

+ WOOD CHIP BOILER

SINCE 1921
windhager
HEAT WITH VISION

7 to 100 kW, Kaskade up to 400 kW

PURO WIN



REVOLUTION
IN WOOD CHIP
HEATING

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+ HEATING SINCE 1921

3

For almost 100 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.

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 flexibly to supply heat. The zero-emission gasification boiler offers impressively smart and safe technology and is also the first boiler to utilise suction to transport wood chip.

The PuroWIN covers heating requirements up to 100 kW. The boilers can also be connected to create Kaskades covering heating requirements up to 400 kW, making them suitable for use in larger-scale agricultural holdings, commercial and municipal buildings, or even hotels.



Dust emissions are at the limit
of what technology is able to
measure

Patented wood chip gasification combustion process

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

See the video!



A⁺

In package up to*

A⁺⁺

* with MES control and/or Solar

+ 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 completely 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, the PuroWIN is rarely subject to damage or failures caused by potential foreign bodies contained in the fuel. Unlike solutions with a grate mechanism, 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

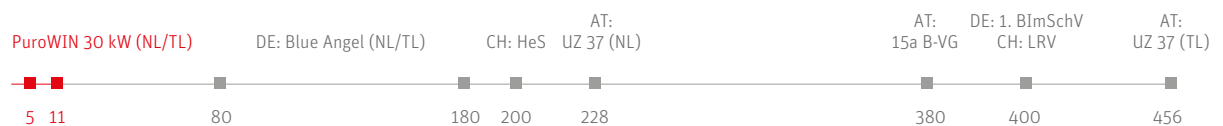
Stated in mg/m³, TL=part load, NL=nominal load





02. LIMITS FOR CO EMISSIONS

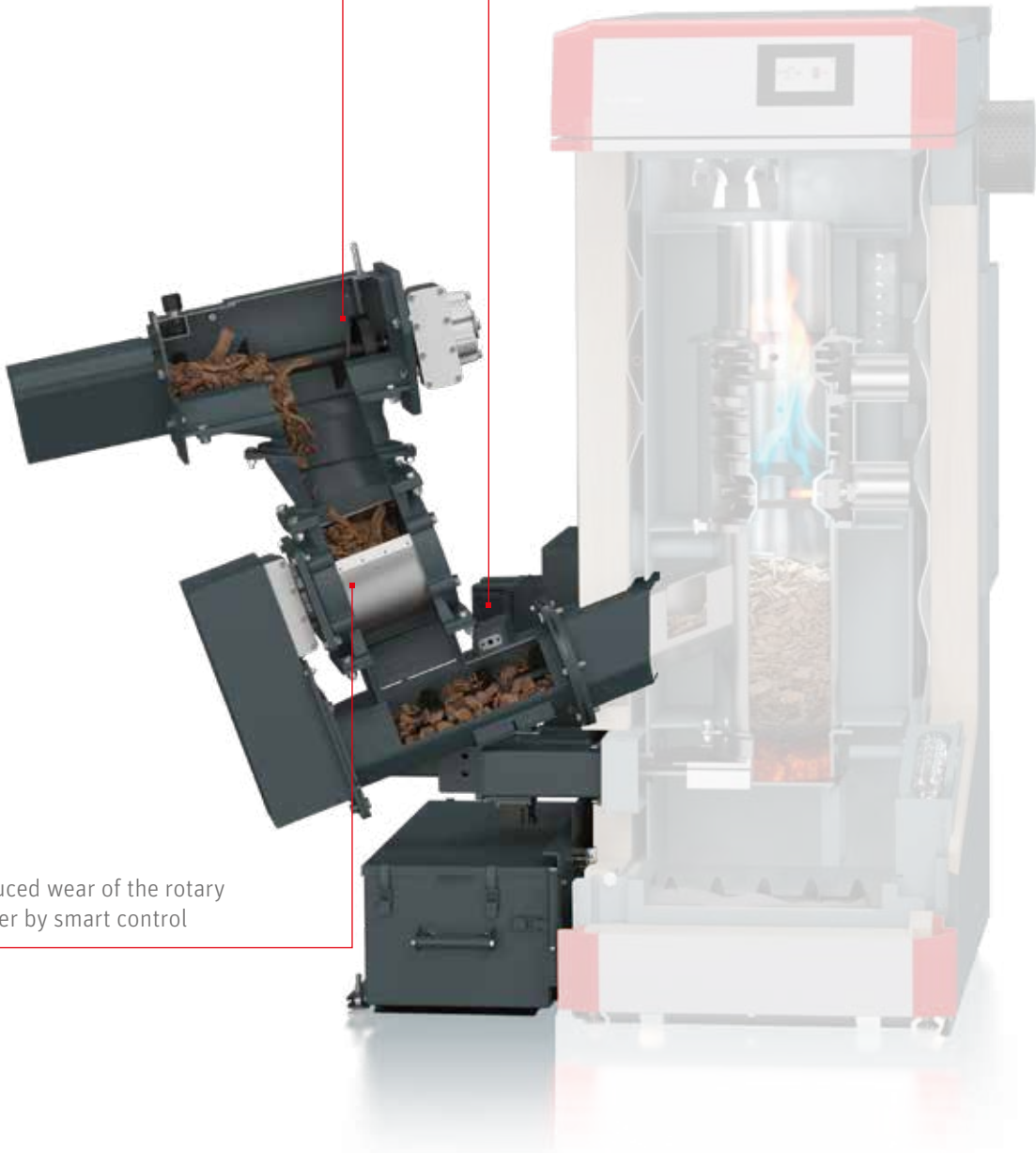
Stated in mg/m³, TL=part load, NL=nominal load



