The Sarens SGC-90 could be seen as a gentle giant in that it is a 100,000 tonne-metre super heavy lift crane powered entirely by electricity. MATTHIAS SARENS told ALEX DAHM all about it

Target applications for the SGC-90 include jobs in nuclear, logistics, construction, and offshore wind. It is already booked in for its first project to start around the turn of the year

Gentle giant

International heavy lift and transport specialist Sarens has added a 100,000 tonne-metre super heavy lift ring mounted crane to its already extensive fleet.

As if a new 1,600 tonne capacity crane isn't interesting enough in itself, something making it different is that it is entirely powered by electricity. The SGC-90 joins its three larger siblings in the SGC (Sarens Giant Crane) series, the 250,000 tonne-metre SGC-250, the 140,000 tonne-metre SGC-140 and the 120,000 tonne-metre SGC-120.

Matthias Sarens has worked on the engineering for all the SGC series Sarens cranes

The new giant is fully assembled and has been undergoing testing in Ghent, Belgium.

Who better to give us the lowdown on the new crane than Matthias Sarens. He has worked at the family firm for three years, doing project engineering and structural engineering for all the SGC cranes and for other special equipment. I began by asking him if he sees the SGC-90, which has already been nicknamed "Little Celeste", as his baby.

"I was intensively involved from the beginning, yes, but it was together with my brother Carl Sarens and some other people. It is a small group of people who did the conceptual work. Realising a project of this size, however, takes lots of motivated people."

In the team

How does it fit in the range with the other SGC cranes? "Well, the load moment is a bit less, it's about 100,000 tonne-metres. So it is a bit smaller than the SGC-120 which is 120,000 tonne-metres. The general concept of the crane, however, is quite similar. It is also a ring crane and the way of assembling it is quite similar.

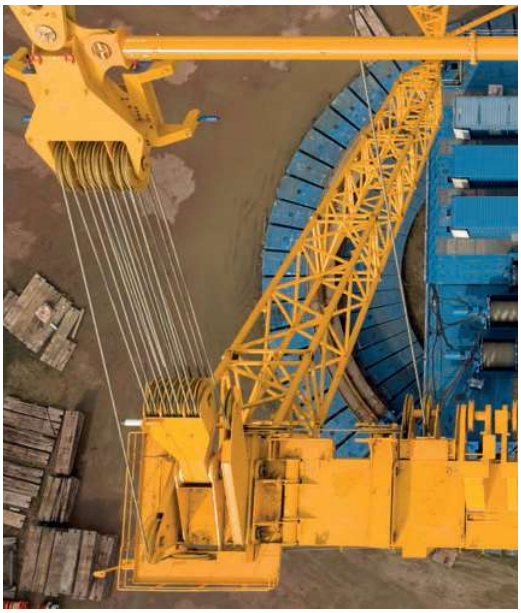
"The main difference is that this crane is electrically driven, not hydraulic like the others. If you sat them all next to each other, they'd look quite similar, some small differences but, in general, it is the same type of giant ring crane.

There are no diesel engines onboard, no generators, no hydraulics? "No, where sufficient power is available, if the client can provide us a connection to the grid, we can just use electricity. This is a major advantage.

For the SGC-90 we started with an existing crane. We used the structure but updated everything and stayed with the concept of an electrical crane. Also, we had an eye on the future, where everything is becoming more and more focused on the environment and green energy."

What will be the applications for the new crane? "It will be the typical industries we're always in: offshore, wind, logistics, maybe nuclear construction and we might have a bridge project for it."

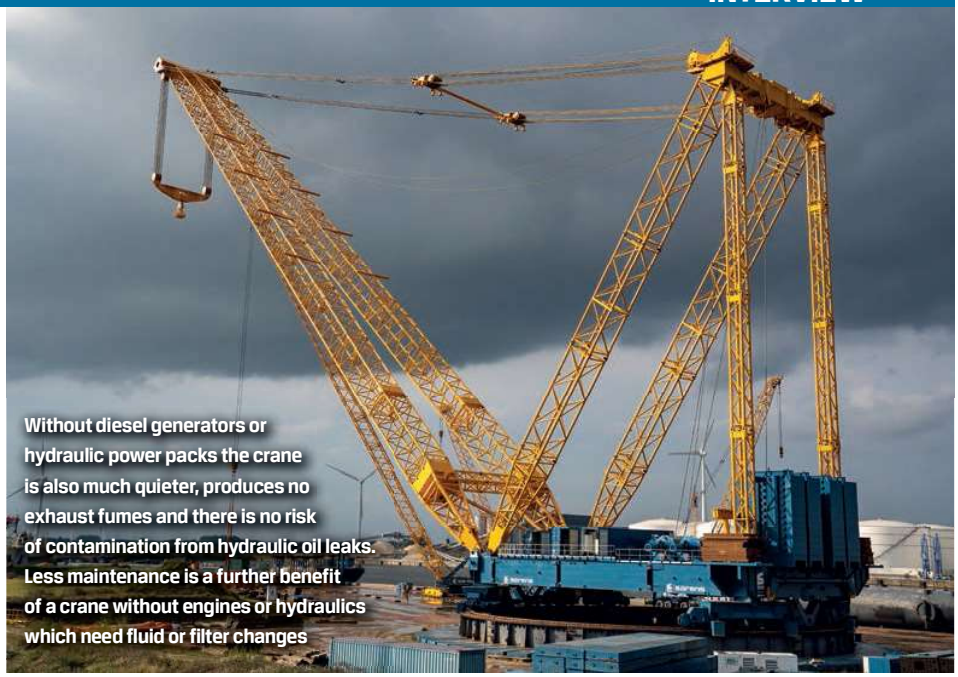
The company has said the SGC-90 will change the market dynamics of its sector – how and in what way will it do that? "It will reinforce the Sarens fleet in the range of very heavy duty cranes. Before we had three and



