



ARFA
Iron & Steel
COMPANY



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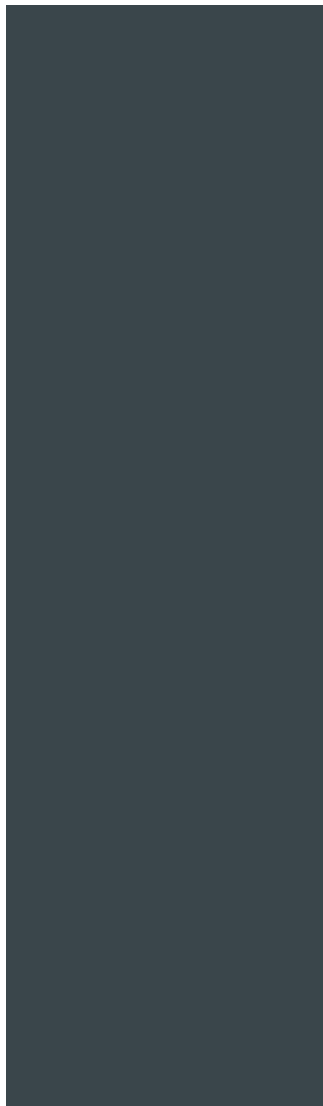
Introduction

Arfa Iron and Steel Company (public joint stock) was found in February 2005, and has been registered as a private joint stock company on the Tehran Companies' Registration and Industrial property Office.

According to the decisions of the general meeting in December 2013, rights of Joint Stock Company changed to public Limited companies and the company symbol <Arfa > reached to submit in the second OTC market registered companies.

Arfa Iron and Steel Company is located in 25th km northwest of Ardakan, Yazd province, Iran and is included both DRI and Steel Making plant with the annual capacity of 800,000 tons for each.

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| Production plants

A: Direct Reduction Plant

The purpose of the DRI plant is annual production of 800,000 tons sponge iron via MIDREX technology to provide metallic charge of steel making plant.

ARFA DRI plant supplies more than 1 million tons of pellet from Chadormalu pelletizing plant.

Parameters	Unit	Qty
Metallization	%	≥ 92
C	Wt%	2-2.5
Size	mm	6-16



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B: Steel Making Plant

The purpose of steel making plant is annual production of 800,000 tons high quality carbon and alloy steel billets.

Steel production technology

- Production of molten steel via electric arc furnace (EAF)
- Using more than 90% DRI in metallic charge
- Utilization of ladle furnace (LF), vacuum degassing (VD) and vacuum oxygen decarburization (VOD) technologies for secondary metallurgy
- Utilization of 6 strands continuous casting machine (CCM) with ability of semi-protected casting

Products

ARFA Iron & Steel Company is able to produce lots of plane carbon, quality and alloy steel billets based on national and international standards e.g. DIN, ASTM, GHOST and BS.

Physical properties

Dimension (mm)	Producible lengths (m)	Limit deviation along square side (mm)	Difference between the length of the diagonals (mm)	Mass of one running meter (kg)	Billet straightness tolerance (mm/m)	Billet twist (mm/whole lenth)
130*130	6-12	± 4	Max: 6.5	1303	Max: 6	Max: 20
150*150	6-12	± 4.5	Max: 7.5	1735	Max: 6	Max: 20
200*200	6-12	± 6	Max: 10	3084	Max: 6	Max: 20

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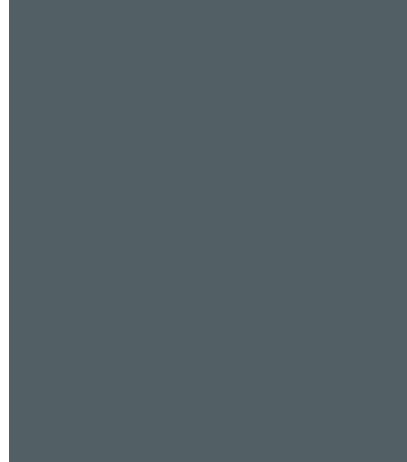




Chemical composition:

Steel grade (DIN/GHOS/ASTM/JIS/BS)	C %	Mn %	Si %	S % (Max)	P % (Max)	others %
31Mn4 / St5sp	0.28-0.35	0.65-0.95	0.15-0.45	0.040	0.035	-
Rst44-2 / St4sp	0.14-0.22	0.40-0.70	0.15-0.35	0.040	0.035	-
Rst37-2 / St3sp	0.10-0.20	0.40-0.65	0.15-0.35	0.040	0.035	-
St52	0.16-0.22	1.25-1.50	0.20-0.50	0.040	0.035	-
St2sp	0.10-0.15	0.40-0.60	0.10-0.20	0.035	0.035	-
Rst34-2	Max: 0.12	Max: 0.50	Max: 0.15	0.020	0.025	-
C10C	0.11-0.14	0.55-0.70	0.11-0.14	0.020	0.025	-
C45	0.42-0.48	0.60-0.90	0.15-0.25	0.045	0.045	-
Ck45	0.42-0.48	0.60-0.90	0.15-0.25	0.025	0.025	-
C60	0.57-0.65	0.60-0.90	Max: 0.40	0.045	0.045	-
Ck60	0.57-0.65	0.60-0.90	Max: 0.40	0.025	0.025	-
SWRH72B	0.69-0.75	0.60-0.70	0.15-0.25	0.025	0.035	-
A615 Grade 60 (G60)	0.28-0.37	1.20-1.60	0.20-0.50	0.040	0.035	-
70Cr2	0.65-0.70	0.75-0.90	0.20-0.30	0.030	0.030	Cr: 0.50-0.70
42CrMo4	0.38-0.45	0.60-0.90	Max: 0.40	0.035	0.035	Mo: 0.15-0.30 Cr: 0.90-1.10
36Mn6	0.34-0.40	1.40-1.65	0.20-0.40	0.040	0.040	-
34CrNiMo6	0.30-0.38	0.50-0.80	Max: 0.40	0.035	0.035	Mo: 0.15-0.30 Ni: 1.30-1.70 Cr: 1.30-1.70
Vanadium containing HSLA grades	Based on customer order					

- ARFA Iron & Steel co. is able to produce all mentioned steel grades with vacuum degassing (VD) treatment. Maximum dissolved hydrogen in VD-Treated steels will be 2 ppm.
- Upon the agreement with the customer, steel grades chemical compositions are negotiable.
- All constructional steel grades with carbon content between 0.08 – 0.80% are producible.
- Upon the agreement with the customers, marking is made by stamping the billet face.



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C: Auxiliary Systems

C.1: Air-separation plant

Description	Nm ³ /h Outlet capacity	% Purification
Gaseous Oxygen	Nm ³ /Hr 6400	≥99.6 % O ₂
Liquid Oxygen	Lit/Hr 125	≥99.6 % O ₂
Gaseous nitrogen	Nm ³ /Hr 6400	≤ 10ppm O ₂
Liquid Nitrogen	Lit/Hr 155	≤ 10ppm O ₂
Liquid Argon	Lit/Hr 256	≤ 2ppm O ₂ ≤ 2ppm N ₂



C.2: Substation Unit

The 230 KV substation unit provides feeding power of direct reduction plant and steel making with demand of 150 MVA.

Due to reaching accurate power factor and reducing harmonics a parallel 33KV SVC unit to EAF & LF unit is used.

C.3: Water Treatment Unit

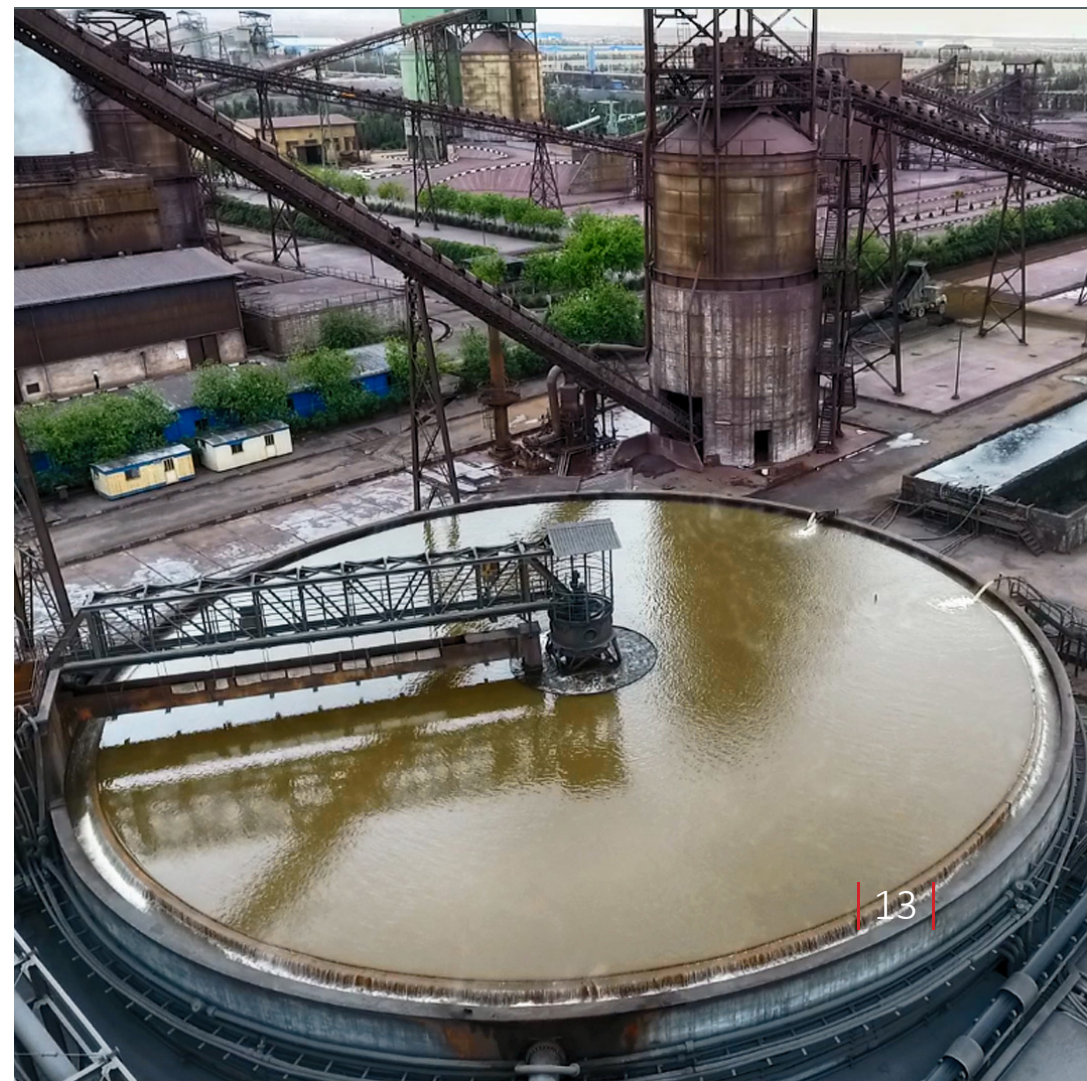
This unit is responsible for supplement, transmission, enhancement and distribution of cooling water for production process as well as natural gas distribution.

