311D LRR
Hydraulic Excavator

CATERPILLAR®

Cat® C4.2 Engine with ACERT™ Technology	
Net Power (ISO 9249) at 2200 rpm	60 kW/82 hp
Operating Weights	
311D LRR	12 480 kg

Long undercarriage, 500 mm shoes, 2800 mm stick, 0.3 m³ bucket

311D LRR Features

Comfortable Operator Station

Spacious and quiet, this world class cab lets the operator focus on performance and productivity.

Engine Power Combined with Low Emissions

Move more material and respect the environment while using less fuel with the Cat C4.2 ACERT engine. The 311D meets EU Stage IIIA emissions regulations while providing additional power and performance.

Efficient Hydraulics

The performant hydraulic system delivers more power for increased digging force, lifting ability and overall productivity.

Maximum Versatility

Easily configure a large variety of work tools with the Cat Tool Control System. Make the most of the machine's ability to work in confined areas, thanks to its reduced radius structure

Proven Reliability

Caterpillar design and manufacturing techniques provide maximum uptime with outstanding durability and service life.

Achieve high productivity and lower operating costs with the Cat 311D LRR hydraulic excavator. Unmatched versatility, improved controllability, easy operation and a comfortable redesigned cab make the 311D the industry leading performer.

Contents

Operator Station

Enhanced comfort, operation and visibility

Operator Comfort

Experience a spacious, quiet and comfortable operator station. The cab is pressurized to 0.5 bar to reduce the amount of dust that enters the cab, keeping the operator comfortable during the entire shift, while assuring high productivity.

- The comfortable seat adjusts to the operator's size and weight, and the armrests are also height adjustable.
- The new seat has been designed to feature air-suspension and heating systems. Both these attachments are optionally available.
- Low effort joystick controls are designed to match the operator's natural wrist and arm position. Joysticks can be operated with arms on the armrests. The horizontal and vertical strokes are designed to reduce fatigue.
- The front windshield is split 70 (upper)/30 (lower) in order to provide maximum visibility. The upper part is slidable, assisted by a mechanism which reduces operator effort.

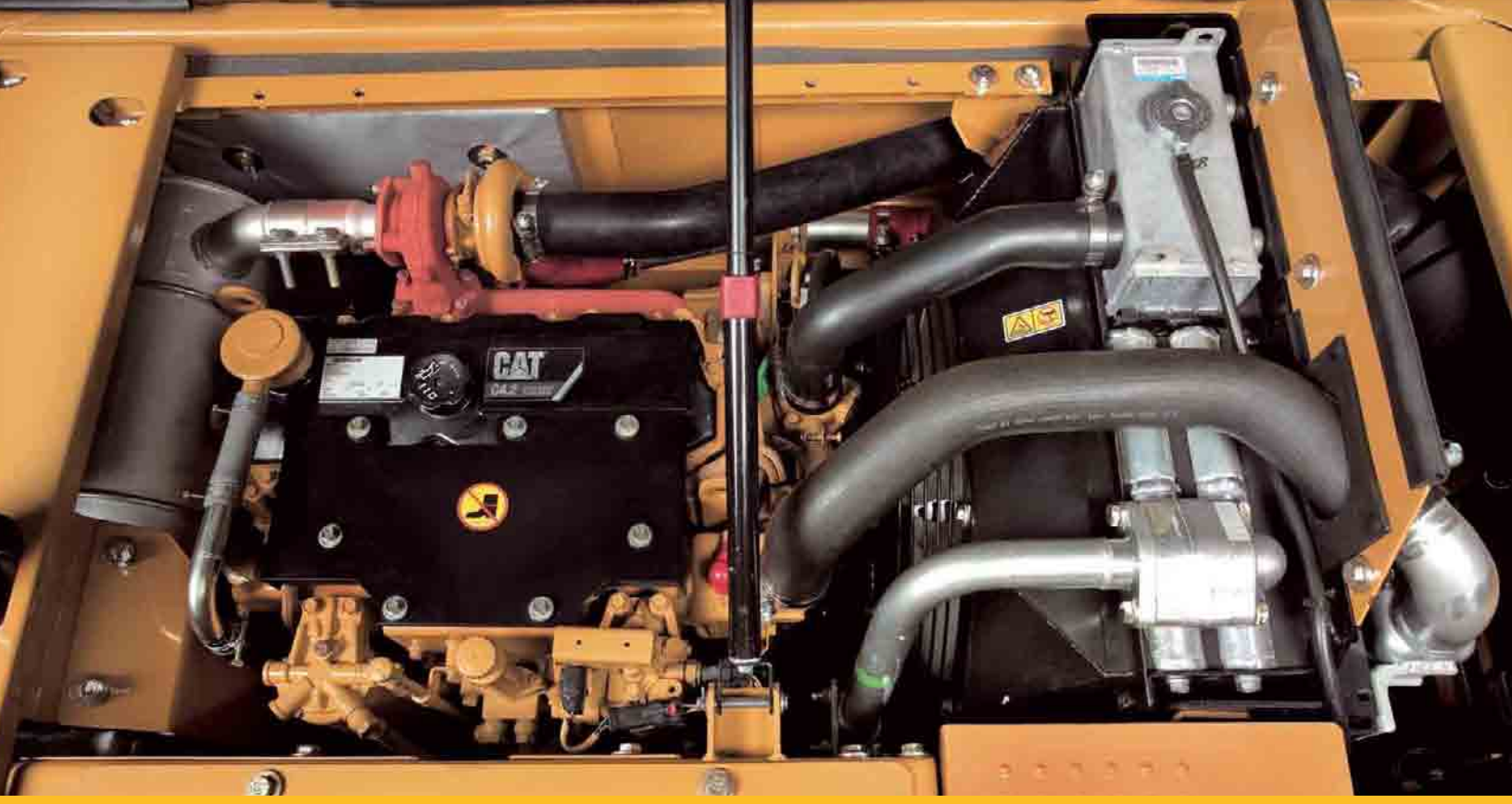
Cab Exterior

The Falling Object Guard System (FOGS) can be directly bolted to the cab, enabling the machine to meet all specifications and job site requirements. Thicker steel tubes made according to the solid drawn process contribute to the rigidity of the 311D operator station.

