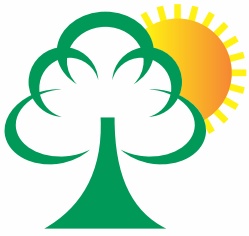


BEST FROM WASTE



"PRODUCE ENERGY, SAVE ENVIRONMENT"



SHREE KHODIYAR
ENGINEERING WORKS



JUMBO-90
BRIQUETTING PLANT

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SHREE KHODIYAR
ENGINEERING WORKS

INTRODUCTION

We all know that we exist because nature exists. Nature has energy, enthusiasm and eliteness. The great poets have created a lot of the lap of nature. Interdependency of human being and nature is unchangeable. The preservation of nature is the prime duty of mankind. It is essential to keep the environment well balanced in this world of advanced technology. As we know, haphazard use of natural resources will put us in grave one day.

To overcome this problem, we have white coal as an alternative. The coal made from agricultural and forest wastes & residues in the form of briquettes has been named as Briquetted white coal. It can be efficiently used to replace coal and firewood. The white coal solid briquettes are converted from agro wastes using mechanical pressure without using any binders or chemicals. This white coal is a substitute fuel energy.

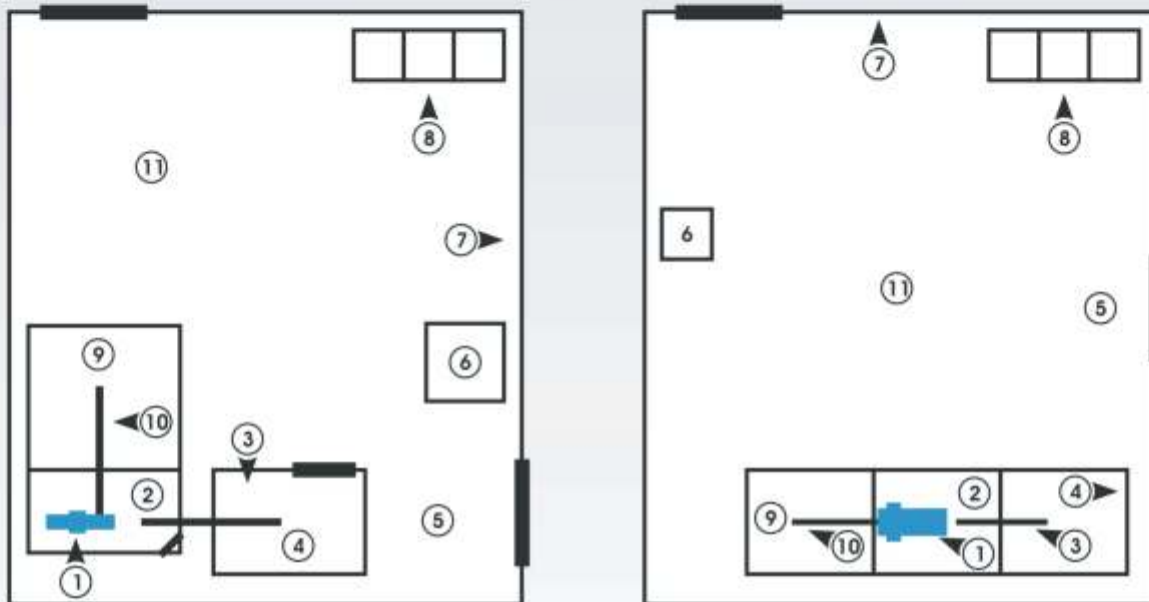
COMPANY PROFILE

"SHREE KHODIYAR ENGINEERING WORKS" has a pleasure to contribute in maintaining and preserving nature and ecological balance. Some of the nature wastage or unused material such as industrial & the agricultural wastages are input for our finished product, It produced energy to utilize the natural resources at the most and create a product which again creates energy, such a cyclical process is the way to preserve the natural resources. Our "Briquetting Machine" works on the above theory, without creating Pollution which is again a great enemy of ecological preservation system. Let us join our hands to maintain nature in fact without Pollution and increase the life span of man kind for antes and ages to come.

