

## Chapter 3 – Health and safety instructions

### 3.1 – Personnel in charge

For the activation of this device the operator must:

- be authorised and previously trained about operation (refer to standard ISO 9926-1– Cranes – Training of drivers – General);
- have knowledge of the content of the present manual;
- possess a certified professional training;
- have knowledge of the instructions of all the optional implements;
- be aware of the local standards and norms necessary to safely operate this device and its implements;
- be physically and psychologically suitable;
- not be under the influence of alcohol or drugs;
- possess concentration skill and prove to be responsible and reliable;
- possess the requested qualifications as per the local laws;
- respect the minimum working age prescribed in the country of operation.



A high risk for the operator and persons in the vicinity occurs if the device is used by an operator lacking of the proper qualifications, the necessary professional training, the suitable psycho-physical condition and the knowledge of the present instructions.



The operator is the only person in charge of the lifting device and its implements, their movements, the load movements and the whole working area of the crane.

### Use of personal protective equipment

According to the hazardous situation, use the proper personal protective equipment during all the operations with the device, such as:

- mounting,
- operation,
- cleaning and maintenance,
- repair,
- daily check.



## 3.2 – General instructions

This device is a working machine and must be used only by one operator. It has been built in conformity with the safety norms and directives in force in the EU; anyway unforeseen hazards could occur for persons, the device itself and other things.



It is prohibited for the operator to use the device if he is not able to guarantee his safety and the safety of the other persons and things, as well as of the device itself.



Operate the device only for the tasks and in the service conditions that are allowed by the present manual and the optional implement manuals.



It is forbidden to tamper with or remove safety and protection devices, plates, control symbols, signals and warnings.



If capacity, warning, instruction or manoeuvre plates are lacking or not visible, please contact a FASSI service centre for their replacement.



It is prohibited to move the vehicle with the crane not placed in one of the intended transport configurations.



It is forbidden to move the vehicle with suspended load.



The operator must know exactly the weight he has to lift.




Some residual risks remain, as they cannot be completely foreseeable. They may endanger the operator, the device and other persons and things, so it is necessary to be very careful while unfolding and folding the crane, stabilizing and handling loads.


Some of the residual risks linked mainly to load lifting and handling are described in the following paragraphs. Because of these risks, special attention is needed during operation.

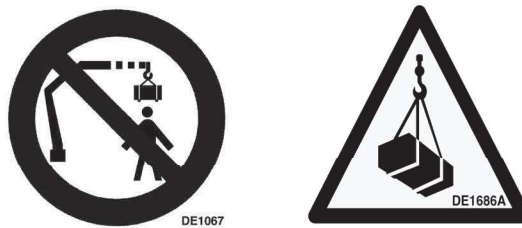
### 3.3 – Crushing, trapping and shearing danger

The crane is provided with a lot of moving parts that cannot be covered. The operator must always take into consideration this residual risk and avoid all the situations which may involve crushing, trapping and shearing danger while stabilizing the vehicle, moving the crane and handling the load.

The operator is responsible for himself and all the persons who work near the crane or may come close to it, even though not authorized.

 It is compulsory to enclose the working area. No one shall stop or pass in the crane working area. In this area it is forbidden to carry out other tasks.

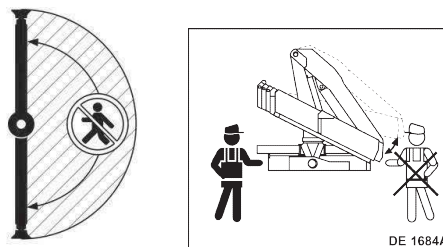
 It is prohibited to stop or pass under a suspended load.



 In areas concerning:


- outriggers moving to transport position;
- stand-up control station (if fitted) and rotating column;
- top seat control station (if fitted) and inner boom movement;
- rest positioning points of the boom system moving to transport position

it is not possible to mount protections, so follow the adhesive plates for shearing, trapping and crushing danger that are placed in the vicinity.

