



PRODUCT INFORMATION

KWB POWERFIRE

Wood chip and pellet heating system



KWB POWERFIRE

**WOOD CHIP AND PELLET
HEATING SYSTEM 150 - 300 kW**



**INDUSTRIAL
QUALITY**

**FLEXIBLE AND
EFFICIENT
HEATING**



PREMIUM QUALITY "MADE IN AUSTRIA"

KWB is the Austrian quality producer of pellet, wood chip and log wood heating systems in the output range from 2.4 to 300 kW. As a pioneer in this sector, we have revolutionized heating with wood. More than 90,000 customers worldwide trust our expertise, including single- and multi-family home owners, agricultural businesses, tour operators, commercial business and utility companies.

KWB is the ideal single-source solution. Our premium products are operationally reliable, and guaranteed Made in Austria. Our assistance commences during your decision-making process and we continue to assist you, together with our trusted partner installation companies, all the way to the installation of your customized comprehensive solution. Our KWB Factory Customer Service and our distribution partners in your vicinity will also be glad to help you at any time!

We provide energy for life!



**PREMIUM QUALITY
"MADE IN AUSTRIA"**



**MORE THAN 90.000
SATISFIED CUSTOMERS**



**NUMEROUS AWARDS FOR THE
FACTORY CUSTOMERS SERVICE**



MADE IN AUSTRIA! AT HOME ALL OVER THE WORLD!

KWB stands for regional and eco-friendly heating with wood. The headquarters of the company is located in the Styrian town of St. Margarethen/Raab (Austria) with subsidiaries in Germany, Italy and France. In 16 additional countries, from Canada to Chile and all the way to Japan, we rely on our strong distribution partners. Together we spread KWB's philosophy all over the world.





THE SINGLE SOURCE SOLUTION

FROM PLANNING TO MAINTENANCE

KWB offers its customers full support during the implementation of a biomass system. If an on-site appointment has been agreed, a plan drawing will be prepared for the planned systems during follow-up. For wood chip operations, screw lengths and required wall openings are important criteria, for pellet operations, the filling nozzle placement must make sense and a careful feed of the pellets to the boiler is an important criterion. Before we implement the system, we consider the current fuel extraction situation, and our Regional Partner will subsequently provide support at the building site and during commissioning. The KWB Powerfire is also modu-

lar (KWB's modular and easily transportable system), but due to the weight and dimensions of the components, the installation of the system requires detailed preliminary planning.

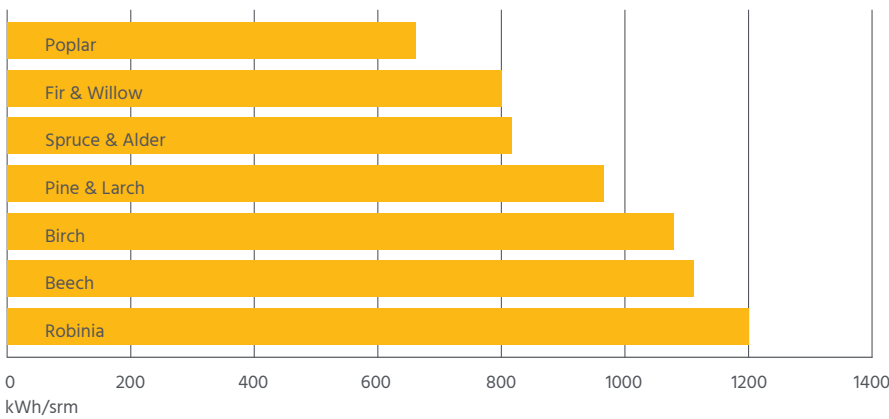
Extensive customer service offerings provide security. If the existing rooms do not provide sufficient space or if a completely new heating system is planned, we can offer possible container solutions.

For the filling of wood chip storages, we optionally offer a bunker filling screw. In addition to various stirrer fuel extraction options, we can also implement a sliding floor. The possibilities are endless.

