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OF INDIAN
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R E G I O N

FOUNDRY TALKS

For The Foundrymen | By The Foundrymen

IIF WR E-Magazine

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Get Future Ready

Featured Article By

sfe
SUSHA
FOUNDERS & ENGINEERS



E - MAGAZINE TEAM

Message from IIF Western Region Chairman

Greetings to all readers!

September has been starting month of all the real activities of IIF. First of all, I would like to Congratulate all the new Incoming National Office Bearers – Mr. D S Chandrashekhar (President, IIF), Mr. Navneet Agarwal (Vice – President, IIF), Mr. S Muthukumar (Hon. Sec, IIF) & Mr. Sushil Sharma (Hon. Treasurer, IIF) for taking this new responsibility and leading IIF to new heights. We have started this month with the skill development workshop on Maintenance of Induction Furnace & thanks to Inductotherm for their support. We also had a seminar in Ahmedabad on Best Practices on Costing of Casting as well as in Moulding & brief awareness session on Fire Safety. I appeal to all the readers to take advantage of such sessions as this is only the learning place for the industries which can guide all to grow further in their businesses. You can stay updated about all the events on our website as well as with our LinkedIn group – “The Institute of Indian Foundrymen - Western Region”.

Prayut Bhamawat

Director
Mangalam Steelcast Pvt Ltd
Siena Engineering Pvt Ltd

This issue of the magazine is particularly focused on Best Practices on the Moulding, and I am thankful to our Guest Author **Mr. Narayan Dhanagar & Mr. Ravi Kumar** for accepting the invitation at once to write for our readers giving their valuable input. On the same topic we have an article from **Susha Founders & Engineers** giving a deep description on the Dump Box Mould v/s Shot Mould. We have a winner for our Foundry Quiz section and would like to congratulate **Mr. Sandeep Kulkarni** for being the first to achieve the maximum score amongst other participants and win the **Foundry Quiz competition** which was on the topic – Refractory Lining. Also, we have initiated the preparation for hosting you all to **WESCON 23 – Western Regional Annual Conference**, which is going to taken place at **Hotel Deltin, Daman from 24th – 25th November 2023**. It will provide a 360-degree perspective on a wide range of subjects of your interest and need at the time, whether it be Kaizen, Best practices for foundry processes, or EHS (Environment – Health & Safety). More details are available in this magazine.



Design By: Mr. Nikhil Sharma
Production Director | Shamlax Meta-Chem Pvt. Ltd.

Mr. Nikhil Sharma completed his B. Tech Chemical Engineering with specialization in polymer technology from Laxminarayan Institute of Technology, Nagpur. Started with Shamlax in the year 2019 as the Production Head, he has been contributing towards the welfare of the organization with new innovations and process automation techniques. Presently he is the Joint-Secretary of Indian Institute of Foundrymen Nagpur Chapter.



Foundry Quiz By: Mr. Sivakumar Subbarayan
Plant Head | Pitti Castings Pvt. Ltd.

Mr. Sivakumar Subbarayan did his Diploma in Mechanical Engineering in 1986 at Bhaktavatsalam Polytechnic – Kanchipuram. Completed his BE Degree in Coimbatore Institute of Technology. Continuously upgraded qualification in the field of MBA and Non-Destructive Testing And is now Pursuing Doctorate in Management. He has worked with many Manufacturing organizations from Hard Core Manufacturing, like Lakshmi Pattern Works, Sivananda Steels Ltd, Lakshmi Machine Works Ltd, Bradken India Pvt Ltd, and many more. With about 36+ years of experience in the industry, he has been recently awarded as the “Indian Foundry Man of the Year 2015” at national level by Institute of Indian Foundrymen.



Business Talk By: Mr. Mukund Pant
Managing Director | Metal Power Analytical Pvt Ltd

Mr. Mukund Pant holds an MBA from IIM Lucknow and a BE from BIT Mesra. He spent close to a decade in management consulting, assisting companies on diverse strategic, sales and operations projects. In Metal Power, leveraging his engineering background and management experiences he is ensuring rapid yet sustained growth in national as well international market.



Material Price Index By: Mr. Mahesh Date
Managing Director | Ved Industries

Mr. Mahesh Date is a dynamic and accomplished entrepreneur with a passion for innovation and growth. As the founder and MD of Ved Industries, they have led the company to new heights, achieving remarkable success in the industry. Their visionary leadership and dedication to excellence have earned them recognition as a leading figure in the business world. With a proven track record of delivering results, Mahesh Date continues to inspire and impact the business landscape.

GUESTS



Best Practices By: Mr. Narayan Dhanagar | Director Business Development – Metatechserv, Pune

Mr. Narayan Dhanagar did his B.E. Metallurgy from Govt. College of Engineering, Pune in 1994. Started his career from KSB Pumps, a foundry division followed by many top MNC's like Foseco India Ltd, Imerys India, Hosokawa Alpine during his career of 29 years. He is particularly expert in managing sand system with his unique tools for various foundry production.



Best Practices By: Mr. Ravikumar K | CMD - Kelsons group of industries

Mr. Ravikumar K did his Diploma in Mechanical Engineering. He is CMD of Kelsons Group of Industries having expertise in design of Foundry Equipment. They are into manufacturing and supply of Foundry Equipment & Testing Equipment for all foundry processes since 1994.

SPECIAL THANKS

Mr. C Sathyamurthy | Vice-President | Aquasub Engineering for sharing his knowledge and contributing in the magazine to ignite the grey cells of the foundrymen. He has warmly accepted to extended his support in putting up questionnaire for the Foundry Quiz.

Mr. Subodh Panchal | Managing Partner | Kastwel Foundries for sharing artwork created by him over the years, showing "ironies" of the foundry industry in a witty way- through his comic strip.

Mr. D.S.Chandrashekar | President | IIF to share his views and give message to the foundrymen.

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Indian Foundry Journal (Monthly)



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"We will love to hear from you on activities of IIF & also about E-Magazine. Please share your view by scanning this QR Code Below"

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BEST PRACTICES

By: Mr. Narayan Dhanagar
Director Business Development – Metatechserv, Pune

Significance Of Sand Quality And Optimisation Of Chemical Binders

In this article we would be touching upon the significance of the Sand as one of the basic but very important raw material being used by the foundry industry. The optimisation of the Chemical binders is directly linked with the quality of the sand being used in the foundry.

Thanks to the changing global equations, the western countries are looking at India as one of the major casting sourcing hubs and are exploring Indian foundries for various castings imports, some of the multinationals are even coming up with their own foundry operations in India. In nut shell, Indian foundries are having great future ahead. Although China is still major castings producer in the globe, India and Brazil are looked upon as the good alternatives by the Western countries.

