ANA STEEL CO.

FOOLAD ALBORZ NAB ARASH

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INTRODUCTION

FOOLAD ALBORZ NAB ARASH

Alborz Nab Arash Steel Complex, a private joint-stock company, is registered with the Tehran Companies Registration Office under number 448427 on 15/02/1392 (May 4, 2013). It is one of the largest projects in the private sector of Iran's steel industry, established with the goal of improving the economic and industrial capabilities of Iran and its neighboring country, Turkey.

This company, situated on a 337-hectare plot of land approximately 7 kilometers from the Abhar city in Zanjan province, boasts an annual production capacity of one million tons of various types of plain carbon steel and low-alloy steel billets in its first phase, and 600 thousand tons of rebars in its second phase. The total area of the complex includes administrative and production buildings, manufacturing workshops, supporting facilities, and warehouses, covering over 85,000 square meters.

The steelmaking area comprises an electric arc furnace, a ladle furnace, a continuous casting machine, and supporting units, including refractory units, air separation unit, material handling, and water treatment.

In the year 1394 (2015), the basic engineering, construction, installation, commissioning, and knowledge transfer contract for the construction of this complex was awarded to Danieli Italy. In 1396 (2017), the installation operations of over five thousand tons of equipment and machinery for the steelmaking unit began with the arrival of foreign contractors' equipment in the country. The first phase of this grand complex became operational in Bahman 1399 (January/February 2021), coincide with the auspicious anniversary of the Islamic Revolution's victory.

PRODUCTION PROCESS AND TECHNOLOGY

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The ALBORZ NAB ARASH Steel complex, leverages advanced technical knowledge and technology from Danieli Italy in its production process. In this company, an EAF (Electric Arc Furnace) of type EAF-A-C with a nominal capacity of 170 tons and the capability to discharge 140 tons of molten steel is employed."

"At present, the furnace charging regime consists of 98% DRI and 2% scrap iron. The furnace transformer, with a capacity of 115 MvA, provides the necessary energy for metal melting. Additionally, a carbon and oxygen injection system is utilized during the melting process to harness chemical energy."

"A ladle furnace (LF) includes equipment such as a 22- MvA transformer and power supply, a wire injection system, an argon gas stirring system, and a separate material charging system. The primary function of the LF is to maintain molten metal homogenization, perform final temperature adjustment and analysis, as well as remove certain impurities such as sulfur. After preparation, melting, and declaration of readiness, the molten metal is sent to the casting unit for further processing."

The ALBORZ NAB ARASH Steel complex, continuous casting machine (CCM) is of the arc type with a 9-meter radius and features 6 strand. It has the capability to produce plain and carbon steel in sizes of 100*100,125*125,130*130,150*150,200*200,220*220

VISION AND MISSIONS

The ALBORZ NAB ARASH Steel Complex intends, in the coming decade, to transform into one of the prominent producers of quality steel in the country through the production and supply of billets and steel products in accordance with national and international standards. By establishing a knowledgeable organization capable of producing and disseminating knowledge, investing in human resources development, upholding environmental principles and ethics, carrying out social responsibilities, adhering to commitments, and safeguarding the interests of customers and stakeholders, we aim to become a leading company in the steel industry.

This company, as one of the largest private steel complexes, aims to play a significant role in the industrial and economic influence of the country by considering steel production as a strategic product.

