



MAGO THERMAL

PRIVATE LIMITED

AN ISO 9001 : 2008 Certified Co.

Developing Technologies
To Address Tomorrow's Needs



ASSOCIATE WITH



Confederation of Indian Industry



ABOUT MAGO THERMAL

Mago Thermal is a group of companies servicing customers in Indian sub continent in field of customized Steam Boilers, Power Plant & Pollution Control Devices.

Mago Thermal has kept pace with the ever changing business environment, where clients demand Innovative Solutions, **On time Project Execution & Responsive Post Commissioning Services** with in a **Competitive Price Frame**. We take pride in our ever expanding client base and it is the demanding customer who makes us EXCEL.

Mago Thermal has stayed a step ahead in growing Indian market of **“Power and Energy”**. Mago Thermal has been promoted by a group of first Generation entrepreneur having more than 8 decades of relevant experience in industry among themselves.

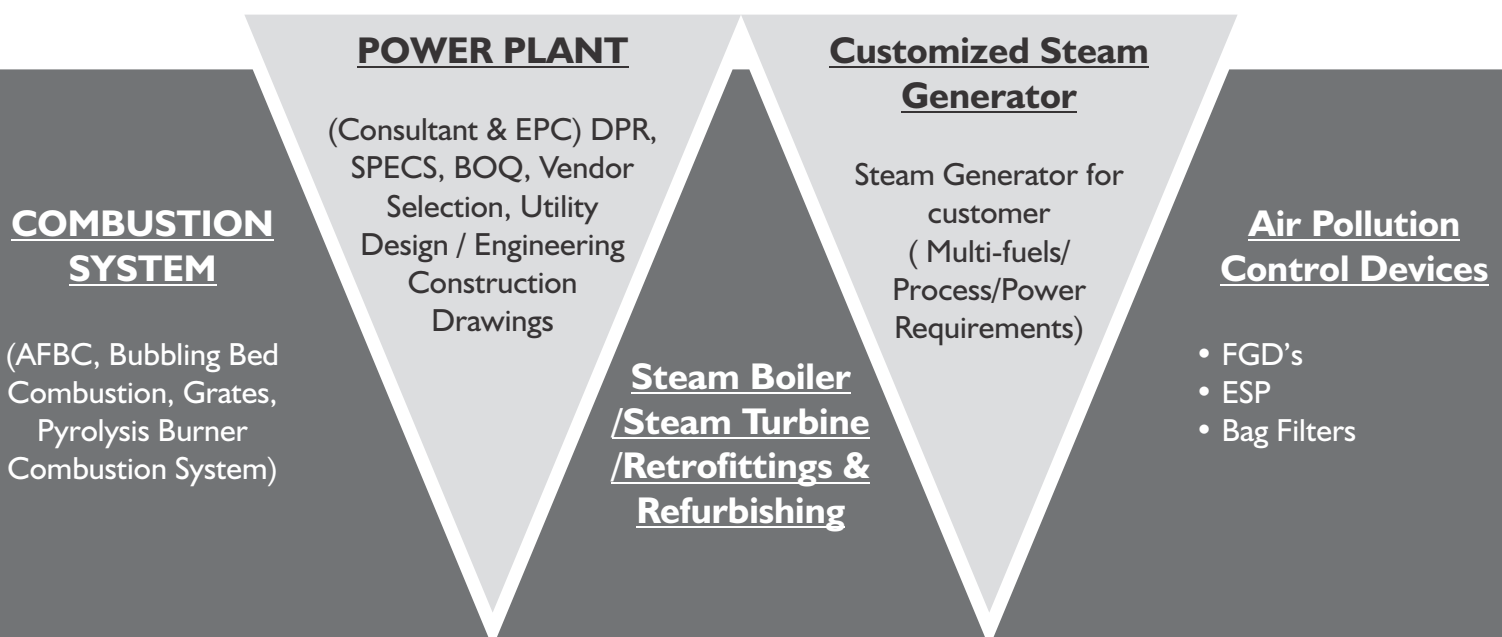
MAGO is privileged to be associated with **Prof. P. D. Grover, Ex. Head & Dean at IIT Delhi**.

