Lowest emissions to protect our environment!

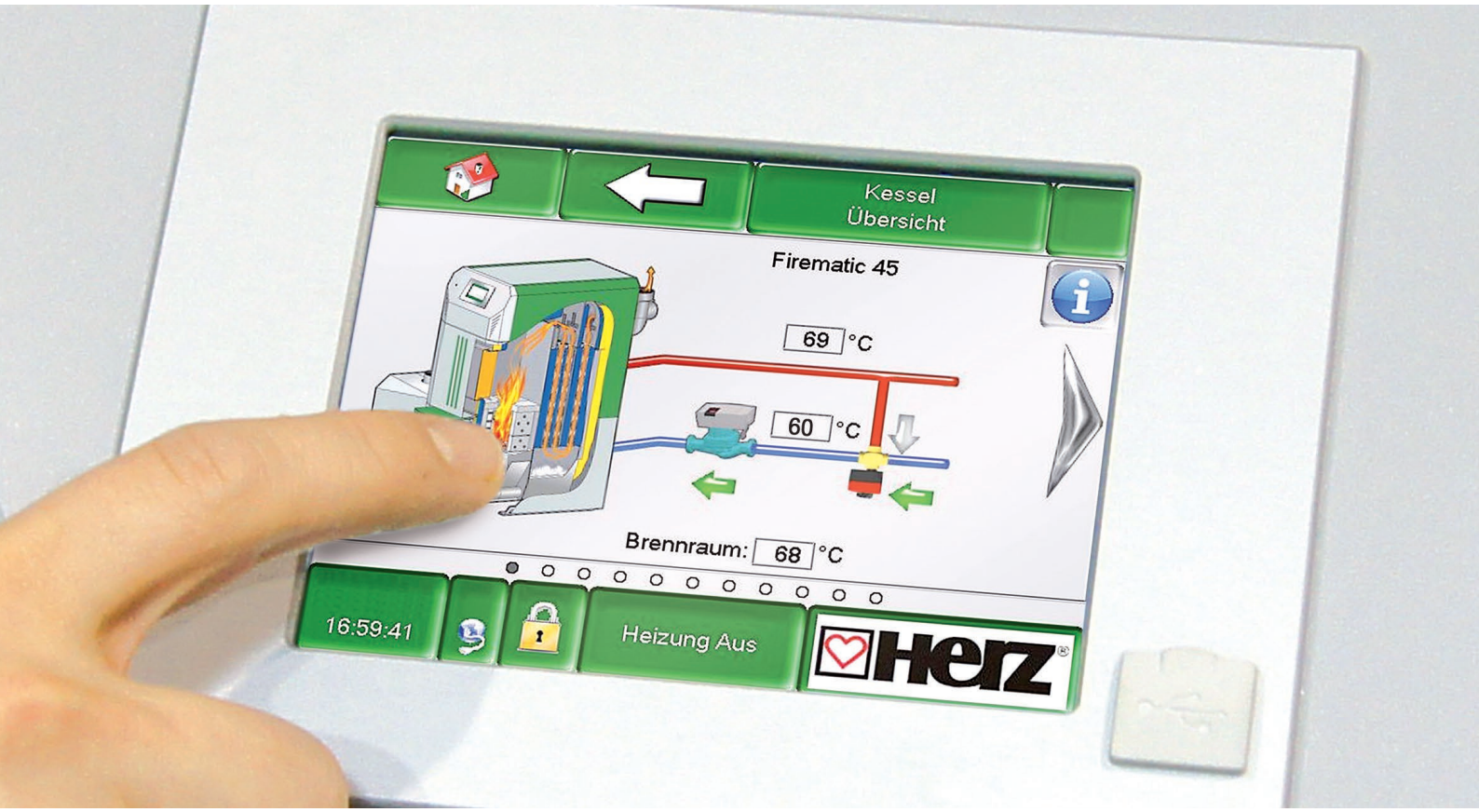
The great advantages of HERZ firematic:

- Energy-saving drive technology
- Simple operation
- Constant high efficiency
- Compact design
- Constructed from high quality materials

Automatic cleaning ...
- ... of the combustion grate
- ... of the vertical pipe heat exchanger

Automatic de-ashing of the combustion and fly ash into an ash container on the front side

Easy, modern and comfortable ...



With the user-friendly VGA-color-touch-screen-control also heating circuits, boilers, buffers and solar can be controlled in addition to the combustion process.

T-CONTROL

A central control unit for:

- Buffer management
- Back flow elevation (pump and mixer valve)
- Domestic hot water preparation
- Controlled heating circuits (pump and mixer valve)
- Solar circuit control
- Frost protection

The convenient menu navigation and simple screen layout with schematic 3D representation ensures maximum operator convenience.

The “modular operation” of the T-CONTROL offers extension possibilities up to 55 modules. As a result, the central control unit can optimally coordinate the processes of the combustion control (lambda probe control), buffer management, back flow elevation, heating circuit, hot water preparation, solar and more. Additionally, the control system can be easily expanded or modified with the external modules.

... with the central control unit T-CONTROL

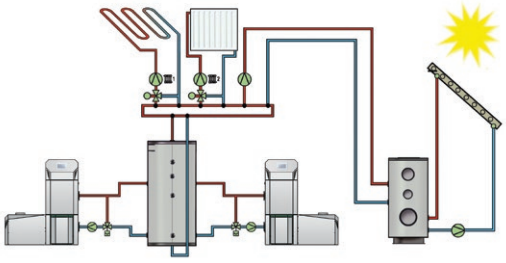
T-CONTROL

Remote access to the control by using VNC-Viewer

As an additional option, the T-CONTROL offers the possibility for remote visualization and remote maintenance via smartphone, PC or tablet PC. The handling is the same as in the Touch-Control directly on the boiler. The processes and parameters can be read and modified from anywhere at any time.

Further advantages of the T-CONTROL:

- Power-saving standby mode
- Status and error messages via e-mail
- Data transfer and software updates via USB stick
- Possibility of Modbus-communication
- Easy and clear presentation of the functions from various components (heating circuit pump, hot water loading pump, circulation pump, mixing valve, switching valve, actuator motors etc.)



Cascade operation

With the HERZ T-CONTROL up to 8 boilers can be switched in cascade. That means, several boilers are merged in order to achieve a higher performance. A special advantage of the cascade arrangement is the efficient utilization of the boiler at lower heat consumption (eg in the transitional period).

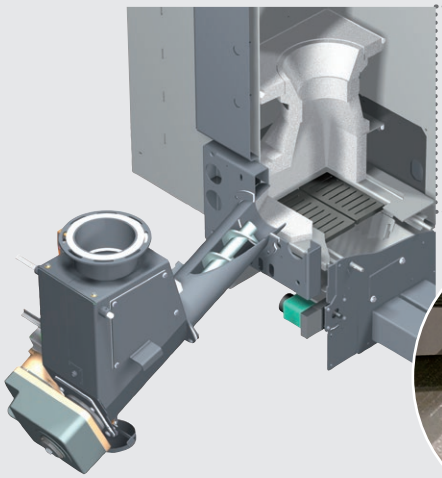
Benefits and **details ...**

The HERZ T-CONTROL - user-friendly control with touch display

Central control unit as standard for:

- Buffer management
- Back flow elevation (pump and mixer valve)
- Domestic hot water preparation
- Controlled heating circuit (pump and mixer valve)
- Frost protection

- Simple screen design and convenient menu guide.
- Extension modules up to 55 modules possible (further heating circuits, solar circuit control, 2. buffers, etc.)

