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ALUCAST®

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Issue 136 - June 2022

COST MANAGEMENT IN THE PRODUCTION OF DIECAST PRODUCTS

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Others	6	12	2	20
Overseas	6	-	-	6
Pune	17	39	27	83
TOTAL	57	120	54	231

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N. Ganeshan Editor

Dear Readers,

Rising food inflation hurts consumers more than inflation in other commodities since households do not have much discretion in altering food consumption. Moreover, this hurts urban poor & middle-class people whose major share of income is directly spent on food and other related essentials. The

drivers of current inflation are extraneous, but their second-round effects, as domestic demand improves and further feeds to inflation expectations are becoming a source of major concerns. Research has shown that frequency of purchase, rather than the share of expenditure, shapes inflation-related expectations of consumers. Internationally, many countries, including developed economies are facing severe inflation pressures mainly due to Russia - Ukraine war. Russia is the second largest exporter of oil, next only to Saudi Arabia and major natural gas exporter to Europe.

The war and subsequent sanctions against Russia have totally disrupted this supply, resulting in major increase in oil and gas prices, which were rather on the higher side before the start of the war. Further, wheat supply from Ukraine, a major wheat exporter, has been hit badly due rising cost of transportation & insurance from a war-torn zone. Combined with Covid hit supply disruptions, unusually harsh extended winter felt in Europe and northern hemisphere countries, causing increase in demand and further price increases in the international price of oil & natural gas. India's inflation pressures are more or less due to these external factors. Added to these woes, in India, the uncharacteristic heatwave that started at the beginning of this summer has impacted several crop & vegetables productions and thus driving food prices up.

According data provided by Central Government's Power Ministry, India's power consumption spiked to an all-time high of 132.98 billion units in the month of April. This is mainly due to due to heatwave across the country. Amid the rise in mercury level, the power consumption grew 13.6% year-on-year. Power consumption in April last year was recorded at 117.08 BU, which was higher than 84.55 BU in the same month of 2020. On the other hand, the peak power demand met, which is the highest supply in a day, during April this year remained at an all-time high of 207.11 GW. The peak power supply stood at 182.37 GW in April 2021 and 132.73 GW in April 2020.

The unprecedented spike in electricity use lead to in widespread power cuts in April, as utilities scrambled

to manage demand as coal supplies dwindled. Power supply fell short of demand by 2.41 billion units, or 1.8%, the worst since October 2015. The demand for power in Delhi rose 42% in April, 36% in Punjab, and 28% in Rajasthan, respectively, government data showed. Soaring temperatures lead to a 74.7% rise in electricity use in the hilly state, Sikkim. Himachal Pradesh and Uttarakhand, two other mountainous states thronged by tourists seeking a retreat from the heat of the plains, saw power demand surge by more than a sixth because of the higher temperatures. Other northern states such as Haryana and Uttar Pradesh, and Jharkhand in the east saw demand for electricity rise more than 25%, the data showed. Andhra Pradesh state suffered its worst power cuts in more than six years because of the heatwave, according to the data. This resulted in unexpected rise in coal consumption and further affected the already over stretched coal supply chain. Worst sufferers of these power cuts were, once again, micro, small & medium enterprises.

Aluminium Casters' Association (ALUCAST), India is organizing ALUCAST 2022 – An International Technical Conference & Exhibition from 1st to 3rd December, 2022 at Chennai Trade Centre, located in Chennai, Tamil Nadu. The global trade fair and event producer NuernbergMesse India Pvt. Ltd. is the Event Management Partner for ALUCAST 2022. The theme of the Conference and the Exhibition is **"Green & Smart Die Casting Solutions for Sustainability"**. At ALUCAST 2022 several leading global Aluminium Castings manufacturers, equipment & allied product manufacturers would be showcasing their latest, technically advanced tools, equipment and consumables.

The Technical Conference would have Research Paper Presentations & Technical Presentations from the leading Die Casting Experts around the globe on Smart & Green Die Casting Solutions and the state-of-the-art developments & improvements in the Aluminium Casting Technology. I request all our members to mark this event and dates in their calendar and make it convenient to participate in this International Mega Event, both as a Delegate for the Conference and as an Exhibitor/Visitor in the Exhibition. The details of the Event are cited in this issue of the ALUCAST Technical Journal for your information.

Cost Management in Die Casting

- G Praburam (Managing Partner), Alubee Die Casters

ABSTRACT

Everything grows only when profit grows. There are best practices out there in the world. The gap between how we do things and the best practices is called the "industrial gap". Those who bridge the gap the fastest will become the market leaders. So, we must adapt to best practices. This paper mainly focuses on best practices in cost management in die casting. It covers a wide variety of solutions from the personal experience of the author which includes the importance of cost management, how it can be done, efficient use of machines and effective use of people, the importance of cash flow in an organization.

INTRODUCTION

During the initial stage, I went and asked for an advance for a project in a corporate company. The finance director told me, "Why don't you go and approach your banks?" "I told him that I've already approached and they need some collateral to enhance the credit limits. With a gentle smile, he said, "I am not talking about regular banks but your inhouse banks. Every department is a bank. Just go and explore, there is always hidden money in the form of, Inefficiency, excess Inventory, rejections/ rework, unused resources, etc., It was an eye-opener for me.

People are habitual to look at anything through the spectacle called money. Especially in India, people look at the price first before they buy anything. Hence for any product, the cost must be competitive. Product competitiveness is directly proportionate to components competitiveness which goes into the assembly of any product. Most die casters manufacture components for OEMs or tier ones.

So, it is a primary responsibility of every die caster to keep their prices, very competitive, which is possible only through effective cost management. Today we live in a global village where we can be challenged by anyone from anywhere in the world.

Are we prepared?

Why cost management?

The cost of all the resources is increasing at one end, and customers are demanding price reductions every year. In this scenario, cost management is very important to thrive and grow in our business. The purpose of any business is to find profitable customers. To find our profitable customers, we need to know the science and art of cost management. I am reminded of a quote by Anu aga "Growth and profitability are to a business, what breathing is to living "

What is cost management?

To optimize and manage resources EFFICIENTLY to achieve the end goal within the budgeted time, within the budgeted cost, and to achieve the targeted PROFIT is called " Project management".

Completing any project within the budgeted cost, we need to know the art and science of cost management. It involves many components like resource planning, cost estimation, budgeting forecasting, monitoring, and control...

How to achieve cost management?

We have to shift ourselves from OEE to OPE. The first goal is to deliver all confirmed orders within that month. We need to focus more on effectiveness and efficiency. Doing things right is efficiency. Doing the right thing is effectiveness. Getting the maximum out of any machine is efficiency. Using any machine to produce the right products is effectiveness. Simply put, we must keep efficient machines to develop effective people. Working efficiently to achieve organizational objectives is effectiveness. We need to define how we classify certain things as being efficient and certain things as being effective.

Where do we need to improve to achieve cost management?

- Zero defect or minimized defects
- Zero break down or minimized Breakdowns
- Maximum SA or minimized cycle times

We are all experts in die casting and we think, we know everything. However, let's remind ourselves about fundamentals. Execution matters. 90% of success comes from execution.

"Pressure die casting", the name tells all

- Pressure stands for Efficient Machines
- Die means Efficient Dies
- Casting refers to Effective Process

Efficient machines

What type of die casting machines do we have? Manual / Semi-auto / Fully auto / Real-time monitor / Real-time control / or SDA? This is derived considering many parameters like customer expectations, Component accuracy, the field of supply, volumes, functionality, aesthetic, future forecast, etc.

If we go for some cheaper options then it will eat away our profits as the operating cost will be high. We need reliable machines. Since diecasting deals with hot alloy and many mechanical movements, fully automated machines are preferred. If not, at least semi-auto is necessary.

What brand of machines do we have? Reputed brand / Imported / Indian?

Costly is cheap. If we could afford the capital investment, it will save on process costs in the long run.

