



JSW STEEL LTD.  
JSW Centre, Bandra Kurla Complex, Bandra (East), Mumbai - 400051  
Phone: 022 4286 1000 | Fax: 022 4286 3000 | Toll free: 1800-225-225  
Email: support.steel@jsw.in | Web: www.jsw.in/steel

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July'20

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## COLOUR COATED COILS & SHEETS



Superior Quality Colour Coated Sheets & Coils

**JSW Steel** helping india  
move forward.



## Content

**05** JSW Group

**07** JSW Steel

**09** JSW Steel  
Coated Products

**11** Setting  
Benchmarks

**13** Awards &  
Recognitions

**16** Manufacturing  
Facilities

**17** JSW Radiance

**19** Advantage  
JSW Radiance

**20** Manufacturing  
Process

**22** Specifications

**24** Applications

**26** Packaging

**27** Handling

**27** Marking

**28** Research &  
Testing facilities

**30** Contact Us





## JSW Group

A \$12 billion conglomerate, with presence across India, USA, Italy, South America & Africa, the JSW Group is a part of the O.P. Jindal Group with strong footprints across economic sectors, namely, Steel, Energy, Infrastructure, Cement also in Ventures, Sports and Paints.

The Group is paving the way for India's development as a global superpower. JSW Steel is India's leading steel producer and among the world's most illustrious steel company. The Group is also leading in every sector that it operates in.

JSW Energy is one of the earliest private entrants into the power sector positioned strongly as a full-spectrum integrated power company with a presence across the power sector value chain. It is one of the most efficient Power Company in the country with one of the country's largest open cast mining operation by volume and one of the largest private sector Hydro Operator in India. JSW Cement creates the building blocks of India with its environment friendly products. JSW Infrastructure is contributing to the nation's development by providing world class services to clients through state-of-the-art ports, terminals, shipyards and other facilities. JSW Sports runs the Sports Excellence Program (SEP) to identify, nurture and develop Indian athletes to ensure that they bring sporting glory to the nation on the global stage. JSW Sports also runs the Bengaluru Football Club, Delhi Capitals cricket team and the Haryana Steelers kabaddi team.

JSW Paints is a greenfield venture of the JSW group backed by cutting-edge technology, automation and scale that's comparable to leading players in the Indian paints sector. The company will manufacture and market both industrial coatings as well as decorative paints. In the Decorative paints segment, the company will offer a complete range of only water-based paints for Interior & Exterior walls, wood & metal – various surfaces in Homes.

JSW Ventures is an early-stage, tech-focused, venture capital fund of JSW Group. JSW Ventures extends its partnership not just through capital, but through a commitment to build exceptional companies by developing growth strategies, improving financial functions, and providing access to the investor community and support from JSW Group's extensive resources.

The JSW Group is committed to creating more smiles at every step of the journey. JSW Foundation, the Group's CSR and sustainability arm, is in constant pursuit of making life better for communities with its various initiatives in the fields of health, education, livelihood and sports, along with art and culture.

JSW Group is proud to be charting a course to excellence that creates opportunities for every Indian and leads to the creation of a sustainable, dynamic and developed nation.





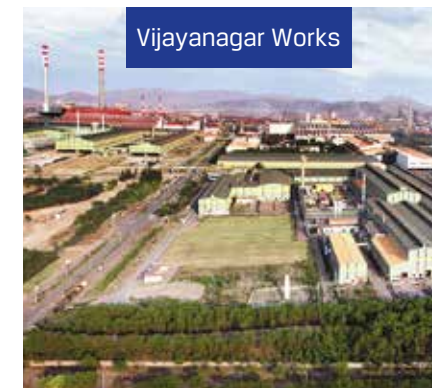


## JSW Steel Ltd.

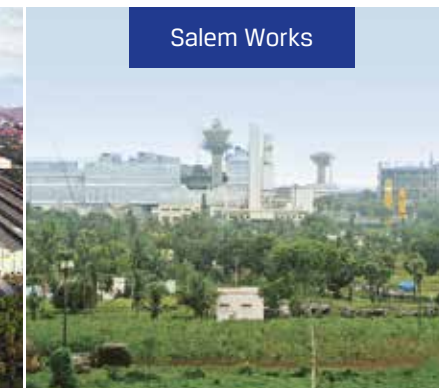
The flagship company of USD 12 billion JSW Group, JSW Steel is one of India's leading integrated steel manufacturers with a domestic capacity of 18 MTPA. It is one of the fastest growing companies in India with a footprint in over 100 countries. With state-of-the-art manufacturing facilities located in Karnataka, Tamil Nadu and Maharashtra, it is recognized for its innovation and quality.

JSW offers a wide gamut of steel products that includes Hot Rolled, Cold Rolled, Bare & Pre-painted Galvanized & Galvalume®, TMT Rebars, Wire Rods, Special Steel, Electrical Steel and Tinplate.

