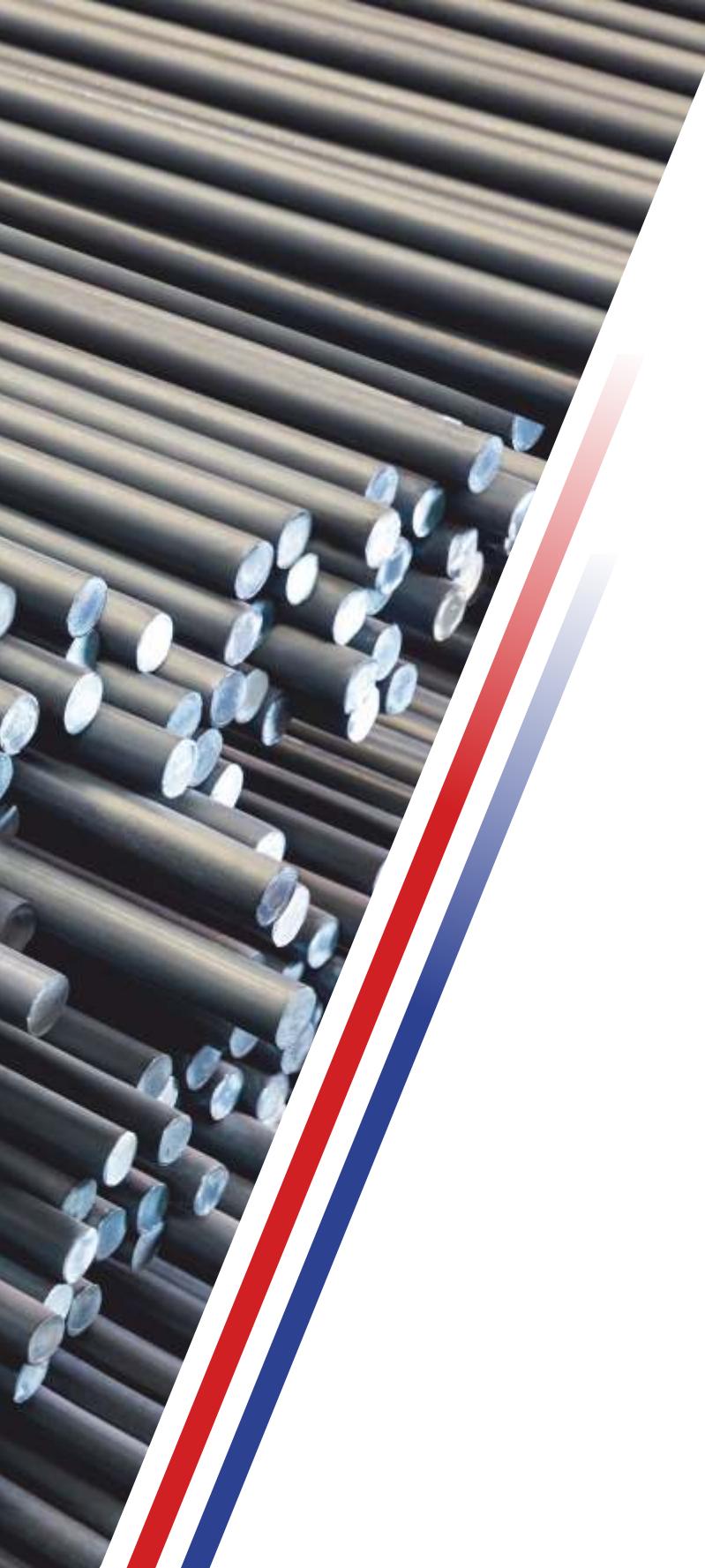


SPECIAL STEEL PRODUCTS



JSW Steel





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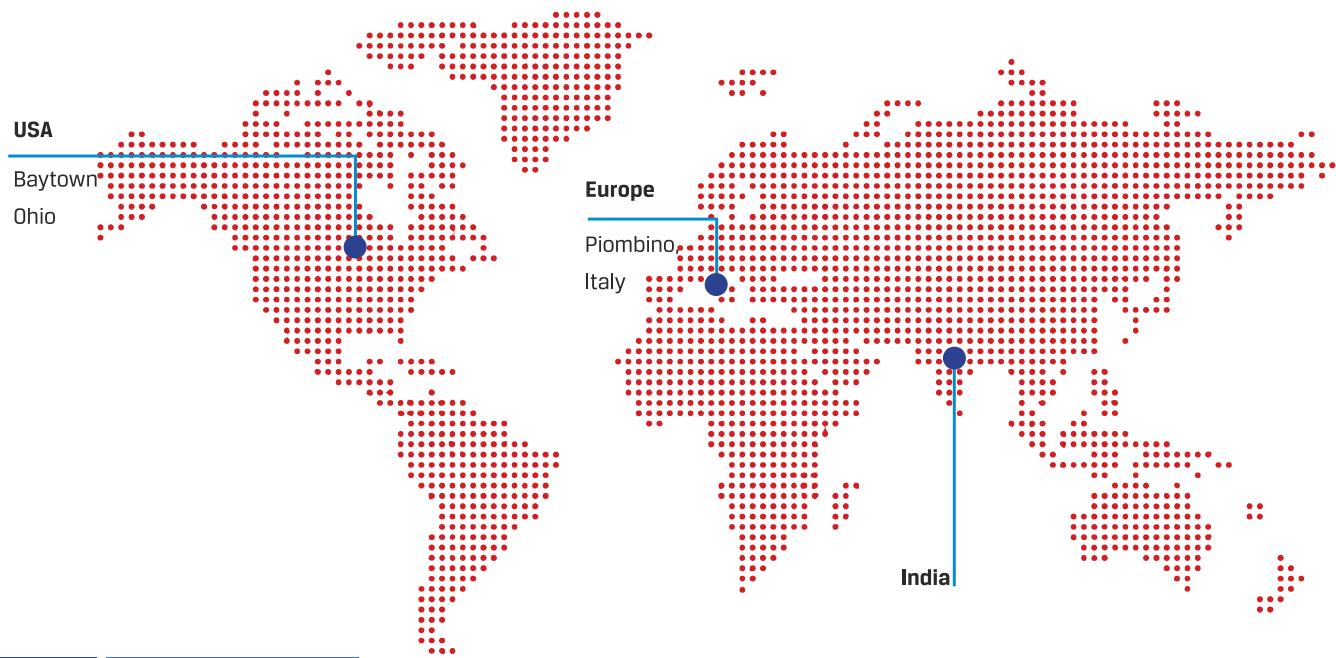
About JSW Group



The US\$ 24 billion JSW Group is ranked among India's leading business houses. JSW's innovative and sustainable presence in various sectors including Steel, Energy, Infrastructure, Cement, Paints, Venture Capital and Sports is helping the Group play an important role in driving India's economic growth.

The Group strives for excellence by leveraging its strengths & capabilities including a successful track-record of executing large capital-intensive & technically complex projects, differentiated product-mix, state-of-the-art manufacturing facilities and greater focus on pursuing sustainable growth.

It also has a strong social development focus aimed at empowering local communities residing around its Plant & Port locations. JSW Group is known to create value for all its stakeholders by combining its growth roadmap, superior execution capabilities and a relentless drive to be #BetterEveryday.



Our Plants

People 40000+	Offices 300+	Vijayanagar Works	Tarapur Works
Plants 16	Continents 4	Dolvi Works	JSW Ispat Special Steel Products Ltd.
		Salem Works	Anjar Works
		Bhushan Power & Steel Ltd. (BPSL)	JSW Vallabh Tinplate Pvt. Ltd.
		Salav Works	Vardhaman Industries Ltd. (VIL)
		Vasind Works	Asian Colour Coated Ispat Ltd. (ACCIL)
		Kalmeshwar Works	

About JSW Steel

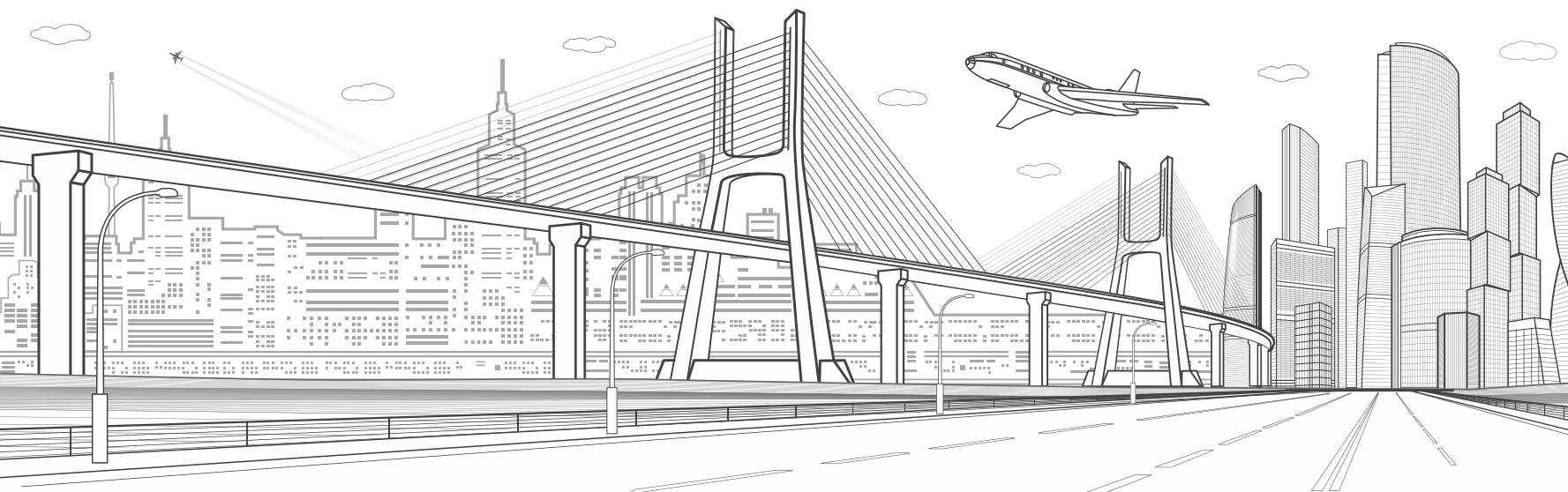


JSW Steel is the flagship business of the diversified, US\$ 24 billion JSW Group. As one of India's leading business houses, JSW Group also has interests in energy, infrastructure, cement, paints, realty, e-platforms, mobility, defence, sports, and venture capital. Over the last three decades, JSW Steel has grown from a single manufacturing unit to become India's leading integrated steel company with a capacity of 35.7 MTPA in India and the USA (including 6 MTPA under commissioning in India). Its next phase of growth will increase its total capacity to 43.5 MTPA by September 2027. The Company's plant in Vijayanagar, Karnataka is the largest single-location steel-producing facility in India with current capacity of 17.5 MTPA (including 5 MTPA under commissioning).

JSW Steel has always been at the forefront of research and innovation. The company has a strategic collaboration with JFE Steel of Japan, enabling it to access new and state-of-the-art technologies to produce and offer high-value special steel products to its customers. These products are extensively used across industries and applications including construction, infrastructure, automobile, electrical applications, and appliances.

