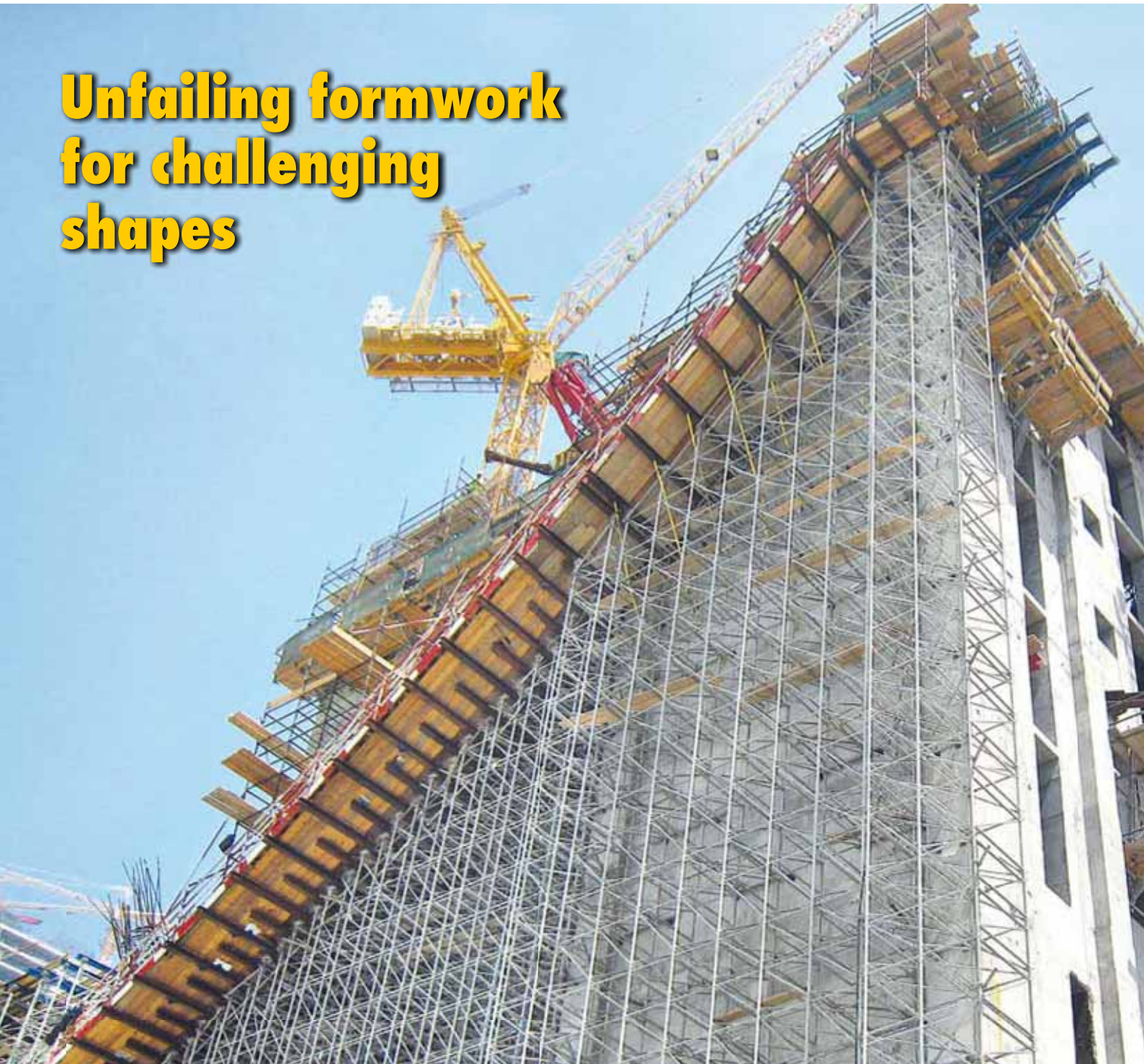


Doka Xpress

The Formwork Magazine

2/2009 · www.doka.com

Unfailing formwork for challenging shapes



TLS premiere
Sowwah Square project ... Page 3

"Leaning Tower"
SKE rising to challenges ... Page 8

Time-efficient climbing
Prime Tower ... Page 10

Built to last
Framax Xlife ... Page 15

doka
The Formwork Experts

Editorial



Dear readers;

