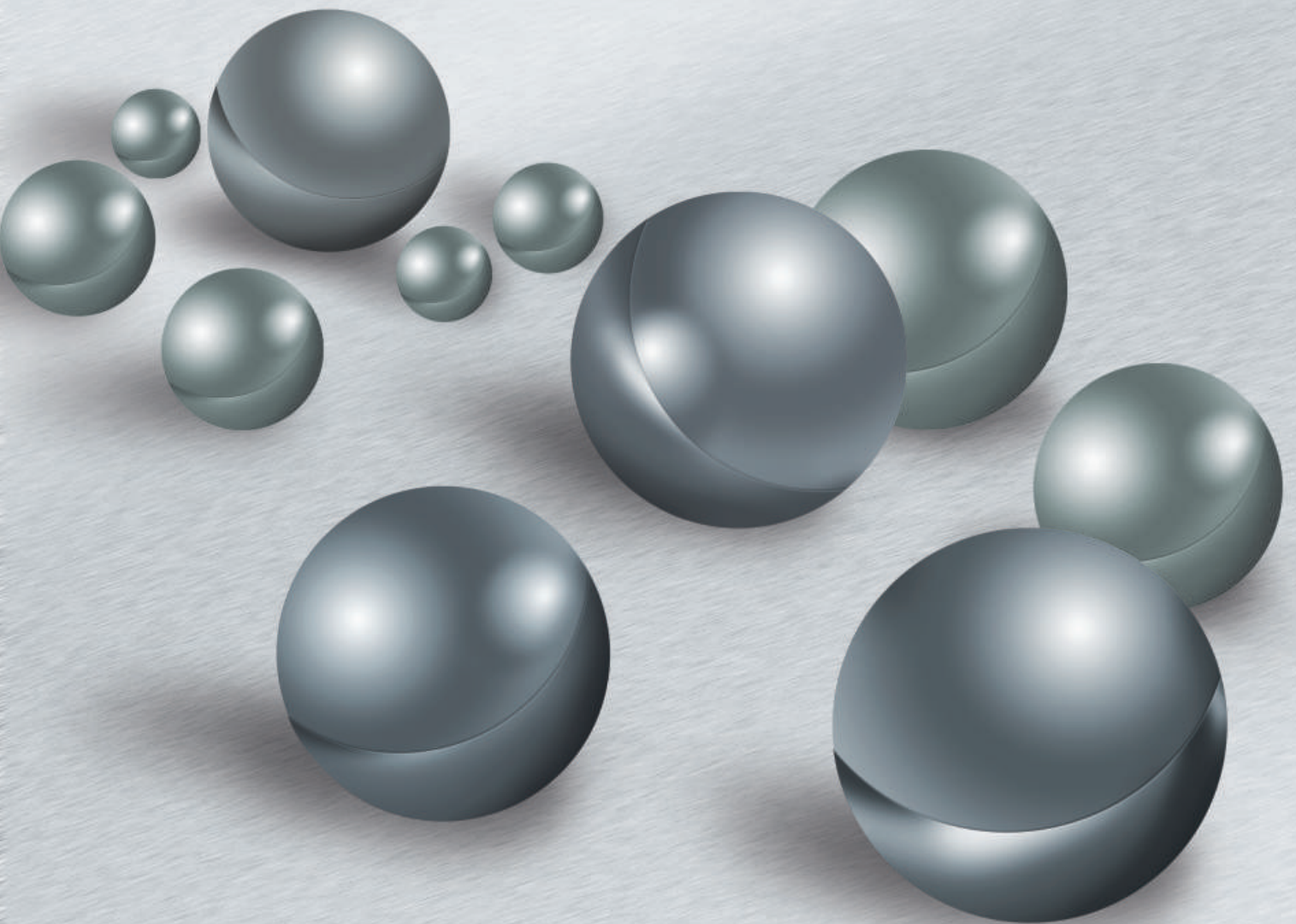


# STAINLESS STEEL



Strengthening our roots in  
**Innovation**  
& **Integration**







India's largest fully integrated  
stainless steel producers with a  
capacity of **1.9** million tons per annum







Jindal Stainless (Hisar) Limited, Haryana

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# Jindal Stainless Group

Founded by Shri O.P Jindal in 1970, Jindal Stainless is one of the largest stainless steel conglomerates in India and ranks amongst the top 10 stainless steel conglomerates in the world. It's not only the magnitude of our operations that determines our credibility and name, but we remain inspired by our vision for innovation and enriching lives. Jindal Stainless group has an annual crude steel capacity of 1.9 MTPA and the group has an annual turnover of USD 2.79 Billion (as on March '20)



Our growth has been backed by the excellence of our people, value driven business operations, customer centricity and best safety practices in the steel industry and a commitment for social responsibility.



## Jindal Stainless Corporate Management Services Pvt. Ltd. (JSCMS)

Jindal Stainless Corporate Management Services Pvt. Ltd. works as an internal consultant and provides necessary back-end support services to the Jindal Stainless Group Companies. As an advisory company, JSCMS functions closely with Directors, Business Heads and other Functional Heads of Jindal Stainless Group Companies to support them drive seamless flow of business operations. JSCMS acts as a catalyst to achieve business excellence and helps in creating value for Jindal Stainless Group Companies by introducing best practices and regulating processes.



The company focuses on creating value by providing synergy within the group companies, working on a prime repository of global best practices and frameworks with the help of a talented team.



## Jindal Stainless (Hisar) Limited

The Hisar plant of the group was established in 1975 when Shri O.P Jindal, envisioned a self reliant India for meeting its stainless steel demand. Stainless steel then was no less than a luxury metal and India was completely dependent on imports to fulfil its demand which attracted duties of up to 300%. It was Shri O.P Jindal's vision and his pioneering spirit that led to the establishment of the Hisar plant, India's first stainless steel manufacturing unit.



Since its inception, Jindal Stainless (Hisar) Limited has integrated its operations on a strategy of both, backward and forward integration, starting from melting, casting, hot rolling to cold rolling and other value additions. Today, our Hisar plant is a fully integrated Stainless Steel plant with a capacity of 800,000 tpa. It is also the world's largest producer of Stainless Steel strips for razor blades and India's largest producer of coin blanks, serving the needs of India and International mints. Our Specialty product division caters to the high end precision and specialty stainless steel requirements of reputed Indian and International customers. The product range includes Slabs & Blooms, Hot Rolled Coils, Strips, Plates, Coin Blanks, Precision Strips and Cold Rolled Coils.

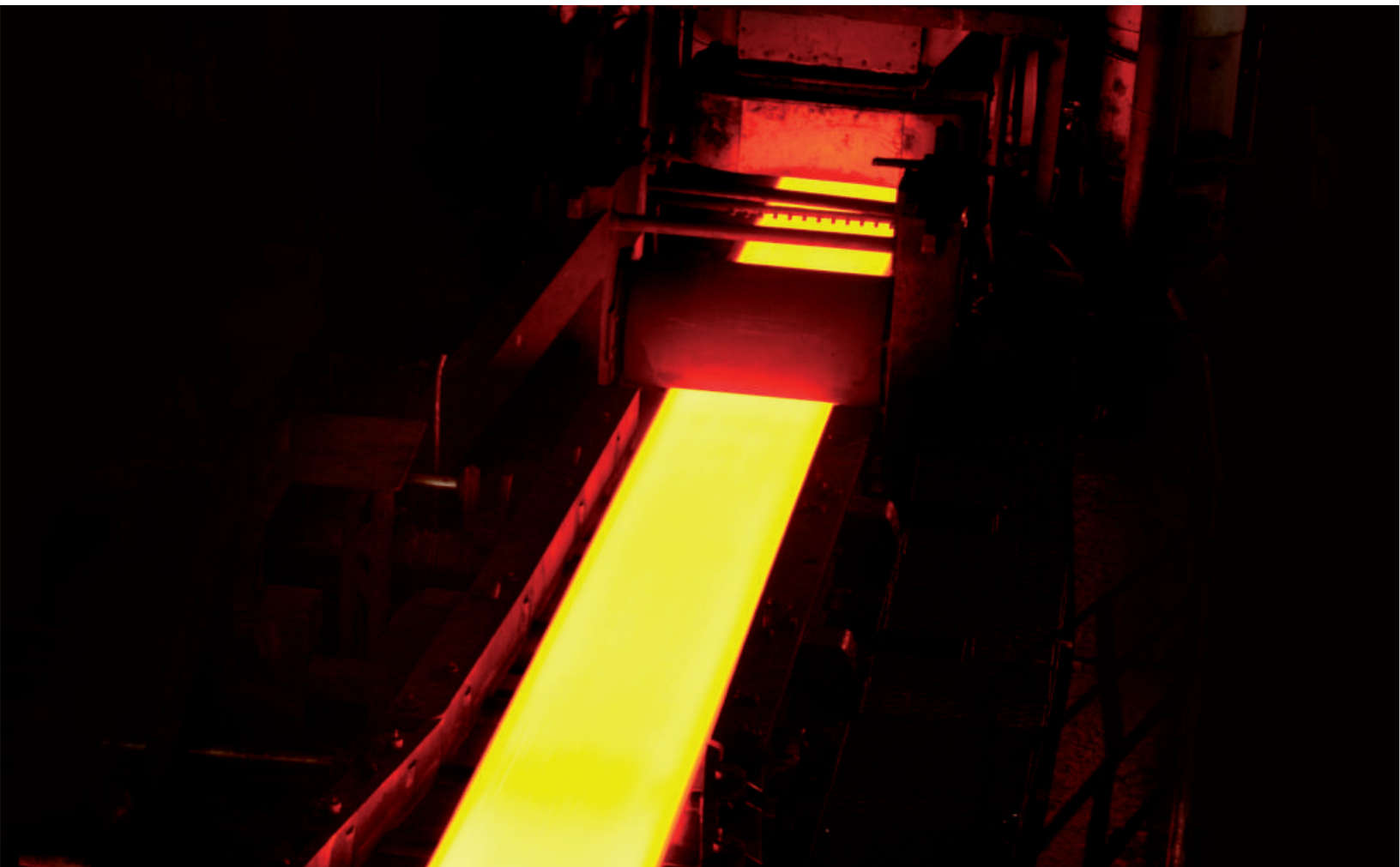
Going forward, the company plans to continue its focus on development of new value added stainless steel grades, process improvements and customer satisfaction through developing customised products matching their specific requirements. Simultaneously, continuous measures are being undertaken to reduce cost in different production processes.



# STAINLESS STEEL MAKING

The state-of-art Melt & Casting Shops  
have an installed capacity of

800,000 tons per annum



Equipment	No.	
Electric Arc Furnace	02	45MT & 40MT
AOD Converter	02	50MT each
VOD	01	50MT



# HOT ROLLING

Hot Rolling Complex comprises of 4-Hi Twin Stand Hot Steckel Mill and Tandem Strip Mill with a total capacity of 720,000 tons per annum & 300,000 tons per annum respectively. Hot Steckel Mill consists of a Roughing Stand, two Finishing Stand and a Walking Beam Slab Reheating Furnace. The Tandem Strip mill comprises of Reheating Furnace, Roughing Stand, five Finishing Stands and Down Coiler.

The complex also consists of Plate Annealing & Pickling facilities along with Shot Blasting, Straightening & Leveling equipment to produce Stainless Steel Plates of various grades.







# COLD ROLLING

Cold Rolling Complex has a capacity to produce 375,000 tons per annum of Cold Rolled Stainless Steel Flat products.

The complex is equipped with four 20 Hi-Sendzimir Cold Rolling Mills, four continuous Anneal and Pickle lines, three of these are equipped with Electrolytic Pickling, one bright Annealing Line, three Coil Preparation Lines, four Slitting Lines, one Leveling and Sheet Shearing Line with associated facilities.