JSW Steel is widely recognized for its excellence in business and sustainability practices. Some of these recognitions include World Steel Association's Steel Sustainability Champion (consecutively from 2019 to 2024), Leadership Rating (A-) in CDP climate change disclosure and A in CDP Water Disclosure (2023), Deming Prize for TQM for its facilities at Vijayanagar (2018), and Salem (2019). It is part of the Dow Jones World and Emerging Markets Sustainability Indices (DJSI), and included in S&P Global's Sustainability Yearbook (consecutively from 2020 to 2023). JSW Steel is ranked 8th among the top 35 world-class steelmakers, according to the 'World-Class Steelmaker Rankings' by World Steel Dynamics (WSD), based on a variety of factors.

As a responsible corporate citizen, JSW Steel's CO₂ emission reduction goals are aligned with India's Climate Change commitments under the Paris Accord. JSW Steel aims to reduce its CO₂ emissions by 42% from its steel-making operations by 2030 and has committed to achieve net neutral in carbon emission for all operations under its direct control by 2050. Other sustainability targets include achieving no net-loss in biodiversity at the operating sites by 2030, substantially improving air quality, reducing water consumption in all operations and maintaining Zero Liquid Discharge.



JSW Salem Works

JSW Salem Works is recognized as India's first Special Alloy Steel Plant with a capacity of 1 MTPA and is the only integrated steel plant situated in Tamil Nadu. This plant is capable of producing a variety of products, including Pig Iron, Cast Billet/Blooms, Hot Rolled Round Bars, RCS Bars, Wire Rod, Flats Bars, Hexagonal Bars, Hexagonal Wire Rod, and Grinding Media Steel Balls. Furthermore, the Hot Rolled products can be supplied in either Annealed or Bright Bar Condition.



Strategic Location: The plant's location in Tamil Nadu ensures lower transportation costs and faster delivery to major auto hubs in southern and western parts of India.

The facility is also bolstered by several auxiliary operations, such as a Captive Power Plant and a Gas Production Plant (producing Oxygen, Nitrogen, and Argon), along with Compressed Air and Water systems.

Salem Works is esteemed as a prominent manufacturer of Virgin Special Steel, offering more than 1500 customized grades
Strategic Location: The plant's location in Tamil Nadu ensures lower transportation costs and faster delivery to major Auto Hubs in Southern and Western parts of India.

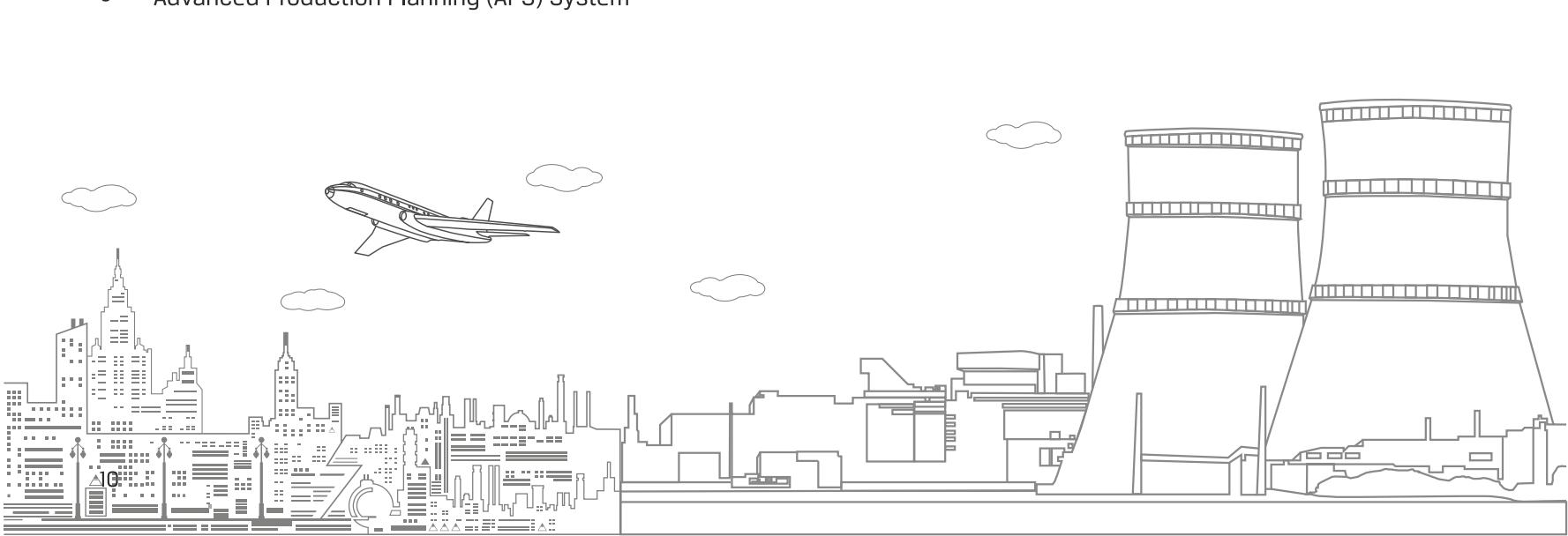
Salem Works is India's largest integrated special alloy steel plant manufacturing world-class quality Special Steel Long Products for various applications:

Bearing | Forging | Cold Heading | Spring | Free Cutting | Boiler Tire Cord | Doffer Wire | Defense | Railways
Nuclear | Aerospace



Setting Benchmarks in Salem Works

- World's largest Energy Optimizing Furnace (EOF) by installed capacity
- Slag Detection System at EOF tapping
- Dynamic Ferro Alloy Addition Model for alloy calculation and addition in Ladle Furnace
- Largest Long Product Cast Section – 340x400
- India's first Alloy Steel Plant operating with Fully Automated Mould Powder Feeding System in Caster
- Final EMS in the Casters in addition to the Mould EMS
- Automatic Slow Cooling facility at Blooming Mill
- India's first and largest Skew Rolling Mill for Grinding Media Steel Balls
- Continuous Annealing furnace for the Long Products
- Fully Automatic Inspection Lines (UST, ECA) for the Straight Length Round and RCS Bars
- Single Tap Hole Blast Furnace with the Pool type runner
- Zero Liquid Discharge Plant
- Advanced Production Planning (APS) System





Manufacturing Facilities

Coke Oven Plant: Metallurgical Coke is produced by destructive distillation of coal

Sinter Plant: Agglomerates Iron Ore Fines, Fluxes, and Fuel at 1250-1350°C to produce Sinter for the Blast Furnace

Blast Furnace: Iron Ore Lumps, Sinter, Coke, and Fluxes are charged from the Top, while Hot Air (1050-1150°C) is injected at the bottom through Tuyeres. It is also equipped with PCI facility. Iron bearing materials get converted into Liquid Hot Metal through Reduction Process and periodically tapped through the Tap Hole

Energy Optimizing Furnace (EOF): EOF is a Primary Steel Making unit where Liquid Hot Metal is getting converted into Liquid Steel through Oxidation Process. Oxygen is blown into the Furnace through Submerged Tuyeres, Atmospheric Injectors and Supersonic Lance. After processing, Liquid Steel is tapped into the Ladle with the addition of Primary deoxidants and transferred to Ladle Refining Furnace

Special Features in EOF: Auto Blow Profile System for Oxygen Blowing | Continuous Deslagging System
Carbon & Oxygen Prediction Model | Slag Detection System at tapping

Ladle Refining Furnace (LRF): LRF is a secondary steel making unit where Chemical Composition of Steel is maintained as per the Customer Specific Requirements. It is equipped with electrodes to maintain the temperature of steel. Ferro alloys and Fluxes are added from bunkers through conveyor systems with an online weighing system.



Special Features of LRF:

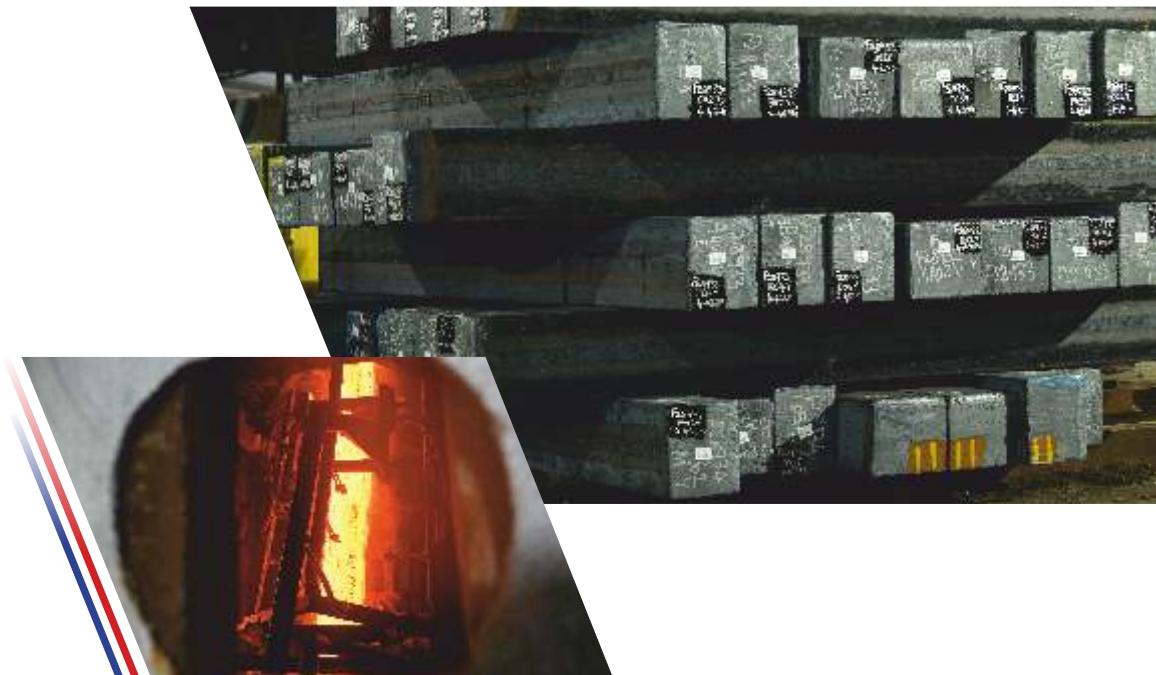
- Mass Flow Control (MFC) system to ensure homogenization of steel
- Dynamic Ferro Alloy Model
- Slag raking system for EOF tap slag removal

Vacuum Degassing (VD): After LRF process, Steel is taken to Degassing unit and treated under vacuum for removal of Dissolved Gases. Ar Purching rate Holding Pressure and time are being maintained as per the End Application Requirement. After VD, soft rinsing is carried out for Inclusion Flotation at LRF Station.

Special Features of VD:

- Interlock system to maintain the desired holding time
- VD Camera

Billet & Bloom Casters: In CCM, liquid steel is converted into solid billets/blooms. It is then transferred through shroud from Ladle to Tundish, and from Tundish to 3-Strand Moulds through SEN. In mould, primary cooling is carried out to form the initial solidified shell. The billet/bloom is withdrawn and straightened continuously by withdrawal and straightener rolls. During this process, billets/blooms are continuously cooled with water. Final Cast billets/blooms are cut to required length and transferred to yard followed by either Direct Dispatch or else consumption at Hot Rolling Mills.



