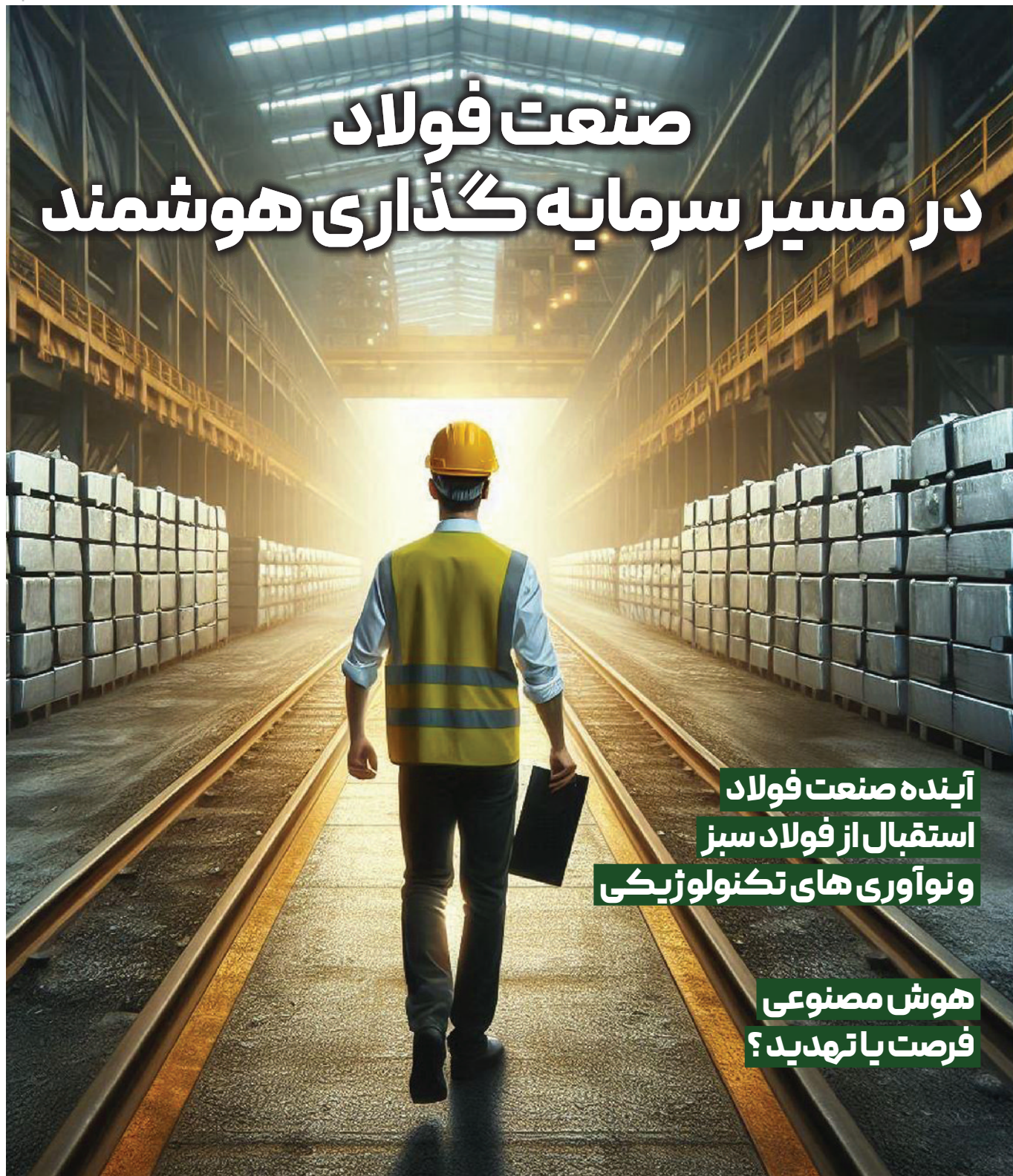


اقتصاد نگار

EGHTESAD NEGAR

شهریور ۱۴۰۳ | ویژه نمایشگاه متال اکسپو

صنعت فولاد در مسیر سرمایه گذاری هوشمند



آینده صنعت فولاد
استقبال از فولاد سبز
و نوآوری های تکنولوژیکی

هوش مصنوعی
فرصت یا تهدید؟



HBI Advantages

All DRI Usage

Lack of Self-Igniting

Safe Transportation

Reducing Shipping Risk

سهولت در انبارش حتی در محیط باز
 Minimum risk of overheating during storage even in outdoor area

قابلیت شارژ مداوم در کوره های EAF
 Continuous charging capability in EAF

قابلیت شارژ بسته ای در کوره های EAF
 Basket charging capability in EAF

قابلیت پیش گرمایش جهت شارژ در کوره های EAF
 Preheating function capability for charging in EAF

مزایای محصول HBI

کلیه کاربردهای DRI

عدم خود اشتعالی

سهولت در حمل و نقل

کاهش ریسک حمل دریایی

سهولت در انبارش حتی در محیط باز

Minimum risk of overheating during storage even in outdoor area

قابلیت شارژ مداوم در کوره های EAF

Continuous charging capability in EAF

قابلیت شارژ بسته ای در کوره های EAF

Basket charging capability in EAF

قابلیت پیش گرمایش جهت شارژ در کوره های EAF

Preheating function capability for charging in EAF

Factory address : Persian Gulf Mineral
 & Metal Industries Economic Zone
 13 KM. Shahid Rajaei Port Road,
 Bandar Abbas, Iran
 Phone : +98 76 -3100
 Email : bpgss@sabasteel.co

دفتر تهران : خیابان ولیعصر (عج)، خیابان شهید سرتیپ هوشنگ
 وحید دستگردی (ظفر)، پلاک ۳۸۰، طبقه ۴
 تلفن : ۰۲۱ ۹۱۰۹ ۱۲۶۱
 کارخانه : بندرعباس . کیلومتر ۱۳ جاده اسکله شهید رجایی
 منطقه ویژه اقتصادی صنایع معدنی و فلزی خلیج فارس
 تلفن : ۰۷۶ - ۳۱۰۰

فراوری معدنی اوبال کانی پارس (سهامی عام)
Opal Kani Pars
Mining and Processing



WHERE IDEAS



- ✓ Building Sustainable Productive Capacity in Iranian Steel Value Chain
- ✓ Boasting the Most Modern, State-of-the-Art Heavy Excavation and Hauling Fleet in Iran
- ✓ Producing around 10% of the Iranian Crude Steel Raw Materials
- ✓ Fostering a Thriving Work Environment with a Young, Extremely Efficient Workforce
- ✓ Pinpointing a Balance in Crossroads of Youth and Experience in Human Capital
- ✓ Enjoying Enormous Public Trust, Fundamental Vigor and Reputation in the Iranian Capital Market



www.opalkanipars.com

+98 21 26743059



Central office: Unit 39, 11th floor, West entrance of Aryan tower, Mirdamad BLVD, Tehran, Iran

Export@persianfoolad.com +98(21) 24552

P.O.BOX: 1549846133 +98(21) 2225 8389

Factory: On the 20th Kilometer of Takestan to Abhar highway Persian steel Industrial Group

Persian Steel Group (PSG) is currently known as one of the Iran's leading suppliers of reinforcing bar (rebar) and steel profiles. The company is privately owned and supplies a large part of the country's rebar and profiles. This supply is especially needed in infrastructure, large-scale projects manufacturing plants, construction and building sectors.



Given the increasing role of advanced technologies on positioning the manufacturers in this market and industry, companies are constantly struggling to reach new markets and increase the market share for their products. Accordingly the Persian Steel Group considers it a top priority to achieve a larger share of the market for its products. The Persian Steel Group, using its core capital highly skilled and dedicated experts and modern equipment, has successfully penetrated the global target markets by manufacturing products with international quality standards, and exporting to many countries in the region, including Turkey, Iraq, Armenia Azerbaijan, Georgia, Pakistan, Afghanistan Syria, etc.





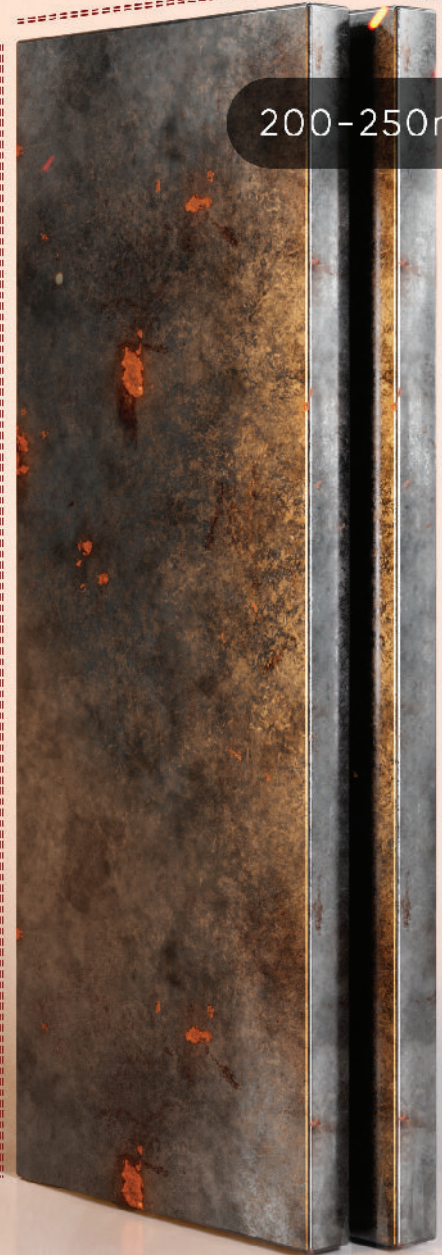
HORMOZGAN STEEL COMPANY

6-12m

900-2000mm

200-250mm

- ▶ Enjoying the potentiality of producing slabs of 250 & 200 mm thicknesses to diversify production and gain a superior position in the market
- ▶ Producing the widest slab in Iran with a thickness of 2,000 mm used for the production of oil and gas transmission pipes
- ▶ Possessing one of the most advanced fully automated casting machines for the production of slabs
- ▶ Enjoying the highest speed of casting slabs across the country with a speed of 1.6 meters per minute in order to increase efficiency
- ▶ Using a vertical arc casting system to produce quality steel
- ▶ Increasing the production of high-quality melts and reducing inclusions
- ▶ Utilizing the Dog House control systems to control and reduce pollution
- ▶ Possessing one of the most advanced desalination plants in the southern regions of Iran
- ▶ Producing high-carbon steels to manufacture high-strength steel products



www.Hosco.ir



13th km of Bandar Shahid Rajaei Highway, Bandar Abbas, Hormozgan, Iran



[Hormozgan.steel.company](https://www.instagram.com/Hormozgan.steel.company)



Info@hosco.ir



(+98)763353003-9



شرکت صنایع تولیدی نورد گرم فلز

کیفیت تعهد ما است

شرکت صنایع گرم فلز تولید کننده انواع نبشی و ناودانی

این شرکت تولید کننده انواع نبشی و ناودانی بر اساس نیاز مشتری بوده و همچنین محصولات این شرکت از استانداردهای روز اروپا برخوردار است.

آدرس دفتر مرکزی: تهران، فلکه دوم صادقیه، پاساژ سامان، قسمت اداری، طبقه پنجم
تلفن تماس: ۰۲۱-۴۷۲۸۲
www.garmfelez.com

Garmfelez Industries

Quality is Our Commitment

Manufacturer of Various Angles and Channels

Head Office: No. 5, Fifth Floor, Administrative Section, Saman

Shopping Center, Second Sadeghieh Square, Tehran

Contact Number: 021-47282

Website: www.garmfelez.com

This company produces all kinds of Angles and channels based on the sizes available in the market as well as according to the customer's needs, and the products of this company meet the current European standards



NGHSCO

Building a **Strong** Future



Production Capacity (Tons/Year):

Steel Billet

1,000,000

Sponge iron

800,000

Pellet

2,500,000

www.nghsco.com

GOLGOHAR

The biggest producer of Iron ore
Concentrate and pellet in the Middle East

 www.geg.ir



**Gol Gohar mining &
industrial company**

**Public relations &
international affairs**

Head Office: No.273,opposite to Lalach
Lotel. Dr.Fatemi Avenue Tehran ,IRAN
☎(+9821)88977261-7 ☎(+9821)88977260

COMPLEX: Km.50 Shiraz Road,Sirjan,
Kerman,Iran P.O.Box:78185/111
☎(+9834)42259001-9 ☎(+9834)42259000

GOHAR ZAMIN THE JEWEL OF IRAN

Gohar zamin

| Value making and quality from iron ore to concentrate and pellet

Rank 1

| pellet production in Iran

The largest

| open pit mine in the Middle East



(سهام عام)
شرکت معدنی و صنعتی گهر زمین
Goharzamin Mining and Industrial Company
روابط عمومی و امور بین الملل





مجتمع فولاد بافق BMISCO

شرکت مجتمع فولاد بافق با هدف اجرای کامل زنجیره تولید فولاد، توسط بخش خصوصی از سال ۱۳۹۰ فعالیت خود را در واحدهای نورد میلگرد و کلاف، احیا مستقیم، آهن اسفنجی و فولاد سازی آغاز کرد.

"Bafq Steel Complex Company, with the aim of fully implementing the steel production chain, started its activities in the rebar and coil rolling, direct reduction, iron sponge, and steelmaking units in 2011 by the private sector."

وفاداری مجتمع فولاد بافق (BMISCO) به تولید محصول با کیفیت و برخورداری از مزایای ترجیح حمل به جهت دسترسی مطلوب به جاده‌های ترانزیتی و در اختیار داشتن ناوگان حمل‌ونقل جاده‌ای مستقل، این مجتمع فولادی را به فعال بازار داخلی و بین‌المللی تبدیل کرده است.

"Bafq Steel Complex's (BMISCO) commitment to producing high-quality products, coupled with the advantages of preferential transportation due to convenient access to transit roads and the ownership of an independent road transport fleet, has transformed this steel complex into a domestic and international market player."

