

# (B)pack

## the mobile biogas backpack

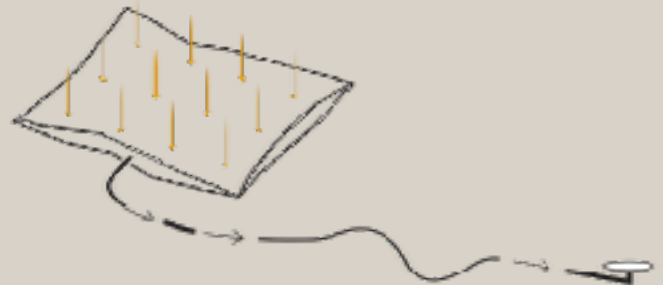


### Function

The (B)pack is a low tech biogas container to store and transport biogas. Its purpose is to facilitate the sale of biogas in countries with poorly developed energy infrastructure. 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 pipe. 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

The (B)pack is equipped with carrying straps that can be adjusted to the size of the person. It comes with a 1/2" threaded flange and a ball valve with a 13 mm hose nipple. A weight is applied to create the gas flow.



### Advantages

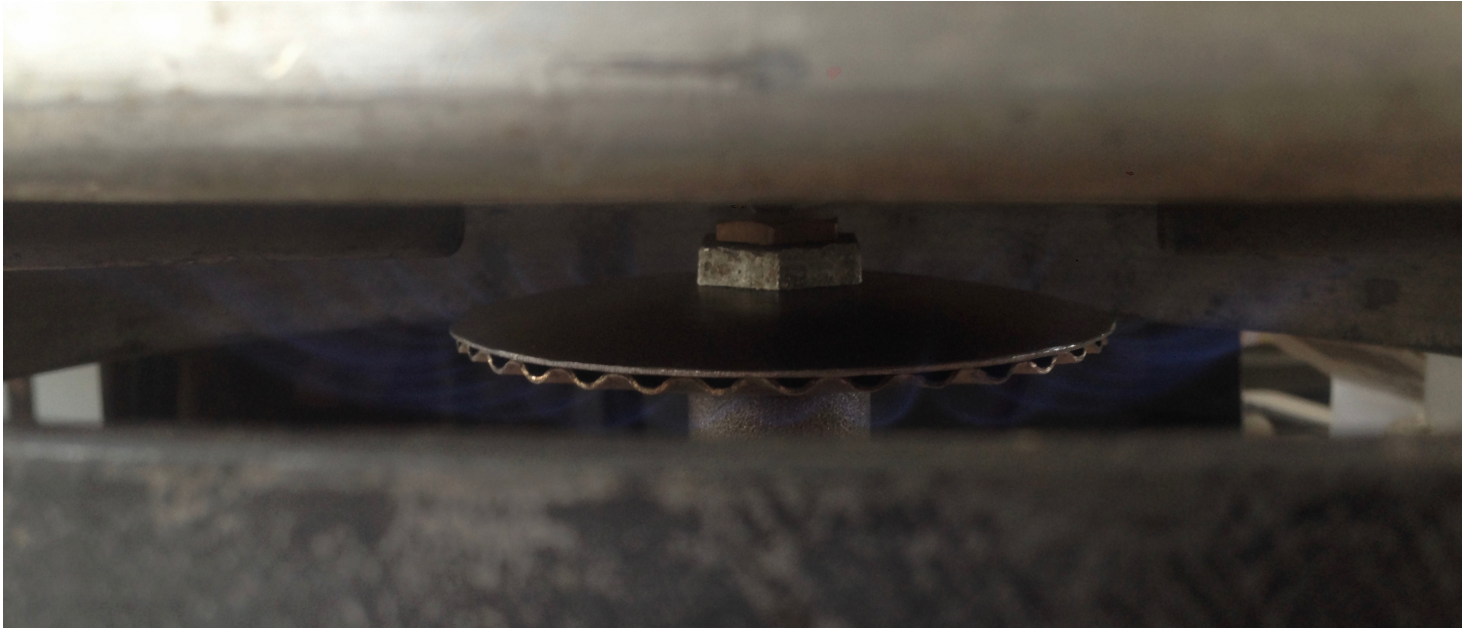
- Compared to gas cylinders or piping systems
- low tech, no additional equipment or electricity required
  - easy to understand and safe (TÜV tested)
  - sale by unit, easy pricing
  - affordable

