AM/NS INDIA

ArcelorMittal Nippon Steel India

BUILDING WITH SMARTER STEELS.

BUILDING FOR BRIGHTER FUTURES.

HEAVY PLATES

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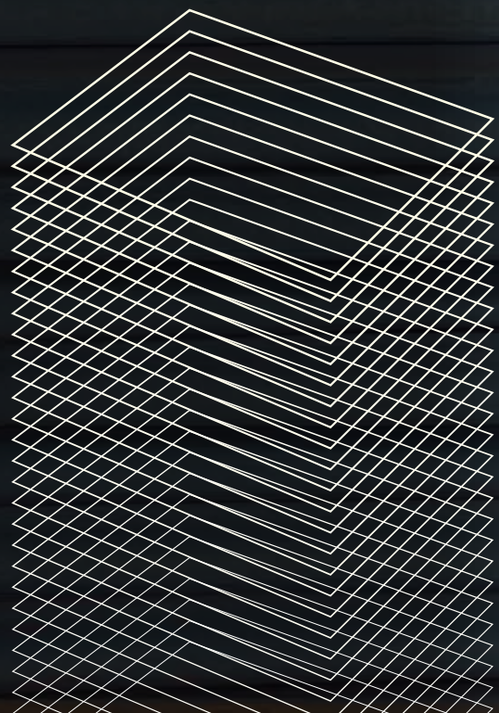
HEAVY PLATES



TWO STEEL GIANTS. ONE DREAM. TO BUILD A BRIGHTER FUTURE.

ABOUT
AM/NS INDIA

AM/NS India, a joint venture between ArcelorMittal and Nippon Steel – two of the world's leading steel companies – is an integrated flat carbon steel manufacturer - from iron ore to ready-to-market products. The company's manufacturing facilities comprise ironmaking, steelmaking and downstream facilities spread across India.

A major strategic advantage is our high level of forward and backward integration. AM/NS India is totally integrated – from raw material to finished products – adding value at every stage of the manufacturing process.

The company's goal is to help create smarter, more sustainable steels for India and beyond. We place safety, innovation, sustainability and technology at the foundation of everything we do.

AM/NS India offers more than 600 grades of steel, all of which conform to International Quality Standards, ascribing to being a trusted and reliable provider of steel to customers in India and beyond.

ABOUT
HAZIRA FACILITY

Hazira Steel Plant, Gujarat, is a well-planned, sophisticated and environment-friendly facility with a highly integrated and modern complex. It has a Crude Steel Production Capacity of 10 Million Tonnes Per Annum (MTPA), the company holds the distinction of owning and operating one of the largest single-location flat steel plants in the world.

The plant comprises a comprehensive infrastructure set up, including power plants, lime and oxygen plants, a township and a captive port that can handle capsize vessels, and is equipped with modern handling equipment. This inclusion makes the complex entirely self-sufficient and eliminating the dependency on external inputs and forms the core of AM/NS India's integrated processes.

INTEGRATED **PROCESS FLOW**

INDIA

Fastest growing large economy; second-largest steel producer

India's per capita consumption of steel is about one-third of the global average

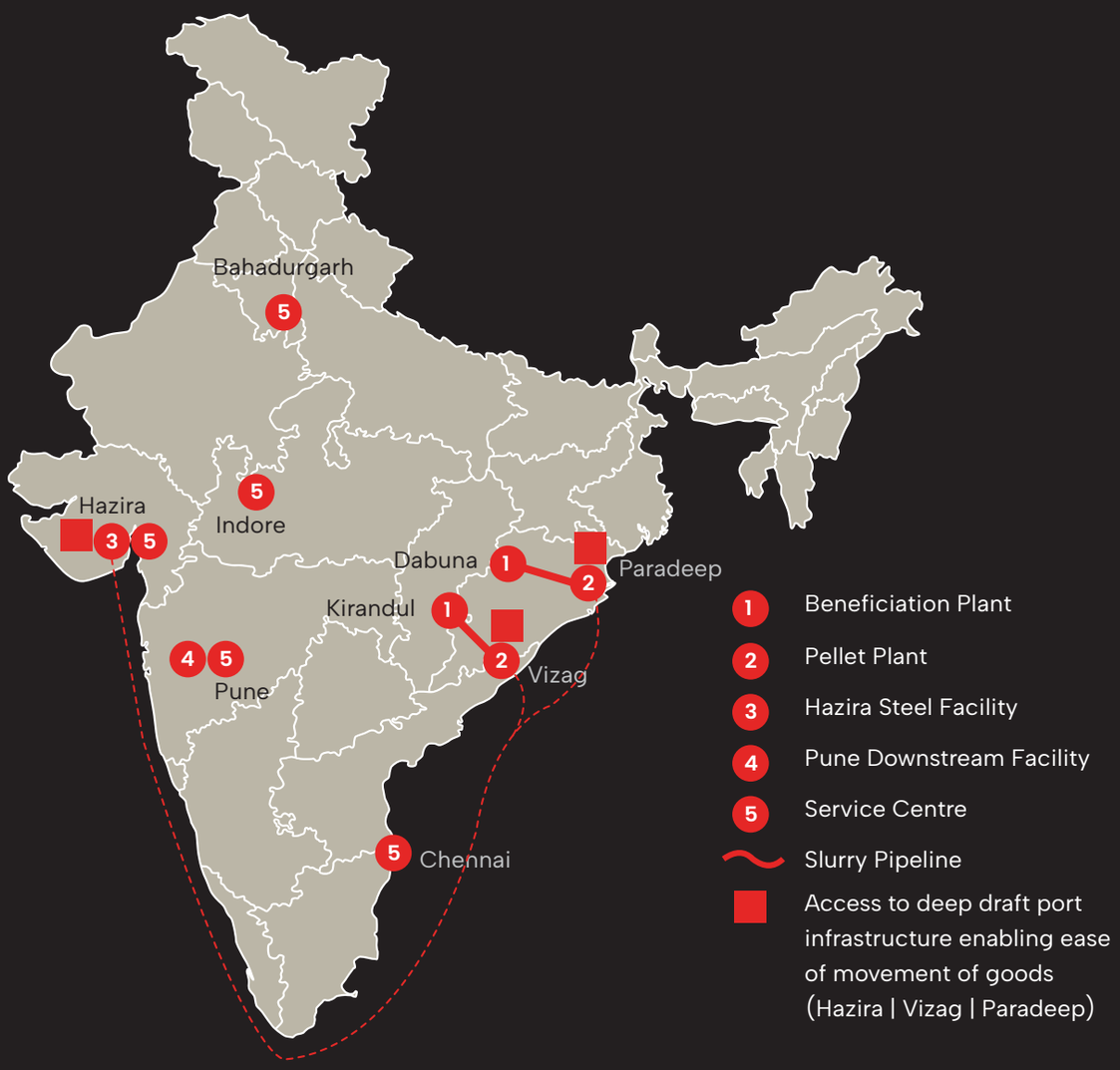
India's targeting three-fold increase in crude steel output to 300 million tonnes per annum by 2030

AM/NS India

Hazira is one of the world's largest single-location flat steel plants

Complementary pelletising capability in eastern India with direct access rich iron ore reserves

Strong domestic distribution network to key industrial clusters across India



INTEGRATED **VALUE CHAIN**

Iron-Ore Mining and
Beneficiation of Iron-ore

Pelletisation

Sea Route Transportation

Integrated Steel Mill Complex

Multimodal Transport
of Finished Goods

Steel Service Centre
and Hypermart

JIT Delivery to Customers

End Customer

PLATE MILL – PROCESS FLOW

HOT ROLLING PROCESS

Slab

Reheating Furnaces

Descaler

Thick Plate Yard

Inspection

Torch Cutting

Shot Blasting & Primer
Plate thickness < =60mm

DISPATCH YARD

Thick Plate Yard

FINISHING AND INSPECTION PROCESS

Crop Shear

UST

Double Side Trim Shear

Slitting Shear

Transfer & Turn Over

Plate mill

ADCO

Hot leveller

Hot Marking

Cooling Bed-1
> 50 mm

Cooling Bed-2
< 50 mm

Divide Shear

Cold Marking & Punch

Inspection

Plate Piler

HEAT TREATMENT PROCESS

Inline Shot Blasting

Austentizing

Normalizing

Quenching

Tempering

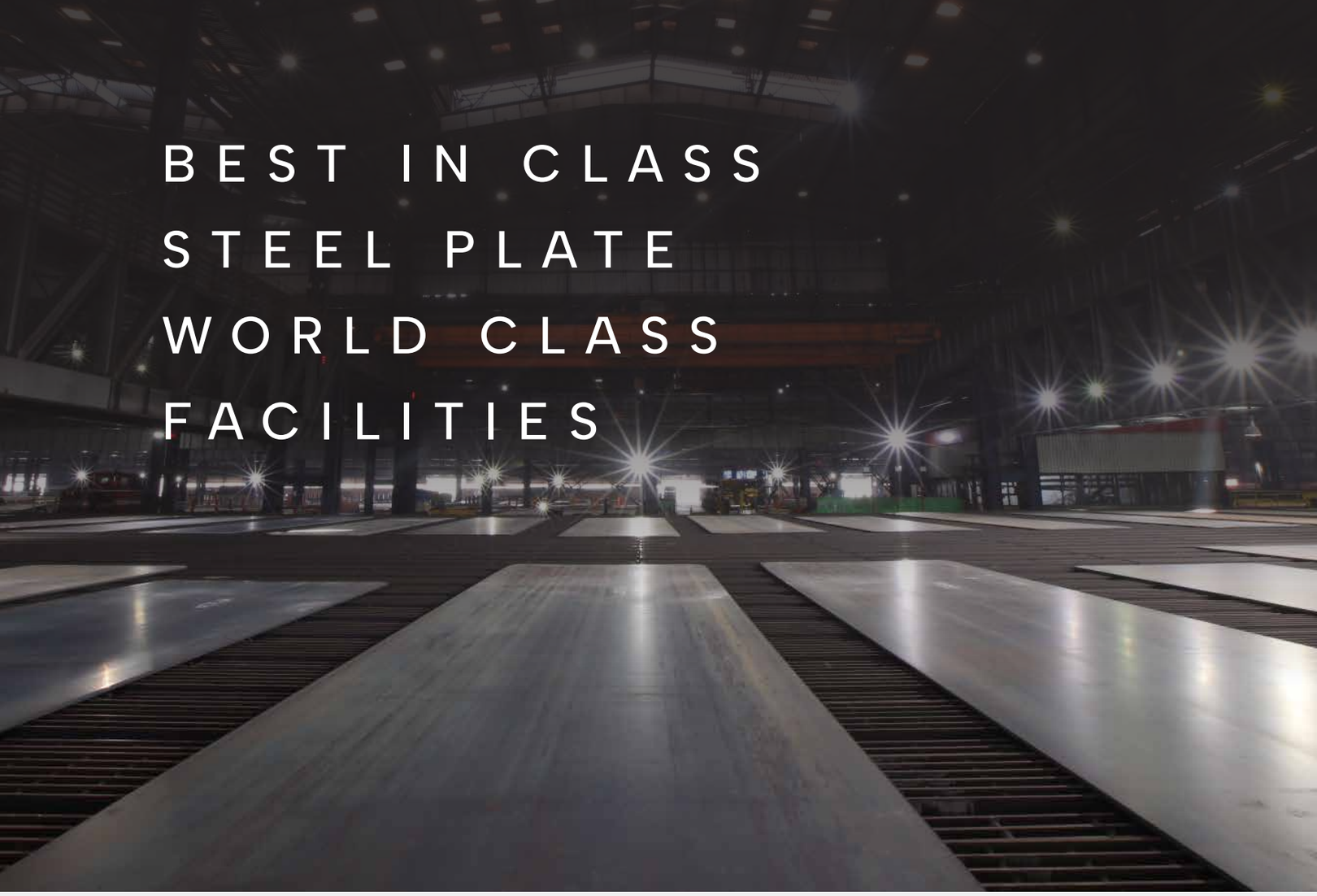
Cold Leveller

Inspection

DISPATCH YARD

Thin Plate Yard

MANUFACTURING PROCESS FLOW



BEST IN CLASS STEEL PLATE WORLD CLASS FACILITIES

AM/NS INDIA **PLATE MILL**

AM/NS India heavy plates are rolled in thicknesses ranging between 6 mm and 150 mm, with a maximum width of 4,900 mm and a maximum length of 25,000 mm. The maximum unit plate weight is 17 MT. The plates cater to various application segments including line pipe, boilers, pressure vessels, wind energy, yellow goods, shipbuilding, and defense.

SALIENT FEATURES

Producing 5-meter-wide plates with a capacity of 1.5 MTPA, Heat treatment facility capacity of 0.3 MTPA in accordance with International Standards, AM/NS India plate mill is amongst the finest in the world with one of the widest ranges of plates of excellent strength, durability, and shape properties.

Employing the best steel-making technology and processes, AM/NS India plates contain low levels of sulphur, phosphorous and gaseous content. Calcium treatment and inclusion control reduce internal discontinuities giving plates improved toughness, enhanced fatigue life, better weldability, and excellent shape properties.

Equipped with advanced Hydraulic Automatic Gauge Control (HAGC), online Gamma Thickness Gauge, and L-2 Automation, AM/NS India can supply steel plates as per desired thickness, width, length, and profiles, required for specific projects or applications.

