



**JINDAL SAW LTD.**  
TOTAL PIPE SOLUTIONS

Seamless Tubes Division

## Core Values

### Integrity

*Conduct all business dealings along transparent lines.*

### Respect for Individual

*Recognise each individual's contribution in the growth and development of the Company.  
Treat all Jindalites with respect and dignity.*

### Meritocracy

*Foster an environment of excellence in performance.*

### Dynamic Thinking

*Demonstrate a winner's attitude with a crystal clear focus to deliver sustained value for all Stakeholders.*

### Creativity & Innovation

*Encourage creative experimentation, embrace new ideas and institutionalize continuous improvement in all aspects of business and performance.*

### Social Responsibility

*Dedicate efforts to the social and environmental issues to enrich the quality of life of the communities we serve.'*



## The Jindal Group

*The first Jindal plant was set up in 1970 by the visionary, Mr. O.P. Jindal. Over the years, the organisation has grown from a single-unit steel plant in Hissar, Haryana, India, to become what it is today - a multi-billion dollar, multi-location and multi-product steel conglomerate.*

*With every new objective, the organization has been continuously expanding, integrating, amalgamating and growing in new directions.*

*The Jindal name proudly commands a special status in the Iron & Steel sector. Ranked fourth amongst the top Indian Business Houses in terms of assets, the Group today is a US \$18.5 Billion conglomerate, spread over 13 plants at 10 strategic locations in India and various facilities across the globe. Major group companies include Jindal Saw Limited, JSW Steel Ltd., Jindal Steel & Power Ltd. and Jindal Stainless Ltd.*

## Jindal Saw Limited

*Jindal Saw Ltd., (JSL) provides Total Pipe Solutions and is the leading manufacturer of Seamless Tubes and Pipes, Large Diameter submerged Arc Welded pipes, and Ductile Iron Pipes. The company has 4 manufacturing plants located in India and one at Baytown, Houston, Texas (USA). It has a sales turnover in excess of US\$ 1 billion.*

## Jindal Saw Limited (Seamless Tubes Division)

*The Seamless Tubes Division produces Tubes & Pipes at a state-of-the-art manufacturing facility at Nashik, approximately 200 kms from Mumbai, in Maharashtra, India. The expertise and equipment have been acquired from SMS-MEER of Germany - acknowledged world leaders in Seamless Tube & Pipe technology.*

## Cutting-edge Technology

*With an annual installed capacity of 220,000 M Tons for Carbon & Alloy Steel Pipes, the plant is equipped with modern manufacturing machinery and boasts a state-of-the-art PQF Mill from SMS MEER, Germany. Additionally, we have a modern Quench and Temper Furnace, Upsetter, Hydro tester, MAC EMI & UT and PMC Threading machines.*



*Our coating plant provides Fusion Bonded Epoxy (FBE), 3-layer Polyethylene (3LPE) External coating, and 3-layer Polypropylene (3LPP) External coating. Up-to-date testing facilities complete the gamut, ensuring that all of our products that reach the market meet international standards.*

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*At Jindal Saw, we firmly believe that Quality translates into Success*

**Quality of Thought**

*Innovation and flexibility in thinking allows us to look at ideas from diverse perspectives, enabling us to venture into uncharted territories and discover newer options*

**Quality of Action**

*Up-gradation of ideas and products enables us to position ourselves at the right time and the right place in the market arena*

**Quality of People**

*Our team is made up of dedicated, performance-oriented, well-informed individuals, with a proven track-record*

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## Value-addition at every stage

### Value-added Products

*Constant Technology up-gradation and continuous research, combined with proactive marketing are critical factors that have contributed towards making us a supplier of quality products.*

### A Valuable Team

*The invaluable support of a dedicated team of technocrats and workforce, strengthens our resolve to achieve excellence in whatever we do. It is this team that sets the momentum for our growth. Each and every member of our team is considered a precious asset.*

### Value Creation for Customers

*Superior business ethics ... high quality products ... proactive marketing ... competitive pricing ... timely deliveries ... these are just a few of the factors that create value for our customers and contribute towards our success in the marketplace. And our customers are happy to come back to us – time and time again.*