- Centralized spray
- Melting and holding furnaces
- Cooling towers
- Heat exchangers
- Compressors
- EOT cranes
- Fume extraction system
- Oil heaters
- Post casting machines
- Oil Cleaning machines



Figure 2: Oil Cleaning Machine



Figure 3: Spray System



Figure 1: Standard operating panel for all machines

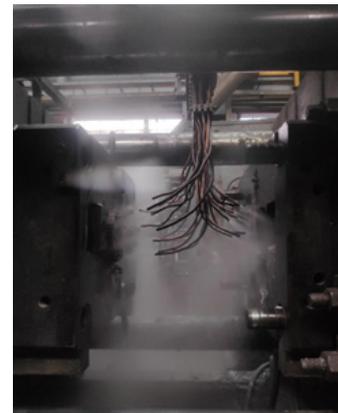
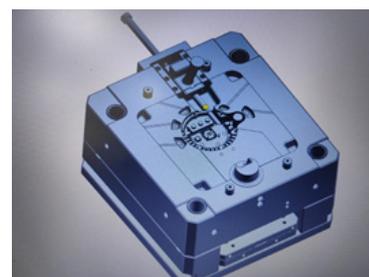


Figure 4: Spray system in action

Effective Dies

- Quality Die material and treatment make all the difference
- Manufacturing excellence
- Spare management



Efficient peripheral equipment

Based on our product requirements, we need to carefully choose our peripheral equipment

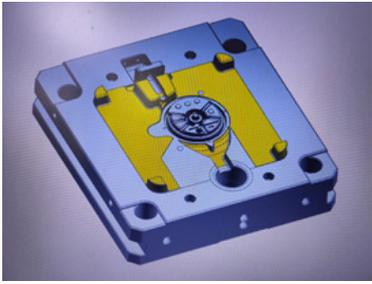


Figure 5 Effective Die designs

Important factors to be kept in mind and studied:

- We need to know what is the melting cost per kg.?
- What is the unit consumption per kg?
- We also need to arrest the energy loss from the furnace.
- What is the yield percentage?
- How long does it take to change the coil?
- Are we losing energy in Metal transfer?
- Where is all the energy drain happening?
- Are we restarting the furnaces every week?
- What type of furnace are we using?
- Are we treating the alloy properly?

Effective Process

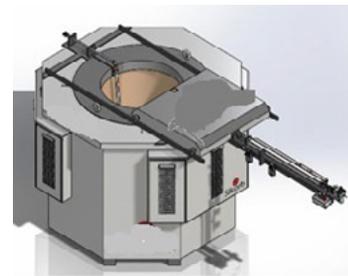
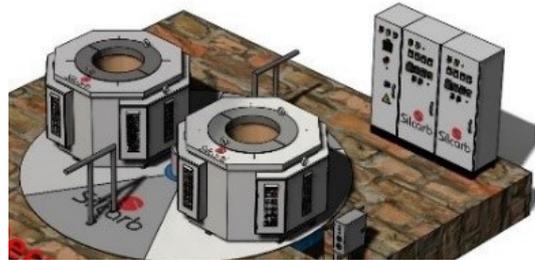
The proof of the process is in the result it produces. It is like cause and effect. If we need better effects, we need better processes. It starts with the feasibility study. Most of the time we don't pay attention to feasibility. Drawings must be thoroughly studied.



Figure 6: Live Intensification pressure in PDC shopfloor



Figure 7: Live shot count on display in PDC shopfloor



Avoid energy drain

Figure 10 New furnace model

Better to focus on:

- Alloy specifications
- Important notes
- Cleaning requirement
- Critical wall thickness
- Packing standards/cost
- Location of delivery
- Critical dimensions
- Porosity levels
- Aesthetic requirements
- Post casting criticality
- Transportation

Everything related to saving energy must be systematized:

- Melting media
- Furnace type
- Capacity
- Easy coil change options
- Crucible type and life monitor
- Alloy temperature control
- Stop /start arrangement on the weekends
- Keeping the furnace close when not in use
- Avoiding machine and mold breakdowns

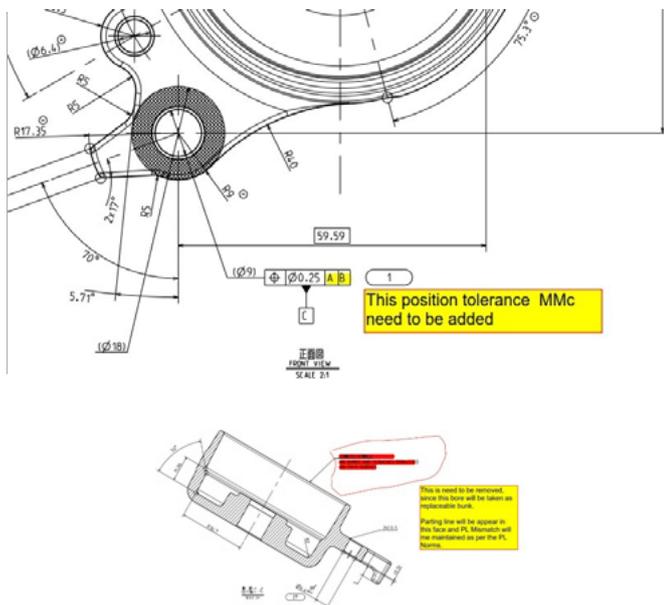


Figure 9 Feasibility study



Figure 11 Changing coils

Efficient variable control.

The success of die casting is in controlling the variables. What are the two key variables?

Pressure

- Intensification pressure
- Accumulator pressure
- Nitrogen pressure
- Pump pressure
- Injection pressure
- Clamping pressure
- Ejection pressure
- Air pressure

(Apart from all these, we have customer pressure, supplier pressure, family pressure, and so on...!)

Temperature

- Alloy temperature
- Water temperature
- Oil temperature
- Mold temperature
- Alloy temperature
- Atmospheric temperature

Most pressure and temperature in die casting are interrelated.

Both can be majorly controlled by having the following:

- Efficient pumps
- Efficient compressor
- Efficient heat exchangers
- Efficient cooling towers
- Efficient furnaces
- Properly designed dies
- Clean and correct grade oil
- Clean water
- Effective machine layout
- Proper machine layout and ventilation.
- Effective and capable team

In most cases, the most neglected area is:

- 1) Oil temperature and cleanliness.
- 2) Air pressure

Oil Temperature

One of the most neglected areas in die casting is the oil temperature, which is contributing to all the pressures.

The viscosity of the oil plays a vital role in maintaining constant set pressures which determine casting soundness.

Type of heat exchanger, cooling tower, water quality, pipeline layout all further contributes to maintaining oil temperature.

Using plate-type heat exchangers instead of conventional tube-type makes all the difference [Ref case study for understanding]

The pressures and temperatures must be measured and monitored continuously. Compelling visual aids means a lot. Anybody who walks into the shop floor should be able to identify the abnormalities of pressure and temperature.

Do we have compelling visual aids for those key variables?

Air pressure

The Die-cast process needs plenty of air. Air pressure is very important for cycle time reduction. The screw compressor helps in this aspect.

Layout of diecasting

Clever layout saves space, material movement, visual control, etc. We may take expert opinion if required.

Starting is easy. The ending is easy Maintaining is difficult. Maintaining dies, employees, processes, critical spares, customers, suppliers, investors, bankers all are equally important. Unless it becomes an organizational culture, it's difficult to keep track of everything.



Figure 12 Die Casting Shopfloor layout



Figure 13 Mould Rack



Figure 14 Parts under Production

Effective people

People are very important for any business.

We all know the Pareto concept which says: 20% gives 80%

- 20% of your employees gives us 80% of our turnover
- 20% of products holds our 80% inventory,
- 20% of inflow Contributes 80% of our cash flow
- 20% outflow affects 80% of our cash flow

It takes time to know which is that 20%. But we need to discipline ourselves to look for 20% which gives us 80%. 20% of our key employees contribute to 80 % of our growth. Are we investing our time in those key people? We give a lot of time and energy to transforming Duryodhana's and in the process, we lose out on transforming Arjuna's. We need to invest our time and energy towards 20 % Arjunas.

