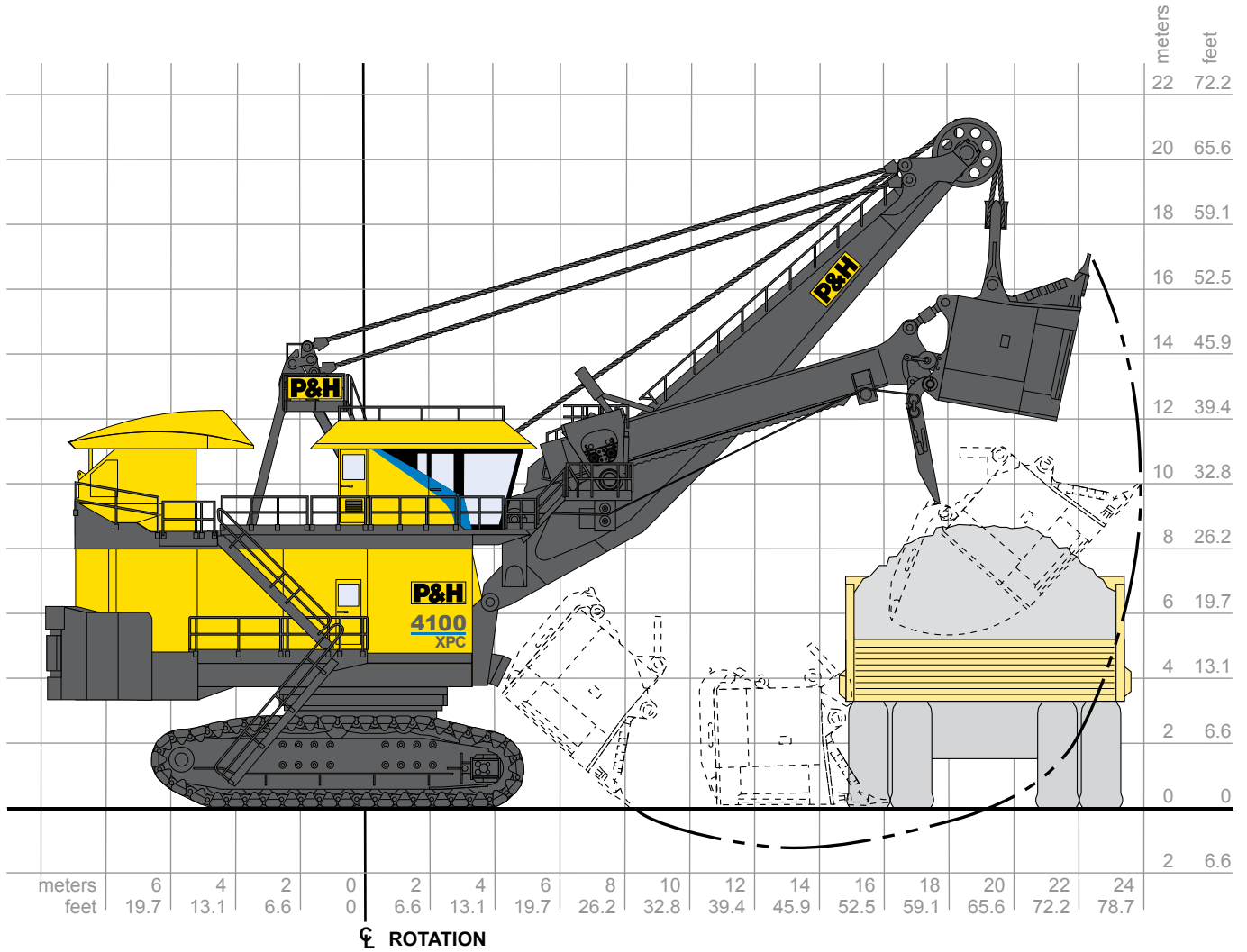


# DC 4100XPC

Electric Mining Shovel  
Digital Drive Control

## Operating Specification



⊕ ROTATION

Working Ranges		
Height of Cut	16.8 m	55 ft. 2 in.
Radius of Cut	23.9 m	78 ft. 8 in.
Dumping Height* (Door Open)	9.5 m	31 ft. 0 in.
Floor Level Radius	16.0 m	52 ft. 6 in.
Tail Swing Radius	9.8 m	32 ft. 3 in.
Operator Eye Level	10.1 m	33 ft. 1 in.

