

Submariner Network 2021 Member`s assembly

Gediminas Tamošaitis,

Metal production UAB & Rocket Cluster CEO

Seaweed cultivation:

from napkin sketch to mechanized harvesting

24th of November 2020



Gediminas Tamosaitis

Co-founder and CEO Metal production



>17M €
Sales

>900
contracts

>30
exhibition

>500h
Internship

>100
speech

ROCKET
CLUSTER





Industrial and Maritime automatic control and electrical systems engineering



Contract development, engineering and manufacturing of customized equipment

Anaga

HVAC Heating, ventilation, and air conditioning



Manufacturing, installation and automation of precise mechanical non-standard equipment



- Product development
- Funding



Production of plastic tanks, containerized solutions and non-standard plastic products. Wastewater treatment



BALTIC ENGINEERS

Construction & buildings engineering

Non-associate members

R&D > Start-up > Spin-off > Key



Global Goal

To gather key engineering companies and investors (owners-partners) to help startups with their expertise in global challenges facing the blue industry in recruiting water and oceans. Help create an alternative sustainable source of energy and food using Oceans, Water, and CO₂.

INVESTORS



SOFT FUNDING



**ROCKET
CLUSTER**



PROVIDE:

- different competences,
- engineering companies,
- network for any product,
- manufacturing.

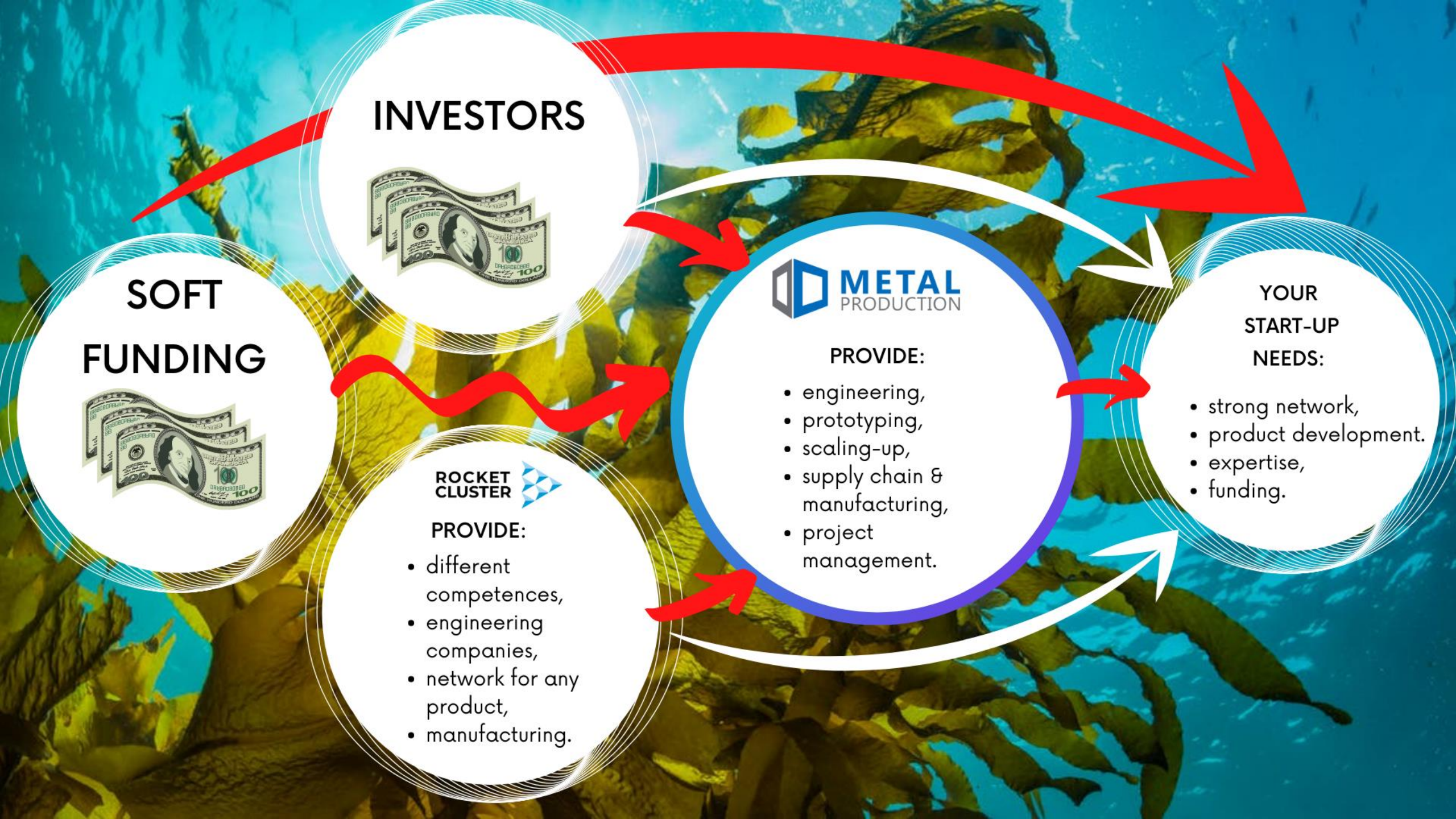


PROVIDE:

- engineering,
- prototyping,
- scaling-up,
- supply chain & manufacturing,
- project management.

YOUR START-UP NEEDS:

- strong network,
- product development.
- expertise,
- funding.



