



L040-800V-337kW

L040 Coil Drive System™: 800V Motor and Inverter System

EFFICIENCY ↑

TORQUE ↑

COST ↓

Exro's Coil Drive System™ (CDS) uses our proprietary Coil Driver™ technology to enhance efficiency, increase torque, and lower costs in medium to heavy-duty electric vehicles. CDS is an adaptive traction drive system that integrates with existing live axle powertrains. The patented Coil Driver™ technology applies coil switching to extract the most torque performance at low-speed, as well as extending high-speed, high-efficiency operation from the road proven permanent magnet motor.

Unique Advantages

- **Integrated AC charging:** The Coil Drive System™ provides integrated vehicle charging capability, up to 19kW (L2) input power as per J1772, eliminating auxiliary on board chargers.
- **Next level performance differentiator:** Experience significant improvements in motor power and high efficiency where it matters most, at highway speeds. The enhanced torque at low speed and sustained power at high speeds is capable of eliminating multi-speed gearboxes.
- **Simple and reliable vehicle integration:** The Coil Driver™ traction system interfaces with a propeller shaft to existing live axles requiring little to no change to the vehicle chassis. The direct drive architecture is mechanically simple and robust without the losses of additional gear reductions or forced lubrication systems.



Features

- Two torque profiles optimized for low and high-speed applications.
- Increased high-efficiency operating area.
- Improved gradeability across the speed range.
- Next generation direct coil control algorithms.
- Easy Integration with standard direct drive powertrains.
- SiC-based inverter for higher efficiency and improved driving range.

Optimal Applications



Commercial Vehicles



Municipal Vehicles



Heavy-Duty Trucks

System specifications*

| | |
|-------------------------------------|----------------------|
| Max DC voltage (VDC) | 800 |
| Performance voltage (VDC) | 640 – 750 |
| Peak power (kW) | 337 |
| Continuous power (kW) | 223 |
| Peak torque (Nm) | 3200 |
| Continuous torque (Nm) | 1502 |
| Max per phase current (Arms) | 280 |
| Continuous per phase current (Arms) | 180 |
| Cooling method | Liquid |
| Cooling medium | WEG 50/50 |
| Coolant flow (L/min) | 15 |
| System weight (kg) ¹ | 368 |
| Dimensions (mm) | 605 L x 343 W x 83 H |
| Inverter weight (kg) ¹ | 23 |
| Motor dimensions (mm) | 445 D x 520 L |
| Motor weight (kg) ¹ | 345 |

| | |
|--|---|
| Ingress protection | IP67 |
| Protective microcontroller unit (MCU) inputs | 3 phase current, DC link voltage, motor position & temp., half-bridge temp. |
| CAN controller compliance | ISO11898-1, ISO11898-2 (CAN 2.0b) |
| Component standards | AEC-Q100/AEC-Q101/AEC-Q200, ROH Compliance |
| Communication protocol (planned) | SAE J1939 |
| Toxic material and flammability | UL94-V0 |
| Functional safety | ISO26262 |
| Automotive quality management system | IATF16949 |
| Automotive electromagnetic compatibility (EMC) | CISPR25 class III |
| Shock and vibration standard | ISO16750-3 commercial vehicle sprung masses |

*Specifications are subject to change

¹Non-charging. Excluding cable and coolant weights

Performance

