

# **Induction Report**

**BSRM** Group of Companies

## **Submitted by:**

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Corporate Office: Ali Mansion, 1207/1099 Sadarghat Road, Chittagong, Bangladesh.

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**Induction Program Outline** 

<b>Day 1</b> 24-04-2018	Corporate Office
Day 2	Morning: BSRM Steels Limited (Melting 1) Formerly known as BSRM Iron & Steel Company Limited (BISCO)
25-04-2018	Evening: BSRM Warehouse (K. Rahman) BSRM Wires
<b>Day 3</b> 26-04-2018	BSRM Steels Limited
<b>Day 4</b> 28-04-2018	Morning: BSRM Mill Evening: BSRM Steel Melting Works (SMW)

## **Background of the Induction Program**

Induction program is arranged to make the newly joined employees introduced to different aspects of the organization as a part of socialization process.

In this induction program of BSRM, 10 employees from different units and departments joined together to get an overall idea about the policies, people, and processes of BSRM Group of Companies over the period of 4 days. Day long sessions and plant visit were the major part of this program.

## **Company Outline**

BSRM is the leading steel manufacturing company and one of the prominent corporate houses in Bangladesh. Over the years BSRM steel products have been chosen solely for building major National landmarks and infrastructures. To name a few, the Hatirjheel Project, Zillur Rahman Flyover, Mayor Hanif Flyover and Shah Amanat Bridge were made with BSRM Xtreme. BSRM Xtreme is a product that was introduced when there were no graded steels. It was a major change in the steel industry. BSRM is dedicated to providing the best solution for the construction industry. The first ever 50mm rod was specially designed and rolled for the deep pilling requirements of Padma Bridge. Its recently introduced brands are also designed to meet special needs for the construction industry.

## **BSRM Group of Companies - At a Glance**

Established on: 1952

**Corporate Office:** Ali Mansion, 1207/1099 Sadarghat Road, Chittagong, Bangladesh.

BSRM Group of Companies is fragmented with the following concerns:

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Concern	Current Area of Operation
BSRM Steels Limited	Re-Rolling (1)
Fouzdarhat, Chittagong	
Bangladesh Steel Re-Rolling Mills Limited	Re-Rolling (2)
Nasirabad, Chittagong	
(Mother Concern)	
Bangladesh Steel Re-Rolling Mills Limited	Billet Manufacturing (1)
Steel Melting Works (SMW)	
Nasirabad, Chittagong	
BSRM Steels Limited (Melting 1)	Billet Manufacturing (2)
Former name:	
BSRM Iron & Steel Company Limited (BISCO)	
Nasirabad, Chittagong	
BSRM Steel Mills Limited (SML)	Billet Manufacturing (3)
Mirashrai, Chittagong	Scrap Processing
BSRM Recycling Industries Limited (RIL)	Scrap Processing
Baroaulia, Chittagong	
BSRM Wires Limited	Ribbed Wires Manufacturing
Nasirabad, Chittagong	
Karnafully Engineering Works Limited (KEW)	Fusion Bonded Epoxy Coating
Nasirabad, Chittagong	
H. Akberali & Company Limited	Used as Shed for Trading Item
Nasirabad, Chittagong	
Bangladesh Steel Limited (BD Steel)	Used as Shed for Scrap
Nasirabad, Chittagong	<del>-</del>
Chittagong Power Company Limited (CPCL)	Used as Shed for Raw
Nasirabad, Chittagong	Material, Consumables, and
	Chemicals
BSRM Logistics Limited	Logistics Support
Baroaulia, Chittagong	
BSRM Ispat Limited	Ispat Manufacturing
BSRM Real Estates Limited	Real Estate

BSRM has different operational and sales offices at different parts of the country and beyond the country in India.

**Sales Network:** 753 Dealers, out of which 9 in India. No. of Marketing Representative (MR): 60.

**Warehouses:** 2 mother warehouses (BSRM – K. Rahman Warehouse, and BSRM Steels Warehouse). 8 additional warehouses for distributing finished products around the country.

