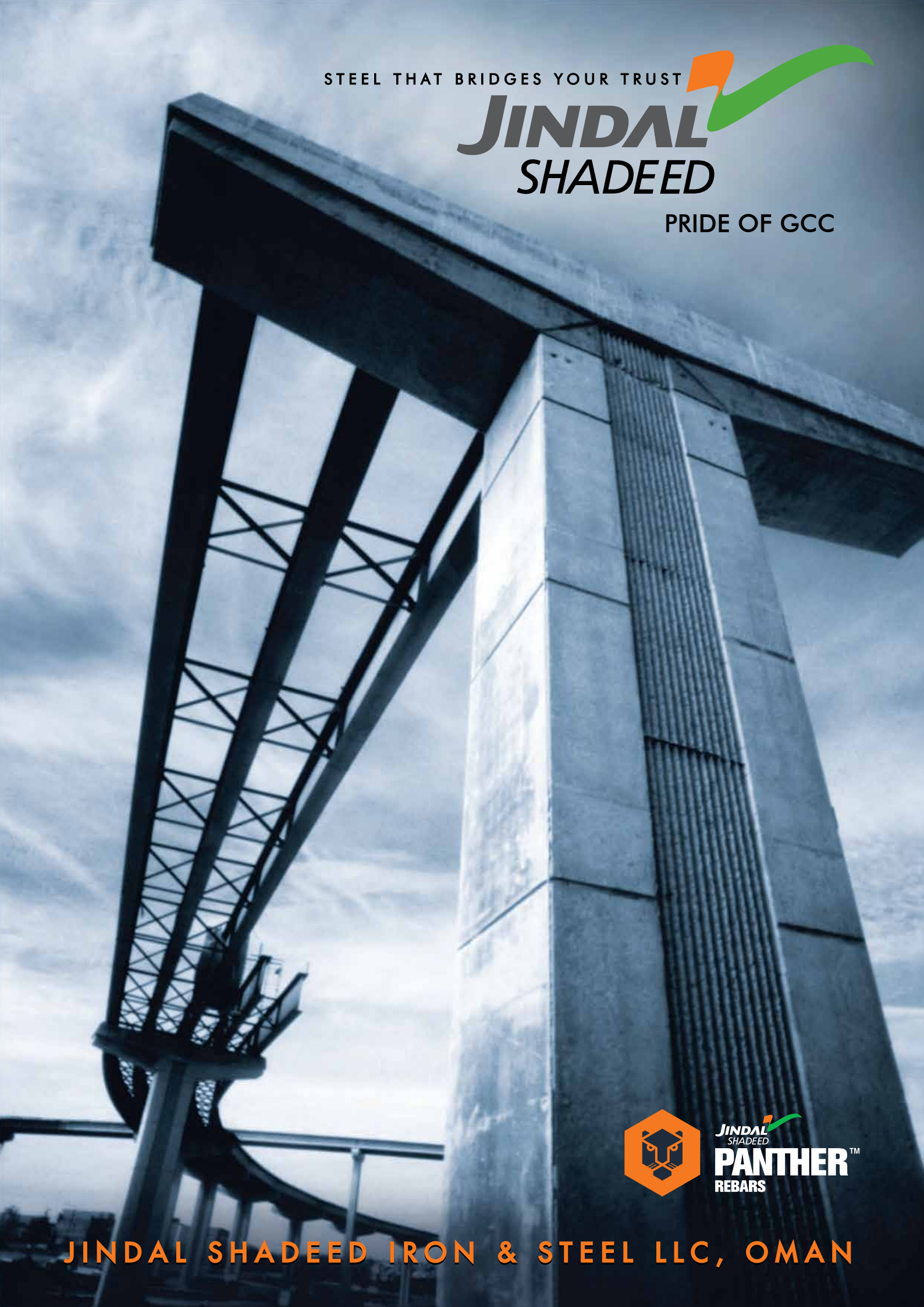

STEEL THAT BRIDGES YOUR TRUST
JINDAL
SHADEED
PRIDE OF GCC
JINDAL
SHADEED
PANTHER™
REBARS
JINDAL SHADEED IRON & STEEL LLC, OMAN


Taking Oman Ahead
in the path of industrialization

Jindal Shadeed Iron & Steel, Oman

Jindal Shadeed Iron & Steel (JSIS) was acquired by JSPL in July 2010, Soon after the takeover , the Gas based Hot Briquetted Iron (HBI) plant was commissioned in December 2010. JSIS is the largest and only integrated steel plant in Oman. The plant is in a prime location in a plot of 120 Hectares, just 60 Meters from sea shore and very near to Muscat - Dubai Highway.

Facilities:

Direct Reduced Iron (DRI) Plant:

It operates a 1.8 MTPA gas based Direct Reduced Iron (DRI) Plant that makes Hot Briquetted Iron (HBI) and Hot DRI (HDRI).The DRI Furnace is supplied by Midrex Technologies, USA. The furnace is first of its kind having a Hot Direct Charging Technology through gravity feed. This facility enables to charge HDRI at a temperature of around 600-650 C directly in to Electric Arc Furnace (EAF) resulting in saving of heat energy. **DR Tower is one of the largest in Midrex plant with 148m elevation and 3rd fastest DRI Plant to achieve 10 million tons.**

Steel Melt Shop:

The SMS facilities primarily consists of:

a. Primary Steel making unit: A state of art 200 Ton Electric Arc Furnace to produce Liquid Steel. It uses Direct Hot charging facility of HDRI

b. Secondary Metallurgical Processes:

- 200 Ton Ladle Furnace: The ladle furnace is used to heat up, refine, hold and to finish all kinds of molten metals. Heating is done by Graphite electrodes

- 200 Ton Vacuum Degassing Furnace: Removing undesirable gasses(H, N, O) other impurities for Special and quality steels used in specific applications like forging etc. JSIS is the only plant in GCC having this facility.

c. Continuous Casting Machine No. 1 - 8 Strand Combi caster(2MTPA):-
To cast Square/Round Billets and Blooms.
Continuous Casting Machine No. 2 - 8 Strand Caster :- To cast Square Billets

Rolling Mill :

Rolling Mill has been set up in technical collabration with Danielli. The mill can produce Rebar in diameter 8-40mm in maximum length of 18 metres. It is the Single largest Rolling Mill in GCC. The mill is producing Rebars under Jindal Panther Rebars Brand name, meeting all the required international standards and grades

Vision

"To be a globally admired organization that enhances the quality of life of all stakeholders through sustainable industrial and business development."