Pre-start Check and Monitor Display

Take advantage of the entirely rethought monitor, designed to simplify machine use by acting as a operator-to-machine interface. It features:

- Full color graphical display
- An on-board servicing scheduler (displaying recommended actions such as oil and filter changes)
- 20 different available languages
- Video display capability



Engine

A clean, quiet and powerful engine helps to deliver the most work per liter of fuel consumed.

The Cat C4.2 engine with ACERT Technology optimizes performance and meets EU Stage IIIA emissions regulations. In conjunction with integrated electronics, ACERT Technology reduces emissions during the combustion process by using advanced technology in the air and fuel systems. The Cat C4.2 engine delivers exceptional power, allowing more hydraulic pressure to drive productivity and reduce your cost per ton of material moved.

Fuel Economy

- **Automatic Engine Control, Fuel Delivery and Manual Low Idle Function.** A two-level control with one-touch command maximizes fuel efficiency and reduces sound levels during no-load or lighter-load applications. Fuel delivery is managed by the ADEM A4 Engine Controller for the best performance per liter of fuel used. Flexible fuel mapping allows the engine to respond quickly to varying application needs. Electronic controls govern the fuel injection system. Multiple injection fuel delivery involves a high level of precision. Consequently, the carefully shaped combustion cycle lowers the combustion chamber temperatures, generates fewer emissions and thus optimizes fuel consumption. For you, this means more work output for the same amount of fuel consumed.
- **Economy Mode.** A new Economy Mode function is now standard: thanks to this device, you can adapt the performance of the machine to the work that needs to be done. By using a menu in the monitor, decide, whether you want to switch the Economy Mode on or off, and thus choose whether you want to operate fuel-efficiently or whether you want to use the full power of the machine, in order to boost productivity.
- **ODPS.** On Demand Power Supply is a new feature, constantly regulating engine power supply, based on the power demanded by the machine hydraulic system. This machine reduces fuel consumption and machine noise in light duty applications.

Crankshaft and Pistons

A forged one-piece, induction hardened crankshaft enhances balance, decreases vibration and improves abrasion resistance. Heat resistant, aluminum alloy pistons have a short compression height for greater efficiency and longer life.

Electronic Control Module (ECM)

The ECM works as the “brain” of the engine’s control system, responding quickly to the operating variables to maximize engine efficiency. Fully integrated with sensors in the engine’s fuel, air, coolant and exhaust systems, the ECM stores and relays data on conditions such as rpms, fuel consumption and diagnostics.

Hydraulics

Low effort and precise control for highly efficient performance.

Outstanding Performance

With two percent more hydraulic pressure for additional lift and breakout forces, the 311D's hydraulic system is designed for high efficiency and performance. The new compact design utilizes shorter tubes and lines, reducing friction and pressure drops, resulting in a more efficient use of power.

- Hydraulic snubbers at the rod end of the boom cylinders and both ends of the stick cylinder cushion shock, reduce sound and increase cylinder life.
- Flow is reduced to a minimum when controls are in neutral to reduce fuel consumption and extend component life.
- Electronic under speed control electronically adjusts pump output so that it doesn't exceed engine power, preventing the need to reserve engine power to avoid engine stalls.
- Hydraulic cross sensing system uses two hydraulic pumps up to 100% of engine power under all operating conditions, improving productivity with faster implement speeds and quicker, stronger pivot turns.

Boom and Stick Regeneration Circuit

The boom and stick regeneration circuit saves energy during boom-down and stick-in operation, increasing efficiency and lowering operating costs. What is more, regeneration during boom down operations is electronically assisted. This system increases hydraulic flow regeneration, which leads to faster operations and reduced pressure loss, and hence improved fuel efficiency.

Two Pump Flow

The two pump combined option, available with the single action control circuit option, allows for increased productivity in single action applications.

Priority Circuits

The 311D LRR uses a boom priority circuit and a swing priority circuit. It has an automatic boom and swing priority function which selects the best mode, based on the amount of lever movement. This system eliminates the need for mode selection, simplifying operations and optimizing performance in different applications. By gradually switching to a priority circuit, rapid flow changes are prevented, and smooth operations are ensured, measuring up to the operator's expectations. As a result, thanks to this automated system, the machine is simpler to operate and therefore more agreeable to use.

Medium Pressure Circuit

The Medium Pressure Circuit is available as an attachment for work tools requiring moderate hydraulic flow, such as rotating buckets or shears.

High Pressure Circuit

The High Pressure Circuit is available as an attachment for work tools requiring high hydraulic flow and pressure, such as hammers, processors and shears.

Undercarriage and Structures

Strong, stable and easy to maneuver.

Front Linkage

Reliable, durable and versatile.

Built for performance and long service life, Cat booms and sticks are welded, box section structures with thick multi plate high strength steel fabrications. Service intervals are extended with self lubricating pins that resist corrosion and galling for superior durability.

Reach Boom
The 4300 mm reach boom is designed for maximum digging capability and is robotic welded to ensure consistent quality. This allows excellent all around versatility and a large working envelope.

