maeg

Bridges and viaducts

Arch bridges
Cable-stayed bridges
Pedestrian bridges
Railway bridges
Suspension bridges
Trestle Bridges
Viaducts

www.maegspa.com

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.

maeg

5 Workshops
126.500 sqm
100% Italian
700+ People
65.000 Ton/year
25+ Countries
40 Years of experience

Reliability

Transforming an idea into its tangible realization is a complex process, involving several different phases. Each phase is managed by dedicated and expert teams, who coordinated and integrate their different skills and capabilities maximizing the efficiency of the process for the benefit of time and cost reduction.
The obtaining from internationally recognized assessment bodies of the major certifications of the sector in terms of quality and know-how assures Maeg's capabilities and attention to quality standards to deliver the project in compliance with the requirements.

Specialistic know-how

Steel construction is a niche in the construction sector, and it takes a specific knowledge of the material's features and behavior to optimize its use and better serve the project. Each project, then, is different from one another and requires conceiving tailor-made solutions adapting to its unique requirements.
In decades of activity and thousands of different projects completed, Maeg has learned and gained in the field the knowhow and expertise to devise cutting-edge customized solutions, confirming to be a reliable partner in the construction of heavy-steel complex structures.

Production expertise

The process of designing, procure and manufacture the steel elements constitutes the major part of a project.
Maeg's production workshops and offices are concentrated in the North-East of Italy, in five production plants located in an area of 35 kilometers with a total surface of 126.500 sqm so, by remaining geographically close, we can maintain the process flexible and monitored every step of the way, being fully engaged along the whole construction process, monitoring the performance and optimizing the dialogue with the construction site to facilitate its activities.

International approach

Each country's unique set of rules and habits require the ability to quickly adapt, and Maeg has had the opportunity, over the years, to work in over 28 countries around the world.

Europe Albania, Bosnia and Herzegovina, Cyprus, Croatia, France, Germany, Italy, Romania, Russia, Sweden **Middle East** Iraq, Israel, Qatar, United Arab Emirates **Africa** Algeria, Cameroon, Egypt, Ethiopia, Gabon, Morocco, Sudan, Uganda, Tanzania **Americas** Brazil, Colombia, Ecuador, USA

Marmore Bridge, Terni - Italy

maeg

List of projects

A26 SUSPENSION BRIDGE

Location
Linz, Austria

Client
ASFINAG

Contractor
ARGE A26 DONAU BRÜCKE ICM MAEG F-PILE

Scope of work
Design, fabrication and installation of steel structures

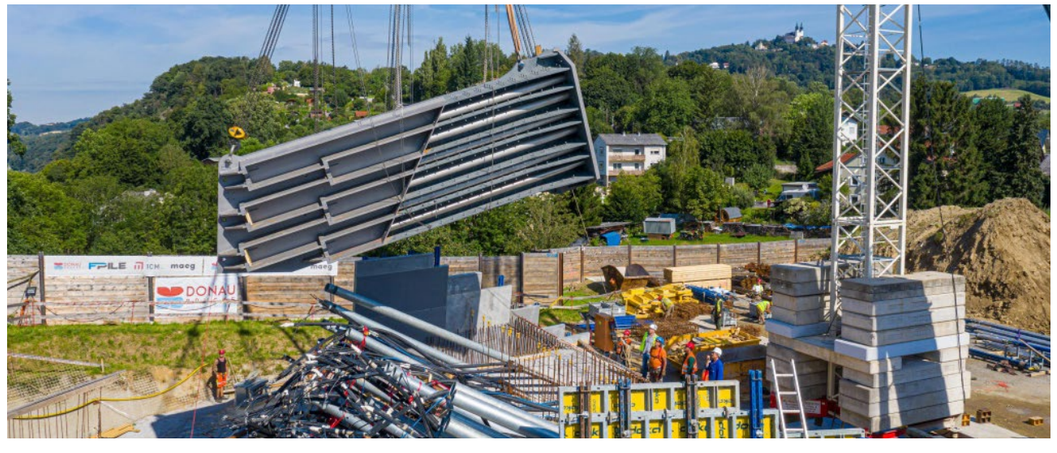
Period of execution
2019-ongoing

Weight
2.200 tons

Length
305 meters

A26 Linzer Autobahn is a project that aims to solve traffic congestion in the third Austrian city. The first segment consists of the construction of a suspended bridge over the Danube River, 305 meters long, that connects two tunnels of 3.0 km.

The bridge consists of a 24.5-meter-wide deck constituted by a trapezoidal steel box girder 7.8 meters wide in the upper part and 5 in the lower part, spaced by steel cross beams of 14.55 meters supporting concrete slabs. For reasons of space on site, the deck is pre-assembled in macro elements in a dedicated area along the Danube river. Then is moved into position with a barge, lifted with jacks and hooked to hanger cables. The structure is supported by two rows of twelve steel cables each, hooked to concrete anchors immersed in the slope of the mountain, anchored to the rock by over a hundred rods each.




Linz

SHINDAGHA BRIDGE

Location
Dubai, United Arab Emirates (UAE)

Client
Road & Transport Authority (RTA)

Contractor
Belhasa Six Construct LLC

Scope of work
Design, fabrication and installation of steel structures

Period of execution
2019-2021

Weight
2.500 tons

Length
135 meters

The 12-lane deck of the Shindagha Bridge is made of concrete while the iconic arch, also referred to “infinity arch” for its architectural shape similar to the mathematical symbol for infinity, is entirely made of steel. The project is part of the Shindagha Corridor, a 13 kilometres extension to improve the traffic flow in on of the most ancient neighbourhoods of the city, also welcoming the maritime traffic at the entrance of the Dubai Creek.

The steel arch is made of 46 segments reaching a height of 67 meters and span length of 135 meters and, in its final geometry, it had only 20mm of tolerance from the theoretical development. Its installation was split in two phases: in the first phase, 10 arch ribs have been installed by 600ton crawler crane and were partially embedded in the concrete piers to allow then the completion of the concrete deck, starting then the second phase with the erection of macro segments of around 100 tons and 41 meters length by using a 600ton crawler crane standing on a barge. Arch segments were placed on 35 meters tall temporary towers, four of which placed inside the water, four above the pier protection system composed by piles and five above the deck. The final surface layer of the painting treatment of the arch is quite particular and gives a silver metallic aspect to the structure.