HIGH FLEXIBILITY

FOR DIFFERENT FUEL QUALITIES

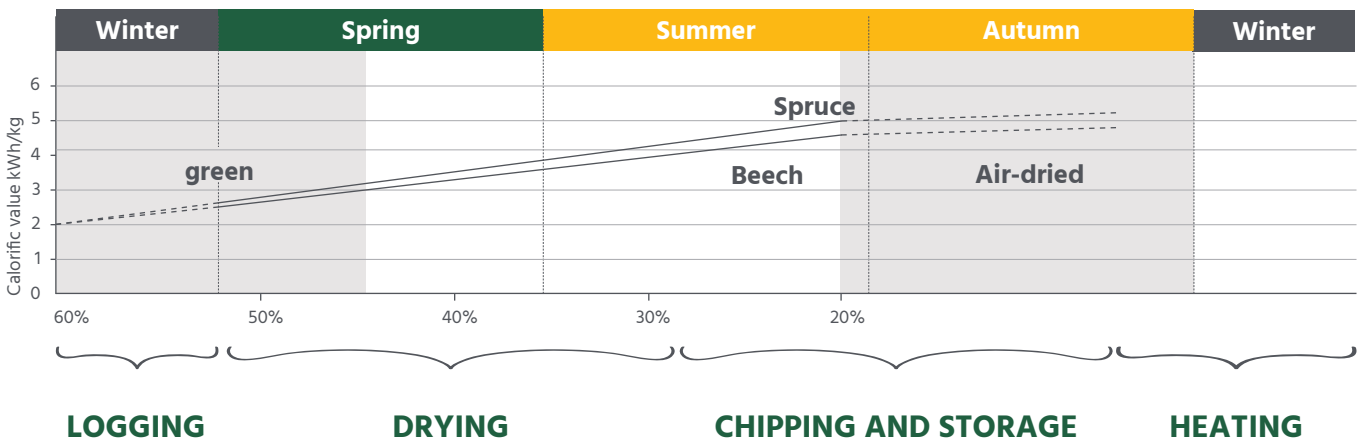
With the KWB Powerfire even wood chips with varying quality can be used as fuel.



CALORIFIC VALUE OF DIFFERENT WOOD TYPES BY VOLUME (W=20)

The higher the proportion of kWh to loose cubic meters (srm), the lower the storage room requirement for the fuel. 1 srm corresponds to 0.4 solid measures of timber (fm). The moisture contained in the wood (w) is specified as a % of the green wood.

TWICE THE ENERGY CONTENT WITH OPTIMAL DRYING

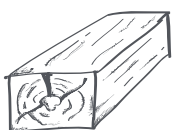


LOGGING

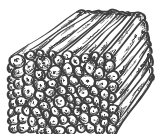
DRYING

CHIPPING AND STORAGE

HEATING



1 solid measure of timber (fm = 1m³) solid wood material



1.4 stacked cubic meters (rm) log wood



2.5 loose cubic meters (srm) wood chips

1 fm Beech wood (w = 20%) ≈ 292 litres of heating oil | 1 fm Spruce wood (w = 20%) ≈ 210 litres of heating oil

KWB POWERFIRE

FLEXIBLE AND EFFICIENT HEATING

- ✓ **Flexible fuel selection thanks to the unique revolving grate burner system**
- ✓ **Easy installation and quick maintenance**
- ✓ **Long ash emptying intervals**

The KWB Powerfire wood chip and pellet boiler is the ideal heating system for the heat supply into regional district heating networks, commercial businesses and multi-storey and residential buildings. It convinces due to its particularly flexible and economical combustion and is available in the output range between 150 kW and 300 kW. Thanks to its modular structure, the heating system can also be installed in very tight spaces. For this reason, it is very suitable for renovated buildings. Thanks to its movable substructure, maintenance can be performed with minimum effort. The convenient optional 240-litre ash bin guarantees long ash emptying intervals.

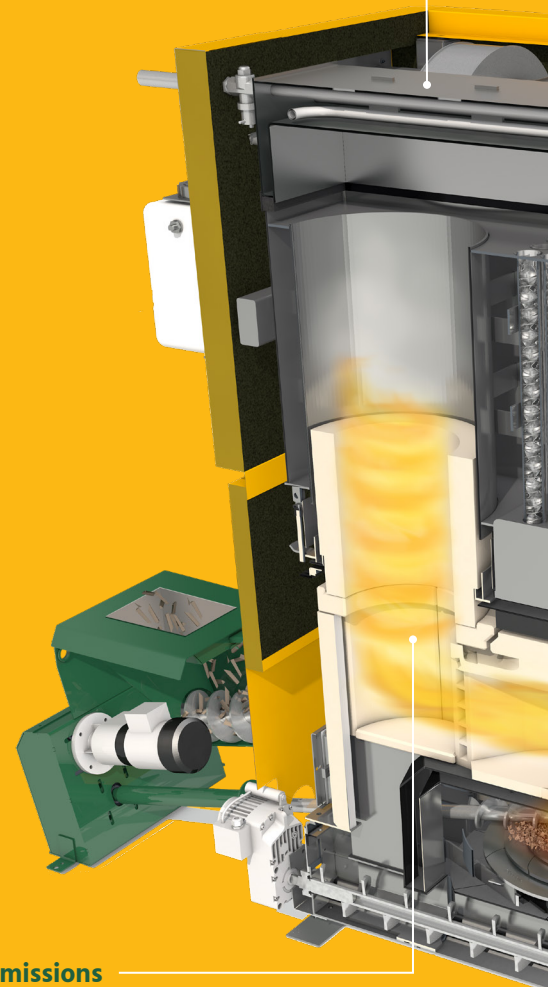


MAXIMUM FUEL UTILIZATION

thanks to the self-cleaning revolving grate system. It is produced of high-alloy and self-cleaning grate elements according to industry standard. The movable grate is thus able to handle varying fuel qualities. This makes you even more flexible when heating with wood chips or pellets. The fuel is fully used up thanks to the integrated burn-out control.

