ALL INDIA INDUCTION FURNACES ASSOCIATION

AIIFA

NEWSLETTER

Voice of Indian Sustainable Steel Manufacturing Sector

VOL. No. XXIV
ISSUE No. 5, May, 2024

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Sintering Pre Heater

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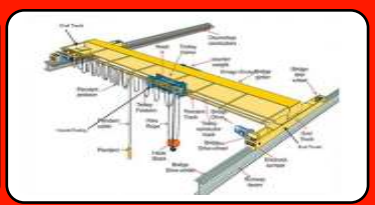
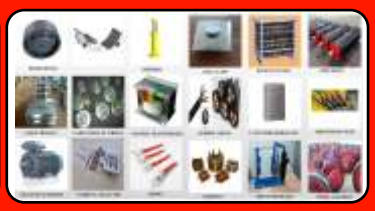


EOT Crane

- 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.

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Indian Induction Furnace Steel Making Units Only Focus on Product Quality Optimizing Cost, Customer Satisfaction

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Introduction - In the dynamic landscape of alloy & special steel market, material quality is a fundamental factor for ensuring the safety and reliability of end products.. Steel makers particularly for alloy & specpecial products, manufacturers are struggling for continuous improvement to stay in the market comfortably mainly in four major classes of alloy steel: structural steels, magnetic alloys, tool and die steels, and heat-resisting stainless steel..Indian induction steel making units and their downstream processing units taking prominent role, standing out for consistent commitment to provide excellent steel forgings, rolled products and cast products as input to meet a wide range of industrial, engineering and construction needs.

Iron and Steel Industry is often called the backbone of modern industry and quality steel produced from induction furnace steel making route is projecting its image in meeting country's need even entering in the international market .successfully. . Almost everything we use is either made of iron or steel or has been made with tools and machinery of these metals. Ships, trains, trucks, and autos are made largely of steel. Even the safety pins and the needles we use are made from steel

The steel sector is usually regarded as a basic industry, crucial for the development of modern industrialized economies. Steel production activities connect different economies through trade of both steel as inputs for next processing and outputs as final products. The industry is providing steel to aal the manufacturing / fabrication industry or directly to to OEMs (original equipment manufacturers), besides forging or As platform, these production line distinguish themselves by efficiently meeting specific customer requests for high-quality special steel products through rigorous quality controls at each and every production stage. To meet the demands of the most discerning customers, Each member of AIIFA are committed to offering a wide range of certified steel products for both quality and properties optimizing product cost in national and international specification as common strategy like –issues of availability of recycled ferrous scrap, broad based market support in raising the consumption patern in consuming sectors, and various common commercial issues.

Enhancing Quality Product Optimizing Cost – National Steel Policy (NSP) 2017) aims to develop a globally competitive steel industry by creating 300 Million TPA Steel production capacity by 2030 with a contribution of 35-40% from EAF/IF route. i.e 120 million tonne from secondary steel sector operated by private sectors as mini steel plant. As current contribution of steel production by induction furnace steel making rout is about 60% of combined tonnage of EAF+IF, therefore, it is expected inducyion furnace may likely to contribute about 70-75 million by 2030.

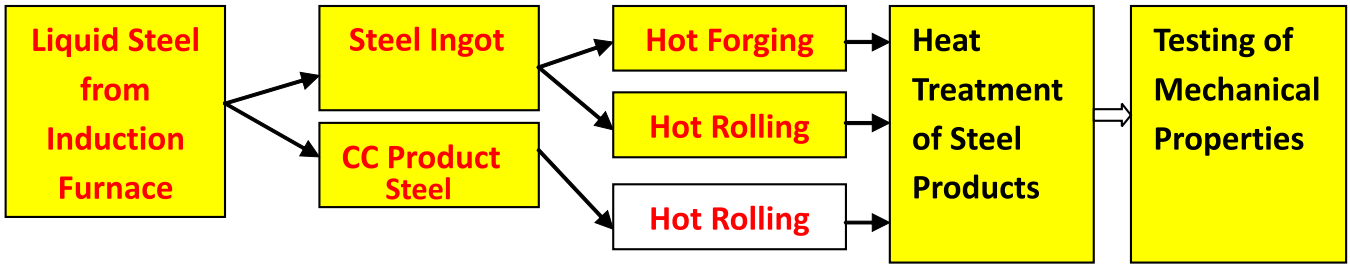
Govt. has already introduced Production Linked Incentive (PLI) scheme for specialty steel to enhance the production of the high-end alloy & special steel grade products used in various sectors, including power, shipping, railways and other priority sectors. Project Development Cell set up by Minstry of Steel to facilitate and attract investment in the steel sector encouraging entrepreneurs which is acting as a single point of

electric base steel making routes like EAF and EIF to facilitate the investors during the various stages of investment process.

