

+ WOOD CHIP BOILER

SINCE 1921  
**windhager**  
HEAT WITH VISION

7 to 60 kW

# PURO WIN



REVOLUTION  
IN WOOD CHIP  
HEATING

WITH TOUCH OPERATION

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W I N



D H A

G E R

# + HEATING SINCE 1921

For over 90 years, Windhager have been renowned for innovative technical solutions, making heating convenient, safe and cost-effective. Strong demand for our products has allowed us to grow constantly and develop numerous innovations in the heating market. We are now one of Europe's leading manufacturers of boilers for renewable energies and have suitable heating systems for every fuel and solar energy.

#### **Award-winning "made in Austria" quality**

The secret to our success? First-class products which satisfy the most demanding requirements and deliver durability and reliability. We produce our boilers to a strict criteria and use only high-quality materials. Our products are only manufactured in Austria, at our company headquarters in Seekirchen, near Salzburg. Independent test institutes regularly recognise our premium quality.

We always focus on the needs of our customers. We don't deliver run-of-the-mill solutions, but instead a heating system tailored to your needs.

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# THE WOOD CHIP HEATING REVOLUTION

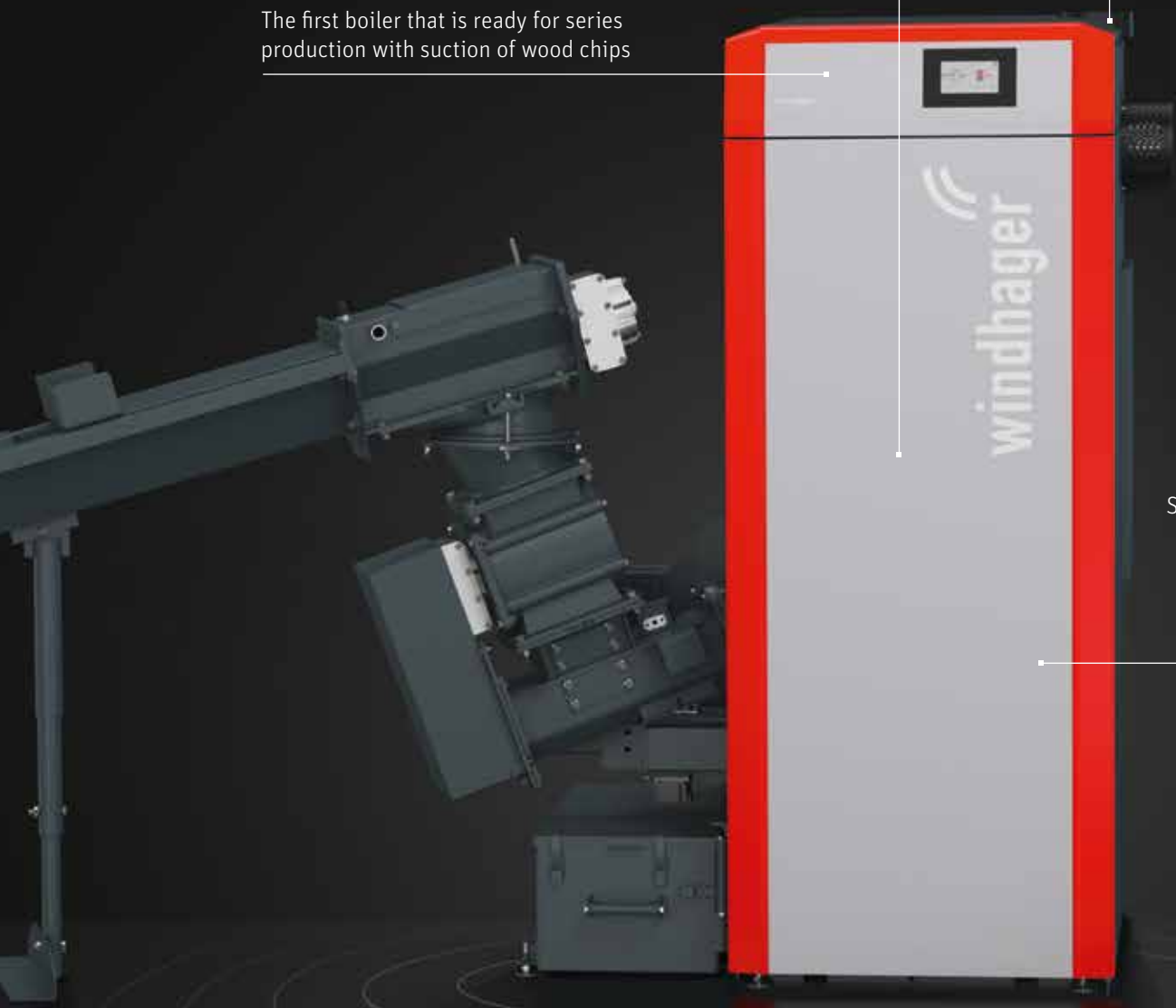
With the PuroWIN, we have revolutionised heating with wood chip. Never before has this fuel been used so cleanly, safely and intelligently to supply heat. The zero-emission gasification boiler offers impressively smart and is the first boiler to transport wood chip utilising a suction system.



The only system with dust emissions of less than 1 mg without additional filters

Patented wood chip gasification combustion process

The first boiler that is ready for series production with suction of wood chips



See the video!



PuroWIN

7 bis 60 kW

# + ZERO-EMISSION TECHNOLOGY

Our patented updraft gasification combustion process makes the PuroWIN the cleanest wood chip boiler in the world. The principle takes advantage of the filtering effect of the fuel: First the combustion chamber is filled with wood chip. Once ignited, an ember bed forms in the bottom section. The heat produced carbonises the wood chip above it. This layer acts like an active carbon filter. The wood gas rises from the ember bed, and passes through the carbon and unburned wood chip. The fine dust is filtered. The wood gas is only burnt in the area above the wood chip. This system, developed in cooperation with the research institute BIOS Bioenergysysteme, produces emissions so low they can hardly be measured. Emissions from the PuroWIN are several times lower than the strictest statutory limits (see O1 and O2).

