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MOIRA® THERMEX® 500 सरिया

It's Tuff

Latest German Technology

Jaideep Ispat & Alloys Pvt. Ltd. & Rathi Iron & Steel Industries Ltd.
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Company profile

MOIRA THERMEX सरिया is manufactured by M/s Jaideep Ispat & Alloys Pvt. Ltd. (unit-II), located at steel Zone Sector III, Pithampur Industrial Area, Distt. Dhar (M.P.). The company is one of the most reputed companies of Central India for manufacturing Iron & Iron products since last four years. The Promoters of the company have the wealth of experience and keen foresight, they are involved in the manufacture of M.S. and Alloy Steel Ingots since last 25 years and having a wide range of managing the manufacturing of steel products professionally.

The group has been technology-driven and aims to be a leading player of steel in Central India. In pursuance of its objectives, it is committed to maintain quality standards at a competitive price.

Moira Thermex सरिया is initiated with a promise of Total Quality Management by incorporating all Indian standard specifications like Bureau of Indian standard and ISO. The company has skilled, qualified and well-experienced team of professionals trained with latest technology to produce Thermex QST सरिया of Grade 500 & 550.

In the years ahead our focus would be to sustain growth and put our utmost efforts to augment our competitive position by moving closer to our customers and make the brand Moira सरिया, a big brand.

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Vision

To accomplish a sustainable and a quality growth and deliver the best quality products that exceeds customer expectations.

IS : 1786

Official Steel Associate of

UltraTech Cement | Building Solutions

Plant facilities

Moira Thermex सरिया is produced by fully automatic, computerized machines based on sophisticated and accurate German technology and design. The thoroughly tested billets/Ingots are reheated under controlled temperature in automatic PLC based reheating furnace at (1100°C to 1200°C) and are subsequently rolled through a sequence of rolling stands, progressively reducing to the required size. After rolling the sariyas are laid down on the platform for gradual cooling. After cooling the ribbed bars are tied in 100 kg bundles of 11-12mtrs length for easy handing.

Rolling Process : With the help of rolling conveyor, the ingots are made to pass through 1st stand, i.e., Roughing Stand. This begins the process of gradual size reduction of ingots. Following roughing mill, the size is further reduced in intermediate and Finishing Mill. This gradual reduction is an important factor to ensure finer grain structure of the bar. The rolling continues till the required size is achieveed. with help of Roller bearings fitted on the Roll Neck, it prevents any unnecessary deformation of the bar. The loop scanner in the flow of the bar ensures perfectly tensionless rolling process and results in perfect round shape of the bar.

Quenching Process (Thermex) : The bar after leaving the last rolling mill stand is fed to quenching box at a very high speed. In this section. a rapid and controlled water quenching is performed reducing the temperature of surface drastically from 950°C to 600°C

Due to higher speed, only outer portion of abr (case) gets quenched. The inner part (core) remains hot only. The case due to rapid quenching gets converted in Martensite form. The microstructure is fine grained Ferrite-Pearlite structure at the core and martensite case. Then the bar is cut with automatic Flying shear and fed into the cooling bed. This is a patented technology of Thermex.

Self-tempering and normalizing: At cooling bed, the core that is still hot transfers heat outside to the case thereby tempering it. Due to this self-tempering the Martensitic Case becomes Tempered Martensite that has more strength and very high Corrosion Resistance Properties.Both quenching and self-tempering,lead to typical micro-struture of QST bar i.e. Fine grained Ferrite-Pearlite structure at the core (soft) and Tempered Martensite Case (hard). After this normalizing process starts where the bar cools down in atmospheric temperature and gradually attaining the same.

Cutting, Packing, Storage and Dispatch : Once the bars are cooled they are cut into desired length (standard cutting length being 11-12 mtrs.) by means of cold shearing. Different Sized bars are then packed in intact sealed bundles with Strips. Later these bundles are stored in Finished Goods Yard according to their Grade Size, Lot No., and any other extinguishing factor for onward dispatch.

All the finished meterial at the time of dispatch loaded with the help of overhead crane and hydra, hence no manual loading needed.

