

China's bridges set world records

Doka to expand in Asia

New branch in the Philippines

Doka Augmented Reality App

Interesting insights into Doka's solutions

Lubeca Jumpform

The forming machine for a professional workflow



Editorial



Dear customers, dear readers,

as the year comes to an end, we proudly look back to a successful and innovative year 2018 and with this edition we give you also an outlook on what's happening in the following months. 2018 was the year of the 150 years' celebration of the Umdasch Group – a long and successful corporate history - which would have not been possible without you – we are proud to be part of it.

We've continued with our ambitious expansion plans for the fastest growing region in the world and we are excited to announce that Doka is going to open its first branch in the Philippines by December 2018 and expands its network and presence in the region. We are already working on exciting projects with our partners in the Philippines and we are pleased to share with you in greater detail on what's happening right now and coming up in the Philippines.

Be it our high-rise projects in Philippines and Australia or our mid-rise industrial and residential projects in Singapore and Malaysia currently in construction. Doka thrives to understand the challenges of every project and adapt to provide the best professional formwork solutions. Safety is paramount to the overall success of our projects and high emphasis is thus placed on how workers can build structures more effectively, efficiently and safely.

Big changes are happening in the construction industry and we invite you to expand your reality with Doka. Thanks to innovative technological advances, Doka has launched its very own Doka Augmented and Virtual Reality App on iOS and Android. Doka AR gives you the opportunity to present 3D projection of our drawings.

Last but not least I take this opportunity to thank you for your invaluable support throughout this year and I am excited to look forward to the years to come.

Stefan Schedel

Director Region East Asia & Pacific

Index

Highly sought-after location for industrialists	03
Your strong partner in East Asia and Pacific	04
Doka to expand in Asia	06
Expand your reality	08
Where living meets lifestyle	10
Project Newsflash	11
Follow us on social media!	11
China's mega-bridges	12
Lubeca Jumpform	14

Doka News



bauma—the heartbeat of our industry

The 32nd Edition of the World's Leading Trade Fair bauma for Construction Machinery, Building Material Machines, Mining Machines, Construction Vehicles and Construction Equipment takes place in Munich from April 8–14, 2019. As one of the leading formwork companies worldwide, Doka will present its new products, solutions and services.

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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.



Highly sought-after location for industrialists

The 21 Tuas West Drive is build in a rapidly developing area in Singapore.

21 Tuas West Drive is a 5 storey industrial development for food production and logistics facility with building foot print area of 6,610 m², directly in front of Tuas Link MRT station in Singapore. The total building height is 58.35 meter and floor to floor height for typical floors is 10.50 m. Tuas West area is becoming a highly sought-after location for industrialists, with fast developing infrastructure development such as Tuas Mega Port, Tuas West Extension, expansion of Tuas Link Checkpoint to Malaysia and Singapore-KL High Speed Rail. Doka supplies system formwork for the lift corewall, column and slab structure.

A comprehensive formwork solution

For lift corewall, Large-area Formwork Top 50 together with Climbing Formwork MF240 platform for external and shaft platform for internal was used. This combination of systems is to address client's request for jump ahead approximately

2 to 3 cast from the slab. MF240 and shaft platform can support the wall formwork from external and internal respectively. They allow easy repositioning in just one crane cycle which reduce crane usage on site.

The main challenge in this project is the client's requirement of pouring height for the column design, which is 10 m per casting. Column formwork Top 50 is able to withstand high fresh concrete pressure in one cast. In additional, a compatible ladderway and two working platforms are installed on the top and middle to ensure a comprehensive workplace safety during climbing and pouring.

For the non typical slab design Doka supplies Dokaflex table with d3 load bearing tower shoring as the height floor to floor is 10.50 m. On top of that, d3 shifting trolley is supplied for easy mobility which will increase the efficiency and reduce work force. //

▲ Doka supplies system formwork for the lift corewall, columns and slab structure.

The Facts

Project: 21 Tuas West Drive (21TWD)

Location: Tuas West, Singapore

Type of Project: Industrial

Contractor: Precise Development Pte Ltd

Start and scheduled end date of work: July 2018 – December 2018

Systems in use: Large-area formwork Top 50, Climbing Formwork MF240, Dokaflex table, d3 load bearing tower

▼ Column formwork Top 50 can be adapted to different requirements and fresh-concrete pressures.





Your strong partner in East Asia and Pacific

The region East Asia and Pacific is today and for the future one of the most promising regions in terms of opportunities in the construction sector.

We as Doka are fairly young as organization here as we have founded our first subsidiary only 2006 in Singapore. Since then we are continuously improving our physical market presence, until today we have several branches across East Asia and Pacific plus in some selected markets we are working with long-term business partners.