Special Features of CCM:

- Argon Flooding System in Tundish
- Hydris to measure the Liquid Hydrogen level
- Slag Detection System from Ladle to Tundish
- Auto Mould Powder Feeder
- Final EMS in addition to Mould EMS
- Pit/Slow Cooling of Billets/Blooms after Casting

Blooming Mill: Blooming Mill produces Hot Rolled Round and Round Cornered Square (RCS) bars. Blooms are reheated in a Blast Furnace Gas Fired Walking Beam Furnace followed by descaling using High Pressure Water Jets, Rough Rolling in a 2 Hi-Reversible Mill and Final Rolling in 8 Stand HV Mill.



Special Features of BLM:

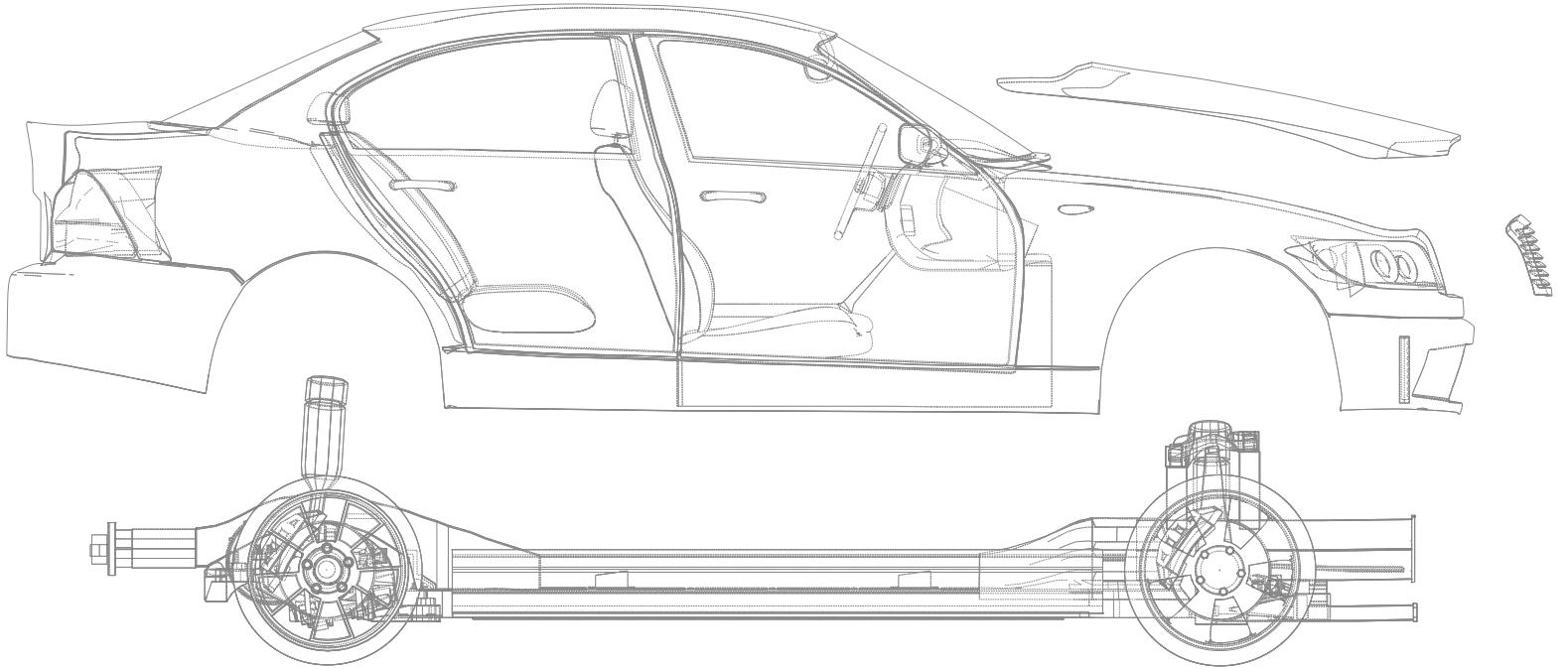
- Hot Profiler for Online Size Measurement
- Automatic Slow Cooling Facility

Bar & Rod Mill: BRM produces Hot Rolled Round Bars, Wire Rod, Flats Bars, Hexagonal Bars and Hexagonal Wire Rod. Billets / Blooms are reheated in a Blast Furnace Gas Fired Walking Beam Furnace followed by descaling using High Pressure Water Jets, Rough Rolling in a Sliding Stand, Intermediate Rolling in a 17 Stand HV Mill and Final Rolling in Reducing Sizing Block / No Twist Mill.

Special Features of BRM:

- Hot Eye Surface Inspection for Wire Rod
- Stelmor Conveyor system for Wire Rod
- Reducing Sizing Block for Closer Dimension Control
- Manual Controlled Cooling





Annealing Furnace

- Straight Length Bars (Round, RCS and Flats) are processed through Continuous Roller Type Electrically Heated Furnace with Nitrogen atmosphere based on the Customer Specific Requirement
- Wire Rod is processed through Bell Type furnace followed by Pickling and Phosphating based on the Customer Specific Requirement

Peeling, Reeling and Grinding: Straight Length Round Bars are getting converted into Bright Bars with the controlled Dimension tolerance and Surface Roughness as per Customer Specific Requirement

Grinding Media Mill: India's First and Largest Skew Rolling Mill which produces Grinding Media Steel Balls in Quenched and Tempered condition. Since Salem Works is an Integrated Steel Plant, Customized grades can be produced as per Market requirement in place of Conventional Grades used as Steel Balls in the Mining Industries

Products of Salem Unit

Cast Products:

- Billets / Blooms – 130X130, 160X160, 220X220, 250X250, 280X370, 340X400mm
- Rounds – 200 to 310mm

Rolled Products:

- Round Bars – 20 to 200mm
- RCS Bars - 55 to 300mm
- Wire rods – 5.5 to 32mm
- Flat Bars – 60 X 7 to 101 X 38mm
- Hexagon Bars – 20 to 45mm
- Hex WR – 20 to 32mm

Annealed Products:

- Bars – 20 to 160mm
- Wire rods – 5.5 to 32mm
- Flats – 60 X 7 to 101 X 38mm

Bright bar:

- Bars – 20 to 80mm

GMM:

- GMM – 25 to 150mm

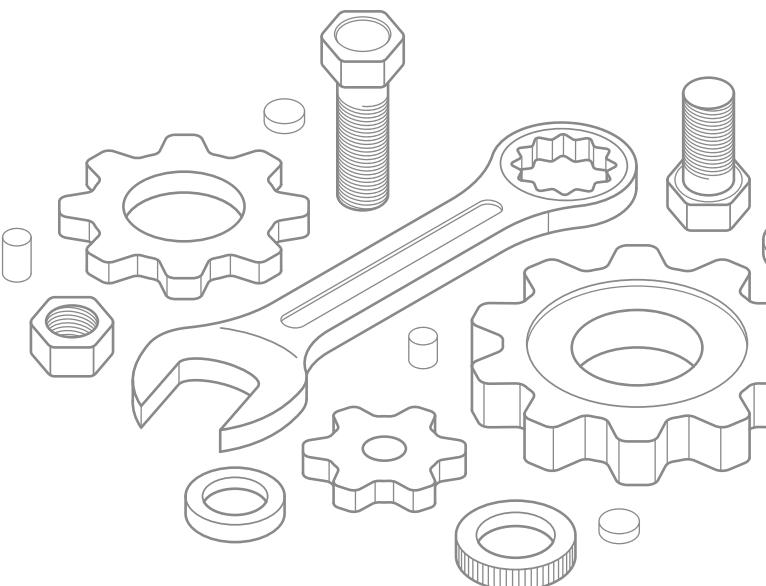
PRBB:

- Bars – 20 to 65mm



Grade Category

- Bearing Steel
- High Mn steel
- Cr Steel
- Cr-Mn Steel
- Cr-Si Steel
- Cr-Mo Steel
- Ni-Cr-Mo Steel
- Si Steel
- Spring Steel
- Mo Steel
- Micro Alloy Steel
- Boron Steel
- File Steel
- Tool Steel
- Electrode Quality Steel
- Free Cutting Steel
- Low Carbon Steel
- Medium Carbon Steel
- High Carbon Steel
- Mild Steel



Note: Overall Alloying Element should be 6% Max.



Metallurgy and Mechanical properties

Macro etch (ASTME - 381): C2R2S2 MAX

Ultrasonic test: 20% of BWE / SDH (or FBH) as per customer requirement

Non-metallic inclusion testing: ASTM E45 / DIN 50602 / JIS G0555 / ISO 4967 / IS 4163 as per customer requirement

Step down test can also be ensured. As per customer specification

Grain Size: 5-8 AS PER ASTM E – 112 (Grade specific)

Hardenability: Within 6 HRC MAX for single point spec.

Surface defect depth: 1% of Diameter or 0.30 MM MAX (For rolled bars)

Grade & composition: As per specification

Gases

H₂ – 2.0 ppm Max.

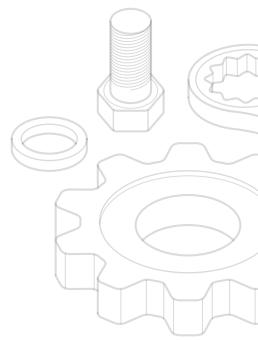
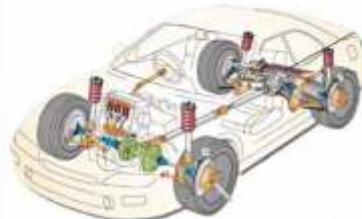
O₂ – 20.0 ppm Max.

