

# INDUSTRIAL SHREDDER

## **HDD Gladiator**

## INSTRUCTION MANUAL FOR USE AND MAINTENANCE

### ORIGINAL INSTRUCTIONS

USE MINERAL OIL. SEE  
TABLE 5-1 PAGE 52

It is compulsory for the personnel in charge of the installation, running and maintenance of the shredder to read the present text before starting whatever operation.

intimus International GmbH declines any responsibility should the user make any alterations to the shredder or use it in ways other than those indicated in this manual.

A copy of this manual with all its enclosures should always be on hand for the personnel in charge of the machine to be consulted and therefore should be kept nearby the shredder in a clearly visible position and protected by a cover aimed at preventing it from deteriorating.

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This publication can be changed without advise unless the modifications are pertaining to the safety of the machinery (configurations and requirements) holding by the customer.

MANUFACTURER AND MACHINE IDENTIFICATION DATA

Table 1-1 – Technical data

|                                                       |                                                                                                                                                              |                     |                      |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------------|
| Manufacturer                                          | intimus International GmbH                                                                                                                                   |                     |                      |
| Address                                               | Bergheimer Strasse 6 - 12<br>88677 Markdorf – Germany<br>Tel. +49 (0)7544 600 / Fax +49 (0)7544 60248<br>E-Mail: sales.de@intimus.com / web: www.intimus.com |                     |                      |
| Machine                                               | Industrial Shredder Model HDD Gladiator                                                                                                                      |                     |                      |
| STID No.                                              | 424818                                                                                                                                                       |                     |                      |
| Year of construction                                  | 2018                                                                                                                                                         |                     |                      |
| Blades assembly                                       | 5 blades, 1 hook, thickness 29 mm and 11 blades, 11 hooks, 12 mm thickness                                                                                   |                     |                      |
| Motor speed                                           | 3.000 rpm (2 poles)                                                                                                                                          |                     |                      |
| Shredding chamber<br>General lay-out                  | S68-0035<br>A01537_0                                                                                                                                         |                     |                      |
| Blades scheme                                         | I68-0033                                                                                                                                                     |                     |                      |
| Shafts number                                         | 2                                                                                                                                                            |                     |                      |
| Shredder inlet                                        | 305 x 300 mm                                                                                                                                                 |                     |                      |
| Wiring Diagram                                        | SE68-0004-0                                                                                                                                                  |                     |                      |
| Electric Components<br>List                           | SD68-0004-01                                                                                                                                                 |                     |                      |
| Power                                                 | 3,00 kW                                                                                                                                                      |                     |                      |
| Voltage                                               | 400 V - 50 Hz (EU) / 220 V - 60Hz (USA)                                                                                                                      |                     |                      |
| aM fuses                                              | 8 A                                                                                                                                                          |                     |                      |
| Electrical panel power<br>cable section (up to 10 mt) | 3x2,50 mm <sup>2</sup>                                                                                                                                       | Motor cable section | 2,50 mm <sup>2</sup> |
| Intended use                                          | Shredding of hard discs, VHS videotapes, CDs, USB pens                                                                                                       |                     |                      |

Table 1-2 – Objects to be supplied

| Objects of this supply |                                                     |
|------------------------|-----------------------------------------------------|
| ✓                      | Industrial shredder mod. HDD Gladiator              |
| ✓                      | Electric switchboard with control panel s/n 2018-07 |
| ✓                      | Feeding hopper with loading drawer                  |
| ✓                      | Support stand                                       |

## LIST OF REVISIONS

| Revisions     |               |
|---------------|---------------|
| 95399 1 11/18 | First edition |
|               |               |

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# 1. GENERAL INFORMATION

## 1.1 INTRODUCTION

The manual provides a functional description and assembly instructions of the machine and all its parts, and the instructions for:

- correct handling of the machine (offloading, location);
- correct installation;
- suggestions for the completion of the machine (for partly completed machinery, see paragraph 1.1.1);
- set up and adjustments before start up and setting at work and running of the final machine (if partly completed machinery), as far as the machine is completed in accordance with these instructions;
- setting at work and running;
- routine maintenance;
- dismantling the machine.

All the information thus contained allows the personnel to work in safety during all the installation, use and maintenance and dismantling stages.

The manual also provides a table which sums up any possible operating problems which could occur according to the manufacturer's experience, and indications on how to reset the machine should such problems crop up.

It is not necessary to avail of skilled personnel to install and run the shredder, but for electrical connections.

When faults and operating problems which cannot be resolved using the instructions supplied in this manual occur, it is compulsory to contact the manufacturer's Technical Assistance Service according to the indications provided hereafter.

### 1.1.1 Partly completed machinery

The manual provides also the assembly instructions referred to a partly completed machinery according to the Machinery Directive 2006/42/EC. They include the description of the conditions to be observed for a correct incorporation into the final machinery, to assure safety and health.



#### **CAUTION**

**In these instructions are described the components that intimus uses for the setting of the standard machinery. Also the components not delivered are described as example and suggestion for a correct assembly.**

## 1.2 GUARANTEE

intimus International GmbH grants the Purchaser a warranty for defects of machinery which has a duration of twelve months from the date of initial start for use of the machinery not exceeding 8 (eight) hours per day for five (5) days per week or 1800 work hours of the machine and in any case not later than fifteen months from the date of delivery, depending on the case that occurs first (see attached Warranty Certificate).

The guarantee includes the repair or replacement of components which result defective in material, project or manufacture, according to the exclusive judgment of the manufacturer, and in the case of replacement, they will be returned ex-works.

The guarantee does not cover the parts subject to wear during operation, i.e. blades, spacers and cleaning sectors. The guarantee is automatically cancelled and the manufacturer is relieved from whatever liability if the user operates any alteration to the machine which modifies the condition by which it is delivered and accepted.

The guarantee is cancelled also when the user carries out an improper use of the machine or does not follow the instructions for the assembly, correct use and maintenance written in this manual.

## 1.3 CUSTOMER'S RESPONSIBILITIES

Unless otherwise stated on the contract, the following should be carried out by the Customer:

- the completion of the machine with all components and systems necessary to the right operation of the machine;
- risk analysis and check of the conformity to the European Directives applicable to the final machine;
- Electrical preparation work, including the protection conductor commonly known as the "EARTHING" conductor ;
- Hydraulic preparation work (if any);
- Pneumatic preparation work (if any);
- Tools and expendable materials;
- Necessary lubricating oils.

## 1.4 TECHNICAL ASSISTANCE

Technical assistance can be provided exclusively by the manufacturer's personnel, or by personnel authorized by the manufacturer.

Requests for technical assistance should be sent in writing to the address of the manufacturer and must always state:

- the machine identification data;
- the description of the problems occurred for which the assistance is being requested.

## 1.5 SPARE PARTS

It is the customer's obligation to buy original spare parts. The dismantling and assembling operations must be carried out in compliance with the manufacturer's instructions.

## 1.6 CONVENTIONAL GRAPHICS AND GLOSSARY

The following graphic elements along with emphasized text are used in the manual to make important notices and instructions immediately visible:



### **DANGER**

**It means that if the described operations are carried out incorrectly they can lead to heavy injuries, death or long term risks for the health of the operator.**



### **IMPORTANT NOTICE**

**It means that if the described operations are carried out incorrectly damage can occur to the machine and/or the operator can be exposed to risks.**



### **CAUTION**

**It supplies useful instructions for the correct use of the machine on part of the operators.**



### **IMPORTANT INFORMATION**

**This symbol indicates a diagram, a design or a table that are specific to the product supplied to the customer, unlike the configuration of the standard product or vice versa is not to be supplied.**

To allow this manual to be fully understood, we hereby list the terms used:

- **HAZARDOUS AREA:** the area inside or near the machine, in which the presence of an exposed person puts the safety and health of the same at risk.
- **LOADING AREA:** the area near the machine where the material loading into the hopper takes place.
- **EXPOSED PERSON:** whoever should be completely or partly in a hazardous area.
- **OPERATOR:** whoever is in charge of installing, making function, adjusting, carrying out routine maintenance and cleaning the machine.
- **MAINTENANCE TECHNICIAN:** a skilled person specially trained and authorised to carry out extraordinary maintenance interventions or repairs which require a special knowledge of the machine, its functioning and safety devices, as well as of the relevant modes of intervention.
- **SHREDDING CHAMBER:** the area of the machine where the material cutting comes about.
- **BLADES:** discs with very sharp edges and one or more hooks of different thicknesses set on shafts located inside the shredding chamber.
- **HOOKS:** each blade is equipped with one or more spouts, located on the circumference and form an integral part of the blade, with the function of hooking the material and bringing it towards the centre of the shredding chamber. The hooks are of different heights according to the type of material to be treated.
- **SPACERS:** rings installed on blade shafts to space out the blades and of a similar thickness to the latter.
- **CLEANING SECTORS:** components that partially overlap each spacer inside the shredding chamber, with the function of cleaning the spacer itself and possible guiding of the material towards the inside of the shredding chamber.
- **CUTTING PLATES:** cutting tools mounted on the rotor in the single shaft shredders.
- **SCREEN:** screen with holes placed under the blades (or under the rotor in the single shaft shredders) for the selection of the shred materials during discharge.
- **WORK SURFACE:** surface on which the person feeding the machine is positioned.
- **LOADING SURFACE:** surface where the material to be inserted into the shredder is laid, and on which the person feeding the machine cannot stand.

## 1.7 TECHNICAL STANDARDS APPLIED

In the design and realization stages of this machine, reference was made to the following standards and documents:

- 2006/42 E.E.C. Directive for Machines
- UNI EN ISO 12100:2010: Safety of machinery - Basic concepts, general principles for design.
- UNI EN ISO 13857:2008: Safety of machinery. Safety distances to prevent hazard zones being reached by upper and lower limbs.
- CEI EN 60204/1: Safety of machinery. Electrical equipment of machines - Part 1: General requirements.
- UNI EN ISO 3744:2010: Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering method in an essentially free field over a reflecting plane.
- UNI EN ISO 11201:2010: Acoustics - Noise emitted by machinery and equipment - Measurement of emission sound pressure levels at a work station and at other specified positions. Engineering method in an essentially free field over a reflecting plane.
- UNI EN 12012-3:2008: Rubber and plastics machines - Size reduction machines - Safety requirements for shredders.
- UNI EN ISO 14120:2015: Safety of machinery - Guards - General requirements for the design and construction of fixed and movable guards.
- UNI EN ISO 13849-1:2016: Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design.

## 1.8 CERTIFICATION OF THE SHREDDER AND ITS COMPONENTS

The *CE Declaration Conformity* or *Declaration of Incorporation of Partly Completed Machinery* comes along with the technical documentation of the machine, as also shown on the plate applied to the machine.

Moreover, copies of the declarations and conformity certificates of the components used for the machine manufacture which guarantee their quality and safety are also available.

## 1.9 SHREDDER CROSS-REFERENCE

Table 1-1 – Shredder 3HP series

| SHREDDER POWER | INTIMUS CODE  | SHAFTS NUMBER |
|----------------|---------------|---------------|
| 3HP            | HDD Gladiator | 2             |
|                |               |               |
|                |               |               |



## 2.SAFETY AND ACCIDENT PREVENTION

### 2.1 GENERAL INFORMATION

- The manual must be read entirely and understood by all the operators, who, either full-time or occasionally, are in charge of installing, running and carrying out maintenance on the shredder or its dismantling.
- The employer must ensure the instruction of the personnel on accident risks, on the devices adopted for the operator's safety, on noise emission risks and on the general accident prevention regulations stated by international directions and the legislation of the Country where the machine is received.
- The behaviours of the personnel in charge of maintenance, cleaning, control work etc., must however strictly comply with the Accident Prevention Rules of the Country where the machine is received.
- The user is responsible for whatever operation carried out incorrectly because the instructions supplied in this manual were not followed properly and is therefore compelled to make certain that his personnel have read and understood the contents.
- The unauthorized tampering or substitution of one or more machine parts, the use of accessories, tools, or working materials different from those recommended by the manufacturer, may represent an accident hazard and relieve the manufacturer from any civil and penal responsibilities.
- The working area must never be encumbered, so that nothing might interfere with the operator's freedom of movement, nor prevent his immediate access to the control panel in the case of an emergency.
- The access to the work area is forbidden to people not directly responsible for the machine operation, to avoid hazards caused by imprudence or negligence during the accomplishment of a work. The user is therefore responsible for providing adequate prevention means such as barriers, warning and danger plates, etc.
- The maintenance technician, who has been given the responsibility of the machine maintenance, is therefore recommended to keep it always free of whatever tool and to prohibit access to unauthorized people, to be able to obtain the most ideal safety conditions for working on the machine.

## 2.2 INTENDED USE

Shredders are machines that can be used in many fields for different purposes: recycling, size reduction, destruction and disposing of industrial and urban waste.

Should the sales contract establish the characteristics of the material to be shredded and the machine capacity; these information is specified on the cover of this manual.



### IMPORTANT NOTICE

The use of the shredder for shredding other substances or obtaining increased capacity values that are not included in the specifications is considered as being "IMPROPER USE" and therefore the manufacturing company declines any responsibility for any damage arised to things or people and considers every type of guarantee on the machine cancelled.

The machine may only be used after:

- having carried out the correct installation and bolting to the floor.
- the wirings of the electric components to the main switchboard (when not already wired by the manufacturer).
- the check for correct operation of active safety devices (micro switches, interlocks, etc.).
- the check for consistency and correct positioning of the safety guards (protection plates, protection grids, etc.).



### DANGER

The shredder cannot be installed on wobbly surfaces (e.g. vibrating dampers) or mobile surfaces (e.g. wheels or rollers). Loading must be done from the ground (that is to say from the work surface, for instance by means of a grab crane). A loading level higher than ground level cannot be used, nor should one use stairs, steps, platforms or operator-lifting platforms to ease the loading operations. If loading systems are used, they must not interfere with the safety devices installed on the machine.



### IMPORTANT NOTICE

In particular, if continuous handling equipments are installed, they must comply with UNI EN 620 standards; in the event they interfere with the shredder by creating unforeseen access for the operators, the system composed by the shredder and the continuous handling equipment is subject to a new procedure for CE marking, otherwise it is forbidden to put the installation in service.

Same instructions and conformity procedures apply also for any continuous handling equipments that could be used as discharge systems, such as belt conveyors, screw conveyors, suction ducts).

## 2.3 INCORRECT AND/OR IMPROPER USE AND BEHAVIOUR

The shredder with new blades must not be put into operation without having previously fed it with material, except for the time that is strictly necessary to carry out the tests at the first starting.

It must not be operated also:

- without oil or with overused oil (see paragraph 5.1.5 Oil and grease lubrication before starting HDD Gladiator);
- if blades are not perfectly tightened (see Chapter 7, Tightening the blades' pack for each series of shredder);
- if the reversals for overload occur frequently (see paragraph 6.4.1 Overload reverse).

In these cases, the operator in charge of the running must ask for the intervention of the maintenance service to line up the machine. Should any doubt arise, it is advisable to contact the manufacturer's Technical Department.

The shredding of large size metal or tempered bodies (e.g. hammers, iron drawn pieces or similar) is not foreseen, and introducing them into the machine could cause damage to the blades or other mechanical parts: therefore it is necessary to remove any foreign bodies possibly present in the material to be shredded.



### **DANGER**

Material partially coming out of the hopper should not be let into the loading inlet (in particular filaments, tapes or films, partially engaged by the shredder and dragged from the external with risk of entanglement), nor should the entering material feeding be forced in any way by using manual means of whatever type (sticks, poles, bars or similar).

Do not use at the bottom side the removal device for shredded material (hooks, harpoons, etc.).



### **DANGER**

If the operator deems that a malfunctioning exists, for no reason at all must he leans into the material feeding inlet while the shredder is in operation.

If one intends to carry out a visual inspection inside the machine, the intervention of the maintenance technician is required; in any case, before whatever intervention, it is compulsory to switch off the shredder and lock the main switch to prevent undesired start of the machine.



### **DANGER**

Extra precautionary care must be observed when accessing also partial inside the feeding hopper since this is a high-risk operation, because of the blades and the probable presence of sharp cutting metallic parts. If this operation is absolutely necessary to restart the plant, it can be carried out only by a properly trained maintenance technician equipped with individual accident- prevention protections. Before any operations, the shredder must be stopped. The main switch disconnected and locked for safety against any accidental starting.

**IMPORTANT NOTICE**

Any use of the machine taking place without taking into consideration the previous notes is considered "improper use", and therefore intimus International GmbH declines any responsibility for damage or accidents caused by failure in complying with the instructions supplied, and will consider any guarantee on the machine cancelled in such cases.

**DANGER**

It's strictly prohibited getting near the screen with every part of the body during the machine working (single shaft shredders typically). Take care that no operator is in contact with the screen before starting the machine.

### 2.3.1 Explosive Atmosphere

The shredder cannot be used in an explosive environment or potential explosive and in no case it is allowed to introduce explosive or corrosive substances, or those which might cause the emission of flammable substances or gases harmful to people (e.g. spray cans, solvent and flammable liquids and gases containers etc.)

The Shredder is not suitable for work in explosive or classified environments. It is strictly prohibited to use it in a fully or partially explosive atmosphere. Therefore, the machine is not suitable for use in the following environments:

- classified as fully or partially explosive;
- where there are corrosive atmospheres and high concentrations of dust;
- where there are high suspended oily concentrations;
- risk of fire arising from any materials or source of ignition.

**DANGER**

It is strictly prohibited to use this shredder in all environments listed above.

## 2.4 WORK AND CONTROL AREAS

The shredder must be operated by a single person who will work in the loading area and will also provide for machine feeding and replacing the material collection vessel, if foreseen.

To carry out this replacement, the operator must operate anyhow remaining outside the supporting stand.

## 2.5 MAINTENANCE AREAS

The person in charge of maintenance may operate around and inside the machine only after having activated all the active and passive safety devices foreseen by the manufacturer to allow the maintenance operator to work in maximum safety conditions.

## 2.6 RISKS, PROTECTIONS, WARNINGS AND NOTICES

### 2.6.1 General Safety

The machine which has been installed by following the indications given in this manual (see Chapter 4 INSTRUCTIONS FOR INSTALLATION) and handled by operators according to these instructions cannot be the cause of accidents.

The machine is fitted with all the active and passives safety devices that are necessary to prevent risks and accidents:

#### **Feeding hopper**

It prevents the operator from accidentally coming in contact with the moving mechanical parts inside the shredding chamber.

The shredder is equipped with a closed hopper with a manual loading box for hard disk. The box opening blocks inside the access to the shredding chamber, hence avoiding the operator the possibility to reach the dangerous area, in case the box is open.

For the F10HP RI series, the shredder is fitted with mobile guards with cover, supplied by a safety micro-switch interlocked during dangerous situations which interrupts the operation of the shredder when open.

#### **Motor coupling protection guard**

The motor coupling is completely enclosed by a plate guard for the operators' protection. It may be removed after loosening the fastening screws.

For the F10HP RI series, the shredder is fitted with the fixed guards of the motorisation drive belts.

The protection guard is placed in a position that does not create problems for the operator handling the machine, and so there are no reasons for its removal, if not deliberately.

#### **Guard of the rotating screen**

For the F10HP RI series, the machine is fitted with a series of fixed guards and a hinged front panel both fixed with bolts. The removal of the guard and/or the opening of the front panel can occur only after loosening the fixing screws.

#### **Discharge bin**

For the F10HP RI series, the shredder is fitted with a mobile bin with safety micro-switch interlocked in case of extraction which interrupts the operation of the shredder when open.

