ALL INDIA INDUCTION FURNACES ASSOCIATION

AIIFA

NEWSLETTER

Voice of Indian Sustainable Steel Manufacturing Sector

VOL. No. XXIV
ISSUE No. 4, April. 2024

What's Inside

हमारे सभी सदस्यों को बैसाखी और राम नवमी की हार्दिक शुभकामनाएँ

AIIFA SECRETARIAT:
504, Pearls Omaxe, Tower-1
Netaji Subhash Place,
Pitampura
Delhi-110034, INDIA
Tel: 011-42725051/27351345
M: 9810410186/9810410815
Email: aaiifa6@gmail.com
Website: www.aaiifa.org
Twitter: SteelEx_AIIFA
Instagram: steelex_aiifa
Facebook: SteelEx AIIFA
YouTube: AIIFA NEWS

LIFTLINE INDUSTRIES

YOUR ONE-STOP SUPPLIER FOR ALL NEEDS


Sintering Pre Heater

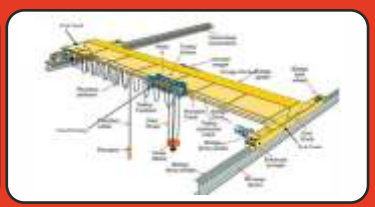
- Sintering Pre Heater
- Ladle Pre Heater
- Tundish Pre Heater


Electromagnet

- Scrap Lifting Circular Electromagnets
- Billet and Bars Lifting Rectangular Electromagnets
- Scrap Lifting Elliptical Electromagnets


Cable Reeling Drum

- Cable Reeling Drum
- Lining Vibrators
- Electrical Control Panel

EOT Crane

- Single Girder EOT Crane
- Double Girder EOT Crane


Spare Parts & Accessories

- Spare Parts & Accessories of EOT Cranes
- Spare Parts & Accessories For Induction Furnace

Manufacturer & Exporters of EOT Cranes, Scrap Lifting Circular Electromagnets, Billets & Bar Lifting Rectangular Electromagnets, Induction Furnace Electric Sintering Heater, Ladle Electric Pre-Heater, TundishElectric Pre-Heater & All Components and Accessories related to EOT Cranes, Electromagnet & Steel Industries.

LIFTLINE INDUSTRIES

Works Office
Plot No-11, Nichi Mangali, Chandigarh Road,
Ludhiana – 141123, Punjab, India

Phone
+91 7626938310
+91 7626918013
+91 8700055427

Email
liftline8013@gmail.com
info@liftlinecranes.com
sale.liftline@gmail.com

Website
www.liftlinecranes.com

Importance of Correct Steel Selection in Manufacturing & Fabrication

Kamal Aggarwal
Hon. Sec. General, AIIFA

Introduction - Steel products from mini steel plants having induction furnace melting unit, hot working and finishing units directly supply final products to customers or via trades or dealers mainly to customers in two product form–e e.g. rolled or forged in heat treated conditions. For structural construction or component manufacturing, products are inevitably should meet dimensional, property and quality requirements of products. The structural product generally responds in a linear elastic manner, up to the 'yield point' and thereafter has a significant capacity for plastic straining before failure.

For component or product manufacturing, chemical compassion, physical properties, thermal behavior and responsiveness including internal quality are the major issues for life and functional behaviors. The selection of an appropriate/ proper steel grade selection to satisfy all requirements an awareness of relevant product quality standards, an understanding of all the issues including material properties and cost provides the processing/ manufacturing units. This article provides designers with background information and specific guidance on how to select an appropriate steel grade and quality, and on how the structural steel products for a bridge are specified in accordance with the Structural Eurocodes.

Production of Steel in grindings provide systematic way to categories different types of steel and steel products based on their properties, composition and proper serviceability with respect to broad classification of grades as types, for end use application which helps in the selection of the right type of steel products as raw material i.e. inputs for manufacturing equipments in different industries.

These products are wire & rod ,rolled bar, billet, bloom, flat, sheet/ plate, Forgings from open die or close die ,in different grades and dimensions These steel products are used as raw materials for manufacturing various products components after further processing and fabrication.

At each stage, value is added with strict quality control to attract customers. However all such finished products are recyclable till damaged or end of life. Material properties play a crucial role in product design, influencing various aspects such as durability, strength, and appearance. In today's highly competitive market, designers need to be aware of different materials and how they can be used to create products that meet specific functional and aesthetic requirements. Material selection is a critical stage in the design process and requires careful consideration of factors such as cost, performance, and environmental impacts. A well-informed approach to choosing the right material for a product can result in cost-effective, sustainable, and functional designs that meet customer needs

Steel Grade - These refer to the quality and element wise composition of the steel being produced for application. Steel is an alloy of iron and carbon, with other elements like manganese, silicon, and sometimes even trace amounts of other elements like nickel, chromium, molybdenum and vanadium. The composition of these elements, as well as the processing and treatment of the steel, can greatly affect its properties, such as strength, hardness, ductility, and corrosion resistance. There are four major groups of steel category e.g. Carbon steel, Alloy steels, Stainless steels, Tool steels.

