

FSC/SII  
FSC/S  
FSC/H  
FSC/M  
FSC/L



FASSI STABILITY CONTROL



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# FASSI STABILITY CONTROL

## UTMOST CONTROL OF STABILITY CONDITIONS

Fassi has developed the FSC “Fassi Stability Control” systems, available in different versions specifically designed for each type of crane, to best comply with Machine Directive 2006/42/EC and to apply the corresponding technical standard EN 12999:2011, which requires cranes which have a lifting capacity of at least 1000 kg or a lifting moment equal to and above 40000 Nm to be equipped with vehicle stability control in the safety function carried out by the lifting moment limiting device.

These systems differ according to crane models and respective configurations. In particular, the S (Super) version, featuring fully automatic management and which is installable exclusively on cranes equipped with FX500 or FX900 electronic device, RCH, RCS or V7 RRC radio control and hydraulically-extendable outriggers, is a completely innovative product from an engineering and functional standpoint, and consequently worthy of a thorough and in-depth description.

New technological opportunities, innovative spirit and regulatory drive are the main factors that represent the cornerstones of the Fassi Stability Control system. This is why Fassi’s technology, in addition to satisfying new regulations issued by the European regulatory body (CEN), takes into account the various particular features of the range, offering a system with different executions depending on the crane models. This electronic system significantly improves crane control conditions, thus making it easier to use the crane. By working with Fassi cranes in safe conditions, you can be sure to have excellent versatility of use, combined with the best lifting capacity.

The FSC system automatically limits crane operation in the event that all conditions needed to ensure its stability are not satisfied: extension of the lateral supports and positioning of the outrigger rams. This is done through two devices: the



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proximity sensor for verifying the support on the ground of the outrigger rams and the encoder/micro-switch cable reel that detects the exit of the lateral extension support.

The operator is in the position to monitor every step. Information about crane status and the authorization to use the crane once stabilization has been achieved are shown on the radio control display and on the user panel display on the crane.

### VERSATILITY

With the FSC/S and FSC/SII versions, if the working positions of the outriggers' lateral extension supports and the tilting angle of the crane base are found to be unstable, an automatic decrease occurs in terms of the rating of the crane's performance, the lifting moment limiting device is activated and the working speed is reduced.

### CONTROL AS WELL AS IMPROVED EFFICIENCY

Compared to other systems, the Fassi FSC/S and FSC/SII versions introduce more sophisticated safety management: it carries out a double stabilisation check by verifying the position of the outriggers' lateral extension supports and of the base tilting angle thanks to a tilting sensor with double XY axis. As a whole, the system is highly versatile, and it always prioritises and ensures the highest crane performances under conditions of total control.



The electronic device that controls the lifting moment and allows the activation of different working zones, according to the stability of the unit truck/crane. Moreover, it transmits and records the work data.



New generation digital radio control that can be exclusively coupled with Fassi products; it's equipped with a large graphic display for the remote control of the crane functions.



Proximity sensor to check if the outrigger rams are on the ground.

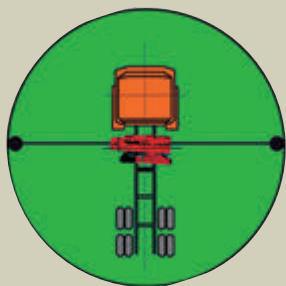


Micro-switch/Encoder to detect the extension of the lateral support.



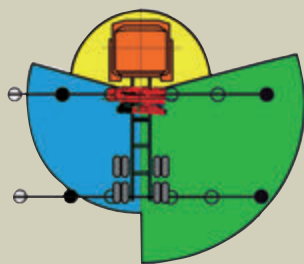
Inclination sensors to guarantee a more sophisticated management of the control.





