



# & Recycling & Briquetting

PROJECT EXAMPLES





## ADDING VALUE, PRESERVE QUALITY, SAVE COSTS.

RUF Maschinenbau GmbH & Co KG, as a family-owned company in its second generation, has for more than 30 years specialised in developing and manufacturing briquetting systems.

Well above 4200 RUF briquetting systems are operating in more than 100 countries worldwide (at the state of 2018).

The recycling industry is one of the important sector where our plants are being used and where they add value, in areas, where shavings, dusts and sludges made of metal as well as wood and biomass are occurring. We offer suitable briquetting systems with a throughput of up to 4.8 tons per hour.

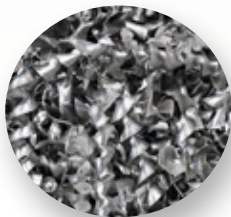
Find out more below from the examples of materials and customers and learn about the manifold applications of our plants.



from left: Roland Ruf & Wolfgang Ruf



# PROJECT EXAMPLES FROM THE RECYCLING INDUSTRY



**ALUMINIUM**  
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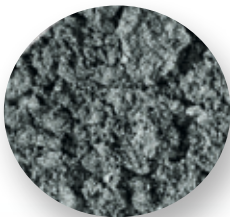
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## BRIQUETTES FROM ALUMINIUM SHAVINGS-SURPLUS YIELD THROUGH HIGH PRESSURE

GERMANY

SINCE 2007

Within the scrap market the customer achieves a distinctly higher profit by selling compressed briquettes (wrought alloy) compared to loose shavings. In addition, 5 m<sup>3</sup> of ground emulsion per week can be reused.

Material Aluminium

Briquetting System

RUF 45/2600/150x75

Throughput 1,1 t/h



## LEADING EUROPEAN METAL DEALER RELIES ON RUF FOR 15 YEARS

GREAT BRITAIN

SINCE 2003

The customer sets up our plants directly in metal-working factories focusing on the aircraft industry. The briquettes produced here are then being sold. The first machines were installed in Great Britain and Ireland. In the meantime, we have established ourselves also in Eastern Europe and Asia. By the beginning of 2018 up to altogether 18 RUF plants are now in operation.

Material Aluminium

Briquetting System

various, in total: 18

Throughput 8,0 t/h (sum)



## ALUMINIUM SMELTERY COUNTS ON RUF PLANTS

AUSTRIA

SINCE 2005

The Aluminium smeltery purchases (wet) shavings on the scrap market and briquettes these with 4 briquetting systems. Thus the shavings are dewatered and melt down in a 2-chamber- or hearth furnace. Parallel to this process shavings from their own production are also briquetted. Altogether a further 5 plants within the business section 'rolling' as well as 'casting' are being installed.

Material Aluminium

Briquetting System

various, in total: 9

Throughput 8,0 t/h (sum)



## AL-SHAVING BRIQUETTES REMELTED ACCORDING TO ALLOYS

ROMANIA

SINCE 2010

The customer is one of the largest producers of raw aluminium in Eastern Europe. Shavings of all types of alloys are briquetted. The briquettes are re-melted in their own smelting plant.

Material Aluminium

Briquetting System

RUF 55/1700/150x120

Throughput 1,5 to/Std.



## **SOUTH AFRICAN REFINER PUTS HIS TRUSTS IN RUF**

**SOUTH AFRICA**

**SINCE 2002**

The customer produces ingots from secondary aluminium. In doing this, up to 30% shaving briquettes are melted down together with rod material and scrap from extruded sections. Operating at above 30,000 hours since 2002, the customer is extremely satisfied with his briquetting solution.

<b>Material</b>	<b>Aluminium</b>	<b>Briquetting System</b>	RUF 15/1700/150x60	<b>Throughput</b>	400 kg/h
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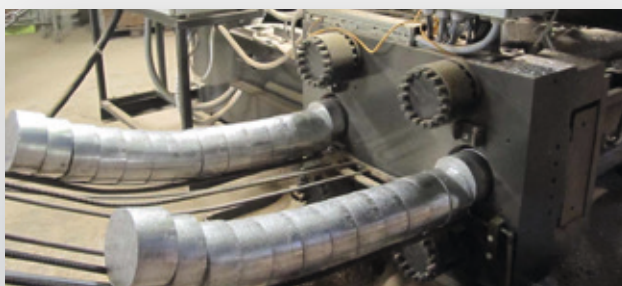
## **OPTIMISED METAL YIELD AT REFINER**

**CZECH REPUBLIC**

**SINCE 2015**

The refiner purchases aluminium scrap of various qualities. About 50 % of the used material consists of loose shavings. These are treated and subsequently briquetted. This effects a maximum yield during the melting process in their own tilting rotary furnace. Thus Ingots are produced and most of these are sold to aluminium die-casting foundries.