Steel Grade Types - Different steel types can have different steel grades. Steel grade is determined by the chemical composition, processing, and treatment of steel, and different steel types have different chemical compositions and treatment processes. For example, carbon steel, which is primarily composed of iron and carbon, can have different grades. Similarly, stainless steel, which contains chromium and nickel in addition to iron and carbon, can have different grades based on the specific composition and treatment.

Factors for Consideration of Grade during Manufacturing – During manufacturing or fabrication process of steel products, following properties of steel are to be considered **Strength, Corrosion Resistance, Weldability, Formability, Heat Treatment of Product, Machinability not but the least Quality & Cost.**

In the past, most of the , entrepreneurs in small scale industries bother much about cost and had low level knowledge on effect of alloying elements as well process parameters of products and slowly lost their market share. Some of them had idea thought medium carbon steel caasting can be used as the material for crankshaft in most engines for cheatp raw material saving cost. But, development for increasing life, performance, AISI4140 replaced the old idea and practice followed, However, product was developed to use medium C-Cr-Mo grade steel. component. Indian Induction Furnace and downstream hot working units normally follow AISI specification. Nominal Properties – UTS 655MPa, Yield Strength 415 MPa, Redn in Area 56.0%.Hrdness (BHN) 197.Steel industries follow the standard - AISI/ASTM, DIN, Gost, IS, JIS or equivalent.

AISI 4140 or equivalent Standard Medium C , Cr, Mo steel crank shaft

Explanation of AISI Grade – Alloy steels and carbon steels are designated with specific grades by a four-digit AISI/SAE numerical index system which are based on the chemical compositions of the steels and alloys. Brief explanation of few grades -

Example AISI 1020

- The first digit indicates that this is plain carbon steel.
- The second digit indicates there are no alloying elements.
- The last two digits indicates that the steel contains approximately 0.20 percent carbon.
- Similarly 1040 as approx carbon content 0.40.

Example AISI/SAE No. 4340

- The first two digits indicates a Nickel-Chromium-Molybdenum alloy steel.
- The last two digits indicates carbon content roughly 0.4 percent.

AISI/SAE Steel and Alloys – Designations & Nominal Composition		
AISI/SAE Designation	**Steel/Alloy**	**Chemical Composition**
10XX	Carbon steels	Plain carbon, Mn 1.00% max
11XX		Resulfurized free machining
12XX		Resulfurized / rephosphorized free machining
15XX		Plain carbon, Mn 1.00-1.65%
13XX	Manganese steel	Mn 1.75%
23XX	Nickel steels	Ni 3.50%
25XX	Nickel-chromium steels	Ni 5.00%
31XX		Ni 1.25%, Cr 0.65-0.80%
32XX		Ni 1.75%, Cr 1.07%
33XX		Ni 3.50%, Cr 1.50-1.57%
34XX		Ni 3.00%, Cr 0.77%
40XX	Molybdenum steels	Mo 0.20-0.25%
44XX		Mo 0.40-0.52%
41XX	Chromium-molybdenum steels	Cr 0.50-0.95%, Mo 0.12-0.30%
43XX	Nickel-chromium-molybdenum steels	Ni 1.82%, Cr 0.50-0.80%, Mo 0.25%
47XX		Ni 1.05%, Cr 0.45%, Mo 0.20-0.35%
46XX	Nickel-molybdenum steels	Ni 0.85-1.82%, Mo 0.20-0.25%
48XX		Ni 3.50%, Mo 0.25%
50XX	Chromium steels	Cr 0.27-0.65%
51XX		Cr 0.80-1.05%
50XXX		Cr 0.50%, C 1.00% min
51XXX		Cr 1.02%, C 1.00% min
52XXX		Cr 1.45%, C 1.00% min
61XX	Chromium-vanadium steels	Cr 0.60-0.95%, V 0.10-0.15%
72XX	Tungsten-chromium steels	W 1.75%, Cr 0.75%

