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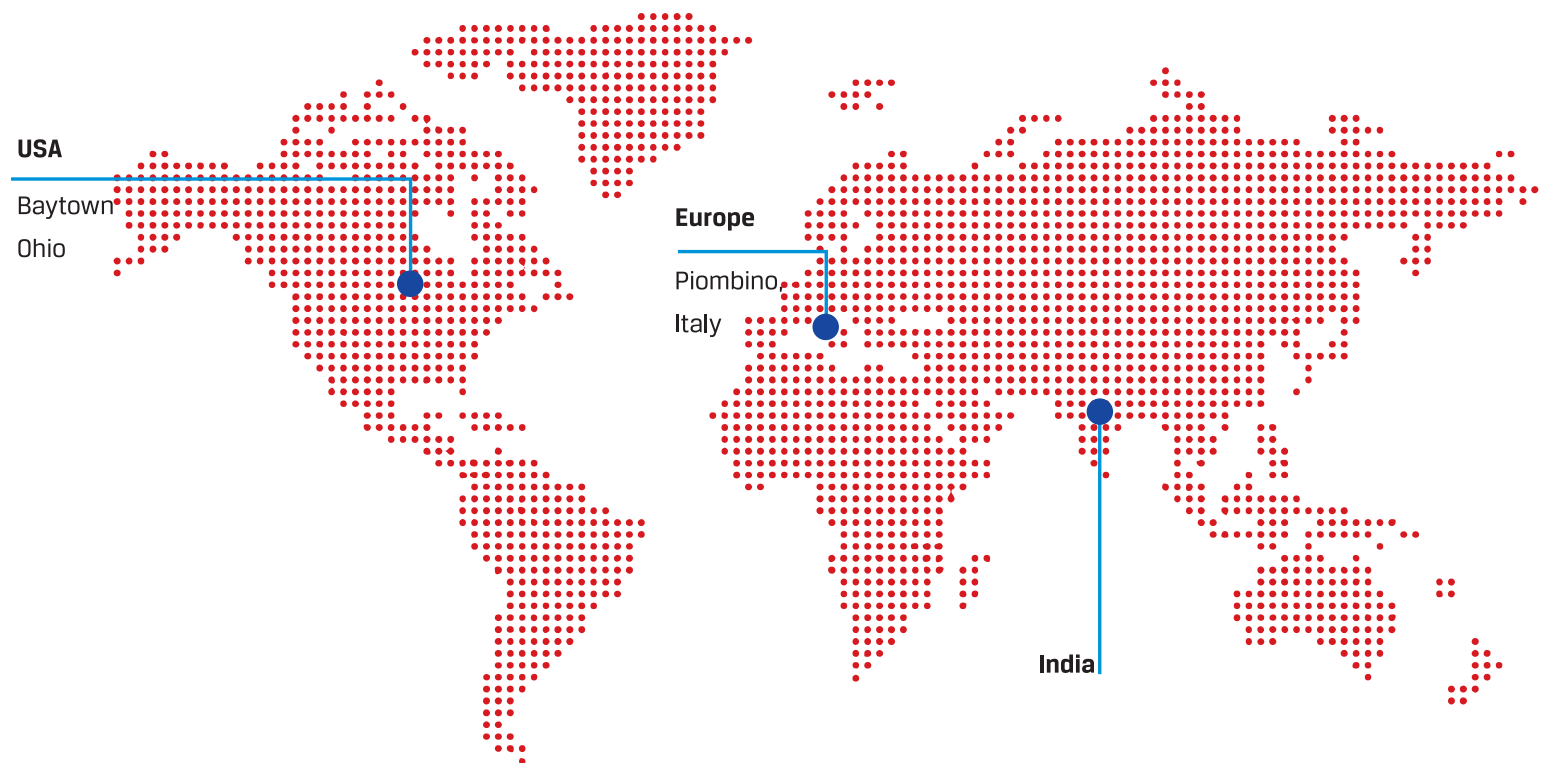


## ABOUT JSW GROUP

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 and capabilities including a successful track record of executing large capital-intensive and 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 and 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 .



