

Issue no. 12 - 2011

WITHOUT

c o m p r o m i s e

Fassi Gru international magazine with informations and updates

FASSI AND
INNOVATION:
FASSI'S GENETIC
CODE

OUR CRANES:
THE KEY WORD
IS FLEXIBILITY



HER MAJESTY;
THE F1950

FASSI

CRANES WITHOUT COMPROMISE



Unrivalled

The highest balance between power and tare weight.
Try yourself.

Thanks to the innovative technologies of Fassi, the first company that has developed intelligent cranes, power and light tare weight are expressed both in the horizontal outreach and in the vertical lifting. Have a look at our brochure "Techno Chips" to find out all the secrets of Fassi crane.



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FASSI



The crisis: an opportunity

The economic and financial situation of the last few years has brought us back down to the harsh reality of life, for which "there is no certain future". Nothing can be taken for granted, as we must always be prepared for any change that the future holds in store for us. The crisis is definitely a danger, but only for those who are not ready. Being ready means "being financially independent". Of course, the crisis forces you to reorganise the company, to reduce the staff, to adopt new solutions, and so on. Yet this can only be successful if you can stand on your own without the aid of anybody.

Financial independence and liquidity are essential to weathering a storm like the one we are in. The real challenge that needs to be faced is that of being able to reap to the full what the market has to offer, rapidly and between cycles of peaks and troughs that are much shorter compared with the past. Yet crisis means opportunity, too: in our case it means moving into the spaces left by those among our competitors who have not been able to see beyond the dangers of today or have not had the means (financial independence) of preserving their company's stability and, as a result, their distribution organisation.

We are continually required to ride the wave, to be constantly on the alert for weaknesses in our competitors and to take advantage of them. This process of selection, which began in the early 'nineties, has never stopped, and it is in this context that Fassi, together with a very small number of other companies, continues to assert itself as a "global player", both in terms of the extent of its product range and its distribution organisation.

There are several areas in which to act in order to seize the opportunities offered by the market. However, they certainly cannot regard price only. Indeed, pricing in itself is not the only instrument that can guarantee the sales success of a product such as ours. Furthermore, it is impossible to stay in business without generating profits. Upstream there must be the stability of the manufacturer, which must take care of its customers as well as supporting its own business and product, be capable of being competitive with larger competitors, and have a wide and modern range of products that guarantees the business stability of its own company in years to come.

The expertise and stability of its staff, the value of relations, the consistency and quality of services it offers and the condition of mutual advantage that must exist between manufacturer, distributor, dealer and customer, all become crucial, fundamental cruxes for withstanding the blows dealt by the crisis.

In this scenario, for manufacturers the concept of "opportunity" means acquiring potential new partners in order to extend and improve its existing distribution organisation. This is confirmed by results: the closer we are to our existing and potential users, the easier it is to gain market shares and sales volumes.

A distribution organisation is not a frozen, untouchable thing: with time, its performance can be influenced by changing priorities, by a tail-off in motivation and interest, by generational renewal, by a lack of profits, by constant staff turnover. When something of the sort happens we have to act promptly to change course if we want to preserve the stability of our business.

We have to be ever ready to respond to continual market demands and developments, looking to the future with confidence and with a constructive spirit. We will give it our ever growing attention, keeping a constant eye on the situation and making any necessary adjustments. It's a tough moment, we are in the front line and Fassi is ready to fight.

INNOVATION SPECIAL

page 04

Innovation: Fassi's genetic code

Research and development have always been milestone of Fassi's world, reflecting our continuous efforts to address new challenges searching of unique solutions that highlight the group's leadership and its capacity to gain a clear market headstart over its competitors.

page 06

Fassi, the chain of innovation

page 08

Innovation cube

SAFETY SPECIAL

page 12

Safety, a column of the Fassi philosophy

The capacity to blend reliability and performance without ever compromising safety. As shown by the introduction of the innovative FSC system, as the natural outcome of a process that began some time ago and which puts the company always one step ahead of the market.

page 16

Fassi Stability Control

page 19

FSC, the operator has everything under control

ADDED VALUE

page 20

Fassi cranes, in one word: flexibility

Giovanni Fassi, the company's managing director, stresses the added value of Fassi products: compact machines, an excellent power-to-weight ratio, and excellent lifting performance both horizontally and vertically. All backed by efficiency in customer service over the world.

page 22

Fassi's new technological era from the F1500XP until today

PREVIEW

page 26

Her Majesty, the F1950

EVENTS & SPONSORSHIP

page 32

Fassi in the spotlight at the European truck championship

CRANES AT WORK

page 34

Fassi's design for an articulated tower-mounted crane

page 38

Railway: a customised vehicle for electric line installation

page 42

Recovery the fishing vessel "Esperanza"

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INNOVATION IT'S IN FASSI'S BLOOD



Research and development have always been milestones of Fassi's world, reflecting our continuous efforts to address new challenges search of unique solutions that highlight the group's leadership and its capacity to gain a clear market headstart over its competitors. The group's technical director, Rossano Ceresoli, takes us behind the scenes of this process of innovation.

A guiding principle that links design, manufacturing and product and which has enabled Fassi to build its own DNA imprint recognised all over the world, innovation has always been the company's manufacturing philosophy as a world leader in crane production: a philosophy which constantly guides the company towards new challenges, unique solutions allowing Fassi to gain a clear market over its competitors.

As Rossano Ceresoli, the company's leadership R&D director in charge of product design and development at the Fassi Group, explains, the company's aim has always been to research and offer added value for every product that leaves the factory, in all of the various aspects of the product itself: from mechanical solutions to hydraulic functions and highly innovative proprietary electronic systems.

Have Fassi products, designed with quality in mind first and foremost, always been the result of innovative processes at the design level?

The tools placed at the design department's disposal are in the so-called "high-end" category, starting from proprietary calculation programs developed with the collaboration of researchers and professors at the Politecnico di Milano to highly developed CAD-based design and simulation programs such as Catia by the French company Dassault. Catia, which has long been a standard part of Fassi's design process, finds acceptance in complex, highly evolved technologies such as aeronautics at Boeing or in the automotive world with Maranello's prestigious red livery. In the articulated cranes world we can boast being the first and only ones to use this software, the result of the enterprise will and intuition of the design department as far back as 1989.

At the time, equipping ourselves with such a forward-looking system was, with demonstrable certainty, a highly innovative step. A system that makes it possible to work in a virtual reality with an overall vision of all of the stages and all of the aspects of design, verticalising and integrating all of the processes – concept, development, simulation, FEM or structural analysis – into a single tool.

Innovation without compromise as the end result too?

The innovative factor that guides us is our desire to offer market ideas and solutions capable of interpreting and anticipating needs in a unique way, sometimes stimulated by the intuitions of our most loyal customers. Innovating means having tomorrow's vision without ignoring the reality of today, while always staying true to the specifications and distinctive features of our product.

The innovative factor that guides us is our desire to offer the market something especially new for our product. Innovating means for us offering something that is not diametrically opposed to the product we make.

