

J220 High Power Rectifier Systems

Operation and Maintenance training

Course goal

ABB high power rectifier systems are employed in electro-chemical electrolysis processes, graphite electrolysis plants, and DC-arc furnaces. Typically, such plants consist of at least a rectifier-transformer, rectifier power part, rectifier cooling unit and control system. The course goal is to operate and make appropriate maintenance on high power rectifier systems.

Learning objectives

- Upon completion of this course, the participants know:
- Basic theory of power electronics and rectifier technology
- Basics of rectifier system design
- The typical design and configuration of rectifier systems
- The major components and main sections of rectifier systems
- Operation, operation levels and control principles
- Maintenance schemes

Participants

Operation and maintenance personnel

Prerequisites

Basic understanding of electrical systems and power electronics

Topics

- Basics of rectifier theory
- Rectifier connections
- 3-phase rectifier bridge
- Star-star surge reactor configuration
- Regulator function
- Phase control for thyristor applications
- Tap changer and transducer control for diode rectifier systems
- System design
- Design and system arrangement
- On-load tap changer transformer
- Parallel operation of rectifier groups
- Typical arrangement
- Rectifier transformer
- Rectifier part
- Cooling unit
- System Control
- Control, regulator and protection features of the rectifier system
- Local control system
- Master control concept
- Man Machine communication
- The AC 800PEC Control system
- Reading of drawings and manuals
- Operation and operation levels
- Safety & Health
- Applicable maintenance

Methods

- Lectures for introduction
- Practical exercise using demo equipment

Duration

4 days

Max. 6 participants

Tailor made and on-site training courses on request