Mission

We aspire to achieve business excellence through:

- The spirit of entrepreneurship and innovation
- Optimum utilization of resources
- Sustainable environment friendly procedures and practices
- The highest ethics and standards
- Hiring, developing and retaining the best people
- Maximizing returns to stakeholders
- Positive impact on the communities we touch

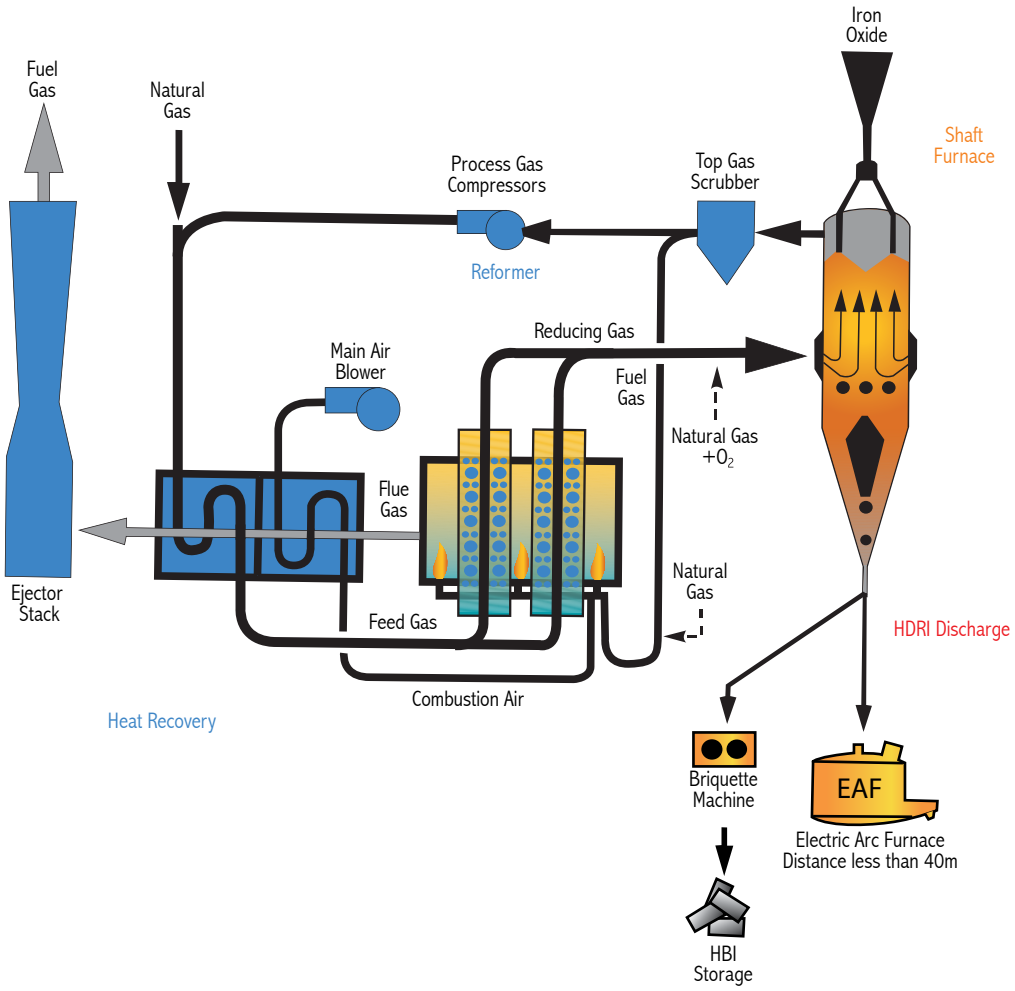
Core values

- Passion for People
- Business Excellence
- Integrity, Ownership and Sense of Belonging
- Sustainable Development

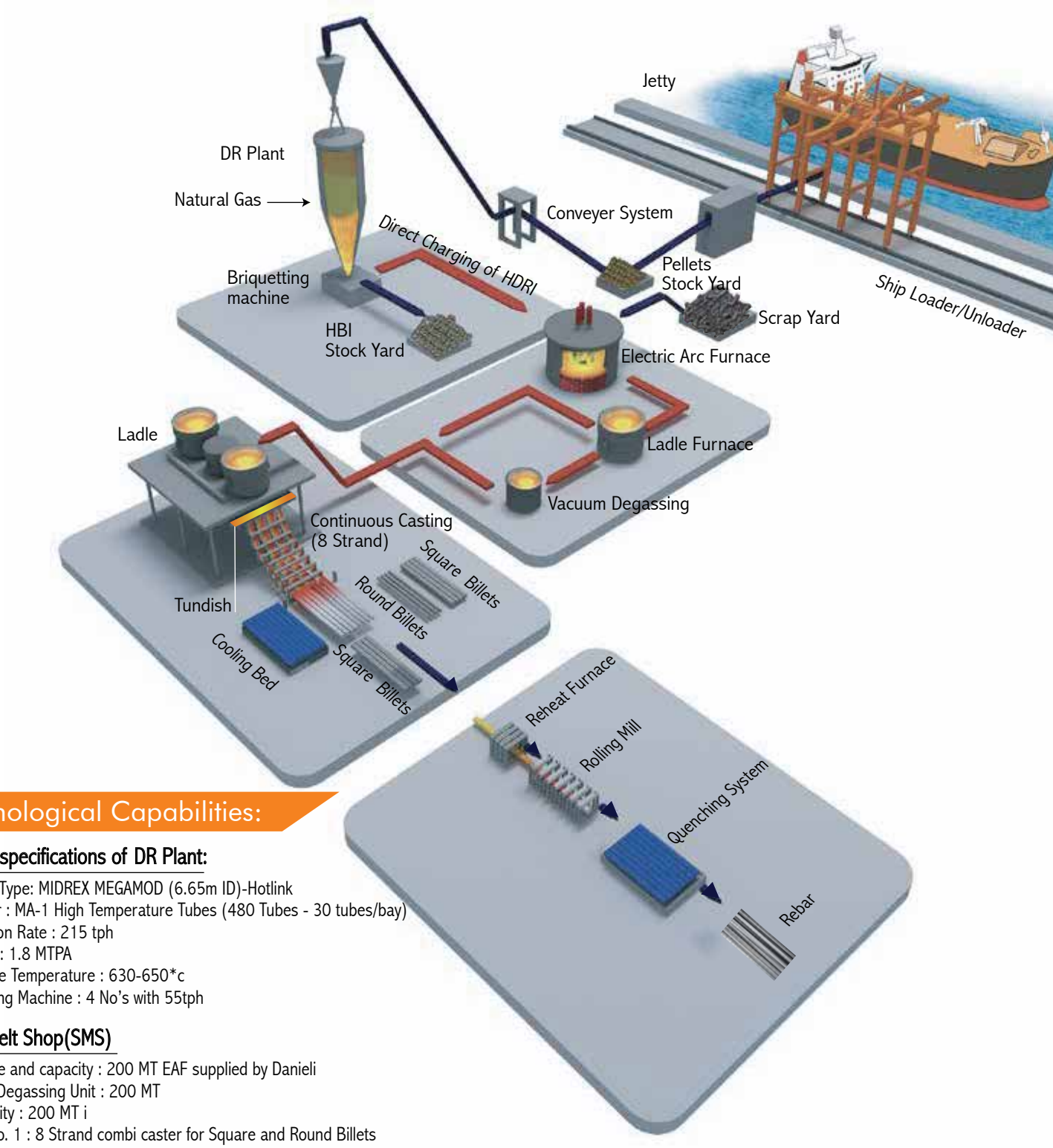
Jindal Shadeed Iron & Steel, Oman
Manufacturing Process - DR Plant

The plant is designed according to the latest technology in the field of steel plant machinery and equipment with the best features in terms of product range and productivity. The technological solution is characterized by the choice of high quality and productivity facilities by which it is possible to achieve extremely efficient operating results with low manpower and specific energy consumption, thereby making the plant highly competitive.