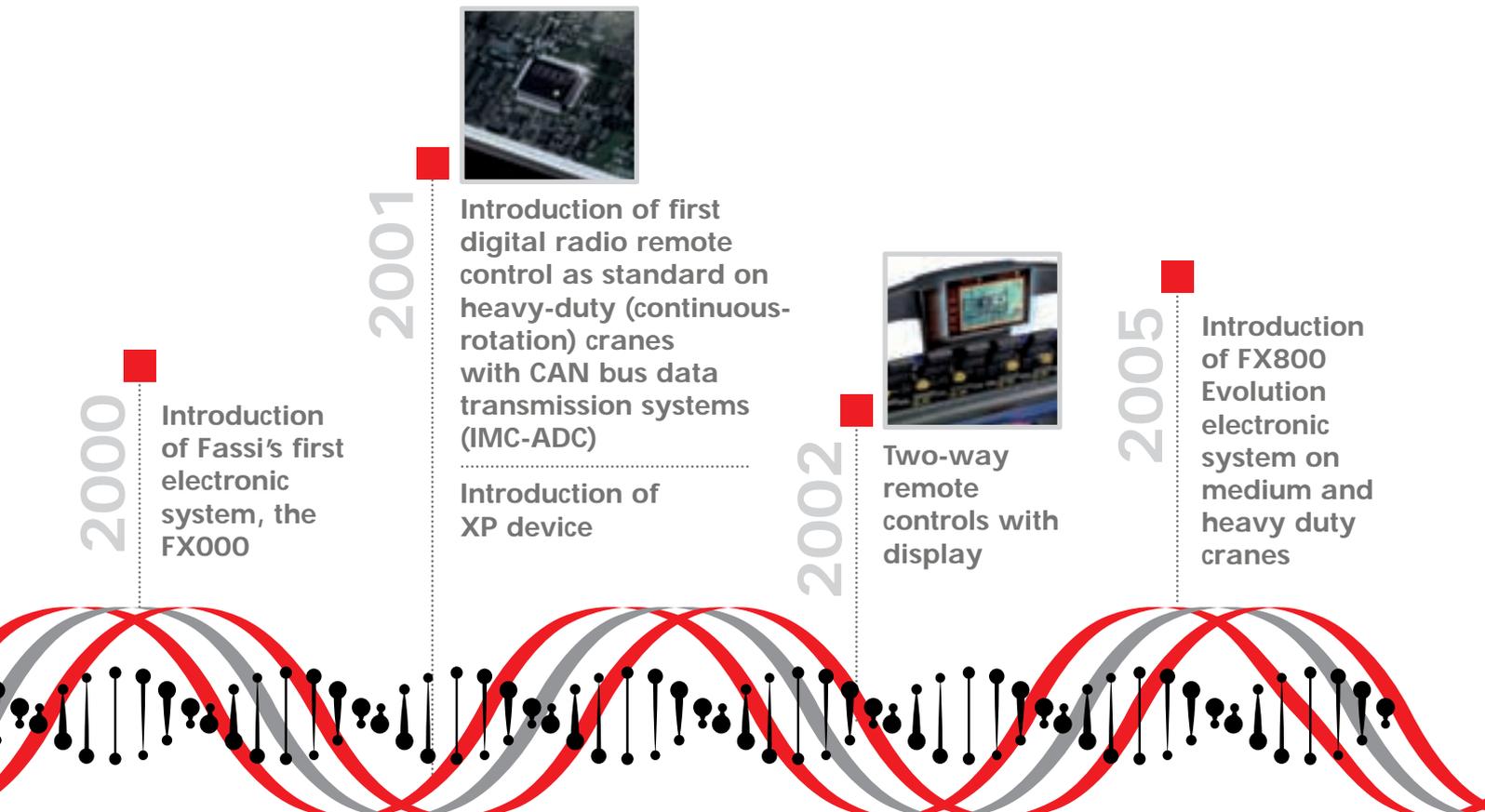




Starting from the need to comply with laws and regulations, Fassi has chosen to take the opportunity to develop something extra, to give added value its products to standing out from the others as a result. Hence the idea of exploiting electronics as a factor that could set us apart by inspiring us towards new technologies and new goals.

CRANES WITH DIGITAL CONTROL SYSTEMS SINCE 2001

Fassi, the evolutionary chain of development over the last 10 years



In our sector there are fundamental factors, such as lifting capacity and specific aspects of performance, which cannot be changed. So in processes of innovation it is necessary to start from fixed, well-defined benchmarks in order to interpret customers' needs and offer something new in terms of the relation between market demands and machine performance.

When and why has the need to introduce electronics into cranes come?

Our first foray into electronic systems dates back to the mid-1990s. The initial impulse stemmed from a question of legislation which made it necessary at the European level to meet certain safety requirements.

And so, starting from the need to comply with laws and regulations, Fassi decided to take the opportunity to develop something extra, to give added value its products to standing out from the others as a result. Hence with the idea of exploi-

ting electronics as a factor that could set us apart by inspiring us towards the new technologies and new goals that were taking shape in sectors other than our own, such as automation, we set out on this new path.

What has been the biggest challenge in terms of design with regard to integrating the innovation provided by electronics into the product?

Electronics is more a commitment than a challenge for us. It's given us the opportunity to fulfil the dreams that our design team had, to overcome certain limits and to achieve guaranteed levels of performance. The most demanding part has been finding partners to develop the electronic components with, to get tuned into our specific requirements and give substance to what were our ideas. We've been able to find partners at the European level and for them it's been an opportunity to propose innovative systems and find new motivations.

2006



Prolink System, XF valves, patented winch torque limiter system and lifting moment limiting device for manual extensions

Extended to the whole range: digital radio remote control, D850 and D900 digital distributors with electronic oil flow sharing function



2007

Eco-friendly solvent-free paints

2008



**JDP (Jib Dual Power)
RCS new digital radio remote control**

2009

FX500 electronic system on new-small range of cranes

2011

FSC - Fassi Stability Control systems for vehicles

Fassi, Innovation Cube



CONTROL

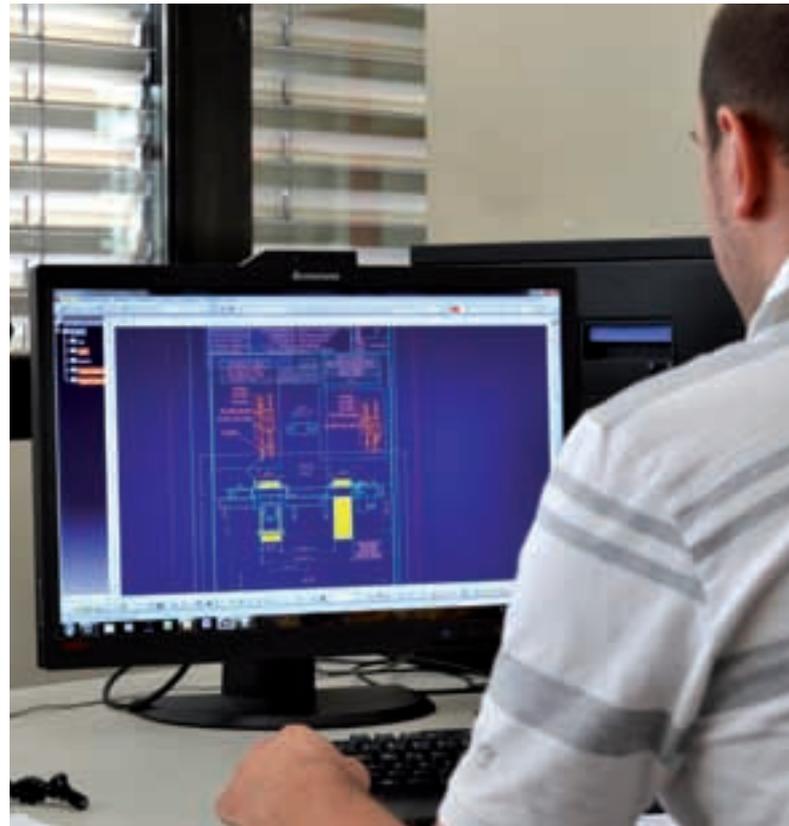
- IMC - Integral Machine Control
- ADC - Automatic Dynamic Control
- S800 - Normal Multifunction Distributor Bank
- S900 - Normal Multifunction Distributor Bank
- D850 - Digital Multifunction Distributor Bank
- D900 - Digital Multifunction Distributor Bank
- RCH/RCS - Radio Remote Control
- FX500 - Fassi Electronic Control
- FX800 - Fassi Electronic Control
- GV - Graphic Visualizer
- AV - Alphanumeric Visualizer
- ME - Manual Extension
- FSC - Fassi Stability Control
- MOL - Manual Outriggers Lock
- CPM - Crane Position Monitoring
- OTC - Oil Temperature Control

PERFORMANCE

- FS - Flow Sharing
- XF - Extra Fast
- MPES - Multi Power Extension System
- XP - Extra Power
- FL - Full Lift
- JDP - Jib Dual Power
- PROLINK - Progressive Link

STRENGTH

- UHSS - Ultra High Strength Steel
- FWD - Fewer Welds Design
- CQ - Cast Quality
- RPS - Rack and Pinion System