Prof. P. D. Grover has vast experience in Coal/ Biomass Gasification, Solid Waste Management, Pollution Control Devices for specific industrial requirements. He has to his credit more than 7 patents & has worked on many international projects for organizations like United Nation, UNIDO, FAO, TERI, ILFS & GOI. Mago Thermal is working under the able guidance of Prof. P. D. Grover for its Products Development.

Mago Thermal is the official technological partner of **“M/s TORFTECH GROUP, UK”** for gasification, drying, combustion of various biomass fuels, Unconventional fuels i.e Rice Straw, Jungle Grass, High Moisture Paper Mill Waste, MSW can be efficiently burnt processed in **“TORBED REACTOR”**, which is a patented technology of **TORFTECH, UK**.

TOFTECH has successfully established recovery of Amorphous Silica from rice husk and activated carbon from other biomass. Both these by products are saleable and thus provides additional monitory benefits to the industry.

AREA OF OPERATIONS





POWER PLANT

With over 20 years of Operational Experience and more than 200 Projects implemented, **Mago Thermal** is a player for Excellence in the Process and Power Industry.

MAGO THERMAL is the leading Engineering Company providing integrated services including Project Management, Process engineering, Multi-disciplinary detailed engineering, Procurement, Construction, Commissioning And Start-up. We also provide maintenance engineering and global service to increase your facilities performances

We are also EPC contractor with extensive and proven track record for Biomass / Petcoke/ Coal based Power Plants up to 50 MW.

- MAGO THERMAL has a pool of highly Qualified and Competent professionals to execute the demanding and fast track Projects.
- MAGO THERMAL is also undertaking Plant Relocation Engineering Services.
- We also provide Consultancy services for Power plant from Concept to commissioning.
- MAGO also do O & M/ Troubling shooting for Power plants.

OUR EXPERTISE ARE:



- Combined cycle Fossil Fuel Cogen power plants.
- Waste to Energy power plants.
- Renewable energy power plants.

We are serving more than 70 Prestigious Customers for their Power Plant related Business needs.

We are proud to showcase here some of the landmark projects that we undertaken as EPC / EQUIPMENT SUPPLIER/ CONSULTANT. If you require further information, please do not hesitate to contact us at naveen.g@magothermal.com

M/s GARG DUPLEX	2 x 2.5 MW - 2005	M/s RANIPUR SUGAR	1 x 7.1 MW & 1 x 15 MW - 2015
M/s DSG PAPERS P LTD,	1 x 2 MW - 2007	M/s ARTISTIC FABRICS,	1 x 3 MW & 1 x 10 MW - 2015
M/s BEST FOOD LTD,	1 x 3.5MW - 2007	M/s NIKITA PAPERS P LTD,	1 x 2 MW. - 2016
M/s TAJ MILK FOOD,	1 x 1.2 MW - 2007	M/s BADRI KEDAR PAPER	1 x 2.4 MW – UNDER EXECUTION.
M/s TUFAIL CHEMICAL,	1 x 2 MW - 2013		



BOILER RETROFITTING

RETROFITTING FOR THE FUTURE

With our integrated Engineering, Procurement and Construction (EPC) services, the future of your power production / process facility is in safe hands. We retrofit and upgrade entire systems with complete boiler solutions that maximize the most readily-available fuels, lower costs and decrease emissions.

RETROFIT SERVICES INCLUDES:



- Boiler upgrades for efficiency and operational improvements
- Biomass co-firing and conversion
- Combustion systems for Nitrogen Oxide (NO_x) control or change of fuel
- Secondary SO_x control

