24
Motor Grader

Engine		
Model	Cat® C27 ACERT™	
Emissions	U.S. EPA Tier 4 Final/EU Stage IV emission standards or equivalent Tier 2/Stage II, depending on emission standards of specific country	
Base Power (1st gear) – Net	399 kW	535 hp
Base Power (1st gear) – Net (Metric)		543 hp

Moldboard		
Width	7.3 m	24 ft
Weight		
Operating Weight, Typically Equipped	73 344 kg	161,695 lb

The Cat 24 Motor Grader continues the Caterpillar tradition of being the industry leader in enabling you to build and maintain your haul roads to maximize your mine-site productivity and lower your owning and operating costs.

The 24 motor grader is designed to help you get more work done in less time while keeping your operators safe and comfortable.

Contents

Safety

- 15 tie-off points located around engine enclosure and cab provide secure anchorage for fall prevention/protection PPE for technicians when performing service operations.
- Optional Working at Heights package adds an extra layer of safety by providing handrails and hand holds to improve access and safety.
- The 24 is Fire Suppression-Ready which means a fire suppression system can be easily installed, further protecting your investment.
- Rearview camera provides better visibility behind the machine while optional front-facing cameras provide enhanced forward and side visibility.

Operator Comfort

- New 10-inch, multi-color/touch screen information display enables monitoring and setting of the 24's operation and performance parameters.
- Optional heated and ventilated seats, satellite radio and cab storage provide enhanced operator comfort.

Performance

- Cat C27 ACERT engine provides enhanced altitude capabilities with no derate up to 3048 m (10,000 ft) for Tier 4/Stage IV emission standards and 4572 m (15,000 ft) for equivalent Tier 2/Stage II emissions.
- An 11 percent weight increase helps provide more traction and blade down pressure (compared to 24M).
- Consistent Power-to-the-Ground changes real-time engine power levels resulting in the 24's best performance at all times.

Technology

- Asset protection and performance-improving technologies include: engine overspeed/underspeed, second generation steering system, Auto Articulation, Cat GRADE with Cross Slope, articulation eStop, ripper auto stow, implement lock out and circle angle limits, to name a few.

Serviceability

- Improved power train rebuild life, new modular design and new machine protection features can save you up to 2,400* servicing hours.
- The Cat C27 ACERT engine, 533 mm (21 in) transmission and lower power train provide 33 percent additional components' life before needing to be rebuilt (compared to the 24M).
- New, innovative main component modular design means components can be removed and installed quicker and easier. Transmission and cooling package can be removed up to 70 percent faster (compared to the 24M).

*over 64,000 hours

Structures and Drawbar-Circle-Moldboard

Engineered for maximum production and service life.

Structure Strength – Built to Last

The 24's front frame, hitch area and rear frame designs provide performance and durability in heavy duty applications.

- Front Frame Structure – continuous top and bottom plate construction provides consistency and strength. The Center Shift Section, made of heavy duty steel casting, improves stress distribution to this high load area of the mainframe for enhanced durability.
- Rear Frame Structure – is lengthened to provide easy service access to components in the engine enclosure as well as to optimize machine balance. It also utilizes two bumper castings and thick hitch plates for increased durability. A mechanical locking pin prevents frame articulation to ensure safety when servicing or transporting the machine.

Optimized Machine Balance

The 24 is designed to optimize machine balance and performance at your site.

- With the optimized combination of weight and balance, the 24 delivers improved traction and the ability to maintain consistent ground speed especially when carrying a large load on the moldboard, working on grade or turning with load.

Easy Maintenance for More Uptime

- A series of shims, wear strips and wear inserts are easy to add or replace, keeping drawbar-circle-moldboard components factory tight for higher quality work and saving you service time and costs.
- The redesigned circle drive prevents back driving which, along with improved drive link material and reinforced gears, provides overall life improvements to the circle drive system.
- The adjustable circle drive reduces service time and reduces wear by keeping components tight.

Power Train

Maximum power to the ground.

Power Train

The 24 gives you efficiency and longevity in your most demanding applications.

- The redesign of the power train, which includes the Cat C27 ACERT engine and a 21 inch, 6-speed planetary transmission, increases the power train's rebuild life by 33 percent (compared to the 24M).
- Standard Automatic Differential Lock unlocks the differential during a turn and re-locks when straight for easier operation and improved power train protection.
- Six forward and three reverse gears give operators a wide operating range for maximum productivity.
- Advanced Productivity Electronic Control System (APECS) transmission is a key contributor to improved speed shift performance in the 24. Operators will notice enhanced comfort during shifting resulting in increased productivity.
- Engine Over-Speed Protection prevents downshifting until an acceptable safe travel speed has been established.
- Standard transmission guard provides steel protection from ground debris.

Front and Rear Axles

- The sealed spindle keeps front axle bearings lubricated and protected from contaminants. The Cat “Live Spindle” design places the larger tapered roller bearing on the outside, where the load is greater, extending bearing life.
- Improved bevel gear and final drive design increases the rear axle’s rebuild life by 33 percent (compared to the 24M).

Hydraulic Brakes

- Additional brake capacity is achieved by increased brake disc diameter and piston area resulting in increased dynamic brake torque.
- Manual standard brake wear indicator allows brake wear to be measured during maintenance work without removal of the brake pods and supports better maintenance planning.

Torque Converter

- Matching the torque converter with the engine power and hydraulics results in enhanced performance and fuel efficiency.
- The one-way clutch design uses a cylindrical bearing instead of a thrust washer for increased durability.

The front axle steering cylinder’s design enhances durability while the routing of the hydraulic hoses increases reliability.

Optional front guards provide protection for your front axle from rocks or other debris that could damage the axle or its components.

Engine

Consistent power and reliability for maximum productivity.

Engine

- The Cat C27 engine with ACERT technology gives operators the performance to maintain consistent grading speeds for maximum productivity. Superior torque and lugging capability pulls through sudden, short-term load increases.
- The C27 provides improved performance when working at high altitudes (Tier 4 version derates over 3048 m/10,000 ft and equivalent Tier 2 over 4572 m/15,000 ft).
- A 33 percent increase in the C27's rebuild life (compared to the 24M's C18 engine) means you save both time and money.

