(B)energy Products

(B)pack, the mobile biogas backpack

Function

The (B)pack is a low tech biogas container to store and transport biogas. Its purpose is to facilitate the sale of biogas. The (B)pack is filled with biogas through pressure equalisation with any biogas digester. For cooking, the (B)pack is connected to a biogas stove via flexible hose. For safety reasons, the (B)pack should always be stored outside the house. If protected from UV light and sharp items, the (B)pack material will last for up to 10 years.

Components

- gas storage bag of 1000 L
- 2 carrying straps
- a ball valve with nipple for hose connection

Advantages

Compared to gas cylinders or piping systems:

- low tech, no additional equipment or electricity required
- easy to understand and safe (TÜV tested)
- pressure created by external weight
- available in different sizes
- gas sale by unit, easy pricing
- affordable

Technical Data

- light weight: less than 4 kg (full) for (B)pack
- expected cooking hours: 2-4h with 1m³
- external pressure resistance: 30.000 daN
- internal pressure resistance: 0.5 bar

- **Alternative storage bags: (B)mini, (B)storage 2, (B)storage 5**
- **capacities: 0.5 m³, 2 m³, 5m³**

(B)plant, the flexible biogas digester

Function

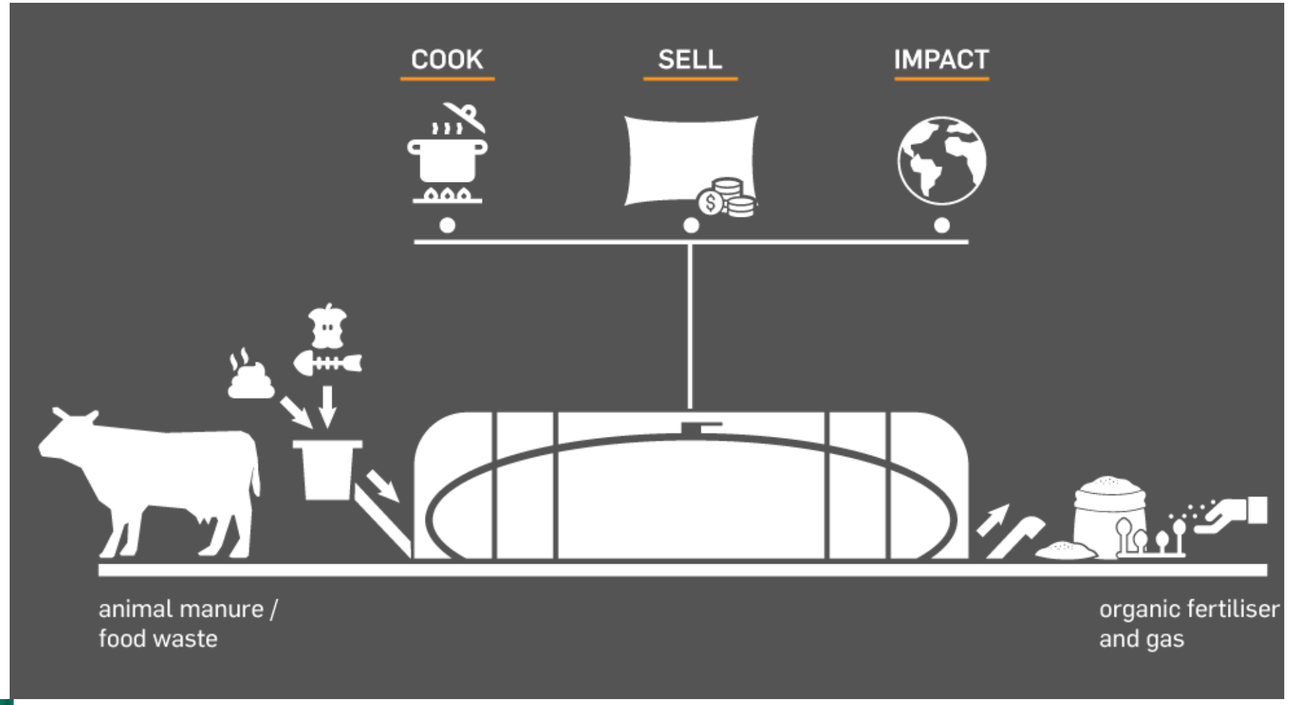
The (B)plant is a low tech plug flow system for the production of biogas as cooking fuel. It consists of a flexible bag connected to an inlet drum, an overflow outlet pipe for slurry, and a gas pipe, and is placed inside a greenhouse for protection and solar heating. Biogas is naturally produced by bacteria under anaerobic conditions. The produced gas flows to the (B)pack, the storage and transport bag for biogas, from where it is used to supply biogas appliances, like stoves.