Tools

Tools enhance human efficiency. The fundamental thought process should be "What tools can I introduce which will enhance human efficiency?" ERP is a tool. A data collection sheet is a tool. A surveillance camera is a tool. We need to use tools and most preferably we need to create tools that will propel our growth in geometric progression.

Training

Research reveals average productivity of working hours is only 42 %. In loose talks, teatime, lunchtime, unwanted phone calls, social media time, extended breaks are some of the reasons for productivity loss. We need to think, how to improve productivity by at least 10 % so that it will give us a huge difference.

Also, how do we develop new people?

Only through properly designed constant training, we can achieve that.

Schools and colleges are any more preparing the students for professional life. They are not prepared for reality. We need to tell the novice, the only way we can alter our standard of living is through success. The only way we can produce results is through work. Work alone is our salvation, everything else is a waste of time. Nothing will change our life, except work. Through the induction program, it must be driven into the mind of newcomers. We need to balance both key employees and novices for effective people management.

Execution

11% is the idea. 89% is execution. If one is a market leader, it simply means they are better in execution.

A simple formula for execution is:

- Clarity of role definition/ Established expectation.
- Positive reinforcement and appreciation when they perform.
- Permanent and feedback when they are not performing.

Cut the meeting in the middle and ask the team, what are we planning to do about it? "By when" is the mantra? Tell your team to Just do it and come to me, don't talk about reasons too much. What will you implement? No meeting should end without discussing execution. Who will take the ownership?

Effective Maintenance

Anything which has wear and tear needs maintenance.

- Machine maintenance
- Die maintenance.
- Peripheral equipment maintenance
- Spare maintenance
- This segment needs discipline.

We need to have systems, which will trigger proper maintenance

Effective Monitoring

Everything /everybody needs follow-up. It starts by measuring every process. What is not measured can't be monitored.

What's not monitored, can't be controlled. What's not controlled, can't be directed. What's not directed, will not become progress.

MY PERFORMANCE TODAY		
M/C NO :	125701	OPN : 12/11/21
PART NO :	PLANNED QTY	ACHIEVED QTY
H3112	4600	4560
OPERATOR		DEPT. HEAD

SA - Monitor				
Machine : 125701				Date: 12/11/21
I Shift				
S.No.	Part Name	Time Duration	S.A	Responsibility
1	H3112	10.5	100	Operator Name: V.B. BANI Supervisor Name: G. J. J. Quality Incharge: S. S. S.
II Shift				
2	H3112	11.5	99	Operator Name: V.B. BANI Supervisor Name: G. J. J. Quality Incharge: S. S. S.

Figure 15 Shift Average Monitoring

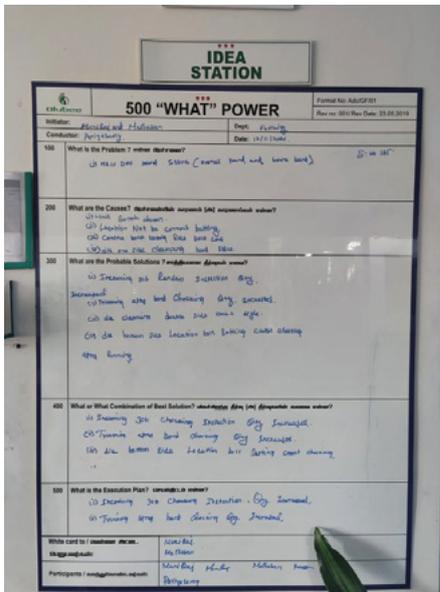


Figure 16 500 WHAT Power

Innovation

Innovation gives us an edge over the competition

- Innovative process
- Innovative SPMs
- Innovative work holdings
- Innovative inspection aids



Figure 17 Proper utilization of trimming dies to avoid manual labor

What gives us the strength to make all this happen?

It is Cash flow!

How to improve cash flow?

Price

Satisfied customers do not mind paying a delta increase in our products. Ask delta increase periodically.

Volume

$A+B+C+D+E \neq 100\%$. There is more market than what we think. "How can I offer more products to the existing market" is the depth of business. "How can I introduce more markets for my existing products" is the width of the business. Focus on the depth and width of the business. Remember that $\text{Price} \times \text{volume} = \text{turnover}$.

COGS

Resource optimization. If I reduce 1% of my manufacturing cost, it gives a big leap in my profit. Cost optimization is very important.

Operational expenditure

We don't need so many overheads. We must optimize space, human resources, machinery, technologies, tools. Check in every area and optimize it. This will reduce our operational expenditure. Optimization of layout is also very crucial.

Accounts receivable

Collect them one day before.

Accounts payable

Give them one day later. This is possible only through the strength of our relationship with customers and suppliers. Both accounts receivable and payable can be done only through a relationship. Don't become too transactional.

Stocks

Stocks are nothing but sleeping money. Nothing sucks our profits, like stocks. Be efficient in stock management. WIP is also stock.

Conclusion

Finally, the objective of our business is "wealth"

- a) Very good P&L and
- b) Healthy balance sheet

These two are the measurable metrics for any business growth. How do I do my business is "cause". The "effect" is profits and assets. We need to progress in business "despite" all challenges. More mature choices culminate into more mature decisions. The result is "clarity in everything". Clarity is power. Let's derive clarity in every aspect and use cost management techniques for peaceful progress.

The speed of the train is in the speed of the engine. So it is leadership responsibility to establish cost management culture in any organization. Profit orientation must be the

DNA of every department. Let us move from pressure die casting to pleasure die casting.

Happy Die casting!

Case study validation

1. This case study compares the screw compressors and piston-type compressors in terms of effectiveness and cost-saving factors. The study concluded that using screw compressors, in the long run, was able to save costs significantly.



Figure 18 Rotary Screw air compressor

Executive summary

The two most common mobile compressors are rotary screw air compressors and reciprocating (or piston) air compressors. But what's the difference between them? In this article, we'll compare the performance of rotary screw vs. reciprocating air compressors and help

Introduction

Reciprocating air compressors, which are also called "piston" or "recip" air compressors, are widely used throughout various service industries due to their price and availability. Many commercial vehicle operators request reciprocating air compressors because they simply do not understand the difference between a rotary screw and a reciprocating air compressor and are only familiar with what they've traditionally used.

But reciprocating air compressors are not the only option. Rotary screw air compressors provide better performance and often require less space, which makes them an attractive alternate option.

Analysis

Rotary screws have very distinct and important advantages over reciprocating air compressors:

Work faster. Generally, rotary screw air compressors deliver more air compared to reciprocating compressors of the same size. Reciprocating compressors require air reservoir tanks to handle larger air demands and reduce air pulses created in the compression process. Rotary screw compressors do not create the same type of air pulses and can deliver large amounts of air when required without the need for a reservoir tank. You won't have to wait for your compressor to keep up with your work, which means you can get jobs faster and complete more jobs in a day!

Work longer. Rotary screw air compressors operate at 100% duty cycle. A duty cycle is the amount of time a compressor can continuously operate without stopping to prevent overheating in a given time. For example, if a compressor can run for 60 minutes in 60 minutes without stopping, it is a 100% duty cycle. If it can only run for 30 out of 60 minutes, it is a 50% duty cycle. Most

2. This case study compares the plate-type heat exchanger and tube-type heat exchangers in terms of effectiveness and cost-saving factors. The study concluded that using plate heat exchangers, in the long run, was able to save costs significantly.



Figure 19 Plate type heat exchanger

Case Study

Executive Summary

This case study aims to compare gasket-plate and shell and tube heat exchangers in terms of effectiveness and cost-saving criteria. The study is based on the comparison done during the transition to gasket-plate heat exchangers from shell and tube heat exchangers at Alubee Die Casters.