BEST-IN-CLASS BOILER TECHNOLOGY

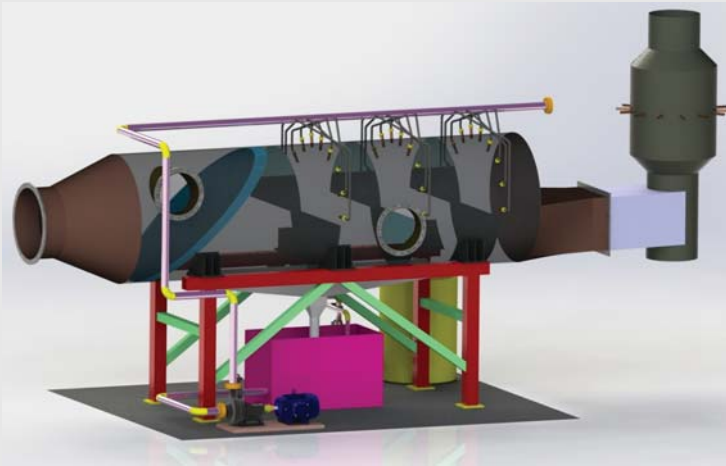
Our latest boiler systems drive cleaner, more-efficient Process / power generation in a range of comprehensive unit sizes to fit customer needs. They operate on the entire spectrum of fuels, from hard coal to lignite/ Petcoke and biomass.

EFFICIENT BOILER UPGRADES AND RETROFITS

We upgrade and retrofit Boilers to extend their lifetime and improve efficiency. Services include :

- Pressure Part Modifications.
- Fuel Conversions and Associated Jobs.
- Power Upgrades.
- Heating Surface Slag/Soot Prevention
- Turbine Upgrades and Associated Boiler Modifications.

AIR POLLUTION CONTROL SYSTEMS (SO_x CONTROL)



FGD -Flue Gas Desulphurisation

What is FGD "Flue Gas Desulphurisation"
Flue-Gas Desulfurization (FGD) is a set of technologies used to remove SO_x from Exhaust Gases coming out of the Power / Process Steam Boiler's and Furnaces running on the Fossil Fuel / High Sulphur fuel (Petcoke/Coal), and also from the Emissions of other Sulfur Oxide's Emitting Processes.

MAGO FGD

Sulphur Dioxide Scrubbing System with a minimum 99% SO_x removal. Unique feature's worth mentioning is that "the system works equally well on LOW and High Inlet SO_x concentrations Even with large variations in the Inlet SO_x concentrations to the Scrubbing system, the system produces an almost constant outlet SO_x concentrations.

This characteristic of our scrubbing system is due to its Operation in the "concentrated & absorption chemical mode". This system differs substantially from the other Sulphur Dioxide removal processes.

Mago FGD has been Designed under active participation & guidance of **Prof. P.D. Grover, Ex- Head & Dean of IIT Delhi** having more than 50 year experience in FGD / Biomass / MSW projects.

- Prof P.D. Grover served as Chairman of INDIAN INSTITUTE of Chemical Engineering (1985-1987).
- Member of Govt Of INDIA project " Regional Wood Energy Development Program -1995".
- Advisor to IL&FS for handling Municipal Solid Waste Project in Gazipur, New Delhi (12 MW CPP).



Mago has four variants of FGD.

1. MAGO VCRST FGD - NaOH as Alkali, SO_x Level REDUCTION up to < 300 PPM.
 2. MAGO - VCST FGD – NaOH as Single Alkali - SO_x Level REDUCTION up to < 50 PPM.
 3. MAGO - VCST FGD - NaOH and CaCO₃ Solution as Double Alkali (Regenerative). SO_x Level REDUCTION up to < 50 PPM.
 4. MAGO - VCSTBF FGD - Double Alkali with Molecular Media Filter. SO_x Level up to < 25 PPM.
- Fully Automatic System with SCADA.
 - Equipped with High end Instrumentation, Flow, pH, SO_x, DPT, TT etc.
 - All variants are suitable for Gas Flow's right from 15,000 M³ /Hr to 3,00,000 M³ /Hr.
 - High Efficiency absorber design provides up to 98 % Sulfur Dioxide (SO₂) collection in FGD System.
 - Free from Scaling & Plugging, hence very Low Overall Maintenance.
 - Lower SPECIFIC Power Consumption.
 - MAGO proprietary Sieve Tray design provides operation with lower L/G ratio as well.
 - MAGO specially designed nozzles deliver overlapping Spray Coverage to deliver High Removal

EFFICIENCY.

