MAHALAXMI
TMT BARRS
ASSURANCE OF QUALITY

IS: 1786-2008

CM/L-7652078

Plot No. – A / 6, M.I.D.C., Gokulshirgaon, Kolhapur

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SHRI KARVIR NIVASSINI

MAHALAXMI ISPAT PVT.LTD

ABOUT US

Shri Mahalaxmi steel industries Kolhapur, the rolling mill unit was established in 1973 to manufacture rolled steel products viz reinforcement steel bars, flat bars, square bars etc.

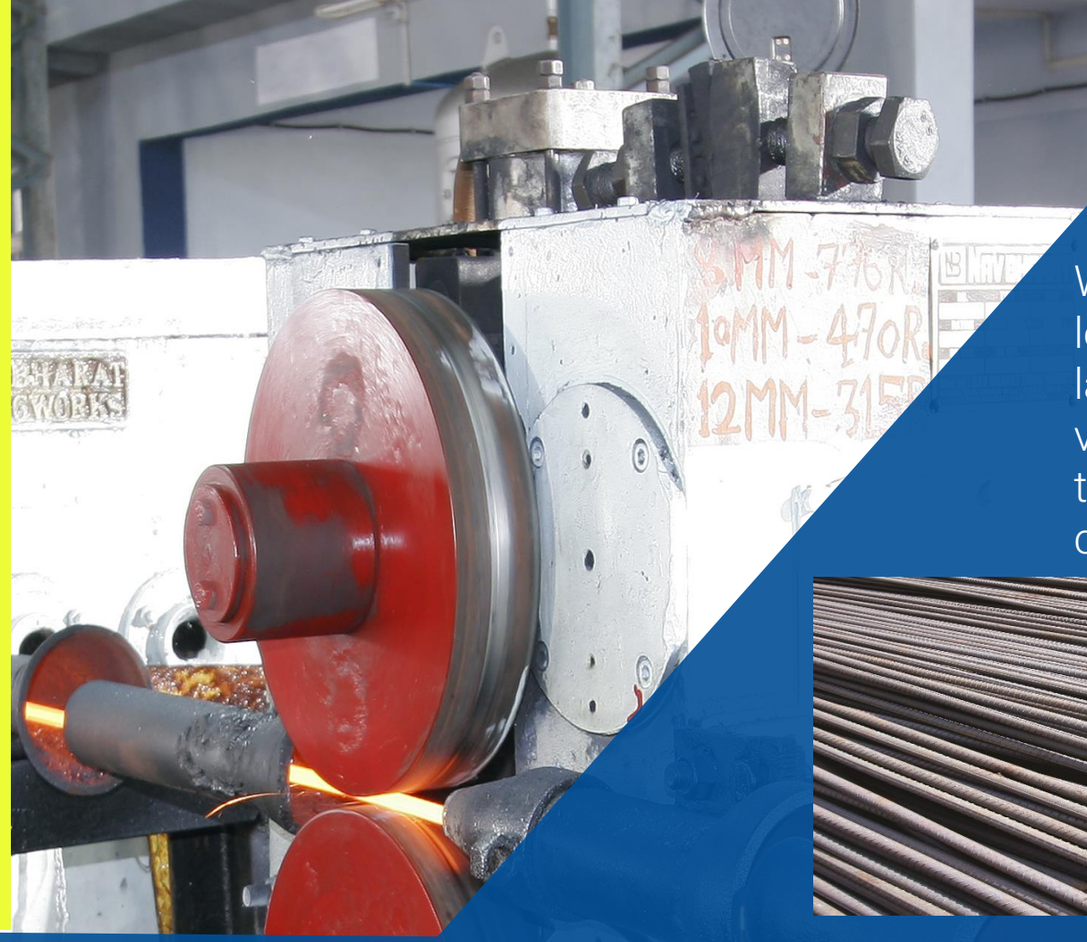
The unit has expanded its activities in 1989 to manufacture high yield cold twisted deformed bars. In view of the quality produced, the experienced work force, M/s.TOR Allies Engineering & the Toristeg Steel Corporation of Luxembourg offered the collaboration, and we were the licensee to use “TOR “ mark on our steel bars. The steel manufactured by us is well accepted in southern Maharashtra, Pune and north area of Karnataka.

The new unit namely Shri. K.N. Mahalaxmi Ispat (P) Ltd. MIDC, Gokul Shirgaon was commissioned in 1995 to manufacture M.S. Ingots, resulting in improved quality inputs of required chemical composition.

Across all developments “TMT” steel bars has gained recognition and acceptance because of its echnological advancement. We have commissioned manufacturing “TMT” bars as per the world class modern EMPCORE’ technology. This technology imparts the better strength and elongation unparalled by any other process. The machinery and the thermo quenching system selected imparts the perfection in mechanical properties as per IS-1786. The total system is automated and controlled by various operating systems. The new unit was commissioned in July of 2006.

WHY US ?

There are various units in this sector, however we would highlight the specialty of our TMT bars and the services offered by us.The same can improve the quality of construction and also reduction in costing.