MOARAVA BRIDGE

Location
Olomouc, Czech Republic

Client

Contractor
SILNICE GROUP a.s.

Scope of work
Design, fabrication and installation of steel structures

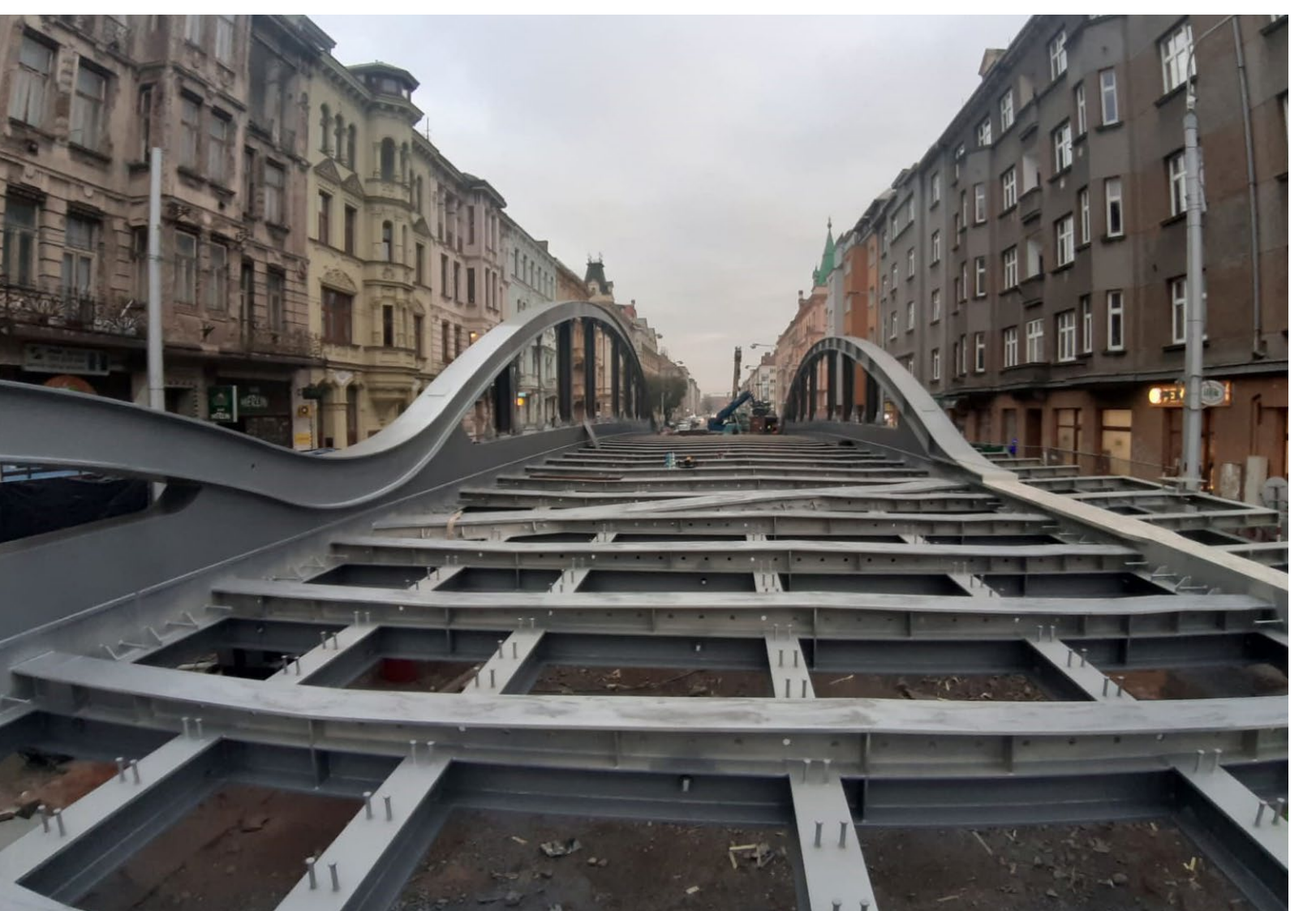
Period of execution
2020-2021

Weight
480 tons

Length
55 meters

The Morava River basin is usually affected by copious floods. Since the most destructive one in 1997, the Olomouc districts started to implement flood protection measures: due to the necessary widening of the riverbed, there was the need to replace the existing bridge located in Masarykova Street.

The Bridge over the Morava River is both a road and rail bridge. It represents the penultimate phase in the construction of this stage of flood protection. The structure has been designed by the renowned architect Antonín Novák to resemble the shape of a floating fish, which is recalled by the sinuosity of the double arches placed on the internal side of each of the two carriageways and connected to the deck with metal bars with a diameter of 60mm. The overall structure has a width of 26 meters and a length of 55 meters. Its installation took place in two different moments to avoid the interruption of the traffic, one carriageway per time: firstly one way of the existing bridge has been demolished, then the new structures assembled on the ground and lastly launched in its final position with the aid of a launching nose.



ARCO DEL BICENTENARIO BRIDGE

Location
Bogotá, Colombia

Client
Gobernación de Cundinamarca

Contractor
Consorcio Infraestructura Cundinamarca
Constratista

Scope of work
Design, fabrication and installation of steel structures

Period of execution
2012

Weight
760 tons

Length
140 meters

Between 2010 and 2011 the Tequendama region has suffered frequent storms and consequent landslides, making the soil shaky and unstable. Compared to concrete, the construction of a steel structure allows to reach a greater depth of the piles - up to 30 meters - balancing the instability of the ground and absorbing vibrations.