Efficient combustion

due to the broadband lambda probe which ensures continuous monitoring and optimal control of the combustion. You benefit from low energy consumption and high operating safety.



Low emissions

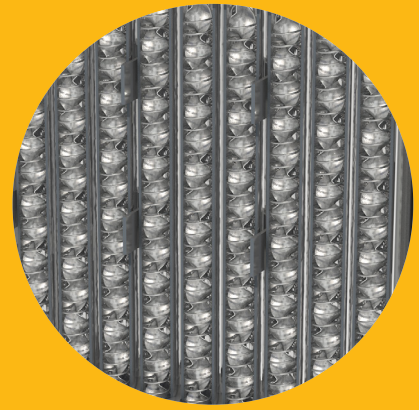
due to the high-temperature vortex combustion chamber during which the wood gas is burned at high temperatures almost without residue. The moulded bricks of the combustion chamber are divided into multiple components. If replacement is required, it is possible to replace individual components.

Convenient heat exchanger ash removal

Longer emptying intervals due to a larger fly ash container (only for 240/300 kW).

KWB Comfort 3 control system

2-button operation with dial and easy to understand graphic display.



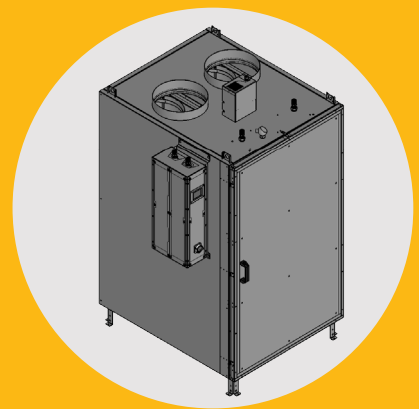
HIGHLY EFFICIENT TUBULAR HEAT EXCHANGER

Ensures optimal heat exchanger cleaning, low exhaust temperatures and a consistently high degree of efficiency.



EXHAUST GAS CIRCULATION

Optionally for an optimal degree of efficiency, low emissions, guaranteed durable system protection with dry fuels ($w < 20\%$).

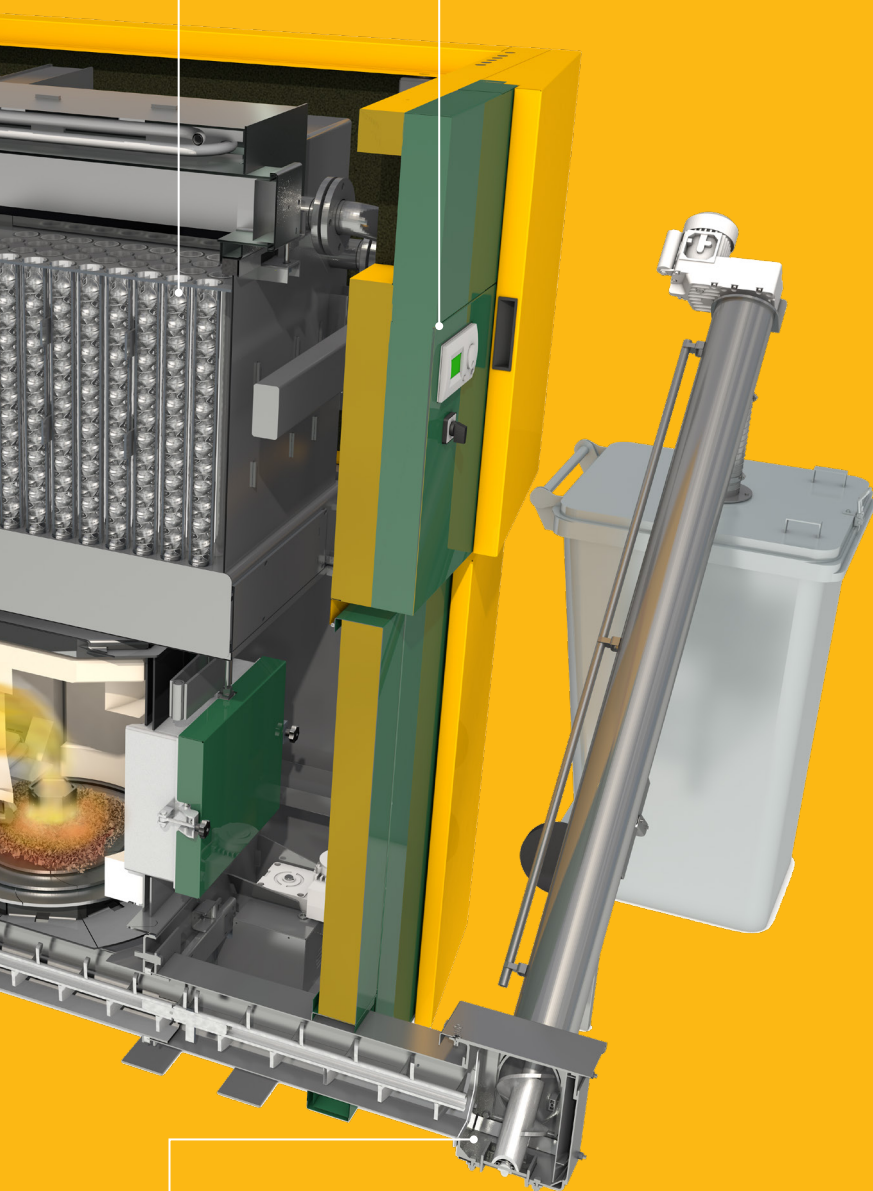


FINE DUST FILTER

Electrostatic function with a separation effect of up to 80%. The cleaning occurs fully automatically in coordination with the heating system's cleaning intervals.