Anti-Blocking System (ABS) for reliable transportation of wood chips

Operation with 230V

Reduced wear of the rotary feeder by smart control



The motor in the PuroWIN's fuel store extraction system is very economical. On average, it needs just 120 W compared with conventional motors using up to 500 W. 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 a reliable wood chip transport 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 possible 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 120 W 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 230 V single phase domestic electrical supply.

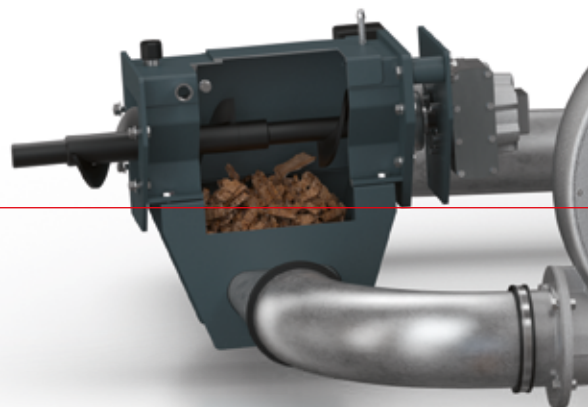
+ THE BOILER TO MOVE WOOD CHIP WITH AIR

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 25 m or heights of up to 7 m. 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.

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

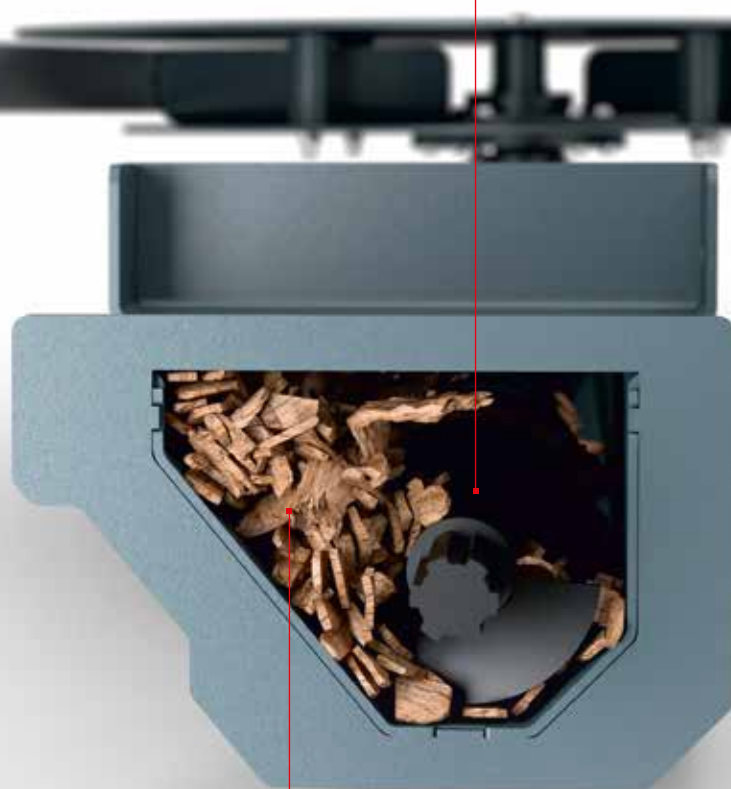


The suction system can handle distances of up to 25 m or heights of up to 7 m

The stainless steel fuel hopper is robust and resistant to wear



The 6 mm thick auger spiral is extremely resilient



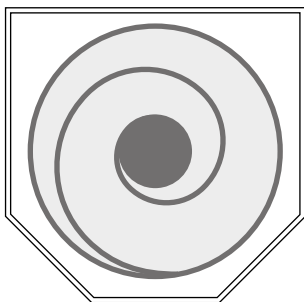
Quiet and efficient transport as up to 60 percent of the wood chip is transported to the side