CUT LENGTH BARS

We can supply bars of cut length upto 25 meters, so that lap joints are avoided.This is very effective in cost saving for the long span beams in civil constructions.

We have supplied 32 mm bars, of length 24 meter for the main beam of the lobby of 20 meter span of the Sayaji Hotel, Kolhapur Project.

So also, we can supply the bars of any dia upto 32 mm of short lengths may be even 2 to 3 meters and above. This will reduce the cost of labour of cutting the bars at site. There shall be no waste as scrap and hence there shall be cost reduction.

For wind mill projects, we are already supplying the cut length bars of various dia and lengths totally weighing 22 tons for one foundation of the wind mill.

It is studied that the builders estimate on average of 5% wastage in steel in the construction industry. By availing the facility of providing cut length bars of required size, the costing can be reduced, effecting cost economy.

NEGATIVE TOLERANCE

The bars manufactured by us hence ‘weight-per-meter’ always on negative tolerance side by on average, of 2% but strictly within the IS specified permissible weights so the users get more length of bars by 2%. This reflects your cost saving by about Rs.600 to 700 per ton [$8-10$ per ton].

QUALITY OF BARS

In the market, steel is available with marking of 500, it does not necessarily mean that the steel complies with IS 1786 specifications of FE-500 quality. Please check up the testing parameters in the standard approved laboratory. Recently the order issued from BIS states that the content of Sulphur and phosphorus should be limited to 0.055% individually or 0.110% both together. At our industry there is in-house laboratory for testing the physical and chemical analysis. We have the 'Brucker Germany make optical emission spectrometer duly calibrated for correctness. Your good selves can visit us any time to check up the physical and chemical properties specially the content of harmful elements like Sulphur and phosphorus. In southern Maharashtra this facility of standard spectrometer is available only with us.

Thus, when you purchase the "MAHALAXMI" TMT bars, you can be very much sure about the quality, thereby the structural engineer can design the buildings relying on the FE-500 physical parameters. This shall result in optimum steel requirement and consumption.

We humbly request, the builders and contractors to check up the availability of above mentioned features while selecting the brand of steel before purchases. In the light of above favorable features of economizing the cost of project we are sure that your good selves shall prefer and recommend our "MAHALAXMI" brand, reinforcement TMT bars for every type of civil constructions.

CAPACITIES

Presently we are operating on one shift of 10 hour per day basis. The capacity of mill in this one shift is 3000 Tons per month of all sizes i.e. from 8 mm to 32 mm. We keep minimum stock level of 100 Tons of every size. For quicker & larger requirements the working hours can be increased.

We are selling all manufactured products without piling stocks & there are usually pending orders. Our turnover is about Rs. 100 Cr. per year
[$ 13-15 million].

TMT QUENCHING SYSTEM

The TMT i. e Thermo metallurgical treatment to the bar is imparted by treating the hot bar by water. In the rolling mill, the billets are heated in the reheating furnace and rolled through different rolls, progressively reducing the section. The bar releasing from the final stand is subjected to water treatment. The process involves the following stages.

Quenching

It begins when the hot rolled bar leaves the final mill stand and is rapidly quenched by water injection through various nozzles. This converts the surface layer of the bar to a hardened structure called 'Martensite' while the core remains hot Austenitic.

Self Tempering

It begins when the bar leaves the quenching box with a temperature gradient through its cross section, the temperature of the core being higher than that of the surface. This allows heat to flow from the core to the surface, resulting in tempering of the surface, giving a structure called "Tempered Martensite" which is strong and tough. The core is still austenitic at this stage.

Atmospheric Cooling

It takes place on the cooling bed, where the austenitic core is transferred to a ductile ferrite pearlite. Thus, the final structure consists of a combination of strong outer layer of tempered martensite and a ductile core offerrite-pearlite.

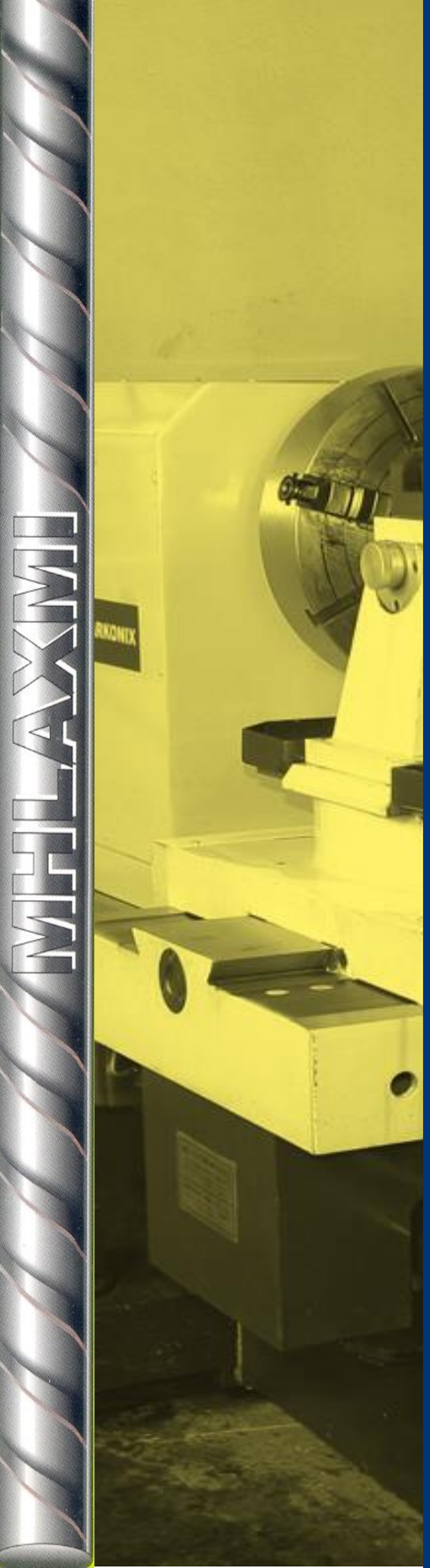
Thus, the bar finally obtained attains higher strength with excellent ductility. During the process of manufacturing TMT Bars, at every interval of 10 minutes, the bar samples are taken out for testing. There is an in- house chemical and physical testing laboratory with UTS machine of 60 tons and 100 tons and a spectrometer. The results like Elongation, Tensile and ultimate strengths along with chemical compositions are obtained on the above computerized machines.

