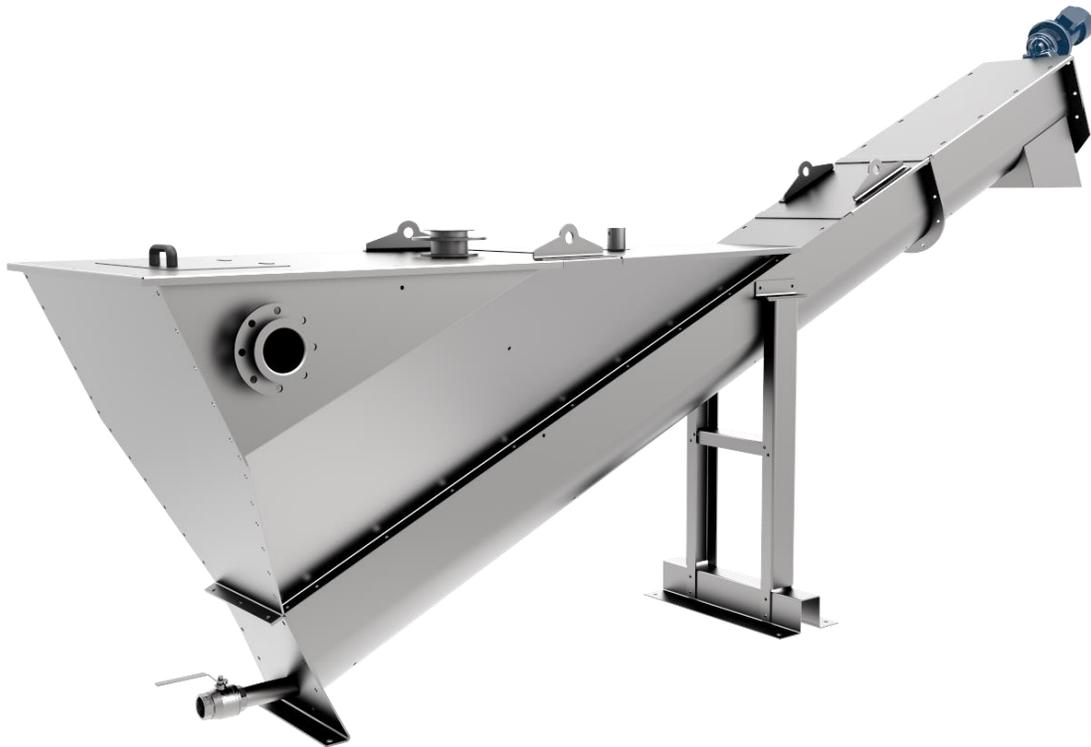


OPERATION & MAINTENANCE MANUAL

**CDS**

GRIT SEPARATOR



EDITION	3°
REVIEW	15/09/2021



FLUITECO SRL reserves the right to make any changes it deems necessary at any given moment to its machines.

FLUITECO SRL takes no responsibility in the potential damage that could be caused by the misuse of the machine.

This manual is not to be sold without FLUITECO SRL's permission.

The machine is only meant for the usage it is designed for. Any other could be potentially dangerous.

Every action that changes the operational cycle of the machine must be first approved by the technical team of FLUITECO SRL.

It is fundamental to only utilise original parts. FLUITECO SRL does not take responsibility in damage caused by non-original parts.

The machine was tested, resulting safe and functional. The duration of the guarantee is specified on the contract and it refers to the mechanical components that we offer to replace for free. Eventual damage caused by external factors is not imputable to FLUITECO SRL. A mistaken usage of the machine or improper maintenance causes such guarantee to decay. Any unapproved modification to the machine, especially to protective gears and devices, frees FLUITECO SRL from any responsibility in case of damage to the machine itself or the things around it.



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## 1. CONFORMITY TO THE ECC STANDARDS AND REGULATIONS

The machine meets the requirements concerning safety equipment required by the directive 2006/42/CE.

Such compliance is certified, and the machine is provided by the CE stamp.

**It is fundamental to adopt the correct safety measures we will be specifying in the following pages. Before adopting any procedure, carefully read the instructions.**

Upon the arrival of the machine, it is necessary to verify that it did not receive any external or internal damage during the transport. The installation of our product must be made following the instructions stated in this manual. Before doing so, make sure the floor is sturdy enough to resist the weight of the machine.

In order to prevent injuries, it is fundamental to have perfectly understood all the instructions described in this manual before attempting at installing the machine.

A correct observance of the instructions could also nullify the repair costs and increase the lifespan of our product, while also maximizing the production rate and reliability.

Each chapter begins with a paragraph containing all the safety instructions for the prevention of specific dangers.

The organization of this manual is intended to provide a gradual and progressive knowledge of the machine.



## 1.1 TECHNICAL ASSISTANCE

All specific interventions other than normal machine maintenance must be carried out by the Fluiteco team.

The request of intervention can be submitted to our nearest Service Center. If there are none in your proximity, the application must be sent directly at our main facility: "FLUITECO SRL". The address is the following:

FLUITECO srl

Headquarters: **Strada del Lavoro, 119 – 47894 Chiesanuova, Repubblica di San Marino.**

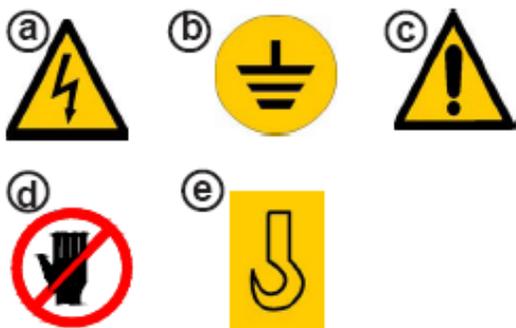
Contacts: [Sales@fluiteco.com](mailto:Sales@fluiteco.com)

Phone number: +376 0549 911491

## 1.2 WARNING SYMBOLS

Following are all the possible warning symbols that can be applied to our product, describing the dangers to prevent.

