

4100C

Electric Mining Shovel - DC Drive Product Overview





P&H 4100C DC shovel: building on proven success

Mine operations and maintenance managers demand the best from their loading tools. For this reason, Joy Global has been the electric mining shovel market share leader and preferred equipment supplier to the world’s toughest mining environments for over 100 years.

Joy Global is proud to offer the P&H 4100C DC electric mining shovel. The P&H shovel line is combining its solid reputation of reliability with the proven Centurion electrical control system, time-tested DC systems, rugged structures and the industry’s only OEM owned field service and support network to set the industry standard for electric mining shovels.

Proven availability and productivity ultimately lead to the lowest cost per ton and the most efficient ultra-class loading tool available in the industry today. P&H shovels dig deeper into the realms of productivity safety, and reliability with greater control, comfort, and consistency.



Proven performance

P&H DC-drive shovels have been exceeding customer requirements and expectations since 1932.

- Lowest total cost of ownership
- Highest productivity
- Superior machine reliability and durability

We set the industry standard for electric mining shovels

A closer look

The P&H 4100C DC utilizes proven components.

- Structures developed with advanced design software and field data collection
- Motors designed and manufactured by Joy Global specifically for electric mining shovels



The Joy Global performance edge

Joy Global is the worldwide leader in electric mining shovels. The P&H 4100C DC sets the standard in performance and productivity.

- Designed for severe-duty digging and loading
- Years of experience in building rugged, reliable equipment
- Extensive collaboration with customers and our partner ABB during development

We are driven by achieving the lowest Total Cost of Ownership for our customers:

- Quality components
- Focus on machine availability and productivity
- Heavy-duty structures
- Joy Global field support

Attachment of choice for the world’s toughest pits

- Twin-leg dipper handle – Stable dipper trajectory, faster cycle times, higher productivity
- Rack and pinion crowd – Less maintenance, all weather performer
- OPTIMA Dippers – Mine-matched dippers with adjustable pitch braces for precise rake angles

Rugged components

- Dual hoist motors – Balanced and evenly distributed load
- DELTA drive – Improved shoe-to-tumbler engagement
- Planetary transmissions – Proven long life on swing and propel with over 20 million hours logged

Technology

- Centurion electrical control system – Superior performance, monitoring and data integration capabilities
- Universal shovel interface – Send and receive data with any mine management system
- PreVail Remote Health Management – Real time machine health and performance management

World-class cab / loading control center

Performance and comfort have been optimized with:

- Smart ergonomics
- Clear sight lines
- Easy access to command and control functions
- Access to key data on machine health and performance provided by Centurion electrical control system

