

## **PRESS RELEASE**

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### **Thai DSC Product expands and invests in modern solid wall production**

**The Thai construction industry has grown rapidly over the last 20 years. Even though Covid-19 has slowed down the growth, the boom continues, especially around the megacity Bangkok. A pioneer in the industrial pre-production of precast concrete elements in Thailand is DSC Product. At the beginning of 2020, the company expanded its building materials portfolio to include prefabricated solid walls.**

Wittawat Pornkul, Chairman of DSC Product Company Limited, is one of the visionaries in the construction industry in Thailand. As a subsidiary of the DCON Group, the precast concrete specialist has been producing slab elements and special concrete components for the most renowned property developers in Thailand since the 1990s, as well as for real estate projects of Orrada Company Limited, the real estate development company of the DCON Group. "We mainly supply the products for low rise commercial buildings and residential areas for today's modern Thai family. We also have DCON Prime in Rattathibet Sai Ma district in the heart of Bangkok, a 38 floors, high rise condominium project. It is the only condominium in the area that has 3 things: direct connection to metro system, panoramic river view and an infinity edge swimming pool on the roof terrace" describes Wittawat Pornkul. In addition, the CO<sub>2</sub> footprint of the building has been reduced by 25% and water consumption by 50%. The residential buildings have excellent thermal properties and are also extremely weather-resistant".

In order to realise such construction projects, building systems with industrially prefabricated concrete elements have become firmly established in Thailand since the 2000s. Politicians also support this with targeted urban development programmes. "In order to create more living space and realise true quantum leaps in terms of architecture, construction quality, cost efficiency and the time factor, the precast construction method offers significant advantages" explains Steffen Schmitt, Executive Sales Director at the concrete works specialist Vollert. "DSC Product recognised this early on." Whereas customers and construction projects were previously supplied mainly with floor slabs, hollow core slabs and lightweight blocks, the decision was made at the beginning of 2018 to expand the construction portfolio to include pre-produced solid walls. "Customer demand has multiplied in recent years due to the many advantages. We wanted to find an answer to this," says Wittawat Pornkul.

### **Extensive know-how - from plant layout to BIM integration**

"Both project partners from Vollert and DSC Product worked in a highly professional and extremely motivated manner from the very beginning. Different points of view were certainly also discussed controversially", says Wittawat Pornkul. The developed plant concept comprises an annual capacity of 180,000 sqm of solid concrete parts. Various production technology concepts such as a purely stationary tilting table production or battery formwork were discussed in detail, and the pros and cons weighed up controversially. For optimum plant automation with maximum return on profit, the decision was made in favour of Vollert's Central Shifter Plant (CSP) concept. The heart of the system is a central shifter platform, which serves all machines and processes. The plant layout is designed to be extremely compact on a floor space of 4,000 sqm. The proximity to the customers was also important. Strategically located in Lumlukka district of Pathum Thani Province, the nearby construction sites can be reached in just a few minutes with optimum traffic.

Software integration played another important role in the planning and concept phase. Today, the Building Information Modelling (BIM) planning method has become established worldwide. "Residential building complexes such as the DCON Prime building project are initially created virtually in 3D. All important data of the walls and floor slabs is produced then flow directly into the production engineering processes as well as into the preliminary planning of the construction site procedures. In addition, the BIM construction details are accessible at any time on a digital data platform for architects, structural engineers or electrical engineers", describes Steffen Schmitt from Vollert. "This also had to be taken into account on the production and control side. We have a great deal of know-how in this area on the automation side. In markets such as Thailand, we always strike a balance between maximum integration and maximum investment security for the customer."

### **Central shifter platform as heart of the compact precast concrete production line**

"An optimum degree of automation, absolutely flexible throughput processes and state-of-the-art machines 'made in Germany' were the focus at DSC Products" explains Daniel Borchardt, responsible Project Manager at Vollert. Up to 600 sqm of solid concrete parts have been produced daily since May 2020. Wall widths of up to 3.50 m and wall thicknesses of up to 200 mm are produced. The building materials supplier can not only supply the large-scale construction projects in Bangkok, but can also react flexibly to customer enquiries from the entire region of South East Asia.