- a) Residual danger of "high voltage" (yellow and black).
- b) Signal "connection to a circuit of equalization earth" (yellow and black).
- c) General danger signal.
- d) Residual danger of "crushing" (red and black on the machines).
- e) Signal: lifting point.



### 1.3 MACHINE IDENTIFICATION

The machine is identified by the plate, here represented and described. The plate is easily identified on the metal structure and is generally positioned in an easily spottable location. The plate contains the following information:

- The name of the manufacturer;
- The machine's model;
- The serial number;
- The year of construction;
- The horsepower;
- The weight;

 <b>FLUITECO</b> <sup>®</sup> <small>Strada del lavoro, 128 - 41024 Chianciano - Repubblica di San Marino Telefono: +39 0549 523911 - Fax: +39 0549 527000 Web: www.fluiteco.com - E-Mail: fluiteco@fluiteco.com</small>	<b>QUASI MACCHINA / PARTLY COMPLETED MACHINERY</b>  M.D. (2006/42/CE)
MODELLO / MODEL	
NUMERO SERIALE / SERIAL NUMBER	
ANNO DI PRODUZIONE / PRODUCTION YEAR	
WEIGHT / PESO	Kg
POTENZA MOTORE / MOTOR POWER	Kw
TENSIONE MOTORE / MOTOR VOLTAGE	V

The information on the plate cannot be changed. When contacting our technical services, always provide us with the model and the matriculation number of the machine.



## LIFTING AND INSTALLATION

### CHECKING AFTER RECEIVING THE PACKAGE

When receiving the machine it is necessary to check if the type and the quantities are as per order confirmation. Also verify that the machine is complete in all parts as per the transport document. Before unloading, please check that the machine did not receive damage during the transport. In case of damages, it is necessary to make a short description of them on the transport document.

### PACKING

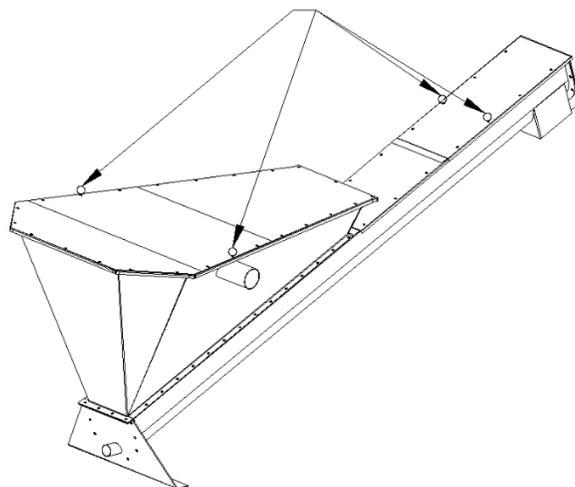
The machine can be delivered on demand in a wood cage having weight as specified on the shipping document, such weight can vary, depending on the size of the machine (approx 150 Kg).

### LIFTING AND POSITIONING

The lifting and positioning of the machine must be done using a suitable lifting system for the weight and dimension (for the weight of the machine, it is stated on the Name plate). If the machine has been supplied in a wood crate, also take such crate's weight into consideration (ref. par. 2.2) this process must always be done using the specific lifting eyebolts fixed on the machine. Always use hooks with safety fasteners when lifting the machine. When lifting the machine still inside the wooden crate, fix the structure through hooks fastened to the two suitable lifting stripes put on correspondence of the beams, to assure a balanced distribution of the weight.

Always lift and position the machine using exclusively the eyebolts fixed on the unit.

GOLFARI PER SOLLEVAMENTO





**Picture 1 shows the eyebolts installed on the machinery, where you need to effectuate the lifting(though suitable hooks).**

It is forbidden to use clamps, rings, open hooks or other systems that do not guarantee the safety in the lifting operation.

**The lifting and positioning operation must be executed only by competent personnel. It is forbidden to stay in the surroundings of the machine while it is being lifted.**

#### **WARNING:**

**Personnel in charge of the lifting and positioning of the machine must operate with maximum attention, as to avoid any damage to the product or to the employees. Nobody can remain under the area where the machine is hanging.**

**Check the efficiency of the lifting system to avoid damage to the operator or any other employee.**

**It is forbidden to use a lifting chain, as it can damage the surface of the machine. If the chain damages the surface, it is necessary to do the surface treatment of passivation again.**

**The transport's packing must only be removed when the machine is already positioned close to the installation place (machine without packing in the standard version).**

#### **INSTALLATION AREA**

The area designated for the positioning of the machine must be provided by the client with all the necessary connections (electric power, air, etc..) for its functionality, in conformity with the information of the present manual, and together with the characteristic of the electric and electronic components. It is responsibility of the client to choose a positioning area conform with the local laws and safety rules: aeration, ground lead, appropriate illumination, etc...

