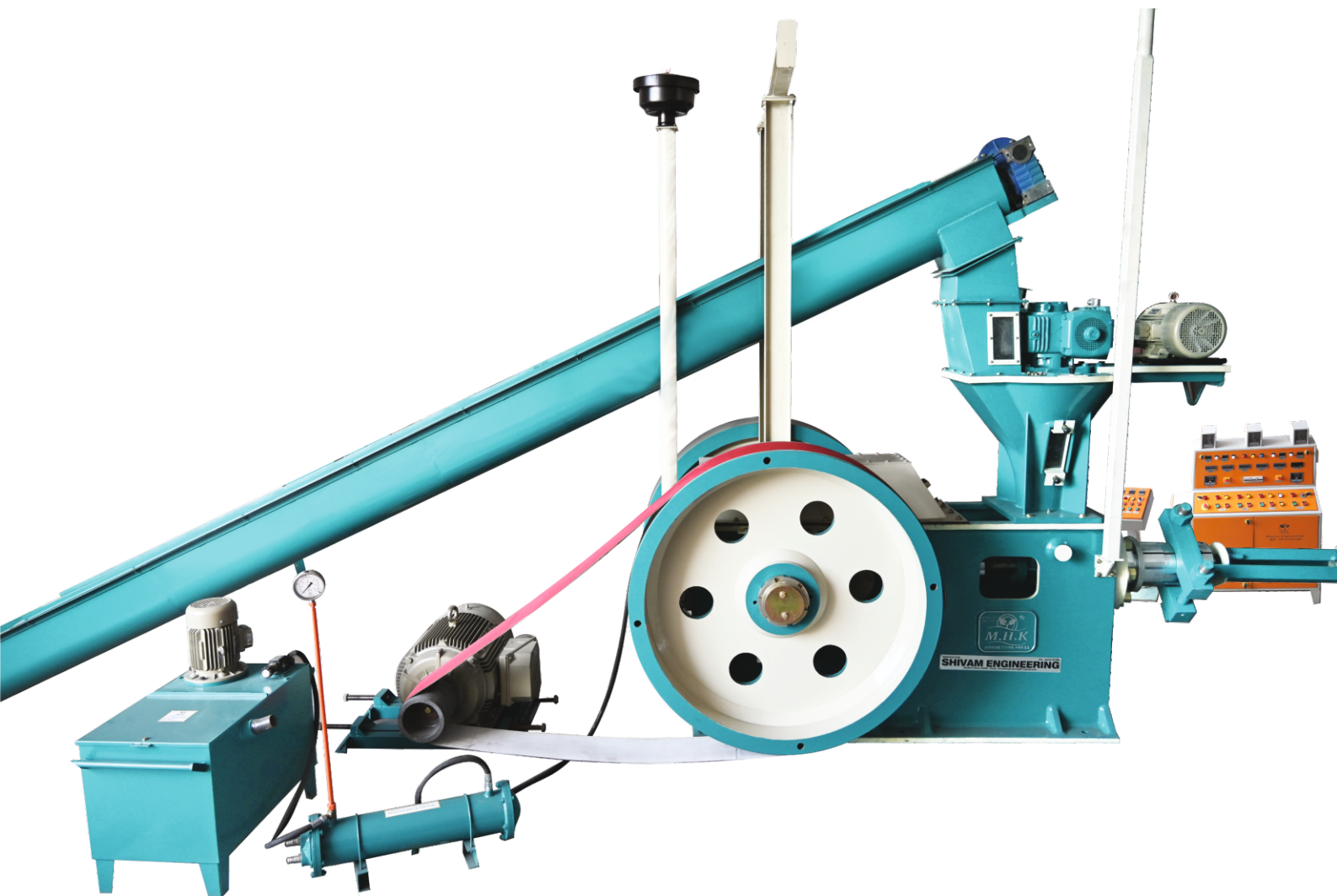




AN ISO 9001:2015 Company

The **ENERGY** of the Wastage **Natural Resources**



Shivam Engineering

Mfg of Bio Mass Briquetting Press

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COMPANY PROFILE

We at Shivam Engineering are Pleased by Contributing to Maintain The Ecological Balance. We are Manufacturing Biomass Briquetting Plant Where The Raw Material is Wastage/unused Materials Such as Industrial & Agricultural Waste. The Finished Goods are White Coal Which is a Perfect Replacement to Our Traditional Energy Source Such as Charcoal or Fire Wood. The White Coal is Preserving The Natural Source of Energy by Replacing Them in Much More Effective Way. Also Being The Pollution Free Technology. It is Benefitting The Nature Preservation in More Than One Ways.

