قطر ستيل

QATAR STEEL

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QATAR STEEL Company was formed in 1974 as the first integrated steel plant in the Arabian Gulf. Commercial production commenced in 1978 with the company becoming wholly owned by Industries Qatar (IQ) in 2003. Company celebrated its 35th anniversary on March 21, 2013 and was inducted into Palladium's Balanced scorecard Hall of Fame for strategy execution on Oct 16, 2012.

Today, Qatar Steel is widely recognized as a foremost leader in the steel industry, extending its pioneering commitment from an expansive mill site located in the heart of the progressive Mesaieed Industrial City - 45 kilometers south of the nation's capital, Doha. The Company also operates a UAE based subsidiary - Qatar Steel Company FZE.

Inspired to meet the growing demand for steel in Qatar as well as the region in general, Qatar Steel has embarked upon a series of initiatives aimed at increasing its production capacity. State-of-art technically advanced expansion projects are designed to produce world class products. Over the years, Qatar Steel has successfully forged a remarkable reputation by establishing unrivalled quality, flexibility and reliability in all the products and service offerings. Central to this achievement has been the drive to exceed customers' expectations.

Plant facilities have come to include a Midrex process based DRI/HBI Combo Mega Module, Electric Arc Furnaces with a Ladle Refining Furnace, a Continuous Casting plant and Rolling Mills with the latest automated features. Other auxiliaries include well-equipped Jetty facilities, a Main Power Substation, Quality Control Center, Maintenance Shops and facilities for sea/fresh water, compressed air, natural gas and a Clinic.

The plant with its office occupies an area of 1,354,601 square meters, adjacent to which is a further 375,000 square meters plot reserved for future development and expansion. The total employee-base of over 1,900 spans 12 different nationalities and the mill runs on a 3-shift system.

FACILITIES IN FZE

Qatar Steel Company FZE was established to meet the growing demand for high-quality steel wire-rod products within the GCC as well as in international markets.

The company operates two primary facilities at its 60,000 Sq. meter Jebel Ali Free Zone site: State-of-art Wire Rod Mill has an installed capacity of 240,000 metric tons [MT] per annum and the advanced Rebar Mill from VAI–POMINI is installed with a capacity of 300,000 MT per annum.

QATAR STEEL PRODUCTS

Qatar Steel's main business is the production and supply of reinforcement bar (D8 to D40), Hot Briquetted Iron (HBI)/DRI and Steel billets, manufactured through modern and state of the art production technology and process.

By products: Qatar Steel's main by-products are Slag generated from molten steel process in Arc furnaces, Oxide fines generated from DRI plant and Mill scale generated from Caster & Rolling mills. Slag is generally dumped in yard whereas oxide fines & Mill scales are being sold to various customers for further use.

DIRECTOR AND GENERAL MANAGER'S MESSAGE

Qatar Steel was established in 1974 as the first integrated steel plant in the Arabian Gulf. Strategically located in Mesaieed Industrial City, South East of Qatar, the plant was the first of its kind in the region.

Since then, Qatar Steel has grown into one of the reputed steel companies in the region, increasing production substantially and modernizing the plant facilities. The company operates a UAE based subsidiary Qatar Steel Company FZE.

Over the years, we have successfully forged a leadership brand image by establishing unrivalled quality, flexibility and reliability in all our product and service offerings. Through our promise of making steel matter, we are constantly striving for continuous improvements in all areas of operations keeping customers as the core theme of our business. Our close collaboration with our valued customers has enabled us to proactively respond to changing market needs and to stay ahead of competition.

We, at Qatar Steel, are strongly committed to the highest safety standards and our all-time low lost time accident record is its manifestation. We constantly address social and environmental issue as our technologies and investments are more oriented towards reducing CO_2 emissions, low production wastes and in meeting all stringent environmental standards.

Inspired by our vision and strategic goals, we are aggressively pursuing our growth plans to move from the current annual production level of 2.7 million tons to over 5 million tons in 5 year's time through revamping of existing facilities, new expansions, joint ventures and acquisitions.

We have established strategic investments in Qatar Metals Coating Company W.L.L (Q-Coat) in Qatar, Al-Solb Steel in Saudi Arabia, Gulf United Steel Holding Company (FOULATH) in Bahrain covering GIIC, USCO & SULB (SULB acquired medium section mill in Jubail formerly known as United Gulf Steel). We are also going ahead with JV Steel project in Algeria and also working diligently to seize possible joint venture opportunities in the mining and pelletization sectors to ensure long term strategic sourcing of key raw material for current and future production requirements.

Qatar Steel has maintained a strategic partnership with its loyal traders in the region, and with the support of its distributor's network, it has been and will be well-prepared to face any challenges ahead, and to cope with any fluctuations in demand, or raw material price volatility.

We are committed to continue with our endeavors to consolidate our competitive position in the region and reinforce the vital role that we are playing in supporting our national economy and Qatar National Vision 2030.

Ali Bin Hassan Al-Muraikhi
Director and General Manager

VISION, MISSION AND VALUES

At Qatar Steel we are highly inspired by Vision, Mission, Values and Purpose which set the stage to show our committed efforts towards corporate activities and achieve the unattainable.

Vision

We endeavor to be universally recognized as a leading and constantly growing force in the steel industry of the region, to be admired for our business culture, for building value for our shareholders and customers, and for bringing inspiration to our people.

Mission

We will continue to be the first name in the region's steel industry by harnessing our assets and resources to achieve profitable growth, operational and organizational excellence, and good corporate citizenship.

Values

The drivers of our ambition:

- **Trustworthy**
- **Reliable**
- **Creative**
- **Dynamic**
- **Perceptive**

Purpose

To reach a league where we will matter beyond normal commercial objectives. To become the standard for quality enterprise and to exude a winning attitude in order to make a difference in our environment.

QATAR STEEL HAS GAINED A REPUTATION AS A MANUFACTURER OF SUPERIOR QUALITY PRODUCTS, DESIGNED TO MEET INTERNATIONAL STANDARDS. THE PRODUCTS ARE USED IN MAJOR PUBLIC AND PRIVATE PROJECTS IN THE REGION, MAINTAINING ITS ACTIVE PRESENCE IN THE GCC IN ADDITION TO BEING THE MAJOR PLAYER IN THE DOMESTIC MARKET. OUR PRODUCTS ARE DISTRIBUTED THROUGH A STRONG NETWORK OF TRADERS IN THE REGION, WHO IN TURN SUPPLY THEM TO PROJECT OWNERS/END USERS IN THEIR RESPECTIVE MARKETS.

SETTING STANDARDS FOR CUSTOMER SATISFACTION

Quality, Sustainability and Health-Safety-and-Environment have been the essence of Qatar Steel's efforts to stay ahead of competition. Passion for brand and constant endeavor to differentiate it from competition has been our first priority at Qatar Steel.

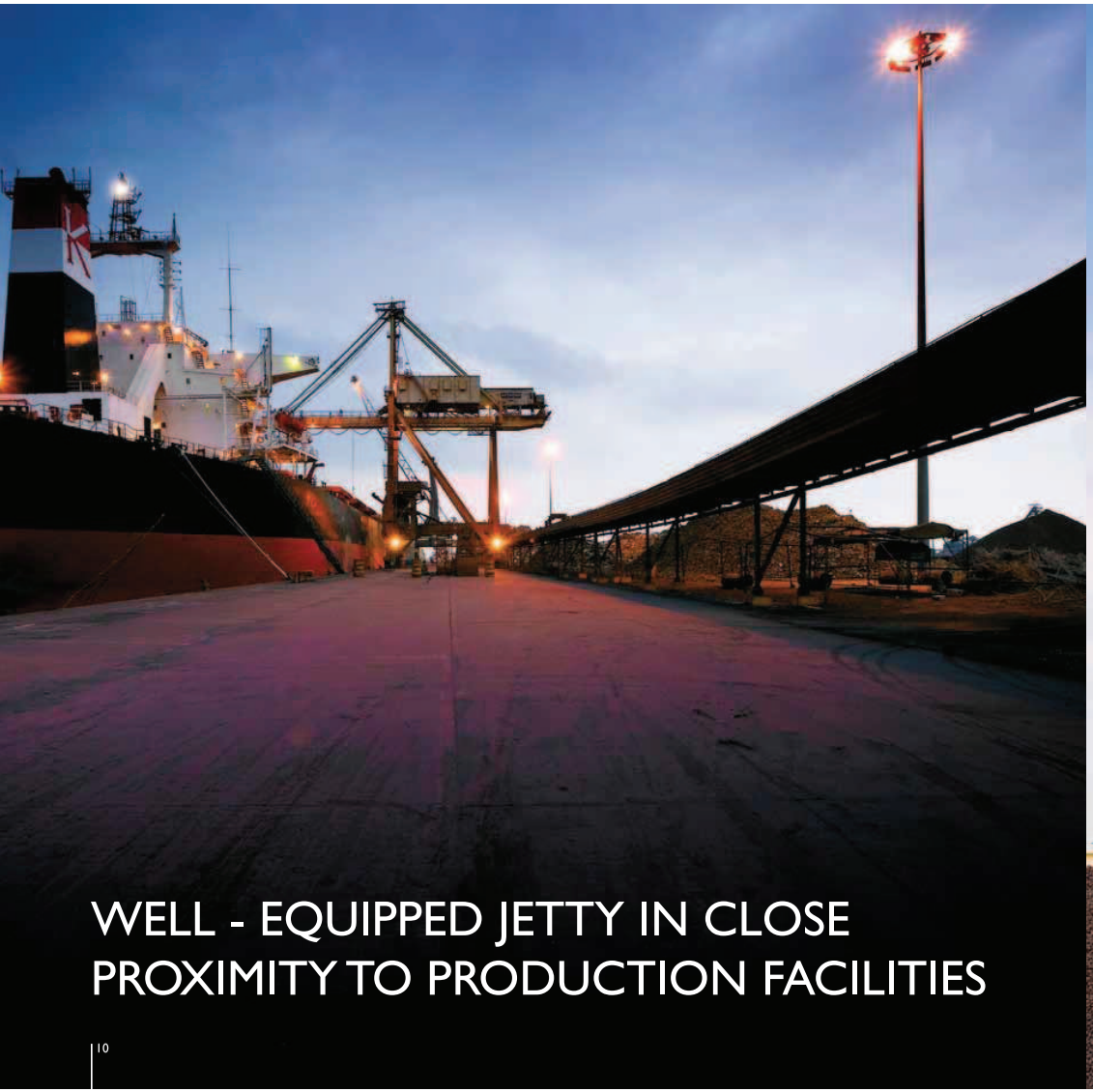
Brand building, Customer centric and data driven method of communicating with the customers to maximize the impact on consumers and other end users have been our first priority in our endeavour to differentiate it from competition and stay ahead.

The company ensures high sales performance year after year, drawing strength from touch-base relationship with its customers, diligent market research and efficient marketing communications strategies. While a robust technological network facilitates efficient handling of order management, the companies' sales and shipping operation complement each other by meeting all customer expectations ensuring efficient, reliable and prompt delivery of material to customers.

Market Research provides the needed marketing intelligence that facilitates decision making in determining market development and penetration strategy to ensure the competitiveness of the company at all times. Our constant endeavor to differentiate our brand and inculcate core values has culminated in delivering a unique customer portal – an electronic gateway that facilitates two way communications between the company and its' customers to conduct everyday business. It facilitates customer to place request for desired products online and also track the order status until it is shipped including any agreed changes in the quantity and delivery schedules.

Customer Relationship Management (CRM) in Qatar Steel works on a holistic approach. It delivers solutions and facilitates in establishing an individualized relationships with customers with an aim of improving customer satisfaction in the products and value added services that we provide.

Established in 2006 as a part of Marketing Department, Marketing Communications specializes in delivering cost-effective actionable solutions for the business to facilitate and improve on customers' competitiveness and visibility through various brand building strategies. Managing the corporate brand is our top priority.



WELL - EQUIPPED JETTY IN CLOSE PROXIMITY TO PRODUCTION FACILITIES

Direct Reduction is an iron making process for the new era. It utilizes natural gas to reduce iron ore to produce Direct Reduced Iron (DRI). It is a process whereby iron ore pellets are converted at high temperature to a highly pure form of iron. Qatar Steel has adopted the gas based Direct Reduction Process technology in its integrated complex for iron-making. Its MIDREX process DR Module (DR-1) built and commissioned in August 1978 was the first of its kind in the region with a capacity of 400,000 tons. Qatar Steel has commissioned its 2nd module (DR-2) in April 2007 with a capacity of 1.5MMTY, thus making the total capacity of Direct Reduction plant to 2.4MMTY.

In its thirty five (35) years of operations, production from DR-1 has shown continuous inprovement and from 2004 onwards it exceeded 800,000 tons annually. This was accomplished by leveraging the inherent capabilities of the equipment, marginal investments in balancing bottlenecks, upgrading the equipment to meet greater efficiencies, along with various other procedural and operational improvements.

Green field DRI/HBI Combo Module

A green field DRI/HBI combo dual discharge 1.5MMTY module was built and went in to commercial production in April 2007. In the year 2012, DR-2 module annual production was 1.627million MT, exceeding its design capacity of 1.5 million MT. Quality of CDRI and HBI produced in this module is considered to be one of the best in DR industry. This plant incorporates all the features of an up-to-date MIDREX Plant. In addition, it uses "SIMPAX" – an automated level-2 quality control module.