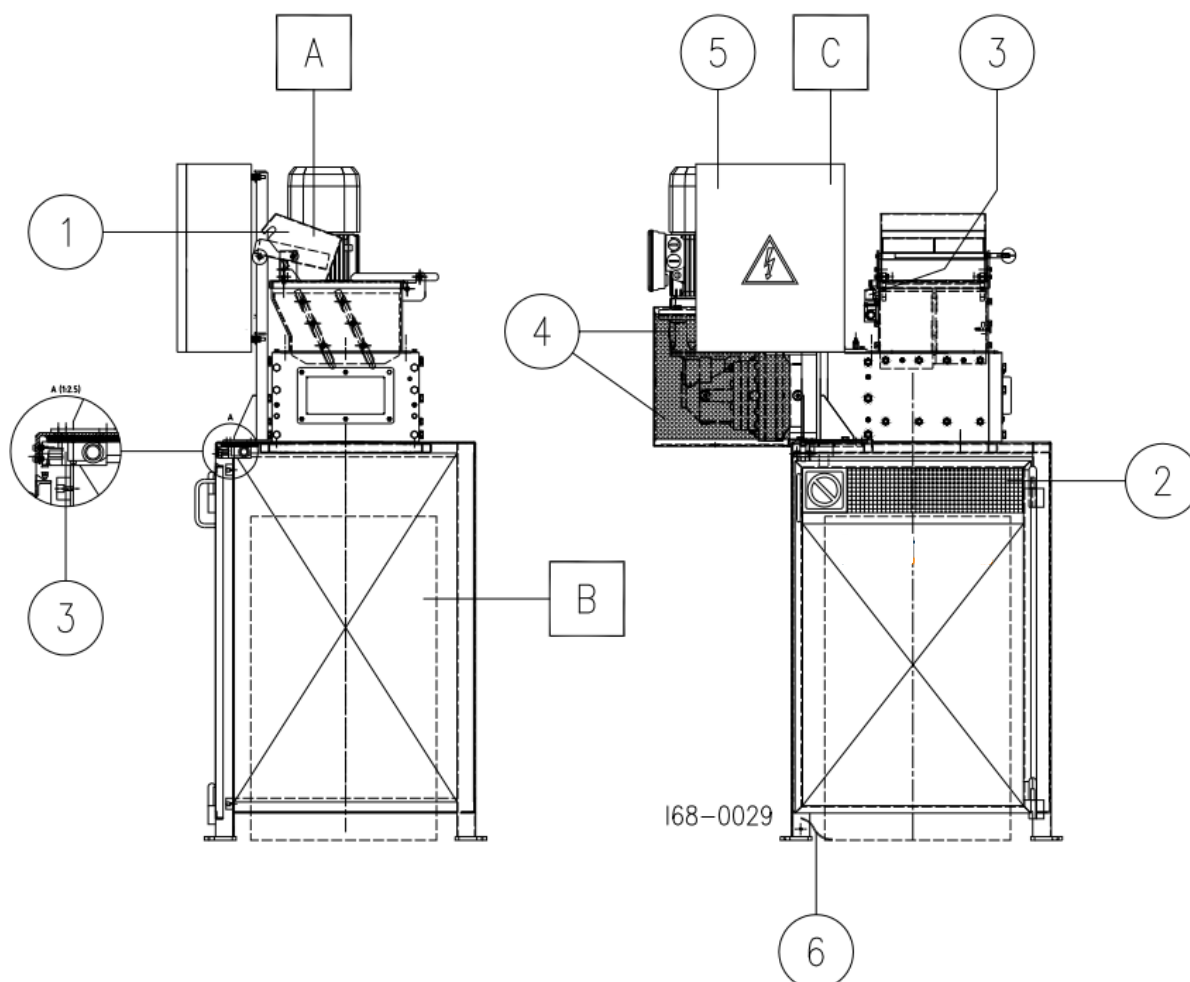
#### **Transmission belts protective casing**

For the K50HP/M, the belts that transmit movement between the electric motor and the automatic gearbox (motor unit) are protected by a cover that prevents operators from accessing the moving organs. Even the hydraulic unit inserted in the motor unit is protected by a suitable cover.

### Supporting stand closing grids and door

The supporting stand is surrounded and closed by a protection grid, which is fixed on 3 sides and has openable doors on the fourth side (loading). The interlocked safety micro switches are installed on the doors, which interrupt the shredder operation when they are opened.

The safety micro switches are of the locking type.



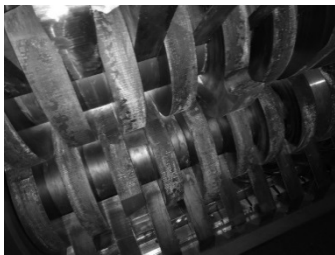
- |                                                |                                                        |
|------------------------------------------------|--------------------------------------------------------|
| 1. Hopper with loading drawer                  | 4. Motor coupling protection guard and grid protection |
| 2. Perimeter safety grids                      | 5. Electrical panel                                    |
| 3. Safety micro-switch for the gate and hopper | 6. Flexible copper braids                              |

Figure 2-1 – Safety devices installed – Product to be supplied



Table 2-1- Table of risks, dangers and protection measures present

| Pos. | Description and protection from risks                                                                                                                                                                                    | Danger                                                                              | Example image                                                                         |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1    | Load hopper with loading drawer: this prevents the projection of the material outwards during the shredding phase.                                                                                                       |    |    |
| 2    | Doors with protective grid: they prevent the shredded material from being projected and the dangerous area from being accessed unintentionally                                                                           |    |    |
| 3    | Key safety micro-switch: it stops operation of the machinery once the frame doors and the loading hopper inspection door are opened in order to determine the state of the shredding chamber (the latter where present). |   |   |
| 4    | Motor joint protections: it prevent the access of limbs to an area with rotating parts.                                                                                                                                  |  |  |
| 4a   | Grid protection of planetary gearbox: it protects from the potentially hot surface of the planetary gearbox.                                                                                                             |  |  |
| 6    | Copper braid: it ensures continuity of the equipotential protection circuit fixed between the components of the system                                                                                                   |  |  |

| Pos. | Description and protection from risks                                                                        | Danger                                                                             | Example image                                                                        |
|------|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| A    | Loading hopper: blade shafts in rotation.                                                                    |   |   |
| B    | Shredded material discharge: area beneath the intrinsically dangerous shredder due to rotating blade shafts. |   |   |
| C    | Electrical panel: dangerous area due to a live electrical panel                                              |  |  |



## 2.6.2 Risks in the environment where the shredder is installed

Should the shredder be used to process substances which, after working on, can cause a degradation in the environment in which the machine is installed (e.g. emission of dust in large quantities, harmful or irritating substances etc.) it will become necessary to carry out an adequate environment protection by using air suction or other suitable systems to do away with the polluting effects.

The most common cases that can threaten the environmental quality, even after a correct use of the shredder, are the following:

- an excessive emission of dust due to the type of material shredded;
- the emission of harmful substances following special materials being shredded (e.g. containers with toxic and harmful substance residues);
- very loud noise caused by materials of high mechanical rigidity;
- excessive wear of the machine and ensuing performance degradation due to highly abrasive material (e.g. fiber-glass compounds, high sand contents, emery grinding wheels etc.).

The presence of toxic substances in the material processed does not introduce further risks in operating the machine, therefore in the above listed applications and in analogous ones, even if not detailed, it is up to the user to proceed with the necessary environmental protection carried out according to the rules in force and eventually intensify the number of extraordinary maintenance interventions.

The user must make sure that adequate protection (masks, gloves, protective clothing, eyes washer, etc.) is guaranteed to the operator and the people in charge of maintenance work and to supply, where necessary, a suction system in the area where the shredder is installed.



### **CAUTION**

**The user has the obligation of informing specifically and adequately the operators about codes of behaviour and about individual protection means to be used in these cases and must also make sure that the safety measures are effectively respected.**

### 2.6.3 Residual risks

During the operations the shredder is all segregated with safety protections.

The warning plates applied on the shredder regarding the residual risks may not be removed.

#### 2.6.3.1 During the normal running operations

##### Gear boxes

Occasionally, the surface temperature of these components can rise over 85°C due to malfunction of the power-train or cooling system. Even if in such a condition the control system will switch off the power transmission, the temperature will not decrease instantaneously and maintenance work must be performed with correct Personal Protective Equipment like, but not exclusively, gloves.

#### 2.6.3.2 During the routine maintenance

##### Sharp edges – Cutting danger

The blades embodiment and the presence of sharp edges results in the danger of getting cuts or wounds for one who must intervene for maintenance or dismantling.

The use of proper protective gloves is therefore recommended.

##### Components weight – Danger of squashing

When it is necessary to dismantle the machine or a part of it to carry out maintenance work (e.g. to tighten the blade unit or remove material caught between the blades and spacers), one must be very careful to not let the dismantled parts fall, since their weight could cause falling down for gravity and consequently serious injuries to the operator.

In these cases, it is advisable that the operator is assisted by a second person who, if necessary, may give the necessary help to work safely.



---

##### **ATTENTION**

**In order to handle the components, use proper lifting means and related accessories, such as eyebolts, straps and hookended chain slings.**

---

## 2.6.4 Warning and accident prevention plates

The machine will be supplied with graphic elements placed by the manufacturer to indicate any danger, prohibition or warning.

The graphic symbols used and their explanation are listed hereafter.



### DANGER

**We remind and underline that it is absolutely forbidden to mishandle or remove the protections and the warning plates.**

**The manufacturer declines every responsibility for the safety of the machine if the prohibition is not respected.**

Table 2-2 – Warning plates against potential hazards

| SYMBOL                                                                              | HAZARDS INVOLVED                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Hot surfaces, on the external surface of Moto reducer.                                                                                                                                                                                                                                                                                                               |
|   | Danger of moving parts and drive components. Do not operate on moving elements<br>Do not tamper or remove the protections.                                                                                                                                                                                                                                           |
|  | Danger of entanglement                                                                                                                                                                                                                                                                                                                                               |
|  | Danger of shearing/cutting                                                                                                                                                                                                                                                                                                                                           |
|  | Danger of dangerous voltage.<br>Electrical contact hazard.<br>It is forbidden to work on live electrical equipment.<br>Any derogation should be authorized by the department supervisor. In particularly dangerous conditions, another person should be present in addition to the skilled technician. Start working only after all safety measures have been taken. |
|  | Danger of squashing. Risk of crushing limbs on the external surface of Feeding Hopper and safety protection gates. Do not operate on moving elements                                                                                                                                                                                                                 |
|  | Access is forbidden for unauthorized persons                                                                                                                                                                                                                                                                                                                         |

| SYMBOL                                                                              | HAZARDS INVOLVED                                                                           |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
|    | It is forbidden to direct jets of water at electrical equipments.<br>Do not use water jets |
|    | Ban on carrying out operations with live supply voltage for works in progress              |
|    | Do not go up or down the top side of Shredder inside the Segregated zone, Feeding Hopper   |
|    | Danger. Handling hazard. Handle with care.                                                 |
|   | Stumbling hazard inside the Segregated zone, Feeding Hopper and safety protection gates.   |
|  | Protective gloves must be worn                                                             |
|  | Safety footwear must be worn                                                               |
|  | Protective clothing must be worn                                                           |

## 2.7 PREARRANGEMENTS FOR INSTALLATION

### 2.7.1 Environmental conditions of storage and operation

Unless otherwise specifically requested, the machine is supplied with blades lubricated with protective oil. The protection has a limit lasting 30 days in environments where temperature is ranging from -20°C to +50°C. After this period, one can find progressive forming of rust on the blades and therefore, if the machine is not to be used for long lengths of time, it will be necessary to restore the protection to prevent aggression from external atmospheric or chemical agents.

Upon starting working again after a long period of inactivity, lubricate the blades with oil at the first starting, as specified in paragraph 5.2 FIRST START-UP (NO LOAD START-UP).

This intimus shredder may work at room temperatures varying from 0°C to 50°C.



#### **CAUTION**

---

**If ambient temperature read the indicates MAX and MIN do not touch the machinery surfaces without protection (gloves). Burnings could be caused by this operation!**

---

### 2.7.2 Installation site

Before the machine's arrival, the user should arrange a suitable environment to receive it.

The shredder must be installed on a suitable site, such as to allow normal machine running operations and routine maintenance (see the enclosed drawing or lay-out).

Before starting assembly operations, make sure that the flooring can sustain the shredder's weight (see Table 3-1 – Weights) also considering the coefficient of security stated by the regulations in force.

The installation site must also foreseen:

- Rigged anti-slip flooring without projecting bumps;
- Adequate illumination complying with the standard in force;
- Earthing system complying with the standard in force;
- Electric system prearrangement complying with the standard in force;
- Water and pneumatic preparation work (if necessary);
- In case of special material treatment, be equipped with an air suction system (see paragraph notes in paragraph 2.6.2 Risks in the environment where the shredder is installed).

### 2.7.3 Lighting

For use in normal working conditions, the room where the shredder is installed must be lit in such a way as to make it possible to see the command panel without difficulty and, more in detail, the emergency push-button.

For maintenance operations, the lighting must be enough to allow for carrying out the operations in safety conditions, in particular on the shredding chamber and on the switchboard. As regards the lighting modes, the user is responsible for the prescriptions stated by the regulations in force and the EEC Directives.

### 2.7.4 Personnel in charge

#### Unloading and movement

- Driver of transport means – crane operator – sling operator.

#### Setting up and installation

- As regards mechanical parts and the structure: machinery assemblers.
- As regards electrical wirings and earthing: system installers.

#### Inspections, set up before starting

- Inspector.

#### Running

- Person in charge of system running.

#### Routine maintenance

- Mechanical maintenance operator; Maintenance electrician.

#### Extraordinary maintenance

- Mechanical maintenance operator; Maintenance electrician.



#### **CAUTION**

The clothing of who operates or maintains the machine must comply with the essential safety requirements in force in his own Country as indicated in the EU Community Directives 89/656/EC and 89/868/EC concerning the use of individual protection means.



#### **DANGER**

It is advisable to not wear bracelets, watches, rings, necklaces or such, which could hamper the operator's movements and create risky conditions while working.

## **3. DESCRIPTION OF SHREDDER AND TECHNICAL DETAILS**

### **3.1 GENERAL DESCRIPTION OF SHREDDER**

The shredder consists of a shredding chamber which contains two or three rotating shafts supplied with one or more hook circular blades of different thicknesses, depending on the material for which the shredder is used. The material is fed through a hopper placed above the shredding chamber. The shafts are driven by the electric motor through a reduction stage (gear reducer and / or a straight-tooth gear reduction unit, in cascade connection, if installed). The shredder is operated from the control panel on the switchboard. The control panel is supplied as a separate control box. The shredder is mounted on a stand placed on the ground, closed by a protection grid inside which the collection vessel for the shredded material is placed, anchored to the floor. The protection grid is fixed on 3 sides, on the front part there is a double or single door with protection grid and equipped with limit switch-operated safety interlock to allow for the replacement of the vessel.

## 3.2 OPERATING PRINCIPLE

The material to be treated is sent into the feeding hopper which conveys it to the shredding chamber.

The two blade holding shafts, while rotating, take the material towards the centre, the blades catch onto the material with the beaks placed on their circumference and cut it. The material, passed through the blades, falls into the collection vessel located underneath.

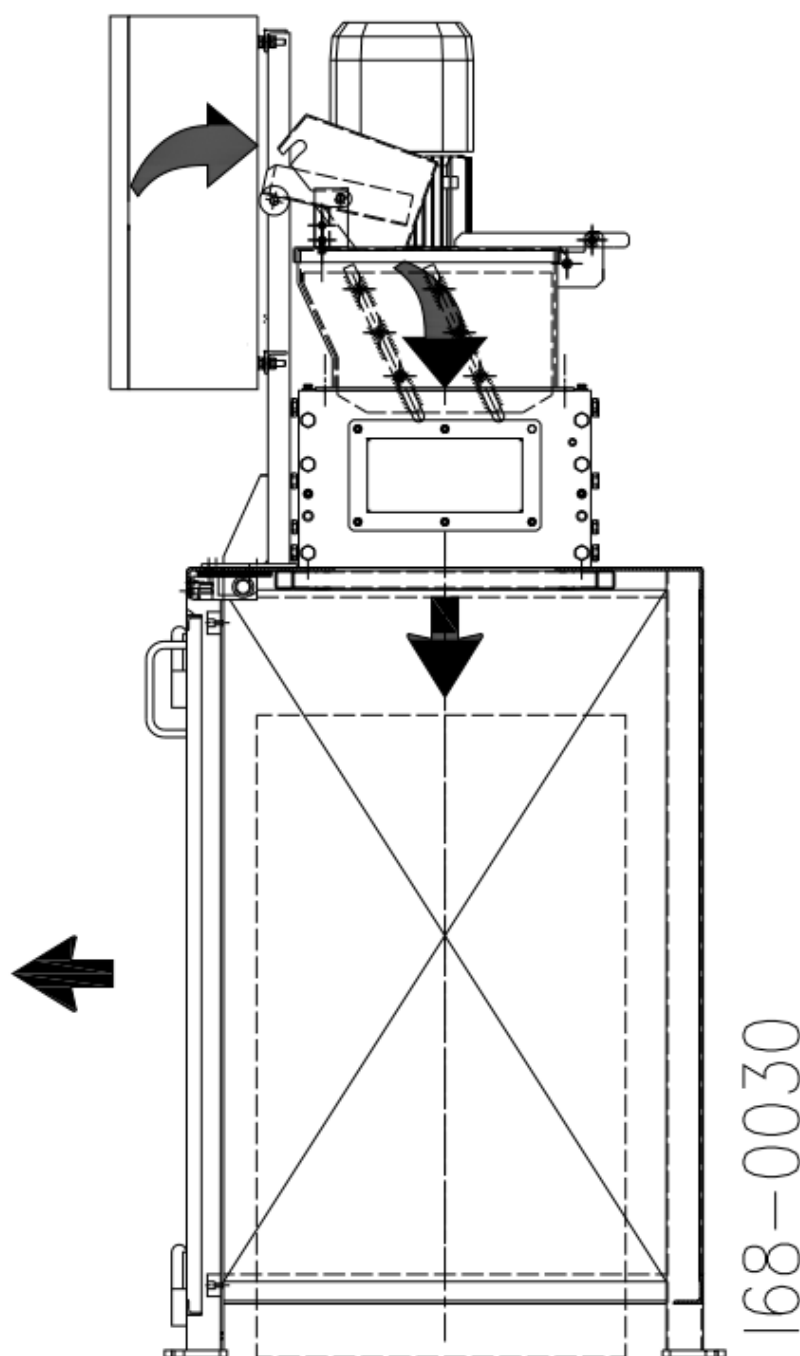


Figure 3-1 – Operating Principle – Product to be supplied



### 3.2.1 Electronic control

All the machine working stages are controlled by a P.C. board.

This controls the automatic reverse cycle if overloading occurs, and also allows for the activation of some special functions:

- Intermittent working;
- Automatic reverse;
- Reverse test;
- Automatic start and stop by remote operation (to be used only if other machines are connected to it in line);

To set these functions please refer to paragraph 5.3 ADJUSTMENTS ON BOARD OF THE SHREDDER.

#### CAUTION



The reversal motion of the shafts is actuated only after the shredder has been subject to overcharge: therefore, should any hard material be fed into the shredder (such as tempered steel pieces or similar) the reversal cannot guarantee that the blades are not damaged.

