

KOMATSU®

PC4000 Mining Shovel

PC4000

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

PC4000

Mining Shovel

MATCHES

150 to 240 U.S. ton trucks

SHOVEL CAPACITY

29 yd³ 22 m³
SAE 2:1 heaped

BACKHOE CAPACITY

29 yd³ 22 m³
SAE 1:1 heaped



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

KOMTRAX®

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.



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**
 SAE J1995 (Gross)

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
 one per pump located at the valve blocks
 Full flow return line filters (4 elements) 10 microns
 at head of hydraulic tank
 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.



TRAVEL AND BRAKE SYSTEMS

Travel control..... 2 foot pedals
 Gradeability..... Up to 50%
 Maximum travel speed..... 2.1 km/h **1.3 mph**
 Service brake.....Hydraulic brake
 Parking brake..... Wet multiple-disc brake



SWING SYSTEM

Hydraulic motors and drives 2
 Swing brake, service.....Hydraulic brake
 Swing brake, parking Wet multiple-disc
 Swing ring teeth External
 Swing speed (maximum) 4.0 rpm



UNDERCARRIAGE

Undercarriage consists of one center carbody and two track frames, each side attached by high torque bolts.
 Center frame..... H-type
 Track frame..... Steel box-section



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 3 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
 Voltage 6,000 – 7,200 V*
 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 **53 gal** 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 |



OPERATOR CAB

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 parsol 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



OPERATING WEIGHT (APPROXIMATE)

PC4000 Backhoe:

Operating weight including 9750 mm **32'0"** boom, 4500 mm **14'9"** stick, 22 m³ **29.0 yd³** backhoe bucket, operator, lubricant, coolant, 1/3 fuel and standard equipment.

| Shoe Width | Operating Weight | Ground Pressure |
|-----------------------|----------------------------|---|
| 1200 mm 47" | 394 t 869,200 lb | 21.6 N/cm ² 31.3 psi |
| 1500 mm 59" | 399 t 879,800 lb | 17.5 N/cm ² 25.4 psi |



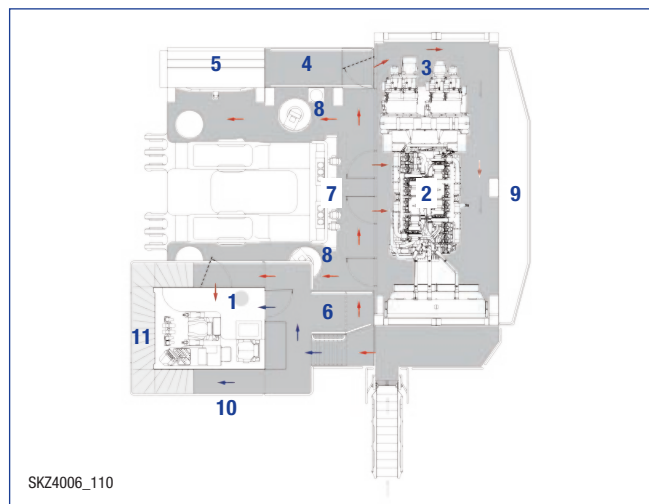
VEHICLE HEALTH MONITORING SYSTEM

KOMTRAX Plus is designed for Komatsu mining equipment to provide real time information about the operating status of the machine via a colored display. The integrated digital storage provides a full event history and trend data, which can be downloaded by laptop, optional are W-LAN or satellite modem.

PC4000 Front Shovel:

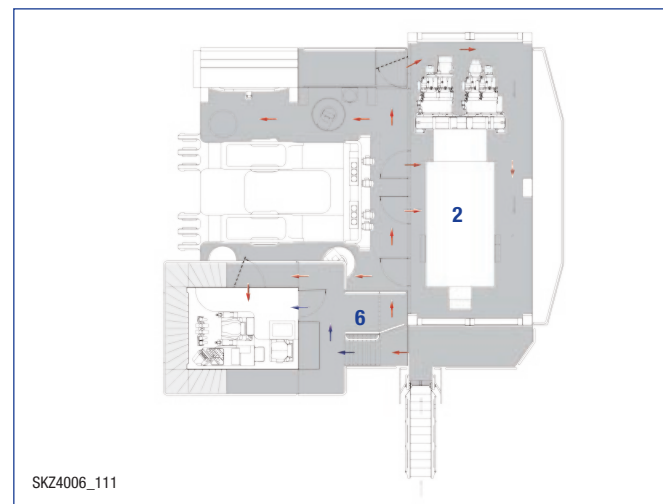
Operating weight including 7150 mm **23'6"** boom, 4900 mm **16'1"** stick, 22 m³ **29.0 yd³** shovel bucket, operator, lubricant, coolant, 1/3 fuel and standard equipment.