Optional Variable Angle Boom
A new optional VA boom is available to suit all your applications in small space conditions, and achieve greater versatility.

Stick
Two stick lengths are available (2250 and 2800 mm), in order to offer maximum flexibility in machine configuration and therefore to meet a wide range of applications. What is more, all the boom and stick linkages of the 311D are compatible with those of the 311C.

Caterpillar uses advanced engineering and software to analyze all structures, creating a durable, reliable machine for the toughest applications.
More than 70% of the structural welds are robotic and achieve over three times the penetration of manual welds. These structural components and undercarriage are the backbone of the machine's durability.

Long Undercarriage
The standard for the 311D is the long undercarriage, which features longer track length by 170 mm compared to the standard undercarriage. Thanks to this configuration improvement, enjoy improved stability in all conditions.

Blades
Two blades (2500 and 2700 mm) are optionally available with the 311D for improved stability and lifting ability.

Improved Drawbar Pull
Drawbar pull has increased by 20%, which results in higher system pressure tolerance, so that you can enjoy improved maneuverability on slopes and in muddy underfoot conditions.

Bottom guards
Track alignment while traveling and working on slopes is assured, thanks to the idler guard, and the bolt-on center guard, which are standard on the 311D LRR.

Spring Recoil System
Machine reliability is improved, thanks to a perfected absorbing system which relieves abnormal track tensions, made possible by an 18% increase of the recoil system stroke.

Carbody Design
X-shaped, box section carbody provides excellent resistance to torsional bending. Robot-welded track roller frames are press-formed, pentagonal units that deliver exceptional strength and service life. Idler and center guards are standard to help maintain track alignment when traveling or working on slopes.

Travel Motors
Travel Motors with automatic speed selection let the 311D automatically change up and down from high and low speeds in a smooth controlled manner.

Grease Lubricated Tracks
Grease lubricated track seals protect the track link and reduce track pin and bushing inner wear.

Versatility

More options for more work.

Hydraulic and Pilot Configurations

High pressure systems, medium pressure systems and hydraulic controls are available as independent and combinable attachments to configure the most adapted machine to your specific job needs.

Control

An optional foot switch is available. This switch has two positions: ON/OFF, and does not provide modulation. Alternatively, an optional pedal provides foot pedal modulation.

Work Tools

Caterpillar offers a variety of work tools including hammers, grapples, multiprocessors, shears, pulverizers, and vibratory compactors to fit your application needs. Additionally, a wide range of buckets are available to optimize machine performance. Auxiliary hydraulic and electrical lines are routed to the boom foot for easier installation of auxiliary hydraulic circuits, therefore reducing time, part and cost required to add a work tool. Furthermore, all pins are interchangeable between the C and the D series models.

Tool Control

The Tool Control system is installed as standard and offers up to 10 flow and pressure pre-settings, for easier and quicker tool readiness. Combined with the Quick Coupler, the tool control system allows you to change from one hydraulic work tool to the next.

Quick Coupler

This hydraulic tool holder increases machine versatility by making the change from one hydraulic work tool to another quick and easy. Moreover, a Universal Quick Coupler control now accepts all hydraulic Quick Coupler systems with pressures ranging up to full machine pressure (350 bar).

Cat K-series Tooth System

This feature provides a reliable tip retention and easy tip installation and removal.

Cat Product Link

The 311D is pre-wired to accept Product Link systems to install in the field. Product Link assists with fleet management by tracking hours, location and machine health.

High Ambient Cooling Package

Thanks to the new EU compliant High Ambient Cooling Package, take the machine to work in temperatures up to 48 °C.

Serviceability

Simplified service and maintenance save time and money.

Designed with the service technician in mind, many service locations are at ground level so critical maintenance can be done quickly and efficiently. Longer maintenance intervals reduce cost and increase machine availability.

- Oil level gauge, fuel filter and priming pump are conveniently located on the right side of the engine structure for easy maintenance.
- An optional electronic fuel water sensor is available to alert the operator when the water level is high.
- The Product Link assists with fleet management by tracking hours, location and product health.
- New anti skid plates over the top of the storage box and upper structure help prevent slipping and mud from falling into the upper structure.

Sampling Ports

Equipped with S•O•S sampling ports and test ports for hydraulics, engine oil and coolant for quick diagnostics. A test connection for the Cat Electronic Technician (Cat ET) service tool is now located in the cab.

Air Cleaner

A double layered filter core in the radial seal air filter gives more efficient filtration. A warning is displayed on the monitor when dust accumulates above a preset level. This filter is conveniently located in the compartment behind the cab.

Capsule Filter

Capsule-type, hydraulic return oil filter is accessible from outside the tank and prevents contaminants from entering the system during hydraulic oil changes.

Customer Support

Unmatched support makes the difference.

Your Cat dealer is ready to assist you with your purchase decision and everything after.

- Make detailed comparisons of the machines you are considering before you buy with estimates of component life, preventive maintenance and the true cost of production
- Customize the machine that is right for you by using Build and Quote applications on your dealer's website or www.cat.com
- Get the latest training literature and trained staff
- Repair option programs guarantee the cost of repairs upfront
- Financing packages are flexible to meet your needs
- Your Cat dealer can evaluate the cost involved in repairing, rebuilding and replacing your machine so you can make the right choice.

Cat Product Link

Efficient feature to follow and support your machine anywhere.

The 311D LRR can be equipped with Product Link PL321SR as optional feature.

This system provides permanent location, operating hours and machine health information through GPS ways and Internet tools.

Product Link improves machine availability and lowers operating costs.