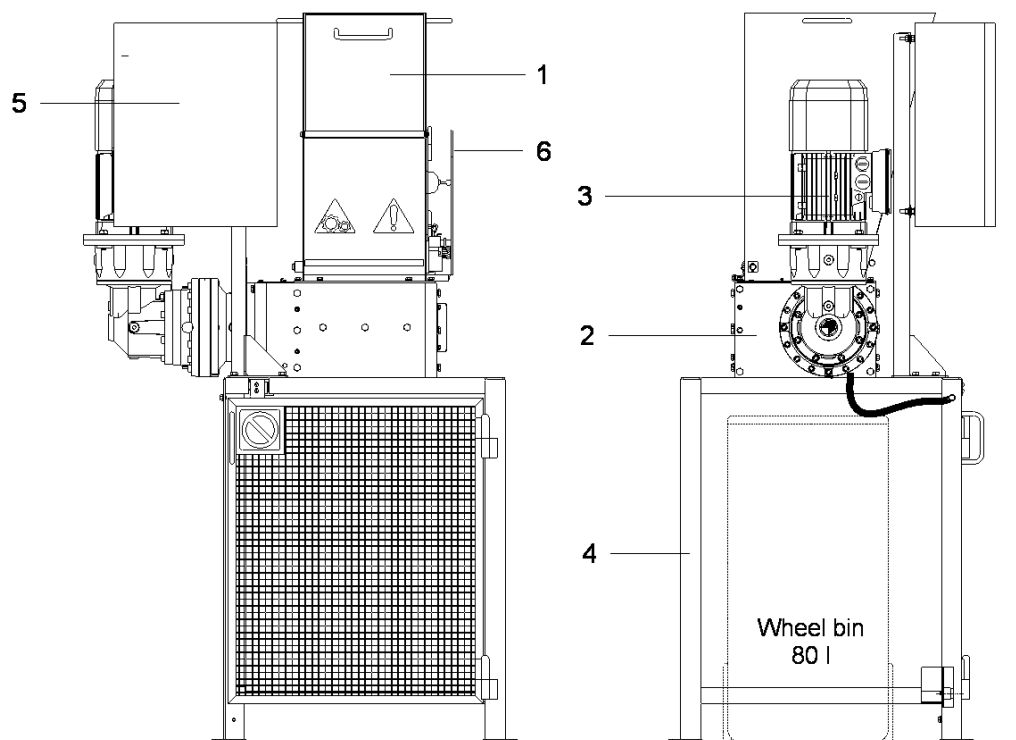
Moreover, the reverse run of the machine must not be considered as a regular working mode, but a random intervention aimed at ensuring a smooth working of the shredder.

Should the shredder reverse frequently and jam, it is compulsory to remove the cause of the overload and check that the working condition of the machine does not exceed the stated limit of capacity.

It is absolutely forbidden to let the shredder work when the reversals occur frequently, because the blade-holding shaft would be forced to an anomalous stress and seriously damaged.

### 3.3 MAIN UNITS OF THE SHREDDER

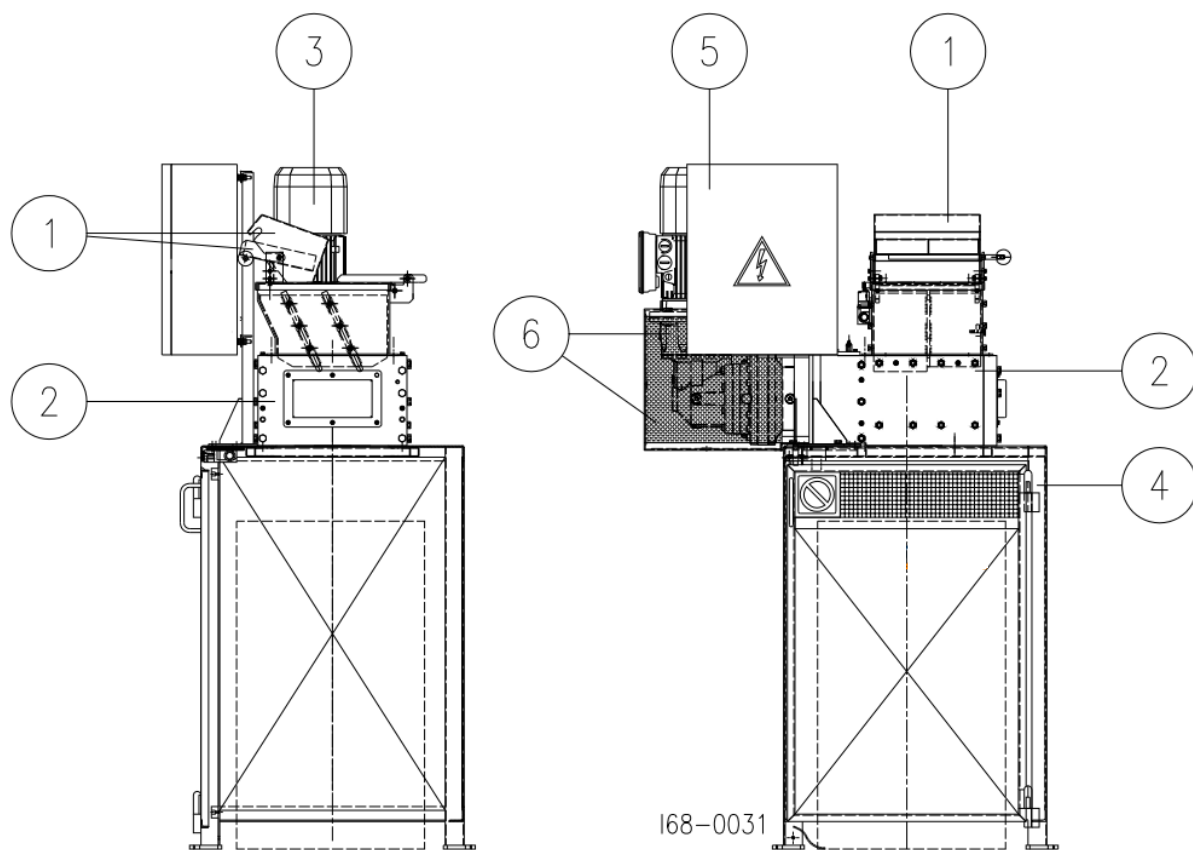
The shredder is made up of the parts enhanced in the drawing.



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- |                          |                                  |
|--------------------------|----------------------------------|
| 1. Feeding hopper        | 4. Supporting stand              |
| 2. Shredding chamber     | 5. Switchboard and control panel |
| 3. Electric motor – 3 Kw | 6. Manual Ram (Option)           |

Figure 3-2 – Main units for series HDD Gladiator - Typical



- 1. Feeding hopper with loading drawer
- 2. Shredding chamber
- 3. Electric motor – 3 Kw

- 4. Supporting stand
- 5. Switchboard and control panel
- 6. Planetary gearbox with grid protection

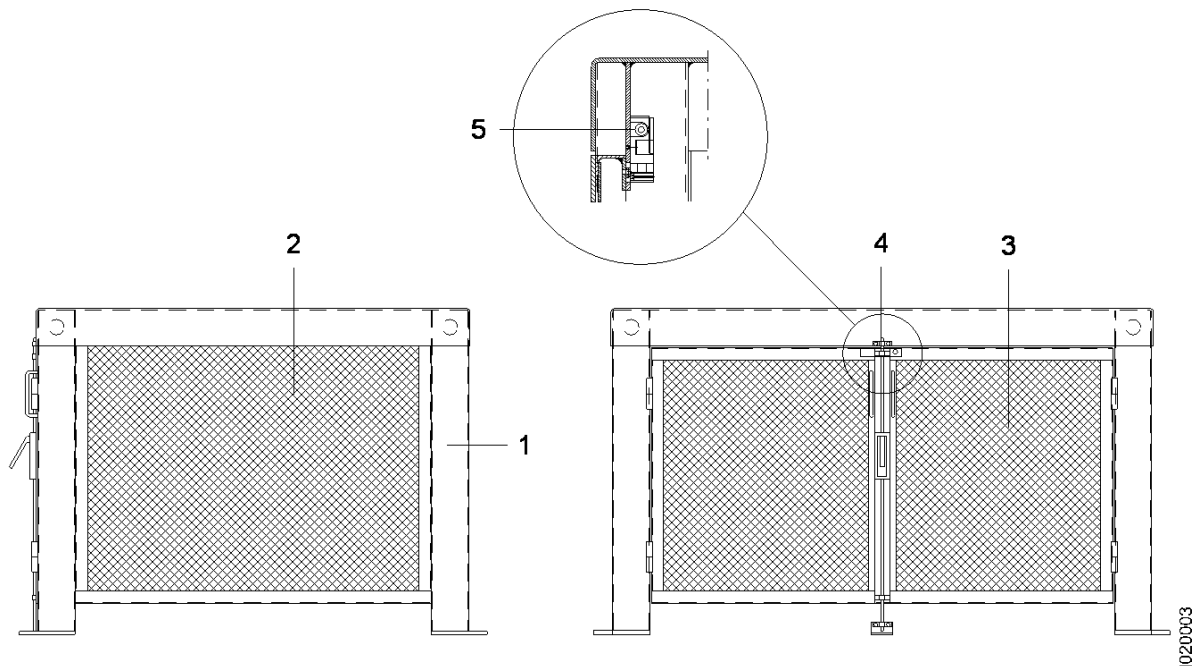
Figure 3-3 – Main units for series HDD Gladiator – Product to be supplied

## 3.4 DESCRIPTION OF THE MAIN COMPONENTS

### 3.4.1 Supporting stand

The shredder rests on a stand made of electrically welded steel shaped plates. The stands are always closed on three sides by a fixed protection grid, whereas one side is furnished with grid doors with manual lever lock and safety micro switches. It is impossible for the operator to come in contact with the moving mechanical parts because prevented by the grid. The replacement of the vessel aimed at collecting the shredded material, through the doors furnished with micro switches, may be carried out in complete safety since the micro switches prevent the shredder from starting up when the doors are open. The stand's bearing plates on the floor are provided with holes so that they can be appropriately bolted to the floor, and ensure that the machine is stable and prevent it from overturning even in the case of accidental impact.

The holes for anchoring the shredding chamber are provided on the upper part of the stand.



- |                                          |                        |
|------------------------------------------|------------------------|
| 1. Supporting stand as welded steel bars | 4. Manual lever lock   |
| 2. Fixed protecting grid                 | 5. Safety micro switch |
| 3. Grid door (single or double)          |                        |

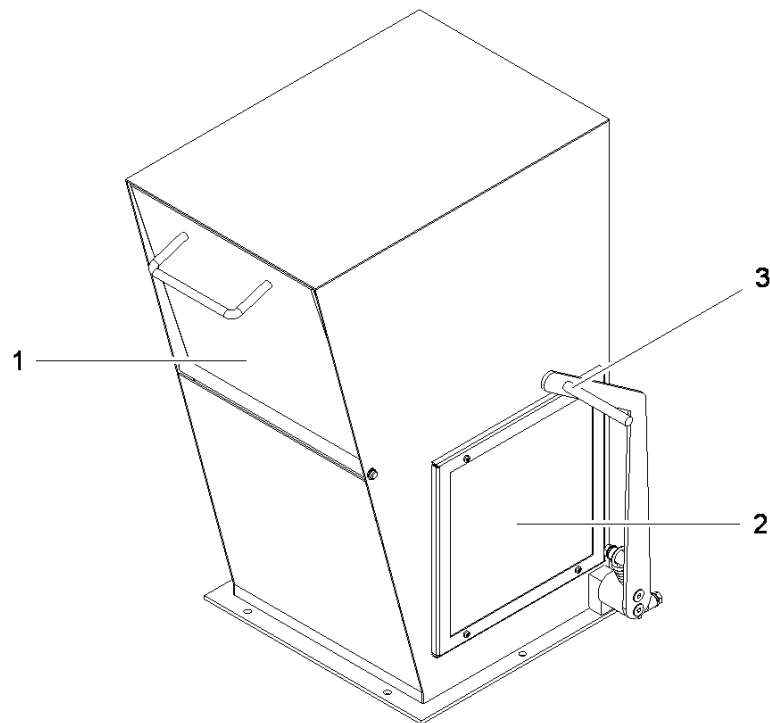
Figure 3-4 – Supporting stand (Typical)

### 3.4.2 Feeding Hopper

The feeding hopper is made of heavy gauge sheet metal and welded plates in compliance to the strictest regulations concerning safety. It is supplied with a cover and its dimensions have been designed as to prevent the operator from coming into accidental contact with the moving mechanical parts inside the machine.

The material is loaded through the cover: closing it the material falls into the shredding chamber.

The material loading inlet is located to one side in the upper part of the hopper. The lower part is provided with a flanging with proper bolting to secure it to the shredding chamber.



- 1. Hopper
- 2. Inspection panel
- 3. Manual Ram (Optional)

Figure 3-5 – Hopper for series HDD Gladiator - Typical

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The hopper for hard disks is fitted with a manual loading box with a handle. The operator opens the box and loads a single hard disk. While opening the box closes the access to the hopper inner area, in order to protect the operator. When the box is being closed the hard disk slides towards the shredding chamber. The hopper is fixed to the shredding chamber by a flange, bolted on the shredding body.

The hopper is completely closed and it does not allow to check the status of the blades and the shredding chamber. For checking the shredding chamber, please see paragraph **7.3.8 - Check and inspection of the blades** pack.

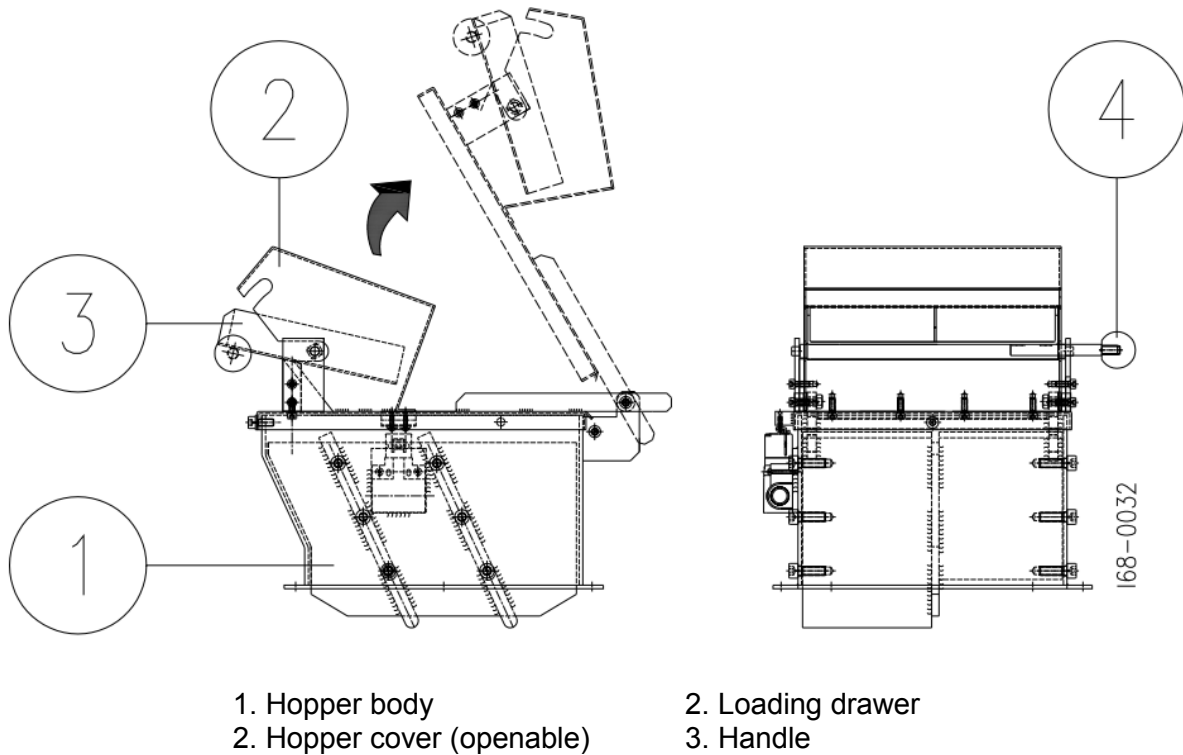
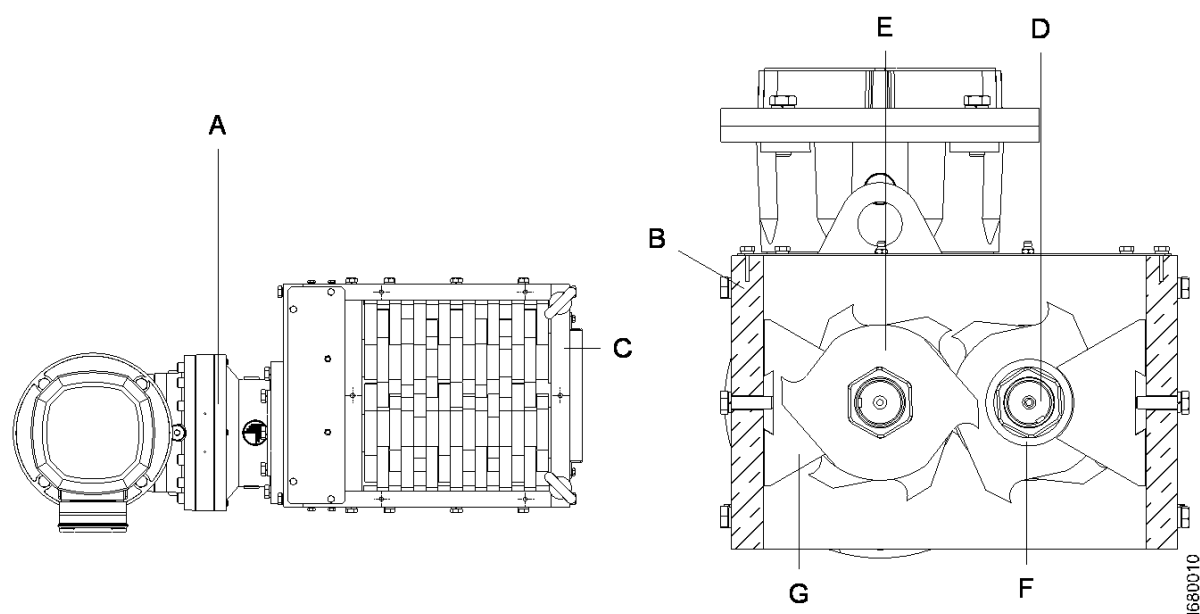


Figure 3-6 – Hopper for series HDD Gladiator – Product to be supplied

### 3.4.3 Shredding chamber

It is a cast box consisting of the components as follows.



A. Reduction unit

B. Frames

C. Front flange

D. Blade-holding shaft

E. Blades

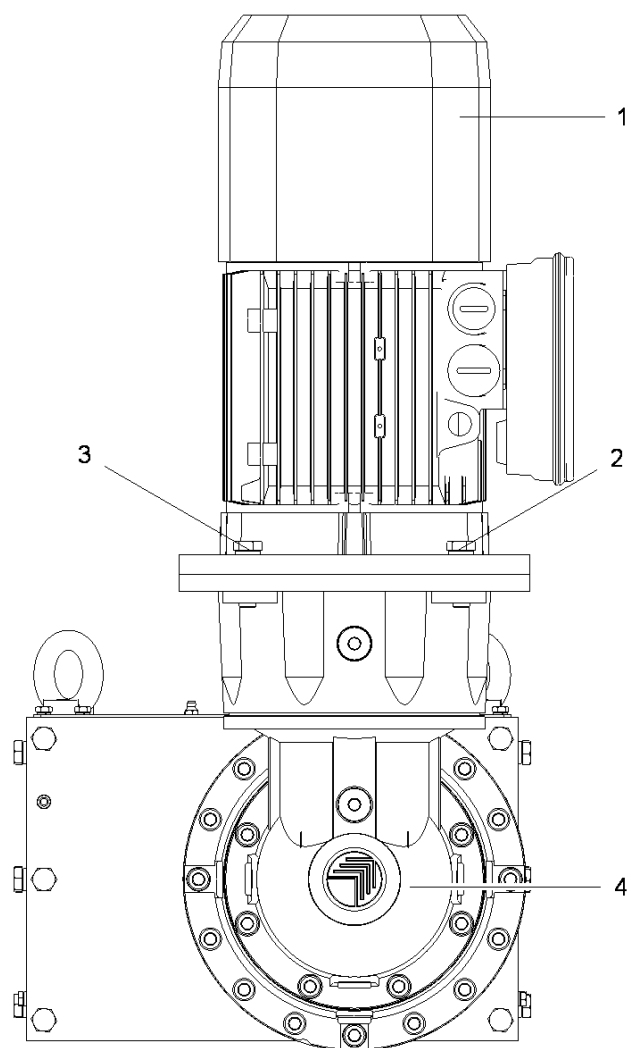
F. Spacers

G. Cleaning sectors

Figure 3-7 – Chamber for series HDD Gladiator

### 3.4.4 Motor drive

The shredder is driven by an electric motor, which is coupled to the gear reduction unit.