<b>Material</b>	<b>Aluminium</b>	<b>Briquetting System</b>	RUF 90 & RUF 75/2500/150	<b>Throughput</b>	3,5 t/h (sum)
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## **HIGHER YIELD WITH BRIQUETTES**

**HUNGARY**

**SINCE 2012**

With briquetting immediately the shredded shavings (left over from the aluminium industry), the aluminium can be prevented from oxidising. By briquetting the material right away, the yield of the following melting process is increased considerably. The RUF plants run reliably in a 3-shift operation.

<b>Material</b>	<b>Aluminium</b>	<b>Briquetting System</b>	3 x RUF 90/2500/150	<b>Throughput</b>	6 t/h (sum)
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## AL-SHAVING BRIQUETTES TO BE SOLD OVERSEAS

UNITED STATES

SINCE 2015

The North American non-ferrous metal recycling company purchases aluminium shavings, mainly from the aircraft industry but also from other industries. These are getting separated according to their alloys and afterwards briquetted. For this purpose the recycling plant uses three RUF plants by now, amongst others a RUF 90/2500/120 with a throughput of 2 tons/h. The briquettes are sold overseas mainly to Asia.

Material	Aluminium	Briquetting System	various, in total: 3	Throughput	3,3 t/h (sum)
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## SEPARATING COMPOUND MATERIALS - BRIQUETTING FINE FRACTIONS

GERMANY

SINCE 2017

The customer operates a recycling plant for aluminium compound materials, where they are separated into their individual materials and recycled. The gained aluminium material is then briquetted to achieve high quality scrap material to be sold on the market.

Material	Aluminium	Briquetting System	RUF 15/1700/150x60	Throughput	400 kg/h
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## TRANSFORMING SCRAP INTO DEFINED METAL QUALITIES

UNITED STATES

SINCE 2002

The customer buys copper-containing scrap metal, e.g. car radiators. The metal is shredded and dried. Other metals according to their alloys are added before the briquetting process. These metallurgically precisely defined briquettes are then sold on the market.

Material	Brass	Briquetting System	2 x RUF 30/5000/60	Throughput	2,0 t/h (sum)
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## CAST IRON SHAVING BRIQUETTES – SCRAP TRADE SUPPLIES IRON-FOUNDRIES

GERMANY

SINCE 2009

Cast iron shavings (GJS, GJL) are purchased from various sources, treated according to quality, briquetted and ultimately sold to foundries.

<b>Material</b>	Cast Iron	<b>Briquetting System</b>	RUF 90/3700/120	<b>Throughput</b>	3,0 t/h
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## SCRAP DEALER SELLS BRIQUETTES TO FOUNDRIES

JAPAN

SINCE 2002

The customer started his first briquetting plant (RUF 30) in 2002. Meanwhile four parallel positioned plants are in operation. Various cast iron shaving qualities are briquetted. The briquettes are sold to foundries.

<b>Material</b>	Cast Iron	<b>Briquetting System</b>	4 x RUF 30/3800/100	<b>Throughput</b>	4,0 t/h (sum)
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## METAL DUSTS RE-MELTED

SLOVENIA

SINCE 2015

The customer produces blasting abrasives. Formerly the occurring dusts were disposed resp. were re-melted at a high loss. The RUF briquetting system has provided a remedy: The dust-containing cast iron shavings are automated mixed according to alloys and subsequently briquetted. The briquettes are then re-melted. The plant has been designed with a focus on highly abrasive material (wear parts are made of high-strength material).

<b>Material</b>	Cast Iron	<b>Briquetting System</b>	RUF 55/3700/100	<b>Throughput</b>	1,0 t/h
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## COPPER DIE-CASTING SHAVINGS PROCESSING THROUGH BRIQUETTING

GERMANY

SINCE 2007

The customer buys shavings of various copper alloys from scrap dealers. By briquetting, the output moisture is reduced to about 1%. The briquettes facilitate storage, make charging easy and increase the metal yield. The briquetting plant paid off within one year.

<b>Material</b>	i.a. red brass	<b>Briquetting System</b>	RUF 30/3700/100	<b>Throughput</b>	1,0 t/h.
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## LEADING GERMAN SCRAP DEALER COUNTS ON RUF

GERMANY

SINCE 2011

The customer briquettes precisely defined stainless steel qualities such as DUPLEX shavings, which are bought from special sources. The briquettes are sold to stainless steel factories.

<b>Material</b>	Stainless Steel	<b>Briquetting System</b>	RUF 55/3700/100	<b>Throughput</b>	1,8 t/h
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## GENERATE VALUE OUT OF GRINDING SLUDGE BY BRIQUETTING

HUNGARY

SINCE 2006

Steel shavings are specifically mixed with grinding sludge and subsequently briquetted. These mixed briquettes are sold to steel works. In this way the 'hazardous grinding sludge waste' is transformed into a solid form together with shavings. The briquettes can re-enter the steel cycle without any problems.

<b>Material</b>	Steel Chips & Grinding Sludge	<b>Briquetting System</b>	2 x RUF 30/3700/100	<b>Throughput</b>	2,0 t/h (sum)
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## USE GRINDING SLUDGE DIRECTLY

AUSTRIA

SINCE 2008

The emulsion-containing grinding sludge comes mainly from one source and is pressed into solid briquettes. These are then brought to the market.

