TURATTI S.R.L.

OPERATING HANDBOOK

09/282

IT IS STRONGLY RECOMMENDED THAT YOU READ AND UNDERSTAND THIS OPERATING HANDBOOK AND THE SAFETY INSTRUCTIONS CONTAINED WITHIN BEFORE PUTTING THE LINE INTO PRODUCTION: NOTWITHSTANDING THAT ALL THE PRECAUTIONS ARE TAKEN, MAKE SURE THAT ALL THE TECHNICAL DATA IS WELL UNDERSTOOD SINCE TURATTI SHALL NOT BE RESPONSIBLE FOR ANY DAMAGES OR INJURIES CAUSED BY THE MISUSE OF THE LINE OR NON COMPLIANCE TO SUGGESTIONS OR INSTRUCTIONS CONTAINED IN THE CURRENT HANDBOOK.

FOREWORD

EDITION OF THE HANDBOOK : January 2009

This manual is part of the delivery machinery supplied by Turatti SrL. The manual has to be used according to the legislation, which is applicable within the EU and in all those countries that accept the EU standards. The manual has to be considered as a part of the line and has to be kept for consultation until the final dismantlement on a safe and dry place, which is also protected from the sun. The manual has to be always available for consultation.

INFORMATION AND CONTACT ADDRESS

Do not hesitate in contacting Turatti for any information you may require.

The handbook can answer different questions that may arise during the utilisation of the line. If you might need specific information about any other model of the range of production of Turatti, the sales and the technical departments are at Customer's disposal. Hereinafter we remind you our address, telephone and fax numbers :

Viale Regina Margherita, 52

30014 Cavarzere (VE) ITALY

Tel. : +39 0426 310731

Fax : +39 0426 310500

Additionally you can contact us at the E-mail :

info@turatti.com (Sales Dept.)

tecnico@turatti.com (Technical Dept.)

acquisti@turatti.com (Service and spares Dept.).

You can visit our website too at the Url : **www.turatti.com**

CHAPTER 1
REGULATIONS IN FORCE AND CE DECLARATION OF CONFORMITY

This chapter contains the main regulations in force with a special reference to the European CE Declaration of Conformity. Also the CE Declaration of Conformity is contained.

1.1 CONFORMITY TO THE STANDARD, REGULATIONS AND OFFICIAL RULES

The line subject of this handbook has been designed and manufactured according to the European Standards in force at the date and to the regulations mentioned in the CE Declaration of Conformity. As far as the safety rules are concerned, the machines were made in accordance to the «Direttiva Macchine ” (2006/42/CE), that is a legal act issued by the European Community Committee. Hygiene: the food industry is subject to very strict hygiene regulation and the customer is considered fully aware and responsible about the respect of these regulations and all the specification related to this field. All the surfaces and the connecting elements are smooth; without any part where organic elements might settle and grow. The machines were designed and manufactured in order:

- to avoid all the risks related to infections to the customer ;
- to can/must clean the materials at the end of each work shift ;
- to avoid infiltration toward the contact areas of the product and to avoid that hydraulic oil or glycol - if any – are in contact with the product too ; to avoid any risk in connection to movable parts.

All the protection guards are strongly manufactured and equipped with safety systems are not easy to be deactivated.

1.2 CE CONFORMITY DECLARATION

This handbook includes a CE Declaration of Conformity as per the European law in force for the application of the CE Mark.

1.3 CE MARK LABEL

The CE mark label is filled with the Model, Serial number and Manufacturing date of the machine.

CHAPTER 2
RULES FOR SAFE OPERATION

One of the most important goals of this manual is to ensure the safety of all personnel involved with operating the line. Safety instructions are extensively described for all possible operations on these machines

Specifically this chapter contains a list of general rules for safe operation.

In the following chapters are contained peculiar warning and safety recommendations related to the various phases of transport, installation, start-up, operation, maintenance and cleaning. These recommendations will not prevail on the ones contained in this chapter but on the contrary shall integrate them in an exhaustive way.

The main responsible of a processing without accident is mainly the purchaser that do utilize the machine/line but also the personnel operating, maintaining and repairing (also considering the installation phase).

The purchaser shall then be obliged to let know these general rules for a safe operation to all the personnel involved all during the different operations required to have the machine/line running (and maintaining in the best conditions). It shall be also his duty to ensure that the following rules are always applied. This chapter is also concerning the labels and the safety labels and devices installed on the machine/line from the manufacturer, which are a protection against the accidents during the processing with the machine/line.

Their knowledge shall be therefore mandatory.

2.1 GENERAL WARNING AND SAFETY RULES

Warning : Make sure that all the safety rules are known by all the personnel that operates, cleans and maintains the machine/s. Make sure that all the safety warnings are carefully followed.

In the chapters of this handbook concerning the various phases of transport, installation, start-up, operation, maintenance and cleaning are contained several peculiar warning and safety recommendations. These recommendations will not prevail on the ones contained in this chapter but on the contrary shall integrate them in an exhaustive way.
Make sure that the first aid facilities (according to the regulations in force) are present on site
In case of an accident, please make sure that the phone numbers of the nearest hospital and doctor are known and available. Access and contact to these institutions must be guaranteed.

2.2 PERSONNEL TRAINING

The customer must survey in order that all the personnel that will be in charge of operations shall be suitable to run the line in the best working conditions, being previously duly trained and informed about its operation and the basic safety rules.
The customer will also periodically check that these rules will be duly followed and applied.

2.3 QUALIFIED PERSONNEL DEFINITION

Qualified personnel is the personnel that is familiar with the operation of the line and all the safety rules and standards, perfectly knowing all the dangers involved in the mentioned operation, maintenance and cleaning as per the current handbook.
The qualified personnel is appointed by the company management.
The qualified personnel will might have a different machines knowing level of the machines and of its functioning, according to the duties and tasks assigned.
The maintenance and the internal access of the machines shall always be assigned to qualified personnel and specialized in the specific field.

With production personal Turatti Srl means persons with under mentioned definitions :

Production personal :

Production employee :

Persons who can immediately perform simple tasks, without training. They are indicated to a specific area to work, and they have no responsibilities for the machines.

Machine operator :

Persons who are esteemed to be capable of operating the machine/s after they followed a basic training. They are familiar with the specific dangers of the machine/s, and they can recognize such situations. They understand the working of the machine/s and the relations of the different parts. They are capable of changing the adjustments of the machine/s, they can recognizing production failures and they know how to solve them. They have basic knowledge of the products to be processed and their performance during the production process.

Line operator

Persons who are esteemed to be capable of operating the machine/s after they followed a basic training. They are familiar with the specific dangers of the machine/s, and they can recognize such situations. They understand the working of the process and the relations of the different parts of the production line. They are capable and authorized to make process adjustments which influence the production process. They can recognize production and know how to solve them. They have extensive knowledge of the products to be processed and their performance during the production process.

Maintenance personal

Persons who have sufficient knowledge and skills to perform all necessary technical maintenance tasks. They are capable of reading a drawing, and they can recognize separate parts of the machine or line. They are familiar with the specific dangers of the machine, and they can recognize such situations. They understand the working of the process, and they understand the relations of the different parts. They can recognize failures in detail and they know how to solve them.

Cleaning personal

Persons who are esteemed to be capable of cleaning the machine safe and properly, after they followed a basic training. They do not understand the working of the machine, but they can distinguish the different cleaning zones. They are familiar with the different dangers and effects of the cleansing agents applied. They recognize these dangers and know how to use the cleansing agents correctly.

2.4 APPAREL OF THE PERSONNEL

Caution: It is strictly forbidden to wear clothing and shoes not in compliance with the security standard of the machines.

The qualified operator must wear safety shoes or boots with iron noses and anti-slip soles. Be aware of the danger of slipping on a wet floor.
The qualified operator shall not wear any fine-chain, necklace, armlet, … and any object that could hook on the machines during the processing.
The hair will be have to put-up with appropriate masks, also for hygiene reasons.
Before to start-up to operate with the machines, all the object that can hinder the operations must be removed.

2.5 ACCESS TO THE OPERATIONAL AREA OF THE MACHINES

There is the prohibition to come close to the machines in any moment to any not qualified and/or authorised personnel. The qualified operators will have to survey that unauthorised personnel or foreign people will come close to the area of the machines and not will not leave the machines while running without surveillance.

2.6 FORBIDDEN ACTIONS

Operators must ensure, while leaving the workplace, that the machines are in safe conditions and that no unauthorized person be in position to operate it

Make sure that the working place is well illuminated

Be aware that thoughtless and hasty actions could lead to dangerous or even life threatening situations (and also cause damages to the machines).

Machines moving parts are always protected. Never reach any moving part of the machines

Never climb on the machines.

Be aware that steam pipes, accessories, condensate, process water, leaks from water and steam seals may be hot. Any contact with these parts and connection should be avoided.

2.7 WARNING AND SAFETY LABELS

Safety signs and safety switches are placed in order to make the information easier and immediate to the personnel and to avoid accidents.

It is rigorously forbidden to remove and/or to tamper all the warning and safety signs / marks / devices placed on the machines.

In fact all the warnings and safety signs placed on the machines are full part of the safety system of the machines itself and shall be immediately replaced if damaged.

To restore again the missing or damaged signs and marks you are kindly requested to address to the spare parts dpt. Turatti, utilizing the code number written on the safety sign or written in this handbook.

In case of missing or damaged safety signs and switches and warning signs it won't be possible to start-up the machines (or to operate with the machines itself).

The location of the warning and safety labels is shown in a drawing.

Danger Label – KEEP HANDS CLEAR

Code Turatti 31

Danger labels are placed near blades, knives and sharp parts to warn the operator and anyone near the machines to keep hands and all other foreign objects away.

Colours: Black, White, Red

DANGER LABEL – REMOVAL OF PROTECTION

Code Turatti 25

This kind of danger labels warns to remove guards, carters and protections from the machines and deactivated safety devices.

Colours: Black, White, Red, Yellow

HAZARD ALERT LABEL

Code Turatti 22

The number on the hazard alert label indicates the voltage requirements of the machine

Colours: Black, Yellow

PINCH POINT

Code Turatti 20

Be careful: Pinch Point

Placed close to moving areas (or area where parts can fall down) that are dangerous for the squeezing or pinching.

Colours: Black, Yellow

QUALIFIED ELECTRICIAN

Code Turatti 28

The enclosure must be opened and serviced by a qualified electrician only and the installation must meet applicable codes.

Colours: Black, White, Red

POWER CUT OFF

Code Turatti 24

Put off power before opening the door of the panel.

Colours: Black, Yellow

DANGER LABEL – SHARP PART

Code Turatti 30

Danger: Placed close to a sharp part warn to avoid personal injury

Colours: Black, White, Red

They are mostly made of:

- Fixed barriers or guards (which cannot be removed without using a proper tool)
- Interlocks (mechanical, electrical, electronic device which prevent machine from working if engaged)
- Emergency stop
- Safety devices are conceived to prevent personal injuries and accidents.

2.8 SAFETY DEVICES INSTALLED ON THE MACHINES

REFERENCE LIST :

This is a reference list only. Please consult the drawings in the chapter 9.1 for accurate information.

Rotating shafts are protected by fixed grids against access of thin body parts.

The el. motor and speed reducer are protected from st.st. cover.

The grid can be removed only when the PVC conveyor of the inspection belt is off.

- The el. motors and speed reducers are protected by a st.st. cover.
- Electric command panel is provided of main switch that starts every time you turn the dial on the position “on” (preventing the access at the panel inlet)
- Pneumatic box containing the electro – valves and the components for the lifting circuit, is closed with a s.s. cover fixed with 4 bolts

Warnings: Safety devices are not part of the line or machinery automation. They act directly on the power machine feed circuit to switch it off in case the safety device is disengaged.

GENERAL SAFETY DEVICES ON PROCESSING LINES :

The machine is equipped with safety devices avoiding critical condition that might cause risks for the users or sudden breakings. The safety devices are suitable to avoid any crush or cut to any body part, even if per accidental causes. Safety conditions are guaranteed by means of an accurate design

and choice of the components (both foresee a wide safety range) as far as the operation of the machine is concerned. A series of warning labels – whose description is included in the previous paragraph – are placed on the most dangerous areas.

