

WITHOUT

Without Compromise is published by
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compromise

Fassi Gru international magazine with information and updates

ASSEMBLY AND FINAL TESTING WITHIN THE FASSI QUALITY PROCESS

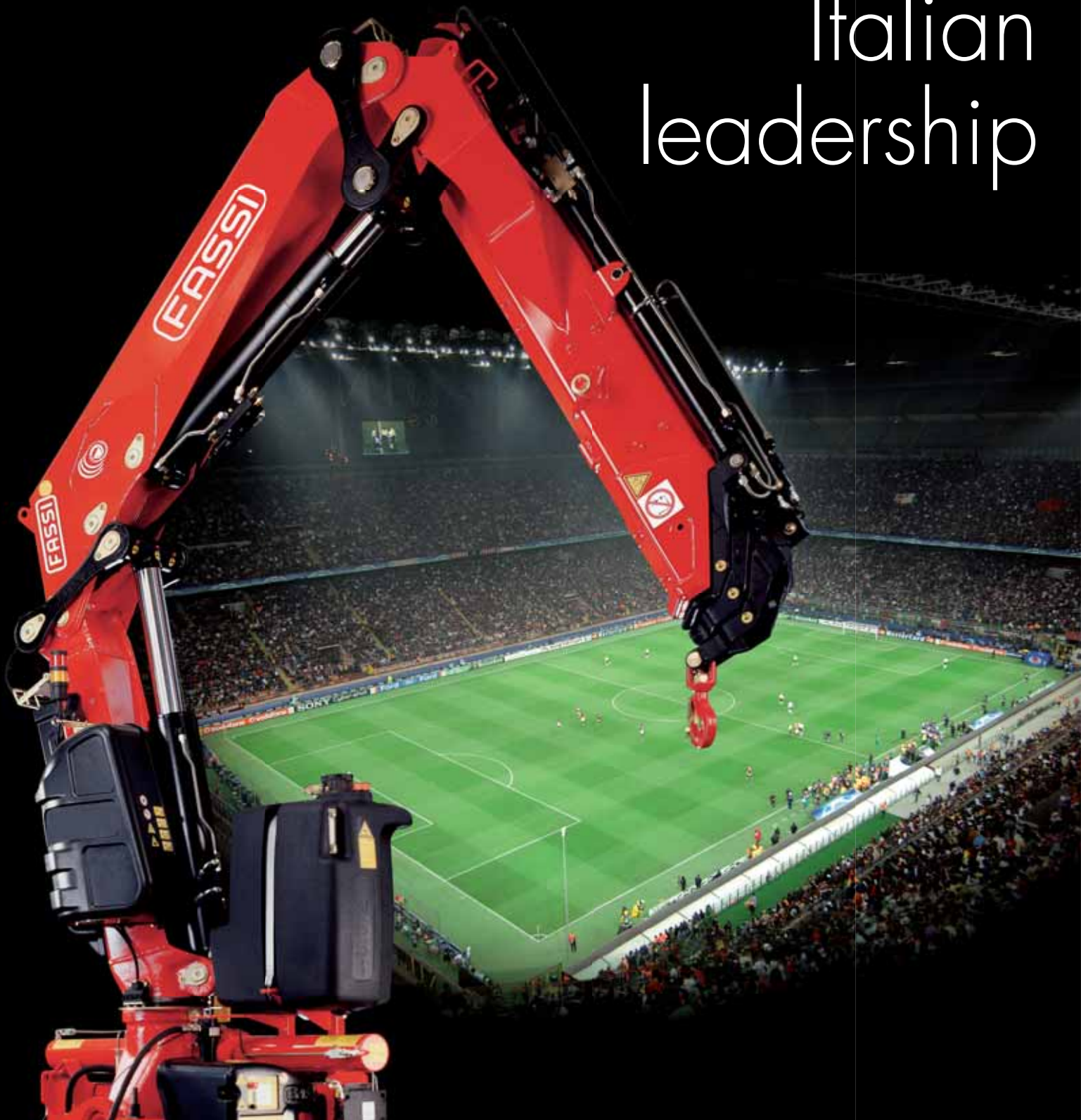
QUALITY OF INVESTMENT

When you choose a Fassi crane
you are making a true investment
destined to show its full value in
time: product value, market value,
service value.