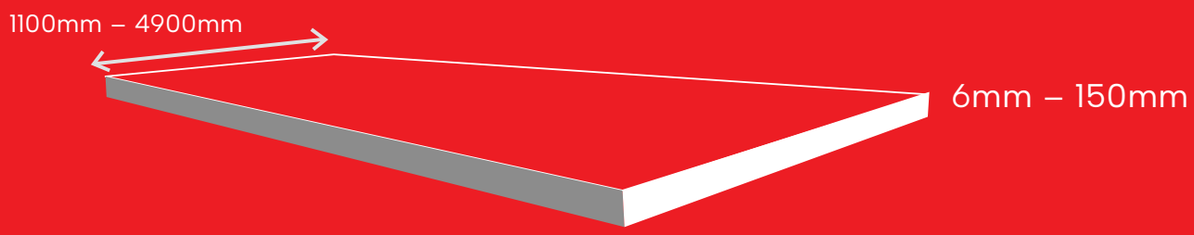
WORLD CLASS FACILITIES

High-tech plate mill features with world class processes and ultra modern facilities

- 10,000 tonnes of roll separating force
- Thermo Mechanical Controlled Process with Accelerated Direct Cooling
- 4,000 tonnes of hot leveller capacity
- 100% online ultrasonic testing
- Furnace normalised, quenching and tempering furnaces
- width = 1100mm – 4900mm
- thickness = 6mm – 150mm

STATE OF THE ART TECHNOLOGY

EQUIPMENT	SUPPLIER
Rolling mill, ADCO facilities, roller tables, cooling beds, hot and cold levellers, including automation and control systems	Siemens VAI, France
Digital reheating furnace	Fives Stein, France
Heat treatment facilities covering austenitising and normalising, quenching and tempering furnaces	LOI Thermprocess, Germany
Auto UT testing	NDT, Germany
Shot blasting and painting	Wheelabrator, Germany
Leveler	Waldrich, Germany



AM/NS INDIA **PLATE MILL WORLD CLASS FACILITIES**

DIGITAL REHEATING FURNACES
Equipped with side burners and split into different control zones for uniform heat transfer. The digital furnaces eliminate hot spots and reduce excess scale formation on slab.

ROLLING MILL
High roll separating force of 10,000 tonnes, almost double compared to some of the other plate mills – generates extremely fine grained microstructure for enhanced mechanical properties. The mill is supported by a fully automatic gauge controller, plan view rolling, and flatness gauge to achieve a high degree of profile, even for very thick plates.

THERMO-MECHANICAL CONTROLLED ROLLING (TMCR) & ACCELERATED DIRECT COOLING (ADCO)
Thermo mechanical rolling and DQ (direct quenching) equipped with ADCO facility and edge masking for high-strength plates - can be used in demanding applications for the oil & gas sector and other segments.

HOT LEVELER
A leveling force of 4000 tonnes, generates excellent flatness, zero distortion, and an optimally adjusted even surface. The rollers flatten plates up to 1/2 ASTM tolerance.

SHEARING UNITS

Equipped with different types of mechanical shears such as crop shears, double side cut shears, slitting shears and dividing shears, the AM/NS India plates can be customized to size and widths as specified by the customer. Mechanical cutting as opposed to burning also leads to lesser heat-treated zones and better utilization and yield.

HEAT TREATMENT

Heat treatment facility with normalizing, austenitizing, quenching and tempering to provide desired properties of steel plates. Furnace normalization is done in an inert atmosphere with indirect radiant type heating to ensure no scales are formed on the surface of the plates, leading to a better yield. Quenched & Tempered facilities spray the plates with more than 10,000 cubic meters of water in two minutes.

ULTRASONIC TESTING

100% ultrasonic testing is performed for plates up to 50 mm thickness using an image comparator and without any manual intervention. To keep it perfectly aligned the testing unit is recalibrated every day. Testing of plates above 50mm thickness is done manually.

MARKING AND TRACEABILITY

All plates produced at AM/NS India are marked with unique identification marks for traceability using paint marking, mechanical stamping, and barcoding.

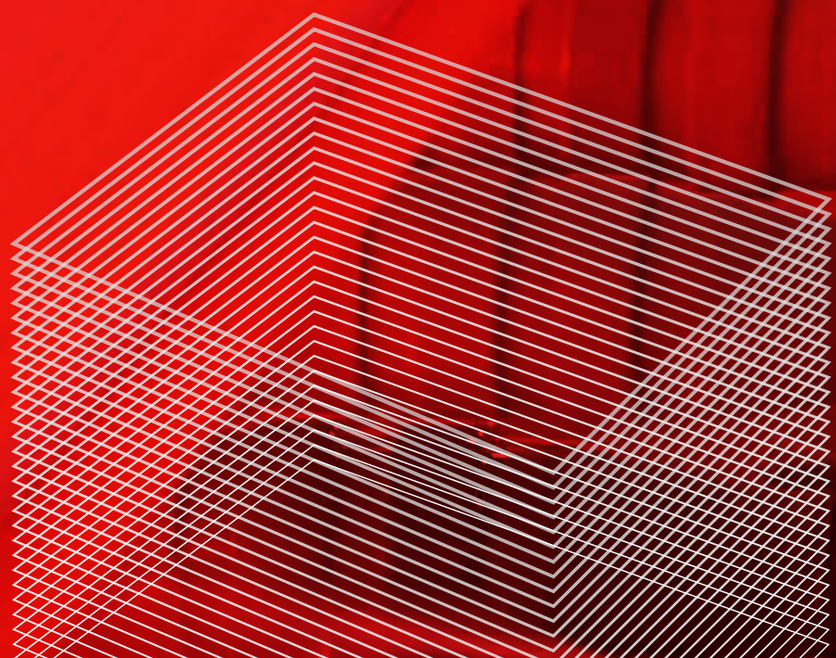
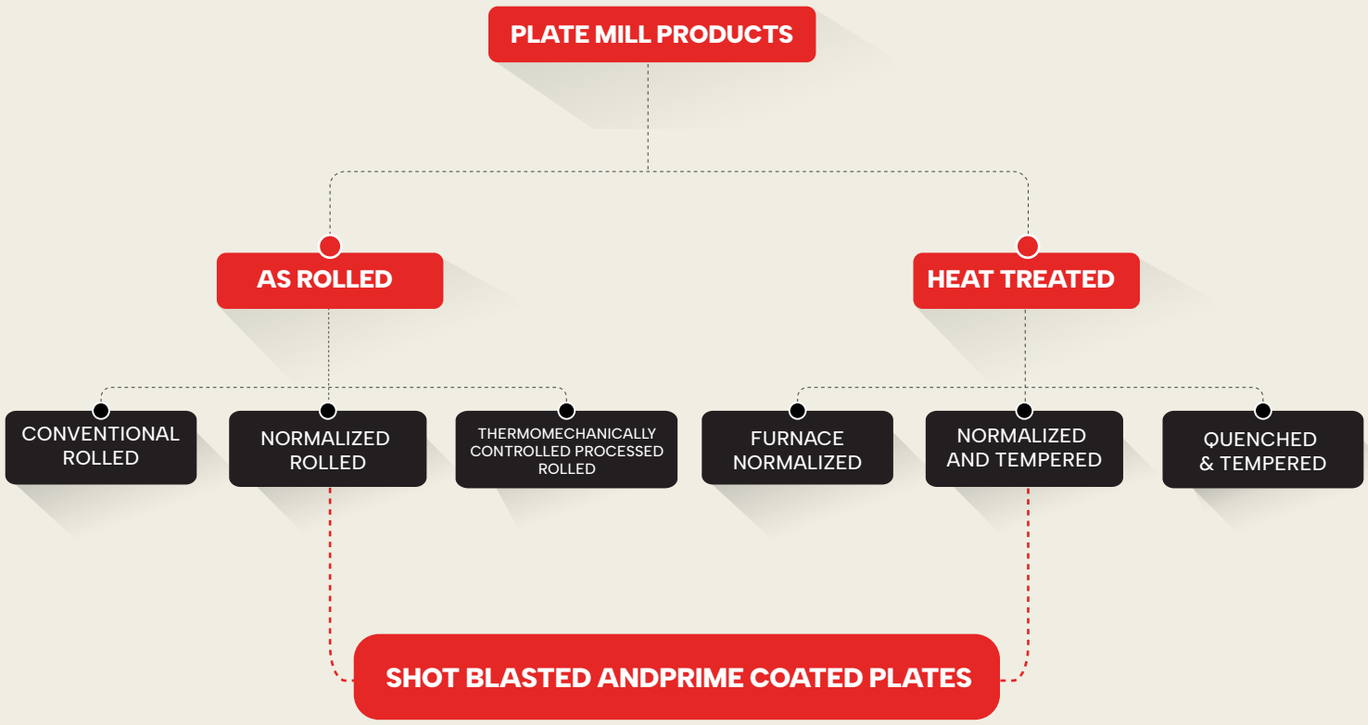
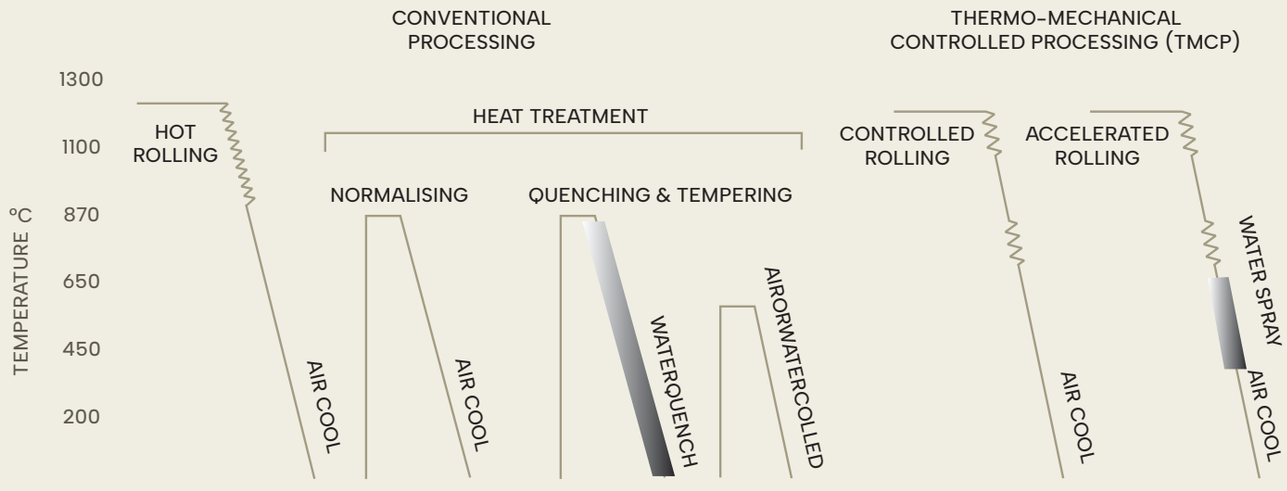


PLATE MILL **PRODUCTS**





CONVENTIONAL **HOT ROLLING**

REHEATING THE SLAB (1100–1250°C)

HOT ROLLING TO ATTAIN REQUIRED SECTION SIZE

COOLING IN STILL AIR

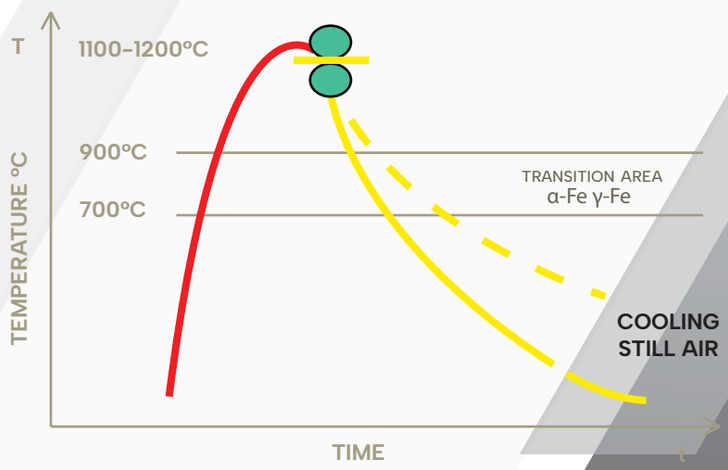
NO FURTHER HEAT TREATMENT

DELIVERED IN "AS ROLLED" CONDITION.

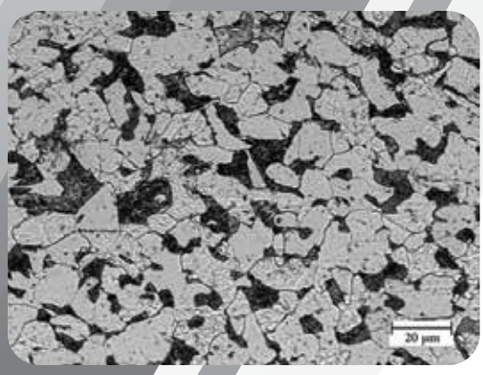
PLATES FOR GENERAL STRUCTURAL APPLICATIONS

TYPICAL EXAMPLE OF CONVENTIONAL HOT ROLLED STEELS ARE **IS 2062 E 250, E 275**

CONVENTIONAL ROLLING



FERRITE + PEARLITE



NORMALIZED **ROLLING (NR)**

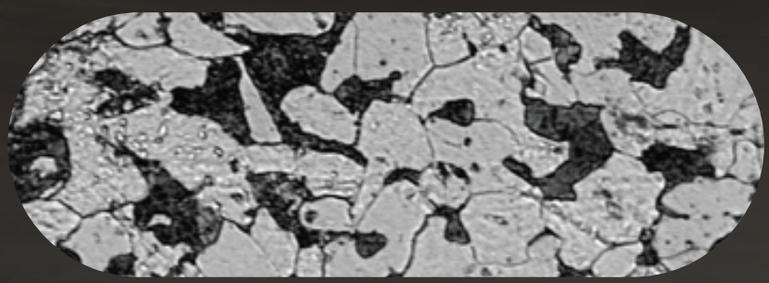
Key Highlights

FRT (finish rolling temperature) is close to normalizing temperature, 900°C–950°C range, followed by air cooling.

