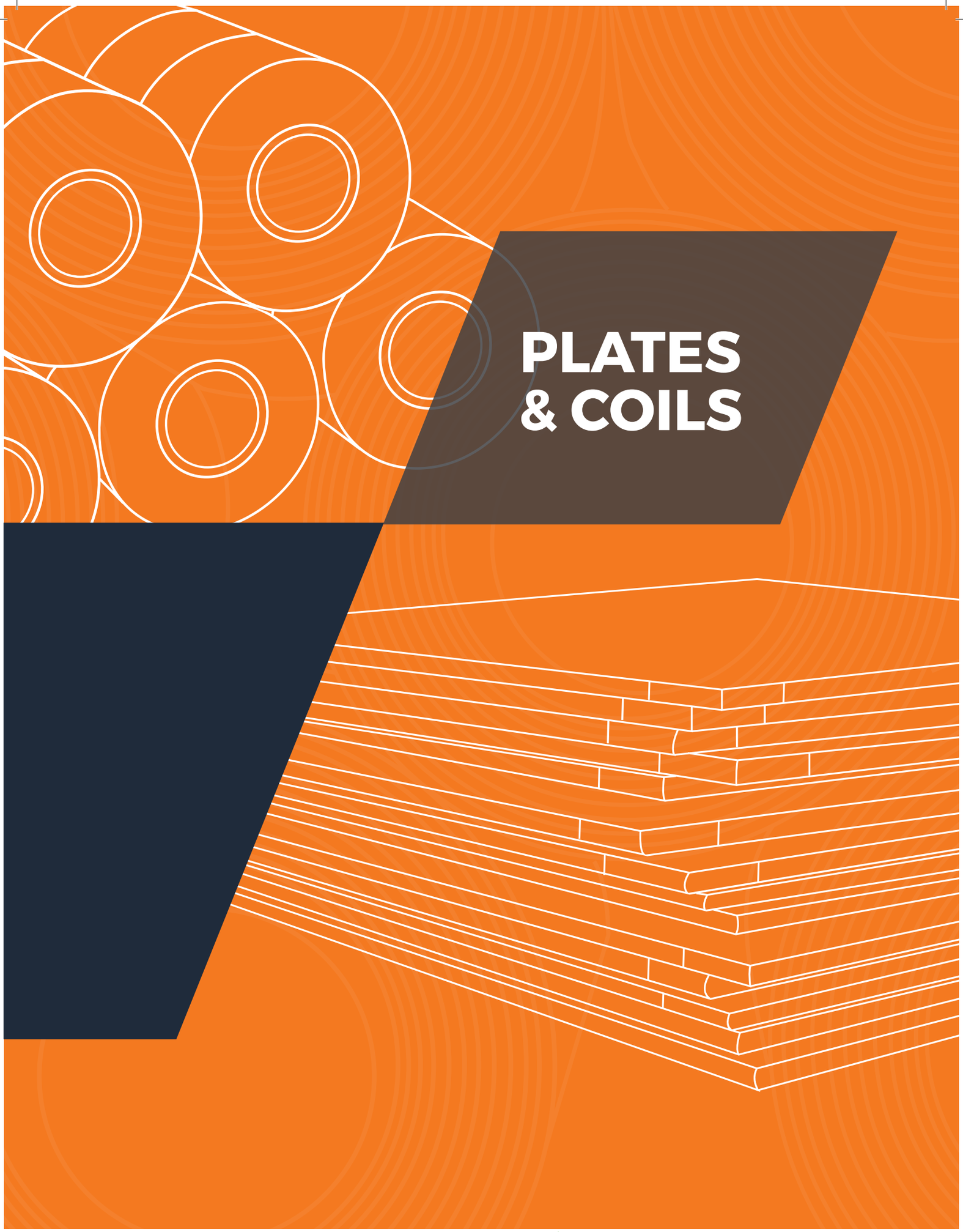


PLATES & COILS

JINDAL STEEL & POWER


JSPL
EXIT

About Jindal Steel & Power Ltd.

Jindal Steel and Power Limited (JSPL) is amongst India's leading & integrated steel producer with a significant presence in sectors like Mining, Power Generation and Infrastructure.

With an annual turnover of over US$ 3.5 billion, JSPL is a part of the USD 22 Billion diversified O. P. Jindal Group and is consistently tapping new opportunities by increasing production capacities, diversifying investments and leveraging its core capabilities.

From the widest flat products to a range of cutting edge long products. JSPL has a product portfolio that caters to the varied segments of in the steel market place. The company also has the distinction of producing 121 metre long rails and large size parallel flange beams.

JSPL operates the largest coal-based sponge iron plant in the world and has an installed capacity of 3.6 MTPA of crude steel at Raigarh, Chhattisgarh. Also, JSPL has an integrated steel plant at Angul, Odisha with capacity of producing 6.0 MTPA* crude steel with a plate mill capable of producing 5-meter wide plates, making it one of the widest to be ever produced in the country. The company aims for a fast-paced growth so as to contribute substantially to India's long term prosperity.

Alongside contributing to India's growth story, the company is driving an ambitious global expansion plan in its roadmap to emerge as a leading transnational business conglomerate. The company continues to capitalise on opportunities in high growth markets, expanding its core areas. In Oman (Middle East), the company has set us a 1.5 MTPA gas-based Hot Briquetted Iron (HBI) plant, 2 MTPA Steel Melting Shop and 1.4 MTPA Rebar Mill.

Plant Capacities

Annual production capacities of different products with plants in India is as mentioned in the table below:

PRODUCT	LOCATION	ANNUAL CAPACITY (IN MTPA)
Plate	Angul	1.20
Plate	Raigarh	1.00
Rail and Universal Beam	Raigarh	0.75
Medium & Light Structure	Raigarh	0.70
Wire Rod	Patratu	0.60
Rebar	Patratu	1.00
Rebar	Angul	1.40

**For JSPL Angul Plant the current consent to operate is 4.5 MTPA which can be augmented to 6.0 MTPA at a later stage.*

Angul Integrated Steel Plant

JSPL's 6MTPA Integrated Steel plant at Angul is the biggest steel plant in Odisha with following production facilities in the complex :

- India's largest Blast Furnace volume of 4554 m^3
- 5 MTPA Sinter plant
- India's largest 1.8 MTPA DRI plant producing steel on fully indigenous raw material
- 1.0 MTPA Coke Oven Plant
- World's largest Coal Gasification Plant (CGP) for Steel making producing syngas from domestic high ash thermal coal
- 6 MTPA Steel Melting Shop
- One of India's largest 250 MT BOF
- 1.2 MTPA Plate Mill producing plates up to 5 meter wide
- 810 MW Captive Power Plant

Raigarh Integrated Steel Plant

JSPL's 3.6 MTPA Integrated Steel plant at Raigarh, Chhattisgarh with following production facilities:

- Blast furnace are in 2 No with capacity of 0.42 MTPA & 1.25 MTPA
- 2.5 MTPA Sinter Plant
- 3.6 MTPA Steel Melting Shop
- 1.0 MTPA Plate Cum Coil Mill producing plates upto 3.5 meter wide and coils upto 3.0 meter wide

Angul Plate Mill

UNIQUE FEATURES

01

High quality steel - Integration from raw material to final product

02

Wide product range- All supply conditions covering all dimensional range

03

Close dimensional accuracy

04

Consistent properties across cross section & ½ ASTM Tolerances

05

Excellent table top flatness for stringent applications & processing

06

No buckling & warping issues during plate processing

07

Superior hardness

08

High corrosion, abrasion & wear resistance

09

Better weldability & improved toughness

10

Wide application - from general engg. to defence with critical application

11

Compliance with International standards - ASTM DIN, ABS, API, JIS, CW, LRS, DNV etc.

PRODUCT RANGE

Dimension (in mm)	As Rolled	Furnace Normalised	Quenched & Tempered
Thickness	8-150	8-150	8-100
Width	1500-4800	1500-4800	1500-4800
Length	6000-19000	6000-19000	6000-19000

** Maximum Slab Weight - 26 MT*
*** Normalised Plates with thickness > 100-150 mm will be supplied upto 3000 mm width*
**** Thickness >100-150mm shall be discussed on case to case basis*

TECHNOLOGY DETAILS

Equipment	Make
5 Meter Wide Plate Mill	Primetals Technologies Limited
Reheating Furnace	Fives Stein France -280 MT/Hr.
Roll Shop	TENOVA Pomini Italy
Online Ultrasonic Testing Machine	GE Inspection Technologies Germany
Robotic Universal Testing Machine	Zwick Roell, Germany
Impact Testing Machine & Hardness Testers	Zwick Roell, Germany
Ultrasonic Testing machine	GE Technology
Normalizing Furnace, Quenching & Tempering M/c	LOI Therm process, GERMANY
Plate Leveller	SPCO Japan

BENEFITS OF LEADING TECHNOLOGY

Technology	Benefits
Automatic gauge control	Accurate dimensions
Work roll bending and shifting equipment	Increases profile and flatness Control Range
Smart Crown Facility	Better Flatness
Plan view rolling	Proper cross section and shape to ensure plate rectangularity
Thermo-mechanical controlled rolling & MULPIC (Multi purpose interrupted cooling) process	For producing high-tensile steel plates with high and good Weldability for all major structural applications
Double Side trim shear	For trimming plates with tighter tolerances
Slitting shear	Center Slitting
Dividing shear	Sampling & cut to length plates
Heat treatment facility	For normalizing, austenitising, quenching and tempering
On-line ultrasonic flaw detection system	Automatic inspection and evaluation of the body of the plates

Metallurgy of Plate Rolling

Depending on the application, rolling techniques like As-Rolled, Normalized Rolled, Thermo-Mechanical Controlled Process are adopted. These plates can further be processed in heat treatment (Normalizing and Quenching & Tempering) for improving the mechanical properties suiting the end applications.

AS ROLLED

As rolled is a rolling procedure in which the final deformation is carried out in the austenitic region. General grades of steel plates are processed using this technique.

NORMALIZED ROLLED

Normalized rolling is a rolling procedure in which the final deformation is carried out above the Ar3, i.e. in the austenitic region equivalent to the normalizing temperature range. The normalized rolled plates offer properties with improved mechanical properties like ductility, impact toughness etc. The mechanical properties are further retained even after normalizing of these plates.

