Technology & Commerce!

E-Fan

For those worried about the "recharge" light coming on while up in the air, there's a backup battery onboard for emergency landings. A neat little party trick for the E-Fan is it's undercarriage, which is made up of two retractable wheels fore and aft and two more under the wings. The aft wheel is powered by a 6 kW electric motor, which not only powers the plane while taxiing, but also accelerates it on takeoff to 60 km/h (37 mph), which relieves some of the burden on the flight motors. Whilst in flight the E-Fan can reach speeds of 220kmh. The hour long flight range of the E-Fan could cost only $16, compared to $55 for a flight in a petrol-powered plane of the same size. The two seater E-Fan is designed to be a light duty flight training aircraft in the same class as a Cessna 152. Airbus also intends to produce a 4 seater Hybrid E-Fan 4.0 model for extended distance flights for 4 pasangers.

Airbus

Seems that in like manner to last month's electric vehicle range from Bombardier, another of the big boys of transportation has been putting in the hard yards in plugin EV technology. Airbus Group (formerly EADS) working with a consortium of European aerospace companies, the E-fan made its first non-public flight at the Bordeaux Mérignac airport on March 11. Built with an all-composite construction, the E-fan is 6.7 m (22 ft) long and has a wingspan of 9.5 m (31 ft) and a maximum weight of 550kg. From the outside, it almost looks like a toy jet aircraft with a pair of nacelles that aren't jets, but two ducted, variable pitch fans spun by two electric motors with a combined power of 60 kW. The ducting increases the thrust while reducing noise, and by centrally mounting them, the fans provide better control. Powering the fans are a pair of 250 V lithium-ion polymer batteries at 40Ah made by KOKAM of Korea. These batteries are mounted in the inboard section of the wings and carry enough charge for up to one hour of flight and can be recharged in one hour.

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Monaco / French Superbike

This electric beauty weighs 350 kg and at its heart lies an electric motor with permanent magnets and liquid cooling, the range from the 12.8kwh lithium ion battery back is reputed to be 180km. which can be recharge to 80% in 30 minutes thanks to a COMBO II charging socket, however, for more convenient charging a 110 or 240Volt charger is included under the "exoskeleton" frame. Top speed is 170kmh; in order bring this rather hefty beast to a halt, there are 4 x 230mm disk brakes with 4 spot calipers. The rear suspension has formula 1 style dual horizontal shock absorbers straddling the huge 240mm rear tyre mounted on 18" carbon fibre rims. Transmission is provided by a 35mm timing belt, not certain of the ratio but the power curve of the motor provides the full 200hp from 6500 to 10,500rpm.
As for price; at present they will only be built to order; so I guess if you have to ask the price, can't afford it!!

Voxan Wattman

This month I decided to look that the latest Electric motorcycles. Surprisingly there have been some interesting designs arise. This new bike was designed by Sasha Lakic from Monaco and manufactured by Voxan; giving us the 'Wattman' superbike.
The liquid-cooled machine claims a cool 200hp (150kW), supported by an eye-ball popping 200Nm of instant torque from the electric motor up to 10,500rpm. Voxan says it's the most powerful electric motorcycle every built, and claims 0-160km/h in under six seconds. The Wattman, engineered in Monaco and manufactured in France, doesn't have a frame per se, but instead is held together by an amalgam of the 12.8kwh battery pack, charger and cooling system. Voxan calls it an 'exoskeleton' design. There's a polished aluminium exterior. The rear suspension is a of parallelogram-shaped four-link design with two dual oscillating arms that creates an extension of the battery pack towards the rear axle. Voxan says the horizontality "gives the bike stability and elegance".

Saietta R

The bike's over-arching cowl is more than aesthetic as it covers up the diagonally-mounted battery pack. Where the gas tank would normally go on traditional bikes sits an Advanced Agility lithium-Ion battery with a maximum capacity of 11.0 kWh. The big arch carries over the handlebars giving the bike a *Tron*, *Judge Dredd*, or *Star Wars* type finishing treatment.

According to Agility, the Saietta R is the world's first production motorcycle to use a composite monocoque chassis. The battery envelope, similar to an F1 monocoque, is actually a structural component, designed to reduce overall weight while increasing rigidity and strength. This utilitarian design explains the Saietta's gigantic power hump emanating from the middle of the bike.

On the front, unequal length front double-wishbone shocks with adjustable damping and pre-load keep the corners and bumps in check, while to the rear a propriety integrated transmission and suspension setup called the "Drive-Torque Geometry Control" system deals with power delivery and damping responsibilities. Slowing the bike is the job of 320 mm floating disc brakes shod with 4-piston brake calipers up front, and 240 mm discs out back with dual-piston calipers.

Agility Motors

I was tossing up whether to choose the Johammer or the Saietta for the SHAPE of things to come, they are both shall we say "interesting" designs; but the Saietta is actually available now.

UK's Agility motors have released the Saietta (Italian for Thunderbolt) urban guerrilla street bike. Agility, which has been working with racing partner Agni Racing on EV racers for years, hopes to show that its track experience can successfully translate into the Saietta R. The Saietta R features an Advanced Axial flux Permanent Magnet DC electric motor capable of producing 72 kW (96.5 hp) and impressive torque figures of 127 Nm (93.7 lb ft) to the rear wheel. Although the bike weighs a hefty 485 lb (220 kg), the electric torque availability is there from zero rpm, giving the bike impressive low end power.

The all-electric has a range of 112 miles (182 km) in the city and a combined range of 74 miles (120 km) on a single charge should help compensate for the reduced top speed. Another interesting electric option is the "Personalized Throttle Response" system that essentially allows riders to configure the bike's power to suit their preferences. The bike's 11kwh lithium Ion battery that's optimised for electric vehicles, will withstand 1,000 recharge cycles to 80 percent DOD or 80,000 miles (129,000 km), with power supplied through an 1.5 kW onboard charger that can provide a full charge in 3.5 to 8 hours. An optional Fast Charge Pack is also available, doubling the charge capabilities to 3 kW.

List price £13,975

http://www.agilitymotors.com/bikes/saietta-r.html?8712236

The SHAPE of Thing to Come!!

Now this one truly is a SHAPE of something different; (but if you like to drive a very scary snail, this could be the vehicle for you!). This North Austrian roadster made an appearance at the Linz motorcycle show in February and appears close to production.

It uses a hub-center steering and suspension setup at the front end. These units do a very good job of separating braking from suspension forces and controlling dive under brakes, but they're also much more expensive than forks, and it's dubious exactly how much benefit there is to having such an exotic front end on what's unlikely to be a "performance bike." But the big ticket item is the fantastic battery range. Fitted with a beefy 12.7 kWh pack gives the cruiser a 200km range – this in house designed and built pack comes with a 200,000km guaranteed service life. The bike's electric motor is enclosed in its rear wheel hub, and it works in reverse as a regenerative brake system. The two stalk eye mirrors provide indicator modules and a speedo readout – (that could be an expensive drop!!) Speaking of expensive, €25,000 ($37,000)

This Month's Technology Review

An Italian vehicle transmission specialist, Oerlikon Graziano, and a UK controls specialist, Vocis Driveline, have jointly developed an electric vehicle transmission system that uses two traction motors in a compact powertrain that provides four speeds and operates with an efficiency of around 90%. The system resembles a dual- clutch transmission configuration, but with two motors instead of twin clutches. The motors replace the clutches and synchronisers, allowing the next gear to be preselected before the previous one has been disengaged. Fewer parts, no hydraulics; equals higher efficiency!