



**CENERGY**<sup>®</sup>  
Advanced Clean Energy Technologies



CHP Modules | 64 kW/h up to 3,000 kW/h

**Cogeneration – Energy with Added Value**

**2G Innovative Technologies**

Renewable Energy Production for a Wide  
Range of Biogas and Specialty Gaseous Fuels



# BEST IN CLASS BIOGAS TECHNOLOGIES

## COGENERATION MODULES WITH A HIGHER DEGREE OF EXCELLENCE

### 2G® Biogas and Specialty Gaseous Fuel CHP

Designed, developed, and manufactured for reliable energy conversion.



### Genuine “Plug & Play” All-In-One Modules

Connection-ready systems and adequate technology with unmatched functionality.



### High Flexibility with Maximum Efficiency

The most advanced Biogas & Specialty Gas Cogeneration Technology available.



## A New Generation of Renewable Energy Generation Technology

Our advanced 2G® Biogas energy conversion technology utilizes a variety of biogases derived from the fermentation process (anaerobic digestion) in natural biodegradable materials (wet or dry digestion), from the bacterial decomposition process of organic material contained in landfills (LFG), or from the fermentation and incineration process of sewage sludge at waste water treatment plants, to generate electricity and heat. A fuel that is efficient and providing many economic benefits.

2G® Biogas CHP cogeneration modules are specifically developed for a wide variety of biogas and specialty gaseous fuel applications. A compact modular CHP design with integrated controls and switchgear, thermal energy distribution system, and advanced enclosure options.

2G® Biogas CHP systems are composed of advanced and optimized biogas engines, components, and materials skillfully incorporated into one connection-ready cogeneration module to be more efficient, stronger and longer-lasting than ordinary and conventional CHP designs. We created the next generation of energy efficient CHP modules for the biogas and specialty gaseous fuel industry. Manufacturing biogas CHP systems requires more know-how than just packaging a standard gas engine.

#### ❑ Ag Biogas

Agricultural & Dairy Farm Biogas Applications

#### ❑ W2E Biogas

Waste Management & Municipal Biogas Projects

#### ❑ WWTP Biogas

Waste Water Treatment Plant Biogas Applications

#### ❑ LFG Biogas

Landfill Gas to Energy Projects

## Biogas Product Line

2G<sup>®</sup> provides efficient Energy Conversion Technology in various system configurations sized between 64kWh and 3,000kWh. Larger cogeneration modules are available upon special request. We manufacture a diverse product portfolio suitable for a wide range of conditions and uses - from small Biogas CHP's, to large gaseous fuel Energy Conversion Systems for complex applications. Explore our product line to find out how 2G<sup>®</sup> leads the industry with the most innovative and technologically advanced Cogeneration Systems.

Model	Configuration	Electrical Capacity	Thermal Capacity	Frequency	Voltage	BTU/ekW
2G <i>filius</i> <sup>®</sup> 204 BG	Base Module or Container	64kW/h 80kVA	90kW	60Hz 50Hz	480V 400V	9,787
<i>filius</i> <sup>®</sup> 106 BG	Base Module or Container	100kW/h 125kVA	136kW	60Hz 50Hz	480V 400V	9,390
<i>filius</i> <sup>®</sup> 206 BG	Base Module or Container	150kW/h 188kVA	193kW	60Hz 50Hz	480V 400V	9,512
<i>patruus</i> <sup>®</sup> 190 BG	Base Module or Container	190kW/h 237kVA	235kW	60Hz 50Hz	480V 400V	9,341
<i>patruus</i> <sup>®</sup> 250 BG	Base Module or Container	250kW/h 312kVA	322kW	60Hz 50Hz	480V 400V	9,465
<i>patruus</i> <sup>®</sup> 370 BG	Base Module or Container	370kW/h 462kVA	474kW	60Hz 50Hz	480V 400V	9,217
<i>agenitor</i> <sup>®</sup> 206 BG*	Base Module or Container	220kW/h 275kVA	244kW	60Hz 50Hz*	480V 400V	8,858
<i>agenitor</i> <sup>®</sup> 306 BG*	Base Module or Container	250kW/h 312kVA	273kW	60Hz 50Hz*	480V 400V	8,769
<i>agenitor</i> <sup>®</sup> 208 BG*	Base Module or Container	265kW/h 331kVA	295kW	60Hz 50Hz*	480V 400V	9,192
<i>agenitor</i> <sup>®</sup> 212 BG*	Base Module or Container	400kW/h 500kVA	474kW	60Hz 50Hz*	480V 400V	8,874
<i>agenitor</i> <sup>®</sup> 312 BG*	Base Module or Container	450kW/h 562kVA	500kW	60Hz 50Hz*	480V 400V	8,738
<i>twin-pack</i> <sup>®</sup> 500 BG* with <i>agenitor</i> <sup>®</sup>	Container Module	500kW/h 625kVA	546kW	60Hz 50Hz*	480V 400V	8,769
<i>twin-pack</i> <sup>®</sup> 500 BG with <i>patruus</i> <sup>®</sup>	Container Module	500kW/h 625kVA	644kW	60Hz 50Hz	480V 400V	9,465
<i>avus</i> <sup>®</sup> 540 BG	Base Module or Container	540kW/h 675kVA	706kW	60Hz 50Hz	480V 400V	9,171
<i>avus</i> <sup>®</sup> 600 BG	Base Module or Container	600kW/h 750kVA	642kW	60Hz 50Hz	480V 400V	8,456
<i>avus</i> <sup>®</sup> 800 BG	Base Module or Container	800kW/h 1000kVA	841kW	60Hz 50Hz	480V 400V	8,384
<i>avus</i> <sup>®</sup> 1059 BG	Base Module or Container	1059kW/h 1324kVA	1274kW	60Hz 50Hz	480V 400V	8,747
<i>avus</i> <sup>®</sup> 1200 BG	Base Module or Container	1200kW/h 1500kVA	1225kW	60Hz 50Hz	480V 400V	8,273
<i>avus</i> <sup>®</sup> 1426 BG	Base Module or Container	1426kW/h 1782kVA	1533kW	60Hz 50Hz	480V 400V	8,453
<i>avus</i> <sup>®</sup> 1550 BG	Base Module or Container	1550kW/h 1938kVA	1801kW	60Hz 50Hz	480V 400V	8,292
<i>avus</i> <sup>®</sup> 2000 BG	Base Module or Container	2000kW/h 2500kVA	2289kW	60Hz 50Hz	480V 400V	8,216

