

USER MANUAL ENGLISH VERSION 3

SKID40 Complete unit for sludge dewatering





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.





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 Phone number: +376 0549 911491

FLUITECO S.r.l.

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Web: www.fluiteco.com - E-Mail: fluiteco@fluiteco.com

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;

 FLUITECO® <small>Strada del Lavoro, 119 - 47894 Chiesanuova - Repubblica di San Marino Phone: +39 0549 911491 - Fax: +39 0549 957055 Web: www.fluiteco.com - E-Mail: fluiteco@fluiteco.com</small>		QUASI MACCHINA / PARTLY COMPLETED MACHINERY 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.

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 intended to provide a gradual and progressive knowledge of the machine.

1. 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.

2. GENERAL WARNINGS

- The installation and use of the equipment, either partial or total, is restricted to expressly authorized personnel only.
- The working temperature is between 0°C and 50°C. If the environmental temperature is lower than this range and the equipment is without heat tracing, it's mandatory to install it inside a building.
- It is forbidden to use the equipment for different ways than those for which it was designed.
- Read the warning and hazard notices on the machine carefully.
- It is forbidden to remove the warning and hazard notices from the machine.
- It is forbidden to carry out maintenance, make repairs, modifications or take any measures not strictly necessary for the work cycle when the equipment is running. **Firstly, it is necessary to disconnect the machine from all the power supplies.**
- **It is forbidden to remove the safety devices from the machine.**
- It is forbidden to start working with the security guards open, or to open them during the working cycle.



The machine must not be started before the machine itself, as well as the plant it is going to be installed in, have been declared in conformity with the **directive 2006/42/CE**.

For the handling of products with the following characteristics the plant designer or installer must provide for appropriate protection devices: dangerous, harmful when touched and/or inhaled, inflammable, explosive, infective.

It is the plant designer's / plant fitter's responsibility to design and install all necessary protection in order to avoid that breaking and /or yielding of the equipment or of parts of it might damage people and / or parts of the plant (e.g. adequate protection against the risk of fall etc.).



REMARKS CONCERNING SLUDGE TREATMENT:

Clean the screw regularly with water. The intervals are established by the user as they mainly depend on the product handled, as well as on the application. Trough and seals must be cleaned with particular care. Prior to use of cleaning products check with customer service.

IT IS FORBIDDEN

- **to use the machine with inflammable products or with solid parts that may explode;**
- **to use the machine without the safety devices and guards listed in this manual;**
- **to use the machine if there are significant faults during the course of functioning (excessive noise level, vibrations, etc...);**

3. TRANSPORT - HANDLING

On arrival, prior to unloading, check if nature and quantity of the goods comply with the acknowledgement of order.

If any parts are damaged through transport immediately state your claims in writing on the consignment note (waybill). The driver is obliged to accept this and to leave you a copy. Send off your claims without hesitation to the supplier if the goods received damage during the transport, or to your shipping agent. If you fail to state your claims on arrival your request may be denied.

Damage will be avoided during the unloading of the machine if a suitable lifting device is hooked on appropriately. **Neither push nor drag the Skid!**

Bear in mind you are handling mechanical equipment so please handle with care.

If the supply includes more screw feeders please ensure each section of the same feeder is marked with the same serial number.

Screw conveyors can be supplied in one or more pieces, with bare shaft or with drive unit.



Warnings!

During the handling or maintenance use only approved hoisting equipment.

During each phase of installation always handle the machine using appropriate hoisting equipment appropriately fixed.

Supply:

The machine is supplied in one piece for a maximum length of 13 meters. Longer conveyors are supplied in different pieces.

4. ELECTRICAL CONNECTION

The electrical connection is very simple, a 16 Ampere Three-phase four-pole plug is located under the electrical panel and it will be enough to connect it to power the entire Skid



Warnings!!

before any action disconnect the machine from its power supply!

