



KALLIYATH TMT

	What you get?
RAW MATERIAL BIS certified grades with the right composition of chemicals and elements giving the purest form of bars.	Strong and stable TMT rebars of International standard.
ROLLING MILL Latest model continuous automated rolling mill that works in German hi-technology.	Original TMT bars made with the complete process.
TREATMENT Thermo Mechanical Process of International quality	Maintains an even grade in all the parts of TMT bar. Gives ability to change shape easily and good bendability.
PROCESS Made using CNB rib cutting machine. ISI suggested Mean Projected Rib Area.	International quality product that outstands concrete pullout test.
PRODUCTION Made to bars in own rolling mills.	Assured quality in each bars.
COST Giving the best quality FE500D grade bars at the best price.	Genuine price.
QUALITY Quality that meets the Bureau of Indian Standards.	Bars that can be used for any type of construction.
COOLING BED Automatic cooling bed.	TMT bars without any structural difference.
BUNDLING Pneumatically Controlled Grip Strapping for bundling.	Reduces additional weight caused due to bundling.

OTHER TMT REBARS

	What you get?
RAW MATERIAL Low priced raw materials that don't undergo the quality check.	Dangerous bars that doesn't have the qualities of original TMT bars.
ROLLING MILL Low speed manual rolling mill.	Low quality bars.
TREATMENT Low quality quenching process.	Doesn't complete the real TMT process.
PROCESS Low quality rib cutting process.	Unparallel sized ribs won't make a strong bond with concrete.
PRODUCTION Bars produced from unauthorized mills. Made along with coils that will result in the decoil of bars.	Quality cannot be trusted.
COST Produced in low quality grades sold at high cost.	Customers are exploited.
QUALITY Doesn't match the required Indian standards.	Dangerous product that can threaten the safety of the building.
COOLING BED Manually operated cooling bed.	Damaged and bended bars.
BUNDLING Bundling with scrapped bars.	Loss in weight cost.



KALLIYATH TMT
ORIGINAL TMT STEEL BARS

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AUTHORISED DEALER



THE TRADITION OF
STRENGTH AND FLEXIBILITY

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ORIGINAL TMT STEEL BARS



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Kalliyath has stood synonymous to success and ethics in the business circle for the last 87 years. Being veterans in diverse verticals, the Group's name inspires trust and confidence amongst stakeholders and customers alike. Established in 1929, the Company has constantly reinvented itself by rejuvenating existing business, venturing into new ones, manufacturing ground-breaking products and expanding the South Indian market.

With 4 well-equipped manufacturing units spread across 8 acres, Kalliyath is the only brand in Kerala that produces 6mm original TMT bars and also the only brand in India to produce FE500 |500D graded 6mm bars with ISI certification. At Kalliyath, each TMT bar is made from the 100 Meter Automated High-Speed Rolling Mill in adherence with the BIS quality standards and norms to ensure quality consistency.

From mega infrastructure to landmark construction to individual homes, there is an exponential demand for reinforced bars in every segment of the industry. This paved way for many small scale and low-quality manufacturers to enter into the industry. And the infrastructure market is now replete with low-quality TMT bars which are made without following the necessary BIS instructions. To solve this mounting problem, Kalliyath helps people understand what a real TMT bar is.

ORIGINAL TMT BAR

TMT Bar also known as Steel Reinforcement Bar or Thermo Mechanically Treated Bar is the inner strength of construction industry. It protects the structure's materials from weather and extreme temperatures. Therefore from the selection of raw materials to the manufacturing process of TMT bars, special care and attention should be given.



1 SELECTING THE RAW MATERIALS

Selection of raw materials is the most important factor that determines the quality of a TMT bar. At Kalliyath, Steel is produced using high-quality raw materials supplied by world-class suppliers of billets from virgin iron billets like Vizag, SAIL etc. Raw Materials for making TMT are also manufactured by Kalliyath to maintain consistency in quality. The raw materials Kalliyath uses have three main advantages.

1. The unique combination of all chemicals and substances.

2. No decrease in strength even after reduction.

3. Selected raw materials certified by BIS for the making of Fe 500|500D TMT bars.

2 TEMPERATURE OF BILLET

The process utilizes residual heat from the rolling process to attain the desired mechanical properties. Billets, which are heated in the re-heating furnace, are rolled through a series of rolling stands and progressively reduced to the final desired size and shape. The most important factor in this stage is that the temperature of billet should be 1,200°C.