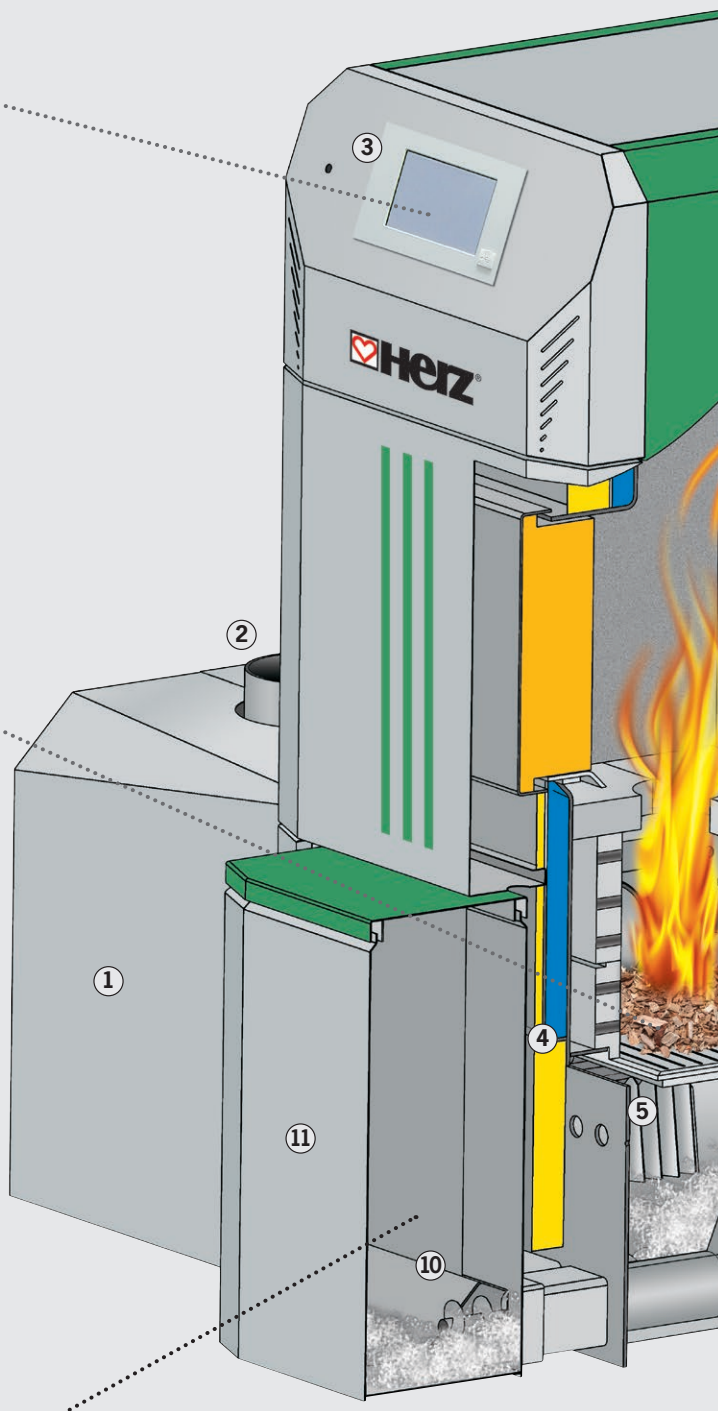


Side load & automatic cleaning of the combustion grate

- Side load of wood chips or wood pellets into the combustion chamber.
- Complete cleaning of combustion grate which automatically tips ash to extraction point.
- A clean combustion grate guarantees an optimum air supply.
- No manual cleaning necessary.

Automatic de-ashing

- Via two ash discharge screws the combustion ash and fly ash is automatically transported into the ash container(s) .
- The removable ash container(s) with wheels enables simple and convenient emptying of the ash.

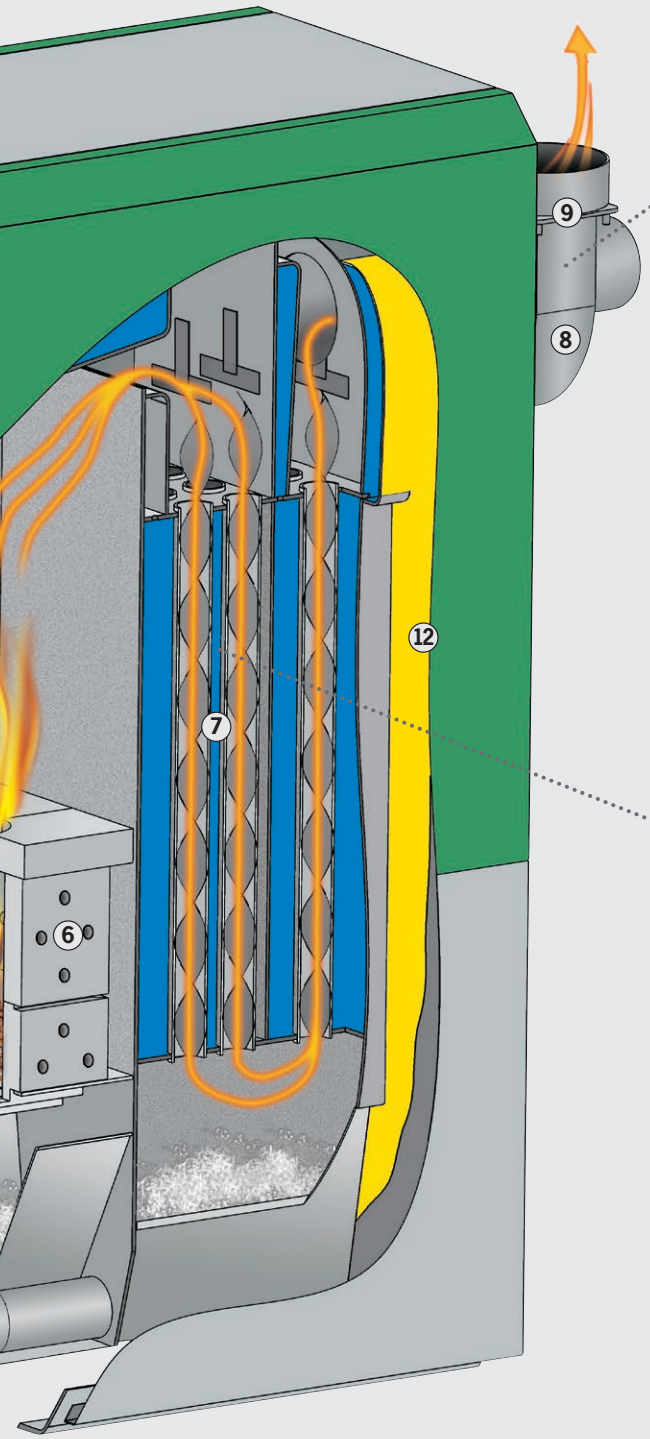


1. **Intermediate hopper**
   with infrared light barrier system (no mechanical level control - thereby insensitive)

2. **BBP** (back burn protection device; flap)
   BBI (back burn inhibit device; sprinkler system)

3. **T-CONTROL**
   central control unit

...of the HERZ firematic 20-60



Energy saving combustion via the lambda probe

- A built in Lambda probe, which monitors continuously the flue gas values, detects fuel quality changes and ensures optimum combustion and low emission values.
- The lambda probe controls the primary and secondary air supply to ensure a complete combustion, even in part load operation.
- The results are low fuel consumption and lower emission values even with different fuel qualities.

Automatic cleaning of the heat exchanger

- The heat exchanger surfaces gets cleaned automatically via the integrated turbulators, even during heating operation, no manual cleaning necessary.
- A consistently high level of efficiency by purified heat exchanger surfaces means low fuel consumption.
- The fly ash is taken into the front ash container via a discharge screw.

4. **Automatic ignition**
   using hot air fans
5. **Tipping grate**
   for complete cleaning
6. **Split 2-zones combustion chamber**
7. **Pipe heat exchanger**
   with turbulators and automatic cleaning
8. **Lambda probe control**
   Automatic flue gas and combustion monitoring
9. **Exhaust fan**
   speed controlled and monitored for the highest operating safety
10. **Ash discharge screw**
    for combustion and fly ash
11. **Front ash container**
12. **Efficient heat insulation**
    for the lowest radiated heat loss

Benefits and **details ...**

The HERZ T-CONTROL - user-friendly control with touch display

Central control unit as standard for:

- Buffer management
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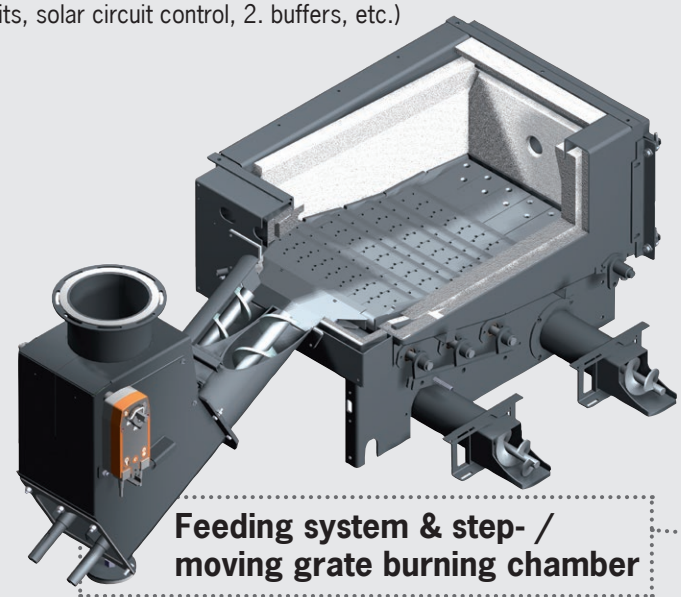
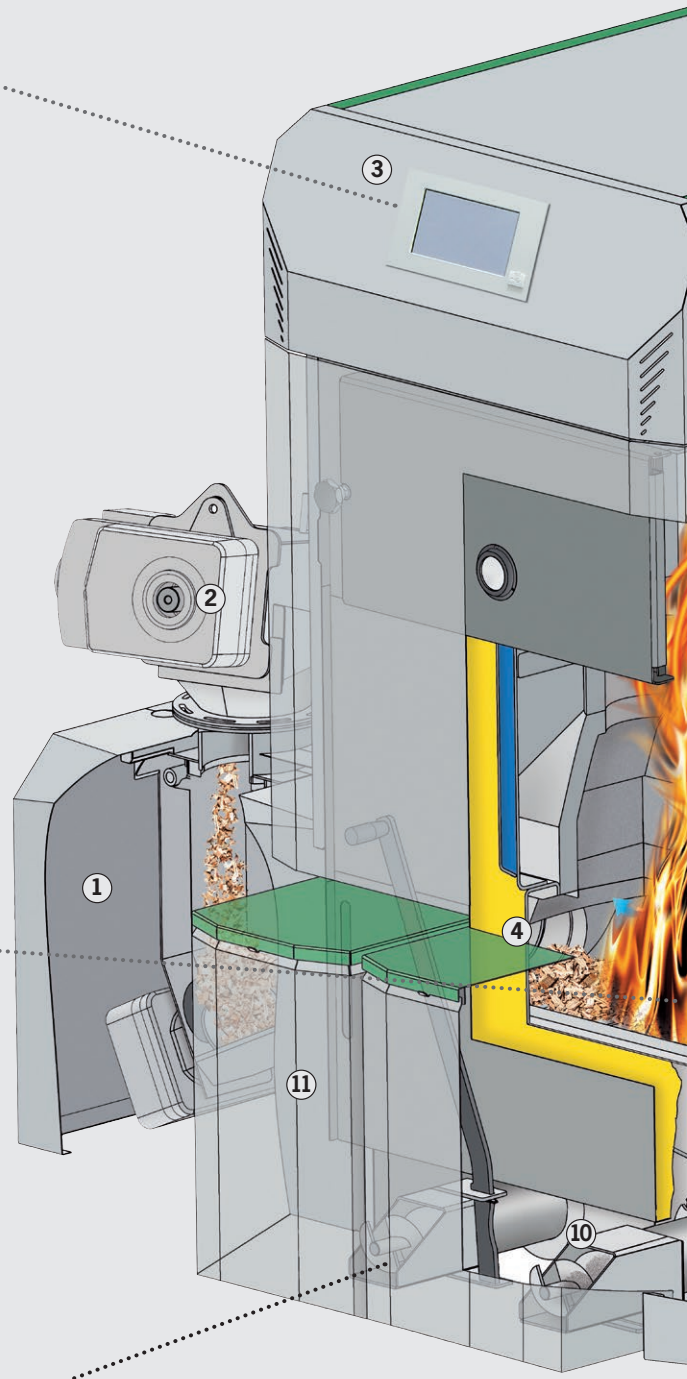


Feeding system & step- / moving grate burning chamber

- Wood chips or wood pellets are transported from the side into the combustion chamber (with single stoker screw for firematic 20-101 and double stoker screw for firematic 130-301).
- By the movement of the step grate mechanism there is also a cleaning of the burning chamber. These grate elements are made of special, high-quality cast iron. An optimum air circulation is ensured by the clean combustion grate.
- The removal of the ash from the combustion chamber is performed by an automatic tipping grate. A subjacent mounted ash screw transports the ash directly into the ash container.
- No manual cleaning requirement

Automatic de-ashing

- Via the two ash discharge screws the combustion ash and fly ash is automatically transported into the ash container.
- The removable ash container(s) with wheels enables simple and convenient emptying of the ash.



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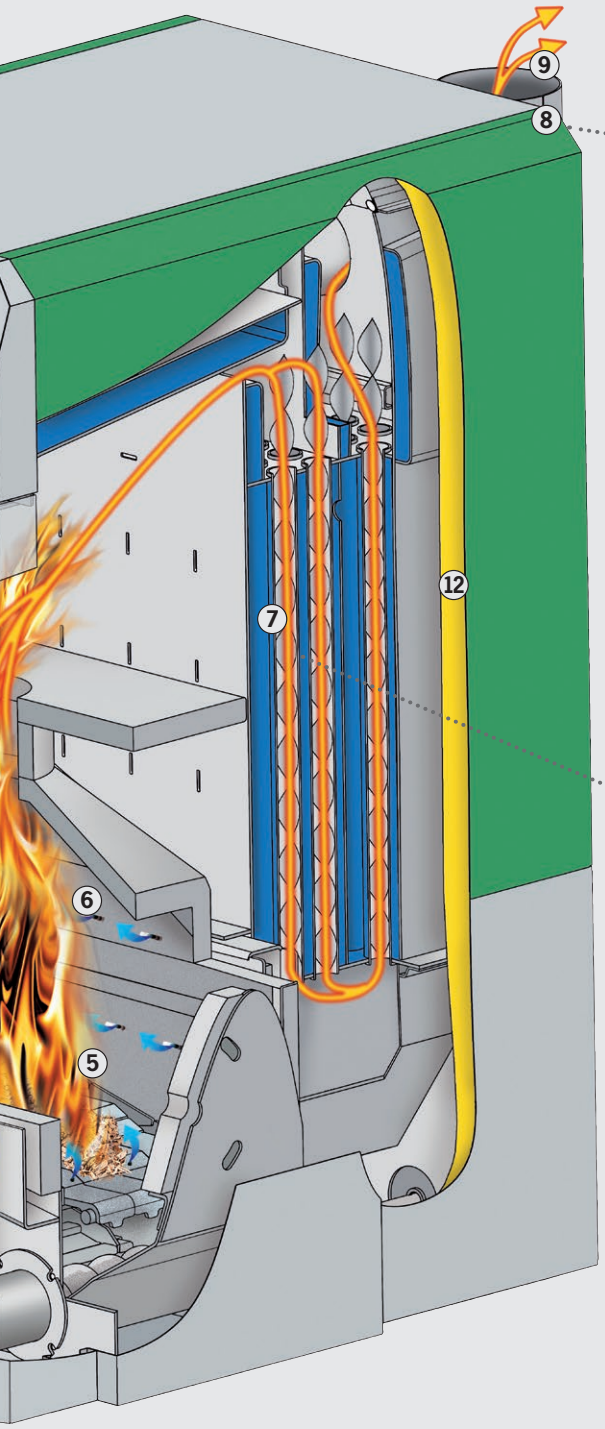
...of the HERZ firematic 80-301



Energy saving combustion via the lambda probe

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Automatic cleaning of the heat exchanger

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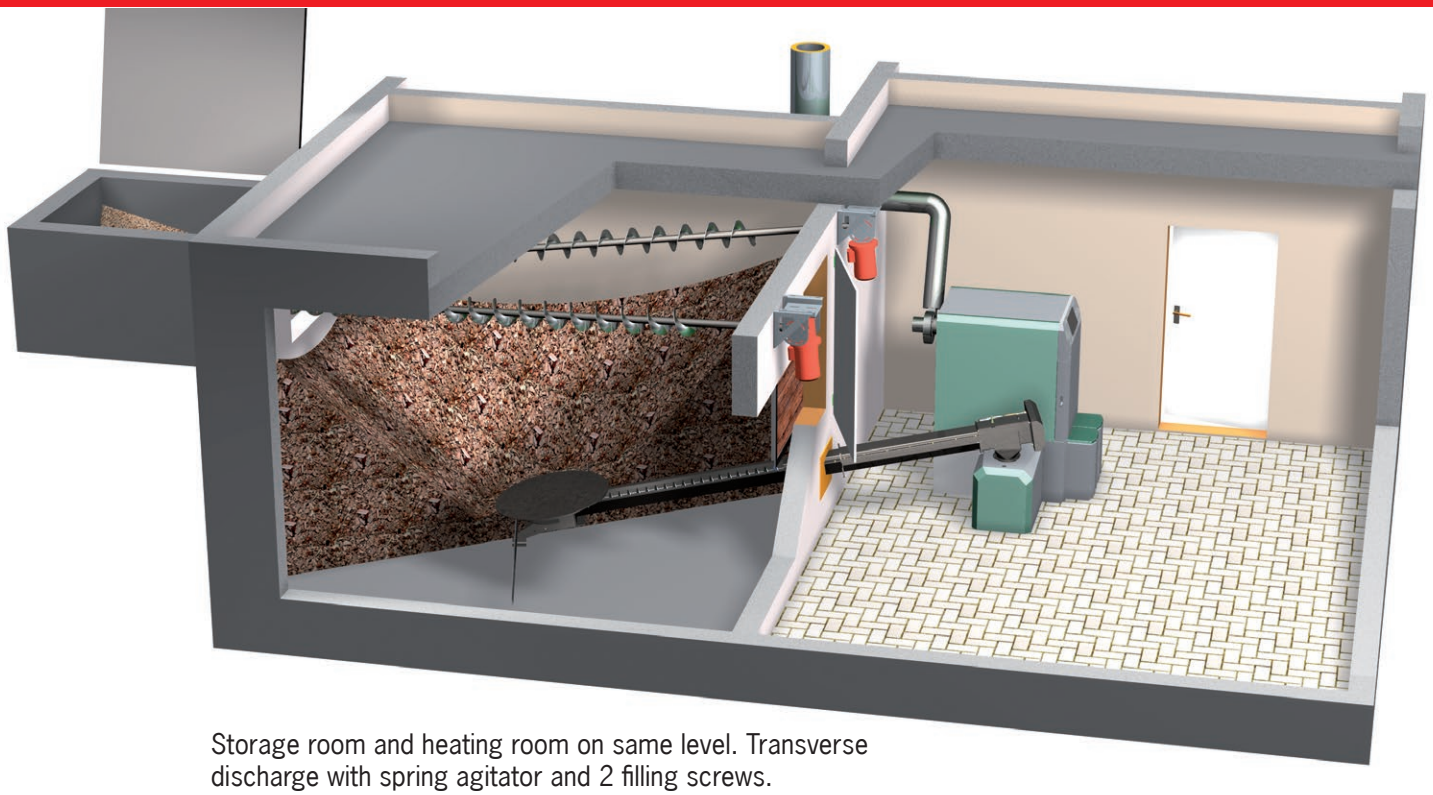
- A consistently high level of efficiency by purified heat exchanger surfaces means low fuel consumption
- The fly ash is taken into the ash container via a discharge screw

4. **Automatic ignition**
   using hot air fans
5. **Step- / moving grate**
   with automatic cleaning
6. **Split 2-zone combustion chamber**
7. **Pipe heat exchanger**
   with turbulators and automatic cleaning
8. **Lambda probe control**
   Automatic flue gas and combustion monitoring
9. **Exhaust fan**
   speed controlled and monitored for the highest operating safety
10. **Ash discharge screw**
    for combustion and fly ash
11. **2 front ash containers**
12. **Efficient heat insulation**
    for the lowest radiated heat loss

Discharge and transport systems …

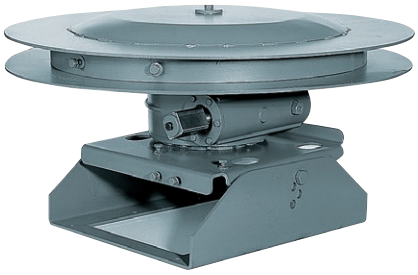


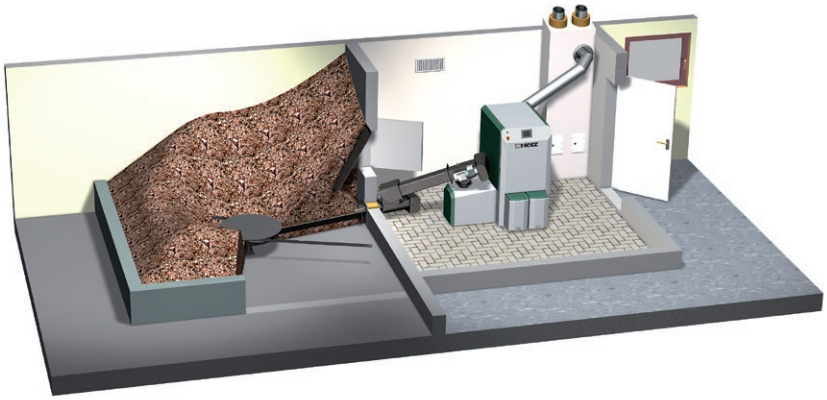
Storage room and heating room on same level. Transverse discharge with spring agitator and 2 filling screws.

HERZ spring agitator and drive technology:

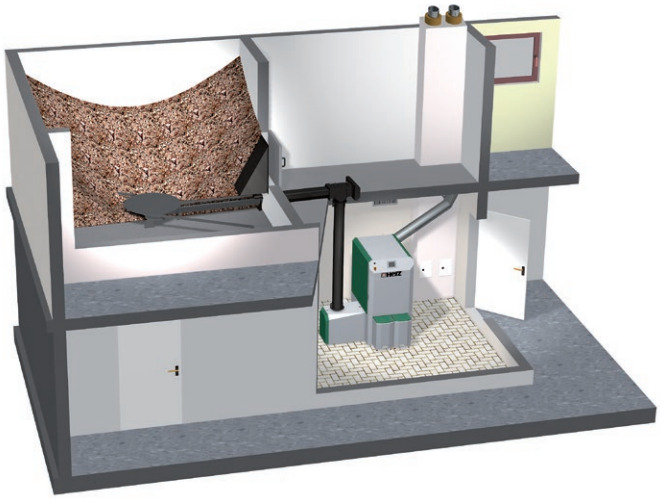
Robust agitator with heavy duty gearing and pressure relief for reliable operation. Agitator discharge up to 6 m in diameter available, up to 5 m in diameter (at firematic 20-60) with 230 V operation possible.

Additional discharge system via a pendulum screw from a silo, or a storage room discharge via hydraulic walking floor and straight discharge screw available.





Room discharge via horizontal spring agitator with climbing screw for optimum storage room utilization.



Storage room and boiler room at different levels. Horizontal discharge with spring agitator and chute pipe.

The vertical filling system of HERZ
offers the opportunity to fill the storage room optimally.

Wood chips are transported via a vertical screw into the wood chip storage room and are distributed optimally via a horizontal screw in the storage room.

- Filling trough lengths up to 6 meters
- Modular extensions of 0,6 m and 1,2 m possible
- Hinged, galvanized cover of the filling trough
- High corrosion resistance - fully galvanized panel for outdoor areas
- All engines are suitable for outdoor areas
- Vertical height up to 10 meters
- Perfectly wood chip distribution in the storage room by a storage room filling screw (up to 12 meters possible)

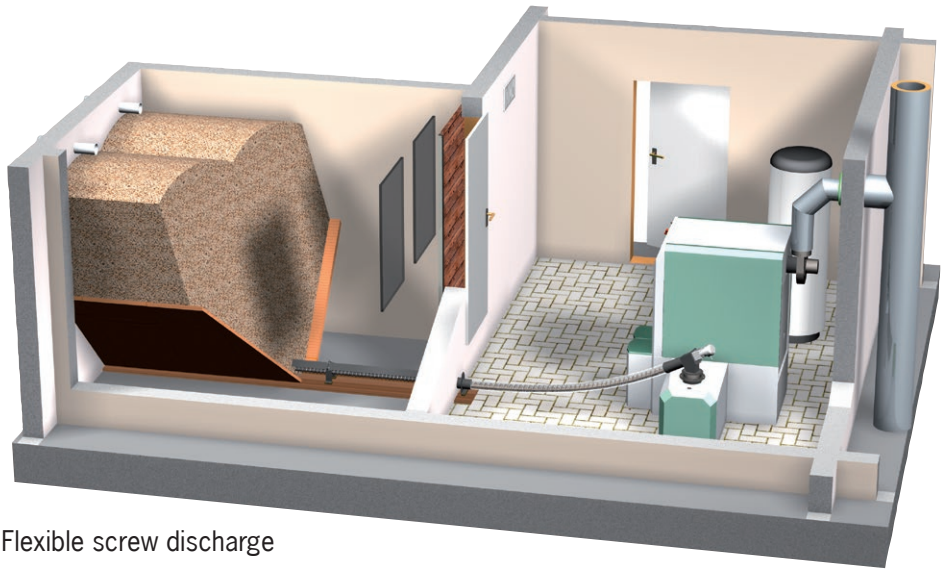
Filling capacity: < 60 m³/h
For double systems < 120 m³/h

SUITABLE FUELS:
Wood pellets according to
- EN ISO 17225-2: property class A1, A2
- EN 14961-2: property class A1, A2
- ENplus, ÖNORM M7135, DINplus or Swisspellet

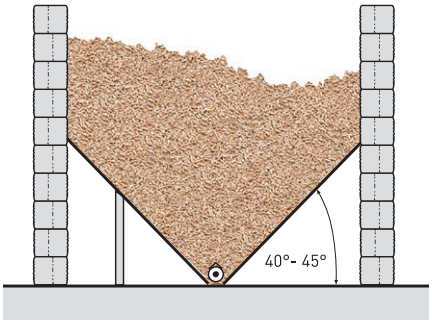
Wood chips M40
(water content max. 40%) according to
- EN ISO 17225-4: property class A1, A2, B1 and particle size P16S, P31S
- EN 14961-4: property class A1, A2, B1 and particle size P16B, P31,5 or P45A
- ÖNORM M7133: G30-G50

Discharge systems ...

