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Bafgh Steel Company
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Our Story

"Why is there no steelmaking complex next to one of the world's largest iron ore mines?" This was a question that had occupied the minds of Bafgh Steel founders for a long time. This question was raised a few years back, but nobody had taken any steps towards finding the answer. The Abouei brothers, who had begun their journey in 1981, fueled by their relentless effort and commitment to constant growth, established the first production plant of Yaran Industrial Group, named Yaran Rolling and Pipes, in 1998. Now, it was time to provide a proper answer to their question. Thus, in 2013, amidst numerous challenges and with unwavering determination, Bafgh Steel commenced operations in the desert terrains adjacent to Choghart iron ore mine in Yazd province. Shortly after, Gaharbar Transportation Company and several other companies were established to enhance development and complete the service and product supply chain. The successful inauguration of the first phase of the aspiring plan at Bafgh Steel, which included the steel wire rod and rebar production line, reinforced our belief that adherence to production standards and use of premium raw materials forms the cornerstone of a genuine and enduring partnership between the producer and the customer. Despite being located in a less privileged area, the direct reduction unit was commissioned thanks to the solidarity of the local people. Additionally, the construction of steelmaking and iron ore pelletizing units was initiated.

Alongside our high regard for human dignity, Bafgh Steel's special focus on continuous growth and commitment to quality has made our products the only ones included in the vendor list of the Ministry of Oil.

Pelletizing

One of the long-term plans and major policies of Bafgh Steel is to complete the production chain and establish the largest pelletizing plant in the country, with an annual capacity of 5 million tons. With this initiative, Bafgh Steel aims to produce iron pellets to supply raw materials for several steel making units. Given that pellets are a key raw material in the production of sponge iron, one of the primary goals of the pelletizing unit at Bafgh Steel is to produce the highest quality pellets in the country, using high-purity raw materials and under the supervision of quality specialists.

By entering the pellet production market in the country, we can help save over 2 million tons of iron concentrate from being sold in raw form. This initiative will reduce steel production costs and energy consumption per ton of steel produced. By converting all the produced concentrate capacity into pellets, we will fully utilize the mineral potential of the region. Alongside producing high-quality products, we are also committed to environmental preservation and our social responsibilities. We have successfully reduced transportation and its associated pollution by centralizing production units.





Direct Reduction

One of the major milestones for Bafgh Steel is the launch of the Direct Reduction Unit. The primary goal of this unit is to supply sponge iron for smelting and casting units, thereby preventing the raw sale of iron ore pellets. This unit has an annual production capacity of 800,000 tons of sponge iron using the Midrex process, with plans to increase capacity to 2.5 million tons currently under review and implementation. The direct reduction unit is one of the most critical intermediate stages in steel production, converting iron ore pellets into sponge iron and then sending it to the steelmaking unit for electric arc furnace charging.

In addition to creating direct and indirect job opportunities, one of the strengths of the direct reduction unit is its proximity to the iron ore mine, which significantly reduces the need for road transportation and saves energy. Furthermore, the ability to hot charge sponge iron into the melting furnaces also considerably lowers energy consumption. The construction of this unit leverages cutting-edge global technology to enhance production efficiency and reduce ancillary costs while leaving the smallest environmental footprint.

Steelmaking

The establishment of the steelmaking and casting plant, with an annual production capacity of 1 million tons of billets, is another significant effort by Bafgh Steel to complete the steel production chain and establish a strong presence in the national steel market. Achieving self-sufficiency and using high-quality billets for steel product manufacturing have always been key concerns and overarching policies for Bafgh Steel. With this in mind, Bafgh Steel has been consulting with European contractors to construct this industrial unit. The required sponge iron is sourced directly from the neighboring unit with minimal heat loss. After melting and casting, the experts inspect the billets to ensure they are transferred as preheated to the hot rolling area for the production of rebars and wire rods. By maintaining the temperature of the billets and avoiding their storage in this method, a significant reduction in emissions and energy consumption is achieved in the production process. Adhering to the lean production concept and based on customer orders, the excess production of this unit is loaded and dispatched to customers with minimal storage time.





