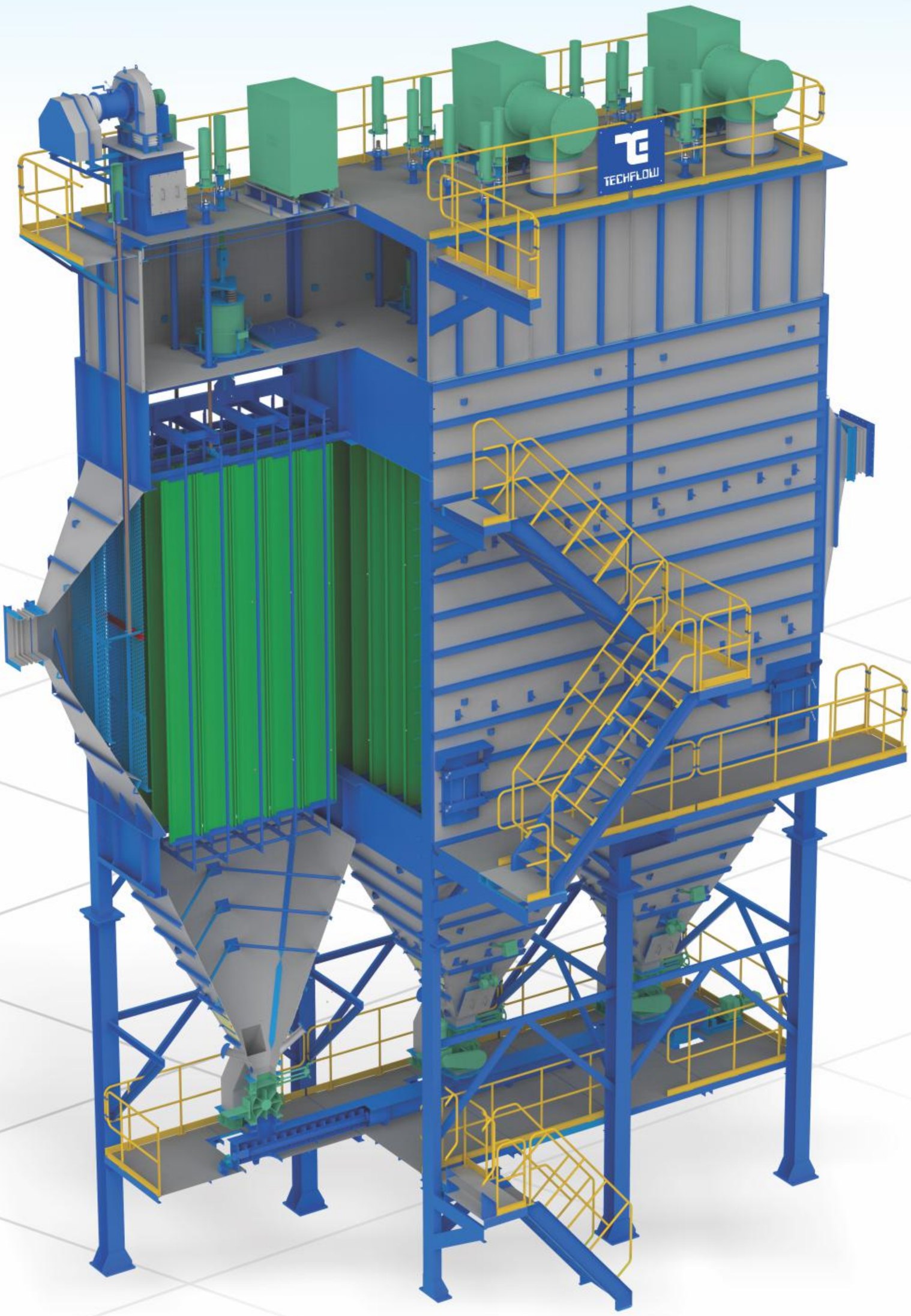
Healthy Air-vironment Always ...Anywhere!