Product details

Moira Thermex सरिया

Size	8mm to 32 mm
Grade	Fe 500

Unique features

- Higher fatigue strength
- 100% weldability
- Ease bendability
- Suitable for both compression and tension reinforcement
- Accurate weight and maximum strength, thus economical
- Computerized, precise ribbed for better bonding with concrete
- Each lot carries test certificate along
- All finished goods stored covered sheds to avoid rusting due to rain or moisture
- Higher tensile strength of about 30% than other commercial brands
- Thoroughly tested before dispatch

Technology & Process

- Bond strength

  Although steel and concrete are two different materials, they have to behave as a single unit in a reinforced structure. This can happen only when the concrete grips the steel सरिया to form the strongest bond through the unique rib pattern of सरिया. MOIRA Thermex सरिया has a unique rib pattern in terms of rib depth and close rib spacing. Its ribs are made using CNC notch cutting machines. This ensures uniform rib pattern for 100% of the सरिया, Which allows uniformly strong bonding with concrete for the whole structure. This is in contrast to the ordinary sariya, where ribs are manually cut, which always leaves scope for non-uniform rib pattern and thereby, non-uniform and weaker bonding throughout the structure. Due to uniformity and critically designed ribs fatigue Strength of Moira Thermax सरिया is much superior to ordinary Sariya.

- Bendability

  The Special micro structure of Moira Thermax results in a सरिया with excellent bendability. The सरिया can be bent easily and sharply. Moira Thermax सरिया can be bent to the exact angle unlike ordinary sariya as desired by the design around mandrels. & is much smaller in diameters than what is specified in IS.1786 This has obvious advantage at construction sites.

- Weldability :

  Moira Thermax सरिया, due to its low carbon equivalent, has a weldability which is superior to ordinary sariya. It can be butt-welded or lap - welded, using ordinary rutile coated electrodes of matching strength. In Manual arc welding, no pre-warming or post heat treatment is necessary.

- Corrosion resistant characteristics

  Moira Thermex सरिया is produced by QST Technology and not by cold twisting. Therefore, there are no torsional residual stresses in the सरिया which result in superior corrosion resistance characteristics compared to traditional cold twisted sariya. On account of its composite and uniform micro structure, Moira Thermax सरिया has comparatively better corrosion resistant properties than other sariyas. while being embedded inside concrete.

- Seismic resistance properties

  Several studies were conducted on concrete beam column joints reinforced with Moira Thermax सरिया to evaluate is performance under repeated reversed loading with large deformations as would be encountered during an earthquake. The energy dissipation was found to be almost same for each cycle, indicating uniformly maintained ductility throughout the repeated stress cycles.

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Salient features

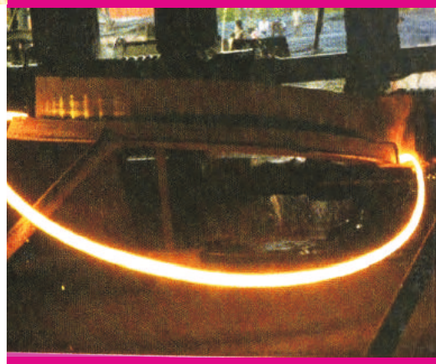
The development of the patented THERMEX Cooling Technology has been a great boon to the civil industry the world over as an acceptable alternative to the use of सरिया made from steel alloyed with costly elements. The Indian Region where CTD Bars have had a stranglehold for the past 2 - 3 decades is today waking up to the benefits of the Thermex सरिया Primarily on account of :

- Superior product with consistent properties
- High strength combined with high ductility
- Better corrosion resistance
- Better resistance to high temperatures, as in the case of fires
- Easy manufacture of different strengths of सरिया from nearly the same steel grades.
- Saving of 10-20% in steel consumption when using Thermax 500 सरिया in place of CTD Bar.
- Better fatigue resistance
- Better weldability
- Easy and less construction time
- Lastly an ideal choice for seismic zones due ot excellent ductility properties. This is of great Importance for India because nearly 60% of the country fails in the seismic hazard category.

Quality assurance

Moira Thermax सरिया is fully-integrated steel manufacturing producing high grade thermex सरिया. All the raw material used is tested to ensure high quality standards.

we also use computer aided testing to carry all necessary testing of our products.



Weight Specifications

Size of सरिया (mm)	Weight per meter (Kg/M)	Tolerance %
8	0.395	+/-7
10	0.617	+/-7
12	0.888	+/-5
16	1.579	+/-5
20	2.466	+/-3
25	3.854	+/-3
32	6.314	+/-3

Mechanical Properties

	Indian standard (IS 1786-1985) Grade 500	Tata Tiscon Grade 500	Sail Grade 500	Moira 500
Yield strength (N/mm)	500	540	500	540
Ultimate Tensile Strength Min (N/mm)	545	600	580	610
Elongation Min (A_5) (%)	12	18	18-20	18-21

Chemical Properties

	Indian standard (IS 1786-1985)	Tata Tiscon Grade 500	Sail Grade 500	Moira 500
Carbon	0.30 Max	0.17-0.24	0.25	0.17-0.25
Sulphur	0.055 Max	0.050 Max	0.050	0.050 Max
Phosphorous	0.055 Max	0.045 Max	0.05	0.045 Max
Sulphur + Phosphorous	0.110 Max	0.090 Max	0.10	0.090