Qatar Steel's Direct Reduction Plants produce both CDRI and HBI. The first module (commissioned in 1978) produces CDRI alone and the second module (commissioned in 2007) is a COMBO module that produces CDRI and HBI.

Hot Briquette Iron (HBI)

Hot briquette has been practiced on an industrial scale for 3 decades and preferred method of preparing DRI for storing and transport internationally. To make HBI, hot DRI discharged from the MIDREX Shaft furnace at about 700° C is compressed into pillow shaped briquettes with a typical size of 106x32x48.4mm. HBI is 50 per cent denser than DRI pellets & lump and reduces the tendency for re-oxidation. This enables HBI to be stored and handled without special precautions as recognized by the International Maritime Organization (IMO).

Salient Features of Sponge Iron from DR-1/DR-2

Selective premium DR Grade pellets with low elements and gangues are sourced to produce consistently high metallized CDRI & HBI.

DR-1 produces CDRI exclusively for captive consumption. The product quality ranges are:

- A Spec: Metallization 95.5% Carbon >2.4%
- B Spec: Metallization 95.5% Carbon 1.8%

The plant consistently achieved >95 per cent availability with 99.7 per cent operational reliability.

DR-2 simultaneously produces HBI and CDRI or 100% CDRI. The CDRI produced contain;

CDRI Specification	Carbon (%)	Metallization (%)
Spec - A	≥ 2.40	95.50
Spec - B	≥ 1.80 ~ < 2.40	95.50
Spec - C	< 1.80	95.50

HBI produced in DR-2 offers the following specification:

HBI Specification	
Metallization	≥ 93.00%
Carbon	0.50% ~ 1.50%
Apparent Density	4.90 min

Steady state operations are expected to result in extremely consistent quality of DRI & HBI.

DR-1 Module

Designed capacity: 0.4MTPY (Commissioned in year 1978)
Best Achieved Production: 0.877MMTY
From start-up of DR-1 Module, till the end of 2012, DR-1 Module produced 21.3 Million tons of DRI.

DR-2 Module

First of its kind COMBO Plant commissioned in the world.
Designed Capacity: 1.5MTPY (Commissioned in year 2007)
Designed for COMBO Operation (Option: 1 = 100% CDRI, Option: 2 = 50:50% CDRI + HBI)
From start-up of DR-2 Module, till the end of 2012, DR-2 Module produced 7.2 Million tons. 30% of the production has been exported to our customers in Asia and GCC countries.

DIRECT REDUCTION PLANT

ELECTRIC ARC FURNACE

Qatar Steel was the first integrated steel plant in the gulf region that utilized a high percentage Direct Reduced Iron (95%) as a replacement of scrap for the production of construction steel in Electric Arc Furnaces. The original plant started in 1978 with the aim to utilize abundant natural gas resources available in Qatar for reduction of iron ore as the major feedstock for the Electric Arc Furnaces.

Qatar Steel has four (4) Electric Arc furnaces of 80T capacity each. EF1 & EF2 are conventional launder type tapping while EF3 & EF4 are Eccentric bottom tapping (EBT) type.

EF1 and EF2 are 80T EAF's are powered by 50 MVA transformers and two 4-strand, straight mould continuous billet casting machines were designed to produce 380,000t of steel per annum. Production gradually increased to 664,000t over the past 25 years.

EF3 is 80T EAF of EBT-type is powered by 70/84 MVA transformer and the four strands, curved mould billet caster was commissioned in 1999 with an annual capacity of 550,000t of billets increasing total production to 1.14 million tons in 2004. To reduce operating costs and increase production, a gunning robot was commissioned in 2004 and a Ladle Furnace was also commissioned in October 2006. In addition Carbon and Oxygen injection jets were introduced in the year 2007. All these additions increased the EF3 production to 756,000 in 2012.

Embarking on another expansion program in 2005, Qatar Steel incorporated the fourth 80T EBT-type EAF4 (78/90 MVA) along with a Ladle Furnace, Gunning Robot and a modern 4-strand, curved mould, high speed billet caster equipped for casting special steel grades. This production line was commissioned in 2007 with an annual capacity of 660,000 tons and EAF is equipped with modern oxygen technology to increase production rate. The EF4 production reached 785,000 in 2012.

The new Greenfield SMS facilities (EF-5) comprising of a high powered 110t EAF / LF / 6-strand billet caster with a capacity of 1.1MTPA is expected to be operational in Q3-2013.

Few salient features are:

- Introduction of Oxygen Technology to make use of chemical energy for reduction of tap to tap time thereby increasing the productivity and reduction of electric energy
- Introduction of remotely controlled Gunning Robot for faster and more efficient refractory repair to increase productivity and furnace availability
- Introduction of Ladle Furnace as a buffer between the EAF and Continuous Caster to achieve shorter tap to tap time, longer sequence casting, much improved steel quality, less rejection and higher casting yield
- Upgradation of automation systems including level 2 PLC controls for better and more consistent process control

THE BILLETS ARE CUT AUTOMATICALLY BY GAS CUTTING EQUIPMENT

CONTINUOUS CASTING PLANT

Continuous Casting is the process whereby molten steel is solidified into a "semi-finished" billet, bloom, or slab for subsequent rolling in the finishing mills. Since its inception, a high degree of automation has enhanced operational excellence, increase in throughput by over 50% and reduction in cost.

The Continuous Casting Plant is equipped with four Casting Machines of four strands each with a total capacity of 2.2 million tons per year.

The Casting machines details are:

No.1 and No.2 machines are straight mould type.

The size of billet is:
150 x 150 mm square at a speed of 1.8 to 2.2 meters/minute.

Billets are cut to 3~4 meter length by hydraulic shear and transferred to Rolling Mill to produce plain and deformed bars.

No.3 machine commissioned in January 2000 is also of 4 strands but of curved mould type.

The sizes of billets are:
- 150 x 150 mm square at a speed of 2.0 to 2.4 meter/minute.
- 130 x 130 mm square at a speed of 2.6 to 2.8 meter/minute.

No.4 machine (CC4) was commissioned in June 2007 is also of 4 strands with curved mould.

The sizes of billets are:
- 150 x 150 mm square at a speed of 2.6 meter/minute.
- 130 x 130 mm square at a speed of 3.5 meter/minute.

Billets from No.3 machine and CC4 are cut to 3.5 ~ 12m by gas cutting equipment. A charge number is punched on each billet by a marking machine and forwarded for further processing to rolling mill/billet customers.

CONTINUOUS CASTING PLANT

PRODUCTION CAPACITY

2.2 million tons per year

TYPE

Two Low Head Straight Mould (CC 1 + 2)

Two 8 meter Radius Curved Mould machines

STRANDS

Four Machines of 4 strands each.

Billet Sizes

130 x 130 mm 3.5~12 meters.