Indian foundries are required to gear up with their capacities, upgrading the quality and of course need to be competitive as well in the global market.

After the cost of the Scrap, chemical binders contribute to one of the major costs in casting production, hence we need to look into every option to reduce its usage.

Sand – a lifeline of foundries

Why sand is termed as a lifeline foundry industry?

About 90% volumes of the total casting are manufactured by sand casting process across the globe! One can easily understand the importance of the sand. Hence, we believe that knowing the important features of the sand, types of the sand and their applications is utmost important.

Types Of Sand's

Four most commonly used sands by the foundries are as listed below:

- Silica - SiO_2
- Olivine - $(\text{Mg Fe})_2 \text{SiO}_4$
- Zircon - ZrSiO_4
- Chromite - FeCr_2O_5 or FeCr_2O_4

Out of these four, Silica is the most commonly used sand because;

- Its ability to resist to most of the metals and acidic slag attack
- Easily bonds with most of the clay or chemical binders
- Availability is relatively much better than other sands
- Cheaper than other sands

Properties and Uses Of Different Sand's

Before jumping into the options for optimizing the usage of chemical binders in foundries, we need to know the important properties of the sand. These are captured in the table below:

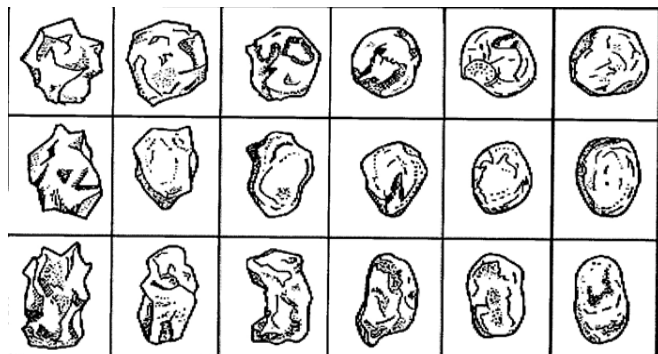
PROPERTIES	SILICA	ZIRCON	CHROMITE	OLIVINE
AFS	50-60	70-80	45-55	45-55
Typical Grain Shape	Angular to Sub Angular	Rounded	Angular to Sub Angular	Angular to Sub Angular
Sp. Gravity	2.65	4.66	4.52	3.3
Bulk Density g/cm ³	1.49	2.77	2.67	1.7
Thermal Expansion, 20-1200 Deg C	1.9%	0.45%	0.60%	1.10%

Shape Of The Silica Sand

The Silica Sand is classified by its shape as;

- Round
- Angular
- Subangular
- Compound
- European, Gulf, Australian- Mostly Spherical
- Indian Sands- Mostly angular to subangular

Most of the Silica sand found in India is angular in shape, hence the grains are having higher surface area. Due to higher surface area the demand of chemical binder increases. Whereas ,in the western countries, Vietnam, and Gulf, the Silica sand found is mostly in round or potato shaped one. Hence the chemical binder required is on lower side than Indian Silica sands.



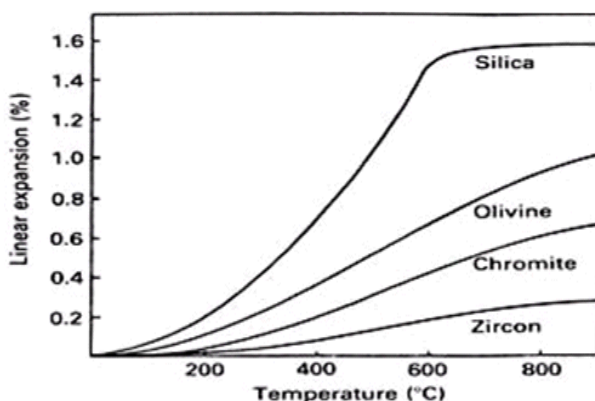
Indian Sand shape under microscope



German Sand

Thermal Expansion Of Sands

The Silica sand has very high expansion -to the tune of about 1.9% in comparison with other sands, hence the casting produced in Silica sand are often found with the expansion defects known as veining or rattails.



Other Important Aspects Of Silica Sand

- Silica content of about 95-96% gives good refractoriness.
- If the sand is properly washed, it would not have more than 0.2% of LOI.
- Size distribution is measured by AFS number, higher the AFS number finer is the sand and vis a versa.
- Coarser grains lead into poor surface finish to the casting whereas too much finer sand reduces the permeability & also increases the binder addition level.
- Green sand foundries prefer AFS 50-60 where as the jobbing foundries prefer AFS 35-45.
- Lower Iron and Alkali's content in the base Silica sand improves the refractories of the system sand.



Other Sands

- **OLIVINE:** Exclusively used as a molding or core making sand for Manganese steel castings. Along with Alpha set binder and Magnesite based coatings, Olivine gives excellent casting finish.
- **ZIRCON:** Owing to its excellent refractoriness, this is used for most of the metals to avoid sand fusion or metal penetration problem. Zircon is also being used in manufacturing the Zircon based foundry Coatings.
- **CHROMITE:** As the properties are pretty close to that of Zircon, it's been used as good alternate for Zircon sand in the Core or Mould makings.

Options For Optimising Binder Addition Levels

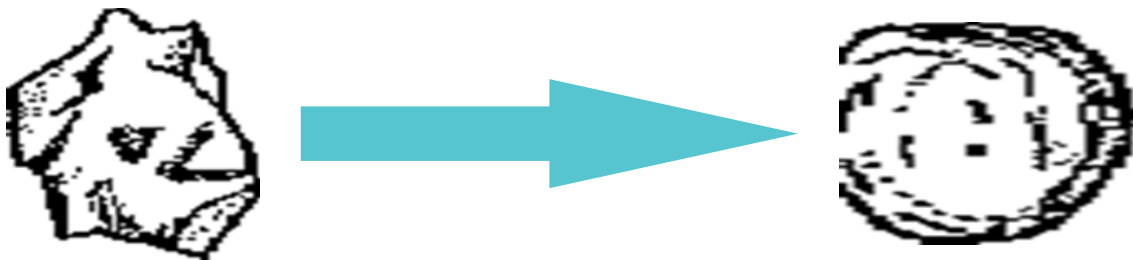
Having gone through the various features of the sands and their applications, we can go through the best options which can help us to optimize the binder addition level. These are as listed below:

- Selection of Good Silica Sand
- Use of Continuous Mixers
- Use of the Reclamation equipment's
- Monitoring the Health of the Sand System

Selection Of Best Suitable Sand: Depending upon the type of the foundry, type of castings, a foundry can select the best suitable sand for their foundry production process.

