**PC4000 Mining Shovel**

**OPERATING WEIGHT**
855,500–879,800 lb
388–399 ton

**SHOVEL CAPACITY**
29 yd³ 22 m³
SAE 2:1 heaped

**BACKHOE CAPACITY**
29 yd³ 22 m³
SAE 1:1 heaped

*Photos may include optional equipment.*
Photos may include optional equipment
**Komtrax equipped machines can send location, SMR and operation maps to a secure website utilizing wireless technology. Machines also relay error codes, cautions, maintenance items, fuel levels, and much more.**

**Quality**
- Quality management ISO 9001
- Environmental Management ISO 14001
- High consistent quality through continuous investment in personnel, design and manufacturing systems and processes

**Reliability and Durability**
- Robust structural design developed from field experience and finite element analysis

**Undercarriage**
- Big diameter rollers, idlers and sprockets
- Large surface area and extensive precision hardening reduce track wear
- Hardened track link pin bores

**Productivity**
- Powerful digging forces
- Ease of bucket filling
- Proven bucket design
- All cylinders mounted in the shadow of the attachment for protection
- Buckets and wear packages to suit all material densities and properties

**Advanced Hydraulics**
- Precise control
- Comprehensive monitored filtration
- Simple open circuit hydraulic system with high efficiency swing out oil coolers

**Large Comfortable Cab**
- Gives full shift comfort
- Komatsu low noise cab on multiple viscous mounts for reduced noise and vibration
- Large volume cab with large scale front window
- Comprehensive climate control with pressurized filtered air ventilation and air conditioning
- High specification multi-adjustable air suspension seat
- Well elevated operator position giving good all round view

**Powerful Diesel Engine**
- Komatsu SDA16V160E-2 engine Tier 2 certified, Rated 1400 kW 1875 HP at 1800 rpm
- Electronic engine management
- Low engine emission levels meet EPA regulations
- Time saving Engine Oil Management System; Centinel, Engine Reserve Oil Supply and Eliminator Oil Filter system

**Easy Maintenance**
- Simple, common-sense design provides easy access to all major components
- Generous access to all major service points from machinery house floor level
- Enclosed, walk-in machinery house with partition wall separating engine from pump area
- Automatic central lubrication
- KOMTRAX Plus electronic monitoring system providing real time information about the operating status of the machine
- Ground-level access to hydraulically powered swing down service arm with Wiggins connections
**SPECIFICATIONS**

### DIESEL DRIVE

Model: Komatsu SDA16V160E-2 Tier 2  
Type: Water-cooled, 4-cycle, direct injection  
Aspiration: Turbocharged and aftercooled  
Number of cylinders: 16  
Rated power: 1400 kW / 1875 HP  
Rated rpm: 1800  
Governor: All-speed control, electronic  

The integrated engine oil and filter system combining the oil stabilizing systems, Reserve and Centinel, with Eliminator oil filter extends the oil change interval up to 4000 hours based on oil analysis. The high capacity Mesabi engine radiators are cooled by a hydraulically driven fan for superior cooling efficiency.

### HYDRAULIC SYSTEM

The power train consists of one main drive. One gearbox drives four identical pumps which draw hydraulic oil from an unpressurized hydraulic tank. Open circuit hydraulics provide maximum cooling and filtering efficiency.  
Rated flow (total output): 4140 ltr/min 1,096 gal/min  
Relief valve setting: 310 bar / 4,495 psi  
Swing flow rate: 1590 ltr/min 420 gal/min  
High pressure in line filters: 200 microns  
Full flow return line filters (4 elements): 10 microns  
Case drain/by-pass return line filters: 3 microns  

The four-circuit system features a load-limiting governor with oil delivery summation to the working circuits and incorporates pressure cut-off control. Hydropilot prioritizes hydraulic flow giving smooth hydraulic response, simple hydraulic system layout, and a reduced number of components. The hydraulic system includes large swing-out vertical air-to-oil hydraulic coolers with temperature regulated hydraulically driven fans.