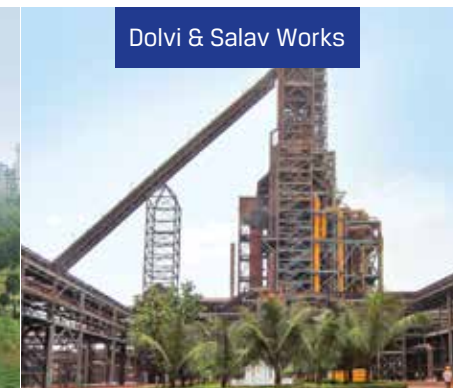
JSW Steel continues to enhance its capabilities to meet the rapidly changing global market needs. To stay on the leading edge of technical advancement, JSW has entered into technological collaboration with JFE Steel Corp, Japan to manufacture high strength and advanced high strength steel for the automobile sector. JSW Steel has also entered into a joint venture with Marubeni-Itochu Steel Inc. Tokyo, to set up a state-of-the-art steel processing centers. To strengthen its global network, The company has acquired steel manufacturing facilities at Texas & Ohio in USA & in Piomboni, Italy. Going forward, JSW Steel aims to increase the annual production to 40 million tons within a span of 10 years.



Vijayanagar Works



Salem Works



Dolvi & Salav Works





## JSW Steel Coated Products Ltd.

JSW Steel Coated Products Limited is 100% subsidiary company of JSW Steel, having state-of-the-art manufacturing facilities in the state of Maharashtra.

JSW Steel Coated Products Ltd. is India's largest manufacturer and exporter of Coated Steel as well as Colour Coated Steel. The production facilities, Tarapur and Vasind Works, are located in the vicinity of major ports. The company's Kalmeshwar Works is centrally located near Nagpur to serve across regions.

JSW is an ISO 9001: 2008 Certified Organization and the first licensee producer for Galvalume® in India. The Tarapur plant is specialized in manufacturing Ultra-Thin Coated Products. The company is also a manufacturer of appliance grade colour coated products. JSW's Kalmeshwar Works is the first producer of Galvanized and Colour Coated Steel in India. JSW also has established India's first Appliance Grade Line to manufacture Pre Coated and Vinyl Coated Metal.



