



Steamax Envirocare Private Limited
Biomass Technology Experts

**FROM FOSSIL TO BIOMASS: REVOLUTIONIZING
ENERGY WITH EASE**

OIL/GAS- BIOMASS RETROFIT KIT

**Convert LDO/FO/HSD/PNG/LPG/LSHS-fired
boilers to biomass and reduce fuel bill by upto
60%.**



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GET TO KNOW ABOUT US



Welcome to a world where sustainability meets innovation! We're on a mission to revolutionise the way industries power their operations, embracing eco-friendly energy sources for a greener tomorrow. By transforming fossil fuel- fired heating equipment into biomass-powered marvels, we empower our clients to shrink their carbon footprint and champion a sustainable future.

At the heart of our company lies a commitment to cutting-edge energy technology, ensuring our solutions are efficient, cost-effective, and custom-made for each client's unique needs. We don't just deliver products; we forge partnerships that thrive on understanding, collaboration, and tailored solutions. Together, let's shape the future of energy and create a cleaner, brighter world.

15+

Years of operations

6+

Green Products

250+

Happy clients

180+

Employees

REDUCING FUEL COST & CARBON EMISSIONS



The Steamax OBR kit is a groundbreaking technology designed to convert existing oil and gas-fired boilers into biomass-powered systems. By making this switch, businesses can significantly reduce their reliance on fossil fuels, lower emissions, and embrace a cleaner, more sustainable energy source.



01

Cost Saving

Cost-effectiveness is a pivotal objective of this project. By utilizing biomass as a fuel source, our customers have reduced their fuel costs by up to 50%.

02

Carbon Footprint Reduction

Biomass is carbon neutral. By transitioning from conventional fossil fuels to clean and renewable biomass energy, we help our customers lower their greenhouse gas emissions.

03

Energy Security

Biomass fuel sources are renewable and locally available, reducing dependence on external energy suppliers and volatile fuel markets.

OIL-TO-BIOMASS RETROFIT KIT



Industrial heat generation heavily relies on conventional fossil-fuel-fired systems, including diesel, furnace oil, LDO, natural gas, and coal. While these solutions have historically served their purpose, they come with notable challenges, such as high operational costs & environmental concerns. Steamax's OBR kit is the only solution designed to convert existing oil and gas fired boilers to biomass that enables a seamless transition to biomass. The OBR is currently available for steam boilers ranging from 0.5-14 TPH, thermic fluid heaters up to 10 Million Kcal/h, hot water generators and hot air generators.

01

Automatic Fuel Feeding

The OBR kit is equipped with an automated fuel feeding system, reducing manual labor requirements and ensuring a continuous and smooth steam supply. Our kit comes with screw conveyors designed for specific biomass types, with high-pressure air at the conveyor's outlet to evenly distribute fuel across the combustion chamber.

02

No Changes in Boiler

We don't make any modifications inside the boiler or in your process. Only the fuel burning system would be change. The combustor complies with safety and environmental standards. We offer two options:

- a) **OBR Lite:** Streamlined biomass retrofit, ideal for smaller boilers or where slight derating is acceptable.
- b) **OBR Max:** Enhanced retrofit with pressure parts, matching oil-fired boiler output without compromise.

03

Compact Sizing

The OBR Lite is a skid mounted mobile unit that can be easily integrated with the existing systems. For those requiring full-capacity conversion, the OBR Max, though larger, is customizable to accommodate any space, ensuring efficient biomass retrofitting without spatial compromise. Both models reflect our dedication to providing flexible, efficient energy solutions.

BIOMASS VS OTHER FUELS

*This is based on the data derived from one of our customer in Maharashtra, India