AISI/SAE Steel and Alloys – Designations & Nominal Composition		
AISI/SAE Designation	**Steel/Alloy**	**Chemical Composition**
81XX	Nickel-chromium-molybdenum steels	Ni .30%, Cr 0.40%, Mo 0.12%
86XX		Ni .55%, Cr 0.50%, Mo 0.20%
87XX		Ni .55%, Cr 0.50%, Mo 0.25%
88XX	Silicon-manganese steels	Ni .55%, Cr 0.50%, Mo 0.35%
92XX		Si 1.40-2.00%, Mn 0.65-0.85%, Cr 0-0.65%
93XX		Ni 3.25%, Cr 1.20%, Mo 0.12%
94XX		Ni 0.45%, Cr 0.40%, Mo 0.12%
97XX	Nickel-chromium-molybdenum steels	Ni 0.55%, Cr 0.20%, Mo 0.20%
98XX		Ni 1.00%, Cr 0.80%, Mo 0.25%

Crankshaft is very important and critical component in automobile industry, possible, so they don't tear the rod journal of the crank when it tried to stop them and pull them back down the cylinder at top dead center. With the right prep work and a lightweight rod and piston combination, a cast iron crankshaft should handle 500+ HP with no trouble at all. Converting the force generated by the combustion in the engine into rotary motion. The linear upwards and downwards motion of the pistons is converted into a torque by the connecting rod and then transmitted to the fly wheel. To withstand the heavy loads involved, crankshafts have a hardened surface and a tough core. Therefore, crankshafts are made of AISI 4140 forged steel. The continuous grain course enables a high torsional resistance, the bearing positions on the crankshaft are surface hardened, making them more resistant to wear

Alloy Steel Product Use as Raw material to Component & Fabrication Industry – The manufacturers and fabricators should thoroughly understand purpose of use of products ordered by customers. Product designers need to be aware of the use of raw material and their respective properties like mechanical, thermal, electrical, optical, and chemical characteristics that can affect the product's performance at end use, durability, cost, and sustainability to select the right material for each part of the product/ component. Designers also should consider factors such as weight, dimension, texture, color, and transparency when selecting the material. By selecting the right combination of materials, product designers can create products that meet functional requirements and appeal to the consumer's aesthetic preferences.

The common defects during steel product fabrication are –, Red shortness, Segregation, Cavities , or blow-holes. Al: these are formed when gas is confined or imprisoned in the molten mass of metal during fabrication. Such confined gas produces bubbles or blow holes on solidification of metal. Cold shortness: the steel, having this defect, cracks when being worked in cold state. This defect is due to the presence of excess amount of

phosphorus.(3) Red shortness: the steel, having this defect, cracks when being worked in cold state. This defect is due to the presence of excess amount of sulphur.(4) Segregation: some constituents of steel solidify at an early state and they separate out from the main mass. This is known as the segregation and it is prominent on the top surface of the ingots or castings.

Identification of the key material properties and how they influence the design process is of prime importance. This includes aspects such as tensile and yield strength, ductility, elasticity, and thermal conductivity. Tensile strength refers to the amount of stress that a material can withstand before it starts to deform or break, while ductility refers to the ability of a material to bend or stretch without breaking. Elasticity is the ability of a material to return to its original shape after being stretched, and thermal conductivity refers to the ability of a material to conduct heat. It is also important to keep in mind that different materials have unique properties and limitations, and understanding them only can help to select the appropriate material for product design, and function.

The steel industry in India, often regarded as a conventional and technical sector, is transforming as the country's steel production is estimated to grow by 4-7% in FY24 ranking second highest position in the World next to China. Building on the foundation that India is home to the fifth-largest iron ore reserves in the world, and largest DRI production in the World with second largest coal production in the World next to China.

Input-Output in Steel Making, Processing & Fabrication Industry – Steel making industry's The industry's inputs are raw materials (iron ore, coal, and limestone, as well as labor, capital, site, and other infrastructure)-the process of converting iron ore into steel involves many stages (raw material is fed into the blast furnace, where it is smelted and refined)-the output is steel (may be used by other industries as raw material).Raw materials such as iron ore, coal, and limestone, as well as labor, capital, location, and other infrastructure, are all inputs.

The refinement of iron ore is the most basic process in the manufacturing of iron and steel. Typically, coal and limestone are utilized in the refinement process. Steel is produced as an output, which can be used as a raw material by other businesses. In the Induction furnace steel making are ferrour scrap, HBI/ Sponge Iro & Fe-Alloys which after melting are converted as outputs like forging and rolled products. In the fabrication industry, again those are considered as input for production of fabricated or manufactured products as output.

Right Grade in international standard like AISI/ASTM, DIN, GOST, EN/BS, IS etc is to be selected for industrial scales mentioning end use and product quality standard . Selecting the right steel grade for industrial scales involves considering various factors to ensure optimal performance and longevity. Let's explore the key factors that influence steel grade selection. Machinery engineering involves manufacturing various kinds of machinery, components and equipment used in automobile, agriculture, mining, construction.. Any failure in right grade of steel and subsequent process.