## **A Brief History of BSRM**

BSRM Group of Companies is the largest and leading industrial conglomerate in the steel sector of Bangladesh. BSRM Group of Companies established its first concern in 1952 and since then serving the nation with an exception. The founder of this group is Late H. Akberali Alibhai Africawali, the father of Mr. Alihussain. Also, 4 other brothers of late Mr. Akberali contributed to the setting up of such a vast empire. The BSRM saga started by setting up of four manual rolling mills, the first of its kind, to produce plain bars for construction purposes.

#### **Milestones Onward:**

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1952	The BSRM saga began with the first steel re-rolling mills to emerge in the then East Bengal.
1984	Introduced high strength cold twisted steel bars (TORSTEEL) to the construction industry.
1987	Introduced high strength Deformed reinforcing steel bars conforming to ASTM 615 Grade 60 for the construction industry.
1996	Commissioned the then largest billet making plant in the country - Meghna Engineering Works Limited, now known as Steel Melting Works (SMW) unit of Bangladesh Steel Re-Rolling Mills Ltd.
2006	Introduced micro reinforcement wires, below 8mm, for low-cost rural construction.
2008	BSRM Steels Limited commenced production of internationally recognized Grade 500 steel bars branded as "Xtreme500W" conforming to ISO 6935-2.
2009	Entrance in the Capital Market - Shares of BSRM Steels Limited, the flagship company of BSRM Group was listed with the country's premier bourses Dhaka Stock Exchange (DSE) Ltd. and Chittagong Stock Exchange (CSE) Ltd. on 18 January 2009. Market Capitalization as on 30 June 2017 is Tk. 29,974 million. The public shareholding including institutional investors is 29.13%.
2010	BSRM Iron and Steel Co. Ltd. largest billet making plant in the country started commercial production on June 01, 2010.
2012	The production capacity of BSRM Steels Limited enhanced to 600,000 MT per year.
2013	A syndicated term loan of US\$ 40 million and BDT 5,908 million, raised by a consortium of 25 banks and financial institutions for BSRM Steel Mills Limited. It is the largest ever syndicated loan facility arranged for a private company in Bangladesh. The Plant produces high-quality MS Billets.
2014	Oracle e-BS-12 went GO LIVE on 1ST March 2014. Oracle Financials, Costing, Purchasing, Manufacturing, EAM, Inventory & order management are now integrated into a single platform which ensures the accuracy, accountability, and reliability of the Group.

1.	Enhanced capacity of BSRM Steels Limited from 600,000 MT to
	700,000 MT per annum.

- 2. Announced a new product namely "BSRM Maxima"
- 2015
- 3. Increased capacity of Bangladesh Steel Re-Rolling Mills from 120,000 MT to 450,000 MT per annum which will be the first and largest merchant mill in Bangladesh.
- 4. Listing of Bangladesh Steel Re-Rolling Mills Limited with the stock exchanges (DSE & CSE).
- 5. Start of trial production of world's largest induction furnace-based billet casting project "BSRM Steel Mills Limited".
- 1. BSRM Steel Mills Limited, the largest billet making plant in the country started commercial production in June 2016.
- 2. **Ultima & EPOXY coated bars CENTURA** are introduced.
- 2016-17
- 3. Start to set up a new melting plant at Sonapahar, Mirsarai, Chittagong under BSRM Steels Limited with a capacity of 430,000 MT.
- 4. For first time sales of BSRM has crossed **ONE MILLION** M. ton.

## WHAT'S NEXT?

Another melting unit with a capacity of 430,000 M. Ton for producing billets is under construction at Sonapahar, Mirsharai, Chittagong.

BSRM ventured outside Bangladesh to enter foreign markets, mainly India, because BSRM is the only steel manufacturer in the country to have achieved Indian certification, where BSRM is planning to compete with eminent steel manufacturers in India.