Ash removal system

Fully automatic ash removal into the internal ash container with 66 litres. Optionally, external ash removal into a galvanized bin with a capacity of 240 litres. This ensures high convenience thanks to maximum ash emptying intervals.



OUR UNIQUENESS SETS US APART

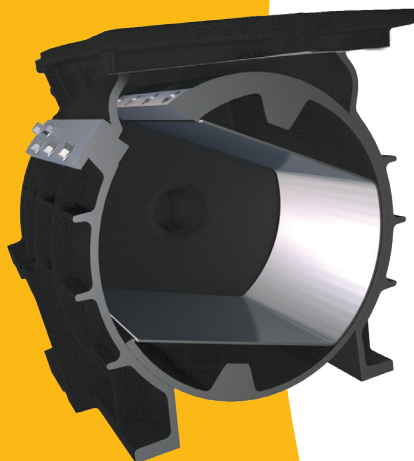
RELIABLE HEATING

This investment pays off quickly: A heating system with a long service life that saves on energy and fuel costs. In short, a product that makes a difference thanks to well thought out details. For the fuel supply, you can choose between a stoker container with fire shutter or a stoker container with cellular wheel sluice.



LOWEST ENERGY CONSUMPTION – FIRE SHUTTER

The **KWB Powerfire type TDS** is equipped with a level-controlled stoker container which is automatically filled with wood chips or pellets from the storage room. This means that the conveyor system starts up less frequently and only conveys fuel if the hopper is empty. This ensures that the heating is evenly refilled with fuel. Thanks to the fire shutter, noise emissions and energy consumption are minimized.



MAXIMUM TOLERANCE – CELLULAR WHEEL SLUICE (OPTIONAL)

The specially formed internal space of the cellular wheel sluice ensures consistently high conveyance volumes even with fuels with low energy content. The optional cellular wheel sluice offers a drop height of **25 cm and is well-suited for large and long wood chip pieces P31S (main fraction up to P45S)**.



CONVENIENT, FULLY AUTOMATIC HEAT EXCHANGER ASH REMOVAL

With the optional fly ash container, which stands on the floor and can be rolled away, the fly ash storage volume expands from the standard 65 litres to 190 litres. This ensures high convenience thanks to maximum ash emptying intervals. Optionally for the KWB Powerfire 240 / 300 kW.

EASY OPERATION

KWB COMFORT ONLINE

The KWB Comfort 3 and KWB Comfort 4 are modular control systems and are used to control the heating system. The KWB Powerfire heating system is operated and controlled via the KWB Comfort 3. Two buttons, a dial and a well laid out graphic display comprise the surface of the KWB Comfort 3.



ONLINE CONTROL

SECURE REMOTE-CONTROLLED HEATING

Even more convenience and operating safety is guaranteed by the online platform KWB Comfort Online. With this platform, the boiler can be easily remotely ignited, controlled and maintained from a smartphone, tablet or PC. Check on the operating status of your heating, control heating times and temperatures and receive messages and status changes via SMS or email. If desired, you can also provide third parties with (temporary) individual access to your systems, such as your heating installer or the KWB Customer Service.

EFFICIENT CONTROL

OPTIONAL HEATING SYSTEM MANAGEMENT VIA KWB COMFORT 4

The remaining heating management is operated and controlled via the KWB Comfort 4, if desired. For this, you need the Autonomous external heating management module. Depending on the configuration, the control of outside temperature-controlled heating circuits with mixer control and heating circuit pump, storage management of buffer and hot water storage tanks incl. circulation pump activation as well as the control of solar systems are possible. And all this is heat demand-dependent, fully automatic and output-modulated.

HEATING NETWORKS

PERFECT BUFFER AND CASCADE MANAGEMENT

The KWB Powerfire is with the KWB Autonomous heating management module also optimally equipped for the supply of heating networks, even without external switch cabinet. Due to its high fail-safety, the heating networks are



frequently supplied by a multi-boiler system. With the new KWB Sequence control unit, a runtime-optimized control of up to 8 KWB biomass heating systems plus additional external peak load boiler is possible. Activation is infinitely modulating. This results in an efficiency increase with reduced emissions values of the overall system. In addition, a seasonal operating mode and the integration of the boilers into the building control system via a ModBus interface is possible.

