ALL INDIA INDUCTION FURNACES ASSOCIATION

AIIFA

INDUCTION FURNACE NEWSLETTER

VOL. NO. XIX

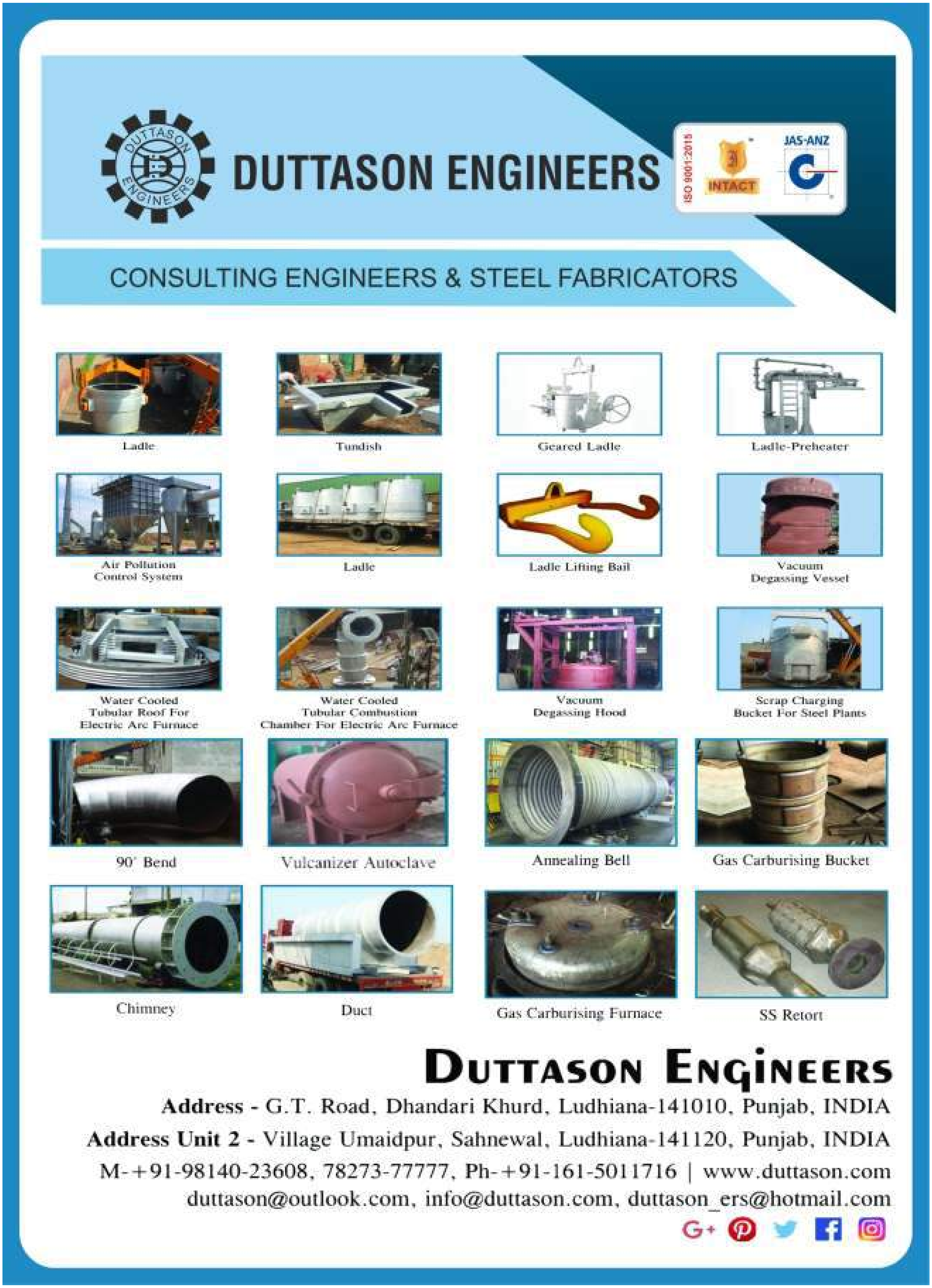
ISSUE NO. 6, June, 2019

What's Inside

AIIFA SECRETARIAT:

504, Pearls Omaxe, Tower-1, Netaji Subhash Place, Pitampura, Delhi-110034 INDIA

Tel: 011-2735 1346/1347
Mobile : 9810410186
Email: aaiifa6@gmail.com
Website: www.aiifa.org
Facebook A/c: aiifa1987 or 9810410186
twitter A/c : aiifa1987@gmail.com


DUTTASON ENGINEERS
ISO 9001:2015
INTACT
JAS-ANZ
CONSULTING ENGINEERS & STEEL FABRICATORS
Ladle
Tundish
Geared Ladle
Ladle-Preheater
Air Pollution Control System
Ladle
Ladle Lifting Bail
Vacuum Degassing Vessel
Water Cooled Tubular Roof For Electric Arc Furnace
Water Cooled Tubular Combustion Chamber For Electric Arc Furnace
Vacuum Degassing Hood
Scrap Charging Bucket For Steel Plants
90° Bend
Vulcanizer Autoclave
Annealing Bell
Gas Carburising Bucket
Chimney
Duct
Gas Carburising Furnace
SS Retort
DUTTASON ENGINEERS
Address - G.T. Road, Dhandari Khurd, Ludhiana-141010, Punjab, INDIA
Address Unit 2 - Village Umaidpur, Sahnewal, Ludhiana-141120, Punjab, INDIA
M-+91-98140-23608, 78273-77777, Ph-+91-161-5011716 | www.duttason.com
duttason@outlook.com, info@duttason.com, duttason_ers@hotmail.com

FROM THE HOUSE OF

KVS PREMIER

Group of Companies

Devarpan™

नमकीन • चिप्स

नमकीन • बेक्ड स्नैक्स • हूप्ला स्टिक्स • पफ़ स्नैक्स • पोटेटो चिप्स • पॉपकॉर्न • रिंग्स • पैलेट्स

DEVARPAN FOODS PRIVATE LIMITED

Narain Nagar, Bazpur Road, Kashipur-244713, Uttarakhand, India

E-mail: devarpanfoods@kvspremier.com | Website: www.devarpanfoods.com

Trade Enquiry:

90129 88888


www.premiumtmt.com
PREMIUM®
High-Strength
Reinforcement Steel
Fe-500 D
PREMIUM FERRO ALLOYS LIMITED
Admn Office : 54/819-2, 3rd Floor, KK Road, Kochi - 682 017
Ph: 91- 484 - 4015453 / 4014453 Email: premiumferro@vsnl.com
FACTORY: VI/ 565 F, Industrial Development Area, Edayar, Binanipuram
Alwaye - 683 502 Ph: 91-484 - 2543307 / 2556601/ 2542028
Customer Care: 97449 76699
IS 1786
CM/L-6619176
IS 2831
CM/L-6942385
ISO9001:2008
ENVIRONMENT FRIENDLY STEEL

RR STEEL INDUSTRY

Trader & Exporter of Steel Plant & its Parts

+91-8800113348
info@rrsi.co.in
www.rrsi.co.in

We started our journey in 1983 as a Trader and Exporters of Used/ New **Induction Furnace and its Spare Parts, Continuous Casting Machine (CCM), Ladle Refining Furnace (LF), Electric Arc Furnace (EF), Argon Oxygen Decarburization (AOD), Ladles, Steel Re-Rolling Mill, Distribution Transformer, EOT Cranes/ Over-Head Cranes, Scrap Bailing/Bundle Press, Electro Magnets, Carbon Free Hoses, etc.** we also do Turn-Key Projects.

Our company is active globally (Exported in more than 15 countries) particularly in **U.S.A, Latin America, Mexico, Colombia, Spain, Kenya, Sudan, Egypt, Saudi Arabia, U.A.E, Iran, Pakistan & More..**

PRODUCT CATEGORIES

INDUCTION MELTING FURNACE

TRANSFORMER

CON-CAST MACHINE (CCM)

RE-ROLLING MILL

SCRAP BUNDLE PRESS

COMPLETE TURN-KEY PROJECT

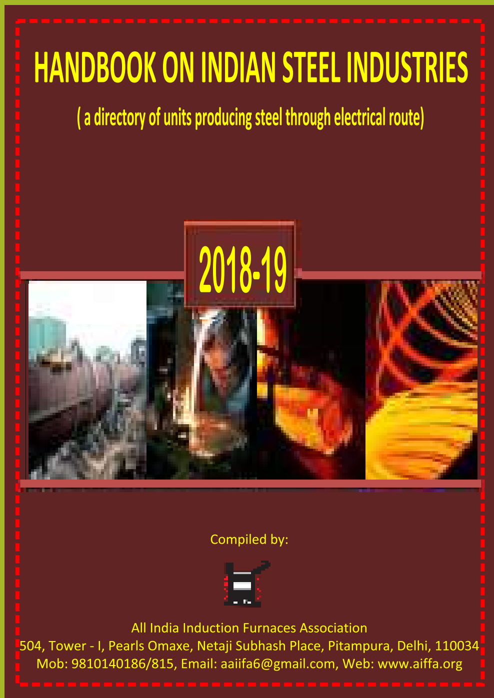
SPARES

CARBON FREE HOSE

RR STEEL INDUSTRY
406, R.G. Trade Tower, Netaji Subhash Place, Pitampura, Delhi, INDIA
rrsteelind@gmail.com; info@rrsi.co.in
www.rrsi.co.in

ASHOK MITTAL (C.E.O)
+91-98103 64141
+91-99538 64141
ashok@rrsi.co.in

ABHISHEK MITTAL
+91-88001 13348
+91-93101 64141
abhishek@rrsi.co.in



NEW !!!

HANDBOOK ON INDIAN STEEL INDUSTRIES

(a directory of units producing steel through electrical route)

Broadly Covered the following Parameters:

Segment covered: Electric Arc Furnace, Electric Induction Furnace, Rolling & Re-Rolling Mill, Sponge Iron and Ferro Alloy units

Distribution of Units: State-wise

Details Covered: Name of Unit, Factory Address, office Address, Director/ Contact Person with Name, Phone, Mobile No., Email Ids etc.,

Additional Information: Consultants, Equipment Manufacturers, Experts from individual sector

Details of on line payment is given below :

Axis Bank : 196, Shalimar Bagh, Delhi-88
A/c No. : 263010100094586
RTGS : UTIB0000263

Claim your copy today:

Contact:
All India Induction Furnaces Association
504, Tower-1, Pearls Omaxe, Netaji Subhash Place
Pitampura, Delhi -110034 Mob: 9810140186
Email: aaiifa6@gmail.com; web: www.aiffa.org
Price: Rs. 10,000/ - Plus GST

Successful Production of Low, Medium & High Alloy Steels by Indian Induction Furnace

P. Mishra
Sr. Executive Director, AIIFA, Delhi

Introduction : Steel making in induction electric furnace in India initially was done only to melt scrap for casting steel, and its metallurgical function at that period was far below than that of the then electric arc furnace steel making. As such, IF was used only for making steel grades with general metallurgical quality requirements to manufacture small-sized steel castings. Then, slowly stainless and mild steel melting was started to produce stainless steel from imported stainless steel scrap melting and domestic steel scrap in the form of pencil ingots. However, getting 100% success in this melting process some entrepreneurs, mostly engaged in steel trading activities in the country, installed small capacity induction furnaces ranging 500Kg to 1 tonne capacity conducting experiments to establish standard process for melting of alloy steels and teeming liquid steel as different size ingots for subsequent processing by forging and rolling. In 1991-92, the Government license and control on steel making and rolling was removed, good number of IFs were installed in series in all the states where sponge iron used as partial substitute of scrap assessing the advantage of market location as well as inputs.

The capability to produce the quality and quantity currently in demand of alloy & special steels is necessary for most of the mini steel plants to melt in induction furnace. However, it is particularly important for niche producers of alloy steels since their customers often order small quantities of high value–added products at infrequent intervals, accordingly IF units have become specialized for strategically aiming towards production of high–end special grades. Competitors among the IFs gradually are moving into areas that were once part of the special–steel niche and their successful products become subject to price competition when current market leaders are therefore forced continuously to reduce cost improving product quality developing new attractive products with improved properties.

However, IF units should maintain production and their operation strategy dynamically fitting between production capabilities suiting to their equipment condition and technological limitations, market requirements and competitive priorities. Performance improvement in case of high product variety requires alignment of such parameters. A plant cannot successfully enter in the open market if the required operational capabilities are far below the standard. New investments must therefore be evaluated with respect to operational capability requirements for steel refining technology, revamping/ modification of existing process/ units following from any chosen strategy.

Niche marketing can also be used as a proactive, or even aggressive, strategy to enable a plant to outperform competitors in both profitability and growth. It has been observed from different studies of experts in the fields that the concept of the proactive niche market strategy as one that employs a mix of five key activities: ● Focusing on the customers' requirements and demand, ● Making the effort to become a preferred supplier early in the process, ● Interacting with customers/ Dealers at multiple levels; ● Extending the product offering by adding pre & post sales services, ● Focusing on the development of "adjacent" products, markets, and application areas.