3 AUTOMATED HIGH SPEED ROLLING MILL

With the help of computerized process, qualified engineers of Kalliyath passes the 1,200°C billets to special automated high-speed rolling mill. The process is controlled by monitoring devices, in an all mechanized technical operational environment.

This enables the production of rebars with perfect shape, uniform thickness and equal standard length. The rolling mill operating in tandem with the continuous casting machine cools the billet temperature to help reduce the material and within 40secs, these billets are made into TMT bars ensuring excellent dimensional tolerance and surface finish.

Most of the rolling mills in Kerala have the manual process which takes too much time and lacks the temperature required for processing. This leads to the loss of quality of the TMT bar.

4 NECESSARY PASSES

At Kalliyath, billets are passed through the automated high speed rolling mill units ensuring 21 to 25 passes.

This will further ensure TMT bars are manufactured in uniform size, shape and strength. But in manual technology mills normal passes are 15 to 19 only. To reduce the production time these passes are reduced and which resulting in the loss of quality, strength and shape.

5 QUENCHING PROCESS

The hot rolled rebar emerging from the finishing stand mill will be of 400°C. These bars are then rapidly cooled by Quenching Process. This Quenching Process is by a special water spray system which converts the surface layer of the bar to a hardened 'Martensitic' structure while the core remains 'Austenitic'. The process pressurizes and deforms the crystal structure of intermediate layers, and simultaneously begins to temper the quenched layers using the heat from the bar's core.

6 AUTOMATED COOLING BED

TMT bars that come out after the Quenching Process will be of 250°C. These bars are cut into desired sizes and then passed through Automated High-Speed Cooling Bed. This stage involves normal cooling to room temperature where the 'Austenitic' core is transformed to a ductile ferrite + pearlite structure. The finished bar has a Microstructure comprising of a tough outer layer of Tempered 'Martensite' and a ductile core of 'ferrite + pearlite'. This composite structure gives excellent yield strength to the bar along with superior ductility and weldability. The mechanism of automated cooling bed assures that the bars are uniformly positioned over the toothed racks. This advanced technology helps prevent the damages caused by the collision of TMT bars and thereby gives a unique uniform strength and shape. But in manually operated rolling mills, labours do this with a hook. The increased strength and toughness of TMT bars create problem during subsequent manual bending operation. It will affect the shape and strength of the bars.

TMT bars made through this process are then sent to specially arranged labs to test the quality and strength by using the right chemical composition of F500 grade set by BIS. Also, the sectional weight and strength of each unit of TMT bar are tested every 30 minutes to give customers the best ever.

Kalliyath TMT bars have precise, uniform and parallel rib pattern engraved through computer controlled notch making machines, which results in excellent bond strength with concrete. The right combination of chemicals in Kalliyath TMT bars ensure easier and faster welding without preheating. This means stronger and safer weld joints and reduction in wastage during welding at the site. Kalliyath TMT rebars are proven to have a higher resistance to cyclic loading conditions and are recommended in earthquake prone areas due to their superior seismic resistant properties. Due to the highly controlled process that ensures a microstructure with a soft core, Kalliyath TMT bars have excellent bendability that facilitates easy bending, making work easier and faster at construction sites.

WHY KALLIYATH

ADVANTAGES	BENEFITS
89 years of Excellence	Products that adhere with the trust of customers.
Raw materials, Pure steel billets	Strong TMT rebars.
Furnace Oil	Completes the process by raising the billet temperature to 1200 degree Celsius.
Automated High-Speed Rolling Mill	Billets are made into TMT rebars within 25–40 secs.
21–25 passes	Reduction is possible without any change in quality.
Production of TMT rebars only	More quality and strength when compared to bars made by decoiling the coils.
Quenching Process	Gives strength to the outer layer and bendability to the inner layer.
Manufacturing Process according to BIS norms	TMT bars with higher resistance to earthquake.
Automatic Cooling Bed	TMT bars without any slight damage in quality or shape.
Right Composition of Chemicals and Substances	Ensures easier and faster weldability.
Right TMT Processing	Ensures easier and faster bendability that facilitates easy bending, making work easier and faster at construction sites.
Right Sectional Weight	Uniform weight parallel to the length of each TMT bar.
Pneumatically Controlled Grip Strapping	Reduces the additional cost in the use of scraps in binding.
Quality Inspection in every 30 minutes	Only the best products make it to the market.
More than 500 Dealers	Easy reach out to customers.
Customer Care Service and Technical Support	Ensures complete satisfaction of customers.

