Manufacturing Technology Training
An IMTMA initiative

Die Design for PDC parts- Design Considerations, Process, Manufacturing and Troubleshooting
Date : 14 to 18 February, 2022
Time : 0940 Hrs to 1300 Hrs (Online Mode)

INTRODUCTION

Die-casting is a metal casting process, wherein the molten metal is injected at very high pressure to produce parts with good dimensional accuracy. To cast the parts at high pressure, a die casting machine is used. This application finds uses is many areas such as Automobile, Aviation, Telecommunication, hydraulics & pneumatics parts, electrical and so on. A few examples to mention are Two-wheeler engine crank cases, cover kick starters, cylinder head, cylinder barrel, four-wheeler Alloy wheels, 2 wheeler front and rear wheel hub, 2-wheeler carburettor, earth moving equipment hydraulic valves, 4 wheeler air brake parts, to name a few.

The die-cast die & mould design is an iterative process that determines the contour of die cast parts and affect its properties. Following a systematic design process will always lead to better outcomes. This program shall cover how to design a die-cast part suitable for high pressure die-casting, wherein guidelines are given for ensuring trouble free casting production of parts.

Keeping this in mind, IMTMA is organizing a 5 day online programme to impart training on Know your Die Casting Die Design – Basics, Design Considerations, Diecast Parts, Process, Manufacturing and Troubleshooting.

FOCUS AREAS

The program shall focus on the following topics:

- Basic concepts of the die-casting process
- Understanding the Cold chamber machine and PQ^2 (flow characteristics) of the machine
- Study of part drawing and / or 3D model and understanding the product's end-requirement
- Basic guidelines for designing the die-casting die
- Parting line geometry
- Feed and runner system
- Thermal balancing the die
- Ejection system of the casting
- Mechanical strength requirement and fulfilment in the die design
- How to do process FMEA and build the die-design anticipating the likelihood of defects in advance
- Simulation and course correction to reduce rejection
- Case study with sharing of experience

KEY TAKE AWAYS

At the end of the program, a participant shall:

1. 1. Learn the machine characteristics and importance ofPQ^2 diagram
2. Understand on how to decide the gate based on the product castings' end requirements
3. Understand how to decide the parting line
4. Know how to calculate the gate area, runner area, selection of Plunger diameter
5. Know the minimum and maximum FILL-RATIO to be designed for the given casting part
6. Understand the efficient method of designing the cooling circuit for the die inserts
7. Know how to calculate the Deflection of the housing and how to overcome
8. Get an understanding of the die casting defects in the design stage and avoid
9. Know how to read the simulation results and take remedies in the die design

FEE PER PARTICIPANT (PER LOGIN)

Rs. 10000/-
+18% GST
IMTMA Members/ Micro Companies/ Individuals/ Educational Institutions / Students/ IMTMA Non Members/ Others

USD 400/-
Overseas Participants

Group Concession : 10% for 3 to 5 and 15% for 6 and more delegates being nominated from the same company

FACULTY

This programme will be conducted by **Mr Padmanarayanan**, a technology professional with over 5 decades of high quality experience in the areas of High pressure die-casting, gravity diecasting, Low pressure diecasting, SMED, Setting up tool rooms, productivity improvement and rejection reduction. During his professional career, he was associated with several companies such as Sundaram Clayton, Semoc Electric, Columbia Wheel manufacturing, Eqic Dies and moulds, Rapsri Engineering Industries, Dietech India, AR Die Casts, Hyderabad Engineering Industries, and Endurance Technologies.

He possesses over 60 certifications in areas such as Six sigma, Cost of quality, TQM tools, Understanding benchmarking methods, Time management, Quality management and several other areas.

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REGISTRATION : Prior registration with an online advance payment is must. Number of participants is limited and will be accepted on 'First Come First Serve' basis. A Certificate of participation will be issued to participants.