BSRM Group of Companies is a very transparent and well managed industrial house in Bangladesh. The group has a clear vision to be the number one leader of the sector on every count, viz. market share, cost-effectiveness, quality, and innovation. Capital is being continuously injected into the plants to improve efficiency in line with the capacity and the company conducts product and market research to match the needs of the time.

#### **Vision of BSRM**

BSRM Group of Companies aspires to:

- ✓ Maintain leadership position in the steel industry by producing the best quality steel products, continuously enhancing customer satisfaction, and becoming a reliable business partner of customers and suppliers.
- ☑ Be an employer of choice, with focus on nurturing talent and developing future leaders of the organization.
- ☑ Protect the interest of the shareholders through sustainable growth and value creation.
- ✓ Preserve the trust of all the stakeholders by adopting ethical business practices.
- ☑ Support the society through Corporate Social Responsibility initiatives.

#### Values of BSRM

- **1. Sustainable Growth:** Consistent improvement in the quality of products and services, efficiency of processes and profitability of business; continuously anticipating and responding to the changing business and environmental needs using innovation; sharing knowledge and experience within the organization.
- **2. Quality:** Create products and services valued by the customers; constantly improving processes through innovation and adopting best practices; reducing wastage; minimizing costs; investing in systems and technology & developing people to build a highly capable workforce.
- **3. Reliability:** Be the preferred business partner for the customers and suppliers by offering quality products; providing best and timely service before, during and after the business transactions and honoring all the commitments despite challenges.
- **4. Trust:** Preserve the faith and goodwill of all the stakeholders customers, shareholders, suppliers, employees, regulatory bodies, and society by adopting ethical and transparent business practices, being fair and honest in all the dealings and building robust governance and risk management processes.
- **5. Leadership:** Be a role model, setting benchmarks through the products, processes, and people; constantly moving ahead of the competition by differentiating the products, innovating the processes, increasing the market-share and nurturing talent to develop leaders within the organization.
- **6. Social Responsibility:** Acknowledge and fulfill the obligations towards the society by undertaking initiatives for the general uplifting of the society, building capability and making facilities available to the underprivileged.
- **7. Customer Satisfaction:** Delight the external and internal customers at every stage of interaction with them by truly understanding their needs, offering them the best products and services, treating them with respect and actively seeking and acting on their feedback.

## **Organizational Culture of BSRM**

BSRM is one of the prominent corporate houses in Bangladesh leading the steel industry of this country with professional excellence and sociable culture. BSRM always adopts best ethical and transparent business practices to be fair and honest in all its dealings. Major important aspects of BSRM culture are:

- ☑ Different world class consultancy firms like PricewaterhouseCoopers (PwC), Deloitte brought changes in the culture of BSRM through structural changes, process improvements, and personnel developments.
- ☑ The attire of the employees is decent and they are quite friendly. Employees are very much keen on one another.
- ☑ The authority and responsibility are very much clear and the hierarchical organogram is fairly maintained. This gives them the courage to become achievement oriented and bring professional excellence.
- ☑ The corporate culture is immensely great. The top management keeps a high commitment for an honest and corruption free corporate culture and practice across the organization.