### Industries that Value our Products

*Oil and Gas*

*Refineries*

*Petroleum and Petrochemicals*

*Power / Boilers, Heat Exchangers & Condenser Applications*

*Fertilizers*

*Dairy and Sugar*

*Mechanical Tubing & Structural Applications*

*Automobile Applications*

*General Engineering*

*Fluid Conveyance Applications*

*Bearing Steel Tube Industry*



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**The JSL Corporate  
Strategy:**

*To aim for holistic integration of its  
product line and emerge as a  
global performer, providing a  
comprehensive range of products  
in the category*

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## Product Range

Product	Outside Diameter (OD) (inch)	Wall Thickness (t) (inch)	Outside Diameter (D) (mm)	Wall Thickness (t) (mm)	Annual Capacity
Hot Finished Carbon / Alloy Steel Seamless Tubes and Pipes	1.00 to 8.00	0.13 to 1.25	33.40 to 219.10	3.38 to 32.00	80,000 MT
Seamless Casing and Tubing conforming to API 5CT	2-3/8 to 7.00	0.15 to 0.75	60.30 to 177.80	4.00 to 19.05	100,000 MT
Seamless Drill Pipes conforming to API 5DP	2-3/8 to 6-5/8	0.25 to 0.50	60.30 to 168.30	6.45 to 12.70	
Cold Finished Carbon/ Alloy Steel Seamless Tubes and Pipes	0.5 to 6.61	0.07 to 0.75	19.05 to 168.12	1.65 to 19.05	40,000 MT
Couplings for OCTG Products	2-3/8 to 7.00		60.30 to 177.80		
Anti Corrosion 3 LPE,3LPP/ FBE External coating.	2" to 14" as per DIN 30670, DIN 30678 & Customer's specs				1 million SQM

**Note:** Make and Break, Hard Banding and Internal Plastic Coating are also available for Drill Pipes confirming to API 5DP Specification on customer request.

## SPECIFICATIONS CATERED

ASTM (A53, A519, A106, A335), SA (106,179,192,210,213), DIN (2391, 17175), IS (3601, 3074), BS (3059), NACE, SOUR SERVICE etc.

API 5L (B, X42, X52, X56, X60, X65, PSL 1 & PSL 2),

API 5CT (J55, K55, N80, L80, L80 (13Cr), C90, C95, C110,T91,T95, P110, P110 HC, Q125),

API 5DP (E75, X95, G105, S135, SS105) Ss105

## MAJOR STEEL GRADES

SAE 1019, 1518, 1035, 1040, 1541, 4130, 4140, 8620, EN19, ST 52,SUJ2/SAE52100/100Cr6,16MnCr5 & other Steel Grades as per Customer requirement.

