FAGIOLI News

Issue 22

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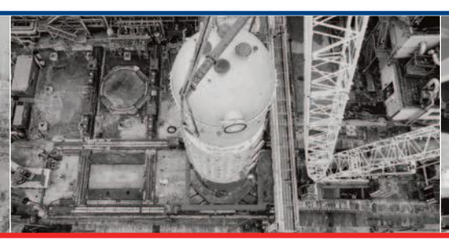
NEWSLETTER 22 INDEX









THE WORLD ... ... OUR PASSION

OIL & GAS



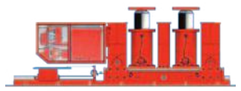







Oil & Gas: Stick Built and Modular Construction Plants

VERTICAL INSTALLATION OF A REACTOR

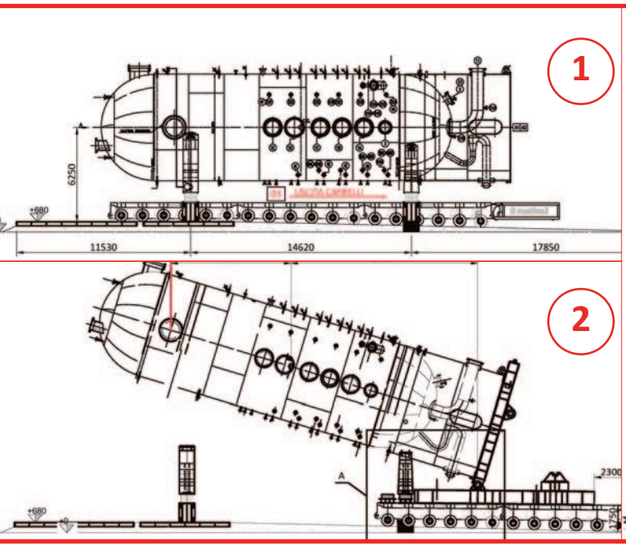


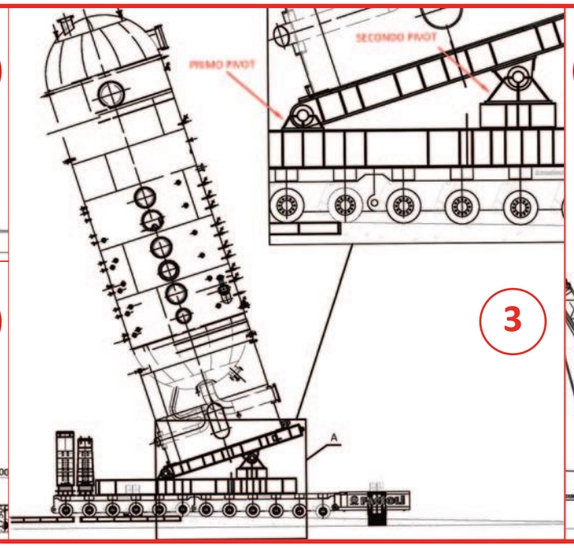
INNOVATIVE SOLUTION

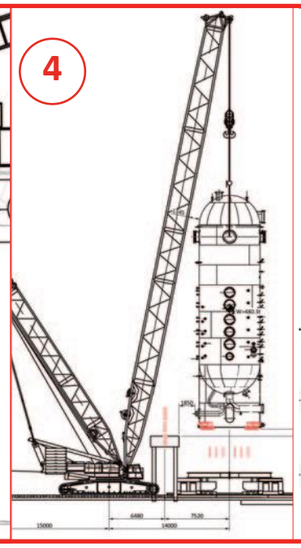
A challenging project was executed by Fagioli for the transport, verticalisation and final installation of a 458 ton reactor in Ravenna, Italy. The reractor was loaded at the port of Ortona onto Fagioli barge and unloaded at Ravenna port . The road transport was executed by No. 36 axle lines SPMTs up to site (drawing 01). The verticalization and lifting operations of the reactor took place through the use of SPMT's equipped with a tailing frame (drawing 02 - 03), on the one hand, and on the other, through the use of a CC2800 crawler lattice crane. A dedicated tailing frame was mounted onto the SPMTs in order to support the lifting operations. Once the rector was lifted onto a vertical position (drawing. 04) , it was lifted, rotated and laid down onto no. 8 skid shoes with a capacity of 1000 ton each provided with a tailor made squared support frame.(Picture bottom left). No.4 support brackets were bolted underneath the support frame with the scope of holding up and reinforce the heavy item during the skidding and installation operations (picture bottom right). The positioning of the reactor onto the skid shoes was gradually executed with a release the load in steps of 20% at a time until each skid shoes took about 130 ton of load.

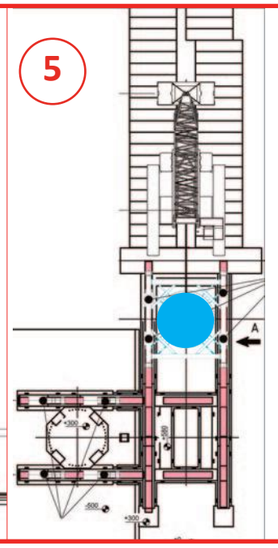
After checking that the support frame was correctly positioned onto the skid shoes, Fagioli operators started with the skidding phase (drawing 05).The skid shoes were aligned for the execution of an horizontal movement (drawing 06). Once arrived at the end of the skid tracks in a temporary storing area, the reactor was gradually released onto support shelves previously set up. The skid shoes used for the horizontal operations were removed. Skid tracks were rotated of 90 degrees and positioned as to allow the insertion of the transversal skid shoes (drawing 07). Skid shoes for transversal movement, were skidded under the support frame where the reactor was stored and took the load of the heavy item.The reactor was transversally skidded to reach the foundation area (drawing 08). Once in correct position the reactor was lowered and bolted.

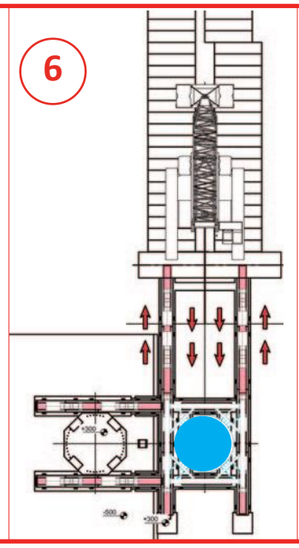
This was a milestone operation for Fagioli: - Fagioli door-to-door operation including the transport and installation from manufacturing area up to foundation; use of extensive fleet (barge / SPMTs / Crawler crane/ Skidding system); an innovative solution for the vertical installation of a reactor in such a restricted area.

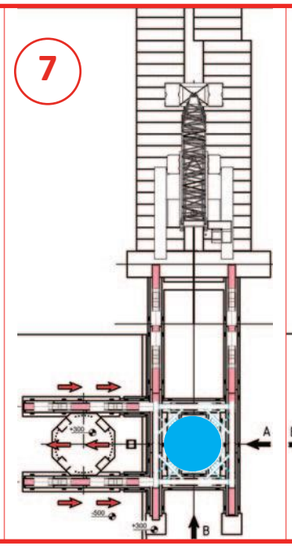


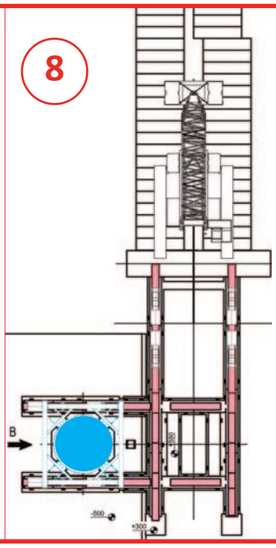












TOWERLIFT SKIDDING SYSTEM

THAILAND

Fagioli was contracted for the transport and installation of No. 9 heavy items for a project in Thailand. Fagioli engineering department came up with the idea to use a gantry skidding tower lift system designed to travel on skid tracks for the installation of consecutive vessels. The installation of the No. 7 reactors with weight up to 2,300 ton were executed with this Gantry movable system. No. 2 towers were erected on the skid base frame under each running the skid tracks along the length to cover the erection of the reactors. Stability tower guys were attached at the tower top and another end anchored onto the ground by means of suitable counterweight at 4 locations. The Tower Lifting System, after the lifting of one vessel, was able to shift (unloaded) to the next position for the erection of the next column by push pull arrangement provided below base frame. Once it reached the correct position, the base frame was anchored onto foundations by anchor bolts.

Tailing frame : composed of strand jack system mounted onto SPMTs. This system lifted the tail end of reactor and move towards tower for upending operation.

Vessel Name	NAME	DIMENSIONS L,D (m)	WEIGHT (incl. 10% cont.) (t)	LIFTING TOWERS
C-10603	PROCUDT FRACTIONATOR	75 x 10.5	1306	Vacuum Fixed Towers
C-10705	VACUUM TOWER	68 X 12.5	990	Fractionator Fixed Towers
R-10601	REACTOR	45 X 6	1635	Reactors Skidding Towers
R-10602	REACTOR	51 X 6	1862	Reactors Skidding Towers
R-10603	REACTOR	36 X 6	965	Reactors Skidding Towers
R-10701	REACTOR	60 x 6	2081	Reactors Skidding Towers
R-10702	REACTOR	61 x 6	1966	Reactors Skidding Towers
R-10703	REACTOR	61 x 6	1966	Reactors Skidding Towers
R-10704	REACTOR	62 x 6	2270	Reactors Skidding Towers

LOAD OUT OPERATIONS OF TWO JACKETS BY MEANS OF SPMTs AND STRAND JACKING SYSTEM

JACKET 9,420 TON

JACKET 3,207 TON

144 AX./LINES SPMTs

L600 STRAND JACKS FOR LOAD-OUT

L100 STRAND JACKS FOR MOORING

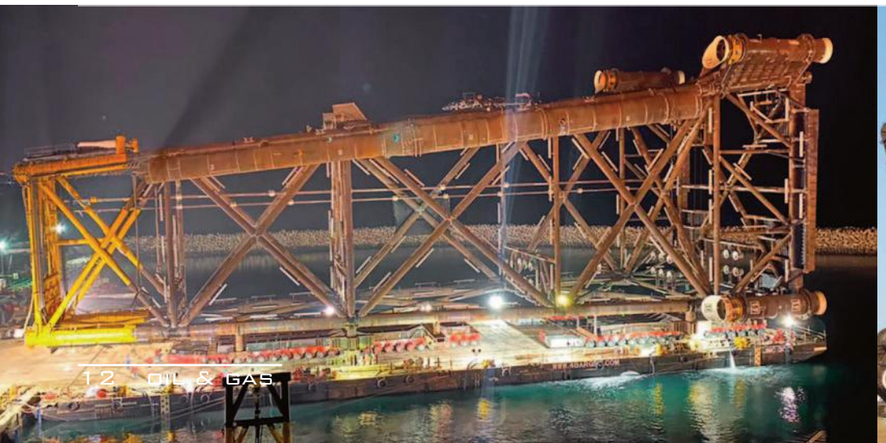
Load-out operations in Oman

LOAD OUT OPERATION BY SPMTs

Fagioli was contracted by L&T Modular Fabrication Yard LLC for Transportation and Load out of D30-2 Jacket at their Modular Fabrication Yard in Sohar, Oman. The Jacket weighing 3207te and sized at 92m Long, 37.7m wide and 37.4m high was transported using Self Propelled Modular Trailers (SPMT). Fagioli used 144 Axles and 7 Power Pack Units for stated operations. While a 300 class barge was supplied by the client, management of barge including Mooring and Ballasting was under our scope which was well engineered/executed safely and successfully during February 2021.

