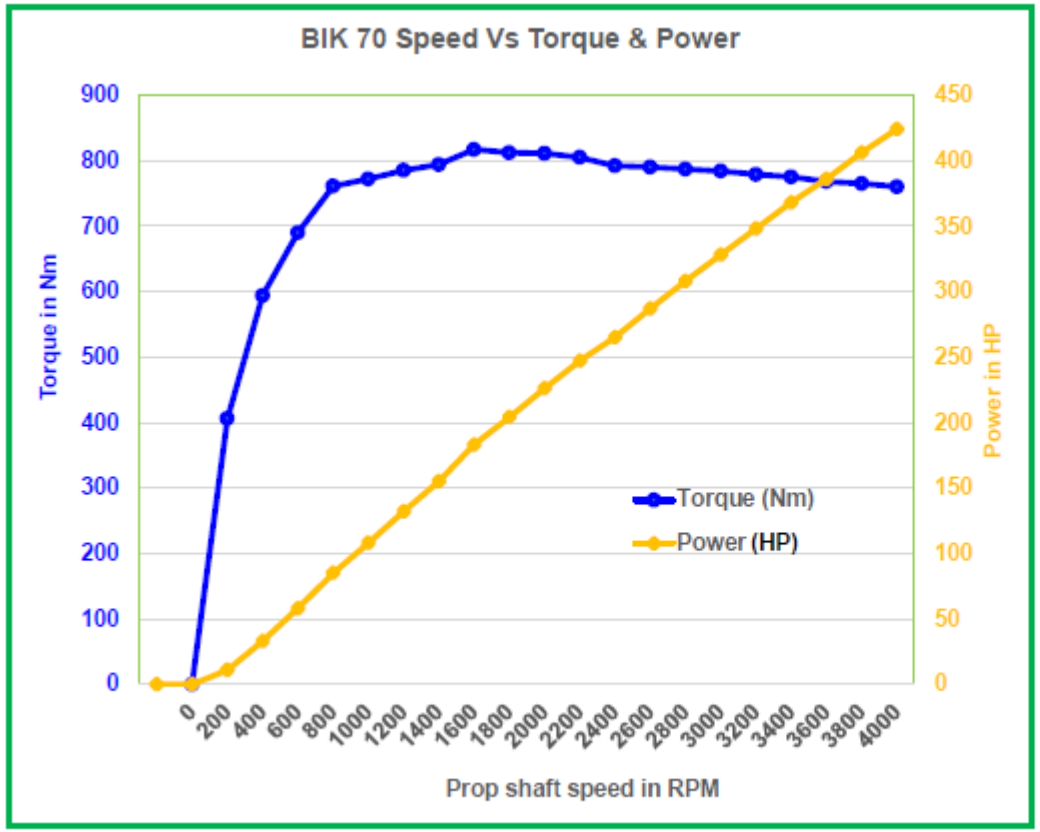
VictoryJET advanced dyno solution for Electric Motor Testing – 26



Speed (Rpm)	Torque (Nm)	Power (Hp)
0	0	0
200	406	11
400	594	33
600	690	58
800	761	85
1000	772	108
1200	785	132
1400	794	155
1600	817	183
1800	812	204
2000	811	226
2200	805	247
2400	792	265
2600	790	287
2800	787	308
3000	784	328
3200	779	348
3400	775	368
3600	768	386
3800	765	406
4000	760	424

Maximum braking torque -- 800 Nm ***(Please note that we can also provide retarders from 500 Nm & onwards)***

Maximum braking power – 300 kW

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Rotors Inertia -- 0.55 Kgm²

Maximum transmissible torque (Nm) -- 10000

Max. admissible R.P.M -- Continuous 4000 min-1 / Short endurance 4500min-1

Eddy Current Interface General Specification

ELECTRICAL SPECIFICATIONS	
Supply	*240 VAC / 415 VAC*
Frequency	*50/60Hz*
Current	*30A - 45A*
Brake discharge method	*Flyback Diode*
Max. PWM modulation frequency	*2500Hz*
Operating temperature	*-20°C to 50°C*
Operating Humidity	*0% to 95% without condensation*
ELECTRICAL CHARACTERISTICS	
Rated Voltage (depending on equipment)	*96 V / 192 V*
Total Resistance (@ 0.85 (Ω) +/-5% (20°C) per coil)	*13.6 Ω*
Total Consumption Amps	*7.06 A / 14.11 A*
Watts	*678 W / 2710 W*
Insulation resistance (MΩ)	*1 MΩ*