IF units have developed technical expertise and process standard in making alloy steels for structural applications subjected to stresses in machine parts, bearing steels, tool and die steels, magnetic alloys, stainless and heat-resisting steels. Slowly, entrepreneurs started installing bigger size Induction furnaces first in North India and then in other states of India. By 1985-86, the technology of making mild steel and alloy steel by Induction Furnace route was mastered by Indian Technicians. Since then, Induction furnace manufacturers saw the potential demand in the market and started manufacturing bigger size/capacity furnaces. From 1988-89, bigger size furnaces mostly in the range of 3-10tonne were installed when good quality scrap was used as charge.

With the continuous improvement of operating practice in IF, it was possible to implement moderate oxidation boiling in the melting process enhancing metallurgical function during melting This opened up challenges to the entrepreneurs going for melting high-quality low and medium alloy steels, high-alloy steels, ultra-low Carbon stainless steel and even various super alloys.

Alloy Steel & Its Classification :

A. Characteristics - Usually in Alloy Steels the Pearlite Structure requires less Carbon than ordinary Carbon Steels. Alloying elements change the temperatures at which the structural changes take place requiring different heat treatments. Added alloying elements in steel achieve properties in the material like increase of strength, hardenability, impact as well as special properties like corrosion resistance or extreme high temperature applications. Use of Alloy Steel is mainly in automobile industry and machinery parts.

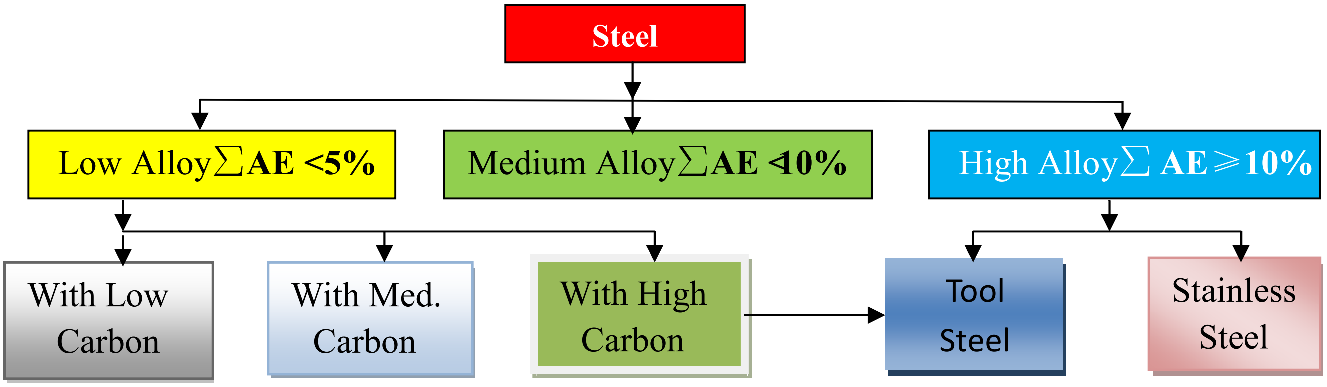
Where carbon steel has limitation , Alloy steel can be used in process and application areas. Low alloy steel are used at high-temperature services such as heater tubes, boiler tubes, low-temperature services such as cryogenic applications, Very high presser services such as steam heater, construction of aircrafts and heavy vehicles for crank shafts, camshafts and propeller shafts, etc. The low and medium alloy steels which are important in process plants are mainly having carbon less than 0.2% and total alloying elements (Ni, Cr, Mo, V, B, W, or Cu) <12%. Different alloying elements affect the properties of steel in different ways e.g.

1. Austenite Stabilizer- Ni, Mn, Co and Cu increase the temperatures range in which austenite exists.
2. Ferrite Stabilizer- Cr, W, Mo, V, Al and Si help lower carbon's solubility in austenite. resulting in an increase in the amount of carbides in the steel decreasing the temperature range in which austenite exists.
3. Carbide former - Many minor elements including Cr, W, Mo, Ti, Nb and Zr form strong carbide in steel increasing hardness and strength using , often, to make different tool steels.
4. Graphitizers – Si, Ni, Co and Al can decrease the stability of carbides in steel, promoting their breakdown and the formation of free graphite.
5. Eutectoid concentration – Ti, Mo,W, Si, Cr, Ni lower the eutectoid concentration of carbon.
6. Corrosion Resistance- Cr, Al, Si form protective oxide layers on the surface of steel protecting the metal from further deterioration in certain environments.Cr Improves quenchability and prevents softening during temper by forming secondary carbides. Extremely suppresses graphitization by refining carbide particles. Improves corrosion resistance and anti-abrasion resistance.

B.Classification – Alloy steels are classified as Low, Medium & High Alloys depending on the alloy contents. Usually Low alloy steels - Total alloying element is $\sum$AE <5%, The significant advantages of low alloy steels over mild steels are : yield strength, high temperature properties, creep strength, oxidation resistance, low temperature ductility, weld able but few grades need pre & post weld heat treatment to avoid cracking. Many low alloy steels are normalized and tempered, but increasing tendency is towards hardening & tempering. The treatment of Low & Medium Alloy Steel products are almost same, depending on composition. (Classification shown in flow diagram below)

High-strength low-alloy (HSLA) steels, or micro-alloyed steels, are designed to provide better mechanical properties and/or greater resistance to atmospheric corrosion than conventional carbon steels in normal condition. It is different from other low-alloy grades in that each type has been created to meet specific mechanical requirements rather than a given chemical composition. HSLA applications include warships, structural steel, and others known for their strength.

The carbon content in HSLA steels may range from 0.05 % to 0.25 % and manganese content up to 2.0 % in order to provide adequate deep drawing and welding properties. Small quantities of Cr, Ni, Mo, Cu, N, V, Nb, Zr are also added in various combination so as to improve different properties. For shape control of sulphide inclusions, small additions of calcium, zirconium, and rare earth elements are added.



Total alloying elements in Medium Alloy and High Alloy steels are $\sum AE < 10\%$, $\sum AE \geq 10\%$ respectively. Stainless steel is high-alloy steel which contains at least 12 percent Cr and divided into three basic types: **martensitic** (contains least amount of chromium, and known for high hardenability, mainly used for cutlery and in many engineering industries, **ferritic** (contains 12 to 27 percent nickel chromium alloy and are suitable to use in automobiles and industrial equipment) and **austenitic** (contains high levels of nickel, chromium, manganese, molybdenum, nitrogen etc. have the highest corrosion resistance, mainly used to store corrosive liquids and mining, chemical, or pharmacy equipment etc.).