LOAD OUT OPERATION BY STRAND JACKING SYSTEM

For the load out operations of the 9,420 ton jacket Fagioli used a skid and strand jacking system: N. 4 + 2 Spare Strand Jacks L600 to be connected to the Jacket; N. 2 +1 Spare HPPU for Hydraulic Jacks ; N. 4 + 2 Spare Anchors L600 on barge for Strand Jacks L600; N. 2+1 Spare Hydraulic Jacks SWL=600 ton for the break out operation; N. 2+1 Strand Jacks L100 with jack frames, for mooring activities; N. 2 HPPU for mooring Strand Jacks; N. 4 Winches SWL=20 ton and mooring devices; Tide Monitoring system; Barge level monitoring system (theodolites / total stations and prisms installed on barge)



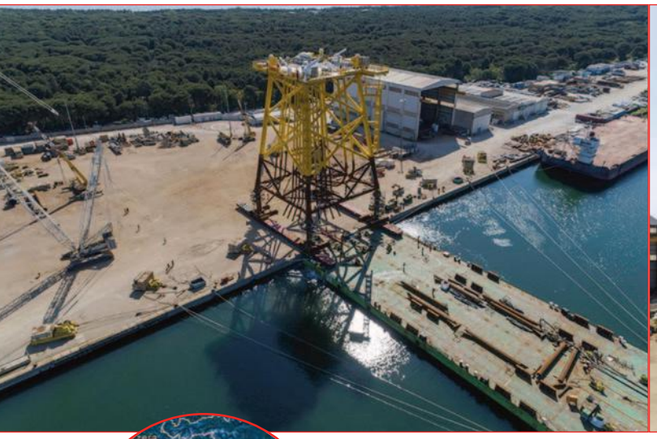
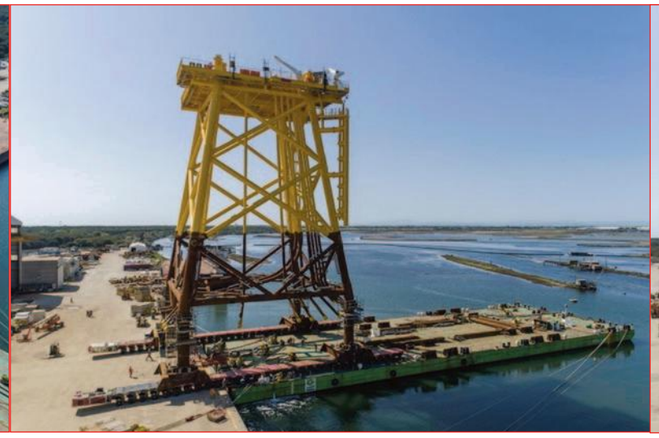
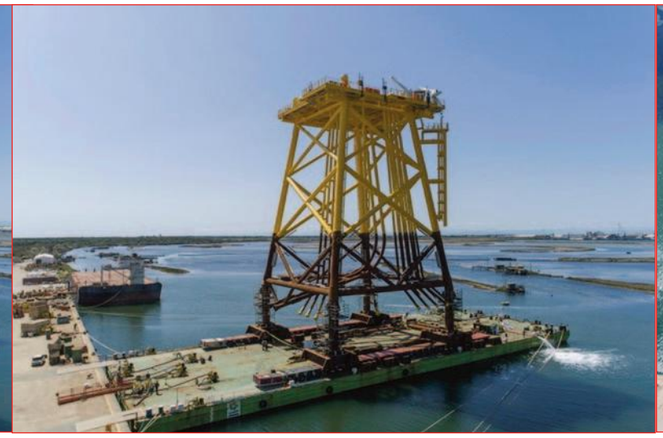
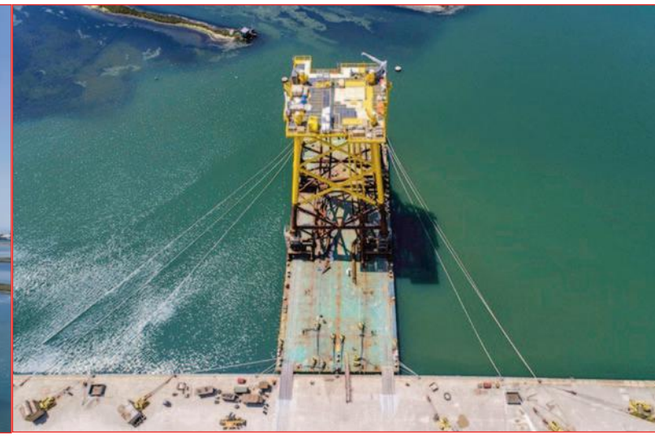
Calcasieu Pass LNG Project

MAIN EQUIPMENT: 160 SPMT Axle Lines, 6 PPUs, 8 Electric Winches
WEIGHT: total weight transported 95,350 metric tons (294 items), modules up to 2,353 metric ton
DURATION: March 2020 – November 2021
On this project, Fagioli reached the important milestone of **50,000 incident free manhours** (picture on the right, following page).

SCOPE OF WORK:
The scope of Work included the Roll-off and ballasting of 136 barges and the Heavy Transport and Installation of 294 pieces of equipment up to 2,535 ton.
Fagioli was able transport and install all the modules directly from the barge to foundation without staging and successfully partnered with the client to complete the project ahead of schedule.

WORKING FOR THE OFFSHORE INDUSTRY

WEIGHING AND LOAD OUT OPERATIONS OF A JACKET

JACKET	WEIGHT (contingency included or not)	MAIN DIMENSIONS (L x B x H)
1	1485	34.0mx31.0mx48.0m

Fagioli was contracted for the weighing and load out operations of a 1,485 jacket in Ravenna. The weighing operation was performed by means of Fagioli weighing system which was composed by jacks and load cells: N. 16 hydraulic jacks 300t + N. 1 hydraulic jacks 300t spare; N. 16 calibrated load cells 200t + No.2 calibrated load cells 200t spare; N. 1 hydraulic power pack unit (HPPU) with synchronized lifting system; Digital weight logging system.
The transport and load out operation onto a dedicated barge provide by the client was executed by means of no. 64 axle lines SPMTs (40 ton capacity each). (Pictures at the top)

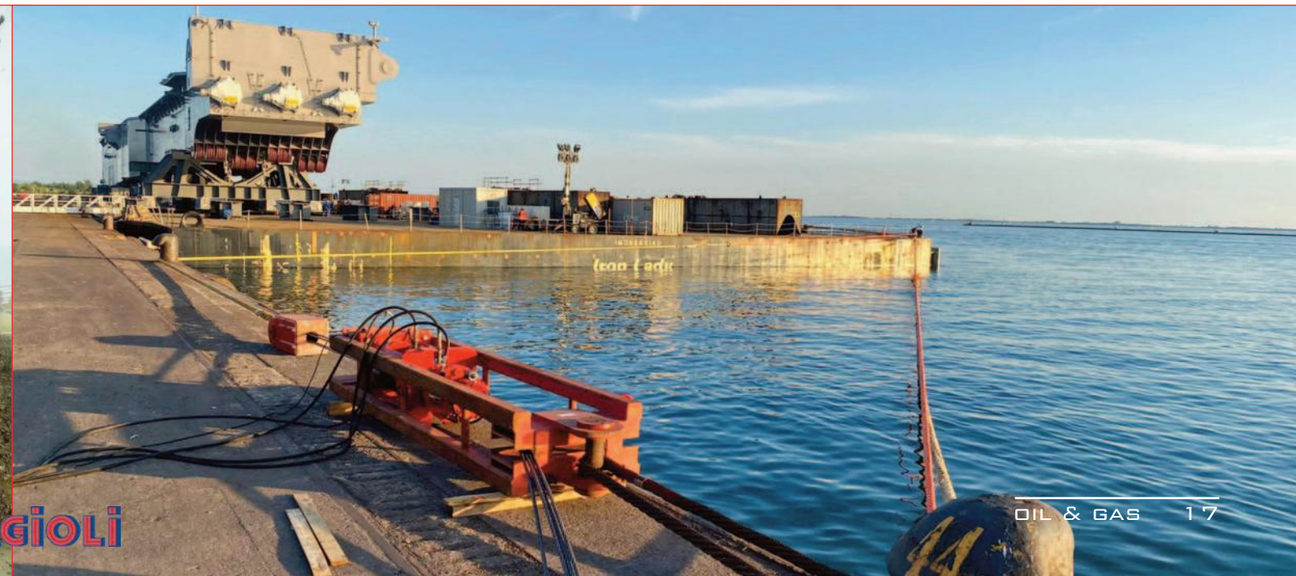
THRUSTER CHANGEOUT

Fagioli India was awarded the contract for Removal of no. 2 thrusters from a ship anchored at open sea at 22 Nautical miles from Kandla port. Fagioli supplied strand Jacks (50 ton) and respective PPU's to lower three thrusters (90 ton each) in sea water. Fagioli supplied tailor made anchor housing arrangement to connect the housing to the thrusters.
Fagioli India was in charge for the overall lowering activity.

STRAND JACK MOORING SYSTEM

Fagioli was contracted to support the mooring operation during the load out of All Seas' Pioneer Spirit beam at Monfalcone port.
A L100 strand jack was used for this operation.
The "Fagioli mooring system" is a new special device which includes the technical and operational potentialities and the safey aspects of the standard strand jacking system commonly used for heavy lifting activity





Door-to-door Service Provider

PROJECT LOGISTICS AND HEAVY ROAD ACTIVITY

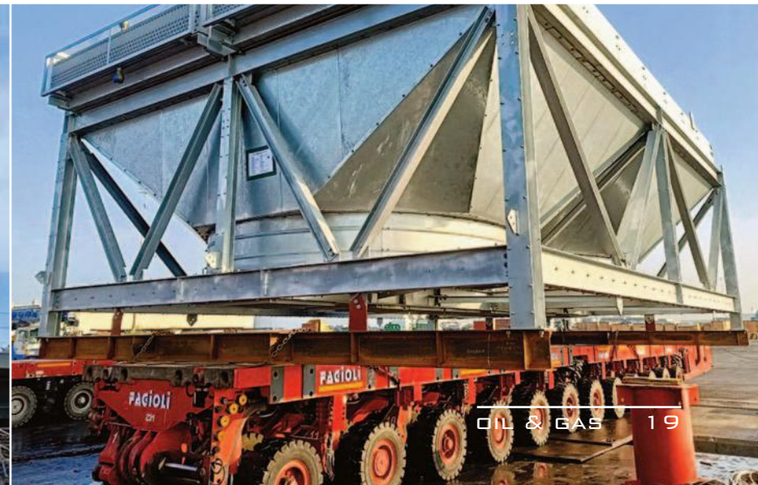
CHARTERING OF DEDICATED H/L SHIP

COORDINATION OF PICK-UP SEQUENCE AND DELIVERY

ASSISTANCE FOR CUSTOMS OPERATIONS

DELIVERY TO SITE AND INSTALLATION OF HEAVY ITEMS

TOTAL SUPPLY CHAIN



THE WORLD ... ... OUR PASSION

CIVIL

Civil: Main Players in Construction Activity

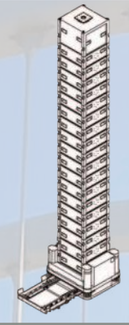
JACK-UP SYSTEM for a 2,500 ton Railway Bridge

... Jack-up System / SPMTs / Strand Jacks and Tower Lift System...

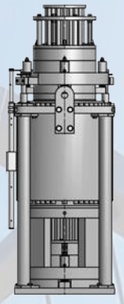
INSTALLATION OF A RAILWAY BRIDGE WITH COMBINED TECHNIQUES

104
AX/L SPMT

2,000
TON CAPACITY JACK-UP SYSTEM



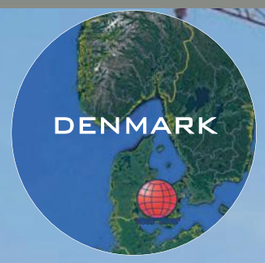
4 x 450
TON CAPACITY STRAND JACKS



BRIDGE
2,000
TON

Fagioli was contracted by WEBUILD for the transport and installation of a metal arch railway bridge as part of the works on the new high-speed railway line between Napoli and Bari, towards Napoli. This project includes the lifting, transport and installation process of the bridge main section.
Main dimensions of the bridge:
HEIGHT 21,6 m; LENGTH 79,6 m; WIDTH 14,3 m. The new bridge was lifted from ground level using Fagioli Climbing Jacks (no. 8 units) with 600 Ton capacity each.

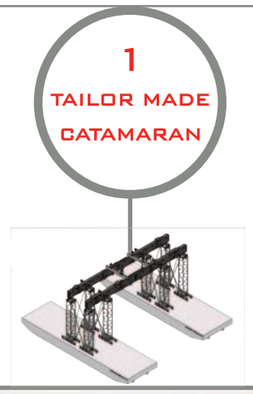
On one end of the main section were placed a Jack-up system (2,000 ton capacity) and on the other end were placed four tower lift with No. 4 Strand Jacks L450 on top. After the lifting operations ended, the main section of the bridge was loaded onto No. 104 axle lines SPMTs provided with tower sections to lift the bridge at the intended height and moved to its final position.
Fagioli was proud to complete this work during both day and night time, as part of another important project on developing Italian high-speed railway network.

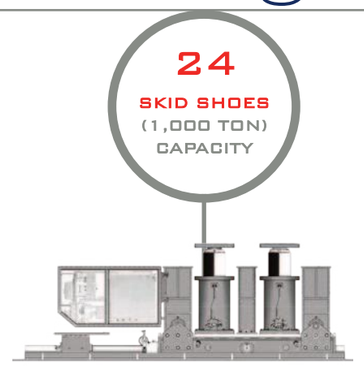


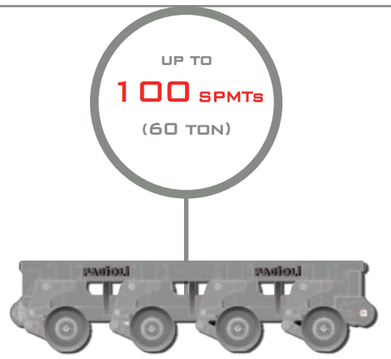
Storstrøm Bridge: Load out of a 12,000 ton pylon foundation

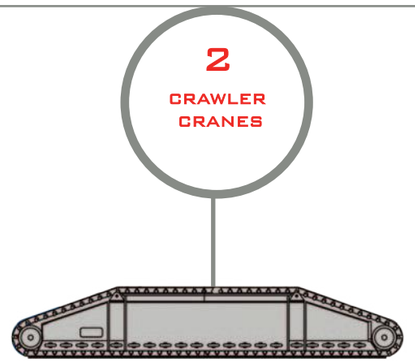
...Catamaran / Barge / Skid Shoes / SPMTs / Strand Jacks/ Crawler cranes...

