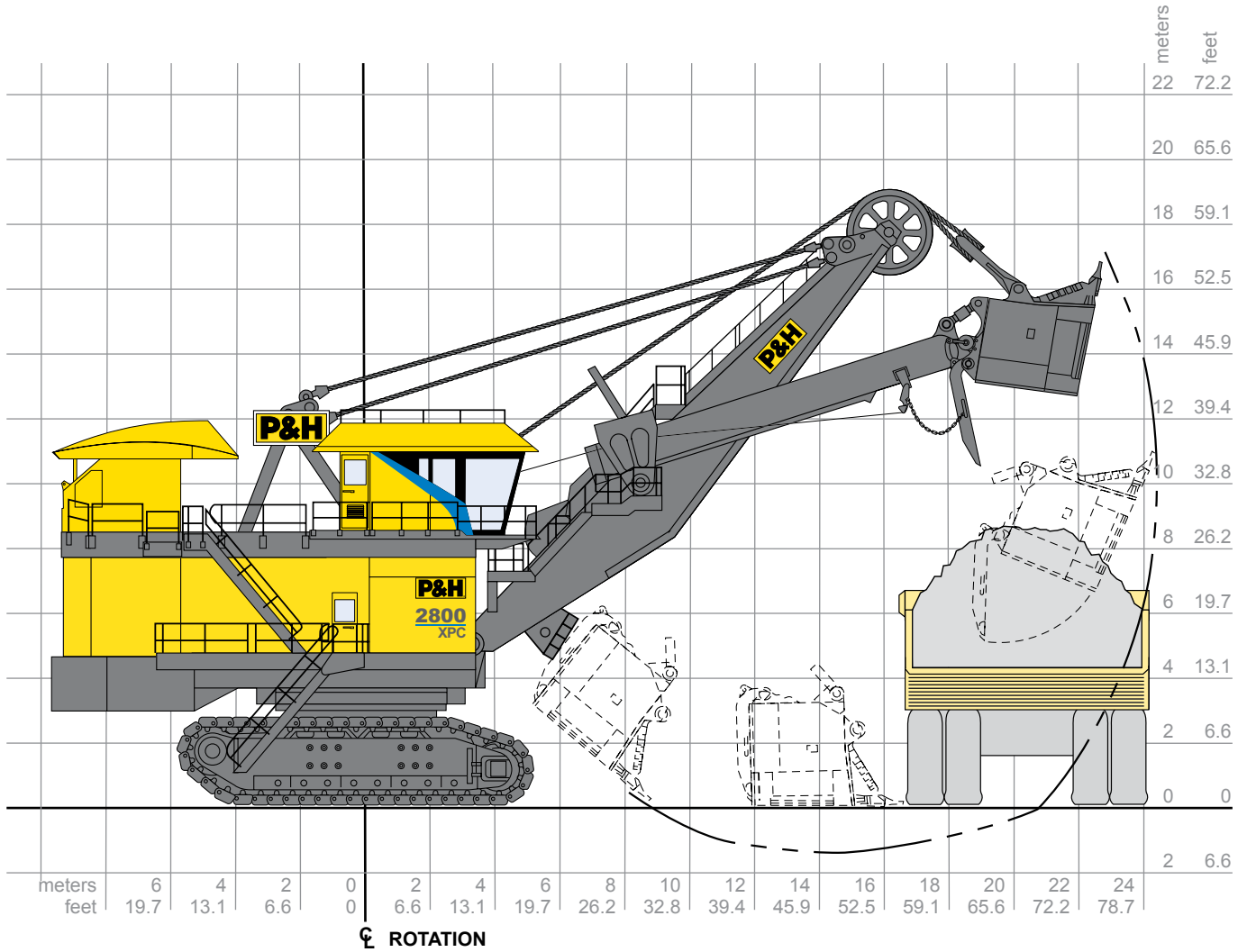


2800XPC

Electric Mining Shovel
Digital Drive Control

Operating Specification



Working Ranges		
Height of Cut	16.6 m	54 ft. 6 in.
Radius of Cut	24.2 m	79 ft. 3 in.
Dumping Height* (Door Open)	9.1 m	30 ft. 0 in.
Floor Level Radius	16.4 m	53 ft. 9 in.
Tail Swing Radius	9.9 m	32 ft. 6 in.
Operator Eye Level	9.6 m	31 ft. 4 in.

