

Cat[®] 428

BACKHOE LOADER



The Cat[®] 428 Backhoe Loader delivers exceptional performance, a superior hydraulic system and spacious operator station. The 428 features the following:

- **Ergonomic Operator Station** – Ample legroom inside the cab makes rotating the seat simple. The air suspension seat provides comfort to the operator while loading.
- **Joystick Controls** – Pilot joysticks provide operator comfort, reduced fatigue and increased productivity. Proportional Thumb Rollers on the Pilot Joysticks places E-Stick and Rear Auxiliary Controls at the operator's fingertips.
- **Load Sensing Hydraulics** – The Cat Backhoe Loader's load sensing piston pump provides full hydraulic lifting and digging forces at any engine speed. Variable flow pump matches hydraulic power to work demands.
- **Powershift Transmission** – A Four Speed Powershift Transmission makes shifting gears smooth and as simple as twisting the Powershuttle Lever.
- **Machine Performance** – The proven Cat C3.6 engine delivers solid performance and meets U.S. EPA Tier 4 Final/EU Stage V emission standards by utilizing Selective Catalytic Reduction technology with a diesel oxidation catalyst. The system allows the operator to disconnect the machine, even while the diesel exhaust fluid is being purged from the system.
- **Machine Versatility** – The Cat Backhoe Loader with Integrated Tool Carrier (IT Coupler) will be the most versatile machine on the job site providing quick connection to a variety of Cat Attachments.
- **Cat Attachments** – A large portfolio of Backhoe Loader Attachments, including but not limited to, Quick Couplers, assorted Buckets, and Brooms are available for field installation. Cat Backhoe Loaders will be "Dirt Ready" upon delivery.

Specifications

Engine

Engine	C3.6 70 kW (97 hp) Electronic Turbo Intercooled	
Gross Power (SAE J1995:2014)	71 kW	97 hp
Engine Power (ISO 14396:2002)	70 kW	95 hp
Rated Net Power @ 2,200 rpm (SAE J1349:2011)	64 kW	86 hp
(ISO 9249:2007)	63 kW	86 hp
Net Peak Power @ 2,200 rpm (SAE J1349:2011)	64 kW	86 hp
(ISO 9249:2007)	63 kW	86 hp
Dimensions		
Bore	98 mm	3.86 in
Stroke	120 mm	4.72 in
Displacement	3.6 L	220 in ³
Net Torque Rise @ 1,500 rpm	43%	
Net Peak Torque SAE J1349	395 N·m	292 lb·ft
Power Rating Conditions		
No de-rating required up to	3048 m	10,000 ft

- Engine meets U.S. EPA Tier 4 Final/EU Stage V emission standards.

Weights*

Operating Weight* (estimated)	9453 kg	20,840 lb
Operating Weight (maximum) (Rollover Protective Structure [ROPS] capacity)	11 000 kg	24,251 lb
Cab, ROPS/Falling Object Protective Structure (FOPS)	Standard	
Powershift Transmission	Standard	
Ride Control	Standard	
Air Conditioning	Standard	
All-Wheel Drive	Standard	
Loader Quick Coupler (QC)	Standard	

*Machine configuration: 14'0" extendible stick hoe, deluxe cab, 4WD powershift transmission, 1.03 m³ (1.35 yd³) MP (Multi Purpose) loader bucket, 610 mm (24 in) heavy duty hoe bucket, front 340/80-20 and rear 480/80-26 tires, 460 kg (1,015 lb) counterweight, power side shift, full fuel tank.



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Transmission*

Power-Shift Transmission – Standard

Forward – 1st	5.9 km/h	3.7 mph
2nd	9.4 km/h	5.8 mph
3rd	20 km/h	12 mph
4th	40 km/h	25 mph
Reverse – 1st	5.9 km/h	3.7 mph
2nd	12 km/h	7.6 mph
3rd	27 km/h	17 mph

*Travel speeds of backhoe loader at full throttle, when equipped with 440/80/28 rear tires.