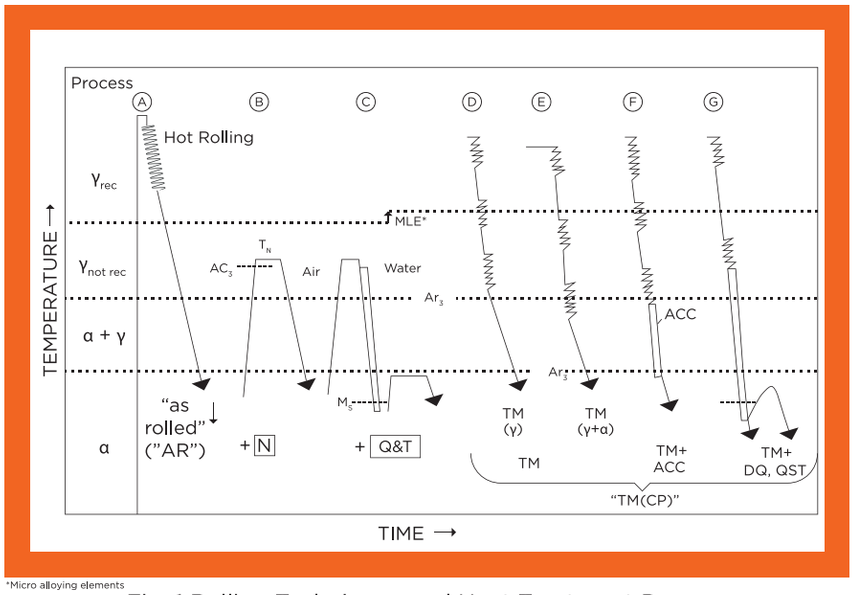


Fig. 1 Rolling Techniques and Heat Treatment Process

THERMO-MECHANICAL CONTROL PROCESS

Thermo Mechanical Control Process (TMCP) is a new generation rolling process for producing fine grain steel by rolling the steel plates in recrystallization and non-recrystallization region of austenite and for some applications in the dual phase region of austenite & ferrite and then using high rate (accelerated) cooling. A wide range of TMCP plates can be processed by controlling the rolling and the cooling strategies like air cooling & accelerated cooling. The steel slabs are first homogenized in the reheating furnace for dissolution of micro-alloys and to form a homogenized coarse austenite with a defined drop out temperature.

The rolling is split into two phases, one in the recrystallized austenite and another in the non-recrystallized austenite. In between the two phases the intermediate plate stock is allowed to oscillate in the roller table prior to achieve the recrystallization stop temperature. The final deformation & rolling sequences are given in the non-recrystallized phase for achieving favorable properties. The thermo-mechanical rolling is followed with accelerated cooling or air cooling depending on the service

property requirements. TMCP plate helps in achieving high strength, high toughness with lower carbon equivalent.

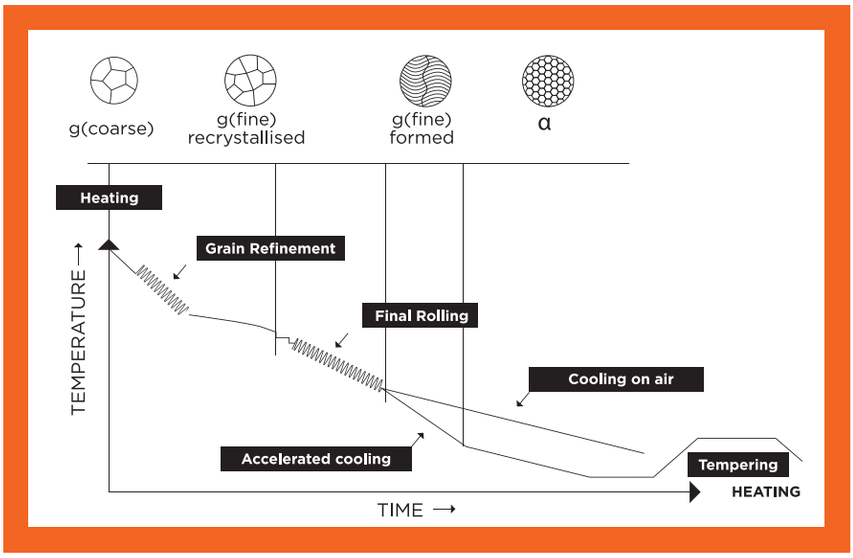


Fig. 2 Thermo-Mechanical Rolling

THERMO-MECHANICAL CONTROLLED ROLLING WITH DIRECT QUENCHING & SELF TEMPERING

A combination of thermo-mechanical controlled rolling and a very high rate of cooling is known as direct quenching. Direct quenching is an online cooling technique (MULPIC) that helps in achieving very high cooling rates to substitute quenched and tempered steel plates.

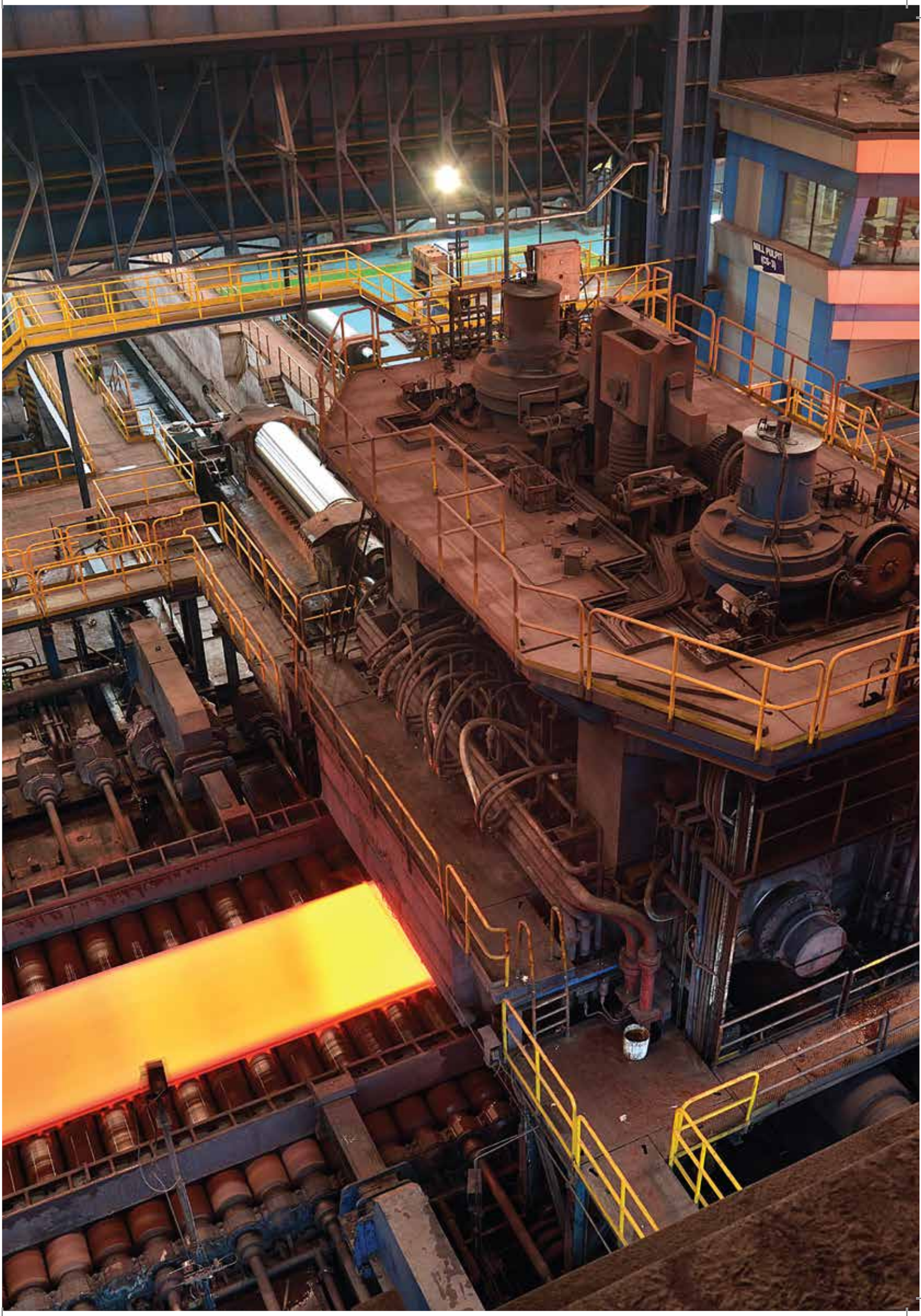
Depending on critical applications, the unit also has advanced mathematical models for performing quenching as well as self tempering. The self tempering helps in improving ductility and impact toughness.

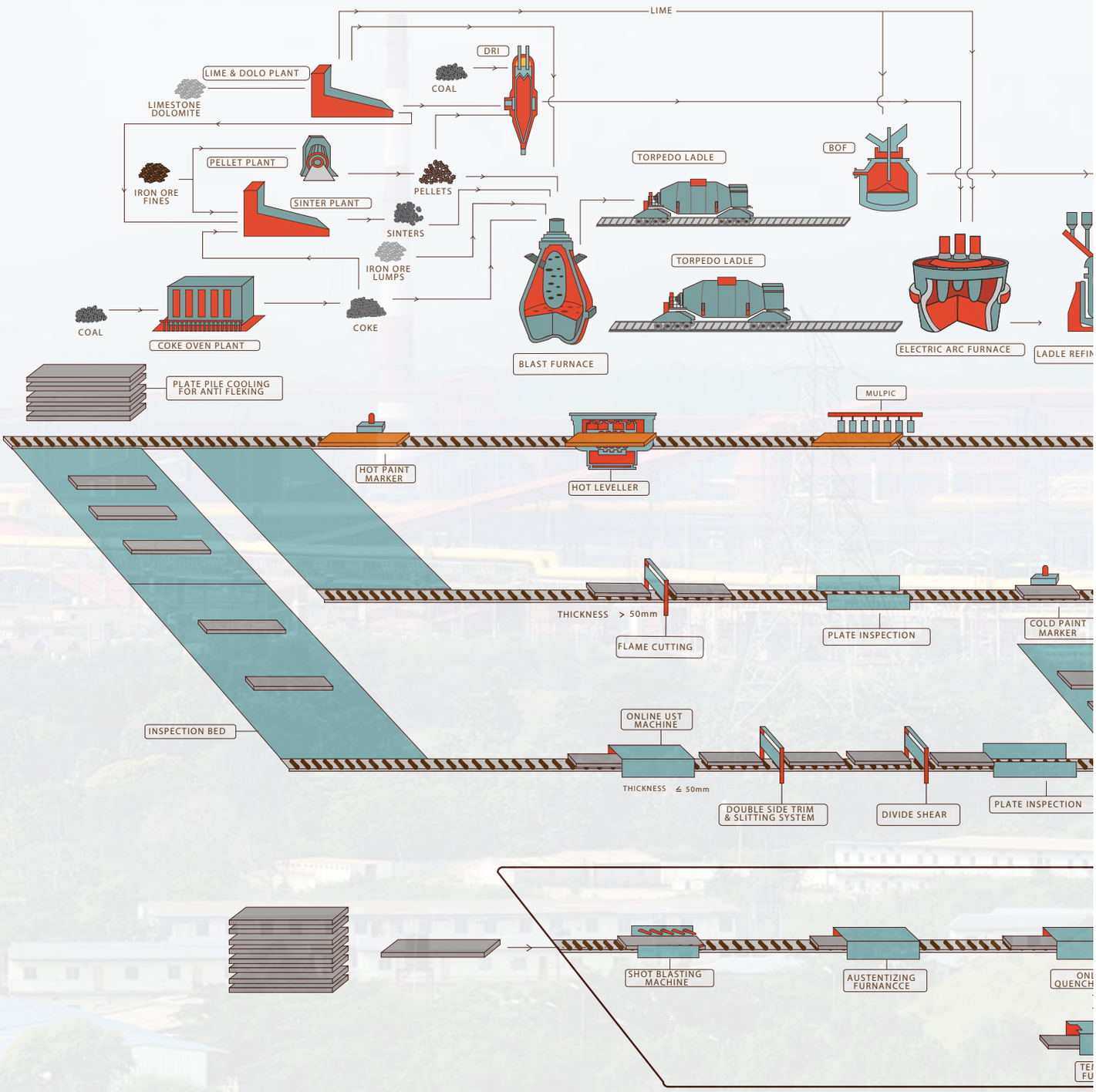
FURNACE NORMALIZED

Furnace Normalizing is a heat treatment procedure adopted to improve the mechanical properties of rolled steel plates. The principle of Furnace normalizing is heating the steel plates above Ar3 temperature (Approx 910°C), soaking at that temperature and then allowing it to cool in still air. This process helps in reducing the internal stresses, microstructural bonding, in refining the grains to produce fine grain and homogeneous micro structures. The normalized plates offer improved ductility, fine grained microstructures, and excellent impact toughness.

