

maeg

- BRIDGES AND VIADUCTS

Cable-stayed bridges

Specialist in the **design,** **manufacturing** and **installation** of steel structures

About Maeg

Maeg is an international player in the construction sector. With more than 40 years of experience, Maeg's expertise can adapt to each project characteristics to devise tailor-made and innovative engineering solutions, concretely transforming design into substance.



ISO 9001:2015



ISO 1090-1/2



ISO 3834



EURO SOA



RFI - SQ008 TMF-001



AFER



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List of projects

Cable-stayed bridges

Sidi Maârouf Bridge, Casablanca - Morocco
Muhammud Baquir Al-Sadr Bridge, Basra - Iraq
Estaiado de Curitiba Bridge, Curitiba - Brazil
Marghera Bridge, Venice - Italy

07-08 | 09-10
11-12 | 13-14
15-16 | 17-18
19-20 | 21-22

SIDI MAÂROUF BRIDGE

Location	Casablanca, Morocco
Client	DRETL
Contractor	Société d'Exploitation des Procédés Boussiron (SEPROB SA)
Scope of work	Design, fabrication and installation of steel structures
Period of execution	2016-2018
Weight	3.500 tons
Length	224 meters (36+138+50)

This asymmetric cable-stayed bridge, built in the center of Casablanca, is the second biggest bridge in Morocco of its typology. Its main purpose is to improve the viability of the Sidi Maârouf district, where six main arterial roads converge reaching a peak transit of more than 17.000 vehicles per hour.

The structure is characterized by a 75 meters tall antenna composed by a metal core and covered of reinforced concrete, inclined of 12 degrees with the regards to the vertical axis. This single-antenna solution has been preferred to satisfy the requirement to leave the below road traffic as unhindered as possible, avoiding the placement of pillars. For this reason, the 138-meter-long central span realized of a steel framework reinforced with a concrete slab is supported by 27 steel cables, divided

in three groups and three directions. Overall, the weight of the steel structure is 3.500 tons.





MUHAMMAD BAQUIR AL-SADR BRIDGE

Location	Basra, Iraq
Client	Basra Governorate
Contractor	Maeg Branch Iraq
Scope of work	General Contractor
Period of execution	2013-2017
Weight	6.100 tons
Length	1.188 meters

This structure, crossing the union of the rivers Tigris and Euphrates, is the first great realization of a broader urbanization program of the Iraqi region. By connecting the city of Basra to its suburbs developing transport and trade, the project has had a remarkable impact on the local population. Maeg was appointed as a General Contractor, completing the work in just 26 months.

The project is composed of two viaducts having a length of 450 (37+43*8+69) taking to a central cable-stayed bridge 288 meters long (69+150+69) and supported 14 steel cables connected to two antennas 40 meters tall. The width of the bridge is 21.5 meters. Altogether, the weight of the steel structures is 6.017 tons, supported

by 25 concrete pillars having a diameter between 1.8-2 meters, dug into the ground at a depth of 50 meters to offset the seismicity of the area. Overall, 33.500 cubic meters of concrete have been used. The assembly method was designed to meet two main requirements: firstly, to concentrate as many activities as possible on the ground, where working conditions are easier and more controlled, and secondly to avoid interference with the maritime traffic.

The solution was to create on both sides of the bridge a pre-assembly area equipped with gantry cranes to prepare 10-12 meters long segments to be slid on roller conveyors by means of jacks and then installed by incremental launching. Similarly, steel antennas were firstly transported at location horizontally, then lifted with jacks and a specially designed equipment installed in front and behind the antenna to allow final positioning.





ESTAIADO DE CURITIBA BRIDGE

Location
Curitiba, Brazil
Client
Municipality of Curitiba
Contractor
Consortio CR Almeida - J Malucelli Contratante
Scope of work
Design, fabrication and installation of steel structures
Period of execution
2013
Weight
2.100 tons
Length
225 meters (70+129+26)

Conceived with a view to the FIFA World Cup in 2014 and the Olympic Games in 2016, the Estaiado de Curitiba Bridge facilitates the transit between the two principal roads of the city, connecting the airport to the capital, city of the state Paraná.

The structure of bridge consists of a 225 meters long deck with a weight of 1.600 tons supported, through 20 steel cables, by a 75 meters tall and 500 tons heavy trapezoidal antenna. From the installation point of view, it was necessary to find a solution taking in consideration very limited site spaces due to the high urban density of the area and the impossibility of interrupting the underlying road traffic. For this reason, it has been created a temporary track ballast area with a gantry crane to pre-assemble segments of the deck, pushed

then in position by sliding them on roller conveyors by means of jacks. Since there was no space for lifting cranes, a temporary lifting equipment was created to rotate the

antenna by using a system made of bracing and hydraulic jacks, completing the operation in just six hours.





MARGHERA BRIDGE

Location	Venice, Italy
Client	Autorità Portuale di Venezia
Contractor	Rizzani de Eccher
Scope of work	Design, fabrication and installation of steel structures
Period of execution	2003-2004
Weight	4.710 tons
Length	421 meters (42+105+124+30+42*2+36)

The design of the project was born in the Parisian studio Jean Muller International (JMI) and was shown at the exhibition “Venice: the new architecture” in 1999: the unusual curvilinear structure and the 75 meters high antenna that made of the bridge the new symbol of the reconversion of the industrial area of Porto Marghera.

This double-carriageway bridge, with a width of 27.7 meters and a total length of 421 meters, presents a curvilinear structure with a radius of 175 meters. The two main spans are supported by 18 steel cables connected to the 75.4 meters tall antenna made of concrete, which is inclined of 19 degrees with respect to the vertical axis and present a variable triangular section. Overall, the weight of the steel structures

reaches 4.710 tons. The area surrounding the construction site has always remained open to port and road traffic limiting the maneuvering space. It required to assemble the central spans above the dock from a barge and then placed them between the central pillar and temporary towers

located on the shores until the final lowering by means of four hydraulic towers. The operations were performed within a timeframe of twelve hours per span, when the tidal conditions were favorable.





Ideas
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