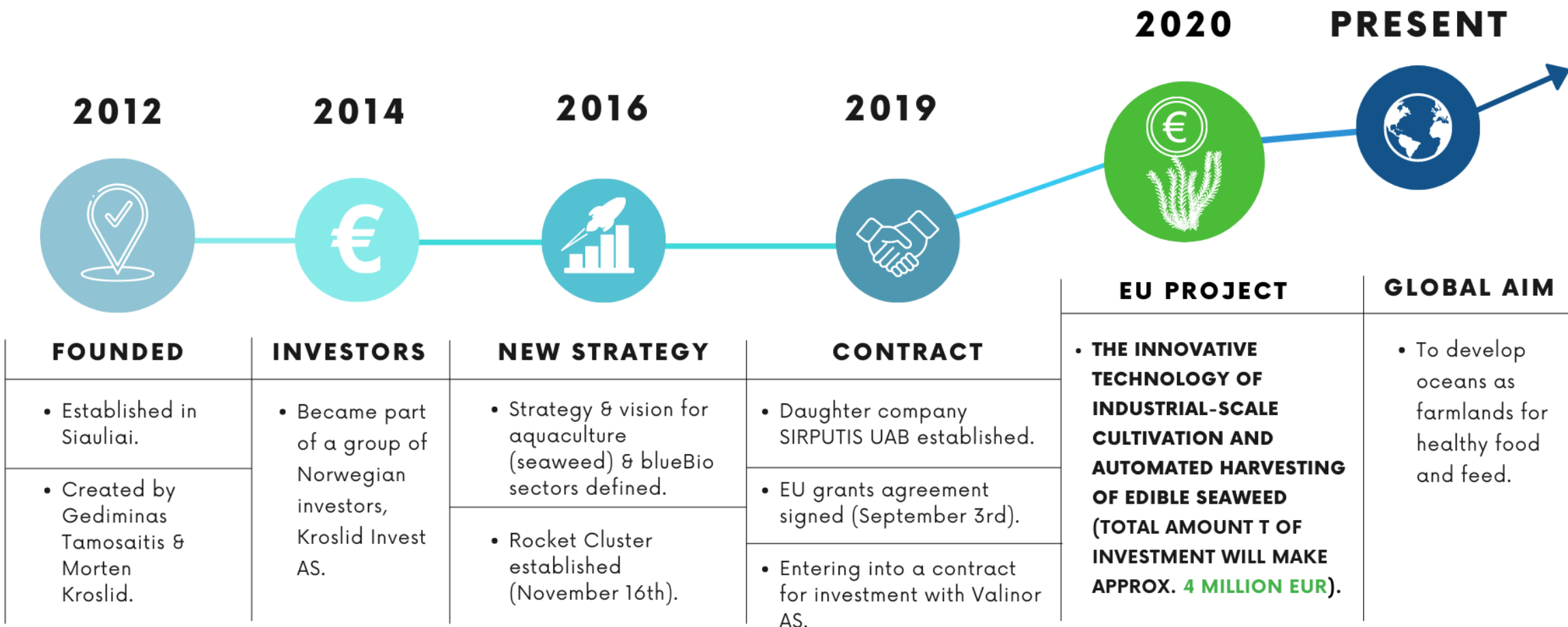
Organizations we belong to



Engineering & manufacturing of non-standard equipment



METAL PRODUCTION TIMELINE



Industries

Aquaculture, micro & macro algae

Marine & offshore

Industrial

Advertising



Our activities



NON-STANDARD equipment



Designing and production



Contract engineering



Supply chain & purchasing, fund rising consulting



R&D, QA, QC, PO and project management



Logistics and communication service center through Rocket Cluster

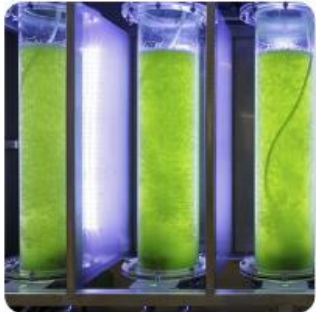
Competences

Aquaculture, micro & macro algae

Customized equipment

- Macro algae cultivation rigs including moorings;
- Seeding & harvesting equipment;
- Processing:
 - Blanching, drying, grinding, stirring, packing, pressing, others.

Spore preparation



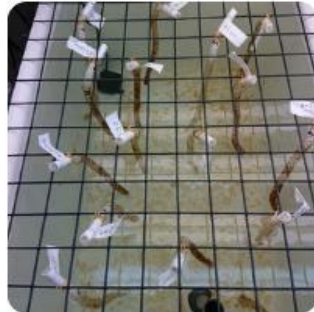
- LED lights
- Pumps

Seed



- Ropes

Seeding of seaweed



- Seeding system
- Direct seeding substrate
- Automatic rope cutters
- Assembly rigs

Growth



- Sensor
- Cultivation rigs
- Deployment services

Harvest



- Harvester
- Automatic cutting
- Rope cleaning
- Logistics

Processing & logistics



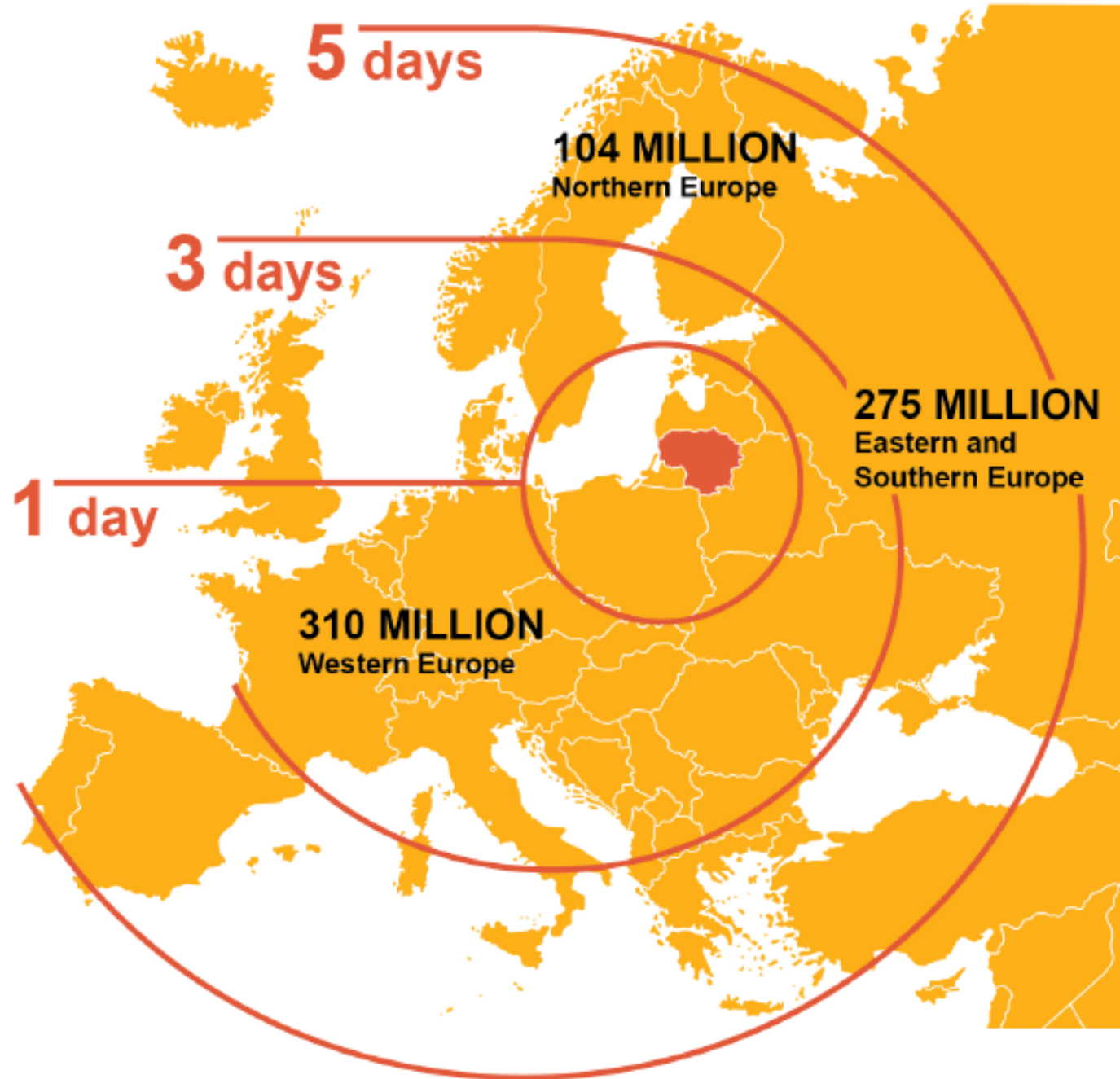
- Dryer
- Blanching
- Sorting
- Packaging
- Cutter

