



R1700 XE

Battery Electric Underground
LHD Loader

Technical Specifications

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

Table of Contents

Specifications	2
Operating Specifications	2
Hydraulic System Lift/Tilt	2
Hydraulic Cycle Times	2
Weights	2
Operator Cab	2
Brakes	2
Bucket Capacities	2
Power Train	2
Traction Motor	2
Auxiliary Motor	3
Power Electronics	3
Turning Dimensions	3
Tires	3
Grade Performance	3
Noise Emissions	3
Noise Emissions (ECO Mode)	3
Battery	4
MEC500 Dimensions	5
Weights	5
Electrical Specifications	5
Thermal Specifications	5
Charging Standards	5
Dimensions	6
Standard and Optional Equipment	7

R1700 XE Battery Electric Underground LHD Loader Specifications

Operating Specifications

Rated Payload	15 000 kg	33,069 lb
Operating Mass	48 743 kg	107,460 lb
Shipping Weight	51 918 kg	114,460 lb
Static Tipping Load Straight Ahead, Lift Arms Horizontal (calculated)	49 203 kg	108,500 lb
Static Tipping Load Full Turn, Lift Arms Horizontal (calculated)	40 649 kg	89,600 lb
Break Out Force (Lift and Tilt)	24 190 kg	53,330 lb
Ride Control	Yes	
Bucket Capacity Range	5.7-7.5 m ³	7.5-9.8 yd ³
Recommended Clearance Height	4 m	158 in
Recommended Clearance Width	4 m	158 in

Hydraulic System Lift/Tilt

Lift/Tilt System – Circuit	Electro-Hydraulic, Positive Flow Control, Flow Sharing	
Lift/Tilt System – Pump	Variable Flow Piston/ Hydraulic Load Sense	
Maximum Flow	297 L/min	78.5 gal/min
Relief Valve Setting – Main	34 000 kPa	4,932 psi
Lift Cylinder – Bore	170 mm	7 in
Lift Cylinder – Stroke	830 mm	33 in
Tilt Cylinder – Bore	210 mm	8 in
Tilt Cylinder – Stroke	564 mm	22 in

Hydraulic Cycle Times

Raise	6.8 Seconds	
Dump	3.3 Seconds	
Lower, Empty, Float Down	2.9 Seconds	
Total Cycle Time	13.2 Seconds	

Weights*

Operating Mass*	48 743 kg	107,500 lb
Front Axle	16 326 kg	36,000 lb
Rear Axle	32 417 kg	71,500 lb
Operating Mass + Rated Payload*	63 743 kg	140,500 lb
Front Axle	36 869 kg	81,300 lb
Rear Axle	26 874 kg	59,200 lb

*Calculated Weights.

Operator Cab

ROPS/FOPS	ISO 3471:2008 ROPS/ ISO 3449:2005 FOPS
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Brakes

Brakes	ISO 19296:2018 and ISO 3450:2011 as applicable to underground mining equipment
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Bucket Capacities

Dump Bucket 1 (Standard)	5.7 m ³	7.5 yd ³
Dump Bucket 2	6.1 m ³	8.0 yd ³
Dump Bucket 3	6.6 m ³	8.6 yd ³
Dump Bucket 4	7.5 m ³	9.8 yd ³
Bolt Together Bucket	6.8 m ³	8.9 yd ³

Power Train

Axles	Caterpillar
Front Differential	Open Center
Rear Differential	Open Center

Traction Motor

Motor Type	Switched Reluctance	
Rated Power – Peak	250 kW	335 hp
Rated Power – Nominal	220 kW	295 hp
Rated Torque (peak, nominal = @ 12 km/h (7.5 mph) and nominal power)	3200 N·m/660 N·m (2360 lbf·ft/443 lbf·ft)	
Efficiency	95%	
Cooling Method	Liquid	
Ability of Regenerative Braking	Yes	
Service Interval	12,000-13,000 hours	