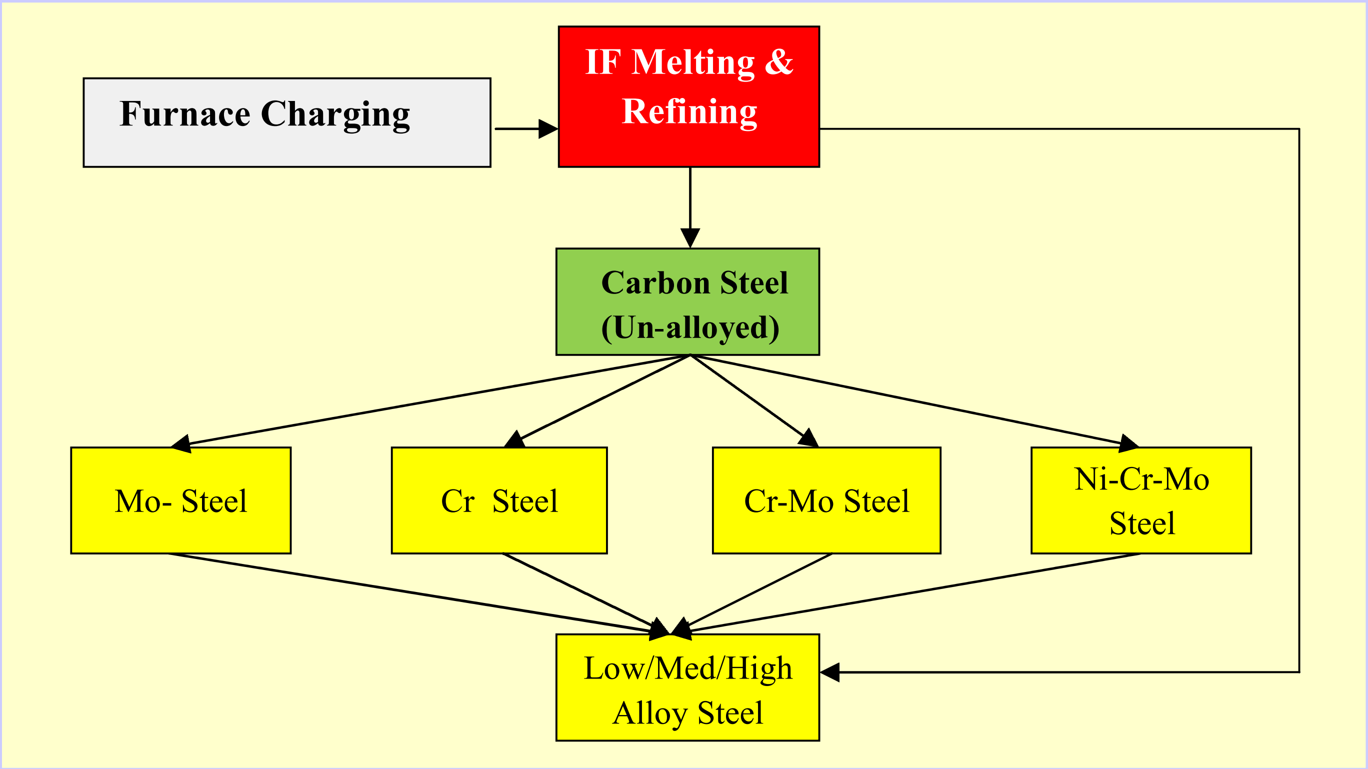
Few Common HSLA grade for Structural Applications

Grade AISI	C	Mn	Others	TS MPa	YS MPa	%E
440	0.28	1.35	Cu0.20min, Si0.30	435	290	21
633Gr E	0.22	1.35	Cu0.30min, Si0.30,N0.08,Nb 0.03	520	380	23
655Gr I	0.18	1.60	Si 0.60, V 0.10, Al 0.20, N0.015	655	552	15

Cr-Mo Steel | Cr-Mo-Ni Steel | Cr-Mo-Ni-Cu Steel | Ni-Cr-Mo-V Forged Parts

Low Alloy Steel Products Produced from IF Steel

Steel Production in IF: The main raw materials for steelmaking in induction furnace are varieties forms of steel/ iron scrap, cast iron/pig iron, sponge iron and ferro-alloys. While melting the charge, dirts or contamination in scrap tend to deposit a slag layer on the furnace refractory at, or just below, the liquid level in the crucible restricting the quantity of power drawn by the furnace. Further, internal diameter of the furnace gradually reduced making the charging more difficult and protracted, the energy efficiency also get reduced in this condition. As furnace charge, IF units need sponge iron and good quality scrap. Recently, the import market of steel scrap runs dim in India due to the high price and the sluggish steel market. Market participants predicted that the import market for steel scrap will not turn active in a short time.



The iron and steel industry recycles three types of scrap -internally generated in plant, which has significantly reduced and generation is about 20-25% after introducing continuous casting technology and various yield improvement programs. The post-consumer scrap results when industrial and consumer steel products (such as, automobiles, appliances, buildings, bridges, ships, cans, railroad cars, etc.) have served and crossed their useful life. Old or post-consumer scrap accounts for approximately about 45% of total scrap. However, recycled scrap, thus generated, needs to be minimized contamination with other metals for producing clean steel. Though recycled scarp is cheaper, still there are possibilities of entering residual impurity elements in making steel. The oxygen present in the sponge iron in the form of FeO reacts vigorously with carbon in the liquid bath and improves heat transfer, slag metal contact and homogeneity of the bath. It is apparent that sponge iron having different degrees of metallization can be used in the process. In IF steel making (shown in the process flow diagram below), the requirements for the charge must be very strict – clean, known chemical composition, suitable size/ shape and properly calculated. Ferro-alloy calculation against the grade to be produced has to be worked out considering any loss, recovery, yield. (Brief about Low/Med/High Alloy Steel)

Low Alloys Steel with Low Carbon

Composition : Carbon Less than ~ 0.25% (0.30% also considered)