150 x 150 mm 3~12 meters.

SALIENT FEATURES OF PLANT

- On line Tundish Nozzle change system has been implemented on the two new casters in order to increase the sequence length of Continuous Casting Operation and CC yield.
- Ladle Slide gate system of Vesuvius LV11 was introduced to ensure higher safety in operation and to reduce the running costs.
- Ladle shroud Manipulator was introduced at the new CC4 caster.
- By routing the heats through Ladle Furnace, the super heat is reduced in casting.

THE ROLLING MILL EPITOMISES QUALITY AND PRODUCTIVITY

Advanced technology to meet the market requirements, faster processing speed and higher surface quality are some of the prominent features of Qatar Steel rolling mill.

In line with its commitment to quality, productivity and safe environment, Qatar Steel rolling mill is designed to ensure efficiency and operational safety.

The total annual requirements of billets are received from the continuous casting shops in batches delivered on monthly basis and preheated in a reheating furnace and rolled in different sizes according to marketing product size mix plan.

Qatar Steel has two rolling mill plants namely Rolling Mill-1 & Rolling Mill-2 and the combined capacity of Qatar Steel rolling facility is 1,500,000 tons/year.

Rolling Mill-1

RM-1 was successfully commissioned in 1978 to be the first modern mill constructed in the gulf area with a design capacity of 330,000 MT/year, with a size range from D10 to D40, deformed and plain bars. However after various modifications the capacity has been doubled. A High Speed Finishing Block mill with complete finishing plant facilities was commissioned in 1996 enabling to increase the annual capacity to 700,000 MT/Year. Recently two quenching boxes added to the mill for original and High Speed Finishing Block Mills to achieve different steel standards (ASTM A615 GR60, BS4449 Grade 460B/ B500B, ISO 6935 as per QCS 2010 and Saudi standard) to fulfill customer's requirements.

The Mill comprises of a pusher type reheating furnace and a rolling mill. The rolling mill consists of two production lines: the old mill and high speed finishing block mill (HSFBM). The original Mill has twenty convention stands arranged in horizontal sequence. In HSFBM, the line starts after stand#14 by Conversion Bridge and split into twin high speed finishing blocks which consists of 6 stands each twist free.

Rolling Mill-2

In 2006, Qatar Steel successfully commissioned its ultra-modern rolling mill. The annual capacity is 800,000 MT/year and its product ranges from D10 to D40 deformed bars.

The mill consists of 130 Tons/hour walking hearth Reheating Furnace, 18 conventional stands continuous rolling mill in horizontal vertical configuration. The mill adopts latest technologies, like MTC (minimum tension control), length optimization, slit rolling (Triple Bars & double bars). The mill also employs quenching process by Termex Facility to achieve different steel standards (ASTM A615 GR60, BS4449 Grade 460B/ B500B, ISO 6935 as per QCS 2010 and Saudi standard) to fulfill customer's requirements.

Rolling Mill at FZE

It its facilities in FZE, a bar mill with the latest automation features has been installed with a capacity to produce 300,000 metric tons annually of deformed bars ranging from 8-40 mm in 12 meter straight lengths.

ROLLING MILLS

The wire rod mill at Qatar Steel Company FZE (UAE) employs world class technology supported by renowned MORGAN, DANIELI, SIEMENS & MESTA with outstanding technical features including 40 T/hr reheating furnace with automatic temperature control.

Qatar Steel Company FZE was acquired in August 2003 to meet the growing demand for high-quality steel wire-rod products in the region. The company operates two primary facilities at its 60,000 sq. meter Jebel Ali Free Zone site: an upgraded Wire Rod Mill with an installed capacity of 240,000 metric tons [MT] per annum and a Rebar Mill with an annual capacity of 300,000 MT capacities.

Morgan Construction has provided and installed new drives and an automation system for wire rod mill in FZE (UAE), which has seen increase in production rates by 25 percent along with product quality enhancement. The new system was installed to increase production speed to 55 m/sec for the mill's low carbon and low alloy steel grade 5.5 mm wire rods, which has increased production from 180,000 tons per annum (TPA) to about 240,000 TPA.

Wire Rod Mill (WRM) with latest automation features, is capable of rolling low carbon, low alloy steel, high carbon, and cold head quality wire rods of sizes 5.5 to 12 mm along with re-bars in coils of sizes 8 to 12 mm.

Qatar Steel Company FZE, has been successful in obtaining Certificate of Approval from UK CARES (UK CERTIFICATION AUTHORITY FOR REINFORCING STEELS) for complying with requirements of BS EN ISO 9001 2008 and the relevant CARES quality requirements for Rebar's in coils in diameters 8mm/10mm/12mm in grade BS 4449 Grade 460B/B500B. Dubai Central Laboratory (DCL) of Dubai Municipality has granted QATAR STEEL COMPANY FZE a license to use 'DLC Conformity Mark' on its product and is the first Company in the region eligible to use the DCL quality marking. It has also been accredited by UAE Federal Government's Standardization Authority – ESMA – Emirates Authority for Standardization & Metrology (UAE) to use Emirates Mark of conformity (AL-ALAMA) for confirming BS 4449:1997 & 2005 for the reinforcement of concrete weldable reinforcing steel.

Mill Layout	
Roughing Mill :	9 Stands + Shear
Intermediate Mill :	Repeater + 6 Stands + 3 Loopers
Pre-Finishing Mill :	2 Stands H-V(Morgan) + 2 Loopers + Shear
Finish Mill :	10 Stand - No Twist Mill (NTM) - Morgan - U.S.A
Water Boxes:	With Equalization Zones Morgan Water quenching system for rebar in coil
Special Feature:	Stelmor Conveyor - 6 Independent Zones, Reform Tub with ring distributor - Morgan U.S.A.
Coil Compactors :	Auto & Manual

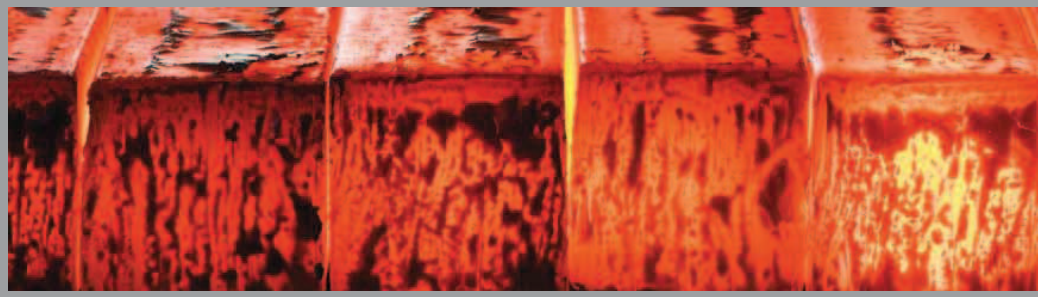
QUALITY ASSURANCE

Qatar Steel's quality assurance system has been established to impact its operations across the board, from order placements to shipment of products.