I680011

- 1. Electric motor – 3 kW
- 2. Fixing bolts
- 3. Gearmotor

Figure 3-8 – Motor drive for series HDD Gladiator



### 3.4.5 Electric system

The electric system is set for star-delta starting. The electric system consists of:

- a main power switch;
- a thermal relay for the protection of the electric motor;
- a “forward running” contactor;
- a star-starting contactor;
- a delta-starting contactor;
- a “reverse running” contactor.

The contactors are activated by a P.C. board, which checks the motor absorption through a current transformer, and their size suits the absorption indicated on the motor rating plate.



---

**CAUTION**

**The shredder user has to protect the mains to the electric switchboard by means of fuses suitable to feed three-phases electric motors, rated as reported in the electric component list, enclosed in the present manual.**

---

## 3.5 TECHNICAL FEATURES

### 3.5.1 Weights table

Table 3-1 – Weights [kg] - Typical

| SHREDDER      | Shredding chamber | Supporting stand | Feeding hopper | Feeding hopper for cases | Feeding hopper without cover | Electric motor | Electric switchboard | Control panel |
|---------------|-------------------|------------------|----------------|--------------------------|------------------------------|----------------|----------------------|---------------|
| HDD Gladiator | 210               | 65               | 25             | //                       |                              | 20             | 15                   |               |
|               |                   |                  |                |                          |                              |                |                      |               |

Table 3-2 – Weights [kg] – Product to be supplied

| SHREDDER      | Shredding chamber with electric motor | Supporting stand | Feeding hopper | Feeding hopper for cases | Feeding hopper without cover | Electric motor | Electric switchboard | Control panel |
|---------------|---------------------------------------|------------------|----------------|--------------------------|------------------------------|----------------|----------------------|---------------|
| HDD Gladiator | 300                                   | 65               | 25             | //                       |                              | 20             | 15                   |               |

### 3.5.2 Dimensions table

Table 3-3 – Dimensions [cm] - Typical

| SHREDDER      | Shredding chamber | Supporting stand | Feeding hopper | Feeding hopper for cases | Electric switchboard |
|---------------|-------------------|------------------|----------------|--------------------------|----------------------|
| HDD Gladiator | 90X39X74          | 76X76X91         | 44X53X67       | //                       | 40X50X18             |
|               |                   |                  |                |                          |                      |

Table 3-4 – Dimensions [cm] – Product to be supplied

| SHREDDER      | Shredding chamber with electric motor | Supporting stand | Feeding hopper | Feeding hopper for cases | Electric switchboard |
|---------------|---------------------------------------|------------------|----------------|--------------------------|----------------------|
| HDD Gladiator | 98x39x74                              | 76X76X107        | 36x64x35       | //                       | 40X50X18             |

Dimensions: length x width x height (depth) in cm

### 3.6 DECLARATION OF THE SOUND EMISSION VALUES

The sound emission is considered with the shredder works without load in maximum nominal speed.

Table 3-5 – Level of average acoustic pressure

| SHREDDER SERIES | SOUND PRESSURE dB(A) |
|-----------------|----------------------|
| HDD Gladiator   | 66,4                 |

## 4. INSTRUCTIONS FOR INSTALLATION

### 4.1 PACKING, HANDLING, SHIPMENT AND TRANSPORT

#### 4.1.1 Packing and shipment

The shredder is dismantled in the main parts upon shipment: hopper, shredding chamber, switchboard, and supporting stand.

The machine, depending on the case, is delivered in one of the following arrangements:

1. Sufficiently blocked and covered on a truck, unpacked.
2. In a normal crate internally lined with tarred paper and blocked on a pallet for transport by sea.
3. In a crate internally lined with polythene sheets for road transport in Europe.
4. In containers with antirolling internal stops.

The choice between the above listed solutions depends on the transport distance, the client's orders and the lying time of the packed machine.

For types 2-3 (step above), an adhesive label is stuck onto 2 sides of the packaging which shows the following data:

- Destination;
- Weights. net – gross – tare;
- Bulk: length – width – height;
- Packing list carrier label (copy of the Packing-List inside the crate fixed to the machine).

#### 4.1.2 Unloading operations



---

**DANGER**

**Carry out the unloading operation with a suitable forklift (with capacity suiting the packed machine weight indicated on the adhesive label ).  
AT LEAST TWO SKILLED WORKERS MUST BE PRESENT DURING  
THE UNLOADING STAGE (forklift operators, crane operators).**

---



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**DANGER**

**Keep body and hands away while the machine is being lowered. Failure in complying with these instructions could cause serious injuries.**

---

#### 4.1.3 Unpacking

Open the packing, check the conformity of the components and verify their integrity.

The packaging material disposal is the addressee's responsibility and must be carried out according to the regulations in force in the Country where the shredder is used.

Once the packaging has been removed, no mishandling should be evident. If this is not the case, inform the Manufacturer's Assistance Service.

#### 4.1.4 Prearrangements for installation

Before starting assembly operations, make sure that the flooring can sustain the shredder's weight (see Table 3-1 – Weights) also considering the coefficient of security stated by the regulations in force.

The shredder must be installed on a suitable site, such as to allow normal machine running operations and routine maintenance (see the attached drawing and paragraph 2.7.2 Installation site). A minimum room of 600 mm must be kept free all around the shredder.



---

**CAUTION**

The shredder user has to protect the mains to the electric switchboard by means of fuses suitable to feed three-phase electric motors, rated as reported in the electric component list enclosed in the present manual.

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**DANGER**

To handle the shredder's components, use the following means: a fork lift truck or a trans pallet for the hopper and the supporting stand a crane for the shredding chamber. These lifting means must be in perfect working condition: the supplier declines any responsibility concerning the conditions and suitability of the handling means used. The load capacity of the above lifting means must suit the bulk to be moved. The movement should come about slowly, in sufficiently lit circumstances, with enough free space in the installation area.

---



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**DANGER**

For no reason are the personnel allowed to pass under the load or nearby it. Not even the signalling operator, who must provide assistance during the handling operations. The supplier declines any responsibility concerning this stage, which must be carried out by personnel qualified for handling industrial machinery (forklift operators, sling operators), duly equipped with the necessary individual protection (overalls, accident prevention footwear, work gloves, safety helmet, glasses ).

---

## 4.2 LIFTING AND ASSEMBLY OF THE SHREDDER



### **DANGER**

**The shredder chamber cannot be lifted by hooking onto the hopper, nor the wholly assembled machine can be lifted this way, since the hopper hooking holes are not foreseen to withstand the whole machine weight.**

Refer to the attached drawing for details.

The shredder assembly should be carried out following this sequence:

- Position the supporting stand making sure that it is placed well on the ground .
- Make sure that the two parallel axes are on level with the support surface. For the series 2R50HP make sure that the support surface is perfectly horizontal.
- Fix it to the flooring according to the indications given on the drawing.
- For the series 2R50HP, assemble the eye-bolts.
- Check that the lifting eye-bolts of the shredding chamber are well locked and lined up to the chains.
- Lift the shredding chamber (**Table 4-1**) hooking it onto the proper holes and place it on the supporting stand. Make sure that the stand may guarantee a perfectly level and horizontal supporting surface.
- Insert the fixing bolts and tighten them.
- Lift the hopper, hooking it onto the right holes, and place it on the shredding chamber.
- Fix the hopper on the shredder; insert the fixing bolts of the feeding hopper and tighten them properly.

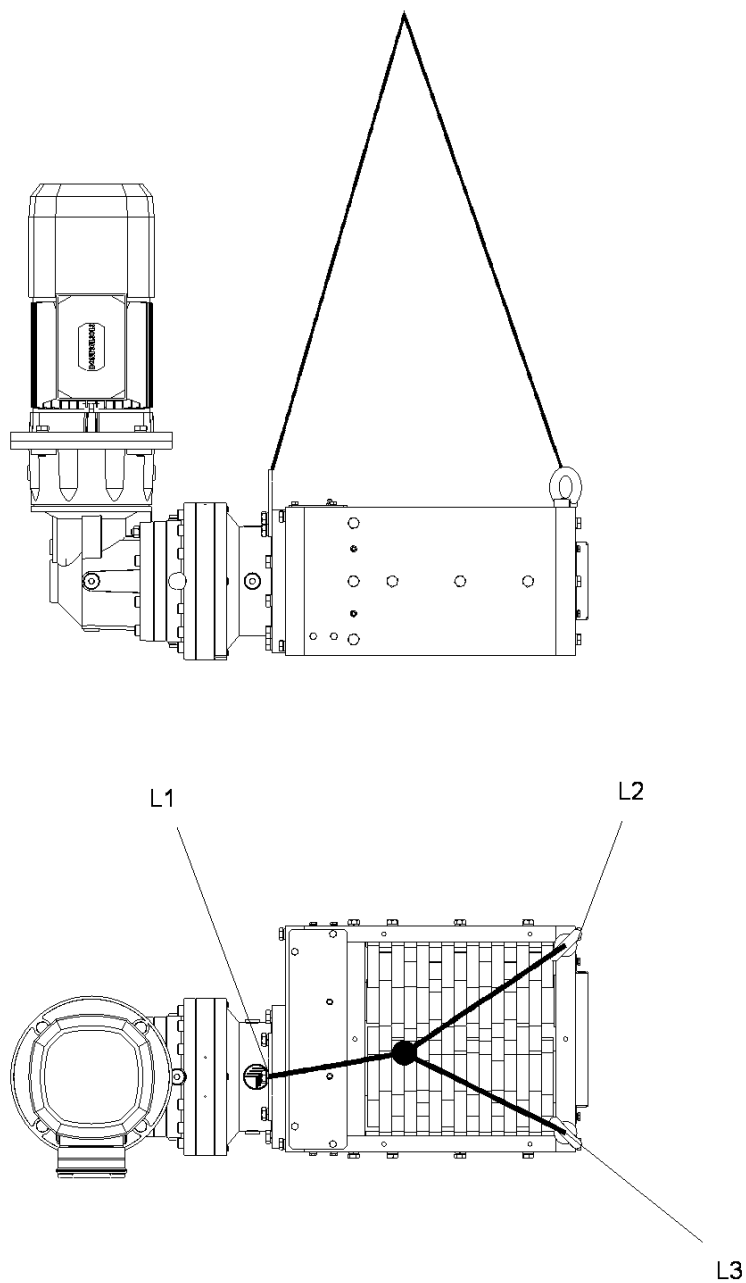
### 4.2.1 Table of lifting chain

Table 4-1 – Assembly of the Shredder – Lifting Chain

| SHREDDER<br>MODEL | CHAIN<br>REFERENCE | CHAIN<br>LENGTH | CHAIN MIN.<br>LOAD | REFER TO   |
|-------------------|--------------------|-----------------|--------------------|------------|
| HDD Gladiator     | L1                 | 550mm           | 700kg              | Figure 4-1 |
|                   | L2                 | 630mm           |                    |            |
|                   | L3                 | 630mm           |                    |            |



## 4.2.2 Lifting of the shredding chamber for series HDD Gladiator



I680013

Figure 4-1 – How to lift the shredding chamber for series HDD Gladiator

## 4.3 WIRINGS TO THE MAINS



### IMPORTANT NOTICE

**This action must be carried out by a qualified technician (electrician) in full compliance with the Standard in force.**

Before connecting the machine to the mains it is necessary to:

- check that mains voltage and frequency are correct;
- check the earthing plant for efficiency at the current socket;
- max. variation of mains voltage:  $\pm 10\%$ ;
- max. variation of mains frequency:  $\pm 2\%$ ;
- Use the feeding cable with the section indicated in the relevant table in the Electrical Equipment list;
- The feeding cable (three-phase + PE) is connected, according to the regulations in force in the user's Country, to the relevant clamp-box indicated in the electrical drawing;
- Check that the socket where the equipment must be plugged into has a higher or, however, a sufficient power compared to the maximum power absorbed by the machine;
- Check that the equipment does not lay on the feeding cable;
- Protect the power supply line from excess voltage (e.g. atmospheric electricity);
- Protect the power supply line from overcurrent with opportunely co-ordinated devices (e.g. automatic breakers);
- a neutral conductor is not required.

## 5.SETTING AND FIRST STARTING

### 5.1 PREPARATION, INSPECTIONS AND TESTS BEFORE START-UP.

Before starting work, carry out a first no-load running of the machine. Furthermore, proceed with the following controls:

#### 5.1.1 Grid holder (if installed) or rotating screen (if installed)



---

**CAUTION**

Before starting the shredder always check that the bolts which secure the grid-holder to the shredding chamber are perfectly tightened.

---



---

**WARNING**

Before starting the shredder, always check if the bolts that secure and close the rotating screen to the grinding body are properly tighten.

---

#### 5.1.2 Motor

Check that the motor is wired in accordance with the mains voltage. Specifically, check that the wirings inside the clamp box have been properly carried out according to the specifications given on the motor rating plate.

#### 5.1.3 Transformer

Check that the transformer inside the switchboard is properly connected, in accordance with the mains voltage.

#### 5.1.4 Thermal relay

Adjust the relay in accordance with the maximum current indicated on the motor rating plate.

### 5.1.5 Oil and grease lubrication before starting HDD Gladiator



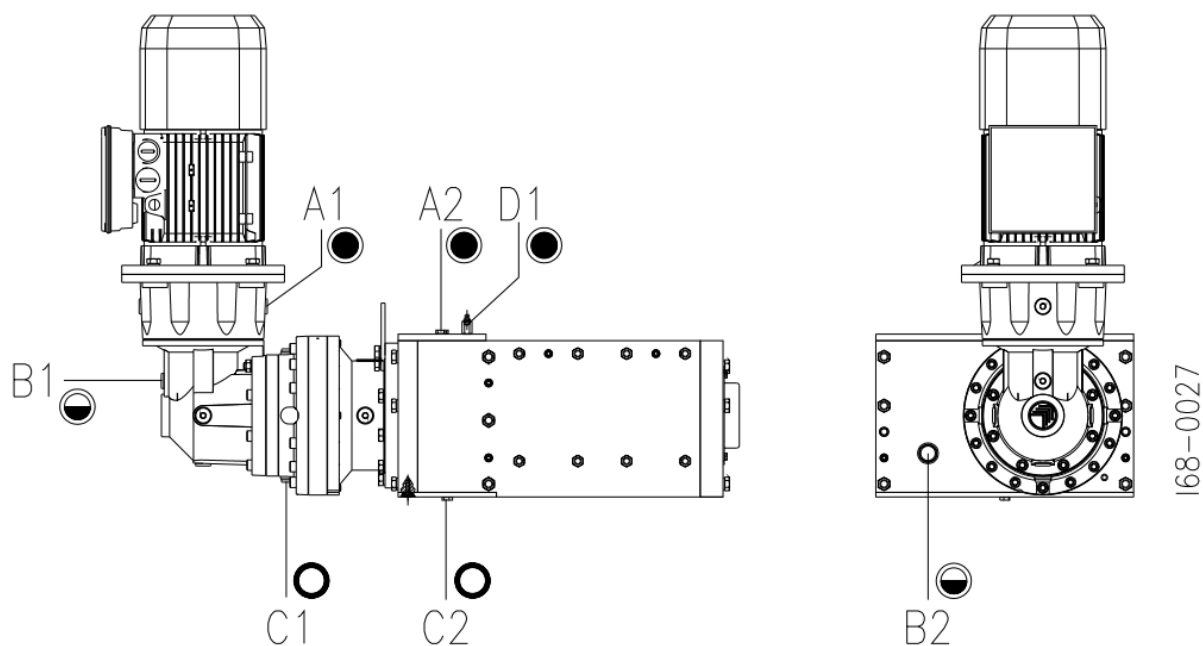
#### CAUTION

The shredder can be supplied either with or without oils, depending on transport distances and specific agreement with the customer. The quantities reported in the Table 5-1 are indicative; always proceed with filling until the level indicators or plugs level is reached.

Check the presence of oils and grease and if necessary fill the epicycle and the gear reduction units with oil and the rear bearings with grease.

Table 5-1 – Oil filling – Quantity

| MANUFAC.        | OIL TYPE                           |                     | GREASE TYPE                    |            |
|-----------------|------------------------------------|---------------------|--------------------------------|------------|
| MOBIL           | MOBILGEAR AR600 XP220              | MOBILGEAR 634       | AREXONS FIXATIVE GREASE TG 248 |            |
| SHELL           | OMALA EP 220                       | OMALA 460           | LOCTITE GREASE 8101            |            |
| AGIP            | BLASIA 220                         | BLASIA 460          |                                |            |
| ESSO            | SPARTAN EP 220                     | SPARTAN EP 460      |                                |            |
| MEXOIL          |                                    | ROTOR 46            |                                |            |
|                 | LUBRICATION ZONES AND OIL QUANTITY |                     | GREASE ZONE                    |            |
| SHREDDER SERIES | PLANETARY GEARBOX                  | GEAR REDUCTION UNIT | HOUSING BEARINGS               |            |
| HDD Gladiator   | A1 - 3l - 2,7 Kg                   | A2 – 1,5l – 1,35 Kg | //                             | Figure 5-1 |



A= Oils filling plug, B= Oil Level indicators, C= Oil Draining taps, D= Grease filling

plug Figure 5-1 – Oil/grease Lubrication Zones for series HDD Gladiator

## 5.2 FIRST START-UP (NO LOAD START-UP)



### IMPORTANT INFORMATION

The start sequence is also reproduced in general terms in the attached flowchart. See chapter 9.



### CAUTION

The no-load running of the shredder with new blades must be limited to the few minutes that are deemed necessary to check the machine for proper operation, otherwise the possible friction in-between the new blades can overheat them endangering their life severely.



### CAUTION

If the machine has been inactive for a long time, it is necessary to spread some lubricating oil on the blades at the first start-up, to avoid them being damaged by the friction caused by rust which may have formed.

### 5.2.1 Start-up and checks sequence

- Turn the main disconnecting switch onto position 1: the white signal lamp MAINS lights up.
- Pull the EMERGENCY push-button.
- Push the RESET button: the yellow signal lamp will start blinking. This means that the machine is ready to run and therefore the utmost care must be taken.
- Turn the selector switch FORWARD/REVERSE RUN 1-2 onto position 1 and release it: the machine will start the "forward running" and the green signal lamp BLADES WORK will light up.
- Check that the shafts turn towards the centre: if they turn the opposite way, exchange two phases to reverse the revolving direction.
- Check that the safety interlock designed for the operator's protection is correctly working, by opening the door and checking that the shredder stops immediately.
- After this check, close the door and push the RESET push-button.
- Also check that the EMERGENCY push-button designed for the operator's protection is correctly working, by pressing it and checking that the shredder stops immediately.
- After this check, release the EMERGENCY push-button and push the RESET push-button.

## 5.3 ADJUSTMENTS ON BOARD OF THE SHREDDER (EXCEPT FOR F10RI SERIES)



### CAUTION

Since the adjustments on the electronic controls are particularly delicate they are carried out only by the manufacturer at the machine start-up.

Should it be necessary to modify these adjustments, please contact our Technical Department before proceeding. Problems caused to adjustments not authorized by SatrindTech will cancel any guarantee on the machine.

All the machine working stages are controlled by a PC board, as shown in the figure. The machine overload signal is given by a saturable current transformer, whose primary winding consists of one of the motor's feeding phases.

When an overload occurs, an automatic reverse cycle of the blades begins (reverse rotation of shafts) whose tuning can be adjusted through the potentiometer P2 from a minimum of 6 to a maximum of 11 seconds.

The sensitivity of the reverse device is adjusted through the potentiometer P1: turning it in anticlockwise, sensitivity increases, i.e. the automatic reversal comes about at a lower load level. Vice versa, sensitivity decreases.

