



Equipment Catalogue

Industrial Biogas Plants 20/21

About Us



Jason Hawley - Engineering Director



Finn Biogas designs and builds biogas plants that convert organic waste to clean energy.

Like everyone else, we live in a world of finite resources and ever more daunting challenges. That's why we're so passionate about creating and delivering effective engineering solutions that benefit businesses in a variety of industries, while also working in harmony with the environment.

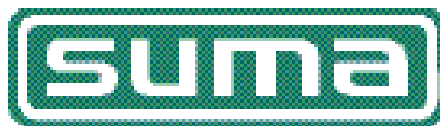
Based in Brisbane, Australia, our team is highly capable and together have designed and built biogas plants for customers throughout Australia, Southeast Asia and Central America. Our key strengths are in the adaption and supply of technology for the Australian market; as well as end-to-end project development from concept development and feasibility studies, to detailed design and planning, procurement, construction management and commissioning of plants.

Equipment Supply

We have worked hard to leverage our existing relationships with suppliers throughout Europe and Australia to bring our clients the best possible offering of equipment on the market, backed by decades of know-how and experience in biogas projects. We trust in the expertise of our suppliers and that is why we confidently stand behind each one of our products 100%.

We understand the success of your project is critical to you and this makes it critical to us. We guarantee to give you local support each step of the way. As Australian biogas experts, we understand the challenges you face, and we will assist you in identifying the equipment you need and obtaining the correct equipment for your project. No job is too big, or too small.

Give us a call and let Finn Biogas create a solution tailored to your unique, specific needs.



Contents



Agitators 1-2

Pumps/Blower 3

Accessories 4

Flares 5

Biogas Treatment 6

Gas Storage 7

Emissions Cover 8

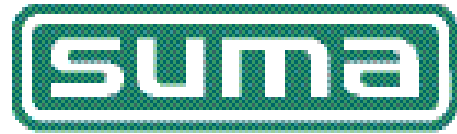
Tanks 9-10

Pilot Plants 11

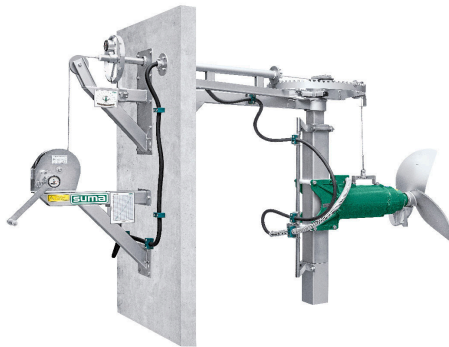
Other Services 12

Agitators

Submersible / External



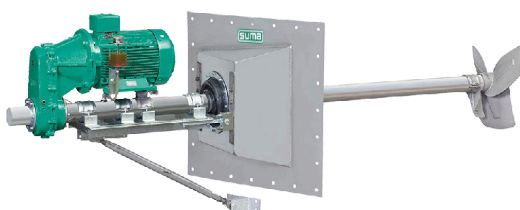
Submersible



Gas Tight Submersible



Tractor Mounted



Externally Mounted

Agitators

Efficient mixing is key to optimal biogas production. Our German-made agitators are backed by over 60 years of experience in designing and manufacturing mixers specifically for biogas and wastewater treatment plants. With agitators available in submersible or externally mounted configurations and a variety of propeller configurations, we can provide you with the perfect mixing solution no matter what your design.

Effective agitation will:

- Prevent floating and sinking layers from forming
- Ensure substrate has an equal temperature throughout
- Help distribute nutrients for the biological processes
- Enable efficient gas release from the substrate

Features:

- Low maintenance, high capacity agitator design
- Modular configuration allowing for ease of part interchangeability and quick installation
- High quality bearing and smooth-running operation for optimal power transmission and long service life
- Geometrically accurate propeller: dynamically balanced propeller results in less vibrations and high mixing performance; as well as shorter agitation times and reduced power consumption