Rolling Mill (Rebars)

First steps always lay the foundation for steadfast progress. Yaran Industrial Group took its initial step by launching a rebar production line with a significant capacity. The vast desert lands and proximity to Choghart Iron Ore Mine in central Iran provided an ideal setting for establishing this production line. The final product is utilized in numerous domestic and international projects. Today, with the support of advanced equipment and skilled human resources, we offer the most comprehensive range of rebars. Our production line is equipped with the latest European technology, and our product range includes rebar sizes from 8 to 40. With the support of 300 dedicated and specialized personnel and a preheating furnace with a capacity of 100 tons per hour, we have an annual production capacity of 550,000 tons of rebars. Our competitive advantages also include the use of high-quality billets with standard chemical and mechanical properties and the most advanced quality assessment equipment for conducting various destructive and non-destructive tests to produce the best products. In our rebar rolling line, we prioritize water conservation by treating and recycling the water used in the production process, and we responsibly dispose of wastewater and sludge. A portion of the treated water is also used for irrigating the factory's green spaces. To manage energy consumption in the rolling line, we utilize maximum insulation for the furnace, refrain from using fuel oil in the cold season, and employ polycarbonate sheets in the roof to provide daylight illumination for the factory.

Rolling Mill (Wire Rod)

Building on our reputation in rebar rolling and the mutual trust established with our customers based on our commitments at Bafgh Steel, we decided to fill the market gap in the wire rod sector for both industrial and construction applications. Entering this field meant creating value and enhancing quality across a wide range of steel products, including fencing, tire wire, various shafts, welding wire, and prefabricated walls and panels. One of the advantages of Bafgh Steel is the variety of wire rod grades we offer. Our wire rod grades include RST34, 3SP, 5SP, 1006, and 1008 with the capability to produce custom grades to meet specific industrial requirements. The sizes of our rolled wire rods range from plain rods of 5.5 to 20 mm and ribbed rods of 8 to 16 mm. To enhance quality, we maintain the uniformity of the cross-section of our steel wire rods, and for customer convenience, we employ advanced European technology for proper packaging. Before packaging, both ends of the wire rods are cut to ensure a clean finish. With the support of 300 dedicated and specialized personnel, we have an annual production capacity of 550,000 tons of wire rods. Similar to our rebar production, in the wire rod section, we use high-quality billets with standard chemical and mechanical properties, along with the most advanced quality assessment equipment for various destructive and non-destructive tests. Additionally, all measures for conserving water resources and managing energy, such as water treatment and reuse as well as the utilization of natural light in the rolling mill, are implemented in this unit as well.





Mechanical Laboratory

In this section, tensile, bending, and rebending tests are performed using the most advanced equipment:

- Tensile and Compression Testing Machine with a capacity of 100 tons, equipped with a highly accurate sensor for calculating the percentage of elongation.
- Bending and Rebending Machine with a capacity of 20 tons, capable of bending rebar up to 180 degrees and rebending it up to 20/90 degrees.
- Fixed Hardness Tester for controlling the hardness of production line parts in Rockwell, Brinell, and Vickers scales.
- Portable Hardness Tester for checking the hardness of large parts, such as rolling mill rolls.

Metallography Laboratory

In this section, samples are polished using coarse and fine sandpaper and ultra-fine abrasive particles, then examined under a microscope. Sometimes, to reveal certain details, the surface of the sample is briefly immersed in an etching solution. This process allows for the examination of grain size, non-metallic inclusions, phases, decarburization depth, surface discontinuities, and the indentation effects from hardness testing.

Customized Testing Services

In addition to mandatory tests, Bafgh Steel provides various laboratory services tailored to customer requests. Furthermore, the Bafgh Steel Research Center is dedicated to fulfilling scientific and research needs while supporting production lines.



Quality Control and Laboratories at Bafgh Steel

At Bafgh Steel, the Quality Control Unit plays a crucial role in ensuring product quality. This unit is equipped with state-of-the-art laboratories and staffed by experienced and skilled professionals. Such continuous supervision not only enhances operational performance but also stabilizes colleagues' responsibilities. Standardizing products, forecasting value, and determining competitive pricing are additional benefits that Bafgh Steel has leveraged through its Quality Control Unit.

Quality Control of Bafgh Steel's rebar begins with the delivery of billets. In addition to the visual inspection of the billets, the quality certificates of each billet are matched with their specifications. During production, all stages of the process are monitored. The thickness and appearance of the rebars are checked in real-time, and corrective actions are immediately implemented in case of non-compliance. The length of the rebars is inspected before packaging to ensure minimal deviation from the ordered length. In accordance with the national standards of Iran and statistical quality control, appropriate sampling is also carried out.