The total of 30 pallet positions for the cleaning, reinforcement, concreting or curing processes are integrated via an intelligent plant and transport concept and the Vario SHIFT central shifter platform as the core element. In this way, the advantages of the circulation principle are combined with those of a stationary production line. Individual work processes such as time-consuming reinforcement processes, concreting or curing times of varying lengths are carried out independently of each other. The central shifter platform transports the pallet over a travel length of 130 m along the longitudinal side to the circulating position where it is needed at the time. Cross-lifting trucks then move it to 9 transfer positions, either crosswise to the left or right, to the respective next processing station. "What is special here is that the entire transfer journey is tunnelled over. All processes and machines are quickly accessible at all times via the wide walkway," explains Daniel Borchardt. There are no downtimes or waiting times, and everything runs completely independent of cycle times. There are also several buffer spaces for intermediate storage of walls. "We guarantee our customers maximum delivery readiness. Different wall widths or wall heights must be able to be produced just-in-time. We have to be able to react to this at short notice and adjust the plant processes and pallet occupancy accordingly," explains Kawin Worakanchana, Managing Director at DSC Product.

For the precise marking of the contours of the walls, a SMART PLOT large-scale plotter applies paint according to the CAD/CAM specifications before the wall surface to be concreted is manually stripped and the reinforcement mats and lattice girders are inserted. A SMART LASER precision laser is used to display the positions of the supports and built-in parts for quality assurance purposes. A SMART CAST concrete spreader applies the precisely specified amount of concrete, while hydraulically operated flat slides can be used to cut out individual sections, for example for electrical or sanitary recesses. A SMART COMPACT vibrating station compacts the concrete at low frequency via 10 synchronised external vibrators. After the concreting process, the central shifter platform moves the freshly concreted wall to the line opposite the production side for the first pre-hardening of the concrete. The surface of the solid concrete parts is then finished by an electric Vario SMOOTH rotary trowel. This is done here on two parallel transport lines. "On a total of 20 hardening and finishing stations, which also serve as additional intermediate buffer stations, a wide variety of solid walls can be produced simultaneously, depending on the construction project and the degree of capacity utilisation," explains Kawin Worakanchana. "This makes us extremely flexible."

After a further transfer travel by means of the cross-lift trucks, the solid concrete parts are vertically lifted off with a Vario TILT high performance tilting station. This takes place up to

a maximum tipping angle of 80°. A hydraulically movable support beam moves against the wall and thus prevents slipping during the tipping process. Loading takes place directly into transport racks.

### **Vollert Control Center as the "heart" of precast concrete production**

Automated machine technology ensures a consistently high quality level in solid wall production at DSC Product. The production control system used is also decisive for maximum line productivity. The Vollert Control Center (VCC) is the central interface for the design data from the BIM model and the existing ERP system and machine technology. Throughput times and automated pallet allocation are permanently optimised, all machines are controlled, data is automatically tracked and processed, retrieval sequences and curing times are managed and a large number of statistics are made available. "It is therefore often referred to as the heart of the modern precast concrete plant" says Steffen Schmitt of Vollert. "Both factors, the machine technology and an intelligent plant control system, were for us the cornerstones for the optimal start-up of precast concrete part production at DSC Product at the beginning of 2020".

### **Specially designed for Thailand**

With the CSP concept in combination with the most modern machine technology 'made in Germany', an upscale start-up solution has been realised. In future, large-scale construction projects throughout South East Asia will also use solid walls from DSC Product. "Already today, 6 months after the start-up phase and the first produced walls, we are supplying mega construction projects in Bangkok. We are already above the planned figures," sums up Wittawat Pornkul of DSC Product.

"With Vollert as our know-how and technology partner, we have established a sustainable and future-proof precast concrete production. Even though Covid-19 is currently experiencing strong fluctuations in demand and markets are unstable, we are looking positively to the coming months and years.

