



120

Motor Grader

Technical Specifications

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

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120 Motor Grader Specifications

Engine

Engine Model	Cat® C7.1	
Emissions	China Nonroad Stage III emission standards, equivalent to U.S. EPA Tier 3/EU Stage IIIA	
Engine Power ISO 9249/SAE J1349	93 kW	125 hp
Power Range – Net	93-116 kW	125-156 hp
Derating Altitude	4500 m	14,764 ft
Bore	105 mm	4.1 in
Displacement	7.01 L	427.8 in ³
Stroke	135 mm	5.3 in
Engine RPM	2,000	
Number of Cylinders	6	
Torque Rise – ISO 9294	42%	
Maximum Torque – ISO 9294	822 N·m	606 lb-ft
Derating Altitude	3000 m	9,842 ft
Maximum – Fan Speed	1,300 rpm	
Minimum – Fan Speed	600 rpm	
Ambient Capacity	50° C	122° F

- Net Power is tested per ISO 9249, SAE J1349, and EEC 80/1269 Standards in effect at the time of manufacture.
- VHP Plus is standard for the 120.
- Rated speed at 2,000 rpm.

120 Net Power

Gear

Forward		
1st	93 kW	125 hp
2nd	97 kW	130 hp
3rd	101 kW	136 hp
4th	108 kW	145 hp
5th	112 kW	150 hp
6th	116 kW	156 hp
7th	116 kW	156 hp
8th	116 kW	156 hp
Reverse		
1st	93 kW	125 hp
2nd	97 kW	130 hp
3rd-6th	101 kW	135 hp

Power Train

Forward/Reverse Gears	8 Forward/6 Reverse
Transmission	Direct Drive Powershift Countershaft
High Idle Speed	2,000 rpm
Low Idle Speed	800 rpm
Air Cleaner	Dry

Hydraulic System

Type	Closed – Center
Type Circuit	Parallel
Pump Type	Variable Displacement Piston
System Pressure	24 129 kPa 3500 psi
System Flow	0-200 L/min 0-53 gal/min

Operating Specifications

Top speed forward	48.3 km/h	30.1 mph
Top speed reverse	38.1 km/h	23.7 mph
Turning Radius, Outside Front Tires	7.4 m	291.3 in
Steering Range	50° Left and Right	
Articulation Angle	20° Left and Right	
Forward		
1st	4.1 km/h	2.6 mph
2nd	5.6 km/h	3.5 mph
3rd	8.2 km/h	5.1 mph
4th	11.3 km/h	7.0 mph
5th	17.7 km/h	11.0 mph
6th	24.1 km/h	15.0 mph
7th	33.2 km/h	20.6 mph
8th	48.3 km/h	30.1 mph
Reverse		
1st	3.3 km/h	2.0 mph
2nd	6.1 km/h	3.8 mph
3rd	8.9 km/h	5.5 mph
4th	14.0 km/h	8.7 mph
5th	26.2 km/h	16.3 mph
6th	38.1 km/h	23.7 mph

- Machine speed measured at 2,150 rpm with 14.00R24 radial tires, no slip.

120 Motor Grader Specifications

Base Machine Weight

Lever/Steering Wheel Weight	13 527 kg	29,822 lb
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Typically Equipped Machine Weight

Lever/Steering Wheel Weight*	15 699 kg	34,610 lb
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*Typically equipped operating weight is calculated with full fuel tank, coolant, lubricants, operator, push block, transmission guard, rear ripper/scarifier, 14.0R24 tires on multi-piece rims, 3.7 m (12 ft) blade, and other equipment.

Major Component Weights

Moldboard (with cutting edge)		
3658 mm × 610 mm × 22 mm (12 ft × 24 in × 7/8 in)	670 kg	1,474 lb
4267 mm × 610 mm × 22 mm (14 ft × 24 in × 7/8 in)	782 kg	1,720 lb
Guards		
Transmission	105 kg	231 lb
Blade Extension		
LH and RH – 152.4 wide, 15.9 thick cutting edge (each)	113 kg	249 lb
LH and RH – 203.2 wide, 19 thick cutting edge (each)	127 kg	280 lb
Mid-Mount Scarifier Package	834 kg	1,835 lb
Front Lift Group	680 kg	1,496 lb
Push Plate	895 kg	1,969 lb
Rear Ripper	680 kg	1,496 lb
Front Scarifier	434 kg	956 lb

Service Refill Capacities

Fuel Tank	246 L	65 gal
Circle Drive	7 L	1.8 gal
Engine Crankcase	18 L	4.8 gal
Cooling System	52.5 L	14 gal
Hydraulic System	97 L	25.6 gal
Transmission and Differential	60 L	15.8 gal
Tandem	60 L	15.8 gal

Tandems

Oscillation Front Up	15°
Oscillation Rear Up	22°

Service Brakes

Type System	Dual Circuit Hydraulic	
Type Brake	Multiple Oil Disc	
Number of Brakes	4	
Number of Disc Assemblies (each)	6	
Size (outer diameter)	270 mm	10.6 in
Size (inner diameter)	189 mm	7.4 in
Lining Area Per Brake	3,504 cm ²	543.1 in ²