Axle Ratings

Front Axle, All Wheel Drive (AWD)

Static	23 500 kg	51,808 lb
Dynamic	9000 kg	19,841 lb

Rear Axle

Static	26 500 kg	58,422 lb
Dynamic	10 000 kg	22,046 lb

Hydraulic System

Type	Closed Center	
Pump Type	Variable-flow, Axial Piston	
Pump Capacity @ 2,200 rpm	160 L/min	42 gal/min
System Pressure		
Backhoe	25 000 kPa	3,626 psi
Loader	25 000 kPa	3,626 psi

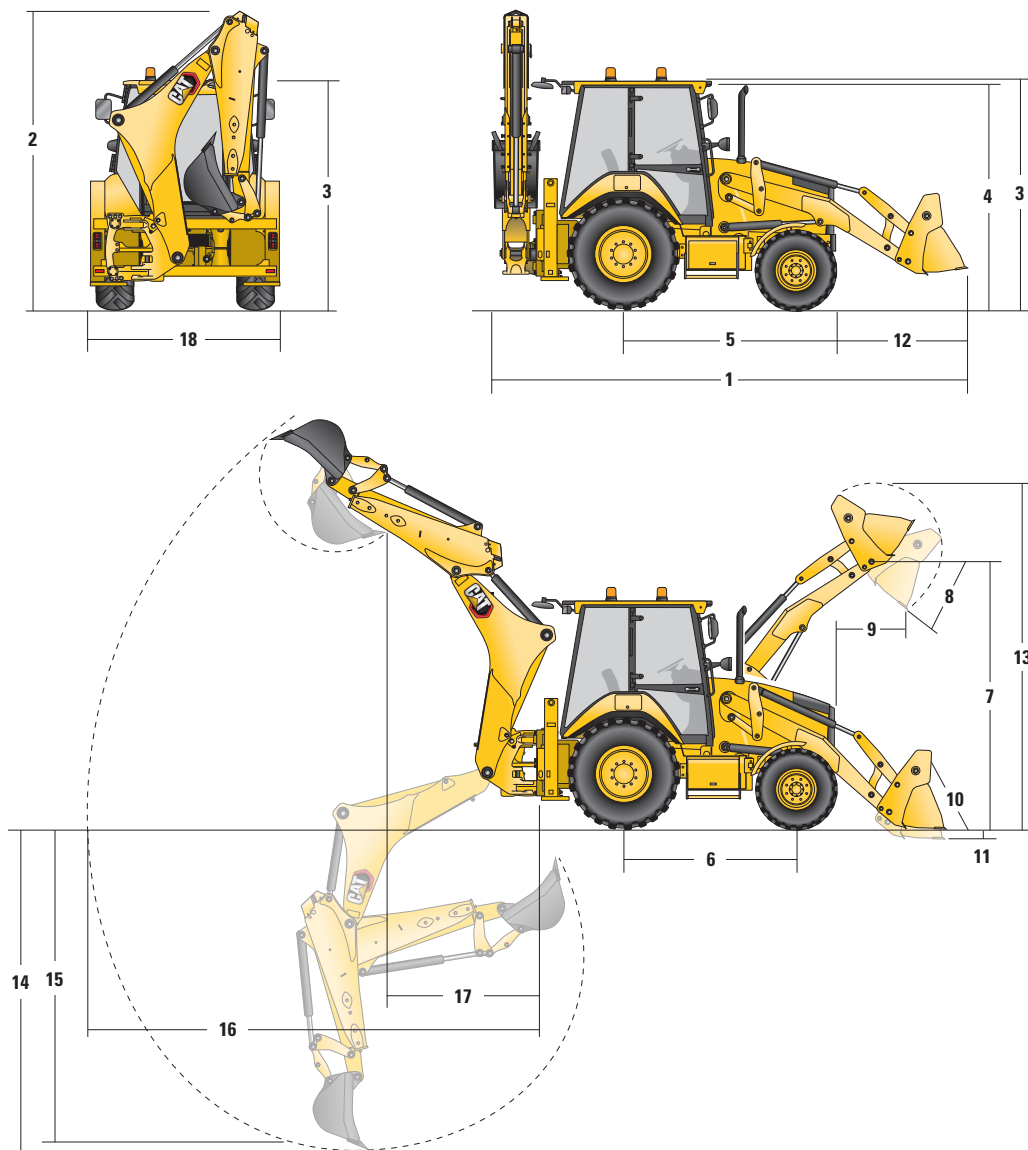
Steering

Type	Front Wheel Steering	
Power Steering	Hydrostatic	
One Double-Acting Cylinder		
Bore	65 mm	2.6 in
Stroke	106 mm	4.2 in
Rod Diameter	40 mm	1.6 in
Axle Oscillation	11°	
Turning Circle – (inner wheel not braked)		
Outside Front Wheels	8.205 m	26'11"
Outside Widest Loader Bucket	10.745 m	35'3"

Service Refill Capacities

Cooling System with Air Conditioning	18.0 L	4.8 gal
Fuel Tank	160.0 L	42.3 gal
Engine Oil with Filter	9.0 L	2.4 gal
Diesel Exhaust Fluid (DEF)	19.0 L	5.0 gal
Transmission – Power Shift		
AWD	19.0 L	5.0 gal
Rear Axle	16.0 L	4.2 gal
Planetaries	1.7 L	0.4 gal
Front Axle (AWD)	11.0 L	2.9 gal
Planetaries	0.7 L	0.2 gal
Hydraulic System	95.0 L	25.1 gal
Hydraulic Tank	42.0 L	11.1 gal

Machine Dimensions



Parallel Lift Loader

	GP – 1.0 m ³ (1.31 yd ³)		MP – 1.03 m ³ (1.35 yd ³)		MP with Forks – 1.03 m ³ (1.35 yd ³)	
1 Overall Length in Rearing Position (15 degree approach angle and hoe stowed to side) S-Stick	5763 mm	18'11"	5744 mm	18'10"	5744 mm	18'10"
Overall Transportation Length (loader on ground and hoe stowed to side) S-Stick	5775 mm	18'11"	5731 mm	18'10"	5731 mm	18'10"
2 Overall Transportation Height (standard stick)	3806 mm	12'6"	3806 mm	12'6"	3806 mm	12'6"
Overall Width (excluding loader bucket)	2352 mm	7'9"	2352 mm	7'9"	2352 mm	7'9"
3 Height to Top of Cab/Canopy	2822 mm	9'3"	2822 mm	9'3"	2822 mm	9'3"