+ THE AUGER FOR ALL SCENARIOS

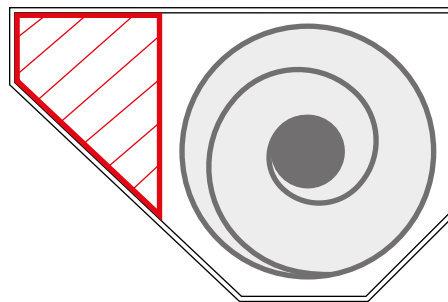
The PuroWIN delivers maximum operating reliability, not just for the boiler itself, but also for the fuel extraction system. For the PuroWIN, we have developed an unique safety auger channel with Side Slide Technology (SST). Unlike conventional auger transport systems, this auger channel is much bigger 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



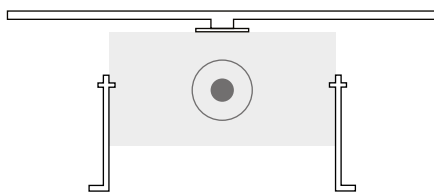
02. Cross-section of auger channel from Windhager

+ ROBUST AGITATOR PROTECTION

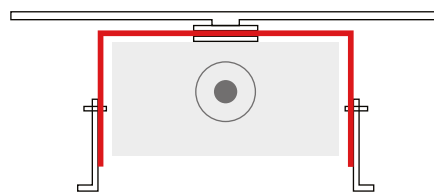
We have further developed the extraction method for the wood chip storage room and improved key components to prevent blockages: The spur gear unit of the agitator is protected and requires no maintenance. It is reliable and combines high efficiency with great ease of movement. It uses up to 75% less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