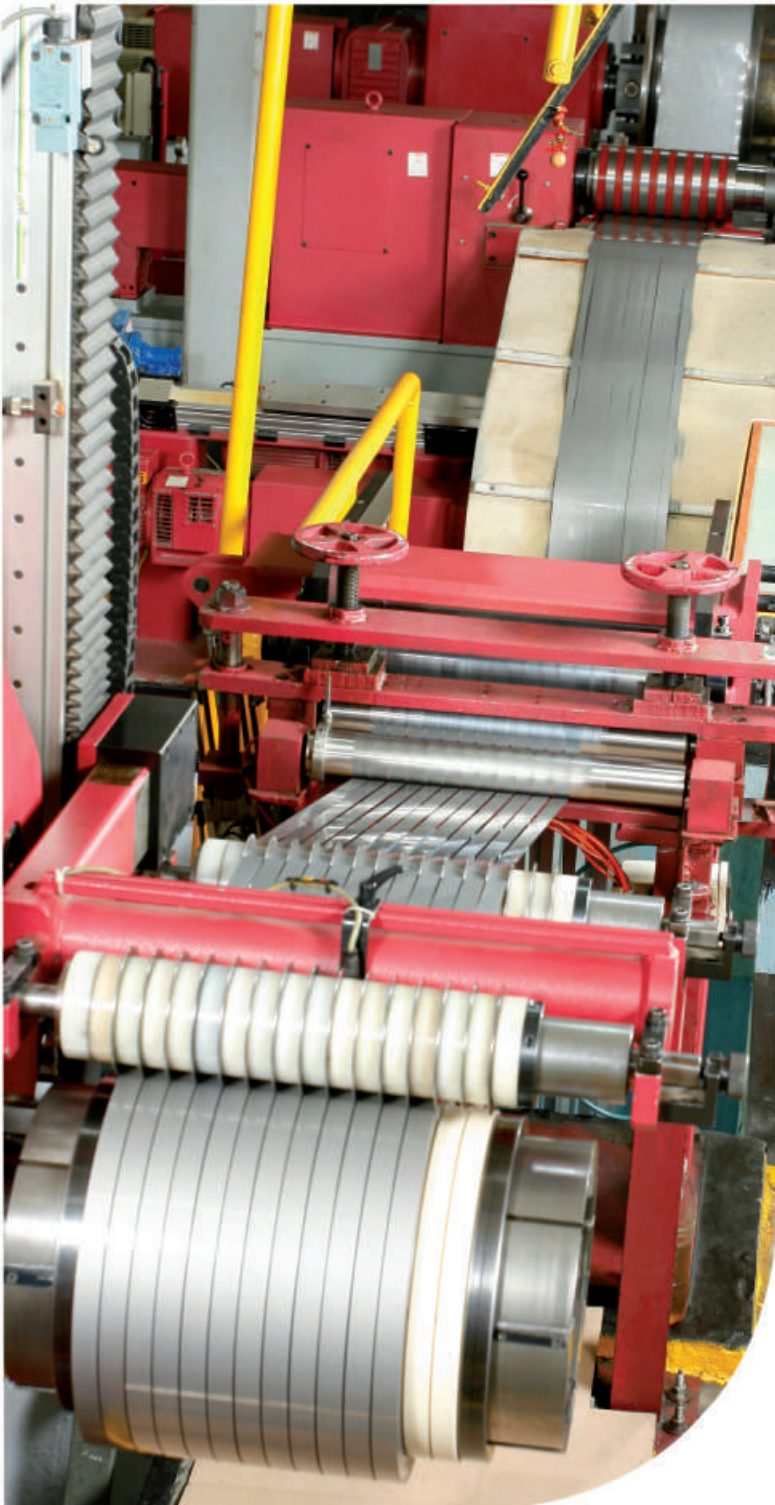
Jindal Stainless is fully equipped to produce material with No.1, 2D, 2B, BA and No.4 and customised surface finish. It can also produce other specialized finishes such as moon rock, hammerstone and honey comb.





# SPECIALITY PRODUCTS

Speciality Product Complex has a capacity of 30,000 tons per annum of precision cold rolled strips. This complex processes mainly martensitics Stainless Steel for razor blade manufacturing





The Speciality Product Complex comprises of processing equipment, primarily for annealing, rolling and finishing. There is an option of using either a Bell Annealing or a Bright Annealing or even Pull- through Annealing, depending on the grade and finish, of Stainless Steel being produced.

4-Hi mills and 20-Hi mills are used for reduction rolling to thinner gauges with close thickness tolerances. To impart various finishes in the final products, the complex has Strip Grinding Line, Skin Pass Mill and Tension Leveler. Such product then passes through the Precision Slitters to achieve precise dimensions.



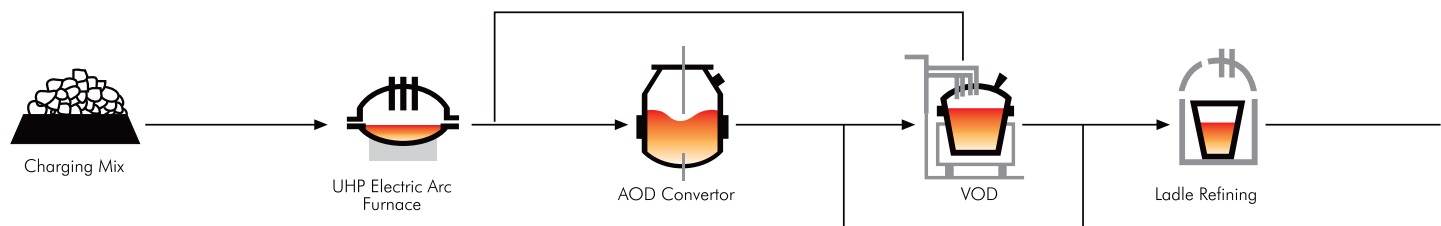
The razor blade cold rolled strips of up to 0.076mm thickness are produced in this complex and supplied to leading Indian and International razor blade manufacturers.

The company also has the capability of producing ferritic Stainless Steel and Non-Ferrous coin blanks. The present installed capacity of coin blank unit is 10,000 tons per annum.