The Arco del Bicentenario Viaduct celebrates the two hundred years of independence of the Cundimarca region (one of the 32 departments in Colombia). This viaduct consists of a deck made of S355JOW steel with a length of 140 meters and a width of 11 meters, supported by a bifurcated arch made of S355J2 steel with a total weight of 766 tons. The viaduct is supported by two pillars with depth between 25 and 30 meters and with a diameter of 1.5 meters to counterbalance the instability of the ground and absorb vibrations. The arch was assembled on the ground with the help of temporary equipment and, once completed, positioned and supported by a system of temporary cables that, hooked to a temporary tower placed on each end of the bridge, unloaded their weight on counterweights. After the installation of the key element, joint have been welded completing the installation.


QUEBRADA
LOS CHORROS

LEONARDO BRIDGE

Location
Arezzo, Italy

Client
Province of Arezzo

Contractor
Joint Venture Impresa S.p.A. - Marcegaglia S.p.A.

Scope of work
Design, fabrication and installation of steel structures

Period of execution
2009-2010

Weight
2.580 tons

Length
475 meters (5+3*30+110+ 77+48+4*30+25)

Part of the broader renovation of the regional road N. 69, it was built to solve the traffic congestion problem afflicting the area. Legend tells that the landscape of the area is the one painted behind the Mona Lisa, therefore for this reason and for the engineering peculiarity of the structure, the bridge has been dedicated to Leonardo da Vinci.

The Leonardo Bridge is a double-arch bridge designed by the Spanish studio of architects Carlo Fernandez Casado SL. The distribution of the spans had to consider the geology of the ground, the flow of the Arno River and the need to climb over the Sun Motorway A1: for these reasons the 475 meters long structure has twelve spans with two inclined arches, in correspondence of the two main spans, joined at the top by mean of two intermediate connections. These arches have been assembled on site by using temporary towers and are connected to a 22.6-meter-wide deck through lower connection placed every 5 meters. Overall, the steel structures weight reaches 2.584 tons. A design criterion was the search for a solution that did not involve any visual or scenic interruption of the surrounding landscape, therefore this light structure leaves the view wide and unhindered.

MUSIC BRIDGE

Location
Rome, Italy

Client
Municipality of Rome

Contractor
“Consta” Consorzio Stabile Soc. Cons. p.a.
(consorziata Mattioli S.p.A.)

Scope of work
Design, fabrication and installation of steel structures

Period of execution
2007-2008

Weight
1.320 tons

Length
190 meters

Planned since 1929, it had acquired an extremely high political and aesthetical relevance for the city: it is now the only modern steel bridge crossing the River Tiber in the historic centre of Rome. In case historical artefacts emerged during the works, site operations have been supervised by a group of archaeologists.

The Music Bridge has an overall length of 190 meters with a free span between the supports of 182 meters. The pedestrian deck, which has a variable width between 17 and 20 meters, has been installed on top of temporary towers until where shores made it possible, continuing then with a cantilever method. Using the same principle of a cable-stayed bridge, the central segments have been supported by steel cables connected to two temporary towers located on the ground, reaching a height of 30 meters. After installation, the two diverging arches have been fixed on one side and left free to slide on bearing on the other. The peculiarity of the structure is the presence of six steel cables inside the deck supporting its weight: only when these cables were properly tensioned, and temporary ropes loosen, the structure could support its weight changing its structural behavior into the arch type. This solution became necessary to support the weight of the considerable central span of the bridge while improving the seismic performance of the structure.

MARMORE BRIDGE

Location
Terni, Italy

Client
Anas S.p.A.

Contractor
Consorzio stabile Uniter

Scope of work
Design, fabrication and installation of steel structures

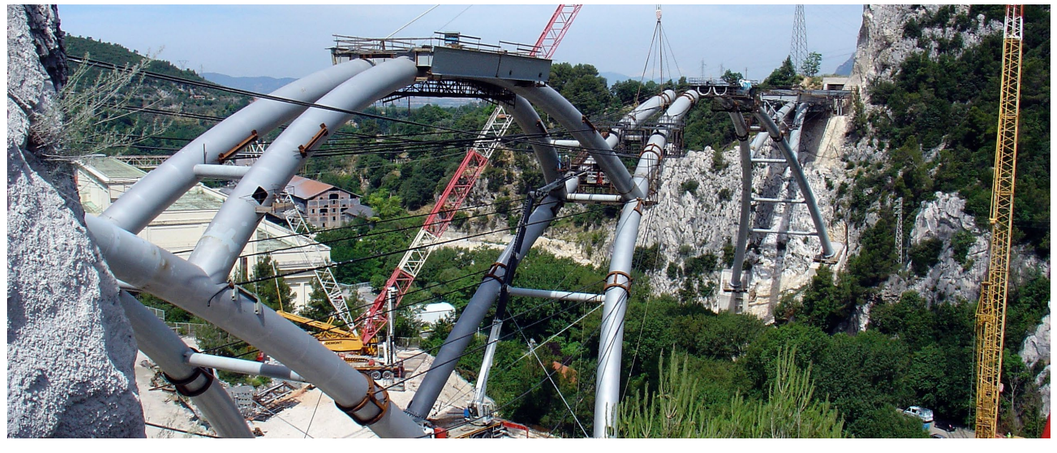
Period of execution
2006-2008

Weight
2.500 tons

Length
302 meters (31+173+98)

The Marmore Bridge crosses the Nera River and the state highway S.S.N. 209. It has a key role for the local road network by reducing travel time between the cities of Rieti and Terni from one hour to only fifteen minutes, avoiding a dangerous route.

The structure of this arch bridge is composed of a pair of steel pipes with a diameter of 2200mm including an internal reticular bracing system, necessary to maintain the geometry during the first assembly phases, as well as external crossbuck bracings connecting the different elements. The bridge has a total length of 302 meters with a width of 12 meters. Strain gauges have been used both during the construction and testing phases to measure possible deformations of the main structures, either due to mechanical stress in case of loads or to thermal reasons in case of variations of the temperature. To safeguard as much as possible the environment, the bridge was built at a height of 70 meter from the ground without the aid of any temporary support structure: instead, to ensure stability and resistance during the assembly phase, the structure has been supported by steel cables that also added an internal elastic coaction. Altogether, the weight of the steel structure amounts to 2.500 tons.



