

6020
Hydraulic Mining Shovel

Technical Specifications

Configurations and features may vary by region. Please consult your Cat® dealer for availability in your area.

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6020 Hydraulic Mining Shovel Specifications

Diesel Engines – Lesser Regulated

Make and Model	Cat® C32B	
Rated Speed	1,800 min^{-1}	1,800 rpm
Gross Power – J1995:2014	776 kW	1,040 hp
Net Power – SAE J1349:2011	770 kW	1,032 hp
Net Power – ISO 9249:2007	774 kW	1,037 hp
No. of Cylinders	12	
Bore	145 mm	5.71 in
Stroke	162 mm	6.38 in
Displacement	32 L	1,959 in^3
Aspiration	Turbocharged and air-to-air aftercooled	

- Meets China Nonroad Stage III emission standards, equivalent to U.S. EPA Tier 2.
- Net power tested per SAE J1349 is the power available at the flywheel when the engine is equipped with alternator, cooling, air intake, and exhaust systems, with maximum fan losses.
- Net power tested per ISO 9249 is the power available at the flywheel when the engine is equipped with alternator, cooling, air intake, and exhaust systems, with minimum fan losses.

Diesel Engines – Highly Regulated

Make and Model	Cat C32B	
Rated Speed	1,800 min^{-1}	1,800 rpm
Gross Power – J1995:2014	771 kW	1,033 hp
Net Power – SAE J1349:2011	761 kW	1,019 hp
Net Power – ISO 9249:2007	764 kW	1,024 hp
No. of Cylinders	12	
Bore	145 mm	5.71 in
Stroke	162 mm	6.38 in
Displacement	32 L	1,959 in^3
Aspiration	Turbocharged and air-to-air aftercooled	

- Meets U.S. EPA Tier 4 Final and EU Stage V emission standards.
- Net power tested per SAE J1349 is the power available at the flywheel when the engine is equipped with alternator, cooling, air intake, and exhaust systems, with maximum fan losses.
- Net power tested per ISO 9249 is the power available at the flywheel when the engine is equipped with alternator, cooling, air intake, and exhaust systems, with minimum fan losses.

Electrical System

System Voltage	24 V
Batteries in Series/Parallel Installation	6 × 210 Ah – 12 V each 630 Ah – 24 V in total

Operating Weights

Standard Track Pads	950 mm	3 ft 1 in
Operating Weight*	232 050 kg	511,583 lb
Ground Pressure	18.9 N/cm^2	27.4 psi

*Operating weights include: base machine, front attachment, standard track pads, standard rock bucket, 100% fuel, and lubricants.

Service Refill Capacities

Fuel Tank Capacity	3277 L	865 gal
Hydraulic Oil Tank Capacity	2800 L	740 gal
Total Volume of Hydraulic Oil	3500 L	925 gal
Engine Oil	109 L	28.8 gal
Engine Coolant	165 L	43.6 gal
Pump Transmission Gearbox including Cooling Circuit	25 L	6.6 gal
Swing Gearbox	2 × 26 L	2 × 6.7 gal
Travel Gearbox	2 × 48 L	2 × 12.6 gal
Grease Tank Capacity	205 L	54 gal

Hydraulic System

Main Pumps	6 × variable swash plate pumps	
Maximum Total Oil Flow	2350 L/min	621 gal/min
Maximum Swing Oil Flow	783 L/min	216 gal/min
Maximum Pressure, Attachment	310 bar	4,495 psi
Maximum Pressure, Travel	310 bar	4,495 psi

Hydraulic Oil Cooling

Oil Flow of Cooling Pumps	800 L/min	211 gal/min
Diameter of Fans	1500 mm	4 ft 11 in
Fan Speed	Thermostatically controlled	
Cooling System	Fully independent	

Swing System

Swing Drives	2 compact planetary transmissions with axial piston motors
Parking Brake	Wet multiple-disc brake, springloaded/hydraulically released
Maximum Swing Speed	4.2 rpm
Swing Ring	Triple-race roller bearing with sealed internal gearing
Swing Circuit	Open Loop with auto slow down when joysticks in neutral