Manufacturing Industry Use IF Products as Raw Material – Iron and Steel Industry is often called the backbone of modern industry responsible for manufacturing every equipment needed for. Ships, trains, trucks, and autos from steel or special steels. Like steel making and shaping units, the manufacturing industries producing steel products are ever-changing and highly competitive being agile and continuously improve to thrive. Most of such industries adopt the latest technologies but may not always increase production rates but concentrate in , improving quality reducing cost , enhancing profitability.

Those industries always create an environment that allows them to precisely control production while expanding visibility into their critical processes providing benefits. From production control and monitoring, machine connectivity, equipment and asset health, process automation, embedded quality controls, During production, any quality problem related to steel making , shaping or and property, industries consult with parent unit for overcoming any difficultness.

Induction Furnace Special Steel Prduction Flow Chart



Global Compeitive Pressure on Special Quality Steel Products - Special steel producers and manufacturers are deploying different resources and strategies in the competitive arena. These resources may be tangible like machines, technology, steel grades, and processes) or intangible such as Total Quality Management (e.g., knowledge management/human capital as skill, leadership, customer focus, employee focus, service quality, Areawise Standard Operating Practice). However, as producers focus their attention on intangible resources, they should not ignore the tangible ones, especially for manufacturers that constantly seek ways of shaving costs and obtaining superior material performance to resolve their needs.. Nowhere is this heat felt more than in the procurement area, which is a manufacturer's major resource cost and needs to be closely monitored to meet its needs.

Action Areas in Induction Furnace Steel Making - The rapid heating rate and shorter melting time in induction melting furnace should be properly utilized for scrap and sponge iron melting synchronizing the process cutting delays for enhancing steel production..Significant reduction of melting time enable increased production rates improving overall productivity. This melting process is considered as the game-changers in the Steel Melting process due to their several benefits that optimize efficiency, quality, and sustainability. in making almost all grades of alloy & special steels. Except few grades which have adverse impact of furnace acidic lining..

Operational Efficiencies in Induction Furnace Steel Making : The entire working personnel involving operation, maintenance, refractory, chemical laboratory, process control for input-

output conversion in steel melting shop improve the process efficiencies and reduce energy consumption reducing production cost by way of reducing energy consumption of to about 20% level. Most sensitive areas are- .

1. Procurement of Good Quality Recycled Scrap,Proper planning/ scheduling of heats. against Customer Orders,
2. Best utilization of Power,
3. No Holding of furnace in melting condition,
4. First charging of scrap as bucket charging, this enable fast melting due to compactness of charge.
5. Exploring the possibility of scrap pre-heating arrangement (same may reduce power consumption in the range of 50-80KWH/T)
6. Putting lid on furnace top, Opel lid during melting contribute about 4-6KWH/T/Min.
7. Maintaining optimum thickness of lining to extract more heat from coil to metal,
8. Preferably using cleans scrap, Rusty or dirty scrap consume more energy.
9. Repairing of any hot spot speedily,
10. Grade wise Super Heating should be maintained as standard (not too high or not too low), In case IF unit is linked with secondary refining unit like LRF, furnace holding should be minimum after melting – trimming alloy addition can be done at LRF,
11. Temperature and composition checking in melt as quick as possible.
12. Heated ladle to be placed for tapping without delay.

Most of the mini steel plants under MSME/ SMEs have started using induction furnaces even by-passing their existing well running arc furnaces considering overall benefits like getting good output in quicker and in efficient cost-effective ways. For convenient in operation, maintenance and production in easy and faster ways,. Moreover, IF can be used for melting any type of steel even high alloy steel regardless of grade, specification in restricted composition and purity maintaining high production rate regardless of furnace size and at low investment. The growing popularity of induction furnace steel making all over the world is taking place due to its advantage compared to electric arc furnace and its other characteristics favorable for production e.g.