## Embers retained automatically

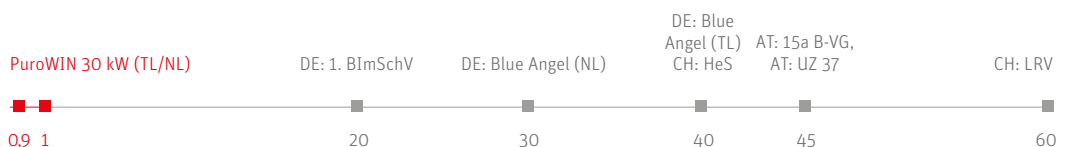
The boiler is totally sealed so the embers are retained for up to four days – without any fuel or air being added. This means that the boiler doesn't have to be re-ignited each time it is started so the PuroWIN consumes up to 90 percent less ignition energy than other wood chip boilers, resulting in electrical consumption being minimised.

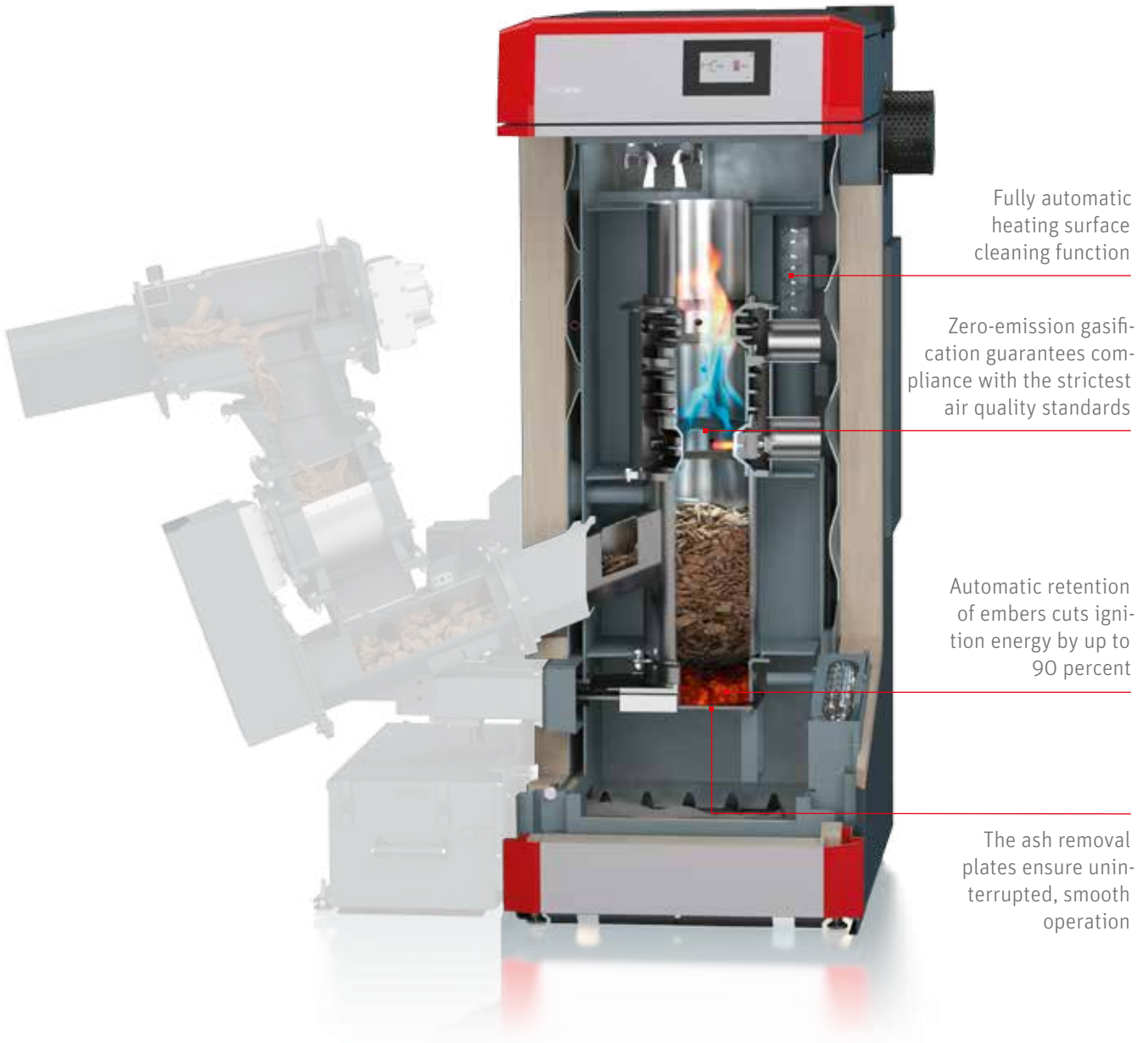
## Twin ash removal plate

Thanks to the patented ash removal system, foreign bodies can't damage the PuroWIN. Unlike solutions with a grate, it uses sealed plates so the ember bed is always retained when the ash is removed. Uninterrupted operation is even possible when running at full capacity.