Vasind Works

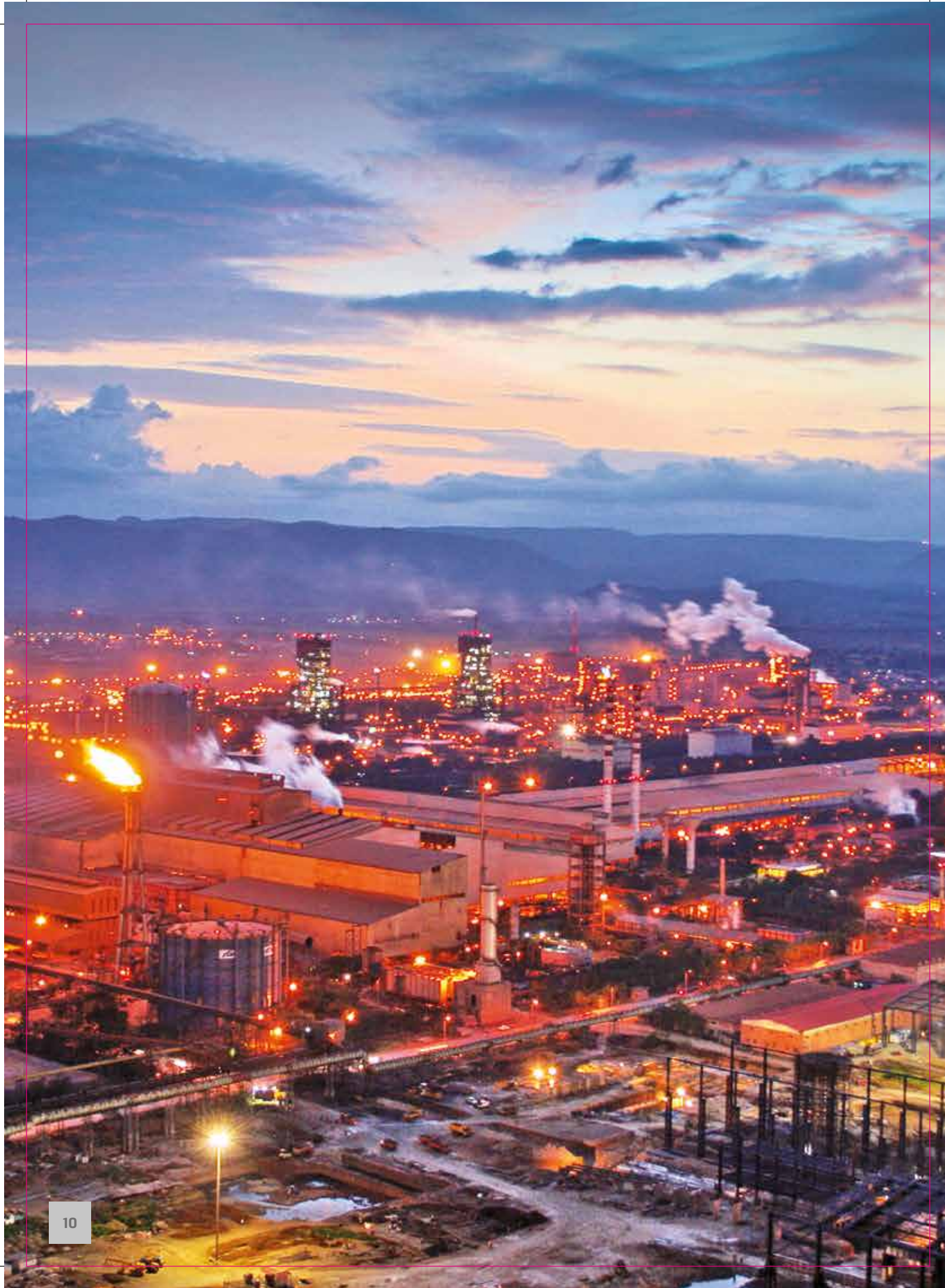


Tarapur Works



Kalmeshwar Works





## Setting Benchmarks

- First continuous annealing line in India
- Widest Cold Rolling Mill (upto 1870 mm width)
- India's largest Coated Steel producer
- First Licensee Galvalume® producer in India
- JSW Steel Salem works is the largest integrated Alloy and Special Steel plant in India
- One of the widest Hot Strip Mill in India
- India's most modern and largest Vertical Caster-300/260/220 x 2200 mm
- India's only Multi-Radii Bloom Caster operational at Salem works
- ZERO EFFLUENT discharge for greener & cleaner environment
- 1.6 million trees planted at Vijayanagar works, transforming the area into a green oasis
- India's largest Long Steel producer by installed capacity







**JSW Steel wins the prestigious Deming Prize for its excellence in TQM**

The JSW Steel Vijayanagar Works is the largest single location integrated steel plant in the world to be awarded the prestigious Deming Prize for excellence in Total Quality Management (TQM) presented by the Union of Japanese Scientists and Engineers (JUSE) in 2018.

JSW Steel Ltd., Salem Works, India's largest Special Alloy Steel Plant (Long products) has been awarded the coveted Deming Prize for 2019.

## Award & Recognitions

### Business & Operations

CII Exim Bank Awards for Business Excellence, 2018

The 25th Steel Minister's Trophy for the best performing integrated steel plant, 2016-17