Emission Regulations

The C27 ACERT engine meets Tier 4 Final/Stage IV emission without the need for DEF (Diesel Exhaust Fluid) using:

- Cat NO_X Reduction System – The Cat NO_X Reduction System (NRS) captures and cools a small quantity of exhaust gas, then routes it back into the combustion chamber where it drives down combustion temperatures and reduces NO_X emissions.
- Diesel Oxidation Catalyst (DOC) uses a chemical process called oxidation to condition exhaust gases to meet emission standards.
- MEUI-C Fuel System delivers increased fuel efficiency while further reducing NO_X emissions. Ultra Low Sulfur Diesel (ULSD) Fuel and Low Ash Oil are required.

Engine Economy (ECO) Mode

- Standard ECO Mode improves fuel economy by reducing high idle engine speed while maintaining machine power.
- ECO Mode controls the high engine idle speed (capped at 1,850 rpm in working gears) to ensure the engine is performing as efficiently as possible with respect to fuel consumption.
- ECO Mode can be activated easily and automatically deactivates in gears 5F-6F and 3R to ensure sufficient full ground speed is available when needed.

Consistent Power to the Ground

- This standard, automatically-enabled feature changes engine power levels in real-time to offset cooling fan losses, resulting in consistent power to the ground independent of ambient temperatures and machine workloads. As a result, you get the best performance from the 24 all of the time.

Operator Station

Designed for comfort, convenience and productivity.

Ease of Operation

- Two electro-hydraulic joysticks reduce hand and wrist movement up to 78 percent, compared to conventional lever controls, resulting in greatly enhanced operator comfort and efficiency.
- An intuitive control pattern allows both new and experienced operators to quickly become productive. Electronically adjustable control pods help position joysticks for optimal comfort, visibility and proper operation.
- With the touch of a button, the articulation return-to-center feature automatically returns the machine to a straight frame position from any angle.
- Operators can choose the blade lift modulation mode that best fits the application or their operating style: Fine, Normal or Coarse.
- Electronic Throttle Control provides easy, precise and consistent throttle operation.

Visibility

- Good visibility is key to safety and efficiency. Large windows and enhanced design of the rear frame provides exceptional visibility and additional clearance between moldboard and rear tires.
- A standard rear vision camera and two optional front cameras enhance sight lines to the front and rear of the machine.
- Optional heated glass helps operators see more clearly during inclement weather.

Comfort and Control

- Optional Advanced Control Joysticks, a patented interface, improve operator efficiency, boost productivity levels and enhance comfort.
- Standard Cat Comfort Series suspension seat features a 6-way adjustment control for optimal support and comfort. Seat side bolsters restrain side-to-side movement, especially when working on side slopes. Multiple isolation mounts significantly reduce sound and vibration for a more relaxed work environment.
- Optional heated and ventilated seat provides enhanced comfort in extreme weather conditions. The high capacity Heating, Ventilation and Air Conditioning (HVAC) system dehumidifies and pressurizes the cab, circulates fresh air, seals out dust and keeps windows clear.

Information Display

- Conveniently located in the center console, the new 10-inch, multi-color, touch screen information display allows operator to monitor the machine's performance, easily modify parameters and access service information.
- The new display's intuitive menu structure makes it easy to see Cat GRADE with Cross Slope readings as well as necessary information needed for daily operations, improving overall efficiency.

Keypad

- The new keypad allows activation and deactivation of different functions in the machine with one touch and indicates whether a function is active or not through light emitting diode (LED) lights.

Optional Bluetooth® and satellite radio are available.

Cat Connect Technologies

Protect your assets. Monitor, manage and enhance job site operations.

Asset Protection

Protecting your investment as much as possible is crucial to your site's success.

- The 24 features the latest assets protection technology only available in Cat motor graders, including: engine overspeed/underspeed, second generation steering system, articulation eStop, ripper auto stow, individual implement lock out and circle angle limits, to name a few.
- The Fluid Level Monitoring strategy helps prevent critical components from being damaged when fluid levels are low. Operators receive notifications via the information display in the cab when diagnostic codes are logged.
- Ok-to-Start provides electronic fluid level verification at startup on the coolant, engine and hydraulic oil.
- Critically Low Fluid Level Monitoring system monitors coolant, engine oil, hydraulic fluid and trans-axle oil during regular operation helping protect your asset.

Cat GRADE with Cross Slope

- Cat GRADE with Cross Slope helps operators easily maintain the desired cross slope by automatically controlling one side of the blade, resulting in better quality and more durable haul roads with proper water drainage.
- The system is scalable for the future with AccuGrade™ upgrade kits that provide additional 2D and/or 3D control features.

Advanced Control Joysticks

- Optional Advanced Control Joysticks, a patented interface, improve operator efficiency, boost productivity levels and enhance comfort by allowing operators to use either Cat GRADE with Cross Slope or AccuGrade without removing their hands from the joysticks.

Auto Articulation

- The Auto Articulation option on the 24 is active in gears 1-4F and 1-3R and allows the motor grader to automatically articulate to match the steering angle of the front tires.
- The system is tuned to allow full articulation at full steering angle and is modulated for maximum performance.

VIMS™

- VIMS uses on-board sensors to monitor a wide range of vital machine functions.
- If an abnormal condition is detected, it alerts and provides operators with the appropriate action needed. This improves availability, component life and production while reducing repair cost and the risk of a catastrophic failure.

Cat MineStar™ System Ready

The Cat MineStar System is the industry's broadest suite of integrated mine operations and mobile equipment management technologies, configurable to suit your operation's needs.

- **Fleet** provides real-time machine tracking, assignment and productivity management, giving you a comprehensive overview of all operations from anywhere in the world.
- **Terrain** enables high-precision management of drilling, dragline, grading and loading operations through the use of guidance technology. It increases machine productivity and provides you real-time feedback for improved efficiency.
- **Detect** helps increase operator awareness, enhancing safety at your operation. It includes a range of capabilities designed to assist you with areas of limited visibility around fixed and mobile equipment.
- **Health** works to minimize unscheduled downtime and productivity loss, plus helps you keep operating costs in check by streamlining service and maintenance management.

For more information, visit cat.com.

