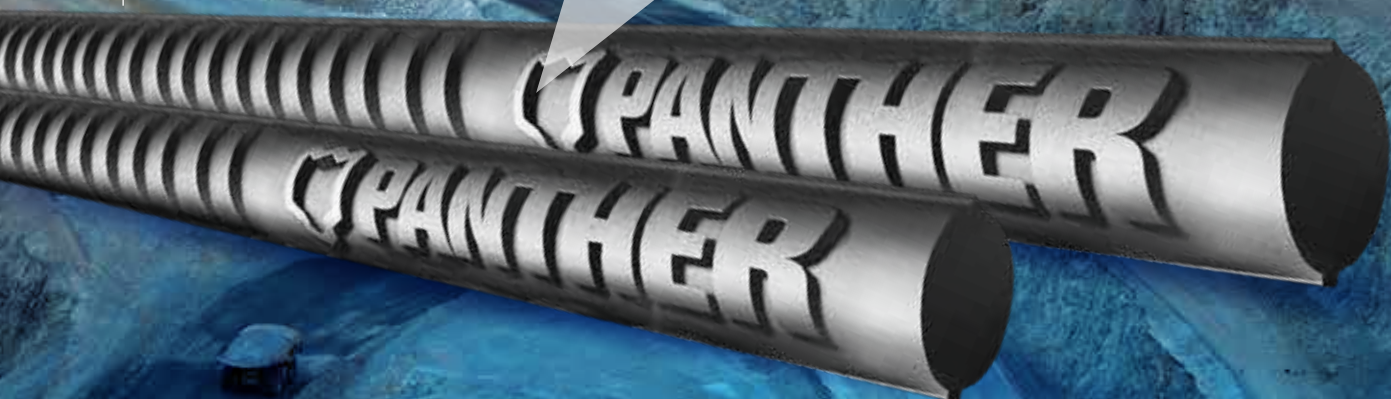


The Most Trusted TMT Rebars of India



**SPEED
STRENGTH
FLEXIBILITY**



India's First and Largest Producer of **Fe 550D** TMT Rebars

Visit us: jindalpanther.com
Toll free number: 1800 208 2008
A PRODUCT OF JINDAL STEEL



SPEED | STRENGTH | FLEXIBILITY

Fe550 | Fe 550D | Fe 600



India's first and largest producer of Fe 550D TMT rebars

WELCOME TO THE FUTURE OF BUILDING SAFETY AND LONGEVITY

As we look to the future, we anticipate the need for lean steel structures that are stronger and offer better value for money.

Steel offers the widest range of strength compared to other metals giving it a significant advantage in construction. There are more than 200 grades of steel globally, and we take pride in offering Jindal Panther Fe 550D – the strongest grade in TMT rebar so far in practice.

This grade of steel is produced using a technology that gives it two desirable properties simultaneously, higher strength and higher ductility, thereby making it most suitable for earthquake-resistant structures. Higher strength is achieved by the addition of certain alloying elements, keeping the percentage of carbon lower, thereby ensuring that the steel remains sufficiently ductile.

Ductility is the degree of plastic deformation before fracture or simply how much strain a material can hold before fracture.

Jindal Panther Fe 550D rebars have enhanced physical, chemical and mechanical properties as compared to the bars in other strength grades. This is achieved by highly controlled and advanced manufacturing processes at Jindal Steel's own manufacturing plants, which gives:

 Enhanced strength

 Minimum 5% saving on steel*

 Rich chemistry

 Superior properties

 Cleaner steel

 World-class technology

* Subject to design

WELCOME TO THE FUTURE OF TMT REBARS

BENEFITS OF FE 550D & FE 600

Jindal Panther Fe 550D TMT Rebars offer 32% higher strength than conventional steel (415 MPa vs 550 MPa)

HERE'S HOW STRONGER STEEL AFFECTS YOUR CONSTRUCTION

Reduction in steel consumption

Designing structures with Fe 550D reduces the steel consumption by 12-15% with optimisation using consistent primary steel.

Reduction in bar congestion

Using stronger grade steel means reduction in bar diameter that results in increased bar spacing as fewer rebars are needed.

Reduction in labour cost

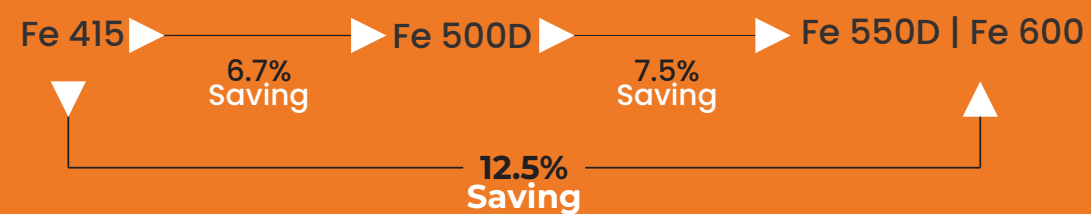
Using lesser steel requires less labour which saves on labour cost.

Faster construction

Less time is required for placing and tying of bars. And less weight on cranes improves construction efficiency.