N₂ – 90.0 ppm Max (Possible to control in restricted range up to 220 ppm for N₂ containing Micro Alloyed Steel)

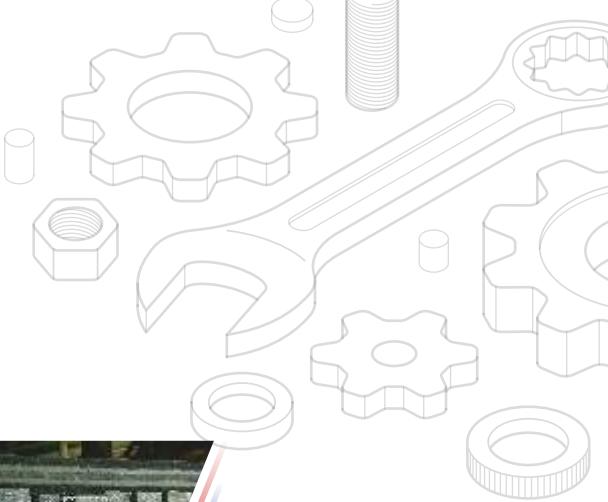
Specific requirement can be fulfilled based on agreement with customer



Major End-Use Application



Products & Customers



Cast Products



Rounds - 200 to 310mm



Billets/Blooms- 130, 160, 220, 250,
280x370, 340x400

Rolled Products



Bars- 20 to 200mm



Hex WR - 20 to 32mm
& WR - 5.5 to 32mm



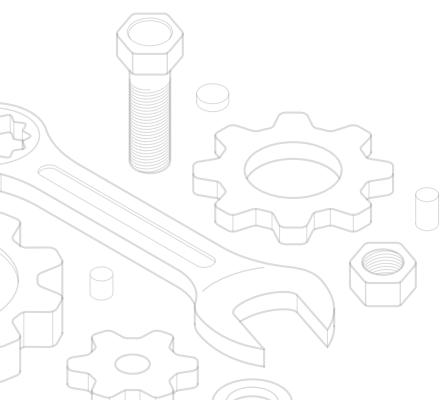
RCS- 55 TO 300mm

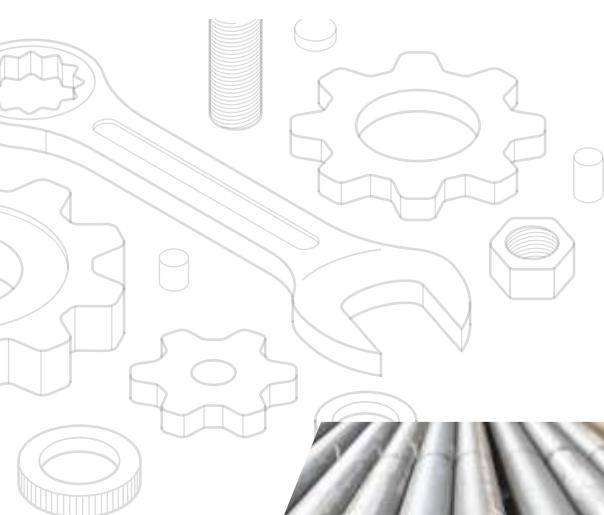


Flats - 60x7 to 101 x 38mm



Hexagon Bars - 20 to 45 mm





Annealed Products



Bars- 20 to 160 mm



WR: 5.5 to 32mm



Flats- 60x7 to 101x38 mm

Bright Bars



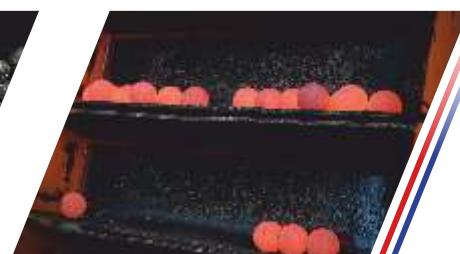
Bars- 20 to 80 mm

PRBB

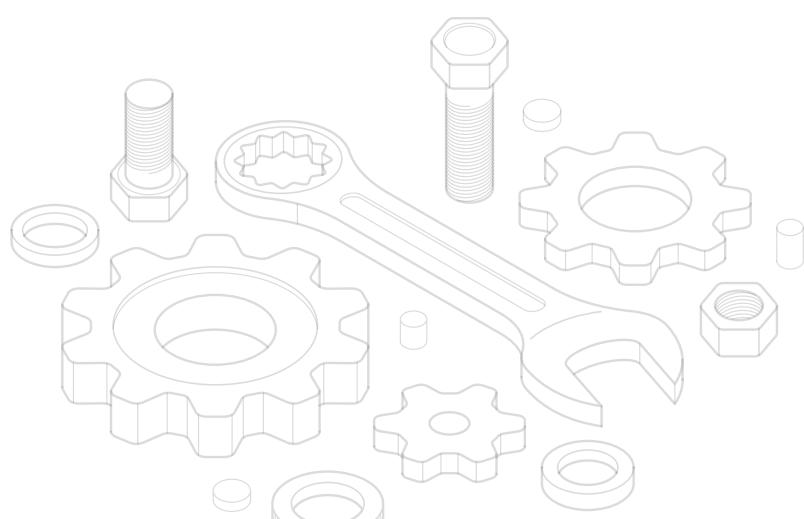


Bars - 20 to 65mm

GMM



GMM - 25 to 150mm



Major Customers

Direct Users / Tier 1 or 2

Forging



BHARAT FORGE



M M Forgings

...Forging Excellence...



**Western India
Forgings Pvt. Ltd.**
An ISO 9001 Company



**ECHJAY
INDUSTRIES**



LINAMAR

CHQ/Fasteners



**Sundram Fasteners
Limited**



Rail



Free Cutting



MAHALAKSHMI
Bright Steel Industries Pvt. Ltd.



Spring



Jai Auto Industries Ltd.



Joneja
Bright Steels Pvt. Ltd.



Stumpf, Schulte & Sonappa Springs Pvt. Ltd.

CHUHATSU
CHUO SPRING CO.,LTD.

Tire Cord, Card Clothing



End Users / OEM



Dimension Tolerance

Tolerance Limits:

Flats				
Nominal Width (mm)	Tolerance on Width		Tolerance on Thickness	Tolerance on Concavity
		10mm	10mm	
Over 50 Upto 75	+ 0.5mm	+ 0.15mm	+ 0.20mm	0.10mm max
Over 75 Upto 100	+ 0.70mm	+ 0.20mm	+ 0.25mm	0.15mm max
	+ 0.90mm	+ 0.25mm	+ 0.40mm	0.20mm max

Bars/Rounds				
Normal Size Over	Upto & Including	Tolerance, mm	Permissible Deviation	Out of Roundness (max)
(1)	(2)		(3)	(4)
50	64	+0.8 -0		0.8
64	80	+1.2 -0		0.8
80	89	+1.2 -0		0.8
89	100	+1.6 -0		1.2
100	114	+1.6 -0		1.2
114	125	+2.0 -0		1.5
125	139	+2.0 -0		1.5
139	160	+3.2 -0		2.0
160	164	+3.2 -0		2.0
164	200	+4.0 -0		2.5

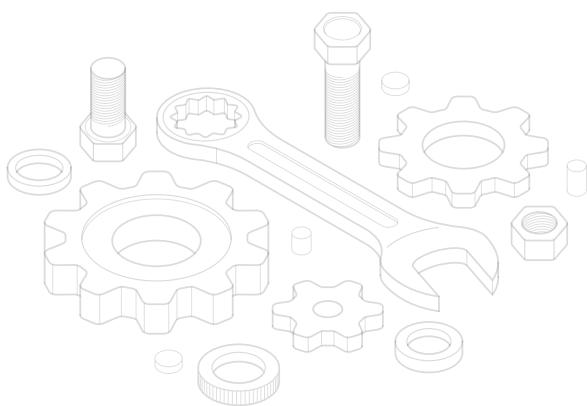
Round Cornered Square				
Normal Size Over	Upto & Including	Tolerance, mm	Permissible Deviation	Out of Square (max)
(1)	(2)		(3)	(4)
-	50	±0.6		0.6
50	64	±1.2		0.8
64	89	±1.8		1.3
89	100	±2.4		1.8
100	114	±2.4		1.8
114	125	±3.0		2.5

Wire Rods		
Diameter (mm)	Tolerance (mm)	Ovality (mm)
5.50 to 8.00	+/- 0.13	0.20 max
8.00 to 11.00	+/- 0.15	0.24 max.
11.00 to 15.00	+/- 0.18	0.25 max.
15.00 to 22.00	+/- 0.20	0.30 max.
22.00 to 25.00	+/- 0.24	0.35 max.
25.00 to 28.00	+/- 0.25	0.40 max.
28.00 to 31.00	+/- 0.28	0.45 max.
31.00 to 32.00	+/- 0.30	0.50 max.

Tolerance from Kocks Block:

PRBB			
Size	Guaranteed tolerance (mm) - ±	Ovality (mm)	
	-	+	
16.3	0.132	0.132	0.211
17.3	0.133	0.133	0.212
18.3	0.134	0.134	0.214
20	0.135	0.135	0.216
20.5	0.136	0.136	0.217
21	0.137	0.137	0.218
23.5	0.141	0.141	0.222
25	0.143	0.143	0.228
26	0.144	0.144	0.23
27.5	0.146	0.146	0.234
28	0.147	0.147	0.235
30	0.15	0.15	0.24
31	0.152	0.152	0.242

PRBB			
Size	Guaranteed tolerance (mm) - ±	Ovality (mm)	
	-	+	
32	0.153	0.153	0.244
34	0.155	0.155	0.249
36	0.159	0.159	0.254
38	0.162	0.162	0.259
40	0.165	0.165	0.264
42	0.168	0.168	0.268
44	0.171	0.171	0.273
45	0.172	0.172	0.275
48	0.177	0.177	0.283
50	0.18	0.18	0.288
56	0.19	0.19	0.303
56.5	0.191	0.191	0.305
58	0.194	0.194	0.31
60	0.198	0.198	0.316



Specifications of Steel manufactured

Cold Heading Quality Chemical Composition %																
	C		Si		Mn		P		S		Cr		Mo		B	
	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
SAE 1006	-	0.08	-	-	0.25	0.40	-	0.30	-	0.50	-	-	-	-	-	-
SAE 1008	-	0.10	-	-	0.30	0.50	-	0.30	-	0.50	-	-	-	-	-	-
SAE 1010	0.08	0.13	-	-	0.30	0.60	-	0.30	-	0.50	-	-	-	-	-	-
SAE 1012	0.10	0.15	-	-	0.30	0.60	-	0.30	-	0.50	-	-	-	-	-	-
SAE 1015	0.13	0.18	-	-	0.30	0.60	-	0.30	-	0.50	-	-	-	-	-	-
SAE 1018	0.15	0.20	-	-	0.60	0.90	-	0.30	-	0.50	-	-	-	-	-	-
SAE 1020	0.18	0.23	-	-	0.30	0.60	-	0.30	-	0.50	-	-	-	-	-	-
SAE 1541	0.36	0.44	-	-	1.35	1.65	-	0.30	-	0.50	-	-	-	-	-	-
SAE 4140	0.38	0.43	0.15	0.35	0.75	1.00	-	0.30	-	0.40	0.80	1.10	0.15	0.25	-	-
SAE 10B21	0.18	0.23	-	0.30	0.80	1.10	-	0.30	-	0.30	0.10	0.20	-	-	0.0005	0.003
SAE 15B25	0.23	0.28	-	0.30	0.90	1.30	-	0.30	-	0.30	0.10	0.20	-	-	0.0005	0.003
SAE 15B35H	0.31	0.39	0.15	0.35	0.70	1.20	-	0.40	-	0.50	0.10	0.30	-	-	0.0005	0.003
SAE 10B35	0.32	0.37	-	0.40	0.60	0.90	-	0.025	-	0.025	0.10	0.40	-	-	0.0008	0.003
SAE 15B41	0.36	0.44	0.15	0.30	1.35	1.65	-	0.030	-	0.030	0.10	0.20	-	-	0.0005	0.003
SAE 1540	0.38	0.43	0.15	0.30	0.70	0.90	-	0.025	-	0.025	0.70	0.90	-	-	-	-
19MnB4M	0.20	0.25	0.15	0.30	0.80	1.10	-	0.030	-	0.030	0.30	0.40	-	-	0.0008	0.003
30MnB4	0.27	0.32	-	0.30	0.80	1.10	-	0.025	-	0.025	-	0.30	-	-	0.0008	0.003
36CrB4	0.34	0.38	-	0.30	0.70	1.00	-	0.025	-	0.025	0.90	1.20	-	-	0.0008	0.003