## 01. LIMITS FOR DUST EMISSIONS

Stated in mg/m<sup>3</sup>, TL=part load, NL=nominal load





Fully automatic heating surface cleaning function

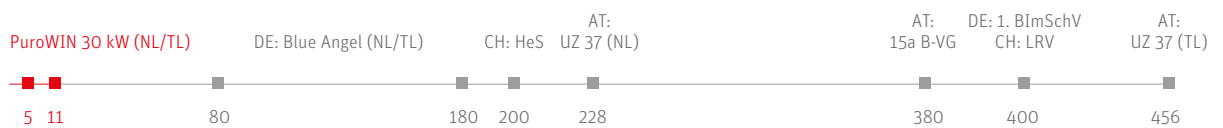
Zero-emission gasification guarantees compliance with the strictest air quality standards

Automatic retention of embers cuts ignition energy by up to 90 percent

The ash removal plates ensure uninterrupted, smooth operation

## 02. LIMITS FOR CO EMISSIONS

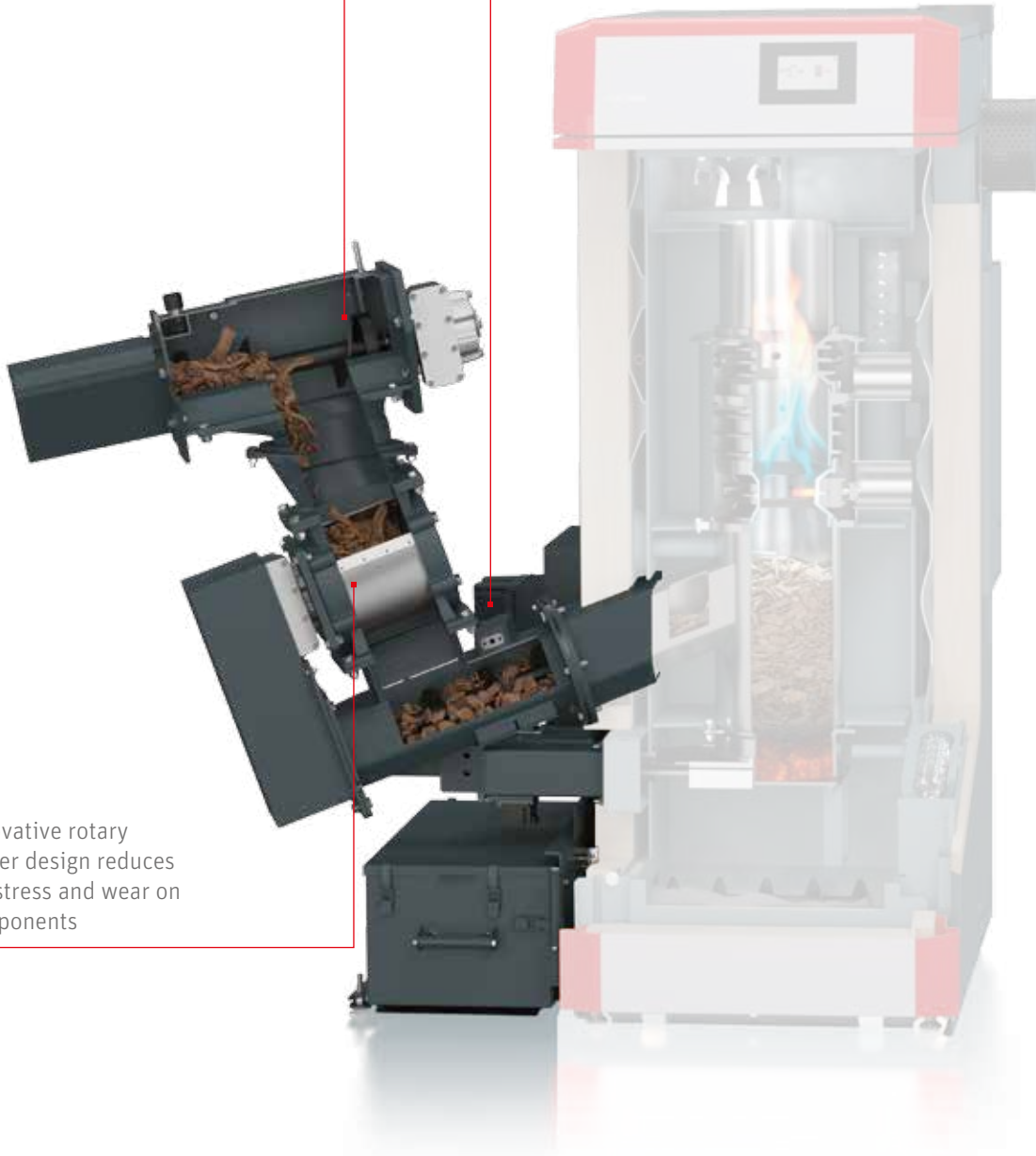
Stated in mg/m<sup>3</sup>, TL=part load, NL=nominal load



Large wood chips can be transported with ease thanks to ABS

Operation with 230V

Innovative rotary feeder design reduces the stress and wear on components



The motor in the PuroWIN's fuel store extraction system is very economical. On average, it needs just 120W compared with conventional motors using up to 500W. Over a whole year, assuming that the feed runs for 3000 hours, this represents the following saving:





# + THE FIRST BOILER WITH ABS

Only a safe boiler is a good boiler. That's why we use smart technology that ensures your heating is especially reliable. It starts with the process of feeding the wood chip to the boiler.

The PuroWIN's unique Anti-Blocking System (ABS) ensures that the wood chip is transported smoothly from the auger to the rotary feeder. At the end of the auger channel is a reversed spiral running in the opposite direction, which always pushes oversized pieces of wood downwards, preventing auger blockages.

## **Smart rotary feeder for high safety levels**

The rotary feeder has an important role to play in the safety of a wood chip boiler. But the smart two-chamber rotary feeder in the PuroWIN has other functions. It has sensors which ensure that only those pieces of wood chip which are oversized to be transported into the boiler are cut, thereby protecting the blades from unnecessary wear at all times. What's more, the sensors always ensure accurate fuel metering and optimum adaptation to variations in fuel qualities.

