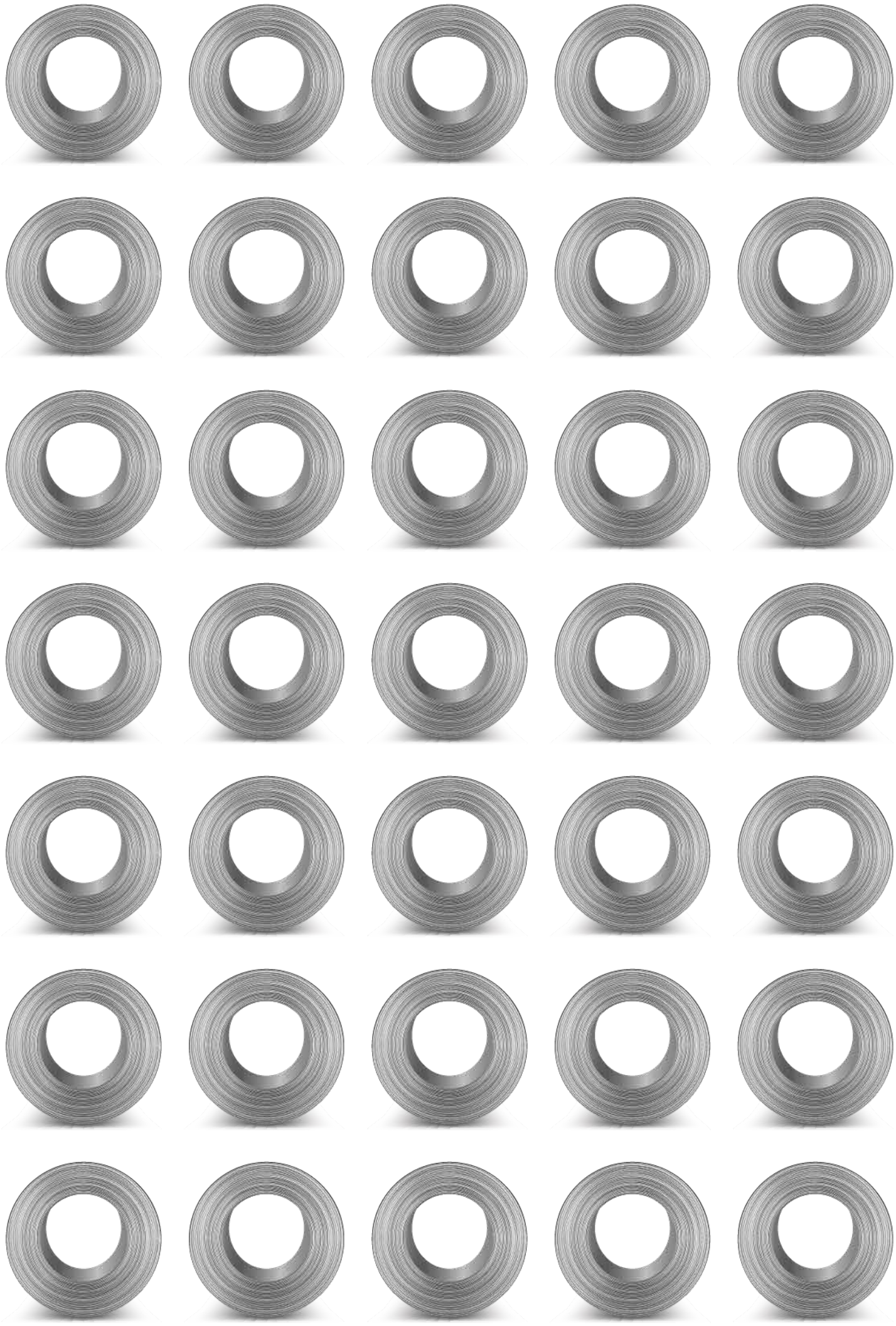
AM/NS INDIA

ArcelorMittal Nippon Steel India

FORGING A PASSION. **BUILDING THE NATION.**

HOT ROLLED STEEL



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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.

DRIVEN BY TECHNOLOGY. **DEFINED BY VALUES.**

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.

About Pune Facility

AM/NS India's downstream facility at Pune, Maharashtra, focuses on galvanised and colour-coated steel products. This facility has a galvanised steel capacity of 0.48 MTPA, whereas colour-coated steel is 0.32 MTPA.

The Pre-Painted Galvanised Iron (PPGI) from AM/NS India has become the most sought-after product in the category. With innovations and integration, the final products are durable, reliable and sustainable.

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.

300m

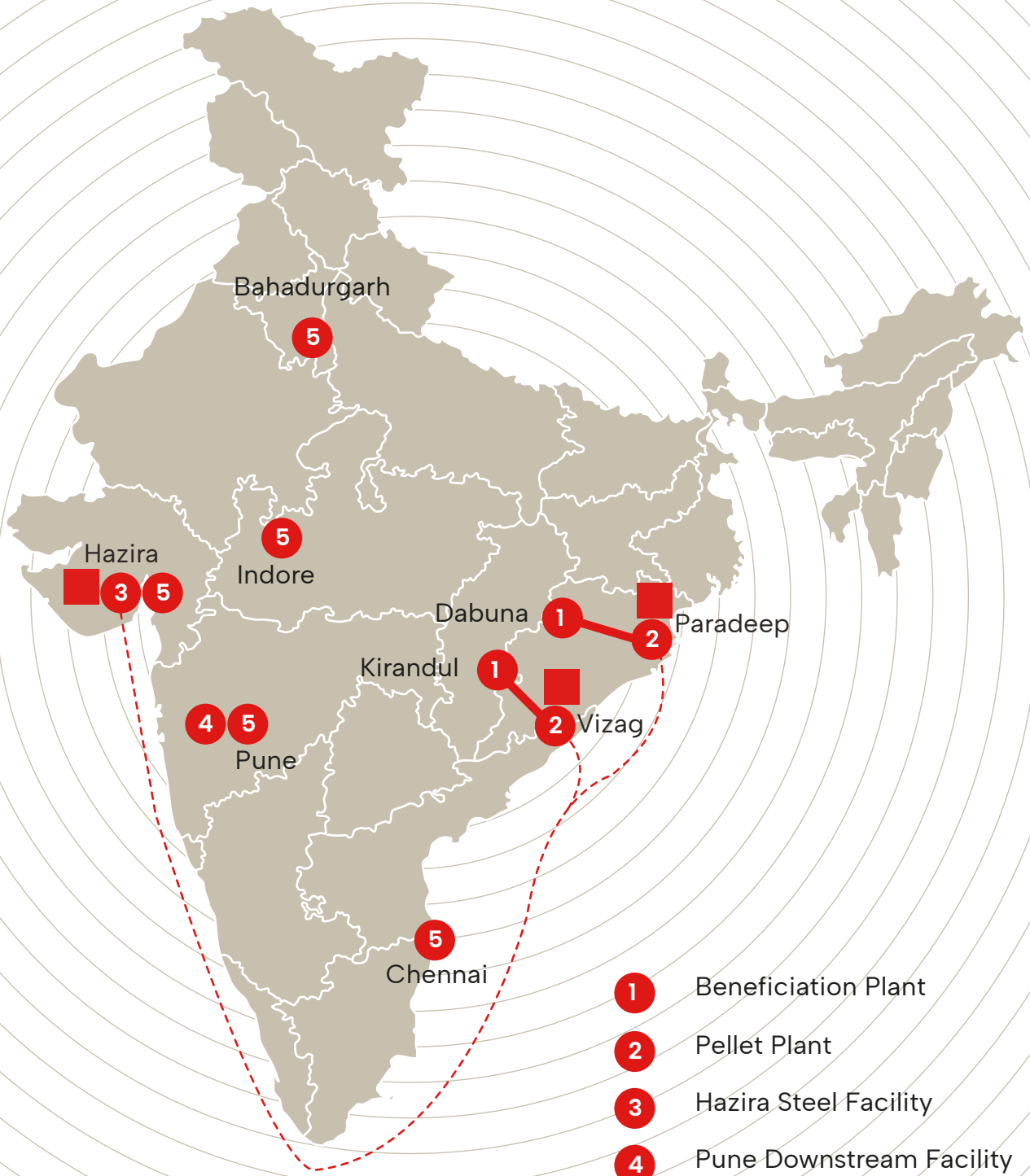
India's targeting three-fold increase in crude steel output to 300 million tonnes per annum by 2030.

AM/NS India

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

Complementary pelletisation capability in eastern India with direct access to rich iron ore reserves.

Strong domestic distribution network to key industrial clusters across India.



1 Beneficiation Plant

2 Pellet Plant

3 Hazira Steel Facility

4 Pune Downstream Facility

5 Service Centre

Slurry Pipeline

Access to deep draft port infrastructure enabling ease of movement of goods (Hazira | Vizag | Paradeep)

INTEGRATED **VALUE CHAIN**

Iron-Ore Mining and Beneficiation of Iron-ore

Pelletisation

Sea Route Transportation

Steel Mill Complex

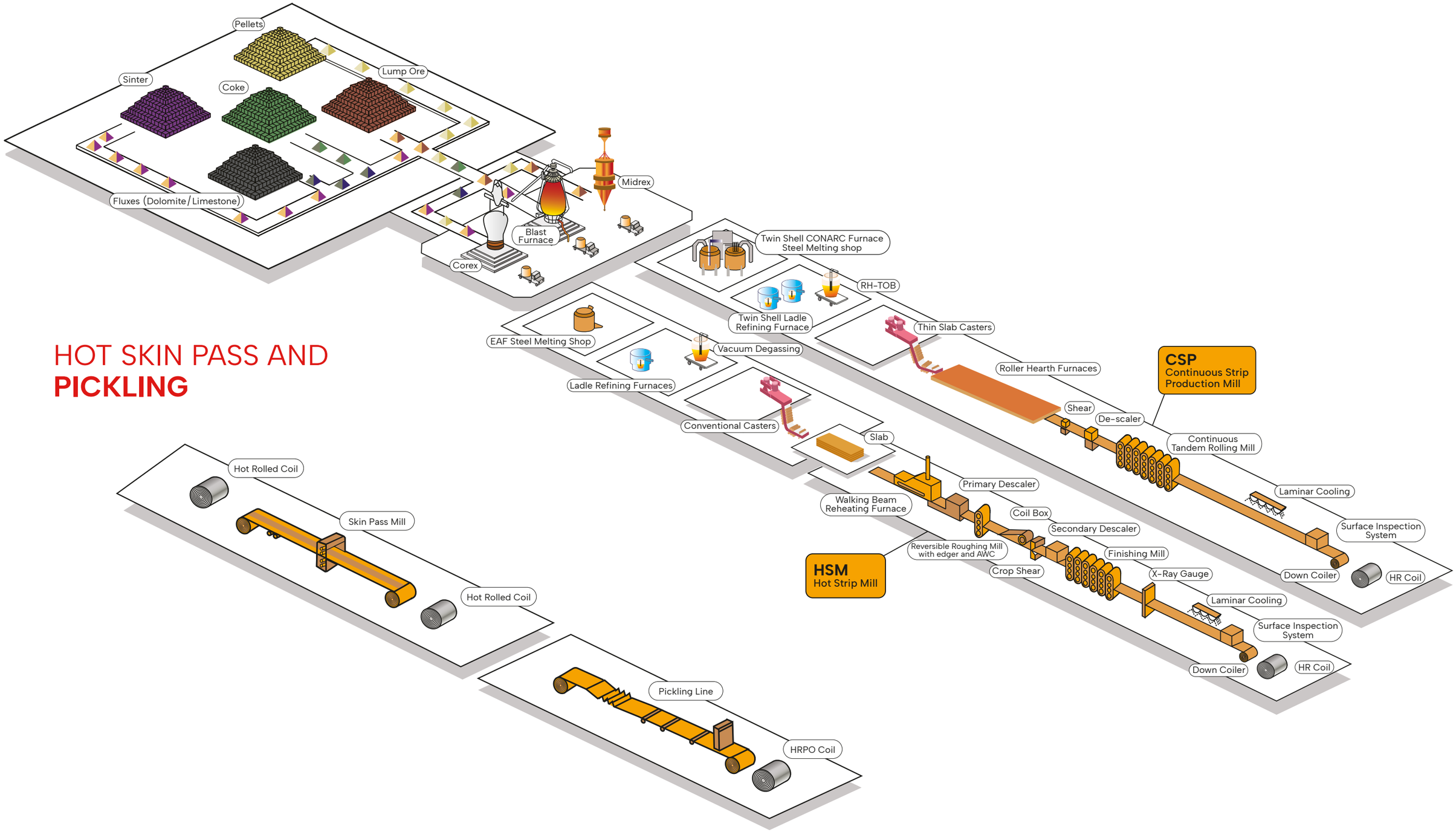
Multimodal Transport of Finished Goods

Steel Service Centres

JIT Delivery to Customers

End Customer

MANUFACTURING
PROCESS FLOW HAZIRA FOR HR



HOT SKIN PASS AND
PICKLING

RESOURCEFUL SUPPLIERS. **REWARDING OUTCOMES.**

Technology Providers

AM/NS BF Facility

Capacity = 1.75 MTPA

Technology Provider = MCC Beris

AM/NS MIDREX Facility

Total Modules = 6

Total Capacity = 6.7 MTPA

Technology Provider = MIDREX

AM/NS COREX Facility

Total Modules = 2

Total Capacity = 1.74 MTPA

Technlogy Provider = SVAI (Primetals Technologies)

CSP

Capacity	Product Thickness	Product Width	Input Slab Thick
3.5 MTPA	1.0 mm – 25 mm	930 mm – 1680 mm	55 mm – 70 mm

Above is mill technical feasibility

CSP Features

- Higher casting speeds
- Online width and thickness change
- Less number of segments to maintain
- Lesser time from liquid steel to finished product
- Lesser power consumption
- No reheating losses
- Lesser heat input and hot slab is charged into the tunnel furnace Lesser equipment (No roughing mill)

CSP Technology Providers

- Roller Hearth Furnace = Italimpianti
- Rolling Mill = SMS DEMAG
- Gauge Measurement = SMS DEMAG
- Profile gauge = IMS
- Down Coiler = SMS

HSM

Capacity	Product Thickness	Product Width	Input Slab Thick
3.6 MTPA	1.6 mm – 20 mm	760 mm – 2000 mm	210 mm & 220 mm

Above is mill technical feasibility

HSM Technology Providers

- Reheating Furnace = Stein Heurtey
- Reversable Roughing Mill = SMS SIEMAG
- Gauge Measurement = IMS Systems Inc.
- Surface Inspection = PARSYTEC

HSM Features

- Effective descaling system
- Vertical edger provides flexibility of adjusting the slab width during roughing rolling
- Homogenisation of temperature from head-end to tail-end of the transfer bar in the coil box – helps in reducing the variation in properties at head-end to tail-end of HR coils
- Level II automated cooling of strip at run out table
- Online monitoring of surface defects with PARSYTEC system

HOT SKIN PASS

- Helps in attaining perfect strip flatness
- Downstream pickling process becomes easier because skin-passing breaks up the scale layer
- Recoiling provides better coil shape

Capacity	1.2 MTPA
Product Thickness	1.2 mm – 6 mm
Product Width	750 mm – 2000 mm
Yield Strength	Max 650 MPa

PICKLING

PICKLING LINE				
	TYPE	CAPACITY	THICKNESS	WIDTH
Pickling Line 1	Push Pull – Semi Continuous	0.6 MTPA	1.6 mm – 6 mm	750 – 1625 mm
Pickling Line 3	Push Pull	0.5 MTPA	2.5 mm – 12 mm	850 – 1850 mm

A SYMBOL OF RELIABILITY. **A SIGN OF STRENGTH.**

EXTRA-ORDINARY FEATURES. **OVERWHELMING BENEFITS.**

AMNS India – Hot Rolled Coils Capability

AM/NS India Steel has state-of-the-art hot rolling mills with a rated capacity of 7.1 MTPA. The facilities include a conventional hot rolling mill and a modern compact strip mill. The mills are capable of producing a wide range of hot rolled products in sizes ranging from 1 mm to 25 mm for various applications. The mills are equipped with an advanced automation system for producing products as per the required dimensions and sizes.

