



320XPC Blast Hole Drill - Electrical Systems Course

Course Duration

The duration is 1 day (8 hours), and accommodates 7-8 students per session.

TARGET AUDIENCE

This course is targeted to High Voltage Electricians, Technicians and Engineers who will service and maintain P&H Mining Blast Hole Drills.

Description

The course participants are introduced to the Cab Controls, Low Voltage control circuits, Electrical High Voltage circuits, Main Drive motor, Main Motion Motors and misc. high voltage circuits.

Each class covers a system or a subsystem. After each class, real life or potential problems are discussed.

Prerequisites:

Students should have a basic knowledge of Electrical High/Low voltage principals.

Course Location

On site, Mine Pro or customer location.

Course Objectives

Upon completion of this course the student will be able to:

- Identify controls in the cab.
- Identify and explain the purpose of all the major Electrical Systems utilized.
- Analyze schematics and control diagrams utilized for troubleshooting and repair of the high voltage electrical systems.

Main Concepts

- Kirk Key
- Main transformer, Soft Start Auto-transformer
- Main and Motor High Voltage Switches
- 480VAC and 520VAC ground fault detection circuits.
- Main and Rotary Motors
- DC Drive Modules
- AC VF Drive modules
- Various starters, circuit breakers and contactors



Course Plan		
(Day 1)		
<p><u>Course Introduction</u></p> <ul style="list-style-type: none"> ▪ Introductions ▪ Class Objectives ▪ General on site safety 	<ul style="list-style-type: none"> ▪ Miscellaneous 480VAC circuits and starters <ul style="list-style-type: none"> ▪ Jib crane ▪ Aux. air compressor ▪ Welder transformers ▪ Air conditioner ▪ Low pressure pump ▪ Blower motors <ul style="list-style-type: none"> ▪ Mach. House #1, #2 ▪ Hoist ▪ Mast ▪ Oil circulation motor ▪ Miscellaneous 208VAC/120VAC circuits and starters <ul style="list-style-type: none"> ▪ Heaters ▪ Lights ▪ Auto lube motor ▪ Radio 	
<p><u>Module 1.00 Drill Safety and Drill Systems Introduction</u></p> <ul style="list-style-type: none"> ▪ General information, safety web sites ▪ Safe operating practices ▪ Safety decals and signs ▪ Drill systems description 		
<p><u>Module 2.00 Controls in the Cab</u></p> <ul style="list-style-type: none"> ▪ Describe every button, lever and display in the Cab ▪ Touch panel and GUI ▪ Brief description of hole drilling techniques 		
<p><u>Module 3.00 Kirk Key, HV Switches and Contactors, AC and DC High Voltage circuitry</u></p> <ul style="list-style-type: none"> ▪ Main and soft start transformers ▪ Kirk Key ▪ 520VAC and 480VAC GF circuitry ▪ Description, location, purpose <ul style="list-style-type: none"> ▪ HV switches 		
<u>Lunch</u>		
<p><u>Module 3.00 continued</u></p> <ul style="list-style-type: none"> ▪ Main motor ▪ Hoist/pull down motor circuit and DCS 800 drive ▪ Rotary motors circuits and DCS 800 drives ▪ VF water pump motor circuitry and ACS drive ▪ VF oil cooler fan motor circuitry and ACS drive. 	<p><u>Course Evaluation and Wrap up</u></p>	