SINCE 1979 ®

TECHFLOW

Healthy Air-vironment Always .....Anywhere!

Tuff ® DUST CONTROL TECHNOLOGIES

ELECTROSTATIC PRECIPITATORS

TÜV SÜD ISO 9001

CE

www.techflow.net

Electrostatic Precipitator Design Features

The High efficiency Horizontal Plate Type Electrostatic Precipitator, designed indigenously by "TECHFLOW", offers superior efficiency in managing particulate emissions. It is engineered to operate effectively on fuels with Sulphar content ranging from 0.3 to max. 1% and resistivity of Fly ash ranging from $1x10^{10}$ to $2x10^{13}$ ohm cm, making it suitable for a wide variety of industrial applications.

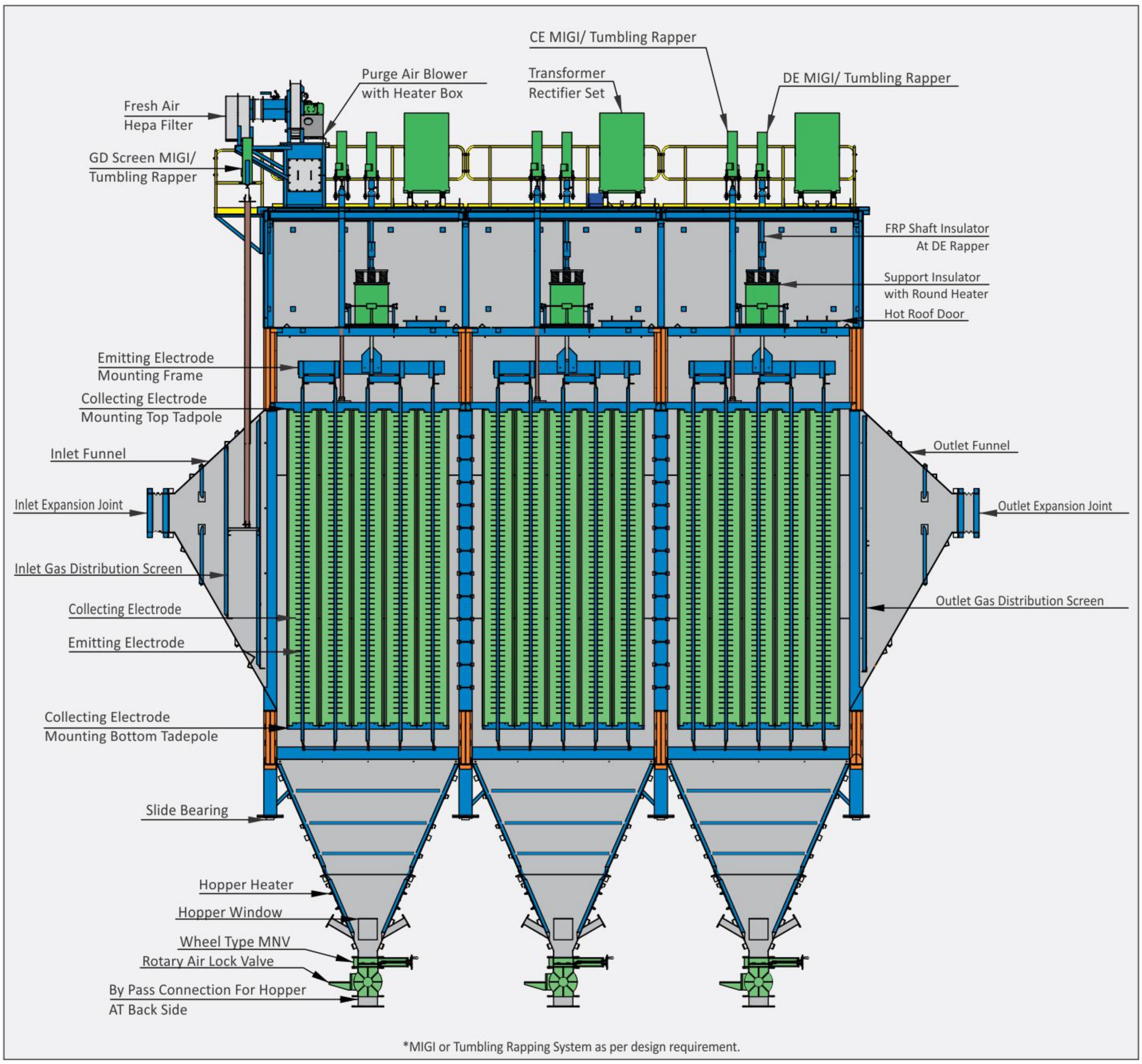
Energization levels in an Electrostatic Precipitator are significantly influenced by the resistivity of the ash, which is derived from its chemical composition, flue gas conditioning agents, and flue gas temperature. These factors collectively determine the appropriate ESP sizing, treatment time, and overall configuration, ensuring optimal performance and efficiency.