All products including reinforcing bars and wire-rods are manufactured from select raw materials with definite chemical compositions and ensured quality. Inspections are conducted throughout the manufacturing process to ensure compliance to customers' requirements. Qatar Steel has also established Quality Control Laboratories which are equipped with modern testing and analytical instruments, such as an Optical Emission Spectrometer, XRF, Oxygen and Nitrogen analyzers and computerized testing machines.

We assure uniform quality which satisfies all local and international requirements. Qatar Steel's Quality Management System meets ISO 9001:2008 standards.

SAMPLE TESTING TO ENSURE PROCESS CONTROL



NEW TECHNOLOGY

Qatar Steel produces high strength reinforcing bars by **Quench and Self Tempered (QST) Method.**

A ladle furnace ensures greater homogeneity of steel, resulting in greater uniformity of the mechanical properties and chemical compositions of our reinforcing bars.

THIRD PARTY CERTIFICATION

Consistent with Qatar Steel's resolve of ensuring the quality of its products, reinforcement bars manufactured at facilities in Mesaieed and Dubai have received many prestigious accreditations, including ISO 9001:2008, certification by ABS, SASO, UK CARES and DCL. The company satisfactorily operates a Quality System which complies with the requirements of BS EN ISO 9001: 2008 and relevant CARES Quality and Operations Assessment Schedules. Qatar Steel is certified as a quality manufacturer and supplier of products conforming to **BS 4449:1997 Grade 460B and BS 4449:2005 Grade B500B.**

DCL MARKING

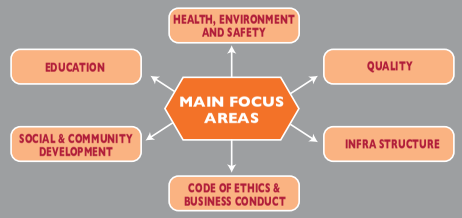
Qatar Steel's Deformed Steel Bars have been accredited by Dubai Central Laboratory Department (DCLD) of Dubai Municipality for conforming to standard specifications of **BS 4449:1997 Grade 460B and BS 4449:2005 Grade B500B** and are authorized to affix the DCL Conformity Mark on the product.

Sustainable Reinforcing Steel Certification

Qatar Steel as an Organization takes responsibility for the impact of its activities on environment and is pioneer in employee welfare measures, social & community initiatives and Environment Sustainability.

Qatar Steel has successfully acquired Sustainability certificate in year 2011, certified by UKCARES.

Qatar Steel is committed to Sustainable development in its overall business strategy.



UNLIKE SCRAP BASED STEEL PLANTS WHICH FACE EMISSION-CONTROL PROBLEMS RESULTING FROM HEAVY METALS AND TOXIC CHEMICALS, QATAR STEEL DILIGENTLY COMPLIES WITH REGULATIONS THAT PROMOTE ENVIRONMENTAL CARE. OUR PRODUCTION IS BASED ON DRI, WHICH EMPLOYS THE CLEANEST RAW MATERIALS. AN EXTERNAL ACCREDITED LABORATORY HAS CONFIRMED OUR ABILITY TO MAINTAIN VERY LOW LEVELS OF HEAVY METAL AND DIOXIN EMISSIONS.

THE ENVIRONMENT

Qatar Steel aspires to be the first name in the region's steel industry. Developments & initiatives undertaken by Qatar Steel to reach an accident free Plant, reduce toxic emissions illustrates company's proactive role towards safe guarding their employees, protecting environment and making the steel making process more eco-friendly.

Unlike scrap based steel plants facing problem of emissions of heavy metal & toxic chemical, environmentally Qatar Steel has an exclusive advantages compared to other plants in the region. The most significant advantage is that Qatar Steel's production is based on DRI which uses the cleanest raw material.

Audits used to ensure the System:

External & internal Audits are conducted yearly to ensure that our operations are in accordance with the standards, environment Ministry (MOE) regulations and meet the set targets.

ISO 14001:2004 & Sustainable Reinforcing Steel Certification:

Qatar Steel's reputation in the field of Health, Safety and Environment is integral to its image and corporate culture. Qatar Steel migrates to the new environmental ISO 14001:2004 standard as another landmark move towards these globally accepted environment standards. The alignment of environmental objectives, targets and programs with the corporate HSE objective were considered significant achievements during this transition. We succeeded in defining our communication with interested parties, establishing an effective internal & external audit system and reviewing its performance with the top management. Our success has inspired us to proceed with the development of an integrated management system in the near future. Qatar Steel has been also awarded Sustainable Reinforcing Steel certification by CARES UK during the year 2011.

Environment Management Program:

In addition to spearheading our environment friendly expansion plans, our Safety & Environment Section coordinates various projects with internal departments under an Environment Management Program.

As a part of waste management, Qatar Steel continues to study various options to re-using / re-cycling its production waste. Pelletizing DR product dust and EF dust, recycling of Refractory bricks and extracting iron from slag are some of the programs under progress. The utilization of used tires as a carbon source in the steel melting process is an achievement in the right direction. This project may be able to contribute to solving or reducing a major community waste problem.

THE ENVIRONMENT

The scope of waste management covers all departments, activities, processes and types of waste. The plan applies to all hazardous wastes, non-hazardous wastes, recyclable materials as well as water & energy conservation.

HSE Training:

Safety education & training is a continuous process. Basic HSE training is imparted to all the new employees who join Qatar Steel as well as to all Subcontractor employees in various languages to enable them to get acquainted with Qatar Steel work culture.

Heat Stress Management:

Campaigns on the hazards of heat stress, pamphlets on the do's and don'ts to beat the heat, awareness training program on heat stress by a Medical Officer and Safety Officer and the auditing of work places for Heat Stress Management by HSE representatives are all part of our Heat Stress Management Campaign.

Safety Performance:

The Safety Performance of Qatar Steel is known to be one of the best in the Steel Industry having a very low Accident Frequency & Severity rate in comparison with the like Industries. Being a Sustainable Producer, Qatar Steel has a Strategic objective for the near future with a focus on "No lost time Accident" to become a leader in Safety. A number of Safety initiatives involving employees & motivation awards are being planned & implemented to reach our final aim '**Accident Free Qatar Steel'**

Emergency preparedness program

An emergency response contingency plan in Qatar Steel ensures that the health and safety of the employees and environment are safeguarded. Various emergency preparedness drills like, chemical drills, oil spill, fire drill, gas leakage, molten steel leakage drill, building evacuation drills etc. are undertaken from time to time.