Use OF CONTINUOS MIXERS: A comparison of Batch vs Continuous Mixer was done and found the possibility of reduction in Binder addition level by 0.15 - 0.2%.

Use Of Sand Reclamation Equipments: During the process of Mechanical Reclamation -sand lumps are broken & brought to the required sizes, followed by sand grains going through pneumatic attrition process, thereby becoming Angular to Sub Angular to rounded sand, the round sand demands lower binder addition rate.



Monitoring The Health Of The System Sand

Testing the vital properties of the sand is utmost important to monitor the health of the system sand. The Important properties are:

- Sieve analysis of both new as well as the reclaimed sand
- LOI of both new sand as well as the reclaimed sand
- Plotting graph of these parameters will help one to monitor and take corrective actions.



BEST PRACTICES

By: **Mr. Ravikumar K**

CMD -Kelsons Group of Industries | Kolhapur Maharashtra.

Moulding Issues in the Foundries with some solutions

Molding issues in foundries can have a significant impact on the quality of castings produced. Proper molding is crucial to create molds that are capable of producing accurate and defect-free castings. Here are some common molding issues in foundries and ways to address them:

Sand Inclusion or Sand Holes: This occurs when loose sand particles become trapped in the mold and core. It can lead to defects on the casting's surface.

Solution: Ensure that the molding sand is properly compacted and that the molds are thoroughly vented to allow gases to escape. Use suitable binders to prevent sand from breaking loose. Improve the gating and riser system to allow sand to escape more easily.

Shrinkage Defects: Shrinkage defects happen due to insufficient material in the mold, leading to voids or cavities in the casting.

Solution: Increase the size of risers or feeders, use exothermic or insulating risers to provide additional material, and modify the gating system to allow for controlled metal flow. Adjust the pouring and solidification process to minimize temperature differentials and ensure proper feeding with risers.

Cracks and Tears: Cracks and tears in the mold can result in casting defects. These can occur during mold assembly, pouring, or cooling.

Solution: Properly assemble and secure the mold, avoid abrupt changes in section thickness, and ensure controlled cooling to prevent thermal stresses.

Metal Penetration: When molten metal penetrates the molding sand, it can create defects on the casting's surface and dimensional inaccuracies.

Solution: Use coatings or sealants to prevent metal penetration, ensure proper venting and gating, and control pouring parameters such as speed and temp. Adjust the molding parameters, and prevent excessive metal penetration.

Misruns and Cold Shut: Misruns occur when the molten metal doesn't completely fill the mold, while cold shuts happen when two streams of molten metal fail to merge properly.

Solution: Improve gating and runner design, increase the pouring temperature, and ensure a proper metal flow rate.

Mould and Core Shift: Mold shifts or misalignment can result in casting inaccuracies and defects. Core shift occurs when the cores (internal sand shapes) move or shift within the mold cavity, resulting in casting inaccuracies.

Solution: Ensure proper alignment and clamping of molds. Implement alignment tools and techniques to maintain Mold integrity during pouring and cooling. Proper core assembly and securing methods, better core print design, and careful handling during mold assembly.

Gas Porosity: Gas porosity results from the presence of gas trapped in the Mold cavity, leading to voids or bubbles in the casting (Blowholes).

Solution: Ensure adequate venting and permeability of the molding sand, use proper de-gassing methods for the molten metal, and control pouring parameters.

Surface Finish Issues: Poor surface finish can be caused by various factors, including the quality of the mold surface, the type of molding sand, and the pouring technique.

Solution: Use high-quality molding sand with adequate AFS, maintain clean and well-prepared molds, and control the pouring process for a smooth finish.

Pattern and Core Box Erosion: Repeated use of patterns and core box can lead to erosion, resulting in casting defects.

Solution: Periodically inspection, repair or replace worn-out patterns and core box. Monitor their condition to prevent erosion.

Pattern and Core Defects: Issues with the pattern or core can lead to casting defects. Ensure that patterns and cores are properly made and inspected.

Solution: Quality control in pattern and core production, inspection, and maintenance.

Addressing these molding issues in foundries requires a combination of good practices in Pattern design, sand preparation, gating and venting, pouring techniques, and quality control throughout the casting process. Regular inspection and maintenance of equipment and molds are also essential to minimize defects and ensure consistent casting quality.

To address these molding issues, foundries typically employ a combination of preventive measures and quality control techniques, including:

- Proper Mold design and gating system design.
- Adequate Mold compaction and venting.
- Proper Mold material selection.
- Monitoring and controlling mold and metal temperatures.
- Regular inspection and maintenance of molds.
- Training and supervision of foundry personnel.
- Identifying and addressing molding issues promptly is crucial to maintaining the quality of castings



Raw Material Price Index

By: Mr. Mahesh Date
Managing Director | Ved Industries



Movement In Foundry Raw Material Prices
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The Raw Materials Price Index measures price changes for raw materials purchased for further processing by foundries. It is helpful to judge the market scenario and understand the trend. Prices provided below for the past 6 months are the prices collected from Kolhapur market just for the information only. These are approximate, ruling during the month and week as indicated in the table.

In the prices indicated below, transportation cost is included in most items. Only applicable GST is to be added. Prices of many materials are on the basis of "Immediate Payment"

(A) Major Ferrous Metallic Raw Materials, Low Ash Metallurgical Coke, and Electro-Graphite Fines {Rs / Tonne}

	Apr-23 2 nd Week	Apr-23 4 th Week	May-23 2 nd Week	May-23 4 th Week	Jun-23 2 nd Week	Jun-23 4 th Week	Jul-23 2 nd Week	Jul-23 4 th Week	Aug-23 2 nd Week	Aug-23 4 th Week	Sep-23 1 st Week	Sep-23 2 nd Week	Sep-23 3 rd Week	Sep-23 4 th Week
Foundry Grade PigIron	52116	50800	49866	49866	49366	49366	48866	48116	48116	48116	49616	49616	49616	49616
MS Scrap (good quality)	45000	45000	44500	44200	44000	44000	43500	43000	43500	43500	45000	45000	45000	45000
Low Mn Steel Scrap	47000	47500	46500	46500	46000	46000	45500	44500	46000	46500	45500	45500	45500	45500
Si Steel Stamping Scrap	45500	46000	46000	45500	45200	45000	44500	44000	45000	46000	45000	45000	45000	45000
Low Ash Met. Coke	48000	47500	47500	47500	47500	47500	47000	46500	47000	47000	45500	45500	45500	45500
Electro-Graphite Fines	102000	100000	95000	92000	85000	80000	80000	80000	81000	81000	77000	77000	77000	77000