We All Know That The Natural Fuel Resources Like Coal, Firewood, Lignite Etc. are Fast Extinguishing. So, The Company is Bent Upon Manufacturing Technologically Upgraded Biomass Briquetting Plant Contributing to Have Better Eco-friendly Option in The World of Fuel, By Reusing and Recycling Agro Waste and Forestry Residuals. The Company is Focused to Leave Greener Footprint Across The National & Global Industrial Landscape.

- We associate in manufacturing briquettes and briquetting plants for more than 10 years now We have well organized workshop which can meet the constraint Quality standards for manufacturing Briquetting Plant Machine.
- Our Workshop staff & office Team is well skilled with manufacturing techniques and are aware about the technical details of the Product.
- We have Training facility for the buyers of briquetting plants also
- We look after our customer until they are self satisfactory for production and we also provides one year after sales service.



CONTRIBUTION TO ENVIRONMENT

The Evergreen and Everlasting Source of Energy is The Nature. We are Getting Tremendous Energy Flow From The Nature. Only Thing is to Utilise it to The Best Possible Way and to The Maximum Benefits. It is Un challenging Fact That Nature and Human Beings are Inter Dependent and Hence, It is More Important For Human Beings to Keep The Balance at Its Best Balancing Place.



MISSION

At Shivam Engineering, The Mission is Very Clear to go for Quality Stuffed Product by Implementing Inquisitive Research, Technological Expertise & With A Readiness to Reach out to The People at Competitive Prices. It is Emphasized to Inspire and Promote Growth Through Environmental Awareness Amongst Society Around us.

VISION

The Company's Vision is to Extend Honest and Sincere Support to the "Green Globe Movement". It Looks Forward to Promote Eco-Friendly Products by Developing Energy Efficient Solutions With The Help of Constant Communication, Open Minded Co-ordination and Healthy Co-operation.

Most Important Our Vision & Mission is to Do Something For The Environment. One Briquetting Machine Saves 3 Trees Daily. Up till Now We Have Supplied Approximately 700 + Plants Across The World That Means Daily We are Saving 2000 Trees From Cutting. By 2020, Our Around 550 + Plants Will Be Running Successfully. On That Vision, Shivam Engineering Will Save Approximately 21,90,000 Trees Per Year From Cutting By 2020.

BACKGROUND BRIQUETTES PRODUCT



The Whole World is Facing The Acute Shortage of Natural Resources of Energy. The Natural Energy Sources are Limited and The Use of The Energy is Increasing Day by Day and Hence, The World is Now Looking Into The Different Solutions and Non-conventional Resources. Briquetting Plant is a Small But Firm Step in The Direction.

The Consumption Level of The Energy is Growing and the Natural Resources are Reducing Day by Day. Moreover, The Industry is Also Consuming. The Energy For its Different Heat Treatment Processes. Hence, There is a Crisis Arising for The Natural Resources of Fuel in India. There is a Need to Adopt Some Innovative Technologies Which Can Produce Energy by Recycling Available Inputs Without Changing 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 of Non Conventional Briquetting Technology (Briquetting Machine, Briquetting Plant, Biomass Briquetting Plant) For Production of Agro Residue Briquettes to Meet Thermal Energy Requirements. Therefore This Substitute Energy Medium is Given National Priority as it Appears to be The Only Permanent Solution into Restrictions of National Loss.



WHY BRIQUETTES...

- Renewable Energy Fuel.
- Pollution Free Because There is No Any Sulfur Material.
- Briquettes are More Cost Savings Then Coal.
- Biomass Briquettes Have A Higher Practical Thermal Value.
- Lower Ash Content (2 to 6%) Compare to Coal (20 to 25%).
- There is No Fly Ash When Burning Briquettes.
- Briquettes Contain Low Moisture (3 to 6%) Compare to Coal (20 to 25%).
- Briquettes Produce White Smoke Where Coal Produces Black Smoke.
- Have High Burning Efficiency.
- Best Substitute Source of Energy.
- Contain High Density.
- Higher Fixed Carbon Value.
- Demandable Market Due to High Rise in Fossil Fuels Price.
- Using Briquettes Will Beneficial For The Industries as They Will Get Carbon Credit.
- Briquettes are Usually Produced Near The Consumption Centers and Supplies Do not Depend on Erratic Transport From Long Distances.



