OPERATION & MAINTENANCE MANUAL

GTR

ROTARY DRUM SCREEN

Review 4	July 2020

FLUITECO reserves the right at any time make any changes it deems necessary.
This manual may not be sold to others for viewing without the written permission of FLUITECO
This manual is an integral part of the supply of machinery, if it become damaged or unreadable in any part, require a copy to FLUITECO
FLUITECO assumes no liability for misuse of the machine and for damage caused as a result of operation not covered or described in this manual.
The machine must be used only to meet the needs for which it was expressly designed, and each other use is considered dangerous.
Every action that changes the structure and the operation cycle of the machine must be allowed explicitly only by technical of FLUITECO
Use only original parts; FLUITECO is not responsible for damage following the use of non-original spare parts.
FLUITECO reserves the right to amend the draft and make improvements marketable without notifying customers already have similar models.
FLUITECO is responsible only for the descriptions in Italian and in case of difficulty of understanding contact our office for clarification.

Warning!

This manual contains important information about safety procedures to be adopted for the use and maintenance of the machine: it is necessary that each operator takes accurate view of such information before carrying out any work in relation to the machine.

GENERAL INFORMATION

Before proceeding with any operation, read carefully the present manual as to avoid any unplanned event and/or mistaken usage of the machine. The present manual of usage and maintenance is part of the technical documentation given together with the machine and its purpose is to give all the necessary information for a correct and safe usage of the machine

Introduction

The following manual describes the principals behind the working process of the machine, based of the following premises :

- Fluiteco S.r.l. keeps the right of making modifications to its products whenever and without warnings. The present manual cannot be sold / given to others without the authorization of Fluiteco S.r.l.
- This manual is lied to the sale of this machine and must always be present in this factory, in case of damaging or unreadability we plead you to request a copy
- The machine must only be used for the purposes Fluiteco S.r.l. built it for, every other usage can be considered dangerous and improper. Fluiteco S.r.l. doesn't assume any of the risks caused by the inaccurate use of the machine.
- Every action or intervention that modifies the structure of the machine must be done with the approval from Fluiteco s.r.l.
- Fluiteco S.r.l. doesn't assume the risks caused by the improper modifications not accorded with the technical division of Fluiteco s.r.l.
- Always use the original substitution objects Fluiteco s.r.l.

Fluiteco S.r.l. has no responsibility in case of damages to human beings, animals or objects, caused by the fixing of not original substitution objects.

WARNINGS

Upon receipt of the machine is necessary to verify that during transport have not been shown to damage structure or internal organs of the machine itself. The placement of the machine in the department must be

made by the customer following the instructions lifting provided by FLUITECO SRL. Before placing the machine Pre-placed to make sure that the floor is likely to bear the burden of being installed.

USE OF THIS MANUAL

In order to safeguard the safety of the operator and avoid possible damage, before any on the machine is essential to have perfectly understood all the instructions described in this manual.
These instructions for use and maintenance are intended to describe the function of the machine and its safety use. The observance of the instructions helps to avoid dangers, to reduce the cost of repairing and stop and increase the duration of the machine itself.
Each chapter begins with paragraph containing all the safety instruction for the prevention of specific warnings .
This manual should be complete and legible in all His parts, each operator responsible for the use of the machine, or responsible for the maintenance and adjustment, should know the lease and must be able to consult this manual at any time.

This manual also has the function of providing responsible for organizing the labor information they need for proper use of the machine achieve maximum production and reliability.
The organization of this manual is intender to provide a gradual and progressive knowledge of the machine.

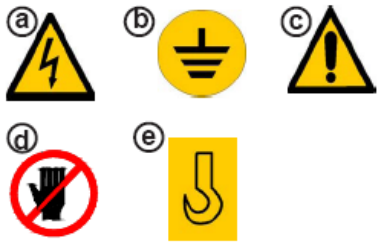
Warranty

Fluiteco S.r.l. guarantees that the machine was tested in every safety and functional.
The duration time of the guarantee is shown on the contract and refers to the mechanical components that the constructor offers himself to replace for free. The electric motor, eventual electric and electronics defects caused by external factors are not imputable to Fluiteco S.r.l.
A mistaken maintenance or an improper utilisation of the machine causes the degeneracy of the Guarantee.
Every alteration of the product, in particular on the protective gear/devices, will make the guarantee decade and free the constructor from every responsibility.

WARNING SYMBOLS

Following are all possible warning symbols describing residue hazards, that can be applied to our machines and in inside the manuals.

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 (requires precautions added during the course of tasks to it combined).
d) Residual danger of "crushing" (red and black on the machines).
e) Signal: lifting point.



TECHNICAL ASSISTANCE

All interventions other than normal machine maintenance is needed to be carried out by our staff
The request of intervention shall be submitted to our nearest Service Center; where there are no authorized service center, the application must be sent directly at our facility " FLUITECO SRL." to the following address:

FLUITECO srl
Headquarters: Strada del Lavoro, 119 – 47894 Chiesanuova, Repubblica di San Marino

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:

- Name of the manufacturer
- Machine's model;
- Serial number;
- Year of construction
- Power
- Weight

The information on the plate cannot be changed.
When contacting out technical services , we beg you to always communicate the model and the matriculation number of the machine.

