



## Wood shavings become coveted heating material

### RUF briquetting press saves carpenters from having a large shavings bunker and brings additional revenues

*Master Carpenter Hermann Schreder knows problems with troublesome wood shavings first-hand. He has ended it three years ago and introduced an ideal solution within the scope of a business extension: With the RUF briquetting system, he compresses wood shavings to compact wood briquettes, which can be stored easily. He heats his operation with a part of these briquettes. The much larger portion is sold as fuel. The briquetting press pays off in a short time only by this.*

Hermann Schreder is carpenter from conviction. After his apprenticeship, he gathered professional experience in an established workshop and soon upgraded his education to master carpenter. In 1999, he was ready. At the age of 32 he dared a leap into self-employment in his home town of Sondermoning (near Lake Chiemsee). Since then, the business is developing consistently well. The first orders came primarily from his home community. Roof trusses, balconies, carpentry work for housing refurbishment and new buildings were in such great demand that Schreder was soon able to employ a journeyman and a first apprentice. By now, he employs a staff of nine.

Basic operation at Schreder's is similar to many other carpentry workshops. The wooden beams provided by the saw mill are prepared for installation on construction sites. They are sawn to the correct length and brought to the required profiles with the planing machines. The construction kits assembled in this way can then be assembled on site with little effort. Especially when the four-side planing machine starts and machines beams from all four sides simultaneously, shavings galore accumulate and the question becomes: What to do with that?

### Shavings bunker require a lot of space and work

In his times as employed carpenter, Hermann Schreder became acquainted with the version of a huge shavings bunker, in which the wood shavings were collected. Together with chopped wood waste, they later on generated heat for the workshop in a wood chips heating system. But not only was the space requirement for the bunker a thorn in Schreder's side. The amount of work was tremendous, too: "In the summertime, we would clear the remains from the bunker and dispose of them in order to create space again."

Even in his own workshop, the master carpenter had to come to terms with this unsatisfactory solution at first. "Unfortunately, we only had a very small workshop, so that we had to collect our shavings in a cleared area and bring them into a trailer that could only hold 18 cubic metres." In practice, this type of disposal required quite a lot of effort and revenues couldn't be achieved in this way.

### Briquetting press was immediately planned for the new building

By now, it is different. The basis for this was the move into a new nearby company building in 2011. There, Schreder immediately installed a



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briquetting press and a heating system in which wood waste and wood briquettes could be burned. He found appropriate facilities in the machine trade shop by Hans Kalsperger, who has been specialised in wood processing machines for 21 years. Kalsperger has his seat in Oberteisendorf and his distribution includes RUF briquetting plants for low throughput rates. In recent years, several carpenters in the region have already started briquetting wood shavings with RUF presses by him.

The company RUF manufactures briquetting plants for wood and other biomass with throughput rates of up to 1,500 kg/h. The briquetting system RUF SZ1 was especially developed for low throughput rates (30-60 kg/h) and is therefore ideally suited for smaller craft businesses.

The briquetting press of the type RUF SZ1+ was part of the plan in the new building from the start. Consequently, it was created for a custom-made enclosure on the exterior wall of the new workshop building. With up to 150 bar operating pressure, the 4 kW hydraulic motor compresses the shavings and puts out cylindrical briquettes with a 70 mm diameter. The thickness of these discs usually varies at Schreder's between 20 and 30 mm – depending on shape and size of the shavings. Under the high pressure generated in the RUF plant during pressing, the lignin contained in the wood acts as a natural binding agent and no other additives must be added as binder. The briquettes reliably remain in their form with nearly 1 kg/dm<sup>3</sup> and show a significantly higher density than uncompressed wood. The briquettes have excellent fuel values and there is only little ash when you burn them.

### **Optical sensor starts and stops the plant automatically**

With a silo size of 1000x1000x970 mm, the RUF SZ1+ inherently can hold around 800 litres of shavings and press up to 60 kg of briquettes out of that per hour. In order to be prepared for even

larger quantities of shavings, Hermann Schreder installed an additional storage container directly above the silo of the press that holds up to twelve cubic metres. "Especially when we are consecutively processing many beams with the four-side planing machine, a large quantity of material for the press accumulates, which then can be briquetted bit by bit", Schreder reports.

The plant starts automatically as soon as a defined fill level in the silo is reached. An optical sensor serves as trigger for this. If the amount of shavings in the silo falls below the starting value, the press only produces a defined number of briquettes and stops right before the silo is entirely depleted. As soon as new material is filled in, the briquetting system re-starts automatically.