THE CONCEPT

The process of "BRIQUETTING" is the physical transformation of the loose raw material briquettes through a compactly compressed unit. The form change results in a much higher material which increases its Burning time as compare loose material. This recycled fuel is beneficial for the environment as it conserves natural resources. Recycling also prevents global warming which has a direct adverse impact on global climate.

Raw Material

Every year millions of tons of agricultural wastes are generated which are either destroy or burn inefficiently in loose from causing air pollution These wastes can be recycled & can provide a renewable source of energy by converting biomass waste in to high density- fuel briquettes.

Agro Waste : Mustard waste. Rice husk, Groundnut Shell, Coffee husk, Cotton stalks. Sunflower & waste. Sugarcane bagasse, leaves & trash, maize stalks, bajra cobs Coir dust etc.

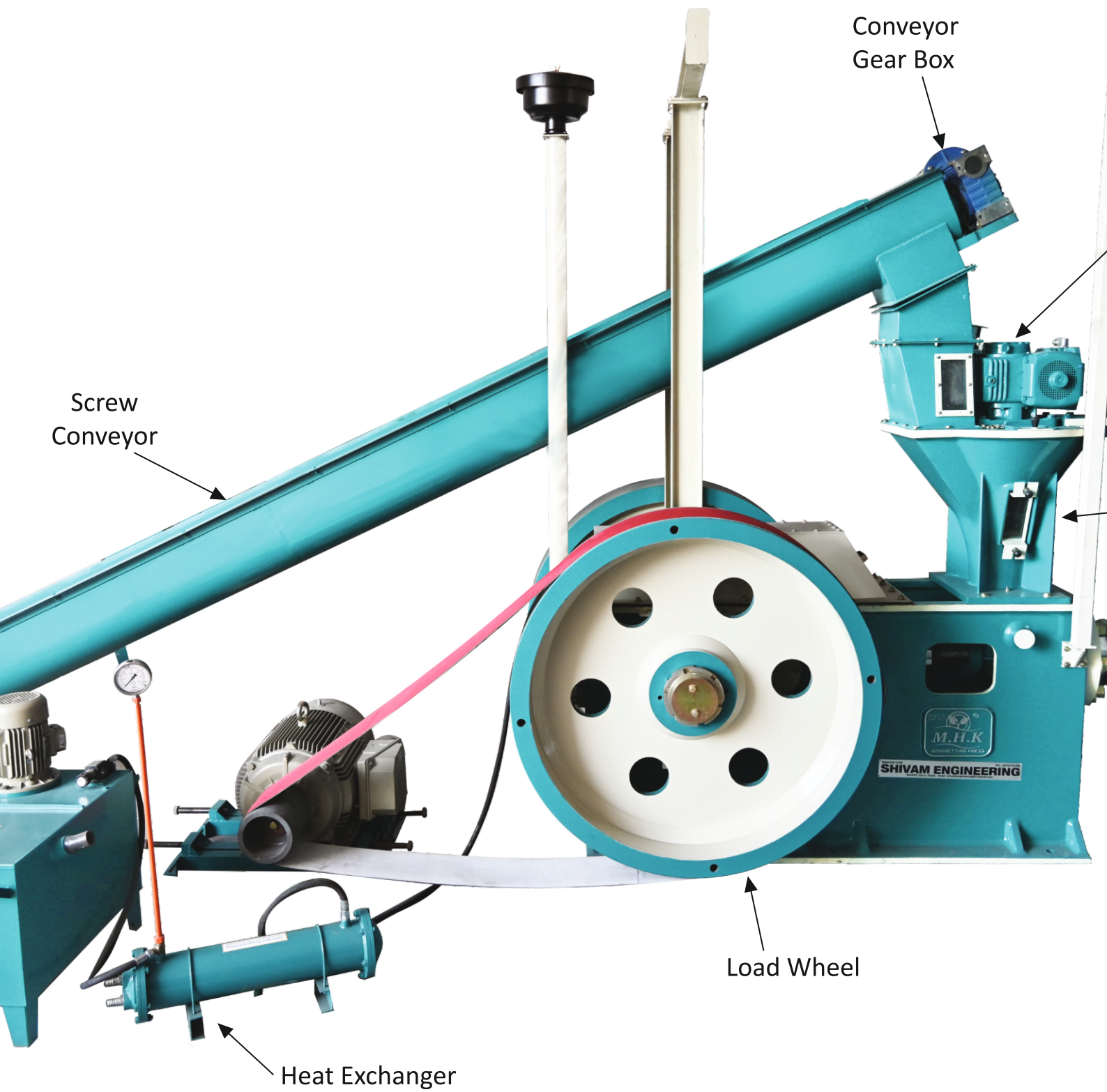
Forest Waste : Wood chips and shavings, Tree bark and twings. Saw dust bamboo leaves. Wild grasses, Shurbs etc.