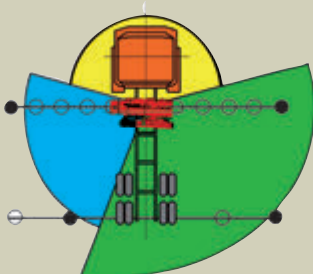
## FSC / L

The FSC/L system can be installed, as an option, on cranes from the Micro range to F275A e-active models. It can be fitted on models equipped with both hydraulic HO and electronic FX lifting moment limiting devices. It does not include a differentiated management of the work areas and a distinction between left and right work area with respect to the vehicle. The system checks the position of the outriggers' lateral extension supports (of the crane and, if necessary, of the additional crossbeam) and the positioning of the relevant outrigger rams in the working positions, authorizing crane use only if the lateral extensions are completely extended on both sides and the outrigger arms are working on the ground.



## FSC / M

The FSC/M system can be installed on cranes from F50A active/e-active up to F275A e-active. This system can only be mounted on cranes equipped with a FX500 electronic device. The system detects the left and right work areas of the vehicle, and manages the lifting moment limiting device for two work areas (differentiated limiting device: above the body with maximum capacity and above the cab with reduced capacity), and two (M1 version) or three (M2 version) different activation levels of the lifting moment limiting device, according to the position of the outriggers' lateral extension supports.



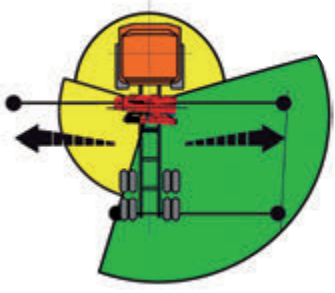
## FSC / H

The FSC/H system adds more operative possibilities to the already excellent performances of the FSC/M system. While the M2 system has 3 detection positions, this new system has several positions for the crane outriggers and for the related supplementary outriggers, optimizing the lifting capacity in relation to the stability reached. To understand the working capacity of the machine in relation to crane's current stability configuration, the block pressure is expressed as a % of the nominal value, so that the user gets direct information about the lifting capacity reached.



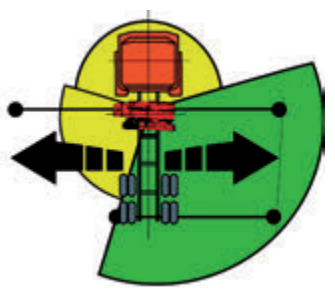
# FASSI STABILITY CONTROL

## STABILITY CONTROL SYSTEMS



### FSC / S

The FSC/S system comes as a standard configuration for the range of crane models from the F245A dynamic/e-dynamic up to the F2150RAL xhe-dynamic. It can be installed, as an option, on all the other crane models that are already equipped with FX500 or FX900, RCH/RCS or V7RRC radio control and hydraulically extendable outriggers. The system detects the right and left work areas of the vehicle and automatically manages the lifting moment limiting device for two work areas: above the cab and above the body, depending on the stability levels in the two sectors. In both sectors, the lifting moment limiting device system starts working on its own based on the position of the outriggers' lateral extension supports (closed, partially or fully extended), verified by means of the linear encoders. Furthermore, a tilting sensor that measures the horizontal position of the crane with reference to the inclination of the crane's base crossbeam, completely managed by dynamic software, limits crane performances and protects the different working configurations with respect to the sector the crane is in, the outriggers' positions/extension and the inclination of the crane base. When the outriggers are not fully extended, the lifting moment limiting device activation pressure is recalculated and reduced and, according to the position of the crane arms, there may be a reduction in the working speed. The additional crossbeam, on the other hand, is managed for fully extended, retracted or partially extended outriggers if the additional crossbeam has double lateral extension supports. Moreover, the system can automatically read the effect of a possible counterweight and the presence of additional outriggers in addition to the standard number.



### FSC / SII

The FSC / SII system is a standard fitting for cranes with a lifting capacity of over 50 tons/m in the xhe-dynamic versions and as an additional option for he-dynamic versions. In terms of function, it is similar to the FSC/S system, but it differs in the reduction of the minimum stability area, thanks to a particularly developed tilt sensor (the crane operates at full capacity from the moment that the supplementary crossbar reaches 25% of its full extension) and to the increase of maximum working angles on an inclined surface.