311D LRR Hydraulic Excavator Specifications

Engine

Engine Model	Cat® C4.2 ACERT™
Net Power	
ISO 9249	60 kW/82 hp
80/1269/EEC	60 kW/82 hp
Bore	102 mm
Stroke	130 mm
Displacement	4.25 liter

- All engine horsepower (hp) are metric including front page.
- Net power advertised is the power available at the flywheel when the engine is equipped with fan, air cleaner, muffler and alternator.
- No engine derating required below 2300 m altitude.
- The 311D LRR meets EU Stage IIIA Directive 97/68/EC emissions requirements.

Hydraulic System

Main Implement System	
Maximum Flow (2x)	117 l/min
Maximum Pressure	
Implements	305 bar
Travel	350 bar
Swing	230 bar
Pilot System	
Maximum Flow	23 l/min
Maximum Pressure	41 bar
Boom Cylinders	
Bore	100 mm
Stroke	1002 mm
Stick Cylinder	
Bore	110 mm
Stroke	1194 mm
Bucket Cylinder	
Bore	100 mm
Stroke	939 mm

Sound

Operator Sound

- The operator sound pressure level measured according to the procedures specified in ISO 6396:1992 is 72 dB(A), for cab offered by Caterpillar, when properly installed and maintained and tested with the doors and windows closed.

Exterior Sound

- The European Union 2000/14/EC labeled exterior sound power level is 98 dB(A) for the machines certified to that requirement.

Operating Weights

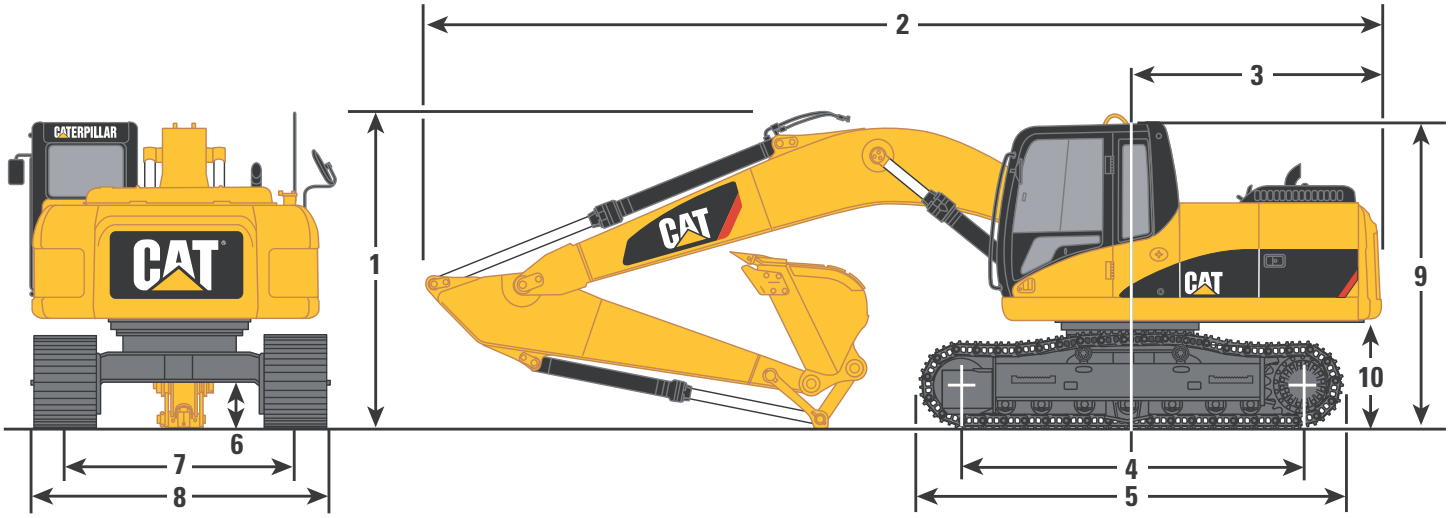
Weights will depend on final machine configuration.

Reach Boom 4300 mm

Stick	Short 2250 mm	Long 2800 mm
Without Blade	kg	kg
500 mm triple grouser shoes	12 450	12 480
600 mm triple grouser shoes	12 680	12 710
700 mm triple grouser shoes	12 925	12 950
770 mm triple grouser shoes	13 050	13 080
With Blade		
500 mm triple grouser shoes	13 245	13 270
600 mm triple grouser shoes	13 480	13 505
700 mm triple grouser shoes	13 730	13 760
770 mm triple grouser shoes	13 860	13 885

Dimensions with Reach Boom

All dimensions are approximate.



Reach Boom 4300 mm	mm	mm
Stick	**2250**	**2800**
1 Shipping height	2860	3160
2 Shipping length	6915	6825
3 Tail swing radius	1750	1750
4 Length to centers of idler and sprocket	2780	2780
5 Track length	3490	3490
6 Ground clearance	455	455
7 Track gauge	1990	1990
8 Transport width		
600 mm shoes	2590	–
700 mm shoes	–	–
770 mm shoes	–	2760
9 Cab height	2755	2755
10 Counterweight clearance	910	910

Swing Mechanism

Maximum Swing Torque	31 kNm
Maximum Swing Speed	12.4 rpm

Drive

Maximum Drawbar Pull	114 kN
Maximum Travel Speed	5.1 km/h

Service Refill Capacities

	liter
Fuel Tank	210
Cooling System	18
Engine Crankcase	19
Swing Drive	3
Final Drive (each)	3
Hydraulic System (including tank)	145
Hydraulic Tank	78

Cab/FOGS

Bolt-on Falling Object Guard System (FOGS) is available as an attachment. Optional Falling Object Guard System is designed to protect the operator from falling objects, and is certified under ISO 3449:1984 specifications.

