



BUILD IT RIGHT



**BUILD IT FOR
A REASON.
BUILD IT RIGHT.**

It's time to build over failures of the past.
And build with materials strong and worthy.
It takes strength, conviction and a solid core
to build the perfect structure and hold it together.
The right product integrated with the right kind of
thinking and knowledge is all you need.
So before you start building, ask yourself.
What are you really building for?



WITH 'BUILD IT RIGHT' WE AIM TO INSPIRE AND ENCOURAGE NOT JUST BUILDING STRUCTURES BUT TO BUILD THEM IN A RIGHT WAY SUCH THAT THEY ARE STRONG, LONG-LASTING AND BEAUTIFUL. STRUCTURES THAT CAN SUSTAIN A CIVILIZATION BY NURTURING DREAMS, HONING ASPIRATIONS AND THEREBY BECOME LANDMARKS. ALL OUR PRODUCTS ADVOCATE OUR IDEOLOGY AND OUR FLAGSHIP PRODUCT ELECTRO 500 D LPS IS SURELY AMONG THEM.



Mukesh Bhandari
Chairman & MD
Electrotherm (India) Limited



ET

ELECTRO 500 D LPS

REFINED STEEL

500 D LPS TMT bars are made using 100% iron ore and a patented ERF-ELdF0STM metallurgical process which ensures the elimination of all impurities from iron. Our Electro 500 D LPS TMT bars have superior mechanical properties in strength, weldability, ductility and bendability that exceeds quality standards due to highly stringent quality control process using NABL accredited labs and equipment.

A black and white photograph of a large, circular, corrugated metal structure, possibly a tunnel or culvert, viewed from the inside looking out. The structure is made of many overlapping, curved metal bands. In the background, a grassy field and several multi-story apartment buildings are visible under a clear sky. A red rectangular text box is centered in the middle of the image.

**ELECTRO 500D LPS
IS THE RIGHT CHOICE
TO 'BUILD IT RIGHT'.**



Steel at Electrotherm is made using high quality of raw materials. Good quality of iron ore is used in Blast Furnace of 128 m³ and Direct Reduced Iron (DRI) Kiln of 250 and 350 TPD. 100% iron ore and no scrap is used in the melting process. After melting the DRI from kilns and hot metal from Blast Furnace in Induction Furnaces, a unique and patented ERF-ELdFOS metallurgical process is used to dephosphorize the steel in the ladle and desulphurize the steel in Electrotherm Ladle Refining Furnace (ERF) specially to meet the stringent Phosphorus and Sulphur requirement of FE 500 D grade of TMT bars. Multi-stage testing of steel chemistry through spectrometer ensures adherence to chemistry in close tolerance. In the LRF, metal is also homogenised, alloying elements are added and controlled in a very narrow range,

STRONG FROM THE INSIDE IS WHAT MAKES IT STRONG FROM THE OUTSIDE.

dissolved gases in the steel are lowered through mild purging of inert gases and inclusions are removed or altered chemically to ensure high quality of steel. This refined steel is cast into billets of required sizes in closed environment to have further control of gases and other inclusions. Molten pig Iron (hot metal) from Blast Furnace and Direct Reduced Iron (DRI) from Kiln is the key to making superior quality TMT bars from tramps like Cu, V, Ni, Cr etc. unlike other conventional manufacturers where scrap is used and there is no control on impurities.



Sulphur and phosphorus (S & P) are harmful impurities in steel. High levels of phosphorus can lead to 'cold shortness' in steel where the steel tends to become very brittle under extreme cold conditions and thus vulnerable to cracking. High level of sulphur can lead to 'hot shortness' in steel, a condition in which the melting point of steel gets lowered thereby reducing its strength dramatically under high temperature conditions. However, lower levels of S & P can be achieved only through advanced steel making technology. Such low S & P levels, as specified in the 500 D specifications of BIS, are almost impossible to be achieved through normal scrap & Induction Furnace route. At Electrotherm, due to state-of-the-art steel making facilities as well as the stringent quality controls at every step, 100% of the bars are now produced in compliance to the 500 D grade specifications.

AT THE HEART OF OUR STEEL IS OUR EYE FOR QUALITY.

After refining the steel in LRF, it is then rolled in required size in a state-of-the-art Rolling Mill and thermo-mechanically treated in Standard Quenching Box. Highly atomized quenching, self-tempering and atmospheric cooling ensures that TMT bars have superior mechanical properties in strength, weldability, ductility and bendability meeting or exceeding quality standards. Quality control is highly stringent through NABL accredited labs and equipment.





