MANGLAM®

BIOMASS GASIFIER

Biomass to Energy Solutions !!

An Effective Replacement to Diesel, LPG, CNG, PNG, LDO & FO !!

Save Fuel Cost up to 60%

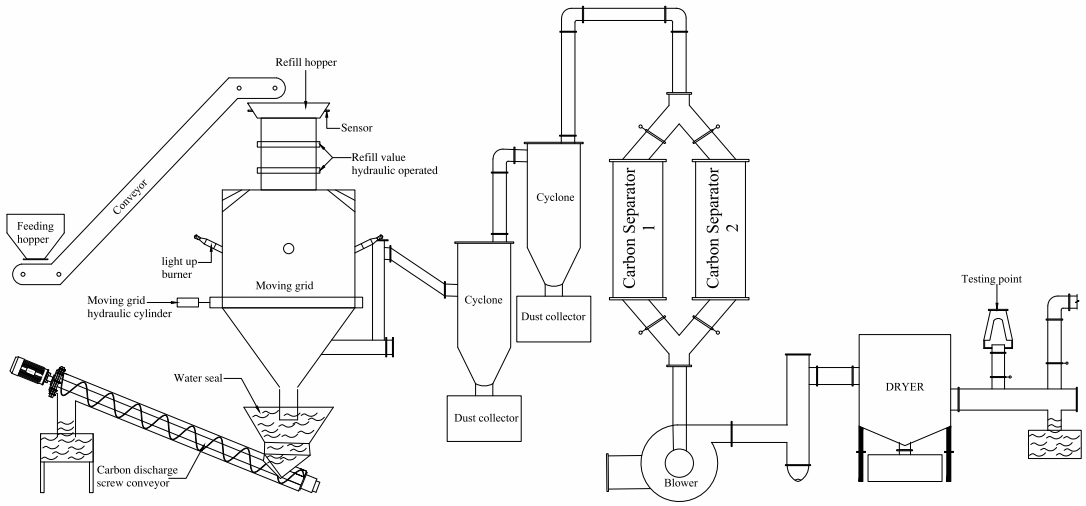
डीजल, एलपीजी एवं अन्य ईंधन की बचत

Profile

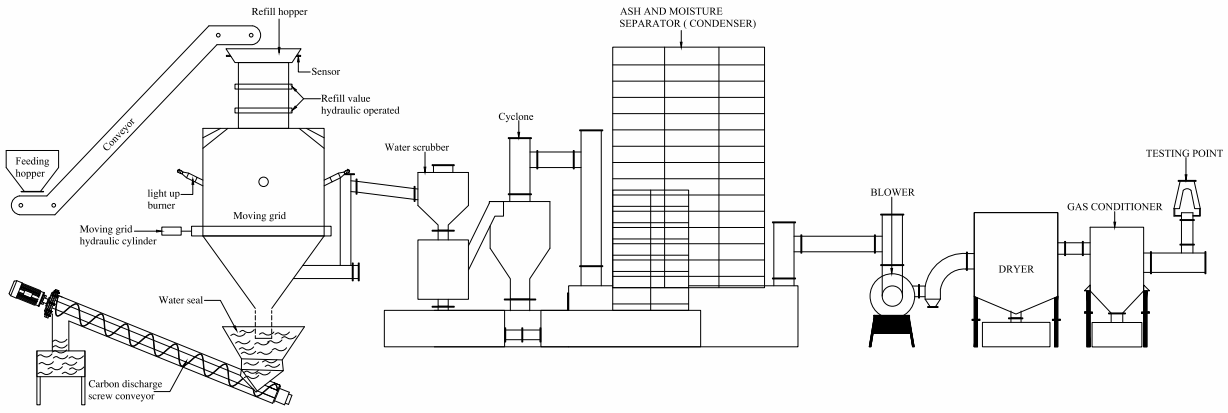
E. B. Mechanism Pvt. Ltd. specializes as the manufacturer and supplier of Biomass Gasifier Systems. The company was incorporated in the year 1992 at Jaipur, Rajasthan, India. Our range of products are designed, developed and manufactured by experienced professionals after in-depth research.

Our company was founded by 'Shevkani Brothers' who hold versatile and specialized knowledge in this discipline. Their entrepreneurial skills and exceptional management have led the company to earn a respectable status and goodwill in the market.

