

MAINTENANCE MANUAL ORBITAL BIN



ATTENTION

The silo presented in this manual is designed for the storage and automatic extraction of ice flakes. It is built in stainless steel AISI 304 on walls and floor. Must be placed in rooms with temperatures below -4°C.

The machine is autonomous and is operated by controls located on the front side of the electrical panel.

ITV reserves the right to make changes and improvements to the material contained in this documentation without notice.

WARNING:BEFORE ANY OPERATION OR INSTALLATION, COMMISSIONING, STORAGE OR MAINTENANCE, CONSULT THE MANUAL FOR SAFETY INSTRUCTIONS. FAILURE TO COMPLY WITH THIS WARNING MAY CAUSE PERSONAL INJURY OR DEATH.



SAFETY WARNING



This safety warning symbol indicates an important safety message written in the manual.

When you see this symbol it is to warn you of the risk of personal injury and you should read the following message carefully. A brief definition of the signals or indicators that may be used in this manual is given below.

WARNING (WARNING): Indicates a specific potential risk.

HAZARD (DANGER): Represents a serious potential specific risk.









ATTENTION

Never enter a silo on an ice block, because the ice dome could sink, burying and drowning the operator.



FAILURE TO COMPLY WITH THIS WARNING MAY RESULT IN PERSONAL INJURY OR DEATH INJURY OR DEATH



ATTENTION

The safety measures indicated in this section show the necessary guidelines, which are mandatory when interacting with this storage system. Failure to comply with these guidelines may result in serious personal injury or even death of the user or anyone working near the system. Machines, including the storage system, are equipment which must be operated by qualified and trained personnel. There may be different ways of using this machine, however, we have drawn up safety guidelines based on the safest method. Changes in the application of the recommended method are the responsibility of the owner, operator or anyone operating the machine. The operator and/or owner is responsible for operating this machine in accordance with the safest recommended method.



Safety during maintenance

Maintenance of the machine must be carried out by qualified personnel. Any internal inspection or intervention shall be carried out with the electrical cabinet locked and voltage off.

⚠ WARNING:

- NEVER INSERT THE HEAD AND DO NOT CRAWL UNDER THE ICE PACK.
- NEVER ENTER FROM THE ROOF OF THE SILO AND DO NOT ATTEMPT TO WALK ON A BLOCK OF ICE, BECAUSE ONCE DOWN IT COULD SINK, BURYING AND DROWNING THE OPERATOR.
- THE ICE MASS IS UNSTABLE AND HAS DEEP CRACKS. CAN SUDDENLY DISINTEGRATE AT THE SLIGHTEST PRESSURE AND BURY A CARELESS VISITOR.

Any test manoeuvres, with guards suspended or removed, shall be limited to remote observation. It is the full responsibility of the owner of the machine.

All safety devices (sensors, audible warnings, etc.) must be installed before the machine is powered up

If you are accessing the inside of the silo, place an object on the door sill to avoid getting trapped accidentally.



MAINTENANCE AND LUBRICATION

Routine checks

The maintenance technician shall regularly check the following:

- 1) Those presenting safety risks such as:
- 1) SCHMERSAL relay that controls the shutdown of the system by opening the pass-through swing door
- 2) Electrical installation in general
- 3) Verification of the proper functioning of the self-control function, both the purge time and the sequence of operation of the extraction and discharge slots.
- 2) Control of oil leaks from the various gearboxes and transmission elements which are part of the machinery.
- 3) Check the correct operation of the sweep/extraction screw and its loosening in relation to the angle gear to which it is coupled. A decentralization when in operation or a loosening when moving with the hand still indicates that the shaft has twisted due to an abnormal overload, or that there is considerable wear in the angular deviation. In both these cases it is necessary to intervene quickly because an infinity of wrong subject drain/extraction can hook up and deteriorate the storage tank.

Endless conveyor belt

Maintenance

▲ IMPORTANT: FAILURE TO FOLLOW THE FOLLOWING INSTRUCTIONS MAY CAUSE PROBLEMS AND INVALIDATE THE WARRANTY OF THE MACHINE

<u>Check weekly</u> that the discharge and any intermediate supports are free of material residues. If not, clean well to avoid obstructions in the passage of material (cleaning is defined in paragraph 6.4 of this manual).

At least once every 2 years , replace the following parts of the gaskets on the end and intermediate supports (if worn).

It is obvious that the time of lubrication and replacement of parts depends on the use of the machine and the type of product transported. Indeed, machines can mount different types of bearings, guards, bushings, couplings, etc. In any case, the operations to be carried out are always the same, even if, for example, the bushings and guards can be different.



▲IMPORTANT:BEFORE PERFORMING ANY OPERATION DISCONNECT THE POWER

Lubrication

End supports

Lubricate every 600 hours. The manufacturers' brands listed in the table are in alphabetical order, without a specific order for product quality. The list does not cover the entire range of existing lubricants, so other lubricants with the same specifications can be used.

TABLE OF LUBRICANTS			
CONVENTIONAL LUBRICANTS			
GR-MU2	AGIP		
ARALUP HL2	ARAL		
BP-ENGERGREASE L 2	ВР		
CALYPSOLH 433	CALYPSOL		
ANDOK B	It		
MOBILUX 2	MOBIL OIL		
MOBIPLEX 47			
ALVANIA 2	SHELL		
GLISSANDO FL 20	Texaco		
MULTIFAX 2	TEXACO		

Intermediate supports

The bushing is self-lubricating.

Motorization and reducer

The motors and reducers are supplied with the first filling oil and have a level, drain and defoliation cap.

Make the first oil change after 1000 hours of operation and then every 2500 hours.