Features

- One of the widest hot strip mills in India, having a width up to 2,000 mm
- Product conforming to national and international standards
- Dimensional tolerances customised to specific requirements
- Available in coil / slit / sheet form
- Only integrated mill having pickling facility up to 12 mm thickness

Benefits

- Low tramp element content
- Excellent surface finish
- Can produce high quality value added steel to substitute imports
- Consistent quality
- Strategically located plant to ensure timely delivery
- Close dimensional tolerances

TYPES OF PRODUCTS & APPLICATION

Segment	Grades	General Applications
Cold Forming and Deep Drawing	EN 10111 DD11 to DD14 IS 1079 HR0 to HR4, ISH270C to ISH270E JIS G 3131 SPHC/SPHD/SPHE ASTM A 1011 CS Type B	Automotive Brackets, Compressor Shells, Tillers
Re-rolling Steel	IS 11513 CRO - CR8 SAE1005 to SAE1010	Re-rolling
MC / HC Steel	SAE J403 - SAE_1012 to 1080	Precision Tubes for Automotive, Chains, Sprockets etc.
HSLA Steel	JIS G 3113 SAPH310/370/400/440, JIS G 3134 SPFH-490/540/590, EN 10149-2 S315MC to S700MC IS 5986 ISH320LA – ISH750LA	Steel Wheel Discs/Rims, Chassis – Long Members, Cross Members, Automotive Components
Stretch Flangeable Steel	EN 10338_FB450 to FB590 / FB590 HHE IS 5986 ISH590F	Control Arm, Rear Twist Beams, Trailing Arms
Dual Phase Steel	EN 10338_ DP600 IS 5986 ISH590Y	Steel Wheels Disc
Boron Steel	EN 10083_28MnB5, 34MnB5, 20MnB5, 22MNB5, 26MnB5	Plough Disc, Stabiliser Bar, Door Impact Beams
Line Pipe	API 5L GR B to X-80 (Non Sour Applications) API 5L GR BMS to X-65MS (Sour Applications)	Line Pipes for Oil & Gas Industry
Structural Steel	EN 10025 S235/S275/S355 _ J2/JO/JR; IS 2062 E 250 to 350 A/BO/BR/C, E 450 A/BR ASTM A 1011 SS 33/ HSLA GR50 CL1 ASTM A 1018 HSLA GR60 CL1 / SS 33 ASTM A 283 GR C ASTM A 36 ASTM A 570 GR50 ASTM A 572 GR50 TYPE 1/ GR50 TYPE 2 DIN 17100 ST 37.2/44.3/52.3 JIS G 3101 SS400 JIS G 3106 SM 490 A	Bridges, Wind Towers, Fabrication, PEB
Ship Building Grades	ASTM A131 _ A, B, D, E, AH 32, AH 36, DH 32, DH 36 , ABS class, DNV-GL class, IRS class, LR class, NKK class, RINA class	Ship Fabrication
Corrosion Resistant Steel	IRSM 41 EN_10155_S355J2G1W / S355_JOWP ASTM A588 Grade A/Grade B/ Grade K BS 4360 WR 50A JIS G 3125 SPAH	Railway Coaches & Frames
Boilers and Pressure Vessels Grades	ASTM A516 Gr 55/60/70 ASTM A515 Gr 60/70 A285 Gr C ASTM A 285 Grade C ASTM A 573 Grade 70 IS 2041 R220/R260	Boilers & Pressure Vessels
LPV Grades	EN_10120_P245NB/P265NB IS 6240 JIS 3116 SG255/SG295	Gas Cylinders, Refrigerant Cylinders
Chequered Plates	IS 3502 ASTM_A_36 DIN_17100_ST 37.2 BS_EN_10025_S275_JR	Industrial Flooring Foot Over Bridges Heavy Equipment Machinery Platforms

COLD FORMING AND DEEP DRAWING

Segment	Grades	General Applications
Cold forming and deep drawing	EN 10111 DD11 to DD14 IS 1079 HR0 to HR4, ISH270C to ISH270E JIS G 3131 SPHC/SPHD/SPHE, ASTM A1011	Automotive Brackets, Compressor Shells, Tillers

International Specification	Type	Grade	C max.	Mn max.	P max.	S max.	YS (MPa)	UTS (MPa) max.	Min. %EL *
EN_10111	Continuously Hot Rolled Low Carbon Steel Sheet and Strip for Cold Forming	DD11	0.12	0.6	0.045	0.045	170 - 360	440	22 – 28
		DD12	0.1	0.45	0.035	0.035	170 – 340	420	24 – 30
		DD13	0.08	0.4	0.03	0.03	170 – 330	400	27 – 33
		DD14	0.08	0.35	0.025	0.025	170 - 310	380	30 – 36

International Specification	Type	Grade	C max.	Mn max.	P max.	S max.	YS (MPa) Min.	UTS (MPa) max.	Min. %EL *
IS_1079	Ordinary	HR0	0.25	2	0.08	0.05			
	Commercial	HR1	0.15	0.6	0.05	0.035		440	23 –29
	General Purpose	HR2	0.1	0.45	0.04	0.035		420	25 – 31
		HR3	0.08	0.4	0.035	0.03		400	28 – 34
		HR4	0.08	0.35	0.03	0.03		380	31 – 37
	Drawing Quality	ISH270C	0.08	0.45	0.035	0.035	170	270 – 420	26 – 30
		ISH270D	0.06	0.4	0.03	0.03	165 /170**	270 – 420	29 – 33
		ISH270E	0.06	0.35	0.025	0.025	145/155/165**	270 – 380	32 – 36

**Min yield strength guarantee changes wrt thickness
*Changes with direction of testing, gauge length & thickness
#Chemical composition is in %Weight [Ladle Analysis]

COLD FORMING AND DEEP DRAWING

International Specification	Type	Grade	C max.	Mn max.	P max.	S max.	YS (MPa)	UTS (MPa) min.	Min. %EL *
JIS_G_3131	Commercial Quality Hot Rolled Steel for Forming Purpose	SPHC	0.15	0.6	0.05	0.05	~	270	29 - 31
		SPHD	0.1	0.5	0.04	0.04	~	270	32 – 39
		SPHE	0.1	0.5	0.03	0.035	~	270	33 - 41

*changes with direction of testing, gauge length & thickness

International Specification	Type	Grade	C max.	Mn max.	P max.	S max.	Al min.	N max.	Cu max.	Ni max.	Cr max.	Ti max.	B max.	YS (MPa)	UTS (MPa) min.	min. %EL (@ GL = 50 mm)*
ASTM A 1011	Hot Rolled Steel with Improved Formability	CS Type B	0.02 - 0.15	0.60	0.03	0.03	0.02	0.01	0.20	0.20	0.15	0.025	A)	205 - 340	~	25

A) There is no specified limit, but the analysis shall be reported.
*Changes with direction of testing, gauge length & thickness
#Chemical composition is in %Weight [Ladle Analysis]

Cold Forming Applications

Compressor Shells

Automotive Brackets

RE-ROLLING STEEL

Segment	Grades	General Applications
Re-rolling Steel	IS 11513 CR0 - CR8 SAE1005 to SAE1010	Re-rolling

International Specification	Type	Grade	C max.	Mn max.	P max.	S max.	Micro-Alloying
IS_11513	Hot Rolled Carbon Steel Strip for Cold Rolling Purposes	CR0	0.35	4	0.050A	0.045	
		CR1	0.15	1	0.08	0.04	
		CR2	0.12	0.5	0.04	0.035	
		CR3	0.1	0.45	0.03	0.03	
		CR4	0.08	0.45	0.03	0.03	
		CR5	0.06	0.25	0.02	0.02	0.15
		CR6	0.18	3	0.07	0.025	0.2
		CR7	0.25	2.5	0.05	0.03	0.15
		CR8	0.01	1.6	0.12	0.025	

A) Phosphorus upto limit of 0.12 percent maximum can be added and in such cases, carbon content shall be limited to 0.15 percent maximum

International Specification	Type	Grade	C	Mn	Si Max	P max.	S max.	Al Min.	Al max.	N max.
SAE_J403	Re-rolling Purposes	SAE1005	max 0.06	max 0.35	—	0.03	0.035	0.02	—	—
		SAE1006	max 0.065	max 0.3	0.03	0.02	0.023	0.02	0.06	0.007
		SAE1008	max 0.1	max 0.5	0.1	0.03	0.035	0.02	—	—
		SAE1010	0.08-0.13	0.3 - 0.6	—	0.03	0.04	0.02	—	—

#Chemical composition is in %Weight [Ladle Analysis]

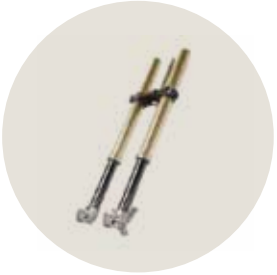
MEDIUM CARBON / HIGH CARBON STEELS

Segment	Grades	General Applications
MC / HC Steel	SAE _1012 to 1080, SAE _1536/1541	Precision Tubes for Automotive, Chains, Sprockets etc.

International Specification	Type	Grade	C	Mn	Si max.	P max.	S max.	Al min.
SAE _ J403	MC / HC Steel	SAE _1012	0.1 – 0.17	0.3 – 0.6	0.1	0.03	0.035	0.02
		SAE _1015	0.12-0.18	0.3-0.6	0.1	0.03	0.035	0.02
		SAE _1018	0.16-0.24	0.3-0.6	0.1	0.03	0.035	0.02
		SAE _1020	0.17-0.23	0.3-0.6	0.25	0.03	0.03	0.02
		SAE _1026	0.22-0.28	0.6-0.9	0.1-0.25	0.03	0.035	0.02
		SAE _1040	0.36-0.44	0.6-0.9	0.15-0.30	0.03	0.035	0.02
		SAE _1050	0.45-0.58	0.6-0.9	0.15-0.30	0.03	0.035	0.02
		SAE _1055	0.5-0.6	0.6-0.9	0.15-0.30	0.03	0.03	0.02
		SAE _1062	0.6-0.65	0.5-0.8	0.1-0.25	0.03	0.035	0.02
		SAE _1065	0.59-0.70	0.6-0.9	0.1-0.25	0.03	0.035	0.02
		SAE _1075	0.7-0.77	0.6-0.9	0.15-0.3	0.03	0.03	0.02
		SAE _1080	0.74-0.88	0.6-0.9	0.15-0.35	0.03	0.035	0.02
		SAE _1536	0.3-0.4	1.2-1.55	0.35	0.03	0.035	0.02
		SAE _1541	0.36-0.44	1.35-1.60	0.35	0.025	0.03	0.02

#Chemical composition is in %Weight [Ladle Analysis]

MC/HC Steels Applications



Two Wheeler Front Fork Suspension

Two Wheeler Sprocket

Clutch Diaphragm

HSLA STEEL

Segment	Grades	General Applications
HSLA Steel	JIS G 3113 SAPH310/370/400/440, JIS G 3134 SPFH-490/540/590, EN 10149-2 S315MC to S700MC	Steel Wheel Discs / Rims, Chassis – Long Members, Cross Members, Automotive Components

International Specification	Type	Grade	C max.	Si max.	Mn max.	P max.	S max.	Mo max.	V max.	Nb max.	Ti max.	B max.	Al min.	YS min. (MPa)	UTS (MPa)	%EL* min.
EN_10149_2_2013	Hot Rolled Flat Products Made of High Yield Strength Steels for Cold Forming	S315MC	0.12	0.5	1.3	0.025	0.020[B]		0.20[A]	0.09[A]	0.15[A]		0.015	315	390-510	20-24
		S355MC	0.12	0.5	1.5	0.025	0.020[B]		0.20[A]	0.09[A]	0.15[A]		0.015	355	430-550	19-23
		S420MC	0.12	0.5	1.6	0.025	0.015[B]		0.20[A]	0.09[A]	0.15[A]		0.015	420	480-620	16-19
		S460MC	0.12	0.5	1.6	0.025	0.015[B]		0.20[A]	0.09[A]	0.15[A]		0.015	460	520-670	14-17
		S500MC	0.12	0.5	1.7	0.025	0.015[B]		0.20[A]	0.09[A]	0.15[A]		0.015	500	550-700	12-14
		S550MC	0.12	0.5	1.8	0.025	0.015[B]		0.20[A]	0.09[A]	0.15[A]		0.015	550	600-760	12-14
		S600MC	0.12	0.5	1.9	0.025	0.015[B]	0.5	0.20[A]	0.09[A]	0.22[A]	0.005	0.015	600	650-820	11-13
		S650MC	0.12	0.6	2	0.025	0.015[B]	0.5	0.20[A]	0.09[A]	0.22[A]	0.005	0.015	650[C]	700-880	10-12
		S700MC	0.12	0.6	2.1	0.025	0.015[B]	0.5	0.20[A]	0.09[A]	0.22[A]	0.005	0.015	700[C]	750-950	10-12

A) The sum of Nb, V and Ti shall be max. 0.22 %.
B) If agreed at the time of the order the sulphur content shall be max. 0.010 % (Ladle Analysis).
C) For thickness greater than 8 mm the min YS can be 20MPa lower

#Chemical composition is in %Weight [Ladle Analysis]
*Changes with direction of testing, gauge length & thickness

International Specification	Type	Grade	C min.	P max.	S min.	S max.	YS (MPa) min.	UTS (MPa) min.	%EL* min.
JIS_G_3113	Hot Rolled Steel Sheets and Coils for Automobile Structural Uses	SAPH310		0.04		0.04	175 - 185	310	33 – 41
		SAPH370		0.04		0.04	215 – 225	370	32 – 38
		SAPH400		0.04		0.04	235 – 255	400	31 – 37
		SAPH440		0.04		0.04	275 - 305	440	29 - 36
JIS_G_3134	Hot Rolled High Strength Steel Plate, Sheet and Strip with Improved Formability for Automobile Structural Uses	SPFH540	Chemical Composition not specified. If necessary, decide between purchaser and the supplier.				355	540	21 – 24
		SPFH590					420	590	19 – 22
		SPFH590Y					325	590	22 - 24

*Changes with direction of testing, gauge length & thickness

#Chemical composition is in %Weight [Ladle Analysis]

Steel Wheels (Rim and Discs)

Commercial Vehicle Chassis Long and Cross Members

International Specification	Type	Grade	C max.	Si max.	Mn max.	P max.	S max.	Micro-Alloying	Carbon Equivalent max.	YS (MPa) min.	UTS (MPa)	min. %EL*
IS_5986	High Strength Low Alloy—High Yield Ratio	ISH320LA	0.12	0.5	1.2	0.025	0.02	0.22	~	255	320 - 420	25/27
		ISH360LA	0.12	0.5	1.2	0.025	0.02	0.22	~	300	360 - 460	23/25
		ISH390LA	0.12	0.5	1.3	0.025	0.02	0.22	~	315	390 - 510	20/24
		ISH410LA	0.12	0.5	1.4	0.025	0.02	0.22	~	340	410 - 520	20/23
		ISH430LA	0.12	0.5	1.50(1)	0.025	0.02	0.22	~	355	430 - 550	19/23
		ISH450LA	0.12	0.5	1.50(1)	0.025	0.02	0.22	~	380	450 - 570	18/21
		ISH480LA	0.12	0.5	1.50(1)	0.025	0.015	0.22	~	420	480 - 620	16/19
		ISH500LA	0.12	0.5	1.60(1)	0.025	0.015	0.22	~	450	500 - 670	14/18
		ISH550LA	0.12	0.5	1.7	0.025	0.015	0.22	2)	500	550 - 700	12/14
		ISH600LA	0.12	0.5	1.8	0.025	0.015	0.22	2)	550	600 - 760	12/14
		ISH650LA	0.12	0.5	1.9	0.025	0.015	0.22	2)	600	650 - 820	11/13
		ISH700LA	0.12	0.6	2	0.025	0.015	0.22	2)	650	700 - 880	10/12
		ISH750LA	0.12	0.6	2.1	0.025	0.015	0.22	2)	700	750 - 950	10/12

1) For each reduction of 0.01 below the specified maximum percent carbon, an increase of 0.05 percent manganese over the specified maximum up to 1.65 is permitted
2) As per mutual agreement between the supplier and the purchaser

*Changes with direction of testing, gauge length & thickness`

#Chemical composition is in %Weight [Ladle Analysis]

STRETCH FLANGEABLE STEEL & DUAL PHASE STEEL

Segment	Grades	General Applications
Stretch Flangeable Steel	EN 10338 _ FB450 to FB590 / FB590 HHE IS 5986 ISH590F	Control Arm, Rear Twist Beams, Trailing Arms
Dual Phase Steel	EN 10338 _ DP600 IS 5986 ISH590Y	Steel Wheels Disc

International Specification	Type	Grade	C max.	Si max.	Mn max.	P max.	S max.	V max.	B max.	Al Total	Cr + Mo max.	Nb + Ti max.	YS (MPa)	UTS (MPa) min.	%EL min.*
EN_10338	**Ferritic Bainitic**	HDT580F	0.18	0.5	2	0.05	0.01	0.15	0.01	0.015-2.0	1	0.15	460-620	580	15/17
	Dual Phase Steel	HDT580X	0.14	1	2.2	0.085	0.015	0.2	0.005	0.015-0.1	1.4	0.15	330-450	580	19/23

*Changes with direction of testing, gauge length & thickness

International Specification	Type	Grade	C max.	Si max.	Mn max.	P max.	S max.	Micro-Alloying	Carbon Equivalent max.	YS (MPa)	UTS (MPa) min.	%EL min.*	Hole Expansion
IS 5986	**Ferrite Bainite Steel (Hole Expansion)**	ISH590F	0.16	2)	2	2)	0.02	0.2	2)	440 – 620**	590	15 – 20	75% min.
IS 5986	**Dual Phase Steel**	ISH590Y	0.16	2)	2	2)	0.02	0.22	2)	325 – 490**	590	17 - 24	-

2) As per mutual agreement between the supplier and the purchaser
** YS will change w.r.t thickness.
*Changes with direction of testing, gauge length & thickness.