F310AXP.26 EVOLUTION TESTED BY EMERSON CRANE HIRE OF LONDON

FASSI
CRANES WITHOUT COMPROMISE

Italian leadership



Fassi innovation takes to the field with Champions



A.C. Milan
Official Supplier

The most successful club



F.C. Internazionale
Official Supplier

2007/2008 Italian Champions



Genoa C.F.C.
Official Supplier

The first Italian team: 1893

FASSI
GRU SENZA COMPROMESSI

In this edition

Fassi service culture proposes to strengthen the dialogue with the dealer network and with the crane users from every point of view: consulting services, training and assistance. The periodical "Without compromise" is part of this commitment, in which information on Fassi technology represents an element of the service itself. Understanding what makes Fassi and its cranes stand out, means making a conscious choice destined to last for a long time and to stand for a true investment. The strong Fassi growth world-wide is based on various factors that deserve to be properly understood from all points of view: let's think for example about the care taken during crane assembly and testing, the logistics and the management of the deliveries and spare parts service. We will be talking about this at length in the current edition of Without compromise, because it is also through these factors that Fassi qualifies and distinguishes its own identity. Starting from these subjects, our magazine also contains a number of other points of interest and discussion, offering a broad horizon that we consider extremely important in order to understand the overall state of development and progress in the lifting sector. It is no coincidence that Without compromise is now printed in over 25,000 copies, and is delivered to over 40 nations throughout the world. The feedbacks that reach us from many different national and market situations, for example, provide valid means of understanding how different people work and how a variety of operating needs are dealt with, all points that when looked at carefully represent a useful source of information and comparison for us all. It is also for this reason that our magazine is undergoing a constant improving evolution, and we are open to the suggestions and advice of our readers.

IN DETAIL

Subjects in the foreground

Quality of investment

When you choose a Fassi crane you are making a true investment destined to show its full value in time: product value, market
page 04-05

25,000 crane users in 60 nations throughout the world read Without compromise

page 06-07

Technology

Assembly and final testing within the Fassi quality process

The assembly and final test procedures adopted by Fassi fall within a working method that combines confirmation of the "tailor-made" philosophy, with an approach based on precise working rules that are applied strictly during every phase, once more and absolutely without compromise.
page 08-11

Service

The new Fassi integrated logistics system

Fassi has provided itself with a structure that integrates finished product logistics, crane shipping and spare parts warehouse, capable of assisting company growth by managing over 11,000 cranes a year, shipped to over 60 countries world-wide, and handling over 50,000 accessories and spare parts.
page 12-15

MEETING PEOPLE

Fassi Network

Fassi F310AXP.26 Evolution with jib L214 and winch V20

How the new Fassi crane is working in the case of Emerson Crane Hire, a London-based hire company that is undergoing a period of considerable development as a result of the building boom currently in progress in the British capital in view of the 2012 Olympics.
page 18-21

THE CORNER

Interviews

Technological investment as one of the reasons for growth

- Interview with Giovanni Fassi, MD of Fassi Gru SpA

The company has become one of the three world brands in this sector in terms of produced cranes, thanks to the choice of product and process innovation.
page 16-17

Interview with Alessandro Azzola

Fassi Quality Control

The quality control procedures used at Fassi combine the protocols foreseen by UNI EN ISO 9001 certification with a specific system developed directly within the company, organised in strict test periods carried out throughout the manufacturing cycle, from the selection of the materials supplied right down to the delivery of the finished product.
page 22-23



ORIGINAL SPARE PARTS

FASSI



QUALITY OF INVESTMENT

**When you choose a Fassi crane
you are making a true investment
destined to show its full value in time:
product value, market value, service
value.**

When a Fassi crane, after completing its manufacturing cycle and testing, is sent out to the dealers and then to the end user, it starts a working life destined to last for a long time. That is not just a promise: it is a certainty, witnessed by the fact that over 70% of the cranes produced by Fassi in over 40 years of company history are still in full-time operation. A further confirmation of quality comes from the fact that used Fassi cranes continue to retain a high value on the market, and do not depreciate. This means that choosing Fassi is a real economic and business investment, but there's even more the capacity and superior performance of every Fassi crane, based on technological solutions that highlight innovation as a feature and competitive factor, mean that the user can verify how the value of this investment translates in terms of day-to-day productivity. Working better and faster, in complete safety whatever the lifting conditions are, even the most complex and severe, means also getting some concrete advantages in terms of performance per working hour and allows problems to be avoided or solved quickly. Finally, there is the value of service, meaning that it is possible to rely on a widespread, professionally trained service network that is willing to be in accordance with the requirements and needs of those who consider the crane an essential ally and assistant, day after day. A "machine" that must be in full working order at all times. This is why choosing a Fassi crane means making a quality investment with high added value, destined to create both short and long-term "returns": it is also easier to amortise and has a guaranteed yield.