Grade	High Carbon Wire Rods Chemical Composition%										
	C		Si		Mn		P		S		
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
SWRH 27	0.24	0.31	0.15	0.35	0.30	0.60	-	0.030	-	-	0.030
SWRH 32	0.29	0.36	0.15	0.35	0.30	0.60	-	0.030	-	-	0.030
SWRH 37	0.34	0.41	0.15	0.35	0.30	0.60	-	0.030	-	-	0.030
SWRH 42A	0.39	0.46	0.15	0.35	0.30	0.60	-	0.030	-	-	0.030
SWRH 42B	0.39	0.46	0.15	0.35	0.60	0.90	-	0.030	-	-	0.030
SWRH 47A	0.44	0.51	0.15	0.35	0.30	0.60	-	0.030	-	-	0.030
SWRH 47B	0.44	0.51	0.15	0.35	0.60	0.90	-	0.030	-	-	0.030
SWRH 52A	0.49	0.56	0.15	0.35	0.30	0.60	-	0.030	-	-	0.030
SWRH 52B	0.49	0.56	0.15	0.35	0.60	0.90	-	0.030	-	-	0.030
SWRH 57A	0.54	0.61	0.15	0.35	0.30	0.60	-	0.030	-	-	0.030
SWRH 57B	0.54	0.61	0.15	0.35	0.60	0.90	-	0.030	-	-	0.030
SWRH 62A	0.59	0.66	0.15	0.35	0.30	0.60	-	0.030	-	-	0.030
SWRH 62B	0.59	0.66	0.15	0.35	0.60	0.90	-	0.030	-	-	0.030
SWRH 67A	0.64	0.71	0.15	0.35	0.30	0.60	-	0.030	-	-	0.030
SWRH 67B	0.64	0.71	0.15	0.35	0.60	0.90	-	0.030	-	-	0.030
SWRH 72A	0.69	0.76	0.15	0.35	0.30	0.60	-	0.030	-	-	0.030
SWRH 72B	0.69	0.76	0.15	0.35	0.60	0.90	-	0.030	-	-	0.030
SWRH 77A	0.74	0.81	0.15	0.35	0.30	0.60	-	0.030	-	-	0.030
SWRH 77B	0.74	0.81	0.15	0.35	0.60	0.90	-	0.030	-	-	0.030
SWRH 82A	0.79	0.86	0.15	0.35	0.30	0.60	-	0.030	-	-	0.030
SWRH 82B	0.79	0.86	0.15	0.35	0.60	0.90	-	0.030	-	-	0.030

Specifications of Steel manufactured

Grade	Forging Quality-Chemical Composition%									
	C		Si		Mn		P		S	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
15C8	0.10	0.20	-	-	0.60	0.90	-	-	-	-
20C8	0.15	0.25	-	-	0.60	0.90	-	-	-	-
25C8	0.20	0.30	-	-	0.60	0.90	-	-	-	-
30C8	0.25	0.35	-	-	0.60	0.90	-	-	-	-
35C8	0.30	0.40	-	-	0.60	0.90	-	-	-	-
45C8	0.40	0.50	-	-	0.60	0.90	-	-	-	-
55C8	0.50	0.60	-	-	0.60	0.90	-	-	-	-
27C15/27Mn2	0.22	0.32	0.10	0.35	1.30	1.70	-	-	-	-
37C15/27Mn2	0.32	0.42	0.10	0.35	1.30	1.70	-	0.020	-	0.035
SAE 1016	0.13	0.18	-	-	0.60	0.90	-	0.030	-	0.050
SAE 1025	0.22	0.28	-	-	0.30	0.60	-	0.030	-	0.050
SAE 1027	0.22	0.29	-	-	1.20	1.55	-	0.040	-	0.050
SAE 1030	0.28	0.34	-	-	0.60	0.90	-	0.030	-	0.050
SAE 1035	0.32	0.38	-	-	0.60	0.90	-	0.030	-	0.050
SAE 1036B	0.32	0.37	0.15	0.30	1.20	1.50	-	0.025	-	0.025
SAE 1038	0.35	0.42	-	-	0.60	0.90	-	0.030	-	0.050
SAE 1040	0.37	0.44	-	-	0.60	0.90	-	0.030	-	0.050
SAE 1045	0.43	0.50	-	-	0.60	0.90	-	0.030	-	0.050
SAE 1045H	0.42	0.51	0.15	0.35	0.50	1.00	-	0.040	-	0.050
SAE 1050	0.48	0.55	-	-	0.60	0.90	-	0.030	-	0.050
SAE 1053	0.48	0.55			0.70	1.00	-	0.030	-	0.050
SAE 1060	0.55	0.65	-	-	0.60	0.90	-	0.030	-	0.050
SAE 1522	0.18	0.24	-	-	1.10	1.40	-	0.030	-	0.050
SAE 1524	0.19	0.25	-	-	1.35	1.65	-	0.030	-	0.050
SAE 1541	0.36	0.44	-	-	1.35	1.65	-	0.030	-	0.050
SAE 1548	0.44	0.52			1.10	1.40		0.025		0.0150
C 14	0.10	0.18	-	-	0.40	0.70	-	-	-	-
C 14/15mn3	0.12	0.18	0.10	0.20	0.70	0.90	-	-	-	-
C 15	-	0.20	-	-	0.30	0.60	-	-	-	-
C 22.8/P250GH	0.18	0.23	-	0.40	0.30	0.90	-	0.025	-	0.015
C 30	0.27	0.34	-	0.40	0.50	0.80	-	0.045	-	0.045
C 35	0.32	0.39	-	0.40	0.50	0.80	-	0.045	-	0.045
C 40	0.37	0.44	-	0.40	0.50	0.80	-	0.045	-	0.045
C 45	0.42	0.5	-	0.40	0.50	0.80	-	0.045	-	0.045
C 45E/CK 45	0.42	0.5	-	0.40	0.50	0.80	-	0.045	-	0.045
C 48	0.45	0.52	0.15	0.40	0.50	0.80		0.030	-	0.030
CF 53										
C 55	0.47	0.55	-	0.40	0.60	0.90	-	0.045	-	0.045

Grade	Forging Quality-Chemical Composition%									
	C		Si		Mn		P		S	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
C 60	0.57	0.65	-	0,40	0,60	0,90	-	0,045	-	0,045
ASTM A105	-	0,35	-	0,35	0,60	1,050	-	0,040	-	0,050
ASTM A 350 LF2	-	0,30	0,15	0,30	-	1,35	-	0,035	-	0,040
ASTM A 694 F65	-	0,26	0,15	0,35	-	1,40	-	0,025	-	0,025
EN 2A/040 A 10	0,08	0,13	0,10	0,40	0,30	0,50	-	0,050	-	0,050
EN 3B, 070 M 20	0,16	0,24	0,10	0,40	0,50	0,90	-	0,050	-	0,050
EN 32 B	0,10	0,18	0,05	0,35	0,60	1,00	-	0,050	-	0,070
EN 201	-	0,18	0,05	0,35	1,10	1,50	-	0,050	-	0,050
EN 14B	0,20	0,30	0,10	0,35	1,30	1,70	-	0,060	-	0,060
EN 8	0,036	0,44	0,10	0,40	0,60	1,00	-	0,050	-	0,050
EN 8A	0,033	0,38	0,10	0,40	0,70	0,90	-	0,050	-	0,050
EN 8C	0,038	0,43	0,05	0,35	0,70	0,90	-	0,060	-	0,060
EN 8D	0,40	0,45	0,10	0,40	0,70	0,90	-	0,050	-	0,050
EN 9	0,50	0,60	0,10	0,50	0,50	0,90	-	0,050	-	0,050
EN 43B / 080A47	0,45	0,50	0,10	0,40	0,70	0,90	-	0,050	-	0,050
EN 43C	0,50	0,55	0,10	0,40	0,70	0,90	-	0,050	-	0,050
EN 43D / 060 A 62	0,60	0,65	0,10	0,40	0,50	0,70	-	0,050	-	0,050
EN 42	0,70	0,82	0,10	0,35	0,60	0,80	-	0,050	-	0,050
EN 15	0,32	0,40	0,10	0,40	1,30	1,70	-	0,050	-	0,050
EN 15B	0,32	0,40	0,10	0,40	1,00	1,40	-	0,050	-	0,050
S10C	0,08	0,13	0,15	0,35	0,30	0,60	-	0,030	-	0,035
S12C	0,10	0,15	0,15	0,35	0,30	0,60	-	0,030	-	0,035
S15C	0,13	0,18	0,15	0,35	0,30	0,60	-	0,030	-	0,035
S20C	0,18	0,23	0,15	0,35	0,30	0,60	-	0,030	-	0,035
S25C	0,22	0,15	0,15	0,35	0,30	0,60	-	0,030	-	0,035
S30C	0,27	0,15	0,15	0,35	0,60	0,90	-	0,030	-	0,035
S30C	0,32	0,15	0,15	0,35	0,60	0,90	-	0,030	-	0,035
S38C	0,35	0,15	0,15	0,35	0,60	0,90	-	0,030	-	0,035
S40C	0,37	0,15	0,15	0,35	0,60	0,90	-	0,030	-	0,035
S43C	0,40	0,15	0,15	0,35	0,60	0,90	-	0,030	-	0,035
S45C	0,42	0,15	0,15	0,35	0,60	0,90	-	0,030	-	0,035
S48C	0,45	0,15	0,15	0,35	0,60	0,90	-	0,030	-	0,035
S53C	0,50	0,15	0,15	0,35	0,60	0,90	-	0,030	-	0,035
S55C	0,52	0,15	0,15	0,35	0,60	0,90	-	0,030	-	0,035
S58C	0,55	0,15	0,15	0,35	0,60	0,90	-	0,030	-	0,035

