

12M

Motor Grader



Cat® C6.6 ACERT™ VHP

Base Power (1st gear) – Net	118 kW	158 hp
VHP Range – Net	118-129 kW	158-173 hp
VHP Plus Range – Net	118-144 kW	158-193 hp

Gross Vehicle Weight – Base

Total	14 522 kg	32,016 lb
Front Axle	4008 kg	8,836 lb
Rear Axle	10 514 kg	23,180 lb

Moldboard

Blade Width	3.668 m	12 ft 0 in
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Engine

Engine Model	Cat® C6.6 ACERT™ VHP	
Base Power (1st gear) – Net	118 kW	158 hp
VHP range – Net	118-129 kW	158-173 hp
VHP Plus range – Net	118-144 kW	158-193 hp
Displacement	6.6 L	403 in ³
Bore	105 mm	4.13 in
Stroke	125 mm	4.92 in
Torque rise (VHP Plus)	40%	
Max Torque (VHP Plus)	859 N-m	690 lb ft
Speed @ rated power	2,000 rpm	
Number of cylinders	6	
Derating altitude	3505 m	11,500 ft

Std – Fan speed	– max	1,150 rpm	
	– min	550 rpm	
Std – Ambient Capability	43° C	109° F	
Hi Ambient – Fan speed	– max	1,650 rpm	
	– min	550 rpm	
Hi Ambient Capability	50° C	122° F	

- Max torque (VHP Plus) measured at 1,400 rpm.
- Net power is tested per ISO 9249, SAE J1349, and EEC 80/1269 Standards in effect at the time of manufacture.
- VHP Plus is an optional attachment.
- Net power advertised is the power available at rated speed of 2,000 rpm, measured at the flywheel when engine is equipped with fan running at minimum speed, air cleaner, muffler and alternator.
- No engine derating required up to 3505 m (11,500 ft).

12M Net Power

Gear	VHP	VHP Plus
	kW (hp) – Net	kW (hp) – Net
Fwd. 1st	118 (158)	118 (158)
	121 (163)	121 (163)
	125 (168)	125 (168)
	129 (173)	129 (173)
	129 (173)	132 (178)
	129 (173)	136 (183)
	129 (173)	139 (188)
	129 (173)	144 (193)
Rev. 1st	118 (158)	118 (158)
	121 (163)	121 (163)
	125 (168)	125 (168)

Power Train

Forward/Reverse Gears	8 Fwd/6 Rev	
Transmission	Direct drive, power shift, countershaft	
Brakes – Service	Multiple oil-disc	
	– Service, surface area	23 000 cm ² 3,565 in ²
	– Parking	Multiple oil disc
	– Secondary	Dual circuit control system

Hydraulic System

Circuit type	Electro-hydraulic closed center, load sensing	
Pump type	Variable piston	
Pump output	193 L/min	51 gal/min
Maximum system pressure	24 100 kPa	3,500 psi
Standby Pressure	3100 kPa	450 psi

- Pump output measured at 2,150 rpm

Operating Specifications

Top Speed – Fwd.	44.5 km/h	27.7 mph
– Rev.	37.8 km/h	23.5 mph
Turning radius, outside front tires	7.46 m	24 ft 6 in
Steering range – left/right	47.5°	
Articulation angle – left/right	20°	
Fwd. 1st	3.9 km/h	2.4 mph
2nd	5.3 km/h	3.3 mph
3rd	7.6 km/h	4.75 mph
4th	10.5 km/h	6.5 mph
5th	16.4 km/h	10.2 mph
6th	22.2 km/h	13.8 mph
7th	30.6 km/h	19 mph
8th	44.5 km/h	27.7 mph
Rev. 1st	3.3 km/h	2 mph
2nd	6.2 km/h	3.8 mph
3rd	8.9 km/h	5.6 mph
4th	13.9 km/h	8.6 mph
5th	26 km/h	16.1 mph
6th	37.8 km/h	23.5 mph

Service Refill

Fuel Capacity	340 L	90 gal
Cooling system	40 L	10.4 gal
Hydraulic system – tank	60 L	16 gal
Engine Oil	15.5 L	4.1 gal
Trans./Diff./Final Drives	50 L	13.2 gal
Tandem housing (each)	61 L	16.9 gal
Front wheel spindle bearing housing	0.5 L	0.1 gal
Circle drive housing	7 L	1.8 gal