Warning : As per the laws in force it is strictly forbidden to block, inactivate or elude these devices. The safety system of the machine is made up of a series of devices :

Following the DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast) (Text with EEA relevance) :

1.2.4.3. Emergency stop

Machinery must be fitted with one or more emergency stop devices to enable actual or impending danger to be averted.

The following exceptions apply:

— machinery in which an emergency stop device would not lessen the risk, either because it would not reduce the stopping time or because it would not enable the special measures required to deal with the risk to be taken,

— portable hand-held and/or hand-guided machinery.

The device must:

— have clearly identifiable, clearly visible and quickly accessible control devices,

— stop the hazardous process as quickly as possible, without creating additional risks,

— where necessary, trigger or permit the triggering of certain safeguard movemements

Once active operation of the emergency stop device has ceased following a stop command, that command must be sustained by engagement of the emergency stop device until that engagement is specifically overridden;

it must not be possible to engage the device without triggering a stop command; it must be possible to disengage the device only by an appropriate operation, and disengaging the device must not restart the machinery but only permit restarting.

The emergency stop function must be available and operational at all times, regardless of the operating mode.

Emergency stop devices must be a back-up to other safeguarding measures and not a substitute for them.

1.2.4.4. Assembly of machinery

In the case of machinery or parts of machinery designed to work together, the machinery must be designed and constructed in such a way that the stop controls, including the emergency stop devices, can stop not only the machinery itself but also all related equipment, if its continued operation may be dangerous

a) Guards and covers

Guards and covers are placed on the machine, within wide margins of safety. Remove covers and guards to service the various areas of the machine

Warning : Covers and guards must not be removed or opened while the machine is running. Visually verify that machine has come to a complete stop before removing any guard or cover

Do not operate the machine if any guard or cover is removed.

Inspect all covers and guards for damages. As a matter of fact if any of these parts is twisted or bent, safety switches might not line up.

PROTECTION AGAINST MECHANICAL HAZARDS

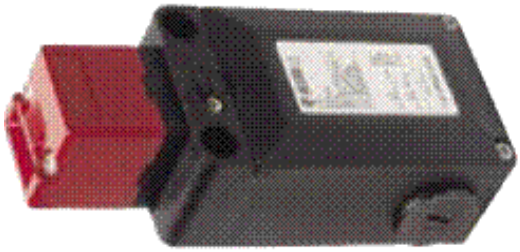
Uncontrolled movements

Machinery are designed, constructed and placed on its mobile support in such a way as to ensure that, when moved, uncontrolled oscillations of its centre of gravity do not affect its stability or exert excessive strain on its structure.

Moving transmission parts

In the case of engines, moveable guards preventing access to the moving parts in the engine compartment need not have interlocking devices if they have to be opened either by the use of a tool or key or by a control located in the driving position, providing the latter is in a fully enclosed cab with a lock to prevent unauthorised access.

b1) Safety switches



Covers and guards are equipped with safety switches to prevent the machine from operating when these covers and guards are removed.
Safety switch sensors and actuators must be aligned properly (see above item a) Guards and covers. Warning : It is strictly forbidden to by-pass or lock the safety switches – as per the laws in force.

B2) Safety switches

These devices are designed for use on sliding, hinged and lift-off guard doors and offer electrical interlocking of the machines control circuit to the guard door. Operation of these devices is magnetic requiring no physical contact from the actuator and allows immediate opening of the guard door. Coded and non coded units are available for increased security and control units are required for some systems. These units are ideal where hygiene is paramount or where ingress may cause operating problems.

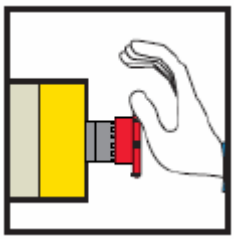
Warning : Do not direct any water-jet against this switch because an oxidation might compromise the correct functioning of the unit.
Check that the unit is always dry.

c) Emergency stop

On the control panel, shown by a specific colour as per the law in force, a mushrooms-shaped emergency button is placed: is the emergency stop. The main switch – also located on the control panel, can be utilized to disconnect power source in case of an emergency.
These devices allow an immediate stop of the machine in case of danger for the personnel or damage possibility for the machine itself (unusual noises, operation anomalies, breaking possibilities, etc.)

The main switch is equipped with a safety device : as a matter of fact when the machine start-up (main switch on "1"), the control panel is automatically locked in a safe way. The access to the internal part of the machine is possible only when the main switch is on "0".

Provide easy access to the emergency stop (red mushroom-shaped button) on the panel, when installing the machine.



<u>Safety devices against the risks of accidental contact :</u>

All moving parts are protected against risks of accidental contact in keeping with UNI 9219 norms.
The user must ensure that all protective and safety devices, especially the protective carters for drives and the cooling fan, are correctly installed before start-up. It is absolutely prohibited to start the machine without these protections.
It is strictly prohibited to open inspection doors when the fan is in operation. Even door closures must take place with the machine off. All maintenance operations must be carried out under max. safety conditions for personnel.
Installation must be carried out bearing in mind the risks involving the introduction of foreign bodies, explosive and inflammable gases into the circuit.

If these risks are not contained within the standard limits applicable, a hazardous situation with risks of explosion or permanent and irreversible damage to the fan, may result.
Each fan must be used only for the application for which it was specifically designed.
Any and all other uses are to be considered incorrect and dangerous.
The manufacturer declines any and all responsibility, contractual or otherwise, for damages arising out of incorrect installation or use of the machines, or in any case, occasioned by the failure to observe the manufacturer's instructions.

CHAPTER 3
GUARANTEE

This chapter contains the terms and conditions of the guarantee.

The subject of the guarantee, its duration, conditions, forfeiture, exclusions and limitations are then described.

3.1 PRELIMINARY NOTES AND PROHIBITION

This operating handbook clearly provides all the necessary and sufficient information for the correct and safe utilization of the machine, either during processing than during the standard and the extraordinary maintenance.

TURATTI decline all responsibility for all the cases of accidents or failures that can be ascribed to the inobservance of the instructions as per this handbook, to the misuse or not correct utilization of the machine and to the employ of not qualified personnel.
It is expressly forbidden the running of the machine:
When unauthorised personnel or foreign people are close to the area of the machine
The misuse or the not correct utilization of the machine
When safety devices or warning signs are removed or damaged
With different products as the ones expressly mentioned in this handbook
In overload conditions or when the connection to the auxiliary connections are not as per the required conditions.

3.2 SUBJECT OF THE GUARANTEE

The terms and the conditions of the guarantee are the following, if not otherwise agreed in a different way between TURATTI and the customer in the purchase order.

TURATTI grant the good quality of the supplied machine and equipment, and the repair or the replacement of all defective parts due to poor quality of the used materials, faulty fabrication or wrong installation.

3.3 GUARANTEE DURATION

The guarantee period is of 12 months (calculated on a shift/day of 8 working hours) from the installation of the machine and not over 15 months from the ex-works delivery in Cavarzere.
The expiration date shall not be affected by any repair or replacement of any part during the above period.

3.4 GUARANTEE CONDITIONS

In order to determine the cause of any defect and then to enforce the guarantee, all parts to be replaced shall be mandatory at Turatti's disposal and / or forwarded to facilities of Turatti upon request. The parts object of the request or to be forwarded to the main office must be complete with identification reference (model and serial number of the machine, description, part code, etc.).

All repair works under guarantee shall be carried out by Turatti at their own charge.

In case of works done at Customer's site, all expenses due to power, compressed air, water, etc. supplies, the special equipment and tools, the local personnel, the travelling costs from Turatti main offices, board and lodging of the Turatti's technicians shall be at client charge – except agreement to the contrary -.

TURATTI decline all responsibility with immediate loss of the guarantee in the following cases:

The machine is utilised in work and safety conditions different from the ones stated from the manufacturer and different from the ones for which the machine was manufactured.

The machine is operating with a higher work charge from the one declared from the manufacturer.

The machine is modified, repaired or disassembled by a staff not previously authorised from TURATTI. The machine is not subjected to the cleaning and maintenance operations as written in the present manual. On the machine are replaced parts not according to the specifications and recommendations of TURATTI. The feeding of the machine is not regular.

The electrical control panel is not placed in a dry and covered area or its maintenance was not regular and correct as per the present manual. The lubrication of the components of the machine is not regular as required, and/or is made with different products from the suitable ones recommended.

The maintenance it is not executed regularly and following the recommendations as per the current handbook, and with the suitable tools. Temporary stocking of the machine and/or of the control panel in a not suitable area as per the indication of the current handbook.

3.5 FORFEITURE, EXCLUSIONS AND LIMITATIONS OF THE GUARANTEE

The guarantee is not covering:

- the wear parts (see Spare and Wear parts list) and / or any parts whose duration cannot be determined.
- power line and / or pneumatic circuit of connection to the supplied machine.

For all the bought-out items, Turatti will grant the same guarantee conditions received by their sub-suppliers.

CHAPTER 4
INSTALLATION

This chapter contains the advices and recommendations to install the machine/line and the related safety rules to be followed during this phase.

As a primary recommendation it is suggested to control all the parts and devices of the machine when they are still packaged (if possible) to control that there are not damages caused by the transport.

4.1 TEMPORARY STOCKING

If the machine will not be installed immediately, a suitable and protected location shall have to be found in order to stock the machine.

Special care shall be required to stock electrical and electronic parts, being sensitive to moisture and the room temperature.

The room temperature of the closed warehouse shall be between –10 °C (min.) e +40°C (max.).

4.2 HANDLING OF THE MACHINE/S

The lifting of the machine shall be executed by means of a forklift or another suitable equipment, utilising handling belts to sling the machine if required.

As points of support it is possible to choose the barycentric points of the frame of the machine and the supporting tubular, possibly on the central part.

If a forklift is utilized previously check that it has a carrying capacity equal or higher to the weight of the unit. The distance between the fork teeth must be as large as possible. The machine has to be positioned as near as possible to the fork lift body. A special care must be taken in order to avoid damaging the wiring cable and the flexible pipes that are often tied along the frame of the machine.

Never utilize covers, protections, mechanical parts (motor, reducers) or different from the main frame in order to lift or move the machine.

4.3 ARRIVAL OF THE MACHINE AND INSTALLATION / DELIVERY FORM

Caution: At the arrival and before to install it, the machine shall be carefully inspected in order to ensure that it is complete in all its parts and was not damaged during the transport.

If any part should be missing or damaged, the situation shall have to be promptly communicated to Turatti SrL.

In case of damage of the packaging, immediately inform the shipping company and Turatti. The delivery of the machine is completed with the filling “Delivery Form” included in chapter. On this document the status of the connections with the machine and the result of the test shall be included.

This document shall be signed, and filled with the notes of the responsible of the customer if necessary.

4.4 POSITIONING

The decision concerning the correct and suitable location where to place the machine shall have to be taken according to the process ratio and in order to allow an easy and safe access to the personnel, that shall be able to operate the operation, maintenance and cleaning of the machine.

As far as the following placing of the machine is concerned, make sure that the floor is suitable to bear the foreseen load and that the connection points to the ancillaries are properly arranged. The machine shall have to be completely levelled before the definitive installation, adjusting the adjustable supports and then verifying the final position along the two orthogonal directions (longitudinal and transversal) with the suitable instrument. If the machine is equipped with wheels in order to easily move it, shall have to be fixed to the floor before the start-up.

4.5 ELECTRICAL INSTALLATION

Warning: The electrical installation must be performed by a qualified electrician in accordance with all the applicable electrical codes.

A label with all the main electrical data is contained in the internal part of the panel. The electrical characteristics of the machine and the wiring diagram refer to the electrical diagrams placed at the end of this handbook.

Warning: A qualified electrician should check the safety switches before to operate with the machine.

The power source of the panel shall have to be duly dimensioned according to the wiring, of the room temperature, of the type of load and to the law in force in the country where the machine is installed.