CHEMICAL
COMPOSITION

IS 1786:2008		ELECTRO 500 D LPS
0.25	Carbon	0.25
0.04	Sulphur	0.0375
0.04	Phosphorus	0.0375
0.075	Sulphur & Phosphorus	0.075
0.42	CE	0.38

MECHANICAL
PROPERTIES

IS 1786:2008		ELECTRO 500 D LPS
565 N/mm ²	Ultimate tensile strength	610
500 N/mm ²	Yield stress	530
1.10	(UTS/YS) ratio	1.15
16.0	Elongation	*19
5.0	Total elongation	8

PROPERTIES

	ONLY INDUCTION FURNACE BASED TMT SUPPLIERS	MAIN PRODUCERS	ET
Precise control on elements like S & P	X	✓	✓
Control on tramp elements	X	✓	✓
Gases control	Partly	Moderate	Full
Inclusion control	Partly	Full	Full
Mechanical properties	OK	Better control	Better control

*In chemical all single values are maximum

*Up to 20 mm 19% (min), above 20 mm 17% (min)

**In physical all single values are minimum

***As obtained in 90% of heats



WHEN BUILDING IT RIGHT IS THE ONLY WAY TO BUILD.

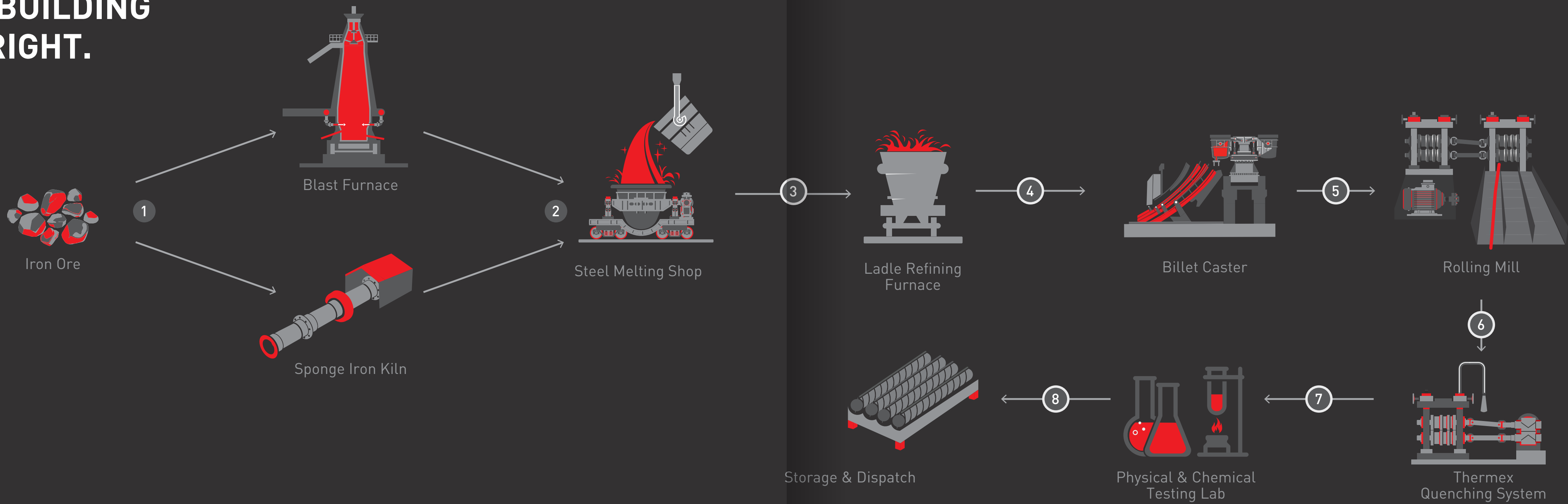
- Critical structures in seismic zones III, IV and V
- High-rise buildings
- Bridges
- Flyovers
- Dams
- Foundation of wind turbines
- Industrial structures
- Concrete roads
- Underground structures
- Thermal and hydro-electric power stations
- General purpose concrete reinforcement structures



CONSTRUCTION THAT STANDS THE TEST OF TIME.

- Lower phosphorus will improve ductility
- Lower sulphur will improve transverse ductility and weldability
- Lower carbon level results in excellent ductility and weldability
- This grade is ideally suited for construction in areas prone to earthquake due to better shock resistant properties
- Stringent quality control through in-house NABL approved physical and chemical laboratories.
- Suitable for high-rise buildings, bridges, flyovers, dams and industrial structures
- Higher resistance to failure
- Avoids localised shear failure

THE METHOD
TO BUILDING
IT RIGHT.





BUILD IT RIGHT

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