#Chemical composition is in %Weight [Ladle Analysis]

Dual Phase Steel

Stretch Flangeable Steel Applications

Wheel Disc

Control Arm

Rear Torsion Beam

BORON STEEL

Segment	Grades	General Applications
Boron Steel	EN 10083 _ 28MnB5, 34MnB5 20MnB5, 22MNB5, 26MnB5	Plough Disc, Stabiliser Bar, Door Impact Beams

EN 10083-3 (E)

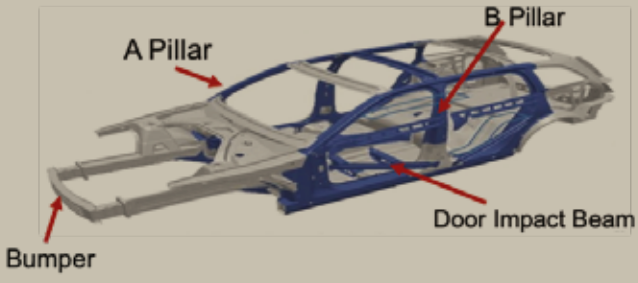
Table 3 — Steel grades and chemical composition (cast analysis)

Steel Designation	Chemical composition % by mass									
Name	C	Si max.	Mn	P max.	S	Cr	Mo	Ni	V	B
Steels with Boron										
20MnB5	0.17 – 0.23	0.4	1.10 – 1.40	0.025	max. 0.035	—	—	—	—	0.0008 – 0.0050
22MnB5	0.18 – 0.24	0.4	1.10 – 1.50	0.025	max. 0.035	—	—	—	—	max 0.005
26MnB5	0.24 – 0.26	0.4	1.10 – 1.50	0.025	max. 0.035	—	—	—	—	max 0.005
28MnB5	0.26 – 0.30	0.4	1.10 – 1.40	0.025	max. 0.035	—	—	—	—	max 0.005
34MnB5	0.32 – 0.37	0.4	1.10 – 1.50	0.025	max. 0.035	—	—	—	—	max 0.005

*Thickness X Width capability of above grades is available on enquiry

Boron Steel Applications

Plough Disc



Crash Members in Passenger Vehicle

LINE PIPE

Segment	Grades	General Applications
Line Pipe	API 5L Gr B - X80 (Non Sour Applications)	Line Pipes for Oil & Gas Industry

International Specification	Type	Grade	C max.	Mn max.	P min.	P max.	S max.	V max.	Nb max.	Ti max.	YS (MPa) min.	UTS (MPa) min.	%EL min.
API 5L (Line Pipe Steel)	Welded Pipe (PSL 1)	L245 or Gr B	0.26	1.2	—	0.03	0.03	*	*	*	245	415	*
		L290 or X42	0.26	1.3	—	0.03	0.03	*	*	*	290	415	*
		L320 or X46	0.26	1.4	—	0.03	0.03	*	*	*	320	435	*
		L360 or X52	0.26	1.4	—	0.03	0.03	*	*	*	360	460	*
		L390 or X56	0.26	1.4	—	0.03	0.03	*	*	*	390	490	*
		L415 or X60	0.26 *	1.40 *	—	0.03	0.03	*	*	*	415	520	*
		L450 or X65	0.26 *	1.45 *	—	0.03	0.03	*	*	*	450	535	*
		L485 or X70	0.26 *	1.65 *	—	0.03	0.03	*	*	*	485	570	*

International Specification	Type	Grade	C Max	Mn max.	Si max.	P max.	S max	V max.	Nb max.	Ti max.	Micro Alloying	CE max.	PCM
API 5L (Line Pipe Steel)	Welded Pipe (PSL-2)	L245M or Gr B	0.22	0.45	1.2	0.025	0.015	0.05	0.05	0.04	*	0.43	0.25
		L290M or X42M	0.22	0.45	1.3	0.025	0.015	0.05	0.05	0.04	*	0.43	0.25
		L320M or X46M	0.22	0.45	1.3	0.025	0.015	0.05	0.05	0.04	*	0.43	0.25
		L360M or X52M	0.22	0.45	1.4	0.025	0.015	*	*	*	*	0.43	0.25
		L390M or X56M	0.22	0.45	1.4	0.025	0.015	*	*	*	*	0.43	0.25
		L415M or X60M	0.12*	0.45*	1.6*	0.025	0.015	*	*	*	*	0.43	0.25
		L450M or X65M	0.12*	0.45*	1.6*	0.025	0.015	*	*	*	*	0.43	0.25
		L485M or X70M	0.12*	0.45*	1.70*	0.025	0.015	*	*	*	*	0.43	0.25
		L555M or X80M	0.12*	0.45*	1.85*	0.025	0.015	*	*	*	*	0.43*	0.25

*Refer specification
Chemical composition is in %Weight [Ladle Analysis]

Grade	YS (MPa)	UTS (MPa)	%EL min.
L245M or Gr B	245-450	415-655	*
L290M or X42M	290-495	415-655	*
L320M or X46M	320-525	435-655	*
L360M or X52M	360-530	460-760	*
L390M or X56M	390-545	490-760	*
L415M or X60M	415-565	520-760	*
L450M or X65M	450-600	535-760	*
L485M or X70M	485-635	570-760	*
L555M or X80M	555-705	625-825	*

Thickness X Width capability of above grades is available on enquiry
*Refer Specification

LINE PIPE

Segment	Grades	General Applications
Line Pipe	API 5L X42 to X-65 (Sour Applications)	Line Pipes for Oil & Gas Industry

International Specification	Type	Grade	C[b] max.	Si max.	Mn[b] max.	P max.	S max.	V max.	Nb max.	Ti max.	Other[c)d)]	CE (Pcm) max.
API 5L	PSL2 (welded Pipes — for sour service applications)	BMS	0.1	0.4	1.25	0.02	0.002	0.04	0.04	0.04		0.19
		X42MS	0.1	0.4	1.25	0.02	0.002	0.04	0.04	0.04		0.19
		X46MS	0.1	0.45	1.35	0.02	0.002	0.05	0.05	0.04		0.2
		X52MS	0.1	0.45	1.45	0.02	0.002	0.05	0.06	0.04		0.2
		X56MS	0.1	0.45	1.45	0.02	0.002	0.06	0.08	0.04	*	0.21
		X60MS	0.1	0.45	1.45	0.02	0.002	0.08	0.08	0.06	*	0.21
		X65MS	0.1	0.45	1.6	0.02	0.002	0.1	0.08	0.06	*	0.22

Grade	YS (MPa)	UTS (MPa)	%EL min. (GL=50mm)
BMS	245 - 450*	415 - 655	*
X42MS	290 - 495	415 - 655	*
X46MS	320 - 525	435 - 655	*
X52MS	360 - 530	460 - 760	*
X56MS	390 - 545	490 - 760	*
X60MS	415 - 565	520 - 760	*
X65MS	450 - 600	535 - 760	*

b) For each reduction of 0.01% below the specified maximum for C, an increase of 0.05% above the specified maximum for Mn is permissible, upto a maximum increase of 0.20%
c) Al total < =0.060%; N< =0.012%; Al/N> =2:1 (not applicable to titanium-killed or titanium-treated steel); Cu< =0.35% (if agreed, Cu< =0.10%); Ni < =0.30%; Cr< =0.30%; Mo< =0.15%; B< =0.0005%
d) For welded pipe where calcium is intentionally added, unless otherwise agreed, Ca/S>1.5 if S>0.0015%
* Refer API 5L specification
Note: For Sour Service applications NACE compliance and HIC acceptance criterion will be as mentioned in specification
Chemical composition is in %Weight [Ladle Analysis]
Thickness X Width capability of above grades is available on enquiry

STRUCTURAL STEEL

Segment	Grades	General Applications
Structural Steel	IS 2062 E 250 to 350 A/BO/BR/C, E 450 A/BR	Bridges, Wind Towers, Fabrication, PEB

International Specification	Type	Grade	C max.	Si max.	Mn max.	P max.	S max.	Carbon Equiv-alent max.	UTS (MPa) min.	YS (MPa) min.	%EL min.
IS_2062	Structural Steel	E250 A	0.23	0.4	1.5	0.045	0.045	0.42	410	230-250	23
		E250 BR	0.22	0.4	1.5	0.045	0.045	0.41	410	230-250	23
		E250 B0	0.22	0.4	1.5	0.045	0.045	0.41	410	230-250	23
		E250 C	0.2	0.4	1.5	0.04	0.04	0.39	410	230-250	23
		E275 A	0.23	0.4	1.5	0.045	0.045	0.43	430	255-275	22
		E275 BR	0.22	0.4	1.5	0.045	0.045	0.42	430	255-275	22
		E275 B0	0.22	0.4	1.5	0.045	0.045	0.42	430	255-275	22
		E275 C	0.2	0.4	1.5	0.04	0.04	0.41	430	255-275	22
		E300 A	0.2	0.45	1.5	0.045	0.045	0.44	440	280-300	22
		E300 BR	0.2	0.45	1.5	0.045	0.045	0.44	440	280-300	22
		E300 B0	0.2	0.45	1.5	0.045	0.045	0.44	440	280-300	22
		E300 C	0.2	0.45	1.5	0.04	0.04	0.44	440	280-300	22
		E350 A	0.2	0.45	1.55	0.045	0.045	0.47	490	320-350	22
		E350 BR	0.2	0.45	1.55	0.045	0.045	0.47	490	320-350	22
		E350 B0	0.2	0.45	1.55	0.045	0.045	0.47	490	320-350	22
		E350 C	0.2	0.45	1.55	0.04	0.04	0.45	490	320-350	22
		E410 A	0.2	0.45	1.6	0.045	0.045	0.5	540	380-410	20
		E410 BR	0.2	0.45	1.6	0.045	0.045	0.5	540	380-410	20
		E410 B0	0.2	0.45	1.6	0.045	0.045	0.5	540	380-410	20
		E410 C	0.2	0.45	1.6	0.04	0.04	0.5	540	380-410	20
		E450 A	0.22	0.45	1.65	0.045	0.045	0.52	570	420-450	20

#Chemical composition is in %Weight [Ladle Analysis]

Steel Bridge

Windmill

STRUCTURAL STEEL

Segment	Grades	General Applications
Structural Steel	EN 10025 S235/S275/S355 _ J2/JO/JR;	Bridges, Wind Towers, Fabrication, PEB

International Specification	Type	Grade	C max.	Si max.	Mn max.	P max.	S max.	Cu max.	N max.	YS (MPa) min.	UTS(MPa)	%EL min*
EN_10025_2	Hot rolled products of structural steels	S235JR	0.17 /0.17/0.20[c]		1.4	0.035	0.035	0.55[g]	0.012[f]	235	360-510	Min15-Min26
		S235J0	0.17[a]/0.17[b]/0.17[c]		1.4	0.03	0.03	0.55[g]	0.012[f]	235	360-510	
		S235J2	0.17[a]/0.17[b]/0.17[c]		1.4	0.025	0.025	0.55[g]		235	360-510	
		S275JR	0.21[a]/0.21[b]/0.22[c]		1.5	0.035	0.035	0.55[g]	0.012[f]	275	410-580	Min13-Min23
		S275J0	0.18[a]/0.18[b]/0.18[c,i]		1.5	0.03	0.03	0.55[g]	0.012[f]	275	410-580	
		S275J2	0.18[a]/0.18[b]/0.18[c,i]		1.5	0.025	0.025	0.55[g]		275	410-580	
		S355JR	0.24[a]/0.24[b]/0.24[c]	0.55	1.6	0.035	0.035	0.55[g]	0.012[f]	355	470-680	Min12-Min22
		S355J0	0.20[j,a]/0.20[k,b]/0.22[c]	0.55	1.6	0.03	0.03	0.55[g]	0.012[f]	355	470-680	
		S355J2	0.20[j,a]/0.20[k,b]/0.22[c]	0.55	1.6	0.025	0.025	0.55[g]		355	470-680	
		S355K2	0.20[j,a]/0.20[k,b]/0.22[c]	0.55	1.6	0.025	0.025	0.55[g]		355	470-680	

a) thickness < = 16 mm
b) 16 mm <thickness< = 40 mm
c) thickness >= 40 mm, and for sections > 100mm the Carbon content by agreement
f) The max. value for nitrogen does not apply if the chemical composition shows a minimum total Al content of 0.020 % or alternatively min. 0.015% acid soluble Al or if sufficient other Nbinding elements are present. In this case the nitrogen binding elements shall be mentioned in the inspection document.
g) Cu content above 0.40% may cause hot shortness during hot forming
i) for nominal thickness > 150 mm: C = 0.20% max
j) For grades suitable for cold roll forming: C = 0.22%
k) for nominal thickness > 30 mm: C = 0.22% max
* Changes with direction of testing, gauge length & thickness
# Chemical composition is in %Weight [Ladle analysis]

STRUCTURAL STEEL

Segment	Grades	General Applications
Structural Steel	ASTM A 1011 SS_33, HSLA_GR50_CL1 ASTM A 1018 HSLA_GR60_CL1 ASTM A 283 GR_C ASTM A 36 ASTM A 570 GR 50 ASTM A 572 GR 50 TYPE 1/ GR 50 TYPE 2	Bridges, Wind Towers, Fabrication, PEB

International Specification	Type	Grade	C max.	Si max.	Mn max.	P max.	S max.	Cu max.	Al min.	Ni max.	Cr max.	Ti max.	Nb	V max.	Nb + V + Ti max.	YS (MPa) min.	UTS (MPa)	%EL min.* 50 mm GL
ASTM A 1011	**Steel for Structural Purposes**	SS_33	0.25	0.04	1.2	0.035	0.04	0.02	0.02	0.02	0.15	0.025	0.008 max.	0.008		230	360 min.	22
		HSLA_GR50_CL1	0.23	0.4	1.35	0.04	0.04	0.02	0.02		0.15				0.15	340	450 min.	20
ASTM A 1018		HSLA_GR60_CL1	0.26	0.4	1.5	0.04	0.04	0.2	0.02	0.2	0.15				0.15	410	520 min.	16
		SS_33	0.25	0.04	1.2	0.035	0.04	0.2	0.02	0.2	0.15	0.025	0.008 max.	0.008		230	360 min.	22
ASTM A 283		GR C	0.23	0.4	0.9	0.035	0.04		0.02						0.15	205	380 min.	25
ASTM A 36			0.25	0.4	1.2	0.04	0.04	0.2	0.02							250	400-550	23
ASTM A 570		GR 50	0.25		1.35	0.035	0.04		0.02							345	450 min.	15
ASTM A 572		GR 50 TYPE 1	0.2	0.4	1.5	0.04	0.05	0.2	0.02				0.005 -0.05		0.15	345	450 min.	21
		GR 50 TYPE 2	0.23	0.4	1.5	0.04	0.05		0.02					0.01 – 0.15		345	450	16

*Changes with direction of testing, gauge length & thickness

#Chemical composition is in %Weight [Ladle Analysis]

STRUCTURAL STEEL

Segment	Grades	General Applications
Structural Steel	DIN 17100 ST 37.2/ST44.3/ST 52.3 JIS G 3101 SS400 JIS G 3106 SM 490 A	Bridges, Wind Towers, Fabrication, PEB

International Specification	Type	Grade	C max.	Si max.	Mn max.	P max.	S max.	Al min.	N max.	Nb + V + Ti max.	YS (MPa) min.	UTS (MPa)	%EL min.* 5.65 Sqrt.A
DIN 17100	**Steel for General Structural Purposes**	ST 37.2	0.17		1.4	0.045	0.045	0.02		0.15	235	360 - 520	23
		ST 44.3	0.2		1.5	0.04	0.04	0.02		0.15	275	410 - 580	21
		ST 52.3	0.2	0.55	1.6	0.04	0.04	0.02	0.009	0.2	355	490 - 620	20

International Specification	Type	Grade	C max.	Si max.	Mn max.	P max.	S max.	Al min.	N max.	Nb + V + Ti max.	YS (MPa) min.	UTS (MPa)	%EL min.* GL 50 mm
JIS G 3101	**Hot Rolled Steel for General Structural Usage**	SS 400				0.05	0.05				245	400-510	21
JIS G 3106	**Hot Rolled Steel for Welded Structural Purposes**	SM 490 A	0.2	0.55	1.6	0.035	0.035	0.02	0.012	0.15	325	490 - 610	21

*Changes with direction of testing, gauge length & thickness

#Chemical composition is in %Weight [Ladle Analysis]

SHIP BUILDING GRADES

Segment	Grades	General Applications
Ship Building Grades	ASTM A131_A, B, D, E, AH 32, AH 36, DH 32, DH 36, ABS class, DNV-GL class, IRS class, LR class, NKK class, RINA class	Ship Fabrication

International Specification	Type	Grade	C max.	Si min.	Si max.	Mn min.	P max.	S max.	Cr max.	Mo max.	Cu max	Ni max	Others	YS (MPa) Min	UTS (MPa) Min	%EL Min	Charpy V-Notch Impact requirements
ASTM A131/ A131M	**Ordinary-Strength Structural Steel (A)**	Grade A (Killed or Semi-Killed) t ≤ 50 mm (Killed) t>50mm	0.21		0.5	2.5 × C*	0.035	0.035	E	E	E	E	F	235	400-520	22@ GL=50mm	-
		Grade B (Killed or Semi-Killed) t ≤ 50 mm (Killed) t>50mm	0.21		0.35	0.6	0.035	0.035	E	E	E	E	F				Test temp = 0°C Longitudinal = Min 27J Transverse= Min 20J
		Grade D Killed, Fine Grain Practice[B]	0.21	0.10[D]	0.35[D]	0.6	0.035	0.035	E	E	E	E	F				Test temp = -20°C Longitudinal = Min 27J Transverse= Min 20J
		Grade E Killed, Fine Grain Practice[B]	0.18	0.10[D]	0.35[D]	0.7	0.035	0.035	E	E	E	E	F				Test temp = -40°C Longitudinal = Min 27J Transverse= Min 20J

