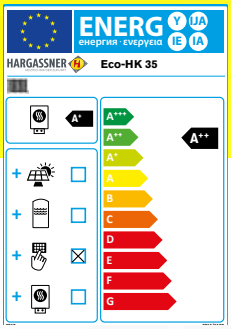
WOOD CHIP BOILER

6 – 330 KW

HARGASSNER

HEATING TECHNOLOGY FOR BIOMASS



PLUS X AWARD®

2017 ausgezeichnet für:

High Quality

Design

Funktionalität

www.hargassner.com

Our vision is for a harmony between satisfied customers and the environment

- ✔ More than 30 years of experience
- ✔ We export to 25 countries worldwide
- ✔ Company premises: more than 3 hectares
- ✔ More than 80,000 satisfied customers
- ✔ International success

CONTENTS

Anton and Elisabeth Hargassner and their sons, Anton & Markus

Recommended by our customers

In order to lower emission values in oil or gas reliant countries, Hargassner is endeavouring to make high-performance biomass heating technology available to everyone.

The company currently exports to more than 25 countries. The most important markets are Germany, France, Switzerland, Spain, Italy, Belgium, the Netherlands and the UK.

However, Scandinavia, Ukraine, Czech Republic, Bulgaria, Greece, Slovenia, Hungary, Japan, New Zealand and North America are growing markets, which are trying to reduce their CO_2 emissions as well.

At this time, exports account for 70% of our annual turnover. Numerous awards confirm that our philosophy is more than just lip-service.

Hotel Schiff, 55 kW Wood Chip Boiler, **Switzerland**

Carpentry Salland, 100 kW Wood Chip Boiler, **Netherlands**

University of Otago, 100 kW Wood Chip Boiler, **New Zealand**

ECO HK
6 – 330 KW

20-60 KW

Especially suitable for:
- ✔ Residential complexes
- ✔ Agriculture

70-120 KW

Especially suitable for:
- ✔ Hotels / Gastronomy
- ✔ Public buildings

What is the benefit of heating with wood chips?

For the production of wood chips, residual wood from domestic forests and wood from the sawmill industry is used. This wood waste material should ideally be stored for one year in breezy and sunny conditions. In autumn, the wood can be chipped and stored.

Farmers and forest owners use wood chips for their own heat production, or supply wood to local companies or public buildings.

Advantages for industrial companies and public facilities:

- ✔ Cost-efficient fuel with maximum comfort
- ✔ Increased energy security
- ✔ Independent from oil or gas
- ✔ Delivery through regional partners
- ✔ Value creation within the local economy
- ✔ Effective and energy-efficient heating system

Therefore wood chips are the most inexpensive fuel for heating systems compared to fossil fuels like electricity or heat pumps.

Advantages for farmers and forest owners:

- ✔ Use of residual wood
- ✔ Additional income through selling wood chips
- ✔ Minimal workload through automatic chip production
- ✔ Maximum workload reduction through a fully automatic heating system
- ✔ Effective and energy-efficient heating system

Annual cost savings*

E.g.: 100 kW boiler, wood chip compared to oil or gas

Basis: Wood chip = 22 Euro / srm,
Oil = 0.91 Euro / l, Gas = 72 Euro / MWh

*Stand 09/2014

Wood chip : oil / gas
Cost savings*:
approx € 12,980 compared to oil
approx € 7,760 compared to gas

Wood Chip Characteristics (ÖNORM M 7133)		EN 14961
Heating value	4 kWh / kg at 25% W	
Weight	200-250 kg / m³	
Size	G30 / G50	P16A-P45A
Water content	15 - 35%	M 15 - M 35
Primary energy efforts	< 2.0%	

HARGASSNER
HEATING TECHNOLOGY FOR BIOMASS

150-200 KW

Especially suitable for:
- ✔ Public buildings
- ✔ Industry and commerce

PLUS X AWARD®
2017 ausgezeichnet für:
High Quality
Design
Funktionalität

250-330 KW

Especially suitable for:
- ✔ Industry and commerce

Other fuels:

Wood Pellets

Pellets are made through compression of wood shavings in their natural state. Tonnes of wood waste materials are produced every day in regular wood-processing industries all over Europe.

Obvious advantages for pellets:

- ✔ Crisis-resistant
- ✔ Easy refuelling through blown pellet delivery
- ✔ Dust-free, odourless refilling
- ✔ Small storage volume
- ✔ Effective and energy-efficient heating system

Wood Pellets

Pellets Characteristics

Heating value	5 kWh / kg
Weight	650 kg / m³
Diameter/length	6 mm / approx 5-40 mm
Water content	w < 10%
Primary energy efforts	2-2.7%

Miscanthus

For sustainable energy supply in the future, research is being undertaken into the combustion of new agricultural crops, such as miscanthus.

Advantages of Miscanthus:

- ✔ Enormous agricultural yields
- ✔ Little cultivation
- ✔ Can be used for more than 20 years
- ✔ No fertilisers needed
- ✔ Perfect cost-benefit ratio

Miscanthus pellets and briquettes

CO_2 NEUTRAL

The advantages that make the ECO HK unique

Energy-saving ECO-Operation

Speed controlled EC-exhaust fan with negative pressure monitoring

Hargassner use energy-efficient **EC-Exhaust fans** for the **Eco-HK**. The main advantage of this **GreenTech EC-technology** is the significantly higher efficiency rate of up to 90%. This **saves electrical energy**. The negative pressure box consistently monitors perfect pressure conditions in the combustion chamber.
Based on these data parameters, the Touchtronic controls the speed of the exhaust fan and holds the negative pressure at an optimum value. This concept guarantees a perfect combustion with lowest emissions and highest efficiency.

Energy-saving Eco-RA

Due to the very low driving power of **just 0.18 kW** and the highly efficient and robust spur gear, the agitator is very energy-efficient and reduces customers' bills. **Savings of up to 67%** may be reached compared to conventional agitator systems. Because of the impressive gear box **efficiency of over 90%**, the traditional worm gear drive has quickly been replaced..

Energy-saving Ignition

Due to the new design of the ignition element, **the electrical power consumption has been reduced to just 300W**, (a reduction of up to 1000 W) and at the same time the efficiency of the ignition process has been increased.

- ✔ **Intelligent ignition monitoring**
- ✔ **Completely silent**
- ✔ **Electrical energy savings of over 88% %**

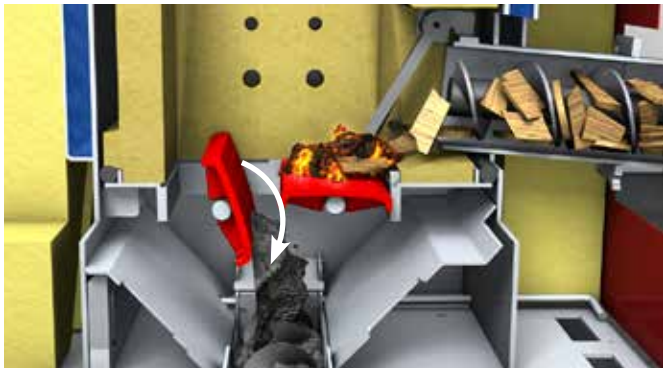
Unique double rotary grate

PATENTED

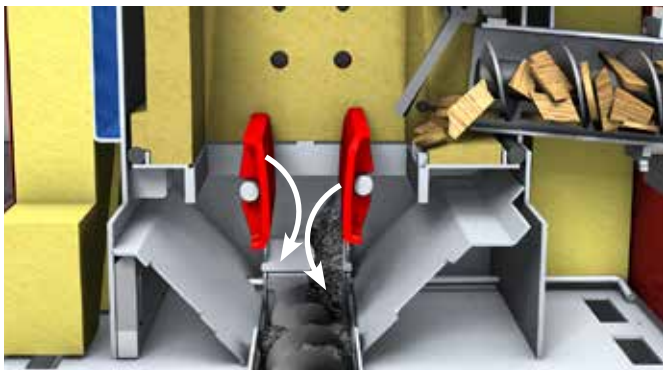
Comfortable operation with different fuels

The grate consists of two consecutive and stepped grates which can move independently.
As a result, wood chips and pellets, as well as other agricultural fuels, can be burned efficiently..

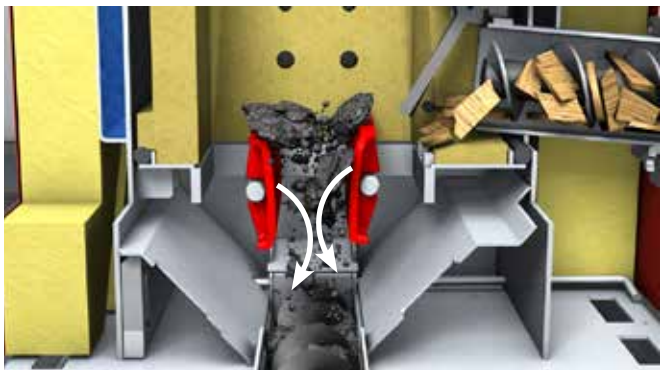
During combustion the **grates are moved accurately** to ensure a homogeneous firebed



If regular wood chips are used, only the **rear de-ash grate** opens. The ash falls down and the embers remain.



If the boiler is completely cold a full cleaning process is executed prior to start. **Both grates open**, the cold ash and all foreign objects like stones, nails, etc, fall down.



For **miscanthus** etc, the **"Breaker Function"** of the grate forces clinker down into the ash auger.

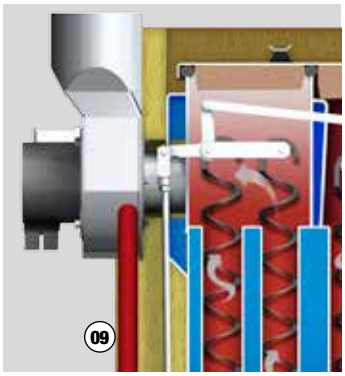
Hargassner boiler design

Latest combustion technology ECO-Control

Lambda sensor with fuel quality detection
It doesn't matter which fuel type is stored - wood chips soft, hard, dry or damp - the control unit uses the lambda sensor to detect the relevant calorific value and regulates the optimum fuel air mixture. This is how convenient controls work today - constant manual adjustment of the system to the fuel is a thing of the past.

Combustion Ergonomics
The design of the combustion chamber has been scientifically investigated through CFD - simulation (Computational Fluid Dynamics) and as a result is perfectly adapted.

Firebed monitoring
Through the exact and contact-free firebed-height monitoring system with sensors, the most effective combustion conditions (dependent on fuel quality) is detected. Your heating system is always working with the required heat output at optimum combustion values.



Recirculation included as standard

To reduce clinker creation in the ash, Hargassner offers a flue gas recirculation, especially for agricultural fuels. Due to the cooling of the firebed during combustion, the relatively low ash melting point of miscanthus or corn cobs can be undercut. The ash can easily be removed into the ash extraction auger.

Fully refractory-lined high performance combustion chamber with flame concentration jets for optimum post-combustion

The refractory combustion chamber guarantees high combustion temperatures through optimum heat storage (also at part-load), which minimises the ignition procedure and reduces emissions.

