



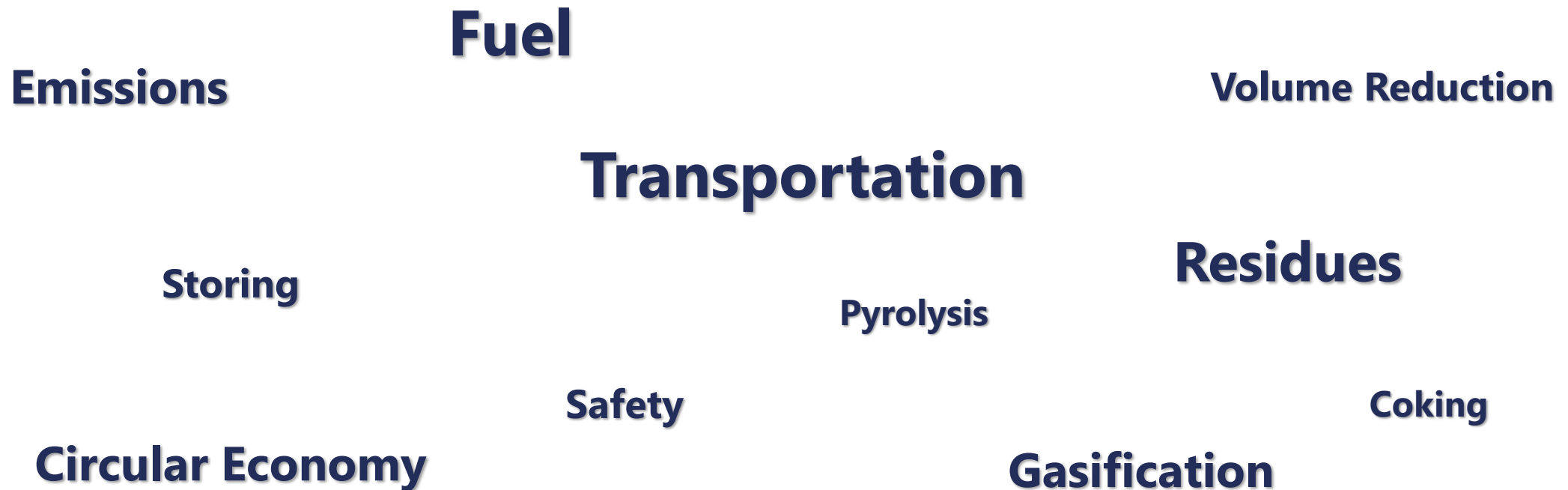
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# Briquetting of Biomasses

# Challenges

What challenges do you face in the treatment and processing of biomasses?



# Briquetting Presses

The three-stage pressing process of the ATNA briquetting presses enables maximum throughputs with the highest briquette quality.

For this purpose, we supply innovative solutions adapted to your company.



# Innovative Press Process



## Step 1: Pre-Pressing

- Low pressing pressure - a stable pre-agglomerate is created
- Depending on the compression ratio, the pre-pressing can also be carried out in two stages



## Step 2: Main Pressing

- High-pressure compression of the pre-pressed material into high-quality briquettes
- Pressing Pressures of up to 5000 bar (500 MPa) can be achieved





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# Reference for Biomass Press





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# Examples for Biomassbriquettes

Bagasse



Corncoobs



Digestates from biogas plants



Woodchips



Sewage Sludge



# Areas of application

## Material Utilization

### Gasification

- Product gases such as H<sub>2</sub>
- CHP operation

### Pyrolysis

- Barbecue briquettes from biomass coke
- Lumpy adsorbents based on activated biomass coke
- Large-sized briquettes for fireplaces

## Thermal Utilization

### Biomass briquettes for

- Domestic firing (e.g. as bundled goods)
- Industrial firing (as loose bulk)







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# Contact

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Innovative Ressource Utilization







