

KOMATSU

1900XPC AC



Electric rope shovel



Nominal Payload

20 st
(18 mt)

Dipper capacity

13 yd³
(10 m³)

Production

1,486-1,981 TPH

P&H 1900XPC AC Shovel building on proven success



Need to decrease your environmental impact and cut costs?

- Up to 51% less CO² released per ton of material moved*
- Up to 12% lower cost per ton of material moved*

*Compared to equivalent capacity diesel loading tools from Komatsu

Move closer to net zero

Drive sustainability at your mine with Komatsu electric rope shovels. Just connect to your power source, run through your normal dig cycle and regenerate energy back into your power grid to help reduce emissions.

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

Komatsu is proud to offer the P&H 1900XPC AC electric mining shovel. The P&H shovel line is combining its solid reputation of reliability with the proven Centurion electrical control system, industry leading IGBT AC systems, rugged structures and the industry's only direct field service and support network to set the industry standard for electric mining shovels.

Increases in availability and productivity ultimately lead to the lowest cost per ton and the most efficient ultra-classloading 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 electric shovels are exceeding customer requirements and expectations since 1920:

- Low total cost of ownership
- High productivity
- Excellent machine reliability and durability

We set the industry standard for electric mining shovels

A closer look

P&H 1900XPC AC features:

- IGBT AC technology
- Dual planetary propel
- Proven steel structures

The P&H performance edge

Attachment of choice for the world's toughest applications

- Twin-leg dipper handle: stable dipper trajectory, faster cycle times, higher productivity
- Rack-and-pinion crowd: less maintenance, all-weather performer
- P&H dippers - Mine-matched dippers can be customized for the exact mining requirements

Technology

- Centurion electrical control system: superior performance, monitoring and data integration capabilities
- KMAP remote health management: real-time machine health and performance management

Operator cab

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

Smart 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



Komatsu Mining is the worldwide leader in electric mining shovels. The P&H 1900XPC AC sets the standard in performance and productivity.

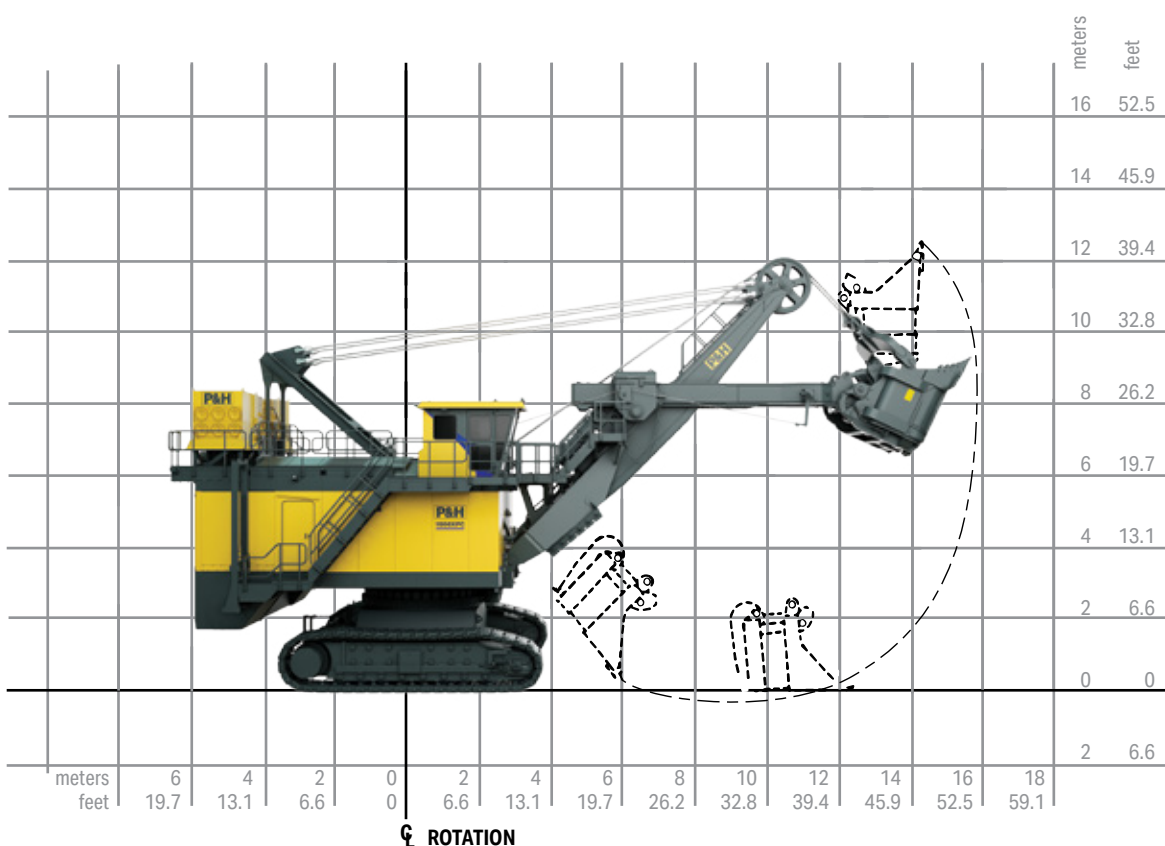
- Designed for *severe-duty* digging and loading
- Years of experience in building rugged, reliable equipment
- Extensive collaboration with customers and our partner ABB during development