Direct Reduction (DR) Process & Hot Charging to EAF is shown in the below line diagram.



Jindal Shadeed Iron & Steel, Oman
SMS and Rolling Mill
Process Flow Diagram



Technological Capabilities:

Design specifications of DR Plant:

Furnace Type: MIDREX MEGAMOD (6.65m ID)-Hotlink
Reformer : MA-1 High Temperature Tubes (480 Tubes - 30 tubes/bay)
Production Rate : 215 tph
Capacity : 1.8 MTPA
Discharge Temperature : 630-650*c
Briquetting Machine : 4 No's with 55tph

Steel Melt Shop(SMS)

EAF make and capacity : 200 MT EAF supplied by Danieli
Vacuum Degassing Unit : 200 MT
LF capacity : 200 MT i
Caster No. 1 : 8 Strand combi caster for Square and Round Billets
Caster No. 2 : 8 Strand combi caster for Square Billets

Rolling Mill

Make : Danieli
Capacity : 1.4 million MT
Rolling Speed : 45 m/s max.
Type of Mill : Double Strand ,continuos Mill.
(08-22 mm on lateral lines & 25 -40 mm on central Lines)

Product

Hot Briquetted Iron (HBI)

JSIS can supply Hot Briquetted Iron (HBI), a raw material used in Electric Arc Furnace(EAF), Induction Furnace, Basic Oxygen Furnace(BOF), Blast Furnace, Foundry Furnace for Iron and Steel making. HBI is a safe material from storage and handling point of view and is now increasingly used as a substitute of Scrap, Pig Iron, DRI and other such ferrous raw materials.

CHEMICAL PROPERTIES

Fe Total (%)	90 % min
Fe Metallic (%)	84 % min
Metallisation (%)	93% min
Carbon %	1.2-2.0 %
Gangue (Si02+Al203+CaO+MgO) (%)	5.5 % max
Sulphur (%)	0.005 % max
Phosphorous (%)	0.07 % max

PHYSICAL PROPERTIES

Typical size (mm)	110x50x30
Bulk Density (mt/m3)	2.4-2.7
Apparent Density (gm/cc)	4.7 min
Under size (below 6.3 mm) (%)	5 max
Typical weight per briquette (Kg)	0.63

Product

Continuously Cast Square Billets

We supply high quality Continuously Cast Square Billets of various cross-sections and length meeting the customer requirements and industry specifications including ASTM, BS, EN etc or any other tailor-made requirements of customer. Our Billets can be in alloying and non-alloying qualities for applications like structural and general purpose, concrete reinforcement, wire drawing etc or any special applications (like Low Carbon, High Carbon, Spring Steel, High Mn Steel, Tool Steel, Case Hardening Steel, Cold Heading Quality Steel etc).

SPECIFICATIONS AND GRADES:

	Standard for Chemical Composition	Application
1.	ER70S6,42CrMo4, 11SMnPb37,SAE1080,SAE15B20Cr,18MnB4,S55C,ENIA	Welding wire, Cold heading, free cutting, Leaded, High carbon wire rod, Drawing etc.
2.	ASTM A 36/A 36M, ASTM A 615/615 M	Structural and general use
3.	BS 4449	Structural reinforcement bar and general use
4.	EN10025	Structural and general use
5.	SAE 1006, SAE 1008, SAE 1010, SAE 1012, SAE 1015 etc ASTM A 510 M	Wire drawing carbon steel/low carbon steel
6.	GOST 380-94 3SP/PS, 5SP/PS	Structural reinforcement bar and general use
7.	EN10083, EN 10084, EN 10087	Carbon steel/Alloy Steel for special application
8.	ASTM 105, ASTMA 350, ASTM A 29	Carbon Steel/Alloy Steel for special application

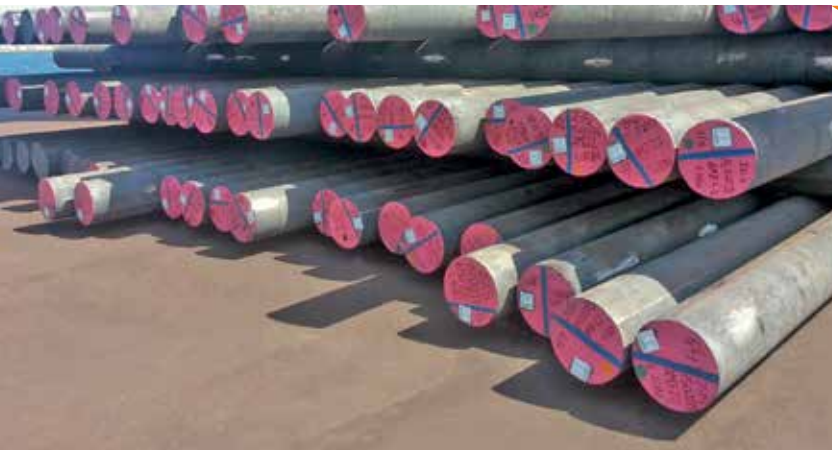
SIZE RANGE:

Cross Section	Length
130MMX130MM	9-14 METER (+100/- 0 mm)
150MMX150MM	9-14 METER (+100/- 0 mm)
165MMX165MM	9-14 METER (+100/- 0 mm)

PHYSICAL PARAMETERS:

	Parameters	Value
1.	Dimension/Side tolerance	± 2.5 %
2.	Diagonal difference/Rhombodity	≤ 10mm
3.	Corner radius	5 mm Max
4.	Straightness	Camber 5mm/meter
5.	Angular Twist	Not more than 1 degree per meter and not more than 6 Degree over 12 meter length.
6.	Cutting	Both ends will be Flame Cut
7.	Identification	At the end of each billet cast number and size will be Stamped or hand written
8.	Surface	Excellent Surface Quality suitable for straight bar, Rebars, Wire rod, Forging application.

Product



Continuously Cast Round Billets

Continuously Cast Round Billets are used to produce seamless pipes used for industrial applications that require transportation of steam, water, gas, oil and air under high pressure in the sectors like energy, petrochemical, automotive industries, steel, cement etc. or in machinery manufacturing. Round Billets can be supplied meeting specific requirement of customer or as per any international standard like API, EN, ASTM DIN etc.