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# Areas of Application

## Residual and Waste Materials

Sewage Sludge  
Plastics  
PU-foam



Wood  
Straw  
Corncobs



## Renewable Raw Materials

## Metal curls

Aluminium  
Copper  
Steel



Iron Ore  
Manganese Ore  
Dolomite



## Mineral Raw Materials



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# Machine Sizes

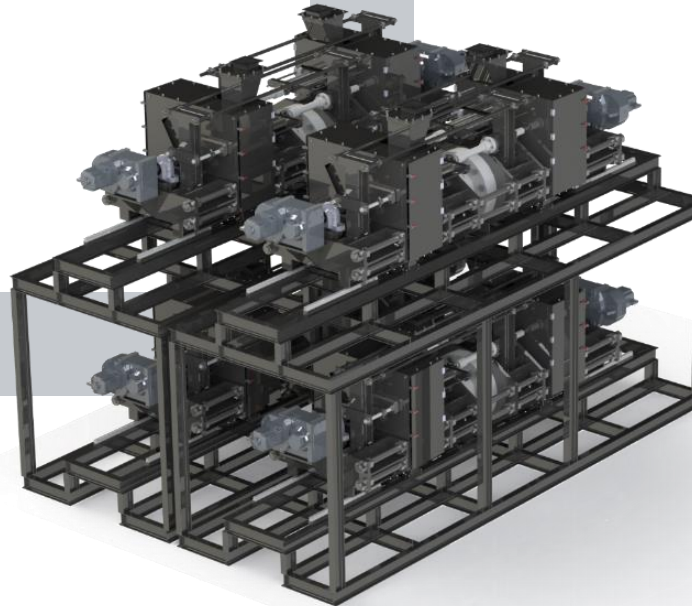
Small scale for the processing of:

- Biomass
- Metal Curls
- Sewage Sludge



50 kg/h

16 t/h



Large scale for the processing of:

- Biomass
- Coal
- Minerals



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# Machine Sizes for Biomass

50 kg/h

to

250 kg/h

**Series S**

250 kg/h

to

1,000 kg/h

**Series M**

1,000 kg/h

to

2,500 kg/h

**Series L**

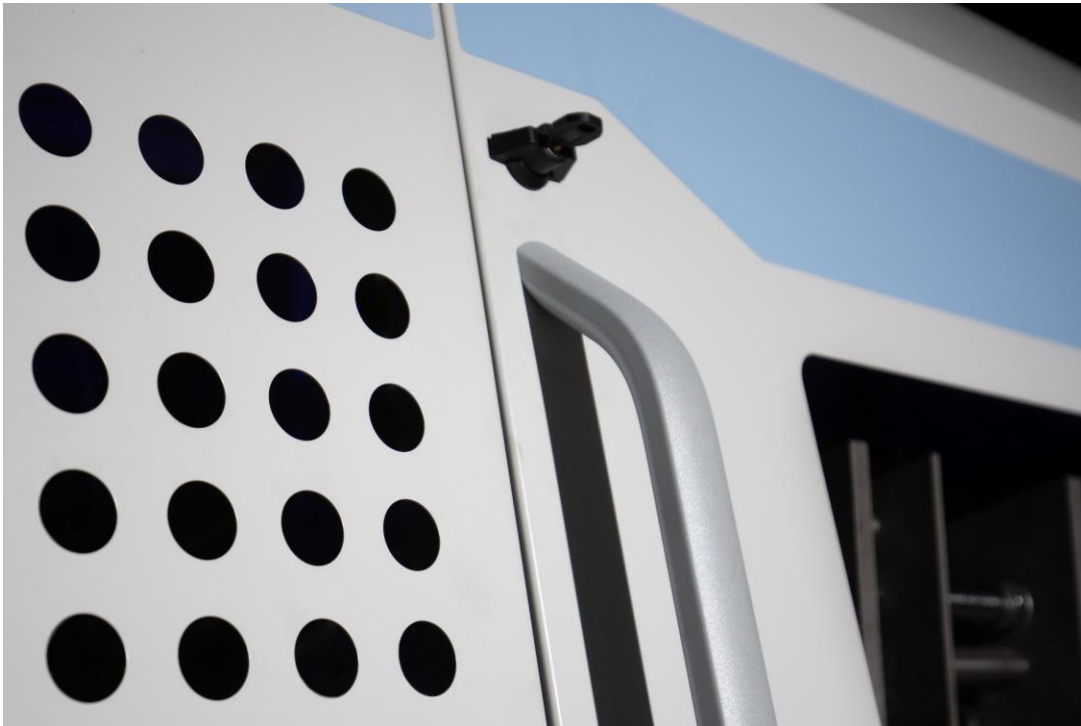
2,500 kg/h

to

16,000 kg/h

**Series XL**

# Individual Customer Solutions



Every company is unique.

