

# Malawi Institutional Metal Rocket Stove



## Type

Institutional Metal Rocket Stove for one pot without chimney

Portable

## Names

Malawi Institutional Metal Rocket Stove.

100L Model: "Malawi-WFP-Stove"

50L Model: "Malawi-UNICEF-Stove"

## Fuel

Fuelwood

## Country of origin / dissemination area

Malawi, launched October 2004.

5000 stoves disseminated by November 2008 within Malawi

Since 2007 these Institutional Metal Rocket Stoves have also been available in Zambia and Tanzania.

## Users

Schools, orphanages, hospitals, company canteens, prisons, and other institutional settings.



## General description

Cooking stoves for all institutional purposes and users. Most frequently produced are two standard sizes; a 50 litre pot (Malawi-UNICEF-Stove) and a 100 litre pot (Malawi-WFP-Stove). Other stove sizes within this range can be produced if required.

## Stove dimensions and characteristics

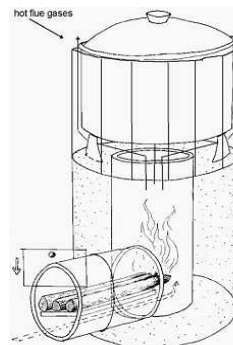
Average stove size for a 100 litre pot:

- Diameter: 65 cm
- Height 80 cm

### *Dimensions of combustion chamber*

Rectangular combustion chamber (opening X by X, height 2.5 X, depth 2X; X depending on pot dimensions)

**Lifespan:** Average is above 3 years.



There is a 'skirt' around the pot. This skirt, and the pot hole, are customised to the outer pot diameter, which is controlled by cooking capacity of the pot.

## Materials used

**Stove body:** Mild steel 1.6mm for body and skirt. Round bar and squared tubes.

**Combustion chamber:** Insulative bricks: white clay with small insulative air holes, high density, high temperature bricks (called furnace/ boiler bricks or firebricks).

## Efficiency

Compared to the three-stone fire, savings of between 60% and 95% of the firewood

have been achieved with the Malawi Institutional Metal Rocket Stove.

### Fuel consumption:

Typically, a 100-litre stove uses 85 g wood to prepare 1 kg *Nsima* (staple cornmeal porridge).

### Production / Supply

The stoves are produced by local enterprises that have welding facilities.

The stoves are produced at the manufacturing works from where the supplier transports them to the customer, or the customer collects them. The stoves need to be fastened firmly to the vehicle when being transported.

Stoves are built on demand to fit the size of the cooking pot. There are two standard sizes that are kept in stock by some producers (100 litres and 50 litres).

Quality control tools, which ensure that all stoves are built to the required dimensions, are used in production. The certification of these quality control tools is done by the Department of Energy in cooperation with GTZ-ProBEC.

The combustion chamber of the stoves is build with special high temperature bricks. There is only one producer making this type of brick within Malawi.

The combined production capacity for all producers in Malawi is at 150 – 200 stoves per month.



**Price:** In Malawi, the average price for a 100 litre stove is around 200 US\$ (2008).

### Strengths and weaknesses

#### Positive

- + Efficient, clean stove
- + Fast cooking
- + Enormous wood savings (up to 95%)
- + Virtually smoke free cooking without a chimney
- + Safe cooking, no more risk of burns
- + Quality product because of quality control mechanism
- + Lifespan > 3 years

#### Negative

- Investment costs
- Production speed of producers cannot always cope with market demand
- For some users, the weight of the stove prevents them from moving it from where it is stored to where it is used each day
- User training for appropriate stove use and stove acceptance is needed

### Available documents:

- Costs and benefits of efficient institutional cook stoves in Malawi  
<http://www.gtz.de/en/themen/umwelt-infrastruktur/energie/20674.htm>
- User guidelines

### Source of pictures:

Programme for Biomass Energy Conservation (ProBEC), GTZ Malawi Aprovecho Research Centre (drawing)