Frame

Circle – diameter	1530 mm	60.2 in
– blade beam thickness	35 mm	1.4 in
Drawbar – height	152 mm	6 in
– width	76.2 mm	3 in
– thickness	9.5 mm	0.4 in
– yoke bar thickness	19.1 mm	0.75 in
Front frame structure		
– height	254 mm	10 in
– width	254 mm	10 in
– thickness	16 mm	0.63 in
Front axle		
– height to center	572 mm	22.5 in
– wheel lean, left/right	18°	
– total oscillation per side	32°	

Tandems

Height	502 mm	19.76 in
Width	172 mm	6.76 in
Sidewall thickness – inner	14 mm	0.5 in
– outer	16 mm	0.6 in
Drive chain pitch	44.5 mm	1.8 in
Wheel axle spacing	1510 mm	59.5 in
Tandem oscillation – front up	15°	
– front down	25°	

Moldboard

Blade width	3.668 m	12 ft
Moldboard – height	609.6 mm	24 in
– thickness	22 mm	0.87 in
Arc radius	413 mm	16.3 in
Throat clearance	124 mm	4.88 in
Cutting edge – width	152.4 mm	6 in
– thickness	16 mm	0.6 in
End Bit – width	152.4 mm	6 in
– thickness	16 mm	0.6 in
Blade Pull – base GVW	9463 kg	20,862 lb
– max GVW	12 004 kg	26,465 lb
Down Pressure – base GVW	7098 kg	15,649 lb
– max GVW	12 277 kg	27,067 lb

- Blade pull calculated at 0.9 traction coefficient, which is equal to ideal no-slip conditions, and Gross Machine Weight.

Blade Range

Circle centershift – right	656 mm	25.8 in
– left	656 mm	25.8 in
Moldboard sideshift – right	660 mm	26 in
– left	510 mm	20.1 in
Maximum blade position angle	90°	
Blade tip range – forward	40°	
– backward	5°	
Maximum shoulder reach outside of tires		
– right	1905 mm	75 in
– left	1742 mm	68.6 in
Maximum lift above ground	427 mm	16.8 in
Maximum depth of cut	720 mm	28.3 in

Ripper

Ripping depth, maximum	424 mm	16.7 in
Ripper shank holders	5	
Ripper shank holder spacing	533 mm	21 in
Penetration force	8558 kg	18,869 lb
Pryout force	8465 kg	18,664 lb
Machine length increase, beam raised	975 mm	38.4 in

Scarifier

Front, V-Type, 5 or 11 tooth

Working width	1205 mm	47.4 in
Scarifying depth, maximum	467 mm	18.4 in
Scarifier shank holders	5/11	
Scarifier shank holder spacing	116 mm	4.6 in

Mid, V-Type

Working width	1184 mm	46.6 in
Scarifying depth, maximum	292 mm	11.5 in
Scarifier shank holders	11	
Scarifier shank holder spacing	116 mm	4.6 in

Mid, straight

Working width	1800 mm	71 in
Scarifying depth, maximum	317 mm	12.5 in
Scarifier shank holders	17	
Scarifier shank holder spacing	111 mm	4.4 in

Rear

Working width	2310 mm	91 in
Scarifying depth, maximum	266 mm	10.5 in
Scarifier shank holders	9	
Scarifier shank holder spacing	267 mm	10.5 in

Weights

Gross Vehicle Weight – base

– total	14 522 kg	32,016 lb
– front axle	4008 kg	8,836 lb
– rear axle	10 514 kg	23,180 lb

Gross Vehicle Weight – max

– total	20 271 kg	44,690 lb
– front axle	6933 kg	15,284 lb
– rear axle	13 338 kg	29,406 lb

- Base operating weight calculated on standard machine configuration with 13.00-24 12PR (G-2) tires, full fuel tank, coolant, lubricants and operator.