**In particular places with an extremely cold weather during winter time, machines without insulation (optional), can be used only inside a proper building. Ice inside the extraction screw conveyor can cause damages to the gearmotor or to the solids outlet.**



**It is responsibility of the user to preview the positioning area with the safety devices as per the present manual.**

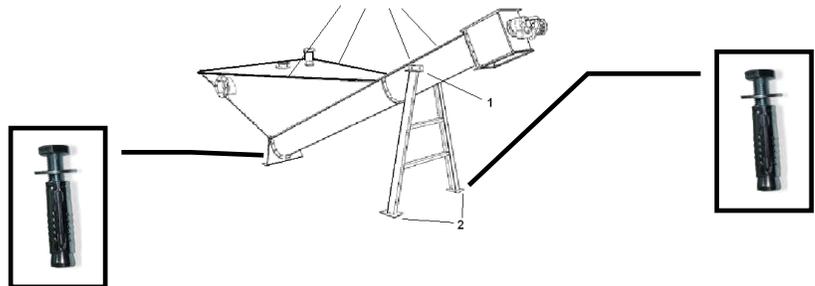


## POSITIONING AND FIXING

Make sure the installation area has a suitable surface able to sustain the weight (included the maximum load) and the dimensions of the machine.



lift the machine by suitable approved lifting gears and place the foot



Keep the machine lifted and:

- 1) fix the foot at the machine
- 2) fix the foot at the concrete plane using suitable fasteners

**Note!**  
**A good installation, as well as giving greater rigidity to the machine, avoids vibration and noise.**

The machine, lifted with suitable equipment through the use of eyebolts, should be put in the designated area.

The fixing of the machine is done through suitable bolts fixed with expansion wedges for each scheduled hole, on each side. Check the drawing before choosing the anchor bolts:



The fixing must result strong and safe, therefore only suitable fixing wedges of the right dimensions must be used.

**An inadequate fixing can cause damages to people and things, it is therefore recommended to follow what reported and verify the adequate tightening of all bolts and the overall stability of the structure.**



## **ELECTRICAL CONNECTIONS**

The machine is supplied with standard electrical components, fundamental for the functioning of the machine:

1. The electric motor
2. The solenoid valve of the washing system (optional)
3. The electronic torque limit switch (optional)
4. The insulation system with temperature regulator (optional)

It is responsibility of the installer to provide the electric panel, to install the machine and its connections (electric, etc..)following the international laws and local rules.



**Only specialized workers can provide all the electrical connections of the machine.**

The unit is supplied with a safety microswitch on the inspection cover of the draining zone. The connection of this switch must be done so that the opening of the cover on which it is applied to stops the electricity flux..

The connections of the switch, the electric motor, the heating system (optional) and the solenoid valves (optional) must be done by the installer and they must be executed following each manufacturer manual attached to the present manual.

The design and installation of the electric panel is under the responsibility of the client. We recommend providing the appropriate protection against excessive adsorption of the electric motor. It is furthermore compulsory to foresee the impossibility of the automatic restart of the machine in case of blackout and restoration of the electric power.

### **WARNING:**

**Electric work must be executed only by specialized employees.**

**Check that voltage is the same as per the Name plate present on the electric motor.**

**Electric cables must have the correct dimensions as requested from the electric motor.**



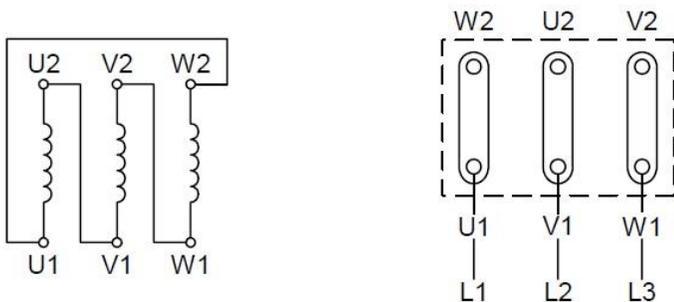


**It is forbidden to work on the electric motor when it is in tension.**

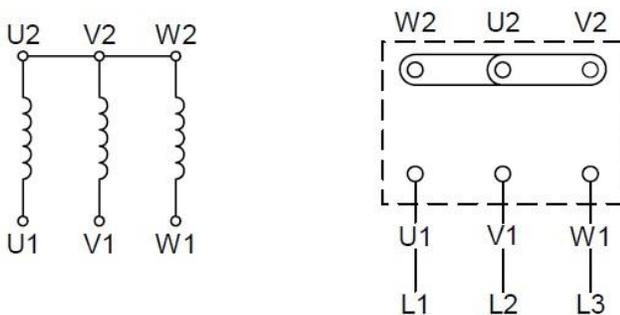
**During the electrical connection, the principal electric power line must be disconnected  
Electric cables must be protected considering the installation area and placed in order to avoid the obstruction of the machine's operational process, following specific applicable rules.**



**It is forbidden to insert one's hands inside the screw in operation.  
Any component of the machine can be used as a support go up!**



**SCHEMA COLLEGAMENTO TRIANGOLO  
DELTA-CONNECTION - LOW VOLTAGE**



**SCHEMA COLLEGAMENTO STELLA  
STAR CONNECTION - HIGH VOLTAGE**

## **TECHNICAL CHARACTERISTICS OF THE ELECTRIC COMPONENTS**

Concerning the technical characteristics of the electric motor, the gearmotor, the temperature regulator (in case of heat system – optional) and of the solenoid valves, please check the manufacturer's



manuals attached to the present manual. What scheduled by the respective fabricants must be respected in relation to the environmental characteristics and electrical connections.