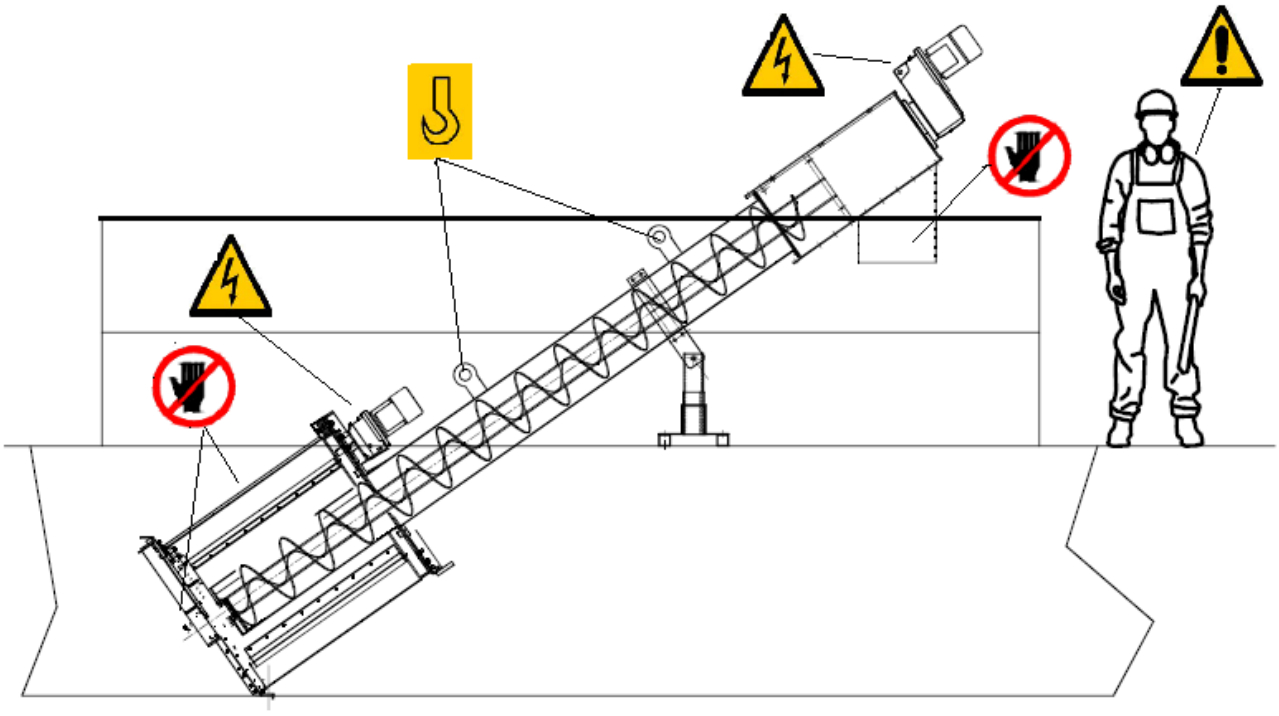
CONFORMITY TO THE ECC STANDARDS AND REGULATIONS

The machine has been produced in a State member of the European community, therefore 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.

SAFETY

This machine has been designed and constructed according to the applicable regulations for prevention of accidents in reference both to the mechanical parts and electric. The safety systems of which is equipped serve to protect the operator and the machine itself during the working phases.
Where it has not been possible to eliminate potentially dangerous situations, these have been reported by appropriate labels or labels applied in the surrounding of the installation area. Periodically check that they are present and in good condition.

SAFETY LABEL POSITION



The machine is apply some labels to indicate the points at which the user is a residual risk or important points of the machine.
You must ensure that these do not deteriorate over time or come off.
If you encounter this situation, please contact our support department for you to ship the damaged or missing labels to reapply when originally planned.

LIFTING AND INSTALLATION

CHECKING AFTER RECEPTION

At the reception of the machine it is necessary to check if the type and the quantities are as per order confirmation. It is necessary to verify also that the machine is complete in all the parts as per the transport document.
Before unloading, please check that the machine was not damaged during the transport. In case of damages, it is necessary to make a short description on the transport document.
IT IS IMPORTANT TO CHECK THE TIGHTNESS OF THE BOLTS AND NUTS BECAUSE THEY CAN COME LOOSE AFTER LONG PERIODS OF TRANSPORT BY TRUCK OR SHIP

PACKING

Machine can be delivered on demand in a wood cage having weight as specified on the shipping document, dependently from the dimension of the machine (approx 150 Kg).

SAFETY WARNINGS

• Wear suitable protective equipment. Clothing should be tight to the body. Avoid wearing neckties, necklaces or belts that can catch or slip between the moving parts.
• Do not remove any safety devices or guards.
• Do not operate or disrupting the control equipment or tools applied to the machine without being licensed or without knowledge of its function.
• Any technical changes that will affect the operation or safety of the machine must be carried out only by technical personnel of the manufacturer or technical formally authorized by him.
• During the installation you are combined actions of several operators, it is therefore necessary to act with the utmost caution.
Important!
The FLUITECO disclaims any liability arising from failure of the above.

INSTALLATION AREA

Area designated for the positioning of the machine must be provided by the user with all the connections (electric power, air, etc..) for the operation of the machine, in conformity with the information of the present manual, and in conformity with the characteristic of the electric and electronic components. It is responsibility of

the user that the positioning area will be conform with the local laws and safety rules: aeration, ground lead, appropriate illumination, etc...

In particular places with frozen risk during winter time, machines without insulation (optional), can be used only inside a proper building. Ice inside extraction screw conveyor can cause damages on the gearmotor or in the solids outlet.