### Technical Data

- dimension: 1.6 x 2.0 m
- capacity: 1.2 m<sup>3</sup>
- light weight: 4.5 kg
- external pressure resistance: 30.000 daN
- internal pressure resistance: 0.5 bar

# (B)flame

## the modular biogas stove



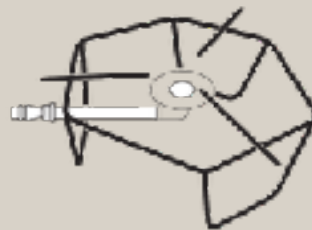
### Function

The (B)flame is a special stove for smoke-free cooking with biogas. Due to its simplicity it is easily understood by users, it can be modified to the individual needs and with 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 rests - for use on the ground or for use on kitchen furniture.

### Components

The (B)flame consists of different modules:

- the burner head: there are 3 different sizes available for small, medium and institutional pots. Also customized burner head sizes are available.
- the free-standing burner pipe: this is the standard module which is the same for all burner sizes. It carries the burner head.



### Advantages

Compared to common biogas stoves

- easy to operate
- only one set-up for small and large pots
- use with and without pot rest
- simple spare parts
- local assembly

### Technical Data (medium burner size)

- efficiency: 53 - 55%
- consumption: 400 L biogas/h
- power: 2.2 kWh
- required min. pressure: < 1 mbar
- very even flame distribution

# (B)plant

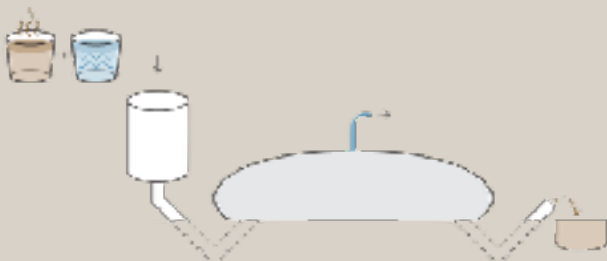
## the flexible biogas digester



### 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 and an overflow outlet pipe as well as 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, a storage and transport bag for biogas, from where it is used to supply biogas appliances like stoves and lamps with biogas.

### 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

Compared to solid tank and underground biogas installations:

- above ground installation, no digging
- movable, no permanently fixed parts
- high efficiency due to solar heating
- any organic input incl. organic waste, human faeces and animal manure
- liquid input is waste water, no fresh water required
- reliable operation also after idle time
- affordable, quick start, easy to move

# Sizes

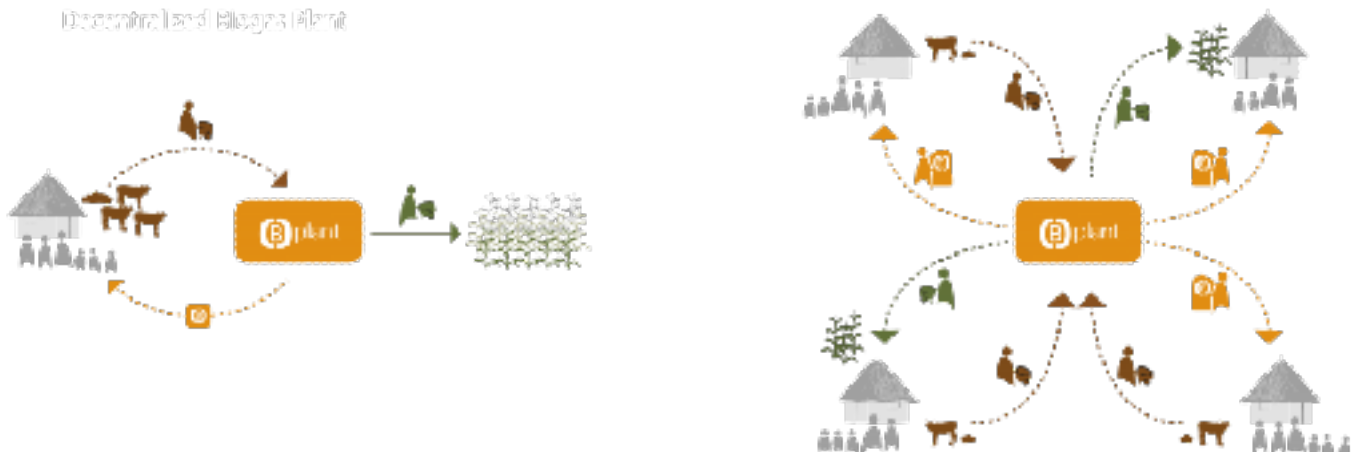
The (B) plant is available in different sizes which determine the substrate capacity and potential gas production of the system. The standard sizes are listed in the table below