Capacity		
Nominal Pay Load	59.0 mt	65.0 st
Nominal Dipper Capacity		
SAE struck	33.6 m ³	44.0 yd ³
SAE 2:1	36.6 m ³	47.9 yd ³
Rated Suspended Load	122.5 mt	135.0 st
Optimum Truck Size (240 st truck shown)	172-240 mt	190-265 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.
- 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	+4500 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 1194kW/1600hp 2065kW/2768hp
Swing Motor (Two used)	Continuous rating @ 550 volts Peak developed power	Total 746kW/1000hp 1119kW/1500hp
Crowd Motor (One used)	Continuous rating @ 550 volts Peak developed power	Total 537kW/720hp 592kW/793hp
Propel Motor (Two used)	Continuous rating @ 550 volts Peak developed power	Total 612kW/820hp 1460kW/1958hp



Power Requirements

Supply Voltage*	4160 or 7200V 3 Phase, 60 Hz	3000, 5000, 6000 or 6600 3 Phase, 50 Hz.
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Supply Transformer (Minimum) 2500 kVA

Minimum Short Circuit VA Available at Shovel 22 MVA

*Voltage per customer requirements

TRANSFORMER

Main Armature Transformer	2000 kVA
Auxiliaries-Field Transformer	450 kVA
Control/Lighting Supply Winding	50 kVA



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 56" diameter hoist drum for extended rope bending life. Ferrule becket system and dual electric tuggers are standard for efficient rope change. Dual electric tigger 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 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.

