

Eagle Quenching & Tempering System

EAGLE Q&T / TMT System

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www.eagletmssystem.com

[f](#) [i](#) [t](#) [y](#) EagleTMTSystem



About Us

Eagle Quenching & Tempering System Started from August 2008. This organization have deep experienced team of Rolling Mill. All member of this team is having more than 20-years-experience in the steel Industries. Particularly in Bar Rolling Mill, Continues Caster, Section Mill & TMT/Q&T system.

Yashpal R. Suryawanshi is founder of Engineering Company on 02nd August 2008 the name: Eagle Quenching & Tempering System. The specific aim of the Company is to introduce only relevant modern Technologies in the world for Steel Industries.

In line with this objective, Eagle Quenching & Tempering System has successfully undertaken modernization of MITC Rolling Mill-Nashik, Viki Industries Gummidipoondi, SK Steel Tech-Bangalore, Prince TMT-Palakkad, Mahaveer Steel Industries-Raipur, Sumangala Steel-Pondicherry, Amar Pratap Steel-Jaipur, Vinayak TMT-Ahmadabad, Devashree Ispat-Hyderabad, Sugana Metal-Hyderabad & others.

Vision

We believe in providing Quality TMT Equipment, which meet or exceed customer expectations. We will strive for continuous improvement in our TMT Equipment to be the leader in the market.

Mission

We introduce modern technology to the world for Steel Rolling Mills so that steel products are the best throughout the world.

All Rolling Mills should produce high strength & high ductility deformed steel bars and wires for concrete reinforcement.

MANUFACTURING EQUIPMENT



Manufacturing Equipment:

- ✔ Start-Stop Shear
- ✔ Crop & Cobble Shear
- ✔ Continuous Shear
- ✔ 2-In-1 Tail Braker
- ✔ Pinch Roll
- ✔ Twin Channel
- ✔ World's No.1 Quenching & Tempering System (Q&T/TMT) Technology - Eagle
- ✔ Slitting Line of Quenching System (One Slit Line up to Four Slit Line)
- ✔ Continuous Mill Stand with Reduction Gear Box
- ✔ Roller Table, Chain Transfer, Bundling & Binding System & Pneumatic Cylinder.

We Assure Properties from our Equipment:

- ✔ Higher Strength
- ✔ Higher Elongation
- ✔ High Toughness Value
- ✔ Better Ductility
- ✔ Good Fatigue Properties
- ✔ Good Bond Properties
- ✔ Retaining Properties at High Temperature
- ✔ Good Weldability/li>
- ✔ Good for Bending & Re-bending without any cracks
- ✔ More Corrosion Resistance on account of retention of Oxide layer
- ✔ Good for Seismic Zones & Sea side Area/ humid
- ✔ Stress Ratio: more than 1.15%
- ✔ Low Cost / Minimum 20% saving in steel
- ✔ No cold working
- ✔ Excellent Uniform Elongation.

MANUFACTURING EQUIPMENT



Eagle Quenching & Tempering System (Manufacturers)

For Those who Producing High Strength Eagle Quenched and Tempered (Q&T/TMT) Steel re-bars having Mechanical Properties as per IS:1786-2008 Amendment/4/July 2020 For having Grades:

- a) Fe 415, Fe 415D
- b) Fe500, Fe500D
- c) Fe550, Fe550D &
- d) Fe 600

And OR Equivalent to International Standards for 5.5mm to 50mm sizes.