## **Power consumption reduced by 75%**

All of the PuroWIN's motors and drives have smart and infinitely variable control for smooth and quiet operation with low levels of power consumption never seen before. For example, the PuroWIN uses just 120W on average to transport all the fuel out of the storage room. This is 75% less power than comparable wood chip boilers. Another benefit is that unlike other boilers, the PuroWIN can be operated with standard 230V single phase domestic electrical supply.

# + THE BOILER TO MOVE WOOD CHIP WITH AIR

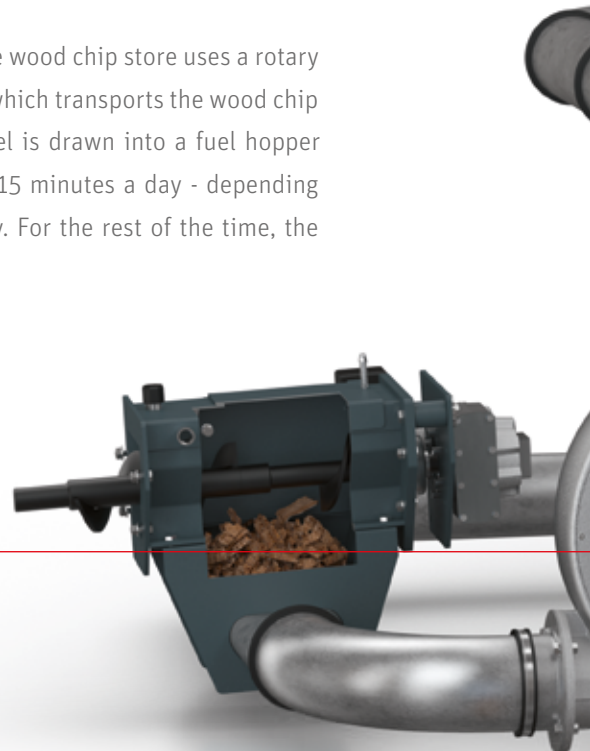
The PuroWIN is the first wood chip gasification boiler to use suction extraction of fuel as standard. This gives several advantages. Our low-wear and low-maintenance suction system gives total flexibility. It can handle transport distances of up to 25m and heights of up to 7m. Unlike all other wood chip boilers, the storage room doesn't have to be adjacent to the boiler room. It's the ideal solution for anyone who's not been able to use wood chip because of the layout of their building.

## **New levels of flexible transport**

With the suction solution, the fuel extraction system in the wood chip store uses a rotary agitator and auger. Outside the store is a suction turbine which transports the wood chip to the PuroWIN using an adaptable pipe system. The fuel is drawn into a fuel hopper attached to the boiler. The turbine only runs for around 15 minutes a day - depending on boiler capacity, heating requirements and fuel quality. For the rest of the time, the gasification boiler is incredibly quiet.

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Quiet operation as the suction system only runs for around 15 minutes a day

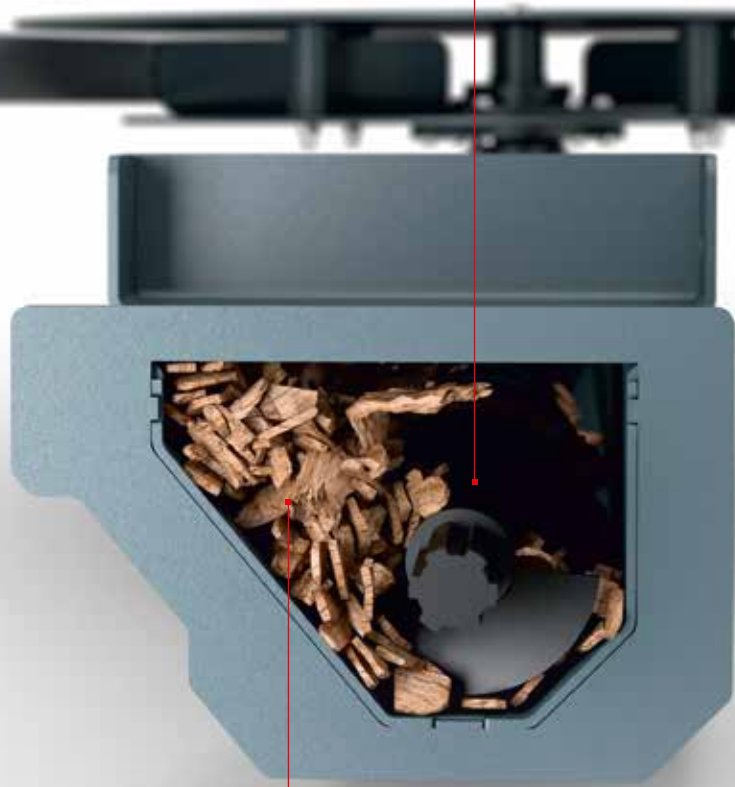


The suction system can handle distances of up to 25 m and heights of up to 7 m

The stainless steel fuel hopper is robust and resistant to wear



The 6 mm thick auger spiral is extremely resistant



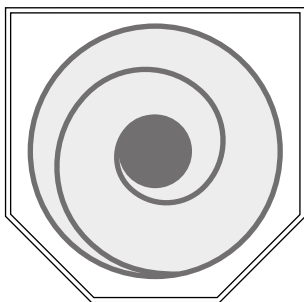
Quiet and efficient transport as up to 60 percent of the wood chip is transported to the side

# + THE AUGER FOR ALL SCENARIOS

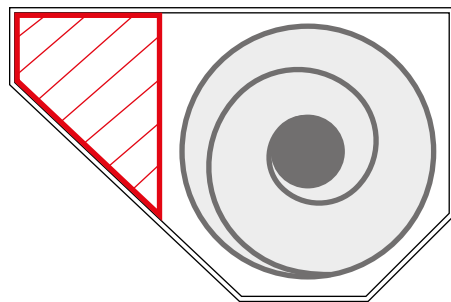
The PuroWIN delivers maximum operating reliability, not just for the boiler itself, but also for the fuel extraction system. For the PuroWIN, we have developed an unique safety auger channel with Side Slide Technology (SST). Unlike conventional auger transport systems, this auger channel is much bigger and asymmetric. Depending on fuel, up to 60 percent of the wood chip can be transported to the side of the auger rather than directly into it. Foreign bodies and large pieces of wood can cause virtually no harm. The system is also very quiet and smooth-running. Minimal wear and low power consumption are further benefits of the SST auger channel.