Agitators

Submersible / External



Gas-tight submersible



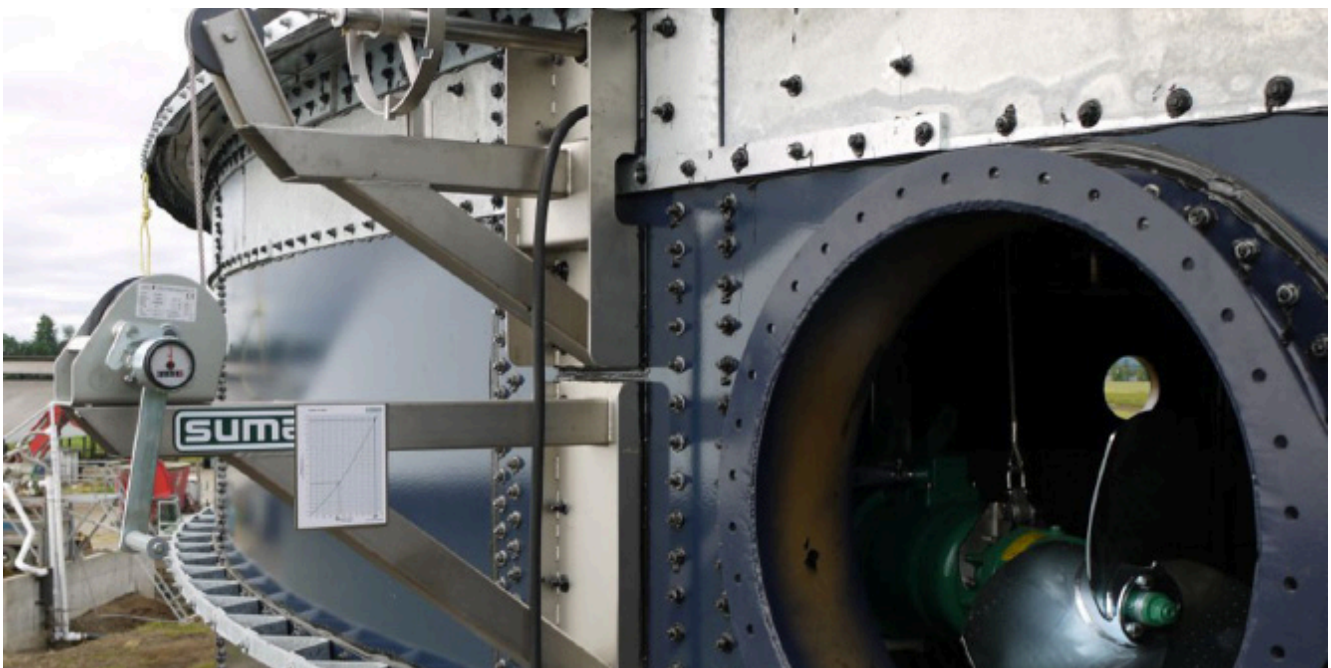
Side-mounted submersible

Suitable For:

Steel tanks / Concrete tanks / Lagoons

Technical Data:

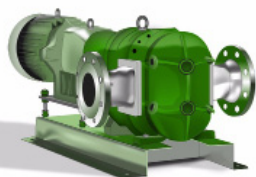
- Sizes ranging from 4 kW to 28 kW
- Propellers:
 - Diameters 270mm - 1,600mm, push or suction configuration
 - Low or high RPM propeller designs available
 - Coated abrasion resistant, hardened steel, or stainless steel blades
- Submersible or externally mounted configuration: height and angle adjustments available from outside tank
- Suitable for gas tight applications
- SiC/SiC mechanical seal
- Long axis agitator:
 - PTO drive available for portable mixing
 - Low noise, two-step spur gear drive
 - External oil reservoir available



Submersible agitator

Pumps

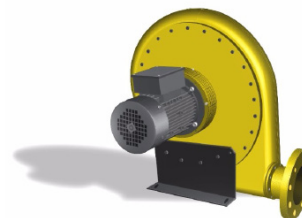
Slurry / Biogas



Positive Displacement Pumps



Waste Macerators



Biogas Blowers

Pumps

Rotary lobe pumps provide transportation of slurry with ease, and come in a multitude of options to suit your particular situation. Flow rates range from 3 m³/hr to 1500m³/hr and up to 16 bar pressure.