Description	Diesel	Liquid Petroleum Gas (LPG)	Biomass (Astillas/Pellets)
Boiler Capacity (f&a 100C)	5 TPH	5 TPH	5 TPH (OBR Max)
Average Monthly Steam Load	650 Tons	650 Tons	650 Tons
Average Monthly Fuel Consumption	50,000 L	46,500 Kg	125,000 kg
Steam to fuel ratio	13	14	5.25
Calorific Value of Fuel (Kcal/Kg)	10,800 Kcal/L	14,000 Kcal/kg	4000-4500 Kcal/Kg
Unit Price	INR 96/L USD 1/L	INR 80/kg USD 0.96/kg	INR 13.5 per Kg USD 0.16/kg
Monthly Fuel Bill	INR 48,00,000 USD 57,540	INR 37,20,000 USD 44,600	INR 16,85,000 USD 20,200
Additional Monthly Operational Cost for Biomass (Fuel Unloading, Ash Disposal, etc) :			INR 3,00,000 USD 3,600
Net Monthly Savings (compared to Diesel)			INR 28,15,000 USD 33,780
tCO2 reduction per year (compared to diesel)			1488 Ton
Net Annual Savings (Compared to diesel)			INR 3.38 crores USD 405,600

CONVERSION PROCESS

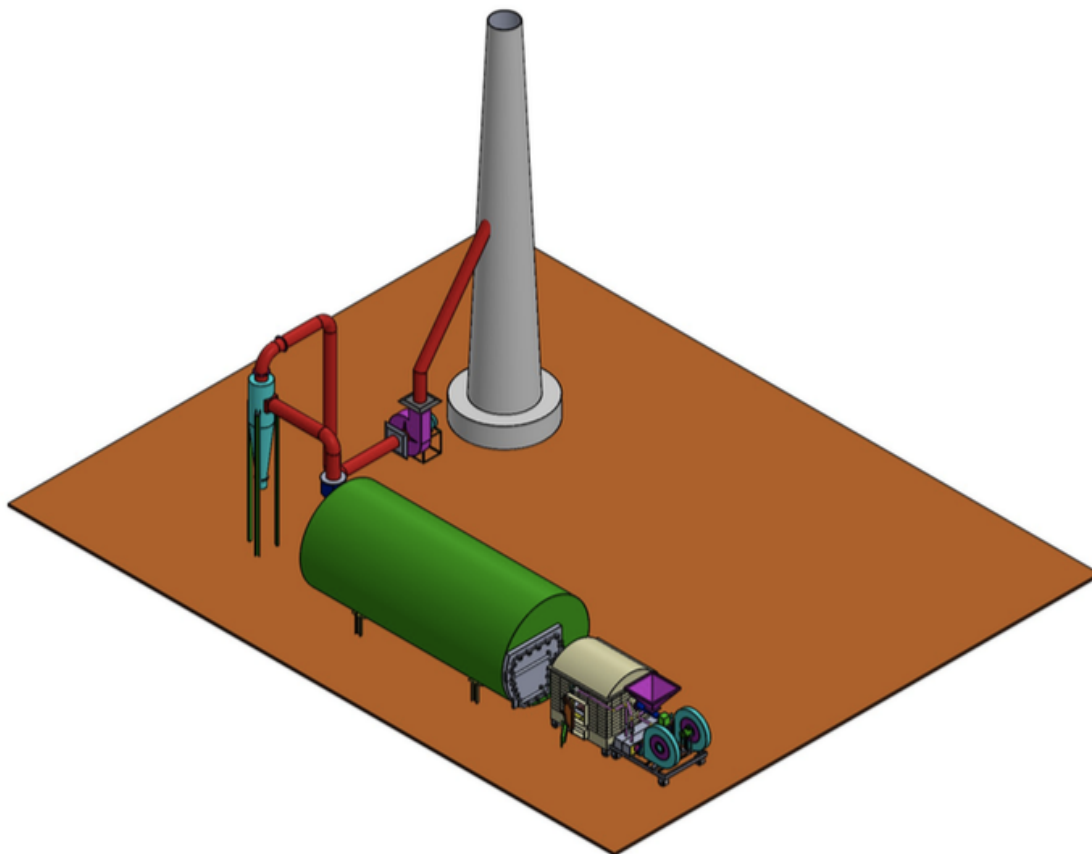
The OBR Kit is designed to seamlessly integrate with existing system. Importantly, the installation of the OBR kit involves no modifications inside the boiler itself, preserving the integrity of your original equipment while transitioning to a more sustainable fuel source. Only the fuel feeding side and flue gas handling side is altered to make it compatible with biomass fuel.