(B) Major Ferro-Alloys {Rs./Kg}

Fe-Si (70-75% Si)	135	131	130	130	131	126	122	120	117	115	115	115	114	114
Fe-Si-Mg (5-7% < Mg)	210	200	205	200	210	215	215	215	220	220	220	220	219	219
Fe-Si-Mg (5-7% < Mg) (TOL)	±5	±5	±5	±5	±5	±5	±5	±5	±5	±5	±5	±5	±5	±5
Fe-Si-Mg (8-10% Mg)	225±5	220±5	220±5	218±5	225±5	218±5	218±5	218±5	222±5	225±5	225±5	225±5	222±5	225±5
High C Fe-Cr (60% Cr)	125	121	127	127	123	125	122	122	125	125	124	124	124	124
High C Fe-Mn (60% Mn)	100	99	105	105	95	85	85	79	80	82	78	78	78	78
Ferro-Moly (60% Mo)	2300	2600	2650	2700	2725	2750	2750	2800	3000	3175	3200	3200	3100	3100



Fettling Corner

Perspective of Foundryman

By: Mr. Subodh Panchal
Managing Partner | Kastwel Foundries





FEATURED ARTICLE

By: M/s. Susha Founders & Engineers

Shell moulding Process - Dump Box Mould v/s Shoted Mould

Shell moulding process was invented in Germany and has been in use since Second World War (1945). With this process, Castings can be produced in larger quantities with a very good surface finish and close tolerances. It was widely used for making bomb shells. In India, the first shell moulding machines were developed by SUSHA in 1967-1968. A majority of foundry men are aware of the shell process but below is a brief description of how shell moulding process has evolved and advanced over time.

Dump Box Moulding Process

The standard machines used for shell moulding process are dump type shell moulding machines which are being used since decades. In the dump type shell moulding machine, the pattern is heated from bottom and resin coated sand falls over this heated pattern by gravity. The coated sand grains comes in contact with hot patterns and then start fusing with each other forming a layer of sand. After a predetermined time, the pattern is inverted by 180° so that the excess sand falls back into the sand box. This layer of sand is then heated from the top side by putting an oven over it. With heating from both sides, the layer of resin coated sand gets hardened and takes the shape of the pattern and forms a mould.

This process results in the formation of the cope and drag moulds which are further stuck together by special glue or clamped together by special bolts or clamps. And then this ready to pour moulds are buried under raw sand bed in case of horizontal pouring or kept in metal boxes vertically and loose raw sand is packed around them for vertical pouring.

This backing of raw sand (Figure 1) is required so that the moulds do not break due to molten metal pressure when metal is poured in them. When metal is poured into the moulds and by the time molten metal solidifies, the resin around sand grains get burned and sand falls apart leaving the metal to take shape of the mould. Some foundries use pebbles instead of raw sand as it is easier to separate pebbles and reuse them. Some foundries, to avoid raw sand backing make thicker moulds to give them enough strength to ensure that they don't break during metal pouring.

There are many foundries which make castings only by this technique especially for automotive applications where high dimensional accuracy is needed. Since resin coated sand is very costly and the cost of producing mould has direct relation with the mould weight, the above technique has been upgraded to Shoted Mould Process which is comparatively cost effective.



Figure 1 - Dump Box Mould Pouring with sand backing.

Shoted mould Process

The latest technique for making shell mould in an economical way is by using core shooter for making the moulds. Mould produced by this method are called Shoted Moulds. No backing is required. To illustrate better, below is a comparison between both the processes.

Shooted Moulds



Uniform mould Thickness



Compact Mould since sand is shot into the mould



Due to proper reinforcement / ribbing in moulding warpage issue can be avoided



Mould to mould consistency in sand consumption



No Sand Backing is required



Sand Consumption can be optimized



Mould thickness can be reduced by providing proper reinforcement in mould design

The cost of the core box is more as compared to the conventional dump box pattern



Fuser machine is not required



For small items, double-faced stack moulds can also be produced.



Heaters in both half are in core box, so less energy consumption



Heading is easy and less prone to breakage due to ribbing provided on moulds

Dump Box Moulds

Non Uniform mould Thickness

Less Compact Mould since sand falls through gravity

Hot to hot gluing is required due to mould warpage

Variation in Mould to mould sand consumption

While Metal Pouring sand backing is required

Sand consumption is more compared to shooted mould

Mould thickness is more

Cost of making patterns is less



Fuser machine is required

Stack mould is not possible

Since heating is through air, Energy consumption is more

Handling is comparatively difficult & prone to breakage



Fig. 2 – Shoted mould ready to pour



Fig. 3 – Shoted mould with ribs



Fig. 4 – Double side shoted stack Mould



Fig. 5 – Clamped mould - ready to pour.

To Summarize – For high quantity or large items it is always recommended to opt for Shoted mould process. Even though the initial investment in high in terms of equipment & core box cost, but due to below mentioned advantages it is being widely adopted by foundries.

- Sand Saving
- Energy Saving
- Quality - Mould Thickness control & consistency

Reference

For more details on our machines, you may log on to www.sushainida.in for our product range.

Our Product Range includes

Shell Moulding Machine	Low Pressure Die Casting Machine
Shell Core / Mould Shooter	Gravity Die Casting Machine
Cold Box Core Shooter	Decorating Machine
Sand Distribution Trolley	Degassing Machine



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BUSINESS TALK

By: **Mr. Mukund Pant**

Managing Director | Metal Power Analytical Pvt Ltd

Identity, value proposition and positioning

Most businesses understand the criticality of adopting the correct position in the market. Whether that position is one of “price competition” or “best in class”, communication strategy, pricing and targeting are driven by the adopted position. That said, adopting the optimal position to maximize returns requires a lot of thinking and alignment, and even a dose of subjective input based on market perception. The alignment process is often iterative as Value proposition development and market positioning are inherently and deeply interrelated.

Identity: Who do we want to be?

Identity is something that is typically already defined for a Company – and the basics for this should be embedded across the Vision, Mission and Values of the organization as well as ingrained in its culture. Identity quite literally defines what the Company stands for. Yet another aspect of this though comes from how the firm projects itself and operates. Branding, advertisements, corporate presentation etc. contribute to the way the organization is perceived and this forms an equally critical part of the corporate identity. Market perception is critical for business success – and to ensure coherence across functions, it is always advisable that external perceptions align with internal desire. The way to ensure this is to always be clear that product development, market position and value proposition should be in line with the Corporate Identity at all times.

Value Proposition: What do we offer to a customer?