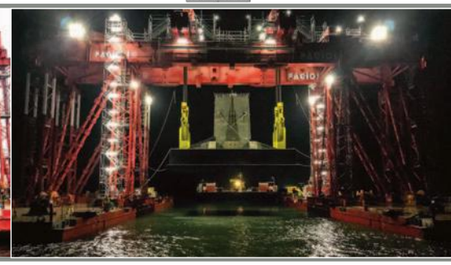
Storstrøm Bridge: Second Chapter

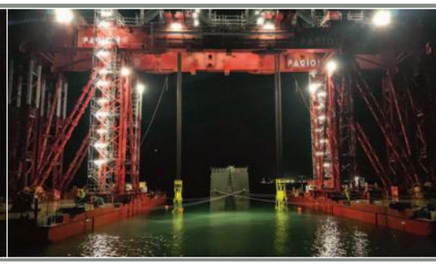










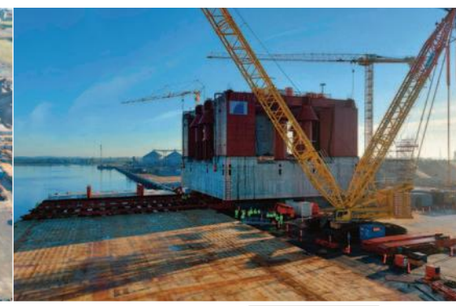


INSTALLATION OF PLYNTHS

Fagioli was contracted by SBJV, a Danish Joint Venture led by Itinera, for the transport and installation of the new Storstrøm bridge which is being built in Denmark between Falster and Masnedø.
Fagioli deployed n.52 SPMT axle lines for the onshore transport and load-out operations of the bridge plinths onto Fagioli AF-1 barge (during 2020 n.5 plinths have been installed).
After the plinth is stored on the barge, she is towed to the installation area by tug where the bespoken catamaran gantry has been previously moored to offshore pre-laid concrete counterweights.
Once inserted inside the catamaran hulls, the plinths are connected to the strand-jacking system of the catamaran through link plates. The up to 2500 ton plinths are then lowered onto sea-bed with millimetric precision thanks to the strand jacking system and a set of horizontal winches. Complete marine activities are under Fagioli control and responsibility. Geo-positioning and monitoring of the catamaran structure is performed through a combination of GNSS and automatic total stations. Operating in an open sea environment with hanging loads poses serious design challenges. The tailor made structure had to be tested for 2500 ton of safe working load and at the same time being extremely precise in the lowering/positioning process.
Deep FE analysis and sea-state impact studies have been performed before the deployment and construction of the catamaran gantry.
Pictures at the top show the load out and installation by Fagioli catamaran of a 1,800 ton plinth

INSTALLATION OF A 12,000 TON PYLON FOUNDATION

Fagioli executed the skidded load-¬out operation of a 12,000 ton pylon foundation by means of n.24 skid-shoes each capable of 1000t and a semisubmersible barge. The huge concrete block (42 m long, 34 m wide and 22.7 m high), will be the bottom section of the 106 meter high pylon, which will stand in the middle of the Danish bridge and carry the suspension lines for the central girders. Back in May 2020, work began on casting the huge concrete block, which has a total of 26 inner chambers, which will initially be filled with water to place it on the sea-bed.
A temporary steel structure installed (also by Fagioli onshore team with use of 650t crawler crane and SPMTs) is set up on the foundation, it has been design to increase stability and guarantee a work platform for the job to come after plinth sinking. The semibsub barge, with 27 ballast tanks, was equipped with a project specific grillage set. In collaboration with barge owner (BOA) the load-out and float-off operations developed by Fagioli team succeeded as per plans.The submersion of the barge, to allow the concrete plinth to float, takes place by filling the many ballast tanks in the barge with water so that it submerge until touching the sea-bed at -21,5m.
Once afloat the block has been towed out to the final position of the plinth itself and moored securely to pre-laid gravity anchors.
The pylon foundation was skidded by 24 skid shoes onto the barge BB 34 (140x36x8,5m), an overall operation in a series of critical path phases lasting 5 days in good weather conditions last October.
Pictures at the bottom show the load out of the 12,000 ton pylon foundation.



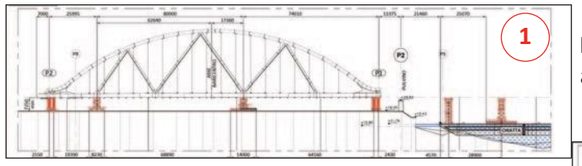
Installation of a 2,800 ton bridge section

Fagioli was involved in the launching operation of a 2,800 ton bridge section for the new SAN BENEDETTO PO bridge in Mantova.
The span, 180 m long, was lifted by a Jack-up system to allow the insertion of SPMTs. The trailers transferred the section onto a dedicated barge provided with towers and other SPMTs for the perct alignment with the central piles positioned into the river.
With a millimetric operation, Fagioli operators and engineers, performed a safely and syncronized ballasting, stabilization, sliding, skidding, lifting and lowering operations.
The impressive operation was executed by means of barges, SPMTs, strand jacking and tower lift system, climbing jacks.

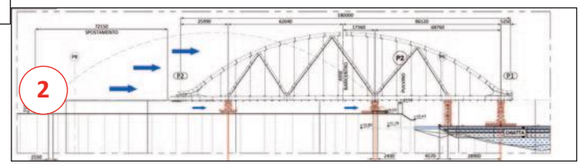




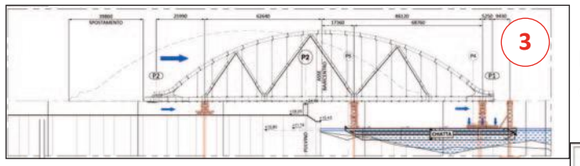
TOP LEVEL ENGINEERING OPERATION



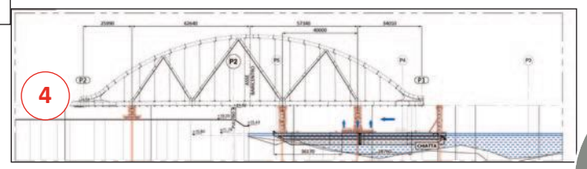
Phase 1: Lifting of Bridge section by Jack-up system and insertion of SPMTs (aggregate of 150 axle/lines)



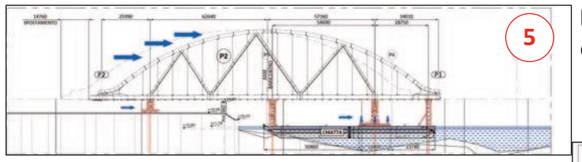
Phase 2: Trasport in line of section onto the barge provided with SPMTs (76 ax/ls) and tower support



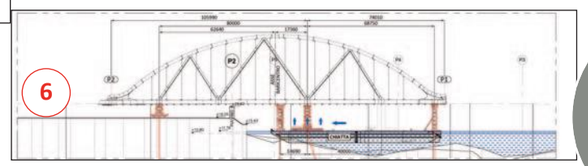
Phase 3: Transport of section and transfer of load onto tower positioned onto the barge



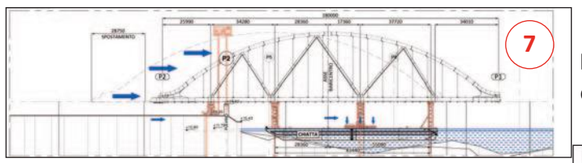
Phase 4: Repositioning of the convoy, lifting and transport of the section onto the barge



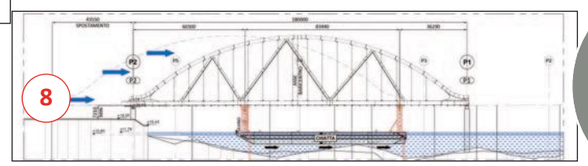
Phase 5: Transfer of load onto the towers positioned on the stern of the barge and the SPMTs on the bank



Phase 6: Trasport of SPMTs convoy (onto the barge) and load the section



Phase 7: Transport of section and transfer of load onto the towers positioned onto the barge



Phase 8: Barge moved by strand jacks and tugboat and release of the bridge section onto foundations

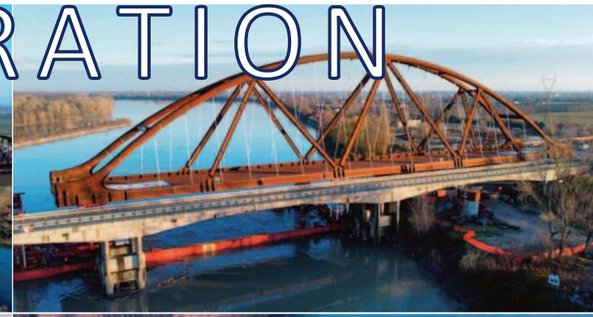
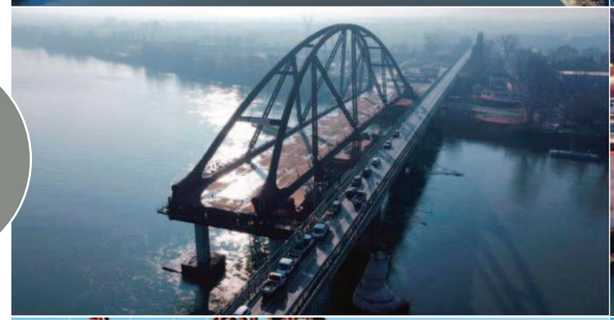
226 AX/L SPMTs

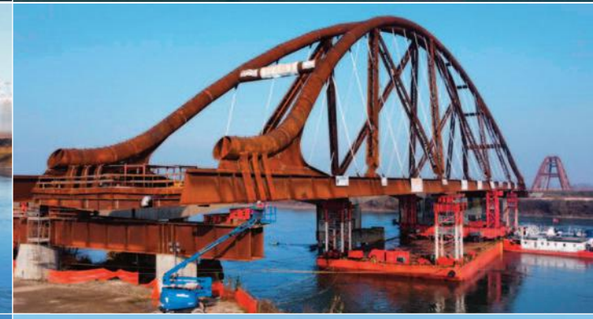
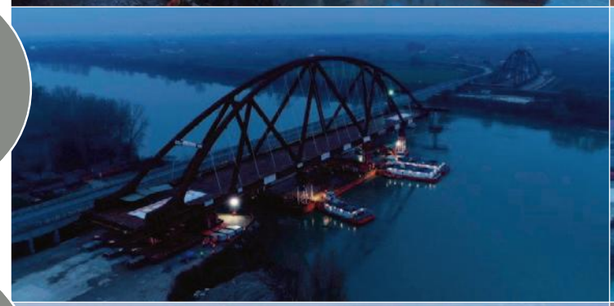
8 JACK-UPS 500 TON EACH

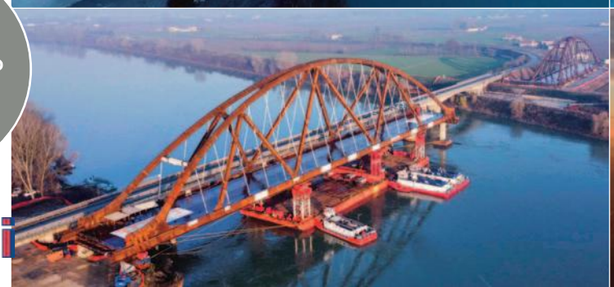
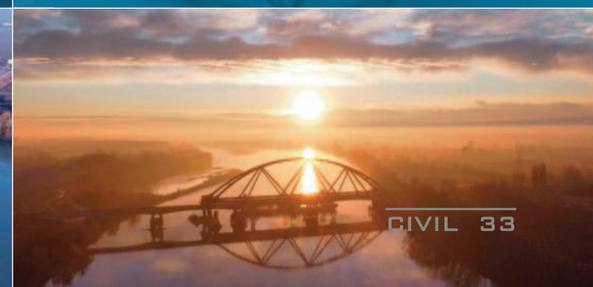
6 TOWERS FOR THE BRIDGE SECTION

