New Crawler Cranes
Increasing our heavy lifting capabilities

Baosteel Project
Fagioli’s Elevator System

Palermo
Another Magnificent Installation
Big Changes in Fagioli’s Lifting Capabilities!!!

To extend our lifting capabilities and to complement our existing range of lifting equipment, Fagioli have invested in heavy duty cranes.

After detailed investigations and comparisons of the products available on the market, Fagioli purchased two Liebherr crawler cranes. A 750 tonne capacity crane, the LR 1750 and the 1350 tonne capacity crane. In order to cover as many different operations as possible, the cranes were ordered with a wide range of equipment:

- The LR 1750, with a 91m main boom, 84m luffing jib, derrick, and ballast trailer
- The LR 11350 equipped with a 114m main boom, 84m luffing jib and derrick with suspended ballast.

At the beginning of October to celebrate the purchase of these two cranes, Fagioli hosted an information day for its international customers, held at the Liebherr plant in Ehingen.

This provided an early opportunity to present the capabilities of the LR 1750 and to explain the importance of the purchases of these two crawler cranes, which enables us to offer “full service package” to our clients when it comes to transportation and lifting of heavy loads, a range which will now be extended further by the procurement of the new giant cranes.
Since the delivery of the LR 1750, the crane has been used on two projects. In November the crane was delivered to Italy for the first official lifting operation, a roll-up of a jacket weighing 180 tonne, performed at "Marina di Ravenna port". The project went well. (see pictures left and right)

In Cremona Fagioli was called to perform the installation of a reactor weighing 160 tonnes. The generator was lifted from its original foundations and laid on in a horizontal position. The item was then positioned onto a 6 axle SPMT and moved close to the new installation area where the LR 1750 was re-positioned. (see picture below).

The main advantage of a crawler crane is that it can move on site and perform several erections as well as being able to travel fully loaded. It offers a high standard of safety with its “wheeled” counterweights and on-board computerised control system.

The versatility and strength of this machine as well as the "gigantic" LR 11350 crane (which will be in operation at the end of this year) adds to our vast range of lifting equipment and enables us to offer a full lifting package to our clients!!
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 8 Fagioli skid shoes. It was then lowered down and skidded onto the 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 in such a short time.
furnace was replaced without dividing it into smaller parts or dismantled into sections.

The old top boiler section 22m long, 22m wide and 60 m high, weighed an incredible 2,583 tonnes. The new Top boiler section 22m long, 22m wide and 54m 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 (see page 6).

If you would like a copy of the DVD for the China project, please ask our marketing department - contact details are on the back cover.
Another impressive project performed by our engineering and operational teams!!!

Fagioli’s new elevator system was the ideal solution for positioning and installing two living quarters and a gigantic drilling rig tower on top of a 50m high offshore platform. The offshore platform “Scarabeo 8” was anchored at the port of Palermo in the Mediterranean Sea.

The semi-submersible offshore platform, owned by Saipem, is composed of two floating hulls with facilities supported on six columns. The lower part of the platform was built in Russia while the top section was manufactured in Italy. Fagioli was awarded by Fincantieri to install approximately 80 small modules weighing 100 to 300 tonnes, two living quarters each weighing 600 tonnes and a huge drilling tower weighing 2,400 tonnes which was to be placed 50m in height.

Fagioli performed the load-out operations of the two living quarters onto a barge in Genova and the load-in operations in Palermo by means of SPMT’s.

The two living quarters were positioned close to the installation area by SPMT’s and installed using the new elevator and skidding system above. But it was the second part of the project, performed two months later that was the most extraordinary, the installation of the huge drilling rig tower (see picture below and right) which was an impressive 90m high and weighing 2,400 tonnes.

The new elevator system was successfully used on the Adriatic LNG project and the blast furnace replacement project in China, but the Scarabeo 8 project was the most challenging, positioning a 90m item on top of a 50m high platform...in the sea!!!

Detailed engineering studies, and perfect control of the system and ideal weather conditions allowed the success of the whole operation. The Tower was positioned using more than 100 axle lines of SPMT’s onto 8 skid shoes, running on two girders. The piece was than lifted and skidded to its final position.
Fagioli SpA was awarded the transportation and erection of a vessel ‘D324’ It was to be installed as part of the expansion works within a UK refinery.

