



Rod el Farag Axis Bridge

Cairo, Egypt



Construction
**ARAB CONTRACTORS
COMPANY**

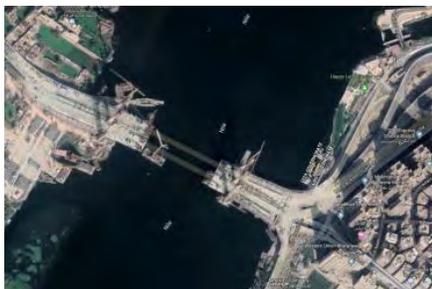
Consulting Engineer
ACE MOHARRAM-BAKHOUM

Owner
**ARMED FORCES
ENGINEERING AUTHORITY**

Products
CONCENTRATE

Project Type
CABLE-STAYED BRIDGE

Cable-stayed Rod el Farag Axis Bridge is the widest in the world.



Rod el Farag Axis Bridge location north of central Cairo provides a bypass corridor that allows traffic to flow from Red Sea in the east to the Mediterranean in the north without passing through downtown Cairo.



The Rod el Farag Axis Bridge, inaugurated in May 2019 by Egyptian president Abdel Fattah El Sisi, is the final element completing a critical new 600 km (373 mile) travel corridor that links the Red Sea to the Mediterranean. A key project goal is to reduce traffic congestion in central Cairo by linking eastern Cairo to the country's northern regions without passing through the center of the capital city.

The new bridge—also known as the Tahya Masr Bridge ('Long Live Egypt Bridge')—was built in just four years by a consortium of Egyptian firms led by the Arab Contractors Company under the supervision of the Armed Forces Engineering Authority. The 540 m (1,772 ft) bridge features six traffic lanes in each direction and, at 67.36 m (220 ft 9.6 in) wide, it has been deemed the widest cable-stayed bridge in world by Guinness World Records.

More than one million cubic meters of concrete was used to build the bridge, which was used in the bridge decking, girders, and six 92 m (302 ft) tall concrete towers that support 160 steel support cables. One of the

key challenges for the bridge designers was how to adequately protect the critical concrete structures from the effects of air pollution and the moist riverine environment.

ACE Moharram-Bakhom, consulting engineers for the bridge project, recommended that Arab Contractors treat the main concrete towers with Xypex [Concentrate](#) in order to provide integral, lifetime protection from natural and manmade elements.

Xypex Concentrate consists of Portland cement, finely graded sand and active proprietary chemicals. Concentrate was applied by brush as a cementitious slurry to 1,000 square meters of pre-saturated concrete surface on the six bridge towers.

The active chemicals within Xypex Concentrate diffuse into the substrate and react with moisture and the constituents of hardened concrete to cause a catalytic reaction. This reaction generates a non-soluble crystalline formation throughout the pores and capillary tracts of the concrete that permanently seals the concrete and prevents the



Several custom-made crane barges were built just for the Rod el Farag Axis Bridge construction project. Six 92 m tall towers support 160 cables. The concrete towers were protected with Xypex Concentrate.



Six lanes in each direction. The Rod el Farag Axis Bridge spans the Nile between the Shobra region of Cairo to Warriq Island. Many ramps and overpasses feed into and out of the 12 lanes that flow across the new Rod el Farag Axis Bridge.



Glass panels on right side of walkway provide view down to Nile.



Four years in the making, the Rod el Farag Axis Bridge required 4,000 engineers, technicians and workers to complete.

penetration of water and other liquids from any direction, even under high hydrostatic pressure.

Xypex Concentrate not only permanently seals the concrete and can heal hairline cracks up to 0.4 mm, it also provides chemical resistance properties that mitigate the attack of chlorides, sulfates and the effects of carbonation and alkali-aggregate reaction.

The 1,000 kilos of Xypex Concentrate required for the Rod el Farag Axis Bridge project were provided by the Xypex distributor for Egypt, Beton Alexco, of Alexandria, Egypt. “Xypex Concentrate was applied at a rate of one part water to 2.5 parts Concentrate powder,” explains Xypex representative Amr Saad, when reached at his office in Alexandria.

Saad’s company has provided Xypex products—including Xypex [Admix](#), [Concentrate](#), [Megamix](#) and [Patch’n Plug](#)—for many high profile projects in Egypt, including restoration of the Cairo Metro Line; waterproofing of the Ramses 2 monument; repairs to the Suez Canal; and waterproofing of the Capital Business Park.

“We have worked with the ACE consulting engineers on this and other projects in the past,” Saad notes. “The consultants have had excellent experiences with Xypex on several important projects. They recognize that there are other alternatives—perhaps even less expensive than Xypex—but only Xypex delivers true crystalline waterproofing technology that has been proven in high profile projects around the world for more than 40 years.”

It took the Arab Contractors crew just 24 hours to treat the six main columns of the Rod el Farag Axis Bridge with Xypex Concentrate. The huge towers support 160 separate steel cables, requiring 1,500 km (870 miles) of steel wire. The towers are built on more than 6,000 pilings.

“The Xypex Concentrate will provide protection for this historic bridge for the lifetime of the structure without any further maintenance or renewal,” says Amr Saad. “Our market here in Egypt is gradually growing to understand the difference that [Xypex crystallization technology](#) provides. No other product on the market has the proven experience and research results that we do. When customers want the best, they come to us.”