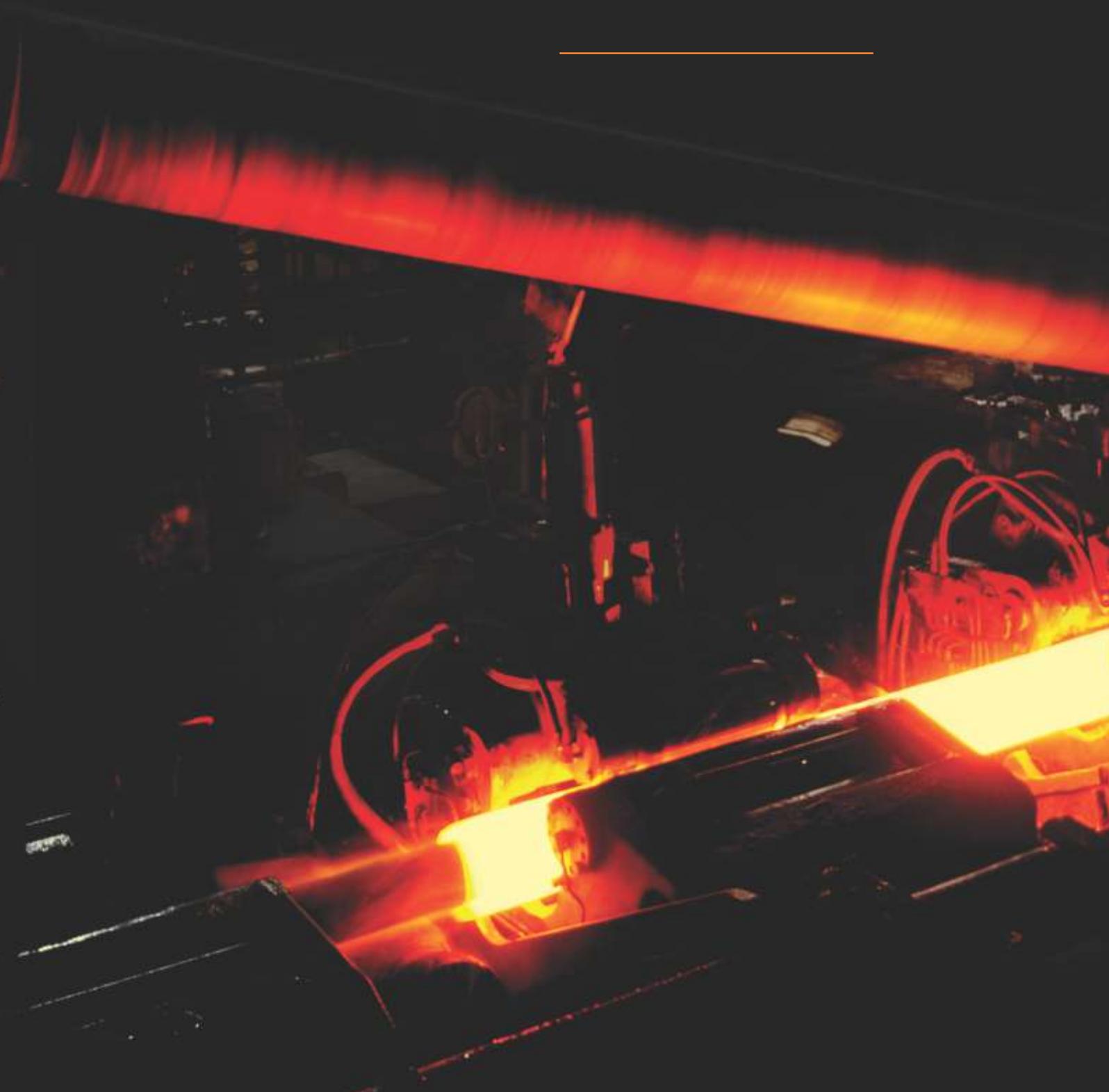


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## The Winning Combination

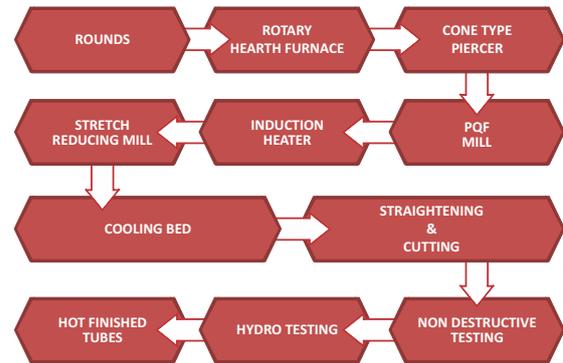
*With the unbeatable combination of Rotary Hearth Furnace, Conical Type Piercer, PQF Mill, Stretch Reducing Mill, Q&T Furnace, Upsetter, Cold Draw Facility, Coating Facility, In house Coupling Manufacturing and Balancing Equipment, Jindal Saw Limited is perfectly positioned to cater to the varied demands of domestic as well as international markets.*