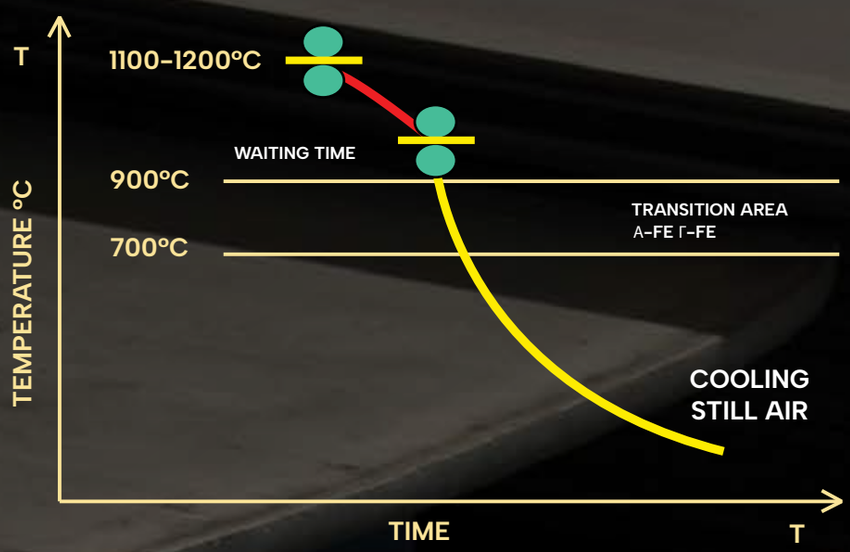
Substitute for furnace normalized plates.

Can achieve consistent mechanical properties across the cross section of plate while rolling, particularly thinner and mid thicker plates(<30mm).

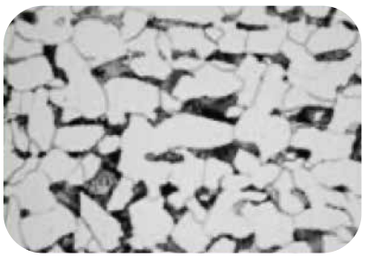
NORMALIZED MICROSTRUCTURE



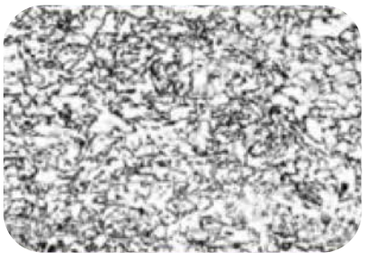
PHASE 1 | PHASE 2 (T>900C)



THERMO- MECHANICAL CONTROLLED PROCESSING (TMCP)



CONVENTIONAL



TMCP(FINE GRAINS)

Thermo Mechanical Rolling with Air Cooling

The final rolling temperature is in:

- Non-recrystallizing austenitic range
- Austenitic + ferrite two phase region.

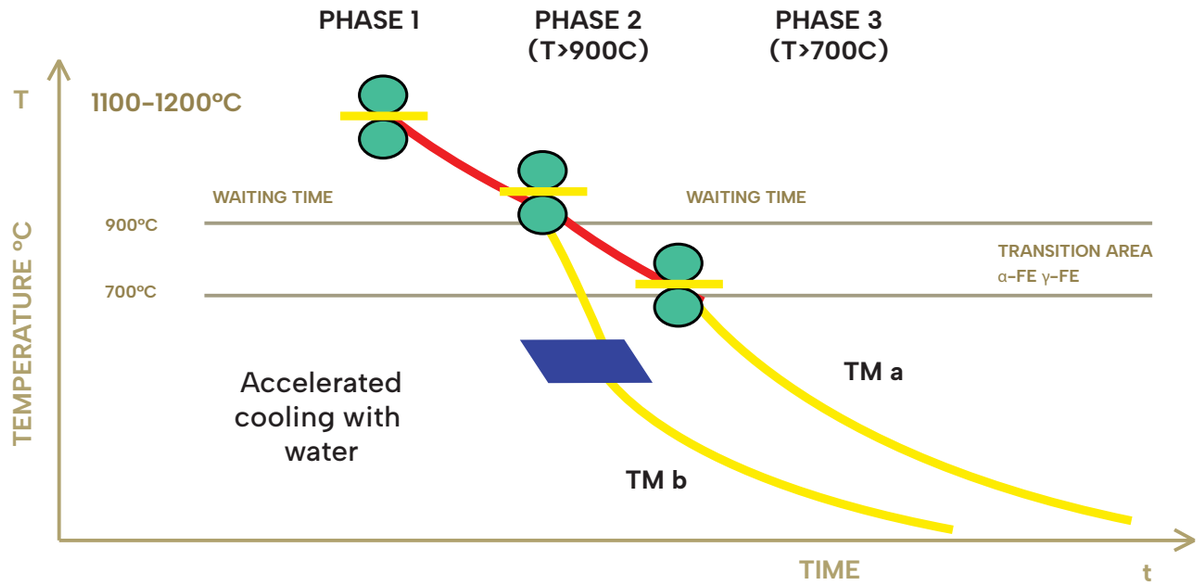
During **Air Cooling, fine ferrite grains** are formed and impart moderate strength.

Thermo Mechanical Rolling with Accelerated Cooling

To achieve strength in thicker plates.

Very useful in special category plates like Line Pipe

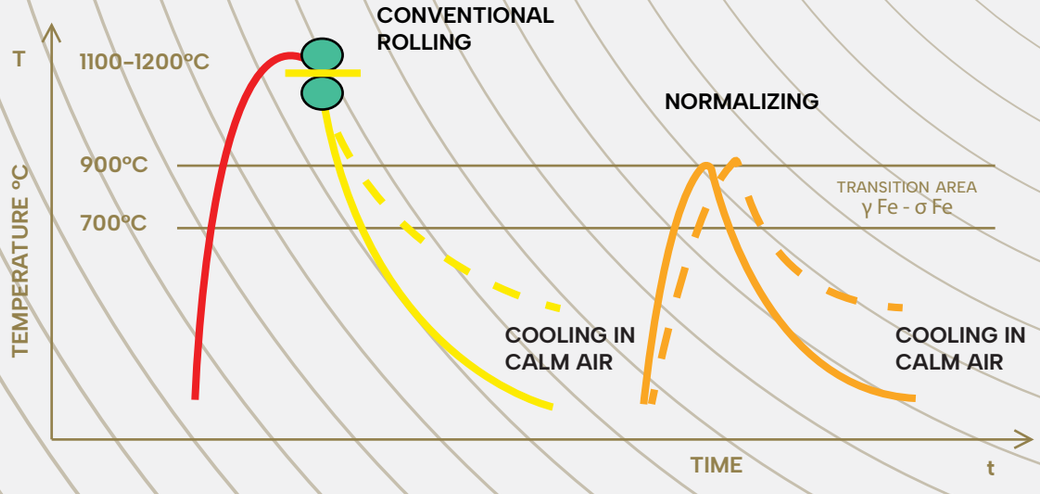
- Very high strength
- Low temperature toughness



FURNACE NORMALIZING(FN)

FURNACE NORMALIZED

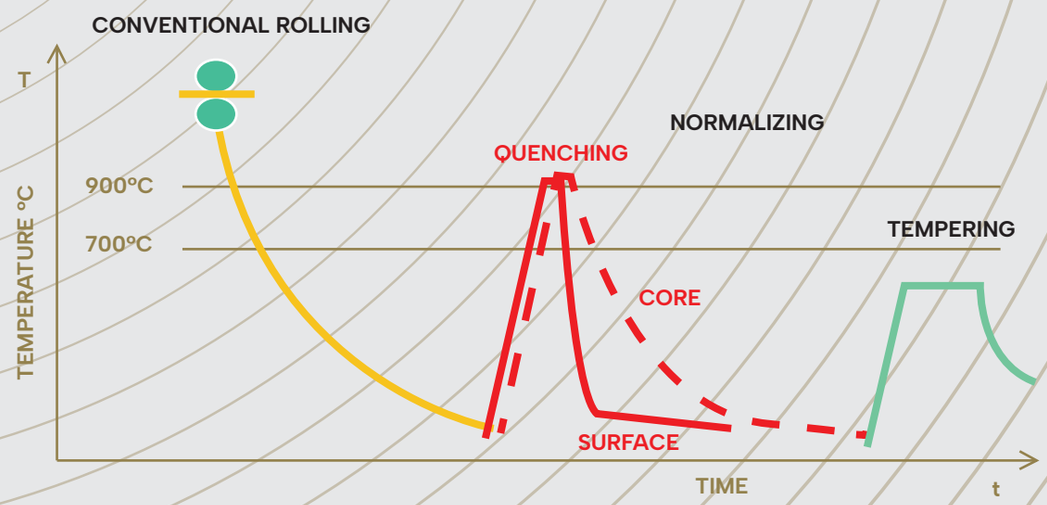
- Furnace Normalizing means Heating and Soaking the steel 30 – 40°C above upper critical temperature (Ac3 ~ 860°C) in a furnace and then cooling in still air.
- As steel is heated above Ac3 during normalizing, ferrite and pearlite in it transforms to austenite.
- On cooling in still air, moderately finer ferrite and pearlite, fairly uniform in nature across complete cross section of plate, are formed imparting better toughness.
- Normalized plates are denoted as +N.



QUENCH AND TEMPERING (Q&T)

MARTENSITE

- The process consist of heating rolled plates by 30 – 40°C above upper Critical temperature (Ac3)
- High velocity water spray quenching.
- Impart strength and Hardness.
- Owing to high rate of cooling, steel transforms from austenite phase to martensite which is very hard and brittle.
- The quenched or hardened steel is extremely brittle and results in failure components by cracking with very high internal stresses in the hardened steel.
- Tempering is heating in the range of 200°C to 750°C and holding the component at this temperature for a sufficient soaking period.
- Followed by Air cooling.
- Tempering reduces hardness of steel and restore ductility & toughness. relieve internal stresses.



AS-ROLLED SUPPLY CONDITION

PRODUCT SEGMENT	APPLICATION	EQUIVALENT INTERNATIONAL SPECIFICATION /NEAR EQUIVALENT BRANDED PRODUCTS FROM OTHER SUPPLIERS	SUPPLY CONDITION	PLATE THICKNESS (MM)	Ceq Max.	YS min (MPa)	UTS min (MPa)	Remarks/ Special properties
General Engineering application	Low and Intermediate Tensile Strength Carbon Steel Plates	ASTM A 283 Gr. C	AR	8.0 - 40.0	0.35	205	380	-
		EN 10025-2 S235 JR;J0;J2	AR	8.0 - 40.0	0.38	235	360	For J2 CVN @--20°C: 27J min
		EN 10025-2 S235 JR;J0;J2	AR	40.1 - 150.0	0.38	195	360	For J2 CVN @--20°C: 27J min
		IS 2062 E 250 BR/B0/C JIS G 3101 SS 400 ASTM A36	AR	8.0 - 40.0	0.42	250	410	-
		IS 2062 E 250	AR	40.1 - 150.0	0.42	230	410	-
		IS 2062 E 250 with Cu	AR	8.0 - 80.0	0.41	250	410	With Cu 0.35 Max
		IS 2062 E 250 BR/B0/C	AR	8.0 - 40.0	0.39	250	410	CVN @--20°C: 27J min
		IS 2062 E 250 BR/B0/C	AR	40.1 - 150.0	0.39	250	410	CVN @--20°C: 27J min
		IS 2062 E 300 BR/B0/C ASTM A572 Gr.45 Type I,II,III	AR	8.0 - 40.0	0.44	290	440	-
		IS 2062 E 300 BR/B0/C ASTM A572 Gr.45	AR	40.1 - 80.0	0.44	280	440	-
		EN10025-2 S275 JR;J0;J2	AR	8.0 - 40.0	0.40	275	430	For J2 CVN @--20°C: 27J min
	C-Mn-Silicon steel for atmospheric temperatures service	ASTM A 573 Gr. 70	AR	8.0 - 70.0	0.44*	260	485	-
	High tensile Structural steels	CSA G40.21 44W	AR	20.0 - 40.0	-	290	450	-
		CSA G40.21 44W	AR	40.1-85.0	-	290	450	-
		CSA G40.21 44W	AR	85.1-150.0	-	290	450	-
		EN 10025-2 S355 J2+N ASTM A572 Gr.50 Type I,II,III	AR	8.0-20.0	-	345	470	-
		EN 10025-2 S355 J2+N ASTM A572 Gr.50 Type III	AR /FN	65.1-85.0	-	325	470	-
		EN 10025-2 S355 J2+N ASTM A572 Gr.50 Type III	AR	85.1-100.0	-	315	470	-
		IS 2062 E350 BR/B0/C	AR + FN	40.0-85.0	0.45	320	490	For 'C" CVN @ -20°C :27J
		IS 2062 E 410 BR/B0/C	AR	8.0 - 40.0	0.5	410	540	For J2 CVN @ -20°C :27J
		IS 2062 E 410 BR/B0/C	AR	40.1-65.0	0.5	390	540	For J2 CVN @ -20°C :27J
		EN 10025-2 S 460 J2	AR	8.0- 25.0	0.52	460	550	For J2 CVN @ -20°C :27J
		EN 10025-2 S 460 J2	AR	25.1-50.0	0.52	430	550	For J2 CVN @ -20°C :27J