- |                                   |  |
|-----------------------------------|--|
| Vijayanagar Works                 | Tarapur Works                          |
| 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 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 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 take its total capacity to 43.5 MTPA by September 2027. The Company's plant in Vijayanagar, Karnataka is largest single-location steel-producing facility with current capacity of 17.5 MTPA (including 5 MTPA under commissioning).

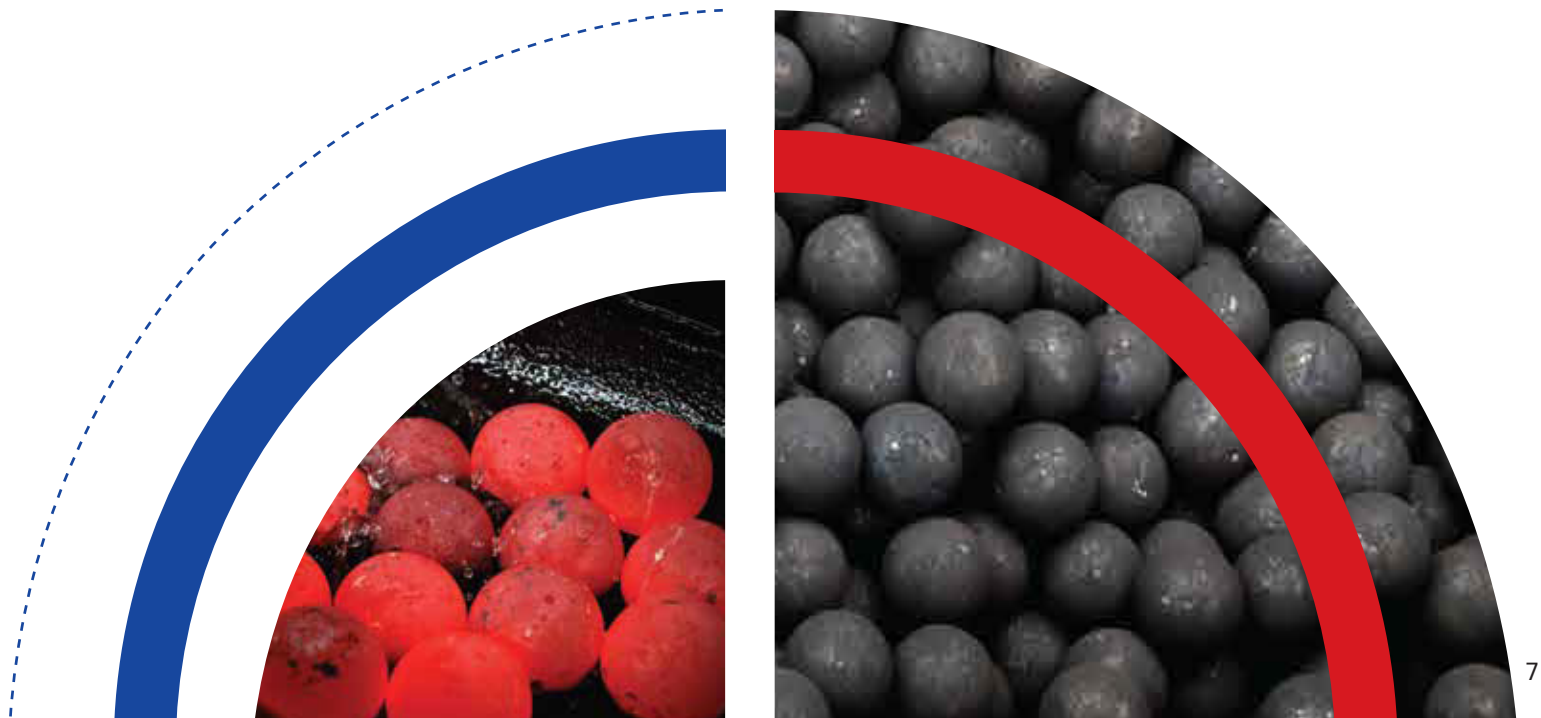
JSW Steel has always been at the forefront of research and innovation. Its strategic collaboration with JFE Steel of Japan, enables JSW to access new and state-of-the-art technologies to produce and offer high-value special steel products to its customers. These products are extensively used across industries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

JSW Steel is 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.