Quantometry Laboratory

In this section, the quantometer is used to determine the percentage of elements in metal samples by mass. Currently, quantometry is the fastest method for measuring the elemental composition of metals and alloys. The analysis of billets, other incoming parts, and the rebar produced at Bafgh Steel is carried out using the quantometer.

Types of Rebar from Bafgh Steel

Some of the types of rebar produced by Bafgh Steel include:

- Construction Rebar (A3 or Ribbed 400) with spiral ribs, 12 meters long, available in sizes from 8 to 32 mm.
- Construction Rebar (A3 or Ribbed 400) with spiral ribs, 9 meters long, sizes 14 and 16 mm, suitable for utility pole production and other applications.
- Construction Rebar (A3 or Ribbed 400) with spiral ribs, custom lengths, available in sizes from 8 to 40 mm.
- Construction Rebar (A4 or Ribbed 500) with compound ribs, 12 meters long.
- Construction Rebar (A4 or Ribbed 500) with compound ribs, 9 meters long, sizes 14 and 16 mm, suitable for utility pole production and other applications.
- Construction Rebar (A4 or Ribbed 500) with compound ribs, custom lengths, available in sizes from 8 to 40 mm.
- Industrial Alloy Rebar such as CK45, CK60, ST52, etc., in various thicknesses and lengths based on customer specifications.
- Rebar conforming to BS and DIN standards such as B500B, in customized thicknesses and lengths for export.



Rebar

The rebar produced at Bafgh Steel is always supplied in accordance with the customer's requested standards. Given the high demand for high-quality construction rebar, especially 400 ribbed rebars and 500 ribbed rebars, in the domestic market, we maintain a comprehensive inventory of these rebars. Through strategic production planning aligned with consumption patterns, we ensure immediate loading for customer requests. Bafgh Steel rebar is typically packaged in 2-ton bundles with a length of 12 meters, maintaining minimal weight tolerance. The use of four durable wires for bundling prevents the bundles from opening and maximizes volume efficiency. This not only assures customers of receiving complete and intact bundles but also allows for easy handling with both magnetic and hook cranes.



Specifications of Dimensions and Weight of Produced Rebars					
Rebar Diameter (mm)	Weight per Meter (kg)	Weight of a 12-Meter Bar (kg)	Weight of a 12-Meter Bar in a 2-Ton Bundle	Transverse Rib Height (mm)	Rebar Rib Height (mm)
8	0/40	4/7	422	0/52-0/75	≤ 0/8
10	0/62	7/4	270	0/65-0/8	≤ 1
12	0/89	10/7	188	0/8-1	≤ 1/2
14	1/21	14/5	138	0/91-1/3	≤ 1/4
16	1/58	19/0	105	1/04-1/3	≤ 1/6
18	2/00	24/0	83	1/2-1/5	≤ 1/8
20	2/47	29/6	68	1/3-1/7	≤ 2
22	2/98	35/8	56	1/43-1/9	≤ 2/2
25	3/85	46/2	43	1/63-2/1	≤ 2/5
28	4/83	58/0	34	1/82-2/4	≤ 2/8
32	6/31	75/7	26	2/1-2/6	≤ 3/2
36	8	96	21	2/35-2/7	≤ 3/6
40	9/9	118/8	17	2/6-3	≤ 4

Mechanical Properties of Produced Rebars					
Rebar Grade A10	Elongation Percentage with Gauge Length 10 Times the Diameter	Elongation Percentage with Gauge Length 5 Times the Diameter A5	Elongation Percentage with Gauge Length 5 Times the Diameter	Ultimate Strength to Yield Strength Ratio (Mpa)	Yield Strength (Mpa)
(A3)	≥ 12	≥ 16	≥ 1/25	≥ 600	≥ 400
(A4)	≥ 8	≥ 10	≥ 1/25	≥ 650	≥ 500

Chemical Analysis of Produced Rebars						
Grade of Ribbed Rebar	%C	%Si	%Mn	%P	%S	%N
(A3)	0.28-0.34	0.2-0.25	0.65-0.80	≤ 0,04	≤ 0,04	≤ 80 ppm
(A4)						

Coils and Wire Rods

To diversify its product portfolio, Bafgh Steel has commenced the production of various steel coils and wire rods for industrial and construction applications. With an annual production capacity of 500,000 tons, Bafgh Steel's coil production line meets a significant portion of the industry's demand for this raw material. The steel coils and wire rods from Bafgh Steel, available in various grades, are used for manufacturing wire, welding wire, steel fittings, and similar products.