Discharge systems for wood pellets with flexible screw (up to 201 kW)

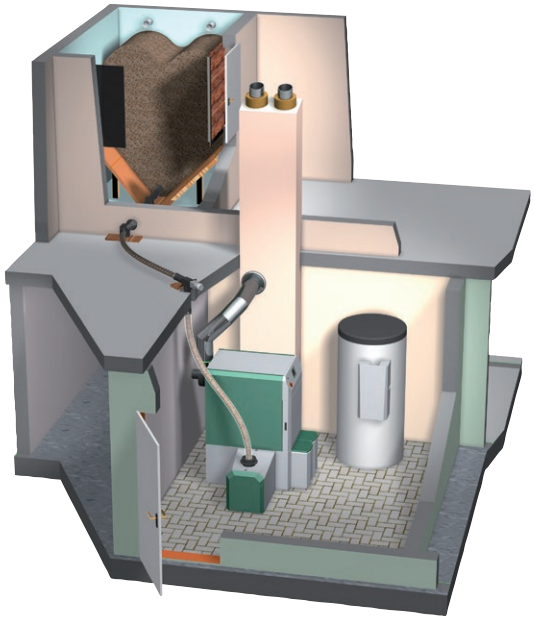


Flexible screw discharge

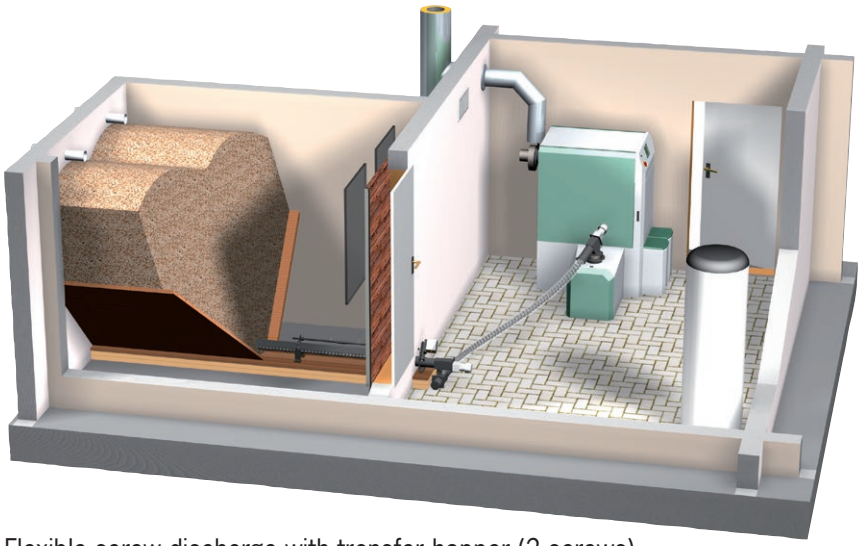


Sliding angle of 40° - 45° in the pellet-store with a smooth surface

For pure pellet operation, the flexible screw is a cost-saving solution. In order to empty the storage room completely a sloping floor is recommended. For this system no transport of wood chip is possible.



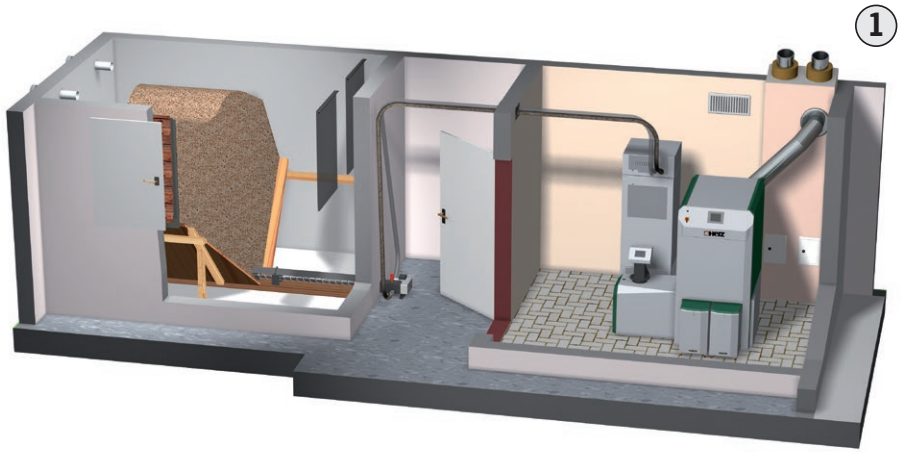
Flexible screw discharge with chute pipe system



Flexible screw discharge with transfer hopper (2 screws)

Agitator discharge - the useful system for wood chips and wood pellets.

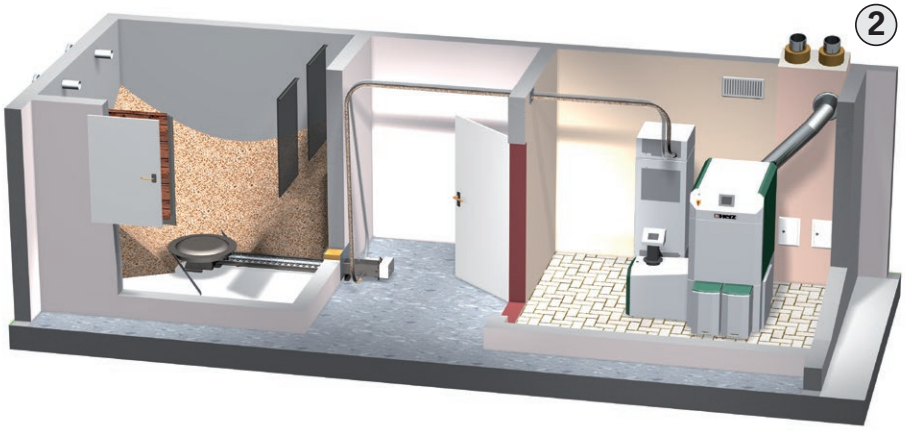
If you want to burn wood chips in the system too, the discharge with an agitator has to be used. Nevertheless, the agitator system is also possible with exclusive pellet operation. The advantage with an agitator is the efficient utilization of storage space and the possibility that the boiler can be filled with wood chips too.



Modular pellet screw in the storage room (with slidings) and suction tank.

Pellets discharge via suction system (up to 201 kW)

For pure pellets operation of the firematic and long distances from the storage room to the boiler room the use of a suction hopper provides an optimum solution. Wood pellets can be sucked up to a distance of 25 m and a maximum height difference of 5 m.



Pellet agitator in the storage room with suction discharge and suction hopper. Efficient use of storage space by eliminating the sliding angles.

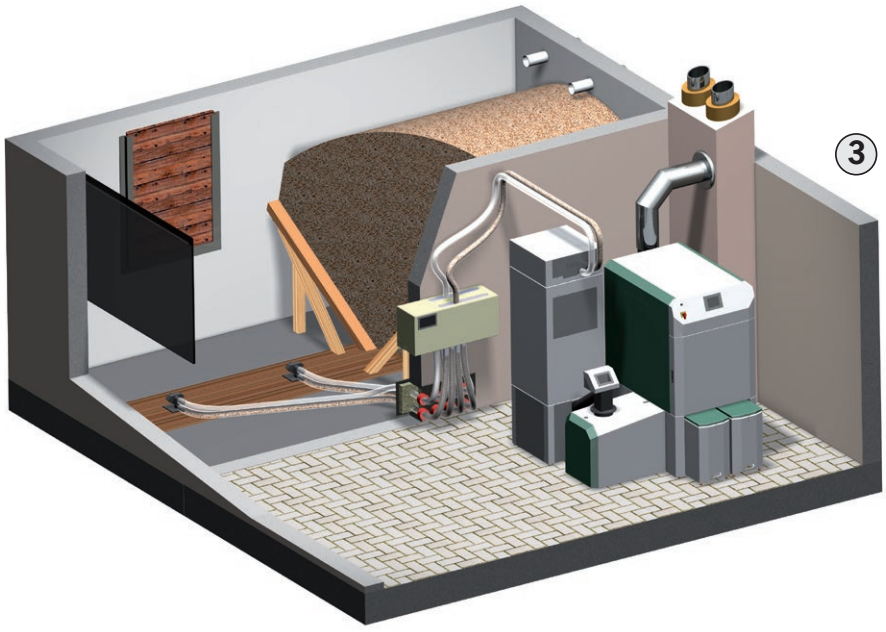
There are 3 possibilities to discharge the wood pellets out of the storage room:

1 A screw discharge in the middle of the storage room (to empty the storage room completely, we recommend making slidings) or

2 an agitator for efficient storage room utilization (for this case the slidings are not needed).