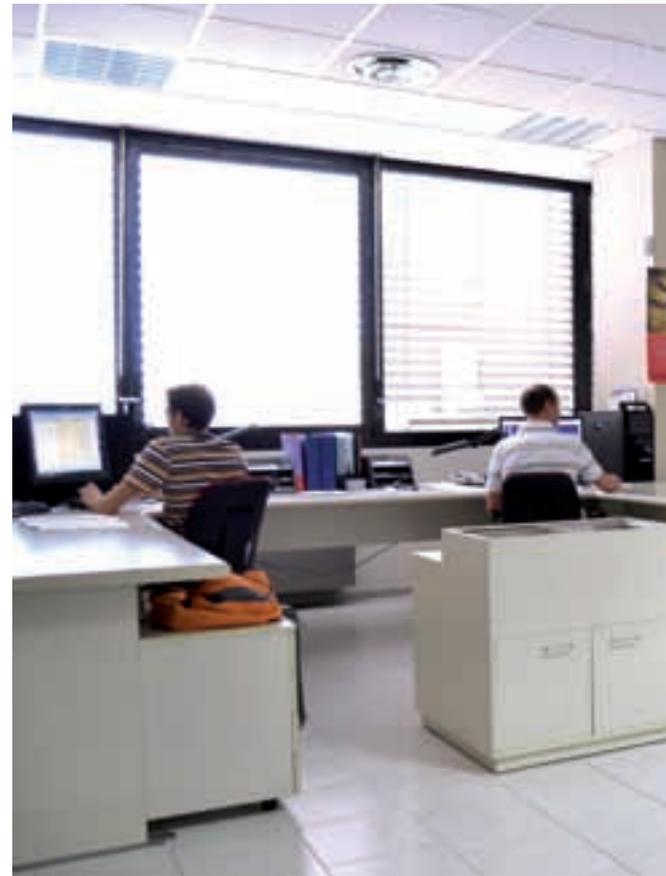
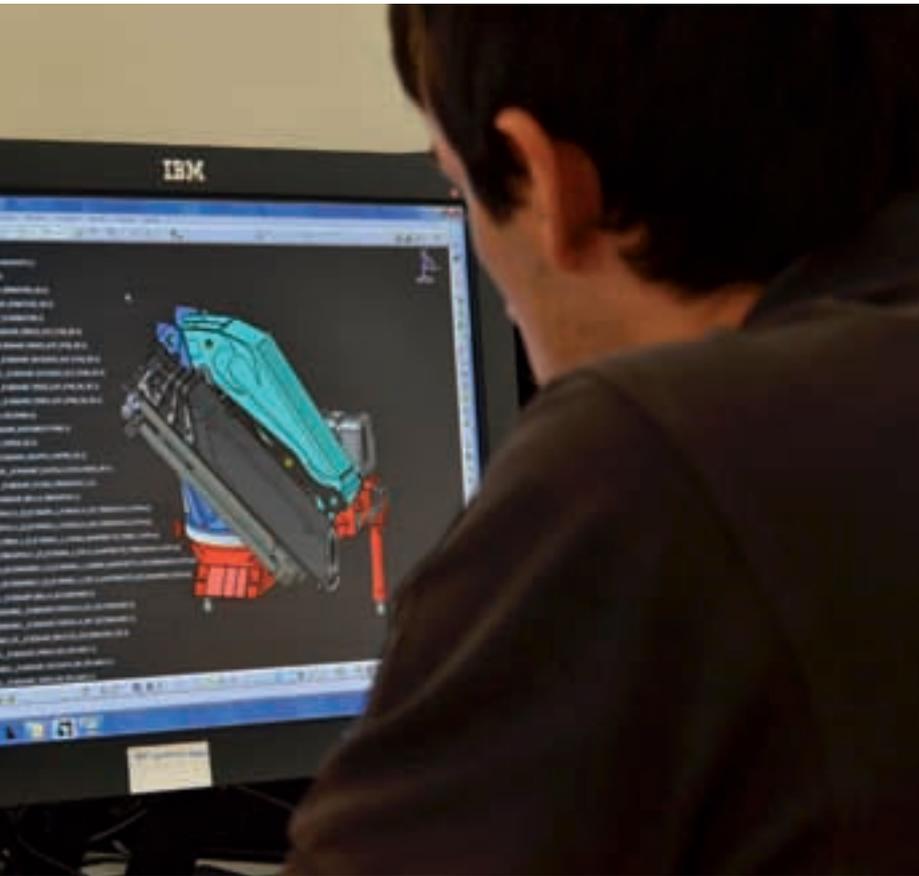
Does the innovation provided by electronics always come up to the designer's expectations?

Surely when it comes to results. The designer is hardly ever, or perhaps never, disappointed by the performance of the electronic part as an expression of its function.

Nowadays, in order to achieve new, effective results, we need to integrate mechanical solutions with electronic ones: hence, mechatronics. Several years ago Fassi already sensed that it couldn't give more without merging these two elements with hydraulics.

Through what innovative systems over the last ten years has Fassi particularly had an impact in changing standards in the industry?

The main systems that have enabled us to make a difference have been electronics and the use of so-called high-strength and ultra-high-strength steels (UHSS) which are capable of guaranteeing extremely high levels of performance. Over the years we've focused that it's necessary to give the customer more, without compromising safety and performance. So the attention has never been lowered when it comes to safety. The really big effort has been to achieve extreme levels of



performance without taking risks, increasing the overall safety of the machines, and electronics has helped us in this. The second important aspect is the human-machine interface. We were among the first to believe that the ability to control the machine remotely by means of a radio remote control was fundamental for the operator, as this would allow the operator to work in safer positions, with greater visibility and in some cases limiting the number of people working on the machine.

In fact, thanks to radio remote control, it's the operator who driving the crane, and to do this we laid out some of conditions. First of all, we developed innovative and reliable radio transmission. In addition, we made the machine's control instruments "user friendly", enabling the operator to manage the crane's functions in the best possible way and time thanks the display.

What project has given you most satisfaction in terms of innovation?

We develop realise and an average of two projects a year, and each new design entails a series of new challenges to overcome and goals to achieve, which stem from the natural process of market maturing and developing. Each challenge and each step forward are definitely a source of great satisfaction. Fassi's desire is to propose innovative solutions which go beyond the mere concept of machine performance. Our aim is to offer solutions that have to do with ways of working with cranes as well as upgrade solutions that can be used on existing systems. In short, a concrete approach to innovation characterised by a "can-do" logic. If I really had to choose a project, I must say that it's difficult, because each one has meant something not just for the company but for myself too. The one you remember is always the most recent

one: just last July the world's first foldable crane, with a lifting capacity of over 150 t/m, has been delivered. There are no competitors capable of offering anything like it on the market.

Does innovation remain a central matter in the mechanics and hydraulic engineering of lifting systems?

Of course although we're talking about systems that are less visible. They are fundamental components in fact, the beating heart of each machine, which is why special attention should certainly be paid to them. In this case, too, everything is tested, as there is no innovation without reliability. |



Ceresoli: "The Evolution project led the way, but now we're looking ahead"

When the Evolution project was born, it set an extremely innovative standard of equipment for the machine, and was certainly a tough sell, as it revolutionised the operator's way of controlling the machine.

The innovation was so significant in terms of evolution of the controls that it was feared that it would be initially rejected by the market. Fortunately this was not the case: the concept was conveyed very well by our sales network, so all of the advantages were well understood. Today that project has reached a significant stage of maturity, becoming a reference standard for the competition who, ten years later, are marketing an imitation of the Evolution, inheriting those principles at the level of machine controls, data transmission technology and type of electronic data processing architecture. Once again Fassi has set the trend at the global level.

Fassi's intention is to continue on this path, always and come what may: we have to stay within the field of performance. The Evolution project is appreciated because

it has made the operators freer in their way of working, guaranteeing them greater mastery over the machine. And all of this, obviously, has meant optimised intervention timeframes for our customers. Fassi certainly hasn't stopped at this project. Today we are working on innovative solutions and patents regarding the human-machine interface and which have no counterparts in any other industrial segment.



SAFETY, A COLUMN OF THE FASSI PHILOSOPHY



The capacity to blend reliability and performance without ever compromising safety, as shown by the introduction of the innovative FSC system, as the natural outcome of a process that began some time ago and which puts the company always one step ahead of the market. The company's sales director Luigi Porta tells us about the reasons for this manufacturing philosophy and the innovations introduced by "Fassi Stability Control".

Safety, reliability, power. Three fundamental words Fassi has written the pages of its manufacturing philosophy with. In a complex market situation, in which each of the main manufacturers is distinguished by specific characteristics, Fassi has always said and clearly shown what its own trademark is: a product capable of blending the characteristics of reliability with the best performance levels, all without ever stooping to compromise with regard to safety. This leadership is the result of a constant focus over time that has made the company a forerunner in many respects. It is proved by the "rush for cover" by many producers following the introduction of legislation connected with crane stability control systems. For Fassi it was a natural transition in a process that had already begun some time previously and which today bears the FSC mark, the innovative "Fassi Stability Control" which is the greatest guarantee of safe operation in the industry. The trend is clear, working

with the total protection of the operator in mind without compromising performance and offering worry-free operation which is the highest aim for anyone who lives on-site every day. We are talking about a momentous change, as handling stability is no longer the prerogative of the user's choices, but it is the system which establishes control, setting limits of usage in specific situations. To understand this change better, we asked Luigi Porta, the Fassi Group's sales director, to explain to us in detail the company's manufacturing philosophy with reference to the topic of safety and reliability.

What is the relationship between safety and the performance that the customer expects from a Fassi crane?

Obviously they expect the best. We work with the aim of giving the user the chance to exploit the machine's potential to the full, in the awareness that there are safety systems



We work with the aim of providing the user with the opportunity to exploit the machine's potential to the full in the knowledge that there are safety systems that control the functioning of the crane itself.

Of course the operator feels safe with us! all our safety devices prevent the overcoming of the limits of machine use without a direct intervention of the operator. When the limit is approached, the sensors, constantly in action, limit the crane by stopping it or making it change the configuration.



that control the functioning of the crane itself. I'll give an example: there are many customers who use cranes with winches, and some of our competitors impose specific restrictions on this use. We don't impose any restrictions as the machine itself has a dynamic control system that automatically manages and limits it. For the operator it's one less thing to worry about as safety is an integral part of the crane's performance. And so there is no onus on the operator to know what the limits are, to understand how to use the crane safely. Our machines are set up to answer this question automatically, ensuring maximum peace of mind during operation.

In the specific sector of lifting, are articulated hydraulic cranes extremely versatile machines?