The global credit crunch has also started to hit the construction industry. For lack of sufficient liquidity, many projects have either been postponed indefinitely or had work on them stopped, or else are being seen through as quickly as possible under intense cost pressure. This all means that the demands being made of contractors are escalating still further. In tough times like these, construction firms need – more than ever – to be able to count on the reliability and trustworthiness of the partner firms that supply them. Thanks to its sound corporate structure, its comprehensive offerings of efficient formwork solutions and services and its globe-spanning distribution network, the Doka Group stands for stable and lasting business relationships. With attractive rental solutions, value-for-money reconditioning service for your company-owned equipment and interesting purchase/repurchase solutions, Doka has plenty of good ideas to help you with your construction projects in today's rougher economic climate as well. In this edition of Doka Xpress, you'll find more examples of successful site practice, and tips and tricks from professionals who are profiting from the added value generated by Doka formwork technology. I wish you every success – and assure you that Doka will be a reliable partner for you on all your jobsites!

Josef Kurzmann
Executive Director,
Doka Group

Doka News



◀ **Riyadh Ring Road, Northwest Leg**

KSA – Doka automatic climbing formwork system SKE 50 is automatically climbing each of the supporting bridge piers of the Riyadh Ring Road in a 4-day cycle. Taking in its stride the varying diameters and heights of up to 80 m, the SKE is working efficiently on this monster task.



◀ **Al Faisal Tower, state-of-the-art architectural work**

Qatar – 1850 m² of Top 50 large-area formwork and 57 automatic climbers SKE 50 are being used to cast 2 core walls, each 227 m high. Thus the freed-up crane can be used to fix the steel structure of the slab, enabling the whole construction process to advance smoothly.



◀ **Development of King Abdul Aziz Endowment**

KSA – a full range of Doka systems are helping to accomplish this massive project. A fusion of product efficiency and Doka's "just-in-time" deliveries and technical support helped accelerate the overall progress on site.

Index

Page



Capital Gate

"Forming the moon" - swiftly and with maximum safety, Iris Bay 4

Flame Towers in Baku 6



Prime Tower

◀ Doka rising to challenges at the "Leaning Tower of Abu Dhabi" 8

◀ A two-in-one climbing job 10

Cost efficient solution for infrastructure projects 12

Bridge construction - Doka cantilever forming traveller 13



Al Rames Tower

◀ Fast climbing with high quality-standard, Al Rames Tower, Qatar 14

Massive formwork for a challenging tunnel construction 15

In brief 16




Forming with no need for a crane

The impressive new home for the Abu Dhabi Securities Exchange is being constructed using an all-in-one formwork solution from Doka.

TLS for vertical lifting without crane

Doka has recently introduced into the UAE market its innovative solution for vertical lifting of the tableforms without a crane. With the Table Lifting System (TLS), floor formwork can be moved up one floor in a quick and safe manner and independently of the crane, which results in optimised crane times. The Contractor, Oger Abu Dhabi is using 4 sets of the TLS. Two units are employed at one tower, mounted to the outside edge of the building as a climbing device.

Integrated safety features allow fast and safe working, both when operating the Table Lifting System itself and during repositioning of the tableforms. The TLS can safely lift the floor-slab formwork even over three levels and carries on its operations safely even during strong winds. The crane time this saves is then available for other works. All assembly and disassembly work, and the first time of putting into service, were supervised by Doka field service technicians who trained and supervised the site crew. 

The facts

JOBSITE Sowwah Square project (4 towers)

LOCATION El Sowwah Island, Abu Dhabi

CUSTOMER Oger Abu Dhabi

PRODUCTS USED Automatic climbing system SKE 50&100, climbing system 150 F, large-area formwork Top 50, Framax Xlife, Dokaflex 20 & Dokaflex Table, TLS, d2 load bearing towers

The Solution !

The Table Lifting System TLS sets a new standard for crane-less lifting of the floor-slab formwork. Forming operations with no need for a crane are delivering fast progress and maximum cost-efficiency on the four core walls. 2400 m² of Dokaflex tables are keeping the work moving ahead rapidly throughout this construction project.



The facts

JOBSITE Iris Bay Tower

LOCATION Dubai, UAE

CUSTOMER

Al Habtoor Engineering Co

PRODUCTS USED

Large-area formwork Top 50 for walls and columns, d2 load bearing towers, supporting construction frames, climbing system 150 F

“Forming the moon”

In 2007, work started on construction of the “Iris Bay”, a high-rise futuristic tower in the shape of a half-moon that is set to become a new hot spot on Dubai’s skyline.

Heavy duty load-bearing towers d2 can be adjusted to great heights, here reaching from 14 up to 36.50 metres



The tower rises above a four-storey podium, which floats over a double-height arcade. Featuring a revolutionary ovoid design, the project comprises two identical double-curved shells, which are rotated and cantilevered over the podium below.

