



## Recycling Solutions:

- Hydraulic Briquetting Presses
- Screw Extrusion Presses

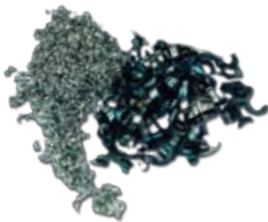
## From Waste Materials to Recyclables

With its screw extrusion presses and hydraulic briquetting presses, FAUDI is able to offer its customers economical and environment-friendly solutions for converting valuable production residuals into recyclable secondary raw materials. The fields of application are most diverse and include, amongst others, recycling, resource recovery, dehydration and de-oiling.

Waste products accumulated during production processes, such as abrasive slurry or grinding debris, cuttings and swarf, are usually of quite considerable volume. These – in part – valuable raw materials needn't require cost-intensive disposal. Thanks to FAUDI's screw extrusion and briquetting presses, residual oils and emulsions can be separated from other residual materials and recirculated into the lubricant cycle with ease. Dehydration of residuals by way of a screw extrusion press facilitates the further treatment, i.e., briquetting, of residual materials such as abrasive slurry. Implementing this process makes it possible to recover and reuse residual oils and emulsions, leading to a saving of up to 95 % of clean oil. At the same time, the volume of residual materials to be disposed of at cost is reduced considerably. During the briquette pressing process, swarf is separated from cooling lubricants and reformed into

highly compressed and easy-to-handle briquettes. The refined swarf is now ready for sale to recyclers at a much higher profit than before processing. The implementation of FAUDI screw extrusion and briquetting presses helps to achieve a considerable reduction in costs, not to mention the environmental considerations involved. Our hydraulic briquetting presses and screw extrusion presses can be easily combined with FAUDI filter systems. It is also possible to refit commercial filter systems of other manufacturers with our briquetting and/or screw extrusion presses, thus optimising cooling lubricant reconditioning processes.

### What types of materials can be processed?



#### Cuttings/Swarf

Aluminium swarf, brass and copper swarf, steel chips, magnesium swarf, cast iron and cast steel swarf, stainless steel chips



#### Slag/Cinder/Dust

Slag, cinder and dust of every variety



#### Abrasive slurry

Grinding debris and abrasive slurry of every variety

*Dehydration via screw extrusion presses greatly facilitates the briquetting of abrasive slurry.*

## Our Concept – The Perfect Solution



### Saving Costs – Saving the Environment

There is no way to fully avoid the accumulation of process-related swarf, abrasive slurry and slag when processing metals. The oil content of these residual materials makes subsequent treatment very difficult. Thanks to FAUDI's

screw extrusion presses and briquetting presses for metal swarf and abrasive slurry and the implementation of FAUDI filter systems for the treatment of cooling lubricants, we are able to offer our customers a comprehensive and profitable solution for converting expensive production residues into recyclable secondary raw materials.

## Your Advantages at a Single Glance

**W**e offer you a unique disposal concept specifically tailored to your requirements and your fields of application. To counteract against the increasing pressure placed on companies with regard to waste disposal and environmental safety conditions, FAUDI is able to present to you a comprehensive concept that comprises much more than the briquetting of your waste materials.

Adhesive slurry continues to cause problems in the briquetting of residuals. The press performance of briquetting presses depends in large part on the amount of fluids, hydration or residual moisture present in the slurry to be processed. The lower the amount of residual moisture of the slurry, the higher the output performance of the press. FAUDI screw extrusion presses make it possible to dehydrate abrasive slurry, thereby greatly facilitating the briquetting process.

Our hydraulic briquetting presses and screw extrusion presses can be easily combined with FAUDI filter systems. It is also possible to refit commercial filter systems of other manufacturers with our briquetting and/or screw extrusion presses, thus optimising cooling lubricant reconditioning processes.

### The Advantages of FAUDI Screw Extrusion and Briquetting Presses

#### Total Cost of Ownership

Total Cost of Ownership (TCO) is an important factor for our engineers in their ongoing development work. By using only the highest-quality components in designing our products, we are able to offer our customers equipment that is reliable, long-lasting and safe.

#### Tests under Operating Conditions

FAUDI tests the press characteristics of various materials and develops a tailored systems concept for your company.

#### Process Connection

FAUDI makes possible the direct recirculation of treated cooling lubricants into the production process.

#### Electronic Control

Modern and high-performance electronic control systems facilitate the performance of fully automated press processes. A control loop guarantees uniform briquette length.