Undercarriage

Travel Speed (two stages)		
1st Stage – Maximum	1.1 km/h	0.68 mph
2nd Stage – Maximum	2.4 km/h	1.49 mph
Maximum Tractive Force	1183 kN	265,900 lbf
Gradeability of Travel Drives	54% approximate	
Track Pads (each side)	45	
Bottom Rollers (each side)	8	
Support Rollers (each side)	3	
Travel Drives (each side)	1 planetary transmission with 2 two-stage axial piston motors	
Parking Brake	Wet multiple-disc brake, spring loaded/hydraulically released	

Operator Environment

Operator's Eye Level – Approximately	5.5 m	18 ft 1 in
Internal Dimensions of Cab		
Length	2230 mm	7 ft 4 in
Width	1625 mm	5 ft 4 in
Height	2070 mm	6 ft 9 in
Spectator Sound Power Level (L_{WA}) ISO 6395:2008*	116 dB(A)	
Operator Sound Pressure Level (L_{PA}) ISO 6396:2008*	69 dB(A)	
Optional Sound Suppression		
Spectator Sound Power Level (L_{WA}) ISO 6395:2008*	114 dB(A)	
Operator Sound Pressure Level (L_{PA}) ISO 6396:2008*	67 dB(A)	
Operator Protective Guard (Top Guard)	ISO 10262:1998 Level II	

* Measurement was conducted at 70% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds. The cab was properly installed and maintained. The measurement was taken with the cab doors and windows closed.

NOTE: The dynamic sound power level and sound pressure level uncertainty is +/- 2 dB(A).

Air Conditioning System

The air conditioning system on this machine contains the fluorinated greenhouse gas refrigerant R134a (Global Warming Potential = 1430). The system contains 3.2 kg (7.05 lb) of refrigerant, which has a CO_2 equivalent of 4.576 t (5.044 U.S. tons) per engine.