Specifications of Steel manufactured

Grade	Low Alloy Steel Chemical Composition %																		
	C		Si		Mn		P		S		Cr		Mo		Ni		V		Others
Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
15Cr3	0.12	0.18	0.15	0.40	0.40	0.60	-	0.035	-	0.035	0.40	0.70	-	-	-	-	-	-	
16MnCr5	0.14	0.19	-	0.40	1.00	1.30	-	0.035	-	0.035	0.80	1.10	-	-	-	-	-	-	
16MnCrS5	0.14	0.19	-	0.40	1.00	1.30	-	0.035	0.020	0.040	0.80	1.10	-	-	-	-	-	-	
17Cr3	0.14	0.20	-	0.40	0.60	0.90	-	0.035	-	0.035	0.70	1.00	-	-	-	-	-	-	
18CrNiMo7-6	0.15	0.21	0.15	0.40	0.50	0.90	-	0.015	-	0.010	1.50	1.80	0.25	0.35	1.40	1.70	-	-	N2:80-150 ppm
19CrNi5	0.16	0.21	0.15	0.35	0.70	1.10	-	0.20	0.015	0.030	0.80	1.20	-	0.10	0.80	1.20	-	-	
20MC5	0.17	0.23	0.15	0.35	1.10	1.40	-	0.025	-	0.020	1.00	1.30	-	0.06	-	0.25	-	-	
20MnCr5	0.17	0.22	-	0.40	1.10	1.40	-	0.035	-	0.035	1.00	1.30	-	-	-	-	-	-	
20MnCrS5	0.17	0.22	-	0.40	1.10	1.40	-	0.035	0.020	0.040	1.00	1.30	-	-	-	-	-	-	
20NiCrMo2	0.17	0.23	0.15	0.40	0.65	0.95	-	0.035	-	0.035	0.35	0.70	0.15	0.25	0.40	0.70	-	-	
25NoCr5	0.19	0.23	0.15	0.40	0.75	0.95	-	0.035	0.020	0.035	0.90	1.00	0.40	0.45	-	0.25	-	-	
27MnCrB5	0.24	0.30	-	0.40	1.10	1.40	-	0.035	-	0.040	0.30	0.60	-	0.08	-	0.30	-	-	B: 8-50 ppm
30Mn5	0.35	0.40	0.35	0.50	1.50	1.80	-	0.025	0.030	0.045	0.30	0.50	-	0.10	-	0.20	-	-	
34CrMo4	0.30	0.37	-	0.40	0.60	0.90	-	0.035	-	0.035	0.90	1.20	0.15	0.30	-	-	-	-	
35CrMn5	0.33	0.40	0.15	0.40	0.80	1.10	-	0.020	0.015	0.030	1.00	1.30	-	0.10	-	0.30	-	-	
37Cr4	0.34	0.41	-	0.40	0.60	0.90	-	0.035	-	0.035	0.90	1.20	-	-	-	-	-	-	
40 CD 4	0.35	0.40	0.15	0.30	0.70	0.90	-	0.035	-	0.040	0.80	1.10	0.15	0.25	-	-	-	-	
40Cr4	0.35	0.45	0.10	0.35	0.60	0.90	-	0.025	-	0.025	0.90	1.20	-	-	-	-	-	-	
41Cr4	0.38	0.45	-	0.40	0.60	0.90	-	0.035	-	0.035	0.90	1.20	-	-	-	-	-	-	
42CrMo4	0.38	0.45	-	0.40	0.60	0.90	-	0.035	-	0.035	0.90	1.20	0.15	0.30	-	-	-	-	
46CR4	0.45	0.49	0.15	0.40	0.80	0.90	-	0.025	-	0.025	0.90	1.00	-	-	-	-	-	-	
46Mn5	0.44	0.50	0.25	0.45	1.15	1.35	-	0.025	-	0.015	0.10	0.20	-	0.06	-	0.10	-	-	
100Cr6	0.93	1.05	0.15	0.35	0.25	0.45	-	0.025	-	0.015	1.35	1.60	-	0.10	-	-	-	-	
605M36	0.32	0.40	0.15	0.30	1.30	1.70	-	0.025	0.020	0.035	-	0.65	0.22	0.32	-	-	-	-	
708A42	0.40	0.45	0.15	0.35	0.70	1.00	-	0.035	0.030	0.050	0.90	1.20	0.15	0.25	-	-	-	-	
708A42	0.40	0.45	0.20	0.35	0.75	1.00	-	0.025	-	0.030	0.90	1.20	0.15	0.25	-	-	-	-	
709M40	0.36	0.44	0.20	0.30	0.70	1.00	-	0.025	0.020	0.030	0.90	1.20	0.25	0.35	-	-	-	-	
EN 18	0.36	0.44	0.10	0.35	0.60	0.90	-	0.035	-	0.040	0.90	1.20	-	-	-	-	-	-	
EN 18 D	0.38	0.43	0.10	0.35	0.60	0.80	-	0.035	-	0.040	0.90	1.20	-	-	-	-	-	-	
EN 19	0.36	0.44	0.10	0.35	0.75	1.00	-	0.035	-	0.040	0.90	1.20	0.25	0.35	-	-	-	-	
EN 19C	0.40	0.45	0.10	0.35	0.75	1.00	-	0.035	-	0.040	0.90	1.20	0.15	0.25	-	-	-	-	
EN 31	0.95	1.10	0.10	0.35	0.40	0.70	-	0.035	-	0.040	1.20	1.60	-	-	-	-	-	-	
EN 353	0.14	0.20	-	0.35	0.50	1.00	-	0.050	-	0.050	-	1.25	0.08	0.15	1.00	1.50	-	-	

Specifications of Steel manufactured

Grade	Low Alloy Steel Chemical Composition %																		Others
	C		Si		Mn		P		S		Cr		Mo		Ni		V		
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Max
EN354	-	0.20	-	0.35	0.50	1.00	-	0.050	-	0.050	0.75	1.25	0.10	0.20	1.50	2.00	-	-	
EN36 C	0.12	0.18	0.10	0.35	0.30	0.60	-	0.050	-	0.050	0.60	1.10	0.10	0.25	3.00	3.75	-	-	
SAE4130	0.28	0.33	0.15	0.35	0.40	0.60	-	0.030	-	0.040	0.80	1.10	0.15	0.25	-	0.25	-	-	
SAE4140H	0.37	0.44	0.15	0.35	0.65	1.10	-	0.030	-	0.040	0.75	1.20	0.15	0.25	-	0.25	-	-	
SAE4142H	0.39	0.46	0.15	0.35	0.65	1.10	-	0.030	-	0.040	0.75	1.20	0.15	0.25	-	0.25	-	-	
SAE4145H	0.42	0.49	0.15	0.30	0.65	1.10	-	0.030	-	0.04	0.75	1.2	0.15	0.25	-	0.25	-	-	
SAE4150H	0.47	0.54	0.15	0.30	0.65	1.10	-	0.030	-	0.04	0.75	1.2	0.15	0.25	-	-	-	-	
SAE52100		0.98	1.10	0.15	0.35	0.25	0.45	-	0.025	-	0.025	1.30	1.60	-	-	-	-	-	
SAE8219	0.15	0.20	0.15	0.35	1.05	1.40	-	0.025	0.010	0.020	0.45	0.75	0.08	0.20	0.20	0.45	-	-	
SAE8620	0.18	0.23	0.15	0.35	0.70	0.90	-	0.030	-	0.040	0.40	0.60	0.15	0.25	0.40	0.70	-	-	
SAE8620H	0.17	0.23	0.15	0.35	0.60	0.95	-	0.040	-	0.030	0.35	0.65	0.15	0.25	0.35	0.75	-	-	
SAE8622H	0.20	0.25	0.15	0.35	0.75	1.00	-	0.020	0.010	0.040	0.40	0.60	0.30	0.40	0.40	0.70	-	-	
SAE8627H	0.24	0.30	0.15	0.35	0.60	0.95	-	0.040	-	0.030	0.35	0.65	0.15	0.25	0.35	0.75	-	-	
SCM 415	0.13	0.18	0.15	0.35	0.60	0.90	-	0.03	-	0.03	0.9	1.2	-	-	-	0.25	-	-	
SCM 415H	0.12	0.18	0.15	0.35	0.55	0.95	-	0.03	-	0.03	0.85	1.25	-	-	-	0.25	-	-	
SCM 420	0.18	0.23	0.15	0.35	0.60	0.90	-	0.030	-	0.030	0.90	1.20	-	-	-	0.25	-	-	
SCM 420HV	0.18	0.23	0.15	0.35	0.60	0.85	-	0.030	0.010	0.030	0.90	1.20	0.15	0.30	-	-	-	N2:150-200 ppm	
SCR 420HV	0.18	0.23	0.15	0.35	0.60	0.85	-	0.030	0.010	0.030	0.90	1.20	-	-	-	-	-	N2:150-200 ppm	
SMN 443H	0.39	0.46	0.20	0.35	1.35	1.70	-	0.025	-	0.015	-	0.35	-	0.05	-	0.15	-	-	
SUJ 2	0.95	1.10	0.15	0.35	-	0.50	-	0.020	-	0.020	1.30	1.60	-	-	-	-	-	-	
SS4510	0.18	0.24	0.30	0.60	1.40	1.70	-	0.035	0.015	0.035	-	0.25	-	0.30	-	0.30	-	0.05	
STE460	-	0.20	0.10	0.60	1.50	1.70	-	0.030	-	0.025	-	0.30	-	0.10	-	0.80	-	0.20	
F11	0.05	0.15	0.50	1.00	0.30	0.60	-	0.025	-	0.025	1.00	1.50	0.44	0.65					
F12	0.05	0.15	-	0.50	0.30	0.60	-	0.025	-	0.025	0.80	1.25	0.44	0.65					
F22	0.05	0.15	-	0.50	0.30	0.60	-	0.025	-	0.025	2.00	2.50	0.90	0.10					

Specifications of Steel manufactured

Grade	Micro Alloy Steel Chemical Composition %																	
	C		Si		Mn		P		S		Cr		Mo		Ni		V	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
27MnSiVS6	0.25	0.30	0.50	0.80	1.30	1.60	-	0.035	0.030	0.50	0.05	0.15	-	-	-	-	0.08	0.13
38MnS6	0.36	0.40	0.50	0.60	1.40	1.55	-	0.015	0.030	0.040	0.10	0.2	-	-0.055	-	0.10	-	0.02
38MnS6	0.36	0.41	0.50	0.70	1.30	1.60	-	0.020	0.045	0.060	0.10	0.2	-	0.10	-	0.15	0.08	0.13
38MnSiV6	0.35	0.40	0.50	0.70	1.30	0.15	-	0.035	-	0.065	0.15	0.2	-	-	-	-	0.08	0.13
SBMA 740	0.4	0.50	0.15	0.35	0.85	1.35	-	0.030	-	0.050	-	-	-	-	-	-	0.16	0.2
S70CVS1	0.67	0.73	0.15	0.35	0.45	0.55	-	0.045	-0.055	0.070	0.10	-0.2	-	-	0.40	0.12	0.03	0.05
S36CVS2	0.34	0.38	0.60	0.75	0.95	1.05	-	0.03	0.065	0.085	-	0.25	-	-	-	0.25	0.25	0.30

Specifications of Steel manufactured

Grade	Welding electrode Quality Chemical Composition %													
	C		Si		Mn		P		S		Cr		Mo	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	-	-	Min	Max
EM 12K	0.05	0.15	0.10	0.35	0.80	1.25	-	0.030	-	0.030	-	-	-	-
ER 70S-6	0.07	0.10	0.80	1.00	1.40	1.60	-	0.020	-	0.020	-	-	-	-
ER 90S-D2	0.07	0.12	0.50	0.80	1.60	2.10	-	0.025	-	0.025	-	-	0.40	0.60
S2Mo	0.07	0.15	0.05	0.20	0.95	1.30	-	0.025	-	0.025	-	-	0.45	0.65
EWNR	0.10	-	0.03	0.38	0.62	-	0.025	-	0.025	-	-	-	-	-
RG Wire	0.05	0.09	-	0.04	0.45	0.60	-	0.010	-	0.010	-	-	-	0.02
EB 2	0.07	0.15	0.05	0.30	0.45	1.00	-	0.025	-	0.025	1.00	1.75	0.45	0.65

