
ØSTERGAARD
Passion
&
Precision

OESTERGAARD

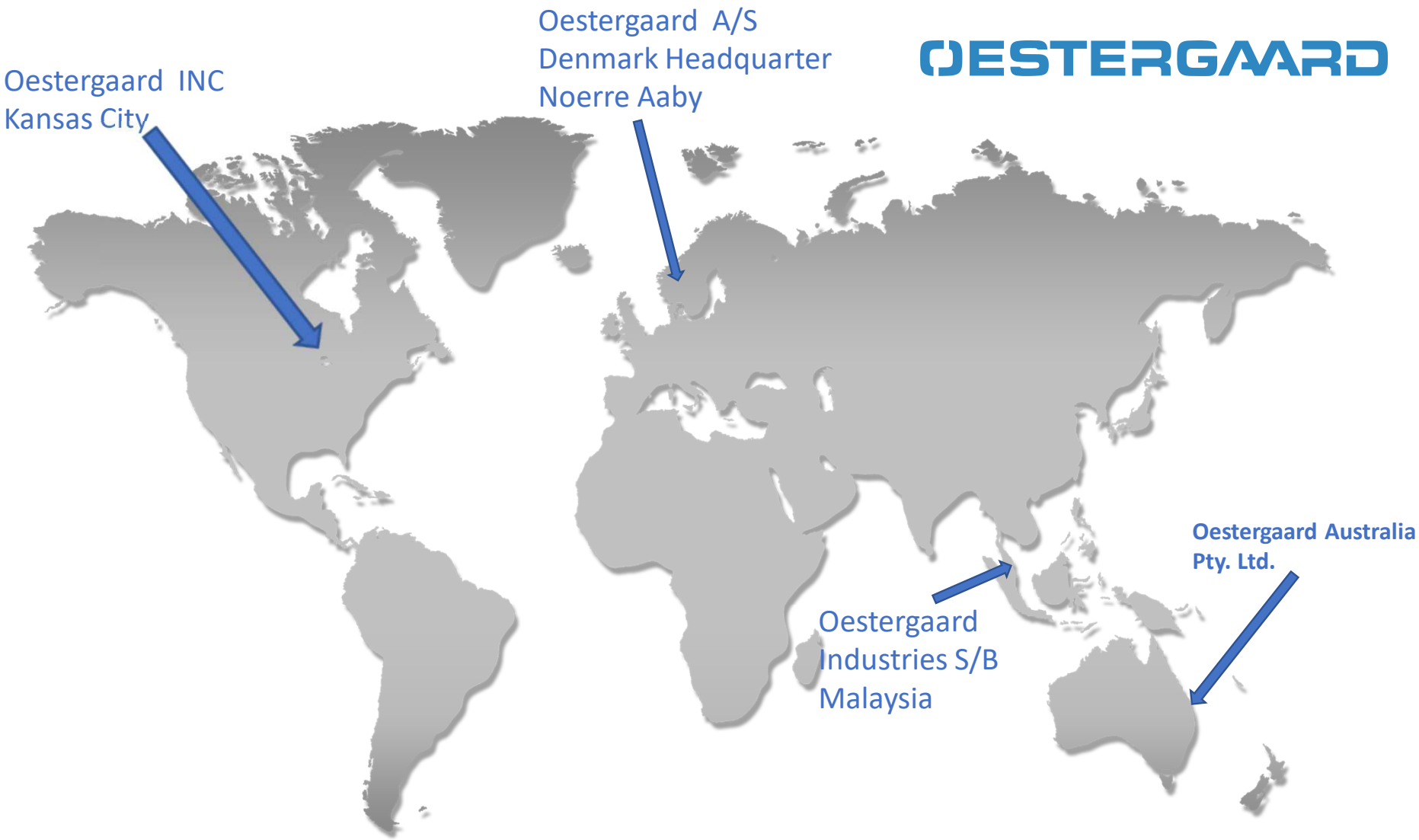
OESTERGAARD is your new flexible and reliable partner with 30 years experience committed to providing process optimisation for the rendering industry.

- Complete lines for factories/plants to process fish and animal by-products.
- Equipment integrated in existing processing lines.
- Spare parts, maintenance and repair services.

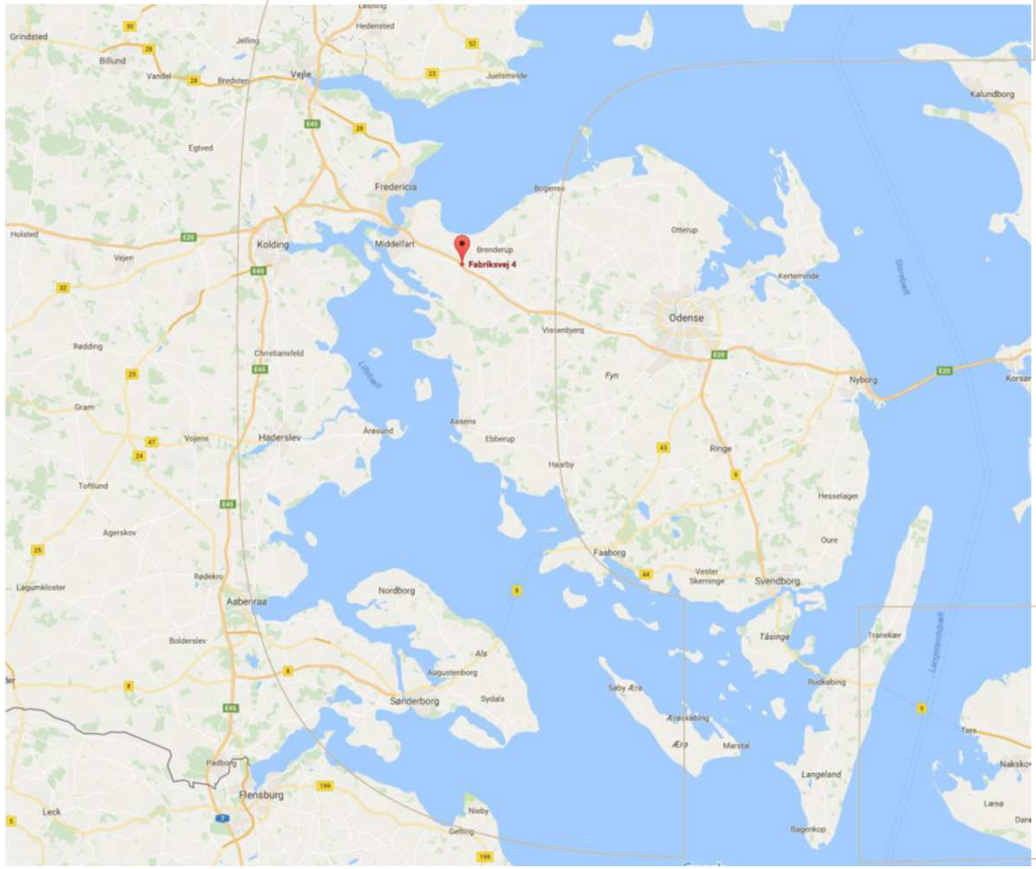
We offer you a complete range of machines from raw material reception bins to finished product meal and fat storage.

- **New company**
- **New force**
- **New process technology**

We have tailored our new organization to be efficient and fast moving due to a short chain of command. For our customers that means lower prices and a strong partnership. Our customers can rely on our expertise, knowledge and our ability to find the right solution to enable us their expectations.


Oestergaard INC
Kansas City
Oestergaard A/S
Denmark Headquarter
Noerre Aaby
OESTERGAARD
Oestergaard Australia
Pty. Ltd.
Oestergaard
Industries S/B
Malaysia

Please call us or visit us anytime.
You are welcomed.



- 115 km North of German Border
- 70 km East of Billund Airport (BLL)
- 200 km West of Copenhagen Airport (CPH)

Our 16000 sqm factory and 1500 sqm office facilities

Equipment is designed and manufactured in our factory in Denmark.