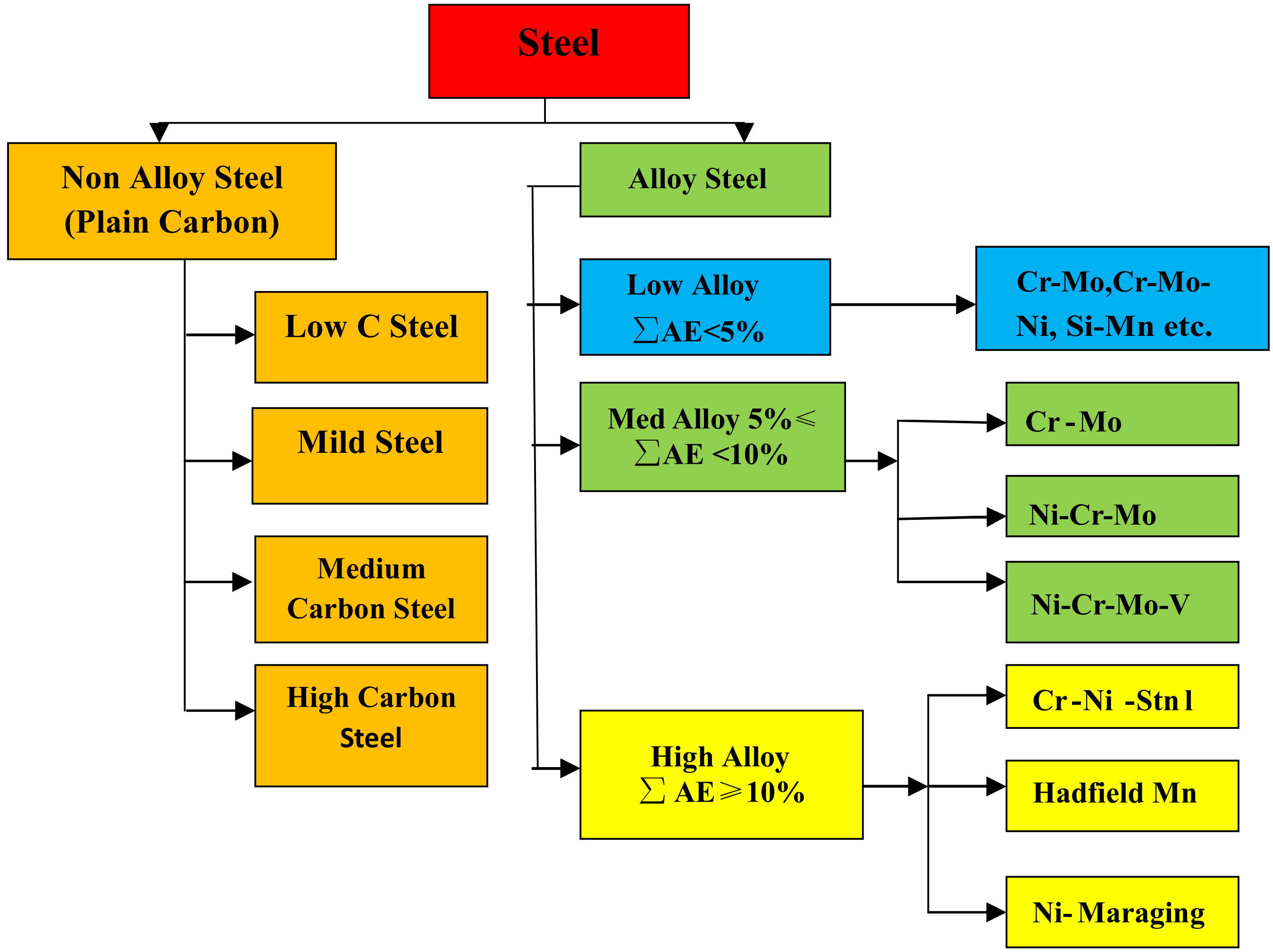
Microstructure → Ferrite and Pearlite

Properties → Relatively Soft and Weak , Possesses High Ductility and Toughness.

Other features → Machinable, Weldable. Low Carbon Steels → Not Responsive to Heat Treatment.

Application : Auto body, Auto-component, Engineering Industries, Structural Shapes etc.

High Strength Low Alloy Steels (HSLA) → Upto 10% wt of Alloying Elements e.g. Mn, Cr, Ni, Mo, V, Cu → Steel can be Strengthened by Heat Treatment.



Development in steel making and refining liquid steel have resulted alloy steel grades with very low level of impurities. In recent years clean and ultra-clean steel against the global market demand mainly in automobile, aero-space, different engineering and manufacturing industries have been developed and commercialized by steel producers around the world with the help of various secondary refining technology improving significantly mechanical properties like high temperature properties, fatigue strength and impact toughness, corrosion/ wear resistance etc. Indian induction furnace units have taken measures to produce clean steal by minimizing non-metallic inclusions in steel due to their harmful effect on the subsequent stages and their great influence on the properties of the final product.

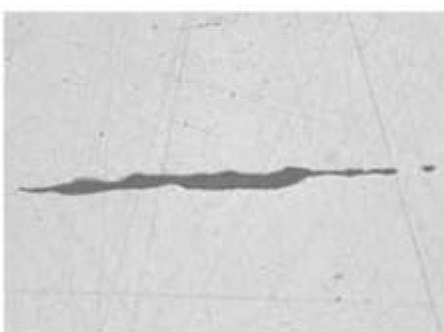
It is difficult to refine steel while melting in induction furnace removing impurities specially sulphur which a unwanted element in steel when good machinability is required from the steel product & in most of the applications of steel due to the following reasons e.g. it affects both internal and surface quality of steel, contributes to the steel brittleness and when it exists in sulphide phase it acts as a stress raiser in steel products, forms undesirable sulphides which promotes granular weakness and cracks in steel during solidification, it has adverse effect on the mechanical properties, lowers the melting point and intergranular strength and cohesion of steel.

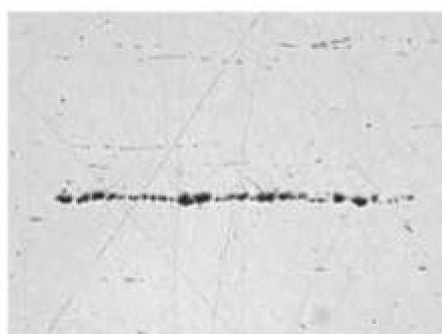
However, tremendous bath agitation in IF helps to float impurities at the top and better mixing of alloying elements in liquid steel. Removal of sulphur is typically done in a ladle refining furnace (LRF) which is a separate vessel in which the molten steel is transferred prior to pouring. The various types of LRF have the capability to stir and reheat the molten steel. Some LRF processes can also degass. Dissolved gases and impurities are removed from liquid steel by VD, AOD (a process typically used for stainless steel production to economically decarburize the steel via controlled blowing of argon and oxygen. Carbon dioxide and monoxide formed by reaction with the oxygen are swept away by the argon before equilibrium is established, sulphur is also can be removed in AOD).In low-alloy steels. AOD can also reduce hydrogen, but not lower than 2 ppm, therefore this process does not replace vacuum degassing.