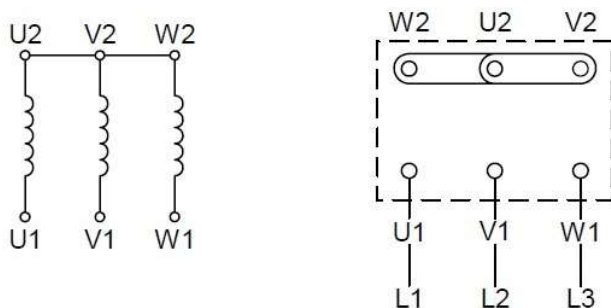
- Before connection, ensure plate and voltage supply match.
- Never put your hands into a running screw conveyor!
- Never open the inspection hatches or trough covers before having disconnected the conveyor from mains supply.

The tension designed for the plant is stated on the label.

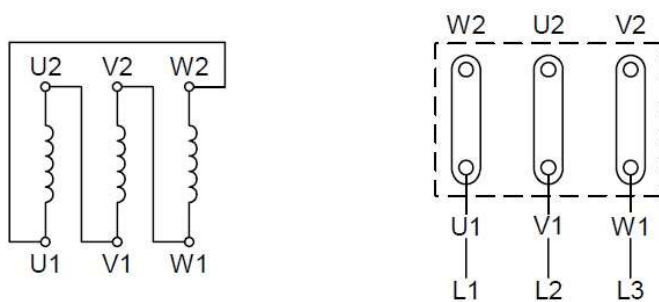
The electrical system is not waterproof. The machine must be connected to a three-phase network through a cable, four (three stages + earthing). The cable's section must be designed to the current absorption of the machine, specified on the identification plate attached to the machine itself.

- Check first the existence of the earthing and its efficiency. Verify that the line does not change in voltage.
- Make sure the switch located upstream supply line of the machine is in an open position "0".
- Plug the cable into Conduit and higher channel until you reach the terminal of the engine and connect to it.

- Check the direction of rotation of the engine.
- Always focus on safety standards.



SCHEMA COLLEGAMENTO STELLA
STAR CONNECTION - HIGH VOLTAGE



SCHEMA COLLEGAMENTO TRIANGOLO
DELTA-CONNECTION - LOW VOLTAGE

5. MACHINE START AND OPERATION

Preliminary operations

- First of all place the skid unit on a leveled floor



0°



-As second step Check that the following valves are correspondingly closed or open as shown in the images below.