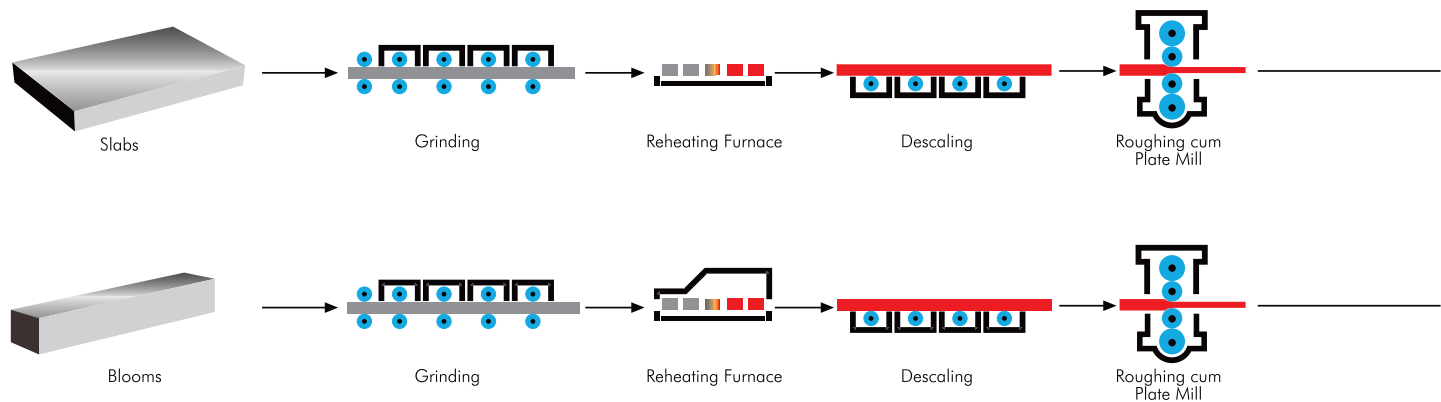


# PROCESS FLOW HISAR

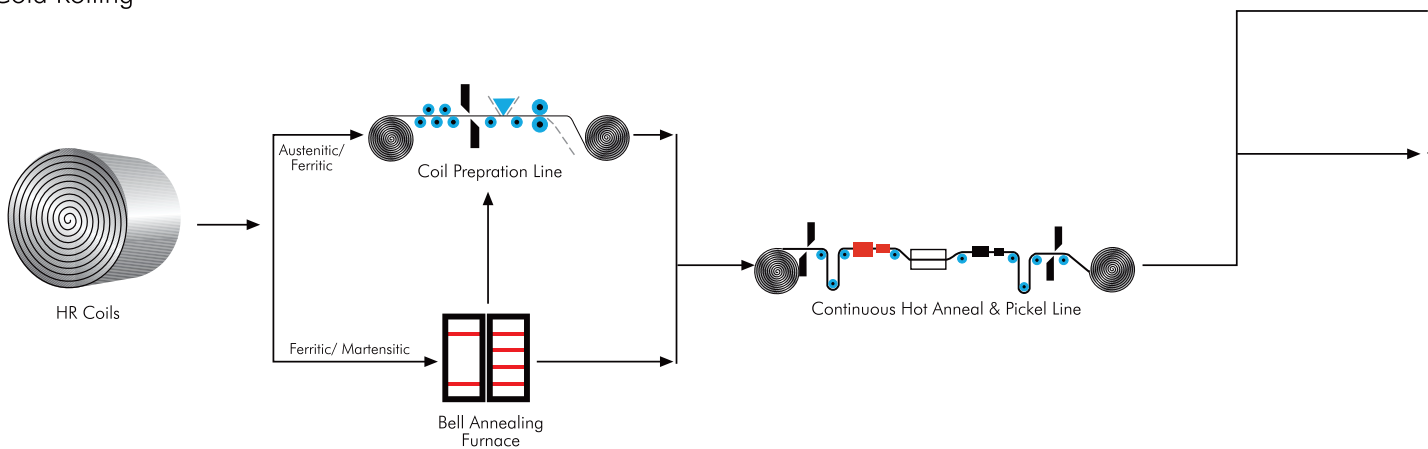
## Stainless Steel Making



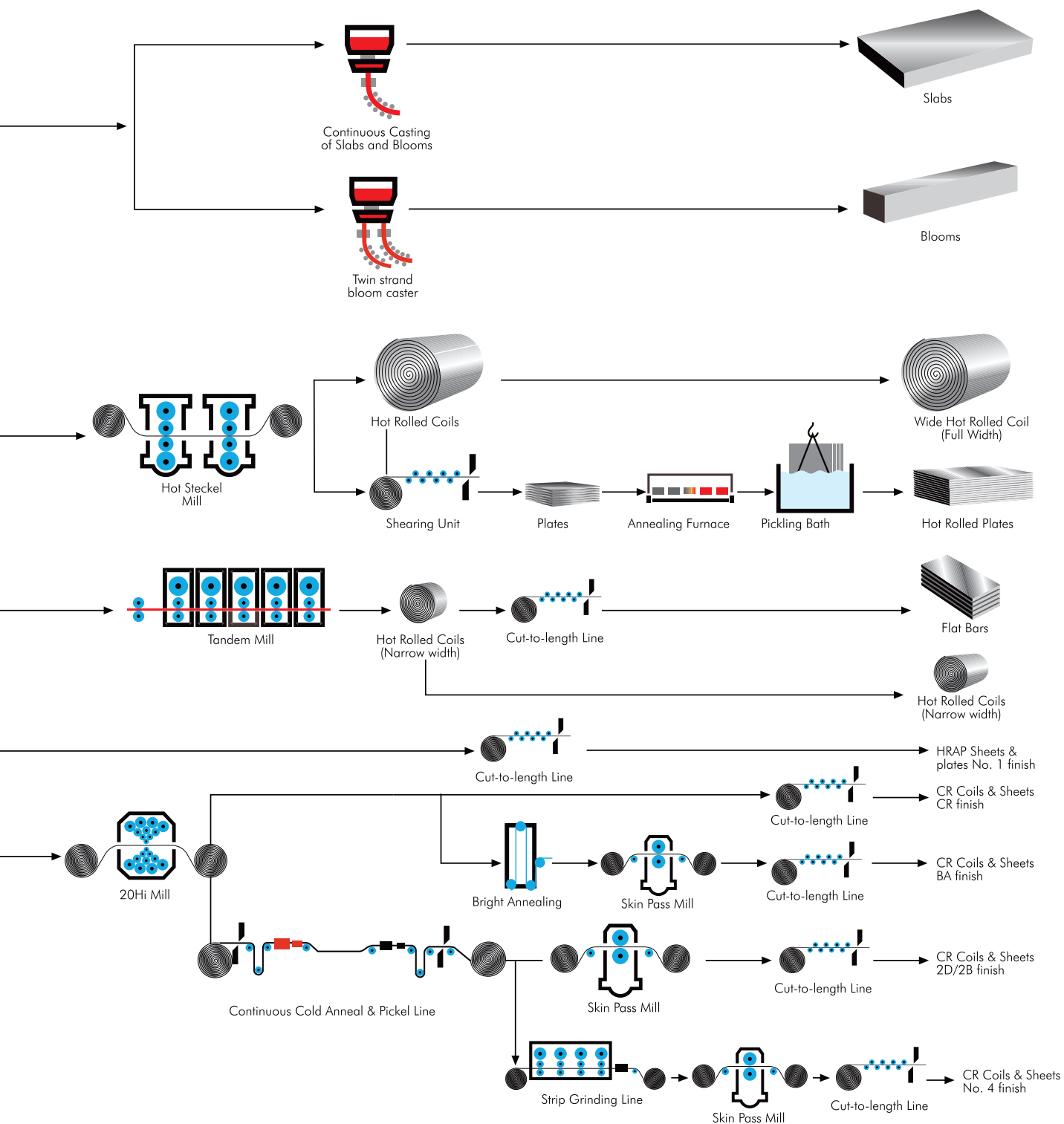
## Hot Rolling



## Cold Rolling









# Jindal Stainless

## SERVICE CENTRES



Jindal Stainless Steelway Limited, an ISO 9001:2008 & 14001:2004 certified, the domestic Jindal Stainless service center network, offers convenient, customized just-in-time services to the doorsteps of its customers. The company is into the business of distribution and processing of stainless steel, to serve its valued customers with exact slit, cut-to-size, polished stainless steel sheets, coils and blanks conforming to highest standards of processing tolerances.

The processing facilities at (Gurugram, Mumbai, Chennai, Vadodara, Jaipur & Hisar) include state-of-the-art, high-end precision slitting, cut-to-length, blanking, & polishing lines.





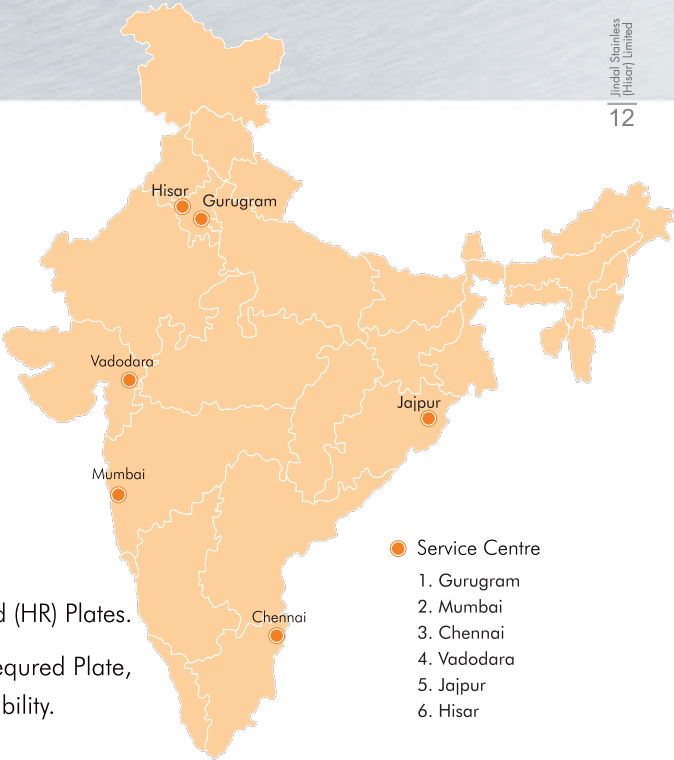
Some of the many services offered are:

- Just-in-Time Deliveries
- Customized Sizes
- Inventory Management
- Technical Support
- Quality Assurance
- Competitive Prices

Our Product Range :-

Cold Rolled (CR) Mother & Slit Coils / Sheets / Cut Blanks / Hot Rolled (HR) Plates.

Surface Finish - 2D, 2B, No.4 PVC, Hairline, No.1, Scotch Brite, Chequered Plate, Anti-Finger, No.8 (Mirror) or any other special finish based on availability.







## Constructing confidence, building trust

Stainless Steel is a material par excellence, which now seeks to permeate through Indian Architecture. The Architecture Division launched by Jindal Stainless has taken the initiative to promote Stainless Steel products and technology solutions to cater to the emerging markets of Stainless Steel for Architecture, Building and Construction (ABC) in India.

The Architecture Division of Jindal Stainless is capable of providing a full range of technical support services including design, engineering work, fabrication of quality material, finishes and job site supervision by trained personnel.

The division has completed many projects specially those of street furniture, cafeteria furniture, modular kitchens, lighting and signage apart from other architectural requirements.

### INTERIOR



### BUILDING & CONSTRUCTION



### STREET FURNITURE



### AUTOMOTIVE, RAILWAYS & TRANSPORT





# arttd'inox

## Styling lifestyles



arttd'inox is the exciting new form of ultimate style. The name translates to 'the art of Stainless Steel'. And that's precisely what it is - works of art in Stainless Steel. arttd'inox has been set up with the objective of creating exclusive Stainless Steel lifestyle products, which are synonymous with quality, beauty and functionality. The professionally qualified In-house design team is dedicated to exploring the frontiers of design and the product range is a celebration of both form and function. The range encompasses tableware, serving ware, gifts, home and office accessories.





# Jindal Stainless Limited



Jindal Stainless Limited is one of the largest manufacturers of stainless steel in India with a capacity of 1.10 million tons per annum. A leader and a name synonymous with 'Enterprise', 'Excellence' and 'Success', company's ethos mirrors most characteristics similar to the metal it produces; akin to stainless steel Jindal Stainless Limited is innovative and versatile in its thought process; strong and unrelenting in its operations.





The company is focussing on strengthening Internal Process & Systems and Customer Serviceability. Further, special plans are being made for market development of niche grades and expanding the portfolio of high value products of steel. The state-of-the-art unit of Jindal Stainless is located in the eastern part of India in the state of Odisha. The plant in Odisha also has Ferro Alloy's manufacturing facilities with world class technology and equipments sourced from SMS Siemag, Germany & SIB Electrotherm Russia and a production capacity of up to 250,000 tons per annum. The complex, equipped with captive power generation facility, is eventually scalable up to 3.2 million tons per annum of stainless steel production.

This Stainless Steel plant's  
current capacity is **1.1** million tons per annum  
scalable up to **3.2** million tons per annum





# FERRO ALLOYS

Mining of ore is key to the integration process. Jindal Stainless has Chrome Ore open cast mines at Sukinda, Odisha to support 250,000 tons per annum capacity Ferro Chrome plant at Jaipur.

In the first phase of the Odisha project, Jindal Stainless has set up Captive Power Plants, Coke Oven Batteries and Submerged Arc Furnaces to produce Ferro Alloys.

As part of this project, 2 x 60 MVA furnaces, largest in India, with capacity of 150,000 tons per annum are already in operation and producing High Carbon Ferro Chrome (HCFC). These state-of-the-art furnaces and the Briquetting Press have been supplied by SMS DeMAG AG, and Kopern Maco of Germany respectively. The waste heat of these semi closed furnaces are utilized to generate 13MW power.

The Ferro Alloys complex also comprises of 1 x 27.6 MVA Ferro Manganese and 2 x 27.6 MVA Silico Manganese Furnaces supplied by Sibeltherm, Russia to produce 100,000 tons per annum.

This complex is also equipped with modern de-dusting, pollution control and waste management systems.



Plant & Facility	Current	Future Expansion	Full Development
Ferro Chrome Plant	2 x 60 MVA (150,000 tpa)	4 x 60 MVA (300,000 tpa)	6 x 60 MVA (450,000 tpa)
Ferro Manganese Plant	1 x 27.6 MVA ( 50,000 tpa)	1 x 27.6 MVA ( 50,000 tpa)	2 x 27.6 MVA ( 100,000 tpa)
Silico Manganese Plant	2 x 27.6 MVA ( 50,000 tpa)	2 x 27.6 MVA ( 50,000 tpa)	4 x 27.6 MVA (100,000 tpa)

# COKE OVEN

Jindal Stainless has installed one 64-chamber stamp-charging Coke Oven Battery to produce 430,000 tons per annum with recovery of by-products such as Coal Tar, Ammonium Sulphate, Sulphur and Coke Oven Gas. The Coke Oven Gas will be utilized in Reheating furnace for preheating of slabs for Hot Rolling. With same by-product plant, another battery will be added to double the capacity to 860,000 tons per annum.

Plant & Facility	Current	Future Expansion	Full Development
Coke Oven Battery	430,000 tpa	430,000 tpa	860,000 tpa



# CAPTIVE POWER PLANT

To fulfill its power requirement, Jindal Stainless has set up 2 x 125 MW captive thermal Power Plant, configured with Pulverised Coal Fired steam generators with provisions to double the capacity. This Captive Power Generation will lead to cost rationalisation and increased competitiveness.



Plant & Facility	Current	Future Expansion	Full Development
Thermal Power Plant	250 MW	250 MW	500 MW



# STAINLESS STEEL COMPLEX

The Stainless Steel complex at Jajpur, Odisha has a current capacity of **1.1 million tons per annum**

## Stainless Steel Making

Stainless Steel melt shop complex has been designed and supplied by SMS SIEMAG of Germany and is based on liquid ferrochrome utilization along with hot metal from submerged arc furnace of Fe Alloys plant. Instead of solid ferrochrome, molten ferrochrome from the Submerged Arc Furnaces is directly fed and liquid steel is produced in EAF. The liquid steel is then properly mixed with chromium pre-melt in a ladle for subsequent operation in AOD vessel for making Stainless Steel as per desired specifications.

At scrap yard the charge is prepared from the stock of scrap and other raw material in the scrap yard. Charge mix is made according to grade of steel and charged into the Electric Arc Furnace (EAF) by over head crane from buckets.

In Raw Material Handling system, which is common to both EAF and AOD, all the materials added from over head bins are stored, weighed and used via conveyor belts as per requirement.

## Hot Rolling

The 1 million tons per annum Hot Rolling Complex has been designed and supplied by Siemens VAI of Austria and consists of a 6-stand Tandem hot rolling mill with a single-stand Rougher. The mill is equipped with latest technological equipment such as a fully hydraulic edger, long-stroke HAGC in all mill stands, L-block bending, shifting devices in conjunction with the Smart Crown® system and for superior profile and flatness control. This Tandem mill is designed to handle coil weights upto 36 tons. Stainless Steel plates will be extracted via the downcoiler area with a plate dividing shear and a plate piler. The plates will then be taken to the plate finishing area with annealing and cutting facilities.