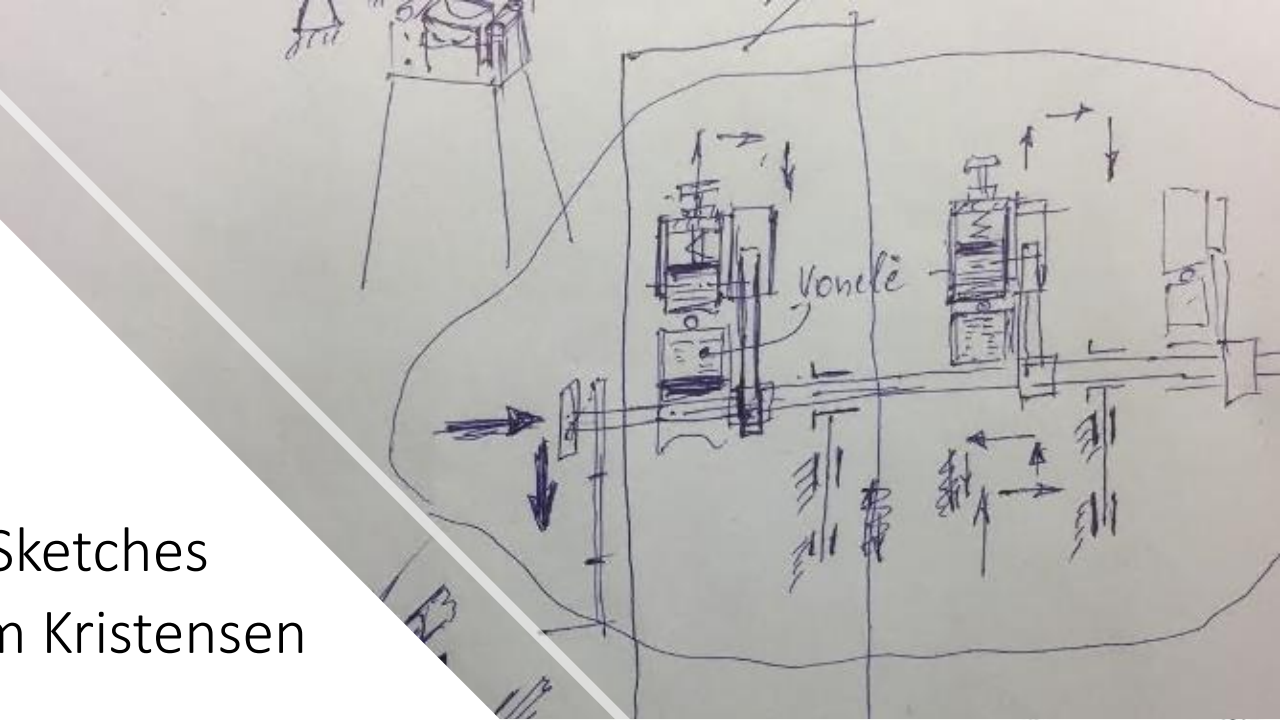
Finished products



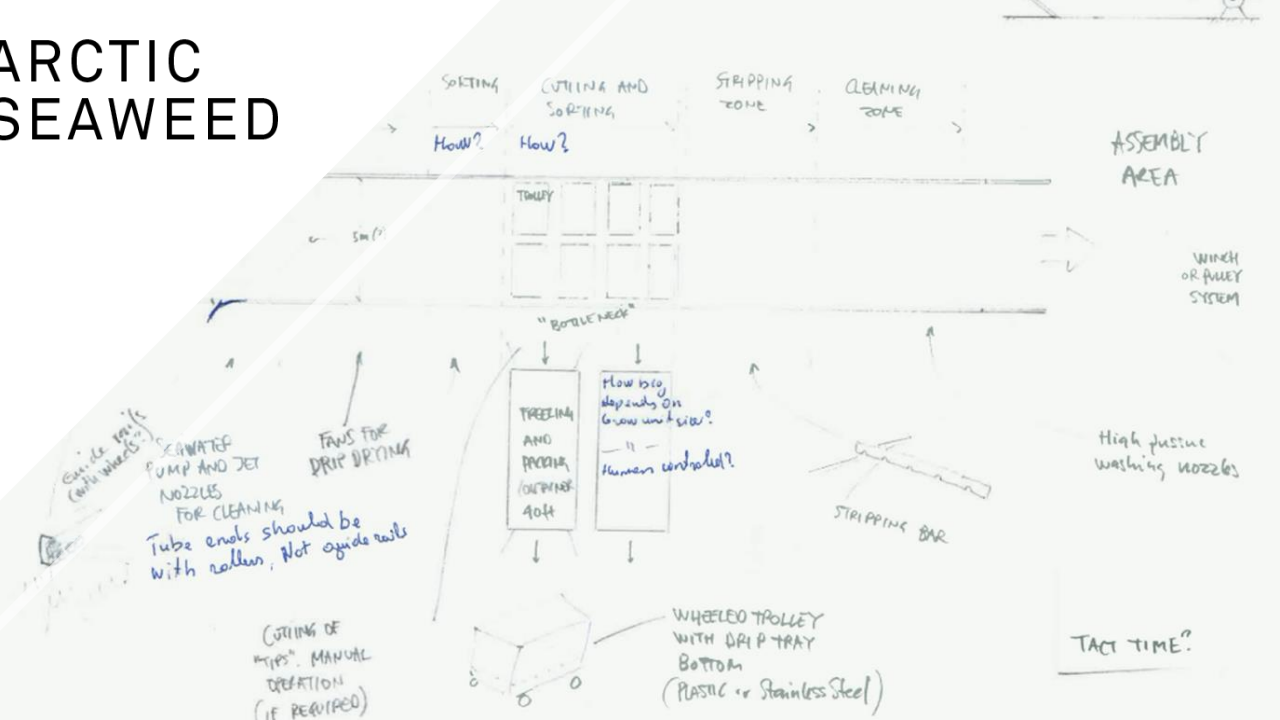
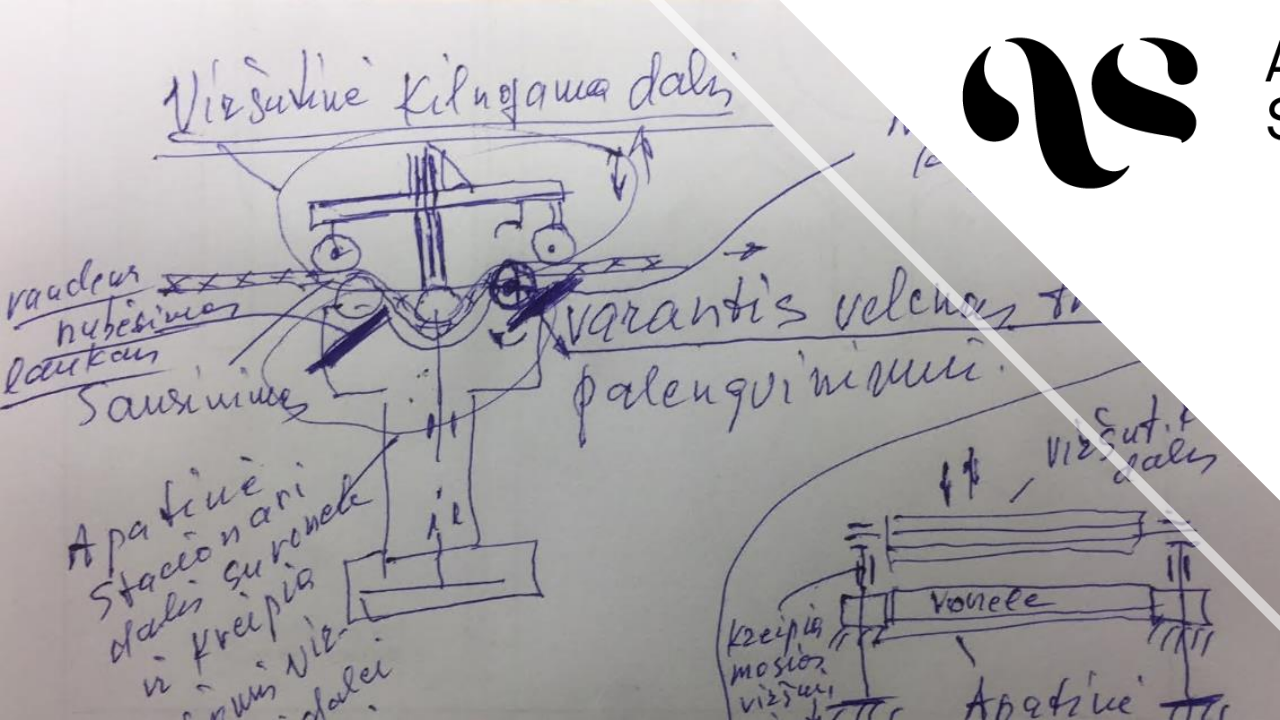
- Extraction