QUENCHING (HARDENING) AND TEMPERING

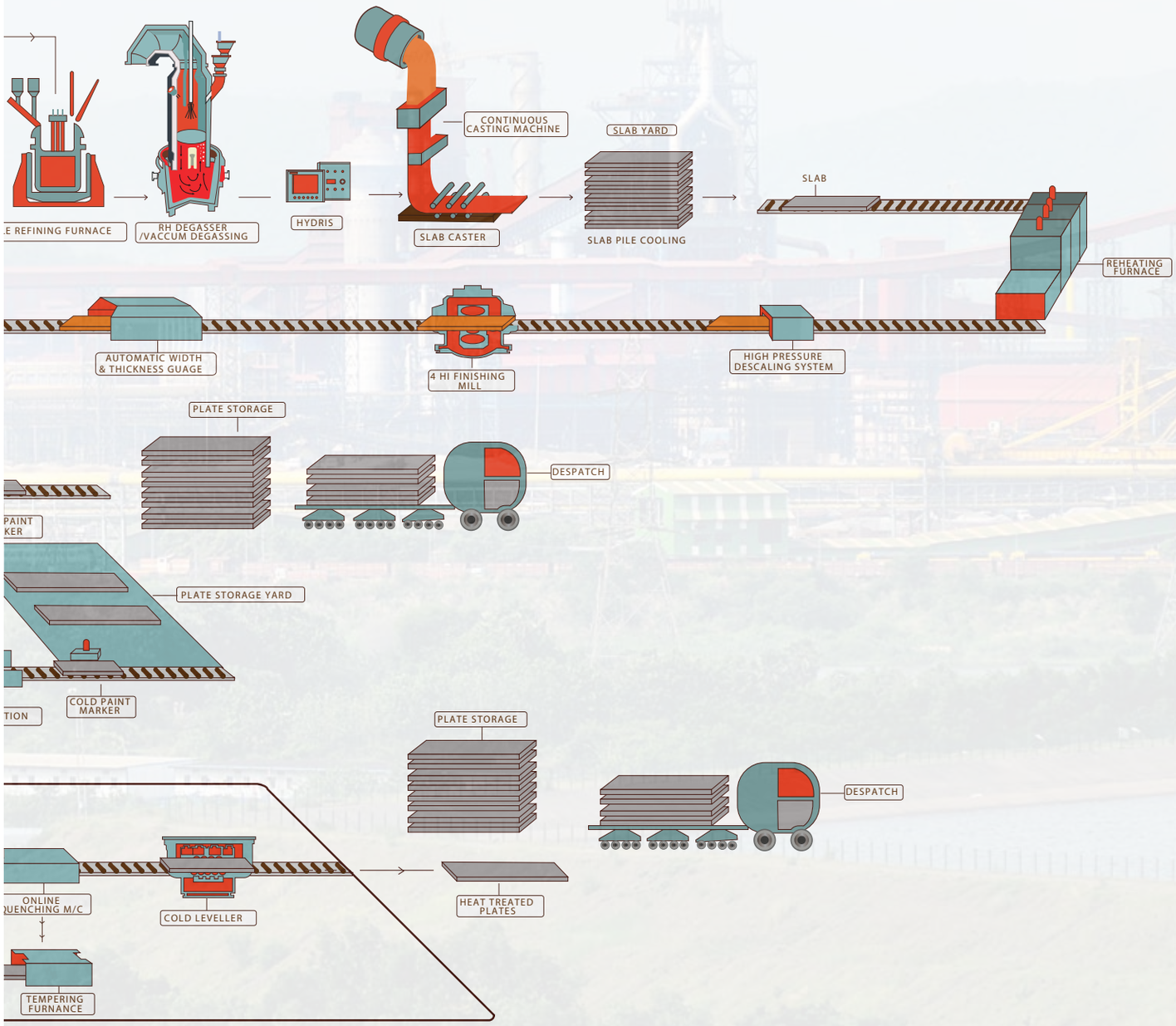
Quenching is a heat treatment process of heating the steel plates above Ar3 (Approx 910°C), soaking for a stipulated duration at a very high rate of cooling. The Quenched steel plates are very hard, low on ductility & toughness. The steel plates are further heat treated in a furnace in a wide range of temperature viz. 150°C to 700°C to produce steel plates with desired properties. The tempering is done to improve the ductility, impact toughness and achieving desired hardness.





HEAT TREATMENT COMPLEX

Process Flow Chart-
ANGUL PLATE MILL



Facilities of World Class Angul Plate Mill

DIGITAL REHEATING FURNACE

The double row walking beam type digital furnace with a capacity of 280MT/hr, reduces the excess scale formation .The furnace is split into different control zones for uniform heat transfer through homogeneous heating & elimination of hot spots.

ROLLING MILL

The 4Hi Reversible Rolling Mill along with cross rolling facilities has a roll separating force of 10,000 tonnes. This helps in high shape factor rolling and reduces the internal discontinuities.

THERMO-MECHANICAL CONTROLLED ROLLING & ACCELERATED COOLING

Thermo-Mechanical Control Process is a rolling process for producing fine grain steel applications in the dual phase region of austenite & ferrite and then using high rate (accelerated) cooling. Mill has Multi Purpose Interrupted Cooling (MULPIC) with features of Accelerated Cooling, Direct Quenching (DQ) & Quenching with Self Tempering (QST) facilities. Combination of controlled rolling and accelerated cooling helps in producing high tensile steel plates with lower carbon equivalent with targeted properties, microstructures and excellent surface finish.

HOT LEVELLER

The Hot leveller with a capacity of 4,000 tonnes, provides excellent flatness & residual stress-free plates. A plastification ratio of up to 80% can be offered depending on the tensile strength and thickness. The unit has automatic gap set up and shape system to ensure a high level of flatness .Residual stress free plates can be produced with most powerful leveller with a capacity of levelling heavy plates up to 100mm thickness.

SHEARING UNITS

Online Shearing Units in the mill can shear plates upto 50 mm thickness. With the help of double side trim shear, plates are supplied in trimmed and ready-to-use condition with tighter tolerance. Slitting shear on the other hand is used for central slitting whereas dividing shear helps in sampling and final cut to length of plates.

ULTRASONIC TESTING

The 102 probes of machine ensures accurate examination of all flaws. As a result, on-line Inspection of up to 50 mm covering 100% of the plate body and edges is done. The accuracy of this machine is such that a flat bottom hole of 2mm diameter can be detected. For thickness beyond 50mm, Manual Ultrasonic testing shall be performed through trolley mounted multi probe testing machine.

HEAT TREATMENT

The mill is equipped with Heat Treatment Facility with normalizing, austenising, quenching and tempering furnaces for achieving the desired texture of the steel plates. The plates are shot blasted before heat treatment and an inert atmosphere is maintained in the furnaces with indirect radiant type heating ensuring no scale formation on the surface of the plate.

MARKING AND TRACEABILITY

Equipped with Hot Paint Marking, Cold Paint Marking & Stamping for unique and permanent identification. This ensures traceability right from the heat making stage to the finished product.

HIGH PRESSURE DESCALER

In order to remove the scale generated during the reheating of slabs in reheating furnace a descaler unit is installed before the rolling mill. High pressure water jet with 200 bar pressure is used to clean the surface of the slab so that no scale is adhered & rolling is smooth without embedded scale.

VACCUM DEGASSING FACILITY

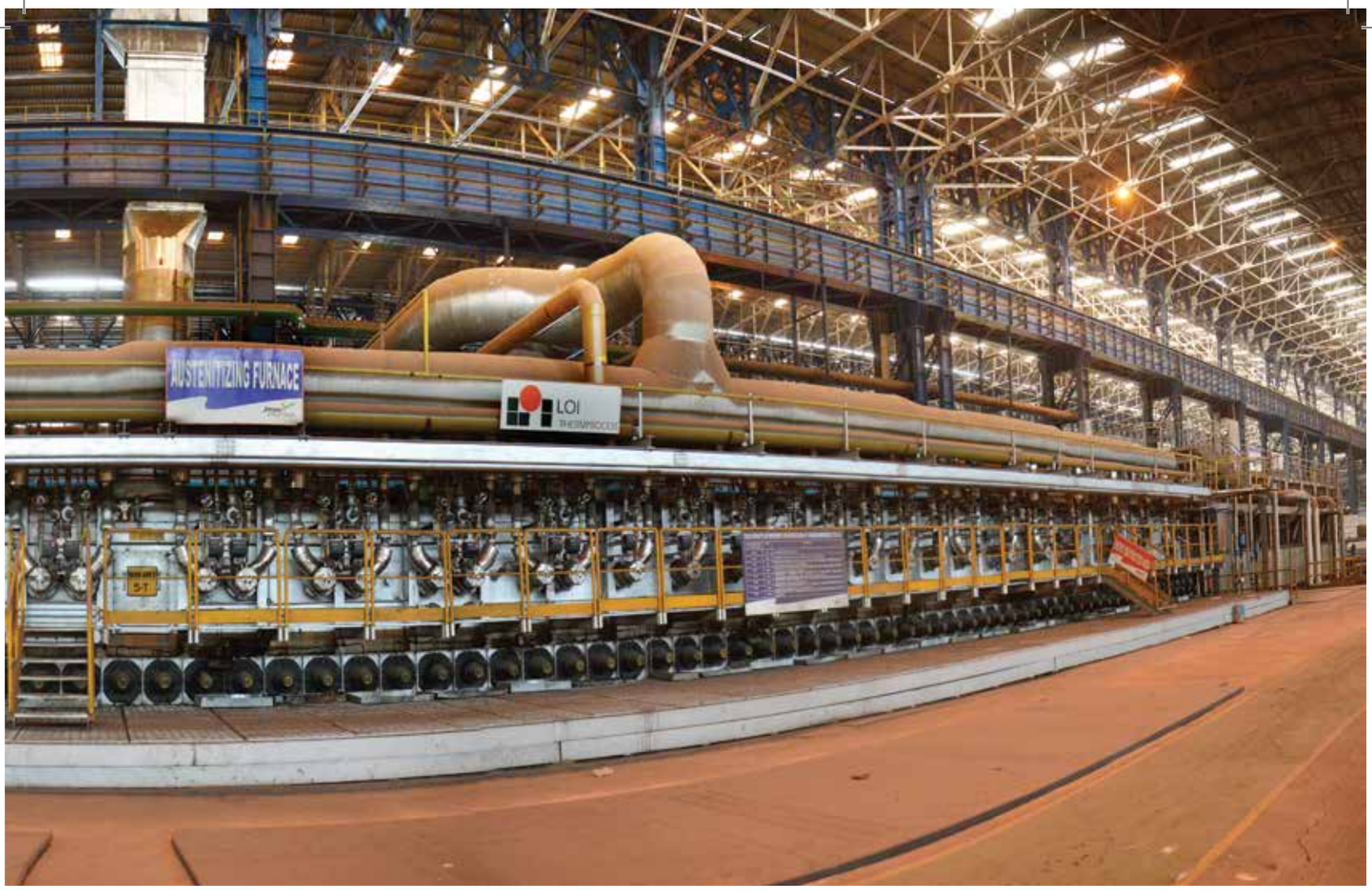
Once the steel is made with the desired composition in ladle refining furnace, some amount of gaseous elements such as Hydrogen, Nitrogen & Oxygen are removed by using vaccum degassing method. Vaccum degassing method uses the maximum bar pressure for approx. fifteen minutes for minimising Nitrogen, Hydrogen and Oxygen remains in steel before it is cast.