\**agenitor*<sup>®</sup> in 60Hz/1800rpm/480V configuration only available upon special request and prior approval.



**filiUS**<sup>®</sup> - series



**patruus** - series



**agenitor**<sup>®</sup> - series



**avus**<sup>®</sup> - series

# BEST IN CLASS BIOGAS TECHNOLOGIES

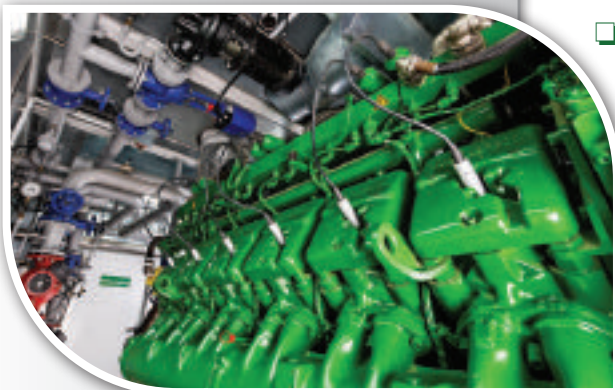
## COGENERATION MODULES WITH A HIGHER DEGREE OF EXCELLENCE

### Comprehensive Standard Scope of Supply

- Advanced & Solid Frame Structure
- High Efficiency Biogas Baseload Engine
- Extra Large Oil Capacity Sump
- Auto Makeup Lubrication System
- Double-Bearing Synchronous Generator
- Biogas Blower / Compressor w. Sensors
- Gas Train & Biogas Fuel System
- Advanced Two-Stage Fuel/Air Mixer
- Micro Process Digital Electronic Ignition
- Heat Value Fluctuation Detection
- Multi Level Heat Extraction System
- Thermal Circulation System with Pumps
- Thermo Hydronic System w. Exp. Tank
- Heat Exchanger (Jacket & Exhaust)
- Exhaust System / Silencer
- Ultra Low Emissions Capability
- Thermal Heat Extraction & Pumps
- Super Silent Advanced Cooling System
- General Digital Control System
- Utility Grade Switchgear
- Protection Devices & Relays
- Electronically operated Circuit Breaker
- On-Line Remote Control & Monitoring
- Comprehensive Factory Testing
- Manufactured, tested, and certified in Accordance with CSA, UL, NEMA, IEEE, and all applicable US Standards

### Driven By Excellence

Patented Technology, Best in Class Service



### Advanced Technology “Best in Class”

The overall design of 2G<sup>®</sup> CHP modules, with its trademark compact structure, is developed to convert biogas more efficiently into usable energy, much more reliable than other so-called biogas gensets or expensive and uneconomical ultra-low-efficient micro turbines. 2G<sup>®</sup>'s unique design allows it to generate higher revenues for the owner & operator, at the same time providing much higher reliability than other CHP systems of its size. 2G<sup>®</sup> cogeneration modules and its smart system controls are acknowledged as the most advanced in the industry - best designed and fully optimized for efficiency and above all, long-term durability.