now we have four. It will also increase our market position in the range of cranes with a capacity higher than 80,000 tonne-metres. It fills up a gap between the largest crawler cranes and our own larger SGC series cranes.

Is it a scaled down version of the design of the larger SGC models? "No, because we started with a Japanese ring crane we bought some time ago. We do, however, use the same concept of winches and the drive train. It's not a copy of the other SGC cranes scaled down because there are too many differences but, the general concept of the ring crane is the same, yes.

"We started with the basic structure and then made a big update. It included recalculating and redesigning the boom, updating the winches, and checking the whole crane. It's an updated version of the crane. We also renewed the winches, the whole electrical system and all the cables, but the steel structure stayed generally the same. It was painted, of course, but it was still in good condition."



Without diesel generators or hydraulic power packs the crane is also much quieter, produces no exhaust fumes and there is no risk of contamination from hydraulic oil leaks. Less maintenance is a further benefit of a crane without engines or hydraulics which need fluid or filter changes

Common parts

Does it share any components with the other SGC cranes? "Yes, we can change out some components. We can use the same containers. The jib system we use for the other cranes that we have two types of – the heavy duty jib and the light duty jib. We provide connections for it. There are some components that we can change in between the cranes."

Most of the testing is done so when will it be finished? "We have already done some tests and now we are changing configurations. We have multiple types of booms, multiple lengths. We have 100 metres, 120 metres and 130 metres. We'll try to test as much as possible in the time schedule. I think we will stop testing before the end of this year."

A key feature of the SGC-90 is that it is all powered electrically and carries no hydraulics. Adding to its "green" credentials is the ability to feed electricity back into the grid. During a lowering operation electricity is generated by using the hoist motors as generators, reducing consumption by as much as 40 percent, Sarens said

What makes this new crane better than other competing cranes – what is its USP? "I would prefer to let the crane speak for itself. It is difficult to make a comparison. An advantage is that it is an electric crane, that you can connect it to the grid.

"Also, being able to give back the regenerated electrical power. In this way less energy is needed and energy is used more efficiently. It's a big advantage. Also, we have less maintenance because we don't have all the hydraulics. It makes less noise. All this is something special for us, it is a step forward."

The maximum containerised counterweight is 3,000 tonnes. Main boom lengths are 100, 120, and 130 metres and jibs can be added, including a 27.5 metre runner and ones shared with other SGC series cranes

Did you build it because it's got a specific job to go to, do you have a contract for it? "We did not build it specifically for a job. It is more to strengthen our fleet but it does already have a job to go to, in the UK, in the first quarter of next year. Soon we have to start with the disassembly and transport and then begin assembly on the site.

Transport and assembly

How many truckloads does it need to ship it? "I think it will be more or less comparable with the SGC-120. It is always uncertain the first time. It needs a pretty detailed study to see how you can ship it to the destination."

How long does it take to assemble the SGC-90? "We aim to do it in four to five weeks. I hope we can go quicker after some time. It also depends a bit on the configuration and on the site with available space. It is quite similar to the 120 and 140."

The ring on the larger cranes has two rails but this one, 35 metres in diameter, is different? "Yes, now we only have one rail and one ring beam. The load is more concentrated so the wheels are bigger and they carry more load. An advantage is that we have fewer pieces to assemble."

How many winches does it have? "It has four winches. Two for the boom hoist, two for the main hoists. If necessary we can also use a smaller winch for a small jib but in general we use four winches.

The SGC-90 is at one end of the SGC series, do you see a need for anything bigger than the 250 at the top end? "It may be that the industry demands something that can lift even higher loads. We have lots of ideas not only for cranes but also other lifting devices in higher load ranges."

See a video of the crane at: www.khl.com