**" DO YOU KNOW "**

Do you know that JSW Steel is the only and first manufacturer of grinding media from integrated special steel plant. This means we have total control over the high-quality raw materials and stringent quality assurance right from the sourcing, manufacturing to packaging, unlike other manufacturers.





## ABOUT JSW GRINDING MEDIA PRODUCTS

JSW Steel Salem Works is the India's largest Integrated Special Steel plant (Long Products) located in Salem, Tamil Nadu, with an installed capacity of 1.15 Million Tons per Annum

- Product mix comprises Cast Blooms/Billets, Hot Rolled Round Bars, RCS Bars, Flats Bars and Wire Rod catering to various Auto and Non-Auto Customers across the Globe
- Grinding Media, one of the main consumable for Mining Industry, is added to the product mix with the installation of Grinding Media Mill with a capacity of 0.1 Million Tons per Annum at Salem Works

### " DO YOU KNOW "

Do you know that JSW Steel Grinding Media is manufactured in India's largest integrated special steel plant with a capacity of 100,000 tons per year.





# SUSTAINABILITY

JSW Steel's grinding media manufacturing at the Salem plant prioritizes sustainability with advanced technology. The Induction Heater operates at 95% efficiency, compared to the 65-70% of traditional Walking Beam Furnaces. It eliminates emissions and fossil fuel use, making it highly eco-friendly. These energy-efficient practices and sustainable resource management help minimize the plant's carbon footprint and support global sustainability goals.

## " DO YOU KNOW "

Do you know that JSW Steel is manufactured using 0% fossil fuels, committed to achieving carbon neutrality by 2047 through sustainable practices and recycles over 95% of waste generated during manufacturing.

### Governance & Oversight by Board-level Business Responsibility & Sustainability Committee

Our Focus Areas

E

- Climate Change
- Energy
- Resources
- Water Resources
- Waste
- Waste Water
- Air Emissions
- Biodiversity
- Sustainable Mining
- Supply Chain Availability

S

- Indigenous People
- Cultural Heritage
- Employee Wellbeing
- Local Considerations
- Social Sustainability