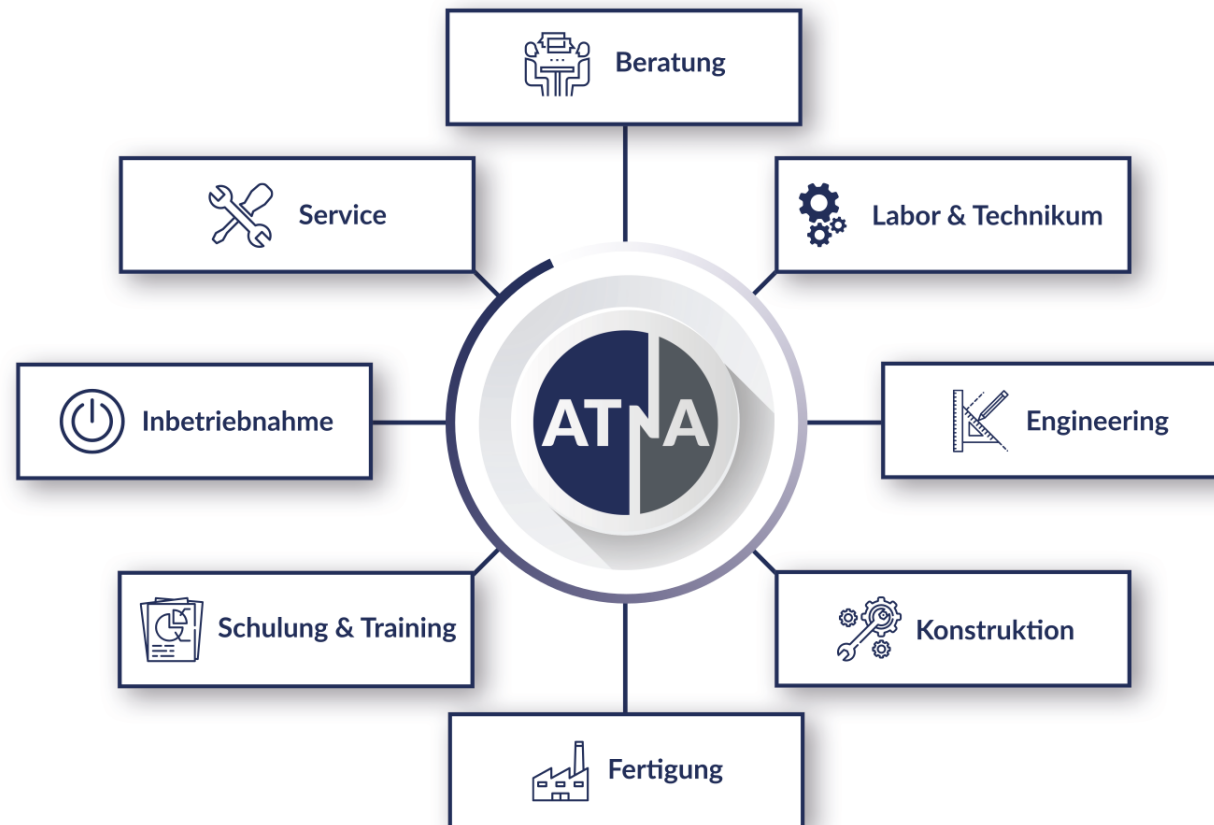
For this reason, we work together with our customers to develop an individual solution tailored to their requirements.





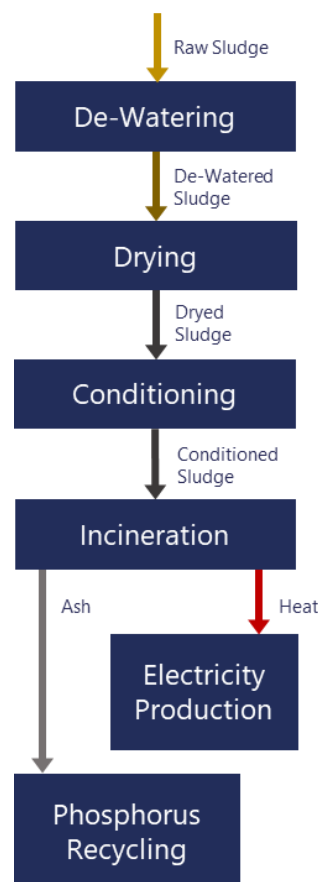
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# Business Areas