Heat Treatment Furnace Capacity - Angul

Jindal Steel & Power Limited has heat treatment roller hearth for Normalizing of plates in thicknesses range from 5 to 150 mm.

The mill is equipped with Heat treatment facility with Normalizing, Austenitising, Quenching and tempering furnace for achieving the desired properties in plates. The plates are shot blasted before heat treatment and an inert atmosphere is maintained in the furnaces with indirect radiant type heating to ensure that no scales are formed on the surface of the plate.

Heat treatment furnace consists of two roller hearth furnaces for Austenitising, Normalizing and Tempering and continuous quench. The Austenitising furnace is heated under nitrogen atmosphere by indirect heating via radiant tubes. The tempering furnace is open fired. Roller table quenching machine with cooling rate upto 50^{o} C/sec has a make of LOI Germany.



Normalizing, Quenching and Tempering

PROCESS CAPABILITY

Equipment	Entry Temperature	Exit Temperature (°C)
Normalizing/Austentising Furnace	Ambient	880-950
Quenching Machine	Above AC3	Ambient
Tempering Furnace	Ambient	250-750

PLATES HEAT TREATMENT DIMENSIONAL CAPABILITY

Equipment	Thickness Range (mm)	Width Range (mm)	Length Range (mm)	Capacity (Tons/Annum)
Normalizing	5-100**	1500-4800	6000-19000	125,000
Quenching	5-100	1500-4800	6000-19000	62,500
Tempering	5-100	1500-4800	6000-19000	137,500

***Thickness: >100-150mm shall be discussed on case to case basis.*

Plate Leveller

JSPL has state-of-the-art 4th generation, 4 high reversible plate leveller supplied by JP Steel Plantech Co. (SPCO)-Japan. It is one of the largest and the most sophisticated levellers of its kind in the world. A plate leveller has a capability of being able to keep a roll gap constant even when the loads applied during levelling vary, by means of 4 hydraulic main cylinders having a function of setting the roll gap (a spacing between the upper and lower levelling rolls) and a dynamic function of compensating a vertical deflection (vertical extension of the housing).

4 HIGH REVERSIBLE PLATE LEVELLER:

Dimension	Range
Leveling Range	Thickness : 5 - 80 mm Width : 1500 - 4800mm Length : 6000 - 19000 mm
Yield stress range	200 - 1400 MPa
Plate temperature at levelling	R. T – 900^{o}C
Levelling speed/Number of Pass	16-40 m/min/1-7 Pass
Levelling roll lift	400mm
Levelling force at over 5,200mm width	5,400 ton tilting levelling 7,500 ton parallel levelling

SUPPORT ROLL

These rolls are installed at both entry and delivery side of the leveller to transfer the plate from entry roller table to levelling rolls and from levelling rolls to delivery roller table.

TOP ROLL INTERMESH SETTING DEVICE

Both entry and delivery levelling roll intermeshes are adjusted by these devices independently and also the tilting amount is adjusted by the difference between entry and delivery intermesh.

DYNAMIC CROWNING CONTROL DEVICE

Dynamic crowning control device is provided to compensate frame bending deflection and compression deflection of rolls for preventing intermesh difference along strip width. Linear sensors for detection of crowning cylinder position are installed inside of crowning cylinder.

AIR BLOW SYSTEM

Heavy levelling operation produces much scale peeled up form plate being levelled. Air blow system will take out scale from plate surface to minimize dent marks on the plate.

DUST COLLECTING SYSTEM

The scale blown off by air blow system falls at the work side of leveller. Dust collecting system collect floating small scales in the air thus ensuring environment friendly atmosphere.

COLD LEVELLER

Cold leveller is a next generation (4th integration type) for producing table top plate with superior flatness. Higher level of flatness can be achieved even in ultra high strength plates upto 1500 Mpa.

ANGUL PLATE MILL PRODUCT SIZE RANGE

Dimension (TxW)															
Thickness (mm)	Width (mm)														
	1500	1800	2000	2200	2500	2800	3000	3200	3500	3800	4000	4200	4500	4600	4800
8					■	■	■								
10			■	■	■	■	■								
12	■	■	■	■	■	■	■	■							
14	■	■	■	■	■	■	■	■	■						
16	■	■	■	■	■	■	■	■	■	■					
18	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
20	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
22	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
24	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
25	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
28	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
30	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
32	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
35	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
36	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
40	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
45	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
50	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
56	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
63	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
70	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
75	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
80	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
90	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
95	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
100	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
105	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
110	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
115	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
120	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
125	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
130	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
135	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
140	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
145	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
150	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

■ Range available

■ Range not available

ANGUL PLATE MILL PRODUCT DIMENSIONAL TOLERANCE

A. THICKNESS TOLERANCE

EN10029 Tolerance on nominal thickness								
Nominal Thickness (mm)	Class A		Class B		Class C		Class D	
	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
5≤t<8	-0.4	+0.8	-0.3	+0.9	0	+1.2	-0.6	+0.6
8≤t<15	-0.5	+0.9	-0.3	+1.1	0	+1.4	-0.7	+0.7
15≤t<25	-0.6	+1.0	-0.3	+1.3	0	+1.6	-0.8	+0.8
25≤t<40	-0.7	+1.3	-0.3	+1.7	0	+2.0	-1.0	+1.0
40≤t<80	-0.9	+1.7	-0.3	+2.3	0	+2.6	-1.3	+1.3
80≤t<150	-1.1	+2.1	-0.3	+2.9	0	+3.2	-1.6	+1.6

Class A: For minus thickness tolerance depending on the nominal thickness
Class B : For a fixed minus tolerance of 0.3 mm
Class C: For a fixed minus tolerance of 0.0 mm, Class D : for Symmetrical tolerance

B. WIDTH TOLERANCE

Trimmed Edge Condition					
Thickness Range (mm)	Width Range (mm)				
	1501-2500	2501-3000	3001-3500	3501-4000	4001-4500
	Width Tol.	Width Tol.	Width Tol.	Width Tol.	Width Tol.
5.0-8.0	+20/-0	+20/-0	+20/-0	+20/-0	+20/-0
8.1-10	+20/-0	+20/-0	+20/-0	+20/-0	+20/-0
10.1-12	+20/-0	+20/-0	+20/-0	+20/-0	+20/-0
12.1-16	+15/-0	+15/-0	+15/-0	+15/-0	+15/-0
16.1-20	+15/-0	+15/-0	+15/-0	+15/-0	+15/-0
20.1-25	+15/-0	+15/-0	+15/-0	+15/-0	+15/-0
25.1-40	+15/-0	+15/-0	+15/-0	+15/-0	+15/-0
40.1-60	+20/-0	+20/-0	+20/-0	+20/-0	+20/-0
60.1-80	+20/-0	+20/-0	+20/-0	+20/-0	+20/-0
80.1-100	+20/-0	+20/-0	+20/-0	+20/-0	+20/-0
>100-150	+20/-0	+20/-0	+20/-0	+20/-0	+20/-0

Width Tolerance of -0/+10 mm can be supplied on case to case basis

C. LENGTH TOLERANCE

Nominal Length (mm)	Length Tol. (mm)		Nominal Length (mm)	Length Tol. (mm)	
	Lower	Upper		Lower	Upper
l<4000	0	40	8000 < l ≤ 10000	0	50
4000 < l ≤ 6000	0	40	10000 < l ≤ 15000	0	75
6000 < l ≤ 8000	0	40	15000 < l ≤ 20000	0	100

** All dimensions are in mm.*

Plate-cum-Coil Mill at Raigarh

JSPL Plate-cum-Coil Mill at Raigarh (Chhattisgarh) produces plates up to 3500mm wide and coils upto 3000mm wide in various steel grades as per Indian and International Standards.

Raigarh Plate-cum-Coil mill produces plates and coils complying to IS 2062 specifications upto E450 grades besides a wide range of international standards and steel grades as per EN, DIN, JIS, ASTM, API etc.