CNC Base Modern Manufacturing

Sr. No.	Name of Machine	Qty.	REMARKS
01	Auto CNC Horizontal Boring Machine, Size: 110mm, Femco Make, Made in Taiwan	01	62-Nos. Tools Holder Belt 360° Rotating, 1800x2500mm Accuracy=0.001
02	Auto CNC Vertical Boring Machine, Size: 125mm, Femco Make, Made in Taiwan	01	Accuracy=0.001 360° Rotating
03	CNC Turning Lath Machine Supper Cut – 14, PMT Make, Pune, Maharashtra	02	Accuracy=0.001
04	CNC Turning Lath Machine Supper Cut – 12, PMT Make, Pune, Maharashtra	10	Accuracy=0.001
05	CNC Turning Lath Machine Supper Cut – 10, PMT Make, Pune, Maharashtra	02	Accuracy=0.001
06	Floor Boring Machine Size: 110mm DEFAM Make, Made in Poland	01	Accuracy=0.001
07	Boring Machine Size: 90mm PAMA Make, Made in Itali	01	Accuracy=0.001
08	Bending Machine Shah Engineering Make, Rajkot	01	Size:10mm
09	Cutting Machine Shah Engineering Make, Rajkot	01	Size:10mm
10	Planner Machine Pietro Make, Made in Itali	01	Accuracy=0.005
11	Radial Drilling Machine Size: 50mm, CSEPEL Make Made in Hungary	01	Accuracy=0.001
12	Radial Drilling Machine Size: 40mm, Made in Itali	01	Accuracy=0.001
13	Radial Drilling Machine Size: 25mm, Atlas Make, Rajkot	01	Accuracy=0.010
14	Gear Hobbling Machine Size: FO-10, TOS make Made in Germani	01	Accuracy=0.001
15	Gear Hobbling Machine Size: FO-6, TOS make Made in Germani	01	Accuracy=0.001
16	Milling Machine SN Muller Make, Made in Hungary	02	1500mm
17	Slotting Machine Atlas Make, Rajkot	01	350mm
18	Lath Machine Atlas Make, Rajkot	08	Diameter=500mm Length=1000mm
19	UTM Machine Made in India	01	----
20	Welding Machine, Memco Make, Indian	05	-----
21	Surface Granding Machine Made in German	01	Accuracy=0.001
22	Lath Machine Made in Germany	01	Diameter=600mm Length=3000mm

EAGLE TMT PROCESS SYSTEM

The very precise Eagle TMT process will start after finished stand of rolled bar. Finishing temperature bar exceed through Eagle TMT process and this treatment results in a harden periphery, further cooling of the bars in atmosphere. Eagle TMT exchange occurs between the core and cooled outside martensite surface whereby the resultant bar structure is a different Tempered martensite at periphery and a fine-grained ferrite-pearlite structure in the central zone. Water pressure & Length of Quenching system to be chosen on bar finishing temperature, bar size & bar speed.

The Eagle TMT bar produced as above have unique qualities of desired high strength and toughness combined with excellent ductility with bars having elongation values of 15 to 25%.

STEP BY STEP PRODUCTION PROCEDURE

MELTING

At this stage the direct reduced iron (D.R.I.) is melted in a furnace and there after refined to produce Steel Ingots/ billets of desired chemical composition to ensure the quality and purity of Steel Ingots/ billets.

REHEATING AND ROLLING

The Billets are then heated in a micro processor based PLC controlled hearth furnace and is rolled through a series of mill stands which progressively reduce the billets to the final size and shape of reinforcing bars.

QUENCHING

As soon as the bar leaves the final mill stand, it is rapidly and vigorously cooled from 1250°C to the optimal temperature. It is done in a completely automated quenching box made with T & Q technology from GERMANY, where the product undergoes a uniform surface hardening treatment to form a hardcore martensitic layer, which provides the steel it strength along with adhesive layering.

SELF-TEMPERING

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

ATMOSPHERIC COOLING

The last stage takes place while the product lies on the cooling bed where the bar is subjected to normal air-cooling reduced to ambient temperature. The austenitic core is then transformed to a ductile ferrite-pearlite core. Thus, the final structure consists of a combination of strong outer layer of tempered Martensite and a ductile core of ferrite-pearlite.