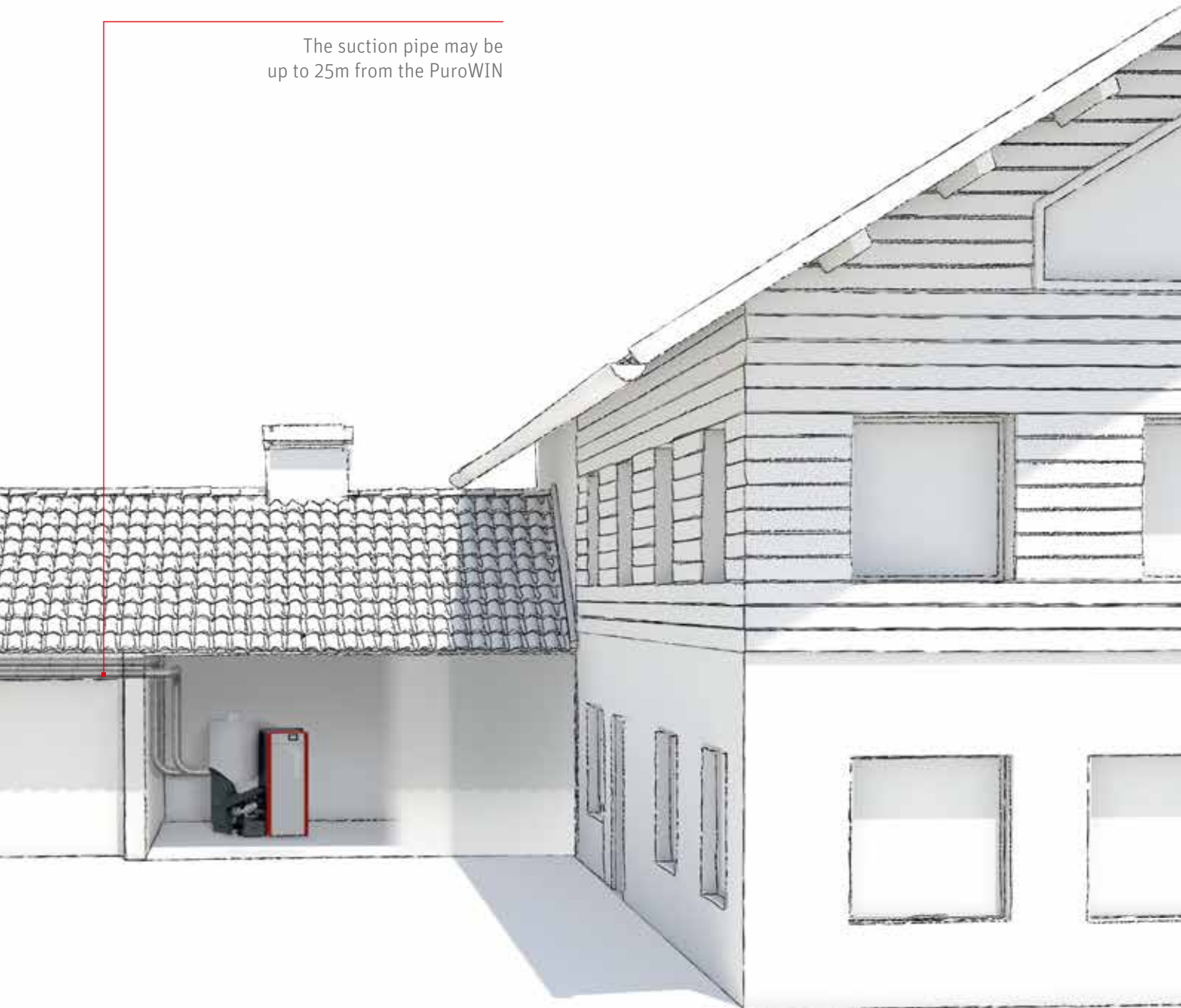
+ FLEXIBLE TRANSPORT OF WOOD CHIP

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 or 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



WOOD

+ CHIPS

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 CO₂-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. The PuroWIN is approved with wood chip of classes P16S, P31S and A1, A2 (see O1). If you use these grades, you can be sure of compliance with the specified emission limits without any additional measures such as filter technology or prior cleaning. For ideal operation of the PuroWIN it is recommended to use wood chips with a moisture content of 20% to 30%.

Not all timber is the same

The heating value varies depending on how coarse or fine the wood chip is, its a moisture 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.



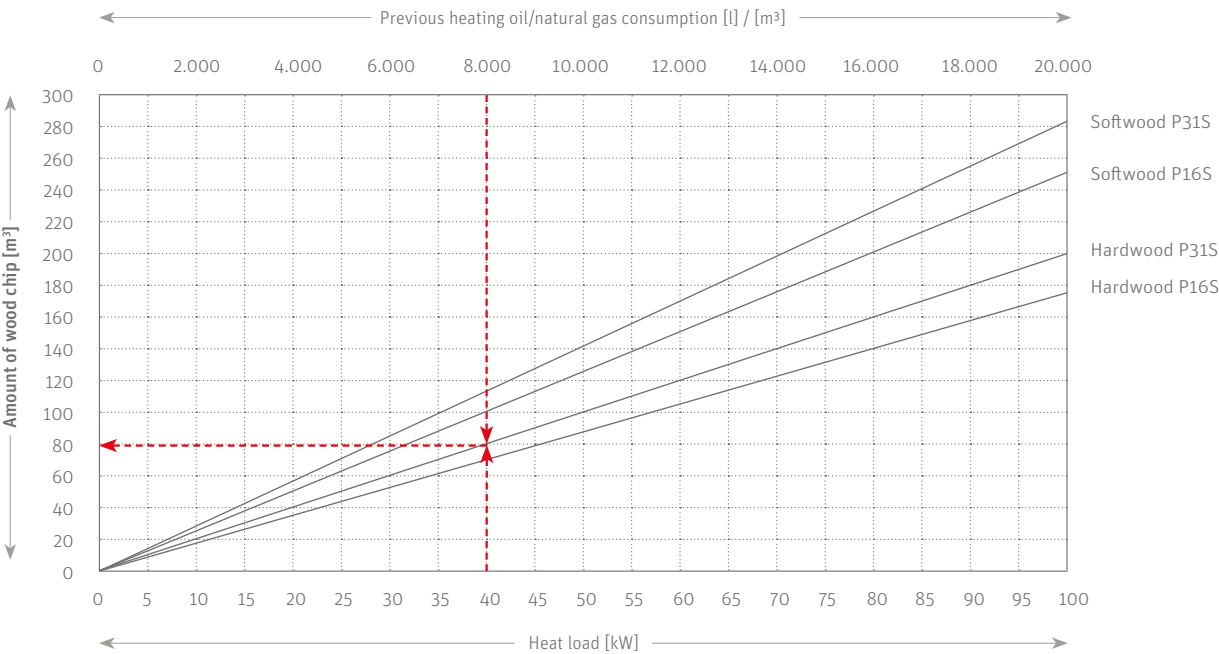
01. PERMITTED SIZES AND QUALITY CLASSES

EN ISO 17225-4	Roughly corresponds to ÖNORM M 7133	Length of the main part of fuel (≥ 60 %)	Maximum length	Maximum cross-section area	Maximum moisture content
P16S P31S	G30 G50	$3,15 < P \leq 16 \text{ mm}$ $3,15 < P \leq 31,5 \text{ mm}$	45 mm 150 mm	2 cm ² 4 cm ²	
A1 A2	W20 W35				25 or 20 % 35 %



