



ADDING
VALUE



SUSTAINABILITY WITH TRADITION

HISTORY FACTS FIGURES

- 1969** Hans Ruf founds a company providing services to the forestry industry
- 1982** The first press for producing briquettes from organic waste was granted a patent
- 1988** The first press for metals was sold
- 1990** The original company was converted into Ruf Maschinenbau GmbH & Co. KG
- 1994** A production hall of 1700 m² was built to manufacture briquetting machinery to process wood, metals & other waste materials
- 1997** Series production of briquetting machinery for small-scale processing was started
- 1998** This year marked the delivery of 500 briquetting units to over 56 countries
- 2003** New office buildings, manufacturing halls and warehouses were built
- 2005** Addition of two production halls
- 2008** Expansion of the production space to a total of 10,000 m²
- 2012** 3000 briquetting machines have now been sold; RUF equipment is installed in over 100 countries

Welcome to RUF, your partner for sustainable cost optimisation!

“Behind every machine is a human being. Behind RUF briquetting equipment are people who create added value.” Hans Ruf, company founder



From left: Wolfgang Ruf, Hans Ruf, Roland Ruf, Helga Ruf

Dear Customer,

as a family business firmly rooted in mechanical engineering and in wood processing, we specialised in the economical use of raw materials from the very beginning.

Craftsmen and entrepreneurs today are confronted with the same issues, no matter what business they are in, be it carpentry or agriculture, the steel industry, or textile production: How can we make the most economical use of our resources? Can we make better use of our waste materials? Can we cut costs while simultaneously increasing our revenues?

RUF briquetting systems are far more than just a simple mechanical solution for sustainable process optimisation. Every day, two generations of the family and nearly 90 employees work tirelessly to provide you with innovative, individual solutions for briquetting all manner of materials.

Our philosophy, which we put into practice every day, is one of retaining and increasing value; it is complemented by „Power made in Germany!“ a very special assurance of quality we give our customers, which guarantees that RUF briquetting equipment is manufactured at our factory in Bavaria. All this is achieved while maintaining a positive ecological balance - our company's photovoltaic system produces more energy than we need for production.

We think globally and act out of conviction. At RUF you will not only find the right briquetting system for your business, but you will always have a competent contact person who will be happy to offer personal, individual advice - even after you have purchased the briquetting equipment. After all, your satisfaction is our top priority. We guarantee this with our many years of experience and demand-led solutions.

Yours, the Ruf Family & Team



CYCLE OF VALUES.