If by versatile we mean the possibility of using them in various settings, that's certainly true. Articulated hydraulic cranes can operate in extremely varied logistic contexts with a high degree of flexibility and not necessarily just for loading and unloading operations, but also in complex situations, such as positioning loads on roofs or installing glass sheets on buildings. In short, versatility is a direct component of these machines.

So, the possibility of controlling a Fassi crane in the most varied situations of use is a major competitive advantage ...

Of course, because the operator feels safe with us. All of our safety features prevent the machine's limits of operation from being exceeded without any direct intervention on the operator's part. In the case of limit situations, the sensors that are constantly in action automatically limit the crane by stopping it or making it change configuration. This is a major competitive advantage which the market appreciates.

The Machinery Directive 2006/42/EC and its harmonised product standard EN12999: 2011. Fassi's perspective

The Machinery Directive came into force on 29 December 2010. For Fassi it was not a momentous change, as the company had been ahead of the times in the years leading up to it, when it decided to mark its products with the "CE" symbol, thus turning its desire to define its machines as such into a reality, even though it was not compulsory. This being "over the top" has enabled us to have a painless transition. The company has always worked to protect the operator and today can be justifiably proud to have had this long-term vision.

The harmonised standard that came into force in 2011 provides a technical interpretation of the new safety systems, including the one for which we have coined the acronym "FSC", which is an integrated system with the lifting moment limiting device that verifies the stability of the machine. This system has two years of internal research behind it. Fassi started in advance using the electronic innovation already in operation, complying with safety criteria and seeking to go beyond the demands of the market and the standards imposed. The group's aim was to offer a system capable of transforming compliance with the standard into a tangible advantage in terms of control and performance.

Do performance levels adapt to the versatility of use that is typical of Fassi cranes as well?

To answer that, I'll give a practical example.

There are performance levels connected to the speed of extension of the crane's extendable booms, and this characteristic has a bearing on power.

In some situations it's important to focus on speed, but this isn't always the feature required on site. That's why we offer specific technical solutions that act on extension speed, managing it to the benefit of power, in relation to the operator's requirements.

How are the lifting performance and control offered by Fassi cranes establishing themselves on the various markets at the global level?

I have to report that there's no difference between various markets and our cranes gain their reputation for the same qualities. While it's true that in Europe it's compulsory to meet specific safety requirements, the performance levels of the machines are the same as those sold in the rest of the world.

Does reliability remain an essential feature for Fassi customers?

Of course, reliability is fundamental.

With regular, scheduled maintenance, very few extraordinary repairs are required, and this means that the value of the investment appreciates, reducing the payback period too. Our cranes make it possible to reduce downtimes to a minimum, thanks to their reliability. And this is a big plus that our customers appreciate.

In lifting, does reliability help improve control of the crane?

There are peripheral sensors that transmit a constant flow of information to the central unit. This allows to have consistent performance which has a



Our FSC system provides the best response to the obligations required by the standard, ensuring operation in total safety. It's no longer the operator who decides; stability control is managed independently by the system instead.

Limits are sometimes tough to “digest”, but where safety’s concerned, people recognise its function and value better

knock-on effect in terms of the product’s reliability. So safety and reliability actually go hand in hand.

With the new Machinery Directive 2006/42/EC and its harmonised product standard EN12999:2011, it has been made a compulsory requirement for manufacturers to install stability control systems on their cranes. Does this make cranes easier to control?

This represents an extraordinary development in the use of cranes. On this front we’ve always been not just one step, but hundreds of steps ahead of the competition. Our FSC system responds in the best possible way to the requirements introduced by the standard, ensuring operation in complete safety. It’s no longer the operator who decides; stability control is managed independently by the system instead. I won’t deny that this has generated a bit of resistance; it isn’t always easy to understand the profound significance that lies behind an innovation. But today the message has got through loud and clear, and users have understood the importance of all this.

Right, let’s try to shed some light on how the market is responding to the introduction of this new stability control device ...

The answer is positive, and shows maturity on the part of operators, who have understood to what extent it’s possible to work with greater peace of mind, while fully exploiting the crane’s performance. Limits are sometimes tough to “digest”, but where safety’s concerned, people recognise its function and value better. |

FASSI STABILITY CONTROL

Maximum control over of stability’s conditions

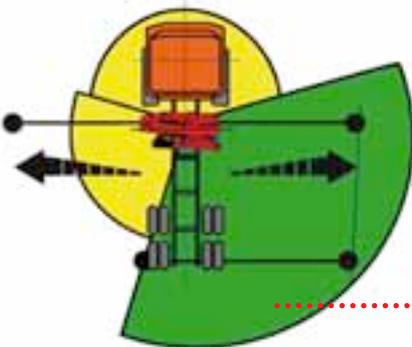
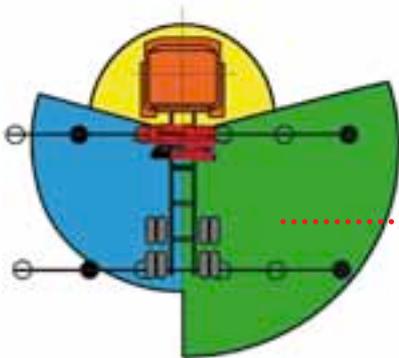
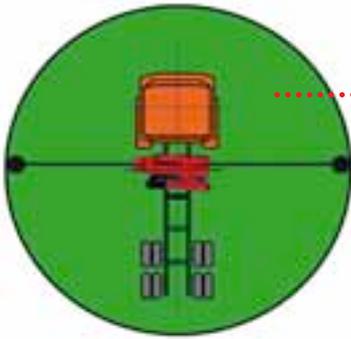
Fassi has developed its FSC “Fassi Stability Control” systems, which are offered in a range of implementations devised for each type of crane, in order to satisfy the Machinery Directive 2006/42/EC as effectively as possible and the application of the harmonised technical standard EN 12999:2011 which requires that cranes – with a capacity of at least 1,000 kg or a lifting moment of 40,000 Nm or over – are equipped with a stability control for the vehicle integrated in the function of managing lifting conditions performed by the moment limiter. Such systems differ according to the models of cranes and related set-ups on which they are installed. In particular, the S version – with completely automatic management, installable exclusively on cranes equipped with the FX500 or FX800 electronic device **(1)** RCH or RCS radio remote control **(2)** and hydraulically extendable outriggers – is a completely new product from a functional and engineering perspective.

New technological opportunities, a spirit of innovation and the impetus provided by legislation are the main factors underlying Fassi’s stability control system. This is why Fassi’s products, in addition to meeting the new directive of the European Committee for Standardisation (CEN), takes into account the various peculiarities of the range, offering a system with a variety of implementations according to models of crane. This electronic system markedly improves crane control conditions, facilitating their use. Through the control options offered by Fassi cranes the customer can be sure of having excellent versatility of use along with the greatest lifting capacity. The FSC automatically limits the crane’s operation if the conditions guaranteeing the vehicle stability are not met by acting on the extension of the lateral supports and the positioning of the outrigger rams. This occurs through two devices: **(3)** the proximity sensor for the outrigger rams, **(4)** the microswitch-activated cable reel that detects the complete extension of the lateral support. The operator is thus able to monitor each step in real time. Information on crane status and authorisation for use upon successful stabilisation are shown on the radio remote control display or on the user panel on the crane **(5)** e **(6)**.

Checking retraction of outrigger supports within 2 of machine

In compliance with Standard EN12999:2011, all Fassi cranes are set up to maintain the mechanical safety devices of the lateral extension outrigger supports with manual extension for the completely retracted position, while for those with hydraulic extension the mechanical stop has been replaced by a sequence valve. The condition of retraction within the lateral extension outrigger supports is monitored by peripheral sensors which send the signal to a display panel positioned in the operator cab with lights and sound indicating that they have been successfully retracted within the outline of the machine.





FSC, THE VERSIONS

FSC/L

The FSC/L system can be optionally installed on cranes from the Micro range to the F275A e-active model. It can be coupled both to models equipped with the HO hydraulic load moment limiter and the FX electronic lifting moment limiting device. It doesn't foresee the management of the differentiated working area as well as the distinction between right and left working areas in relation to the vehicle. The system checks the position of the lateral outrigger supports (the cranes and if necessary of the supplementary outriggers) and that the related outrigger rams are in their working position, authorising use of the crane only if the lateral extensions are completely opened on both sides and the outriggers are in operation on the ground.

FSC/M

The FSC/M system can be installed on crane models starting from the F50A active to the F275A e-active. This system can be installed only on cranes equipped with the FX500 or FX800 electronic devices. The system manages recognition of the left-and and right-hand operating area of the vehicle and includes management of the lifting moment limiting device for two working zones (maximum load above the crane body and reduced load above the cab) and two (M1 version) or three (M2 version) different activations of lifting moment limiting device in relation to the position of the lateral extension outrigger supports.