1. High and relative narrow melting vessel,
2. Low crucible refractory wall thickness,
3. Low slag temperature,
4. Controlled melting with powerful bath agitation resulting thorough mixing helping floatation of impurities,
5. Availability of raw materials – sponge iron/ HBI, auto/ship building shredded scrap (limitation of use because same associated with undesirable residual/tram elements), home/return scrap etc.

For making clean and ultra-clean steel reducing harmful elements and gases, in line setting up of equipments like LRF and VD may be explored to become competitive in international market.

Presently, mini steel plants having induction furnace melting are exploring possibilities of installing continuous casting after degassing in LRF & VD keeping provision of ingot production and concast production as cc route predominates due to higher yield, productivity and quality in certain areas. Ingot casting is preferred where the product requires highly recrystallized grain size that warrants high reduction ratio. Once the liquid steel is made, it is important to maintain its quality during subsequent processing. The tundish in

continuous casting has to have a good refractory that is stable and least reactive to the melt chemical and physical interaction and should have flow behavior where macro inclusions float out. The refractory with high MgO content is preferred.//

Induction furnace lining is subjected to pre-determined prolonged heating to ensures that the lining is free of moisture. The molten liquid when transferred to tundish in con cast machine may react with moisture to introduce hydrogen and oxygen. measurement at this stage is a critical parameter. Appropriate post processing treatments such as stack cooling or anti flaking treatments depend on the hydrogen levels at this stage Also the nitrogen pick-up at this stage is monitored as there is a correlation between N pick up and oxygen pick up from atmosphere.

Casting is carried out with proper tundish flux through an SEN(sub-entry nozzle). Free opening of the ladle is desired and the SEN is properly shrouded to prevent ingress of air to oxidise the bath. The SEN with upward angle nozzle is preferred as the flow is smoothened and the flow pattern enables flotation of inclusion towards the top mould surface layers, where the mould powders have the ability to absorb inclusion. The mould powder choice is critical for steel grade. For example, the peritectic grade demand a different condition of solidification compared to a high carbon steel grade The wrong choice of mould powder may lead to sub-surface seams that may escape the notice during surface grinding yet may expose up during hot rolling. The super heat needs to be optimized..

High super heat favours inclusion flotation during casting, but macro segregation and centre line porosity tends to enhance. Too low a super heat tends to clog the nozzle and prevent inclusion from floating. Appropriate parameters of casting speed, primary and secondary cooling are to be ensured. The casting mould is subjected to proper oscillation. The liquid steel from melting furnace is, transferred to a ladle with deoxidisers to bring down the initial dissolved oxygen in liquid steel. Here, there are several strategies to control the inclusions.

Addition of carbon along with the tapping stream, prevent ingress of air to molten steel bath due to carbon oxidation.sometines.A high Al recovery along with high carbon pick up. This implies that the carbon is able to go into solution in molten steel and contributing to the lowering of oxide inclusions in the bath. The residual oxygen in the tapped steel is killed with a combined Si-Mn deoxidation or with large amounts of Al additions in the ladle.

This initial deoxidation during tapping is called as blocking the steel heat, which brings down the oxygen level in molten steel, low enough, so that alloying elements added subsequently are fully recovered without oxidation. The initial Al killing gives lowest oxygen levels during blocking.. Quality controlled ferroalloys is carried out in ladle furnace, depending on the steel grade. In some practices, initial slag skimming followed by synthetic slag addition. The slag in LF has to have adequate lime content >50% to ensure a white slag practice, the reducing condition along with good basicity for refining reaction.

Vacuum Degassing with a pressure <1mbar should be tried where excellent degassing is promoted by intense gas stirring under reduced pressure. Nitrogen levels fall down along with hydrogen to low values. The FeO content of the slag falls to very low levels <0.5% [reducing condition], which along with high slag basicity, promote excellent desulphurisation. Some of the steels, where transverse toughness properties are critical sulphide inclusions have to be reduced and

targeted.. Desulphurisation takes place intensely at vacuum degassing stage where again the FeO content is monitored to the lowest level.