\* Height shown with bail-type dipper. Heights will be greater with bail-less or compact-bail dippers. Actual dumping height can be greater than door clearance height.

Capacity		
Nominal Pay Load	99.8-108.9 mt	110-120 st
Nominal Dipper Capacity		
SAE struck	53.5-62.7 m <sup>3</sup>	70-82 yd <sup>3**</sup>
SAE 2:1	67.6 m <sup>3</sup>	88.4 yd <sup>3</sup>
Rated Suspended Load	195 mt	215 st
Optimum Truck Size (400 st truck shown)	172-363 mt	190-400 st

\*\*Capacity and payload dependent on the application.



## Electrical Control

- P&H Centurion™ Supervisory Controller provides direct integrated communication with motor drives giving precise motor control and fast cycle times. Real-time multi-tasking capability allows for optimal machine logic sequencing, monitoring and control.
- Centurion I/O System uses 'Profibus' communication protocol for seamless integration of all shovel subsystems and future expandability. Low-voltage 24V DC I/O drop points feature open and short circuit detection for improved diagnostics and troubleshooting.
- Centurion Information System's enhanced Graphical User Interface (GUI) features intuitive, icon-based screens to display vital information such as shovel status, troubleshooting information, and optional production monitoring data and operator feedback.
- P&H Digital DC Drive provides precise, reliable, solid state power to the main motion motors.



## Electrical Control Systems

### P&H DIGITAL DC STATIC DC POWER CONVERSION AND REACTIVE POWER COMPENSATION

	Hoist**/Propel	Swing	Crowd/Propel
Continuous Armature Converter KW Rating @ 600 VDC*	2x1860 kW	1860 kW	1860 kW
15 Sec. Armature Converter Current Rating*	3700 amp.	3700 amp.	3700 amp.
Continuous Field Converter Rating*	150 amp.	150 amp.	150 amp.

\* Rated at 600 V and based on outside ambient temperature of 50°C or 122°F.

\*\* Cascaded hoist converters.

### P&H DIGITAL DC AUTOMATIC REACTIVE POWER COMPENSATION\*

	60 Hz. (7 step)	50 Hz (8 step)
Switched Steps	+4725 kVAR Total	+6000 kVAR Total

\* Nominal rating at rated capacitor voltage (600 VAC)

\* Rated at 600 V and based on outside ambient temperature of 50°C or 122°F.

\*\* Cascaded hoist converters.

### P&H DC FAST RESPONSE MAIN MACHINERY MOTORS

Hoist Motor (Two used)	Continuous rating @ 600 volts Peak developed power	Total 2148kW/2880hp 2770kW/3713hp
Swing Motor (Three used)	Continuous rating @ 550 volts Peak developed power	Total 1119kW/1500hp 1340kW/1796hp
Crowd Motor (One used)	Continuous rating @ 550 volts Peak developed power	Total 537kW/720hp 530kW/710hp
Propel Motor (Two used)	Continuous rating @ 550 volts Peak developed power	Total 1074kW/1440hp 1434kW/1922hp



## Power Requirements

Supply Voltage*	7200 or 13800V 3 Phase, 60 Hz	6000, 6600, 7200 or 11000 3 Phase, 50 Hz.
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Supply Transformer (Minimum) 3750 kVA

Minimum Short Circuit VA Available at Shovel 30 MVA

\*Voltage per customer requirements

### TRANSFORMER

Main Armature Transformer	3000 kVA
Auxiliaries-Field Transformer	450 kVA
Control/Lighting Supply Winding	50 kVA

Note: Transformer capacities may vary depending on options.



## Dipper & Dipper Trip

- P&H® OPTIMA® dippers combine consistent productivity with high durability and maintainability. Dippers are configured to mine specific conditions and capacity requirements from a variety of combinations of body and lip designs, as well as other unique P&H technologies. Specific wear packages and GET styles can be cooperatively specified.
- P&H TripRite™ system utilizes a brushless DC electric motor with sealed planetary drive unit for reliable trip and slack take up operation.