3 4-point suction system
The positioning of the 4 suction probes can be individually selected

NOTE: For double-suction hoppers (necessary for firematic 130-201 kW) 2 discharge systems are necessary (for example 2 agitators, 2 screws, 2 4-point suction systems)



4-point suction system - The system can be easily installed and is adaptable to different storage room situations and is an universal solution.

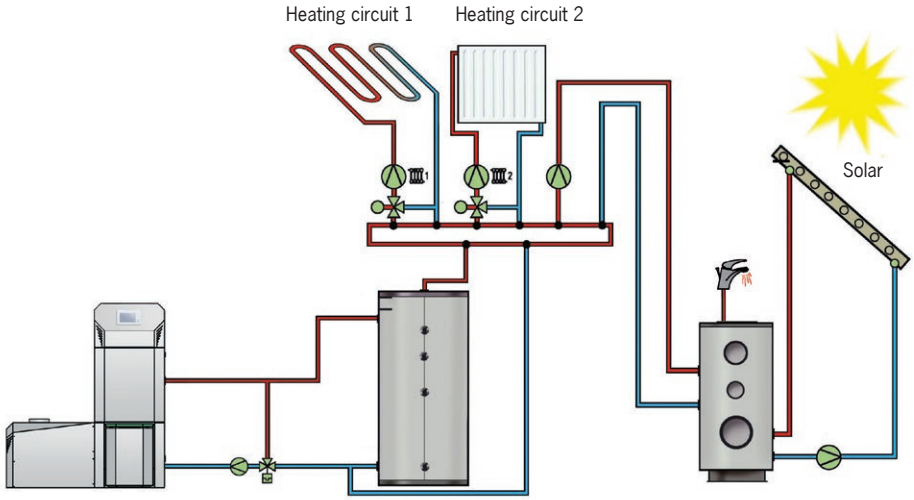
A **range** for all requirements...

The HERZ T-CONTROL:

The control enables a multiplicity of application options, two of the most common cases are shown below.

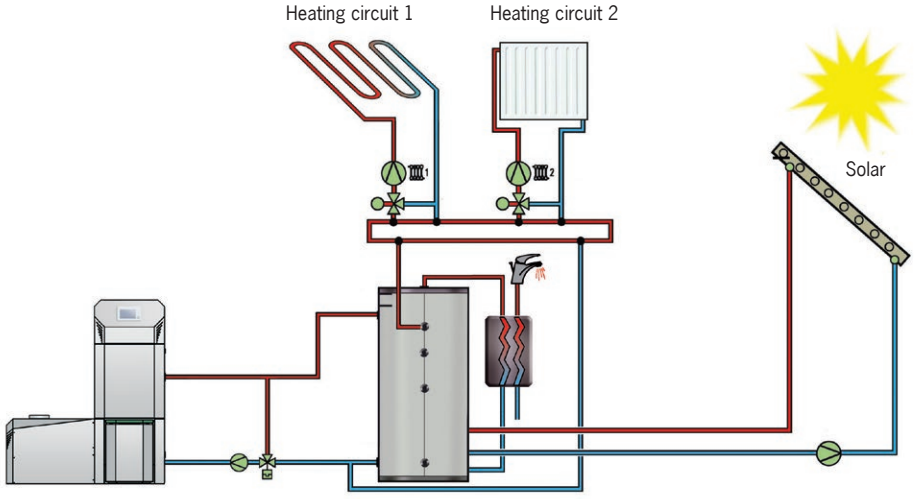
The installation of a buffer tank considerably increases the efficiency of the heating system, especially during periods of part load. A buffer is not absolutely necessary, but recommended for each biomass heating system!

The differential temperature control and weather-driven control optimise energy usage and allow an environmentally friendly and energy saving heating. The usage of energy is thereby significantly optimized.



Hot water tank with solar usage and buffer tank:

With this system configuration solar energy is utilised to provide the domestic hot water. When the solar input is insufficient to meet the hot water demand, additional heat is taken from the buffer tank. Additional heating circuits such as under floor heating and the radiators are supplied with heat from the buffer tank.



Solar heating support and domestic hot water preparation:

With this system configuration the solar energy heats the water in the buffer tank directly. Thus, free solar energy is also used for heating purposes. The domestic hot water module for hot water preparation heats the water in continuous flow mode with energy from the buffer tank. Additional heating circuits such as under floor heating and the radiators are supplied with heat from the buffer tank.

HERZ continuous-flow water module & buffer tanks

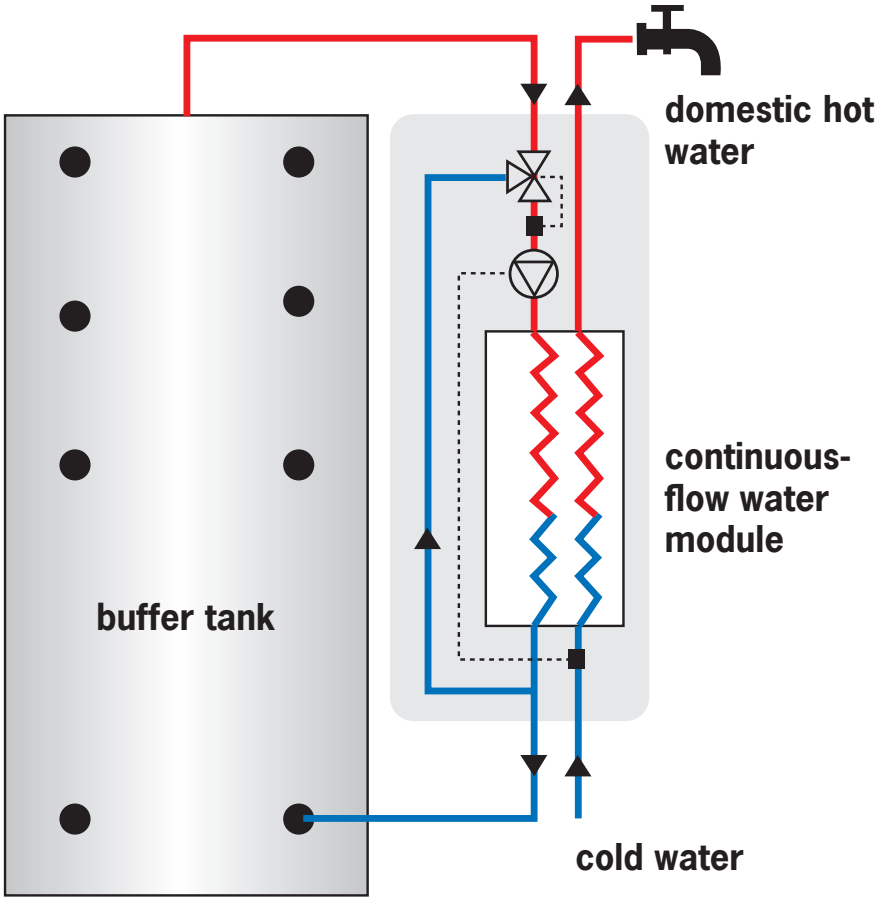


ILLUSTRATION OF FUNCTION

Continuous-flow water module

prepares the domestic hot water in an efficient way. The fresh cold water is heaten up via a plate heat exchanger with water from the buffer tank.

The continuous-flow water module is characterized by its compact design, low pressure drop, low water content and is easy to install

The benefits:

- Domestic hot water – hygienic & fresh
- Easy to install
- Very compact (low space required)

Useful supplementation for your heating system: HERZ buffer tanks

Integrating a buffer tank into the system provides an energy store. It reduces the number of boiler start-ups, guarantees a continuous heat leak, and the efficiency of the whole system increases.

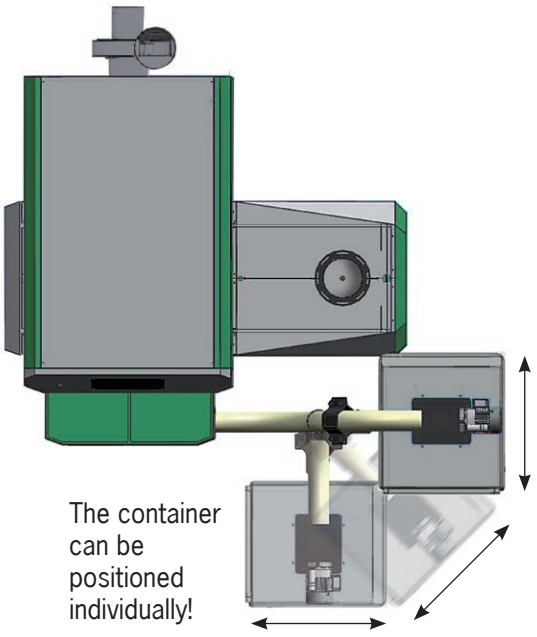
A buffer tank ensures a constant heat supply for different heating circuits (eg underfloor heating and radiators) and ensures optimum operating conditions.