Red-CLOSED- Green -OPEN-

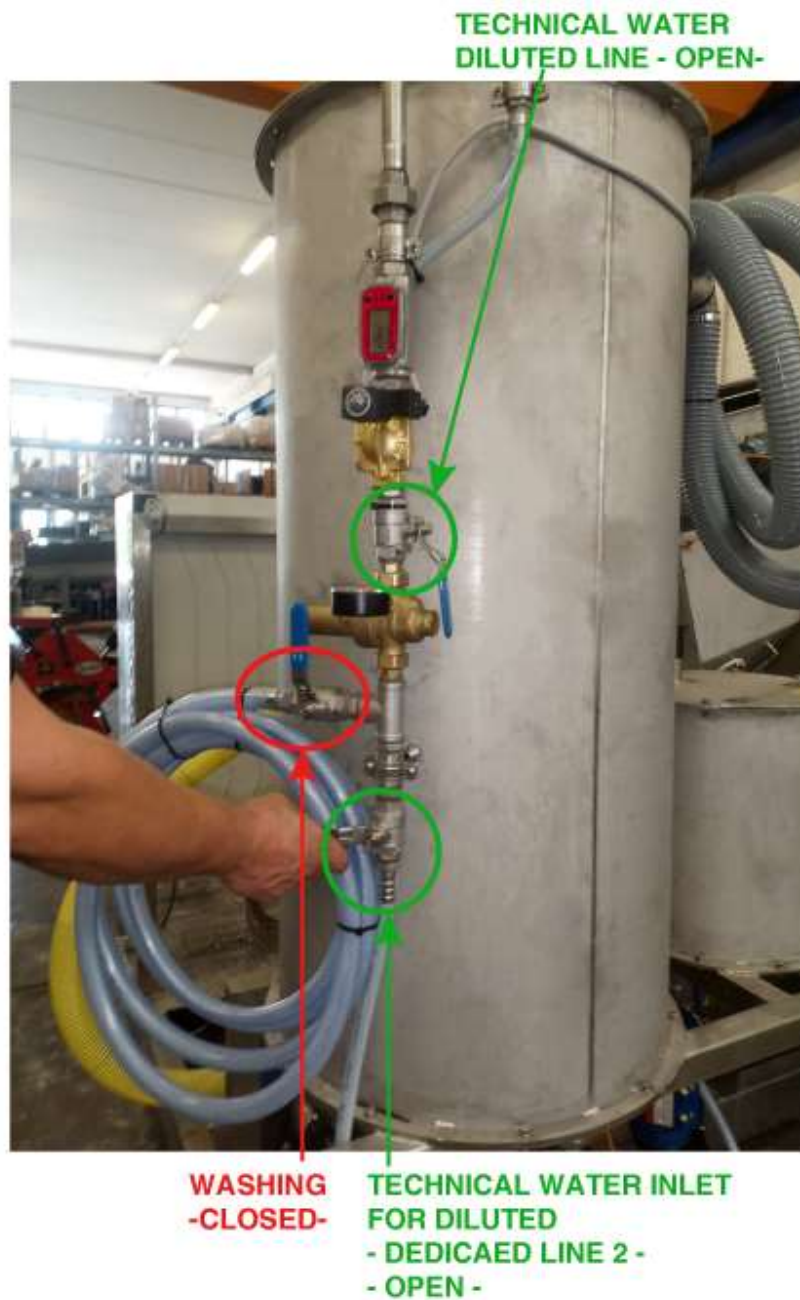




DILUTED REGULATING VALVE
The valve regulates the flow of dilute into the sludge - OPEN-