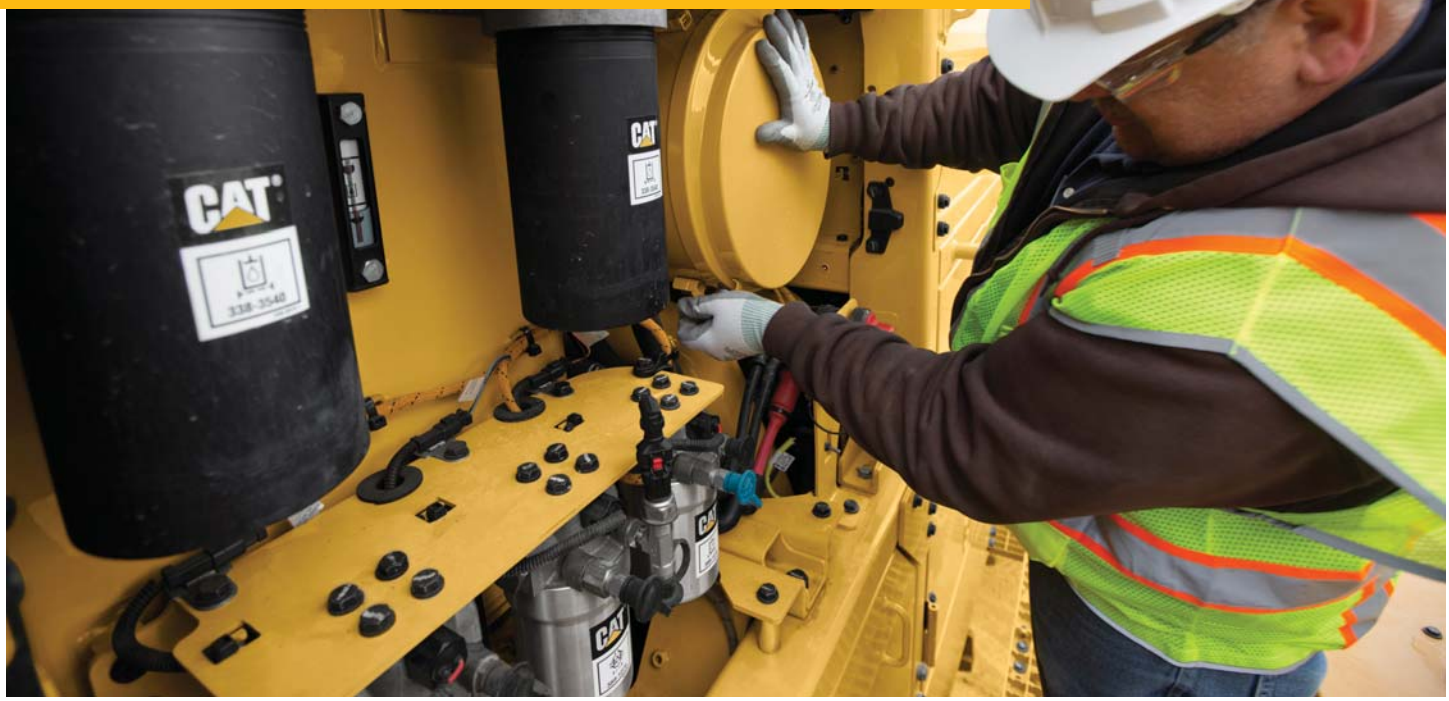
Cat Product Link™ Elite

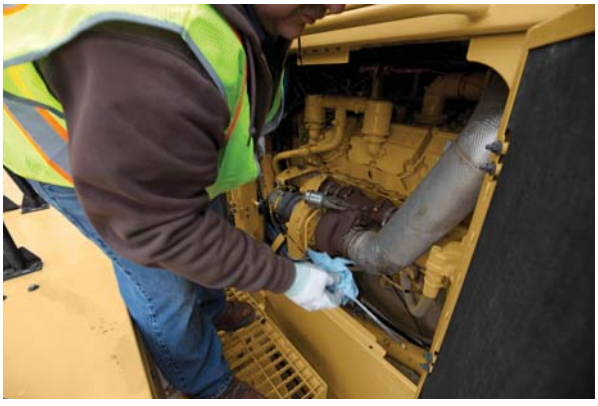
Product Link is deeply integrated into your machine, helping take the guesswork out of equipment management. Easy access to timely information like machine location, hours, fuel usage, idle time and event codes via the online VisionLink® user interface can help you effectively manage your fleet and lower operating costs.

NOTE: Product Link licensing is not available in all areas. Please consult your Cat dealer for availability.

Serviceability

Reduce service time to increase your uptime.





Easier Access and Extended Service Intervals

The 24 features extended key service intervals (compared to the 24M).

- Engine air filter and precleaners' life expectancies are doubled.
- Hydraulic main/pilot filters and transmission filters service intervals increased from 500 hours to 1,000 hours.*
- Transmission/rear axle fluid interval extended from 1,000 hours to 2,000 hours.*
- Operators and service technicians can easily access sampling ports in service-friendly areas.

*Service hours apply when S·O·S℠ sampling and Cat branded filters are used.

Modular Design

High mechanical availability is one of your top concerns. The 24 helps increase your uptime by making it easier to maintain.