PERFORMANCE OPTIMIZATION FACTORS :

- Electrical energization level.
- Particle size of ash.
- Available treatment time in the precipitation zone.

ELECTROSTATIC PRECIPITATOR FEATURES :

- Special Collecting Electrodes.
- Pipe and Spike Discharge Electrodes.
- MIGI / TUMBLING Rappers for CE, DE, and GD.
- Pent House Heating System.



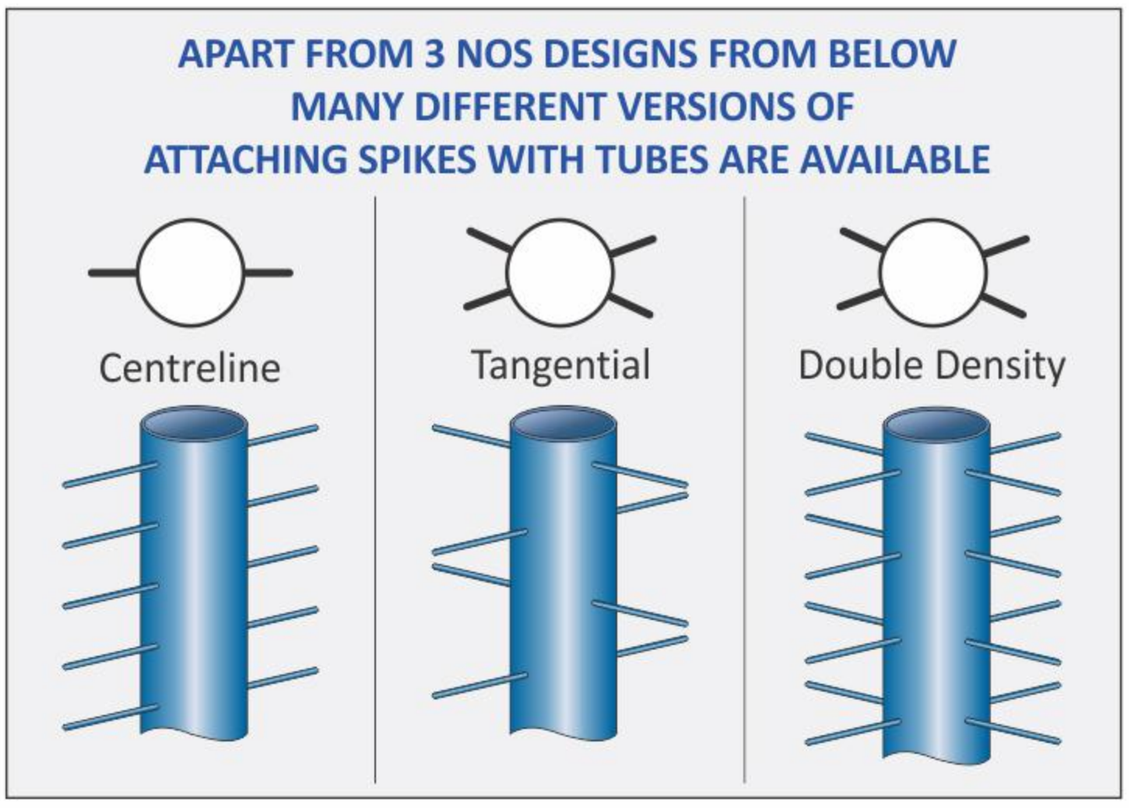
*MIGI or Tumbling Rapping System as per design requirement.

