



## **Competence** is our success ...

### HERZ FACTS:

- 52 subsidiaries
- Group headquarter in Austria
- Research & development in Austria
- Austrian owner
- 3.000 employees in over 100 countries



#### Herz Armaturen GmbH - The company

Founded in 1896, HERZ has been continuously active in the market for more than 120 years. With 8 sites within Austria, another 23 in europe and more than 3,000 employees at home and abroad, HERZ is the only Austrian manufacturer that provuces equipment for the entire heating and installation industrie and is one of the most important internationally.

#### **HERZ Energietechnik GmbH**

HERZ Energietechnik employs 200 people 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. 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 environment-friendly heating systems with the highest level of convenience and user-friendliness.

#### BINDER Energietechnik GmbH - Bärnbach

At the factory site in Bärnbach in western Styria large scaled biomass boilers are produced for industrie applications. At the factory with a total area of approx. 6 ha and 6,200 m<sup>2</sup> production area, about 200 boilers up to 20.000 kW are manufactured every year. A reliable maintenance and and repair service provides the service team in Bärnbach / Austria. This is supported by 13 service and sales offices in 11 countries worldwide.

#### **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...





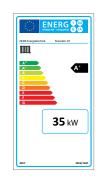






### Decades of experience

- Internal development and test centre
- Austrian quality with a world wide market
- area covered service
- ISO 9001 certification
- FMEA approved boiler production



Energy labelling (firematic 20-60 kW) Biomass boiler A+ Biomass boiller with integrated system controllerA+

# 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
- Consistently high level of efficiency
- Low space requirement
- · 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 in to an easily accessible ash container on the front side.

## Easy, modern and comfortable ...



With the user-friendly VGA color touch-screen controller, the burning-process, as well as heating circuits, a hot water tank, buffer tank and a solar system can be controlled.

### 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 controll
- frost protection monitoring



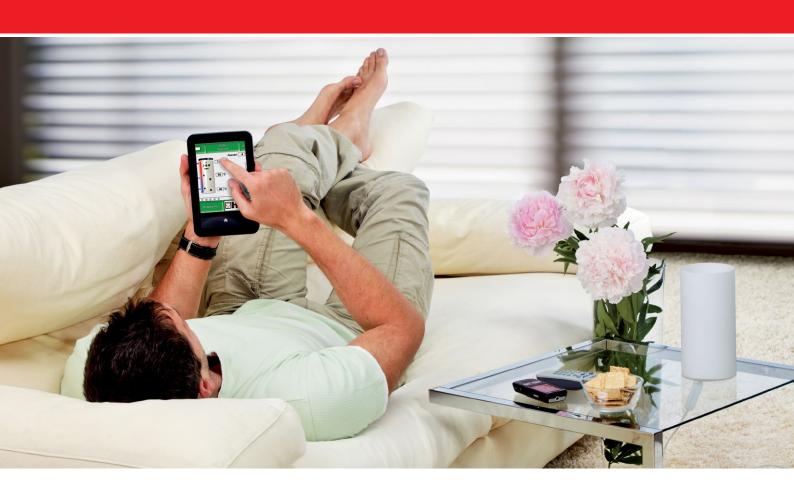
The "modular operation" of the T-CONTROL offers extension possibilities up to 55 modules. This allows the central control unit to process the combustion (with lambda sensor), buffer management, return temperature rise, heating circuits, hot water preparation, solar circuit and more optimal together. Additionally, the control system can be easily expanded or modified with the external modules.

### **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 tank loading pump, circulation pump, mixing valve, switching valve, actuator motors etc.)



## ... central control unit T-CONTROL





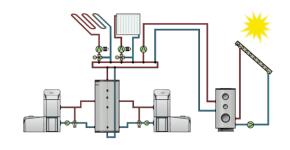
# Remote access to the control via the myHERZ-portal very easy from everywhere

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 any time from anywhere.

Remote access via myherz.at

### Cascade operation

Using the HERZ T-CONTROL, up to 8 HERZ boilers equipped with T-CONTROL can be switched to cascade (CAN BUS). A special advantage of the cascade arrangement is the efficient utilization of the boiler at lower heat consumption (eg in the transitional period).