Perfect cleaning - increased efficiency

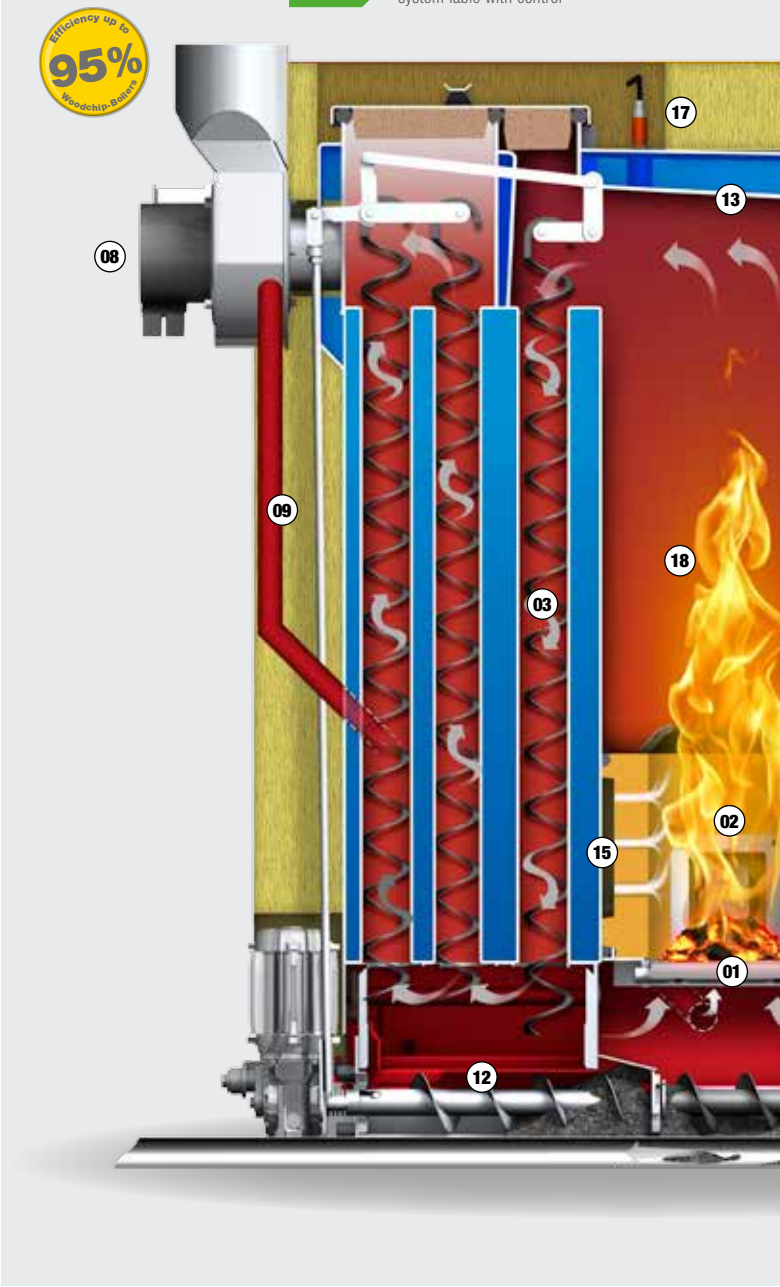
The newly designed cleaning approach cleans ALL heat exchanger tubes at regular intervals - **NEW - the first pass (3) is also cleaned (Stainless steel turbulators).** The turbulators remove the fly ash from the pipes, which directly falls down into the ash extraction auger. The result is higher cleaning comfort and increased overall efficiency.

Fully automatic ash extraction

Hargassner heating technology now brings you even more convenience: The latest de-ash system cleans the boiler at regular intervals. The ash extraction auger transports the fly ash, as well as the grate ash, into the completely integrated ash box. During transportation, the ash is crushed and compressed in the ash box.

Energieeffizienzklasse

A++ zB. Eco-HK 35 – system lable with control

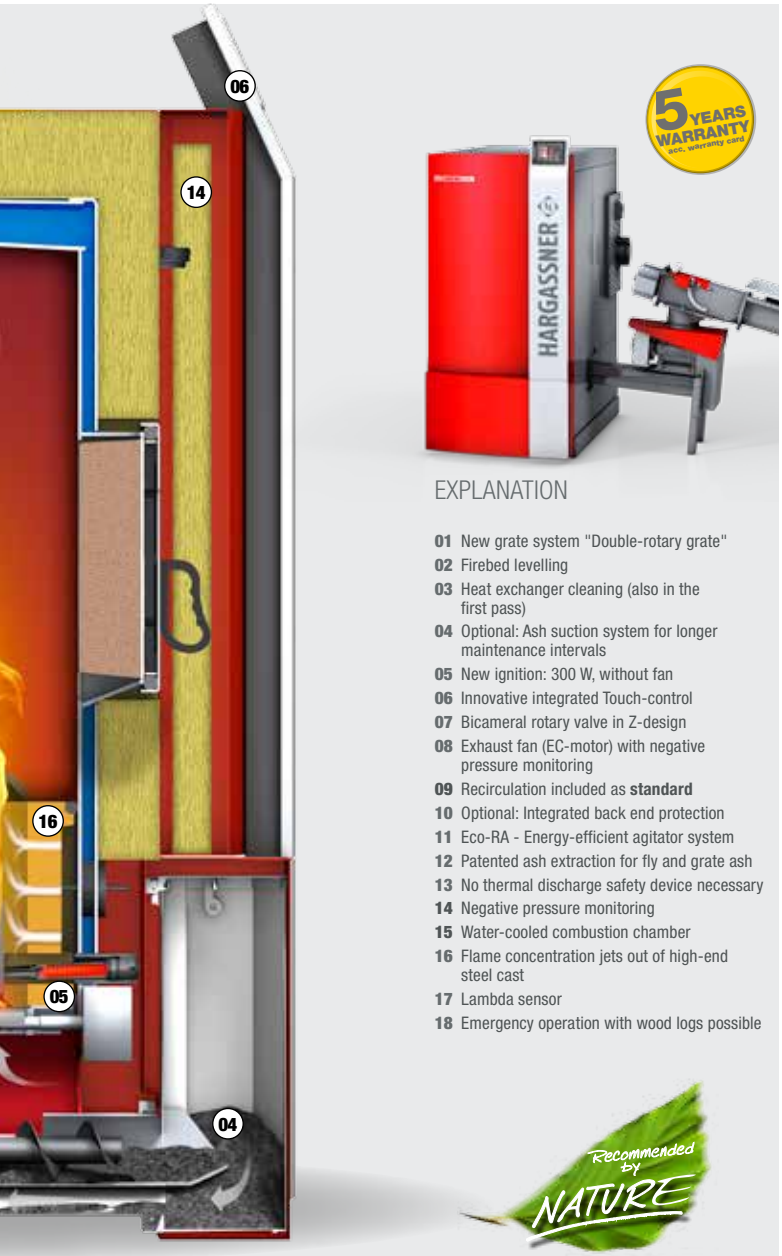


Integrated back end protection

An integrated back end protection with energy-efficient pump and motor mixer is available.

- quick and easy assembly
- compact and inexpensive

Eco-HK 20 - 60 kW



EXPLANATION

01 New grate system "Double-rotary grate"
02 Firebed levelling
03 Heat exchanger cleaning (also in the first pass)
04 Optional: Ash suction system for longer maintenance intervals
05 New ignition: 300 W, without fan
06 Innovative integrated Touch-control
07 Bicameral rotary valve in Z-design
08 Exhaust fan (EC-motor) with negative pressure monitoring
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11 Eco-RA - Energy-efficient agitator system
12 Patented ash extraction for fly and grate ash
13 No thermal discharge safety device necessary
14 Negative pressure monitoring
15 Water-cooled combustion chamber
16 Flame concentration jets out of high-end steel cast
17 Lambda sensor
18 Emergency operation with wood logs possible

Recommended by NATURE

Wood chip boiler with ECO-RA

The ECO RA transports the fuel energy-efficiently into the stoker auger.

Z-shaped bicameral rotary valve

The Z-shaped rotary valve is designed specifically for wood chip

- **Depth of chamber: 18 cm**
- **for extra long wood pieces**
- **100% burn-back safety**
- **smooth operation**
- **easy to use**
- **with hardened cutting edges**

Integrated Touch Control

The all new Lambda Touchtronic leaves nothing to be desired. The control system is characterised through its exceptional design and simple handling. Navigation is very sophisticated. You visually recognise immediately the current status of the boiler, the accumulator and the HWS as well as all heating circuits. **New optimised accumulator control with 3 sensors.** New remote controls with LCD or Touch displays make it even easier to use.

The all new ash suction system results in annual maintenance intervals

Optionally, a 300 litre ash bin is available. The suction system transports the ash through a steel pipe system from the boiler room into the ash bin, which is located in a roofed outdoor area. With a tractor or front loader, the ash bin may be emptied once a year. Hargassner provides best ease of use - with superior and smart cleaning technology.

Type	Fuel-dependent heat output in kW
Eco-HK 20	**6-20**
Eco-HK 30	**9-32**
Eco-HK 35	**10-35**
Eco-HK 40	**12-40**
Eco-HK 50	**14-49**
Eco-HK 60	**18-60**

Weight	490 kg (560 kg)
Voltage	400 V
Dimensions HxWxD [mm]	1455 x 660 x 940 (1455 x 745 x 1025)
Numbers ( ) for 40-60 kW	

Excerpt from certified test reports				
Eco-HK 60				
Output kW	Efficiency %	CO_2 %	CO mg/MJ	Dust mg/MJ
62	**95.8**	**14.8**	**3**	**7**
12	**95.0**	**11**	**48**	**11**

Hargassner boiler design

Latest combustion technology
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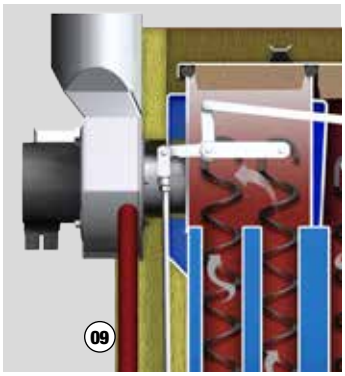

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Integrated back end protection