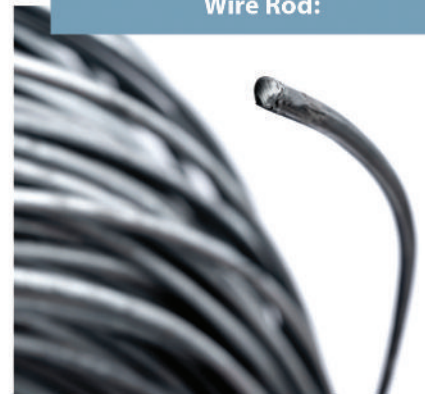
میلگرد:
Rebar:



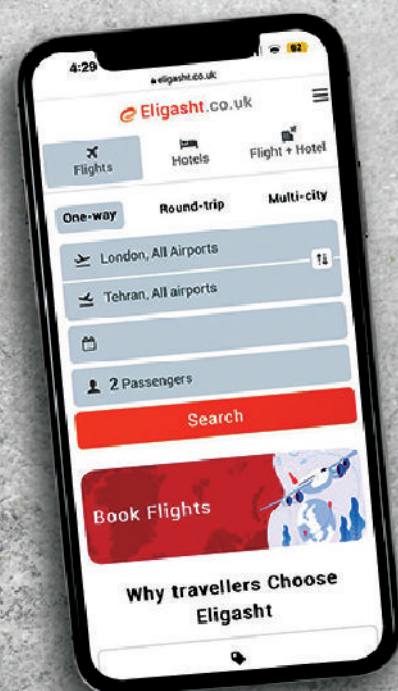
آهن اسفنجی:
Sponge Iron:



کلاف میلگرد:
Wire Rod:



Online booking for flights, trains, tours, and hotels



CONTACT US INFORMATION

LONDON

+44 20 3981 6111

eligasht.co.uk

TEHRAN

+98 21 8540

eligasht.com

ISTANBUL

+90 444 85 40

eligasht.com.tr

ANKARA

+90 312 425 70 95

eligasht.com.tr



نمانگر
NAMANEGAR

Organized by:



IIMDRO

IRAN 21. ULUSLARARASI METAFO

STEELEXP●NOFEREXP●THERMEXP●MINEXP●



23-26 Kasım 2024

Tahran Uluslararası Fuar Alanı



Tehran International Permanent Fairground 23 - 26 Nov, 2024

www.iranmetafo.com sales@iranmetafo.com

Tel: (+9821) 8820 3020



ATIS Fuarlık A.Ş. NAMANEGAR Fuarlığının Türkiye Temsilcisidir.

www.atisfuarc.com

Ayhan HACISALİHOĞLU 0542 785 43 05

ayhan@atisfuarc.com

table of contents

فهرست

| title | صفحه page | عنوان |
|---|--------------|---|
| Exhibitions: A Gateway to Attracting Investors in the Steel Industry | 12 | نمایشگاه ها دریچه ای برای جذب سرمایه گذاران در صنعت فولاد |
| Factors Affecting Future Steel Production | 13 | عوامل موثر بر تولید فولاد در آینده |
| An analysis of the steel production status in Iran and the world | 14 | بررسی وضعیت صنعت فولاد جهان و ایران |
| The Necessity of Developing Iran's Non-Oil Economy | 15 | ضرورت توسعه اقتصاد غیر نفتی ایران |
| METAL EXPO EURASIA ISTANBUL Opens Its Doors for the Sixth Time | 16 | نمایشگاه «متال اکسیو اوراسیا استانبول» درهای خود را برای ششمین بار باز می کند |
| The Future of the Steel Industry: Embracing Green Steel and Technological Innovations | 17 | آینده صنعت فولاد: استقبال از فولاد سبز و نوآوری های تکنولوژیکی |
| Opal Kani Pars: A pioneering innovator in the steel industry | 18-19 | اپال کانی پارس؛ مبتکر و پیشگام در صنعت فولاد |
| The Global Steel Market: 2024 Outlook | 20 | بازار جهانی فولاد: چشم انداز ۲۰۲۴ |
| A look at the productions of Mobarake Isfahan steel | 21-24 | نگاهی به تولیدات فولاد مبارکه اصفهان |
| A Look at the Development Plans of Iran's Fourth Largest Steel Plant | 25 | نگاهی به طرح توسعه ای چهارمین کارخانه بزرگ فولادی ایران |
| The Paris Agreement and a New Roadmap for the Steel Industry | 26-27 | معاهده پاریس و نقشه راه جدید صنعت فولاد |
| Artificial Intelligence: Opportunity or Threat? | 28-29 | هوش مصنوعی؛ فرصت یا تهدید؟ |

EGHTESAD NEGAR

Special Issue for Metal Expo Exhibition

Owner and Director: Azadeh Hosseini

Under the Supervision of: Editorial Board

Collaborators: Mahtab Rahmatali, Afsaneh Mosafer, Azadeh Hosseini, Zahra Mojtahed, Mojtaba Nazari, Nasim Asadi

Graphic Designer: Mahtab Beigi

Address: No. 19, First Floor, Unique Building, Alvand Street, Argentine Square, Tehran, Iran

Mail: EGHTESADNEGAR.CO@gmail.com

Website: EGHTESADNEGAR.COM

اقتصادنگار

شماره ویژه نمایشگاه متال اکسیو

صاحب امتیاز و مدیر مسوول: آزاده حسینی

زیر نظر: شورای سردبیری

یا همکاری: افسانه مسافر، مهتاب رحمتعلی، آزاده حسینی

زهرا مجتهد، مجتبی نظری، نسیم اسدی

گرافیکست و صفحه آرا: مهتاب بیگی

نشانی: تهران، میدان آرژانتین، خیابان الوند، ساختمان

یونیک، پلاک ۱۹، طبقه اول

ایمیل: EGHTESADNEGAR.CO@gmail.com

وبسایت: EGHTESADNEGAR.COM

Exhibitions; A Gateway to Attracting Investors in the Steel Industry

By Azadeh Hosseini

The establishment of exhibitions as one of the most important tools in the development and advancement of the steel industry provides an opportunity for manufacturers, suppliers, and experts to showcase their latest achievements, technologies, and products to the public and specialists, and to exchange information and experiences with economic, industrial, and mining actors.

One of the most important advantages of holding exhibitions is the introduction of new and advanced technologies in the steel industry. Technologies that can improve production processes, reduce costs, and increase efficiency.

Exhibitions also provide a unique opportunity for networking and creating new collaborations between companies and organizations. These collaborations can lead to the development of joint projects, the transfer of knowledge and technology, and increased competitiveness in the global market.

In addition, exhibitions are a place for the exchange of information and experiences among steel industry experts and specialists. This exchange of information can help improve production processes, increase product quality, and reduce waste. Symposiums and workshops held on the sidelines of exhibitions provide a suitable opportunity to enhance the knowledge and technical skills of participants.

Furthermore, holding exhibitions can help develop new markets and increase exports of steel products. Companies can introduce their products and services to international markets by participating in these events and create new opportunities for sales and cooperation. This is especially important in a situation where competition in global markets is increasing every day.

Finally, exhibitions, as one of the key tools in the development and advancement of the steel industry, play an important role in introducing new technologies, creating new collaborations, exchanging information, and developing new markets.

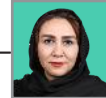
It is hoped that with the continuous holding of these events, such as the "Metalexpo Istanbul" exhibition, we will witness further growth and prosperity of this industry.

However, what makes exhibitions attractive is attracting investors to this industry. Which part of the steel value chain in Iran can be attractive to investors is related to various factors. Choosing the best point for investment depends on the amount of capital, access to advanced technologies, and market analysis.

In general, investing in the middle and final stages of the steel value chain, due to its high added value and global demand, can have a suitable return.

نمایشگاه‌ها دریچه‌ای برای جذب سرمایه‌گذاران در صنعت فولاد

آزاده حسینی



برپایی نمایشگاه‌ها به عنوان یکی از ابزارهای مهم در توسعه و پیشرفت صنعت فولاد، فرصتی را برای تولیدکنندگان، تأمین‌کنندگان و متخصصان فراهم می‌کند تا آخرین دستاوردها، فناوری‌ها و محصولات خود را در معرض دید عموم و متخصصان قرار داده و با فعالان اقتصادی، صنعتی و معدنی به تبادل اطلاعات و تجربیات بپردازند.

یکی از مهم‌ترین مزایای برگزاری نمایشگاه‌ها، معرفی فناوری‌های نوین و پیشرفته در صنعت فولاد است. فناوری‌هایی که می‌توانند به بهبود فرآیندهای تولید، کاهش هزینه‌ها و افزایش بهره‌وری منجر شوند.

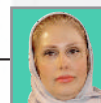
همچنین نمایشگاه‌ها فرصتی بی‌نظیر برای شبکه‌سازی و ایجاد همکاری‌های جدید بین شرکت‌ها و سازمان‌ها فراهم می‌کنند. این همکاری‌ها می‌توانند به توسعه پروژه‌های مشترک، انتقال دانش و فناوری و افزایش رقابت‌پذیری در بازار جهانی منجر شوند.

علاوه بر آن، نمایشگاه‌ها محلی برای تبادل اطلاعات و تجربیات بین متخصصان و کارشناسان صنعت فولاد هستند. این تبادل اطلاعات می‌تواند به بهبود فرآیندهای تولید، افزایش کیفیت محصولات و کاهش ضایعات کمک کند. سمپوزیوم‌ها و کارگاه‌های آموزشی که در حاشیه نمایشگاه‌ها برگزار می‌شوند، فرصتی مناسب برای ارتقای دانش و مهارت‌های فنی شرکت‌کنندگان فراهم می‌کنند.

علاوه بر آن، برگزاری نمایشگاه‌ها می‌تواند به توسعه بازارهای جدید و افزایش صادرات محصولات فولادی کمک کند. شرکت‌ها می‌توانند با حضور در این رویدادها، محصولات و خدمات خود را به بازارهای بین‌المللی معرفی کرده و فرصت‌های جدیدی برای فروش و همکاری ایجاد کنند. این امر به‌ویژه در شرایطی که رقابت در بازارهای جهانی افزایش یافته، هر روز اهمیت بیشتری پیدا می‌کند. در نهایت، نمایشگاه‌ها به عنوان یکی از ابزارهای کلیدی در توسعه و پیشرفت صنعت فولاد، نقش مهمی در معرفی فناوری‌های نوین، ایجاد همکاری‌های جدید، تبادل اطلاعات و توسعه بازارهای جدید ایفا می‌کنند.

امید است با برگزاری مستمر این رویدادها نظیر نمایشگاه «متال‌اکسپو استانبول» شاهد رشد و شکوفایی بیشتر این صنعت باشیم. اما آنچه که نمایشگاه‌ها را جذاب می‌کند جذب سرمایه‌گذار در این صنعت است. اینکه کدام‌یک از بخش‌های زنجیره ارزش فولاد در ایران می‌تواند برای سرمایه‌گذار جذاب باشد، به موضوعات مختلفی مرتبط است. انتخاب بهترین نقطه برای سرمایه‌گذاری بستگی به میزان سرمایه، دسترسی به فناوری‌های پیشرفته و تحلیل بازار دارد.

به‌طور کلی، سرمایه‌گذاری در مراحل میانی و نهایی زنجیره ارزش فولاد به دلیل ارزش افزوده بالا و تقاضای جهانی، می‌تواند بازدهی مناسبی داشته باشد.



Factors Affecting Future Steel Production

By Afsaneh Mosafer

Steel production in the future will be influenced by several key factors, each playing a significant role in shaping the industry. Here are some of these factors:

Advanced Technologies

The development and use of advanced technologies such as artificial intelligence, automation, and robotics in steel production processes can increase productivity and reduce costs. These technologies can also help improve product quality and reduce waste.

Sustainability and Environment

With increasing environmental pressures and stricter regulations, steel producers will seek more sustainable solutions. Using renewable energy, reducing greenhouse gas emissions, and recycling materials are some of the actions being taken in this area.

Raw Materials

Access to high-quality and reasonably priced raw materials is one of the main challenges in steel production. Price fluctuations of raw materials like iron ore and coal can significantly impact production costs.

Market Demand

Demand for steel in various industries such as construction, automotive, and energy greatly influences production. Urbanization growth and infrastructure development in developing countries can increase the demand for steel.

Government Policies

Government policies and regulations related to the steel industry can have a significant impact on production. These policies include tariffs, subsidies, environmental regulations, and financial support.

Innovation and Research & Development

Investment in research and development and new innovations can help improve production processes and develop new products. This can help companies perform better in the competitive market.

Human Resources and Training

Developing skilled human resources and training employees to use new technologies and improve production processes is of great importance. This can help increase productivity and product quality.

These factors collectively play a crucial role in shaping the future of the steel industry, and producers must continuously seek improvement and innovation in this field.

آینده صنعت فولاد ارتباط نزدیکی با روش های تولید پایدار دارد. تولید محصول جدید و نوآوری در محصولات یکی از ارکان مهم و تاثیر گذار در این زمینه است.

اما چه عواملی بر تولید فولاد در آینده موثر است؟ کارشناسان معتقدند تولید فولاد در آینده تحت تاثیر چندین عامل کلیدی قرار خواهد گرفت که هر کدام نقش مهمی در شکل دهی به این صنعت خواهند داشت که به برخی از این عوامل اشاره می شود.

تکنولوژی های نوین

توسعه و استفاده از تکنولوژی های پیشرفته مانند هوش مصنوعی، اتوماسیون و رباتیک در فرآیندهای تولید فولاد می تواند بهره وری را افزایش داده و هزینه ها را کاهش دهد. این تکنولوژی ها همچنین می توانند به بهبود کیفیت محصولات و کاهش ضایعات کمک کنند.