The Pipe & Spike Rigid Discharge Electrode

The Pipe & Spike Rigid Discharge Electrode is unbreakable and maintenance free. It provides high field strength resulting in improved collection efficiency. The Pipe & Spike rigid discharge electrode is comprised of two roll-formed steel sections welded together along their emitting edges with provisions for their attachment to the high voltage structural framework. The configuration provides uniform corona distribution while maximizing equipment reliability. Completely shop fabricated, no field assembly is required.

FEATURES OF PIPE & SPIKE RIGID TYPE DISCHARGE ELECTRODE INCLUDE:

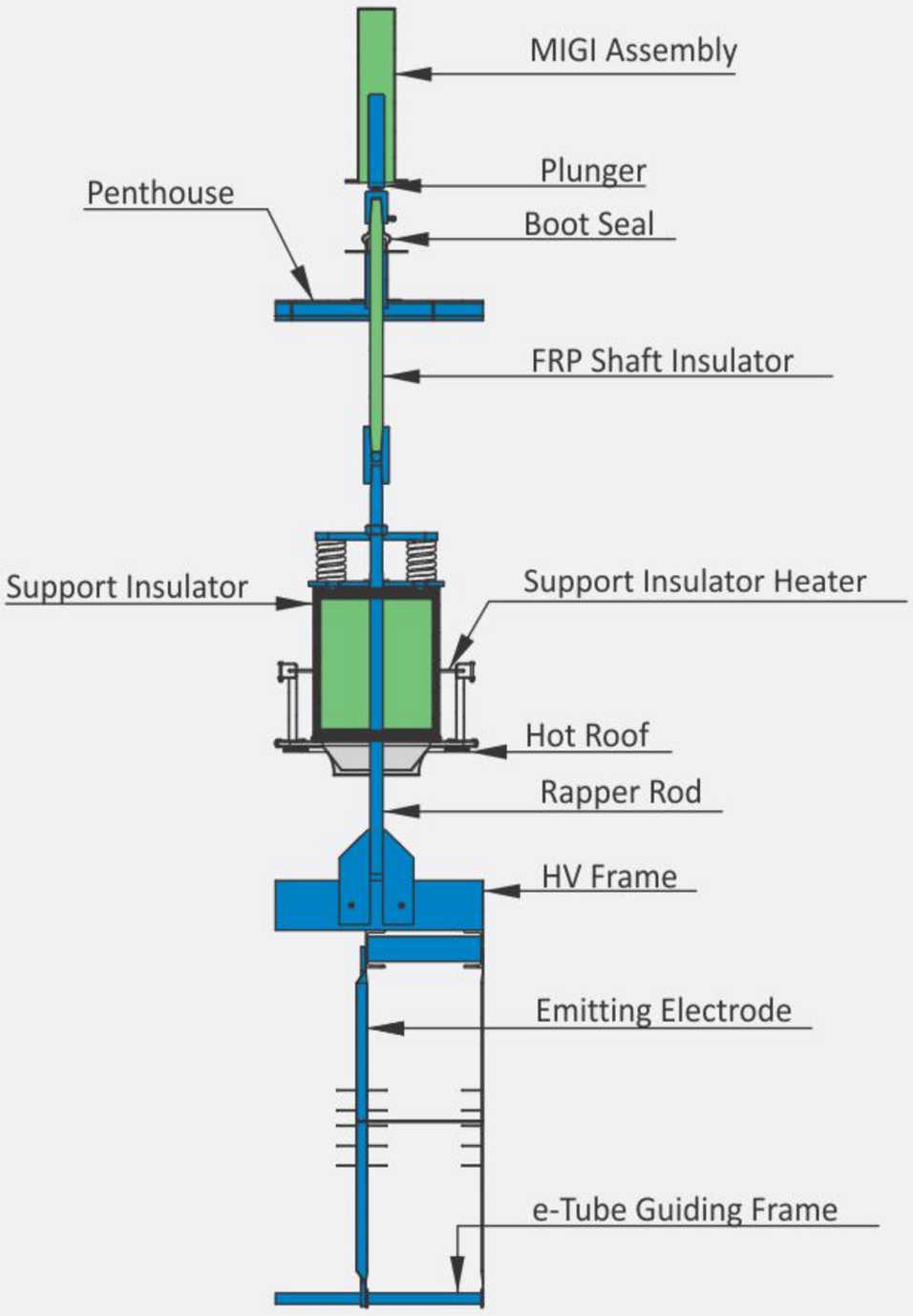
- Inherent rigidity
- Maintenance Free
- Can withstand arcing problem
- Resilient assembly
- Self-alignment of collecting plate