#### Maintenance Concept

Recognising signs of wear and tear well in advance: Our elaborate maintenance concept guarantees for a smooth and trouble-free production sequence.

#### Spare-Parts Service

Our service specialists guarantees quickest possible repair and return to operation in the unlikely event of production interruption or breakdown due to wear and tear of parts.

#### Years of Experience

The competence shown, experience gained and numerous successful customer solutions realised by FAUDI speak for themselves.

## The Efficiency of FAUDI Briquetting Presses

Briquetting presses for the treatment of abrasive slurry and swarf are a most expedient investment. The reduction of waste and costs, a dramatic decrease in clean-oil demand and the conversion of waste into recyclables speak for the efficiency and profitability of briquetting presses.

### An Expedient Investment

#### Calculation model 1:

Material:	Abrasive slurry
Lubricant:	Oil
Material:	C100
Amount of material to be treated:	500 t/a
Residual oil amount (slurry):	50 %
Residual oil amount (briquette):	ca 8 %
Disposal costs:	100 €/t
<i>Briquette utilisation:</i>	<i>50 €/t</i>
Oil costs:	1,50 €/kg

Waste amount (in t/a)	With briquetting	Without briquetting
Solids	250 t	250 t
Oil	22 t	250 t
<b>Total amount of waste</b>	<b>272 t</b>	<b>500 t</b>
<b>Oil savings:</b>	<b>228 t</b>	
Clean-oil demand (in €/a at 1,5 €/kg)	22 t	250 t
	33.000 €	375.000 €
<b>Clean-oil savings:</b>	<b>342.000 €</b>	
Disposal costs (in €/a, 1t=100 €)	–	500 t
	–	50.000 €
<b>Disposal cost savings:</b>	<b>50.000 €</b>	
Sales revenue (in €/a)	272 t	–
Sales price in €/t	50 €	–
<b>Total profits</b>	<b>13.600 €</b>	–
<b>Total:</b>	<b>13.600 €</b>	
<b>Total savings (in €/a):</b>	<b>405.600 €</b>	

#### Calculation model 2:

Material:	Aluminium
Lubricant:	Oil
Material:	ALSi7
Amount of material to be treated:	1000 t/a
Residual oil amount (swarf):	20 %
Residual oil amount (briquette):	ca 4 %
Swarf recycling:	600 €/t
<i>Briquette utilisation:</i>	<i>700 €/t</i>
Oil costs:	1,50 €/kg

Waste amount (in t/a)	With briquetting	Without briquetting
Solids	800 t	800 t
Oil	40 t	200 t
<b>Total amount of waste</b>	<b>840 t</b>	<b>1000 t</b>
<b>Oil savings:</b>	<b>160 t</b>	
Clean-oil demand (in €/a at 1,5 €/kg)	40 t	200 t
	60.000 €	300.000 €
<b>Clean-oil savings:</b>	<b>240.000 €</b>	
Total profits (in €/a)	800 t	800 t
Sales price in €/t	700 €	600 €
<b>Total</b>	<b>560.000 €</b>	<b>480.000 €</b>
<b>Additional profit:</b>	<b>80.000 €</b>	
<b>Difference in profit (in €/a):</b>	<b>+ 320.000 €</b>	