TRUCK DELIVERY TIMES³

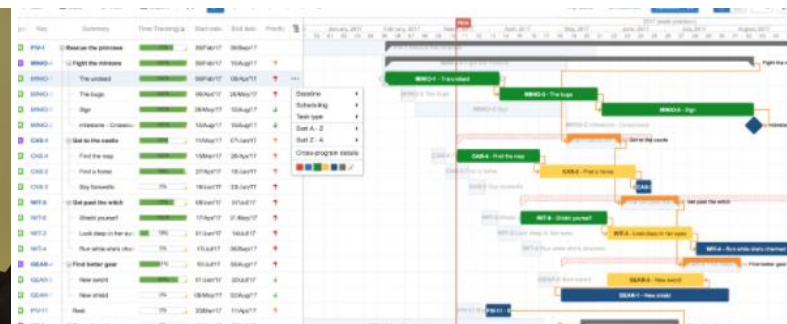




ARCTIC SEAWEED



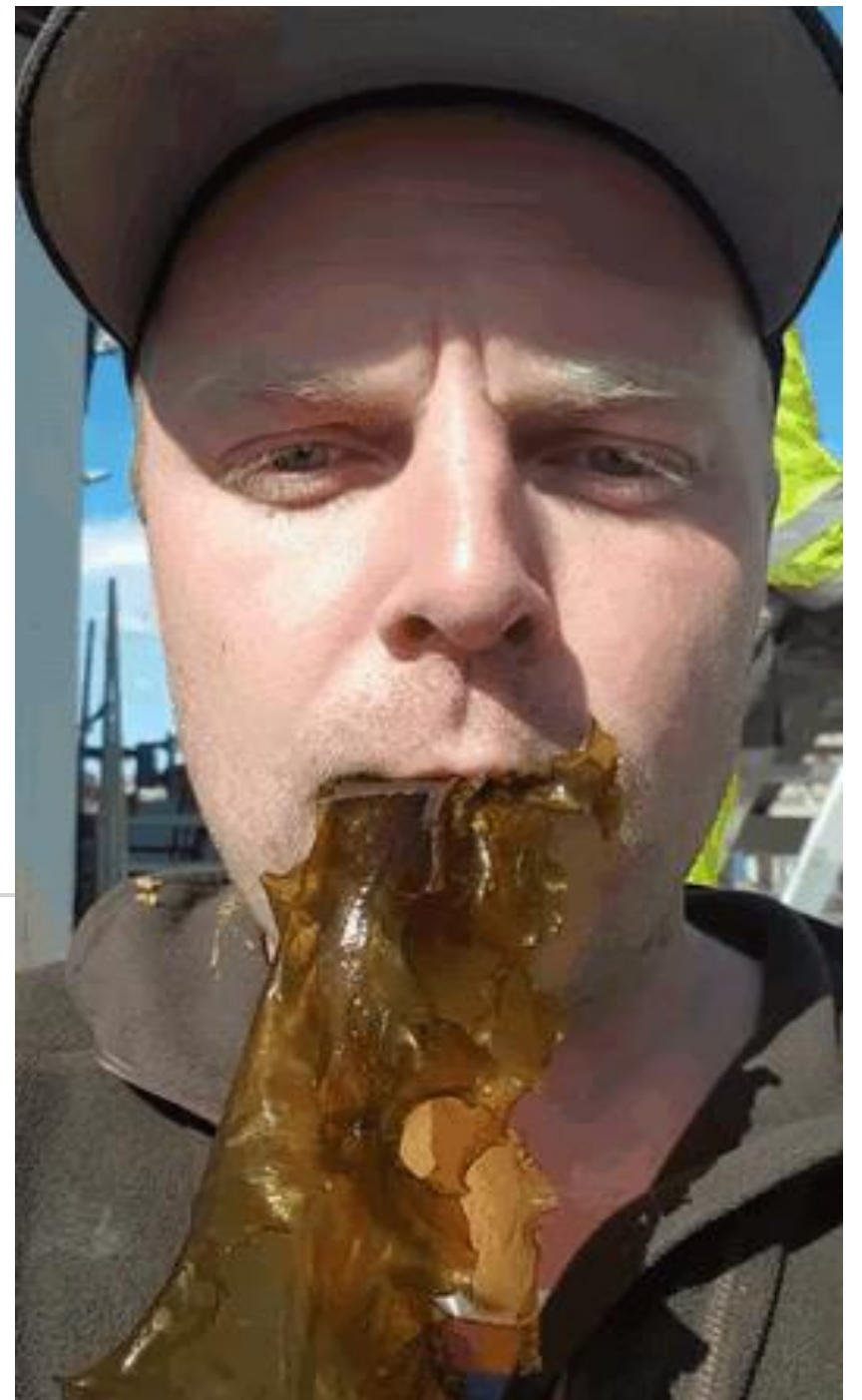
Meetings, Planning, Meetings



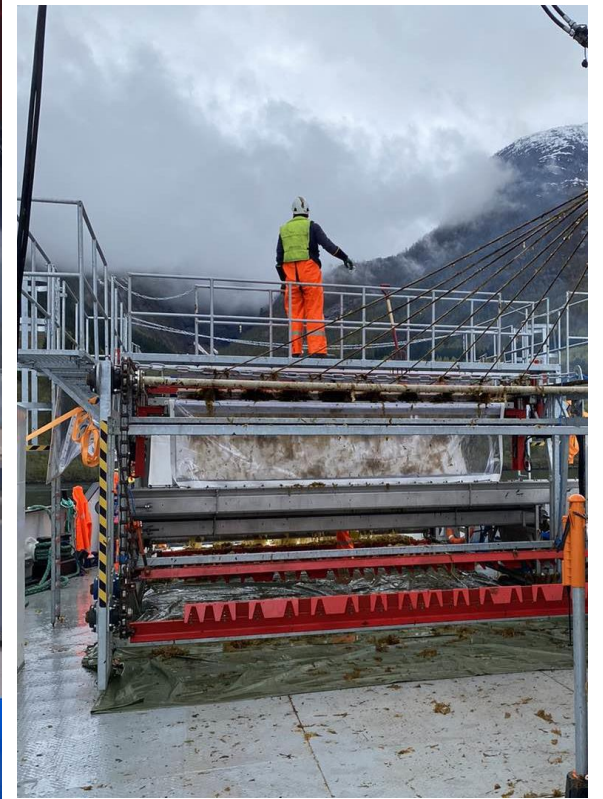
Seaweed harvester

x 4500 parts
x 45 suppliers
x 25 drawing revisions

Over 5 million !!!