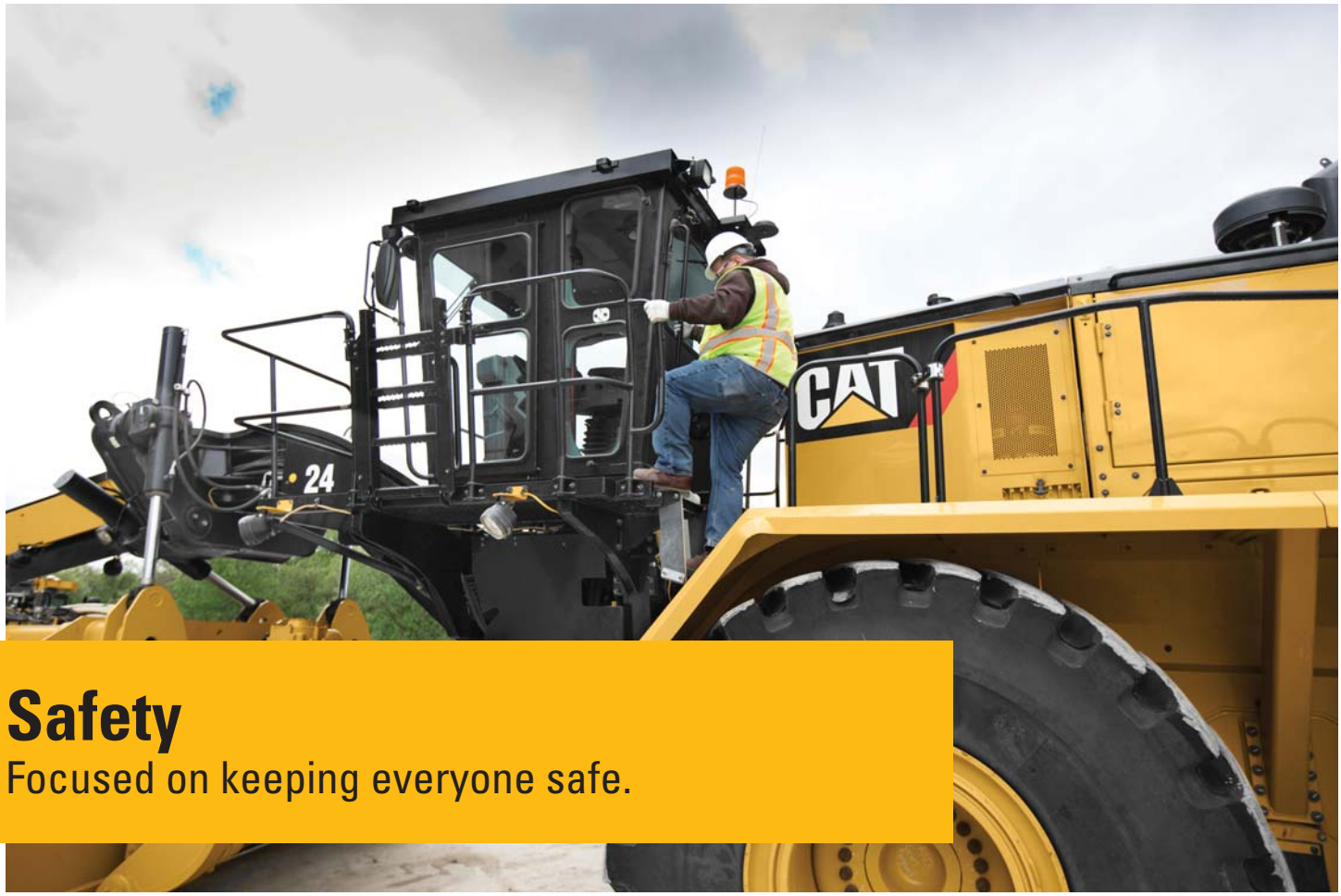
- Major components are modular in design so most can be removed and reinstalled faster without disturbing other components.
- Service technicians can remove transmission and cooling packages 70 percent faster (compared to 24M).
- French-style engine enclosure doors provide easy access to the engine and surrounding components. Barrel hinges allow easy removal of the doors.

Cooling Package

- Modular design makes for simple clean up, removal and installation.
- Optional Copper Grommeted (CGT) radiator cores improve cooling efficiency in high ambient temperature environments and heavy debris applications.
- The orientation of CGT cooling tubes creates open passages for dirt and debris to blow through and allows for easy replacement of individual core tubes.

Serviceability Enhancements

- The ground level Fluid Service Center provides a single location to access the engine, transmission, hydraulic oil and coolant, saving you maintenance time. LED lights indicate when compartment has been filled up.
- Easily accessible clustered filters and extended service intervals reduces service time.
- Hoses and electrical harnesses are split at easily accessible bulkhead locations, allowing your service technicians to work with smaller sections easier and faster.
- Ok-to-Start and Critically Low Fluid monitoring systems protect your machine by providing electronic verification of fluid levels and alerts.
- Brake wear indicators measure brake wear without removing brake pods.
- The optimized warning strategy of Gen 2 Electro-Hydraulic (EH) steering improves onboard communication.



Safety

Focused on keeping everyone safe.

Working at Heights Package

- 15 tie-off points located around engine enclosure and cab provide secure anchorage for fall prevention/protection PPE for technicians when performing service operations.
- Optional Working at Heights package adds an extra layer of safety by providing handrails and hand holds, improving access and safety.

Easy, Safe Access to Rear Tandem

- Non-slip steps, walkways, grab handles and two strategically placed mini platforms on the engine compartment's back side by the cooling package enhance accessibility, improve serviceability and repairability.

Fire Suppression Ready System

- The optional Fire Suppression Ready system provides the 24 with the required provisions and brackets to mount a fire suppression system faster without compromising other machine components.

Fire Suppression System from Factory

- The optional factory-installed system comes with a full Ansul Liquid Vehicle Fire Suppression System including actuators, hoses, nozzles and integrated checkfire control module.

Secondary Steering System

- The secondary steering system automatically engages an electric hydraulic pump in case of a drop in steering pressure so operators can safely steer the machine to a stop.

Seat Belt Indication

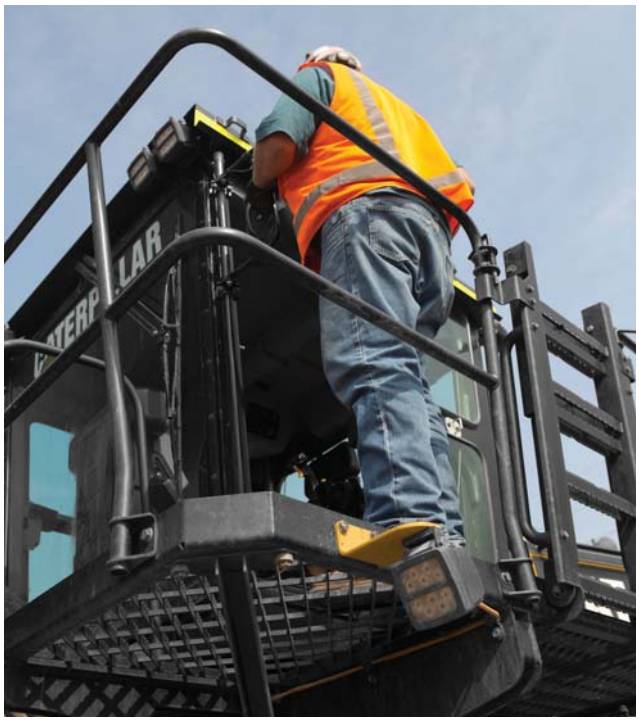
- Seat Belt Indication provides operators with visual and audible alerts when the seat belt is not in use. An optional external beacon activates if the operator is unbuckled during machine operation.