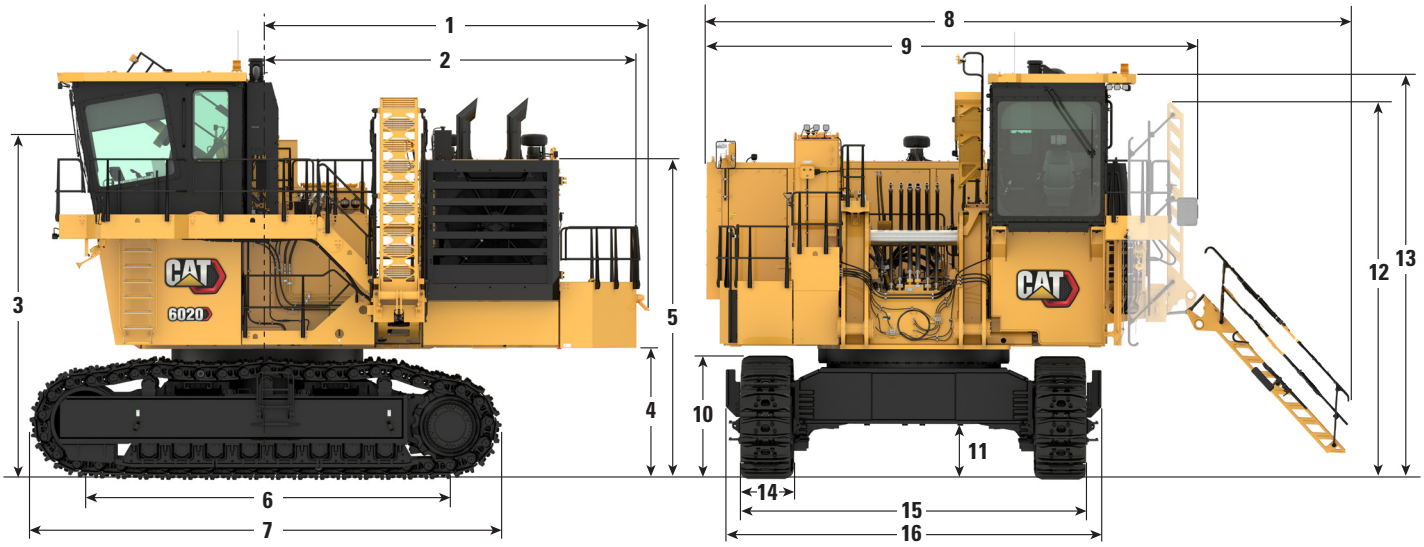
Loading and Hauling System – Pass Match

	775	777	785
6020	3	4-5	6-7

6020 Hydraulic Mining Shovel Specifications

Dimensions

All dimensions are approximate.

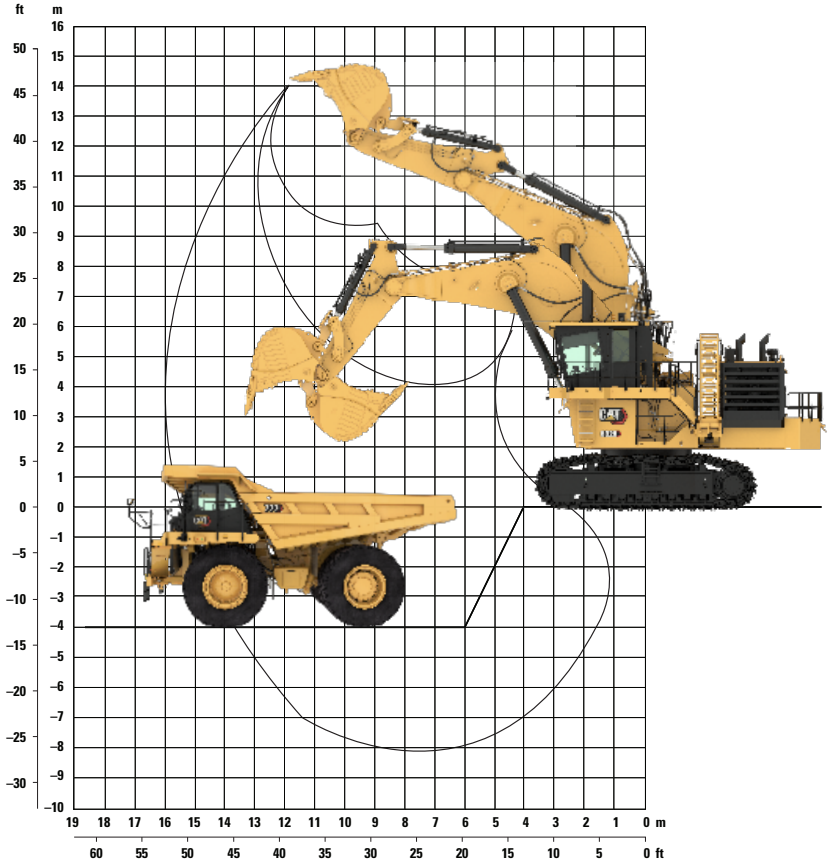


1	6045 mm	19 ft 10 in
2	5905 mm	19 ft 4 in
3	5500 mm	17 ft 11 in
4	2095 mm	6 ft 10 in
5	5750 mm	18 ft 10 in
6	5810 mm	19 ft 1 in
7	7520 mm	24 ft 8 in
8	9900 mm	32 ft 6 in

9	7955 mm	26 ft 1 in
10	1960 mm	6 ft 5 in
11	890 mm	2 ft 11 in
12	6430 mm	21 ft 1 in
13	6920 mm	22 ft 8 in
14	800 mm	2 ft 7 in
15	5500 mm	18 ft 1 in
16	6040 mm	19 ft 10 in

Working Range

All dimensions are approximate.