3 generations of Seaweed harvesting machine



Substrates & mooring ropes





9



8



7



6



5



4



3

Cultivation modules



Semi automated direct seeding
Adjustable speed 25-50 meters
per minute



Inland Harvesting
machine



Assistance during operations



Portable processing unit
(concept)

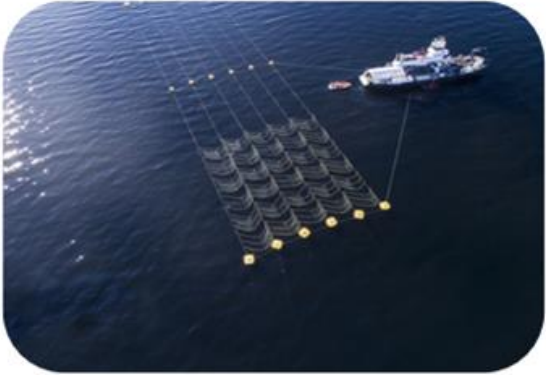


Low temperature drying

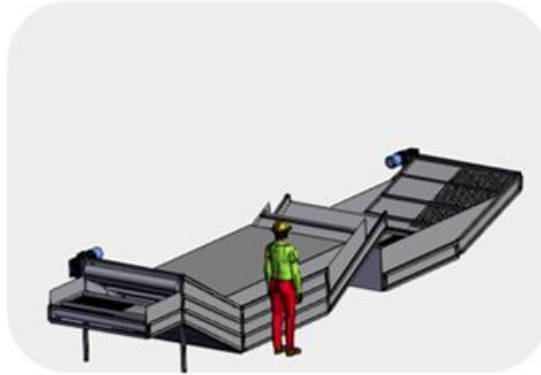


Direct processing and packing

Brief seaweed equipment portfolio



Substrates and
cultivation equipment



Blanching equipment



Cutting equipment



Belt and chain
conveyors



Grinding equipment



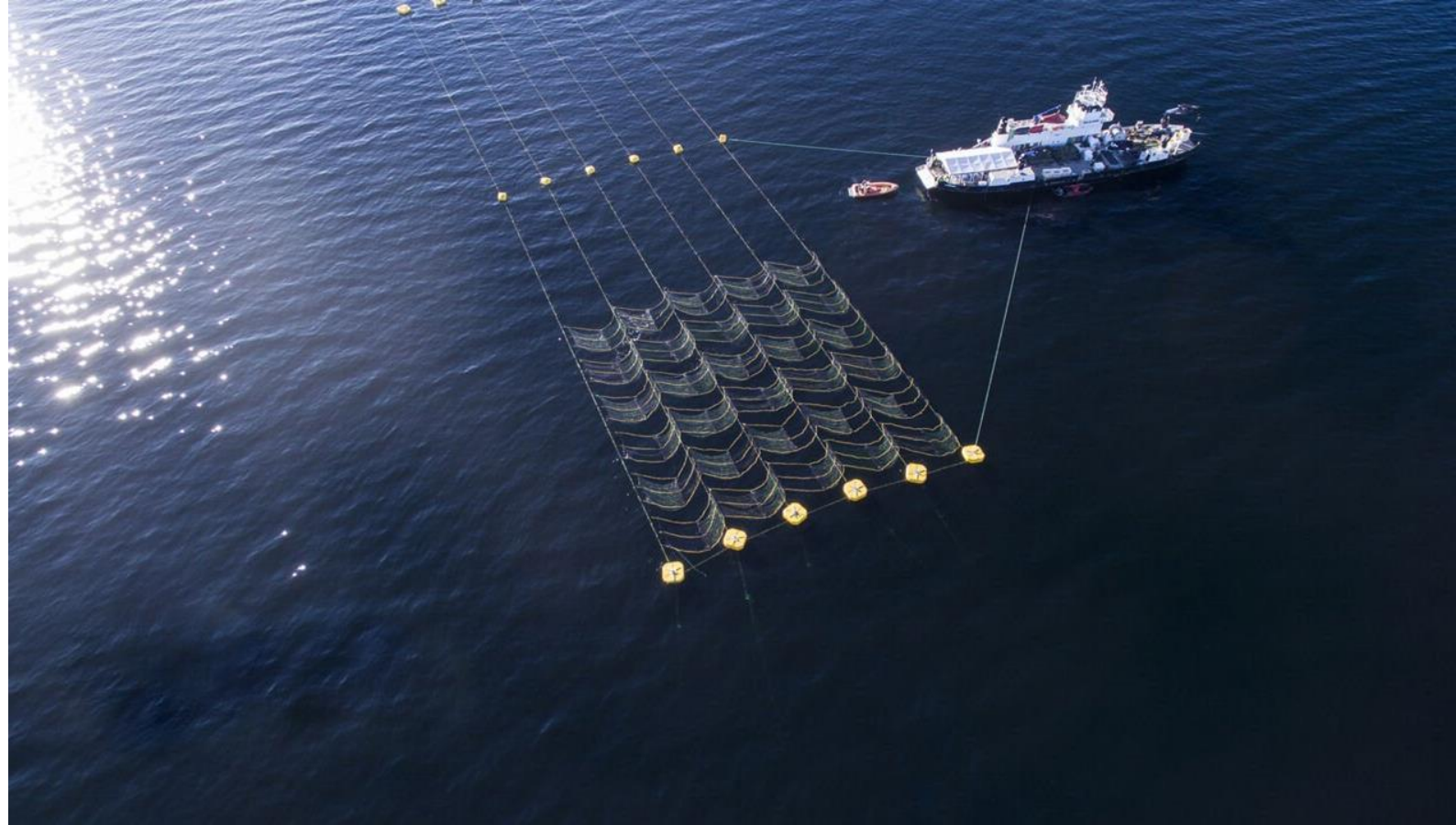
Drying equipment



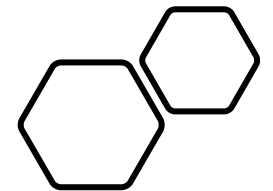
Harvesting equipment



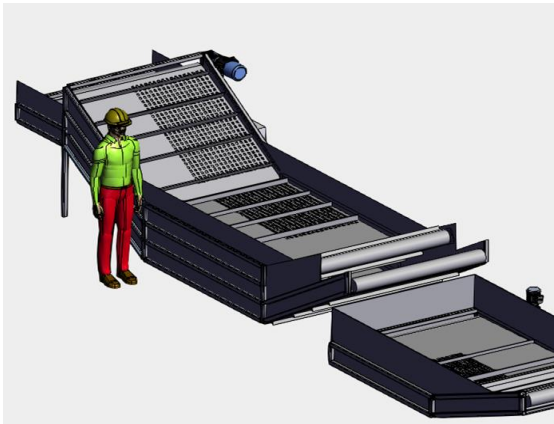
Seeding equipment



- Substrate and cultivation rigs
- Over 50 substrates tested
- For 2021-2022 sales estimate – 250-300km