Hot Rolling of cast blooms or billets made are hot scarfed, In cases, cold grinding before being hot rolled may be done. The hot charging of cast bloom/ billet enables conservation of energy apart from preventing phase transformation during complete cooling that involves volume changes and associated stresses in the bloom or billet

The bloom/billetss have to be heated appropriately before hot deformation in reheating furnace as a temperature gradient will result in non-uniform flow strength and inhomogeneous deformation. The thermal cycling is such that the core achieves the required temperature. . During the bloom/ billet re-heating, apart from choice of heating parameters, oxidation of the input and the surface decarburisation are important aspects that are crucial to final rolled products. Scales generated in the reheating operation reduces the yield, which needs to be curtailed, and in some grades can be potential sites for crack initiation. The choice of the burning fuel and fuel:air ratio are factor optimized in a furnace. The soaked bloom is, subjected to initial deformation in a blooming mill where the cast structure is heavily broken down. The deformation at this stage is large enough to convert the cast dendritic microstructure to recrystallized grain structure. Phenomenon such as static, dynamic and metadynamic recrystallization refines the grain structure.. The reduction ratio is a monitored measure of the extent of deformation that has enabled the cast product to become a wrought product. The fine grain structure obtained has to be retained especially after the finish rolling.

The deformation strain, pass schedule and rpm are critical parameters apart from the surface and core quality of the input bloom. Post rolling, products are cooled in cooling table/ bed or slow cooling boxes or pits or vermiculite, to ensure achievement of suitable hardness and also diffusing out hydrogen in steel in some grades. The final hardness achievement in the bars, suitable for machining, may be specified by some of the customer, where slow cooling needs to get a softer product.

Certain high alloy steel prone for hydrogen flaking needs to be given a proper anti-flaking heat treatment cycle below A1 temperature. Hydrogen level in excess of 1.2 ppm in high hardenability steel such as C-Mn, Cr-Mo and Ni-Cr-Mo steels are prone for hydrogen flaking problem.

Thus processed materials suppliers need to find new ways of overcoming the uncertainty factors affecting production and consumption functions of such tangible resources.

Quality Drive for Competitiveness - For melting scrap and ferro-alloys, furnace do not need arcing from electrode, it is easy in operation to regulate the melting heat, making it a suitable option for preserving valuable alloying elements. Moreover, this type of furnace generates a minimal amount of waste and pollutants, contributing to an overall reduction in carbon footprint.

The issue quality of steel in the current competitive open market is playing a focal point for finished steel products producing from electric induction furnace melting route to stay comfortably in both domestic as well as export market. Product quality became a powerful competitive tool in the global market of standard alloy & special steel products..

In the 80s, Japanese production units applying JIT cocept (Just –in-Time) or TQM (Total Quality Management) principles which made dramatic gains in market share in many industries particularly making-shaping- treating of alloy & special steels..Both the concepts became populr in

the world which explained the way to get success with a business philosophy that supposed no trade-off between cost and quality. In spite of these facts, the real economic gains of quality have been questioned many times by global industry steel leaders but established considerable about its value creation potential..

Still, there were plants which became bankrupt despite implementation of such program The focal point of TQM is customer satisfaction with the standard tools of JIT like continuous improvement involving employees, supply chain and timely management guidance.. Customers are only satisfied when they get value and when they purchase quality product as raw material for further processing at their end. at the lowest possible price also.

Management has to prepare quality planning against several customers for their requirements who insist on special process for property requirement for their products matching with international standard participating global tender. to develop a process capable of meeting quality goals under certain operating conditions JIT is the reflection of these views because the ultimate aim of JIT is to develop a cheap, problem free, balanced, rapid, i.e. high quality flow.

Importance of Product Cost & Operational Efficiency – In making quality steel from induction melting furnace and shaping products,, cost control focuses on optimizing production processes, reducing material loss as rejection or waste, and improving operational efficiency. Techniques such as lean manufacturing, just-in-time inventory management, and automation are employed to streamline operations and minimize costs without compromising quality.

Operational efficiency reduces costs by using available resources in better ways. In steel producing units, skilled labors are unit's highest cost and valued. If industry can optimize their workload, knowledge, skill with processes - so that they're delivering more work within the same working hours/wage reducing cost, units get more qualified output for the same input.