Components

The product consists of a digester bag, the greenhouse material and some basic fittings. Pipe, hoses and other material are usually purchased locally.

Advantages

- movable, no permanently fixed parts
- high efficiency due to solar heating
- any organic input incl. organic waste and animal manure
- easily scalable

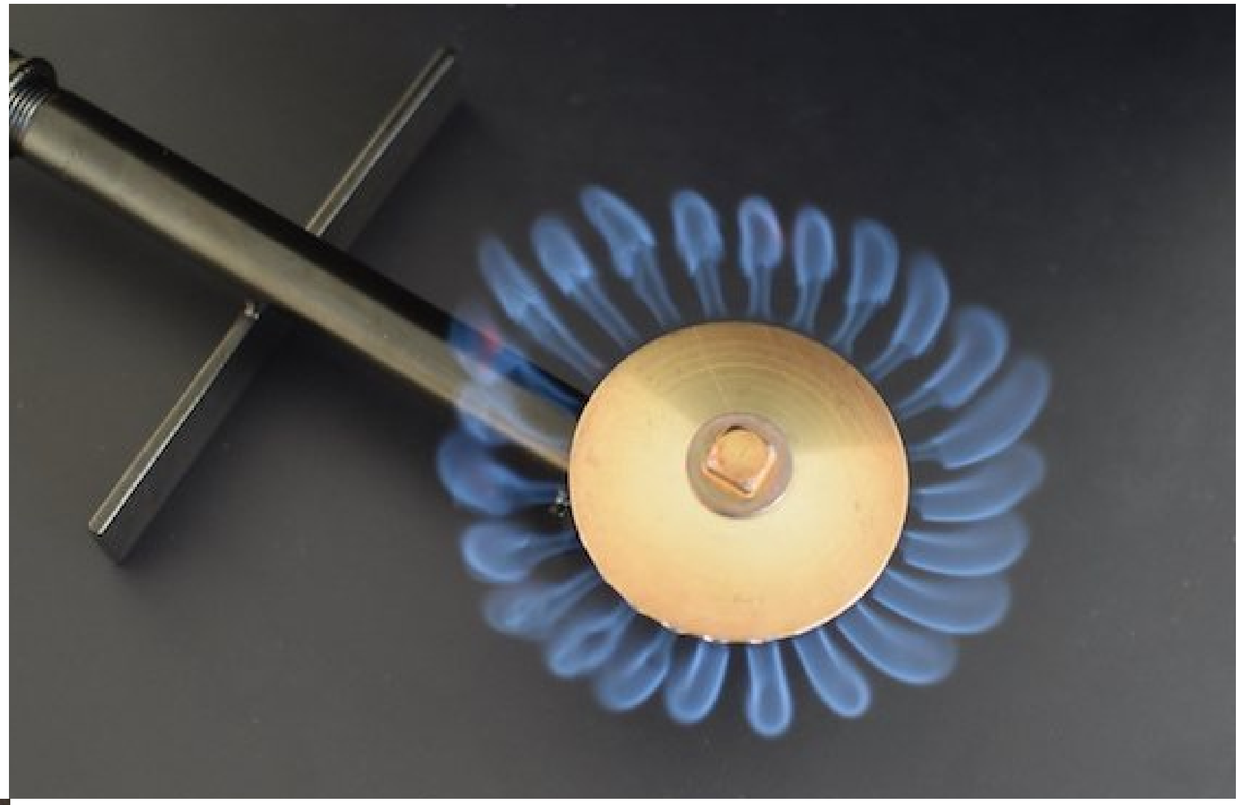


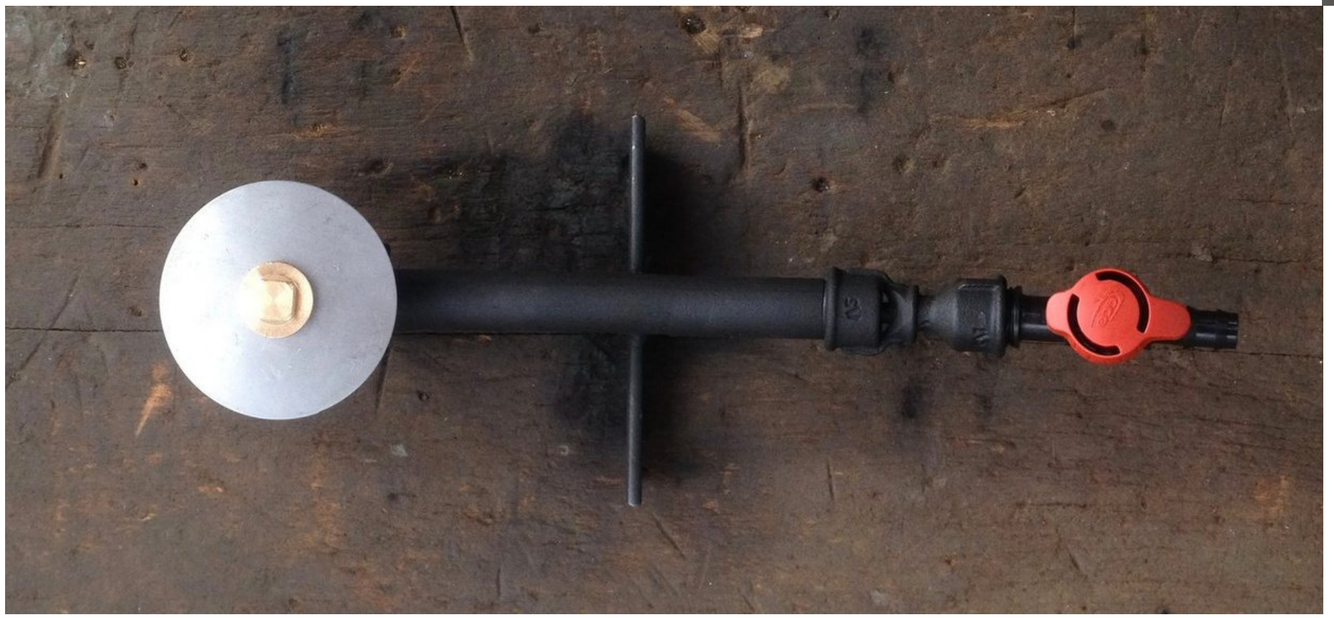
- reliable operation also after idle time
- one of the most affordable on the market
- easy to install and run
- fertilizer and gas production
- liquid input is waste water, no fresh water required

(B)flame, the modular biogas stove

Function

The (B)flame is a special stove for smoke-free cooking with biogas. Due to its simplicity, it is easily understood by users and it can be modified to the individual needs. Thanks to its modular design, it is very flexible in its applications. The burner size can be adapted to different pot sizes and the burner can be used as free-standing burner combined with 3 stones, or more advanced it can be attached to different types of pot frames - for use on the ground or for use on kitchen furniture.





Components

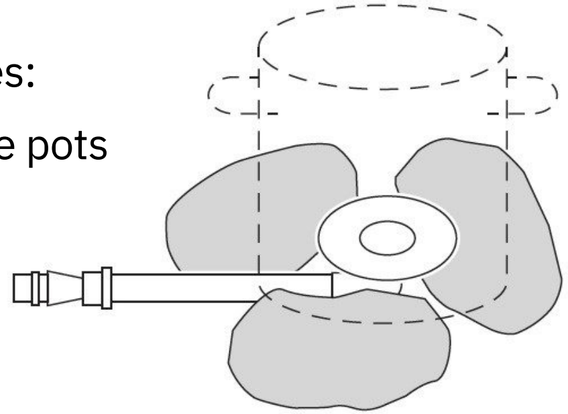
The (B)flame comes as assembly kit of:

- the burner discs: available in small and large format
- the pipes and valves: a stand alone set-up
- steel frame (optional): for easy cooking station

Advantages

Compared to common biogas stoves:

- only one set-up for small and large pots
- use with and without pot frame
- simple spare parts
- local assembly
- local design



Technical Data

- efficiency: 50 - 55%
- consumption: 200 - 600 L biogas/h
- average power: 2.2 kWh
- required min. pressure: < 1 mbar
- very even flame distribution

(B)clean, the filter for raw biogas

Technical specifications

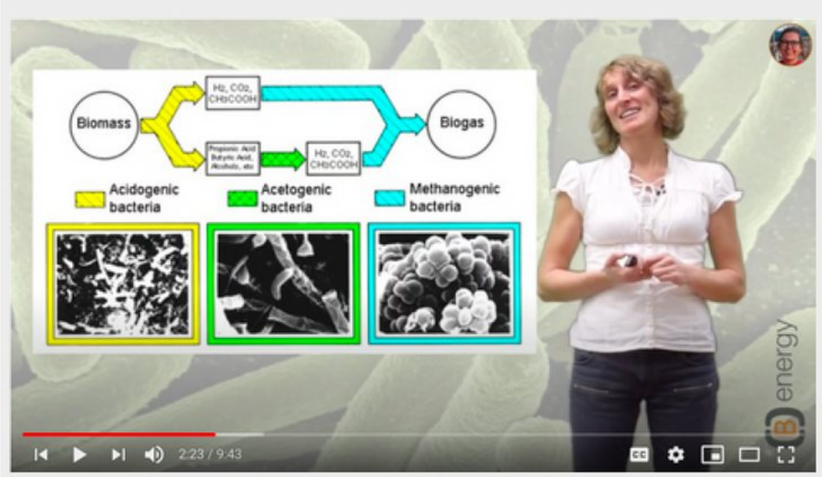
Mass filter material	approx. 330g
maximum biogas volume flow	approx. 12 Liter/min
max. concentration of hydrogen sulphide	approx. 3000ppm
max. absorption capacity of the filter	approx. 300g H2S/kg
Operating temperature	5°C-45°C
maximum operating pressure	500mbar

Advantages

The biogas filter filters out the smelly and unhealthy gas hydrogen sulfite (H2S) from the biogas. The filtered gas contains 0 ppm H2S.

All connecting fittings are included.

(B)trained, e-learning about biogas and business



- **User training**

This course is focused on science, technology and theory of biogas, together with practical application as biogas systems sizing, biogas cooking efficiency and more details of (B)energy biogas products, their operation and use.

- **Installer training**

This course is specifically designed for system installers. It features a detailed installation guide, special installer tool, and the (B)app introduction, which provides information on daily use of (B)energy biogas systems and works as service tool and biogas calculator. The course also covers topics such as operation and maintenance.