The owner shall be responsible to size the power source and to arrange the earthing. He shall be also responsible to arrange the protections against short circuit and the tension contact. The machine is electrically powered and was manufactured in order to avoid the risks of electrical power:

The machine was manufactured according to:

- DIRETTIVA BASSO VOLTAGGIO 2006/95/CE DEL PARLAMENTO EUROPEO E DEL CONSIGLIO
- DIRETTIVA C.E.M 2004/108/CE
- NORME EUROPEE EN 60204-1 – Sicurezza degli impianti elettrici

DELIVERY FORM

ORDER N° :
DATE :

Document N°: …. Date : ……..	Leasing **: SN FINANS NORD AB** Customer: **SYDGRONT EK FOR.** Installation place**: Knut Påls väg 11 256 69 Helsingborg VAT SE716439582901**
Line : **PROCESSING LINE FOR LEAFY-PRODUCTS** Serial Number : **09/282** Manufacturing year : **04/2010**	

TEST

A)	Power / Compressed Air / Water / Steam supplied from the customer Positive result ❑ Negative result ❑ Notes …… ……

B)	Running test Positive result ❑ Negative result ❑ Notes …… ……

C)	Maintenance & operating handbook Delivered ❑ Missing ❑ Date : ……. Company ……..…… Notes …… ……

ACCEPTANCE: Definitive ❑ Provisional ❑

SIGNATURE OF THE CUSTOMER: ……

NOTES : ……

4.6 TECHNICAL ASSISTANCE

TURATTI usually supply technical assistance for the installation with its own personnel and with the help of the personnel of the customer.
Nevertheless and upon request the installation will might be executed by technicians duly authorized by TURATTI.

The machine require to the connected to the ancillaries (power, compressed air, …etc.) following the technical data supplied by the manufacturer and the law in order.

Therefore double-check that all foreign bodies have been removed from the feeding area.

CHAPTER 5
OPERATION

This chapter contains the advices and recommendations to run the machine/line with the best operating condition.

The technical department of Turatti Srl is available for any suggestion or help in order to obtain the best operating conditions.

5.1 GENERAL DATA

Turatti is a global specialist in the custom design and manufacture of machines, and complete processing lines to serve the food industry.

Turatti equipment is manufactured using sanitary stainless steel and food-grade elements in compliance with international sanitation and safety standards.

- All 304 Stainless Conveyor Frame Members and Ductwork.
- Durable Polyester Mesh Belt, FDA Approved, blue-coloured for debris identification.
- All Externally-mounted Lubrication Points.
- Emergency-Stops, Shut-Off Switches and OSHA Guards on All Moving Parts.
- The aim of this quote is to offer a flexible and versatile group of machines that can process in a delicate way a product like arugula.
- As a matter of fact the lay-out was designed in order to have the possibility along the years to increase the capacity just replacing some units, but leaving the main parts of them.
- Also the space where to place the equipments is considered an important matter, in order to optimize it avoiding long transfer between the equipment and from the beginning to the end of the line.
- The line is summarizing the experience achieved from Turatti in thirty years of machines and equipment sold worldwide for the fresh-cut market. The need to follow very different requirements - each customer in different countries has different peculiar requests – gave to Turatti the opportunity to develop advanced solution in order to increase yield, safety and cleaning criteria.
- All the equipment of this quote are manufactured from Turatti, thus ensuring an accurate knowledge of the machinery and the responsibility of the whole line.
- The equipment is manufactured according to the latest regulations about hygiene and safety as the European CE mark.
- An easy access (for cleaning and maintenance) to the various parts is granted by the design and the manufacturing of the machine.
- The unit are made also to facilitate the fulfillment of the HACCP program.
- A list of the standard components utilized in at the end of the offer. Turatti SrL shall be pleased to discuss with you the possibility to replace some component in case they are available in the United States. The peculiar items of the quoted machines are explained in the part of this quote named “Machines description”.

- Finally, the drying/cooling system is composed of three main elements (dewatering – tunnel – nitrogen tunnel) that can be disassembled and moved in case of change of the lay-out or transport of the line to another location.

5.2 DESCRIPTION OF THE MACHINERY

A. Preliminary Notes

The scope of this quote is to offer a flexible and versatile group of machines that can process a wide range of leafy products and vegetables. As a matter of fact the lay-out was designed in order to have the possibility along the years to increase the capacity just replacing some units, but leaving the main parts of them.
Also the space where to place the equipment is considered an important matter, in order to optimize it avoiding long transfer between the equipment and from the beginning to the end of the line.
Having flexibility as a guiding line, the basic machines are quoted, in order to leave apart any other machine that is not essential. The lines are summarizing the experience achieved from Turatti in thirty years of machines and equipments sold worldwide for the fresh-cut market. The need to follow very different requirements - each customer in different countries has different peculiar requests – gave Turatti the opportunity to develop advanced solution in order to increase yield, safety and cleaning criteria.
Moreover we developed new solutions and new lay-outs in order to take more and more care of the product: avoiding use of a big number of belts, it translates into a reduction of product loss, and a best care of the product, without stressing and stretching it.

We would like to draw the attention on some important advantages offered by the proposed technology:

- The combination of three different type of washers, allows to obtain superlative washing results with a limited amount of water utilized.
- A dual stages drying system permit to operate a “fine tuning” on the required drying level, adapting the system to each type of processed product. As a related result products are dewatered with a “stress-free” system, that is to say a gentle and delicate drying.
- A large flexibility is offered by several solutions that combines high capacity with an efficient action and flow.
- Several solutions along the lines were studied in order to obtain a safe product with very low bacteriological loads. These solutions assist a longer shelf life.

The totality of the equipment of this quote is manufactured by Turatti, thus ensuring an accurate knowledge of the machinery and materials, and the responsibility of the whole line.
The equipments are manufactured according to the latest regulations about hygiene and safety (European CE mark and following laws and US FDA and OSHA regulations).
An easy access (for cleaning and maintenance) to the various parts is granted by the design and the manufacturing of the machine.
The units are made also to facilitate the fulfillment of the HACCP program.

A list of the standard components utilized in at the end of the offer. Turatti SrL shall be pleased to discuss with you the possibility to replace some component in case of easier possibility to be found in your country.
Turatti company is always involved in technologic development of its own machines, with the aim of satisfying the requests of the most exigent customers; in this context, our Company promotes and supports researches and initiatives for work conditions enhancement, for an higher flexibility, for hygiene and safety of our production equipment.
During last months, we introduced several improvements on salad processing machines, that we are briefly presenting here below.

Generally speaking , the inspiring principles of the introduced innovations are the following:

1. Application of devices allowing to speed-up the belts substitution in the conveyors.
2. Analysis of the transfer points, with the target of reducing product leaks to the minimum.
3. Use of new technologies allowing to reduce water and chilled water consumption
4. Elimination of the flat surfaces, where the water tends to be stagnant.

D. Machinery Description

The machinery description is integrated and completed by the *Minutes of the meeting* dtd. December 1st,2009 (Annex 2_Minutes of meeting 2009-10-30)
All mentioned capacities in the contract, availability, times, production capacities, temperatures, rest water and yield are accordingly to the performance warranty (Annex 3_Performance Warranties) and Tests
Turatti is a world-leading specialist in the custom design and manufacture of machinery and complete processing lines to serve the food industry.
Machinery are manufactured of stainless steel and food-grade elements in compliance with the most severe international hygiene and safety standards.

- All 304 Stainless Conveyor Frame Members and Ductwork.
- Durable Polyester Mesh Belt, FDA Approved, blue-coloured for debris identification with opening hinge to easier sanitation (all position except 01).
- Air blow systems to clean the belt
- Emergency-Stops, Shut-Off Switches and OSHA Guards on All Moving Parts.
- Wiring in rings

The transit time of the products from the inlet weighing system to the end of the drying tunnel shall be adjustable and will be from 7 minutes to 10 minutes for the products mentioned in the capacity (Rucola, Curly Spinach, Baby spinach and Mâche)

Comments to quote N 13698-2009/TAS, Drawing 6118-013-000-00 (Dec 2nd,2009)

- Detailed drawings for all steps in the line with connection points drawn in for water, power etc.
- All belts shall be mesh belts except for the one in the feeding bunker. All belts has to dividable, no exemptions.
- Possibility for back stream flow.
- Efficiency in the drying step has to be stated for all 4 products separately in Annex 3. Temp in, temp out, performance in kg with rest water % for all 4 products separately.
- Power will be feed from the roof to the electrical panel.
- The dimension for the holes in the insect filter will be decided later.

Pos.01-02

FEEDING BUNKER FOR BABY LEAF + EXTRACTION BELT

Stainless steel feeding bunker suitable to continuously feed the line. Equipped with extracting belt and speed-variator.

The system is equipped with a flexible mesh belt expressly made to uniformly spread the product on the width before the weighing system.

The main parts of the machine are :

- stainless steel supporting frame
- receiving belt: durable PVC, FDA Approved, blue-coloured for debris identification with opening hinge to easier sanitation.
- inclined belt: durable Polyester Mesh Belt, FDA Approved, blue-coloured for debris identification with opening hinge to easier sanitation
- inclined belt with vibrating system to spread the product
- feeding hopper
- st. st. edges to allow ergonomic of the operators
- driving head with gearmotor
- idle head.

Entirely made by AISI 304 st. st., excluding the bought-out mechanical components (Polyester Mesh Belt, PVC belts, Motors, Reducers, Feet, Electrical Parts)

Pos.03

CONTINUOUS WEIGHING SYSTEM

Belt weighing system suitable to continuously weigh and dose the product to adjust the flow of the line and to record the processed capacity. The system features a soft start/fast stop control to avoid sudden products spilling or uneven distribution.
The automatic weighing system Mod. Lybra from Turatti is a very flexible and accurate unit suitable for weighing and batching several types of fruit and vegetables (including the lighter ones). Trough a control system the required amount is taken to weighing systems equipped with load cells. Once the set weight is achieved, the weighing hoppers are opening on belts or in mobile hoppers.
The connection to the production management system of the customer, allow an efficient and optimal process control. A control panel with a “touch-screen” device allow to easily set the parameters on the unit.

Batching and Weight total counter can be operated:

- Batching: Extracting belt can also be used for batching product(s) with the aim of preparing mixtures with start-stop operation.
- Weight total counter: installed along the production lines, the belt can total the weight of material on it, thus allowing continuous production data collection even where it is not possible to stop the line for static weighing procedures.

The proper functioning of the system and its reliability is guaranteed by the strong structure of the mechanical components and the accurate general design. The quality of the devices is ensured by a careful selection of the single items. The weighting data that are communicated by the system are therefore precise, mistake-free and uninfluenced by mechanical or electrical problems.

The main parts of the machine are :

- stainless steel supporting frame
- durable PVC, FDA Approved, blue-coloured for debris identification with opening hinge to easier sanitation.
- weighing cells
- driving head with gearmotor
- idle head.

The main features and advantages of the system are :

- accurate weighting;
- designed for customer application;
- easy operation;

- heavy-duty system;
- gentle product handling;
- operate with a variety of product sizes & shapes;
- designed to meet HACCP requirements (simple to clean and disinfect).

Entirely made by AISI 304 st. st., excluding the bought-out mechanical components (Polyester Mesh Belt, PVC belts, Motors, Reducers, Weighing Cells, Feet, Electrical Parts)

Pos.04

CONTROL BELT SYSTEM

Control belt, suitable to operate an accurate control of the product and to transport it to the to the washing section.

Main parts composing the machine are :

- stainless steel supporting frame
- durable Mesh Belts, FDA Approved, blue-coloured for debris identification with opening hinge to easier sanitation.
- driving head with gearmotor
- idle head
- evacuation chutes

Entirely made by AISI 304 st. st., excluding the bought-out mechanical components (Polyester Mesh Belt, Motors, Reducers, Weighing Cells, Feet, Electrical Parts)

Preliminary note about the washing section:

The washing line is composed by a blowing washer (Mod. Venezia-1200) a Camel system, a flume and the spraying nozzles.

The transit time of the products trough the washing line shall be from 2 minutes to 4 minutes.

The water circuit is designed in order to have the counter-current of the water or to have the Venezia washer and the Camel system separated:

a) Counter current possibility
b) Washers to operate independently

Central piping for the waste water shall be curved out to the floor drain to the right and connecting washer and buffer for the Camel (standing in the product flow direction)

Pos.05-06

BLOWING WASHER Mod. VENEZIA-1200

Designed having in mind the needs of the processors to perform an accurate washing of floating and non floating products, the “Venezia” model (that set the industry standard) provides gentle washing, minimizing the product damage to maximize shelf life. As a matter of fact, the hydro-pneumatic double action, allow to adjust the transit time and to perform an efficient and gentle washing of lettuces, vegetables and fruit.