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
Consorcio 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 Paranà.

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.


Walmart
Balaroti
BONO

MARGHERA BRIDGE

Location
Venice, Italy

Client
Autorità Portuale di Venezia

Contractor
Rizzani de Eccher

Scope of work
Design, fabrication and installation of steel structures

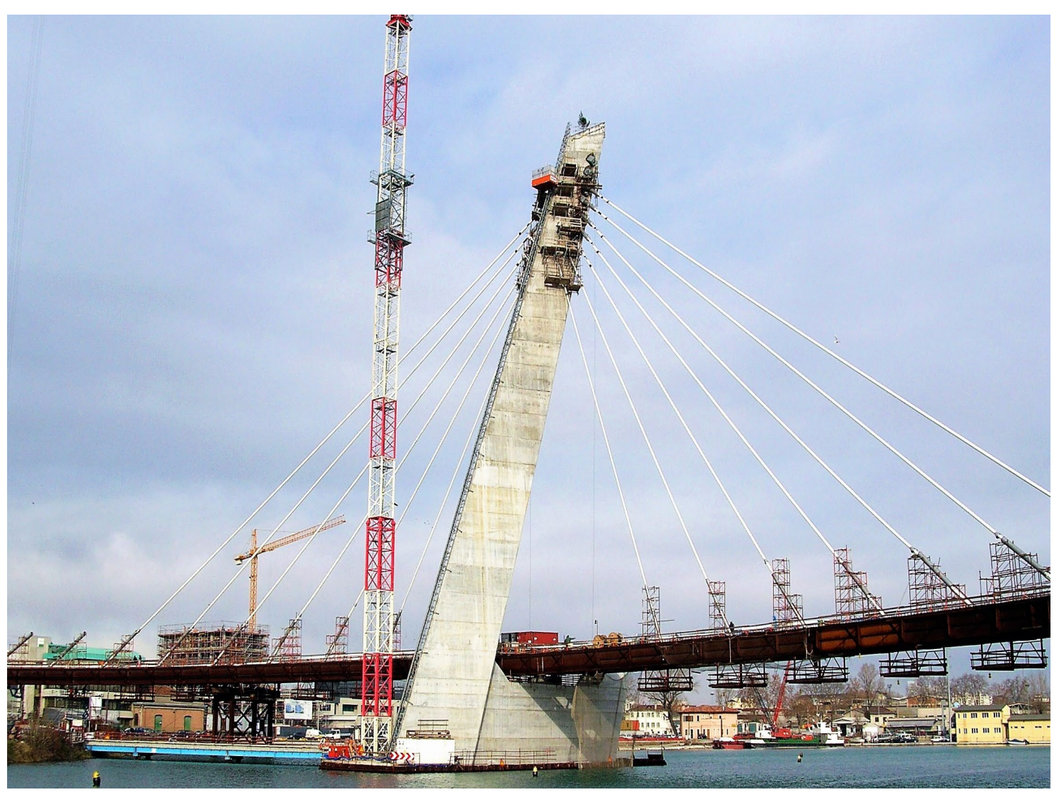
Period of execution
2003-2004

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.



FOOTBRIDGE LA ROCHELLE

Location
La Rochelle, France

Client
Communauté d'Agglomération de la Rochelle

Contractor
Joint-Venture Bouygues Travaux Publics Régions France – Maeg Costruzioni SpA

Scope of work
Design, fabrication, and installation of steel structures

Period of execution
20120-2021

Weight
700 tons

Length
191 meters

The footbridge at La Rochelle station is part of the urban development project around the station which, from the square, reconsiders the development of the city as a logistic hub for the region.

In plan, the footbridge presents a L-shape with a 36 meters long ramp turning in a 155 meters long footbridge crossing the below railways, with the longest span measuring 48 meters. The deck has a variable section to deliver a fine structure varying along its length to create movement and lightness, and it is supported by eleven bifurcated steel columns. Part of the realization, the footbridge includes a protective roof. The footbridge creates an urban link between the centre of the city and the developing neighbourhoods on the other side of the station, offering a place of nature and connection.

FOOTBRIDGE 03

Location
Dubai, United Arab Emirates

Client
Joint Venture Road & Transport Authority (RTA), Meydan and Meraas

Contractor
Belhasa Six Construct LLC

Scope of work
Design, fabrication and installation of steel structures

Period of execution
2016

Weight
1.380 tons

Length
170 meters

Third footbridge crossing the Dubai Water Canal, it is a parallelepiped twisting of 180 degrees, wrapping around the internal walkway and offering a dynamic movement that accompanies those who pass through it. The footbridge is cladded with a series of aluminium frames protecting from the sun from an oblique angle but allowing, when passing through, an open view towards the city skyline.

The construction phase took place during one of the most critical moments along the realization of the Dubai Water Canal, just before the flooding of the canal to achieve the inauguration date. This condition prevented the possibility to work from inside the canal and forced to complete the installation in a little more than a month: the solution has been the installation of a temporary bridge that firstly supported preassembled elements until welding completion also ensuring a working surface to operate, which has then been removed at once. The temporary bridge has been indeed hooked to a barge that, taking advantage of the low tide, has been freed from the permanent structure and then transported somewhere else to dismantle it separately. The footbridge measures 6.5*6.5 meters and has a total weight of 1.386 tons. It is also called Jumeirah Bridge 2, as it connects the district of Al Safa to the archaeological site of Jumeirah, one of the most important archaeological sites of the UAE with findings from the 6th century AD.