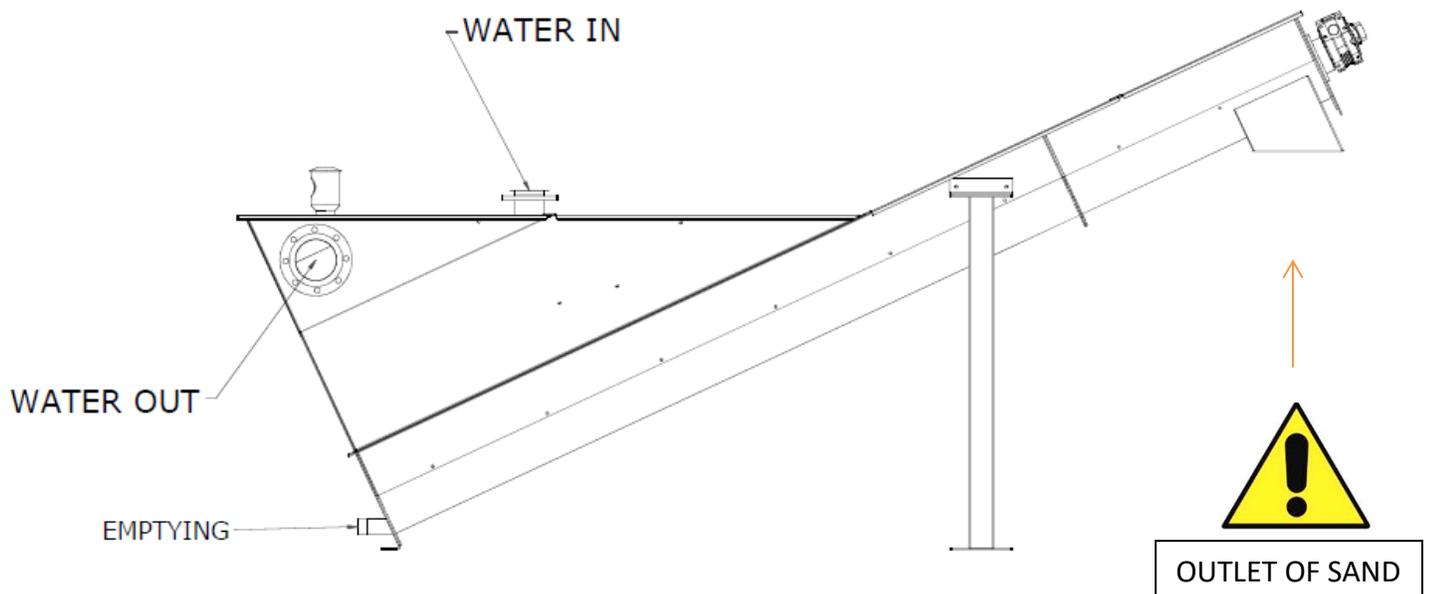
### Working principle

The electric panel must be designed and installed by the end-user in conformity with the rules and the laws regulating the safety of the employees.

For a correct operation it is necessary to follow this working principle:

- 1) Electric motor startups in case of:
  - Manual startup
  - Automatic with start/stop logic: usually 2 minutes' screw rotations every 20(note: the correct setting must be performed on site, depending on the working conditions)
  - after one week of operation it is necessary to confirm or to change the working tire depending from the grit's presence in the effluent.
- 2) Electric motor stops in case of:
  - Manual stop
  - Automatic stop after the pre-set working time (see previous point)
  - Emergency manual stop (red button on the electric panel)

## INLET/OUTLET CONNECTIONS





## SAFETY RULES

### NOT PERMISSIBLE USE

The machine is supplied with all the necessary protections, however due to the conformation and functionality of the machine there is a part of the unit which must be protected only when in the plant during installation.

This indispensable protection must be done, therefore, by the installer.

It is recommended to protect those zones through fast stopping devices in case of unsafe access (blockage of the electric power). It is also recommended to position adequate warning notices close to those areas.



### WARNING:

**Never put hands, objects etc... inside the solids outlet. A notice must be fixed near the outlet to inform the personnel.**

### SAFE USE

**To avoid every accident, it is necessary to carefully read the following informations:**

**The machine can be used only by qualified and expert personnel.**

**All the connections must be executed from qualified and expert personnel.**

**Execute a correct fixing among the different components and a correct fixing to the floor.**

**When the machine is running, all the personnel must remain at a safety distance.**

**Before activating the machine, it is necessary that all the safety devices are connected and working and that the machine is in perfect conditions.**

**In case of defects, in particular of the safety devices, the operator must inform immediately his superiors, the safety manager and the operator of the next shift.**

**If the defect prevents the machine from a safe usage, it must immediately be stopped.**

**If during the work operation the employees responsible for it are multiple, before taking any action it is necessary to inform also the other colleagues.**

**Every modification regarding the use or the safety conditions can be executed only from authorized FLUITECO SRL personnel. FLUITECO SRL refuses every responsibility for unauthorized modifications or damages caused from these modifications.**

**It is forbidden to remove safety devices present in the machine.**

**All checks, maintenance etc..., can be executed only by qualified and expert personnel.**



**Personnel in charge must use a proper workwear. It is necessary to ask the safety manager for this workwear (gloves, shoes, ...) .**

**Disconnect the electric power before making every operation and/or maintenance to the machine.**

**To avoid any accidental startup of the machine during inspection, cleaning and maintenance, it is necessary to turn the general switch on the position OFF and push the emergency button to block the machine.**

**Before starting the machine it is necessary to be sure that all the safety devices are active. FLUITECO SRL refuses every responsibility for damages to people and objects caused from the absence and/or tampering of the safety devices (notices and protections).**

**It is necessary to make inspections of the plant minimum once per day, or once each working shift to check possible damages or defects that can be seen from outside.**

**In case of any anomaly, stop immediately the plant, in particular if there are risks for your safety or for the safety of the plant.**

**Be sure that safety devices, safety notices and the identifying plate of the plant are always clearly readable.**

**The connection to the floor of the external metallic part of the machine is compulsory.**

**It is forbidden to remove safety and warning notices.**

**It is forbidden to start the work with safety devices opened or to open them during the work process.**

**Touching the rotating part of the machine could cause serious injuries.**

## **SAFETY DEVICES OF THE PLANT**

Every plant must be provided, by the client, with an emergency button (red color) to stop the plant. Pushing this button in particularly dangerous situations the plant must stop immediately.