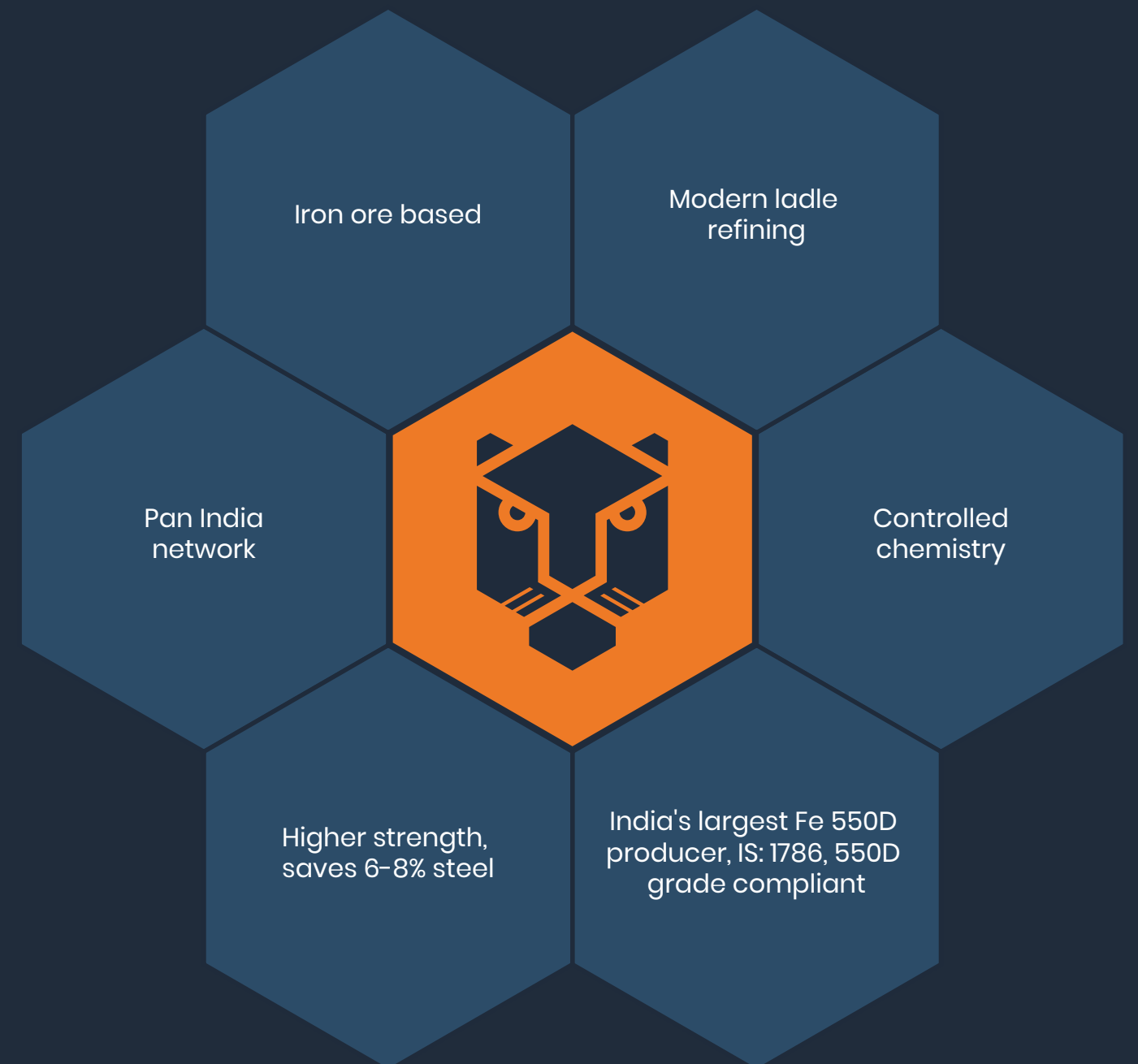
Bigger savings

When the same structure is constructed with 3 different grades of steel, there will be remarkable saving in case of use of Fe 550D.



Fe 550D

6 – 50mm range



*can be reduced further on request

RIGHT TMT REBAR = HIGHER SAVINGS

Did you know that the right quality steel TMT rebars can deliver higher savings over the life of your project?

Steel TMT rebars are used in every RCC construction, whether residential or commercial, and account for roughly 25% of the total construction cost. With smart planning, you can not only make your structure stronger and longer-lasting but also achieve meaningful savings.

All thanks to superior-grade steel TMT rebars like Jindal Panther Fe 550D.

Read on to understand how.



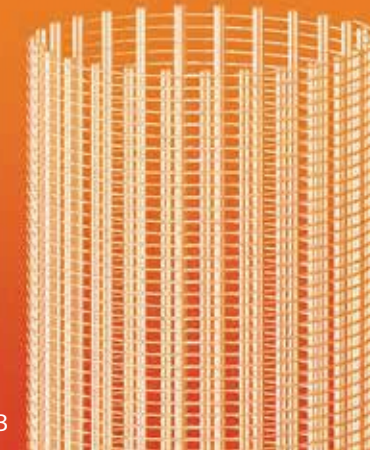
HERE'S HOW HIGHER-GRADE FE 550D & FE 600 TMT REBARS SAVES YOU MONEY

- Higher grade steel TMT rebars like Jindal Panther Fe 550D and Fe 600 have higher load-bearing capacity while maintaining the same ductility as per BIS 1786.
- Better load bearing capacity of Fe 550D means fewer rebars required in total.
- It also translates into using TMT rebars with smaller diameters, resulting in less congestion

DENSE CLUTTERED USE OF
Fe 415



LESS CONGESTED USE OF
Fe 550D



Column A uses more Fe 415 TMT rebars and is congested

Column B uses fewer Fe 550D TMT rebars resulting in less congestion*

THUMB RULE

10% increase in strength = 0.5% reduction in consumption

FE 500D AND FE 550D TMT REBARS
CONFORM TO BIS STANDARDS AND
EXCEED THEM ON MANY PARAMETERS

Parameters	BIS Fe 500D	Jindal Panther Fe 500D	BIS Fe 550D	Jindal Panther Fe 550D
% Carbon	0.25	0.20-0.25	0.25	0.22-0.25
% Silicon		0.15-0.25		0.15-0.25
% Manganese		0.90-1.00		0.95-1.05
% Sulphur (max)	0.040	0.030	0.040	0.030
% Phosphorus (max)	0.040	0.030	0.040	0.030
% Sulphur + Phosphorus (max)	0.075	0.055	0.075	0.055
% Carbon Equivalent (CE)	0.50	0.35-0.40	0.61	0.35-0.41
Yield Stress (N/mm2) min	500	525	550	575
% Elongation min	16.0	18	14.5	18
Tensile Strength (N/mm2) min	565	600	600	645
UTS/YS Ratio (min)	1.1	1.15	1.08	1.15

Jindal Panther Fe 500D

Shift from lower-grade TMT to higher-grade TMT = Save up to 22%

Size of TMT Bar (mm)	Per Mtr. Weight of bar
8	0.395
10	0.617
12	0.88
16	1.58
20	2.47
25	3.85
28	4.83
32	6.32
36	8

Comparative Summary for
Slabs, Columns, and Beams

- Average savings for slabs: 13%–19%
- Average savings for columns: 8%–22%
- Average savings for beams: 12%–22%