G

- Business Ethics
- Human Rights
- Supply Chain

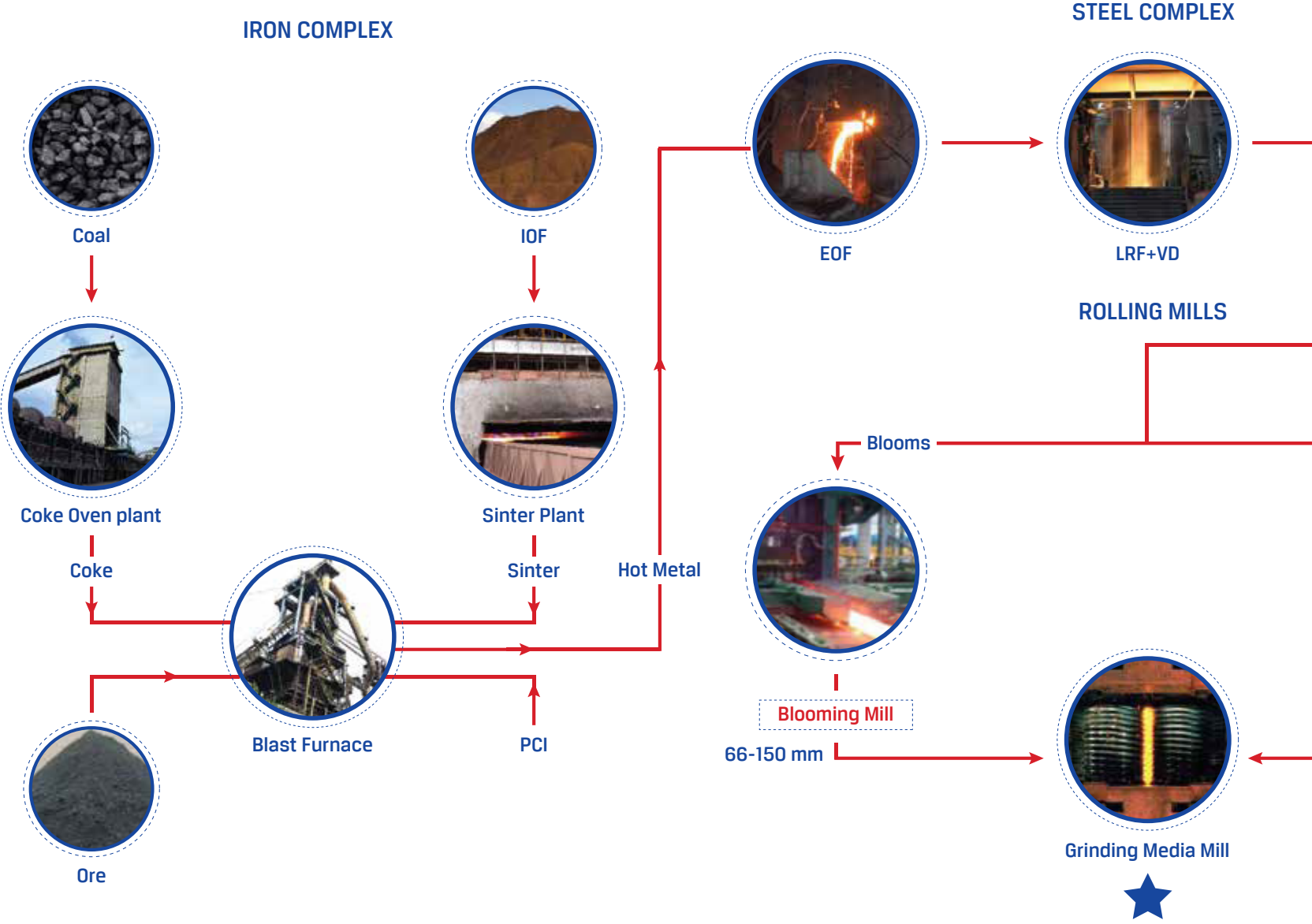
Driving sustainability initiatives across platforms