PRODUCT RANGE RAIGARH

DISCRETE PLATE

Dimension	**Range** (in mm)
Thickness	5 – 100
Width	1500 – 3500
Length	6000 – 13500

CUT TO LENGTH

Dimension	**Range** (in mm)
Thickness	5 – 25
Width	1500 – 2500
Length	6000 – 12500

HOT ROLLED COILS

Dimension	Range (in mm)
Thickness	5 – 25
Width	1500 – 3000
Coil ID/OD	700/2000

Heat Treatment Furnace Capacity - Raigarh

JSPL Dual fired Normalizing Furnace at Raigarh Plate Mill, Chhattisgarh is supplied by M/s SECO WARWICK, Poland. Capability of Heat Treatment furnace is as mentioned below:

CAPABILITY CHART

Dimension	Range (in mm)
Thickness	12 - 100
Width	1500 - 3500
Length	6000 - 12500

Parameter	Range
Capacity	200 Tons per Batch
Operating temperature range	900-950°C
Maximum Furnace temperature	1000°C

RAIGARH COIL PRODUCT MIX CAPABILITY CHART

Typical Dimension (TxW)						
Thickness (mm)	Width (mm)					
	1500	1800	2000	2200	2500	3000
5						
6						
7						
8						
10						
12						
14						
16						
18						
20						
22						
25						

** Thickness & width range may vary for some grades*

Range available

Range not available

COIL WEIGHT CHART

Maximum coil weight (MT)					
Thickness (mm)	Width (mm)				
	1500	2000	2500	2800	3000
5	21				
6	21	21			
7	21	21			
8	21	27	25		
10	21	27	30	31	31
12	21	27	30	31	31
14	21	27	30	31	31
16	21	27	30	31	31
18	21	27	30	31	31
20	21	27	30	31	31
22	21	27	30	31	31
25	21	27	30	31	31

** Coil weight may vary for some grades*

RAIGARH PLATE MILL PRODUCT SIZE RANGE

Dimension (TxW)									
Thickness (mm)	Width (mm)								
	1500	1800	2000	2200	2500	2800	3000	3200	3500
5	■								
6	■	■	■						
7	■	■	■						
8	■	■	■	■	■				
10	■	■	■	■	■	■	■		
12	■	■	■	■	■	■	■		
14	■	■	■	■	■	■	■		
16	■	■	■	■	■	■	■		
18	■	■	■	■	■	■	■		
20	■	■	■	■	■	■	■	■	
22	■	■	■	■	■	■	■	■	
25	■	■	■	■	■	■	■	■	■
28	■	■	■	■	■	■	■	■	■
30	■	■	■	■	■	■	■	■	■
32	■	■	■	■	■	■	■	■	■
35	■	■	■	■	■	■	■	■	■
36	■	■	■	■	■	■	■	■	■
40	■	■	■	■	■	■	■	■	■
45	■	■	■	■	■	■	■	■	■
50	■	■	■	■	■	■	■	■	■
56	■	■	■	■	■	■	■	■	■
60	■	■	■	■	■	■	■	■	■
63	■	■	■	■	■	■	■	■	■
70	■	■	■	■	■	■	■	■	
80	■	■	■	■	■				
90	■	■	■	■	■				
100	■	■	■	■	■				

RAIGARH PLATE CUM COIL MILL PRODUCT DIMENSIONAL TOLERANCE

A. THICKNESS TOLERANCE - PLATE & COIL

Thickness Range (mm)	Plate		Coil	
	Lower	Upper	Lower	Upper
5	-0.3	+0.3	-0.3	+0.3
6 - 8	-0.3	+0.3	-0.3	+0.3
8.1 - 12	-0.3	+0.3	-0.3	+0.3
12.1 - 16	-0.4	+0.4	-0.4	+0.4
16.1 - 20	-0.5	+0.5	-0.5	+0.5
20.1 - 25	-0.6	+0.6	-0.6	+0.6
25.1 - 40	-0.75	+0.75		
40.1 - 70	-1.0	+1.0		
> 70	-1.5	+1.5		

B. WIDTH TOLERANCE - PLATE & COIL

Thickness Range (mm)	Mill Edge Condition		
	*Width range (mm)		
	Plate		*Coil
	1500 - 2500	2501 - 3500	1500 - 2500
	width tolerance	width tolerance	width tolerance
5.0 - 14.0	-0 / +25	-0 / +35	-0 / +20
14.1 - 25.0	-0 / +35	-0 / +35	-0 / +20
25.1 - 100	-0 / +35	-0 / +50	

* (H.E. and T.E. +30mm in 5 meter each side, **Trimmed edge plate width tolerance - -0 / +10 mm

C. LENGTH TOLERANCE - PLATE

Thickness (mm)	Length Tolerance	
	Lower	Upper
5 - 14	0	30
14.1 - 40	0	100
> 40	0	50


UN COILER

Testing Facilities

JSPL assures its customers of superior and consistent quality plates. Rigorous quality assurance plan and state – of– the – art testing facility ensures compliance to all national and international specifications. Our Laboratories and Testing Facilities are equipped with:

- Optical emission spectrometer, Metal Analyzer
- X-Ray Florescence & X-Ray Diffraction analyzer
- LECO analyzers for Carbon / Sulphur, Oxygen/Nitrogen
- Linder test apparatus for characteristics of iron ore/ pellets.
- Gas chromatograph
- Robotic Universal Testing Machine 1200kN
- Universal High Temperature tensile testing machine 600KN
- Automatic Impact Testing Machine 750J
- 1000kN Capacity Bend Testing Machine
- Drop Weight Tear Testing (DWTT-100,000J Capacity)
- Multi Probe UT Scanning Device
- Metallurgical Microscope and Image Analyzer
- HIC/NACE Testing, SSCC, Deflectometer setting device (4-point bend test)
- Simulation Furnace
- Vicker, Rockwell and Brinell hardness Testing Machine
- Through Thickness Testing (Z-Test)

APPROVALS AND CERTIFICATIONS:

ANGUL PLANT:

A. ISO

QMS ISO 9001:2015

bsi.

Certificate of Registration

QUALITY MANAGEMENT SYSTEM - ISO 9001:2015

EMS ISO 14001:2015

bsi.

Certificate of Registration

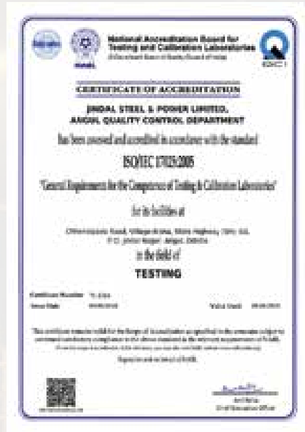
ENVIRONMENTAL MANAGEMENT SYSTEM - ISO 14001:2015

ISO 45001:2018

bsi.

Certificate of Registration

NABL IEC 17025:2005

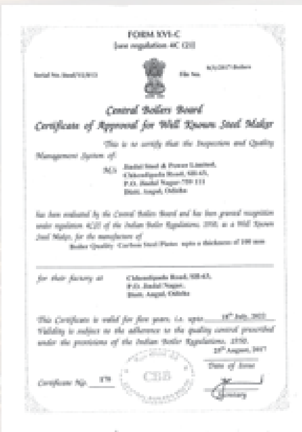


CERTIFICATE OF ACCREDITATION

TESTING

B. BOILER GRADE

Well Known Steel Maker (IBR)



FORM XVI-C

Central Boilers Board

Certificate of Approval for Well Known Steel Maker

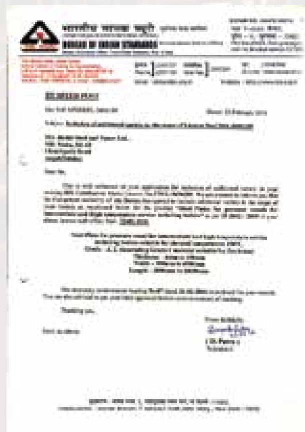
PED Approval

TÜV NORD

CERTIFICATE

BIS Approval- IS 2041

BIS Approval - IS 2002

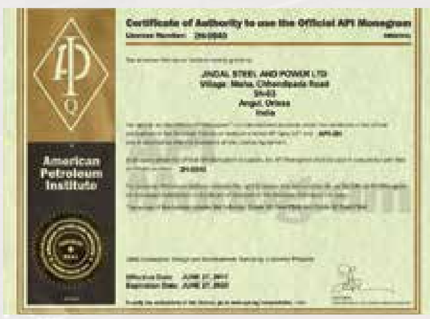


C.LINE PIPE AND OFFSHORE PLATFORM

ABS Line pipe

ABS

API 2H



Certificate of Authority to use the Official API Monogram

JINDAL STEEL AND POWER LTD

American Petroleum Institute

API 2W

Certificate of Authority to use the Official API Monogram

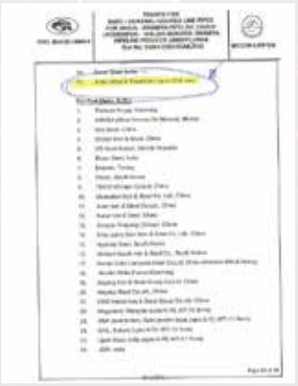
JINDAL STEEL AND POWER LTD

American Petroleum Institute

API 2Y

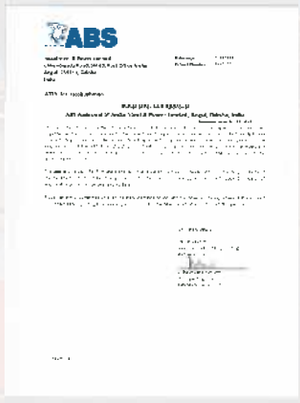
GAIL- EIL Approval

GAIL-MECON Approval



D.SHIPBUILDING APPROVAL

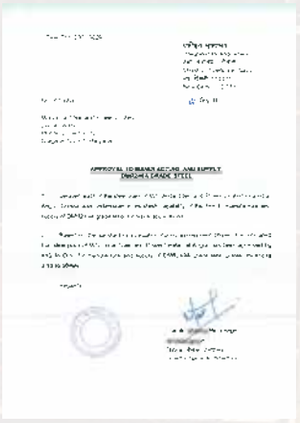
ABS



LR

RINA

DNA Approval - DMR 249 Grade A



Goa Shipyard Approval

Mazgaon Dock Approval

E. GENERAL ENGINEERING -STRUCTURAL GRADE

BIS - IS 2062 Grade E 250/350/410

BIS - IS 2062 Grade E 450

CE Marking - for EN 10025 -2 S 235/S 275/S 355

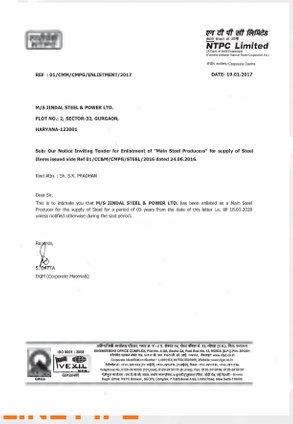
CE Marking - for EN 10025 -2 690 QL

F. OTHER APPROVALS

Vehicle Factory Jabalpur, MoD

Gun Carriage Factory (GCF), MoD

NTPC Approval



NTPC Limited

REF : 01/CKM/CHPG/ENLISTMENT/2017 DATE: 19.01.2017

M/S JINDAL STEEL & POWER LTD.
PLOT NO.: 2, SECTOR-32, GURGAON,
HARYANA-122001

Sub: Our Notice Inviting Tender for Enlistment of "Main Steel Producers" for supply of Steel Items issued vide Ref 01/CCKM/CHPG/STEEL/2016 dated 24.06.2016.

Kind Attn. : Sh. S.K. PRADHAN

Dear Sir,
This is to intimate you that M/S JINDAL STEEL & POWER LTD. has been enlisted as a Main Steel Producer for the supply of Steel for a period of (2) years from the date of this letter i.e. till 18.01.2019 unless notified otherwise during the said period.

Regards,

(SAMTA)
DGM (Corporate Materials)

RAIGARH PLANT:

A. ISO

QMS ISO 9001:2015

bsi.
Certificate of Registration

EMS ISO 14001:2015

bsi.
Certificate of Registration

OHSAS 18001:2007

bsi.
Certificate of Registration

NABL IEC 17025:2005

National Accreditation Board for Testing and Calibration Laboratories

CERTIFICATE OF ACCREDITATION

QUALITY CONTROL LAB OF JINDAL STEEL & POWER LTD.

