PRIMED TO PUMP

WITH THE MIDDLE EAST'S PENCHANT FOR BUILDING EVER TALLER, PRECISE DELIVERY OF CONCRETE AT HEIGHT IS OF VITAL IMPORTANCE AT ANY CONSTRUCTION SITE. **CMME** LOOKS AT HOW MANUFACTURERS OF TRUCK-MOUNTED CONCRETE PUMPS ARE MEETING THE MARKET'S DEMANDS WITH MACHINES THAT ARE CONSTANTLY REACHING UPWARDS

In a race to pump the highest and furthest, concrete pump truck makers have developed new solutions, such as the carbon fibre boom from CIFA.

Time was when the skeletal remains of half-finished skyscrapers lying abandoned was a common sight that dotted the major cities in the region. Following the boom-fuelled construction spree of the late noughties, the post-bust scenario was a stark contrast that shook the region's construction sector.

A few years later, when there was hope that the momentum would start to return, the region was again stymied by the crash of oil prices and the Saudi economy – the region's largest – hitting rough weather. The construction equipment sector saw manufacturers report some of their worst figures last year post the global economic crises of almost a decade ago.

Yet, in a show of the resilience of the region, all these woes are now things of the past. In the past few months, projects have gradually started to swing back into motion and the raw innards of some incomplete, derelict construction sites, left ignored for almost a decade, are starting to fill out as activity resumes in the sector.

Cities such as Dubai are resdiscovering their appetite to build tall – as seen in the taller-than-Burj Khalifa tower the city announced last

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year and the topping out, finally, of some supertalls in the Dubai Marina area.

The support structure of this new activity in the construction sphere is once again concrete. As the batching plants gradually start whirring and the transit mixers once again start becoming the ubiquitous sights on the region's roads that they were once upon a time, the truck-mounted concrete pump is also regaining its place as one of the most important pieces of kit in the region. And this time, reaching new heights seems to be the name of the game.

For concrete equipment specialist, Cifa, that's no problem. The Italian manufacturer is well known for its range of long-boom pump trucks, says Wajih Eit, the company's head of area for the Middle East and North Africa. Cifa has a three-pronged range of pump trucks - Carbotech, Steeltech and Classic - he tells CMME, the first of which has models that hold the record for the longest booms in the world.

"Our Carbotech series of truck pumps are made with a section of their booms fashioned out of carbon fibre, a technology that Cifa has developed and patented. This reduces the weight of the boom, and the truck as a whole, by more than 25%, which means that the truck can have a lower axle weight per axle. This, in turn, means that with the Carbotech system we can mount pumps with higher booms on trucks that are lighter than they would otherwise be, enabling them to meet axle weight restrictions on the roads and reach more job sites."

Major market players, such as Cifa, Schwing and Leibherr, have come up with longer booms and new outrigger technologies for easier site access.

As an example of the capabilities the Carbotech system brings to Cifa, he reveals that the biggest pump that Cifa can mount on an 8X4 truck today has a a 60m carbon fibre boom. "Our competitors can only mount a maximum of around a 55m boom on the same kind of truck," Eit point out.

"The Carbotech line is the most advanced one for us now and is doing great in Europe. It is surely the future for the Middle East. We've supplied a 60m Carbotech in KSA, and also in Algeria. We will soon supply a third unit in Qatar and we're also negotiating for other units in the UAE and other countries."

Thanks to this technology, Cifa today has the biggest pumps ever to be completely mounted on trucks – "like our 80m and 100m", says Eit. "The 100m pump is already working in the Chinese market. We cannot use it yet in the ME or Europe because of the axle weight regulations on the roads here. The biggest that can work in this region is the 80m, as per the current regulations. We are in negotiations for several of these in the region, which will enter this market in the next two years.

"In the Carbotech, we have no competitors at the moment, and that's because this technomogy was invented by Cifa and we have the patent for it, which gives us exclusive production rights for 10 years. There are still six more years to run on that patent and for that time we will be the only company offering this technology."

Moving on to the Steeltech, Eit says that it is the company's standard normal pump in the market. "Like the Carbotech, it is 100% made in Italy. We launched several new products in this range recently, such as the 42m and 55m, with which we are doing great numbers in the region today, thanks to the tech we are putting inside – such as the open circuit of the pumping unit, the high performance of the fast-moving parts inside it, plus the low cost of maintenance.

"The Classic is the new series we launched a year ago for some selected markets, but from this year on we will be bringing it to the Middle East as well. It is designed by Cifa in our design centre in Italy and has Cifa technology, but it is made in China in our dedicated factory there. So it has great performance and all the characteristics of our brand, but it competes on a value proposition against the Chinese and Korean manufacturers on the market."

Meanwhile, at another European

CIFA RECORD BREAKER

HIGHLY PUMPED

Cifa-Zoomlion has received the Guinness World Record for the tallest concrete pump, with a boom of 101m.

