

KNOBLINGER

Alternative Fuel Systems

Handling, Processing, Storage & Dosing
Solutions for Industrial Decarbonization





ALTERNATIVE FUELS

Turn residues into energy

From residue to reliable fuel supply

We turn the residues available at your site into a consistent, precisely metered fuel, with a complete plant concept tailored to your combustion system. Your partner - covering the entire process, from feedstock intake to furnace feeding.

- Reduce energy costs**
Use residues and production by-products as fuel and cut your spending on purchased energy
- Gain energy independence**
Rely on locally available feedstock and reduce your exposure to fossil fuel prices and supply risks
- Lower your CO₂ footprint**
Replace fossil fuels with biogenic and residue-derived fuels
- One partner**
Engineering, equipment and turn-key integration - from a single supplier
- Reliable operation**
Robust handling of demanding bulk materials keeps your fuel supply stable and continuous

TARGET INDUSTRIES & COMBUSTION SOLUTIONS



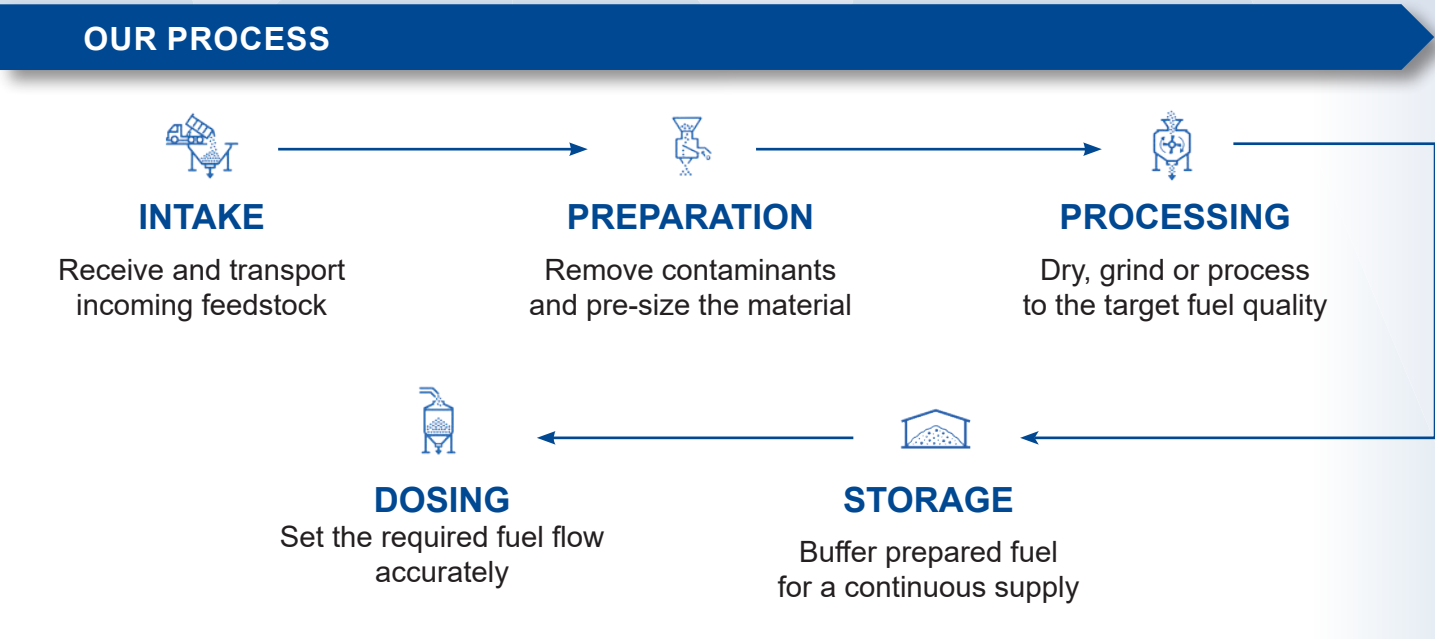
- ☒ ROTARY FURNACE
- ☒ SHAFT FURNACE
- ☒ BLAST FURNACE
- ☒ BURNER
- ☒ BOILER