Boom	**8.7**	**28 ft 7 in**
Stick	**3.9 m**	**12 ft 10 in**
Digging Forces (ISO)		
Maximum Tearout Force	650 kN	146,125 lbf
Maximum Breakout Force	730 kN	164,050 lbf

Working Range		
Maximum Digging Depth	8.1 m	26 ft 7 in
Maximum Digging Reach	15.9 m	52 ft 2 in
Maximum Digging Height	13.9 m	45 ft 7 in

Backhoes								
Type	**Iron Ore Bucket**		**Heavy Rock Bucket**		**Standard Rock Bucket**		**Light Material Bucket**	
Ground Engaging Tools (GET) System	Cat C85		Cat C85		Cat C85		Cat M75	
Capacity Heaped 1:1 (ISO 7451:2007)	9.0 m^3	11.8 yd^3	11.0 m^3	14.4 yd^3	12.0 m^3	15.7 yd^3	13.7 m^3	17.9 yd^3
Total Width	2826 mm	9 ft 3 in	3450 mm	11 ft 4 in	3450 mm	11 ft 4 in	3388 mm	11 ft 1 in
Inner Width	2376 mm	7 ft 10 in	3000 mm	9 ft 10 in	3000 mm	9 ft 10 in	3000 mm	9 ft 10 in
Number of Teeth	5		6		6		6	
Weight in Standard Configuration	10 850 kg	23,920 lb	12 330 kg	27,180 lb	12 740 kg	28,090 lb	12 271 kg	27,053 lb
Maximum Material Density (loose)	2.6 t/m^3	4,380 lb/yd^3	2.0 t/m^3	3,370 lb/yd^3	1.8 t/m^3	3,030 lb/yd^3	1.65 t/m^3	2,780 lb/yd^3

6020 Standard and Optional Equipment

Standard and Optional Equipment

Standard and optional equipment may vary. Consult your Cat® dealer for details.

	Standard	Optional
CAT® POWERTRAIN		
Cat C32B engine	✓	
Aftertreatment system (used in Tier 4 Final/Stage V only): – Diesel Oxidation Catalyst (DOC) – NOx Reduction System (NRS) – Non-Diesel Exhaust Fluid (DEF) solution	✓	
Air-to-Air After Cooling (ATAAC)	✓	
Turbocharger	✓	
Hydraulically driven radiator fan	✓	
Electronically controlled fan speed	✓	
Micro processed engine management	✓	
Cat Clean Emission Module (CEM) air filters	✓	
Two-stage fuel filter with series filtration	✓	
High-capacity water separator	✓	
Exhaust manifold and turbo heat shields	✓	
Starting aid – automatic ether		✓
Dual 24 V electric starters	✓	
Automatic engine idle shut down	✓	
Automatic fuel priming	✓	
HYDRAULICS		
Hydraulic Optimization	✓	
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	✓	
Open loop swing circuit	✓	
Pressure testing points	✓	
Full-flow high-pressure filters (100 µm), main pumps	✓	
Full-flow filters (10 µm), return circuit	✓	
Pressure filters (6 µm), servo circuit	✓	
Transmission oil filters (40 µm)	✓	
Full-flow filters (10 µm), cooling return circuit	✓	
Boom float valve	✓	

	Standard	Optional
ELECTRICAL SYSTEM		
6 batteries	✓	
Lockable battery isolator switch	✓	
Lockable starter isolator switch	✓	
9 LED high-brightness working flood lights	✓	
7 LED service lights	✓	
Travel alarm – forward and reverse	✓	
Electric Horn	✓	
UNDERCARRIAGE		
Forged double-grouser track pads	✓	
950 mm (3 ft 1 in) wide track pads	✓	
750 mm (2 ft 4 in) wide track pads*		✓
1200 mm (3 ft 9 in) wide track pads**		✓
HD Fixed axle carrier and load rollers	✓	
Automatic hydraulic retarder valve	✓	
Undercarriage guard (belly plate)		✓
Hinged travel motor covers	✓	
Hardened running surfaces of sprockets, idlers, rollers, pad links, and teeth contact areas	✓	
Fully hydraulic self-adjusting track tensioning system with piston accumulator	✓	
AUTOMATIC LUBRICATION SYSTEM		
Grease filters (200 µm)	✓	

*750 mm track pads result in an operating weight of 230 003 kg (507,070 lb) and 23.6 N/cm² (34.3 psi) of ground pressure.