### CRAWLER ASSEMBLY

Track adjustment: Automatic hydraulic type  
Number of track shoes (each side): 49  
Number of top rollers (each side): 3  
Number of bottom rollers (each side): 7  

### ELECTRIC SYSTEM (DIESEL VERSION)

System: 24 V  
Batteries (series/parallel): 2 x 2 x 12 V  
Alternator: 260 A  
Standard working lights: 14 Xenon lights  
Standard service lights: throughout platform

### ELECTRIC SYSTEM (ELECTRIC VERSION)

System: 24 V  
Batteries (series/parallel): 2 x 2 x 12 V  
Standard working lights: 14 Xenon lights  
Standard service lights: throughout platform

### ELECTRIC DRIVE

Type: Squirrel-cage induction motor  
Power output: 1350 kW  
Amperage (approximate): 145 A – 120 A  
Start-up: Soft start  
Frequency standard: 60 Hz @ 1800 rpm  
Frequency option: 50 Hz @ 1500 rpm  

* Other voltages available on request

### AUTOMATIC CENTRALIZED LUBRICATION

Two hydraulically powered Lincoln single line automatic lubrication systems are provided as standard, complete with time and volume variable controls. The central lube grease system is supplied from a refillable 200 liter barrel. A second, identical system supplies open gear lubricant to the swing ring teeth through a lube pinion. Replenishment of the containers is through the Wiggins connections on the service arm.

### SERVICE CAPACITIES

Hydraulic oil tank: 3900 ltr 1,030 U.S. gal  
Hydraulic system: 5900 ltr 1,559 U.S. gal  
Fuel: 6400 ltr 1,691 U.S. gal  
Engine coolant: 475 ltr 125 U.S. gal  
Engine oil: 290 ltr 77 U.S. gal  
Reserve engine oil make up tank: 460 ltr 122 U.S. gal
The large and comfortable cab is mounted on 18 viscous damping pads and sound insulated. The cab has an automatic climate control and is pressurized. The operator’s seat is air suspended, electrically heated and has a lap seat belt and offers multiple adjustments. The trainer seat is also equipped with a lap seat belt. Low-effort joystick controls are electric over hydraulic with foot controls for front shovel clam, crawler and swing brake. Full instrumentation, KOMTRAX Plus and an AM/FM radio with MP3 ready CD player is fitted. The windshield wash wiper has two speeds and intermittent operation. Amenities include a refrigerator and storage cabinets. Powered and heated mirrors are adjusted from inside the cab. External metal sun blinds on the cab side window and internal roller blinds on all windows are standard. The left hand window is an emergency exit. All windows are tinted parl green.

Cab engineering standards are:
- ISO 3449 Falling Objects Protection Structure (FOPS Level II)
- ISO 6396 Noise in operator’s cab is 75 dB(A)
- ISO 2631-1 Whole body vibration and shock below 0.5 m/s²
- ISO 5349-1 Hand-lever vibration lower 2.5 m/s²
- ISO 10263-4 Heating and air conditioning
  - second heater and air conditioner as option

### PC4000 Backhoe:
Operating weight including 9750 mm 32'6" boom, 4500 mm 14'9" stick, 22 m³ 29.0 yd³ backhoe bucket, operator, lubricant, coolant, 1/3 fuel and standard equipment.

<table>
<thead>
<tr>
<th>Shoe Width</th>
<th>Operating Weight</th>
<th>Ground Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200 mm</td>
<td>394 t</td>
<td>21.6 N/cm²</td>
</tr>
<tr>
<td>47&quot;</td>
<td>869,200 lb</td>
<td>31.3 psi</td>
</tr>
<tr>
<td>1500 mm</td>
<td>399 t</td>
<td>17.5 N/cm²</td>
</tr>
<tr>
<td>59&quot;</td>
<td>879,800 lb</td>
<td>25.4 psi</td>
</tr>
</tbody>
</table>

### PC4000 Front Shovel:
Operating weight including 7150 mm 23'6" boom, 4900 mm 16'1" stick, 22 m³ 29.0 yd³ shovel bucket, operator, lubricant, coolant, 1/3 fuel and standard equipment.