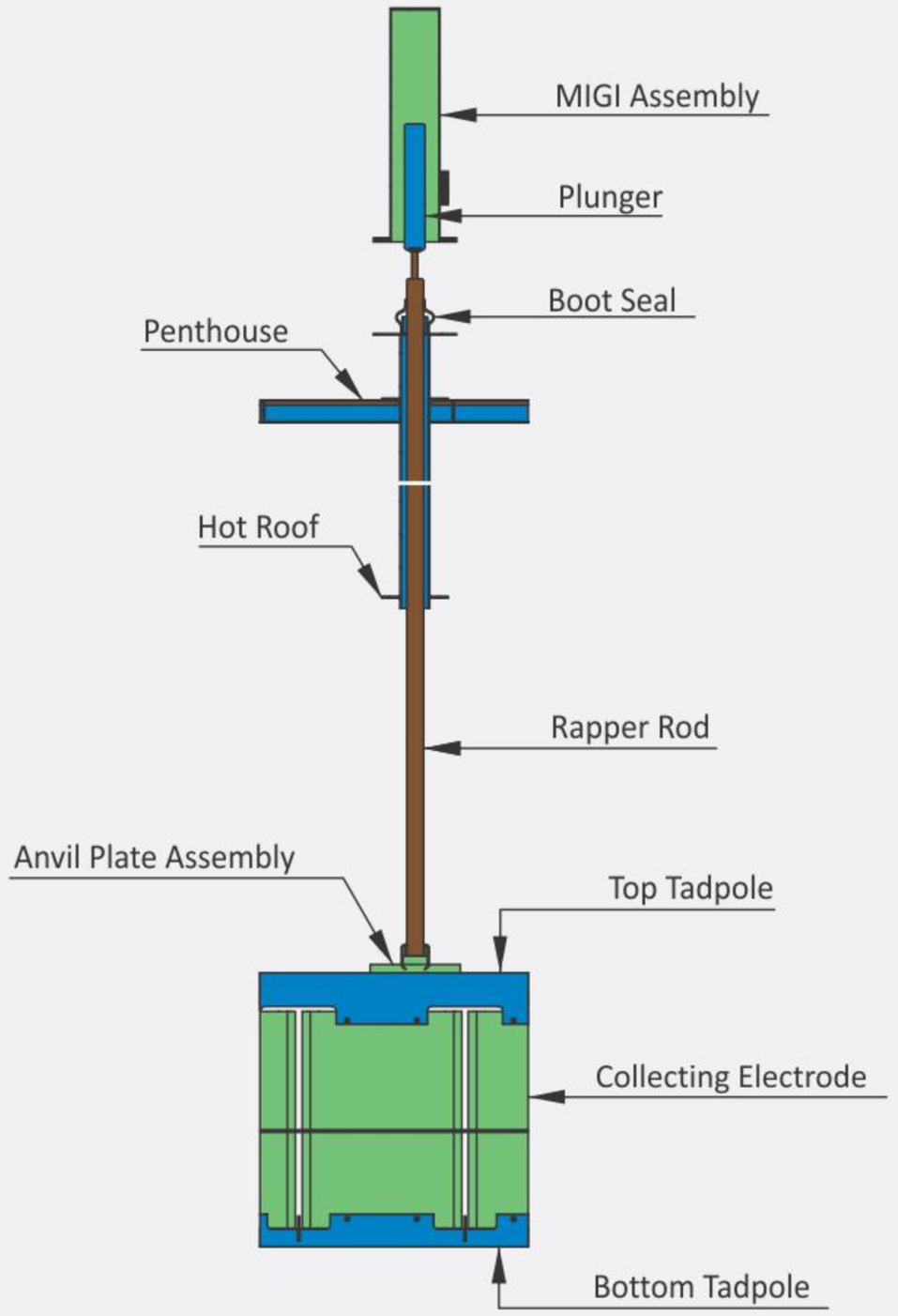
MIGI RAPPING SYSTEMS ('MIGI' - Magnetic Impulse Gravity Impact)