STEEL BILLETS IN ALBORZ NAB ARASH COMPLEX

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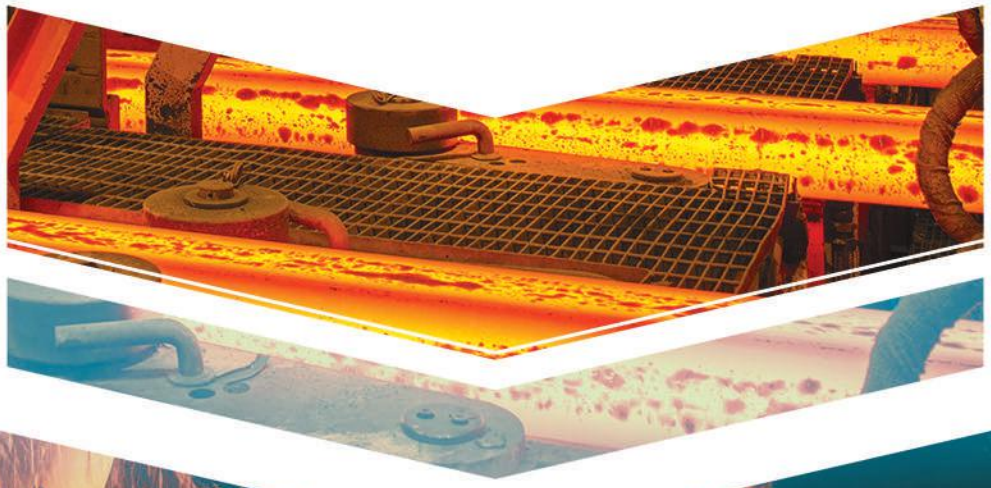
The ALBORZ NAB ARASH Steel complex relies on its technical expertise and the knowledge of its specialists, coupled with cutting-edge technology, to produce a wide range of structural and quality steels. These products are manufactured in accordance with national Iranian standards (INSO 20300-1398) as well as international standards, including the Russian Federation's GOST 380-2008 and the European Union's EN-10025-2:2017. These high-quality steels are supplied to our customers."

QUALITY CONTROL AND LABORATORY

Quality control involves the inspection and testing of raw materials for the products. The company's quality control unit, relying on its expert and efficient human resources and equipped with modern and advanced equipment, monitors the quality of raw materials and final products. All products manufactured by this company are traceable up to the stages before production, and the company guarantees the quality of its products according to the customer's request at the time of consumption in the buyer's factory.

Standard	Grade	%C	%Si	%Mn	%S	%P	%Cr	%Mo	%V	%Cu	%Ai
GOST 380	3SP(ST37)	0.14-0.22	0.15-0.30	0.40-0.65	Max 0.05	Max 0.05	-	-	-	-	-
GOST 380	5SP	0.28-0.37	0.15-0.30	0.50-0.80	Max 0.05	Max 0.05	-	-	-	-	-
DIN 17100	St52	0.16-0.22	0.20-0.50	0.90-1.60	Max 0.04	Max 0.04	-	-	-	-	-
DIN	Ck45	0.42-0.48	0.15-0.25	0.60-0.90	Max 0.025	Max 0.025	-	-	-	-	-
DIN	Ck60	0.57-0.65	< 0.40	0.60-0.90	Max 0.035	Max 0.030	-	-	-	-	-
DIN	RST34_2	0.05-0.08	0.04-0.08	0.30-0.45	Max 0.02	Max 0.02	-	-	-	-	-
DIN	36Mn6	0.34-0.40	0.20-0.40	1.40-1.65	0.04	0.04					
DIN	42CrMo4	0.38-0.45	0.60-0.90	0.15-0.40	0.035	0.035	0.90-1.10	0.15-0.30			
SAE J403	1006	Max 0.08	0.05-0.15	0.25-0.40	Max 0.04	Max 0.04	-	-	-	-	-
SAE J403	1008	Max 0.10	0.05-0.15	0.30-0.50	Max 0.04	Max 0.04	-	-	-	-	-
SAE J403	1010	0.08-0.13	0.15-0.30	0.40-0.60	Max 0.04	Max 0.04	-	-	-	-	-
SAE J403	1012	0.10-0.15	Max 0.15	0.40-0.60	Max 0.04	Max 0.04	-	-	-	-	-
SAE J403	1015	0.13-0.17	Max 0.25	0.45-0.60	Max 0.04	Max 0.04	-	-	-	-	-
DIN 488-1	B500B	0.18-0.22	0.15-0.30	0.70-0.90	Max 0.04	Max 0.04	-	-	-	-	-
ASTM	A615	0.20-0.24	0.20-0.30	0.60-0.70	Max 0.05	Max 0.05	-	-	-	-	-
DIN	SWRY-11	Max 0.08	Max 0.25	0.40-0.60	Max 0.02	Max 0.02	-	-	-	-	-