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- quick and easy assembly
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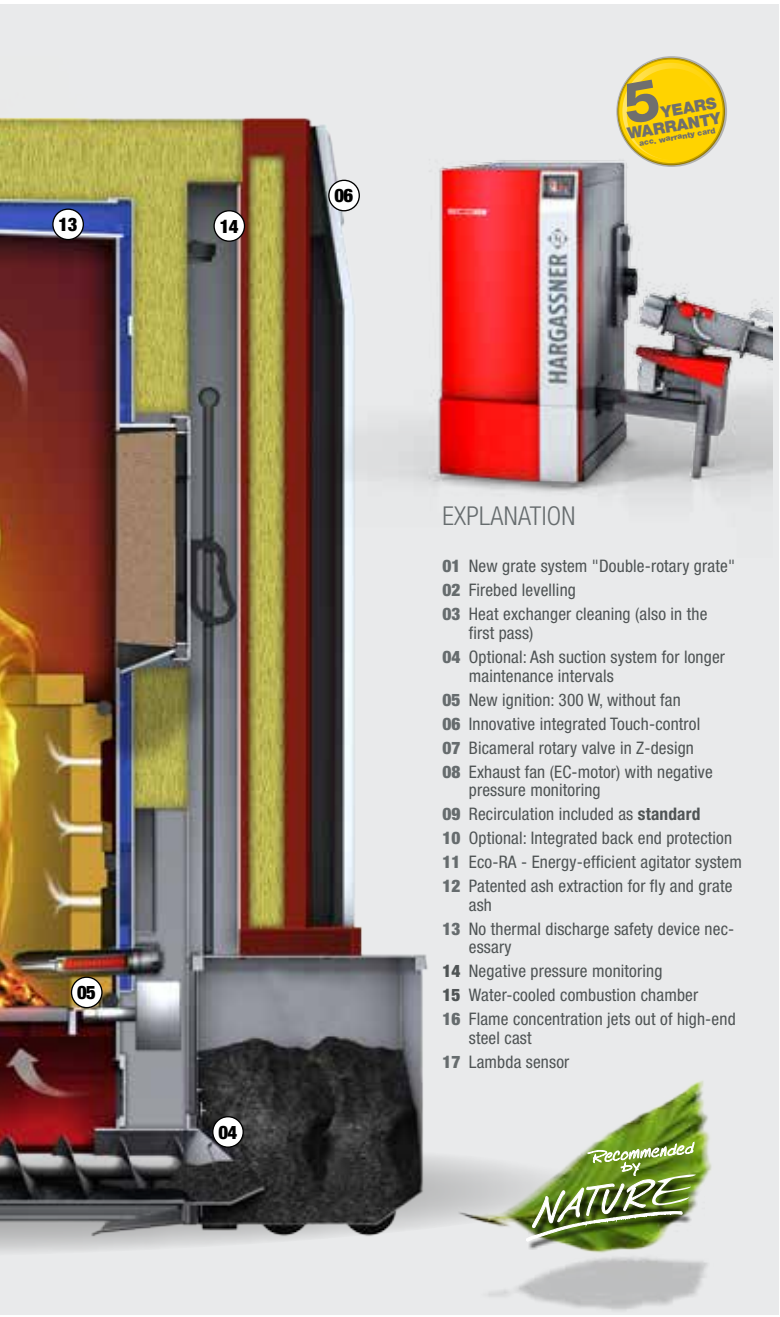
Eco-HK 70 - 120 kW



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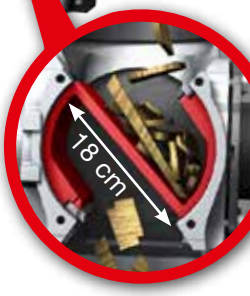

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Type	Fuel-dependent heat output in kW
Eco-HK 70	**21-70**
Eco-HK 90	**27-90**
Eco-HK 100	**30-99**
Eco-HK 110	**33-110**
Eco-HK 120	**36-120**

Weight	865 kg (890 kg)
Voltage	400 V
Dimensions HxWxD [mm]	1610 x 745 x 1235
Numbers ( ) for 40-60 kW	

Excerpt from certified test reports				
Eco-HK 120				
Output kW	Efficiency %	CO_2 %	CO mg/MJ	Dust mg/MJ
112.8	**94.8**	**16.0**	**3**	**8**
32.6	**96.2**	**14.3**	**43**	**6**

LARGE-SCALE HEATING OUTPUT

ECO HK
150-200 kW

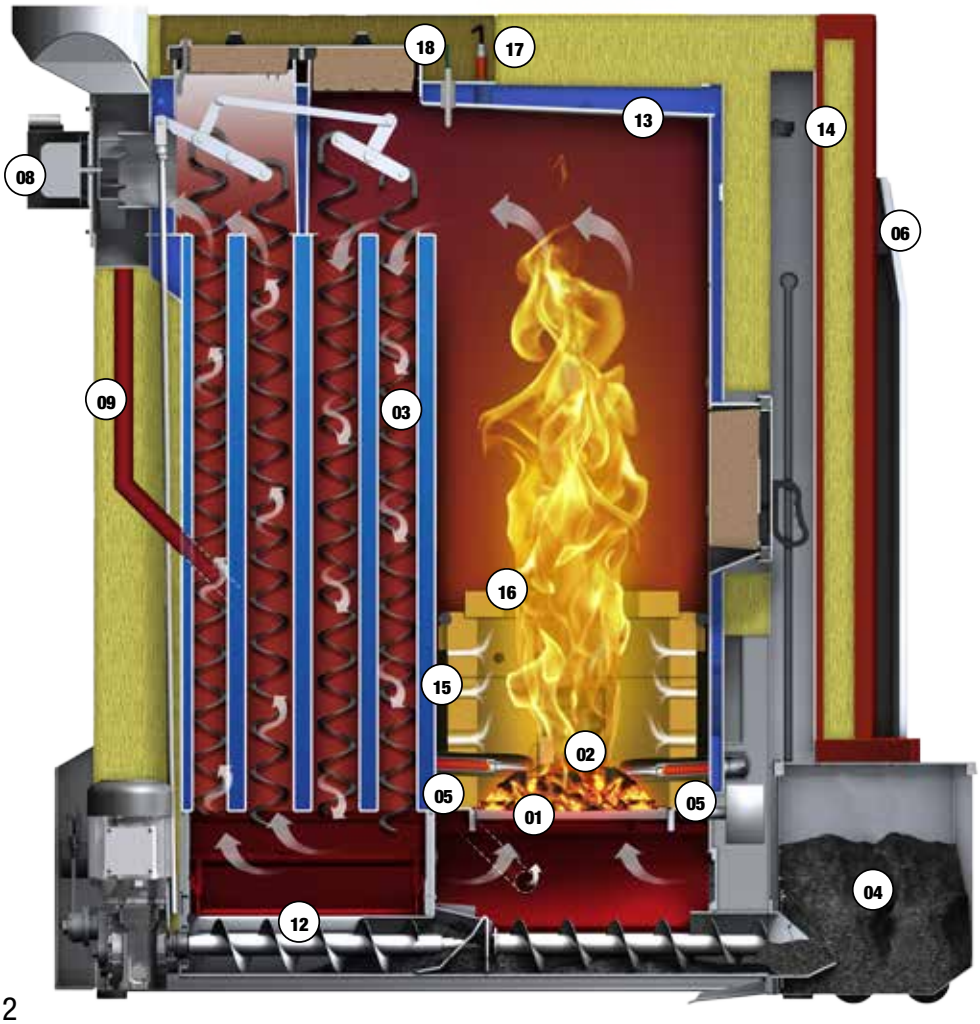
Hargassner – latest Wood chip heating technology for large-scale applications. Especially designed for public buildings, industry, commercial enterprises and district heating.

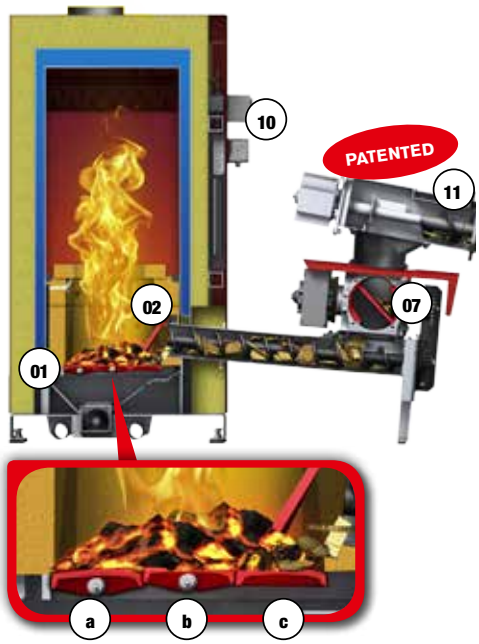
Efficiency up to 95% Woodchip-Boilers

5 YEARS WARRANTY etc. warranty card

PLUS X AWARD 2017 ausgezeichnet für: High Quality Design Funktionalität

- ✔ Cost-effective **due to Eco-Mode**
- ✔ New grate system: **Double rotary grate**
- ✔ New Eco-extraction, **energy saving** through 0.37 / 0.55 kW-Motor
- ✔ Latest combustion technology Eco-Control **for minimal dust emissions**
- ✔ Firebed level control with Lambda sensor and automatic fuel quality detection
- ✔ Bicameral **rotary valve in Z-form** for 100% burn back-protection
- ✔ Patented ash extraction system for fly- & grate ash
- ✔ Flame temperature control & one secondary air set motor





01 New double rotary grate
a) De-ash grate
b) Stoker grate
c) Fixed grate
02 Firebed levelling
03 Heat exchanger cleaning (also in 1. draught)
04 Large ash box (75 l)
05 New ignition: 2 x 300 W, without fan
06 Innovative integrated Touch-control
07 Bicameral-rotary valve in Z-shape (22cm)
08 Exhaust fan (EC-motor) with negative pressure monitoring
09 Flue gas recirculation - **standard**
10 Optional: Integrated back end protection
11 Eco-RA – Energy-efficient agitator system
12 Patented ash extraction for fly- and grate ash
13 No thermal discharge safety device necessary
14 Negative pressure monitoring
15 Fully refractory-lined combustion chamber
16 Flame concentration jets out of high-end refractory
17 Lambda sensor
18 Flame temperature monitoring