Rapping ensures effective dislodging of dust from ESP electrodes using controlled mechanical impulses, enhancing collection efficiency and minimizing re-entrainment.

EMITTING ELECTRODE MIGI RAPPING SYSTEM



COLLECTING ELECTRODE MIGI RAPPING SYSTEM



*MIGI or Tumbling Rapping System as per design requirement.

COLLECTING ELECTRODE

- Provides greater g-force response with less energy input.
- Aerodynamically designed baffles reduce re-entrainment and aid particulate collection.
- Constructed using cold-rolled steel, assembled into full panel plates with triangular baffles for structural rigidity.
- Alignment guides ensure proper positioning, and rolled tubes suppress sparking.

TRANSFORMER RECTIFIER SETS

- Supplies high-voltage DC to discharge electrodes via transformers.
- Includes isolating switches, rigid metal busbars, and high-voltage disconnection for safety.
- Thyristor-controlled design regulates spark-over voltage for optimal ESP performance.
- Control cubicle monitors current and voltage, with remote disconnection capability.
  Operates best in ambient temperatures not exceeding 50°C.

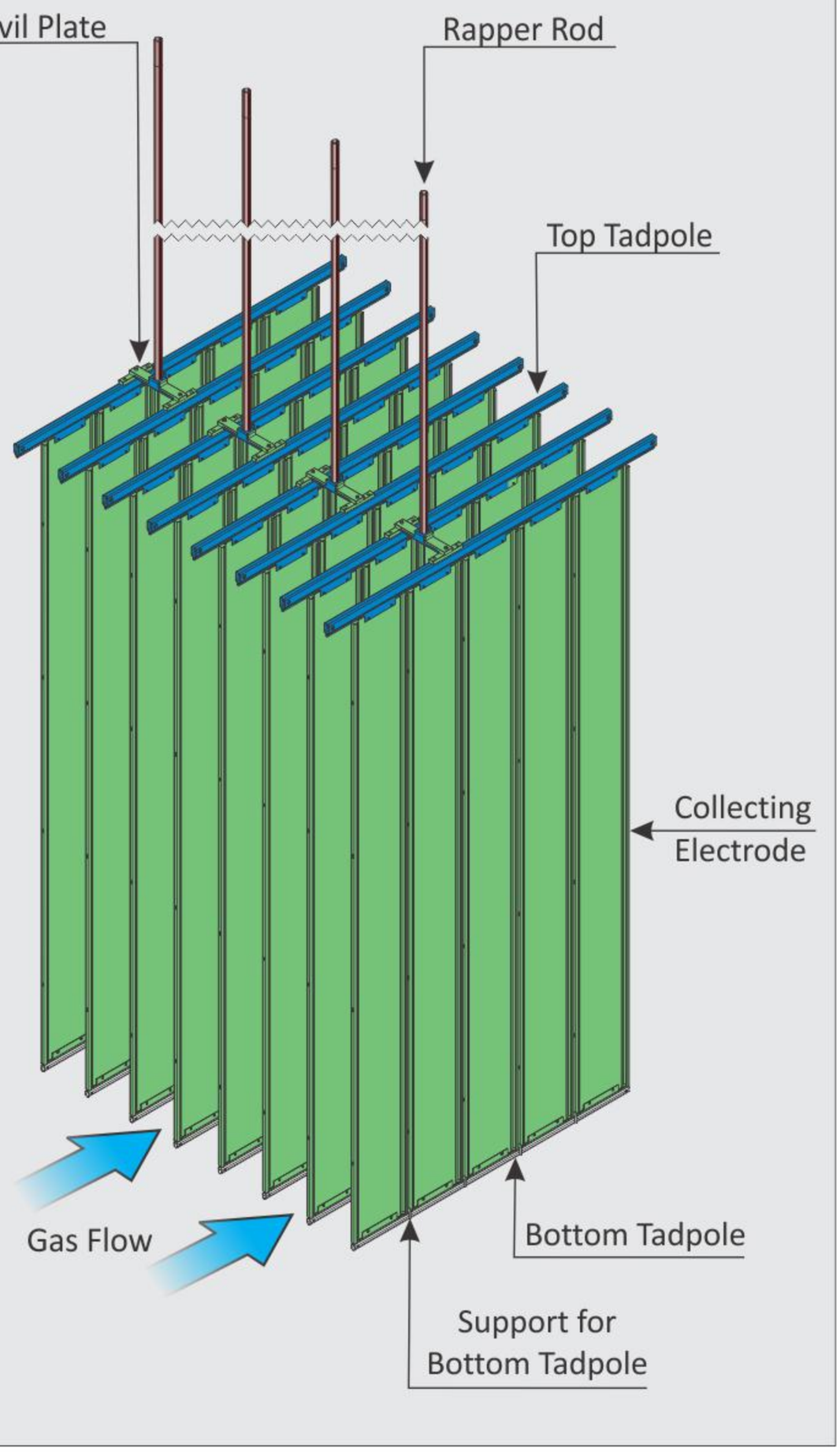
MICROPROCESSOR-BASED HVR CONTROLLERS

- Provides quicker response to electrical changes compared to older systems.

EARTHING AND SHIELDING

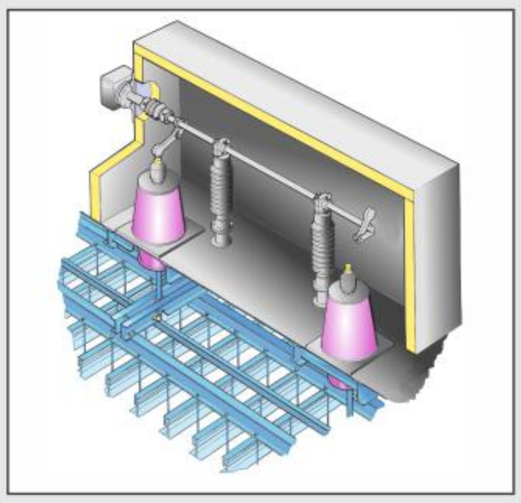
- Double earthing points positioned diagonally for maximum equipment protection.