A) A Intentionally added elements are to be determined and reported.
B) Grade D steel over 1.0 in. [25 mm] and Grade E steel are to contain at least one of the grain refining elements in sufficient amount to meet the fine grain practice requirements (see Section 7 from ASTM A131).
D) Where the content of acid soluble aluminum is not less than 0.015 %, the minimum required silicon content does not apply.
E) The contents of nickel, chromium, molybdenum, and copper are to be determined and reported. When the amount does not exceed 0.02 %, these elements may be reported as #0.02 %.
F) C + Mn/6 = 0.4
* Refer Specification
#Chemical composition is in %Weight [Ladle Analysis]

Grade	C max.	Si max.	Mn	P max.	S max.	Cr max.	Mo max.	Ni max.	Cu max.	Al [3) 4)]	Nb [4)]	V [4)]	Ti Max [4)]	N max.
AH32, DH32, EH32, AH36, DH36	0.18	0.5	0.90- 1.60 2)	0.035	0.035	0.2	0.08	0.4	0.35	Min. 0.02	0.02 - 0.05	0.05 - 0.10	0.02	-

2) Grade AH (12.5 mm) and under in thickness may have a minimum manganese content of 0.70%
3) Total aluminium content may be used instead of acid soluble content, in accoradance with 7.1 of ASTM A131
4) The indicated amount of aluminium, niobium and vanadium applies if any such element is used singly. If used in combination, the minimum content in 7.2.2 and 7.2.3 of ASTM A131 will apply

Grade	Yield Strength [MPa]	Tensile Strength [MPa]	(%) min Elongation Lo=5.65√So	Test temp. [°C]	Notched bar impact energy [J] min in longitudinal direction
					t ≤ 50 [mm]
AH32	315	440-590	22	2	31
DH32				-20	
EH32				-40	
AH36	355	490-620	21	2	34
DH36				-20	
EH36				-40	

* Refer specification

CORROSION RESISTANT STEEL

Segment	Grades	General Applications
Corrosion Resistant Steel	IRSM 41 ASTM A588 Grade A / Grade B / Grade K BS 4360 WR 50A	Railway Coaches and Frames

International Specification	Type	Grade	C max.	Si min.	Si max.	Mn min.	Mn max.	P max.	S max.	Cr min.	Cr max.	Mo max.	V min.	V max.	Nb min.	Nb max.	Cu min.	Cu max.	YS (MPa) min.	UTS (MPa) min.	%EL min.
ASTM_A588/ A588M-19	High-Strength Low-Alloy Structural Steel, up to 50 ksi [345 MPa] Minimum Yield Point with Atmospheric Corrosion Resistance	Grade A	0.19A	0.3	0.65	0.8	1.25A	0.03C	0.03C	0.4	0.65		0.02	0.1			0.25	0.4	`345	485	21
		Grade B	0.2A	0.15	0.5	0.75	1.35A	0.03C	0.03C	0.4	0.7		0.01	0.1			0.2	0.4	345	485	21
		Grade K	0.17A	0.25	0.5	0.5	1.2A	0.03C	0.03C	0.4	0.7	0.1			0.005	0.05B	0.3	0.5	345	485	21

A) For each reduction of 0.01 percentage point below the specified maximum for carbon, an increase of 0.06 percentage point above the specified maximum for manganese is permitted, up to a maximum of 1.50%.
B) For plates under 1/2 in. [13 mm] in thickness, the minimum columbium (niobium) is waived.
C) A maximum phosphorus content of 0.04% and a maximum sulfur content of 0.05% are permitted for the following materials:
· Plates with widths up to and including 15 in. [380 mm]

International Specification	Type	Grade	C max.	Si min.	Si max.	Mn max.	P max.	S max.	Ni max.	Cr min.	Cr max.	Ti max.	Mo max.	V min.	V max.	Nb min.	Nb max.	Cu min.	Cu max.	YS (MPa) min.	UTS (MPa)	%EL min. 5.65 Sqrt.A
BS_4360_ WR_50A	Corrosion Resistance		0.12		0.75	1	0.15	0.04	0.65	0.3	1.25	0.1	0.3		0.12			0.25	0.55	355	490-630	22

International Specification	Type	Grade	C max.	Si min.	Si max.	Mn min.	Mn max.	P	S max.	Al max.	Ni	Cr min.	Cr max.	Mo max.	V max.	Nb max.	Cu min.	Cu max.	YS (MPa) min.	UTS (MPa) min.	%EL min. 5.65 Sqrt.A
IRSM_41	Corrosion Resistance		0.1	0.28	0.72	0.25	0.45	0.075 – 0.14	0.03	0.08	0.2-0.47	0.35	0.6	0.05	0.05	0.04	0.3	0.6	340	480	22

#Chemical composition is in %Weight [Ladle Analysis]

CORROSION RESISTANT STEEL

Segment	Grades	General Applications
Corrosion Resistant Steel	EN_10155_S355J2G1W / S355_JOWP JIS G 3125 SPAH	Railway Coaches and Frames

International Specification	Type	Grade	C max.	Si max.	Mn	Al min.	P	S max.	Cr min.	Cr max.	Mo max.	V max.	Nb max.	Ti max.	Cu min.	Cu max.	Ni max.	YS (MPa)	UTS (MPa)	%EL min. 5.65 Sqrt.A
EN 10155	Structural Steel with Improved Atmospheric Corrosion Resistance	S355 J0WP	0.12	0.75	1 max.		0.06 – 0.15	0.04	0.3	1.25	0.3	0.12	0.06	0.1	0.25	0.55	0.65	355 min.	490-630	22
		S355 J2 G1W	0.16	0.5	0.5-1.5	0.02	0.035 max.	0.035	0.4	0.8	0.3	0.12	0.06	0.1	0.25	0.55	0.65	355-470	490-630	22

International Specification	Type	Grade	C max.	Si min.	Si max.	Al. min.	Mn max.	P	S max.	N max.	Cr min.	Cr max.	Cu min.	Cu max.	YS (MPa) min.	UTS (MPa) min.	%EL min. 50mm GL
JIS G 3125	Superior Atmospheric Corrosion Resisting Rolled Steel	SPAH	0.12	0.2	0.75	0.02	0.6	0.7-0.15	0.035	0.012	0.3	0.65	0.25	0.55	355	490	22

#Chemical composition is in %Weight [Ladle Analysis]

Railway Coaches

Railway Frames

BOILERS AND PRESSURE VESSELS GRADES

Segment	Grades	General Applications
Boilers and Pressure Vessels Grades	ASTM A516 Gr 55/60/70 ASTM A515 Gr 60/70 ASTM A285 Gr C ASTM A 573 Grade 70	Boilers and Pressure Vessels

**Changes with direction of testing, gauge length & thickness

International Specification	Type	Grade	C min.	C max.	Si min.	Si max.	Mn min.	Mn max.	P min.	P max.	S min.	S max.	Al min.	YS (MPa) min.	UTS (MPa)	%EL** min.
ASTM_A515/ A515M - 17	**Pressure Vessel Plates, Carbon Steel, for Intermediate and Higher-Temperature Servicel**	Grade 60		0.24		0.15-0.40D/ 0.13-0.45E		0.90D/0.98E		0.025		0.025		220	415-550	21/25
		Grade 65		0.28		0.15-0.40D/ 0.13-0.45E		0.90D/0.98E		0.025		0.025		240	450-585	19/23
		Grade 70		0.31		0.15-0.40D/ 0.13-0.45E		1.20D/1.30E		0.025		0.025		260	485-620	17/21
ASTM_A516/ A516M - 17	**Pressure Vessel Plates, Carbon Steel, for Moderate and Lower-Temperature Service**	Grade 55		0.18-0.26*	*	*		*		0.025		0.025		205	380-515	23/27
		Grade 60		0.21-0.27*	*	*	*	*		0.025		0.025		220	415-550	21/25
		Grade 65		0.24-0.29*	*	*		*		0.025		0.025		240	450-585	19/23
		Grade 70		0.27-0.31*	*	*		*		0.025		0.025		260	485-620	17/21
ASTM_A_285		Grade C		0.28		0.4		0.9		0.035		0.035	0.02	205	380-515	27
ASTM_A_573		Grade 70		0.27	0.15	0.4	0.85	1.2		0.035		0.04	0.02	290	485-620	21

D) Heat Analysis

E) Product Analysis

**Changes with direction of testing, gauge length & thickness
*refer specification

#Chemical composition is in %Weight [Ladle Analysis]

BOILERS AND PRESSURE VESSELS GRADES

Segment	Grades	General Applications
Boilers and Pressure Vessels Grades	IS 2041 R220/R260	Boilers and Pressure Vessels

International Specification	Type	Grade	C max.	Si min.	Si max.	Mn min.	Mn max.	P max.	S max.	Al min.	N max.	YS (MPa) min.	UTS (MPa)	5%E 5.65 Sqrt.A
IS 2041	**Steel for Pressure Vessels used at Moderate and Low Temperature**	R260	0.25	0.15	0.35	0.85	1.2	0.025	0.025	0.02	0.012	260	490-620	21
		R220	0.21	0.15	0.35	0.85	1.2	0.025	0.025	0.02	0.012	220	415-540	25

*Changes with direction of testing, gauge length & thickness

#Chemical composition is in %Weight [Ladle Analysis]

Boiler

LPV GRADES

Segment	Grades	General Applications
LPV Grades	EN _10120 _ P245NB /P265NB/P310NB/P355NB JIS G 3116 SG255/ SG295	Gas Cylinders, Refrigerant Cylinders

International Specification	Type	Grade	C max.	Si max.	Mn max.	P max.	S max.	Nb max.	Ti max.	N max.	Al Total min.	YS (MPa) min.	UTS (MPa)	%EL min.*
EN_10120	Steel Sheet and Strip for Welded Gas Cylinders	P245NB	0.16	0.25	0.3	0.025	0.015	0.05	0.03	0.009[C]	0.020[B]	245	360-450	26/34
		P265NB	0.19	0.25	0.4	0.025	0.015	0.05	0.03	0.009[C]	0.020[B]	265	410-500	24/32
		P310NB	0.2	0.5	0.7	0.025	0.015	0.05	0.03	0.009[C]	0.020[B]	310	460-550	21/28
		P355NB	0.2	0.5	0.7	0.025	0.015	0.05	0.03	0.009[C]	0.020[B]	355	510-620	19/24

*Changes with direction of testing, gauge length & thickness
B) The aluminium content may partly be replaced by ≤ 0,050 % Nb and/or ≤ 0,03 % Ti (refer specification for values). In such cases the content of these elements is to be reported in the inspection document.
C) If the ratio of [Al Total/N] >= 2.2 or if Nb and/or Ti additions are applied, the nitrogen content may be ≤ 0,012 %.

International Specification	Type	Grade	C max.	Si min.	Si max.	Mn min.	Mn max.	P max.	S max.	Al min.	N max.	YS (MPa) min.	UTS (MPa) min.	%EL min.*
JIS G 3116	Hot rolled Steel Plate/Strips/Sheets for General Gas Cylinder usage	SG 255	0.2			0.3		0.04	0.04	0.02	0.012	255	400	28
		SG 295	0.2		0.35		1	0.04	0.04	0.02	0.012	295	440	26

*Changes with direction of testing, gauge length & thickness

#Chemical composition is in %Weight [Ladle Analysis]

LPV GRADES

Segment	Grades	General Applications
LPV Grades	IS 6240	Gas Cylinders, Refrigerant Cylinders

International Specification	Type	Grade	C max.	Si min.	Si max.	Mn min.	Mn max.	P max.	S max.	Al min.	N max.	Nb + V +Ti max.	YS (MPa) min.	UTS (MPa)	%EL min.*
IS 6240	**Hot Rolled Steel Plate Sheet and Strip for Manufacturing of Low Pressure Liquifiable Gas Cylinder**		0.16		0.25	0.3		0.025	0.025	0.02	0.009	0.1	240	350-450	25

*Changes with direction of testing, gauge length & thickness

#Chemical composition is in %Weight [Ladle Analysis]

Gas Cylinder

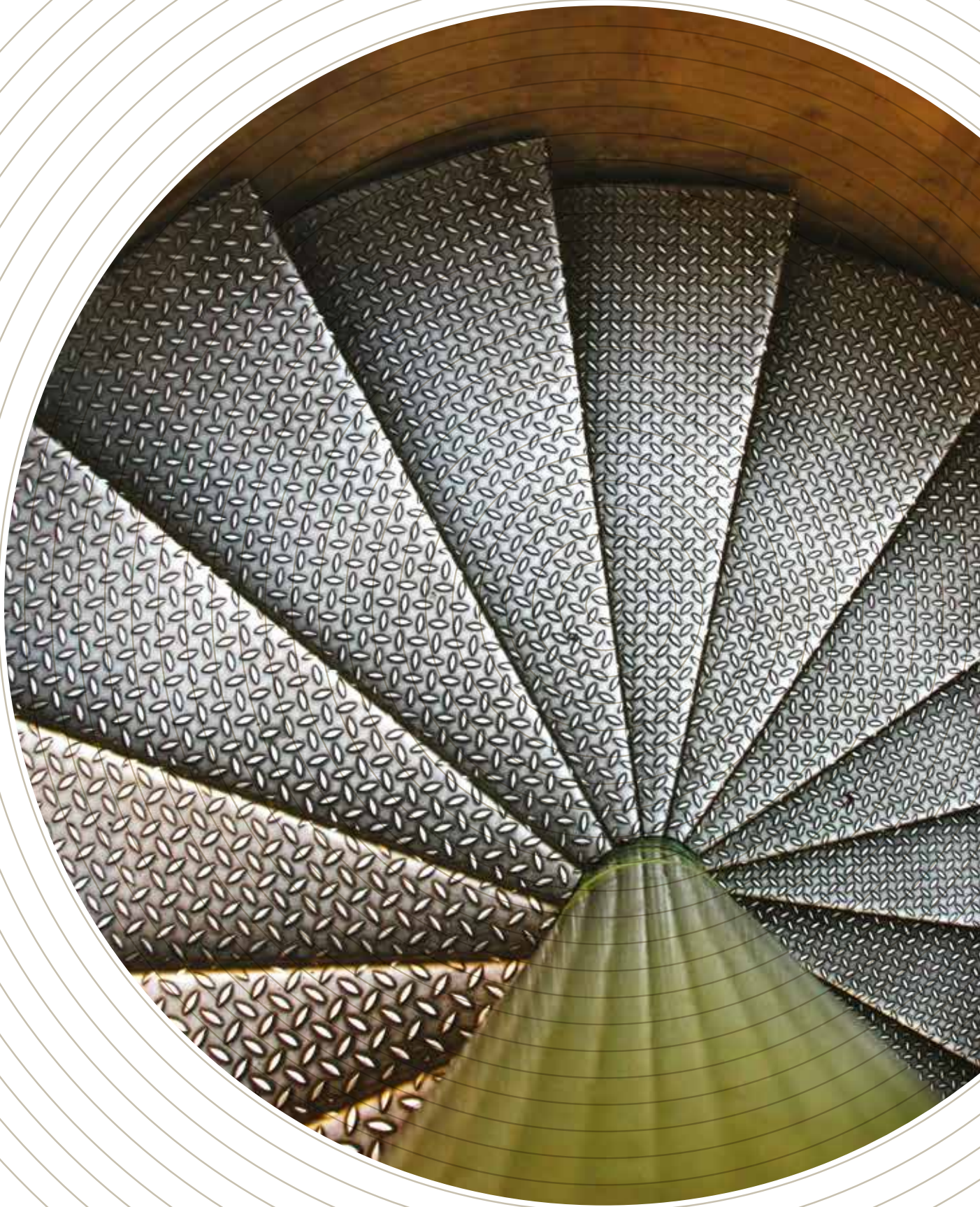
CHEQUERED PLATES

Segment	Grades	General Applications
Chequered Plates	ASTM A36 DIN 17100 ST 37.2 BS_EN_10025_S275JR IS_3502	Industrial Flooring Foot Over Bridges Heavy Equipment Machinery Platforms

International Specification	Type	Grade	C max.	Si min.	Si max.	Mn min.	Mn max.	P max.	S max.	Al min.	N max.	Nb + V +Ti max.	YS (MPa) min.	UTS (MPa)	%EL min.*
IS_3502	**Chequered Plates**	0.23		0.4		1.5	0.05	0.05		0.02	0.012	0.2	250	min. 410	23
ASTM_A36		0.25		0.4		1.2	0.04		0.2	0.02			250	400-550	23
DIN 17100 ST 37.2		0.17				1.4	0.045	0.045		0.02	0.009	0.15	235	360-520	23
BS_EN_10025_S275JR		0.2		0.5		1.5	0.04	0.04		0.02		0.15	275	430-580	19

*Changes with direction of testing, gauge length & thickness

#Chemical composition is in %Weight [Ladle Analysis]



Product Size Range

HSM Capability Chart for Grade Index – 2 (Yield Strength — 170–220 MPa)

