



Biogas in Thailand

Bangkok, 8 June 2015



Federal Ministry
for Economic Affairs
and Energy

สวัสดีครับ

sàwàddee kráb

Rudi Paflitschek

Graduate Mechanical Engineer
Sales & Marketing Manager

Co. Armatec FTS GmbH + Co. KG



I have been coming to Thailand since 8 years and I sold and installed agitators for Biogas sites in Thailand and Indonesia (concrete tanks and lagoon)

1st German Biogas Training Days 9. – 11. June 2014

I was a speaker for
„Safety Rules for Biogas Components“

giz



Supported by:



on the basis of a decision
by the German Bundestag



**Our objective is to transfer our technology know-how to Thailand.
So we are looking for**

- **End-users** for biogas plants, agriculture or industry, which want to build a new plant or which have an existing one (optimizing, repowering, component exchange ...)
- **Engineering companies** and **General Contractors**, which make the design of new sites
- **Sales and Service partner companies** for our components in different fields: Biogas – Agriculture – Industry – Waste Water Treatment – Chemical and Food Industry ... in different countries in South-East-Asia
- **In all South-East-Asia countries: Thailand – Malaysia – Philippines – Indonesia – Laos – Cambodia – Myanmar**



ARMATEC FTS GmbH & Co. KG

- ✓ Know-how since 1965
- ✓ Full service provider for pumps, agitators and other main components
- ✓ Your Partner for manufacturing - handling – and commissioning
- ✓ Mid-sized machinery manufacturer with 30 employee
- ✓ Member of the German Professional Biogas Association



OUR ACHIEVEMENTS

- ✓ All components Made-in-Germany
- ✓ We comply all safety rules, applicable laws and regulations
- ✓ On-site consultation
- ✓ Technical layout of all components – conception and planning
- ✓ Products are well-adapted to the chosen site
- ✓ Installation, maintenance and training on site
- ✓ In-house training of partner companies
- ✓ Spare parts and repair management
- ✓ Aftersales service
- ✓ Research and development for high-performance systems
- ✓ Optimization and repowering of biogas sites together with engineering partners from Germany



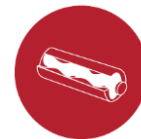
OUR PRODUCTS



AGITATORS



PUMPS



ULTRA SONIC SYSTEMS



SEPARATORS & CUTTERS



References in Thailand: Buriram 2 MW Biogas Plant

„North East Rubber Co. Ltd“



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2 MW Biogas Plant

Engineering & General Contractor



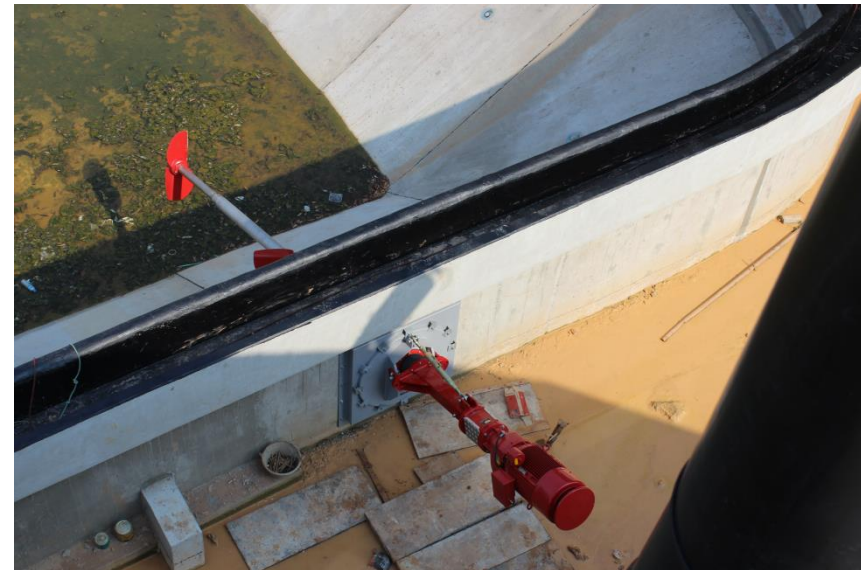
5 Pumps and 14 Agitators



2 main digester



2 post digester – lagoon (5,000 m³)



Engineering partner and Customer:

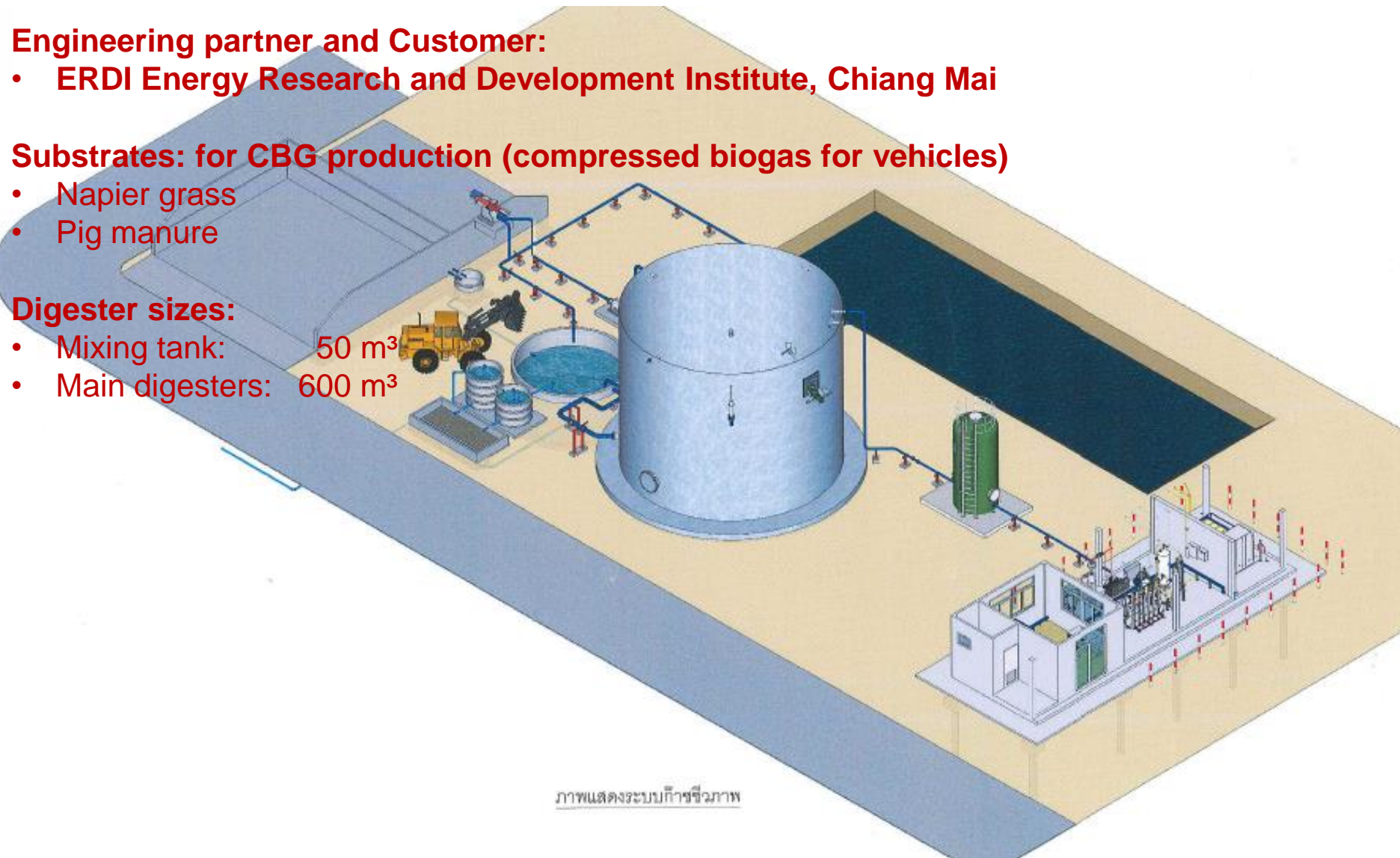
- ERDI Energy Research and Development Institute, Chiang Mai

Substrates: for CBG production (compressed biogas for vehicles)

- Napier grass
- Pig manure

Digester sizes:

- Mixing tank: 50 m³
- Main digesters: 600 m³

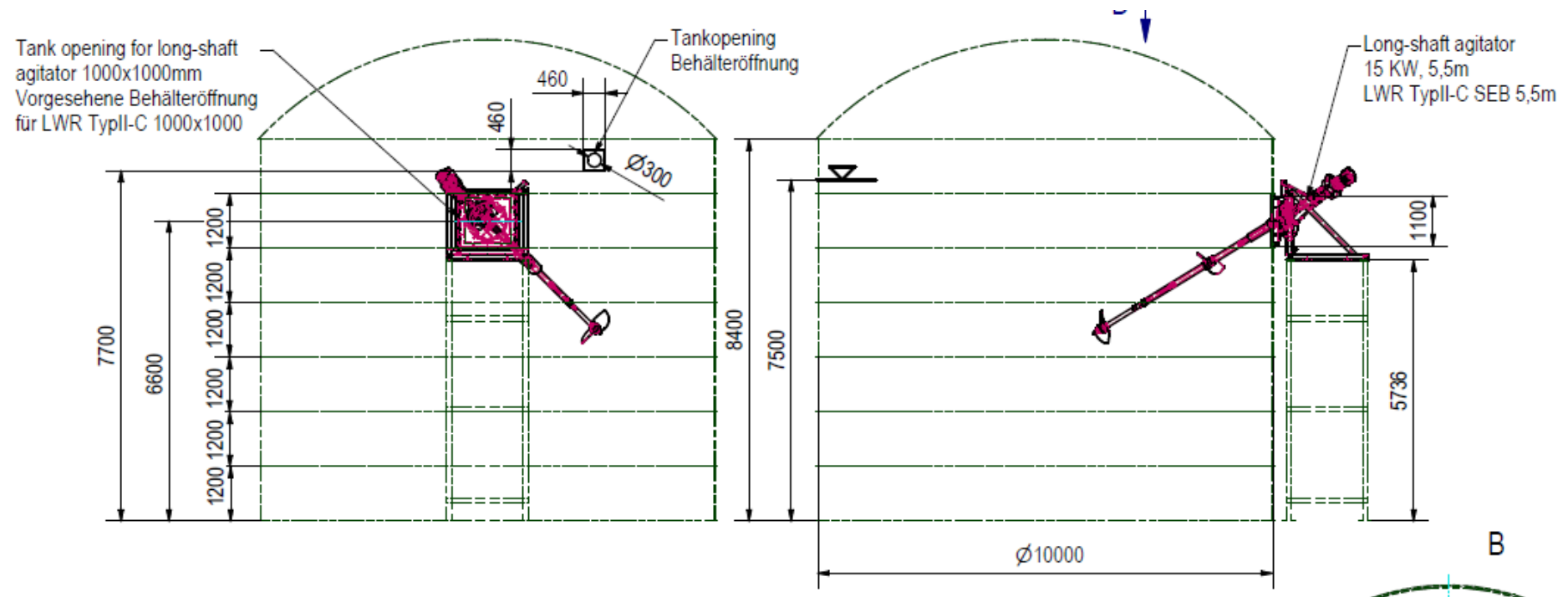






Installation: July 2015

- 1 x Long-shaft agitator for steel tank
- 1 x Cavity pump
- 1 x Centrifugal pump
- 1 x Sight class
- Spare parts for 2-3 years



Advantages

- ✓ Homogenization at all levels by 2 stirring propellers
- ✓ Upper propeller can be attached at different positions on the tube
- ✓ Corrosion protection with hot-dip galvanizing and tar-epoxy resin coating
- ✓ 11 – 22 kW (15 – 30 hp)
- ✓ Up to 5.5 m agitator length
- ✓ side entry or ceiling installation



concrete tanks



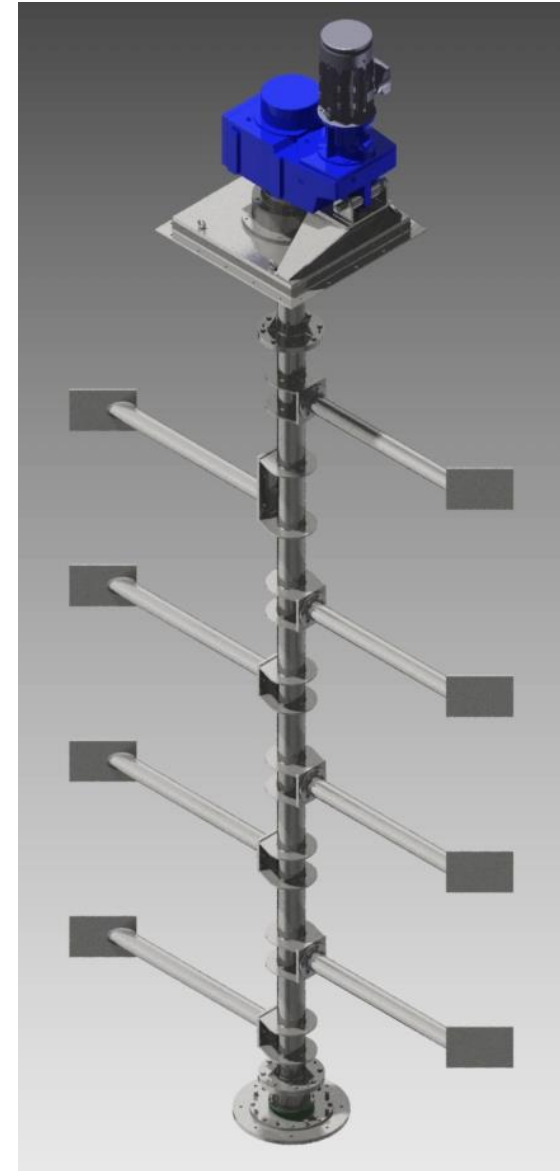
steel / stainless / glass-lined tanks





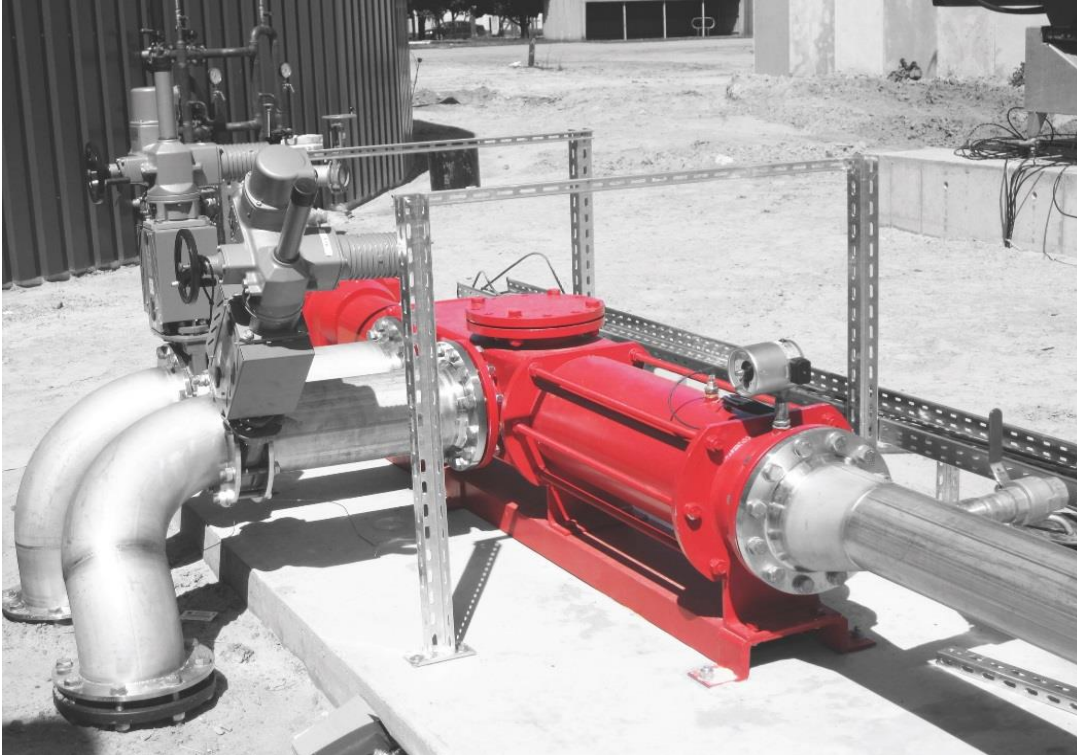
- ✓ Up to 30% energy savings
- ✓ No mechanical components in the tank
- ✓ Horizontal and vertical mixing
- ✓ Nearly maintenance free
- ✓ No emptying of the pits – continuing gas production
- ✓ With 1 agitating system you can mix > 1 tank
- ✓ Saving money in the plant construction
- ✓ For tanks with height 20 m + Ø > 40 m / glass-lined, stainless steel ..