FSC/S

The FSC/S system is fitted as standard on the range of cranes from the F245A e-dynamic model to the F1950RA he-dynamic model. It can be optionally installed on all other models of crane provided that they are equipped with FX500 or FX800 devices, RCH/RCS radio remote control and hydraulically extendable outriggers. The system manages recognition of the left-hand and right-hand operating area of the vehicle and includes automatic management of the lifting moment limiting device for two working zones: above the cab and above the body, actual conditions of stability on the two sectors permitting. In both sectors the limiting system acts independently, according to the position of the lateral extension outrigger supports (closed, partially extended or totally extended) which is measured by a linear encoders. In addition, the presence of a tilting sensor which measures the horizontal position of the crane with reference to the angle of inclination of the crane base, all managed by dynamic software, limits the performance of the crane and protects the various working configurations with respect to the sector in which it is located, to the position/extension of the outriggers and to the angle of inclination taken on by the crane base. When the outriggers are not completely extended, the pressure of the lifting moment limiting device's action is recalculated and reducing then according to the position of the crane's booms, a reduction in the working speed can be obtained. The supplementary outriggers, in contrast, are managed for completely extended, completely retracted or partially retracted outriggers if the supplementary outriggers have double lateral extension supports. The system can also automatically read the effect of any counterweight that may be present and of any additional outriggers beside those already fitted as standard.

FSC, THE OPERATOR HAS EVERYTHING UNDER CONTROL



Easy-to-read display shows stability conditions

The operator is helped to monitor crane use conditions by an easy-to-read, immediate display on the radio remote control (5) and the user panel (6) on board the crane indicating the level of action of the lifting moment limiting device in the two areas to the side of the vehicle. Recognition of the sides is referable to the indicator plate fixed on the radio remote control push-button panel and in proximity to the outrigger activation distributor.

Versatility

For the FSC/S version, depending on the operating positions of the lateral extension outrigger supports and the angle of inclination taken on by the crane base, an automatic downshift occurs in the crane's performance, the activation of the lifting moment limiting device and speed of use.

Not just control, but improved efficiency too

Compared to other systems, with the FSC/S version Fassi has introduced more sophisticated machine control management, in performing a double check on stabilisation by verifying the position of the lateral extension outrigger supports and the angle of inclination of the base (7) thanks to dual X/Y axis tilting sensors.



Its completeness renders the system highly versatile, prioritising and consistently guaranteeing maximum performance of the machine in complete control.



FASSI CRANES IN ONE WORD: FLEXIBILITY

Giovanni Fassi, the company's managing director, stresses the added value of Fassi products: compact machines, an excellent power-to-weight ratio, excellent lifting performance both horizontally and vertically. All backed up by efficiency in customer service the world over.



A unique product, the result research, innovation and simulations, of investments each Fassi crane tells of a precise manufacturing philosophy that the company has always followed and pursued: to produce compact machines, with an excellent power-to-weight ratio and high lifting performances both horizontally and vertically. As Giovanni Fassi, the Fassi Group's managing director, explains, there are many diverse fields of application for the articulated hydraulic cranes that roll off of Fassi's production lines: from the construction industry to the marine environment, from the railway sector through to specific cranes fitted on snowcats in the Antarctic. Each application and product

supplied anywhere in the world is followed in every detail, thanks to the best technical assistance on the market.

Is the construction industry still the one in which articulated hydraulic cranes are used the most?

Construction is our main end market, and our cranes are used for moving items of small dimensions such as concrete mixers and compressors as well as delivering building material and moving components for homes, even whirlpool tubs. Let's say that our cranes, installed on trucks, can transport a quantity of material that others equipments wouldn't

There are many diverse fields of application for the articulated hydraulic cranes that roll off of Fassi's production lines: from the construction industry to the marine environment, from the railway sector through to specific cranes fitted on snowcats in the Antarctic.

Fassi's new technological era: from the F1500RA until today



be able to do. It's a fundamental industry for us, which accounts up to 90 percent of our turnover, and includes private and public construction projects, the building of railway line construction and positioning of infrastructural items such as Jersey barriers, for example. Let's say that our types of crane adapts to several kinds of work as well as several lifting capacities.

These articulated cranes are versatile, so besides construction, they have many areas of use. Which ones, exactly?

These areas are certainly diverse: from marine and military environments through to railways. Wherever there's the need to lift, a crane is used with specific capacities and dimensions in relation to its use. We have cranes in permanently

installed on ships and even in military settings for all of the logistical needs that these specific sectors demand.

Do the sectors of hydraulic cranes on railway wagons and of fixed installations in the marine environment have interesting growth margins?

The marine environment certainly shows interesting growth margins, as it is more linked to the oil industry. The Fassi Group is making large investments, and the most significant ones are precisely in the marine context. We have cranes installed on oil rigs for a series of logistical factors, for instance they are used in loading and unloading platform supply vessels. We've also supplied cranes for scientific missions in the Antarctic with machines that



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had to be installed directly onto snowcats in conditions that would have been prohibitive for others. In all of these cases the cranes are built and made to measure and suitable to the specific requirements involved.

In a competitive market, today's customer is better-informed than yesterday's. What features are knowledgeable customers looking for when they want to buy a new crane?

Some features, such as weight and power, are fundamental, as the product must first of all be durable over time. Legislation for the European market obliges us to have electronics and a series of checks in place that other countries don't require. In these countries, in fact, the emphasis is on aspects such as weight, power and price.

European markets also give attention to a whole series of extras that offer added value: remote control, control stations directly on the crane column, radio remote control systems and performance management systems – in other words, extras that are mainly linked to innovations in electronics, which in recent years has made giant strides and revolutionised not just the product itself but also the operators options for controlling it. Fassi Group, has invested a lot on all fronts, starting with more technological aspects such as steels, shapes and electronics; we were the first to equip our cranes with digital systems and a control system using radio remote controls in order to have all functions within easy reach. This all enables us to present ourselves to the market and be recognised as the most innovative company in our sector.



F360SE
2004



F22A
2005



F240B
2005



F800RA
2005



F1100RA
2005



M30A
2005



F50A
2006



F295A
2006

F385A

2006



F425A

2006



F130AT

2007



F165A

2007



F660RA

2007



F30CY

2008



F65AK

2008



F215AS

2008



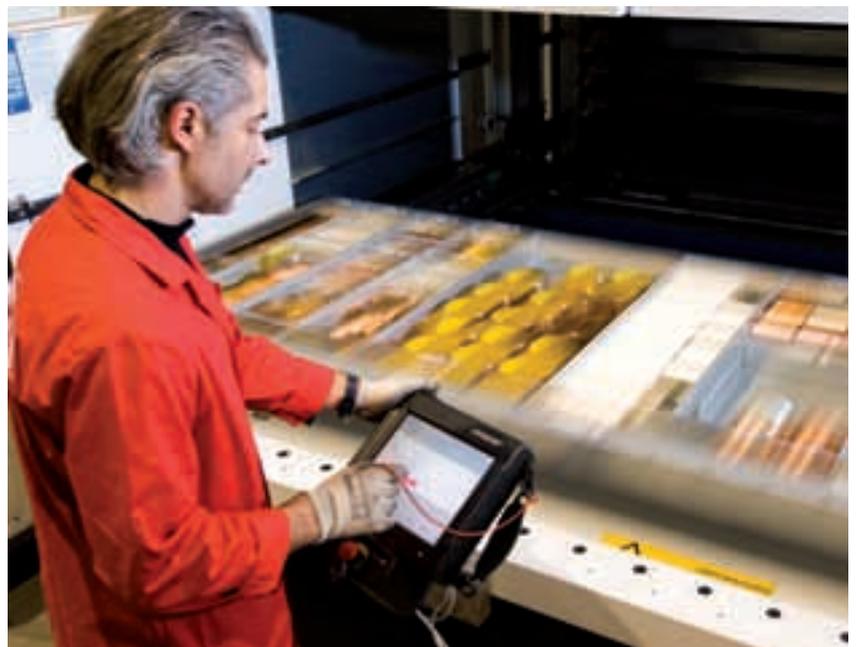
• **Are knowledgeable customers now able to find their way in the market through information available on Internet?**

• Information available on the web allows you to find your way in the market, but it isn't enough to make a concrete choice. Our product isn't like a car that you can buy "off the shelf", so to speak. It requires various kinds of installations and customisations depending on the customer's specific needs. Each crane has to be combined with a specific vehicle, and this requires a kind of work that I might define as tailoring. This is why there's always a need for one of our distributors locally who can provide the appropriate activity of advice and support activity.

• **As you touched on before, are the features demanded for cranes outside the European market different from the typical ones for European markets?**

• Our product was born in Europe and therefore it is our reference market. With our subsequent expansion towards Eastern Europe, as a result our penetration also increased in those traditionally closed markets. In the world two ways of thinking and therefore two different attitudes have developed: the European and the American-Japanese approach. In America they traditionally use truck-mounted telescopic cranes with stiff arms, while we are specialised in articulated cranes. So we are present in that area with solutions designed

Each crane has to be combined with a specific vehicle, and this requires a kind of work that I might define as tailoring. This is why there's always a need for one of our distributors locally who can provide the appropriate advice and support activity.