FEEDSTOCK MATERIALS



WOOD	OTHER BIOMASS	PLASTIC	SLUDGE	WASTE
- Roundwood - Forest wood chips - Residual wood - Waste wood - Industrial pellets	- Olive stones / pomace - Nut shells / PKS - Grasses & straw - Cereal / rice husks	- Pellets - Plastic granulate - Production scrap	- Sewage sludge - Industrial sludge	- Special waste (CFK, GFK, ...) - Production residues - Sorting residues



TARGET FUELS



WOOD DUST

burner-ready • defined particle size • for industrial combustion

YOUR BENEFITS

- Replace fossil fuels – use wood residues economically and gain energy independence through local raw material supply
- Use feedstocks flexibly – adapt preparation to the incoming material, from dry shavings to moist wood chips or sawdust
- Achieve the required fineness – match grinding to your furnace, whether burner, shaft kiln or rotary kiln
- Improve process stability – consistent particle size ensures reliable dosing and a stable combustion
- Combine modules flexibly – from intake to fuel injection, extendable step by step

SELECTED REFERENCES



Lime plant - Germany



Cement plant - Austria



Asphalt plant - Germany

TARGET INDUSTRIES & COMBUSTION SOLUTIONS



- ☒ ROTARY FURNACE
- ☒ SHAFT FURNACE
- ☐ BLAST FURNACE
- ☒ BURNER
- ☒ BOILER



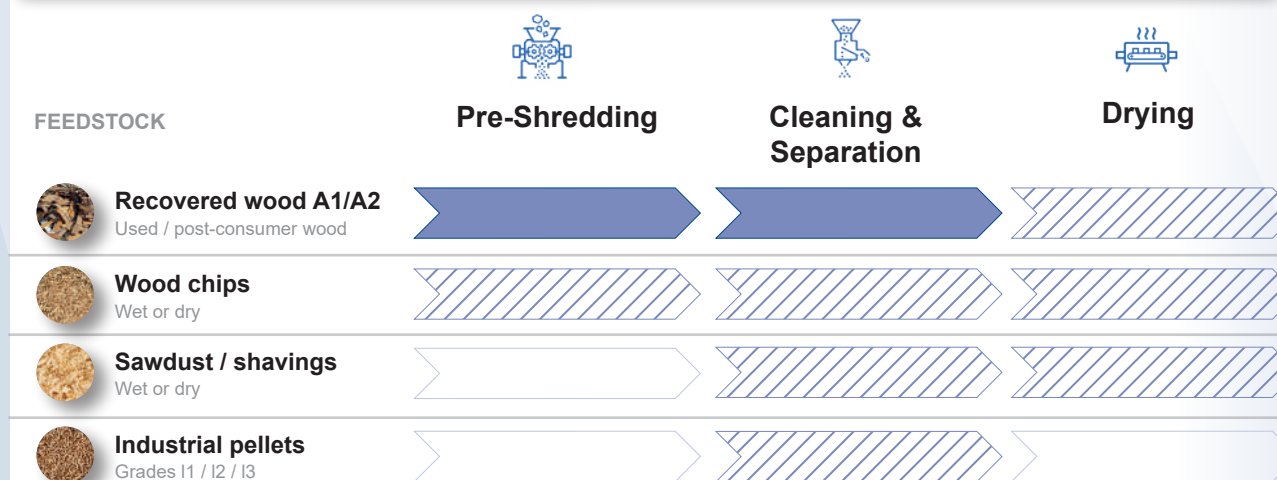
FROM FEEDSTOCK TO TARGET QUALITY

Overview of Core Processes