25.000

CRANE USERS IN 60 NATIONS THROUGHOUT THE WORLD READ WITHOUT COMPROMISE

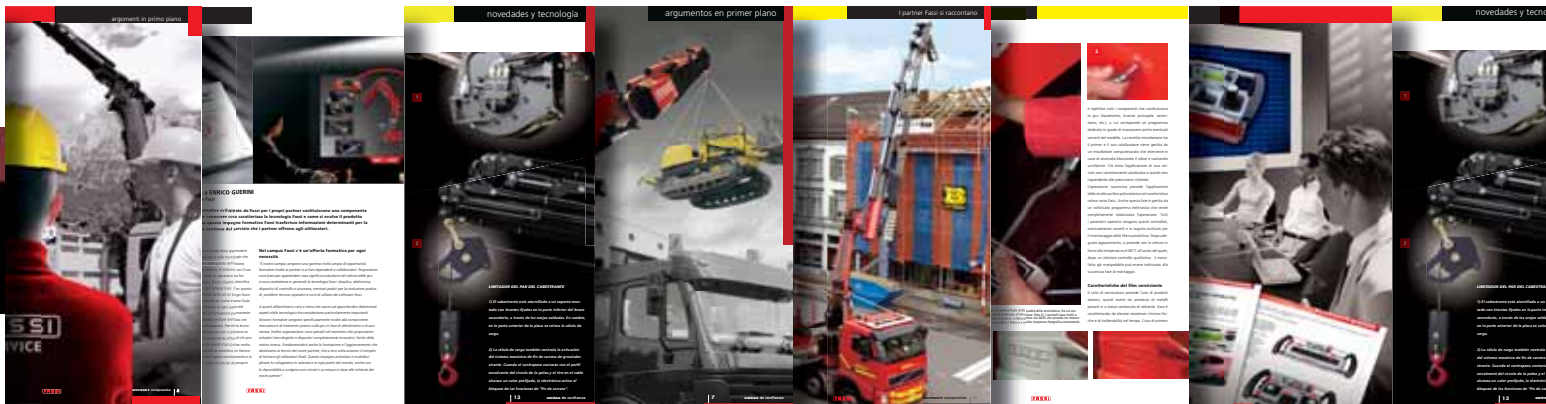


In just six publications our periodical has already gone a long way: its vocation of acting as a strongly proactive source of information, which starting from Fassi world extends its horizons to the entire lifting sector, with analytical and comparative arguments of particular interest at a technological level, has conquered an increasingly widespread and attentive audience.

Today, the Without compromise communication project shows some very respectable figures: over 25,000 copies of each edition printed and a widespread distribution throughout 60 reference countries, so as to reach many, many crane users. Innovation and quality of service are the basic concepts of the first six publications, which outlined the reasons why Fassi is engaged in confirming these goals through facts. In the first three publications, Without compromise showed how Fassi technological innovation translates into cranes that are simpler to use, and at the same time give higher performances, are more versatile and ensure greater safety whatever the working condition. Cranes designed for people who work. This line of discussion was further expanded, taking into account how Fassi offers

WITHOUT compromise

Now at its sixth edition since first appearing in 2005, “Fassi Without compromise” has created a space for itself in the field of information for this sector. A laboratory of ideas and a source of technical information, it pursues a constant improvement for those who use or wish to know more about Fassi technological quality.



the ideal crane exactly suited to the needs of every user, thanks to almost infinite series of models, versions, configurations and accessories. All these concepts were illustrated with reports providing information on technical and manufacturing aspects, which took us right inside Fassi as a company and gave us an inside view of the product. In this way we found out, for example, how it has been possible to increase crane working abilities beyond the limits that until yesterday were considered insuperable or what characterises Fassi manufacturing cycle as far as casting and welding are concerned. Afterwards the course and the project of our magazine turned its attention to the relationship between product quality and quality of service. We therefore looked at the value of the partnership between Fassi and its distributors and the value of training. In this sixth edition of Without compromise, the term “value” takes on additional meanings for Fassi cranes, referring also to the validity of investment. We have now reached a point of arrival, which at the same time represents also a new starting point. Our magazine is now ready to move on to another phase in its evolution, the results of which you will be able to see starting from the next publication.



Assembly and final testing within the Fassi quality process

The assembly and final test procedures adopted by Fassi fall within a working method that combines confirmation of the “tailor-made” philosophy with an approach based on precise working rules that are applied strictly during every phase, once more and absolutely without compromise.



Today, being an international company means first of all adopting well structured, guaranteed operating procedures, that allow the production of high quality cranes in the required quantities. Fassi sells its products world-wide, but by choice it has concentrated production in Italy, within its own factories, using unique and certified procedures. A process that is organised “step by step”, in which each phase is developed, organised and controlled in such a way that nothing is left to improvisation, to the decision of an individual or to anything that is not regulated and qualified by the system. Assembly and final testing follow the logic of this method, in which each piece undergoes a check after it has been processed.

