

**P&H  
Heavy-Duty  
Electric Motors**

**P&H**



**Built by the OEM for  
Best Performance and Reliability**

# Motors to Match Your Machine and Mining Application

As the only mining equipment manufacturer with the expertise to design, build, test, and service its own motors, P&H occupies a unique position in the industry.

The P&H trademark symbolizes a rock solid reputation built over 125 years of commitment and service to mining customers. P&H owes its success to partnering with customers for continuous improvement and breakthrough solutions.

By incorporating ideas from mining operations worldwide, P&H designs and manufactures mining equipment and replacement parts that continuously meet your needs for productivity, reliability, and safety.

## Built for Mining

P&H motors are designed and built specifically for mining applications. Every motor is engineered, manufactured, and tested to meet the unique speed and torque demands of each motion in the machine's work cycle.

During the manufacturing process at P&H, every detail, process, and procedure is meticulously orchestrated and carefully controlled in our ISO 9001-2000 compliant quality system for maximum component integrity. These processes serve as the basis for improvement - both in our manufacturing plants

*An electric shovel motor is meticulously rebuilt at a regional P&H MinePro Services facility, through its "P&H Factory Certified Motor Maintenance Technician Program"*



and throughout the P&H MinePro Services network. MinePro facilities use only genuine P&H parts to rebuild P&H motors, ensuring that rebuilt motors meet or exceed OEM standards.

## Systems Approach

Through decades of field experience and engineering expertise, P&H has developed intimate knowledge of how to manage the interplay between the various systems on its equipment.

Viewing its machines as a system of interrelated parts, P&H engineering undertakes its design process in a cooperative fashion, using interdependent processes and input from all engineering departments. As such, components like P&H motors are designed to work in concert with other structures and components on a P&H machine.

**Use of non-P&H motors on P&H machines can lead to multiple system problems due to modified design parameters in the motors, such as bail pull or ramp-up time. This can, in fact, reduce the life of various structural components by 50% or more.**

*Choose P&H for replacement, maintenance, and repair of your P&H machine motors. Only the OEM designs, manufactures, and continuously improves motors to work their best within the complex systems of your P&H mining equipment.*

## Engineering Initiatives

Passionate about continuous improvement, P&H engineers constantly strive to strengthen the reliability and service life of its electric motors. Using a wealth of customer feedback available through MinePro, new P&H machines and replacement parts are regularly improved, and maintenance programs in the field are continuously enhanced. Recent customer-driven improvements and initiatives include:

- **Better brush grades** — Ensuring better brush grades on hoist and crowd motors for increased filming action and improved brush/commutator wear
- **Transient filter kit** — Development of a transient filter kit to increase the life of the motor, brushes, commutator, and arc horn
- **AirScrubPro** — Development of the AirScrubPro filtration system to reduce brush and commutator wear in abrasive environments
- **Motor control** — Continuously improving and upgrading motor control software to ensure that customers have the latest motor control software for optimal motor performance



## P&H Factory Certified Motor Maintenance Technician Program

P&H utilizes a rigorous, highly specialized, electric motor diagnostic, maintenance, and repair training program for P&H MinePro Services maintenance employees. Highly qualified instructors focus on reliability-centered maintenance practices to increase the longevity of P&H motors. Upon completion, participants are considered "P&H Factory Certified Motor Technicians".

Through expert P&H motor training and state-of-the-art P&H MinePro Services rebuild centers around the globe, the P&H organization offers you the highest level of service for all your motor needs.

The Certification program includes these topics:

- DC motor theory and operation
- Motor design for mining equipment
- DC motor maintenance
- AC 800 supervisory controller operation
- Control system lessons (Centurion, Avtron, and Analog)
- Mechanical systems (motor alignment, blower motors, hoist and crowd systems)
- Application duty cycle information (swing, crowd, propel, hoist)
- Motor problem diagnosis (bearings, armature/field/interpole coils, commutation)
- Root cause determination

# P&H Factory Certified Motor Maintenance Technician Program

Only P&H provides expert field training and global rebuild centers through P&H MinePro Services. P&H

MinePro Services brings a strong focus on safety to every facet of its service support operations. Committed to the highest level of safety and quality, we follow ISO standards, and our employees have been trained in the SafeStart program.



Our facilities benefit from the worldwide P&H safety program, receiving ongoing communications, training, best practices, and recognition from a P&H Global Safety Excellence Team. All employees sign an annual Safety Charter pledging to work safely, and every P&H MinePro Services employee has a safety objective as an element of his or her annual performance plan.

P&H MinePro Services is the largest, most capable field organization of its kind in the business. For maintenance, planning, OEM parts, upgrades, training, and more, P&H MinePro Services is ready to serve your needs.

All designs, specifications and components of the equipment described above are subject to change at the manufacturer's sole discretion at any time without advance notice. Data published herein is informational in nature and shall not be construed to warrant the suitability of the equipment for any particular purpose as performance may vary with the conditions encountered. The only warranty applicable is our standard written warranty for this equipment.



P&H MinePro Services  
1-888-MINEPRO  
Outside the U.S. and Canada  
Phone: (414) 671-4400  
Fax: (414) 671-7306

[www.phmining.com](http://www.phmining.com)