The Formwork Magazine

Doka Xpress

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Safe and fast forming – at any height

doka
The Formwork Experts

Editorial

A warm welcome to this first edition of Doka Xpress, the formwork magazine for the Middle East. To help you make even more efficient use of your valuable time, we have launched this customer magazine. Articles on interesting formwork solutions, written by practising experts for expert practice, clearly point out all the main advantages and benefits, so that these can be seen at a glance.

In 2008, Doka celebrated its 50th anniversary. Half a century's jobsite experience in many countries of the world has left its mark on Doka. On countless projects, on all continents, we have assisted construction firms with our "Safe. Fast. Efficient." formwork solutions.

A considerable part of this success can be put down to the partnership-oriented way in which we work with our customers and share experience with them. Their jobsite experience and ideas are constantly finding their way into our innovation process. The result is new products and services that offer even greater practical benefit in day-to-day working on the site. I do hope you will find this new edition of Doka Xpress an enjoyable read!

Mail us your feedback to editors@doka.com.

Yours,
Josef Kurzmann
Executive Director,
Doka Group

Doka News

◀ Crystal Tower with Doka

Kuwait – The 228-meter office tower will have 60,000 m² of usable space on 52 floors and is sited in a densely built-up area. The core will be poured using a combination of SKE 100 automatic climbing formwork and Top 50 large-area wall formwork. Short repositioning times and positive experience with Doka formwork convinced the contracting JV lead contractors.

◀ Safe construction of Marina 101

Dubai – Marina 101 with 101 floors is one of the highest residential towers currently under construction in the UAE. For the center core walls of the height of 425 m, the Doka SCP 400 automatic climbing platform is in use, climbing the entire formwork system in a single stage and keeping the crew safe and protected from the weather.

◀ Table Lifting System speeds construction

Bahrain – The 32-storey Fontana Towers will be one of the largest residential complexes in Bahrain. Saudi Build International Contracting selected the Doka TLS system in order to save craneage (2 tower cranes in use instead of three) and speed up the construction workflow. Doka also delivered the necessary slab- and wall formwork.

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◀ **Doka's Automatic Self Climbing Formwork SKE 50 speeds up construction at the Salem Abdullah Salem Tower.**

The facts

JOBSITE Salem Abdullah Salem Tower

LOCATION Sharjah, UAE

CUSTOMER Gustav Pegel & Sohn Contracting Engineering

REQUIREMENTS
High-rise building comprising car-park, office and residential storeys plus three technical floors and a helipad

PRODUCT USED
Automatic climbing formwork SKE 50, large-area formwork Top 50 and Dokaflex tables/ Dokaflex for the slabs

Competent and reliable forming

The solution!

With the Doka automatic climbing formwork SKE 50 the varying wall cross-sections are being cast swiftly and Dokaflex tables allow perfect adaptability to any slab requirement.

Gustav Pegel & Sohn Contracting Engineering are currently undertaking the construction of the Salem Abdullah Salem Tower at Al Khan in Sharjah.

The Salem Abdullah Salem Tower is a residential and commercial building project comprising ground floor, mezzanine, three floors for offices & parking plus three parking levels and in addition a health club, swimming pool and 34 residential floors with three technical floors & helipad.

Forming walls in the most efficient way.
For the forming operations on the core walls having a total formwork area of 747.35 m², Doka's Top 50 large-area formwork elements and Automatic Self Climbing Formwork SKE 50 are being used. The automatic climbing system with incorporated large-area formwork Top 50 allows high operational speed and optimized casting for the high number of casting steps. The platforms of the SKE 50 automatic climbers and the Top 50 were pre-assembled under the supervision of Doka field technicians who have also been providing assistance during the first casting steps.

Flying tables
The typical slab with a total formwork area of 2,544 m² is formed using 2 sets of Dokaflex tableforms with transport devices, which enables to move them around horizontally with no need of crane. The vertical shifting is fast with a transport fork. Using complete shiftable units is the most efficient and manpower saving way to form this large floor area.

Safe. Fast. Efficient.

Consulting and site assistance

Besides the products, services play a crucial role for Doka and this is why Doka consultants are being involved in the whole construction process. "Doka engineers and support teams are helping us to meet our schedule with timely supply of materials. Moreover, the use of Doka SKE automatic climbing equipments has significantly speeded up our work. The quality of service is more than satisfactory" as quoted by Project Manager Engr. Ziad Sabouni.

Topping out at 246 m and with a facade planned in the shape of a palm tree, the Twin Palm Towers are among the most spectacular high-rise projects currently underway in Doha, Qatar.