The 300 tons per hour Walking Beam Furnace is designed and supplied by Five Stein of France. The furnace will utilise the Coke Oven Gas for heating of Stainless Steel slabs to optimise energy consumption thus reducing overall cost.

The production capacity of this mill can be increased to 3.2 million tons per annum by addition of a Reheating Furnace, a 7th Mill Stand and a Downcoiler.

## Cold Rolling

The Cold Rolling Complex has been designed and supplied by Andritz of Austria and has a unique feature of In-line rolling with Annealing and Pickling lines which will result in reduced processing cost due to higher yield and productivity. The Hot Rolled Anneal and Pickle (HRAP) line with single-stand In-line rolling can produce 2E products along with HRAP coils with No.1 finish. The Cold Rolled Anneal and Pickle (CRAP) line comprising of 3-stand In-line rolling can produce various thickness, grades and finishes. Both these lines can handle coil weight upto 40 tons.



An Air Separation Plant will supply gases such as Oxygen, Nitrogen and Argon. Lime and Dolomite Plant will supply required quality and quantity of Lime/Hydrated Lime and Dolomite. In addition, the Jaipur integrated Stainless Steel facility is supported by a Central Raw Material Handling system and an in-house Railway network to facilitate inbound and outbound movement of raw materials and finished products.

Plant & Facility	Capacity (million tpa)	Further Expansion (million tpa)	Full Development (million tpa)
Stainless Steel Melt Shop	1.1	1.6	
Re-Heating Furnace	300 tph	-	300 tph
Hot Strip Tandem Mill	1.6	-	1.6
Hot Rolled Anneal Pickle	0.95	-	1.6
Cold Rolled Anneal Pickle	0.45	-	0.95

## Stainless Steel Industrial Park

Jindal Stainless will develop a Stainless Steel Industrial Park adjacent to its 1.1 million per annum Stainless Steel plant in Odisha. Jindal Stainless will support in developing down stream units. The area for this industrial Park is about 300 acres including both SEZ and Non-SEZ areas. The Industrial Park will have a large Service Centre and various facilities to produce Stainless Steel products for applications in Architectural Building & Construction, Transportation, Industrial & Consumer Goods and in Kitchenwares & Lifestyle. The Service Center will process the coils from Stainless Steel Plant and provide customised sizes to the facilities in the Industrial Park.

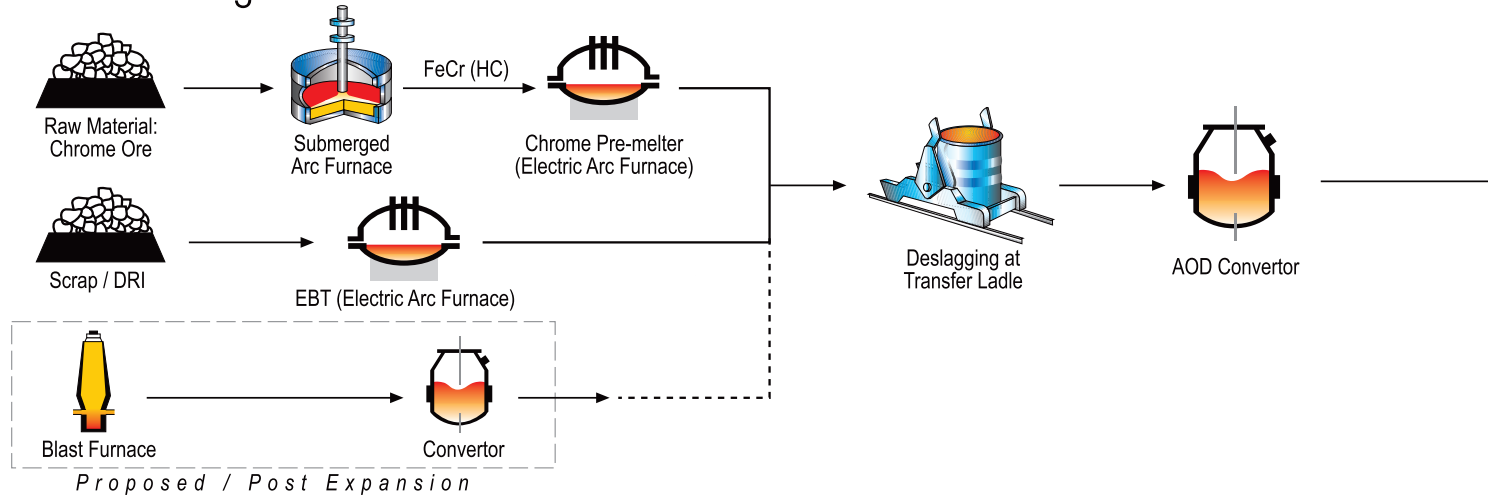
Jindal Stainless will develop, operate and maintain this Industrial Park and the associated infrastructure including education, recreation and healthcare facilities. Jindal Stainless is committed to develop this Industrial Park in to a world class Stainless Steel manufacturing hub and invite investors to put their facilities in this park focusing on Stainless Steel products. Jindal Stainless assures long term Stainless Steel availability at concessional rates in addition to availability of land, power, water and other infrastructure such as warehouses, road and railway networks.