Our company's infrastructure is the best as.

- We are having sufficient space for manufacturing and storing the machines in bulk.
- WE have well established workshop.
- We have sufficient tool room & fixtures.
- We have well - experienced engineering and technical staff, design and drawing department, customer care and after sale service department, accounting department and research and development Department.

LAND LAYOUT



01. Foundation for Briquetting Press - 16' x 5'
02. Shed for Briquetting Press - 25' x 30' x 14'
03. Cooling Lines for Output Briquettes 40'
04. Shed for finished Briquettes Galvanized Roof - 40' x 40' x 20'
05. Entry Gate - 15'
06. Office Building - 10' x 10'
07. Compound Wall
08. Proposed Labor Rooms
09. Shed for Raw Material - Galvanized Roof - 60' x 40' x 20'
10. Conveyor for Raw Material Storage.
11. Open space for Raw Material Storage.

BRIQUETTES / WHITE COAL

The entire world at present is concerned over limited natural resources which are becoming scarce day by day. The Scientists all over the world are exploring the use of non - conventional energy sources. Briquetting technology is a step towards this to achieve the above goal.

In recent years there has been a significant increase in the consumption of conventional Fuels viz furnace oil, coal Lignite, Wood etc. in small & medium industries for their process involving heat treatment in their production pattern. This over increasing demand for conventional fuels are making the erosion of the natural sources without replacing them. India is already in the midst of fuel crises. There is a need to adopt some innovative technologies which can produce energy by recycling available inputs without charging the quantum of existing one.

There is a tremendous scope to bring down the waste of conventional energy sources to a considerable level through the development, propagation & population of non considerable level through development, propagation & population "BRIQUETTING TECHNOLOGY" for production of briquettes agro residue to meet thermal energy requirements. therefore this substitute energy medium is to give national priority as it appears to be the Only permanent solution that one can think of the survival & growth of the small & medium industries resulting into restrictions of national loss.

THE RAW MATERIAL

Every year million tons of agricultural waste are generated. These are either non used burnt inefficiently in their loose form causing air pollution. Handling and transportation of these materials is also very difficult due to their low density. So Shree Khodiyar Engineering Company Provides the solution to use this wastage into best form. These wastage can easily convert into high density fuel (briquettes) with the help of Biomass Briquetting Plant. In India & other agricultural based countries, there is large scope of this project due to huge availability of Biomass.

SPECIFICATION OF RAW MATERIAL

Size : Max. 20 mm.

Moisture % : Below 10%

RATE OF RAW MATERIAL (APPROX)

The rate of raw material (Bio-mass) may be free of cost to Rs. 1700/MT. (The rate of raw material may be varies as the availability and location.)

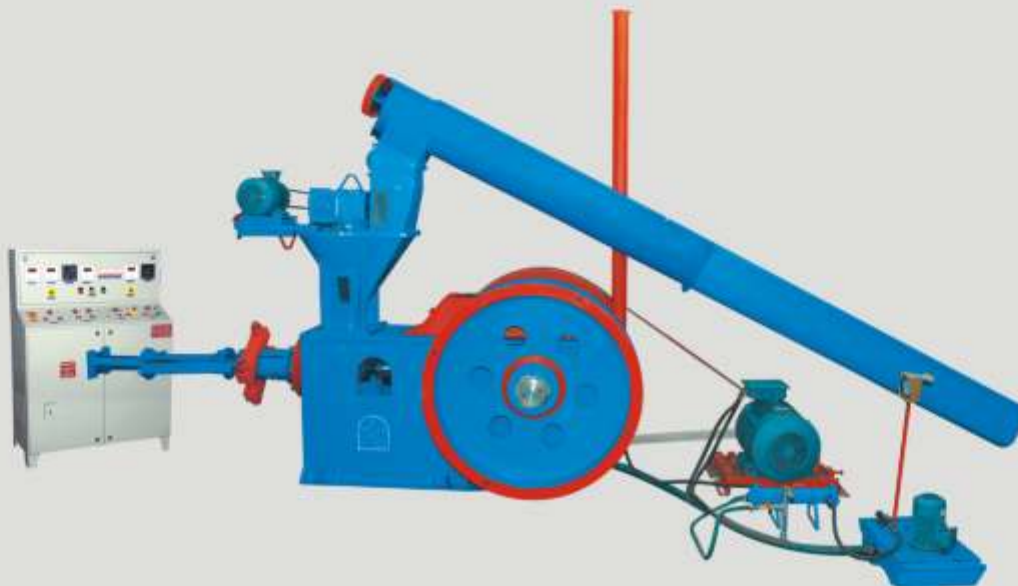
PROCESS OF RAW MATERIAL (If required)