Changes in the Fuel Feeding Side

The oil/gas burner will be removed and an external biomass combustion chamber (with or without addition of pressure parts) will be installed. A suitable biomass feeding system will be provided to feed the fuel in the chamber.

Changes in the Flue Gas Handling

To control the PM emissions, suitable air pollution control devices (APCD's) such as Multiclone dust collector, bag filters, ID fans, etc are added.



Our kit comprises of following parts/equipment:

1. OBR Kit with refractory lined furnace, autofuel feeding, FD & SA fans (OBR Lite)
2. Cyclone dust collector & Other APCDs (as per PCB norms)
3. ID Fan
4. Flue ducting

The above layout shows the tentative placement for all these.

SAFE & EFFICIENT



OBR Lite



OBR Max

- **Furnace Temperature Control:** This control mechanism constantly monitors the temperature inside the furnace where biomass is burned. If the temperature exceeds safe limits due to factors like a sudden surge in fuel supply or other anomalies, the control system takes immediate corrective action. It can modulate the fuel feed rate or introduce more air to cool down the combustion chamber.
- **Negative Draft Operation:** To mitigate the risk of backfiring, a critical concern in biomass combustion, we maintain a controlled negative draft within the combustion chamber. This innovative approach ensures that combustion gases flow smoothly towards the exhaust, effectively preventing any reverse combustion flow or backfire, enhancing both the safety and efficiency of the biomass conversion process.
- **Unaltered Boiler Safeties:** By design, the OBR Kit does not interfere with or alter the internal components of your boiler. This means that your boiler's inherent safety systems, including pressure relief valves, low-water cutoffs, and other critical safeguards, continue to function as intended, preserving their ability to protect your operations. We provide interlocking of OBR's panel with existing boiler's panel panel

APPROVALS & COMPLIANCES

Transitioning to biomass as an environmentally conscious energy source aligns seamlessly with the government's green fuel agenda. Biomass, in India & worldwide, has garnered governmental favor as a legally permissible fuel choice for industries. This means you can confidently adopt biomass without grappling with onerous regulatory requirements.

OBR Lite – Simplified Compliance, No IBR Approval Required

The OBR Lite variant is designed for ease of integration and simplicity, making it an ideal choice for facilities looking to upgrade to biomass without the complexity of regulatory approvals. As it does not involve the addition of pressure parts, the OBR Lite does not require Indian Boiler Regulations (IBR) approval, streamlining the installation process and enabling a quicker transition to biomass fuel.

OBR Max – Customized for Performance with Required IBR Approval

For facilities that demand the highest performance without compromise, the OBR Max includes the addition of pressure parts to achieve oil-equivalent boiler output. Due to these enhancements, the OBR Max requires IBR approval to ensure compliance with safety and performance standards. We assist our clients through the approval process, providing support to meet all regulatory requirements for a seamless upgrade.

Pollution Control Board Clearance

Ensuring compliance with environmental standards through local pollution control boards is crucial. Securing their **consent to operate** and **consent to establish** ensures smooth compliance with environmental standards. While biomass may not yet be on your approved fuel list, we've got you covered. Steamax pledges comprehensive support, offering the necessary documentation and guidance to facilitate these approvals.

It's important to note that the onus of obtaining these clearances ultimately rests with our valued customers. Nevertheless, if you prefer Steamax to handle these regulatory matters on your behalf a **nominal fee** will apply. Your convenience remains our priority throughout your sustainable energy journey.

EVERYTHING YOU NEED TO KNOW

At Steamax, we approach every project with a meticulous eye for detail, ensuring that potential risks are identified and expertly managed. Here's a comprehensive list of questions that we are frequently asked about such projects.