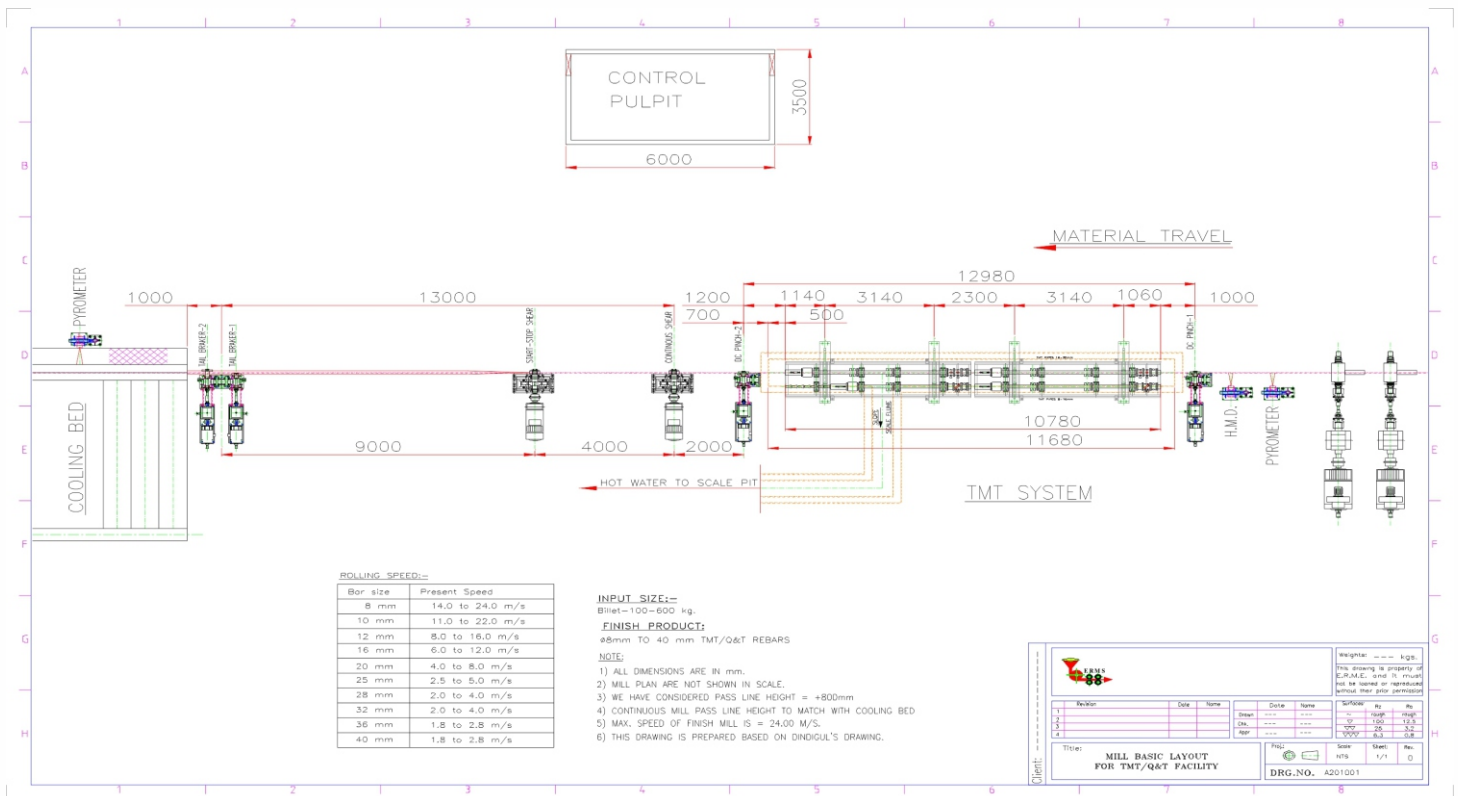
STEP BY STEP PRODUCTION PROCEDURE

FINAL TESTING & INSPECTION

We do needful inspection and laboratory testing of the products.

DISPATCH

After the inspection of products ,we dispatch according to customers requirements.