پایداری و محیط زیست

با افزایش فشارهای زیست محیطی و قوانین سخت گیرانه تر، تولیدکنندگان فولاد به دنبال راه حل های پایدارتر خواهند بود. استفاده از انرژی های تجدیدپذیر، کاهش انتشار گازهای گلخانه ای و بازیافت مواد از جمله اقداماتی هستند که در این زمینه انجام می شود.

مواد اولیه

دسترسی به مواد اولیه با کیفیت و قیمت مناسب یکی از چالش های اصلی تولید فولاد است. نوسانات قیمت مواد اولیه مانند سنگ آهن و زغال سنگ می تواند تاثیر زیادی بر هزینه های تولید داشته باشد.

تقاضای بازار

تقاضا برای فولاد در صنایع مختلف مانند ساخت و ساز، خودروسازی و انرژی تاثیر زیادی بر تولید دارد. رشد شهرنشینی و توسعه زیرساخت ها در کشورهای در حال توسعه می تواند تقاضا برای فولاد را افزایش دهد.

سیاست های دولتی

سیاست های دولتی و قوانین مرتبط با صنعت فولاد می تواند تاثیر زیادی بر تولید داشته باشد. این سیاست ها شامل تعرفه ها، یارانه ها، قوانین زیست محیطی و حمایت های مالی است.

نوآوری و تحقیق و توسعه

سرمایه گذاری در تحقیق و توسعه و نوآوری های جدید می تواند به بهبود فرآیندهای تولید و توسعه محصولات جدید کمک کند. این امر می تواند به باری شرکت ها بیاورد تا در بازار رقابتی بهتر عمل کنند.

نیروی انسانی و آموزش

توسعه نیروی انسانی ماهر و آموزش کارکنان برای استفاده از تکنولوژی های جدید و بهبود فرآیندهای تولید از اهمیت بالایی برخوردار است. این امر می تواند به افزایش بهره وری و کیفیت محصولات کمک کند.

با توجه به نقش این عوامل در شکل دهی به آینده صنعت فولاد تولیدکنندگان باید به طور مداوم به دنبال بهبود و نوآوری در این زمینه باشند.

An analysis of the steel production status in Iran and the world

By *Mahtab Rahmatali*

Steel is the second most consumed material in the world after crude oil. In 2023, China, India, Japan, the United States, and Russia were the major steel producers.

The production of crude steel in 2023 amounted to 1,888.4 million tons.

Based on this, Asia was the primary region for steel production. In 2023, more than 72% of the world's steel was produced in this continent, with China holding a significant share. In fact, China produced nearly 1,019 million tons of steel, accounting for more than 54% of the world's steel production.

Europe is another major steel-producing region, accounting for about 7% of production in the mentioned year, but it experienced a decrease of about 7.6% compared to 2022.

North America also produced 5.8% of the world's steel, with the United States accounting for 80.7% of that production.

Additionally, South America produced 2.2%, Africa 1.2%, the Middle East 2.8%, and Asia and Oceania 72.4% of the world's steel.

On the other hand, demand for steel has increased. According to Worldsteel's forecast, demand will grow by 1.7% in 2024 to reach 1,793 million tons. It is also predicted that in 2025, steel demand will grow by 1.2% to reach 1,815 million tons.

Among the world's major steel-producing countries, Iran, with its abundant reserves of essential minerals such as iron and copper, ranks as the tenth largest steel producer in the Middle East region. This industry has always been one of the most profitable in the country and, in addition to having a significant share of the country's export earnings, has a competitive advantage on the international level and has been able to enter diverse markets in Asian and European countries.

The 2024 development vision for the steel industry targets the production of 55 million tons of crude steel, and the development horizon for this industry by 2031 aims to produce 66 million tons of crude steel annually, a significant portion of which is intended for export.

However, Iran's steel industry faces numerous challenges and obstacles, with the biggest hurdle to achieving adequate production being financing and investment in this industry. Nevertheless, this industry has the potential for growth and development. Increasing steel production capacity, constructing new steel units, activating steel projects, and increasing exports indicate the industry's position in the country. Moreover, stability and growth in global markets require the provision of financial resources for steel projects and an increase in the working capital of this industry. Therefore, efforts to diversify the products produced, invest in developing production technologies and improving processes, invest in various infrastructure sectors, and ultimately expand export markets to new countries should be prioritized in the country's programs.

بررسی وضعیت صنعت فولاد در ایران و جهان

مهتاب رحمتعلی



فولاد پس از نفت خام دومین ماده پر مصرف در کشورهای مختلف جهان است. در سال ۲۰۲۳ کشورهای چین، هند، ژاپن، آمریکا و روسیه تولیدکنندگان عمده فولاد بودند.

میزان تولید فولاد خام در این سال معادل ۱,۸۸۸/۴ میلیون تن بوده است.

بر این اساس قاره آسیا از عمده ترین نواحی تولید فولاد بوده به نحوی که در سال ۲۰۲۳ بیش از ۷۲ درصد از فولاد جهان در این قاره تولید شده که در این میان چین سهم عمده ای داشته است. در واقع چین با تولید نزدیک به ۱,۰۱۹ میلیون تن فولاد، بیش از ۵۴ درصد فولاد جهان را تولید کرده است. اروپا نیز از دیگر نواحی عمده تولید فولاد جهان است که حدود ۷ درصد تولید در سال مذکور در این قاره صورت گرفته اما نسبت به سال ۲۰۲۲ حدود ۷/۶ درصد کاهش داشته است. در آمریکای شمالی نیز ۵/۸ درصد فولاد جهان تولید شده که بیشتر آن در ایالات متحده به میزان ۸۰/۷ درصد بوده است. همچنین در آمریکای جنوبی ۲/۲ درصد، در آفریقا ۱/۲ درصد، در خاورمیانه ۲/۸ درصد و در آسیا و اقیانوسیه ۷۲/۴ درصد فولاد جهان تولید شده است.

از سوی دیگر تقاضا برای فولاد افزایش یافته و بر اساس پیش بینی اتحادیه فولاد جهان worldsteel در سال ۲۰۲۴ تقاضا با رشد ۱/۷ درصدی به ۱,۷۹۳

میلیون تن می رسد. همچنین پیش بینی می شود که در سال ۲۰۲۵ تقاضای فولاد با رشد ۱/۲ درصدی به ۱,۸۱۵ میلیون تن برسد.

وضعیت صنعت فولاد در ایران

در میان کشورهای بزرگ تولید کننده فولاد، ایران نیز به عنوان یکی از بزرگترین تولیدکنندگان فولاد در منطقه خاورمیانه با ذخایر غنی از مواد معدنی مورد نیاز از جمله آهن و مس دهمین تولیدکننده فولاد جهان است. این صنعت همواره جزو پربازده ترین صنایع کشور بوده و علاوه بر داشتن سهم قابل توجهی در درآمدهای صادراتی کشور، در سطح بین المللی مزیت رقابتی مناسبی داشته و توانسته به بازارهای متنوعی در کشورهای آسیایی و اروپایی ورود کند. چشم انداز توسعه ۱۴۰۴ صنعت فولاد، تولید ۵۵

میلیون تن فولاد خام و افق توسعه این صنعت تا سال ۱۴۱۰، تولید سالانه ۶۶ میلیون تن فولاد خام است که بخش قابل توجهی از آن برای صادرات در نظر گرفته شده است.

البته صنعت فولاد در ایران با چالشها و موانع بسیاری مواجه است و بزرگترین مانع برای رسیدن به تولید مناسب را می توان مربوط به تامین مالی و سرمایه گذاری در این صنعت دانست. اما در عین حال این صنعت دارای پتانسیل بالقوه برای رشد و توسعه است. افزایش ظرفیت تولید فولاد، احداث واحدهای جدید فولادی، فعال شدن طرح های فولادی و افزایش صادرات نشان از جایگاه این صنعت در کشور دارد. از سویی ثبات و رشد در بازارهای جهانی نیازمند تامین منابع مالی برای پروژه های فولادی و همچنین افزایش سرمایه در گردش این صنعت است. از این رو تلاش برای ایجاد تنوع در محصولات تولیدی و سرمایه گذاری در توسعه فن آوری های تولید و بهبود فرآیندها، سرمایه گذاری در بخش های مختلف زیرساختی و در نهایت گسترش بازارهای صادراتی به کشورهای جدید باید در اولویت برنامه های کشور باشد.

| Countries | million tonnes | |
|---------------|----------------|--------------------------|
| | Jan - Dec 2023 | % change Jan - Dec 23/22 |
| China | 1.019.1 | 0.0 |
| India | 140.2 | 11.8 |
| Japan | 87.0 | -2.5 |
| United State: | 80.7 | 0.2 |
| Russia | 75.8 | 5.6 |
| South Korea | 66.7 | 1.3 |
| Germany | 35.4 | -3.9 |
| Türkiye | 33.7 | -4.0 |
| Brazil | 31.9 | -6.5 |
| Iran | 31.1 | 1.8 |

The Necessity of Developing Iran's Non-Oil Economy



Zahra Mojtahed

The importance of shifting Iran towards a non-oil economy is more pressing than ever. In this regard, the industrial and mining sector plays a crucial role as a strategic industry for Iran.

Given that developing Iran's non-oil economy is a policy aimed at reducing the economy's vulnerability to crises and potential challenges, the industrial and mining sector can play a significant role in achieving this goal. In this path, however, the strategy for the steel industry can provide a suitable roadmap for achieving the aforementioned objective.

Considering the country's rich natural resources, the initial step of development lies within our own borders, despite the high potential that Iran possesses.

The development of Iran's steel industry requires a comprehensive and strategic approach that includes developing the value chain, improving infrastructure, utilizing new technologies, expanding exports, and supporting the private sector. By implementing these strategies, Iran can become one of the world's largest steel producers.

Developing the steel value chain means creating and improving the various processes and stages of steel production, from iron ore extraction to the production of final products. Currently, Iran's steel value chain is at a stage where it requires comprehensive support from two perspectives: supplying raw materials and improving infrastructure. Meanwhile, Iran needs to develop mineral exploration to ensure a continuous supply of raw materials. According to the Geological Survey Organization, only 0.3% of the country's area has been explored, and total investments in this sector by the public and private sectors are close to \$50 billion.

The seventh development plan foresees 5 million meters of annual drilling, and a total of 4.8 million meters of exploratory drilling have been carried out in Iran so far.

The lack of a strategic document for mineral exploration and the absence of a strong supervisor to implement it are among the biggest problems affecting activities in this sector.

Given the imposition of export duties on mineral products, it is expected that the annual extraction rate of each product and the country's need for minerals should determine the level of activity of miners in this sector. However, the lack of a strategic document has, in practice, hindered the development of mining activities in the country.

On the other hand, the comprehensive steel plan was developed 11 years ago, and the events that have occurred in the past decade have taken shape in accordance with that plan. However, due to the lack of

data connectivity between the relevant agencies, we have witnessed a lag behind the projected schedule in developing the steel industry and achieving the target of producing 55 million tons of steel.

Despite Iran's rich natural resources, the untimely supply of raw materials, price controls, sanctions, technology monopoly, water scarcity, and energy shortages are among the reasons for falling behind the planned schedule.

This plan needs to be revised in recent years due to the shortage of gas and electricity in industries, as the steel industry is one of the main pillars of Iran's economy, and its development can contribute to economic growth and job creation. If the aforementioned obstacles are removed, the stages of how to develop Iran's steel industry in the coming years are as follows:

Improving infrastructure: Developing transportation and energy infrastructure to support the steel industry is essential. Improving rail and road networks and increasing electricity and gas production capacity can help reduce production costs and increase competitiveness.

Utilizing new technologies: The use of advanced technologies such as artificial intelligence, the Internet of Things (IoT), and data analysis can help optimize production processes, reduce waste, and increase efficiency. Green technologies can also help reduce environmental impacts and increase sustainability.

Developing the value chain: One of the main strategies in Iran's steel industry is to develop the value chain from iron ore extraction to the production of final products. This strategy includes increasing the production capacity of concentrate, pellet, sponge iron, and crude steel.

Supporting the private sector: Supporting private sector investments in the steel industry can help increase competitiveness and innovation in this industry. Providing financial facilities and reducing bureaucratic obstacles can help attract new investments.

Expanding exports: Given Iran's high steel production capacity, developing export markets is an important strategy. Increasing product quality and complying with international standards can help increase Iran's share of the global market.

Education and Human Resource Development: Developing skilled and specialized human resources through technical and vocational training can improve product quality and increase productivity. Collaborating with universities and research centers to enhance the knowledge and skills of employees is essential.

As mentioned, the development of Iran's steel industry requires a comprehensive and strategic approach. By implementing these strategies (including the development of a strategic document for the mining sector and a revised strategy for the steel industry), both of which are underway, Iran can become one of the largest steel producers in the world and elevate its position from the current tenth rank to the top ranks.



Iron, Steel, Metal Products and Manufacturing Technologies Trade Fair

METAL EXPO EURASIA ISTANBUL Opens Its Doors for the Sixth Time

The 6th International Iron, Steel, Metal Products and Manufacturing Technologies Trade Fair METAL EXPO ISTANBUL, which will be held at the Istanbul Expo Center between September 11-14, 2024, stands out as an important meeting point in the iron and steel sector on a global scale.

This year's fair will host many qualified visitors from Europe, the Middle East, the Balkans, CIS countries and the MENA region, and will bring together innovations, technological developments and trade opportunities in the sector. Czechia, one of the major steel producing countries in Europe, India, the world's leading country in stainless steel production, China, Russia and Iran, the raw material source of the steel industry, aim to maintain and strengthen their positions in the global market by participating in this fair with their major manufacturers.

The iron and steel industry is a strategic sector that plays a key role in construction, automotive, energy and many other sectors as one of the fundamental building blocks of modern economies. Therefore, this international fair to be held in Istanbul offers an unmissable opportunity for professionals who want to discover the latest developments in the sector.

Both Turkey's gaining value in the geopolitical conjuncture and METAL EXPO's success in carrying its brand awareness and perception beyond the country's borders; carry the fair to a more valuable position in the global sense. METAL EXPO; As a result of the collaborations it has established with institutions and organizations related to the steel sector in leading countries of Europe, Asia, the Middle East and Africa, it targets over 2500 foreign visitors in 2024.



