CHINA: BAOSTEEL PROJECT, BLAST FURNACE REPLACEMENT

PROJECT	EQUIPMENT	WEIGHT
H. INDU. / SHIPBUI.	STRAND JACK AND TOWER LIFT SYSTEM / SKID SHOES AND ELEVATOR SYSTEM / SPMTs	Up to 4,000 ton

Fagioli were awarded a project in China by one of the biggest steel companies in the world to replace an old blast furnace! This project was particularly interesting and challenging for Fagioli because the client wanted to replace its entire blast furnace in less than two weeks instead of six months. The operation, the first of its kind, included the complete substitution of the entire top section in one operation without dismantling it. In order to do this, Fagioli used a skidding system, and a specially made elevator system with SPMT's. Both furnaces (old and new) were divided in two parts:

- top boiler
- bottom boiler

The base (old and new) was divided in the following items:

- lower section
- mid section
- top section.

The old top boiler section weighing 2,533 tonnes was replaced with a new one weighing 2,111 tonnes using a skidding system and SPMT's to
transport all the old and new base sections.

The weight of the old base sections ranged from 1,800 to 4,000 tonnes while the new ones ranged from 1,400 to 2,600 tonnes. The old top boiler was skidded from its original position onto the Fagioli elevator system using eight Fagioli skid shoes. It was then lowered down and skidded onto 108 SPMT axle lines. After this operation the SPMT's moved the huge item into the storage area and using skid shoes placed it onto temporary stools.

The same skid shoes were used to skid the new top boiler from its temporary stools inside the storage area onto SPMT's where it was transported to the installation area. The new top boiler was then transferred onto the Elevator System, lifted, skidded and positioned in its final location. It was the first time that the top section of a blast furnace was replaced without dividing it into smaller parts or dismantled into sections. The old top boiler section 22 metres long, 22 metres wide and 60 metres high, weighed an incredible 2,583 tonnes. The new top boiler section 22 metres long, 22 metres wide and 54 metres high weighed 2,111 tonnes. The substitution of this top section was possible thanks to the innovation shown by Fagioli which allowed this project to be completed in a few days rather than six months which is the standard time to complete an operation of this kind. Before substituting the bottom boiler section Fagioli had to remove the concrete beam (approx. 1,000 tonnes) that was positioned in front of the bottom boiler. This allowed the skidding of the bottom boiler items to and from the storage area. At the end of the whole operation, a new concrete beam weighing 700 tonnes was installed to replace the old one. The old bottom boiler sections were lowered one by one by the client and positioned onto Fagioli SPMT's they were then transported into the storage area where the client skidded the items onto temporary supports. One by one, the new bottom boiler items were moved from the storage area to the furnace area ready for the final installation by the client. The project was organised perfectly between Fagioli and the Chinese client which allowed the project to be completed on time but more importantly without any incidents. This project highlights the innovative solutions that Fagioli can provide for the lifting, transport and installation of heavy items anywhere in the world. The elevator system was the key to this particular operation, the same system was successfully utilised in Spain for the installation of the large modules for the Adriatic LNG project and in Palermo for the final positioning of a huge drilling Rig tower for the offshore industry. A DVD of the China project is available on request.