The essential features of the reactor in its horizontal transportation attitude are:
- length: 16.9 metres
- transportation width: 5.7 metres
- erection weight: 167 tonnes, excluding saddles

On 29th November 2008, the vessel was loaded onto Fagioli’s trailers and transported to the docks at Porto Nogaro where it was lifted and sea-fastened to the MV Phantom for a 12 day sea-voyage.

On arrival in the UK the vessel was offloaded onto Fagioli’s transporter in its Stage 1 configuration - comprising a doublewide 14 axles SPMT powered by two 350kW diesel hydraulic power packs.

From the quayside, the vessel was moved through the Associated British Ports area, across the port rail tracks and over a series of main oil pipelines, via a bridge fabricated specially for the passage of heavy transport, into the fabrication yard of Fabricom Suez. Working closely with local police, road, rail authorities and public utilities, a route to the refinery was approved – the only restraint being that the transport had to take place early Sunday morning. The 3km journey via the public roads into the refinery was achieved as planned in less than three hours.

The erection method selected was the Fagioli Towerlift System, this offered many benefits over conventional crane – particularly, the effects on the operation of the refinery which remained live throughout the whole process. The Towerlift System comprised of 2 triangular towers, 24m high, supported on a specially fabricated steel grillage foundation.

The lifting force in the Towerlift system was provided by one L300 jack mounted on a purpose built crosshead beam and L300 fixed anchor which allowed rotation of the vessel once in the fully vertical position.

In order to negotiate the extremely tight headroom restraints under pipe-racks in the refinery, it was necessary to reconfigure the transport so that the reactor was suspended by purpose-built frames on two double-wide SPMT carriers with the transportation saddles nominally 50mm clear of the road surface.

Once the assembly of the Towerlift system was completed, the reactor was transported through the first part of the route, under the existing pipe-racks, with only 10mm clearance, the operators proved their outstanding ability to move large, heavy loads with machine-like precision.

Having negotiated the initial part of the route, where vertical headroom was critical, the next challenge was an extremely tight ‘pinch-point’ where lateral clearances became critical. The SPMTs were reconfigured on a single wide 14 axle to allow the client to leave in place some operational equipment at low level. This stage was again executed with maximum precision, having to actually tilt the vessel to achieve the clearances stipulated. The vessel was eventually positioned under the towers and the closure head lifting lug connected to the lifting swivel of the Towerlift System.

Due to a congested site, Fagioli elected to use a specially fabricated tilting-frame, attached to the skirt of the reactor for tailing. When the strand jack system started to lift, the SPMT was moved forward under power to maintain verticality of the lifting strands within 1%.

Once the reactor reached the vertical position, the tailing frame was detached, the SPMTs removed, and the reactor was lowered close to the foundation. The final operation was to rotate the vessel into its final orientation and bolting it down in its permanent position.

**Load-out of Rig Hull Unit**

Last September they completed a 4,800 tonne hull loadout in the UAE. This involved the transportation from MIS to Sharjah Port and loadout of the hull onto a barge. The dimensions of the hull were 72m long, 63m wide and 28m in height.

**Load-out of Sea Jacks Unit**

In November 2008 a Load out of Sea Jacks unit weighing 5,177 tonnes was carried out in the UAE, this involved the transport from Lamprell to Jebel Ali Port and load out on to a Barge. The dimensions were 75m long, 55m wide and 25m high.
The biggest achievement was the successful transportation of several 1,600 tonne evaporators for the marafiq independent water and power plant in Jubail. This project carried out Bifal Heavy Industries was described as a landmark project and involved the transportation of nine evaporators in all. Each evaporator, which was 62m long, 21m wide and 18m high, was moved from the Bifal module yard near King Fahad Industrial Port to the work site over a distance of 9 km.

For the same project the Bahrain-based office transported an additional five units to the site that had arrived from abroad.
FPU 5500 – Thunderhawk Hull Loadout

Fagioli Asia successfully completed the side loadout of FPU 5500 – Thunderhawk Hull in July 2008. The loadout operation was awarded to Fagioli Asia by Dyna-Mac Engineering Services Pte Ltd. The total weight of the Hull is 13,000 tonnes and the loadout operation was performed with 4 x L750 jacks and 2 x L4/50D power packs controlled by our computerised system.

