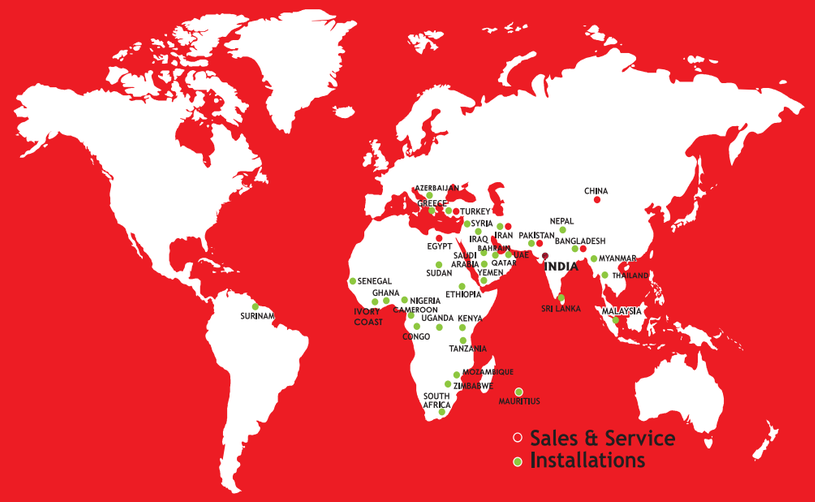
International Presence



The Range of Products and Services:

- Induction Melting Furnaces for mini steel plants
- Induction Melting / Holding Furnaces for ferrous and non-ferrous foundries
- Electric Arc Furnaces
- Electrotherm Refining Furnaces (ERF)
- Metal Refining Konverters (MRK)
- High Speed Continuous Casting Machines
- Coal based Rotary Kiln (Sponge Iron) Plant
- Coal based Tunnel Kiln (Sponge Iron) Plant
- Turnkey Projects for steel melt shop for producing billets / ingots
- Turnkey Projects for Integrated Plant through DRI – SMS route
- Plant design and engineering
- Plant Automation
- Productivity Improvement Equipment (PIE) for improving plant productivity, end product's quality and plant efficiency

ELECTROTHERM® (INDIA) LIMITED

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Akshar/3000/8-13

Coal based DRI Plant

Rotary KILN/ SL-RN Technology

Our customer gets ETvantage™ on every Purchase

ELECTROTHERM®

The Leader in Steel Melt Shop and Foundry Technology

Electrotherm (India) Limited, an ISO 9001:2008 certified, public limited company, was founded in 1983 to cater to the needs of all segments of steel industry, foundries and heat treatment industry. Today, Electrotherm is a well diversified conglomerate having businesses in the field of Engineering & Projects catering to steel and foundry industry; transformer manufacturing; steel making; ductile iron pipe making; manufacturing of battery operated vehicles; renewable energy; transmission line tower and education.

The Engineering & Projects (E&P) division of Electrotherm is a leading designer and manufacturer of Induction Melting Furnaces, Electric Arc Furnaces, Metal Refining Konverters (AOD), Electrotherm Refining Furnaces, High Speed Continuous Casting Machine, Power Distribution and Furnace Transformers and other equipment for Steel Plants, Foundries, Induction Heating and Hardening equipment for Heat Treatment. The E&P division is a customer centric organization delivering total solutions. It is particularly renowned for providing end-to-end solutions for steel melt shops, supplying sturdy and highly efficient plant and machinery and rendering outstanding pre and post sales services to its customers around the world. Due to high level expertise and vast experience, Electrotherm (E&P) is the most preferred mini steel plant maker up to 0.5 million ton per year capacity through various alternative routes. Moreover, Electrotherm (E&P) is the only Indian company having CE marking for its Induction Furnaces LRF and MRK, certified by UL Laboratories, USA.

The E&P division of Electrotherm has supplied over 3450 equipments for various applications, viz. 550 furnaces for steel billet making plants, 1200 furnaces for steel ingot making, 1400 furnaces for ferrous and non-ferrous foundries and around 300 equipment for heat-treatment applications. It has exported over 550 furnaces to 38 countries around the world. Besides, it has made several mini steel plants overseas on turnkey basis in countries like Turkey, Iran, Iraq, Saudi Arabia, Pakistan, Bangladesh and some African countries for capacities ranging from 50,000 TPA to 350,000 TPA.

The Electric Arc Furnaces of Electrotherm are designed and manufactured under technical collaboration with Vikovice Heavy Machinery, Czech Republic.