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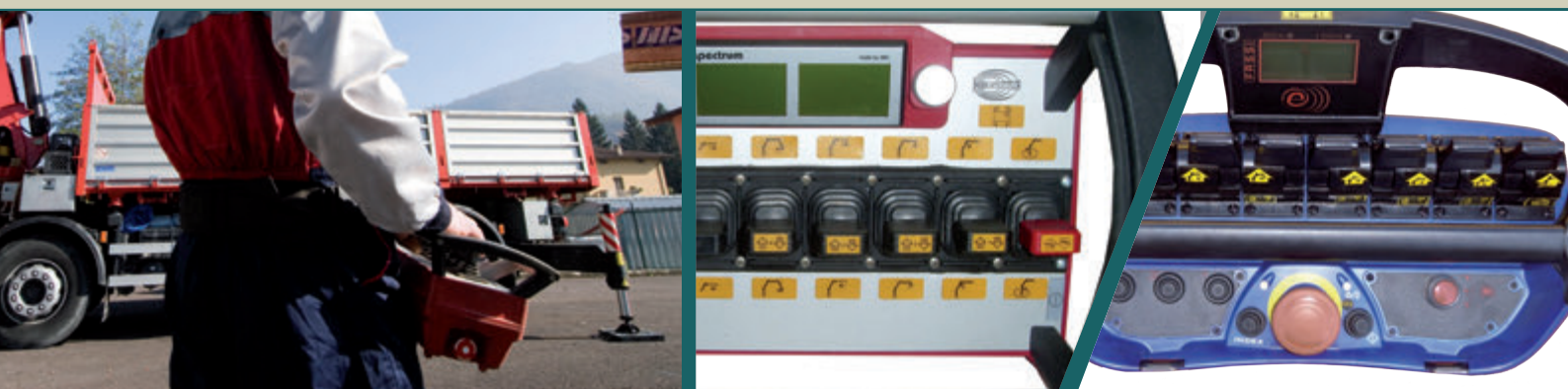
# FASSI STABILITY CONTROL

## OPERATOR INTERACTION

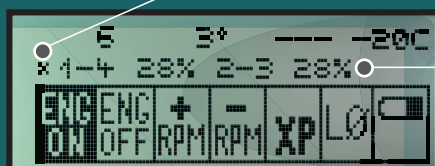
FSC control systems:

- 1) calculate the possible working area for all angles of rotation for the arms, and for all situations of stability.
- 2) allow for the immediate and precise identification of the vehicle's stability or the stability of any other device on which the crane could be installed, making full use of the crane's capacities, in the most efficient way possible.
- 3) communicate the operational status of the crane in real time, through the FX901 touch-screen display panel or on the display of the RCH/RCS or V7RRC radio control units.

## RADIO CONTROL UNITS RCH/RCS GRAPHIC INTERFACE



The new-generation digital radio remote control, exclusively compatible with Fassi products, with wide graphic display to remotely control the functions of the crane and, optionally, the vehicle and the outriggers as well. It automatically researches the available frequency and allows for continuous interaction between operator and crane. The RHC/RCS control units have a simple interface.

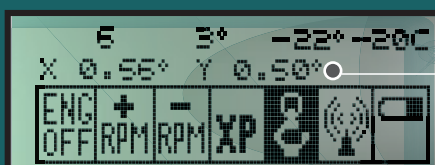


ASTERISK (RIGHT OR LEFT). INDICATES THE SIDE ON WHICH THE CRANE IS POSITIONED



OPERATIONAL LEVELS OR THE RELATIVE PERCENTAGES OF PRESSURE

FLASHING "LO" ICON. INSUFFICIENT STABILITY ALARM



"X" "Y": LATERAL AND LONGITUDINAL INCLINATION OF THE VEHICLE

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# DISPLAY FX500 GRAPHIC INTERFACE



The FX500 electronic system supplies the user with information regarding the status of the machine and, via the graphic display, communicates messages, alarms, percentages, pressures etc.