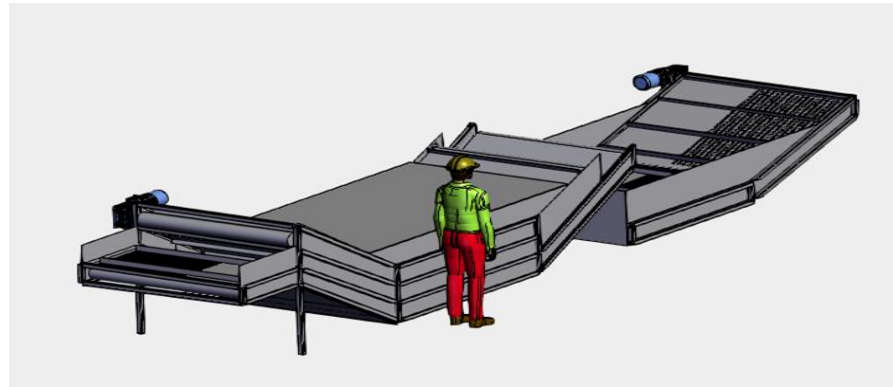
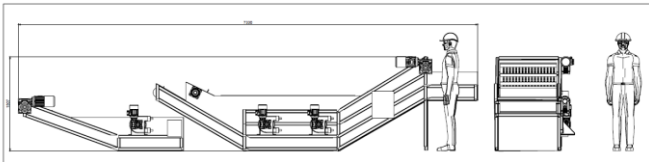


Our projects



Seaweed blanching system

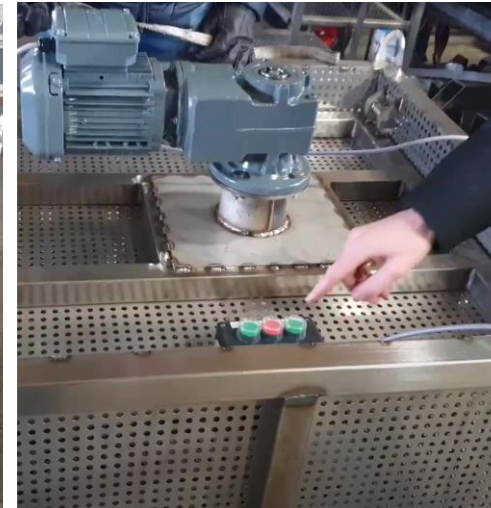
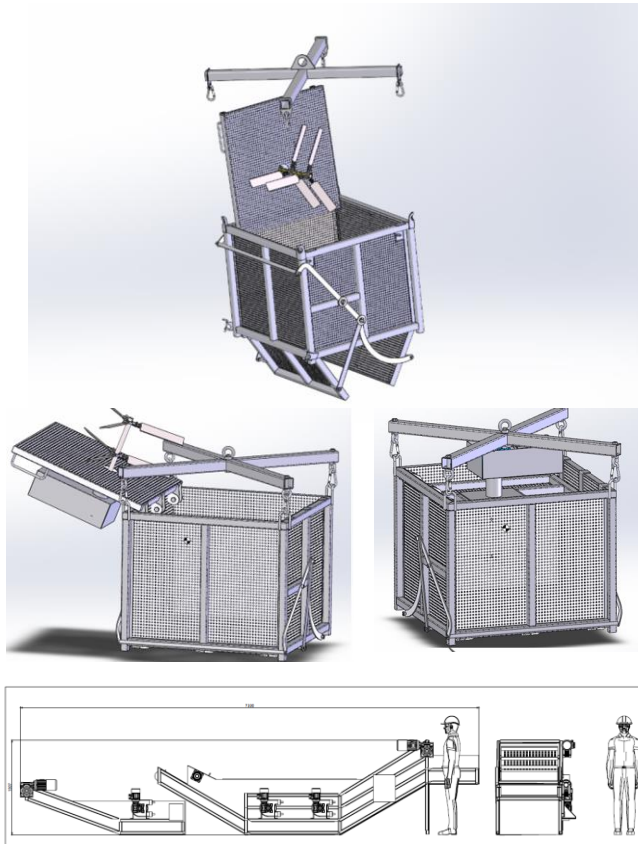
- High-capacity continuous feed blanching system



Our projects

Seaweed blancher

Low-Capacity blanching equipment

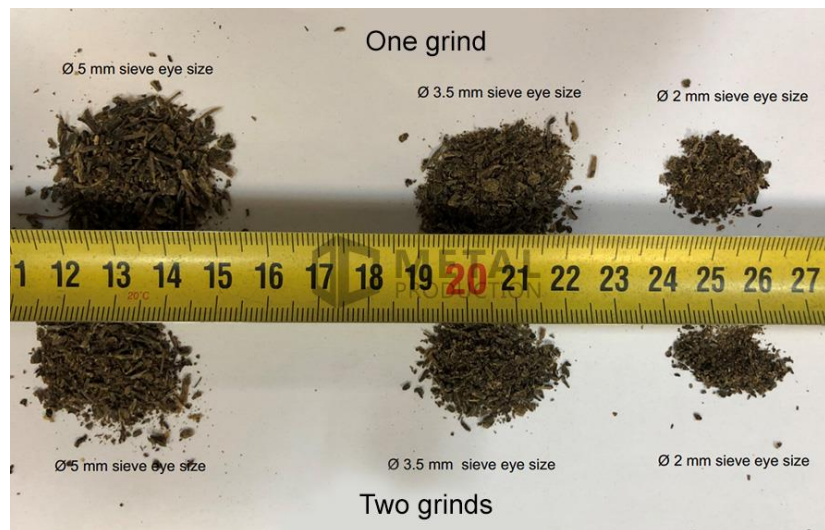


Our projects



Seaweed grinder

Stainless steel algae mill. Productivity about 50-100 kg/h. Manual feeding way, the ground product will crumble into a plastic container or bag. The whole construction is made of AISI316 steel. Engine Siemens.

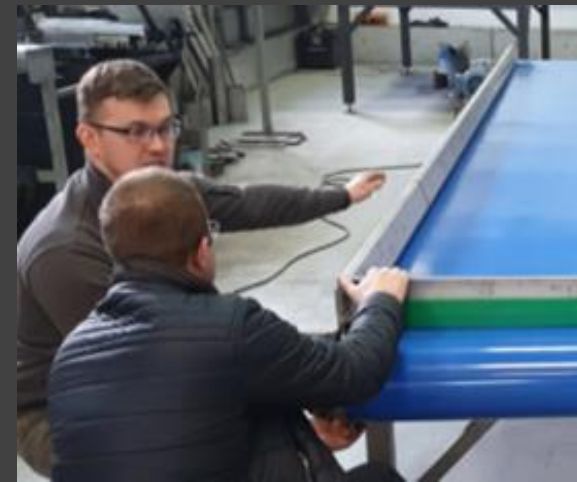




Belt and chain conveyors for seaweed and industry



- Food grade 304 Stainless steel
- Carbon steel



Our projects

Seaweed dryer

Seaweed dryer uses heat exchanger technology to provide heat source instead of traditional energy. Its low power consumption, high heat, and fast decharacteristics help customers greatly reduce operating costs. Seaweed drying system -100kW, 6m3



Our projects

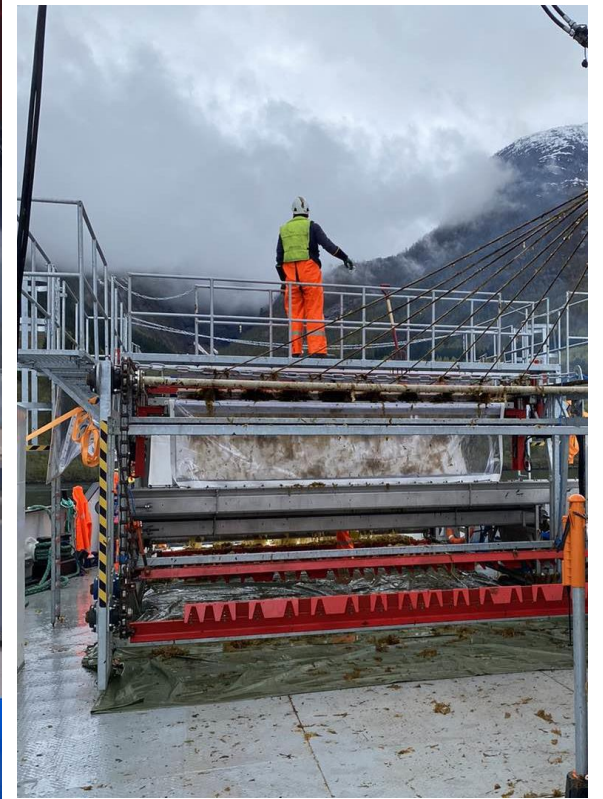


Seaweed harvesting machine

Seaweed harvesting machine semi-automatically removes seaweed from the growing modules and cleans it and prepares it for the next seeding.



