

# PRODUCT SPECIFICATIONS FOR 6040



## GENERAL

<b>Engine Output - SAE J1995</b>	1550 kW
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<b>Bucket Payload</b>	39.6 t
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<b>Operating Weight</b>	404.6 t
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**Note** Specifications above apply to the HRC Face Shovel configuration. Backhoe and Frontless configurations are also available for both HRC and LRC.

## ENGINE

<b>Engine Model</b>	2 x Cat C32
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<b>Gross Power - SAE J1995</b>	1550 kW
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<b>Net Power - SAE J1349</b>	1428 kW
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**Note** Power output relates to highly regulated engines. Lesser regulated engines are also available.

## DIESEL ENGINES

<b>Number of Cylinders - Each Engine</b>	12
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<b>Bore</b>	145 mm
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<b>Stroke</b>	162 mm
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<b>Displacement</b>	32.1 l
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<b>Aspiration</b>	Turbocharged and air-to-air aftercooled
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<b>Components (1)</b>	Additional high-capacity water separator
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<b>Components (2)</b>	Two-stage fuel filter including water separator
<b>Components (3)</b>	Heavy-duty air filters
<b>Components (4)</b>	Microprocessed engine management
<b>Components (5)</b>	Hydraulically driven radiator fan with electronically controlled fan speed
<b>Fuel Tank Capacity</b>	7940 l
<b>Emissions</b>	Meets U.S. EPA Tier 4 Final and EU Stage V emission standards

## ELECTRICAL SYSTEM - DIESEL DRIVE

<b>System Voltage</b>	24V
<b>Batteries in Series/Parallel Installation</b>	6 x 210 Ah - 12 V each; 630 Ah - 24 V in total
<b>Components (1)</b>	6 maintenance-free batteries
<b>Components (2)</b>	Battery isolation relays and switches
<b>Components (3)</b>	Emergency stop switches accessible from ground level, in engine module and in operator's cab
<b>Components (4)</b>	14 LED high-brightness working flood lights
<b>Components (5)</b>	11 LED high-brightness service lights

## OPERATING WEIGHTS

<b>6040 FS - Standard Track Pads</b>	1200 mm
<b>6040 FS - Operating Weight</b>	404600 kg
<b>6040 FS - Ground Pressure</b>	24.1 N/cm <sup>2</sup> (35 psi)

**6040 - Standard Track Pads**

1200 mm

**6040 - Operating Weight**

407300 kg

**6040 - Ground Pressure**

24.3 N/cm<sup>2</sup> (35.3 psi)

**Note**

1600 mm track pads available as option

**6040 FS - Note**

Other track pads available on request

## HYDRAULIC SYSTEM WITH PUMP MANAGING SYSTEM

**Hydraulic Tank Capacity - Diesel Version - Approximately**

3400 l

**Total Volume of Hydraulic Oil - Diesel Version - Approximately**

5800 l

**Main Pumps - Diesel Version**

4 x variable swash plate pumps

**Main Pumps - Maximum Oil Flow - Diesel Version**

4 x 724 L/min (4 x 191 gal/min)

**Maximum Pressure - Attachment**

300 bar

**Maximum Pressure - Travel**

350 bar

**Swing Pumps - Diesel Version**

4 x reversible swash plate pump

**Swing Pumps - Maximum Oil Flow - Diesel Version**

4 x 321 L/min (4 x 85 gal/min)

**Maximum Pressure - Swing Pumps**

350 bar

## HYDRAULIC OIL COOLING

**Diameter - Fan**

1524 mm

**Oil Flow of Cooling Pumps - Diesel Version**

2 x 799 L/min (2 x 211 gal/min)

**Features (1)**

Cooling system fully independent of all main circuits, i.e. controlled cooling capacity is available whenever engine is running

<b>Features (2)</b>	Fan speed is thermostatically controlled
<b>Features (3)</b>	Extremely high cooling efficiency to ensure optimum oil temperature
<b>Components (1)</b>	Gear type cooling pumps supplying high-volume, low-pressure oil to aluminum coolers
<b>Components (2)</b>	Variable axial piston pumps supplying low-volume, high-pressure oil to fans
<b>Diameter - Fan</b>	2 × 1524 mm (2 × 60 in)