Our service network's extensive coverage is extraordinary and enables us to be present everywhere. We can supply spare parts throughout Europe within 24 hours and within an extremely short space of time in every other part of the world.

ned to respond better to that kind of standard. This happens – with obvious differences and in certain situations of use – in Germany and the Middle East too.

Comparing Fassi cranes with those of the competition, what are the most apparent advantages even to a less expert eye?

The combination of the technologies used and the design are the characteristics that set us apart in the market. To which I would add the use of ultra-high-strength steels and an advanced system of electronics, the result of investments in research and simulation, which today increasingly enables us to guarantee a truly high-tech product.

Which of the features of Fassi cranes do you think the market appreciates the most?

The first feature is, very simply, the product itself. Without question. The second feature is the extensive coverage of our service network which enables us to be present in every part of the world. We can supply spare parts throughout Europe within 24 hours and within an extremely short space of time in every other part of the world. Then there is another factor which I'd like to stress: Fassi invests constantly in training and updating its technicians and customer support staff, because we want to be always ready to respond to all of the demands the market makes of us. |



F950RA
2008



F70A
2009



F120A
2009



F315RA
2009



F100AT
2010



F245A
2010



F275A
2010



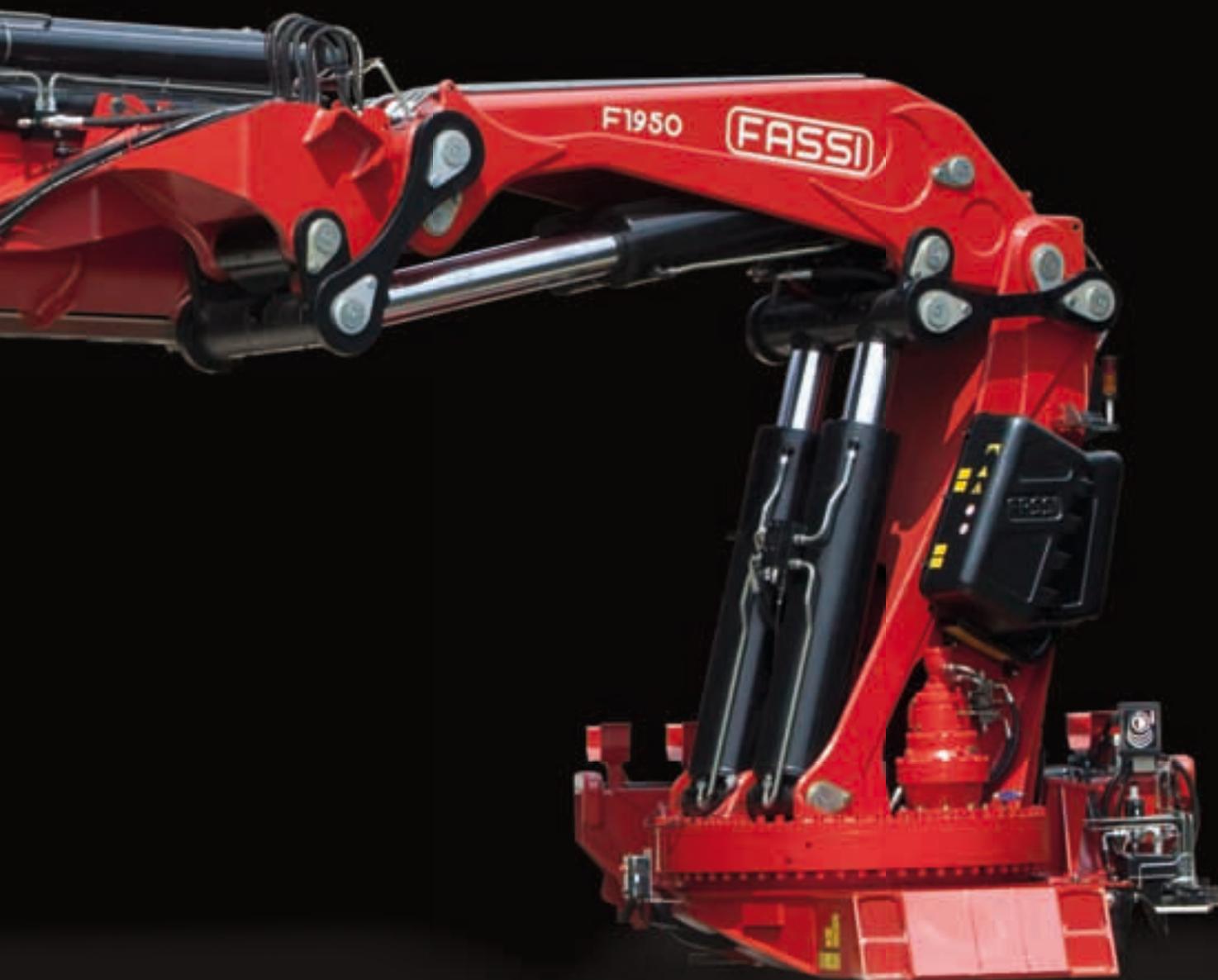
F1950RA
2011

HER MAJESTY: THE F1950



A demonstration of a true synthesis of technologies, combining, on one hand, strength, power and performance and on the other, manoeuvrability, speed of use and efficiency. Out of this combination comes the largest foldable crane in the world mounted behind the cab, produced by Fassi: the F1950RA. A first that sums up the spirit of innovation that drives the company, with its ability to be ever aware of market demands in order to satisfy new requirements and move in parallel with developments in the most wide-ranging construction sectors.

Fassi produces the largest foldable crane in the world mounted behind the cab. Thus the F1950RA bursts onto the scene of the truck-mounted crane market segment, offering a solution that can blend high performance levels with the traditional advantages of an articulated crane: efficiency, speed of use and movement, manoeuvrability and reliability.



The competitive edge

It's a fact that over the last few years the lifting moment of Fassi cranes has increased steadily, specifically because articulated cranes have proven by their very nature to be more efficient than mobile cranes of small dimensions. Fassi cranes in fact can be installed on conventional vehicles that move more quickly, and they are not subject to traffic restrictions in town centres or in areas where vehicle access is complex. Moreover, when they are positioned they occupy less space than a mobile crane facilitating logistics

around the area of operation (for example by making it easier for cars to pass on the road) and speed of execution. All of this translates into greater versatility, which underlies a rapid return on investment.

The value of design

The challenge of the F1950 project was to develop a high-performance machine which could be mounted on a traditional vehicle – in other words, keep within the 32-tonne gross vehicle weight (GVW) limit. To tackle this innovation Fassi

was able to rely on its background of knowledge acquired with the F1500RA, further refining the design calculation method, and exploiting the strengths and reliability of ultra-high-strength steels. It is enough to consider that with a weight increase of 8% compared with the F1500RA it has been possible to develop an articulated crane that can achieve performance increases of up to 34%. The team that worked on develop the F1950RA has developed a genuinely pioneering solution by obtaining maximum performance from the machine, steels and control, drawing on all of its previous experience, consolidated by the testing demands of the market. |





The challenge of the F1950RA project was to develop a high-performance machine which could be mounted on a traditional vehicle – in other words, keep within the 32-tonne gross vehicle weight (GVW) limit.





With a weight increase of just 8% compared with the F1500RA model, it has been possible to develop an articulated crane that can achieve performance increases of up to 34%.

The new F1950RA he-dynamic: technical specifications

The versions

There will be three basic versions:

1. Version .24 with 4 hydraulic extension booms (outreach 11.00 metres) Lifting capacity: 137.6 tm. Weight: 12,700 kg
2. Version .26 with 6 hydraulic extension booms (outreach 15.25 metres) Lifting capacity: 131.5 tm. Weight: 13,450 kg
3. Version .28 with 8 hydraulic extension booms (outreach 19.40 metres) Lifting capacity: 129.0 tm. Weight: 14,250 kg

Two combinations with hydraulic jib with 6 booms and JDP are also foreseen.

Technical characteristics

- Continuous rotation on turntable
- Base version for total integrated sub-frame
- Boom connection system with assembly double rams and dual linkages
- Hydraulic extendable booms (up to 8) with MPES extension system
- Distance between spread: 11,000 mm
- Hydraulically tilting outriggers controlled by radio remote
- Two oil tanks, capacity 260 litres each
- Two oil coolers
- Dual hydraulic circuit with pump flow of 100+100 litres

Electronic devices

Fully equipped, including:

- Load Sensing (LS);
- Fassi Electronic Control System (FX)
- Integrated Machine Control (IMC)
- Automatic Dynamic Control (ADC)

Fassi in the spotlight at the European Truck Racing Championship

The company sponsored the event at the Misano circuit in Italy and the Nürburgring in Germany. Display stands, tests and meetings with the press were on the agenda during these major events, which are part of the company's brand enhancement policy at the national and international level.

The Fassi Group was in the spotlight at Misano and at the Nürburgring, two of the main circuits in the 2011 European Truck Racing Championship.