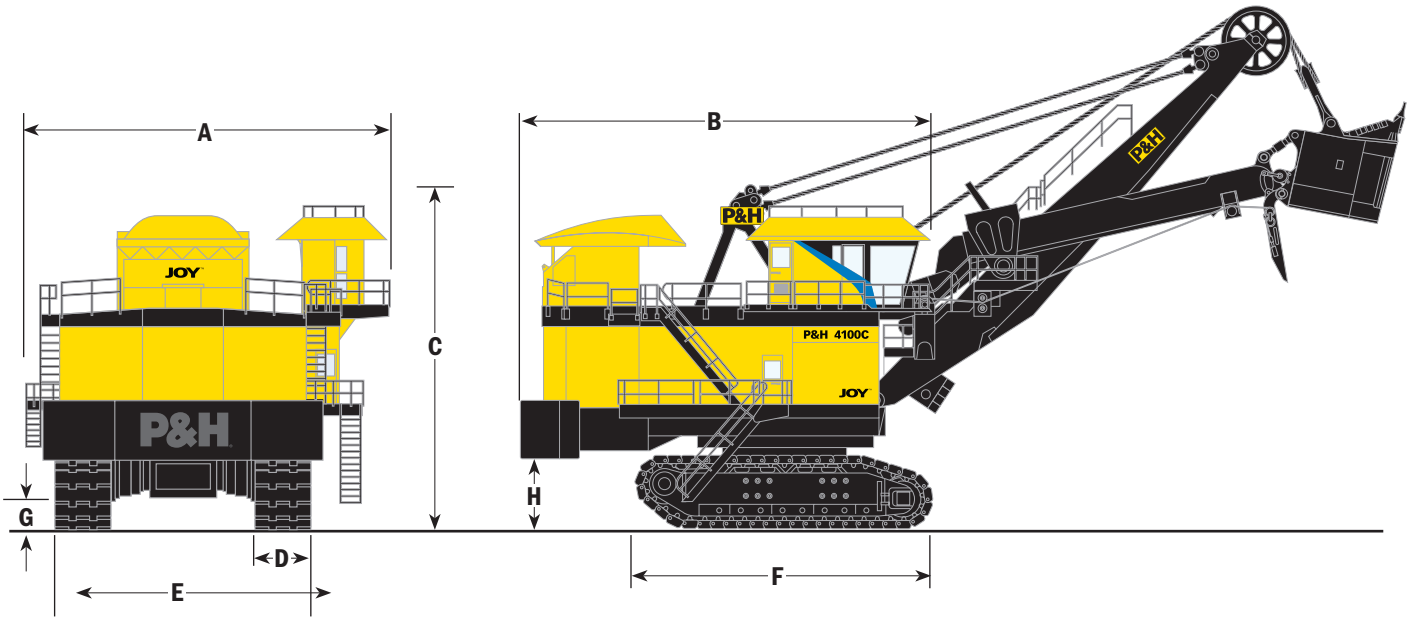
JoySmart Solutions

Our smart connected products and systems, advanced analytics and direct services are integrated together and customized to solve our customers’ toughest challenges:

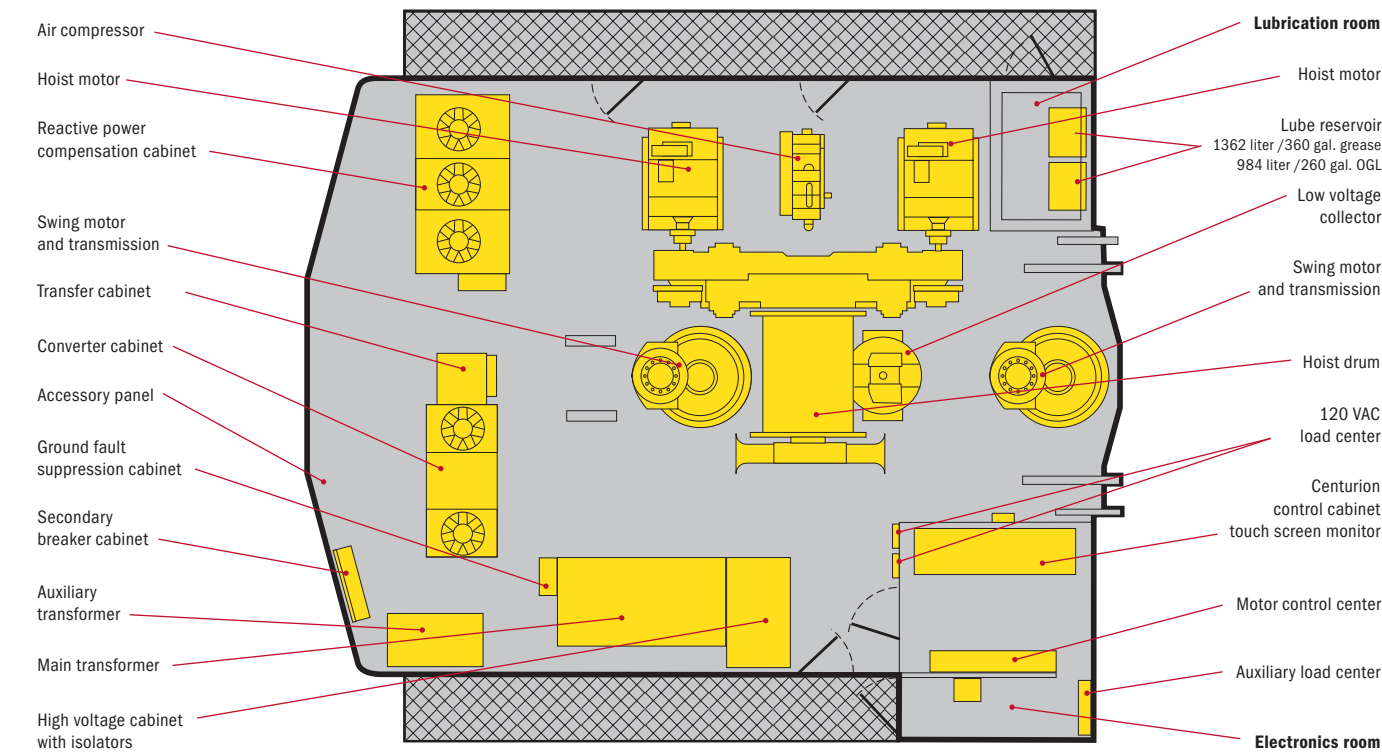
- Service products and consumables
- Machine assembly and rebuild
- Component exchange programs
- Life cycle management
- Genuine OEM parts
- Prognostics and remote health management

