

# Karting magazine

August 2013



## Nielsen wins KF Euro Champs Opener

**Norris** on top in **Alcaniz** after winner is **penalised**

Thorq **electric kart** tested indoors & on **ice**

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**Coppa dei Campioni** international historics

Silverstone **Superkarts**

£4.20





# Electric Kart Company

## The Thorq

By Martin Capenhurst

Eglem karts have been around for many years and Frank Eglem has been involved in karting for over three decades, from being a young boy acting as a mechanic for his father to winning the World Junior Championship in 1983 and moving on to producing his own race and corporate karts, supplying many circuits in and around Europe and the UK.

It is always worth keeping in touch with the Eglem family as they are always pushing forward with new technology and ideas. The race side of the company has now been sold off so that Frank and his wife Shelley (the boss!) can devote their energies to the new 'Electric Kart Company' in IJsselstein, Holland, promoting their own design and manufactured purpose-built electric kart, the Thorq. The new business has five distinct parts to it and their business package is now Karts, Parts, Consultancy, Events and their barrier system The Edge.

Electric karts have been around for many years and have been used by circuits mainly around mainland Europe. A few UK indoor circuits have tried them but they have not really taken off due mainly to the high initial cost of the kart, their weight and battery life. However there are a lot of new regulations in Europe with more concern about indoor petrol kart emissions, and new circuits especially are being encouraged by planning rules to consider electric karts to help with planning applications. Older circuits are being "advised" to get better ventilation which is a large investment for some of the smaller circuits and therefore there is an upsurge of interest in the electric kart industry. Since November last year all indoor circuits in Europe have had to change to a special fuel at £2.31 per litre (2.70 euro) as this keeps the carbon monoxide level down to 25 parts per million which is the new limit imposed. The UK is always a few years behind new legislation in the rest of Europe but there is no doubt it will catch us soon and, with the new electric technology, now



A fleet of Thorq electric karts at a Dutch indoor circuit  
Martin Capenhurst

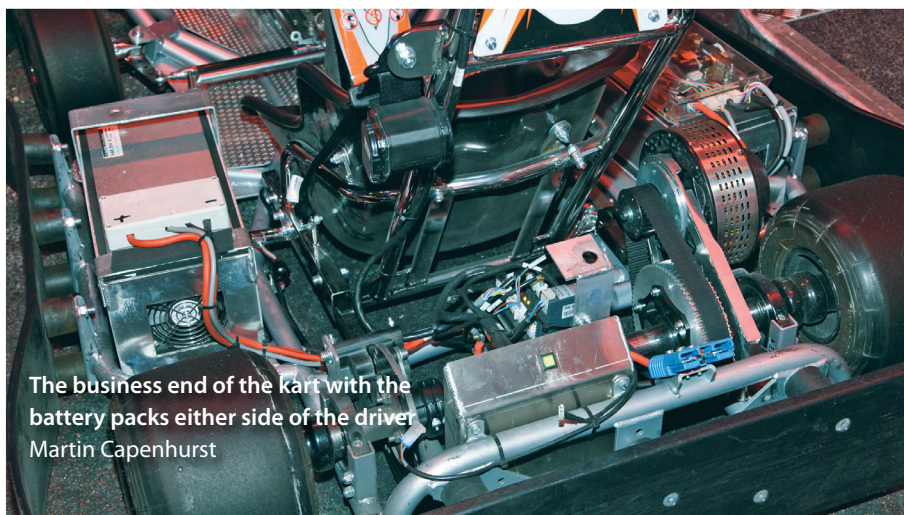
is the right time to be considering Thorq electric karts.

The Thorq kart is a totally new design and complete with batteries and ready to run weighs in at only 160kg and there are plans to make a more composite unit which could drop that down to 140kg, that is a substantial difference to the old solid electric karts that we tried before. The electric motor has a life of 1500 hours with a rebuild cost of 75 Euros for new carbon brushes and bearings. This is obviously the working heart of the whole kart and is smaller than a Bambino engine, a tried and tested motor that delivers instant power immediately.