The front elevation of the half-moon-like tower will be made up of seven zones of rotated glass, whilst the back will be a continuous vertical curve. The whole

building from Level 4 up to the roof is supported by the core and rests on two curved main beams with a height varying from 4.5 to 11 metres and with a total of 570 m² of concrete. Each of the curved beams is supported by 2 columns.


Challenge with the curved shapes

This futuristic development became a challenge for all the professionals involved in its construction. The main difficulty was to form a 2.00 m thick and 61m long curved beam. To safely support the beam so that it could carry the superstructure, the contractor, Al Habtoor decided to use the heavy-duty load bearing towers d2, which are fast to assemble and configure, and can effectively carry a huge load of the concrete to be poured, assuring the safety of the site crew.

Up to 200 kN/m² had to be directly transferred to the podium roof and from there with re-propping to the raft foundation. The beam was poured in 3 segments, each approx. 20 m long. The slabs between Levels 4 and 11 were cast right after the beam segments had been finished and had to be supported from Level 11 down without removing the formwork in-between. Each slab was poured in a weekly cycle.

Most of the Doka formwork materials in use are the standard products, except for some cases where a special solution was needed. A new location for the tower-crane required the tie-back to be attached to the core wall for stability reasons, but it had to pass through already erected d2 supports. For this reason Doka offered a specially manufactured intermediate steel frame with strategically calculated webs so that the loads would be distributed equally. This solution helped to accommodate the tie-backs without compromising the safety and stability of the curved beam support.

Doka's expertise

Doka's versatility in creating customised solutions, with its very competitive engineering staff providing comprehensive planning and consulting services, are successfully contributing to efficient construction of this complicated structure. High quality, efficient and reliable formwork systems together with technical expertise enable fast and absolutely safe forming operations. Doka managed to provide the client with a safe working environment, especially at great heights where huge vertical and horizontal loads had to be supported. 



*Mahmoud K. Irsheid
Project
Manager*

The Professional

“The structure design of Iris Bay is unique and challenging. With Doka's system and their staff's expertise, we were able to overcome these challenges. We have consulted many formwork system providers but no one was able to provide us with a complete, reliable and safe system like Doka.”

The Solution!

High-rise building with a unique ovoid facade. d2 load bearing towers as the primary system to reach and safely support levels of the 2.00 thick curved beam at heights reaching over 8 metres. The Large-area formwork Top 50 easily accommodated the curved surfaces.

▼ **Doka ensured maximum safety for operations on the curved beam, with its slope of up to 45 degrees, by providing 3.00 m wide platforms with intermediate platforms every 2.00m**





The facts

JOBSITE The Flame Towers

LOCATION Baku, Azerbaijan

CUSTOMER DIA Holding A.S.

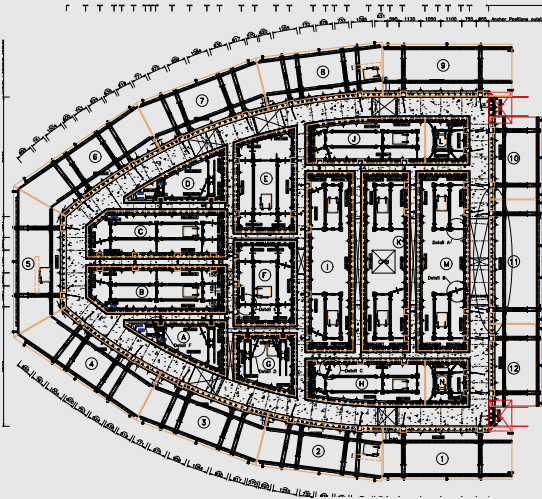
REQUIREMENTS Construction of 3 flame-shaped towers, each of more than 160 m in height

PRODUCTS USED

Automatic climbing formwork SKE 50 and 100, large-area formwork Top 50, D 22 climbing formwork, load-bearing towers d2 for slab support

Flame Towers in Baku reaching high with Doka

Inspired by Azerbaijan's long history of fire worshipping, the towers will symbolise an eternal flame for a modern Baku.



The Engineering Department Region 5 designed an optimised formwork solution to overcome the diverse nature of the requirements made on this project.




The project consists of 3 different high-rise towers, which resemble the flames of a torch and are located on a vast podium. The podium is simultaneously the foundation and hinge of the project, linking the towers at car park and retail levels. The total construction area embraces 227,000 m². The Hotel Tower should be completed by the end of 2010 with the Residence and Office Towers to be finalised in 2011.