| Shoe Width | Operating Weight | Ground Pressure |
|-----------------------|----------------------------|---|
| 1200 mm 47" | 388 t 855,500 lb | 21.3 N/cm ² 30.9 psi |
| 1500 mm 59" | 393 t 866,600 lb | 17.2 N/cm ² 24.9 psi |



Explanation

- | | |
|--------------------|-------------------------|
| 1 Cab | 7 Control Valves |
| 2 Diesel Engine | 8 Swing Motors |
| 3 Hydraulic Pumps | 9 Counterweight |
| 4 Hydraulic Tank | 10 Secondary Egress |
| 5 Hydraulic Cooler | 11 See-through Cat Walk |
| 6 Fuel Tank | |



Variation for Electric Drive Version

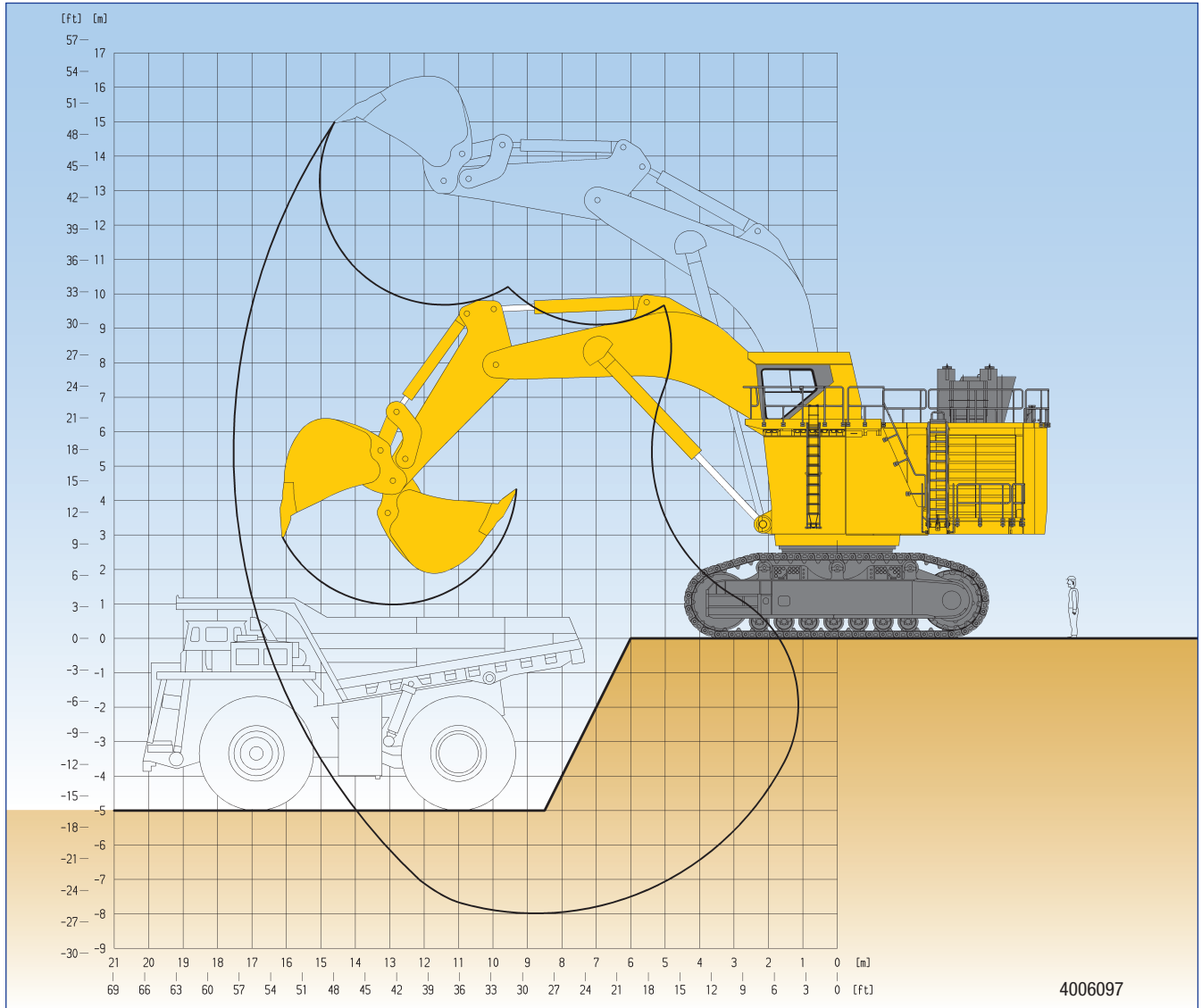
- | |
|---------------------------------|
| 2 Main Electric Motors |
| 6 High Voltage Electric Cabinet |