Research and Development

Aligned with QNV 2030 and corporate strategic objectives, in March 2012, Qatar Steel established Research & Development department to facilitate in new product development, process improvement and cost reduction, sustainable & recyclable steel production, to name a few. Production of 'sustainable steel' is expected to reduce CO_2 emissions and recycle wastes thereby protecting the environment and enhancing the core brand value of the company.

QATAR STEEL MANUFACTURES WORLD-CLASS PRODUCTS IN ACCORDANCE WITH THE HIGHEST INTERNATIONAL QUALITY STANDARDS. ALL PRODUCTS ARE SUPPORTED BY EFFECTIVE AND RELIABLE DELIVERY AND AFTER SALES SERVICES. OUR CLOSE PROXIMITY TO NEIGHBORING GCC COUNTRIES ENABLES US TO CATER TO A SIZEABLE PROTION OF THE REGIONS' REQUIREMENTS, AS WELL AS QATAR'S OWN DOMESTIC NEEDS.

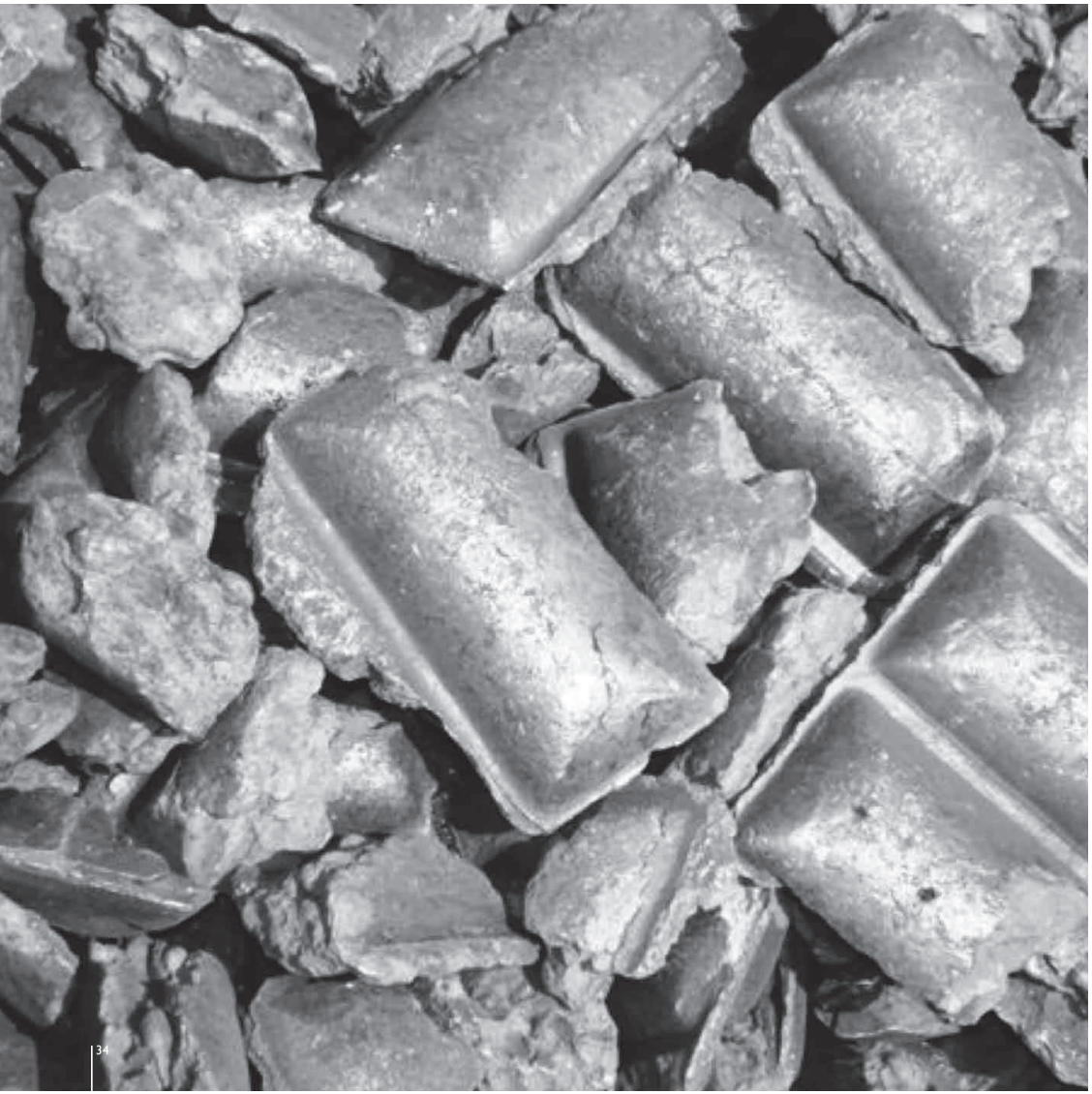
PRODUCT SPECIFICATIONS

DRI SPECIFICATIONS

Our DRI Analysis shows high metallization and low gangue, which meet the requirements of steel making operation. The typical quality of sponge produced from MIDREX plant at Qatar Steel:

	Guaranteed		Expected
CHEMICAL COMPOSITION			
Total Iron (T. Fe)	91.5%	Min	92.0%
Metallic Iron (M.Fe)	85.5%	Min	86.0%
Metallization	93. 0%	Min	94.0%
Carbon (C)	2.5%	Max	
Phosphorous (P)	0.050%	Max	
Sulphur (S)	0.005%	Max	
Total Gangue ($CaO+Al_2O_3+MgO+SiO_2$)	4.8%	Max	4.5%

PHYSICAL ANALYSIS		
Bulk Density (Tons/M^3)	1.6 ~ 1.9	
Size Under 5 mm at Loading Port	5.0%	Max



PRODUCT SPECIFICATIONS

HBI SPECIFICATIONS

	Guaranteed		Expected
CHEMICAL COMPOSITION			
Total Iron (T. Fe)	91.0%	Min	91.5%
Metallic Iron (M.Fe)	85.0%	Min	86.0%
Metallization	93.4%	Min	94.0%
Carbon (C)	1.3%	Max	
Phosphorous (P)	0.050%	Max	
Sulphur (S)	0.005%	Max	
Total Gangue($CaO+Al_2O_3+MgO+SiO_2$)	4.8%	Max	4.5%

PHYSICAL ANALYSIS		
Bulk Density (Ton/M^3)	2.4 ~ 2.7	
Apparent Density (Tons/M^3)	4.9	Min
Average Size (mm)	106 x 48 x 32	
Size Under 1/4 Inch at Loading Port	5.0%	Max

CONTINOUS CASTING IS USED TO MANUFACTURE UNIFORM AND CLEAN BILLETS QUICKLY AND EFFICIENTLY

STEEL BILLETS

Although some of the billets produced at Qatar Steel are directly sold to customers, most are processed into bars at one of our rolling mills. We supply high quality steel billets of various cross-sections and sizes, which enable us to meet the customer requirements and industry specifications, including ASTM, JIS and CNS.