CASL Hangar, Hong Kong Airport

Fagioli Asia was contracted to lift the 900 tonne hangar roof at Hong Kong airport. The Roof was lifted by fifteen L180 strand jacks to a height of 32m. All jacks were synchronised and controlled by a single computerised lifting system.
Muarakarang Power plant – On base with T1400 Telegantries

Fagioli Asia carried out the lift and installation of 6 units of gas turbines, generators and transformers in Indonesia. The above operation shows the on base of a gas turbine generator weighing 280 tonnes at a height of 4m with our T1400 telegantries.

Lifting of HRSG Modules in North Bangkok, Thailand

Fagioli Asia was contracted to carry out lifting of modules for 2 units of CMI design HRSG. Due to extremely tight tolerance set by the client, Fagioli computers control system was used for the lifting. This allow for precise synchronisation during lifting and lowering. A total of 30 nos of L100 jacks coupled to 3 nos of L12/8E power packs were used for this lift.

The NBCC project has the significance of being the first project using Fagioli’s computer control jacking system for the lifting of CMI’s modules. The lifting works were completed effectively in excellent time, to the great satisfactions of the Clients.”

The above picture is the 50th boiler drum Lifted by Fagioli India Pvt Limited at Ratnagiri, Maharashtra. We started by lifting the 1st drum in August 2004 and now 53 weeks later we have lifted the 50th drum - ie an average of 1 drum a week.

The 240 tonne drum was lifted in an inclined manner to a height of 65m with the help of Fagioli Strand Jacks and Power Pack. After reaching the height of 65m the boiler drum was skidded horizontal to 3.7m before final placement. This was done due to existing column up to a height of 55m. The complete operation was done within a span of 6 hours.
Diablo Canyon Project

Over the last few years, Fagioli have transported most of the replacement steam generators to nuclear power plants in the United States of America.

For the Diablo Canyon Project, Fagioli was contracted for a total of 8 steam generators, each weighing 327 tons, to be transported from the manufacturing facility in Santander, Spain to the final destination in California. Joint efforts within the group from the Italian and US office made this another successful project.

Four units and two generators were delivered in Autumn 2007, another four units and one generator were delivered in Summer 2008. Fagioli Inc. also moved the generators from the Storage Area to the containment building in early 2008. After the loading in Spain, on a heavy lift vessel, the generators were shipped to Port Hueneme in California. Two ocean going deck barges were used for the transport to the plant.

The only accessible location to land the generators in the plant is the Intake Cove, a very sensitive place for the safety of plant operation, because of the reactor cooling system. In addition, the access to the cove is on the Northern California Coast exposed to ocean swell and wind.

The generators were positioned onto barge deck on tailor made saddles, specially designed to fit Fagioli 600 tons screw-jacks system. This allowed the generators to navigate in a lower position and minimise the grillage and sea fastening.

Upon their arrival and with favourable weather conditions, the barges were manoeuvred one by one in the intake cove by two smaller tugboats to the landing area and secured. After release of the sea fastening, the screw jacks smoothly lifted each generator in one hour to load the double wide 14 axle lines SPMT.

The SPMT with its unique manoeuvrability was perfectly suited to roll-off the generators in the small landing area and turn them onto the road for delivery to the plant. Before delivering them inside the storage building, the generators were lifted again, rotated to their installation orientation and the transport saddles replaced with smaller saddles.

Port of Houston

Transport and lifting of several items at Houston port by means of SPMT’s and gantry cranes: a 250 tonne transformer and a 320 tonne generator.
Pacifico Power Plant

In late Spring 2008 Fagioli Inc. was called to perform heavy lifting services at the Pacifico Power Plant in Petacalco, Guerrero State, Mexico.

The initial challenges were to design a system to lift the heaviest components – a 390 tons generator and three turbines respectively 227 tons, 228 tons and 190 tons in the machine hall from the ground to height of 13.5m with less than a month to ship it to the site. Additional lifting and rigging engineering for the Condenser Polisher System composed of 7 bulky tanks weighing up to 30 tons, the BFP A and B Turbines, each 43 tons and the Dearator and Storage Tank 105 tons were completed at the same time.

Fagioli engineers worked with their partners in Mexico and the client to adapt the existing lifting system to the machine hall, only minor changes needed to be carried out there wasn’t need for any foundations. A complete set of calculations were provided in record time and equipment dispatched from Houston. The site team faced further challenges, dealing with the monsoon season and the extremely busy site.

