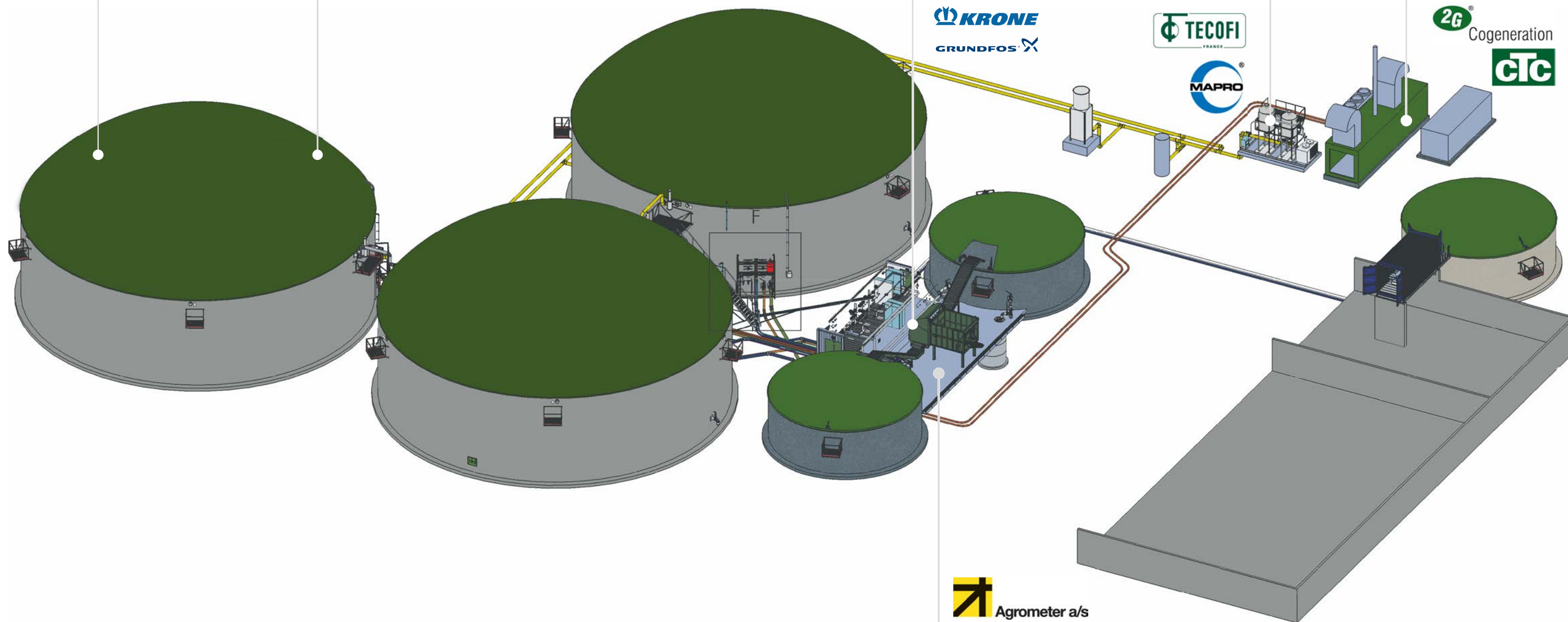


MODUL Solution

YOUR BIOGAS PLANT

BIOKONA
*Just **START***



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CORE OF THE BIOGAS PLANT 250-750m³/h