02. ROUGH CALCULATION OF AMOUNT OF WOOD CHIP NEEDED ANNUALLY

Water content approx. 25 %



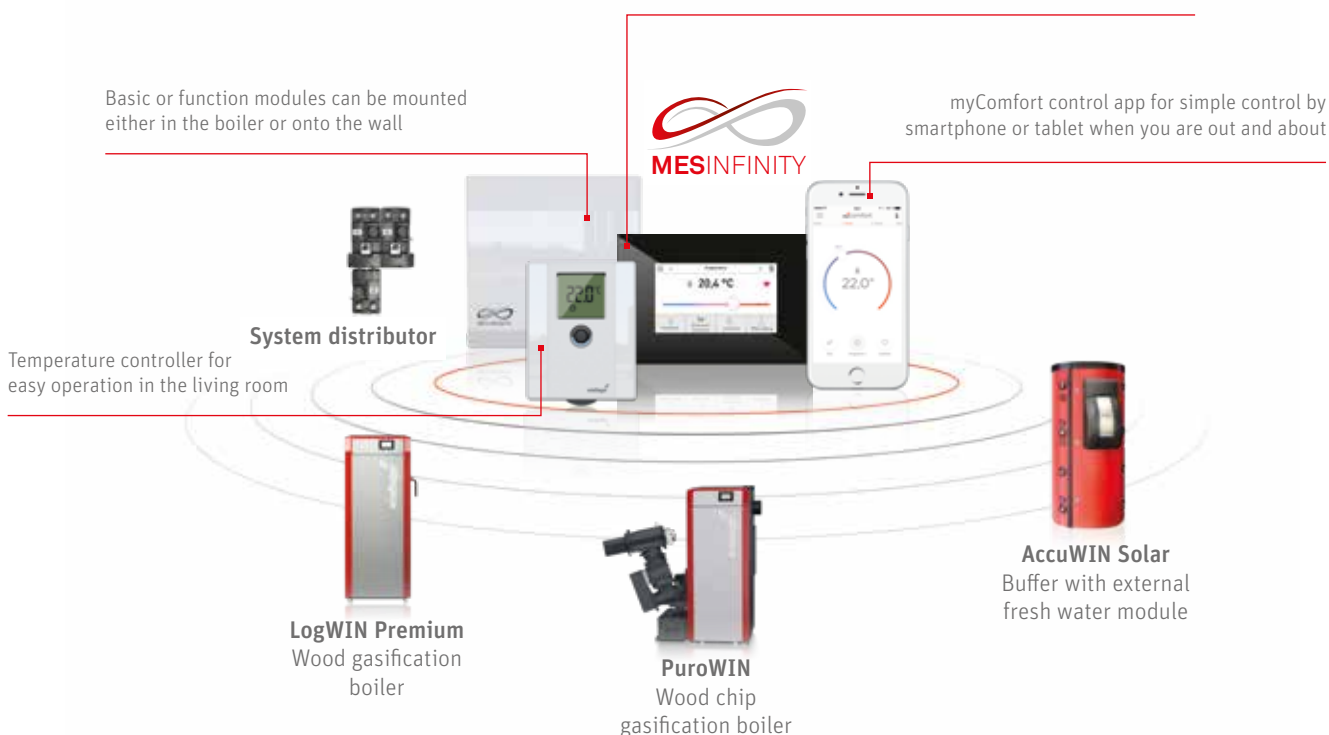
+ COMBINING AND OPERATING OUR PRODUCTS

A total system solution that is simple and uncomplicated. With Windhager you get all system components from one source: Innovative heating solutions and integrated system components. Thanks to the Windhager system technology, you can combine all our products easily. MES INFINITY ensures that all system components operate optimally ensuring maximum energy efficiencies are achieved.

Touch control panel in the 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 touch 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.

The PuroWIN is available in nine outputs up to 100 kW

If this is not enough for your needs, up to four PuroWIN's can be connected in a Kaskade t format up to 400 kW with direct auger – to cover larger properties, commercial buildings and district heating systems.

Possible power outputs up to 400 kW

Smart Kaskade control

Ideal for large properties and commercial buildings



+ HIGH PERFORMANCE

The PuroWIN boiler series is available in 24 kW, 30 kW, 40 kW, 49 kW, 60 kW, 72kW, 83 kW, 99 kW and 103 kW models. All PuroWIN models will run on wood chips (size P16S and P31S) and can be connected to create extremely efficient Kaskades comprising up to four boilers.