Adopting a system of this type ensures that each individual assembly phase on one crane will be exactly the same as the one carried out on another one. In practice, this means maximum precision during all pre-assembly and assembly phases. Exactly this industrial culture and this organisation of work characterize a great company like Fassi, thanks to an approach based on widespread controls and organisation of various areas of work. At the same time each phase in the assembly process meets the characteristics that are drawn up according to the needs of each individual order. This is because Fassi works exclusively to order, and each crane is assembled to meet customer's needs. This is why a specific document is followed during assembly, representing a sort of identity card for the crane, the reference point during all the different production phases.

As regards the production process as a whole, it can be said that the lay-out of Fassi departments is an exact reproduction of how the various phases in the process are subdivided. Even before the assembly phase, each piece is subjected to rigorous controls in the department where it has been built. In other words, it can in itself be considered a guaranteed, finished product. In this way any non conformity can be found upstream, before all the components are assembled, so as to guarantee the final quality of the crane even further. Fassi also considers it of fundamental importance to give responsibility to its working staff. The whole manufacturing cycle



is based on self-control: working instructions are provided for each phase in the process, telling the operator which controls are to be carried out on each material or on each partially assembled product. What is more, control instruments and information technology supports are available in each section, with graphic instruction files to check that assembly is carried out correctly.

The various phases of the assembly process

Before looking at how the assembly and test process is carried out, it must be remembered that, from the time of their entering the Fassi plants, all materials are subjected to a sequence of advance testing operations, so that any irregularities can be identified immediately and only materials that are perfectly suitable will be sent to the production islands. After this, each material is identified and provided with traceability elements by means of a mapping system covering all the areas in which the parts are distributed. In this way, staff are able to find everything they need quickly.

Proper assembly starts from the base, with the column to the rack being joined to the rotation group inside the base. This phase is followed by "dressing" of the support part and of the outriggers control. The term "dressing" refers to integrating of the assembled parts with the hydraulic system. This

phase requires particular attention. It is here that particularly strict controls are carried out to ensure that assembly takes place properly: this is because when fitting the hydraulic pipes it is necessary to ensure that all the connections coincide perfectly.

While the work on the base is still going ahead the outer boom is assembled, with all the relevant extension groups and rams. The number of extensions for the boom is always established in the initial document, in which the plan drawn up to meet the customer's requirements is outlined.

Both the base and the outer boom are then taken to the final assembly island. This area has been equipped with special technological units, designed and built specifically in the Fassi workshops to allow operators access to every part of the crane, so that they can adjust the smallest details. This is the phase that brings together as a single structure the three sub-groups: base, inner boom and outer boom. After this, the hydraulic, electric and electronic systems are fitted. At this point the crane is ready for the final stage: testing.

Testing: concrete evidence of the validity of the Fassi working method

Testing consists of a proper operation in which the crane performance and



safety levels are checked. It is important to highlight that here in Fassi, testing is not just to make sure that the crane works. As a rigorous quality system is applied, that is, in a certain sense, taken for granted. Testing is the time when we make sure that the procedures foreseen by the assembly protocol have all come together to guarantee the best possible operating performance. For this reason, the crane is put into operation and the hydraulic system, the movement capacity and the actual loading performance are verified. As regards the safety parameters and information, a fundamental role is played by electronics, thanks to a software that contains the block limits and the parameters foreseen by regulations. Those responsible for Fassi production are convinced that technological progress will be an increasingly essential element in terms of controls and testing as well, but they are also convinced that you have to know how to integrate these innovations with tests based on objective experiments. Undoubtedly, information technology has enabled us to considerably increase the repeatability of tests, even with increased productivity, but the ideal formula is always a combination of experience and innovation.







The new Fassi integrated logistics system

Fassi has provided itself with a structure that integrates finished product logistics, crane shipping and spare parts warehouse, capable of assisting company growth by managing over 11,000 cranes a year, shipped to over 60 countries world-wide, and handling over 250,000 accessories and spare parts.

Fassi development is a reality that is witnessed by the figures: these show a constant growth in the number of produced cranes, with the forecast of even more positive trends. This situation has encouraged the company to radically rework its logistics organisation, creating an integrated system that allows storage of finished products, shipment of cranes and the spare parts and accessories warehouse to be managed within a single structure.

The new complex housing the Fassi logistics department is always located in Nembro, just outside Bergamo, where the company has also its management headquarters and where the main manufacturing units can be found. The new integrated logistics structure handles also all the other Fassi production plants in Italy and the suppliers specialised in specific components, who all rely on this structure. In all there are as many as 12,000 references currently in stock and handled: from larger spare parts and accessories, right down to the smallest but no less important technical/mechanical and electronic items, as for example the components for a hydraulic distributor.