Among juggernauts and acrobatic displays, the Bergamo-based company, which has always been active in processes of innovation and internationalisation, took to the track as the official sponsor of the event which took place in Misano Adriatico over the weekend from May 20th to 22nd. A choice prompted by the desire to develop new promotion strategies and get even closer to its own sales and distribution network.

The European Truck Racing Championship, which got underway in April in Donington, England, and is scheduled to run until October, represents an important meeting point between manufacturers from all over the world and fans.

Fassi was present in Misano Adriatico with two stands: a corporate one in the press conference area and another one of around 1,000 square metres at the A/B Grandstand, organised so that anyone interested could try out no less than four different cranes, testing out their various qualities. Turnout during the Italian stage was very positive, recording an increase of 15 percent compared with 2010. No fewer than 600 customers, invited directly by the company, took part in the event and 120 of them tried their hand with the machines at the testing ground.

The Misano "Three Days" kicked off on Friday 20 May with the meeting of the Fassi sales network, which saw the partici-

pation and involvement of 30 distributors. The company's managing director Giovanni Fassi, sales director Luigi Porta and domestic sales manager Mauro Dellacasa were all there. After an introduction that gave the opportunity to outline the current state of the market, a series of important points were touched upon, including a presentation of new projects, training centres, and a presentation of the new website for second-hand Fassi cranes.

On Saturday and Sunday everyone's attention turned directly to the circuit, to the Fassi testing ground and to the spectacular practice sessions and race between the various trucks that challenged each other in front of a packed crowd.

After the Misano event, Fassi's experience in the truck world continued at the Nürburgring, in Germany, on the occasion of the fifth round of the European Championship. From July 8 to 10 the company, which was present with a 350-square-metre stand including the testing ground, experienced the adrenalin, atmosphere and excitement of racing on

German soil. |





The Fassi design for an articulated tower-mounted crane



Fassi's F1500RA solution with jib and winch for the University of Maryland Shock Trauma Center in Central Baltimore, Maryland. Used on an extremely complex construction site area where it was impossible to install traditional tower cranes.



Schuster Concrete owns and deploys a fleet of 9 Potain tower cranes in the Baltimore, Maryland area. Usually, for the construction of a 10-storey building, a normal tower crane that can cover the building's footprint is used. In this case the building to be constructed was situated in the only undeveloped corner of the block, and to further complicate it in proximity to a rescue helicopter landing pad.

A critical situation, then, given the presence of a whole series of obstacles that would have compromised a tower crane's free 360-degree rotation. Moreover, another factor adding to the complexity, a tower crane has to maintain total safety and stability even in the event of high winds, which is why it has to stand above everything that surrounds it.

Taking all of this into account, the construction firm considered various options for setting up the site, weighing up alternative solutions to the use of

a traditional tower crane. For example, a number of options regarded the use of a large crawler crane, or a mobile crane at street level. These solutions, nonetheless, would have compromised the logistics connected not only to heavy traffic in the area but also and above all the free movement of ambulances based at the nearby emergency department.

Solution: Fassi's F1500RA crane with jib and winch

One of the stand-out features of Fassi's articulated cranes (see the article on page 20 in this issue of Without Compromise) is their guarantee of high performance with a working configuration of 20° angle formed between the inner and outer boom in relation to the column. Fassi cranes can also extend the hydraulic extensions under full load from completely retracted to completely extended. The latter requirement proved to be essential, as during construction site activities it would be necessary to ensure that



**Fassi calling USA:
Fascan International, INC answers**

What does selling the Fassi brand mean to you?

Selling the Fassi brand means supplying the end user with a package of absolute quality which always guarantees the best possible performance.

What are the most popular applications for trucks with articulated cranes in your market?

Moving building materials, roof maintenance, oil &



the nearby heliport could be fully operational. With a maximum of just 7 minutes' warning, the crane – even when fully loaded – would need to return the configuration of the booms to 20° and with the extensions retracted to allow the helicopter to land correctly. On top of that, once the helicopter has landed, for safety reasons, the crane can continue site operations by maintaining the 20° configuration of the booms, but with free outreach for the extensions.

Taking all of this into account, the engineers deemed that the best solution for this site would be the combination of Fassi's F1500RA articulated crane installed on a TG-23 model Potain tower belonging to Schuster Concrete, capable of guaranteeing maximum crane uptime without using counterweights.

A specific base, devised by Fassi's design team, was then built, to install the subframe of the F1500RA on the tower. The 3-metre section of the tower beneath the crane was adapted so that it can include two piston

gas, public utilities, railway maintenance and military applications

What's the general market situation in the area you are responsible for?

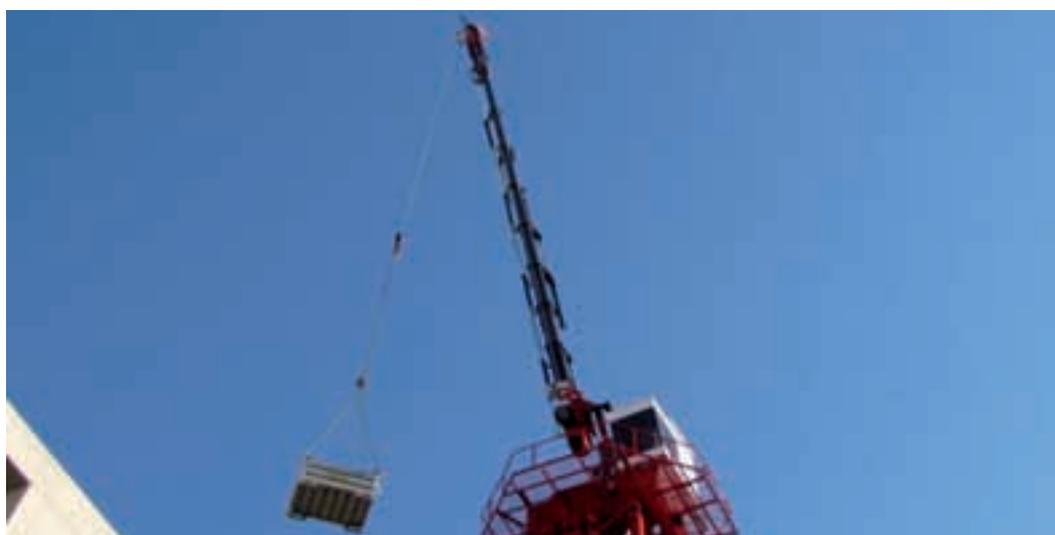
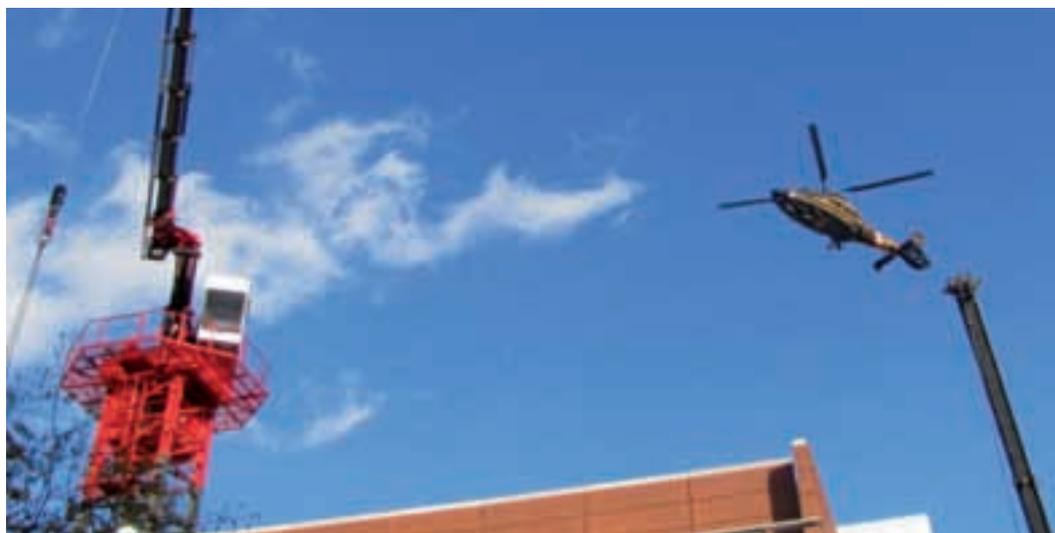
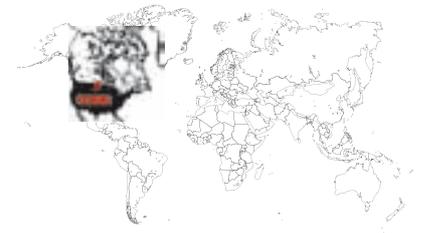
All construction-related markets are still recovering slowly. The oil and gas and the military markets are showing signs of life. Investments made by public utilities companies are stable and thanks in accordance with the pollutions regulation.

pumps for driving the 60-CV electric motors. Hydraulic tanks of around 300 litres were manufactured. A 20-CV diesel pump was used as an emergency back-up in case power goes down, making it possible in the event of emergency to lower the boom and load safely to the ground at reduced speed.