<table>
<thead>
<tr>
<th>Shoe Width</th>
<th>Operating Weight</th>
<th>Ground Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200 mm</td>
<td>388 t</td>
<td>21.3 N/cm²</td>
</tr>
<tr>
<td>47&quot;</td>
<td>855,500 lb</td>
<td>30.9 psi</td>
</tr>
<tr>
<td>1500 mm</td>
<td>393 t</td>
<td>17.2 N/cm²</td>
</tr>
<tr>
<td>59&quot;</td>
<td>866,600 lb</td>
<td>24.9 psi</td>
</tr>
</tbody>
</table>
**PRODUCTIVITY FEATURES**

**BACKHOE ATTACHMENT**

### Bucket Capacity (Heaped 1:1) SAE

<table>
<thead>
<tr>
<th>Width</th>
<th>Teeth qty</th>
<th>Wear Package</th>
<th>Weight</th>
<th>Max. Material Density (Loose)</th>
<th>Recommended Mining Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.0</td>
<td>15'0&quot;</td>
<td>5</td>
<td>22.4</td>
<td>49,390</td>
<td>2.1  3,400</td>
</tr>
<tr>
<td>22.0</td>
<td>15'0&quot;</td>
<td>5</td>
<td>22.0</td>
<td>50,700</td>
<td>1.8  3,000</td>
</tr>
<tr>
<td>23.0</td>
<td>15'0&quot;</td>
<td>5</td>
<td>23.4</td>
<td>51,000</td>
<td>1.7  2,900</td>
</tr>
</tbody>
</table>

*) WP 1  Light abrasive  
WP 2  Medium abrasive  
WP 3  Severe abrasive

- **Bucket Capacity**
  - 19.0 m³ (25.0 yd³)
  - 22.0 m³ (29.0 yd³)
  - 23.0 m³ (30.0 yd³)

- **Width**
  - 3050 mm (10'0"
  - 3790 mm (12'5"

- **Teeth qty**
  - 6

- **Wear Package**
  - WP 1  Light abrasive
  - WP 2  Medium abrasive
  - WP 3  Severe abrasive

- **Weight**
  - t
  - lb

- **Max. Material Density (Loose)**
  - t/m³
  - lb/yd³

- **Recommended Mining Uses**
  - Heavy Duty
  - Standard

- **Alternative buckets on request**
**PC4000**

**Front Shovel Attachment**

- **Boom length**: 7150 mm (23'6'')
- **Stick length**: 4900 mm (16'1'')
- **Break-out force (SAE)**: 1250 kN (280,000 lb)
- **Tear-out force (SAE)**: 1330 kN (300,000 lb)
- **Max. digging height**: 17400 mm (57'1'')
- **Max. dumping height**: 12000 mm (39'4'')
- **Max. digging depth**: 2900 mm (9'6'')
- **Max. digging reach**: 15100 mm (49'6'')
- **Level crowd at ground level**: 5700 mm (18'8'')
- **Bucket opening width**: 2650 mm (8'8'')

### Bucket Capacity

<table>
<thead>
<tr>
<th>Capacity (Heaped 1:2)</th>
<th>SAE Width</th>
<th>Teeth</th>
<th>Wear Package</th>
<th>Weight t</th>
<th>Max. Material Density (Loose) t/m³</th>
<th>Recommended Mining Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.0</td>
<td>4020</td>
<td>13'2&quot;</td>
<td>4</td>
<td>35.0</td>
<td>2.1</td>
<td>3,400</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>77,180</td>
<td></td>
<td>Heavy Duty</td>
</tr>
<tr>
<td>22.0</td>
<td>4020</td>
<td>13'2&quot;</td>
<td>3</td>
<td>34.5</td>
<td>1.8</td>
<td>3,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>76,100</td>
<td></td>
<td>Standard</td>
</tr>
<tr>
<td>23.0</td>
<td>4020</td>
<td>13'2&quot;</td>
<td>3</td>
<td>34.7</td>
<td>1.7</td>
<td>2,900</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>76,510</td>
<td></td>
<td>Standard</td>
</tr>
<tr>
<td>24.0</td>
<td>4020</td>
<td>13'2&quot;</td>
<td>3</td>
<td>35.8</td>
<td>1.6</td>
<td>2,700</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>78,940</td>
<td></td>
<td>General Purpose</td>
</tr>
</tbody>
</table>