HEAT DISTRIBUTION UNIT

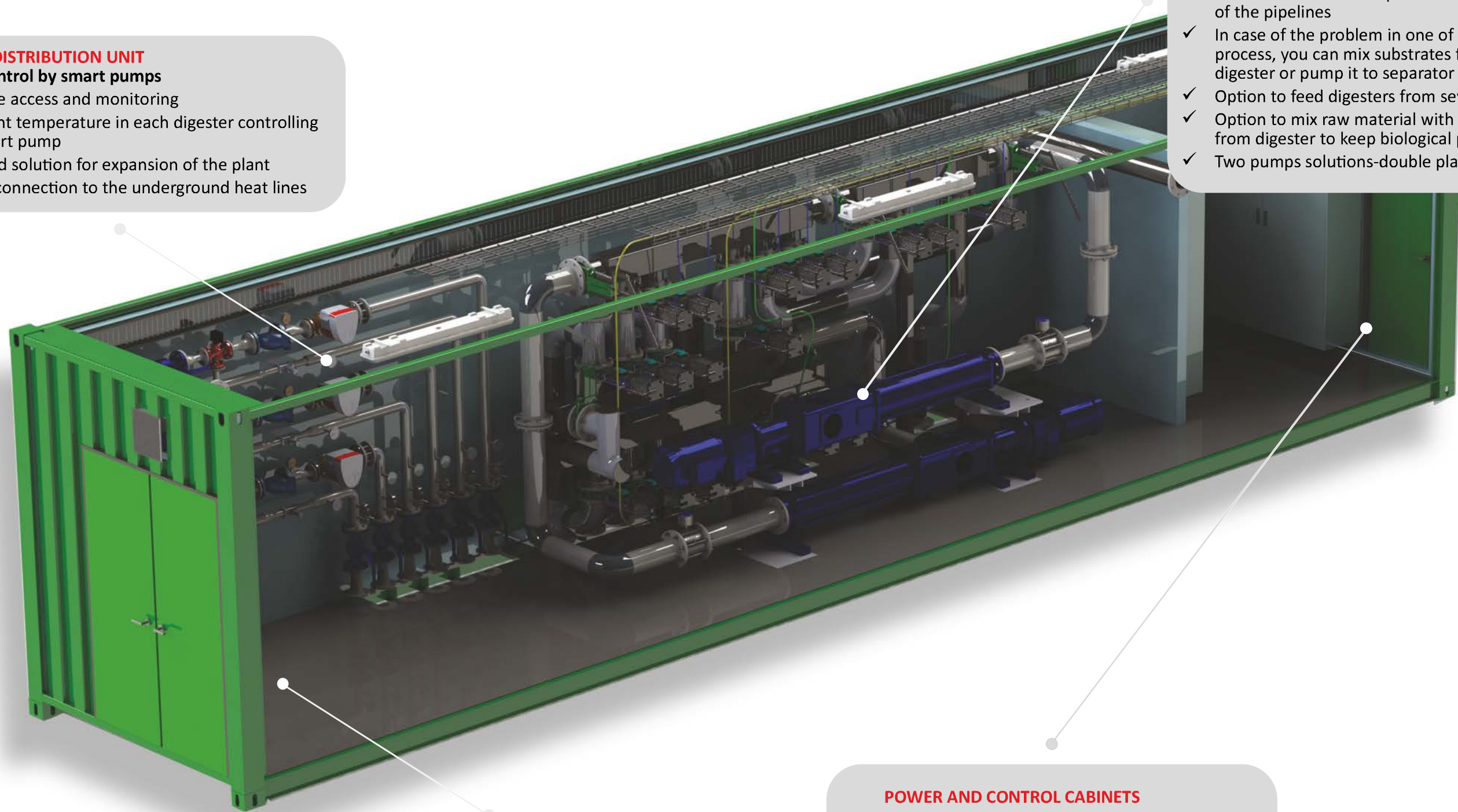
Full control by smart pumps

- ✓ Remote access and monitoring
- ✓ Flow and temperature in each digester controlling by smart pump
- ✓ Tailored solution for expansion of the plant
- ✓ Quick connection to the underground heat lines

SUBSTRATE DISTRIBUTION UNIT

Unlimited options to transfer substrates through all the tanks

- ✓ Fully automatic and remote control
- ✓ Automatic valves control pumping process in all needed directions this prevents blocking of the pipelines
- ✓ In case of the problem in one of digester's biological process, you can mix substrates from another digester or pump it to separator and lagoon
- ✓ Option to feed digesters from several buffer tanks
- ✓ Option to mix raw material with digestate from digester to keep biological process stable
- ✓ Two pumps solutions-double plant security



CONTAINER

Easy transport assembling and maintain

- ✓ Sea shipping container with additional fastening constructions
- ✓ Insulated with sandwich panels 80mm
- ✓ Tear plate steel floor covered with anticorrosion painting
- ✓ 3000mm wide doors in the opposite side of substrate collector ensure easy maintenance

POWER AND CONTROL CABINETS

You can monitor and control the plant from everywhere

- ✓ Open access to the system for new or additional customer's devices in Biogas plant
- ✓ Easy expansion of the plant
- ✓ Manuals in French English German languages
- ✓ Siemens control
- ✓ Remote control
- ✓ 24/7 online service and hot line
- ✓ Full remote access by PC/Smartphone

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CORE OF THE BIOGAS PLANT 250-750m³/h