## Auger as hard as steel

Six millimetres thick, the PuroWIN's auger spiral is more robust than other products on the market. The spiral is the most important part of the auger for transport out of the storage room and we make ours from the highest quality steel.



01. Cross-section of conventional auger channel



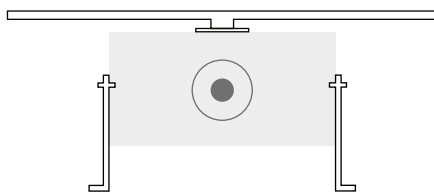
02. Cross-section of auger channel from Windhager

# + ROBUST AGITATOR PROTECTION

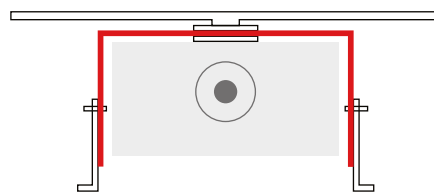
We have further developed the extraction method for the wood chip storage room and improved key components to prevent blockages: The spur gear unit of the agitator is protected and requires no maintenance and experiences no wear. It is completely reliable and combines high efficiency with great ease of movement. It uses up to 75% less energy than conventional solutions.

## A surround protects the gear unit

The gear unit drives the mixer, compound springs and the entire auger. Unlike the usual setup, this is not attached directly to the floor but is supported by a protective surround. This protects the gear unit from the weight of the wood chip. It is highly resistant and withstands extreme loads for short periods – for example, when filling your storage room. We've fitted bend protection to the mixer's compound springs. At 60 mm, they are also wider than the compound springs of other manufacturers and therefore much more robust.