The water treatment unit includes industrial and sanitary wastewater refineries, water supply refineries, balancing reservoirs for transmission lines, DRI plant and steel making pump station, instrumental air compressor and natural gas stations.





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C.4: Laboratories and Quality control department

Arfa Iron and Steel making company is equipped with two sophisticated laboratories; central and fast analysis which are capable of carrying out highly precise physical and chemical analyses in mine and metal industry.

Furthermore, the control quality department is responsible for monitoring and sampling of raw materials, carrying out hot-cold supervision as well as representing proper certificate for produced billets.

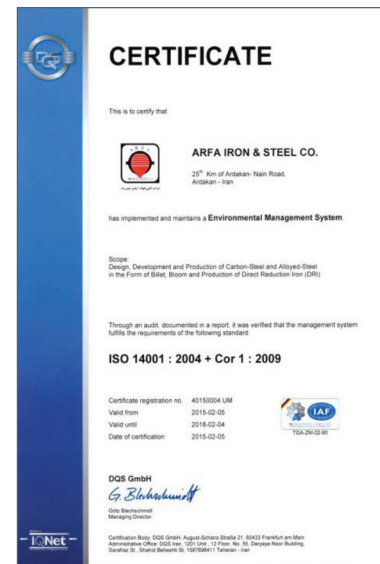
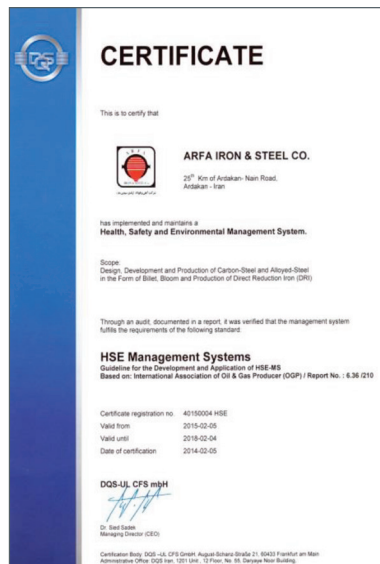
A) Central laboratory

This section is responsible for chemical and physical quality control of all raw materials, water, oil, process gas and DRI by suitable chemical and physical tests and according to international standards. This laboratory is equipped with physical-chemical measuring devices to measure DRI and Sponge Iron physical parameters, also, devices such as ICP, XRF, AAS and C/S Analyzer for all entering and producing materials.

B) Fast Analyses laboratory

This section is equipped with the Quanta-meter, C/S Analyzer, XRF and O/N/H Analyzer and is situated near the steel making workshop to analyze all melt samples delivered to this section as well as preparing the proper report of elements to the user by the help of modern online networks.