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
- Komatsu Mining field support

P&H 1900XPC AC electric rope shovel

General specifications



Working ranges

Max cutting height	13.48 m	44 ft, 3 in
Max cutting radius	18.15 m	59 ft, 7 in
Max dumping height (door open)	8.75 m	28 ft, 8 in
Radius of cleanup	12.68 m	41 ft, 7 in
Tail swing radius	6.98 m	22 ft, 11 in
Operator eye level	7.4 m	24 ft, 3 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. Not all positions obtainable with a loaded dipper.*

Capacity

Nominal payload*	18 mt	20 st
Nominal dipper capacity*	10 m ³	13 yd ³
Range dipper capacity	6-10 m ³	8-13 yd ³
Range suspended load	37.2 mt	41 st

**Payload and dipper capacity are dependent on many factors. Contact Komatsu Mining for an analysis of your specific application.*

Electrical control

Centurion supervisory controller provides direct integrated communication with motor drives giving precise motor control and fast cycle times. Realtime multi-tasking capability allows for optimal machine logic sequencing, monitoring and control.

Centurion I/O system uses the 'Profinet' 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 AC drive provides precise, reliable, solid-state power to the main motion motors.

Electrical control systems

The electrical drive system is comprised of a multidrive platform, sharing a common DC bus between the IGBT supply unit (ISU) and the motor drive inverter units (INU). The fully regenerative ISU controls the power flow to and from the shovel, maintaining a unity power factor with extremely low harmonic content. The fully regenerative INU controls the power flow to and from the individual AC motors.

P&H AC fast response main machinery motors

Hoist motor (one used)	Continuous rating @ 500 volts Peak developed power	Total 328 kW / 440 hp 455 kW / 610 hp
Swing motor (two used)	Continuous rating @ 500 volts Peak developed power	Total 201 kW / 270 hp 280 kW / 375 hp
Crowd motor (one used)	Continuous rating @ 500 volts Peak developed power	Total 126 kW / 170 hp 212 kW / 285 hp
Propel motor (two used)	Continuous rating @ 500 volts Peak developed power	Total 201 kW / 270 hp 355 kW / 476 hp

Power requirements

Supply voltage*	7200V, 3 phase, 60Hz	6,000V / 6600V, 3 phase, 50Hz
Supply transformer	(minimum) 1,250 kVA	
Minimum short circuit VA available at shovel	13 MVA	

*Voltage per customer requirements

Ground pressure and weight

Bearing area – ground pressure

Standard:		
Crawler bearing area 42" (1,066 mm) shoes	14.19 m ²	22,000 in ²
Crawler ground pressure 42" (1,066 mm) shoes	267.5 kPa	38.8 psi
Optional:		
Crawler bearing area 48" (1,219 mm) shoes	15.96 m ²	25,200 in ²
Crawler ground pressure 48" (1,219 mm) shoes	237.2 kPa	34.4 psi

Weights – approximate*

Working weight (includes dipper and counterweight)		
42" (1,066 mm) shoes	378,750 kg	855,000 lbs
48" (1,219 mm) shoes	381,925 kg	867,000 lbs
Counterweight (punchings)**	54,431 kg	139,000 lbs
Minimum density	4,245 kg/m ³	265 lb/ft ³

* All weights subject to 5% variation.