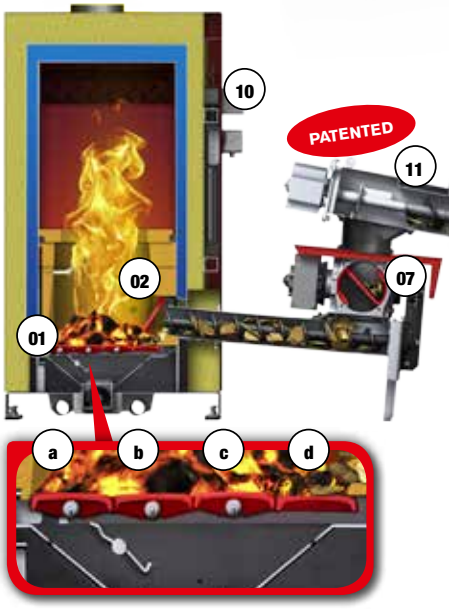
Eco-HK 150 - 330

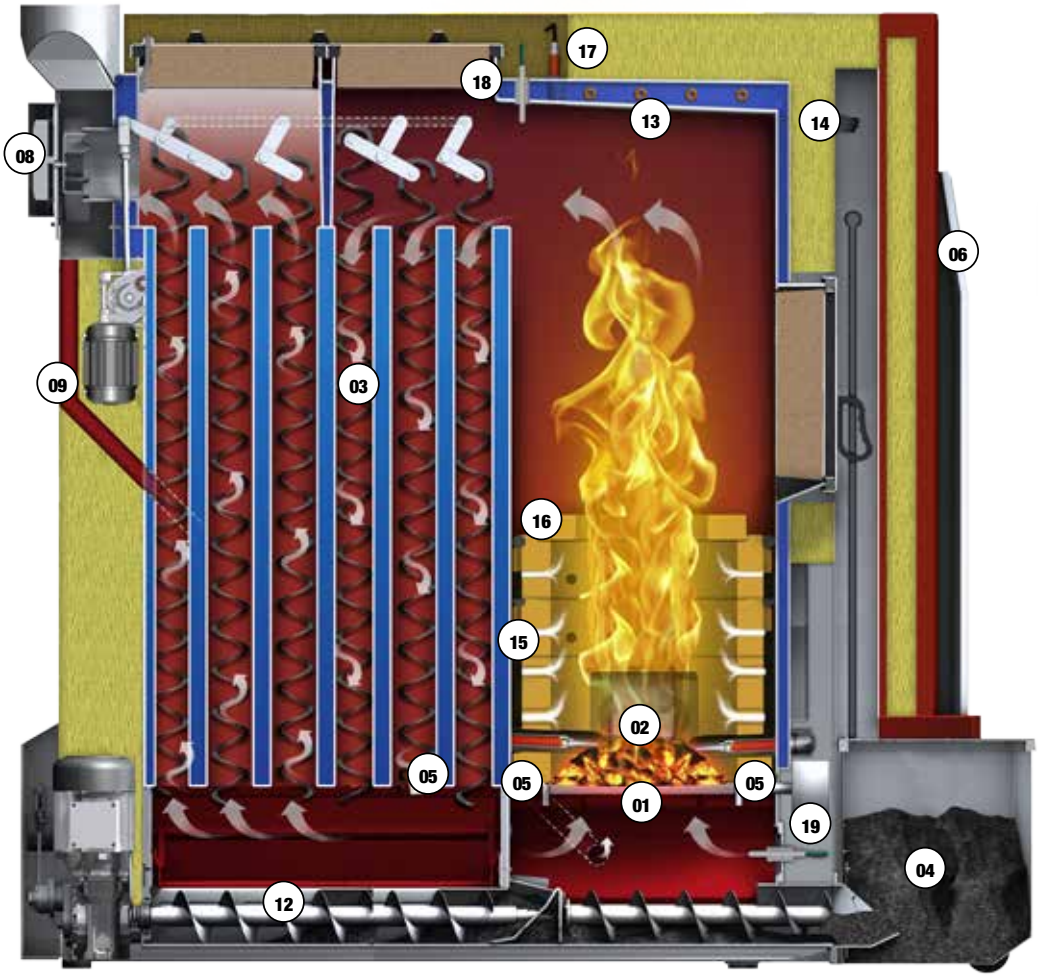
ECO HK
250-330 kW

Hargassner – latest Wood chip heating technology for large-scale applications. Especially designed for public buildings, industry, commercial enterprises and district heating.

- ✔ **Cost-effective** due to Eco-Mode
- ✔ New four-part **rotary-step-grate**
- ✔ New Eco-extraction, **energy-saving through** 0.55 kW-Motor
- ✔ Latest combustion technology Eco-Control **for minimal dust emissions**
- ✔ Firebed level control with Lambda sensor and automatic fuel quality detection
- ✔ Bicameral **rotary valve in Z-shape**
- ✔ Constant heat output - no shutdown for de-ash
- ✔ Patented ash extraction system for fly- & grate ash
- ✔ Flame- and grate temperature monitoring & one secondary air set motor

NEW: with cascade control up to 6 boilers and 2 MW





01 New rotary grate system
a) De-ash grate, b) Breaker grate
c) Stoker grate, d) Fixed grate
02 Firebed levelling
03 Heat exchanger cleaning (also in 1. draught)
04 Large ash box (75 l); Optionally ash extraction in 300 litre ash bin
05 New ignition: 2 x 300 W, without fan
06 Innovative integrated Touch-control
07 Bicameral-rotary valve in Z-shape (22cm)
08 Exhaust fan (EC-motor) with negative pressure monitoring
09 Flue gas recirculation - **standard**
10 Optional: Integrated back end protection
11 Eco-RA – Energy-efficient agitator system
12 Patented ash extraction for fly- and grate ash
13 Heat exchanger for thermal safety discharge device
14 Negative pressure monitoring
15 Fully refractory-lined combustion chamber
16 Flame concentration jets out of high-end refractory
17 Lambda sensor
18 Flame temperature monitoring
19 Grate temperature monitoring

Hargassner Control Unit

Lambda Sensor with automatic fuel quality detection

Sit back and relax – your heating system is doing the work for you

The Lambda-Touchtronic has a userfriendly touch screen. The system controls the complete combustion process, the back end protection and the loading of the accumulator. Furthermore, all heating circuits and hot water circuits may be regulated. The control works according to external conditions, recognising the changes in conditions as soon as they occur and adjusting the boiler output accordingly. Maximum comfort guaranteed!

Boiler prior commissioning: The display of the Lambda Touchtronic shows an unheated wood log boiler. The accumulator and the hot water tank are cold.

Boiler full load: The display shows a boiler in operation. The accumulator and the hot water tank are being loaded and are already increasing temperature. The heating circuit pumps are on.

Boiler partial load: The boiler runs on half of its nominal heating output. The accumulator and hot water tank are completely loaded. The heating circuit pumps are on.

Hot water storage

It is only necessary to set the desired hot water tank temperature and charging time. Your control unit will take care of the remaining steps automatically.

- ✔ The minimum temperature control for the hot water system is a useful feature. The Lambda Touchtronic reacts immediately when the temperature of the hot water drops below the minimum temperature outside the programmed heating time. Advantage for you: hot water 24 hours a day.
- ✔ The hot water system is heated according to prioritsation rules: traditionally, there is only one type of hot water system regulation: the domestic hot water system is cold, the heating circuit is switched off. On the contrary Hargassner will never leave you out in the cold. If the water is cold, the heating is only reduced temporarily and the heating elements remain warm; there is no reduction in room temperature.

Control of the heating circuits

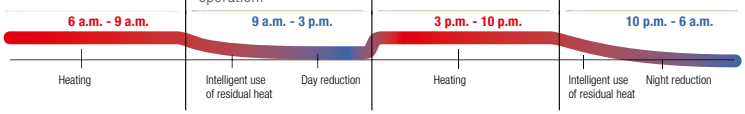
- ✔ The Lambda-Touchtronic may control several independent heating circuits. The client is able to define different settings in detail; e.g. indoor room temperature on all heating circuits, depending on time of day and outside temperature.
- ✔ **Hargassner's 3G day/night reduction** mode enables the client to set 3 thresholds. One mode for 'Heating during the day', one for 'Reduction during the day' and one for 'Reduction during the night'. As a result, the heating system only operates if necessary. This saves energy without sacrificing comfort.
- ✔ Through the ingenious residual heat use programme, the remaining energy in the boiler is used efficiently after the shutdown of the boiler.

Heating Time 1: 6 a.m. - 9 a.m.
Outside it is -7°C, so considerably less than the threshold value of +16°C - the heating switches on.

Day-reduced temperature: 9 a.m. - 3 p.m.
Outside temperature increases to -1°C considerably less than the day time reduced temperature threshold of +8°C. Heating day-reduced temperature operation.

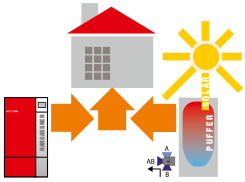
Heating Time 2: 3 p.m. - 10 p.m.
The outside temperature climbs to +1°C; so considerably less than the threshold value of +16°C. The heating remains switched on.

Night-reduced temperature: 10 p.m. - 6 a.m.
The temperature cools to -2°C, so above the threshold value for the night-reduced temperature of -5°C. The heating switches off.



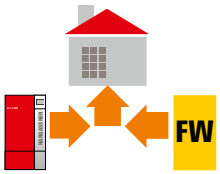
Ease of operation through Touchtronic

ACCESSORIES



Accumulator Control Option (PSP)

During start up, the control sends the heat through a fast loading valve directly to the heating demand areas. As soon as the boiler starts storing the energy into the accumulator tank, the operation mode changes to partial load. As a result, the combustion time is extended and the heating comfort is increased. Solar: To combine wood logs with solar, Hargassner developed a handy function for the Touchtronic => an automatic ignition. First the hot water stored in the tank from solar-energy is used, before the biomass boiler fires up using automatic ignition.



Controlling External Boilers

If desired, an additional external boiler, e.g. pellet, oil or gas boiler, may be integrated. The change over between the two boilers occurs fully automatically.

Cascade controller

Cascade controller for 2, 3 or 4 boilers automatically switch on or change over control of boilers, based on outside temperature. Priority mode, equality of operation hours possible, auto change-over mode after error.

Additional control board A

This control board is to control 1 heat circuit and 1 HWS. The board may be integrated in the boiler, the extension module HKM or the heat circuit controller HKR.

Additional control board F

This control board is to control 1 district heating line with regulated flow temperature. It controles the district herating pump, its mixer and incl. a temp. sensor

Additional control board PF

This control board is to control two additional buffer sensors. By this way, the control unit of the boiler can control 5 buffer sensors (especially interesting large buffers).

Additional control board D

This control board is to integrate an external heat source (e.g. solar system, external wood log boiler, etc...). The system controls e.g. the solar pump and includes the solar sensor for the panels.

Extension module HKM with or without Touch

This module is used to add 2 additional heating circuits and 1 additional hot water tank (including circulation pump), controlled via touch display. Additionally, an external heating circuit or a centralised accumulator and several HKM may be installed.

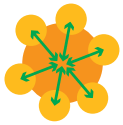
Heating circuit controller HKR with Touch and CAN-BUS-System

Control unit based on atmospheric conditions with Touch control for 2 mixing valve-controlled heating circuits and 1 hot water tank circuit with circulation pump; 1 accumulator or external boiler, 1 external heating circuit, 1 long-distance heating or accumulator pump. Extension with max. 2 HKM (max. 8 HKR). SD-card Slot and data logging.

SMART HOME TECHNOLOGY

LOXONE

KNX



Mod Bus

Heat meters

REMOTE CONTROLS

App: With the all new Hargassner App you can easily change heating times, temperatures and operation modes and receive information regarding the current boiler status. These messages can be sent via email or push notification to your mobile.

Analog FR 25: This remote control measures the actual internal temperature, and can also apply corrections to the control unit. You can use the temperature controller to adjust the room temperature up or down. With or without room-temperature dependence. A warning light is integrated to inform the client about the status of the heating system.

LCD FR 35: Remote control FR 35 with LCD-Display: For setting the room temperature and/or day-reduced or heating operation.
With or without room temperature dependence. Display of room temperature, outside temperature and DHW temperature. Only for Touch Control.

Radio version option for LCD FR 35 FR35 Radio version transmitter with LCD-Display, radio broadcasting module for max. 6 receivers, LCD-Display for easy programming. If simultaneously used as a room-temperature device, several functions of the FR35 may be used. BUS-connection to the boiler or HKR required. Only for Touch-Control

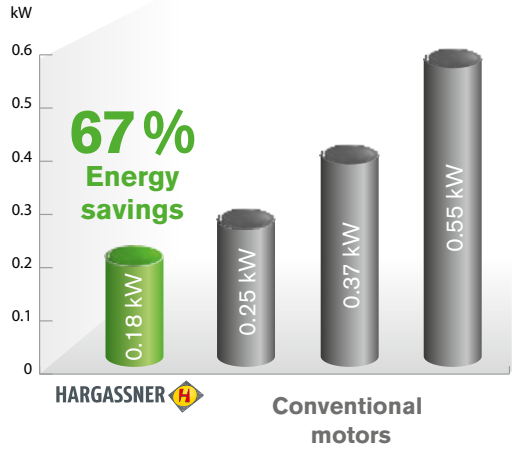
Touch remote control FR 40: set the room temperature, change heating status, change heating temperatures and times. All functions of the boiler are controllable from your living room.

SMS: With this special tool you can have your heating under control even when you are not at home. Faults are automatically sent to your mobile and you can issue commands to the controller, e.g. switch the heating circuits on or off or set new temperatures, all from your mobile with complete reliability.