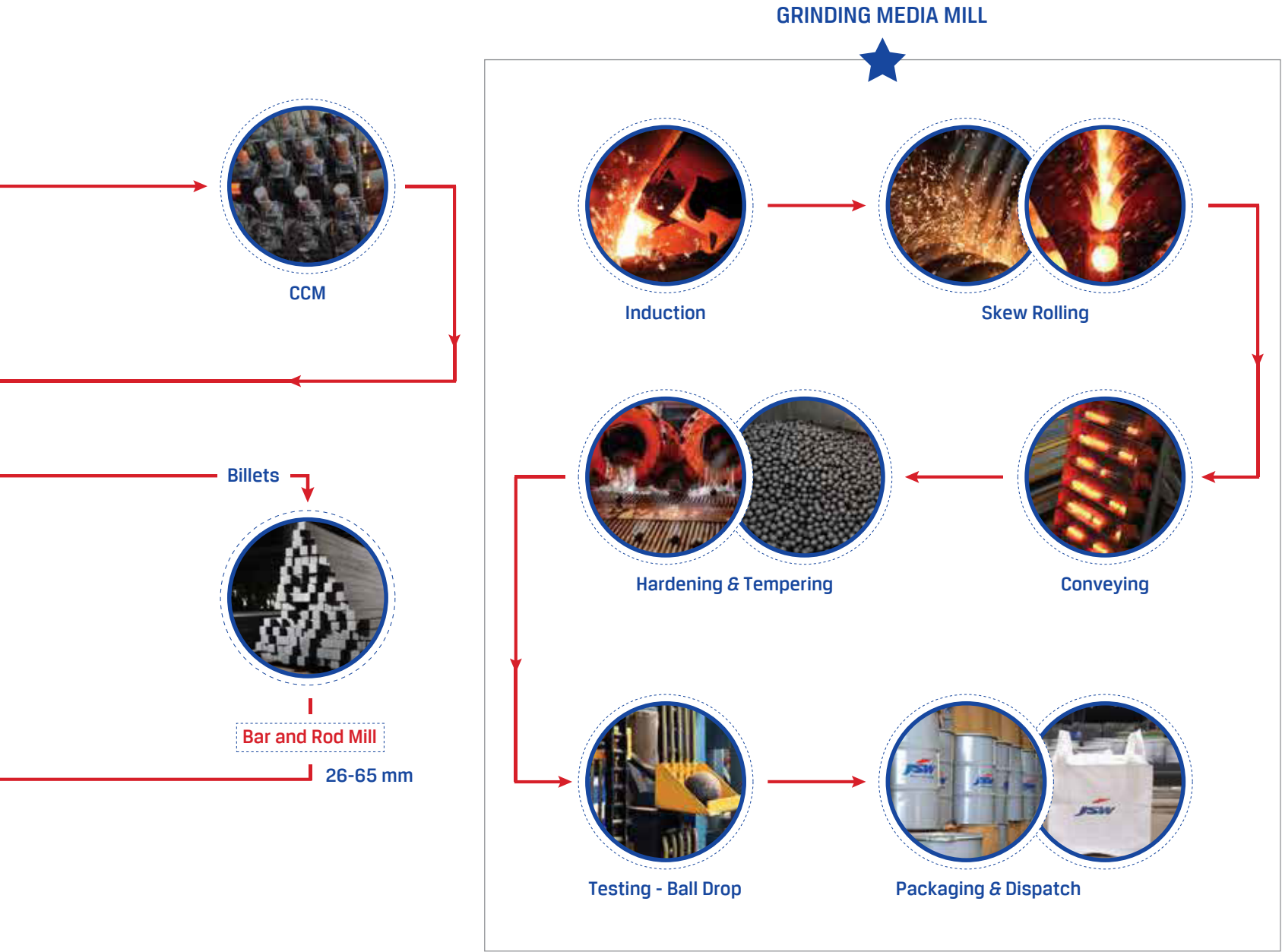
Aligned to national & international frameworks



# MANUFACTURING PROCESS



# MANUFACTURING PROCESS



## BENEFITS & KEY FEATURES

- **Durability:**  
Grinding media engineered with advanced heat treatment for extended lifespan.
- **Hardness Homogeneity:**  
Uniform surface and volumetric hardness ensuring superior performance.
- **Abrasion Resistance:**  
High-grade materials offering excellent resistance to wear and tear.
- **Impact Resistance:**  
Optimized hardness levels to withstand extreme operational stress.
- **Customizable Solutions:**  
Flexible product offerings tailored to specific milling requirements.





# PRODUCT SPECIFICATION - GRINDING MEDIA

## Technical Details Better Everyday

Technology Supplier	M/s PERT - ITALY
Manufacturing Capacity	0.1 mTpA
Production rate	9.5 to 20 Ton/Hr
Re-Heating f/c	<ul style="list-style-type: none"><li>Inductotherm Multi Zone Induction Heating (Electric – 9MW)</li><li>Temperature: 1000 to 1180 OC</li><li>Bar Length : 6 mtrs. Max.</li></ul>
Main Mill	Single Stand Skew Mill
Hardening	<ul style="list-style-type: none"><li>Temperature : 850 - 910 OC (depends on the Grade)</li><li>Quenching Media : Water</li></ul>
Tempering	Tempering Self Tempering – Temperature and Time depends on the Size
Product	Grinding Media Steel Ball
Size	25mm to 150mm
Grade	Medium Carbon, High Carbon & Chrome Steel
Hardness	60-65 HRc; 55-60 HRc; 48-55 HRc (Customised as per Requirements)
Application	Grinding media in Mining Industry, Pellet Plant, Beneficiation Plant (Wet & Dry Grinding), Cement Plant