## **Awards & Recognitions**

- ☑ Best Brand of Bangladesh in Steel Category (2011, 2013, 2014, 2015, 2016, and 2017)
- ☑ Certificate of Merit from South Asian Federation of Accountants (SAFA) in 2012, 2013 & 2015.
- ☑ ICAB National Awards for Best Presented Annual Reports for the year 2012, 2013 & 2015 & Certificate of Merit for the year 2014, 2015.
- ☑ ICSB National Gold Award for best Corporate Governance Excellence 2015 for Bangladesh Steel Re-Rolling Mills Limited
- ☑ 16th ICAB National Award for Best Presented Annual Report 2015
- ☑ Achieved Tax Card from NBR for highest tax payment in AY-2015-16 for BSRM Steels Limited (under Manufacturing Category)
- ☑ Best Electricity Consumer (Industry) award for the year 2015.
- ☑ Mercantile Bank Excellence Award 2015
- ☑ ICSB National Award (Silver Award) for Corporate Governance Excellence 2014
- ☑ 5th Standard Chartered-Financial Express CSR Award 2014
- ☑ President's Award for Industrial Development (Category: Large Scale Industry 2014)
- ☑ International Islamic University Chittagong (IIUC) Business Awards 2014
- ☑ Japan Bangladesh Chamber of Commerce & Industry (JBCCI) Award 2014
- ☑ Divisional Environment Award 2013
- ☑ Pride of Chittagong (Chattagramer Ahonkar) 2012
- ☑ D & B Corporate Awards 2010 & 2012
- ☑ Best Enterprise of the year 2010
- ☑ Export Award from Honorable Prime Minister
- ☑ National Export Trophy

## **Corporate Social Responsibilities (CSR)**

#### **BSRM CSR Vision**

To integrate social responsibility into BSRM core business decisions, BSRM wants to have CSR at every step of the heart of our Business process. BSRM envision CSR strategy that demonstrates BSRM intent for Caring, Supporting, and Returning to a society where they anchored their business decades ago – this is how they define CSR and search and support interventions encompassing this scope.

#### **BSRM CSR Principles**

BSRM commits resources to the extent that it can reasonably afford, not in one-off philanthropic project, rather in a set of strategically planned efforts consistent with BSRM's own corporate strengths and complementary to Programs offered by the Government, to sustain and improve a healthy and prosperous environment, and improve the quality of life of the people living in poverty.

BSRM Group of Companies is involved with the CSR activities over the years in the field of education, health, social welfare, government activities, and environmental concerns.

## **Sustainable Growth**

To keep human resources safe and sound and the environment clean, BSRM has taken a number of measures. It always gives priority to maintain workplace safe, secure and ensure the green environment for all of the employees as well as for the country.

#### **Green Environment**

BSRM Steels Limited uses world-class Water Treatment Plant (WTP) for recycling the water for reusing and to keep the environment free from pollution. The Company has also commissioned Air Pollution Control (APC) system in BSRM Iron & Steel Co Ltd. (BISCO) to keep the air free from Pollution. In the same way, they are going to implement a rainwater harvesting project for their new billet casting plant at Mirershorai.

#### **Human Resources Function**

Success isn't possible without a great team. At BSRM Group of Companies, nurturing and supporting human talent is the utmost priority. They believe sustainable growth is only possible if they foster teamwork, develop talent, enhance leadership capability, and maximize the potential of the human capital. BSRM focuses on valued people to optimize their creativity and performance by ensuring a safe and congenial working environment, cohesive corporate culture, appropriate training, reward and recognition, and various employee benefits schemes. Hiring the right person for the right job is the first step in the efforts to maintain a strong, capable, and independent workforce.

#### **Information Technology**

BSRM Group was founded more than 60 years before and continuing its rapid growth more so in the past decade. In such complex rapid growing scenario, the IT-based business-friendly solution is the only way to handle all the data. BSRM IT through Management foresight managed to keep up with this fast & complex growth as an organized entity and began to systematically address the challenges. Today IT as a strategic partner in business enablement plans, controls, and manages all IT-based business issues in a very constructive, productive & controlled manner with periodic reporting & monitoring. BSRM IT is managing the total network of BSRM Group including server management, managing and upgrading Oracle eBS, developing inhouse software integrating with Oracle eBS and providing several levels of support to end user.