COLLECTING ELECTRODE WITH MIGI

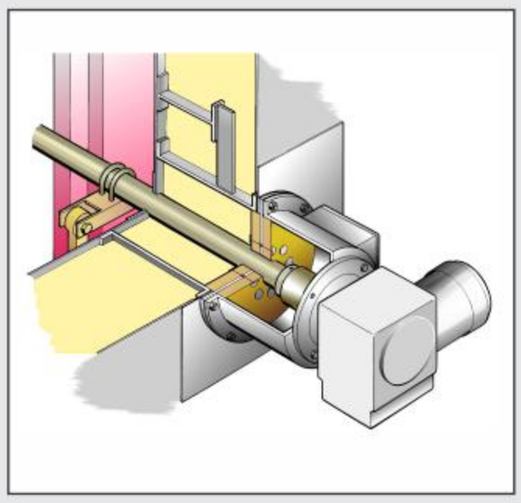


TUMBLING RAPPING SYSTEM

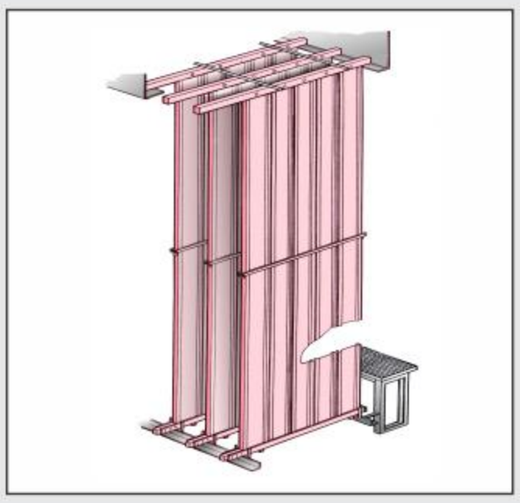
- Tumbling Rapping employs rotational impact to shake off accumulated dust from electrodes, ensuring consistent cleaning and stable ESP performance across varied industrial applications.



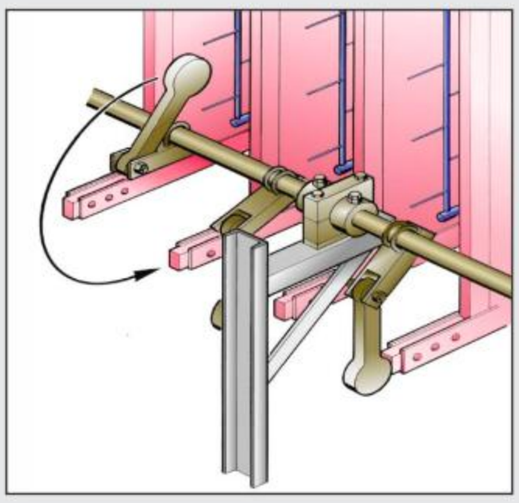
DE with Tumbling Rapping



CE Rapper Drive



CE with Tumbling Rapping



CE Rapping Hammer

*MIGI or Tumbling Rapping System as per design requirement.

Electrostatic Precipitators

FEATURES

- Design range: 10,000 to 3,00,000 m3/hr
- Collection efficiency: 99.9%
- Guaranteed achievable emission: less than 20 mg/Nm3
- Temperature: up to 220°C (Regular ESP) / 350°C (Hot ESP)
- Continuous Emission Monitoring Systems (CEMS)
- Opacity Meters / Dust Monitors

BENEFITS

REDUCED ERECTION TIME

Pre-assembled electrode positioning frames simplify installation, eliminating on-site spacing adjustments.

LOW AIR LEAKAGE

Strict weld joint control and double-walled inspection doors with high-temperature silicon seals ensure air leakage is less than 2%.

RELIABLE AFTERMARKET SERVICES

Comprehensive support includes commissioning, tuning, optimization, testing, training, and replacement parts.

PRIOR EXPERIENCE

Over four decades of OEM experience in industrial air pollution control across 21+ industries, with proven baghouse / bag filter expertise.

APPLICATION / USES

BOILER INDUSTRY

- Stoker Fired Boiler
- AFBC Boiler
- CFBC Boiler
- Multi Fuel Boiler
- Biomass Boiler

STEEL INDUSTRY

- Sinter Plant Dedusting
- Sinter Waste Gas Treatment
- Pelletisation Plant

NON-FERROUS PLANT

- Copper
- Zinc
- Aluminium
- Smelters

WASTE HEAT RECOVERY BOILER

Subject to technical change without notice.

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Tuff ® DUST CONTROL TECHNOLOGIES

Factory at Ahmedabad (Gujarat)-INDIA

(Workshop Area: 40,000 square meter)

ESP BROCHURE / 2025

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AN ISO 9001-2008 COMPANY

TÜV SÜD ISO 9001

CE

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