



**FUSION Engineering Company**



**Electrostatic Precipitator | Air Preheater | Boiler Components  
Coal Mill Spares | Gates and Dampers | Ash Handling Spares  
GD Test | Boiler Performance Testing | Expert Supervision**



**Fusion Engineering** is a trusted manufacturer of high-quality boiler components, delivering precision-engineered solutions to meet the demanding needs of power, process, and industrial sectors. With a strong foundation in engineering excellence and manufacturing expertise, we specialize in producing reliable components that ensure safety, efficiency, and long service life in boiler systems.

Our manufacturing capabilities cover a wide range of boiler components, designed and fabricated in accordance with national and international standards. Every product is manufactured using quality-approved raw materials, advanced fabrication techniques, and rigorous inspection processes to ensure consistent performance under high pressure and temperature conditions.

At Fusion Engineering, we are driven by a commitment to quality, timely delivery, and customer satisfaction. Our experienced engineering team works closely with clients to understand application requirements and deliver customized solutions that add real value. Through continuous improvement, strict quality control, and a customer-centric approach, we aim to be a dependable partner for boiler component manufacturing across industries.

# Vision

To be a trusted and preferred manufacturer of boiler and auxiliary components, recognized for engineering excellence, consistent quality, and reliable performance across power and process industries.

# Mission

- To design and manufacture boiler components that meet the highest standards of safety, quality, and performance under demanding operating conditions.
- To comply with national and international codes and applicable industry standards through disciplined manufacturing and quality control practices.
- To deliver customized, cost-effective solutions with a strong focus on timely execution and customer satisfaction.
- To continuously enhance manufacturing capabilities, technical competence, and process efficiency through innovation and skill development.
- To build long-term partnerships with customers by maintaining transparency, reliability, and ethical business practices.



At **Fusion Engineering**, our Engineering & Design function forms the backbone of reliable and high-performance boiler component manufacturing. We combine practical field experience with disciplined engineering practices to deliver designs that comply with statutory codes, operate safely under extreme conditions, and integrate seamlessly with customer systems.

### **Design Capabilities**

Our engineering team is experienced in the design and detailing of boiler pressure parts, non-pressure parts, and boiler auxiliaries for high-temperature and high-pressure applications. Designs are developed in accordance customer-specific standards.

### **Engineering Tools & Software**

We utilize industry-accepted design and drafting tools to ensure accuracy, repeatability, and traceability.

### **Customization & Reverse Engineering**

Fusion Engineering offers complete custom engineering solutions, including modification and reverse engineering of existing components. This enables seamless replacement of worn or obsolete parts while maintaining dimensional compatibility and performance requirements.

### **Design Validation & Quality Integration**

Engineering outputs are closely integrated with our Quality Assurance system to ensure compliance throughout manufacturing.

With a focus on engineering discipline, statutory compliance, and manufacturability, Fusion Engineering delivers design solutions that ensure safety, efficiency, and long-term operational reliability.

# Supply of Components for Rotary Air Preheater

## Rotor Assembly

- Rotor Housing (Casing)
- Rotor sectors / baskets
- Rotor post and diaphragm plates
- Sector plates and support grids

Designed to hold heat transfer elements and ensure structural integrity during rotation.

## Housing & Casing

- Air and gas ducts
- Expansion joints
- Inspection doors and access covers

Provides containment and allows maintenance access.

## Heat Transfer Elements (Heating Baskets)

- Corrugated heat transfer plates
- Hot-end, intermediate, and cold-end elements
- Carbon steel / Corten steel / enamel-coated elements
- DU, DL, NF, NU, DUN, CU & FNC Profiles

Provide efficient heat recovery from flue gas to incoming air.

## Drive System

- Electric motor
- Main gearbox
- Auxiliary (turning) drive
- Couplings and drive pinion

Ensures smooth and controlled rotation of the rotor.

## Bearing System

- Thrust bearing
- Guide (radial) bearing
- Bearing pedestals and lubrication system

Supports rotor weight and maintains alignment under operating loads.

## Sealing System

- Radial seals
- Axial seals
- Circumferential & Bypass seals
- Flexible seal strips (Soft Touch Seals)

Minimizes air-to-gas leakage and improves thermal efficiency.



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# Supply of Components for Rotary Air Preheater

## Soot Blowing & Cleaning System

- Steam / air soot blowers (Retractable & Swinging Arm)
- Water washing connections
- Ash handling provisions

Prevents fouling and maintains heat transfer efficiency.

## Sector Plates & Diaphragm

- Gas and air sector plates (SA, PA & FG)
- Diaphragm plates
- Rotor Gratings
- Structural stiffeners

Ensure proper separation of air and gas streams.