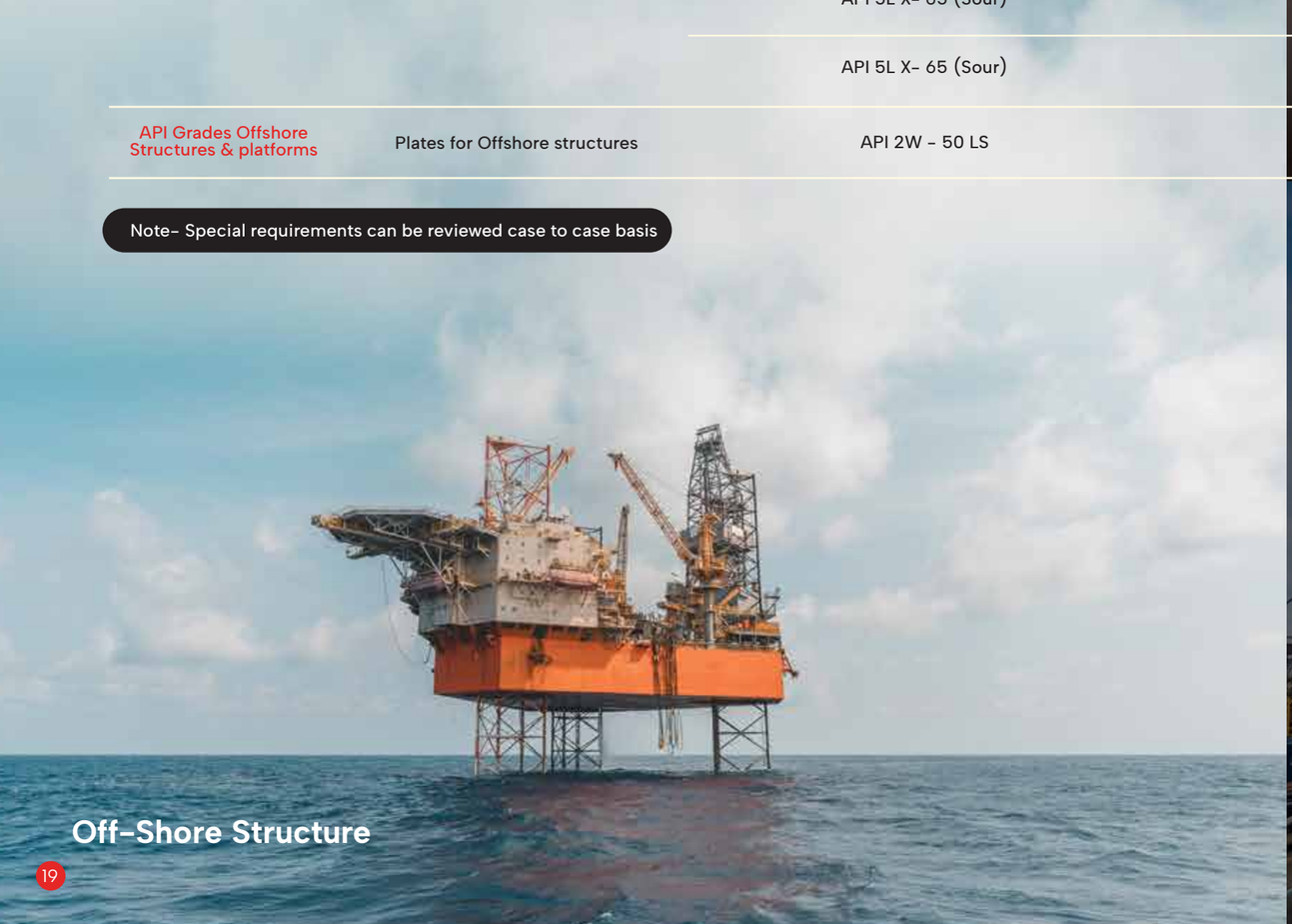
Note- Special requirements can be reviewed case to case basis

Railway bridges

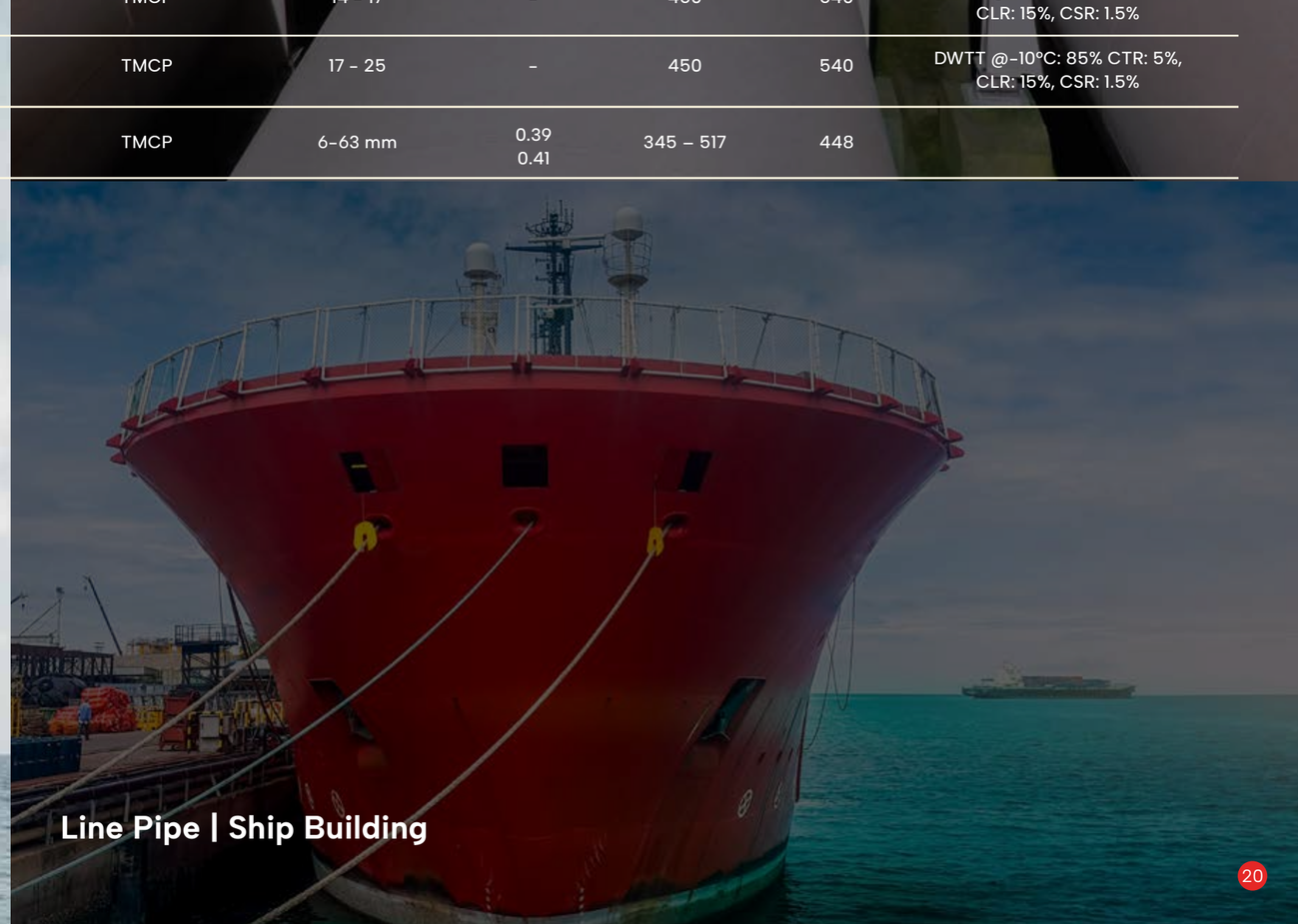
AS-ROLLED SUPPLY CONDITION

PRODUCT SEGMENT	APPLICATION	EQUIVALENT INTERNATIONAL SPECIFICATION/NEAR EQUIVALENT BRANDED PRODUCTS FROM OTHER SUPPLIERS	SUPPLY CONDITION	PLATE THICKNESS (MM)	Ceq Max.	YS min (MPa)	UTS min (MPa)	Remarks/ Special properties
General Engineering application	High tensile Structural steels	IS 2062 E 450 BR/B0	TMCR	Up to 25	0.52	450	570	
Ship Building	High Strength Steel Plates for Ships	ABS, DNV, GL, NKK, IRS, BV ASTM A 131 AH36 & DH36	TMCP	8.0 - 40.0	0.38**	355	490	BV, ABS, DNV, GL, NKK, LR: AH36 & DH36
Line Pipe	Non Sour Service Pipe PSL-1, PSL-2	API 5L Gr. B	TMCP	8.0 - 40.0	-	250	420	-
		API 5L X- 52	TMCP	18 - 25	-	370	460	DWTT @-10°C: 85%
		API 5L X- 52	TMCP	25 - 40	-	370	460	DWTT @-10°C: 85%
		API 5L X- 60	TMCP	15 - 20	-	420	520	Hardness 210 HV10 Max
		API 5L X- 60	TMCP	16 - 20	-	420	520	DWTT @-10°C: 85%
		API 5L X- 70	TMCP	15 - 20	-	490	570	DWTT @-10°C: 85%
		API 5L X- 70	TMCP	20 - 25	-	490	570	DWTT @-10°C: 85%
		API 5L X- 70	TMCP	8.0 - 13.0	-	500	565	DWTT @-10°C: 85%
		API 5L X-80	TMCP	14 - 25	-	555	630	DWTT @-10°C: 85%
Ship Building	Sour Service Pipe	API 5L X- 52 (Sour)	TMCP	15 - 20	-	370	460	DWTT @-10°C: 85% CTR: 5%, CLR: 15%, CSR: 1.5%
		APL 5L X-60 (Sour)	TMCP	12-15	-	430	530	DWTT @-10°C: 85% CTR: 5%, CLR: 15%, CSR: 1.5%
		API 5L X- 65 (Sour)	TMCP	14 - 17	-	450	540	DWTT @-10°C: 85% CTR: 5%, CLR: 15%, CSR: 1.5%
		API 5L X- 65 (Sour)	TMCP	17 - 25	-	450	540	DWTT @-10°C: 85% CTR: 5%, CLR: 15%, CSR: 1.5%
API Grades Offshore Structures & platforms	Plates for Offshore structures	API 2W - 50 LS	TMCP	6-63 mm	0.39 0.41	345 – 517	448	

Note- Special requirements can be reviewed case to case basis



Off-Shore Structure



Line Pipe | Ship Building

AS-ROLLED SUPPLY CONDITION
PRODUCT SIZE RANGE

FOR YS<300 MPA

THIK/WIDTH	1500-2000	2001-2500	2501-3000	3001-3500	3500-4000	4001-4500
6.1-8.0						
8.1- 10						
10.1- 12						
12.1- 16						
16.1- 20						
20.1-25						
25.1-40						
40.1-60						
60.1-80						
80.1-100						
>100						

Rollable To be checked for feasibility

FOR YS 300 - 375 MPA

THIK/WIDTH	1500-2000	2001-2500	2501-3000	3001-3500	3500-4000	4001-4500
6.1-8.0						
8.1- 10						
10.1- 12						
12.1- 16						
16.1- 20						
20.1-25						
25.1-40						
40.1-60						
60.1-80						
80.1-100						
>100						

Rollable To be checked for feasibility

FOR YS 375-450 MPA

THIK/WIDTH	1500-2000		2001-2500		2501-3000		3001-3500		3500-4000		4001-4500	
6.1-8.0												
8.1- 10												
10.1- 12												
12.1- 16												
16.1- 20												
20.1-25												
25.1-40												
40.1-60												
60.1-80												
80.1-100												
>100												

Rollable To be checked for feasibility

FOR YS 450-525 MPA

THIK/WIDTH	1500-2000		2001-2500		2501-3000		3001-3500		3500-4000		4001-4500	
6.1-8.0												
8.1- 10												
10.1- 12												
12.1- 16												
16.1- 20												
20.1-25												
25.1-40												
40.1-60												
60.1-80												
80.1-100												
>100												

Rollable To be checked for feasibility

FOR YS 525-600 MPA

THIK/WIDTH	1500-2000		2001-2500		2501-3000		3001-3500		3500-4000		4001-4500	
6.1-8.0												
8.1- 10												
10.1- 12												
12.1- 16												
16.1- 20												
20.1-25												
25.1-40												
40.1-60												
60.1-80												
80.1-100												
>100												