IMC RBNQA Performance Excellence Trophy, 2016

### Management

Business Standard CEO of the Year Award, 2018

Outstanding Business Leader of the Year CNBC-TV18, 2018

Chief Finance Officer of the Year, 2018

### Sustainability

CII 19th National Award for Excellence in Energy Management, 2018

Apex India Energy Efficiency Award, 2018

Golden Peacock Environment Management Award, 2018

CII - National Energy Management Award, 2017





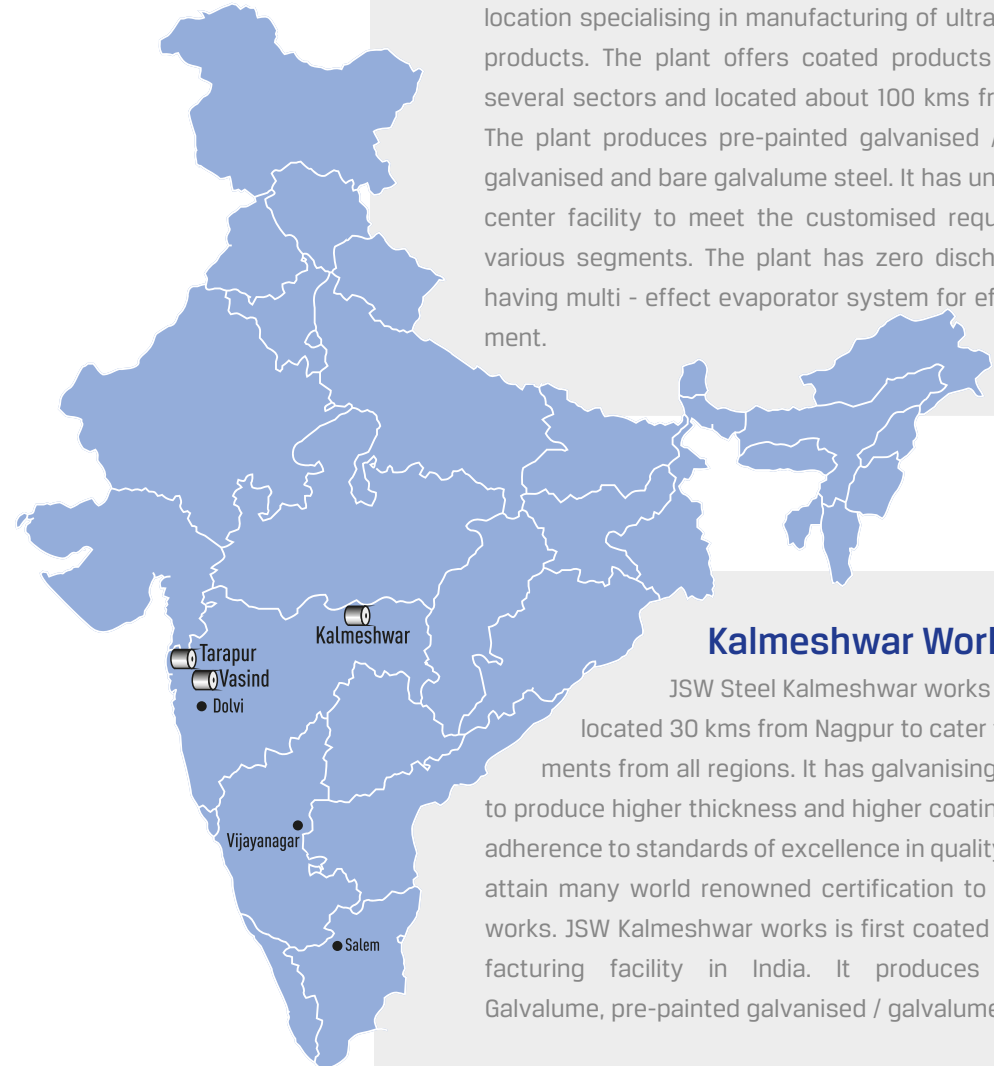




## Manufacturing Facilities

### Tarapur Works

JSW's Tarapur works is largest coated steel plant in a single location specialising in manufacturing of ultra thin coated products. The plant offers coated products catering to several sectors and located about 100 kms from Mumbai. The plant produces pre-painted galvanised / galvalume, galvanised and bare galvalume steel. It has unique service center facility to meet the customised requirements of various segments. The plant has zero discharge facility having multi - effect evaporator system for effluent treatment.



### Kalmeshwar Works

JSW Steel Kalmeshwar works is centrally located 30 kms from Nagpur to cater the requirements from all regions. It has galvanising capabilities to produce higher thickness and higher coating. The Strict adherence to standards of excellence in quality has lead to attain many world renowned certification to kalmeshwar works. JSW Kalmeshwar works is first coated steel manufacturing facility in India. It produces galvanised, Galvalume, pre-painted galvanised / galvalume steel.

### Vasind Works

Vasind works is located 70 kms from Mumbai. It is a full fledged complex with cold rolling, galvanising and colour coating facilities. Vasind works has India's first appliance grade colour coating line, the grades of this line are approved by major white good manufacturers. It sources HR steel from Dolvi & Vijayanagar works to manufacture value added steel products.

## JSW Radiance

JSW Radiance is a superior Colour Coated Steel product with newly evolved paint technology to enhance the life of the products. JSW Radiance contains quality paint with agents to restore radiance and luminosity to the surface. Designed for colour coated coils of all shades that offers long lasting protective treatment to fight fading and increase shine. JSW Radiance also comes in 6 variants - to meet the specific end use requirements of applications across various industries. For assuring the performance of paint technology, JSW Radiance also offers the warranty on durability along with the innovative and unique paint technology.

### JSW Radiance variants



#### ANTI MICROBIAL

Antimicrobial Coil coatings provide health benefits by inhibiting the growth of harmful bacteria in a cost effective way throughout the normal service life of the product. It can be used in HVAC Ducts, Appliances, Hospitals, Cold Storages, Interior Panels etc. Anti-Microbial coating offers assured complete protection because it provides protection even in the inaccessible hard to reach areas. Based on non-toxic, human safe antimicrobial additive, can be added to Topcoats and Back-coats. It meets the Japanese Industrial standard JIS Z 2801. Product Certified for JIS Z 2801 do not allow growth of bacteria on treated surface and kills more than 99.9% bacteria, when in contact with the Antimicrobial coil coating.



#### ANTI GRAFFITI

Super Hydrophobic Surface resists staining materials like Bird droppings, graffiti paints, sketch pens and even markers. Stained surface can be easily cleaned physically with wet or dry wiping, leaving a clean surface. PVDF, SDP or SMP coatings are best suited for such functional application.



#### ANTI DUST

Stained surface can be easily cleaned physically with wet or dry wiping, sprinkled water and naturally with UV exposure, wind and with rain. Poorly adhered dirt particles blow off with wind and water drops takes up dirt particles, leaving surface clean. Exterior durable PVDF, SDP or SMP coatings are best suited for such functional application.





### ANTI STATICS

Increasing demand of battery operated vehicles will create the market for batteries and the storage of batteries will be a concern. Unwanted electrostatic discharge can be costly, even explosively dangerous. In view of future requirement for storage of batteries the walls of the cool rooms should be free of static charge. Antistatic paint can prevent dust collecting, gathering a charge, dropping into sensitive components and releasing the charge. PVDF or SDP coatings are best suited for such functional application.



### COOL ROOF

with high 'SRI Values' and temperature control for Cool room, PEB and Warehousing applications. Thermal efficiency is important factor while designing cool rooms with the help of JSW Radiance COOL ROOF there is a reduction in temperature inside the building. It can reduce the peak roof temperature by 5 to 6 degrees. This is possible due to high SRI values that will also help in saving electricity consumption.