The products are propelled trough the tank in a combination of water jets and bubbling undergoing a thorough washing or rinsing action. The washed product is then gently transferred to a flexible mesh belt being conveyed for further dewatering, processing or packaging.

The unit is suitable to be utilized as a stand alone washer or to be placed in a continuous processing line (one, two or three washers in line).Very flexible on both the washing cycle (continuous and time) than in the rapidity to change product.

The washer is composed of a large number of “state-of-the art” features to ensure an efficient cleaning, as well as many features unique to the design of this washer.

The washer consists of a stainless steel tank divided into several sections according to the capacity; the first performs washing and in the last a flexible mesh belt begins dewatering the product.

The washing water is constantly recycled through the incorporated self-cleaning rotary filter.The machine is very easy to clean and was designed in order to facilitate the HACCP program fulfilment thus allowing to spare time , improving efficiency and capacity.

The washer has the following main features :

- stainless steel tank entirely made by AISI 304 st. st.
- extraction belt with durable Polyester Mesh Belt, FDA Approved, blue-coloured for debris identification with opening hinge to easier sanitation
- recycling water pump
- water distribution system
- large inspection lid
- motorized paddle for product control flow
- tank with self-cleaning screen cleaner filter
- rotating perforated cylinder and extraction device to remove floating insects, impurities and debris from the water surface and direct them to the rotary filter
- wider funnel with removable mesh filter
- automatic and timed discharge

The washer has the following advantages and options :

- possibility to wash floating products;
- easy connection to an heat exchanger and a chlorine dosing unit;

Entirely made by AISI 304 st. st., excluding the bought-out mechanical components (Polyester Mesh Belt, Motors, Reducers, Weighing Cells, Feet, Electrical Parts)

Pos.07

CONTINUOUS FLOW PATENTED WASHING AND TREATMENT SYSTEM Mod. CAMEL

The system gently transport even fragile products while maintaining quality levels well within the most stringent specifications. This innovative design is utilizing the proven technology of the closed pipe flume concept without the use of a centrifugal pump for product movement. In this closed flume, the product contact time with the sanitizing water solution is accurately controlled guaranteeing full submersion and treatment time. The laminar flow in the flume piping, gently separates the washed products for full exposure to the treatment without the creation of mechanical damage. As a result, delicate products such as baby leaf and fruit can be effectively washed while maintaining high product quality. The closed flume design prevents the release of the sanitizer in the production area improving plant safety.

The system’s sanitary design facilitates cleaning and allows quick product change-overs.

Its compact design, makes it easy to retrofit existing operations with limited space, while improving the washing operations and minimizing water requirements. Reduced water use is an important issue as water cleanliness, chemical requirements, and access/use rights have become industry hot topics in recent years.

Each system is custom designed to suit each specific product and facility requirements

The main parts of the assembly are:

- supporting structure;
- receiving hopper to feed the system with water injection system and high sides on funnel to avoid product going above the edge;
- piping and curves, including transparent sections (without any obstacle in front) to inspect the flow (diam. 140 mm) on each level of the pipe (3);
- stainless steel bottom manual discharge valves open for inspection;
- dividable flexible mesh belt to evacuate the product and separate it from water ;
- tank to collect sediments and debris;
- self cleaning rotary filter (space 0,75 mm)
- pump to recover the transport water, inverter controlled with contact time display.

Entirely made by AISI 304 st. st., excluding the bought-out mechanical components.

The advantages and features are the following :

- excellent washing quality;
- easy regulation of the washing parameters
- main washing parameters managed from PLC with touch – screen display;
- many available options – provide customization to customer requirements;
- high reduction of the treatment additives (the surface of the product might be washed in a permanently renewed turbulent chlorine solution);
- easy clean up with complete access to piping through sanitary pipes and valves;
- possibility to wash both floating than not floating products (i.e. salads, shredded carrots, diced onions, several types of fruit, …).

Turatti manufactures a wide range of accessories and related components to supplement new and existing washing and treatment systems.

Entirely made by AISI 304 st. st., excluding the bought-out mechanical components (Polyester Mesh Belt, Motors, Reducers, Pumps, Feet, Electrical Parts)

Pos.08

INSECT REMOVAL FLUME

The flume is receiving the product from the camel system to transfer it to the drying section.

The system represents a revolutionary approach to flume wash technology: the wash action insures consistent product submersion.

A flume skimming reel is designed to work with the Open Flume System to add insect removal and small floating particle removal from the water stream. The Flume Reel is mounted to the top of the flume system and is ideally located just prior to discharge on the belt.

The flume feature a second section composed by a belt with a spraying section on the top, that transport the product to the dewatering.

Entirely made by AISI 304 st. st., excluding the bought-out mechanical components (Dividable Polyester Mesh Belt, Motors, Reducers, Pumps, Feet, Electrical Parts)

Pos.09

DEWATERING SYSTEM

The dewatering system is the first stage of the Turatti patented continuous air dryer.
The system is suitable to adjust the surface moisture on the washed leafy items, with variable fans on the unit in order to allow the possibility to vary and adjust the suction action. This will be operated automatically according to the selected program product. The dewatering system's unique design makes it ideal for de-watering delicate products. Because of its high de-watering efficiency, the drying process can often be eliminated or highly reduced, greatly minimizing mechanical damage.
The unit is designed with easy access for quick cleaning and sanitation.

The main parts of the machine are :

- stainless steel supporting frame for a dual step system
- durable PVC, FDA Approved, blue-coloured for debris identification with opening hinge to easier sanitation.
- suction fan and ducts
- driving head with gearmotor
- idle head.

The advantages of the dewatering system are:

- Capability to dry very delicate products.
- Wide range of applications.
- Improved finished product quality by eliminating mechanical damage.
- Capability to de-watering a variety of mixed products.
- Quality materials and construction greatly minimizes the need for maintenance.
- Several configurations available to allow for easy integration into existing layouts.
- User friendly operation.
- Designed for quick sanitation and cleaning.

Optional single or multiple air knives in order to enhance water removal.

Entirely made by AISI 304 st. st., excluding the bought-out mechanical components (Polyester Mesh Belt, Motors, Reducers, Fans, Feet, Electrical Parts)

Pos.10

CONTINUOUS AIR DRYING SYSTEM FOR VEGETABLES–TUNNEL TYPE

Operating Principle and Scope:

The system has been developed to eliminate moisture from the surface of vegetable products, after washing and before packaging, with high energy yield. One additional advantage of the air drying tunnel in comparison with other thermally heated systems is that no heat and moisture is released to the surroundings factory controlled atmosphere.
This unit is designed to dry the product to the desired final free moisture content. The value is ranging from 0% to 3% according to customer's specifications and can be selected according to the processed product.
The scope is of drying and chilling of leafy products such as: baby spinach, baby-leaf, spring mix, spinach, arugula. Besides being especially effective on delicate products the system can be utilized as well on robust varieties such as Iceberg and Romaine.
Especially suitable for delicate, soft and perishable salads, this system nearly eliminates damage from mechanical and other conventional drying systems thus ensuring the best quality - which can lead to longer shelf life.

The system allows the control of temperature of the outgoing product. Tunnel with two conveyors (one in the drying section and one in the cooling one). All process parameters are controlled via PLC. The free moisture is absorbed by a dry air flow thus allowing a complete drying of the product.

Operating Principle – Drying Section

The production process prior to the drying tunnel requires the product to be de-watered sufficiently with a dewatering system (especially designed from Turatti and patented) which removes the majority of the free water. This system delivers the product directly into the main drying tunnel where each conveyor that receive the product, is supplied with product shaking devices.

In the drying tunnel the product is dried in an upwards directed air stream which passes through the transporting belt. The air temperature is maintained by the plc programming directs the warm air to flow through the product at a regulated speed. This is done in order to ensures optimal contact with the product at all times.

During the drying process the product begins to cool down, because of the vaporization of the surface water on the product.
The cooling down and warming up of the air is controlled through the PLC by very accurate water temperature control

Operating Principle – Cooling Section

Cooling tunnel specially designed to insure minimum product exit temperature (2° C) and minimum running costs.
The main advantage of the system is that operates with cold air.
The unit is composed by one plastic wire mesh conveyor belt, s.s. air circulating fans, rotating product shakers. Reduces cooling costs while ensuring that produce quality is retained. The system is equipped with a real time monitoring system that ensure optimal cooling temperature for vegetables and leafy products.

Stainless steel structure with doors to easy access the internal parts.
Entirely made by AISI 304 st. st., excluding the bought-out mechanical components (Polyester Mesh Belt, Motors, Reducers, Batteries, Fans, Feet, Electrical Parts)
Combined type, one-conveyor design.

Composition :

The whole system consists of 2 combined sections assembled in the same casing.
Air re-circulating fans system.
Stainless steel structure with access doors to easy access the internal parts.
Air treatment unit with AISI 304stainless steel casing.
Condensing heat exchanger, air filtering system, hot water heat exchanger.
Fully accessible for inspection and sanitation.
Durable Polyester Mesh Belt, FDA Approved, blue-coloured for debris identification with opening hinge to easier sanitation
Completely manufactured in AISI 304 stainless steel excluding the bought-out system and properly insulated.

Features:

The benefits of our drying systems:

1. Easy operation of the whole system – Fully automatic control of the system can be managed with minimum training.
2. Possible to dry very delicate and fragile products.
3. Better quality of the finished product – product does not undergo mechanical stress.
4. Continuous operations.
5. The treatment air is purified as a result of contact with the surfaces of the treatment batteries
6. The product never reaches the temperature of the treatment air due to adiabatic cooling.
7. Possibility to dry mixed products (i.e. mixed salad).
8. Maximum control of operating costs.
9. Computerized control of all the main parameters (temperature, humidity rate, etc.) which make the product retention times as short as possible.
10. Remote system diagnostic support available if required.
11. Very easy maintenance operations.
12. System is custom tailored in several sizes to customer requirements.

This system is the most effective system known to date. Extensive testing with other drying systems have consistently shown product damage and much less effective drying. Turatti, in fact over the last 20 years has built and tested models of nearly every system prior to adopting the current systems

Product specifications:

Product: baby spinach

Product Bulk Density: 100 kg/cubic meter

Expected product throughput: 500 kg/h

Expected residual moisture at drier outlet: 2%

Air drying temperature: adjustable from 15 to 40°C

Technical data:

Recycled quantity of air : 14.000 mc/h

Quantity of evaporated water : 40 Lt/h

Water consumption from the network a 10 – 12 C : 2 mc/h

Installed Power : 8,6 Kw/H.

Drying section: 68.000 Kcal/h

Cooling section: 80.000 fr/h

Working temperature adjusting range : 8 ^{0}C – 30 ^{0}C

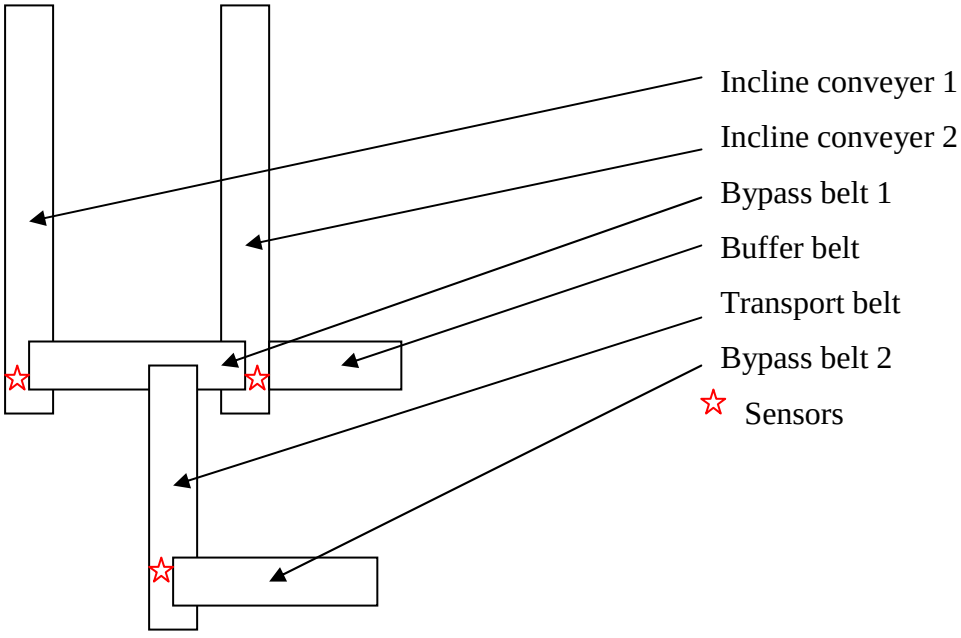
The capacity is dependent on factors and variations of product moisture content before drying and the desired moisture content (i.e. processing temperature). The average transit time will be from 240 Secs in the drying area and 120 Secs in the cooling section
There have been constructed tunnels from 500 kg/h to 4.000 kg/h.