7 STRAND JACKS

1 BARGE AND TUGBOAT

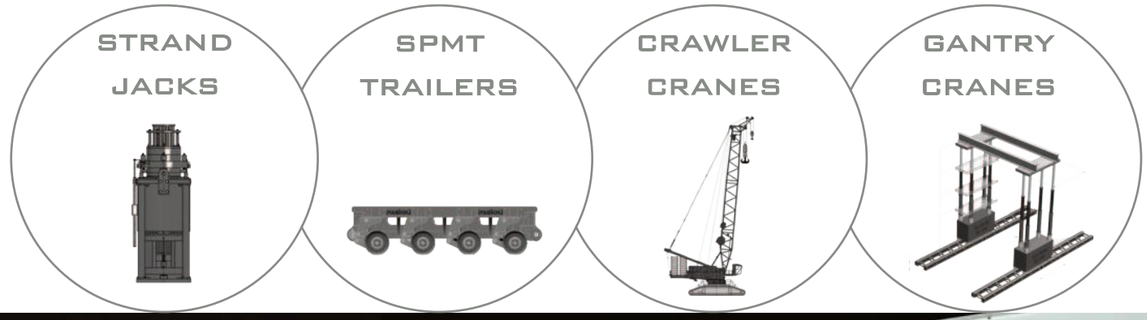




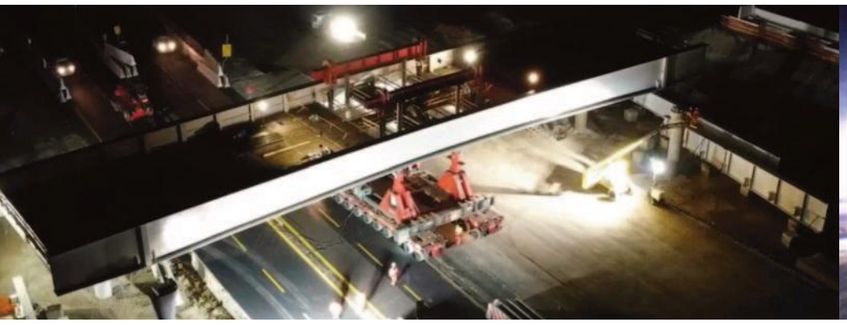




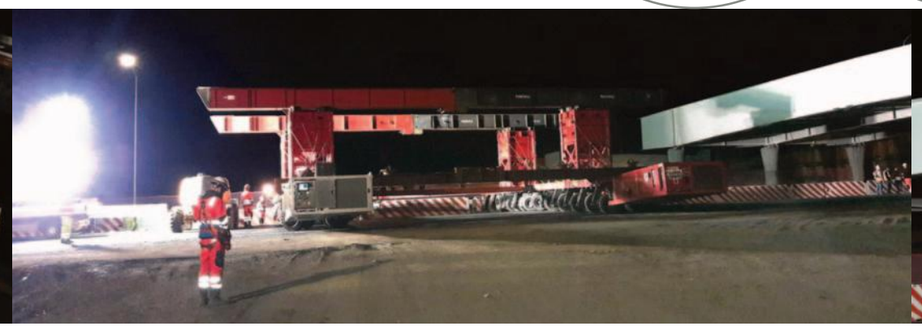



Safely and Quick Installation Methodology

Over the last few years, the general contractors of construction companies and public administrations request has become more and more frequent, for what concerns the transport and installation of road and railway bridges, inparticular conditions and in extremely tight schedule time. Fagioli manages to be extremely competitive in the civil market, thanks to its ability to design and build tailor made metal carpentry structures to be used for quicker and safety installation, making the best use out of its high technological equipment to create practical and useful solutions. The pictures in these pages offer an overview of the many bridge launching activities recently carried out by Fagioli, with particular attention on the technical issues, brilliantly solved thanks to the in-house engineering "know - how" and operational experience of Fagioli team. Innovative solutions outcome, compared to traditional installation activity, has a clear impact on installation scheduled time and, as a consequence, a neat and clear impact on costs.







Pictures at the top show the removal operations of a bridge (in three sections, weight up to 200 ton) by means of gantry lifting system and SPMTs. Picture strip at the center refers to the installation by means of No. 24 axle lines SPMT provided with a gantry lifting system and lifting beams ofa bridge weighing more than 300 ton and with a length of about 60 m.
Fagioli Canada was contracted for the In-land transport and Load Out operations onto a barge of four bridges for the Toronto Port Lands redevelopment project: the biggest one is the four-span Commissioners Street bridge (two sections 153-m length, with a 53-m width and 10.16-m height, and a weight of 1,210 ton). Pictures below show the transport and load out activity of the bridges onto a dedicated barge.

Fagioli India was awarded the contract for the erection of assembled truss at Delhi airport terminal 01, DELHI, INDIA It is one of the most unique job executed successfully as site had many restrictions such as limited area for crane movement, feeding & assembling of truss sections. Strand Jacks overcome this difficulties providing out of the box solutions to client. Once assembled these sections were lifted as a whole to desired height. Maximum weight of each section lifted was 150 MT. Fagioli provided a total of 12 nos. strand jacks of varying capacities from L15 to L50. The Strand Jacks were positioned at the top and Power-packs were positioned at bottom and operated using the Computer Control.
Pictures below shoe the installation activity.

STRAND JACKING SYSTEM

Demolition work of distressed / dangerous portion of the collapsed Vivekandand road (Posta) flyover in North Kolkata

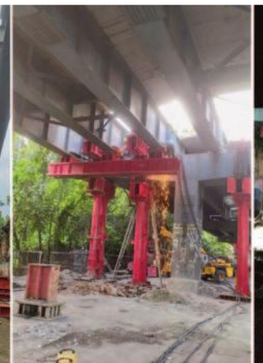
Fagioli India was awarded the contract for dismantling of DANGEROUS PORTION OF THE COLLAPSED VIVEKANDAND ROAD (POSTA) FLYOVER IN NORTH KOLKATA in 03 phase by Fagioli strand jack system
Phase 01: 12 Nos. Bridge spans of 40 Meter long with weight of approx.285 tons each span.
Phase 02: 20 Nos. Bridge spans of 40 Meter long with weight of approx.285 tons each span.
Phase 03: 34 Nos. Bridge spans of 40 Meter long with weight of approx.285 tons each span.
Currently Phase 01 has been completed and Phase 02 is in progress

The scope of the work in this contract included to supply Fagioli Strand Jacks, respective PPU's , different types of support columns as per required height for each pier, two types of Jack support beams with anchor rod connection, base frame under the support columns and Lifting beams with anchors to dismantle the bridge spans.

Each bridge span weight was approximately 285 Ton.
Fagioli used 4 nos.180 Ton capacity strand jacks with anchor connected to the lifting beam at the bottom of bridge spans.
The overall lowering responsibility is taken by Fagioli INDIA.

Detailed Engineering has been done for each spans as every spans having a different height variations and many obstacles for the lowering of the bridge.

Fagioli India has taken at most safety Precautions with proper planning in cooperation with high officials of the city government and police as Bridge dismantling work is going on in fully crowded area in the center of the city.

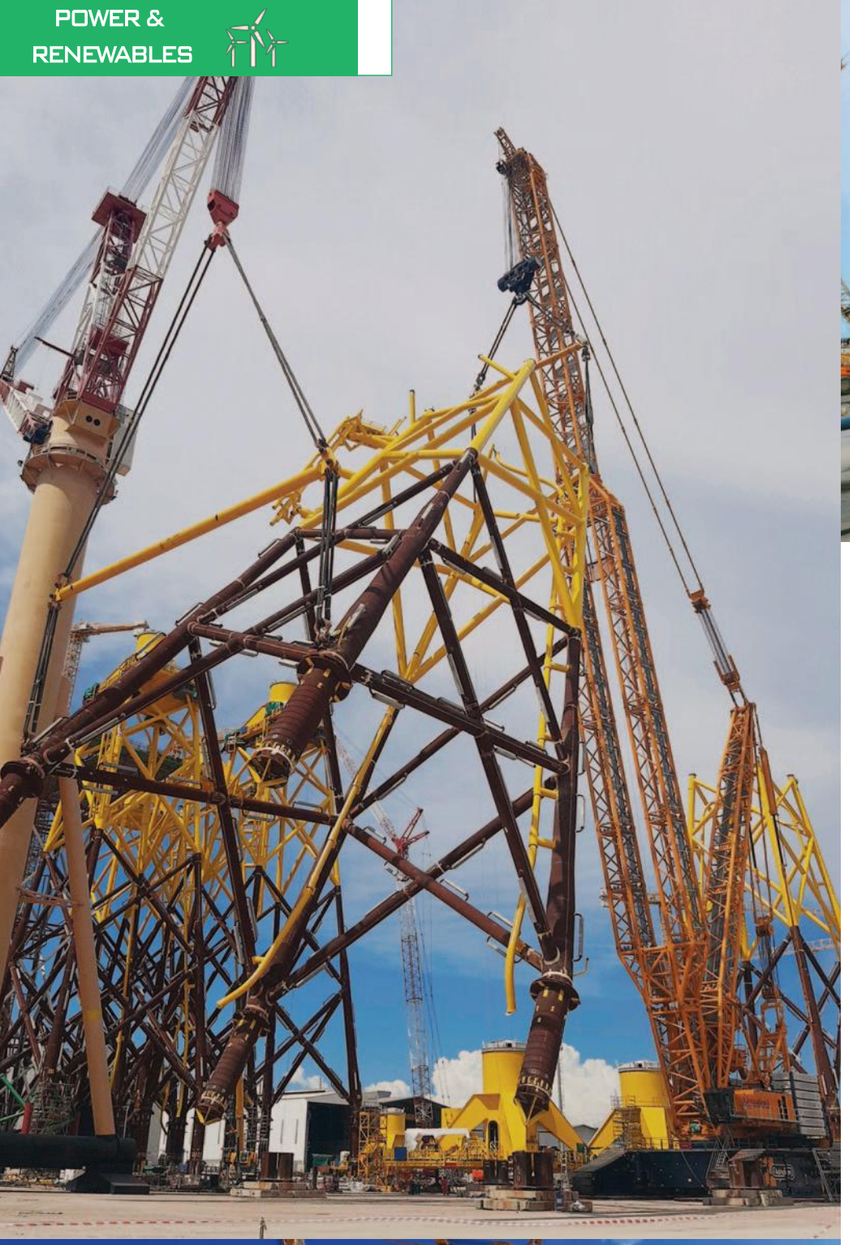


THE WORLD ... ... OUR PASSION

POWER & RENEWABLES

Providing reliable services for the energy sector

LR 13000 TON CRANE FOR THE INSTALLATION OF OFFSHORE WIND JACKETS



The Project

PT Fagioli Indonesia is proud to have been appointed the contract for two projects based in Karimun Indonesia, for the scope of work that give penultimate responsibility for the execution of all yard service activities concerning a total number of 88 Jackets for the Wind Offshore Renewable industry .
The service provided by FAGIOLI covers and includes:

1. Site activity such as jacket horizontal transportation, jacket upending, TP installation, jacket vertical transportation, and Loadout by Ro-Ro of 32nos Formosa II four-legged 1,653 ton windfarm jackets with Transition Piece on top, 52 nos NNG WTG three-legged 1,427 ton windfarm jackets with Transition Piece on top, and 2nos NNG OSS three-legged 1,779 ton substation jackets.
2. Pre-planning and detailed engineering including fabrication of dedicated steel structures;
3. Tailor-made planning of the activities for an optimized, safe and timely solution.

To ensure project success Fagioli Indonesia utilizes the latest specialized Integrated engineering solutions supported by a comprehensive fleet of state of the art lifting and transportation equipment, including:

1. Liebherr LR13000 that with a lifting capacity of 3,000 ton is known as the most powerful conventional crawler crane in the world. The LR 13000 is just one of the 19 cranes that PT Fagioli Indonesia has brought to Karimun to support the specialist lifting operations needed to meet project demands.
2. High capacity SPMTs equipped with a dedicated steel frame ;
3. One of the most powerful Enerpac hydraulic jack-up system ever used on an SPMT configuration with a combined 4 point lifting capacity of over 3,000 ton of lift capability – yet another first for Fagioli.

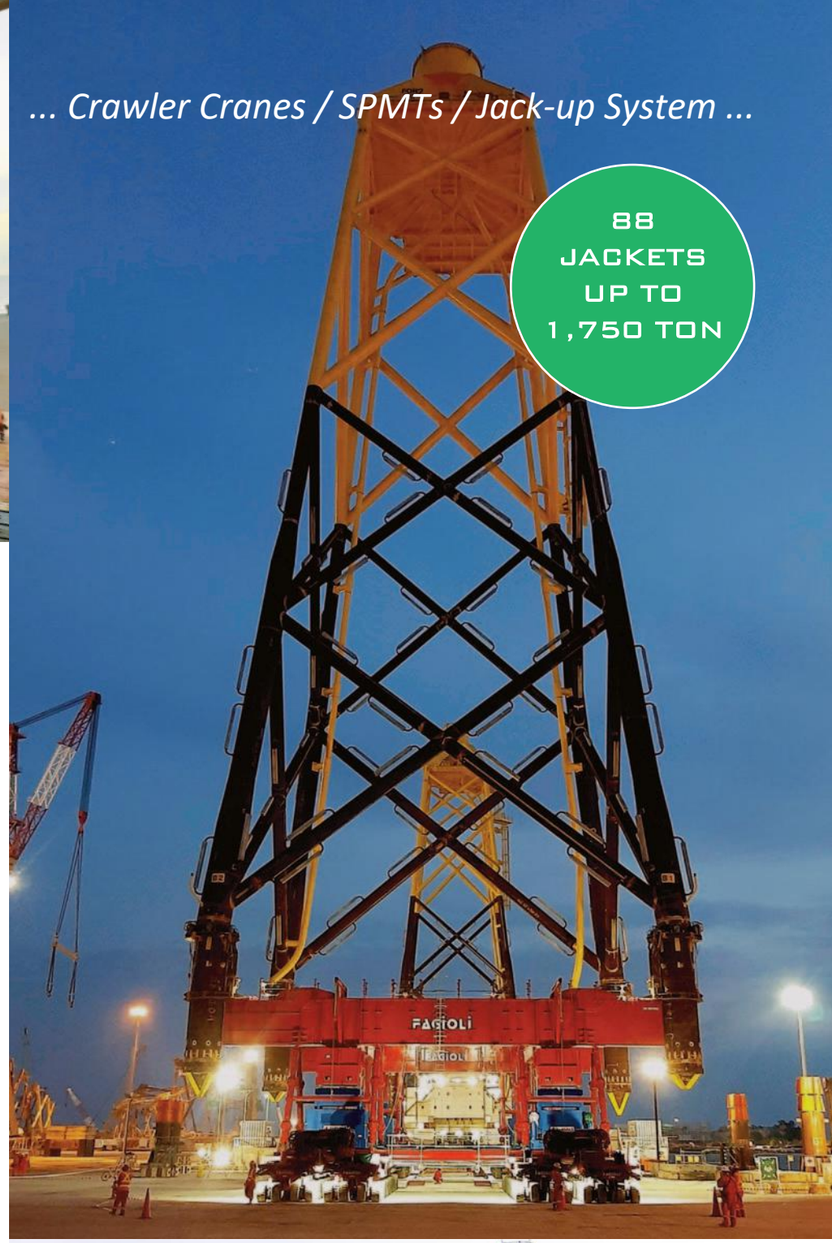
PT Fagioli Indonesia has also engaged the expertise of an international team of specialized personnel from seven different nations who compliment their highly skilled Indonesian counterparts seamlessly. Together they form a unique and dynamic team.