BILLET SPECIFICATION

CHEMICAL COMPOSITION:

(As below or as per customer requirement)

Chemistry	%C	%Si	%Mn	%P	%S	N (ppm)
	0.18~0.24	0.15~0.20	0.60~0.80	0.035 max	0.035 max	120 max

Note: Tramp Elements (Ni + Cr + Cu + Mo) = 0.30% max

PHYSICAL PARAMETERS:

Sr. No.	Item	Acceptance Criteria
1.	LENGTH	4 meter to 12 meter (+ 50mm)
2.	SECTION	150 X 150 mm^2 or 130 X 130 mm^2
3.	FACE LENGTH	± 3 mm
4.	RHOMBODITY	3 % Max
5.	DIAGONAL DIFFERENCE	≤ 10 mm
6.	CORNER RADIUS	8 mm
7.	STRAIGHTNESS	Camber 5mm/meter
8.	BENDING	Not more than 5mm in 1 meter Not more than 30mm in 6 meter Not more than 60 mm in 12 meter
9.	ANGULAR TWIST	Not more than 1 degree per meter and not more than 6 degree over 12 meter length.
10.	CUTTING	Both ends will be Gas Cut
11.	IDENTIFICATION	At the end of each billet cast number will be stamped.
12.	SURFACE	The billets will be free from surface imperfection which impair the product Quality such as longitudinal cracks, transverse cracks, Deep Ripple mark, Scab & thick scale, slag Patches, surface blow holes etc.
13.	PIPE	No Existence

REBAR SPECIFICATIONS

Characteristics	BS 4449:1997 Gr460B	BS 4449:2005 GrB500B	ASTM A615 Gr60	SSA 2/1992
Chemical Composition				
Carbon (C) %	0.25 Max	0.22 Max	--	0.33 Max
Manganese (Mn) %	--	--	1.80 Max	1.80 Max
Phosphorous (P) %	0.05 Max	0.05 Max	0.05 Max	0.050 Max
Sulphur (S) %	0.05 Max	0.05 Max	0.05 Max	0.050 Max
Nitrogen (N) ppm	120 ppm	120 ppm	--	--
CE (%)	0.51 Max	0.50 Max	--	0.54
Mechanical & Physical Properties				
Yield Strength	460.0 N/mm² Min	500.0 MPa Min	420.0 N/mm² Min	460.0 N/mm² Min
Tensile Strength	496.8 N/mm² Min	540.0 MPa Min	620.0 N/mm² Min	506.0 N/mm² Min
Elongation (%)	14 Min	14 Min	9 Min	12 Min
Agt (%)	5	5	--	--
Weight Tolerance (%)	±4.5	±4.5	-6	>10 ~ 20mm = ± 4.0 >20 ~ 32 = ± 3.5 >32mm = ± 3.0
Bend	45°	90°	180°	180°
Re-bend	From 45° Back to 23°	From 90° Back to 20°	--	180° to 45°
Weldability				
Weldable/ Non-Weldable	Weldable	Weldable	Non-Weldable	High Tensile Non-Weldable

Technical Features

- BS 4449:1997 Gr460B, BS4449:2005 GrB500B rebars are produced with low carbon equivalent & Weldable, whereas ASTM A615 Gr60 are Non-Weldable
- BS 4449:1997 Gr460B, BS4449:2005 GrB500B rebars have High Strength Compared to ASTM A615 Gr60 which reduces steel consumption & congestion in structure, in turn reduces overall cost of project
- BS 4449:1997 Gr460B, BS4449:2005 GrB500B rebars have High Yield Strength i.e., minimum 460N/mm2 & 500 Mpa respectively compared to ASTM A615 Gr60, without compromising on ductility
- BS 4449:1997 Gr460 & BS4449:2005 GrB500B rebars have better bend performance, due to severe bend & re-bend angle.

NOMINAL DIMENSIONS, WEIGHT & TOLERANCE ON KNOTS

Designation	Nominal Dia. (d) (mm)	Nominal Cross Sectional Area (mm²)	Unit Mass (Kg/m)	Maximum Average Knot Space (mm)	Height of Knots Min (mm)	Height of Knots Max (mm)	Ltgd/Ri Width (mm)	Nominal Mass Kg/Piece 6m	9m	12m
D8	08	50.27	0.395	5.6	0.3	0.6	3.14	2.37	3.56	4.74
D10	10	78.54	0.617	7.0	0.4	0.8	3.9	3.7	5.55	7.40
D12	12	113.1	0.888	8.4	0.5	1.0	4.7	5.33	7.99	10.66
D14	14	153.9	1.21	9.8	0.6	1.2	5.5	7.26	10.89	14.52
D16	16	201.1	1.58	11.2	0.7	1.4	6.3	9.48	14.22	18.96
D18	18	254.5	2.00	12.6	0.8	1.6	7.1	12.00	18.00	24.00
D20	20	314.2	2.47	14.0	1.0	2.0	7.9	14.82	22.23	29.64
D22	22	380.1	2.98	15.4	1.1	2.2	8.6	17.88	26.82	35.76
D25	25	490.9	3.85	17.5	1.3	2.6	9.8	23.10	34.65	46.20
D28	28	615.8	4.83	19.6	1.4	2.8	11.0	28.98	43.47	57.96
D30	30	706.9	5.55	21.0	1.5	3.0	11.8	33.30	49.95	66.60
D32	32	804.2	6.31	22.4	1.6	3.2	12.6	37.86	56.79	75.72
D36	36	1017.9	7.990	25.2	1.8	3.6	14.1	47.94	71.99	95.88
D40	40	1256.6	9.864	28.0	2 0	4.0	15.7	59.18	88.78	118.37

Requirement for rib geometry		
Height of transverse ribs	0.03d to 0.15d	The projection of transverse ribs shall extend over at least 75% of circumference of the product which shall be calculated from the nominal diameters.
Rib spacing, c	0.4d to 1.2d	Longitudinal rib:
Rib inclination, ß	35° to 75°	Where longitudinal ribs are present, there height shall not exceed 0.10d, where d is the nominal diameter of the product.

