

PRELIMINARY

## Imagen IM1500 System Specifications

Imagen has developed a SiC-based compact motor drive system to efficiently control high power (up to 500 kW), high performance permanent magnet electric motors operating at extremely high speed (greater than 20,000 rpm). Imagen Energy's design seeks to address a major roadblock in operating electric motors at high speed, namely overcoming large back electromotive forces (BEMF). The team demonstrate a motor drive capable of handling large BEMF and increase motor system efficiency over a broad range of operating speeds. The system incorporate active front end as well as output inverter to control motor operation. The system specifications are as follows.

<b>Drive type</b>	IM 1500
<b>Means of protection</b>	Over voltage, Under voltage, Motor short-circuit protection, Motor over-current, Instantaneous over-current, Phase loss detection, Phase imbalance detection, Under load supervision, Over load supervision, Stall protection VFD, Over-temperature External trip, Input Motor thermistor, Input Loss of reference / feedback (4-20mA)
<b>Line voltage / power ranges</b>	
3AC 480 V	350 kW
3 AC 600V	430 kW
3 AC 690V	500 kW
<b>Energy recovery</b>	Yes
<b>Line frequency</b>	50/60 Hz
<b>Output voltage</b>	1000 VAC
<b>Output frequency</b>	0...2000 Hz
<b>Output THD</b>	<10 %
<b>Input THD</b>	<5%
<b>Rated output rms current</b>	415 A
<b>Control power</b>	24VDC / 120 VAC
<b>Control technique</b>	
U/f control	
Vector control with / without encoder	Yes
<b>Motors</b>	
Induction motors	Yes
IPM motors	Yes
<b>Cooling Method</b>	Liquid-Cooled

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<b>Size</b>	
Height	9 in
Width	17 in
Depth	30 in
<b>Technological functions</b>	
<b>Safety functions</b>	
<b>Interfaces</b>	Modbus TCP, CAN, Ethernet
<b>Tools</b>	
<b>Typical application technologies</b>	

Mechanical Drawing of IM-1500 Shown below:

