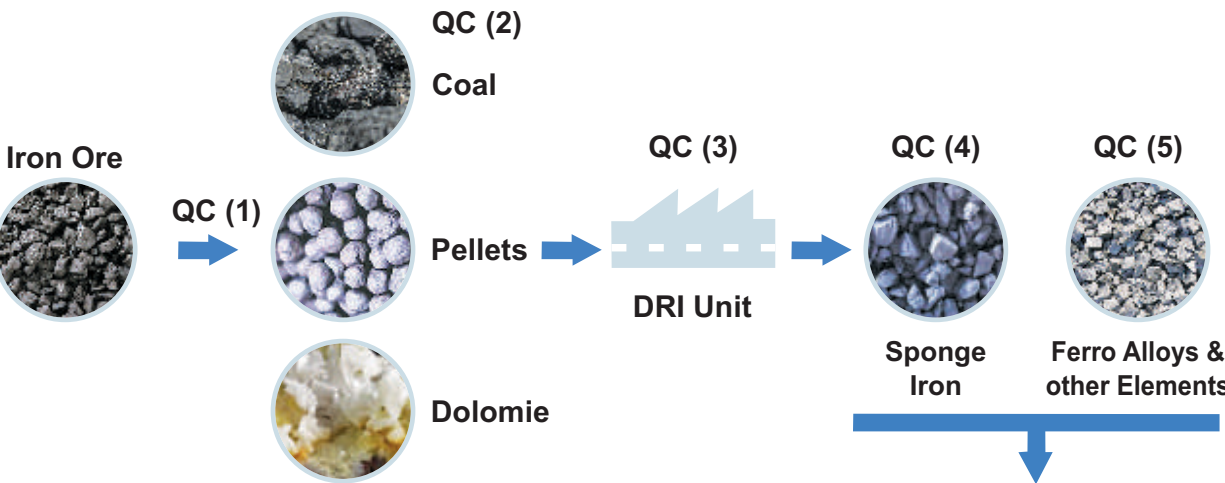
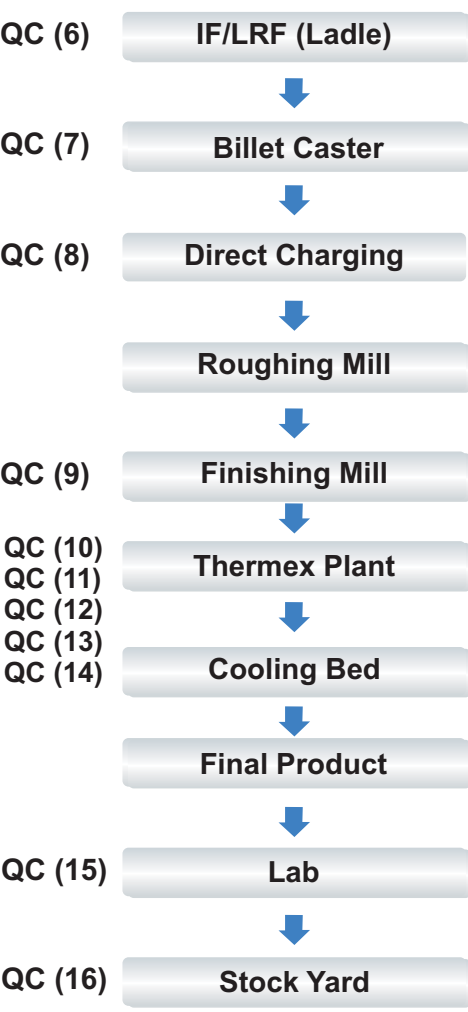


# QUALITY CHECK FLOW CHART



## QC Check Point

1. Chemical analysis of Iron Ore
2. Chemical analysis of Coal, Pellets & Dolomite
3. Monitoring process parameters to ensure desired finished product
4. Chemical analysis of sponge Iron
5. Chemical analysis of manganese ore and other elements
6. In process chemical test of liquid metal & refining for desired properties
7. Temperature check, Chemical analysis and visual inspection of billets
8. Temperature check
9. Checking of stock size
10. Temperature monitor at entry in Thermex
11. Monitoring of Thermex pipe
12. Temperature monitor at exit of Thermex
13. Equalizing temperature monitor
14. Checking of section weight and bar straightness
15. Final Physical and Chemical analysis of