It topples the previous record of 86m, held by Zoomlion's rival in the concrete pump industry, Sany. Prior to that pump, Zoomlion had been the holder of the record, for an 80m pump.

The feat was a result of co-operation between Italian and Chinese engineers, and was unveiled at Zoomlion's headquarters in the industrial city of Changsha, China, at the end of September.

The pump has a seven section boom, with the last four sections built from carbon fibre. The pump structure is mounted on an ordinary vehicle chassis, and not on a special vehicle, meaning that it will comply with the maximum dimensions and footprints imposed for road transport.

"The carbon used in the Zoomlion-Cifa 101 pump has a high modulus of elasticity, and is a very different material from the one used in the Carbotech range to date", said Mauro Cortellini, technical area manager at Cifa.

"There are obviously many other innovative solutions, which we will evaluate at the internal testing stage."

According to Cifa, over 60 employees worked full-time on the project, from the design stage to production and assembly.

"Zoomlion asked us to make the tallest pump in the world", said Alessandro Macera, head product manager at the R&D department in Senago, Italy, "and we have been engaged on an amazing feat of co-engineering with our Chinese counterparts since March.

"The Changsha team dealt with the structural and hydraulic aspects, while the Italian team focused on the structure and calculations for the four carbon sections."

LATICRETE SUPERCAP

PUMPING OUT OF THE BOX

Laticrete's newest and most exciting innovation is the Supercap next generation Pump Truck. According to Sujit Singh, by combining the power of the pump with next generation self-leveling materials, the Supercap has created a revolutionary system that has already been introduced and is being used widely in US, Europe and the UAE.

The Laticrete Supercap System ensures safer jobsites for contractors and workers by dramatically reducing harmful silica dust, eliminating manual loading and lifting, and minimising trip/slip hazards.

The next generation pump truck takes finishing new concrete or capping existing slabs to the next level. With the computer controlled mobile blending unit (MBU), blending is done on site, with a perfect mix every time, and the pump truck can continuously deliver up to 15t of material per hour to all kinds of buildings and high rises up to 50 storeys high.

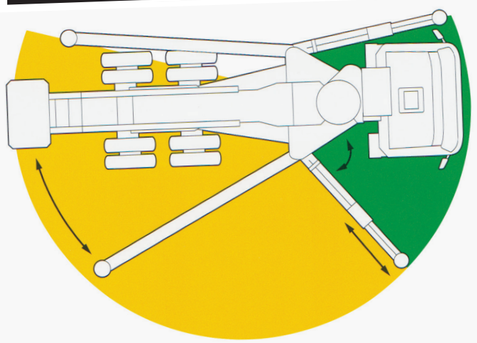
This significantly increases productivity onsite and no unmixed materials ever enters the building, and the output is up to 13.6t per hour. This translates into faster turnover of each floor plate and because of that, all respective construction trades can be back on the floor the very next day.

By storing and processing all raw materials at street level, the Laticrete Supercap system also offers tangible safety advantages, including:

Adhering to and surpassing OSHA Silica Dust Regulations – The traditional approach to self-leveling requires the manual loading of about 25kg bags of material to each floor of the work site, where they are broken and mixed with water, inevitably releasing harmful dust inside the building. The Laticrete Supercap pump truck blends the cement formula at street level inside a silo which incorporates a negative air handling vacuum system. The truck's high-output pumps send the finished product directly to the spot, and no unmixed material ever enters the building. This allows the Laticrete Supercap System to comply with both current and proposed OSHA regulations.

LIEBHERR XXT

EXTRA SPECIAL TECHNOLOGY



Liebherr's exclusive XXT outrigger system is an innovation that provides specific advantages for everyday applications on building sites. With the narrow support option, the front outriggers can be extended up to the front of the vehicle, allowing a greater working range of up to 70%. This also enables pumping concrete over the operator's cab, which is a distinct advantage.

Other advantages include direct power transmission from boom to outrigger. Also, the XXT design ensures that no forces are directed towards the vehicle frame/chassis by the distributor boom.

With only a simple telescoping of the front outrigger, the truck is ready to pump. The front and rear support rotate around the same centre of rotation or pivot, providing optimum possibilities for narrow support and flexible set-up angles. The design also reduces the vehicles overall weight by eliminating the entire fulcrum for a separate front outrigger.

Stability is also enhanced by the XXT design, as is working over the roof of the operator's cab even with the narrow support option.

"In the XXT, we actually have the front outrigger sitting inside the rear one. So when you close the outriggers, the front leg closes into the rear one, which is made of two long pieces with a hollow space towards the base. This is also an advantage because then you have less deflection and less vibration," says Liebherr's Ali Kasem.

"It also gives a lot of flexibility, because you can open it at a very small angle and you don't need to open at a full angle. You can also move it wherever you want. Let's say there is an obstacle and you cannot open the outriggers fully and you can just open one a little bit. In such a situation in the XXT, if you can open one, the other will come out of it and form an acute angle from the same pivot - and you are set to pump.