SLAB					
Combinations	Designed in Fe 415	Designed in Fe 500	Designed in Fe 550	Saving from 415 to 550	Saving from 500 to 550
3mX3m slab (125mm thick)	56Kg	49Kg	45Kg	19%	8%
Reinforcement	8mm at spacing of 200mm	8mm at spacing of 225mm	8mm at spacing of 250mm		
4mX4m slab (125mm thick)	100Kg	92Kg	78Kg	22%	15%
Reinforcement	8mm at spacing of 185mm	8mm at spacing of 200mm	8mm at spacing of 250mm		
5mX5m slab (150mm thick)	181Kg	156Kg	130Kg	15%	16%
Reinforcement	8mm at spacing of 175mm	8mm at spacing of 185mm	8mm at spacing of 225mm		
Average cost saving upto				19%	13%

COLUMN					
Size	Designed in Fe 415	Designed in Fe 500	Designed in Fe 550	Saving from 415 to 550	Saving from 500 to 550
230X350 Reinforcement	45Kg 4-20mm+ 4-12mm	38Kg 8-16mm	35Kg 4-16mm + 4-12mm	22%	8%
230X450 Reinforcement	58Kg 4-20mm+ 6-16mm	48Kg 10-16mm	43Kg 8-16mm+ 2-12mm	25%	10%
230X600 Reinforcement	88Kg 12-20mm	72Kg 8-20mm+ 4-16mm	67Kg 4-20mm+ 8-16mm	23%	7%
300X350 Reinforcement	58Kg 4-20mm+ 6-16mm	48Kg 10-16mm	44Kg 8-16mm+ 2-12mm	24%	8%
300X450 Reinforcement	83Kg 10-20mm+ 2-16mm	72Kg 6-20mm+ 6-16mm	67Kg 4-20mm+ 6-16mm	19%	7%
300X600 Reinforcement	113Kg 6-25mm+ 8-20mm	103Kg 14-20mm	93Kg 10-20mm+ 4-16mm	17%	9%
Average cost saving upto				22%	8%

BEAM				
Designed in Fe 415	Designed in Fe 500	Designed in Fe 550	Saving from 415 to 550	Saving from 500 to 550
28Kg 6-16 dia	26Kg 4-16 dia+ 2-12dia	22Kg 2-16 dia+4-12 dia	21%	15%
52Kg 4-20 dia+ 2-16dia	48Kg 4-16 dia+ 2-20 dia	40Kg 6-16 dia	23%	16%
60Kg 3-20 dia + 3-16 dia	53Kg 2-20 dia+3-16dia+1-12dia	46Kg 6-16 dia	23%	13%
26Kg 4-16dia +2-12dia	22Kg 4-12dia+2-16dia	20Kg 5-12dia+1-16dia	23%	9%
38Kg 6-16dia	35Kg 4-16dia +2-12dia	29Kg 4-12dia+2-16dia	23%	
56Kg 4-16dia+2-20dia	50Kg 6-16dia	46Kg 5-16dia+1-12dia	17%	8%
7Kg 6-16dia	25Kg 4-16dia +2-12dia	22Kg 4-12dia+2-16dia	18%	12%
38Kg 6-16dia	34Kg 4-16dia +2-12dia	29Kg 4-12dia+2-16dia	23%	14%
57Kg 4-16dia+2-20dia	50Kg 6-16dia	43Kg 4-16dia +2-12dia	23%	14%
27Kg 6-16dia	25Kg 4-16dia +2-12dia	22Kg 4-12dia+2-16dia	18%	12%
40Kg 6-16dia	35Kg 4-16dia +2-12dia	30Kg 4-12dia+2-16dia	25%	14%
57Kg 4-16dia+2-20dia	48Kg 6-16dia	43Kg 4-16dia +2-12dia	24%	10%
Average cost saving upto			22%	12%

REMEMBER Fe 550D IS HIGHER LOAD BEARING

✓ LOWER NUMBER OF REBARS

✓ LESSER CONGESTION

THUS BIGGER SAVINGS!!

✓ LOWER DIAMETER

✓ REDUCED LABOUR/TIME

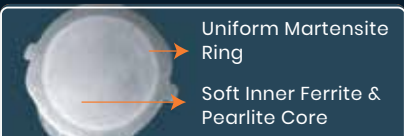
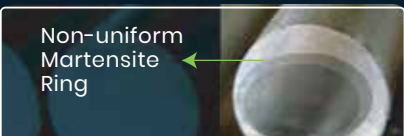
LIVE PROJECT WITH Fe 550D FOR LUCKNOW DEVELOPMENT AUTHORITY UNDER PRADHAN MANTRI AWAS YOJNA



DESCRIPTION	DIA-WISE STEEL CONSUMPTION							WEIGHT (in kg.)	STEEL CONSUMPTION (in kg.)	CONTRIBUTION Per SQ.FT (in kg.)	
	8	10	12	16	20	25	32			Fe 500D	Fe 550D
FOOTING	658.475	3193.080	246.145	332.332	381.630	0.000	0.000	4811.661	4907.895	0.300	0.259
2% extra for lap & chairs				96.233				96.233			
COLUMN											
Fe 500D	4972.563	3756.667	6841.6	2803.99	0	0	0	18374.82	18374.82	0.97	0.919
Fe 550D	4768.016	3943.333	7982.592	712.552	0	0	0	17406.493	17406.493		
BEAM											
Beam-500D	5443.664	0	6414.108	7267.568	1549.037	0	0	20674.378	20674.378	1.092	0.914
Beam-550D	5546.293	0	7798.414	3965.914	0	0	0	17310.621	17310.621		
SLAB											
Slab-500D	13256.32	0	0	0	0	0	0	13256.32	13256.32	0.7	0.7
Slab-550D	13256.32	0	0	0	0	0	0	13256.32	13256.32		
STAIRCASE	284.064	0	2651.264	0	0	0	0	2935.328	2935.328	0.155	0.155
Typical (G+3rd) Floor area (in squ. Ft.)			440				4	18937.6			
Total Steel consumption	48281.948	10893.08	31934.123	15082.357	1930.667	0	0				
OVERALL STEEL CONSUMPTION AVERAGE PER SQ. FT.										3.22	2.947

5% - 8% average steel/cost saving in a building when using higher grade Fe 550D Jindal Panther TMT Rebars.