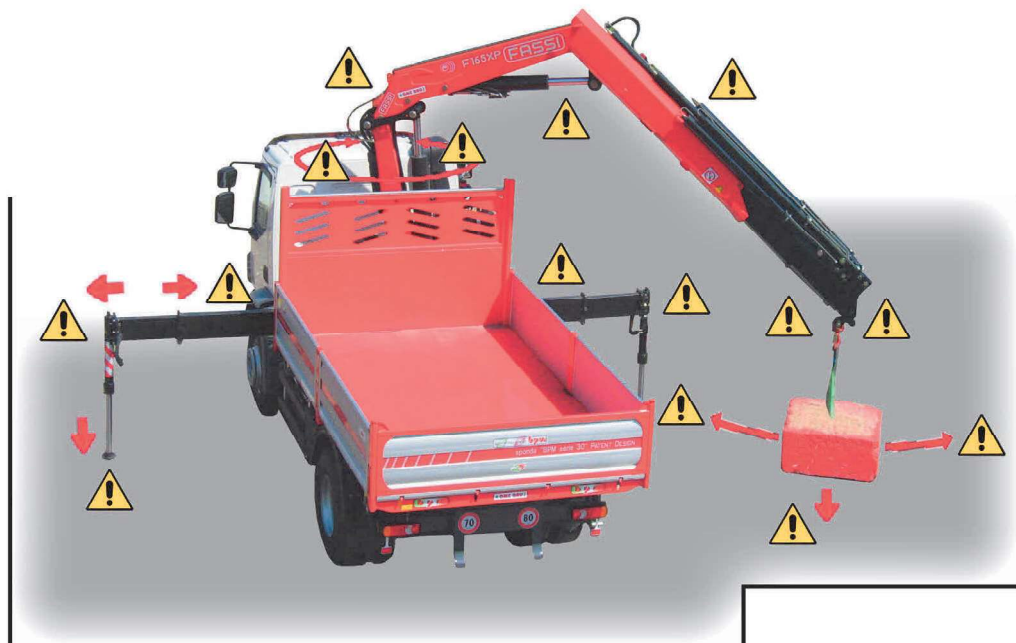



The minimum safety gaps related to parts of the human body are indicated in the following table. The figures represent not dangerous situations if the minimum gaps are observed. In case of crushing danger for different parts of the human body, consider the minimum gap requested for the bigger part.

Minimum gaps to avoid crushing of parts of the human body (ref. EN 349)					
Part of the body	Minimum gap (mm)	Figure	Part of the body	Minimum gap (mm)	Figure
Body	500		Head	300	
Leg	180		Foot	120	
Foot fingers	50		Arm	120	
Hand, wrist, fist	100		Hand finger	25	

 The non-observance of the minimum gaps may involve a grave risk or cause even serious accidents.

**Zones subjected to crushing, trapping and shearing danger**



 The image above represents the zones subjected to crushing, trapping and shearing danger. It has only illustrative function and is not complete of all the possible crane configurations.

### 3.4 – Electric shock danger



Keep the safety distance from high-voltage lines.

The minimum distance is seven (7) meters. For safe operation it is compulsory to follow the current local regulations.

The non-observance of the minimum distance may produce an electric arc (even fatal) for the operator and the persons in the vicinity.



It is absolutely prohibited to work under high-voltage lines. The crane is not insulated from electric contacts and thus is not equipped for working under high-voltage lines, not even for accidental contact.



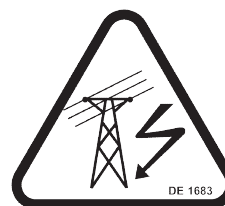
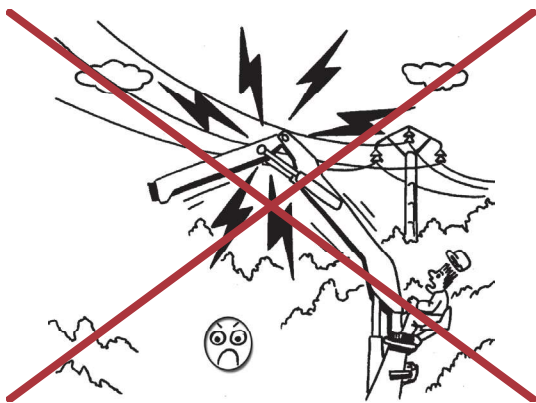
It is absolutely prohibited to operate the crane during thunderstorms.