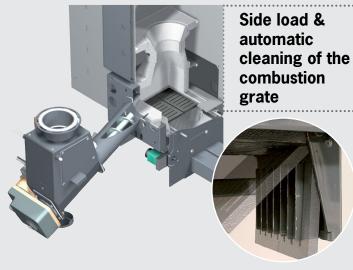
### Benefits and details ...



T-CONTROL - the 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 circuits (pump and mixer valve)
- frost protection monitoring
- Simple screen design and convenient menu guide.
- Extension modules up to 55 modules possible (further heating circuits, solar circuit control, 2. buffers, etc.)

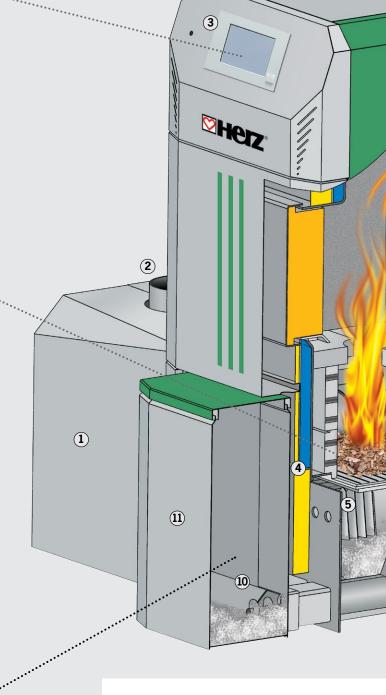


- Side load of wood chips or wood pellets into the combustion chamber.
- Complete cleaning of the grate due to automatical tipping on a cleaning device.
- Due to the clean combustion grate an optimum air supply is guaranteed
- · Minimizes the manual cleaning requirement.



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.

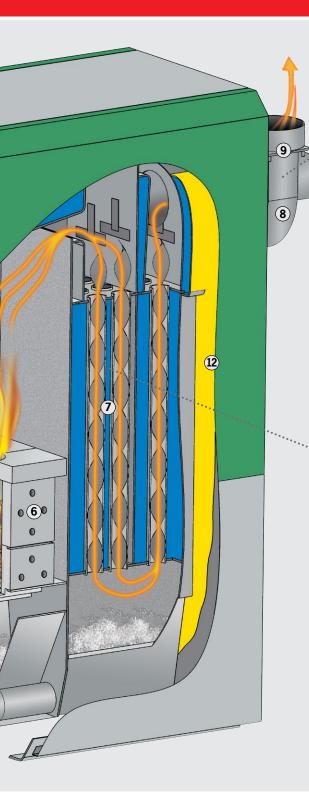


#### L. Intermediate container

with infrared light barrier system (removes the need for mechanical level control)

- BBP(back burn inhibit device)
   BBI (back burn inhibit device; sprinkler system)
- 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 content values, detects fuel quality changes and ensures optimum combustion and low emission values.
- The Lambda probe controls the primary and secondary air supply ensuring complete combustion, even in partial load operation.
- The results are low fuel consumption and the lowest emission values even with different fuel qualities.

Automatic cleaning of the heat exchanger



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

- 4. automatic ignition via hot air fan
- 5. Automatic 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
- ID fan speed controlled and monitored for the highest operating safety
- Ash discharge screwfor combustion and fly ash

- 11. Ash box on the front
- **12. Efficient heat insulation** for the lowest radiation losses

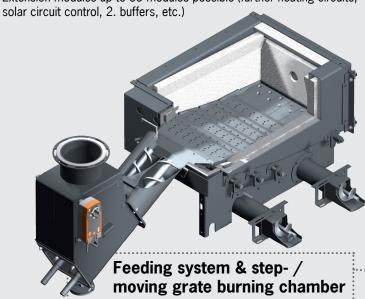
### **Benefits** and **details** ...

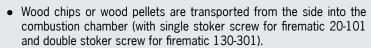


T-CONTROL - the user-friendly control with touch display

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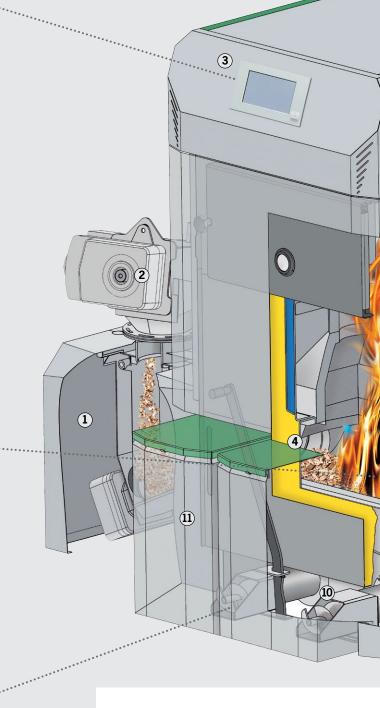