## Hoist

- All gearing housed in single enclosed gear case with filtered oil circulation for reliable splash lubrication and ease of maintenance.
- Large 68" diameter hoist drum for extended rope bending life. Ferrule becket system and dual electric tuggers are standard for efficient rope change.
- Spring set air release disc brakes - one per motor.



## Crowd

- Powerband V-belt drive between motor and gear case absorbs shock loads.
- First and second reduction gearing in enclosed gear case for reliable splash lubrication, ease of maintenance, and extended component life.
- Twin leg dipper handle with torsion box and rack and pinion drive has inherent stability in the bank for optimal digging.
- Spring set air release disc brake.



## Swing

- Three modular P&H planetary gear cases of proven design and a single piece forged swing gear transmit torque for fast cycle times.
- Spring set air release disc brakes - one per motor.



## Propel

- Two rugged P&H planetary gear cases of proven design independently transmit torque to the drive sprockets, producing the tractive effort required for fast, efficient propel and positioning operations.
- P&H DELTA™ Drive low tension sprocket drive system with heavy duty cast crawler shoes.
- Spring set air release disc brakes - one per motor.

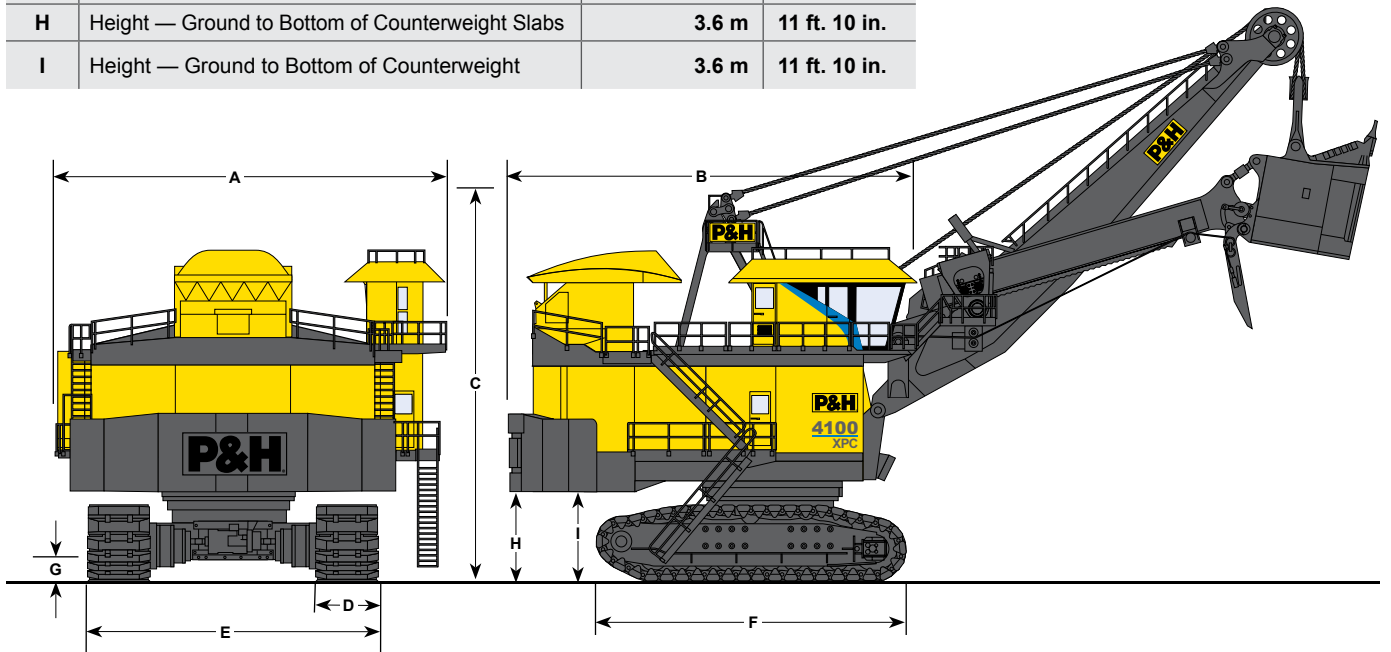


## Cable Data

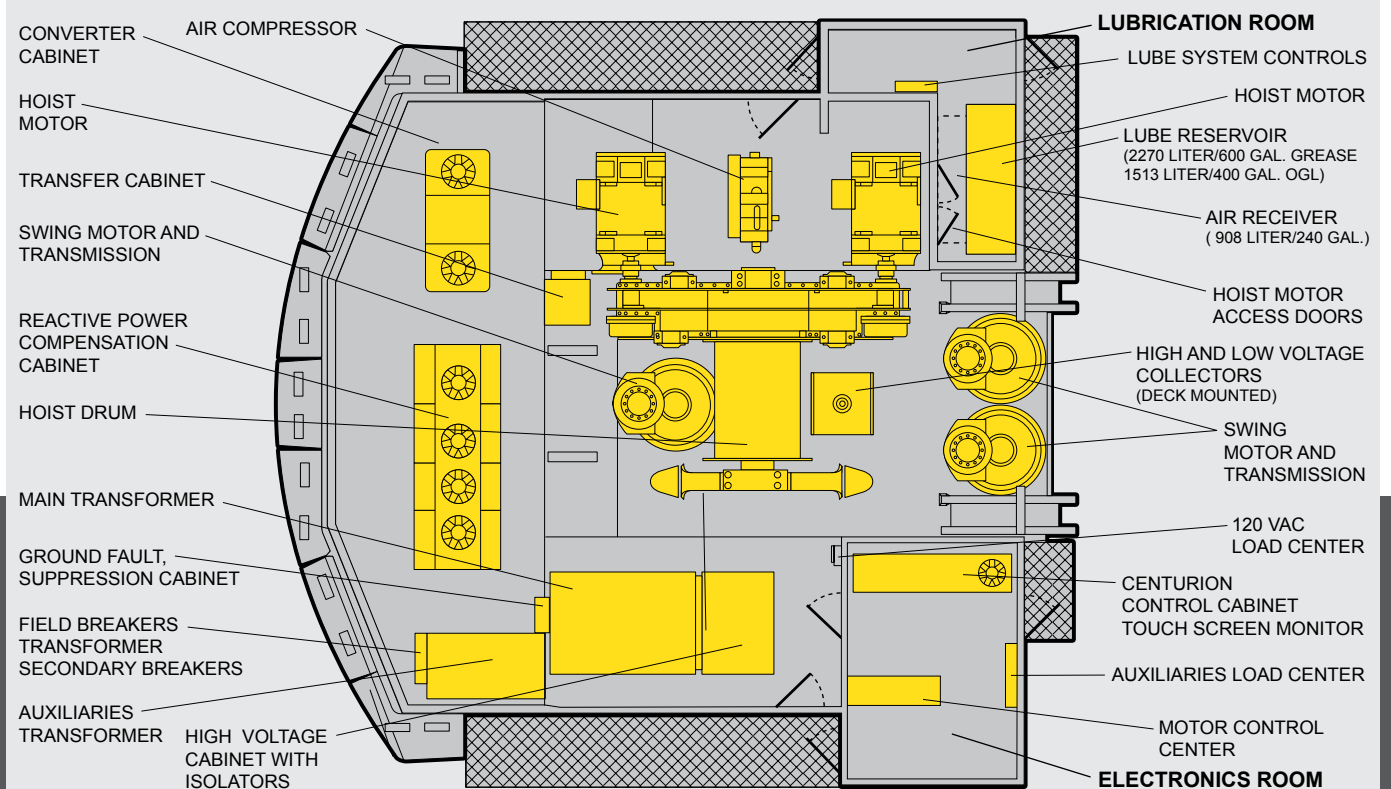
Hoist (wire rope)	73 mm	2.87 in. dia.
Suspension (bridge strand)	102 mm	4.00 in. dia.
Dipper Trip (wire rope)	19 mm	0.75 in. dia.