ØSTERGAARD

Delivered from us to you

Business Area

Rendering:
Recovery of protein from the processing of animal by-products and animal carcases to produce protein meal product and animal tallow

Fishmeal and Fish-oil:
Recovery of protein as a result of processing fish by-products or fish carcases to produce high grade fishmeal and fish oil products

Driving Force for Rendering Industry

Growing Population

As the population grows so too does the demand for more food and energy.
This demand is driving the needs for more processing, which results in more meat by-products to be rendered.
More volume of by-products will increase the demand on the rendering plants

Emerging Middle Class

The middle class demands a better quality of life, results in increase of the meat consumption. Additionally, more parts of the animal are considered inedible due to improved life quality.

More by-products will go to the rendering plant

Rising Resources Cost

Production yield and efficiency become vital due to the rising cost of resources.

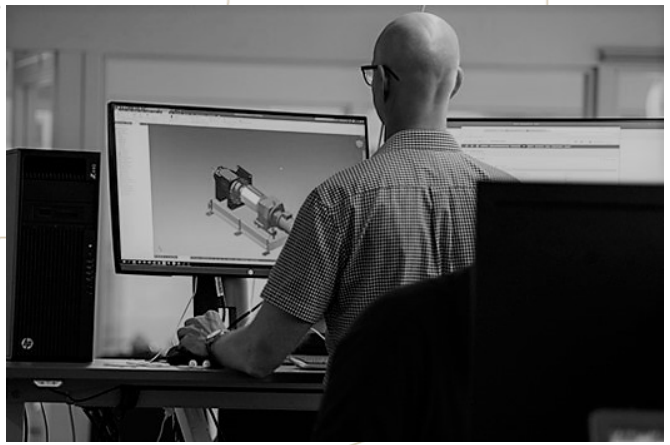
Recovery system and energy saving system are on demand to maximize the utilization of resources

Solutions

- Oestergaard offers a full range of solutions for the rendering and fish meal industry
  - Complete lines for factories/plants to process fish and animal
    - Process optimisation
    - Storage and Logistic System
    - Breakers and Grinders
    - Cooking and Pre-Heating Equipment
    - Mechanical Press (Twin Screw Press and Fat Expeller Press)
    - Fat Handling System
    - Evaporator System
    - Indirect and Direct Driers
    - Screening Equipment
    - Meal Cooling
    - Hammer Mill
    - Meal Storage / Bagging
    - Direct and Indirect Condensers
    - Odour Treatment

Our Services

- Design and engineering of the process plant
- Project management
- Plant installation and commissioning
- After sales service team for service and maintenance
- Remote and on-site service support
- Spare-parts replacement service for existing plants and equipment
- Consultation service for plant operation and upgrade
- From single machine to turn-key solutions



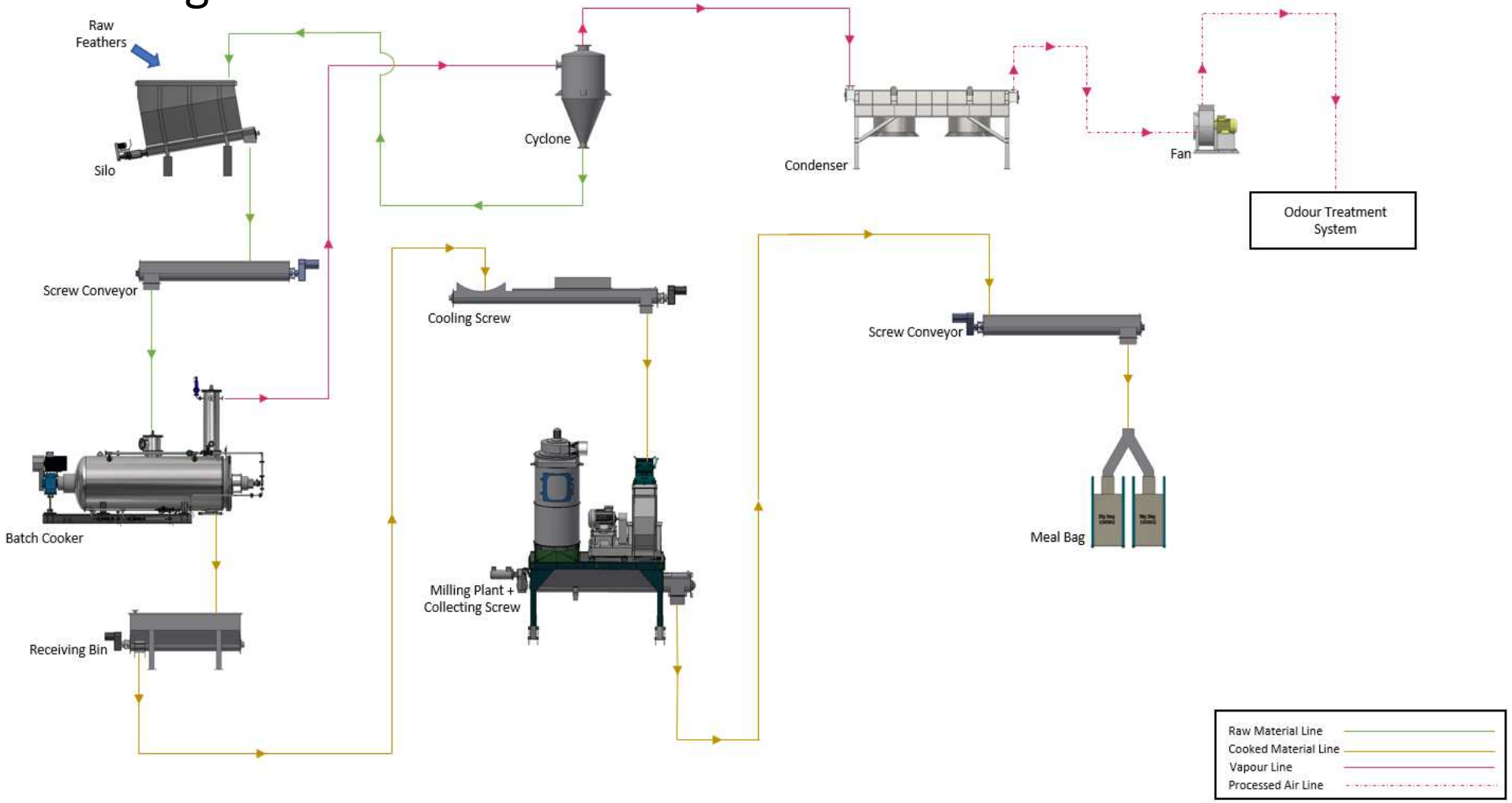
Rendering

- Solution for processing fish, animal-by products and fallen stock to produce valuable meal and oil
- Material processed in rendering
  - Poultry Feathers
  - Bristle
  - Soft and Hard Offal
  - Leftover from Trimming
  - Bones
  - Blood
  - Fish and trimmings
- Meal and oil from rendering can be used as ingredient in animal feed and pet food industries.