Also without manual assistance, the press pushes the briquettes into available collection containers via a discharge chute. In the Schreder carpentry workshop, these are either skeleton containers serving as storage for the briquettes or plastic containers, from which the briquettes will later be transferred into storage boxes. This way, 50 to 70 cubic metres of briquettes are produced every year – far more than the company needs for heating the company building. For this, Schreder has installed a heating system with a capacity of 49 kW, in which he primarily burns wood waste. He uses the valuable briquettes as additional heating material.

The much greater portion is sold directly to customers from the region ex works, who can heat their houses with that. Hermann Schreder processes spruce, larch and sometimes oak in his carpentry workshop. Without any additional drying required, the shavings can be fed directly to the briquetting plant. As a general rule: the shavings should not exceed residual water content of 15% in order to achieve fine briquette quality.

At the end of the day, Schreder reckons that the RUF plant pays off after about four years only by selling briquettes. And yet, the principal advantages, i.e. the simplified handling as well as



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time saving when handling shavings are entirely left out of the consideration.

### **A “touch of a button” on the touchscreen suffices for activation**

As the RUF press is very closely integrated into the operations flow, reliability and service are very important criteria for Hermann Schreder. He explains: “The press must not malfunction here for long, because if the shavings bunker is full, our entire operation is threatened by a standstill. But this has not yet happened. Accordingly, the positive feedback that Hans Kalsperger received from his customers, who were already using RUF presses, was very important for me before the purchase.”

The master carpenter has never regretted this decision. The positive impression that already formed during delivery was then confirmed during operations. The RUF mechanic installed the plant and connected it. “Because the briquetting press was already programmed, we only had to fill in the shavings and start the plant at a touch of a button. Ever since, it presses the wood shavings reliably to easy-to-handle briquettes”, Schreder summarises his experience. Only one time he had to make use of the RUF service.

Due to an operating error during restart after a power failure, the limit switch of the press piston was slightly shifted. In this case, one phone call with the service technician from RUF was enough to find and remove the problem. “I have brought the limit switch into the correct position again – and ever since, the press works reliably and error-free again”, Schreder reports.

### **About the company**

RUF, located in Zaisertshofen, was founded by Hans Rufin 1969. Today he runs the company together with his sons Roland and Wolfgang.

Around 100 employees develop and produce high quality briquetting systems on a modular basis for wood, metal and other residual materials. The throughputs of the briquetting systems lie between 30 and 4,800 kg/hr.

Back in 1985 RUF produced its first briquetting press and sold it to a wood processing firm. It is still in working order, proof of the quality and durability of RUF systems. Since then over 1,000 presses for briquetting wood resp. biomass have been sold. In the meantime RUF briquetting systems are operational in over 100 countries.



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“Because the briquetting press was already programmed, we only had to fill in the shavings and start the plant at a touch of a button. Ever since, it presses the wood shavings reliably to easy-to-handle briquettes”, master carpenter Schreder summarises his experience with the RUF press.



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During the new construction of the carpentry workshop, a custom-made addition was erected for the RUF briquetting plant.



*B03a\_RUF-Schreder\_b\_DSC\_3613.jpg*

The press pushes finished wood briquettes into available collection containers via a discharge chute.



*B04b\_RUF-Schreder\_b\_DSC\_3570.jpg*

In order to be prepared for even larger quantities of shavings, Hermann Schreder additionally installed a larger storage container above the silo of the briquetting press that holds up to twelve cubic metres of wood shavings.



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*B05b\_RUF-Schreder\_b1\_DSC\_3581.jpg*

The carpentry workshop produces between 50 and 60 cubic metres of wood briquettes from the accumulated wood shavings.



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Extraction systems, here on the four-side planing machine, transport the shavings directly to the briquetting machine.



*B06\_RUF-Schreder\_b\_DSC\_3560.jpg*

Simple handling: The briquetting press is controlled via a touchscreen in the control cabinet.



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Further information about the company, technology and products can be obtained directly from Ruf Maschinenbau GmbH & Co. KG.

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**Ruf Maschinenbau GmbH & Co. KG**

Marketing: Andrea Sedlmayr  
Hausener Str. 101  
D-86874 Zaisertshofen

Tel.: +49 (0) 8268/ 9090-18  
Fax.: +49 (0) 8268/ 9090-90

[www.briquetting.com](http://www.briquetting.com)  
[info@briquetting.com](mailto:info@briquetting.com)