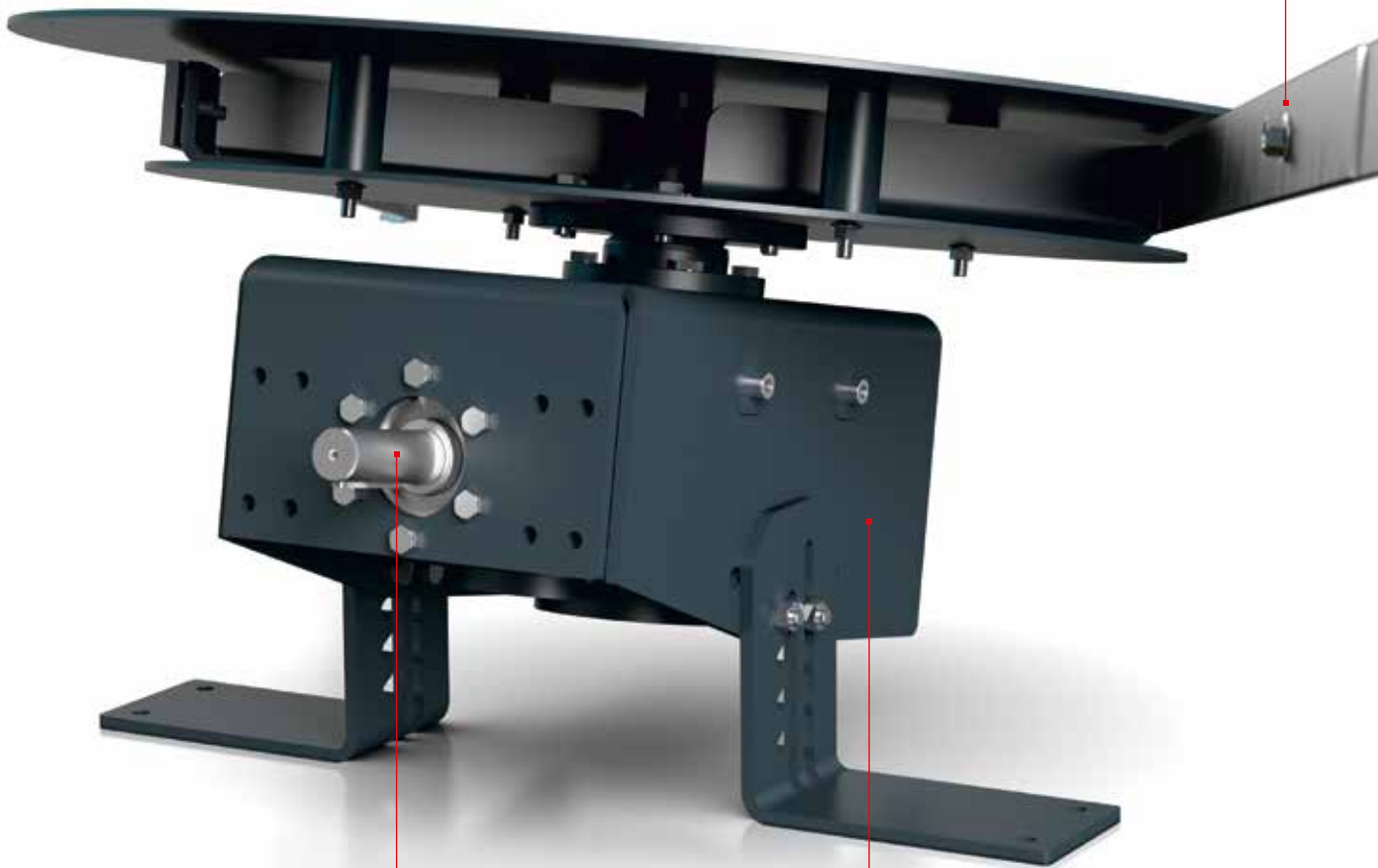


01. Conventional means of gear unit attachment



02. Attachment using gear unit protective surround from Windhager

Sturdy compound springs with bend protection



The spur gear unit is extremely light and energy-saving

The protective surround protects the gear unit from the weight of the wood chip

# + FLEXIBLE TRANSPORT OF WOOD CHIP

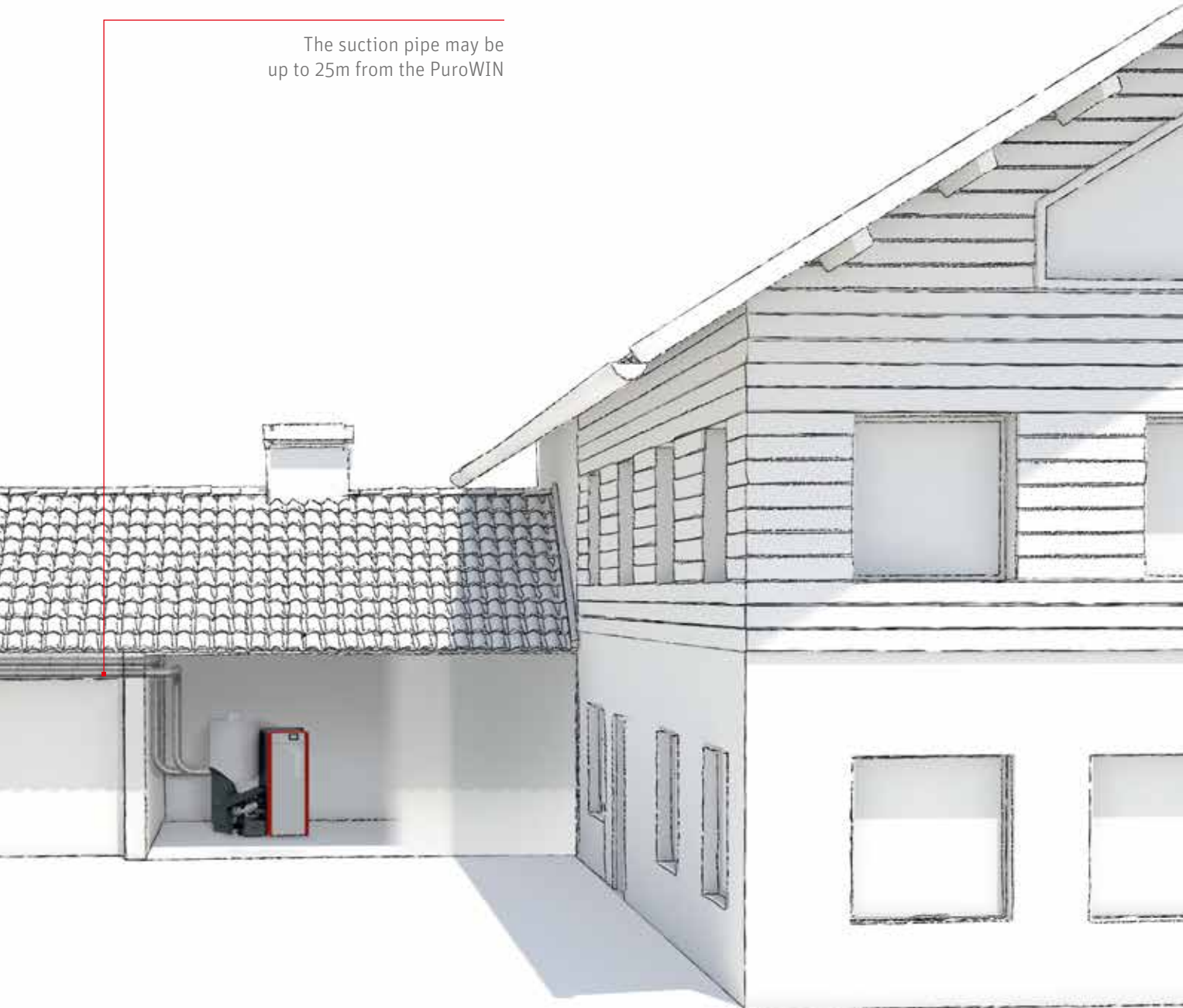
Your wood chip store isn't right next to your boiler room? No problem: The PuroWIN can overcome that. It is the first wood chip boiler to be able to transport wood chip using a suction system – the only system in the world with this feature. Transport distances of up to 25m and 7m high can be handled with ease by the Windhager suction system.





It doesn't matter whether the wood chip is transported to the boiler in a straight line or round bends. This means you can easily store fuel in another building. Only the PuroWIN offers this level of flexibility.

The suction pipe may be up to 25m from the PuroWIN



# + A SOLUTION FOR EVERY STORAGE ROOM

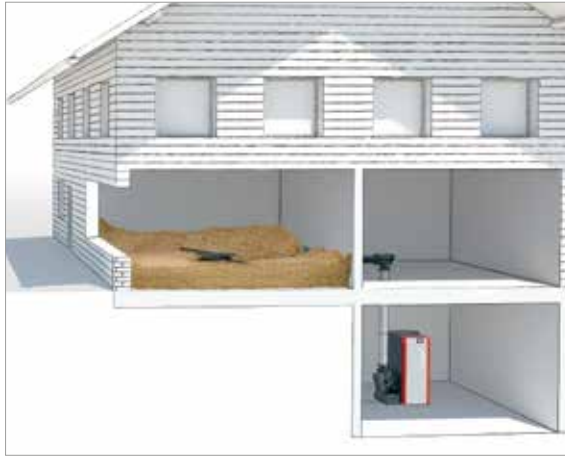
The PuroWIN has a wood chip transport solution for virtually any store room configuration. It can also be used in conventional setups where the boiler room and wood chip store are adjacent to one another. In this case, the wood chip is transported to the boiler via the auger channel. The modular design of the auger transport system allows the length of the augers to be individually adapted up to a distance of 6 m. The agitator in the storage room is available from 2 to 5 meter diameter in steps of 0,5m. We have the ideal solution for your needs.