Overall dimensions

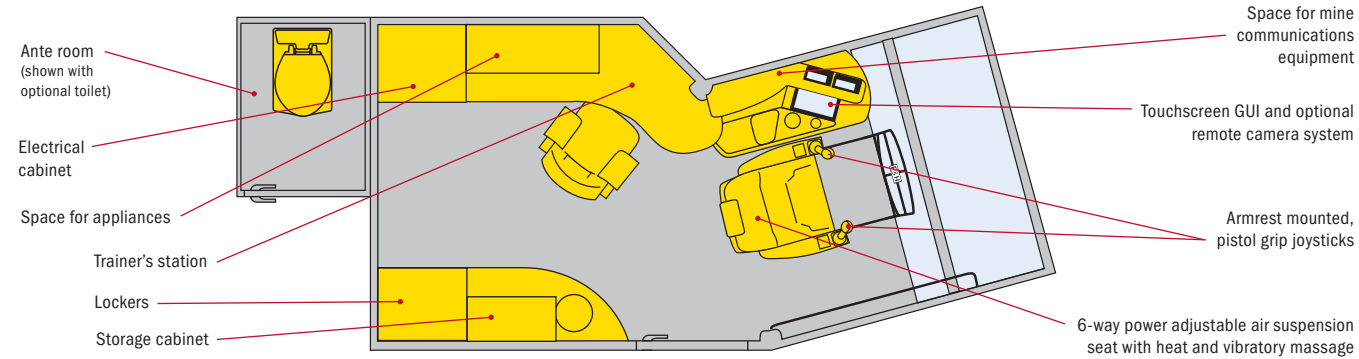
A	Width	13.1 m	43 ft. 0 in.
B	Length	15.8 m	51 ft. 8 in.
C	Height over gantry	12.6 m	41 ft. 5 in.
D	Width of crawler shoes	1930 mm 2210 mm	76 in. 87 in.
E	Width of crawlers (76")	9.9 m	34 ft. 4 in.
F	Length of crawlers	11.6 m	38 ft. 0 in.
G	Ground clearance	1.1 m	3 ft. 6 in.
H	Height — ground to bottom of counterweight slabs	2.8 m	9 ft. 1 in.



Machinery Deck Plan



Loading control center



Ground pressure and weight

Bearing area – ground pressure		
Standard:		
Crawler bearing area 76" shoes / 1930 mm	34.69 m ²	53,767 in ²
Crawler ground pressure 76" shoes / 1930 mm	351 kPa	50.98 psi
Optional:		
Crawler bearing area 87" shoes / 2210 mm	39.71 m ²	61,549 in ²
Crawler ground pressure 87" shoes / 2210 mm	308 kPa	44.70 psi

Weights – approximate*

Working weight (with dipper, approx. wt.)		
76" shoes / 1930 mm	1,243,300 kg	2,741,000 lbs
87" shoes / 2210 mm	1,247,800 kg	2,751,000 lbs
Counterweight (punchings)**	195,500 kg	431,000 lbs

* All weights subject to 5% variation.
** To be furnished by customer.

Features and customization

- The P&H 4100C is built with several features to enhance safety, reliability, and productivity over the lifecycle of the operation..
- Automatic lubrication and compressed air systems with advanced diagnostic and control
 - Temperature monitoring system for all DC motors, drum shaft bearings and shipper shaft bearings
 - Automatic boom soft setdown system (ABSS) and boom profile protection envelope to help prevent excessive loading to the attachment during operation
 - Anti-Swing-in-Bank system to reduce excessive side loading on handle and attachment
 - Remote hoist control pendant and hoist rope winch to assist in safe and efficient rope changeouts
 - House Pressurization System to provide filtered air for cooling and dust repression
- The shovel has multiple options for local and minesite specific conditions in the following areas:
- Operator cab
 - Climate control
 - Cold weather equipment
 - Technology and software
 - Electrical and mechanical systems
 - Maintenance systems





Joy Global worldwide locations

JOYGLOBAL



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