## Overall Dimensions

A	Width	14.4 m	47 ft. 1 in.
B	Length	15.0 m	49 ft. 4 in.
C	Height Over Gantry	14.7 m	48 ft. 3 in.
D	Width of Crawler Shoes	1930 mm (std.) 2210 mm	76 in. (std.) 87 in.
E	Width of Crawlers (std.)	10.5 m	34 ft. 5 in.
F	Length of Crawlers	11.7 m	38 ft. 6 in.
G	Ground Clearance	0.7 m	2 ft. 2 in.
H	Height — Ground to Bottom of Counterweight Slabs	3.6 m	11 ft. 10 in.
I	Height — Ground to Bottom of Counterweight	3.6 m	11 ft. 10 in.



## Machinery Deck Plan





## Ground Pressure & Weight

### BEARING AREA - GROUND PRESSURE

Standard:		
Crawler Bearing Area	34.58 m <sup>2</sup>	53,597 in <sup>2</sup>
76" Shoes/ 1930mm		
Crawler Ground Pressure	418.9 kPa	60.8 psi
76" Shoes/ 1930mm		
Optional:		
Crawler Bearing Area	39.58 m <sup>2</sup>	61,354 in <sup>2</sup>
87" Shoes/ 2210mm		
Crawler Ground Pressure	369.5 kPa	53.6 psi
87" Shoes/ 2210mm		

### WEIGHTS - APPROXIMATE\*

Working Weight (with Dipper, Approx. Wt.)		
76" Shoes/1930mm	1,486,900 kg	3,278,000 lbs
87" Shoes/2210mm	1,491,400 kg	3,288,000 lbs
Counterweight (Punchings)**	204,100 kg	450,000 lbs

\* All weights subject to 5% variation.

\*\* To be furnished by customer.



## Features And Customization

The 4100XPC 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, 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 standard shovel can be customized 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



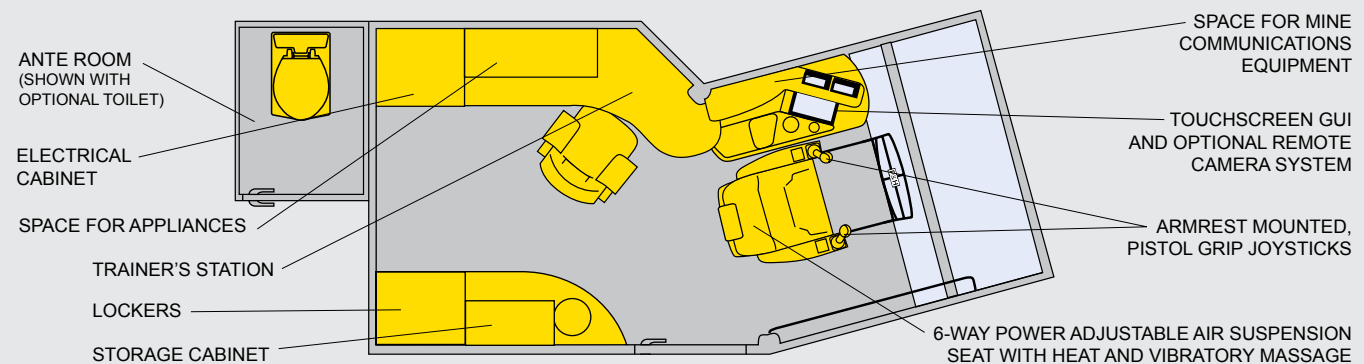
## Lighting

**Standard:** Metal Halide, 400 W, high intensity discharge (HID) primary exterior floodlights (11) mounted on the operator's cab, RH room, LH room and machinery house. Halogen, 500 W secondary exterior floodlights (7) mounted under revolving frame corners, machinery house and above cab door. Incandescent lights (5) outside cab and house doors and (1) inside operator's cab. Fluorescent lights (23) illuminate interior of the machinery house, RH and LH room.

**Optional:** High Pressure Sodium, 400 W or 1000 W primary exterior floodlights. Secondary exterior floodlight combination of Halogen, 500 W (3) and fluorescent lights (6) mounted under revolving frame.



## Loading Control Center



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

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