311D LRR Hydraulic Excavator Specifications

Bucket Specifications

Without Quick Coupler	Width	Capacity (ISO)	Weight*	Short stick 2250 mm	Long stick 2800 mm
	mm	m³	kg		
Excavation	450	0.18	284		
	500	0.21	298		
	600	0.28	325		
	750	0.38	348		
	900	0.49	390		
	1000	0.56	412		
	1100	0.64	448		
	1200	0.72	471		
Extreme Excavation	500	0.21	301		
	600	0.28	329		
	1200	0.72	481		
Maximum load in kg (payload plus bucket)				1846	1587
With Quick Coupler					
Excavation	600	0.28	561		
	750	0.38	589		
	900	0.49	600		
	1000	0.56	623		
	1100	0.64	660		
	1200	0.72	683		
Extreme Excavation	1200	0.72	693		
Maximum load in kg (payload plus bucket)				1846	1587

* Bucket weight including penetration plus tips

- Max. Material Density 1200 kg/m³
- Max. Material Density 1500 kg/m³
- Material Density 1800 kg/m³ and more
- N Not recommended

Typical Material Densities

	*kg/m³
Clay, dry	1500
Clay, wet	1660
Earth, dry	1510
Earth, wet	1600
Loam	1250
Gravel, dry	1510
Gravel, wet	2000
Gravel, pit run	1930

	*kg/m³
Rock/dirt, 50%	1720
Sand, dry	1425
Sand, wet	1700
Sand and clay	1600
Stone, crushed	1600
Top soil	950

* Kilograms per loose cubic meter

Work Tools Matching Guide

When choosing between various work tool models that can be installed onto the same machine configuration, consider work tool application, productivity requirements, and durability. Refer to work tool specifications for application recommendations and productivity information.

Without quick coupler			Short stick 2250 mm	Long stick 2800 mm
Hammers		H90C		
		H100C		
		H115 S		
Hydraulic Shear (boom mounted)		S320		
Multi-Grapples		G310B-D		
		G310B-R		
Vibratory Plate Compactor		CVP75		
Orange Peel Grapples	5 tines	GSH9B-300		
	4 tines	GSH9B-300		
	5 tines	GSH9B-400		
	4 tines	GSH9B-400		
	5 tines	GSH15B-400		
	4 tines	GSH15B-400		
	5 tines	GSH15B-500		
	4 tines	GSH15B-500		
	5 tines	GSH15B-600		×
	4 tines	GSH15B-600		
	5 tines	GSH15B-800		×
	4 tines	GSH15B-800		×
Rehandling Clamshell Buckets		GOS20-220		
		GOS20-260		
		GOS20-300		
		GOS20-400		
		GOS20-560		
		GOS20-680		
		GOS20-730		
		GOS25-460		
		GOS25-520		
		GOS25-580		
		GOS25-750		
		GOS25-900		
		GOS25-990		
		GOS25-1140		×
With quick coupler				
Quick Coupler		CW-20		
		CW-20s		
Hammers		H90C		
		H100C		
		H115 S		
Multi-Grapples		G310B-D	×	
		G310B-R	×	
Vibratory Plate Compactor		CVP75		

Maximum Material density 3000 kg/m³

Maximum Material density 1800 kg/m³

Maximum Material density 1200 kg/m³

× Not Compatible

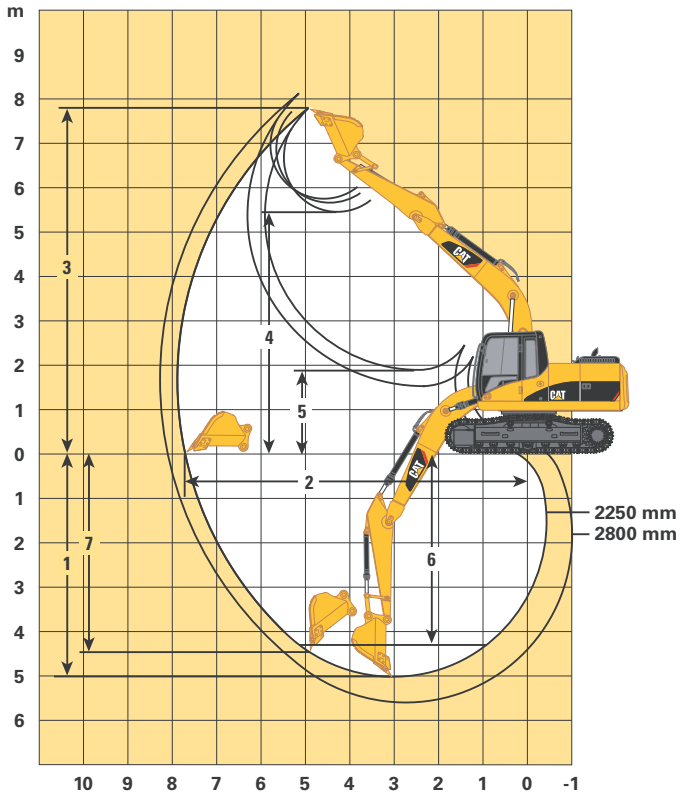
360° Working Range

Over the front only

Available

Working Ranges with Reach Boom

All measurements are approximate



Stick Options	mm	2250	2800
Bucket	**m^3**	**0.4**	**0.3**
1 Maximum Digging Depth	mm	5040	5590
2 Maximum Reach at Ground Level	mm	7700	8100
3 Maximum Cutting Height	mm	7800	8130
4 Maximum Loading Height	mm	5450	5770
5 Minimum Loading Height	mm	1880	1340
6 Maximum Depth Cut for 2.50 m Level Bottom	mm	4300	4960
7 Maximum Vertical Wall Digging Depth	mm	4460	4980
Stick Digging Force (ISO 6015)	kN	60	52
Bucket Digging Force (ISO 6015)	kN	90	90

Lift Capacities with Reach Boom

All weights are in kg. Lift capacities described in the tables below are calculated with 600 mm shoes. Other 500 mm and 700 mm shoe configurations are not included as they do not impact significantly the following data.