Rollable To be checked for feasibility

FURNACE NORMALIZED SUPPLY CONDITION

PRODUCT SEGMENT	APPLICATION	EQUIVALENT INTERNATIONAL SPECIFICATION/NEAR EQUIVALENT BRANDED PRODUCTS FROM OTHER SUPPLIERS	SUPPLY CONDITION	PLATE THICKNESS (MM)	Ceq Max.	YS min (MPa)	UTS min (MPa)	Remarks/ Special properties
General Engineering application	High tensile Structural steels	EN 10025-2 S355 J2,JR, J0 ASTM A572 Gr.50 Type I,II,III	NR /FN	20.1-30.0	-	345	470	-
		EN 10025-2 S355 J2,JR, J0 ASTM A572 Gr.50 Type I,II,III	NR /FN	30.1-40.0	-	345	470	-
		EN 10025-2 S355 J2,JR, J0 ASTM A572 Gr.50 Type I,II,III	NR /FN	40.1-50.0	-	335	470	-
		EN 10025-2 S355 J2,JR, J0 ASTM A572 Gr.50 Type I,II,III	NR /FN	50.1-65.0	0.47	335	470	-
		EN 10025-2 S355 J2,JR, J0 ASTM A572 Gr.50 Type I,II,III	NR/FN	65.1-85.0	-	325	470	-
		EN 10025 S355 J2+N	NR/FN	15.0-40.0	0.47	345	470	Z25 through thickness
		IS 2062 E350 BR, B0, C	NR/FN	40.0-85.0	0.45	320	490	CVN @ -20°C :27J
		EN10025_3_S420N	NR/FN	6.0-63.0	-	-	-	-
	C-Si steels for intermediate and higher- temperature service	ASTM/ASME A 515 Gr. 60	FN	8.0 - 40.0	0.45	220	415	-
		ASTM/ASME A 515 Gr. 70	FN	8.0 - 40.0	0.45	260	485	-
	C-Mn-S heat- treated steel for fusion welded pressure vessels	ASTM/ASME A 537 Cl. 1	FN	8.0 - 40.0	0.43	345	485	With PWHT
		ASTM/ASME A 537 Cl. 1	FN	40.0 - 65.0	0.43	345	485	With PWHT
	Weldable fine grained normalized steels for flat products	EN10028-3 P 275 NH	FN	40.0 - 80.0	0.4	275	390	390
		EN 10028-3 P 355 NH	FN	40.0 - 80.0	0.43	350	490	Elevated temperature tensile
	Steels for pressure purposes with specified elevated temperature	EN10028-2-16MO3+N Mo3	FN	6.0 -80.0	-	-	-	-
Boiler & Pressure vessel application	Carbon steels for Moderate and Lower- Temp. Service	ASTM/ASME A 516 Gr. 60	FN	6.0 - 24.0	0.42	220	415	CVN@-50°C: 18J
		ASTM/ASME A 516 Gr. 60	FN	24 - 80.0	0.42	220	415	CVN@-50°C: 18J
		ASTM/ASME A 516 Gr. 60	FN	6.0 - 24.0	0.42	220	415	With PWHT CVN@-50°C: 18J
		ASTM/ASME A 516 Gr. 60	FN	24 - 80.0	0.42	220	415	With PWHT CVN@-50°C: 18J
		ASTM/ASME A 516 Gr. 60 (NACE)	FN	8.0 - 40.0	0.4	220	415	With HIC
		ASTM/ASME A 516 Gr. 65	FN	8.0 - 80.0	0.4	240	450	-
		ASTM/ASME A 516 Gr. 70	FN	8.0 - 40.0	0.43	260	485	With PWHT
		ASTM/ASME A 516 Gr. 70	FN	40.0 - 80.0	0.45	260	485	With PWHT
		ASTM/ASME A 516 Gr. 70	FN	80.0 - 90.0	0.47	260	485	With PWHT
		ASTM/ASME A 516 Gr. 70 (NACE)	FN	8.0 - 40.0	0.4	260	485	With HIC
	Carbon pressure vessels & boilers steels for Intermediate high temp. service	IS 2002 Gr. 3 ASTM/ASME A515 Gr. 70	FN	20.0 - 40.0	0.45	285	460	460
Ship Building	Normal Strength Steel Plates for Ship	ABS, DNV, GL, NKK, IRS, BV ASTM A 131 Gr. A, B & D ASTM A 131 Gr. E	FN	8.0 - 70.0	0.40*	235	400	400
	High Strength Steel Plates for Ships	ASTM A 131 EH36	FN	20.0 - 85.0	-	355	490	490
API Grades Offshore Structures & platforms	Plates for Offshore structures	API 2H Gr.50	FN	Upto 100mm	0.43-0.45	345 (t≤2.5")	483	CVN @ -40° C & Z Properties (Z35)

Note- Special requirements can be reviewed case to case basis

FURNACE NORMALIZED SUPPLY CONDITION PRODUCT SIZE RANGE

FOR YS<300 MPA

THIK/WIDTH	1500-2000		2001-2500		2501-3000		3001-3500		3501-4000		4001-4500	
6.1 - 8.0												
8.1 - 10												
10.1 - 12												
12.1 - 16												
16.1 - 20												
20.1 - 25												
25.1 - 40												
40.1 - 50												
50.1 - 60												
60.1 - 70												
70.1 - 80												

Rollable To be checked for feasibility

FOR YS 300 - 375 MPA

THIK/WIDTH	1500-2000		2001-2500		2501-3000		3001-3500		3501-4000		4001-4500	
6.1 - 8.0												
8.1 - 10												
10.1 - 12												
12.1 - 16												
16.1 - 20												
20.1 - 25												
25.1 - 40												
40.1 - 50												
50.1 - 60												
60.1 - 70												
70.1 - 80												

Rollable To be checked for feasibility

FOR YS 375 – 450 MPA

THIK/WIDTH	1500–2000		2001–2500		2501–3000		3001–3500		3501–4000		4001–4500	
6.1 – 8												
8.1 – 10												
10.1 – 12												
12.1 – 16												
16.1 – 20												
20.1 – 25												
25.1 – 40												
40.1 – 50												
50.1 – 60												
60.1 – 70												
70.1 – 80												

Rollable To be checked for feasibility

FOR YS 450 – 525 MPA

THIK/WIDTH	1500–2000		2001–2500		2501–3000		3001–3500		3501–4000		4001–4500	
6.1 – 8												
8.1 – 10												
10.1 – 12												
12.1 – 16												
16.1 – 20												
20.1 – 25												
25.1 – 40												
40.1 – 50												
50.1 – 60												
60.1 – 70												
70.1 – 80												

Rollable To be checked for feasibility

QUENCHED AND TEMPERED SUPPLY CONDITION

PRODUCT SEGMENT	APPLICATION	EQUIVALENT INTERNATIONAL SPECIFICATION/NEAR EQUIVALENT BRANDED PRODUCTS FROM OTHER SUPPLIERS	SUPPLY CONDITION	PLATE THICKNESS (MM)	Ceq Max.	YS min (MPa)	UTS min (MPa)	Remarks/ Special properties
High strength structural steel	High strength Weldable steels for structural applications	EN 10025- 6 S620QL	Q+T	12.0 - 40.0	0.65	620	690	CVN @ -40°C :27J
		EN10025-6 S690QL	Q+T	8.0 - 25.0	0.46	690	780	CVN @ -40°C :27J
		EN10025-6 S690QL	Q+T	20.0 - 80.0	-	690	770	CVN @ -20°C :27J
		EN10025_6_S890_QL	Q+T	6.0 - 80.0	0.72	890	940-1100	
Hydropower application, Penstock	High strength alloy steels for fusion Welded pressure vessel	ASME/ASTM A 517 Gr. F	Q+T	8.0 - 65.0	0.57	690	795	-
	C-Mn-Si heat-treated steel for fusion Welded pressure vessels	ASME/ASTM A 537 Cl. 2	Q+T	8.0 - 40.0	0.45	415	550	-
Boiler & Pressure vessel application	Chromium Molybdenum low alloy steels for elevated temperature service	ASME/ASTM A 387 Gr.11 Class 2 ASME/ASTM A 387 Gr. 11 Class 1 ASME/ASTM A 387 Gr. 12 Class 1	N+T/Q+T	8.0 - 65.0	-	-	-	With PWHT J factor:150max
		ASME/ASTM A 387 Gr. 11 Class 2 ASME/ASTM A 387 Gr. 12 Class 2	N+T/Q+T	8.0 - 40.0	-	310	515	%C:0.15max J factor:150max
		ASME/ASTM A 387 Gr. 22 Cl. 2	N+T/Q+T	8.0 - 40.0	-	310	515	%C:0.15max J factor:150max
	Pressure Vessel Plates, Heat-Treated, Carbon-Manganese- Silicon Steel, for Moderate and Lower Temperature Service	ASME/ASTM A738 Gr B	Q&T	6.0 - 40.0	-	415	705	Step cooling
Abrasion & Wear resistant steel	Earth Moving Equipments	ROCKSTAR 400	Q / Q+T	8.0 - 20.0	0.45		360 & 430 BHN	-
		ROCKSTAR 400	Q / Q+T	20.1 - 32.0	0.48		361 & 430 BHN	-
		ROCKSTAR 400	Q / Q+T	32.0 - 80.0	0.48		362 & 430 BHN	-
		ROCKSTAR 450	Q / Q+T	8.0 - 20.0	0.55		400 - 460 BHN	-
		ROCKSTAR 500	Q / Q+T	6.0 - 50.0	-		450 - 540 BHN	-

Boiler & PV

Penstock

Wear and Abrasion Resistant

High Strength Weldable Q&T

QUENCHED AND TEMPERED SUPPLY CONDITION
PRODUCT SIZE RANGE

FOR YS 600 - 980 MPA

THIK/WIDTH	1500-2000	2001-2500	2501-3000	3001-3500	3501-4000	4001-4500
6.1 - 8						
8.1 - 10						
10.1 - 12						
12.1 - 16						
16.1 - 20						
20.1 - 25						
25.1 - 40						
40.1 - 50						
50.1 -60						
60.1-70						
70.1-80						

Rollable To be checked for feasibility

FOR YS > 1000 MPA

THIK/WIDTH	1500-2000	2001-2500	2501-3000	3001-3500	3501-4000	4001-4500
6.1 - 8						
8.1 - 10						
10.1 - 12						
12.1 - 16						
16.1 - 20						
20.1 - 25						
25.1 - 40						
40.1 - 50						
50.1 -60						
60.1-70						
70.1-80						

Rollable To be checked for feasibility

SHOT BLASTED AND PRIMER COATED PLATES SUPPLY CONDITIONS

AM/NS India Steel's shot blasted and primer plates can be directly used and allow excellent adhesion of prime coat and paint. These plates offer superior yield with their optimized welding properties and thickness to strength ratio.

Benefits

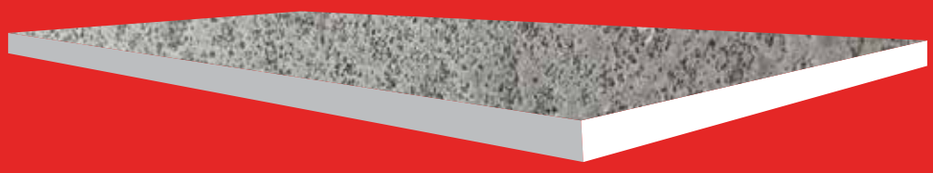
- Better yield, quality and durability
- Optimized thickness to strength ratio
- Excellent weldability
- Ultrasonically tested using online UT machine up to 50 mm and manual UT up to 150 mm.

Applications

- Shipbuilding
- Construction
- Railways
- Engineering and machinery
- Bridges and flyovers
- Pre-fabricated buildings

Features

- Can be directly used and saves time and cost
- Environment friendly as compared to sand-blasted plates
- Available in two primer coatings – iron oxide and zinc silicate
- High weather resistance
- Increases tool life and paint durability
- Easier to use as compared to fabricated plates



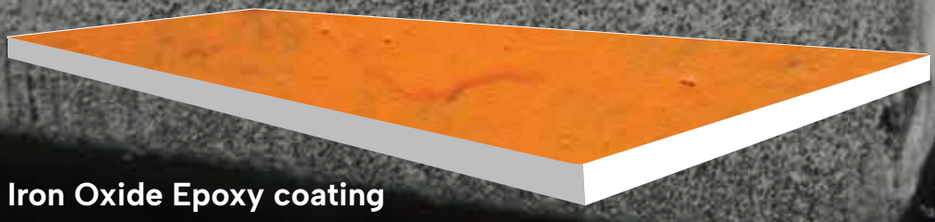
Zinc Silicate coating

Product Size Range

Thickness	6 – 50 mm
Width	1,200 mm - 4,800 mm
Length	4,000 mm - 12,000 mm

Supply Conditions

Surface finish	Up to 250 Ra finish
Shot blasting standard	Surface free from mill scales as per ISO-8501 A SA 2.5
Primer Coating	Iron oxide Epoxy coating or Zinc Silicate based coating
Coating Thickness	15-25 microns (Single coating of primer)



Iron Oxide Epoxy coating

LENGTH CAPABILITY

Length Capability for Plate Mill Products with consideration of available 260 mm thick slabs.

Blue Highlighted Field has no restriction up to 20000 mm length.