3 generations of Seaweed harvesting machine

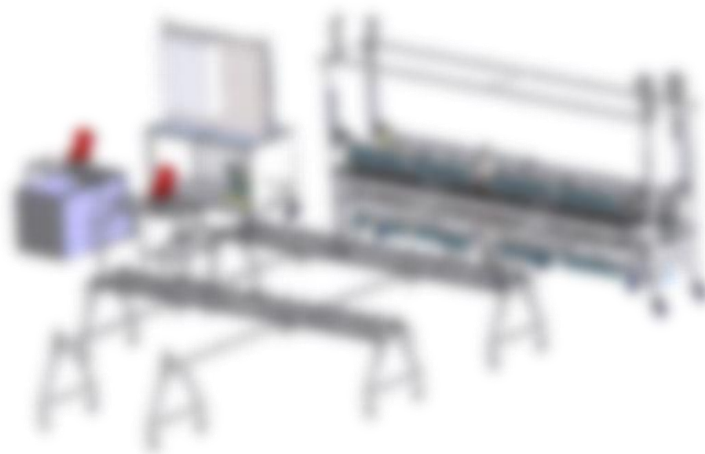


Our projects



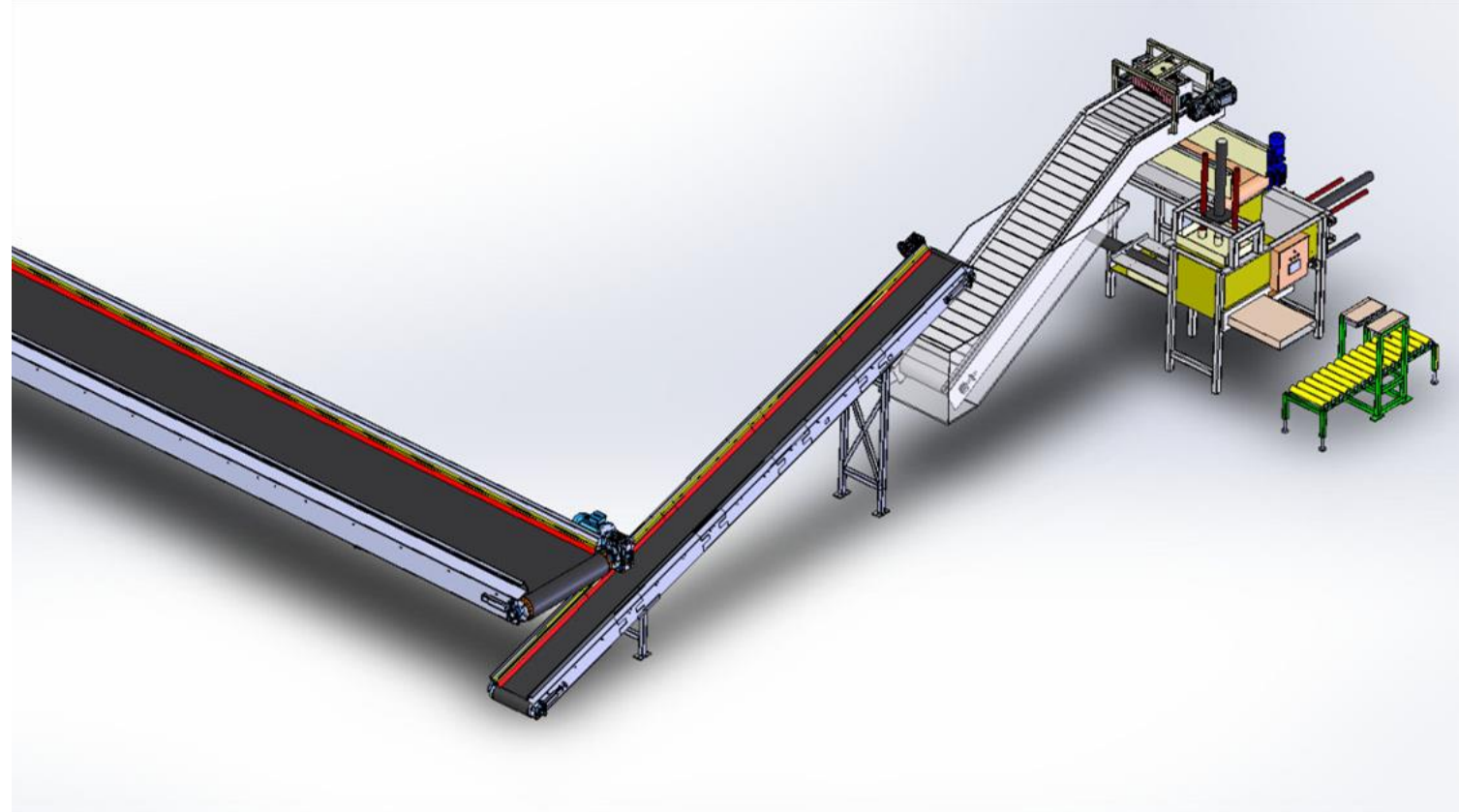
Seaweed seeding machine

Seaweed seeding machine inserts a mixture of seeds and glue into a selected amount of rope.