SPECIFICATIONS AND GRADES:

Sl	Standard for Chemical Composition	Application
1.	API 5L Class A, B, C X42-X80	Seamless Line Pipes
2.	API 5CT	Seamless Corrosion resistant Pipes, Tubes and Casing
3.	ASTM A53, ASTM A 106	Seamless Mechanical and Structural Tube and Pipes
4.	EN 10210, EN 10216, EN 10208, EN 10297	Seamless Mechanical and Structural Tube and Pipes
5.	EN 10216	Seamless Pipes for Boilers

SIZE RANGE:

DIAMETER	Length
200 MM	9-14 METER (+100/ -0 mm)
220 MM	9-14 METER (+100/ -0 mm)
280 MM	9-14 METER (+100/ -0 mm)

SIZE RANGE:

DIAMETER	Length
350 MM	9-14 METER (+100/ -0 mm)
406 MM	9-14 METER (+100/ -0 mm)

PHYSICAL PARAMETERS

1.	Ovality	≤ 2 %
2.	Straightness	Maximum 50 mm over entire length (12 meter) of single billet
3.	End of Bars	Bars will be delivered having the ends gas cut. The deviation from the perpendicular will not exceed 5 mm, measured from a normal plan to the external surface. Burrs on the edge after gas cut shall not exceed 25 mm width 5 mm height and 8 mm length.
4.	Internal soundness	Excellent macrostructure due to effective mould EMS and other optimized process parameters.

Product

Reinforcement Steel Bar(Rebar)

Jindal Panther Rebars are produced from in house Billets manufactured through DRI, EAF and Continuous Casting route under stringent quality control measures to ensure superior chemistry with zero surface defects & minimum impurities.

Billets after reheating and passing through Descaler unit are rolled in a State-of-the-art continuous rolling mill at high speed where stands are placed in H-V combination and are finished at Danieli Fast Finishing Blocks to get Uniform cross section with better dimensional accuracies throughout the length in Correct shape with better rib design.

After rolling, Bars are Thermo Mechanically Treated at most advance QTB (Quenched & Tempered Bar) Technology supplied by Danieli having microprocessor and automation system for controlled cooling for water quenching and tempering process to get high yield strength and superior mechanical properties:

INTERNATIONAL SPECIFICATIONS:

Sl No	International Standard/Grade	Application
1.	BS:4449-1997 Grade 460B	Concrete reinforcement
2.	BS:4449-2005	Concrete reinforcement
3.	ASTM A615 Grade 40/60/75	Concrete reinforcement
4.	SSA 2/1992	Concrete reinforcement
5.	ASTM A1035	Low-alloy High Strength Corrosion resistance rebar for concrete reinforcement
6.	ASTM A706 Grade 60/Grade 80	Low-alloy Steel earth-quake resistance rebar for concrete

Note: Specifications as per any international standard or meeting any other special requirement can be supplied as per customer's requirement.

LINEAR MASS AND NUMBER OF REBARS IN 2 MT

Diameter in mm	Nominal Weight per unit length in Kg/M	Nominal Crosssection Area (mm2)	Minimum number of bars in 12 M length (+100/ -0 mm) of 2 MT bundle
8	0.395	50.27	422
10	0.617	78.54	270
12	0.888	113.1	188
14	1.210	153.9	138
16	1.580	201.1	105
18	2.000	254.5	83
20	2.470	314.2	67
22	2.980	380.1	56
25	3.850	490.9	43
28	4.830	615.8	34
32	6.310	804.2	26
36	7.990	1017.9	21
40	9.864	1256.6	17

Product

Reinforcement Steel Bar (Rebar)

Marking and labeling

The surface of rebars can be marked with identification mark to state the name of manufacturer, Brand Name, Trade mark etc. The registered trade mark (JINDAL/PANTHER with Logo)will be put on every rebars at an interval of about one meter along the length with all other identification marks as per International norms.
The rebar bundles are tied with label containing the following data:
Name / trade mark of the manufacturer
Name of the customer
Contract no
Specification
Country of destination
Size
Heat number/Batch number
No of Bars
Length
Bundle weight
Made in Oman

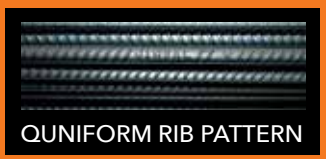
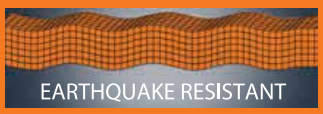
Cut and bend rebars

Modern structures designed by engineers around the world need steel rebars to be cut and bend to exact specifications, ensuring precision and consistency. The traditional way of cutting and bending rebars has a number of limitations as it is done manually using unskilled labour and hand tools. We can supply customized solutions meeting the specific cut and bend requirement, made from specialized, state-of-the-art machinery that meets the exact specification eliminating wastage & saving time. Since the cutting is done in a controlled factory environment customers do not have to worry about reselling of scrap generated.

