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# FUTUREENERGY

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## **Specification**

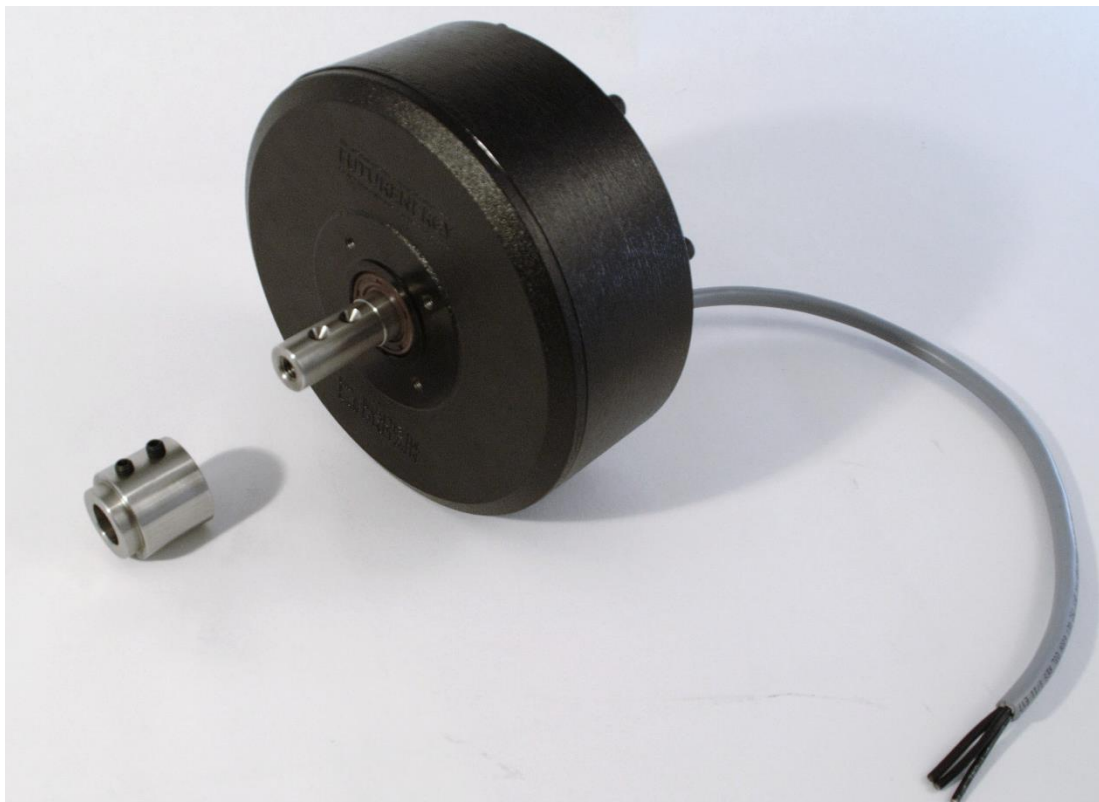
Futureenergy, High Voltage (167V open L/L at 800 RPM) 1kW  
Permanent Magnet Generator