MAXIMUM DAUGHTER PLATE LENGTH

	WIDTH					
THICK	**2000**	**2500**	**3000**	**3500**	**4000**	**4500**
6 – 20						
20						
25						19200
30					18000	16000
35				17650	15450	13700
40			18000	15450	13500	12000
50		17300	14400	12350	10800	
60	18000	14400	12000	10300	9000	
70	15450	12350	10300	8800		
80	13500	10800	9000	7700		
90	12000	9600	8000			
100	10800	8650	7200			
110	9800	7850				
120	9000	7200				
130	8300	6650				
140	7700	6150				
150	7200	5750				

Rollable To be checked for feasibility

DIMENSIONAL TOLERANCE

WIDTH TOLERANCE

-0/+20 mm

LENGTH TOLERANCE

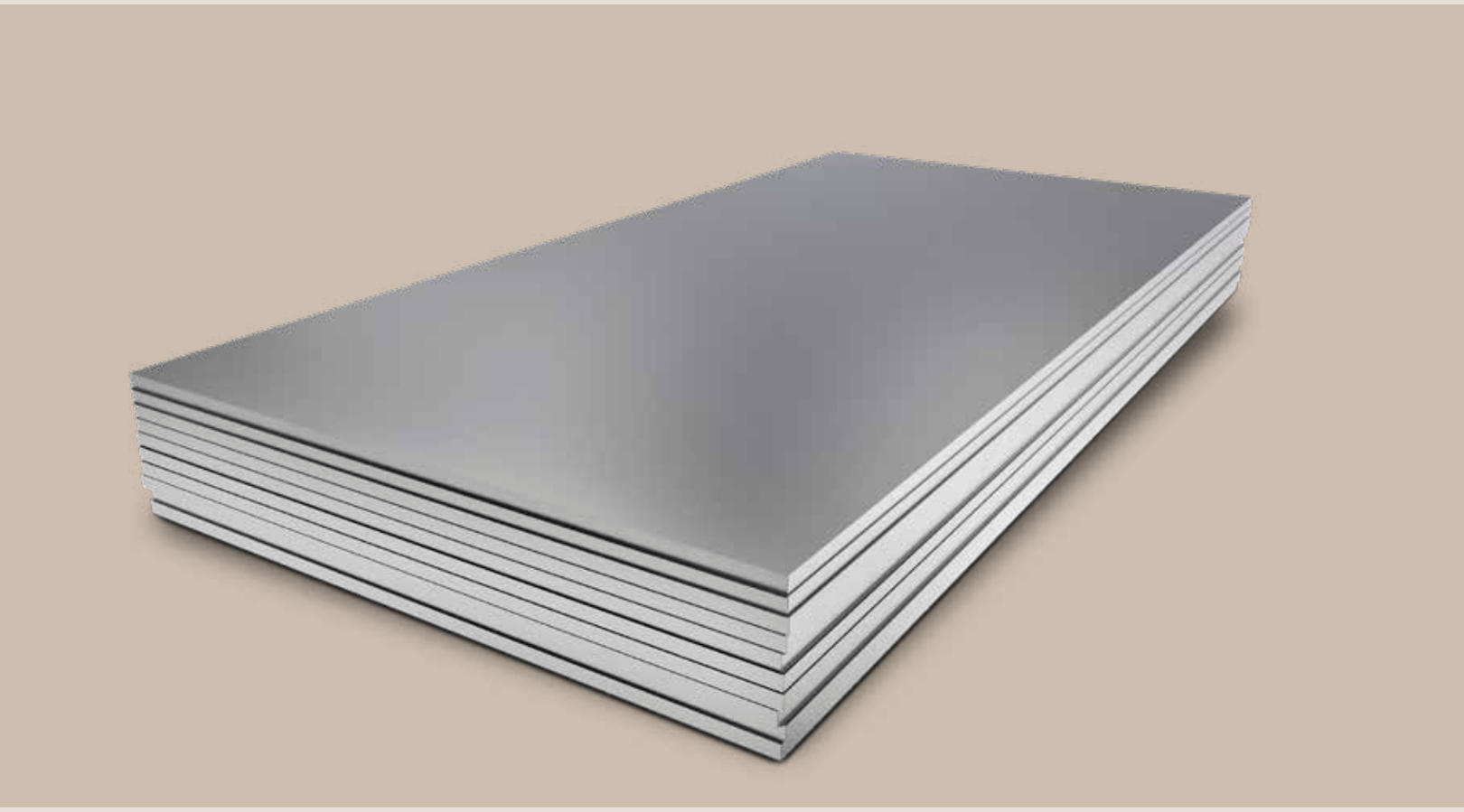
-0.0/+20.0 mm

THICKNESS TOLERANCE

		Tolerances on nominal thickness				
SPECIFIED STANDARD	**AS PER EN10029 CLASS D**		**AS PER EN10029 CLASS C**		**AS PER EN10029 CLASS B AS PER ASTM A6/A20**	
	FOR SYMMETRIC TOLERANCE		**FOR NO NEGATIVE TOLERANCE**		**FOR NEGATIVE TOLERANCE BY -0.3 MM**	
Thickness Range	Lower	Upper	Lower	Upper	Lower	Upper
> 6 < 8	-0.40	0.40	0	0.80	-0.30	0.50
> 8 < 15	-0.40	0.40	0	0.80	-0.30	0.50
> 15 < 25	-0.50	0.50	0	1.00	-0.30	0.70
> 25 < 40	-0.60	0.60	0	1.20	-0.30	0.90
> 40 < 60	-0.80	0.80	0	1.60	-0.30	1.30
> 60 < 80	-1.00	1.00	0	2.00	-0.30	1.70
> 80 < 100	-1.20	1.20	0	2.40	-0.30	2.10
> 100 < 125	-1.80	1.80	0	3.60	-0.30	3.30
> 125 ≤ 150	-2.00	2.00	0	4.00	-0.30	3.70

Tighter dimensional tolerances compared to available standards
Flatness as per EN10029 Class N/ Class S – Type L & Type H

PACKAGING AND LABELLING



AM/NS India Plate Mill – Plate Marking System

Paint marking

Low Stress Stamping

PACKAGING OF PLATES

NORMAL STRAPPING. (DOMESTIC GENERAL) – 3 Lateral straps
STRAPPING WITH WOODEN LOGS. (EXPORT GENERAL)

TESTING FACILITIES

AM/NS India Plate Mill
Testing Facilities

- Optical emission spectrometer
- Universal testing machine with elevated temperature testing with a capacity of 1,200 KN
- Universal testing machine with a capacity of 2,000 KN
- Cold bend tester with a capacity of 1,000 KN
- Drop weight tear tester with a capacity of 1,00,000 J
- Impact tester with a capacity of 450 J
- Vicker hardness tester
- Rockwell cum Brinell hardness tester
- Metallurgical microscope with 1000 X Magnification
- NACE testing facilities
- Boggie hearth furnace–4 no
- Through thickness (z–test) Facility
- Weldbead bend test
- NABL approved lab as per ISO/IEC 17025:2017

ACCREDITATIONS AND CERTIFICATIONS

DNV

MANAGEMENT SYSTEM CERTIFICATE

Certificate no.:
188243-2015-AE-IND-RvA

Initial certification date:
23 November 2015

Valid:
24 November 2021 – 23 November 2024

This is to certify that the management system of

ArcelorMittal Nippon Steel India Limited
27th km, Surat-Hazira Road, Hazira, Surat - 394 270, Gujarat, India

has been found to conform to the Energy Management System standard:
ISO 50001:2018

This certificate is valid for the following scope:
Manufacture of hot briquette iron / hot DRI, slabs, hot rolled coils /sheets / plates, hot rolled pickled / oiled coils, sheets and cut blanks, cold rolled coils / sheets and cut blanks, hot rolled and cold rolled galvanized or GPSP coils / sheets, cold rolled annealed skin passed coils, sheets and corrugated sheets, sinter, hot rolled plates, heat treated plates & shot blasted and painted plates, welded beams, plate profiles, submerged Arc welded pipes with or without anti corrosive coating

Place and date:
Barendrecht, 07 November 2021

For the issuing office:
DNV - Business Assurance
Zwolseweg 1, 2994 LB Barendrecht, Netherlands

Erie Kook
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DNV Business Assurance B.V., Zwolseweg 1, 2994 LB, Barendrecht, Netherlands - TEL: +31(0)102922689. www.dnv.com/assurance

DNV

MANAGEMENT SYSTEM CERTIFICATE

Certificate no.:
10000336363-MSC-RvA-IND

Initial certification date:
13 March 2020

Valid:
13 March 2020 – 12 March 2023

This is to certify that the management system of

ArcelorMittal Nippon Steel India Limited
27th km, Surat-Hazira Road, Hazira, Surat - 394 270, Gujarat, India

has been found to conform to the Occupational Health and Safety Management System standard:
ISO 45001:2018

This certificate is valid for the following scope:
Manufacture of hot rolled, pickled, cold rolled, galvanized, annealed, coated and non-coated submerged arc welded carbon steel pipe, heat treated and shot blasted carbon steel plate through integrated iron making routes of smelting reduction of iron ore, sinter, direct reduction of iron ore and pellets and integrated steel melting routes of electric arc process and combination of converter and electric arc process

Project activity for manufacturing facilities / capacity expansion of integrated steel plant.

Place and date:
Barendrecht, 05 May 2022

For the issuing office:
DNV - Business Assurance
Zwolseweg 1, 2994 LB Barendrecht, Netherlands

Erie Kook
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DNV Business Assurance B.V., Zwolseweg 1, 2994 LB, Barendrecht, Netherlands - TEL: +31(0)102922689. www.dnv.com/assurance

DNV

MANAGEMENT SYSTEM CERTIFICATE

Certificate no.:
147519-2013-AE-IND-RvA

Initial certification date:
30 May 1999

Valid:
12 March 2020 – 15 December 2022

This is to certify that the management system of

ArcelorMittal Nippon Steel India Limited
27th km, Surat-Hazira Road, Hazira, Surat - 394 270, Gujarat, India

has been found to conform to the Environmental Management System standard:
ISO 14001:2015

This certificate is valid for the following scope:
Manufacture of hot rolled, pickled, cold rolled, galvanized, annealed, coated and non-coated submerged arc welded carbon steel pipe, heat treated and shot blasted carbon steel plate through integrated iron making routes of smelting reduction of iron ore, sinter, direct reduction of iron ore and pellets and integrated steel melting routes of electric arc process and combination of converter and electric arc process

Project activity for manufacturing facilities / capacity expansion of integrated steel plant.

Place and date:
Chennai, 05 May 2022

For the issuing office:
DNV - Business Assurance
ROMA, No. 10, GST Road, Alandur,Chennai - 600 016, India

Sivadasan Madiyath
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DNV Business Assurance B.V., Zwolseweg 1, 2994 LB, Barendrecht, Netherlands - TEL: +31(0)102922689. www.dnv.com/assurance

DNV·GL

MANAGEMENT SYSTEM CERTIFICATE

Certificate No.: 12239-2007-AQ-HOU-IATF Rev 1

Valid until:
03 December, 2020 - 26 June, 2023

IATF Certificate No.: 0376784

This is to certify that the management system of

ArcelorMittal Nippon Steel India Limited

27th Km, Surat - Hazira Road, Surat, Gujarat – 394270, India
and, if applicable, the remote support locations as mentioned in the Appendix accompanying this Certificate

has been found to conform to quality management system standard:
IATF 16949:2016

This certificate is valid for the following Scope:
MANUFACTURE OF HOT BRIQUETTE IRON/HOT DRI, HOT ROLLED COILS AND SHEETS/PLATES, HOT ROLLED PICKLED AND OILED COILS, SHEETS AND CUT BLANKS, COLD ROLLED COILS/SHEETS AND CUT BLANKS, HOT ROLLED AND COLD ROLLED GALVANIZED OR GPSP COILS/SHEETS, COLD ROLLED ANNEALED SKIN PASSED COILS, SHEETS AND CORRUGATED SHEETS.

EXCLUSION: 8.3 PRODUCT DESIGN

Place and date:
Katy, TX. 22 December 2020

For the issuing office:
DNV GL - Business Assurance
Delhi, India

Sherif Mekkawy
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DNV GL - Business Assurance, 1400 Ravello Drive, Katy, TX 77449. Tel.: 281-396-1000. www.dnvglcert.com

Page 1 of 1

ACCREDITATIONS AND APPROVALS

APPROVALS

ISO

मानक: पथप्रदर्शक:

IBR
Well Known

API

CE

PED
CERTIFIED

UK CA

RDSO
Research Design & Standards Organisation

THIRD PARTY AGENCIES

Lloyd's Register Marine

BUREAU VERITAS

TÜV SÜD

TÜVRheinland

TÜV NORD

ABS

SGS

DNV·GL

RINA

IRCLASS
Indian Register of Shipping

NIPPON KAIJI KYOKAI
ClassNK

AMNS INDIA PLATES:
CREATING PATHWAYS TO BRIGHTER FUTURES.

WORLD'S HIGHEST ROAD TUNNEL

Rohtang Tunnel
All weather roadway, reducing journey time between Jammu & Srinagar by 2 hours

WORLD'S LONGEST BRIDGE

Dhola-Sadyia Bridge
9.15 Km long, Built over the mighty Brahmaputra river, Brings Arunachal Pradesh closer by several hours

WORLD'S HIGHEST RAIL BRIDGE

Chenab Bridge
Railway steel and concrete arch bridge over the Chenab river in J&K at a height of 359 m (1,178 feet)

INDIA'S LONGEST RAIL CUM ROAD BRIDGE

Bogibeel Bridge
Rail-cum-Road bridge over mighty Brahmaputra river in Assam (4.94 km)

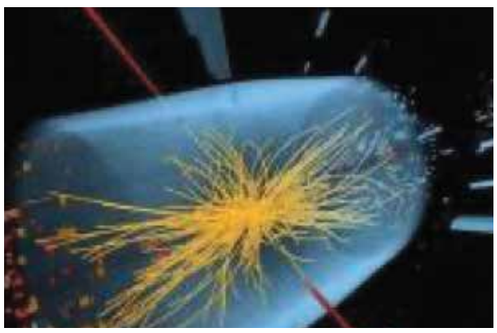
INDIA'S FIRST CABLE STAYED RAILWAY BRIDGE

ANJIKHAD Bridge
Supplied high strength plates with height of 331 metres above the riverbed, and will connect Katra and Resai in J&K.