Value Proposition quite literally is the answer to a customer’s question of “Why should I buy your product over the alternatives?” The answer to this question should be simple, clear and in complete alignment across the organization, and also carried clearly in all market communications. A product or brand most often can’t be one thing to one person and a completely different thing to another. To this end, the value proposition must be developed carefully – and after full consideration of the alternatives available in the market, since value propositions can’t exist in isolation.

The value proposition must be focused and meet a key identified need. Clearly, the addressed need that’s core to the value proposition must align with the chosen market position – and this also requires a detailed study of the market to identify white spaces (positions not occupied already by competitors). This is why any and all product development decisions should be driven in a very targeted manner to deliver the desired value proposition.

Positioning: What space do we occupy in the market?

Markets are vast – and different strategies can be leveraged by market participants. Broadly speaking though, there are only two real approaches that can be adopted:

Cost competition: This is the position you adopt when you decide that you will offer the market the lowest price available. This position is often chosen in commodity markets, where all products effectively offer identical value and therefore price is the only lever to utilize, for example, in markets like vegetables, coal, ores or chemicals. That said, cost competition can also be leveraged if there is a feeling that a play can be made using a trade-off between price and one of the other key aspects of the value proposition – for example, features v/s price or comfort v/s price. Some examples of this include cars, phones etc.

Differentiation: Differentiation refers to a position adopted where a company makes a play for “value” by offering an attribute or a set of attributes that are significantly better than anything else on offer. This superiority is then leveraged to demonstrate why the product deserves to command a higher price – and the success of this position is determined by the validity of the claims and the ability to justify the price premium. Such strategies are typical in markets where customers are more feature- or quality-conscious and where a low price does not offset the value of the differentiating features or attributes. Typical examples could include special purpose machines, industrial machinery, consumer electronics etc.

When it comes to positioning, it is not unusual for firms to adopt diametrically opposite positions even in the same product market. Positioning decisions are not a “one size fits all” exercise – and the optimal decision differs by company. Multiple trade-offs need to be considered including key ones like:

- Volume v/s margins: A differentiated position potentially offers higher percentage margins but lower volumes.
- Time to market: A cost competition strategy may offer a far easier and shorter development cycle
- Risk v/s reward: A successful differentiation strategy could result in super-normal profits, there carries a risk of failure and typically involves higher development costs

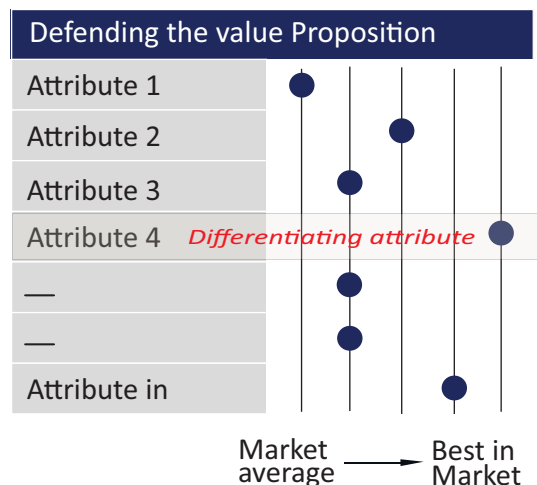
Mating Value Proposition with Positioning

Every Business Unit or Product Unit requires a detailed strategy to deliver success. This strategy is typically defined with a shorter horizon than the Corporate Strategy – and specific elements of the Corporate Strategy are embedded directly into it from the outset. For example, the overarching philosophy of product positioning and the Core Values that the business will stand for, as well as multiple elements of the Organization Structure must be taken as-is from the Corporate Strategy. That said, this still leaves a lot for the Business Unit to define at a strategic level.

Clearly the value proposition and positioning strategy must be very well-aligned and driven by market study. Since this is a complex and time-consuming task, it is essential to ensure that the process follows a simple set of steps:

1. Study the market in detail; one must carefully assess all competing products and align those to the needs they're addressing.
2. Map product attributes; first ensure that an exhaustive list of product attributes is created. Then, filter it to the top 5-7 attributes based on customer needs.
3. Market map; identify positioning of all relevant competing firms, their strategies and their value propositions. This will also yield the "white spaces" viz. spaces that are not currently occupied and / or unmet/under-fulfilled customer needs.
4. Develop the value proposition that will be required based on the chosen positioning. Here, a good process is to define which product attributes will form:

- a. Matches market average / expectation; for those attributes that are "taken for granted", it is essential to not be poorer than alternatives
- b. Better than most in the market; for use / application critical attributes, the target should be to be better than most other competitors
- c. Best available in the market; this is where the product must differentiate itself. Ideally, when creating a value proposition, this should be a single attribute that is not only essential / desirable to customers but also an attribute that is difficult for others to replicate without consuming a lot of time and cost.



With all this said, there is also the "perception" aspect that must be addressed. For a value proposition to work in the market, not only must it be supported by the product, but it must also be accepted by the buyers. This is best illustrated through a very famous example. Toyota wanted to break into the luxury car market in North America. While they developed a fantastic product that they were convinced would succeed as a product, this car was not launched by Toyota! Detailed studies showed that North American customers saw Toyota as a company that offered reliability and cost/fuel efficiency, and not as a luxury brand. The product would therefore find it extremely difficult to gain acceptance and deliver on its potential. This finally led to the creation of a new company by Toyota – Lexus – which launched the car with tremendous success.

Having a clearly defined and relevant value proposition evidently and significantly eases the next steps which are the pricing strategy and market communication strategy.



FOUNDRY QUIZATHON

By: Mr. Sivakumar Subbarayan
Plant Head | Pitti Castings Pvt. Ltd.

Test your Basics on Moulding
Supported By | Shamlax Meta-Chem Pvt. Ltd.

Quiz Prizes Supported By



Last Date of Submission: 28th October 2023

- 1) Increasing moisture in green sand mix, increases Shatter index.
 - a. True
 - b. False
 - c. Same
 - d. None of the above
- 2) Which of the following processes is sensitive to Acid Demand Value of sand?
 - a. Green sand system
 - b. Sodium Silicate process
 - c. Furan binder system
 - d. Alkaline binder system
- 3) The other name of Kaolinite clay is?
 - a. Bentonite
 - b. Fire clay
 - c. Mica
 - d. None of the above
- 4) Cohesiveness of sand depends on
 - a. Grain size and shape of sand particles
 - b. Bonding material
 - c. Moisture content
 - d. All the above
- 5) Which grain shape of sand particles is least preferred for foundry sands?
 - a. Round
 - b. Sub Angular
 - c. Compound
 - d. Cube

How to Participate in the Foundry Quiz:

Option 1) Scan the QR Code to Start the Quiz and fill out the basic details, click next, answer the questions and then click on submit

Option 2) Send answers to the following questions on western.region@indianfoundry.org with basic details (Name & IIF Membership No.)