Walkways
← Lower-Level
← Upper-Level



BACKHOE ATTACHMENT

PC4000



| | | |
|-----------------------|---------|-------------------|
| Boom length | 9750 mm | 32'0" |
| Stick length | 4500 mm | 14'9" |
| Break-out force (SAE) | 1155 kN | 250,000 lb |
| Tear-out force (SAE) | 1050 kN | 235,000 lb |

| | | |
|------------------------------------|----------|---------------|
| Max. digging height | 15000 mm | 49'3" |
| Max. dumping height | 9700 mm | 31'10" |
| Max. digging depth | 8000 mm | 26'3" |
| Max. digging reach | 17500 mm | 57'5" |
| Max. digging reach at ground level | 16650 mm | 54'8" |

| Bucket Capacity (Heaped 1:1) SAE | | Width | | Teeth | Wear Package | Weight | | Max. Material Density (Loose) | | Recommended Mining Uses |
|----------------------------------|-----------------|-------|--------------|-------|--------------|--------|---------------|-------------------------------|--------------------|-------------------------|
| m ³ | yd ³ | mm | foot/inch | qty | *) | t | lb | t/m ³ | lb/yd ³ | |
| 19.0 | 25.0 | 3050 | 10'0" | 5 | 3 | 22.4 | 49,390 | 2.1 | 3,400 | Heavy Duty |
| 22.0 | 29.0 | 3790 | 12'5" | 6 | 2 | 23.0 | 50,700 | 1.8 | 3,000 | Standard |
| 23.0 | 30.0 | 3790 | 12'5" | 6 | 2 | 23.4 | 51,600 | 1.7 | 2,900 | Standard |