In construction, steel is mainly used to manufacture heavy equipment used on construction sites, such as cranes, excavators, drills, bulldozers, trenchers, loaders, and scaffolding. In agriculture, from cultivating land and planting to watering, harvesting, storing, and transporting crops, steel is the choice material that makes agriculture easier and more efficient. In addition, the machines and equipment that process what we eat and drink are also built with steel. As with any manufacturing decision, budget constraints can influence steel grade selection.

Businesses must strike a balance between performance and cost-effectiveness. Steel product suppliers should have knowledge and grade characteristics of material the grade used in specific areas as it happen many times, problem faced at any stage is simply diverted to poor steel quality. After fabrication or component manufacture.

Following actions need to be taken for grade/ products-

Carbon Steels (Mild Steel):

1. **Regular Cleaning** by use a soft cloth or a soft-bristled brush to wipe away dirt and grime. Avoid using harsh chemicals that can react with the steel.
2. **Rust Prevention:** Since carbon steels are prone to rusting, apply a thin layer of oil or protective lubricant to the surface to prevent oxidation.
3. **Storage:** Store in a dry area to reduce the risk of corrosion.

Stainless Steels:

1. **Routine Cleaning** - Use mild soap and water to clean the surface.
2. **Avoid using abrasive pads which can scratch the finish**. Dealing with Discolouration:
3. **For any tarnishing or heat tints, use a commercial stainless steel cleaner.**

   Avoid Chlorides: **Keep stainless steel away from products containing chlorides, as this can lead to pitting and corrosion.**

Tool Steels:

1. **Keep Dry- Due to their high carbon content, tool steels can rust.**
2. **Always keep them dry, and if they get wet, dry them immediately.** Regularly Sharpen:
3. **Keep cutting edges sharp for optimal performance.**
4. **To protect the surface, regularly apply a thin coat of protective oil or wax.**

Alloy Steels:

1. **Check for Special Coatings - Many alloy steels come with special protective coatings.**
2. **Ensure these are not compromised and are renewed if necessary.**
3. **Avoid Harsh Chemicals:**
4. **Clean with a neutral pH cleaner to prevent unwanted reactions.Inspect for Wear:**
5. **Due to the various alloying elements, different types of wear can occur. Regularly inspect and address any wear issues.**

Weathering Steels:

1. **Its natural rusty appearance is a protective layer against further corrosion.**
2. **Avoid Water Pools,**
3. **Ensure no areas allow water to pool, as this can cause uneven corrosion.**
4. **Clean Occasionally - Use a soft brush to remove any loose material.**

Essential Functions for Maintenance

1. **Regularly inspect steel items,**
2. **Look out for any signs of wear, corrosion, or damage.**

3. **Early detection can save significant costs and prolong the life of the steel.**
4. **Control the environment of storage place of steel items,**
5. **Reduce the risk of rust and corrosion,**
6. **Use Protective Coatings or paint in specifically designed steel products tors.**

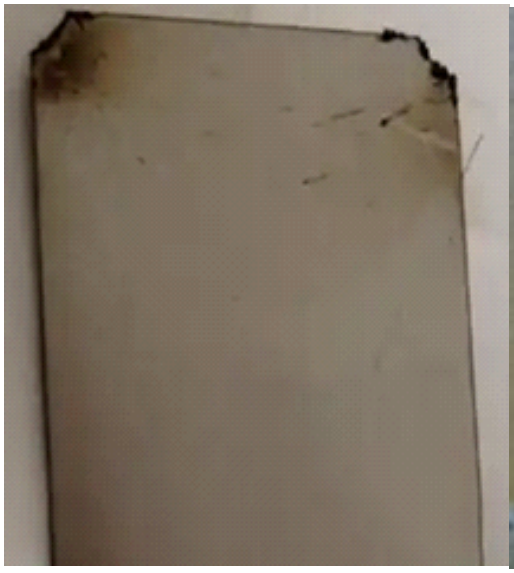
Common problems occur in steel fabrication.

1. External damage, such as scratches and gouge which may cause initiation of concern.
2. Scratches can also be problematic when they compromise the aesthetics of the product.
3. Following are the most important building blocks when it comes to avoiding problems in steel fabrication:

- Good design,
- Appropriate material selection,
- Strict adherence to industry codes and requirements,
- Steel fabrication experience,
- Teamwork amongst all disciplines involved in the fabrication process,
- Attention to detail for Quality workmanship, Quality of equipment

Since welding is one of the important activity in fabrication process, welding defects are faced both external or internal.. External defects cack, overlap, porosity orosity, undercut, porosity witnessed which, sometimes called surface defects, manifest on the weld's surface. Some examples include cracks, overlaps, undercuts, porosity and spatter. Internal welding defects occurr in the depth of the weld which might not be visible but are as troublesome as external ones. Included among these are fusion, slag inclusion and incomplete penetration