* Boilers of any heating system manufacturers

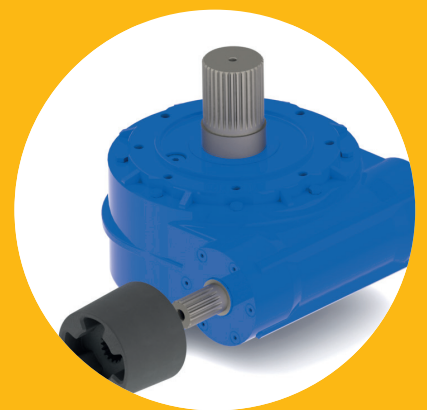
RELIABLE, LONG SERVICE LIFE

KWB STIRRER

The KWB stirrer with conveyor screw on a massive, hollow shaft supported by two bearings is customized in length and diameter to the specific needs of the customer. Stirrer diameters of 2.5 to 5.5 meters are possible. Storage rooms may be square, rectangular or round and can be situated above the heating room, at the same level or below it.

Broad fuel flexibility

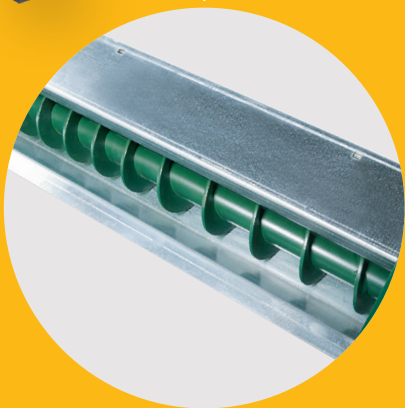
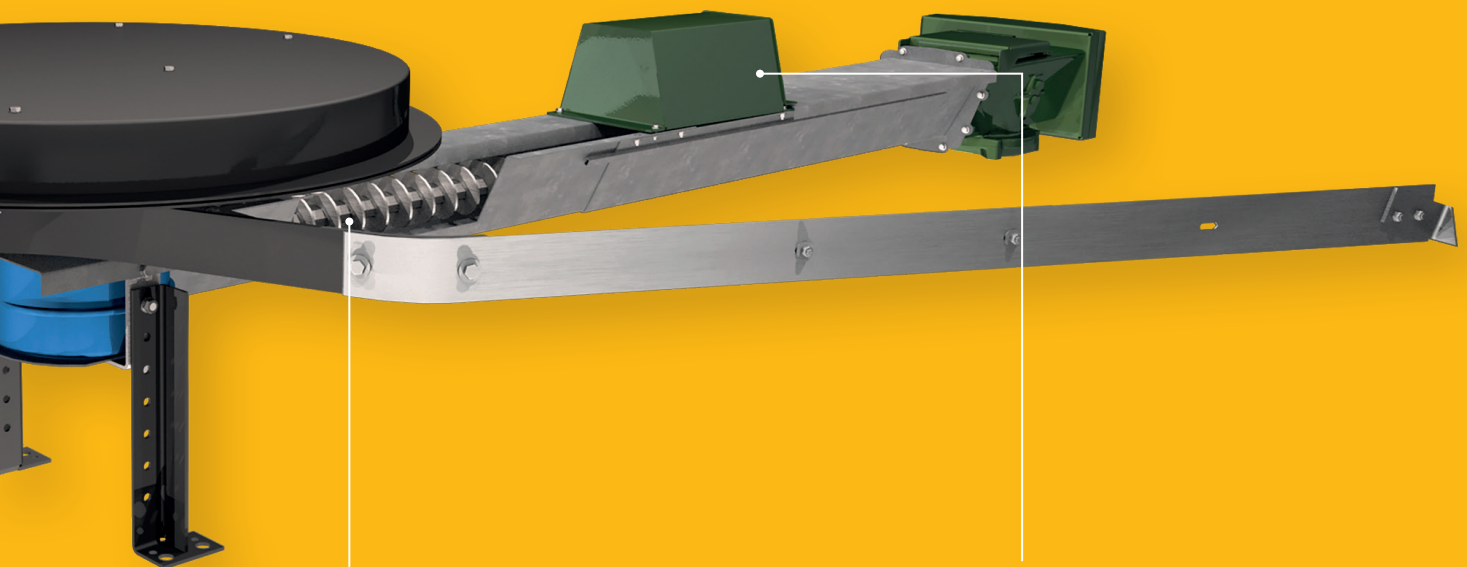
The conveyor system is suitable for wood chips of the categories A1, A2 and B1 up to a particle size of P16S (main fraction to P31S), P31S (main fraction to P45S) in accordance with ISO 17225-4 as well as for the transport of wood pellets with \varnothing 6 mm or \varnothing 8 mm in accordance with ISO 17225-2.



NO MAINTENANCE EXPENDITURES

in the fuel storage room thanks to a sturdy heavy-duty gear unit.