The manufacturers' brands listed in the table are in alphabetical order, without a specific order for product quality. The list does not cover the entire range of existing lubricants, so other lubricants with the same specifications can be used.

The data in the tables refer to working temperatures between 0° and 35° C. Higher temperatures require with higher viscosity; for lower



oils with lower viscosity.

Oil	Manufacturer
BLASIA 220	AGIP
DEGOL BG 220	ARAL
ENERGOL GR – XP 220	ВР
NL GEAR COMPOUND 220	CHEVRON
SPARTAN EP 220	lt
MOBILGEAR 630	MOBIL OIL
OMALA 220	SHELL
MEROPA 220	Texaco

Angle gear Lubrication

It is essential to use non-toxic lubricants (NOTOX), which are mainly used in the food and pharmaceutical industry. These oils and lubricants meet USDA h-1 (United States Department of Agriculture) requirements.

The transmissions are maintenance free under normal conditions of use. For extreme use or in case of increased service life, it is recommended to change the oil every 15,000 hours of operation.

The recommended oil is specified in the following table:

Lubrication	Type Lubrication	VENT	ISO VG	Oil	Manufacturer
NOTOX A	System of circulation	Not	320	Eural gear 460	Aral

The operating temperature range is between -10° and 50°C.

Cleaning orbital bin

Before cleaning the silo, it is necessary to remove the voltage from the electrical panel.

- To clean the silo, you must have emptied the ice beforehand. There will always be a small layer of ice at the base of the silo.
- Stainless steel surfaces can be cleaned with a stainless steel cleaner.
- Do not use abrasive cleaners or metal sponges NOT SUITABLE for stainless steel.
- When using steel cleaning products, always follow the manufacturer's instructions, as well as once used rinse thoroughly with water and dry the treated area.
- The formation of deposits of limestone, salt or grease, among others, are also a cause of corrosion.
- Clean regularly. It is easier to remove stains before they are dry and can attack stainless steel.



IMPORTANT: In case of non-regular cleaning, dirt, dust and moisture can form that over time and lack of cleaning can cause the start of oxidation in the metal parts of the orbital bin, even if they are made of stainless steel AISI 304.

Pollutants	Methods of cleaning
Traces of footprints	Wash with soap, detergent or other products such as alcohol or acetone. Rinse well with cold water and a dry cloth.
Oil and fat	Wash with an organic/hydrocarbon product (such as alcohol), then clean with soap or mild detergent and water. Rinse well with cold water and a dry cloth. It is recommended to soak before cleaning with warm soaked water.
Painting	Wash with paint solvent using a soft nylon brush, rinse with cold water and clean from dry.
Signs of water, lime	Important limestone residues can be removed by dipping with a 25% vinegar or 15% nitric acid solution. Rinse well. Continue washing with soap or detergent and water. Clear with water and warm water. Dry clean with a gentle cleaning cloth.
Rust stains	Immerse the pieces in a 9:1 solution of hot water and nitric/phosphoric acid for 20 minutes. Wash with water.
	0
	Moisten with oxalic acid, leaving it for 20 minutes. Rinse thoroughly with cold water and a dry cloth.
	0
	Mechanical removal of rust residues in case of strong oxidation

Yes	No	
When cleaning is not carried out regularly, rust and dirt must be removed.	Do not cover stainless steels with waxes or oils, dirt and rust will cling more easily and	
	make their removal difficult.	
Always start with the most gentle cleaning products	Do not use detergents containing chlorides and/or	
and methods in a small area for	halides (e.g. iodine or fluorine).	
Evaluate the effects on the action surface.		
Use hot water to help remove polluting fats and oils.	Do not use disinfectants to clean stainless steel parts.	
Always rinse with clean water in the final cleaning	Do not use hydrochloric acid (HCI) for cleaning,	
process, followed by drying with a soft cloth or paper towel.	because it will cause corrosion(SCC).	
Use proper protection and precautions when using acid to clean stainless steel.	Do not use unknown or unverified products.	
Always clean stainless steel tools	Do not use "silver" detergents.	
before use to manipulate food.		
Avoid iron contamination of cleaning equipment	Do not use too much soap or	
manufactured with iron or used for	detergents for clean up; leave a layer	



Cleaning of carbon steel parts.	"cloudy" on the surface.
In uncertain or difficult cases, contact an expert for	Do not clean a passive part with a simple pass;
further cleaning instructions.	Cleaning must be carried out before passivation
	treatment.

CLEANING OF OUTLET VALVES:

The weekly cleaning of the outlet screws must be carried out by a qualified operator. The feed screw, both the trolley outlet and the weighing feed screw must be cleaned periodically. This shall be done by:

Exit screw for wagons

- Step 1: Remove all remaining ice from the cochlea, for this:
 - Close the silo door.
 - o Close the cutter feeding the output screw to the weigher.
 - o Stretch the silo frame.
 - Set the DOWNLOAD box selector to manual (to the right).
 - o Empty all the ice.
- Step 2: Open the side opening of the silo ice outlet hopper located below the silo to access the screw. If you do not want to be able to access the moving parts, run from the exit to the trolleys, opposite side of the silo.
- Step 3: Apply the product to stainless steel, inside the screw, and with the water pipe under pressure, move the product for 5-10 minutes, with the screw in operation.
- Step 4: Rinse the hake with water for 5-10 minutes, leaving them in operation.
- Step 5: Let the water run out through the drainage holes of the auglers on the bottom

PRODUCTS WHICH MUST NOT COME INTO CONTACT WITH STAINLESS STEEL:

- Concentrated and/or hot bleach.
- Concentrated or hot disinfection products.
- Hydrochloric acid (tile pickling) even if it is diluted or cold.
- Metal brushes or sponges, especially steel ones.
- Any other product that attacks the steel or internal plastic.