Defects in Steel Fabrication Process Shown Below→



Corner Cutting Problem

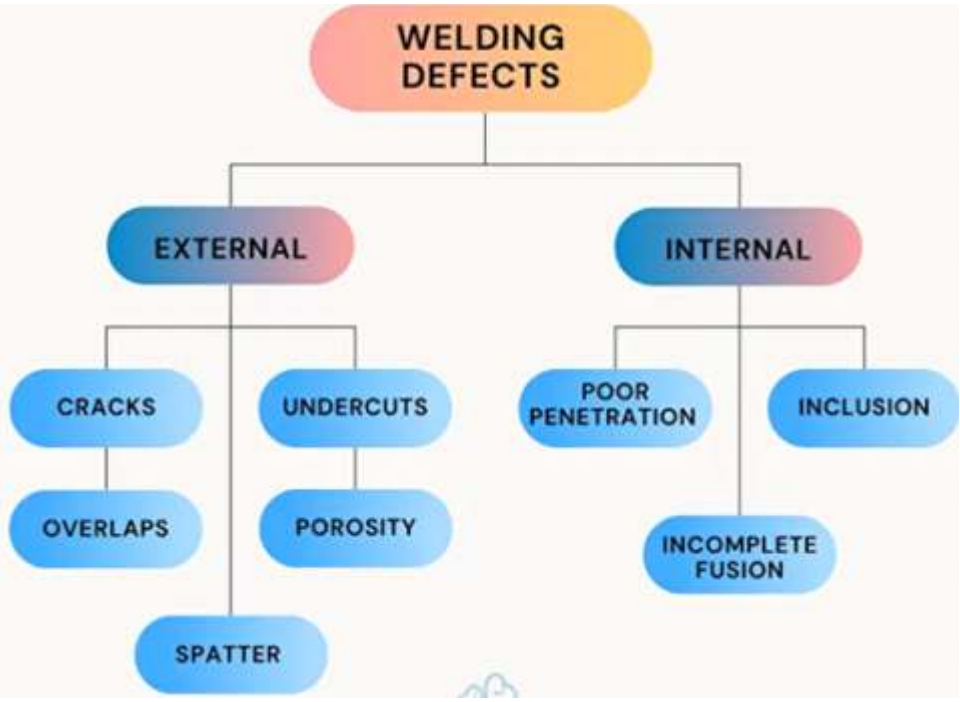
Porosity During Welading

Welding Defect

Mentioned above the steps (Flow Diagram) involved in the common Steel Fabrication process: Surface cleaning: The first step in the steel fabrication process is cleaning the surface of the steel, Cutting and Machining,Punching and Drilling:, Straightening, Bending, and Rolling:,Fitting:, Fastening:, Finishing or Surface cleaning:, Quality Control:

Manufacture/ Fabrication Marketing Status of China –

Quality control is an essential process in manufacturing or fabrication with steel products in China to make the defect free cost-effective product as well as to meet customer needs. The automation of this process is important to maintain high quality level along with the high manufacturing throughput. With recent developments in deep learning and computer vision technologies, it has become possible to detect various features from the images with near-human accuracy.



Steel finished product trading have quickly rebounded from the steep decline as experienced in 2020 and continuing in the same way till now as steel product supply chain has continued to be fragile throughout 2023. The ongoing containment measures adopted around South-East Asia, as well as Russia's war of aggression against Ukraine, have contributed to create pressures on steel goods and raw materials, with countries encountering difficulties in sourcing different kind of commodities. Further, China stopped induction furnace steel product being forced by poor quality as reported from orders, gradually switching towards electric arc furnace steel making.

Moreover, these shortages are contributing to fuel inflationary pressures. All such disruptions and pressures proved very consequential for steel product trading dynamics and trade policies. For instance, the potential continuation of lockdowns in Asia may contribute to further contract steel demand worldwide. In addition, the potential dragging on of Russia's war against Ukraine may compel countries to redraw trading routes by resorting to new partners or to institute trade measures such as export tariffs on certain steel

products. Or again it may engender new distortions stemming from the loss of competitiveness in the face of a new cycle of subsidizations or from the adoption of export restrictions and their domino effect.

Conclusion – Most of the small steel product / component manufacturing industries or fabrication industries simply blame melting units for any quality problem faced at their end which appears to be not true as there are many lapses in manufacturing or in fabrication jobs. Few of the units source raw materials from traders who should be serious on quality and coordinate common issues related to supplier and users. In case of any problem, detail observation on performance is to be timely communicated to steel makers.

There is enough scope and opportunities for exporting fished value-alled steel products produced from Indian induction furnace. However, steel quality should improve further in line with imported items by using secondary refining technology like VD/LRF/AOD. In this process equipment suppliers may be consulted to have expert opinions examining the matching capacity of units.