Automatic climbing SKE offers safe and optimised execution

The project was awarded to Doka Turkey in January 2008 by the contractor, DIA Holding AS. Doka designed an optimised formwork solution to overcome the diverse nature of the requirements made on this project. The contractor is using a combination of automatic climbing systems SKE 50 and 100 with large-area formwork Top 50 for shafts (4000 m²), walls (200 m²) and columns (60 sets).

The Flame Towers range in height from 34 to 39 stories. Due to the flame-like shape, there is nothing typical about this design. At every level, the floor area, columns and external shafts constantly change in shape, size and thickness. "The main advantage of using SKE is the elimination of crane-lifting for the formwork system, which consists of more than 150 elements. In addition to this, we did not actually need any parking

space for the storage of the forms at the striking stage. This was a plus due to the limited space available on-site" states the project manager, Gokhan Girgin

In one single step, the SKE climbs the large-area formwork elements along with the climbing scaffold, effortlessly and without any crane assistance. This system perfectly suits the contractor's schedule, which is tight, especially for the Hotel Tower, whilst additionally considering that each tower can only accommodate one crane due to the limited foot-print area. In these conditions the SKE fulfils the tough requirements, saving crane-time and allowing safe working at heights, despite the strong winds typical of this geographical location. High load-bearing capacity plus "section-at-a-time" climbing options are further examples of the great advantages of this system. Anchored to the concrete structure, the combination of the climbing scaffold and the wide working platforms, enclosed by handrails on all sides, provides maximum safety. The platforms also created working and storage space for the rebar operations. Inside the shaft there are intermediate platforms which assist the workers to operate easily and safely on the top. In total there are 178 SKE 50 climbers on the core walls and 8 SKE 100 climbers in use on the shaft. The construction schedule has been planned as a 7 to 10-day cycle. 

The Solution!

178 Doka automatic climbing formwork SKE 50 brackets for the core walls and 8 SKE 100 brackets for the shaft, enabling safe and fast forming. Versatile large-area formwork Top 50 is being used on all walls and columns. Thanks to the high-performing formwork solution and the continuous support given by the Doka experts, the site is running on time and within budget.



Gokhan Girgin,
Project Manager

The Professional

“ At the beginning we had some problems due to structural difficulties with the building. Most of these disappeared once we had completed the formwork assemblies, where we recognised the advantages of DOKA SKE. We are now preparing for the 13th lift, and our entire crew is excited to participate as our journey with the DOKA formwork system continues.”

Architectural rendering of the project - a perfect alliance of outstanding design with the power of technical advancement.



Doka rising to challenges on the “Leaning Tower of Abu Dhabi”

The facts

JOBSITE

Capital Gate, Abu Dhabi
National Exhibition Centre
(ADNEC)

REQUIREMENTS

Casting of 160 m tall in-situ concrete core characterised by an elliptical layout and large number of shafts.

CUSTOMER

Al Habtoor Engineering Ltd

SYSTEMS IN USE Automatic climbing system SKE 50, large-area formwork Top 50

With its extreme inclination, **Capital Gate** is testing the limits of what is technically feasible, calling for outstanding performance from everyone involved in the project.

For constructing the central in-situ concrete core, main contractors Al Habtoor Engineering Enterprises Co. LLC. opted for an automatic climbing formwork from Doka. As well as Al Habtoor’s very satisfactory experience on past projects, the main deciding factors here were the technically convincing formwork solu-

tion and the comprehensive package of services designed to optimise all phases of the forming operations.

Elliptical layout climbed “askew”

The 160 m high tower is being constructed on an extremely densely reinforced concrete foundation poured from



◀ Capital Gate will include an exclusive 5 star hotel to be operated by Hyatt International. It will be one of the most prestigious business hotels in the world.

The Solution !

Using the high-performing automatic climbing formwork system SKE 50, the site crew is able to form, reinforce and pour one casting section every week. A total of 42 casting sections are being carried out here with no change of form-facing. Thanks to the use of a powerful hydraulic unit, up to 30 climbing brackets can be raised at a time. The platforms of the automatic climbing formwork were supplied to the site by Doka completely pre-assembled, and were then set up under the supervision of an experienced field service technician.

more than 6000 m³ of high-performance concrete, which in turn rests on 490 bored piles sunk 30 m into the ground. The central in-situ concrete core of the Capital Gate Tower is characterised by an elliptical layout and a large number of shafts, and is back-stayed into this massive reinforced concrete foundation. This transfers the horizontal loads resulting from the extreme inclination, and secures the tower against both wind loads and earthquakes.

