
COURSE DESCRIPTION

CHH647 – Ring-Geared Mill Drive System Operation and Maintenance

Course goal

The goal of this course is to teach operation and maintenance aspects of a medium voltage (MV) ring-geared mill drive system (RMD^{plus}) to participants. An RMD^{plus} system includes converter power transformer(s), MV converter(s) and MV motor(s).

Main learning objectives

The participants will be able to:

- Identify system hardware components and understand their function
- Carry out specific maintenance activities described in project documentation
- Work on power, control and instrumentation interfaces of the entire drive system
- Understand the converter(s) internal wiring diagram(s) as well as interface signals to external devices and control systems
- Understand the protection concept of the system
- Understand and follow MV drive specific safety rules
- Start up, operate and troubleshoot the MV drive system

Participant profile

This training is targeted to engineering staff, design, planning, commissioning, maintenance and service personnel.

Prerequisites

Participants should have basic knowledge of (power) electronics and should prior to this educational program have attended an ABB MV drive basic operation and maintenance course.

Topics

- Converter(s) input transformer(s)
 - Project specific drawings and documentation for maintenance and troubleshooting
 - Hardware description
 - Supervision signals interface description
- MV converter(s)
 - ABB MV frequency converters – product overview
 - Control and operation of AC MV drives
 - Direct torque control (DTC) principle
 - Hardware and software overview
 - Components and boards functions
 - Project specific drawings and documentation
 - Power and supervision signals interface with external devices and control systems
 - Converter(s) start-up and operation considering project specific conditions
 - Fault tracing, troubleshooting and practical exercises
 - Maintenance instructions and exercises
- MV motors
 - Project specific drawings and documentation for maintenance and troubleshooting
 - Hardware description
 - Supervision signals interface description

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- Mill functions
 - Frozen charge protection description
 - Service mode description, creeping, automatic positioning
 - Controlled roll-back description
- Remote diagnostic (if any)
 - RMDcockpit system description
 - RMDcockpit operation and maintenance

Course type and methods

This is an instructor led-course with theoretical lectures, interactive classroom discussions, associated practical exercises using the equipment at site, demonstration of best practice examples and group work.

Duration

The duration is 3 days.

Remarks

This customized training program can only be delivered at the customer's site where the dedicated equipment is available for demonstration and practical exercise purposes. The course is ideally performed by the corresponding and accredited ABB commissioning engineer during or just after completion of installation and commissioning. Only project specific documentation available on-site will be used).

Course map

	DAY 1	DAY 2	DAY 3
Topics	Welcome, personnel introduction Course introduction Introduction to RMD ^{plus} Product information Transformer Motor VSD Mill controller Off load disconnect switch Main circuit breaker Cables MV cables MLCP Interface between componenets	Review day 1 Project specific document Practical exercise using PC tools	Review day 2 Practical on VFD Hands on training Troubleshooting Maintenance Summary Questions & answers Evaluation
Time	9:00 am – 5:00 pm	9:00 am – 5:00 pm	9:00 am – 5:00 pm

Typical course layout (time or sequence may change)