Ganga Setu Bridge
AMNS supplied plates to AFCON for Gandhi Setu or Ganga Setu, is a bridge over the river Gangas in Bihar,India, connecting Patna in the south to Hajipur in the north

INFRASTRUCTURE PROJECTS

NEUTRINO PROJECT – BARC



AMNS developed first time in India, Ultra Low Carbon Steel Plates for Neutrino Observatory being built by BARC. This observatory will house the world's largest magnet to be used for study of properties of neutrinos.

GREENKO INTEGRATED RENEWABLE ENERGY PROJECT

Supplied Steel plates in grades of A 537 CL 2 & A 517 Gr F for penstock application of pumped storage hydro project (7 penstock lines) having power generation capacity of 1680MW.

HYDEL POWER PROJECT

Penstock Plates developed first time in India by AMNS INDIA & supplied for various Hydro Electric power projects in critical application.

INDIAN OIL REFINERIES

AMNS supplied plates for HPCL–HRRL oil refinery project. Project involves setting up of a Greenfield 9 MMTPA refinery cum petro chemical complex at Pachpadra in Barmer district of Rajasthan.

NUCLEAR POWER PLANT

EN10028-2-16Mo3 + N grade plates indigenously developed and are being supplied by AMNS for NPCIL Project – Gorakhpur Haryana Anu Vidyut Pariyojana – 1&2 (GHAVP – 1&2)

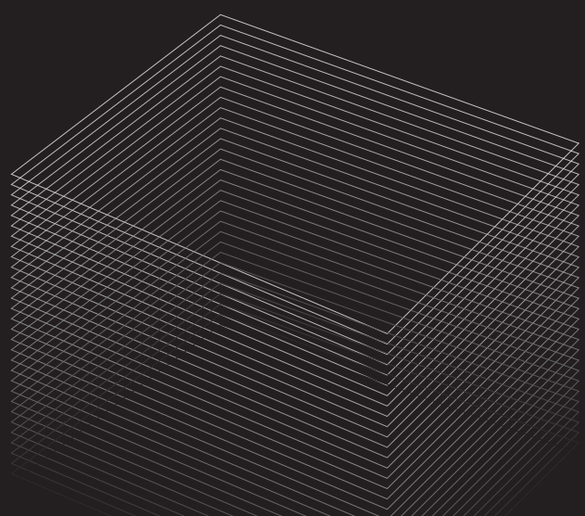
AM/NS has supplied 9,000 tonnes of high Strength Plates to Dry Docks World Dubai for one of the largest Sub-Sea Oil storage tank installed 130 M deep in North Sea with life expectancy over 25 years.

AM/NS Plate Mill is the only Supplier in India & among very few in the World for Offshore Plates with API Monogram. Major supplies include ONGC India, L&T India, NPCC Middle East.

Supplied plates for construction of Istanbul Airport (World's largest airport)

High Strength Steel Plates supplied for various Metro & transport manufacturers like Texmaco, Siemens, BEML, Alstom for Chennai Metro, Cochin Metro, Lucknow Metro.

INFRASTRUCTURE PROJECTS



DEFENCE GRADE STEEL

Hazira Steel mill is an approved source of special steel for Indian Defence

FUTURISTIC STEEL FOR
MAIN BATTLE TANKS

ARMORED VEHICLE
– ARMAPRO 500

STEEL FOR ATAGS

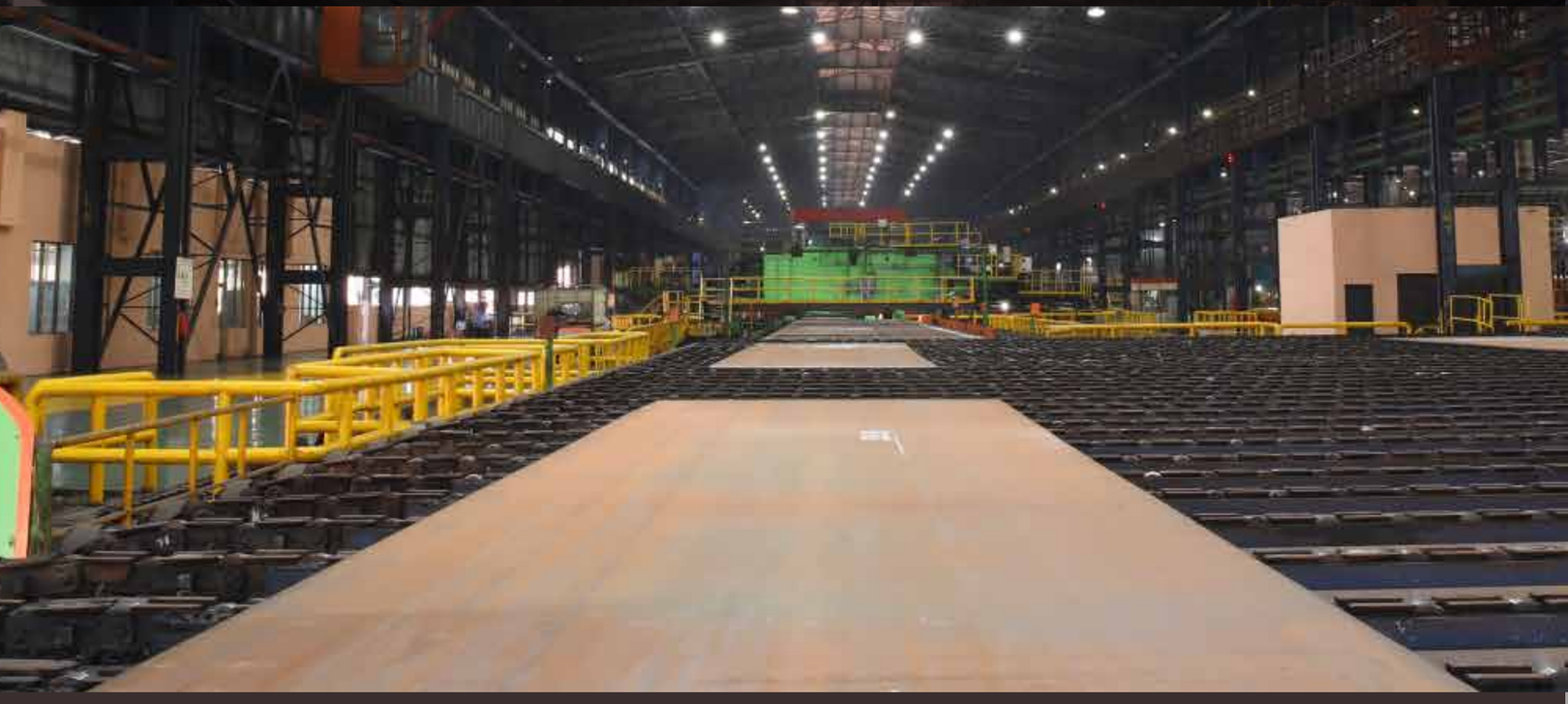
STEEL PLATES FOR
MAIN BATTLE TANKS

STEEL FOR NAVAL VESSELS

STEEL FOR WARSHIPS

BRANDED PLATES MAXIMUS

AM/NS Maximus
Heavy Plates



MAXIMUS is a range of heavy plates produced by AM/NS India. With thickness up to 150 mm and width up to 4900 mm, these plates are available in customized lengths with IS 2062 GRADE E250 & equivalent specifications.

Brand benefits

Uniform strength and flatness

Good weldability and workability

Widest plates with stringent quality control

GRADE	EQUIVALENT SPECIFICATION			
	*IS 2062	JISG3101	ASTM A36	EN10025
Structural Steel	E250 A ,B0,BR,C	SS400	A36	S235/S275 JR/J0/J2

*For Retail Segment AMNS shall guarantee as per IS 2062 :2011

SUPPLY CONDITION

As Rolled, Normalizing Rolling

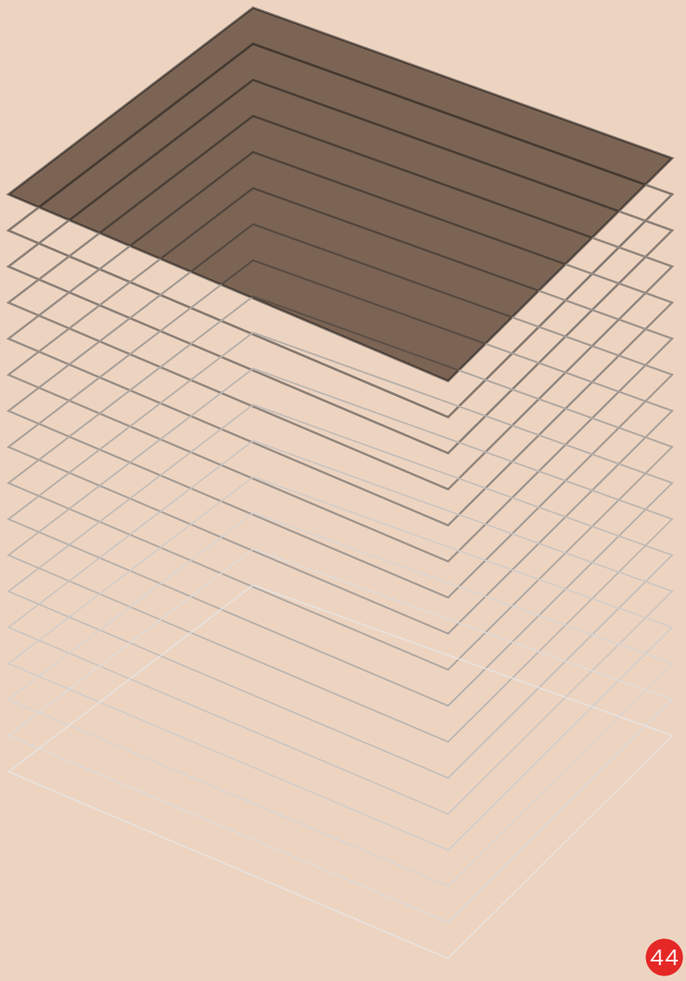
THICKNESS TOLERANCES

Tolerances on nominal thickness (mm) As per EN 10029/ ASTM A20/ IS 1852

NOMINAL THICKNESS(MM)	NEGATIVE(MM)	POSITIVE(MM)
> 6 < 8	-0.30	0.30
> 8 < 15	-0.40	0.40
> 15 < 25	-0.50	0.50
> 25 < 40	-0.60	0.60
> 40 < 60	-0.80	0.80
> 60 < 80	-1.00	1.00
> 80 < 100	-1.20	1.20
> 100 < 150	-1.60	1.60

WIDTH TOLERANCE

DESCRIPTION	NOMINAL TOLERANCE, MM
Mill Edge	-0, 100mm
Trimmed Edge	-0, 20mm



MECHANICAL PROPERTIES

PROPERTIES	AM/NS
Yield Strength, MPa	250 Min
Tensile Strength, MPa	410 Min
Elongation, GL = 5.65 √S0, GL= 50mm	23% Min

AMNS shall provide Impact test value as per IS 2062 :2011 & end user requirements

BRANDED PLATES
ROCKSTAR

AM/NS Rockstar

Heavy Duty Abrasion Resistant Steel

About the Product

Rockstar is the range of high hardness, low alloyed martensitic steels. This abrasion resistant steel obtains hardness through intense water quenching and tempering process. Rockstar plates are available in three nominal hardness levels: 400, 450 and 500 BHN. Rockstar plates are optimised to provide high hardness, toughness, good formability and weldability for easy and quick fabrication.

Product Application

Rockstar is used for fabrication of crushers, liners for truck beds, buckets, hoppers, chutes, excavators and conveyor troughs, concrete mixer drums, trash truck bottoms, bucket lips, street sweepers, dump trailers and many more

Grade designation

Rockstar steel grades are designated according to their hardness level.
Below table mentions about the grade name with applicable hardness levels:

GRADE NAME	Rockstar 400	Rockstar 450	Rockstar 500
HARDNESS LEVEL	360-430 BHN	425-475 BHN	450-540 BHN

Capability & Dimensions

GRADE NAME	Rockstar 400	Rockstar 450	Rockstar 500
THICKNESS	6 – 80 mm	6 – 50 mm	6 – 50 mm

Up to 3500mm, higher width can be provided on a case-to-case basis, depending on thickness.

Delivery Condition

Quenched /Quenched and tempered:

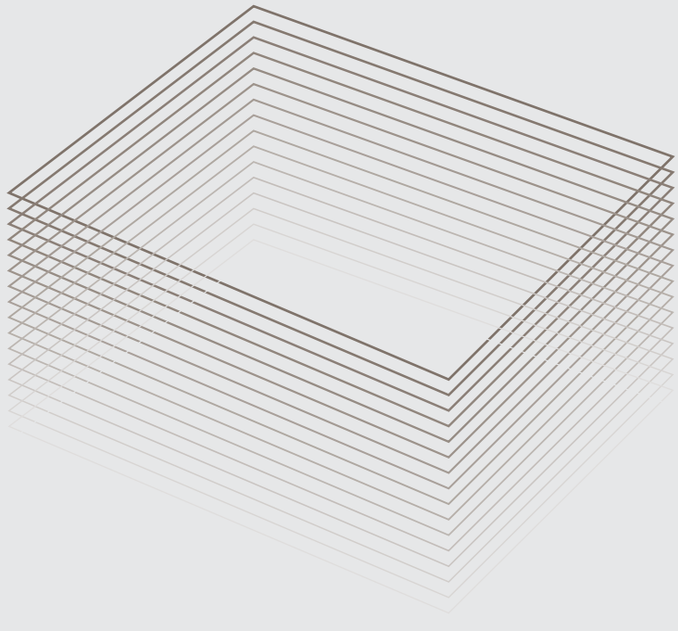
- The plates are delivered with sheared or thermally cut edges.
- Untrimmed edges can also be delivered with prior agreement.
- Plates can be delivered in shot blasted and primer coated surface condition.