This Industrial Park will be a world class Stainless Steel manufacturing hub

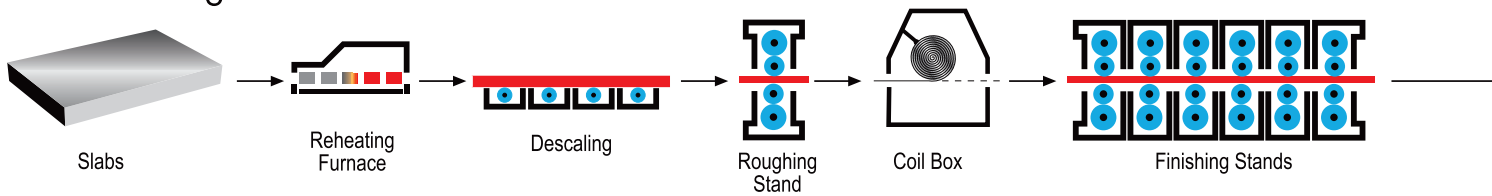


# PROCESS FLOW ODISHA

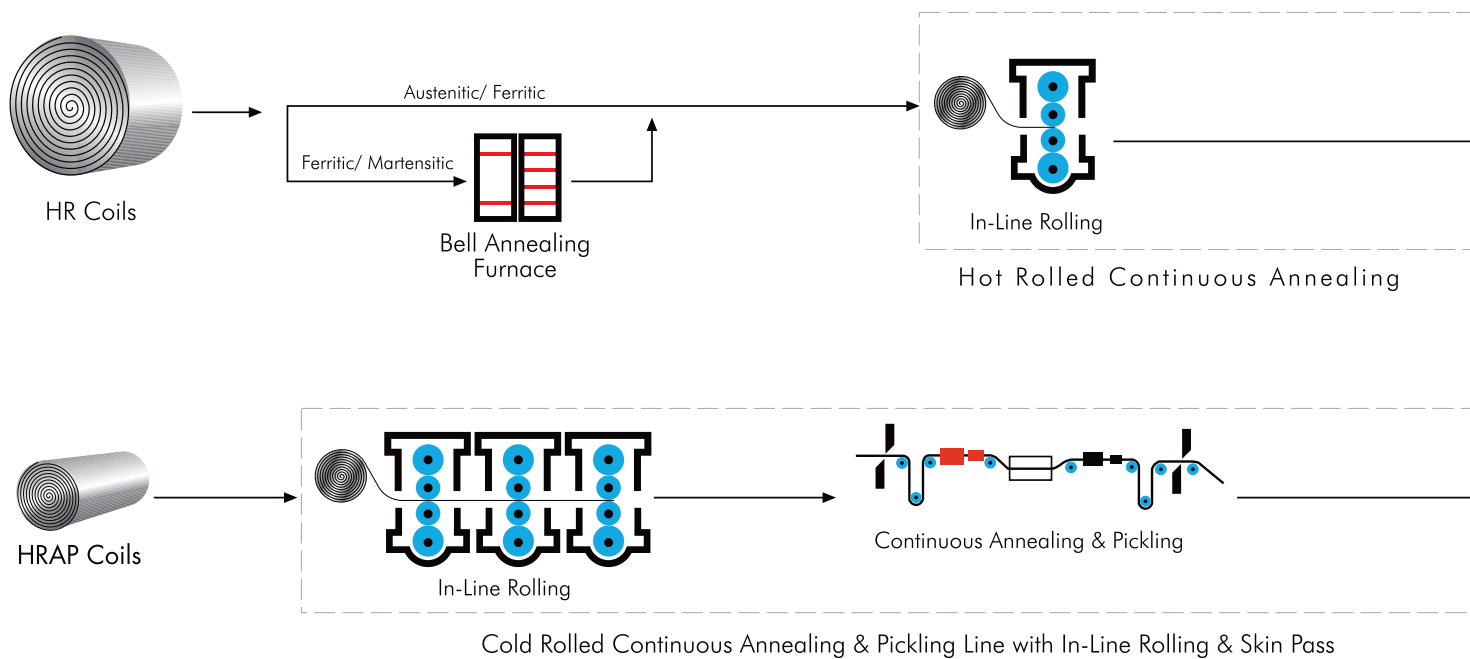
## Steel Making



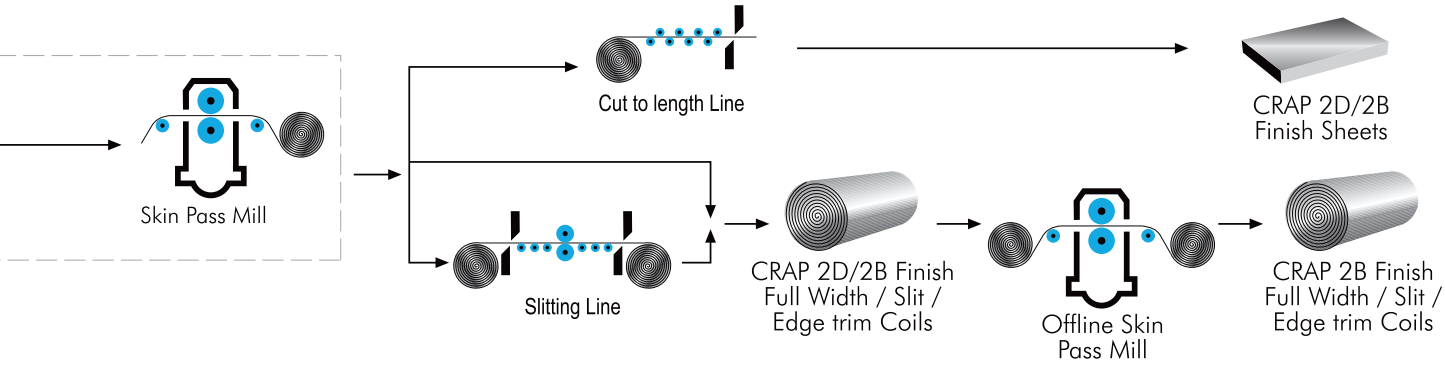
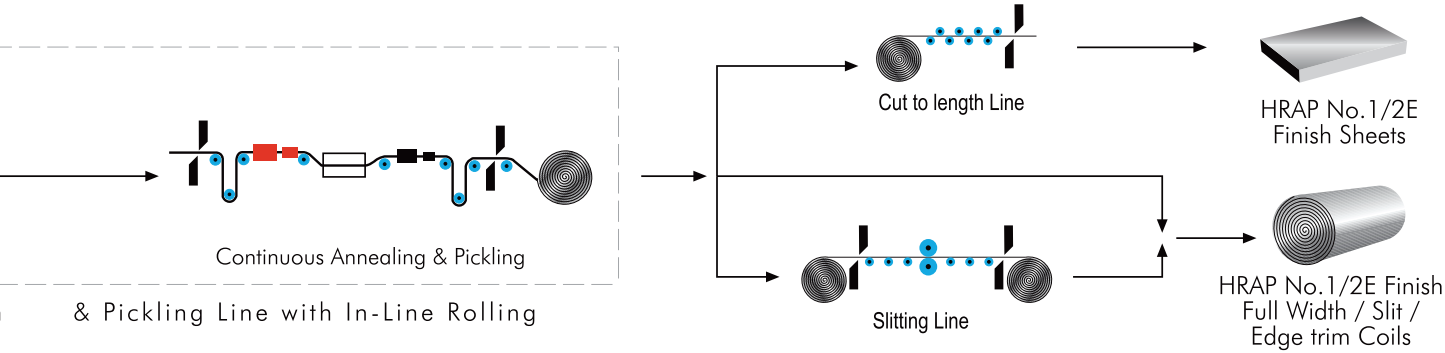
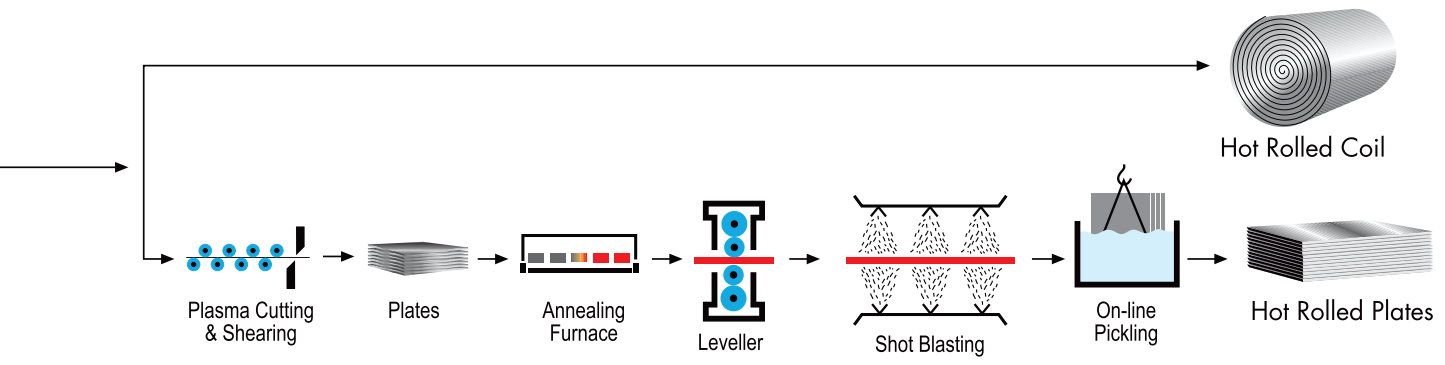
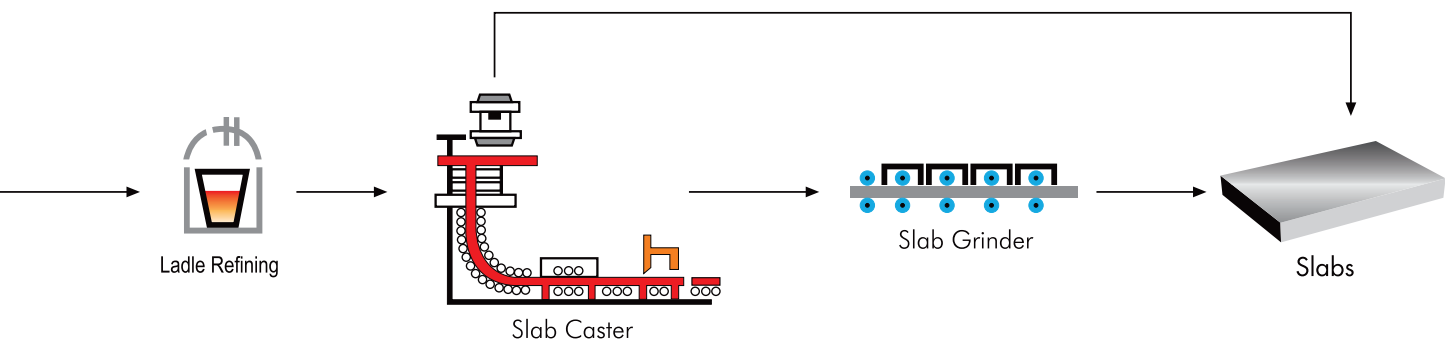
## Hot Rolling



## Cold Rolling









# Jindal Stainless

## INDONESIA

PT Jindal Stainless Indonesia

I N D O N E S I A

Surabaya

Jindal Stainless has established its foothold in the South East Asian & Oceania market with acquisition of a Stainless Steel Cold Rolling plant from Maspion Stainless Steel, Indonesia. The plant has a cold rolling facility of 150,000 tons per annum.

With its expert technical personnel and modern facilities to produce quality products, PT Jindal Stainless Indonesia is leaving its mark in the markets. This plant produces all grades of Stainless Steel including 200, 300 and 400 series and is well prepared to supply customised requirements.





# Jindal Stainless

## SERVICE CENTRE

Iberjindal, S.L., Spain



The service centre Iberjindal S.L., is a joint venture between Jindal Stainless Limited and Fagor Industrial and is located in South Spain. The Service Centre offers customised formats & just-in-time services delivered to the customers all across Europe. The Stainless Steel coils are directly provided by Jindal Stainless, India. This is Jindal Stainless’s first servicing facility in Europe. The Capacities of the Combo Line & the Polishing Line are 18,000 tons per annum & 14,500 tons per annum respectively.

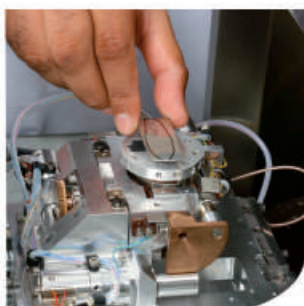


# RESEARCH & DEVELOPMENT

The R&D division plays a pivotal role in retaining and consolidating Jindal Stainless's leadership position in the Stainless Steel industry



Our R&D focuses on continuous upgradation of quality, processes, services and product innovation to develop new products at competitive costs. Cross-fertilization of knowledge between production, quality control and commercial units in order to maintain global standards has been the guiding principle of the R&D function.



- Development of high value products to serve niche markets
- Quality up-gradation of existing products to enable enhanced global acceptance
- Cost reduction by process development, optimisation and refinement to provide a consistent competitive edge
- Technology enhancement to increase quality production
- Foster growth and develop new applications and market segments through knowledge sharing with customers and assisting them in their operations and applications of our products
- Closely interact with reputed national and international laboratories/ scientific institutions/ universities to avail expert services and knowledge for critical investigations



# QUALITY ASSURANCE

Understanding customer requirements and supplying products as per their requirements is ensured with the help of Quality Assurance and Quality Control groups. Appropriate quality assurance systems are in place across the entire business chain of supplies, operations and marketing, to ensure correctness at each step of the cycle

ISO 9001: 2008 certification of the plant is a testimony to our commitment towards quality. In addition, the Hisar operations are also certified for AD 2000-Merkblatt W0 and PED 97/23/EC to enable us to be a preferred and certified supplier of Stainless Steel Flat HR & CR products for Pressure Vessel, Processing & Allied Industries. ISO 14001: 2004 and OHSAS 18001: 2007 systems certification of the plant assure our commitment towards the environment and for providing a safe workplace for our employees. To ensure quality at every step, the production processes are constantly monitored and controlled so that the finished products are as per customer’s requirements. The plant has well equipped laboratories with a battery of modern equipment and well documented procedures for correctness in testing and certification of the products.





# HUMAN RESOURCE

The hallmark of Jindal Stainless Human Resource practices is to develop a winning employee value proposition

“Progress with People” forms the fulcrum of Jindal Stainless corporate ethos and human resource principles. The innate values of ‘Respect and Care’ and sustainable growth through people are demonstrated in the way Jindal Stainless builds teams, creates shared vision, executes its growth plans and nurtures human talent to address the business challenges. This “Progress with People” as integral to Jindal Stainless, guides our Talent Management practices right from on boarding of talents to their deployment on the job and continued professional growth. Alongside, an environment that nurtures meritocracy enables our people to find a rewarding and purposeful engagement at Jindal Stainless.

Our people partnership has been strengthened by the company moving beyond the statutory requirements of providing welfare amenities and social security measures, which have become benchmarks. Schemes of highly subsidized education and health benefits at the grass root levels have reinforced our core values of “Respect & Care” for our people. Jindal Stainless offers contemporary and state-of-the-art recreational, educational and health facilities. Jindal Institute of Medical Sciences, Jindal Modern School and Vidya Devi Jindal School at Hisar are expressions of this. One of the premium facilities at Hisar is the “Stainless Club”. Spread over five acres of lush greenery, it offers a host of state-of-the-art recreational facilities to the members.



True to its mission of becoming a learning organization, Jindal Stainless has accelerated its efforts for enhancing and connecting organizational knowledge and corporate performance. Well equipped Knowledge Centers at Hisar and Odisha house vast knowledge resources available in the form of books, journals, conference proceedings, standards, training manuals, etc. With a view to taking knowledge to the Shop Floor, Knowledge Kiosks/ Learning Cells have been established at various locations. The hallmark of Jindal Stainless HR practices is to develop a winning Employee Value Proposition. Supporting this practice are our structured systems and processes to ensure that our people grow in equal acceleration to the company’s expanding canvas. Jindal Stainless cherishes this continued “Progress with People”.



# BEYOND BUSINESS

## The Jindal Stainless Touch



CSR is the direct connect between “Head and Heart” and can only be achieved when professionals speak the “Language of the Heart”

In recognition of the conviction that prosperity of communities is integral to the company’s success, Jindal Stainless Corporate Social Responsibility model outlines various sustainable development activities for marginalized sections of society across the country. The activities encompasses both societal and individual needs and aspirations. Jindal Stainless “Reach Out” programmes are conducted under the aegis of “JSL Foundation” and are modelled to be strategic tools for growth & Sustainable Development.

Our efforts echo values for a progressive state, promoting and practicing actions beyond mere statutory compliance and continue to create positive impact through our activities that remain true to our cause.



We come together in the key areas of People, Planet & Profit and address issues relating to various segments of the society and people at the bottom of the pyramid.

### Jindal Stainless's CSR Initiatives are:

#### Community Health Programme

The company has initiated community health programme for all- with a focus on preventive health care by providing-

- a. Mobile clinics
- b. Clean drinking water
- c. Hygiene and sanitation

#### Skill Training

Established a Jindal Institute of Industrial Training at Hisar and Jaipur in partnership with NIIT Foundation, Schneider Electric, Usha International, Don Bosco, Accenture- ITC and have initiated a one year diploma programme in "Stainless Steel Fabrication" in collaboration with the Government of Haryana.

#### Vocational Courses

Jindal Stainless is also introducing long-term courses in computer networking and hardware to enhance the skills of the aspiring students. Similar courses are also being offered in the electric, hydraulic and hospitality fields.

#### Computer Learning Centre

To promote and encourage computer literacy, the company has established computer learning centres at various schools in remote areas of Odisha.



### Women Empowerment Programme

Under its women empowerment programme, Jindal Stainless has given a fresh thrust to empowering women both at the work place as also in the community. To reinforce the UN principles, the company has signed the UN statement of support on women empowerment principles. Over the last year, Jindal Stainless has put in concerted efforts to enhance the female diversity ratio.