Width/ Thickness, in mm	900–999	1000–1099	1100–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1650	1651–1700	1701–1750	1751–1800	1801–1850	1851–1900	1901–1950	1951–2000
1.6	■	■	■																	
1.61–1.99	■	■	■																	
2	■	■	■	■	■															
2.01–2.49	■	■	■	■	■															
2.5–2.99	■	■	■	■	■	■	■	■	■	■										
3–3.49	■	■	■	■	■	■	■	■	■	■	■									
3.5–3.99	■	■	■	■	■	■	■	■	■	■	■	■								
4–4.49	■	■	■	■	■	■	■	■	■	■	■	■	■	■						
4.5–4.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
5–5.49	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
5.5–5.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
6–6.49	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
6.5–6.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
7–7.49	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
7.5–7.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
8–8.49	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
8.5–8.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
9–9.49	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
9.5–9.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
10–10.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
11–11.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
12–12.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
13–13.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
14–14.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
15–15.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
16–16.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
17–17.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
18–18.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
19–20	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

■ Rollable □ To be referred to plant

Above matrix to be referred considering the minimum yield strength of the steel grade specification

CSP Capability Chart for Grade Index – 2 (Yield Strength — 170–220 MPa)

Width/ Thickness, in mm	930–999	1000–1099	1100–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1680
0.8–0.99													
1.0–1.29*	■	■	■	■	■								
1.3–1.349*	■	■	■	■	■								
1.35–1.59*	■	■	■	■	■								
1.6	■	■	■	■	■	■							
1.8	■	■	■	■	■	■	■	■	■	■			
2	■	■	■	■	■	■	■	■	■	■			
2.01–2.49	■	■	■	■	■	■	■	■	■	■	■	■	
2.5–2.99	■	■	■	■	■	■	■	■	■	■	■	■	
3–3.49	■	■	■	■	■	■	■	■	■	■	■	■	■
3.5–3.99	■	■	■	■	■	■	■	■	■	■	■	■	■
4–4.49	■	■	■	■	■	■	■	■	■	■	■	■	■
4.5–4.99	■	■	■	■	■	■	■	■	■	■	■	■	■
5–5.49	■	■	■	■	■	■	■	■	■	■	■	■	■
5.5–5.99	■	■	■	■	■	■	■	■	■	■	■	■	■
6–9.99	■	■	■	■	■	■	■	■	■	■	■	■	■
10–16	■	■	■	■	■	■	■	■	■	■	■	■	■
16–20	■	■	■	■	■	■	■	■	■	■	■	■	■

■ Rollable □ To be referred to plant

*Commercial feasibility to be checked with sales and supply chain

Above matrix to be referred considering the minimum yield strength of the steel grade specification

Product Size Range

HSM Capability Chart for Grade Index – 3 (Yield Strength — 221–270 MPa)

Width/ Thickness, in mm	900–999	1000–1099	1100–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1650	1651–1700	1701–1750	1751–1800	1801–1850	1851–1900	1901–1950	1951–2000
1.6	■	■	■																	
1.61–1.99	■	■	■																	
2	■	■	■	■																
2.01–2.49	■	■	■	■	■															
2.5–2.99	■	■	■	■	■	■														
3–3.49	■	■	■	■	■	■	■	■	■											
3.5–3.99	■	■	■	■	■	■	■	■	■	■										
4–4.49	■	■	■	■	■	■	■	■	■	■	■	■								
4.5–4.99	■	■	■	■	■	■	■	■	■	■	■	■								
5–5.49	■	■	■	■	■	■	■	■	■	■	■	■	■							
5.5–5.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
6–6.49	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
6.5–6.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
7–7.49	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
7.5–7.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
8–8.49	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
8.5–8.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
9–9.49	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
9.5–9.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
10–10.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
11–11.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
12–12.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
13–13.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
14–14.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
15–15.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
16–16.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
17–17.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
18–18.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
19–20	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

■ Rollable □ To be referred to plant

Above matrix to be referred considering the minimum yield strength of the steel grade specification

CSP Capability Chart for Grade Index – 3 (Yield Strength — 221–270 MPa)

Width/ Thickness, in mm	930–999	1000–1099	1100–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1680
0.8–1.0													
1.0–1.29													
1.3–1.349													
1.35–1.59													
1.6	■	■	■	■	■								
1.8	■	■	■	■	■	■							
2	■	■	■	■	■	■							
2.01–2.49	■	■	■	■	■	■							
2.5–2.99	■	■	■	■	■	■	■	■					
3–3.49	■	■	■	■	■	■	■	■	■	■	■	■	■
3.5–3.99	■	■	■	■	■	■	■	■	■	■	■	■	■
4–4.49	■	■	■	■	■	■	■	■	■	■	■	■	■
4.5–4.99	■	■	■	■	■	■	■	■	■	■	■	■	■
5–5.49	■	■	■	■	■	■	■	■	■	■	■	■	■
5.5–5.99	■	■	■	■	■	■	■	■	■	■	■	■	■
6–9.99	■	■	■	■	■	■	■	■	■	■	■	■	■
10–16	■	■	■	■	■	■	■	■	■	■	■	■	■
16–20	■	■	■	■	■	■	■	■	■	■	■	■	■

■ Rollable □ To be referred to plant

Above matrix to be referred considering the minimum yield strength of the steel grade specification

Product Size Range

HSM Capability Chart for Grade Index – 4 (Yield Strength — 271–320 MPa)

Width/ Thickness, in mm	900–999	1000–1099	1100–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1650	1651–1700	1701–1750	1751–1800	1801–1850	1851–1900	1901–1950	1951–2000
1.6	■	■																		
1.61–1.99	■	■																		
2	■	■																		
2.01–2.49	■	■	■																	
2.5–2.99	■	■	■	■	■															
3–3.49	■	■	■	■	■	■														
3.5–3.99	■	■	■	■	■	■	■													
4–4.49	■	■	■	■	■	■	■	■	■											
4.5–4.99	■	■	■	■	■	■	■	■	■	■	■									
5–5.49	■	■	■	■	■	■	■	■	■	■	■									
5.5–5.99	■	■	■	■	■	■	■	■	■	■	■									
6–6.49	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
6.5–6.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
7–7.49	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
7.5–7.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
8–8.49	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
8.5–8.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
9–9.49	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
9.5–9.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
10–10.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
11–11.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
12–12.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
13–13.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
14–14.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
15–15.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
16–16.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
17–17.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
18–18.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
19–20	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

■ Rollable □ To be referred to plant

Above matrix to be referred considering the minimum yield strength of the steel grade specification

CSP Capability Chart for Grade Index – 4 (Yield Strength — 271– 320 MPa)

Width/ Thickness, in mm	930–999	1000–1099	1100–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1680
0.8–1.0													
1.1–1.29													
1.3–1.349													
1.35–1.59													
1.6													
1.8	■	■	■	■									
2	■	■	■	■	■								
2.01–2.49	■	■	■	■	■	■							
2.5–2.99	■	■	■	■	■	■	■						
3–3.49	■	■	■	■	■	■	■	■					
3.5–3.99	■	■	■	■	■	■	■	■	■	■	■		
4–4.49	■	■	■	■	■	■	■	■	■	■	■	■	
4.5–4.99	■	■	■	■	■	■	■	■	■	■	■	■	■
5–5.49	■	■	■	■	■	■	■	■	■	■	■	■	■
5.5–5.99	■	■	■	■	■	■	■	■	■	■	■	■	■
6–9.99	■	■	■	■	■	■	■	■	■	■	■	■	■
10–16	■	■	■	■	■	■	■	■	■	■	■	■	■
16–20	■	■	■	■	■	■	■	■	■	■	■	■	■

■ Rollable □ To be referred to plant

Above matrix to be referred considering the minimum yield strength of the steel grade specification

Product Size Range

HSM Capability Chart for Grade Index – 5 (Yield Strength — 321–370 MPa)

Width/ Thickness, in mm	900–999	1000–1099	1100–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1650	1651–1700	1701–1750	1751–1800	1801–1850	1851–1900	1901–1950	1951–2000
1.6	■	■																		
1.61–1.99	■	■																		
2	■	■	■																	
2.01–2.49	■	■	■	■																
2.5–2.99	■	■	■	■																
3–3.49	■	■	■	■	■															
3.5–3.99	■	■	■	■	■	■														
4–4.49	■	■	■	■	■	■	■	■	■											
4.5–4.99	■	■	■	■	■	■	■	■	■	■										
5–5.49	■	■	■	■	■	■	■	■	■	■	■									
5.5–5.99	■	■	■	■	■	■	■	■	■	■	■									
6–6.49	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
6.5–6.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
7–7.49	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
7.5–7.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
8–8.49	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
8.5–8.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
9–9.49	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
9.5–9.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
10–10.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
11–11.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
12–12.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
13–13.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
14–14.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
15–15.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
16–16.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
17–17.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
18–18.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
19–20	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

■ Rollable □ To be referred to plant

Above matrix to be referred considering the minimum yield strength of the steel grade specification

CSP Capability Chart for Grade Index – 5 (Yield Strength — 321–370 MPa)

Width/ Thickness, in mm	930–999	1000–1099	1100–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1680
0.8–1.0													
1.1–1.29													
1.3–1.349													
1.35–1.59													
1.6													
1.8	■	■	■	■									
2	■	■	■	■	■								
2.01–2.49	■	■	■	■	■	■							
2.5–2.99	■	■	■	■	■	■	■						
3–3.49	■	■	■	■	■	■	■	■					
3.5–3.99	■	■	■	■	■	■	■	■	■				
4–4.49	■	■	■	■	■	■	■	■	■	■	■	■	
4.5–4.99	■	■	■	■	■	■	■	■	■	■	■	■	■
5–5.49	■	■	■	■	■	■	■	■	■	■	■	■	■
5.5–5.99	■	■	■	■	■	■	■	■	■	■	■	■	■
6–9.99	■	■	■	■	■	■	■	■	■	■	■	■	■
10–16	■	■	■	■	■	■	■	■	■	■	■	■	■

■ Rollable □ To be referred to plant

Above matrix to be referred considering the minimum yield strength of the steel grade specification

Product Size Range

HSM Capability Chart for Grade Index – 6 (Yield Strength — 371–420 MPa)

Width/ Thickness, in mm	900–999	1000–1099	1100–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1650	1651–1700	1701–1750	1751–1800	1801–1850	1851–1900	1901–1950	1951–2000
1.6																				
1.61–1.99	■																			
2	■																			
2.01–2.49	■	■																		
2.5–2.99	■	■	■																	
3–3.49	■	■	■	■																
3.5–3.99	■	■	■	■	■	■	■													
4–4.49	■	■	■	■	■	■	■	■	■											
4.5–4.99	■	■	■	■	■	■	■	■	■											
5–5.49	■	■	■	■	■	■	■	■	■											
5.5–5.99	■	■	■	■	■	■	■	■	■											
6–6.49	■	■	■	■	■	■	■	■	■	■	■									
6.5–6.99	■	■	■	■	■	■	■	■	■	■	■	■								
7–7.49	■	■	■	■	■	■	■	■	■	■	■	■								
7.5–7.99	■	■	■	■	■	■	■	■	■	■	■	■								
8–8.49	■	■	■	■	■	■	■	■	■	■	■	■								
8.5–8.99	■	■	■	■	■	■	■	■	■	■	■	■								
9–9.49	■	■	■	■	■	■	■	■	■	■	■	■								
9.5–9.99	■	■	■	■	■	■	■	■	■	■	■	■								
10–10.99	■	■	■	■	■	■	■	■	■	■	■	■								
11–11.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
12–12.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
13–13.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
14–14.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
15–15.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
16–16.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
17–17.99	■	■	■	■	■	■	■	■	■	■										
18–18.99	■	■	■	■	■	■	■	■	■	■										
19–20	■	■	■	■	■	■	■	■	■	■										

■ Rollable □ To be referred to plant

Above matrix to be referred considering the minimum yield strength of the steel grade specification

CSP Capability Chart for Grade Index – 6 (Yield Strength — 371–420 MPa)

Width/ Thickness, in mm	930–999	1000–1099	1100–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1680
0.8–1.0													
1.1–1.29													
1.3–1.349													
1.35–1.59													
1.6													
1.8													
2													
2.01–2.49	■	■	■	■	■								
2.5–2.99	■	■	■	■	■	■							
3–3.49	■	■	■	■	■	■	■						
3.5–3.99	■	■	■	■	■	■	■	■	■				
4–4.49	■	■	■	■	■	■	■	■	■	■	■		
4.5–4.99	■	■	■	■	■	■	■	■	■	■	■	■	
5–5.49	■	■	■	■	■	■	■	■	■	■	■	■	■
5.5–5.99	■	■	■	■	■	■	■	■	■	■	■	■	■
6–9.99	■	■	■	■	■	■	■	■	■	■	■	■	■
10–16	■	■	■	■	■	■	■	■	■	■	■	■	■

■ Rollable □ To be referred to plant

Above matrix to be referred considering the minimum yield strength of the steel grade specification

Product Size Range

HSM Capability Chart for Grade Index – 7 (Yield Strength — 421–470 MPa)

Width/ Thickness, in mm	900–999	1000–1099	1100–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1650	1651–1700	1701–1750	1751–1800	1801–1850	1851–1900	1901–1950	1951–2000
1.6																				
1.61–1.99																				
2																				
2.01–2.49	■																			
2.5–2.99	■	■	■																	
3–3.49	■	■	■																	
3.5–3.99	■	■	■																	
4–4.49	■	■	■	■																
4.5–4.99	■	■	■	■	■	■	■													
5–5.49	■	■	■	■	■	■	■	■	■											
5.5–5.99	■	■	■	■	■	■	■	■	■	■										
6–6.49	■	■	■	■	■	■	■	■	■	■										
6.5–6.99	■	■	■	■	■	■	■	■	■	■	■									
7–7.49	■	■	■	■	■	■	■	■	■	■	■									
7.5–7.99	■	■	■	■	■	■	■	■	■	■	■									
8–8.49	■	■	■	■	■	■	■	■	■	■	■	■								
8.5–8.99	■	■	■	■	■	■	■	■	■	■	■	■								
9–9.49	■	■	■	■	■	■	■	■	■	■	■	■	■	■						
9.5–9.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■						
10–10.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
11–11.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
12–12.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
13–13.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
14–14.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
15–15.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
16–16.99	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
17–17.99																				
18–18.99																				
19–20																				

■ Rollable □ To be referred to plant

Above matrix to be referred considering the minimum yield strength of the steel grade specification

CSP Capability Chart for Grade Index – 7 (Yield Strength — 421–470 MPa)

Width/ Thickness, in mm	930–999	1000–1099	1100–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1680
0.8–1.0													
1.1–1.29													
1.3–1.349													
1.35–1.59													
1.6													
1.8													
2													
2.01–2.49													
2.5–2.99													
3–3.49	■	■	■	■	■								
3.5–3.99	■	■	■	■	■	■							
4–4.49	■	■	■	■	■	■	■						
4.5–4.99	■	■	■	■	■	■	■	■					
5–5.49	■	■	■	■	■	■	■	■	■	■	■	■	■
5.5–5.99	■	■	■	■	■	■	■	■	■	■	■	■	■
6–9.99	■	■	■	■	■	■	■	■	■	■	■	■	■
10–16	■	■	■	■	■	■	■	■	■	■	■	■	■

■ Rollable □ To be referred to plant

Above matrix to be referred considering the minimum yield strength of the steel grade specification

Product Size Range

HSM Capability Chart for Grade Index – 8 (Yield Strength — 471–520 MPa)

Width/ Thickness, in mm	900–999	1000–1099	1100–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1650	1651–1700	1701–1750	1751–1800	1801–1850	1851–1900	1901–1950	1951–2000
1.6																				
1.61–1.99																				
2																				
2.01–2.49																				
2.5–2.99	■	■																		
3–3.49	■	■																		
3.5–3.99	■	■																		
4–4.49	■	■	■																	
4.5–4.99	■	■	■	■																
5–5.49	■	■	■	■																
5.5–5.99	■	■	■	■	■	■														
6–6.49	■	■	■	■	■	■														
6.5–6.99	■	■	■	■	■	■														
7–7.49	■	■	■	■	■	■	■													
7.5–7.99	■	■	■	■	■	■	■	■												
8–8.49	■	■	■	■	■	■	■	■	■	■										
8.5–8.99	■	■	■	■	■	■	■	■	■	■										
9–9.49	■	■	■	■	■	■	■	■	■	■										
9.5–9.99	■	■	■	■	■	■	■	■	■	■										
10–10.99	■	■	■	■	■	■	■	■	■	■										
11–11.99	■	■	■	■	■	■	■	■	■	■										
12–12.99	■	■	■	■	■	■	■	■	■	■										
13–13.99	■	■	■	■	■	■	■	■	■	■										
14–14.99	■	■	■	■	■	■	■	■	■	■										
15–15.99	■	■	■	■	■	■	■	■	■	■										
16–16.99	■	■	■	■	■	■	■	■	■	■										
17–17.99																				
18–18.99																				
19–20																				

■ Rollable □ To be referred to plant

Above matrix to be referred considering the minimum yield strength of the steel grade specification

CSP Capability Chart for Grade Index – 8 (Yield Strength — 471–520 MPa)