This engineering excellence has allowed Fagioli to seamlessly deliver and subsequently load out FII jackets onto the deck of a specialist shipping vessel for the final journey to the Taiwan straits where they will be commissioned with their turbines and will be finally set into operation supplying clean energy to Taiwan.
In line with the recent release of the Fagioli Group Sustainability Report Fagioli South East Asia is proud to contribute to our specialized knowledge to such an environmentally sustainable clean energy project.

FAGIOLI

... Crawler Cranes / SPMTs / Jack-up System ...

88
JACKETS
UP TO
1,750 TON



OFFSHORE WIND JACKETS IN SPAIN

62
JACKETS
UP TO
1,200 TON

Fagioli was contracted by Navantia, for the transport and load out operations of 62 jackets executed in Northern Spain, for a new offshore wind farm to be built in Saint Brieuc (France). A tailor made structure was designed and assembled in order to move the lower and the upper parts of the jackets, so that they could be joint together and prepared by the client for the load out operation that will take place in early 2022. The equipment used is a 56 axle lines SPMT, with a capacity of 48 tons each, divided in two lanes, propelled by n. 2 PPUs. The weight of the items are the followings: 480 ton for the carpentry of the Fagioli tailor made transport structure; 600 tons for the lower and the upper part of the jacket; 1,200 ton for the complete jacket.

	ITEM MARK / ID	WEIGHT (contingency not included)	MAIN DIMENSIONS (L x B x H)
1. No. 62 Items	LOWER BLOCKS	427 t ÷ 555 t	24.0 m x 28.0 m x 34.2 m
2. No. 62 Items	ASSEMBLY 1	579t ÷ 611 t	20.5 m x 23.5 m x 43.3 m
3. No. 62 Items	JACKETS	1.051 t ÷ 1.195 t	24.0 m x 28.0 m x 77.0 m

POWER & RENEWABLES

WIND FARM

Fagioli Inc. was contracted for the installation of wind turbines all across the USA territory from Texas to Ohio.

Fagioli used sevral crawler cranes for the actual installation phase and SPMTs for the transport of large sub-components crawler sections in order to speed up the operations.

-CRAWLER CRANES: LR1750 - LR 1500 - LTR 1220, with a range capacity between 220 and 750 ton.

-SPMTs: up 80 axle lines

Fixed tip crawler cranes worked 24/7 and were relocated by SPMTs, with a relevant cost-saving solution.

The transport of large components of crawler cranes by SPMTs turned to be a save in terms of time by avoiding the positioning of all the mats needed to move the assembled heavy equipment on field roads.

PROJECTS IN USA

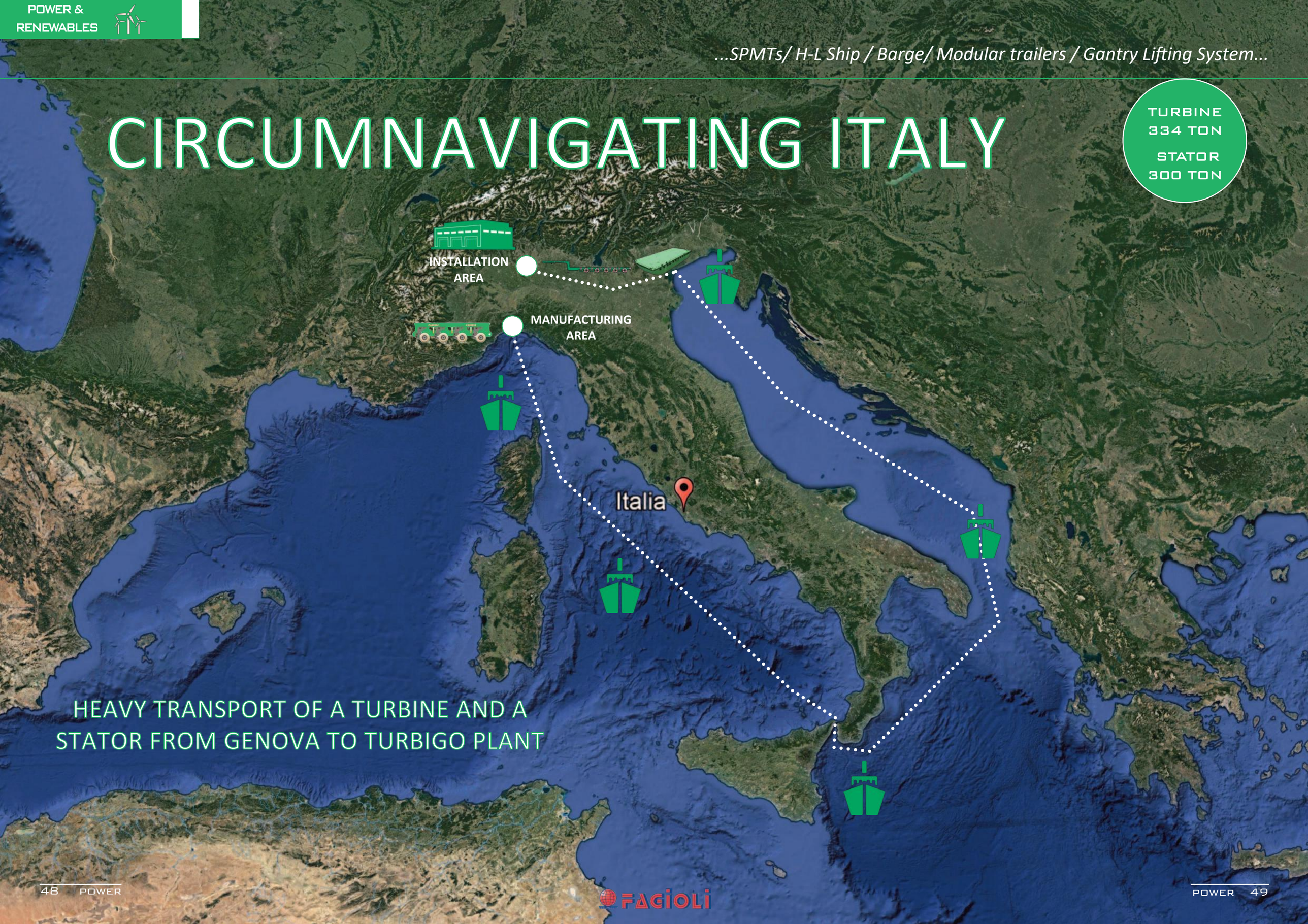
FAGIOLI

...SPMTs/ H-L Ship / Barge/ Modular trailers / Gantry Lifting System...

CIRCUMNAVIGATING ITALY

TURBINE
334 TON

STATOR
300 TON

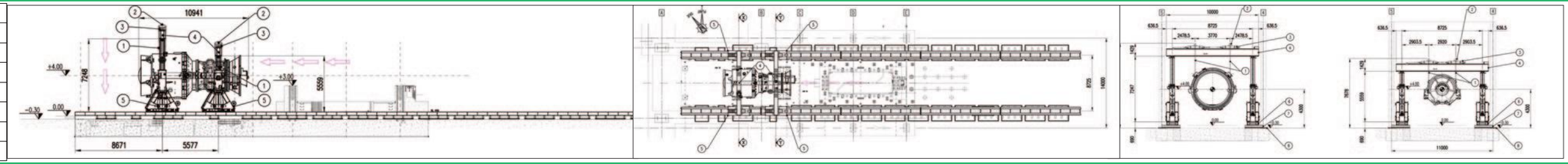


HEAVY TRANSPORT OF A TURBINE AND A
STATOR FROM GENOVA TO TURBIGO PLANT

The challenging transport started in Genova with the transport by SPMTs of the two items from manufacturing area up to the quay. A dedicated H/L ship was chartered for the sea transport up to Marghera port in Venice after a long circumnavigation of Italian peninsula. The turbine and the stator were unloaded directly onto Fagioli barge headed to Cremona river port. In Fagioli Cremona river port area, the items were unloaded with a gantry lifting system onto SPMT trailers and stored. (Pictures at the top)

Once arrived close to Turbigo, a change of trailers configuration was carried out to reduce the size of the convoy (picture bottom right). The turbine was loaded onto SPMTs (20 axles) to get through the entrance of the plant. The distance from the Turbigo entrance to the GT / GTG foundation was only 900 m long. Along the way, however, there were 2 channels for which, in order to allow the transit of the convoy in safety, it was necessary to lay over metal bridges with the aid of a hydraulic crane (cap. 70 ton)

No 2 x 16 axle lines Modular trailers
20 axle lines SPMT
Gantry Lifting System
Barge
No. 3 trucks
Overbridges (26 m / 17,7m)
Steel plates / wooden plates
H/L Ship



Then, the heavy items were loaded onto 2 x 16 axle lines modular trailers ready for the long transport up to Turbigo plant (about 140 km). The convoy was 85 m long. The main obstacles were the roundabouts and the various overpasses that forced Fagioli to a real tour-de-force to be able to safely pass, removing road signs, traffic lights (repositioned immediately after the passage of the convoy) and with the positioning of overbridges. No. 28 roundabouts were faced during the transport which needed an accurate survey with some spectacular and difficult maneuvres (Pictures bottom left and centre)

Once the turbine and the stator arrived in front of their foundations, they were finally installed by means of Fagioli gantry lifting system. The lifting system with capacity up to 600 ton, was set up with rails for a skidding action (approx. 66 m) for the final installation onto foundations of the 334 ton turbine and 300 ton stator.
Strip in the middle shows the equipment used for the whole transport operation , and detailed drawings of the skidding and final installation procedures. For this project Fagioli put on the table all its experience, its know-how and its organization to be able to carry out a job of this size in total safety.

...SPMTs / Gantry Lifting System / Barge/ H-L Ship ...

TRANSPORT OF THE MOST POWERFUL GAS TURBINE EVER BUILT IN ITALY

GAS GROUP	ITEM	WEIGHT (t)	DIMENSIONS (L x B x H)
TG	Gas Turbine	578	13.6 x 5.88 x 6.3 m
GEN	Generator (Gas section)	325.3	19 x 9 x 9 m
EGD	Exhaust Gas Diffuser	95	10.75 x 8.9 x 9.5 m

Fagioli was contracted for the transport and installation of several heavy items destined to Marghera Levante power plant. The main component was the transport and final installation from Genova to the power plant of the biggest and most powerful gas turbine ever built in Italy destined to the the most efficient thermoelectric plant in Europe. The gas turbine, called GT36 was manufactured by Ansaldo Energia. The 520 ton turbine (as well as the remaining Gas and Steam Group items) were loaded onto dedicated H/L ships in Genova with the transport from manufacturing area up to the quay by means of SPMTs and modular trailers.

STEAM GROUP	ITEM	WEIGHT (t)	DIMENSIONS (L x B x H)
GEN	Generator TRX-L56	268,2	9,14 x 4,44 x 4,56 m

The GT36 gas turbine, once arrived at the port of Marghera in Venice, was directly unloaded onto FAGIOLI SPMTs positioned onto Fagioli pontoon. 2 x 16 axle lines SPMTs were used for the GT36 and 2 x 10 axle lines SPMTs were used for the transport of the Exhaust Gas Diffuser.
Once the Marghera Levante quay was reached by Fagioli pontoon along the West Canal, the two items were unloaded by Ro-Ro and moved inside the power plant.
A 600 ton gantry lifting system was used to skid and install the GT and the diffuser. Pictures in these pages refer to the transport and installation of the GT36.
Once commissioned in 2022, the Marghera Levante plant will reduce nitrogen oxide emissions by over 70% and specific CO2 emissions by 40% compared to the average of the current Italian thermoelectric use, guaranteeing safety and flexibility to the national energy system.

...SPMTs / Gantry Lifting System / Barge/ Modular Trailers ...

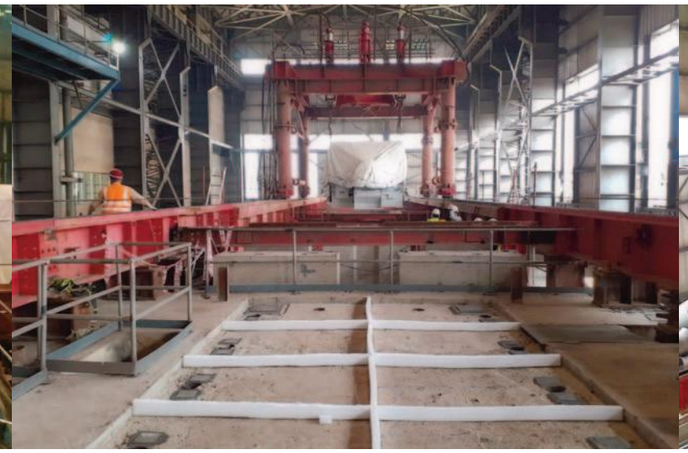
HEAVY TRANSPORT ACTIVITY

- MODULAR TRAILERS FOR LONG DISTANCE HEAVY TRANSPORTS
- GROUP OWNED BARGES WITH RIVER PORT IN CREMONA
- HIGH CAPACITY MOBILE & CRAWLER CRANES
- GANTRY LIFTING SYSTEM FOR OPERATIONS IN RESTRICTED AREAS
- RAIL WAGONS FOR HEAVY RAIL TRANSPORTS
- DEDICATED AUXILIARY EQUIPMENT TO REDUCE LOAD CAPACITY

...Strand Jacks and Tower Lift System / Gantry Lifting System ...