The emergency button must be located near the machine and it must be easily approachable.

Safety devices include:

- **Upper closure covers bolted on the throat**
- **Protection covers of electric motor fan**
- **Protection of the drive shaft**
- **Enclosure, covers or automatic protection of the screen zone (cared by the installer)**
- **Warning notices.**

**It is however responsibility of the installer to ensure the presence of all protections necessary to grant a safe use of the plant in both phases of usage and maintenance.**



## RESIDUAL RISKS

FLUITECO SRL has produced and built the machine trying to reduce the risks as much as possible. Some risks related to any deficiencies of maintenance or the manumission of the machine remain, though they can't be deleted during the designing and realization of the machine. Other sources of risk are represented from behaviors that are not corresponding to what this manual is explaining and also to the missing adherence of the laws and standards related to accident prevention and safety on working. This following table resumes the remaining risks and the behaviors to prevent them.

Picture	Description	Measures
	The machine has moving parts that can cause injury	Doing maintenance with machine in motion is forbidden. Block the access to the discharging outlet while the machine is working.
	The machine must be equipped with its own electrical system: by removing the covers of the motor terminal you can access the parts in tension.	Disconnect the main power supply before every operation. Only specialized personnel can access to the electrically connected parts. The electric part of the machine built by the installer must be according to EN 60204-1.
	Risk of falling.	In the machine's surroundings, due to a leak or the water coming from the screenings, the floor can be slippery

## USE OF THE MACHINE

### Warning:

**Before proceeding with the start/stop of the machine, please check that all the blocking conditions are removed.**

**Before proceeding with start/stop of the machine, please check that all safety devices are present and perfectly efficient.**



## STARTING

### PRELIMINARY CHECKS

- Check if foreign substances or water have entered the machine. If so, remove the covers and clean it. After that, put on the covers again.
- Check that all the locking systems used for transport have been removed. Next, reassemble wholly.
- Check that the motor's conditions are correct, and that has not been damaged during transport or the assembly.
- Check that all the electrical connections are installed in the correct way and that there are open boxes, wires, etc).
- Check the proper operation of the switch.
- Check that the areas of loading and unloading have been properly marked and bounded by barriers (it is the responsibility of the client) and have been marked with warning signs.
- Verify that the signs of danger attached to the machine are readable.
- Check the proper mounting of the machine and its stability.
- Check the correct operation of the auxiliary equipment (e.g. water washing, power supply).
- Check the direction of the rotation of the screw (counter clockwise as seen from the load). If incorrect, reverse the connection on the engine.
- make sure that the oil in the gearbox is at the right level.

### FIRST START

The first test after the installation must be made with an empty machine for about two minutes.

Verify that:

- There are no unusual noises
- There are no vibrations
- The machine is stable and does not fluctuate

If everything works regularly, proceed with the normal operational cycle.

If any adjustment or maintenance becomes necessary, **it is imperative to disconnect the power supply** before making them.

### OPERATION

After the first 12 hours of operation the following issues must be supervised:

- The tightening of the bolts
- The conditions of the foot pegs
- The temperature of the motor
- The level of oil in the gearbox

Depending on the type of installation, the machine operation is controlled by a central command or a command on site.

- it greatly increases the machine's life closing the load of the machine and emptying it at the end of



each working session.

- This is particularly important when the transported material tends to harden if it remains stationary for a certain period of time.

**WARNING!**

**BEFORE YOU OPEN THE HATCH DISCONNECT THE POWER SUPPLY TO THE ELECTRIC MOTOR**



**Correct sense of rotation of the motor**

**ELECTRICAL CONNECTIONS**

Connections with the mains must be carried out by qualified personnel (such as an electrician).



**Warnings!**

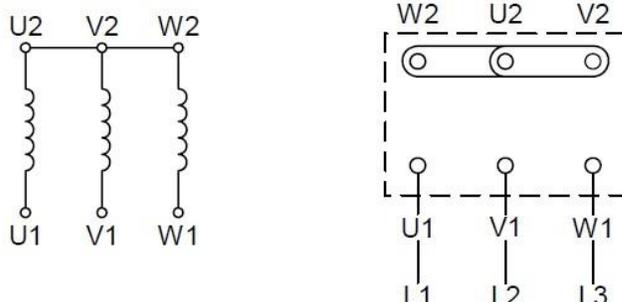
**before any action disconnect the plant from the power supply!**

**Firstly, ensure the number written on the plate and the voltage supply match. Never put your hands into a running screw conveyor!**

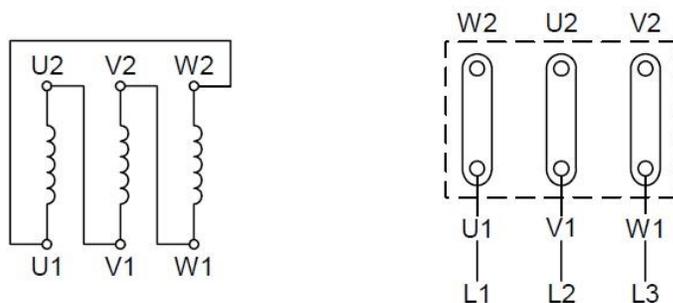
**Never open the inspection hatches before having disconnected the conveyor from the power supply. The tension for which the plant was designed is stated on the label. The electrical system is not indicative.**

The machine must be connected to a three-phase network through a cable (three stages + earth). The cable's section must be designed for the current absorption of the Machine, specified on the identification plates attached to the machine itself.