Hargassner ECO-RA (Room-Agitator)

Unique advantages at a glance

Due to the very low driving power of just 0.18 kW and the highly efficient and robust spur gear, the ECO-RA agitator is very energy-efficient and reduces the customer's energy costs. Savings of up to 67% may be reached compared to conventional agitator systems. This impressive gear box with an efficiency of over 90%, has replaced the traditional worm gear. The modular design ensures easy handling of the auger, trough and removable covers.



NEW

04 Z-shaped bicameral rotary valve

The Z-shaped rotary valve is designed specially for wood chip

- ✔ Depth of chamber 18 cm for extra long wood pieces
- ✔ 100% burn-back safety
- ✔ simple replacement
- ✔ little effort
- ✔ with hardened cutting edges

05 Breaker box

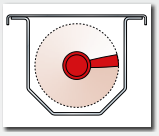
- ✔ forces long or bulky wood chips downwards
- ✔ increased operational safety
- ✔ patented safety switch

06 Ball coupling

- ✔ flexible tilt and rotation angle
- ✔ max flexibility for planning and installation

07 New conveying shaft and auger

- ✔ generous dimensions
- ✔ no stagnation of material
- ✔ suitable for wood chips G50
- ✔ progressive tapered extraction auger
- ✔ shaft profile gets larger



Efficient fuel extraction with Energy Plus

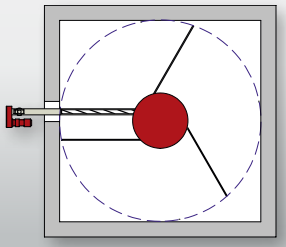
01 Modular system

- ✔ Planning flexibilty
- ✔ Auger extension from 400 to 2000 mm
- ✔ Easy transport and assembly
- ✔ Faster and cost-effective maintenance
- ✔ Exchange of single auger parts possible

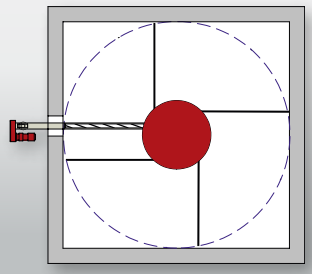
removable covers

Special spring blade layout

- ✔ up to Ø 4m = 3 blade system
- ✔ power-saving gear ratio 1:16



- ✔ Ø 4.5 to 5 m = 4 blade system
- ✔ power-saving gear ratio 1:25

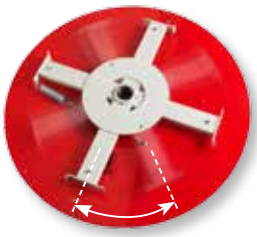


energy efficient

cost saving

03 Patented no load disc

- ✔ disc remains unmoved until springs are under the disc
- ✔ half effort
- ✔ no hollow



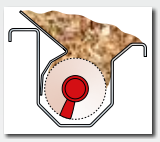
for RA 450 and RA 500

No slant construction needed

- ✔ Impurity separation
- ✔ Cost saving

08 New wood chip inlet blade

- ✔ optimum material supply
- ✔ more material in the auger shaft
- ✔ efficient storage room emptying
- ✔ less force needed
- ✔ less wear and tear



Solid construction

- ✔ robust
- ✔ durable
- ✔ reliable
- ✔ service-free

Large and easily cleaned shaft

09 Eco-RA extraction system

- ✔ extremely robust
- ✔ durable
- ✔ failsafe
- ✔ maintenance-free

Robust spur gear with efficient 1:16 or 1:25 transmission

Gear box comparison:

Worm gear
- friction loss
- low efficiency

HARGASSNER

Spur gear
- ✔ low friction loss
- ✔ high efficiency

Hargassner Wood Chip Transportation and Storage Systems

Heating room and storage room in an auxiliary building
The refuelling of the storage room occurs directly from the chipper or from a tractor with front-loader

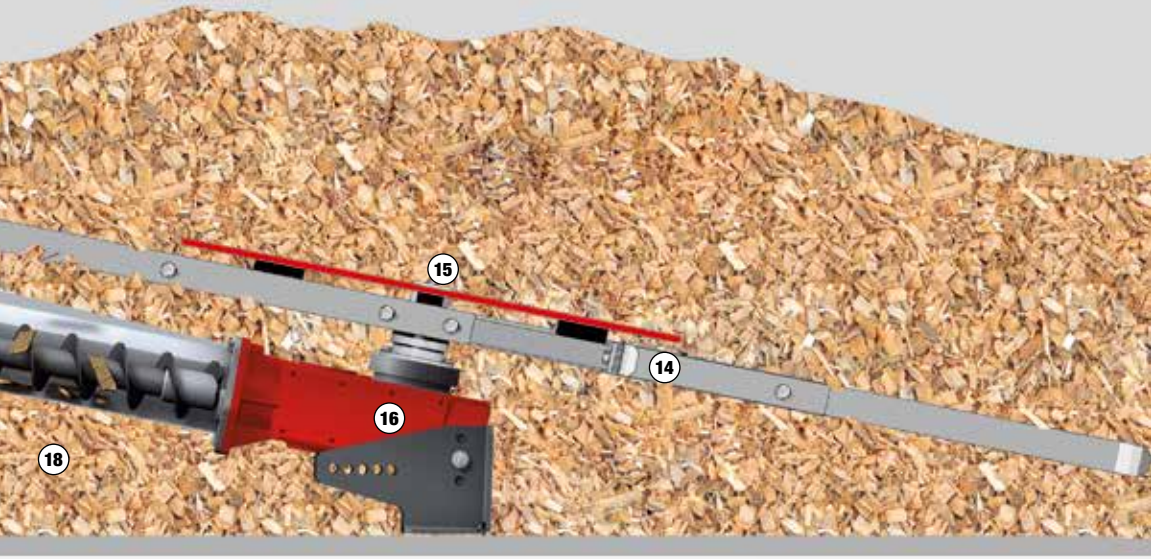
Heating room and storage room in the basement of the residential building
The refuelling of the storage room occurs through Hargassner's horizontal filling auger on the ceiling with external shaft.

The “Special” Solution

Heating room and storage room in a heating container

The refuelling occurs through Hargassner’s vertical filling system including auger trough and wood chip ejector.

The Hargassner ECO-RA



EXPLANATION

01 Boiler
02 Stoker auger
03 Stoker auger - temperatur monitoring ETÜ
04 Z-shaped bicameral rotary valve
05 Ball coupling
06 Stoker motor, auger and rotary valve
07 Room agitator with motor and extraction auger
08 Breaker box
09 Safety lid with auger reverse function
10 Modular RA extensions
11 Fuel storage temperature monitoring TÜB
12 Extraction auger
13 Auger plate for constant fuel transport
14 Patented spring agitator system with no-load disc
15 Patented no-load disc
16 Eco-RA extraction system
17 Storage room service door
18 No sloping floor required

Heating room on ground floor, storage room on 1st floor
The refuelling occurs through Hargassner’s vertical filling system including auger trough and wood chip ejector. The chips fall via a elongated drop shaft into the stoker auger.

District heating service
Independent building for heating room and storage room. Storage room is recessed on basement level for easy refuelling.

Hargassner Storage room arrangements

Hargassner offers the best solution for every customer

One of the most important things about a wood chip heating system, is to plan the storage room. It doesn't matter where your fuel is stored – in the first floor, in an auxiliary building or in the basement of your residential building – Hargassner provides the right solution for every client's situation.

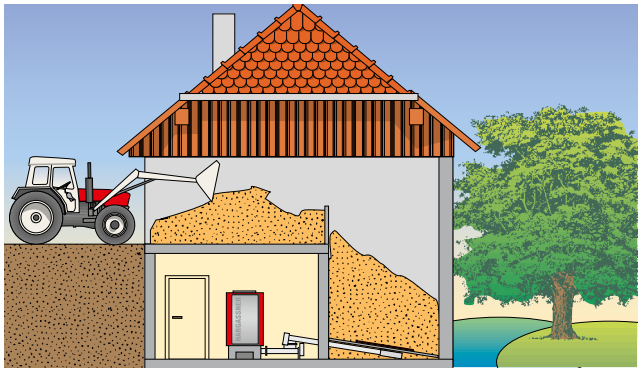
Of course the wood chip storage room should be designed to be easy to refuel and as large as possible or necessary. In the majority of cases, an auxiliary building can be an advantage because of the easier refuelling and the higher capacity of the storage volume.

Storage Ground level:

Large and open storage room with direct refilling.

Large storage room with vertical filling system.

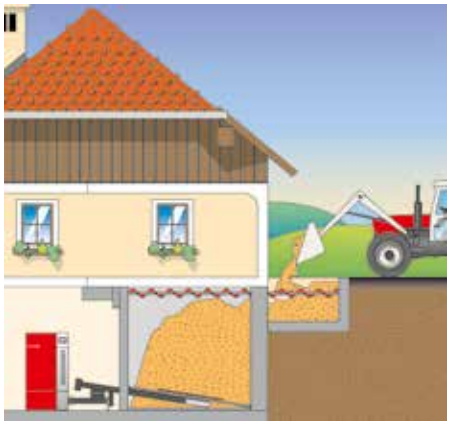
Storage 1st floor:



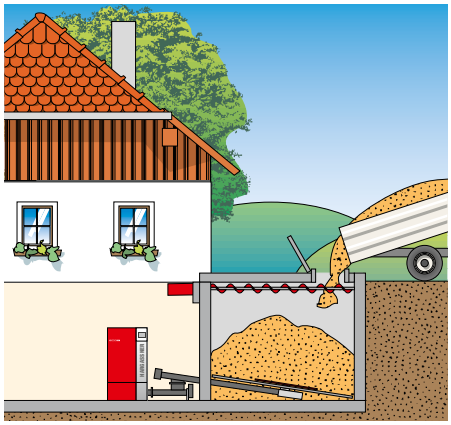
Large and open storage with direct refilling.

Large storage room with vertical filling auger and elongated drop shaft.

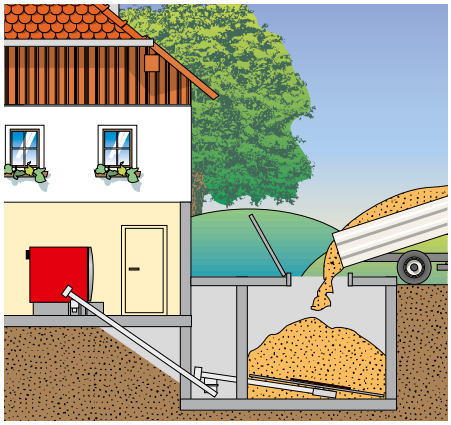
Storage Basement:



Storage room in basement of residential building including a horizontal filling auger and trough.



Storage room in built-on bunker with large opening for manual refuelling.



Storage room in built-on bunker and connection auger for vertical transport.

Options for multiple boilers

Extraction with modular downpipe

Heating room on ground floor, storage room on 1st floor? No problem!
Hargassner offers a modular downpipe system. This system consists of a basic module and various extension tubes of 100, 200, 500, 1,000, 2,000mm in length.
For the perfect adjustment, a pull-out downpipe (30-500mm) is used. Accessories include 2 x 30° bows for lateral movement. Clamp rings fix the tubes.

