available with speed up to 110 m/min. The K3000 cranes for DSME travel on 12 m and 16 m wide portal with an underhook height of 69 m and 75 m based on a 6.4 x 6.4 m tower system. Thanks to the sophisticated design, maximum erection weight of the crane components was reduced to 32 tonnes.

One of the three Marr's Favelle Favco M860Ds just rigged for jetty construction on a specially designed travelling portal

The latest addition to the Krøll product line is the K1000. Two units were erected at the Samsung shipyard in Korea at the beginning of 2009. Using the well proven M40 3.6 x 3.6 m mast system with external climbing cage, the cranes were jacked to 70 m and 60 m underhook height. Both cranes are based on a specially designed 9.5 m wide stationary portal with height-adjustable pyramids.

To move the Krøll cranes on site while erected, self propelled units can be used to drive under the portal, lift up the complete crane and move it. They can also be picked up by a floating crane at a wharf and relocated. To make this popular movement by floating cranes easier all new cranes for DSME and Samsung have special lifting lugs at the tower head.

The new K1000s have 90 m jib and lift 40 tonnes to 20.1 m radius, while the tip load is 5 tonnes. Light loads up to 10 tonnes can be lifted on two falls, while maximum capacity needs eight falls. Fastest hoisting speed is 150 m/min.

Optional is a double trolley arrangement that increases the tip load to 7 tonnes. In contrast to the former Krøll heavy lift models, the new K1000's winch platform is no longer on the jib head section but on the counterjib, reducing the dead weight of the jib.

In 2010 Krøll will install a K1200 and a K2500 at the Samsung shipyard in Korea. Each crane will have two independent movable trolley systems and a dual hoisting winch to turn large prefabricated ship sections.

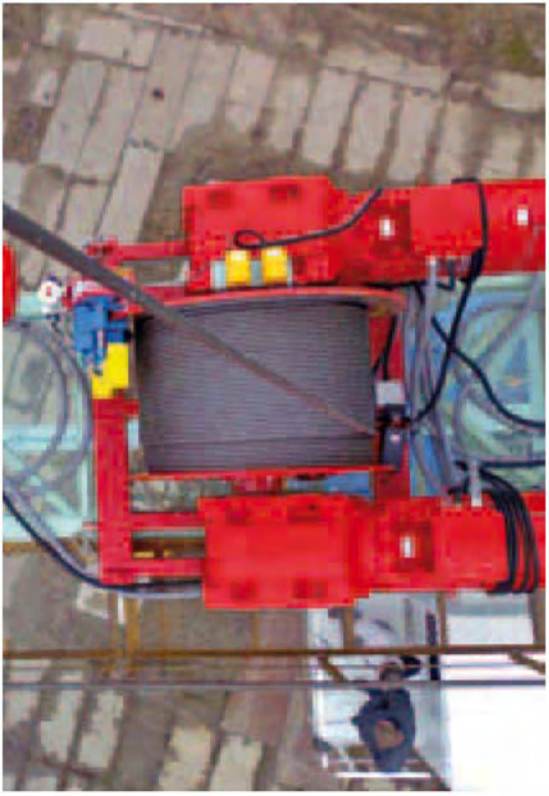
Ultra high rise

After launching what is claimed to be the biggest luffing jib tower crane in the world, the M2480D, (*IC* Feb 2009, page 31), heavy duty crane specialist Favelle Favco designed another interesting luffer. Also for large scale construction projects, the M860D lifts 96 tonnes at 10 m radius in only three fall operation. It offers an outreach of 70 m where 7 tonnes can be lifted. On a single fall of rope up to 32 tonnes can be lifted by the main hoist. The 750 m winch capacity make the crane suitable for ultra high rise construction projects. An auxiliary hoist for loads up to 12 tonnes is an option. Simon Marr of Australian company Marr's Contracting, owner of M2480D and other big Favcos, believes it to be the fastest hoist in the world, with a line speed of 260 m/min.