Introduction

Heat exchangers are devices that help in transferring heat from one fluid to another when both fluids are physically separated. In the case of pressure die casting machines, the two fluids involved are oil and water.

Oil is used in the PDC machines as a lubricant and to regulate temperature.

When the oil is continually circulated in the system, its temperature must be properly regulated to maintain proper casting conditions.

Therefore, it becomes essential to maintain the oil temperature with the standard limits (50). To achieve this goal, heat exchangers are used. There are many types of heat exchangers available which include Shell and Tube Heat Exchangers, Double Pipe Heat Exchangers, Plate Heat Exchangers, etc., each with its advantages and drawbacks.

In traditional die casting machines, usually, Shell and Tube Heat Exchanger is being used. These heat exchangers were being preferred because of their simple design and low maintenance costs. In this case study, we will be looking into gasket-plate heat exchangers and how they can be effective in cost reduction in the pressure die casting process.

Analysis

1. Save energy.

Plate heat exchangers are up to five times more efficient than shell-and-tube designs with approach temperatures as close as 1°F. Heat recovery can be increased substantially by simply exchanging existing shell-and-tubes for compact heat exchangers. The result is more energy being put back to use, the energy that would otherwise have gone to waste.

2. Save floor space.

Shell-and-tube heat exchangers use significantly more floor space than plate heat exchangers (as shown in the illustration below). The compact, versatile design of plate heat exchangers means that

References

- Inspired by Mahatria's wisdom
- Author's own experience
- Knowledge sharing by like-minded people.

Validation studies

- Plate vs Shell type Heat exchanger
- Screw compressor Vs Normal compressor with reservoir

Abbreviations used

- SDA – Step down automation
- OEE - Overall Equipment Efficiency
- OPE- Overall Plant Effectiveness
- SA- Shift Average

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About Author



Mr. G. Praburam a Mechanical Engineering graduate, has worked in a plethora of fields like Die Casting, Mould Making, Pneumatics, etc. and has a wide industrial experience of more than 30 years in various segments of the industry. He is the co-founder of Alubee Die Casters, a leading more than two-decade old Die Casting Industry that is known for manufacturing a variety of die casting components without any compromise on quality and perfection. Alubee has been recognized and awarded for its manufacturing excellence - the "Best Foundry Award" for four consecutive years 2010, 2012, 2014, 2016 & 2018 from ALUCAST, Hyundai SQ Mark Certified and Consistency in Quality Award, National Outstanding Entrepreneur Award, Best Performance Award by SEG Automotive

Group. Mr. Praburam is known for his energetic demeanour, strong technical expertise and excellent leadership skills. A team-spirited leader, a motivational speaker, and a compulsive good finder, he has been training and grooming young entrepreneurial minds through a structured course on entrepreneurship.

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Cost Reduction in Die-Casting Industry

- Dr. Jayant Ubhedal

In today's ever increasing competitive world, cost is one of the key differentiator to be in business. If we look around, external factors are largely influencing the cost structure in India (eg. Impact of Covid19 pandemic, Russia-Ukraine war, inflation, costs of fuel etc.). This has reduced the overall margins in the business and we must adopt to **Cost Saving & Cost Management** mindset across all levels to survive.

On one hand suppliers are not ready to supply RM, spares etc without price increase while on the other hand customer is not updating the prices for a long period. So we must adopt **Financial Prudence** to maintain our bottom line. Key ratios to watch for this are EBITDA%, Debt to Equity ratio, Net worth & RoCE%.

In this article, we would be dwelling upon the various aspects of costs, understanding the same & communicating the same to the manufacturing & development teams in the company; at appropriate times. This is nothing but "**Cost Awareness**".

Cost optimization @ Design stage

Cost gets defined at design stage. Once the design is made, samples gets approved; for any VAVE implementation needs huge cost & part re-approval from customer. To avoid all this we must look at below triggers to minimize cost at design stage –

1. Balancing design with cost-effective production: We must look at levers as Material selection to suit the manufacturing & avoid grade changes; die durability; reduction in maintenance cost.
2. Cost of secondary operations: Die cast parts usually need secondary operations like deburring, machining, sanding or hand finishing to achieve specified part finish. The cost for these to be estimated & factored while arriving at the overall cost. Efforts to minimize the same to be taken at the time of design itself.

3. As labour cost is one of the major cost; optimization of the same is a must at design stage. Let's look at diecasting as a total manufacturing process upto finishing & look at cost elements involved.

4. Part tolerances play a major part in defining part cost. A serious look has to be given to optimize the same.

5. If the part is well designed, it reduces the part cost drastically in future over life of the part. So modern design techniques can also be used for cost optimization like DFM (Design for Manufacturing).

Cost optimization @ Production

There are various cost elements in a manufacturing setup. We must first adopt a methodology for monthly/ quarterly reporting of the same & set internal/ external cost benchmark. This would give a direction & probable targets to work on various cost elements like development costs, Raw material costs, FOH, VOH, inventory, interest etc.

Once the cost reduction / optimization targets are made, CFT approach would give opportunity for brainstorming & jotting down probable cost reduction avenues. Periodic review of the same & extending timely support would make these efforts realize the cost savings.

Next important thing is to appreciate the efforts & reward the same at common forum.

Creating a cost reduction mindset in the entire team is a prime task of Top management / Business owners which play a significant role in becoming a "Low cost manufacturer" which is every individuals dream in die casting industry.

About Author

Dr. Jayant Ubhedal

ju.isteerconsultancy@gmail.com

Aluminium Casters' Association (ALUCAST) - Membership Fees

Structure w.e.f 16 December 2016 (Tax updated w.e.f. 01 July 2017)

Membership Category	Admission Fees (₹)	Annual Fees (₹)	Total (₹)	Final Amount with GST (₹)	Admission Fee (₹)	Life Membership (₹) - Annual Fees X 15	Total (₹)	Final Amount with GST (₹)
Ordinary Member	500	1500	2000	2360	500	22500	23000	27140
Ordinary Member (MSME)	1000	3000	4000	4720	1000	45000	46000	54280
Corporate Member	1000	15000	16000	18880	1000	225000	226000	266680
Coporate Member (Overseas)	US \$50	US \$150	US \$200	US \$236	US \$50	US \$2500	US \$2550	US \$3009

Please send cheques in the name of Aluminium Casters' Association
(ALUCAST) payable at Pune along with the membership form.

Membership form and details of membership are available on our website: www.alucast.co.in

Advertisement Tariff for Non-Members

Revised w.e.f. 01 April 2021

Advertisement Placement	Six Issues				Single Issue			
	Basic (₹)	Total with GST (₹)	Basic (US \$)	Total with GST (US \$)	Basic (₹)	Total with GST (₹)	Basic (US \$)	Total with GST (US \$)
Back Cover Page	110000	129800	2420	2856	-	-	-	-
Inner Front Cover	88000	103840	1980	2336	-	-	-	-
Inner Back Cover	77000	90860	1705	2012	-	-	-	-
Inside Pages	38500	45430	847	999	8000	9440	192.5	227

Advertisement Tariff for Members

Revised w.e.f. 01 April 2021

Advertisement Placement	Six Issues				Single Issue			
	Basic (₹)	Total with GST (₹)	Basic (US \$)	Total with GST (US \$)	Basic (₹)	Total with GST (₹)	Basic (US \$)	Total with GST (US \$)
Back Cover Page	104500	123310	2299	2713	-	-	-	-
Inner Front Cover	83600	98648	1881	2220	-	-	-	-
Inner Back Cover	73150	86317	1622.5	1915	-	-	-	-
Inside Pages	36575	43159	803	948	7628.5	9002	183	216

Advertisement Size & File Format

Full Page	Width 210mm X Height 297mm + 3mm Bleed all sides
File Format	PDF in CMYK color space. No spot colors. All fonts embedded & images at 300 dpi resolution.