COMPARE AND SEE HOW JINDAL PANTHER TMT REBARS ARE SUPERIOR TO SCRAP-BASED REBARS

YOU GET (JINDAL PANTHER)		 JINDAL PANTHER[®] TMT REBARS VERSUS OTHERS		YOU GET (SCRAP ROUTE)	
Surpasses minimum specified levels of Bureau of Indian Standards (BIS)	▶ More value for money with upto 6% - 8% savings ✓	 SURPASSES STANDARDS	 INCONSISTENT IN QUALITY	Less value for money and no savings	Barely qualifies the minimum requirements of BIS
Uses virgin iron ore and deploys state-of-the-art steel making and refining processes	▶ Highly clean & homogenous steel quality ✓	 IRON ORE	 SCRAP	Uncertain chemical and mechanical properties due to inclusion of tramp elements	Use scrap or ingots for steel melting without any secondary refining process
Steel is made using BF/DRI→EAF/BOF/NOF LRF→ Concast Route	▶ A highly controlled steel chemistry with very low levels of sulphur (0.030%) & phosphorus (0.30%) ✓	 BF/DRI→EAF/BOF/NOF LRF → CONCAST ROUTE	 INGOT	Variations in chemical composition leading to structural instability	Follow the melting process of secondary steel through induction furnace route leading to no control over chemistry
Rebars are manufactured using High Yield Quenching and Self Tempering (HYQST) Technology perfected by Siemens of USA / QST from SMS	▶ High strength and ductility due to fine grain multiphased composite structure ✓	 UNIFORM MICROSTRUCTURE	 NON-UNIFORM MICROSTRUCTURE	Non-uniform grain size and inconsistent steel quality	Use outdated rolling process & technology
Provides precise and uniform parallel rib pattern engraved through computer-controlled notch making machines	▶ Excellent bond strength with concrete ✓	 UNIFORM RIB PATTERN	 NON-UNIFORM RIB PATTERN	'X' rib/non-uniform pattern which has low fatigue life and reduces bond strength with concrete	Use conventional machines for engraving ribs
Meets UTS/YS (Ultimate Tensile Strength to Yield Strength) ratio and high percentage elongation	▶ Superior earthquake-resistant qualities due to high capability of absorbing energy ✓	 EARTHQUAKE-RESISTANT	 NOT FOR SEISMIC ZONES	Much lower resistance to cyclic loading which is not recommended for seismic zones	Use old technology leading to high variation in elongation
Has predefined and transparent pricing	▶ Fixed and uniform rates evidenced through a well-displayed price list at our dealers' shops ✓	 UNIFORM PRICES	 FLUCTUATION IN PRICES	Daily fluctuations in rates	Costs are linked to raw material movement like scrap & ingot
Is an international Brand	▶ World-class quality ✓	 TRUSTWORTHY	 QUESTIONABLE	Average quality	Are local/regional brands

THE TECHNICAL DETAILS

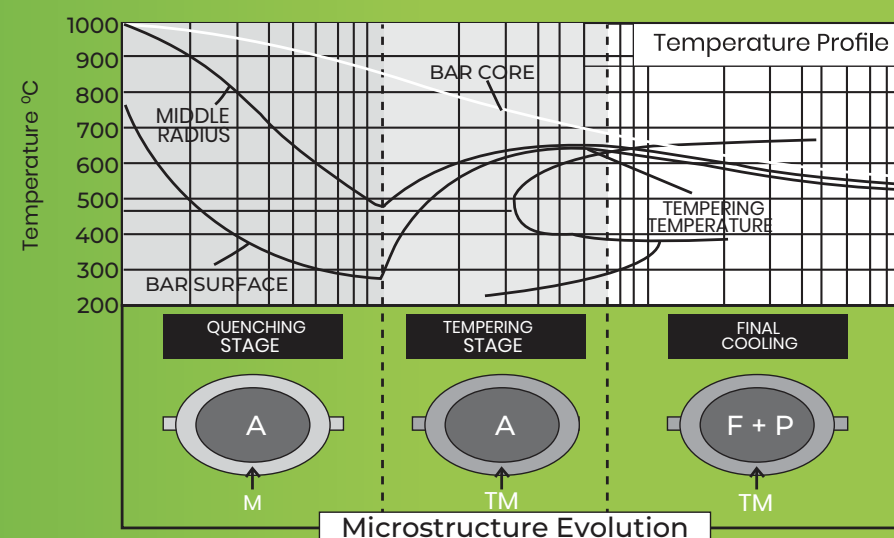
Fe550D Rebars are Thermo Mechanically Treated (TMT) Steel Bars produced through advanced HYQST (High Yield Quenching and Self Tempering Process) /QST (Quenching and Self Tempering) process.

HYQST/QST process includes hot rolling of the billets in the most modern bar mill followed by water quenching, self tempering and atmospheric cooling. During quenching, the temperature of the rebar drops at a faster rate at the periphery leading to a harder surface, while the high temperature core gets cooled slowly. The thermal stresses generated during quenching are relieved by the heat released from the core during the next step called self tempering. Finally atmospheric cooling at the cooling bed leads to a strong casing and a soft core in the rebars giving it significant strength and ductility.

The reason behind such unique combination of strength and ductility is that at a higher cooling rate, the surface attains a hard phase of steel known as Martensite while the core will have soft phases like Ferrite and Pearlite.

Metallurgical Aspect:

Steel can attain a wide variety of properties by altering its microstructure, which depends on its chemical composition as well as the thermal treatment it is subjected to. Rebars have a combination of different microstructures which provides it both strength and ductility.