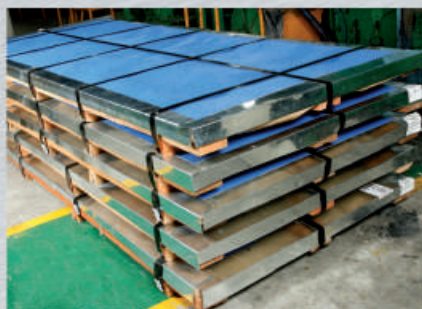


# Jindal Stainless PRODUCTS

Jindal Stainless Ltd. is a name synonymous with unparalleled quality assurance and decades of industry reputation for global quality Stainless Steel flat products across all grades



Stainless Steel - an anti-corrosive aesthetics product is produced with unique two stage liquid steel processing technology. It is the most recycled commodity with varied product life cycle depending upon usage. Stainless Steel products offer immense market potential for industrial, infrastructure, transportation, home, architectural and construction applications





# TYPES OF STAINLESS STEEL

Stainless Steel grades are essentially alloys of iron with more than 10.5% chromium. These grades may contain additional elements of nickel, manganese, carbon, nitrogen and silicon. They can further be modified for special purposes by addition of molybdenum, titanium, niobium, silicon, sulphur etc. A wide range of these grades have been developed based on specific requirements. These are classified into following categories based on their micro structure:



## Austenitic Stainless Steel

Austenitic Stainless Steel grades are characterized by superior corrosion and oxidation resistance, weldability, ductility and toughness compared to ferritic and martensitic Stainless Steel grades for similar levels of chromium. Austenitic Stainless Steel grades exhibit excellent resistance to atmospheric corrosion. They effectively withstand attack of organic acids (e.g. acetic, lactic, citric etc.), exhibit good resistance to oxidizing acids (e.g. nitric acid) and fair resistance to mineral acids (e.g. sulfuric acid). These grades are well suited for severe forming. Some grades work harden to a high degree while others have been developed to minimize this tendency. Work hardening is advantageous in certain cases where high strength is required. Austenitic Stainless Steel grades are nonmagnetic in annealed condition but depending on composition, they may become mildly magnetic when cold worked. These Stainless Steel grades possess good high temperature properties such as creep strength and resistance to oxidation or scaling. They also exhibit excellent low temperature ductility and impact strength. Austenitic Stainless Steel grades

can be readily fabricated by bending, drawing, spinning, punching, drilling, machining and welding and can be readily polished to a high finish. These attributes make them very versatile and popular for diverse applications in a variety of industries. There are two broad categories of Austenitic Stainless Steel - Chrome-Nickel (300 Series) and Chrome Manganese (200 Series). Currently, Chrome-Nickel is the largest produced Stainless Steel category globally. Typical applications for this category include food processing, chemical plants, pharmaceutical equipment, hospitals, textile, architectural, building construction, kitchenware, consumer durables etc. Chrome-Manganese Stainless Steel is the fastest growing of all Stainless Steel categories on account of its high performance to cost ratio. Its applications include kitchenware, cutlery, sinks, automotive trim, architectural, buildings, furniture, buses, trains and ornamental tubes.



## Martensitic Stainless Steel

Martensitic Stainless Steel grades are plain chromium grades containing 11.5 % to 18% of chromium with relatively high carbon content (0.1% - 1.2%). Initially developed for cutlery, these

are well suited for applications requiring high hardness and resistance to abrasion and erosion. These grades are magnetic and display fair cold forming characteristics. Although these can be hardened by aircooling, oil quenching is sometimes used to assure uniform hardening. These grades can be welded but require stress relieving after welding. They exhibit their best corrosion resistance in the hardened condition and perform well in mildly corrosive environments. Martensitic Stainless Steel grades are commonly used for knife blades, turbine blades, surgical instruments, fasteners, shafts, spindles, valves and pins.



## Ferritic Stainless Steel

Ferritic Stainless Steel grades are non-hardenable plain chromium grades with chromium content varying from 10.5% to 28% and with low carbon content. These are magnetic and exhibit a better resistance to corrosion than martensitic grades. These grades are employed in applications where the desired formability, weldability and corrosion resistance is between those of martensitic and austenitic types. The ferritics can be polished or buffed to achieve high luster.



## Duplex Stainless Steel

Duplex Stainless Steel grades contain relatively high chromium (between 18% and 28%) and moderate amounts of nickel (1% to 8%). This combination of ferritic and austenitic structures is called duplex. Many of these grades contain molybdenum (1% to 5%) and nitrogen (0.05% to 0.3%). Some duplex Stainless Steel grades also contain manganese (up to 5%), copper (up to 2%) and tungsten (up to 2%). These grades exhibit high resistance to stress, corrosion cracking and chloride ion attack and have higher yield strength than that of austenitic or ferritic steel grades. These properties combined with suitable design lead to material saving. High quality fabrication and welding are possible if the operator is trained well. These grades are used in marine applications, offshore platforms, paper and pulp industry, chemical, petrochemical and desalination plants.



# SPECIFICATIONS

## Ferro Alloys (Odisha)

	Cr	Mn (Min)	P (Max)	S (Max)	Si	C
HC Ferro Chrome	55-65%	-	0.05%	0.05%	2.0-4.5%	6-8%

## Metallurgical Coke (Odisha)

Met Coke	CSR > 64%	CRI: 24% max	M40: 85% min	M10: 7.0% max	AshL 12.5% max	VM: < 1.0%
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## Stainless Steel - Dimensions

Product	Max Width (mm)	Thickness (mm)	
		Min	Max
Indonesia			
CRAP	1250	0.4	3
Odisha			
Slab	1650	160	220
Hot Rolled Coil	1650	1.4	10
Plates / Sheets	1620	11	80
HRAP Coil / 2E Coil	1600	1.4	10
CRAP Coil	1600	0.3	5
Series		200, 300, 400 & Duplex Stainless Steel	

In case the product is supplied in Mill Edge, the tolerance on width may go up +50 / -0 mm

Product	Max Width (mm)	Thickness (mm)	
		Min	Max
Hisar			
Hot Rolled Coil	1270	2	12
Plates	1250	6	80
Sheets	1250	0.5	6
HRAP Coil	1250	2	6
CRAP Coil	1250	0.5	3.15
Precision Strips	500	0.05	0.8
Series		200, 300, 400 & Duplex Stainless Steel	

\* \*6mm max thickness for Austenitic and Ferritic SS and 8mm max thickness for Ferritic and Martensitic SS

Product	Max Width (mm)	Thickness (mm)	
		Min	Max
Slabs	1275	-	200
Product		Thickness (mm) X Width (mm)	
Blooms	120x120	160x160	200x260

## Round Bar

Size Range (mm)	Size Range (inch)	Finish	Supply Condition	Tolerance	Process Route
5mm - 50mm	3/16" - 2"	Cold Finish	Cold Drawn	EN 10278 -h9, h10, h11 , ASTM A484	Billet Rolling & Cold Drawn
16mm - 100mm	5/8" - 4"	Hot Finish, Cold Finish	Peeled & Polished	ASTM A484, EN 10060, DIN EN ISO 286 -k12 , EN 10278 -h9, h10, h11	Billet Rolling & Peeled, Polished
>100mm - 130mm	>4" - 5-1/16"	Hot Finish	Peeled & Polished, Rough Turned	EN 10060, DIN EN ISO 286 -k12 , ASTM A484	Billet Rolling & Peeled, Polished / Rough Turned
>130mm - 350mm	>5-1/16" - 13-3/4"	Hot Finish	Rough Turned	EN 10060, ASTM A484	Rolling / Forging & Machined

\* Dimension Range mentioned for reference only; specific size will be confirmed during ordering.

\*\* Other tolerances and sizes based on specific feasibility study during ordering.



Equivalent International Stainless Steel Grades									
	JSL Designation/ Grade	UNS Designation	USA - Canada	INDIA/IS	EUROPEAN	CHINESE	GERMANY/DIN	JAPAN/JIS	GOST
Austenitic Cr-Mn	J-201	S20100	201	X10Cr17Mn6Ni4N20	-	-	X12CrMnNiN17-7-5	SUS201	-
	J-201L	S20103	201L	-	1.4371	-	X2CrMnNi17-5-5	-	-
	J-201LN	S20153	201LN	X02Cr17Mn7Ni4N	-	-	-	-	-
	J-202	S20200	202	X10Cr18Mn9Ni5	-	-	X12CrMnNiN18-9-5	SUS202	-
	-	S20430	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
Austenitic Cr-Ni	J-301	S30100	301	X 10Cr17Ni7	1.4310	1Cr17Ni7	X12CrNi18-8	SUS301	-
	J301L	S30103	301L	X 02Cr17Ni7	-	-	-	-	-
	J301LN	S30153	301LN	X02Cr17Ni7N	1.4318	-	X2CrNiN18-7	-	-
	J-304	S30400	304	X04Cr19Ni9	1.4301	0Cr18Ni9	X5CrNi18-10	SUS304	-
	J-304H	S30409	304H	X 07Cr19Ni9	-	-	-	-	-
	J304L	S30403	304L	X 02Cr19Ni10	1.4307	-	X2CrNi18-9	SUS304L	-
	J-304LN	S30453	304LN	X 02Cr19Ni10N	1.4311	-	X2CrNiN18-10	SUS304LN	-
	J30815	S30815	-	X07Cr21Ni11Ce	1.4835	-	-	-	-
	J-309S	S30908	309S	X 04Cr23Ni14	1.4833	1Cr23Ni13	X7CrNi23-14	SUS309S	-
	J-310S	S31008	310S	X 04Cr25Ni20	1.4845	0Cr25Ni20	X12CrNi25-21	SUS310S	20Ch23N18
	J-316	S31600	316	X04Cr17Ni12Mo2	1.4401	0Cr17Ni12Mo2	X5CrNiMo17-12-2	SUS316	-
	J-316L	S31603	316L	X02Cr17Ni12Mo2	1.4404	00Cr17Ni14Mo2	X2CrNiMo17-13-2	SUS316L	-
	J-316LN	S31653	316LN	X02Cr17Ni12Mo2N	1.4429	-	X2CrNiMoN17-3-3	SUS316LN	-
	J-316Ti	S31635	316Ti	X04Cr17Ni12Mo2Ti	1.4571	0Cr18Ni12Mo2Ti	X6CrNiMoTi17-12-2	SUS316Ti	10Ch17N13M2T
	J-317	S31700	317	X 04Cr19Ni13Mo3	-	-	-	-	-
	J-317L	S31703	317L	X 02Cr19Ni13Mo3	1.4438	00Cr19Ni13Mo3	X2CrNiMo18-15-4	SUS317L	-
	J-317LN	S31753	317LN	X02Cr19Ni12Mo3N	-	-	-	-	-
	J31727	S31727	-	-	-	-	-	-	-
	J-321	S32100	321	X04Cr18Ni10Ti	1.4541	0Cr18Ni10Ti	X6CrNiTi18-10	SUS321	08Ch18N10T
	J-347	S34700	347	X04Cr18Ni10Nb	1.4550	0Cr18Ni11Nb	X6CrNiNb18-10	SUS347	08Ch18N12B
	J-904L	N08904	-	X02Cr21Ni25Cu	1.4539	-	-	-	-
Martensitic	J-410	S41000	410	X12Cr12	1.4006	1Cr12	X12Cr13	SUS410	-
	J-415	S41500	-	X02Cr13Ni4Mn1Mo1	1.4313	-	X3CrNiMo13-4	-	-
	J-420	S42000	420	X20Cr13	1.4021	-	X20Cr13	SUS420J1	-
	J-420J1	-	-	X 20Cr13	1.4021	-	-	SUS 420J1	-
	J-420J2	-	-	X 30Cr13	1.4028	-	-	SUS 420J2	-
	J-420MoV	-	-	-	1.4116	-	-	-	-
	J-431	S43100	431	X 15Cr16Ni2	1.4057	1Cr17Ni2	X17CrNi16-2	-	20Ch17N2
	JBS-	-	-	-	-	-	-	-	-
Ferritic	J-405	S40500	405	X 04Cr12Al	1.4002	0Cr13Al	X6CrAl13	SUS405	-
	J-409	S40900	409	X 02Cr12Ti	1.4512	-	X2CrTi12	SUH409	-
	J-409Ni	S40975	-	X02Cr12Ni1Ti	1.4003	-	-	-	-
	J-410S	S41008	410S	X 04Cr12	1.4000	0Cr13	X6Cr-13	SUS410S	-
	J-430	S43000	430	X07Cr17	1.4016	1Cr17	X6Cr17	SUS430	-
	J-430Ti	-	-	X02Cr17TiNb	-	-	X3CrTi17	SUS430LX	-
	J-432	-	-	X02Cr18Mo1TiNbZr	-	-	-	SUS 436J1L	-
	J-436	S43600	436	X02Cr17Mo1Nb	-	-	-	-	-
	J-436L	S43932	436L	X02Cr17Mo2TiNbZr	-	-	-	SUS436L	-
	J-439	S43035	439	X02Cr18Ti	-	00Cr18Ti	X3CrTi17	-	-
	J-441	S43940	-	X02Cr19TiNb	1.4509	-	X2CrTiNb18	-	-
	J-446	S44600	-	X10Cr25	1.4749	-	X18 CrN28	-	-
Ferritic + Martensitic									
	J-409M	-	-	-	-	-	-	-	-
Duplex (Austenitic+Ferritic)									
	J-2205	S32205	2205	X02Cr22Ni6Mo3N	1.4462	-	-	-	-
	J-2304	S32304	2304	X02Cr23Ni4CuN	1.4362	-	X2CrN N 23-4	-	-