Macerators

Effective maceration is not only critical in aiding pumping and reducing blockages, but also optimising biogas yields. Our macerators quickly and efficiently reduce organic waste and solid matter into smaller pieces ready for biogas production.

Blowers

Biogas blowers provide sufficient pressure to inject biogas into gas burners or engines and are a critical process element. With a simple and efficient design, our explosion-proof blowers are ideal for biogas applications.

Features:

- Flow rates from 3 m³/hr to 1500 m³/hr
- Pressure rating up to 16 bar
- Self-priming and resistant to dry running
- Various delivery options available: available as a standalone pump or blower, or as a complete skid with instrumentation, piping and supports

Features:

- Can be mounted in pipe lines for smaller maceration, or with a conveyor for high volume solids
- Adjustable maceration size and configurations available
- Up to 60 m³/hr for high volume solids, and up to 1,140 m³/hr for in-line systems
- Easy to install
- Long service time due to rugged designs

Features:

- Available in direct or belt driven configuration
- Pressure increases of up to 300mbar possible
- Flange sizes from 50-200mm
- Available with flexible connections, vibration dampeners and acoustic housings
- Low noise and economical design

Accessories

Biogas Plant Accessories

After all the major equipment is selected, there are many smaller items required to ensure a biogas plant runs effectively, safely and meets local regulations. As many biogas components and equipment are specialised items, these components are typically sourced from a variety of suppliers which can create difficulties ensuring they all function together and in the context they are installed in. Finn Biogas has the expertise to recommend and supply all types of biogas accessories to suit your project and meet the required specifications.



Gauges



Foam Traps for Digesters



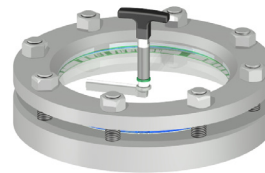
Condensate Pots



Gas Analysers



Sensors



Tank viewing windows



Biogas Gravel Filters



Tank insulation, internal heating, flanges and other fittings.

Biogas Flares

Automatic Operation



The NOXmatic flare from Austrian company Ennox comprises the most up-to-date biogas flare technology on the market, ensuring the safe, efficient and environmentally friendly combustion of gases from landfill, bio and sewage gas systems.

Flares can be supplied as either low or medium temperature units supplied with the required additional burner technology. For special requirements our innovative and low emission NOXtor burner is available.

Equipped with its own programmable controller, all ignition, monitoring and safety functions are carried out independently by the flare. The complete control and monitoring system is housed in its own cabinet.

Features:

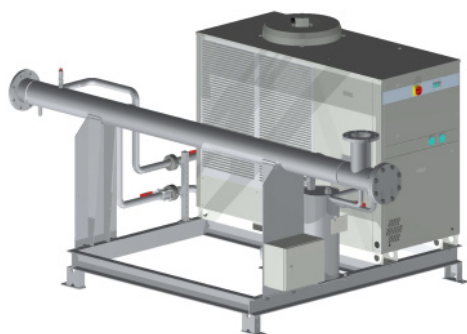
- Available in capacities from 100 KW - 20 MW
- Manufactured in Austria
- Entire stainless steel construction
- Multi-level burner design for a wider operating range and turndown ratio
- NOXtor design for environmentally friendlier combustion + low acoustic emissions
- Open or hidden flame combustion chamber
- Integrated flame temperature monitoring and pressure control available
- No LPG pilot flame required
- Very fast installation
- Winter packet (frost protection for armatures)