78 units of the powerful Doka automatic climbing formwork SKE 50, and more than 1300 m² of large-area formwork Top 50, are in service for forming the in-situ concrete core. Due to the increased concrete pressure resulting from the inclination of the shaft-walls, the large-area formwork Top 50 is reinforced with extra steel walings. The corner zones of the Top 50 elements are additionally reinforced with a steel form-facing. This improvement results from the insights

gained by Doka during the 2 ½-year climbing assignment on the Burj Dubai. Owing to the extreme slant of the structure, the SKE 50 automatic climbers are safely guided up the structure with the aid of suspension shoes specially developed for this task. In order to increase the load-bearing capacity of the climbing brackets and working platforms while ensuring equally safe anchoring in the structure, thicker tie-rods are used than would otherwise be the norm.

With the climbing scaffolds firmly anchored in the concrete at all times, and the work-platforms railed-in on all sides, maximum workplace safety is ensured during all phases of the forming operations. The formwork for the inside walls of the shafts is hung from a massive gallows construction which is mounted on the climbing brackets so that it can simply be raised along with the entire climbing scaffold. ◻



Acting Project Director, ADNEC Phase 3 Capital Gate, Mr. Mohamad F. Zakaria

The Professional

“Doka has fulfilled the tough requirements for this formwork assignment. In particular, it was the detailed planning of the forming operations, the comprehensive oversight provided during the shell construction phase and the high safety standard of the automatic climbing formwork that convinced us”.



A 227 m, two-in-one climbing job – with no crane assistance

The 55-storey Prime Tower will be a dazzling addition to the exclusive residential offerings of Dubai.

The 227 m tall in-situ concrete core is being built at record speed using the efficient Doka automatic climbing formwork SKE 50. On this project, execution time is the critical factor. To meet the ambitious timetable of a weekly cycle for each storey, Doka's Dubai Branch worked with main contractors Al Ashram Contracting to design a forming workflow which allows the structure core and the punctuated facade to be climbed separately. In this sequence, the automatic climbing brackets for the facade, complete with the fitted Doka large-area formwork Top 50, are all "jumped" from one casting section to the next as a single unit.

Special forming workflow saves time

For this challenging construction project, Doka planned a flexible formwork solution that makes it possible to pour the columns and downstand beams using one and the same formwork element. "The formwork for the outside of the downstand beam and the outside of the column consists of a single element. The side-formworks for the columns are integrated in this element,

and can be hinged back to facilitate setting up and striking the formwork. A further challenge here is that the quadratic layout of the columns is reduced by 100 mm after every 15th storey. With the versatile Top 50 large-area formwork, these constant reductions are incorporated in the design of the formwork and therefore accomplished without difficulty and in very little time.

Nine shafts in a five-day cycle

The concrete core has a quadratic layout and is being constructed using 49 SKE 50 automatic climbers. The structure core comprises nine shafts that are independent of one another and which are also being "climbed" with SKE 50 automatic climbers. To speed up the climbing operation, gangs of up to three shaft formworks are raised together in some cases. With this comprehensive formwork solution and the meticulously planned forming workflow, the Al Ashram site crew is able to reinforce, form and cast one storey, including the punctuated facade and in-situ concrete core, in only five days. □

The facts

JOBSITE Prime Tower

LOCATION Dubai

REQUIREMENTS

227 m high residential tower including concrete cores with 9 shafts and a punctuated facade with 1540 columns.

PRODUCTS Automatic climbing formwork SKE 50, large-area formwork Top 50, Dokaflex

Efficient forming of 1540 columns

The forming sequence for the facade is divided into three work steps. First the slab is cast. Following this, the side elements of the column formwork are folded inwards. The remaining formwork element for the inside of the column is set down on the floor slab, completing and closing the column formwork. The columns are poured up to the bottom edge of the downstand beam above them. After the formwork has been struck, it is "jumped" to the next casting section on the SKE 50 automatic climbers.

◀ **Doka's solution makes it possible to pour the columns and downstand beams using one and the same formwork element.**



The combination of Large-area formwork Top 50, d2 towers and SL-1B rollers makes for extraordinarily swift progress on this tunnel construction. ►

The facts

JOBSITE Lusail Development-Utility tunnel

LOCATION Qatar

CUSTOMER
Sinohydro Corporation

PRODUCT USED Large-area formwork Top 50, d2 load bearing towers equipped with heavy duty SL-1B rollers

The Solution !

Reusable high wall formwork moving on wheels, easy to assemble and reposition. Using SL-1B rollers minimises crane usage and enables fast progress. Heavy-duty d2 towers easily carry high loads, providing a safe working environment.