Air cooling temperature : 4 ^{0}C
Product incoming temperature at full capacity : 2 ^{0}C
Product outcoming temperature at full capacity : 2 ^{0}C

Entirely made by AISI 304 st. st., excluding the bought-out mechanical components (Polyester Mesh Belt, Motors, Reducers ,Battery, Fans, Feet, Electrical Parts)

Preliminary note about the weighing distribution section:

The whole system shall be programmed to be automatic and independent for manual operating when the rest of the line is down. All the belts in these area (Pos.11 – Pos.12 – Pos.13 – Pos.14) will be ready to operate in manual mode. A flow sheet (In feed to weighers) will be added to the proposal (Annexure 2).



Belt system

The whole system shall be programmed to be automatic and independent for manual operating when the rest of the line is down.

Incline conveyer 1

Mesh belt, controlled by weighers, possible to run in manual mode, air knife.

Incline conveyer 2

Mesh belt, controlled by weighers, possible to run in manual mode, air knife.

Bypass belt 1

The belt are controlled by sensors in the bottom of the incline conveyers, when operating the movement has to be programmed in a way that the left movement has longer on time than right movement. Mesh belt. Possible to run in manual mode, left and right.

Buffer belt

Mesh belt. The belt are controlled by a sensor in the bottom of the incline conveyer. Possible to run in manual mode.

Transport belt

Mesh belt. Operates in combination with bypass belt 1. Possible to run in manual mode.

Bypass belt 2

The belt are controlled by a sensor in the bottom of the transport belt. Mesh belt. Possible to run in manual mode, left and right.

Pos.11

BY-PASS BELT

By pass belt suitable to distribute the product after the drying. The system automatically operate in order to transfer the product to the packaging machines, but features a switch to be manually driven.

The main parts are :

- stainless steel supporting frame
- stainless steel edges
- durable Mesh Belts, FDA Approved, blue-coloured for debris identification with opening hinge to easier sanitation.
- driving head with gearmotor
- manual switch
- idle head.

Entirely made by AISI 304 st. st., excluding the bought-out mechanical components (Polyester Mesh Belt, Motors, Reducers, Fans, Feet, Electrical Parts)

Pos.12

MOVABLE TRANSPORT BELT

Belt suitable for the transport of the product to the packing group.

- stainless steel supporting frame
- stainless steel edges
- durable Mesh Belts, FDA Approved, blue-coloured for debris identification with opening hinge to easier sanitation.
- air knives to clean the belts
- driving head with gearmotor
- idle head.

Entirely made by AISI 304 st. st., excluding the bought-out mechanical components (Polyester Mesh Belt, Motors, Reducers, Feet, Electrical Parts)

Pos.13

N.2 MIXING BELT

Belt suitable for the transport of the product to the packing group.

- stainless steel supporting frame
- stainless steel edges
- durable Mesh
- Belts, FDA Approved, blue-coloured for debris identification with opening hinge to easier sanitation.
- air knives to clean the belts
- driving head with gearmotor
- idle head.

Entirely made by AISI 304 st. st., excluding the bought-out mechanical components (Polyester Mesh Belt, Motors, Reducers, Feet, Electrical Parts)

Pos.14

N.2 ELEVATOR TO FEED THE WEIGHING / PACKING UNIT

Elevator to fed the unit of weighing and packaging machine.

Belt suitable for the transport of the product to the packing group.

- stainless steel supporting frame
- stainless steel edges
- durable Mesh Belts, FDA Approved, blue-coloured for debris identification with opening hinge to easier sanitation.
- air knives to clean the belts
- driving head with gearmotor
- idle head.

Entirely made by AISI 304 st. st., excluding the bought-out mechanical components (Polyester Mesh Belt, Motors, Reducers, Feet, Electrical Parts)

Pos.50

ELECTRIC CONTROL PANEL + WIRING

The control board is equipped with a last generation touch-screen panel that gives the possibility to operate in automatic or manual mode. A special program allows a careful washing cycle in order to clean carefully the machines at the end of the working cycle.
Several processing programs are incorporated.
The cabinet is made of stainless steel AISI 304 finely satin-finished and protected. The frame of the cabinet is an heavy-duty structure made from stainless steel bars. Approx. the 30% of the internal part of the cabinet is available for future improvements.
Feature Siemens S7 300 –TP 177 Touch Screen – Step 7 Siemens – WinCC.
Featuring a protection for the touch-screen panel, in order to avoid any damage.
In the panel for each motor there are: run/stop push button with incorporated warning light, protection switch, power contactor to drive the motor with auxiliary, remote control switch (all controls 24 V). All programming should be done in 100%
Warning light warn to alarm to inform about production line start-up.
Earthling in compliance with the applicable laws force. Protection degree: IP65
General Switch (400 V) and emergency button.

5.3 STANDARD COMPONENT PARTS UTILIZED BY TURATTI SRL

The equipments/processing lines manufactured by Turatti Srl are utilizing the below components that are reflecting the final prices.
In order to welcome the needs of the customer different components might be changed, thus involving a revision of the quote.

Stainless Steel 304 sheets (Thickness < 3 mm.)	Scotch-Brite finishing
Stainless Steel 304 sheets (Thickness > 3 mm.)	Hot finishing
Ball bearing	SKF (with greasing)
Oscillating parts	ROSTA

Dosing devices	CULLIGAN / PROMINENT
Steam plant and exchanger	SPIRAX / GEMU
Oil dynamic parts - Hydraulic Motors	DENISON / DANFOSS
Pneumatic parts	WAIRCOM / FESTO
Electric motors (IP55)	SIEMENS
Pumps	CSF-INOX / VARISCO
Vacuum Pumps	TRAVAINI
Gear	BONFIGLIOLI
Variators	MOTOVARIO
Hydraulic variators	VAR-SPE
Probes	TURATTI / ENDRESS HAUSER
Measuring devices	ENDRESS HAUSER / ITALGESTRA / FANTINELLI
Plastic supports	MARBETT
Cast iron supports	KOYO
PVC belts	
Perforated « Intralox » belts	
Air and water electro-valves	DANFOSS

Self-Cleaning filters	FLUXA
Rotative filters	EURO SLOT / JOHNSON
Rotary filters	EURO SLOT / JOHNSON
Cartridge filters	TURATTI / FLUXA
Knife gate valve with pneumatic actuator	ORBINOX
Throttle valve, clapet valve, ball valve - PVC, St.St. or cast iron made -	CFS INOX / INTERAPP / RISSO
Actuators	INTERAPP / MECAIR
Vibrators	ITALVIBRAS

ELECTRICAL STANDARD PARTS - U.L. APPROVED

Electric control board st.st. case	ZANARDO / ANGELLA / ILINOX
Electric control board PVC case	LEGRAND / GEWISS
Variable speed drive	ALLEN-BRADLEY / SIEMENS / OMRON
Photoelectric cell	ALLEN-BRADLEY / TELEMECANIQUE
Magnetothermal switches	SIEMENS / TELEMECANIQUE
Keyboard (Visual modulus)	ALLEN BRADLEY / ESA
PLC	SIEMENS / ALLEN BRADLEY / OMRON
Thermal relay	SIEMENS / TELEMECANIQUE

Interface cards	ALLEN-BRADLEY / WEIDMULLER / CABUR
Remote control switch	ALLEN-BRADLEY / SIEMENS / TELEMECANIQUE

5.4 PRODUCT LIMITATIONS

Caution: Do not overcharges the machines.

It has to be avoid to process candied and sticky products: it will cause friction in the cutting head assembly.

5.5 LINE OPERATION RECOMMENDATIONS

Cleaning

At the end of every product shift, clean deeply and carefully the machineries.

Please refer to the chapter 7 for cleaning operation.

General

Before starting production check the following:

- All motor switches are on
- Compressed air, water are available

CAUTION :USE ONLY DRY & DEHUMIDIFIED COMPRESSED AIR FOR THE ACTUATORS OF THE MIXING VALVES IN THE TUNNEL, FOR AVOIDING THE OXIDATION OF THE INTERNAL COMPONENTS OF THE VALVES.

Check whether photo cells/sensor on

- Fans
- Rotary filter scrapper

Water levels in basins are clean

In case of sudden line stops check before all the above mentioned devices

5.6 GENERAL CHECK-UP BEFORE START-UP

Caution: Before each start-up of the machine a general check-up is required, as here-following described (the machine is ready for operation only after all requirements in this checklist have been met!):

Before the first start-up check:

Check that all the parts disassembled in order to facilitate the transport, or for maintenance reasons, are properly installed. Verify the tightening of the connections that might had been loosen during maintenance or because of vibrations. That the machine is completely levelled and fixed on the floor. The machine shall have to be properly connected to the ancillary power plant activated at the required condition and executed as per the law in force where the company is located.

Check that all the safety devices, the visual and acoustic alarms and the emergency stop are activated and operational. Control that the electric control panel is properly connected to the requested rated voltage. Check that the panel and any other electrical connection boxes are closed before to start-up the machine and remain closed when the machine is running.

Verify that the all the lubrication and cleaning operation were properly made, checking also the visual levels – if any -.

Make sure that no unauthorised personnel or foreign people come close to the area of the machine.

Before each start-up check :

- The proper closing of the doors and the fixing of the guard screening.
- That all bolts are firmly tightened.
- The regular functioning of the warning lights on the electrical panel.
- The regular functioning of the safety switches.
- All ancillary connections have been made and kept in good conditions.
- The proper placement of the carters of the motors.
- The wearing status of the components.
- The correct greasing of the moving parts.
- No alarm or emergency on the line or on the electric panel is active.
- Electrical connections are in good conditions and conform to regulations in force.
- Electric motors are running in the right direction.
- Product, packaging material and everything necessary for production are available.
- No unauthorised person is around the line.
- Make sure that all the foreign bodies and the maintenance tools are kept far from the machine.

Fan Safety checks :

Before starting the machine a series of safety checks should be carried out.

- Check that all fixing bolts of the foundations, the impeller, support structures, motor and various protective shields (grids, carters, etc.) are tightened.
- Manually turn the impeller and check that all moving parts (impeller, gears, shaft) are not hindered by obstacles.
- Before connecting the fan to the mains, check that the connecting terminal voltage is the same as the mains voltage.
- Ensure that the earthing screws on the motor base and on the terminal board are connected to the earthing socket.

5.7 POSITION OF THE OPERATOR

The machines were designed and manufactured to run without the intervention of the operator that is required to survey on the process.

The operator has to be positioned in side of the machines and in particular in correspondence of the emergency push buttons to intervene in time.

Caution! : Respect the operating area around the machine in order to promptly operate on the emergency button if required.

Machines must have ample space on all sides so that operators can move safely and easily in a clean working area.

5.8 FEEDING METHOD

Do not allow foreign material (i.e. woods, stones, tools, hardware…) enter the feed area. In fact the contact parts will be destroyed or damaged and the product contaminated.

It is important to underline that the feeding method affects the capacity and also the quality of the end product!

Serious personal injury and/or damage to the machine may result. Never try to assist feeding or discharging of product with your hand.

Continuous over-feed and/or jamming will cause a shorter life of the machine.

Never stop (or start) the machine – except for an emergency – when the feeding area is full of product. This will cause a tremendous strain on the machine and a very poor final product.

5.9 START-UP

The start-up comes rotating the main switch on position "I"; the orange button is for reset the panel; the green button is for start the motor; the red button is for stop the motor; the white button is for presence tension on panel.

Caution: Make sure that all foreign bodies are removed from the feed area.
Warning: Before to start-up the line, make sure that the sign had not appeared on the display. As a matter of fact this sign indicate the presence of an alarm.

The start-up of the line shall have always to come in the indicated ways (as per the indications of this handbook) carefully respecting all the safety conditions and only after that the responsible give the approval.
Turatti shall not be responsible in case of missed respect of the above indications.