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

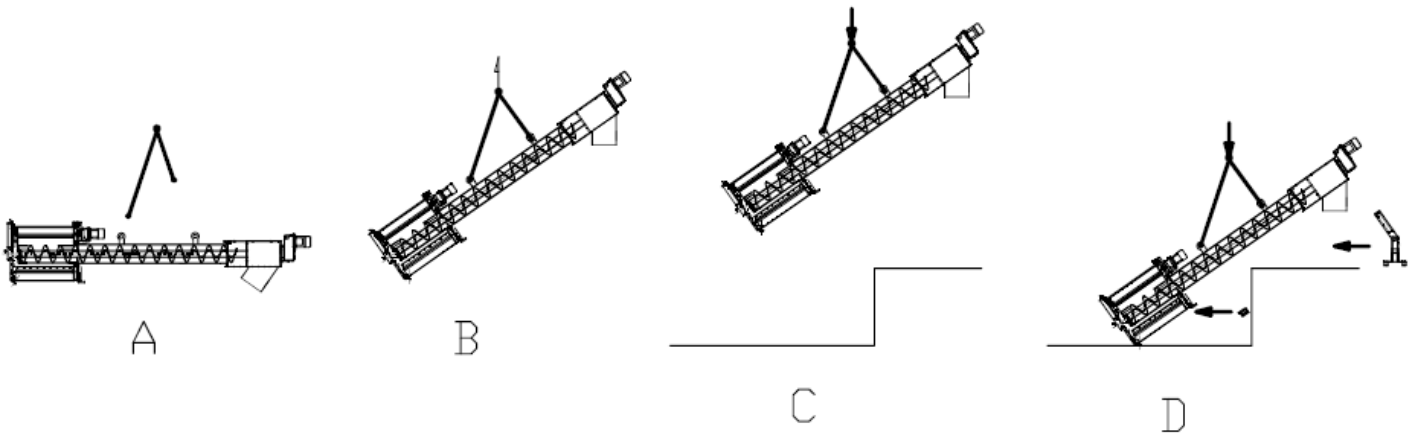
SETTING

Remove the packing from the motor and all parts used for protection during transport.
Before lifting the machine from the ground fully assembled, attach all bolts and nuts for connection.
During the installation and all maintenance use only lifting tools approved. In each phase of the machine must be ensured through tools lifting improperly connected.
Before installation, there must be a concrete floor capable of withstanding the stresses arising from both the installation and the working phase. Such a plan must also ensure the fastening of the blocks used for the mounting of the foot.

It 'important that the mating surfaces of the machine are not subjected to movement or during installation, nor during the use of the machine: it is therefore necessary to consider also the type of ground on which the will draw up concrete plans mentioned above.
Scope of delivery:
The machines type GTR are supplied pre-assembled, except for the support system (Foot and Bracket), which are however, it also supplied pre-assembled.

LIFTING, POSITIONING AND FIXING

The assembly operations (including handling) must be performed by specialized personnel, with appropriate knowledge of the use of means and lifting systems, and the use of the means of screws (keys, bolts, chemical anchors, screw anchors).



A) Lift the machine using the eyebolts through lifting equipment approved for the weight of the machine. Set chains or bands in order to have the machine out with the inclination (about) final.
B) Lift the machine
C) transport the machine to the channel installation
D) Take the lifted machine, insert the adjustable foot support, so ensure the collar to the upright foot; insert the support bracket

Do not use temporary support means, unless these do not guarantee the necessary stability and plant safety. For this purpose, said support means must be appropriately approved and suitable for the purpose.
As already described, the machine must be placed on a stable, horizontal and having a capacity adequate for the weight to be supported. Any unevenness must be within the standards of the construction industry.
Do not use wood chips or various thicknesses to compensate for uneven floors.
Check the end of the positioning of the legs nuts are tight.

Note!
A good installation, as well as to give greater rigidity to the machine, to cause vibrations and noises.

ELECTRICAL CONNECTIONS

Machine is supplied with standard electrical components for the normal operation:

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

It is responsibility of the installer to provide the electric panel, installation and connection to the machine following international laws and local rules.

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

The unit is furnished of a safety miscroswitch on the inspection cover on draining zone. The connection of this switch must be done so that the opening of the cover on which it is applied stop the electricity

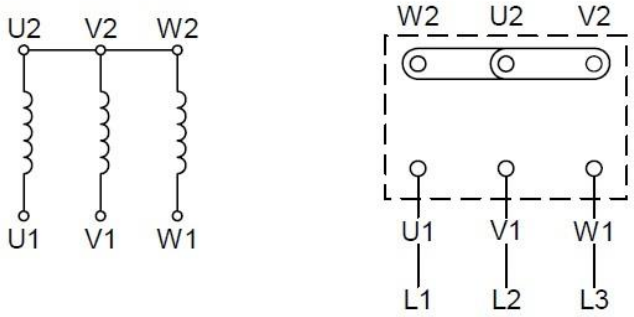
Connections of the switch, electric motor, heating system (optional), solenoid valves (optional) must be accomplished by the installer and they must be executed following each manufacturer manuals attached to the present manual.

Project and execution of the electric panel is under the responsibility of the installer. We recommend to provide 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.

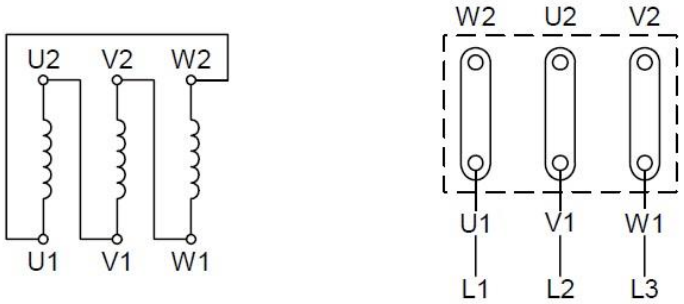
WARNING:

Electric work must be executed only by specialized worker.
Check that voltage is the same as per the Name plate present on the electric motor.
Electric cables must have the correct dimensions and safety as requested from the electric motor.