- MAGO Latest Software design system is Customise based and its simulation ensure its 100 % success rate.
- Low blow down rate & water usage.
- Provides up to 99.9 % + particulate removal efficiency.
- Very low maintenance and operating expenses

ELECTRO STATIC PRECIPITATORS:

Principal of operation : In high voltage electro static field, Gas Ionization takes place. There are tremendous amount of Electrons & Ions existing in the ionized gas. After the particles are combined with these electrons & ions, they will be polarized, most of them are negatively polarized. Under the action of field force negatively charge particles migrate towards the positive electrode and in turn release electrons and attach to positive electrode.

When the particles agglomerate and the layer reaches a certain thickness on the plate, the particles will be dislodged from the collecting plate by vibrations caused by rapping and falling into the hopper. That ends the collecting process.

Advantages:

- Experience in dealing with a wide range of fuel types.
- Most economical design.
- Optimum performance under varying load conditions.
- Higher dust removal efficiencies.
- Continuous product recovery at low operating cost.
- Initial investment in a relatively short time, thereby adding to profitability.

Electrostatic Precipitator (ESP)



BAG FILTERS:

The Bag house is a generic name for Air Pollution control equipment (APC) that is designed around the use of Engineered fabric filter tubes, Envelopes or Cartridges in the dust capturing, Separation or Filtering Process.

Working Principal of bag filters:

- The air is uniformly distributed avoid channeling
- Initially a coat of material forms on bags.
- Subsequently, the coat act as the filtering medium.
- The dust is accumulated on filter element while the air passed thorough the filter bags from outside to inside.
- The accumulated powder is dislodged from the bags by reverse pulse jet air intermittently.
- The dislodged powder falls on the bottom cone and is discharged through powder discharge valves.
- The dust free air is sucked by induced draft fan and is exhausted to atmosphere.
- Knockers are provided on conical portion.

Benefits:

- High Flow Rates
- Low Pressure Drop
- Positive Sealing
- Low Down Time
- High Dirt Holding Capacity
- Custom Design Service
- Large area, Heavy Duty
- Arrangement to avoid bypassing

BOILER ADD-ON & SPARES

- Single Cyclone Dust Collector
- High Efficiency Cyclone
- Flue Gas Desulphurizer
- Water Bath Scrubber
- ESP
- Economisers
- Water Pre-heater
- Air Pre-heater
- Petcoke Refiring System
- Smart Panel (SCADA)

- Online TDS Control
- Steam Accumulator
- Super Heaters
- PRDS
- De-aerator
- Blow- down Recovery Vessel
- Blow-Down tank
- Sampling Coolers
- Feed Water Pumps
- Ash Handling System (Mech. & Pneumatic)

OPERATION & MAINTENANCE OF STEAM BOILER & TURBINES

We have the aim of Providing reliable power at the most competitive lifetime cost per Megawatt, We offer comprehensive Operation & Maintenance services for Power Plants, Repair Maintenance of Steam Turbines through our own experienced and qualified experts which is best suited for the industry. Our several programs of inventory and innovation techniques ensure that Plant is under operation and maintenance at full load.

As a part of Operation & Maintenance services (O&M), Mago Thermal monitors & manages fuel quality and consumption, Water quality and consumption, Chemicals, Spares and other consumables.

We are providing our services from 350 KW to 50 MW capacity Power Plant

▶ WHY MAGO THERMAL FOR O&M SERVICES ?

- No OEM Supervision in overhauling of various Equipments.
- No Assistance for spares, Chemicals & Consumables for OEM.
- In-house Assistance for all the troubleshooting, inventory etc.
- Fixed costs.
- Guaranteed availability of Power.
- Guaranteed Performance.
- Ability to sale surplus Power.
- Maintenance inspection optimization.
- Maintenance Cost Production.
- Extended Plant Life.
- Plant Operation Flexibility.
- Increased Operating Safety.
- Performance improvements through Innovation & Cross learning.
- Availability & reliability improvements.
- In-house manufacturing & workshop facility for repairing, sand blasting and for all job works related to power plant industry.
- No need for an In-house team of O&M Staff.

For more details, please visit on

www.magothermal.com

Our Prestigious Clients



SHAHI EXPORTS PVT. LTD.
(Unit Sarla Fabrics)



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