	IS : 1786	Goel TMT 500D
<b>Chemical Properties</b>	Fe 500D	Fe 500D
%Carbon (max)	0.25	0.25
%Sulphur (S) (max)	0.040	0.035
%Phosphorus (p) (max)	0.040	0.035
%S&P (max)	0.075	0.070
<b>Mechanical Properties</b>		
Yield Stress-YS (N/mm <sup>2</sup> ) (min)	500	510
Ultimate Tensile Stress-UTS (N/mm <sup>2</sup> ) (min)	565	580
% Elongation (min)	16	17

## STANDARD SIZES AND USEFUL DATA

Section	ISI Standard	Tolerance Limit	GOEL TMT	Tolerance	No. of Pieces	Weight per	Tolerance
in mm	Nominal Wt	as per ISI in	Nominal Wt	Limit in	Per Bundle	Bundle in	%
	kg/Mtr.	kg/Mtr.	kg/Mtr.	kg/Mtr.	12 Mtr.	kgs. 12 Mtr.	in Wt.
6	0.222	0.206-0.238	0.215	0.210-0.225	20	52	±2
8	0.395	0.367-0.423	0.380	0.370-0.400	22	100	±2
10	0.617	0.574-0.660	0.590	0.580-0.620	15	106	±2
12	0.888	0.844-0.932	0.865	0.850-0.890	10	104	±2
16	1.580	1.500-1.659	1.575	1.550-1.590	5	95	±2
20	2.470	2.395-2.544	2.450	2.430-2.480	3	88	±2
25	3.850	3.730-3.965	3.830	3.800-3.860	1	46	±2
28	4.830	4.685-4.975	4.820	4.750-4.840	1	58	±2
32	6.310	6.121-6.499	6.280	6.250-6.320	1	75	±2
40	9.860	9.554-10.145	9.830	9.650-9.870	1	118	±2

## Clients/Approval



GOEL GROUP : [www.goelgroup.co.in](http://www.goelgroup.co.in)



**SHRI BAJRANG POWER AND ISPAT LIMITED**  
Kh. No. 2/3, Urla Industrial Complex, Village-Gondwara, Raipur - 493221 (C.G.)  
Ph. : +91-771-4288111, Fax : +91-771-4288150  
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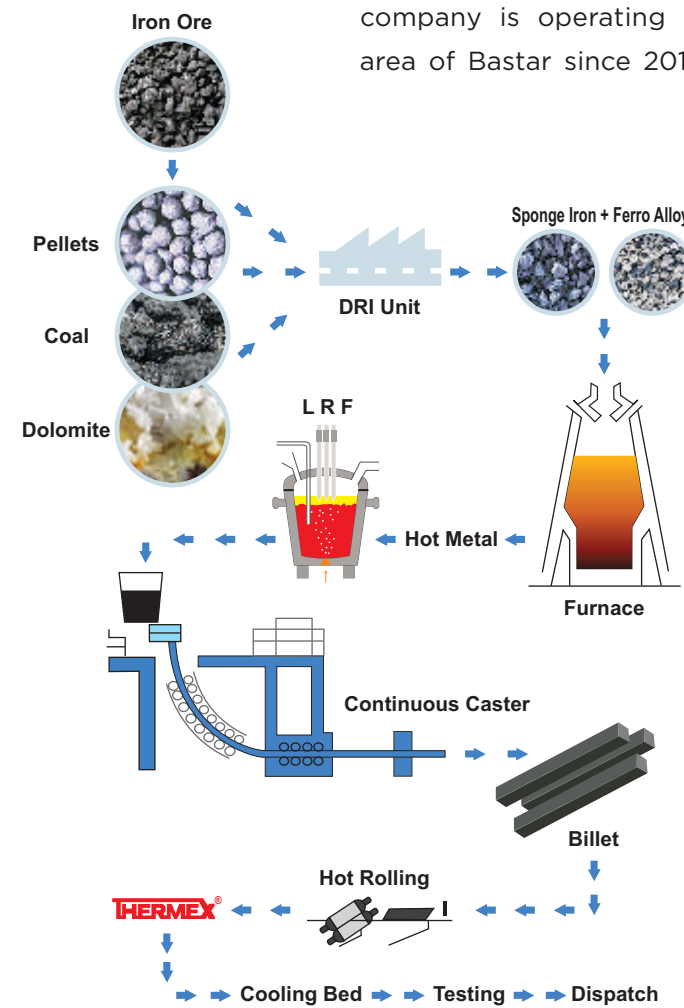
**MASTERING YOURSELF  
IS TRUE STRENGTH**