- ✓ **Integrated wall duct box (comes standard)**
replaces additional inspection opening.
- ✓ **Maximum utilization of the storage room volume** possible thanks to a horizontal channel construction with a separate ascending screw. The conveyor or screw length is customized to the local situation.
- ✓ **Fuel changes** between wood chips and pellets are possible without mechanical changes at the boiler and without switching out the conveyor system.
- ✓ **Optimal emptying of the fuel storage room** thanks to the uniform contact force of the articulated-blade rotary stirrer over the entire diameter.
- ✓ **Low energy consumption**
An optimized channel form and progressive spiral distances as well as highly efficient gear components with load monitoring reduce the power consumption.



HIGH OPERATING SAFETY

due to the one-piece, fully welded conveyor screw with stainless steel spiral. The gradually increasing spiral distances prevent potential blockages (3x progressive).



LONG SERVICE LIFE

due to an optimized, trapezoid channel with partial cover to relieve pressure from the conveyor screw.



ECONOMICAL HEATING

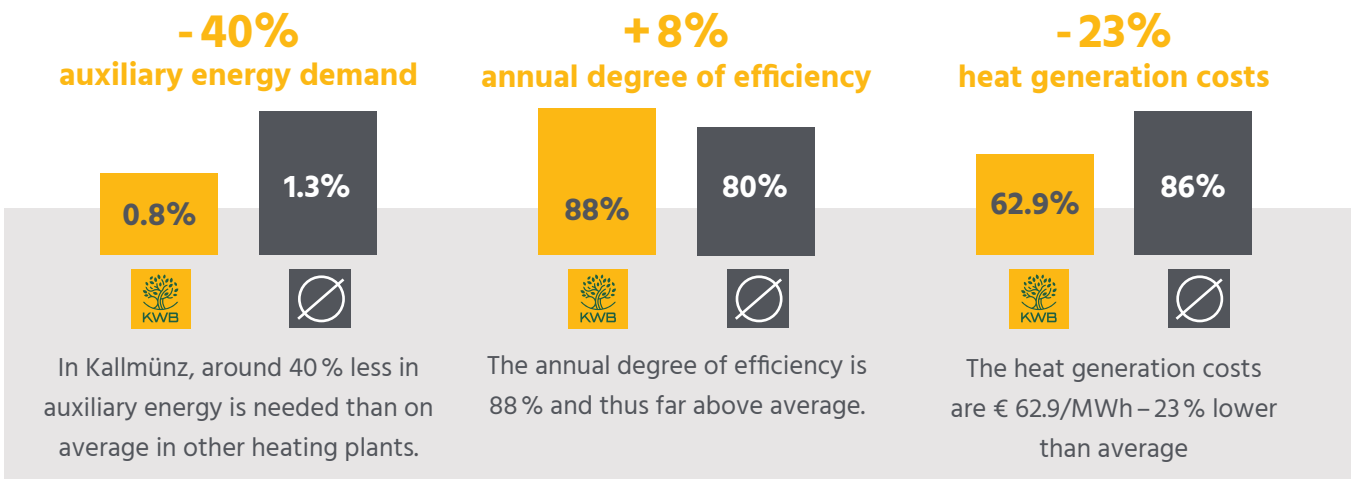
HEATING PLANT KALLMÜNZ: TOP MARKS THANKS TO KWB POWERFIRE

A KWB Powerfire (300 kW) heating system operating in the co-generation plant Kallmünz is one of the most economic biomass heating plants in Germany. According to C.A.R.M.E.N. e. V., it even happens to be the most profitable system of its size in all of Bavaria.

The biomass co-generation plant currently heats a retirement home, a home for assisted living, an orphanage, a Schullandheim (temporary residence for students on class trips during term), a large kitchen and a laundry. The system is running so efficiently, according to operator Max Schmalzbauer, because the long-term maintenance contract guarantees continuous care by the KWB Factory Customer Service.

PROFITABILITY OF THE BIOMASS HEATING PLANT

Compared to the Bavarian average



(Details for comparison can be found at www.carmen-ev.de)



KWB
MODULAR
ASSEMBLY
SYSTEM

CLARITY IN BUILD AND PURPOSE

KWB'S MODULAR AND EASILY TRANSPORTABLE SYSTEM

All KWB systems can be dismantled into several modules, which allows our products to be placed in almost every heating room and easily installed even in tight spaces. We call it the **KWB modular and easily transportable system**.



You can schedule less time

because your technician can move the heating system into the heating room more quickly.



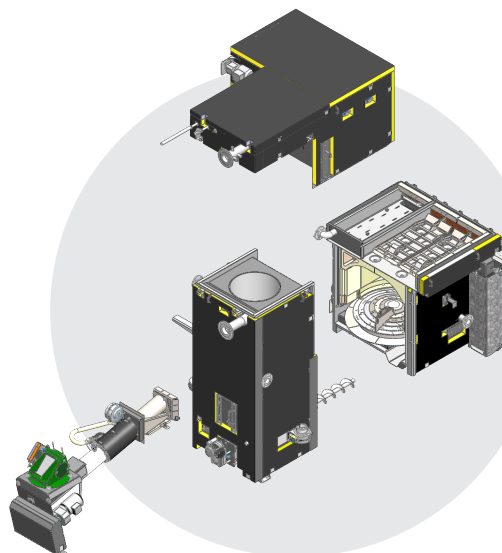
You save money

because your contractor works faster and does not require expensive installation aids.