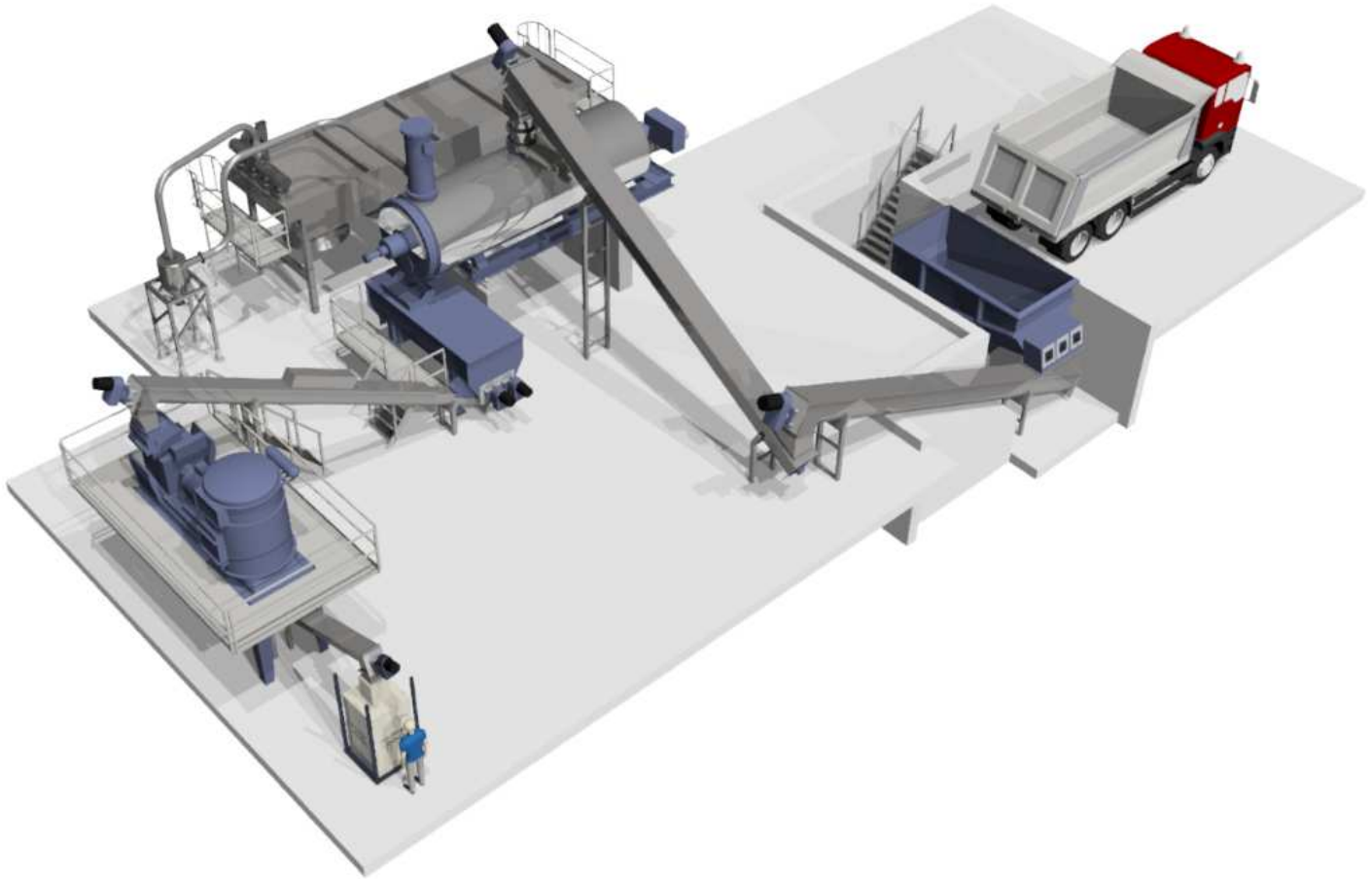
Basic proposed Feather Rendering:

- Batch Process
- Continuous Process

Process Flow For Batch Feather Rendering



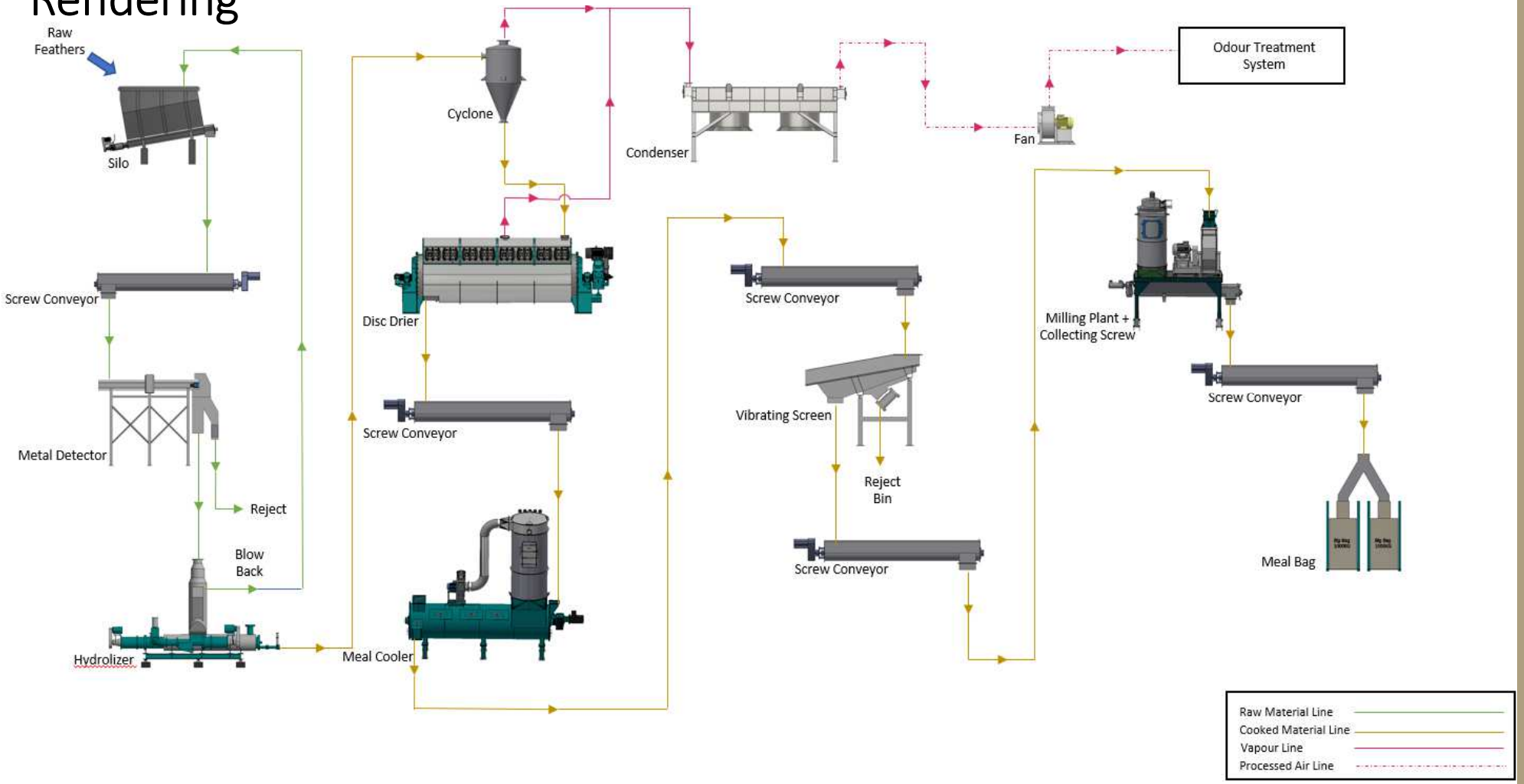
3-Dimensional Layout Batch Feather Rendering System