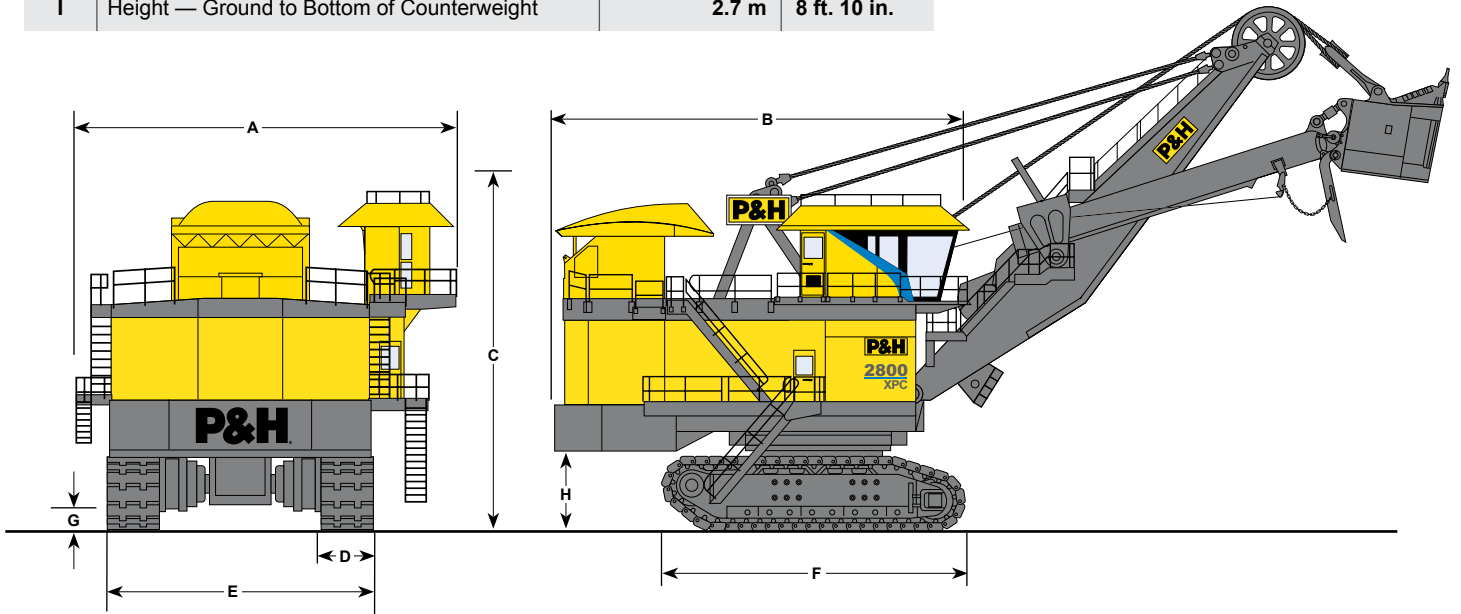


Cable Data

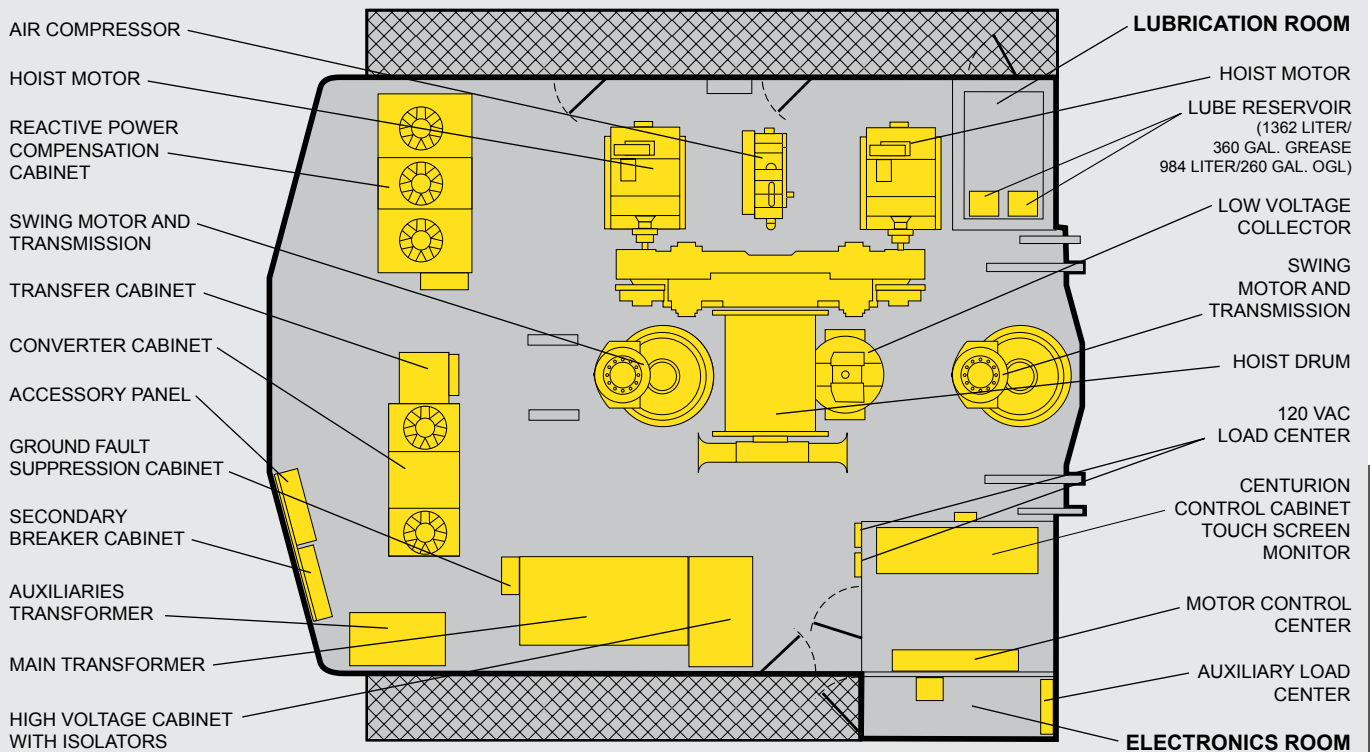
Hoist (wire rope)	60 mm	2.38 in. dia.
Suspension (bridge strand)	90 mm	3.50 in. dia.
Dipper Trip (wire rope)	13 mm	0.50 in. dia.