Most of Biomasses can be used directly as per specification. If raw material has more than 10% of moisture content, it requires drying process. If the raw material is longer than 20 mm. It requires cutting process.

THE RAW MATERIAL

The Following are example of country wise availability of raw material.

- Malaysia : Palm husk, rice husk char, rice husk
- Nepal : Labakshi, Lantana, Banmara, Water hyacinth, Agerntum, Ficus, Thakalkanda, Katra Ghass.
- Netherlands : Miscalthus (Elephant grass)
- Thailand : Corn cob, corn cob waste.
- U.K. : Ceder Cones.
- U.S.A : Commercial Briq.
- Vietnam : Rice husk, Rice char(ash), Rice satem, Rice Busha.
- India : Amla seed, Babool, Bamboo dust briq, Beehive briq, cashew shell, coconut shell, coir pith, jute waste, palm founds, saw dust, sugrcane, to bacco waste, almonds, bagasse, Bark, Besarm, Castor seed shell, coffee husk cotton shells, Paddy straw, Rice husk, Soyabeen husk, Tea waste, Wheat stalk.



BRIQUETTING PLANT - MODEL MODEL

Shree Khodiyar Engineering Co. has developed three models of Briquetting Plant. According to production capacity. Size of raw material and finished product.

• SUPER - 60 Model • SUPERME - 70 Model • JUMBO - 90 Model

SUPER - 60 MODEL

Super-60 is first model developed by Shree Khodiyar Engineering Company. Although only drawback of this model is that it requires Hammer Mill for powder from of material yet till now it is best model that require medium production capacity with minimum capital invest.

- Production Capacity..... : 600 -750 Kg/hr.
- Finished Product size..... : 60 mm Diameter
- Finished Product shape..... : Cylindrical
- Raw Material from..... : Powdery
- Process Cost/MT (Approx)..... : Rs. 450 (In India)

SUPERME - 70MODEL

This is latest version of super - 60 model. This model is best for those that want more production than super - 60 (750 to 1000 Kg/hour) but want less capital investment than Jumbo - 90 mode. It is also requires Hammer Mill for converting powdery from of raw material.

- Production Capacity..... : 700 -1000 Kg/hr.
- Finished Product size..... : 70 mm Diameter
- Finished Product shape..... : Cylindrical
- Raw Material from..... : Powdery
- Process Cost/MT (Approx)..... : Rs. 400 (In India)

BRIQUETTING PLANT - MODEL MODEL

POWDER MAKING UNIT

As above - mentioned that both models will accept only powdery from of raw material so it must require powder making unit. Powder making unit consist of following parts :

- Screw Conveyor..... : Regular feeding of Raw Material up to Hammer Mill
- Hammer Mill..... : Reducing size of Raw material up to powdery form
- Blower, pipe, cyclone & air lock..... : Transporting the processed Raw material
- Holding Bin..... : Convey the material up to Briquetting press

