

CII NATIONAL AWARD
ENVIRONMENTAL BEST PRACTICES 2026

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KFIL Jejuri

08th Oct 2026

KFIL Jejuri – Plant Introduction

Name of the Company	Kirloskar Ferrous Industries Ltd. Jejuri
Plant Location	Jejuri, Maharashtra
Industry	Ferrous / Steel Manufacturing
Major Products	As Cast & As Rolled
Manufacturing Route	Scarp – EAF – LRF – VD – CCM – Rolling
Major Process	SMS , Rolling Mill & Heat Treatment
Production Capacity	0.3 MTPA
Employees	456
Operational Area	58 Acres
Certifications	ISO 9001:2015 / ISO 45001:2018 ISO14001:2015 / IATF16949:2016

Manufacturing Process Flow



Raw Material (Scrap/ DRI/ Pig iron) → **SMS** (EAF/LRF/VD) → **CCM** (Continuous Casting Machine) → **Rolling Mill** (Reheating / Rolling / Finishing) → **Finished Product**



Vision

Be a sustainably growing organisation creating value for all stakeholders with limitless opportunities.

Mission

Be the globally preferred manufacturer of metal and metal products through sustainable practices, delivering innovative and breakthrough solutions to our customers. We are committed to growth by value creation for all stakeholders by unleashing people's potential.

VALUES

- **EXCELLENCE :** Everything we do, quality without compromise.
- **INTEGRITY :** Say what we do, and do what we say.
- **COLLABORATION :** We grow with people and partners.
- **EMPATHY :** We always listen, understand and learn.
- **VALUE CREATION :** We're building for a shared prosperous future.
- **INNOVATIVE THINKING :** Be bold and brave, & stay relevant.

Key Customers

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Automotive

Maruti Suzuki – Way of Life!
Toyota
Daimler
Volkswagen
Mahindra Rise
Tata Motors

Bearing

SKF
Schaeffler – LuK, INA, FAG
nbc – flexible solutions – CK Birla Group
NRB Bearings
JTEKT – Ball & Roller Bearings
Orbit

General Engineering

Wipro Infrastructure Engineering
Indian Railways
BEML – New Frontiers. New Dreams
Praj – Innovate • Integrate • Deliver
John Deere
JCB

Projects & Power

BHEL
thyssenkrupp
L&T
ISGEC
GE Power India Limited
Thermal Systems (Hyderabad) Pvt Ltd

Project Title : Design and Implementation of a High-Capacity (900,000 Am3/Hr) Fumes Extraction System (FES) for Electric Arc Furnace

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1. Project Triggers

Excessive Fume

- Inadequate existing system resulted in excessive fume on the shop floor.

Low Visibility

- Polluted air severely reduces visibility across shop floor

Fugitive emission

- Fugitive emission in the surrounding areas.

2. Uniqueness of Project

100% Circular Recovery & Compliance

- High-Zn/Fe dust sold to MPCB authorized recyclers (Zero Landfill)
- Stack PM < 10 mg/Nm³ (>80% cleaner than norms).

Water-Cooled Ducts

- Safe thermal buffer significantly extends filter bag life to 34+ months.

Closed-Loop Controls

- Automated PLC control system regulates the fan speed with respect to fume load in the furnace.

3. Execution Roadmap

2023 • Planning & Engineering

- Feasibility modelling, capital budget approval & system design.

2024 • Procurement & Civil Works

- Major FES equipment procurement & civil foundation setup.

2025 • Installation & Cold Trials

- Equipment installation, accessories & cold trials of FES.

2026 • Fume extraction system commissioning

- System commissioned on Jan 26
- Monitoring PM trend through opacity meter.
- Project cost- 60 Crores.

Tangible Benefits

Statutory compliance

- Reduced fugitive emission.
- Improved work zone air quality & enhanced people's morale.
- Reduction of particulate matter through stack.

PM level reduced from 117 to 9 mg/Nm3

(Statutory limits 150 mg/Nm3)

Specific Energy Optimization.

- Fixed speed to VFD.
- Manual operation to automated dust collection system.
- Specific Energy Consumption reduction through the modulation of ID fan speed from 50 RPM to 900 RPM based on funrace operating condition through PLC/SCADA automation.

➢ 38 % reduction in energy consumption.

Waste to wealth

- 100% fugitive particulate matter captured and diverted to circular economic streams.
- Zero Landfilling

Intangible Benefits

1. Health & Morale

Zero Hazard Across shop floor

- **Clean environment :** Elimination of smoke hazard in shop floor.
- **Clear visibility:** Crane operators handle ladles safely.
- **Workplace Dignity:** Elevated floor pride with clean air.

2. Paradigm shift

- **Shift Ownership:** Clean air seen as personal shift duty.
- **Frontline Ideas:** Frontline kaizens seal minor issues.
- **Reward Culture:** Monthly recognition for zero-leak upkeep.

3. Surrounding Community

Zero Community Complaints

- **Clean Farm Air:** Surrounding agricultural areas protected.
- **Zero complaints:** Zero community gate complaints.