 required  as needed / optional  not required

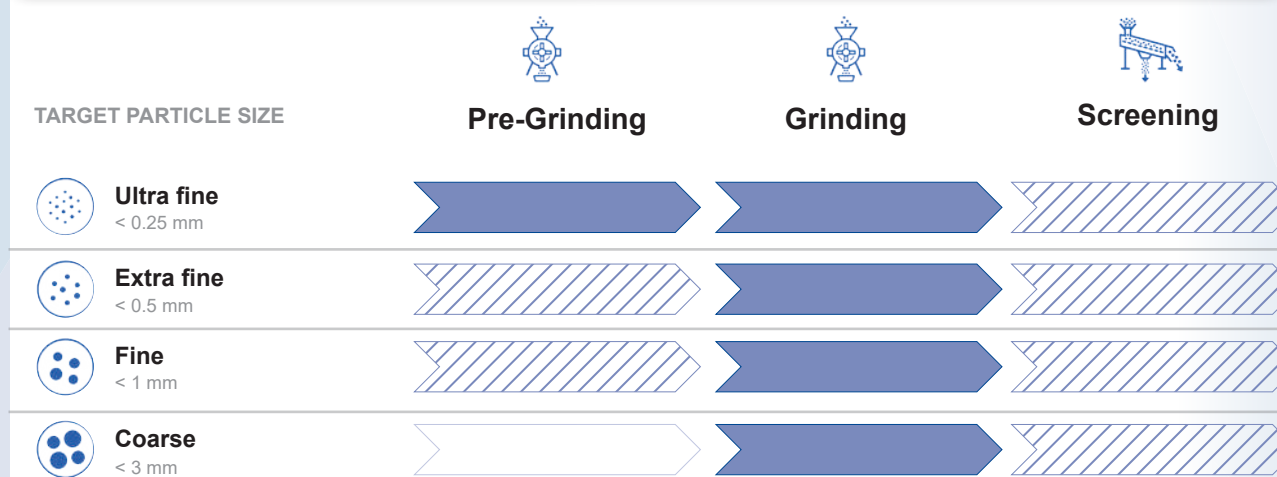
01

RAW MATERIAL PROCESSING



02

GRINDING



03

MATERIAL LOGISTICS

STORAGE

-  Steel / Concrete Silo
-  Bunker
-  Dust Container

DOSING & FEEDING

-  Material Discharge
-  Dosing
-  Material Conveying

WOOD CHIPS

defined particle size • dried as needed • for energy generation

YOUR BENEFITS

- | **Use regional wood resources** – turn roundwood, salvage timber or sawmill residues into locally sourced fuels
- | **Use feedstocks flexibly** – adapt preparation to the incoming material, from fresh wood to dry residues
- | **Control particle size and moisture** – produce chips for all common chip classifications
- | **Ensure reliable feeding** – discharge, dose and convey evenly, even with coarse or fibrous chips
- | **Combine modules flexibly** – from intake and chipping to fuel feeding, extendable step by step

SELECTED REFERENCES



Biomass heating plant - Austria



Wood chip production - Austria



Biomass heating plant - Austria

TARGET INDUSTRIES & COMBUSTION SOLUTIONS



- ☐ ROTARY FURNACE
- ☐ SHAFT FURNACE
- ☐ BLAST FURNACE
- ☐ BURNER
- ☒ BOILER

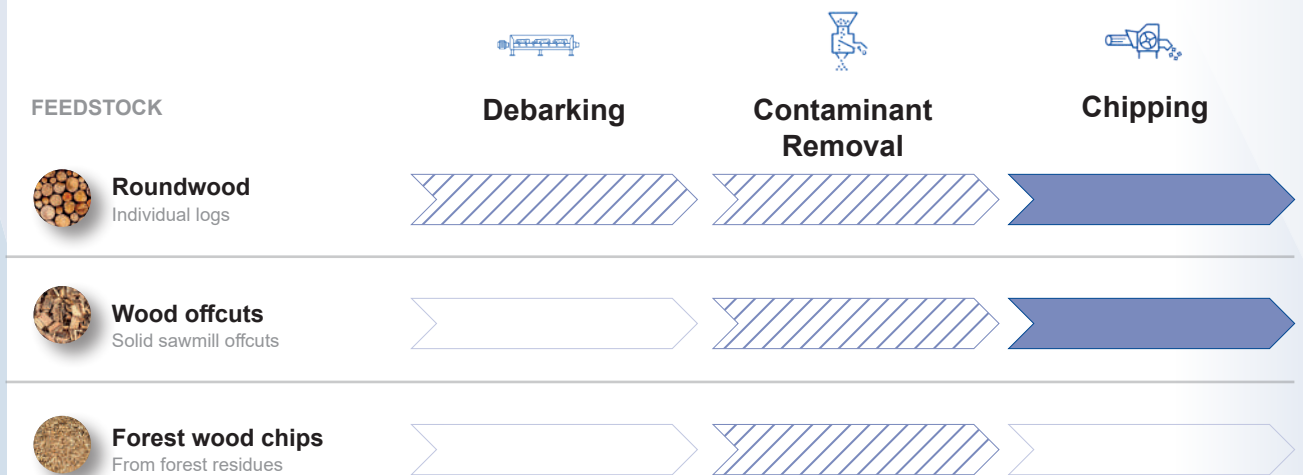
FROM FEEDSTOCK TO GRADED WOOD CHIPS

Overview of Core Processes

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  as needed / optional
  not required