You preserve and protect your space.

The reduced weight of the individual pieces makes it less likely that you scratch any surfaces of your furnishings.

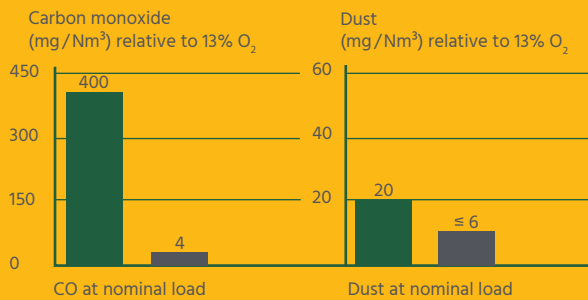


CLEAN COMBUSTION

CLEAN EFFICIENCY- TECHNOLOGY

The cleanEfficiency label indicates lowest emission values, highest efficiency and low energy consumption as well as a perfect alignment of construction and control elements.

EMISSION VALUES AT NOMINAL LOAD



- Legally prescribed emission values, BImSchV Germany, applicable as of 1/1/2015
- Emission values KWB Powerfire 150 kW with wood chips (class A1, 13% O₂ with dust separator)

Fuel consumption

A KWB Powerfire pellet heating system consumes about 350 kg fuel per 1 kW output.*

* at 1,500 full load hours/year

Thanks to the use of a

KWB storage tank system, you can operate your heating not only cleaner and more efficiently, but you have also quick access to heat.

Recommended storage volume:

Optimally: Buffer volume = 1.5 litres x kW x 400 / K
 Minimum: Buffer volume = 1.0 litres x kW x 400 / K

kW: rated power of the boiler in kilowatt, K: temperature difference between buffer tank charging start/end (tMax - tMin) in Kelvin [K]

Please observe country-specific guidelines and subsidy requirements for the needed storage volume.

DIMENSIONS FOR BOILER TRANSPORT AND PLACEMENT

KWB Powerfire	150 kW	240 / 300 kW
Unobstructed entry opening	1,200 x 2,000	1,400 x 2,000

Dimensions in mm | W x H

TECHNICAL DATA

TDS 29.07.2020	Unit	TDS 150		TDS 240		TDS 300	
		Pellets	Wood chips	Pellets	Wood chips	Pellets	Wood chips
Rated power	kW	150	150	245	245	300	300
Partial load	kW	45,0	45,0	73,5	73,5	73,5	73,5
Boiler efficiency at rated power	%	93,2	92,5	93,8	92,7	94,4	92,9
Boiler efficiency at partial load	%	92,1	92,4	93,4	91,8	93,4	91,8
Fuel thermal output at rated power	kW	161	162	261	264	318	323
Fuel thermal output at partial load	kW	49	49	79	80	79	80
Boiler class according to EN 303-5:2012 + KWB	-	5	5	5	5 (4) ⁹	5	5 (4) ⁹
Flue-gas side (data for chimney design)							
Exhaust-gas connection height (boiler side)	mm	1.615	1.615	-	-	-	-
Exhaust-gas connection height: variant up	mm	-	-	1.970	1.970	1.970	1.970
Exhaust-gas connection height: variant right (pipe centre, 0-90° pivoting) ⁸	mm	-	-	1.380	1.380	1.380	1.380
Exhaust-gas connection diameter	mm	250	250	300	300	300	300
Fuel according to ISO 17225-2 / 17225-4							
Maximum water content	-	M10	M45	M10	M45	M10	M45
Maximum fuel size	-	D89	P315	D89	P315	D89	P315
Water content for type testing (fresh weight) ⁴ kg/kg WE		0,04	0,223	0,056	0,322	0,059	0,317
Ash							
Ash-container volume – fly-ash	l	23	23	20+44	20+44	20+44	20+44
Ash-container volume – grate-ash	l	66	66	66	66	66	66
Ash-container volume, comfort version	l	-	-	66+125	66+125	66+125	66+125
Ash-container volume (optional)	l	240	240	240	240	240	240
Electrical system							
		400 VAC	400 VAC	400 VAC	400 VAC	400 VAC	400 VAC
Connection: 5-pin	-	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz
		16 A	16 A	16 A	16 A	16 A	16 A
Weights							
Heat exchanger incl. cleaning grille	kg	725	725	900	900	900	900
Burner housing incl. chamotte	kg	796	796	866	866	866	866
Flame pipe incl. chamotte	kg	-	-	965	965	965	965
Stoker trough	kg	113	113	137	137	137	137
Total weight (empty)	kg	1634	1634	2868	2868	2868	2868
Noise emissions⁶							
Normal operating noise at rated power	dB(A)	60	60	63	63	63	63
Operating peaks at rated power	dB(A)	68	68	65	65	65	65

⁴ Wood chips: Provision of the rated power to M30, above there is a reduction in power dissipation.