Short stick – 2250 mm
Standard counterweight – 2450 kg
Bucket – 0.4 m³
Blade down

	1.5 m		3.0 m		4.5 m		6.0 m		7.5 m				
													m
6.0 m											*1050	*1050	5.91
4.5 m					*2600	*2600					*1000	*1000	6.87
3.0 m			*4100	*4100	*3200	*3200	*2850	2100			*1000	*1000	7.33
1.5 m			*6250	6100	*4000	3200	*3150	2000			*1050	*1050	7.39
0 m			*7350	5700	*4600	3050	*3400	1950			*1200	*1200	7.08
–1.5 m	*4900	*4900	*7350	5650	*4750	2950	*2500	1900			*1550	*1550	6.34
–3.0 m	*6100	*6100	*6350	5750	*4100	3000					*2350	*2350	4.93

Long stick – 2800 mm
Standard counterweight – 2450 kg
Bucket – 0.3 m³
Blade down

	1.5 m		3.0 m		4.5 m		6.0 m		7.5 m				
													m
6.0 m											*850	*850	6.58
4.5 m							*2150	*2150			*800	*800	7.44
3.0 m					*2750	*2750	*2550	2150			*800	*800	7.86
1.5 m			*5450	*5450	*3650	3250	*2900	2050			*850	*850	7.91
0 m			*7050	5800	*4400	3050	*3250	1950			*1000	*1000	7.63
–1.5 m	*4250	*4250	*7400	5600	*4700	2950	*3400	1900			*1200	*1200	6.96
–3.0 m	*6250	*6250	*6850	5650	*4450	2950					*1750	*1750	5.74
–4.5 m			*4850	*4850							*3200	*3200	4.08

Short stick – 2250 mm
Standard counterweight – 2450 kg
Bucket – 0.4 m³
Blade up

	1.5 m		3.0 m		4.5 m		6.0 m		7.5 m				
													m
6.0 m											*1050	*1050	5.91
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0 m			*7350	5100	3850	2750	2450	1750			*1200	*1200	7.08
–1.5 m	*4900	*4900	*7350	5050	3800	2700	2400	1750			*1550	*1550	6.34
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–3.0 m	*6250	*6250	*6850	5050	3750	2650					*1750	*1750	5.74
–4.5 m			*4850	*4850							*3200	*3200	4.08

Load Point Height Load Radius Over Front Load Radius Over Side Load at Maximum Reach

* Limited by hydraulic rather than tipping load.
The above loads are in compliance with hydraulic excavator lift capacity ratings standard ISO 10567, they do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity. Weight of all lifting accessories must be deducted from the above lifting capacities.

311D LRR Hydraulic Excavator Specifications

Lift Capacities with Reach Boom

All weights are in kg.

Short stick – 2250 mm
Shoes – 600 mm
Standard counterweight – 2450 kg
Bucket – 0.4 m³
Blade down

	1.5 m		3.0 m		4.5 m		6.0 m		7.5 m				
													m
6.0 m											*1050	*1050	5.91
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Blade down

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4.5 m							*2150	*2150			*800	*800	7.44
3.0 m					*2750	*2750	*2550	2250			*800	*800	7.86
1.5 m			*5450	*5450	*3650	3400	*2900	2150			*850	*850	7.91
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	1.5 m		3.0 m		4.5 m		6.0 m		7.5 m				
													m
6.0 m											*1050	*1050	5.91
4.5 m					*2600	*2600					*1000	*1000	6.87
3.0 m			*4100	*4100	*3200	*3200	2650	1950			*1000	*1000	7.33
1.5 m			*6250	5600	*4000	3000	2550	1850			*1050	*1050	7.39
0 m			*7350	5200	3950	2800	2500	1800			*1200	*1200	7.08
–1.5 m	*4900	*4900	*7350	5150	3850	2750	2450	1800			*1550	*1550	6.34
–3.0 m	*6100	*6100	*6350	5250	3900	2800					*2350	*2350	4.93

Long stick – 2800 mm
Shoes – 600 mm
Standard counterweight – 2450 kg
Bucket – 0.3 m³
Blade up

	1.5 m		3.0 m		4.5 m		6.0 m		7.5 m				
													m
6.0 m											*850	*850	6.58
4.5 m							*2150	2050			*800	*800	7.44
3.0 m					*2750	*2750	*2550	2000			*800	*800	7.86
1.5 m			*5450	*5450	*3650	3050	2600	1900			*850	*850	7.91
0 m			*7050	5300	3950	2850	2500	1800			*1000	*1000	7.63
–1.5 m	*4250	*4250	*7400	5100	3850	2700	2450	1750			*1200	*1200	6.96
–3.0 m	*6250	*6250	*6850	5150	3850	2700					*1750	*1750	5.74
–4.5 m			*4850	*4850							*3200	*3200	4.08

Load Point Height Load Radius Over Front Load Radius Over Side Load at Maximum Reach

* Limited by hydraulic rather than tipping load.
The above loads are in compliance with hydraulic excavator lift capacity ratings standard ISO 10567, they do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity. Weight of all lifting accessories must be deducted from the above lifting capacities.

Lift Capacities with Reach Boom

All weights are in kg.