It is forbidden to work on the electric motor when it is in tension.
During electrical connection, the principal electric power line must be disconnected and the work must be executed only from specialized workers following international and local laws and rules.
Electric cables must be protected considering the installation area and places to avoid to obstruct the working of the machine, following specific applicable rules.
It is forbidden to introduce the hands inside the screw in operation.
Any component of the machine can be used as support go up !



SCHEMA COLLEGAMENTO STELLA
STAR CONNECTION - HIGH VOLTAGE



SCHEMA COLLEGAMENTO TRIANGOLO
DELTA-CONNECTION - LOW VOLTAGE

TECHNICAL CHRACTERISTICS OF THE ELECTRIC COMPONENTS

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

Electric panel must be designed and supplied by the end-user in conformity with the rules and the laws regulating the safety of the workers.
For a correct work it is necessary to follow this working principle:

1) Electric motor startup with:

- Manual startup

- Automatic request after activation of the inlet device up stream

2) Electric motor stop with:

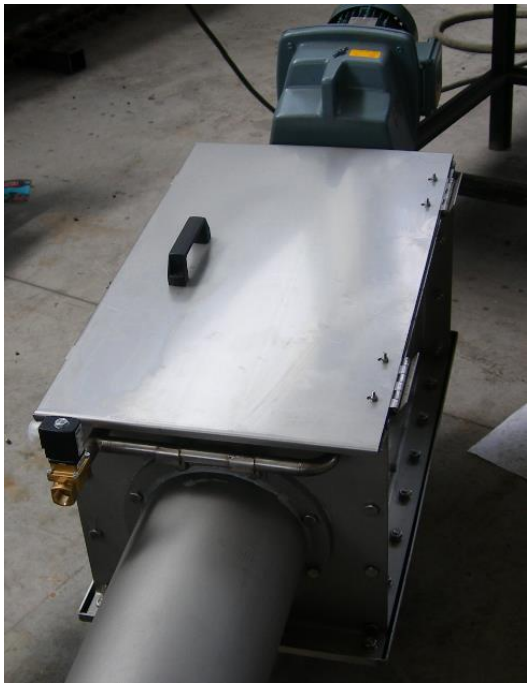
- Manual stop
- Automatic request after the stop of the inlet device up stream delayed 10 minutes by timer
- Emergency manual stop (red button)

HYDRAULIC CONNECTIONS

Depending on the type of machine: GTR, and options installed, the plumbing connections may be different.
For all washes should use clean water (or network technique) to avoid that the nozzle clogging.

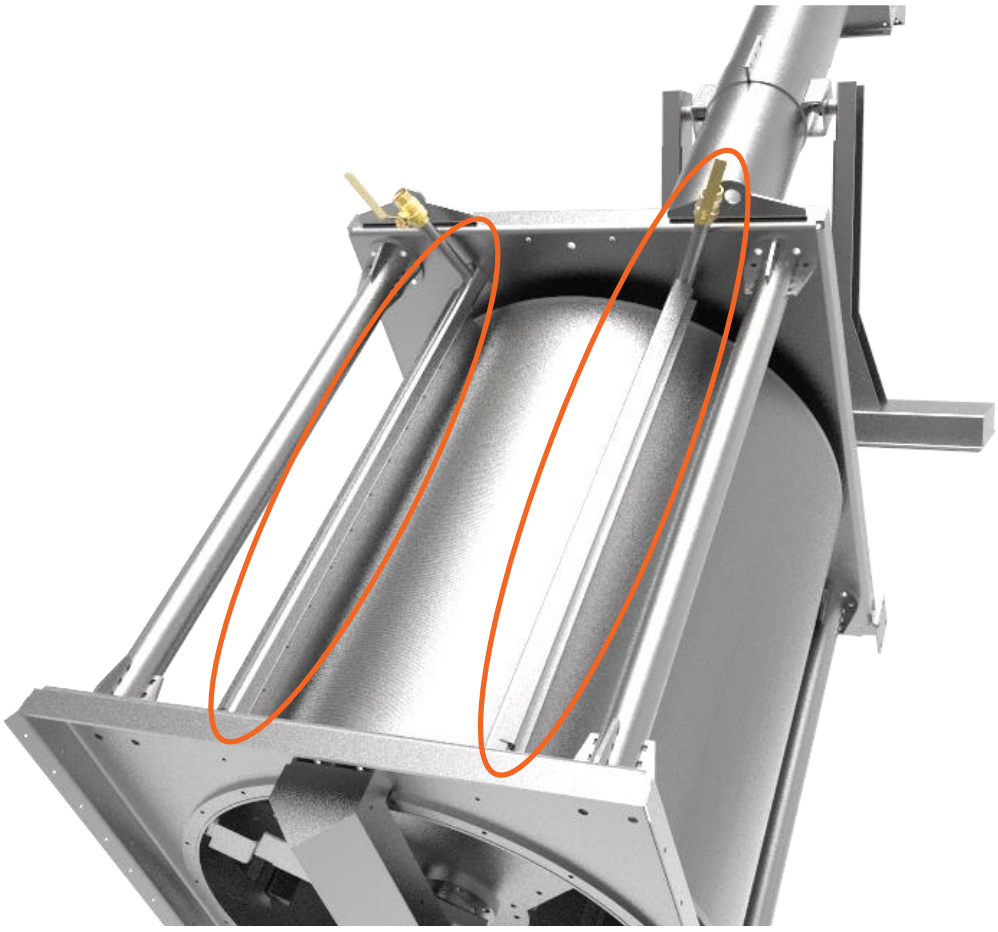
SCREW SCREEN WITH COMPACTOR:

A) Compactor module: standard: ½ "- 0.5 to 1 l / s, max 5 bar, clean water or technique. Actuate every 4 to 8 hours of operation depending on the type of solid to be filtered. A request with solenoid valve 24 V AC NC



B) Optional: wash pipe transport: ½ "- 1 to 1.5 l / s, max 5 bar, clean water or technique. Actuate when the auger is rotating. A request with solenoid valve 24 V AC NC

C) drum washing: 1 ", 1 to 1.5 l / s, max 5 bar, clean water or technique. Actuate when the auger is rotating. A request with NC solenoid valve 24 V AC.



STARTING

- Check if foreign matter or water came inside the cochlea. If so, remove any cover and clean.
- Then, reassemble everything.
- Check the direction of rotation of the screw (counterclockwise 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.
- The first test of goodwill must be made auger empty for no more than two minutes (2 min).

If everything works correctly, supply the material and proceed as usual.

WORKING

- Depending on the type of plant, the operation of the machine is controlled by a remote control panel or by an on-site control panel
- Suitable protection must be put in place to avoid person and/or objects to reach the inside of the machine.
- If for problems of plant engineering is not possible to mount a protective grid, it is necessary to provide for the safety systems that immediately come off the electric current in case of necessity;
- Must provide power auger without impact or excessive loads;
b) Provide a safety device (in accordance with EN1088) that arrests the machine in case of opening or removal of the same door.

- Remains at the discretion engineer's / installer the ability to insert devices of electromagnetic protection: in this case the device must be such as to stop the auger instantly in the event of opening the door same

NOTE: The grid provided as an option under the cover of the hatch is not a "safety component". it only serves to avoid that, once opened the lid, can fall into the auger foreign bodies.

SAFETY PROTECTION

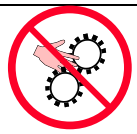
The machines are equipped with inspection covers in areas where you need to access for cleaning, inspection and maintenance. These covers, in case you need the inspection, are equipped with safety switches.

Safety micro switch for compacting modulus cover

The screen drum cannot, for obvious functional, be closed.
Through the screen drum you can reach the rotating spiral, for this reason:
"It 'STRICTLY FORBIDDEN PLACE ANYTHING - HANDS - OBJECTS IN THIS AREA OF CHARGE."
PROTECTION AND DAMS TO BE IMPLEMENTED BY THE INSTALLER.

RESIDUAL RISKS

FLUITECO has produced and built the machine in object, trying to reduce the risks as much as possible.
Anyway remain some risks related to any deficiencies of maintenance or at the manumission of the machine otherwise they can not be deleted during planning and realization of the machine. Other sources of risk are represented from behaviors that are not corresponding at what this manual is explaining and also at the missing respect of Laws and Standards related to accident prevention and safety on working.
This following table resumes the remainder risks and the behaviors to reduce them.

Picture	Description	Measures
 	The machine has moving parts that can cause injury	It is forbidden doing maintenance with machine in motion. Prevent access to the discharge while the machine is working

	The machine must be equipped with its own electrical system : removing the covers of the motor terminal you can access to tension parts	Disconnect the main power supply before every operation. Only specialized personnel can access to the parts electrically connected. The electric part of the machine built by the installer must be according to EN 60204-1.
	Risk on falling	In the machine surrounding, due to leakage or water coming from screenings, the floor can be slippery

MAINTENANCE

PRELIMINARY OPERATIONS FOR SAFETY

WARNING:
Before to make any maintenance, please switch off electric power.

SAFETY CONDITIONS IN CASE OF MAINTENANCE
In case of particular dangerous condition, a second person must be present together with the technician in charge for maintenance.

Maintenance of the unit must be executed only from export, trained and qualified personnel.

Before proceeding with maintenance, it is necessary to inform other personnel in charge in the work.

Any maintenance must be effectuated when the machine is NOT operating.

Every time, before to restart the machine, be sure that all the protections and safety guards are efficient; be sure that all the tools are removed; be sure that other personnel is not working on the machine.

CAUTIONS:
For the aim of granting a full efficiency of the working of the machine, only original spare parts can be used.

PERIODICAL CHECKS

EVERY DAY END OF THE WORKING SESSION:
Empty the machine (everytime you do not need to use it)

EVERY WEEK:
Check to see if the discharge spout is free from debris, if it is not, turn off the power to the machine and clean it thoroughly to avoid any obstruction to the passage of material.
Check the tightness of the bolts of the wear plates (when applicable)

EVERY MONTH:
Clean the fan cooling the electric motor
Check the oil level in the gear motor
Check the state of wear of the frontal brushes (sealing brushes)
Check the efficiency of the washing system