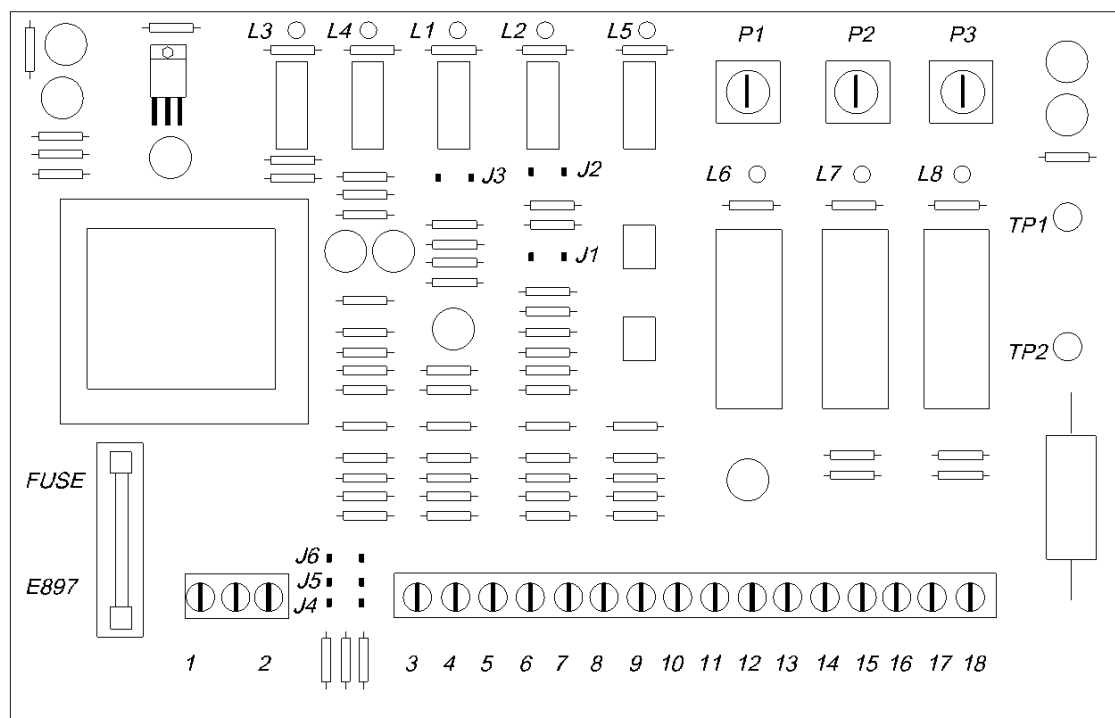


Figure 5-2 – P.C. Board E897

## 5.4 ELECTRICAL TESTS ON THE SHREDDER



### CAUTION

---

If the shredding installation is done at Customer charge it will be necessary to execute the electrical tests on the machine as per the EN 60204.

---

The customer test results must be send to intimus Technical Service.



### CAUTION

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If this data will be missing by the Customer intimus International GmbH will cancel any guarantee on the machine.

---



## 6. SHREDDER OPERATION

At this point, once the first no-load run has been carried out and the relative checks and tests have been made, the shredder is ready to be put into service.



### CAUTION

For a correct machine running, it is advisable that the operator has read and understood the instructions well. If doubts still exist, it is better to get in touch with our Customer Assistance Service.



### DANGER

The working areas, where the operator must work, are those between the machine control panel, the material loading area and the unloading area. ANY OTHER AREA IS OUTSIDE THE OPERATOR'S COMPETENCE.



### DANGER

The operator in charge of the machine must be a worker specially skilled to run it after having seen it or having been instructed on the modality of use of the machine. The operator **MUST NEVER INTERVENE** on the machine for inspection or maintenance operations which are the competence of qualified personnel.

To carry out the vessel substitution, the operator must stay away from the supporting stand.

### 6.1 SHREDDER START

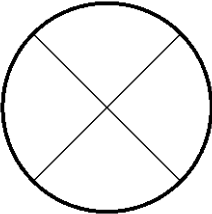
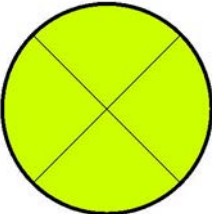
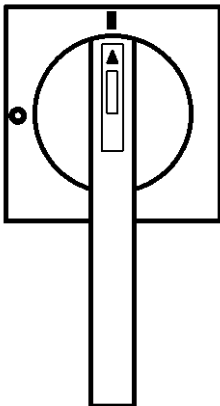
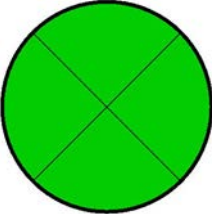
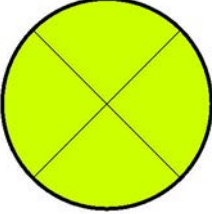
Check that the EMERGENCY push-button is released and that the shredded material collection vessel is present inside the supporting stand.

Check that the door is closed so that the micro switch allows the shredder to be started.

#### 6.1.1 Operation and alarm controls and indicators

The starting, adjustment and stop operations of the machine, including the alarm and proper operation indicators, are controlled from the machine's switchboard. As regards the names of the components which appear in the switchboard and their relative function, see the drawing of the switchboard front and the table hereby shown.

Table 6-1 – Controls and indicators – Typical

| CONTROL                                                                             | DEVICE                                  | FUNCTION                                                                                                                                            |
|-------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
|    | 1. MAINS<br>Permanent white lamp        | It signals switchboard energized.                                                                                                                   |
|    | 2. BLINKER<br>Yellow Lamp               | It signals that the shredder is ready for starting.                                                                                                 |
|   | 3. MAIN SWITCH                          | It disconnects the power line inside the switchboard. The connecting conductors from the inlet clamps to the disconnecting switch remain energized. |
|  | 4. BLADES WORK<br>Permanent green lamp  | It signals that the shredder is running forward.                                                                                                    |
|  | 5. JAM THERMAL<br>Permanent yellow lamp | It signals the thermal relay has jammed and motor has stopped.                                                                                      |

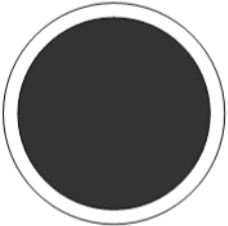
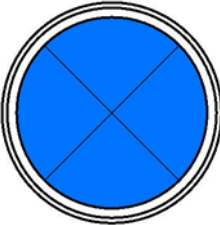
| CONTROL                                                                             | DEVICE                                               | FUNCTION                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <b>6. FORWARD/REVERSE RUN 1-2</b><br>Selector switch | On position "1" the machine starts the shredding operation; on position "2", holding the selector switch (hold to run), the blades run in reverse direction and as soon as the selector switch is released, the shredder stops. |
|    | <b>7. STOP BLADES</b><br>Black push-button           | It stops the motor rotation (blades rotation).                                                                                                                                                                                  |
|   | <b>8. EMERGENCY</b><br>Push-button                   | Emergency stop function.                                                                                                                                                                                                        |
|  | <b>9. RESET</b><br>Blue push-button                  | It resets the electric control circuit. It must be pressed in case of voltage drop and after the intervention of a safety device (micro-switch, emergency push-button).                                                         |



Figure 6-1 – Control panel lay-out (Current supply)



Figure 6-2 – Electric switchboard internal view (Current supply)

## 6.1.2 Starting sequence

The shredder start is manual-operated. Proceed as follows

- Turn the MAIN SWITCH to position 1: the white signal lamp MAINS will light up.
- Push the RESET button: the yellow signal lamp will start blinking, thus signalling that the machine is ready to operate, and therefore the maximum attention must be paid.
- Turn the selector switch FORWARD/REVERSE RUN 1-2 onto position 1 and release it: the machine will start the "forward running" and the green signal lamp will light up.
- Keep the shredder in no-load running for 30÷40 seconds only.
- Feed the material into the feeding hopper.



### IMPORTANT NOTICE

**Do not let the blade-holding shafts run without material, to prevent them from overheating and the blades from possibly seizing.**



### IMPORTANT NOTICE

**Should it be necessary to interrupt the work and, more in detail, if you envisage that the machine may remain unguarded, always disconnect the main switch.**

## 6.1.3 Vessel substitution



### DANGER

**This operation must be carried out after having stopped the shredder and following the instructions given in chapter 7 MAINTENANCE.**

When the collection vessel placed under the shredder must be substituted, the operator must:

- switch off the shredder by pressing the STOP BLADES button;
- open the grid doors and change the vessel.

The micro switch installed on the doors prevents the machine from restarting and allows the operator to work in safety conditions.

After having closed the doors again:

- push the RESET- button
- restart the shredder by turning the selector switch FORWARD/REVERSE RUN 1-2 to position 1: the machine will start running again and the green signal lamp BLADES WORK will light up.

## 6.2 SHREDDER STOP

### 6.2.1 Normal stop

To stop the shredder in normal work conditions, press the STOP BLADES-button and check that the green light BLADES WORK, which signals the shredder direction, extinguishes.

### 6.2.2 Stop at the end of work

To stop the shredder in normal work conditions, press the STOP BLADES-button and check that the green light BLADES WORK which signals the shredder direction, extinguishes.  
Disconnect the MAIN SWITCH and lock it

### 6.2.3 Emergency stop

To stop the shredder in emergency work conditions, press the EMERGENCY push-button: the shredder will stop immediately.

### 6.2.4 Reset

To prepare the shredder for a new start:

- check that the material collection vessel is empty;
- For the series with the gates check that the doors are closed so that the safety micro switches allow the machine to be started;
- check that the emergency push-button is released;
- repeat the start operations already described.

## 6.3 ELECTRONIC CONTROLS (EXCEPT FOR F10RI SERIES)

The shredder operation is controlled by an electronic board.



### IMPORTANT NOTICE

The adjustments described hereby must be carried out by skilled electricians.

### 6.3.1 Intermittent working

Fit the jumper J1: the circuit makes the machine stop and restart automatically according to the timing pre-set through the trimmer P3. The whole cycle (work + stop) is 60 seconds long, by increasing the work times, the stop time decreases and vice versa.

This is used to limit the machine production when feeding other machines with lower capacity.



### **6.3.2 Automatic reverse (only when the machine is set for intermittent working)**

Fit the jumper J3 (as well as J1).

This is used to provide an automatic reverse at the end of a working time to free the blades from any material which may remain trapped in excessive quantity in the lower part of the chamber.

### **6.3.3 Reverse test**

Fit the jumper J2 or short-circuit the pins with a screwdriver: the machine will reverse its revolving direction.

This is used to check the P.C. board operation.

### **6.3.4 Automatic machine starting and stopping by remote operation**

(Only if the shredder is connected to other machines).

Operating on terminal 6 of the P.C. board, through a clean contact which closes to ground terminal 3 or 4, it is possible to start or stop the machine.

This control is used when the machine is connected and operates in line with other machines that must give their permissive signal.

There are two possible solutions:

1. Terminal 6 becomes operative only after the operator has started the machine through selector switch. J4-J5 closed – J6 opened. From this moment on, the machine works when terminal 6 is closed with terminal 3 or 4 and stops when it is opened. Fit jumpers J4 and J5 and leave jumper J6 open.
2. Terminal 6 is continuously operating and the machine can be started even without the operator's intervention. In this case, the installer must take the necessary precautions to avoid whatever hazardous situation.
  - Fit jumper J6 and leave J4 and J5 open.
  - From this moment on, the machine works when terminal 6 is closed with terminal 3 or 4 and stops when it is opened.



## 6.4 ANOMALOUS SITUATIONS, EMERGENCIES, ALARMS



### CAUTION

Should one of the anomalous operating conditions described in the trouble-shooting table occur, remember that the operator is only allowed to stop the machine. He must then turn to skilled personnel for the removal of the cause of such anomalous condition.

### 6.4.1 Overload reverse

During the work, it may happen that the presence of unshreddable material can cause overloading on the blades and therefore the shredder activates the reverse cycle described in Chapter 5 SETTING AND FIRST STARTING (5.3 ADJUSTMENTS ON BOARD OF THE SHREDDER). Should the reverse cycles be started too frequently, because the material is too hard or even unshreddable, the thermal relay will stop the machine, and at the same time will switch on the red signal yellow JAM THERMAL.

In this case the electrical maintenance operator must intervene and proceed as follows:

- turn off the shredder and disconnect the main switch;
- open the switchboard;
- wait till the relay cools down (approx. 5 min.)
- reset the relay by pressing the relevant reset button;
- close the switchboard;
- push the RESET-button and turn the selector switch F 1-2 onto position 2; make the machine work in reverse run, to free the blades from the material which has caused the overloading

### IMPORTANT NOTICE

If it is necessary to check that there are no foreign bodies inside the machine, the person in charge of maintenance must be called for intervention.



See also prescriptions on warning paragraph 2.3 INCORRECT AND/OR IMPROPER USE AND BEHAVIOUR.

If the overloading is caused by a too massive material feeding, it is necessary to batch it to obtain a more regular operation.

### IMPORTANT NOTICE

The reverse run of the machine must not be considered as a regular working mode: should the shredder jam, it is compulsory to remove the cause of the overload and check that the working condition of the machine does not exceed the stated limit of capacity. It is absolutely forbidden to let the shredder work when the reversals occur frequently, because the blade-holding shaft would be forced to an anomalous stress and seriously damaged.



## 6.4.2 Reset after an emergency

To prepare the shredder for a new start:

- check that the material collection vessel is empty;
- check that the doors are closed so that the safety micro switches allow the machine to be started;
- check that the emergency push-button is released;
- repeat the start operations already described on paragraph 6.1.2 Starting sequence.

## 6.5 CLEANING AND PUTTING THE MACHINE OUT OF SERVICE

### 6.5.1 Cleaning of the shredder

The shredder does not need particular cleaning operations when used for treating "clean" materials (e.g. plastic, wood, paper, aluminium etc. which do not contain polluting substances). If on the contrary, sticky or resinous materials, or substances which could have a chemical reaction and corrode the shredder's mechanical parts are treated, it will be necessary to clean the machine at the end of each work shift.

To carry out this operation, it is necessary to run the machine and feeding it with inert material which, passing through the blades, removes the residues of the previous working cycle.

Rags, paper, and sawdust, possibly soaked in lubricating oil may be profitably used to this purpose.

By checking the state of material coming out, the operator may establish whether the cleaning operations have been sufficient or not.

### 6.5.2 Putting the machine out of service

Clean the machine, if necessary, as described above. At the end, disconnect the main switch, lock it and disconnect the machine from the power mains.

### 6.5.3 Shredder removal and/or reallocation



#### **IMPORTANT NOTICE**

**The operations must be carried out by skilled technicians who avail themselves of the transport and handling means and systems already described in Chapter 4 INSTRUCTIONS FOR INSTALLATION.**

If the shredder must be set aside in a place different from that of installation, proceed as follows:

- Disconnect the machine from the power mains.
- Disconnect the feeding cable from the switchboard terminals.
- Dismantle the hopper.
- Dismantle the shredding chamber from the stand and lubricate the blade surfaces with oil. Cover it suitably.
- Take out the bolts from the stand and remove it.

#### **6.5.4 Reallocation and installation**

Follow the instructions given in chapters:

- Chapter 4 INSTRUCTIONS FOR INSTALLATION.
- Chapter 5 SETTING AND FIRST STARTING.



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## 7. MAINTENANCE



### IMPORTANT NOTICE

Before proceeding with whatever type of intervention regarding machine maintenance, carefully read the instructions contained in this manual along with the notices present on the machine itself.

Maintenance interventions include a series of checks and periodical routine interventions to be carried out at previously established time intervals; other types of extraordinary interventions depend essentially on the work conditions and therefore on the grade of wear the shredder suffers.

For interventions on the blades, special equipment supplied along with the shredder and illustrated in the picture is required. The following table indicates the tools list and the use for which each tool is supplied.

### 7.1 TOOL SUPPLIED FOR INTERVENTIONS ON THE BLADES

#### 7.1.1 Tools supplied table

Table 7-1 – Tools supplied for interventions on the blades

| DESCRIPTION                                           | CODE     | Q.TY |
|-------------------------------------------------------|----------|------|
| <b>Shredder series HDD Gladiator</b>                  |          |      |
| Galvanized Screw TCE M12X70 UNI 5931                  | 94-01490 | 1    |
| Galvanized wide flanged chamfered washer M12 UNI 6593 | 94-30225 | 1    |
| Wrench for locknuts clamping KM7                      | S68-0007 | 1    |

## 7.2 CHECKS WHICH CAN BE MADE DURING SHREDDER NORMAL OPERATION

### 7.2.1 Oil levels

#### EVERY 250 WORKING HOURS



#### **CAUTION**

---

The shredder can be supplied either with or without oils, depending on transport distances and specific agreement with the customer. The quantities reported in the table are indicative; proceed always filling until the level sign or plug is reached.

---

Check the oil level in the reduction unit box and in the bearings housing through the level indicators shown in the paragraph 5.1.5.

For oils/grease type, refer to **5.1.5**.

## 7.3 CHECKS RESERVED TO THE MAINTENANCE TECHNICIAN



### **DANGER**

**All the described maintenance operations in this paragraph must be carried out with shredder stopped and with main switch disconnected and locked for safety against undesired starting.**

### 7.3.1 Blades

#### **EVERY 250 WORKING HOURS**

It is extremely important to check that the blades are perfectly tightened because, otherwise, they could interfere with each other and be damaged or break.

To carry out this check – always with machine stopped and main switch disconnected and locked – first of all, the hopper must be dismantled:

- loosen the hopper fastening bolts;
- hook the hopper;
- lift it away from the shredding chamber and place it on the ground.

Carry out the following checks:

- Check there are no spaces between the blades and spacers to be seen.
- Check that the blades do not rotate on the shaft.

To carry out this check, give small blows to the blade circumferences with a nylon hammer



### **CAUTION**

**Do not use iron hammers or other iron tools because the blades could be damaged and metal splinters could fly off and put the operator at risk.**

If it is found that the blade unit is not perfectly tightened, the threaded rings must be tightened – see the instructions in the following paragraphs.

### 7.3.2 Tightening the blades' pack for series HDD Gladiator

1. Remove the frontal protection cover
2. Free the threaded rings from the lock washer
3. With a sector key, screw the threaded ring back on (60daNm)
4. Restore the lock with the lock washer
5. Fit the frontal protection cover again

Should the threaded ring tightening be insufficient or, else, part of the shredded material remains trapped between the blades and the spacers, it will be necessary to dismantle the blade unit.

#### 7.3.2.1 Dismantling the blades' pack

1. Remove the frontal protection cover
2. Push out the dowel pins and the fastening screws to remove the frontal flange
3. Unlock the lock washer and unscrew the threaded rings on the shafts

Hook onto the first blade with the extractor; pull out the first group of seals and the bearing together

4. Remove the blades, the spacers and the cleaning sectors

**CAUTION**

If the cleaning sector is not easily removed (e.g. there is some material stuck) it is still possible to hook onto the blade to pull out the second group of bearings. The operator must however pay extreme attention because the sector could free itself and fall during the operation.

**CAUTION**

The operator must use protective gloves while taking off the blade unit.

**CAUTION**

Should the blades be blocked, the operator must not use hammers or other iron tools to help himself with the extraction, because the blades could be damaged and also such tools could cause dangerous metals splinters flying off. If necessary, use a nylon hammer, or place a piece of aluminium between the hammer and the blade to be released.

**CAUTION**

It is prohibited to heat the blades or the spacers to extract them from the shaft because they could be damaged.



### 7.3.2.2 Reassembling the blades' pack

The blades assembly diagram is indicated in Shredder Data Sheet at the beginning of this Manual (Illustration of Work surface and number of blades).

- Reassemble the blades both shafts placing them as indicated in the drawing, placing the spacers and cleaning sectors in between.
- Reassemble the front flange.
- Fit the pins again.
- Screw back on the bolts and tighten them (torque 4daNm).
- Insert the group of seals.
- Reassemble the left shaft bearing, then the right.
- Reassemble the threaded ring on fast shaft and tighten it to 60daNm.
- Then set the threaded ring on slow shaft and tighten it to 60daNm, taking care of gaps between blades: the clearances must be uniform from the first to the last blade.