However, on the other hand, economic models dealing with price and quality relationships typically take quality to mean positioning, class or performance of the product in terms of a vector of product attributes.This approach is frequently quoted as performance quality, emphasizing the role of customers in making quality related decisions. When the focus is not on the supply-side effects, but on the demand side. Quality can be defined as the ability of a product or service to consistently meet or exceed customer expectations (ref.Stevenson, 1996).

Quality Attribute - It is logical to assume that the demand for a product will depend on quality attributes and that quality can create shifts in demand curves handling the performance and conforming quality level decisions together under conditions of perfect and oligopolistic competition establishing a competitive situation in which there are only a few sellers (of products that can be differentiated but not to any great extent); each seller has a high percentage of the market and cannot afford to ignore the actions of the others.

Owning a mini-steel having induction furnace steel making unit, entire production route provides entrepreneurs with control over the entire production process, from raw material procurement Stage wise process control achieving quality.and properties at international standard satisfy customers..However, activities in

line for fulfilling objective allows for customization and flexibility in meeting customer demands.

Cost & Efficiency:- Plant with induction furnace melting unit typically have lower initial investment and operational costs compared to Electric Arc Furnace steel melting units as well as larger integrated steel plants. This cost advantage can contribute to profitability, especially if the plant is located near raw material sources or target markets.Local Job Creation: Establishing a mini-steel plant can create employment opportunities in the local community.

Longer holding times require more energy consumption, which can reduce the lifespan of your induction furnace. Consider short holding times instead to improve your melting equipment's efficiency.

Resource Requirement & Availability- The major raw material required for the Proposed Induction Furnace, Rolling Mill and Ferro Alloys (SAF) Units are, Sponge Iron, Metal Scraps, Billets, Manganese Ore, Coal, Limestone etc

The plant requires skilled and unskilled workers for various tasks, contributing to job growth and economic development. Shorter Production Cycle: Mini-steel plants often have shorter production cycles with good quality ferrous scrap allowing for quick and fast production rate reducing lead time. Mini-steel plants particularly induction furnace steel making units can specialize in producing specific steel grades. This focus allows for targeted marketing and differentiation, catering to specialized customer needs and potentially commanding higher prices.

Limited Scale of Operations -: Mini-steel plants have limited production capacity compared to larger steel plants. This limitation may restrict the ability to fulfill large orders or compete with larger-scale producers.Dependence on Raw Material Supply: Mini-steel plants rely on a consistent and cost-effective supply of raw materials such as iron ore, scrap metal, or alloys. Fluctuations in raw material prices or availability can impact the profitability and stability of operations.

Technological and Infrastructure - Challenges: Establishing and operating a mini-steel plant requires adequate infrastructure, advanced technology, and skilled personnel. Overcoming these challenges can involve additional costs and resources.Market Competition: The steel industry is highly competitive, and mini-steel plants may face competition from larger integrated steel producers, as well as other mini-steel plants in the market. Building a strong market presence and effectively competing with established players can be challenging.

Environmental Considerations:- Steel production involves significant energy consumption and emissions. Compliance with environmental regulations, managing waste, and mitigating environmental impact require careful attention and investment.Before proceeding with setting up a mini-steel plant, it's essential to conduct a thorough feasibility study, market analysis, and financial assessment. These evaluations will help determine the viability, profitability, and potential challenges associated with the venture. Seeking professional advice and consulting with experts in the steel industry can also provide valuable insights and guidance.

Cons of Setting up - Mini-Steel Plant:Limited Scale of Operations: Mini-steel plants have limited production capacity compared to larger steel plants. This limitation may restrict the ability to fulfill large orders or compete with larger-scale producers.Dependence on Raw Material Supply: Mini-steel plants rely on a consistent and cost-effective supply of raw materials such as iron ore,

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Shaping Liquid Steel & Process Stages - These plants are situated according to geographical locations where they get easy access to raw materials. Hence, they establish industries in and around a mining area so that transportation of raw materials becomes easier Two advantages that a mini steel plant has over an integrated and steel plant are : - Mini Steel Plants utilize electric furnaces consequently saving coking coal. They require fewer investments. - It utilizes effectively accessible scrap iron as crude materials The Iron and Steel Industry provides for industrial infrastructure and for regional development. It also provides a greater scope for regional development and also provision of employment

Productivity is probably the main keyword for mini steel plants like other production and processing industries in growth theory which is simply explained mathematically as the proportion between increases in output per input unit having a close connection to the input-output analysis, mainly developed by the economist Wassily Leontief. Prof. Dr. Michael Braungart, inventor of the Cradle-to-Cradle® concept, criticized the idea of growing efficiency within the production and calls for more quality in processes and production only by operational excellence by human efforts.