Ash discharge into an external container - 240 liters

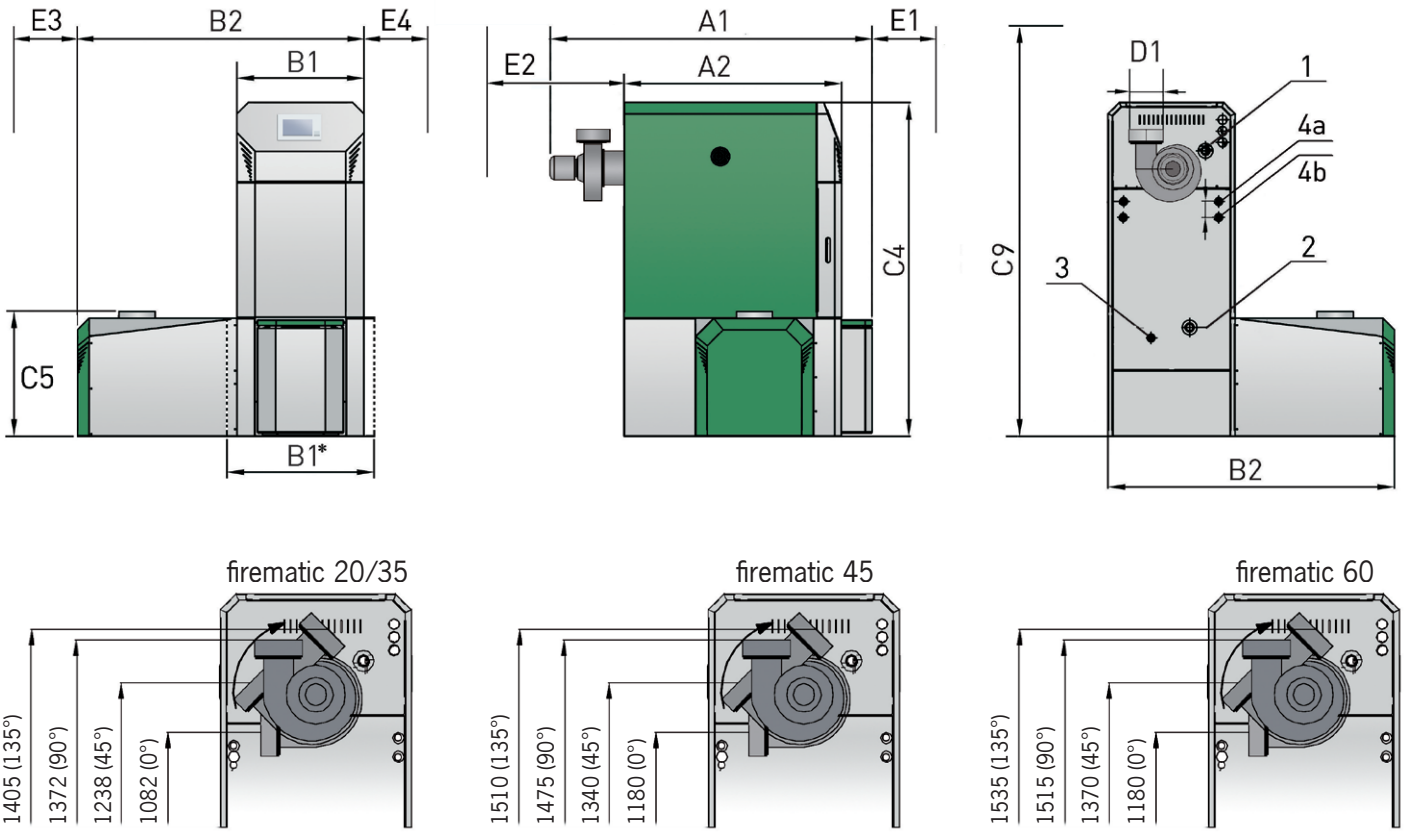
For even more comfort, there is the possibility of fully automatic ash removal into an ash container with a volume of 240 liters

With a flexible screw the combustion and fly ash is transported automatically into an ash container with a capacity of 240 liters.

The larger capacity of the ash container reduces the emptying intervals, that saves time and increases comfort.



Dimensions & technical **datas frematic 20-60**



frematic 20-60

Technical datas		20	35	45	60
Output range WOOD CHIPS (kW)		**6,0-20**	**6,0-35**	**12,1-45**	**12,1 - 60**
Output range WOOD PELLETS (kW)		**-**	**10,2-40**	**13,9-48**	**13,9-70**
Dimensions (mm)					
A1	Length - total	1389	1389	1495	1495
A2	Length - casing	960	960	1070	1070
B1	Width	600	600	710	710
B1*	Bring In wide with removal of components	-	-	-	-
B1*	Bring In wide with the casing (without casing removal)	621	621	731	731
B2	Width – with push-in	1300	1300	1410	1410
C4	Height	1490	1490	1590	1590
C5	Delivery – upper edge	646	646	646	646
C9	Minimum room height	2100	2100	2300	2300
D1	Flue pipe – diameter	150	150	150	180
E1	Minimum space at the front	600	600	700	700
E2	Minimum space at the back	500	500	530	530
E3	Minimum space left	300	300	300	300
E4	Minimum space right	300	300	300	300

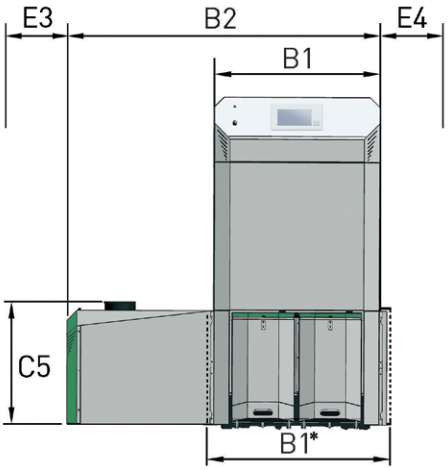
Technical datas					
Boiler weight	kg	517	517	620	620
Combustion efficiency η_F	%	>94	>93	>96	>96
Permissible operating pressure	bar	3,0	3,0	3,0	3,0
Max. permissible operating temperature	°C	95	95	95	95
Water capacity	ltr.	80	80	116	116
Flue gas mass flow rate at nominal load: wood chips (wood pellets)	kg/s	0,014 (-)	0,023 (0,027)	0,026 (0,024)	0,035 (0,036)
Flue gas mass flow rate at part load: wood chips (wood pellets)	kg/s	0,004 (-)	0,004 (0,009)	0,008 (0,009)	0,008 (0,009)

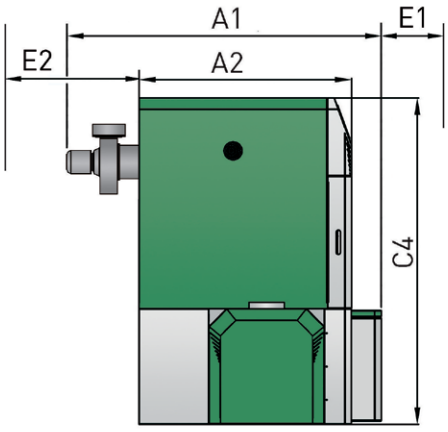
frematic 20-35:
1... Flow, 1" IG 2... Back flow, 1" IG
3... Filling / draining connection, 1/2" IG
4a... Safety heat exchanger input, 1/2" IG
4b... Safety heat exchanger output, 1/2" IG

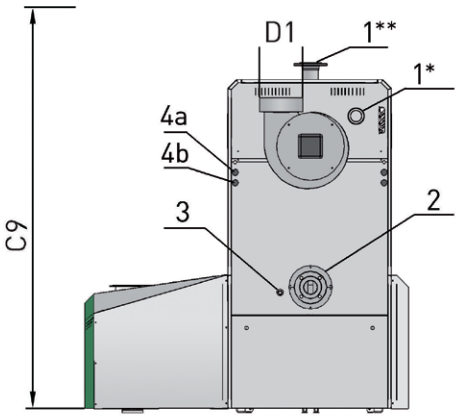
frematic 45-60:
1... Flow, 6/4" IG 2... Back flow, 6/4" IG
3... Filling / draining connection, 1/2" IG
4a... Safety heat exchanger input, 1/2" IG
4b... Safety heat exchanger output, 1/2" IG