PuroWIN Kaskade

The PuroWIN can be combined to create Kaskades comprising two, three or four boilers. Specially developed by Windhager, the Kaskade regulation system constantly checks how many boilers as well as which ones need to be in operation to provide the required amount of heat. Balanced utilisation of the system is also ensured by creating Kaskades.

In comparison to a large boiler system, a Kaskade system is extremely reliable: if one unit fails to heat, you can continue heating normally with the second unit. Service and maintenance work can be carried out without having to switch off the heating.



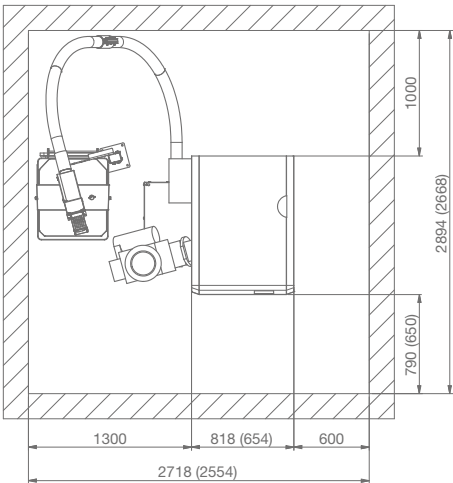
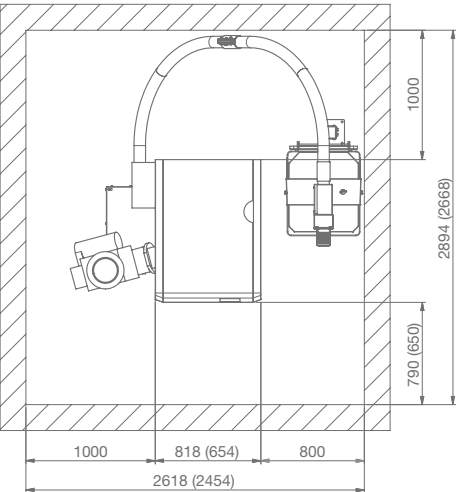
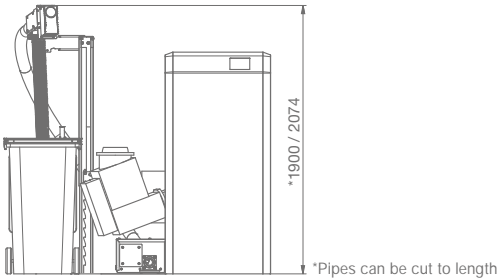
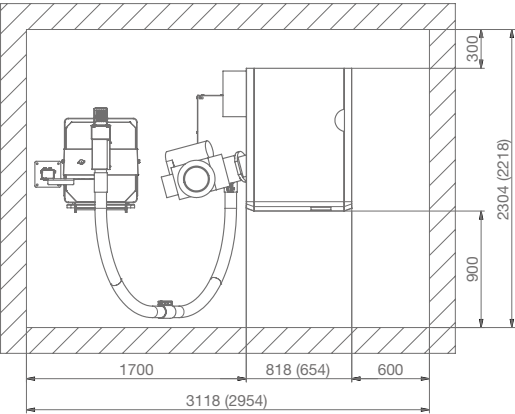
With our 240 litre ash box we are able to achieve emptying intervals of up to an entire heating season (depending on fuel and boiler output).

The galvanised steel container is on wheels to make it easier to take out. A flexible auger is used to further compress the ash and transport it automatically to the ash box.

For even greater convenience:
Ash box with 240 litre capacity

Installation options with the ash box on the left/right for PuroWIN direct

All measurements in mm (measurements in brackets for PuroWIN 24 – 60 kW).