**DILUTED
SAMPLE
-CLOSED-**



**-CONNECT TECHNICAL WATER INLET FOR DILUTED TO THE WATER NETWORK – DEDICATED
LINE 2 - MINIMUM REQUEST 3 BAR**

TECHNICAL WATER
SD WASHING SYSTEM

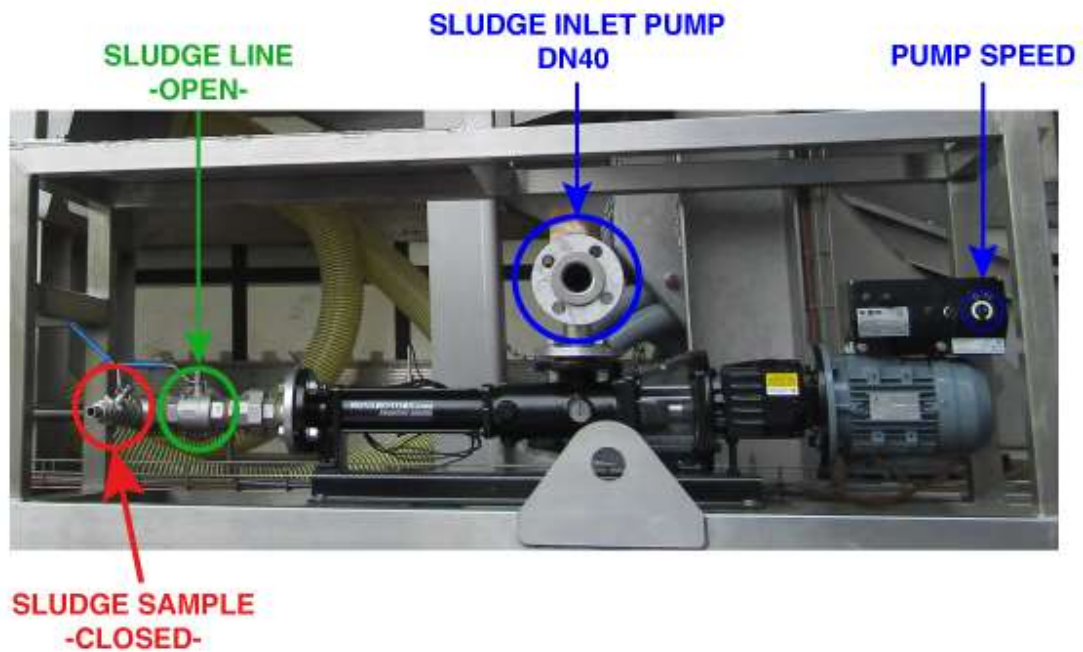
- DEDICATED LINE 1 -
-OPEN-



FLOCCULATED SLUDGE
-OPEN-

FLOCCULATED SLUDGE SAMPLE
-CLOSED-

-CONNECT TECHNICAL WATER INLET for SD WASHING TO THE WATER NETWORK –
DEDICATED LINE 1 - MINIMUM REQUEST 6 BAR



-KEEP ALWAYS OPEN THE SLUDGE VALVE



-LAY OUT THE CLARIFIED PIPING AND CONVEYOR DRAINAGE

ALSO CHECK:

- Check if foreign substances or water have entered the machine. If so, remove the trough's cover and clean. After put on the cover again cover.
- Check the direction of rotation, this simplicity is represented by a black arrow with a yellow background. In the event of an error, reverse the wiring in the terminal box of the control panel.



- Ensure that all the gear reduction units are filled with oil.



