

Apart from the load capacity and launching distance the MSS must have other capabilities to make them competitive and real machines for bridge superstructure construction. Along this 16 years we have brought to these machines many innovations and new features that made them more efficient, more reusable and much safer.

Most of the unexpected costs in superstructures construction result from using more man-power and auxiliary equipments than expected. The rebar, the pre-stress steel and the concrete volume are well known from the beginning and there are no reasons for a deviation in its cost.

Apart from natural disasters and accidents that can be insured, the variable costs in this type of work are the quantities of lost or damaged formwork, man-power for shuttering and moving the scaffolding systems, auxiliary trucks, cranes and working platforms and finishing details.

When it is necessary to use the ground for supports or access roads to bring the supports or the scaffolding to another position, some severe extra costs can appear if the weather or the ground conditions change, turning those operations impossible or delayed indefinitely.

### **Autonomy and independence from the weather**

Some very important characteristics a MSS should have are its autonomy and its little dependence from the weather conditions.

These machines we are proud to produce are autonomous for changing the supports from one span to the next, unloading trucks, carrying the rebar and the pre-stressing cables on board, etc. Their supports do not depend on the weather conditions, floods or heavy rains since they are placed over the piers or over the deck. The formwork can be installed with as much as possible hydraulic jacks so that the operation of opening or closing the formwork is almost fully automatic.

They are fully equipped with monorail winches, with internal equipment for all operations reducing man power to a minimum avoiding the use of auxiliary cranes.

### **Multiuse and easy adaptation to other jobs**

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These machines can be easily adapted for different spans, girder weights or formwork shapes, they are reversible, and due to its modular conception they can be assembled with just the dimensions required for each job. The parts are all dimensioned to easily enter 40ft containers and to allow an easy storage occupying the minimal space possible.

### **Safety**

Bridge construction is a dangerous work and sometimes terrible accidents occur due to different reasons.

The principle we follow is to reduce risk as much as possible and therefore we managed to remove people from the supports and from the MSS body during launching.

For all activities we use working platforms according to newest standards and radio remote control for the winches and jacks.

The MSS complies with all the essential health and safety requirements according with the harmonized standards and the Machinery Directive (2006/42/EC).

When placed on the market, MSS is delivered to the user with:

- CE-marking;
- EC Declaration of Conformity;
- Instructions handbook, in the official language of the country of destination.

### **Transformability**

In special cases and at request we can prepare our MSS to be easily transformed into a launching girder for precast beams, precast slabs or precast sections.

The largest ones can be divided into 2 just by adding supports and some auxiliary equipment.

For example the 148 m model, used for this 70m span viaduct can be divided into two 74m models to build 36 m spans.

### **Speed**

Our newest MSS model holds a record of casting 18 spans of 55m in 18 working weeks, and opening the formwork, launching and closing the formwork in 2 hours 15 minutes.