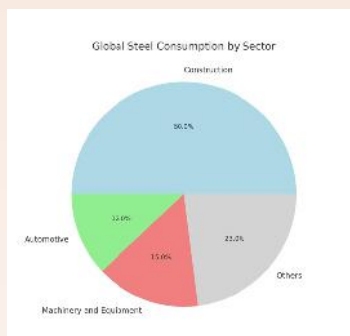
The Future of the Steel Industry: Embracing Green Steel and Technological Innovations



Mojataba Nzari

Green steel refers to steel produced using methods that significantly reduce or eliminate carbon emissions compared to traditional steelmaking processes. This approach primarily involves replacing coal with greener alternatives, such as hydrogen or electric arc furnaces powered by renewable energy. The drive toward green steel is fueled by the global imperative to reduce carbon emissions and meet climate goals, as the steel industry is responsible for approximately 7% of global greenhouse gas emissions.

Economic Justifications for Green Steel

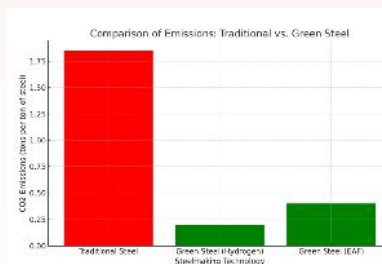


Despite its environmental benefits, the economic justification for green steel is complex. Currently, green steel production is more expensive than conventional methods, with costs ranging 20-50% higher due to the need for new technologies and energy sources. However, as carbon pricing mechanisms

evolve and regulations tighten, these costs could become more competitive. Additionally, as consumers and industries increasingly prioritize sustainability, demand for green steel is expected to rise, potentially offsetting higher production costs.

Investment in green steel is also driven by the long-term financial risks of continuing with high-carbon processes. Governments and financial institutions are increasingly factoring environmental impact into their investment decisions, and companies that do not adapt may face stranded assets and decreased market competitiveness.

Future Technologies and Innovations



The steel industry's future is poised to be shaped by several cutting-edge technologies aimed at reducing carbon emissions and improving efficiency. These include:

Hydrogen-Based Steelmaking: This method replaces carbon-intensive coal with green hydrogen in the steelmaking process. It is nearing commercial viability and is expected to become a major contributor to green steel production in the coming decades.

Carbon Capture Utilization and Storage (CCUS): These technologies capture carbon emissions from steel plants and either store them underground or use them in other industrial processes.

Direct Iron Electrolysis: This novel method eliminates the need for carbon in steel production, potentially offering a completely carbon-free solution.

These technologies, alongside advancements in recycling and material efficiency, are expected to drive the steel industry toward a more sustainable future. However, the transition will require significant investment, policy support, and international cooperation.

Steel Consumption and Industry Trends

Steel consumption is broadly divided across several key sectors:

Construction: The largest consumer of steel, accounting for approximately 50% of global steel use, including infrastructure, residential, and commercial buildings.

Automotive: Represents around 12% of steel consumption, with an increasing focus on lighter, stronger steel alloys to improve vehicle efficiency.

Machinery and Equipment: Accounts for approximately 15% of steel consumption, used in the manufacturing of machinery and equipment.

Other Sectors: This includes shipbuilding, appliances, and energy infrastructure, making up the remaining 23%.

The Role of Global Dynamics



Global dynamics, including geopolitical tensions and the push for decarbonization, are profoundly impacting the steel industry. For instance, the war in Ukraine has disrupted steel supply chains, particularly in Europe, and

accelerated the need for localized, resilient production methods. Meanwhile, China's dominant position as both a producer and consumer of steel means its policies, particularly its 2060 carbon neutrality goal, will heavily influence global steel markets.

Conclusion

The steel industry is at a crossroads, with the transition to green steel representing both a significant challenge and a monumental opportunity. The success of this transition will depend on the adoption of new technologies, supportive policies, and a global commitment to reducing emissions. As the industry evolves, green steel is expected to become a cornerstone of sustainable development, driving innovation and reshaping global steel markets.

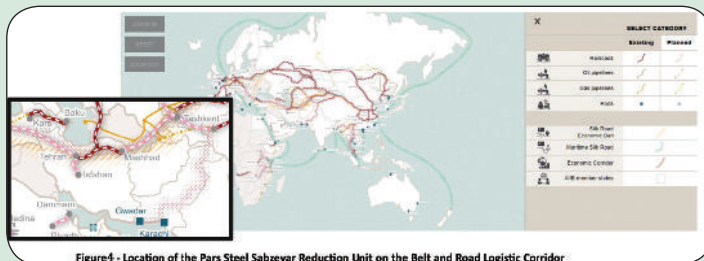
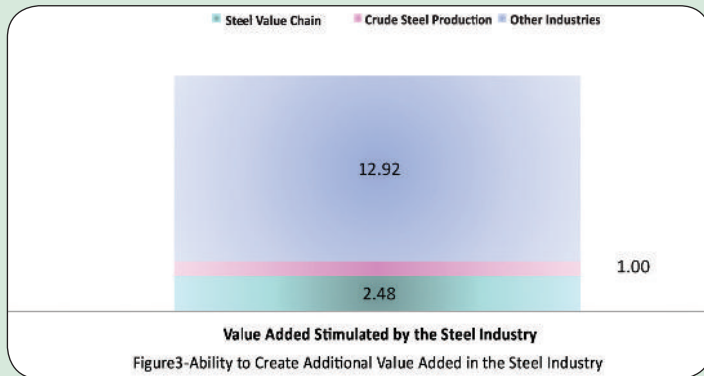
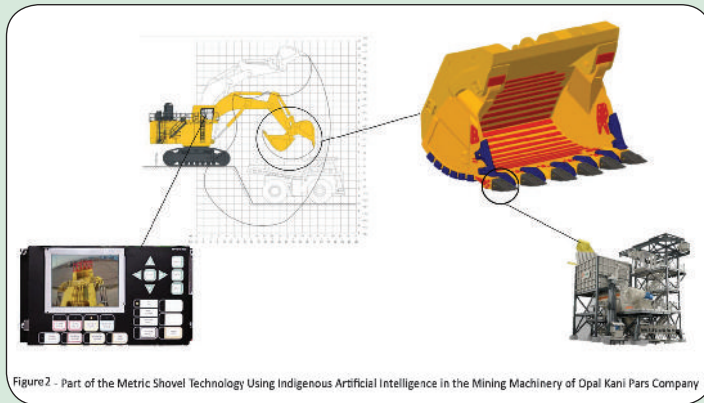
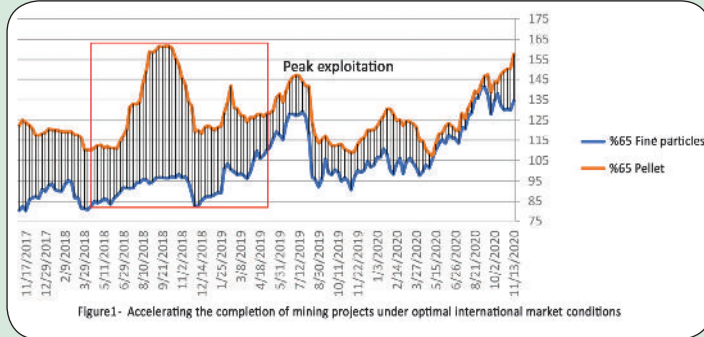
Conclusions and Future Plans

The steel value chain, with the ability to create significant value in the national economy (approximately 2.5 times in the upstream and nearly 13 times in the downstream), is one of the pillars of a country's industrial sector (Figure 3). Opal Kani Pars Company, aiming to develop the chain step by step, has taken steps to complete the upstream links of raw steel. With the entry into operation of a 4 million tons/year iron ore processing unit, the nominal capacity of iron ore processing in this company will exceed 5 million tons of iron concentrate and pellets in the Khaf region.

Value Added Generated by the Steel Industry

Figure 3: The potential for creating double value-added in the steel industry
Given the global focus on reducing pollutants and combating global warming, there has been a growing global demand for clean iron raw materials such as direct reduced iron (DRI) produced through natural gas reduction. Global demand for this product is projected to increase by 25% over a decade, reaching 116 million tons by 2030. Since the Pars Steel Sabzevar direct reduction unit is located along China's Belt and Road Initiative (Figure 4), a 1.6 million-ton hot briquetted iron (HBI) export unit has been planned within the complex. This will not only reduce the market risk associated with upstream products (pellets) but will also contribute to foreign exchange earnings and complete the steel value chain in subsidiary companies.

Figure 4: Location of Pars Steel Sabzevar Direct Reduction Unit on the Belt and Road Initiative Logistics Corridor.



Opal Kani Pars: A Pioneering Innovator in the Steel Industry

Opal Kani Pars: A Pioneering Innovator in the Steel Industry

According to one interpretation, industrial development in countries undergoes a difficult transitional phase from stagnation to takeoff and growth. In the pre-takeoff phase, there is a need for redoubled development efforts to overcome the brakes on industrial growth. One of the tools that can strengthen this effort is the development of industries such as the steel industry, which have significant ripple effects for signaling the growth of other industries. Opal Kani Pars Mining Processing Company, established in 2006 with an investment of 18,000 billion rials, was founded in 2014 with the aim of playing the role of an innovative, capable, and dynamic lever in the country's steel value chain. This company, with the efforts of Iranian managers and engineers, has difficultly passed through the initial stages of providing an innovative mining fleet, completing mineral processing industries, and producing iron raw materials for steelmakers. The imposition of global sanctions and domestic economic shocks did not prevent the continuation of the development process of this company's subsidiaries, so that the company was able to equip and assemble the country's most up-to-date private mining fleet without the help of manufacturing companies.

Opal Kani Pars Company plays a dual role: 1: a mining contractor; and 2: an upstream holding company for the steel chain industries (Opal Parsian Sangam and Pars Fould Sabzevar companies). In its primary role, since 2020, the company has carried out more than 122 million tons of mining operations in the Sangam mines, including 49.117 million tons of iron ore and 73.590 million tons of waste, which is equivalent to supplying raw materials for the production of 19.186 million tons of crude steel (in the national economy). 15.322 million tons of iron ore were extracted in the fiscal year of 2023.

Localization and Knowledge-Based Growth

Since 2019, through serious research and development efforts in subsidiary industries, 11,900 sheets of reverse engineering blueprints have been designed, and 6,995 parts and equipment, including 400 lines of high-tech components and equipment, have been localized. According to calculations, localization in subsidiary industries has prevented more than 70 million euros from

leaving the country.

Considering the financial and engineering support of this group in research and development to launch production lines for some high-tech equipment and machinery for the first time in the country, including:

1. Over 40 lines of electric motors for the steel industry;
2. Over 30 lines of heavy-duty gearboxes;
3. 340 lines of industrial compressor parts;
4. Radio communication systems for process control (PLC); and
5. An intelligent monitoring system (metric) for 4,000-ton/hour shovels located in the Sangam mine using artificial intelligence technology;

In addition to the role of localization policy in deepening domestic production, it has created sustainable employment in small and medium-sized industries under sanctions and enhanced the competitive power of domestic technology suppliers. Subsidiaries of Parsian Investment have prevented 10.3 million euros from leaving the country in a year of production growth and inflation control through localization, in addition to preventing disruptions in production lines.

The focus on youth and serious attention to localization in the most machine-reliant part of the mining chain, i.e., extraction, has led to significant innovative developments in this company. The company's mining engineers, for the first time in the country, have been able to implement an artificial intelligence-based technology for preventive maintenance (PM) of the company's shovels, with the help of knowledge-based companies. The end part (nail) installed on the bucket is the most consumable part of the bucket and sometimes becomes detached from the bucket during loading operations and ends up among the loaded iron ore. If the presence of the nail in the ore is not detected, due to the strength and special alloy of the nail, the crusher may be severely damaged and the entire mining operation may be interrupted. To prevent such an occurrence, the young engineers of Opal Kani Company, in cooperation with a knowledge-based company, have implemented a system for detecting the detachment of the nail from the bucket using artificial intelligence (Figure 2).

Figure 2: Part of the AI-driven bucket monitoring system at Opal Kani Pars

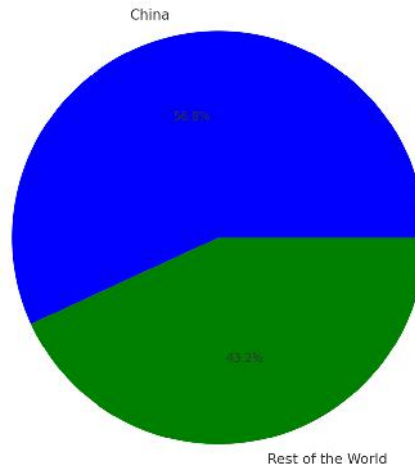
The Global Steel Market: 2024 Outlook

In 2024, the global steel market moves on in a complicated environment characterized by uneven recovery in demand, geopolitical tensions, and dramatic production dynamics. According to World Steel Association estimates, steel demand globally is projected to rise by 1.7% in 2024 to about 1.793 billion metric tons after a lean year in 2022. It's going to be led by key sectors like automotive and construction, especially in emerging markets.