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Dyno Hardware General Specification

SPECIFICATIONS	
Supply	*240 VAC*
Frequency	*50/60Hz*
Current	*1.5A*
Operating temperature	*-20°C to 50°C*
Operating Humidity	*0% to 95% without condensation*
Base Computer	*4-core Cortex A76 2.4GHz*
	4GB RAM LPDDR4
	64GB 100MB/s
Microcontroller	*32-bit RISC 64MHz*
Inputs / outputs	*Wi-Fi IEEE 802.11b/g/n/ac (2,4/5 GHz)*
	Bluetooth 5.0 (Low Energy (BLE))
	Gigabit Ethernet
	2 x USB 2.0
	2 x USB 3.0 (one occupied by data memory)
	2 x micro-HDMI
	Weather station with cable
	CAN-BUS 2.0B
	Power outputs for sensors 12V, 5V
	Analog output 0-10V
	2 low side PWM outputs 3A 40V
	Additional low side output 3A 40V
	Two-terminal relay output 250V 16A

	Hall sensor / encoder speed input up to 10Mhz
	Motor speed input for hall, VR, inductive or capacitive clamp sensors up to 15kHz
	Dedicated load cell input with integrated amplifier
	General purpose analogue input 0-5V
	4 thermocouple inputs with analogue input capability
	Physical switch input
PC interfaces	*USB, Ethernet, micro-HDMI*
Standard input / output devices	*Mouse, Keyboard, Printer, Dual Display and Internet connection.*
Wireless interfaces	*Wi-Fi and Bluetooth with vehicle OBD system.*
Ambient sensor	*Temperature, Pressure and Humidity to calculate power according to SAE standards.*
CAN-Bus interface	*CAN-Bus 2.0B interface, with transmission speed up to 1Mbps*
	Compatible with ISO-11898-2 and ISO-11898-5.
	Equipped with software controlled 120Ohm terminating resistor.
	Allows connecting many devices in parallel on one bus.
Devices via CAN-Bus	*Additional actuator drivers, H-bridges for servo motor control*
	Additional input extenders – extra analogue input converters
	Automotive displays
Sensor power supply outputs	*Output 12V 9W*
	Output 5V 1W
Analog output	*Analog output with 0-10V range is intended to control auxiliary dyno devices requiring analogue signal.*
	Can be used to control dyno absorber
	Output impedance: 1kOhm
	Resolution: 12bit
Low side and relay outputs	*The controller is equipped with 3 low side outputs, capable of connecting terminal to ground.*
	Maximum switched voltage: 40V

	Maximum current: 3A continuous, 12A peak
	Maximum inductive load switching energy: 50mJ
	Built in 10kOhm pull-up resistor to +12V, intended for digital signal generation
	Short circuit and overload protected
	2 PWM with frequency from 0.06Hz to 50kHz and 20bit resolution can control
	eddy current brakes (with use of interface)
	solenoid valves
	servo motors compatible with RC pulse signal
	power modulation of devices such as cooling fans etc.
	Remaining low side output and relay output are controlled with programmable logic
	automatic fan turns on above preset engine speed
	Start motor control from dyno keyboard
Frequency inputs	*Equipped with 2 frequency inputs.*
	One input is intended for encoders to measure main shaft rotational speed.
	input frequency is 15mHz to 15kHz.
	In „pulse count" mode, frequency up to 10Mhz is accepted.
	Maximum input signal voltage: 15V
	Signal threshold voltage: 2.5V
	Hysteresis: 0.6 – 1.2V
	Second input allows reading signal from Hall, VR, inductive or capacitive clamp sensors.
	can be used to read motor speed in cases where the speed is not in constant relation with shaft speed.
	Input voltage up to 50VAC sine, 250V peak
	Differential input
	Adaptive signal arming threshold
Load cell input	*A dedicated, differential high precision input with built-in programmable amplifier for load cell.*

	Amplification range: 1-128
	Differential voltage range: 4V
	Voltage on inputs for measurement: 0.5V – 4.5V
	Allowable voltage on inputs: 0V – 5V
	Resolution: 24bit
	Logging frequency: 500Hz
	Sampling frequency: 256kHz
Analog inputs	*Device has one analogue inputs with 0-5V range. The input can be used to connect any additional sensor.*
	Maximum input voltage: 30V
	Resolution: 14bit
	Logging frequency: 500Hz
	Sampling frequency: 25kHz
High-precision analogue inputs	*Device has 2 differential pairs or high precision analogue inputs.*
	can be used for direct thermocouple connection or for connection of any sensor giving signal in 0-5V range.
	every pair allows measuring signal in differential or single-ended mode.
	single-ended mode allows connection of 4 sensors total.
	Resolution: 16bit
	Logging frequency: 10Hz
	Sampling frequency: 250kHz
	Voltage ranges: 0-256mV to 0-5V
Switch input	*Device has input for switch connection.*
	switch or wireless remote control can be used to activate software functions or controller outputs.