- The movement of the step grate is also a cleaning mechanism of the burning chamber. These grate elements consist of special, highquality cast iron. Through the movement of the step-/moving grid the biomass is transported through the combustion area.
- The cleaning of the combustion chamber from burning ash is carried by an automatically tipping grid. A subjacent mounted ash screw transports the ash directly into the ash container.
- Minimizes the manual cleaning requirement.



# Automatic de-ashing

- Via the two ash discharge screws the combustion and fly ash is automatically augered into the ash bins.
- The removable ash containers with wheels enables simple and convenient emptying of the ash.

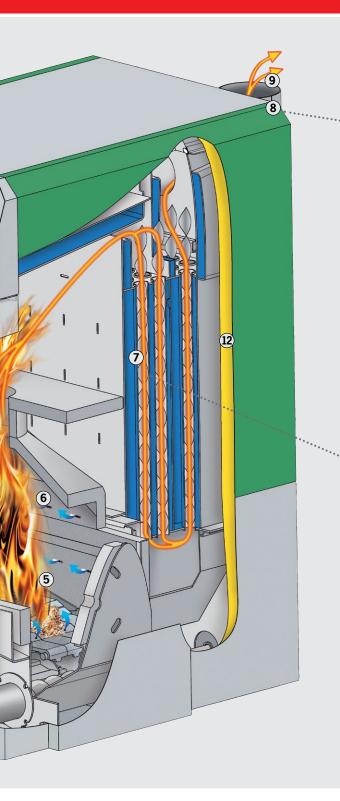


#### 1. Intermediate container

with infrared light barrier system (removes the need for mechanical level control)

- 2. **BBP**(back burn inhibit device) **BBI** (back burn inhibit device; sprinkler system)
- T-CONTROL central control unit

### ...of the HERZ firematic 80-301



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Automatic flue gas and combustion monitoring

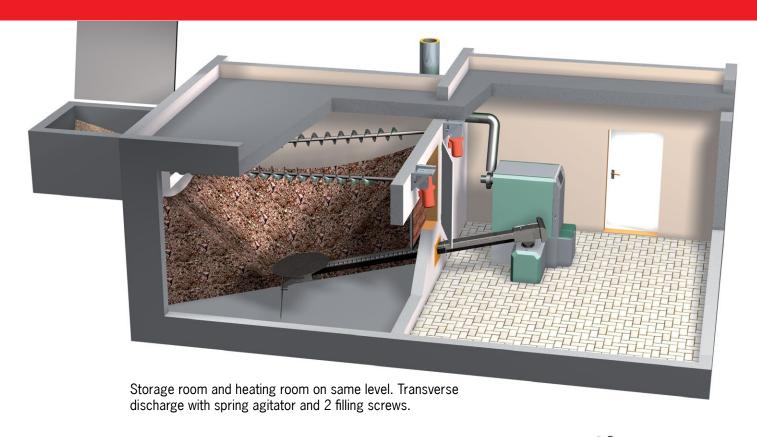
9. ID fan

speed controlled and monitored for the highest operating safety

Ash discharge screwfor combustion and fly ash

- 11. 2 front ash containers
- **12. Efficient heat insulation** for the lowest radiation losses

## Discharge systems ...

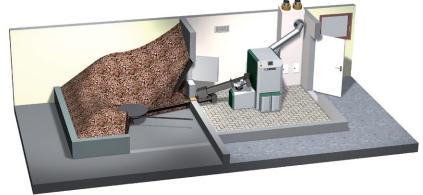


# HERZ spring agitator and drive technology:

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 utilisation.