Light Emitting Diode (LED) Enclosure Service Lights

- Enclosure lights provide better visibility to field technicians for machine services and maintenance as well as the nighttime walk around.
- A set of two LED 4 × 4 lights are offered as an optional feature in the interior of the engine compartment of the 24.

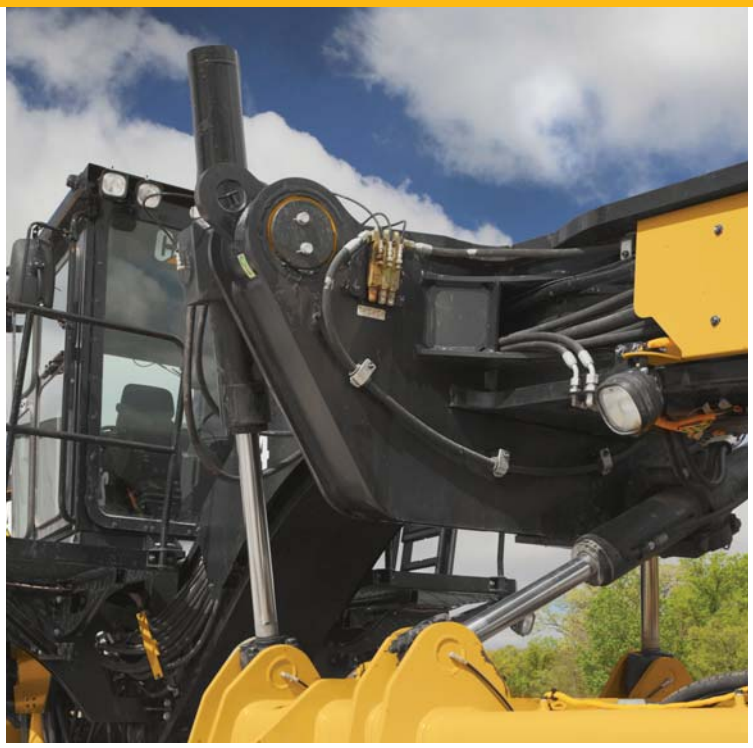
Other Safety Features

- Circle drive slip clutch
- Two optional front facing cameras
- Operator not present monitoring system
- Hydraulic lockout
- Laminated front window glass
- Ground-level electrical disconnect switch
- Ground-level engine shutoff switch
- Rearview camera with in-cab monitor



Hydraulics

Advanced machine controls with precise and predictable movements.



Load Sensing Hydraulics (PPPC)

A proven load-sensing system and advanced Proportional Priority Pressure-Compensating (PPPC) electro-hydraulic valves give operators superior implement control and enhanced machine performance. Continuously matching hydraulic flow/pressure to power demands creates less heat and reduces power consumption.

- Consistent, Predictable Movement – PPPC valves have different flow rates to account for the head and rod ends of each cylinder, so operators can count on consistent, predictable implement response.
- Balanced Flow – Hydraulic flow is proportioned to give operators confidence that all implements will operate simultaneously without slowing the engine or speed of some implements.

Blade Float

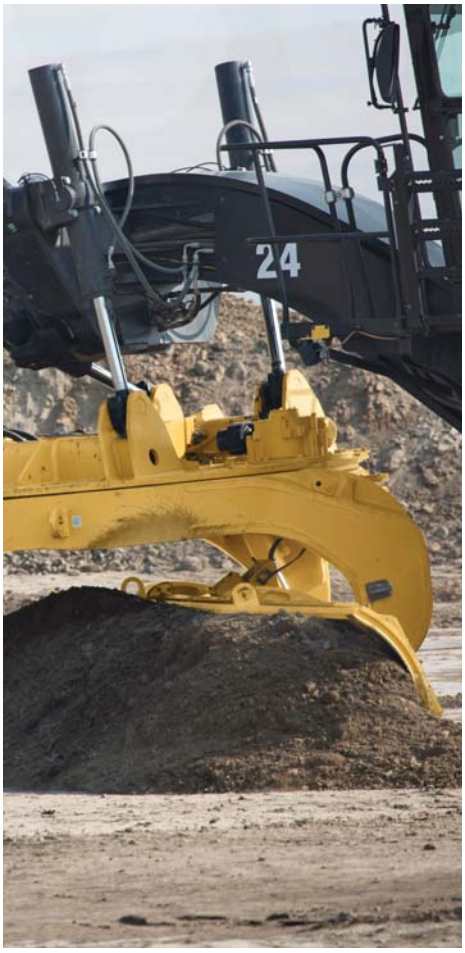
Allows the blade to move freely under its own weight. By floating both cylinders, the blade can follow the contours of the road. Floating only one cylinder permits the toe of the blade to follow a hard surface while the operator controls the slope with the other lift cylinder.

Independent Oil Supply

Large, separate hydraulic oil supplies prevent cross-contamination and provide proper oil cooling which reduces heat build-up and extends component life.

Work Tools and Attachments

Provide flexibility to match the machine to your job.



Moldboard Options

- A 7.3 m (24 ft) moldboard is standard on the 24.

Ground Engaging Tools (GET)

- A variety of tools are available from Cat Work Tools, including GraderEdges™ (serrated, flat, ARM), MiningBits™ and overlay end bits, all designed for maximum service life and productivity.

Rear Ripper/Scarifier

- Made to penetrate tough material quickly and rip thoroughly for easier movement with the moldboard, the structure of the ripper has been reinforced to improve life in very demanding applications. The ripper comes with three shanks and the ability to add four more for additional versatility.
- The ripper comes with three shanks and the ability to add four more for additional versatility.

Ground Engaging Tools

Industry-leading GET improve your machine's performance.

Updated GET Options from factory

Choose from three unique GET options now available from the factory, including a thick flat edge, serrated edge and MiningBits.