Therefore, we are more than happy to announce that by the end of 2018 the new branch of Doka Philippines will be founded and operational. As we see the unlimited opportunity in Asia our concept is to focus on growth and market expansion hence in the next years our geographical coverage will increase and we are working already on the next establishments.

We all know that formwork is a unique business within the construction sector. The construction sector is driven by an environment that is dynamic

and competitive. As Doka we have to adapt to this in our approach. We need to carefully listen to our customers and to understand the needs in this environment but equally important is to train our people to listen and to ask the right question in order to provide the best service for our customers. In order to realize those tremendous opportunities, we are not only investing in new products, we are investing in people and their development.

Doka East Asia and Pacific is already in a phase in which we are contributing to the success of some of the landmark projects in Asia. Here are a few of the recent ones:

- Aurora Melbourne Central,
- Exchange 106 in Kuala Lumpur,
- Shanghai-Nantong Yangtze River Bridge in China //



The Exchange 106
Location: Kuala Lumpur, Malaysia
Height: 492 m, 106 storeys



Taichung Harbour LNG Tanks
Location: Taichung, Taiwan
Volume: 160,000 m³



Southern Ring Road
Location: Bangkok, Thailand
Structure height: 164 m



Hefei No. 2 Subway Line
Location: Hefei City, China
Distance: 30 km with 24 stations



UOW Student Accommodation
Location: Wollongong, Australia
Total area: Three buildings with 7,000 m²

Doka to expand in Asia

New branch in the Philippines

The Philippine construction industry is expected to continue to expand in real terms over the forecast period (2018–2022), with investments in infrastructure construction, healthcare, energy plants, educational facilities and housing projects. The industry's expansion is expected to be supported by the government's ongoing efforts to develop infrastructure through large-scale investments under the Build, Build, Build program 2017–2022. Under the program, the government aims to increase annual infrastructure spending from 6.3% of GDP in 2017 to 7.3% by 2022 (numbers from the report "Construction in the Philippines – Key Trends and Opportunities to 2022" by the Construction Intelligence Center – CIC). Residential construction was the largest market in the Philippine construction

industry during the review period, accounting for 32.3% of its total value in 2017. With setting-up a new branch Doka is developing a stronger presence in the Philippines and brings the manufacturer Doka nearer to the end users of our products. The aim is to tap into the huge potential of the regional market and to offer our clients a local support. "With Philippine's strong economic outlook and tremendous opportunities in the constructions sector, we are confident that this will be a further boost to our strategic expansion plans in South East Asia, said its director, Mr. Stefan Schedel."

The following projects show you Doka's contribution to develop the fast growing infrastructure in the Philippines.

The Projects



The SM Megamall Tower:

EDSA, Mandaluyong City, Philippines
Client: New Golden City Builders & Development Corporation

The 50 Storey SM Megamall Tower lies in the heart of a large business district in Metro Manila and boasts an elegant "S-shaped" design with three levels in the underground garage and an above-ground car park. The building has a total area of 124,200 m² and also provides direct access to the SM Megamall, one of the largest shopping centres in Southeast Asia.

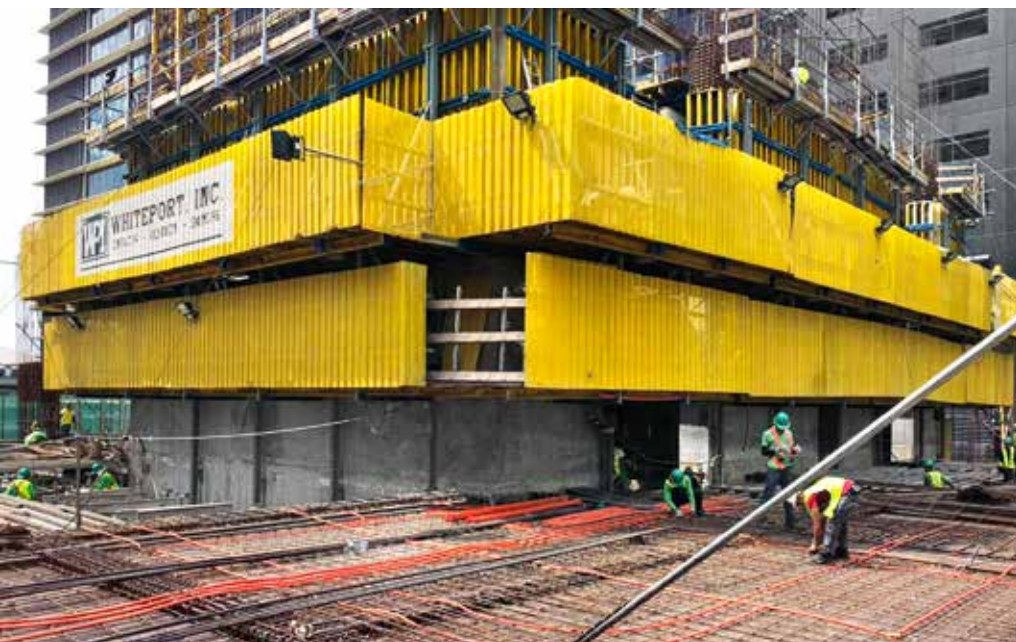
The challenge for Doka was to offer a solution that fit the S-curve of the building and provide protection of the workers above and material that will fall to passersby. With the support of Doka's Competence Center for High Rise they installed the self-climbing system Xclimb 60 with trapezoidal sheeting and hydraulic cylinders.