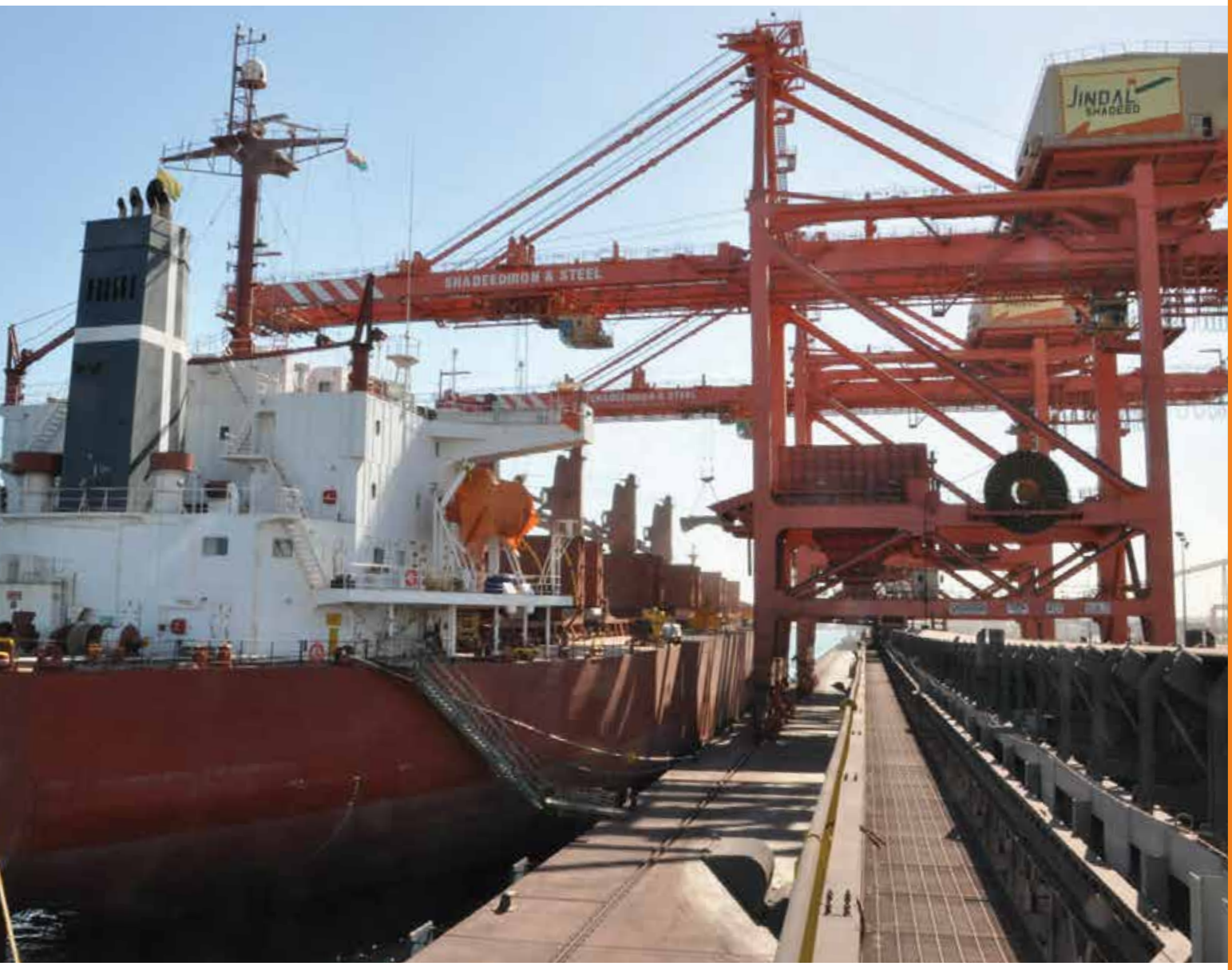
Product

Reinforcement Steel Bar (Rebar)

How our rebars are superior

Jindal Panther™	You get	Benefits	
Uses DRI/HBI which is pure form of Ferrous raw material and deploys state-of-the-art steel making & refining process.	Highly clean, homogenous & consistent Steel Quality with no Tramp elements.	Rebars produced using Scrap quality differs from heat to heat due to impurities available in Scrap. Jindal Panther Rebars get uniform properies across the heats as instead of scrap, superior quality of DRI/HBI is used.	 HBI
Steel is made using DRI/HBI - EAF - LRF Concast route.	A highly controled steel chemistry with very low levels of Sulphur & Phosphorus.	Low level of Sulphur and phosphoros impurities provide extra ductility and better ability to withstand tremendous shock loads produced specially during earthquacke. These impurities decrease the streangth of steel in extreme hot and cold conditions.	 DRI/HBI →EAF→LRF→ →CONCAST
Rebars are manufactured using QTB (quenching & Tempered Bar) and self-tempering technology supplied by Danieli, Italy.	High strength & ductility due to fine grain multiphased composite structure.	Outer surface is hard which give support & inner core is soft which gives better bendability. Due to this during unforseen shocks building will not collapse.	 UNIFORM MICROSTRUCTURE
Sound surface after bend and rebend test.	No rupture or no crack after bending and rebending of Rebar at 90° bend and 20° rebend.	High level of toughness and assurance of generations of no crack after cold deformation.	
Provides precise and uniform parallel rib pattern using Pre-Finishing Blocks engraved through computer controled notch making machines.	Excelent bond strength with concrete	Because of tungsten Carbide ring, precise & uniform rib pattern is engraved which givws excelent bonding strength with concrete.	 QUNIFORM RIB PATTERN
Meets UTS/YS (ultimate Tensile Strength to yield Strength) ratio and high percentage elongation.	UTS/YS ratio better in Jindal Panther Rebars.	Superior earthquake resistant qualities due to high capability of absorbing energy.	 EARTHQUAKE RESISTANT
It is established and renowned brand.	World class quality.	1. Its world's single largest rolling mill. 2.Campaign size are small to ensure availability of full basket of sizes in the market. 3.Legths from 9 to 18 meters can be produced to meet the demands of cut & bend industry / customers.	TRUSTWORTHY

Jetty Facility



Jindal Shadeed has a 600 mtrs long captive jetty with ship loaders/un-loaders to handle import and export activity. It can accommodate large capesize vessels upto 180000 mt dwt with its draft of 19 mtrs.

The Company has been allocated two berths at the Port of Sohar, Sultanate of Oman for its dedicated use. The Port of Sohar is managed and operated by SIPC. The SIPC Rules are updated by SIPC from time to time and the current versions are available at their Internet website,www.portofsohar.com

Terminal is equipped with 2 Nos. State of Art ZPMC Grab type Ship Unloader and loader. ZPMC Ship Unloaders are attached to Belt-conveyors which in turn feed the cargo to Stacker attached to it, for stacking the cargo at designated yards.

MAX. DRAFT: 19 M
CHANNEL DRAFT:18.5 M;
LOA – No restriction;
Beam:42 M Max
LOA of Berth No. 10 & 11:301.41 m each

Integrated Quality, Safety, Health and Environment (QSHE) Policy



Jindal Shadeed is committed towards attaining total satisfaction of customers and interested parties, and achieving business excellence through :

- Producing and supplying quality products conforming to customer requirements
- Promoting an environmentally responsible, safe and healthy work culture by actively working towards prevention of environmental pollution, occupational health and safety hazard
- Complying with applicable legal and other requirements pertaining to products, environmental protection, occupational health and safety
- Focusing on continual improvement of processes and performance
- Ensuring involvement of employees at all levels by providing training & awareness
- Minimising the wastes through efficient use of resources
- Evaluating effectiveness of Integrated Management System through regular audits and management reviews

Total Productivity Maintenance (T.P.M.) Policy

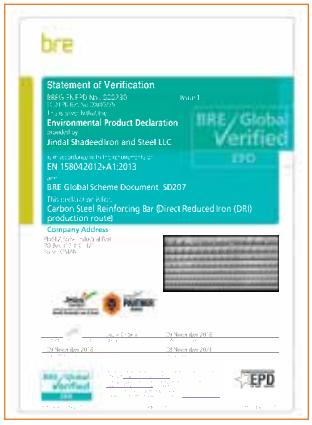
We at Jindal Shadeed work for implementation of Total Productive Maintenance (TPM) at all spheres of our activities by

- Aiming at zero defects, zero breakdowns, zero losses and zero accidents.
- Improving Overall Equipment Efficiency (OEE) for safe and efficient operation of the plant.
- Creating a clean and pleasant work environment, leading to higher employee morale and greater organisational profitability.

Corporate Social Responsibility (C.S.R.) Policy

Jindal Shadeed believes that an Effective Growth Policy must also take into account the fulfillment of the basic needs of the masses, especially of those living in rural areas. Thus, Jindal Shadeed endeavors to improve the quality of life of communities living in the area it operates in. To achieve this, Jindal Shadeed deploys its resources to the extent it can reasonably afford, to improve the infrastructure, education, health, water, sanitation, environment, etc. in and around its plants.