Climate change and global responses

AIIFA

The steel industry, integral to the modern economy, faces profound challenges in the context of global climate change. Indian steel plants use coking coal for reduction whereas they use thermal coal / steam coal for captive power generation. Recognising the industry's substantial and hard-to-abate carbon footprint, this section emphasises pivotal international agreements and commitments, notably those established in the Conference of the Parties (COP) summits from COP21 through COP26. Understanding these agreements is critical for the steel industry to align its carbon minimisation strategies with global climate objectives. The Intergovernmental Panel on Climate Change (IPCC) asserts that human activities are unequivocally driving climate change, primarily through CO2 emissions from fossil fuel usage. This has led to significant global warming, with severe consequences including extreme weather events, sea-level rise, and biodiversity loss.

The international community has responded through collaborative efforts under the United Nations Framework Convention on Climate Change (UNFCCC), aiming to mitigate these impacts by reducing greenhouse gas (GHG) emissions globally. COP is the principal governing entity of UNFCCC, consisting of delegates from every country that has signed on (or become 'Parties') to the UNFCCC. Its role involves evaluating the outcomes of the actions undertaken by the Parties to curtail climate change, ensuring they align with the overarching objectives of the UNFCCC. Decarbonising the steel sector is crucial for meeting global climate targets. This ambition is prominently reflected in the resolutions from COP21 through COP26. These conferences have cumulatively applied pressure on industries, including steel, to commit to a low-carbon future.

COP 21

The 2015 COP21 summit in Paris marked a significant turn in the global approach to climate issues. The conference culminated in the Paris Agreement, wherein participants agreed to

endeavour to confine global warming to a maximum of 1.5°C - 2°C above pre-industrial averages (UNFCCC, 2015). A key element of this agreement is the Nationally Determined Contributions (NDCs), through which nations declare their own customised plans and objectives for reducing emissions. This strategy encourages worldwide cooperative efforts, tailored to each country's unique situation. For major industries such as steel, the message is unequivocal: achieving notable cuts in carbon emissions is imperative to meet both national and international climate pledges.

COP22 to COP25

In the conferences succeeding COP21, the focus was on propelling the objectives set forth in Paris. During COP22 in Marrakech in 2016, the conversation centred around the vital role of financial backing for climate initiatives, especially for underdeveloped countries, while laying the groundwork for the rulebook of the Paris Agreement (UNFCCC, 2016). The following conference, COP23, in Bonn in 2017, under Fiji's leadership, highlighted the necessity for building climate resilience and the immediate need for assistance for nations most susceptible to climate-related disasters (UNFCCC, 2017).

COP24 in Katowice in 2018 was a pivotal event with the introduction of the Katowice Rulebook, offering a detailed guide for the execution of the Paris Agreement, which included aspects of transparency, adaptation, emission curtailments, and financial contributions (UNFCCC, 2018). Subsequently, COP25 in Madrid in 2019 underscored the urgency for heightened ambition within NDCs and launched critical discussions regarding carbon trading systems, an essential consideration for various sectors, steel included, in their efforts to balance out emissions (UNFCCC, 2019).

COP26

The COP26 conference, which took place in Glasgow in 2021, was of paramount importance, calling for the realisation of the targets established in Paris. Notable developments comprised enhanced reduction commitments from various nations, declarations to eliminate coal usage, and augmented financial aid for climate change adaptation and countermeasures in developing nations. Of particular importance to the steel industry was the accelerated shift towards adopting environmentally friendly technologies and the prioritisation of partnerships between governmental bodies and commercial sectors to pioneer and apply solutions for diminishing carbon output.

Post COP21, signatory nations have greater clarity over their bureaucratic expectations and financial obligation. COP26 made nations agree to the contentious Article VI, known as 'Loss and Damages'. It is also the first COP to mention specific types of power generation. Along with China, India pushed for 'phasedown' of coal-fired power generation. Amongst the several important deliberations, following were most prominent:

The Glasgow Agenda:

It is the commitment by 40+ governments to promote clean energy and reduce emissions in most polluting industries – steel, hydrogen, energy, and transport.

Global Coal to Clean Energy Transition:

It is a global pact supported by 40+ countries to eliminate use of coal in the main economies by 2030 and developing countries by 2040.

The Global Methane Pledge:

It is a pledge to reduce their methane emissions by 30 % by 2030 agreed by 100 countries. This is in line with latest IPCC report that 30 - 40% of increase in temperatures is due to greenhouse gases.

The UK, UAE, India, Germany, and Canada and have committed to support new markets for low carbon steel, cement, and concrete. They have pledged to achieve net zero in major public construction steel and concrete by 2050.