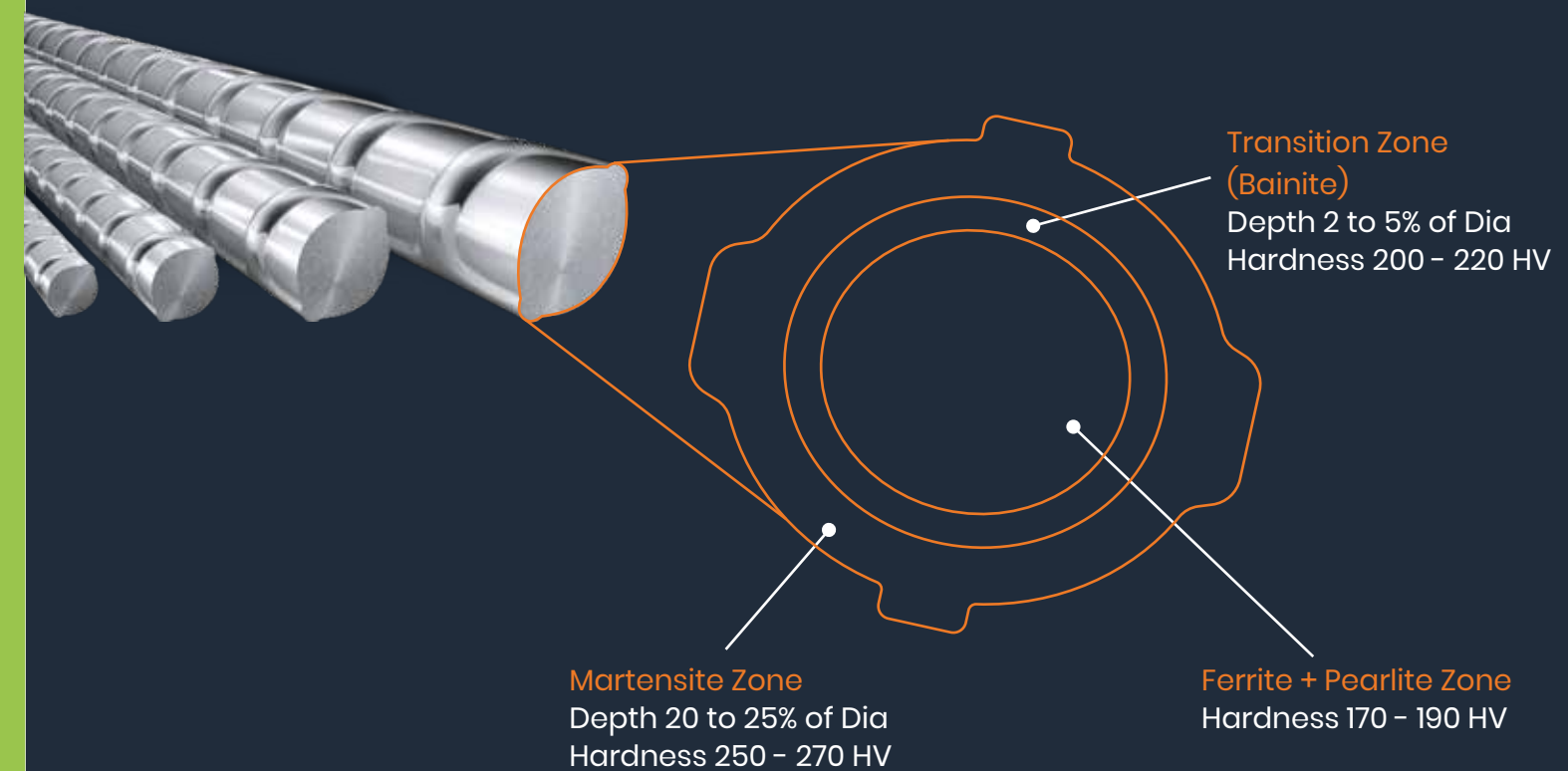


At the periphery, it has a hard phase called Martensite. Although the outer layer is quenched, the inner core of the cross section is still hot and it is in Austenitic Phase at higher temperature. As the bar cools, heat flows from the centre of the bar to its surface, leading to varying cooling rate across its cross section, the process known as self tempering. Thus it exhibits a variation in microstructure in the cross section, having strong and tough Martensite in the surface layer of the bar, an intermediate layer of Martensite and Bainite, and the core attains a soft Ferrite and Pearlite microstructure. Any thermal stress generated in Martensite during quenching is relieved in this process. Once this process is over, the TMT bars are subject to atmospheric cooling. This is done in order to equalise the temperature difference between the soft inner core and the tough exterior. The inner core remains soft giving the TMT bar superior ductility. This unique manufacturing technique and the absence of Cold stress make the rebar corrosion-resistant and boost its weldability.

Thus we can see high level of engineering and equipment with sophisticated controls are required to produce Thermo-Mechanically Treated (TMT) Bars to achieve the above properties.

This HYQST/QST process delivers greater tensile strength to the rebars as well as higher elongation. This improves the bend/re-bend properties of the rebars, thus making it safe from natural calamities such as an earthquake. The special ribbed design of the TMT bars forms a stronger bond with the concrete or cement. We can achieve higher mechanical properties with low alloying. It helps to reduce the steel weight.

Jindal Steel is having level 2 automation systems for achieving the above microstructure and the desired mechanical properties. The advanced control systems in mills also help in attaining dimensional accuracy and consistency of the desired level.