Prepared By

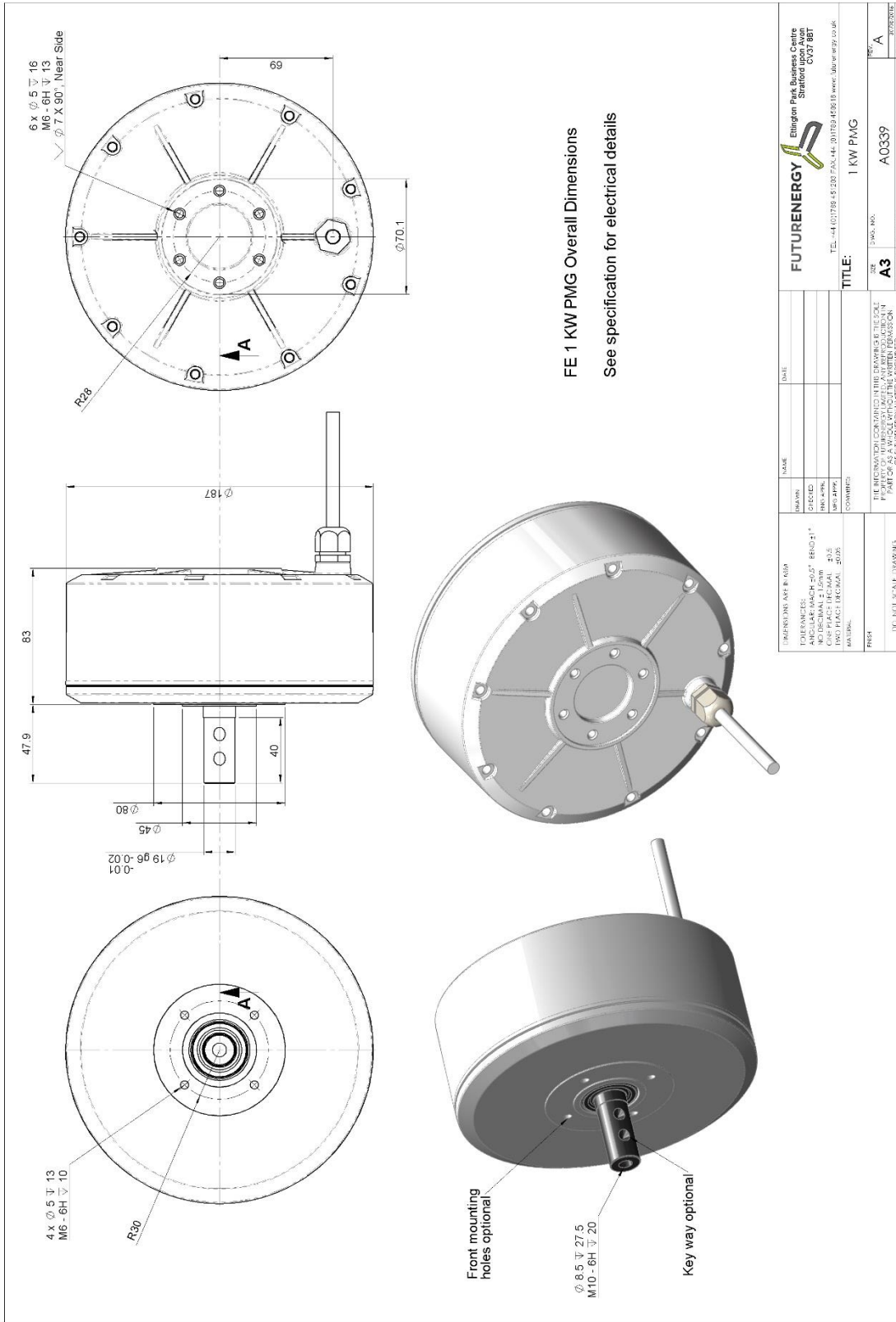
D Nangle, November 2016

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# Dimensions



DESIGNER: APT & MSA	NAME:	DATE:
FORNAMES:	CHECKED:	
ANGULAR MATCH 20.5° BEND 21°	DRW/APP:	
SCALE: 1:1	DATE:	
PROJ: FACT: ELECTRICAL 2015	COMPILED:	
MATERIAL:		
TR454		
DRG NO: 1001-3001-13040105		

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<b>TITLE:</b> 1 KW PMG	
DRW. NO. <b>A3</b>	REV. <b>A</b>
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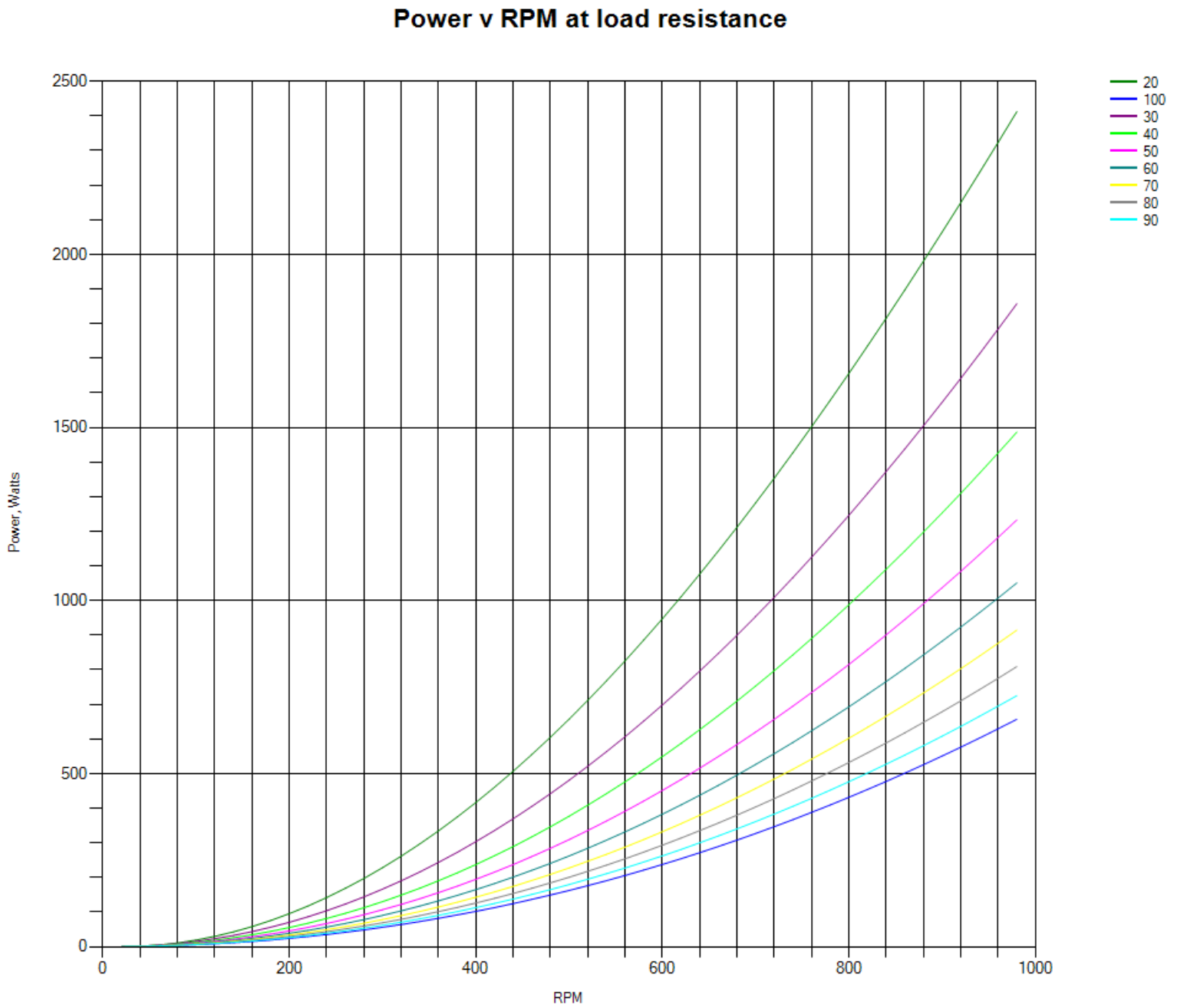
## Specification