⁶ The noise measurements were executed in normal operation with wood chips. Leq(A) at 1 m distance (ISO 11202:2010)

⁸ Values only for standard-boiler-configuration. NOT for cellular wheel sluice, cyclone or E-Filter (own dimensioned drawings)

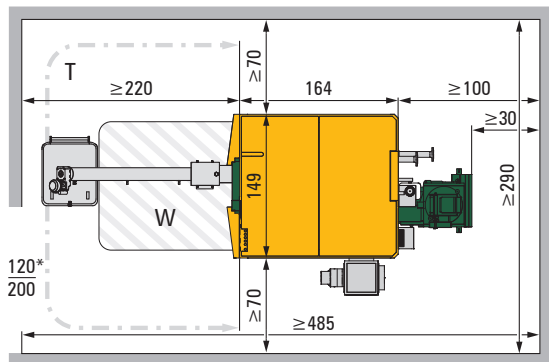
⁹ without KWB dust filter boiler class 4

Note: You will find detailed technical specifications with regard to the KWB Powerfire on our website's product pages.

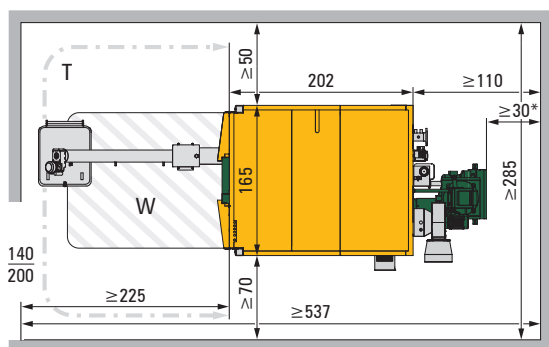
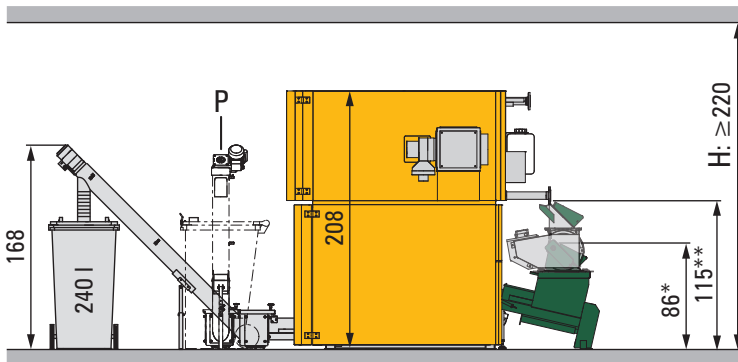
Product data sheet with detailed technical data: Scan QR code or download from our website under product pages.



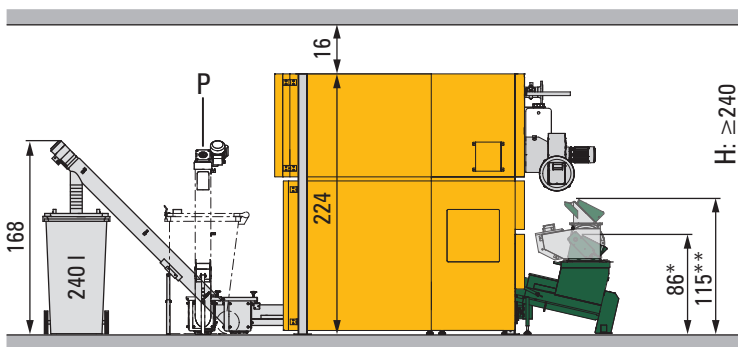
COMPACT SPACE REQUIREMENTS



TDS 150 kW



TDS 240 / 300 kW



* Fire shutter ** Cellular wheel sluice

Legend	TDS 150 kW	TDS 240 / 300 kW	
T	If the maintenance area (W) through the door is ensured (with standard ash container)	≥ 105	≥ 116
T	External ash extraction in 240 l ton, straight	≥ 220	≥ 225
T	External ash extraction in 240 l bin, 90° (P)	≥ 170	≥ 175
H	Room height: For room heights below 280 cm, the customer must provide suitable lifting tools (electrical forklift, wheel front loader, etc.).	> 220	> 240

ROOM MINIMUM DIMENSIONS TDS150 KW

Minimum room dimensions of the built-in ash container variants (cm)	Ash-container position			
	Left	Right	Front	Internal
Room width (W)	340	320	290	290
Room length (L)	435	435	485	435
Room height (H)	220	220	220	220

ROOM MINIMUM DIMENSIONS TDS 240 / 300 KW

Minimum room dimensions of the built-in ash container variants (cm)	Ash-container position			
	Left	Right	Front	Internal
Room width (W)	360	285	285	285
Room length (L)	487	537	507	428
Room height (H)	240	240	240	240

All dimensions in cm | Length x Width x Height | Distances stated are minimum! Information regarding the hydraulics requirements can be downloaded from our websites.



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Index 0 | 2020-10

Subject to changes as well as
type and printing errors.

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