4 Height to Top of Exhaust Stack	2715 mm	8'11"	2715 mm	8'11"	2715 mm	8'11"
5 Rear Axle Centerline to Front Grill	2705 mm	8'11"	2705 mm	8'11"	2705 mm	8'11"
6 Wheelbase 2WD/AWD	2200 mm	7'3"	2200 mm	7'3"	2200 mm	7'3"

Dimensions and performance specifications shown are for machines equipped with 340/80-18 front tires, 440/80-28 rear tires, standard cab, standard stick, 600 mm (24 in) standard duty bucket, and 1.03 m³ (1.35 yd³) MP loader bucket and standard equipment unless otherwise specified.

428 Backhoe Loader Specifications

Loader Bucket Dimensions and Performance

	Parallel Lift Loader					
	GP – 1.0 m³ (1.31 yd³)		MP – 1.03 m³ (1.35 yd³)		MP with Forks – 1.03 m³ (1.35 yd³)	
Capacity (SAE rated)	1.0 m³	1.31 yd³	1.03 m³	1.35 yd³	1.03 m³	1.35 yd³
Width	2406 mm	7'11"	2406 mm	7'11"	2406 mm	7'11"
Lift Capacity at Maximum Height	3728 kg	8,219 lb	3488 kg	7,690 lb	3303 kg	7,282 lb
Lift Breakout Force	54 791 N	12,318 lbf	53 252 N	11,972 lbf	51 536 N	11,586 lbf
Tilt Breakout Force	54 292 N	12,205 lbf	59 845 N	13,454 lbf	58 900 N	13,241 lbf
Tipping Load at Breakout Point	6627 kg	14,610 lb	6604 kg	14,559 lb	6448 kg	14,215 lb
7 Maximum Hinge Pin Height	3462 mm	11'4"	3462 mm	11'4"	3462 mm	11'4"
8 Dump Angle at Full Height	45°		45°		45°	
Dump Height at Maximum Angle	2755 mm	9'0"	2780 mm	9'1"	2780 mm	9'1"
9 Dump Reach at Maximum Angle	805 mm	2'8"	732 mm	2'5"	732 mm	2'5"
10 Maximum Bucket Rollback at Ground Level	38°		39°		39°	
11 Digging Depth	99 mm	3.9"	132 mm	5.2"	132 mm	5.2"
Maximum Grading Angle	113°		116°		116°	
12 Grill to Bucket Cutting Edge, Carry Position	1488 mm	4'11"	1471 mm	4'10"	1471 mm	4'10"
13 Maximum Operating Height	4328 mm	14'2"	4365 mm	14'4"	4365 mm	14'4"
Weight (does not include teeth)	438 kg	966 lb	674 kg	1,486 lb	860 kg	1,896 lb