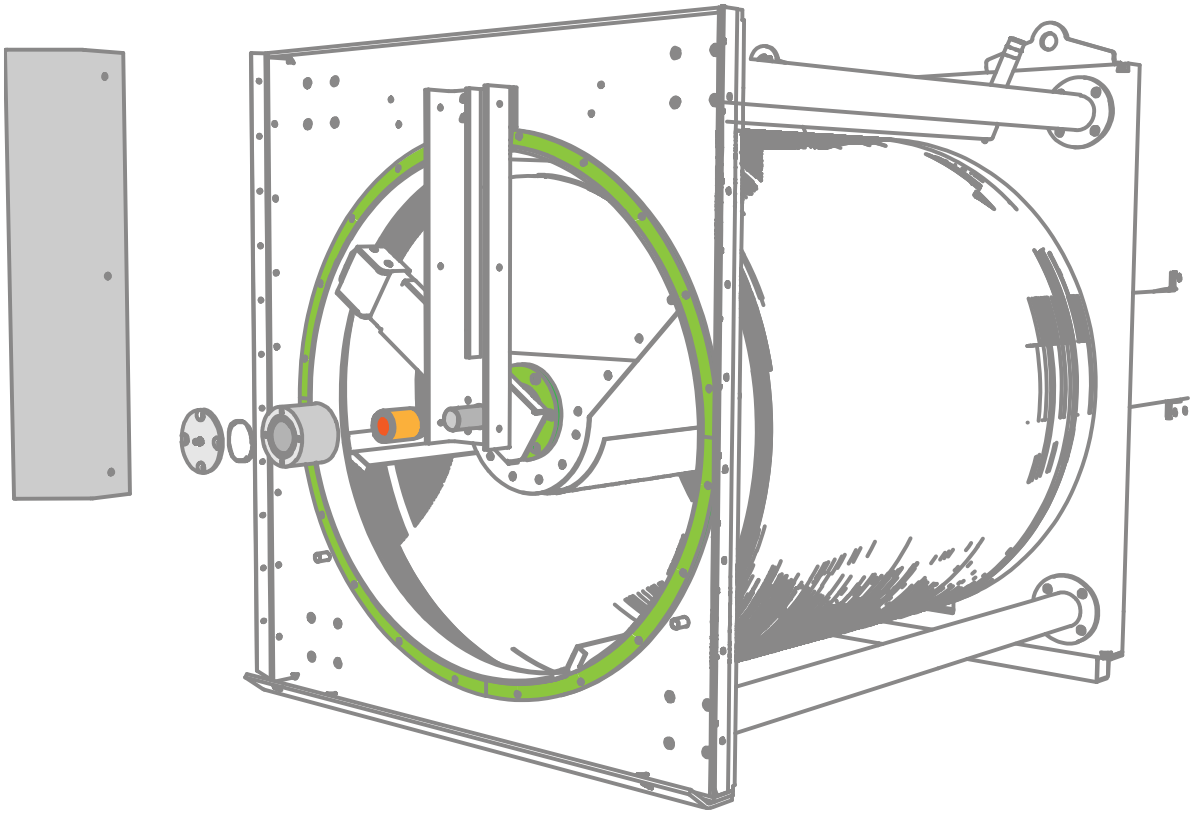
EVERY 3 MONTHS:
Check wear of supporting wheels

Note: the check frequency reported in this manual is for a standard use; the actual frequency depends on the actual operating time

ROUTINE MAINTENANCE

BUSHING REPLACEMENT

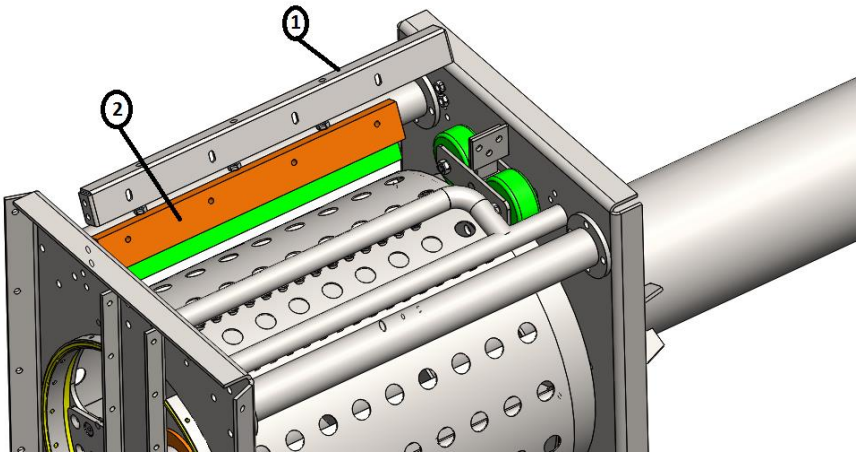
-TURN OF THE POWER TO THE MOTOR TO MAKE SURE MACHINE CANNOT START
-UNSCREW THE BOLTS IN ORDER TO OPEN THE FRONTAL SUPPORT



-REMOVE THE OLD BUSHING (in orange) AND PUT ON THE NEW ONE

BRUSH REPLACEMENT

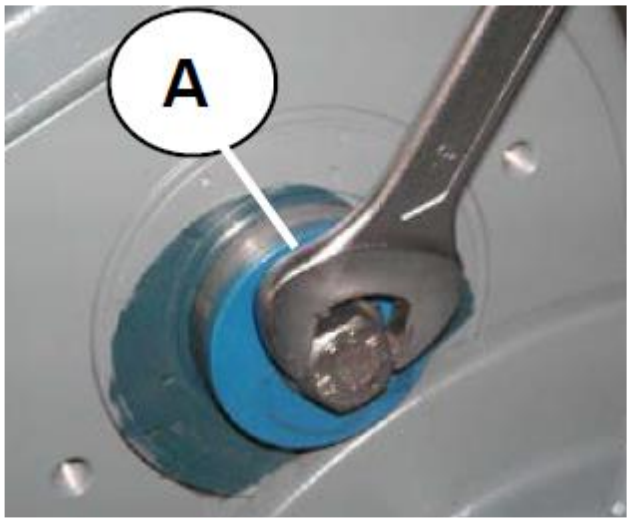
-TURN OF THE POWER TO THE MOTOR TO MAKE SURE MACHINE CANNOT START
-UNSCREW THE BOLTS THAT KEEP THE BRUSH SUPPOT CONNECTED TO THE MACHINE (1)