<b>Nominal Rated Power</b>	1 kW (@ 40 ohms load)
<b>Nominal RPM</b>	800 RPM
<b>Line / Line RMS Open Voltage</b>	167V*
<b>Nominal Line Current</b>	5.1 Amps**
<b>Maximum Current (100% Duty Cycle / Air Cooled 20°C)</b> <i>Generator output ±10% depending of duty cycle temp</i>	7 Amps
<b>Configuration</b>	3 Phase, Star wound AC output
<b>Line / Line Winding Resistance</b>	2.18 Ohms
<b>Nominal Self Inductance</b>	4.86 mH
<b>Maximum Over-Load Power</b>	1.5 kW
<b>Efficiency</b>	92 %
<b>Maximum Cogging Torque (Excluding Shaft Seals)</b>	< 0.5 Nm
<b>Duty @ Nominal Power</b>	100%
<b>Insulation Class</b>	H
<b>Mounting</b>	Any
<b>Shaft Material</b>	Stainless Steel
<b>Magnet Material</b>	NdFeB
<b>Shell Material</b>	LM25 Aluminium
<b>Protection</b>	IP54
<b>Poles</b>	12
<b>Winding code</b>	P123-T50-W1-★

\* DC Voltage requires an additional bridge rectifier

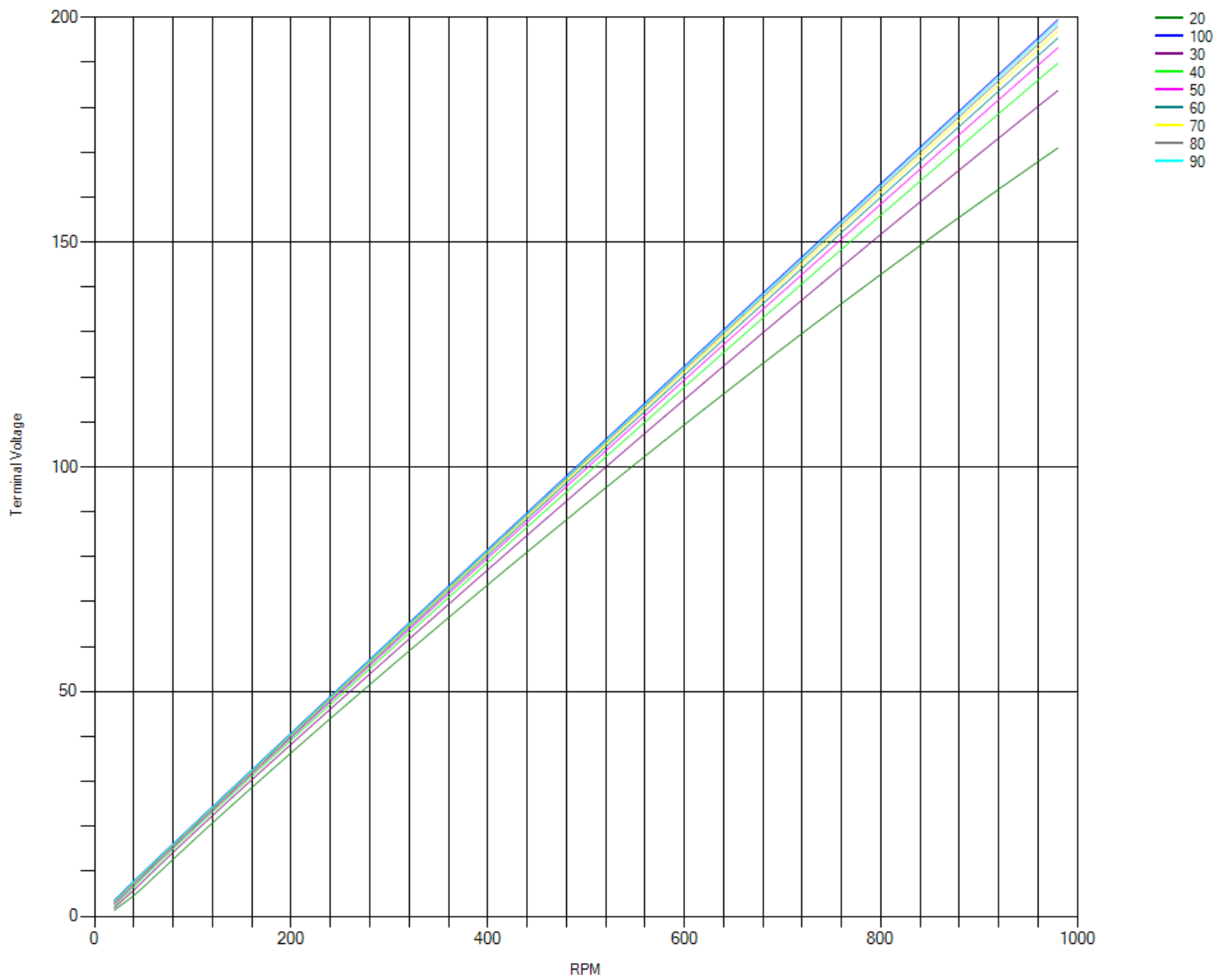
\*\* Voltage and current will depend on connected electrical system. For example; a system charging 48V battery bank will reduce generator voltage to the battery charge voltage and increase current. Values quoted assume fixed resistance loads.