HOMOGENIZATION OF THE SUBSTRATE

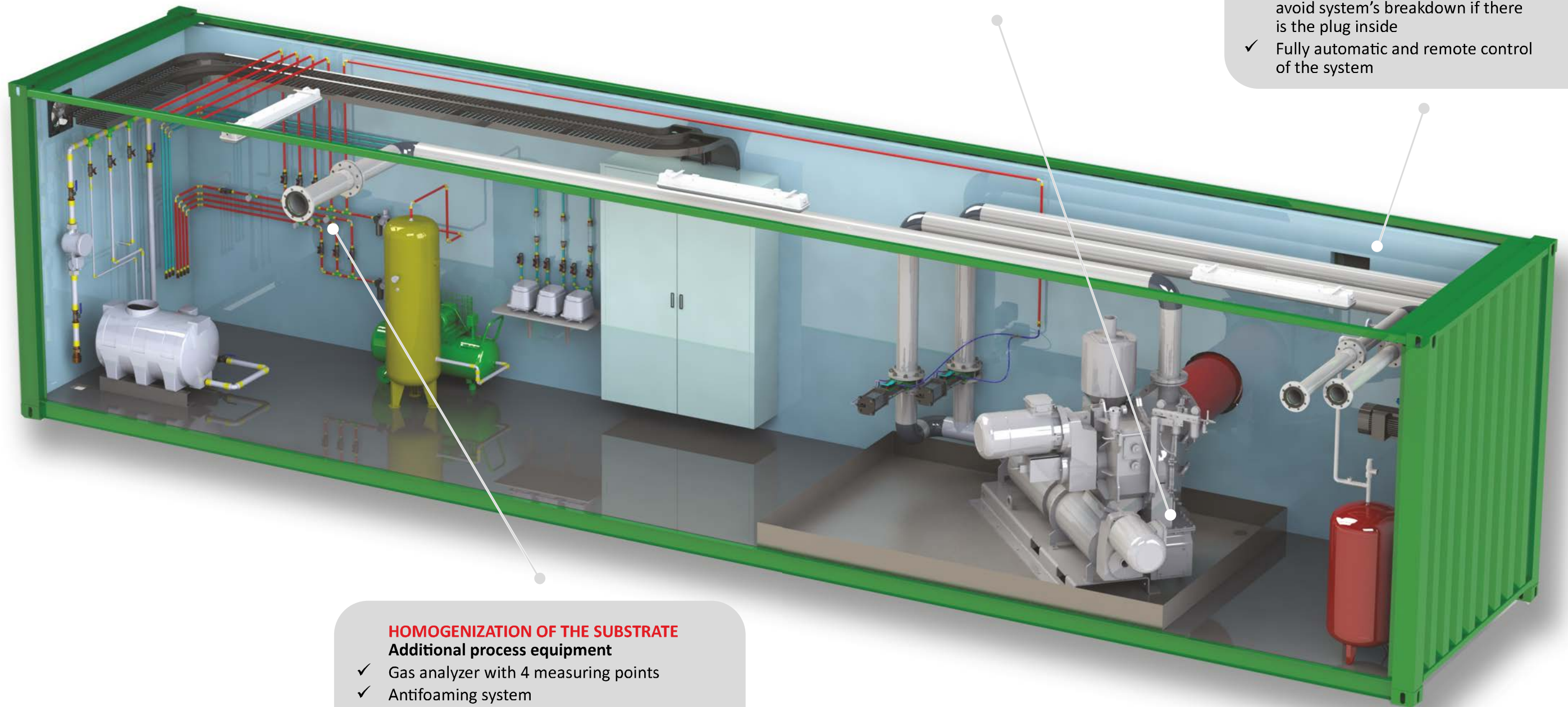
Solution designed for

- ✓ Solid cow manure with crushed straw
- ✓ Cow manure without bedding
- ✓ Pig manure
- ✓ Chicken manure
- ✓ Grain waste
- ✓ Sugar beet pulp
- ✓ Corn, grass silage

HOMOGENIZATION OF THE SUBSTRATE

Smallest particles – bigger amount Of biogas and biological stability

- ✓ Inlet substrates are shredded to 2-4mm particles
- ✓ Stone traps catches stones from substrates and prolong lifetime of the equipment
- ✓ Easy cleaning of equipment with outside maintenance openings
- ✓ Reverse option of the shredder allows to avoid system's breakdown if there is the plug inside
- ✓ Fully automatic and remote control of the system



