Manufacturing Technology Training
An IMTMA initiative

Electric Motors: Types, Application, Selection, Sizing and Optimization
Date : 17 March, 2025
Venue : IMTMA Technology Centre, Bengaluru

INTRODUCTION

Electric Motors play an important role in Both in Industry and Household. Motor converts electrical energy to Mechanical energy. Motors are used in industry for operating cranes, Blowers, Machines, Machine tools, Compressors, conveyors, Hydraulic & Oil pumps, Robots, Loco engines and host of other equipment. Domestic goods like washing machines, Mixers, Water pumps, Fans, lifts etc. also need Motors.

Types of motors, Principle of working, Parts, Method of starting, speed control, Mounting Methods, Temperature rise, Insulation, Protection, Cooling methods, Duty cycles, Torque and speed characteristics, Efficiency and other aspects of motors are very important for all users in the industry. Proper understanding about all these topics, selecting suitable type and sizing of motor for the required application is important. Proper sizing of motor will have long and trouble-free life and will also be energy efficient.

Keeping this in view Indian Machine Tool Manufacturers' Association is organizing a training programme on **“Electric motors selection and sizing”**.

FOCUS AREAS

- Electric Motor Basics
  - Types of Motors, parts, operating principle, advantages, disadvantages and applications
  - Power, Torque, speed, efficiency etc. of a motor
  - Duty cycle, Amb. Temperature and Insulation class
- Motor Sizing
  - Basic parameters like Friction and Friction coefficient, Moment of Inertia
  - Load and force calculations
  - Torque
    - Load torque
    - Continuous torque
    - Acceleration torque
  - Direct drive or Reduction drive.
  - Mounting- Horizontal, Vertical or inclined
- Case Studies
  - AC Motor selection
  - Servo Motor selection
  - Stepper motor selection

KEY TAKE AWAYS

- After undergoing the programme, the participants will be able to learn about
- Types of electric motors, working principle, advantages, disadvantages and applications
- Frame sizes and duty cycles
- Effect of Ambient temperature and Insulation class
- Class of Protection and Cooling methods
- Speed Control and their effects.
- Estimation of force, Inertia and Torque.
- Selection and sizing of Different types of motors.

PARTICIPATION FEE

Rs. 6600/-
+18% GST
IMTMA Members/ Micro Companies/ Individuals/ Educational Institutions / Students/ IMTMA Non Members/ Others

USD 260/-
Overseas Participants

Group Concession : 10% for 3 to 5 and 20% for 6 and more delegates being nominated from the same company

PARTICIPANT PROFILE

This programme will benefit Engineers and personnel involved in design, Production, Procurement, Maintenance functions of all Manufacturing industries. Engineers from Machine Tool, Automobile & Auto ancillaries, Consumer Durables, Aerospace, Industry Machinery, Defence & Railway units, General Engineering and other Capital goods manufacturing industries also can participate.

FACULTY

This programme will be conducted by **Mr. P. Aruna Kumar,** a Post graduate in Mechanical Engineer in Machine tool specialisation. With over 36 years of domain expertise in Machine tool design, Assembly, Inspection and Testing.A former DGM, Designs and development, HMT Machine tool division, Bangalore. With rich experience in Gear design, Gear cutting machine design, Gear metrology and also other Machine tool Design.

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REGISTRATION : Prior registration for participation is necessary. Number of participants is limited and will be accepted on ‘First Come First Serve’ basis. A Certificate of participation will be issued to participants.
Important Information : Participation fee includes, course material, working lunch and tea / coffee. Interested companies are requested to register online by clicking on 'REGISTER' button and by filling up the nomination authority and participant's details in specified form.