Cost-efficient solution for infrastructure

Sinohydro Corporation is currently executing infrastructure works including 14 km of utility tunnels for the Lusail Development project.

Chen Tianwu -
Sinohydro
Procurement
Executive



The Professional

“ The quality of Doka formwork is one of the biggest factors helping us to complete the forming phase of this project. With these systems we can complete this project ahead of time. The Doka team know what they are doing and are very helpful. They can easily come up with a solution if any problem arises at the site. In fact, we will soon be purchasing more sets, as this formwork is so handy and safe to use.”

Already a regular Doka client, the contractor chose its tried-and-tested formwork solutions once again. Looking for the best option to construct the tunnels safely, fast and cost-efficiently, Doka engineers offered the combination of Top50, d2 and SL-1B rollers, which – enhanced with formwork drawings and on-site supervising – successfully met the specific requirements of each construction phase. Doka large-area Top 50 formwork is used on both 5 m high water tanks and the almost 4 m high tunnels. Top 50 was selected as its modular system allows great adaptability to different shapes and fields of use and thus makes it an ideal formwork for this type of infrastructure project.

Travelling tunnel formwork

Four 24 m long sets of formwork are being used throughout the 8 km long tunnel. There are 20 heavy-duty load bearing towers d2, erected in two heights to support the 80-110cm thick slab, ensuring optimum safety during casting. To minimise crane usage, the formwork sets have been equipped with Doka SL-1B rollers, which are bolted under the bottom profiles to make the whole system easy and fast to reposition after each cast.

Doka's logistics and engineering departments have been assisting this project round the clock with on-site introductory training, consulting services and precise “just-in-time” formwork deliveries. ◻

Crossing the River Vltava in a weekly cycle

This bridge is one of the most challenging sections on Prague's new orbital motorway. The two-part bridge deck is characterised by varying geometries, and is being built by Skanska DS.

Whereas the left-hand bridge deck is being constructed with a twin-cell hollow cross-section, the right-hand deck is designed as a single-cell box girder. With the modularly designed Doka cantilever forming traveller, both girders can be formed and cast with no need for time-consuming, costly modifications. This saves Skanska a huge amount of time and enables them to benefit from rapid, efficient construction progress. The advantages of the newly developed tie-rod girder are especially apparent where different deck cross-sections have to be formed: the tie-rods can be freely positioned in a tightly spaced grid anywhere along the entire length of the tie-rod girder, enabling them to be perfectly tailored to the bending moment.

Custom-built anchor-block boxouts for complex pre-stressing

Between the fourth and 13th casting sections, an access-ramp superstructure is built onto the side of each bridge deck with the aid of post-tensioning tendons. Linking-in the access-ramp superstructure in this way necessitates additional anchor blocks on the inside face of the sidewalls. The Doka "Ready-to-Use" Service tackled this construction task by crafting exactly fitting anchor-block boxouts and integrating these in the inside formwork. The fact that the cover-slab anchor blocks are in a different position in each casting section was another challenge which the Doka project technicians solved to the client's complete satisfaction. ▢

The facts

JOBSITE

Bridge over the River Vltava

LOCATION

near Prague, Czech Republic

CUSTOMER

Skanska DS

REQUIREMENTS

Construction of two structures with two different cross-sections and the integration of two access-ramp superstructures

PRODUCTS IN USE

Doka cantilever forming traveller, large-area formwork Top 50



The solution!

With the modularly designed Doka cantilever forming traveller, both the single- and twin-cell decks can be formed and cast with no need for time-consuming, costly modifications. Linking-in the access-ramp superstructure necessitates additional anchor blocks on the inside face of the sidewalls. The Doka "Ready-to-Use" Service crafted exactly fitting anchor-block boxouts and integrated these in the inside formwork.

◀ **Varying cross-sections, different widths of cantilever slab and tapering sidewalls together make some very tough demands indeed regarding the adaptability of the formwork solution.**

Redco Construction - Al Mana Projects
Director Eyad Khedr



The Professional



We can depend on Doka Systems as a reliable solution for quality and timely execution of our prestigious projects”.

The facts

JOBSITE Al Rames Tower

LOCATION

West Bay, Doha, Qatar

CUSTOMER Redco Construction - Al Mana JV

PRODUCTS USED

Automatic climbing formwork SKE 50, climbing formwork 150F, column Formwork Top 50, Dokaflex tables

Fast climbing with a high quality-standard

The 35-storey commercial project Al Rames Tower sets new quality standards in Doha.