HOMOGENIZATION OF THE SUBSTRATE

Additional process equipment

- ✓ Gas analyzer with 4 measuring points
- ✓ Antifoaming system
- ✓ FeCL dosing system
- ✓ Oxygen (air) dosing system for primary H₂S removal
- ✓ Compressed air system for control of pneumatic valves
- ✓ Fire alarm
- ✓ Lighting
- ✓ Alarm of substrate leakage alarm in container

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PROTECTION FOR YOUR ENGINE OR UPGRADER 50-1000 m³/h BIOGAS

CHILLER

- ✓ Cooling power modulation. Option for few cooling power ranges, what ensures system efficiency and minimal electrical power consumption.
- ✓ Anticorrosive coating of the chiller, longer lifetime
- ✓ Chiller working in ambient temperature -25 °C +45 °C

ACTIVATED CARBON FILTER

- ✓ Stainless steel AISI316 4mm
- ✓ Easy filling of the carbon directly from the big bag 500kg
- ✓ Easy removal of the carbon using knife gate valve under the filter.
- ✓ Carbon removal directly to the big bag which is fitted under the filter
- ✓ Inside the filter there is gas distribution collector. Precise gas flow through the filter ensure longer lifetime of activated carbon
- ✓ Insulation of the filters 50mm rockwool and coated AlZn tin. Insulation keeps stable gas temperature which is important for H2S cleaning, CHP and Upgrade operation.
- ✓ The piping for filters is special design, which allows you to work consistent and parallel. You can maintain the filter, while another filter is in operation.



HEAT EXCHANGER

- ✓ Heat exchanger designed especially for biogas dewatering
- ✓ Special heat exchanger construction with demister ensures separation of the smallest particles of condensate
- ✓ Simple condensate removal, easy maintenance

CONTROL CABINET

- ✓ Gas flow control with frequency converter
- ✓ Gas temperature and pressure control
- ✓ Control of compressor and chiller
- ✓ Safety equipment for unit
- ✓ Control and data transfer via modbus/profibus/etherner

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GAS PROCESSING SKID 50-750 m³/h

CONTROL CABINET	Siemens, Wika, Dungs, ABB
HEAT EXCHANGER 50-750m³/h	Aprovis
CHILLER 50-750m³/h	MTA
BLOWER 50-750m³/h	Mapro
PIPING DN80-150	AISI316



CHARACTERISTICS	BIO-ACF500	BIO-ACF1000	BIO-ACF2000
Application	H2S and siloxanes cleaning	H2S and siloxanes cleaning	H2S and siloxanes cleaning
Biogas flow range	50-300 m³/h	50-500 m³/h	50-750 m³/h
H2S level	5000-0 ppm	5000-0 ppm	5000-0 ppm
Filling volume*	1m³	2m³	2x2m³
Filter material	AISI316L 4mm	AISI316L 4mm	AISI316L 4mm
Welding control	X-ray	X-ray	X-ray
Max operating pressure	3 bar	3 bar	3 bar
Maintenance platform	galvanized steel	galvanized steel	galvanized steel
Insulation	50mm rockwool, Al Zn tin	50mm rockwool, Al Zn tin	50mm rockwool, Al Zn tin
Connection pipes	DN80 PN10	DN100 PN10	DN150 Pn10
Delivery EXW	6 weeks	8 weeks	8-10 weeks

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GENERAL PRODUCTION RANGE

MODUL UNITS

EQUIPMENT	DESCRIPTION
	Capacity 10 – 50 m³/day of solid material. Advantages: <ul style="list-style-type: none"> • Primary chopping of solid waste in the feeder • Conveyor transporter of prepared material to the buffer tank • Working on hard solids
	Designed for biogas production 250-750m³/h Advantages: <ul style="list-style-type: none"> • Standardized sea shipping module 2x (12x2,9x2,5) • Fully automatic, remote control • Working on hard substrates
	Designed specially for digester heating 16-34m Advantages: <ul style="list-style-type: none"> • Modular, hydraulic tested unit • Option to open and close every heating circuit • Fast and easy installation on site
	Designed specially for biogas plants Advantages: <ul style="list-style-type: none"> • Standardized sea shipping module 6x2,5x2,5 • Mounted on galvanized steel construction • Solid fraction could be storage into the pitch or directly to the truck or dryer
	Designed for biogas treatment 50-750m³/h Advantages: <ul style="list-style-type: none"> • Standardized skid 6x2,5x2,5 • Fully automatic control • Fast active carbon changing; possible uninterrupted work
	Capacity from 50-2000kWe. Advantages: <ul style="list-style-type: none"> • Fully automatic control • Fast installation and start up • Maintenance team, hot line available
	Capacity from 50-2000kW. Advantages: <ul style="list-style-type: none"> • Fully automatic control • Fast installation and start up • Dual fuel burners; heating collectors