Cat MiningBits Available from Factory

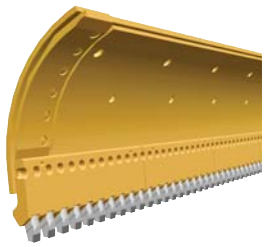
MiningBits provide ground-breaking versatility in extreme mine haul road reclamation applications. Change individual bits when worn and experience more than 10 times the wear life of a standard GraderEdge.

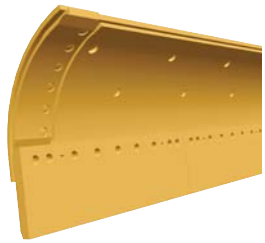
Cat ARM Edges Available

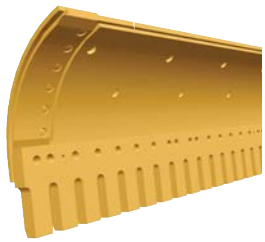
Speak to your local Cat dealer about Abrasion Resistant Material (ARM) coated edges. ARM coatings can increase a cutting edge's life by as much as five times the standard wear life.

Industry Leading GET Selection

If you do not find the best GET for your application, speak to your local Cat dealer about the many other GET options available for your new 24.







Sustainability

Thinking generations ahead.

Sustainable Development for Caterpillar means leveraging technology and innovation to increase efficiency and productivity with less impact on the environment. This helps you by enabling your businesses to become more productive and by providing products, services and solutions that use resources more efficiently.

The new 24 offers a number of sustainable benefits:

- Fuel saving features like Engine Economy (ECO) Mode help decrease overall fuel consumption.
- Cat GRADE with Cross Slope can be used to increase efficiency and reduce the frequency of haul road maintenance, reducing operation time.
- Major components on Cat motor graders are designed to be rebuilt.
- The Cat Certified Rebuild program conserves natural resources by delivering a cost effective second and even third life for our machines.

Customer and Product Support

Your Cat dealer knows how to keep your machines moving.

From helping you choose the right machine to knowledgeable ongoing support, Cat dealers provide you with unmatched sales and service.

- Preventive maintenance programs and guaranteed maintenance contracts
- Operator training help boost your profits
- Best-in-class parts availability
- Genuine Cat Remanufactured parts
- Preventive Maintenance Service kits make servicing simpler*
- Additional lights enhance visibility and safety*
- Extended ladders improve egress and ingress access*

**Contact your local Cat dealer for a complete list of available after-market parts kits.*

24 Motor Grader Specifications

Engine

Engine Model	Cat C27 ACERT	
Emissions	Tier 4 Final/Stage IV Equivalent to Tier 2/Stage II	
Base Power (1st gear) – Net	399 kW	535 hp
Base Power (1st gear) – Net (Metric)		543 hp
ISO 14396 Power at 1,800 rpm	561 kW	752 hp
Displacement	27.0 L	1,649.5 in^3
Bore	137.2 mm	5.4 in
Stroke	152.4 mm	6 in
Torque Rise ISO 9249	19%	
Maximum Torque ISO 9249	3277 N·m	2,417 lbf-ft
Speed @ Rated Power	1,800 rpm	
Number of Cylinders	12	
Derating Altitude		
Tier 4 Final/Stage IV	3048 m	10,000 ft
Equivalent Tier 2/Stage II	4572 m	15,000 ft
Standard – Fan Speed		
Maximum	1,330 rpm	
Minimum	50 rpm	
Standard Capability	50° C	122° F

- The 24 is offered with two variations of the C27 Engine with ACERT Technology. One meets Tier 4 Final/Stage IV emission standards and is required for higher regulated countries. The other option emits equivalent to Tier 2/Stage II and is available for lesser regulated countries.
- On Tier 4/Stage IV machines, Ultra Low Sulfur Diesel (ULSD) and lower ash oil are required.

Net Power

Gear	Net kW	Net HP	Metric HP
Forward			
1st	399	535	543
2nd	399	535	543
3rd	407	546	554
4th	424	569	577
5th	463	621	630
6th	518	694	704
Reverse			
1st	399	535	543
2nd	399	535	543
3rd	463	621	630

- Net power is tested per ISO 9249 at rated speed of 1,800 rpm and includes an engine equipped with fan, air cleaner, muffler/after treatment and alternator.

Power Train

Forward/Reverse Gears	6 forward/3 reverse	
Transmission	Automatic, electronic, Power Shift	
Brakes		
Service	Oil-actuated, oil-disc	
Dynamic Brake Torque Per Wheel	75 383 N·m	55,600 lbf-ft
Parking	Spring applied, hydraulically released	
Secondary	Oil-actuated, oil-disc	

Hydraulic System

Circuit Type	Electro-hydraulic load sensing, closed center	
Pump Type	Variable piston	
Pump Output	504 L/min	133 gal/min
Maximum System Pressure	24 150 kPa	3,500 psi
Standby Pressure	5800 kPa	841.2 psi

- Pump output measured at 1,800 rpm.

Operating Specifications

Top Speed		
Forward	41.9 km/h	26 mph
Reverse	41.2 km/h	25.6 mph
Turning Radius, Outside Front Tires	12.5 m	41 ft
Steering Range – Left/Right	47.5 degrees	
Articulation Angle – Left/Right	25 degrees	
Forward		
1st	4.8 km/h	3.0 mph
2nd	6.9 km/h	4.3 mph
3rd	10.3 km/h	6.4 mph
4th	14.9 km/h	9.3 mph
5th	28.9 km/h	18.0 mph
6th	41.9 km/h	26.0 mph
Reverse		
1st	6.8 km/h	4.2 mph
2nd	14.7 km/h	9.1 mph
3rd	41.2 km/h	25.6 mph

- Machine speed measured @ 1,800 rpm with 29.5R29 radial tires, no slip.