1300 lorries, 600 containers, 8000 couriers

The new Fassi logistics structure is born of the awareness that the market requirements for this service have become increasingly demanding, in order to support product quality with adequate organisational and post-sales services. "Centralizing factors that are of strategic importance for our service in a single logistic structure – explains Lucano Motta, manager of the new structure – has the aim of optimising an imposing volume of work. It is enough to remember that every year our logistic centre sends out not only more than 11,000 cranes, but also over 250,000 accessories and spare parts. To give a better idea: 1,300 lorries and over 600 containers per year. To these large shipments, it is also necessary to add thousands of deliveries of small packages using authorised couriers. Every year, more than 8000 courier vans pass through the Fassi logistics centre!". These figures give



an idea of the extent of Fassi growth, something that involves both European markets and the rest of the world. For European countries, delivery of cranes and spare parts takes place almost exclusively by road, while the containers are sent out by sea to more distant destinations throughout the five continents

The new automatic warehouse

Seeing Fassi cranes lined up in perfect order in the huge logistics centre awaiting shipment is without doubt an impressive sight. But it is just as interesting and significant as to watch the new accessories and spare parts warehouse at work, using its new "muscles" and brilliant "brain". The strength lies in the new automatic vertical storage system, which contains and gives access to over 13,000 references. Each one is identified by a code, which is used for information technology management of orders, movement of goods and shipping.

The operations of parts uploading are carried out thanks to man experience; it's possible to guarantee, in a precise way, each type of order by means of a program involving Fassi productive units and its technical partners.

The job of the accessories and spare parts warehouse, which now forms a direct part of the logistics structure, is to respond in an increasingly efficient, precise manner to the expectations of distributors and end users. The forecasts for further growth in the workload and in movement managed by this structure is a realistic one: it must be remembered that Fassi is growing on every market, and that each Fassi crane is an investment that is destined to last through time. The extraordinary longevity of Fassi cranes (even today,

more than 70% of manufactured cranes is still in regular operation!) means that the need to deal with the request for spare parts and accessories will become increasingly necessary. The challenge for the Fassi team operating at the new logistics centre is thus double: perfecting without pause the dynamics of new crane shipment and contributing to the constant efficiency of the many cranes that are out there proving the Fassi "Quality of Investment" in the field.





Technological investment as one of the reasons for growth

Interview with Giovanni Fassi, Managing Director of Fassi Gru SpA

The company has become one of the three world brands in this sector in terms of produced cranes thanks to the choice of product and process innovation.

Fassi's development at international level is one of the most interesting events in recent years in the lifting sector. At the root of this positive trend, which has brought the company into a position among the top three in the world in terms of manufactured and sold cranes, there are a number of business and technological factors. Together with Giovanni Fassi, Managing Director of the company, let us take a look at the aspects of a growth which has excited the interest of the most careful observers, discussing points that extend from the company itself into the whole market scenario and prospects for the future. An investigation moment in order to understand the current and future dynamics of the "crane product" and the evolution of the demand at international level.

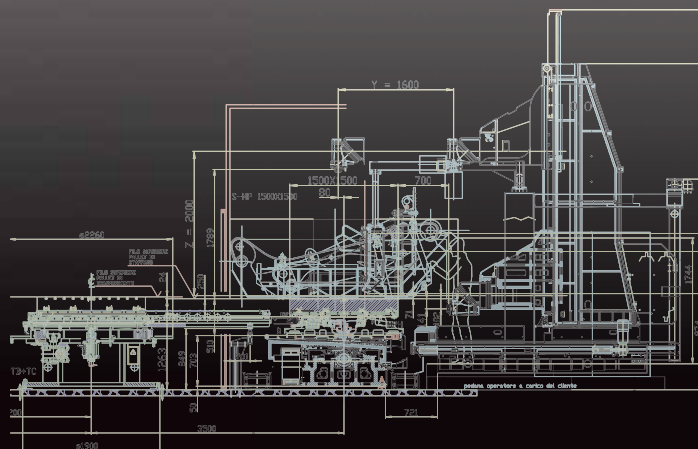
"The lifting market has been playing a leading part in the extensive reorganisation process: the crane market is even more characterised by the sole presence of the leading players. As in other high technology sectors, only the larger businesses are able to express themselves at certain levels, and therefore offer a mixture of product quality and service quality that is able to satisfy the growing expectations of the market and of each individual user. Because of this, both in the main industrialised nations and in emerging countries, we have seen the consolidation of the positions of those who really provide certain values, while those unable to do so at a given level have quit the scene or reduced in size. Increasingly well-prepared users with an awareness of what they want, ask the manufacturers, just as they ask their dealers, to take on the role of partner rather than just that of supplier. This, as you can imagine, is no easy task. Bearing in mind also that in the hydraulic crane sector technology has taken great strides forward in the few years, offering considerable opportunities both in machine management and in safety, bringing them into line with what can be found on the most modern industrial vehicles. The difference in quality among manufacturers has therefore become much wider, and more obvious. This trend is world-wide: advanced technology always reaps a greater reward. In this sense, Fassi's growth thus falls within a general process of evolution in this sector. Remember that at present approximately 80% of Fassi's production is for export".