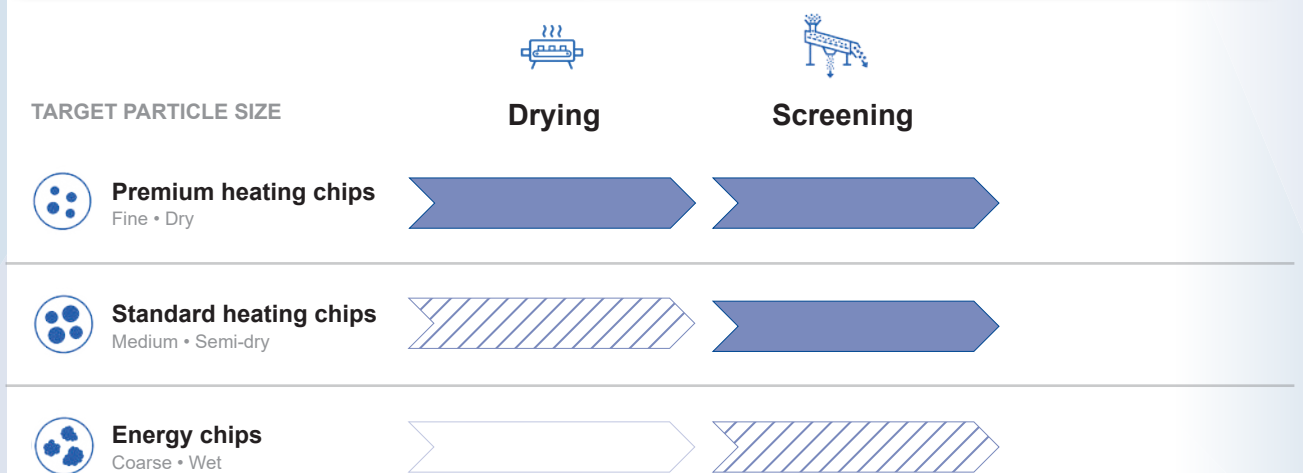
01

RAW MATERIAL PROCESSING



02

CONDITIONING



03

MATERIAL LOGISTICS

STORAGE

-  **Steel / Concrete Silo**
-  **Bunker**

DOSING & FEEDING

-  **Material Discharge**
-  **Dosing**
-  **Material Conveying**

BIOMASS DUST

defined particle size • derived from biomass residues • for industrial combustion

YOUR BENEFITS

- | **Use residual biomass** – turn olive stones, nut shells, straw or husks into fuel from regional sources
- | **Prepare diverse feedstocks** – adapt raw material processing to each material, from hard shells to light straw
- | **Achieve required fineness** – match grinding to the application, from burner to furnace
- | **Match fuel and furnace** – account for ash, chlorine and alkalis in plant and process design
- | **Combine modules flexibly** – from intake and drying to dosing and injection, extendable step by step

SELECTED REFERENCES



TARGET INDUSTRIES & COMBUSTION SOLUTIONS



- ☒ ROTARY FURNACE
- ☒ SHAFT FURNACE
- ☐ BLAST FURNACE
- ☒ BURNER
- ☒ BOILER

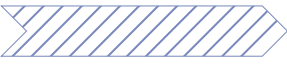
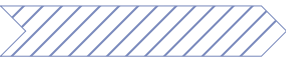
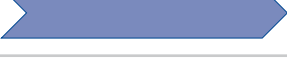
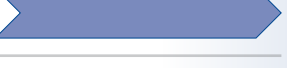
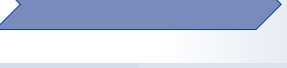
FROM FEEDSTOCK TO TARGET QUALITY

Overview of Core Processes

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  not required

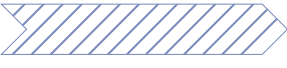
01

RAW MATERIAL PROCESSING

FEEDSTOCK	Opening / Pre-Shredding	Drying	Contaminant Removal
 Olive stones / pomace Stones / moist pomace			
 Nut shells / PKS Hazelnut · peanut · palm kernel			
 Grasses & straw Open bales and shorten fibres			
 Cereal / rice husks Loose, lightweight bulk material			

02

GRINDING

TARGET PARTICLE SIZE	Pre-Grinding	Grinding	Screening
 Ultra fine < 0.25 mm			
 Extra fine < 0.5 mm			
 Fine < 1 mm			
 Coarse < 3 mm			