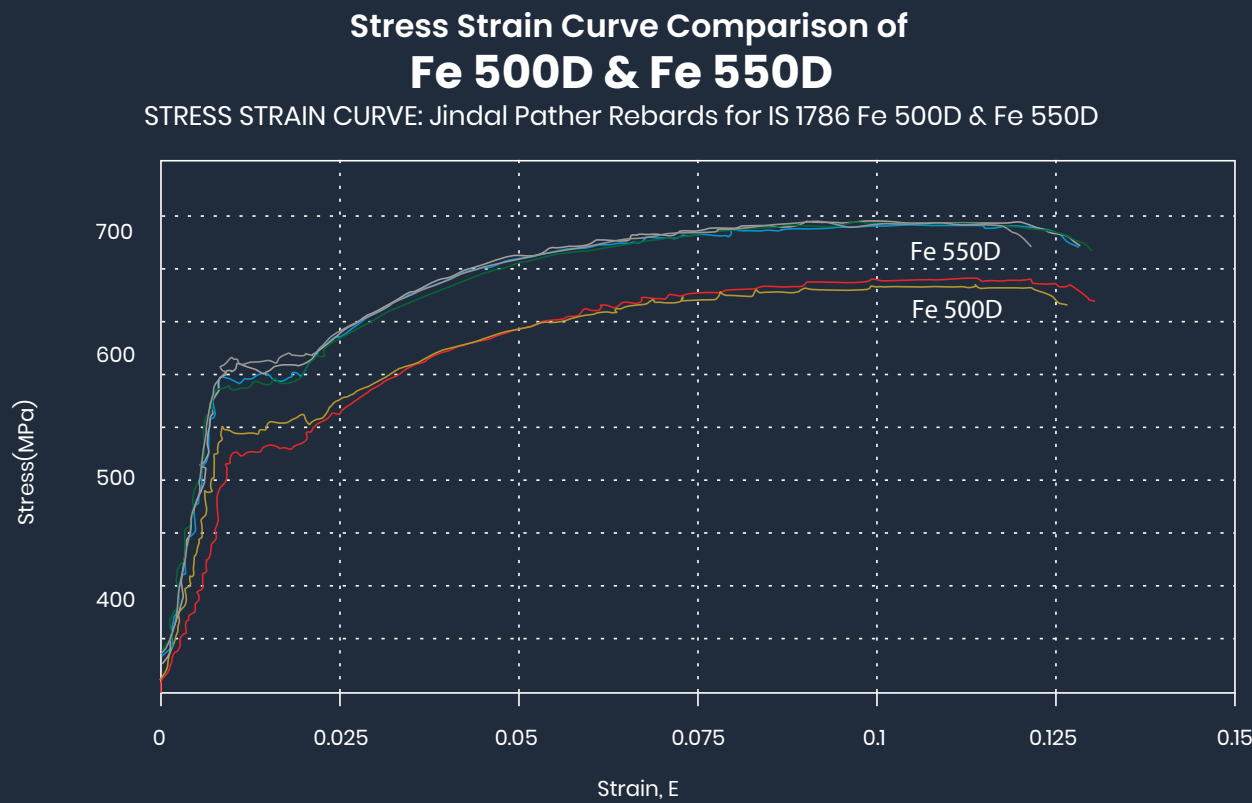


MECHANICAL PROPERTIES:

YS (YIELD STRENGTH): MIN. 550 MPA
UTS (ULTIMATE TENSILE STRENGTH): MIN 600 MPA
ELONGATION: MIN 16%
UTS/YS: MIN 1.10

Jindal Steel is a primary and integrated steel producer. Thus it ensures clean steel with very low levels of detrimental Sulphur and Phosphorous, and low ppm of gaseous contents. Thus the TMT produced have negligible internal defects and impurities.

Jindal Panther TMT Rebars can be used in extreme environments like marine, coastal and saline conditions as well as in the high seismic zones.



Fe 550D, Yield Strength (N/mm2)	Min	~550 MPa (BIS)	Actual - 575 MPa
% Elongation (Min)	14.5	Guarantee - 18%	Actual - 21.75%
Fe 500D, Yield Strength (N/mm2)	Min	~500 MPa (BIS)	Actual - 530 MPa
% Elongation (Min)	16.0	Guarantee - 18%	Actual - 21.60%

DUPLICATE SE SAVDHAAN

ASLI TMT REBAR KI PEHCHAAN
JINDAL PANTHER KA NISHAN

JINDAL PANTHER TMT REBAR		
ORIGINAL		DUPLICATE
✓ Will have Panther face embossing		Will not have such embossing ✗
✓ Will have Fe 550D and Fe 600 grade		Come mostly in Fe 415 & Fe 500 ✗
✓ Will have prominent & even rib pattern		Have uneven or missing pattern ✗
✓ Will always have ISI mark & license no.		May or may not have these ✗
✓ Available at authorised Jindal Panther dealers		Available at untrustworthy sources ✗
✓ Manufactured only at Angul, Patratu & Raigarh		Produced by smaller mills illegally at different locations ✗



APPLICATIONS OF Fe 550D



Due to changing applications such as high rise buildings and long span structures, it has become imperative for innovative and conscientious steel makers to commercially produce grade Fe 550D – a grade vastly superior to the existing grade.

Jindal Panther Fe 550D TMT Rebar has been made to impart strength and superior ductility for construction of a stronger India.

This is achieved by using enhanced steel quality, superior chemical properties and better rolling techniques.

With an ever growing demand for stronger infrastructure, Jindal Panther TMT Rebar finds extensive use in a variety of modern construction.



Ports



Airports



Rail & Metro networks



Bridges

OUR PLANTS



**1.2 MTPA REBAR MILL
ANGUL, ODISHA, INDIA
TECHNOLOGY – SMS MEER, GERMANY**

ANGUL



**1.0 MTPA REBAR MILL
PATRATU, JHARKHAND, INDIA
TECHNOLOGY – MORGAN, USA**

PATRATU

KEY HIGHLIGHTS OF OUR PLANTS AT ANGUL, PATRATU & RAIGARH

Our plants are amongst the most modern plants across the world. Equipped with the latest technologies and infrastructure, they produce the finest quality steel and TMT rebars.