*) WP 1 Light abrasive

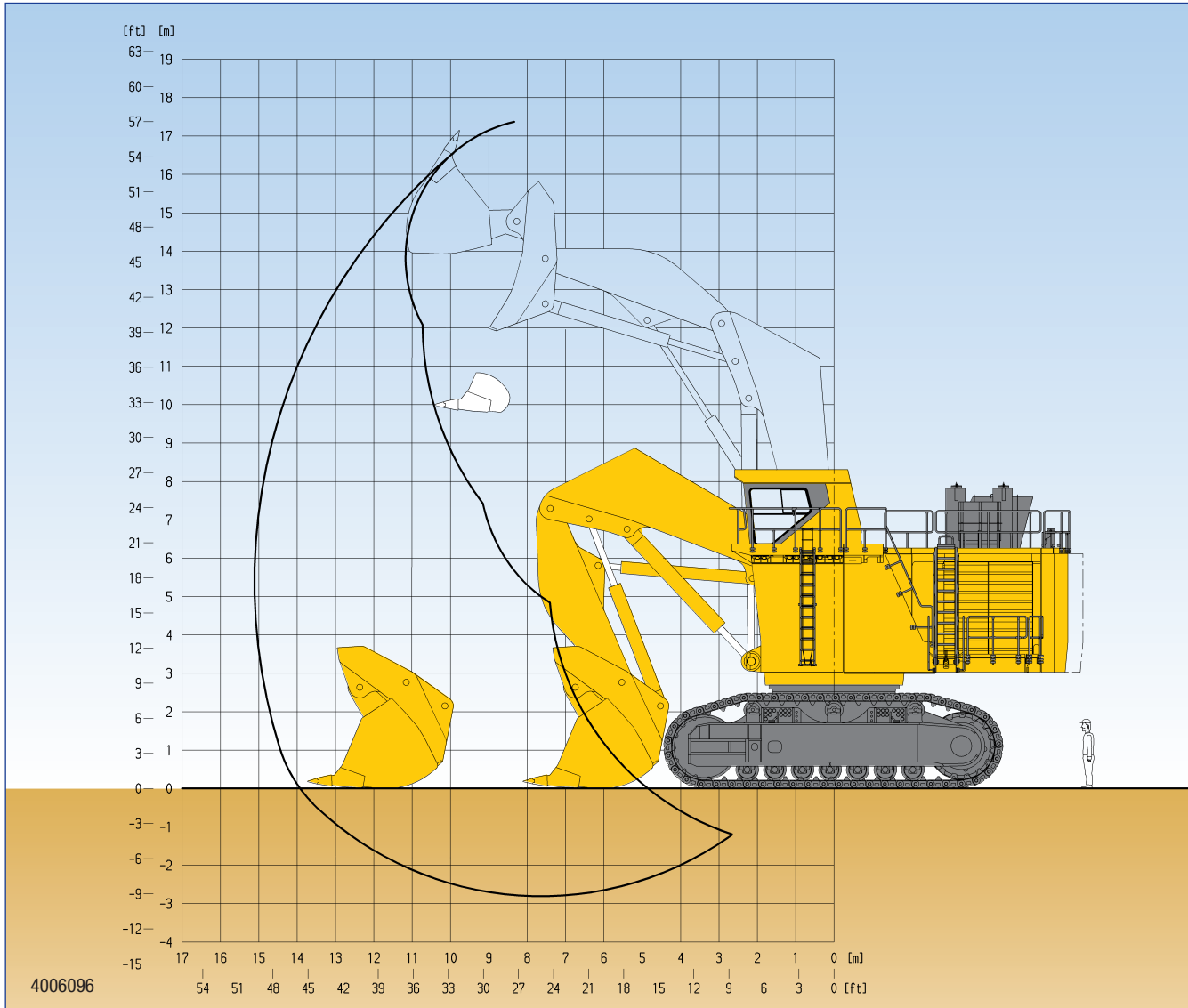
WP 2 Medium abrasive

WP 3 Severe abrasive

Alternative buckets on request



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 (Heaped 1:2) SAE | | Width | | Teeth | Wear Package | Weight | | Max. Material Density (Loose) | | Recommended Mining Uses |
|-------------------------------------|-----------------|-------|--------------|-------|--------------|--------|---------------|-------------------------------|--------------------|-------------------------|
| m ³ | yd ³ | mm | foot/inch | qty | *) | t | lb | t/m ³ | lb/yd ³ | |
| 19.0 | 25.0 | 4020 | 13'2" | 5 | 4 | 35.0 | 77,180 | 2.1 | 3,400 | Heavy Duty |
| 22.0 | 29.0 | 4020 | 13'2" | 5 | 3 | 34.5 | 76,100 | 1.8 | 3,000 | Standard |
| 23.0 | 30.0 | 4020 | 13'2" | 5 | 3 | 34.7 | 76,510 | 1.7 | 2,900 | Standard |
| 24.0 | 31.5 | 4020 | 13'2" | 5 | 3 | 35.8 | 78,940 | 1.6 | 2,700 | General Purpose |

*) 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

OR

BACKHOE ATTACHMENT

- 9.75 m **32'0"** 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 wash wiper
- AM-FM radio with MP3 ready CD player
- Internal and external sun blinds
- All windows tinted parsol green

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



OPTIONAL EQUIPMENT

- 1500 mm **59"** track shoes
- Additional lighting
- Fire suppression system
- Electric drive
- Cable reel (Electric version)
- Low temperature package (-40 °C; -50 °C) incl. KIM hot start



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_A | 6750 mm | 22'2" | L | 8300 mm | 27'3" |
| C_B | 7050 mm | 23'2" | M_A | 4700 mm | 15'5" |
| D | 2480 mm | 8'2" | M_B | 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' | P_R | 6500 mm | 21'4" |
| I | 3017 mm | 9'11" | | | |