Service Refill

Fuel Capacity	908 L	240 gal
Cooling System	191 L	50.5 gal
Hydraulic System		
Total	270 L	71.3 gal
Tank	130 L	34.3 gal
Engine Oil	99 L	26. 2 gal
Transmission	122 L	32.2 gal
Differential and Final Drives	190 L	50.2 gal
Tandem Housing (each)	322 L	85.1 gal
Front Wheel Spindle Bearing Housing (each)	4 L	1.1 gal
Circle Drive Housing (each)	8 L	2.1 gal

Frame

Circle		
Diameter	2631 mm	103.6 in
Blade Beam Thickness	160 mm	6.3 in
Drawbar		
Height	215 mm	8.5 in
Thickness	16 mm	0.6 in
Width	225 mm	8.9 in
Front-Top/Bottom Plate		
Width	514 mm	20.2 in
Thickness	50 mm	2 in
Front Side Plates		
Width	415 mm	16.3 in
Thickness	25 mm	1 in
Front Axle		
Height to Center	882 mm	34.7 in
Wheel Lean, Left/Right	18 degrees	
Total Oscillation Per Side	32 degrees	

Tandems

Height	1040 mm	41 in
Width	353 mm	13.9 in
Sidewall Thickness		
Inner	25 mm	1 in
Outer	30 mm	1.2 in
Drive Chain Pitch	76 mm	3 in
Wheel Axle Spacing	2285 mm	90 in
Tandem Oscillation		
Front Up	20 degrees	
Front Down	20 degrees	

Moldboard

Width	7.3 m	24 ft
Height	1025 mm	42.4 in
Thickness	50 mm	2 in
Arc Radius	550 mm	21.7 in
Throat Clearance	162 mm	6.4 in
Cutting Edge		
Width	406 mm	16 in
Thickness	60 mm	2.4 in
End Bit		
Width	203 mm	8 in
Thickness	25 mm	1 in
Blade Pull*		
Base GVW	46 502 kg	102,519 lb
Maximum GVW	49 263 kg	108,607 lb
Down Force		
Base GVW	32 597 kg	71,863 lb
Maximum GVW	34 020 kg	75,001 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	437 mm	17.2 in
Left	804 mm	31.7 in
Moldboard Sideshift		
Right	1150 mm	45.3 in
Left	970 mm	38.2 in
Maximum Blade Position Angle	55 degrees	
Blade Tip Range		
Forward	40 degrees	
Backward	0 degrees	
Maximum Shoulder Reach Outside of Tires		
Right	3175 mm	125 in
Left	3175 mm	125 in
Maximum Lift Above Ground	410 mm	16.1 in
Maximum Depth of Cut	550 mm	21.7 in

- Maximum lift above ground and depth of cut with 406 mm × 60 mm (16 in × 2.4 in) cutting edges.

Ripper

Ripping Depth – Maximum	454 mm	17.9 in
Ripper Shank Holders	7	
Shank Holder Spacing		
Minimum	593 mm	23.3 in
Maximum	604 mm	23.8 in
Penetration Force	142 kN	31,922.9 lbf
Pryout Force	182 kN	40,915.2 lbf

Weights – Tier 4/Stage IV

Gross Vehicle Weight – Typically Equipped		
Total	73 344 kg	161,695 lb
Front Axle	20 170 kg	44,467 lb
Rear Axle	53 174 kg	117,228 lb
Gross Vehicle Weight – Base*		
Total	71 563 kg	157,769 lb
Front Axle	19 894 kg	43,858 lb
Rear Axle	51 669 kg	113,910 lb
Gross Vehicle Weight – Maximum Tested		
Total	75 500 kg	166,449 lb
Front Axle	20 763 kg	45,775 lb
Rear Axle	54 737 kg	120,674 lb

*For machines not equipped with Tier 4 Final emission engine, subtract 40 kg (88.2 lb) from the rear axle weight and total weight. Base operating weight calculated on standard machine configuration with 29.5 R29 tires, full fuel tank operator and ROPS cab.

Standards

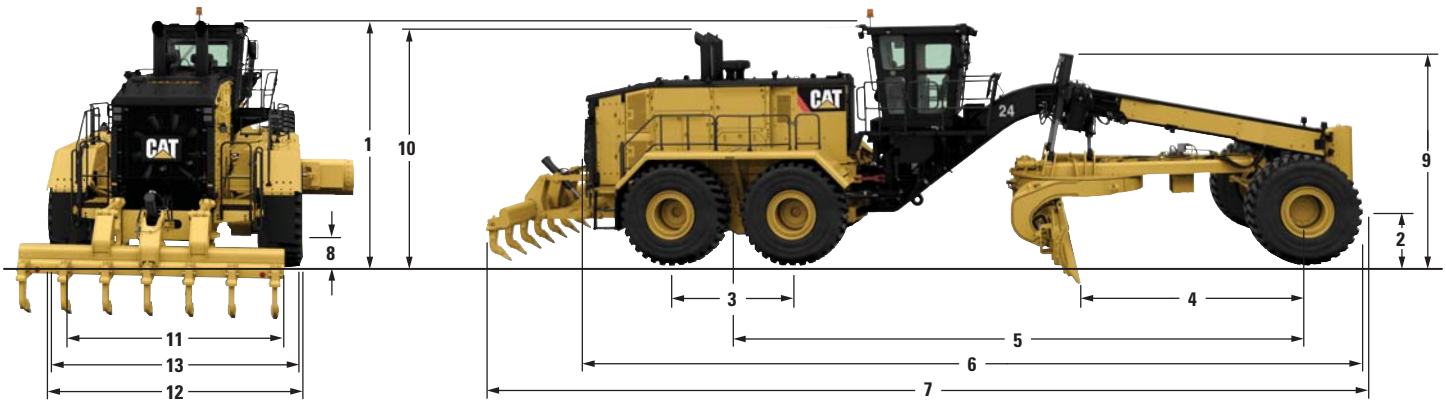
ROPS/FOPS	ISO 3471, ISO 3499
Steering	ISO 5010:2007
Brakes	ISO 3450
Sound	ISO 6394, ISO 6395, ISO 6396

- The dynamic spectator sound power level is 112 dB(A) for Tier 4/Stage IV certified configurations and 113 dB(A) for equivalent Tier 2/Stage II configurations when measured according to the dynamic test procedures that are specified in ISO 6395:2008. The measurement was conducted at 70 percent of the maximum engine cooling fan speed. The machine was equipped with a sound suppression system.
- The dynamic operator sound pressure level is 73 dB(A) for Tier 4/Stage IV certified configurations and equivalent Tier 2/Stage II configurations when measured according to the dynamic test procedures that are specified in ISO 6396:2008. The measurement was conducted at 70 percent of the maximum engine cooling fan speed, with the cab doors and the cab windows closed. The cab was properly installed and maintained. The machine was equipped with a sound suppression system.