1 2 3 4

COP27

COP27, hosted in Sharm El Sheikh in 2022, marked a pivotal shift in the global climate change dialogue. Led by Egyptian Minister of Foreign Affairs, Sameh Shoukry, this summit saw over ninety-two heads of state and 35,000 delegates collaborating on tangible climate action. Unlike previous conferences which focused on formulating plans, COP27 emphasised 'every corner of human activity' aligning with the 1.5°C target, as highlighted by the UN Climate Change Executive Secretary, Simon Stiell. One of the most significant accomplishments of COP27 was the agreement on funding for countries severely impacted by climate disasters. This decision recognised the necessity of financial support to address climate-related losses and damages. Moreover, the conference saw countries reaffirm their dedication to limiting the global temperature rise to 1.5°C above pre-industrial levels and underlined the importance of renewable energy sources in the fight against climate change. Furthermore, finance emerged as a crucial topic, with the Sharm el-Sheikh Implementation Plan outlining the need for an annual mobilisation of USD 4-6 trillion for a successful transition to a low-carbon economy.

Country-specific declarations:

CHINA

As the world's largest steel producer, China's climate pledges significantly influence the steel industry. At COP21, China committed to peaking CO2 emissions by 2030, with efforts to peak earlier, and to reduce CO2 emissions per unit of GDP by 60-65% from 2005 levels (UNFCCC, NDCs, 2015). In COP26, China reiterated its pledge to reach carbon neutrality by 2060, significantly impacting its iron and steel sector (COP26, 2022). During this period, Chinese induction furnace industry has seen strict closures due to environmental reasons.

INDIA

India, the second-largest steel producer, declared its intention to reduce the emissions intensity of its GDP by 33-35% by 2030 from 2005 levels at COP21 (UNFCCC, NDCs, 2015). At COP26, India made a commitment to achieve net-zero emissions by 2070, an ambitious goal for its rapidly expanding steel industry (COP26, 2022). At the event, the Government of India presented five nectar elements (Panchamrit) of India's climate action plan:

1. Reach 500GW non-fossil energy capacity by 2030.
2. 50% of its energy requirements from renewable energy by 2030.
3. Reduction of total projected carbon emissions by one billion tonnes from now to 2030.
4. Reduction of the carbon intensity of the economy by 45% by 2030, over 2005 levels.
5. Achieving the target of net zero emissions by 2070.

JAPAN

Japan committed to an emissions reduction of 26% by 2030 based on 2013 levels at COP21 (UNFCCC, NDCs, 2015). In COP26, Japan pledged a 46% reduction by 2030 from 2013 levels and net-zero emissions by 2050. This has profound implications for its technologically advanced steel sector, pushing for rapid decarbonisation (COP26, 2022).

RUSSIA

Russia pledged a 25-30% reduction of emissions by 2030 from 1990 levels, declared during COP21 (UNFCCC, NDCs, 2015). Russia did not significantly update its pledge in subsequent conferences, including COP26, leaving its heavily carbon dependent steel industry with fewer immediate regulatory pressures for decarbonisation (COP26, 2022).

Source: Internet

Domestic finished steel consumption grows 13 pc to 136 MT in FY24: SteelMint

Apr 18, 2024

Domestic finished steel consumption has registered a growth of 13 per cent to 136 million tonnes during 2023-24, supported by increased demand from automotive and infrastructure sectors, SteelMint India said. The country consumed 120 million tonne (MT) finished steel in the preceding 2022-23 financial year, the research firm said in a report.

"Demand from the automotive industry improved in FY24, along with focus increasing towards the EVs. Infrastructure and construction sectors also showed resilience with investments, mostly supported by government-funded development projects," SteelMint said.

The production of crude steel in the country rose 12.6 per cent to 143 MT over 127 MT in the previous fiscal.

The development assumes significance as under the National Steel Policy, the government is aiming to increase India's annual steel manufacturing capacity to 300 MT and per capita steel consumption to 160 kg by 2030.

As per the SteelMint data, the consumption of finished steel rose 6 per cent to 33 MT in the January-March period of FY24 from 31 MT in the year-ago period.

The production of crude steel was 37 MT during the quarter, 12.1 per cent more than 33 MT in the year-ago quarter.

Source: The Economic Times

India plans to raise steel production capacity three-fold by 2047

Apr 09, 2024

India is looking to enhance domestic steel production capacity threefold to 500 million tonnes per annum by 2047 with lower emission intensity, officials aware of the plan said.

The country also plans to reduce emission intensity to 2.25 tonnes of CO2 per tonne of crude steel (2.25 T/tcs) production by FY29 from 2.50 T/tcs now, and even further by 2047, they said.

