Location

C & M Ford
702 North Atlantic Ave.
Hallock MN, 56728

C & M Ford

75

N Atlantic Ave (King of Trails)

75
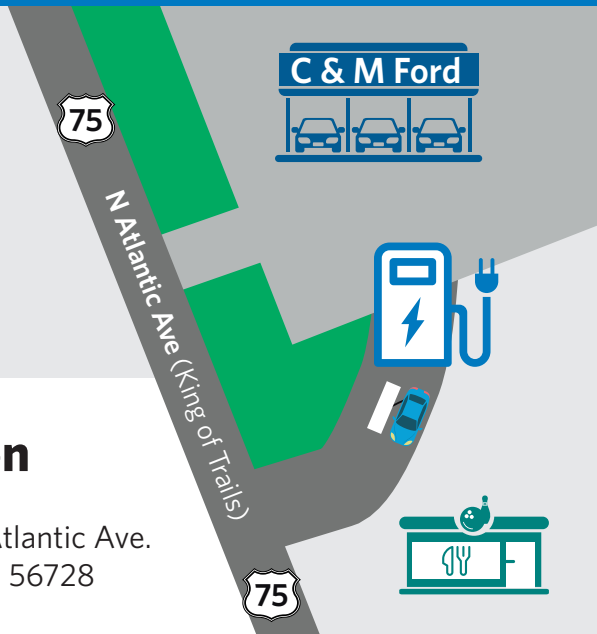
Hallock fast-charging station

This site was developed with the support of C&M Ford owner Paul Blomquist. It's conveniently located off US Highway 75 in Hallock and among eateries and local amenities. Plug into the station for a fast charge and pay through the Shell Recharge App or by card.

Factors that may impact EV charging

There are many factors that play a role in a vehicle's output and charging speed—from the vehicle itself, to the charging equipment capabilities. While the charger is set up to deliver a maximum power output, the car battery itself decides how much of that power it can draw from the charger at any one time.

Battery temperature

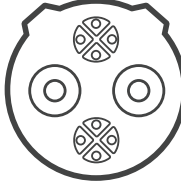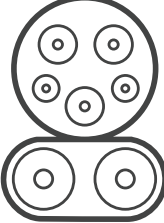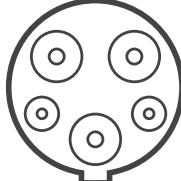**Batteries don't like to be too hot or too cold.**
EV batteries operate optimally at average outdoor temperatures. This means that in extreme weather, an EV's charge rate is slower. When temperatures drop, your vehicle uses a portion of the incoming charge energy to warm the battery, which optimizes the charge and battery health, but also results in a slower charging speed. Similarly, if the battery is exposed to high temperatures, an EV requires more energy to cool the battery down, which also results in slower charging speeds.

State of charge

Batteries charge fastest when they're nearly empty.
How full your battery is when you start charging—called your vehicle's State of Charge (SoC)—can affect your charging speed. As the battery's SoC increases, the charging speed requested by the vehicle's battery management system slows to protect the battery. So, when you arrive to a charger with an already high SoC (> 60 percent), your battery will take longer to charge.

Look up your vehicle model's charge profile to find which SoC levels are optimal for your vehicle's charge.

Direct Current Fast Chargers (DCFC) ABB Terra 124's		Level 2 Charger BTC 7.2 kW
Plug types		**Plug type**
CHAdeMO (1)	CCS (1)	J-1772 (2)
Maximum power output		
100 kW or 50 kW if charging simultaneously	120 kW or 60 kW if charging simultaneously	
Maximum voltage output		
150-500 VDC	150-920 VDC	
Maximum current output		
200 Amps	200 Amps	

Loads in use while charging

Using other loads takes away from your charge.

When you remain in your vehicle during fast charging, energy intended for your battery is diverted to maintain radio, climate control, lights, and other accessories. Think of it like using your cell phone while it's plugged in to charge. Although it's pulling energy for the battery to charge, you're also using some of that energy to watch videos, scroll social media, or text—which leads to a slower charge than if the phone wasn't in use while charging.

Other vehicle and charger capabilities

Both the vehicle and charger have voltage and current limits. When plugged in, the vehicle communicates with the charger and provides a maximum current request. If the vehicle requests more than the charger's capable, the charger limits charging speeds. The current is limited by either the charger or the vehicle (whichever is lower). The manufacturer sets these parameters and builds a charging profile based off the peak amps to best maintain battery health. The peak amps the vehicle can achieve is often calculated based off the vehicles max kW charge rate capabilities. See the examples below to help better understand these capabilities.

Guide

Basic energy equation: Volts X Amps = Watts

Volts: Electric vehicle battery voltage

Amps: Amps received when charging

Watts: 1000 Watts = 1 kilowatt (kW)

Vehicle Profile 1
- 400 volt charging capability
- 155 kW (155,000 Watts) max charging power

Charging station profile
- 180 kW charging station
- 200 Amp maximum output of CCS-1 plug

Finding the maximum Amp capability

Equation
Vehicle Watts ÷ Vehicle Volts =Amps

Answer
155,000 Watts ÷ 400 volts =387.5 Amps

Maximum Amp capability of 387.5 Amps

Finding maximum kW when charging

Equation
Vehicle Volts X Amp max of charging station = Watts

Answer
400 volts X 200 Amp max = 80,000 watts (80 kW)

The maximum kW the vehicle will reach is 80

Vehicle Profile 2
- 700 volt charging capability
- 240 kW (240,000 Watts) max charging power

Charging station profile
- 180 kW charging station
- 200 Amp maximum output of CCS-1 plug

Finding the maximum Amp capability

Equation
Vehicle Watts ÷ Vehicle Volts =Amps

Answer
240,000 Watts ÷ 700 volts = 342.8 Amps

Maximum Amp capability of 342.8 Amps

Finding maximum kW when charging

Equation
Vehicle Volts X Amp max of charging station = Watts

Answer
700 volts X 200 Amp max = 140,000 watts (140 kW)

The maximum kW the vehicle will reach is 140.

Learn more about EV charging options, rates, and rebates at **otpco.com/DriveOn**.

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