R1700 XE Battery Electric Underground LHD Loader Specifications

Auxiliary Motor

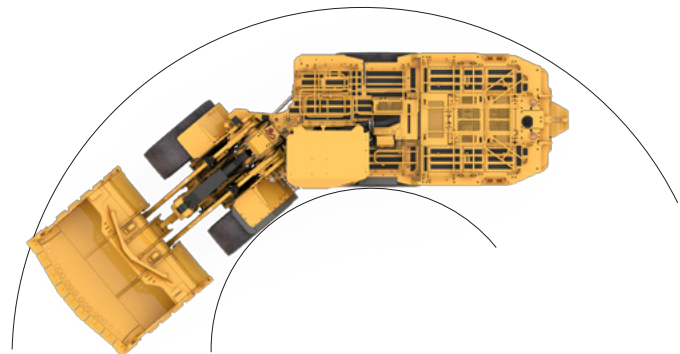
Motor Type	Switched Reluctance
Rated Power (peak, nominal)	226 kW 303 hp
Rated Torque (peak, nominal = 1,600 equivalent rpm)	600 N·m/531 N·m (443 lbf-ft/392 lbf-ft)
Efficiency	96%
Cooling Method	Liquid
Service Interval	12,000-13,000 hours

Power Electronics

Inverter Rating	350A (nominal DC), 715VDC
Cooling Method	Liquid (Coolant)
Component Ratings	IP67, IP69K
Service Interval	12,000-13,000 hours

Turning Dimensions**

Outside Clearance Radius	6997 mm 272 in
Inner Clearance Radius	3139 mm 124 in
Axle Oscillation	8°
Articulation Angle	44°



**Clearance dimensions are for reference only.

Tires

Tire Size	26.5R25
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Grade Performance

	25 Degree Ambient, 2% Rolling Resistance				
Grade (%)	0	5	10	15	20
Loaded – km/h (mph)	18 (11.2)	14.8 (9.2)	8.6 (5.3)	6.1 (3.8)	4.8 (3)
Unloaded – km/h (mph)	18 (11.2)	18 (11.2)	11.1 (6.9)	7.9 (4.9)	6.2 (3.9)

Noise Emissions

Cab Sound Pressure Level	71 +/-2.5 dB(A)
Machine Sound Power Level	104 +/-2.5 dB(A)

- The declared sound levels listed are for standard machine configurations, measured according to ISO 6395:2008 and ISO 6396:2008 and include measurement uncertainty due to the production variation.

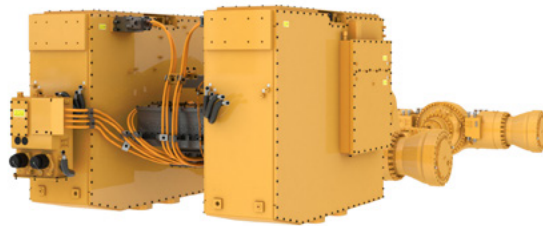
Noise Emissions (ECO Mode)

Cab Sound Pressure Level	77 +/-2.5 dB(A)
Machine Sound Power Level	100 +/-2.5 dB(A)

- The declared sound levels listed are for standard machine configurations, measured according to ISO 6395:2008 and ISO 6396:2008 and include measurement uncertainty due to the production variation.