Short stick – 2250 mm
Shoes – 700 mm
Standard counterweight – 2450 kg
Bucket – 0.4 m³
Blade down

	1.5 m		3.0 m		4.5 m		6.0 m		7.5 m				
													m
6.0 m											*1050	*1050	5.91
4.5 m					*2600	*2600					*1000	*1000	6.87
3.0 m			*4100	*4100	*3200	*3200	*2850	2300			*1000	*1000	7.33
1.5 m			*6250	*6250	*4000	3500	*3150	2200			*1050	*1050	7.39
0 m			*7350	6300	*4600	3300	*3400	2150			*1200	*1200	7.08
–1.5 m	*4900	*4900	*7350	6200	*4750	3250	*2500	2100			*1550	*1550	6.34
–3.0 m	*6100	*6100	*6350	6300	*4100	3300					*2350	*2350	4.93

Long stick – 2800 mm
Shoes – 700 mm
Standard counterweight – 2450 kg
Bucket – 0.3 m³
Blade down

	1.5 m		3.0 m		4.5 m		6.0 m		7.5 m				
													m
6.0 m											*850	*850	6.58
4.5 m							*2150	*2150			*800	*800	7.44
3.0 m					*2750	*2750	*2550	2350			*800	*800	7.86
1.5 m			*5450	*5450	*3650	3550	*2900	2250			*850	*850	7.91
0 m			*7050	6350	*4400	3350	*3250	2150			*1000	*1000	7.63
–1.5 m	*4250	*4250	*7400	6150	*4700	3200	*3400	2100			*1200	*1200	6.96
–3.0 m	*6250	*6250	*6850	6200	*4450	3200					*1750	*1750	5.74
–4.5 m			*4850	*4850							*3200	*3200	4.08

Short stick – 2250 mm
Shoes – 700 mm
Standard counterweight – 2450 kg
Bucket – 0.4 m³
Blade up

	1.5 m		3.0 m		4.5 m		6.0 m		7.5 m				
													m
6.0 m											*1050	*1050	5.91
4.5 m					*2600	*2600					*1000	*1000	6.87
3.0 m			*4100	*4100	*3200	*3200	2700	2000			*1000	*1000	7.33
1.5 m			*6250	5700	*4000	3050	2600	1900			*1050	*1050	7.39
0 m			*7350	5300	4000	2850	2550	1850			*1200	*1200	7.08
–1.5 m	*4900	*4900	*7350	5250	3950	2800	*2500	1800			*1550	*1550	6.34
–3.0 m	*6100	*6100	*6350	5350	4000	2850					*2350	*2350	4.93

Long stick – 2800 mm
Shoes – 700 mm
Standard counterweight – 2450 kg
Bucket – 0.3 m³
Blade up

	1.5 m		3.0 m		4.5 m		6.0 m		7.5 m				
													m
6.0 m											*850	*850	6.58
4.5 m							*2150	2100			*800	*800	7.44
3.0 m					*2750	*2750	*2550	2050			*800	*800	7.86
1.5 m			*5450	*5450	*3650	3100	2650	1950			*850	*850	7.91
0 m			*7050	5400	4050	2900	2550	1850			*1000	*1000	7.63
–1.5 m	*4250	*4250	*7400	5200	3900	2750	2500	1800			*1200	*1200	6.96
–3.0 m	*6250	*6250	*6850	5250	3900	2750					*1750	*1750	5.74
–4.5 m			*4850	*4850							*3200	*3200	4.08

311D LRR Hydraulic Excavator Specifications

Lift Capacities with Reach Boom

All weights are in kg.

Short stick – 2250 mm
Shoes – 770 mm
Standard counterweight – 2450 kg
Bucket – 0.4 m³
Blade down

	1.5 m		3.0 m		4.5 m		6.0 m		7.5 m				
													m
6.0 m											*1050	*1050	5.91
4.5 m					*2600	*2600					*1000	*1000	6.87
3.0 m			*4100	*4100	*3200	*3200	*2850	2300			*1000	*1000	7.33
1.5 m			*6250	*6250	*4000	3500	*3150	2200			*1050	*1050	7.39
0 m			*7350	6350	*4600	3350	*3400	2150			*1200	*1200	7.08
–1.5 m	*4900	*4900	*7350	6250	*4750	3250	*2500	2150			*1550	*1550	6.34
–3.0 m	*6100	*6100	*6350	*6350	*4100	3300					*2350	*2350	4.93

Long stick – 2800 mm
Shoes – 770 mm
Standard counterweight – 2450 kg
Bucket – 0.3 m³
Blade down

	1.5 m		3.0 m		4.5 m		6.0 m		7.5 m				
													m
6.0 m											*850	*850	6.58
4.5 m							*2150	*2150			*800	*800	7.44
3.0 m					*2750	*2750	*2550	2350			*800	*800	7.86
1.5 m			*5450	*5450	*3650	3600	*2900	2250			*850	*850	7.91
0 m			*7050	6400	*4400	3350	*3250	2150			*1000	*1000	7.63
–1.5 m	*4250	*4250	*7400	6250	*4700	3250	*3400	2100			*1200	*1200	6.96
–3.0 m	*6250	*6250	*6850	6250	*4450	3250					*1750	*1750	5.74
–4.5 m			*4850	*4850							*3200	*3200	4.08

Short stick – 2250 mm
Shoes – 770 mm
Standard counterweight – 2450 kg
Bucket – 0.4 m³
Blade up