ISO/IEC 17025:2005

Kharsia Road, Raigarh, Chhattisgarh

TESTING

B. BOILER GRADE

Well Known Steel Maker (IBR)

PED Approval

TÜV NORD

CERTIFICATE

The TÜV NORD Systems GmbH & Co. KG

Jindal Steel & Power Ltd. (Plate Mill)
Kharsia Road, Raigarh - 496 661
Chhattisgarh, India

AD 2000-Merkblatt W0

Certificate-No.: 07/203/1409/WP/1205/18

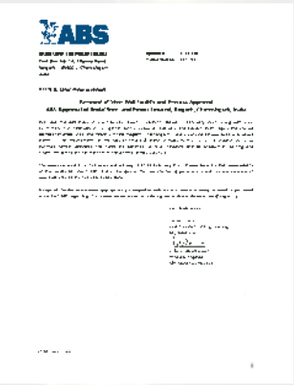
January 2021

BIS Approval- IS 2041

BIS Approval - IS 2002

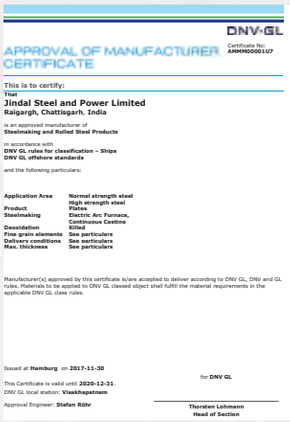
C. SHIPBUILDING APPROVAL

ABS



LR

DNV-GL



DNV·GL

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No: AMMM00001U7

This is to certify:

That
Jindal Steel and Power Limited
Raigargh, Chattisgarh, India

is an approved manufacturer of
Steelmaking and Rolled Steel Products

in accordance with
DNV GL rules for classification – Ships
DNV GL offshore standards

and the following particulars:

Application Area	**Normal strength steel** **High strength steel**
Product	**Plates**
Steelmaking	**Electric Arc Furnace,** **Continuous Castino**
Deoxidation	**Killed**
Fine grain elements	**See particulars**
Delivery conditions	**See particulars**
Max. thickness	**See particulars**

Manufacturer(s) approved by this certificate is/are accepted to deliver according to DNV GL, DNV and GL rules. Materials to be applied to DNV GL classed object shall fulfill the material requirements in the applicable DNV GL class rules.

Issued at **Hamburg** on **2017-11-30**

This Certificate is valid until **2020-12-31**.
DNV GL local station: **Visakhapatnam**

Approval Engineer: **Stefan Röhr**

for **DNV GL**

Thorsten Lohmann
Head of Section

BV

APPROVAL CERTIFICATE for MATERIALS

JINDAL STEEL & POWER LIMITED

NORMAL STRENGTH HULL STEEL ROLLED PRODUCTS

NKK

NIPPON KAIJI KYOKAI

APPROVAL OF MANUFACTURING PROCESS

ClassNK

IRS

Indian Register of Shipping

Works Approval Certificate for Continuous Cast Steel Slab

D. STRUCTURAL GRADE

BIS - Structural Grade

CE Marking - for EN 10025 -2 S 235/S 275/S 355

TÜV NORD

CERTIFICATE

CONTACT DETAILS

CORPORATE OFFICE

Jindal Centre 12, Bhikaiji Cama Place, New Delhi -110 066, INDIA.
Tel: +9111 26188340-50, 41462000
Fax: +9111 26161271
Email Id : info@jindalsteel.com

REGISTERED OFFICE

O.P. Jindal Marg, Hisar -125 005, Haryana, INDIA
Tel: +911662 222471-84
Fax: +91 1662 220476

WORKS

ANGUL

Jindal Steel & Power Ltd.
Chhendipada Road, SH-63,
At\Po : Jindal Nagar, Pin-759111
Dist : Angul (ODISHA)
Tel: +91 6761 254191-95
Fax: +91 6761 254141-144
Email: jindalangul@angul.jspl.com

BARBIL

Jindal Steel & Power Ltd.
Iron Ore Pellet Plant Commercial Office, Plot No. 507/365,
Barbil-Joda Highway,
Barbil - 758035, Odisha, INDIA
Tel: +91 6767 248621/248625
Fax: +91 6767 248620

DUMKA

Jindal Steel & Power Ltd.
Indra Palace, Nag Path, Shiv Pahar, Dumka - 814101,
Jharkhand, INDIA
Tel: +91 6434 231045
Fax: +91 6434 231044

PATRATU

Jindal Steel & Power Ltd.
Balkudra, Patratu, Distt. Ramgarh,
Jharkhand - 829143, INDIA
Tel: +91 6553 275724/275726
Fax: +91 6553 275744

RAIPUR

Jindal Steel & Power Ltd.
13 K. M. Stone, G.E. Road, Mandir Hasaud, Raipur - 492101,
Chhattisgarh, INDIA Tel: +91 771 2471205-07 Fax: +91 771 2471214, 2471120
E-mail: jspl_raipur@rpr.jspl.com

RAIGARH

Jindal Steel & Power Ltd.
Kharsia Road, Raigarh -496001,
Chhattisgarh, INDIA
Tel: +91 7762 227001-05
Fax: +91 7762 227022-23
Email: raigarh@jspl.com

MARKETING OFFICES:

NORTHERN REGION

GURUGRAM - HEAD OFFICE

Jindal Steel & Power Limited
Plot No-2, Sector-32, Near Exit-10,
Gurugram -122 001,
Haryana, INDIA
Tel: +91 124 6612000 (Board)
Tavneet Singh
Mob: +91 9779422993
Email: tavneet.singh@jspl.com

CHANDIGARH

Jindal Steel & Power Limited
SCO- 24,1st Floor, Sector 26,
Madhya Marg,
Chandigarh -160 019
Tel: +91-172-5003340
Apurba Kanti Mishra
Mob: +91 9907185518, 8585029861
Email: apurba.mishra@jindalsteel.com

JAIPUR

Jindal Steel & Power Limited
501 & 504, Pashupati Akshat Heights, Bani Park, Jaipur -302 016
Tel: 0124-6612137
Himanshu Mishra
Mob: +91 9205500973
Email: himanshu.mishra@jindalsteel.com

KANPUR

Jindal Steel & Power Limited
3rd Floor, 45, Sai Square, Bhargava Estate, Civil Lines, Kanpur
(U.P) - 208 001
Tel: 0124-6612131
Rohit Nagpal
Mob: +91 9821923377
Email: rohit.nagpal@jindalsteel.com

LUDHIANA

Jindal Steel & Power Ltd
SCS-132, 1st Floor, Phase 1
Urban Estate, Jamalpur, Ludhiana
Waris Akhtar
Mob: +91 9685700181
Email: waris.akhtar@jindalsteel.com

EASTERN REGION

BHUBANESWAR
Jindal Steel & Power Limited
1st Floor, Plot No-03, Forest Park,
Bhubaneswar-751002
Tel: 0674 272 6500
Pankaj saini
Mob: +91 9631322042
Email: pankaj.saini@angul.jspl.com

GUWAHATI
Jindal Steel & Power Limited
House No-157,
Rajgarh Road
(Behind Smart Bazar)
PS-Paltan Bazar
PO-Ulubari, Guwahati-781007
Sidharth Lodha
Mob: +91 7976439050
Email: siddharth.lodha@jindalsteel.com

JAMSHEDPUR
Jindal Steel & Power Limited
Smriti Tower, 1st Floor, 8th Avenue
Road Next to Maharashrea Mondal,
Jamshedpur-831001
Dinesh Chauhan
Mob: +91 9334633716
Email: dinesh.chandra@jindalsteel.com

KOLKATA
Jindal Steel & Power Limited
Haute Street Building,
86 A Topsia Road;
Kolkata:700046
Tel: +91 033 4021 8109
Arnab Chakrbarty
Mob: +91 8585019780
Email: arnab.chakraborty@jspl.com

PATNA
Jindal Steel & Power Ltd
304, Vasundhara Metro Mall
Rajapur Pul, East Boring Canal
Road
Patna -800 001
Sidharth Lodha
Mob: +91 7070090832
Email: siddharth.lodha@jindalsteel.com

RANCH!
Jindal Steel & Power Limited
Uma Bhawan,1st Floor,
House No-359/A,
Road No-5/B, Ashok Nagar
Ranchi-834002
Dinesh Chauhan
Mob: +91 9334633716
Email: dinesh.chandra@jindalsteel.com

WESTERN REGION

AHMEDABAD
Jindal Steel & Power Limited
806, 8th floor, Iscon Elegance,
Prahladnagar Cross Roads, Near
Jain Temple, SG Highway,
Ahmedabad - 380051
RS Gadhvi
Mob: +91-9879605040
Email: rs.gadhavi@jspl.com

MUMBAI
Jindal Steel & Power Limited
3rd Floor, Jindal Mansion, SA,
Dr. G. Deshmukh Marg
(Peddar Road) Mumbai - 400026
Tel: +91 022-42864156
Sujeet Chavan
Mob: +91 7506826561
Fax : +91 22 66241020
Email:chavan@jspl.com

NAGPUR
Jindal Steel & Power Limited
Block no 302, M.G.House, 316-E,
R.T. Road, Civil Lines,
Nagpur - 440001
Naveen Raturi
Mob: +91 9109115972
Email: naveen.raturi@jspl.com

PUNE
Jindal Steel & Power Limited
Office No. 705, Sr. No. 22/1/1A,
Pride Icon, Near HP Petrol Pump,
Thite Wasti, Hadapsar Kharadi
Bypass, Kharadi, Pune - 411014
Tel:022-42864156
Sujeet Chavan
Mob: +91 7506826561
Email: chavan@jspl.com

SOUTHERN REGION

BENGALURU
Jindal Steel & Power Ltd
No. 404, Prestige Meridian -2,
M. G. Road, Bangalore - 560 001.
Phone No. 080-4212-7132/489
Abhijeet Shrivastav
Mob: +91 9560898221
Email: abhijeet.srivastava@jindalsteel.com

CHENNAI
Jindal Steel & Power Limited
Prince Towers, 5th Floor, College
Road, Subba Road Avenue,
Nungambakkam, Chennai,
TN - 600006
Tel: 044-43446956/ 24323530
Fax: +9144 42132334
Vinit Kumar
Mob: +91- 9599400307
Email: vinit.kumar@jspl.com

HYDERABAD
Jindal Steel & Power Limited
Uptown Cyberabad, Unit No.2B,
2nd Floor, Sri Swamy Ayyappa
Society 100 Feet Road, Madhapur,
Hyderabad - 500081
Tel: +91 40-158608
Suresh Jakkula
Mob: +91 8897507714
Email: suresh.jakkula@jspl.com

KOCHI
Jindal Steel & Power Limited,
B1(1st Floor) Springs Cascade
Opp. Ernakulam Medical Centre,
Palarivattom, Kochi - 682 025
Tel: +91 484 4019808
Vinit Kumar
Mob: +91-9599400307
Email: vinit.kumar@jspl.com

VISAKHAPATNAM
Jindal Steel & Power Limited
D No: 43-9-206, 1st Floor of D R Avenue, Main Road, Railway New Colony, Visakhapatnam, 530016
Andhra Pradesh
Alok Swain
Mob: +91 9712945718
Email: alok.swain@jindalsteel.com