MODULS

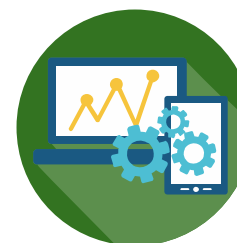
- ✓ Designed in 3D
- ✓ Welded under X-ray control
- ✓ Assembled in factory
- ✓ Coated and painted in factory
- ✓ Mechanically tested
- ✓ Automatic control tested
- ✓ **All factory tests can be done with Customer**



MAIN GENERAL SERVICES



3D Design
according specific
requirements



General advising
and contracting



Maintenance
7/24 hot line service



Biology and
after sales support

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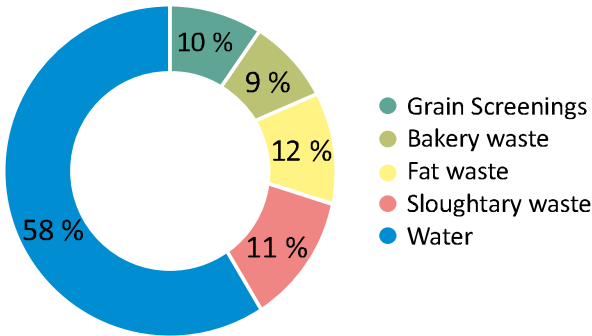
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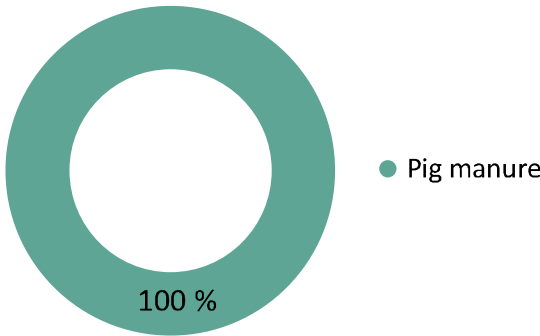
FEEDSTOCK

Due to the MODUL solution and prefabricated technological equipment units, Biogas plant can be adapted exactly to Your own Feedstock.

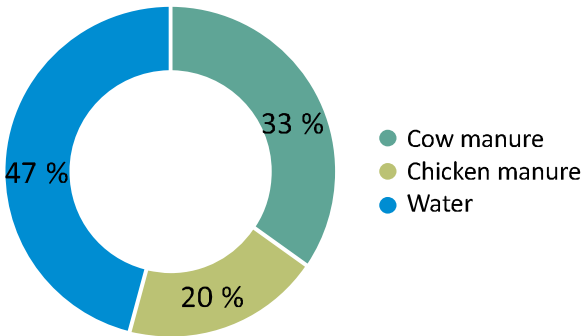
Substrate	Amount, t/year	DM, %	Biogas amount m³/t
Grain creenings	3500	88 %	480
Bakery waste	3000	70 %	450
Fat waste	4000	18 %	116
Sloughtary waste	3800	15 %	114
Water	20075	0	0
Annual biogas production, m³			3931193
Installed power			1MW



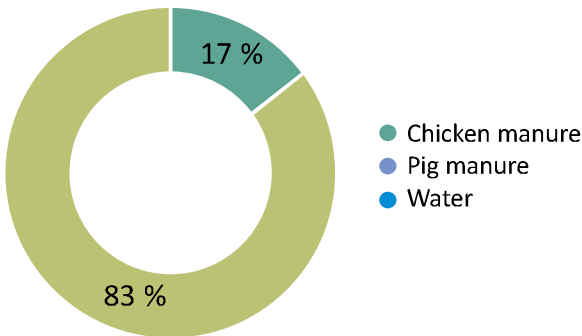
Substrate	Amount, t/year	DM, %	Biogas amount m³/t
Pig manure	41400	6 %	22
Annual biogas production, m³			898960
Installed power			0.22 MW



Substrate	Amount, t/year	DM, %	Biogas amount m³/t
Cow manure	25000	20 %	67,2
Chicken manure	15000	45 %	169,2
Water	35000	0 %	0
Annual biogas production, m³			4218000
Installed power			1MW



Substrate	Amount, t/year	DM, %	Biogas amount m³/t
Chicken manure	15000	45 %	169
Pig manure	73000	6 %	22
Water			
Annual biogas production, m³			4123122
Installed power			1MW



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