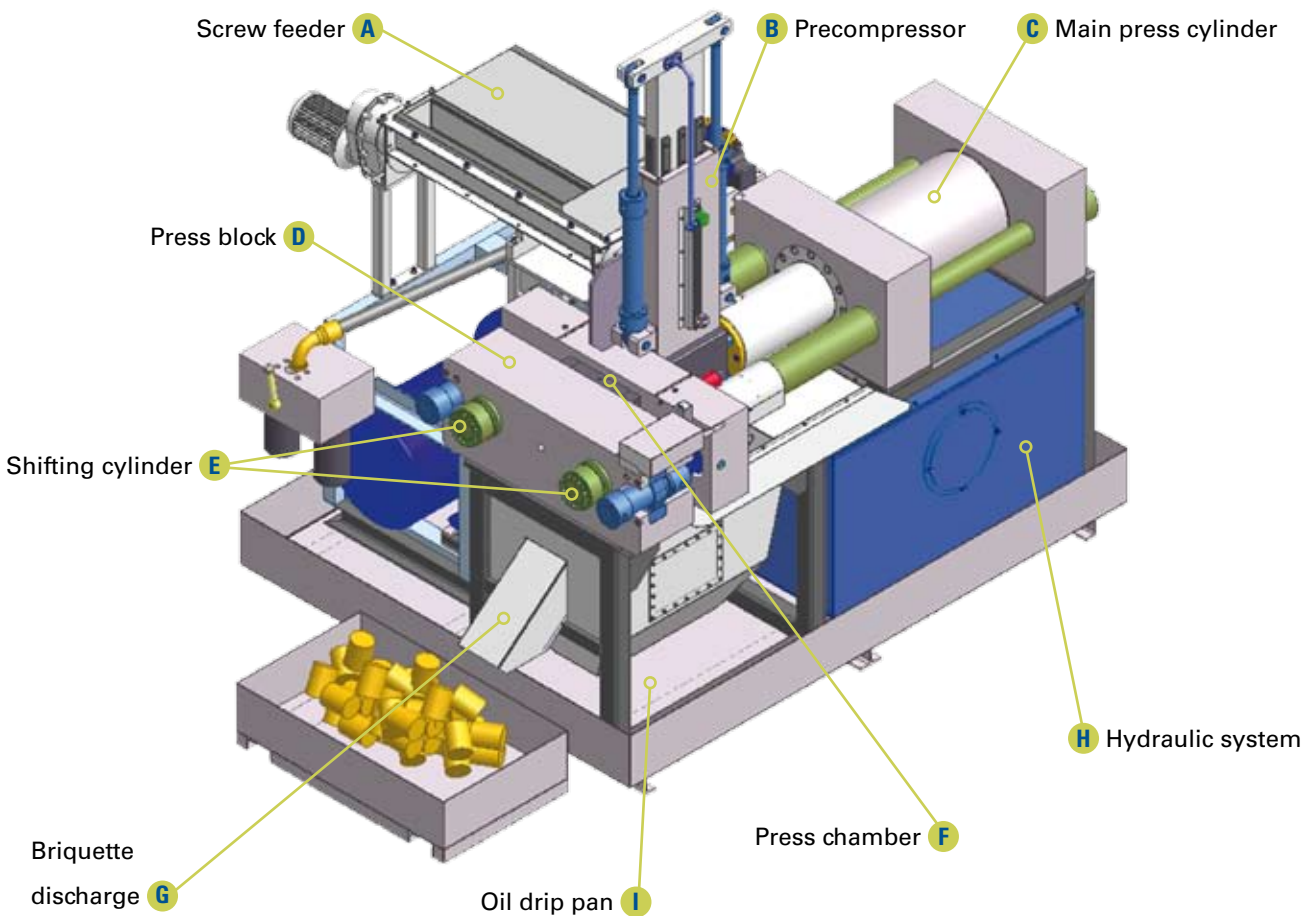
The values specified in the above models serve only to provide a sample calculation and are not to be understood as binding performance guarantees.



## Functional Description of the Briquetting Process

### Process Sequence

1. A conveyer belt feeds the waste material to be briquetted into a screw feeder **A**. This feeder feeds the material into a precompressor **B**.
2. The precompressor **B** loads the material into the press mould, where it remains until the main press cylinder **C** has moved to the end of the precompressor.
3. The precompressor **B** returns to its original position. The screw feeder **A** continues to feed material into the precompressor.
4. The main press cylinder **C** extends and compacts the material under high pressure into a solid briquette.
5. The main press cylinder **C** releases pressure and remains in its current position at standstill.
6. The shifting cylinder **E** shifts the press block **D** over the main press piston until the main press chamber **F** is fully opened and the briquette falls through the briquette discharge **G**.
7. The main press cylinder **C** retracts.
8. The press block **D** retracts with the help of the shifting cylinder **E** until the press chamber is once again fully closed.



## Technical Data/Briquetting Press

As your competent partner for all product development matters, FAUDI is able to support you with all of its know-how and expertise. Our common objective? The development and implementation of the most suitable processes for the recovery of recyclables as well as overall disposal cost reduction.

### An Overview of FAUDI Presses

Each FAUDI briquette press is developed to suit individual requirements. In order to determine these requirements precisely, one needs precise material data. Our qualified engineers would be happy to visit you and your company on site to obtain a better understanding of your operation and your requirements. Our solutions will be tailored to suit your very specific demands.