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## Hot Finishing Process

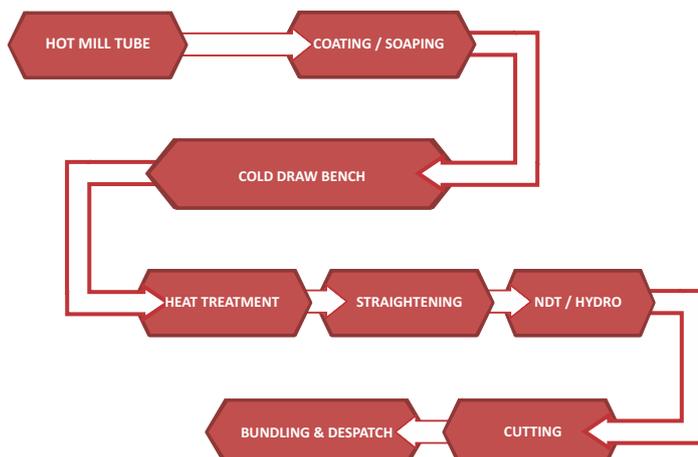
The round billet is heated in a rotary hearth furnace and pierced by means of an internal piercing plug and a two-roll conical type piercer. The shell is then rolled in a PQF Mill for wall thickness reduction and shell elongation. The shell is reheated in an induction furnace and rolled in a stretch-reducing mill to decrease the outside diameter to the desired specifications. Finally, Pipe finishing is carried out via several processes - air-cooling on a cooling bed, straightening, cutting and beveling. Finished seamless pipes undergo Hydrostatic testing, Non-Destructive Testing, as well as inspection for dimensional irregularities.



## Cold Drawing Process

The hollow tube, after surface treatment, is drawn over a stationary plug and a die. The relative movement between the stationary plug and the flowing tube material results in friction on the inner surface. As a consequence, the tube is reduced with a high degree of accuracy, to the desired outer diameter and thickness.

The tube is now passed through an annealing furnace, straightened and cut to the required length. Quality checks like Hydrostatic testing, Non-Destructive testing and Visual Inspection ensure that the product meets with the required specifications, within strict tolerances.



## Drill Pipe Process

Rolled Pipe ends are either External Upset or Internal upset or Internal External upset and heat-treated full length by the Quench and Temper process to achieve uniform mechanical properties.

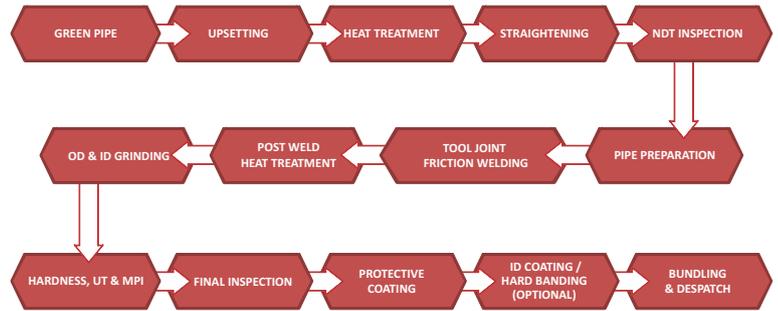
The heat-treated pipes are 100% nondestructively inspected for possible longitudinal and transverse defects and wall thickness.

Magnetic particle inspection of the upset ends is done to ensure that the upsets are free from defects.

The OD & ID and face of the upsets are CNC machined for a clean surface as part of pipe preparation prior to welding.

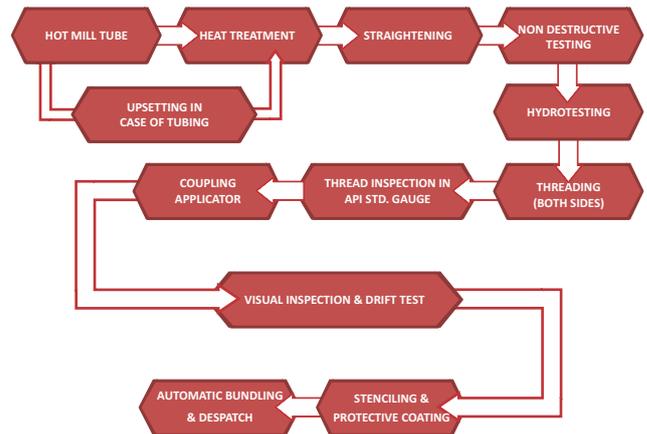
Tools joints are attached to the drill pipe by friction welding to produce a high integrity solid state weld connection between the tool joint and the upset drill pipe tube.