It is forbidden to operate the crane in case of wind gusts: the wires of electric lines could swing and come into contact with the crane.

If the crane comes into contact with an electric line, follow this procedure:

- do not touch the crane, the vehicle or the load;
- prior to any movement, carefully consider the hazard. If you are closer than 10 meters from the crane, the vehicle, the load or the electric line, move at least 10 meters away with small steps in order to avoid an excessive electric potential difference between the feet;
- prevent anyone from coming close;
- call for help and ask somebody to de-energize the line;
- do not try to move an unfortunate before the power has been disengaged;
- if you are in the cab, stay inside without touching the bodywork: it is more dangerous if you go out before the line is de-energized;
- help the electrocuted person if you know the first-aid procedures, otherwise wait for the paramedics to arrive.



### 3.5 – Burn danger

During crane operation, oil and all the hydraulic system components reach high temperatures.

Do not touch hoses, pipes, quick coupling connectors and hydraulic system components while the crane is working.



Where it is not possible to mount protections, follow the adhesive plates of burn danger placed near the dangerous zones.



In order to avoid burns, the gas exhaust system must be covered or kept at a safe distance.

### 3.6 – Fall danger



It is forbidden to climb on the device.



It is forbidden to stand on the device (in case of stand-up or top seat control station) while the vehicle is moving.


To access the stand-up or top seat control station (if fitted), always use the dedicated ladder. Pay attention in order to avoid hitting the controls while ascending and descending. The ladder must be fitted and correctly mounted by the installer, as per the current regulations.




There is higher risk of falls and accidents for the operator and persons in the vicinity in case of snow, ice and dirt on controls, plates, support surfaces, steps and rises.




### 3.7 – Noise emission danger

 Permanent low or short high noise emission levels damage the health of operators and other persons in the working area.

 In hazardous situations, it is compulsory to use the personal protective equipment against noise.



While assessing the mounting, it is recommended to consider the minimum engine speed.

 If you use the radio remote control, it is recommended to work over 1 m far from the vehicle engine.

### 3.8 – Exhaust gas emission danger

Before starting the vehicle engine in an indoor space, ensure there is a proper ventilation. Eject exhaust gases from the control station by using proper piping in diameter and length.


### 3.9 – Danger due to unfavourable service conditions


It is forbidden to operate the crane:

- during thunderstorms or at wind speed higher than 13,8 m/s (50 km/h - maximum value of degree 6 of Beaufort scale; refer to paragraph 2.2 "Technical data");
- at environmental temperatures below -30°C and over +50°C.

Too high or low temperatures may damage hydraulic and electric system components and compromise the crane working.

If you use the crane in ice or snow condition, start the hydraulic system at the minimum engine speed and let the oil circulate for some minutes, till its warming.

 A wind gust may make an electric line swing and come into contact with the crane, involving an electric shock danger.

 A wind gust may cause loss of stability with consequent vehicle overturning and it may seriously damage operator, persons in the vicinity and crane.



A risk of electric shock due to lightnings occurs in case of thunderstorms: in this situation it is forbidden to operate the crane and it is compulsory to fold it into rest condition.



There is higher risk of falls and accidents for the operator and persons in the vicinity in case of snow, ice and dirt on controls, plates, support surfaces, steps and rises.



### 3.10 – Danger related to the control station



Before operating from the control station, carefully check there are no dangers for the operator (pay attention to vicinity of operator to the load, position of escapes, etc.).

In case of hazardous or dangerous situations for the operator, it is compulsory to operate the crane from a different control station. If it is not fitted, the crane must be equipped with radio remote control or remote control via cable.

The control station must be properly enlightened, in order to guarantee the safe working of the crane.