Model from 10 - 60 mbar	Flowrate in Nm ³ /h	Thermal power in kW	Gas pipe in DN	Flame pipe Ø in mm	Flare height in mm	Weight in kg
NOXmatic 50	20-80	130-520	50	400	4,158	ca. 150
NOXmatic 100	80-150	520-975	65	480	4,418	ca. 180
NOXmatic 200	150-250	975-1,625	80	640	4,618	ca. 220
NOXmatic 300	250-350	1,625-2,275	100	700	5,158	ca. 280
NOXmatic 450	350-480	2,275-3,120	125	800	5,658	ca. 320
NOXmatic 600	480-600	3,120-3,900	150	955	5,658	ca. 390
NOXmatic 750	600-750	3,900-4,875	200	955	7,158	ca. 650
NOXmatic 1000	750-1,100	4,875-7,150	250	1.273	10,658	ca. 950
NOXmatic 1500	750-1,500	4,875-9,750	250	1.430	7,000	ca. 1,400
NOXmatic 2000	1.000-2,000	6,500-13,000	250	1.590	8,000	ca. 1,800
NOXmatic 3000	1,500-3,000	9,750-19,500	300	1.910	9,000	ca. 3,000

Biogas Treatment

Moisture and Hydrogen Sulphide



Gas Chill Dryer



Active Carbon Filter

Gas Chiller Dryer

Removal of moisture from biogas prior to combustion helps protect downstream equipment from damage and corrosion. With the Ennox gas chill dryer, biogas to be processed is passed through a heat exchanger where the cooled gas can expel any moisture which is then collected as condensate. The condensate is then removed either with a siphon or condensate pump, ensuring only dry gas is sent to further treatment and combustion.

The gas chill dryer is available in various sizes and power ratings according to the requirements of the system.

Active Carbon Filter

Much like moisture, hydrogen sulphide and siloxanes must be removed from biogas prior to combustion to maximise combustion equipment life. Filtration by active carbon is a simple and effective method to achieve this. The filters can be easily installed between the biogas digester and the consumer. Active carbon filters are low-maintenance and user friendly.

We can provide active carbon filters either as single or double units, according to the size of the system.

Features:

- Optimal condensate removal from biogas to ensure protection of downstream equipment
- Available in various sizes and power ratings depending on biogas flowrate
- Compact, skid-mounted design available

Features:

- Optimal removal of hydrogen sulphide and siloxane from biogas
- Efficient design allows for low pressure drop across filtration
- Retrofit of existing systems easy to achieve
- Simple design and low-maintenance

Gas Storage

Tank-Mounted / Concrete Mounted



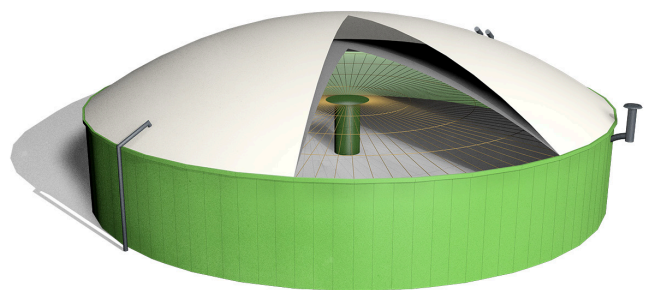
Low Pressure Biogas Storage

Low pressure storage of biogas enables efficient utilisation of energy, as biogas can be combusted either continually, or only during peak hours. This allows for a system with high operational reliability.

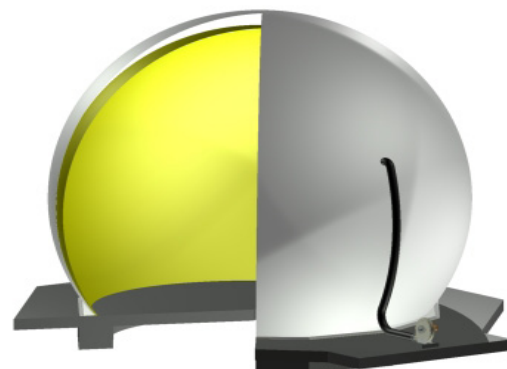
With gas storage volumes from 50m³ to 30,000m³ domes can be supplied complete with blowers, gas inlet and outlet fittings, pressure relief valves and sensors. Domes can be concrete mounted or tank mounted. The UV-treated outer membrane is always pressurised with air to resist any weather effects and provide a constant gas outlet pressure.