Sustainable value creation – a veritable gain

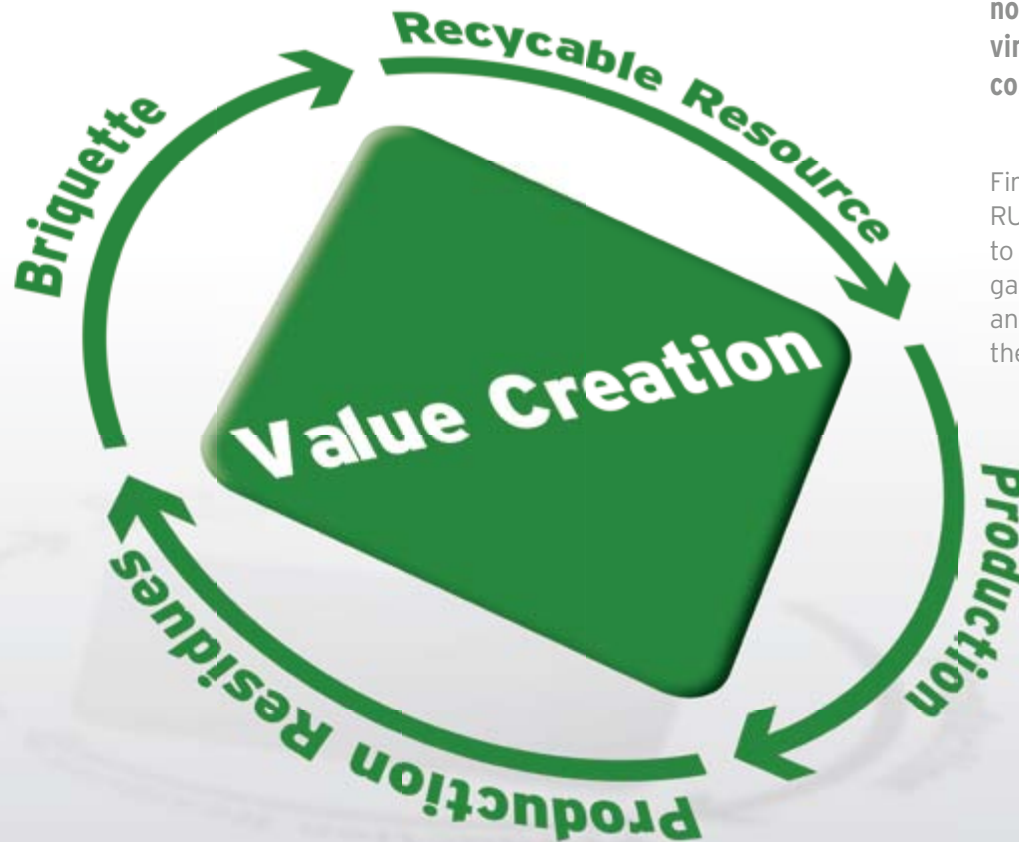
When waste materials from the production process are reclaimed and reused, not only our environment profits. RUF briquetting machinery enables you to add virtually any material to a resource cycle of value: the ideal alternative to the costly disposal of residues.

Firstly, briquetting is volume reduction. RUF briquetting systems are designed to compact numerous organic and inorganic chippings as well as other residue, and to turn them into a form which can then be stacked.

This results in a number of benefits for you: the more compact the waste materials are, the less space and budget you need for handling, storage and transportation.

You save on the purchase of raw materials, minimise disposal costs and ultimately reduce personnel costs, too.

Since briquettes also command a higher price and are more marketable, you will enjoy a significant, quantifiable gain.



RUF BRIQUETTING SYSTEMS

- ALWAYS A GOOD INVESTMENT.

Are you briquetting yet, or are you still throwing profits away?

Make the most of your residues. With a customised briquetting solution, the cost is minimal. We will put together a briquetting system that is precisely tailored to your needs, appropriate to the materials, the quantities and the production environment.



Minimum effort - maximum benefit:

- ▶ hydraulic compacting process
- ▶ easy installation, modular system
- ▶ requires very little space
- ▶ energy-efficient operation
- ▶ low degree of wear and tear
- ▶ extremely reliable
- ▶ automatic, unsupervised 24-hour operation possible
- ▶ direct integration into existing production processes
- ▶ automatic compensation for different bulk densities
- ▶ compact design
- ▶ low electrical power requirement compared with briquetting performance

Contact us and ask for a sample briquette!



COMPRESS. RECYCLE. IMPROVE.

WOOD.

Wood is a natural product. Briquetting changes only the form, not the content. Wood is and remains wood. Even better - as a valuable source of energy, RUF briquettes have an even higher commercial value and an optimal CO₂ balance.

Examples:

Sawdust
Wood chips
Bark
Wood shavings
Wood dust



RUF machines are hydraulically powered, which ensures that the wood waste is compressed under high pressure into briquettes of uniform size and hardness - without the need for binders. So even after briquetting, wood remains exactly what it is - a pure natural product.

Compressed wood burns at high temperatures, ensuring that a more even combustion process takes place. This results in a number of benefits: briquettes burn longer, more efficiently and produce less ash. The energy content and combustion behaviour of a high-density briquette equates approximately to that of lignite.

The circle closes and a natural cycle is complete; wood briquettes only return as much CO₂ to the atmosphere as is absorbed by a growing tree through photosynthesis. If the material requires any kind of pre-treatment such as drying or crushing, the effort involved is significantly lower than with alternative methods of compaction. This results in considerable savings in production costs.



100% NATURAL MATERIALS.

BIOMASS.