Parking Brake

Type System	Hydraulic Actuated
Type Brake	Multiple Oil Disc, Meets ISO 3450
Slope Holding Ability	30°
Secondary Brakes	Dual Circuit Control System, Applies Two Service Brakes

Moldboard

	Standard	Option 1	Option 2
Width	3.7 m (12 ft)	3.7 m (12 ft)	4.3 m (14 ft)
Height	610 mm (24 in)	610 mm (24 in)	610 mm (24 in)
End Bit	152 mm (6 in)	152 mm (6 in)	152 mm (6 in)
Cutting Edge	152 mm (6 in)	203 mm (8 in)	203 mm (8 in)
Arc Radius	413 mm (16.3 in)	413 mm (16.3 in)	413 mm (16.3 in)
Throat Clearance	120 mm (4.7 in)	124 mm (4.9 in)	89 mm (3.5 in)

120 Motor Grader Specifications

Drawbar Circle Moldboard

Range of Motion	Standard		
Lift Cylinders	2		
Maximum Depth of Cut	775 mm	30.5 in	
Maximum Lift Above Ground	410 mm	16.1 in	
Throat Clearance	120 mm	4.7 in	
Circle Center Shift Cylinder			
Center Shift Right	656 mm	25.8 in	
Center Shift Left	656 mm	25.8 in	
Moldboard Side Shift Cylinder			
Side Shift Left	660 mm	26 in	
Side Shift Right	510 mm	20.1 in	
Blade Tip Cylinder			
Maximum Blade Tip Forward	40°		
Maximum Blade Tip Backward	5°		
Circle Drive	360° of Blade Rotation		
Link Bar	7 Positions to adjust the drawbar circle moldboard range of motion		
Drawbar Shoes	4 with replaceable wear strips		

Circle

Section	Rolled Ring Forging		
Number of Teeth	64		
Rotation	360°		

Maximum Shoulder Reach Outside of Tires

Blade	3.7 m (12 ft)		4.3 m (14 ft)	
Right	1905 mm	75 in	2210 mm	87 in
Left	1742 mm	68.6 in	2180 mm	85.8 in

- An additional 300 mm (11.8 in) of reach can be achieved to the right or left by changing the side shift mounting bracket on the 4.3 m (14 ft) blade.

Ripper

Ripping Depth Maximum	288 mm	11.2 in
Ripper Shank Holder	5	
Ripper Shank Holder Spacing	533 mm	20.8 in
Penetration Force	5119 kg	11,287 lb
Pryout Force	2029 kg	4,474 lb
Machine Length Increase, Beam Raised	900 mm	35.1 in

Mid Mount Scarifier

Front, V-Type: Working Width	1205 mm	47.4 in
Number of Shanks	11	
Shank Spacing	116 mm	4.5 in
Scarifying Width	1031 mm	40.2 in

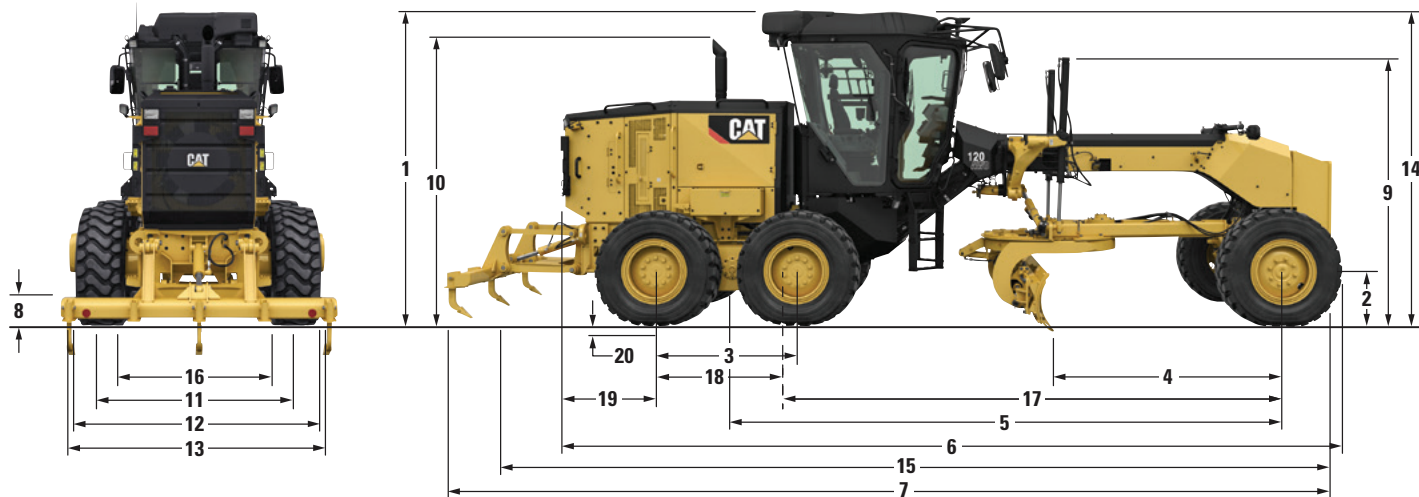
Electrical

Starting System Type	Direct Electric		
Standard Duty Battery			
CCA at -18°	900 amp		
Volts	12V		
Quantity	2		
Heavy Duty Battery			
CCA at -18°	1,125 amp		
Volts	12V		
Quantity	2		
Extreme Duty Battery			
CCA at -18°	1,400 amp		
Volts	12V		
Quantity	2		
Standard Alternator	115 amps at 24V		
Heavy Duty Alternator	150 amps at 24V		