Batch Feather Rendering Process

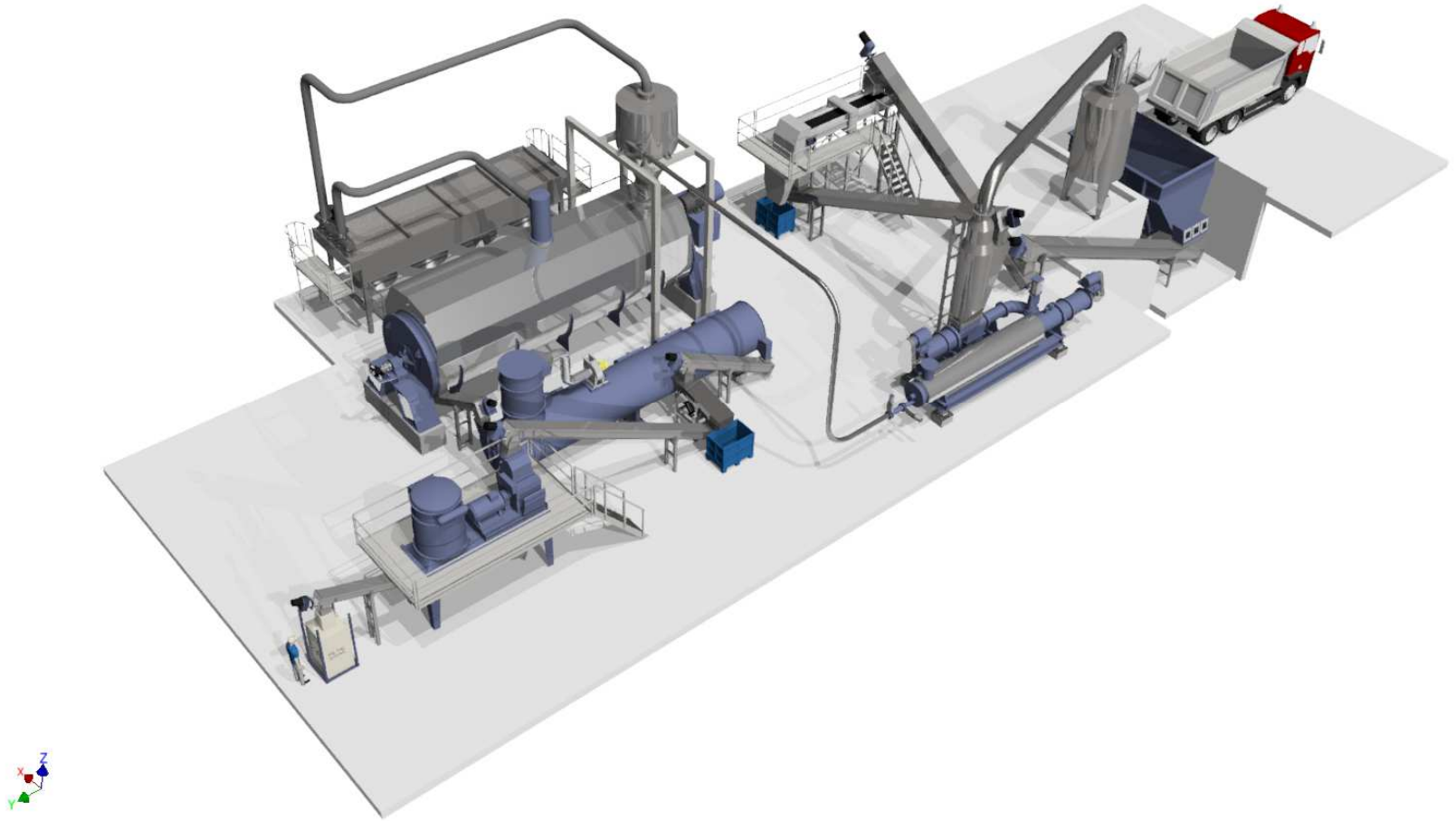
- For small scale feather rendering – Generally below 60 tons/day or 2.5 tons/hour raw feather
- Hydrolyzing, sterilizing and drying to be complete in batch cooker.
- Hydrolyzing pressure from 2 to 4bar for approx. 30 min
- Drying time in batch cooker for approx. 5 hours
- Expected Protein Digestibility approx. 70% to 80% (under assumption of raw material is fresh)

Process Flow For Continuous Feather Rendering



3-Dimensional Layout Continuous Feather Rendering System

OESTERGAARD



Continuous Feather Rendering Process

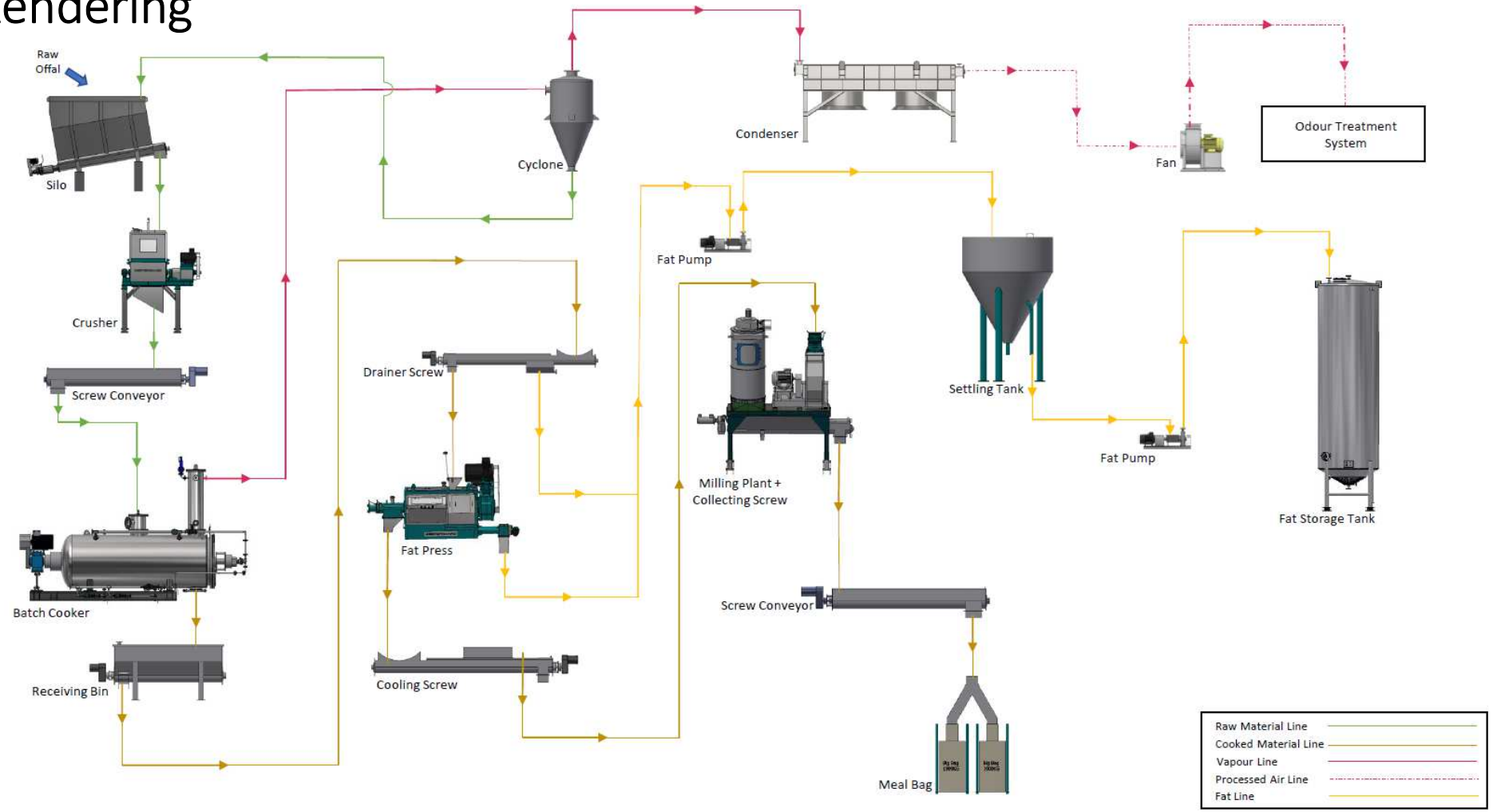
- For medium to large scale feather rendering – Generally above 60 tons/day or 3 tons/hour raw feather
- Hydrolysing to be complete in continuous hydrolyser with higher hydrolyzation pressure and temperature – 4 to 5 bar hydrolysing pressure. Hydrolysing time is shorter compared to hydrolysing in batch cooker
- Drying process to be perform in Drier unit. Product retention time (Drying Time) in drier not more than 3 hour (depends on type of drier)
- Expected Protein Digestibility approx. 80% to 90% (under assumption of raw material is fresh)

Offal Rendering Process:

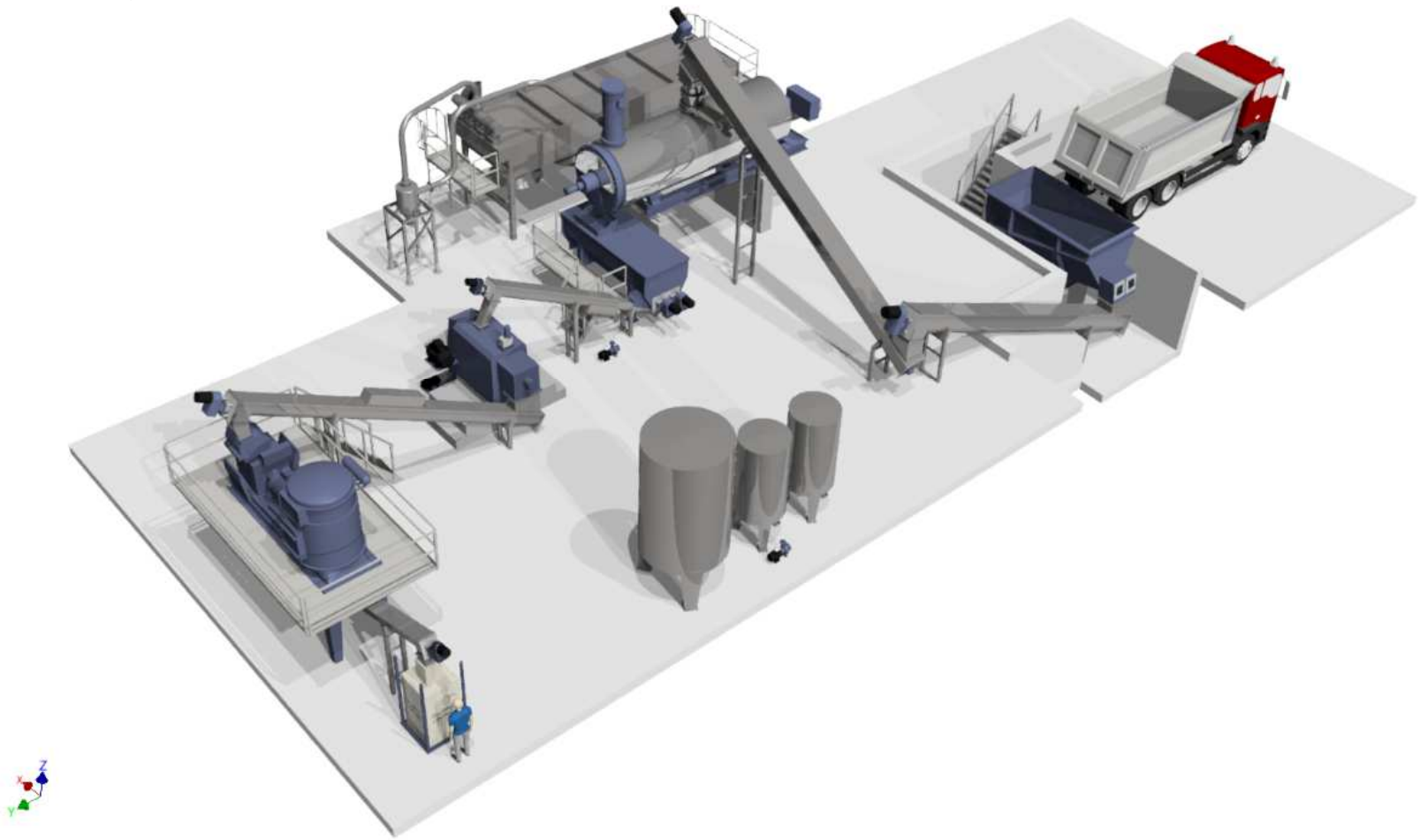
- Batch Process

- Continuous Process
  - High Temp/Dry Rendering Process
  - Low Temp/Wet Rendering Process

Process Flow For Batch Offal Rendering



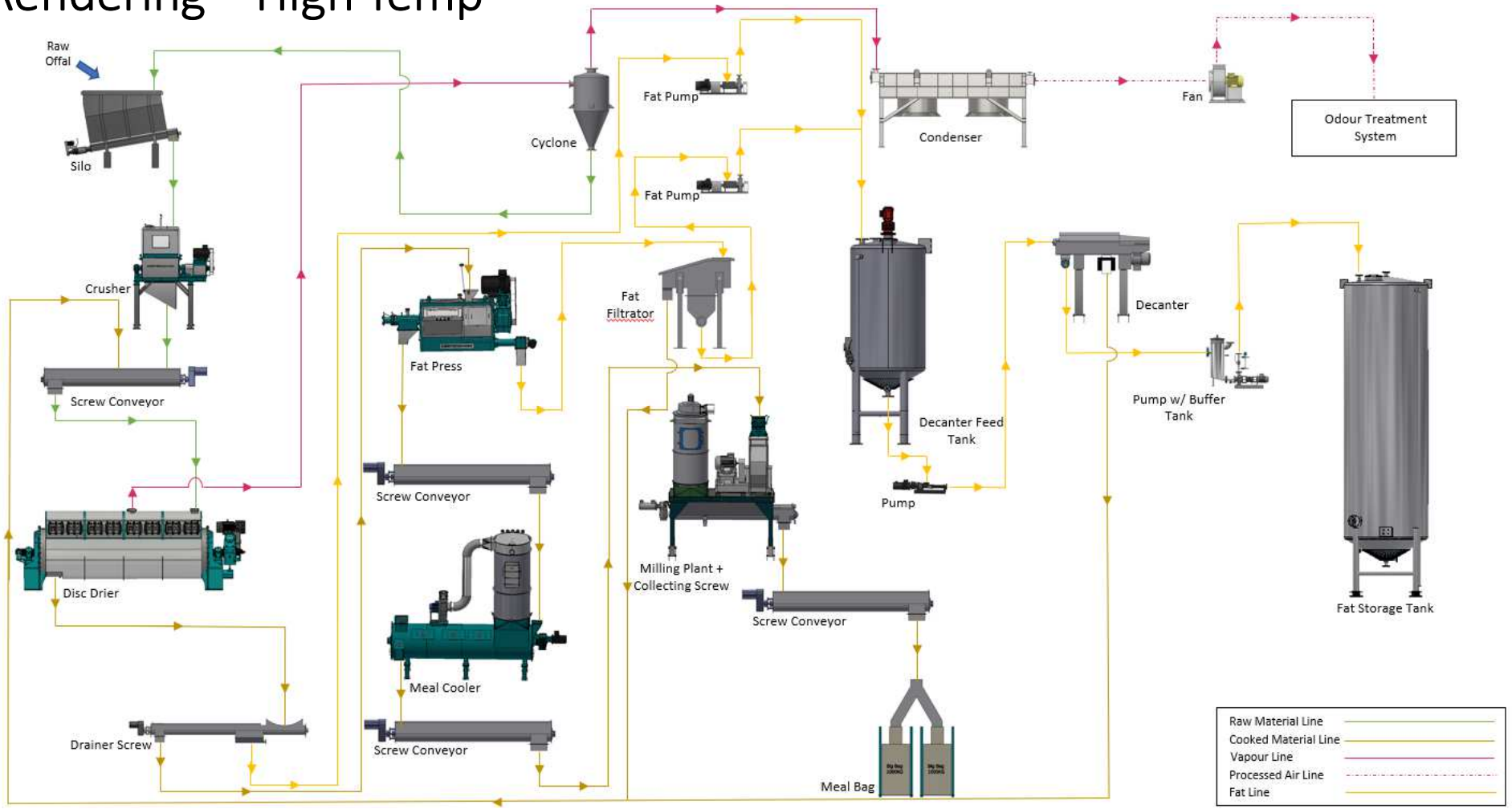
3-Dimensional Layout for Batch Offal Rendering