Tensile Properties

Tensile properties given in below table are typical values normally observed in 20mm thick plate for reference purpose only.

GRADE & THICKNESS	YIELD STRENGTH (MIN-MPa)	TENSILE STRENGTH (MIN-MPa)	% ELONGATION (GL = 50 MM)	CHARPY V-NOTCH IMPACT TOUGHNESS (MIN)
Rockstar 400	1000	1250	12	27 Joules min @ -40°C
Rockstar 450	1100	1350	10	27 Joules min @ -20°C
Rockstar 500	1200	1450	8	27 Joules @ 0°C

*Tensile properties shall be provided on case-to-case properties.



BRANDED PLATES
PENSTAR

AM/NS Penstar

Strong and Tough Steel for Penstock

About the Product

High strength and tough steel are being used for penstocks which plays the role of leading water stored in the dam to the generator in hydropower stations. With the increase in scale of dams, the conduit head for hydropower stations has increased, causing the internal pressure of penstocks to rise. Accordingly, the wall thickness and strength of penstocks required to be increased. PENSTAR steel is specifically designed to withstand high pressure under severe environmental conditions. This class of steel includes Thermomechanical controlled rolled (TMCP) and quenched and tempered steel plates normally characterized by high strength and toughness with good weldability.

Product Application

Steel can be used in storage tanks and penstocks.

Grade designation

PENSTAR steel plates are manufactured in TMCP rolled condition and quenched and tempered condition. They are designated according to their process of manufacturing followed with the grade number.

Delivery Condition

Thermo-Mechanical/ Control Process (TMCP)/ Quenching & Tempering (Q&T)

The plates are delivered with sheared or thermally cut edges.
Plates can be delivered in shot blasted and primer coated surface condition.

BRANDED PLATES ARMAPRO

AM/NS Armapro 500

Super Tough Armour Steel Plate

About the Product

ARMAPRO 500 is an armour plate with high hardness (500 HBN) and excellent ballistic resistance properties, strength, and workability. It is available in a wide range of dimensions from 6 mm to 25 mm thickness, 1,500 mm to 3,000 mm width, and length between 3 metres and 12 metres, and given that it works across a wide range of applications, it is guaranteed to keep you safe and secure.

Product Benefits

- Superior fabrication properties
- Ballistic protection
- Sturdy steel made to last
- Lightweight design that offers flexibility without compromising on protection

Dimensions

THICKNESS (MM)	**6.0 – 25.0 mm**
WIDTH (MM)	**1500 – 3000 mm**

Supply Condition

Quenched & Tempered,
Shot Blasted and Primed

Tolerances

- Tolerance as per EN 10029:2010
- Width as per EN 10029:2010
- Flatness as per EN 10029 Class N:2010
- Surface quality as per EN 10163-2 Class B, Sub Class 3.
- Ultrasonic testing according to EN 10160 class S1E1 on each plate.

BRANDED PLATES
THERMOSTAR

AM/NS Thermostar

High Pressure Resistant Steel

Product Application

Steel for pressure vessels is mainly used to manufacture boilers, drums, pressure vessels and piping, heat exchangers, storage tanks, etc. This steel is suitable for mechanical hot/cold forming and welding.

About the Product

Boiler and Pressure vessel quality steel is special quality steel with an ability to withstand pressure at different temperatures whether ambient, low or high. These steels are plain carbon-manganese or low alloy steel manufactured with highest quality standard in order to make them comply with special characteristics like high strength, toughness at sub-zero temperatures and good weldability. These steel plates are normally used in as rolled, normalized or normalized and tempered or in quenched and tempered condition as per the standards. The product characteristics are developed with proper control of steel chemistry, rolling and heat treatment process. The steel is able to withstand the varied combination of post weld simulation heat treatment meeting the strength and toughness.

Supply Condition

As per Specification

Normalised Rolled / Furnace Normalized / Normalized & Tempered / Q&T (NACT)

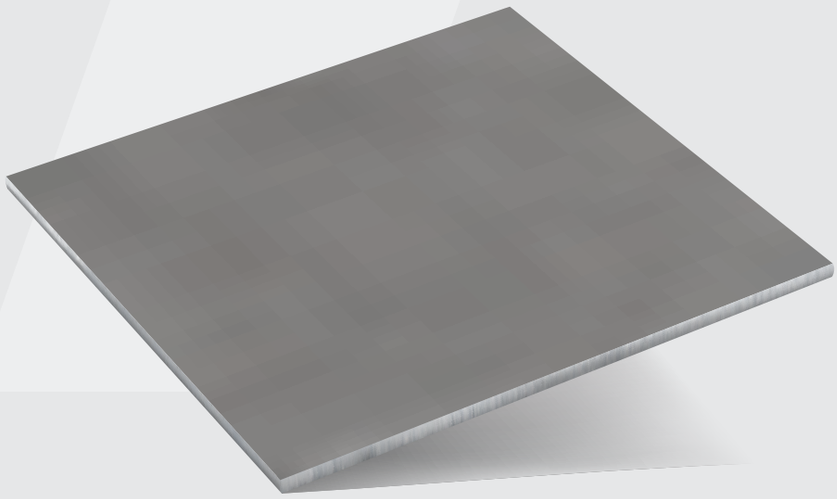
Tolerances

THICKNESS	THICKNESS TOLERANCE AS PER ASTM A20 / EN 10029
Length and Width	Tolerance as per the requirements of ASTM A20 / EN 10029/ASTM A6/IS 1852
Flatness	Tolerance as per the ASTM A20 / EN 10029
Surface Quality	As per ASTM A20 / EN 10163/ IS 1852
Ultrasonic test (For plates)	As per ASTM 578 / EN 10160 A435/ A578/ EN10160 *covering all levels & classes

Note: Tighter tolerances on dimensions and flatness can be supplied on case-to-case basis.
Can cater special requirement: NACE, AP1934, SP0472, EIL specifications
ASME Sec II, ASME Sec IIV Div.2

Delivery Condition

Thermo-Mechanical/ Control Process (TMCP)/ Quenching & Tempering (Q&T)
The plates are delivered with sheared or thermally cut edges.
Plates can be delivered in shot blasted and primer coated surface condition.



CORPORATE HEAD OFFICE

Mumbai, Maharashtra

ArcelorMittal Nippon Steel India Limited, 7th Floor, Raheja Tower, Plot C-30, Block G, Opposite SIDBI, Bandra-Kurla Complex, Bandra East, Mumbai – 400051, Maharashtra, India

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SALES OFFICES

Pune Office:

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ArcelorMittal Nippon Steel India Limited, 5th Floor, Chennai House, No. 7 Esplanade, Chennai 600108

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ArcelorMittal Nippon Steel India Limited, Precoated Facility, Gate No.740, Sanaswadi, Pune - Nagar Road, Tal - Shirur, Pune - 412208 Mahrashtra, India

Hazira Facility:

ArcelorMittal Nippon Steel India Limited, AMNS HOUSE, AMNS Township, 27 KM Surat Hazira Road, Hazira, Surat, Gujarat-394270, India

SERVICE CENTERS

Hazira (Gujarat):

ArcelorMittal Nippon Steel India (AM/NS India), Hypermart - Hazira, 27 km, Surat - Hazira Road, Hazira - 394270

Bahadurgarh (Haryana):

ArcelorMittal Nippon Steel India Limited, 43 K.M. Stone, Delhi-Rohtak Road, V.P.O. Rohad, Bahadurgarh-124501, Haryana, India

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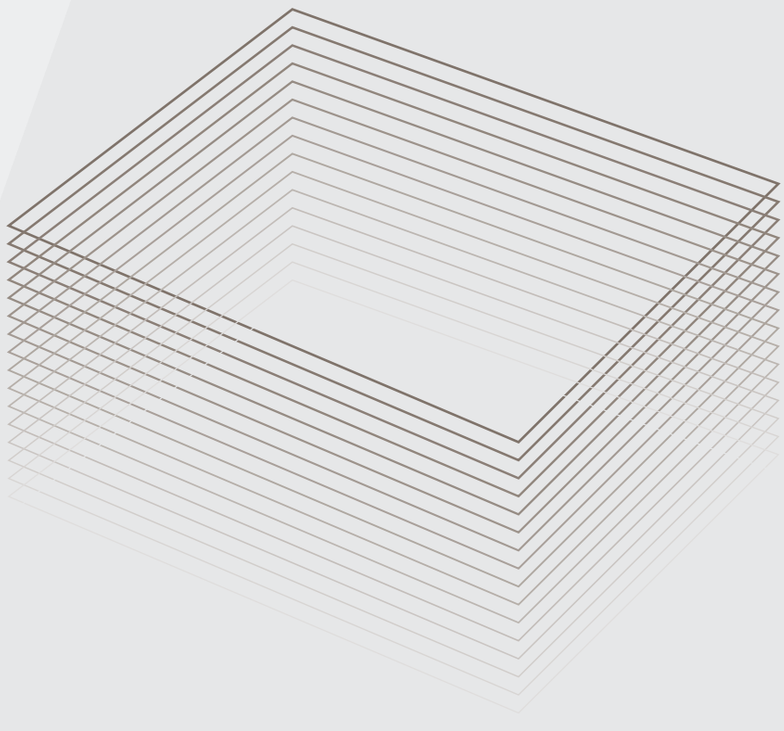
Chennai (Tamil Nadu):

ArcelorMittal Nippon Steel India Limited, Plot A - 6, SIPCOT, Oragadam, Sriperumbudur(tk), Kanchipuram (Dist), Chennai-602 112, Tamil Nadu, India

Indore (Madhya Pradesh):

ArcelorMittal Nippon Steel India Limited, Plot No. 473 A, Sector 3, Industrial Area, Pithampur, Dist.-Dhar, Madhya Pradesh - 454774, India



AM/NS HYPERMART

Ghaziabad (Uttar Pradesh):

ArcelorMittal Nippon Steel India, (AM/NS India), Hypermart – Ghaziabad, Plot No. C – 92, B.S. Road, Near Loha Mandi, Ghaziabad, Uttar Pradesh – 201 009

Faridabad (Haryana):

ArcelorMittal Nippon Steel India (AM/NS India), Hypermart – Faridabad, Plot No. 54, Industrial Area, N.I.T. Faridabad, Haryana – 121 001

Secundrabad (Telangana):

ArcelorMittal Nippon Steel India (AM/NS India), Hypermart – Secundrabad, S.Y. No. 173 and 175, Burttionguda, Machabollaram, Bollaram, Station Road, Kompally, Secundrabad – 500 010

Bengaluru (Karnataka):

ArcelorMittal Nippon Steel India (AM/NS India), Hypermart – Bengaluru, Shed No. 2, North Part (Bay), 13/A/P, S.Y. No. 123, Jigani Industrial Area, Anekal Bengaluru Rural, Karnataka – 560 105

Coimbatore (Tamil Nadu):

ArcelorMittal Nippon Steel India (AM/NS India), Hypermart – Coimbatore, S. F. No. 59/1D, Kondayampalayam Road, Keeranatham Village, Coimbatore – 641 110

Taloja (Maharashtra):

ArcelorMittal Nippon Steel India Limited, Plot No A-88, MIDC, TALOJA, INDUSTRIAL AREA, MIDC Taloja Road, Taloja MIDC, Navi Mumbai, Raigad – 410 208 Maharashtra

Jaipur (Rajasthan):

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Jammu (Jammu & Kashmir):

ArcelorMittal Nippon Steel India (AM/NS India), Hypermart – Jammu and Kashmir, 'Shed- 2 of Davinder Iron Steel Logistics Centre, Near Railway Bridge, Purmandal Morh, Jammu & Kashmir -181 133

Kolkata (West Bengal):

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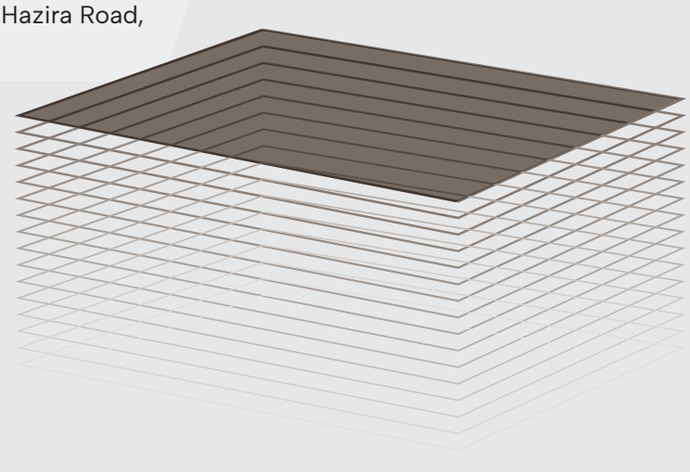

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