Grade	Free Cutting Steel Chemical Composition %											
	C		Si		Mn		P		S		Pb	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
EN 1A	-	0.15	-	-	0.9	1.3	-	0.07	0.20	0.30	-	-
EN 1A(Pb)	-	0.15	-	-	0.9	1.3	-	0.07	0.20	0.30	0.20	0.30
EN 8M	0.32	0.4	-	0.25	1	1.4	-	0.06	0.12	0.20	-	-
EN 15AM	0.32	0.4	-	0.25	1.3	1.7	-	0.06	0.12	0.20	-	-
EN 8DM/212A42	0.4	0.45	-	0.25	1	1.3	-	0.06	0.12	0.20		
11SMn30	-	0.14	-	0.05	0.9	1.3	-	0.11	0.27	0.33	-	-
11SMnPb30	-	0.14	-	0.05	0.9	1.3	-	0.11	0.27	0.33	0.20	0.35
SAE 12L14	-	0.15	-	-	0.85	1.15	0.04	0.09	0.26	0.35	0.15	0.35
SAE 11I17	0.14	0.2	-	-	1	1.3	-	0.04	0.08	0.13	-	-
SAE 11I18	0.14	0.2	-	-	1.3	1.6	-	0.04	0.08	0.13	-	-
SAE 11I41	0.37	0.45	-	-	1.35	1.65	-	0.04	0.08	0.13	-	-
SAE 11I44	0.4	0.48	-	-	1.35	1.65	-	0.04	0.08	0.13	-	-
SAE 11I46	0.42	0.49	-	-	0.7	1	-	0.04	0.08	0.13	-	-

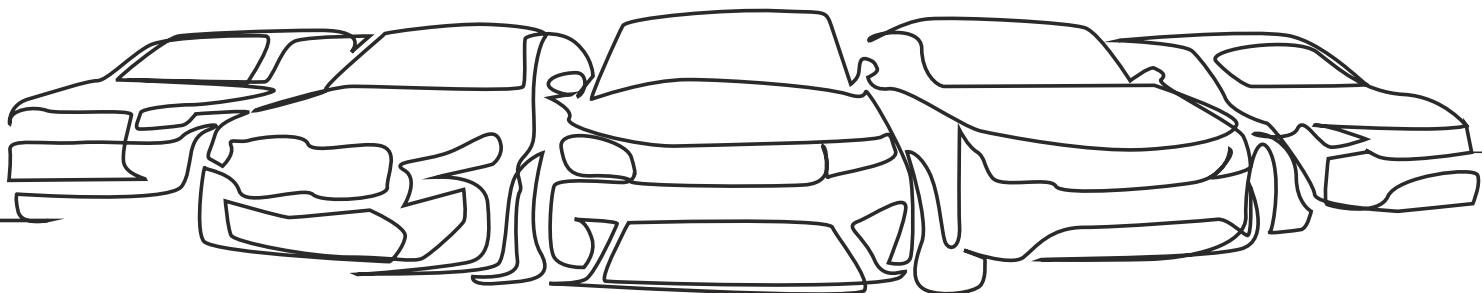
Specification of Steel manufactured

Grade	Spring Steel Chemical Composition %																	
	C		Si		Mn		P		S		Cr		Mo		V		B	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
EN 45A	0.55	0.60	1.80	2.10	0.80	1.00	-	0.040	-	0.035	0.15	0.30			-	-	-	-
SUP 9	0.52	0.60	1.15	0.35	0.65	1.00	-	0.040	-	0.035	0.65	0.95			-	-	-	-
SUP 9A	0.56	0.64	1.15	0.35	0.70	0.95	-	0.040	-	0.035	0.70	1.00			-	-	-	-
SUP 11A	0.56	0.64	1.15	0.35	0.70	1.00	-	0.040	-	0.035	0.70	1.00			-	-	0.0005	-
65Si7	0.60	0.68	1.50	1.80	0.70	1.00	-	0.050	-	0.050	-	-			-	-	-	-
SAE 9254	0.51	0.59	1.20	1.60	0.60	1.00	-	0.040	-	0.040	0.60	0.80			-	-	-	-
50CrV4	0.47	0.55	-	0.40	0.70	0.80	-	0.040	-	0.030	0.90	1.20			0.10	0.20	-	-
52Cr4Mo2V	0.48	0.56	0.15	0.40	0.70	1.10	-	0.03	-	0.03	0.90	1.20	0.15	0.25	0.07	0.12	-	-

Specifications of Steel manufactured

Grade	Seamless Boiler Quality Grade Chemical Composition %																			
	C		Si		Mn		P		S		Cu		Cr		Ni		Mo		V	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
SAE 106 Gr B	-	0.30	0.10	-	0.29	1.06	-	0.40	-	0.035	-	0.40	-	0.40	-	0.40	-	0.15	-	0.08
SAE 210 Gr A1	-	0.27	0.10	-	0.93		-	0.40	-	0.035	-	-	-	-	-	-	-	-	-	
SAE 210 Gr C	-	0.35	0.10	-	0.29	1.06	-	0.40	-	0.035	-	-	-	-	-	-	-	-	-	
A 213 - T11	0.05	0.15	0.50	1.00	0.30	0.60	-	0.025	-	0.025	-	-	1.00	1.50	-	-	0.44	0.65	-	
A 213 - T12	0.05	0.15	-	0.50	0.30	0.60	-	0.025	-	0.025	-	0.80	1.25	-	-	0.44	0.65			
A 213 - T22	0.05	0.15	-	0.50	0.30	0.60	-	0.025	-	0.025	-	1.90	2.60	-	-	0.87	1.13	-	-	
A 250 - T11	0.05	0.15	0.50	1.00	0.30	0.60	-	.025	-	0.020	-	-	1.00	1.50	-	-	0.44	0.65	-	
A 250 - T12	0.05	0.15	-	0.50	0.30	0.60	-	0.030	-	0.020	-	0.80	1.25	-	-	0.44	0.65			
A 250 - T22	-	0.15	-	0.50	0.30	0.60	-	0.025	-	0.020	-	-	1.90	2.60	-	-	0.87	1.13	-	
A 335 - P11	0.05	0.15	0.50	1.00	0.30	0.60	-	0.025	-	0.025	-	-	1.00	1.50	-	-	0.44	0.65	-	
A 335 - P12	0.05	0.15	-	0.50	0.30	0.60	-	0.025	-	0.025	-	0.80	1.25	-	-	0.44	0.65			
A 335 - P22	0.05	0.15	-	0.50	0.30	0.60	-	0.025	-	0.025	-	-	1.90	2.60	-	-	0.87	1.13	-	

Grade	Rail Steel Chemical Composition %																			
	C		Si		Mn		P		S		Cr		Mo		Ni		V		AL	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Others	
R260	0.62	0.80	0.15	0.58	0.70	1.20	-	0.025	-	0.025	-	0.15	-	0.02	-	0.10	-	0.3	-	0.004
VAR99-2	0.78	0.81	0.25	0.35	1.14	1.23	-	0.020	0.005	0.020	0.20	0.25	0.04	0.05	0.20	0.25	-	-	-	0.010



R&D Facilities

Our DSIR approved R&D Centers are well-equipped with sophisticated world-class infrastructure facilities. We focus on developing in-house technologies for Iron Making, Steel Making, Rolling and engage in a broad range of product development activities.

Development of new Steel grades

- High Carbon and Chromium containing Bearing Steel for Races and Rollers
- Medium Carbon Steel for Hub Bearing
- Micro Alloy Steel for Transmission Parts
- High Tensile Spring Steel for Coil and Leaf Spring
- Tool Steel for Doffer Wire and Rock Drills
- Free Cutting Steel with improved Machinability for Safety Critical Parts
- Grinding Media Steel Balls for Mining Industry
- Cold Heading Quality Steel for High Tensile Fasteners

Intellectual Property Rights

- Scientific research papers published - 36
- 16 Patents filed and received 12 grants



R&D Equipment

- Scanning Electron Microscope with EDS and EBSD
- Correlative Microscopy
- Immersion Ultrasonic Testing Machine
- Rolling Contact Fatigue Testing Machine
- Rotary Bending Fatigue Testing Machine
- Air Induction Furnace
- Simufact Rolling software
- Tundish Water Model
- Thermal Image Camera
- Hi-Speed Camera
- HYDRIS for Hydrogen Measurement
- Micro Vickers Hardness Machine
- Universal Testing Machine
- Instrumented Impact Machine
- Automatic Cutting Machine
- Automatic Plane Grinding Machine
- Automatic Polishing Machine
- Electrolytic Polishing Machine
- Vibro-Polishing Machine
- Mini Sputter coater
- CRI/CSR Testing Machine



Quality Control and Inspection Facilities

Automatic Slag Detection System at EOF:

- Real-time slag detection allows for timely intervention, improving safety, performance, and product consistency
- Helps in achieving lower Phosphorous levels in the final product



Automatic Slag Detection System at CCM:

- Acoustic based detection system which monitors acoustic emissions of steel flow through the ladle shroud.
- Automatic shut-off of the slide gate during the onset of slag in a shroud

VD Camera:

- Enables the operator to observe the efficiency of argon stirring of the molten metal in the vacuum degassing process, refractory conditions, surface slag conditions, and dynamic alloy additions at VD

Mould Oscillator:

- Provides sinusoidal and non-sinusoidal oscillatory motion which helps to controls oscillation mark depth on billet/bloom surface
- Stroke length ranges from 0.20mm
- Improves surface quality of the billets/blooms

Automatic Mould Powder Feeder:

- Maintains constant powder thickness in the mould to avoid level fluctuations
- Improves steel quality by maintaining consistent heat transfer, ensuring a lubricating powder film, and enhancing surface quality



Final Electro-Magnetic Stirrer:

- Improvement of cast structure homogeneity with lower centerline porosity and segregation through molten metal stirring at the final stages of solidification
- Applicable sizes are 250X250, 280x370 and 340x400mm



Auto Bloom Marking:

- Accurate traceability of each bloom throughout the production process and helps maintain uniformity in product specifications

Level 2 Automation & Historian Server:

- Process models with real-time data for efficient decision-making during the process
- Dashboards at multiple stages for monitoring the process; easy retrieval of data (up to 15 years)



Billet Grinding

- Automated billet grinding with precise depth control up to 0.5 mm
- Input size ranges from 160 Sq, 250 Sq and 200 Dia



Descaler

- Scales on the billet/bloom surface are removed with high water pressure of 250 Bar
- Adjustable header position for various sizes like 250X250, 340x340 and 310 Dia
- Improves the surface quality of Rolled products



Reducing Sizing Block

- 3 Roll 4 stand technology to achieve closer dimensional tolerance than IS 3739
- Size ranges from 16 to 65 mm
- Improves the surface finish of bars and wire rod coils



Online Bloom Weightment:

- Ensures accurate tracking of the bloom's weight, optimizes material handling and improves process control before the cooling stage at CCM
- Improves the yield % in rolling mill process

Online Defect Detection System:

- Advanced surface inspection system for wire rod coils based on imaging technology
- Higher detection accuracy and greater data depth



Hot Profiler

- Online dimension control up to 0.01 mm accuracy
- Any deviation in size can be detected and controlled during rolling itself
- Size control can be done for products ranging from 5.5mm to 32mm for wire rods and 60 to 180 Dia & 55 to 140 RCS for bar products

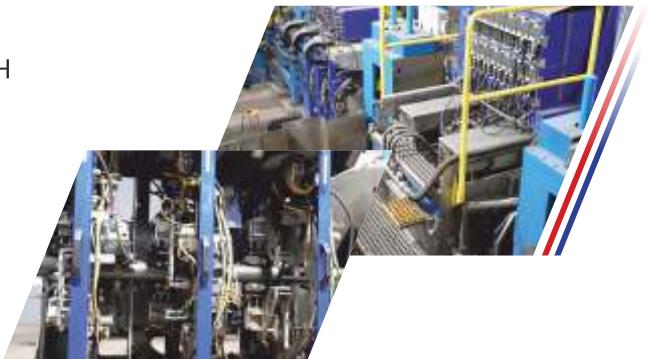
Auto slow cooling facility

- To improve the internal soundness of bloom products in sizes ranging from 60 to 180 Dia and 55 to 140 RCS.