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Dyno Software General Specification

- *All typical **PC interfaces** like HDMI, USB, Ethernet, Wi-Fi and Bluetooth available.*
- ***Real-time** data acquisition and plotting.*
- ***Configurable user interface**: plots, gauges, numeric displays can be freely added, arranged and personalized on the desktop.*
- ***Unlimited** number of tests can be loaded, analysed and printed on report at the same time.*
- ***Powerful data analysis** tools: **graphs, multi run table, colour map, xy map table***
- ***Test results export** to CSV, Excel, JPG, PNG, BMP, GIF and PDF report.*
- *Report **e-mail to the concerned directly** from software.*
- ***Online report sharing** and leaderboard via zdyno or to your dedicated server.*
- *Independently **selectable units** for any data channel: **metric and imperial**. Automatic **unit conversion** for CAN and sensor inputs.*
- ***Multi-language software** with user translation support.*
- ***Test modes**:*
  - *inertial (without absorber),*
  - *manual brake torque,*
  - *steady state speed,*
  - *steady acceleration or deceleration,*
  - *ramp test,*
  - *programmable speed sequence,*
  - *programmable acceleration sequence,*

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- *road simulation with drive cycles,*
- *race simulation from telemetry log,*
- *connection with racing simulator.*

 Guided advanced test *with instructions for operator. Hold on start speed, acceleration ramp, hold on top speed and accelerated coast down.*

 Project and runs database *with searching and sorting to keep your data organized and accessible.*

 Stock Motor database*.*

 Highly configurable absorber control*. Independent control loops. Different brake types can be used at once in one dyno. Stepper motor support.*

 Power corrections *with* ***included ambient conditions sensor*** *(weather station): DIN 70020, EC 95-1, ISO 1585, JIS D1001, SAE J1349, SAE J607, EEC 80/1269.*

 OBD2 support *via USB or Bluetooth adapters. Programmable data logging.*

 IP camera *run recording and monitoring.*

 Knock detection *from knock sensor signal.*

 Multiple ***outputs*** *for control of peripheral devices in our dyno test cell.*

 Powerful data logging with multiple ***inputs****.*

 2x CAN-bus *interface for system expansion with external modules. Input and output messages fully programmable.*

 MCU data logging *via CAN-bus.*

 High precision *16bit analogue inputs.*

 Speed inputs resolution: 32ns (0.000000032s)

 High sampling frequency*: 500Hz for analogue inputs, 1000Hz for speed inputs.*

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- ***Fast absorber control*** *loop running at 1000Hz frequency.*
- *Fast eddy current brake power supply:*
  - *Typical* ***full current in 0.2s*** *and back to* ***no current in 0.02s****!*
  - *Closed loop current control with CAN-bus diagnostics.*
- *Automatic loss measurement to calculate* ***torque and power at motor****.*
- ***Customizable reports.*** *Page orientation, plots size, visible parameters, company information and logotype can be personalized.*
- ***Motor speed*** *can be calculated or sampled from inductive clamp, OBD interface or CAN-bus.*
- ***Functions system*** *for* ***custom channels*** *calculation and* ***automation of outputs control****.*
- *Analogue inputs fully programmable with interpolation table allows connecting of* ***any analogue sensor****.*
- ***K-type thermocouples*** *can be connected directly.*
- *Data channels* ***monitoring with warnings and alarms****.*
- ***Throttle control*** *with programmable sequences.*
- ***High compatibility*** *with existing absorber. It can be controlled via analogue output, PWM signal or CAN-bus.*
- *Powerful* ***DSP signal filtering*** */ averaging / smoothing. Fully programmable to remove unwanted noise or vibrations.*
- *The system can be* ***remotely controlled via CAN bus*** *to allow integration with other systems in your dyno test cell.*

Best Regards,

VJ