It has a clear and simple stabilisation menu, which automatically appears during the stabilisation phase.

TYPE OF STABILITY CONTROL

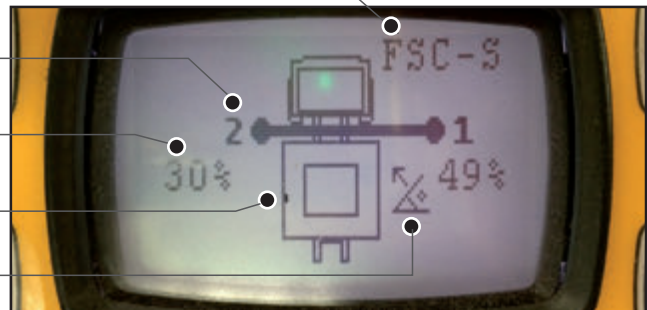
OUTRIGGER RAMS

CRANE PERFORMANCE: indicates operational levels or the relative percentages of pressure

INCLINATION OF THE VEHICLE

FLAG ICON EITHER A FLASHING OR STEADY LIGHT.

Stability limit alarm (STEADY) or insufficient stability (FLASHING)



## FSC - FASSI STABILITY CONTROL

### WORK IN CONTINUOUS SAFETY

Due to the components present in the crane's systems for FSC/L management, it is possible to safely stabilise the vehicle for crane models up to 25 tons/m that are not fitted with electronic FX devices and radio control units.

If the crane is correctly stabilised, the illumination of the LED on the solenoid near the main distributor will indicate that the crane can be used. In the case of precarious stability, the crane cannot be used as the solenoid will not be active, thus not providing pressure to the distributor.



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# FX901 TOUCH SCREEN DISPLAY

## THE EVOLUTION OF ELECTRONICS

FX901 is the innovative colour touchscreen user panel developed for the FX900 electronic system, which allows the operator to access all the information regarding the state of the machine. The interface is ideal because it allows the operator to view everything necessary to control the crane's functions on the large 7" colour graphic display. It also simplifies navigation of the programme's menus when checking the components or activation of the devices on board the machine.

FX901 is fitted as standard on cranes equipped with the FX900 electronic system and belonging to the xhe-range while it is an available option for the he-range. These are the main features of the new FX901 user panel: 7 inch TFT colour LCD display that is also readable in direct sunlight, scratch-resistant glass, touch-sensitive and reacts even when operator is wearing gloves, a USB port to perform firmware updates as required and IP67 tested at -40°C.

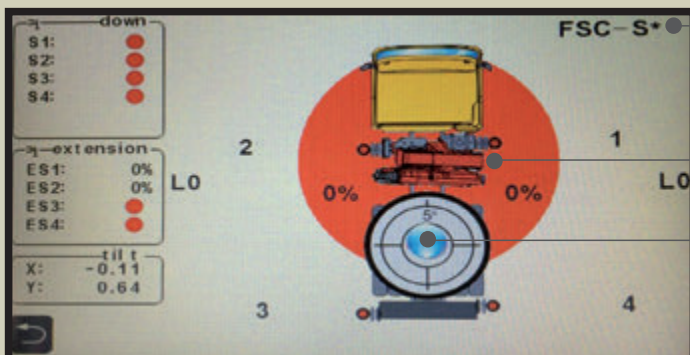
## CONTROL PANEL

# FX901 TOUCH SCREEN DISPLAY



In the stabilisation phase a screen specially dedicated to the process will automatically appear, and can be consulted at any time by pressing the virtual stabiliser button when working via manual commands or with the radio control unit switched off. The configuration of the crane, stabilisers and sectors represent the actual working situation. Each element is drawn according to the state in which it is in at that moment.