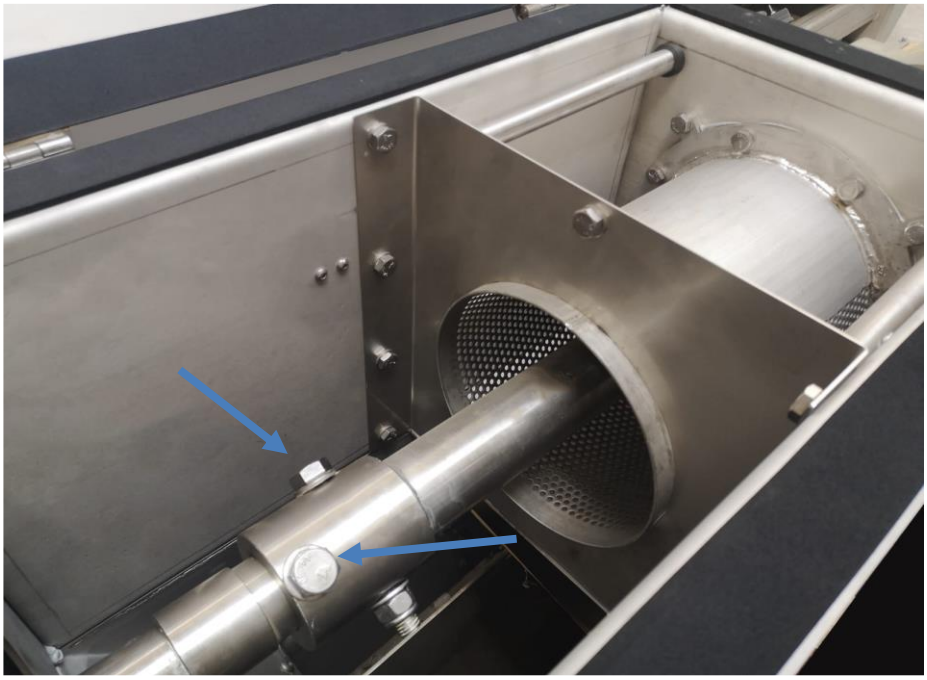
-REMOVE THE OLD BRUSH AND PUT ON THE NEW ONE

GEARMOTOR REPLACEMENT

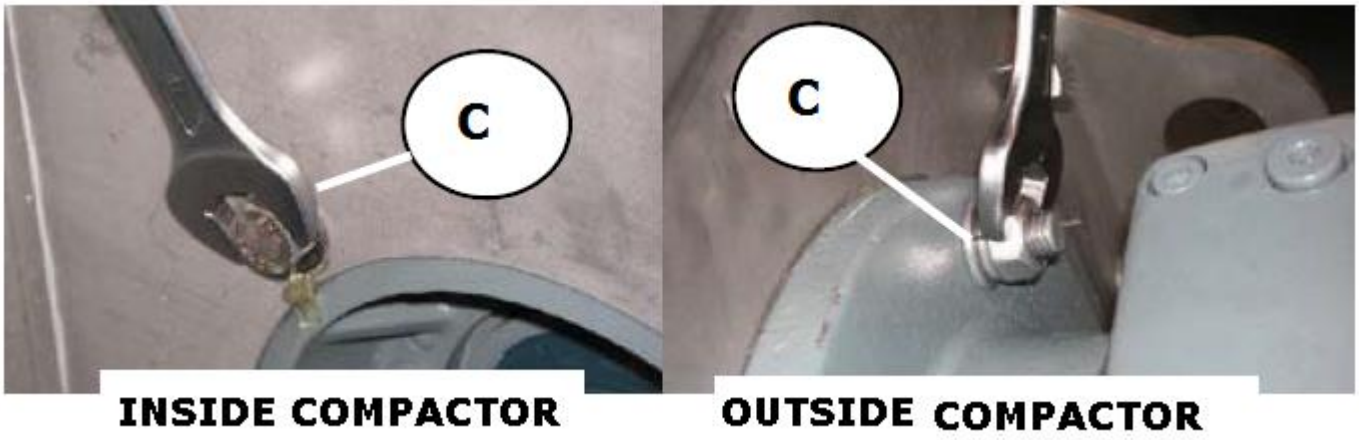
-SWITCH OFF THE MAIN POWER SUPPLY
-REMOVE THE MACHINE FROM THE CHANNEL
-UNSCREW THE BOLT IN THE BACK OF THE GEARMOTOR IN ORDER TO FREE THE SHAFT (A IN THE PICTURE BELOW)



-REMOVE THE BOLTS THAT CONNECT THE SPIRAL TO THE GEARMOTOR SHAFT (CHECK THE PICTURE BELOW)