Manufacture Process

Raw material like saw dust is screened and stalk (Forest & Agro Waste) are grinded by chipper cum Grinder (Single Action). If raw material has high moisture it should be reduced by sun drying or using flash dryer if moisture is so high, it can be reduce by Rotary drum dryer. Hammer mill grinder is used to grind the material to get desired grains size for small models Raw material (desired grain size) is transported by pneumatic system to holding bins fixed over Briquetting press. Dust is collected by cyclone or direct by screw conveyor to B.Press. By screw conveyor, material is discharged from bin to the press. # Material is compressed by ram through taper bore die By compression temperature is raised and lignin come to the surface and binds the material by its natural binder. Briquettes are formed in shape of log and it is automatically pushed through cooling line to the storage points.

Finish Products Briquettes

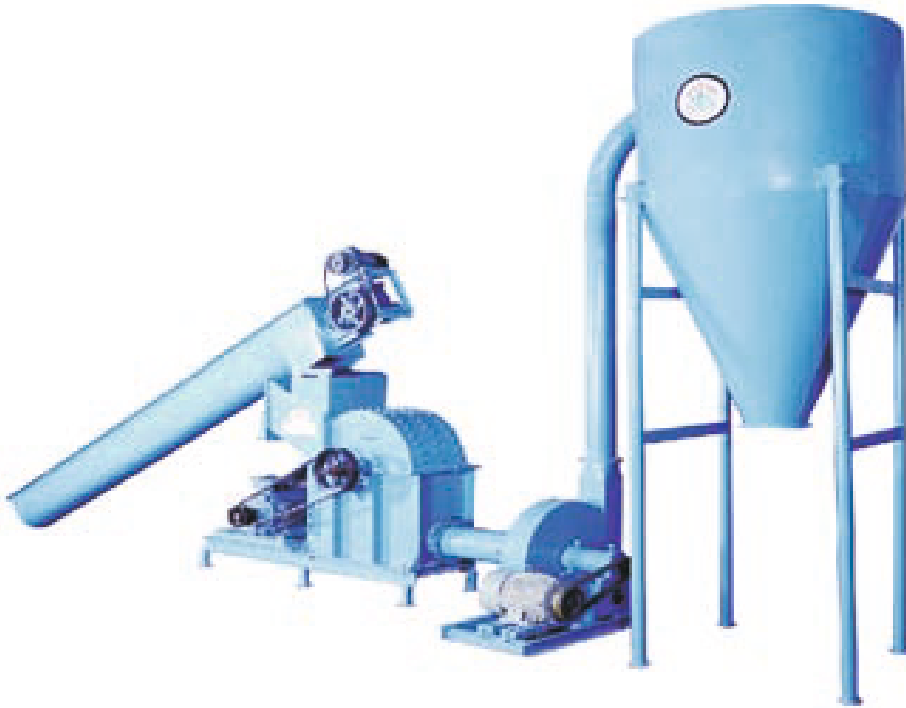
Finished Products Briquettes have high specific density (1100-1200 kg/m³) and bulk density. Compared to fired wood or loose biomass, briquettes give much higher boiler efficiency because of low moisture and higher density. Higher calorific value around 4000 K Cal/Kg & above. Pollution free because there is no sulfur or any fly ash when burn. Combustion is more uniform compared to other coal.