SPECIFICATION OF THE GRADES

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Dimensions	Size	Tolerances
Cross-section (mm x mm)	100*100	1% ±
	125*125	
	130*130	
	150*150	
	200*200	
	220*220	

STEEL BILLET SIZE

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AIR SEPARATION UNIT

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The industrial gas production unit at The ALBORZ NAB ARASH Steel complex, is responsible for producing industrial gases, including oxygen, nitrogen, and argon, to meet the complex's needs and a portion of the market demands. The industrial gas plant of the complex utilizes state-of-the-art cryogenic air separation technology. The nominal capacity for oxygen production in this unit is 7,500 normal cubic meters per hour, making it one of the largest plants in the northwest of the country. The purity of the gases produced in this facility is among the highest grades possible. For example, the produced argon gas has an outstanding purity level, with total impurities of less than 5 ppm, meeting the highest quality standards."

STANDARD	
ASTM A36	GENERAL STRUCTURAL STEELS
ASTM A283	
JIS G3106	
DIN 17100	
EN 10025	
STANDARD	
Gost 380 - 94	CONCRETE REINFORCEMENT STEELS
ASTM A615	
ASTM A706	
JIS G3112	
STANDARD	
SAE J403	LOW CARBON FOR WIRE RODS & PIPES
JIS G3505	
DIN 10016	
STANDARD	
DIN 17145	CARBON STEEL ELECTRODES & FLUXES FOR WELDING
JIS G3503	
STANDARD	
SAE J403	COLD HEADING QUALITY
JIS G3507	
DIN 1654 - 3	
DIN 17111	

FUME TREATMENT PLANT (FTP)

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The FTP (fume treatment plant) unit is responsible for the collection, disposal, and absorption of fume emissions from EAF and LF furnaces. This unit has an air treatment capacity of 2,400,000 cubic meters per hour. This unit equipped with four main fans, a booster fan, and an exhaust fan.

The water purification unit at the Water Treatment Plant consists of main sections, including the raw water hall and settling tanks, the pre-treatment hall, and the pump house. It includes equipment such as carbon and sand filters, UF membrane filters, micron filters, an RO system, Polyelectrolyte tanks, and instrumentation. The water treatment process at The ALBORZ NAB ARASH Steel complex includes both open and closed-loop water circulation systems. The RO water production capacity at this facility is 160 cubic meters per hour.

WATER TREATMENT PLANT

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WORKSHOP FOR MAKING TOOLS AND EQUIPMENT

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The Tool and Equipment Manufacturing Workshop serves as a technical support unit responsible for producing and refurbishing the necessary equipment required by various production units. This workshop also handles the repair and commissioning of damaged equipment needed for the production line.

The Material Handling System (MHS) Alborz Nab Arash Steel complex, incorporates technology from the Italian company O.M. This system includes silos, feeders, and conveyor belts, and it is responsible for storing and transporting the raw materials required for the production line, including DRI, limestone, carbon, dolomite, and ferroalloys.

This unit consists of three sections, including two DRI silos, each with a capacity of 7,000 tons. The intermediate silos are related to the main furnace, numbering nine in total. Additionally, there are four DRI silos, each with a capacity of 160 tons, and five silos for slag-forming materials such as lime, dolomite, and coke. There are also silos for fluxes containing materials necessary for the charging process in the ladle. All material transfer operations are carried out automatically via conveyor belts.

MATERIAL HANDLING SYSTEM

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"In 2020, special voltage converter station with a capacity of 230 kilovolt was established at Alborz Nab Arash Steel Complex , in collaboration with both domestic and international companies. This station comprises two 145 MVA transformers and one 75 MVA transformer. Two transformers are consistently operational to supply the required energy to the steelmaking and casting units, as well as to meet the energy demands of the complex."


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Alborz Nab Arash Steel (Private Stock) (ANA) as one of the largest projects of the private sector of Iran's steel industry with the aim of taking advantage of the economic and industrial capabilities of two neighboring countries, Iran and Turkey, on 02/15/2013, number 448127 It was registered in Tehran Companies Registration Office.

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