The power supply is the new latest design using lithium iron phosphate cells, 64 of them in total, each one 10A 3.2v, 32 cells per side of the kart to equalise the balance. There is a battery management system which checks each cell individually

with a cell readout and each one can be changed individually if it goes faulty. Battery life is dependent on the heat generated during the charging cycle, the slower you can charge the longer the cells will last. From empty to a full charge can take only 15 minutes, however if a slower charge is used, 25 minutes, the battery life is extended by 15-20%. The run time is always longer than the charge time. The "battery packs" are self-contained in their purpose-built casing, all mountings and management system but there is easy access to change just the cells when required. There is a 5000 cycle guarantee on the battery pack and replacement would be somewhere between 5-8000+ recharge cycles at a cost of approximately £1500.

Another advantage of this type of electric kart is that you only need one size of kart. The karts are fitted with a sliding



The business end of the kart with the battery packs either side of the driver  
Martin Capenhurst



seat and a unique pedal adjustment system that Frank has designed to suit every driver, no different sized karts sitting around wasting money. On the back of the power system there is a switch to control the power so you can have speeds to suit cadets, juniors and seniors all from one unit. Frank and the team are also working on a system to automatically adjust the power output of the kart to compensate for different driver weights, a first in corporate karting.

Ok, so the all important part is the cost. I know it will all vary from circuit to circuit but after speaking to various circuits I have come up with a rough comparison:

#### Running cost (just fuel/electric)

Single engine Honda (fuel) £2.45/ hour

Twin engine Honda (fuel) £4.95/ hour

Thorq set at fastest speed (electric) £0.40/ hour

#### Kart costs

Petrol kart £3000 to £5000+

Thorq kart £5000 + battery pack/charger system £2700

#### Overall costs

Twin Prokart with a lifespan of 10,000 15 minute heats would cost in total just for the kart and fuel (no servicing, repairs or maintenance) £4000 + 2500 hours @ £4.95 (fuel) = £16375

Thorq with a lifespan of 10,000 15 minute heats would cost in total just for the kart and charging £5000 + £2700 (battery/charger) + 2500 hours @ £0.40 = £13950

If you had a fleet of 15 karts that would be an initial saving of £36,000 based on each kart being used 48 times per week over one year. Take into consideration petrol engine rebuilds, clutch units, chains, oil, mechanic costs etc it begins to make sense. There is also a big saving in the ventilation system you need in an indoor circuit if you are running petrol engined karts and the saving there alone could even pay for most of the battery charge costs. The chassis life of any corporate kart is similar but you also get a lifespan of 20,000 heats from a single electric motor, the running costs above were only calculated at 10,000 heats. When the battery pack needs changing after approximately 10,000 heats, the charger unit will still be useable so the second year's running costs would be reduced by £1100 per kart making it £2700 for the year (new batteries and 2500 hours charging @ £0.40 per hour).

There are lots of variables to this and



The ice karts were great fun to drive

Martin Capenhurst

this is only an approximation of costs but after the initial purchase I am sure you can see the running cost advantages for electric Thorq karts in corporate karting. If they are run at cadet or junior speed the savings are even more. With massive fuel savings, especially with petrol rises all the time, great reduction in maintenance costs as there is only one moving part and that motor is oversized for what it is being used for, no emissions to keep the environmental people off your back so health and safety are greatly improved - it all begins to make sense.

I tested the karts at two circuits while I was visiting the Electric Kart Company. A new indoor kart circuit especially designed for the power and performance of the neck-breaking acceleration of the electric karts really put them through their paces and proved just how good they were in race conditions, and believe me Frank and I hammered the hell out of them for an hour! The chassis design has been worked on over the years by Frank and the team

and they are balanced perfectly for the electric power unit.

The same karts were also used at a local indoor ski complex where a new ice kart circuit had been built underneath the ski slope. The karts fitted with studded ice tyres had a mind of their own but were great fun to drive and a real family karting experience without the high speed and danger that puts off a lot of families from indoor karting.

So the new generation of electric karting is here and taking hold. Frank and his team are always moving forward using the latest technology available. The quality and performance of the Thorq kart proves he is capable of manufacturing long-lasting, reliable equipment.

If you are in the UK and would like more information and further cost breakdowns then please contact me on 07974 766529 as I am happy to pass on all the information I have.

Electric Kart Company [www.ekc-karts.com](http://www.ekc-karts.com). ●



Ice karts on charge at the ice circuit located at an indoor ski slope  
Martin Capenhurst