03

MATERIAL LOGISTICS

STORAGE

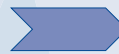
-  **Steel / Concrete Silo**
-  **Bunker**
-  **Dust Container**

DOSING & FEEDING

-  **Material Discharge**
-  **Dosing**
-  **Material Conveying**

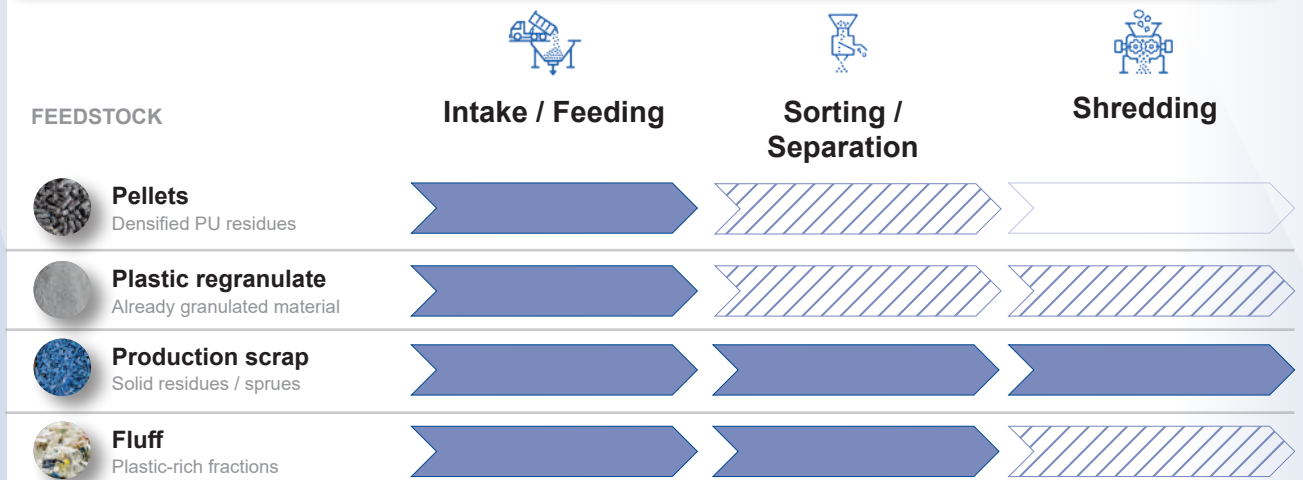
FROM PLASTICS TO INDUSTRIAL FUEL

Overview of Core Processes

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  as needed / optional
  not required