Established in the year 2000, Shri Bajrang Power & Ispat Ltd. (SBPIL), the biggest venture of the Goel Group is one of Central India's largest and fully integrated producer of TMT Bars (Goel TMT). Every year SBPIL rolls out 4 lakh tones of Goel TMT Bars under one roof. SBPIL is the



only company in central India which produces TMT from Iron Ore procured from its own mines. The company is operating the mines in the Durgukodal area of Bastar since 2015. The mines are spread in 75



Production Process Flow Diagram

GOEL TMT 500 D is manufactured in highly advanced & fully integrated steel plant, using latest technolgy from Thermex Germany. The basic steel is made from virgin Iron Ore and steel melting with secondary refining facility including Ladle Refining Furnaces (LRF). Billets manufactured are rolled in fully automated rolling mills with PLC controlled online

# PRODUCTION PROCESS

## GOEL TMT 500 D



GOEL TMT 500 D is manufactured from in house billets made from virgin Iron Ore in our Integrated steel Plant.

### Result

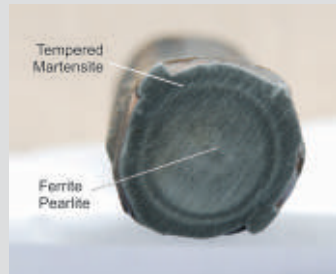
Consistency in quality.



Steel melting with secondary refining facility including Ladle Refining Furnaces (LRF).

### Result

Clean and Pure steel.



Made by proven German Thermex technology.

### Result

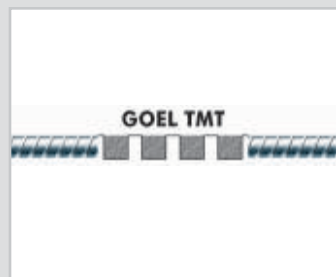
Unique combination of higher strength and Ductlilty.



Fully Automatic mill with tension control loopers for controlling section weight of TMT Bars.

### Result

Equal weight of bars resulting in easy calculation and accounting for pilferage at site.



Uniform ribs made from CNC notch cutting machine.

### Result

Strong bonding with concrete.

## ORDINARY BARS



Steel is made from scrap materials with no purification done.

### Result

Lacks consistency.



Steel production through Induction Furnace route using Ingots with no purification done.

### Result

Impure and Defective steel.



Non standard TMT Process.

### Result

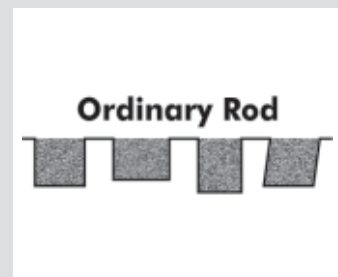
Uneven strength and thus unreliable for construction



Semi automatic / Manual mills.

### Result

Variation in weight of bars.



Ordinary Rod

Ribs are cutted manually resulting in uneven rib pattern.

### Result

Weak bonding with concrete.

## ADVANTAGES OF GOEL TMT 500D

**Higher Strength with Better Bendability** - Goel TMT 500 D can be bent into customized shape inspite of having very high strength due to unique physical and chemical properties. Its inherent microstructure with soft ferrite and hard martensite ring result in higher strength and better bendability.

**Higher Bond Strength** - Our CNC machine results in uniform formation of Ribs which results in better bonding with concrete thus resulting in reduction of fatigue & increase resistance to seismic tremors.

**Seismic Resistance** - Unique combination of high strength (YS min. 510 MPa), ductility (min. 17% elongation and UTS/YS ratio of 1.15 min.) inherently ensures ability to absorb shocks and higher resistance to earthquakes.

**Corrosion Resistance** - The precise control of the thermo mechanical treatment process Thermex results in uniform and thick tempered martensitic rim free from internal stresses. This martensitic rim improves the corrosion resistance of TMT Bars.

**Economical** - Its high strength and high ductility leads to substantial saving upto 15% in steel consumption without compromising on safety.

**Close Dimensional Tolerance** - Automatic tension control loopers, which helps in controlling section weight of bars. Goel TMT 500D is supplied with mass/metre on the negative side of the specified tolerance on a weighted average basis. This further reduces consumption because of extra strength per mass.

**Clean Surface** - Straight Mill technology with no obstruction results in high quality & clean surface finish product.

**Fire Resistant** - The Quenching and Self tempering treatment at a temperature of approximately 650 C results in a consistent and thick layer of tempered Martensitic rim on the outer surface of rebar imparting higher capacity to retain strength at elevated temperatures.

