

## A Fast, Cost Effective Method to Test MOVs

MC<sup>2</sup>™ testing technology was developed to assist plants in meeting the challenge of reducing at-the-valve testing costs. Designed to increase the performance, reliability and safe operation of motors and motor driven equipment such as valves and pumps, MC<sup>2</sup> acquires information from the motor control center, employing motor time & frequency domain signature analysis to allow personnel to quickly and accurately identify equipment and process function degradations. By performing this type of non-traditional diagnostic testing with an easy-to-implement test process, plants can operate for longer periods, at higher efficiencies, with greater safety, and at substantially lower maintenance costs.

### HELPS REDUCE THE SCHEDULED OUTAGE SCOPE

Reducing scheduled outage scope is another challenge facing plant managers and MOV coordinators. As outage durations shrink, implementation of the MC<sup>2</sup> will defer at-the-valve testing, therefore removing scope from outage intervals. All testing with the MC<sup>2</sup> is conveniently performed at the motor control center and away from hazardous environments, saving up to 80% in total testing time and 100% in personnel exposure levels.



### MEETS GL9605 REQUIREMENTS

In addition to data trending, the MC<sup>2</sup> system will verify sufficient margin (i.e. stem thrust) availability to operate the MOV under design basis conditions, thus satisfying the periodic verification/post maintenance requirements set forth in GL 9605.



### MC<sup>2</sup> STANDARD SYSTEM

- PENTIUM COMPUTER
- DATA ACQUISITION & ANALYSIS SOFTWARE
- AT BUS POWER BOARD WITH SWITCH SENSING
- SWITCH SENSING PROBE SET
- WINDOWS 95 (OR LATER) SOFTWARE
- 16-CHANNEL, 16-BIT A-D CONVERTER BOARD
- 3-PHASE VOLTAGE & CURRENT PROBES & CABLES
- CARRYING CASE

### SYSTEM & SERVICE OPTIONS

- MC<sup>2</sup> DATA ACQUISITION TRAINING
- SOFTWARE MAINTENANCE AGREEMENT
- MC<sup>2</sup> SIGNATURE ANALYSIS TRAINING
- OUTAGE SUPPORT SERVICES
- ENGINEERING SUPPORT SERVICES
- FREQUENCY DOMAIN

## THE SOFTWARE AND FUNCTIONALITY

- The MC<sup>2</sup> system acquires information from the motor control center and determines the functionality of the MOV
- Windows-based software which includes baseline data import capability, semi-automated acceptance criteria determination process and semi-automated data trending
- User-friendly software and analysis tools

## BOOST PERFORMANCE AND LOWER O & M COSTS

*Learn more about how your plant can reduce O & M costs and increase efficiency and safety while complying with strict regulatory requirements.*

### FEATURES

- ALL TESTING PERFORMED AT THE MOTOR CONTROL CENTER
- CALCULATES MOTOR POWER
- QUANTITATIVE DETERMINATION OF MOTOR TORQUE
- OVERLAY GRAPH CAPABILITY
- SWITCH SENSING CIRCUIT FOR OPEN & CLOSE CONTROL
- ZOOM & CURSOR CONTROLS
- MULTIPLE GRAPH CAPABILITY
- X - Y CORRELATION PLOTS
- PRINTOUT CAPABILITY FOR ANY GRAPH
- FFT ANALYSIS OF MOTOR CURRENT & MOTOR POWER

### BENEFITS

- ELIMINATES PERSONNEL EXPOSURE LEVELS
- SUPPORTS PREDICTIVE MAINTENANCE
- IMPROVES OUTAGE/PARTS PLANNING
- REDUCES UNSCHEDULED MAINTENANCE
- LOWERS MANPOWER REQUIREMENTS
- IMPROVES PLANT PERFORMANCE

### Diagnostic Parameters

#### Frequency Domain

Slip Frequency  
Speed  
Gear Mesh  
Bearings  
Belt Drive  
Rotor Bar  
Stator Slot

#### Time Domain

Current  
Voltage  
Power  
Torque  
Switch Sensing

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