## SWING SYSTEM

<b>Swing Drive</b>	3 compact planetary transmissions with axial piston motors
<b>Parking Brake</b>	Wet multiple disc brake, spring-loaded/hydraulically released
<b>Maximum Swing Speed - Diesel Version</b>	4.7 r/min
<b>Swing Ring</b>	Triple-race roller bearing with sealed internal gearing
<b>Features (1)</b>	Dirt wipers at swing ring to prevent build-up of debris between swing ring and carbody
<b>Features (2)</b>	Closed-loop swing circuit with torque control
<b>Features (3)</b>	Hydraulic braking of the swing motion by counteracting control
<b>Features (4)</b>	All raceways and the internal gearing of swing ring supplied by automatic central lubrication system

## UNDERCARRIAGE

<b>Travel Speed - 1st Stage - Maximum</b>	1.5 km/h
<b>Travel Speed - 2nd Stage - Maximum</b>	2.5 km/h

<b>Maximum Tractive Force</b>	2097 kN
<b>Gradeability - Travel Drives - Maximum</b>	57 %
<b>Track Pads - Each Side</b>	42
<b>Bottom Rollers - Each Side</b>	7
<b>Support Rollers - Each Side</b>	2 plus a skid plate in between
<b>Travel Drives - Each Side</b>	1 planetary transmission with 2 two-stage axial piston motors
<b>Parking Brake</b>	Wet multiple disc brake, spring applied/hydraulically released
<b>Components (1)</b>	All running surfaces of sprockets, idlers, rollers and track links are hardened
<b>Components (2)</b>	Acoustic travel alarm
<b>Components (3)</b>	Cast double-grouser combined pad-links with bushings connected by hardened full floating pins
<b>Components (4)</b>	All teeth contact areas of sprocket and pad links are hardened
<b>Components (5)</b>	Fully hydraulic self-adjusting track tensioning system with membrane accumulator
<b>Components (6)</b>	Automatic hydraulic retarder valve to prevent over-speed on downhill travel

## OPERATOR'S CAB

<b>Operator's Eye Level - Approximately</b>	6.8 m
<b>Internal Dimensions of Cab - Length</b>	2200 mm

<b>Internal Dimensions of Cab - Width</b>	1600 mm
<b>Internal Dimensions of Cab - Height</b>	2150 mm
<b>Components (1)</b>	Switch in seat cushion to automatically neutralize the hydraulic controls when operator leaves the seat
<b>Components (2)</b>	Pneumatically cushioned and multi-adjustable comfort seat with lumbar support, seat heating, safety belt, head- and armrests
<b>Components (3)</b>	Roller blinds at all windows
<b>Components (4)</b>	Windshield with parallel intermittent wiper/washer
<b>Components (5)</b>	All-round safety glass, armored windshield and sliding side window
<b>Components (6)</b>	Operator Protective Guard (Top Guard)
<b>Components (7)</b>	Single HVAC with option for Dual HVAC
<b>Components (8)</b>	Joystick controls integrated in independently adjustable seat consoles
<b>Components (9)</b>	Fold-away auxiliary seat with safety belt
<b>Components (10)</b>	External sun shields at side and rear windows
<b>Components (11)</b>	Sliding emergency ladder (kick-down type) with ladder cage
<b>Components (12)</b>	Machine access via retractable access stairway, stairway angle approximately 45 degrees, hydraulically operated
<b>Components (13)</b>	Robust instrument panel including large colored BCS screen with transfective technology
<b>Board Control System (BCS III) Features (1)</b>	USB, Lan (TCP/IP) and CAN BUS interfaces for data export

**Board Control System (BCS III) Features (2)**

On-screen PDF documentation (e.g. operating instructions, technical handbook, spare parts catalog, electric circuit diagram)

**Board Control System (BCS III) Features (3)**

Robust instrument panel including large (12 in) colored touch screen for intuitive handling

**Board Control System (BCS III) Features (4)**

Electronic monitoring, data logging & diagnostic system for vital signs & service data of engines, hydraulic & lube systems