The facts

JOBSITE	Twin Palm Towers
LOCATION	Doha, Qatar
CUSTOMER	Al Seal Contracting and Trading
NUMBER OF TOWERS	2
HEIGHT	246 m
STOREYS	57
LAYOUT FOOTPRINT	Polygonal
PRODUCT USED	Automatic climbing formwork SKE 50
NUMBER OF AUTOMATIC CLIMBERS	180

Valuable construction time made up with Doka

To build the technically challenging Twin Palm Towers in Doha, contractors Al Seal opted for automatic climbing technology from Doka and are profiting from smooth, safe forming operations.

▲ **Architectural rendering of the two identical 246 m Twin Palm Towers in the West Bay District of Doha.**

◀ **The automatic climbing formwork is designed for maximum flexibility, providing optimum accommodation to the geometrically challenging cross-sections of the in-situ concrete cores.**

The two identical 246 m Twin Palm Towers in the West Bay District of Doha are modelled on the silhouette of a desert palm and characterised by a polygonal layout. Following technical complications with the formwork concept from a local supplier, and severe delays in construction progress, the Al Seal Contracting Company opted for a high-performing self-climbing formwork solution from Doka. Doka's high technical problem-solving capability, gained from over 250 automatic climbing projects all over the world, and Al Seal's positive experience with Doka in the building of the Al Seal Residential Tower and the Zig-Zag Twin Tower, were among the key factors behind the award of the contract.

Automatic climbing formwork for complex cross-sections

For the building operations on the two in-situ concrete cores, each comprising 57 typical storeys, 180 Doka SKE 50 automatic climbers are in action. The automatic climbing formwork is designed for maximum flexibility, providing optimum accommodation to the geometrically challenging cross-sections of the two in-situ concrete cores. The automatic climbers are fitted with Doka large-area formwork Top 50, large gangs of which are "jumped" by hydraulic cylinders from one casting section to the next – swiftly, safely and independently of the crane. The fact that the climbing brackets are always anchored in previously cured concrete, and that the – generously sized – working platforms are railed-in on all sides, means that safe working conditions are guaranteed in every phase of the forming assignment – even in windy conditions. The Site Management also opted for a complete enclosure of the main working platform. As well as making the crew feel much safer, this also reduces to an absolute minimum the hazard potential from dropped tools or rebar.

Field service technician ensuring swift construction progress

To enable construction work to resume as soon as possible after the contract had been awarded to Doka, the working platforms and the Top 50 large-area formwork were delivered to the site ready to use and were mounted to the automatic climbers under the expert guidance of an experienced Doka field service technician. The intensive training given to the overseers on how to handle the formwork equipment, and the support from the Doka field service technician at the beginning of the forming assignment, have also greatly helped to ensure a smooth, safe construction workflow.

The solution!

The in-situ concrete cores of the identical twin towers are being raised in a five-day cycle using the versatile SKE 50 automatic climbing formwork from Doka. Railed-in working platforms and climbing brackets that are always anchored in the concrete, ensure safe forming operations.

Eli Nader, Al Seal project manager

The Professional

"With the SKE 50 automatic climbing formwork, we can carry on non-stop forming. The Doka field service technician showed us how to work efficiently right from the beginning. We can exploit the advantages of the automatic climbing formwork to the full, which is helping us to make up for the delays we had at the start of the project"

The main working platforms and the follow-up platforms are safeguarded by a two-metre high enclosure made of sturdy trapezoidal sheet. ▶

Self-climbing première in Abu Dhabi

The Capital Plaza Development – a multi-functional complex of five high-rise towers – is Abu Dhabi's first-ever construction project to be built using Doka automatic climbing technology.

The Facts

JOBSITE The Capital Plaza Development

LOCATION Abu Dhabi, UAE

CUSTOMER Arabian Construction Company

REQUIREMENTS five high-rise towers up to 157 m in height, 250,000 m² of useable floor-space, 25,000 m² of high-quality office space, 425 luxury apartments

PRODUCT USED Automatic climbing formwork SKE 50, large-area formwork Top 50 and Dokaflex tables/Dokaflex for the slabs.

The Solution!

185 Doka automatic climbing formwork SKE 50 brackets and more than 2000 m² of Top 50 large-area formwork have been fielded for the works on the five in-situ concrete cores. With the efficient SKE 50, the site crew are achieving a weekly cycle for the 3.9 m high typical storey.