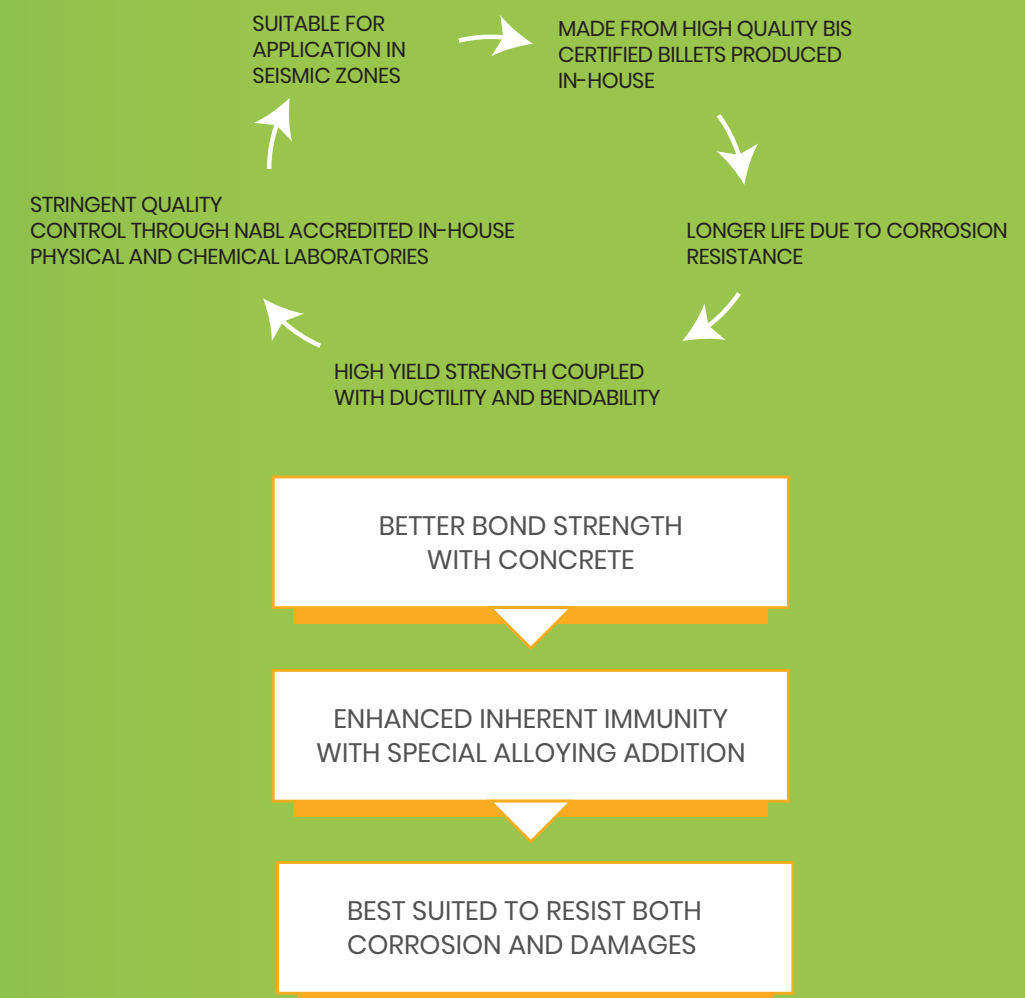
Some of the key features of our plants are:

- Walking beam type reheating furnace
- High pressure water de-scaling facility
- High speed continuous rolling mill with Housing Less (HL) stands in combination of horizontal & vertical arrangement
- Interstands tension control rolling
- Online rapid water quenching unit
- Production of HYQST/QST TMT rebars in straight length
- Cooling beds with movable rack design
- Uniform air-cooling of TMT rebars
- Transporting in a phased manner from the entry of the cooling bed to the discharge side
- Automatic mill shears for head/ tail cropping dividing, sampling or scrapping, and cutting-to-length
- Automatic bundling & tying facilities for rolled product in straight length
- Level 2 mill automation and control

JINDAL PANTHER CORROSHIELD

- Dedicated to building the nation
- Produced in-house in our Primary Integrated Steel Plant at Angul & Patratu
- Available in: IS 1786:2008 Fe500D CRS and Fe550D CRS

PANTHER CORROSHIELD ADVANTAGES



APPLICATIONS

CRS TMT Rebars are mainly used in coastal regions with acidic environments and for marine structures. Some of the application areas include:

- Coastal Breezes
- Underground Tunnels, Metros
- Thermal, Hydel, Nuclear Power Plants
- Coastal Breezes
- Sea Ports & Jetty
- Sea links & Dam Construction
- Roads, Bridges, Flyovers
- Oil and Gas Exploration Sites
- Naval Base
- Industrial Pollution
- Shipyards
- Hazardous Area Construction



OUR PROCESS

Fe 550D and Fe 600 TMT Rebars are manufactured using the unique iron-making, steel-making and rolling process, which makes them stronger, safer and more ductile than any other TMT rebars, thus ensuring utmost quality.

A REBAR IS NOT A REBAR IF IT IS NOT TMT

Thermo-mechanical processing, also known as Thermo-Mechanical Treatment (TMT), is a metallurgical process that integrates work hardening and heat treatment into a single process, while the quenching process produces high strength bars from low carbon steel. The process presses the surface layer of the bar, which pressurises and deforms the crystal structure of the intermediate layers, and simultaneously begins to temper the quenched layers using the heat from the bar's core.

HIGH QUALITY OUTPUT FROM HYQST TECHNOLOGY FOR PATRATU AND QST FOR ANGUL

Our rebar mill in Patratu is from Morgan, USA having High Yield Quenching and Self Tempering (HYQST) technology which is an internationally renowned Thermo-Mechanical Treatment Technology. The rebar mill in Angul is from SMS MEER, Germany with the QST (Quenching and Self Tempering) technology. Both the mills are with state-of-the-art technology ensuring a robust process. These techniques employ a special split style nozzle cooling process for producing fine grain multiphase composite rebar with superior strength and ductility.

STEP 1: QUENCHING

The hot rolled bar from the finishing mill at 1050°Celsius is rapidly quenched by special split style nozzle cooling process. The quenching converts the bar surface layer to martensite, which causes it to shrink. The shrinkage pressurises the core helping it to form the correct crystal structures, while the core remains hot and austenite.

STEP 2: SELF TEMPERING

The bar leaves the quench box with a temperature gradient through its cross section and as the bar cools, heat flows from the bar's centre to its surface and the bar heat and pressure correctly tempers an intermediate ring of martensite and bainite.

STEP 3: ATMOSPHERIC COOLING

Finally, the slow cooling after quenching automatically tempers the austenite core to ferrite and pearlite on the cooling bed, that now has a strong and tough, tempered martensite on the surface layer of the bar, an intermediate layer of tough martensite and bainite and a refined, ferrite and pearlite core, giving it the ductile property.

JINDAL PANTHER Fe600

Fe600 TMT Rebars are the preferred choice for both residential and commercial construction projects. They are used not only in conventional projects but also in demanding endeavours such as airports, metros, bridges, highways, high-rise buildings, dams, and nuclear power plants. Their enhanced elongation percentage makes them particularly

Jindal Panther TMT Rebars, are produced in-house in our primary and integrated steel plant at Angul and Patratu.