# SPECIFICATIONS

CHEMICAL COMPOSITION								
	JSL Designation/ Grade	%C (Max)	%Mn (Max)	%P (Max)	%S (Max)	%Si (Max)	%Cr	%Ni
Austenitic Cr-Mn	J-201	0.15	5.5-7.5	0.060	0.030	1.00	16.00-18.00	3.50-5.50
	J-201L	0.030	5.5-7.5	0.045	0.030	0.75	16.00-18.00	3.50-5.50
	J-201LN	0.030	6.4-7.5	0.045	0.015	0.75	16.00-17.50	4.00-5.00
	J-202	0.15	7.5-10.0	0.060	0.030	1.00	17.00-19.00	4.00-6.00
	J-204Cu	0.10	6.5-9.0	0.060	0.010	0.75	16.00-17.50	1.50-3.50
	JSLAUS(J1)	0.08	6.0-8.0	0.070	0.010	0.75	16.00-18.00	4.00-6.00
	J-4	0.10	8.50-10.0	0.080	0.010	0.75	15.00-16.00	1.00-2.00
	JSL U DD	0.12	9.75-11.0	0.1	0.015	0.75	14.75-16.25	0.50-0.80
	JSL U SD	0.12	9.75-11.0	0.1	0.015	0.75	14.50-16.00	0.4-0.75
	JT	0.13	9.75-11.0	0.1	0.015	0.75	14.0-15.25	0.40 min
Austenitic Cr-Ni	J-301	0.15	2.00	0.045	0.030	1.00	16.00-18.00	6.00-8.00
	J-301L	0.030	2.00	0.045	0.030	1.00	16.00-18.00	6.00-8.00
	J-301LN	0.030	2.00	0.045	0.030	1.00	16.00-18.00	6.00-8.00
	J-304	0.07	2.00	0.045	0.030	0.75	17.50-19.50	8.00-10.50
	J-304H	0.04-0.10	2.00	0.045	0.030	0.75	18.00-20.00	8.00-10.50
	J-304L	0.030	2.00	0.045	0.030	0.75	17.50-19.50	8.00-12.00
	J-304LN	0.030	2.00	0.045	0.030	0.75	18.00-20.00	8.00-12.00
	J-30815	0.05-0.10	0.80	0.04	0.03	1.40-2.00	20.0-22.0	10.0-12.0
	J-309S	0.08	2.00	0.045	0.030	0.75	22.00-24.00	12.00-15.00
	J-310S	0.08	2.00	0.045	0.030	1.50	24.00-26.00	19.00-22.00
	J-316	0.08	2.00	0.045	0.030	0.75	16.00-18.00	10.00-14.00
	J-316L	0.030	2.00	0.045	0.030	0.75	16.00-18.00	10.00-14.00
	J-316LN	0.030	2.00	0.045	0.030	0.75	16.00-18.00	10.00-14.00
	J-316Ti	0.08	2.00	0.045	0.030	0.75	16.00-18.00	10.00-14.00
	J-317	0.08	2.00	0.045	0.030	0.75	18.00-20.00	11.00-15.00
	J-317L	0.030	2.00	0.045	0.030	0.75	18.00-20.00	11.00-15.00
	J-317LN	0.030	2.00	0.045	0.030	0.75	18.00-20.00	11.00-15.00
Martensitic	J-31727	0.030	1.00	0.030	0.030	1.00	17.50-19.00	14.50-16.50
	J-321	0.08	2.00	0.045	0.030	0.75	17.00-19.00	9.00-12.00
	J-347	0.08	2.00	0.045	0.030	0.75	17.00-19.00	9.00-13.00
	J-904L	0.02	2.00	0.05	0.04	1.00	19.0-23.0	23.0-28.0
	J-410	0.08-0.15	1.00	0.040	0.030	1.00	11.50-13.50	0.75 max
	J-415	0.05	0.50-1.00	0.030	0.030	0.60	11.50-14.00	3.50-5.50
	J-420	0.15 min	1.00	0.040	0.030	1.00	12.00-14.00	0.75 max
	J-420J1	0.16-0.25	1.00	0.040	0.030	1.00	12.0-14.0	0.6
Ferritic	J-420J2	0.26-0.40	1.00	0.040	0.030	1.00	12.0-14.0	0.6
	J-420MoV	0.45-0.55	1.00	0.040	0.015	1.00	14.0-15.0	-
	J-431	0.20	1.00	0.040	0.030	1.00	15.00-17.00	1.25-2.50
	JBS	0.6-0.7	1.00	0.028	0.020	0.75	12.50-13.50	-
	J-405	0.08	1.00	0.040	0.030	1.00	11.50-14.50	0.60
	J-409	0.030	1.00	0.040	0.020	1.00	10.50-11.70	0.50 max
	J-409L	0.030	1.00	0.040	0.020	1.00	10.50-11.70	0.50 max
	J-409Ni	0.030	1.00	0.040	0.030	1.00	10.5-11.7	0.50-1.00
	J-410S	0.08	1.00	0.040	0.030	1.00	11.50-13.50	0.60 max
	J-430	0.12	1.00	0.040	0.030	1.00	16.00-18.00	0.75 max
	J-430Ti	0.030	1.00	0.040	0.030	1.00	16.00-19.00	-
	J-432	0.025	1.00	0.040	0.030	1.00	17.0-20.0	-
	J-436	0.120	1.00	0.040	0.030	1.00	16.00-18.00	-
	J-436L	0.025	1.00	0.040	0.030	1.00	16.00-19.00	-
	J-439	0.030	1.00	0.040	0.030	1.00	17.00-19.00	0.50 max
	J-441	0.030	1.00	0.040	0.015	1.00	17.50-18.50	-
	J-444	0.025	1.00	0.040	0.030	1.00	17.5-19.5	1.00
	J-446	0.20	1.50	0.040	0.030	1.00	23.0-27.0	0.75
Ferritic + Martensitic								
	J-409M	0.030	0.8-1.5	0.030	0.030	1.00	10.50-12.50	1.50 max
Duplex (Austenitic+Ferritic)								
	J-2205	0.030	2.00	0.030	0.020	1.00	22.00-23.00	4.50-6.50
	J-2304	0.030	2.50	0.040	0.030	1.00	21.50-24.50	3.00-5.50
	J-32101*	0.040	4.00-6.00	0.040	0.030	1.00	21.0-22.0	1.35-1.70

\*For <5mm, as per ASTM 2480



					MECHANICAL PROPERTIES			
	JSL Designation/ Grade	%Mo	N PPM (Max)	% Others	Tensile Strength MPa (min)	Yield Strength MPa (min)	% Elongation (min)	Hardness Rockwell B (max)
Austenitic Cr-Mn	J201	-	2500	-	655	310	40	100
	J201L	-	2500	-	655	310	40	100
	J201LN	-	1000-2500	Cu = 1.0 Max.	655	310	45	100
	J202	-	2500	-	620	260	40	100
	J204Cu	-	1000-2500	Cu = 2.0-4.0	620	310	40	100
	JSLAUS (J1)	-	1000	Cu = 1.5-2.0	550	205	40	95
	J4	-	2000	Cu = 1.5-2.0	650	325	40	100
	JSL U DD	-	-	Cu=1.75-2.50 / N=0.2 Max.	700	350	40	100
	JSL U SD	-	-	Cu=1.00-1.50 / N=0.2 Max.	700	350	40	100
	JT	-	-	Cu=0.40-1.00 / N=2000	700	350	40	100
Austenitic Cr-Ni	J-301	-	1000	-	515	205	40	95
	J-301L	-	2000	-	550	220	45	100
	J-301LN	-	700-2000	-	550	240	45	100
	J-304	-	1000	-	515	205	40	92
	J-304H	-	-	-	515	205	40	92
	J-304L	-	1000	-	485	170	40	92
	J-304LN	-	1000-1600	-	515	205	40	95
	J-30815	-	1400-2000	Ce=0.03-0.08	600	310	40	95
	J-309S	-	-	-	515	205	40	95
	J-310S	-	-	-	515	205	40	95
	J-316	2.00-3.00	1000	-	515	205	40	95
	J-316L	2.00-3.00	1000	-	485	170	40	95
	J-316LN	2.00-3.00	1000-1600	-	515	205	40	95
	J-316Ti	2.00-3.00	1000	Ti=5X(C+N) Min., 0.70 Max.	515	205	40	95
	J-317	3.00-4.00	1000	-	515	205	35	95
	J-317L	3.00-4.00	1000	-	515	205	40	95
	J-317LN	3.00-4.00	1000-2200	-	550	240	40	95
	J-31727	3.80-4.50	1500-2100	Cu=2.8-4.0	550	245	35	96
	J-321	-	1000	Ti=5X(C+N) Min. 0.70 Max.	515	205	40	95
	J-347	-	-	Nb=10XC Min., 1.00 Max.	515	205	40	92
Martensitic	J-904L	4.00-5.00	1000	Cu=1.00-2.00	490	220	35	90
	J-410	-	-	-	450	205	20	96
	J-415	0.50-1.00	-	-	795	620	15	32rc
	J-420	0.50 max	-	-	690	-	15	96
	J-420J1	-	-	-	520	225	18	97
	J-420J2	-	-	-	540	225	18	99
	J-420MoV	0.50-0.80	-	V=0.10-0.20	850 max	-	12	100
	J-431	-	-	-	-	-	-	29rc
Ferritic	JBS	-	-	-	-	-	-	-
	J-405	-	-	Al=0.10-0.30	415	170	20	88
	J-409	-	300	Ti=6X (C+N) Min.,0.5 Max., Cb=0.17 Max.	380	170	20	88
	J-409L	-	300	Ti=6X (C+N) Min., 0.75 Max.	380	170	20	88
	J-409Ni	-	300	Ti=6X(C+N) Min, 0.75 Max	415	275	20	92
	J-410S	-	-	-	415	205	22	89
	J-430	-	-	-	450	205	22	89
	J-430Ti	-	-	Ti=0.10-1.00	360	175	22	90
	J-432	0.40-0.80	250	Ti/Nb=8X(C+N) Min, 0.80 Max	410	245	20	96
	J-436	0.75-1.25	-	Nb=5XC Min., 0.70 Max.	450	240	22	89
	J-436L	0.75-1.50	250	% Nb or & Ti or % combination = 8X (C+N) Min., 0.80 Max.	410	245	20	96
	J-439	-	300	Ti=0.20+4X (C+N) Min., 1.10 Max. Al=0.15 Max.	415	205	22	89
	J-441	-	-	Nb=3X% C+0.3 Min. 1% Max., T1=0.1-0.6%	430	250	18	88
	J-444	1.75-2.50	350	(Ti+Nb) 0.20+4(C+N) Min, 0.80 Max	415	275	20	96
	J-446	-	2500	-	515	275	20	96
	Ferritic + Martensetic							
	J-409M-		300	Ti=0.75 Max.	450	275	20	90
	Duplex (Austenitic + Ferritic)							
	J-2205	3.0-3.50	1400-2000	-	655	450	25	31rc
	J-2304	0.05-0.60	500-2000	Cu0.05 Min.-0.60 Max.	600	400	25	32rc
	J-32101*	0.10-0.80	0.20-0.25	Cu 0.10 - 0.80	700	530	30	31hrc

Grades other than these can also be manufactured. Specific chemical and mechanical properties can also be supplied by mutual agreement.