# PRODUCT SPECIFICATION - GRINDING MEDIA

We can supply as per,

- IS 12658:2018 – Grinding Media Rolled / Forged Carbon and Carbon – Chromium Steel – Specification
- GOST-7524-2015 : Specification for Steel Grinding Balls for Ball Mills
- DSTU 8538 – 2015: Steel Milling Balls for Ball Mills
- Customer Specific Requirement (**Customized Products**)

## Grinding Media for Ball Mills (Primary, Secondary & Regrind applications)

Fully Heat-Treated Alloy Steel Balls for Maximum Hardness & Abrasive Resistance

### Standard Specification

Ball Size (mm)	Size Tolerance (mm)	Surface Hardness (HRC)	Volumetric Hardness (HRC)	Ball Weight (Kg)	C%	Si%	Mn%	P%	S%	Cr%
25	± 1.0	60-65	60-65	0.06	0.62-0.67	0.15-0.30	0.70-0.85	0.025 max	0.015 max	0.30-0.40
30	± 2.0	60-65	60-65	0.11	0.62-0.67	0.15-0.30	0.70-0.85	0.025 max	0.015 max	0.30-0.40
40	± 2.0	60-65	60-65	0.26	0.62-0.67	0.15-0.30	0.70-0.85	0.025 max	0.015 max	0.30-0.40
50	± 2.5	60-65	60-65	0.51	0.62-0.67	0.15-0.30	0.70-0.85	0.025 max	0.015 max	0.30-0.40
60	± 3.0	60-65	60-65	0.89	0.62-0.68	0.20-0.40	0.85-1.00	0.025 max	0.015 max	0.60-0.70
70	± 3.0	60-65	60-65	1.41	0.62-0.68	0.20-0.40	0.85-1.00	0.025 max	0.015 max	0.60-0.70
80	± 3.0	60-65	60-65	2.10	0.62-0.68	0.20-0.40	0.85-1.00	0.025 max	0.015 max	0.60-0.70
90	± 3.0	60-65	60-65	3.00	0.62-0.68	0.20-0.40	0.85-1.00	0.025 max	0.015 max	0.60-0.70



# PRODUCT SPECIFICATION - GRINDING MEDIA

## Grinding Media for Semi-Autogenous Grinding Mills

Aptly Heat-Treated Alloy Steel Balls for Ideal Hardness & High Impact Resistance.

### General Specification

Ball Size (mm)	Size Tolerance (mm)	Surface Hardness (HRc)	Volumetric Hardness (HRc)	Ball Weight (Kg)	C%	Si%	Mn%	P%	S%	Cr%	Mo%
100	± 3.0	55-60	55-60	4.11	0.57-0.62	0.35-0.45	0.95-1.12	0.025 max	0.010 max	0.75-0.80	0.055-0.065
125	± 3.0	48-55	48-55	8.03	0.57-0.62	0.35-0.45	0.95-1.12	0.025 max	0.010 max	0.75-0.80	0.055-0.065
150	± 3.0	48-55	48-55	13.87	0.57-0.62	0.35-0.45	0.95-1.12	0.025 max	0.010 max	0.75-0.80	0.055-0.065

Note: The surface and volumetric hardness varies with chemical composition as per customer requirement



## SAFETY & QUALITY ASSURANCE

### SAFETY AND QUALITY ASSURANCE



- Spark Test for material consistency.
- Ball Drop Test for impact resistance (Tested for up to 18,000 cycles).
- Hardness Testing (Surface and Volumetric).
- Dimensional and Roundness Testing for precision.
- Advanced metallurgical tests like Scanning Electron Microscopy and Optical Microscopy.
- In-House Expertise: State-of-the-art laboratories and skilled professionals ensuring product quality.
- Stringent Process Controls: Real-time monitoring of production processes for consistent product output.