	1.5 m		3.0 m		4.5 m		6.0 m		7.5 m				
													m
6.0 m											*1050	*1050	5.91
4.5 m					*2600	*2600					*1000	*1000	6.87
3.0 m			*4100	*4100	*3200	*3200	2750	2000			*1000	*1000	7.33
1.5 m			*6250	5750	*4000	3050	2650	1950			*1050	*1050	7.39
0 m			*7350	5350	4050	2900	2600	1850			*1200	*1200	7.08
–1.5 m	*4900	*4900	*7350	5300	4000	2800	*2500	1850			*1550	*1550	6.34
–3.0 m	*6100	*6100	*6350	5400	4050	2850					*2350	*2350	4.93

Long stick – 2800 mm
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Standard counterweight – 2450 kg
Bucket – 0.3 m³
Blade up

	1.5 m		3.0 m		4.5 m		6.0 m		7.5 m				
													m
6.0 m											*850	*850	6.58
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3.0 m					*2750	*2750	*2550	2050			*800	*800	7.86
1.5 m			*5450	*5450	*3650	3150	2700	1950			*850	*850	7.91
0 m			*7050	5450	4100	2900	2600	1850			*1000	*1000	7.63
–1.5 m	*4250	*4250	*7400	5250	3950	2800	2550	1800			*1200	*1200	6.96
–3.0 m	*6250	*6250	*6850	5300	3950	2800					*1750	*1750	5.74
–4.5 m			*4850	*4850							*3200	*3200	4.08

Load Point Height Load Radius Over Front Load Radius Over Side Load at Maximum Reach

* Limited by hydraulic rather than tipping load.
The above loads are in compliance with hydraulic excavator lift capacity ratings standard ISO 10567, they do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity. Weight of all lifting accessories must be deducted from the above lifting capacities.

311D LRR Standard and Optional Equipment

Standard equipment may vary. Consult your Caterpillar dealer for details

Electrical
24 V electric starting
50 A alternator
Cat battery
Circuit breaker
Warning horn
Working light mounted on storage box

Engine
2300 m altitude capability
Additional 10 micron fuel filter
Cat C4.2 ACERT Diesel Engine with 24 V electric starting and air-intake heater
Caterpillar extended life coolant
Economy mode
One touch low idle with Automatic Engine Speed Control
Remote engine oil filter
Secondary engine shutoff switch
Stage IIIA emission package for EU countries
Two 2-micron fuel filters
Water separator in fuel line

Operator Station
Adjustable armrests
Air conditioner
Ashtray and 24 V cigar lighter
Beverage holder
Bolt-on FOGS installation capability
Coat hook
Flexible antenna
High Back Seat
Interior lighting
Literature compartment
Positive filtered ventilation
Rear window, emergency exit
Retractable seat belt
Seat integrated control joysticks
Sliding upper door window
Stationary skylight (polycarbonate)
Storage compartment suitable for lunch box and utility space for magazines
Tool control (to preset up to 10 hydraulic work tools configurations)
Two travel control pedals with removable hand levers
Washable floor mat
Windshield wiper (parallel type) and washer

Monitor
Full graphic and full color display with language capability
Full time clock
Start up level check for hydraulic oil, engine oil and engine coolant
Warning information, filter and fluid change information
Working hour information

Undercarriage/Structure
Automatic travel parking brakes
Grease lubricated tracks
Heavy duty idler recoil springs
Hydraulic track adjusters
Idler and center track guiding guards
Steps - four
Towing eye on base frame
Two speed travel with automatic shift change

Other Standard Equipment
"On Demand Power Supply" (Regulation of engine rpms according to hydraulic demands)
2450 kg counterweight
Automatic swing parking brake
Doors and cab locks with Caterpillar one key security system
Steel firewall between engine and main pump
Boom and stick drift reducing valves
Boom and stick regeneration circuits
Boom lowering device for backup
Cat branded XT hoses and reusable couplings
Cab handrail
Cat Data Link and capability to use ET (Electronic Tool Technician)
EU sound package for EU countries
High performance hydraulic oil, capsule filter
Mirrors, rear view (frame right, cab left)
One auxiliary hydraulic valve
Product Link ready
Radial seal air filters with double element
Reverse swing damping valve
Sound and vibration suppression system
Straight line travel
S•O•S quick sampling valves for engine oil, hydraulic oil and coolant

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

Front Linkage
Booms
- Reach
- Variable Angle

Bucket linkage
Sticks
- Short 2250 mm
- Long 2800 mm

Quick couplers
Tear drop pin conversion

Undercarriage
Shoes
- 500 mm Triple Grouser
- 600 mm Triple Grouser
- 700 mm Triple Grouser
- 770 mm Triple Grouser
- 500 mm, segment rubber

Blades
- 2500 mm
- 2700 mm

Guards
Bottom guard, heavy duty
Swivel guard
Track guiding guards, full length

Operator Compartment
Cover for lunch box
Two available types of joystick :
- 1) Joystick with four on/off buttons, or
- 2) Thumb wheel modulation joystick

Radio
Rain protector for front windshield
Seats
- High-back seat, mechanical suspension
- High-back seat, air suspension, heater

Sunshade
Windshield
- 70/30 split

Hydraulics
Auxiliary Combined Action Circuit
Auxiliary Single Action circuit
Boom auxiliary lines
Boom medium pressure lines
Boom quick coupler lines
Medium pressure system
Quick disconnect Medium Pressure
Quick Coupler Control Circuit
Stick auxiliary lines
Stick medium pressure lines
Stick quick coupler lines

Miscellaneous Options
Boom lowering control device (with Over Load Warning Device)
High Ambient Cooling package
Starting kit, cold weather (-25 °C)
Stick lowering control device
Water separator level indicator
Working light, boom, right side
2 Working lights, cab mounted
Travel alarm

311D LRR Hydraulic Excavator

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 Caterpillar dealer for available options.

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