For better bondage with concrete the lugs on the roller are carved with special care for every dimensions. These lugs are carved on an advanced CNC Machine. The bars are branded as "MHLAXMI" at every meter length of bar, carved on the rolls by SPM machine. The precise control of the thermo metallurgical treatment process results in a uniform and correctly tempered martensite, completely free from internal stresses. The quenching box provided is of 12 meter length, which results in homogeneous metallurgical transformation.

The physical properties of the bars as per IS–1786 are as follows :

MHLAXMI

PROPERTIES	Fe500		Fe550	
	IS-1786	MHLAXMI	IS-1786	MHLAXMI
0.2% Proof Stress	500	525	550	575
Ultimate Tensile Strength	545	575	585	640
% Elongation	12.00	15.00	8.00	12.00



MACHINERIES IN ROLLING UNIT

1.ROUGHING MILL

The Roughing Mill is of size 16” with three stands of which one stand is with 3 HI Rolls and other two with 2 HI Rolls,driven by the 1000 HP, 740 RPM Electric motor. The power transmission is through the reduction gear box of ratio 740 / output 130 RPM, the pinion stand and 5 Ton flywheel operating at 740 RPM.The bars of the size 28 mm & 32 mm are rolledout from this roughing mill.

2.INTERMEDIATE MILL

The intermediate mill is with 5 Alternator stands with 2 HI Roller bearing stands, Roll dia 320 mm driven by the 600 HP, 740 RPM motor through the gear box ratio 740 / output 275 RPM, the pinion stand & flywheel of 5 Ton capacity.

The bars of the size 16, 20, 25mm are rolled out through this intermediate mill.

3.CONTINUOUS MILL

The continuous mill comprises of 5 roller bearing stands with 2 HI roller bearing stands roll dia 285 mm. The individual roll pair is operated by the 250 HP D.C. motor through the gear box. The speed of the rolls is controlled by the computerized operations of the D.C. power panel.

The bars of the size 8, 10, 12mm are rolled out through this continuous mill.

4.QUENCHING BOX

Quenching box is of 12 Mtr length having high pressure water nozzles, where the process of quenching is carried out.

For the process of quenching, three high pressure pumps of 120 HP having discharge 150 m^3 per hour are provided.

5.FLYING SHEAR

Flying shear specially designed to cut the bar of required length uniformly, driven by variable speed drive D.C. motor of 175 HP, which is operated through the necessary D.C. control panel.

6.PINCH ROLLS

Three pinch rolls of barrel dia 240 / 340 mm driven by 40 HP D.C. motors. The speed to be adjusted as per requirement through D.C. control panel by using computerized SKADA systems.

At various stages on line TEMPERATURE AND SPEED SENSORS are provided for precise measurement of temperatures, water pressure & the speed.

7.BRANDING AND CNC, (SPM) MACHINE

For achieving accuracy in the design of lugs, we are carving lugs on rolls by using an advanced CNC machine. Because of this, we get uniform spacing, height & width in lugs, so that better bondage with concrete the bar can achieve.

We are supplying our steel with special brand name “MHLAXMI” the grade 500 or 550 and the ISI License number at every meter length of the bar. This “MHLAXMI’ mark on the bar is branded with special brandling machine and can be distinguished from other branded steels.

8.LABORATORY

The modernized and upgraded laboratory with universal testing machine of capacities 100 Ton & 60 Ton for testing physical properties are provided along with newly integrated **German make ‘Brucker’ Spectrometer** which shows analysis of over 20 Elements & other calibrated equipment required for chemical analysis. The physical test results are obtained on a screen and ready to printed on a Test Certificate for dispatch.

At each 10 minutes interval, the tests of physical properties are carried out. The Test Certificates for aparticulars dispatch consists of test of bars picked for that particular delivery.

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