In your opinion, what are the reasons that have led Fassi to grow to these levels, and at a proportionally higher rate even than its main competitors?

"We have firmly insisted on innovation, designing and creating cranes featuring state-of-the-art technological solutions that have enabled us to increase

F.M.S.

The new automated welding island, born of the collaboration between Fassi and ABB, allows the immediate and computer-based change of the welding program on the base of the single piece put into the production line. The advantages are two: controlled quality on each single welded item and possibility to handle work peaks according to just in time needs.



performance, and at the same time make them simpler to use. Today, Fassi cranes are at the forefront of technology and are able to apply this superiority to day-to-day work, transforming innovation into daily advantages for the user. A further strong point of Fassi is certainly the fact that we produce all our cranes according to the needs of each individual user. Fassi made long time ago the demanding decision to refuse mass-produce standard products, and today I can state with great satisfaction that the choice was a winning one. Another of Fassi competitive factors is the quality of its materials, components and crane construction processes. A significant example of our process innovation is the new robot-controlled FMS welding island. For example, let's think of the meticulous care with which we select and process steel. Cranes, particularly medium-heavy cranes, which are our main field of activity, are increasingly considered to be an important investment in the

business economy of transport, building and handling companies. Attention to product quality is on the increase. And that is why we are growing!

I would like to make one point: Fassi has always manufactured its products with extreme attention to quality. Excellence has always been our vocation. What has changed in recent years is our commitment to communicate these strong points. Distinguishing ourselves on world markets means above all letting people know and understand just what makes us unique"

Which are the countries in which you are seeing the best results?

"The whole European market, from east to west, is giving us a great deal of satisfaction. As well as in Italy, we are also achieving truly significant results in countries like Spain and France.



Fassi F310AXP.26 Evolution with L214 jib and V20 winch

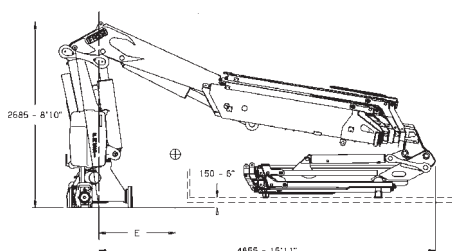
How the new Fassi crane is working in the case of Emerson Crane Hire, a London-based hire company that is undergoing a period of considerable development as a result of the building boom currently in progress in the British capital in view of the 2012 Olympics

The fleet of 35 cranes currently run by Emerson Crane Hire of London has never been such a hive of activity as it is in this period: the capital is getting ready for the 2012 Olympics, and many areas of the city have been transformed into immense work sites. A real building boom, with an exponential multiplication in the need of transporting materials. Development of work connected to the Olympic games is the crowning element in the significant growth of Emerson Crane Hire, achieved thanks to strategic choices in its fleet of machines. In this sense the decision to purchase a 60 ton/metre Fassi F600AXP mounted on a Scania truck is particularly interesting. Although the company roots are firmly planted in the hire of medium and medium-heavy cranes, Paul Clancy, technical manager at Emerson, is enthusiastic about the advantages offered by a "heavy-duty" high-performance crane like the F600AXP. "It means we are able to manage the transport and movement of even very significant loads, typical of the heavy building construction sites that London companies are currently involved in. This is not only good for us, but above all for our customers, who know they can rely on us".

After winning a three-year contract with a well-



F310AXP







known chain of fast-food restaurants for installation of air-conditioning systems throughout Britain, Emerson felt the need to invest in another articulated boom crane. In May 2007 the company purchased a 30 tons/metre Fassi F310AXP.26 Evolution, fitted with a four sections jib L214 and a winch V20, and installed on a rigid Scania P380 three axle truck.

Walker Crane Service, Fassi's dealer for south-east England, worked with the customer to draw up the specifications. Tony Hitchcock, sales manager at Walker, tells us: "First of all we always ask our customers what kinds of load they need to lift and at which reach. The lifting capacity and working load are always determining factors when selecting a crane". The technical manager Paul Clancy looks back at that time, "We wanted a crane that would be capable of lifting a load of approximately half a ton up into a building two or three floors high, so we needed a jib and a winch. We studied all the various types of cranes found on the market, and in the end we chose this Fassi model because it was the most versatile machine which could be used for many different purposes". The service that Emerson had already received from Fassi UK and from Walker Crane Services ensured that Fassi was the chosen brand. Clancy tells us: "We already had a F600AXP, and we considered it to be an extremely reliable machine. Very strong. Also, when we decided on the new purchase, it was very easy to obtain the technical information that is essential for our job".