We have installed many Gasifiers in different industries and have our presence in all the states of India and abroad. Our strong emphasis on the Quality and Ethical business policies have helped us in building strong relationships with customers across various sectors.



Schematic Diagram - Dry Mode System



Schematic Diagram - Cold Mode System

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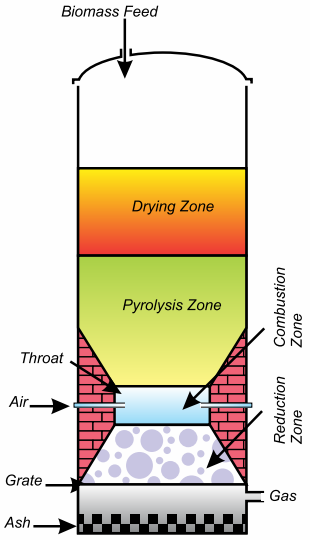
What is Biomass Gasification?



The biomass gasification process basically converts almost all the forms of biomass or solid fuels, such as, agricultural residues, corn-wastes, rice-husks, woods, wood-wastes etc. into a combustible gas mixture which is normally called producer gas. The producer gas is comprised of carbon monoxide, hydrogen, carbon dioxide, methane and nitrogen. This process of conversion is typically used for various biomass materials, and it partially limits the combustion of such biomass during the process. The partial combustion occurs when the intake of air (oxygen) supply is controlled and is less than adequate quantity.

There are four distinct processes take place in a gasifier:

1. Drying of biomass fuel.
2. Pyrolysis.
3. Combustion.
4. Reduction.

Manglam Biomass Gasifier

A complete system for Gasifying Biomass:

- It serves as a simple and reliable solution for bringing down the fuel cost by over 50%.
- It replaces expensive liquid/gaseous fuels like L.D.O./F.O./CNG/LPG/Diesel by low cost solid fuels without any changes in operations, temperature profile, temperature control and cleanliness in the plant area.
- Typically the cost of replacing 1 ltr/kg of liquid/gaseous fuel works out to be Rs 15 to 20, depending on the application and type of fuel used for gasification
- It offers clean combustion; compact burning equipment, high thermal efficiency and a good degree of control just like conventional diesel burner.
- Clean working environment as the Gasifier system is situated away from the load
- Highest overall efficiency
- Payback period 6-8 months
- Reduce oil import
- No emission of smoke from the Gasifier
- Worldwide environment friendly accepted renewable technology

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MBG-150 (15,00,000 kcal/hr)
Kolkata, West Bengal, India

MBG-200 (20,00,000 kcal/hr)
Bikaner, Rajasthan, India

MBG-100 (10,00,000 kcal/hr)
Kenya, Africa

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MBG-30 (3,00,000 kcal/hr)
Bangalore, Karnataka, India

MBG-150 (15,00,000 kcal/hr)
Roorkee, Uttrakhand, India

MBG-80 (8,00,000 kcal/hr)
Vada, Maharashtra, India

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BIOMASS GASIFIER

MBG-100 (10,00,000 kcal/hr)
Raiganj, West Bengal, India

MBG-50 (5,00,000 kcal/hr)
Ahmedabad, Gujarat, India

MBG-60 (6,00,000 kcal/hr)
Hubli, Karantaka, India

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BIOMASS GASIFIER

MBG-200 (20,00,000 kcal/hr)
Dharwad, Karnataka, India

MBG-100 (10,00,000 kcal/hr)
Nepal

MBG-100 (10,00,000 kcal/hr)
Kolkata, West Bengal, India

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BIOMASS GASIFIER

MBG-80 (8,00,000 kcal/hr)
Jodhpur, Rajasthan, India

MBG-100 (10,00,000 kcal/hr)
Dhuliyan, West Bengal, India

MBG-30 (3,00,000 kcal/hr)
Siliguri, West Bengal, India

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BIOMASS GASIFIER

MBG-80 (8,00,000 kcal/hr)
Chennai, Tamilnadu, India

MBG-30 (3,00,000 kcal/hr)
Nagpur, Maharashtra, India

MBG-80 (8,00,000 kcal/hr)
Hyderabad, Telangana, India

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BIOMASS GASIFIER

MBG-100 (10,00,000 kcal/hr)
Gujarat, India

DRY MODE (HOT MODE)