IG...Internal thread

Dimensions & technical **datas firematic 80-301**







*firematic 80-201 ** firematic 249-301

firematic 80-151

Technical datas		80	100	101	130	149	151
Output range WOOD CHIPS (kW)		**23,2-80**	**23,2-99**	**23,2-101**	**36,7-130**	**36,7-149**	**36,7-151**
Output range WOOD PELLETS (kW)		**23,2-80**	**23,2-99**	**23,2-101**	**35,9-130**	**35,9-149**	**35,9-151**
Dimensions (mm)							
A1	Length - total	1709	1709	1709	2071	2071	2071
A2	Length - casing	1178	1178	1178	1494	1494	1494
B1	Width	846	846	846	980	980	980
B1*	Bring In wide with removal of components	800	800	800	950	950	950
B1*	Bring In wide with the casing (without casing removal)	907	907	907	1024	1024	1024
B2	Width – with push-in	1636	1636	1636	1888	1888	1888
C4	Height	1690	1690	1690	1818	1818	1818
C5	Delivery – upper edge	646	646	646	765	765	765
C9	Minimum room height	2300	2300	2300	2400	2400	2400
D1	Flue pipe – diameter	180	180	180	200	200	200
E1	Minimum space at the front	800	800	800	750	750	750
E2	Minimum space at the back	450	450	450	600	600	600
E3	Minimum space left	300	300	300	300	300	300
E4	Minimum space right	700	700	700	700	700	700

Technical datas							
Boiler weight	kg	1032	1032	1032	1370	1370	1370
Combustion efficiency η_F	%	>94	>94	>94	>94	>95	>95
Permissible operating pressure	bar	3,0	3,0	3,0	5,0	5,0	5,0
Max. permissible operating temperature	°C	95	95	95	95	95	95
Water capacity	ltr.	179	179	179	254	254	254
Flue gas mass flow rate at nominal load:	kg/s	0,046	0,057	0,057	0,076	0,089	0,089
Wood chips (wood pellets)		(0,046)	(0,059)	(0,059)	(0,079)	(0,087)	(0,087)
Flue gas mass flow rate at part load:	kg/s	0,015	0,015	0,015	0,023	0,023	0,023
Wood chips (wood pellets)		(0,016)	(0,016)	(0,016)	(0,022)	(0,022)	(0,022)

SUITABLE FUELS:

Wood chips M40 (water content max. 40%)

firematic 20-60:
- EN ISO 17225-4: property class A1, A2, B1 and particle size P16S
- EN 14961-4: property class A1, A2, B1 and particle size P16B, P31,5 or P45A
- ÖNORM M7133: G30-G50

firematic 80-301:
- EN ISO 17225-4: property class A1, A2, B1 and particle size P16S, P31S
- EN 14961-4: property class A1, A2, B1 and particle size P16B, P31,5 or P45A
- ÖNORM M7133: G30-G50

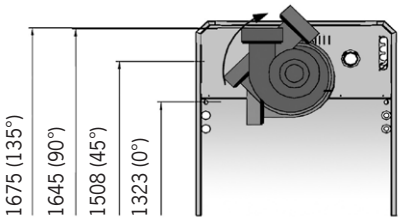
Wood pellets

firematic 20-60:
- EN ISO 17225-2: property class A1
- EN 14961-2: property class A1
- ENplus, ÖNORM M7135, DINplus or Swisspellet

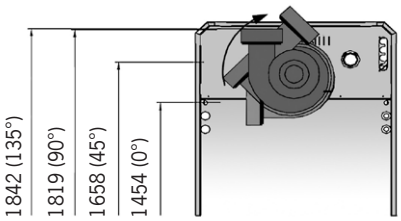
firematic 80-301:
- EN ISO 17225-2: property class A1, A2
- EN 14961-2: property class A1, A2
- ENplus, ÖNORM M7135, DINplus or Swisspellet

Dimensions & technical **data frematic 80-301**

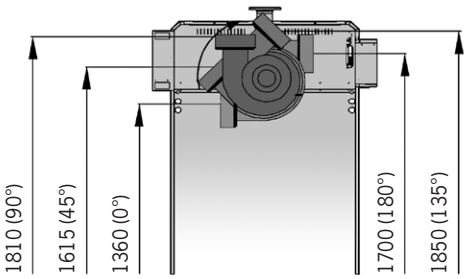
frematic 80-101



frematic 130-201



frematic 249-301



frematic 180-301

	180	199	201	249	251	299	301
	36,7-180 35,9-183	**36,7-199 35,9-199**	**36,7-201 35,9-201**	**69,6-249 76,8-256**	**69,6-251 76,8-256**	**69,6-299 76,8-299**	**69,6-301 76,8-301**
Dimensions (mm)							
A1	2071	2071	2071	2672	2672	2672	2672
A2	1494	1494	1494	1906	1906	1906	1906
B1	980	980	980	1116	1116	1116	1116
B1*	950	950	950	1065	1065	1065	1065
B1*	1024	1024	1024	1230	1230	1230	1230
B2	1888	1888	1888	2096	2096	2096	2096
C4	1818	1818	1818	1911	1911	1911	1911
C5	765	765	765	765	765	765	765
C9	2400	2400	2400	2600	2600	2600	2600
D1	200	200	200	250	250	250	250
E1	750	750	750	750	750	750	750
E2	600	600	600	800	800	800	800
E3	300	300	300	300	300	300	300
E4	700	700	700	700	700	700	700
Technical datas							
kg	1370	1370	1370	2264	2264	2264	2264
%	>94	>93	>93	>94	>94	>93	>93
bar	5,0	5,0	5,0	5,0	5,0	5,0	5,0
°C	95	95	95	95	95	95	95
ltr.	254	254	254	436	436	436	436
kg/s	0,110 (0,105)	0,119 (0,114)	0,119 (0,114)	0,145 (0,165)	0,145 (0,165)	0,177 (0,193)	0,177 (0,193)
kg/s	0,023 (0,022)	0,023 (0,022)	0,023 (0,022)	0,045 (0,05)	0,045 (0,05)	0,045 (0,05)	0,045 (0,05)

frematic 80-101:
1... Flow, 2" IG 2... Back flow, 2" IG
3... Filling / draining connection, 3/4" IG
4a... Safety heat exchanger input, 1/2" IG
4b... Safety heat exchanger output, 1/2" IG

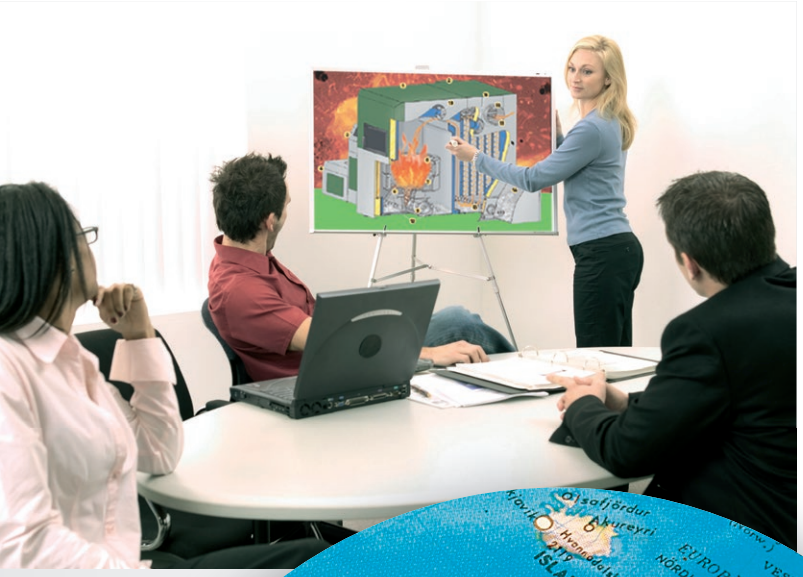
IG...Internal thread

frematic 130-201:
1... Flow, 2" IG 2... Back flow, 2" IG
3... Filling / draining connection, 3/4" IG
4a... Safety heat exchanger input, 1/2" IG
4b... Safety heat exchanger output, 1/2" IG

frematic 249-301:
1... Flow, DN80, PN 6 2... Back flow, DN80, PN 6
3... Filling / draining connection, 3/4" IG
4a... Safety heat exchanger input, 1/2" IG
4b... Safety heat exchanger output, 1/2" IG

IG...Internal thread

HERZ customer-oriented...



- Advice during the planning phase
- Planning of energy centre and fuel storage room
- Planning of discharge systems according to customer requirements and local conditions
- Planning of installation according to customer requirements
- Comprehensive services

- HERZ training:
  - for the plant operators
  - for planners and technical offices
  - for installers and assemblers
  - as well as continuous training of the maintenance staff

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d11-2015

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HERZ biomass boilers underbid the strictest emission regulations.