Key Players

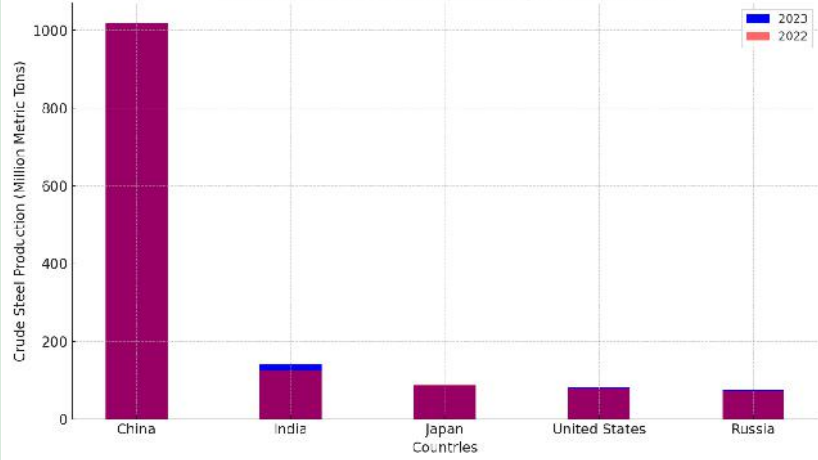
As the world's dominant player in the steel industry, China produces over 1019 million metric tons of crude steel every year, which accounts for more than 53% of the world's total production. However, the shift of Chinese economic models from being infrastructure-driven towards a more consumption-based economy will stabilize Chinese steel demand growth. It also makes the country try hard to cut down on carbon emissions. This involves restructuring the steel sector by closing outdated plants and encouraging mergers to form more efficient and less polluting entities.

China's Share of Global Steel Production in 2023



India's position is being strengthened as the second-largest steel producer, with production in the country expected to cross 140.8 million metric tons in 2024. The United States produced 81.4 million metric tons, with Japan producing 87 million metric tons. They remain significant players, but their production volumes pale in comparison to the gigantic outputs of China and India. Despite facing sanctions and economic isolation due to the Ukraine war, Russia's steel industry has demonstrated remarkable resilience, increasing its output to 76 million metric tons.

Crude Steel Production by Country: 2023 vs 2022



Color coating line

in Mobarakeh steel company

Color coating line in Mobarakeh Steel Company is located along the galvanizing line and is designed as a coating line in which application of paint is done by rubber rolls. Advantages of this kind of line are high speed, low paint consumption and environmental compatibility. In this method, galvanized coil or skin-passed cold rolled coil continuously enter into the preparation section. At this stage, at first the degreasing solution in appropriate temperature is sprayed on the upper and lower surface of the sheet. Then the special roller brushes surfaces of the strip and washes them with warm water. This process is done twice and the strip is dried through blowing hot air. At the end of this stage, to improve the corrosion resistance and increase the adhesion of the paint to the surface of the strip, a suitable chemical substance is applied on both surfaces of the strip and dried at the appropriate temperature. Performing this step prevents the coated paint from scaling during subsequent forming processes. The strip is then sent to the paint coating section. In this part, the primary paint (primer), made of polyester or epoxy, is applied on both surfaces of the strip by rubber rolls. After drying the applied paint in the oven, the strip is cooled, and the final paint, made of polyester, polyvinylidene fluoride, epoxy, poly Vinyl chloride and polyurethane are applied on strip surfaces by rubber rolls, and the final drying operation is performed in finishing oven. In the next step, the product is carefully inspected by quality control team. In order to prevent any damage to the paint, polyethylene or polypropylene layers are applied on the surface of the strip and the final product is supplied to the market after packaging. Using an equipment called embosser laminator, it is possible to apply PET and PVC film on the sheet surface as the final surface of the product (instead of the final paint layer). Using other equipment called strippable film applicator, it is possible to apply protective layers on the surface of paint products, which can be removed while using the strip.



www.msc.ir
@mobarakehsteel_co

Specifications of color-coated steel sheet production line of Mobarakeh Steel Company



| | |
|-------------------------------|---|
| Capacity | 100,000 Ton/year |
| Production method | Galvanized coil, skinned cold-rolled coil |
| Sheet thickness | 0.35 - 1.5 mm |
| Sheet width | 750 - 1300 mm |
| Inner diameter of output coil | 508 or 610 mm |
| Outer diameter of output coil | 900 - 2000 mm |
| Coil weight | 3 to 10 Ton |



Product qualities as per national and international standards



Hot Rolled Products

| Application | Quality | Standard | |
|---|--|--------------|------|
| Structural, general, and construction applications | St 33, St 37-2, St 37-3, St 44-2, St 44-3, St 52-3 | DIN 17100.80 | DIN |
| Corrosion resistant construction application | St 52-3 cu3, St37 - 2 Cu3 | DIN 17100.80 | |
| Re-rolling | St 24, PRSt 23, St 22 | DIN 1614.86 | |
| Drawing and forming applications | Stw 24, PRStw 23, Stw 22 | DIN 1614.86 | |
| Pressure Vessels | 17Mn4 , 19Mn6 | DIN 17155.83 | |
| Car chassis | STE 380 TM, QSTE 380 TM, STE 420 TM | DIN 17155.83 | |
| Pressure Vessels | 9cr Ni cuP 324 | DIN 1614 | |
| Drawing and forming applications | SPHC, SPHD, SPHE, SPHC-B | JIS 3131-90 | JIS |
| General and structural applications and bridge construction | SS 400, SS 330, SS 400 B | JIS 3101-87 | |
| Tube, pipe manufacturing | SPHT1, SPHT2, SPHT3, SPHT4 | JIS 3132-90 | |
| Drawing and forming application | SAPH 310, SAPH 370, SAPH 400, SAPH 440 | JIS 3132-90 | |
| Auto parts | SNCM 220 | JIS 4103 | |
| Car rims | SNCM 220 | JIS 3134 | |
| Structural, Drawing applications, re-rolling | 1006 - 1008 | SAE/AISI | SAE |
| General construction application | 1030,1020,1018,1017,1016,1015,1012,101,1050 ,1022 | SAE/AISI | |
| Ship building, marine structures | GR.A | RINA | RINA |
| Fluid transfer tubes | GRB, X42, X46, X52, X60, X52MS | API5L2004 | API |

Product qualities as per national and international standards



Hot Rolled Products

| Application | Quality | Standard | |
|--|---|-------------------|------------------------|
| Drawing, construction | A 569, A 621, A 622 | ASTM | ASTM |
| General application and construction | (A 572 GR.42,50),(A283 GR.A,B,C,D),(A573 GR.58,65,70) | ASTM | |
| Pressure vessels and containers | (A285 GR. C),A 414, A 515, A 516, A 204 GRA | ASTM | |
| General, construction, structural application | 40, 43, 50 (A,B,C,D,EE) | BS 4360-86 | BS |
| Drawing and deep drawing | HR 1, HR2, HR 3, HR 4 | BS 1449 PART 1.83 | |
| Pressure vessels | 161 (360 A, 400 A, 430 A) | BS 1501 | |
| Drawing - general applications | DD11 , DD12 , DD13 , DD 14 | EN 10111.96 | EN |
| General, construction, structural applications | (S235, S275, S355) (JR, JO, J2, K2) | EN 10025.93 | |
| Structural applications and trailer chassis | S315 MC, S355 MC, S420 MC, S500 MC, S460 MC, S550 MC | EN 10149 - 96 | |
| Petroleum gas storage tanks | P275NL2, P355NL2, P460NL2, P460NJ2 | EN 10028 - 3 | |
| Corrosion resistant construction applications | S355J2W, S355JOWP | EN 10025 - 5 | |
| Pressure vessels | P235 GH, P265GH | EN 10028 - 2 | |
| General and construction applications | K235-3 / K275-3 / K355-3 | 3694 | Iran national Standard |
| General applications, construction profiles | Hot Rolled 1 | 3693 | |
| Building profiles, drawing | Hot Rolled 2 | 3693 | |
| Deep drawing | Hot Rolled 2 | 3693 | |

production

Galvanized

Products in
Mobarakeh steel
company

Galvanized coils are produced at Mobarakeh Steel Company using hot immersion method. The advantage of this method over other methods is cost-effectiveness, the possibility of creating high thickness of coating, high strength and good adhesion of zinc coating to steel strip. Coils of the cold rolling line (Tandem Mill) are welded together at the beginning of the galvanized line and charged as a continuous strip. Then, the surface of the strip is degreased with alkaline substance, brushed and rinsed with water, and finally dried with hot air. The cleaned coil enters the annealing furnaces with a protective atmosphere. The strip is annealed in three stages of preheating, heating and soaking, according to the application of the annealed product. Then cooling system adjusts strip temperature for entering molten zinc bath in which a thin layer of zinc is applied on both surfaces of the strip. Immediately after leaving the zinc bath, the air jet strikes the surface of the strip and adjusts the thickness of coating. In the next stage, size of the spangles on the surface is controlled by adjusting the cooling cycle. Temperature of the strip is reduced by the air stream and then water sprayed. Steel strip enters the cold water tank, and then is dried through air blowing. Finally, the thickness of coating is controlled by the thickness gauge equipment, and the surface smoothness and the desired roughness are applied on the sheet by skin pass rolling and correcting equipment. In order to prevent white rusting on galvanized strip, during its storage, chromate treatment is performed on it, i.e. a thin layer of chromium-containing solution (CR) is deposited on the surface of the strip and then it is dried. After inspecting the strip, if the customer demands, the protective oil is sprayed on the surface of the strip by electrostatic oiling machine. To prevent line stoppage, at the entry and exit sections two strip accumulators are designed. Galvanized coils are shipped to the customers after packaging



www.msc.ir
@mobarakehsteel_co



| Application | Standard/ Quality | Commercial | Lock forming |
|-------------|----------------------|------------|-----------------|
| | ASTM | A526(90) | A527(90) |
| Quality | - | SGCC | - |
| | EN10147 | - | - |
| Standard | EN10142 | DX51D | - |





A Look at the Development Plans of Iran's Fourth Largest Steel Plant Hormozgan Steel on the Path to Expansion

Hormozgan Steel Company, the fourth largest steel plant in Iran, is located next to the ever-blue Persian Gulf on a 95-hectare land, 13 kilometers west of Bandar Abbas, in the Persian Gulf Special Economic Zone for Mineral and Metal Industries. With this company, Hormozgan province becomes the third steel hub of the country. The company's direct reduction unit, with an annual capacity of 1.650 million tons of sponge iron, was implemented in 32 months with the relentless efforts of domestic specialists and industrialists. It entered the cold start-up phase in October 2008 and was commissioned in March 2009. In 2010, the steelmaking unit also entered the hot test phase, and on April 15, 2011, the first experimental slab of Hormozgan Steel was produced.

Easy access to open waters, proximity to the vast gas reserves of Asaluyeh, adjacency to the Gol Gohar iron ore reserves, Shahid Rajaei port complex, and road and rail transportation are among the features of this company. Hormozgan Steel currently has a nominal capacity of 1.5 million tons of slabs with a thickness of 200 and 250 mm, a width of 900 to 2000 mm, and a length of 6000 to 12000 mm. The company is also capable of producing intermediate products such as 1.650 million tons of sponge iron, 90 thousand tons of lime, 7500 normal cubic meters of oxygen per hour, 18000 normal cubic meters of nitrogen per hour, and 120 normal cubic meters of argon per hour.

Hormozgan Steel, with the latest advanced achievements in the steel industry and benefiting from specialized and experienced human resources, intends to offer its products to domestic and foreign markets based on customer-centric methods and customer requests. The company currently provides direct employment for 5300 people, which will significantly increase with the implementation of development plans.

Company Mission

Producing flat steel products (slabs and hot-rolled sheets) to

develop the country's infrastructure and meet the needs of domestic and foreign customers.

Company Vision 2025

Becoming the second largest producer of steel products in the south of the country with the ability to produce 5 million tons of sponge iron, 3.2 million tons of crude steel (1.5 million tons of slabs and 1.7 million tons of hot-rolled sheets) with a focus on special products and effective presence in export markets.

Field of Activity

The steel produced by the company is mainly carbon steel for hot and cold rolled sheets. The slabs produced by this company in the hot rolling line are mainly used for profile making, water pipes, oil and pressure tanks, and heavy steel parts. The cold-rolled sheets produced are used for car body sheets, household appliance bodies such as refrigerators and heaters, and special applications such as tin-plated and galvanized sheets.

Ongoing Development Plans

Mega module direct reduction of Hormozgan Steel with a capacity of 1.72 million tons. 2. Sponge iron storage silos with a capacity of 30 thousand tons. 3. Second industrial gases unit with a capacity of 10 thousand normal cubic meters per hour. 4. Mega module direct reduction of Simin Hormoz Star with a capacity of 1.72 million tons. 5. Construction of a steelmaking plant and increasing slab production capacity from 1.5 million tons to 3.2 million tons per year. 6. Construction of a continuous casting and rolling unit with a capacity of 1.7 million tons per year. 7. Construction of the fourth mega module direct reduction unit with a capacity of 1.6 million tons per year. 8. Construction of the third industrial gases production unit with a capacity of 10 thousand normal cubic meters per hour. 9. Initiating the process of increasing unloading, stacking, and reclaiming capacity in line with future developments.

net-zero carbon emissions in steel production by 2050. Although Iran, due to crippling sanctions and limited access to global technologies, is technically exempt from adhering to the strictures of this agreement, the consequences of these global trends will inevitably impact Iran's steel industry

Among the impacts [of climate change], research and reports published by the European Steel Association and the International Energy Agency (IEA) have outlined a roadmap for the steel industry to achieve net-zero greenhouse gas emissions. However, they also acknowledge that achieving complete carbon neutrality is challenging.

This raises the question: How can we produce green steel or, at the very least, make steel as green as possible? In my view, the most effective way to produce green steel is by maximizing use of scrap metal.

When we examine the energy consumption and greenhouse gas emissions in steel production, it becomes clear that the most efficient method, with minimal energy consumption and greenhouse gas emissions, is to produce steel primarily from scrap metal. For instance, producing one ton of steel in a blast furnace generates 2320 kilograms of Co₂ and consumes 24.43 gigajoules of energy. In contrast, the direct reduction process produces 1650 kilograms of Co₂ and consumes 25.29 gigajoules of energy (excluding the energy required for production). However, producing one ton of steel from scrap metal generates only 670 kilograms of Co₂ and consumes just 10 gigajoules of energy. A simple comparison of these figures clearly demonstrates that steel produced from scrap is significantly greener than blast furnace steel, which currently accounts for 71.1% of global steel production. Moreover, steel recycling has a 95% recycling rate, making it one of the simplest and most efficient recycling processes. In short, it is cheap, clean, and essential. Given the massive amount of scrap generated worldwide after the average lifespan of steel products (less than 30 years), it is imperative to find effective ways to recycle this material.