CENTRAL REGION

BHOPAL
Jindal Steel & Power Limited
104, "Chinar Incube", Chinar Fortune City, Hoshangabad Road, Bhopal (M.P.) - 462026
Tel: +91 9957452606
Deepak Shrivastav
Mob: +91 8827394938
Email:deepak.srivastava@jindalsteel.com

RAIPUR
Jindal Steel & Power Limited
13 K. M. Stone, G.E. Road, Mandir Hasaud,Raipur - 492101
Tel: +91 077-12577625
Fax: +91 771 3054671/2471001
Ashish Ranjan Gupta
Mob: +91 9934010683
Email: ashish.gupta@jindalsteel.com

INTERNATIONAL SALES OFFICES

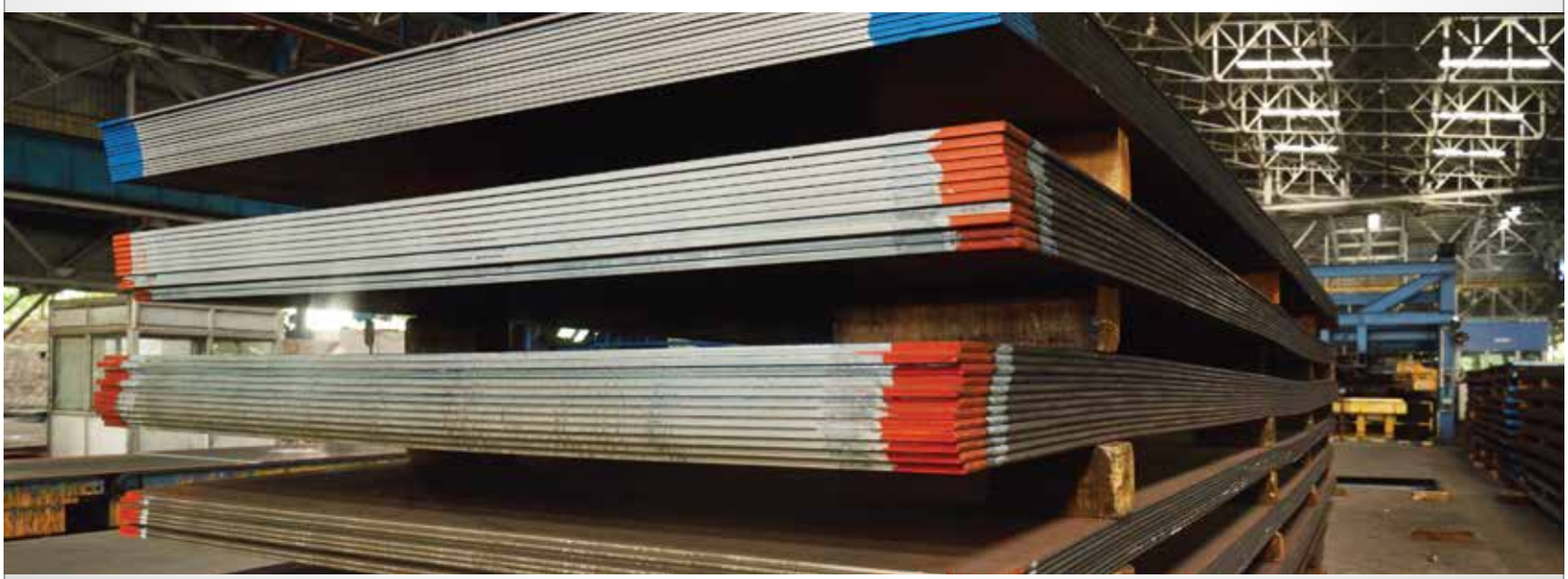
Corporate Office - International
Jindal Steel & Power Limited,
Plot No-2, Sector-32, Near Exit-10,
Gurugram -122 001,
Haryana, INDIA
Tel: +91 124 6612000 (Board)
Mob: +91 9958599010
Email: marketing@jindalsteel.com/
renu.sharma@jindalsteel.com

DUBAI
Jindal Steel DMCC
3308-3309 33rd Floor, Jumairah Bay Tower X2 Cluster-X Jumairah Lake Towers, DUBAI, United Arab Emirates
Tel: +9714 4264026
Email: jindaldmcc@jindalsteel.com

KINGDOM OF SAUDI ARABIA
Jindal Steel & Power LTD,
AL Haitam for industries & economic, Suite 702, 7th Floor,
Flour Arabia building,
P.O Box 2696,
King Abdulaziz Street,
Al khobar- K.S.A
Tel:- +966-13-8877942
Mob:- +966-5-00018914
Email:- sameer.moidin@jindalsteel.com

BW14/08/2020

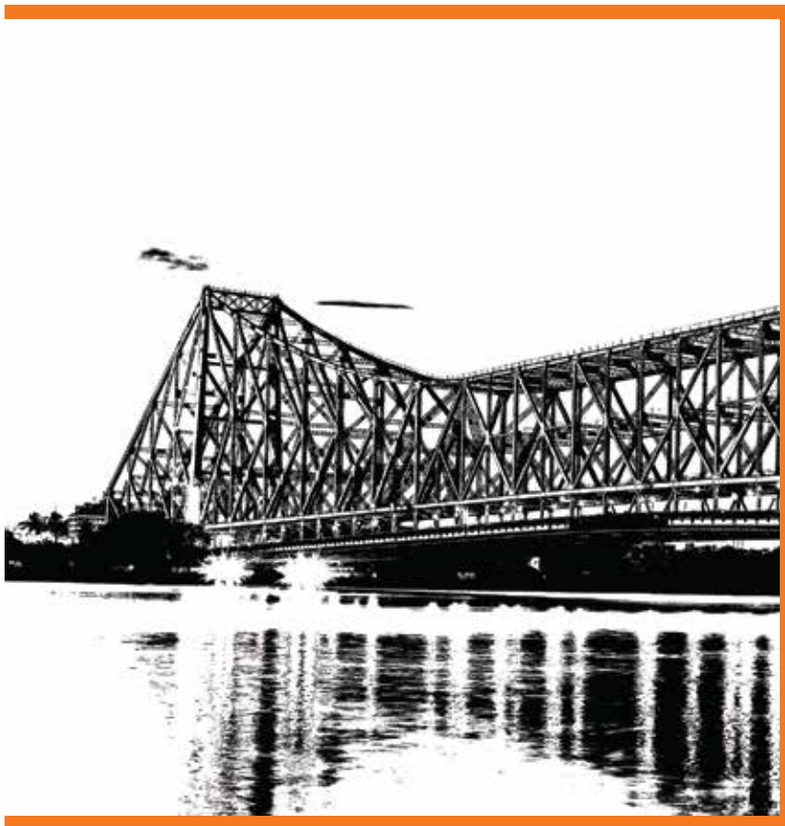
JINDAL
STEEL & POWER

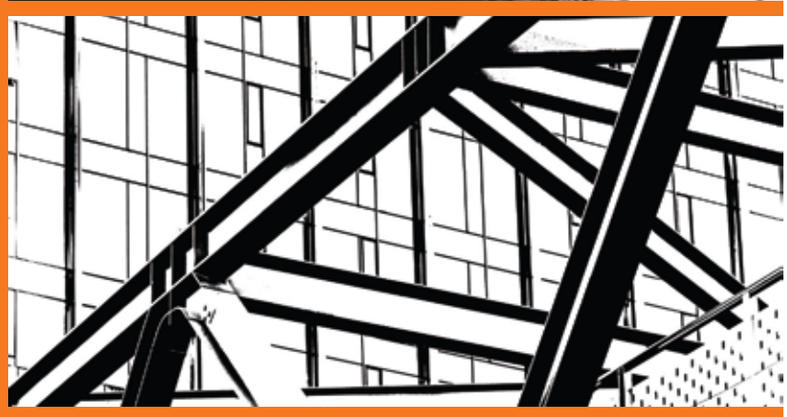
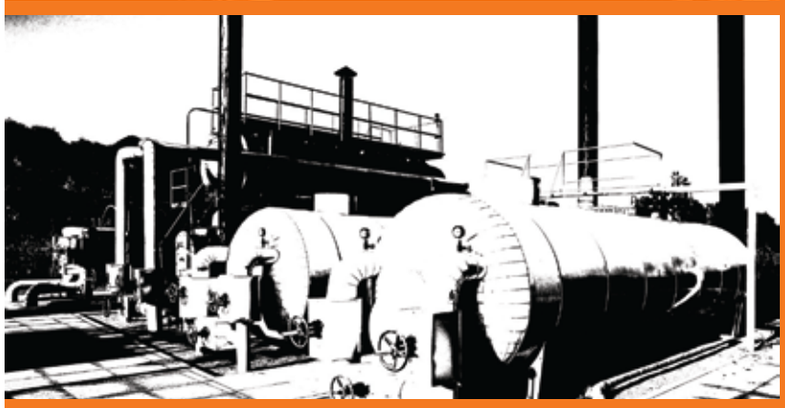


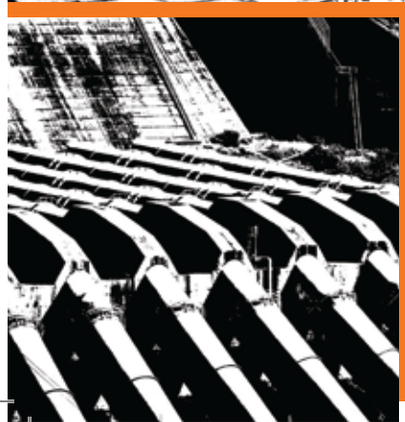
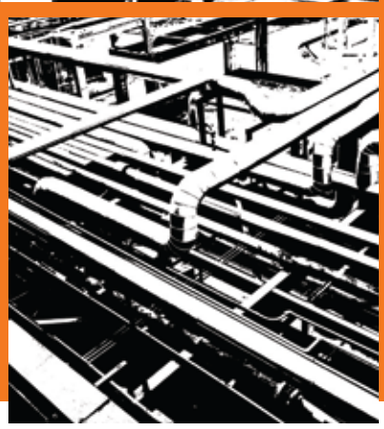
JINDAL STEEL & POWER LIMITED
CORPORATE OFFICE : Jindal Centre, 12, Bhikhaji Cama place, New Delhi -110066, INDIA
Tel: +91 11 26188340-50, 41462000, Fax :+91 11 26161271
E Mail: info@jindalsteel.com

APPLICATIONS

Jspl heavy plates and coils find wide application across verticals due to its ultra wide range and grades produced using state of the art technology in Angul and Raigarh facilities.