The information he referred to concerns in particular the loads to the ground by the outriggers during lifting operations. Due to the UK Lifting Operations & Lifting Equipment Regulations (LOLER), all crane operations must be thoroughly planned, with full risk assessment and planned drawings. Cranes are only exempt from this if they are used simply to take a load from alongside a truck and lift it onto the trailer, or to lift the load from the trailer and set it down immediately alongside the truck. If the load is to be moved further away, and in particular if it is to be transported directly to the top of a building, British law considers this to be an "evolved" lifting operation and therefore subject to extremely strict regulations. It must be said that many crane users are not still fully aware that they are subject to LOLER regulations, which were recently re-written and updated to make the obligations of crane users more clear. Emerson, on the other hand, is well aware of the regulations in force and applies

them with great care, assisting users on all points. As a crane hire company with a good reputation, its technical department has great experience in providing the necessary documentation; CAD drawings are always produced before each lifting operation. To calculate the ground load of outriggers, including side outriggers, crane manufacturers need to provide additional information that is not usually indicated in the technical manuals. "Having such complete, precise support documentation is an important factor for a company like ours", Paul Clancy tells us, "from this point of view Fassi and their dealer Walker have been true partners in the technical support they have provided".

Identity card

The new Fassi crane that has joined the Emerson Crane Hire fleet is driven by Steve Sebran. When he joined Emerson, in June 2006, he had never worked in the industrial sector; he had been a driver, but was looking for a new working challenge. After 18 month experience on cranes, he was fully able to appreciate the advantages of the F310AXP. Its greatest asset, in his opinion, is its versatility. "You can go anywhere, to any type of place, and 99.9% of the time you will be able to get the job done. The combination of jib and ProLink system enabling the external boom sections to be angled up by 15 degrees allows the crane to reach everywhere, most of the time without even using the winch. The ascending angle function is equally useful: it means you can get into any type of corner and avoid obstacles like trees and telegraph wires".

Other features that facilitate the operator's work are the Fassi XF "extra fast" system, which uses an innovative oil recycling valve to significantly increase the boom extension speed, and the Fassi ADC (Automatic Dynamic Control) load cushion system. Both are standard fitted on all Evolution type cranes. "The ADC system – states Steve Sebran – eliminates any undesirable bouncing of the load, controlling speed better according to the load. This is particularly useful when working above buildings and when long extensions are required. The speed at which the boom extends with the load under control means that it takes less time to lift each load, and increases the amount of work that can be carried out in a single day. Customers are always amazed when they see the crane arrive on site and start work".





Interview with Alessandro Azzola

Fassi Quality Control

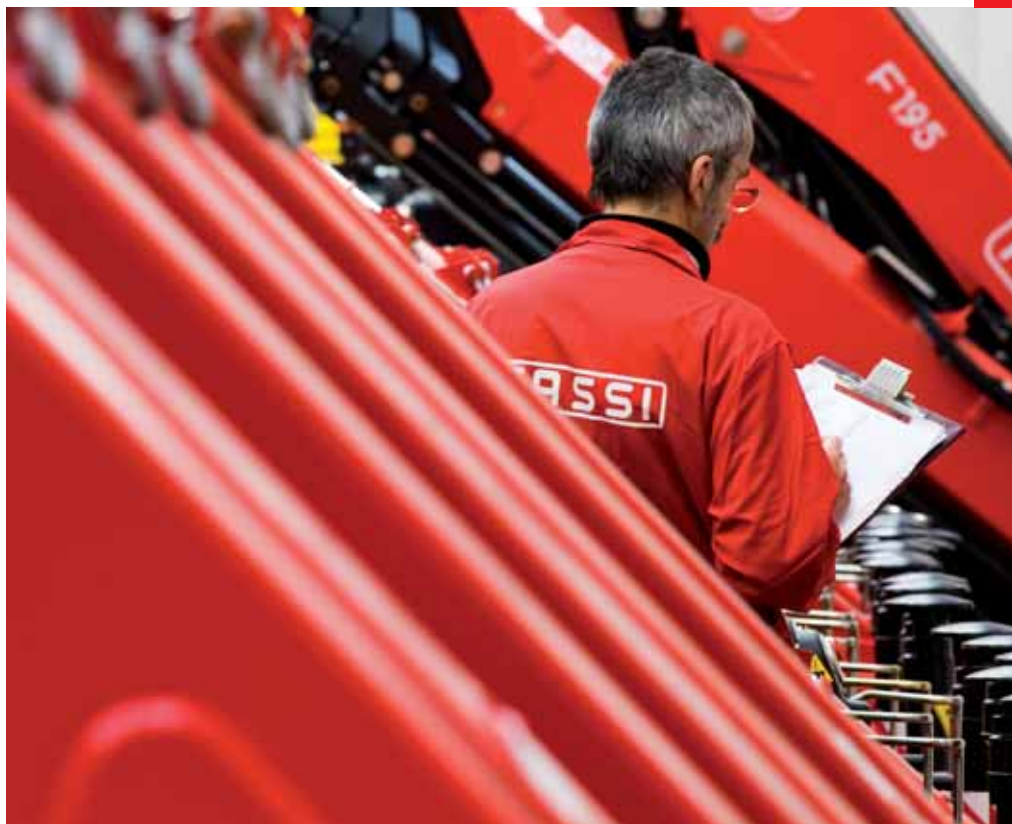
The quality control procedures used at Fassi combine the protocols foreseen by UNI EN ISO 9001 certification with a specific system developed directly within the company, organised in strict test periods carried out throughout the manufacturing cycle, from the selection of the materials supplied right down to the delivery of the finished product.