Mohammed Ahmed Nasser, project manager

The Professional

"What convinced us, was the safe and quick lifting operation with hydraulic cylinders and climbing profiles. We don't have to worry about craneage and we can work safely even in windy weather"

This impressing multi-functional complex of buildings will comprise five high-rise towers and offer more than 250.000 m² of useable floor-space. ▶

To carry out the works on the structure cores, main contractors Arabian Construction Company are relying on Doka automatic climbing formwork SKE 50. It can be raised in large gangs by only one hydraulic unit, enabling work to progress swiftly and efficiently. To permit optimum working cycles, a concrete placing boom on each structure core is raised from one casting section to the next by two automatic climbers, in tandem with the wall formwork.

Maximum workplace safety

ACC is raising these five structure cores in parallel with one another. Because the climbing scaffolds are firmly anchored in the concrete at all times, and are "climbed" independently of the crane by powerful hydraulic cylinders, the Doka automatic climbing formwork SKE 50 ensures the very maximum in workplace safety, in every phase of the formwork operations. The main working platforms and the follow-up platforms are also safeguarded by a two-metre high enclosure made of sturdy trapezoidal sheet. This ensures that forming operations can continue smoothly even in very windy conditions. The dedicated support given by the experienced Doka field service technicians to the site crew is another crucial factor helping work on the project to run so smoothly.

For the in-situ concrete core, 94 Doka automatic climbers SKE 50 have been deployed. The CDC site crew is forming, reinforcing and pouring the 64 casting sections in a 3 to 4-day cycle.

New landmark on the Arabian Gulf

At a height of 243 m, the Al Fardan Residence Tower marks a new record for Doha.

The over 240 m in-situ concrete core is being climbed in 64 casting steps, each 4.1 m high, using 94 SKE 50 automatic climbers, in a 3 to 4-day cycle by the contractors Construction Development Company (CDC). Fitted with Top 50 large-area formwork, these self-climbing scaffolds are easy to operate and very ruggedly built. The all-round fall-protection on the working platforms, and the fact that the automatic climbing formwork is anchored in the concrete at all times, together ensure safe working conditions in every phase of the formwork operations, and smooth construction progress. "The Al Fardan Residence Tower is already the second project that we've built using Doka SKE 50 automatic climbing formwork. The quick and easy repositioning operation, powered by hydraulic cylinders, the high safety standard and the outstanding product quality convinced us right from the outset", notes CDC project manager Maher Al Saudi, underlining the benefits of the self-climbing formwork from Doka.

Cost-effective floor-slab formwork

The 1900 m² area of slab in each of the typical storeys is being formed by the CDC site crew using cost-effective, economical Dokaflex tables, which were delivered to the site ready for immediate use. This took a lot of pressure off the site logistics, ensuring that work could move ahead rapidly.

The floor slab above the basement level was constructed using an economical combination of the versatile hand-set formwork system Dokaflex and the easy-to-erect d2 load-bearing towers. The columns in the typical storeys are being formed using the high-strength column formwork Top 50. Thanks to the efficient formwork planning and the smooth progress of the forming operations, this project is right on time and right on budget.

The Facts

JOBSITE
Al Fardan Residence Tower

LOCATION Doha, Qatar

CUSTOMER Construction Development Company (CDC)

REQUIREMENTS
240 m in-situ concrete core to be built safely and in a tight construction schedule. The cramped site conditions in the densely built-up city centre location presented some tough demands regarding operations scheduling and efficient site logistics

PRODUCT USED
Automatic climbing formwork SKE 50 and large-area formwork for the concrete core and Dokaflex tables for the slabs

The Solution!

The site crew achieves a 3 to 4-day cycle for the 4.1 m high casting steps with the SKE 50 automatic climbers. With its detailed formwork planning, just-in-time deliveries to minimise the on-site formwork quantities, and streamlined materials-scheduling for maximum economy throughout the formwork operations, Doka is helping the CDC site crew carry out this major project in a typically "Safe. Fast. Efficient." manner.

Maher Al Saudi, CDC project manager

The Professional

"The Al Fardan Residence Tower is already the second project that we've built using Doka SKE 50 automatic climbing formwork. The quick and easy repositioning operation, powered by hydraulic cylinders, the high safety standard and the outstanding product quality convinced us right from the outset".

Aerial view of Doka's central plant in Amstetten. ▶

A history of success – Doka turns 50

Doka is celebrating a very special anniversary: 50 years ago, on 6th May 1958, Doka was first registered in the Austrian Register of Companies.

1955

Première for Doka formwork sheets at Ybbs-Persenbeug.