Please send cheques in the name of Aluminium Casters' Association (ALUCAST) payable at Pune to:



Aluminium Casters' Association (ALUCAST)

702, Amar Neptune, Baner Road, S. No. 6/1/1, Plot No. 45, 46A, 46B, Pune 411045

T: +91 20 27290014, E: alucastindia@alucast.co.in

ALUCAST® 2022

INTERNATIONAL EXHIBITION & CONFERENCE – ALUMINIUM DIE-CASTING
CHENNAI TRADE CENTRE, CHENNAI | DECEMBER 1-3, 2022

GREEN & SMART DIE CASTING SOLUTIONS FOR SUSTAINABILITY

TOPICS SUGGESTED FOR TECHNICAL PRESENTATIONS FOR ALUCAST 2022 TECHNICAL CONFERENCE:

GREEN FUELS FOR ALUMINIUM MELTING
SMART TPM (TEMPERATURE & PRESSURE MANAGEMENT) FOR IMPROVING ENERGY EFFICIENCY & QUALITY IN CASTINGS
ADDITIVE MANUFACTURING – A TRANSFORMATIONAL APPROACH TO SMART DIE CASTING
DIE CASTING 4.0
ALUMINIUM IN ELECTRIC VEHICLES – THE SMART CHOICE FOR LIGHT, SAFE & SUSTAINABLE MOBILITY
THE SMART 3R (REDUCE, REUSE, RECYCLE) APPROACH FOR GREEN DIE CASTING
THE 3-LAYERED INNOVATION APPROACH TO SUSTAINABILITY IN DIE CASTING – INNOVATION IN MATERIAL, PROCESS & TOOLS/TECHNOLOGY
DIGITIZATION IN DIE CASTING FOR SMART (OPTIMIZED & SUSTAINABLE) MANUFACTURING
MOULDING PEOPLE WITH MOULDING ALUMINIUM – SMART TALENT MANAGEMENT IN DIE CASTING
SMART Ps (PEOPLE, PROCESSES & PRODUCTS) FOR COST OPTIMIZATION IN DIE CASTING

DELEGATE FEES FOR ALUCAST 2022 TECHNICAL CONFERENCE

DOMESTIC	
Members	₹ 9,000.00 (including taxes)
Non-members	₹ 11,000.00 (including taxes)
Students	₹ 7,000.00 (including taxes) with valid ID & Recommendation Letter from the University / Institute for the current academic year

INTERNATIONAL

Members	US \$ 200 (including taxes)
Non-members	US \$ 300 (including taxes)
Students	US \$ 100 (including taxes) with valid ID & Recommendation Letter from the University / Institute for the current academic year

NOTE:

- Registration for 3 or more Delegates from a single Organization - Discount of 10% on the total delegate fees.
- Registration for 5 or more Delegates from a single Organization - Discount of 15% on the total delegate fees.

EXHIBITION SPACE BOOKING

NOTE: ALUCAST Membership valid till December 2022 is mandatory for participation in ALUCAST 2022 as an EXHIBITOR

DOMESTIC

Shell Scheme	₹ 11250 per sq. m (minimum 12 sq. m.)
Raw Scheme	₹ 10250 per sq. m (minimum 36 sq. m.)
Registration Fee	₹ 2500/-
Co-exhibitor Fee	₹ 5000 per co-exhibitor (associate companies with the main exhibitor)

INTERNATIONAL

Shell Scheme	US\$ 275per sq. m (minimum 12 sq. m.)
Raw Scheme	US\$ 250 per sq. m (minimum 36 sq. m.)
Registration Fee	US\$ 70
Co-exhibitor Fee	US\$ 125 per co-exhibitor (associate companies with the main exhibitor)

PTO for exhibition space layout.....

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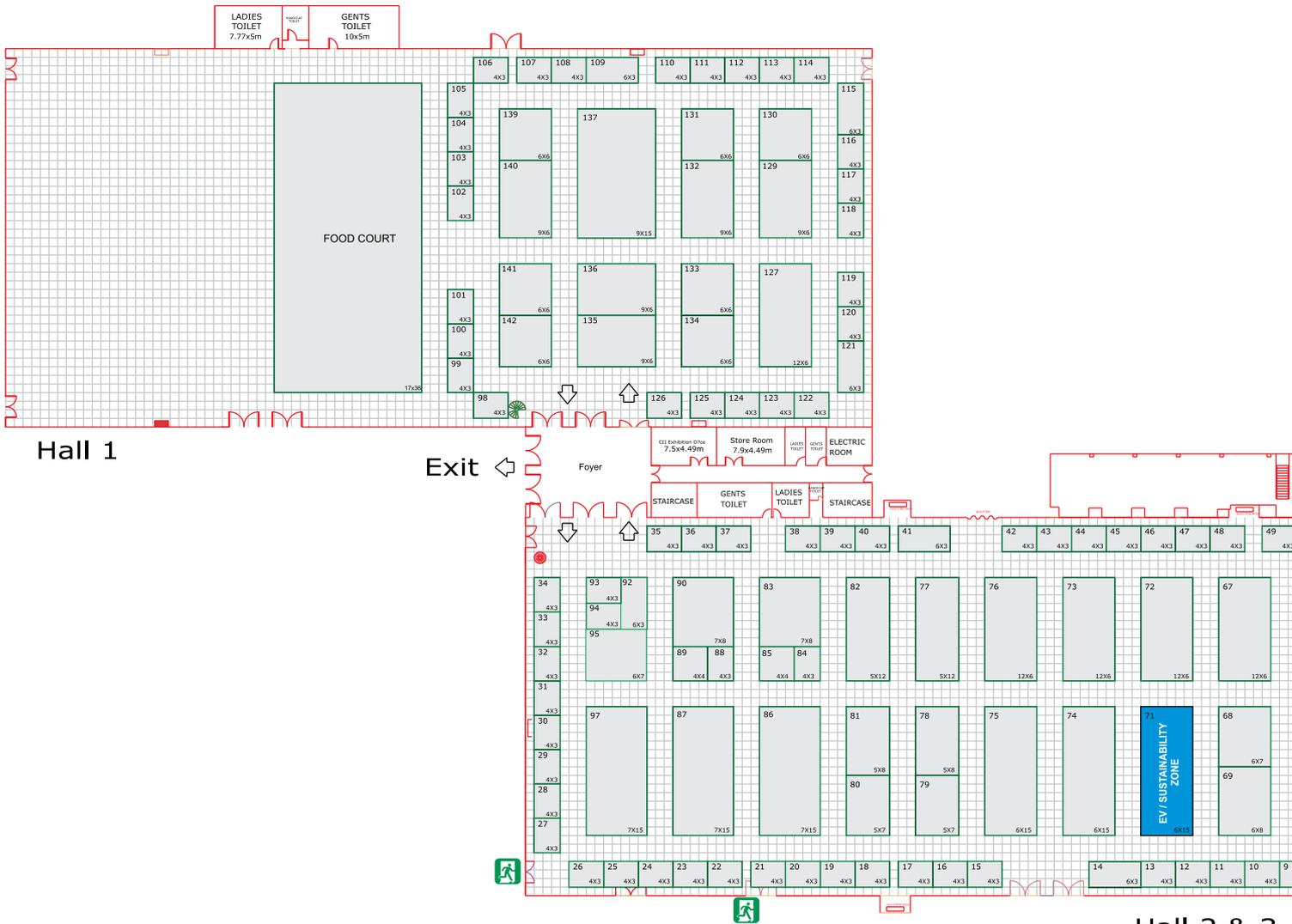


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Event Producer:

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Hall 1

Exit ←

Foyer

Hall 2 & 3

LAYOUT PLAN

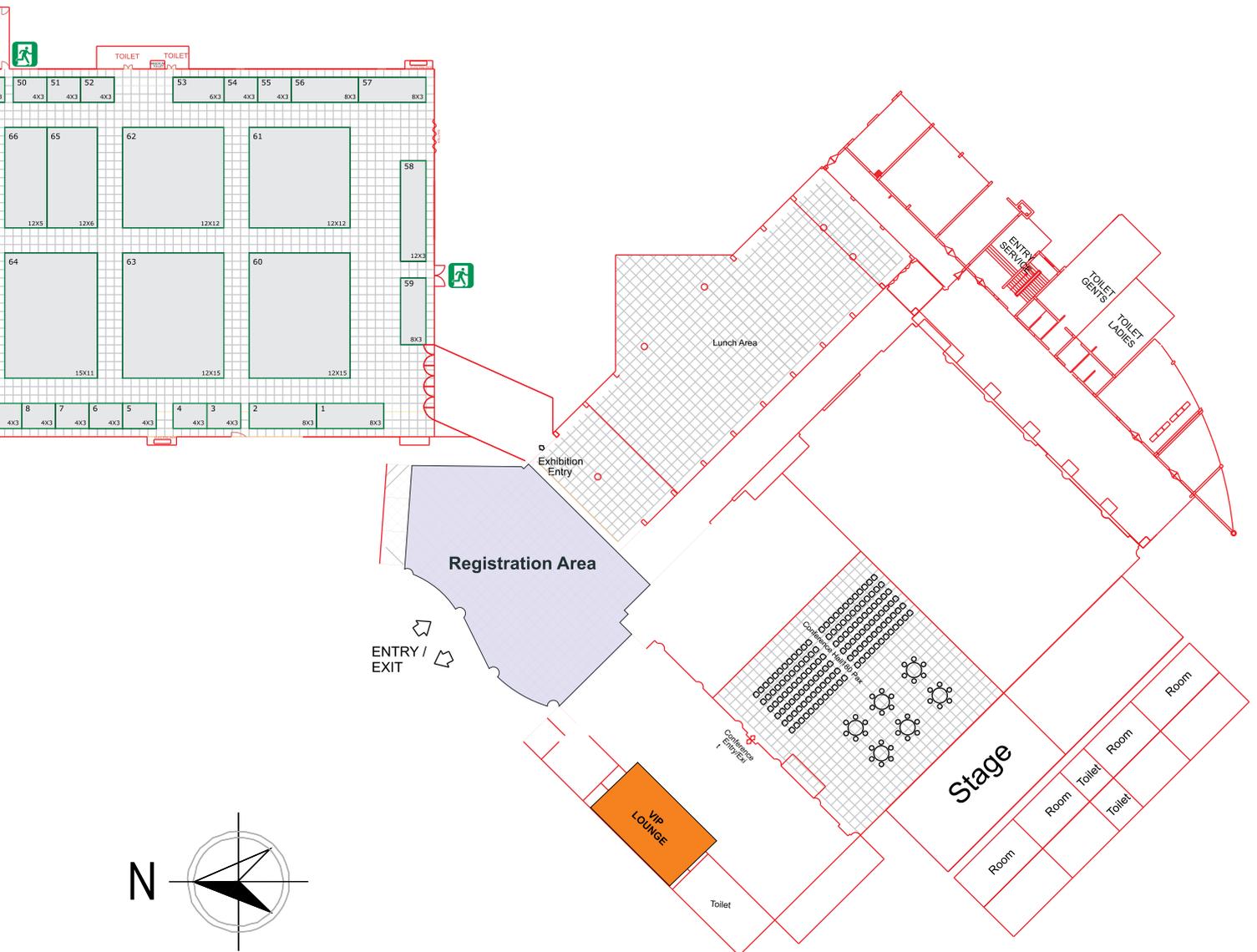
ALUCAST® 2022

INTERNATIONAL EXHIBITION & CONFERENCE – ALUMINIUM DIE-CASTING
CHENNAI TRADE CENTRE, CHENNAI | DECEMBER 1-3, 2022

Organized by:



Event Producer:



ALUCAST - CSTEP webinar on

'Decarbonisation & Improving Energy Efficiency in India's MSME Manufacturing Sector / Die Casting Industry

Virtual Webinar on the Zoom Online Platform

Wednesday, 27th April 2022 from 3:00 pm to 5:00 pm IST

Aluminium Casters' Association (ALUCAST)[®], India in association with Center for Study of Science, Technology and Policy (CSTEP) organized a Webinar on 'Decarbonisation & Improving Energy Efficiency in India's MSME Manufacturing Sector / Die Casting Industry' on Wednesday, 27th April 2022 from 3:00 pm To 5:00 pm IST.

CSTEP in association with ALUCAST is aiming to conduct a study in the Aluminium Casting Sector of India. The aim of the study is to analyse the energy consumption of the MSME units and find the feasibility of Decarbonisation Technologies which can not only reduce the emissions in the sector but save energy, costs for the MSME units. The Webinar focused on creating awareness about this ALUCAST – CSTEP Initiative to encourage the Aluminium Casting & the Allied Industries to participate in this project - Decarbonisation & Improving Energy Efficiency in India's MSME Manufacturing Sector / Die Casting Industry".

The Webinar focused on:

1. Brief Introduction - CSTEP & the ALUCAST – CSTEP Initiative
2. Objectives defined for the ALUCAST – CSTEP Initiative
3. Expected Outcomes from the ALUCAST – CSTEP Initiative and Benefits for the MSME units
4. Case Studies – Decarbonization & Energy Efficiency Improvement Project carried out previously in the Aluminium Casting Units

The Expert Speakers for the Webinar were Mr. Dhruv, Senior Research Analyst at CSTEP & Mr. Rakesh Yecho, Project Director, ALUCAST – CSTEP Energy Initiative.

Mr. Dhruv, Senior Research Analyst at CSTEP is a Mechanical Engineering Graduate with Masters in Sustainable Energy Technology, from Delft University of Technology, Netherlands, Mr. Dhruv is working on multiple projects in the field of Industrial Energy Systems, Rooftop Solar PV, Hydrogen Systems etc.

Mr. Rakesh Yecho, Project Director, ALUCAST – CSTEP Energy Initiative is an Electrical Engineering Graduate with Masters in Business Administration, Mr. Rakesh is a BEE certified Energy Auditor cum Energy Manager. As team leader, he has handled more than 750 Nos of Detailed Energy Audits and related studies covering Indian and International client base with a diverse segment of industries including designated consumers and other industries. He has been the Lead consultant for several National / State level projects.

The Webinar received a good response from the industry. The Webinar was FREE for the participants. The Webinar was organized and hosted by the ALUCAST Secretariat. The Webinar incepted with the Opening Remarks and ended with the Closing Remarks from Ms. Kirti Ramdasi – Secretary, ALUCAST India. Mr. Rushikesh Bhang took care of the technical support for the Webinar. Mr. Krishnan from CSTEP coordinated with ALUCAST for the Event.

ALUCAST webinar on

'Shop Floor Discipline for Cost Optimization in Die Casting Industry'

Virtual Webinar on the Zoom Online Platform

Wednesday, 11th May 2022 from 3:00 pm To 5:00 pm IST

Aluminium Casters' Association (ALUCAST)[®], India organized a Webinar on 'Shop Floor Discipline for Cost Optimization in Die Casting Industry' on Wednesday, 11th May 2022 from 3:00 pm to 5:00 pm IST.