For many years, the majority of organic matter created by humans, animals and plants was viewed as a waste disposal problem. In light of increasingly scarce resources, a gradual rethink of the situation came about. Biomass is now playing an increasingly important role in the field of renewable energies.

Examples:

Peat
Hay
Hemp
MDF
Horse manure
Rape straw
Palm straw
Miscanthus
Coffee grounds
Tobacco dust
Nut shells
Rice husks
Almond shells
Sunflower seeds



Most organic materials can be transformed into compact, naturally pure briquettes possessing excellent calorific value by means of the RUF equipment's compaction process. The sale of briquettes to private individuals is also an additional, lucrative source of income. Both the environment and the company profit in equal measure.

Compacting dust into briquettes not only reduces the risk of explosion but also significantly simplifies the logistics involved.

In the agriculture sector, the cost-efficient production of feed as well as the ease of handling hay and straw are key economic factors.



ADDING VALUE WITH PREMIUM RECYCLING TECHNOLOGY

METALS.

Briquettes make an economically and ecologically valuable contribution to your corporate environmental management system. Multifunctional RUF briquetting equipment is distinguished by its innovative processing technique - the crucial requirement necessary for converting metallic residues into valuable secondary raw materials. The energy required for briquetting is just a small fraction of the amount that can be saved in follow-up costs.

Examples:

Aluminium
Steel
Castings
Grinding sludge
Brass
Copper
Bronze
Titanium
Zinc
Magnesium



Metal shavings, swarf and sludges which are produced in steelmaking, in foundries or in the metal-working industry can be profitably reclaimed. RUF machines take care of the complete process of draining off water, de-oiling and briquetting.

Benefits of briquettes over chips:

- ▶ reclaim expensive cutting fluid
- ▶ higher melting yield
- ▶ greater yield of valuable metal
- ▶ significant volume reduction
- ▶ considerable savings in storage and transportation costs
- ▶ higher profits thanks to briquettes
- ▶ positive evaluation in environmental audits



A RICH PALETTE OF VALUE.

BRIQUETTING VERSATILITY - FROM COTTON TO STYROFOAM

It's a numbers game! Those who work economically with the resources at their disposal know that even the smallest particle is part of a large profit. This is not necessarily about financial gain alone.

Examples:

Paper
Cardboard
Fabric remnants
Cotton
Banknotes
Styrofoam
Paint dust
Paper dust
Dust from electronic waste
PU from recycled refrigerators
Sewage sludge
Grinding dust



Security is a further important factor in many recycling management processes.

When disposing of banknotes, banks use briquetting systems to exclude any risk of "recycling" after the banknotes have been shredded.

Polyurethane (PU), an insulating material, is reclaimed from old refrigerators and enjoys a useful second life in the form of "safety briquettes" - following a road accident, they are used to absorb oil spilled onto the carriageway.

Even the finest particles of dust take on new properties in compressed form: due to the binding and compaction of the particles, the risk of explosion is considerably reduced.



VERTICAL MANUFACTURING INTEGRATION Production steps

- ▶ Laser cutting
- ▶ Sheetmetal work
- ▶ Specialist welding operation
- ▶ Control systems
- ▶ Development
- ▶ Construction
- ▶ Milling shop
- ▶ Paint shop
- ▶ Stock of spare parts
- ▶ Assembly
- ▶ Quality assurance
- ▶ Technical department
- ▶ Test press

COMPETENT & COMPREHENSIVE

RUF SERVICE.

We are a full service provider, delivering comprehensive, expert advice and support for all aspects of sustainable cost optimisation - from consulting and the planning of your specific briquette solution, through to construction, installation, commissioning, maintenance and inspection of your new equipment.



A Reliable Partner - Before and After Purchase

We base our tailor-made briquetting solutions on an assessment of each customer's individual needs. We manufacture machines that are specifically designed to meet your operational requirements.

Quality Guaranteed by Vertical Manufacturing Integration

We manufacture exclusively at our German facilities in Zaisertshofen, Bavaria and extend to you a long-lasting warranty on all spare parts. Of our stock of spare parts, all parts for RUF equipment are available from our in-house design and parts manufacturing facilities - even for machines that have been in service for more than 25 years!



