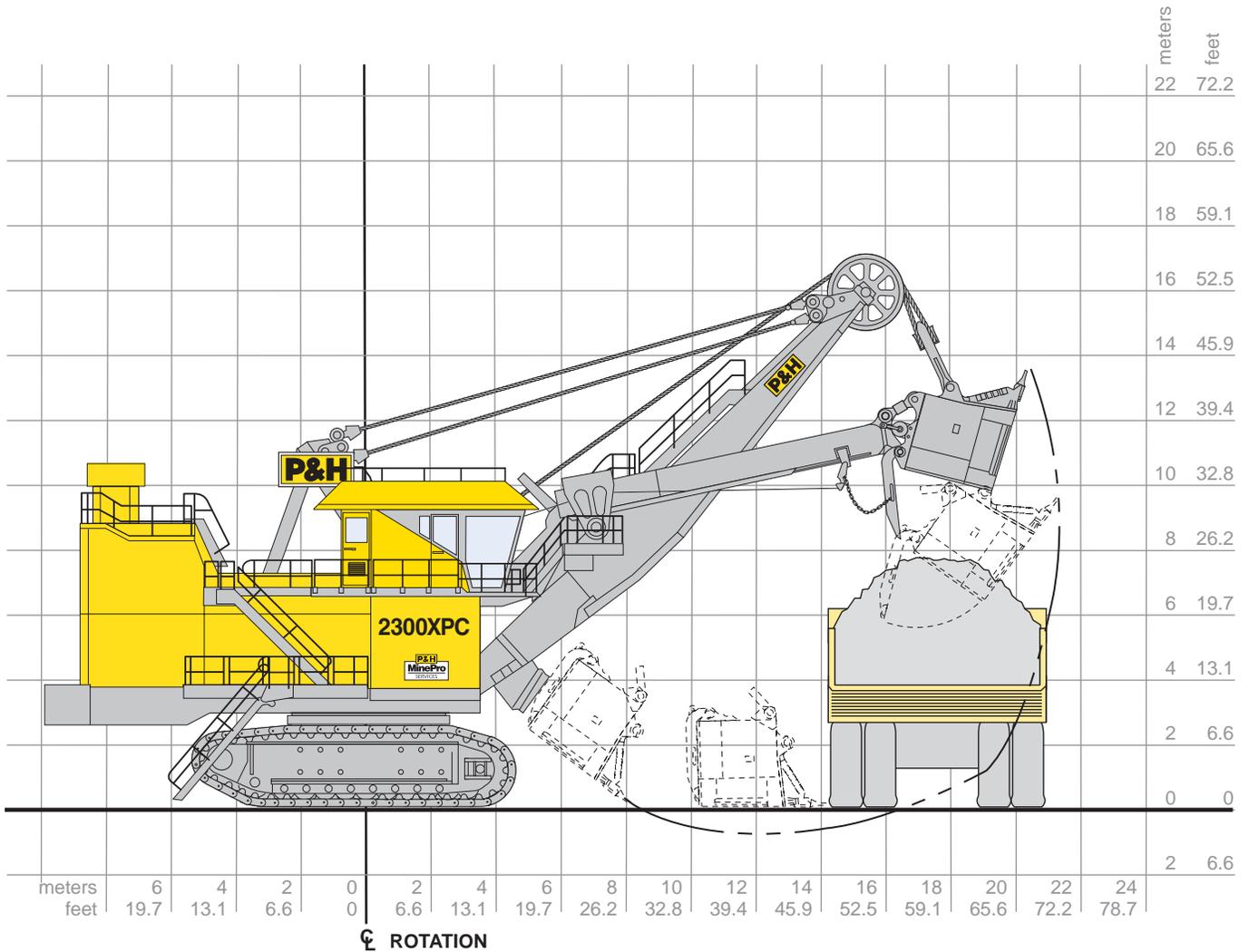


2300XPC

Electric Mining Shovel
Digital Drive Control

Operating Specification



Working Ranges		
Height of Cut	13.5 m	44 ft. 3 in.
Radius of Cut	21.3 m	70 ft. 0 in.
Dumping Height* (Door Open)	8.5 m	28 ft. 0 in.
Floor Level Radius	14.2 m	46 ft. 7 in.
Tail Swing Radius	10.1 m	33 ft. 0 in.
Operator Eye Level	7.9 m	26 ft. 0 in.