### 7.3.3 Motion tests

In order to verify that the full reassembling has been properly made it is advisable to run the machine shortly without hopper.



#### **DANGER**

The following operation is carried out with hopper dismantled, and therefore without any protection: therefore the operator must pay the maximum attention and ensure that there are no unauthorised persons in the work area. The operator must also ensure that no tools or foreign materials have remained on the blades. He must keep on distance when making the visual check and wear the proper protections (glasses, safety helmet).

- start the shredder and make it run in no-load conditions for a few minutes, checking no interference among the blades, nor seizures and clearances are present.
- switch off the shredder and disconnect it from the power supply mains once again.

### 7.3.4 Final settings

Re-tighten the first threaded ring on each shaft with the torque as follows and aligning one of the 4 insertion locations of the safety tab, and lock it as per Table 7-2.

Table 7-2 – Tightening torque

| SREDDER SERIES | TORQUE |
|----------------|--------|
| HDD Gladiator  | 60daNm |

To make the position of the location for tab insertion match, continue screwing up the threaded ring, not unscrewing it.

Reassemble and tighten the second threaded ring on each shaft and lock it as per Table 7-2 with the safety tab.

Check and re-tighten the stuffing rings fixing screws (version with additional seals, if installed).

Replace and fix the front cover (If installed).

Assemble the feeding hopper.

If everything is working perfectly, close the shredder definitively.

### 7.3.5 Replacing lubricating oils

**First replacement:** after 200 working hours.

**Maintenance replacements:** every 2500 working hours from the previous replacement, anyhow not later than one year after the last replacement.



#### **CAUTION**

The shredder can be supplied either with or without oils, depending on transport distances and specific agreement with the customer. The quantities reported in the following table are indicative; proceed always filling until the level sign or plug is reached.

For the Oil refer to paragraph 5.1.5. Empty out the oil contained in the epicycle and gear reduction units and in the bearings housing completely through the drain taps;

- Wash out the gearboxes and the housing with clean oil;
- Refill them again through the loading plugs.

The gear unit of the rotating screen for the F10RI series is normally provided with “long life” type lubricant and does not require periodical replacements during the entire life span of the gear unit.

### 7.3.6 Gears lubrication for series HDD Gladiator

#### **EVERY 100 WORKING HOURS**

Lubricate the gears adding 100 g of grease E.P. from the greasing point on the cover or removing the cover (machine must be stopped). If it is too much, unloading the grease left on the box under the gears.



#### **IMPORTANT NOTICE**

Please be sure that both gears are completely lubricated.

For the grease refer to paragraph 5.1.5.

### 7.3.7 Lubrication with grease of the electric motors



#### IMPORTANTE NOTICE

Check if the electric motor has greasing points for the front and rear bearings, as shown in the picture below. For motors with greasing points, follow the maintenance instructions.

In case of greasing points on the electric motors in correspondence to the bearings it is necessary to carry out the greasing with **grease** type **SKF LGMT3** (Table 7-3) or similar, as indicated in the Figure 7-1.



Figure 7-1 – Greasing point electric motors

Table 7-3 – Grease for electric motors bearings for operating temperatures up to 70°C

| SHREDDER SERIES | QUANTITY OF GREASE PER BEARING | WORKING HOURS |
|-----------------|--------------------------------|---------------|
| HDD Gladiator   | //                             | //            |

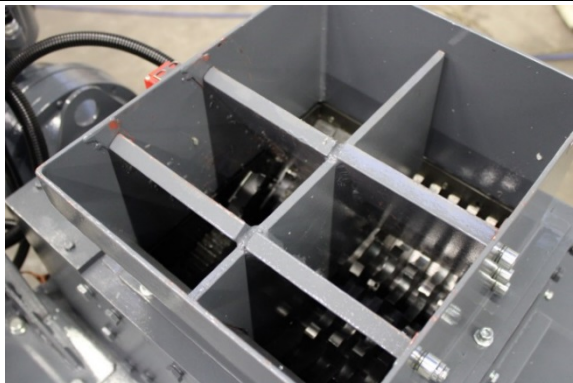


#### CAUTION

Vertical electric motors should be greased twice as often as horizontal motors.  
Regreasing time should be reduced if bearing operating temperature is in excess of 70°C.

### 7.3.8 Check and inspection of the blades pack

Being the loading hopper completely closed, it will not be possible to check the blade set condition from the outside. For this reason the hopper is hinged so that it will be possible to tilt it. In this way it will be possible to reach the shredding chamber only after having removed the screws blocking it. The opening sequence follows:

|                                                                                    |                                                                                     |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|   |   |
| <p>1. Remove the 6 M8 screws blocking the hopper.</p>                              | <p>2. Tilt the cover hopper.</p>                                                    |
|  |  |
| <p>3. Check the shredding chamber.</p>                                             | <p>3. After the check close the cover hopper and tighten the hopper screws.</p>     |



#### IMPORTANT NOTICE

Above sentence can be carried on only by service and maintenance team.



#### DANGER

The hopper is equipped with a safety switch that stops the shredder when the hopper is opened. Anyway before opening the hopper turn the main switch.

## 7.4 BLADE SHARPENING

The blades perform their best service when their profile is perfectly sharp-edged and cutting. Obviously, their working capacity decreases as wear increases. It is therefore advisable to re-sharpen the blades when their hooks are rounded and worn.

"A" is the original thickness: if the difference between "A" and "B" is greater than 5mm, you must re-sharpen.

To this purpose, please contact our Technical Service department.

To check the condition of wear of the blades, take the measurement as the drawing.

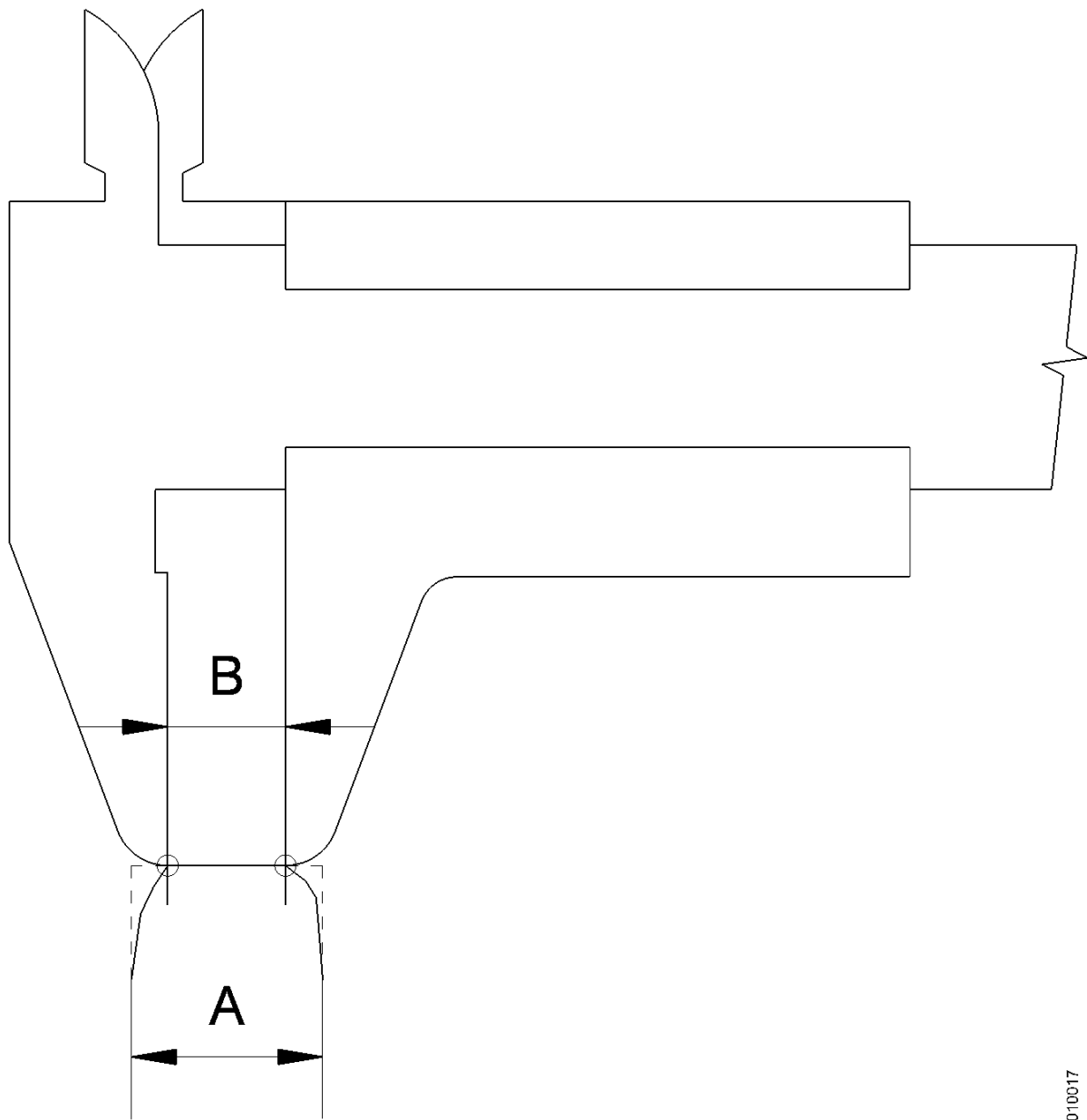


Figure 7-2 – Blade sharpening

1010017

## 7.5 SHREDDER DEMOLITION

Since there are different provisions in force in different countries, the laws and prescriptions imposed by the local government of the concerned country must be kept.



### IMPORTANT NOTICE

**The shredder demolition must be carried out by skilled personnel, both in the electrical and mechanical fields.**

Before starting the dismantling, an area that is sufficiently large and tidy must be created around the machine, to allow movement without creating further risks due to the environment.

Proceed as follows:

- disconnect the machine from the electricity supply mains;
- disconnect the electric cables coming out of the disconnect switch;
- disconnect the switchboard feeding cables;
- empty out the oils from the gear units and the bearings housing;
- remove the motor;
- remove the hopper;
- disassemble the rotating screen (for the F10HPRI series):
- open the shredding chamber and disassemble blades, spacers and cleaning sectors;
- remove shafts and gears;
- dismount the supporting stand frames;
- separate the parts of the machine according to their type: (i.e. metal, plastic, etc.) and send them to the differentiated salvage dumps centres.



### CAUTION

**Where necessary, stick to the legal procedures in force in the concerned country for dismantling machinery.**



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## 8. MAIN FAULTS AND FAILURES

### 1) THE MOTOR DOES NOT START

| CAUSE                                      | REMEDY                                                                   |
|--------------------------------------------|--------------------------------------------------------------------------|
| Emergency push-button pressed              | Release the emergency push-button, see paragraph 6.1.2 Starting sequence |
| Stand doors open                           | Close the doors, see paragraph 6.1.2 Starting sequence                   |
| Thermal relay tripped                      | See paragraph 6.4.1 Overload reverse                                     |
| Voltage drop or safety device intervention | Push the reset-button, see paragraph 6.1.2 Starting sequence             |

### 2) THE SHAFTS ROTATE IN REVERSED DIRECTION

| CAUSE                                   | REMEDY                                          |
|-----------------------------------------|-------------------------------------------------|
| Motor is incorrectly connected          | Exchange the two phases in the motor connection |
| Wrong move on direction selector switch | Turn the selector switch to forward running     |

### 3) THE MACHINE IS JAMMED BY AN OVERLOAD BUT IT DOES NOT REVERSE

| CAUSE                 | REMEDY                                                                    |
|-----------------------|---------------------------------------------------------------------------|
| Wrong system settings | Check the setting, see paragraph 5.3 ADJUSTMENTS ON BOARD OF THE SHREDDER |
| Faulty p.c. board     | Replace the p.c. board                                                    |

### 4) THE MACHINE CONTINUALLY REVERSES ITS DIRECTION OF REVOLUTION, AND STOPS BY EMERGENCY

| CAUSE                           | REMEDY                                                                                            |
|---------------------------------|---------------------------------------------------------------------------------------------------|
| Unshreddable material in hopper | Take out the the unshreddable pieces, see paragraph 6.4 ANOMALOUS SITUATIONS, EMERGENCIES, ALARMS |
| To massive feeding              | Reduce the feeding of material                                                                    |

### 4) RAM BLOCKED (IF PRESENT)

| CAUSE                           | REMEDY                                                                                            |
|---------------------------------|---------------------------------------------------------------------------------------------------|
| Unshreddable material in hopper | Take out the the unshreddable pieces, see paragraph 6.4 ANOMALOUS SITUATIONS, EMERGENCIES, ALARMS |



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## 9. ATTACHMENT

| Code         | Descrizione                                  |
|--------------|----------------------------------------------|
|              | Declaration of Conformity                    |
| I68-0033     | Blades schema                                |
| I00-0001     | Start-up flow-chart shredder electric-driven |
| S68-0035     | Shredding chamber drawing                    |
| A01537_0     | General drawing                              |
| SE68-0004-0  | Electric Diagram                             |
| SE68-0004-01 | Electric Components List                     |

**Konformitätserklärung**  
**Certificate of Conformity**  
**Attestation de Conformité**  
**Certificado de Conformidad**



|                                                                             |                              |
|-----------------------------------------------------------------------------|------------------------------|
| Bezeichnung der Maschine:                                                   | <b>Spezialshredder</b>       |
| Type of machine:                                                            | <b>Special Shredder</b>      |
| Description de la machine:                                                  | <b>Destructeur spécial</b>   |
| Descripción de la máquina:                                                  | <b>Destructora especial</b>  |
| Modell / Model / Modèle / Modelo:                                           | <b>intimus HDD Gladiator</b> |
| Typ / Type / Type / Tipo:                                                   | <b>555</b>                   |
| Artikel-Nr. / item number /<br>numéro d'article / número de la pieza:       | <b>55570x</b>                |
| Serien-Nr. / serial number /<br>numéro de série / número de serie:          | <b>555P01.000xx.Pxx</b>      |
| Baujahr / year of manufacture /<br>année de production / año de producción: | <b>2018</b>                  |

Hiermit wird bestätigt, dass vorgenanntes Produkt den Anforderungen der **Maschinen-Richtlinie 2006/42/EG** sowie der **EMV-Richtlinie 2004/108/EG** einschließlich allen bis heute veröffentlichten Änderungen bzw. Nachträgen entspricht. Der oben beschriebene Gegenstand der Erklärung erfüllt die Vorschriften der **Richtlinie 2011/65/EU** des Europäischen Parlaments und des Rates vom 8. Juni 2011 zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten. Das vorgenannte Produkt entspricht folgenden harmonisierten bzw. nationalen Normen:

We do hereby certify that the above mentioned product meets the requirements set forth in **EEC-Guidelines 2006/42** and **EMC 2004/108/EEC** including all changes and addendums to date thereto. The object of the declaration described above is in conformity with **Directive 2011/65/EU** of the European Parliament and of the Council of 8 June 2011 on the restriction of use of certain hazardous substances in electrical and electronic equipment. The above mentioned product meets the following harmonized and national standards:

Nous Vous Confirmons que le produit cité ci-dessus correspond aux **exigences des directives 2006/42/CEE** ainsi qu' à la **directive CEM 2004/108/CEE**, ci-inclus toutes les modifications ainsi que tous les suppléments publiés jusqu'à ce jour. L'objet de la déclaration décrit ci-dessus est conforme à la **directive 2011/65/UE** du Parlement européen et du Conseil du 8 Juin 2011 sur la limitation de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques. Le produit mentionné correspond aux normes citées ci-après:

Confirmamos que los productos arriba citados cumplen las exigencias de las **directivas 2006/42/CEE** y **CEM 2004/108/CEE**, incluidas todas las modificaciones publicadas hasta la fecha. El objeto de la declaración descrita anteriormente es conforme a la **Directiva 2011/65/UE** del Parlamento Europeo y del Consejo, de 8 de Junio del 2011, sobre restricciones a la utilización de determinadas sustancias peligrosas en aparatos eléctricos y electrónicos. Los productos citados corresponden con las siguientes normas:

Harmonisierte Normen / harmonized standards  
normes harmonisées / normas armonizadas

**EN 1088:1995+A2:2008**  
**EN 60204-1:2006+A1:2009**  
**EN ISO 13857:2008**  
**EN 55011:2009**  
**EN 61000-4-2:2009**  
**EN 61000-4-5:2006**

Nationale Normen / national standards  
normes national / normas nacional

CE-Bevollmächtigter / authorized person of CE / personne autorisée de la CE / persona autorizada por CE:  
**intimus International GmbH; Bergheimer Straße 6-12; D-88672 Markdorf / Germany**



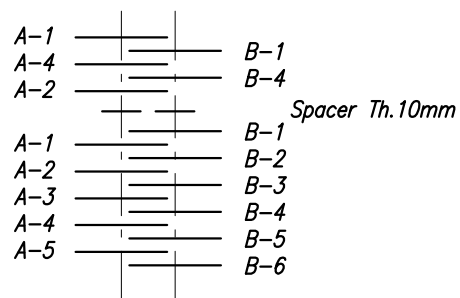
Postfach / p.o.box 1420  
D-88672 Markdorf / Germany

2018/11

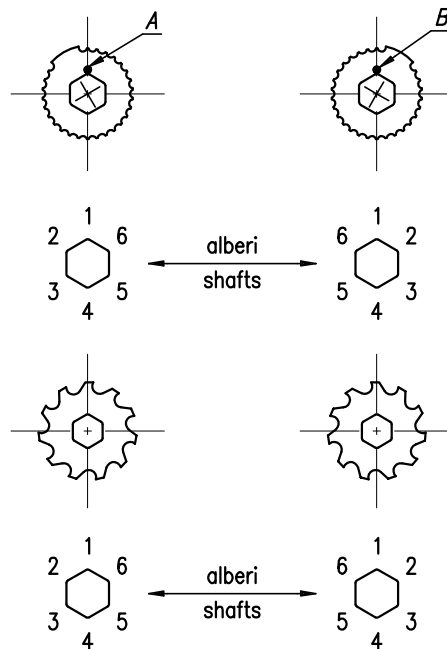
**Javier Ortiz de Zárate**  
Geschäftsführer  
Managing director  
Directeur général  
Director General

28.5/12 mm.