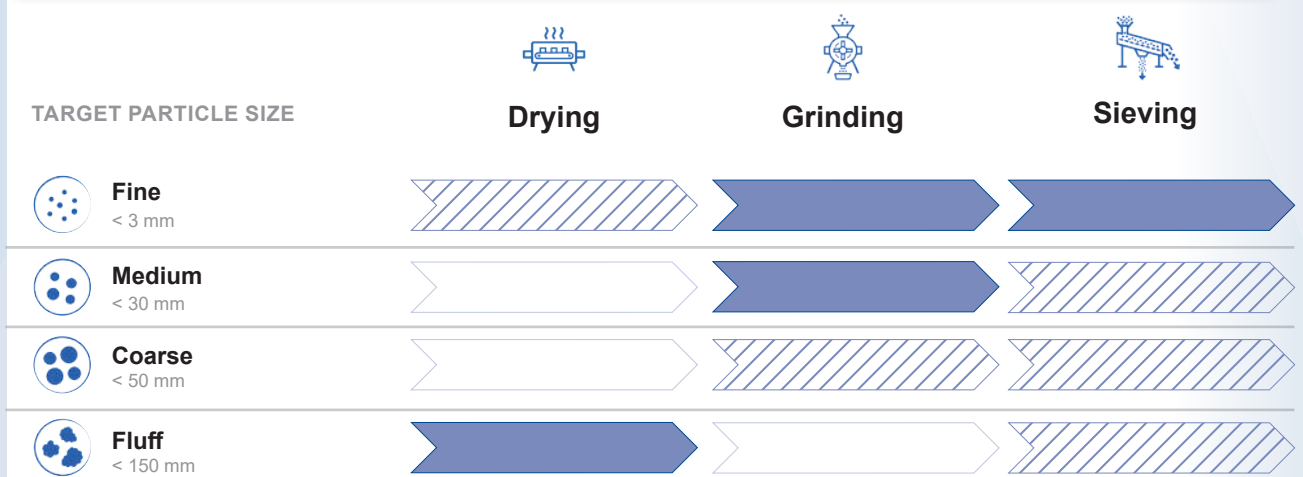
01

RAW MATERIAL PROCESSING



02

GRINDING



03

MATERIAL LOGISTICS

STORAGE

-  Steel / Concrete Silo
-  Flat Storage

DOSING & FEEDING

-  Material Discharge
-  Dosing
-  Material Conveying

PLASTIC-DERIVED FUEL

high calorific value • controlled preparation • for industrial combustion

YOUR BENEFITS

- | **Fossil fuels** – use energy-rich plastic fractions as fuel and cut CO₂-related costs
- | **Reduce disposal costs** – turn suitable production residues into fuel instead of paying for waste
- | **Use residual material streams** – process pellets, regranulate and scrap from regional sources
- | **Control fuel quality** – match particle size and dosing to the furnace for stable combustion
- | **Combine modules flexibly** – from intake to controlled fuel feeding, extendable step by step

SELECTED REFERENCES



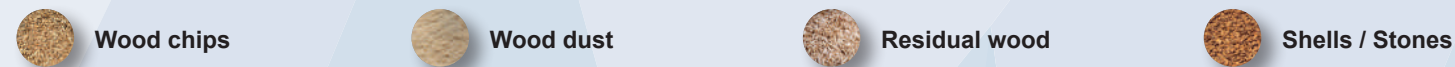
TARGET INDUSTRIES & COMBUSTION SOLUTIONS



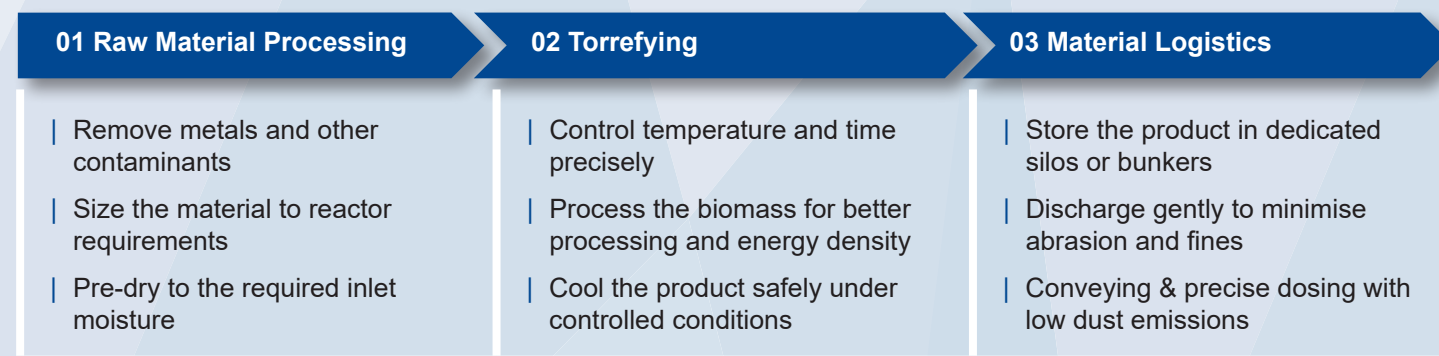
- ✓ ROTARY FURNACE
- ✓ SHAFT FURNACE
- ✓ BLAST FURNACE
- ✓ BURNER
- ✓ BOILER

TORREFIED FUELS

thermally upgraded • improved grindability • for industrial use



CORE PROCESSES



SELECTED REFERENCES



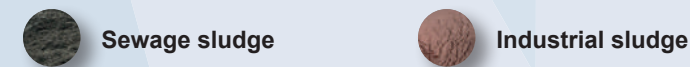
TARGET INDUSTRIES & COMBUSTION SOLUTIONS