## Expansion & Protection Components

- Expansion bellows
- Thermal relief plates
- Hot-end corrosion protection coatings

Accommodate thermal expansion and resist corrosion.

## Instrumentation & Accessories

- Speed monitoring devices
- Temperature sensors
- Differential pressure gauges
- Drive and bearing protection switches



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# Supply of Components for Electrostatic Precipitator

## Discharge / Emitting Electrode

- Spiral Type
- Pipe with Spike
- Multi Peak
- Strip with Spike type
- Barbed Type
- Single density
- Double density
- Isodyn Profile
- Stretching tool



## Collecting Electrode

- 'G' Profile
- 'G' Opzel
- Single baffle
- Double baffle
- All kind profiles.,

## COLLECTING ELECTRODE SUSPENSION AND RAPPING SYSTEM

- Collecting suspension Frames
- Attachment angle
- TR , LR Beams
- Stiffening Beam
- Stiffening channel
- Shock bar (Firm Type / Loose connection)
- Shock Pad / Shock Head / Anvil
- Punched Washer
- Huck Bolt
- Collar
- Shock Bar Guide – Angle Type
- Attachment for shock bar
- Clamp
- Shock Bar Guide – Rapping side
- Shock Bar Guide – Non Rapping side
- Shock Bar Guide – Front side
- Shock Bar Guide – Rear side
- Attachment for shock bar guide
- U Guide
- Pop Rivet
- Link Rod

- Walk way
- Rapping shaft
- Sleeve for Rapping Shaft
- Inner Arm
- Outer arm
- Set Ring / Adjustment Ring
- Plain Bearing
- Two Roller Bearing
- Four Roller Bearing
- Free bearing
- Fixed Bearing
- Shaft sleeve for Roller Bearing
- Baffle Plate
- Shims
- Support for Plain Bearing
- Rapping Bracket
- Packing Box
- Gland
- Coupling
- Clutch
- Bearing & Housing Assy.
- Geared Motor



### Emitting Frame Work assembly and Rapping system

- Frame Part – Top, Middle, Bottom
- Pressed Hook / Emitting Hook
- Suspension Channel
- Lifting tool
- Suspension Bar / Suspender
- Lock for Suspender
- Emitting Baffle
- Top Flange
- Bottom Flange
- Alignment Jig
- Gasket & Rope
- Vertical Beam –Rapping side
- Vertical beam – Non Rapping side
- Diagonal stay
- Stair Beam
- Ladder
- Lifting Handle (For Earthing)



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- Support Insulator
- Shaft Insulator
- Wall Bushing Insulator
- Pin Insulator
- Post Insulator
- Damping Resitance
- Heaters
- Thermostat
- FRP Coil
- Emitting Horizontal Shaft
- Upper Shaft
- Lower shaft
- Sleeve for Horizontal shaft
- Plain Bearing
- Two Roller Bearing
- Four Roller Bearing
- Free Bearing
- Fixed Bearing
- Shaft sleeve for Roller Bearing
- Set Ring / Adjustment Ring
- Baffle Plate
- Inner Arm
- Outer Arm
- Emitting Vertical shaft
- Sleeve for Vertical Shaft
- Three Roller Bearing
- Shaft sleeve for Three roller bearing
- Bush bearing
- Bracket for Bush Bearing
- Support for Bush bearing assembly
- Cover / Dust Guard
- Pin Wheel (Small / Big)
- Thrust Bearing
- Pad
- Bracket
- Carbon bush
- Drive shaft
- Grip Coupling (Drive /Non Drive End)
- Bearing & Housing Assy.
- Thrust ball Bearing & Washer
- Screen tube
- Scavenging Screw CW/ ACW
- Disconnecting switch
- Geared Motor



### EMIGI Rapping system

- Rapper Coil
- Plunger With SS Plate
- Hypalon Boot with SS Clamp
- FRP Shaft Insulator
- Single side tapered shaft Insulator
- Double side tapered shaft Insulator
- Anvil Cap
- Seal / Purge Air system
- Turn buckle Arrangement
- Tadpole Top / Bottom
- Alignment Rack



### Gas Distribution system

- GD Screen
- Locking Plate
- Support Iron
- Deflection plate
- Throttle Plate
- Outlet Screen



### Hopper Assembly

- Hopper deflection Plate assembly
- Corner Pipe
- Heating Jacket Panel assembly
- Hopper Ridge cap
- Bypass Chute
- Poke tube with Cap
- Hopper Door
- Slide Gate
- RAV
- Hopper Heater
- Thermostat
- Hopper Vibrator