Features:

- Double membrane designed to resist weather effects, and provide a constant gas outlet pressure
- PVC-coated polyester fabric membrane with UV-stabilised construction for economical, easy to install and maintenance free operation
- Suitable for concrete or steel tanks, and as a direct replacement for floating concrete digester rooves
- Complete installation available including blower, gas inlet/outlet, pressure relief valves and sensors
- Suitable for heavy winds/ snow loads and inner support structure prevents membrane immersion in substrate
- Suitable for tank diameters up to 40m, volumes ranging from 50 m³ to 30,000 m³
- Operating pressures from 0-5 mbar with under-pressure up to -1.5 mbar
- Available with desulphurisation netting system
- Made in Germany



Tank Mounted Storage



Concrete Mounted Storage



Tank Mounted Storage



Concrete Mounted Storage

Emissions Cover

Odour Reduction



Concrete tank-mounted



Steel tank mounted



Ideal for capturing and treating offensive odours

Odour Emissions Cover

Odour reduction emission covers are an effective and simple way to keep your substrate and digestate tanks from releasing bad odours and hazardous emissions. They are durable, simple to set up and include access points for maintenance activities.

Features:

- Limit odour and release of hazardous emissions
- Available in a variety of sizes to suit all tank types (concrete, steel, plastic)
- Quick and easy to install
- Optional inclusion of openings and access points to access internal equipment and allow delivery of substrate into tank
- Available gas-tight and non gas-tight
- Made in Germany

Tanks

Bolted Steel



Biogas applications or liquid storage



Available with platforms and ladders



Flanges, access-ways and other custom fittings available

Bolted Steel Tanks

When large storage volumes with high durability is important, you can't look past bolted steel tanks. We supply from a range of European tank suppliers in sizes up to 5,000 m³, so you know there is a solution available to suit your requirements. Tanks can be supplied in stainless steel 304 and 316, glass fused, galvanised, and painted steel panels. These tanks can be completely built on the ground minimising the need for working at heights and crane operations.

Features:

- Volumes sizes from 30 - 5,000m³
- Available in 304 or 316 stainless steel, galvanised, painted steel, or glass fused coating
- Easy to transport
- Versatile range of uses:
 - Biogas applications
 - Wastewater treatment
 - Chemical / processing plants
 - Potable water storage
- Unique design allows tank to build completely at ground level minimising crane usage and working at heights
- Fast installation timeframes
- Optional accessories:
 - Ladders and platforms
 - Insulation and cladding
 - Viewing windows, manholes and fittings

Tanks

Bolted Steel Tank Size (Volume in m³)

Type			1	2	3	4	5	6	7	8
	cyl. height (m)		1.50	3.00	4.50	6.00	7.50	9.00	10.50	12.00
	∅ (m)	area (m ²)								
04	3.71	11		32	49	65	81	97	114	130
05	4.63	17		51	76	101	126	152	177	202
06	5.56	24	36	73	109	146	182	219	255	291
07	6.48	33	49	99	148	198	247	297	346	396
08	7.41	43	65	129	194	259	323	388	453	517
09	8.34	55	82	164	246	328	410	492	574	656
10	9.26	67	101	202	303	404	505	606	707	808
11	10.19	82	122	245	367	489	612	734	856	979
12	11.12	97	146	291	437	583	728	874	1020	1165
13	12.04	114	171	342	512	683	854	1025	1195	
14	12.97	132	198	396	595	793	991	1189	1387	
15	13.89	152	227	455	682	909	1136	1364		
16	14.82	173	259	517	776	1035	1294	1552		
17	15.75	195	292	584	877	1169	1461	1753		
18	16.67	218	327	655	982	1310	1637	1964		
19	17.60	243	365	730	1095	1460	1825	2190		
20	18.53	270	405	809	1214	1618	2023	2427		
21	19.45	297	446	891	1337	1783	2228			
22	20.38	326	489	979	1468	1957	2447			
23	21.30	356	534	1069	1603	2138	2672			
24	22.23	388	582	1164	1747	2329	2911			
25	23.16	421	632	1264	1896	2528	3160			
26	24.08	456	683	1366	2049	2732	3416			
27	25.01	491	737	1474	2211	2948	3684			
28	25.94	528	793	1585	2378	3171	3964			
29	26.86	567	850	1700	2550	3400	4250			
30	27.79	606	910	1820	2729	3639	4549			
31	28.71	648	971	1942	2913	3884	4855			
32	29.64	690	1035	2070	3105	4140	5175			
33	30.57	734	1101	2202	3303	4404				
34	31.48	779	1167	2335	3502	4670				