Automatic Inspection Line

- Phased Array Ultrasonic Tester with the Detectability 0.5 / 0.8 mm SDH based on the specific customer requirement
- Eddy Current Tester with the Detectability 0.20 mm Min.
- Size ranges from 20 to 200 dia. and 55 to 160 RCS Bars



Ball drop facility

To evaluate the impact resistance and fracture toughness of grinding media balls, size ranges from 25 to 150 mm.

Testing Equipment

QA Testing Equipment

A NABL-accredited laboratory as per ISO/IEC 17025, specializing in chemical, mechanical, and metallurgical testing essential for the production of special steel long products. Here are a few of them:

- X-ray Fluorescence Spectrometer
- CSR & CRI Equipment
- RDI & RI Equipment
- Optical Emission Spectrometers
- LECO Gas Analyzer for Oxygen, Nitrogen and Hydrogen
- LECO Carbon and Sulphur Analyzer

- Electric Discharge Machine
- Tensile Testing Machine
- Brinell, Rockwell, Vickers Hardness Tester
- Impact Testing Machine
- Cold Upset Testing Machines
- Jominy Hardenability Apparatus
- Optical Microscope

QA Inspection Equipment

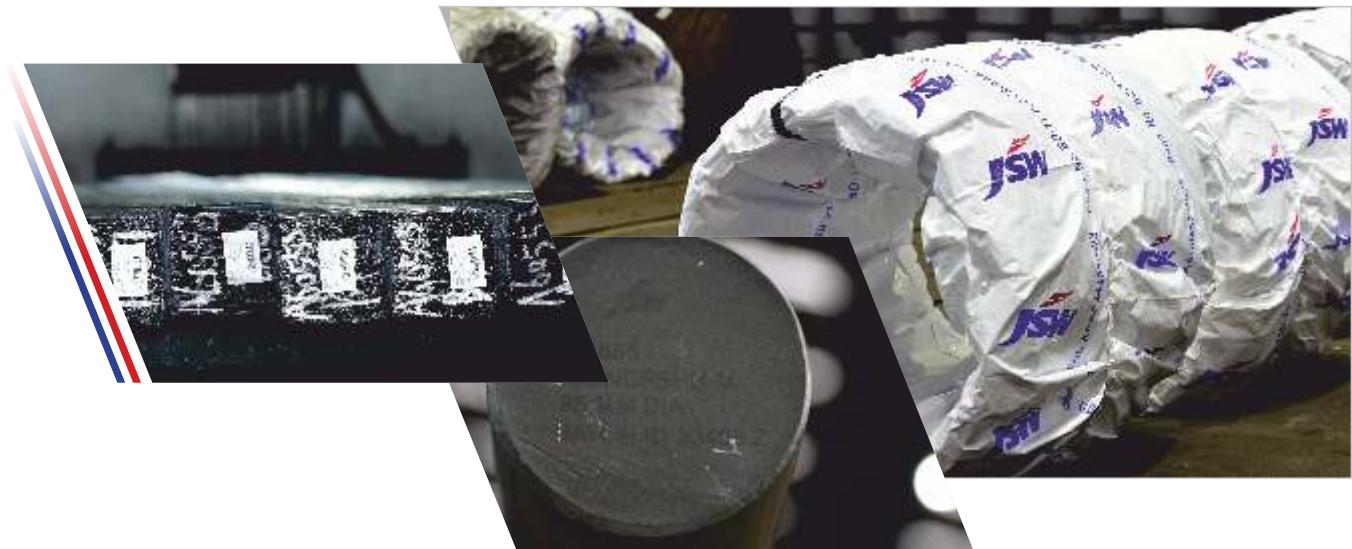
- Automatic inspection lines with UST and ECA
- Portable Ultrasonic Testers
- Magnetic Particle Inspection
- Mobile Spectrometer



Packaging

Product	Packing
Wire rod	Strapping at 5 places , 1 metallic strap & 4 Steel wire
Bars	4 metallic straps A metallic tag & a sticker label with details like Heat number, Grade, Size, Bundle number and Length.
Flat	4 metallic straps A metallic tag & a sticker label with details like Heat number, Grade, Size, Bundle number and Length.
RCS	4 metallic straps A metallic tag & a sticker label with details like Heat number, Grade, Size, Bundle number and Length.
Billet /Bloom	Loose packing. A sticker label with details like Heat number, Grade, Size, and Length.
Annealed wire	Strapping at 5 places, one metallic strap & 4 Steel wire. HDPE Packing
Annealed bar	4 metallic straps A metallic tag & a sticker with details like Heat number, Grade, Size, Bundle number and Length, HDPE Packing
Bright Bar	4 metallic straps A metallic tag & a sticker with details like Heat number, Grade, Size, Bundle number and Length
GM Ball	Rust preventive oil on the bars with HDPE Packing Packing in Drum / Bag. Batch number, grade, volumetric & surface hardness, weight, size.

Colour coding, marking, and packing as per the specific requirements of the customer



Awards & Recognition

- Sword of Honour and 5-Star Rating from British Safety Council
- Golden Peacock Award for Occupational Health & Safety
- IIM Sustainability Award
- ICQCC, NQCC, and CCQC First Category Awards
- ISQ TOPS Convention – 3rd Runner up in 2023, Winner in 2024
- Exceed Green Future Award
- CII – EHS Excellence Award
- TIMKEN Customer Award - Category: Alliance & Strategic Partner
- Schaeffler Customer Award - Category: Value



Certification

Certificate	Name of Awarding Organisation	Theme of Certificate
ISO 9001:2015	Bureau Veritas / DQS	QMS
IATF 16949	Bureau Veritas	QMS
AS 9100 D:2016	DQS	QMS
ISO 14001:2015	Bureau Veritas	Environment Management System
ISO 45001:2018	Bureau Veritas	Health and Safety
ISO 50001:2018	Bureau Veritas	Energy Management System
Recognition for in-house R & D	Anna University	R & D
Boiler Quality Cast and rolled Products	Central Boilers Board	Manufacturing
PED Certification	TUV Nord Systems	Manufacturing
NABL Accreditation as per ISO/IEC 17025	NABL	Laboratory
Power Grid Approval	Power Grid Corporation of India Ltd.	MS & HT Billets & Blooms (IS2830) Coils / Bars (IS7283) and MS Rounds (IS2062)
European Interoperability Certificate	RINA	Rail Product Certificate



Sales Office

AHMEDABAD

JSW Steel Ltd.
Office No 501/502, Mondeal
Height B-Wing, Lascon Cross road
Near Novotel Hotel
Opp Karnavati Club S.G.Highway
Ahmedabad -380054
Mob: 08128833390

AURANGABAD

JSW Steel Ltd.
Office no 306, 3rd floor, 05/1
A,B,C East Beside, Prozone Mall
Chikalthana MIDC, Aurangabad

BANGALORE

JSW Steel Ltd;
The Estate, Next to
Manipal Centre 9th Floor,
East wing,
121, Dickenson road,
Bangalore-560042
Tel: (080)42448888

BHUBANESWAR

JSW Steel Ltd.
JSS STP, 2nd Floor, Block B
Infocity, Chandrasekharpur E -1/1
Bhubaneswar-751024
Tel: 0674-6658904

CHENNAI

JSW Steel Ltd.
5th Floor, South Tower 2
Harrington road Chetpet,
Chennai-600031
Tel: 040-40961900

COIMBATORE

JSW Steel Ltd.
211, 2nd Floor, Sathya Complex,
ESR Avenue, Nr. Post Office,
TV Swamy Road (East),
Coimbatore - 541002

DELHI

JSW Steel Ltd.
4th Floor, NTH Complex,
A-2, Shaheed Jeet Singh Marg,
Qutub Institutional Area,
New Delhi - 110067
Tel: (011) 48178600

FARIDABAD

JSW Steel Ltd.
Nain Sadan, Sector 20A,
Plot No- 35, Near EF3 Mall,
Faridabad - 121001
Tel: (0129) 2239248, 2232387

GUWAHATI

JSW Steel Ltd.
6th Floor, Unique Avenue,
Front Side, Opp. Fire Station,
Super Market,
Dispur, Guwahati - 781 005,

HUBLI

JSW Steel Ltd.
2nd Floor, Signature Mall,
Airport Road, Gokul Road,
Hubli - 580030

HYDERABAD

JSW Steel Ltd.
Babu Khan Millenniums Centre,
7th Floor, Somajiguda,
Hyderabad -500082
Tel: (040) 27846669/79

INDORE

JSW Steel Ltd.
Bloc No: 22,23,24,
Scheme no. 54, Princess
Business Sky Park,
Commercial, opp. Orbit, AB Road,
Indore - 452010
Tel: (0731) 2532156 to 59

JAIPUR

JSW Steel Ltd. 3rd floor, 304-307,
Signature Tower,
Behind Police HQ,
Lal Kothi, Tonk Phatak,
Jaipur- 302015 (Rajasthan)
Tel: (0141) 4629200

KANPUR

JSW Steel Ltd.
2nd Floor, 14/75,
Plot No. 1, Gopal Vihar,
Civil Lines, Kanpur - 208001

KOCHI

JSW Steel Ltd.
34/138 L3, New No. 41/150A3,
2nd Floor, Above Dhe Puttu
Restaurant Service Road
NH By-pass, Edapally, Kochi,
Kerala - 682024

KOLKATA

JSW Steel Ltd.
Godrej Waterside, 10th Floor,
Tower - 1 Unit No 1003,
Plot- DP-5 Sector V, Salt Lake City
Kolkata - 700091
Tel: (033) 40002020

LUDHIANA

JSW Steel Ltd.
3rd Floor, SCO 7-8, Canal Colony,
Firoz Gandhi Market, Pakhowal
Road, Ludhiana - 141008
Tel.: (0161) 6611700

MUMBAI

JSW Steel Ltd
JSW Centre, Bandra Kurla
Complex, Bandra East
Mumbai-400051
Mob: 022-42863000

NAGPUR

JSW Steel Ltd.
L&T Building,
3rd Floor (Back Side),
Plot No: 12,
Shivaji Nagar, Nagpur: 440010

NAVI MUMBAI

JSW Steel Ltd.
1101-1102 a 1704-1707, 17th Floor,
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Cyber One, Sector 30 A,
Vashi, Navi Mumbai - 400 705
Tel: 022 69337000

NOIDA

JSW Steel Ltd.
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Sector-62, Noida, Uttar Pradesh

PATNA

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PUNE

JSW Steel Ltd.
EPI Centre, 2nd Floor,
CST No 4/6,
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Pune - 411005
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