Submersible agitator and paddle mixers



DATA & ADVANTAGES

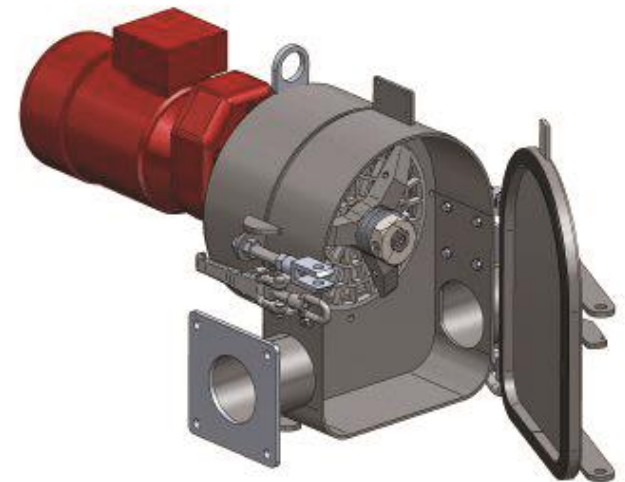
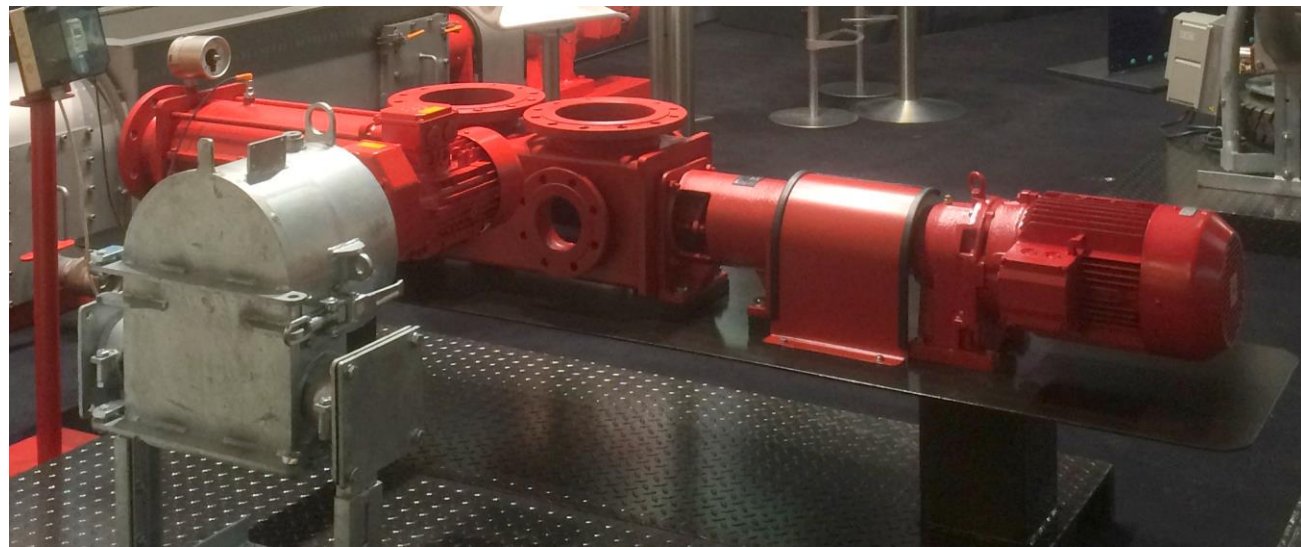
- 1 – 360 m³/h flow rate
- 1,5 – 55 kW engine power
- 3 – 24 bar pressure
- Gear motor: foot-mounted or flanged
- Dry-running protection
- Adjustable stator for a longer lifetime



BLOWER PUMP and CENTRIFUGAL PUMP



SEPARATOR and CUTTER

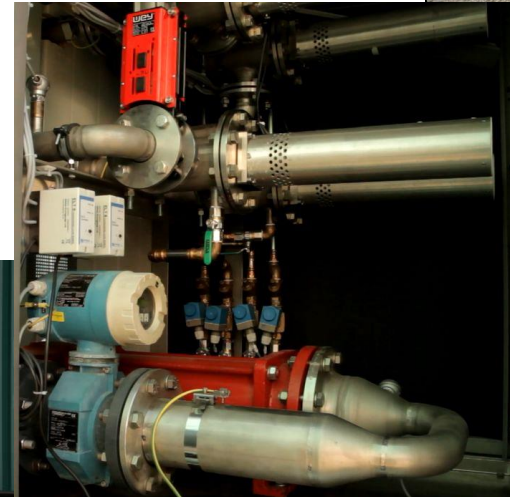




➤ Technology - Development



➤ Sales - Marketing



COMBI HYDOLYSIS TANKS



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This was a short overview about our standard components, which we also like to supply to YOU !!

We are looking forward to receiving your request and say thank you very much for your attention !!

ขอบคุณครับ
kòbkûn kráb

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