R1700 XE Battery Electric Underground LHD Loader Specifications

Battery

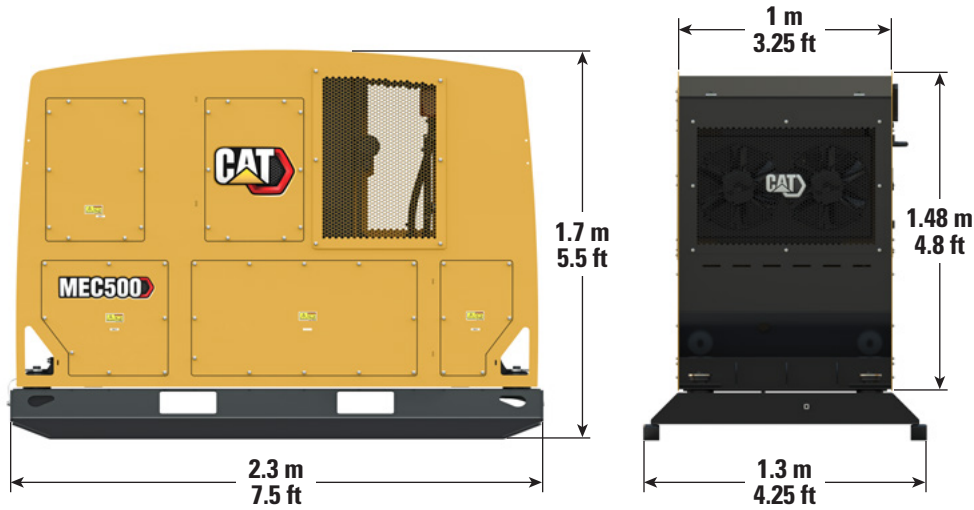


Battery Pack

Battery Chemistry	Li-Ion
Battery Monitoring	With integrated Caterpillar controls systems
Pack Voltage – Nominal	715 V
Pack Energy Capacity – Total	213 kWh
Charging Method	Ultra Fast Charge On-Board
On-Board Fast Charging Charge Time (0-100%)	Less than 20 min (two MEC500 in parallel) Less than 30 min (one MEC500)
Battery Cooling Method	Chilled Liquid (Extended Life Coolant)
Operating Temperature Limits (ambient)	50° C/-20° C (122° F/ -4° F)
Charging Current, Voltage	1160A (output), 820VDC
Maximum Charging Rate	840 kW (two MEC500 chargers)
Minimum Charging Rate	500 kW
Charging Rate	Up to 4C (matched with MEC500 chargers)

R1700 XE Battery Electric Underground LHD Loader Specifications

MEC500 Dimensions



Weights

MEC500	1656 kg	3,650 lb
MEC500 with Optional Skid (pictured above)	2037 kg	4,490 lb

Electrical Specifications

Rated Power (AC Input)	500 kW
Rated Current (DC Output)	700 Amps
Voltage Range	
Input Voltage Range	400-660 VAC
Voltage Output	300-1,000 VAC
Frequency Range	45-65 Hz
Input Supply (AC Input)	3-Phase Insulated Terra (IT)
Cable Output	
Cat® Proprietary Connector	700 Amp

Thermal Specifications

Ambient Operating Temperature Range	-25° to +50° C (-13° to +122° F)
Storage	-40° to +80° C (-40° to +176° F)