LAYOUT OF SUPER - 60 & SUPREME - 70

01. Briquetting Press
02. Screw Conveyor
03. Holding Bio
04. Cyclone
05. Rotary Air Lock
06. Connecting Mill
07. Blower
08. Hammer Mill
09. Screw Conveyor for R.M. Feeding
10. Space for Raw Material
11. Ground Flooring
12. Die Holder (Output of Briquettes)
13. Main Electric Motor

BRIQUETTING PLANT

BRIQUETTING PLANT JUMBO - 90

JUMBO - 90

The flagship product of Shree Khodiyar Engineering Co. is JUMBO - 90 Model. It has jumbo production Capacity with minimum operating cost compare than models. Some latest modification make economical and most effective model.

OUR LATES BRIQUETTING PLANT JUMBO - 90

- Production Capacity..... : 1200 -1500 Kg/hr.
- Finished Product size..... : 90 mm Diameter
- Finished Product shape..... : Cylindrical
- Raw Material from..... : up to 20 mm size
- Process Cost/MT (Approx)..... : Rs. 450 (In India)

THE FEATURES OF JUMBO - 90

- Maximum Production capacity.
- Heavy structure with standard design.
- Acceptability up to 20 mm size of raw material.
(No need of powdery From)
- Easy Operating system.
- High -density of finished product with 90 mm diameter.
- Lowest production cost per MT due to state of art technology.
- Low Electric consumption due to direct feeding without hammer Mill.
- Low maintenance cost.
- Low management cost due to High production capacity.
- No loss of production & Air pollution due to direct feeding system.

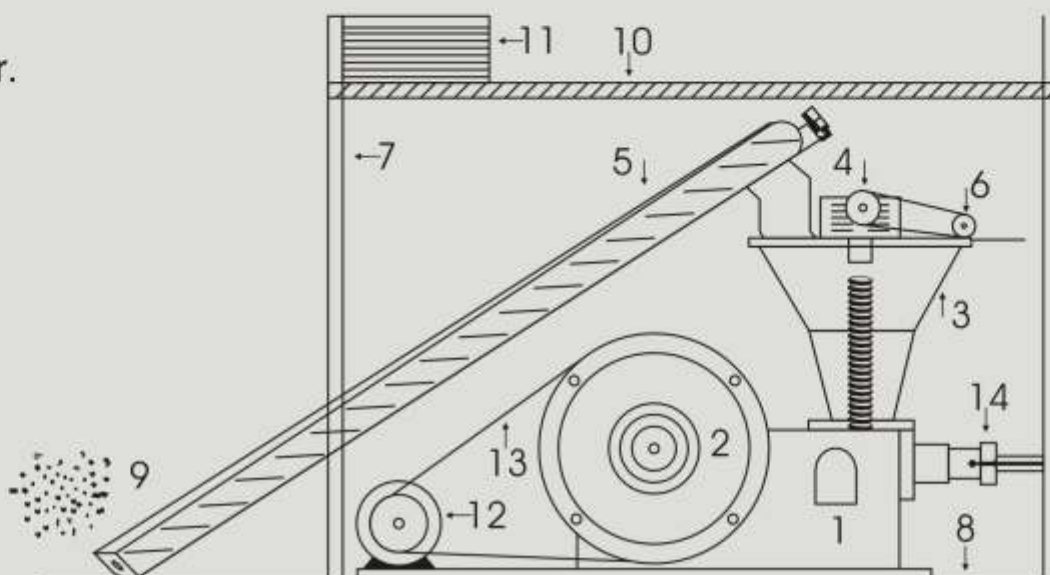
BRIQUETTING PLANT

BRIQUETTING PLANT JUMBO - 90

JUMBO - 90

JUMBO - 90 SIDE ELEVATION WITH BACK CONVEYOR...