West Gallery Place: Bonifacio Global City, Taguig City, Philippines
 Client: Makati Development Corp

West Gallery Place is a 49 Storey tower with 420 residential units. It will also feature offices and is intended to be a home to top local and multinational companies. It is located centrally at Bonifacio Global City, few minutes away from Makati Ortigas and Manila.

To resist high windload and to have enough space for staging material like rebars, the use of the Doka Lubeca Jumpform system with trapezoidal sheeting was the right formwork solution. The powerful hydraulic rams secure an efficient use of crange as the platform can also transport high payloads, including equipment containers and concrete placing booms, during climbing.



Glas Tower: Ortigas Center, Pasig City, Philippines
 Client: DDT Konstruct Inc. / Whiteport, Inc.

The Glas Tower is a 42 Storey, 185 m high office building at the heart of Ortigas Business District, Pasig City.

Automatic climbing formwork SKE50 plus with a load capacity of 5 t per parallel climbing unit, is the ideal solution for this project. Its wide, fully railed-in working platforms, the well thought-out access paths and the gapless-enclosure option all make for a high level of safety at the site. To provide additional safety to workers working on the system a trapezoidal sheet to all external railings was installed. //



The app offers a range of different viewing options, thus providing interesting insights into Doka's solutions



The virtual reality view is best experienced in combination with integrated VR glasses on your smartphone or with a VR cardboard

Expand your reality

The **Doka Augmented and Virtual Reality App** gives you an immersive experience of Doka Formwork Systems.

Augmented reality (AR) is a type of interactive, reality-based display environment whose elements are "augmented" by computer-generated input

such as sound, video or graphics. This input can be perceived by a smartphone or special glasses. The Doka Augmented and Virtual Reality App gives you

Dokadek 30

Top view
Scale 1:25

Section A-A
Scale 1:25

Labels in Section A-A:
 - Position and planned by contractor
 - Doka deck with beam 1.25m
 - Doka panel 0.8 (1.2) m
 - Doka floor prop Series 30 top 30
 - Doka deck support head
 - Doka deck wall head

Doka Augmented Reality
Dokadek 30

Support head	Wall head	Corner head	Clamp head	Edge head	U-Beam
[Icon]	[Icon]	[Icon]	[Icon]	[Icon]	[Icon]
[Icon]	[Icon]	[Icon]	[Icon]	[Icon]	[Icon]
[Icon]	[Icon]	[Icon]	[Icon]	[Icon]	[Icon]
[Icon]	[Icon]	[Icon]	[Icon]	[Icon]	[Icon]

Doka Augmented Reality
Dokadek 30

Approval by DR: [Signature]
 Date: [Date]
 Doka Group
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 Doka Group



▲ Doka supplied total formwork solutions for slab, column, wall and corewall

Where living meets lifestyle

The Facts

Project: The Park 2 Pavilion Bukit Jalil

Location: Bukit Jalil, Kuala Lumpur

Type of Project: Residential

Contractor: Jetson Construction Sdn Bhd

Start and scheduled end date of work:
October 2017 – December 2018

Systems in use: Framed Frami Panels, Dokaflex Table, Dokaflex Loose, Large Area Formwork Top 50, Shaft Platform & D3

▼ For columns, customer was very satisfied with the versatility of Doka Frami Xlife panels.



The Park 2 Pavilion Bukit Jalil will be part of a dynamic and vibrant township.