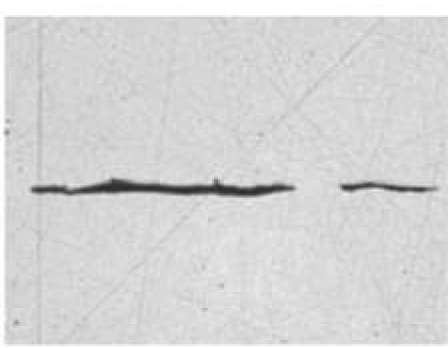
Ni and Cr, especially when present together, can promote segregation of metalloid elements such as antimony, phosphorus, tin, and arsenic to prior austenite grain boundaries (Mulford, McMahon, Pope, & Feng, 1976a). This process is believed to be the root cause of temper embrittlement (Davis, 1990). the effect of nickel on hydrogen trapping can be divided into (i) direct effects, due to the presence of Ni in solid solution in the ferrite phase, or (ii) indirect effects, due to the effect of nickel in refining microstructure. Nickel additions to LASs improve strength, low temperature fracture toughness, and hardenability with limited impact on CE. No other alloying element improves strength and toughness simultaneously without a significant effect on weldability. In combination with Cr and Mo, Ni is perhaps the most important alloying element but normally, Ni bearing grades (low & medium alloy steels) show the tendency of flaking because Ni acts as hydrogen carrier

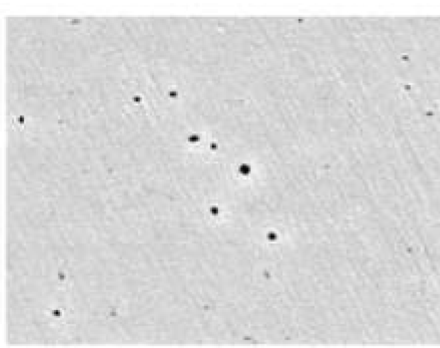
Due to the longer times required for solidification of liquid steel in mould particularly for bigger size, larger degree of segregation is faced in ingots than smaller sizes causing by the rejection of the solutes from a solidified alloy into the liquid phase. This rejection is a result of different solubility of impurities in liquid and solid phases at the equilibrium temperature. Macro segregation refers to differences in the chemical composition over a large scale. Positive segregation refers to enrichment in alloying elements and impurities (solutes) while negative enrichment refers to relative depletion of alloying elements and impurities (solutes). There are differences not only in chemical composition but grain structure, distribution of inclusions, and other defects such as porosity and shrinkage cavities.

Prior to vacuum degassing, forgings were often cooled in the furnace, under an insulated hood or in a refractory insulating medium to prevent flake formation. This slow cooling was then followed by an extended subcritical heat treatment (sometimes after re-austenitizing to refine the grain structure). For higher-hardenability alloy steels, these practices are still used to prevent flaking. Controlled cooling also reduces hardness and internal stresses (which also contribute to flaking). Since flaking is a delayed process, it is desirable to perform special heat treatments to prevent flaking promptly after hot working, sometimes without allowing cooling to room temperature.


A) Sulfide


B) Alumina


C) Slicate


D) Globular Oxide

Since inclusions act also as stress raiser, the control of the formation of non-metallic inclusions and the identification of their constituent phases, classification are of extreme importance. These are normally determined according to international standards ASTM E45.(photographs of inclusions A. Sulphide, B. Alumina, C. Silicate, D. Globular Oxide shown above)

Conclusion : Since induction furnace steel making is simply a melting process, it needs good quality scrap/ scrap substitute, ferro-alloys with known composition to make steel grades with low S , P and other impurities. Units are to be given support/help for getting imported good quality scrap. For many highly stressed engineering applications like bearings, shaft, gears etc. for automobile, aero-space industry and many engineering industries, contaminated steel parts from inclusions/ impurities, un-wanted residuals can lead to devastating outcomes at any moment. Such critical components/ parts should be as homogeneous as possible and free from inclusions, porosity and other flaws which are vital to affect performance adversely for such products of low alloy, medium alloy steel grades.

To become globally competitive, Indian induction furnace units must concentrate for these sectors on various techniques of refining steel including Ca-Si treatment responding to the current and future market demands of steel having significantly improved mechanical properties (e.g., fatigue strength and impact toughness) and an improved corrosion resistance. IF units, also, should take all need-based actions and measures, already known to them, under their control for reduction of power consumption during melting improving process efficiency. Still, external support has to be given to reduce the energy charge. The good teeming practice is to be ensured for achieving sound, defect free ingots. Marketing wing should try to provide higher contribution supporting orders as heat lot size.

Many times, it has been observed that defects/ un-matched properties are observed at forging or rolling or even heat treatment stages but finally concluded at most of the places as steel defects originated at melt shop though which are not true. It is recommended that, induction furnace steel making units and downstream processing units should work together as a team adopting proper performance improvement and integration systems monitoring the activities in total process, integrating supply chain best ways in utilizing resources getting timely support from management. The areas of product quality and customer satisfaction have to be given top most priority maintaining lasting relationships with customers based on trust and mutual benefit.

! ex, ASP, Member of Metallurgical Consulting Team.

References: AIIFA, AISI, ASTM Standard, Works of Mulford, McMahon, Pope, & Feng, 1976a & Davis, 1990.

Landmark Move : Input Tax credit (GST)
Can not be denied to recipient for default on part of the supplier- Delhi High Court issued notice to UNION OF INDIA

Delhi HC issues notice in writ petition challenging Section 16(2)(c), second proviso to Section 16(2)(d) and proviso to Section 16(4) of Central Goods and Service Tax Act, 2017 (CGST Act); Validity of Section 43A(6) of CGST Act, which hasn't been notified yet, is also being challenged; Petitioner's contention is that the Department has been vested with all the powers to recover any revenue lost owing to non-payment of taxes by erring suppliers and credit cannot be denied to recipient for default on part of the supplier; Lists the matter on September 18 : Delhi HC

The matter is being heard by Division Bench comprising of Justice Dr. S. Muralidhar and Justice Asha Menon.

The Petitioner i.e. Bharti Telemedia Ltd. is engaged in providing Direct-To-Home satellite television broadcast services. Writ Petition has been filed challenging the legality and validity of Section 16(2)(c), second proviso to Section 16(2)(d) and proviso to Section 16(4) of the Central Goods and Service Tax Act, 2017. The Writ Petition also challenged the validity of Section 43A(6) of the Central Goods and Service Tax Act, 2017, which has not been notified until.