FOOTBRIDGE 02

Location
Dubai, United Arab Emirates

Client
Joint Venture Road & Transport Authority (RTA), Meydan and Meraas

Contractor
Belhasa Six Construct LLC

Scope of work
Design, fabrication and installation of steel structures

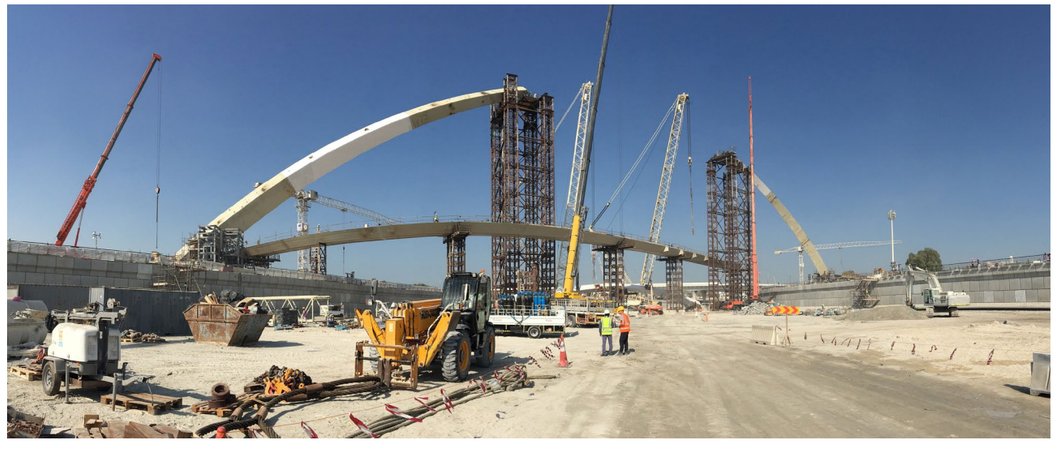
Period of execution
2016

Weight
2.300 tons

Length
205 meters

Second footbridge crossing the Dubai Water Canal, it has a 205 meters long white arch that reaches 50 meters of height. His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice-President and Prime Minister of the United Arab Emirates and Governor of Dubai has renamed the project “Bridge of Tolerance” symbolizing the connection between the 200 cultures and nationalities present in the city.

This footbridge is characterized by a rhomboidal section arch with a largeness of 205 meters and a height of 50 meters, which has a cross-section of about 6 meters at the base that tapers up to 2.1 meters in the key section, giving a sense of lightness and simplicity. The arch was preassembled and welded on the ground in seven macro-segments lifted then on the top of temporary towers, reaching at their tallest point 53 meters of height, by means of two 600-tons crawler cranes. The weight of the arch alone is 1.700 tons and, through 20 steel cables (for a total length of 858 meters), supports the S-shaped deck, 6.7 meters wide, curling in two concrete ramps wrapped around the bases of the arch. The width of the free span, evoking a sense of absence of gravity as if the footbridge floated gently above the water, gives to the footbridge an impressive visual impact.



FOOTBRIDGE 01

Location
Dubai, United Arab Emirates

Client
Joint Venture Road & Transport Authority (RTA), Meydan and Meraas

Contractor
Belhasa Six Construct LLC

Scope of work
Design, fabrication and installation of steel structures

Period of execution
2016

Weight
510 tons

Length
122 meters

The design of the first of three steel footbridges crossing the Dubai Water Canal has been inspired by the Arab nomadic culture of trade and fishing history, recalling the structures of the tents used by the Bedouins in the Y-shaped pillars and suspension cables of the footbridge.

This project, also called Safa Bridge, connects the Al Wasl district to one of the green areas of the city, Safa Park. The structure is suspended at a height of 8.5 meters above the water level to allow the navigation space along the canal and it is supported by two Y-shaped antennas, installed from the inside of the canal before the flooding of the water, having a weight of 90 tons each and a height of 35 meters. The deck is 122 meters long, 6.2 meters wide and was dispatched from the factory in eleven segments then installed on temporary towers and the completion of the welding. The structure could support its weight, proceeding then with the removal of temporary towers, only after the installation and tensioning of 252 meters of steel cables.

ARCH RAILWAY BRIDGES

Location
Railway line Napoli-Cancello, Italy

Client
Rete Ferroviaria Italiana SpA (RFI)

Contractor
NACAV S.c.a.r.l.