The Park 2 Pavilion Bukit Jalil is a luxury serviced apartment located at Bukit Jalil in Kuala Lumpur. This high-rise residential located right between the regional Pavilion Bukit Jalil shopping mall and lush green 80-acre Bukit Jalil recreational park has a direct access to the mall via a dedicated covered link bridge to be opened in 2020. It is the 3rd phase of development which comprises two serviced apartment towers. It consists of 709 units of serviced apartments with 385 and 324 units each in Tower 1 and Tower 2.

Various known amenities such as Bukit Jalil Recreational Park, Bukit Jalil Golf and Country Club, Bukit Jalil stadium and Sri Petaling's AEON Endah Parade Shopping Centre surround the Park 2. Doka supplied total formwork solutions for slab, column, wall and corewall together with shaft platform. The service from Doka included complete service from concept design to assembly and installation of the systems.

Formwork solutions for irregular structures

The biggest challenge for this project was the structural design of the floor with various sizes and

in non-typical grids. The combination of Dokaflex Tables and 1-2-4 turns out to be a perfect solution for this type of irregular beam and slab structure. Furthermore, big changes in floor heights are easily handled by changing the prop sizes.

Another challenge was the voids and variance in floor and support height, for which Doka opted for d3 load bearing tower system. The d3 system made it possible to do single casting of deep transfer beams over voids and cantilever slabs. For columns, customer was very satisfied with the versatility of Doka Frami Xlife panels. They were able to optimize small sizes/quantity of panels for various column sizes. This has made column formwork more manageable at site.

Formwork Instructor has provided comprehensive training and support on-site. By training and guiding the workers how to use Doka product safely and efficiently, client increased their construction speed and avoided down-time due to mishaps. //

Project Newsflash

Doka EAP has recently been awarded the **YOMA Central** project in Yangon, Myanmar.

Located in the central business district of Yangon, the project comes under Meeyahta Development Ltd, a joint-venture between Yoma Strategic, First Myanmar Investment Company Limited, the Mitsubishi Companies, the International Finance Corporation and the Asian Development Bank. Yoma Central is considered one of the largest foreign direct investments in Myanmar's real estate sector.

The building contractor is BTJV Myanmar Company Limited, a joint venture between Dragages Singa-pore Pte Ltd, a subsidiary of Bouygues Construction, SPA and Taisei Corporation. The scope of supply includes Lubeca automatic climbing platform system with formwork Top 50 to be operated on four cores, and slab formwork model Dokaflex Table. //

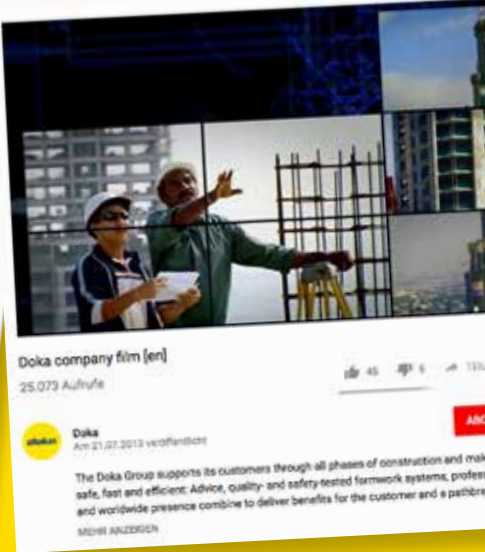
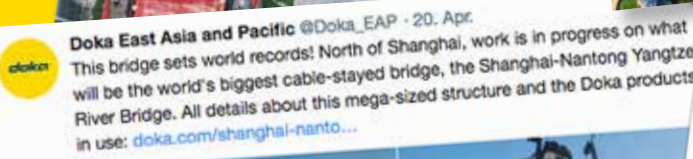


▲ Yoma Central will include office towers, serviced apartments, retail space and two hotels.

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Discover the world of Doka and join our social media communities. Follow us on Facebook, LinkedIn, YouTube, Twitter and Instagram and keep up-to-date about our projects, products and events.

Let's connect!



► Due for completion in 2019, the Shanghai-Nantong Yangtze River Bridge will be the world's biggest cable-stayed bridge

The Facts

Project:

Shanghai-Nantong Yangtze River Bridge

Contractor: MBEC No.4, No. 2

Start and scheduled end date of work:

June 2016 – Late 2019

Systems in use: SKE100 plus, Top 50

Length: 11,076 m

Span length: 1,092 m



China's mega-bridges

The Shanghai-Nantong Yangtze River Bridge sets world records.

In China, bridges are often mega-size structures and some have already won international awards. One of these mega-projects is the Shanghai-Nantong Yangtze River Bridge in China's Jiangsu Province, north of Shanghai. It will be the world's biggest cable-stayed bridge and it will also have the tallest pylons at 325 metres. With a total length of 11,072 metres, the bridge has two levels, with a six-lane highway on the upper level and a four-line railway on the lower.

