



Gravity Die Casting Technology



ARKEY CONFERENCE
SERVICE CELL, PUNE



FOUNDRY AND FORGE
TRAINING CENTRE

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Update



Inauguration of Conference



Release of Technical Volume



Participants



Panel Discussion

ARKEY makes a grand success of its first ever GDC conference

The 19th and the 20th of April 2012 are now etched in history, as ARKEY conference services cell successfully conducted its most cherished event "Conference on Gravity Die Casting Technology" - GDC Tech 2012, in pursuance of its mission. The conference was well attended by participants comprising manufactures, buyers, sellers, service providers, and scholars. The authors of technical papers, the guiding team and the staff of ARKEY were the backbone of this event. The attendance for the event was well over 120, most of them engaged in rapt attention right through the concluding panel discussion. The interaction during the sessions and after was highly professional and indicated a keen interest in sharing knowledge and experience. The event lived up to the vision of Mr. R T Kulkarni, the director of the organisation, in going beyond the deliberations during the conference and laying the foundation for continued interactions among the GDC fraternity, while assuring support through ARKEY by offering their services and assistance.

The conference started with an introductory welcome address by Mr. R T Kulkarni and a brief by Mr. S Subramanian, the chairman of Technical Papers Committee, on the event initiative and purpose. Mr. V. Subramanian, Sr. Vice President, Endurance Technologies Pvt. Ltd. was the Chief Guest for the inauguration. During his inaugural address he touched upon the problems faced by foundries - 50% to 60% industries are small scale and find it difficult to get talented, skilled manpower, while being reluctant to buy modern equipment. He also mentioned that auto pouring is important function, considering quality and manpower. To maintain quality, chips melting directly into the furnace can get good yield, and also save energy. He noted that good immersion heaters, holding furnaces and roof top furnaces are available, and one has to think of new ways to improve the quality of casting.

He mentioned that we have neglected one area that is 'Metallurgy'. NADCA has always emphasised on 'Metallurgy'.

Endurance Technologies has established an excellent R&D Division. He recalled how earlier, people used to spend 25-30 years with a single company. But he also pointed out that the industry has to take efforts to retain the people, as these days people change jobs frequently.

Mr. D. K. Dixit, a private consultant, was the Keynote Speaker. In his address he spoke about Mahale Pistons, which was having only one die casting unit in 1962. Die casting technology was very confidential at that time. He stressed on the importance on quick dispatch of the casting, while giving the following tips:

- Improve delivery time
- Quick dispatch of casting
- Achieve low levels of rejection
- Give quotation with samples
- Die design, shot blasting, cleaning are the key parameters of die casting

He concluded his speech by wishing the participants all the best in their endeavours.

The conference, spread over two days in six sessions, was coordinated to perfection and was ably conducted by respective session chairmen. The presentation by the authors followed by intra-session query times were well managed within the time frames allotted. The concluding panel discussion on "Entrepreneurial Succession" was an innovative concept and was a fitting finale to the event.

The papers presented during the conference encompassed a variety of topics like melting and treating of aluminum alloys, care of crucibles, use of master alloys, T6 heat treatment of castings, die design, simulation, instrumentation, process equipment selection and automation, cold box core developments, quality systems and measure for quality, experiences in casting pistons, and inspiring talks on global trade, the future of GDC and challenges ahead.

Notable and select highlights in these presentations can be summarised as below:

- How to engage in global trade and what are the fundamentals.

Conference on
Gravity Die Casting
Technology
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- Mantra for getting quality right: the first time and always - strong QMS is the route to zero defect campaign.
- Crucial aspects of crucible care start with furnace maintenance and control, followed by quality and care of crucible – installation, pre-heating, charging, melting & pouring.
- Flow-3D approach to simulation in GDC process design – modeling the process (GMO), bubble tracking, inclusion tracking, die erosion, core gas, core blowing.
- Importance of proactively improving quality and the concept of quality index - templates for measurement of dynamic quality and continuous improvement.
- Capex determinants for equipment selection in melt shop – liquid demand, loss matrix, melt quality, emission controls, metal transfer logistics.
- Future shock for GDC business – how the world will move with processes like ferrous gravity die casting, light weighting, squeeze casting, high strength MMC and the discovery of “oxide Bi-films”.

- Why and how you should look at energy losses when selecting furnaces - effect of skewed policies of the government in pricing fuels - factors that conserve energy in furnaces.
- Metallurgical knowledge - the base for success in GDC operations - alloying elements.
- Evolution of core making machinery in tune with technological developments in GDC process.
- Need for appropriate instrumentation in melting, treating, casting, heat treating. Improving process consistency - furnace mapping, lining wear monitoring.
- Case studies using Magma simulation technologies - Brake disc caliper, Cylinder Head, Pouring basin.
- Master alloys optimize GDC operating metrics - advantages over salt based fluxes.
- Process discipline is the key to success in T6 heat treatment - coherency strengthening and process vigilance.
- Need to pay good attention to gating and filtering in process design - examples and case studies - Kalpur.
- Automation - key aspects in conceptualisation and decision making for success - pouring, extraction, and fettling - integrated automation concept.
- Why cold box scores over shell in non-ferrous casting applications - productivity, environment, economics, reclamation benefits.

PANEL DISCUSSION

On a novel subject

During this conference, a panel discussion was held on the subject of “Succession Plan”. Considering the need of many industries, this was a very welcome topic, as expressed by many delegates. The entire event was managed and coordinated in a lively manner by Mr. Vishwas Kale, an entrepreneur who has done similar planning for his own company.

The panelists were owners or mentors as we called them, and their successors. They consisted of Mr. V. A. Karmarkar and his son Vaibhav (Tech Sales and Services), Mr. Anil Kulkarni and his son Sanket (Jayashree Die castings Pvt. Ltd.), Mr. Vivek Joshi and his son Ashwin (Anant Enterprises), apart from two panelists - a banker, Mr. V. R. Nair, (DGM, Bank of Maharashtra), and a financial advisor, Mr. Dilip Jogalekar.

The issues discussed included how the successor was chosen, how both, the mentor and the successor managed the affairs, how this change has affected the company, what were changes implemented by the successor on his own, what are the seeming dangers and positive sides of this change, as viewed by the banker and the financial advisor were freely discussed.

The discussion possibly motivated some entrepreneurs to think on these lines for sustenance and growth of their companies.

अॅल्युमिनियम कास्टिंग (मराठी भाषेत) मार्गदर्शक

Marathi book released during the Conference On “Gravity Die Casting Technology” Useful to Foundry Shopfloor people



Rs. 175/- (Rs. 150/- + Rs. 25/- Courier Charges)

TRAINING PROGRAMMES ON GDC TECHNOLOGY 2012-2013

No	Name of the Programme	Course Director	Scheduled in	Duration
1	GDC Methoding Die Design / Die Manufacturing Simulation / Software	Mr. Thiruganam Consultant Mr. Mahesh Morab Magma Engg. Asia Pacific Pte. Ltd.	June 2012	Three Day
2	Heat Treatment of Aluminium Casting, Cost Control Through Rejection Control	Mr. S. Subramanian Consultant Mr. Anand Joshi Consultant	August 2012	Two Day
3	Introduction to GDC	Mr. A. B. Sane Consultant	October 2012	One Day
4	Core Technology	Mr. A. B. Sane Consultant	October 2012	One Day
5	Metal Melting and Handling & Metallurgy of Diecasting Alloys	Mr. R. V. Apshankar Energy Systech Mr. U. M. Nadgar Consultant	January 2013	Two Day