A 440-volt power cable was connected from the nearby hospital to the tower to provide the power needed by distributed to the pumps and to the crane via a 12-volt transformer.

A large aerial crane operator cabin (1.2 x 2.4 x 2.1 metres) was installed at the top of the tower next to the Fassi crane to enable the operator to work as efficiently as possible via the HBC radio remote control with 8 standard functions, which could be deactivated in order to avoid interference with the helicopter navigation system.

The crane was installed in mid-November 2010, and used full-time for the entire period of hospital expansion works. |



Railway sector, a customised vehicle for installing suspended electric line with Fassi cranes

Australia, a special set-up operating on railway tracks without the use of outriggers that utilises a Fassi F130AT.12 crane and a Micro M25A.13





This project represented a significant challenge, as the unit would have to operate on rails and move forwards and backwards using the controls situated on the extended platform, without outriggers.

The weight distribution and total mass proved to be critical factors and it was necessary to specify them with precision during the design stage and test them during the installation stage. 600 Cranes, Australasia the Fassi Cranes dealer in Australia, worked closely with Gibson Tru-Body during the



design and installation of the long-wheel-base Isuzu FSR 850 vehicle, a unit capable of travelling on roads and on railway tracks of various gauges.

The solution identified includes a radio remote-controlled Fassi F130AT.12 crane installed to the rear and an extendable IMAI AL24-1200 maintenance platform, with a maximum lateral width of 5 metres and a maximum working height of 10 metres. A radio remote-controlled Fassi M25A13 crane is installed to the front in order to make the task of keeping the electrical power cable in position during operations. Fassi outriggers were also installed, fitted to the front and to the rear for use of the platform laterally in relation to the tracks. Both cranes are equipped with a lifting moment limiting device and a function to limit the lateral rotation, to allow the operator to work in safety regardless of the rotation configuration.

The IMAI maintenance platform for two people, which is rotating and self-levelling, is equipped with integrated load cells with a capacity of 300 kg when the platform is extended and 500 kg when it is retracted.

Traction is interrupted on rails by means of the rear non-driving wheels and the front railway wheels.

The vehicle has three driving modes: road, rails, and movement via controls positioned directly on the platform.

- In road mode the vehicle is driven by means of a traditional driver's cab.
- The rail mode, too, consists of driving the vehicle on tracks once again from the cab, using the vehicle's standard transmission.
- Movement on rails by means of controls positioned on the platform consists of driving the vehicle directly from the pla-



transform via the joystick installed on the control console which operates by means of a hydrostatic gear fitted to the engine's gimbal transmission.

The cranes and equipments are driven hydraulically by means of a power take-off integrated with the vehicle's transmission unit. A 24-volt emergency power supply unit can be used for each item of hydraulic equipment, including the cranes. A manual emergency pump is also available to facilitate the manual use of railway equipment and of the suspension.

The pantograph fitted above the cab used in moving the vehicle on rails is raised, lowered and locked in position automatically by means of a pneumatic control from the dashboard screen.

A reversible screen connected to the video camera and mounted on the dashboard shows a view of the rear part of the vehicle in reverse mode. An auxiliary alternator-battery system is fitted to power the entire control system and all of the external vehicle lighting.

The 240-volt power supply on the platform is provided by a "3-in-1" diesel-fuelled unit. The controls for this "3-in-1 unit" are located on the platform's control console and include the engine start and stop controls. |

Fassi calling Australia: 600 Crane Australasia Pty LTD answers

What does selling the Fassi brand mean to you?

We've been selling cranes for trucks for more or less 30 years, and Fassi cranes for nearly 15. We took the decision to move over to Fassi after various comparisons between suppliers of articulated hydraulic cranes. We're convinced that we made the right choice and in all these years we've never had second thoughts about it. Fassi has proven to be a supplier on a global level that provides solid support for its products and is without a doubt the most innovative manufacturer in developing new crane models.

What are the most popular applications for trucks with articulated cranes in your market?

The most common applications are in goods transportation (frames and girders, glass, wallpaper, steel and general transport), in maintenance carried out by local government and public utilities (energy and suppliers of water) and in logistics and the mining sector.

What's the general market situation in the area you are responsible for?

Although Australia as a whole has weathered the economic crisis better than many other countries, we're still exposed to the turbulence of global economic trends. Confidence among firms is variable, depending on the way the wind is blowing. We're seeing large investments in the mining sector and in infrastructure, driven by an increase in government funding for various projects. On a smaller scale, the first incentive packages introduced by the government for small and medium-sized businesses have led to an improvement, mainly in the transport sector.

Fassi in action to recover the "Esperanza"



Last 28th November 2010, a fire developed in the engine room of the South Korean fishing vessel "Esperanza" while it was docked at the port of Montevideo. The fire, which spread rapidly through the entire ship, required the intervention of firefighters, with support from tugboats with firefighting equipment. After more than 6 hours fighting the flames, the ship keeled over and sank on the spot, making the dock unusable for over 13 months, with subsequent damage for the port and related risks of environmental contamination. During this period, several attempts to recover the vessel were made, without success, by companies in the region, until the Uruguayan company, Servicios Maritimos, with the ship Titon, which had been launched just over a year previously and on which an F1400AFM.24 crane with winch was installed, was commissioned to recover the ship in order to free the wharf, achieving its goal in a little over a month.

During this period between 16th January and 24th February 2011, the date on which the ship was brought back to the surface, the F1400AFM was decisive in all of the necessary logistical support, including, for example, the use of equipment for salvaging materials from inside it or for removing and subsequently positioning significant parts of the ship's weight. In this manner, it was possible to develop a number of watertight compartments, obtaining sufficient buoyancy

thanks to the intake of air and removal of water using immersion pumps. The company that carried out the work expressed its complete satisfaction with the choice of Fassi cranes as the main component of the equipment used in the recover operation.

Specialised solutions for the marine sector

The Fassi Group makes all of its know-how available for various lifting requirements in a naval setting, in both port and shipbuilding contexts. Fassi's solutions make up a complete range that is capable of withstanding over time the aggressive atmospheric conditions that characterise the marine environment and is suitable for logistical and environmental situations in which load moving requires speed, precision, manoeuvrability and operating safety.

Maximum flexibility and a vast range of potential uses

Fassi cranes lend themselves to being used in ports and shipyards for all material handling operations. In addition, thanks to the specially designed base and centralised controls, they can be fitted permanently on every type of vessel: from freighters to fishing and recreational vessels. Their flexibility in use is ensured by the complete range of accessories that Fassi offers: from hydraulic and manual extensions to hydrau-



Thanks to a Fassi F1400AFM.24 crane with winch installed on the Titon, the operation to recover a fishing vessel that had sunk in the port of Montevideo was carried out successfully



lic winches installed on the crane's outer boom, from buckets to hydraulic grabbers. An electrohydraulic unit with a central control unit manufactured in accordance with specific standards is also available for independent crane operation.

A structure where every component is protected.

Each Fassi machine is protected in the best possible way so that it can tackle the most extreme working conditions, even in a marine environment, while maintaining its high standards of performance. A special treatment consisting of hardened chemical nickel-plating (thickness 50 μ) and chrome-plating (thickness 100 μ) is

applied to the rods of the inner and outer rams, while the rods of the boom extension rams are treated using a special double chrome process. The internal chrome plating of the rotation cylinders is double thickness. Painting is carried out before assembly using a bicomponent epoxy undercoat (thickness 40/50 μ) and two coats of polyurethane bicomponent finishing enamel (thickness 60/80 μ). The hydraulic distributor also comes in a version designed for the marine environment, while the electrical components boast an IP67 protection rating. Optional extras such as pipe fittings, pipes and other stainless steel parts are available on request. |

Fassi calling Uruguay responds Manger LTDA

What does selling the Fassi brand mean to you?

It means selling a product of excellence with advanced control systems that become decisive when lifting applications require the utmost precision in operation. What's more, Fassi offers a customer assistance and technical support service which without a doubt gives it the edge in sorting out any after-sales issues. In short, selling Fassi products has always been and is still a great source of satisfaction that allows us to provide customers with functional solutions of excellent quality.

What are the most popular applications for trucks with articulated cranes in your market?

The crane in greatest demand belongs to the small range. It's the F50A0.23 Active model, which is often ordered with a basket. Our core sectors, construction and goods transport, mainly require cranes in the mid-sized range: the ones between the F245A model and the F385A model.

What's the general market situation in the area you are responsible for?

In general the situation is positive. Uruguay represents a small market for crane products. Local commercial legislation makes it possible to import second-hand cranes from abroad. We're convinced now that it will pay to differentiate ourselves by offering state-of-the-art cranes (complete with moment lifting moment limiting device) to set ourselves apart from our competitors, who come in particular from the Brazilian market.

FASSI

www.fassi.com