## Graph: Power vs RPM @ Load Resistances ( $\Omega$ )



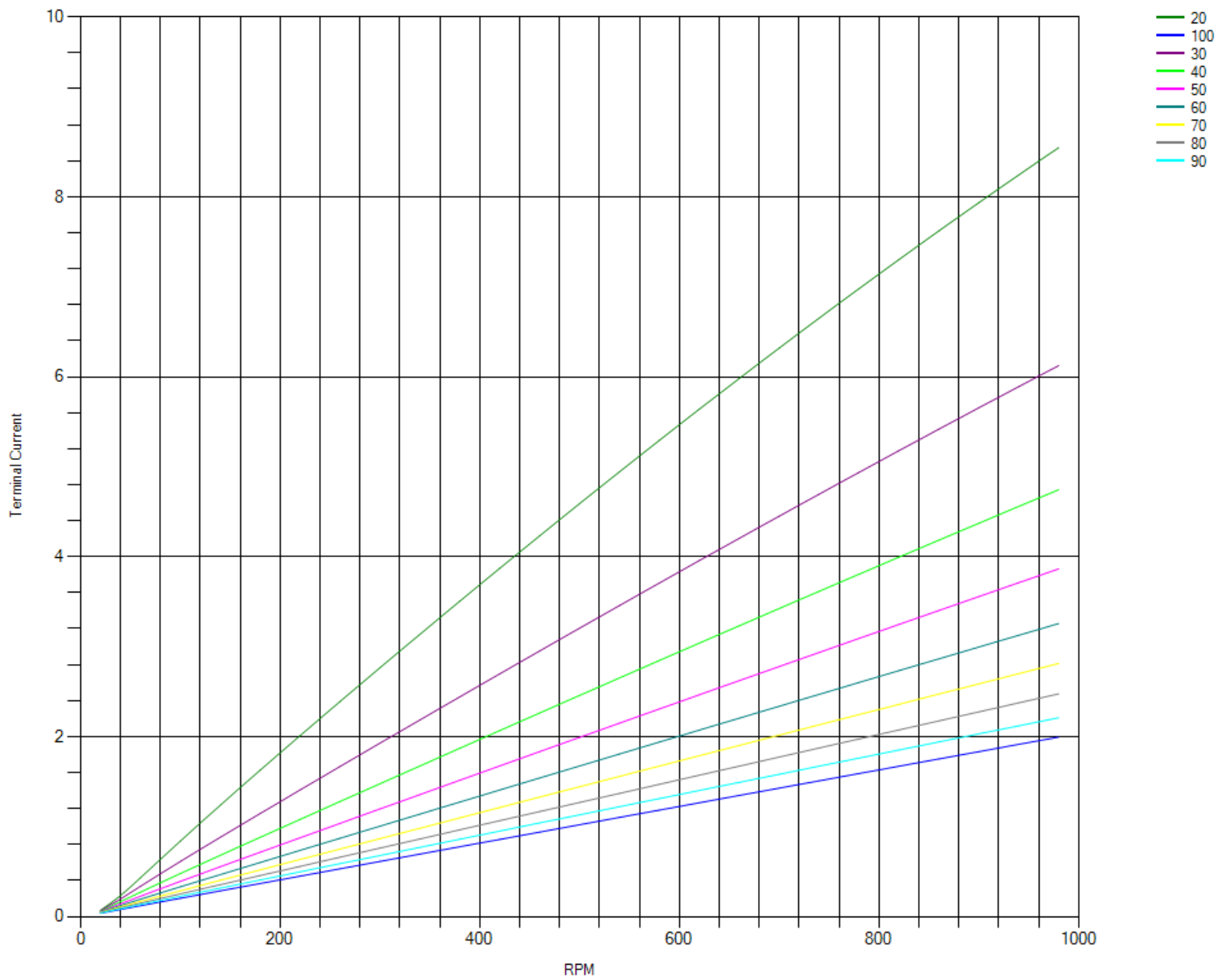
## Graph: Terminal Voltage vs RPM @ Load Resistances