Our biogas CHP systems can easily be integrated into any type of biogas plant. As leading manufacturer of CHP cogeneration power modules 2G<sup>®</sup> is a trusted equipment provider for most biogas plant specialists all over the world. We are working closely with many specialized bio energy developers, as well as with a wide variety of turnkey plant suppliers who are specialized in biogas plant design and construction.



#### ❑ Designed and made for Biogas

Reliable – Tens of Millions of documented Run & Operating Hours  
...and counting

#### ❑ Detecting Energy Densities and Heat Value

Automatically adjusts to changing Energy Densities

#### ❑ Ultra-Low Emissions Capability

Up to 90% lower Emissions can be reached

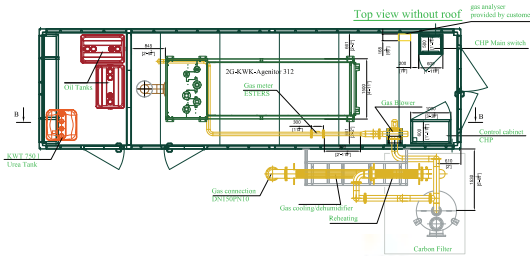
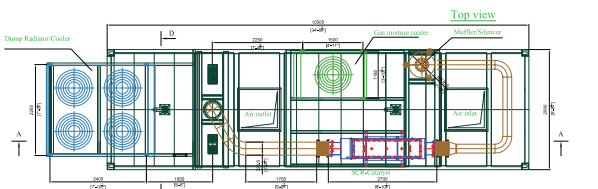
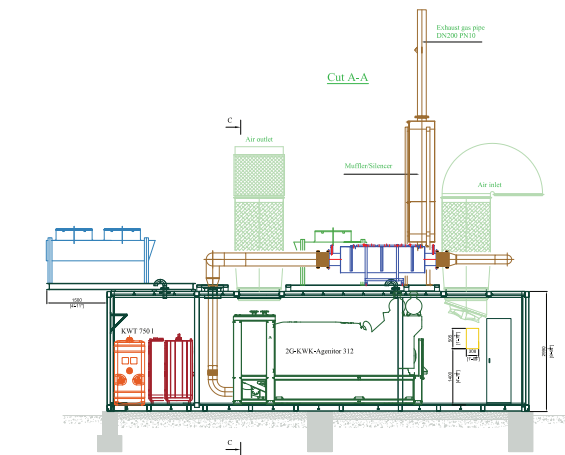
The profitability of biogas plants is directly related to the CHP energy conversion system installed. If the biogas cogeneration system isn't performing well, or is inefficient and consumes too much fuel, even the best anaerobic digester would not achieve the ROI it could provide with the most adequate CHP technology applied.

## A Genuine “Plug & Play” Biogas CHP Solution

2G® advanced Container Modules are designed for easy operation, to minimize floor space, and to contain the entire CHP cogeneration plant in one unit “all-in-one”. Due to a compact layout with integrated control-and switchgear equipment, as well as a ventilated noise protection enclosure, these modules can be placed anywhere, even in residential areas. A smart and economical alternative to traditional inside installations; highly efficient and much more cost-effective.

### Your Benefits

- Reduced Cost and decreased Lead Time
- Reliability & Proven Top Performance
- All-In-One & Factory Tested
- Less technical Risk and more economical
- Versatile, flexible, and scalable
- Unrestrained Mobility



### Containerized modular Systems from 2G® are guaranteed less expensive than a traditional Inside Building Installation

Containerized CHP modules provide many advantages. All heat exchanger and heat recovery systems are fully integrated. Heat circulation piping and distribution are an integral part of our containerized solutions. Insulated piping, pre-plumbing, all connection-ready.

The floor plan allows for easy access to all system components, comfortable movement, and efficient service & maintenance. 2G® modules are especially built and designed for purpose, not just modified shipping containers. Standard connections and terminations are used throughout to minimize the installation and connection effort. All units are designed for extreme fast integration and very easy operation. Installation time is typically 2 days.

A genuine walk-in container module and very convenient for service personnel. Multiple access doors, and unobstructed movement inside. Designed to perfection, with attention to detail, unmatched by any alternative.

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## COGENERATION MODULES WITH A HIGHER DEGREE OF EXCELLENCE

### 2G<sup>®</sup> Biogas CHP Technology The best Solution available

Skillfully incorporated into one Connection-ready Cogeneration Module.