Work surface: 300 x 305 mm



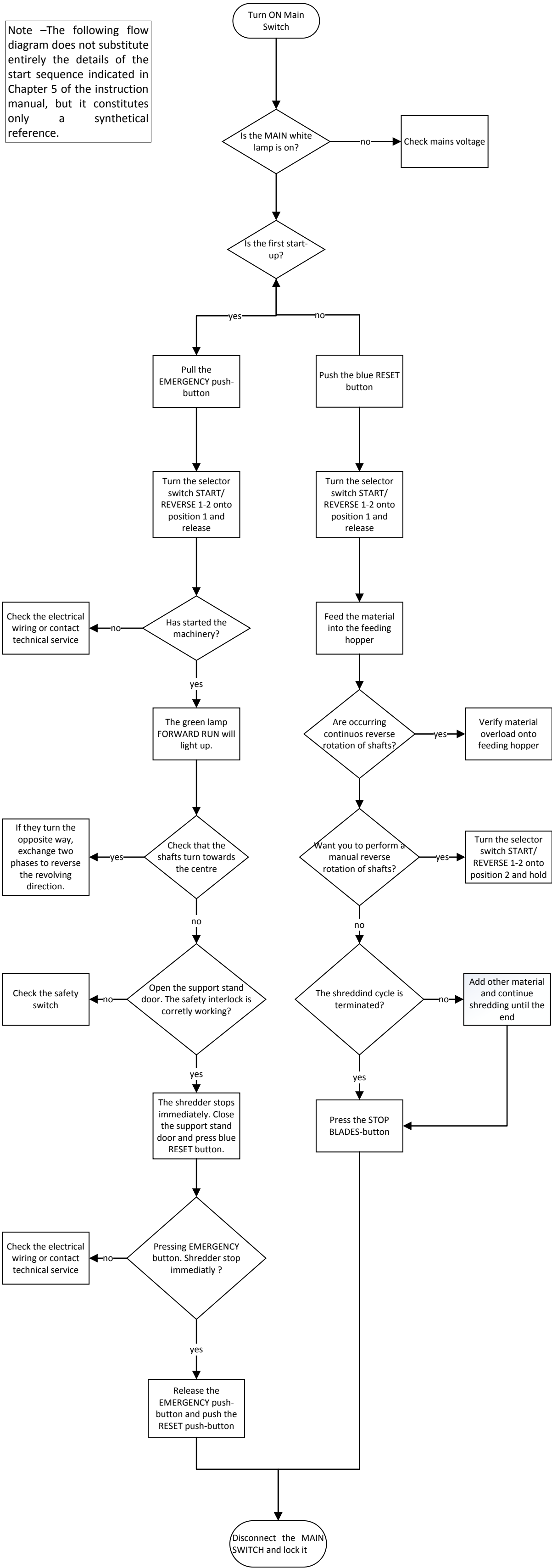
5 single-hook blades, 28.5 mm thickness



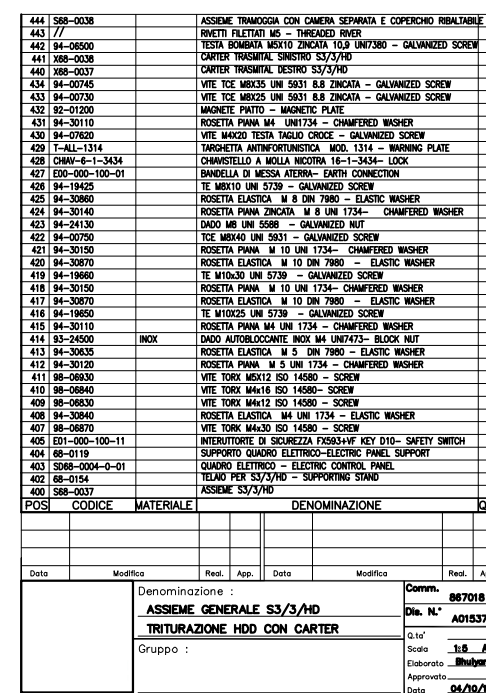
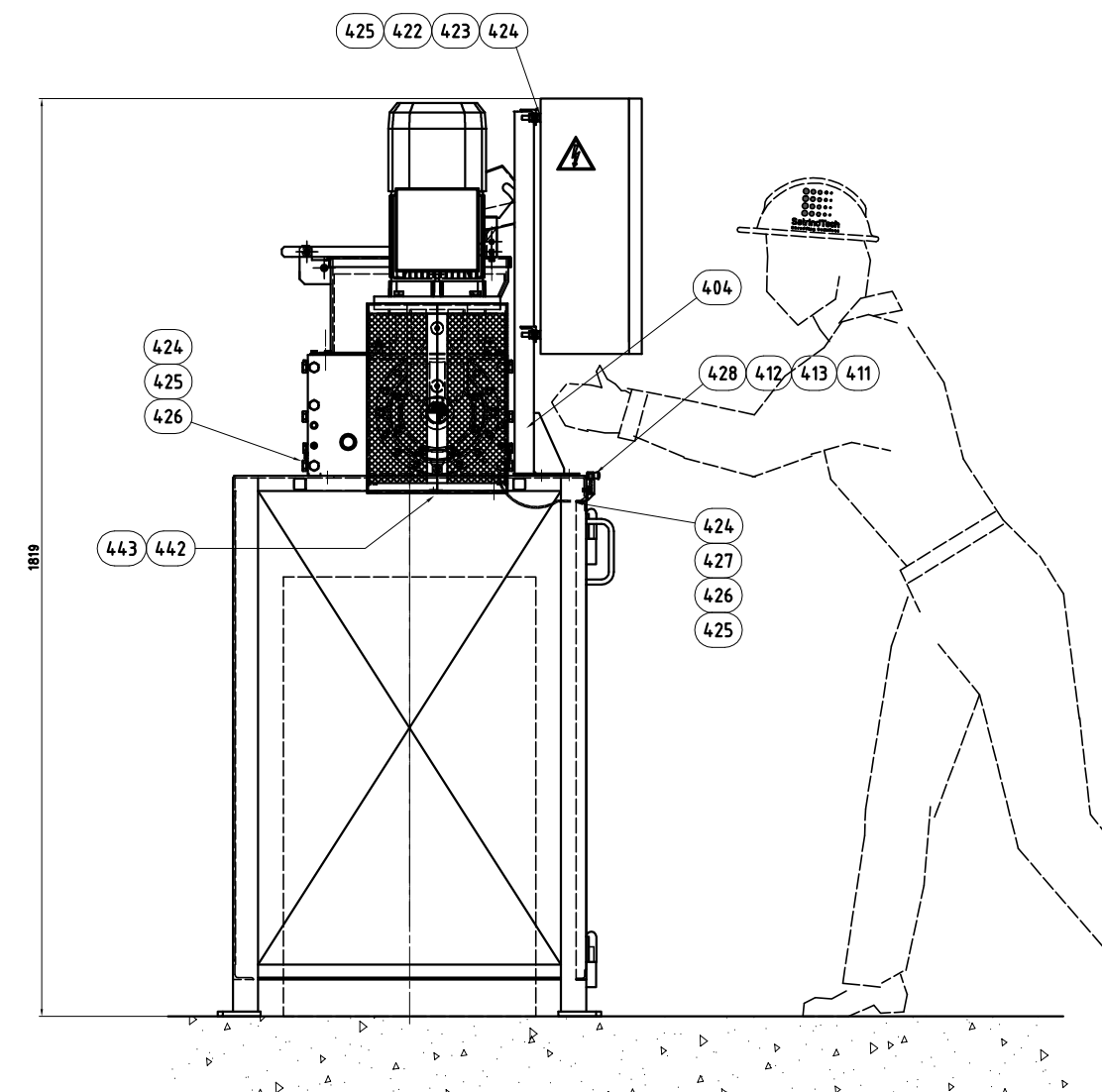
Dwg. 168-0033

START-UP FLOW-CHART SHREDDER ELECTRIC-DRIVEN

Note –The following flow diagram does not substitute entirely the details of the start sequence indicated in Chapter 5 of the instruction manual, but it constitutes only a synthetical reference.

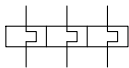
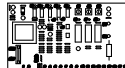
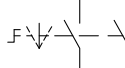
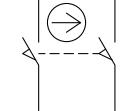
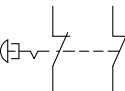
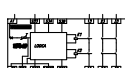
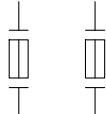
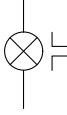
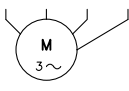
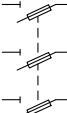
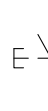
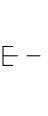
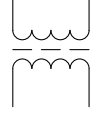
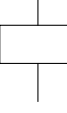










|   |                                                                                     |   |          |   |                                                                                                                  |   |                                                                                     |   |                     |   |                                                      |   |                                                                                     |   |                    |   |                                                                                                                           |   |                                                                                      |  |
|---|-------------------------------------------------------------------------------------|---|----------|---|------------------------------------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------|---|---------------------|---|------------------------------------------------------|---|-------------------------------------------------------------------------------------|---|--------------------|---|---------------------------------------------------------------------------------------------------------------------------|---|--------------------------------------------------------------------------------------|--|
| 0 |                                                                                     | 1 |          | 2 |                                                                                                                  | 3 |                                                                                     | 4 |                     | 5 |                                                      | 6 |                                                                                     | 7 |                    | 8 |                                                                                                                           | 9 |                                                                                      |  |
| A | Sim.\Sym.                                                                           |   | File     |   | Descrizione\Description                                                                                          |   | Sim.\Sym.                                                                           |   | File                |   | Descrizione\Description                              |   | Sim.\Sym.                                                                           |   | File               |   | Descrizione\Description                                                                                                   |   | Sim.\Sym.                                                                            |  |
|   |    |   | F2       |   | Termica trifase<br><i>electrontermic overcurrent trip</i>                                                        |   |  |   | BLK5                |   | Trasformatore di corrente<br><i>current trasfor</i>  |   |  |   | BLK6               |   | SCHEDA ELETTRONICA ×<br>× <i>ELECTRONIC CONTROL</i>                                                                       |   |   |  |
|   |    |   | F11      |   | Fus. unipolare sezionabile non sotto tensione<br><i>disconnectable fuse not live(2-phase)</i>                    |   |  |   | BLK12               |   | FINECORSO DI SICUREZZA<br><i>LIMIT SWITCH SAFETY</i> |   |  |   | BLK13              |   | Pulsante di emergenza a posizione stabile tirare per sbloccare NC<br><i>Emergency push-button with stable position NC</i> |   |  |  |
|   |    |   | F12      |   | Fus. bipolare sezionabile non sotto tensione<br><i>disconnectable fuse not live (1-phase)</i>                    |   |                                                                                     |   |                     |   |                                                      |   |                                                                                     |   |                    |   |                                                                                                                           |   |                                                                                      |  |
|   |    |   | H5       |   | Segnalazione luminosa<br><i>LIGHT WARNING</i>                                                                    |   |                                                                                     |   |                     |   |                                                      |   |                                                                                     |   |                    |   |                                                                                                                           |   |                                                                                      |  |
|   |    |   | H8       |   | Lampada incandescente lampeggiante<br><i>signal lamp ,flashing type</i>                                          |   |                                                                                     |   |                     |   |                                                      |   |                                                                                     |   |                    |   |                                                                                                                           |   |                                                                                      |  |
|   |   |   | M2       |   | Motore asincrono trifase<br><i>Three phase asynchronous motor</i>                                                |   |                                                                                     |   |                     |   |                                                      |   |                                                                                     |   |                    |   |                                                                                                                           |   |                                                                                      |  |
|   |  |   | Q830     |   | Sezionatore tripolare con fusibile<br><i>Three phase disconnect with fuse</i>                                    |   |                                                                                     |   |                     |   |                                                      |   |                                                                                     |   |                    |   |                                                                                                                           |   |                                                                                      |  |
|   |  |   | S2       |   | Comando a Pulsante NO<br><i>push-button switch make contact and automatic retur</i>                              |   |                                                                                     |   |                     |   |                                                      |   |                                                                                     |   |                    |   |                                                                                                                           |   |                                                                                      |  |
|   |  |   | S2C      |   | Comando a Pulsante NC<br><i>push-button switch break contact and automatic retur</i>                             |   |                                                                                     |   |                     |   |                                                      |   |                                                                                     |   |                    |   |                                                                                                                           |   |                                                                                      |  |
| C |  |   | T3       |   | Trasformatore di potenza a due avvolgimenti con schermo<br><i>Power transformer with two windings and screen</i> |   |                                                                                     |   |                     |   |                                                      |   |                                                                                     |   |                    |   |                                                                                                                           |   |                                                                                      |  |
|   |  |   | KM1      |   | Bobina contattore<br><i>contactor coil</i>                                                                       |   |                                                                                     |   |                     |   |                                                      |   |                                                                                     |   |                    |   |                                                                                                                           |   |                                                                                      |  |
| D |                                                                                     |   |          |   | DATA 03-07-13                                                                                                    |   |                                                                                     |   |                     |   |                                                      |   |                                                                                     |   |                    |   |                                                                                                                           |   |                                                                                      |  |
|   |                                                                                     |   |          |   | DISEGN. S. Bozzi                                                                                                 |   |                                                                                     |   |                     |   |                                                      |   |                                                                                     |   |                    |   |                                                                                                                           |   |                                                                                      |  |
|   |                                                                                     |   |          |   | VISTO                                                                                                            |   |                                                                                     |   |                     |   |                                                      |   |                                                                                     |   |                    |   |                                                                                                                           |   |                                                                                      |  |
|   | REV.                                                                                |   | MODIFICA |   | DATA                                                                                                             |   | FIRMA                                                                               |   | APPR. Ing. P. Bozzi |   | SOST. IL :                                           |   | SOST. DA :                                                                          |   | FILE : SE68-0004-0 |   |                                                                                                                           |   |                                                                                      |  |
| E | 0                                                                                   |   | 1        |   | 2                                                                                                                |   | 3                                                                                   |   | 4                   |   | 5                                                    |   | 6                                                                                   |   | 7                  |   | 8                                                                                                                         |   | 9                                                                                    |  |

F

F

E

E

D

D

B

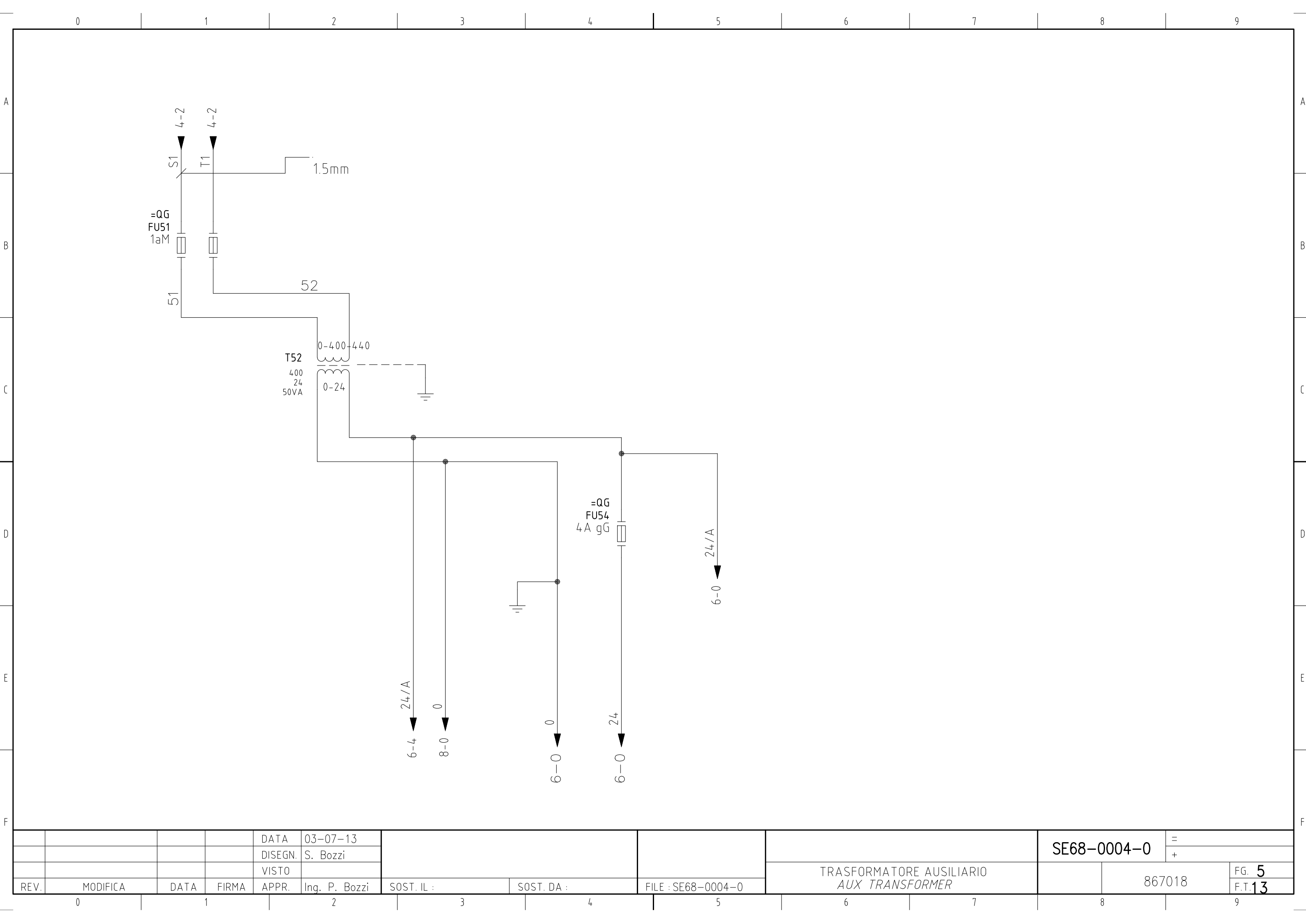
B

A

A

|      |          |      |       |         |               |            |            |                    |                          |   |  |   |  |        |             |         |       |   |  |
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| 0    |          | 1    |       | 2       |               | 3          |            | 4                  |                          | 5 |  | 6 |  | 7      |             | 8       |       | 9 |  |
|      |          |      |       |         |               |            |            |                    |                          |   |  |   |  |        |             |         |       |   |  |
|      |          |      |       | DATA    | 03-07-13      |            |            |                    |                          |   |  |   |  |        | SE68-0004-0 |         | =     |   |  |
|      |          |      |       | DISEGN. | S. Bozzi      |            |            |                    |                          |   |  |   |  |        |             |         | +     |   |  |
|      |          |      |       | VISTO   |               |            |            |                    |                          |   |  |   |  |        |             |         | FG. 3 |   |  |
| REV. | MODIFICA | DATA | FIRMA | APPR.   | Ing. P. Bozzi | SOST. IL : | SOST. DA : | FILE : SE68-0004-0 | PAGINA VUOTA<br>FREE PG. |   |  |   |  | 867018 |             | F.T. 13 |       |   |  |
| 0    |          | 1    |       | 2       |               | 3          |            | 4                  |                          | 5 |  | 6 |  | 7      |             | 8       |       | 9 |  |





|      |          |      |       |         |               |            |            |                    |  |                          |         |
|------|----------|------|-------|---------|---------------|------------|------------|--------------------|--|--------------------------|---------|
|      |          |      |       | DATA    | 03-07-13      |            |            |                    |  | SE68-0004-0              | =       |
|      |          |      |       | DISEGN. | S. Bozzi      |            |            |                    |  |                          | +       |
|      |          |      |       | VISTO   |               |            |            |                    |  | TRASFORMATORE AUSILIARIO | FG. 5   |
| REV. | MODIFICA | DATA | FIRMA | APPR.   | Ing. P. Bozzi | SOST. IL : | SOST. DA : | FILE : SE68-0004-0 |  | 867018                   | F.T. 13 |