### Terminal Voltage v RPM at load resistance



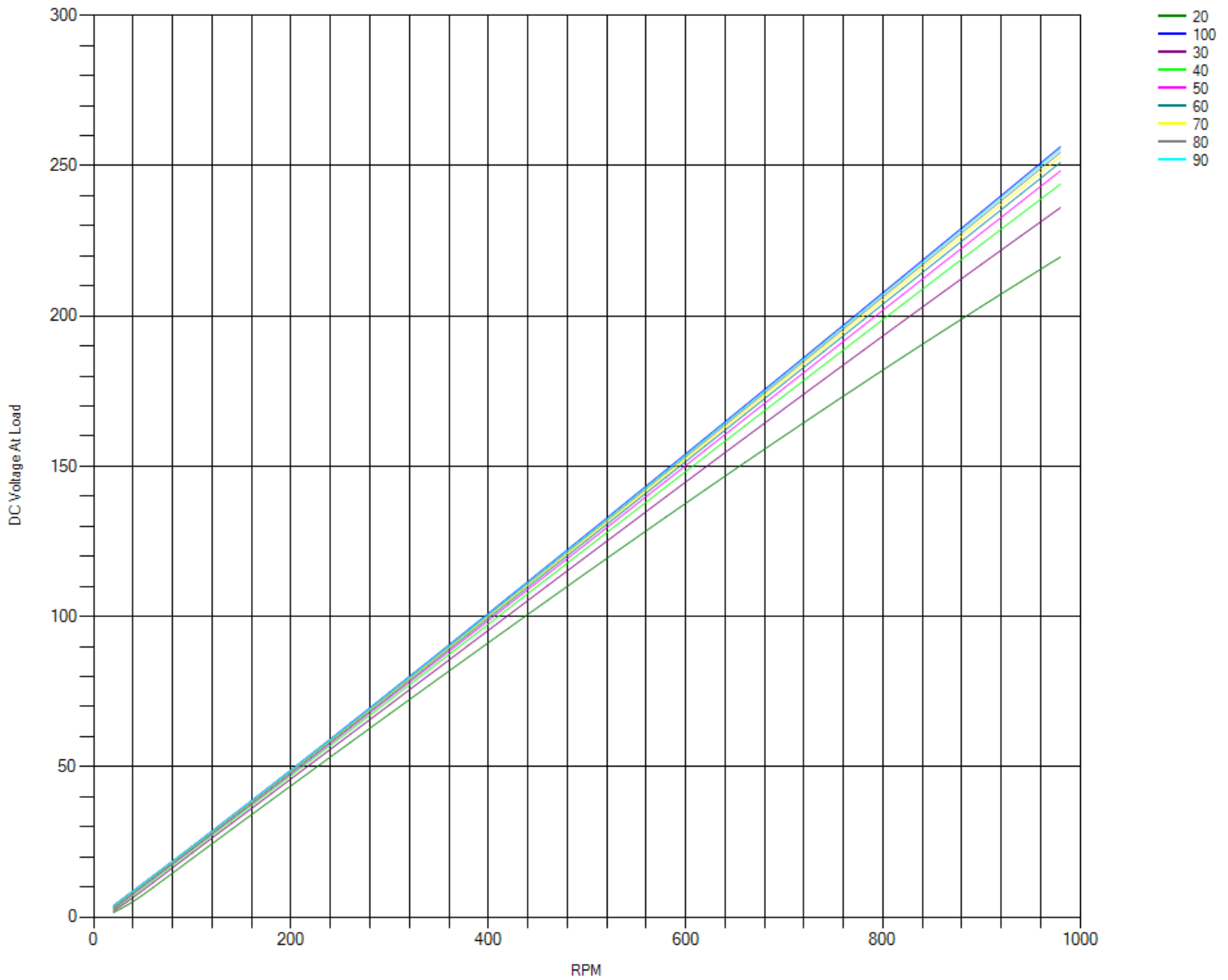
## Graph: Terminal Current vs RPM @ Load Resistances

### Terminal Current v RPM at load resistance



## Graph: DC Load Voltage vs RPM @ Load Resistances

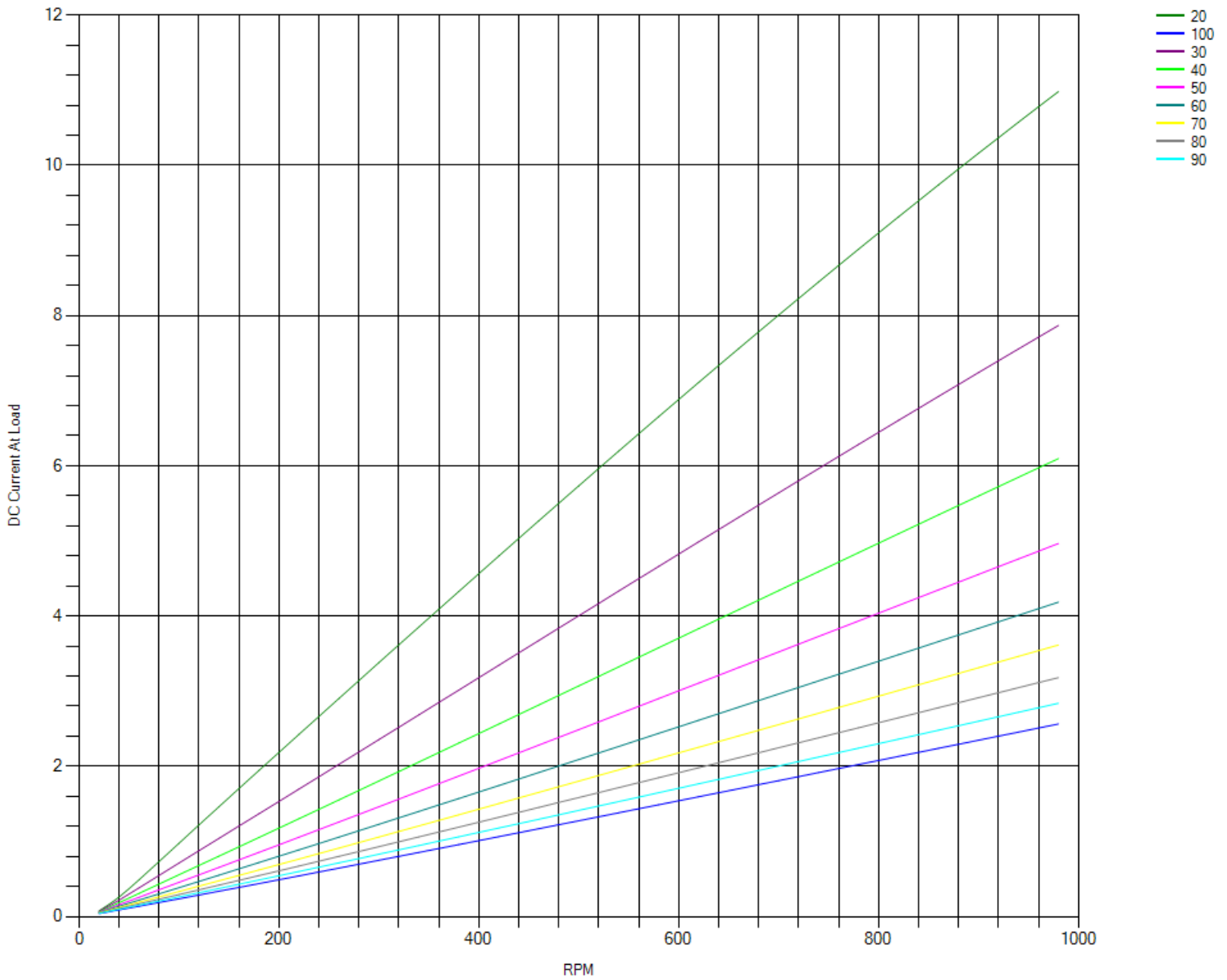
### DC Load Voltage v RPM at load resistance