POWER ACTIVITY FOR FAGIOLI INDIA






It has been a busy year for Fagioli India, committed to satisfy the request of installation activity of components for the Power industry.

TURBINE & GENERATOR INSTALLATION IN DUBAI

Fagioli India ws awarded the contract for the lifting and final positioning of no. 3 Generators weighing 170 ton each and no. 3 Turbines weighing 120 ton each in Dubai (U.A.E.) The Installation of generators involved a hoisting action at 12 meters from ground level up to the generator and turbine deck level. Fagioli India used no.4 x L180 ton capacity strand jacks mounted onto a specially built tower support structure and TZ gantry crane arrangement. After the lifting operation up to about full height, TZ gantry together with the generator were skidded for 25 meters into a position just above final location using TZ gantry crane and skidding arrangement. The L180 jacks were then re-activated to lower the generator onto its supports and to transfer the load from the TZ gantry. An identical lifting arrangement was then used to install the turbine (picture top left). Picture at top right shows the installation of a 140 ton turbine executed in Jajpur, Odisha. The turbine was skidded for about 35 meters at an elevation of 12.4 m, with the final lowering operation of 1.4 m.

Another successful operation was completed by Fagioli India team for the final positioning of a 140 ton generator stator in the Indian state of Odisha. The heavy item was lifted for abt. 12 m by Fagioli strand jacking system, skidded for 40 m and eventually lowered for about 1 m, onto its final foundations. The whole operation was executed in 5 hours and 30 minutes, without any accident (pictures at the top on the following page)

Great Job!

TURBINE & GENERATOR INSTALLATION IN INDONESIA

Fagioli India was awarded the contract for no. 3 Generators weighing 285 ton each and no.2 Turbines weighing 125 ton each installation at Maura Tawar combined cycle power plant Indonesia. The Installation of generator involved the lifting operation at a height of 15 m from ground level to the generator & turbine deck level, Using 600 Ton capacity strand jack mounted onto tower support structure and EZ gantry crane arrangement. After lifting operation, EZ gantry together with the generator were skidded 25 meter into position just above final location . The L600 jack lowered the generator onto its supports and to transfer the load from the EZ gantry. (Pictures at the bottom on the previous page)

TURBINE & GENERATOR INSTALLATION IN JAJPUR, ODISHA

Fagioli India was involved in the lifting and final installation of no. 1 Generator weighing 160 ton and no. 1 Turbine weighing 140 ton at a Power plant located in Jaipur, Odisha

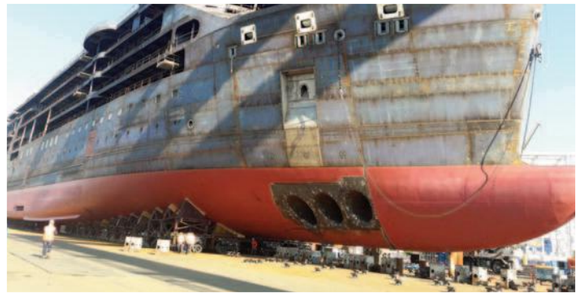
The Installation of generator involved the lifting up to 15 m from ground level to the generator & turbine deck level, by means of no. 2 x L180 ton capacity strand jack mounted on Fagioli tower support structure and a gantry crane, and no. 1 x L300 ton capacity strand jack for rotation action. After lifting to the just about full height, EZ gantry together with the generator were skidded 32 meter into position just above final location using gantry crane and skidding arrangement. The no. 2 x L180 ton capacity jacks completed the lowering and final operation with the positiong of the items onto foundations.

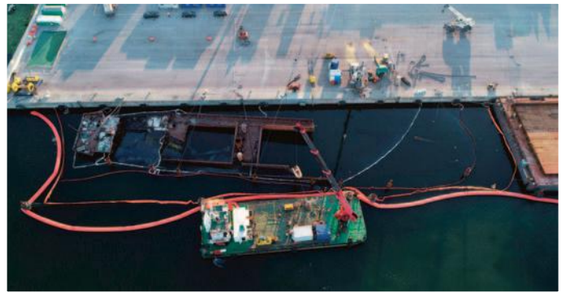
Please see pictures at the bottom




THE WORLD ... ... OUR PASSION

SALVAGE & SHIPBUILDING





Salvage and Wrecks Removal Service Provider

Shipbuilding: Mobilization and Launching of Ships

Salvage & Wrecks Removal Service Provider

Wreck

Bathymetric Mapping

Load in /
Heavy Transport

FAGIOLI IN

FAGIOLI OUT

Feasibility Study Design Phase

-Feasibility study and design phase to come up with the most suitable operative procedures for the recovery of shipwrecks and other heavy items laying on the sea bed, taking into consideration the safeguard of sea environment.

ROV and Underwater Operations

Under Fagioli responsibility:
-Use of ROV (Remotely Operated Underwater Vehicle) used to explore sea depths while being operated by someone at the water surface.Specialized divers for the plumbing at sea depth for a precise bathymetric mapping.
-Trained divers for welding activity at sea for eventual disassembly operations of wreck into sections after detailed study issued by Fagioli engineering department.

Wreck Removal Activity

After all the technical analysis Fagioli has one of the largest and powerful equipment fleet to remove complete wrecks or sections by using:
-High Capacity Crawler Cranes
-Strand jacking system
-Barges for the removal of sections
-SPMTs for the road transport

Environmental Matters

Under Fagioli responsibility:
During and After the removal operations activity, a constant monitoring of the area, decibels and birdlife conditions are executed, including sampling and classification of seabed.

Waste Disposal Recycling

-Sections are removed and taken away by means of barges and SPMTs and destined to final official and European recognized waste disposal / recycling areas

Removal of a Ship Wreck

REMOVAL OPERATION WITH BARGES AND CRAWLER CRANES

Fagioli was contracted for the salvage operation of a wreck in the Mediterranean sea which involved the use of barges and crawler cranes.

PHASE 1 - The first operation executed was the confining of the waters surrounding the wreck with barriers to contain any pollutants;

It was necessary the installation of a double containment barrier system to control and manage any leaks that may have occurred during the cutting and removal phases. Fagioli prepared a skimmer system able to suck up any liquids that may have leaked out during the activities.

PHASE 2 - Cutting the wreck into big sections with the aid of a special diamond wire cutting machine operated by a team of specialized divers was the following activity supported by a ROV (Remotely Operated Underwater Vehicle) to analize the water conditions and the underwater activities. The ship was sectioned in 6 parts with measures ranging from 18 to 25 meters and weights ranging from 200 up to 800 ton.

PHASE 3/4 - Fagioli proceeded with the securing of the wreck sections from the water by means of a 600-ton Fagioli crane loaded onto a pontoon for the first five sections whilst for the last one, the stern, it was necessary to employ at the same time, No. 3 crawler cranes positioned onto the barge with a total capacity of 1750 ton for the complete removal of the 800 ton item.

Two barges were prepared and use for the recovery action: one provided with high capacity crawler crane (s) for the lifting operations and one called “service barge”, ready to receive the sections to be taken away.

The operations consisted in the : lifting of the different sections harnessed with the crane (one by one); keeping the section raised to leach any liquid releases coming out of the sections; moving the barge with the wreck items and the crawler crane near the service barge and place the sections on the latter. This operation was repeated for the No. 5 lighter sections. After several years of the wreck laying into the water, it was almost impossible to calculate the actual weight of the heaviest section, the stern. On the papers it was supposed to weight 500 ton, but at the end the stern weight turned to be 800 ton. For this reason , if Fagioli at the beginning of the project planned and studied a tandem lift operation with one crane on the barge and one positioned onto the quay, it had been necessary to study a new technical approach. Three crawler cranes, positioned onto the barge were eventually used to remove the stern. Once the lashing activities of all the blocks was completed, the service barge was ready to leave to Piombino area for the discharging operation.

PHASE 5 -Final cleaning of the seabed and removal of containment barriers. Once the barge with all the sections left the area, the following operations were carried out:

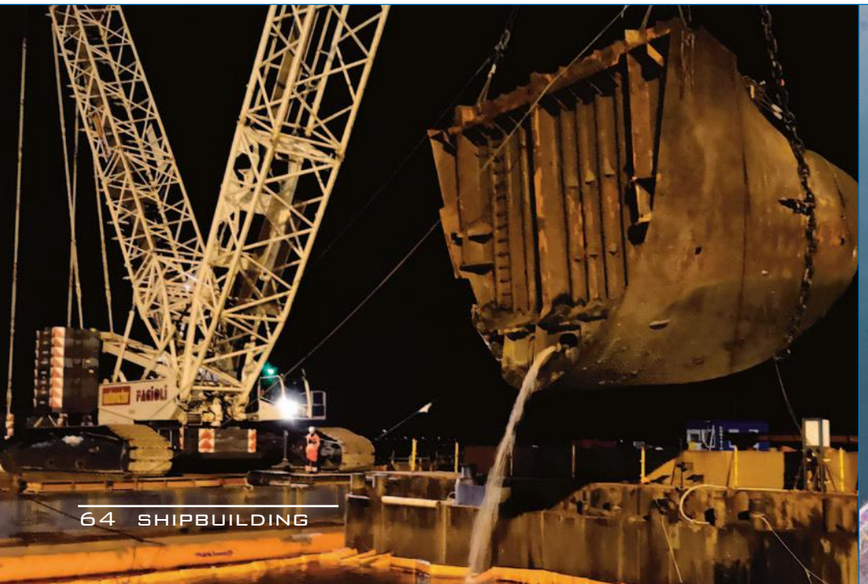
-bathymetric surveys with the use of a control sonar to acquire information on the seabed

- underwater video inspection.

-sampling and characterization of the seabed to evaluate any substances released by the wreck;

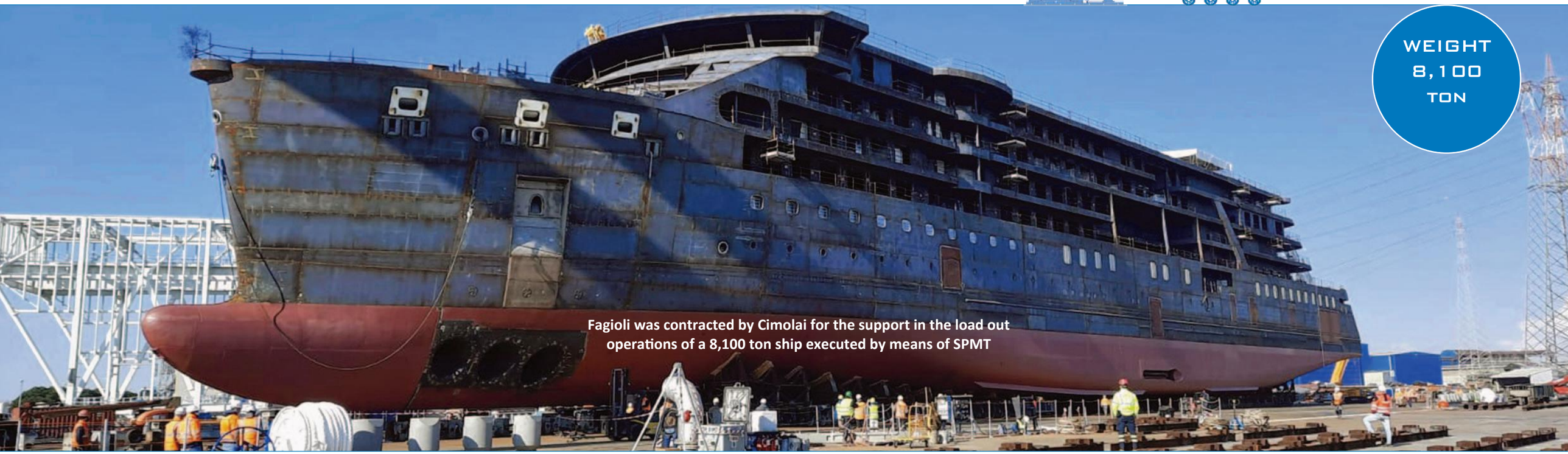
- investigation for the identification of any items remained in the seabed including a dredging operation.

At the end of all these activities, the mooring poles and temporary barriers were removed with a barge.



...SPMTs ...