Project Implementation Status: Before vs. After

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Before



After



Benefits:

Air Quality

91.8%

Reduction in PM

- Particulate matter measurement < 10 mg/Nm3
- MPCB Norms < 150 mg/Nm³.
- Continuous PM emission tracking in SCADA

Energy Savings

38%

Reduction in specific energy consumption

- Optimised electrical energy consumption via VFD synchronisation with EAF cycle.
- Automated PLC-VFD speed modulation aligned with melt stages

Waste Management

0 %

Landfill Waste

- All captured dust dispatched to authorized MPCB recyclers.
- Closed-loop dry extraction with sealed collection hopper bagging.

Replication Across Units, Sector Sharing & Scale-Up

A. Replication & Multi-Unit Sharing

Cross-Functional Teams

Operation and maintenance teams conduct weekly operational audits.

Replication

Planned to install same design of primary & secondary de dusting system in the upcoming steel projects at KOPPAL.

B. Scale-Up & Succession Readiness

SOPs

- Bag House Operation & Maintenance
- ID fan & Motor changeover
- Control room & AC system

Backups

- PLC program
- SCADA backups
- SLD Diagrams

Vendor & Spares

- Sourcing critical spares for continuous operation

5S & Safety

- Implemented 3S in FES area
- Adherence to safety compliance.

Challenges & Mitigation during Implementation

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1. Technical Risks (Challenges) Mitigation:

- Brownfield Spatial Limits: Fitment of new system in the existing layouts - Solutions through expert consultant team & erection team.
- Process Synchronization: Optimizing fan speed with respect to fume load - Repeated trials & development of program.
- Dust Cleaning: Sequencing dust cleaning cycle - Developed customized program.

2. Administrative:

- Zero production loss during civil work
- Zero incidents during erection & commissioning

  - Tool box talk at the start of shift.
  - Continuous Monitoring erection work by safety stewards

3. Maintenance Related

- Bag House: Established standard maintenance practices for uninterrupted bag house operation
- Monsoon Bag Moisture: Dedicated inline air dryers to prevent bag choking.
- Predictive Monitoring: Differential pressure transmitters trigger auto reverse-pulse cleans.

Achievement of National Benchmark / Standard

Dimension (5M)	Conventional Practice	KFIL Jejuri Practice
MEN (People)	**Fugitive leaks:** Six People per shift engaged in FES operation & waste disposal	Two people per shift engaged in FES operation with the enhanced automation level
MATERIAL (Dust / Waste)	**100% Dust Dumped into Landfills** Open disposal incurring tipping fees & soil hazards	**100% Circular Recovery (Zero Landfill)** High-Zn/Fe dust sent directly to MPCB authorized recyclers
METHODS (Airflow Sync)	Continuous unmodulated power draw regardless of melt phase	Automated PLC-VFD sync. modulates suction across furnace cycles
TECHNOLOGY (Duct & Asset)	**Uncooled Pipes & High Wear** Filter bags gets damaged within 4 months due to thermal stress	Tailor made water-cooled ducting acts as active thermal quench buffer Bag Life guaranteed to 34+ Months
MEASUREMENT (Monitoring)	**Monthly Manual Chimney Testing** No continuous data monitoring Measured once in a month	**Real-Time Monitoring with Opacity Meter** PM measurement <10 mg/Nm³ vs 150 mg/Nm³ (MPCB limit).

Priority Plans on Fast Track: +1 and +2 Years

01

Performance Measuring

+1 YEAR

Calibration of all sensors & opacity meter.

+2 YEAR

- Fan balancing
- Checking healthiness of filter bags.

02

Scaling up

+2 YEAR

Providing more suction points in the conveyors, skull cutting area & preheating area

03

Training & Education

+1 YEAR

150 hours dedicated shop floor training.

+2 YEAR

Marathi (local language) digital checklist tablets.

04

Continuous Improvement

+1 YEAR

Dust Conveying system valve modified to extend the life span

+2 YEAR

Fabric development to extend the filter bags life span.

05

Resource Requirement

+1 YEAR

Dedicated technician for bag house system.

+2 YEAR

PLC cards and program backup

Top 10 Practical Best Practices Adopted during Project Implementation Stage

A. Safety

- **1.Toolbox Talks:** 15-minute safety briefings at the start of shift - Zero site incident.
- 2. Close monitoring of erection activities by safety officers.
- **3.Job safety analysis:** Undertakes risk assessment study for fabrication and erection to ensure safety of the employee .
- **4. Crane selection:** Erection crane selected based on factor of safety @ 1.5 X load to lift at maximum radius to avoid potential incident.

B. Quality

1. Conducted third party inspection of structure to ascertain the design strength.

2. Vendor site inspection prior supply of the FES system component at vendor end.

3. Drives and panel testing at vendor end

C. Administration

1. Continuous dialogue with FES supplier and consultant

2. Developed dedicated team based on technical competency and assigned the tasks

3. Recognized the effort of contractual employee by giving awards.

4. Appreciation of having onsite high tea party post achievement of milestones.

Major learning from the project outcome

Equipment - Selection of the **right equipment** assures the targeted results from day one of commissioning - Improved morale & confidence of the team.

Consultants / Vendors / Contractors - Selection of the **right consultants, vendors & contractors** for the design, manufacturing & execution – Incident free & smooth commissioning.

Team work & Communication - Selecting **right competent team** plays vital role to complete the milestones in time with proper coordination & communication.

Thank You

Presented by : KFIL Jejuri Team

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