### HIGH GLOSS

High Gloss variant comes with gloss paint. The word gloss refers to the sheen level of the paint. The higher the sheen level, the more reflective the paint will be. A gloss finish reflects the highest, so is the most 'shiny'. Gloss paints are easier to clean than lower gloss paints and are typically used in kitchens, bathrooms and on doors and cabinets exposed to fingerprints and grime. Because of its high reflection, gloss paint can highlight surface imperfections. High gloss paints have the highest reflective appearance.



## Advantage JSW Radiance



\*Subject to conditions  
\$ PPGL





## Manufacturing process



### Available Paint types

#### Regular Modified Polyester - RMP

- Colour Coated Steel that is painted and dried with polyester
- Excellent workability, weather resistance and durability
- Wide range of colours and brightness that make it suitable for various applications like interior and exterior construction materials, assembling metals, and partitions
- Substrate: GI, GL
- Applications: 1. Lightweight partition & Steel furniture 2. Roofing and Sliding & Sandwich panel

#### Silicon Modified Polyester - SMP

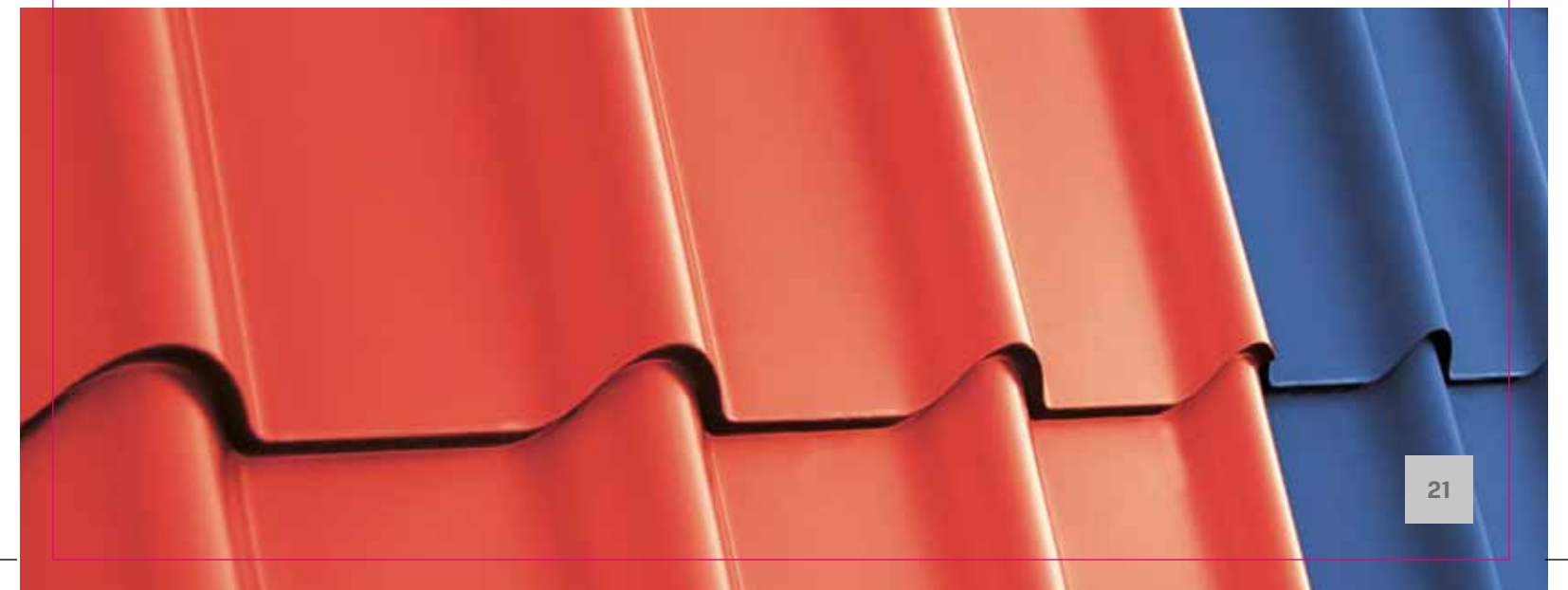
- Steel painted with silicon resin and dried
- Superior weather resistance
- Offers better protection than polyester steel sheets used in construction materials
- Substrate: GI/GL
- Application: 1. Sandwich panel 2. Roofing

#### Super Durable Polyester - SDP

- Pre-finished steel suitable for use in construction material
- High workability, brightness, clearness and printing feature makes SDP perfect for construction and metal devices that require such qualities
- Substrate: GI/GL
- Applications: 1. Exterior metal devices 2. Roofing

#### Polyvinylidene Fluoride - PVDF

- Steel sheets applied and hardened with a paint of fluorine resin which has a symmetric structure and contains fluorine, an inert gas
- Very high weather and chemical resistance due to an excellent molecular binding force of the fluorine resin
- Substrate: GI/GL
- Application: 1. Metal Exterior & Sandwich Panels 2. Structure in Industrial Complexes