# CHROME MANGANESE

Jindal Stainless is the largest producer of Chrome Manganese Stainless Steel in the World

Share of Cr-Mn grade has witnessed the fastest growth in global Stainless Steel consumption in recent past

Helps in sustainable growth of Stainless Steel through minimising substitution by other competing material



## Typical Applications:

Due to their good formability, weldability and corrosion resistance, Jindal Stainless 200 series grades can be used for applications as detailed below:

Catering	JSL AUS & 204 Cu	Pressure cookers, deep drawn utensils, kitchen sinks, milk cans, food processing, water filters, storage vessels
	J4	Shallow/medium drawn utensils, tableware, catering, stand for water filters, flasks
Consumer Durables	JSL AUS & 204 Cu	White goods/house hold appliances, washing machines, microwave ovens, dish washers, thermo-ware, mobile case and parts
	J4	White goods dry applications, steel furniture, decorative tubing
Architecture, Building & Construction	JSL AUS & 204 Cu	Outdoor non-coastal, door window frames, elevators
	J4	Indoor decoration, hand rails, ornaments, tubes, door frames, handles and knobs
Automotive	JSL AUS & 204 Cu	Motor cycle rim, wheel cover, wiper arm, bus body, rail car
	J4	Interior decorative
Industry	JSL AUS & 204 Cu	Wine, Beer, Sugar industry



# krome 16+

The ideal “food contact” Stainless Steel for Kitchenware

Its unmatched advantages make it the best replacement for 200 and 300 Series in the cookware, utensil & gas stove applications.

## What is Krome16+

Krome16+ from Jindal Stainless is a branded Stainless Steel in coil form conforming to AISI 430 grade. It is a ferritic solution offering many advantages in the manufacturing of Cookware, Utensils & Gas Stoves.

Chromium (not Nickel, as is sometimes imagined) is the key ingredient for the Corrosion Resistance of Stainless Steel. Krome 16+ contains minimum 16% Chromium for high corrosion resistance

## Advantages of Krome16+

- Superior thermal conductivity over 200 and 300 series Stainless Steels. This helps in conducting heat more evenly than austenitic grades resulting in heating the food much faster and saving fuel in cooking
- Excellent high temperature oxidation resistance upto 800°C making it less prone to scaling than austenitic grades
- Expands and Distorts less than austenitic grades when heated due to low thermal expansion
- Very good corrosion resistance due to high Chromium content. Hence, far superior to Aluminium/Aluminium alloys for diverse food media
- No risk of delayed cracking unlike austenitic grades
- Costs less since it has no Nickel, Copper and has very low Manganese
- Stable price
- Brilliant & Lustrous aesthetic appeal
- Its lower density leads to 2 - 3% more utensils of same size per ton of sheet compared to austenitic grades

## Ease of Fabrication

- Exhibits excellent deep drawability
- Very well suited to all methods of forming Stainless Steels including bending, drawing, stretch forming and spinning
- Easier to cut and work than austenitic grades
- Requires less powerful machines for fabrication
- Generates less tool wear
- Comparatively lesser spring back than austenitic grades after cold forming
- Higher yield in utensil manufacture

## Krome 16+ fully conforms to international Standards for Food Equipment/ Contact Materials

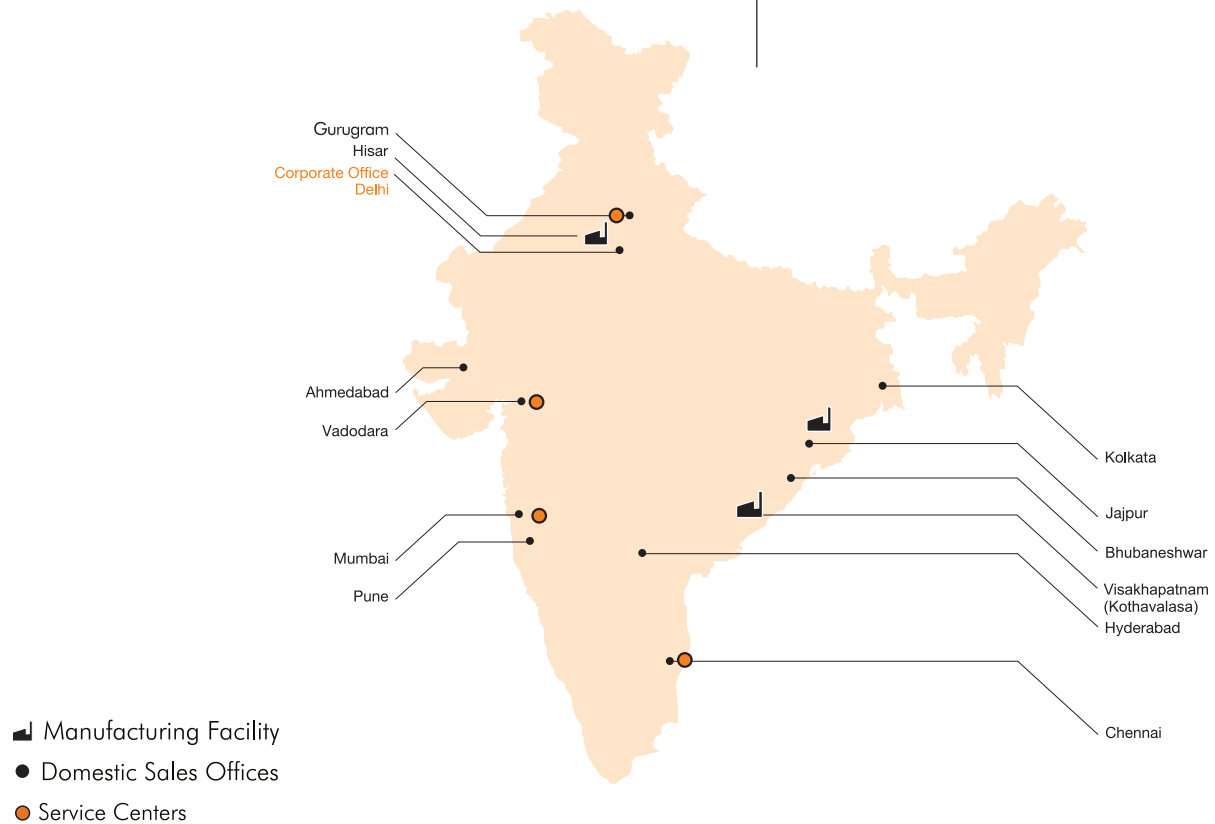
- American National Standard NSF/ANSI 51 (2007)
- French Standard NFA 36-711 (April 2002)
- French Decree No. 92-631 (8.7.1992)
- European Regulation (EC) No. 1935/2004 (27.10.2004).



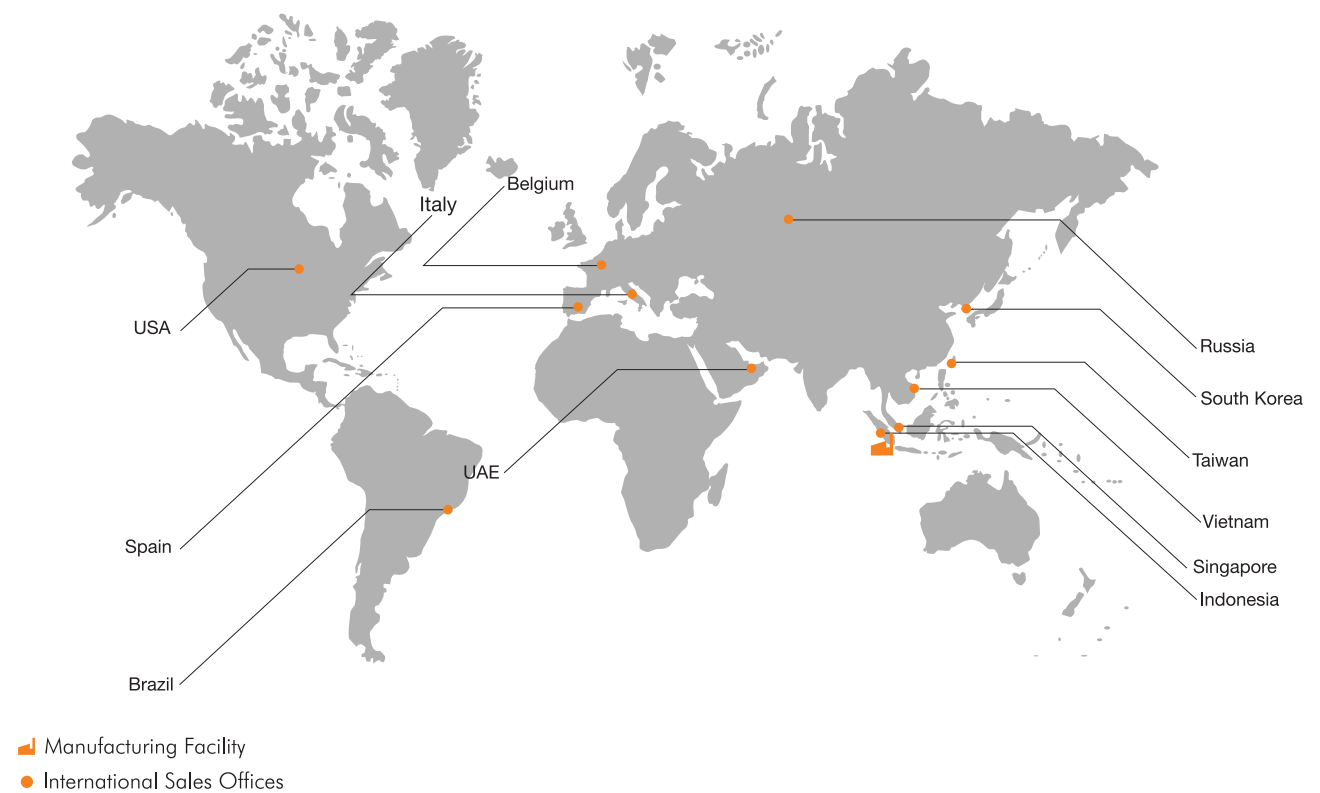


# OUR NETWORK

## DOMESTIC NETWORK



## OVERSEAS NETWORK





# Jindal Stainless Locations

## SALES/REPRESENTATIVE OFFICES

### Ahmadabad

401-402, Florence, Opposite  
Ashram Road Post Office,  
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### Bhubaneswar

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### Chennai

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### Gurugram

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Gurugram - 122001

### Hyderabad

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Complex, Begumpet,  
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## OVERSEAS OFFICES

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