

Empulse R

6 Speed Integrated Electronic Transmission (IET)



Torque is 40Nm from 4500 to 8200RPM thus the close ratio six speed transmission, by the way the transmission does require regular maintenance, at 5000km intervals the 1 litre of oil need to be changed.

The Li Ion battery array contains 9.3kWh of energy. Each of the 7 modules have integrated heat transfer plates that can remove internal temperature build up or inject heat in low temperature conditions to aid charging efficiency.

Accossato in Italy fabricates the aluminum E-Beam frame, tubular-steel subframe, and tubular-steel swingarm. The remainder of the chassis components are premium European parts befitting a \$19,000 sportbike, including radial-mount Brembo brakes, Marchesini wheels, a Marzocchi fork, and Sachs rear shock (the latter two components both fully adjustable on the R-version).



Brammo

Meet Brammo's new electric bike, the Brammo Empulse R, quite an impressive looking machine. Both the Empulse and Empulse R models contain Brammo's Integrated Electric Transmission, this innovation mimics the feel of a traditional internal combustion engine and also makes use of a specially-designed clutch and gear shift — far different from standard electric bikes that are single speed and do not require a gear shift. It's also water cooled, an industry first for an electric motorcycle. On a single 8-hour charge, the Empulse will provide a 195km city range, 90km highway and a combined 125km, which should be enough to get to and from the office. Just don't try to hit the 160+ kmh top speed on your morning commute. The Brammo is powered by 7 X 15-90 battery modules, that's 15volts 90Ah that's 105volts at 90Ah. The motor is a Parker-Hannifin liquid cooled permanent-magnet AC motor that uses samarium-cobalt magnets essentially this is a detuned version of the Brammo electric superbike the took out the 2012 American TTXGP championship; power is 40kW at 8200RPM (this is AC remember!)

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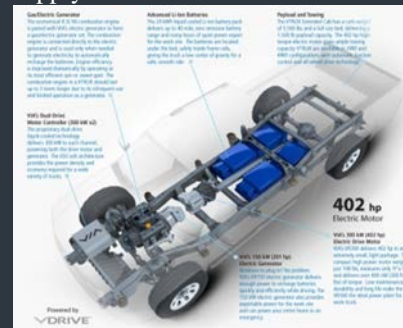
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VIA Motors

Now these guys are certainly aiming at an interesting market for their set of vehicles. The standard VTRUX units have a single 402HP motor and 4.8liter V8 range extender for the eREV powertrain, plugin recharge is also supplied for 120volts or 240v quick charge that recharge the 300volt pack between 4 and 8hours. But to catch the tradie market the vehicles can provide 120 and 240 volt power straight from the traction pack. With 24kWh of energy on board you can drive to work and power your welder or other power tools all day and still have enough energy left in the pack to drive home — plug in for the night and be ready to start over again in the morning. Fantastic idea!! Oh and if you do have to drive that bit further you can still power your work equipment as the master control unit will start the range extender for stationary power supply.



800 HP EV Truck!!

Now here's a serious EV; VIA motors has unveiled it XTRUX 800 Horse Power EV Truck at the Detroit motor show in mid-January. The vehicle is based on a Chevrolet Silverado but with a 24kWh lithium battery pack mounted between the rear chassis rails and two high speed 402 HP AC motors driving a gear reduction unit that in turn powers the differentials front and rear. In this case one motor drives the rear the other the front. This beastly is a range extended hybrid and utilizes the original V8 as the generator power plant. All 5.3 liters of Chevy mussel is used to keep the liquid cooled battery pack charged. To accomplish this, the ICE is run at its optimum efficiency and only powers the generator; all movement is provided by the electric motors. Weight wise this monster tips the scale at 2500kg, with a 700kg payload making a total of 3.2tonnes for the electric motors to move; In spite of this weight fuel consumption after the battery has go its 60 km range (80% DOD) is an astonishing 2.4litres per 100km (100MPG).

Pricing has not been announced but this has got to be the EV hybrid version of the Hummer, and folk are willing to pay large money for those gas guzzlers!



Better Place Demise!