Air Conditioning System

The air conditioning system on this machine contains the fluorinated greenhouse gas refrigerant R134a (Global Warming Potential = 1430). The system contains 1.6 kg of refrigerant which has a CO_2 equivalent of 2.288 metric tonnes.

Dimensions



		24	
		mm	in
1	Height – Top of Cab	4380	172.4
2	Height – Front Axle Center	914	36
3	Length – Between Tandem Axles	2285	90
4	Length – Front Axle to Moldboard	4048	159.4
5	Length – Front Axle to Mid Tandem	10 388	409
6	Length – Front Tire to Rear of Machine (includes tow hitch)	14 880	585.8
7	Length – Counterweight to Ripper	16 707	657.8
8	Ground Clearance at Rear Axle	404	15.9
9	Height to Top of Cylinders	3800	149.6
10	Height to Exhaust Stack	4373	172.2
11	Width – Tire Center Lines	3664	144.3
12	Width – Outside Rear Tires	4433	174.5
13	Width – Outside Front Tires	4280	168.5

All dimensions are approximate, based on standard machine configuration with 29.5R29 tires.

Optional Tire Arrangements

Common tire options for the 24.

Wheel Group	Tires
29.5 × 29	29.5R29 Michelin XLDD2A ★ L5
29.5 × 29	29.5R29 Bridgestone VSTD D2A ★ L5

Factory options may vary based on availability.

24 Motor Grader Standard Equipment

Standard Equipment

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

POWER TRAIN

- Engine: C27 with ACERT technology
- 24-volt electric start
- Air filters, dual with precleaner
- Automatic dust ejector
- Aftercoolers, air-to-air
- Ether starting aid
- Automatic fan, suction with hydraulic demand
- Drive, near zero fan speed
- Torque divider, lock-up
- Transmission, 533 mm (21 in) planetary powershift with 6F/3R, ECPC
- Enhanced auto-shift, APECS
- Directional shift management
- Differential, lock/unlock (auto/manual)
- Parking brake, multi-disc, sealed and oil cooled
- Fast fill (fuel, hydraulic, transmission, coolant)
- Fuel priming pump, electric
- Electronic prescreener water/fuel
- Prescreener separator, water/fuel
- Thermal shields
- Fluid monitoring (engine, transmission, hydraulic, differential)

ELECTRICAL

- Alarm, back-up
- Alternator, 150 ampere, sealed, filtered air intake
- Maintenance free batteries, 12V (4), 200 amp-hour
- Heavy duty starter (two)
- Electrical hydraulic valves, base 8
- Electrical system, 24 volt
- Lights, reversing, stop, tail, turn
- Starter receptacle plug-in

OPERATOR ENVIRONMENT

- Air conditioner and heater sound suppressed, pressurized cab 73 dB(A) ISO 6394 at 70 percent fan speed.
- Rollover protective structure (ROPS/FOPS)
- Adjustable armrest
- Electro-hydraulic controls
- Electronic throttle control
- Automatic return to center articulation
- 10 inch digital touch screen information display
- Rear vision camera
- Coat hook
- Comfort suspension seat, cloth-covered
- Front fixed laminated window glass with intermittent wiper, sides (two), rear with wiper/washer
- Retractable seat belt, 76 mm (3 in)
- Hydraulic implement lockout for roading and servicing

TECHNOLOGY PRODUCTS

- VIMS – 3G
- Grade control X slope
- Overspeed/underspeed protection
- Second generation steering system
- Ripper auto stow
- Circle angle limits

SAFETY AND SECURITY

- Fire suppression ready
- Circle drive slip clutch
- Locking doors
- Ground level engine shutdown
- Secondary steering
- Working at heights tie-off anchors
- Rear tandem access platforms
- Seat belt indicator

GROUND ENGAGING TOOLS

- Moldboard, 7315 mm × 1067 mm × 50 mm (24 ft × 42 in × 2 in)
- Rear ripper with seven shank capacity, three shanks/tips provided

OTHER STANDARD EQUIPMENT

- Blade lift accumulators
- Lincoln Centro-Matic Autolube System
- Drawbar, eight shoe with replaceable wear strips
- Fuel tank, 908 L (240 gal) fast fill
- Ground level fueling
- Push plate-counterweight
- S·O·S℠ ports, engine, hydraulic, transmission, coolant, fuel
- Hydraulic and electric bulkheads
- Fluid service center: engine, transmission, hydraulic oil, and coolant ports

Optional Equipment

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

OPERATOR ENVIRONMENT

- Heated seat
- Heated and ventilated seat
- Air horn
- Radio Bluetooth
- Radio Satellite Sirius
- Outside mounted mirrors
- Heated outside mounted mirrors 24V
- Rear view camera additional dedicated monitor
- Auto articulation

POWER TRAIN

- Bar and plate dual core radiator
- Precleaner Sy-klone
- Control blade variable float

GUARDS

- Guard Package including mud guard (two) bottom, eng. compartment and front axle (two)
- Tandem fenders with mounted guardrails
- Sound suppression guard package

ELECTRICAL

- Halogen operator access lighting package
- LED operator access lighting package
- Working halogen lighting package
- Working LED lighting package
- LED warning strobe light

SAFETY

- Dual Access CAB platform
- Front facing cameras (two)
- Fire suppression system
- Wheel chocks with mounting bracket

OTHER ATTACHMENTS

- VIMS and Satellite Product Link
- VIMS and Dual (Cell/Satellite) Product Link
- Rims Only option , 25" × 29" MP

WORK TOOLS/GET

- Flat 406 mm × 60 mm (16 in × 2.36 in) cutting edge
- Serrated 406 mm × 75 mm (16 in × 2.95 in) cutting edge
- MiningBits 355.6 mm × 75 mm (14 in × 2.13 in) cutting edge system
- Tooth, ripper

FLUIDS

- Cold Weather Package – Arctic hydraulic oil, engine, hydraulic, transmission and coolant heater (240V/30A)

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at **www.cat.com**

AEHQ8110 (02-2018)
Build Number: 24-14A

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