Eagle TMT 500

In the production, we use Tempcore Process that makes our product the best in class. Using another advanced manufacturing process called "Thermo Mechanical Treatment", increases the features of our products.

Eagle EQ & TS supplies fully integrated steel plant machinery and equipment, auxiliary plants, process control automation, and full-service spectrum all from a unique methodology and passion for optimum commitment for the betterment of customers.

CHEMICAL COMPOSITION:

Generally, as per IS: 1786-2008 carbon equivalent value is max.0.45% and as per BS 4449: 2016 carbon equivalent value is max.0.50% to 0.52% also as per ISO 8935-2:2019 carbon equivalent value is max.0.50% to 0.52% also

S. No.	Properties	Standard	Eagle Values
1	Yield Strength, N/mm², min	500	500 - 550
2	Tensile Strength, N/mm², min	550	575 – 650
3	Stress Ratio (TS/YS), min	1.08	1.15 – 1.25
4	A₅ Elongation, % (L=5Dn) min	12	18 – 25
5	Uniform Elongation %	NS	7.5



Eagle TMT 550

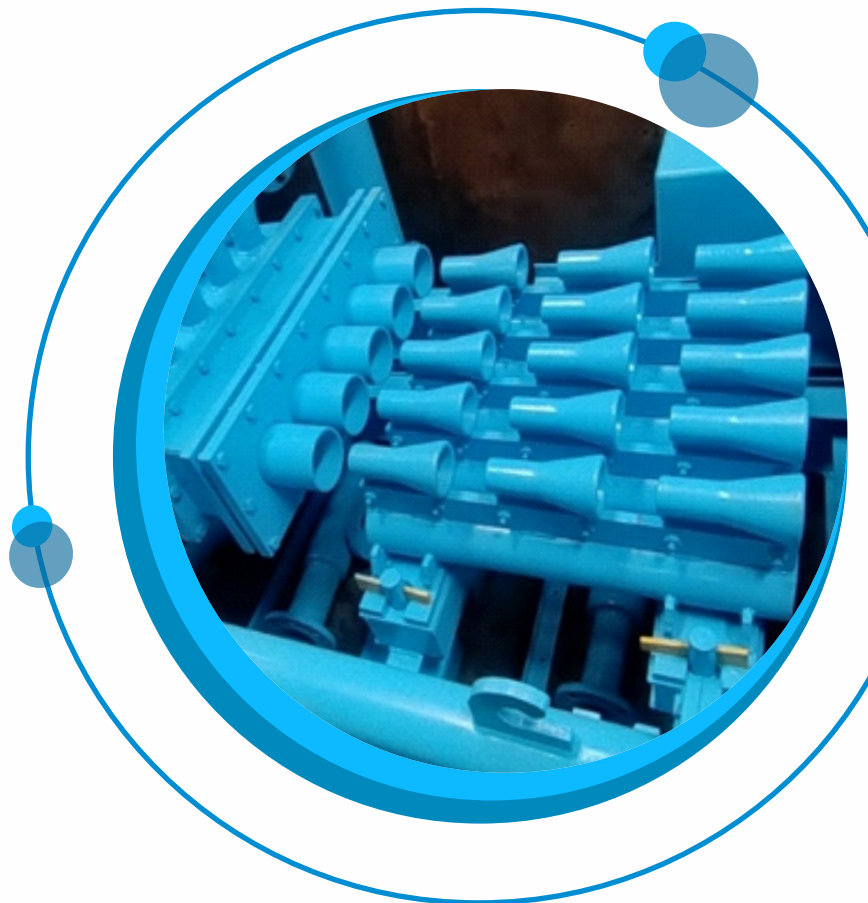
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S. No.	Properties	Standard	Typical Values
1	Yield Strength, N/mm², min	550	550 - 600
2	Tensile Strength, N/mm², min	600	600 - 690
3	Stress Ratio (TS/YS), min	1.08	1.15 - 1.25
4	A₅ Elongation, % (L=5Dn) min	12	18 - 25
5	Uniform Elongation %	NS	7.5





TESTING LABORATORY

We suggest to Eagle TMT Re-bar manufacturers to well-equipped Chemical Laboratory for testing the finish material as per Heat & Batch no. so the engineer will ensure only finest material will move to dispatch yard with proper lot no.