## **About Vollert Anlagenbau GmbH**

With more than 370 built precast concrete plants, Vollert Anlagenbau GmbH has become worldwide one of the leaders in technology and innovation in the precast concrete industry since 1925. Vollert always offers its customers state-of-the-art technology, from simple start-up concepts to highly automated multifunctional plants and systems for large and structural concrete elements or prestressed concrete sleepers for tracks and rail networks.

The specialists provide manufacturers of construction materials, construction companies, and property developers with advice on the latest developments in precast concrete manufacturing technology and devise customized, turn-key plant and machine concepts, ranging from high-performance tilting stations and battery moulds for stationary production to automated circulation systems and special formwork, for example, for columns, beams, and prefabricated staircases.

Vollert's plant and machine solutions are deployed in more than 80 countries around the world and in Asia and South America the company's own subsidiaries strengthen in addition the sales activities. Vollert employs more than 280 people at its company headquarters in Weinsberg. **[www.vollert.de](http://www.vollert.de)**

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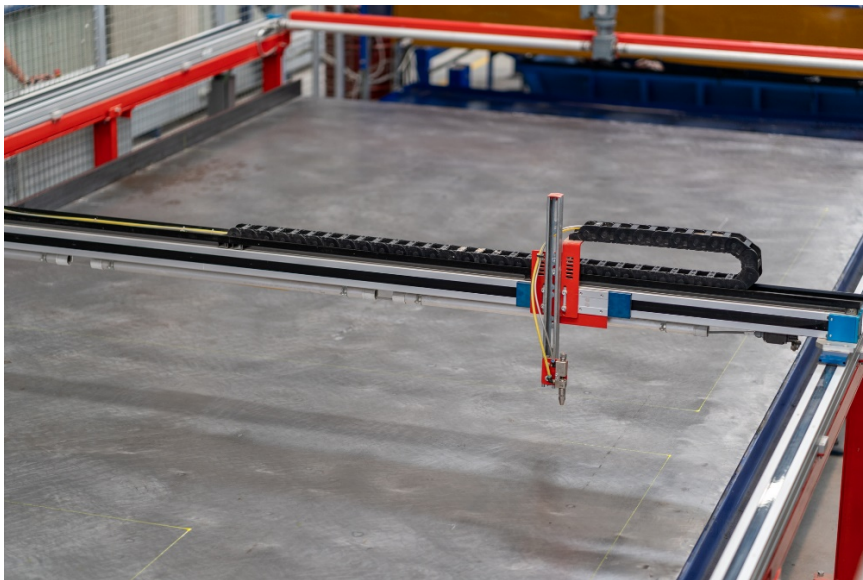


**Image 1 (Source: DSC Product)**  
The DCON Prime building project in Rattana Thit Sai Ma district in the heart of Bangkok combines exclusivity and a feel-good atmosphere.



**Image 2 (Source: DSC Product)**

The developed CSP plant concept comprises a capacity of 180,000 sqm of solid concrete parts per year.



**Image 3 (Source: DSC Product)**

For precise recording of the contours of the wall elements, a SMART PLOT large-scale plotter applies colour according to CAD/CAM specifications.



**Image 4 (Source: DSC Product)**  
The total of 30 pallet positions are integrated via a VARIO SHIFT central shifter platform as the core element.



**Image 5 (Source: DSC Product)**  
A SMART CAST concrete spreader applies the precisely specified amount of concrete.





**Image 6 (Source: DSC Product)**

The surface of the solid concrete parts is then finished by an electric Vario SMOOTH rotary trowel.



**Image 7 (Source: DSC Product)**

The vertical lifting of the solid concrete parts is done by means of a Vario TILT high-performance tilting station.



**Image 8 (Source: DSC Product)**

The production control system is a decisive success factor for maximum productivity.



**Image 9 (Source: DSC Product)**

The quality of the solid concrete parts is permanently monitored and controlled.



**Image 10 (Source: DSC Product)**

Major construction projects throughout South East Asia will in future also use solid walls from DSC Product.



**Image 11 (Source: DSC Product)**

"Already today, 6 months after the start-up phase, we are supplying mega construction projects in Bangkok. We are above the planned figures," sums up Wittawat Pornkul of DSC Product.