F

A

B

C

D

E

F

A

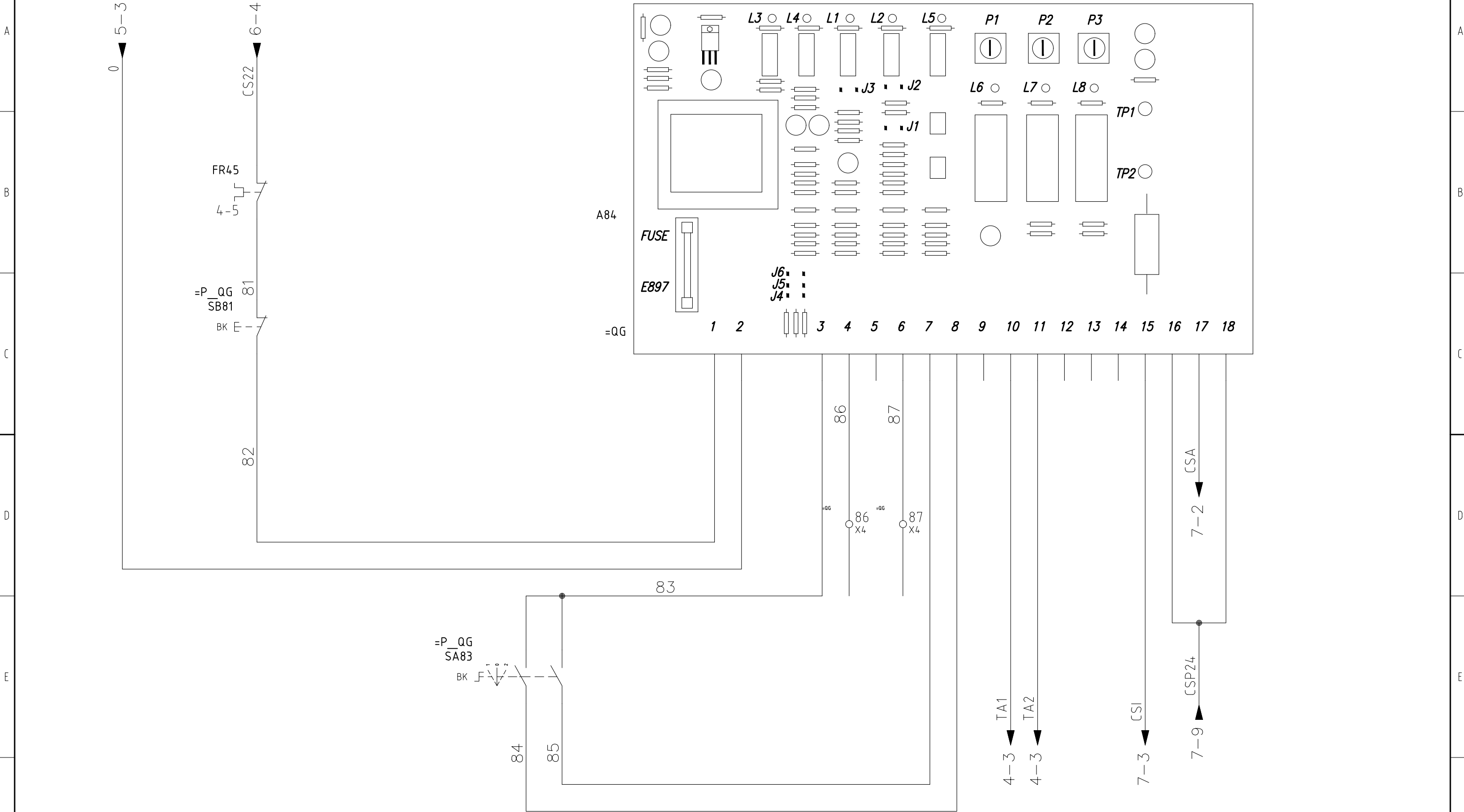
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C

D

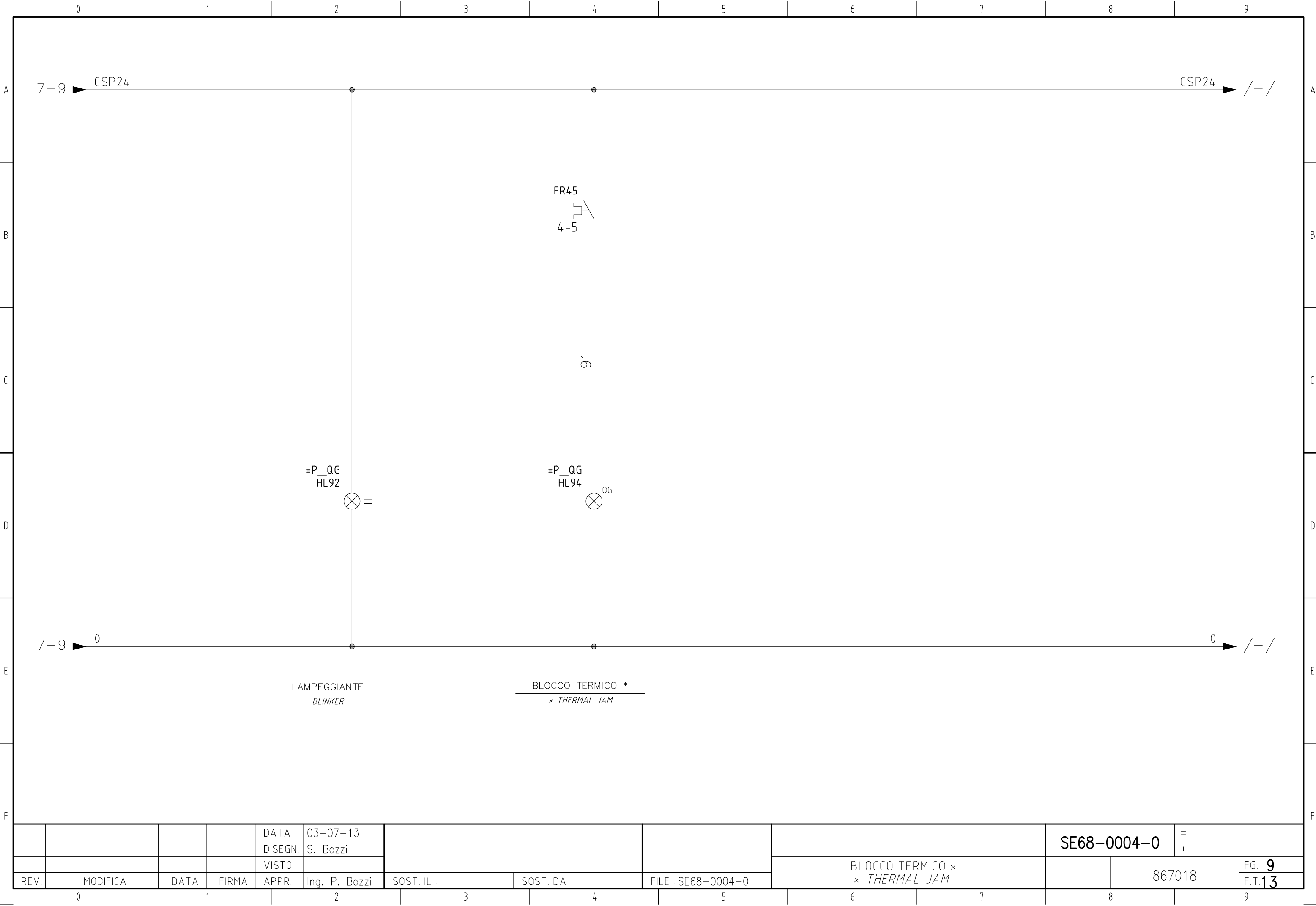
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F

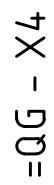
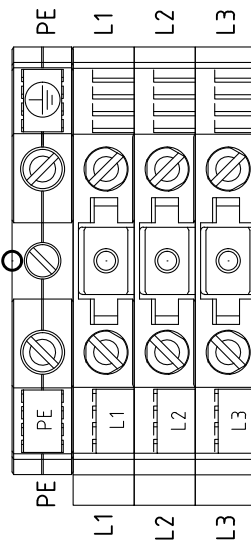


|      |          |      |       |         |               |            |            |                    |                                                |             |        |                 |
|------|----------|------|-------|---------|---------------|------------|------------|--------------------|------------------------------------------------|-------------|--------|-----------------|
|      |          |      |       | DATA    | 03-07-13      |            |            |                    |                                                | SE68-0004-0 |        | =               |
|      |          |      |       | DISEGN. | S. Bozzi      |            |            |                    |                                                |             |        | +               |
|      |          |      |       | VISTO   |               |            |            |                    |                                                |             |        |                 |
| REV. | MODIFICA | DATA | FIRMA | APPR.   | Ing. P. Bozzi | SOST. IL : | SOST. DA : | FILE : SE68-0004-0 | SCHEDA ELETTRONICA<br>ELECTRONIC CONTROL BOARD |             | 867018 | FG. 8<br>F.T.13 |
| 0    |          | 1    |       |         | 2             | 3          | 4          | 5                  | 6                                              | 7           | 8      | 9               |

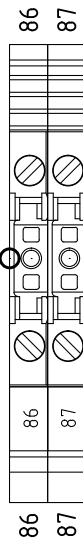




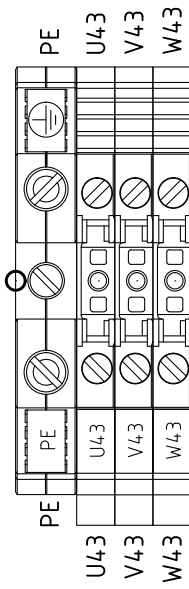
|      |          |      |       |         |               |            |            |                    |                                          |  |             |        |   |                                |
|------|----------|------|-------|---------|---------------|------------|------------|--------------------|------------------------------------------|--|-------------|--------|---|--------------------------------|
|      |          |      |       | DATA    | 03-07-13      |            |            |                    |                                          |  | SE68-0004-0 |        | = |                                |
|      |          |      |       | DISEGN. | S. Bozzi      |            |            |                    |                                          |  |             |        | + |                                |
|      |          |      |       | VISTO   |               |            |            |                    |                                          |  |             |        |   |                                |
| REV. | MODIFICA | DATA | FIRMA | APPR.   | Ing. P. Bozzi | SOST. IL : | SOST. DA : | FILE : SE68-0004-0 | BLOCCO TERMICO ×<br>× <i>THERMAL JAM</i> |  |             | 867018 |   | FG. <b>9</b><br>F.T. <b>13</b> |

LINEA  
MAINS

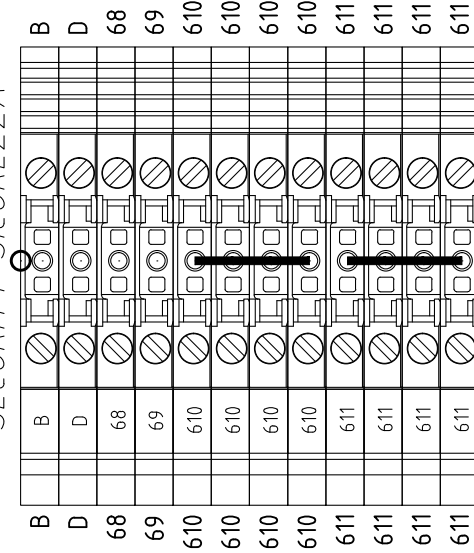
CONTATTI SCHEDA  
PC-BBOARD CLEAN CONTACTS



MOTORE TRITURATORE  
SHREDDER MOTOR



SICUREZZA  
SECURITY SICUREZZA



|      |          |      |       |         |               |            |            |                    |             |   |             |        |         |   |  |   |  |   |  |
|------|----------|------|-------|---------|---------------|------------|------------|--------------------|-------------|---|-------------|--------|---------|---|--|---|--|---|--|
|      |          |      |       | DATA    | 03-07-13      |            |            |                    |             |   | SE68-0004-0 |        | =       |   |  |   |  |   |  |
|      |          |      |       | DISEGN. | S. Bozzi      |            |            |                    |             |   |             |        | +       |   |  |   |  |   |  |
|      |          |      |       | VISTO   |               |            |            |                    | MORSETTIERA |   |             | 867018 | FG. 10  |   |  |   |  |   |  |
| REV. | MODIFICA | DATA | FIRMA | APPR.   | Ing. P. Bozzi | SOST. IL : | SOST. DA : | FILE : SE68-0004-0 | CLAMPS      |   |             |        | F.T. 13 |   |  |   |  |   |  |
| 0    |          | 1    |       | 2       |               | 3          |            | 4                  |             | 5 |             | 6      |         | 7 |  | 8 |  | 9 |  |

A

B

C

D

E

F

A

B

C

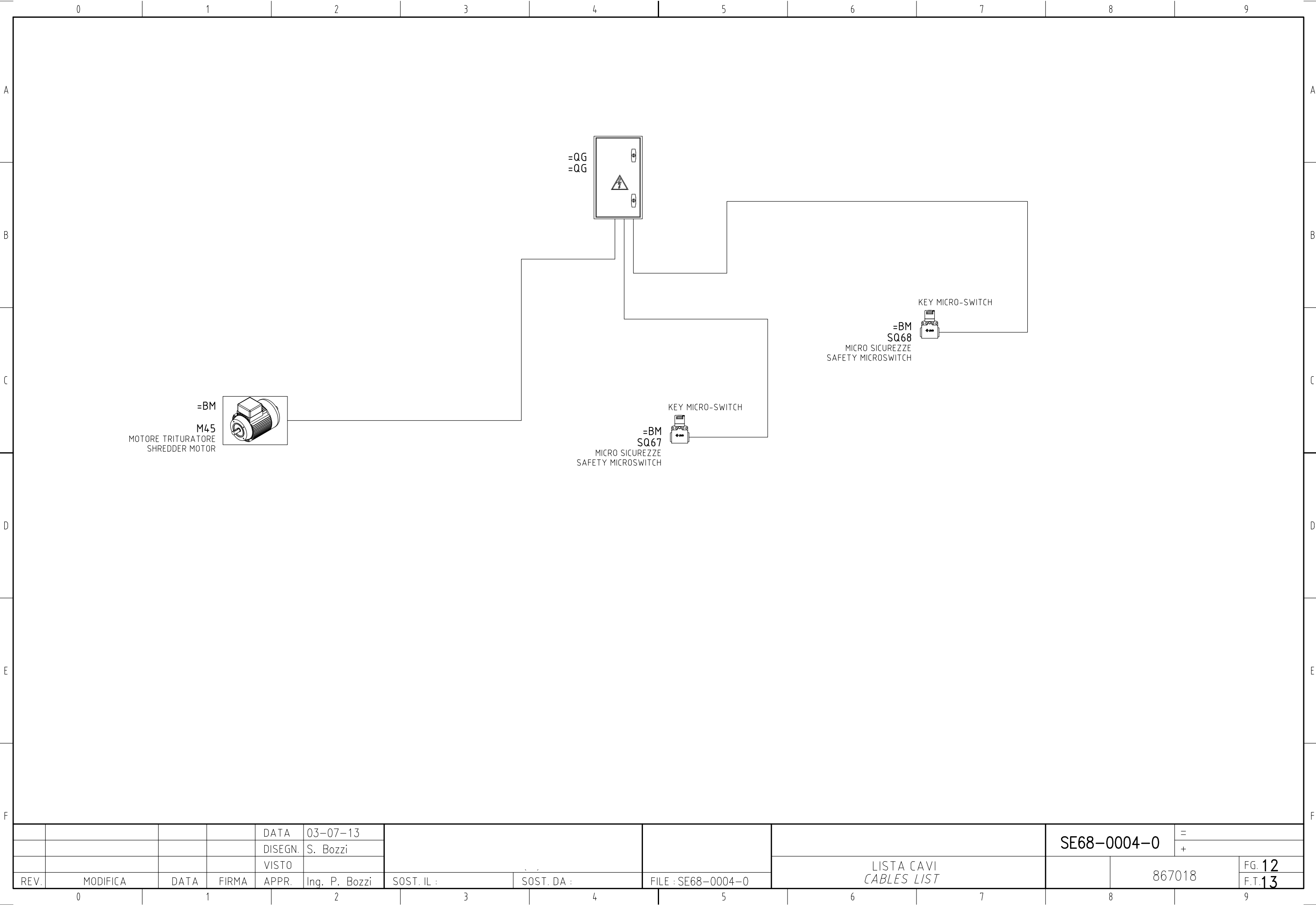
D

E

F

| CAVI ESTERNI \ EXTERNAL CABLES |                 |                              |                                                                                   |                            |  |  |  |  |                                                                                     |                              |                 |                            |
|--------------------------------|-----------------|------------------------------|-----------------------------------------------------------------------------------|----------------------------|--|--|--|--|-------------------------------------------------------------------------------------|------------------------------|-----------------|----------------------------|
| QUADRO \ BOARD                 |                 |                              |                                                                                   | ID SUL CAVO<br>ID IN CABLE |  |  |  |  | DESTINAZIONE \ LOCATION                                                             |                              |                 |                            |
| QUADRO<br>BOARD                | FOGLIO<br>SHEET | NR. MORSETTO<br>TERMINAL NO. | NR. FILO<br>CONDUCTOR NO.                                                         |                            |  |  |  |  | NR. FILO<br>CONDUCTOR NO.                                                           | NR. MORSETTO<br>TERMINAL NO. | FOGLIO<br>SHEET | QUADRO<br>BOARD            |
| =QG X2<br>=QG X2<br>=QG X2     | 4/5             |                              | U44                                                                               | C1 FG7 4X2,5mm<br>M45      |  |  |  |  | U44                                                                                 |                              | 4/5             | =BM X2<br>=BM X2<br>=BM X2 |
|                                |                 | U44                          | ○                                                                                 |                            |  |  |  |  | V44                                                                                 | ○ U44                        |                 |                            |
|                                |                 | V44                          | ○                                                                                 |                            |  |  |  |  | W44                                                                                 | ○ V44                        |                 |                            |
|                                |                 | W44                          | ○                                                                                 |                            |  |  |  |  |                                                                                     | ○ W44                        |                 |                            |
|                                |                 |                              |                                                                                   |                            |  |  |  |  |                                                                                     |                              |                 |                            |
|                                |                 |                              |  |                            |  |  |  |  |  |                              |                 |                            |

|      |          |      |       |         |               |            |            |                    |                           |             |        |         |
|------|----------|------|-------|---------|---------------|------------|------------|--------------------|---------------------------|-------------|--------|---------|
|      |          |      |       | DATA    | 03-07-13      |            |            |                    |                           | SE68-0004-0 |        | =       |
|      |          |      |       | DISEGN. | S. Bozzi      |            |            |                    |                           |             |        | +       |
|      |          |      |       | VISTO   |               |            |            |                    |                           |             |        |         |
| REV. | MODIFICA | DATA | FIRMA | APPR.   | Ing. P. Bozzi | SOST. IL : | SOST. DA : | FILE : SE68-0004-0 | LISTA CAVI<br>CABLES LIST |             | 867018 | FG. 11  |
|      |          |      |       |         |               |            |            |                    |                           |             |        | F.T. 13 |



|      |          |      |       |         |               |            |            |                    |                           |  |             |                   |
|------|----------|------|-------|---------|---------------|------------|------------|--------------------|---------------------------|--|-------------|-------------------|
|      |          |      |       | DATA    | 03-07-13      |            |            |                    |                           |  | SE68-0004-0 | =                 |
|      |          |      |       | DISEGN. | S. Bozzi      |            |            |                    |                           |  |             | +                 |
|      |          |      |       | VISTO   |               |            |            |                    |                           |  |             |                   |
| REV. | MODIFICA | DATA | FIRMA | APPR.   | Ing. P. Bozzi | SOST. IL : | SOST. DA : | FILE : SE68-0004-0 | LISTA CAVI<br>CABLES LIST |  |             |                   |
|      |          |      |       |         |               |            |            |                    |                           |  | 867018      | FG. 12<br>F.T. 13 |



[illegible]





A

B

C

D

E

F

A

B

C

D

E

F

| NOME/ITEM | TIPO/TYPE  | DESCRIZIONE/DESCRIPTION                   | COSTRUTTORE/MARKE | FG/SH | Q.TA/Q.TY |
|-----------|------------|-------------------------------------------|-------------------|-------|-----------|
| X3        | 1020000000 | Morsetto componibile di passaggio WDU 2.5 | Weidmuller        |       | 12        |
| X4        | 1020000000 | Morsetto componibile di passaggio WDU 2.5 | Weidmuller        |       | 2         |
| QG        | D93/14.35  | Cassa 400x500x200                         | Zanardo           | 12    | 1         |

|      |                  |          |       |         |          |            |            |                     |                                        |  |              |        |   |        |
|------|------------------|----------|-------|---------|----------|------------|------------|---------------------|----------------------------------------|--|--------------|--------|---|--------|
|      |                  |          |       | DATA    | 20/04/18 |            |            |                     | DISTINTA MATERIALE<br>BILL OF MATERIAL |  | SE68-0004-01 |        | = |        |
|      |                  |          |       | DISEGN. | SB       |            |            |                     |                                        |  |              |        | + |        |
| 02   | General revision | 28/05/18 | SB    | VISTO   |          |            |            |                     |                                        |  |              |        |   | FG. 3  |
| REV. | MODIFICA         | DATA     | FIRMA | APPR.   | .        | SOST. IL : | SOST. DA : | FILE : SE68-0004-01 |                                        |  |              | 867018 |   | F.T. 3 |



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