Benefits

- ◆ Lower steel consumption
- ◆ Cost saving
- ◆ Strong structure
- ◆ Superior mechanical properties
- ◆ Good bond strength

Availability

- ◆ 8 mm
- ◆ 10 mm
- ◆ 12 mm
- ◆ 16 mm
- ◆ 20 mm
- ◆ 25 mm
- ◆ 28 mm
- ◆ 32 mm
- ◆ 36 mm
- ◆ 40 mm
- ◆ 45 mm
- ◆ 50 mm

Jindal Steel is a primary and integrated steel producer, ensuring clean steel with very low levels of detrimental sulphur and phosphorus and minimal gaseous content. Consequently, the TMT produced has negligible internal defects and impurities. Our TMT Rebars are suitable for use in extreme environments, including marine, coastal, and saline conditions, as well as in high seismic zones.

Chemical and Mechanical Properties

Parameters	BIS STD Fe500 D	BIS STD Fe550 D	BIS STD Fe600	JINDAL PANTHER Fe600
%Carbon	0.25	0.25	0.30	0.30
%Sulphur (Max)	0.04	0.04	0.04	0.03
%Phosphorus (Max)	0.04	0.04	0.04	0.03
%Sulphur + %Phosphorus (Max)	0.075	0.075	0.075	0.055
%Carbon Equivalent (CE)	0.50	0.61	-	-
Yield Strength(Mpa) Min.	500	550	600	600
Tensile Strength(Mpa) Min.	565	600	660	690
%Elongation (Min)	16.0	14.5	10.0	14.5
UTS/YS Ratio (Min)	1.10	1.08	1.06	1.10

Applications of Fe600 TMT Rebars

The Fe600 TMT Rebars with enhanced strength and superior ductility can be used for following applications:

- ◆ Bridges
- ◆ Buildings
- ◆ Retaining walls
- ◆ Marine projects
- ◆ Underground projects
- ◆ Precast

MECHANICAL TESTING AND QUALITY VALIDATION

Jindal Steel has a state-of-the-art, NABL-accredited testing facility equipped with the latest testing equipment to ensure an almost zero-defect product. The facilities include:

- Optical Emission Spectrometers
- Metal Analysers
- X-Ray Fluorescence & X-Ray diffraction analysers
- Leco Analysers for Carbon, Sulphur, Oxygen, Nitrogen and Hydrogen
- Linder Test Apparatus for characteristics of Iron ore/Pellets
- Gas Chromatographs
- Universal Testing machines
- Hardness Testers
- Bend and Rebend Testing machines
- Impact Testing machines
- Wet Analysis Laboratory
- Optical microscopes

This helps in having a proper quality check as well as ensures continual Research and Development for product upgradation. Besides the latest computerised machines, our employees are trained and skilled to monitor the quality 24 x 7 to produce the finest TMT bars.

Jindal Steel mills are accredited with latest integrated management systems ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018. We are serving the premier quality Jindal Panther™ TMT rebars for Infrastructures – Airports, Roads, Bridges, Buildings, Refineries, Power Plants, Metros, Ports, Dams etc.

Angul Bar Mill is approved by BIS IS1786, UK CARES BS4449, Hongkong CS2, Singapore SS560, Australia AS/NZS 4671.



JINDAL STEEL SALES & MARKETING

The presence of Jindal Panther is across the country through its network of stockyards, plants, distributors and dealers.

Additionally, our products are available online at <http://shop.jindalpanther.com> and can be accessed from the remotest areas of India.



Zone	Sales Office	Branch Manager	Contact Number	Email ID
East	Ranchi	Mr. Lalit Kumar Dutta	9887443797	lalit.dutta@jindalsteel.in
East	Bhubaneswar	Mr. Debasis Das	9777442389	debasis.das@jindalsteel.in
East	Patna	Mr. Lalit Kumar Dutta	9887443797	lalit.dutta@jindalsteel.in
East	Kolkata	Mr. Nitesh Shukla	8149279228	nitesh.shukla@jindalsteel.in
East	Guwahati	Mr. Gautam Sawana	8839000736	gautam.sawana@jindalsteel.in
East	Raipur	Mr. Ravishekhar Kumar	8210311645	ravishekhar.kumar@jindalsteel.in
North	Noida	Mr. Prabhav Singh	9958509444	prabhav.singh@jindalsteel.in
North	Lucknow	Mr. Prabhav Singh	9958509444	prabhav.singh@jindalsteel.in
North	Chandigarh	Mr. Amit Tyagi	8527044073	amittyagi@jindalsteel.in
North	Ludhiana	Mr. Adnan M Wani	8527670999	am.wani@jindalsteel.in
North	Jaipur	Mr. Varun Singh	9958535444	varun.singh@jindalsteel.in
North	Faridabad	Mr. Santosh Kumar Jha	9934309051	santoshkumar@jindalsteel.in
South	Vizag	Mr. PC Samantaray	9220601656	pc.samantaray@jindalsteel.in
South	Bangalore	Mr. NM Srikant	9560493010	sreekant.nm@jindalsteel.in
South	Chennai	Mr. Krishna Chaitanya	9962522336	krishna.chaitanya@jindalsteel.in
South	Eranamkulam	Mr. Shyam Sunder	9910209646	shyam.sunder@jindalsteel.in
South	Hyderabad	Mr. PC Samantaray	9220601656	pc.samantaray@jindalsteel.in
West	Bhopal	Mr. Lalit Garg	7023100346	lalitkumar@jindalsteel.in
West	Nagpur	Mr. Shashi Kant Singh	9875634934	shashikant.singh@jindalsteel.in
West	Mumbai	Mr. Shashi Kant Singh	9875634934	shashikant.singh@jindalsteel.in
West	Ahmedabad	Mr. Chandravir Singh	9930078151	chandravir.singh@jindalsteel.in

OUR PAN-INDIA NETWORK



OPERATIONAL YARDS

- 1. Chandigarh
- 2. Faridabad
- 3. Guwahati
- 4. Vizag
- 5. Ludhiana
- 6. Durgapur –Asansol



PLANTS

- 1. Raigarh
- 2. Angul
- 3. Patratu



DISTRIBUTORS