Press type	Briquette size	Output [kg/h]			Connection power [kw]	Press cylinder		Max. system pressure max.
		Briquette density				Main press cylinder	Compressive force	
		Abrasive slurry approx. 3 kg/dm <sup>3</sup>	Aluminium approx. 2,3 kg/dm <sup>3</sup>	Steel / Cast approx. 5,3 kg/dm <sup>3</sup>				
Compact solution								
WSPK 7,5.060	ø60x70mm	bis 40	35	80	7,5	180 mm	950 kN	250 bar
WSP 7,5.060	ø60x70mm	20–70	50	100	7,5	220 mm	950 kN	250 bar
WSP 15.060		–	100	200	15			250 bar
WSP 15.080	ø80x90mm	50–130	100	200	15	280 mm	1540 kN	250 bar
WSP 30.080		–	200	400	30			250 bar
WSP 30.095	ø95x100mm	100–200	150	350	30	320 mm	2010 kN	250 bar
WSP 55.095		–	300	700	55			250 bar
WSP 55.120	ø120x100mm	150–350	320	750	55	400 mm	3140 kN	250 bar
WSP 170.120		–	650	1500	170			250 bar

The data specified in the table is based on experience values only and is not intended for interpretive purposes. Systems offering technical data different than those parameters listed above are available upon request.

### Our Product –Your Profit

- Recovery of expensive oils and emulsions (cooling lubricants)
- Reduction in overall waste
- Reduction in storage volume of abrasive slurry
- Reduction in transport volume and, consequently, transport costs
- Conversion of waste materials such as abrasive slurry and swarf into recyclable secondary raw materials
- Increase of profits through briquetting
- Positive image for environmental audits

## The Efficiency of FAUDI Screw Extrusion Presses

With its range of screw extrusion presses, FAUDI offers its customers an economical and environment-friendly solution for significantly reducing production residuals. The fields of application are most diverse and include, amongst others, recycling, dehydration and de-oiling.

Acting as supplementary modules, FAUDI screw extrusion presses can be easily combined with briquetting presses, thereby increasing the cycle time. They can however also be implemented as economical "stand-alone" solutions.

### An Expedient Investment

#### Calculation model:

Material:	Adhesive slurry
Cooling lubricant:	Oil
Material:	C100
Amount of material to be treated:	500 t/a
Residual oil amount (inflow):	50 %
Residual oil amount (outflow):	30 %
Waste disposal costs:	100 €/t
Oil costs:	1,50 €/kg

Waste amount (in t/a)	With screw extrusion press	Without screw extrusion press
Solids	250 t	250 t
Oil	107 t	250 t
<b>Total amount of waste</b>	<b>357 t</b>	<b>500 t</b>
<b>Oil savings:</b>	<b>143 t</b>	
Clean-oil demand (in €/a at 1,5 €/kg)	107 t	250 t
	<b>160.500 €</b>	<b>375.000 €</b>
<b>Clean-oil savings:</b>	<b>214.500 €</b>	
Disposal costs (in €/a, 1t=100 €)	357	500 t
	<b>35.700</b>	<b>50.000 €</b>
<b>Disposal cost savings:</b>	<b>14.300 €</b>	
<b>Total savings (in €/a):</b>	<b>228.800 €</b>	