Hard Banding and ID coating facilities are also available on customer request.



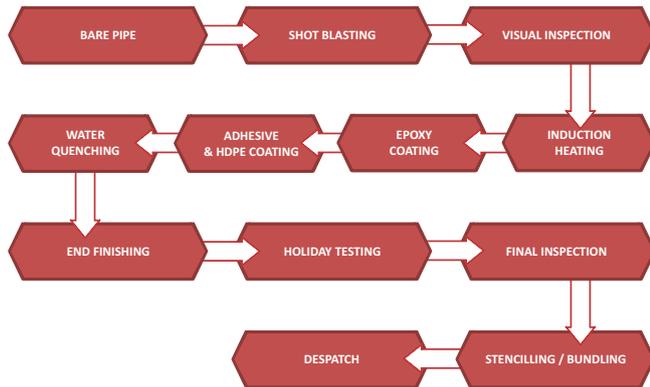
## OCTG Manufacturing Process

Rolled pipes are heat treated in a Q&T furnace to achieve properties that conform to API grades. In the case of tubing, the ends are upsetted. The pipes are straightened and subjected to EMI & UT and Hydrostatic testing. Subsequently, threads are cut and couplers are power-tightened.



## Anti-Corrosion Coating Process

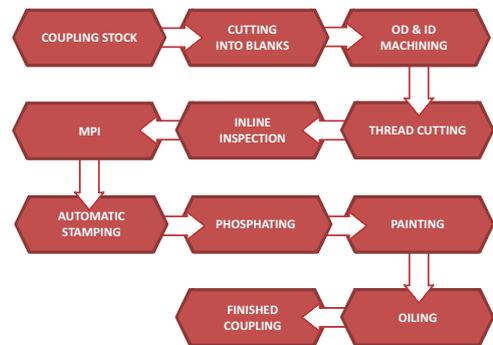
The external coating 3LPE, 3LPP, & FBE is a multilayer anti-corrosion coating comprising of a high performance fusion bonded epoxy (FBE) layer, followed by a copolymer adhesive and an outer layer of polyethylene. This coating ensures that our tubes are tough and durable, especially in sour conditions.



## Coupling Manufacturing Process

Tubes referred to as coupling stock are cut into blanks by Automated Band Saws. The blanks are transported to the CNC machines, where OD & ID machining and threads are cut to API thread specification with stringent tolerances and meticulous precision. The couplings are subjected to visual inspections under UV light for longitudinal and transverse flaws.

Subsequently, the couplings are phosphated with Manganese Phosphate Layer which provides protection against corrosion and improves galling resistance. Finally the couplings are colour coded as per the specification and oiled on the inside surface.





## Quality Assurance & Approvals

### An Eye for Perfection

*Commitment to Customers, Flexibility in Manufacturing and Total Quality Management are principles which have enabled JINDAL SAW LIMITED to deliver value to our customers. Stringent system-based quality control is implemented at each stage of production. Our service standards focus on customer requirements and we strive for the highest user satisfaction.*

1) ISO 9001-2008, ISO-14001 : 2004, BS OHSASS 18001 : 2007 certification by TUV NORD CERT GmbH

2) API 5L, API 5CT & API 5DP

3) PED Certification by DNV

4) Well Known Tube/Pipe maker under Indian Boiler Regulation.