## **01. Boiler and storage on ground level:**

direct filling of storage room, transport to boiler via auger



**02. Boiler in the basement and storage on ground level:**  
direct filling of storage room, link to boiler via down pipe



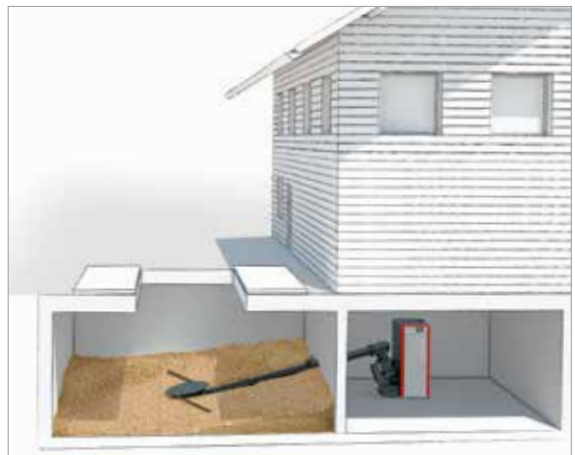
**03. Boiler in the basement, storage in mezzanine:**  
horizontal room clearing to the boiler



**04. Boiler and storage in the basement – variant 1:**  
filling of storage room via ceiling-mounted filling auger, transport to boiler via auger



**05. Boiler and storage in the basement – variant 2:**  
filling of storage room via ceiling opening, transport to boiler via auger



W O O

D + C

H I P

# + THE FUEL WITH A FUTURE

There are plenty of good reasons to heat your building with wood chip: This wood fuel is CO<sub>2</sub>-neutral, is produced locally and is independent of oil and gas price fluctuations. Compared with other raw materials, it is cheaper because wood chip can be produced from residual wood from woodlands. The wood is left to dry outdoors for up to one year, and then processed and used for heating purposes.

There is also no need to compromise on comfort when heating with wood chip. The boiler automatically provides just the amount of heat desired all the time.

Sustainable fuel  
Locally sourced fuel supply  
Independence from fossil fuels

# + VARIOUS SHAPES AND SIZES

Variability of wood and different processing techniques means wood chip can be supplied in many forms. We recommend operating the PuroWIN with wood chip of classes P16S, P31S and A1, A2. More specifically, this means that wood chip with lengths of up to 150 mm and a water content of up to 35 percent is best (see E1). Using the correct wood chip, we can guarantee compliance with the specified emission limits without any additional measures such as filter technology.

### **Not all timber is the same**

The heating value varies depending on how coarse or fine the wood chip is, its water content and whether it is made from hardwood or softwood. This means that different amounts of wood chip are needed to provide the required level of heat from different qualities. Diagram O2 shows approximately how much wood chip is required for your system.



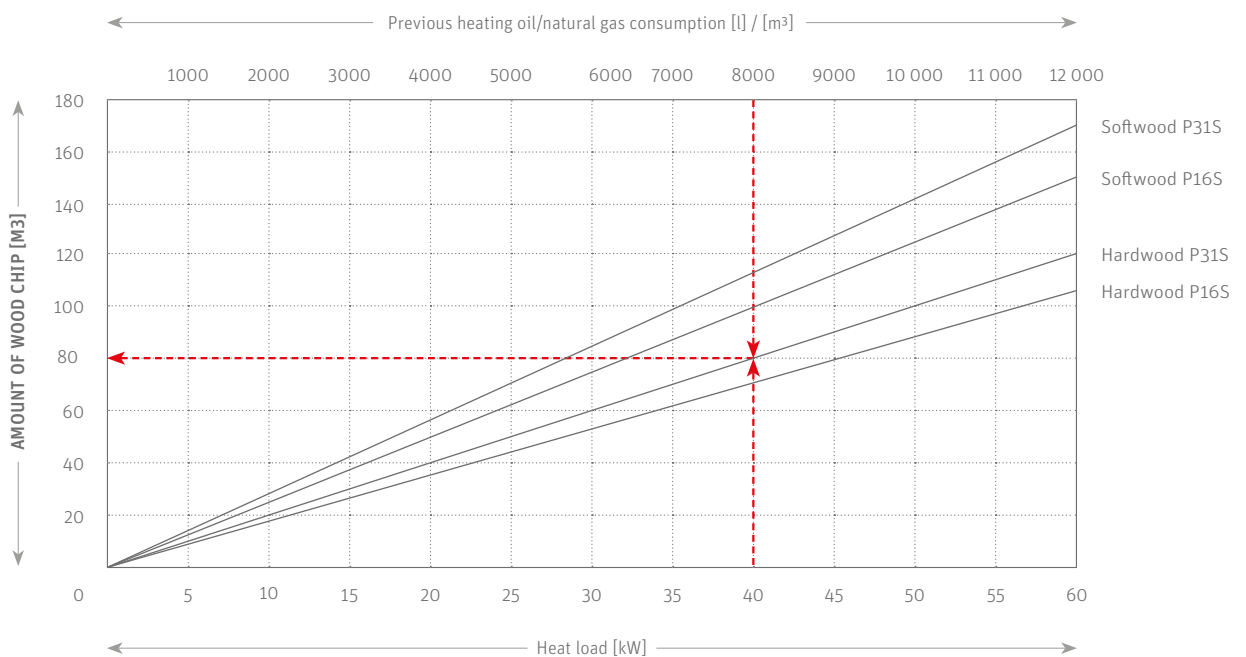
## 01. PERMITTED SIZES AND QUALITY CLASSES