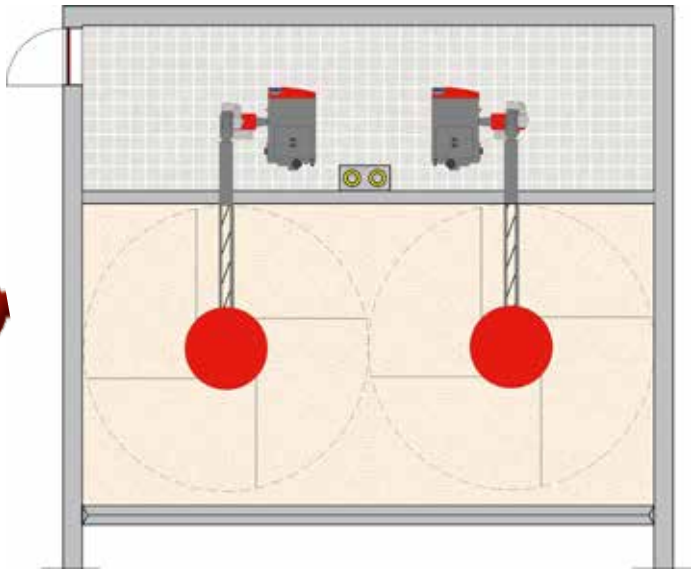
Two, Three or Four boiler heating systems

Multiple boiler systems are often recommended for medium and large heating outputs. By controlling the operating mode of two or more boilers, the heating load can optimally be adapted to the particular season of a year. The operating security and the storage room capacity are doubled and this through a perfect price-performance ratio.

PROS:

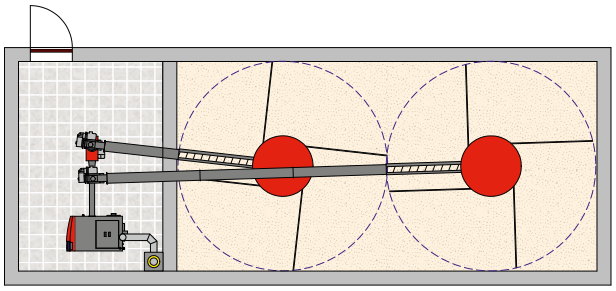
- Maximum operating safety
- Ideal for reduced heating output
- More wood chip storage capacity
- Best price performance ratio

NEW: with cascade controller - up to 6 boilers and 1200 kW



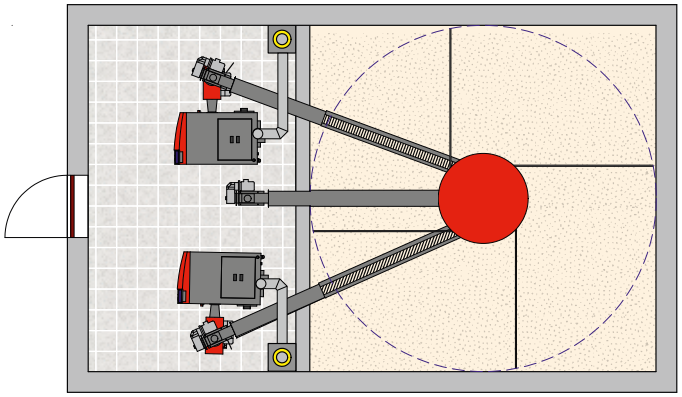
Double-Agitator for 1 boiler:

An optimum system for rectangular rooms. This solution extends storage volume and refuelling intervals.



Single Agitator for 2 boilers:

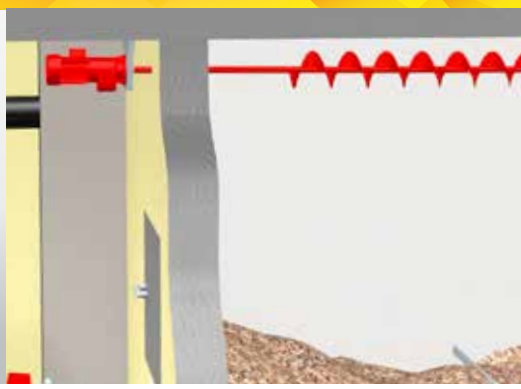
The agitator is driven by a separate motor. Additionally 2 connection augers are needed.



Hargassner Refuelling Systems

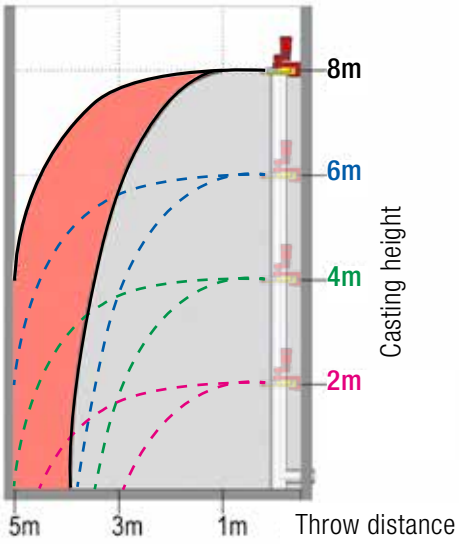
Horizontal filling auger for wood chips

For refilling wood chips in basement rooms or bunkers, Hargassner's horizontal auger is the optimal solution. Easily installed in combination with a trough, best distribution is guaranteed. For augers between 5 - 10m in length an intermediate bearing is installed.
Conveying output: 30m³/h.



Vertical filling auger for wood chips

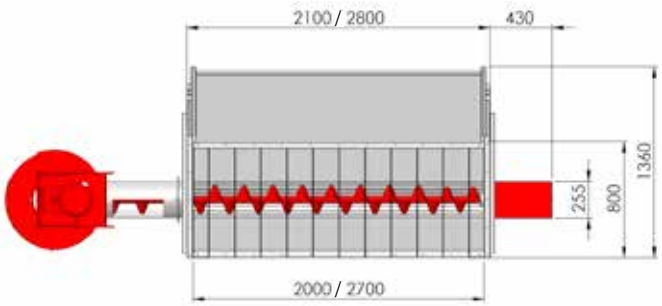
With the newly developed vertical refill system for wood chips, difficult to access room can be easily refuelled. For instance, storage rooms in upper floors without appropriate access roads, or containers, can be handled very easily. The refill trough is available in two different formats: 2.10 m and 2.80 m in length, either with or without suitable transportation wheels. Depending on the situation on-site, it is also possible to sink the trough into the ground floor. Additionally, Hargassner offers a special frame-work and rain protection cover for trouble-free opening and unloading of the chips from a trailer. The vertical filling system can handle heights up to 8m and uses a specially constructed ejecting system including an adjustable metal sheet cover (yellow) to ensure best distribution in the storage room. Output: 50m³/h; depending on wood chip quality.

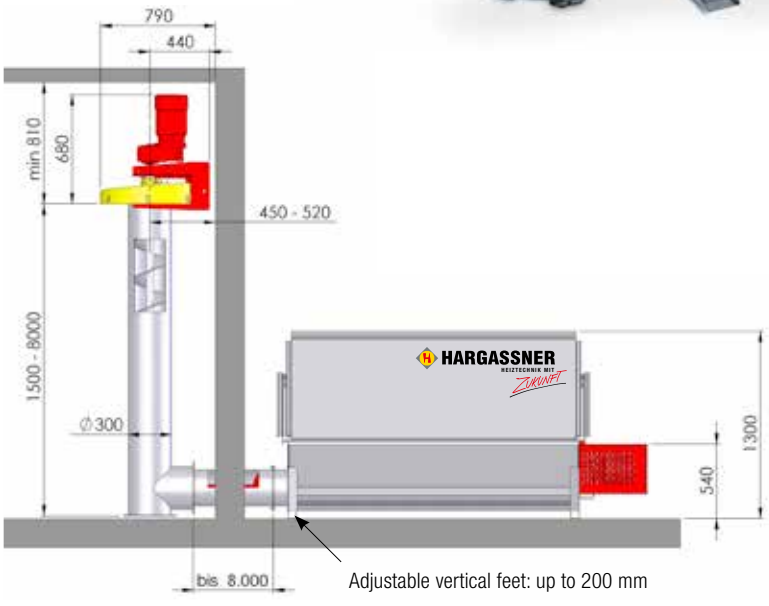


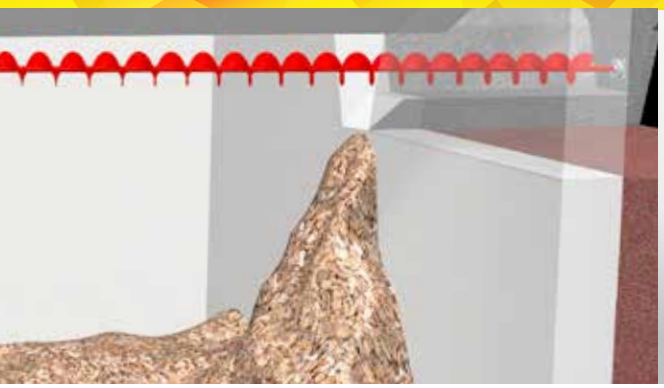
Spread pattern depending on wood chip size

The casting distance of the ejector depends of the condition of the wood chips. The larger or heavier the wood chip pieces, the more intensively they will be thrown away (see red chart on diagram). In contrast, fine or light parts fall down earlier (see black chart on diagram). Therefore, we have a different refill performance, according on refill height and fuel quality.

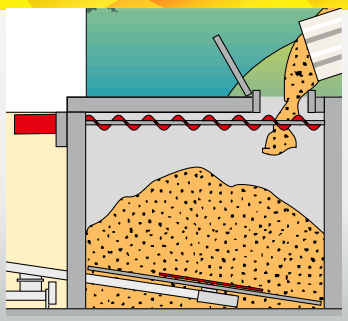
Technical details and dimensional sketches





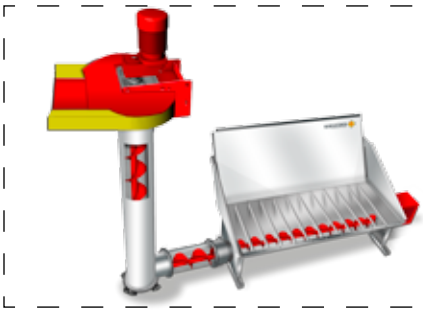


Automatic refuelling of a basement storage room



Best distribution in a bunker

- ✔ patented ejector
- ✔ absolutely dust-free
- ✔ up to 50 m³/h conveying output



Filling System with outside ejector

Outside filling system for storage room on 1st floor

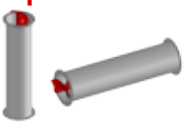
Filling system with tapered auger

For single-storeyed installations

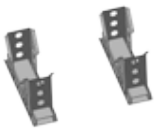
NOW with level indicator

Auxiliary equipment

Angle drive unit

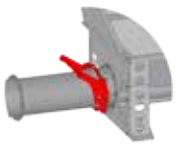


Extension horizontal and vertical



Fork lift console

Wheels 4 pcs.