We can produce various types of coils based on customer orders in sizes ranging from 5.5 to 16 mm. Depending on the application, different grades are used. Our grades include RST34,1006,1008 and 5SP, which are available both ribbed and plain. By adhering to proper cooling conditions, using high-quality billets, and ensuring appropriate preheating, our wire rods and coils possess optimal mechanical properties, making them highly suitable for tensile and cold rolling applications in various industries.

Bafgh Steel's coils and wire rods are compacted and packaged using latest European equipment, with bundles secured from four directions using wires. To facilitate the use of coils, the beginning and end of each coil are neatly arranged during packaging. This meticulous packaging not only prevents unwanted unbundling and associated financial and physical damages but also simplifies transportation and storage.

Quality	Maximum Diameter (mm)	Minimum Diameter (mm)	Diameter Tolerance (mm)	Unit Weight (kg/m)	Area (mm ²)	Wire Rod Size (mm)
O/64 (mm)	5.4	4.6	±0/4 (mm)	0.154	19.63	5
	5.9	5.1		0.186	23.76	5.5
	6.4	5.6		0.222	28.27	6
	6.9	6.1		0.260	33.18	6.5
	7.4	6.6		0.302	38.40	7
	7.9	7.1		0.347	44.18	7.5
	8.4	7.6		0.395	50.26	8
	8.9	8.1		0.445	56.74	8.5
	9.4	8.6		0.499	63.62	9
	9.9	9.1		0.556	70.88	9.5
	10.4	9.6		0.617	78.54	10
	10.9	10.1		0.680	86.59	10.5
	11.4	10.6		0.746	95.03	11
	11.9	11.1		0.815	103.9	11.5
	12.4	11.6		0.888	113.1	12
	12.9	12.1		0.963	122.7	12.5
	13.4	12.6		1.04	132.7	13
	13.9	13.1		1.12	143.1	13.5
14.4	13.6	1.21	153.9	14		
14.9	14.1	1.30	165.1	14.5		
15.4	14.6	1.39	176.7	15		
O/8 (mm)	16	15	±0/5 (mm)	1.48	188.7	15.5
	16.5	15.5		1.58	201.1	16
	18.5	17.5		2.00	254.5	18
	20.5	19.5		2.47	314.2	20

Steel Grade	Elongation (%)	Ultimate Strength (Mpa)	Yield Strength (Mpa)	%S	%P	%Mn	%Si	%C
RST34.2	25±	350±	210±	0.020±	0.025±	0.35-0.45	0.08-0.15	0.07-0.12
ST5SP	15±	510±	310±	0.040±	0.040±	0.6-0.8	0.17-0.25	0.28-0.34
ST3SP	25±	450±	290±	0.020±	0.030±	0.55-0.65	0.18-0.22	0.17-0.21
1006	25±	340±	210±	0.020±	0.025±	0.30-0.40	0.05-0.08	0.05-0.08
1008	25±	340±	210±	0.020±	0.025±	0.35-0.45	0.08-0.15	0.07-0.09

Equivalent Standards	Nominal Diameter (mm)	Diameter Tolerance (mm)	Out of Roundness (mm)	Unit Weight (Based on Nominal Diameter)
ASTM A510/S10M-11	5.5	± 0.4	0.64 ±	0.186
DIN 5910	6.5	± 0.4	0.64 ±	0.260
JIS G 3505-2004	8	± 0.4	0.64 ±	0.395





Bafgh Steel Sponge Iron

Bafgh Steel commenced the production of sponge iron in mid-2022, and it is currently one of the highest quality sponge irons available in the domestic market.

Utilizing the latest global technologies—specifically the Midrex technology, which is considered one of the most environmentally friendly methods for sponge iron production in terms of emissions and water consumption—along with high-quality raw materials, has been crucial in achieving this status. The required iron ore pellets are sourced from nearby pelletizing plants. Due to the richness of the adjacent mines, these pellets possess high purity and desirable chemical properties, which are then converted into sponge iron through the direct reduction process. It is noteworthy that Bafgh Steel also plans to construct an on-site pelletizing plant in the future, which will supply the unit's required pellets. The chemical analysis of sponge iron is highly important for the steelmaking industry. Beyond the significance of the iron purity in sponge iron, the low percentages of other elements also impact the final mechanical properties of the produced steel. Therefore, at Bafgh Steel, we strive to produce consistently high-quality sponge iron with minimal variations in elemental composition.