#### **Products of BSRM**

## 1. **Deformed Bars**:

**Size:** 8mm to 50mm

#### BSRM Xtreme (Feel Safe with Xtreme Inside)

- ✓ High strength reinforcing steel
- ✓ General purpose construction of low and medium rise commercial and residential buildings and bridges
- ✓ Suitable for home builders

#### BSRM Maxima (The Steel for Mega-Structures)

- ✓ Used to build cities, bridges, and factories
- ✓ Material for construction of projects which needs extra strength combined with an extra dose of safety

#### BSRM Ultima (Designed for Superior Safety)

✓ Used to build hospitals, schools, airports, railway stations, and bridges that cannot be allowed to fail in an earthquake

## BSRM Centura (Assured for a Century) - Epoxy Coated Rebar for Corrosion Free Structures

- ✓ Corrosion protection to combat corrosion for the durability of structures, particularly in marine, coastal or industrially polluted areas.
- ✓ Fusion Bonded Epoxy Coating provides protection against corrosion for the design life of the structures for around a century.

#### 2. Angles:

#### BSRM Xtrong (Strength in Every Angle)

- ✓ High strength structural steel
- ✓ Economic alternative to steel fabricated structures
- ✓ Grade 50 in different sizes.

#### 3. Structural Channels:

- ✓ High strength structural steel
- ✓ Economic alternative to steel fabricated structures
- ✓ Grade 50 in different sizes.

#### 4. High Strength Reinforcing Ribbed Wires:

- ✓ The first and the only ribbed wire cold rolling plant in the country
- ✓ European Technology to make 500 mpa yield strength wire reinforcements
- ✓ Used for low cost rural constructions
- ✓ Sizes: 4.5mm, 5.7mm and 7.1mm

#### 5. **Square Bars:**

✓ High graded steel for windows, gates, balcony grills

#### 6. Billets:

✓ Primary raw material for the re-rolling plant

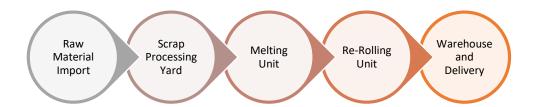
**Yearly Production Capacity of Different Plants** 

Concern	Production (Yearly)	Sizes
BSRM Steels Limited	700,000 MT	Re-bar (8mm – 50mm)
Bangladesh Steel Re-Rolling Mills Limited	525,000 MT	Re-bar (8mm – 25mm), Angles, Channels, Square Bars
Bangladesh Steel Re-Rolling Mills Limited, Steel Melting Works (SMW)	161,500 MT	
BSRM Steels Limited (Melting 1) Former name: BSRM Iron & Steel Company Limited (BISCO)	215,000 MT	
BSRM Steel Mills Limited (SML)	1,000,000 MT	
BSRM Steels Limited (Melting 2) – (Upcoming)	430,000 MT	
BSRM Wires Limited	24,000 MT	Wires (4.5mm, 6mm, 7mm)
Fusion Bonded Epoxy Coated Bar	34,000 MT	

Currently, with all the expansion of new capacities, BSRM alone is being able to meet around 35% market share of the country with over 1.2 million MT steel capacities.

## **Operation Flow:**

Steel manufacturing operation starts from the import of raw materials – scrap, sponge iron, consumables etc. and finishes with the delivery to the customer.



#### 1. Import of Raw Materials:

Steel industry is a very heavy manufacturing industry for which the raw materials come from different parts of the world.

- **Scrap:** Scrap is imported from America, Africa, Europe, China, India etc. There are four major kinds of scraps:
  - ✓ Heavy Melting Steel Scrap (HMS)
  - ✓ Plate and Structural Steel Scrap (PNS)
  - ✓ Bundle Steel Scrap
  - ✓ Shredded Steel Scrap
- **Sponge Iron:** Sponge iron is also known as Direct-Reduced-Iron (DRI). This material is used to reduce the percentage of carbon in the production of steel. Major sponge iron supplier for BSRM is Tata India.

• Consumable: Consumables are the materials of which the consumption is fixed based on the amount of production, heat process, or by maintenance cycle. These are different materials used in IF, LRF, CCM and the like. For example, quartzite powder, boron oxide, refractory bricks, ferro alloy, graphite electrode, pet coke, met coke etc. Major suppliers are from India, China, Europe etc.