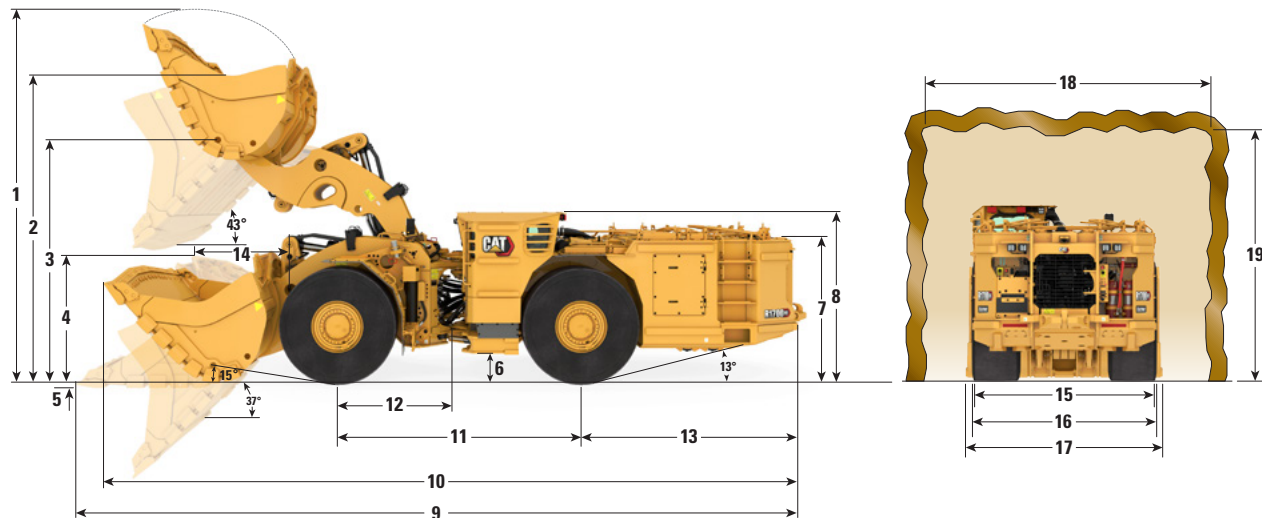
Charging Standards

Control Interface	CAN
Control Type	IEC 61851-23/24 (with CAN)
Compliance and Safety	CSA M421; UL2202 (under development)

R1700 XE Battery Electric Underground LHD Loader Specifications

Dimensions

All dimensions are approximate. Buckets include modular Weld On Half-arrow GET.



	467-1827		467-1828		467-1829		467-1830		561-1775	
	Dump Bucket (STD)		Dump Bucket		Dump Bucket		Dump Bucket		Bolt Together Bucket	
Bucket Capacity	5.7 m ³	7.5 yd ³	6.1 m ³	8.0 yd ³	6.6 m ³	8.6 yd ³	7.5 m ³	9.8 yd ³	6.8 m ³	8.9 yd ³
	mm	in	mm	in	mm	in	mm	in	mm	in
Bucket Width over Cutting Edge	2830	111	2972	117	2926	115	3244	128	3096	122
1 Height – Max Bucket Raised	5689	224	5732	264	5824	229	5824	229	5809	229
2 Height – Max Dump	4917	194	4917	194	4917	194	4917	194	4956	195
3 Height – Max Lift Bucket Pin	4108	162	4108	162	4108	162	4108	162	4108	162
4 Height – Dump Clearance at Max Lift	2395	94	2392	94	2287	90	2254	89	2338	92
5 Height – Digging Depth	64	3	44	2	75	3	75	3	103	4
6 Height – Ground Clearance	393	15	393	15	393	15	393	15	393	15
7 Height – Top of Hood	2142	84	2142	84	2142	84	2142	84	2142	84
8 Height – Top of ROPS	2541	100	2541	100	2541	100	2541	100	2541	100
9 Length – Overall (Digging)	11 175	440	11 071	436	11 213	441	11 263	443	11 265	444
10 Length – Overall (Tramming)	10 855	427	10 635	419	10 849	427	10 880	428	10 909	429
11 Length – Wheelbase	3680	145	3680	145	3680	145	3680	145	3680	145
12 Length – Front Axle to Hitch	1840	72	1840	72	1840	72	1840	72	1840	72
13 Length – Rear Axle to Bumper (with auxiliary lines)	3525	139	3525	139	3525	139	3525	139	3525	139
14 Length – Reach	1776	70	1775	70	1872	74	1908	75	1852	73
15 Width – Overall Tire	2767	109	2767	109	2767	109	2767	109	2767	109
16 Width – Machine without Bucket	2729	107	2729	107	2729	107	2729	107	2729	107
17 Width – Machine with Bucket	2923	115	3048	120	3033	119	3346	132	3096	122
18 Recommended Clearance Width	4000	158	4000	158	4000	158	4000	158	4000	158
19 Recommended Clearance Height	4000	158	4000	158	4000	158	4000	158	4000	158