1. Briquetting Press.
2. Load Wheel.
3. Feeding Kupa.
4. Reduction Gear.
5. Screw Conveyor.
6. Electric Motor.
7. Bricks Wall of Shade.
8. Ground Flooring.
9. Space For Raw Material.
10. Open Terrace.
11. Water Tank.
12. Main Electric Motor.
13. Flat Belt.
14. Die Holder.



FINISHED PRODUCT - BRIQUETTES

- BRIQUETTES

BRIQUETTES are ready substitute of Lignite/Coal/Wood in industrial boiler and brick Kiln for thermal application. Biomass briquettes are Non - conventional Source of energy Eco-friendly. Renewable in nature, non polluting and economical. Made through it is binder less technique without use of type chemical so it is 100% natural.

BRIQUETTES have high specific density (1200 Kg/m³) and bulk density (800 Kg/m³) compared to 60 to 180 Kg/m³ of loose biomass. This can stand the rigors of long distance transport. Loading/unloading and transportation costs are much less storage requirement is drastically reduced. Compared to fire wood or loose biomass, briquettes give much higher boiler efficiency because of low moisture and higher and higher density. Use of bio coal is increasing day-by-day and it has very demandable market due to its fuel cost saving and pollution free characteristic.

BRIQUETTES IS AN IDEAL FUEL DUE TO

- Eco friendly & Renewable Energy fuel
- Economical and cheaper than other solid fuels i.e. coal & wood.
- Higher thermal calorific value around 4000 Kcal/Kg.
- Pollution free because there is no Sulphur or any hazardous contain.
- Lower ash content 2-5% There is no fly ash when burn.
- Consistent high burning efficiency due to the low moisture.
- Contain high density & Higher Fixed Carbon value.
- Easy for Transportation, Feeding & combustion due to unique shape.
- Combustion is more uniform compared to other coal.
- Demandable market due to high rise in fossil fuels price

FINISHED PRODUCT - BRIQUETTES

- BRIQUETTES

APPLICATION OF BRIQUETTES / BIO - COAL

Briquettes are widely used for any type of thermal application like steam generation in boilers, heating purpose, drying process & gasification plant to replace existing convention fuel like coal, wood & costlu liquid fuel like FO, Diesel, LDO, Kerosene etc. Use of BRIQUETTES as a fuel for green energy has shown very promising results.

USE OF FINISHED BRIQUETTES IN VARIOUS INDUSTRIES

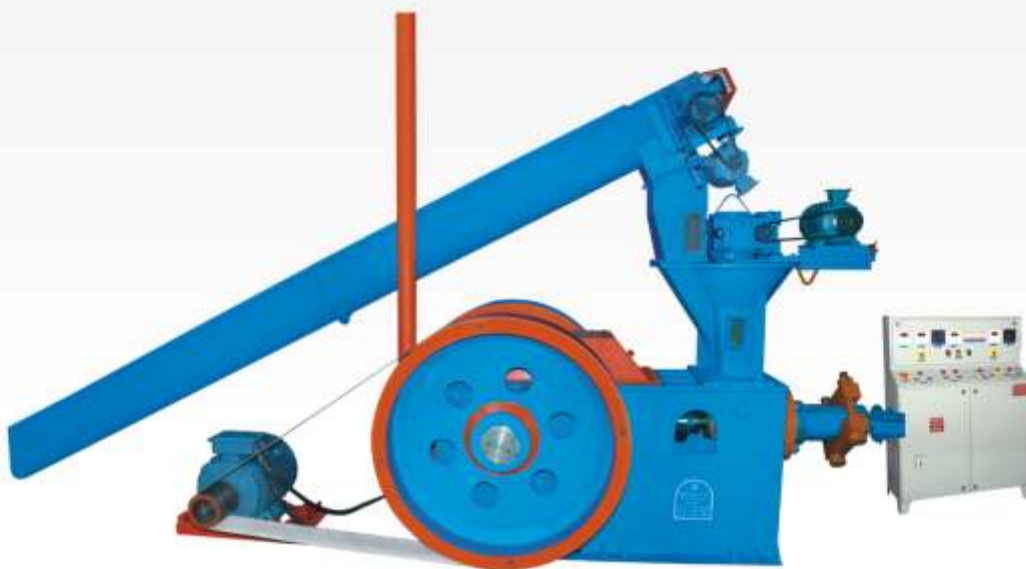
(THERMAL APPLICATION)