Width/ Thickness, in mm	930–999	1000–1099	1100–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1680
0.8–1.0													
1.1–1.29													
1.3–1.349													
1.35–1.59													
1.6													
1.8													
2													
2.01–2.49													
2.5–2.99													
3–3.49													
3.5–3.99													
4–4.49													
4.5–4.99													
5–5.49													
5.5–5.99													
6–9.99													
10–16													

Rollable

To be referred to plant

Above matrix to be referred considering the minimum yield strength of the steel grade specification

Product Size Range

HSM Capability YS 500–550 MPa

Width/ Thickness, in mm	900–999	1000–1050	1051–1100	1101–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1650	1651–1700	1701–1750	1751–1800	1801–1850	1851–1900	1900–2000
1.6																				
1.61–1.99																				
2																				
2.01–2.29																				
2.3–2.69																				
2.7–2.99																				
3–3.49	■	■																		
3.5–3.99	■	■																		
4–4.49	■	■	■	■																
4.5–4.99	■	■	■	■																
5–5.99	■	■	■	■	■	■														
6–6.49	■	■	■	■	■	■														
6.5–6.99	■	■	■	■	■	■														
7–7.49	■	■	■	■	■	■														
7.5–7.99	■	■	■	■	■	■														
8–8.49	■	■	■	■	■	■														
8.5–8.99	■	■	■	■	■	■														
9–9.49	■	■	■	■	■	■														
9.5–9.99	■	■	■	■	■	■														
10–10.99																				
11–11.99																				
12–12.99																				
13–13.99																				
14–14.99																				
15–15.99																				
16–16.99																				
17–17.99																				
18–18.99																				
19–20																				

■ Rollable □ To be referred to plant

Above matrix to be referred considering the minimum yield strength of the steel grade specification

HSM Capability YS 650 MPa

Width/ Thickness, in mm	900–999	1000–1050	1051–1100	1101–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1650	1651–1700	1701–1750	1751–1800	1801–1850	1851–1900	1900–2000
1.6																				
1.61–1.99																				
2																				
2.01–2.29																				
2.3–2.69																				
2.7–2.99																				
3–3.49	■																			
3.5–3.99	■																			
4–4.49	■	■	■																	
4.5–4.99	■	■	■																	
5–5.99	■	■	■	■	■	■														
6–6.49	■	■	■	■	■	■														
6.5–6.99	■	■	■	■	■	■														
7–7.49	■	■	■	■	■	■														
7.5–7.99	■	■	■	■	■	■														
8–8.49	■	■	■	■	■	■														
8.5–8.99	■	■	■	■	■	■														
9–9.49	■	■	■	■	■	■														
9.5–9.99	■	■	■	■	■	■														
10–10.99																				
11–11.99																				
12–12.99																				
13–13.99																				
14–14.99																				
15–15.99																				
16–16.99																				
17–17.99																				
18–18.99																				
19–20																				

■ Rollable □ To be referred to plant

Above matrix to be referred considering the minimum yield strength of the steel grade specification

Product Size Range

HSM Capability YS 700 MPa																				
Width/ Thickness, in mm	900–999	1000–1050	1051–1100	1101–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1650	1651–1700	1701–1750	1751–1800	1801–1850	1851–1900	1900–2000
1.6																				
1.61–1.99																				
2																				
2.01–2.29																				
2.3–2.69																				
2.7–2.99																				
3–3.49																				
3.5–3.99																				
4–4.49																				
4.5–4.99																				
5–5.49																				
6–6.49																				
6.5–6.99																				
7–7.49																				
7.5–7.99																				
8–8.49																				
8.5–8.99																				
9–9.49																				
9.5–9.99																				
10–10.99																				
11–11.99																				
12–12.99																				
13–13.99																				
14–14.99																				
15–15.99																				
16–16.99																				
17–17.99																				
18–18.99																				
19–20																				

Rollable

To be referred to plant

Above matrix to be referred considering the minimum yield strength of the steel grade specification

Product Size Range

HSM Capability Chart for High Carbon

Width/ Thickness, in mm	900–999	1000–1050	1051–1100	1101–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1650	1651–1700	1701–1750	1751–1800	1801–1850	1851–1900	1900–2000
1.6																				
1.61–1.99																				
2																				
2.01–2.29																				
2.3–2.69	■	■																		
2.7–2.99	■	■																		
3–3.49	■	■	■																	
3.5–3.99	■	■	■	■																
4–4.49	■	■	■	■																
4.5–4.99	■	■	■	■	■															
5–5.49	■	■	■	■	■	■														
6–6.49																				
6.5–6.99																				
7–7.49																				
7.5–7.99																				
8–8.49																				
8.5–8.99																				
9–9.49																				
9.5–9.99																				
10–10.99																				
11–11.99																				
12–12.99																				
13–13.99																				
14–14.99																				
15–15.99																				
16–16.99																				
17–17.99																				
18–18.99																				
19–20																				

■ Rollable □ To be referred to plant

CSP Capability Chart for High Carbon

Width/ Thickness, in mm	930–999	1000–1099	1100–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1680
0.8–1.0													
1.1–1.29													
1.3–1.349													
1.35–1.59													
1.6													
1.61–1.99													
2–2.29													
2.3–2.9	■	■	■	■	■								
3–3.49	■	■	■	■	■	■							
3.5–3.99	■	■	■	■	■	■	■	■					
4–4.49	■	■	■	■	■	■	■	■	■				
4.5–4.99	■	■	■	■	■	■	■	■	■				
5–5.49	■	■	■	■	■	■	■	■	■				
5.5–5.99	■	■	■	■	■	■	■	■	■				
6–6.49	■	■	■	■	■	■	■	■	■				
6.5–6.99	■	■	■	■	■	■	■	■	■				
7–7.49	■	■	■	■	■	■	■	■	■				
7.5–7.99	■	■	■	■	■	■	■	■	■				
8–9.99													
10–16													

■ Rollable □ To be referred to plant

PRODUCT SIZE RANGE

HSM Capability Chart for Chequered Plates

Width/ Thickness, in mm	900–999	1000–1050	1051–1100	1101–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1650	1651–1700	1701–1750	1751–1800	1801–1850	1851–1900	1900–2000
1.6																				
1.61–1.99																				
2																				
2.01–2.29																				
2.3–2.69																				
2.7–2.99																				
3–3.79	■	■	■	■	■	■														
3.80–3.99	■	■	■	■	■	■	■	■	■	■	■									
4–4.49	■	■	■	■	■	■	■	■	■	■	■									
4.5–4.99	■	■	■	■	■	■	■	■	■	■	■									
5–5.49	■	■	■	■	■	■	■	■	■	■	■									
6–6.49	■	■	■	■	■	■	■	■	■	■	■									
6.5–6.99	■	■	■	■	■	■	■	■	■	■	■									
7–7.49	■	■	■	■	■	■	■	■	■	■	■									
7.5–7.99	■	■	■	■	■	■	■	■	■	■	■									
8–8.49	■	■	■	■	■	■	■	■	■	■	■									
8.5–8.99	■	■	■	■	■	■	■	■	■	■	■									
9–9.49	■	■	■	■	■	■	■	■	■	■	■									
9.5–10.0	■	■	■	■	■	■	■	■	■	■	■									
10.0–10.99																				
11–11.99																				
12–12.99																				
13–13.99																				
14–14.99																				
15–15.99																				
16–16.99																				
17–17.99																				
18–18.99																				
19–20																				

■ Rollable □ To be referred to plant

DIMENSIONAL TOLERANCE

Thickness Tolerances as per DIN 1016/ EN 10051 — Figures in mm

Nominal Thickness		Permissible Deviations in Thickness for Nominal Widths											
From	Up to	>/= <	10 100	>/= <	100 600	>/= <	600 1200	>/= <	1200 1500	>/= <	1500 1800	>/= <	1800 2000
0.80	1.50	+/-	0.12	+/-	0.14	+/-	0.16	+/-	0.18	+/-	0.20	+/-	-
1.50	2.00	+/-	0.14	+/-	0.16	+/-	0.17	+/-	0.19	+/-	0.21	+/-	-
2.00	2.50	+/-	0.15	+/-	0.17	+/-	0.18	+/-	0.21	+/-	0.23	+/-	0.25
2.50	3.00	+/-	0.15	+/-	0.17	+/-	0.20	+/-	0.22	+/-	0.24	+/-	0.26
3.00	4.00	+/-	0.15	+/-	0.17	+/-	0.22	+/-	0.24	+/-	0.26	+/-	0.27
4.00	5.00	+/-	0.16	+/-	0.18	+/-	0.24	+/-	0.26	+/-	0.28	+/-	0.29
5.00	6.00	+/-	0.17	+/-	0.19	+/-	0.26	+/-	0.28	+/-	0.29	+/-	0.31
6.00	8.00	+/-	0.18	+/-	0.20	+/-	0.29	+/-	0.30	+/-	0.31	+/-	0.35
8.00	10.00	+/-	0.18	+/-	0.20	+/-	0.32	+/-	0.33	+/-	0.34	+/-	0.40
10.00	12.50	+/-	0.22	+/-	0.24	+/-	0.35	+/-	0.36	+/-	0.37	+/-	0.43
12.50	15.00	+/-	0.22	+/-	0.24	+/-	0.37	+/-	0.38	+/-	0.40	+/-	0.46
15.00	20.00*		-			-	0.40	-	0.42	-	0.45	-	0.50

*including 20.00 mm nominal thickness

WIDTH TOLERANCE

Nominal Width	Tolerance			
	Mill Edges		Trim Edges	
	Lower	Upper	Lower	Upper
< = 1200	0	+20	0	+3
> 1200 < = 1500	0	+20	0	+5
> 1500 < = 2000	0	+25	0	+6

Figures in mm

LENGTH TOLERANCE

Nominal Width	Tolerance	
	Lower	Upper
Upto 2000	0	+10
> 2000 < 5000	0	+25
> = 8000 < 12000	0	+40
> = 12000	0	+40

Figures in mm

CONVENIENCE OF TESTING.
FREEDOM OF CHOOSING.

Testing Facilities & Accreditations

Machine	Capacity
Universal Testing Machine	9T
Universal Testing Machine	50T
Universal Testing Machine	100T
Impact Testing Machine	450J
Vickers Hardness Tester	(VM50)
Rockwell Hardness Tester	(TRB 250 M)
DWTT Machine	80000 J

BADGES OF HONOUR.
TESTAMENTS OF CALIBRE.

Accreditation & Certification

ISO 45001 : 2018
ISO 50001 : 2018
ISO 14001 : 2015

Bureau of Indian Standards

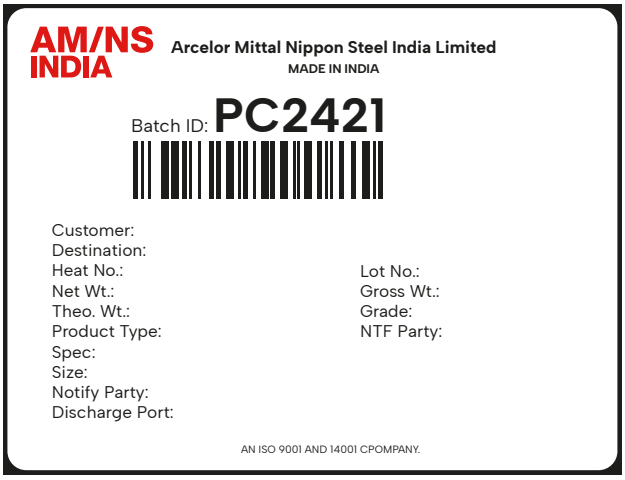
IATF 16949 : 2016

CERTAINTY OF SAFETY.
GUARANTEE OF QUALITY.

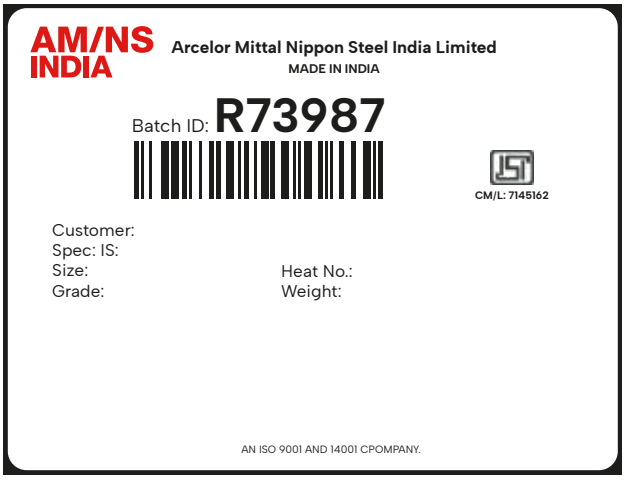
Packaging & Labelling

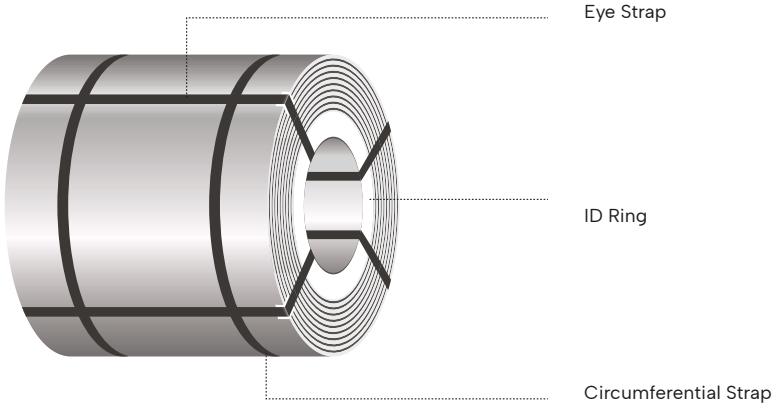
	<=3mm	>3mm	Label
Domestic HRC (Rail/Road Route)	3 Eye Straps 1 Circumferential Straps ID Ring	3 Eye Straps 1 Circumferential	1 OD
Domestic HRC (Sea Route)	3 Eye Straps 2 Circumferential Straps ID Ring	3 Eye Straps 2 Circumferential Straps	1 OD
Export HRC	4 Eye Straps 3 Circumferential Straps ID Ring	4 Eye Straps 3 Circumferential Straps	2 OD 1 ID

Export Label



Domestic Label





AMNS INDIA – HRPO CAPABILITY

AM/NS India holds a key position in hot rolled pickled & oiled products with an annual capacity of 1.9 MTPA. The pickling line offers high quality products catering to various segments like automotive, white goods etc. The wide range of products from low carbon formable grade steels to high strength steels for critical applications are catered to the customers.

Features

- Online trimming facility
- Products conforming to international standards
- Dimensional tolerances customised to specific requirements

Benefits

- Scale-free surface ensuring superior paintability
- Lengthens die life, eliminates irregular conditions, and promotes surface smoothness of the finished product

Technology Provider

- Pickling Line 1 (PKL-1) - Wean—USA and Hollow Block—India
- Pickling Line 3 (PKL-3) - Nelson Steel/ Proeco—Canada

Product Size Range

HRPO from PKL-1 (Yield Strength — 170-220 MPa)

Width/ Thickness, in mm	900	930-999	1000-1099	1100-1150	1151-1200	1201-1250	1251-1300	1301-1350	1351-1400	1401-1450	1451-1500	1501-1550	1551-1600	1601-1680
1.6														
1.8														
2														
2.01-2.49														
2.5-2.99														
3-3.49														
3.5-3.99														
4-4.49														
4.5-4.99														
5-5.49														
5.5-5.99														
6.01-6.50														
6.51-7.00														
7.01-7.50														
7.51-8.00														
8.01-8.50														
8.51-9.00														
9.01-9.50														
9.51-10.00														
10.01-12.00														
12.0-20.0														

Feasible from Pickling Line 1

Feasible from Pickling Line 3

To be referred to plant for feasibility check

Above matrix to be referred considering the minimum yield strength of the steel grade specification

HRPO from PKL-3 (Yield Strength — 170-220 MPa)

Width/ Thickness, in mm	900	930-999	1000-1099	1100-1150	1151-1200	1201-1250	1251-1300	1301-1350	1351-1400	1401-1450	1451-1500	1501-1550	1551-1600	1601-1680
1.6														
1.8														
2														
2.01-2.49														
2.5-2.99														
3-3.49														
3.5-3.99														
4-4.49														
4.5-4.99														
5-5.49														
5.5-5.99														
6.01-6.50														
6.51-7.00														
7.01-7.50														
7.51-8.00														
8.01-8.50														
8.51-9.00														
9.01-9.50														
9.51-10.00														
10.01-12.00														
12.0-20.0														

Feasible from Pickling Line 1

Feasible from Pickling Line 3

To be referred to plant for feasibility check

Above matrix to be referred considering the minimum yield strength of the steel grade specification

Product Size Range

HRPO from PKL-1 (Yield Strength — 221-270 MPa)

Width/ Thickness, in mm	900	930-999	1000-1099	1100-1150	1151-1200	1201-1250	1251-1300	1301-1350	1351-1400	1401-1450	1451-1500	1501-1550	1551-1600	1601-1680
1.6														
1.8														
2														
2.01-2.49														
2.5-2.99														
3-3.49														
3.5-3.99														
4-4.49														
4.5-4.99														
5-5.49														
5.5-5.99														
6.01-6.50														
6.51-7.00														
7.01-7.50														
7.51-8.00														
8.01-8.50														
8.51-9.00														
9.01-9.50														
9.51-10.00														
10.01-12.00														
12.0-20.0														

