



DIAMOND ENGINEERING ENTERPRISES

Manufacturer, Consultant & Supplier of Solar, Wind & Bio-Gas Plants

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Biogas

Biogas is a renewable energy source produced by the breakdown of organic matter by certain bacteria under anaerobic conditions. It is a mixture of methane, hydrogen, and carbon dioxide. It can be produced by agricultural waste, food waste, animal dung, manure, and sewage. The process of biogas production is also known as anaerobic digestion.

Biogas recycles the waste products naturally and converts them into useful energy, thereby, preventing any pollution caused by the waste in the landfills, and cutting down the effect of the toxic chemicals released from the [sewage treatment](#) plants.

Biogas converts the harmful methane gas produced during decomposition, into less harmful carbon dioxide gas.

The organic material decomposes only in a wet environment. The organic matter or the waste dissolves in water and forms a sludge which is rich in nutrients and used as a fertilizer.

Biogas Plant

The biogas production is carried out in anaerobic digesters known as Biogas plant. These have five components:

- An inlet to feed the slurry
- The fermentation chamber where the biogas is produced with the activity of microorganisms,
- The gas storage tank to store the gas produced,
- The outlet for the used slurry,
- The exit pipe for removing the gas produced.

The organic matter is fed into the digesters which are completely submerged in water to provide it with an anaerobic environment. These digesters are hence called anaerobic digesters. The microorganisms breakdown the organic matter and convert it into biogas.

The biogas thus produced is supplied to the respective places through the exit pipes.

Breakdown of Organic matter

1. The first stage involves the breakdown of organic polymers, such as carbohydrates, making it available to the next stage of bacteria known as the acidogenic bacteria.
2. The acidogenic bacteria then convert the sugar and amino acids into carbon dioxide, ammonia, hydrogen, and organic acids.

3. The organic acids are now converted into acetic acid, hydrogen, ammonia, and carbon dioxide.
4. These are finally converted into methane and carbon dioxide by the action of methanogens.

Methane is a combustible gas, i.e., it can be burnt. This gas is supplied to various places and is used in cooking and lighting. It is an eco-friendly gas and reduces various environmental problems like, it reduces the reliance on fossil fuels.



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SOLAR TUNNEL DRYER (ACTIVE TYPE)

Using the power of the sun to preserve food and other agriculture products has been practiced for centuries. In the traditional way crops are dried directly in the sun under the open sky. The major disadvantage of this traditional method is that the goods are exposed to dust, animals, insects, wind and moisture. In addition, the results depend on good weather conditions



Modern solar dryers are more efficient, hygienic and keep the crops safe from damage and insects. The most advanced designs allow for controlling drying parameters such as moisture content, air temperature, humidity and airflow rate. Adequate drying helps to preserve the flavour, texture, and color of the food which leads to a better quality product.

It is used for drying chilli, mango, amla, grapes & other agro products. In order to deliver flawless range at clients' end, it is rigorously tested on respective parameters of quality by our skilled quality controllers.

Features:

- Sturdiness
- Highly durable
- Optimum performance
- Active type with air circulation fans



Mobile : 95000 12578, 97102 94896, 90872 46999



DIAMOND ENGINEERING ENTERPRISES

Manufacturer & Suppliers of Biomass Stove, LPG Stove & Wood Stove

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Commercial Biomass Cooking System

Commercial Model Is suitable For Hotel Industry, Community Kitchens, Hospitals, Mandir, Gudwara, Jail Houses, Hostels Mess, Restaurant, Catering Industry, Defense Academies etc. This is a Revolutionary Technique In Food Making And Far Better Replacement Of Fossil Fuels Such As LPG Stove, Diesel Stove, Kerosene Stove Etc. In This Stove You Can Get Better Results In Bulk Cooking And It Gives You Better Backup In One Time Filling. This System Runs With Compressed Pellet/briquette/cut wood Fuel Which Is Made By Bio Wastage Like Wooden Husk, Almond Shells, Peanuts Shells, Walnut Shells Etc. This Is Smoke Free, Carbon Free, Ash Free, Sound Free And Odour Free.

It Is Highly Reliable For An Excellent Performance For Longer Time. We Tested This Product On Various Quality Parameters In Order To Make It Comply With The International Norms. This System Is Very Popular And Proved To Be **Highly (50% more)Efficient** than the Traditional ways Of Cooking and **other Bio-mass stoves available in the market**. Commercial Model Comes in Various Capacity Such as 6Kg, 9Kg, 18Kg or 10" to 24" in diameter of the vessel etc.