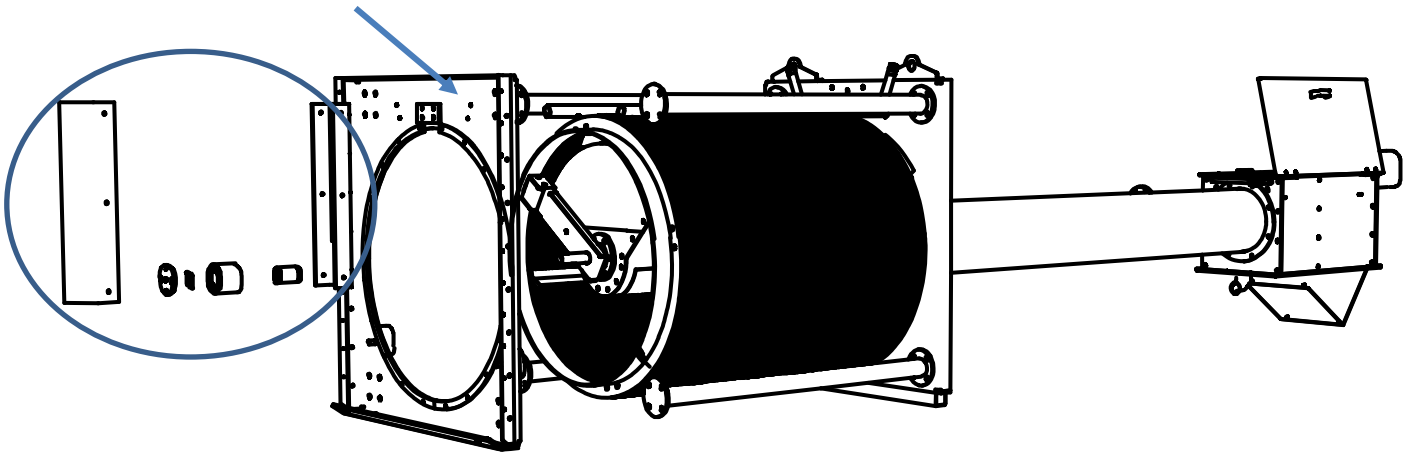
-REMOVE THE GEARMOTOR FLANGE'S BOLTS (C IN THE PICTURE BELOW)



-REPLACE THE GEARMOTOR
-FOLLOW THE INSTRUCTION IN THE REVERSE ORDER TO REASSAMBLE THE MACHINE

BASKET REPLACEMENT

-TURN OF THE POWER TO THE MOTOR TO MAKE SURE MACHINE CANNOT START
-REMOVE THE MACHINE FROM THE CHANNEL AND LAY IT HORIZZONTALLY



-REMOVE THE FRONTAL SUPPORT AND BERAING ASSEBBLY AS CIRCLED IN THE PICTURE
-REMOVE THE FRONTAL PLATE (BLUE ARROW, BY REMOVING THE BOLTS OF EACH SUPPORT BRACKET
-REMOVE THE BASKET AND PUT ON THE NEW ONE
-FOLLOW THE REVERSE PROCEDURE THE RE-ASSEMBLY THE MACHINE

OTHER INFORMATION

LONG TERM STORAGE

In case of long term storage:

- Clean the machine in the draining, transporting and compacting zone.
- Put the machine on wooden crate and store it in a covered area.
- Geared Motor: follow the instructions as per the manual.
- Before restarting the machine, proceed as per the initial starting.

DISMANTLING OF THE MACHINE

In case of dismantling of the machine, it is necessary to separate different materials composing the machine:

The plastic, gasket, seals, must be separated and disposed in a proper area.

The other parts must be recycled as metallic materials.

The oil of the geared motor must be disposed in a proper area.

It is advisable to contact a specialized company for the dismantling of the machine and the recycle of the materials.

CAUTIONS:

The dismantling of the machine must be executed following general and local environmental rules.

CHECK LIST IN CASE OF TROUBLE

1) General questions
a) Ask plant operator when and under which circumstances the machine stops. Does the machine start without problems after long resting periods?
b) Do weather conditions negatively influence feeder operation?
c) Check the channel slope: is it enough to ensure the correct water velocity?
d) Check the wear of the brushs: are they too worn to ensure proper cleaning of the sieve?
e) Check the side rubber sealing strips: are they too worn to ensure the proper sealing?
f) Check the amount of screening/solid content in the water: is it according the design parameter?
g) Check the flowrate (upstram water level): is it according the design parameter?

2) Electric equipment 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 power supply of motor.
d) Check electric motor is correctly wired and make sure wires are tightly fastened.
e) Check adjustment of thermal cut out in the control panel and compare with data on the motor plate.
f) Check sense of motor rotation is correct.
g) Read amperage with machine running on empty, then with filled up macine starting, as well as with full machine running.
h) Check cross section of mains cables are suitable for the installed drive power.

3) Mechanical parts check
a) Is breather plug of gear reducer working all right?
b) Check outlet is crust-free.
Describe outlet (e.g. vertical or angular).
c) Check vent of the container beneath the screw conveyor outlet works correctly and check correct dimensioning of same.

4) Conveyor check
a) Are conveyor parts correctly assembled?
b) Does conveyor bend? Stretch a string. If necessary additional supports must be fitted (every 3 to 5 metres).

c) Empty the conveyor. Disconnect from the power supply
d) Open inspection hatches if in existence. Check if the conveyor is occluded.
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.

5) Product check

a) Name of the product?
b) Density? (kg/dm3)
c) Granulometry? (um/mm)
d) Umidity? (%)
e) Fluency? (make the material slide along a metal sheet increasing slowly the slope)
f) Compression? (is it possible to make a snowball?)
g) Abrasivity? (does it hurt when you touch the material with your fingers?)