- **What types of biomass fuel can be used with the OBR kit?** The OBR kit is designed to accommodate a variety of biomass fuels, including pellets, wood chips, Astillas, and various nut shells. This versatility ensures operational flexibility and allows businesses to choose the most accessible and cost-effective fuel options.
- **What is the installation process for the OBR kit?** The installation process for the OBR kit starts with the removal of the existing oil/gas-fired burner from your boiler system. In its place, our state-of-the-art biomass combustor is installed, ensuring seamless integration with your system's existing infrastructure. Additionally, we enhance the system's environmental performance by adding air pollution control devices, including cyclones, bag filters, and an Induced Draft (ID) fan, to effectively manage and minimize emissions. Importantly, the installation of the OBR kit involves no modifications inside the boiler itself, preserving the integrity of your original equipment while transitioning to a more sustainable fuel source. This comprehensive approach is carried out by certified Steamax professionals to ensure minimal downtime and optimal operational performance post-conversion.
- **Is it possible to switch back to fossil fuels after installing the OBR kit?** Yes, one of the OBR kit's advantages is its operational flexibility. Users can switch between biomass and fossil fuels as needed, providing a safeguard against fluctuating fuel availability and regulations.
- **What maintenance is required for the OBR kit?** The OBR kit is designed for low maintenance, with regular checks and cleaning of the combustion chamber and ash collection system recommended. If boiler is used for 24h, we typically recommend 24h shutdown for maintenance every month. If boiler runs for upto 16h per day, no shutdown is usually required. Detailed maintenance guidelines are provided upon installation.

Our commitment to risk mitigation underscores our dedication to your project's success. Steamax leverages its experience, expertise, and robust support infrastructure to address these risks proactively, empowering you to embrace sustainable biomass solutions with confidence.

JUBILANT GENERICS, ROORKEE



Jubilant Generics is a prominent pharmaceutical industry located in Roorkee, Uttarakhand, India. They specialize in manufacturing of generic formulation products. Seeking ways to reduce manufacturing costs in the face of rising oil prices, Jubilant turned to Steamax for a sustainable solution.

Key Points from the Case Study:

1. **Monthly Fuel Cost Slashed:** Jubilant was earlier using FO (Furnace Oil) in their Forbes Marshall-make 3,500 kg/hour Boiler, incurring a monthly fuel cost of INR 12 Lakhs, which was significantly reduced to INR 6.9 Lakh by switching to biomass.
2. **Seamless Transition:** Steamax stepped in and converted tier boiler to biomass with OBR kit. The retrofitted boiler efficiently took on the entire plant's load, effectively reducing the reliance on expensive fuels.
3. **Zero Investment Options:** Steamax provided zero investment solutions, where we covered all the upfront costs involved in retrofitting. We also took responsibility for biomass fuel supply, boiler operations, and maintenance activities and took out a marginal lease amount from their monthly savings.
4. **Benefits Beyond Cost:** Beyond the evident cost savings, Jubilant Generics also reaped the following benefits:
 - **Environmental Impact:** The transition to biomass significantly reduced carbon emissions, contributing to a cleaner and greener environment.
 - **Reliability and Sustainability:** OBR kit provided the reliability needed for continuous production while embracing sustainable energy practices.

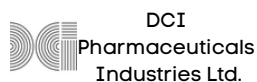
Comparative Data For Jubilant Roorkee		
	Furnace Oil	Clean Biomass
Calorific Value (Kcal/kg)	9650	4200
Steam to fuel Ratio	13.35	5.25
Average Monthly Steam Consumption (Tons)	250	250
Fuel Price (INR/kg)	64	14.5
Monthly Fuel Consumption (Tons)	18.7	47.6
Monthly Fuel Bill (INR)	1198502	690476
Monthly Savings on Fuel Bills		508026
Annual Savings on Fuel Bills		6096308
% Reduction on Fuel Bill		42.39%

→ CUSTOMER LIST

PHARMA & BEYOND

Steamax has been fueling industry innovation with a powerhouse team and an impressive portfolio.

Experience the future of sustainable energy with Steamax – where expertise and passion unite for a greener world.



→ CONCLUSION AND NEXT STEPS

LET'S GET STARTED!



Steamax presents a compelling proposal to our customers, offering a transformative solution that promises substantial cost savings and environmental benefits. By converting fossil fuel fired systems to biomass with the versatile and efficient OBR Kits, industries stands to save a significant amount of money annually while significantly reducing CO2 emissions.

Our flexible acquisition models, comprehensive support, and assistance with regulatory approvals ensure a seamless transition. We are committed to facilitating our customer's journey towards sustainability and cost-efficiency.



Steamax Envirocare Private Limited
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STAY IN TOUCH WITH US!



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