It is projected that China will generate 550 million tons of scrap steel annually by 2030, and global scrap steel production is expected to reach one billion tons by 2050.

A look at national programs reveals that major steel producers and industrialized countries have ambitious plans to maximize the use of scrap steel. In 2021, China's scrap steel consumption increased by 11% to 245 million tons, accounting for 22% of its total steel production. China aims to increase steel production from scrap to 50% by 2030 and 80% by 2050. In the United States, 60 million tons (70%) of the 86 million tons of steel produced come from scrap. Similarly, in Turkey, 34 million tons of its 40 million-ton steel production is produced using scrap. These figures indicate a global trend towards increased scrap steel consumption.

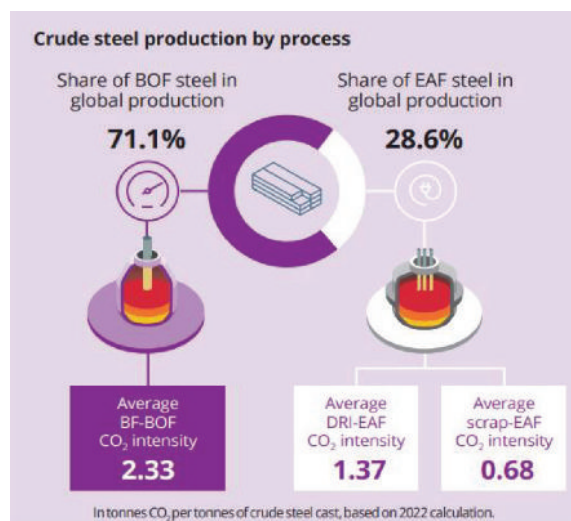
In 2015, 25% of global steel production was through electric arc furnaces, which primarily use scrap steel, resulting in 407 million tons of steel produced from scrap. By 2021, this figure had increased to 563 million tons, representing nearly 30% of total production (with only 100 million tons of DRI iron produced globally that year). This means that the world is still far from achieving truly green steel production, which involves using

hydrogen and other **advanced technologies**.

Given that China's rapid industrialization began in the 1990s and accelerated after 2000, it is expected that the first generation of Chinese buildings, appliances, and vehicles will reach the end of their lifespan around 2030. This will lead to a significant increase in scrap steel generation, reaching 500 million tons by 2030 and 600 million tons by 2050. Currently, the global supply of scrap steel is around 500 million tons, but this is projected to increase to 934 million tons by 2050. We must develop plans to effectively utilize this vast amount of scrap. Moreover, with a 95% recyclability rate for scrap steel, we are facing a massive opportunity for recycling. However, what will global steel production be in 2030 or 2050, and how will scrap metal consumption affect it? Based on 2030 forecasts that consider sustainable development and carbon constraints, it is expected that approximately 1.9 billion tons of steel will be produced. And according to 2050 forecasts based on sustainable development, this figure is expected to reach 2 billion tons. Therefore, in the best-case scenario, between 2 and 2.2 billion tons of steel will be produced in 2050.

Based on these projections, considering that we will have 1 billion tons of scrap available, the global forecast is for a significant decrease in iron ore production from 2.45 billion tons in 2023 to only 800 million tons in 2050. This substantial decrease in demand means the closure of many small and large mines worldwide. Last year, 2.455 billion tons of iron ore were produced globally, of which 1.56 billion tons were exported. China was the largest importer, importing 1.107 billion tons of iron ore in 2022. China aims to increase its scrap utilization from 24% to 80%. Consequently, global iron ore production will decline sharply.

The attractiveness of regions like Saudi Arabia and Oman for investment by companies like Vale is now driven by the anticipated decline in global iron ore demand. We can expect this company to become a competitor to giants like Golcooh and Chadormelo, which will significantly change the dynamics of the global steel industry, especially in Iran. This means that energy imbalances could pose a significant barrier to the development and sustainability of Iran's steel industry.



The Paris Agreement and a New Roadmap for the Steel Industry



Mohsen Parvan

In recent years, energy imbalances have become a pressing issue, with little hope for immediate improvement. The country has faced severe electricity and gas shortages for two months each in summer and winter, a situation that worsens annually. As a result, long-term strategic planning for the industry has been neglected, and other challenges facing the steel industry, such as transportation, iron ore supply, and regulatory hurdles, have been overlooked.

Despite having an installed capacity of 50 million tons, last year's steel production was only 32 million tons. Given these challenges, it is unlikely that production will exceed 30 million tons this year. This significant gap between capacity and production not only disrupts the industry but also severely impacts upstream, downstream, and complementary industries that have geared up for higher production levels. For instance, the refractory industry, which has a capacity of 50 million tons, now has a surplus capacity of 150,000 tons due to the shortfall in steel production.

These domestic challenges have limited our focus, preventing us from paying attention to significant global trends. The decline in global steel production and the increase in Chinese steel exports are two critical issues that the world's steel industry is grappling with, yet they remain largely unnoticed in our country. China's steel industry experienced a 12% growth in 2018, followed by 8% in 2019, and 7% in 2020.

For two decades since 2000, China's steel industry experienced an annual average growth rate of over 10%. (In 2000, China's steel production was 128 million tons, which increased to 1064 million tons by 2020.) However, after reaching a peak production of 1064 million tons of crude steel in 2020, China's steel production has been declining annually. Importantly, this decline is not unique to China, as the global steel industry has also experienced a similar trend. In fact, global steel production peaked in 2020 at 1963 million tons and has been declining since then. Except for specific regions like the Middle East, particularly the Gulf Cooperation Council and India, there has been little to no growth in the global steel industry.

The second significant trend is the increase in China's steel exports. China, which once had no plans for steel exports, now has an aggressive export strategy. China's steel exports have grown significantly, from 30-40 million tons per year to around 100 million tons. In 2023 alone, China exported 94 million tons of steel, a substantial increase compared to the less than 40 million tons exported just a few years ago. Meanwhile, the Middle East imported about 32-34 million tons of steel in 2023, with total consumption in the region reaching 54 million tons. This means that half of China's steel exports went to the Middle East, posing a serious challenge to regional steelmakers. The increasing exports, especially to attractive markets like the Middle East, not only hinder the growth of regional steel industries but also threaten their survival unless strict regulations, such as banning the import of rebar into the GCC region, are implemented. These regulations

would also jeopardize the survival of Iran's steel industry, which heavily relies on exports.

Historically, around 39.2% of the world's steel production was exported in 2000. However, by 2023, this figure had dropped to 24%. While global steel production has increased by over 230% since 2000, exports have only grown by 30%. This is primarily due to rising transportation costs and countries' desire for self-sufficiency in steel production. Additionally, steel imports into the Middle East have decreased from 45 million tons in 2010 to 32 million tons in 2023, despite significant production growth in the region.»

On the other hand, Iran's highest per capita steel consumption has been 240 kilograms, with an average of around 200 kilograms over the past 10 years. This means that domestic consumption is unlikely to exceed 20 million tons. Therefore, we can only consume 60% of our production. Moreover, considering the shortages in colored sheets, galvanized sheets, and stainless steel, we need to export between 12 to 15 million tons just to maintain our current production level of 30 million tons. If we aim to produce 55 million tons, our export volume will need to increase to 35 million tons.

Another noteworthy point is that the rate of decline in China's steel consumption is higher than its production decline. China's steel industry has lost approximately 45 million tons of production compared to its record-breaking production in 2020. This indicates a decrease in support for upstream, downstream, and complementary industries. Consequently, we can expect a surge in exports not only for finished products like steel, rebar, sheets, and beams but also for complementary industries such as refractories.

The Paris Agreement and the Steel Industry

2021 CO₂ emissions and energy intensity

| 2021 data | CO ₂ emission intensity by production route | Energy intensity by production route |
|----------------|--|--------------------------------------|
| | tonnes CO ₂ per tonne of crude steel cast | GJ per tonne of crude steel cast |
| Global average | 1.91 | 21.31 |
| BF-BOF | 2.32 | 24.43 |
| Scrap-EAF | 0.67 | 10.04 |
| DRI-EAF* | 1.65 | 25.29 |

* Data concerning global crude steel production using DRI is not currently collected, the denominator in this calculation is therefore calculated by the worldsteel data management team based on information contained in worldsteel's collective databases.

The second important issue is the environmental concerns surrounding the steel industry, which requires more serious attention domestically. The amount of greenhouse gas (CO₂) emissions per ton of crude steel has increased from 1.75 tons in 2012 to 1.9 tons in 2021. Similarly, energy consumption has also increased from approximately 19.5 GJ per ton to 21.3 GJ per ton of crude steel. One of the reasons for this increase is the declining iron ore grades worldwide, which contradicts global agreements, especially the Paris Agreement.»

Globally, investments in new processes, or green steel, have significantly declined. The consensus is that such steel production methods are currently unfeasible and economically impractical. In 2012, 10% of steel investments were allocated to new process steel, but this figure dropped to 6% by 2021

On the one hand, the Paris Agreement sets a target of achieving

and as an example in the steel industry, will increase production efficiency, save time and increase human resource efficiency, reduce financial costs, increase accuracy and reduce calculation errors, and increase production efficiency. In the initial chain of the steel industry, such as exploration and extraction of mineral zones based on the use of artificial intelligence technology, the identification of the range, depth, ore bodies, and geological layers will be done with very high accuracy. Moving away from current explosive extraction methods towards methods with the least mineral waste and principled extraction based on the maximum exploitation of ore masses, and at the same time, more accurate observance of environmental patterns in extraction operations, are among the advantages of using artificial intelligence in the steel industry.

In the operational process stages of production, artificial intelligence will also be very effective in increasing product quality, increasing efficiency, and managing time. In general, it must be admitted that this technology will transform the entire production chain from the beginning of production to transportation, production, and commerce. A transformation in the supply chain of goods and services, new warehousing methods, and even the emergence of self-driving industrial machinery are no longer unimaginable.

Economics and Organizations

Artificial Intelligence (AI) will revolutionize the structure of organizations in the future. The development of new business models and the reduction of the role of human resources in those jobs that have the potential to be replaced by new technologies is already underway. The diminishing role of human factors due to the presence of AI in various fields will change the business landscape in the future. According to some predictions, by 2030, more than 70% of companies worldwide will move towards using AI. And according to the World Economic Forum, this technology will eliminate more than 85 million jobs by then and create 97 million new jobs. Therefore, the coming years will be the era of growth for technical workers and experts who have knowledge of AI technology and new sciences. The dependence of industry and the economy, and the increasing use of AI technology in the industrial sector, have a significant impact on the economy and profitability of companies and governments, and economic competition in the coming years will depend on the extent of the use of AI and benefiting from its advantages. Currently, large technology companies such as Apple, Microsoft, Google, and others have made huge investments in this area, with Apple's share alone amounting to 3 trillion dollars. According to PwC, China's GDP from AI will reach 26% by 2030, while North America's share will be 14.5%, which is about 11 trillion dollars. This institute believes that the AI market value in the Middle East will reach 300 billion dollars in the same year, and its impact on the region's GDP will be 19%. Overall, based on the analysis of the situation, the role of AI in global GDP in 2030 will reach 8%. However, the author of

this article believes that due to the rapid growth and rapid scientific changes in the coming years, the global economy will face a certain degree of uncertainty in predicting the growth of indicators, and this growth will likely exceed the predicted 8%.

According to McKinsey's analysis, artificial intelligence will add approximately \$15.7 trillion to the global economy by 2030. But does this significant leap mean a larger share of a larger economic pie for everyone?

While this substantial growth will reshape the global economic landscape, it does not necessarily mean a larger share for all regions or countries. According to a recent report by the International Monetary Fund, AI will affect an average of 40% of jobs globally. This figure is estimated at 60% for developed countries and 26% for developing regions. This means that, given the significant technological gap between developed and developing countries, citizens of these countries will acquire a much larger share of the income generated from the digital economy and the profits from the use of AI. Currently, the growing investment of large companies in the field of technology, while creating competition among them, will push shareholders and owners towards adopting common policies against governments. From this perspective, the process of merging small companies into large companies in order to preserve their profits and increase their competitive power and expand the scope of influence of large companies on global markets, or the formation of consortia by small and medium-sized companies, does not seem far-fetched. Therefore, the world will move towards a more capitalist and free-market economy in the coming years, and the role of governments in the economy will decrease. Given the emergence of new generations whose lives are surprisingly intertwined with technology, this generation has a higher earning capacity compared to previous age groups, and this issue will exacerbate income inequality within developed countries. Given the changing lifestyle of the new generation, they will likely start small businesses belonging to themselves and their friends. This will force large global companies to compete economically and technologically to provide more attractive and practical services to this generation, which in itself will accelerate the growth of scientific, technological, and economic development.

Accepting this change, which is the basis for industrial and economic growth, takes precedence over the process of implementation and entry into this arena. Therefore, there is a serious need for investment and training of human resources familiar with the latest technology, especially artificial intelligence, for the future of the global industry. Entering this arena also requires careful and scientific planning because, with the changing economic paradigm in the coming years, the arena of economic competition will move towards the use of AI technology and the digital economy, which itself requires the necessary expertise.



Artificial Intelligence: Opportunity or Threat?



Ali Amraei

CEO of Sangen Steel Construction Company

In the 21st century, we have witnessed the emergence of new technologies and the explosive growth of science and technology. Although many new technologies are based on older models and methods, the most important characteristic of the present decade compared to the early 21st century and even the late 20th century is the peak and crystallization of human ingenuity in registering inventions based on computer science and information technology. The invention of the internet can be considered as the beginning of this growth. The continuous improvement of communication technology, including computers and the internet, mobile phones, and advanced communication satellites, along with the growth of other engineering and technical fields, promises significant transformations in the new world.

