



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.

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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 |
|-----------|---|

Brakes

| | |
|--------|---|
| Brakes | ISO 19296:2018 and ISO 3450:2011 as applicable to underground mining equipment |
|--------|---|

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

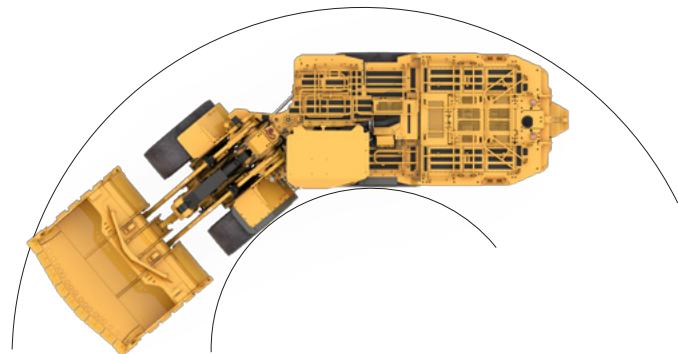
| | |
|---|--|
| Motor Type | Switched Reluctance |
| Rated Power (peak, nominal) | 226 kW 303 hp |
| Rated Torque (peak, nominal = 1,600 equivalent rpm) | 600 N·m/531 N·m (443 lbf-ft/392 lbf-ft) |
| Efficiency | 96% |
| Cooling Method | Liquid |
| Service Interval | 12,000-13,000 hours |

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 |
|-----------|---------|

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.

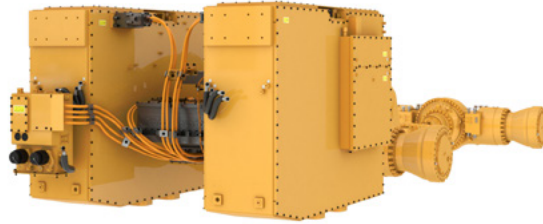
Noise Emissions (ECO Mode)

| | |
|---------------------------|------------------|
| 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

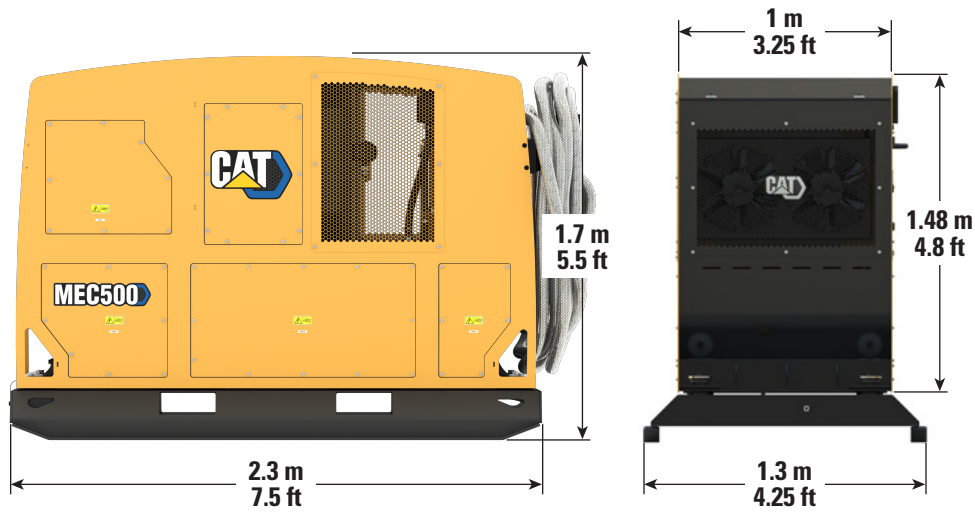


Battery Pack

| | |
|---|--|
| 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) |

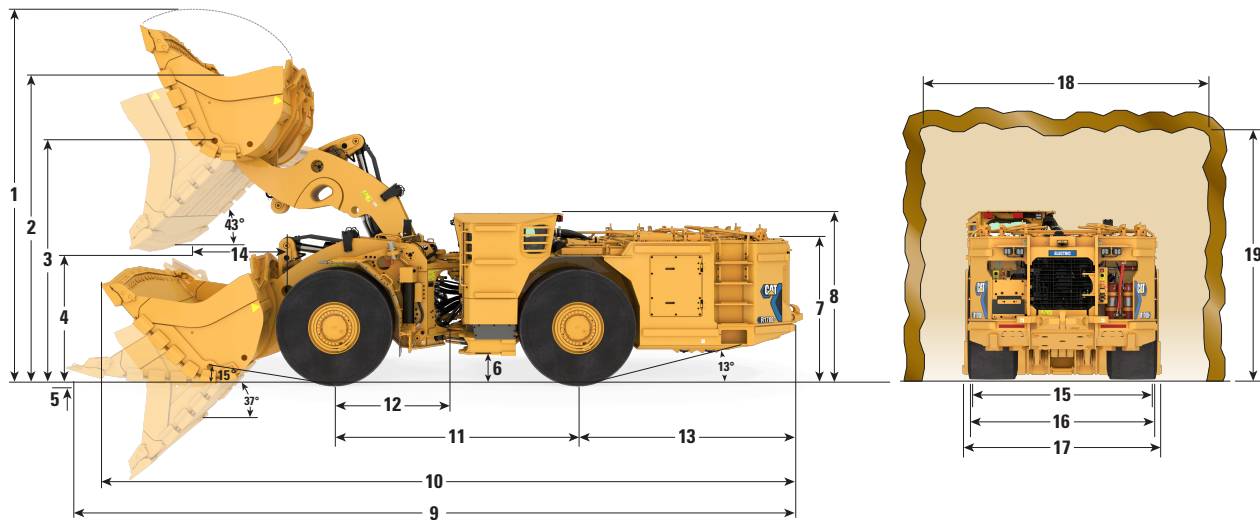
Charging Standards

| | |
|-----------------------|---|
| 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 | 2729 | 107 | 2729 | 107 | 2729 | 107 | 2729 | 107 | 2729 | 107 |
| 16 Width – Machine without Bucket | 2767 | 109 | 2767 | 109 | 2767 | 109 | 2767 | 109 | 2767 | 109 |
| 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 | ✓ | | | | |
| Horns, Electric | ✓ | | | | |
| 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 | ✓ | | | | |

*Confirm regional availability with your Cat dealer.

(continued on next page)

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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