- **Distributor training**

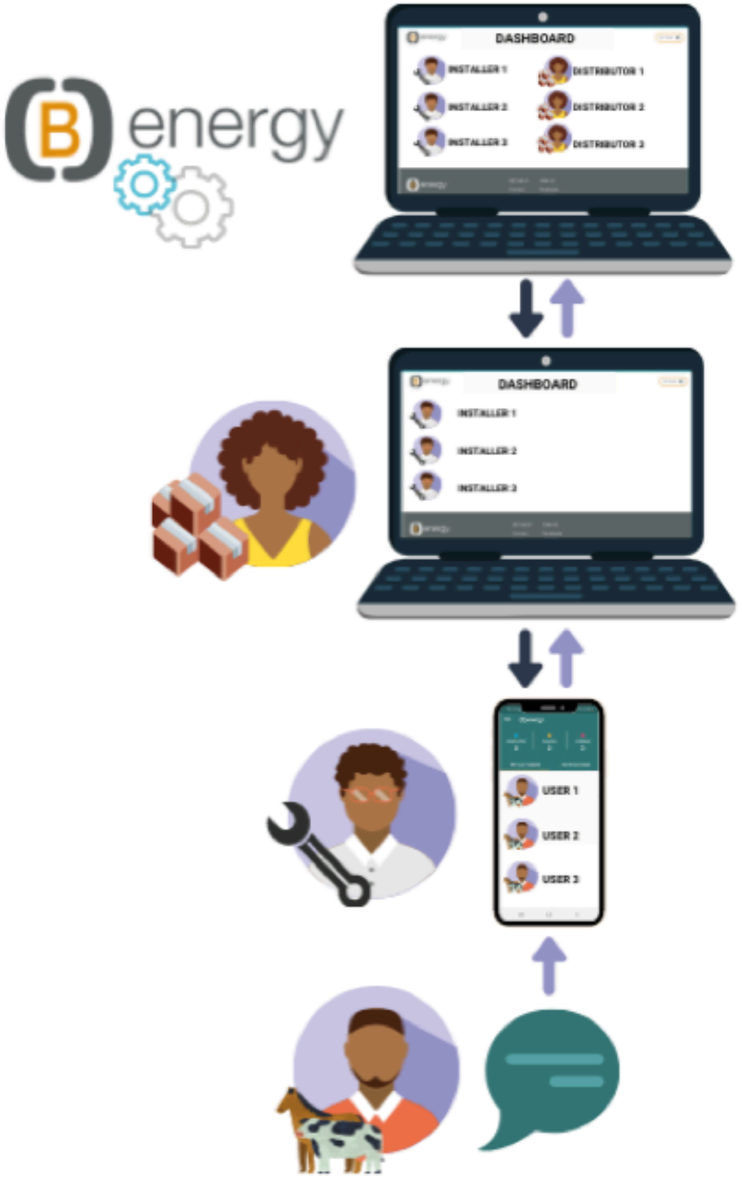
This training includes all aspects of running an aid-free biogas business, in particular on the African energy market. It is package of valuable insider experience of over 13 years of working in the sector.

(B)app, customer communications made easy

(B)app is a mobile application provided to (B)energy itechnicians and customers their It installations. provides professional technical support, training as well asa biogas calculator to estimate cost savings.

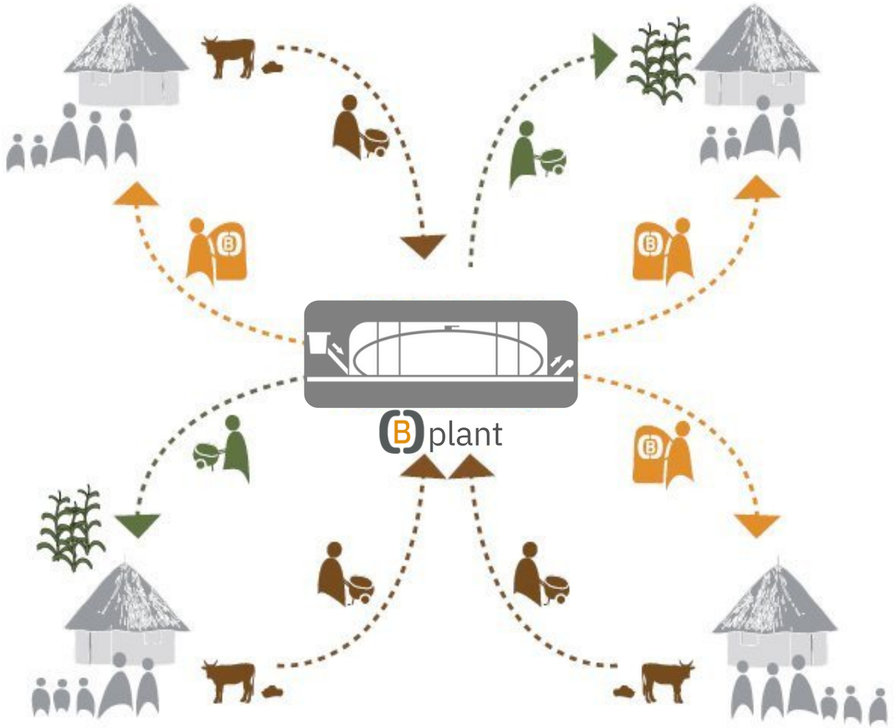
the (B)dashbaord is an onlie based database that gives distributors access to information of installations, allows them to monitor the service quality and guide technicians and customers during their set-up of the installation.