Certificates







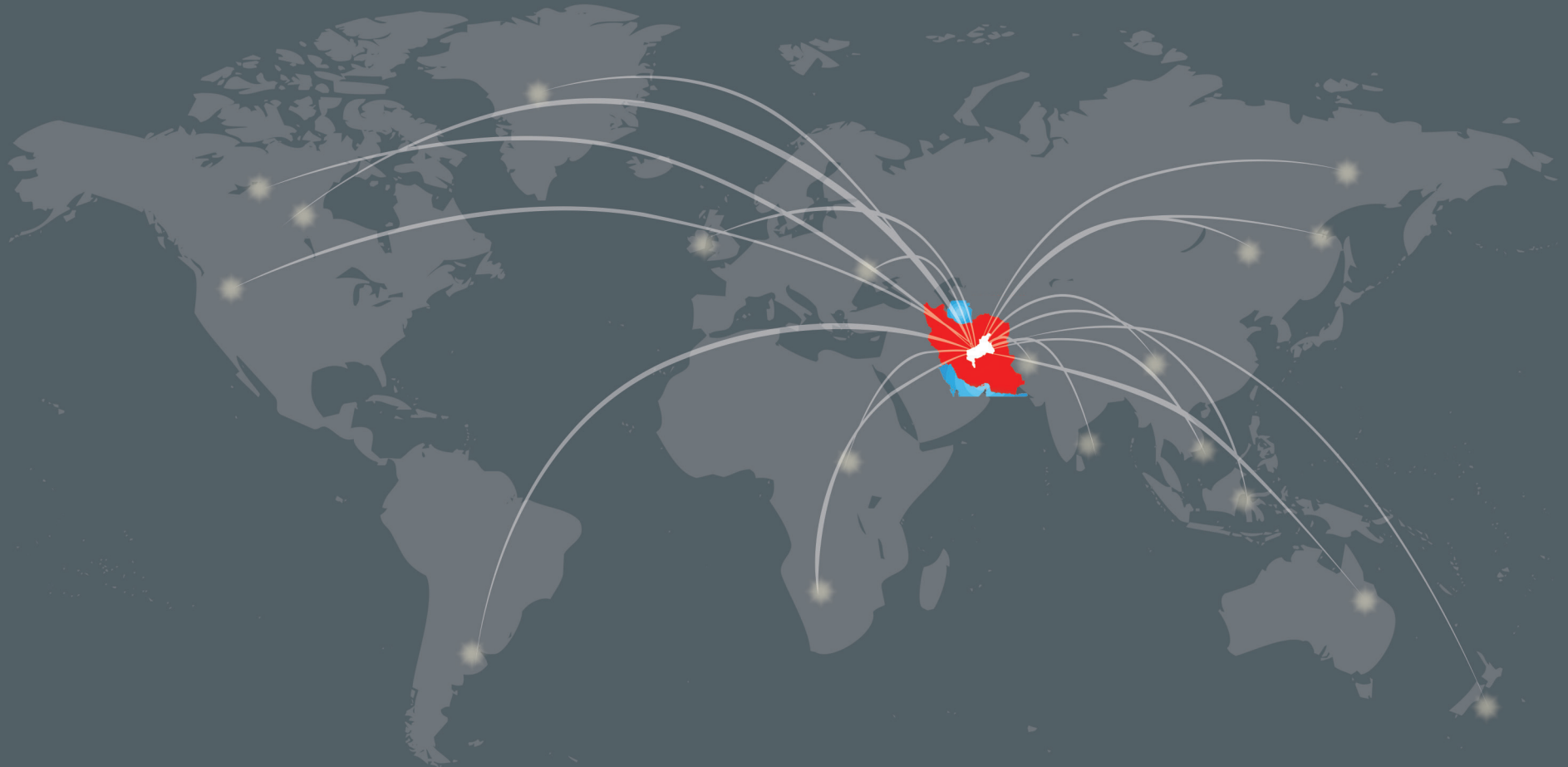


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| Environmental activities

- 1- Using Eco-friendly methods in production process.
- 2- Deployment, implementation and improvement of international systems for the environment management (ISO 14001) and health, safety and the environment management. (HSE MS)
- 3- Installation of online monitoring system to monitor and measure the EAF emission according to Environmental Protection department.
- 4-impelimentation and commissioning of industrial and sanitary waste water treatment plant for irrigation of green areas as well as recirculation of water to production process.
- 5-Planting and preserving 19000 trees inside the factory and 7000 trees in Ardakan Park of industry.
- 6- Employing periodical monitoring of pollutants by the environmental protection department trusted laboratory.
- 7-Designing, implementation and running de-dusting systems as well as noise isolation walls to control relevant pollutants.
- 8-Designing and installation of covers on conveyor belts to protect the spread of DRI, sponge iron and raw materials particles.
- 9-Designing and implementation of waste management system (WMS 2015).
- 10- Environmental investment of 300 billion Rials and allocating 20 billion Rials for maintenance of relevant equipment.

Active participation in domestic and international markets With the approach of customer satisfaction



The most conspicuous honor of Arfa iron and steel company is to enhance the quality of products according to customers and consumer's certification.

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