# CERTIFICATION

- ISO 9001: For quality management systems.
- ISO 14001: For environmental management systems.
- ISO 45001: For occupational health and safety management.
- ISO 50001: For Energy Management System



# STATE OF THE ART TESTING FACILITIES

**Input Hot Rolled Bars undergo Chemical Test, Ultrasonic Test, Magnetic Particle Inspection, Mechanical & Metallurgical Tests and Spark Test as per Specific Requirement**

- Surface and Volumetric Hardness Test
- Ball Drop Test (For impact resistance)
- Ball on Anvil method as per IS 12658:2018 (unless specified by the Customer) – Drop height is 3 meters.
- Additionally for SAG Grinding Balls, Ball on Ball drop test – Drop height is 10 meters

## Testing facilities

Sample	<ul style="list-style-type: none"><li>• Electric Discharge Machine</li></ul>
Preparation	<ul style="list-style-type: none"><li>• Grinding &amp; Polishing Machine</li></ul>
Chemical	<ul style="list-style-type: none"><li>• Optical Emission Spectrometer</li><li>• Laser Induced Breakdown Spectro</li></ul>
Mechanical	<ul style="list-style-type: none"><li>• Rockwell Hardness Tester</li><li>• Vickers Hardness Tester</li></ul>
Metallurgical	<ul style="list-style-type: none"><li>• Optical Microscope</li><li>• Scanning Electron Microscope</li></ul>

### " DO YOU KNOW "

Do you know that every ball from a batch undergoes rigorous testing, including the Spark Test and Ball Drop Test (up to 18,000 cycles), to ensure unmatched quality.



## STATE OF THE ART TESTING FACILITIES

During Development stage for Wear Rate estimation, Marked Balls can be supplied. Or else by using Portable Laser Induced Breakdown Spectro (LIBS), JSW Balls can be easily identified at the site.



### **Hardness Test:**

Average Surface HRc, Average Volumetric HRc.



### **Impact Test:**

Ball Drop Test.



### **Dimensional Test:**

Mass, surface finish, Roundness of every balls.



# PACKAGING OPTIONS

## BAGS:

JSW Grinding Medias are available in 1 or 2-ton High Density Polyethylene bags, each equipped with secure lifting straps. These bags are expertly strapped onto 1m x 1m wooden pallets for easy transportation.

## DRUMS:

JSW Grinding Medias are packed in 200 lit metal drums, arranged on pallets. Each drum contains approximately 1 ton of gross weight balls. Drums can be directly loaded onto truck trailers or securely strapped onto wooden pallets as per requirement.

## BULK:

We also offer the option of loose ball supply in half-height containers, standard 20ft. containers, or via open-top trucks.





# WHY CHOOSE US ELEVATING EXCELLENCE

## Consistent Product Quality

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- Our Induction heater ensures minimum scale loss as the residence time inside the furnace is as low as possible to achieve the temperature requirement of 1,1800°C
- Rolled Grinding Media will be superior in the following parameters compared to cast balls
- Accurate dimension
- No or Minimum equator line
- Uniformity in wear pattern due to homogenous hardness
- No pole defect
- Higher impact energy No defects like porosities which reduces the life
- Internal soundness is very high due to a reduction ratio of 4:1 min

## Commitment to Sustainability

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The Induction heater operates at a full load efficiency of 95%. whereas traditional walking beam furnaces operate at about 65-70% efficiency. In addition to this, there are no emissions in the heating process and there is zero fossil fuel consumption in the Induction heater, thus making it environment friendly.