# eco|slin Procedure



## conventional

**Decanter centrifuge**  
Up to 30 % DS, thick sludge

**Belt- or Disk Dryer**  
Up to 90 % DS, granulated material

**Mill**  
comminution of granulates if they are to big

**Stationary Fluidized Bed**  
incineration in fluidized condition

**Steam Turbine Process**  
conventional steam turbine process with heat extraction for drying

**Phosphorus-Recycling**  
several options

## eco|slin

**Decanter-Granulator**  
up 50 % DS, granulate

**Drum Dryer**  
up to 90 % DS, granulate

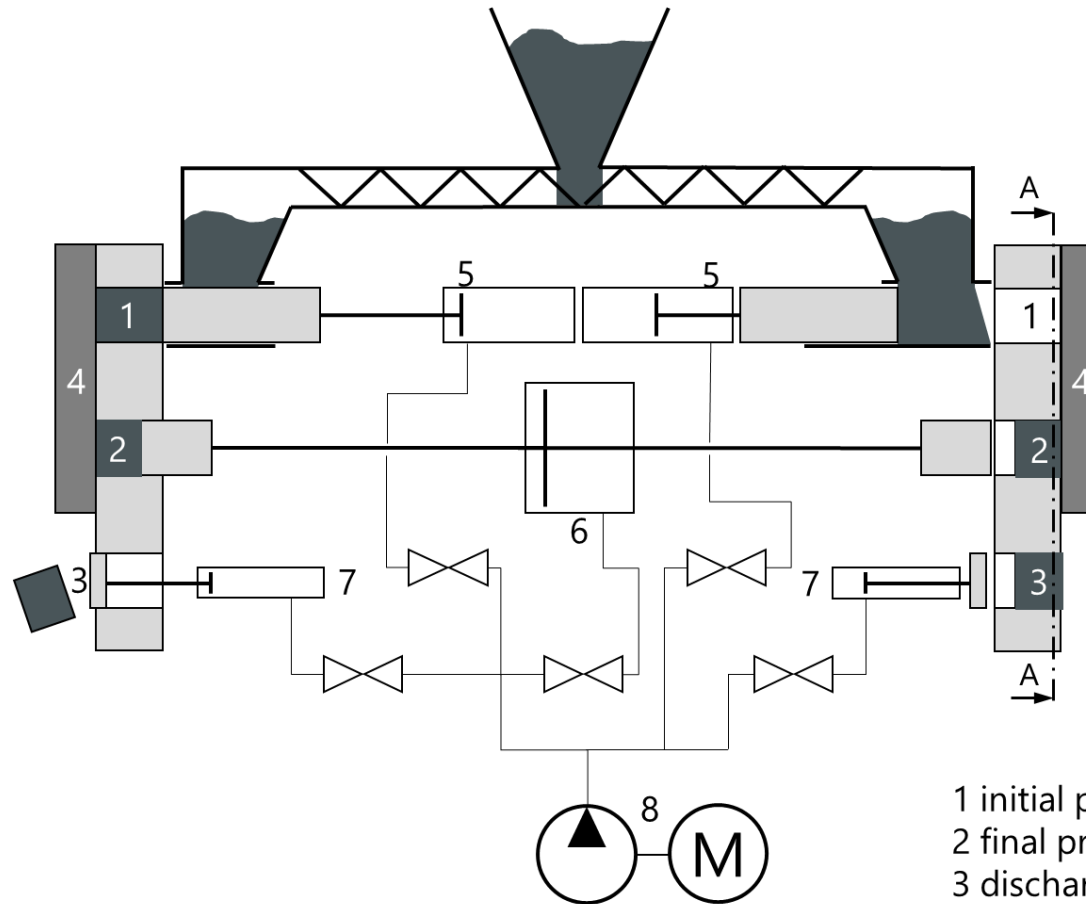
**Briquetting**  
stable briquettes for storage and incineration

**Grade Firing**  
incineration on a moving grade



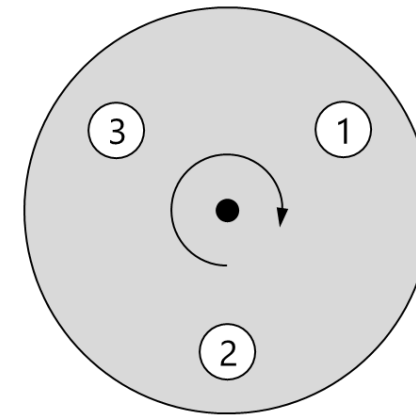
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# Double Piston Press



1 initial pressing  
2 final pressing  
3 discharge  
4 press frame

section A-A



5 initial pressing cylinder  
6 final pressing cylinder  
7 discharge cylinder  
8 hydraulic unit

# Pilotplant

- Prototype: Single “Industrial Core” with an Throughput of 3,2 t/h for Sewage Sludge and Coal
- Completion in October 2019
- Industrial Test: from November 2019 till End of May 2020 at RWE
- Power Demand < 20 kWh/t
- Dimensionen
  - Länge: 6.0 m
  - Breite: 2.0 m
  - Höhe: 5.0 m
  - Masse: 10 t