120 Motor Grader Specifications

Dimensions

All dimensions are approximate.



1 Height – Top of Cab	3465 mm	136.4 in
2 Height – Front Axle Center	590 mm	23.2 in
3 Length – Between Tandem Axles	1510 mm	59.5 in
4 Length – Front Axle to Moldboard	2551 mm	100.4 in
5 Length – Front Axle to Mid Tandem	5945 mm	234 in
6 Length – Front Tire to Rear of Machine	8534 mm	336 in
7 Length – Push Plate to Ripper	9838 mm	387 in
8 Ground Clearance at Rear Axle	349 mm	13.7 in
9 Height to Top of Cylinders	2895 mm	114 in
10 Height to Exhaust Stack	2924 mm	115 in
11 Width – Tire Center Lines	2070 mm	81.5 in
12 Width – Outside Rear Tires	2491 mm	98 in
13 Width – Outside Front Tires	2495 mm	98.2 in
14 Maximum Height – with Attachments	3440 mm	135.4 in
15 Length – Push Plate to Raised Ripper	9583 mm	377 in
16 Width – Inside Rear Tires	1649 mm	64.9 in
17 Length – Front Axle to Articulation Hitch	5284 mm	208 in
18 Length – Rear Axle to Articulation Hitch	660 mm	26 in
19 Length – Rear Axle to Rear of Frame	1726 mm	68 in
20 Height – Tire Deflection at Performance Weight	45 mm	1.8 in

120 Standard and Optional Equipment

Standard and Optional Equipment

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

	Standard	Optional		Standard	Optional
ENGINE			CAB		
Cat C7.1 engine	✓		Vinyl seat	✓	
ECO mode	✓		ROPS		✓
Extreme duty starter		✓	Air suspension adjustable seat		✓
50° C (122° F) ambient capacity	✓		Leather heated/cooled seat		✓
Differential lock/unlock	✓		Seat belt, retractable	✓	
Engine idle shutdown timer	✓		Seat belt, indication		✓
Transmission, autoshift		✓	203 mm (8 in) touchscreen monitor		✓
MOLDBOARD			254 mm (10 in) hybrid information display	✓	
Standard drawbar circle moldboard	✓		Canopy cab		✓
Circle drive slip clutch	✓		Heating, ventilation, and air conditioning (HVAC) system		✓
Circle saver		✓	Defrost fans		✓
ELECTRICAL			Halogen lighting		✓
Sealed alternator	✓		Cup and bottle holders	✓	
Reversing lights	✓		Implement lockout		✓
Breaker panel	✓		Adjustable control console	✓	
900 CCA standard duty batteries		✓	Interior lights (dome lamp)	✓	
1,125 CCA heavy duty batteries	✓		LED lighting		✓
1,400 CCA extreme duty batteries		✓	Entertainment Radio Ready		✓
Electric starter	✓		Coat hook	✓	
			USB/Auxiliary Radio		✓
			Communication radio mounting		✓
			Steering wheel and lever controls	✓	
			Heated mirrors		✓
			Electric throttle control	✓	
			Front windshield wiper (with cabin)	✓	
			Front windshield wiper (lower)		✓
			Rear wiper		✓
			Rear window screen		✓
			Cab storage	✓	
			Slider side window		✓

(continued on next page)

120 Standard and Optional Equipment

Standard and Optional Equipment *(continued)*

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

	Standard	Optional		Standard	Optional
SAFETY AND SECURITY			CAT TECHNOLOGY		
Parking brake	✓		Stable Blade		✓
Back up alarm	✓		Product Link™	✓	
Signaling/warning horn	✓		Remote Services	✓	
Warning beacon		✓	GUARDS		
Rearview mirror	✓		Rear fenders		✓
Rearview camera		✓	Transmission		✓
Hydraulic brakes	✓		ATTACHMENTS		
Secondary steering system		✓	Push block		✓
Side view mirrors	✓		Ripper		✓
Strategically placed walkways and grab rails	✓		Scarifier		✓
SERVICE AND MAINTENANCE			Mid mount scarifier		✓
Grouped location for engine oil and fuel filters	✓		Front lift group		✓
Extended Life Coolant	✓		Front blade		✓

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Materials and specifications are subject to change without notice. Featured machines in photos may include additional equipment. See your Cat dealer for available options.

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