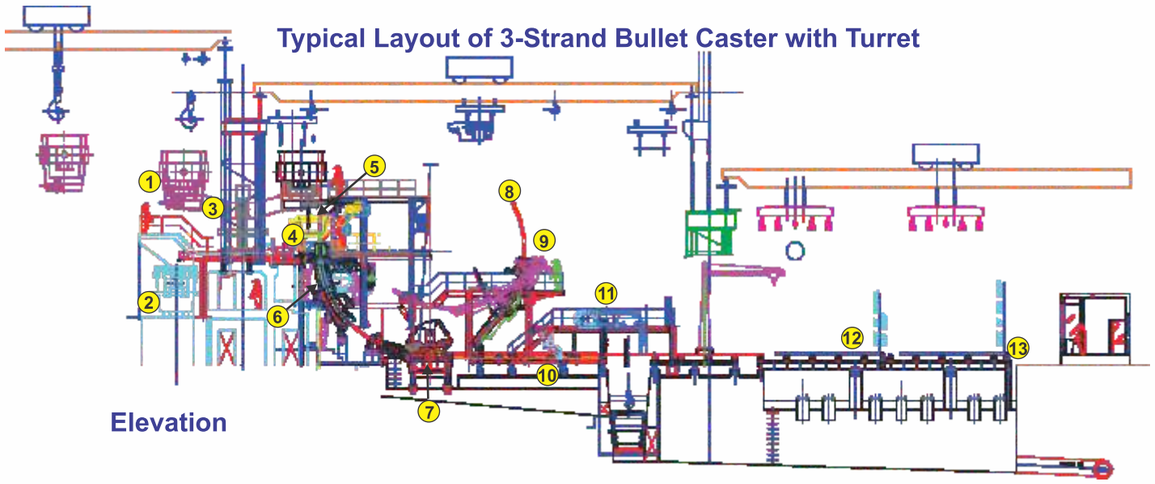
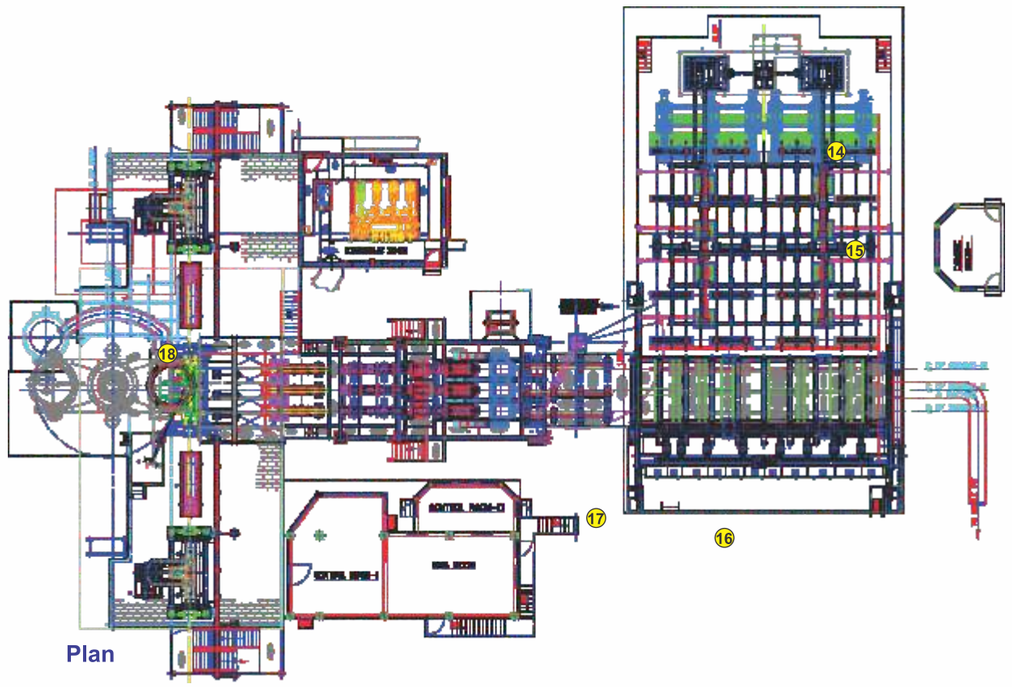
Typical Layout of 3-Strand Bullet Caster with Turret



Elevation



Plan

1. Ladle
2. Emergency ladle
3. Ladle turret
4. Tundish car
5. Tundish
6. Spray zone
7. Withdrawal & straightening unit
8. Dummy bar
9. Dummy bar station
10. Pinch roll
11. Auto gas cutter
12. Cooling bed
13. End stop
14. Billet parking area
15. Turnover cooling bed
16. Billet lifter
17. Cross transfer mechanism
18. Slag box