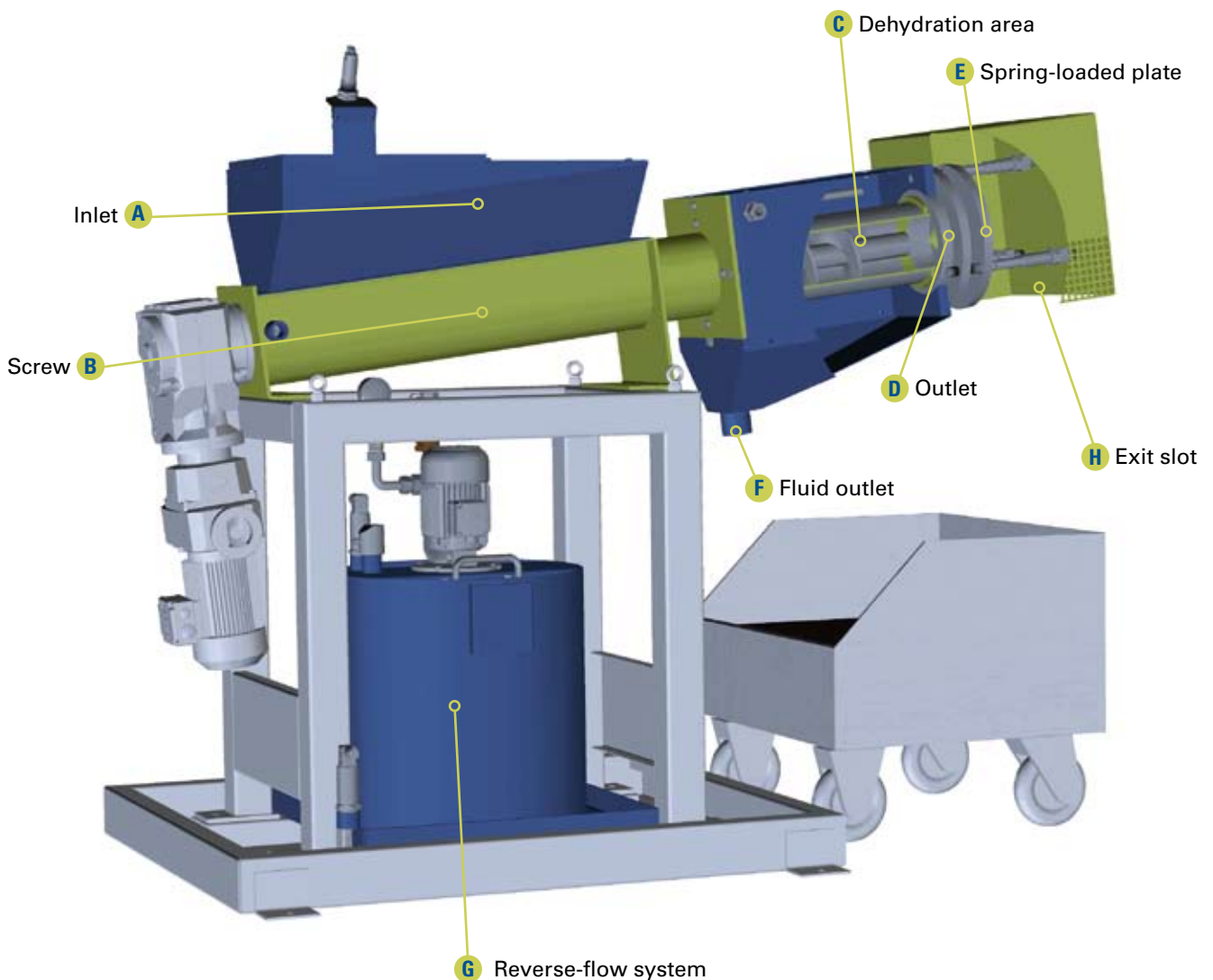
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## Technical Description of the Dehydration Process

### Process Sequence

1. A conveyer belt feeds the slurry to be dehydrated into the inlet **A** of the screw extrusion press.
2. The rotary motion of the screw **B** causes the moist slurry to be fed into the dehydration area **C**, which is equipped with a filter cylinder in which fluid is separated from solid matter.
3. The outlet **D** is equipped with a spring-loaded plate **E**, which regulates the pressure in the dehydration area.
4. A fluid outlet **F** conducts fluids now separated from solids to the reverse-flow system **G**. The dry slurry is dropped through the exit slot **H**.
5. Fluids returning from the reverse-flow system **G** are conducted back into the system.



## Technical Data/Screw Extrusion Presses

### An Overview of FAUDI Screw Extrusion Presses

Each FAUDI screw press is developed to suit individual requirements. In order to determine these requirements precisely, one needs precise material data. Our qualified engineers would be happy to visit you and your company on site to obtain a better understanding of your operation and your requirements. Our solutions will be tailored to suit your very specific demands.

### Screw Extrusion Press

Press type	Transported material	Cooling lubricant	Input power (kW)	Input speed	Screw diameter (mm)	Fluid inflow	Fluid outflow	Delivery rate (kg/h)
EEA 150	Slurry	Oil/Emulsion	0,37	8 min <sup>-1</sup>	150	50-80 %	30 %	ca. 150
EEA 200	Slurry	Oil/Emulsion	0,75	8 min <sup>-1</sup>	200	50-80 %	30 %	ca. 300
EEA 250	Slurry	Oil/Emulsion	1,1	8 min <sup>-1</sup>	250	50-80 %	30 %	ca. 450

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### Our Product –Your Profit

- Recovery of expensive oils and emulsions
- Reduction in overall waste
- Reduction in storage volume of abrasive slurry
- Reduction in transport volume and, consequently, transport costs
- Conversion of abrasive slurry from residual material to recyclable raw secondary material
- Increase of output performance of briquetting presses thanks to dehydration of slurry
- Positive image for environmental audits



*Hydraulic briquetting press with corresponding materials handling technology*

**FAUDI**



*Detail of a hydraulic briquetting press*

We would be happy to provide further information on our full range of filter systems.