Certificates



Important Milestones:

Year	Achievement
2005	EPC work of DRI project started by M/s Kobe Steel. Japan.
2010	Acquisition by Jindal Steel & Power Ltd. and commissioning of DRI Plant.
2011	Commercial production and Sale of HDRI/HBI.
2011	Dedication of DRI Plant to Nation
2014	Commissioning of 2.0 MTPA Steel Melt Shop
2016	Commissioning of 1.4 MTPA Rolling Mill.
2016	Dedication of Integrated Steel Complex to Nation.
2018	Commissioning of 2nd Caster in Steel Melt Shop, capacity enhanced to 2.4 MTPA

Route map to our factory in Sohar, Oman:

Contact us:

JINDAL SHADEED

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JINDAL PANTHER™ REBARS

PRIDE OF GCC

Inspired by the strength and
agility of the powerful black felines

Omani · SGS · UKAS · CARES · PRODUCT CONFORMITY · SASO QUALITY MARK · MFPA · Petroleum Development Oman · CEDD CMI Engineering and Development Department

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Awards & Recognitions

• Sultan QABOOS Award for industrial excellence & Innovation – 2015-2016 & 2017-2018 (Back to back) formerly Known as the HM Cup

• Mohammed Bin Rashid Al Maktoum (MRM) – Winner of the 10th cycle of the Mohammed Bin Rashid Al Maktoum (MRM) Business Award in first attempt.

• Frost & Sullivan Award – 2017: GCC Ferrous company of the Year & 2016: GCC Steel Manufacturing Product Line Strategy Leadership Award.
• Dossier Construction Infrastructure Awards – 2017: Excellence in Manufacturing – Steel & 2016: Excellence in Manufacturing – Rebars
• Jindal Shadeed has been awarded, along with 2 more plants out of 72 Midrex Units worldwide. in the Midrex Seminar held in Barcelona (Spain) on 18 October 2015, for achieving: 5 million tons of production within 4 years of operation (2011-2014) - Exceptional annual operational availability for the year 2014 - 98.51%.

Customer Focused Mill

- Customer Satisfaction – ability to deliver all sizes as per customer demand
- Speedy Delivery – Highest One day production of 5182 MT, which is a world record. Highest Monthly production 126218 MT.
- On demand section change – Average Section change time has been brought down to 30 minutes therefore the mill can do up to 4 section changes in a day to meet customer demand for various sizes.
- Customized Length – From 8 – 18 meter as per customer requirement.

Jindal Shadeed Iron & Steel LLC, Oman

Jindal Shadeed Iron & Steel LLC was acquired by JSPL in July 2010, soon after the takeover of Shadeed, the Gas based Hot Briquetted Iron (HBI) plant was commissioned in December 2010. JSIS is the largest and only integrated steel plant in Oman. The plant is in a prime location in a plot of 120 hectares, just 60 meters from sea shore and very near to Muscat - Dubai Highway.

Facilities:

Direct Reduced Iron (DRI) Plant:

The company's present facilities include one direct reduction iron making furnace with a capacity of 1.8 MTPA with four briquetting machines for the production of hot briquetted iron (HBI). The furnace is first of its kind having a Direct Hot Charging facility. This facility enables to charge HDRI at a temperature of around 600˚C directly in to Electric Arc Furnace (EAF). This will save enormous amount of heat energy.

Steel Melt Shop (SMS):

The SMS is having capacity of 2.4 MTPA. Which is having facilities primarily consists of:

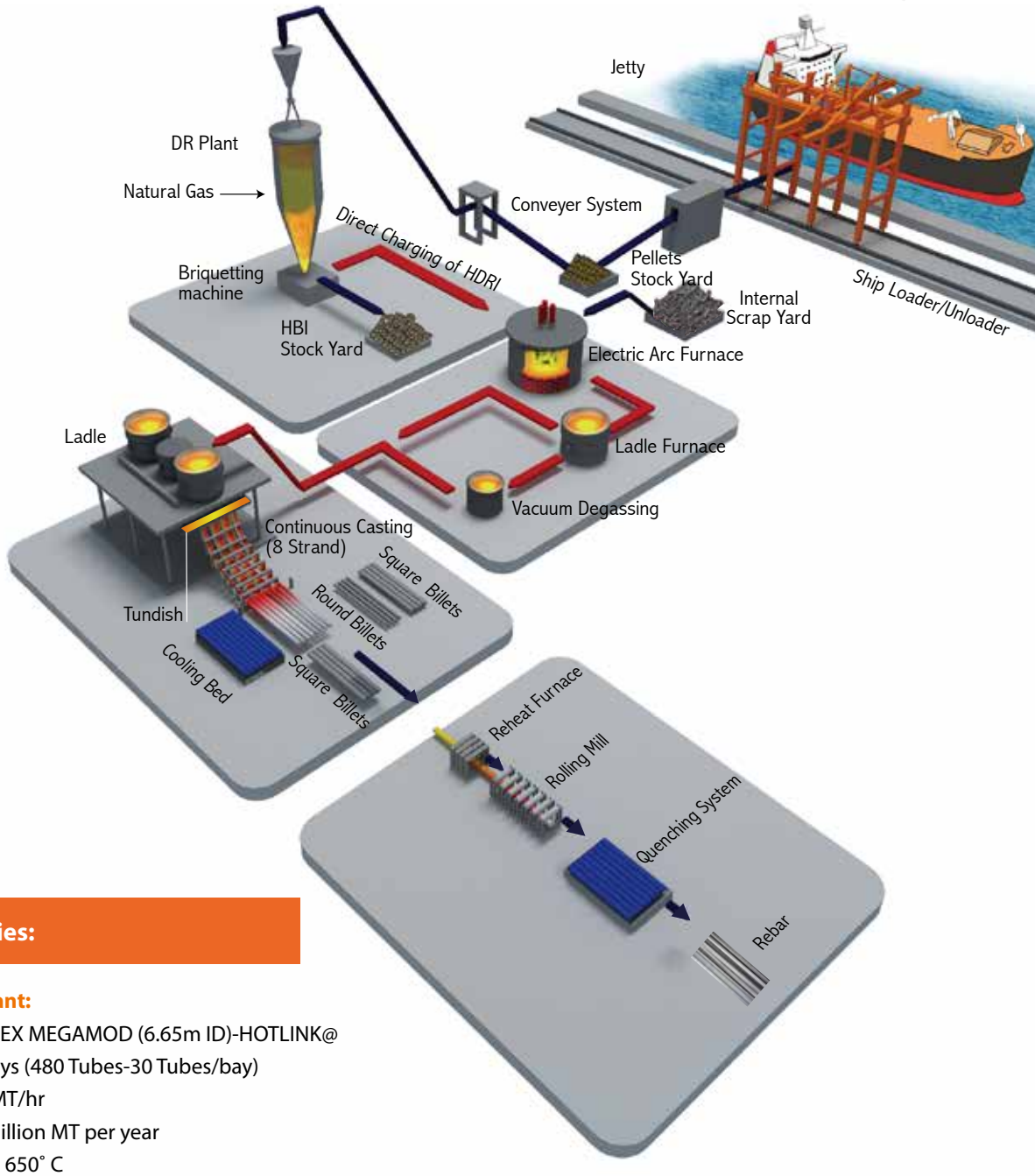
a. Primary Steel Making Unit: 200 Ton Electric Arc Furnace to produce Liquid Steel. It uses Direct Hot charging facility of HDRI. This facility contributes to huge energy saving.

b. Secondary Metallurgical Processes:

- 200 Ton Ladle Furnace: The ladle furnace is normally used to heat up, refine, hold and to finish all kinds of molten metals. Heating is done by graphite electrodes.
- 200 Ton Vacuum Degassing Furnace: Removing undesirable gasses (H, N, O) other impurities for Special and quality steels used in specific applications like forging etc.

c. Continuous Casting Machine 8 Strand: 2 Nos: To cast Square/Round Billets and Blooms. 2nd Caster is specifically dedicated for own Rolling Mill.