Construction / General Engineering

Applications

JSPL manufactures plates for bridges, dams, highways, buildings & civil structures and for industrial fabrication work

Specifications

STANDARD	GRADE	MAX THICKNESS (mm)
IS 2062	E 250, E 275, E 350	150
	E 410	120
	E 450	80
	E 550	50
EN 10025	S 235 , S 275, S 355	150
	S 420N/NL	120
	S 460N/NL	50
ASTM	A36	150
	A283/285	100
	A588	100
ASTM	A 572 Gr. 50	150
	A 572 Gr. 55	120
	A 572 Gr. 60	120
	A 572 Gr. 65	80
ASTM	A 656 Gr. 50	150
	A 656 Gr .60	120
	A 656 Gr. 70	50
	A 656 Gr. 80	50
ASTM	A 709	40

** Supply conditions will be confirmed at the enquiry stage.*

Mechanical Properties

- High strength and toughness
- Good weldability
- Corrosion and fatigue resistance
- Tight dimensional tolerances

Supply Conditions

- As rolled
- Normalised rolled
- Thermo mechanically controlled process
- Quenched and tempered
- Furnace normalised

Wind Mill

Applications

JSPL manufactures plates for windmills subjected to high wind speeds and buckling loads due to blades rotation and is used for manufacturing Windmill tower & supporting structure for generator.

Specifications

STANDARD	GRADE	MAX THICKNESS (mm)
EN 10025	S 355JR/J0/J2/K2	150
	S355NL/ML	150
	S420NL/ML	120
	S460 NL/ML	20
	S690 QL	80
API & EN for offshore application	API 2H, S355G7 & G8	100

** Supply conditions will be confirmed at the enquiry stage.*

Mechanical Properties

- High strength and toughness
- Good weldability & formability
- Corrosion and fatigue resistance
- Weld bead bend test on requirement
- Through thickness properties

Supply Conditions

- As rolled
- Normalised rolled
- Thermo mechanically controlled process
- Quenched and tempered
- Furnace normalised

Boiler and Pressure Vessel

Applications

JSPL manufactures plates for Boilers and Pressure vessel for Super critical applications, Low temperature, Moderate Temperature & High Temperature, Ultra High Temperature application.

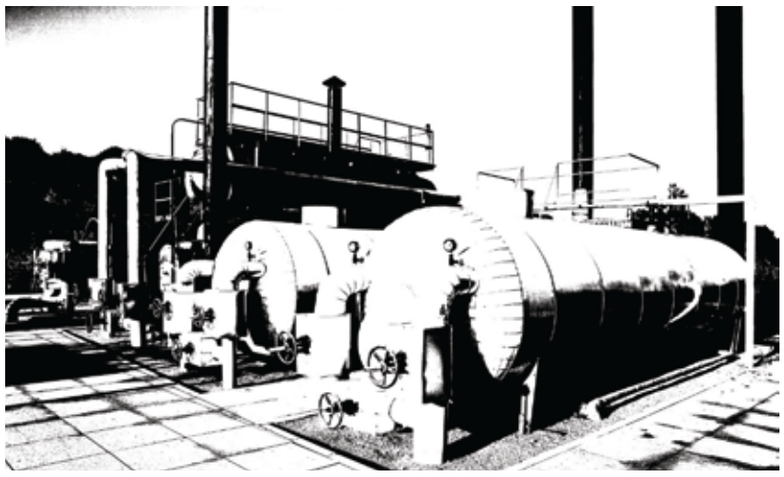
Specifications

STANDARD	GRADE	MAX THICKNESS (mm)
IS 2041	R220/R260/R355	150
IS 2002	Grade 1, 2, 3	150
ASTM	A 537 Class 1	50
ASTM	A 387 Grade 22/12/11 Class 1 and 2	100
ASTM	A 516 Gr60/65/70	150
EN10028	P235GH/P295GH/P355GH	120
EN10028	P355M/ML1/ML2 P420M/ML1/ML2 P460M/ML1/ML2	60
ASTM	A 515 Gr. 60/65/70	150
ASTM	A 537 Class 2	100

** Supply conditions will be confirmed at the enquiry stage.*

Mechanical Properties

- Excellent weldability with low carbon equivalent
- Low S&P, NACE & HIC Applications
- Through thickness tested plates
- High toughness
- High corrosion resistance
- High creep resistance



Supply Conditions

- As rolled
- Normalised rolled
- Furnace normalised
- Normalised and tempered
- Quenched and tempered

Transportation
Ship Building, Railways & Wagon Builders

Applications
JSPL manufactures plates for the Ship building, Railways & Wagon Builders industry which can endure adverse loading conditions, face corrosive environment and low temperature conditions.

Specifications

STANDARD	GRADE	MAX THICKNESS (mm)
ASTM	A131 Gr A/B/D/E	70
ASTM	A13l Gr AH32/DH32/EH32	60
ASTM	ASTM A131 Gr AH36/DH36/EH36	60
Defence	Defence	50
IS 2062	E 250,E 275,E 350 with Cu	150
	E 410 with Cu	120
	E 450 with Cu	80

*** Reference standards: ASTM, IRS, ABS, DNV, GL, NKK, LR, BV, RINA*

* *Supply conditions will be confirmed at the enquiry stage.*

Mechanical Properties

- High strength
- Low temperature toughness
- High corrosion resistance
- Excellent fatigue properties
- Tight dimensional tolerances
- Excellent weldability with low carbon equivalent

Supply Conditions

- As rolled
- Normalised rolled
- Thermo mechanically controlled rolled
- Furnace normalised
- Quenched and tempered

Line Pipes and Offshore Platforms

Applications

JSPL manufactures plates as per International standards especially API grade steel for making line pipes for transportation of oil, gas and for offshore applications.

Specifications

STANDARD	GRADE	MAX THICKNESS (mm)
API	B, API 5L X-42M/X-46M/ X-52M/X-56M	40
	X-60M/X-65M/X-70M	30
	X-80M	25
API	X52MS/X56MS/X60MS/ X65MS	25
API	2W GR50/60	60
	2Y GR 50/60	80
	2H GR 42/50	100
EN10025	S355+N, S355+M	150
	S420 M	120
	S460 M	60

** Supply conditions will be confirmed at the enquiry stage.*

Mechanical Properties

- High strength and toughness
- Low temperature toughness
- Corrosion and fatigue resistance
- Wear and abrasion resistance
- Tight dimensional tolerances

Supply Conditions

- Thermo mechanically controlled process
- Normalised rolled
- Quenched and tempered
- Through thickness test (Z – Test)
- Drop weight tear test (DWTT) and CTOD test
- Impact tested & stringent UT as per requirements

Yellow Goods And Mining Equipment

Applications

JSPL manufactures plates for Earth moving equipments and Rotary Equipment Manufacturers. Plates used in yellow goods are subjected to hardrocks, loading bulk materials, shocks, explosive shocks etc.

JSPL abrasion resistant wear plates are supplied in three different levels of abrasion resistance with hardness levels of 400 Brinell, 450 Brinell and 500 Brinell. These plates offer the considerable advantage of providing high strength while offering weight reductions in steel fabrications and find various application as mentioned below:

- Excavator Buckets
- Crushers and Dump Truck bodies
- Front loaders
- Booms
- Conveyors, chutes, wear Liners
- Mines and quarrying equipments
- Cranes
- Forklift trucks
- Vehicles chassis, Gear wheels
- Cement Plants

Specifications

STANDARD	GRADE	MAX THICKNESS (mm)
Rockhard	400	50
	450	30
	500	20
CAT	CAT 1E1247	20
	CAT 1E0170	80
	CAT 1E1863	100
	CAT 1E1839	30
	CAT 1E0577	20
IS 2062	E250,E350	150
	E410	100
	E450	80
	E550	50
EN 10025	S690QL	80
	S890QL	50
	S960QL	50

** Supply conditions will be confirmed at the enquiry stage.*

Mechanical Properties

- High strength
- High hardness
- High abrasion and wear resistance
- Good weldability

Supply Conditions

- As rolled
- Thermo mechanically controlled process
- Quenched and tempered
- Furnace normalised

TATA HITACHI ELECON HYUNDAI CONSTRUCTION EQUIPMENT JCB

Hydro Segment

Applications

JSPL manufactures customized plates for use in dams and hydro applications. Weldable steel with combination of high strength and toughness, with reduced level of Phosphorous, Sulphur, Nitrogen and Oxygen find its applications in Penstock & Hydrogates.

Specifications

STANDARD	GRADE	MAX THICKNESS (mm)
ASTM	A 537 Class 1 and 2	120
ASTM	517 Grade F	70
EN10025	S690QL	80
	S890QL	50
	S960QL	50

** Supply conditions will be confirmed at the enquiry stage.*

Mechanical Properties

- High strength and toughness
- Excellent weldability
- Corrosion and fatigue resistance
- High wear resistance

Supply Conditions

- Normalised rolled
- Quench and tempered
- Furnace normalised

Pre Engineered Buildings

Applications

JSPL manufactures steel plates in various widths for steel buildings leading to faster completion time and shorter project lead time.

Specifications

STANDARD	GRADE	MAX THICKNESS (mm)
IS 2062	E 250, E 275, E 350	150
	E 410	100
	E 450	80
EN 10025	S 235 , S 275, S 355	150

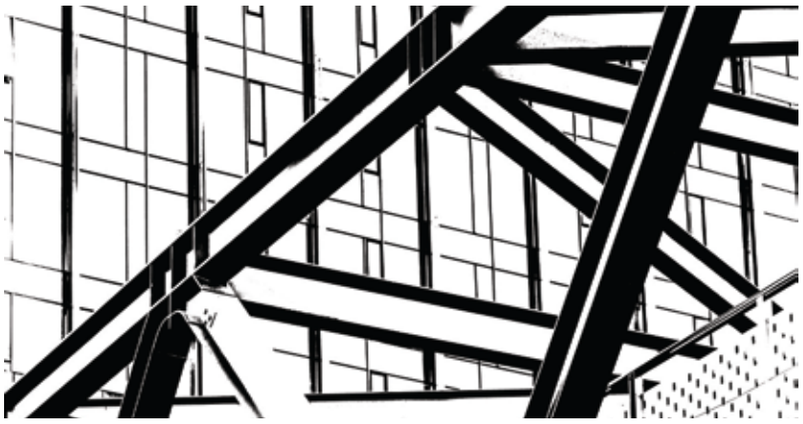
** Supply conditions will be confirmed at the enquiry stage.*

Mechanical Properties

- Tight dimensional tolerances
- High strength and toughness
- Good weldability

Supply Conditions

- As rolled
- Normalised rolled
- Thermo mechanically controlled process



Defence Sector

Applications

The plates are fabricated to be assembled in battle tanks, mine protective vehicles, wall structures, protection suits etc. The steel plates are required to have high strength, high toughness, impact resistance, high hardness and anti-ballistic properties to withstand sever conditions in battle fields, land mines and high momentum bullets. Various applications are as mentioned below:

- Armoured vehicles
- Warships
- Mine protective vehicles
- Protective buildings
- Security vehicles

Metallurgy

Proper alloy design having micro-alloy elements such as Mo, Cr, Ni, B and others are added to achieve desired toughness, strength, hardness and ballistic properties.

Mechanical Properties

- High strength, up to 1,500 MPa tensile strength
- Good low-temperature toughness
- High corrosion resistance
- Good weld ability
- NIJ Level-III for anti-ballistic properties