Overall Dimensions

A	Width	13.1 m	43 ft. 0 in.
B	Length	14.8 m	48 ft. 8 in.
C	Height Over Gantry	12.4 m	40 ft. 9 in.
D	Width of Crawler Shoes	1422 mm (std.) 1829 mm	56 in. (std.) 72 in.
E	Width of Crawlers (std.)	9.0 m	29 ft. 8 in.
F	Length of Crawlers	10.8 m	35 ft. 5 in.
G	Ground Clearance	1.0 m	3 ft. 4 in.
I	Height — Ground to Bottom of Counterweight	2.7 m	8 ft. 10 in.



Machinery Deck Plan





Ground Pressure & Weight

BEARING AREA - GROUND PRESSURE

Standard:

Crawler Bearing Area 56" Shoes/ 1422mm	23.94 m ²	37,112 in ²
Crawler Ground Pressure 56" Shoes/ 1422mm	442 kPa	64.10 psi

Optional:

Crawler Bearing Area 72" Shoes/ 1829mm	30.78 m ²	47,716 in ²
Crawler Ground Pressure 72" Shoes/ 1829mm	345 kPa	50.09 psi

WEIGHTS - APPROXIMATE*

Working Weight (with Dipper, Approx. Wt.)

56" Shoes/1422mm	1,079,000 kg	2,379,000 lbs
72" Shoes/1829mm	1,084,000 kg	2,390,000 lbs
Counterweight (Punchings)**	230,000 kg	507,000 lbs

* All weights subject to 5% variation.

** To be furnished by customer.



Features And Customization

The 2800XPC 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



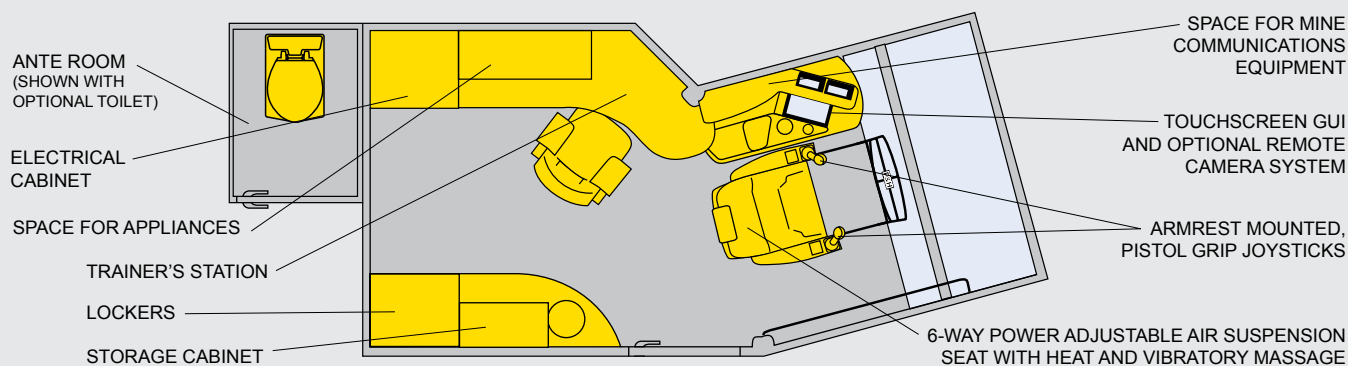
Lighting

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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