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User report:
Briquetting of turning chips at Lauble Präzisionsdrehteile GmbH
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Briquetting optimises chip logistics

Precision turning parts expert, Lauble GmbH, press aluminium and stainless steel chips to solid briquettes with RUF systems

Precision turning parts expert, Lauble GmbH, have in the meantime two briquetting systems from RUF, which enormously simplify the management of the inherent chips. The company has saved a lot of space since they switched from centrifugation to pressing and simultaneously reduced the logistic expenditure.

Lauble GmbH in Dunningen has established itself with complex parts turned with absolute precision. The family led Company with 50 employees reliably supply their customers from mechanical engineering and other branches. Timo Auber, grandson of the Company's founder and one of four family members who make up the Company's management board, emphasises: " Meeting the extremely high requirements on precision and surface finish, demands a well thought-out manufacturing structure. This is why we optimise our processes continuously." The customers show their appreciation through decades of loyalty. However the non-direct value adding areas are also subject to these demanding standards of organisation; for example the management of the roughly 220 tons of chips, mainly steel chips, which are created during lathe work.

Lauble made a quantum leap in this regard when they commissioned the first of their briquetting presses from RUF, in 2006. The Company has dealt with their growth and the increasing requirements with a second, significantly more powerful RUF system, since 2018.

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Volume reduction was the decisive factor

The enormous volume reduction was the decisive reason for us to commence briquetting," reports Timo Auber. Processes have been optimised and costs have been reduced through various effects, ever since. "We no longer have to provide space for large chip containers or turning space for trucks coming to pick up our chips." Furthermore the volume of forklift traffic has reduced significantly and the Company no longer requires a watertight basin, which served for storing the chips with cutting oil residue.

The original, smaller press, a RUF 5.5/3700/60x40, is equipped with a 5.5 kW electric motor which presses the chips hydraulically, at a pressure of up to 3700 kg/cm^{2,} to briquettes pressed to a form of 60 x 40 mm. The length of the briquettes deviates in dependency on the properties of the respective chips. This system is still being used by Lauble to press residual aluminium. The RUF 15/4000/70, the more powerful of the two which is set up for higher throughput, presses the stainless and case hardening steel chips. Its electric motor boasts 15 kW, the pressing pressure reaches up to 4000 kg/cm^2 and the briquettes are cylindrical with a diameter of 70mm, a length of about 90 mm and a weight of about 1.2 kg. Before pressing, the chips are chopped up by an upstream shredder, as particularly long and hard steel chips can only be briquetted optimally following such action. Other materials such as grinding sludge, cast iron or wood can also be pressed by the RUF systems easily and without pre-treatment requirements.

This compression allows Lauble to collect its residuals in handy, light, stackable steel boxes. Each of the boxes holds around 2 tons of briquettes. A three cubic meter container would be necessary to store the comparable underlying volume of chips. Thanks to this volume reduction of a factor of 1:3, the recycling companies are seen doing a pick up more rarely.

Cutting oil is recovered

A further benefit: The chips, when pressed to briquettes, are practically dry. The pressing reduces the presence of residual cutting oil from originally between ten and fifteen per cent, down to three. The pressed out oil is collected directly from the machine. For cleaning purposes it first

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flows through a paper filter and is subsequently centrifuged and finally is deployed once again in the lathe centres.

RUF Regional Sales Manager, Jens Wöllenweber, explains additionally from his comprehensive experience: "Briquetted chips can be stored without hazard in the turning area and transported on the street. Cooling lubricants or oils are removed and thereby present no threat to the environment."

Briquetting proved to be the best value for money alternative

Before the acquisition of the first briquetting system, the Company removed the cutting oil from the chips using a centrifuge. This system had however become old and alternatives were called for in the year 2006: whether to invest in a new centrifuge or to purchase a briquetting press? In the end, the briquetting press was decided upon, because of the afore-mentioned benefits, in particular the simplified logistics. Additionally as Auber remembers, the RUF system was a better value alternative.

A further positive aspect for the management was that Lauble correctly collected the chips according to the respective materials whenever it brought a benefit regarding recycling and the achievable price. This applied to the roughly 20 tons of aluminium residues per year as well as the mainly used stainless steel grades and case hardening steels.

A changeover from one batch of material to another is simple on the RUF systems and incurs minimal losses. "During changeover you might get a maximum of five or six briquettes with mixed chips which can be reused later as steel mix," explains Auber. During centrifuging however, a lot of effort was expended doing cleaning between the changeovers.