<b>Material</b>	Grinding Sludge	<b>Briquetting System</b>	RUF 22/2000/120S	<b>Throughput</b>	650 kg/h
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## HEATING MATERIAL FROM WASTE WOOD ON AN INDUSTRIAL SCALE

GERMANY

SINCE 2007

Moist material is treated by dryers and a hammer mill. A screw conveyor feeds the 30 m<sup>3</sup> RUF push floor from which the briquetting plants are charged. After the briquetting process, the briquettes are packed fully automatic into 10 kg parcels. These are then sold as high quality heating material.

<b>Material</b>	Wood Shavings	<b>Briquetting System</b>	10 x RB 440	<b>Throughput</b>	5,0 t/h (sum)
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## HARDWOOD BRIQUETTES FROM WOOD RECYCLING PLANTS

GERMANY

SINCE 2005

The customer purchases wood shavings and wood dust from the woodprocessing industry with a focus on hardwood. The materials are mixed and briquetted on a total of 5 RUF machines. The hardwood briquettes are packed in 10 kg parcels and sold to the trade.

**Material** Wood Shavings &-Dust beech **Briquetting System** 4 x RB 440, 1 x RUF 600 **Throughput** 2,5 t/h (sum)



## FROM WASTE TO QUALITY

FRANCE

SINCE 2009

The customer buys wood waste and wood shavings from various sources. After shredding, the material is mixed and then briquetted. The briquettes are sold through the trade.

**Material** Wood Waste & Wood Shavings **Briquetting System** RUF 1500 **Throughput** 1,5 t/h



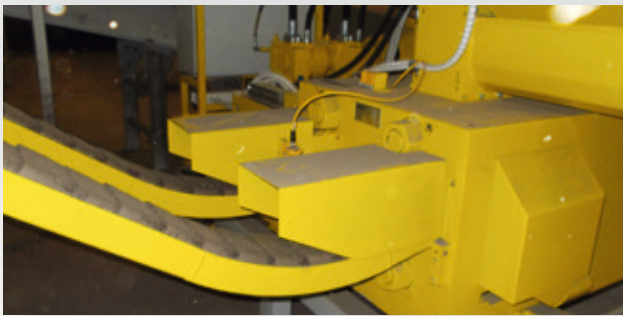
## SUSTAINABLE HEATING MATERIAL FOR PRIVATE USE

UNITED STATES

SINCE 2008

The customer buys dry wood shavings from sources nearby and transforms them into briquettes. The briquettes are packed semiautomatically and sold via the trade.

**Material** Wood Shavings & -Dust **Briquetting System** 2 x RUF 600 **Throughput** 1,0 t/h (sum)



**DUSTS FROM MECHANICAL-BIOLOGICAL-WASTE TREATMENT REUSABLE IN SHAPE OF BRIQUETTES**

GERMANY

SINCE 2013

The customer operates a mechanical-biological waste treatment plant. The biogenic mass from household waste in shape of dust contains a residual moisture of <15%. The material enters a cyclone extraction plant and is guided to a press. The briquettes are burnt on a gratefiring of a power plant.

Material	Biomass	Briquetting System	RUF 600	Throughput	780 kg/h
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**DRASTIC REDUCTION OF VOLUMES OF PU DUSTS FROM REFRIGERATOR RECYCLING**

NORWAY, SWEDEN, ROMANIA, CHINA

SINCE 2013

Refrigerators are shredded and the PU-foam separated off to be briquetted subsequently. This process achieves a reduction of volume up to 1:20. Since 2013 altogether seven plants have been installed. Apart from Germany, these are operated in Scandinavia, Eastern Europe and Asia. The technology was further developed by RUF with the goal that one plant achieves a throughput of 500 kg/h.

Material	Polyurethane	Briquetting System	7 x RUF 400	Throughput	2,5 t/h (sum)
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**TEXTILE DUSTS - PROFIT ACHIEVED BY TURNING DUSTS INTO BRIQUETTES**

GERMANY

SINCE 2011

The customer works in the old textile recycling segment. Textile dust (cotton & synthetic fibres) are generated in the material shredding, which is sucked off by an extraction plant. An screw conveyor subsequently transports the dust into the funnel of the briquetting plant. Earlier, the disposal of dusts generated costs, whereas now the briquettes can be sold with profit to the cardboard industry.

Material	Textile Dust	Briquetting System	RUF 200	Throughput	180 kg/h
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**REDUCING THE VOLUME OF PLASTIC FOILS**

GERMANY

SINCE 2018

The labels (mainly made of PVC), left over in recycling plants for PET bottles, have a very low bulk weight. By being briquetted the bulk weight is considerably increased. In this way a more efficient logistics is achieved, within the factory as also in the external logistics.

Material	Plastics Foils	Briquetting System	RUF 4/800/80	Throughput	40 kg/h
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