# Specifications

Technical Standard	Base Substrate IS 15961 & Colour coated as per IS 15965
Grade	550 Mpa or 345 Mpa as per customer's requirement
Thickness	0.3-1.5mm Total Coated Thickness
Width	Up to 1550mm
Al-Zn Coating	150-200 g/m <sup>2</sup>
Color	all RAL Colors, or according to customers requirements
Paint System	RMP, SMP, SDP & PVDF
Top Side	Primer paint + polyester paint coating (25 microns) min
Back side	Primer epoxy (10 microns) min
Coil Weight	3-8 tons per coil
Salt Spray Resistance	>=1000 hours with SDP /PVDF Paints.
SRI Value	> 80 (Subject to Shade Specific)

## Paint properties comparison

Properties	SUPER/HIGH Durable Polyester	RMP	SMP	PVDF
Flexibility	Good	Fair	Poor	Good
UV Resistance	Good	Poor	Fair	Excellent
Gloss Retention	Excellent	Good	Good	Poor
Chalking Resistance	Good	Poor	Fair	Excellent
Costs	Marginal	Lowest	High	Very High
SST Hrs	1000	750	750	1000
Consumption per lit	Colour Specific			
Foam adhesion	Colour Specific			









## Performance testing

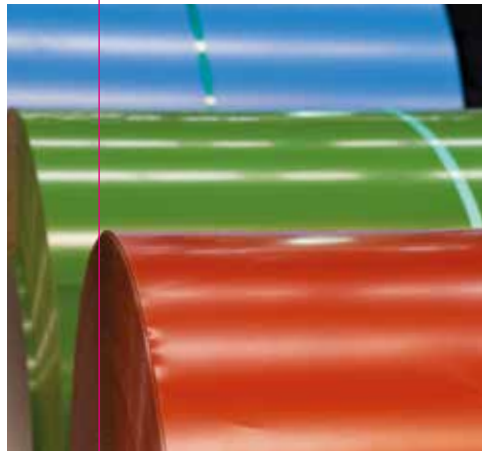
Specification	
Scratch Hardness (T/B)	1.5 - 2 / 1 - 1.5 Kg
Impact Test (in Joules) (thickness based Soft material)	As per Standard
Salt Spray Test (Specific to Coating Type)	750-1000 hrs
Adhesion Test (cross-hatch)	100%
Erichsen Cupping Test	As per Standard
Humidity Test	750-1000 hrs
T- Bend Test (T = substrate thickness)	2T for Soft, 4T for Hard (no tape loss)
Water Boiling Test	As per Standard
Solvent Rub Test (MEK- double rub)	> 100DR For Non Metallic, 80DR Metallic.
Chemical Resistance	As per Standard
Max. Operating temp	Upto 140°C





# Applications

	ANTI MICROBIAL	Appliance industry
	ANTI GRAFFITI	Warehousing and PEB application
	ANTI DUST	Warehousing and PEB application
	ANTI STATIC	Cool room applications
	COOL ROOF	Cool room & PEB applications
	HIGH GLOSS	Appliance, PEB applications





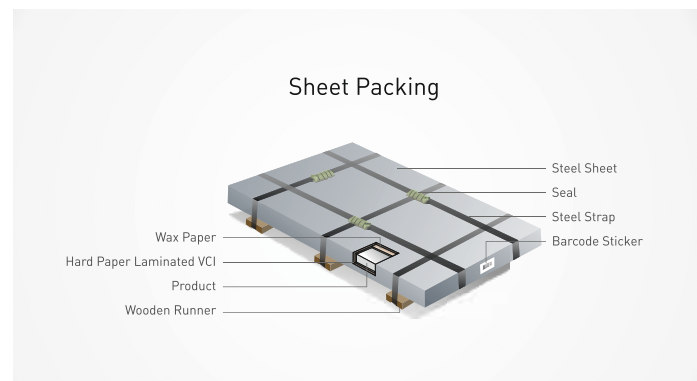
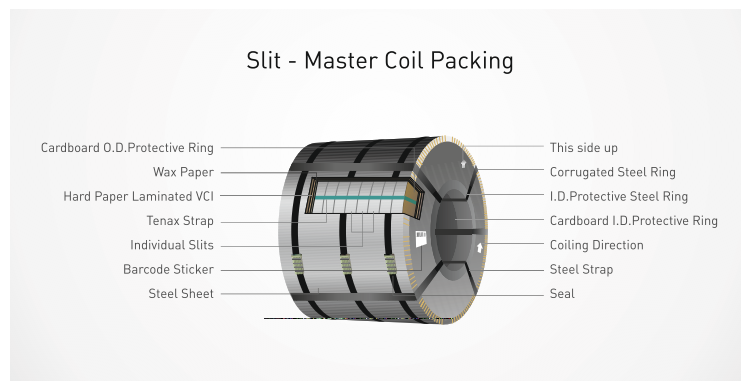
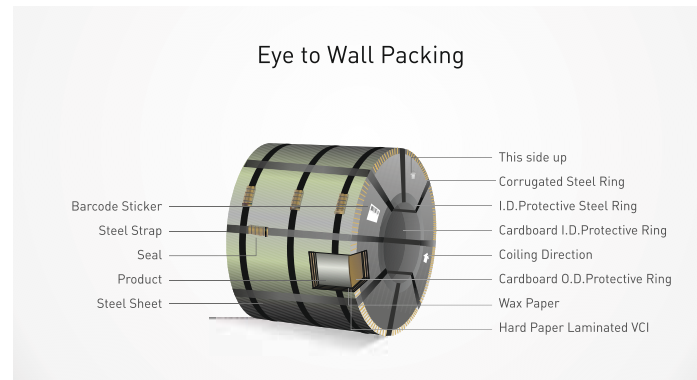
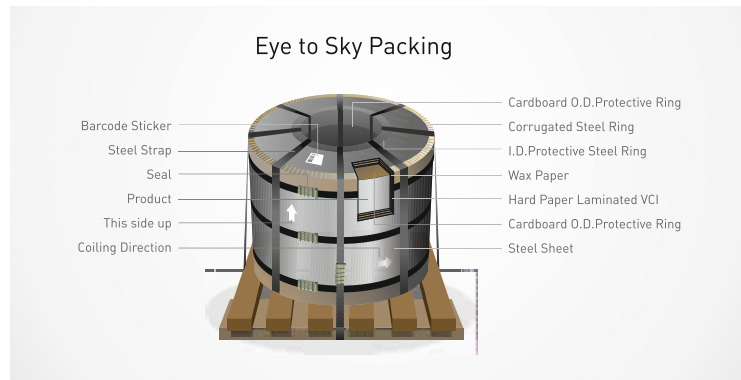
# Packaging