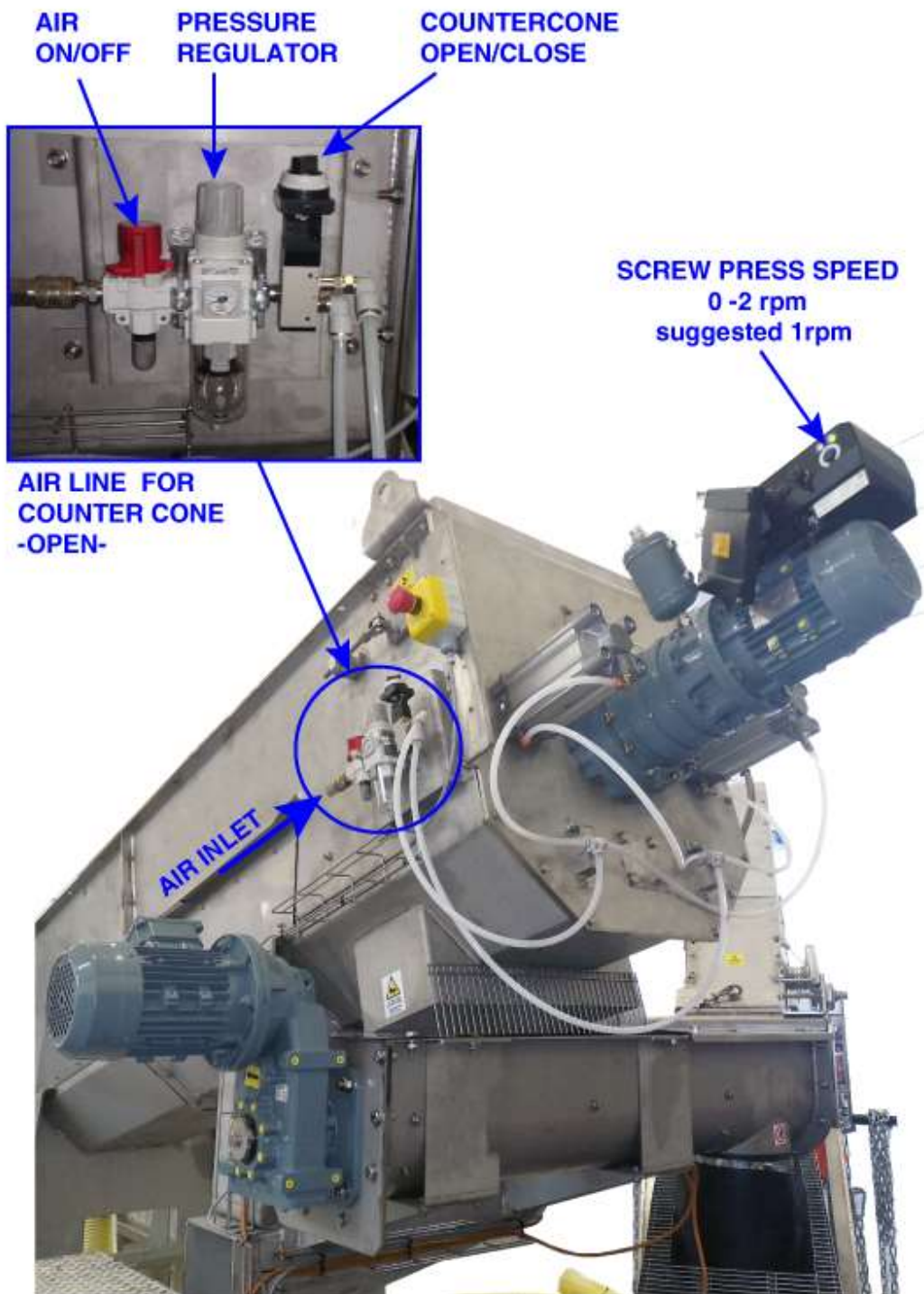


The life of the skid and its screws will be increased by shutting off the inlet and by emptying the spiral conveyor at the end of each working day.



- This is particularly important if the material conveyed tends to harden or become more viscous or sticky if allowed to stand for a period of time.
So at the end of the job clean the entire unit: pipes and machines

- Connect the compressed air – Suggested 6Bar for start up until good flocculation and then decrease to 1Bar
- Motor speed suggested 1rpm (potentiometer 50%)

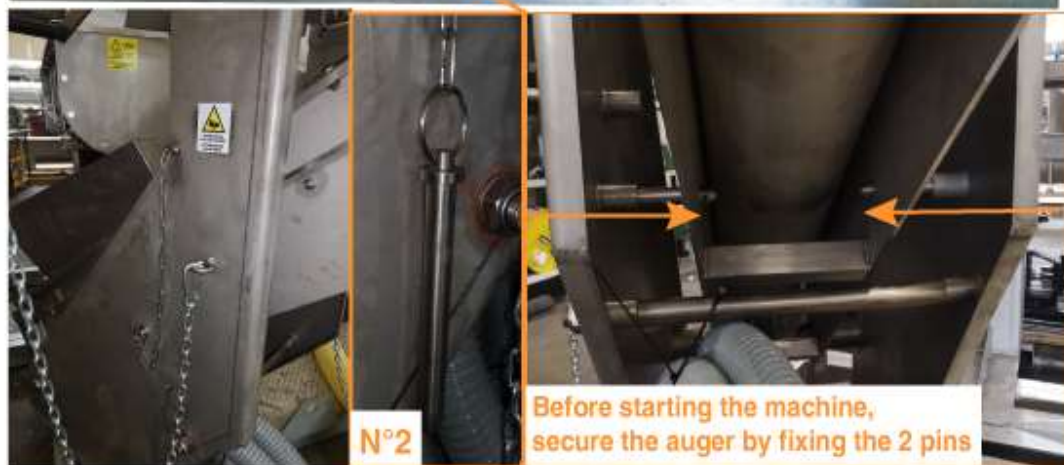


-Before activating the unit, unlock the pivoting screw conveyor. Orient/tilt it and block it in the desired direction.