Winner will be based on first one to answer the maximum correct answers



Click Here

QUIZ WINNER!



Congratulations to
Mr. Sandeep Kulkarni
 Aditi Industries

80%
Score

For securing the first position in Foundry Quizathon on the topic: Lining & Refractories. He will be awarded with the NCTS voucher worth Rs. 750/-

2nd Position (80% Score)
 Mr. Bipin Sharma

3rd Position (60% Score)
 Mr. Bipin Shrimali

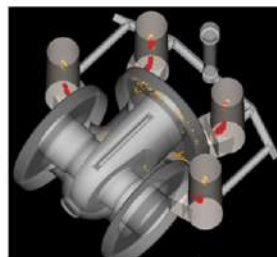
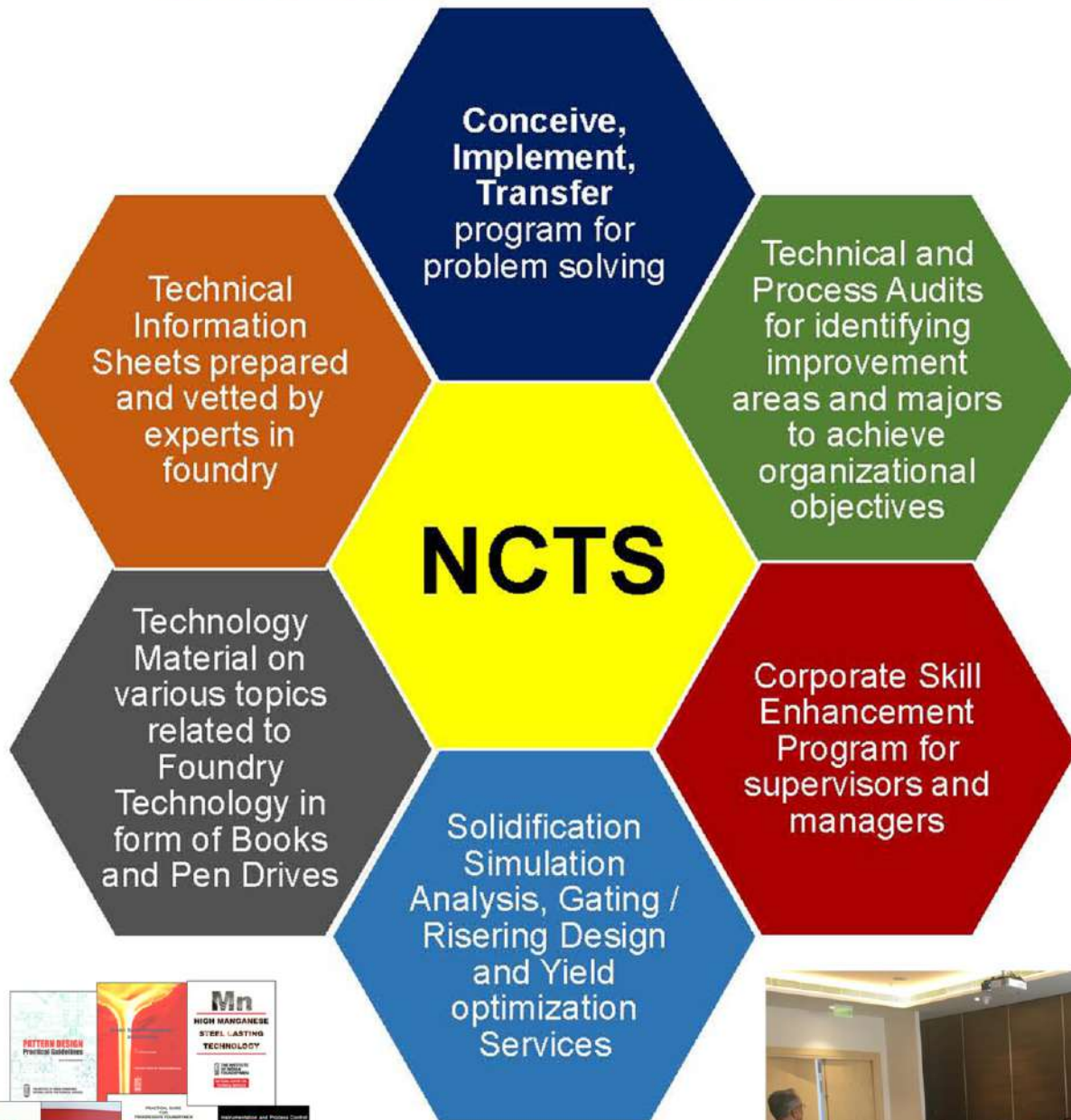
Foundry Quizathon (August Edition)
 Answer Key: 1. a | 2. d | 3. c | 4. c | 5. a

To view the following quiz questions, [Click Here](#)

Quiz Prizes Supported By



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Message from President IIF 2023-2024

Namaskar, Foundry fraternity & Readers,

With your support & blessings I have taken responsibility to lead our prestigious apex body of IIF as National President for the year 2023-24 on 9th September 2023 at Shimoga. Many members from IIF Western Region participated in the event & blessed all the New National Office Bearers. I thank all those who could make it to Shimoga & graced the occasion. I consider this as an opportunity to serve our Institute & its stake holders.

Mr. D.S.Chandrashekar

President, IIF

It's an honour to write for WR E-Magazine -Foundry talks. As we continue to forge ahead in this dynamic industry, I am excited to share my views about our Industry, IIF & the intent of regional magazines

The Indian Foundry Industry is the second largest after USA in the world, with thousands of small, medium & large foundries. It plays a pivotal role in the growth of various sectors like automotive, machinery, infrastructure, Locomotive, defence, aerospace etc., Many Indian foundries have been adopting modern technologies & process to improve quality & efficiency. This includes the use of advanced casting techniques, automation & alternate materials. It may take some more time to embrace the changes demanded by the market, sure it will happen on a greater scale in the years to come. Those who won't adapt to the changes, will perish. Many countries of the world are looking at Indian foundries for business, it's for us to embrace the change & explore the export & collaboration opportunity. Once the Foundry industry takes a quantum leap, its supply chain will also become a part of the growth journey.

Challenges hunting the Foundry industry in recent years are continued, in fact it has multi folded – Environmental regulations, high energy cost & dearth of skilled manpower . For these challenges many have founded reasonable solutions, continuously increasing, adopted changes & aligned their resources. This has ensured them sustainable business & growth.