Load and working area must be clearly and fully visible to the operator. If this is not possible, the operator must receive instructions (checking the communication efficacy) by another operator who has the full view of the working area. Otherwise, he must provide the crane with a radio remote control, in order to have an unobstructed view of the working area. The operator must instruct his coworker so as to avoid mutual damage during manoeuvres.



The operator is the only person in charge of the lifting device and its implements, their movements, the load movements and the whole working area of the crane. Check the coworker's working conditions comply with the essential health, safety and welfare requirements.

Controls, control stations, support surfaces, rises and steps to access the stand-up or top seat control station (if fitted) must be clear of snow, ice, dirt (oil, grease, etc.) and any object.



There is higher risk of falls and accidents for the operator and persons in the vicinity in case of snow, ice and dirt on controls, plates, support surfaces, steps and rises.

During indoor operation, exhaust gases of the vehicle engine must be correctly ejected.

### 3.11 – Danger related to working area



Carefully check the working area and assess the possible risks for operator, persons in the vicinity and crane. In particular, pay attention to ground characteristics (see chapter 2 "General specifications"), clearance from scarps (see chapter 6 "Setting up for crane operation"), vicinity of operator to the load, possible impacts against building walls, balconies, gutters, scaffoldings, tree branches, other lifting devices or machines, electric lines or anything that could interfere with the manoeuvres.

Operate the crane with adequate lighting to perform crane work safely (see EN 12464-1 and EN 12464-2 - Light And Lighting - Lighting Of Work Places).

Load and working area must be clearly and fully visible to the operator.



It is prohibited to stop or pass under a suspended load.

Take proper measures to avoid the risk that various elements fall on operator, crane or control system.



It is compulsory to enclose the working area. No one shall stop or pass in the crane working area. In this area it is forbidden to carry out other tasks.



### 3.12 – Danger related to wrong operation



The crane may get damaged and/or overturn if the operator carries out a wrong operation due to lack of knowledge of the intended operating procedures and/or unsuitable psychophysical conditions.

The current regulations prescribe a proper personnel training prior to safely operating similar machines.



The operator is the only person in charge of the lifting device and its implements, their movements, the load movements and the whole working area of the crane.



It is forbidden to operate the crane in a psychophysical condition that is unsuitable for the use of a lifting device.

### 3.13 – Overturn danger



The crane may overturn, involving a very high risk of damage and accidents for operator and persons in the vicinity, especially under the following conditions:

- if it is not correctly stabilized;
- if you reenter or extend the outrigger supports without the crane being placed in rest condition;
- if you deactivate or tamper with safety devices;
- if you stabilize on a ground that is not sufficiently resistant according to the dimensions of the outrigger plate (see chapter 6 "Setting up for crane operation");
- if you increase the design speeds and/or the rated flow of the pump;
- if you exceed the allowed limits of outreach and/or load that are represented on the capacity plates;
- if you don't respect the service conditions indicated in the current manual.

### 3.14 – Danger due to overload and fatigue of the crane

The crane can get damaged because of fatigue or overload, with very high risk of damage and accidents for operator and persons in the vicinity, especially under the following conditions:

- if it is used differently from what is indicated in the present manual (for instance: exceeding the maximum number of cycles pertinent to the crane class, or increasing the design speed and/or the rated flow of the pump);
- if it is used for improper tasks (for instance: for side, oblique or reversal pull, for wood or scrap iron);
- if it is operated in unsuitable service conditions (for instance: corrosive environment, too high or too low temperature);
- if the intended capacity plates aren't respected.



Use the crane only for the intended tasks and in the service conditions described in the present instructions. Follow all the information indicated on the capacity plates.



In order to perform an ordinary and extra maintenance on the crane that guarantees its functionality and safety, conform to the indications of chapter 10 "Maintenance" of this manual.

### 3.15 – Danger due to overload of manual extensions

Manual extensions are controlled by the lifting moment limiting device (if fitted) only under the conditions described in chapter 9 “Use of implements”.



The electronic check system for load hooked on manual extensions is not always active (unlike the lifting moment limiting device of the crane), but it has to be activated by the operator just to check if the load can be handled safely.