In global competitive steel market specially for alloy & special steel, the mini steel plants, using induction furnace for steel making and shaping the steel either in rolling mill or forge shop followed by heat treatment of products, are needed to perform efficiently maximizing product yield, lowering rejection and reducing cost. The essential pre-condition for success in mini steel plants is growth in productivity, improved process flow in efficient ways, delighting customers by desired quality product at optimum cost and finally economic success through better revenue earning.

Most of plants, presently, are though using state of art processes involving experienced and knowledgeable people, still demand in the market is for low cost better quality products. As such, units should try to achieve operational excellence for improvement following stage-wise standard processes to have full control on quality and cost meeting production targets. Units need to have an efficient quality control aspiring for defect free

clean steel products with minimum production cost increasing profitability.

Investments in technologies, however, improves process increasing profits from productivity and quality reducing the variable costs modifying the process standards, developing process producing desired quality and yield encouraging management to ask a higher price from customers. This adjustment will, hopefully, help mini steel plants to capture greater market share with better contribution and of course tending towards higher profits. Finally, it will show the direction of the plant productivity following such investments depending upon the relationship between the fixed costs of the plant and the size of the market.

Plant should produce only quality products required by the customers against the technical delivery conditions. Some plants are having the ideas of producing highest quality product incurring extra cost where customers may be happy but will not pay extra for that which should never be encouraged. Management should consider product quality as mainly as property attributed by customers. Thus, successful plants do not produce and offer the highest quality but the quality required by the customers.

Green steel needs tiered incentives to become reality in Asia

Date: 09-05-2024

It's time for a reality check about decarbonising Asia's vast and growing steel sector. Reducing the carbon footprint is possible, but only in stages, and over a far longer than ideal time period, and only if incentives to do so are available.

Steel is the biggest industrial contributor to global carbon emissions, accounting for around 8% of the world's total, making efforts to decarbonise the sector vital to meeting net-zero ambitions.

Asia's iron ore and steel industry gathered this week in Singapore and delivered both encouraging and disconcerting news about efforts to decarbonise steel production.

The good news is that virtually every player in the market, from iron ore miners through to steel mills is taking the issue seriously, and more than that, actually putting time, effort and capital toward solutions.

The bad news is that meeting net-zero emissions by 2050 in Asia appears largely a pipedream with the current and likely available technology.

A further looming and massive obstacle is the current pricing structure for steel, given that as yet there is no real premium for producing low-carbon metal in Asia and little sign that is on the horizon.

The current situation is one where iron ore miners and steel mills are largely undertaking decarbonisation efforts as part of voluntary commitments to reduce their carbon emissions.

These commitments are mostly the result of bending to pressure from shareholders, some governments and the general public to be seen to be doing something to mitigate the expected adverse impact of climate change.

This is all well and good, but it means that any costs incurred in decarbonising are effectively stripped from a company's bottom line as there is no financial reward in Asia for producing green, or even slightly less dirty, steel.

The question is how to introduce incentives to decarbonise, right from the relatively easy and low-cost initial steps through to the much more difficult and capital intensive ambition of net-zero steel.

One way would be to introduce a tiered system of incentives.

Let's assume a baseline of 2.1 metric tons of carbon emissions per ton of steel produced in the current predominant method of iron ore fines through a blast furnace and then a basic oxygen furnace (BOF).

If a steel mill could lower emissions by a third for example, it could be rewarded with a carbon credit, or avoid paying a carbon tax of a set amount per ton of emissions reduced.

For the sake of example let's assume this first third reduction is worth $60 a ton, which is roughly the price of a carbon credit in the European Union.