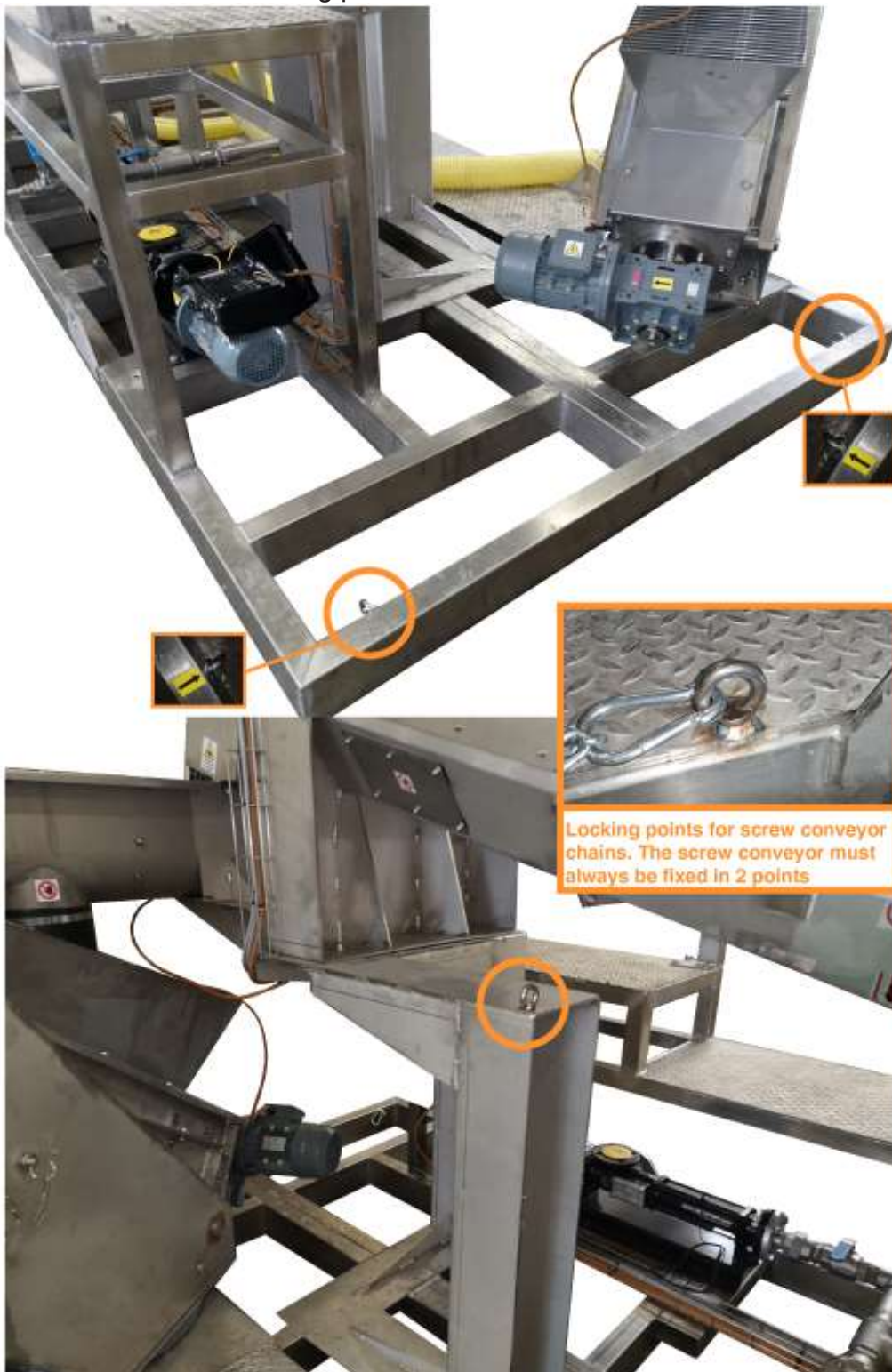
The purpose of these 2 bolts is to lock the Pivoting conveyor during transport. Unscrew the two bolts that block the screw conveyor before put it in operation



A winch is mounted to allow the screw conveyor to change inclination.