MBG-300 (30,00,000 kcal/hr)
Rajkot, Gujarat, India

DRY MODE (HOT MODE)

MBG-100 (10,00,000 kcal/hr)
Vapi, Gujarat, India

DRY MODE (HOT MODE)

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DSH-10 (1,00,000 kcal/hr)
Ahmedabad, Gujarat, India

Compact Series

DSH-20 (2,00,000 kcal/hr)
Ahmedabad, Gujarat, India

Compact Series

DSH-20 (2,00,000 kcal/hr)
Rajkot, Gujarat, India

Compact Series

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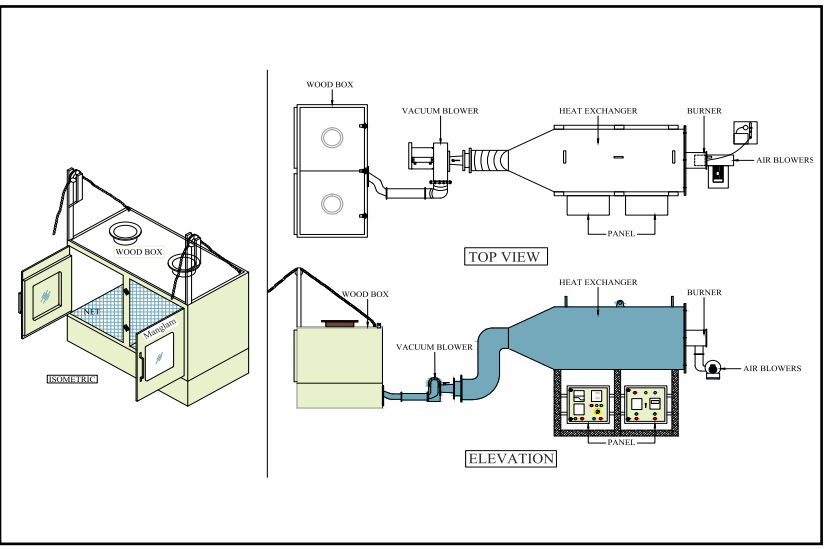

Wood Dryer Layout

Automatic Burner (Monobloc Type)

Dual Fuel Automatic Burner (North American Type)

Savings Analysis :

Depending upon the moisture content available in the wood, one litre of oil can be saved through the use of 3.5 to 4 kg of wood. The economical benefits derived in terms of cutback in the fuel costs can be easily evaluated by comparing the likely prices of biomass materials with an outlay of liquid fuels.

Comparing the calorific values of different fuels vis-a-vis producer gas, the Biomass Gasifier System uses wood to produce producer gas which after cleaning process is just like LPG, and can be used for various industrial applications.

By processing 1 kg of wood into a Biomass Gasifier, it transforms the wood into 2.4 nm^3 of producer gas, which has a calorific value of 1000–1200 kcal/nm^3. In other words, 1 kg of wood yields the calorific value of 2640 kcal after being converted into producer gas.

The calorific values of different fuels are as under:

Fuel Type	kcal/kg or kcal/litre	Producer Gas equivalent (kcal/1100) in kg	Wood Equivalent (kcal/2640) in kg
HSD (Diesel)	9200	8.36	3.48
LPG	11200	10.18	4.24
PNG	9000	8.18	3.40
FO	9300	8.45	3.52

Savings analysis for using producer gas vis-a-vis other fuels.

The Base values that are taken for calculations are as under :

1 kg of wood / briquettes = Rs 5.00/kg

Fuel Type	Rs/kg or Rs/litre	Wood Equivalent in kg	Wood Equivalent in Rs	Savings in Rs/litre or Rs/kg
Diesel	₹ 90	3.48 kg	₹ 17.40	₹ 72.60
LPG	₹ 85	4.24 kg	₹ 21.20	₹ 63.80
PNG	₹ 60	3.40 kg	₹ 17.00	₹ 43.00
FO	₹ 65	3.52 kg	₹ 17.60	₹ 47.40

* The price of fuels is according to India. Please change it according to your country.

