

PRODUCT DATASHEET

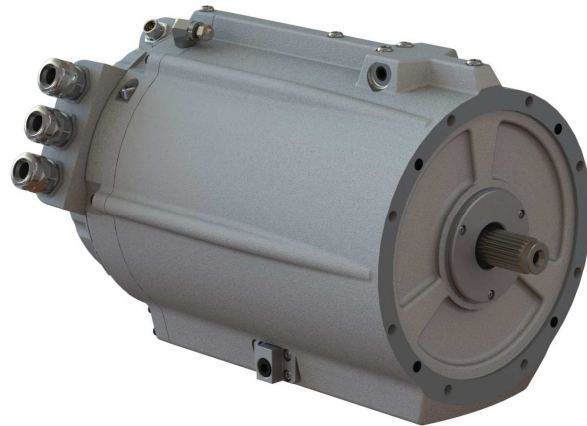
Clean Wave Technologies offers a range of electric drive system products that are specialized for electric and hybrid electric vehicle traction drive applications. Electric drive systems include an advanced electric traction motor and matched power electronic Drive Control Unit (DCU), comprising a variable frequency AC inverter drive with integrated digital and analog electronics, proprietary adaptive machine controls, embedded system controls, and CAN communication interface.

PowerFlow™ electric drive systems provide industry leading performance and power density, producing higher power at considerably lower weight and smaller size than any other commercially available products.

Product Name	PowerFlow™ Electric Drive System
Model Number	M15A3-1X1



Drive Control Unit (DCU)



Electric Traction Motor

PowerFlow™ M15A3-1X1 Electric Drive System

System Specifications	
Operating Voltage, Nominal	380 VDC
Operating Voltage, Range	50 to 450 VDC
Power, Peak *	150 kW
Power, Continuous	90 kW
Torque, Peak *	320 Nm / 0 to 4,000 RPM
Torque, Continuous	175 Nm / 0 to 4,000 RPM
System Efficiency, Peak	93 %
Environmental Protection Rating	IP67
Regenerative Braking	Adjustable Profiles & Levels

* Duration 18 seconds minimum

Electric Traction Motor Specifications	
Model Number	M15A3
Motor Type	3-Phase AC Induction
Speed, Maximum	12,000 RPM
Motor Efficiency, Peak	96 %
Ambient Operating Temperature	-40 to +85 °C
Cooling System	Fluid
Cooling Fluid	Standard ATF
Cooling Fluid Flow Rate	10 LPM
Cooling Fluid Pressure Drop through Motor	60 kPA
Inlet Cooling Fluid Temperature	-40 to +85 °C
Weight	46 kg

Drive Control Unit (DCU) Specifications	
Model Number	1X1
Drive Type	3-Phase Variable Frequency AC Inverter
Drive Efficiency, Peak	98 %
Control Voltage, Nominal	12 VDC
Control Voltage, Range	9 to 16 VDC
Control Current, Typical Continuous	2.5 A
Communication Interface	CAN 2.0 A or 2.0 B
Ambient Operating Temperature	-40 to +75 °C
Cooling System	Fluid
Cooling Fluid	50/50 EGW or PGW
Cooling Fluid Flow Rate	10 LPM
Cooling Fluid Pressure Drop through DCU	10 kPA
Inlet Cooling Fluid Temperature	-40 to +75 °C
Weight	11 kg

Power & Torque Performance