*Leading Third Party Inspecting authorities like EIL, LRIS, Bureau Veritas, DNV, TUV etc. regularly visit our manufacturing facilities for inspection while fulfilling various customer orders.*



### Quality is our Mantra

*All our products are submitted to strict quality checks at every stage of production.*

#### Raw Material:

*All incoming material is inspected in detail for mechanical and metallurgical defects.*

#### Macro Etch test:

*This is used to study the macro structure of raw material.*

#### Metallography:

*The micro structure of the material is examined in careful detail.*

#### Chemical Testing:

*The chemical properties of the steel are analysed using a 'Spectrolab'.*

#### Mechanical Testing:

*The material is also tested for its mechanical properties to check for tensile strength, hardness, resilience to impact, bending, flaring, flattening and Flange testing.*

#### Hydrostatic Testing:

*Hydrostatic testing is conducted as per API, ASTM, DIN, IS or equivalent standards.*

#### Eddy Current Testing:

*Eddy Current testing is carried out to detect surface irregularities on the entire length of the tube. This is done using the Circograph and Technofour machines.*

#### EMI & Ultrasonic Testing:

*The Tuboscope, MAC Electromagnetic Induction and Ultrasonic flaw detection equipment are used to verify the external and internal surface quality of the tubes and wall measurements along their length. This ascertains the soundness of the material in accordance with API 5CT, 5DP, 5L norms while meeting national and international specifications.*

#### Magnetic Particle Inspection:

*MPI is conducted to detect for outer and inner surface imperfections in couplings, as per ASTM & API standards.*

**SSC / HIC Test as per API 5L / 5CT / NACE requirements.**



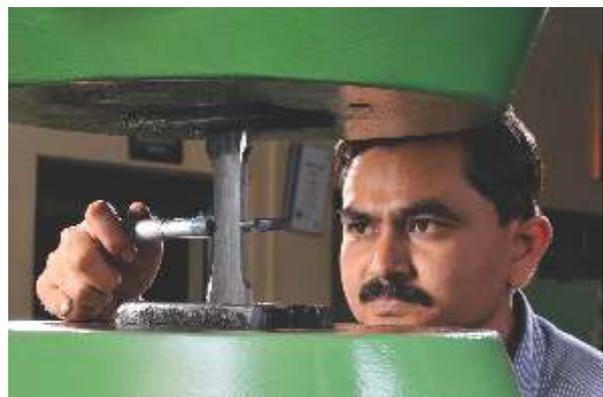
## Our Commitment to the Environment and the Community

*At Jindal Saw, we hold ourselves responsible for protecting the environment and the communities that live and work within our surroundings.*

*We believe in finding a harmonious balance between the demands made by industrialization and ethics concerning the environment.*

*Strict environment management systems for air, water and waste treatment in and around our workplace ensure that we live and work in harmony with the eco-system.*

*We are committed to improving the lives of the people who work with us and the communities who live around us. While we stress on continuous technical training for our workforce, we strive to ensure that the social needs of the community are always given due importance - an ever-evolving process, which we are happy to consider our corporate responsibility.*



## The Jindal Advantage

- *One of the largest pipe manufacturing companies with a strong international presence*
- *Established track record*
- *Prestigious accreditations*
- *State-of-the-art manufacturing facilities and testing equipment, technologically at par with the best seamless mills, globally*
- *Raw material, in the form of Vacuum Degassed Clean Steel Billets, is sourced primarily from Group Companies ensuring consistent quality and timely deliveries*
- *Skilled and experienced manpower*
- *Long-term relationships forged with leading companies across the world*



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This is Jindal Saw Limited.

A company that is steadfastly committed to its customers, its people, its community and to its environment.

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## **Jindal Saw Ltd. (Seamless Tubes Division)**

Works & Marketing Office

A-59/60, MIDC, Malegaon, Sinnar, Dist: Nashik - 422 113 Maharashtra, INDIA

Phone: +91-2551-227200 Fax: +91-2551-230967

Email: [seamless.export@jindalsaw.com](mailto:seamless.export@jindalsaw.com) / [marketing.nashik@jindalsaw.com](mailto:marketing.nashik@jindalsaw.com)

Website: [www.jindalsaw.com](http://www.jindalsaw.com)

## **Jindal Saw USA LLC**

Works Office

1411 South FM 565, Baytown, TX 77523-USA

Phone: +1 281-573-2300 Fax: +1 281-575-3838

Marketing Office

1401 McKinney Street, Suite 300, 5 Houston Center, Houston, TX 77010-USA

Phone: 713-650-9000 Fax: 713-650-9001