Now assume the steel mill can cut emissions by a further third, but only by investing in new processes, such as using direct reduced iron (DRI), or its shippable equivalent hot briquetted iron (HBI) in an electric arc furnace (EAF).

This reduction could be rewarded with a higher price on carbon, say $120 a ton.

The final steps to completely decarbonise steel production by using green hydrogen to produce the HBI, green electricity to run EAFs, and using sustainable shipping fuel such as methanol to transport materials, could attract an even bigger carbon credit to offset the vast capital that needs to be deployed to get there.

INCENTIVES ESSENTIAL

One thing became clear from the presentations at the Green Steel Forum this week in Singapore, is that without incentives only the first, and relatively easy steps to decarbonise will become reality.

These involve maximising the efficiency of BOFs, increasing the use of higher grade iron ore and agglomerates such as DRI and HBI, boosting the use of recycled steel in EAFs and decarbonising mining iron ore by limiting the use of diesel power generation at remote mines and electrifying vehicles and trains.

The problem is that all these efforts will likely cut only about 20% of steel's global emissions.

The next steps involve doing things like using natural gas to turn low-grade iron ore into DRI and HBI for use in more advanced BOFs or even EAFs, and then switching this process to green hydrogen.

But it's here where costs become real, and where shareholders are likely to ask what's in it for them.

Ultimately, for steel to decarbonise beyond the low-hanging fruit, there needs to be a price incentive, and the market by itself is unlikely to provide this, given cost is likely to trump climate concerns for the vast majority of consumers.

This means regulations such as carbon taxes or credits need to be implemented, and likely coordinated across numerous countries, but especially the top iron ore exporters, Australia, Brazil and South Africa, as well as China, which produces half of the world's steel, as well as emerging major producers such as India.

The opinions expressed here are those of the author, a columnist for Reuters.

Source: Metal Junction

India's Steel Industry Faces Challenges Despite Growing Demand

Date : 30-04-2024

- **India's finished steel imports increased by 38.1% in the last fiscal year, making it a net importer.**
- **The Indian steel industry has called on the government to intervene and initiate safeguard measures to protect domestic producers.**
- **India has announced ambitious targets to ramp up steel production capacity and reduce its environmental footprint.**

India has ended the financial year 2023-2024 as a net importer of finished steel, which has sent the alarm bells ringing in industry circles throughout India. Mainly, insiders want to know how the changing import status might affect steel costs and India's push for self reliance.

According to news agency Reuters, as per initial government data, India imported 8.3 million metric tons of finished steel in the last fiscal year. This represents an increase of 38.1% from a year earlier. Such high imports fly in the face of targets set by the Indian Government regarding self-reliance in steel manufacturing.

Alarmed by the rising imports to feed the increasing consumption of steel in India, steel mills have now asked the Indian Government to intervene and initiate safeguard measures. The association representing the steel companies has also asked for similar interventions in the past. However, the Ministry of Steel has yet to act upon these demands.

Source: Metal Junction

Steel production drops amidst elections, exports continue to fall

Date: 12-05-2024

Finished steel production falls 9% in April while crude steel production drops 6.2%

Amidst a storm of Parliamentary elections and some scheduled maintenance closures, the production of finished steel in India plummeted 9 per cent m-o-m in April. The drag down was caused by crude steel production being down 6.2 per cent for the same period under review.

In April, India's finished steel production was down to 11.2 million tonnes (mt) versus 12.35 mt in March. The crude steel production was at 12 mt in April as against 12.8 mt in the previous month.

However, production of both finished and crude steel displayed a y-o-y growth of 1.5 per cent and 2.4 per cent respectively. In April 2023, finished steel production stood at 11.05 mt, while crude steel production was at 11.65 mt, data from India's Steel Ministry showed.

Domestic steel consumption dropped 10 per cent-odd m-o-m in April, reaching 11.075 mt; from 12.259 mnt in March 2024. On a y-o-y basis, consumption, however, grew over 9 per cent from 10.12 mt in April 2023.

The Election Factor

According to officials, there is a general slowdown in infra projects and other construction sector activities primarily because of elections. This demand disparity will play out in patches across the first three months of the fiscal (April -June) but will see an uptick post-June if the 100-day program of the government puts infra projects in full throttle.