GENERAL VERIFICATIONS AFTER START-UP

After start-up check:

- For Fans : the rotation direction is the same as that indicated by the arrow, that the absorbed current does not exceed the value on the rating plate of the electric panel and that no anomalous vibrations are present.
- That the temperature of the support bearings is normal (after a temporary rise during initial start-up the temperature should drop over the next few hours).
- After a few hours of operation, check that the belts are correctly tensioned and correct them if necessary.
- Re-check that all bolts are tightened.
- It is advisable to start the fan with the air lock or flux adjuster completely closed. This precaution reduces absorbed power and therefore avoids overheating.
- Repetitive and consecutive starting of the motor must be avoided as far as possible.
- No indication of the strict max. start-ups per hour can be calculated since this value depends on various factors such as: power, revolutions, PD2, installation conditions, etc.

5.10 STOP

Warning: Never remove guards or covers while the machine is operating!

On the control panel each motor has a stop button.

5.11 EMERGENCY STOP

The following conditions might cause an emergency stop:

- intervention of the thermal protection of the motor ,
- pushing of the emergency button on the control panel ,
- opening of the doors and chute while the machine is operating

Shortly after the pushing of the emergency button the motor of the machine will suddenly stop. Remove in a definitive way the trouble or the problem. Make sure that all the safety conditions are respected and looking for the production manager start-up permission. Once restored the standard working conditions the machine can re-start turning the emergency button on the direction of the arrow and pushing the “reset” coloured button placed close to the emergency button.

5.12 FAILURES

Mechanical failures

In case a mechanical failure arises, this can be due to the following situations :

- The removable parts of the machine(s) have not been brought back into their functional positions after cleaning activities ;
- Valves have not been closed after cleaning operation ;
- Maintenance activities have not been carried out on time or correctly. Please see following maintenance chapter ;
- One or more parts of the machine(s) have to be tensioned or adjusted ;
- Par(s) of the machine are defect. Please replace the part(s) concerned ;

Electrical or control failures

In case of electrical or control failures, please refer to the wiring diagram enclosed at Chapter 9.2.

CHAPTER 6
MAINTENANCE

This chapter contains the advices and recommendations to operate maintenance on the machine/line and the related safety rules to be followed during this phase.
This information shall have to be known in order to run the machine in the best conditions.
Therefore a careful knowledge of the present chapter shall be required, as an additional guarantee of the duration and proper operation of the machine.
The technical department of Turatti SrL is available for any suggestion or advice on this subject.

6.1 PRELIMINARY NOTES CONCERNING MAINTENANCE AND SAFETY ADVICES

Do not allow that not qualified personnel (see following paragraph operate maintenance, adjustments and parts replacement. Make sure that the involved personnel is aware and knows the content of Chapter II concerning "Rules for safe operation" and this dedicated chapter.

The instructions in this section cover the period maintenance that should be performed to assure safe, efficient operation and long life of the equipment. For more detailed instructions on specific components, refer to the related Machine Handbook

The personnel in charge for the maintenance must be familiar with this content and all related information contained in the machinery handbooks.

Do not allow that unqualified or unauthorized personnel operate maintenance, adjustments and parts replacement.

The operator shall dress according EN rules and following the indications as per the following paragraphs. Regularly control the status of operation of switches, buttons, warning lights and safety devices (see related paragraph in Chapter II).

All the maintenance operations shall be executed with the machine not running. All the maintenance operations shall be executed with the power and pressure off. Lock the main switch, thus preventing an accidental action. Follows the indications as per the paragraphs named " Conditions to operate maintenance". Additional information are contained in the following paragraphs. The customer service (and the technical department) are at your disposal for any information required. Be aware of the fact that most accidents with machines occurs during thoughtless and hasty executing of maintenance and cleaning activities. Therefore the operator must be very careful during inspection, maintenance and cleaning of the machine.

Be aware that some machinery might come to a complete stop even after the stop switch has been pushed (i.e. spin dryer). Thoroughly read the machinery Handbook to be completely instructed.

Be aware that steam pipes, accessories, condensate, process water, water and steam leaks through seals might be hot. Any contact with these parts and connections should be avoided.

If so avoid to inspect, maintain and clean the machine until it has cooled down.

If liquid nitrogen or other strong cooling media are used, be aware that contact with tanks or pipes carrying these products can be dangerous.

If nitrogen or carbon dioxide or similar gases are used, be aware that these gases are suffocating.
Check carefully that workplace or rooms where these gases are used are ventilated and that warning devices are operational
Special care shall have to be taken when replacing blades or cutting tools: this operation shall involve by the personnel in charge the perfect knowledge of the machine and of the installed safety devices.All parts of the machine should be given timely maintenance in accordance with the maintenance instructions.

6.2 QUALIFIED AND SPECIALIZED PERSONNEL

All the maintenance operations shall have to be strictly executed by only qualified and specialized personnel on the type of requested service (Technician, Electrician, Electronic).

The above-mentioned personnel shall perfectly know the technical data, drawings, electric drawings and any other basic information related to the machine in order to operate with the suitable tools and equipment, as per the general and safety information contained in this handbook. Therefore it shall be forbidden the operation of maintenance or repair to any not qualified and specialized operator not knowing the content of the present handbook. The diffusion of this handbook shall have to be encouraged.

6.3 CONDITIONS TO OPERATE MAINTENANCE

Warning: All the maintenance operations shall be executed with the ma-chine not running. Disconnect and lock out power source before to operate maintenance.

Lock the main switch, thus preventing an accidental action.
Before to operate on the machine make sure that the pneumatic and hydraulic circuits have not any residual pressure left, that might activate any movable part.
In case of opening of doors or hoods, particularly check that remain fixed and, and that not interfere with the personnel movements.

Warning: It is severely forbidden to elude the installed safety systems.

6.4 SUITABLE DRESS, TOOLS AND SPARE PARTS

Do not utilize any not suitable tool, material and spare part.

To replace the damaged or worn out part it is warmly recommended to use Turatti original spare parts, because the utilization of different components might compromise the correct working of the machine and might cause the loss of the guarantee.

Special care shall have to be taken when replacing blades or cutting tools: this operation shall involve by the personnel in charge the perfect knowledge of the machine and of the installed safety devices, that shall have to be not in use during the intervention and then properly restored.

For this reason this operation shall be always carried by the maintenance personnel.

6.5 MAINTENANCE SCHEDULE AND MAINTENANCE FORM

All the maintenance operations shall be described and recorded on the here-following forms: “Maintenance Schedule” and “Maintenance Form”.

If these forms are regularly drawn up it will be an important integration of this handbook.

For any requirements or information both customer service than technical department will be at your disposal.

6.6 PREVENTIVE MAINTENANCE

In order to maintain the machine in the best operational conditions, the following preventive maintenance schedule shall have to be carried.

Upon request of the customer, TURATTI is available to organise and activate with its own personnel and/or the personnel of the customer, a preventive maintenance schedule, in order to allow a more regular check-up.

Daily Maintenance

A complete cleaning cycle according to the suggestions as per the dedicated paragraph.

Weekly Maintenance

A deep cleaning cycle (followed by a careful rinsing) according to the suggestions as per the dedicated paragraph.

Monthly Maintenance

Check the status of all the motors. Refer to the part of the sub-suppliers.

Control the tightening of all the bolts.

Carefully check that there are not worn parts (as belts of chain too loosen).

Control that the pipe fittings (water, air , oil …) are tight. Replace the gaskets if required.

Check that all the elements of the electrical plant are properly functioning.

Verify the status of the electrical connections.

This operation shall have to be made by a qualified electrician.

Lubricate the elements that are requiring lubrication (see dedicated paragraph).

Yearly Maintenance (or maintenance at the end of the season)

Each year (or at the end of the working season) operate a careful and deep control of all the elements.

6.7 ELECTRICAL ASSEMBLY

Warning: Only a qualified electrician should inspect or repair the fault in case of an electrical problem.

Before operating, inspecting or repairing any electrical part or the unit, disconnect and lock out power source. Carefully follows these guidelines related to the electrical assembly :

Never direct water toward the panel when operating cleaning and sanitation.

Only a qualified electrician can open the panel. Therefore do not leave anybody else open it and/or leave it open it. Never weld too close to the panel when the power is on.

Do not replace any electrical part with any not original or proper one.

Use only original spare parts

6.8 LUBRICATION AND GREASING OF BEARINGS UCFL UCP TYPE

This support is in polyamide PA FV with watertight protection and fixing on the shaft by means of security dowels. It has an high mechanical and thermal resistance and a seal against dust, humidity, water, steam, chemical agents of medium aggressiveness.

This support does not necessitate an initial lubrication since it is already lubricated by the manufacturer while assembling.

It is provided of a spherical grease nipple of 1/8" gas to allow the periodical re-lubrication (see below)

Technical data for the grease to utilise with this supports :

NLGI Consistency:	**2**
Oil Pulp :	**Lithium/Calcium**
Basis Oil:	**Mineral**
Basis Oil viscosity:	**165 mm^2/s a 40°C**
Operating temperature:	**-20°C A +120°C**
Water resistance:	**suggested**
Rust prevent property:	**suggested**

Warnings :

- Never lubricate at first starting;

- Use only grease with analogous characteristics of those reported above;

- Clean the grease nipple before pumping some grease;

- Slowly introduce the lubrication grease until it does not start to come out of the bearing;

- Keep the shaft at low rotation speed;

- Do not practice any pressure avoiding the damaging of the seals;

- You should frequently grease the bearing with little grease quantity;

Lubrication times:

The lubrication period changes depending on the operating conditions. In theory you can follow what stated below, however the experience is the better guide.

- **With light operating conditions:** **re-lubricate every 6 months**
- **With normal operating conditions:** **re-lubricate every 1 month**
- **With onerous operating conditions :** **re-lubricate every 2 weeks**

6.9 WEIGHING MACHINES ANOMALIES

If weight is not correct or at « 0 :

-with el. panel powered on, please remove connection cable Sivarex and after 5 seconds reconnect it.

If this results negative, please verify on cells :

-Between clamps 19 and 20 there should be about 10 Volts.

-Between clamps 15 and 16, voltage must not be 2,5 Volts lower than the valor of clamps 19 and 20.

-With a multimeter (suitable to mesure millivolts), verify between clamps 17 and 18 if a positive valor is accepter in 0-20 mV.

If valor is higher or lower, directly verify each cell :

On connection box, disconnect white and red cables and verify positive voltage on white cable and negative voltage on red cable.

This voltage must be within 0 – 20 mV

If voltage is lower, or higher than 20mV, cell is broken/damaged.

SIWAREX-U "1℃hannel"	TYPE SIGNAL	CABLE SIWAREX	CABLE CELL SIEMENS	CAVO CELL LAUMAS	MEANS
19	EXC+	BLUE	GREEN	RED	Power +
20	EXC-	BLACK	BLACK	BLACK	Power -
17	SIG+	WHITE	WHITE	GREEN	Signal +
18	SIG-	RED	RED	WHITE	signal -
15	SENSE+	GREEN			BOX
16	SENSE-	GREY			BOX

6.10 RULES FOR THE CORRECT INSTALLATION OF LOADING CELLS

Installation of the load cells: The supports planes of the loading cells must be coplanar and rigid enough; to compensate the no-parallelism of the supports planes, it is necessary to utilize the suitable assembly accessories.

Use sheathes and impermeable connectors to protect the of cables the cells.

The object to weigh is usually rest on 3 or 4 loading cells. If possible, it's better to use 3 loading cells to have an equilibrate distribution of the load.

Mechanical constraints: To avoid problems with the weighing, it is necessary to remove or minimize the mechanical constraints between the support plane and the weighed object. In presence of mechanical constraints, it is opportune to take particular precautions, for example, with reference to the pipelines, utilize flexible pipes and flexible or clear mouth couplings with a rubber protection; In case of rigid pipelines, place the pipe support or the hanger (bracket) as far as possible from the structure (20 times the pipe diameter).

Ground connection of the weighed structure: Connect by a proper copper connector the upper support plate of the cell with the lower plate of each cell, then connect all the inferior plates among themselves to the same ground system.