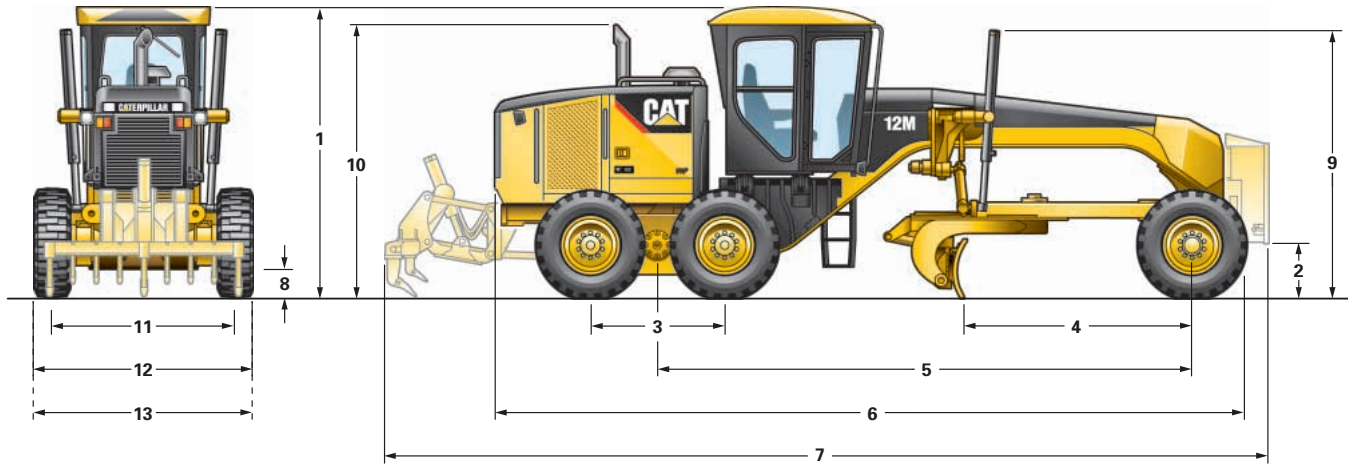
Standards

ROPS/FOPS	ISO 3471:1992/ISO 3449:1992
Steering	ISO 5010:1992
Brakes	ISO 3450:1996
Sound	ISO 6394:1998/ISO 6395:1988

- The static sound operator pressure level measured according to ISO 6394:1988 for a cab offered by Caterpillar, when properly installed, maintained and tested with doors and windows closed and hydraulic fan at maximum speed is 70 dB(A).
- The dynamic spectator sound power level for the standard machine when equipped with sound suppression package and hydraulic fan running at 70% of maximum speed, machine sound measured is less than 105 dB(A), complying with EU 2000/14/EC requirement.

Dimensions

All dimensions are approximate, based on standard machine configuration with 13.00-24 12PR (G-2) tires.



1	Height – top of cab	3278 mm	129 in
2	Height – front axle center	572 mm	22.5 in
3	Length – between tandem axles	1511 mm	59.5 in
4	Length – front axle to moldboard	2511 mm	98.9 in
5	Length – front axle to mid tandem	5915 mm	232.8 in
6	Length – front tire to rear of machine	8488 mm	334.1 in
7	Length – counterweight to ripper	9889 mm	389.3 in

8	Ground clearance at rear axle	347 mm	13.6 in
9	Height to top of cylinders	2890 mm	113.7 in
10	Height to exhaust stack	2855 mm	112.4 in
11	Width – tire center lines	2136 mm	84.1 in
12	Width – outside rear tires	2481 mm	97.7 in
13	Width – outside front tires	2481 mm	97.7 in

Standard Equipment

Standard equipment may vary. Consult your Caterpillar dealer for details.

OPERATOR ENVIRONMENT

- Armrest, adjustable
- Articulation, automatic Return-to-Center
- Ashtray and lighter
- Cat Messenger, operator information system
- Centershift pin indicator
- Coat hook
- Cup holder
- Display, digital speed and gear
- Door, driver access (left side) with wiper
- Gauge cluster – articulation, engine coolant temp, engine RPM, fuel, system voltage
- Gauge, machine level
- Heater, cab
- Hour meter, digital
- Joystick hydraulic controls
 - implements, steering, transmission
- Lights, night time cab
- Mirror, inside rearview, wide angle
- Power port, 12V
- ROPS cab, sound suppressed
- Seat belt, retractable 76 mm (3 in)
- Seat, cloth-covered, comfort suspension
- Storage area for cooler/lunchbox
- Throttle control, electronic
- Windows, laminated glass:
 - fixed front with intermittent wiper
 - fixed, window right with dual wipers
 - door, left with dual wipers
- Windows, tempered glass:
 - side and rear (3)
- Wrist rests, adjustable

POWER TRAIN

- Air cleaner, dual stage, dry type, automatic dust ejector, service indicator through Cat Messenger
- Air-to-air after cooler (ATAAC)
- Belt, serpentine, automatic tensioner
- Brakes, four-wheel hydraulic
- Differential, lock/unlock
- Drain, engine oil
- Electronic over speed protection
- Engine, Cat® C6.6 with ACERT™ Technology
- Fuel-water separator
- Hydraulic demand fan
- Muffler, under hood
- Parking brake – multi-disc, sealed, oil-cooled
- Priming pump, fuel
- Rear axle, modular
- Sediment drain, fuel tank
- Transmission, 8F/6R, power shift, direct drive
- VHP (Variable Horsepower)