Feasible from Pickling Line 1

Feasible from Pickling Line 3

To be referred to plant for feasibility check

Above matrix to be referred considering the minimum yield strength of the steel grade specification

HRPO from PKL-3 (Yield Strength — 221-270 MPa)

Width/ Thickness, in mm	900	930-999	1000-1099	1100-1150	1151-1200	1201-1250	1251-1300	1301-1350	1351-1400	1401-1450	1451-1500	1501-1550	1551-1600	1601-1680
1.6														
1.8														
2														
2.01-2.49														
2.5-2.99														
3-3.49														
3.5-3.99														
4-4.49														
4.5-4.99														
5-5.49														
5.5-5.99														
6.01-6.50														
6.51-7.00														
7.01-7.50														
7.51-8.00														
8.01-8.50														
8.51-9.00														
9.01-9.50														
9.51-10.00														
10.01-12.00														
12.0-20.0														

Feasible from Pickling Line 1

Feasible from Pickling Line 3

To be referred to plant for feasibility check

Above matrix to be referred considering the minimum yield strength of the steel grade specification

Product Size Range

HRPO from PKL-1 (Yield Strength — 271-320 MPa)

Width/ Thickness, in mm	900	930-999	1000-1099	1100-1150	1151-1200	1201-1250	1251-1300	1301-1350	1351-1400	1401-1450	1451-1500	1501-1550	1551-1600	1601-1680
1.6														
1.8		■	■	■										
2		■	■	■	■									
2.01-2.49		■	■	■	■	■								
2.5-2.99		■	■	■	■	■								
3-3.49		■	■	■	■	■	■							
3.5-3.99		■	■	■	■	■	■	■	■					
4-4.49		■	■	■	■	■	■	■	■	■	■			
4.5-4.99		■	■	■	■	■	■	■	■	■	■	■		
5-5.49		■	■	■	■	■								
5.5-5.99		■	■	■	■	■								
6.01-6.50														
6.51-7.00														
7.01-7.50														
7.51-8.00														
8.01-8.50														
8.51-9.00														
9.01-9.50														
9.51-10.00														
10.01-12.00														
12.0-20.0														

■ Feasible from Pickling Line 1

■ Feasible from Pickling Line 3

□ To be referred to plant for feasibility check

Above matrix to be referred considering the minimum yield strength of the steel grade specification

HRPO from PKL-3 (Yield Strength — 271-320 MPa)

Width/ Thickness, in mm	900	930-999	1000-1099	1100-1150	1151-1200	1201-1250	1251-1300	1301-1350	1351-1400	1401-1450	1451-1500	1501-1550	1551-1600	1601-1680
1.6														
1.8														
2														
2.01-2.49														
2.5-2.99														
3-3.49														
3.5-3.99														
4-4.49														
4.5-4.99														
5-5.49														
5.5-5.99														
6.01-6.50														
6.51-7.00														
7.01-7.50														
7.51-8.00														
8.01-8.50														
8.51-9.00														
9.01-9.50														
9.51-10.00														
10.01-12.00														
12.0-20.0														

Feasible from Pickling Line 1

Feasible from Pickling Line 3

To be referred to plant for feasibility check

Above matrix to be referred considering the minimum yield strength of the steel grade specification

Product Size Range

HRPO from PKL-1 (Yield Strength — 321-370 MPa)

Width/ Thickness, in mm	900	930-999	1000-1099	1100-1150	1151-1200	1201-1250	1251-1300	1301-1350	1351-1400	1401-1450	1451-1500	1501-1550	1551-1600	1601-1680
1.6														
1.8														
2														
2.01-2.49														
2.5-2.99														
3-3.49														
3.5-3.99														
4-4.49														
4.5-4.99														
5-5.49														
5.5-5.99														
6.01-6.50														
6.51-7.00														
7.01-7.50														
7.51-8.00														
8.01-8.50														
8.51-9.00														
9.01-9.50														
9.51-10.00														
10.01-12.00														
12.0-20.0														

Feasible from Pickling Line 1

Feasible from Pickling Line 3

To be referred to plant for feasibility check

Above matrix to be referred considering the minimum yield strength of the steel grade specification

HRPO from PKL-3 (Yield Strength — 321-370 MPa)

Width/ Thickness, in mm	900	930-999	1000-1099	1100-1150	1151-1200	1201-1250	1251-1300	1301-1350	1351-1400	1401-1450	1451-1500	1501-1550	1551-1600	1601-1680
1.6														
1.8														
2														
2.01-2.49														
2.5-2.99														
3-3.49														
3.5-3.99														
4-4.49														
4.5-4.99														
5-5.49														
5.5-5.99														
6.01-6.50														
6.51-7.00														
7.01-7.50														
7.51-8.00														
8.01-8.50														
8.51-9.00														
9.01-9.50														
9.51-10.00														
10.01-12.00														
12.0-20.0														

Feasible from Pickling Line 1

Feasible from Pickling Line 3

To be referred to plant for feasibility check

Above matrix to be referred considering the minimum yield strength of the steel grade specification

Product Size Range

HRPO from PKL-1 (Yield Strength — 371-420 MPa)

Width/ Thickness, in mm	900	930-999	1000-1099	1100-1150	1151-1200	1201-1250	1251-1300	1301-1350	1351-1400	1401-1450	1451-1500	1501-1550	1551-1600	1601-1680
1.6														
1.8														
2														
2.01-2.49		■	■	■	■									
2.5-2.99		■	■	■	■	■								
3-3.49		■	■	■	■	■	■							
3.5-3.99		■	■	■	■	■	■	■						
4-4.49		■	■	■	■	■	■	■	■	■				
4.5-4.99		■	■	■	■	■	■	■	■	■	■	■		
5-5.49		■	■	■	■	■								
5.5-5.99		■	■	■	■	■								
6.01-6.50														
6.51-7.00														
7.01-7.50														
7.51-8.00														
8.01-8.50														
8.51-9.00														
9.01-9.50														
9.51-10.00														
10.01-12.00														
12.0-20.0														

■ Feasible from Pickling Line 1

■ Feasible from Pickling Line 3

□ To be referred to plant for feasibility check

Above matrix to be referred considering the minimum yield strength of the steel grade specification

HRPO from PKL-3 (Yield Strength — 371-420 MPa)

Width/ Thickness, in mm	900	930-999	1000-1099	1100-1150	1151-1200	1201-1250	1251-1300	1301-1350	1351-1400	1401-1450	1451-1500	1501-1550	1551-1600	1601-1680
1.6														
1.8														
2														
2.01-2.49														
2.5-2.99			■	■	■	■								
3-3.49			■	■	■	■	■							
3.5-3.99			■	■	■	■	■	■						
4-4.49			■	■	■	■	■	■	■	■				
4.5-4.99			■	■	■	■	■	■	■	■	■	■		
5-5.49			■	■	■	■	■	■	■	■	■	■	■	
5.5-5.99			■	■	■	■	■	■	■	■	■	■	■	
6.01-6.50			■	■	■	■	■	■	■	■	■	■	■	
6.51-7.00			■	■	■	■	■	■	■	■	■	■	■	
7.01-7.50			■	■	■	■	■	■	■	■	■	■	■	
7.51-8.00			■	■	■	■	■	■	■	■	■	■	■	
8.01-8.50			■	■	■	■	■	■	■	■	■			
8.51-9.00			■	■	■	■	■	■	■	■	■			
9.01-9.50			■	■	■									
9.51-10.00			■	■	■									
10.01-12.00														
12.0-20.0														

■ Feasible from Pickling Line 1

■ Feasible from Pickling Line 3

□ To be referred to plant for feasibility check

Above matrix to be referred considering the minimum yield strength of the steel grade specification

Product Size Range

HRPO from PKL-1 (Yield Strength — 421- 470 MPa)

Width/ Thickness, in mm	900	930-999	1000-1099	1100-1150	1151-1200	1201-1250	1251-1300	1301-1350	1351-1400	1401-1450	1451-1500	1501-1550	1551-1600	1601-1680
1.6														
1.8														
2														
2.01-2.49														
2.5-2.99														
3-3.49														
3.5-3.99														
4-4.49														
4.5-4.99														
5-5.49														
5.5-5.99														
6.01-6.50														
6.51-7.00														
7.01-7.50														
7.51-8.00														
8.01-8.50														
8.51-9.00														
9.01-9.50														
9.51-10.00														
10.01-12.00														
12.0-16.0														
16-20														

Feasible from Pickling Line 1

Feasible from Pickling Line 3

To be referred to plant for feasibility check

Above matrix to be referred considering the minimum yield strength of the steel grade specification

HRPO from PKL-3 (Yield Strength — 421-470 MPa)

Width/ Thickness, in mm	900	930-999	1000-1099	1100-1150	1151-1200	1201-1250	1251-1300	1301-1350	1351-1400	1401-1450	1451-1500	1501-1550	1551-1600	1601-1680
1.6														
1.8														
2														
2.01-2.49														
2.5-2.99														
3-3.49														
3.5-3.99														
4-4.49														
4.5-4.99														
5-5.49														
5.5-5.99														
6.01-6.50														
6.51-7.00														
7.01-7.50														
7.51-8.00														
8.01-8.50														
8.51-9.00														
9.01-9.50														
9.51-10.00														
10.01-12.00														
12.0-16.0														
16-20														

Feasible from Pickling Line 1

Feasible from Pickling Line 3

To be referred to plant for feasibility check

Above matrix to be referred considering the minimum yield strength of the steel grade specification

Product Size Range

HRPO from PKL-1 (Yield Strength — 471-520 MPa)

Width/ Thickness, in mm	900	930-999	1000-1099	1100-1150	1151-1200	1201-1250	1251-1300	1301-1350	1351-1400	1401-1450	1451-1500	1501-1550	1551-1600	1601-1680
1.6														
1.8														
2														
2.01-2.49														
2.5-2.99														
3-3.49														
3.5-3.99														
4-4.49														
4.5-4.99														
5-5.49														
5.5-5.99														
6.01-6.50														
6.51-7.00														
7.01-7.50														
7.51-8.00														
8.01-8.50														
8.51-9.00														
9.01-9.50														
9.51-10.00														
10.01-12.00														
12.0-16.0														
16-20														

Feasible from Pickling Line 1

Feasible from Pickling Line 3

To be referred to plant for feasibility check

Above matrix to be referred considering the minimum yield strength of the steel grade specification

HRPO from PKL-3 (Yield Strength — 471-520 MPa)

Width/ Thickness, in mm	900	930-999	1000-1099	1100-1150	1151-1200	1201-1250	1251-1300	1301-1350	1351-1400	1401-1450	1451-1500	1501-1550	1551-1600	1601-1680
1.6														
1.8														
2														
2.01-2.49														
2.5-2.99														
3-3.49														
3.5-3.99														
4-4.49														
4.5-4.99														
5-5.49														
5.5-5.99														
6.01-6.50														
6.51-7.00														
7.01-7.50														
7.51-8.00														
8.01-8.50														
8.51-9.00														
9.01-9.50														
9.51-10.00														
10.01-12.00														
12.0-16.0														
16-20														

Feasible from Pickling Line 1

Feasible from Pickling Line 3

To be referred to plant for feasibility check

Above matrix to be referred considering the minimum yield strength of the steel grade specification

Product Size Range

HRPO from PKL-1 (YS 550 MPa)

No. of coils	900-999	1000	1001-1100	1101-1150	1151-1200	1201-1250	1251-1300	1301-1350	1351-1400	1401-1450	1451-1500	1501-1550	1551-1600	1601-1650	1651-1700	1701-1750	1751-1800	1801-1850	1851-1900	1900-2000
1.6																				
1.61-1.99																				
2																				
2.01-2.29																				
2.3-2.69																				
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8.5-8.99																				
9-9.49																				
9.5-9.99																				
10-10.99																				
11-11.99																				

Feasible from Pickling Line 1

Feasible from Pickling Line 3

To be referred to plant for feasibility check

Above matrix to be referred considering the minimum yield strength of the steel grade specification

HRPO from PKL-3 (YS 550 MPa)

No. of coils	< 900	900–999	1000	1001–1100	1101–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1650	1651–1700	1701–1750	1751–1800	1801–1850	1851–1900	1900–2000
1.6																					
1.61–1.99																					
2																					
2.01–2.29																					
2.3–2.69																					
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10–10.99																					
11–11.99																					

Feasible from Pickling Line 1

Feasible from Pickling Line 3

To be referred to plant for feasibility check

Above matrix to be referred considering the minimum yield strength of the steel grade specification

Product Size Range

HRPO from PKL-1 (YS 650 MPa)																				
No. of coils	900-999	1000	1001-1100	1101-1150	1151-1200	1201-1250	1251-1300	1301-1350	1351-1400	1401-1450	1451-1500	1501-1550	1551-1600	1601-1650	1651-1700	1701-1750	1751-1800	1801-1850	1851-1900	1900-2000
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10-10.99																				
11-11.99																				

Feasible from Pickling Line 1

Feasible from Pickling Line 3

To be referred to plant for feasibility check

Above matrix to be referred considering the minimum yield strength of the steel grade specification

HRPO from PKL-3 (YS 650 MPa)

No. of coils	< 900	900–999	1000	1001–1100	1101–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1650	1651–1700	1701–1750	1751–1800	1801–1850	1851–1900	1900–2000
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9–9.49																					
9.5–9.99																					
10–10.99																					
11–11.99																					

Feasible from Pickling Line 1

Feasible from Pickling Line 3

To be referred to plant for feasibility check

Above matrix to be referred considering the minimum yield strength of the steel grade specification

Product Size Range

HRPO from PKL–1 (YS 700 MPa)																				
No. of coils	900–999	1000	1001–1100	1101–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1650	1651–1700	1701–1750	1751–1800	1801–1850	1851–1900	1900–2000
1.6																				
1.61–1.99																				
2																				
2.01–2.29																				
2.3–2.69																				
2.7–2.99																				
3–3.49																				
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9–9.49																				
9.5–9.99																				
10–10.99																				
11–11.99																				

Feasible from Pickling Line 1

Feasible from Pickling Line 3

To be referred to plant for feasibility check

Above matrix to be referred considering the minimum yield strength of the steel grade specification

HRPO from PKL-3 (YS 700 MPa)

No. of coils	< 900	900–999	1000	1001–1100	1101–1150	1151–1200	1201–1250	1251–1300	1301–1350	1351–1400	1401–1450	1451–1500	1501–1550	1551–1600	1601–1650	1651–1700	1701–1750	1751–1800	1801–1850	1851–1900	1900–2000
1.6																					
1.61–1.99																					
2																					
2.01–2.29																					
2.3–2.69																					
2.7–2.99																					
3–3.49																					
3.5–3.99																					
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8.5–8.99																					
9–9.49																					
9.5–9.99																					
10–10.99																					
11–11.99																					

Feasible from Pickling Line 1

Feasible from Pickling Line 3

To be referred to plant for feasibility check

Above matrix to be referred considering the minimum yield strength of the steel grade specification

Product Size Range

HRPO Capability for High Carbon (max. 0.80%) (PKL-1)

Width/ Thickness, in mm	900	930-999	1000-1050	1051-1150	1151-1200	1201-1250	1251-1300	1301-1350	1351-1400	1401-1450	1451-1500	1501-1550	1551-1600	1601-1680
1.6														
1.8														
2														
2.01-2.29														
2.3-2.99														
3-3.49														
3.5-4.0														
4.01-4.49														
4.5-4.99														
5-5.49														
5.5-5.99														
6.01-6.50														
6.51-7.00														
7.01-7.50														
7.51-8.00														
8.01-8.50														
8.51-9.00														
9.01-9.50														
9.51-10.00														
10.01-20.00														

Feasible from Pickling Line 1

Feasible from Pickling Line 3

To be referred to plant for feasibility check

HRPO Capability for High Carbon (max. 0.80%) (PKL-3)

Width/ Thickness, in mm	900	930-999	1000-1050	1051-1150	1151-1200	1201-1250	1251-1300	1301-1350	1351-1400	1401-1450	1451-1500	1501-1550	1551-1600	1601-1680
1.6														
1.8														
2														
2.01-2.49														
2.5-2.99														
3-3.49														
3.5-4.0														
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7.51-8.00														
8.01-8.50														
8.51-9.00														
9.01-9.50														
9.51-10.00														
10.01-20.00														

Feasible from Pickling Line 1

Feasible from Pickling Line 3

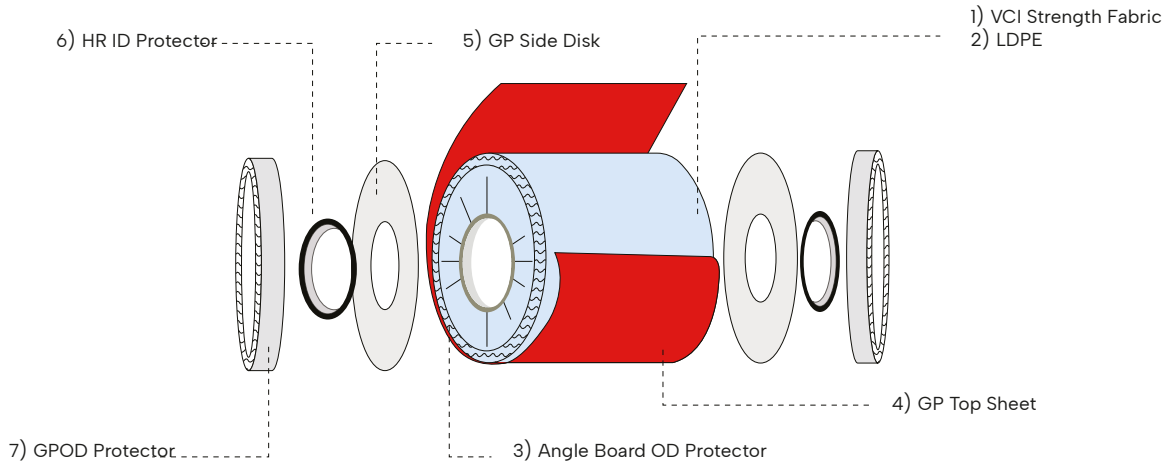
To be referred to plant for feasibility check

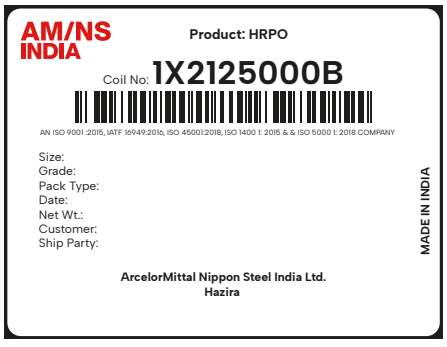
CERTAINTY OF SAFETY.
GUARANTEE OF QUALITY.