Jindal Shadeed Iron & Steel LLC, Oman
Process Flow Diagram



Technological Capabilities:

Design specifications of DR Plant:

Furnace Type	:	MIDREX MEGAMOD (6.65m ID)-HOTLINK@
Reformer	:	16 Bays (480 Tubes-30 Tubes/bay)
Production Rate	:	220 MT/hr
Capacity	:	1.8 million MT per year
Discharge Temp	:	600 – 650˚ C
Briquetting machine	:	55 TPH (Koppern make)

Direct HDRI to SMS through Gravity Feed

Steel Melt Shop (SMS)

EAF make and capacity	:	200 MT EAF supplied by Danieli
Vacuum Degassing Unit	:	200 MT supplied by Danieli (8 Skid Mechanical Vacuum Pump, Only one in GCC)
LF make and capacity	:	200 MT LF supplied by Danieli
Caster – 1 make and size	:	8 Strand Combi caster supplied by Danieli
Caster – 2 make and size	:	8 Strand Billet caster supplied by Concast India

Rolling Mill

Make	:	Danieli
Capacity	:	1.4 million MT

MOST MODERN AND LARGEST ROLLING MILL GLOBALLY

Rebar Mill

Jindal Shadeed operates a 1.4 MT PA Rebar Rolling Mill with 'state-of-the-art technology' and equipment set up in collaboration with Danieli, Italy. This mill is capable of producing rebars as per all International Standards in sizes 8mm to 40mm.

Rolling mill uses the superior and clean Steel Billets produced in house.
Rolling mill includes:

- Direct Hot Charging
- Reheating furnace
- High pressure descaler
- V-H combination rolling mill (no twist mill)
- Heat treatment equipment with BGV for premium finish (With Tungsten Carbide Rings) Quenched and Tempered Bar (QTB) technology
- Automatic bundling

The production of Jindal Panther Rebars involves a combination of plastic deformation of steel in its austenitic stage followed by quenching and further tempering.

Technically equipped pulpits or control rooms allow stringent process controls at each critical operation, ensuring uniform properties & dimensions in each rebar.

Jindal Panther Rebars are manufactured using Quenched and Tempered Bar (QTB) and Self Tempering Technology, which result in high strength and ductility due to fine grain multiphase composite structures.

Rebars have a soft ferrite and pearlite fine grained core and a strong and tough tempered martensitic layer making it ideal for high rises, dams, bridges, individual houses and critical structures where high yield strength is required, without compromising on the elongation properties.

They also meet the Ultimate Tensile Strength to Yield Strength (UTS/YS) ration and high percentage elongation, producing a superior earthquake resistant quality due to high energy absorption capability.

- Twin 8 Stand Fast Finishing Block with 45m/s max speed
- Tungsten Carbide Rings ensure better surface finish and high quality dimensional control

The state of the art processes used to manufacture Jindal Panther Rebars coupled with most modern Steel Making and Refining Processes; result in a clean and homogeneous steel quality.

Jindal Shadeed is committed to provide complete customer satisfaction with respect to quality, delivery and services.

Steel Rolling

World's most advanced Danieli, Italy Rolling Mill deploying QTB technology, to produce rebars of consistently high quality finished with automatic cutting and packing.

1

DIGITAL FURNACE REHEATING

Walking Beam Type Digital Furnace, which not only ensures uniform heating but also ensures less fuel consumption.

SECONDARY DESCALER

2

To ensure scale free rolling using high pressure jets at 230 bar.

3

FAST FINISHING BLOCK BGV

Premium Finishing Block used to produce the rebar.

- Tungsten Carbide Rings Ensures Better Surface Finish, And High Quality dimensional control due to less wear in carbide rings. This increases the mill availability.
- Zero rejection due to dimension.
- Excellent bond strength due to uniform rib geometry pattern
- Sizes Rolled 8 mm To 20 mm in Block.

NO TWIST MILL

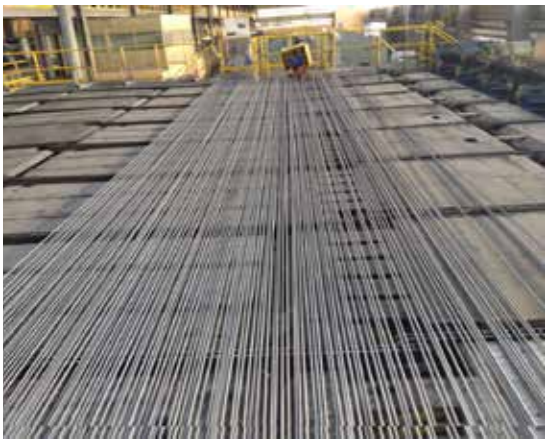
- Continuous Rolling through alternate V-H Mill, which ensures a greater speed.
- Mill Train arrangement for proper rolling of finished sections.
- Bed assembly comprises of V-H bed assembly.

4

5

QTB TECHNOLOGY

Quenched and Tempered Rebars involve a combination of plastic deformation of steel in austenitic stage followed by quenching and further self-tempering in 90m long cooling bed.



6

Automatic Bar Counter Machine

Online controlling of number of bars in each & every bundle as per the specification.

7

Automatic Tying & Bundling

Online controlling of length of final bar bundles as desired by the customers.