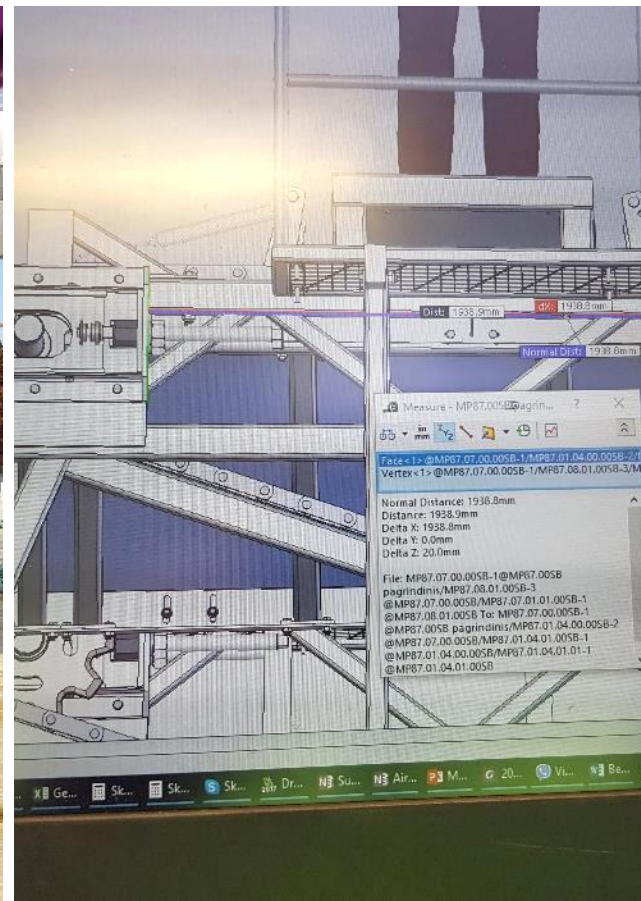


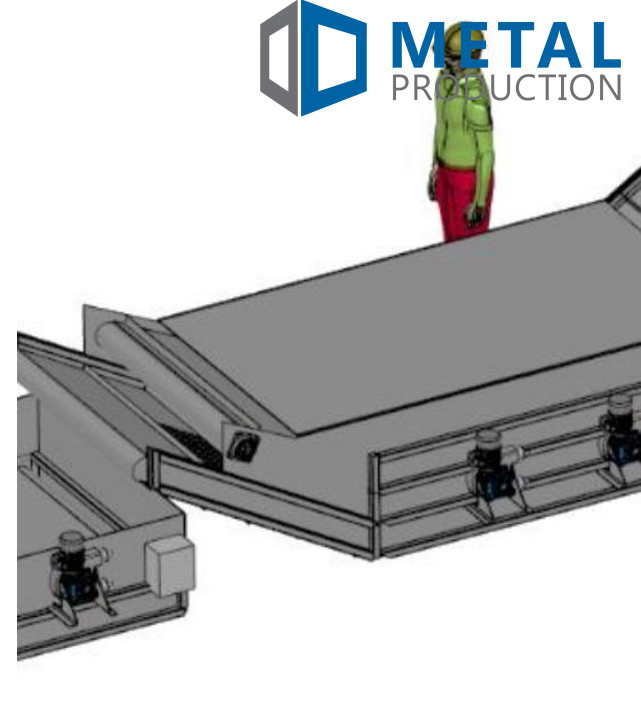
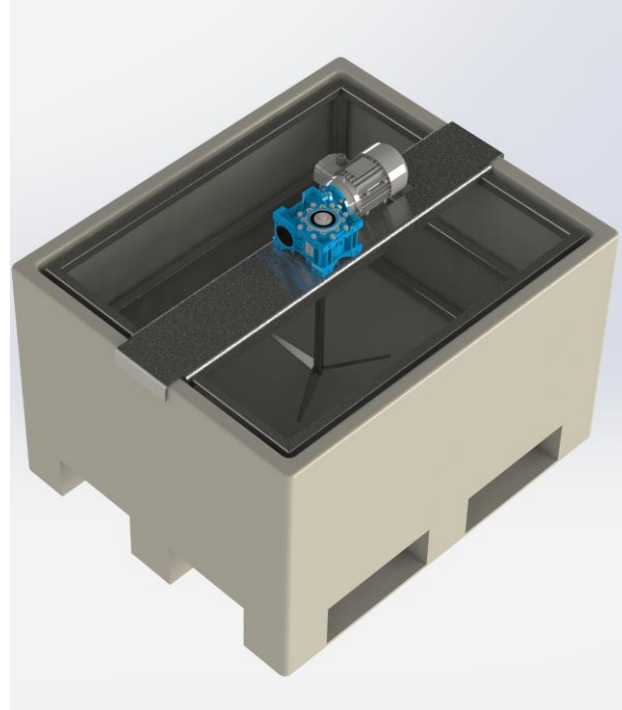
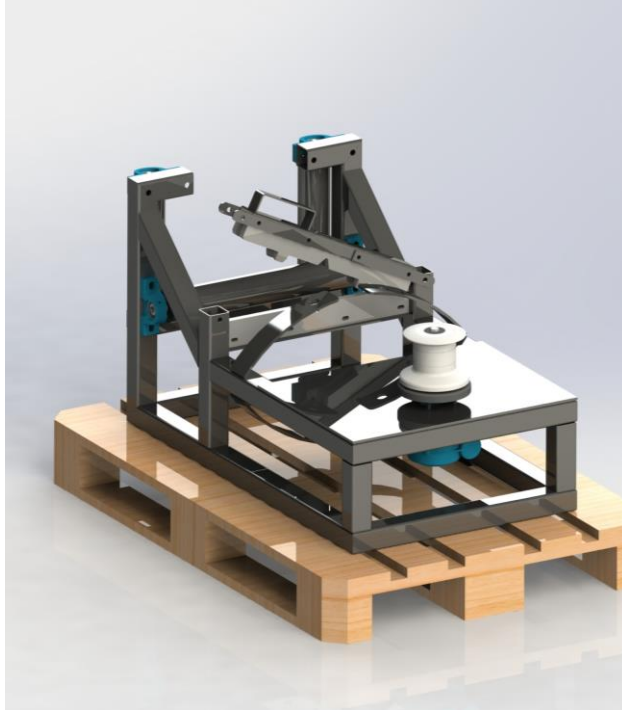
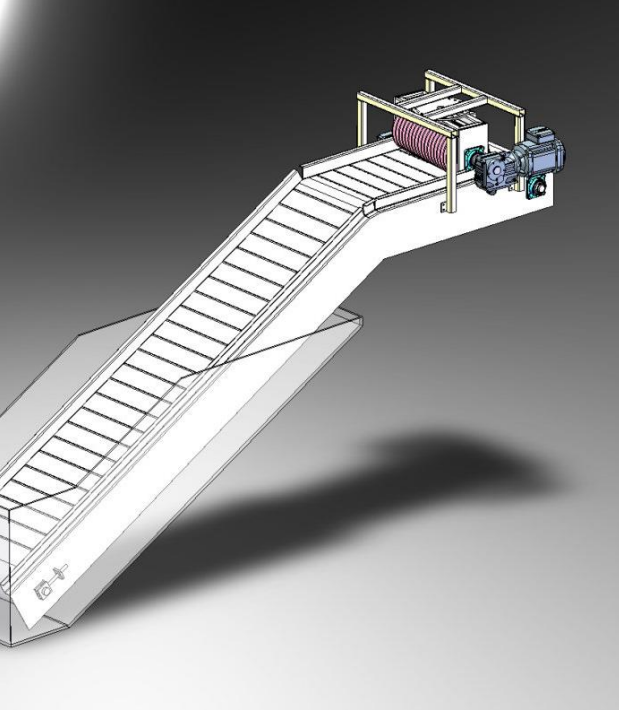
- Hydraulic rope management equipment | Seaweed rinsing | Power washing station



- Seaweed compressing and packing line

Assembly | Training | Maintenance | Assistance





Seaweed cutter
Seaweed blanching
Seaweed blanching racks
Large agitator for mixing
Rope cleaner
Mobile stabilization container

Our services

- R&D
- P&ID System Drawings
- Strength calc. & FEM
- 3D & 2D data
- Production engineering
- Animations, visualizations & 360 VR
- BIM models & libraries
- Assembly / Training / Maintenance

Our competence

- Prototyping, one-offs, batch, series production
- Process automation
- Pressure systems and vessels
- Food processing equipment
- DNV/EN/NORSOK/RMRS/PED/ISO/
- Metal/Plastics/Composites/Nets/Ropes
- Certification

Our clients



OUR EXPECTATIONS

- Find new stakeholders and RnD projects
- Find feasible business cases
- Expand our network
- Be a partner in different funding programs
- Involve our Rocket Cluster into new network chains
- Get latest news about Algea market and happenings

THANK YOU FOR YOUR ATTENTION

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