EN ISO 17225-4	Roughly corresponds to ÖNORM M 7133	Maximum length	Maximum cross-section area	Maximum water content
P16S P31S	G30 G50	45 mm 150 mm	2 cm <sup>2</sup> 4 cm <sup>2</sup>	
A1 A2	W20 W35			25 or 20 % 35 %



## 02. ROUGH CALCULATION OF AMOUNT OF WOOD CHIP NEEDED ANNUALLY

Water content approx. 30 %



# + COMBINING AND OPERATING OUR PRODUCTS

Why complicate it so easy? With us you get everything from one source: innovative heating solutions and perfectly fitting heating components. thanks to the Windhager system technology, you can combine all our products easily. The Energy is used efficiently, since MES INFINITY ensures that all components interact optimally.

Touch control panel in teh boiler, also available as Master operating module placed in the living room

Basic or function modules can be mounted either in the boiler or onto the wall

myComfort control app for simple control by smartphone or tablet when you are out and about





The InfoWIN Touch from Windhager makes light work of controlling your heating system. The high-quality glass screen on the PuroWIN allows the display to be touched and swiped making the interaction with the boiler simple and easy. The InfoWIN Touch is also available as a control unit for living rooms and includes the web server for remote access via the myComfort app.

High-resolution graphics and brilliant colours

Durable, scratch-resistant glass display

Intuitive touch and swipe operation



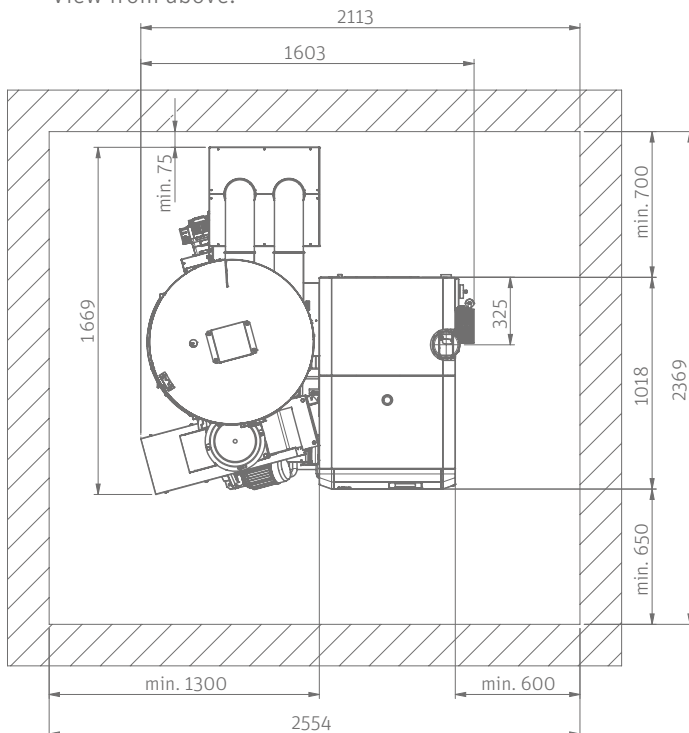


<b>PuroWIN</b>	<b>Unit</b>	<b>PW 24</b>	<b>PW 30</b>	<b>PW 40</b>	<b>PW 49</b>	<b>PW 60</b>
Rated output range	kW	7,2-24	9-30	12-40	14,7-49	18-60
Boiler efficiency at nominal load (W20 wood chip)	%	93,5	93,4	93,8	94,2	94,7
Total boiler weight	kg	528	528	562	562	593
Weight of boiler body	kg	497	497	531	531	562
Weight fuel hopper (PuroWIN with suction feed)	kg	110				
Volume fuel hopper (PuroWIN with suction feed)	l	270				
Flue gas connection diameter	mm	130				
Power consumption of boiler during part load/nominal load	W	53 / 81	54 / 92	60 / 105	66 / 120	72 / 133
Dimensions of boiler body with crate, W x D x H	mm	826 x 993 x 1812				
Minimum installation dimensions of boiler body, W x D x H	mm	785 (745) x 978 x 1663				

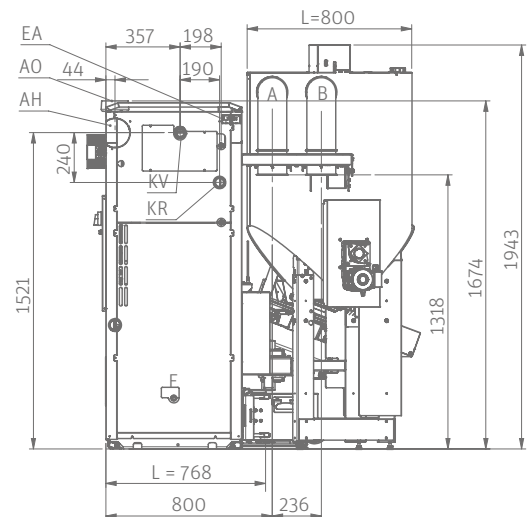
**PuroWIN with suction feed**

All measurements in mm. Minimum room height: 2000 mm

View from above:



Rear view:



# + THE WINDHAGER PRINCIPLE

## Accurate advice from our expert PARTNERS

Our expert PARTNERS are on hand to answer any questions you may have about our products. These experienced heating specialists work closely with us to ensure you receive the best possible service.

## Quick and professional customer service

The heating professionals working in our extensive customer service network provide rapid, expert and solutions-based support day in, day out.

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