Source: Metal Junction

Steel industry says surge in imports 'warning signal' for country's Atmanirbhar mission

Apr 09, 2024

The Indian steel industry has expressed concern over India becoming a net importer of steel in 2023-24, saying is it is a "warning signal" for the country which strives to become Atmanirbhar. As per the steel ministry's Joint Plant Committee, India has registered a 38 per cent surge in imports of finished steel to 8.319 million tonnes (MnT) over 6.022 MnT imported during the preceding 2022-23 fiscal.

"The surge in predatory imports from China is a big threat to the Atmanirbharta in steel. The country becoming net importer is a warning signal to our march towards Atmnirbharta (self-reliance)," Alok Sahay, secretary general of apex industry body Indian Steel Association (ISA) said.

Looking at the situation, it is very important to arrest predatory imports, he said and demanded for a trade remedial action on an urgent basis to arrest the inbound shipments.

"Lesser duty rule helps importers. It needs to be removed and notified without delay, so that China or any other steel-surplus country do not use India's growth momentum for supporting their own steel mills, while India suffers in expanding steel capacity," Sahay said.

Ranjan Dhar, Chief Marketing Officer - ArcelorMittal Nippon Steel, said India's steel industry faces threat from predatory imports. Restricting steel imports is crucial to safeguard investments and ensure robust GDP growth.

Anubhav Kathuria, Director - Synergy Steels, said: "In the context of stainless steel as well, we have witnessed a rise in imports over the past year, primarily from countries like China and Indonesia. As we witness this trend, it becomes imperative for the industry to strategize ways to enhance the cost competitiveness of products."

In the near-term, the focus should be on reducing import duties on key raw materials such as ferro nickel, molybdenum concentrate, and ferro molybdenum.

Vinod Kumar, President, India SME Forum, said the industry has been continuously requesting the government to review free trade agreements with several countries to check imports.

Under the National Steel Policy, India aims to scale up its annual steel production capacity to 300 million tonnes by 2030 to cater to its domestic requirement.

Source: Metal Junction

SUSHIL'S®

AN ISO 9001 : 2008 CERTIFIED CO.

www.jindaltransformers.com

SUSHIL ELECTRICALS

Works & Office : F-9, Phase-VII, Focal Point, Ludhiana - 141 010 (Pb.) INDIA
Tel. : 0161 - 2676733, 2677822 Mobile :+91 - 98140 - 21233
E-mail : info@jindaltransformers.com, sushilelectricals@yahoo.com

Scrap Lifting Circular Electro Magnet - PLC Controlled

Ladle and Sintering Preheater with Bottom Heater

Automatic Servo Voltage Stabilizer & H.T. Transformer

Heavy Duty Punch Grid Resistance Box

Manufacturer & Exporter of Scrap Lifting Circular Electro Magnet PLC controlled, Heavy Duty Elliptical Electro Magnets, Billets & Bar Lifting Rectangular Electro Magnets, Automatic Servo Voltage Stabilizers, Silicon Power Rectifiers, IGBT Base Rectifiers, Ladle & Sintering Preheater with Bottom Heater, Power & Distribution Transformers and Heavy Duty Punched Grid Resistance Box etc.

ELECTROTHERM®

"The most preferred Steel Plant maker up to 1 Million Ton / Annum"

Induction Melting Furnace

Ladle Refining Furnace

Continuous Casting Machine

Rolling Mill

Toll free # 1800-257-7400

Total Solution for High Quality Steelmaking through Melting-Refining-Casting-Rolling

State-of-the-art Digital inverter technology through Fibre Optic Communication (DiFOC) system in Power Supply Units up to 40,000 KW coupled with Ultra-efficient furnace up to 80 ton capacity.

40 MW / 80 ton

ERF® (Electrotherm Refining Furnace) with ELdFOS® technology, a special metallurgical equipment for carrying out de-phosphorization and de-sulphurization in the same equipment.

10 ton to 200 ton

- Direct rolling of billets
- Enormous metal saving due to reduced scale loss
- Substantial energy saving
- Reduced material handling
- Improved yield from rolling mill
- Enhanced productivity of plant
- Environment friendly
- Higher profitability

80 mm to 400 mm

- Highly advanced and proven European Technology to maximize production, manufactured in India
- Renowned and acclaimed technical as well as OEM partners
- Wide range of supply from conventional to the most advanced equipment
- Proven competency in efficient handling of green field, brown field or revamping projects
- Higher productivity / yield
- Superior product quality

Compact Mill for Bar & Wire-Rod, Structural and Narrow Strip Mill

Engineering & Technologies

ELECTROTHERM® (INDIA) LIMITED
72, PALODIA, (VIA THALTEJ) AHMEDABAD, GUJARAT- 382 115, INDIA
Phone: + 91 2717- 660 550, Email: mkt@electrotherm.com
Website: www.electrotherment.com