- firstly, check the existence of the earthing and its efficiency. Verify that the line doesn't change in the voltage.
- Make sure the switch located in the upstream supply line of the machine is in an open position "0".
- Plug the cable into the conduit and higher channels until you reach the terminal of the engine. Then connect it to it.
- Check the motor's rotation direction.
- Always focus on the safety standards.



SCHEMA COLLEGAMENTO STELLA  
STAR CONNECTION - HIGH VOLTAGE



SCHEMA COLLEGAMENTO TRIANGOLO  
DELTA-CONNECTION - LOW VOLTAGE

## MAINTENANCE



**BEFORE TAKING ANY ACTION, DISCONNECT THE ELECTRICAL SUPPLY!**

### WARNINGS!

- Wear suitable protective equipment. Garments must be tight to the body, and resistant to products used for cleaning. Do not carry ties, belts or necklaces that might snag or slip between the bodies in motion.
- A person under the influence of alcohol or drugs should not be allowed to control the machine or to perform on it for maintenance or repair.
- Every action of repair or maintenance should be performed only by specialists.
- Perform maintenance and repairs under the responsibility of a single person.
- Before making any operation, switch in position "0" (off) the power supply, so that the machine can't be put into operation inadvertently, be sure that nobody is in condition to start the machine
- During the maintenance or repair unauthorized personnel should keep away from the machine.
- The decommissioning of protective devices should be made only by authorized personnel and only for



maintenance operations. In this case, after maintenance operations, all the protective devices must be put back into function and an operational test must be performed; records of this test should be kept.

- Replacements must match the technical requirements set by the manufacturer, which is always guaranteed using original spare parts.
- At the end of the maintenance, the machine must be restarted under the supervision of the plant director, that must check:
  - That the work has been carried out completely
  - That the machine functions perfectly
  - That the safety systems are active
  - That nobody is working on the machine
- Before starting the machine, make sure that all the foreign bodies (screwdrivers, keys, screws, etc.) have been removed from the machine.
- Check on the floor that there is no residual grease or oil, or any other items that could cause an accident to the people in the nearby surroundings.
- After the maintenance, everybody in the surrounding area must be informed that the machine is going to be restarted (for example use an acoustical signal)

## **Important!**

### **PROTECTION**

The machines are equipped with **PROTECTIONS** in areas where access is necessary for cleaning, inspection and maintenance.

The outlet spout can't, for obvious operational reasons, be closed.



### **WARNINGS!**

The rotating spiral can be reached through the spout, for this reason:

**IT IS ABSOLUTELY FORBIDDEN TO INTRODUCE THINGS, HANDS, OR ANY FOREIGN OBJECTS IN THE SPOUT**

### **PERIODICAL CHECKS**

#### **END OF EACH WORKING SESSION**

- Check that there is no leakage of oil from the gearbox.
- Check the integrity of security systems and protection.

#### **WEEKLY**

- Check if the outlet is free from residues of material, if it is not, clean to avoid any obstruction to the passage of material.



## MONTHLY

- Check the tightness of bolts.
- Check the motor cooling fan.
- Check the oil level.

## EVERY SIX (6) MONTHS

- Check the wear of the screw.
- Check the bolts' tightness.
- Check the wear of the sliding bars.

## ROUTINE MAINTENANCE

This chapter provides instructions to carry out the routine maintenance which do not require special skills for the operator.

Poor maintenance causes early wear and a higher probability of failure or breakage.

All operations described below, although not expressly stated, should end with the repositioning and tightening of all the body's connection and attachment.

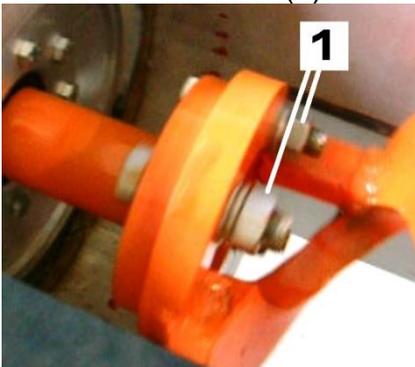


**Warning!**

**BEFORE ANY OPERATION DISCONNECT THE POWER SUPPLY!**

## REPLACEMENT OF THE SLIDE BARS

- Disconnect motor from main supply
- Remove the covers
- Wash the machine with plenty of water
- Unscrew the bolts (1) of the screw flange