The items of the Condenser Polisher System were skidded horizontally in the centre aisle of a very tight building, rotated upright and moved aside before setting them on their foundations. The ‘bull rigging’ work was carried out using skid tracks, rollers, chain blocks and other rigging hardware.

To reach the foundation of the BFP Turbines, Fagioli used a 4 axle lines of SPMTs at the ground floor of the machine hall with very little clearance. Skid tracks set on supports and beams, together with rollers, hydraulic jacks and chain blocks were used to set the Turbines in place.

The 390 tons generator, the 2 LP turbines each 228 tons and the 190 tons HP Turbine were lifted to about 15m by Strand Jacks on top of header beams supported by EZ600 telegantries. The system was supported by ‘mini towers’ and several beams that spanned 40m between the lifting area and the foundations. Upon completion of the lift, the heavy items were moved between 40m and 75m by the hydraulic gantry cranes on tracks supported by jack stands, before the setting on the foundation. The Dearator and Storage Tank were then lifted 30m by Strand Jacks, moved 11m transversally before lowering to its final position.

The work was completed in less than 3 months.

Nitrogen Plant, Arkansas

In Blythville, Arkansas, Fagioli Inc. used its SPMT’s to transport five reactors from the Nitrogen Plant to the railing side and lifted them onto railcars with its EZ600 hydraulic gantry cranes.
Big transports require a big organisation that can handle all kinds of transport matters. People who are not necessarily involved in heavy transport might assume that it is only a matter of transporting an item from A to B and nothing more!

But there are many activities that need to be considered before handling a heavy transport, especially when dealing with a project on a turn-key basis from conceptual design through to positioning onto foundation including lifting and logistics operations.

The first step is the analysis of the item and an accurate road survey in order to ascertain the feasibility of the transport as well as identifying any foreseeable problems.

The survey is performed by experienced personnel who literally check the whole route, step by step taking into account measurements and making a detailed list of all the eventual obstacles and items to be removed such as street lamps, road signs etc…, roads to be strengthened, any temporary road supports to be positioned during the passage of the convoy. This survey is extremely important as the whole of the engineering is based on this important information.

The engineering department designs the method of transport according to the job-specific parameters. It prepares the technical specifications for the procurement and the construction of the equipment such as specific saddles, supports, beams...etc. that will be used during the transport operations as well as 3D cad drawings, and safety-oriented documents such as method statements and risk assessments.

The logistics team is responsible for organising various activities involved in the transport, such as pre-positioning of personnel and equipment. And some of these large turnkey projects require a wide range of equipment, such as strand jacks, tower lift systems, crawler cranes, gantry cranes, screw jacks...etc. Fagioli can cater for any heavy lifting and heavy transportation requirement.

So, as you can see, a heavy transport project is made up of many elements and it is not just the case of simply turning on the engine.

An example of this type of heavy transport project is the transportation of a concrete bedplate from Brescia to Terno d’Isola in Italy (almost 50km). The dimension of this item was 7m long, 4.5m wide and 2.1m high with a total weight of 240 tonnes. Fagioli used two 11 axle trailers with a gooseneck support structure including a 25m long beam. The impressive convoy was 63m long, 5.50m wide and 4.30m high for a total weight of about 400 tonnes (including the trailers). Experience and competence were necessary to overcome all the difficulties faced during the transport. Detailed studies were carried out to calculate the impact of the item on the civil structures such as bridges and the road capacity considering the length and the weight of the convoy.

The structure and the shape of the items are always different. This means different equipment, different configurations and tailor-made analysis of the transport. Fagioli offers a huge range of equipment but it’s having the know-how and competence to use the equipment that really matters and this is where Fagioli really excel.

A 16 axle modular trailer was used for the...
Three heavy pontoons (see picture left) weighing more than 500 tonnes were launched in Marghera port. Fagioli performed the heavy transport using up to 60 axles lines of SPMT’s for the heaviest one.

Fagioli was awarded by Foster Wheeler the load out operations of a Reformer (see pictures below) weighing 730 tonnes, 20m long, 20m wide and 30m high using two 16 axle lines of SPMTs.