Sustainability & Circular economy are the recent buss words in Foundry Industry. Sustainable practices in foundry industries involve reducing environmental impact, conserving resources, and improving employee safety .

Circular economy focuses on minimising the waste, maximizing the resource efficiency throughout the product cycle by proper material selection that can be recyclable , have long life span , systems & technology to recover, recycle materials etc., these sustainable practices will reduce environmental impact, reduce manufacturing cost & create a more sustainable & resilient business model.

Our IIF an apex body of Foundry & Its related business has completed 73 years of existence is growing stronger year on year. Shortly we are entering into "Amrit kal" of IIF. Every year change of leadership at National level, brings in new thinking, new culture ,new idea , new working , new challenges etc.,, however the moto goes back to our root – serve the stake holders with commitment, involvement & dedication. This year also the new NOBs have imbibed the above. Together we have planned many activities in line with the changes & demanding market. The IIF theme for the year 'We Cast" will truly depict our commitment to stake holders.

The intent of any professional body magazine is to connect the members through – Shared industry insights, knowledge sharing, customer communication, information about various activities to members , recognitions etc., Our IIF WR E – Magazine 'Foundry Talks" has ensured all the above & much more to its member. While appreciating the team behind this magazine, we look forward for continued & enhanced services for years to come. The IIF Western Region is lead by Young ,dynamic & dedicated Mr. Prayut Bhamawat as Regional Chairman. With the support of the Office bearers of WR, I am sure the region will be one of the growth engines of IIF.

Before I sign off, I would like to invite to our flag ship event 72nd IFC & IFEX 2024 to be held in Bangalore on 2nd,3rd & 4th February 2024. Please make it to the event in large numbers to 'Unleash the opportunities " in Foundry & Related business.

Wishing you all the best.

WESTERN REGION ACTIVITIES



Skill Development Workshop # 1 - "Maintenance of Induction Furnace" @ Inductotherm, Ahmedabad



Best Practices Awareness Session # 1 @ IIF Ahmedabad Chapter



CONGRATULATIONS

New National Office Bearers 2023-24



Mr. D S Chandrashekhar
President - IIF



Mr. Navneet Agarwal
Vice – President - IIF



Mr. S Muthukumar
Hon. Secretary - IIF



Mr. Sushil Sharma
Hon. Treasurer - IIF

We Wish You All The Best With New Roles & Responsibilities

Mr. Prayut Bhamawat
Chairman
IIF WR

Mr. Saibal Sen
Vice – Chairman
IIF WR

Mr. Atin Jain
Hon. Secretary
IIF WR

Mrs. Ruma Rao
Hon. Treasurer
IIF WR






IIF Western Regional Conference
Wescon 2023
 ...GET FUTURE READY

24 -25 November
 2023
 Venue:
 Hotel Deltin, Daman (Vapi)

WESCON the flagship annual conference of Western Region is inviting you with this year theme of "Get Future Ready".

Highlights of the WESCON 2023

- UX- User Experience By Renown Foundrymen Low Cost Automation
- Innovation Case Studies KAIZEN Presentations
- Family Business Continuity Transition from 1G to 2G
- My Foundry - My Passion Foundry Best Practices
- Furnace - Mould Side Chat Views From Foundry Leaders
- Quiz - WR - KBSC Kaun Banega Super Chapter
- Foundry Clinic
- Exploring Export Opportunities
- B2B Cubicle
- Exploring Export Opportunities

Registration Charges

Delegation Fees Per Participant	Before 20 th October 2023	After 20 th October 2023
Triple Occupancy	Rs. 6700/- + GST = Rs. 7906/-	Rs. 7200/- + GST = Rs. 8496/-
Double Occupancy	Rs. 7000/- + GST = Rs. 8260/-	Rs. 7500/- + GST = Rs. 8850/-
Single Occupancy	Rs. 12000/- + GST = Rs. 14160/-	Rs. 12500/- + GST = Rs. 14750/-



SCAN & PAY

Online Registration:

Hurry up!! Please

<https://iifwr.com/wescon.php>

to register for WESCON 2023, and submit the form with all the mandatory details filled in.

Includes: 1 Night Stay, Breakfast (2), Lunch (2), Dinner(1), High Tea (2)

Sponsors:



Organized Jointly



For any queries kindly contact Mrs. Aarti Ghag - Senior Officer IIF WR - Mobile - 73035 1171





72nd Indian Foundry Congress & IFEX 2024

2nd

3rd

4th



February 2024

B I E C Bengaluru, INDIA



72nd Indian Foundry Congress

- ❖ Management & Technical sessions
- ❖ Tech mart symposium
- ❖ B2B meetings & Casting clinic
- ❖ Plenary sessions & Foreign speakers
- ❖ Competitions & Student programs
- ❖ Industry Visit & MSME Conclave (1st Feb 2024)
- ❖ Lost foam casting technology Sessions
- ❖ Ladies Program & Entertainment



www.Indianfoundry.org | www.ifexindia.com



72nd Indian Foundry Congress, Cast India Expo, Lost Foam Casting India Expo & IFEX 2024

This event is a Three-Day Integrated Conference and Exhibition being held at **Bangalore International Exhibition Centre (BIEC), Bengaluru, Karnataka, INDIA on 2nd, 3rd & 4th February 2024**

Unleashing



- ❖ Latest Foundry Equipment & Foundry Materials
- ❖ Furnaces & Accessories
- ❖ Moulding, Core making, Knockout & Finishing
- ❖ Measuring, Testing, Process control & Instruments
- ❖ Robotics, Automation & Industrial IOT
- ❖ Foundry services & Environment control eqp

Casting / Component Display of

- ❖ Aero space, Defence, Railway
- ❖ Non ferrous Components
- ❖ Auto mobile & Diesel engine components
- ❖ Earth moving equipment components
- ❖ Plastic injection & blow moulding components
- ❖ Pumps, Valves & Other engineering sector



Lost Foam Cast India Expo

- ❖ Live demo of LFC Casting manufacturing process
- ❖ Raw material suppliers for LFC Process
- ❖ LFC Equipment's suppliers
- ❖ Lost foam Castings display

SPONSORS PAGE



CFM Engineers Foundry Machinery has wide area of manufacture. Thinking into right research & development for first one year and slowly and gradually they have introduce more range into the market. CFM Machinery are now into manufacturing and supply of Core Shooter Machine, Shell Moulding Machine and Dies & Molds making.
info@cfmenginers.com | +91 9558689560 | www.cfmenginers.com | Location: Rajkot