Connection in parallel of more cells: For the connection in parallel of more cells, use a sealed connection box with terminal board with plate clamping screw. The connection box has 4 cable glands for the cells input and one cable gland for the cable output that shall be connected to the loading cells. The cables to extending the connection of the cell must be shielded and pass alone through a pipe o raceway, and placed as far as possible form the power cables.

Welding: Don't weld with load cells already assembled. In case it is inevitable to weld, you must place the ground gun of the weld machine near the point where you want weld, in order to avoid that the current flows through the body of the loading cell.

***Imperatively remove the card!!**

Presence of knocks and vibrations: For all the loading cells the suitable assembling accessories are available. Their purpose is to compensate the no-parallelism of the support planes and to obtain a correct application of the cell, the greatest reliability and precision in accordance with the mechanical, electrical and pneumatic connections which are on the object to weigh. The plant designer have to take precautions against the lateral movements and against the turning over due to: knocks and vibrations; wind pressure; seismic classification of the installation area; consistency of the support plane.

6.11 SPECIFIC MAINTENANCE

ADJUSTING THE BELT TENSION:

It may occurs that the belt is loosened, slipping on the drums, damaging and precociously wearing itself.

To restore the right tension, follow the instructions :

- lock out the power source on the panel; be sure the machine is out of service and completely stopped.
- remove the protection carter of the motor, without losing the bolts
- screw up the threaded bar on the side of the belt frame, near the belt head.
- repeat the operation on the opposite side bar
- screw up till the belt is well stretched out, without exaggerate
- absolutely avoid the belt be too much stretched out, because you may obtain some breaks, even if apparently not visible, of the lateral belt guides
- be sure there may not be some variation in the wheelbase
- let the belt rotating in idle for a short time, verifying there are not problems

SUPPORT BEARING REPLACEMENT:

The support bearings are in polyamide, and contains at their inside the bearings supporting the shaft.

For the greasing of the supports see the chapter “Lubrication”.

For the replacement of the supports please lock out the power source from the electric panel, taking all safety instructions.

Remove the fixing bolts (and the speed reducer if necessary), unthreading them from the shaft, and, with the aim of a gum hammer, remove the support.

Warning : absolutely avoid the damaging of the shaft with bad operations.

Replace the supports (or only the bearings) with other ones of the same type, without making changes on the shaft tension.

Put on the supports the correct greasing, leaving the belt working idle for few minutes (you may not notice scratches).

VERIFY – REPLACEMENT OF ELECTRIC MOTORS:

The electric motors on the machine and the maintenance of these components must be necessarily done by **electric qualified** personnel.

VERIFY – REPLACEMENT OF SPEED REDUCERS:

The speed reducer is a very important component, needing a special maintenance. In case of replacement you may follow the safety instructions and release the fixing screws of the flange, removing it from the motor, using a proper extractor after having removed the locking screw. Replace the speed reducer with one of the same type.

BELT REPLACEMENT:

The belt is a component subject to quick wear in case it does not receive the correct maintenance. Particularly, working with low temperature, the lateral guides may be cause of problems and may wear out very quickly. You have to prevent from high rotation speed of the belt.

In case of substitution please follow the instructions :

- lock out the power source on the panel; be sure the machine is out of service and completely stopped.
- remove the protection carter of the motor, without losing the bolts
- screw up the threaded bars on the sides of the belt frame, near the belt head.
- reduce the wheelbase of the frame, slipping off the belt
- replace the belt with one of the same type
- restore the power source
- verify the correct belt rotation.

Warning : pay attention at the bolts and screws tighten on the machine, becasuse a bad fixing may be the cause of vibration and damage irreparably other components.

- pay attention to each steel plate around the mesh belt, they never have to be in contact with the belt. It can be cut and become damaged.

- when replacing a belt, the maintenance personnel must remove the steel plate above and below the belt. When the new belt is installed, please put the remove steel plate at the same distance of the original start-up position.

IMPELLER MAINTENANCE

- Periodically clean and remove all traces of incrustations and/or dirt that could imbalance the impeller.
- Check the state of wear and tear on the impeller, especially if the fan is used to transfer abrasive powders or aggressive gases.
- Bear in mind that wear and tear on mechanical parts can give rise to dangerous loss of balance that
- could break the impeller. If there are signs of wear and tear, it is advisable to replace worn parts immediately.

PULLEYS MAINTENANCE

- Pulleys must be perfectly balanced to avoid vibrations that rapidly damage bearings.
- Check that the pulleys are correctly aligned and that this operation is carried out carefully.
- Carefully clean the grooves.

BELTS MAINTENANCE

- Clean both belt faces.
- Check belt tension and if necessary, correct it.
- The correct functioning of a belt drive is closely related to correct tensioning at installation.

COUPLINGS

Check that all couplings are correctly aligned, keeping them within radial and angular tolerance.

FAN NOISE

On fans installed in industrial environments, it is nearly impossible to obtain noise levels identical to the readings under standard conditions.

This is because of the various types of installation conditions found in industrial complexes. When measuring noise levels in industrial environments, bear in mind that the noise source may be installed in noise reflecting, reverberating or amplifying conditions. For a source installed on a perfectly reflecting flat surface such as concrete flooring, 3 dB must be added to standard values. For a source installed at the intersection of two perfectly reflecting flat surfaces such as in the case of a floor meeting a lateral wall, 6 dB must be added.

For a source installed at the intersection of three perfectly reflecting flat surfaces, such as a corner, 7 dB must be added.

All the above values are merely approximate, but are generally used for engineering calculations.

Upon request and on condition that all installation data are made available, the manufacturer will advise the client on the necessary measures to contain noise levels, which must fall within the limits imposed by EEC norms.

NOISE

- All fans generate noise.
- Noise my be generated by air or by the electrical or mechanical parts of the fan.

Mechanical noise

If occasioned by parts rubbing against each other, the source is normally very obvious.
Otherwise attention should be paid to bearings and vibrating plates.

Electric noise

Besides intrinsic defects such as eccentricity between rotor and stator or porosity in the material used for the rotors, vibrations of windings etc., electric noise is always present because of harmonic generated by electromagnetic waves. In single-phase motors where the magnetic field is not symmetrical, noise can be significantly increased, depending on the amplifications caused by parts in sheet metal such as the Archimedean screw, anchor bases, foundation base, etc. In order to conform to ever stricter regulations on noise containment, we can supply ventilating parts enclosed in soundproofed cabins and equipped with silencers at the air suction and pusher inlets.

VIBRATIONS

It is not possible to establish generally applicable absolute values for vibration intensity that determine a good working state or dangerous conditions, since the machines and their functional features are too varied. Indeed, in some cases identical machines installed under different conditions require different evaluation criteria.
Unacceptable vibration levels may derive from imbalances or unsuitable support structures or a combination of both.
When the natural frequency of a support structure approaches the frequency of the fan rotation speed, no amount of balancing can eliminate vibration. However, the natural resonance frequency of the support structure can be significantly altered by the addition of weights. In the case of excessive imbalance, contact the manufacturer or a vibration specialist.

RECOMMENDED LUBRICATING GREASE AND OILS

Utilization	Type lubrificant	Temperature Ambient	Viscosity kinematics40 ° C (cSt) mm2 / S	BP	Shell	Esso	elf	TOTAL	Mobil
Speed reducer a cylindrical gear naggio Speed reducer bevel gear pair Riiduttori – Motoriduttori a alberi paralleli	Oil	+40 a 0	242 a 198	BP Energol GR-XP 220	Shell Omala Oil 220	Spartan EP 220	Reductelf SP 220 Elf Kassilla 220	Total Carter EP 220	Mobilgear 630
		+25 a -15	165 a 90	BP Energol GR-XP 100	Shell Omala Oil 100	Spartan EP 150	Reductelf SP 100	Total Carter EP 150	Mobilgear 629
		+ 10 a -30	74,8 a 13,5	BP Energol LPT68	Shell Tellus Oil T 32	Esso automatic Transmission fluid	Hydrelf DS 68	Total Carter EP/ES	Mobil D.T.E. 15
		-20 a –45	16,5 a 13,5	BP Energol LPT15	Shell Tellus Oil T 15	Univis J 13	Aviation Hydraulic Oil 20 H 520	Total Aero Hydraulic 520	Mobil D.T.E. 11
	Grease	+40 a -15		BP Energrease HT-EP00	Shell Alvania EP RO	Fibrax EP 370	Epexelf 0	Total Multis EP 200	Mobilplex 44
Speed reducer a worm screw	Oil	+40 a - 0	748 a 612	BP Energol GR-XP 680	Shell Omala Oil 680	Spartan EP 680	Reductelf SP 680 ELF Kassilla 680	Total Carter EP 680	Mobilgear636
		+25 a -10	242 a 198	BP Energol GR-XP 220	Shell Omala Oil 220	Spartan EP 150	Reductelf SP 220 ELF Kassilla 220	Total Carter EP 220	Mobilgear 630
		+10 a -20	165 a 90	BP Energol LPT 100	Shell Omala Oil 100	Spartan EP 100	Reductelf SP 68 or Hydrelf DS 68	Total Carter EP/ES	Mobil D.T.E. 18
		-20 a - 45	16,5 a 13,5	BP Energol LPT 15	Shell Tellus Oil T 15	Univis J 13	Aviation Hydraulic Oil 20 H 520	Total Aero Hydraulic 520	Mobil D.T.E. 11
	Grease	+40 a -15		BP Energrease HT-EP 00	Shell Alvania EP RO	Fibrax EP 370	Epexelf 0	Total Multis EP 200	Mobilplex 44
General	Synthetic oil		242 a 198	BP Energol SG-XP 220	Shell Tivela Oil WB	EZL 502	Elf Syntherma P 270		Mobil Glygoyle 30
		Reducer S. -60 a -0	506 a 414	BP Energol SG-XP 460	Shell Tivela Oil SD				Mobil Glygoyle 80
	Synt etic grase	-60 a - 25		BP Energrease GSF	Shell Tivela Coumpound A		Elf Polygo		Glygoyle Grease 00
Bearing for reducer and motor elet.	Grase	-60 a - 30		Multicharge LSEP 3	Shell Alvania G3	Beacon 2	Epexelf 2	Total Multisep 2	Mobilux EP2 (Riduttori)
	Synt etic grase	+80 a -40							Mobiltemp. SHC 100 (Riduttori)
		+60 a +100				ESSO Unirex N 3(Motori)			
		-60 a - 45			Aero Shell Grease 16 (Motor)				

6.12 MAINTENANCE SCHEDULE

Lubricated Parts		Replaced Parts		Replaced electrical parts	
	Date		Date		Date

6.13 MAINTENANCE FORM

Date :		Place :	
Customer :		Technician :	
Departure Hour from Cavarzere		Km. Departure	
Arrival Hour in……..		Km. Arrival	
Departure Hour from……		Total Km.	
Return Hour in Cavarzere			

Under Guarantee Works :

……
……
……
……
……
……
……
……
……
……..…… Total Hours

Works requested by the customer against payment :

……
……
……
……
……
……
……
……
……..…… Total Hours

Not executed works (if any):

……
……
……
……
……
……

Signature of the technician of Turatti

…….

Signature technician of the customer

……..

6.14 GENERAL TROUBLESHOOTING

In this paragraph are listed the most frequent anomalies that might happen during the processing, the possible causes and the correction to restore the previous situation.

Warning: Turatti Srl decline all responsibility for damages to things and person due to inattention or imprudence of the operators.

Follow all the safety recommendations as per this handbook when opera

In case of failure or new trouble ask detail & instruction to the technical office of TURATTI.