The new traffic link is part of the efforts to create a new economic zone around Shanghai, China's trade centre and home to some 25 million people. When completed, the bridge will cut journey time between Shanghai and Nantong from two hours to one. Doka automatic climbing formwork SKE100 plus is being used in combination with Large-area formwork Top 50 to construct the pylons. Difficult weather conditions (wind speeds up to 220 km/h), climbing in 55 pouring steps without major alterations to the working platforms and progressive re-use of the formwork sheets posed major challenges for Doka.

Pingtang Bridge will be China's first cross-sea rail-road bridge.

The Pingtang bridge is located in southeast, Fujian Province and will be the first cross-sea highway-rail-way double deck bridge in China. The 16,34 km long bridge connects Fuzhou with the island city of Pingtan off the coast of the Taiwan Straits. Main span length of cable-stayed bridge is 532 m. To build the entire bridge, workers will need to use 300,000 tonnes of

steel and 2,660,000 tonnes of cement. It will have an eight-lane highway on the top and a high-speed railway at the bottom and it is designed to support bullet trains travelling as fast as 220 km/h.

In both bridge projects the construction managers opted for Doka's SKE100 plus automatic climbing formwork system, which is designed to ensure smooth progress on the build even when outdoor conditions are extreme. //

The Facts

Project: Pintang Bridge

Contractor: MBEC No. 5

Scheduled end date of work:
End of 2019

Systems in use: SKE100 plus, Top 50

Length: 16,3 km

Span length: 532 m



The 16,3 km long Pintang Bridge connects Fuzhou with the island city of Pingtan off the coast of the Taiwan Straits.



Lubeca Jumpform

The forming machine for a professional construction workflow

The Lubeca Jumpform is a modular formwork system for highrise cores. The entire platform is lifted hydraulically in only a few operational steps at the pull of a lever. For the repositioning procedure, long stroke heavy duty hydraulic rams are used, which allow for the system to climb from floor to floor in a continuous process to achieve fast progress. The system incorporates a unique three-way adjustment system for its wallform panels that assures greater accuracy of formwork adjustment. It has jacking

beams supported by concrete that has already set in a previous pour, allowing the structure to be lifted the day after pouring and the core to cycle independently from the slabs. The Jumpform is fully enclosed, which prevents the hazard of falling objects from locations opened up during repositioning. Additionally, the hydraulic safety features in use include a complete backup system and non-return ratchet locks and valves on each ram to assure safe climbing.

▼ Two Jumpform systems were used for the 18 Storey apartment towers.



The Projects

Elm & Stone: Docklands Drive, Melbourne

For the Elm & Stone project, which includes two, 18 Story apartment towers, two mid-size Jumpform systems with 5 cylinders in each were used.

One of the major challenges Lubeca faced was to design, fabricate, pre-assemble and deliver the systems in eight weeks. The design and engineering has expedited extensively with the drafting assistance of the Doka regional design center. Regular communication and coordination with production and external fabricators made it possible to manufacture and deliver the systems at expected dates. Lubeca had also designed an additional external trailing platform, suspended off the Jumpform to give workers a safe access for easy installation of the support columns.

Victoria Police Centre: Spencer St West Melbourne

The Victoria Police Center is a new 38 Story complex with office accommodation totaling approximately 65,000 m² area. It has one large core structure (40 m x 10 m) with 16 shafts incorporating 19 lifts.

The challenge for Lubeca was the sheer size of the system required and to ensure the system could reach a cycle time of 6 to 7 days per floor. Approximately 300 cubic meters of concrete is required for every pour, therefore the system needed to be designed to split the pour into two, whilst maintaining proper access and egress and ensuring the workability of the system was not affected. Lubeca also needed to take into account that the core break backs at level 20, 30 and 37, ensuring that the system was designed to adhere to the new configuration with minimal delay to the site.



► The system is currently achieving a 6 day cycle.

The Eastbourne: Albert St East Melbourne

The Eastbourne is a 11 to 17 Story residential building with 275 dwellings totaling approximately 75,000 m² area. It consisted four separate cores, each with four shafts and two lift shafts in each core.

The main challenge was with the delivery time frame, and sequencing the design and fabrication to make sure all four systems were delivered and installed within a 10 week period. In addition, one of the systems had to be installed adjacent to a piled wall (only 200 mm clearance from piled wall to core wall) and required the capacity to extend over the retention structure once the system cleared the capping beam.



► The four systems were delivered and installed within a 6 week period.

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The Formwork Experts.