The tower is part of Qatar's current high-rise development growth that demands projects of high quality to use the most recent construction technologies. The main contractor, Redco Construction-Al Mana is targeting completion of this prestigious project in 24 months, and to accomplish this goal decided to utilise the most effective and time-saving solutions available in the field of formwork technology.

Safe and fast forming for the core structure

The core wall of Al Rames Tower, with a total height of 140 m, is being raised using the SKE 50 automatic climbers to cast each level with a floor-to-floor height of 3.40 m. Fitted with 713 m² of Top 50 large-area formwork, this self-climbing system is easy to operate and extremely strong. SKE 50 is powered by hydraulic

cylinders, facilitating quick and easy re-positioning operations in which the whole formwork is lifted to the next level. The climbing scaffold is firmly fixed in the previously poured and hardened concrete, and working platforms are attached on all sides to ensure safety as it climbs higher even under windy conditions.

Economical slab formwork

The contractors are using Dokaflex tables to carry out the forming of slabs, as they are easy to use and are a very economical option even for large volumes of slab casting works. Using 3372 m² of table-form for the podium areas and 2 sets of 1142 m² table for the typical slabs, the site crew were able to cast 10 levels with an average cycle-time of 5 days per slab, and thus managed to cast ahead of the planned time. 

The Solution !

The 147 m core wall is being raised by 60 Doka automatic climbers. The challenge of casting the panoramic lift columns was successfully overcome with Doka crane-climbed 150 F. Using Dokaflex slab-forming tables, the site crew were able to cast 10 levels with an average cycle-time of 5 days per slab, which put them ahead of schedule.

The Doka automatic climbers SKE form the core wall while providing an extremely safe working environment and minimising the usage of manpower. ►





◀ Due to the innovative plastic coating of the Xlife sheet, Framax Xlife panels offer extreme durability and maximised re-use cycles.

The facts

JOBSITE Tunnel underpass for Regional Road & Utilities Infrastructure

LOCATION Al Reem Island, Abu Dhabi

CUSTOMER Orascom Construction Industries- Contrack J.V.

REQUIREMENTS Tunnel walls of varying heights and layouts to be built to a tight schedule

Massive formwork for challenging tunnel

The 5 km long tunnel will connect Al Reem Island and Abu Dhabi's north-eastern entrance with the coastal areas to the south of the city.

The contractor, Orascom Construction Industries - Contrack J.V employed Doka framed wall formwork Framax Xlife and large-area formwork Top 50. Framax Xlife panels, available in different formats, can be very easily combined ensuring the best possible utilisation of the formwork. The contracting JV has used the panels on the inclined approaching tunnel walls with a total area of more than 1150 m² and heights varying from 2 to 7 metres. The site crew were able to proceed with the forming operations using only 2 sets of Framax Xlife. Exceptionally versatile and flexible, the panels could be quickly assembled and adapted to different heights. Additionally, the Framax Xlife panel with its sturdy steel frame and a special plastic

surface is designed for a maximised number of re-use cycles, making it unbeatably economical. The large-area formwork Top 50 was used to cast the underpass tunnel walls with an area of 1534 m². It proved to be very efficient by providing large-area elements with exact connections and giving a very good support for the 6 m high walls. In addition, Top 50 measuring 14.50 m x 1.50 m in height was effectively used as stop-end formwork.

Large infrastructure projects like this one require reliable engineering expertise and a high level of support services, both of which Doka has provided, ensuring safe, fast and cost-effective execution of the construction work. □

The Solution!

The large-area formwork Top 50 and Framax Xlife panels enable swift and safe forming of tunnel walls with a total area of more than 1150 m² and heights varying from 2 to 7 metres.



Jerzy Myckow, Contrack Project Engineer

The Professional

“ The Doka formwork is rigid and simple and the Doka technical support and field supervision are simply excellent. They were always available and truly professional. We can say without exaggeration that their service is ‘Top of the Line’.”

In brief

News, dates, media, awards



▲ **The Table Lifting System TLS was showcased in real-life size at the Doka booth.**

▼ **Sultanate of Oman, the next destination address for Doka**



DOKA AT PROJECT QATAR 2009

This year Doka Qatar once again participated in the Project Qatar 2009 exhibition, where the Doka booth was one of the most heavily visited stands as interest in the company's latest innovations was immense. The long-lasting Framax Xlife and the craneless Table Lifting System (TLS) were among the products displayed in the exhibition space, which was twice as large as in 2008. Since its establishment, the Doka subsidiary in Qatar has seen steep growth and 6 years

of successful operations. Doka formwork systems and services have gained more and more visibility on all of the most prestigious projects in Qatar. Wanting to be one step ahead, Doka Qatar continues to build on its success in the region, and with the expertise and experience it has gained it is set to play a major role in the regional building sector in the future. Consequently, participating in the most important construction event in Qatar strengthens business relationships and creates a good opportunity to become closer to clients and their needs.