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Areas of Application

- **Power Generation**

  The producer gas generated from Manglam Biomass Gasifier can be fed to engine-gensets for producing power and is one of the reliable sources of green energy.

Unit of power	Biomass Consumption (kg)
1 kWh	1.2 - 1.4 kg

- **Thermal Application**

  The versatility of gasification process allows it to be used in a wide range of industrial applications. The industries where the usage of this technology has been successfully adopted are as under:

Bakeries :
- ✓ Rotary oven
- ✓ Swing tray
- ✓ Moving tray
- ✓ Biscuit oven

Fried Foods :
- ✓ Potato chips plant
- ✓ Namkeen fryer
- ✓ Automatic Continuous fryer
- ✓ Bhujia bhatti
- ✓ Big Kitchens

Furnaces :
- ✓ Rotary Continuous Annealing of Steel, Aluminium, etc
- ✓ Batch Annealing Of Steel, Aluminium, etc
- ✓ Pop Rotary Kiln
- ✓ Lube and Grease Refinery Furnace

Drying & Curing Applications :
- ✓ Tea Dryers
- ✓ Coffee Curing
- ✓ Mosquito Coils
- ✓ Paper Drying
- ✓ Wood Drying
- ✓ Fibre Heating Zone

Steam Boilers :
- ✓ Confectionery Industries
- ✓ Pharmaceuticals
- ✓ Textile
- ✓ Chemicals
- ✓ Packaging Industry
- ✓ Food Processing Industries

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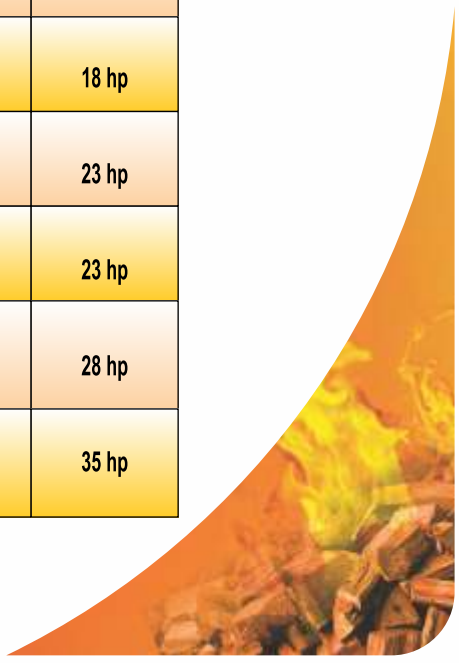
PRODUCT RANGE

(SPECTRUM OF PRODUCT)

Sr. No.	Model	Thermal Output kcal / hr	Fuel Consumption kg / hr	Liquid Fuel Replacement ltr / hr	Space Requirement	Manpower Requirement	Electricity Consumption
1	MBG-10	1,00,000	35 - 40	10	8' x 12'	1	2 hp
2	MBG-20	2,00,000	70 - 80	20	8' x 12'	2	3 hp
3	MBG-30	3,00,000	105 - 120	30	8' x 20'	2	4 hp
4	MBG-40	4,00,000	140 - 160	40	10' x 25'	2	6 hp
5	MBG-50	5,00,000	175 - 200	50	12' x 30'	2	7 hp
6	MBG-60	6,00,000	210 - 240	60	12' x 35'	2	10 hp
7	MBG-70	7,00,000	245 - 280	70	14' x 45'	3	12 hp
8	MBG-80	8,00,000	280 - 320	80	14' x 45'	4	12 hp
9	MBG-90	9,00,000	315 - 360	90	15' x 50'	4	12 hp
10	MBG-100	10,00,000	350 - 400	100	15' x 50'	4	18 hp
11	MBG-120	12,00,000	420-480	120	16' x 55'	4	18 hp
12	MBG-150	15,00,000	525 - 600	150	18' x 55'	4	23 hp
13	MBG-200	20,00,000	700 - 800	200	20' x 60'	4	23 hp
14	MBG-250	25,00,000	875-1000	250	20' x 60'	4	28 hp
15	MBG-300	30,00,000	1050-1200	300	20' x 65'	5	35 hp

*** Fuel: Wood Chips / Briquettes / Pellets**



E. B. MECHANISM PVT. LTD.

AN ISO 9001:2008 CERTIFIED COMPANY

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