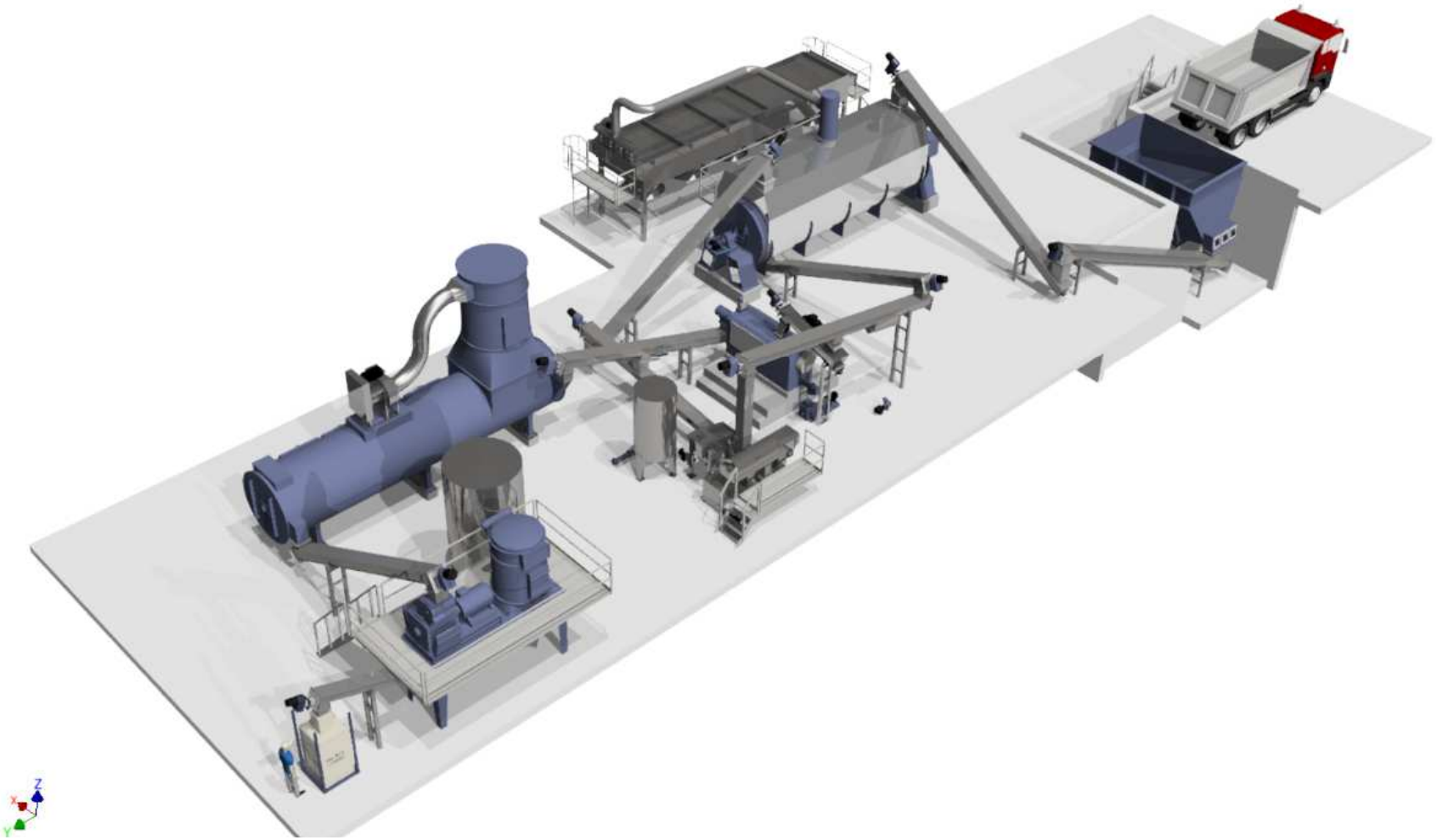
Batch Offal Rendering Process

- Suitable for small scale offal/bones or fallen stock rendering. Generally below 70 tons/day or 3.5tons/hour raw materials.
- Suitable for raw material which required sterilization process
- Simple and easy to operate
- Sterilizing, hydrolyzing (if required) and drying process to be completed in Batch Cooker.
- Cooking time depending on material composition. (2hrs- 4hrs).

Process Flow For Continuous Offal Rendering – High Temp



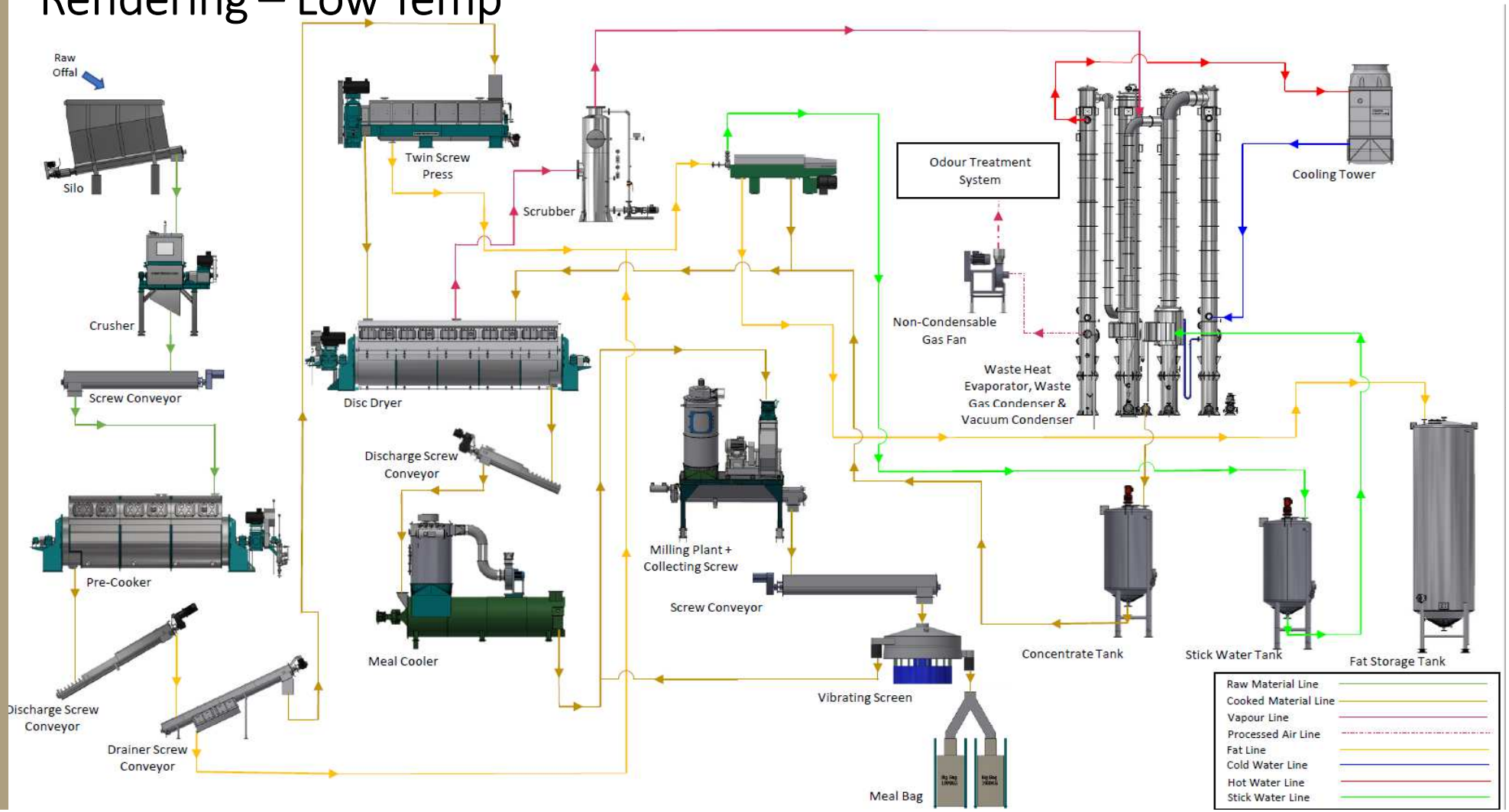
3-Dimensional Layout for Continuous Offal Rendering – High Temp



Continuous Offal Rendering Process – High Temp

- Continuous process for medium to large scale offal rendering
- The High Temp/Dry process harvest the oil after cooking process
- Cooking process can be done with continuous cooker or disc cooker – depends on raw material and customer's preference
- Cooked greaves to be pressed with Expeller Press to harvest oil from the product