	(B)brave	(B)best	(B)clever	
digester dimension [m]	1.5 x 4	1.5 x 6	2 x 6	These are the different sizes of biogas digesters we offer. They can be combined to form bigger systems.
digester volume [m <sup>3</sup> ]	2	3.5	5	This is the amount of active substrate the (B)plant can contain
cows [max]	5	8	10	The (B)plant size depends on how many cattle you own (here we consider average local cows, in stable only at night)
total daily input [L]	60	90	120	At a hydraulic retention time of 30 days you can feed this amount of total input every day
cow dung [L]	30	45	60	Depending on the consistency of the cow dung this is the average amount of cow dung you can add per day
water [L]	30	45	60	The cow dung is mixed with this amount of water to make it flowable
gas potential [m <sup>3</sup> ]	1 – 2	1.5 – 2.5	2 – 3	This is the potential amount of biogas that can be produced from the indicated amount of cow dung per day
number of (B)packs	2	3	4	To provide enough storage capacity for your biogas you should have this number of (B)packs.

# Business Model

(B)energy products allow their users to become independent of traditional fuel for cooking by using organic waste to produce biogas and organic fertilizer. Excess biogas can be stored, sold and transported in the (B)pack and makes the biogas producer a biogas entrepreneur.

Decentralised Biogas Plant



# Contact

For further information please visit our website or contact us.

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# (B)products

## safety

### User Information

(B)products include our core products: (B)pack, (B)plant and (B)flame. These are the components that are exclusively offered by (B)energy and our licensed partners. In order to get save and reliable service from our products there are some basic rules to be followed.

### Safety Information

#### (B)pack - biogas backpack

- keep out of direct sunlight/UV radiation that erodes the plastic
- place only on smooth ground or hang, do not store on sharp items to prevent puncture
- protect from animals and people to avoid damage
- don't store on ground during rainy season, water may collect inside the fabric
- do not take into closed rooms to prevent explosion in case of leakage
- don't use when damaged
- don't inhale biogas
- don't fill with other flammable gases
- don't carry full backpack during strong winds

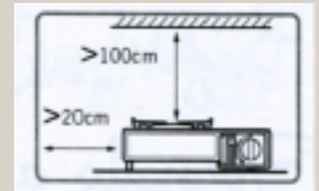
#### (B)plant - biogas digester

- operate biogas system according to user instructions
- protect digester from external impacts, ideally through fencing
- maintain pipes, fittings and ball valves to prevent gas leakage and gas loss
- protect digester bag from direct sunlight by maintaining the greenhouse
- check and control overflow to prevent blockage
- maintain storage capacity for biogas to prevent pressure build-up

#### (B)flame - biogas stove

- check connections and ball valves between gas source and stove to prevent leakage

- do not light a match/lighter the you smell biogas
- open doors and windows to clear the air form biogas
- only use stove for cooking
- place stove on level ground and protect it from wind/draugh
- do not place on flammable material like wood because the stove produces a lot of heat
- only operate in well-ventilated settings
- keep a distance of at least 20 cm to walls and 100 cm to ceilings
- keep out of reach of children
- keep distance to other heat sources like open fire or light
- don't touch stove parts during or after cooking as they will be hot
- keep stove in a dry place



### Appropriate Use

The (B)products are designed for the production, storage, transport and use of biogas. Any other use is not permitted.

### Quality Made in Germany

- gas tight design of (B)pack and (B)plant
- robust material of 3 - 4 layers
- high quality seals and seams
- heavy duty flange connection
- anti rust fittings and ball valves
- UV resistant material
- warranted functionality
- patented technologies
- safety tested by TÜV Germany and ECAE Ethiopia

All our products are manufactured from high quality material and with great care, long-term experience and professional equipment. Please protect them from any external damage so that they can serve you for a long time!