- Extract screw from trough



- Remove the bolts that block the slide bars

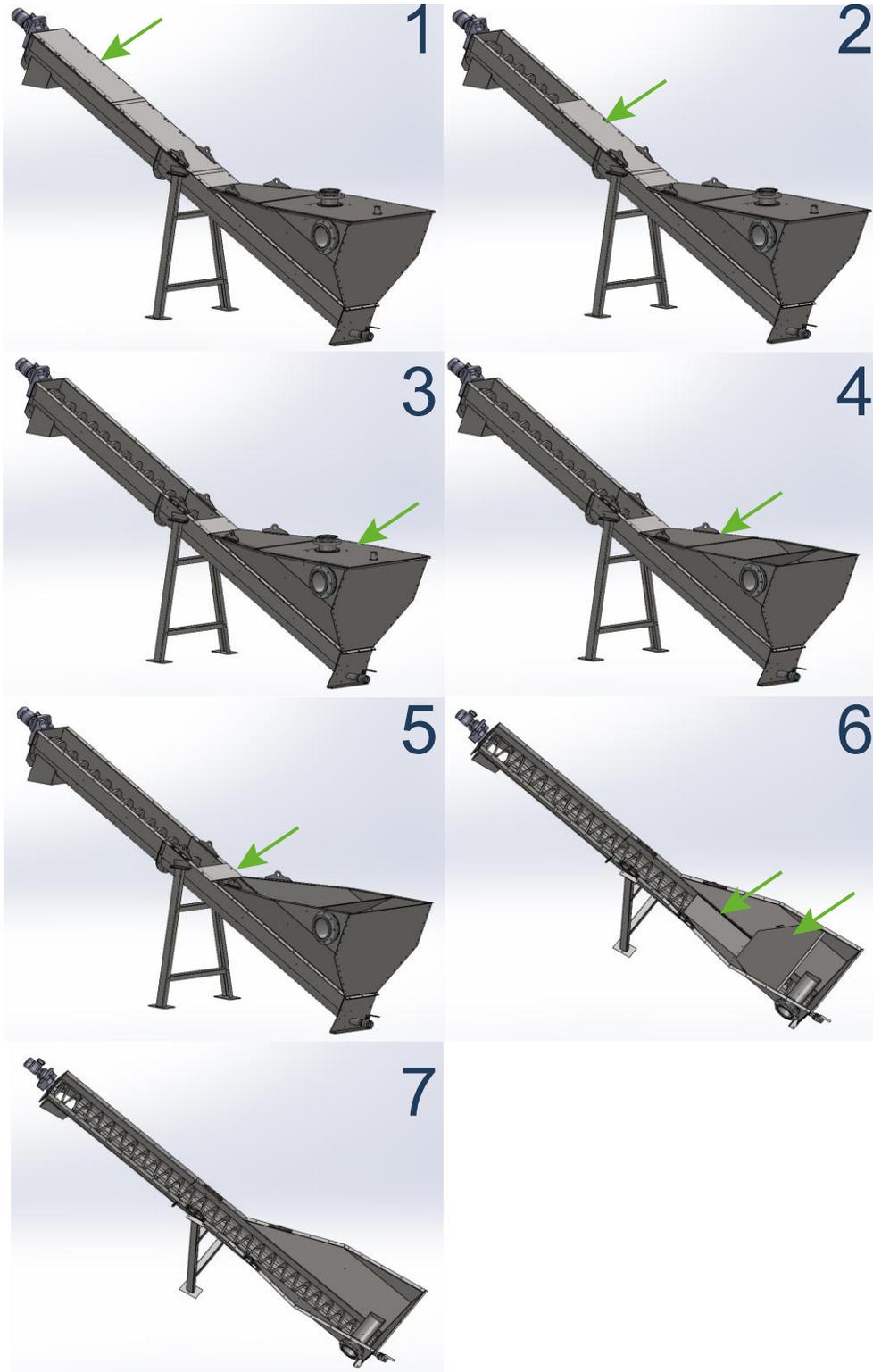


- Pull out the slide bars
- Put on the new bars and tight the bolt Note: remember to replace also the bolt's gasket in order to ensure the correct sealing
- Follow the reverse sequence in order to mount the screw



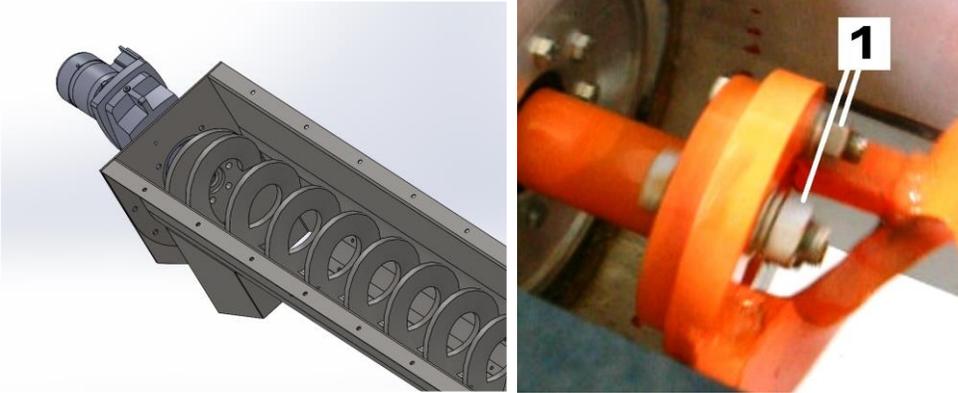
## REPLACEMENT OF THE SCREW

- **Disconnect motor from main supply**
- Empty the machine and remove the covers; To follow the correct order of cover removal see the images below.