When the raw materials are imported, they are sent to the scrap yards, sheds, and warehouses, or even to the plants directly.

## 2. Scrap Processing Yard Operation:

BSRM has two scrap processing yards: RIL and SML.



- Receive: Scraps are received from two different sources.
  - i) Local scrap from ship breaking yard.
  - ii) Imported scrap from different parts of the world.
  - ✓ Inward Gate Pass (IGP) is done at the gate.
  - ✓  $1^{st}$  weight with the full vehicle.
  - ✓ Clear the vehicle.
  - $\checkmark$  2<sup>nd</sup> weight with the empty vehicle.
  - ✓ Actual weight of the scrap is calculated from the difference.
- **Segregation:** Scraps are of different types and quality. So, they need to be segregated. Additionally, segregation is important because there might be some non-ferrous metal items, or closed vessels which might be a danger to the plant operation.
- **Cutting:** Heavy and big size scraps are need to be cut since they will not fit in the furnace.
- **Dispatch:** After the proper segregation and cutting, they are dispatched to the melting plants.

From	То
(Scrap Processing Yard)	(Melting Unit)
RIL	SMW
	BSRM Steels Ltd. (Melting 1) / BISCO
SML	SML

#### 3. Melting Unit Operation:

Melting unit operation starts with the receiving of the production inputs. There are different phases of the operation:

Steel Melting Shop (SMS) Induction Ladle Refining Furnance (IF) Continuous Casting Casting Machine (CCM)

• Steel Melting Shop (SMS): The task of the SMS is to determine what type of billet is to be produced. Every time the rolling units give particular parameters to produce a billet. The SMS decides what compositions are to be made and what amount of materials are needed to made that composition. The major components of the steel are Iron, Carbon, Manganese, Silicon, Phosphorus, Sulphur etc.

#### • Induction Furnace (IF):

- ✓ The furnace is sintered with 200-300 Degree Celsius, and scraps are given into the furnace with the help of crane and vibratory feeder
- ✓ Scraps are melted in the IF with 1600-1650 Degree Celsius of heat
- ✓ Slags are taken away from the molten steel
- ✓ Batch sample is taken and tested for chemical composition
- ✓ Sponge iron or chemicals are added according to the requirement
- ✓ Molten steel is poured into the ladle refining furnace

## **Ladle Refining Furnace (LRF):**

- ✓ Ladle sample is taken and tested for chemical composition
- ✓ Chemicals are added according to the requirement
- ✓ The molten steel is refined with the help of graphite electrode and other mechanism

#### Continuous Casting Machine (CCM):

- ✓ Refined steel is poured into the tundish board
- ✓ Through tundish board, molten steel goes through the mould tube and gets solidified slowly
- ✓ Mould tube gives the shape of the billet
- ✓ Continuous water treatment solidifies the billet and makes it hardened at the outer side of the billet
- ✓ Billets are cut according to a predefined length, taken to the cooling bed
- ✓ Finished product sample is taken and tested for chemical composition
- ✓ Cooling bed/station cools the billets
- ✓ Prepared billets are stacked for the delivery

Billet

#### • **Finished Product:** Billet

After that, they are dispatched to the re-rolling plants.

From (Melting Unit)	To (Re-Rolling Unit)
SMW	BSRM Ltd.
BSRM Steels Ltd. (Melting 1) / BISCO	BSRM Ltd.
SML	BSRM Steels Ltd.

#### 4. Re-Rolling Unit Operation:

Re-Heating Furnance (RHF) Rolling		Cutting		Cooling		Binding	<b>&gt;</b>
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#### Re-Heating Furnace (RHF):

✓ **Thermal Action:** The billets are re-heated up to 1200 Degree Celsius so that it gets the rolling temperature. It starts from 800 Degree and ends with 1200 Degree Celsius. The RHF uses gas burner to heat the furnace.