Features:

- Sound Free
- Easy To Operate & continuous feeding
- Ash Free Cooking
- Smokeless Cooking
- Suitable To Indoor/out door Cooking
- Solid And Heavy Duty Structure
- Suitable For Long Time Cooking
- Healthy/Efficient & Tasty Cooking
- Available In Different Sizes and Capacity
- Comes In Renewable Energy Sources Category
- Eco-Friendly And Very (most) Cost Effective Way For Cooking



BIG SIZE SOLAR COOKER SPECIFICATION:

Size of Solar cooker	UV resistant model Aluminum body 600x600x190 MM (24x24x8 Inch.)
Cooking Capacity	6-8 Kg per day
Total weight	Approx. 18 Kg including cooking pots.
Tray Material & coating	Aluminum sheet, black painted of high absorption and low emission.
Cooking pots	Steel, Hard black coated cooking pots. Size = Two Boxes = 1Litres, 1.2 Liters.
Thermal performance	F1 >= 0.12, F2 > 0.4 [GRADE 'A' as per Indian Standard specifications]
MIRROR SPECIFICATION:	
Mirror -21×21 Inch - Thickness 4mm	
Toughened glass - 520×520× 4mm	
Plain glass- 520×520×4mm	

Box type Solar Cookers Features:

A Box Solar Cooker is basically an insulated box with a glass cover and a top lid which has a mirror on the inside to reflect sunlight into the box when the lid is kept open. The inner part of the box is painted black. Up to four black painted vessels are placed inside the box with the food to be cooked. The cooker takes 1 ½ to 2 hours to cook items such as rice, lentils and vegetables. The cooker has also been used to prepare simple cakes, roast cashew nuts, dry grapes, etc. It is an ideal device for domestic cooking during most of the years except the monsoon season and cloudy days. It however cannot be used for frying or chapati making.

Advantages:

- Solar Cooking involves no recurring expenses on fuel. Solar energy is absolutely free.
- Cost of the solar cooker can be recovered easily through saving on fuel bill in a few years.
- A box solar cooker if used regularly can save 3 to 4 LPG cylinders per year.
- It saves time. You are free to do other things while food cooks in the solar cooker.
- There is no fear of scorching the food.
- It ensures a better and more nutritious cooked food because of its slow cooking design.
- It is durable and simple to operate.
- It does not pollute the environment and conserves conventional energy.
- It is an asset to the household and a pride to its owner.

SMALL SIZE SOLAR COOKER SPECIFICATION:

Size of the cooker	UV resistant model Aluminum body 480 x 480 x170 MM (19.2x19.2x7 Inch.)
Cooking Capacity	4-6 Kg per day
Total weight	Approx. 14 Kg including cooking pots.
Tray Material & coating	Aluminum sheet, black painted of high heat absorption and low emission.
Cooking pots	Stainless steel, hard black coated cooking pots. Size = All Boxes are 1Litres.
Energy source	Solar.
Power consumption	Approximately 0.1 to 0.4 kWh. Depending on food quantity and ambient

MIRROR SPECIFICATION:

Mirror- 17.5×17.5 Inch

Thickness - 4mm

Toughened -

405×405×4mm

Plain glass- 405× 405×4mm

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SOLAR COOKER

Increasing cost and requirement of traditional energy is creating problems in every one's life. Nature is providing us end less energy at free of cost with SUN.

Solar cooking is using heat energy of sun to cook food. It is a simple, safe, and convenient way to cook without consuming any fuel.



Solar cooker shown alongside is developed for a normal family size of 4 to 5 members. Cooker body is twin wall aluminium sheet fabricated with insulation. Twin glass sheets with air insulation allow for maximum solar heat entrapment. Three or Four containers are provided to cook food. These containers are blackodized. The hinged cover to the cooker has a reflecting mirror and the angle of the mirror can be varied. This type of cooker is saving an enormous amount of fuel every year.

The sun's rays are received in an insulated black box with a transparent lid which lets in the sun's rays. Inside the box, this sunshine turns to heat which is trapped in the box. The effect is similar to the oven in your kitchen.

Solar cookers use no fuel, which means that their users do not need to pay for firewood, gas, electricity, or other fuels. Therefore, over time a solar cooker can pay for itself in reduced fuel costs. Since it reduces LPG, electric; firewood use, the solar cooker reduces carbon emission, deforestation and habitat loss.

For Further details, kindly contact:

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