Scope of work
Design, fabrication and installation of steel structures

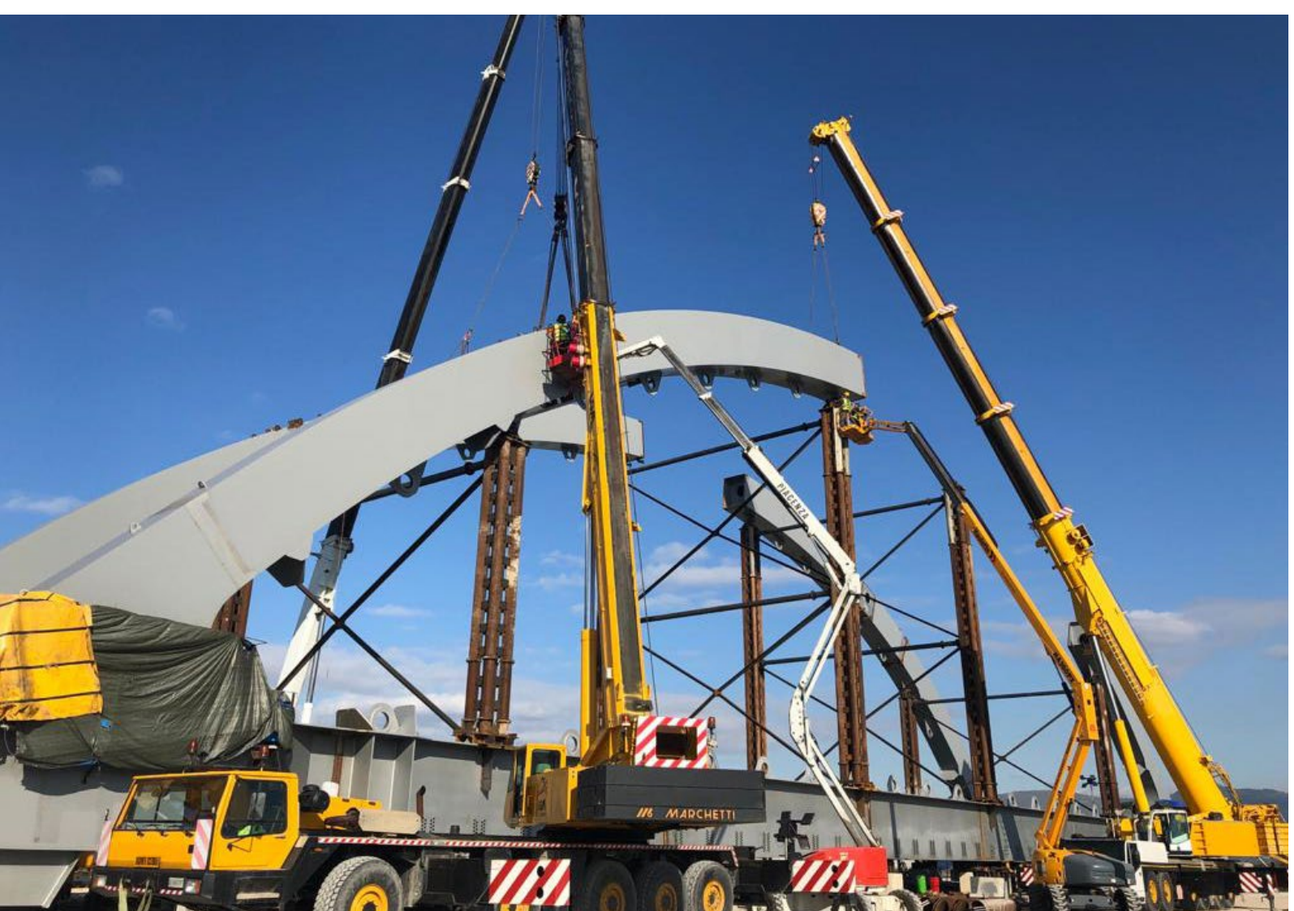
Period of execution
2020-ongoing

Weight
4.500 tons

Length
80+80+80 meters

The projects are located on the section between Naples and Cancello, which will allow the tracks of the line to be brought to service the new Naples-Afragola station, which in the future will become the station for passenger interchange between regional and high-speed services.

The work consists of three arched bridges with a length of 80 metres each, a width of 12 metres and a maximum height of 22 metres, and a 56 m overpass, which are assembled on the ground and launched by SPMT. These structures are preliminary to the upgrading and development of the Naples-Bari railway line, which is part of Corridor 5 Scandinavia-Mediterranean Trans European Network (TEN), which aims to improve the competitiveness of rail transport and the integration of the South-East rail network with the HS/HC system, as well as to increase the share of rail freight transport.



RAILWAY BRIDGES LOT 2A

Location
Arad, Romania

Client
Compania Nationala De Cai Ferate (CFR)

Contractor
Joint-Venture Astaldi-FCC-Salcef-Thales

Scope of work
Design, fabrication and installation of steel structures

Period of execution
2018-ongoing

Weight
9.560 tons

Length
420 meters (50*2+80+110+80+50)
370 meters (50+80+110+80+50)

The construction of these two railway bridges crossing the Mures is part of the European project on the IV Pan European corridor aiming to improve railway transport in the area.

Construction of two painted railway bridges weighing 4.800 tons. The first one, named PK 574+550, stands on five pillars, two of which are on the riverbed; the one called PK 575+486 stands on four pillars two of which are on the riverbed. Through specific telescopic cranes, the structures are assembled on site in a launching zone having the same length of the deck. With a lunching nose of 130 tons, the structures are then put in position through jacks and hydraulic slides adjustable in height. Once the launch of the two decks is completed, they will be placed in the final position.

LOUKKOS RAILWAY VIADUCT

Location
Larache, Morocco

Client
Office National des Chemins de Fer (ONCF)

Contractor
Société Générale des Travaux du Maroc (SGTM)

Scope of work
Design, fabrication and installation of steel structures

Period of execution
2012-2015

Weight
10.500 tons

Length
2.256 meters

Part of the broader project arriving to Casablanca, it serves the 350 kilometers long high-speed train line between Tangier and Kenitra, halving the travel time among the main cities of the country. At the completion of the works, this railway line will be one of the longest in the whole Africa.

The Loukkos Railway Viaduct crosses the Loukkos River and has a total length of 2.256 meters, divided in 41 spans with a variable length between 51.6 and 56.5 meters. Single spans were lifted and launched from the ground. From the planimetric point of view, the viaduct has a constant curvature with a radius of 25.000 meters. The structure is composed of two main double-T beams, 3.75 meters high and with an interaxle spacing of 6.3 meters, whose thickness increase in correspondence of the bearings. On the lower part of the structure, 2 meters wide flat slabs are placed and fixed to the main beams by means of studs and concrete, acting both as a bracing and planking level to inspect the structure.

GUAYLLABAMBA BRIDGE

Location
Quito, Ecuador

Client
Panavial SA

Contractor
Herdoiza Crespo Construcciones SA (HCC)

Scope of work
Design, fabrication and installation of steel structures

Period of execution
2013-2014

Weight
1.240 tons

Length
150 meters

The Guayllabamba Bridge is located on the new highway connecting the capital, Quito, with the new airport allowing the transition of more than 15.000 vehicles per day, boosting local economies and tourism.

This trestle-type bridge has a total length of 150 meters with a central span, between the supports, measuring 105 meters. One of the two final spans is curved and consists of two independent carriageways with a width of 12 meters each, reaching a total steel weight of 1.240 tons. The assembly phase took place in an arduous territory, which forced to operate with a minimum manoeuvre space creating accessibility problems to the construction site. Consequently, a mixed assembly methodology has been chosen to expedite the execution: firstly, the supports or “legs” have been installed and kept in balance by using a temporary-cable system, secondly the straight portion of the deck has been launched from the top and finally the last spans have been installed by using crawler cranes.

SILOGNO BRIDGE

Location
Baceno, Italy

Client
Anas S.p.A.