Save Time with Flexibility

The RUF brand promise guarantees a consistently high standard of quality. We deliver to you directly within a very short time - yet another service bonus. Our huge stock of spare parts and our great flexibility ensure that your down-time is kept to a minimum.

Our Customers Trust the Global Market Leader

We think innovatively but have both feet firmly on the ground. Sustainability that actually works is the key to success - throughout Germany and in over 100 countries around the world.





SUSTAINABILITY

SYSTEMATICALLY APPLIED.

As the leading provider of systematic briquetting solutions, sustainability is the focus of our production processes. A long service life and the low degree of wear and tear both conserve resources and vouch for our high quality standards. Evident in everything from the precise assembly of individual components to the robust design and construction: RUF machines are built for heavy-duty tasks, operating around the clock.



Depending upon the associated equipment and the material to be processed, we manufacture machines fitted with hydraulic motors of between 3 kW and 90 kW with throughputs from 30 to 1.500 kg per hour for organic materials, such as wood. For metal residues, throughputs of up to 3.000 kg per hour are achievable.

Depending on the properties of the material and the format of the briquettes, RUF equipment operates with specific pressures of up to 5.000 kg/cm².

QUALITY DOWN TO THE SMALLEST DETAIL.

From our range of powerful hydraulic presses and individual components we are in a position to configure the right briquetting system to fit any production environment. RUF machines are easily integrated into existing processes, allowing you to select the appropriate briquette format to meet your needs from an extensive range. Please contact us for obligation-free expert advice.

Electric motors dimensioned to meet your requirements and **hydraulic pump**.



The **electrical cabinet** complies with EN 60204-1 and contains the electrical and electronic components controlling the briquetting machine.

Emulsion pump to pump emulsion/oil, pressed out of the briquettes, from the sump.



Pressure regulator and lubricator for pneumatic components such as suction pumps and cylinders.

Lubrication oil tank for spray equipment to prevent cold welding.



VISIONS TURN INTO REALITY.

ADDING VALUE THROUGHOUT THE WORLD

The range of materials we process into briquettes is as varied as life itself. This intriguing insight is our motivation for driving technological innovation forward and allows us to constantly add new materials to the list of those which can be meaningfully recycled.

More than 30 years of experience in the briquetting industry is a solid base from which to satisfy every customer's requirements. As far as we are concerned, the cycle of value is only complete when we have developed a solution with which you, the customer, are entirely satisfied.



GERMANY

"First and foremost I am impressed by the good price-performance ratio, the quality and the reliability of the machines. Besides I truly appreciate the excellent personal relationship I have experienced with the family business and their Senior Director Hans Ruf from day one."

Georg Reuss, Executive
Georg Reuss, Germany



GERMANY

"The RUF briquetting press has been generating profits since day one, thanks to its good price-performance ratio, an appropriate financing plan and the savings it makes possible."

Rolf Peter Leuchtman, Master
Craftsman Final Machining Department,
Georg Fischer Automotive Foundry,
Germany



LATVIA

"Our collaboration with company RUF has started in 2002 and has been successful through all these years. RUF is not just a world known machinery producer name and the leader in briquetting technologies market. RUF is your trustful business partner as it has been a reliable and supporting partner for us during both - periods of the sales peaks and during market depression. It's our luck to have the same business philosophy with our main business partner - the RUF company. When both of you have the same aim, you achieve it faster!"

Lena Kozmenkova, Executive
SIA RMP, Latvia



AUSTRALIA

"We do not have one unsatisfied customer with a RUF machine - and we have sold some 40 systems here in Australia and New Zealand. That in itself speaks volumes for the RUF company and its equipment. In our opinion the RUF briquette press cannot be matched from a performance basis. Although it is more expensive than most competing machines from a capital cost point of view, the ongoing trouble free performance and maintenance of the RUF machines put them well ahead of the opposition."

Wayne Carracher, Managing Director
Recycling Technologies Group Pty Ltd
Australia

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