Transport of a huge exchanger (see picture left) weighing 190 tonnes, 18.3m long, 4.9m wide and 5.05m high from Albignasego to Marghera port with final destination to China.
Fagioli carried out the transportation of several heavy items from Korea to Egypt at the end of 2008 for the delivery of a Splitter and a Deethanizer Stripper (see picture right). The blocks were loaded onto a heavy lift self-geared ship in Korea, Masan and unloaded onto SPMTs in Port Said, Egypt. Fagioli loaded three out of six of the sections onto trailers at Port Said Harbour and performed the inland transport and offloading operations. The Splitter was delivered in 4 sections with a maximum weight of 290 tonnes and a maximum length of 26m. The Deethanizer was separated into two sections with a maximum length of 24m and weight of 294 tonnes. Fagioli will be performing the lifting and installation in the next few months which will be shown in the next newsletter.

Fagioli's track record in the ship industry increased when we launched two huge ship sections weighing 1,994 and 1,229 tonnes and the launch of an entire ship (see picture right) weighing 3,300 tonnes. Fagioli used 132 axle lines of SPMTs to perform the launching operation. The ship, called “A.H. CAMOGLI” was safely moved onto a barge and transported to a floating dock ready for the launch.

A combination of road transport and final installation by gantry cranes was the key success for the positioning of generators and engines in Croce sull’Arno, Tuscany (see picture above)

Another interesting project was the load out of a 1,100 tonne jacket (see picture below) with 48 axle lines of SPMT’s.

Fagioli were awarded a project to move a bridge (see picture right) 58m long, and 6m wide, weighing 140 tonnes. The bridge was moved close to the viaduct using two 6 axle line of SPMT’s. The final installation of the bridge was performed by the clients own crane.
Over the last two decades Fagioli has been constantly present in Libya performing several on-going projects which has led to the opening of an office and allocation of equipment. One of the first projects performed in Libya with more than 350,000 FT forwarded with pieces up to 260 tonnes was the “Western Libya Gas Project”. Fagioli and Someport Walon (a participated French company) are now completing the final delivery and installation of evaporators and boilers for this long term project by means of group-owned trailers, SPMT’s and screw jacks. (see both pictures directly below)

Another job performed for the shipyard industry was the transport of a ship (see picture below) weighing 160 tonnes from Marghera to Fusina. The vessel dimensions were 45.52m long, 8.85m wide with a height of 7.80m.

A total of ten evaporators (composed of 5 sections each) and ten boilers were unloaded onto Fagioli multi-axle trailers and delivered onto supports positioned in a storage zone close to the installation areas. Once positioned, the sections were lifted by Fagioli screw jacks in order to allow the SPMT’s to be positioned under the items. Once the modules were loaded onto the SPMT’s they were moved onto their foundations and lowered to final position.
Fagioli provide a fully comprehensive and professional freight management service run by a dedicated team that ensures all aspects and co-ordination of the transport is taken care of, including liaising with local agents.

In our last issue of the Newsletter we mentioned the award of a project for the installation of three power plants in Algeria. Fagioli is now completing the execution of these three important plants in Larbaa, M’sila, Batna. The scope of work involved the collection and transportation of general cargo and heavy lift turbines and generators including the final installation. This is a great example of a true door-to-door transport from the manufacturing facility in Italy to their foundations in Algeria. Fagioli heavy lift vessels loaded the items and delivered them to Algeria ports.

In Genoa Fagioli trailers transported alongside the quay several generators from 190 to 325 tonnes. They were loaded and secured onto our group-owned ship with heavy lift vessel gears. The generators were unloaded in Skikda port (see picture below).

In Marina di Carrara Fagioli moved and transported several turbines weighing 308 tonnes also destined to Skikda port. Whilst in Naples they moved and transported several transformers weighing up to 186 tonnes destined to Algiers port. All the components and items were sea transported with Fagioli self-geared vessels which are ideally suited for the low draft water in the Mediterranean Sea. Once the items had reached their unloading ports the items were transferred to their final destination sites. This was not an easy task as the roads to the sites were extremely sandy and uneven and the bridges were unable to cope with the weight of the convoy. So large concrete pipes were constructed next to the original bridges to allow the river to bypass and allow the convoy to travel over them. Once they reached their destination the items were transhipped and positioned onto their foundations by means of 600 tonne capacity gantry cranes. (pictures above and below)
The execution of this project gave us the opportunity to open two offices in Oran and Algiers. These offices supported by the head office are able to carry out project forwarding activities as well as Heavy transport, lifting and logistics activities.