DOKA TO OPEN A NEW SUBSIDIARY IN THE SULTANATE OF OMAN.

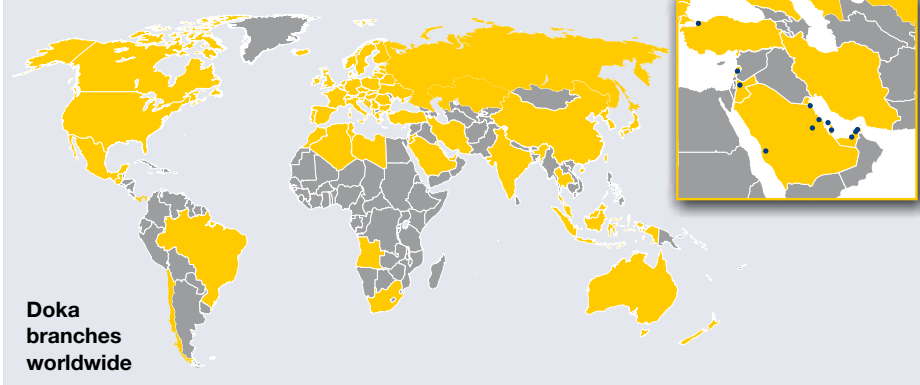
Currently present in almost all GCC countries, Doka will be opening a new branch in Muscat, Oman. The decision about the new sales location has been made following Doka's essential rule of upgrading its high-performing distribution network and attaining maximum proximity to the customer. Doka Muscat is determined to become a dependable partner for the local construction industry.

Doka GmbH

Josef Umdasch Platz 1
A 3300 Amstetten, Austria
Tel. +43 (0)7472 605-0
Fax +43 (0)7472 64430
E-Mail: info@doka.com
Internet: www.doka.com

www.doka.com

E-Mail: editors@doka.com



Impressum: "Doka Xpress" is a publication of the international Doka Group. **Publisher:** Doka GmbH, Josef Umdasch Platz 1, A 3300 Amstetten, Austria.

Editor-in-chief: Agata Orłowska. **Layout design:** Como GmbH, Linz, Austria

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.

Doka Gulf FZE

Dubai, U.A.E.
Tel. +971 4 8818096
Fax +971 4 8818097
E-Mail: Emirates@doka.com

Doka Emirates LLC

Abu Dhabi, U.A.E.
Tel. +971 2 676 5855
Fax +971 2 676 5840
E-Mail: Abu-Dhabi@doka.com

Doka Emirates LCC

Sharjah, U.A.E.
Tel. +971 6 556 2801
Fax +971 6 556 2802
E-Mail: Sharjah@doka.com

Doka Saudi Arabia

Jeddah, K.S.A.
Tel. +966 2 669 1008
Fax +966 2 664 8625
E-Mail: Jeddah@doka.com

Doka Saudi Arabia

Riyadh, K.S.A.
Tel. +966 1 479 10 03
Fax +966 1 477 54 16
E-Mail: Riyadh@doka.com

Doka Saudi Arabia

Dammam, K.S.A.
Tel. +966 3 832 06 06
Fax +966 3 832 31 93
E-Mail: Dammam@doka.com

Doka Bahrain

Manama, Kingdom of Bahrain
Tel. +973 17 402 810
Fax +973 17 401 436
E-Mail: Bahrain@doka.com

Doka Qatar W.L.L.

Doha, Qatar
Tel. +974 450 0628
Fax +974 450 0608
E-Mail: Qatar@doka.com

Doka Kuwait

Salmiyah, Kuwait
Tel. +965 2 4822462
Fax +965 2 4822472
E-Mail: Kuwait@doka.com

Doka Lebanon

Beirut, Lebanon
Tel. +961 1 612569
Fax +961 1 612570
E-Mail: Lebanon@doka.com

Doka Jordan Ltd.

Amman, Jordan
Tel. +962 6 5545586
Fax +962 6 5545587
E-Mail: Jordan@doka.com

Doka Turkey

Gebze-Kocaeli, Turkey
Tel. +90 (0) 262 751 50 66
Fax +90 (0) 262 751 50 05
E-Mail: Turkiye@doka.com