ELECTROTHERM®
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ET Bullet Caster

Advance Billet Casting Technology

Specially Designed for Direct Rolling

Our customer gets ETvantage™ on every Purchase

ELECTROTHERM®
The Leader in Steel Melt Shop and Foundry Technology

Revelutionary High Speed Caster for Billet & Bloom

Electrotherm (India) Limited, an ISO 9001:2008 certified, public limited company, was founded in 1983 to cater to the needs of all segments of secondary 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 with ELdFOS Process, Continuous Casting Machine, Air Pollution Control System, Power Distribution and Furnace Transformers and other equipment for Steel Plants and Foundries, and Induction Heating and Hardening Machines for Heat Treatment Shops. The E&P division is a *customer centric organization,* delivering *total solutions,* and 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 tons 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 4000 equipments (Induction Systems, MRKs, ERFs, Casters, etc.) for various applications including export of over 550 equipment in 42 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, several African countries and India for capacities ranging from 50,000 TPA to 1,000,000 TPA.

Being a customer centric organization with focus on meeting changing needs of its customers, Electrotherm successfully launched Modular Caster a couple of years back and acquired over 100 orders in first two years since its introduction. This **High Speed Modular Caster** has changed the way the smaller Induction Furnace owners have been making steel enabling them to migrate from cumbersome and expensive ingot making to billet making to direct hot billet charging for their continuous rolling mills.

Taking a step forward, Electrotherm has launched **Bullet Caster** which is all set to revolutionize small and medium scale steel making around the world.

- Automatic mould level control through radio active / optical / eddy current / thermal sensor
- Automatic gas cutter or hydraulic Shear
- Turnover cooling bed for longer billets
- Electromagnetic mould stirrer

Futuristic Approach

The steel industry, especially in Asian and African Continents, is poised to grow at a fast pace to meet their increasing domestic demand for steel, and mini steel mills have an important role in increasing the steel production capacity. Success of such plants, existing or new ones, will depend largely on availability of technologically advanced equipment at affordable cost which would make them competitive in the business.

Caster, besides melting and refining equipment, is the most critical process equipment of steel making plants. Easy to use caster with high speed, equipped with modern gadgets, producing high quality billets and blooms and providing operational flexibilities to the users, has been the missing link for steel producers. Electrotherm, after successfully bridging the gap of appropriate billet making caster for small Induction Furnace users through its **High Speed Modular Caster,** has taken another giant leap in the direction by providing optimal solutions to larger plants by launching **Bullet Caster.** This simple but high-tech caster is going to play an important role in shaping this industry which would improve the plants' productivity and optimize the cost of production. Equipped with essential features like rigid dummy bar, automatic secondary spray cooling, multi-point unbending & straightening and optimized equipment & process automation, **Bullet Caster** is essentially meant for reliable, flexible, safe and reproducible casting. Nevertheless, it also ensures low operation & maintenance cost and provides option of direct rolling of hot billets.

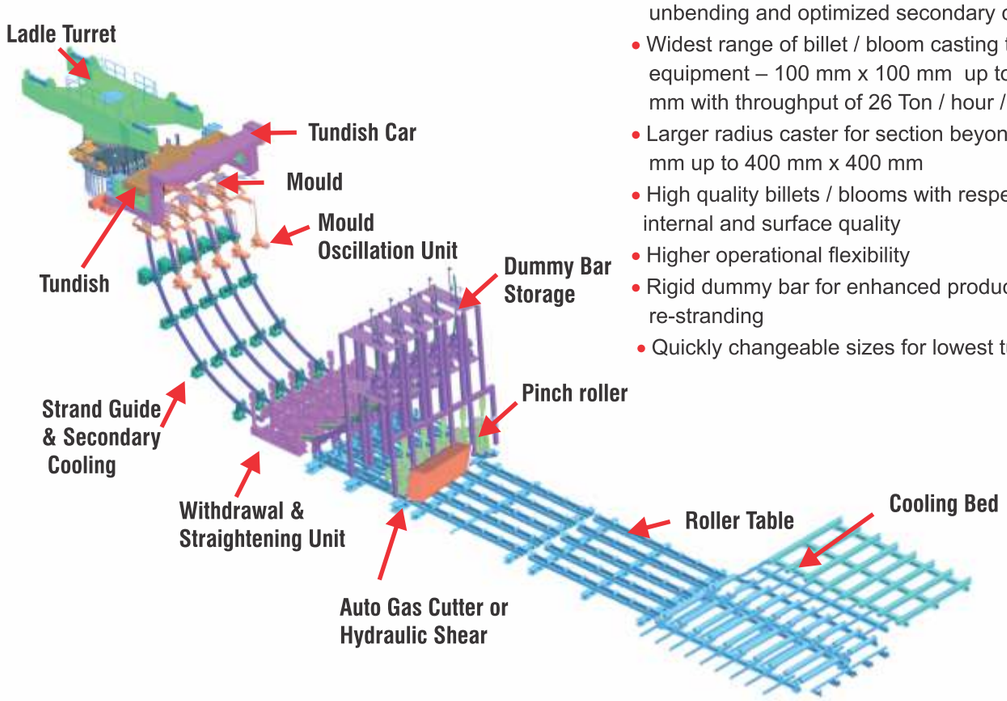
Higher level optional features like ladle turret for high productivity plants with multiple melting furnaces also improves safety of machine and operators. Hydraulic oscillation system for dynamic adjustment of frequency, stroke and waveform ensures highest surface quality, accuracy, safety and reduced space requirement and maintenance cost (wear-free operations). Turnover cooling bed is installed in plants willing to produce 12 meter long billets for meeting dimensional accuracy. Automatic gas cutter, or even more efficient hydraulic shear, is installed for reducing man-dependent operations, which also ensures exact billet length with high cutting quality.

