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WHAT IS A BIOGAS DIGESTER?

Biogas. (n) gas generated from anaerobic fermentation of organic matter: combustible methane (CH₄), inert carbon dioxide (CO₂) and corrosive hydrogen sulfide (H₂S).

Digester. (n) sealed tanks heated by solar hot water to host biogas and fertilizer generation.

WHY BIOGAS?

• STORED SOLAR ENERGY

There is no other renewable energy approach that can simply and economically produce a storable fuel gas.

• TRANSITION

Biogas digesters are an effective way to reconnect with a current solar economy, as opposed to an economy solely fueled by fossil fuels.

• EFFICIENCY

Money, time, and energy are already being spent to treat organic material, why not extract value in the process?

• OPPORTUNITY

Small-scale biogas digesters are a relatively under-developed sector for small farms, individual households, integrated communities, and many agricultural applications.

HOW DOES IT WORK FOR YOU?

The feedstock is mixed/shredded with water to a slurry and added to the digester on a regular basis (automation features are available). Methane-containing gas and high-grade liquid fertilizer are produced continuously once the bacteria culture has been established. The gas is scrubbed free of H₂S and then can be used for:

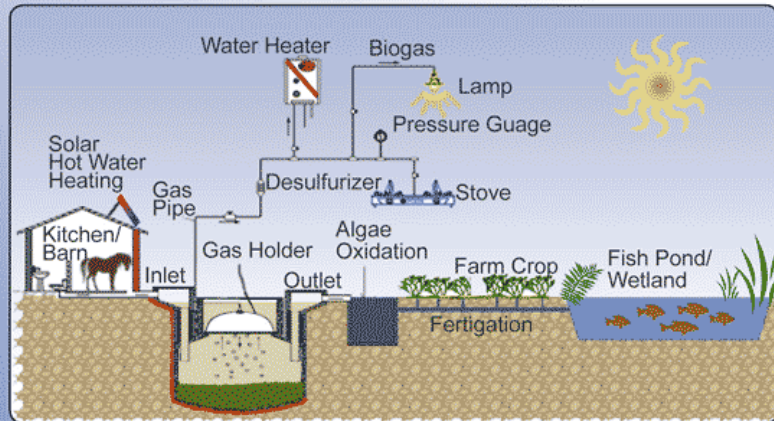
- cooking
- heating
- lighting
- running an internal combustion engine
- refrigeration

The 1m³ domestic models are made from plastic tanks and delivered ready for use. The

larger digesters are cast underground with concrete using a steel mold. The fixed-dome gasholder fits within the cast digester and provides hydraulic gas pressure that can be piped for up to a kilometer.

DIGESTER COMPONENTS:

- mixing system
- inlet and outlet
- fermentation stomach
- solar heating system
- gasholder
- H₂S gas clean-up
- related biogas appliances
- irrigation system



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WHICH SIZE IS RIGHT FOR YOU?

- Domestic household (1m³)
- Small farm (3-10m³)
- Integrated community (10-100m³)
- Agro-industrial plant (100-2000m³)

HIGH CALORIE FEEDSTOCKS

Size of Biogas Plant	Daily Feedstock		Approximate Biogas Yield		Energy Value (BTUs)
	Kg	lbs	m ³	ft ³	
0.5 m ³	0.5	1	0.3	11	6600
1m ³	1	2.21	0.6	22	13,200
3m ³	3	7	2	72	43,200
6m ³	6	13	4	144	86,400
8m ³	9	21	5	166	99,600
10m ³	10	20	6	216	129,600
100m ³	100	200	60	2160	1,296,000

TYPES OF FEEDSTOCKS:

- | | |
|----------------------|--------------------------------|
| High Calorie: | Traditional: |
| • Food Scraps | • Manure from any animal |
| • Starches | • Municipal or Domestic Sewage |
| • Sugars | • Leaves |
| • Fats/Oils | • Grass |
| • Over-ripe fruits | • Straw |
| • Tea/coffee leaves | |
| • Flour | |
| • Spoiled grain | |
| • Rhizomes | |
| • Algae | |
| • Water Hyacinth | |



LEGACY OF BIOGAS

Anaerobic bacteria are one of the oldest life-forms on Earth and have been converting organic matter into methane and other gases (biogas) for millions of years. The dwindling natural gas deposits around the Earth are nothing other than byproducts of these life-forms from the era of the dinosaurs. Human-created Biogas Digesters are a long standing legacy of Asian village technology and even go back thousands of years in Assyria.

Living Arts Systems stands on the shoulders of a hundred year's worth of Asian digester development. We provide the developed world an extremely refined scaleable, and accessible small scale digester. The process is simple and old, the application is cutting edge and new.



(The mold to cast 3, 6, 8, and 10 cubic meter digesters)

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LIVING ARTS SYSTEMS

BIOGAS DIGESTERS

Harnessing
 Nature's
 Ancient Process
 for
 Food and Energy

"...the most valuable of all arts will be the art of deriving a comfortable subsistence from the smallest area of soil."
 —Abraham Lincoln, 1859