R1700 XE Standard and Optional Equipment

Standard and Optional Equipment

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

	Standard	Optional		Standard	Optional
POWER TRAIN			OPERATOR ENVIRONMENT (continued)		
Brake Axle Cooling	✓		Monitor, Door Latch	✓	
Brakes, Full Hydraulic Enclosed Wet Multiple-Disc Spring Applied, Fluid Released (SAFR™)	✓		Electro-Hydraulic Implement Controls (single joystick)	✓	
Machine Power Source:			Seat Belt, Retractable	✓	
– Battery	✓		Mounts, Radio and Speaker (×2)	✓	
– 2 Independently Controlled Motors for Propulsion and Hydraulics	✓		Control Units, Roof Mounted (with service panel access)	✓	
Reversible Hydraulic Steering		✓	Storage Box, Enclosed, 5 L (3 gal)	✓	
Fast Fill and Evacuation of Fluids (Power Train and Hydraulic)		✓	Coat Hook	✓	
Arctic Coolant		✓	Cup Holder	✓	
ELECTRICAL			Armrests and Kneepads, Independently Adjustable	✓	
Alarm, Reversing	✓		Color Rear View Camera		✓
Alternate Implement Control Functions		✓	TIRES, RIMS, AND WHEELS		
12V Power Supply in Cab	✓		Tires	✓	
24V Battery Disconnect Switch, Ground Level	✓		Rims (set of four):		
24V Battery Isolation Switch in the Cab		✓	– Five Piece	✓	
24V Batteries, Low Maintenance	✓		Spare Rim		✓
– HV Indication Lamp	✓		TECHNOLOGY		
– HV Battery Disconnect Switch	✓		Traction Control	✓	
Diagnostic Connector	✓		Cat Auto Dig		✓
Lighting, External, Front, Rear (LED)	✓		Ride Control		✓
Lighting, Stop, Dual (LED)	✓		Tire Pressure Monitoring		✓
Receptacle, Auxiliary Start	✓		Cat Payload Monitoring		✓
OPERATOR ENVIRONMENT			Product Link™ Elite System	✓	
Enclosed Cab, ROPS/FOPS Certified	✓		Product Link Elite with WiFi*		✓
Color Multi Purpose Display (CMPD):			Cat Line of Sight Remote Receiver for the Machine		✓
– Front and Rear Brake Gauges	✓		Cat Line of Sight Remote Console (over the shoulder design)*		✓
– System Diagnostics	✓		Wireless Communications Control Group		✓
– Residual Brake Warning	✓		*Confirm regional availability with your Cat dealer.		
Horns, Electric	✓		<i>(continued on next page)</i>		
Instrumentation/Gauges:					
– Speedometer/Tachometer	✓				
– Battery State of Change (SOC) Level	✓				
– Hydraulic Oil Temperature	✓				
– Battery and Power Take Off (PTO) Coolant Temperature	✓				
Operator Presence System	✓				
Automatic Brake Application (ABA)	✓				
Light, Warning, Residual Brake	✓				

R1700 XE Standard and Optional Equipment

Standard and Optional Equipment *(continued)*

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

	Standard	Optional		Standard	Optional
OTHER EQUIPMENT			CHOOSE BETWEEN:		
Autolube		✓	Cab:		
Ansul Fire Suppression – Wet 37 L (9.8 gal)		✓	1. Standard Height		
Bolt-On, Brake Release Recovery Bar or Hook		✓	2. Raised Height		
Dump Bucket	✓		Windows:		
Bolt Together Bucket		✓	1. Single Pane		
Bolt-On Bucket Lips		✓	2. Dual Pane		
Bucket Cutting Edges and Lip Protectors		✓	Seats:		
Mechanically Attached Wear Protection System for Buckets		✓	1. Tee Seat (with suspension)		
Bucket Heel Shrouds		✓	2. Tee Seat (with suspension and seat belt monitoring)		
Bucket Wear Bars		✓	3. Seat (with suspension)		
Bucket Liners		✓	4. Seat (with suspension and seat belt monitoring)		
Mechanically Attached Shroud Bucket Lips		✓			
Fenders, Front, Rear	✓				
Guards, Battery	✓				
Guards – Lighting Group		✓			
Guards – Rear Side Quarter Window		✓			
Lift Arm Positioner for Return to Dig	✓				
Radiator Grill, Swing Out	✓				
Service Oil Sample	✓				
Handholds	✓				
Wear Bars:					
– Rear of Machine	✓				
– Hydraulic	✓				
– Cab		✓			
Operation and Maintenance Manual – English and Other Languages	✓				
Brake Lights	✓				
Service Bay Light		✓			
Truck Loading Light		✓			
Vandalism Protection		✓			

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