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

# ... for wood chips & wood pellets

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 lenghts 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 m<sup>3</sup>/h For double systems < 120 m<sup>3</sup>/h



#### SUITABLE FOR:

#### Wood pellets according to

- EN ISO 17225-2: Property class A1, A2
- ENplus, ÖNORM M 7135, DINplus or Swisspellet

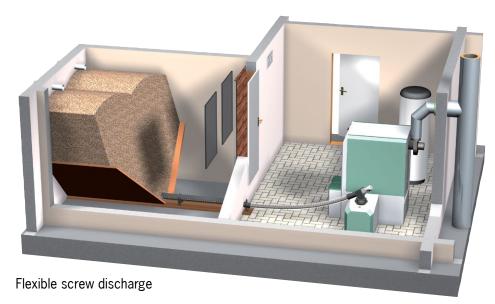
## Wood chips M40 (water content max. 40%) according to

- EN ISO 17225-4: Property class A1,A2, B1 and particle size P16S, P31S
- ÖNORM M7133: G30-G50



## Discharge systems ...

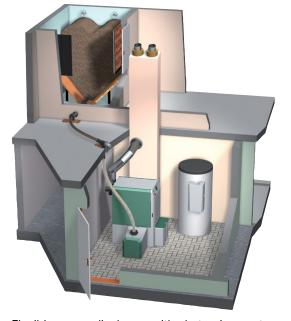
# Discharge systems for wood pellets with flexible screw (up to 201 kW)

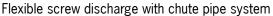


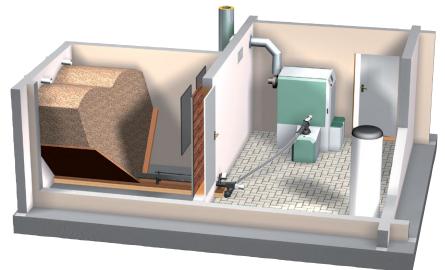
**3 4**0°− 45°

Sliding angle of  $40^{\circ}$  -  $45^{\circ}$  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 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.

## ... for wood pellets

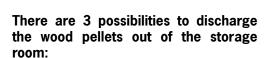




Modular pellet screw in the storage room (with slidings) and suction tank.

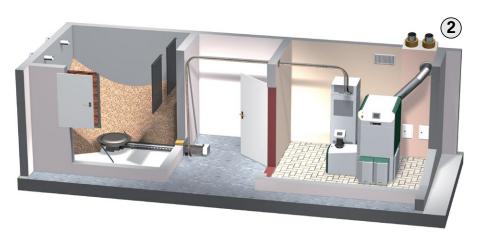
# Pellets extraction via suction system (up to 201 kW)

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.



- 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 space usage (for this case the slidings are not needed).
- 3 4-point suction system
  The position of the 4 suction points is individually selectable.

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)



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



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

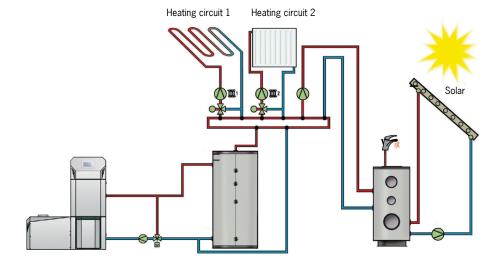
# A range for all requirements

#### The HERZ T-CONTROL:

The control enables a multiplicity of application options, 2 of the most common cases are shown below.

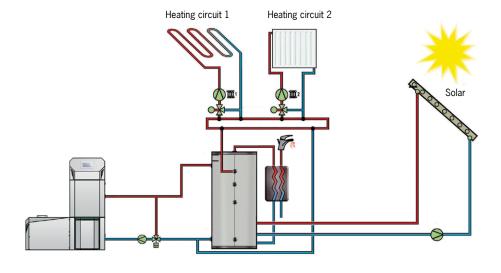
The installation of a buffer tank considerably increases the efficiency of the heating system, especially during periods of part load. A buffer is not absolutely necessary, but recommended for each biomass heating system!

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:

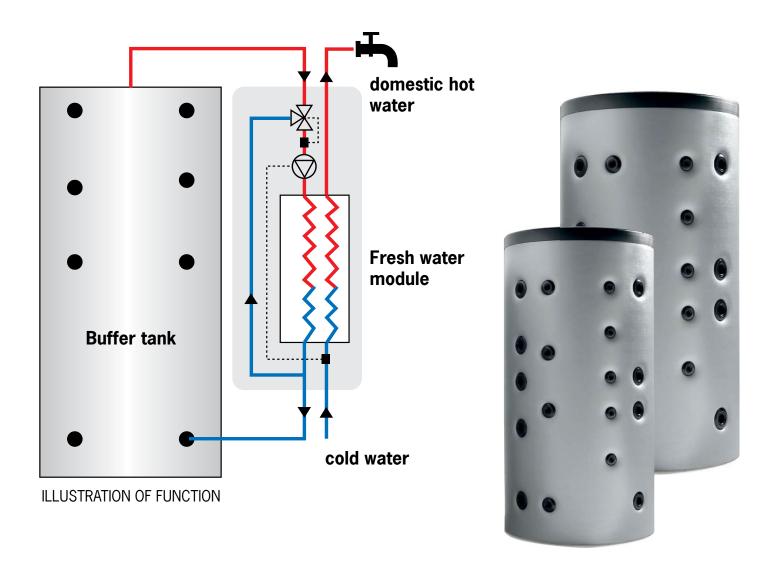
With this system configuration solar energy is utilised to provide the domestic hot water. When the solar input is insufficient to meet the hot water demand, additional heat is taken from the buffer tank. Additional heating circuits such as under floor heating and the radiators are supplied with heat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



#### Fresh 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 fresh 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
- Simple installation
- Very compact (low space required)

# Useful supplementation for your heating system: HERZ buffer tanks

When using a buffer tank the generation of energy takes place over a longer period. As a result the number of boiler starts is reduced and the efficiency of the entire system increases.

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

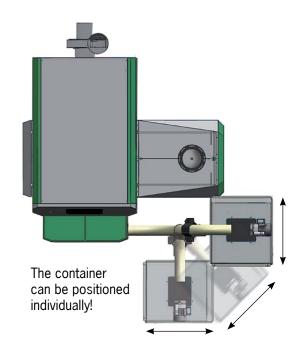
# Ash discharge into an external container - 240 liters



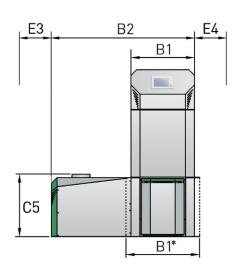
For even more comfort, there is the possibility of fully automatic ash removal into an external, bigger ash container with a volume of 240 liter

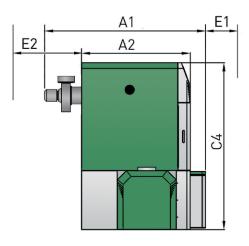
With a flexible screw the combustion and fly ash are transport automatically in an ash container with a capacity of 240 liters.

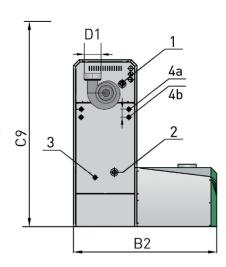
The larger capacity of the ash container reduces the emptying intervals, that saves time and increases comfort.

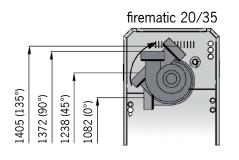


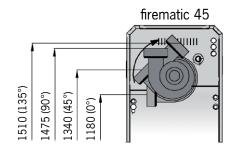
### Dimensions & technical datas firematic 20-60

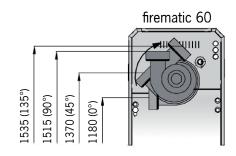












#### firematic 20-60

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 PELLETS (kW)	5,9-20	5,9-35	12,6-45	12,6-60	
Dimensions (mm)					
A1 Length - total		1389	1389	1496	1496
A2 Length - casing		960	960	1070	1070
B1 Width		600	600	710	710
B1* Bring In wide with removal of components		574	574	684	684
B1* Bring In wide with the casing (without casing removal)		620	650	730	730
B2 Width – with push-in		1300	1300	1410	1410
C4 Height		1490	1490	1590	1590
C5 Delivery – upper edge		645	645	645	645
C9 Minimum room height		2100	2100	2300	2300
D1 Flue pipe – diameter		150	150	150	180
E1 Minimum space front		600	600	700	700
E2 Minimum space rear		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 η₅	%	>94	>93	>94	>94
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 (0,012)	0,024 (0,022)	0,028 (0,027)	0,038 (0,035)
Flue gas mass flow rate at part load: wood chips (wood pellets)	kg/s	0,005 (0,005)	0,005 (0,005)	0,009 (0,009)	0,009 (0,009)
Energy labelling					
Biomass boiler		A+	A+	A+	A+
Biomass boiller with integrated system controller		A+	A+	A+	A+

firematic 20-35:

1... Flow, 1" IT 2... Back flow, 2" IT 3... Filling / draining connection, 1/2" IT 4a... Safety heat exchanger input, 1/2" IT

4b... Safety heat exchanger output, 1/2" IT

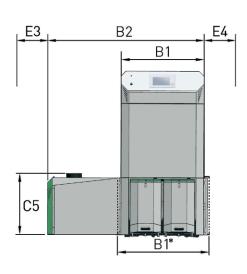
firematic 45-60:

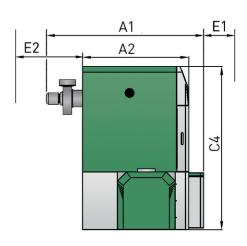
1... Flow, 6/4" IT 2... Back flow 6/4" IT

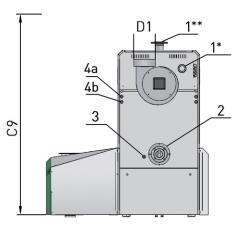
3... Filling / draining connection, 1/2" IT 4a... Safety heat exchanger input, 1/2" IT

4b... Safety heat exchanger output, 1/2" IT

### Dimensions & technical datas firematic 80-301







\*firematic 80-201 \*\* firematic 249-301

#### firematic 80-151

Technical datas	80	100	101	120	130	149	151
Output range WOOD CHIPS (kW)	23,2-80	23,2-99	23,2-101	35,1-120	35,1-130	35,1-149	35,1-151
Output range WOOD PELLETS (kW)	23,2-80	23,2-99	23,2-101	34,8-120	34,8-130	34,8-149	34,8-151
Dimensions (mm)							
A1 Length - total	1709	1709	1709	2083	2083	2083	2083
A2 Length - casing	1178	1178	1178	1504	1504	1504	1504
B1 Width	846	846	846	982	982	982	982
B1* Bring In wide with removal of components	800	800	800	950	950	950	950
B1* Bring In wide with the casing (without casing removal)	907	907	907	1024	1024	1024	1024
B2 Width – with push-in	1636	1636	1636	1908	1908	1908	1908
C4 Height	1690	1690	1690	1825	1825	1825	1825
C5 Delivery – upper edge	645	645	645	771	771	771	771
C9 Minimum room height	2115	2115	2115	2420	2420	2420	2420
D1 Flue pipe – diameter	180	180	180	200	200	200	200
E1 Minimum space front	800	800	800	750	750	750	750
E2 Minimum space rear	750	750	750	750	750	750	750
E3 Minimum space left	300	300	300	300	300	300	300
E4 Minimum space right	700	700	700	700	700	700	700
Technical datas							
Boiler weight	g 1140	1140	1140	1445	1445	1445	1445
Combustion efficiency η₅	% >93	>93	>93	>95	>93	>94	>94
Permissible operating pressure ba	ar 3,0	3,0	3,0	5,0	5,0	5,0	5,0
Max. permissible operating temperature	C 95	95	95	95	95	95	95
Water capacity	r. 179	179	179	295	295	295	295
Flue gas mass flow rate at nominal load: kg/	s 0,048	0,059	0,060	0,071	0,083	0,092	0,092
Wood chips (wood pellets)	(0,046)	(0,059)	(0,059)	(0,069)	(0,077)	(0,087)	(0,088)
Flue gas mass flow rate at part load: kg/	s 0,016	0,016	0,016	0,024	0,037	0,024	0,024
Wood chips (wood pellets)	(0,016)	(0,016)	(0,016)	(0,026)	(0,022)	(0,023)	(0,023)

#### SUITABLE FUELS:



### Wood chips M40 (water content max. 40%) according to

firematic 20-60:

- EN ISO 17225-4: Property class A1, A2, B1 and particle size P16S
- ÖNORM M7133: G30-G50

#### firematic 249-301:

- EN ISO 17225-4: Property class A1,A2, B1 and particle size P16S, P31S
- ÖNORM M7133: G30-G50

#### **Wood pellets**

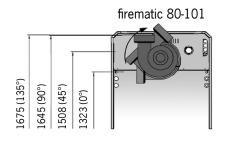
firematic 20-60:

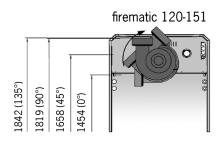
- EN ISO 17225-2: Property class A1
- ENplus, ÖNORM M 7135, DINplus or Swisspellet