-Attach the chains to the locking points



- Adjusting the length of the chains the conveyor can have different positions



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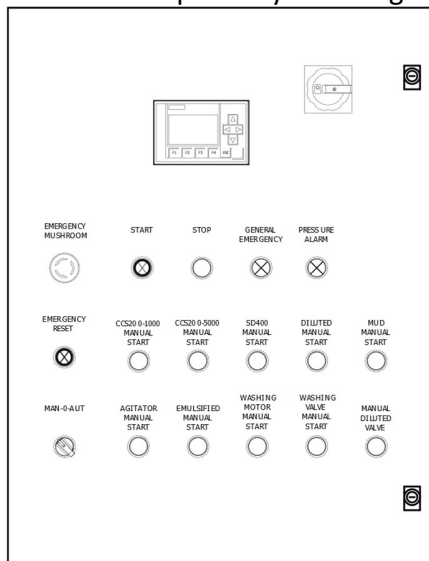
Procedures:

- Connect sludge line
- Connect the 2 technical water lines (Tank diluted and SD Washing)
- Connect the compressed air line
- Fill the emulsified tank with the flocculant



- Connect the electrical panel.

- Activate the panel by selecting “Man” and check the direction of rotation of the screws.



-On the panel Select "Auto" for automatic operation and press Start to start

-For any type of change in the settings, please contact Fluiteco

6. MAINTENANCE



BEFORE ANY ACTION, DISCONNECT THE POWER SUPPLY!

Every day, after finishing operation, empty the screw conveyors, SD Screw press and piping.

Once a week

- check to see if outlet is free of crusts; if not, clean in order to avoid blockages.
- check the tightness of all the bolts and nuts (especially when sliding bars are used)
- Grease the SD front bearing

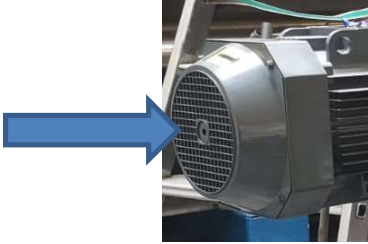


Once a month

- Grease the main bearing of the screw conveyor



-clean the motors cooling fan



-check the oil level in the gearboxes



-check the wear of the hdpe liner

-check the tightness of the sealing group between gearmotor and screw conveyor.

If leaks tight the n°2 bolts



Once every three months

-check the wear status of the screw and HDPE liner

Once every two years, it is advisable to replace the end bearing seals.

Once every three years, replace the trough liner (if worn out).

The frequency of lubrication and replacement of parts depends on the application and on the material conveyed. Indeed, conveyors may come with different bearings, seals and liners. The procedure of parts replacement, however, is always the same.

7. SPARE PART LIST FOR 2 YEARS

DESCRIPTION	Q.TY
Conveyors	
KIT HDPE high density LINER	1
BEARING	1
SD Screw Press	
Kit Cleaning sector	1
SD Front Bearing	1
Kit Nozzles	1

8. LUBRIFICATION

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

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 trade mark is **SHELL TIVELA OIL 320**. If a different oil is to be used as replacement, it must have the same propriety of the original oil, as listed in the table below

Shell tivela oil 320	
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 trade marks

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

8.1 Emergency button locations

The Skid is equipped with 3 emergency mushrooms.

One is above the short screw conveyor, attached to the SD.

One is located on the diluted tank and another is on the electrical panel



9. NOISE

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 80 dB(A).

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

10. STORAGE FOR LONGER PERIODS

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

11. DEMOLITION

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

12. FAULT FINDING

Minor problems can be solved without consulting a specialist.

Below is a list of the more common problems with their possible causes and remedies.

FAULT	POSSIBLE REASON	ACTION
Motor does not start.	1) Faulty connection.	1) Check fuses; if damaged replace
	2) Motor faulty or network fault	2) Repair or replace faulty part
Motor starts but stops immediately.	1) Wrong direction of rotation of the screw	1) Change wiring in terminal box
	2) Obstruction of the screw	2) Clean screw inside
	3) Excessive throughput	3) Check ammeter reading and throughput rate. Should both values be too high contact customer service
	4) Motor burnt out	4) Discover reason (see item 3) and only then repair
	5) End bearing or reducer damaged	5) Discover reason (see item 2 - could be normal wear) and replace part
	6) Outlet blocked	6) Clean outlet
Motor starts but conveyor does not convey any material	1) Either pinion or reducer output shaft damaged	1) Discover reason and replace part
	2) Wrong direction of rotation.	2) Change wiring in terminal box