### ESP Structure Parts

- Foundation bolt assembly
- ESP Columns
- Inlet / Outlet funnels
- Casing Panels
- Inner / Outer Roof panels
- Hopper Panels
- Hopper Ridge
- Expansion Joint
- Insulator Housing
- Platform & staircase
- Gratings
- Mechanical safety Interlock system



## ESP Electricals

- Transformer & Rectifier set
- MCC Panel
- ACC Panel
- Controllers
- Rapper Controller
- Junction box
- Local Push button



## ESP Services

- ESP Technical supervising
- Third Party Inspection of Retrofit / New ESP
- Conducting GD Test
- Conducting Air leak test
- Conducting Air Load Test
- Performance Testing
- Technical supervising of Pre commissioning and Commissioning



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# Supply of Components for Gates & Dampers

## Flue Gas Dampers

- Guillotine dampers
- Single-louver dampers
- Multi-louver dampers
- Butterfly dampers

Used for isolation and flow control in flue gas and air ducting systems.



## Isolation Dampers

- Zero-leakage isolation dampers
- Tight shut-off dampers
- Double blade isolation dampers

Designed to prevent gas leakage during shutdown or maintenance.



## Control Dampers

- Modulating control dampers
- Parallel blade dampers
- Opposed blade dampers

Provide precise flow regulation and pressure control.



## Expansion & Sealing Dampers

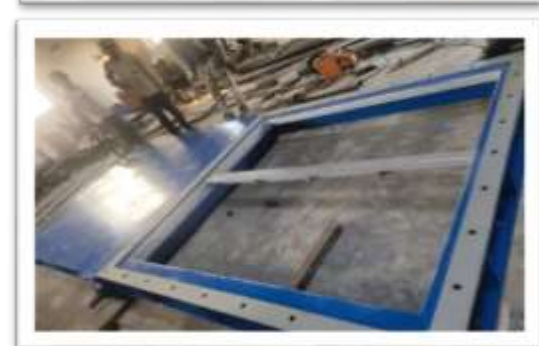
- Fabric expansion joint dampers
- Metallic expansion dampers
- Sealed frame dampers
- Couplings and drive pinion

Accommodate thermal expansion and duct movement.

## Inlet & Outlet Dampers

- Boiler inlet dampers
- ID / FD / PA fan outlet dampers
- APH inlet and outlet dampers

Used to control air and gas flow in boiler and fan systems.



## Diverting & Switching Dampers

- Two-way diverter dampers
- Three-way diverter dampers
- Bypass dampers

Enable flow direction change in ducts and stacks.



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### Penstock & Slide Gats

- Manual slide gates
- Motorized slide gates
- Rectangular / square penstock gates
- Butterfly dampers

Used for material handling, ash handling, and dust control systems.

### Ash Handling Gates

- Clinker grinder inlet gates
- Hopper isolation gates
- Double flap valves
- Dome valves

Designed for high-temperature ash and particulate isolation.

### Air Control Gates

- Primary air (PA) gates
- Secondary air (SA) dampers
- Tertiary air dampers

Control combustion air distribution.

### Material of Construction

- Carbon steel (IS 2062 / ASTM A36)
- Corten steel
- Stainless steel (SS 304 / 316 / 310)
- Alloy steel for high-temperature applications

### Actuation & Accessories

- Manual, pneumatic, electric, or hydraulic actuators
- Gearboxes and limit switches
- Positioners and solenoid valves
- Sealing systems (metallic, graphite, fabric)

### Standards & Compliance

- Designed as per ASME, IS, DIN, and customer specifications
- Suitable for high temperature and corrosive environments
- Tested for leakage, operation, and endurance



# Supply of Boiler Components

## Coal Mill Spares

- Coal Mill Discharge Hopper
- Coal Compartment Assembly
- Coal Nozzle
- Splitter Plate
- AA Port Front / Rear / Top & Bottom Nozzle
- Aux Port Front / Rear / Top & Bottom Nozzle
- Grinding Rolls / Journal Assembly
- Scrapper Assembly
- Grinding Table Ring
- Grinding Table Hub
- Hub Plate
- Air Inlet Ring Segment
- Lower Housing Bottom Liners
- Roller Liner



## Boiler Spares

- Boiler Erosion Protection Shield
- Boiler Nozzle
- Oil Pump
- Fuel Line Components
- Water Line Spares
- Burner Assembly
- Burner Circulating Rod etc.



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## Customer Focus



**Coal Power Station**

**Oil Refineries**

**Cement Plants**

**Fertilizer Plants**

**Paper & Pulp Units**

**Steel Plants**

**Biomass Energy**



## Countries Served

**Vietnam**



**Philippines**



**Brazil**



**India**



**Kuwait**



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## Fusion Engineering Company

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