

Clean Wave Technologies, Inc. 2151 O'Toole Avenue, Suite 30 San Jose, CA 95131 USA www.cleanwavetech.com sales@cleanwavetech.com

## 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<sup>™</sup> 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	M15A2-1X1





**Drive Control Unit (DCU)** 

**Electric Traction Motor** 

## **PowerFlow™ M15A2-1X1 Electric Drive System**

System Specifications		
Operating Voltage, Nominal	360 VDC	
Operating Voltage, Range	50 to 450 VDC	
Power, Peak	190 kW	
Power, Continuous	120 kW	
Torque, Peak (duration 6 seconds minimum)	300 Nm / 0 to 5,000 RPM	
Torque, Peak (duration 30 seconds minimum)	260 Nm / 0 to 5,000 RPM	
Torque, Continuous	175 Nm / 0 to 5,000 RPM	
System Efficiency, Peak	93 %	
Environmental Protection Rating	IP67	
Regenerative Braking	Adjustable Profiles & Levels	



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Electric Traction Motor Specifications		
Model Number	M15A2	
Motor Type	3-Phase AC Induction	
Speed, Maximum	15,000 RPM	
Motor Efficiency, Peak	95 %	
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	



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## **Torque & Power Performance**