The Middle East remains a buoyant market for our project logistic activities; we are currently completing a 200,000 freight tonnes project in UAE and other opportunities are yet to come.

Jumping from West to East we are working very hard in India on heavy transport and lifting and for project activities. Thanks also to local partners we are strengthening our presence on the territory working for huge EPC contractors active in the oil & gas sectors.

In Europe our specialised commercial department is very active in all the main Italian ports. Fagioli completed the shipment of two vessel columns from Naples to their final destination in Baiji (Iraq) via Mersina. (see picture below)

Delivery of skid mounted equipment and loose material destined to compression skids were approximately 40 tonnes each and a total of 7,000 cubic meters of material was forwarded. (see picture above)

In Chioggia port Fagioli carried out another loading operation of two columns weighing up to 28 tonnes with a maximum length of 29m (see picture right).

And finally the incredible jobs performed by our “Humanitarian aid” team who continue under immense pressure to provide a professional service to troubled countries around the world who are scourged by wars and natural disasters...

In addition, the incredible jobs performed by our “Humanitarian aid” team who continue under immense pressure to provide a professional service to troubled countries around the world who are scourged by wars and natural disasters...

Delivery of skid mounted equipment and loose material destined to compression plants in Sidra and Wachkah (Libya) were loaded onto heavy lift motor vessels in Ancona port for the gas transmission pipeline project. Weights of the packaged
River and Maritime Activities

The last part of 2008 was a busy period for our group-owned ships, performing challenging sea transports in the Mediterranean Sea.

As well as the lo-lo and ro-ro services Fagioli’s vessels offer a remarkable low-draft facility, this combined with a supportive road transport team, and state-of-the art equipment and a high profile engineering department are the key factors to successful heavy lift sea transports.

Fagioli carried out a double ro/ro transport using both Storm and Storman Asia vessels which included road transport to Nogaro Port, sea transport to Marghera Port and unloading operations.

The items transported were two large components of a quench tower; a unit bottom section weighing 835 tonne, 46.10m long, 10.91m wide and 11.05m high. (see picture below)

The unit top section weighed 433 tonne, 31.26m long, 10.46m wide and 10.78m high (see picture right)

The biggest one was transported and embarked using 52 axle lines of SPMT’s (2 x 14 and 2 x 12) while the smaller one by means of 2 x 14 axle lines. The items, once arrived at the port, were positioned alongside the quay. Ro-ro allows our trailers and SPMTs to roll onboard (see pictures above) with the heavy items lashed and secured and roll off the ships ready for their onward journey by road. All the operations concerning engineering, sea / fastening and welding were performed under Fagioli control.
A combination of SPMT’s and ships derricks completed the launching of a ferryboat at Izola, Slovenia. Fagioli were awarded the project from a local company, which involved the transport a 550 tonne ferry boat, 52m long by 16m wide using 2 x 12 axle lines of SPMT’s. It was transported close to the quay where 8 shackles were used to hook the ferryboat to Fagioli derricks. It was then launched using the 700 tonne capacity derricks. (see picture above)

The river transport is another important activity for Fagioli especially with the size of the items getting bigger and bigger and the new infrastructures do not always cater for these large items to be transported by convoy. The roads can be narrow and extremely busy, so a more convenient way of transportation in the North of Italy is by barge along the river to Marghera port (Venice). The group own a range of specialised river barges which include river pushers, heavy transport barges, chemical products, double skin oil product barges and bulk cargo barges. This large fleet operating mainly on the Italian navigable rivers performs heavy transports of oversized items that could not be delivered by road or by train due to certain restrictions like Bridges etc.. At the port in Cremona along the main Italian river Fagioli has a private operator berth with gantry cranes ready to load and unload items from barges. Picture below shows a typical loading operation.

On page 23, the gantry cranes page we mention the lifting of a 165 tonne reactor but not about the activities before and after: the transportation of the module to Cremona River Port using a 14 axle modular trailer and then transportation to Venice port by barge (see picture below).

Fagioli believes that river transport is a great opportunity to perform safe transport: water transportation provides tremendous carrying capacity while consuming far less energy compared to other modes of transport such as truck, rail or air. One of the biggest benefits of river transport is the substantial cost savings. A standard barge has a cargo capacity 50 times more than a normal trailer. It also helps towards limiting road congestion, has low environmental impact as well as a zero fatality record.