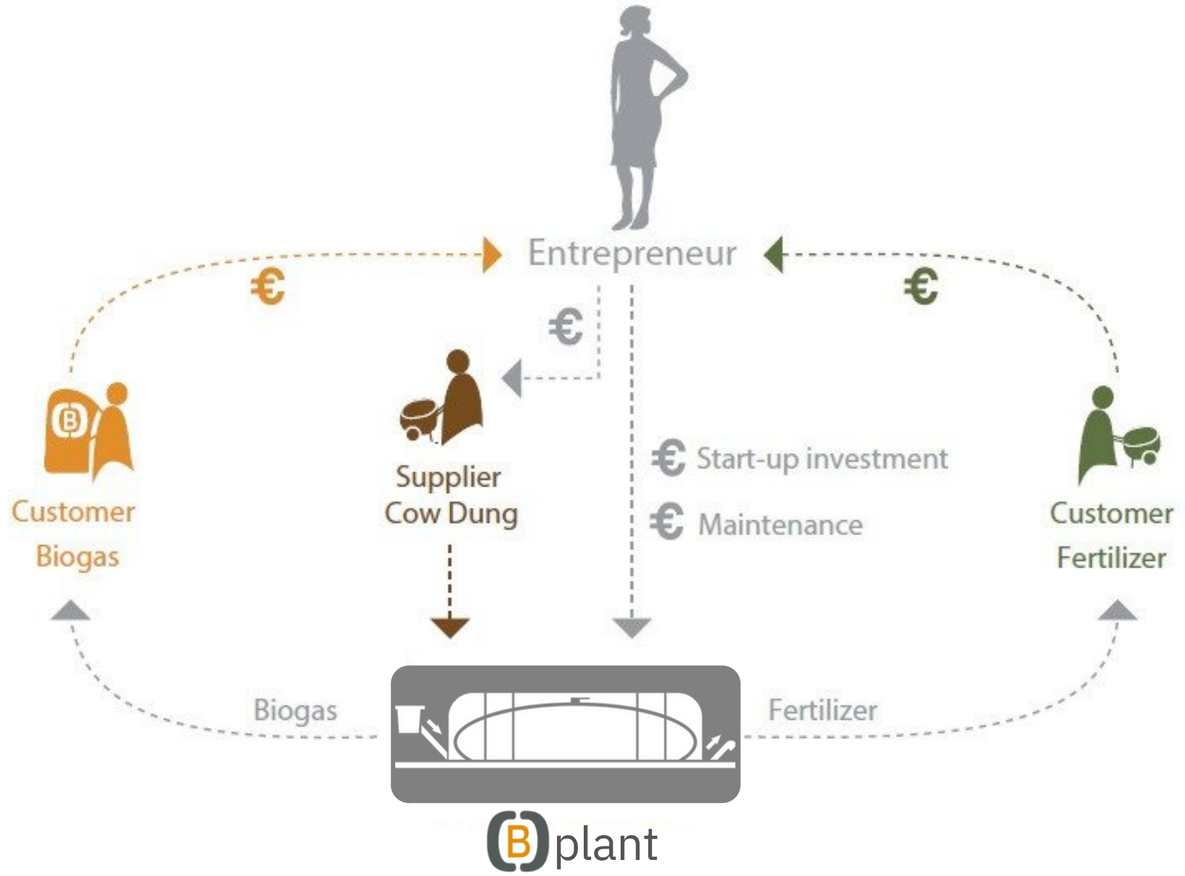
With (B)energy in the background everyone gets all the technical support they need to make their biogas systems a success



The **business models** for our customer

Biogas producers become cooking fuel suppliers for surrounding households. They trade their excess biogas with neighbors and sell bio slurry as valuable fertilizer.





Production and use of **biogas** and **bioslurry**

- use organic waste, animal dung, human feces
- runs on waste water from washing and cleaning, no fresh water needed
- with greenhouse solar irradiation is used to heat up the system during daytime
- gas output from 25 kg cow manure or from 5-10 kg of kitchen waste is 1000L biogas
- daily fertilizer output equals daily input