1961

Impressive growth: the plant in Austria.

50 years later, Doka is a brand that enjoys worldwide recognition and is a by-word for quality, innovation and capability in all areas of formwork technology. With its outstanding products, high-calibre advisory service, competitive production operations and comprehensive package of service offerings, Doka makes a major contribution towards sharpening its customers' competitive edge.

From a carpentry shop to an industrial concern

The roots of the parent Umdasch company go all the way back to 1868. Construction of the Ybbs-Persenbeug hydroelectric power station on the River Danube in 1955 ushered in a new era for the company. For it was on this project that the novel, glue-bonded formwork sheets from the Umdasch carpentry firm in Amstetten made their debut, being used by the client "DOKW". The advantages of these sheets were so convincing that soon the firm was selling them as fast as it could make them. In a shortened version of the name of the client for whom they were first produced, they were referred to simply as "Doka" sheets, a term which ultimately also gave the company its name. Building on this success, Doka successively moved in the direction of system formwork.

Innovation ensures growth

By constantly innovating, Doka always keeps a step ahead. When developing new forming systems, workload reduction, ease of handling, safety, durability and system compatibility are always its top priorities. By as early as 1965 Doka had already developed large-area formwork. This was followed in 1971 by the first climbing formwork, which was used for the building of a ship lift at Lüneburg, Germany. In 1977 Doka enlarged its range of climbing formwork with the SKE 175 hydraulic automatic climbers. These enabled the 180 m tall piers of what was then Europe's tallest bridge, the Kochertal

◀ **The Seidewitztal Bridge in Germany was built with the Doka forming traveller.**

Viaduct, to be formed without a crane. In 1981, Doka developed a special cooling tower formwork. The hand-set formwork system Dokaflex 20 and repositionable tableforms were also premiered in the same year. The Framax framed formwork system, now in service in its millions, started speeding up work on the site in 1986. Over the past few years, Doka has initiated a new chapter in the history of formwork-technology with its use of high-tech wood/plastic composites, as exemplified by the "H20 top" beam and the Framax Xlife sheet, to name but two. Other products such as the Load-bearing tower Staxo 100, the Self Climbing formwork SKE, the Table Lifting System TLS and the Platform system Xsafe show that continual innovation is at the heart of the Doka corporate philosophy.

State-of-the-art production facilities and efficient logistics

To ensure its continued ability to meet ever-rising demand, Doka has been investing heavily in expanding and upgrading its production facilities. A new beam-flange production line, and 4 moulding stations for the end-reinforcements on the "H20 top" beam, will take annual output to 12 linear metres of formwork beams.

International expansion

Doka is currently represented in more than 65 countries, with over 140 branches and logistics facilities. Cost-saving approach, the high quality standards, and the exceptional service are the basis of Doka's long-lasting business relationships. Listening closely to the contractors needs, the sales locations in the Middle East had been established following a strong market demand in the context of an unprecedented expansion of the construction industry. The first branch to be opened in the Middle East, and more specifically in Kuwait, was in 1977, followed suit by Doka Gulf in the UAE, Doka Establishment in Saudi Arabia, Bahrain, Lebanon, and Qatar. For more than a decade Doka Middle East have been taking up all the challenges, participating in the most ambitious landmark projects in the region.

1971

Première for Doka climbing formwork.

1985

First building site with Framax framed formwork.

1996

Doka climbing formwork for the colossal "sail" of the Burj al Arab.

2007

Forming the future with Doka in Dubai.

Safe access for millions

A structure to handle 1 million people at once.

The Facts

JOBSITE Reconstruction of Jamarat Bridge

LOCATION City of Mina, Kingdom of Saudi Arabia

CUSTOMER Saudi Bin Laden Group

REQUIREMENTS Multi-level pedestrian bridge with four main tiers 600-meter long each, supported on a high number of in situ concrete columns.

PRODUCT USED Top 50 large-area formwork, Frameco and Frami wall formwork, Doka 150F climbing formwork, climbing formwork K

The Solution!

Wide range of offered Doka systems, engineering support and timely deliveries enable contractors to cast swiftly almost half million cubic metres of concrete and carry out this complicated project in the most efficient way.

Reconstruction of the Jamrat Bridge, a pedestrian access bridge that enables pilgrims to get close to the three pillars - each known as a jamrah - in order to stone them, started in January 2006 and should be completed towards October 2009. Stoning the jamrah pillars is a ritual that symbolises stoning of the devil and it forms part of the annual Islamic pilgrimage to Mecca. The bridge, which is being constructed by the Saudi Bin Laden Group, contains a wider column-free interior space and expanded jamrah pillars, additional ramps and tunnels as well as emergency exits and subway tunnels directing the flood of supplicants safely to the focal areas.