BS 4449: 1997 GRADE 460B

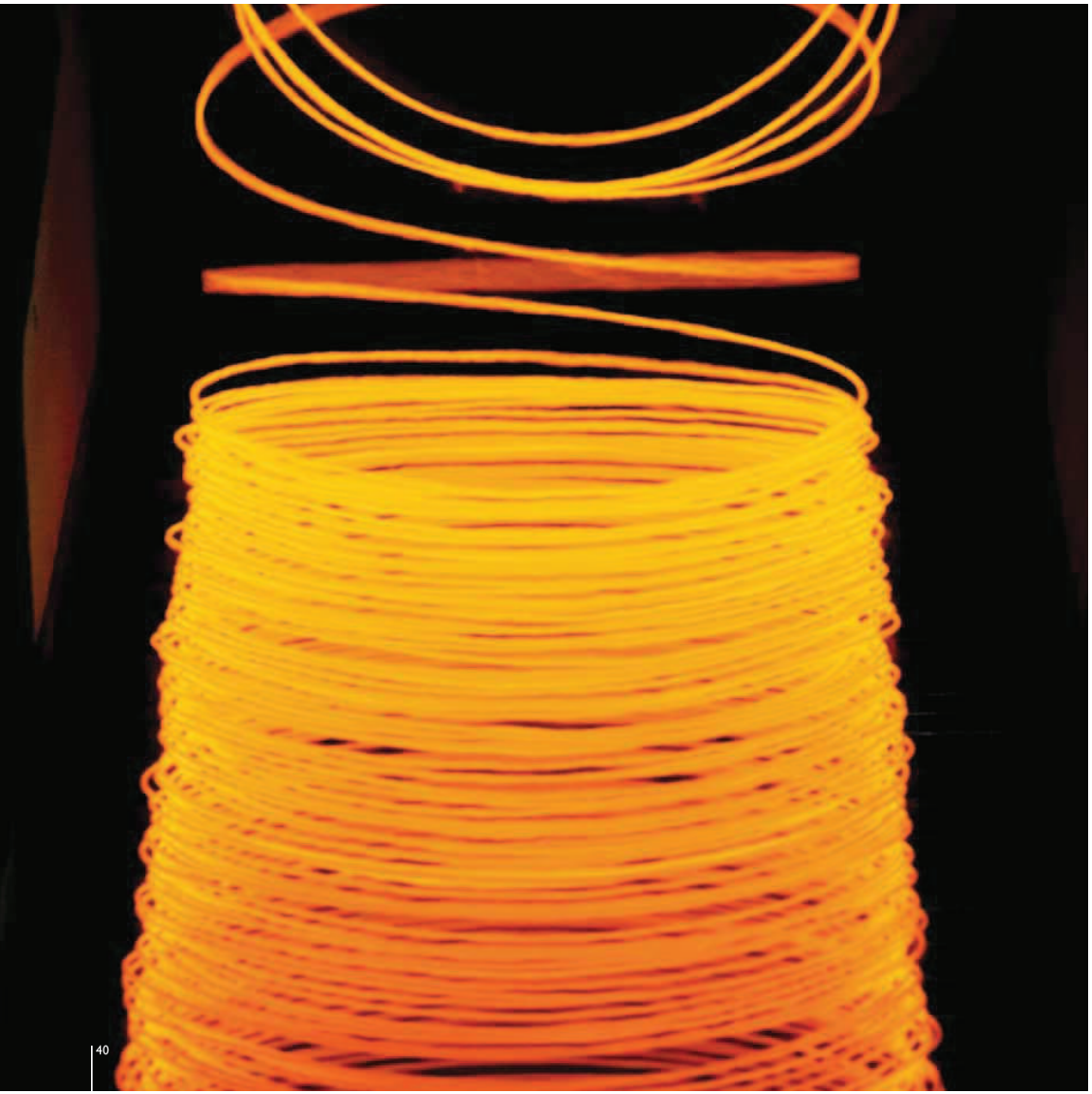
BS 4449: 2005 GRADE B500B

ASTMA615 GRADE 60 / SASO 2/1992

MARKING

Deformed bars produced at Qatar Steel conform to various national and international standards such as, BS 4449:1997 Grade 460B & BS4449:2005 GradeB500B [British], SSA 2/1992 [Saudi High Tensile], ASTM A615 Grade 40/Grade 60 [American].

The registered trade mark 'QATAR STEEL' is rolled on every deformed bar at an interval of about one meter along with all identification marks.



PRODUCT SPECIFICATIONS

WIRE ROD AND REBAR IN COIL SPECIFICATIONS

Product Size

Products	Size - MM											
Wire Rod	5.5	6.0	6.5	7.0	8.0	9.0	10	11	12	14	16	-
Rebar In Coil	--	--	--	--	8.0	-	10	-	12	14	16	-

Wire Rod Grades: SAE1006/ SAE1008/ SAE1012/ SAE1018/ SAE1042/ SAE 1045/ SAE1060/ SAE1065/SAE1070/ SAE1080

Rebar in Coil: ASTM A615 GR60/ BS4449:1997: GR460B / BS4449:2005 GRB500B / ISO 6935-2

Coil Weight & Dimension		Metallurgical Standard	
Inner Diameter (MM)	: 850 – 950	Decarburization	: 1% max of wire rod diameter
Outer Diameter (MM)	: 1100-1200	Surface Defect	: 1% max of wire rod diameter
Coil Weight (Kg)	: 1050 -1200	Cold Up-settability	: 67% (Billet route)

Chemical & Mechanical Properties

GRADE	%C	%Mn	%Si	%P	%S	Ys-N/mm^2	Ts-N/mm^2	%El	%Agt.
SAE 1006	0.08 Max.	0.25 – 0.40	0.15 Max	0.035 Max	0.025 Max	240 – 290	340 – 415	35 Min	-
SAE 1008	0.06 – 0.10	0.30 – 0.50	0.15 Max	0.035 Max	0.025 Max	250 – 300	350 – 425	30 Min	-
SAE 1012	0.10 – 0.15	0.30 – 0.60	0.15 Max.	0.035 Max	0.025 Max	275 – 325	400 – 475	30 Min	-
SAE 1018	0.15 – 0.20	0.60 – 0.90	0.10-0.35	0.035 Max	0.025 Max	300 – 350	450 – 525	22 Min	-
ASTM A615 GR60	0.22Max.	0.60 – 1.00	0.35 Max	0.035 Max	0.025 Max	420 Min.	620 Min.	9 Min.	-
BS4449: 1997 GR460B	0.22Max.	0.60 – 1.00	0.35 Max	0.035 Max	0.025 Max	460 Min.	Ys x 1.08. Min	14 Min.	5% Min
BS4449 :2005 GRB500B	0.22Max.	0.60 – 1.00	0.35 Max	0.035 Max	0.025 Max	500-650.	Ys x 1.08 Min.	-	5% Min.

Dimensional Tolerances of Wire Rods:

STANDARD	WIRE ROD SIZE—MM	TOLERANCE-MM+/-	OUT OF ROUND- MM	REMARKS
QS FZE	5.5 - 16.0	0.20	0.30 MM	QS FZE Tolerance is Half of ASTM Tolerance
ASTM A510	5.5 - 16.0	0.40	0.60 MM	General requirements

Coil Identification

Each coil will have tag with unique coil number and Heat number.

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