### STABILITY MENU 1



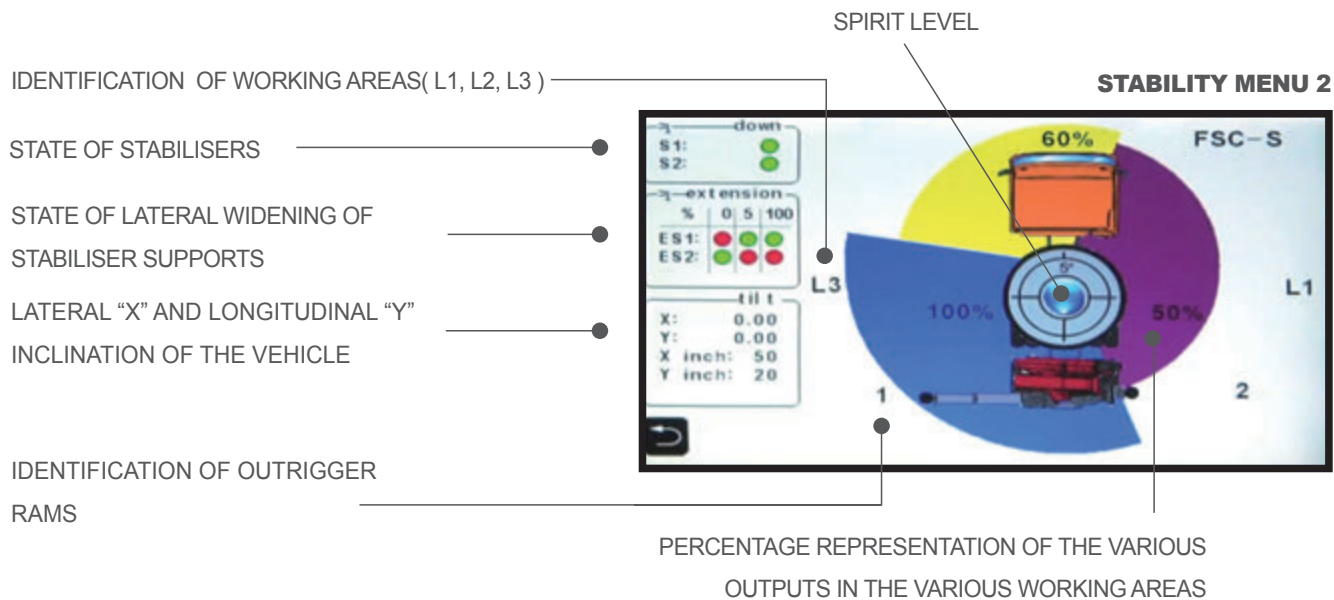
THE ACTIVE STABILITY CONTROL SYSTEM

POSITIONING OF THE CRANE SET-UP

SPIRIT LEVEL



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# ADVANTAGES OF THE TOUCH SCREEN DISPLAY PANEL



- Detailed information on the crane's usage status through a dynamic graphic representation of stabilisation with real-time status of the operational configuration.
- Convenient anti-reflection and scratch-resistant touch-screen which can be used even with work gloves.
- Rapid reading of information with clear indicators signalling the activation of devices.
- Protected by highly resistant carbon-look casing.

TOUCH SCREEN DISPLAY PANEL IS AVAILABLE FOR ALL CRANE MODELS EQUIPPED WITH THE FX900 SYSTEM



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# THE NEW V7 RADIO CONTROL UNITS