Process Flow For Continuous Offal Rendering – Low Temp

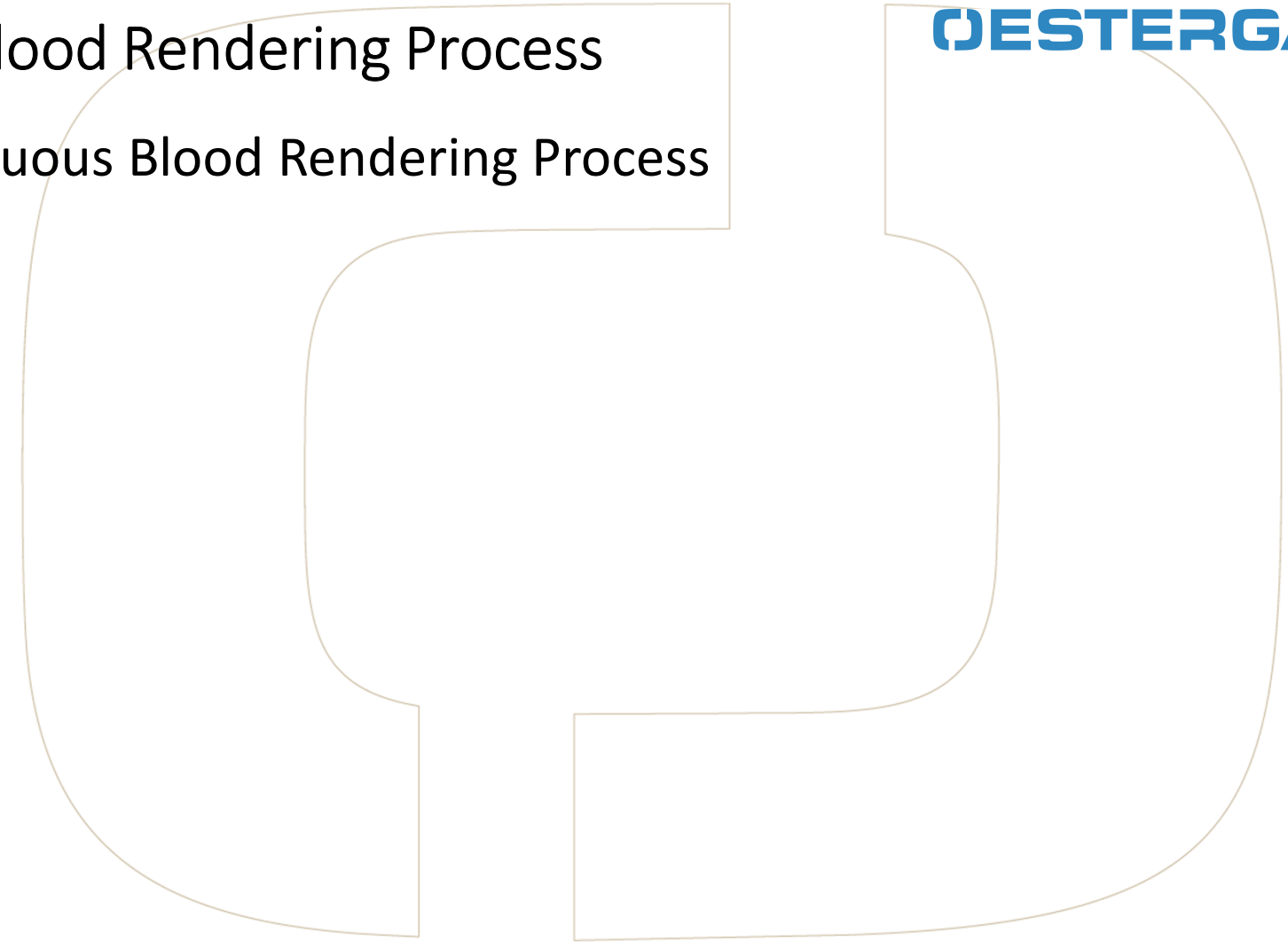


Continuous Offal Rendering Process – Low Temp

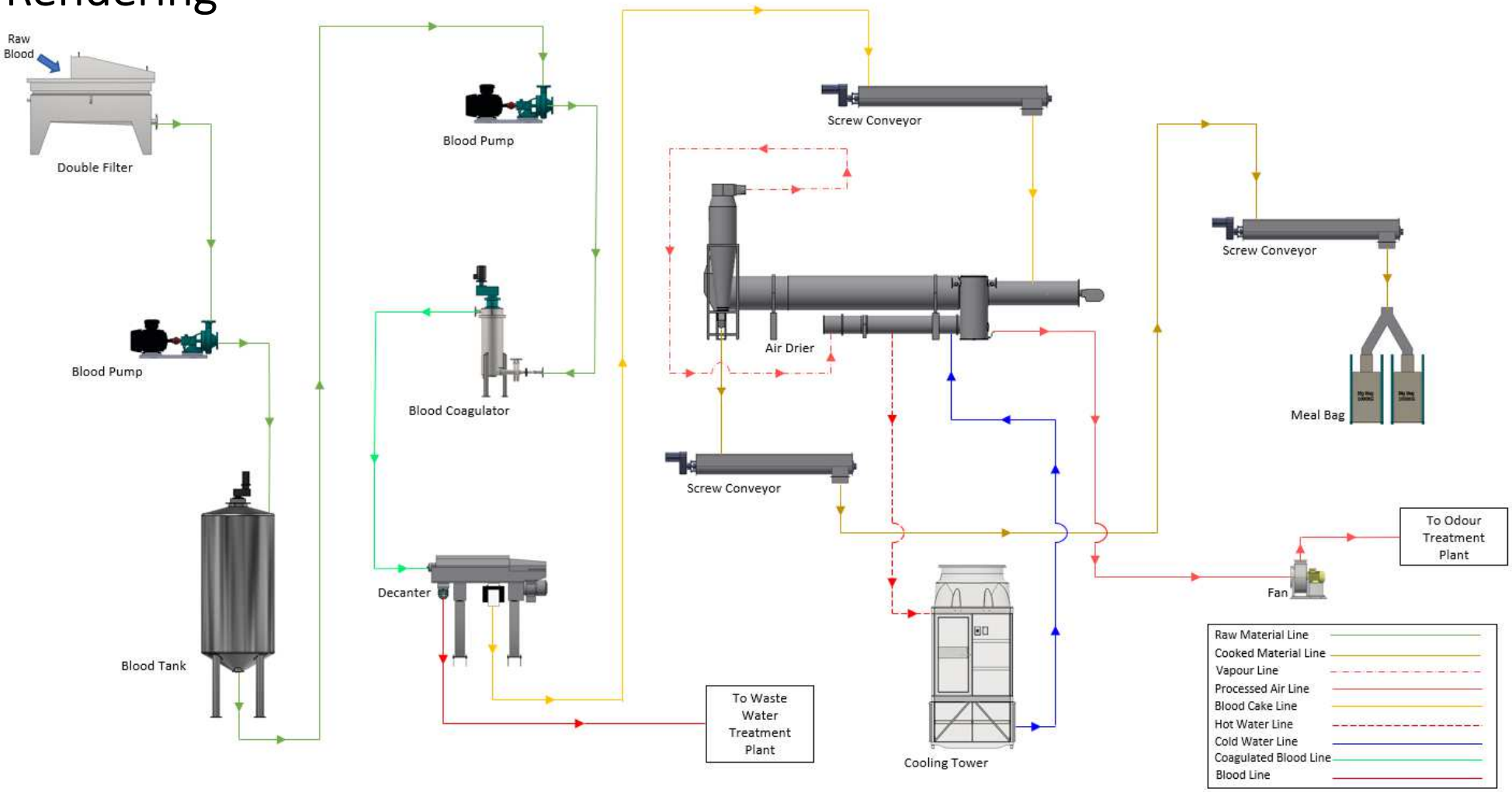
- Continuous process for medium to large scale offal rendering.
- The Low Temp/Wet process harvest oil before drying process.
- Waste Heat Evaporator to concentrate the stickwater by utilizing vapor from disc drier as heat source.
- Benefits will result in vast amounts of energy savings.
- Oil & Fats will not be exposed unnecessary high temperatures resulting in premium products.

Basic Blood Rendering Process

- Continuous Blood Rendering Process



Process Flow Diagram for Blood Rendering



Blood Rendering Process

- Continuous Coagulator to coagulated raw blood with live steam
- Coagulated blood will be separated into blood cake and water with high speed decanter
- Blood cake to be dried with a continuous dryer (air dryer or contact dryer) to produce blood meal