Capacity		
Nominal Pay Load	45.4 mt	50 st
Nominal Dipper Capacity		
SAE struck	25.5 m ³	33.0 yd ³
SAE 2:1	28.1 m ³	36.7 yd ³
Rated Suspended Load	90.7 mt	100 st
Optimum Truck Size (200 st truck shown)	109-218 mt	120-240 st

* 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.



Electrical Control

- 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.



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.

* 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	+4500 kVAR Total

*Nominal rating at rated capacitor voltage (600 VAC)

P&H DC FAST RESPONSE MAIN MACHINERY MOTORS

Hoist Motor (Two used)	Continuous rating @ 600 volts Peak developed power	Total 1074kW/1440hp 1442kW/1933hp
Swing Motor (Two used)	Continuous rating @ 550 volts Peak developed power	Total 306kW/410hp 748kW/1002hp
Crowd Motor (One used)	Continuous rating @ 550 volts Peak developed power	Total 395kW/530hp 441kW/591hp
Propel Motor (Two used)	Continuous rating @ 550 volts Peak developed power	Total 612kW/820hp 943kW/1264hp



Power Requirements

Supply Voltage*	4160 or 7200V 3 Phase, 60 Hz	3300, 5000, 6000 or 6600 3 Phase, 50 Hz.
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Supply Transformer (Minimum) 2000 kVA

Minimum Short Circuit VA Available at Shovel 16 MVA

*Voltage per customer requirements

TRANSFORMER

Main Armature Transformer	2000 kVA
Auxiliaries-Field Transformer	325 kVA
Control/Lighting Supply Winding	45 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.
- Adjustable-torque electric motor with geared 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 diameter hoist drum for extended rope bending life. Ferrule becket system and dual electric tuggers are standard for efficient rope change. Dual electric tugger option is available.
- 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