Backhoe Dimensions and Performance

	Standard Stick – 4.3 m (14'0")		E-Stick Retracted – 4.3 m (14'0")		E-Stick Extended – 4.3 m (14'0")	
14 Digging Depth, SAE Maximum	4298 mm	14'1"	4301 mm	14'1"	5292 mm	17'4"
Digging Depth, Manufacturer's Maximum	4778 mm	15'8"	4782 mm	15'8"	5700 mm	18'8"
15 Digging Depth, 2400 mm (7'10") Flat Bottom	3915 mm	12'10"	3919 mm	12'10"	4987 mm	16'4"
Digging Depth, 600 mm (24") Flat Bottom	4255 mm	14'0"	4259 mm	14'0"	5254 mm	17'3"
Digging Depth, 600 mm (24") Flat Bottom, Manufacturer's	4753 mm	15'7"	4758 mm	15'7"	5700 mm	18'8"
Reach from Rear Axle Centerline at Ground Line	6741 mm	22'1"	6746 mm	22'2"	7672 mm	25'2"
16 Reach from Swing Pivot at Ground Line	5651 mm	18'6"	5656 mm	18'7"	6582 mm	21'7"
Maximum Operating Height	5665 mm	18'7"	5666 mm	18'7"	6265 mm	20'7"
Loading Height	3991 mm	13'1"	4000 mm	13'1"	4599 mm	15'1"
17 Loading Reach	1690 mm	5'7"	1639 mm	5'5"	2501 mm	8'2"
Swing Arc	180°		180°		180°	
Bucket Rotation	205°		205°		205°	
18 Stabilizer Overall Width	2352 mm	7'9"	2352 mm	7'9"	2352 mm	7'9"
Bucket Dig Force	63 447 N	14,263 lbf	63 419 N	14,257 lbf	63 419 N	14,257 lbf
Stick Dig Force	36 232 N	8,145 lbf	36 899 N	8,295 lbf	26 976 N	6,064 lbf

STANDARD EQUIPMENT

- Cab, Deluxe
- All Wheel Drive
- 100% Differential Lock
- Hydraulic Boosted Brakes
- 340 80R20 (Front Tires)/480 80R26 (Rear Tires)
- Engine, C3.6 70 kW
- Battery, 750 CCA, Heavy Duty
- Hinged Radiator Pack
- Auto Idle
- Eco Mode
- Standard Mode (1900 RPM)
- Standard + Mode (2350 RPM)
- Engine Block Heater
- Transmission Neutralizer
- Transmission, Four Speed Powershift
- Torque Converter
- Controls, Pilot Joysticks
- Pattern Selector (ISO/SAE)
- Power Steering, Hydrostatic
- Variable Displacement Piston Pump
- Hydraulic Quick Disconnects
- Side Shift Lock
- Hydraulic Oil Cooler
- Hydraulic Lines, Two Way
- Loader Kickout, Float
- Loader Kickout, Return to Dig
- Powered Side Shift
- Ride Control
- Continuous Flow
- Programmable Auxiliary Flow
- Stick Extending, 4.3 m (14'0")
- Loader Quick Coupler, Hydraulic
- Transport Lock, Swing
- Transport Lock, Boom
- Counterweight, 460 kg (1,015 lbs)
- Street Pads, Stabilizers
- External Tool Box
- Transport Tie Downs
- Display Screen, Soft Key
- Product Link Cellular
- Reversing Alarm
- Stabilizer Alarm

428 Environmental Declaration

The following information applies to the machine at the time of final manufacture as configured for sale in the regions covered in this document. The content of this declaration is valid as of the date issued; however, content related to machine features and specifications are subject to change without notice. For additional information, please see the machine's Operation and Maintenance Manual.