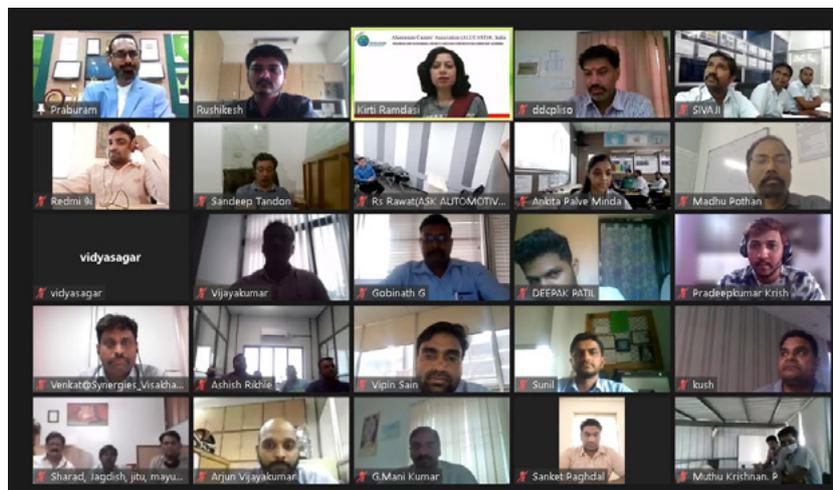
The Webinar focused on the following key points:

- What is discipline?
- Why discipline?
- Leadership drive
- Importance of disciplined culture
- The culture building Mantra
- Accountability structure
- Everyone/Everything needs follow-up
- Factual data collection & analytics
- Traction & consistency
- Key areas of shopfloor discipline



The Expert Speaker for the Webinar was Mr. G. Praburam, Managing Partner, ALUBEE DIE CASTERS, Hosur, Tamil Nadu, India. Mr. Praburam is a Mechanical Engineering graduate who has worked in a plethora of areas like Die Casting, Mould Making, Pneumatics, etc. and has a wide industrial experience of more than 30 years in various segments of the industry. He is the co-founder of Alubee Die Casters, a leading & more than two-decade-old Die Casting Industry that is known for manufacturing a variety of die casting components without any compromise on quality and perfection. Alubee has been recognized and awarded for its manufacturing excellence - the "Best Foundry Award" for four consecutive years 2010, 2012, 2014, 2016 & 2018 by ALUCAST, Hyundai SQ Mark Certified and Consistency in Quality Award, National Outstanding Entrepreneur Award, Best Performance Award by SEG Automotive Group. Mr. Praburam is known for his energetic demeanour, strong technical expertise, and excellent leadership skills. A team-spirited leader, a motivational speaker, and a compulsive good finder, he has been training and grooming young entrepreneurial minds through a structured course on entrepreneurship.

The Webinar received a good response from the industry. Around 60 delegates from the Corporate/MSME/Academic Organizations across the country registered and participated in the event. The presentation & the talk by Mr. G. Praburam was information rich, engaging & value adding and was very much appreciated by the participants. His personal experiences as a Die Caster, interaction with the shop floor personnel & people friendly but target driven policies & processes at ALUBEE shared by Mr. Praburam gave wonderful insights into the continual progress & growth achieved by ALUBEE. The participants had active & fruitful interaction & participation in the Webinar. The Webinar was organized by the ALUCAST Secretariat. The Webinar incepted with the Opening Remarks and ended with the Closing Remarks from Ms. Kirti Ramdasi – Secretary, ALUCAST India. Mr. Rushikesh Bhange took care of the technical support for the Webinar & Ms. Veena Upadhye provided the necessary backend support.



ALUCAST - CSTEP Energy Audit Project

Step towards decarbonisation & improving energy efficiency in India's MSME Die Casting Industry.

ALUCAST is happy & has the pleasure to announce that **ALUCAST** in association with **CSTEP (Centre for Study of Science, Technology & Policy)** has undertaken a **SPECIAL PROJECT** for the MSME Organizations in the domain of DIE CASTING.

Under this ALUCAST – CSTEP Initiative, CSTEP would conduct a study of the Aluminium Casting Sector of India to analyse the energy consumption of the MSME units and find the feasibility of Decarbonisation Technologies which can not only reduce the emissions in the sector but save energy & costs for the MSME units. During the course of this Project, ENERGY AUDIT of the business unit / industrial unit of the MSME Members of ALUCAST from the four Zones of the country would be conducted FREE OF COST. The Report of the AUDIT would be shared with the MSME Member & appropriate solutions / recommendations would be given to the MSME unit for decarbonization & for improving energy efficiency in the unit to save energy & costs. The Zones with maximum number of MSMEs that give their approval & consent for the Project would be selected for AUDIT VISITS & would receive the AUDIT REPORTS with appropriate recommendations.

Mr. Gopala Krishnan, Research Engineer, CSTEP & Mr. Rajeev Dhruv, Senior Research Analyst, CSTEP would coordinate the Project and Mr. Rakesh Yecho, CEO & Proprietor, TMCC would be the Project Director for the Project. The Project will commence from June 2022.

ALUCAST Trustee Hon. Bharat Agarwal Conferred with The Alumni Status at the Harvard Business School

Hon. Bharat Agarwal, Trustee of ALUCAST added another feather to his cap when he was conferred with the Alumni status at the hallowed Harvard Business School in March 2022.

Having completed the leadership programme in Owner/ President Management from Harvard Business School, he has left his mark as a visionary entrepreneurial leader that has been changing the lives of thousands of students with his quality-conscious problem-solving approach to education.

He is also a treasure trove of knowledge when it comes to leading organizational change, capitalizing on disruptive innovation, and sustaining enterprise success.

Mr. Bharat Agarwal is the President of Vishwakarma University and the Vishwakarma Group of Institutes & the Managing Director of Aakar Foundary. Hailing from a business family, his business acumen and entrepreneurial skills saw him build "Vishwakarma Group" into an empire and diversified into multiple business verticals including Retail, Education, Manufacturing, and Publishing.



ALUCAST SNIPPETS

84% say workplace culture improved since start of COVID-19 pandemic: EY reports

According to the EY survey, employees now have greater influence over employment terms and their 'wish list' from employers have evolved.

Workplaces have undergone a significant amount of changes since the beginning of the COVID-19 pandemic. Most employees believe that the culture has improved for the better, showed the recent EY 2022 Work Reimagined Survey.

According to the survey, employees now have greater influence over employment terms and their 'wish list' from employers have evolved. 84 per cent of employees believe that their organisation's culture has improved since the COVID-19 pandemic.

The survey showed that 36 per cent of employers want employees to come back to office five days a week, while 27 per cent of employees want to work remotely for less than five days a week. 96 per cent of employers have planned changes to ensure safety and wellbeing of their employees.

However, more than half of the respondents stated that they are likely to quit in the next 12 months as they desire higher pay, better career opportunities and flexibility amid rising inflation, a shrinking labour market, and more flexible work prospects.

The survey noted the views of 1,500 business leaders and more than 17,000 employees across 22 countries and 26 industry sectors. In India, 100 business leaders and more than 500 employees responded to the questions.

Anurag Malik, Partner & India Leader, Workforce Advisory Services, EY India, said, "The EY 2022 Work Reimagined Survey found that over the last one year the labour market changes meant the balance of power has shifted to favour employees.

Employees are focused on pay and career growth as primary drivers for job changes. As employers shift gears providing more flexible work options, there is more that they will need to invest in – that includes higher pay and overall brand building of the organisation. Flexible working arrangements which were by far the biggest factors leading to employee moves according to last year's survey – are now less of a driver given that many are already working for companies that offer flexibility in some form."

According to the survey Gen Z employees and millennials – 64 per cent – are more likely to quit their jobs. Employees with jobs in technology hardware, telecommunications, and industrial products are more likely to leave.

A huge number of employers – 96 per cent – agree that they have the agility to respond to new ways of working, while 96 per cent have planned changes to ensure the safety and wellbeing of their employees.

Twenty-five per cent of employers are reviewing their criteria for promotion or hiring, and 86 per cent employees believe that their employers have taken steps to ensure a diverse and inclusive workforce. This is significantly higher than the global figure that rests at 65 per cent.

While various changes are taking place, the main motivation for employees to seek new jobs is the desire for higher pay. Across the world, 24 per cent say that salary increase is the main objective, while 25 per cent are looking for quality of leadership and brand value. Twenty-nine per cent said that they are looking for career advancement.