Although the idea of artificial intelligence dates back decades, the simultaneous development of this technology

with the fourth industrial revolution has propelled the world towards a major scientific and technological leap in the coming years. The impact of artificial intelligence on various fields of science and human society is something that cannot be ignored, and today the fate and future of the world's citizens are more than ever tied to scientific and technological achievements. Although many years ago, McLuhan predicted the creation of a new society with a social and cultural structure different from previous periods and the dominance of the emergence of communication tools by announcing the theory of the global village, artificial intelligence has transformed the structure of society far beyond what McLuhan and supporters of the global village theory imagined.

Artificial intelligence, due to its artificial and man-made nature, now has a tool-like nature and is influential in various economic, industrial, medical, computer science, data science, and even humanities fields, but it seems that we should consider going beyond tool-like existence towards self-learning and mental enhancement as almost certain.

Artificial Intelligence and the Steel Industry

The implementation of this technology in various industries,



KHORASAN STEEL COMPLEX COMPANY

www.KSCCO.ir



The Khorasan Steel Complex Co. located 15th km Neishaboor-Firoozeh Road, Stablished in 1989 based on Kobe Steel feasibility studies. The company has been located in the plot land of 14 km² with the following plants and capabilities:

- Light constructional steel mill of 620,000 tons per year,
- Two DRI plants of 1.6 million tons per year,
- Two Melt shop of 1.4 million tons per year,
- Pelletizing plant of 2.5 million tons per year &
- Under construction Iron ore concentrate of 2.5 million tons per year.

All above capabilities & expansion project has been lead Khorasan Steel Complex to the third pole of country's steel production in Khorasan Razavi province while the foundation capabilities and basic structures had been mentioned witch maintain its 10 percent share of country's crude steel output in the next ten years.

According to the 2025 vision of Iran's steel industry we will balance our steel production chain from iron ore concentrate to finished steel and become the enormous production unit in the country and the Middle East.

Annual production capacity of iron ore concentrate is going to reach 5 million tons, pellets 5 million t, DRI 3.5 million t, billet 3.5 million t, and finished products 1.35 million tons.



+98 51 4152 0000



+98 51 42453231, 3



PO Box: 488



15 km away from Neishabur
on Neishabur-Firoozeh Road, Khorasan Razavi, Iran



Info@KSCCO.ir



www.KSCCO.ir



KHORASAN STEEL COMPLEX COMPANY



BILLET

| Grade | | |
|-----------------------------|----------------|----------------|
| 3SP | 4SP | 5SP |
| width Section (mm) | | |
| 180X180 | 150X150 | 130X130 |
| Or Based on Customer Orders | | |

REBAR

Khorasan Steel Complex products specified based on the 3132 qualification certificate from Iran National Standards Organization (INSO) (2nd. revision, Jul. 2013 Hot-rolled steel bars for reinforcement of concrete-specification and test methods) in three groups: Plain Bar (240), Screw-Thread Ribbed Bar (340), Ribbed Bar(400) and Ribbed Bar(500). The complex is capable to produce Ribbed Bar Applying 'Quench_Temper' heat operation method to increase the mechanical characteristics.

240



Plain Bar

340



Screw-Thread Ribbed Bar

400



Ribbed Bar

500



Ribbed Bar

Nominal Diameter

10

12

14

16

18

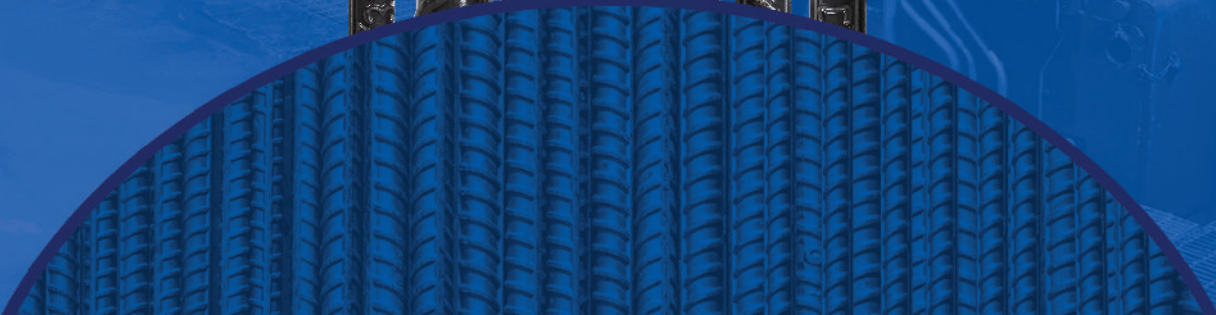
20

22

25

28

32





with the side exhibition

همراه با نمایشگاه جانبی

Tehran, October 13, 2024

هتل المپیک تهران، ۲۳ مهر ماه، ۱۴۰۳

یازدهمین کنفرانس بین المللی استیل پرایس

The 11th International SteelPrice Conference on the subject of:

فولاد، صادرات و توسعه پایدار

Steel, Export, and Sustainable Development

02188994685-6 09361584788

www.steelpriceevents.ir

Taftan Gold Project

\$55 Million
Investment

Factory No. 1

Phase 1 (2023): > Annual production of **500** kg gold ingots

Phase 2 (2023): > Annual production of **1000** kg gold ingots

Factory No. 2

Phase 3 (2023): > Annual production of **5000** kg gold ingots

Factory No. 3

Phase 4 (2030): > Annual production of **5000** kg gold ingots



Total annual production:

11,000 kg gold ingots



phone: 02126219180
mail: info@stic.ir



JAHAN FOULAD GHARB Co.

The **IPN beam** is a type of beam used in metal constructions. This beam features a rectangular shape with flat top and bottom sections and an I-shaped middle section. The dimensions of this beam vary according to different standards and the specific needs of each project.

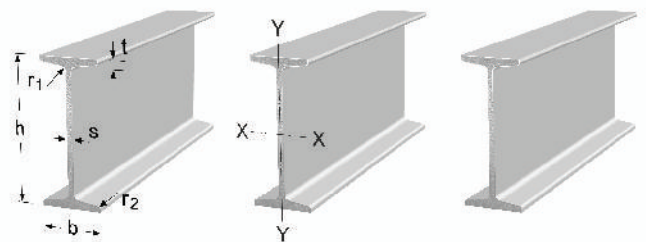
Due to the above advantages, **IPN** beams are widely used in the construction industry. These beams are utilized in building projects, bridge construction, industry, and transportation. Given their characteristics, IPN beams are an excellent choice for structures with high load-bearing requirements and strong tension points.

Advantages of Using IPN Beams:

1. High Strength
2. Suitable Bending Strength
3. Long Lifespan
4. Simple Connection Capability



IPN Beam Stahlbau Profile

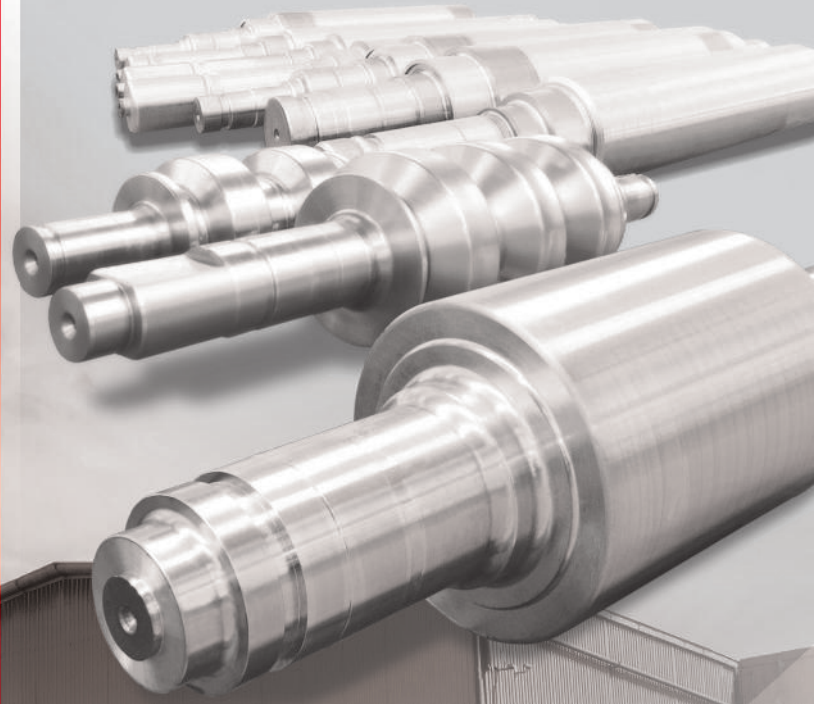


| INP | h mm | b mm | s=r ₁ mm | t mm | r ₂ mm | c mm | h-2c mm | A cm ² | G kg/m | J _x cm ⁴ | W _x cm ³ | i _x cm | J _y cm ⁴ | W _y cm ³ | i _y cm | a ₁ mm | r _T mm |
|-----|---------|---------|------------------------|---------|----------------------|---------|------------|----------------------|-----------|-----------------------------------|-----------------------------------|----------------------|-----------------------------------|-----------------------------------|----------------------|----------------------|----------------------|
| 100 | 100 | 50 | 4.5 | 6.8 | 2.7 | 12.5 | 75 | 10.6 | 8.34 | 171 | 34.2 | 4.01 | 12.2 | 4.88 | 1.07 | 78 | 13.3 |
| 120 | 120 | 58 | 5.1 | 7.7 | 3.1 | 14 | 92 | 14.2 | 11.1 | 328 | 54.7 | 4.81 | 21.5 | 7.41 | 1.23 | 94 | 15.4 |
| 140 | 140 | 66 | 5.7 | 8.6 | 3.4 | 15.5 | 109 | 18.2 | 14.3 | 573 | 81.9 | 5.61 | 35.2 | 10.7 | 1.4 | 108 | 17.4 |
| 160 | 160 | 74 | 6.3 | 9.5 | 3.8 | 17.5 | 125 | 22.8 | 17.9 | 935 | 117 | 6.4 | 54.7 | 14.8 | 1.55 | 124 | 19.5 |
| 180 | 180 | 82 | 6.9 | 10.4 | 4.1 | 19 | 142 | 27.9 | 21.9 | 1450 | 161 | 7.2 | 81.3 | 19.8 | 1.71 | 140 | 21.6 |
| 200 | 200 | 90 | 7.5 | 11.3 | 4.5 | 20.5 | 159 | 33.4 | 26.2 | 2140 | 214 | 8 | 117 | 26 | 1.87 | 156 | 23.6 |

ZAFAR STEEL COMPLEX

Bizim ANA ürünlerimiz

- **Nervürlü Yuvarlak Çelik Çubuk**
A2, A3, A4 / B500A, B500B, B500C
kaliteleri ile 8 ila 32 arası boyutlar
- **Profil**
14-16-18-20 ebatlarındaki kirişler
- Zafar Bonab Çelik kompleksi'nin ürün portföyünün, farklı boyutlarda 5,5 mm'den 12,5 mm'ye kadar filmaşin üretimi ile kısa süre içinde genişletileceğini duyurmaktan gurur duyuyoruz



A3 / B500B



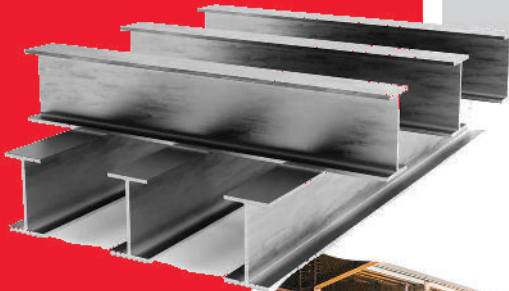
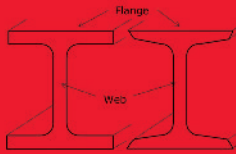
A2 / B500A



A4



B500C



www.mfzb.ir

Merkez ofis : İRAN, Tebriz, Tahran Yolu, Basij Meydanı'ndan Karkaj Kavşağı Köprüsü'ne Taraf,
Farzin Ayakkabı fabrikası önü, Opal Atlas Zafar Sanayi Grubu

+9841-4191 +9841-33204319 +9841-33204339 +9841-33204389

Fabrika : İRAN, Doğu Azerbaycan, Bonab, Sahand Sanayi Sitesi, 6. caddenin sonu

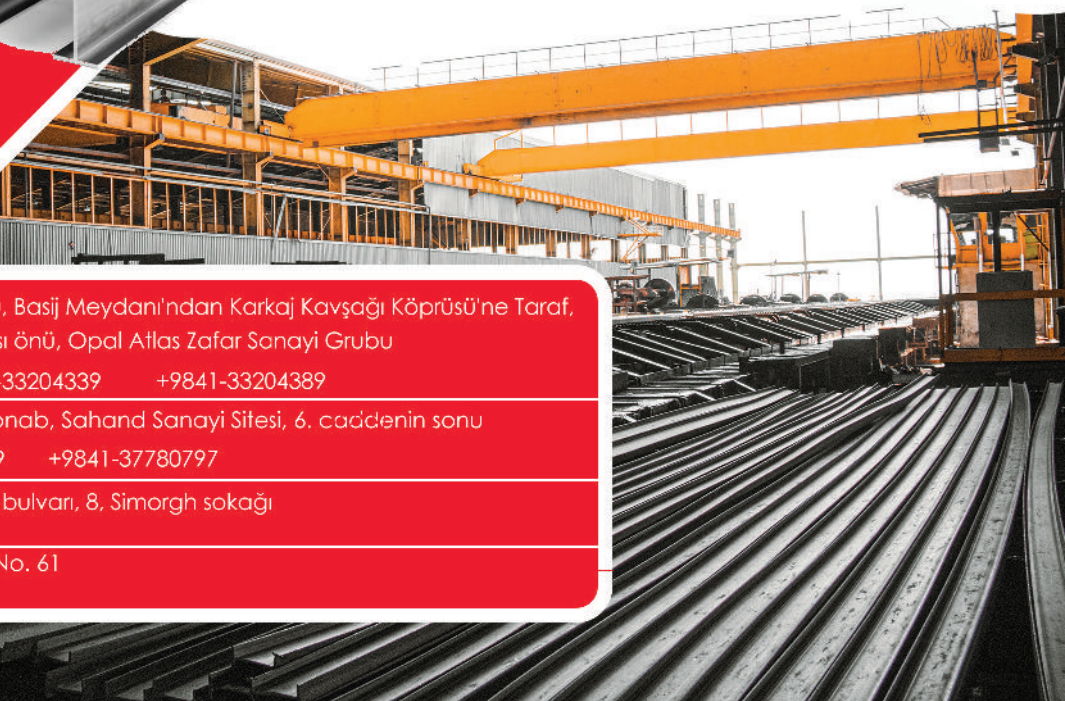
+9841-37780786-96 +9841-37780850-59 +9841-37780797