For more information on sustainability in action and our progress, please visit <https://www.caterpillar.com/en/company/sustainability>.

Engine

- The Cat® C3.6 engine meets U.S. EPA Tier 4 Final and EU Stage V emission standards.
- Cat diesel engines are required to use ULSD (ultra-low sulfur diesel fuel with 15 ppm of sulfur or less) or ULSD blended with the following lower-carbon intensity fuels* up to:
 - ✓ 20% biodiesel FAME (fatty acid methyl ester)
 - ✓ 100% renewable diesel, HVO (hydrotreated vegetable oil) and GTL (gas-to-liquid) fuels

Refer to guidelines for successful application. Please consult your Cat dealer or "Caterpillar Machine Fluids Recommendations" (SEBU6250) for details.

**Tailpipe greenhouse gas emissions from lower-carbon intensity fuels are essentially the same as traditional fuels.*

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 (3.5 lb) of refrigerant which has a CO₂ equivalent of 2.3 metric tonnes (2.5 tons).

Paint

- Based on best available knowledge, the maximum allowable concentration, measured in parts per million (PPM), of the following heavy metals in paint are:
 - Barium < 0.01%
 - Cadmium < 0.01%
 - Chromium < 0.01%
 - Lead < 0.01%

Sound Performance

Operator Sound Pressure Level
(ANSI/SAE J1166 FEB 2014) – 76 dB(A)*

Exterior Sound Power Level
(SAE J88 JUNE 2013) – 77 dB(A)

*Measurements were conducted with properly installed and maintained cab doors and windows closed.

Oils and Fluids

- Caterpillar factory fills with ethylene glycol coolants. Cat Diesel Engine Antifreeze/Coolant (DEAC) and Cat Extended Life Coolant (ELC) can be recycled. Consult your Cat dealer for more information.
- Cat Bio HYDO™ Advanced is an EU Ecolabel approved biodegradable hydraulic oil.
- Additional fluids are likely to be present, please consult the Operations and Maintenance Manual or the Application and Installation guide for complete fluid recommendations and maintenance intervals.

Features and Technology

- The following features and technology may contribute to fuel savings and/or carbon reduction. Features may vary. Consult your Cat dealer for details.
 - Extended maintenance intervals not only reduce downtime but decrease the amount of fluid and filters that are replaced over the life of the machine.
 - Auto Idle helps reduce unnecessary fuel burn and greenhouse gas emissions by allowing the engine to automatically go into idle mode when the machine is not working.

Recycling

- The materials included in machines are categorized as below with approximate weight percentage. Because of variations of product configurations, the following values in the table may vary.

Material Type	Weight Percentage
Steel	62.73
Iron	13.68
Other	6.33
Rubber	4.53
Uncategorized	3.81
Fluid	3.66
Nonferrous Metal	2.61
Plastic	2.12
Mixed Metal	0.48
Mixed Nonmetallic	0.04
Mixed-Metal & Nonmetal	0.01
Total	100.00%

- A machine with higher recyclability rate will ensure more efficient usage of valuable natural resources and enhance End-of-Life value of the product. According to ISO 16714 (Earthmoving machinery – Recyclability and recoverability – Terminology and calculation method), recyclability rate is defined as percentage by mass (mass fraction in percent) of the new machine potentially able to be recycled, reused, or both.

All parts in the bill of material are first evaluated by component type based on a list of components defined by the ISO 16714 and Japan CEMA (Construction Equipment Manufacturers Association) standards. Remaining parts are further evaluated for recyclability based on material type.

Because of variations of product configurations, the following value in the table may vary.

Recyclability – 92%

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

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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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AEHQ8345-01 (08-2023)
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