



Cat[®] MEC500

MOBILE EQUIPMENT CHARGER

Designed for the Rigors of Underground Mining

The Cat[®] MEC500 Mobile Equipment Charger is a rugged, fast opportunity charger you can take virtually anywhere.

Ultra-Fast Battery Charging

- 300-1,000 Volt Output capable.
- 0-700 Amp Current Output capable.
- Power up to 500 kW.
- Ability to boost voltage to accommodate variable input voltages.
- Adjustable output current for varying battery types/technologies.
- May be paralleled with additional units for increased power capability.
- 3-Phase AC:DC active front end for four-quadrant input power control.
- 3-Phase interleaved DC:DC converter output for tight voltage control and minimum ripple current.

Built-in Reliability

- Capable of being dragged on its skid base – or lifted in a bucket or by forks. The unit can be lowered down a mine shaft using military-grade lift eyes.
- Ready for high vibration, seismic and shock loading – the unit is isolation mounted to the skid base, and the Electronic Control Modules (ECM's) are also iso mounted.
- Rated to IP66 under IEC standard 60529, the MEC500 protects critical components from both dust and water, including doghouse sections where electrical input and output connections are made.
- Built-ins: sealed air conditioning, dehumidification, an integrated Cat radiator, and two on-demand fans support cooling.
- Designed to withstand the impact of minor rock falls meeting ISO 2867 standards.
- Cat patented charging cable (available in lengths of 10 or 15 m/33 ft or 49 ft) is metal jacketed for extra mechanical and electrical protection.
- Altitude capabilities of between 3600 m (11,800 ft) above ground, and 4500 m (14,700 ft) below ground.

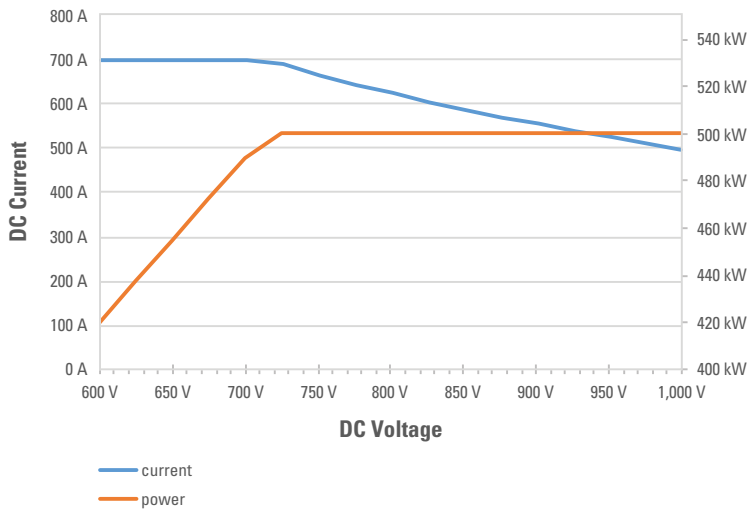
Simple and Safe to Use

- The charger performs a short circuit and insulation resistance check on the cable before energizing the output.
- If charging the Cat R1700 XE LHD – all charging functions can be managed from the R1700 XE machine keypad. Auto-start can be configured to start charging once the connection has been made to the machine.
- If charging alternate equipment – a simple 6-function keypad starts and stops the charger.
- If a connector is pulled off without pushing the stop button, the charger will cycle through an emergency shutdown procedure.
- An integrated display on the MEC500 simplifies diagnostics and troubleshooting. The R1700 XE charge port is constantly sensing temperature, voltage, and current to detect failures. Failures or faults are communicated to the operator through the display and audible warnings.
- The battery-powered vehicle management system dictates to the MEC500 exactly what is needed. If the machine batteries need a 600 Amp charge – the MEC500 sends it 600 Amps. For convenience, the machine operator can monitor the charge cycle from inside the cab or from the display located on the MEC500.
- The charger has built-in line insulation monitors on the AC input and DC output. When paralleled with multiple chargers, the line insulation monitors will automatically coordinate with each other to provide comprehensive and uninterrupted ground fault protection.
- An isolation transformer is required and should be installed in close proximity to the charger.

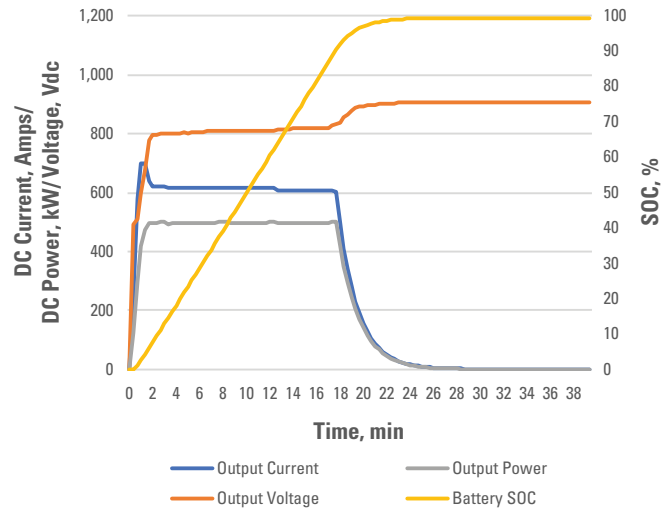
MEC500 Mobile Equipment Charger

Cat R1700 XE (Load Haul Dump) Specific Charging Graphs

MEC500 Fast Charger Voltage and Current Requirements

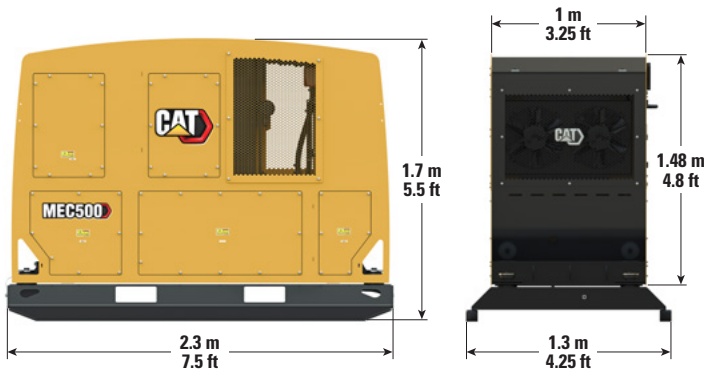


Typical Charge Cycle (for a 150 kW*hr, 800 Vdc battery)



Technical Specifications

Dimensions



Electrical Specifications

Rated Power (AC Input)	500 kW
Rated Current (DC Output)	700 Amps
Voltage Range	
Input Site 1	400-520 VAC
Input Site 2	510-660 VAC
Voltage Output	300-1,000 VDC
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

Weights

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

Charging Standards

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

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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