+ TECHNICAL DATA

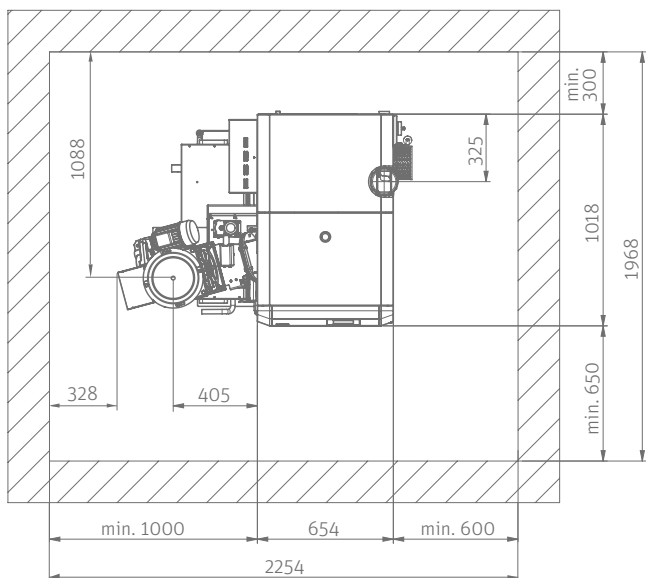
PW 24 - 60

KV Boiler flow (1 1/4" internal thread)
 KR Boiler return (1 1/4" internal thread)
 E Drain
 A Fuel supply (Ø 140 mm pipe)
 B Return fuel supply (Ø 140 mm pipe)
 AO Top flue connection (Ø 130 mm)
 AH Rear flue connection (Ø 130 mm)
 EA Electric connection
 SB Thermal process safeguard (1/2" pipe)
 L Delivered / transport dimensions

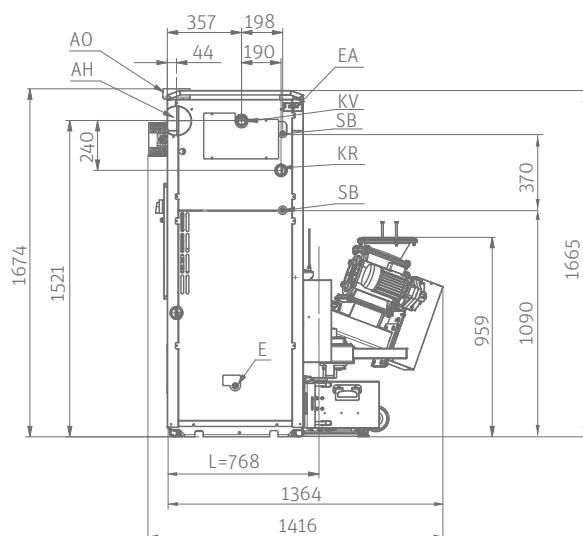
PuroWIN with direct auger, 7,2 - 60 kW

All measurements in mm. Minimum room height: 1950 mm

View from above:



Rear view:

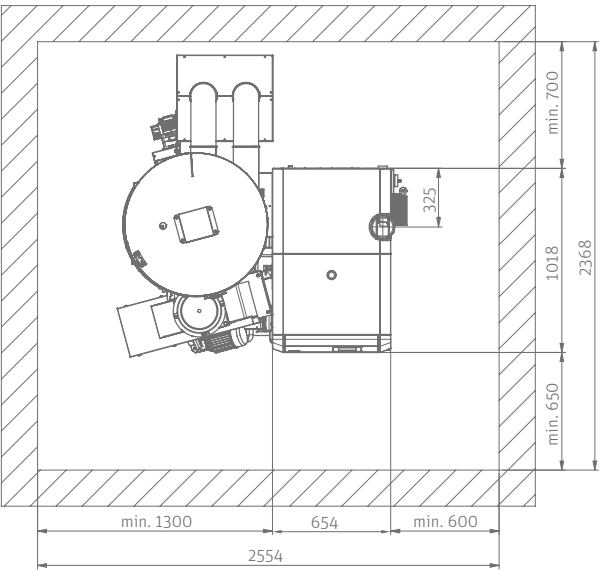


PuroWIN	Unit	PW 24	PW 30	PW 40	PW 49	PW 60
Rated output range	kW	7,2-24	9-30	12-40	14,7-49	18-60
Boiler efficiency at nominal/part load (W20 wood chip)	%	93,5 / 93,4	93,4 / 93	93,8 / 93,6	94,2 / 94	94,7 / 94,5
Total boiler weight	kg	528	528	562	562	593
Weight of boiler body	kg	497	497	531	531	562
Weight 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 on pallet, W x D x H	mm	780 x 975 x 1795				
Minimum installation dimensions of boiler body, W x D x H	mm	768 x 975 x 1663				
Minimum installation dimensions of integral fuel hopper, W x D x H	mm	800 x 1211 x 1356				
Energy efficiency category		A+				