Raw Material Silo

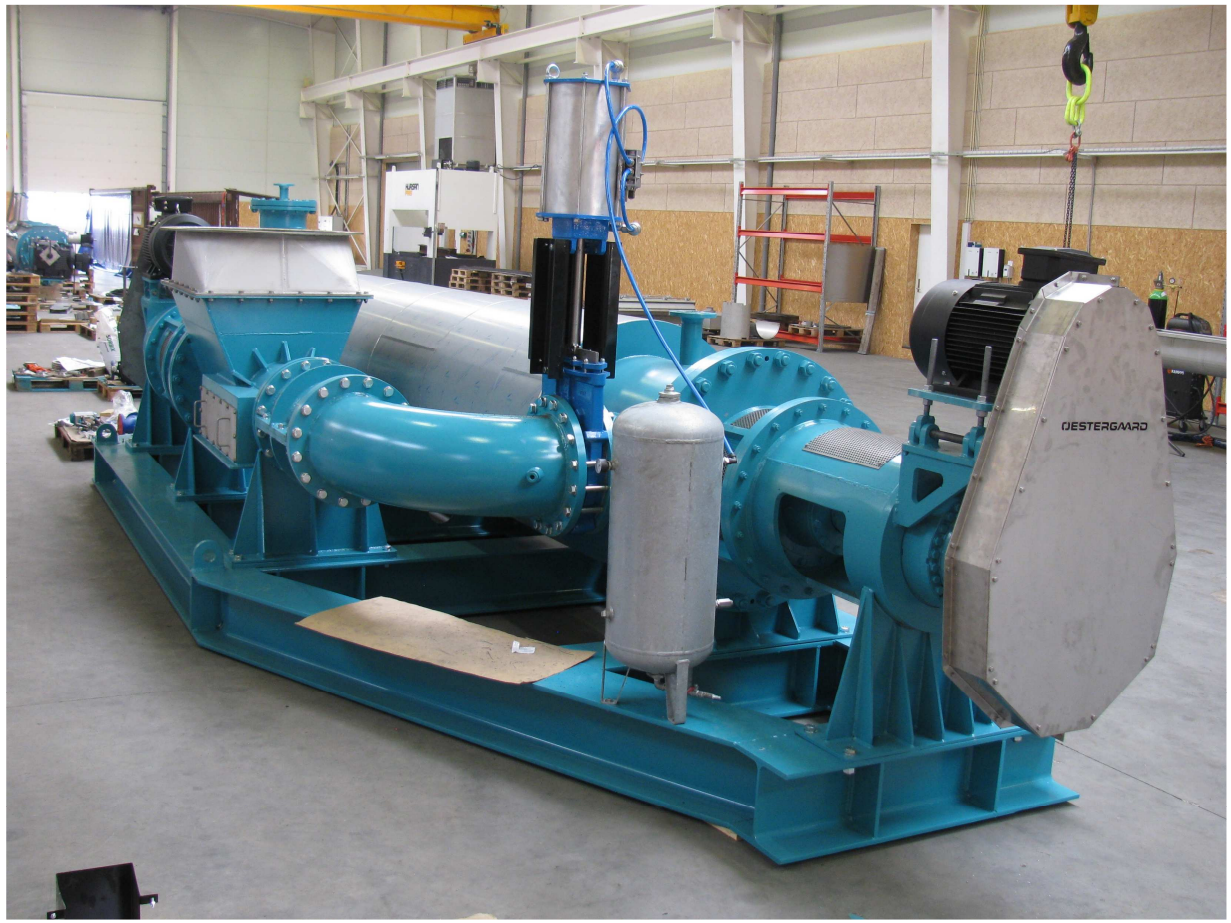
Crusher/Breaker

Lamella Pump

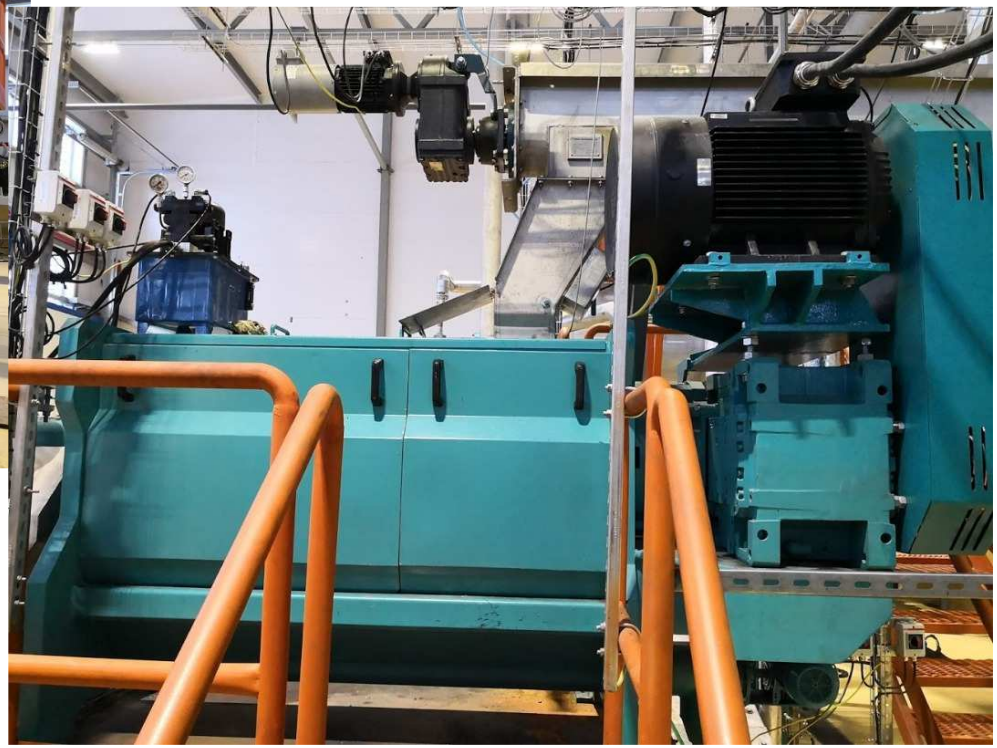
Batch Cooker

Disc Drier

Feather Hydrolyzer



Expeller Press

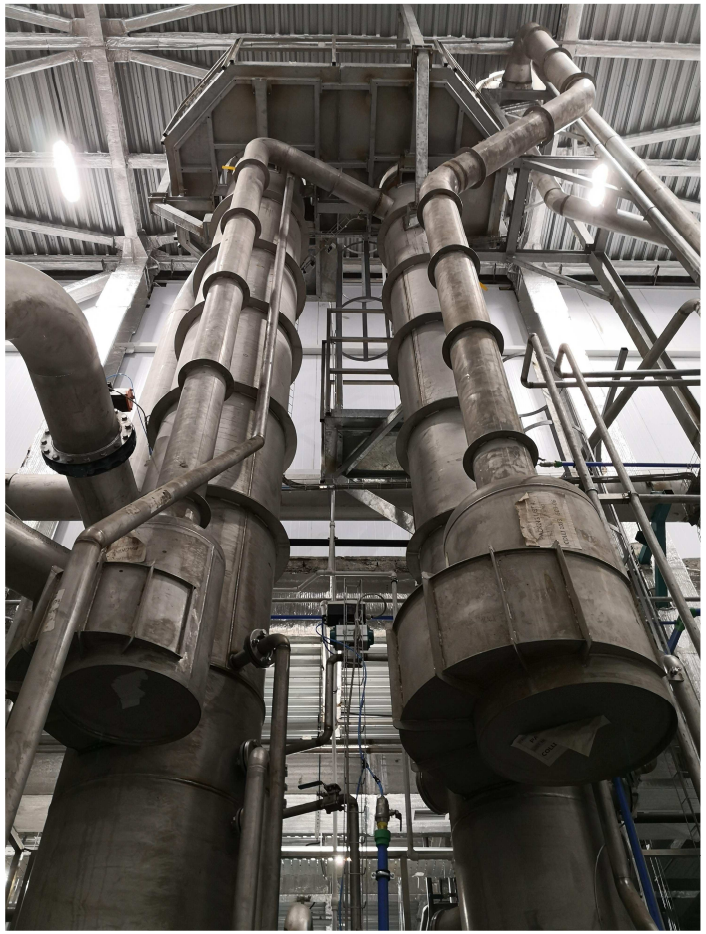


Meal Cooler

Hammer Mill

Air-Cooled Condenser

Waste Heat Evaporator



Why Oestergaard?

- Our customers have trust in the founding team of Oestergaard
  - Oestergaard's founding team members are individuals with an in-depth knowledge of the rendering and fish meal industry.
  - Majority of Oestergaard's founding team members have dedicated their whole career life to the rendering and fish meal industry.
  - Always customer eccentric and focus on customer's satisfaction.
  - Henrik F. Sorensen, a well known figure in the rendering and fishmeal industry, is now the Managing Director of Oestergaard.
- Oestergaard is a company that thrives off our high values
  - Oestergaard commits to developing long term relationships with all of our clients, no matter how big or small.
  - Our consistent and determined top management, has a clear vision of the industry which will ultimately steer Oestergaard's growth and direction in the future.
  - Oestergaard's management team is down to earth and shares a passion for the rendering and fishmeal industry along with our customers.