The vast range of river equipment owned by Fagioli through its 100% controlled S. Marco Shipping company includes not only barges for heavy lift items, but also for petrochemical products using double skin vessels and special bulk cargo vessels for wheat products.
High speed rail in Italy

Over the last five years Italy has been working on its “high speed rail” network linking Italy’s North and South. The construction of this project has not been without problems due to the mountains and hills that literally “cut the boot” in half.

High-speed rail is a type of passenger rail transport that operates significantly faster than the normal speed of rail traffic. It requires continuous welded rail which reduces track vibrations and discrepancies between rail segments enough to allow trains to pass at speeds in excess of 200 km/h. This created the need to construct new specially made rails all over Italy. Fagioli helped the Italian National Rails company to perform several tests, by providing rail cars which were ideal for testing heavy loads.

Viaducts and bridges are the weakest points of the whole infrastructure, considering the weight of an entire train driven at full speed. This is the main reason why these sections must be checked with severe load tests. Fagioli used its railcars (2 x 24 axles) loaded with steel billets. The first railcar was positioned on the viaduct/bridge loaded with more than 430 tonne of steel billets, this provided a total weight of more than 550 tonne. The train stood still without moving for half an hour than the technicians took the measurements of the loads. After this operation another Fagioli loaded railcar was positioned on the rail tracks on the other side of the bridge. Two hours later measurements were taken by technicians in order to calculate the loads on the structure. Fagioli performed several high-speed rail tests all over Italy. Picture above shows the railcars loaded with billets during the test.

The last issue of our newsletter we mentioned the rail transport of several generators in Poland. This job is still ongoing throughout 2009. The item weights vary from 230 to 460 tonne and require a 32 axle lines railcar with different configurations to perform the transports. (See photo left)

The picture above shows the transport from Marghera port (Venice) to Mendrisio (Switzerland) of a transformer weighing 165 tonne by means of a 16 axle lines railcar.
Gantry Lifting System

Fagioli has its own medium-range cranes and proprietary gantry systems to conduct heavy-lift assembly and erection activities in different industrial sectors for the final positioning of turbine-generator sets, boiler sections, transformers, storage tanks, etc.

Power plant turbine sections. The sections were transferred onto a barge using cranes. After a seven hour journey the barge arrived at the client’s facility where we positioned our 800 tonne capacity gantry crane. (see picture left) The gantry lifted each of the sections and positioned them onto a Fagioli trailer ready to be moved to the manufacturer so they could be cleaned and restored. The sections maximum weight was 50 tonne.

Fagioli was called to remove and substitute a generator and a turbine from their original foundations. The weight of the generator was 165 tonne. (see picture above) First they were lifted by gantry cranes, positioned onto SPMT’s and moved to a storage area. After few months a new generator was positioned onto foundations!

Fagioli monitor all the different stages of the project from the erection and assembly schedule, alignment and levelling operations as well as transport from origin to final destination.

Gantry cranes are extremely useful in restricted areas an example of this is a 2 week project Fagioli performed on Maggiore Lake (the second biggest lake in Italy) for the refurbishment of four

The gantry crane system is a mobile, self-propelled, variable height, hydraulic lifting frame. The gantries are designed to be operated on steel plates or tracks. The Fagioli Gantry Crane system provides an economical way to lift heavy items anywhere in a facility with hoisting capacity up to 800 tonne each.

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The photo below shows another example of a hoisting operation in restricted area of a 165 tonne reactor.
Exhibiting in New Orleans and Algeria

Fagioli’s involvement in a number of projects in Algeria was the main reason why Fagioli decided to book a stand at the Algeria’s largest and most recognised oil and gas event ALOGE held in Algiers on 15th - 19th November 2008.

This allowed Fagioli to showcase the work recently carried out for several power plants, the transport and installation of generators, turbines, transformers.............

From 14th - 19th October last year Fagioli Inc. exhibited at the 19th Annual Breakbulk Conference & Exhibition at the Earnest N. Morial Convention Center in New Orleans, LA – The exhibition seemed to be a great success as it really gained the interest of people and companies who were not aware of the work carried out by Fagioli USA over the last 10 years and by the group all over the world.

Contributions & Comments

Thank you to all those who contributed to this edition of the News Letter.

We appreciate your comments please continue to send them to either of the persons named below:

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