**1200 mm track pads result in an operating weight of 236 530 kg (521,459 lb) and 15.2 N/cm² (22.0 psi) of ground pressure.

(continued on next page)

Standard and Optional Equipment *(continued)*

Standard and optional equipment may vary. Consult your Cat dealer for details.

	Standard	Optional
OPERATOR ENVIRONMENT		
Single HVAC System	✓	
Dual HVAC system		✓
In-floor window with removable grate	✓	
Pneumatically cushioned and multi-adjustable comfort seat with: – Lumbar support – 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 Auxiliary input	✓	
Parallel intermittent wiper/washer	✓	
Roller blinds at all windows	✓	
Monitoring system with 254 mm (10 in) color touchscreen	✓	
Powered 45° access stairway	✓	
One mirror on left-hand (LH) side	✓	
Camera Monitoring System 2.0 (right and rear cameras, 254 mm [10 in] HD color technology display, and harnesses)		✓
Document storage	✓	
Control and Monitoring Platform (CAMP) 45°	✓	
Cat Board Control system: – 254 mm (10 in) color touchscreen – On-screen troubleshooting assistance – On-screen graphic charts of logged data – Fault memory of related conditions – USB, LAN (TCP/IP) and CAN BUS interfaces for data export	✓	
Sound Suppression – Spectator Sound Power Level (LWA) ISO 6395:2008* 114 dB(A) – Operator Sound Pressure Level (LPA) ISO 6396:2008* 67 dB(A)		✓

*Measurement was conducted at 70% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds. The cab was properly installed and maintained. The measurement was taken with the cab doors and windows closed.

NOTE: The dynamic sound power level and sound pressure level uncertainty is ± 2 dB(A).

	Standard	Optional
FRONT ATTACHMENT		
Backhoe attachment		✓
Frontless base machine (no boom, no stick, no linkage or kinematics)		✓
Internal service access in boom	✓	
Boom and stick thermally stress relieved after welding	✓	
Catwalks with rails at boom	✓	
Wear Package (as per bucket selection)	✓	
CAT TECHNOLOGY		
Cat Product Link™ Elite (Cellular)		✓
Cat Product Link Elite (Satellite)		✓
Cat Product Link Elite (Dual)		✓
Cat Product Link Elite (No radio)		✓
Cat Minestar™ Solutions Ready	✓	

(continued on next page)

Standard and Optional Equipment *(continued)*

Standard and optional equipment may vary. Consult your Cat dealer for details.

	Standard	Optional
COLD WEATHER OPTIONS		
Cold Weather Package (400 V, 50 Hz): – Engine coolant heater – Engine oil heater with thermostat – Hydraulic oil heater with thermostat – External power source required, Recommended for temperatures –10°C (14°F)		✓
Cold Weather Package (208 V, 60 Hz): – Engine coolant heater – Engine oil heater with thermostat – Hydraulic oil heater with thermostat – External power source required, Recommended for temperatures –10°C (14°F)		✓
SERVICE AND MAINTENANCE		
Engine oil exchange interval – 500 hours	✓	
Hydraulic oil exchange interval – 10,000 hours	✓	
Scheduled Oil Sampling (S·O·S℠) ports	✓	
Ground-level service station with quick couplings for: – Diesel fuel – Engine coolant – Pump transmission gear oil – Engine oil – Hydraulic oil – Grease	✓	
Cat battery charging connector	✓	
Dirt wiper at swivel		✓
Indicator lights	✓	
Cat CEM air filters with precleaner dust ejection system	✓	

	Standard	Optional
SAFETY AND SECURITY		
Emergency stop switches in cab, engine module, 1 pull rope accessible from ground	✓	
Operator Protective Guard (Top Guard)	✓	
All-round safety glass	✓	
Emergency egress ladder	✓	
MISCELLANEOUS		
ISO or American National Standards Institute (ANSI) decals	✓	



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