

COURSE DESCRIPTION

CHH648 – Ring-Geared Mill Drive System with Control Block – 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), MV motor(s), programmable logic controller (PLC) and E-house container.

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
- 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
- Start up, operate and troubleshoot the RMD^{plus} system

Participant profile

This training is targeted to engineering staff, maintenance and service personnel as well as to operators.

Prerequisites

Participants should have basic knowledge of electrical systems.

Topics

- Converter(s) input transformer(s)
 - Project specific drawings and documentation for maintenance and troubleshooting
 - Hardware description
 - Supervision signals interface description
 - Maintenance instructions
- Variable speed drive (VSD)
 - ABB MV frequency converters – product overview

- Hardware and software overview
- Components and boards functions
- Project specific drawings and documentation
- Power and supervision signals interface with external devices and control systems
- 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
 - Maintenance instructions and exercises
- Interlocks for operation
- Control block specific equipment
 - Motor control center (MCC) description
 - Firefighting system description
 - HVAC system description
 - PLC for mill auxiliaries
- Mill functions
 - Overview of available mill functions
 - Frozen charge protection and remover
 - Mill overload and over duty cycle mode
 - Service mode description, creeping, automatic positioning
 - Stop modes
- Control locations
 - Remote operation from PLC/DCS
 - Local operation from RMDcockpit and mill local control panel (MLCP)
- ABB 24/7 support
 - How to contact Minerals SupportLine
 - Capabilities for remote support

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 4 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. Project specific documentation will be used.

Course map

	DAY 1	DAY 2	DAY 3	DAY 4
Topics	Welcome, personnel introduction	VSD layout VSD schematics	Component of control block	Hands on training Maintenance tasks
	Course introduction	VSD troubleshooting	MCC	Basic troubleshooting and support
	Introduction to RMD ^{plus}	Mill functions	Firefighting system	Start-up and operation
	System components		Air conditioning	
	Main circuit breaker		PLC	
	Transformer		Maintenance Tasks	Summary
	Motor		PLC introduction	Questions & answers
	VSD			Evaluation
	Others			
	Interface between componenets			
Protection and interlock concept				
Time	9:00 am – 5:00 pm	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)