Contractor
Grandi Opere Italiane Srl

Scope of work
Design, fabrication and installation of steel structures

Period of execution
2011

Weight
800 tons

Length
90 meters (23+40+23)

The Silogno Bridge is a trestle bridge part of the alternative route to the State Road n° 659, aimed to eliminate a particularly dangerous point over the river Devero, at a height of 46 meters.

The trestle typology has two oblique “legs”, 16 meters long, supporting a 90 meters long deck having a radius of curvature equal to 150 meters. The deck is composed of three spans of 23, 40 and 23 meters made of four main beams made of welded metal sheets with plate girders. The bridge has a slope of 9 percent and a weight of about 800 tons. The material used is Corten steel, which has the peculiarity of forming a superficial patina that makes it able to protect itself from corrosion.

SCIENCE BRIDGE

Location
Rome, Italy

Client
Municipality of Rome

Contractor
ATI Maeg Costruzioni S.p.A. - Acqua e Verde Nord srl

Scope of work
Design, fabrication and installation of steel structures

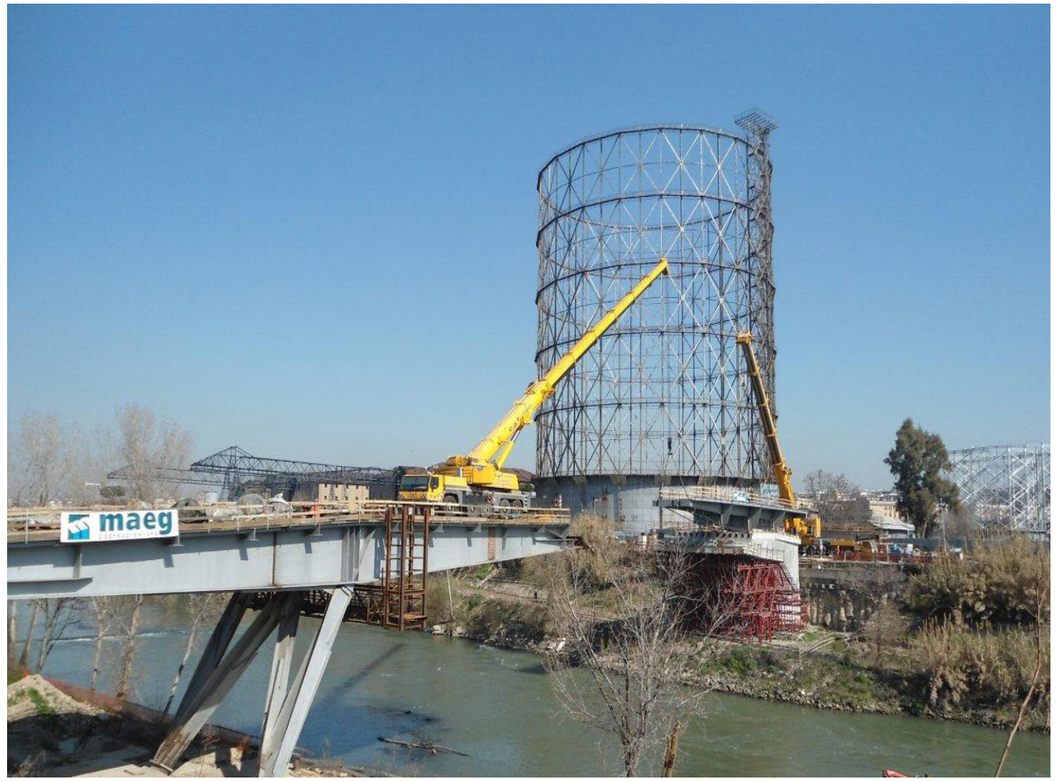
Period of execution
2010-2011

Weight
700 tons

Length
142 meters

Infrastructure for pedestrian and cycle circulation, the Science Bridge was born as a link between two post-industrial areas of the city of Rome, connecting the Ostiense area with the surrounding districts, offering a meeting point for collective activities and installations. The bridge was dedicated to Rita Levi Montalcini, Nobel Prize for medicine.

The Science Bridge has an overall length of 142 meters and it is made of two “legs”, placed at 100 meters from one another on the shores with asymmetrical cantilever of 30 and 15 meters, reducing the distance between the shores to 36 meters. The erection methodology has been conceived to avoid any interaction with the below river during installation: the two supporting legs have been cantilevered and temporarily supported with cables, while the deck has been firstly preassembled on the ground and then slid in position by means of a launching girder. The central span includes the presence of steel cables connected to the supporting legs, transferring the loads and reducing the risk of bending. The deck has a constant width of 10.2 meters.




CLEMO

SKURU BRIDGE

Location
Stockholm, Sweden

Client
Swedish Transport Administration (Trafikverket)

Contractor
Itinera S.p.A.

Scope of work
Design, fabrication and installation of steel structures

Period of execution
2020-2021

Weight
5.800 tons

Length
317 mètres (41+63+99+68+46)

Situated in the east of Stockholm in the municipality of Nacka, the new Skuru Bridge substitutes the existing arch bridge from 1914 to solve an untenable traffic situation for people commuting to the capital, a figure exceeding 52,000 every day.

The design of the bridge has been chosen out of an international contest among design firms and it has been chosen for its slender and aerodynamic shape made as transparent as possible to create a connection between the two structures, without the new bridge blocking the view of the old. The bridge is structured in two separate carriageways connected by welded cross beams only in correspondence of the pillars and embankment. The geometry of the decks is quite complex as it curves both transversally and longitudinally. It is made of steel “wing profile” closed sections, composed of orthotropic steel slab. The bottom part of the pillars is made of concrete, while the upper part connecting to the deck is made of steel. Considering the limited amount of space, on the shore it is realized at a height of 15 meters a temporary factory with a surface of 2.500 square meters and a height of 18 meters inside which the steel deck will be assembled, welded, painted and launched with hydraulic jacks and launching nose 72 meters long. Once the launching is complete, the whole steel deck will be lowered to the pillars to be welded in its final configuration.

SVILAJ BRIDGE

Location
Svilaj, Croatia

Client
Republic of Croatia & Bosnia and Herzegovina

Contractor
Hering d.d.