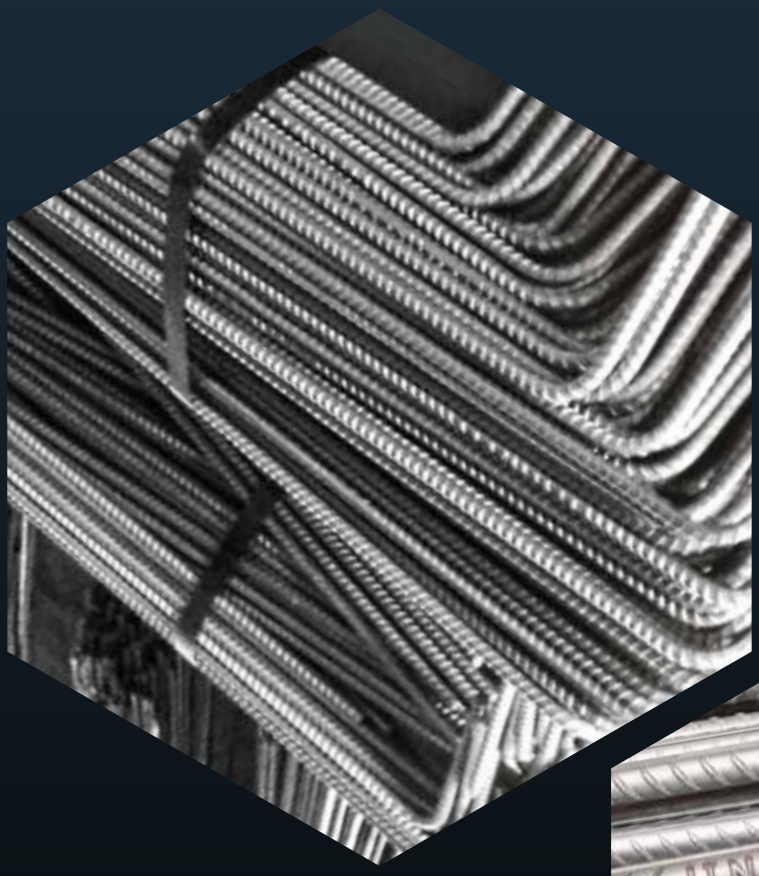
Product

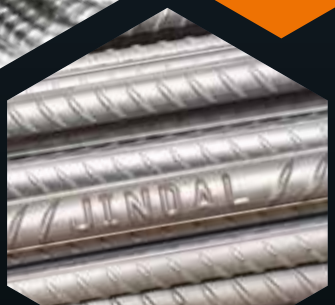
Reinforcement Steel Bar (Rebar)

Reinforcement steel bar, or rebar, is embedded in concrete to improve the overall strength of the concrete that surrounds it. The usage of Reinforced Cement Concrete (RCC) has become the default standards for construction of residential and commercial structures, flyovers, bridges, water retaining structures, industrial and power plants, etc. Material products standards exist to ensure that rebar produced throughout the world exhibits the same physical, chemical, and mechanical properties regardless of the source. Jindal Shadeed rebar mill is equipped with state of the art technology supplied by Danieli and can produce rebar as per the following international standards in various diameters and international standards/grades:

Corrosion Resistant Steel Rebars, Cut and Bend Rebars

Size Range: 8mm to 40mm, Length up to 18m





JINDAL PANTHER™ REBARS

Product

Reinforcement Steel Bar (Rebar)

MARKING AND LABELLING

The surface of the rebars can be marked with identification mark to state the name of the Manufacturer, Brand name, Trade name, etc. as per Customer's requirements/ International Specifications.

The rebar bundles are tied with label containing the following data:

Name / trade mark of the manufacturer

Name of the customer

Contract no.

Specification

Diameter

Heat number/Batch number

Bundle weight and no. of pieces

Made in Oman

Additional data can be printed on the tags as per the Customer's requirements

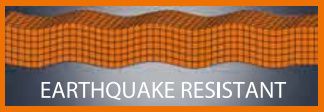
JINDAL PANTHER™ REBARS

International Specifications:

Sl. No	International Standard/Grade	Application
1	BS:4449-2005 B500B (DCL & CARES)	Concrete reinforcement
2	ASTM A615 Grade 40/60	Deformed and Plain Carbon -Steel Bars for Concrete reinforcement
3	SASO ASTM A615/2018 Grade 60	Deformed and Plain Carbon -Steel Bars for Concrete reinforcement
4	ASTM A706 Grade 60/Grade 80	Low-Alloy Steel earth-quake resistance rebar for concrete reinforcement
5	ISO 6935-2-2015 B500BWR	Reinforcement concrete
6	KWS GSO ISO 6935-2/2012 B500BWR	Reinforcement concrete
7	IS 1786:2008 Fe 500D	Concrete reinforcement
8	DIN 488: B500B	Reinforcing Steel
9	CS2: 2012 Grade 500B	Reinforcement concrete

Note: Other specifications as per any international standard or meeting any other special requirement can be supplied as per customer's requirement.

How Jindal Panther Rebars are different

Jindal Panther™	You get	Benefits	
Uses DRI/HBI which is pure form of Ferrous raw material and deploys state-of-the-art steel making & refining process.	Highly clean, homogenous & consistent Steel Quality with no Tramp elements.	Rebars produced using Scrap quality differs from heat to heat due to impurities available in Scrap. Jindal Panther Rebars get uniform properies across the heats as instead of scrap, superior quality of DRI/HBI is used.	 HBI
Steel is made using DRI/HBI - EAF - LRF Concast route.	A highly controlled steel chemistry with very low levels of Sulphur & Phosphorus.	Low level of Sulphur and phosphoros impurities provide extra ductility and better ability to withstand tremendous shock loads produced specially during earthquacke. These impurities decrease the streangth of steel in extreme hot and cold conditions.	 DRI/HBI →EAF→LRF→ →CONCAST
Rebars are manufactured using QTB (quenching & Tempered Bar) and self-tempering technology supplied by Danieli, Italy.	High strength & ductility due to fine grain multiphased composite structure.	Outer surface is hard which give support & inner core is soft which gives better bendability. Due to this during unforseen shocks building will not collapse.	 UNIFORM MICROSTRUCTURE
Sound surface after bend and rebend test.	No rupture or no crack after bending and rebending of Rebar at 90° bend and 20° rebend.	High level of toughness and assurance of generations of no crack after cold deformation.	
Provides precise and uniform parallel rib pattern using Pre-Finishing Blocks engraved through computer controled notch making machines.	Excellent bond strength with concrete	Because of tungsten Carbide ring very much precise & uniform rib pattern is engraved which gives excellent bonding strength with concrete.	 QUNIFORM RIB PATTERN
Meets UTS/YS (ultimate Tensile Strength to yield Strength) ratio and high percentage elongation.	UTS/YS ratio better in Jindal Panther Rebars.	Superior earthquake resistant qualities due to high capability of absorbing energy.	 EARTHQUAKE RESISTANT
It is established and renowned brand.	World class quality.	1. Its world's single largest rolling mill. 2.Campaign size are small to ensure availability of full basket of sizes in the market. 3.Lengths from 9 to 18 meters can be produced to meet the demands of cut & bend industry / customers.	TRUSTWORTHY

Certificates

Important Milestones:

Year	Achievement
2005	EPC work of Shadeed project started by Kobe Steel of Japan
2010	Acquisition of Shadeed by JSPL, India from its original owner based in UAE and commissioning of DR Plant
2011	Commercial Production and sale of Hot Briquetted Iron (HBI)
2014	Commissioning of SMS
2016	Commissioning of rolling mill
2018	Commissioning of 2nd Caster

Route map to our factory in Sohar, Oman