Customer centric development of technology for equipment and process at Electrotherm is also available for modernization of existing plants in shortest possible time. Besides, training of customers' operation and maintenance personnel at its state-of-the-art and one of its kind Training Centre at Indus University, Ahmedabad ensures the operators deliver the best possible results in real life.

Simply High Tech

Billet / Bloom Section from 100 mm x 100 mm to 400 mm x 400 mm

ET Bullet Caster



Standard design features

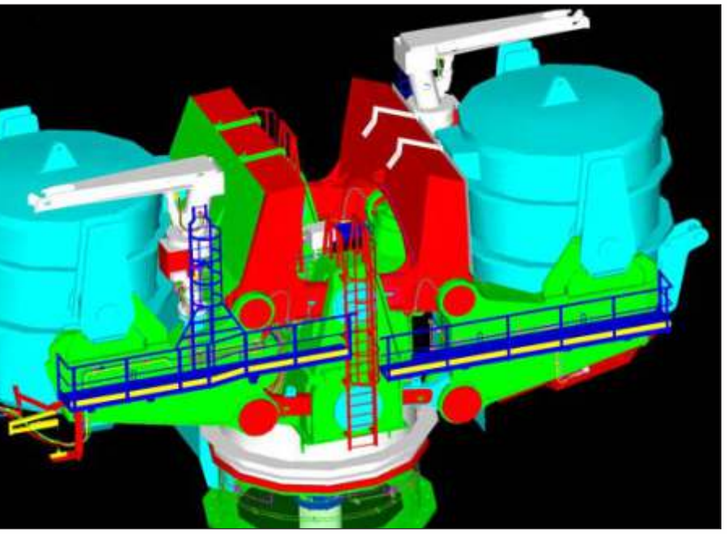
- High speed billet / bloom caster through multi-point unbending and optimized secondary cooling
- Widest range of billet / bloom casting through same equipment – 100 mm x 100 mm up to 200 mm x 250 mm with throughput of 26 Ton / hour / strand
- Larger radius caster for section beyond 200 mm x 200 mm up to 400 mm x 400 mm
- High quality billets / blooms with respect to dimension, internal and surface quality
- Higher operational flexibility
- Rigid dummy bar for enhanced productivity and quick re-stranding
- Quickly changeable sizes for lowest turnaround time

- Motorized tundish car for quick change of Tundish
- Forced mould lubrication system
- Aluminium wire feeder
- PLC-SCADA based automation system
- PLC based secondary spray cooling
- High reliability and higher plant availability
- Low operational and maintenance cost
- Complete “**melt to cast solutions”**

Optional automation

- Ladle slide gate digital control system
- Ladle slag detection system
- Tundish level measurement system
- Breakout prediction system
- Automatic roller gap checker (electromagnetic)
- Liquid core detection system
- Surface inspection system
- Automatic billet marking system (digital stamping machine/ hot spray marking machine)

ET Bullet Caster



Optional features

- Ladle turret / twin ladle car for sequencing
- Flying tundish
- Closed casting with lift and lower type tundish
- Quick nozzle change mechanism
- Hydraulic oscillation in lieu of electro-mechanical