**Board Control System (BCS III) Features (5)**

On-screen troubleshooting assistance

**Board Control System (BCS III) Features (6)**

Graphic charts of logged data

**Board Control System (BCS III) Features (7)**

Fault memory with storage of related conditions

## AUTOMATIC LUBRICATION SYSTEM

**Capacity - Grease Container**

710 l

**Type (1)**

Dual-circuit system with hydraulically driven heavy-duty pumps and electronic time relay control adjust the pause/lube times

**Type (2)**

System failures displayed by Board Control System

**Type (3)**

Grease filters (200 µm) between service station and container, as well as directly behind grease pump

**Type (4)**

Connected to the lubrication system are: - pivot points of attachment, bucket and cylinders

**Type (5)**

Connected to the lubrication system are: - raceways of the swing roller bearing  
- two greasing pinions for the internal gearing of the swing ring

## ATTACHMENTS

**All buckets (FS and BH) are equipped with a wear package consisting of: (1)**

- Special liner material covering main wear areas inside and outside of bucket - Lip shrouds between teeth

<b>All buckets (FS and BH) are equipped with a wear package consisting of: (2)</b>	- Wing shrouds on side walls - Heel shrouds at bottom edges
<b>Shovel attachment with unique TriPower kinematics ensuring the following main features: (1)</b>	- Automatic roll-back limiter to prevent material spillage - Kinematic assistance to hydraulic forces
<b>Shovel attachment with unique TriPower kinematics ensuring the following main features: (2)</b>	- Horizontal automatic constant-angle bucket guidance - Vertical automatic constant-angle bucket guidance
<b>Shovel attachment with unique TriPower kinematics ensuring the following main features: (3)</b>	- Constant boom momentum throughout the whole lift arc - Crowd force assistance
<b>Type (1)</b>	Inspection hole in monoboam BH
<b>Type (2)</b>	Pressure-free lowering of boom (FS and BH) and stick (FS) by means of a float valve
<b>Type (3)</b>	Special wear packages for highly abrasive materials on request
<b>Type (4)</b>	Catwalks with rails at boom (FS and BH)
<b>Type (5)</b>	Welding procedures allow for internal counter-welding (double prep weld) wherever possible
<b>Type (6)</b>	Boom and sticks are stress-relieved after welding
<b>Type (7)</b>	Boom and sticks are torsion-resistant, welded box design of high-tensile steel with massive steel casting at pivot areas
<b>Type (8)</b>	Guards for shovel cylinders (FS)

## BUCKET

<b>Bucket Capacity - Backhoe (heaped 1:1)</b>	22 m <sup>3</sup>
<b>Bucket Capacity - Face Shovel (heaped 2:1)</b>	22 m <sup>3</sup>



# RETRACTABLE SERVICE STATION

## Installation

Retractable service station installed underneath the engine module and easily accessible from ground

## 6040 STANDARD EQUIPMENT

### CAT POWERTRAIN

2 x Cat 3512E engines

Aftertreatment System (used in highly regulated countries only): -Diesel Oxidation Catalysts (DOCs) -Non-DEF solution

Air-to-Air After Cooling (ATAAC)

Turbocharger

Hydraulically driven radiator fan

Electronically controlled fan speed

Micro processed engine management

Heavy-duty air filters

Two-stage fuel filter with series filtration

High-capacity water separator

Starting aid -- automatic ether

Exhaust manifold and turbo heat shields

Dual 24 V electric starters per engine

Automatic engine idle shut down

### HYDRAULICS

Automatic fuel priming

Hydraulic Optimization

Operator Assist: Enhanced Motion Control

Cat Hydraulic Hose assemblies

Pump managing system with: -Electronic load limit control -Flow on demand -Automatic zero flow

regulation -Automatic engine rpm reduction -Reduced oil flow at high hydraulic oil or engine temperature

Pressure cut-off for main pumps

Cooling of pump transmission gear oil

Closed loop swing circuit

Pressure testing points

Full-flow high-pressure filters (100  $\mu\text{m}$ ), main pumps

High pressure filters (100  $\mu\text{m}$ ), closed swing circuit

Full-flow filters (10  $\mu\text{m}$ ), return circuit

Pressure filters swing charge circuit (40  $\mu\text{m}$ )