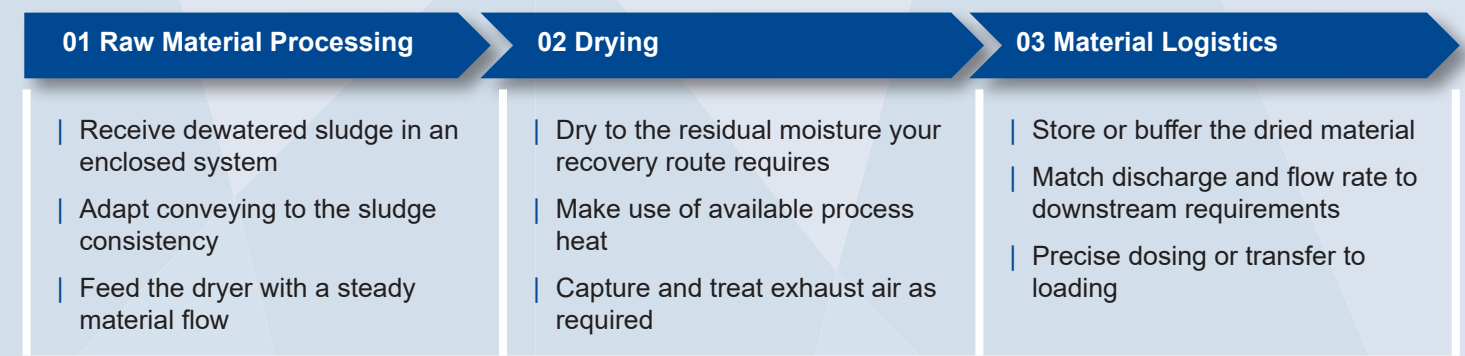
- ☒ ROTARY FURNACE
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DRIED SLUDGE

dry as needed • waste to fuel • controlled dosing



CORE PROCESSES



SELECTED REFERENCES



TARGET INDUSTRIES & COMBUSTION SOLUTIONS



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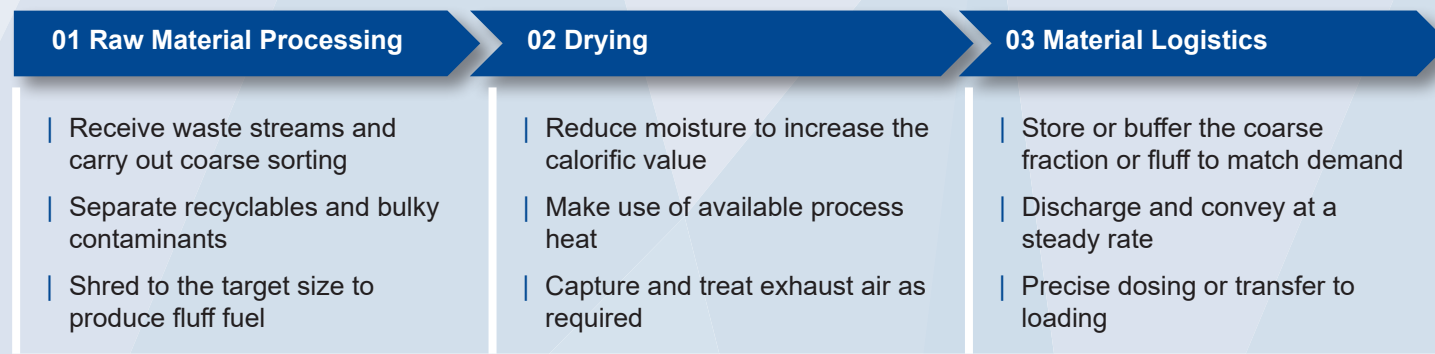


PROCESSED WASTE

coarse sorting for direct use • dry as needed • further processing into fluff



CORE PROCESSES



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KNOBLINGER AT A GLANCE

Driving efficiency and sustainability in bulk material processing

150 creative minds working on the energy transition

60+ years of experience in bulk material processing

30+ years as a trusted supplier of steel and heavy industries

OUR SOLUTIONS



TURNKEY PLANTS	COMPONENTS	INDUSTRIAL SERVICES
- Pellet production - Pellet handling - Alternative fuel processing - Bulk material logistics - Wood residue handling	- Screw conveyors - Chain & Belt conveyors - Bucket elevators - Moving floors ...and many more	- Maintenance & service - Optimisation & modernisation - Assistance with safety & fire protection - Spare parts supply

OUR INDUSTRIES



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Successful companies rely on KNOBLINGER

- | Complete wood pelletizing systems
- | Pellet storage technology
- | Alternative fuel processing
- | Grain and feedstuffs technology
- | Raw materials receiving technology
- | Loading and handling systems



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