Being a customer centric organization with focus on meeting changing needs of its customers, Electrotherm has full-fledged Research & Development Centre at its Corporate Office & Works in Ahmedabad with state of the art manufacturing set up and modern office complex.

There are basically six (6) stages in the coal based reduced iron making process operation by which raw materials are to be converted to DRI. These are:

- Pre-heating and reduction of Iron ore concentrate/ pellet through coal.
- Cooling discharge material system.
- Raw Materials handling and preparation system
- Proportioning and feeding System
- Product Separation system
- Pollution / Dust Suppression System

Salient Features

- Designed to ensure positive sealing at all rotary section
- Quality DRI production for use in Steel making technologies.
- Higher capacity raw material proportioning system.
- Design adaptable for versatile quality of Input raw material.
- Studies on chemical and physical properties, and reduction behavior (in coal) of iron ores, from mines sources is done to design and integration of system
- Efficient selection of equipment.
- Reduction in the utility consumption & Cost by advanced instrumentation system monitoring.
- Reduction in Auxiliary energy consumption due selection of appropriate and efficient equipment
- Reduction In process Cost by advanced energy balance monitoring system.
- All buildings are independent and have a modular design
- Plant Engineering/ layout locating for integration close to distribution facilities strategically.
- Redundancy of Critical Equipment's.
- Highest combustion efficiency achieved by Gas Monitoring System.
- Economical Structural Design to reduce project cost
- Advanced Automation System.
- Effective design for Dust suppression and Collection system.
- Recovery of waste heat due to the efficiency in the design and process for WHRB power plant.

Cooling System

Kiln discharge material which is mixture of sponge iron and char (mixture of unreduced iron, limestone, gangue and semi-burnt coal) is taken to a rotary cooler. Water is sprayed on the cooler shell to indirectly cool in the kiln discharge mix to about 120 Deg.C.

PRE-HEATING AND REDUCTION OF IRON ORE / CONCENTRATE THROUGH COAL.

In this process lump ore or oxide pellet ore, Solid Reductant (Coal), dolomite or limestone as a flux is needed. The feed size of the solids is closely controlled Raw Materials handling and preparation system with Proportioning and feeding System. It is important to emphasize the three basic functions of Non- Coking coal in an Ore for reduction of ore /oxides

Process Flow Chart of Coal Based DRI Plant

ELECTROTHERM

Iron Ore / Dolomite
18-20 mm
(maximum
20% over size)

Iron Ore
Hopper

Crusher 1

Fine

Iron Ore
18-20 mm +/- 10%

Screen

+20 mm

6-20

6-20 mm

Roll Crusher

Coal Crusher

20 mm

Coal Primary
Screen

FINES & LUMPS UPTO 0-20

Coal Secondary
Screen

Coal
18-20 mm
(maximum
20% over size)

Coal Ground
Hopper

Gas
20 mg / m3

Dust Collection

A.F.B.C.

Turbine

POWER
GENERATION

6-20 mm

IRON ORE LUMPS 6-20 mm

IRON ORE LUMPS 6-20 mm

DOLOMITE

COAL LUMPS 8-20 mm

INJECTION COAL LUMPS 4-8 mm

INJECTION COAL LUMPS 0-4 mm

WeighFeeder

Doverted Gas

Hot Water of
Steam to heating
or Thermally activated
Cooling equipment

Hot Exhaust
Gas

Spent Exhaust
Gas

Gas Duct Burner

Water Return

WHRB

HOT WATER PUMP

COOLING
TOWER

HOT WELL

COLD WELL

FUEL OIL PUMP

COAL INJECTOR
LOBE COMPRESSOR

COLD WATER SPRAY
ARRANGEMENT

Sealing Air Fan

STACK

ABC

ABC Fan

DSC

SAF-1

SAF-3

SAF-5

SAF-7

SAF-9

10

ROTARY KILN

COOLER

SP-2

GP-6

Rotary
Air
Lock
Feeder

GP-1

SAF-1

SAF-6

SAF-5

NCF-2

GP-2

GP-3

GP-5

GP-1

Hot Water Sump

To Hot Well

I-Bin

Gas
20 mg / m3

Electro static
precipator

GCT

WS-2

WS-1

Pneumatic Conv.

Double Moistening
Screw conveyor

To Fly Ash
Brick Plan

Product Storage
Bin (Fines)

Load Into Truck

Lump Magnetic
Separator

Product
Screen
0-8 mm

8-20 mm

Over Size Pile

Magnetic
Separator

Non-Magnetic
(Dolo char)

Product Storage
Bin Lump

Product Storage
Bin Lump

Graded DRI Bins

Load Into Truck