ELECTRICAL

- Alarm, back up
- Alternator, 80 ampere, sealed
- Batteries, maintenance free, 880 CCA
- Breaker panel, ground accessible
- Electrical system, 24V
- Grade Control Ready – Cab harness, software, electrical hydraulic valves, bosses and brackets
- Lights, reversing
- Lights, stop and tail, LED
- Product Link Ready

OTHER STANDARD EQUIPMENT

- Brake accumulators, dual certified
- Bumper, rear, integrated with hitch
- Clutch, circle drive slip
- Cutting edges
 - curved DH-2 steel
 - 203 mm × 16 mm (8 in × 5/8 in)
 - 19 mm (3/4 in) mounting bolts
- Doors (3), engine compartment, locking
- Drawbar – 6 shoe with replaceable wear strips
- Endbits
 - 16 mm (5/8 in) DH-2 steel
 - 19 mm (3/4 in) mounting bolts
- Extended Life Coolant to –35° C (–30° F)
- Fluid check, ground level
- Frame, articulated, with safety lock
- Fuel tank, ground level access
- Ground level engine shutdown
- Hammer (emergency exit)
- Horn, electric
- Hydraulics, base 8 implement controls
- Hydraulics, load-sensing
- Lockout, hydraulic implement for roading
- Moldboard
 - 3658 mm × 610 mm × 22 mm (12 ft × 24 in × 7/8 in)
 - hydraulic sideshift and tip
- Paint, glare reducing – top of front frame and rear enclosure
- Radiator cleanout access
- Secondary steering
- Serviceability, LH side
- S•O•SSM ports: engine, hydraulic, transmission, coolant, fuel
- Tandem walkway/guards
- Tool box
- Tow hitch

TIRES, RIMS, & WHEELS

- Partial allowance for tires and multi-piece rims

Optional Equipment

Optional equipment may vary. Consult your Caterpillar dealer for details.

	kg	lb
ELECTRICAL		
Alternator, 150 ampere	2	5
Batteries:		
extreme duty, 1400 CCA	44	96
heavy duty, 1125 CCA	44	96
Converter, communication (CB)	5	11
Lights:		
13 lighting arrangements, including HID options and rear roading, drop down		
Warning: Beacon or Strobe	2	5
GUARDS		
covers, screen	4	9
debris	9	20
sound	110	243
transmission	141	310
OPERATOR ENVIRONMENT		
Air conditioner with heater	49	107
Door, cab, right hand side	11	25
Fan, defroster, rear window	2	4
Mirrors, outside:		
heated 24V	15	33
mounted	10	22
Precleaner, HVAC	5	10
Radio ready, AM/FM or Satellite	9	20
Seat, air suspension, cloth	2	5
Shade, sun	2	5
Wiper, each side	0	1
Wiper/washer, rear	0	1
POWER TRAIN		
Engine, variable horsepower plus (VHP Plus)		
Fuel tank, fast fill	14	31
Oil, Hydraulic, Biodegradable Synthetic		
Precleaner, Sy-Klone	9	20
Transmission, autoshift	2	5

	kg	lb
OTHER ATTACHMENTS		
AccuGrade ARO	39	85
Accumulators, blade lift	77	170
AutoLube, Lincoln	23	50
AutoLube, Lincoln, ripper enhancement	5	10
Camera, rearview	9	20
Caterpillar Product Link 321SR	5	10
Compressor/tank, Air	23	50
Drain, ecology, engine Wiggins	2	5
Fenders, front, AWD	56	124
Fenders, rear	119	262
Heater, engine coolant:		
120V	1	3
220V	1	3
Hydraulic arrangements with one or more additional hydraulic valves are available for rear ripper, dozer, snow plow and snow wing.		
Ladder, cab, right hand side	7	15
Security system	2	5
Snow wing mounting, frame ready	91	200
Sound suppression	15	32
Starting aid, Ether	0.5	1
WORK TOOLS/G.E.T.		
Blade extension, 610 mm (2 ft)		
right or left hand	147	325
Cutting Edges, curved	43	95
Endbits, overlay	24	52
Front lift group, manual	680	1,500
Grader bit, narrow and super penetration	181	400
Mid Mount Scarifier, Mounting	612	1,350
Moldboard		
4267 mm × 610 mm × 22 mm (14 ft × 24 in × 7/8 in)		
4267 mm × 686 mm × 25 mm (14 ft × 27 in × 1 in)		
Push plate, counterweight	907	2,000
Ripper, mounting	32	70
Ripper, rear	962	2,120
Ripper tooth	28	61
Scarifier, front	434	956
MACHINE ARRANGEMENTS		
European Arrangement		
Roading Arrangement, European		
Snow Arrangement		