## Wide Range of Products

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JSW Salem can produce Grinding media sizes ranging from 25 mm to 150mm as the rolled bars are available from existing rolling mills.



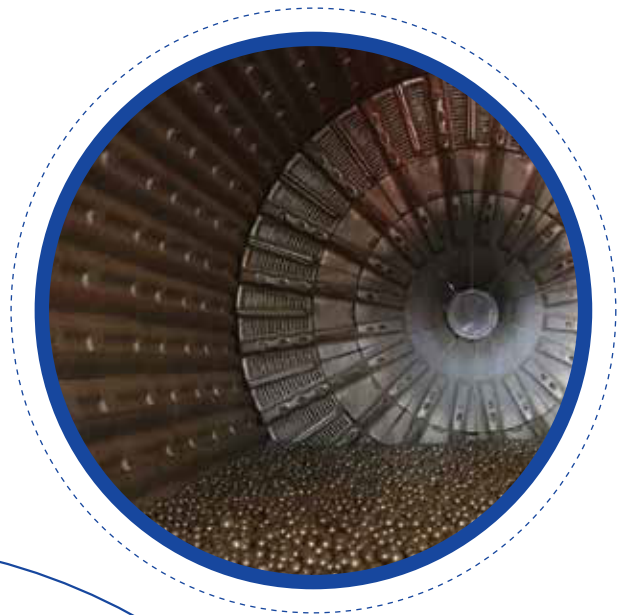
## APPLICATIONS

- **Mining & Mineral Processing Industry:**

Suitable for metallurgical processes used in primary, secondary, and regrind milling processes to grind ores for mineral extraction.

- **Cement Industry:**

Grinding raw materials and clinker in cement & ACC Block manufacturing unit production for enhanced product fineness.



# AWARDS AND RECOGNITIONS



**Steel Sustainability  
Champion for the 6th  
consecutive year**



**Leadership rating for 4th  
consecutive year in Climate  
Change, 'A' rating in  
Water Security**



**Global Energy  
Transition Changemakers  
Award for  
SEED Project**



**British Safety Council 5-  
star rating and Sword of  
Honor award**



**Included in the Dow  
Jones World and Emerging  
Markets Sustainability**



**Awarded one of India's Best  
Workplaces for Women,  
Health and Wellness and  
Best Employers among  
Nation-Builders**



**JSW becomes fastest growing  
brand in India over the last  
10 years - Interbrand**



**Received the Iconic  
Brands of India 2024  
Award from ET NOW**





# 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  
Chikaithana MIDC, Aurangabad

## BANGALORE

JSW Steel Ltd;  
The Estate, Next to  
Manipal Centre 9th Floor,  
East wing,  
121, Dickenson road,  
Bangalore-560042  
Tel: (08042448888)

## 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, Edappally, 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,  
Plot No. 4 A 6, Greenscape  
Cyber One, Sector 30 A,  
Vashi, Navi Mumbai - 400 705  
Tel: 022 69337000

## NOIDA

JSW Steel Ltd.  
Trapezoid, C-27, 9th Floor,  
Sector-62, Noida, Uttar Pradesh

## PATNA

JSW Steel Ltd.  
Sai Tower, 3'd Floor,  
Rekha House,  
New Oak Bungalow Road,  
Patna - 800001  
Tel.: 0612 - 6696205

## PUNE

JSW Steel Ltd.  
EPI Centre, 2nd Floor,  
CST No 4/6,  
Above Royal Enfield Showroom,  
Shivajinagar, Wakadewadi,  
Pune - 411005  
Tel: (020) 66662300

## VIJAYWADA

JSW Steel Ltd.  
VRN House Corporate,  
2nd Floor, 3 8-4-12, Opp All  
India Radio, Beside MG Road,  
Punnamma Thota,  
Vijaywada - 520010



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JSW Centre Bandra Kurla Complex,  
Near MMRDA Grounds,  
Bandra East, Mumbai 400 051

Tel: +91 22 4286 1000



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