Installation services available, contact Finn Biogas staff for more information.

Pilot Plants

Lab / Demonstration Scale



Site-specific waste volume quantification



Site-specific, waste-specific pilot plant design



Waste-specific biogas production estimates

Pilot Plants

Many customers require a demonstration scale pilot plant before an investment decision is made, and some customers require lab scale pilot plants to better analyse biogas processes.

Pilot plants enable the customer to narrow down assumptions and determine with more accuracy how the large scale industrial biogas plant will function and operate. They can analyse the quantity of biogas produced with a variety of feedstocks and alter the feedstocks to quantify the impacts on biogas production.

Finn Biogas has designed, installed and operated demonstration scale pilot plants and is able to work with customers to design and/or supply pilot plants.

Features:

- Useful for demonstration of operations, or collection of design data prior to full-scale implementation
- Accurate and scientific data collection
- A multitude of options available to suit each specific project requirement
- Pre-built or containerised or built in-situ on site
- Waste auditing service available

Other Services

Design, Procurement, Construction and Commissioning

Design and Procurement

At the core of any good anaerobic digestion facility is good engineering. Our team is focused on designing and building plants that meet all relevant Australian Standards, while producing maximum return on investment. For some this may mean maximum gas production and utilisation, while for others this may mean reducing operating expenditure, and dependence on external sources of energy.

We design entire anaerobic digestion facilities from process conceptualisation right through to technical specifications and equipment selection, construction drawings, and operation and maintenance plans. Being acutely aware of our clients' needs, we can incorporate future expansion plans, provisions for shut-down and maintenance, and optimal use of capital and operating expenditure.

Construction and Commissioning

During the construction and commissioning of your plant, our team will be on hand to answer any queries you may have, as well as manage suppliers and contractors to ensure a quality, to-specification build takes place. Our intimate knowledge of specialised equipment, design and digestion processes allows us to have a very good handle on the underlying process engineering of the plant, and be able to resolve issues quickly and correctly.

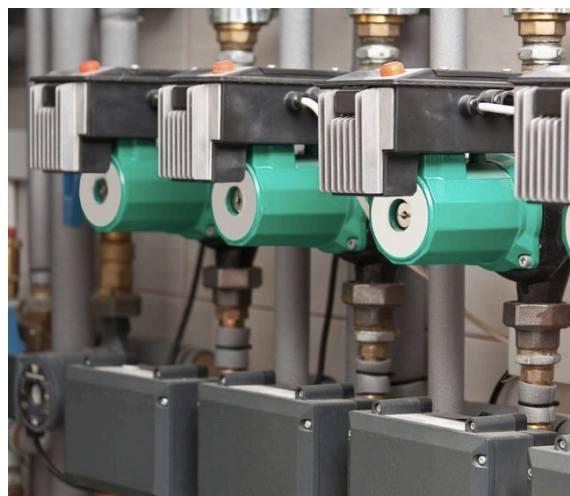
Building on our strong relationships with suppliers and regulators, our team is well versed in delivering waste-to-energy projects on time and in budget, and will be with the project through construction, commissioning, seeding and start-up as well as handover.



Biogas-specific engineering design services




Biogas-specific construction management





Biogas-specific commissioning services

Making waste **work.**



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