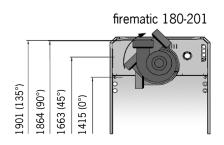
#### firematic 249-301:

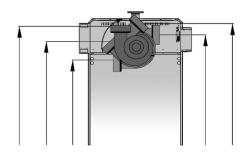
- EN ISO 1,7225-2: Property class A1, A2
- ENplus, ÖNORM M 7135, DINplus or Swisspellet

### Dimensions & technical datas firematic 80-301









#### firematic 180-301

Technical data		180	199	201	249	251	299	301
Output range WOOD CHIPS (kW)		35,1-180	35,1-199	35,1-201	69,6-249	69,6-251	69,6-299	69,6-301
Output range PELLETS (kW)		34,8-180	34,8-199	34,8-201	74,4-249	74,4-251	74,4-299	74,4-301
Dimensions (mm)								
A1 Length - total		2242	2242	2242	2681	2681	2681	2681
A2 Length - casing		1504	1504	1504	1909	1909	1909	1909
B1 Width		982	982	982	118	118	118	118
B1* Bring In wide with removal of components		950	950	950	1065	1065	1065	1065
B1* Bring In wide with the casing (without casing remo	oval)	1024	1024	1024	1230	1230	1230	1230
B2 Width – with push-in		1908	1908	1908	2078	2078	2078	2078
C4 Height		1825	1825	1825	1915	1915	1915	1915
C5 Delivery – upper edge		771	771	771	772	772	772	772
C9 Minimum room height		2420	2420	2420	2600	2600	2600	2600
D1 Flue pipe – diameter		200	200	200	250	250	250	250
E1 Minimum space front		750	750	750	750	750	750	750
E2 Minimum space rear		750	750	750	750	750	750	750
E3 Minimum space left		300	300	300	300	300	300	300
E4 Minimum space right		700	700	700	700	700	700	700
Technical datas								
Boiler weight	kg	1445	1445	1445	2264	2264	2264	2264
Combustion efficiency η <sub>F</sub>	%	>93	>93	>93	>94	>94	>93	>93
Permissible operating pressure	bar	5,0	5,0	5,0	5,0	5,0	5,0	5,0
Max. permissible operating temperature	°C	95	95	95	95	95	95	95
Water capacity	ltr.	295	295	295	436	436	436	436
Flue gas mass flow rate at nominal load:	kg/s	0,114	0,125	0,127	0,151	0,151	0,182	0,183
Wood chips (wood pellets)	_	(0,108)	(0,117)	(0,118)	(0,154)	(0,154)	(0,180)	(0,181)
Flue gas mass flow rate at part load:	kg/s	0,024	0,024	0,024	0,048	0,048	0,048	0,048
Wood chips (wood pellets)		(0.023)	(0,023)	(0,023)	(0,053)	(0,053)	(0,053)	(0,053)

firematic 80-101:

 $1... \ \ \text{Flow, 2" IT} \quad 2... \ \ \text{Back flow 2" IT}$ 

3... Filling / draining connection, 3/4" IT

4a... Safety heat exchanger input, 1/2" IT

4b... Safety heat exchanger output, 1/2" IG

firematic 130-201:

 $1... \ \ \text{Flow, 2" IT} \quad 2... \ \ \text{Back flow 2" IT}$ 

3... Filling / draining connection, 3/4" IT

4a... Safety heat exchanger input, 1/2" IT

4b... Safety heat exchanger output, 1/2" IG

firematic 249-301:

 $1...~{\sf Flow,\,DN80,\,PN\,6} \quad 2...~{\sf Back\,flow,\,DN80,\,PN\,6}$ 

3... Filling / draining connection, 3/4" IT

4a... Safety heat exchanger input, 1/2" IT

4b... Safety heat exchanger output, 1/2" IG

IT... internal thread

IT... internal thread

- · Advicing in planning phase
- Planning of discharge system according to customer requirements and local conditions
- area covered service
- HERZ training:
  - for operators
  - for planners, technical departments
  - for plumbers
  - as well as continuous training of the maintenance staff



technical modifications! Data about our products are not guaranteed characteristics. nd only available as an option. In case of discrepancies between documents with regard images are representations as a symbol and serve only to illustrate our products.

Your partner:



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HERZ biomass boilers underbid the strictest emission regulations.