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

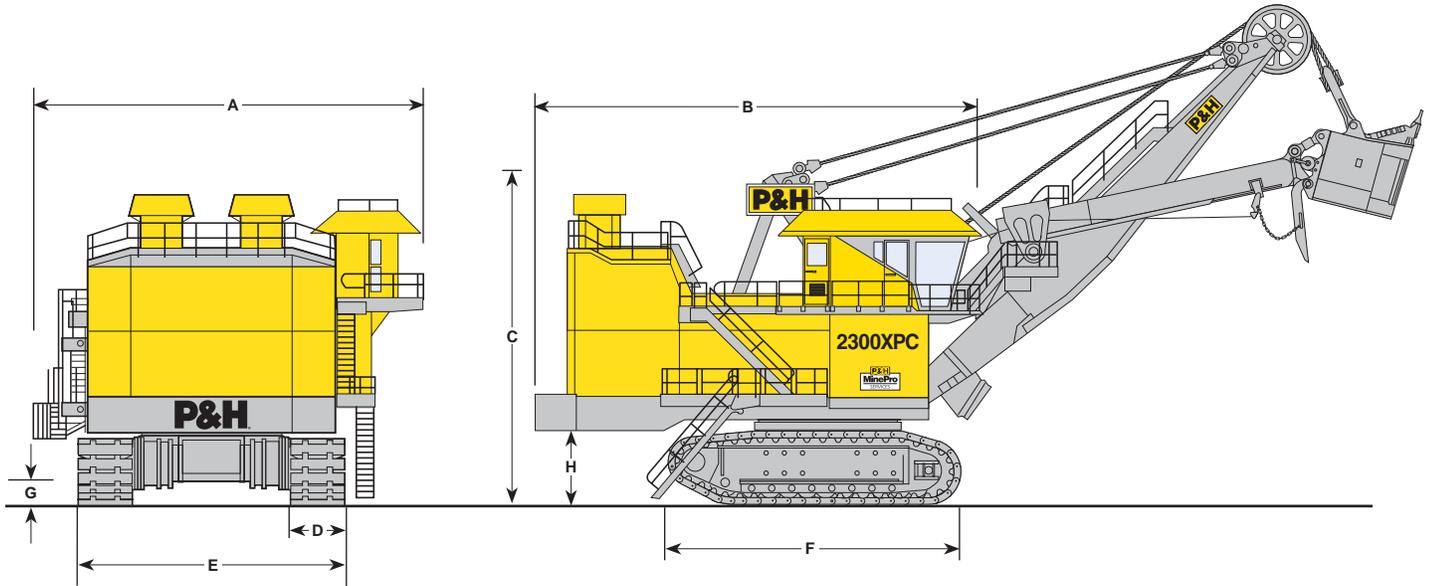


Cable Data

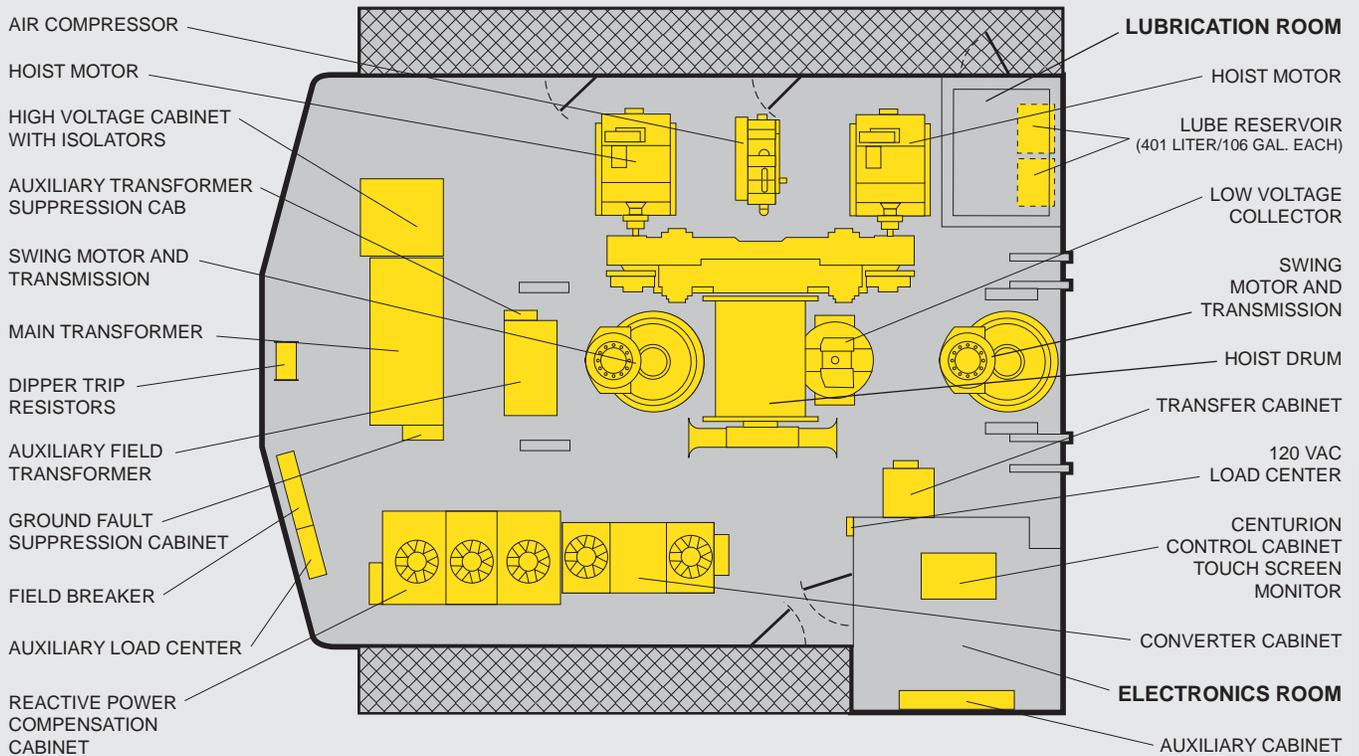
Hoist (wire rope)	57 mm	2.25 in. dia.
Suspension (bridge strand)	83 mm	3.25 in. dia.
Dipper Trip (wire rope)	13 mm	0.50 in. dia.