Production processes demand absolute reliability

Reliability is a must in every case for Lauble. You see the 24 lathe centres in the Company are producing from Monday morning to Saturday evening, round the clock; and not only parts are produced but chips as well. "If we didn't process the chips for four or five hours, production would come to a stop," is Timo Auber's statement. It is vital that such a scenario is avoided emphasises his uncle, Günther Lauble, who is also on the management board of the Company. He knows that he can rely on RUF and

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remembers: "Hans Ruf, founder of Ruf Maschinenbau, personally guided us through the Company 13 years ago and convinced us with his philosophy of setting up the machines for reliability and durability without any compromises. This has been proven correct to this day in our Company."

Timo Auber and Günther Lauble have never regretted the decision to invest in RUF. The upstream shredder is set up for the types of chips created at Lauble and therefore both systems can run without unplanned downtimes ever being an issue. The machine operator carries out cleaning and small maintenance works. When wear parts like the extrusion punch are approaching the end of their service life, this is noticeable because of small irregularities on the pressed briquettes. This means an exchange carried out by a Fitter from RUF can be planned, with sufficient notice to ensure no negative influence on production is possible.

Set intervals for exchanging the extrusion punch make no sense at Lauble because the wear rate is very dependent on the type of chips being pressed. When it comes to aluminium chips, service life of several years may be achieved. However particularly hard chips mean wear parts must be exchanged more regularly.

The briquetting press starts and stops automatically

The RUF presses are set up for 24/7 unmanned operation. To achieve this objective merely requires the chip feed to be automated. However, Lauble did not take up this option, because the material batches are subject to regular change. This is dealt with best by a person being in charge of control and observation, according to Timo Auber: "These tasks are taken care of by one of our employees, who is responsible in parallel for the material store and the parts washing system." He hangs the container that is used to directly collect the chips from the lathe centres into a lifting device, which in turn tips the chips into the shredder. From here they are transported automatically to the hopper of the briquetting system. A sensor

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starts the press as soon as enough chips are on-hand and stops it again as soon as the material runs out.

Lauble has already secured 400 square meters for expansion to deal with further growth. The briquetting capacity should be covered for a while thanks to the new system from RUF. But one thing is clear for Timo Auber: When we need a third system, it will be a RUF, once again."

[text box]

Lauble GmbH Präzisionsdrehteile ...

... was founded in 1965 and today employs around 50 employees. The family Company located in Dunningen, in the district of Rottweil in Baden-Württemberg and run by the second and third generation presently, is specialised in the production of complex and highly precise turned parts and supplies customers in diverse branches. A large percentage of their work is for the mechanical engineering branch and for producers of medical technology devices. Apart from turning, Lauble also takes on various types of surface finishing and treatments as well as assembly work. Their machinery can deal with parts with diameters of up to 250 mm. The maximum length is 1200 mm for parts with a diameter of up to 36 mm. Batches from 500 units up are manufactured.

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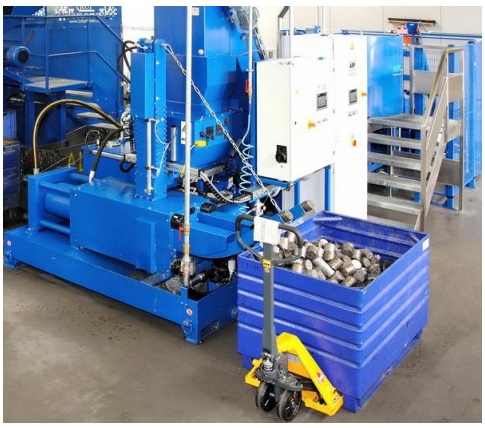
Picture captions:



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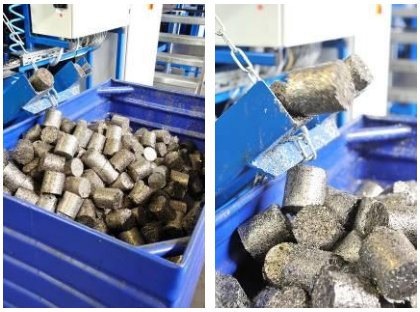
Lauble GmbH has two briquetting presses from RUF in operation; pictured is the newer, higher powered system. The press itself occupies only the front section, about as deep as the collecting container for the briquettes. The upstream shredder accounts for the rest of the system.
Pictures: RUF Maschinenbau



B02a_RUF-Lauble_7927.jpg / B02b_RUF-Lauble_7978.jpg

The blocks of compressed chips are pushed out via an output rail into the waiting collection container.