Even if the lifting moment limiting device is fitted, the operator is obliged to observe the lifting diagrams represented on the capacity plates.



It is forbidden to exceed the allowed limits of outreach and load represented on the capacity plates.



Exceeding the allowed limits of outreach and load involves hazards of accidents (even serious) for operator and persons in the vicinity, vehicle overturning and breaking of crane components.

Carefully read chapter 9 “Use of implements” prior to working with manual extensions.

### 3.16 – Danger related to lifting moment limiting device and safety devices

For lifting moment limiting device and safety devices operation refer to chapter 4 “Safety devices and special functions”.



Even if the lifting moment limiting device is fitted, the operator is obliged to observe the lifting diagrams represented on the capacity plates.



It is forbidden to bypass, uninstall or tamper with the lifting moment limiting device and all the safety systems fitted on the crane.

While operating the crane, pay attention to the alarms generated by the lifting moment limiting device as well as the other safety devices and take the proper measures.

Perform a daily operational check of lifting moment limiting device and safety devices: replace the damaged or broken components in order to work safely and obtain the maximum crane performances.

FASSI declines any responsibility if not allowed interventions are carried out on the lifting moment limiting device or the safety systems.

### 3.17 – Danger related to use of implements

Pay special attention to assembly and disassembly of implements (extensions, buckets, baskets, etc.): before these operations, check their weight, fixing systems and relevant assembly/disassembly instructions. Evaluate the centre of gravity of implements and use the proper temporary fixing systems to avoid unexpected movements.

Prior to working with implements, carefully read their use and maintenance instructions.



Loads indicated on the capacity plates refer to crane without implements: so, prior to every lifting operation, it is necessary to deduct the weight of the optional implements mounted on the crane (e.g. manual extensions) from the load values represented on the plates.



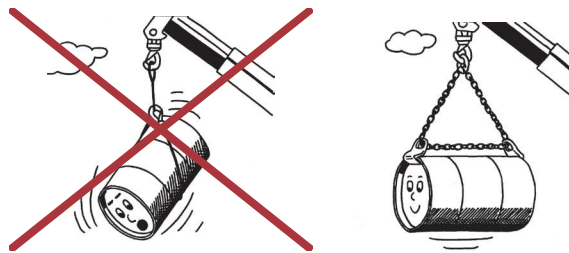
Correctly insert the fixing devices during operation and transport.

Sling implements in order to avoid unexpected movements during their transport on the vehicle.

### 3.18 – Danger resulting from wrong securing of loads

Pay special attention to slinging loads during both handling and loading/unloading operations.

Make sure the load is well secured and balanced and unexpected movements are prevented.



During load movements, pay attention in order to avoid impacts against possible obstacles.

### 3.19 – Danger related to crane transport






After folding the crane and reentering the outriggers, correctly fix all the crane parts in order to avoid the exit of extension boom sections and outriggers during transport. Check also that the crane is correctly placed in the rest locating pins in order to avoid outer boom fall and crane rotation.




In case of fittings where the crane lays in transport position inside the vehicle body or on the load, it is compulsory to properly block possible movements of the boom system and crane rotation.

High risk of accidents (even serious) occurs if crane and implements aren't secured against lateral movements and rotation.



-  Implements can be kept mounted on the extension boom sections of the crane (or of the hydraulic extension) only if maximum allowed overall dimensions are observed and implements are properly secured against possible uncontrolled movements.
-  Properly fix and balance the load, in order to avoid its fall from the vehicle during transport.
-  Take note of the vehicle (included load and implements) maximum dimensions. Observe the maximum overall dimension in folded position for the transit under tunnels, bridges, underpasses, power lines.





-  Observe the maximum allowed loads on the vehicle axles.

### 3.20 – Danger due to lacking or wrong maintenance

Maintenance is particularly important. If it is not carried out or it is performed in a wrong way, it may involve serious damages to things or persons.

In chapter 10 “Maintenance” you find all the necessary operations to maintain your crane efficient and avoid damages to things and persons due to crane bad working because of lacking or wrong maintenance.