### Advanced Architecture Quality you can trust

Multi-Module Operation, fully synchronized and optimized for maximum Efficiency.



### Unique Features & The Most Intelligent Control System

Fully integrated Controls with proprietary and innovative Electronic Management.



## A New Generation of Renewable Energy Generation Technology

We are committed to provide the most advanced, sound and proven cogeneration CHP technologies, as well as professional product support services to all our customers in North-and South America. Unlike biogas genset suppliers who are not really experienced in advanced biogas CHP applications, we are exclusively focusing on reliable, proven and complete cogeneration modules that are professionally engineered and manufactured. We are "The Experts" and CHP is all we do. Our main focus has always been to manufacture complete factory-designed and proven biogas CHP modules. This dedication and approach provides our customers with superior performance, higher reliability, value for money, decreased operating expenses and increased return on investment.

- ❑ **Proven Reciprocating Engine Technology**  
Low RPM compared to extreme high RPM axial or radial Turbines with transonic Velocities and increased Rotation Wear & Tear.
- ❑ **Low Maintenance and Minimal Downtime**  
Reduced O&M, minimized Wear & Tear, and very easy to service.
- ❑ **No Slagging, no Fouling or Plugging**  
No sensitive Turbine Components that are susceptible to uncontrolled precipitation.
- ❑ **50% higher Machine Life Expectancy**  
Longer useful System Life Expectancy resulting in elevated ROI (Return on Investment).
- ❑ **Trusted Excellence & Proven Reliability**  
Thousands of Installations and Tens of Millions of Operating Hours with high Uptime.
- ❑ **40% higher Efficiency & Fuel Economy**  
The most efficient and durable Biogas CHP in its Class, and by far much more efficient compared to ultra-low-efficient Micro Turbines that provide significantly less Efficiency than the Grid.
- ❑ **Unmatched Performance Guarantee**  
A superior System designed to perform.

### Extensive Product Support & Customer Care

A multi-level service program designed to keep customer equipment and plants operating at peak performance. Product support is critical and 2G®'s comprehensive after-sales services are designed to protect the owner's investment during both in-warranty and post-warranty periods. Whenever assistance is required, 2G® offers experienced technicians, parts support, and flexible service options designed to meet our customer's specific needs.

### Customized Service Support

2G® offers a menu of service levels, as well as a modular maintenance program that can be adapted and tailored to individual customer requirements. This includes preventive maintenance and 24/7 system monitoring. Service engineers can remotely diagnose possible problems, make on-line adjustments, and if necessary dispatch a qualified technician who is located closest to the customer.

### Thousands of 2G® CHP's operating

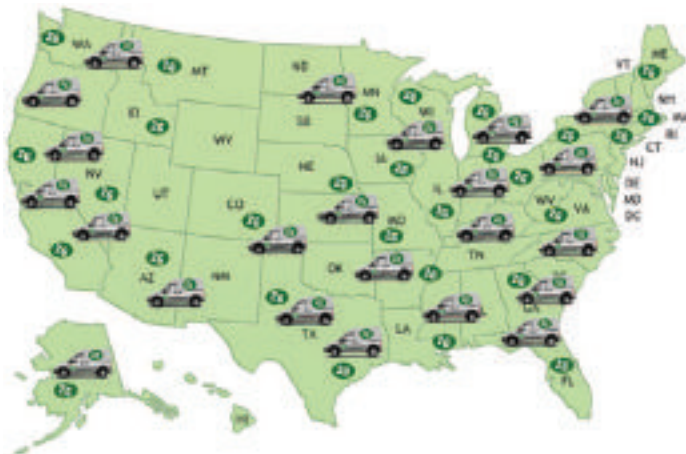
Thousands of satisfied customers appreciate the reliability and high efficiency of 2G® cogeneration modules.

### Service Contracts and Extended Warranty

Various service contract options, extended warranties, and tailor-made maintenance agreements are available.

### Parts & Components

A comprehensive central parts warehouse located at 2G®'s U.S. factory in Florida guarantees high level parts availability. Regional service partners throughout the U.S. also carry spare parts. A comprehensive service network, with factory-trained and 2G certified technicians is available 24/7.



### 24/7 Monitoring & On-Line Diagnostics

Web-based State-of-the-Art Monitoring and Control Technology.



### Top Quality Product Support and High System Availability

2G® Service Engineers and Highly Qualified Field Service Technicians 24/7 on Duty.



### Customized Service Options and Operator Training

Whatever your Service Needs, 2G® has a Solution to maintain your Productivity.





**CENERGY®**

Advanced Clean Energy Technologies



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