JSW offers its products with effective packaging as per customer requirements and in compliance with international norms. Emphasis is placed to ensure durability, prevention of any damage during transportation and better storage. JSW with its years of experience and regular benchmarking with various national and international companies, endeavours to improvise packaging in accordance with changing customer needs.

JSW has a stringent procedure for evaluating the competency level of suppliers for packaging material. Material quality is verified at the well-equipped and sophisticated JSW laboratory before offering for use.

The packing requirements for export and domestic markets are different. However, the type of packaging is determined in consideration of the following points:

- Customer needs
- Duration of transportation
- Environmental conditions during transit
- Handling during transit
- Handling at customer's premises
- Storage practices
- International regulation on package material



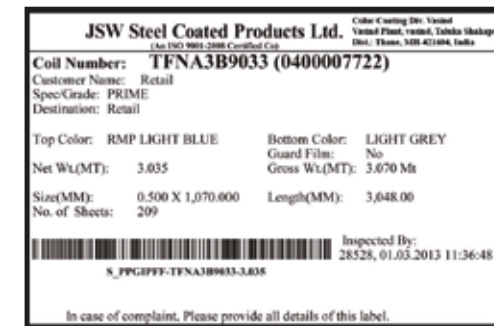
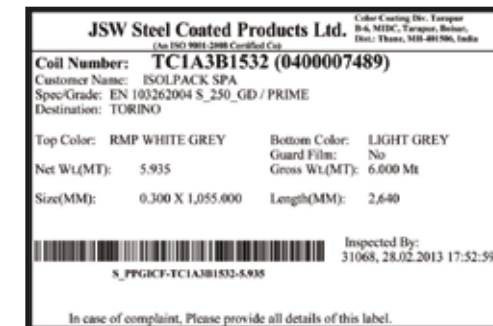
# Handling

- During transportation, it is recommended to put the rubber pad on the skid to avoid blocking issues; this will also help to protect it from white rust due to moisture
- Handle it with care and do not pile it up higher than two levels
- In the event of contamination, wash it with the solvent
- If the design layer peels off, follow the instruction manual provided by JSW steel

# Marking

Marking, in concept, leads to product accountability and verification at the time of production, transportation and delivery. Considering the vast product range at JSW, labelling practices ensure a foolproof identification and traceability.

## Mark of Ingenuity - Non-Erasable Liner Marking





# Research & Testing facilities

## Computerized Dry Film Thickness Measuring System

- Differential Paint Film Thickness Measurement

## Automatic MEK Rub Tester

- Paint Curing Test

## Cyclic Corrosion Tester- Q FOG

- Accelerated Corrosion Test

## UV Resistance Tester- QUV

- The QUV accelerated weathering tester reproduces the damage caused by sunlight, rain and dew. In a few days or weeks, the QUV UV tester can reproduce the damage that occurs over months or years in outdoors.

## Humidity Resistance Tester

- Humidity resistance is checked with condensing humidity and/or water spray

## Shade Matching Tester

- Used for Visual Colour Matching Test

## Gloss Tester

- Test to measure the gloss of the final sheet

## Taber Abrasion Tester

- Test Paint Film Abrasion Resistance

## Scratch Resistance Tester

- Test Paint Film Hardness

## T- Bend Tester

- Paint Film Flexibility Test

## Conical Mandrel Tester

- To test the formability of the sheet without any abnormality at the paint surface

## Pencil Hardness Tester

- Paint Film Hardness Test

## Lab Simulation Tests

- Chemical
- Acetic acid
- Alkali test 5% NaOH for 5 hours
- 5% HCl for 5 hours
- 5% H<sub>2</sub>SO<sub>4</sub> for 5 hours
- 5% absolute ethyl alcohol for 5 hours
- 5% HCl gasoline immersion for 5 hours
- Paint Kitchen Tests: The paint is applied with the help of a bar coder and baked. This sample is then subjected to all the preliminary tests to rule out any major defect