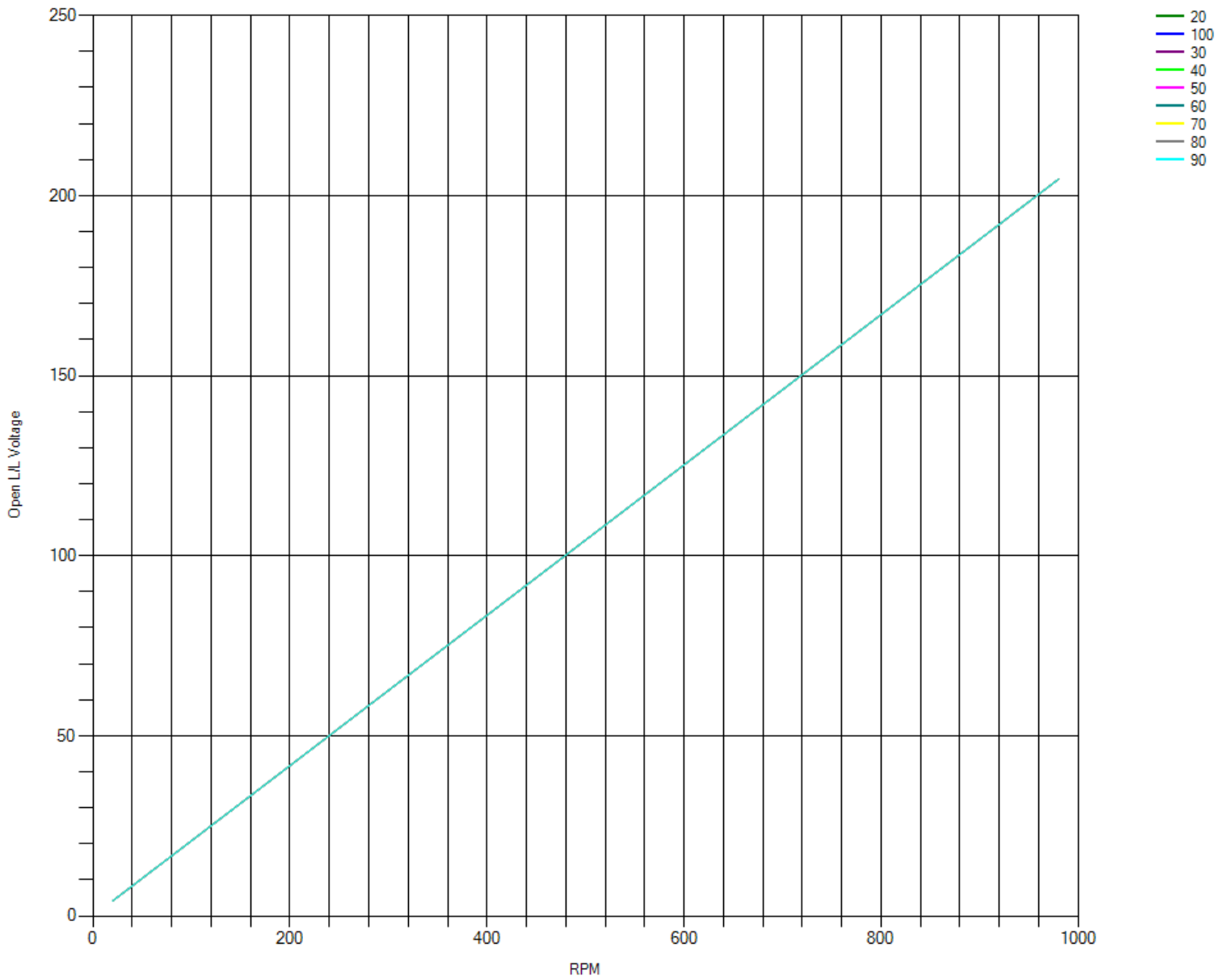
## Graph: DC Load Current vs RPM @ Load Resistances