"The culture of quality is an integral part of company commitment here at Fassi, a long-standing vocation, witnessed by the decision to obtain certification some time ago. The summary of a history that has anticipated and gone ahead of standards for industrial excellence, Fassi obtained certification under the strict NATO AQG-4 military standards as early as 1995, with ISO 9001 certification being obtained in 1996, when this type of certificate was more commonly known as Vision 2000. The certifying body that has always been used by Fassi because of its international authority is DNV. The protocols foreseen by these certifications are first and foremost aimed at ensuring that the product complies in full with the technical parameters foreseen by the project. It must be remembered that ISO 9001 certification, in particular, extends

its range of action not only to the product technological components, but also certifies that confirmed quality protocols are followed in all the main areas of the company system. Periodic inspections verify and prove that our company, as a whole, always works in compliance with clearly defined precepts. All this is without doubt the essential basis when talking about quality in a modern, world-level company such as Fassi. But by choice and by principle, in line with its true vocation for quality, we have decided to go beyond the fundamental certifications mentioned above. We have created, and are constantly implementing, updating and promoting, our own specific quality culture, which takes the form of operating and control procedures that, I can say with pride, make us truly unique on the crane market".

The Fassi system enhances the idea of quality perfectionism

"In practice we have developed and apply a system that allows nothing to escape us, absolutely nothing that is not of that level of quality characterising us as an outstanding company. This is without doubt a considerable



and costly commitment, both in terms of human resources and control technology. This is demonstrated by the fact that we have set up a complete laboratory within the company, to carry out invasive and non-invasive tests on materials, castings and weldings, for example. This structure is state-of-the-art in terms of equipment and extent of controls carried out on prototypes and on all our products. Fassi quality system involves a sequence of operations that follow the whole construction process for each individual crane, right from the used raw materials. These checks are so meticulous that they even go outside the company: almost every day our quality control people visit suppliers to check the materials at source. The second selection operation takes place on entering the Fassi factory, where further new controls are carried out. The system then foresees a co-ordinated succession of steps that subject each phase of crane construction and assembly to further checks. Each step is certified by the head of department, who in turn reports constantly to a supervisor. Of course this system requires an adequate co-ordination between workers' ability and the use of information technology systems that collect, put in order and make the data available within the system in real time. When a crane reaches the storage warehouse ready for delivery to the customer it has been subjected to at least several hundreds of technical and functional controls, which end with the final test. Our greatest satisfaction is to see how, thanks to the quality system we apply, this final test has become a mere routine with a result that can be taken for granted. But to be quite frank with you, we are very happy to be used to this type of perfectionism".

Fassi Glossary

Certification

This is a declaration with which a certifying body, a third party who is independent of both the supplier and the user, guarantees in writing that a product, a service, a process, a management system complies with the requirements set down in the reference standards. The third party providing the written assurance (certificate) is in turn subjected to an accrediting procedure.

Types of certification

In the field of industry there are three main types of certification:

- **product certification**, which attests that each product leaving the company is made with clearly specified and certain characteristics (materials, components, etc.); it also attests that each product is subjected to specific controls.
- **process certification**, which attests that the whole production is carried out according to specifically stated phases and procedures, which are subjected to verification during the process itself.
- **service certification**, which attests the way in which the company deals and communicates with its market contacts, adopting procedures that comply with specific reference standards.

DNV – accredited certifying body

Det Norske Veritas, which Fassi uses as its certifying body, is an independent international foundation based in Oslo. Since 1864 it has been working to safeguard life, property and the environment, offering its customers all its experience and knowledge. Present in 100 Countries, with 300 offices and a staff of 7000, DNV is one of the main certifying bodies at world level.



CRANES WITHOUT COMPROMISE



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