Section 16(2)(c) of CGST Act, 2017 provides for a condition wherein the recipient would only be entitled to Input Tax Credit if the tax charged in respect of such supply has been actually paid by the Supplier. The second proviso to Section 16(2)(d) provides that the recipient shall add an amount of Input Tax Credit availed, along with interest to the output tax liability if the recipient fails to pay the invoice amount to the supplier within 180 days.

Proviso to Section 16(4) extends the benefit of availment of ITC till the due date of furnishing of return under Section 39 for the month of March, 2019 in respect of certain invoices, only if the supplier for such supplies has uploaded the details of such invoices in its return under Section 37(1) for the month of March, 2019. Section 43A(6) of the CGST Act provides that the supplier and recipient shall be jointly and severally liable to pay tax or pay ITC availed in relation to outwards supplies for which the details have been furnished under sub-section (3) and (4) but returns thereof has not been furnished.

The provisions have been challenged on the following grounds:

Section 16(2)(c), proviso to Section 16(4) is violative to Article 14 of the Constitution of India;

The Department has been vested with all the powers to recover any revenue lost owing to non-payment of taxes by erring suppliers; The credit cannot be denied to the recipient for the default on the part of supplier.

Delhi HC has issued a notice to Union of India today and posted the matter on September 18, 2019.

Steel Sector News

Power minister RK Singh confident of achieving 175 GW of renewable energy target

Power and New and Renewable Energy Minister Raj Kumar Singh has exuded confidence that the renewable energy target of 175 gigawatt (GW) by 2022 would be achieved.

Singh, who took the charge of the ministries in the second term of Modi government, said 80GW of renewable energy has been established while another 24GW is under installation.

"The overall renewable energy established capacity has reached 80,000 MW level. 24,000 MW is under installation. For 42,000 MW, bids are at different stages. So, the total is 1,46,000 MW and the target is for 1,75,000 MW (175 GW)," he said.

"We will achieve the target," Singh emphasised.

Speaking about his priorities, he said the top priority will remain to achieve the targets set by the government.

The government has set an ambitious target of installing 175 GW of renewable energy capacity by 2022, which includes 100 GW from solar, 60 GW from wind, 10 GW from bio-power and 5 GW from small hydro-power.

Various research reports, however, have cautioned that India is unlikely to meet the energy targets for wind and solar power.

India is likely to install 54.7 GW of wind capacity by 2022 against the 60GW target set by the government, Fitch Solutions Macro Research has said in a report.

The agency said it remains cautious on India meeting its ambitious 2022 targets for wind power capacity growth as land acquisition issues and grid bottlenecks would lead to delays in project implementation in the sector.

A Mercom India Research report has also forecast solar installations in India to reach 71 GW by end-2022, almost 30 per cent lower than the 100 GW target set by the government.

In January-March 2019 period itself, solar installations in India fell by 49 per cent to 1,737 MW mainly due to reasons like difficulty faced by installers in getting the required approvals, tariff caps, payment issues among others, the report said.

Over 800 MW of solar auctions were cancelled in the first quarter of this year, it added.

Source: PTI, New Delhi

SUSHIL'S™

AN ISO 9001:2008 CERTIFIED CO.

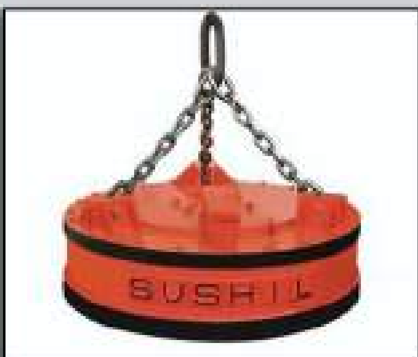
SUSHIL ELECTRICALS

Works Office : F-9, Phase-VII, Focal Point, Ludhiana -141010 (Punjab) INDIA.