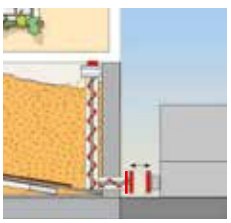
Quick-connect coupling

Fields of application

Automatic refuelling for 1st or 2nd floor

Refuel system with trough sunk in ground floor

Automatic refuelling for two storey storage rooms



The refuel trough can easily be removed through a quick-connect coupling

Hargassner Containers

Concrete Heating Containers – best combination of plant room and storage room

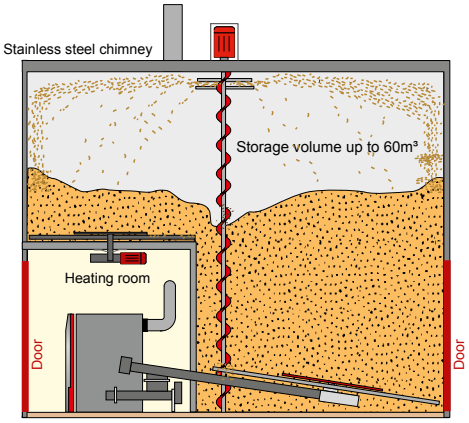
Containers are available in single, double or triple design, according to requirements. Because of the modular construction, our containers are easily positioned, assembled and installed. The main advantage is the enormous space and cost saving, either in new or refurbished buildings. Concrete containers are especially useful for public buildings, industrial enterprises, hotels or shared housing communities. Because of the comparatively low investment costs, Hargassner's containers are also perfectly suited for heat contracting businesses.

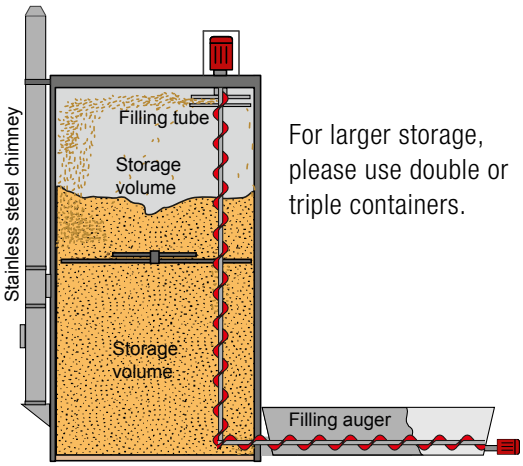
Single Container

Single Container for a residential building

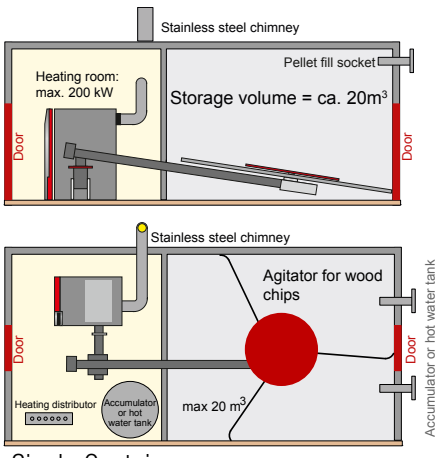
Double Container next to a public building

Container types:





For larger storage, please use double or triple containers.



Single Container

Double Container

Cutaway Heating Container

Triple Container for catering company

Quadruple Container for an industrial company

Technical data

Type	BC 400		BC 500		BC 600		BC 700		BC 800		BC 600 Doppelstock
Length	400 cm		500 cm		600 cm		700 cm		800 cm		600 cm
Width	300 cm		300 cm		300 cm		300 cm		300 cm		300 cm
Height outside	265 cm		265 cm		265 cm		265 cm		265 cm		540 cm
Height inside	228 cm		228 cm		228 cm		228 cm		228 cm		490 cm
Additional height outside	308 cm / 320 cm										
Additional height inside	266 cm / 280 cm										
Weight	ca. 17 t		ca. 20 t		ca. 25 t		ca. 30 t		ca. 33 t		23+16 t
Filling volume/mass	**5 t** Pellets	**9 m³** Wood chip	**8 t** Pellets	**15 m³** Wood chip	**11 t** Pellets	**20 m³** Wood chip	**14 t** Pellets	**25 m³** Wood chip	**17 t** Pellets	**32 m³** Wood chip	**60 m³** Wood chip

Extra size on request

Container – Details

Prefabricated concrete walls REI 90 (F 90), wall thickness 13 cm, epoxy coating on floor, interior wipeable emulsion coating and exterior high quality spray render (2-3 mm granularity white)
Containers include all openings for augers, ventilation, chimney, district heating connection, pellet fill sockets.

Auxiliary Equipment:

Roof covering, dividing wall REI 90, **Steel door, Fire protection wall** EI 30, **Fuel storage door** EI 30, **Stainless steel chimney** and additional openings, ladder with half pace.

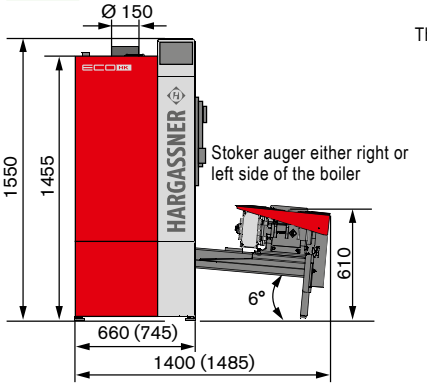
Technical details of the boilers on page 26 - 27.

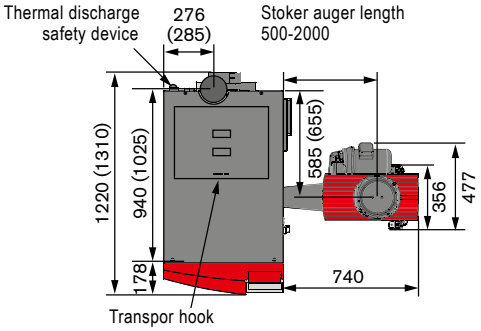
Dimensions and technical details

Eco-HK 20 – 60

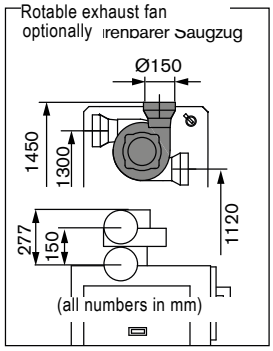
Energy efficiency class

A++ zB. Eco-HK 35 – system lable with control





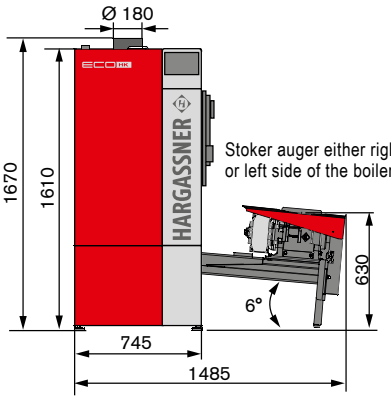
Werte in Klammer gelten für Eco-HK 40-60
Attention: numbers in brackets are for ECO HK 40-60

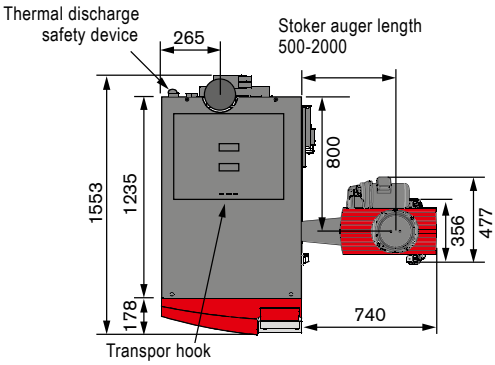


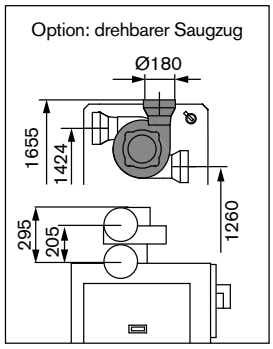
Eco-HK 70 – 120

Energy efficiency class

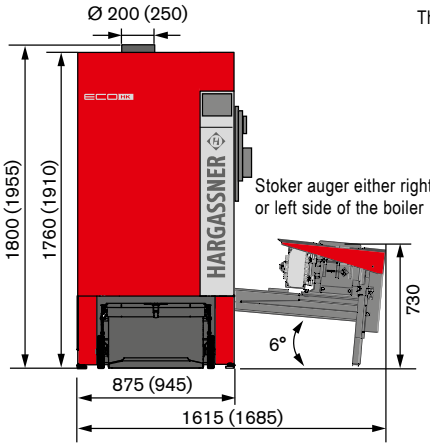
A++ e.g. Eco-HK 70 – 120 system lable with control

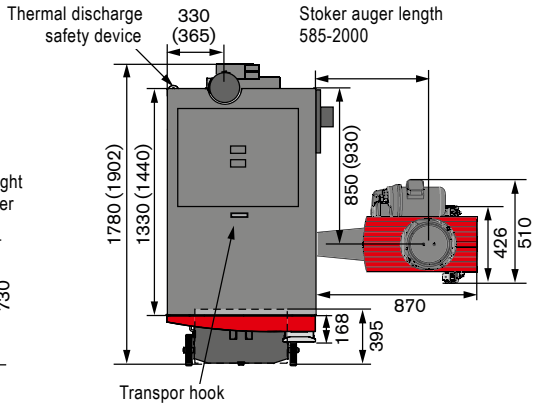




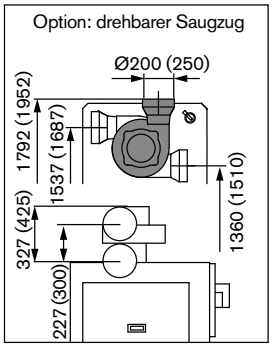


Eco-HK 150 – 200

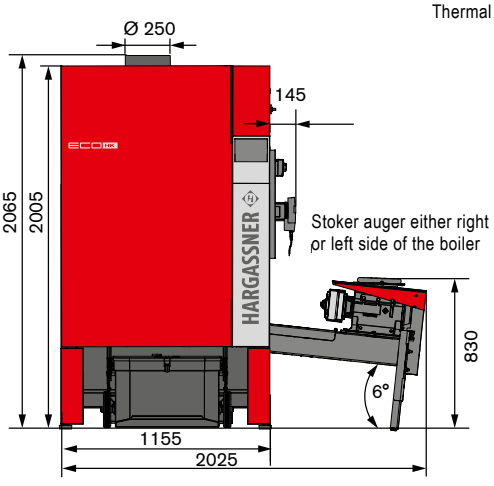


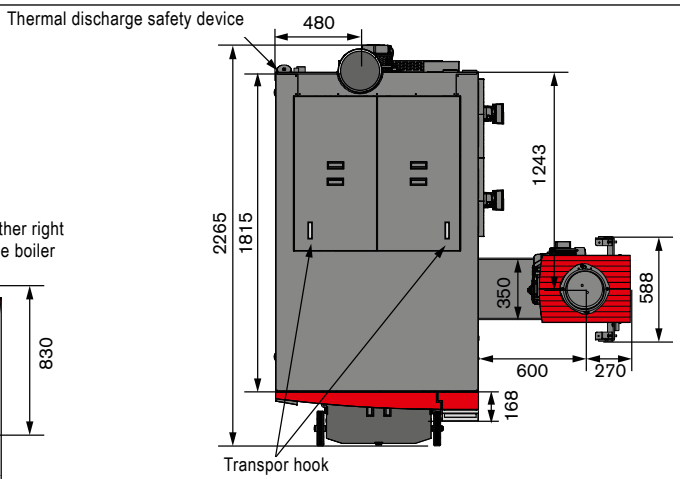


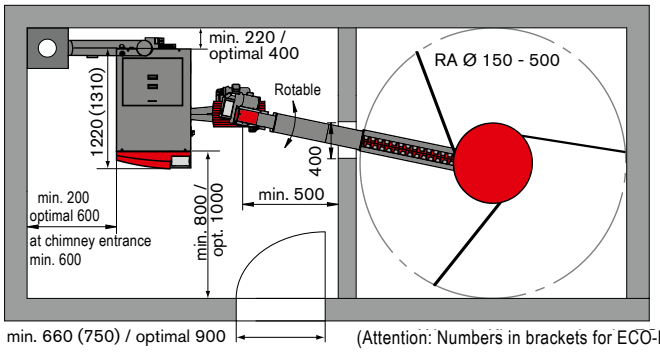
Attention: numbers in brackets are for ECO HK 200