EQ&TS will check bar quality control department to carry out all physical & chemical tests. Quality control measures at every stage of production, for ensuring customer's satisfaction.



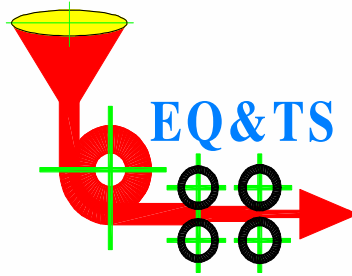
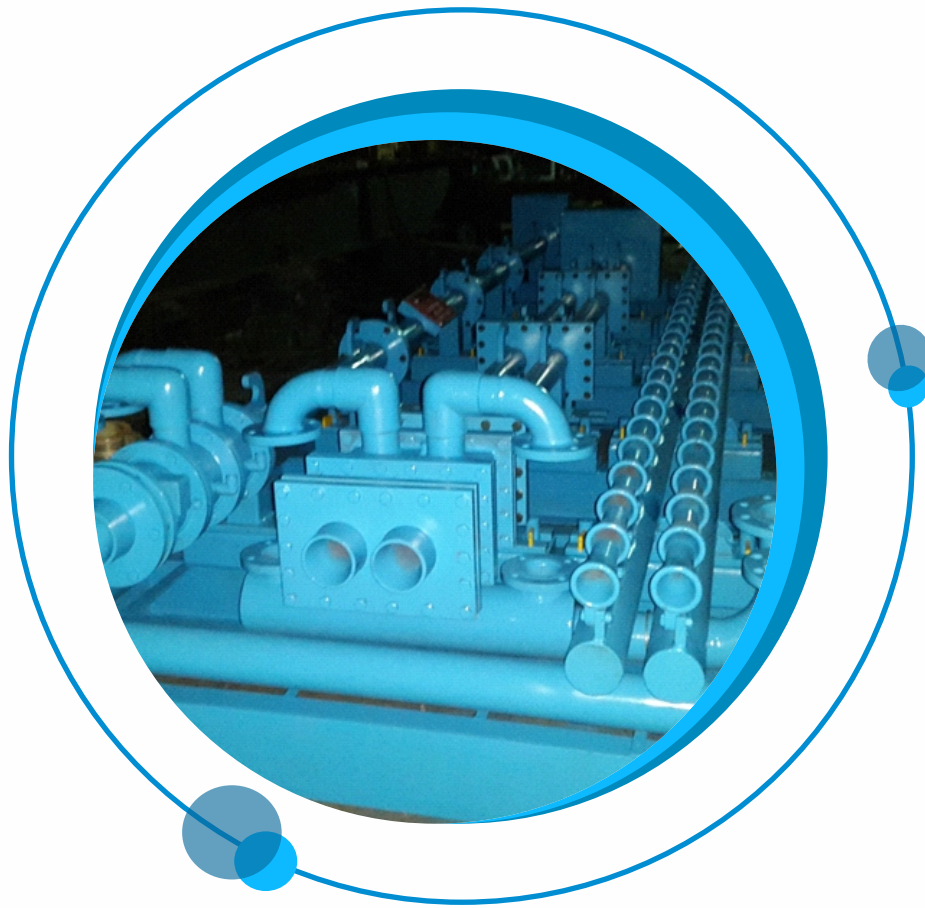
SERVICE POINTS

Eagle Quenching & Tempering System Installed world-wide – Tanzania, Kenya, Nairobi, Nigeria, Cameroon, Ethiopia, Saudi Arabia, Ghana, Nepal, Bhutan, Sri Lanka & Bangladesh.

Eagle Quenching & Tempering System Installed Within India – All State of India around 225 Unit.

PLANT





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