## V7

### THE EVOLUTION OF ELECTRONICS

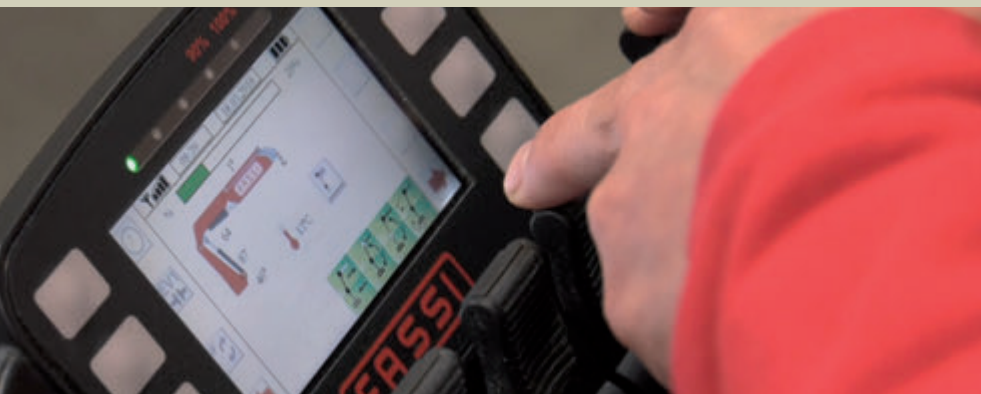
The new V7RRC radio control units, which can be used exclusively with Fassi cranes, have a large graphic display for the remote control of the crane's functions and, on request, also options regarding the vehicle and the stabilisers. Fassi's Research and Development Department has created an advanced control and command interface which renders the use of their cranes ever more precise and efficient. This is made possible by the development of increasingly sophisticated proprietary control technologies, which meet the need for clear communication with the system that is being controlled.

The introduction of the latest V7 remote controls confirms Fassi's status as a leader in innovation in the lifting sector.

## RADIO CONTROL UNITS

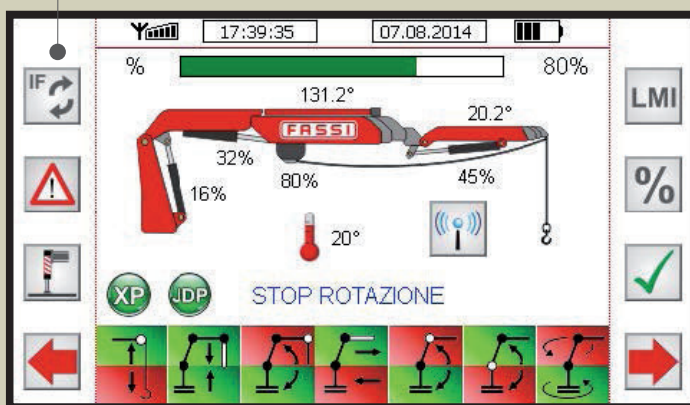
# V7

### GRAPHIC INTERFACE



The new graphic interface of Fassi's V7 remote controls represents an improvement in the efficiency of the communication between the crane and its operator, enabling the operator to detect and understand each occurrence, to be able to optimise their work.

#### MAIN MENU



SCROLL INDICATOR ICON

ALARM EXCLUSION

CHANGE IN PRESSURE READING

MENU ACCESS

VIRTUAL BUTTON

DYNAMIC DASHBOARD

**STABILISER CONTROL  
(ACCESS TO STABILITY MENU)**

BLOCKED/ACTIVE ALARMS

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**STABILITY MENU**

TYPE OF STABILITY CONTROL: FSC-S

STATUS OF STABILISER SUPPORT EXTENSIONS: ES1 100%, ES2 100%, ES3 100%, ES4 100%

RETURN TO CRANE SCREEN: [Home icon]

VISUALISATION OF LATERAL AND LONGITUDINAL INCLINATION: X 1.35°, Y -0.50°

VISUALISATION OF WARNING ICON IN THE CASE THAT THE LIMIT OF PERMITTED INCLINATION IN STABILISATION IS EXCEEDED: [Warning icon]

LOAD CAPACITY AND LEVELS OF THE VARIOUS AREAS: 50%, L1 70%, 90% L2, 100%



## ADVANTAGES OF THE FASSI REMOTE CONTROLS V7



- Large colour screen, visible even in direct sunlight, with wide viewing angle.
- Availability of 6/8 function keys on each side of the display to replace the old control system, in addition to the speed dial keys already seen on previous-generation remote controls.
- Dynamic digital dashboard with instant indication of available manoeuvres and operational limits.
- Clear presentation of information, with icons and text showing working conditions of the crane, including the status of crane's functions and stability conditions – as well as diagnostic and maintenance information – all in accordance with international standards.
- Maximum safety settings, with text appearing in the operator's language.