LOAD OUT AND LAUNCHING OPERATIONS



WEIGHT 8,100 TON

Fagioli was contracted by Cimolai for the support in the load out operations of a 8,100 ton ship executed by means of SPMT

LOAD OUT AND JUMBOISATION OPERATIONS

Fagioli executed another operation in Palermo for the lengthening of a 135 m long cruise ship. These last years, Fagioli involved in several operations of this kind. The ship was cut by the client and Fagioli used No. 16 “skid shoes” (1,000 ton capacity each), previously positioned under the ship, to move the bow ahead of about 30 m. Fagioli SPMTs (34 axle lines) were used to insert the new section in between the bow and the stern. The bow of the ship was weighing 3,600 ton, and the new section about 1,100 ton. Once in position, the bow was brought back and centered in order to complete the final assembly of the ship, executed by the client. Pictures at the bottom.
Picture at the top refers to the load out operation of the 8,100 ton ship for Cimolai

16 SKID SHOES (1,000 TON EACH)

BOW 3,600 TON

NEW SECTION 1,100 TON

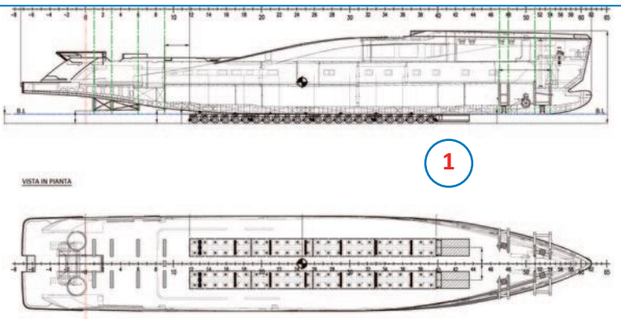
WELDED JACKS ONTO SADDLES

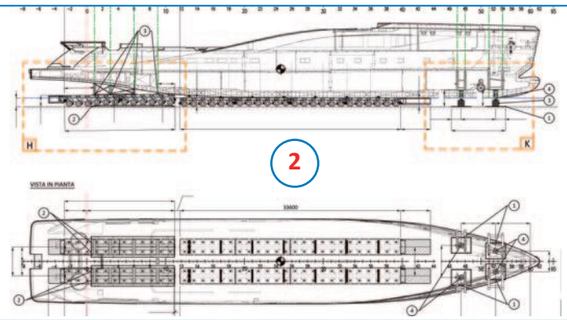
84 AX/L SPMTs

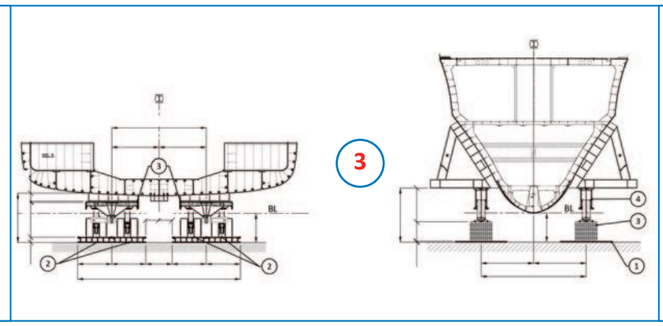
...SPMTs ...

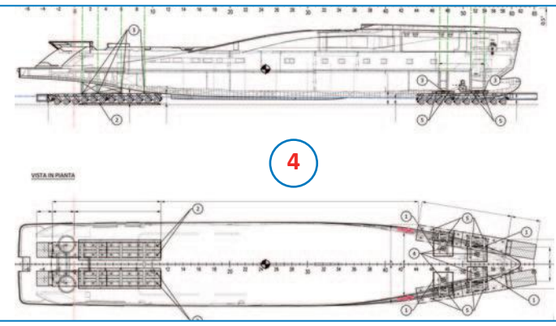
Inventive Solutions for the transport of a Yacht Hull

FAGIOLI was called to execute the transport of a hull of a yacht in Italy. The 75 m long kitem, weighing about 800 ton, built by The Italian Sea group company, was due to be moved for about 6 kilometres from construction area up to the shipyard of the client settled in Marina di Carrara. By considering all the various obstacles found during the transit (road signs and traffic lights to be removed, narrow streets..) the most challenging one, was the passage under an highway bridge with a clearance slightly higher than the item height. In order to pass this obstacle, Fagioli engineering department came up with the idea to weld saddles provided with jacks to the keel of the yacht in order to execute a lowering operation during the passage under the bridge.





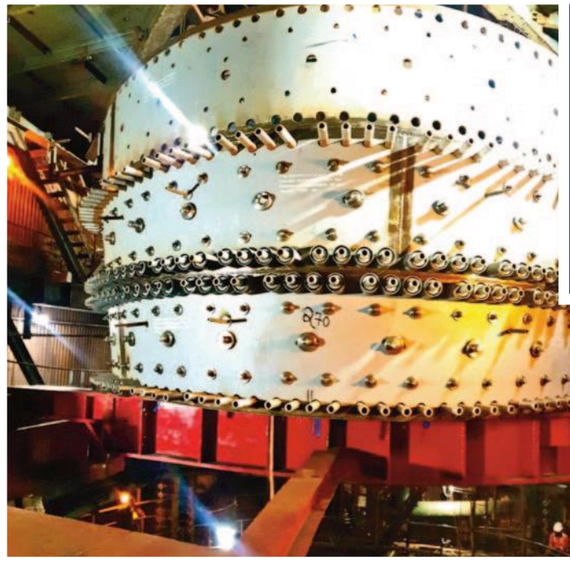




Picture top center shows in detail the " saddles and jacks" structure welded together. For the first leg of the transport route Fagioli postioned SPMT trailer underneath and at the back of the hull of the yacht (drawing 1). Drawing 2 shows the exact positioning of the lowering system. Once arrived at the critical point for the passage of the convoy under the highway bridge, Fagioli used wooden stools to lower the keel with the help of the climbing jacks in order to change the configuration of the SPMTs (drawing 3). By positioning new SPMTs at the back and at the front of the item, after the lowering operation, Fagioli managed to pass under the bridge for few centimeters. Drawing 4 and pictures at the bottom give a nice picture of the tiny clearance between the convoy and the infrastructure. A total of No. 84 axle lines SPMTs were used to complete the transport operation. Once arrived outside the port, the hull was stored and Fagioli changed the SPMT configuration in order to proceed with the next move, which was the transport and load out operation of the item onto a dedicated barge providede by the client. After the load in operation the hull was stored inside the warehouse of the client for the final assembly. This technical solution was the only reliable one for a quick and safely operation considering that it was executed on a busy public road.

THE WORLD ... ... OUR PASSION

SPACE & HEAVY INDUSTRY



Space & Heavy Industry: Big Loads, Big Moves


USA

SPACE ADVENTURES

From March 2021 to October 2021, Fagioli Inc. led the heavy lifting operations and erection of the Integration Tower and associated components for the next-generation, fully reusable launch vehicles that will be the most powerful rocket ever built, capable of carrying humans to the Moon, Mars and other destinations in the solar system, in Texas. Primary lifting was performed by Fagioli's LR11350 Crawler Crane with Power Boom (PB2W) in configurations reaching nearly 600 feet at an angle of 87°. Items lifted to these extreme heights were large steel structures weighing close to 400mT. These structure had 4 legs which had to be aligned to the preceding structure making for very technical and detailed lifting operations. Fagioli performs several multicrane operations in order to rotate large steel structures at ground level. The re-orientations required the study of multiple lifting phases and the design and development of customized rigging solutions.

Fagioli Inc. also preformed the transport and lifting of the Starship boosters and the stacking of the Starship itself on top of the booster.

These delicate and complex operations were planned, designed and managed my Fagioli Inc in the midst of a extremely active jobsite in a region kown for its high wind, unstable ground and dynamic weather conditions.

Fagioli is proud to have completed all these lifts without any safety incident and in accordance with the aggressive, ever changing schedule required.

800 ton Capacity GOLIATH CRANE

ASSEMBLY OF A 800 TON CAPACITY GOLIATH CRANE IN ITALY

3,973 TON GOLIATH CRANE

Goliath Crane Components	Sub-blocks	Unit erection weight	Total erection weight
Main girder	1-1	359 t	2383 t
	1-2	407 t	
	1-3	407 t	
	1-4	415 t	
	1-5	415 t	
	1-6	380 t	
Fixed leg	2-1	269 t	433 t
	2-2	164 t	
Hinged leg	3-1	45 t	207 t
	3-2	45 t	
	3-3	45 t	
	3-4	72 t	
Gantry travels	4-1	120 t	480 t
	4-2	120 t	
	4-3	120 t	
	4-4	120 t	
Upper trolley *(without hooks and ropes)*	5	210 t	210 t
Lower trolley *(without hooks and ropes)*	6	170 t	170 t
Service crane	7-1	40 t	49 t
	7-2	9 t	
Gantry anchors	8-1	20 t	41 t
	8-2	21 t	
		TOTAL	**3973 t**

OPERATIONS ON SITE

Fagioli was awarded for the offloading, transportation, storage and assembly operations of a 800 Ton capacity Goliath crane. The crane was fabricated by HHMC in Qingdao (China) and shipped (split in several blocks) to Fincantieri shipyard in Marghera, Venice, Italy.

The **first phase** of the project was the offloading and transport operations of the crane components, from the jetty to the erection area. The components were unloaded by the ship's cranes onto Fincantieri's jetty. Then, Fagioli used SPMT's for the transport of the items to the assembly area.

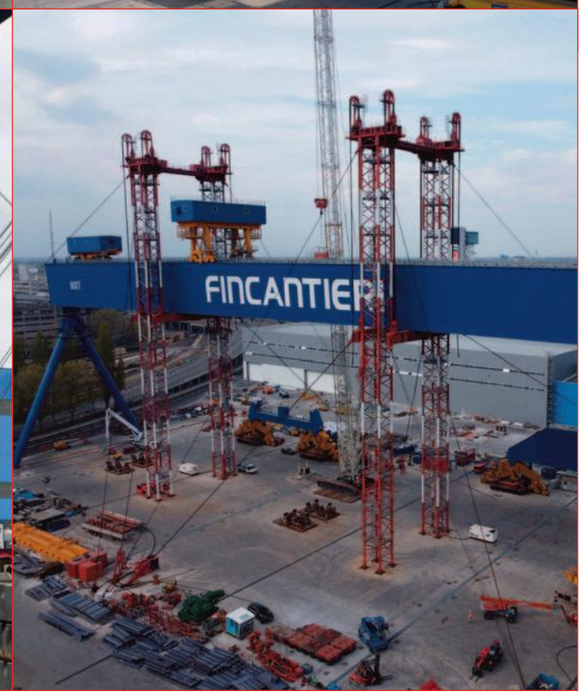
The **second phase** was the most important one: the assembly of the crane. For this operation Fagioli placed no. 4 Lifting System Towers around the main girder, with 2 strand jacks on top of each tower. Then all of the no. 8 strand jacks lifted simultaneously the main girder at around 10-11m height from ground, to allow insertions of:

- Hinged leg top piece, which was moved by SPMTs and connected to main girder.
- Hinged leg tubular pieces, which were moved by SPMTs and connected to top piece rotation pad-eyes.

Then the main girder was lifted at 14,4m height from ground to allow insertion of the fixed leg, which was moved by SPMTs and connected to main girder rotation pad-eyes. During the lifting, the tailing of legs was carried out as follows: For the fixed leg: by means of SPMTs / For the hinged leg tubular pieces: by means of rollers (walking onto crane rail)

When bottom flange of main girder reached 41,1m height from ground the fixed leg was vertically ligned under the rotation hinge. In this moment the lift was stopped, the SPMTs were disconnected and the fixed leg rotation was completed by two strand jacks L100. When bottom flange of main girder reached 43,5m height from ground, rotation of Hinged leg tubular pieces was completed and lifting was stopped.

Ultimately, the main girder was lifted again up to 57m height from ground and put in safe conditions by tensioning all the stability guys as defined by Fagioli. At this point the gantry travels and bottom pieces of Hinged and fixed leg were moved by SPMTs, inserted under suspended legs and the assembly process was completed.



TRANSPORT OF TBM SECTIONS WEIGHING UP TO 320 TON

Fagioli was contracted for the transport of TBM sections in Central Italy. After one of the biggest TBM ever built in Europe was used for some tunnelling works, it was dismantled and the main sections were taken away by Fagioli trailers. At the end of October, the convoys, first crossing the 7.7 km of the Santa Lucia tunnel, then several viaducts up to the entrance to the motorway, ended their journey at a dedicated parking area near Bologna.
The heaviest section (drive center plate) was weighing 320 ton. Fagioli used No. 30 axle lines modular trailers provided with tailor made saddles and two trucks up front and one at the rear to move the 68 m convoy.

Pictures at the top show the convoy length. The main sections of the whole tunnel boring machine were the followings: drive with center plate, cutting wheel center, erector, screw convejor, main beam and travers. The Tunnel Boring Machine was originally transported by Fagioli from Germany to Italy, and once arrived at the port of Ravenna, the sections were directly unloaded onto Fagioli trailers, ready for the 165 km journey up to its final destination where it was used for the drilling of the huge tunnel, for the completion of the route of the A1 - "Variante di Valico" between Bologna and Florence). Here below some details of the transport activity.

HANDLING BOP AND LMRP SECTIONS IN USA

Fagiol was contracted for the handling, transport, lfting and shipping of two peculiar heavy items: a BOP (blowout preventer used to seal, control and monitor oil and gas wells to prevent blowouts) and a LMRP (Lower Marine Riser Package, a mechanical device to protect an oil well located underwater (subsea) and used during an oil well intervention.
Scope of work was to receive the BOP and LMRP (two components) with a reduced weight from the construction facility in downtown Houston, TX, on road trolleys and move the items to the facility in NOV Baytwon, TX.
The items were then moved by SPMTs under Fagioli Tower lift system in order to support assembly operations and BOP testing activities. Fagioli executed the road transport to Baytown Harbor and loaded the items onto the barge with final destination the Port of Houston.
Here below some pictures of the operations executed by Fagioli Inc.