"This is really an advantage for work in congested areas where you cannot open outriggers fully, or you can only open them a short distance. With the XXT, you are still at full extension but you are at a smaller angle, which still makes you stable."

"The XXT... gives a lot of flexibility, because you can open it at a very small angle. This is really an advantage for work in congested areas where you cannot open outriggers fully...With the XXT, you are still at full extension but at a smaller angle, which still makes you stable"

manufacturer, Leibherr, the good times are beginning to roll in. Ali Kassem, regional sales manager, Concrete Equipment Division Middle East, tells CMME that 2016 was a year that began on a tough note but ended well – a sentiment that has carried on to this year, too.

New business

"Pumps is a new business for Leibherr," he says. "We came into this category when Liebherr acquired German pump specialist Waitzinger some five years ago. We have only sold pumps in Saudi Arabia in the GCC in the past through Leibherr's KSA arm, but things are looking better for the rest of the region now with more deliveries planned for the coming months in the UAE," Kassem says.

Like Cifa, Liebherr, also has its own patented technology in its pumps, namely the XXT outrigger system, which reduces the four pivot points for the four outriggers to only two with a front outrigger that collapses into the rear one. This greatly improves stability and the ability to operate in confined spaces, including the ability to pump over the head of the truck cab, says Leibherr (see box). "Our range consists of the 37, 43, 47 and 50m models, all XXT. Of these, the 43m is due for delivery in the UAE later this year," Kassem says.

Changing the game somewhat is Laticrete, which manufactures the Supercap - a wholly enclosed pump truck used for achieving precision concrete levelling. Sujit Singh, the company's managing director for the region, says: "With the traditional method of pouring concrete, it is difficult to get the most precise levelling in the final finished stage. For example, if you want to do a vinyl flooring then you need another toping on top of the concrete because the level variation is so high that you cannot go directly with your vinyl or other smooth, seamless flooring over that."

The Supercap uses a self-levelling material that goes on top of the concrete to provide a super smooth surface, he adds. The technology was developed by Laticrete in the US, and its main feature is that the pump truck has an on-board generator, so its doesn't need any external power source. The mixing is also done inside the truck, using an internal water system, which eliminates the spread of hazardous silica dust. "And our pump truck is also capable of pumping up to 50 floors, to provide a super-flat finish over the concrete," Singh says.

"Apart from safety, the benefits include big savings in labour costs and time, as the Supercap can cover 6,000sqm in eight hours with only four people working it, whereas conventionally, to level the same area in the same time manually, you would require around 50 people," Singh adds.

As the major manufacturers keep new models rolling in, they are also paying attention to the service side of things. At Cifa, Eit says the manufacturer's dealer footprint covers 90% of the Middle East region, and will be extended to the remaining region this year.

"Also, we have a branch in Jebel Ali, Dubai, which we have made into our support hub with a huge stock of spare parts that we can deliver to our dealers throughout the region in less than 24 hours. We also have service technicians who can support our dealers, helping them to support the end-user better.

"With a focus on the region, we will also participate in the Big 5 in Dubai next year, with a dedicated Cifa stand for concrete products, where we will present our whole dealer network in the region to the market."

Liebherr, on the other hand, has its Saudi operations to fall back on as a back-up for pump spare parts, while it also stocks parts at its Jebel Ali facility. "We have three service engineers in our Jebel Ali office," says Kassem. "They are always flying around the GCC and their new responsibility includes looking after our pumps. Going ahead, we have plans of deploying technicians locally in every market in the region that we sell our pumps in."

NEW SCHWING S38SX REPTOR

REDEFINING THE 30M CLASS

Schwing Stetter's new S38SX Reptor is a truck-mounted concrete pump suitable for a wide range of applications and with a boom that redefines the 30m class, the company claims.

According to Schwing, the S38SX has wide boom opening angles and high boom manoeuvrability, resulting in flexibility on job sites, together with Schwing's proven concrete pump concepts and components.

Schwing says it re-developed and re-defined the S38SX Reptor to enable it to work better in industrial and commercial buildings, which need solutions that work well in confined spaces and under difficult conditions.

When working in small spaces, faster and safer concreting can be achieved with the flexible and ergonomic boom, which can be positioned in a vareity of ways, leading to more straightforward use of the machine.

In conjunction with a 6x4 chassis with a 4,500mm wheelbase, an operating weight of under 26t can be realised, along with high mobility.

An 8x4 chassis option with an identical wheelbase, allows higher payloads while achieving an even tighter turning circle.

The S38SX Reptor is equipped with Super-X outriggers that offer total stability even when they are operated in low space requirements where full extension is not possible.

On the 8x4 chassis mounted on a larger 5,150mm wheelbase, the truck also carries a long stroke pump kit with 2.50m delivery cylinders, which enables it to save 20% strokes for less wear and tear.