



Working on electrical systems is potentially dangerous; you should protect yourself against :

**Uncontrolled operation**: some conditions could cause the motor to run out of control: disconnect the motor or jack up the vehicle and get the drive wheels off the ground before attempting any work on the motor control circuitry.

**Voltage hazard and high current arcs**: batteries can supply high voltage and very high power, and arcs can occur if they are short circuited. Always disconnect the battery circuit before working on the motor control circuit.

Wear safety glasses and use properly insulated tools to prevent shorts.

**Lead acid batteries**: charging or discharging generates hydrogen gas, which can build up and go around the batteries. Follow the battery manufacturer's safety recommendations and wear safety glasses.

### 3.2.2 Screw torque for the power connections

The recommended screw torque for fixing the connections (+B), (-B), U,V and W is 6 Nm.

This value is reported on the label placed on the cover: exceeding the recommended value may cause damages.

### 3.2.3 Connector parts

The K1 and K2 connectors are AMPSEAL 23 Pins, manufactured by AMP. The external plug assembly is AMP cod. 770680-1, with contact 0,5-1,4mm<sup>2</sup>, cod. 770854-1.

## 3.3 Cooling requirements

### 3.3.1 AC-L1 with aluminium baseplate and additional heatsink

A massive heatsink comprising the entire bottom surface of the AC-L1 transfers heat out of the power conversion section to the surrounding air.

Drives operating at or near continuous power output require forced air cooling to maintain heatsink temperature in the safe operating zone.

We recommend ambient temperature air to be directed over the heatsink fins to maintain heatsink temperature below 85 °C.

Either an axial blower or two small fans can provide the necessary airflow.

### 3.3.2 AC-L1 with aluminium baseplate

A massive heatsink comprising the entire bottom surface of the AC-L1 transfers heat out of the power conversion section to the vehicle body.

Drives operating at or near their continuous power output require different thermal resistance depending on AC-L1 size for dissipation of heat to maintain heatsink temperature in the safe operating zone.