Scope of work
Design, fabrication and installation of steel structures

Period of execution
2017-2019

Weight
5.300 tons

Length
640 meters (70+85+100+130+100+85+70)

The realization of this bridge, crossing the Sava River at the border between Croatia and Bosnia and Herzegovina, is part of a broader European project aimed to improve the viability system of the Western Balkans and connect the area within the European road system.

Svilaj Bridge is a double-lane bridge with an overall length of 640 meters, divided in seven spans. The steel structure has an overall weight of 5.000 tons and lays on four concrete pillars, two of which inside the fluvial riverbed. Single elements have been firstly pre-assembled on the ground, then erected in position on the top of temporary structures and staxo towers for those areas above the shore, while the central span is installed and supported by mean of a crane. To ensure accessibility also during flooding season, two banks have been created within the river by using sheet piles to stem the water flow.

ACILIU VIADUCT

Location
Sibiu, Romania

Client
Romanian National Company of Motorway and National Roads

Contractor
Collini Lavori Spa Trento - Sucursala Bucuresti

Scope of work
Design, fabrication and installation of steel structures

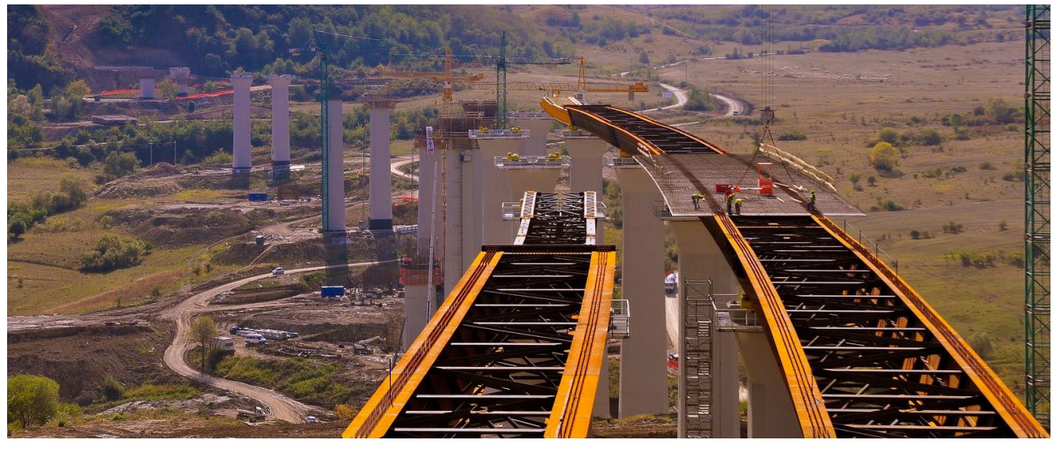
Period of execution
2013-2014

Weight
8.100 tons

Length
1.100 meters (14*78)

Built along the 82 km long motorway A1 between Orastie and Sibiu, in Romania, the Aciliu Viaduct is one of the several infrastructures planned to upgrade the IV Pan-European corridor running through Eastern Europe. It is also known as the longest and the highest viaduct in Romania, with a height of 80 meters and a length of 1.100 meters.

The Aciliu viaduct is made with inclined double-T beams in Corten steel, with welded longitudinal and transversal joints and bolted reticular internal bracings. The viaduct has a length of 1.100 meters, divided in fourteen spans 78 meters long, with a width of the deck of 24 meters. The structure dominates the Aciliu valley at a height of 80 meters from the ground and rests on concrete piles planted at a depth of 40 meters into the ground to offset the instability of the sandy soil of the valley. The viaduct was assembled in macro-segments in the assembly field on the ground with 80 tons gantry cranes and then incremental launched with the aid of a launching nose, proceeding simultaneously on each direction.



VALTELLINA VIADUCT

Location
Morbegno, Italy

Client
Anas S.p.A.

Contractor
Ing. Claudio Salini Grandi Lavori S.p.A.

Scope of work
Design, fabrication and installation of steel structures

Period of execution
2009-2014

Weight
8.250 tons

Length
3.850 meters

The project is part of the variant of the state highway n. 38 between the intersection with the road n. 36 “of the Como lake” at the km 8+200, so-called “dello Stelvio”, in the municipality of Cosio Valtellino. The infrastructure will improve the connection of the lower part of the Valtellina valley, reducing the transit on local roads and ensuring safety and livability to residents.

The Valtellina Viaduct consists of two parallel mixed viaducts having a total length of 3.850 meters, divided into seven segments measuring 480 meters and composed of ten spans each (40+50*8+40) and a final eighth segment with eleven spans having a length of 490 meters. The section of the viaduct measures 13 meters of width and comprises two main beams with inclined web with a variable height of the beam between 1.75 and 2.80 meters (in correspondence of the pillars). The connection between the two main beams is made by mean of lower reticular bracings aimed to absorb horizontal loads. Altogether, the weight of the steel structure amounts to 8.249 tons. The installation of the viaduct crossing the bottom of the Valtellina valley has been performed from the bottom using cranes.

GIOSTRA VIADUCTS

Location
Messina, Italy

Client
Anas S.p.A.

Contractor
Ricciardello Costruzioni Srl

Scope of work
Design, fabrication and installation of steel structures

Period of execution
2010-2013

Weight
4.800 tons

Length
3.700 meters

The Giostra viaducts are part of a complicated project to reorganize the viability of Messina, allowing a significant reduction of traffic by completing the urban project of the area. These highway junctions consist of fourteen elevated viaducts on various levels with a total extension of 3.7 km.

The fourteen viaducts composing the Giostra highway junctions consist of double-T beams made of Corten steel with bolted reticular diaphragms, weighing 4.800 tons. Overall, the work has a length of 3.7 kilometers divided into spans of variable length based on the specific location of the viaduct. The width is divided into seven unidirectional single-lane ramps with a deck width of 8.25 meters and seven unidirectional double-lane ramps with a width of 10.75 meters. Built at the base of the Nebrodi mountains, within an urban context, the work was entirely launched from below.

Ideas **shape** the world

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