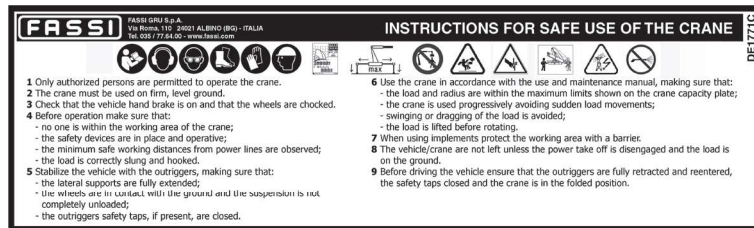
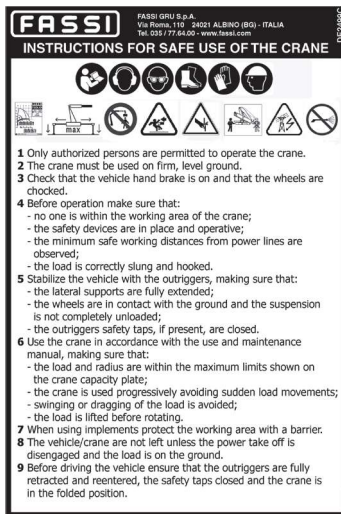
-  When you connect/disconnect any hydraulic pipe or hose, take proper preventative measures to make sure there is no pressure in the system (even if the feeding is deactivated).
-  FASSI declines any responsibility for ruptures or damages to product, persons or things due to a lack of maintenance.

### 3.21 – Danger due to special working conditions

If you need to work in special conditions which are not included in this manual, contact FASSI After Sales department.

## 3.22 – Plate of instructions for safe use of the crane - Legend

The following plates, in vertical and horizontal version, are placed near the controls and have to be strictly followed, in order to avoid possible accidents while operating the crane.



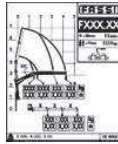
1. Only authorized persons are permitted to operate the crane.
2. The crane must be used on firm, level ground.
3. Check that the vehicle hand brake is on and that the wheels are chocked.
4. Before operation make sure that:
  - no one is within the working area of the crane;
  - the safety devices are in place and operative;
  - the minimum safe working distances from power lines are observed;
  - the load is correctly slung and hooked.
5. Stabilize the vehicle with the outriggers, making sure that:
  - the lateral supports are fully extended;
  - the wheels are in contact with the ground and the suspension is not completely unloaded;
  - the outriggers safety taps, if present, are closed.
6. Use the crane in accordance with the use and maintenance manual, making sure that:
  - the load and radius are within the maximum limits shown on the crane capacity plate;
  - the crane is used progressively avoiding sudden load movements;
  - swinging or dragging of the load is avoided;
  - the load is lifted before rotating.
7. When using implements protect the working area with a barrier.
8. The vehicle/crane are not left unless the power take off is disengaged and the load is on the ground.
9. Before driving the vehicle ensure that the outriggers are fully retracted and reentered, the safety taps closed and the crane is in the folded position.



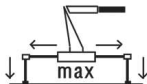
Carefully read the use and maintenance manual of crane and implements prior to start up, operation, maintenance or any other intervention on crane or implements.



It is obligatory to use the necessary personal protective equipment.



Make sure that loads and outreaches are within the maximum limits shown on the capacity plate.



The crane must be completely stabilized in order to lift and handle the loads indicated on the plate.



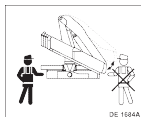
It is prohibited to stop or pass under a suspended load.



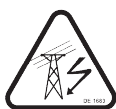
Pay maximum attention while stabilizing the vehicle; make sure nobody stops or passes in proximity of the outrigger ram working area.



Hand shearing danger because of moving parts (see paragraph "Crushing, trapping and shearing danger").



It is prohibited to operate from the side where the crane opens/folds because of the overall dimensions of booms.



Keep the safety distance from electric lines. The minimum distance is seven (7) meters, except for otherwise prescribed current local regulations.



Prohibition of washing using high-pressure and direct water jets.