FASSI V7 REMOTE CONTROLS ARE AVAILABLE FOR ALL CRANE MODELS EQUIPPED WITH THE FX900 SYSTEM

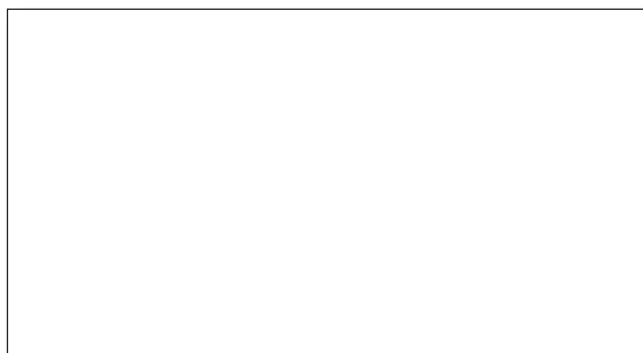


# FSC / CRANE MODELS IDENTIFICATION TABLE

|                           | FSC/SII | FSC/S | FSC/M | FSC/H | FSC/L |
|---------------------------|---------|-------|-------|-------|-------|
| Micro                     |         |       |       |       | •     |
| F26A active               |         |       |       |       | •     |
| F30CY active              |         |       |       |       | •     |
| F32A active               |         |       |       |       | •     |
| F40B active               |         |       |       |       | •     |
| F50A active / e-active    |         |       | •     |       | •     |
| F55A e-active             |         |       | •     |       | •     |
| F65B active / e-active    |         |       | •     |       | •     |
| F65B dynamic / e-dynamic  |         |       | •     |       | •     |
| F70B e-active             |         |       | •     |       | •     |
| F70B e-dynamic            |         |       | •     |       | •     |
| F85B active / e-active    |         | •^    | •     | •*    | •     |
| F85B dynamic / e-dynamic  |         | •^    | •     | •*    | •     |
| F90B e-active             |         | •^    | •     | •*    | •     |
| F90B e-dynamic            |         | •^    | •     | •*    | •     |
| F95A active / e-active    |         | •^    | •     | •*    | •     |
| F100B xe-dynamic          |         | •^    | •     | •*    | •     |
| F105A e-active            |         | •^    | •     | •*    | •     |
| F110B active / e-active   |         | •^    | •     | •*    | •     |
| F110B dynamic / e-dynamic |         | •^    | •     | •*    | •     |
| F120B e-active            |         | •^    | •     | •*    | •     |
| F120B e-dynamic           |         | •^    | •     | •*    | •     |
| F125A xe-dynamic          |         | •^    | •     | •*    | •     |
| F135A active / e-active   |         | •^    | •     | •*    | •     |
| F135A dynamic / e-dynamic |         | •^    | •     | •*    | •     |
| F155A active / e-active   |         | •^    | •     | •*    | •     |
| F155A dynamic / e-dynamic |         | •^    | •     | •*    | •     |
| F165A active / e-active   |         | •^    | •     | •*    | •     |
| F165A dynamic / e-dynamic |         | •^    | •     | •*    | •     |
| F175A active / e-active   |         | •^    | •     | •*    | •     |
| F175A dynamic / e-dynamic |         | •^    | •     | •*    | •     |
| F185A xe-dynamic          |         | •^    | •     | •*    | •     |
| F195A active / e-active   |         | •^    | •     | •*    | •     |
| F195A dynamic / e-dynamic |         | •^    | •     | •*    | •     |
| F215A active / e-active   |         | •^    | •     | •*    | •     |
| F215A dynamic / e-dynamic |         | •^    | •     | •*    | •     |
| F235A e-active            |         | •^    | •     | •*    | •     |
| F235A e-dynamic           |         | •^    | •     | •*    | •     |
| F245A active / e-active   |         | •^    | •     | •*    | •     |
| F245A e-dynamic           |         | •     |       | •*    |       |
| F255A xe-dynamic          |         | •^    | •     | •*    | •     |
| F275A e-active            |         | •^    | •     | •*    | •     |