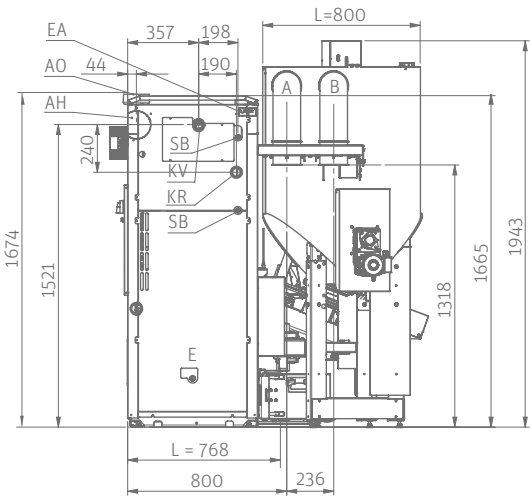
PuroWIN with suction feed, 7,2 – 60 kW

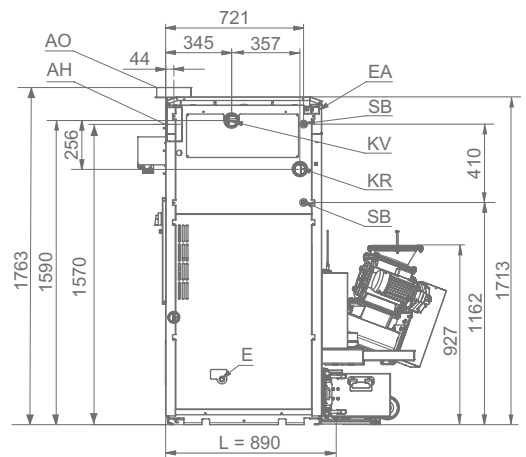
All measurements in mm. Minimum room height: 2000 mm

View from above:



Rear view:



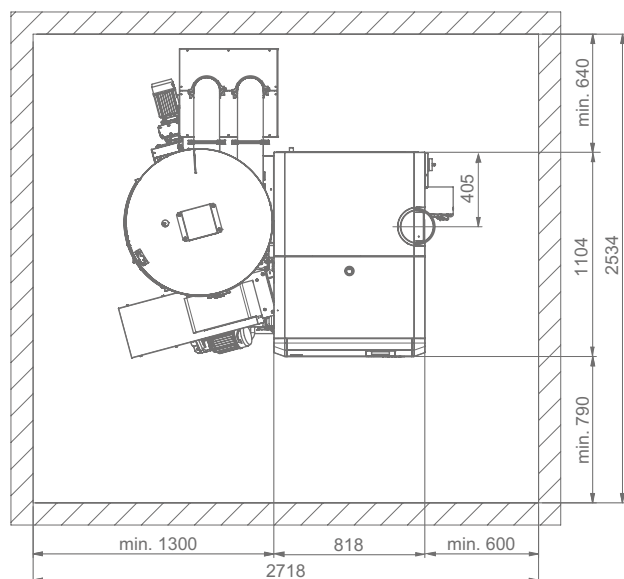


PuroWIN	Unit	PW 72	PW 83	PW 99	PW 103
Rated output range	kW	21,6-72	24,9-83	29,7-99	30,9-103
Boiler efficiency at nominal/part load (W20 wood chip)	%	94,3 / 94,5	93,8 / 94,5	93,1 / 94,5	93,1 / 94,5
Total boiler weight	kg	1.007			
Weight of boiler body	kg	881			
Weight fuel hopper (PuroWIN with suction feed)	kg	135			
Volume fuel hopper (PuroWIN with suction feed)	l	475			
Flue gas connection diameter	mm	180			
Power consumption of boiler during part load (wood chip)	W	93	116	141	141
Power consumption of boiler during nominal load (wood chip)	W	174	220	294	294
Dimensions of boiler body on pallet, W x D x H	mm	920 x 1065 x 1850			
Minimum installation dimensions of boiler body, W x D x H	mm	890 x 1050 x 1710			
Minimum installation dimensions of integral fuel hopper, W x D x H	mm	800 x 1211 x 1756			
Energy efficiency category		A+			

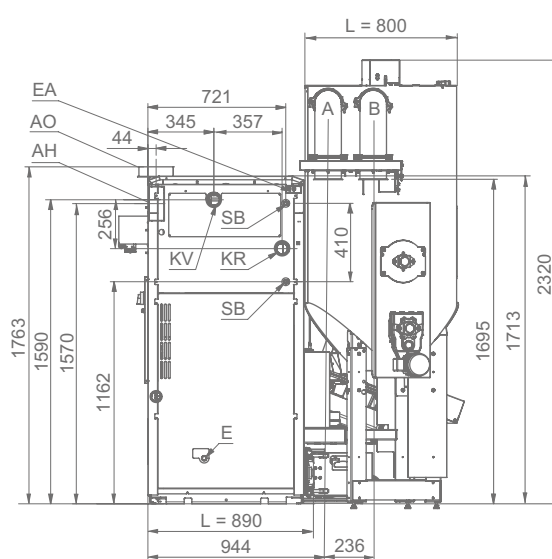
PuroWIN with suction feed, 21,6 – 103 kW

All measurements in mm. Minimum room height: 2370 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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windhager
HEAT WITH VISION

SINCE 1921