# JSW Steel Offices

## Corporate Head Office

JSW Centre  
Bandra Kurla Complex, Bandra (East), Mumbai - 400 051  
Tel.: +91 22 - 42861000 | Fax: +91 22 - 42863000

## Sales Offices

**AHMEDABAD**  
Office no. 501 & 502  
Mondeal Heights, B-wing Iscon Cross Road,  
Near Novotel Hotel, opp. Karnavati Club, S. G. Highway,  
Ahmedabad-380 054  
Mobile: 09427334449  
Tel: 079-49000270/271/272/273/274/275

**BENGALURU**  
The Estate,  
3rd Floor, West Wing, 121,  
Dickenson Road, Bengaluru - 560 042  
Tel: 080-42448888

**CHENNAI**  
5th Floor, KRM Plaza, No. 2,  
Harrington Road, Chetpet, Chennai - 600 031  
Tel: 044-28297420, 28297422

**COIMBATORE**  
T. V. Swamy Road (West), Coimbatore - 641 002  
Tel: 0422-2541870

**DELHI**  
NTH Complex (4th Floor),  
A-2, Shaheed Jeet Singh Marg,  
Qutub Institutional Area, New Delhi - 110016  
Tel: 011-48178600 | Fax: 011-48178699

**FARIDABAD**  
Piyush Global I Building  
1st Floor, Plot No.5, Opposite Escorts Mujesar Metro Station  
Main Mathura Road, NH-2, YMCA Chowk, NIT  
Faridabad - 121006, Haryana  
Tel: 0129-2239248, 2232387

**NOIDA**  
14A, Industrial Area, Buland Shar Road,  
Ghaziabad - 201 009  
Tel: 0120-3262875, 2867142

**GUWAHATI**  
106, 3rd Floor, Meer Market, Masjid Lane, Kamarpatty,  
Guwahati - 781 001  
Tel: 0361-2730054

**HYDERABAD**  
Babukhan Millenium Centre, 63-1099 /1100, 7th Floor,  
Block - A, Somajiguda, Hyderabad - 500082  
Tel: 040-27846669/79

**INDORE**  
3rd Floor, Lakshya Badgara, 13/1,  
New Palasia, Near Curewell Hospital, Indore - 452 001  
Tel: 0731-2532156/57/58/59, 4043613

**JAIPUR**  
Evershine Tower, F-1, 705, 7th floor,  
Amarpali Circle, Vaishali Nagar, Jaipur - 302 021  
Tel: 0141-4026760/62/63/64

**KANPUR**  
Room No.105, Ratan Esquire, Chunniganj,  
Kanpur - 208 001  
Tel: 0512-3271907

**KOCHI**  
Mitsun Enterprise, 30/1854 B4, 1st Floor, Ponnurrunni  
Road, Chalikkavattom Junction, Vytilla P.O.,  
Kochi - 682 019  
Tel: 0484-4026392/4063294

**KOLKATA**  
Godrej Waterside, 10th floor, Tower - 1, Unit No. 1003,  
Block - DP, Plot - 5, Sector V, Salt Lake City,  
Kolkata - 700 091,  
Tel: 033-40002020 | Fax: 033-40002021

**LUDHIANA**  
109, Modelgram, Near Kochar Market, Opp. Malwa  
School, Ludhiana - 141 002  
Tel: 0161-6578944, 6450816

**MUMBAI**  
Grande Palladium, 6th Floor, 175,  
CST Road, Kalina, Santacruz (East), Mumbai - 400 098  
Tel: 022-61871000

**NAGPUR**  
Poonam Plaza, Palm Road, Civil Lines,  
Nagpur-440 001  
Tel: 0712- 2520333

**PATNA**  
1, Tilak Nagar East, Behind Patna Diesel, Kankarbagh,  
Patna - 800 020  
Tel: 08002230517

**PUNE**  
Epicentre  
2nd Floor, CTS No. 4/6, Above Royal Enfield Showroom  
Shivajinagar, Wakdewadi, Pune - 411005  
Tel: 020-64104547, 27111427

**RUDRAPUR**  
Plot No. 264, By Pass Road, Village Kishanpur, Kichha,  
District Udham Singh Nagar,  
Uttarakand - 263 148  
Tel: 05944-263290

## Middle East Office

JSW Steel Ltd. (DMCC Branch)  
Unit 309 | X - 3 Tower | Jumeirah Lakes Towers  
Dubai, UAE P.O. Box # 33650  
Tel.: +971 4 4385286 | Fax: +971 4 4385297  
Mobile: +971 55336097

## USA Offices

**JSW Steel USA Baytown,**  
5200 East McKinney Road, Baytown, Texas 77523,  
Tel.: 281-383-5100  
sales@jswsteel.us

**JSW Steel USA Ohio**  
1500 Commercial Avenue, Mingo Junction, OH  
43938  
Mobile: 740-535-8172

## Italy Office

JSW Steel Italy  
Largo Caduti Sul Lavoro 21  
57025, Piombino LI, Italy  
Tel: +39 0565 64111