Pressure filters pilot circuit (6  $\mu\text{m}$ )

Transmission oil filters (40  $\mu\text{m}$ )

Boom float valve (FS and BH)

Stick float valve (FS)

### ELECTRICAL SYSTEM

6 Maintenance-free batteries  
Lockable battery isolator switch  
Lockable starter isolator switch  
13 LED high-brightness working flood lights  
17 LED service lights  
2 acoustic travel alarms -forward and reverse (power module, oil cooler module)  
2 electric horns (1 cab module, 1 oil cooler module)

## **UNDERCARRIAGE**

HD tracks with cast double-grouser track pads  
1400 mm (4'7") wide track pads  
HD fixed axle carrier and load rollers  
HD fixed axle idlers  
Automatic hydraulic retarder valve  
Hinged travel motor covers  
Hardened running surfaces of sprockets, idlers, rollers, pad links, teeth contact areas  
Fully hydraulic self-adjusting track tensioning system with piston accumulators

## **AUTOMATIC LUBRICATION SYSTEM**

Rectangular grease container (fill via service station)  
Lubricated pinion in swing ring  
Grease filters (200 µm)

## **OPERATOR ENVIRONMENT**

Single hydraulically driven HVAC system  
In-floor window with removable grate  
Pneumatically cushioned and multiadjustable comfort seat with: -Heating and cooling -Lumbar support -2-point safety belt -Head and arm rests -Safety switch for automatic motion shutdown  
Independently adjustable seat consoles with integrated joysticks  
Electronic-Hydraulic Servo Control  
Elevated full-size trainer seat with 2-point safety belt and laptop desk  
Additional fold-away auxiliary seat with 2-point safety belt  
Three cup holders  
FM/AM radio with USB and AUX input  
Parallel intermittent wiper/washer  
Roller blinds  
Monitoring system with 254 mm (10 in) color touchscreen  
45° stairway from engine bay to operator cab  
Powered 45° access stairway  
Heated mirror on LH side  
Camera monitoring system (Right and rear cameras, 2 lights, and additional display)  
Level indicators for length and crosswise inclination  
Document Storage

## **FRONT ATTACHMENT**

Service access holes from both sides in boom and stick (FS and BH)

Boom and stick thermally stress relieved after welding  
Catwalks with rails at boom (FS and BH)  
Wear Package (as per bucket selection)

## **CAT TECHNOLOGY**

Cat Product Link™ Elite (Cellular)  
Cat MineStar™ Solutions Ready

## **SERVICE AND MAINTENANCE**

Engine oil exchange interval -- 500 hours  
Hydraulic oil change interval -10,000 hours  
Scheduled Oil Sampling (S·O·SSM) ports  
Retractable ground level service station with quick couplings for: -Diesel fuel -Engine coolant -left/right engines -Pump transmission gear oil -left/right engines -Engine oil -left/right engines -Engine oil extension tanks -Hydraulic oil -Grease -Swing transmission gear oil  
Cat battery charging connector  
Indicator lights  
Cat Electronic Technician service port  
Dirt wiper at swivel

## **SAFETY AND SECURITY**

Emergency stop switches: 2 in cab, 5 in engine module, 1 at ground level service station, 1 pull rope accessible from ground level  
Operator Protective Guard (Top Guard)  
All-round safety glass  
Emergency egress ladder

## **MISCELLANEOUS**

ISO or ANSI decals

## **6040 OPTIONAL EQUIPMENT**

### **GENERAL**

Engine oil interval extension kit, up to 1,000 hrs

### **SUPERSTRUCTURE**

Round container(s) for standard 200 L (53 gal) barrels (instead of 710 L (188 gal) grease container)  
Filling of round container(s) via service station  
Various cold-weather options

### **CAB**

Dual (redundancy) heating ventilating and air conditioning system  
Cab heating  
Camera monitoring system (two cameras and additional color display)

## **UNDERCARRIAGE**

Track pad width 1600 mm (5 ft 3 in) - Non HD

Automatic lubrication of rollers by central lube system

Belly plate for additional undercarriage protection

Additional optional equipment available on request.