The Range of Variations in the Analysis of Produced Sponge Iron is as Follows		
Index	Unit	Amount
Fe Total	%	88±1
Fe Metal	%	81±2
MD	%	Min 91
C	%	1 - 2
S	%	Max 0.01
P	%	Max 0.06
SiO ₂	%	Max 5
Al ₂ O ₃	%	Max 1
CaO	%	Max 1.2
MgO	%	Max 1.5
Size (8-16mm)	%	Avg 85%

Our Values

Organizational values help us define the core pillars of our identity. These values guide us towards our lofty goals and impact the quality of our work. Bafgh Steel embodies a unique set of human-centered values that support the organization's vision and decision-making processes. For us at Bafgh Steel, organizational values are more than just words; they serve as a guide for how individuals should perform. Our values consistently encourage positive behaviors and steer clear of anything that could harm the workplace environment.

Continuous Growth

In today's world, innovation is the lifeblood of leading businesses. At Bafgh Steel, innovation helps us create unique experiences for our customers and colleagues by providing services and products that are distinctively linked to our brand. By fostering creativity, we ensure there are no equivalents to what we offer. We attract top talents by supporting novel ideas. For us, entrepreneurship means developing and organizing investments while managing risks. Our mindset is to create job opportunities to establish new markets and increase national revenue. New businesses are the main engines of economic growth and poverty reduction. By establishing new production units, we play a key role in shaping a dynamic economy.



Dignity

We are all born precious and invaluable, irreplaceable in every way. Respecting oneself is a fundamental human right, and by committing to this, we experience less anxiety during critical times. This allows for healthy interactions and greater confidence in our decision-making. Respect for colleagues reflects adherence to the most fundamental human principles, leading to synergy and creative solutions, collective satisfaction, increased productivity, and the promotion of mutual learning. Respect for customers is the foundation of loyalty. It solidifies relationships and builds trust. We strive for the success of our customers' businesses so that both parties can grow together.

Commitment to Quality

Commitment to quality is a cornerstone of our organizational culture. By adhering to high-quality standards, utilizing a range of processes and tools, and continuously monitoring their optimal performance, we strive to immediately identify and address defects, thereby building trust with our customers. This commitment is upheld at all levels of the organization. We share in our customers' reputation and remain dedicated to quality to help them achieve their goals. We take ownership of our work and serve as ambassadors for our business. As committed members, we bring constructive ideas to the table, actively participate, create added value, and take steps toward continuous improvement.

We are committed to the future of our nation's children!

Commitment to the Community

At our core, we believe that understanding and meeting the needs of local communities is vital to the success of any business. Supporting the social and economic growth of local communities is always at the forefront of our actions. Our approach involves making social investments aimed at creating and maintaining productive and mutually beneficial relationships. We are dedicated to facilitating regional livelihoods in the areas where we operate, contributing to the welfare of the local population through job creation in underserved regions. Our humanitarian efforts, such as building schools and sports facilities in local communities and other areas where development can have a significant impact, stand as a testament to our commitment to creating a bright future for this land.

Commitment to the Environment

As a production unit in the steel and iron industry, we have always considered ourselves responsible to future generations and the environment. Aware of the environmental impact of producing steel products, we consistently strive to reduce pollution and waste, creating the necessary conditions to preserve resources and adhere to sustainability principles across all our industrial and production processes. We never forget that we are inhabitants of this generous planet that shelters us. Baigh and Kalmend, with their sparse vegetation, are recognized as the primary habitats of the Iranian cheetah. To provide a safe haven for the region's wildlife, we have made efforts to restore the area's vegetation.

Our Environmental Initiatives:

- Treating and using brackish and non-potable desert water in production processes
- Recycling and reintroducing wastewater from factories back into the production cycle
- Avoiding the use of mazut in furnaces and employing dust collectors at their outlets
- Expanding green coverage in desert climates using innovative irrigation methods
- Periodically measuring and seasonally self-monitoring environmental pollutants
- Proper disposal of industrial waste through companies approved by the Iranian Department of Environment



Standards and Certifications:

- ISIRI 3132: Hot-rolled Steel Bars for Reinforcement of Concrete Standard
- ISO 45001:2018: Occupational Health and Safety Management Systems
- ISO 14001:2015: Environmental Management Systems Certification
- ISIRI 9653: Energy Consumption Compliance Certificate
- DIN 488: German National Standard Certification
- ISO 9001:2015: Quality Management System
- INSO/ISO-IEC 17025: Accredited Laboratory Certification
- CE: European Union Product Compliance Certification
- 5S: Workplace Organization System