### DC Load Current v RPM at load resistance



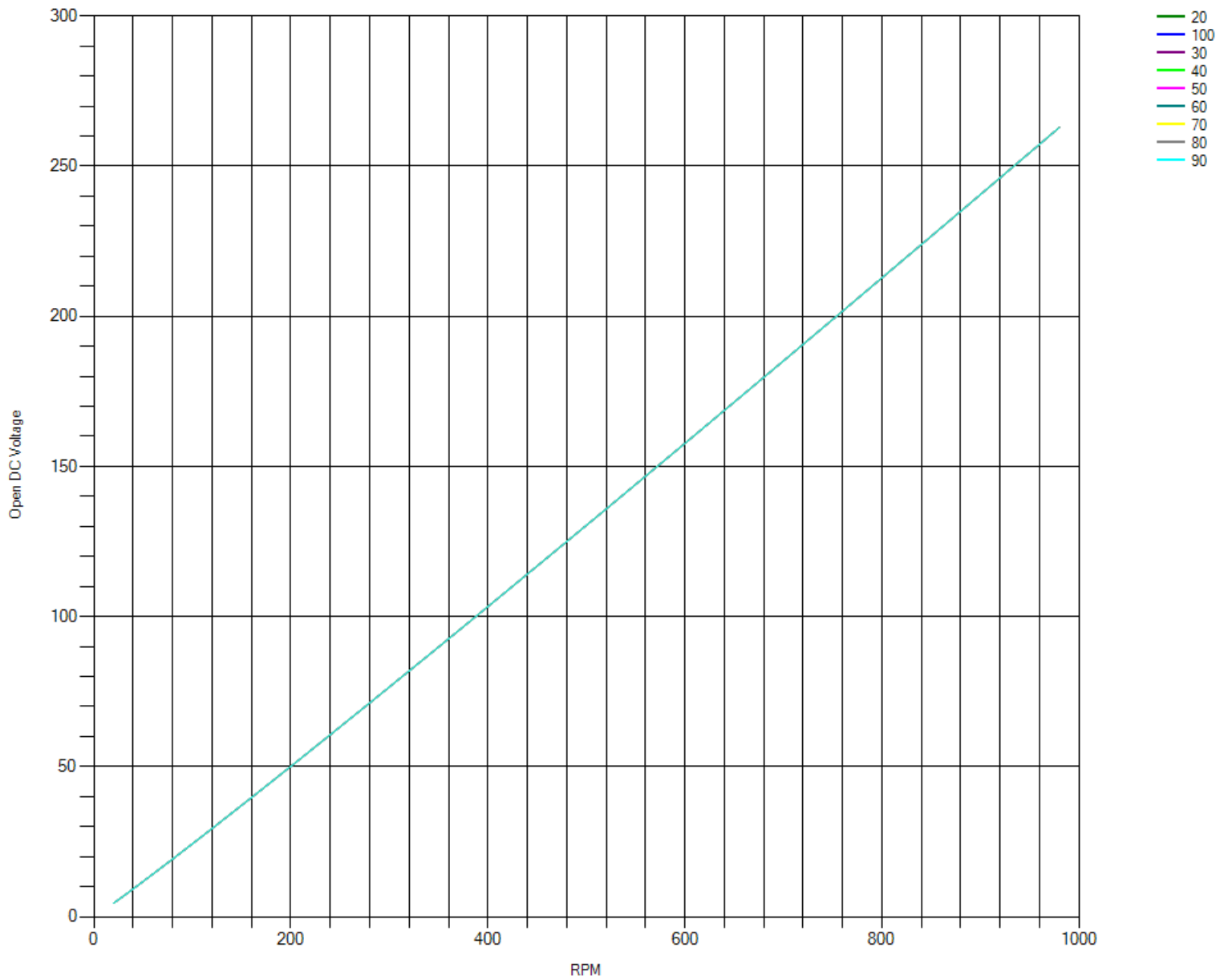
## Graph: Open RMS L/L Voltage vs RPM

### Open Line / line Voltage With No Load

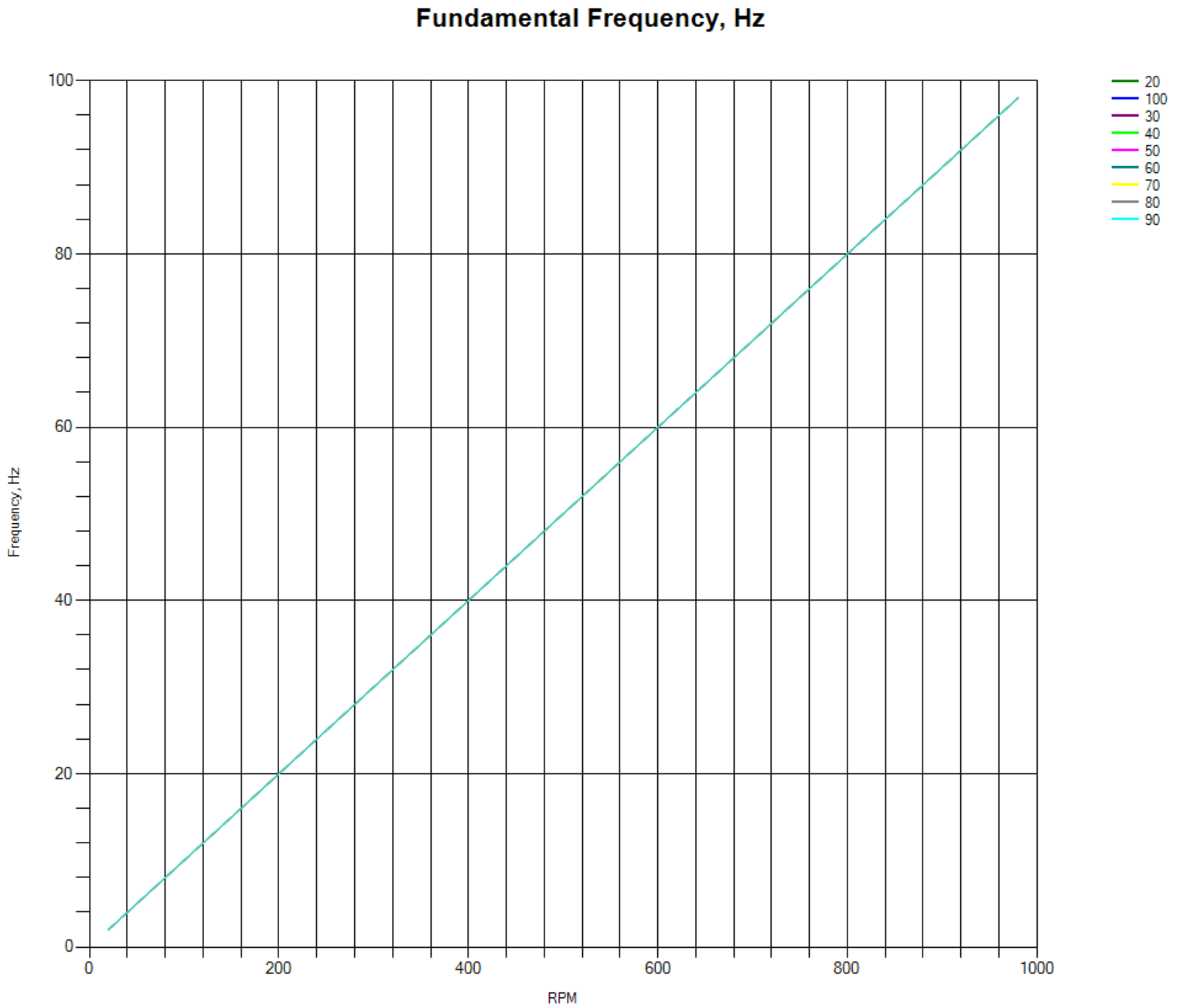