#### Rolling:

- ✓ **Mechanical Action:** The billets are then rolled by mechanical mechanism. The rolling process have three phases: Roughing Mill, Intermediate Mill, and Finishing Mill. The mechanical action has to be completed before the temperature falls below 900 Degree Celsius.
- ✓ There are around 20 stands to roll the billet and for giving it the desired shape.
- ✓ The bars are rolled through QTB (Quenching Tempering Bar) Box to make it stronger in the outside.
- **Cutting:** The bars are cut in pre-defined size, usually 12 meters.
- **Cooling:** The temperature is reduced in the cooling bed.
- Binding: The bars are bounded in different amount of weight.

#### 5. Warehouse Operation and Delivery:

BSRM has two 2 mother warehouses: BSRM Warehouse – K. Rahman (Capacity: 40,000 MT), and BSRM Steels Warehouse (Capacity: 70,000 MT) beside 8 other warehouses around the country. The core activities of warehouses are:



#### Receive:

- ✓ Warehouses receive from the re-rolling units: BSRM and BSRM Steels.
- ✓ They are two types of product delivery: i) Straight and ii) Bend
- ✓ While entering into the gate, 1<sup>st</sup> weight is taken with loaded vehicle. 2<sup>nd</sup> weight is taken with empty vehicle. The actual weight of the product can be drawn from the difference.

#### Bending:

- ✓ The straight products are cut at 12 meters length which is suitable for Trailer Delivery
- ✓ To deliver on truck, the products need to bended in 6 meters. Bending machine capacity:

**BSRM Ltd.** = 5 Bending Machines x 200 MT

**BSRM Steels Ltd.** = 8 Bending Machines x 200 MT

• **Stocking the Product:** Products are stocked in the straight and bend area

## Dispatch - Trailer/ Truck Delivery:

✓ While entering into the gate, 1<sup>st</sup> weight is taken with empty vehicle. 2<sup>nd</sup> weight is taken with loaded vehicle. The actual weight of the product can be drawn from the difference.

- ✓ When the products are filled in the vehicle, a Tally Slip is maintained to keep tracked by size.
- ✓ There are two types of delivery:
  - i) **CNF:** where the cost and freight are borne by the company. The BSRM vehicles are used here.
  - ii) **Ex-Mill:** where the cost and freight are borne by the customer. The customers send the vehicles to take the product.

## **Quality Assurance (QA) Aspects**

The BSRM Group concerns are ISO-9001:2015 certified separately. The products are also tested and certified by BUET, BDS etc. and the group always maintains international standard in its production for the best quality products with guaranteed customer satisfaction. BSRM Group concerns has the following certificates:

- ISO 9001:2015 Quality Management System
- ISO 14001:2015 Environmental Management System
- BDS ISO 6935-2 for 500W
- ASTM 615 60 hr. for Ultima 420
- BSTI Certificate
- BIS Certificate

After 2008, BSRM kept BSRM Xtreme on the forefront of technological innovations by becoming the first rebar to conform to 10 global standards, the first rebar to be EMF tested and the first one to pass the fatigue test at 5 million cyclic loading. This effort was noticed and BSRM enjoyed a pull market effect while the competition was still languishing in the push market. This loyalty helped ward off increased competition in the form of players in the category, even charging a premium price. BSRM runs the following tests in different phases of the production:

- Ultimate Tensile Strength
- Bend Test

- Chemical test
- Electro Microscopic Test

The quality is universal and a matter to be maintained in all aspect of the operation. Particularly in the product, BSRM keep quality in the following aspects:

- Unit Weight
- Core Dia
- Tensile Strength

- Bend Test
- T/Y Ratio
- Cut Length

#### **References:**

- 1. BSRM Website
- 2. BSRM Annual Reports
- 3. Induction Session Notes
- 4. Initial Briefings about the Plants
- 5. Face-to-Face Interview with the Management and Non-Management Employees at Different Plants