- Wash the machine with plenty of water before any operation
- Unscrew the bolts (1) of the screw flange:

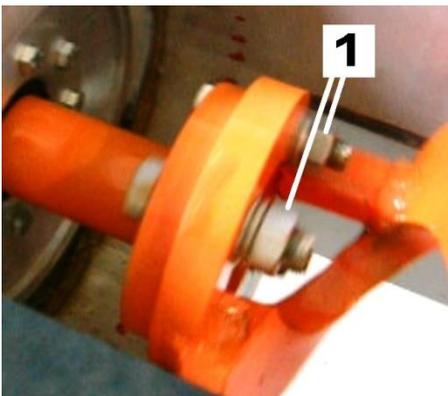


- Extract screw from trough
- Put on the new screw
- Fasten the bolts
- Put on the covers

## REPLACEMENT OF THE GEAR-MOTOR

It is not necessary to replace the gear-motor unless it is damaged by external events, the same goes for the oil replacement since it is life lubricated.

- **Disconnect motor from main supply**
- Empty the machine using the ball valve placed in the bottom of the hopper
- Remove the cover and wash with plenty of water
- Unscrew the bolts of the screw flange: pay attention because during this phase the screw tends to fall because of the space of about 50mm between the screw end and the bottom of the trough.





- Fasten with a suitable lifting gear the gear-motor and unscrew the bolts of the gear-motor plate
- Unscrew the bolts of the gear-motor's shaft in order to pull out the shaft (see pictures: the gearmotor can be different depending on the Client's requirements)
- Unscrew the bolt that keep the gear-motor attached to the plate
- Put on the new gear-motor
- Follow the reverse order to mount the screw

## LUBRIFICATION

The operating temperature is from 0° to 35°C; different conditions must be specified in the purchase order.

The gear reduction unit is supplied with a first oil filling and are equipped with oil level, outlet and breather plugs.

Synthetic oil is used. The trademark is **SHELL TIVELA OIL 320**, if a different oil is to be used as replacement, it must have the same proprieties of the original oil, as listed in the table below

<b>Shell tivela oil 320</b>	
Viscosity Class ISO (iso 3448)	320
Kinematic Viscosity 40°C cSt 100°C cSt (ASTM D445)	320 56.4
Viscosity Index (ASTM D2270)	245
Volumic mass @ 15° (Kg/dm3) (ASTM D 1298)	1.076
Flash point (ASTM D92)	240 °C
Pour point (ASTM D97)	-33°C

**Avoid any mixing between different trademarks**

**Oil-change interval [h]:**

Oil temperature	Mineral oil	Synthetic Oil
< 65°C	8000	25000
65° - 80°C	4000	15000
80° - 95°C	2000	12500



### **Alternative trade marks**

AGIP BLASIA S320  
BP ENERSYN SG-XP 320  
FIAT GEARSYNT 320 PG  
MOBIL GLYGOYLE HE 320  
MOBILGEAR shc xmp 320  
MOBIL SHC PM 320  
ROLOIL SINCAT/320  
TEXACO SYNLUBE CLP 320  
TOTAL CARTER SY 320

### **NOISE**

The noise level depends on several factors among which screw dimensions, type of material handled and box load.

The noise level, however, is never higher than 70 dB(A).

This value was measured from one metre (1m) distance in the most unfavourable position.

### **STORAGE FOR LONGER PERIODS**

- Fill the gear reducer up to the top with oil.
- Clean the feeder thoroughly, especially inside.
- Provide the inlets and outlets with covers as to avoid penetration of water and/or foreign bodies.

### **DEMOLITION OF THE MACHINE**

- Recover the reducer oil and proceed to dispose of it at a special collection centres.
- Recover the plastic materials (e.g. rotary shaft seals, coatings, linings etc.) and deliver them to the special collection centres.
- Deliver all remaining parts, which are made from steel and cast iron, to specific scrap yards.

### **FAULT RESEARCH**

#### **CHECK LIST IN CASE OF TROUBLE**

##### **1) General questions**

a) Ask the plant operator when and under which circumstances the feeder must stop. Does the feeder start without problems after a long resting period?

b) Do weather conditions negatively influence the feeder's operation?

c) If the valve is fitted to the feeder outlet check that the centre line of the valve's shaft is parallel with the centre line of the feeder, as would be fitted in normal circumstances.

Check if the valve fully opens.

Make sure the feeder outlet valve is open when feeder starts and it only closes when it has already stopped.

If necessary, disconnect the valve actuator in an open position.

##### **2) Electric equipment's check.**

a) Is a drop in voltage possible through the contemporary starting of various machines?



- b) Is the plant equipped with a generator?
- c) Check main supply of motor.
- d) Check if the electric motor is correctly wired and make sure that the wires are tightly fastened.
- e) Check the adjustment of the thermal cut out in the control panel and compare it with the data on the plate.
- f) Check that the sense of the motor's rotation is correct.
- g) Read the amperage with the feeder running on empty, then with filled up feeder starting, as well as with full feeder running.
- h) Check that the cross sections of the main cables are suitable for the installed drive power.

### **3) Mechanical parts check**

- a) Is the breather plug of gear reducer working correctly?

- b) Check that the outlet is crust-free.

Describe outlet (e.g. vertical or angular).

- c) Check that the vent of the container beneath the screw conveyor outlet works correctly.

### **4) Conveyor check**

- a) Are conveyor parts correctly assembled?

- b) Does the conveyor bend? Stretch a string. If necessary additional supports must be fitted (every 3 to 5 metres).

- c) Empty the conveyor.

- d) Open inspection hatches if existing. Check if the material flow is normal.

- e) Start conveyor. Read amperage, voltage, cycles and screw r.p.m. with empty conveyor running. Compare ammeter reading with motor plate data.

- f) Slowly add material with conveyor running and continue readings.

- g) Repeat starting procedure with conveyor under full load and read amperage, voltage and cycles.