## Graph: Open DC Voltage vs RPM

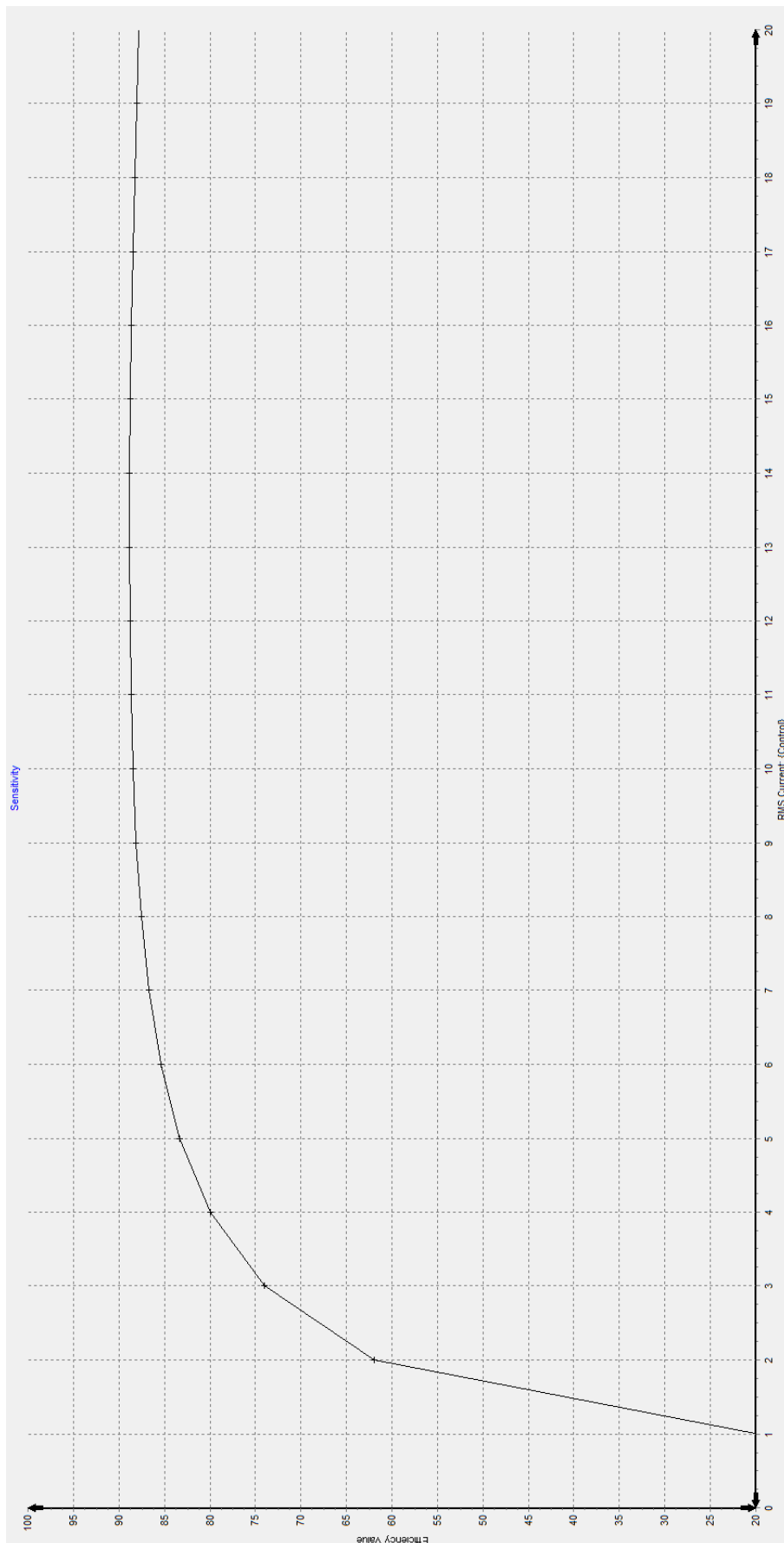
### Open DC Voltage With No Load



## Graph: Fundamental Frequency vs RPM



Graph: Efficiency vs Current @ 750 RPM Constant



# Graph: Cogging Torque