Overall Dimensions

A	Width	12.5 m	40 ft. 10 in.
B	Length	15.0 m	49 ft. 4 in.
C	Height Over Gantry	11.6 m	38 ft. 0 in.
D	Width of Crawler Shoes	1321 mm (std.) 1778 mm	52 in. (std.) 70 in.
E	Width of Crawlers (std.)	8.7 m	28 ft. 5 in.
F	Length of Crawlers	9.9 m	32 ft. 4 in.
G	Ground Clearance	0.9 m	3 ft. 0 in.
I	Height — Ground to Bottom of Counterweight	2.6 m	8 ft. 5 in.



Machinery Deck Plan





Ground Pressure & Weight

BEARING AREA - GROUND PRESSURE

Standard:

Crawler Bearing Area 52" Shoes/ 1321mm	19.92 m ²	30,880 in ²
Crawler Ground Pressure 52" Shoes/ 1321mm	381 kPa	55.3 psi

Optional:

Crawler Bearing Area 70" Shoes/ 1778mm	26.82 m ²	41,570 in ²
Crawler Ground Pressure 70" Shoes/ 1778mm	288 kPa	41.8 psi

WEIGHTS - APPROXIMATE*

Working Weight (with Dipper, Approx. Wt.)

52" Shoes/1321mm	774,800 kg	1,708,000 lbs
70" Shoes/1778mm	787,500 kg	1,736,000 lbs
Counterweight (Punchings)**	136,100 kg	300,000 lbs

* All weights subject to 5% variation.

** To be furnished by customer.



Features And Customization

The 2300XPC 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



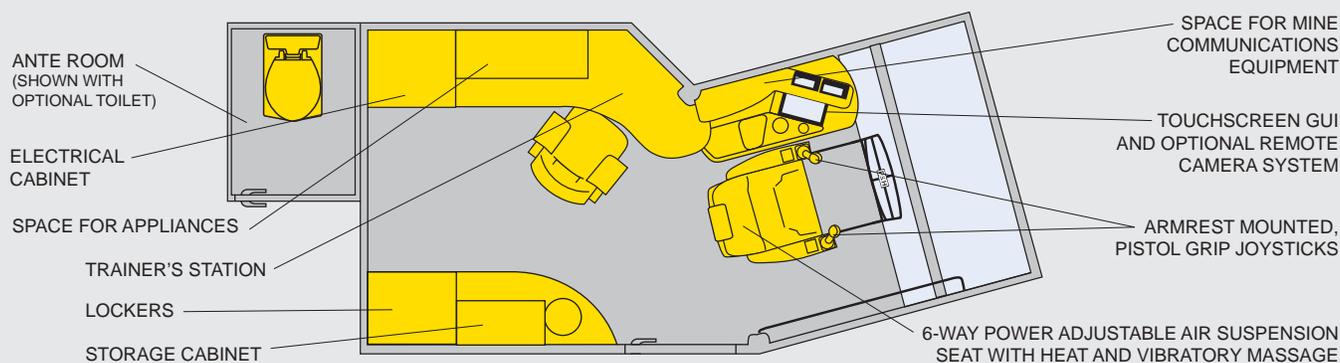
Lighting

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. Fluorescent lights (20) 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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