Doka systems forming different structural shapes.

Contractor Saudi Binladen Group is casting some 450,000m³ of concrete to create the bridge structure and 20 tower cranes are engaged. Doka formwork is being used to form all elements of the concrete from the column walls to the main floors. The Top 50 large-area formwork with easy to assembly elements is implemented for in situ concrete walls, columns and edge beams. There are in use two types of framed formwork; Frameco enabling short framing times of the walls up to 3m and higher, and Frami handy panel formwork, which is used for smaller areas as it enables fast and economical forming. D2 supporting scaffolds are used for edge beams and ramps. Doka 150F climbing formwork provides an economical and speedy solution for the many columns. The modular system can be quickly repositioned, keeping crane usage the minimum. It is used with Doka folding bracket K, enabling the platform and formwork to be lifted together.

▲ **Four-tiered Jamarat Bridge with inflow and outflow ramps, emergency exits and subway tunnels, is designed to handle safely 1 million people.**

◀ **A crucial element of the structure is the 600m-long four-tiers main bridge, supported on a high number of closely -spaced in situ concrete columns.**

Mohammed Haneefa, Doka Saudi Technical Manager

Your contact

"We produced all of the shop and assembly drawings in just one and a half months and took less than three months to deliver all the formwork needed to cast almost half a million cubic metres of concrete."

In brief

News, dates, media, awards

▲ Doka Turkey's team in the new building.

▲ Doka Lebanon at the exhibition Project Iraq 2008

Solid-Bautech Prize for Doka ▶

DOKA TURKEY OPENS NEW BRANCH

Doka Kalip-Iskele in Turkey has opened its new facility in the Gebze Organized Industrial Zone. The new facility is located about 45 km east of Istanbul and occupies a total of some 17,000 m². Along with the three-storey office building there are 900 m² of enclosed storage and a 900 m² area for the Equipment Service. The new facility lays the foundation for the dynamic expansion of Doka in Turkey. Doka Kalip-Iskele is determined to increase its market share and strengthen its position as a leading local formwork partner.

DOKA AT THE PROJECT IRAQ 2008

Doka Lebanon has participated in the Project Iraq 2008, the International Trade Exhibition for Construction, Building Materials and Equipment. The exhibition that is one of the largest Iraq reconstruction trade events was held in Erbil from 4th till the 7th of November. Doka has been present with its own exhibition stand, which became with more than 500 visitors one of the most often visited places during the event.

HIGH ACCOLADE FOR DOKA

Doka has been awarded the Solid-Bautech Prize 2008 for the formwork operations on the building of the Burj Dubai, which was rated the best project in the "concrete construction" category. In particular, the university professors and internationally renowned construction experts singled out the ingenious materials-scheduling, the self-climbing formwork solution and the record-breaking three-day cycle for the over 180 casting steps as an extraordinary and indeed exemplary accomplishment.

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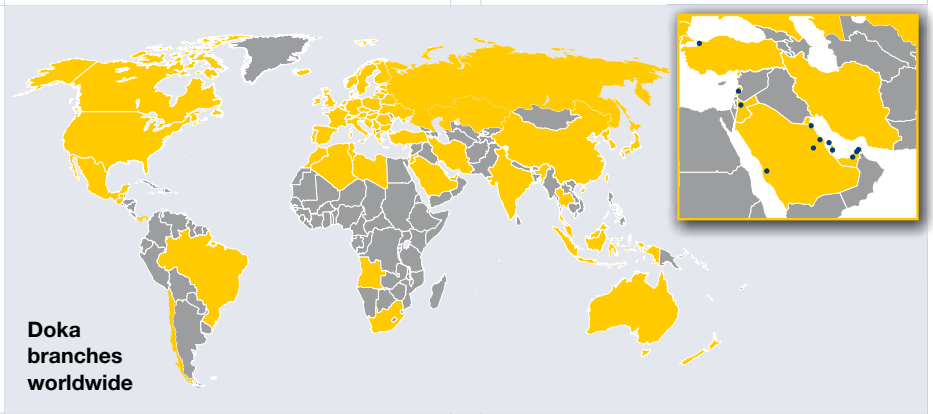

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In some cases the site photos show the situation during formwork assembly and are therefore not always complete from the point of view of safety.

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