This apart, several primary mills had conducted maintenance on their hot strip mills (HSM) and cold rolling mills (CRM).

“Additionally, several TMT manufacturers had implemented production cuts, resulting in a reduction in finished steel production,” consultancy firm, BigMint (formerly SteelMint), said in a report.

Another consultancy firm, ICRA, said, ahead of the Lok Sabha elections, government spending fuelled domestic steel demand at a brisk pace of about 16 per cent between June and November (2023). But, the demand slowed down significantly in December and January to 6.5 per cent.

“Though these are early trends, it hints that the demand will remain soft over the next two quarters as the government spending moderates around the election period,” Jayanta Roy, Senior Vice-President, ICRA, had said.

However, internal projections by the Steel Ministry, and industry participants, peg an “at least in the 8 – 10 per cent growth, if not more” after a “soft start to the year”.

Exports Hit

India's steel exports continue to be hit, in view of slower-than-expected demand pick-up in Europe; and competition from China eating into other key markets, like the Middle East.

In April 2024, exports declined 40 per cent m-o-m to reach 0.5 mt, compared to March where it stood at 0.85 mt. Also, on a y-o-y basis, there was share 41 per cent fall, from 0.9 mt in April 2023, the Ministry data showed.

Imports on the other hand saw a 2.5 per cent increase m-o-m to 0.6 mt in April. In March 2024, it stood at 0.57 mt. However, imports rose over 27 per cent y-o-y, from 0.46 mt in April 2023. India was a net importer of steel.

“The influx of competitively priced steel from China and South Korea has slowed down,” BigMint said in its report.

India explores green steel project funding options

Date: 13-05-2024

Talks are underway for imposing lower interest rates for high capex projects.

India is pressing ahead with initiatives to fund green steel projects, embracing hydrogen as the 'game-changing alternative' to traditional coal methods. Discussions are underway over proposals, including the potential for imposing lower interest rates specifically tailored for upcoming capital-intensive green steel ventures.

Green steel is characterised by its low carbon footprint.

A senior official, aware of discussions said, options like “tweaking” the existing financing rates by banks are under-consideration too. For instance, if the interest rate is 10 per cent, for a green steel project, approved under various pre-determined parameters, it could slightly lower.

“Several Ministerial clearances are required, while financial institutions need to be brought on-board too if this proposal has to go through,” the official said.

The establishment of a green steel project incorporating hydrogen technology is commonly perceived as double the expense of traditional steel plants. While the construction cost for a conventional steel plant with a capacity of one million tonnes per annum is estimated at $1 billion, the setup cost for a similar green steel plant ranges $2- 2.5 billion.

The Centre is also pushing for a consortium-based approach to set up steel projects that use green hydrogen.

It has been proposed that in case of projects which come through a consortium mode, or via industry associations (wherein multiple companies will have a common unit that will be used), funding or support could be as high as 70 per cent of the project cost (including preparation of DPR) if it gets requisite clearances.

India's steel sector accounts for 12 per cent of the country's greenhouse gas emissions. The emission intensity is 2.55 tonnes of CO2 per tonne of crude steel produced, higher than the global average of 1.9 tonnes.

Guidelines for pilot projects

The Steel Ministry has been allotted □455 crore as part of its share under the National Green Hydrogen Mission.

As per the initial scheme guidelines, notified in February, there will be a call for proposals (pilot projects) that will be issued by the Ministry of Steel through a yet-to-be-decided “scheme implementing agency”, with funding available up to 2029-30.

The scheme would primarily fund capital equipment required for use of hydrogen in the iron & steel manufacturing process.

Three key areas have been identified for the pilot projects in the steel sector: the use of hydrogen in the Direct Reduced Iron-making (DRI) process, using hydrogen in blast furnaces, and gradually substituting fossil fuels with green hydrogen.

Funding approved shall not exceed 50 per cent of the total (project) cost, and primarily cover capital expenditure requirements (excluding land costs, and expenses relating to production of hydrogen).

Three stages

Funds will be disbursed in three stages – award of letter of contract (20 per cent), completion of specific time-bound milestones (70 per cent) and final completion of project (remaining 10 per cent).

Failure to complete projects on time or diversion of funds will lead to refund of entire grant.

Source: The Hindu Businessline

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