|                        | FSC/SII | FSC/S | FSC/M | FSC/H | FSC/L |
|------------------------|---------|-------|-------|-------|-------|
| F275A e-dynamic        |         | •     |       | •*    |       |
| F295A e-dynamic        |         | •     |       | •*    |       |
| F295RA e-dynamic       |         | •     |       | •*    |       |
| F305RA xe-dynamic      |         | •     |       | •*    |       |
| F315A e-dynamic        |         | •     |       | •*    |       |
| F315RA e-dynamic       |         | •     |       | •*    |       |
| F335A e-dynamic        |         | •     |       | •*    |       |
| F335RA e-dynamic       |         | •     |       | •*    |       |
| F365A e-dynamic        |         | •     |       | •*    |       |
| F365RA e-dynamic       |         | •     |       | •*    |       |
| F385A e-dynamic        |         | •     |       | •*    |       |
| F385RA e-dynamic       |         | •     |       | •*    |       |
| F415A e-dynamic        |         | •     |       | •*    |       |
| F415RA e-dynamic       |         | •     |       | •*    |       |
| F425A e-dynamic        |         | •     |       | •*    |       |
| F425RA e-dynamic       |         | •     |       | •*    |       |
| F455A e-dynamic        |         | •     |       | •*    |       |
| F455RA e-dynamic       |         | •     |       | •*    |       |
| F485A xe-dynamic       |         | •     |       | •*    |       |
| F485RA xe-dynamic      |         | •     |       | •*    |       |
| F515RA e-dynamic       |         | •     |       | •*    |       |
| F545RA xe-dynamic      |         | •     |       | •*    |       |
| F600RA he-dynamic o    | •*      | •     |       |       |       |
| F660RA he-dynamic o    | •*      | •     |       |       |       |
| F710RA xhe-dynamic o   | •       |       |       |       |       |
| F720RA he-dynamic o    | •*      | •     |       |       |       |
| F800RA he-dynamic o    | •*      | •     |       |       |       |
| F820RA xhe-dynamic o   | •       |       |       |       |       |
| F950RA he-dynamic o    | •*      | •     |       |       |       |
| F990RA xhe-dynamic o   | •       |       |       |       |       |
| F1100RA he-dynamic o   | •*      | •     |       |       |       |
| F1150RA xhe-dynamic o  | •       |       |       |       |       |
| F1300RA he-dynamic o   | •*      | •     |       |       |       |
| F1350RA xhe-dynamic o  | •       |       |       |       |       |
| F1600RA he-dynamic o   | •*      | •     |       |       |       |
| F1600RAL he-dynamic o  | •*      | •     |       |       |       |
| F1650RA xhe-dynamic o  | •       |       |       |       |       |
| F1650RAL xhe-dynamic o | •       |       |       |       |       |
| F1950RA he-dynamic o   | •*      | •     |       |       |       |
| F1950RAL he-dynamic o  | •*      | •     |       |       |       |
| F2150RA xhe-dynamic o  | •       |       |       |       |       |
| F2150RAL xhe-dynamic o | •       |       |       |       |       |

• = available, •^= available only with FX, RCS/RCH radio remote control and hydraulic extension of the outriggers, •\*= on request, o = cranes equipped with the FX900 system



www.fassi.com

FASSI GRU S.p.A.  
Via Roma, 110  
24021 Albino (Bergamo) ITALY  
Tel- +39 035 776400  
Fax +39 035 755020  
http://www.fassi.com  
E-mail: fassi@fassi.com

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