** To be furnished by customer.

Cable data

	Size	Length
Hoist (2 required)	38 mm 1.5 in	73.15 m 240 ft
Boom suspension (4 required)	48 mm 1.9 in	14.48 m 47 ft, 6 in
Dipper trip – electric	16 mm 63 in	21.34 m 70 ft, 0 in

*45° boom angle

Features and customization

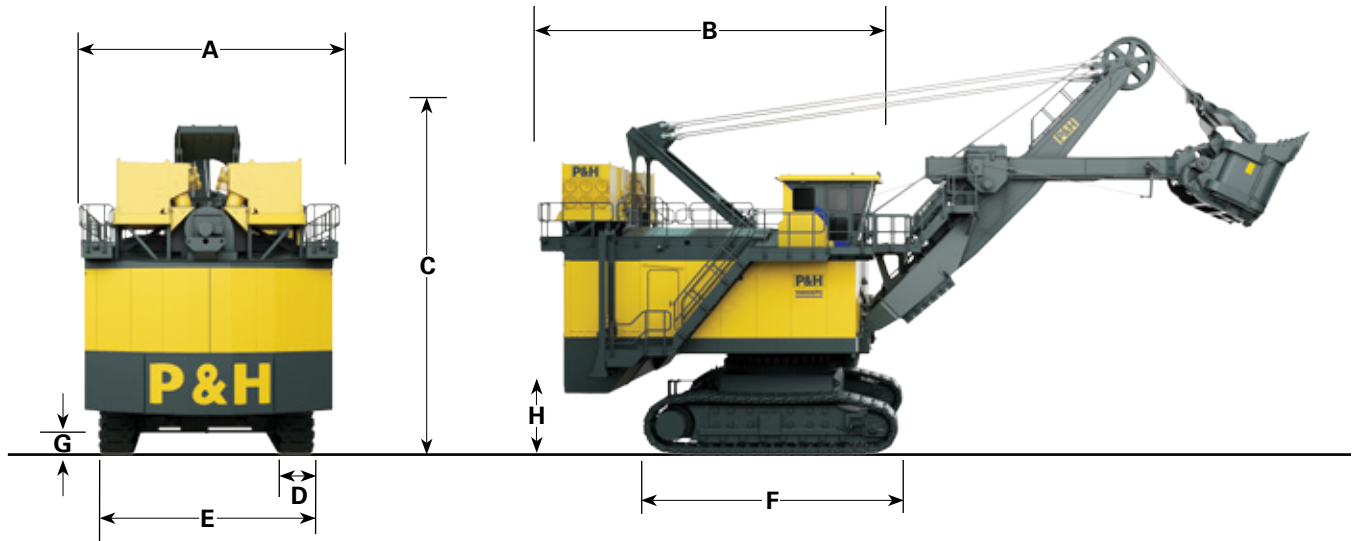
The P&H 1900XPC AC is built with several features to enhance safety, reliability and productivity over the lifecycle of the operation.

- Automatic lubrication and compressed air systems with advanced diagnostic and control
- 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
- 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:

- Climate control
- Technology and software
- Maintenance systems

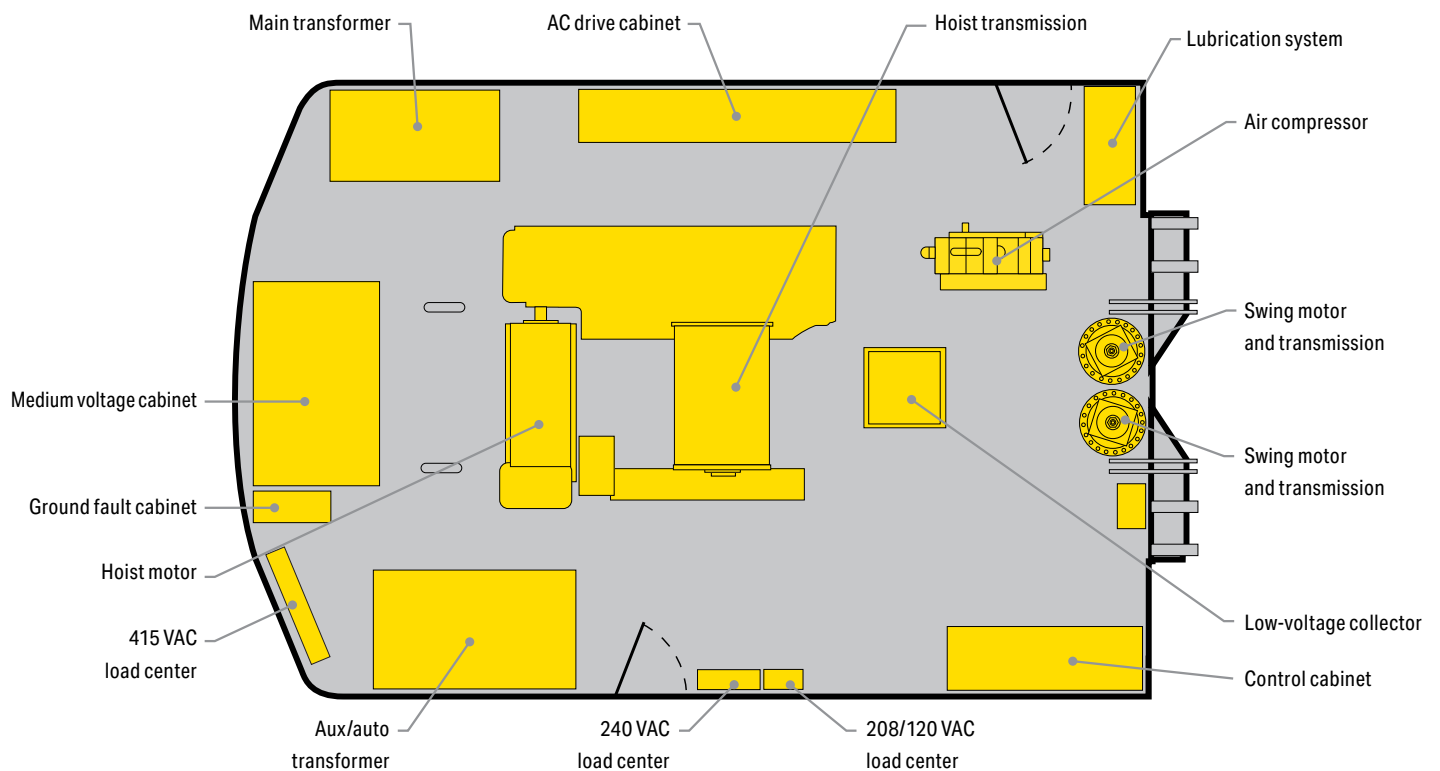
1900XPC AC



Overall dimensions

A	Width	9.02 m	29 ft, 7 in
B	Length	10.56 m	34 ft, 8 in
C	Height over gantry	10.35 m	33 ft, 11 in
D	Width of crawler shoes	1,067 mm	42 in
		1,219 mm	48 in
E	Width of crawlers (42")	6.71 m	22 ft, 0 in
F	Length of crawlers	7.66 m	25 ft, 2 in
G	Ground clearance	0.66 m	2 ft, 2 in
H	Height—ground to bottom of counterweight slabs	1.86 m	6 ft, 1 in

Machinery deck plan



Hoist

Gear case		Oil tight
Drum pitch diameter	1,067 mm	42 in
Drum length	1,168 mm	46 in
Drum groove arrangement	Single part quadruplex hoist cable	
Drum shaft bearings		Tapered roller
Other bearings	Tapered and straight roller	
First reduction gears		Helical
Other gears		Spur
Hoist brake		Spring-set-air release
Hoist brake location	1st reduction shaft assembly	
Boom point sheaves pitch diameter	1,676 mm	66 in
Boom point bearing		Tapered roller

Swing

Swing transmission (two used)		Planetary
Swing gear		External cut teeth
Swing gear diameter	3.96 m	13 ft
Swing brakes (two used)		Spring set-air release
Swing brake location		Motor shaft
Number of rollers in roller circle		40
Tapered roller diameter	228.6 mm	9 in
Roller track mean diameter	3.607 m	142 in
Type of fastening to upper		Center gudgeon
Location of gudgeon adjusting nut		On upper

Propel

Propel transmission (two used)	Planetary	Planetary
Propel brakes (two used)		Spring set-air release
Propel brake location		Motor shaft
Center to center of sprockets	5.64 m	18 ft, 6 in
Front idler diameter	1,092 mm	43 in
Number of lower rollers, each crawler frame		8
Diameter of lower rollers	559 mm	22 in
Width of crawler shoes (standard)	1,067 mm	42 in
Width of crawler shoes (optional)	1,219 mm	48 in
Pitch of crawler shoes (42" & 48")	377 mm	14.86 in
Number of crawler shoes (42" & 48") (both crawlers)		88
Propel speed	1.66 kmph	1.03 mph

Crowd

Gear case	Oil tight, welded integral with boom	
First reduction gearing		Conical worm
Worm and wheel bearings		Tapered and straight roller
Shipper shaft bearing type		Bronze Bushing
Shipper shaft bearing diameter	305 mm	12 in
Shipper pinion pitch diameter	388 mm	15.28 in
Access to crowd machinery		Railed platform
Crowd brake		Spring set-air release
Crowd brake location		Motor shaft



Contact a Komatsu Mining service representative for more information on the P&H electric mining shovel or visit <https://www.komatsu.com/en-us/products/equipment/electric-rope-shovels/1900xpc>

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