Tahran Ofisi : İRAN, Tahran, Shariati bulvarı, 8, Simorgh sokağı

+9821-71400002

Gürcistan : Tiflis - 117D Serattı St. - Ofis No. 61

+995-555 444 130



15
Years of Experience



SFK
SFK Steel Industries
— صنایع فولاد کاوه تیکمه داش —

Producer of Steel Rebars & Billets

Exports to Bulgaria, Romania, Turkey, Armenia, Afghanistan, Pakistan, Iraq, Georgia, Syria, Lebanon, and Uzbekistan

Holder of level one license of authorized economic operators of the World Confederation of AEO

Holder of approval for the combined cycle power plant with the capacity of 250 MW

Winner of the award of the best exporter in 2018 and 2022

Winner of the award of protecting consumers' rights from 2015 to 2018

Holder of international standards of ISO 9001:2015. ISO 14001:2015. ISO 45001:2018 and ISO 17025:2017 as well as the national standard of 3132 and European standards of EN 10025 - EN 10204 - EN 10080 - BS 4449



WWW.SFKSTEELS.COM

METALXPO

6. ULUSLARARASI DEMİR, ÇELİK, METAL ÜRÜNLERİ & ÜRETİM TEKNOLOJİLERİ FUARI

11-14 EYLÜL 2024

İSTANBUL FUAR MERKEZİ

BONAB Industry Complex STEEL Construct Safe

CERTIFICATES



EN 10025-1:2004



EN 10080-2005



ISO 9001:2015



ISO 45001:2018



Provider of a complete
portfolio of steel products



Holder of Excellent
quality badge



Manufacturer of all kinds
of steel and alloy sections

مجتمع فولاد صنعت بناب
Bonab Steel Industry Complex



Contact us

website: www.mfbco.ir | email: Info@mfbco.ir | Instagram: **BonabSteel**
Factory: (+98) 41 377 80 611 | Tehran office: (+98) 21 877 000 69
factory address: **Bonab Industrial Zone, Bonab, East Azerbaijan, Iran**
Tehran Office: **The 3rd Floor, Central Building of Tourism Bank,
Farhang Blvd, Saadatabad, Iran - Tehran**
Public Relation: (+98) 41 377 80 635 | Vice President of Commerce: (+98) 912 199 0385



Haft Almas Industries Co.

SEVEN DIAMONDS Ind.Co

Her türlü soguk haddelenmiş, galvanizli, galvalum, boyalı, teneke, anti-parmak, krom kaplamalı, paslanmaz ve silisti gelik sac ve celik boru ve profil reticisi.




► Özel celik sac üretiminde lider.

- Orta Dog›nun tek galvalum ve boyalı galvalum sac üreticisi
- İranin ilk paslanmaz gelik sac üreticisi
- İranin ilk silisli gelik sac üreticisi
- İranin en büyük kaplamalı gelik sac (galvanizli, galvalum, boyalı ve teneke) üreticisi

2022 yılında iranin örnek ihracatçısı



2022 yılında Tahran eyaletinin bir numaralı ihracatçısı

- Pazarlama ve Satis: +98-21- 8543
- www.seven-diamonds.com
-  [@sevendiamonds.ind.co](https://www.instagram.com/sevendiamonds.ind.co)



مجتمع فولاد آریا ذوب

تولیدکننده انواع ورق گرم

مجتمع فولاد آریا ذوب در سال ۱۳۸۱ در زمینه تولید میلگردهای ساختمانی با تکنولوژی روز دنیا و ورود تکنولوژی سیلت به کشور آغاز به کار نمود و سریعاً بخش مهمی از بازار میلگرد ایران را تامین نمود. پس از حدود ربع قرن تجربه تولید و تامین انواع میلگرد، در سال ۱۴۰۱ با توجه به نیاز کشور به ورقهای فولادی، نسبت به راه اندازی خط ورق گرم اقدام نمود. در کمتر از دو سال تلاش شبانه روزی، از خرداد ۱۴۰۳ محصول ورق گرم خود را (ورق ریزیار با ضخامت ۱/۲ الی ۸ میلیمتر و با عرض نامتقارن) به بازار عرضه نموده است. فرایند راه اندازی تکمیل و ساخت کارخانجات صنایع پایین دستی با تلاش بی وقفه در دست اجرا می باشد و این راه همچنان ادامه دارد.

تلفن تماس: ۰۲۱۴۲۵۵۸

آدرس، شهرک صنعتی اشتهارد- بلوار ابوریحان
بلوار دکتر حسینی شرقی- ارشاد ۴- قطعه ۵۷۸.

وبسایت شرکت: www.ariyazob.com

Aria Zob Steel Complex Company

Aria Zob Steel Complex is major a hot-rolled steel sheet production factory in Iran. Its key products are **hot rolled sheets and coils with a thickness of 1.2 to 8 millimeters** with various widths.

Contact Number: 021-42558

Plot 578, Ershad 4, Dr. Hesabi East Boulevard, Aburaihan Boulevard, Industrial Town of Eshtehard. Company Website: www.ariyazob.com



Sirjan Iranian Steel Co.

Mining of **IMIDRO's** Iron ore mines in Sirjan

Iron Ore Concentrate Plant with a Capacity of **4Mt/y** in Sirjan

Iron ore pelletizing plant with a Capacity of **2.5Mt/y** in Sirjan

D.R.I Plant with a Capacity of **1Mt/y** in Bardsir

Steelmaking Plant with a Capacity of **1Mt/y** in Bardsir

1.5 Mt/y D.R.I Expansion project in Bardsir



sisco.midhco.com



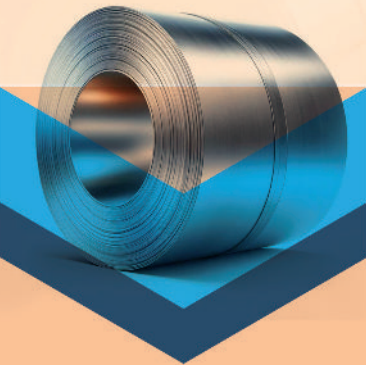
[sisco.ir](https://www.instagram.com/sisco.ir)



Chaharmahal and bakhtiary automotive sheet Company



Chaharmahal and Bakhtiari Automotive Sheet Company



Factory and Headquarters:

No. 35, Shahrekord-Borujen Road, Sefid Dasht Area,
 Postal Code: 88751-49311
 Phone: 038-34263960-70
 Fax: 038-34263971
 Public Relations: 038-34264038
 Sales Office: 038-34264455

Tehran Office:

No. 55, Nahid Alley, above Motahari
 (Takht-e Tavous), Valiasr Street, Postal Code: 15957-57613
 Phone: 88706576-77
 Fax: 021-88706580

Isfahan Office:

No. 8, Unit 1, Almas Building, between Nazar Crossroad
 and Azar Bridge, Tohid Shomali Street, Postal Code:
 81736-41986
 Phone/Fax: 031-36292465
 Phone: 031-36258775 - 36258449

Website: www.cbasco.ir
 Email: info@cbasco.ir



Existential Philosophy

A responsible company, creating a better future

Mission

Production of various galvanized sheets with a focus on special sheets needed by the automotive and other industries

Vision

Leading in production, a model in the quality of special galvanized sheets in the country



CBASCO HOT DIP GALVANIZING LINE

| Technical specification of galvanized strip CBASCO line | |
|--|--|
| Production process | Hot dip galvanizing |
| Capacity | 400000TPY |
| Speed of line in the process section | max 150 m/min |
| Thickness | 2.5-0.4 mm |
| Width | 1880-800mm |
| Zinc Coating Mass | 450-60gr/m ² Total Weight |
| Surface Structure | Regular/minimized and Zero Spangle |
| Surface Treatment Protective Oil Coating chrome Coating (Cr3+) | 4-0.2gr/m ² 60-50 mgr/m ² |
| Application | Automotive HomeAppliance Industrial |



Iran Refractories Company

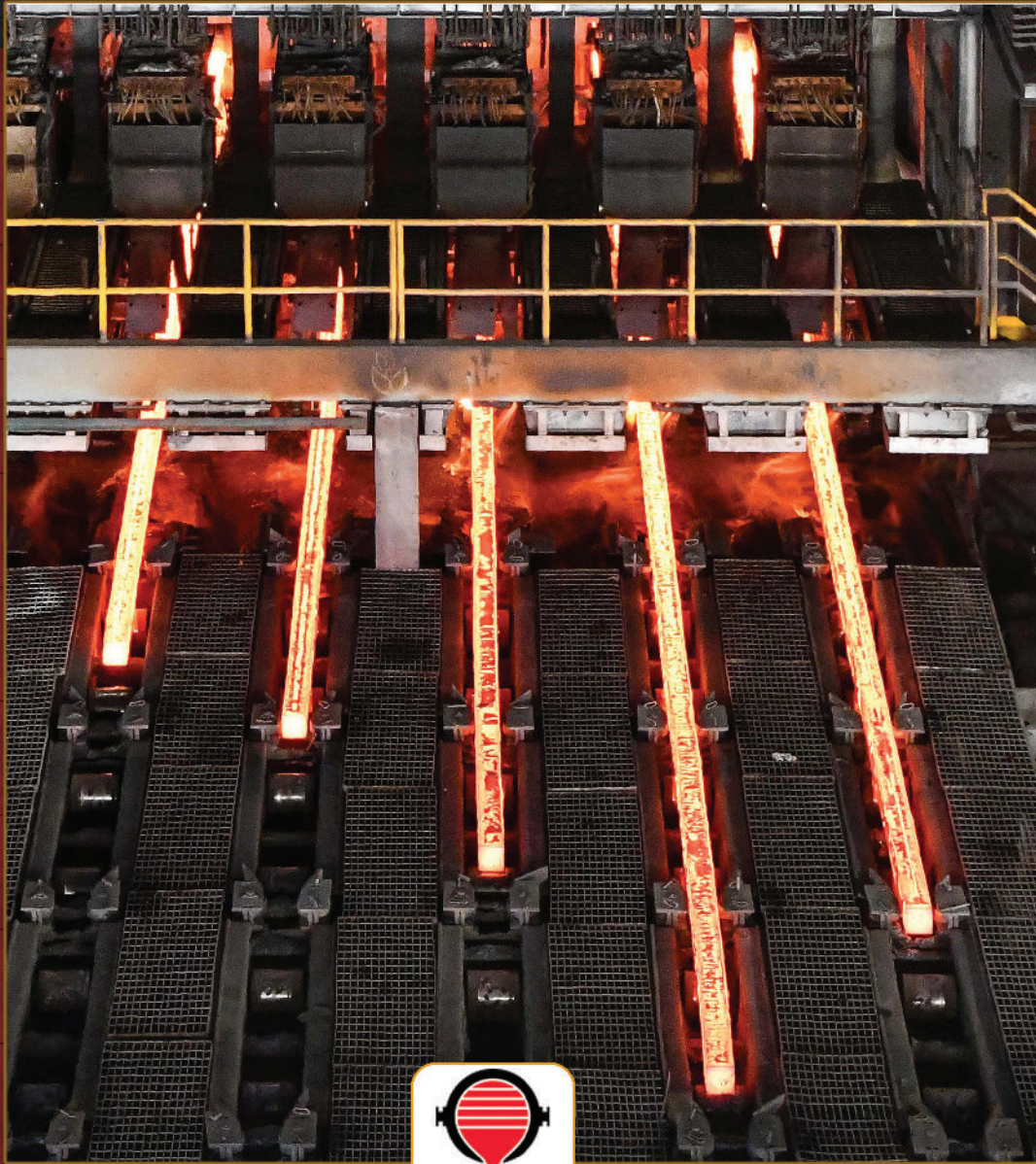
The biggest producer of Refractories in Middle East

WWW.IREFCO.IR

[EMAIL: COMMERCE@IREFCO.IR](mailto:COMMERCE@IREFCO.IR)

ARFA

IRON & STEEL. CO.



PRODUCT SPECIFICATIONS (STEEL BILLETS):

125 x 125

150 x 150

130 x 130

200 x 200





MIDHCO

MIDDLE EAST
MINES & MINERAL INDUSTRIES
DEVELOPMENT HOLDING CO.

www.midhco.com



Sangan steel mineral industry company



Nominal production
capacity of 5 million
tons of iron ore
concentrate and 5
million tons of iron ore
pellets

www.sanganco.ir
sanganfoolad
fooladsangan_smic

No. 11, Shahid Soleimani Boulevard (Rachko),
Sangestan Mining Area, Khaf County, Razavi Khorasan Province
Phone: 051-54231927 Fax: 051-54231928 Postal Code: 9564134812

Tehran Office: No. 13, 31st Street, Alvand Street, after Zagros Intersection, Argentina Square,
Tehran Postal Code: 1516657116
Tell :02188641350| 02188641349

اقتصاد نگار

EGHTESAD NEGAR

Special Issue for Metal Expo Exhibition | September 2024

Steel Industry on the path of Smart Investment

**METAL EXPO EURASIA
ISTANBUL Opens
Its Doors for the Sixth Time**

**METAL EXPO EURASIA
ISTANBUL Opens Its Doors
for the Sixth Time**