Dynamic Technology Systems are a leading distributor of analytical & scientific instruments & research equipment, based in Mumbai (India). We deliver the most reliable and highest quality products through partnerships with global original equipment manufacturers. We have consistently grown to become a prominent distributor for analysis, inspection and research instruments in metallurgical industry.



mumbai@dts-india.co | 1800-22-8522 | www.dts-india.com | Location: Mumbai



We, at Gargi, are committed to developing, manufacturing and supplying foundry consumables and chemicals conforming to international standards. We deal in Resins, Coatings, Exothermic Sleeves & Other Foundry Chemicals. Our priority is total customer satisfaction by anticipating and meeting the changing needs of our customers.
gargiha@ha-group.com | +91 (022) 68785656 | www.ha-group.com, www.chemex.de | Location: Mumbai

Incorporated in 1994, Kelsons Engineers & Fabricators is a well-known manufacturer and supplier of Moulding Machine, Intensive Mixer, Shell Moulding, Shot Blast Machines, Foundry sand Testing Equipment, Metal testing Equipment and Ladles providing full range of equipment for foundry processes. We provide turnkey solutions for foundry sand plant projects



Mktg.kelsons@gmail.com | +91 9822112162 | www.kelsonsgroup.com | Location: Kolhapur



Started in the year 1987, Laxmi Pattern have got more than 25 years of experience in the field of manufacturing of patterns. We have established ourselves as a leading manufacturer of Metal Pattern, Teak Wood Pattern, Casting Pattern, Gunmetal Pattern and many more. We are equipped with 3-D modelling and CNC machines for precision and matriculate work

laxmipatterns@gmail.com | +91 9979955889 | www.laxmipatterns.com | Location: Anand

MPM Pvt Ltd having 35+ years of expertise in foundry solutions and services are the one of India's leading manufacturer of foundry consumables used and applied in the critical spectrum and eco system of casting preparation such as Mold & Core Making, Feeding & Methoding systems & Melt Preparation. MPM is the pioneer and largest manufacturer of engineered Lustrous Carbon Additives for use in foundry green sand molding practice.



info@mpmindia.com | +91 98224 64730 | www.mpmindia.com | Location: Nagpur



NowPurchase is building a rich, digitally managed marketplace where metal manufacturers can procure high-quality raw materials in a trusted manner. Simultaneously, we are building a SaaS layer that will supercharge the productivity and processes of foundries and ultimately make procurement autonomous. We are currently serving a robust community of 150 manufacturers, overseeing an impressive transaction volume of 250 crore worth of orders on an annual basis.

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Patel Furnace & Forging Pvt. Ltd offer a complete range of Airless Shot Blasting Machine, Air Operated Blasting Machine, Shot Peening Machine, Blast Room Plant, and Shot Blasting Machine for special applications. With approximately 2,500 active customers and an estimated 3500 plus machines installed in India and many International market we have been part of many success stories of leading companies by helping them to improve productivity quality.



info@pshotblast.com | +91 97370 61333 | www.pshotblast.com | Location: Vadodara





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info@newstarinfotech.com | +91 99042 25550 | www.plasmagroup.in | Location: Ahmedabad

P-Met is a widely recognized and trusted manufacturer and supplier of PMC Visible Dye Penetrant, PMC Fluorescent Penetrant, PMC Foundry Fluxes, PMC Surfex Products, PMC Anti-spatter Nozzle Ge, PMC Anti-spatter Spray etc. in Vadodara, Gujarat. With a strong professional team with an ability to deliver customized solutions across various industry verticals, while meeting the stringent industry standards, P-Met continues to dwell on the path of excellence.



mehtapmet@gmail.com | +91 9327308669 | www.p-met.com | Location: Vadodara



Porwal Auto Components Limited a listed company on BSE is one of the leading foundries in India with in house machining facility, it is an ISO 9001: 2015 and IATF certified unit. We are certified Class "A" Foundry by RDSO & approved by IRIS (International Railway Industry Standard). We are major supplier to Auto Mobile and Tractors, Railways, Defence and heavy engineering sectors like BHEL etc. Our products range covers Grey Iron, Ductile Iron, Carbon Steel, WCB and Austempered ductile iron (ADI) and casting weight from 1kg and 800 kg.

edp@porwalauto.com | +91 9752146341 | www.porwalauto.com | Location: Indore

Shamlax is pioneers in manufacturing Colour Changing on drying Foundry Refractory Coatings since 2010. The company also manufactures speciality (sulphur-block) coatings and modified sleeves for S.G. iron castings to control surface micro-structure. We also produce Exothermic and Insulating Riser Sleeves of all shapes and sizes up to 24 inches & Foundry Fluxes for domestic and export market. Shamlax continues to provide customized solutions and solves various casting defects in the foundry sector.



info@shamlax.com | +919860365715 | www.shamlax.com | Location: Nagpur.



Sinex Primemovers are a leading manufacturer of wide range of Unbalance Weight Vibration Motors, Pneumatic Ball Vibrators and Pneumatic Piston Impact Vibrators with over 30 years of experience. The vibro motors and vibrators are sound engineered and have innovative features to make them excellent products. The loaded parts in these products are generously dimensioned to make them quite sturdy, giving excellent performance and long trouble-free life with minimal maintenance.

info@sinexvibratorsindia.com | +91 9998217448 | www.sinexvibratorsindia.com | Location: Mumbai

Susha Founders & Engineers offers a complete range of foundry machines. Our product range includes Core Shooters, Low Pressure Die Casting, Gravity Die Casting, Degassing, Decoring, Sand Coating Machine. Now we have to our credit over 4500+ installations in India & abroad. With over 62+ years experience our main focus is on making user friendly machines with high productivity, low maintenance & latest technology.



info@sushaindia.in | +91 9925199148 | www.sushaindia.in | Location – Surat



Variational Technologies provide specialized Product development from concept & reverse engineering services. Our design team has expertise CAD software's like NX, Catia, Solid edge, Geomagic & Polyworks etc. We are into engineering design, reverse engineering, 3D Scanning and Inspection Service, Manufacturing (precion component), Hardware Sales & services, Software Sales and Solutions & training.

mail@varitech.in | +91 63526 02969 | www.3dlasertracker.com | Vadodara

Wear Fighter, hard-facing division of Mangalam Steelcast Pvt Ltd are manufacturers of High-Performance wear parts using Anti-Wear Protection material which is developed by a patented technology hence enhancing life of the parts by multiple times. We supply to more than 250 customers in the field of Foundry, Aluminum, Mining, Refractory & Ceramic Industry. For foundries, we provide hard-faced wear-parts for sand mixers for all makes of Machines, for all known sand Processes & ranging for the lowest end of Technology mixers to the highest end.



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