MACHINE COMPONENT

Hammer Mill



Model	: Hammer Mill
Power Requirements	: 30 HP (1440 RPM) (± 20% Depending on quality of Raw Material)
Production Capacity	: 1200 KG/hr
Input Raw Material Size	: 01 to 25 mm
Output Product Size	: Powder Form



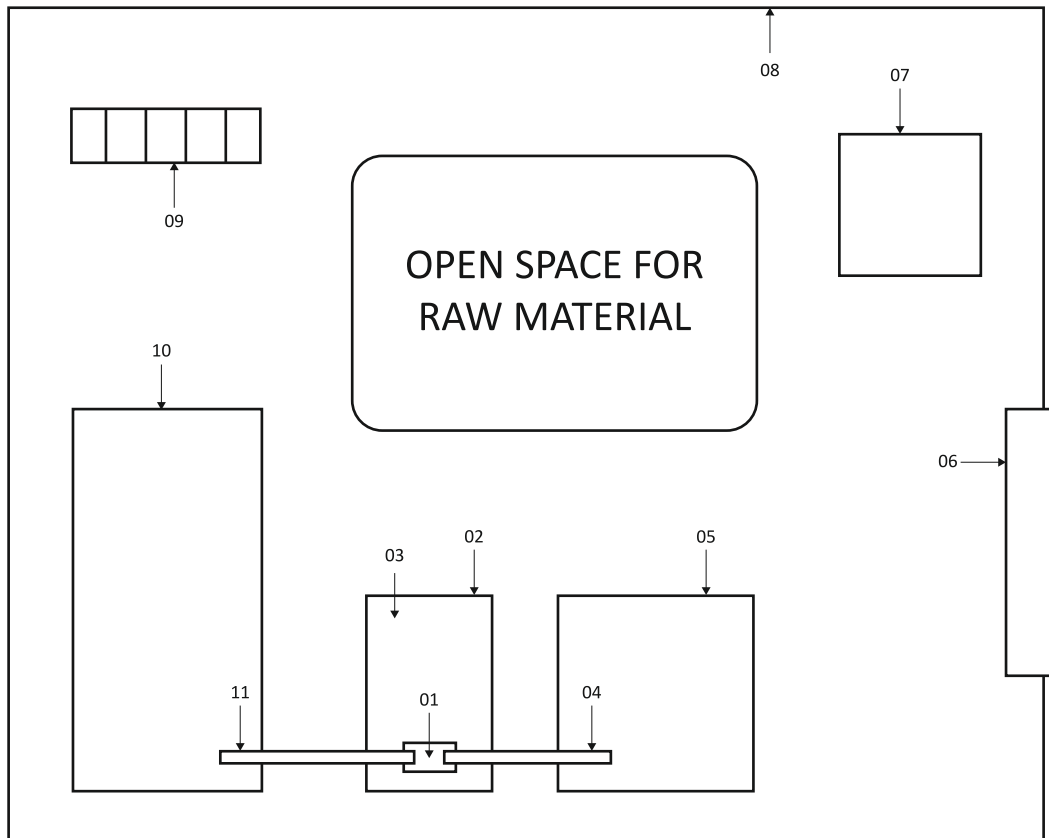
Technical Details for JUMBO-90

Type	Crank Type
Stroke	200 mm
R.P.M.	230
Total Power Requirement	91 HP
Production Capacity (±20% Depending on Density and Quality of Raw Material)	1500 Kg/Hr.
Finished Product Size	90 mm Dia
Finished Product Shape	Cylindrical
Finished Product Length	6" to 12"
Raw Material Form	Up to 25 mm Size can be Used Directly

Advantages of JUMBO-90

- Saving in **Power Consumption**
- Increase in **Production**
- Low **Maintenance Cost**
- Suitable For All Type of Raw Materials Including Sugarcane Bagasse
- Easy Handling Of Briquettes Due To Its Large Size
- Ideal For Boiler And Fireman.

LAND LAYOUT



- 01) Briquetting Press (Foundation)
- 02) Shed for Briquetting Plant 30' X 40'
- 03) Reserved Space for Second Briquetting Press
- 04) Cooling Line for Briquetting
- 05) Shed for Briquettes (Galvanized Roof - 40' X 40' Height - 16').
- 06) Entry Gate (15' Long)
- 07) Office Building : Two Small Room 10' X 10'
- 08) Compound Wall
- 09) Proposed Labor Quarter (3 to 4 Small Rooms)
- 10) Shed for Raw Material Storage (Galvanized Roof - 60' X 40' Height - 16')
- 11) Conveyor for Raw Material Feeding

RAW MATERIAL DETAILS

Any Type of Agro-Forestry Waste i.e. Bio-mass with defined specification can be used as a Raw Material.