Mob : +91-98140-21233 **TeleFax :** +91-161-2676733, 2677822

E-mail : info@jindaltransformers.com, sushilelectricals@yahoo.com

Website : www.jindaltransformers.com



Scrap Lifting Circular Electromagnets

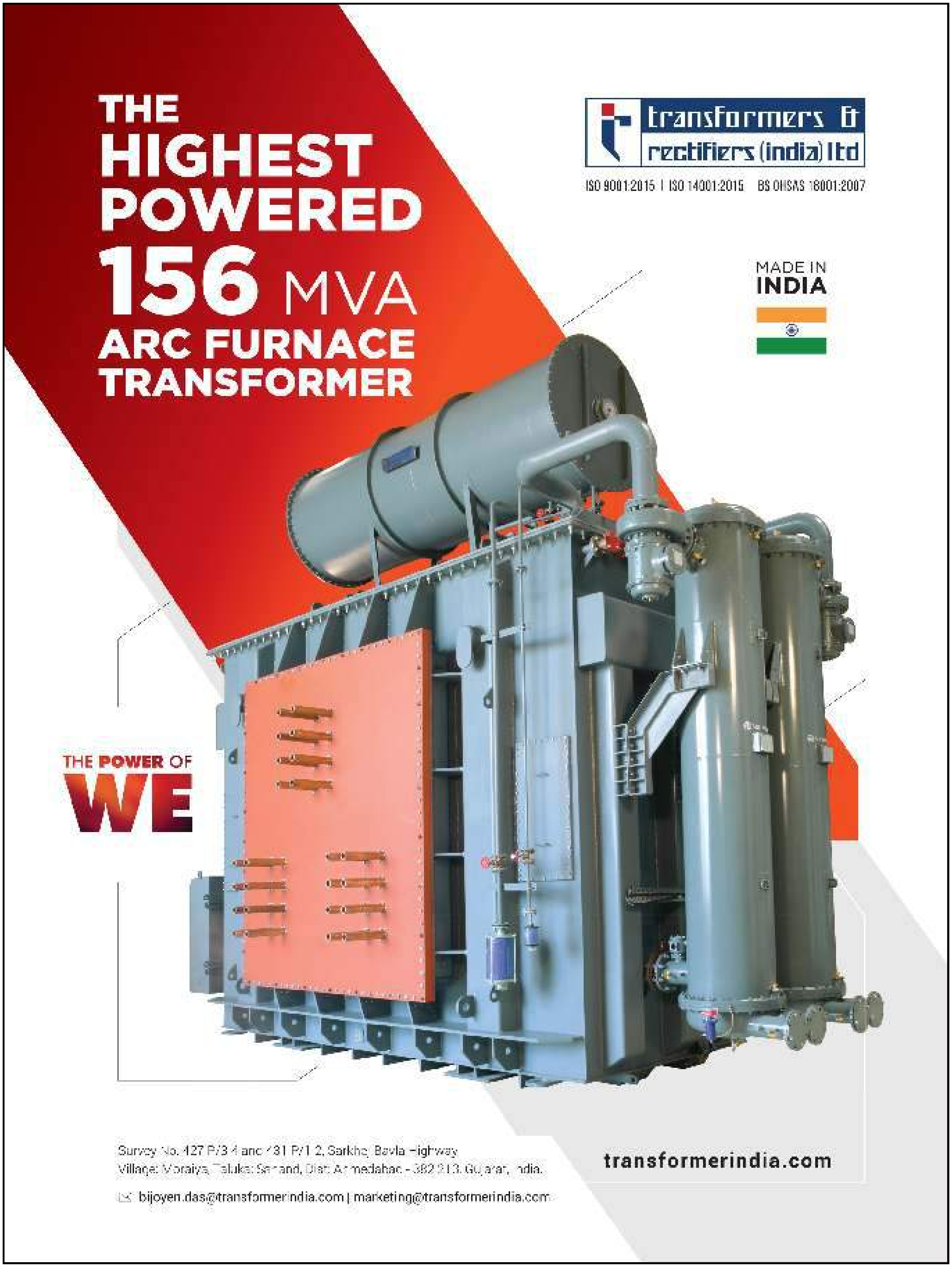
Heavy Duty Elleptical Electromagnet

Sintering Heater

Master Controller

Resistance Box

Manufacturer & Exporter of Scrap Lifting Circular Electromagnets, Heavy Duty Elleptical Electromagnets, Billets & Bar lifting Rectangular Electromagnets, Automatic Servo Voltage Stabilizers, Silicon Power Rectifiers, IGBT Base Rectifiers, Sanitaring Heaters, Power & Distribution Transformers, Resistance Box & Master Controller.


THE
HIGHEST
POWERED
156 MVA
ARC FURNACE
TRANSFORMER
transformers & rectifiers (india) ltd
ISO 9001:2015 | ISO 14001:2015 BS OHSAS 18001:2007
MADE IN
INDIA
THE POWER OF
WE
Survey No. 427 P/3 4 and 431 P/1 2, Sarkhej Bavla Highway
Village: Moraiya, Taluka: Sanand, Dist: Ahmedabad - 382 213. Gujarat, India.
bijoyen.das@transformerindia.com | marketing@transformerindia.com
transformerindia.com

step ahead... always

PIONEER®

CRANES & ELEVATORS (P) LTD.

AN ISO 9001 : 2008 CERTIFIED COMPANY

Head Office :
Opp. Arora Palace, Gill Road,
LUDHIANA-141 003 (PB) INDIA

Branch Office :
UG-8, Kirti Shikhar, Distt Centre, Janakpuri,
NEW DELHI-110 058 INDIA

Telefax : +91-161-2491935, 36, 2501937
Mobile : +91-98158-23236, 98724-23236
E-mail : info@pioneercranes.com
Website : www.pioneercranes.com

S.A.ALLOYS

SHREE SALASAR STEEL & TRADERS

S. A. ALLOYS PRIVATE LIMITED
SHREE SALASAR STEEL & TRADERS

(Deals in Ferrous & Non Ferrous Metals, Iron & Steel)

Our Product Range

- Ferro Manganese (Low Carbon)
- Ferro Silicon
- Ferro Manganese (High Carbon)
- Silico Manganese (High Carbon)
- Ferro Chrome
- Ferro Manganese (Medium Carbon)
- Silico Manganese (Medium Carbon)
- Ingots & Billets

Authorised Dealers of :-

• Maithan Alloys Ltd. • Anjaney Ferro Alloys Ltd.
• Castron Technologies Ltd. • Shivam Iron & Steel Co. Ltd.
• Singhal Energy Ltd. • Singhal Enterprises Ltd.
• Times Ferro Alloys Ltd.

Branches : Haryana, Rajasthan, Uttar Pradesh, Tamil Nadu, Delhi

Contact Person:-

Mr Ashwani Daruka - 9899112273
Mr Saket Daruka - 9811599912

Office: 2/103 , ASHISH COMPLEX , NEW RAJDHANI ENCLAVE , VIKAS MARG,
DELHI – 110092. Ph.22444286, 42440412, 43015650. Email : saalloyspvtltd@yahoo.co.in

Our USP : Consistent Quality & Timely Delivery ...

ARS PIXON
10000 PSI STEEL

ARS STEELS & ALLOY INTERNATIONAL PVT. LTD.
CHENNAI, INDIA.

ELECTROTHERM®

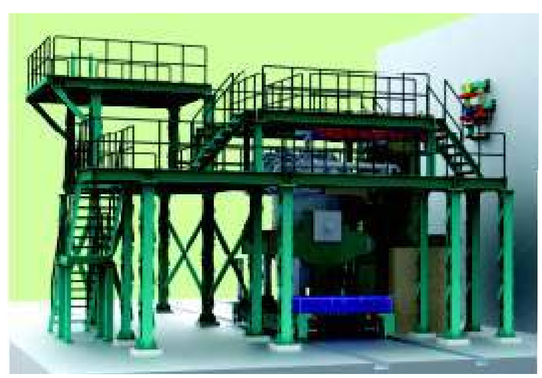
"The most preferred Steel Plant maker up to 1 MTPA capacity through various alternative routes"

ERF™ & ELdFOS™ For Dephosphorization and Desuphurization

Dephosphorization up to 105 points (0.105%)

Engineering & Projects (E&P) division of Electrotherm (India), the leader in providing total solutions for mini steel plants, has successfully introduced ERF (Electrotherm Refining Furnace) with ELdFOS process, a special metallurgical equipment for carrying out dephosphorization and desulphurization in the same equipment. Successful development of DEPHOSPHORIZATION by ELECTROTHERM, the first of its kind technology, has strengthened technical and commercial viability of small and medium steel producers using Induction Furnace for melting, who can now produce high quality steel employing this new technology for refining, and can use cheaper raw materials like Direct Reduced Iron / Sponge Iron having higher sulphur and phosphorus. This has not only facilitated steel makers to meet international quality norms for various grades of construction steel, low alloy steel, medium alloy steel and few grades of forging steel, but also has improved profitability.

- Dephosphorization and Desuphurization
- Degassing and inclusion modification
- Trimming / alloying
- Superheating of liquid steel
- Homogenization of chemical composition and temperature
- Buffer between melting and casting equipment to facilitate sequence casting



ELECTROTHERM
ENGINEERING & PROJECTS DIVISION

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