Like the M2480D, ballast plates are stored lying down inside the back of the machinery split-deck. Tail radius is kept

Close up look at the dual drive of the Jost JL 616.32

The first Jost JL 616.32, with dual hoisting drive, test rigged before being delivered to Australia



to 9.24 m, a benefit on construction sites where space is restricted. The 3 x 3 m monoblock tower system is for speedy erection to a free standing tower height up to 64 m. This feature gives the new M860D the opportunity to find a ready market in the international power plant construction programme.

Marr's has bought three M860Ds to be used on special undercarriages for construction of a jetty at Bown in Queensland, Australia. They take on the work formerly only possible with crawler cranes, which needed an expensive separate track way to move on as construction progresses. A real benefit when working at the coast is that the tower cranes can keep working at a wind speed of 20 m/s, while the crawlers have to stop work at 9 m/s.

In addition, electric versions of the usually diesel powered Favelle Favco tower cranes are entering the European market. Two MK380 and one MK440 have been sold as internal climbing cranes for the prestigious Pinnacle Tower project in London. Aside from the electric drives supplied by Krøll in Denmark, these cranes have other unique special features. All four luffing jib cranes, for example, have hydraulically lockable boom buffers to leave the cranes slew locked out of service due the congested site.

Export niche

German crane manufacturer Jost is also looking for niches in export markets, for example, in Australia, where European crane design is going to play an increasingly important role. To address >

The Chinese FZQ 2200 luffing jib climbing crane with 100 tonne capacity ready for work at a power station in Brazil

Yongmao's large ST80/116 rigged at the test yard

the specific customer requirements in a market formerly dominated by high speed diesel cranes, Franc Jost combines his successful luffing jib crane concept with a new hoisting drive design. The hoisting winch of the JL616.32 for Australia is driven with two side-mounted 75 kW frequency regulated drive units. They give a total capacity of 150 kW for a crane lifting 32 tonnes in four line reeving mode and 16 tonnes in two fall operation. Drum capacity is 1,060 m. Thanks to the dual drive, even if one motor breaks down, the crane can keep working at half speed.

In addition, spare parts stocking is simplified as the luffing winch is another of the 75 kW drives. As soon as the sidewalk platform is disconnected the complete counterjib, including winch platform, can be transported inside a standard container. A further JL416.24 with 12 tonnes capacity on one line fall and 24 tonnes on two falls has been manufactured for Korea. It also has the dual hoisting drive system. In this case two 90 kW frequency regulated drives enable 400 m under hook height and a capacity of 24 tonnes.

Jost Cranes is designing a new hoist winch for the JL616.50 luffer with a capacity of 50 tonnes in two-fall operation. On a single part line 25 tonnes can be lifted to 800 m. On its first job site the crane will be used as an internal climbing crane.

Big power

Larger power stations means bigger cranes. In China the FZQ1380 luffing jib climbing crane designed in 2001 by the Shandong Fenghui Equipment Technology Company, is suitable as the main lifting equipment for 300 to 600 MW power plant construction but is too small for the growing number of 1,000 to 1,300 MW plants. As a result it is no longer produced and has been substituted by the 75 tonne capacity FZQ1650 and, more recently, by the large FZQ2200 with 100 tonne capacity.

In contrast to the FZQ1650, a monoblock tower system cannot be used with the new crane. Regarding transport and rigging problems associated with 4.2 x 4.2 m cross section towers, with help from the Harbin Industry University, a way was found to split down the tower elements in K-shaped panels and tubular core sections. These are slug-bolted together on the job site before being lifted by an auxiliary winch to the front opening of an external climbing frame. It means that pre-rigging of the tower is done under safer conditions at ground level. >

One of the SYM S1200K40s lifting into place the complete counter jib of another one

The first three S1200K40 cranes delivered by SYM for the Korean STX Shipping Factory ready for work at Changxing island, China