It appears that the local arm of Israel-based electric vehicle recharge station supplier Better Place is in major financial trouble. Chairman Harrison Young was reported as saying: "The future of the Australian arm is uncertain and that is a disappointment."

The company is essentially winding back to concentrate on its two existing operations, in Denmark and Israel, and is abandoning further development in the Australian market.

Faced with this knowledge, the Australian team tried to chase up more money on top of the \$25 million raised in 2009, but it is reported to have failed dismally.

Australian CEO Evan Thornley is believed to be on his way back to Australia as his former comrades await the inevitable news from head office and try to work out what, if anything can be salvaged. Given the local arm relied on the parent company's technology, without its support the venture looks dead.

The question now remains what will happen to the battery supply for the electric Renault range of vehicles and I do remember reading about a \$60M contract for power supply from Canberra based ActewAGL.

Stealth Electric Bikes



Melbourne based engineering company Stealth Electric Bikes have released a range of high performance electric bikes. The range is designed to bridge the gap between traditional pedal-powered bicycles and motorcycles, and it will be spearheaded by the company's flagship model, the Stealth Bomber.

According to Stealth Electric Bikes, the Stealth Bomber is capable of speeds of up to 80km/h and has a range of around 80km -- even further when using the bike's regenerative brake system, which converts the force of braking into extra charge for the bike's batteries.

This lightweight machine is built around a chassis constructed from aircraft-grade CrMo alloy, while riders can rely entirely on the 4.5kW direct-drive electric motor peddles are incorporated to aid in getting from point A to B, a nine-speed sequential gearbox is associated with the peddle power to provide the right gearing for any situation.

There are three models available, The Bomber the Fighter and the Hurricane. Drive is accomplished via either a 3kW or 4.5kW brushless DC hub motor mounted to the rear axle. Energy is provided from a Lithium Polymer battery that incorporates a performance monitoring system and can be recharged in 2 hours from a standard outlet. The battery can also be replaced in about 90 seconds thanks to an advanced fastener system. Brakes are 6 piston hydraulic units that can bring the machine to a standstill using just 1 finger on the handlebar mounted leavers. Another point of interest is the adjustable rear swing arm that removes the necessity for gear derailleurs and allows for adjustable wheelbase.

The hurricane model is designed more as a motorcycle as it is supplied with foot pegs only (no Peddles).

Pricing for the range seems to be in the \$7,900 to \$9,900 range.

Look Where EV's Are Going Now!!



Tesla is not resting on its laurels; the Model X is the EV manufacturer's entrance into the lucrative American SUV market, and what a stunning entrance it makes. The Model X crossover gets to 100kmh in 4.6 seconds. And a proposed Performance model will be even quicker. The Model X will be available with 60 kWh or 85 kWh battery packs, skipping the least-expensive 40 kWh battery pack sold in the Model S. Charging is via either a 10kW or 20 kW unit depending on battery pack size, s is range either 150 or 300 miles. The Model X will also be available in all-wheel drive or rear-wheel drive. All-wheel drive comes from an electric powered front transaxle in combination with an under floor drive unit mounted in the rear axle. Both motors are capable of 402 HP and 415Nm of torque, this is the same motor performance as specified for the Model-S. Seating is for 7 with three rows of seats in a 2 3 2 configuration. One of the most striking features of the Model X is the "Falcon Wing" rear doors, which pivot open from a centerline hinge in the roof of the car. Production sales are expected to begin in the latter part of 2014. Pricing is expected to be between \$80K and \$120K in California.

This Month's Q&A Technology Tip

Q. My battery pack is nominally 230volts, are there any DC to DC converters available for this voltage range?

A. Just so happens that MeanWell has a high voltage range of power supplies that can take input from AC or DC sources. The DC input range is from 124V to 370V so most EV battery packs could be handled by this range of converters. Output for the 12V unit is adjustable between 10V and 13.2V and current is a healthy



40A maximum; these figures are fine for most applications.

The SP-500-12 is available from Soanar Plus for \$198.98 + GST & delivery (cheaper for 3 or 5; down to a very reasonable \$150.44 delivered)

<https://www.soanarplus.com/FCkeditor/UserFiles/File/Mean%20Well/MPP235-36.pdf>