... Strand Jacking and Tower Lift System...

BLAST FURNACE REVAMPING

1,400 TON AGGREGATE WEIGHT

Description	Lift no.	Shell WT. (MT.)	Max Lifting height (m)	Skidding of shells (m)	Duration of operation
Old BF	1	44	15metres	12metres to 16metres	From 7th December 2020 To 17th December 2020
	2	135			
	3	100			
	4	111			
	5	80			
	6	120			
	7	114			
	8	90			
New BF	A	65			From 20th December 2020 To 3rd January 2021
	B	110			
	C	130			
	D	75			
	E	100			
	F	80			
	G	70			

OPERATIONS ON SITE

Fagioli India was awarded the contract for Blast furnace revamping at Vedanta Limited, GOA

The scope of the work in this contract was the removal of old furnace which split in to no. 8 shells and the installation of a new furnace in no. 7 os. shells. Scope included the supply of Fagioli Towers, Skidding arrangement, Strand Jacks arrangement and respective Power Packs Units.

Steps Of Operation

- Revamping of Blast furnace is divided in to 2 major steps.
- Removal of old Shell Assembly (1+2+3+4+5+6+7) and installation of new Shell assembly (A+B+C+D+E+F+G)
- Client positioned the lifting lug in correct orientation for lifting with respect to Jack at the top
- Client Scope – Cut Shell 5 according the cutting arrangement.
- Connection of fixed anchor with the lugs of shell 7. and checking the strand alignments indicated.
- Application of a nominal load of around 200T to Lifting Jack system to keep them tensioned overnight.
- Checking the final alignment before transferring full loads on the Jack support beam.
- Following confirmations by rigging and hydraulic superintendent on equipment working correctly site Manger checked the lifting conditions and safety measures one more time and
- Simultaneously increasing of the tension on lifting jacks to the maximum expected load and started lifting the balanced assembly of Shell no.7, Shell 6 and Shell 5 combined upto 1200mm from Shell 7 top lifting lugs.
- Carrying out full alignment checks. Skidding operation starting.
- Connecting the trolley beam with pulling jacks from opposite side of tower.
- Skidding and positioning the trolley beam such that Shell 5 stayed uniformly on the trolley beam upon lowering through strand jacks. The trolley beam transfered the loads on bridge beam.
- Client cut and separated the Shell no. 5 from the assembled Shell 6 & 7 of blast furnace.
- Keepng the jacks in tension bearing the loads for Shell no. 6 & 7. Lift the Shell 6 & 7 combined up to 200mm, to completely separated from Shell no. 5.
- Skidding of Shell no. 5 on bridge beam using pulling jacks.
- Continuous inspection at specific interval to check trolley beam alignment with each other.
- Client attached the slings with the lugs of the shell. Shell no. 5 was then lifted from the bridge beam using crane and loaded out onto the trailer.
- Skidding and positioning the trolley in order to allow that Shell 6 rested uniformly on the trolley beams after lowering through strand jacks.
- Client cut and separated Shell no. 6 from Shell no. 7 of blast furnace.
- Lifting of Shell no.7 up to 200mm using strand jacks in order to completely separate it from Shell 6.
- Skidding operation and dragging of Shell no.6 using pulling jacks towards the Towers.
- Client attached slings with lugs of the shell, lifted it from bridge beam and loaded out on the trailer.
- Skidding and positioning of the trolley below the shell 7 and repeated the same process for all 8 nos. shells.

Another year of great satisfaction for Fagioli, in terms of awards received for the extraordinary projects executed in 2020. Sc&ra,

SC&RA 2021 (USA): best lifting operation executed in 2020 for the "RIGGING OVER 2 MILLION $" category. The prize was awarded to Fagioli for its engineering contribution in the assembly and installation of the new S. Giorgio bridge in Genoa. Fagioli was involved in the heavy transport and lifting activity of bridge sections weighing up to 2,000 ton by means of: strand jacks and tower lift system, 1,200 ton capacity crawler cranes, gantry lifting system and climbing jacks, SPMTs, modular trailers, barges. Picture top left shows the President of Fagioli Inc., Mr. Edoardo Ascione, after receiving the award.

PIACENZA GIS ILTA AWARDS 2021 (ITALY): Fagioli was awarded two prizes during the ILTA awards event held in Piacenza for the “TECNICHE COMBINATE (Combined techniques)” and “TRASPORTO ECCEZIONALE DELL’ANNO SOPRA LE 120 TON (Heavy road transport job of the year over 120 ton)” category. The awards refer to the S. Giorgio bridge project and the transport of a turbine and a stator to Turbigo power plant. The event was held during the GIS exhibition in Italy! Picture center top with Mr. Paolo Cremonini (Strategic Development Manager), Mr. Fabrizio Ferrari (Head of Sales & Engineering EMEA Area) and Mr. Moreno Massetti (Head of Operations EMEA Area).

HLPFI AWARDS: Fagioli was awarded for the "EXCELLENCE IN ENGINEERING" category by HLPFI (Heavy Lift and Project Forwarding International Magazine) during the ceremony event held in London on the 19th of for the transport, lifting and installation of plynths for the new Storstrøm bridge under construction in Denmark, by means of a tailor- made Fagioli Gantry launching system. Picture top right: Fagioli Sales Managers Mr. Lorenzo Caravita and Mr. Lorenzo Vellani showing the award. These prize adds up to a long list of awards won over the past few years, giving prestige to the innovative engineering solutions proposed by Fagioli in projects with an increasing complexity and technologically advanced requirement. Congratulations to all Fagioli personnel involved.

NEW EQUIPMENT

JACK-UP SYSTEM: JS500

Incremental Lifting System – Synchronously Lift and Mechanically Hold

500 ton capacity (for each unit)

Set up of 2,000 ton extendable to 4,000 ton

Lifting Height up to 15 m

Fagioli Jack-Up System is a custom developed multi-point lifing system. A typical system setup includes four jack-up units positioned under each corner of a load. The lifting frame of a jack-up unit contains four hydraulic lifting cylinders, one in each corner, which lift the load using the stacked steel boxes. A load is lifted in increments as boxes are slid into the system, lifted, and stacked; forming "lifting towers". A Jack-Up System is operated and controlled by a computer control unit. Each unit's lifting and lowering operations occur simultaneously; the computer control unit's synchronous technology maintains the balance of the load. Self-contained hydraulics in each jack-up unit for uncluttered work area. Synchronously lift loads with multiple jack-up units. The most common system set-up includes four jack-up units but can be expanded to include more. Lifting barrels are stacked together to mechanically hold the load up to 5% side load capacity depending on capacity and lift height. Computer controls for operating the Jack-Up System with automatic and manual lifting settings.

*** Fagioli Jack-Up Systems provide precision control suitable for many demanding lifting and lowering applications**

*** The comprehensive self-contained design feature simple to use software**

*** Computer control for operating the Jack-Up system with automatic and manual lifting settings**

*** Automatic synchronization of multiple networked lift points**

*** Center of Gravity calculation**

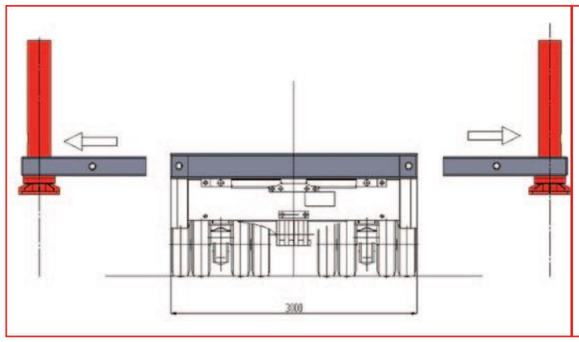
*** Overload and stroke alarms**

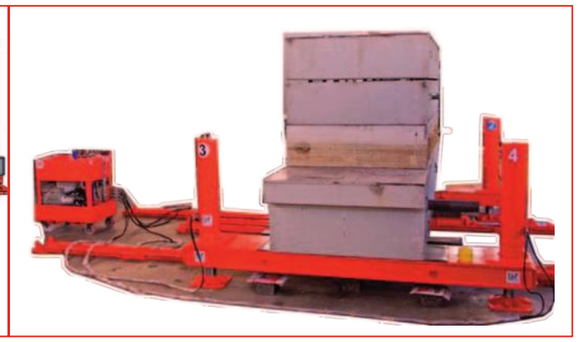
*** Emergency stop switch at Jack-up units and controls**

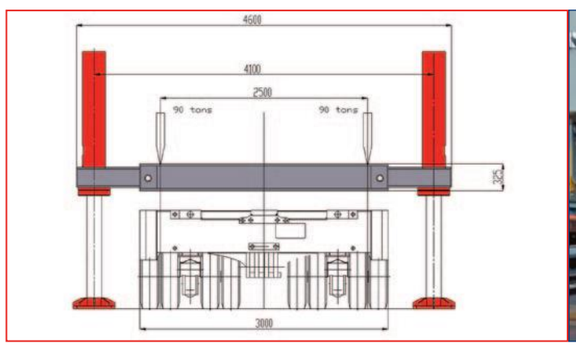
LIFTING BEAMS' SYSTEM

Fagioli Lifting beams' system is a device consisting of a 3,000 mm wide female central beam and lifting pistons assembled on male beams that fit into the central beam. This system provides a load capacity of 360 ton divided on two symmetrical supports and powered by electric engine motor with 11 kW of power with piston pumps that allows to better manage the necessary power.
The lifting beams are the suitable tool for lifting activity in restricted areas with a lifting extension of 1.2 m and a lateral extension of 0,7 m. Easy to be handled and managed either during the lifting activity and the assembly/disassembly operations (abt. 10 / 15 minutes for the insertion and fixing operation for each piston).

Lifting Capacity	360 ton
2 Beams	length mm 3,000 each
Pistons Lifting extension	mm 1,200
Lateral Width Extension Close Position	mm 3,100
Lateral Width Extension Open Position	mm 3,800
Pistons	4
Electric Engine Power	11 Kw
Weight of Beams	10,2 ton







SPMT MODULAR JACKING SYSTEM

JACKING-UP AND JACKING-DOWN METHODOLOGY

JACKING -UP / DOWN EASY INSTALLATION METHOD

LIMITLESS TONNAGE

LATTICE COLUMNS BOLTED TOGETHER FOR A BETTER STABILITY

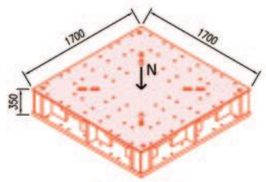
For jacking-down and jacking-up operations Fagioli, thanks to its extended equipment fleet, is able to guarantee different methodology of operations: strand jacking and gantry lifting systems; climbing jacks; screw jacks. By using SPMTs and lattice columns, Fagioli performs jacking operations of modules and heavy items with limitless tonnage capacity.

The lifting and lowering capacity is given by the hydraulic suspensions of the SPMTs, by a systematic and controlled pumping of hydraulic fluid into or out of each suspension, that can raise or lower the load-carrying platform.

At the end of the hydraulic excursion of each lacking-up or down phase, the weight of the module is transferred from the SPMTs to the support's stools (steel barrels and lattice columns). Lattice columns are bolted together for a better stability. Subsequently the supports stools (each one with height compatible with the hydraulic excursion available of the SPMTs), are added (jacking-up) or removed (jacking-down), alternately from the foundation / ground or the SPMTs, allowing to raise or lower the modules, transferring the weight from the SPMTs to the foundation / ground and vice versa, alternately for several successive phases, changing the height of the modular supports stools, installed on the SPMTs and on the foundations / ground.

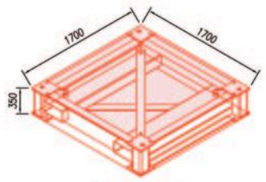
OPERATIONAL ACTIVITY

CLOSING PLATE



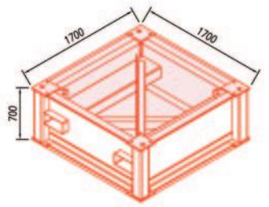
Weight = 1,900 Kg

LATTICE = H 350mm



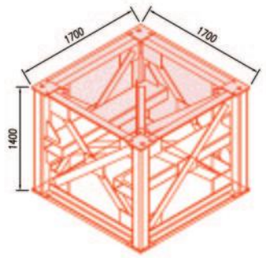
Weight = 525 Kg

LATTICE = H 700mm



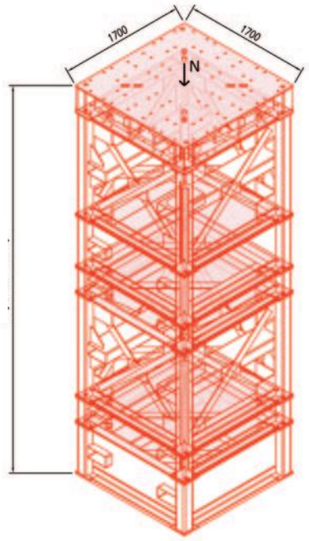
Weight = 785 Kg

LATTICE = H 1400mm



Weight = 920 Kg

EXAMPLE OF POSSIBLE COUPLING BETWEEN THE ELEMENTS



Max loading capacity: 300 ton
(The load is concentrated in the center of the plate)