- Gasifier System applications
- Ceramic Industries
- Refractory Industries
- Solvent Extraction Plant
- Chemical Industries
- Dyeing Plant
- Milk Plant
- Food Prodessing Industries
- Vegetable Plants
- Textile Unit
- Spinning Mill
- Lamination Industries
- Leather Industries
- Brick making units
- Rubber Industries
- Any Industries thermal application

BIO COAL is a forth-coming fuel of the world. It is a high quality asset towards economical, ecological & advanced environmental company policy.

BENEFITS

- 100 % Depreciation on plant and Machines in the Income-tax burden
- Easily availability of various type Raw materials
- No Sales tax, on product in most of the state.
- No excise duty on product in most of the state.
- Finance against plant and Machinery available from financial Institutions.
- Elimination of problems relating to disposal of all type or waste making the environment pollution free.
- Excellent project viability.
- No requirement of NOC from pollution control board.
- Eco-friendly renewable green energy Project.



EXAMPLES OF CALORIFIC VALUE

Cal/Kg and ash percentage of major agro wastes available...

<u>Agro Wastes</u>	<u>Cal./Kg</u>	<u>Ash Contents</u>
Groundnut Shell	4524K.	3.80%
Bagasse	4380K.	1.80%
Caster Seed Shells	3862K.	8.00%
Saw Dust Briq.	3898K.	8.20%
Cotton Stalks/Chips	4252K.	3.00%
Bamboo Dust	4160K.	8.00%
Babool [Wood]	4707K.	0.90%
Coffee Husk	4045K.	5.30%
Tea Waste	2910K.	31.50%
Tobacco Waste	4237K.	3.80%
Paddy Straw	3469K.	15.50%
Mustard Stalk	4200K.	3.40%
Mustard Shell	4300K.	3.70%
Wheat Straw	4100K.	8.00%
Sunflower Stalk	4300K.	4.30%
Jute Watse	4428K.	3.00%
Palm Husk	3900K.	4.90%
Soya Bean Husk	4170K.	4.10%
Sugarcane	3996K.	10.00%
Barks Wood	1270K.	4.40%
Forestry Waste	3000K.	7.00%
Coir Pitch	4146K.	9.10%
Rice Husks	3200K.	19.20%
<u>Wood Chips</u>	<u>4785K.</u>	<u>1.20%</u>

Others So many 3700 K. Apx.

THE WHOLE PROJECT

Shortage of conventional fuel like fire wood, cool lignite, oil etc. Develops the market for Briquetted Fuel. Briquetted fuel can be easily marketed in its ready market as it has higher fuel efficiency than firewood and conventional fuel can be substituted by it. This fuel can be used in industrial, commercial and domestic areas.

We have two types of machines screw type and raw type. The sun dried raw material (Individual or mixed) free from foreign matter is fed into the hopper of the machine. From the hopper, the raw material falls into the crushing area from where it enters into the heating chambers. The heating chamber is controlled thermostatically at a preset temperature. From the heating chamber the briquette is formed and extruded out. The briquette is cut into required length and stored, stocked for dispatch or packed in bags for shipment. There is no binder required in the process of this biomass Briquetting. Two types of dyes can be made. It is in the shape of cylinder, square or hexagon in case of screw & Ram type machine. In case of roller type Briquetting machine, dyes are in shape of oval or Pillow. When the briquettes are cool, they can be packed for the market in paper or plastic. When the briquettes are cool, they can be packed for market in paper or plastic sacks of about 5kg. or as per market convenience.

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