TMEiC
We drive industry

Lunch & Learn

Medium Voltage

Variable Frequency Drives & Motors

WATER | WASTE WATER | MINING | TESTING | OIL & GAS | PLASTICS | POWER GENERATION | CEMENT

Educational Lunch & Learn Topics

Medium Voltage Drives

1-A. MV VFD Fundamentals & Application Overview
Overall factors in the design of a successful adjustable speed drive system. Load considerations and design requirements for constant and variable torque applications. Applying VFDs to fixed speed motors.

1-B. Managing heat of MV Drives
Discussion on conventional thermal management solutions like E-house, MCC. Overview of outdoor NEMA enclosures, considerations. Air-cooled versus water-cooled comparison

1-C. Motoring & VAR Compensation with VFD
Discussion on how VFDs can be used for voltage and power factor correction, how it works and comparison with conventional methods. Tips on how to size VFD for compensation and evaluation criteria.

1-D. Harmonic Mitigation & Drive Isolation Techniques
Types of converter topologies and line side effects. Mitigation strategies. Transformer-less versus transformer isolation and its practical application considerations. Overview of effects of drives on power systems

1-E. Installation Requirements for VFDs
What aspects make up a good VFD installation. Enclosures, operational/environmental limitations, HVAC requirements and how to specify E-houses. Electrical requirements such as grounding/cabling and handling requirements will be discussed

1-F. Specifying Variable Frequency Drives
Considerations for specifying Adjustable Speed Drives. How to avoid adding unnecessary costs or missing important requirements. A brief overview of VFD standards will also be discussed.

1-G. Designing VFDs for Reliability & Maintainability
Trends for the voltage source inverter (VSI) applied to very large scale drive equipment. How practices and principles adopted during component selection, design, testing and VFD manufacturing increase reliability. Example field experiences for maintaining the VFD will be presented.

1-H. VFD Protection Systems
A discussion of the goals and protection principles as applied to VFD. How various electrical equipment is protected in a VFD from a system stand point, along with how to specify a protection system for a VFD.

1-I. VFDs vs. Mech. Fluid Couplings Comparison
Complete analysis for both technologies covering efficiency, installation, operation, maintenance, spare parts and life cycle cost of the entire system.

Medium Voltage Motors

2-A. MV Motors (Ind. & Sync) for practicing Engineers
A comprehensive overview of MV induction and synchronous motors covering several aspects such as design, standards, enclosures, construction, accessories and applications.

2-B. API motors (vs. standard induction motors)
Why do API motors cost more than Industrial motors? What do the accessories, options and testing really add to the price of a motor? What parts of the API specification actually drive the reliability and cost, and what parts may not be add to the reliability and still add cost?

2-C. Designing Motors to last a lifetime
What makes a motor last 30 years or more? Design, Manufacturing Techniques and little things in the factory process will be discussed in this presentation.

2-D. Starting Strategies for Fixed Speed MV Motors
A detailed discussion on various methods of starting large MV motors including concepts such as effects on power systems, drive train, application considerations and when to use a VFD will be covered. Also, how VFDs can be used to start multiple motors.

2-E. Principles of Machine Vibration
Basics of vibration, quantification and general terminology used. Specifying sensors, acceptable levels and analyzing potential motor vibration problems.

2-F. High Speed (HS) motors
HS motors, when applied properly, can provide immense benefits to an end user in terms of efficiency, high reliability and simpler mechanical configuration. This session covers how they are designed, manufactured and tested. Also, topics on typical applications and benefits of HS motors are covered.

2-G. Low Inrush Current (LIC) Motors
LIC motors can eliminate the need for a motor starting scheme. In this session, we talk about how these motors are designed, typical applications, benefits of using a low inrush current motor, and design limitations.

2-H. Factory Acceptance Test (FAT) for MV motors & VFD's
How to specify, select, prepare, plan and execute a successful FAT. The presentation will also provide an overview of the different types of testing that is available on MV Motors and VFDs.

* Topics are eligible for one (1) Professional Development Hour (PDH) for individuals who want to maintain professional accreditation.
* Note: Variable Frequency Drive (VFD) and Adjustable Speed Drive (ASD) can be used interchangeably.

WWW.TMEIC.COM
+1-832-767-2680
GI@TMEIC.COM

A-1206-D
Revised Jan. 2019