B03a_RUF-Lauble_7963.jpg / B03b_RUF-Lauble_7968.jpg

Easy to manage and dry: The pressed briquettes weigh about 1.2 kg and have a diameter of 70 mm. The length varies somewhat depending on the type of chips.

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B04_RUF-Lauble_DSC_7932.jpg

A chip shredder is positioned upstream of the RUF press which is fed manually with the collected chips from the drivable boxes.


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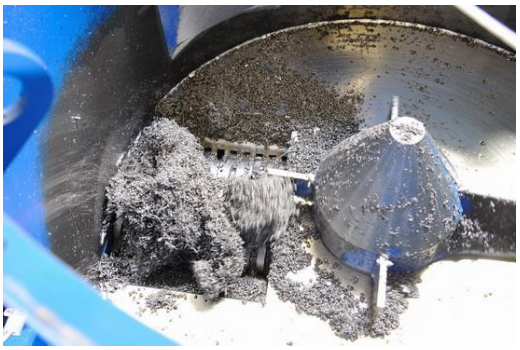
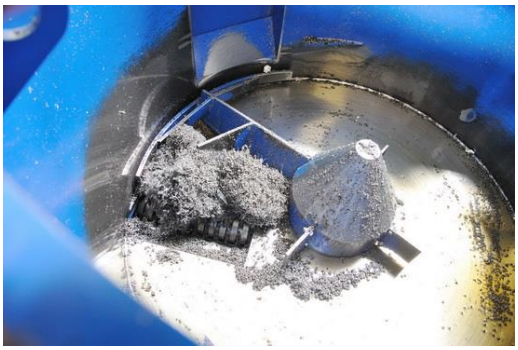
An automatic lifting and tipping device empties the collection container containing the chips into the works of the shredder.

B06a_RUF-Lauble_7945.jpg / B06b_RUF-Lauble_7947.jpg

In order to prepare the often relatively long steel chips from the lathe centres for briquetting, a shredder processes them.

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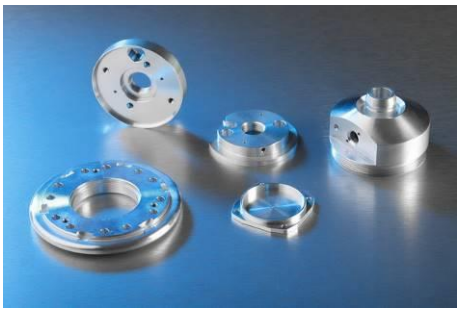
B07_RUF-Lauble_7924.jpg

Timo Auber: "The enormous volume reduction was the decisive factor for us to commence briquetting," explains the Managing Director from Lauble.

B08_RUF-Lauble_7956.jpg

Switch cabinet and operating panel of RUF's briquetting press. The system starts and stops automatically.



B09a_RUF-Lauble_8175.jpg / B09b_RUF-Lauble_8233.jpg

Lauble GmbH has established a base of loyal customers over many decades of producing complex turned parts of the highest precision. Picture: Lauble GmbH

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RUF, located in Zaisertshofen, was founded by Hans Ruf in 1969. In the meantime he has handed over the running of the company to his sons Roland and Wolfgang Ruf.
Around 150 employees develop and produce highly innovative briquetting systems on a modular basis for wood, metal and other residual materials.
The smallest unit manufactured by RUF is the RAP (RUF integration press) features a 4kW motor and a throughput rate of 20 to 150 kg per hour (depending on material and chips size). The biggest system (RUF 90) with 90 kW achieves up to 2,500 kg/hr for Aluminium, for cast iron up to 3,000 and up to 4,800 kg/hr for copper materials.
Back in 1985 RUF produced its first briquetting press and sold it to a wood machining firm. It is still in working order, proof perfect for the solid construction of RUF machines. In the meantime more than 4,500 briquetting systems are in use in more than 100 countries.

Questions relating to text and pictures should be addressed to k+k-PR GmbH.
Further information about the company, technology and products can be obtained directly from Ruf Maschinenbau GmbH & Co. KG.

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