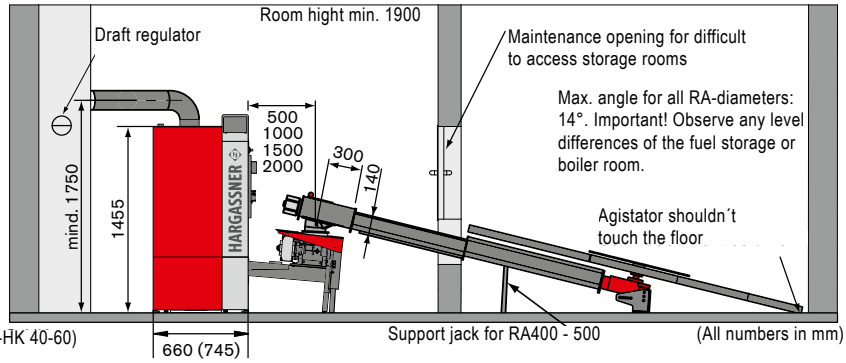
Eco-HK 250 – 330

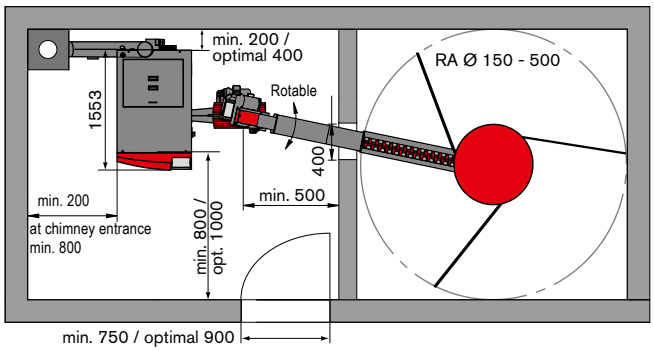


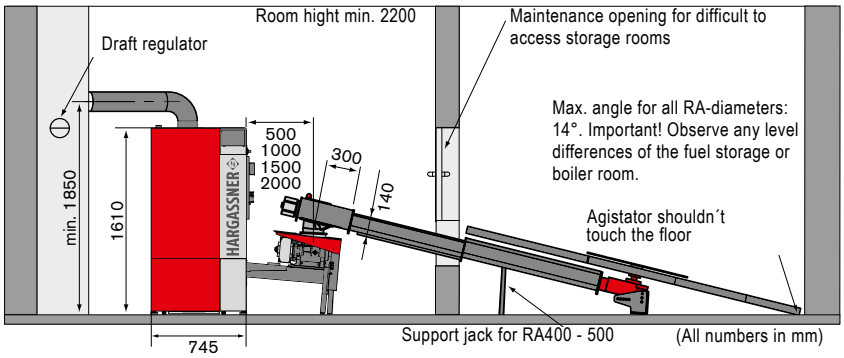


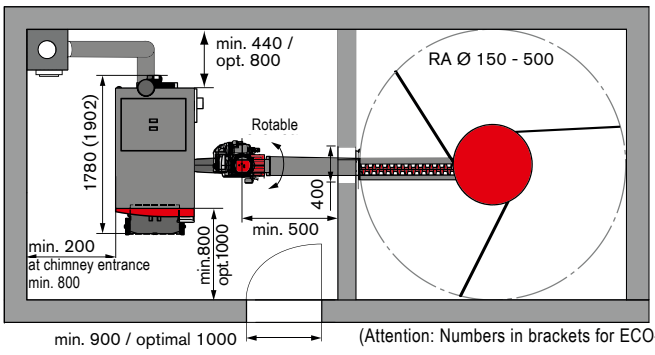


(Attention: Numbers in brackets for ECO-HK 40-60)

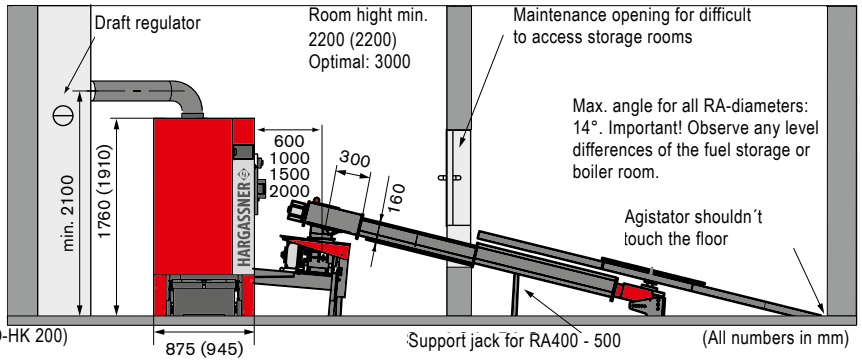


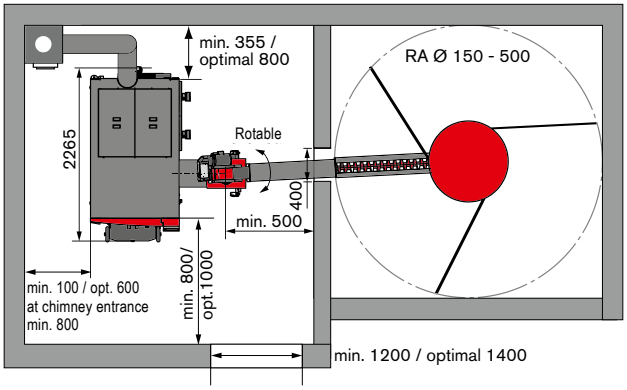


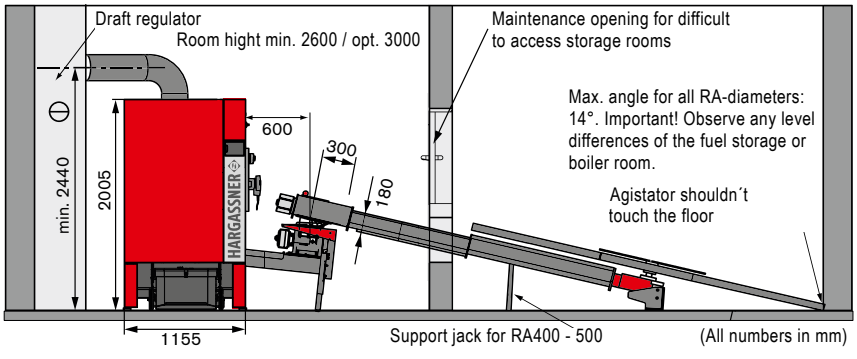




(Attention: Numbers in brackets for ECO-HK 200)







For hydraulik schemes please ask your distributor

Dimensions and technical details

Technical details:	Wood Chip Boiler Eco-HK 20-60						
	Unit	Eco-HK 20	Eco-HK 30	Eco-HK 35	Eco-HK 40	Eco-HK 50	Eco-HK 60
Power range	kW	6-20	9-32	10-35	12-40	12-49	18-60
Efficiency (at nominal heat output)	%	93.9 / 91.4	94.4 / 93.2	94.6 / 94.1	94.8 / 95	95.3 / 95	95.8-95
Nominal heat output	kW	21	32	37	42	52	63
Flue pipe diameter	mm	150	150	150	150	150	150
Amount of water in heat exchanger	Litre	100	100	100	142	142	142
Water-side resistance ΔT 10 [K]	mbar	23	50	67	81	119	174
Water-side resistance ΔT 20 [K]	mbar	6	13	18	21	31	46
Flow / Return flow	inch	5/4 IG	5/4 IG	5/4 IG	5/4 IG	5/4 IG	5/4 IG
Weight	kg	490	490	490	560	560	560
Boiler height	H mm	1455	1455	1455	1455	1455	1455
Boiler width	W mm	660	660	660	745	745	745
Boiler depth	D mm	940	940	940	1025	1025	1025
Transporting Dimensions H x W x D	mm	1510 x 660 x 1025			1510 x 745 x 1110		

Technical details:	Wood Chip Boiler Eco-HK 70-120						Eco-HK 150-200	
	Unit	Eco-HK 70	Eco-HK 90	Eco-HK 100	Eco-HK 110	Eco-HK 120	Eco-HK 150	Eco-HK 200
Power range	kW	21-70	27-90	30-99	33-110	36-120	44-149	59-199
Efficiency (at nominal heat output)	%	95.6 / 95.3	95.2 / 96	95 / 96.3	94.7 / 96.7	94.5 / 97	93,4 / 93,1	93,1 / 93,6
Nominal heat output	kW	73	94	104	116	127	159,5	213,7
Flue pipe diameter	mm	180	180	180	180	180	200	250
Amount of water in heat exchanger	Litre	180	180	180	180	180	253	360
Water-side resistance ΔT 10 [K]	mbar	n.g.	n.g.	n.g.	n.g.	n.g.	184,6	227
Water-side resistance ΔT 20 [K]	mbar	n.g.	n.g.	n.g.	n.g.	n.g.	49,0	63
Flow / Return flow	inch	6/4 IG	6/4 IG	6/4 IG	6/4 IG	6/4 IG	2" / 2"	2,5" / 2,5"
Weight	kg	865	865	890	890	890	1190	1320
Boiler height	H mm	1610	1610	1610	1610	1610	1910	2010
Boiler width	W mm	745	745	745	745	745	1000	1000
Boiler depth	D mm	1235	1235	1235	1235	1235	1500	1670
Transporting Dimensions H x W x D	mm	1670 x 745 x 1335					888 x 1500	888 x 1670

Max. operating temperature 95°C, max. operating pressure 3 bar, Boiler temperature range 69-78°C, BEP necessary 58°C, Electrical supply 400 V AC, 50 Hz, 13 A

Technical details:	Eco-HK 250 – 330			
	Einheit	Eco-HK 250	Eco-HK 300	Eco-HK 330
Power range	kW	75-250	90-300	99-330
Efficiency (at nominal heat output)	%	ca. 93 %	ca. 93 %	ca. 93 %
Nominal heat output	kW	267	320	352
Flue pipe diameter	mm	250	250	250
Amount of water in heat exchanger	Liter	570	570	570
Water-side resistance ΔT 10 [K]	mbar	-	-	-
Water-side resistance ΔT 20 [K]	mbar	-	-	-
Flow / Return flow	Zoll	2,5"	2,5"	2,5"
Weight	kg	2150	2150	2150
Boiler dimensions	mm	2005 x 1155 x 2138		
Boiler transporting dimension HxWxD	mm	2065 x 1150 x 1970		

AUSTRIA

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