Packaging & Labelling

	<12MT	>12MT
Domestic	VCI+LDPE+GP Top Sheet Angle Board OD Protector GP Side Disk ID Ring 4 Eye Straps 3 Circumferential Straps	VCI+LDPE+GP Top Sheet Angle Board OD Protector GP Side Disk ID Ring 6 Eye Straps 3 Circumferential Straps
Export	VCI+LDPE+GP Top Sheet Angle Board OD Protector GP Side Disk ID Ring 4 Eye Straps 3 Circumferential Straps	VCI+LDPE+GP Top Sheet Angle Board OD Protector GP Side Disk ID Ring 6 Eye Straps 3 Circumferential Straps

PACKAGING AT AM/NS, HAZIRA






12
11
10
12
11
10

AM/NS INDIA STEEL PROCESSING FACILITIES & CAPABILITY FOR HR/HRPO PRODUCTS

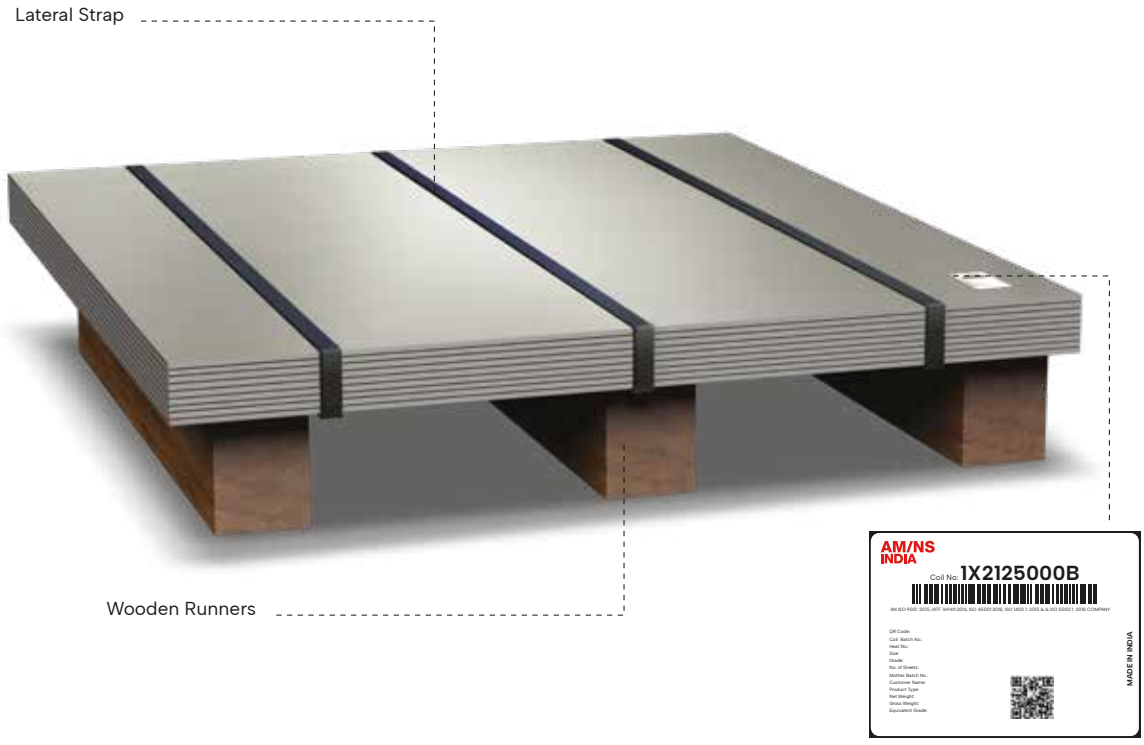
Cut To Length (CTL) / Cut To Size (CTS) Capability					
	Hazira	**Pune**	**Bahadurgarh**	**Chennai**	**Indore**
Product Form	**HR Sheet**	**HR/HRPO Sheet**	**HR/HRPO Sheet**	**HR/HRPO Sheet**	**HR/HRPO Sheet**
Capacity (KT/Annum)	680	150	150	150	120
Thickness (mm)	1.6-20	2-12	2-10	2-14	2-14
Width (mm)	750-2000	150-2000	150-2000	150-2000	750-2000
Length (mm)	1900-13000	1500-12000	1500-12000	1000-12000	1000-12000
Bundle Weight (Max)	8 MT	8 MT	8 MT	8 MT	8 MT
YS (Max)	500 MPa	700 MPa	350 MPa	700 MPa	700 MPa
UTS (Max)	590 MPa	750 MPa	500 MPa	750 MPa	750 MPa

PACKAGING & LABELLING NORMS FOR CTL/CTS

	Packaging	**Labelling**
HRPO	One layer of HDPE, Wooden runners, 1 longitudinal 32mm steel strap, 3 - 4 lateral straps as per sheet length.	QR Code, Coil Batch No., Heat No., Size, Grade, No. of sheets, Mother Batch no, Customer Name, Product Type, Net Weight, Gross Weight, Equivalent Grade
HR	Wooden runner , 3-4 lateral 32mm steel straps	QR Code, Coil Batch No., Heat No., Size, Grade, No. of sheets, Mother Batch no, Customer Name, Product Type, Net Weight, Gross Weight, Equivalent Grade

HRPO Packaging – CTL/CTS

HR Packaging – CTL/CTS

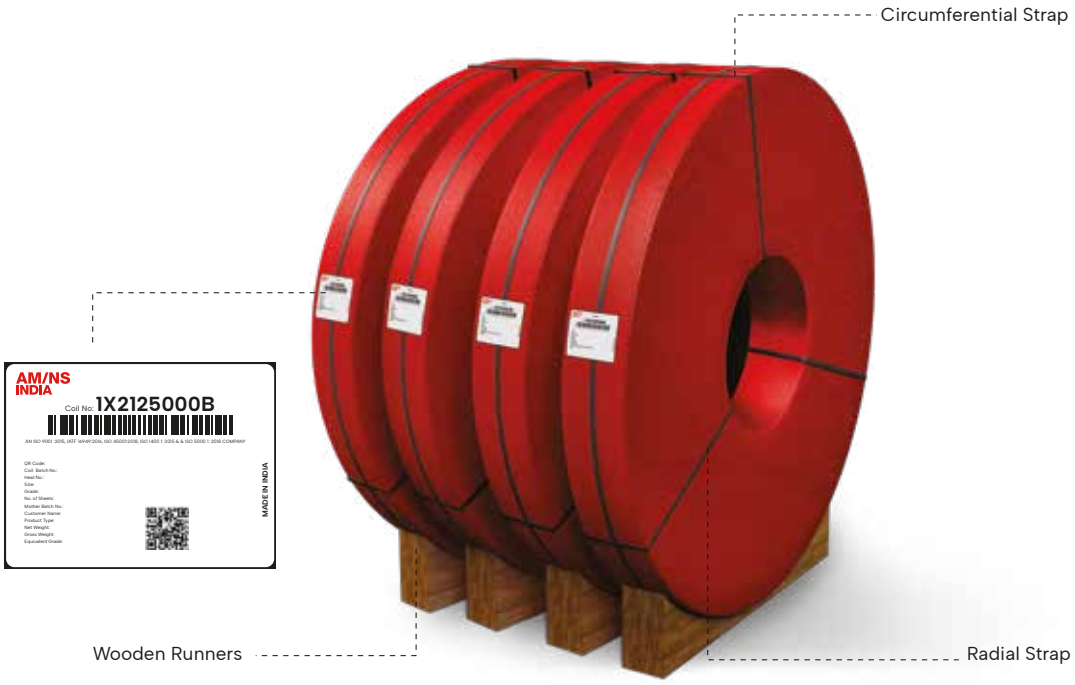


Slitting Capability				
	Pune	**Bahadurgarh**	**Chennai**	**Indore**
Product Form	**HR/HRPO Coil form**	**HR/HRPO Coil form**	**HR/HRPO Coil form**	**HR/HRPO Coil form**
Capacity (Tons/Annum)	150000	150000	150000	150000
Thickness (mm)	1.6-12	1.6-12	1.6-12	1.6-12
Width (mm)	100-2000	100-2000	100-2000	100-2000
Coil ID (mm)	610/762	610/762	610/762	610/762
Coil OD (mm)	2000 max	2000 max	2000 max	2000 max
YS (Max)	700 MPa	700 MPa	700 MPa	700 MPa
UTS (Max)	750 MPa	750 MPa	750 MPa	750 MPa

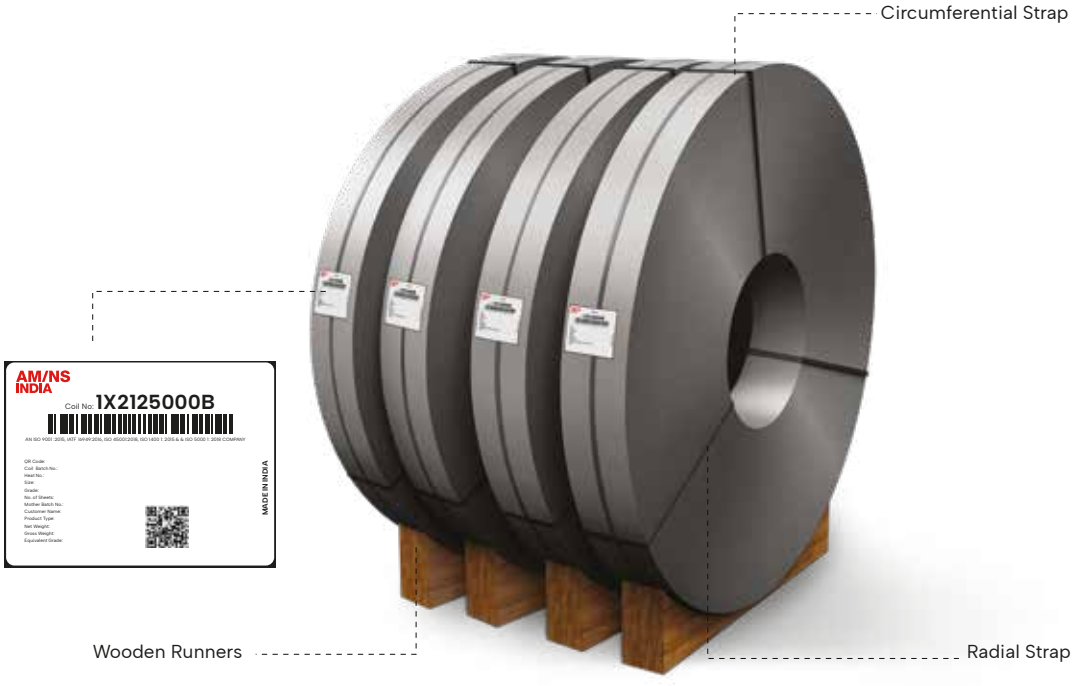
PACKAGING & LABELLING NORMS FOR SLITTING

	Packaging	**Labelling**
HRPO	Strapping 32mm steel strap 1-6 no's circumferential (as per coil thickness) 2-3 radial (as per thick/width requirement, 1 layer of HDPE. Clubbing of small slit width batches with steel straps, eye to wall or eye to sky as per requirement.	QR Code, Coil Batch no, Heat no, Size, Grade, Mother Batch no, Customer Name, Product Type, Net WT, Gross WT, Slit Position, Coil Length, Equivalent Grade
HR	Strapping 32mm steel strap 1-6 no's circumferential (as per coil thickness) 2-3 radial (as per thick/width requirement Clubbing of small slit width batches with steel straps, eye to wall or eye to sky as per requirement.	QR Code, Coil Batch no, Heat no, Size, Grade, Mother Batch no, Customer Name, Product Type, Net WT, Gross WT, Slit Position, Coil Length, Equivalent Grade

HRPO Packaging – CTL/CTS



HR Packaging – Slit Coils



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

SALES **OFFICES**

Pune Office:

ArcelorMittal Nippon Steel India Limited, 408, City Tower, 17 Boat Club Road, Pune- 411001, Maharashtra, India

Chennai Office:

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

Ahmedabad Office:

ArcelorMittal Nippon Steel India Limited, B-301, Safal Pegasus, Prahladnagar, Ahmedabad - 380015, Gujarat, India

Noida Office:

ArcelorMittal Nippon Steel India Limited, Corporate Twin Towers, Tower-A, 4th Floor, Sector 125, Plot No. 1 & 2, Noida - 201301, Uttar Pradesh, India

Indore Office:

ArcelorMittal Nippon Steel India Limited, 408, 4th Floor, Apollo Premier, Plot No.1, Scheme No. 54, PU - 4, Vijaynagar Square, Indore - 452011, Madhya Pradesh, India

Bengaluru Office:

ArcelorMittal Nippn Steel India Limited, No. 2, 2nd Floor, R. R. Chambers, 11th Main, Vasant Nagar, Bengaluru - 560052, Karnataka, India

Pune Precoated Facility:

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

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Faridabad (Haryana):

ArcelorMittal Nippon Steel India (AM/NS India), Hypermart – Faridabad, Plot No. 54, Industrial Area, N.I.T. Faridabad, Haryana – 121001

Secundrabad (Telangana):

ArcelorMittal Nippon Steel India (AM/NS India), Hypermart – Secundrabad, S.Y. No. 173 and 175, Burttionguda, Machabollaram, Bollaram, Station Road, Kompally, Secundrabad – 500010

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 – 560105

Coimbatore (Tamil Nadu):

ArcelorMittal Nippon Steel India (AM/NS India), Hypermart – Coimbatore, S. F. No. 59/1D, Kondayampalayam Road, Keeranatham Village, Coimbatore – 641110

Taloja-II (Maharashtra):

ArcelorMittal Nippon Steel India (AM/NS India), Hypermart – Taloja-II, D – 20, Taloja MIDC, Navi Mumbai, Taluka – Panvel, Raigad – 410208

Jaipur (Rajasthan):

ArcelorMittal Nippon Steel India (AM/NS India), Hypermart – Jaipur, B – 202, Shade No. 1, Road No. 9F, VKI Area, Jaipur – 302013

Bahadurgarh (Haryana):

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

Hazira (Gujarat):

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

Delhi (Delhi):

ArcelorMittal Nippon Steel India (AM/NS India), Hypermart – Delhi, 92/17/3, Udyog Nagar, Gali No. 3, Mundka, Delhi – 110041

Ludhiana (Punjab):

ArcelorMittal Nippon Steel India (AM/NS India) Hypermart – Ludhiana ,Plot no 1&2, Near Markfed godown, Giaspura road, Industrial area c, Ludhiana, Punjab, 141010

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 -181133

Kolkata (West Bengal):

ArcelorMittal Nippon Steel India (AM/NS India), Hypermart – Kolkata, Sankrail Station Road, VPO: Chaturbhuj Kathi, PS: Sankrail, Howrah, West Bengal-711313

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

Pune (Maharashtra):

ArcelorMittal Nippon Steel India Limited , Gate No. 437 and 442, Golechiwadi, Ambi – Nigade Road, MIDC – Talegaon, Pune – 410 507

Ahmedabad (Gujarat):

ArcelorMittal Nippon Steel India (AM/NS India), Hypermart – Ahmedabad, Shed I & II, C4, Steel Town, Opp. Nova Patrochem, Sarkhej – Bavla Highway, Village Moraiya, Changodar, Ahmedabad – 382213

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

Pune (Maharashtra):

ArcelorMittal Nippon Steel India Limited , Gate No. 437 and 442, Golechiwadi,
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Chennai (Tamil Nadu):

ArcelorMittal Nippon Steel India Limited, Plot A - 6, SIPCOT, Oragadam, Sriperumbudur(tk),
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Indore (Madhya Pradesh):

ArcelorMittal Nippon Steel India Limited, Plot No. 473 A, Sector 3, Industrial Area,
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