The number of employees who believe their organisation's culture has improved has risen to 84 per cent since the start

of the COVID-19 pandemic, but at the same time, employers' confidence in their own company culture was at 57 per cent. However, despite the shift towards flexibility, 36 per cent of employers want employees to come back to the office five days a week but 27 per cent employees want to work remotely for less than five days a week. Fiftythree per cent of employees want employers to provide them with the ability to work from anywhere.

India to let public firms undertake stake sales, exits

India has approved a proposal to allow directors of public sector enterprises (PSEs) to undertake divestments, stake sales or closures of subsidiaries, a move that is expected to expedite decision-making and exits from loss-making ventures.

Delhi has also created an alternative mechanism for "Maharatna" PSEs, the government said on 18 May. "Maharatna" is a status awarded by the government to large-sized firms to enable them to expand their operations in both domestic and global markets. The alternative mechanism – comprising a group of ministers – can grant in-principle approval for strategic divestments, minority stake sales, unit closures and sales of shares in joint ventures of the holding company of Maharatna PSEs. Maharatna PSEs include refiner IOC, upstream firm ONGC, gas distributor Gail and producer Coal India.

PSE directors previously had no control over divestments and subsidiary closures, although they could make equity investments to set up joint ventures and subsidiaries, as well as undertake mergers and acquisitions, subject to certain conditions.

Delhi has set a divestment target of 650bn rupees (\$8.4bn) for the 2022-23 fiscal year ending 31 March, according to the 2022-23 national budget.

But its plan to sell its entire 53pc stake in state-owned Bharat Petroleum (BPCL) has faced repeated delays, prompting the government to shelve plans to privatise the refiner.

The government planned to close the sale this year, after it was delayed from 2021. "Only one bidder [is] left and what I heard is [the] government is not keen on dealing with one bidder, and [the] price was unattractive," a source close to the refiner told Argus.

The government's sale of a 1.5pc stake in ONGC in late March was part of a divestment target of Rs780bn for 2021-22. But it has attracted only about Rs130bn in divestment receipts, according to the Department of Investment and Public Asset Management.

Contribute Articles for ALUCAST Journal

Themes for the year 2022

Issue	Theme
August 2022	Alloys & Metal Treatment for Critical Aluminium Castings
October 2022	Thermal Management in Diecasting Dies
December 2022	ALUCAST 2022 SPECIAL

Please email your articles to : alucastindia@alucast.co.in

Summary Report: Cumulative Production, Domestic Sales & Exports data for the period of April - March 2022

Report I - Number of Vehicles

Category	Production		Domestic Sales		Exports	
	April-March		April-March		April-March	
	2020-2021	2021-2022	2020-2021	2021-2022	2020-2021	2021-2022
Passenger Vehicles (PVs)*						
Passenger Cars	17,72,972	18,44,985	15,41,866	14,67,056	2,64,907	3,74,986
Utility Vehicles(UVs)	11,82,144	16,91,081	10,60,750	14,89,178	1,37,842	2,01,036
Vans	1,07,164	1,14,632	1,08,841	1,13,265	1,648	1,853
Total Passenger Vehicles (PVs)	30,62,280	36,50,698	27,11,457	30,69,499	4,04,397	5,77,875
Commercial Vehicles (CVs) - M & HCVs						
Passenger Carrier	10,010	15,510	7,322	11,804	4,040	6,499
Goods Carrier	1,71,232	2,56,657	1,53,366	2,28,773	13,508	25,682
Total M&HCVs	1,81,242	2,72,167	1,60,688	2,40,577	17,548	32,181
Commercial Vehicles (CVs) - LCVs						
Passenger Carrier	15,475	21,984	12,088	19,957	1,641	1,785
Goods Carrier	4,28,222	5,11,376	3,95,783	4,56,032	31,145	58,331
Total LCVs	4,43,697	5,33,360	4,07,871	4,75,989	32,786	60,116
Total Commercial Vehicles (CVs)	6,24,939	8,05,527	5,68,559	7,16,566	50,334	92,297
Three Wheelers						
Passenger Carrier	5,23,314	6,70,779	1,35,414	1,83,607	3,87,397	4,89,535
Goods Carrier	91,299	87,309	84,032	77,388	5,604	10,195
Total Three Wheelers	6,14,613	7,58,088	2,19,446	2,60,995	3,93,001	4,99,730
Two Wheelers						
Scooter/ Scooterette	45,59,222	43,51,535	44,82,305	40,09,076	2,32,020	3,50,330
Motorcycle/Step-Throughs	1,31,54,501	1,28,90,149	1,00,21,231	89,84,186	30,42,453	40,82,442
Mopeds	6,36,218	4,73,172	6,17,247	4,73,150	8,313	10,246
Total Two Wheelers	1,83,49,941	1,77,14,856	1,51,20,783	1,34,66,412	32,82,786	44,43,018
Quadricycle						
Quadricycle	3,836	4,061	(12)	124	3,529	4,326
Grand Total of All Categories	2,26,55,609	2,29,33,230	1,86,20,233	1,75,13,596	41,34,047	56,17,246

* BMW, Mercedes and Volvo Auto data is not available # Daimler & Scania data is not available and JBM Auto data is available for Apr-June only
Society of Indian Automobile Manufacturers (13/04/2022)

Summary Report: Production, Domestic Sales & Exports data for the month of April 2022

Report I - Number of Vehicles

Category	Production		Domestic Sales		Exports	
	April		April		April	
	2021	2022	2021	2022	2021	2022
Passenger Vehicles (PVs)*						
Passenger Cars	1,66,546	1,49,320	1,41,194	1,12,857	24,744	29,451
Utility Vehicles(UVs)	1,27,452	1,46,718	1,08,871	1,27,213	17,207	16,921
Vans	11,954	11,468	11,568	11,511	66	176
Total Passenger Vehicles (PVs)	3,05,952	3,07,506	2,61,633	2,51,581	42,017	46,548
Three Wheelers						
Passenger Carrier	56,463	42,025	9,279	13,337	45,742	35,375
Goods Carrier	7,295	7,834	4,577	7,601	695	405
Total Three Wheelers	63,758	49,859	13,856	20,938	46,437	35,780
Two Wheelers						
Scooter/ Scooterette	3,67,837	3,95,492	3,01,279	3,74,556	40,024	36,160
Motorcycle/Step-Throughs	10,99,192	10,85,543	6,67,859	7,35,360	3,89,511	3,69,273
Mopeds	38,624	35,960	25,977	38,780	1,776	6
Total Two Wheelers	15,05,653	15,16,995	9,95,115	11,48,696	4,31,311	4,05,439
Quadricycle						
Quadricycle	509	101	-	26	516	66
Grand Total of All Categories	18,75,872	18,74,461	12,70,604	14,21,241	5,20,281	4,87,833

* BMW, Mercedes, Tata Motors and Volvo Auto data is not available
Society of Indian Automobile Manufacturers (11/5/2022)

Process optimization and training for die-casting. Expertise focused on your process.

To get more from your investment you need optimal performance from your die-casting system supported by highly qualified staff.

Process optimization is crucial to driving up your OEE (Overall Equipment Effectiveness). Our experienced team of process engineers and die design engineers can help you to systematically fine-tune all aspects of your die-casting process.

With process optimization, die design and simulations, we can help you enhance your production, including your die-casting machine, peripherals and the die. Our experts will help in reducing your operating costs and increasing your overall competitiveness.

Meanwhile, our training professionals – working from dedicated competence centers or on-site at your foundry – can help your managers and operators to achieve the best possible outcomes for your specific process.

Benefits for your company:

- Increase your OEE with the help of our well-educated engineers
- Enhanced productivity – with improved die design, cooling concepts and automation

Profit from:

- Global support at our technology centers with specialized laboratories and live-testing equipment
- Training
- Ecoline settings and maintenance
- Carat settings and maintenance (DataNet)
- Carat settings and maintenance (DataView)
- ABB Robot basic handling

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