* WP 1 Non abrasive   WP 2 Light abrasive   WP 3 Medium abrasive   WP 4 Severe abrasive

*Alternative buckets on request*
**STANDARD EQUIPMENT**

**HYDRAULIC MINING SHOVEL WITH DIESEL DRIVE TIER 2**

**FRONT SHOVEL ATTACHMENT**
- 7.15 m 23'6" boom
- 4.9 m 16'1" stick
- Set of cylinders
- 22 m³ 29 yd³ (SAE 2:1) shovel bucket
- WP3, with hammerless GET system

**BACKHOE ATTACHMENT**
- 9.75 m 32° boom
- 4.5 m 14'9" stick
- Set of cylinders
- 22 m³ 29 yd³ (SAE 1:1) bucket
- WP2, with hammerless GET system

**CRAWLER UNDERCARRIAGE**
- Heavy-duty shovel type undercarriage
- 2 heavy box-type track frames
- 7 bottom rollers and 3 top rollers each side
- 1200 mm 47" cast steel track shoes
- Hydraulic track adjustment and parking brake

**SUPERSTRUCTURE**
- Main frame mounted over an externally toothed swing circle carries the drive module
- Komatsu SDA16V160E-2 diesel engine
- Hydraulic components
- Counterweight

**LIGHTING**
- 14 Xenon high performance working lights
- Service lights throughout platform

**OPERATOR CAB**
- Enclosed steel cab mounted on viscous pads
- FOPS according ISO 3449 (Level II)
- Air-conditioning
- Full suspension operator seat
- Trainer seat
- Controls in operator comfort zone
- KOMTRAX Plus (Monitoring System)
- Joysticks and controls are electric over hydraulic
- 1 large parallel windshield wiper
- AM-FM radio with MP3 ready CD player
- Internal and external sun blinds
- All windows tinted parsoil green

**DIMENSIONS**

| Basic Machine with Counterweight | A | 1200 mm | 3'11" | J | 3085 mm | 10'2" |
| B | 1500 mm | 4'11" | K | 7600 mm | 24'11" |
| C | 6750 mm | 22'2" | L | 8300 mm | 27'3" |
| Cb | 7050 mm | 23'2" | Ma | 4700 mm | 15'5" |
| D | 2480 mm | 8'2" | Mb | 3896 mm | 12'9" |
| E | 930 mm | 3'1" | N | 3503 mm | 11'6" |
| F | 3380 mm | 11'1" | O | 8300 mm | 27'3" |
| G | 6700 mm | 22'0" | P | 6095 mm | 20' |
| H | 8842 mm | 29' | Pr | 6500 mm | 21'4" |
| I | 3017 mm | 9'11" |

**OPTIONAL EQUIPMENT**

- 1500 mm 69° track shoes
- Electric drive
- Cable reel (Electric version)
- Additional lighting
- Fire suppression system
- Low temperature package (-40 °C; -50 °C) incl. KIM hot start

**LUBRICATION AND SERVICE**
- LINCOLN central lubrication for basic machine, attachment and bucket
- LINCOLN automatic pinion lubrication system for swing circle teeth
- WIGGINS service arm carrying fluid receiving connectors for filling of fuel, engine oil and coolant, hydraulic oil, grease, and the evacuation of coolant, hydraulic and engine oils

**ACCESSORIES INCLUDED**
- Acoustic travel alarm
- Hydraulically actuated ground access ladder
- Electric horn
- Engine turbo and exhaust pipes cover
- Engine oil management package (Centinel, Reserve & Eliminator systems)
- Service transfer oil pump
- Rails and steps on boom
- Tie off points on boom

**PC4000**

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