

## Press Release

**Drawing approval opens the flood gates for Bosch Rexroth in Vietnam**PI 017/11  
2017-06-06

Bosch Rexroth to deliver 94 hydraulic cylinders of various sizes and hydraulic components by April 2018 for Ho Chi Minh City flood protection project

- ▶ Helping protect 6.5 million people from risk of flooding
- ▶ Operating both vertical and rotating gates
- ▶ Wide variety of hydraulic cylinders with weights up to 25,000kg



Photo: Example of one of the flood barriers, design based on Dutch 'Hartelkering' (with courtesy of TrungNam)

**In June 2017 Bosch Rexroth received a drawing approval for production of 94 hydraulic cylinders, plus all components for 36 hydraulic power units for use in civil engineering works in Vietnam. This equipment will be used in 8 projects in the extensive Ho Chi Minh City flood protection plan. When completed, this network of storm surge barriers will help provide protection for the city's population of 6.5 million. The cylinder order covers a wide range of sizes and Bosch Rexroth will be supplying them over a very short time period, from November 2017 to March/April 2018. Together with being able to deliver high quality products within a tight deadline, Rexroth's pro-active international cooperation with project partners, multi-team coordination skills, and the ability to provide local support from their HCMC office helped to secure this significant civil engineering project.**

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The 94 hydraulic cylinders fulfil a single order made by TrungNam covering 8 separate projects that make up the HCMC flood protection plan. The cylinders will be used for gates and ship locks which, along with an 8 km dike along the Saigon River, are expected to tackle flooding for an area of 570 km<sup>2</sup>. Due to the many different gates, a wide variety of cylinder sizes is needed. They range from 80 mm bore and 350 mm stroke to 600 mm bore and 18.7 m stroke (80/45/350 to 600/280/18700), with weights up to 25,000 kg.

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“Originally TrungNam had specified different hydraulic cylinders to meet the unique specifications of each gate,” said Frank Maas, Senior Manager Cylinder Sales, Bosch Rexroth. “However, during our initial discussions, we were able to suggest some minor adjustments that enabled us to reduce the total number of different cylinders required. For example, for the vertical gates, we brought the number of cylinder types down from eight to only four different ones. This makes the project much more efficient and significantly lowers production costs.”

24 of the biggest hydraulic cylinders will be produced in Boxtel, the Netherlands with the remaining ones being made at the Lohr am Main plant in Germany. The cylinders feature Rexroth’s own CIMSmart (Cylinder Integrated Measuring System) to accurately measure piston rod position. Among other benefits, CIMSmart offers visualization of piston position. The 18.7 m stroke cylinders for the major gates incorporate 3 CIMSmart sensors each, as redundancy to safeguard against unlikely failure of one of the sensors.

To protect the cylinder rods from the corrosive environment, Rexroth applies its own Enduroq 2200 protection layer. This reliable coating offers more than 60,000 hours protection, according to the DNV C-1 ISO 4536 standards, which will give the hydraulic cylinders an operating lifetime of approximately 25 to 30 years.

Two types of gates are being built for the sluices and ship locks – vertical barriers and rotating barrier. Rexroth has worked on previous projects involving these types of gates, so the company understands the particular challenges of each. In Rotterdam, the Netherlands, Rexroth hydraulic cylinders are used for vertical gates. The gates operate only once every few years to prevent flooding, but are also tested annually. A reference project with rotating gates operated by Bosch Rexroth cylinders, can be found in

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Germany: the EMS barrier. At this construction site the world's biggest cruise ships are built, and the water is normally too shallow to support the ships when launched. Closing the gates raises the water level to let ships out into the sea.

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"This extensive project in Vietnam involves a lot of coordination, with people from Holland, Germany (both cylinders and systems teams), one technical project manager in Singapore and another in Holland, plus the local team in Vietnam," said Frank Maas.

"We are very impressed with how quickly and efficiently Rexroth is handling their part of the project," said TrungNam. "Having support from their local HCMC office and being able to speak the same language is invaluable."

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