Every Year Million Tons of Agricultural Waste are Generated. These are Either Non Used or Burnt Inefficiently in Their Loose Form Causing Air Pollution. Handling and Transportation of These Materials is Also Very Difficult Due to Their Low Density.



Groundnut Shells



Sugarcane Waste



Saw Dust



Coffee Husk



Coconut Husk



Corn Shell



Forest Tree Leaves



Rice Husk



Cotton Stalk



Cotton Seeds Waste

SOURCES OF RAW MATERIALS

Source	Raw Material
Groundnut Oil Mill	Groundnut Shells
Sugar Mill	Sugarcane Bagasse & Trash
Saw Mill	Saw Dust, Small Wood Chips
Rice Mill	Rice Husk & Rice Straw
Pencil Industry	Pencil Waste
Palm Rosa Plant	Palm Rosa Stalk
Sun Flower Seed Industry	Sun Flower Seeds & Waste
Turmeric Process Plant	Turmeric Powder
Coffee Manufacturing Plant	Coffee Husk

Source	Raw Material
Coconut Oil Plant	Coconut Husk & Coir
Corn	Corn Husk & Shell
Agriculture Farm	Cotton Stalk & Waste
Agriculture Farm	Castor Shell
Agriculture Farm	Soyabean Waste
Agriculture Farm	Tobacco Powder & Leaves
Agriculture Farm	Wheat Straw
Agriculture Farm	Mustard Waste
Agriculture Farm	Cumin Waste



USE OF BRIQUETTES

The White Coal is Ideal Fuel Which Substitutes Coal, Fire-wood, Lignite and Other Conventional Fuels for Heating Steam Generation.

The Demand of White Coal Emerges From Shortage of Conventional Fuels Like Coal, Fire-wood Arising Day by Day. So it Indicates Golden Future for White Coal and Really it is Ideal Future Fuel.

White Coal Can be Used by Industrial Unit Viz.

- Paper Mills
- Solvent Extraction
- Vegetable Plants
- Chemical Plants
- Dyeing Houses
- Food Processing Units
- Textile Units
- Spinning Mills
- Leather Industries
- Laminating Industries
- Milk Plants
- Hotels
- Bricks Making & Lot Others

PROJECT HIGHLIGHT

- High Profitability On Investment
- Excellent Growth Potentiality
- Ready Market
- Short Term Investment And Quick Payback
- Employment Potentiality
- Wide Variety, Easy Availability of Raw Materials
- Conversion Of Natural Resources (Wastage) In Hi-tech Energy & Maintenance of Ecological Balance
- Minimum Working Capital

Advantages of This Form of Fuel are as Under

- Consistent Quality
- Economic to Users Compared to Other Forms.
- High Calorific Value Ranges Between 3500-5000 K Cal/KG
- No Pollution Since it Does not Emit Any Sulphur or Phosphorous Fumes & There is no Need For Expensive Pollution Control Equipment.
- Easy in Handling and Storage Due to Its Size.
- Moisture % is Very Less 2-5% Compare to Lignite & Fire Wood & Coal Where it is 25-30%



Certificate of Registration **SHIVAM ENGINEERING**

SURVEY NO. 464, PLOT NO. 15, NR. HP PETROL PUMP, NATIONAL HIGHWAY
NH 27, VERAVAL (SHAPAR), RAJKOT, PIN-360024, GUJARAT, INDIA

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ISO 9001:2015 **Quality Management System**

For the following scope of activities:

**MANUFACTURER AND SUPPLY OF AGRICULTURE MACHINE AND
PARTS AND WOOD PELLETS**

Issue No: 01
Date of Certification: 26 February 2024
1st Surveillance Due: 25 February 2025

Revision No() : NA
2nd Surveillance Due: 25 February 2026
Certificate Expiry: 25 February 2027
(subject to the company maintaining its system to
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Certificate Number: 0226Q256124

Validity of this certificate can be verified at www.otabucert.com




Dr. Anita Gupta
(Managing Director)

*Validity of the certificate is subject to successful completion of surveillance audit on or before due date (in case surveillance audit is not allowed to be conducted, this certificate shall be suspended/withdrawal). *This Certificate of Registration remains the Property of Otabu Certification Pvt. Ltd. and shall be returned immediately upon request.

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