Problem	**Cause**	**Correction**
The line does not start	The tension is not the correct one	Power the machine with the correct tension
	Feeding area full of foreign bodies	Remove all the foreign bodies
	Emergency button was pushed	Release the emergency button
	Covers and guards not securely attached	Make sure covers and guards are securely attached
	Intervention of motor protector	Check if the motor protector is on

Problem	**Cause**	**Correction**
Harsh metallic grinding sound	Feeding area full of foreign bodies	Remove all the foreign bodies
	Rubbing between parts	Carefully check the elements and clearances
	Worn motor bearings	Consult motor manufacturer

Problem	**Cause**	**Correction**
Slow operation	Drive belts slipping	Adjust tensioning
	Lack of lubrication	See the paragraph lubrication

Problem	Cause	Correction
The machine doesn't operate at control	Carter in wrong position	Repositioning the carter
	Stop broken or not fastened correctly	Replace or reposition correctly closing the screw

Problem	Cause	Correction
Intervention motor thermal protection	Mechanical snag	Check the cause of the snag and reinstate for the test
	Electric snag	
	Motor under-dimensioned for the capacity requested	Substitute the motor with one of bigger capacity

Problem	Cause	Correction
Transport belt comes out from the drums	Accumulation of product on one side of the belt.	Distribute the product uniformly without excess
	Insufficient tension of the belt	Ad just the tension by thread bar on the side
	Rolls not perpendicular	substitute or reinstate

Problem	Cause	Correction
Wear of the inferior cover of the belt	Sliding of the belt on the drums	increase the tension
	No-rotation of the roll	To align the supports not in axis. Substitute the defective drum. Increase lubrication

Problem	Cause	Correction
Lacerations, cuts, cracks, grooves, etc…. on the surface of the belt	Lateral spuds too rigid or pressed against the belt	Use spuds more pliable and adapt

	winding diameter too small	Substitute the drums with others of bigger diameter or increase the winding diameter
	Crawling against boards or acuminated parts	Increase the tension or eliminate the crawling
	Humidity absorption or overcoming fibres elasticity	Substitute the belt with one of the same kind

Problem	**Cause**	**Correction**
The belt arises at the centre	Operating voltage not correct	Reposition or substitute the belt

Problem	**Cause**	**Correction**
Increased operating times	Air in the circuit	Remove the air from the circuit

Impossible to change parameters on the touch panel; No transfer of parameters on the CPU	Wrong connection, no communication	1) To verify the correct communication between CPU and Panel, please go to page MENU AUTOMATIC CONTROLS with the touch button MONITORING SPIN DRYER. 2) From there you'll go to the spin dryer data. 3) If there you have 000 or #### there is no communication. Please verify the pink colored cable and veriy the two plugs. There should not be : -water -bad contact -bad connection 4) The two plugs have a viola colored selector. This selector must be to the OFF position.

Problem	Cause	Correction
Touch panel is black or does not correctly operate	Presence of water inside the panel	Replace the panel with a new one Recommendations : 1. Close the cover of the panel during the washing cycle and after each operation for some data change. 2. Never direct water on the panel, even if the cover is closed. Periodically check the seal around the panel to avoid water filtrations.

PLEASE NEVER DIRECT WATER AGAINST THE CONTROL PANEL AND THE TOUCH PANEL

CHAPTER 7
CLEANING

This chapter contains the advices and recommendations to operate cleaning and sanitation on the machine/line and the related safety rules to be followed during this phase. This information shall have to be known in order to run the machine in the best conditions.

Therefore a careful knowledge of the present chapter shall be required, as an additional guarantee of the duration and proper operation of the machine.

The technical department of Turatti Srl is available for any suggestion or advice on this subject.

7.1 GENERAL INDICATIONS

The cleaning of the equipments is a fundamental part of the production process. To ensure an effective cleaning, it must be considered as a critical part of the process.

This paragraph contains all indications to correctly operate the cleaning of the machines. A in-depth reading of this manual allows both to comprehend the principles on which the cleaning and the sanitation are based, and to operate all indications to guarantee the good functioning and extend the life of the machines.

In this manual we refer to the safety instructions and general recommendations contained in the related paragraph, and all specific instructions contained in this chapter. All cleaning operations must be listed in a hygiene plan, containing all information about the machine and parts of it, on the cleaning products, on the operating procedures, on the management steps, on the corrective actions, on the responsibilities and all other documentation related to the HACCP (Hazard Analysis and Critical Control Points).

It is a good rule to control the equipments immediately before starting the production, to avoid bacteriological contaminations.

The customer service is at the user disposal for any information as regards the cleaning operations and about the most specific cleaning products to be utilised.

Turatti Srl does not guarantee the right machines operating and duration in case of not use of Turatti Srl approved products.

It is recommended the use of Turatti Srl approved cleaning products, otherwise it will not be guaranteed the right functioning and life of the equipments.

7.2 TURATTI GUIDELINES FOR MACHINERY CLEANING

In order to maintain the machine in the best operational conditions, the following cleaning operations shall have to be carried.

The objective of cleaning and sanitizing food contact surfaces is to remove food (nutrients) which bacteria need to grow, and to kill those bacteria which are present. It is important that the clean, sanitized equipment and surfaces drain dry and are stored dry so as to prevent bacteria growth. Necessary equipment (brushes, etc.) must also be clean and stored in a clean, sanitary manner.

Definitions :

- Cleaning is the removal of dirt or debris by physical and/or chemical means.
- Sanitizing is the process used to rid or reduce the number of microbes (microorganisms) on the surface. Sanitizing cannot be accomplished until surfaces are clean.

Table 1 : Cleaning and sanitizing steps

1. Physical. Remove debris from pipes, chutes and edges
2. Rinse : use water with high pressure, working from top to bottom of equipment
3. Detergent : if necessary, apply approved to be food-grade cleaning solutions.
4. Post-rinse : rinse off the solution with water

As a first suggestion, please control **Chapter II concerning Rules for safe operation.**

Attention : all the user and safety instructions issued by the suppliers of the cleaning agents must be followed.

Wear adequate means of protection for skin, eyes and nose.

For a more effective cleaning action it is possible to utilize several different products that are to be found on the specialized shops and approved to be food-grade.

Do not use disinfectants that contain chlorine and iodine. These products have an undesirable severe effect on instances of corrosion. After disinfecting, rinse the surface with and ample quantity of clean cold water.

1-Standard Daily cleaning

A complete cleaning cycle when changing product to be processed, or at the end of each working cycle.

2-Periodically, Monthly cleaning

At least once a month, a deep cleaning cycle (followed by a careful rinsing) by disassembling all moving parts.

1-Daily cleaning :

The cleaning of the machine is one of the most delicate daily operation and shall have to be executed at the end of each working cycle.

A regular and careful washing cycle, will allow to maintain the sanitation and cleaning conditions suitable to avoid any improper functioning or machine deterioration.

Product that remains in the machine may harden making future cleaning, and encouraging bacterial growth.

This operation shall have to be operated always with machinery not running and with power turned off.

- Make sure that the main switch on the control panel is on the off position.
- Make sure that all the panels and the electric connections box are tightly closed.
- Verify that all the draining and sewage points are opened.

The personnel in charge, shall be informed – besides of the correct and safe way of proceeding – about the proper operating procedure, in order not to damage the mechanical and electrical parts of the machines.

During the washing and cleaning phases do not by-pass, disassemble or de-activate the protections and the safety devices.

Please verify that all the scraps that are results of the processing, were removed.

The design of the parts in contact with the product was made having in mind the requirements of easy cleaning and washing operations and to avoid point of stagnation.

The machine was therefore designed and manufactured in order that the parts that are going to be in contact with the product are washed at the end of the work shift.

It is warmly suggested to avoid the flushing of water addressed toward mechanical parts, motors, axles support. For these components – if required – it is suggested the use of compressed air, suitable also to remove any water remaining on the machine

After each washing with water solution, an accurate and deep rinsing with clean water shall have to be made. Each aggressive cleaning product shall be utilized very carefully by the personnel, that will wear special dresses and that will be duly informed about the product and its risks.

7.3 THE IMPORTANCE OF CLEANING

The cleaning of the equipments is one of the most important operation to ensure the desired medium product life, and must be operated at the end of each working cycle. An accurate and regular washing program will allow to maintain the hygiene conditions necessaries to avoid wrong functioning or deterioration of equipments. In the long run, parts of the machines could deteriorate if residual of product are not completely removed. Besides, these residuals could make worse, or cramp all following cleaning operations, growing the microbes rise.

Generally, a cleaning process includes these operations :

- Manually remove coarse particles of dirty
- Rinse at prescribed temperature and pressure, removing the residual dirty
- Apply a cleaning agent in the prescribed concentration and temperature
- Allowing the agent to soak in, please wait for the suggested time. In the case of CIP (systems with recycle of the washing solution), the flow of the solution in the fixed time is very important
- Post-rinse at prescribed pressure and temperature
- When necessary, disinfect with a cleaning agent in right concentration, and act with a final rinse removing every residual.

7.4 RULES FOR SAFELY CLEANING THE MACHINE

As a first suggestion control Chapter II concerning Rules for safe operation
These operations shall have to be operated always with the machine not running and with power off. Make sure that the main switch is on the off position.

Never utilize water or under pressure fluids to clean parts or components of the power plant.

During the operations, make sure that all the panel and the electric connection box are tightly closed**.**
Wear adequate means of protections for skin, eyes and nose.
Verify that all the draining and sewage points are opened.
During cleaning make sure that unauthorised personnel be not close to the line.

The personnel in charge, shall be informed – besides of the correct and safe way of proceeding – about the proper operating procedure in order not to damage the mechanical and electrical parts of the machine.

7.5 CONCEPTS RELATED TO THE CLEANING PROCESS

The cleaning :

The cleaning is not the same for each kind of process. It depends on :

- the type of processed product (for each product there are different residuals with different cleaning difficulty and microbes risk).
- The type of machine or part of it that must be cleaned (some machines could be cleaned and disinfected only with alcoholics products, manually or without water).
- The material the machines and its parts are manufactured with (the corrosion is different for the steel, aluminium, brass, bronze, copper and plastic components).
- The process to be applied : open (gel/foam), closed (CIP with recycle), without water (alcoholic), immersion (disassembled parts).

Consequently, the products and the procedures must change according to the degree of dirty, the metallic surface and the operating process we can apply.

The contamination

Blanching of vegetables (specially with wide leaf) and the preparation of the fresh-cut, leave very tenacious residuals, needing of different cleaning procedures, whether there is a working process without long interruption (in case of journal cleaning) or with a complete system cleaning (periodic cleaning).

The procedure and the choice of the agent should be done according to the zone of the contamination :

- foam or gel agents, for surfaces that can be handled with water
- agents for the recycling, in case of CIP
- agents for the cleaning and the conservation in immersion, for disassembled parts
- alcoholic disinfecting agents, for surfaces that can not be handled with water

The corrosion

The steel is one of the most resistant materials but, in some cases, can suffers of corrosion.

The resistance to the corrosion of the steel is due to a thin oxide pellicle on his surface. It is evident that all that stops the formation or the permanence of this pellicle on the surface may reduce the resistance to the corrosion, even in a short time.

Therefore, the resistance of the steel is strictly connected to a proper use of it, to a good maintenance and a use of materials and cleaning procedures suitable to preserve its standard characteristics. Some substances or situations unequivocally demonstrates that they may cause corrosion, weakness or reduction of an installation life. In this field we can include :

Pitting corrosion

This kind of corrosion is generated by three (3) type of chlorides :

a- chloride in the water. We must always know the chemical composition of the water utilised during the process, in two components : the hardness (to correctly determine the concentration in the cleaning products) and the chlorides.
Chlorides in the water with a concentration up to 25 mg/l (ppm) will generate corrosion in the steel, because the water, when gets dry, leave on the surface its content of salinity. This kind of corrosion is noticed by rusty points near the corrosion point.

b- Chlorine or chlorinated detergents (e.g. sodium hypochl. , bleach and all detergents containing these ones). After its cleaning and disinfecting action, the chlorine releases chlorides as residuals of its reaction. If not well removed with a deep rinsing, the corrosion described in the point above will start. Furthermore, the chlorine is a volatile agent, and may be very corrosive in form of gas (as all the halogens, iodine included). For this reason, the chlorine and the detergents on chlorine bases must be used with cold temperatures, or in case of working with warm temperatures, without exceed the 45°C. Chlorine and all products based on it may be used only observing concentrations, temperatures and operating procedures.

c- Muriatic acid (hydrochloric acid) not merged with corrosion inhibiters, a very hard acid corroding the steel. Normally, it must not be used. If there is the needing of using it for the cleaning, it is opportune to utilize the acid with corrosion inhibiters, under prescription and control of an Application Specialist working for the most important detergence companies, at the user’s disposition for cleaning problems.

When the water contains a concentration of chlorides up to 25 ppm, it is absolutely forbidden to keep the machine under solution of disinfectants with peroxides (p.e. peracetic, hydrogen peroxide). The speed of the corrosion caused by pitting may suffer of an exponential acceleration.

Ferrous residuals

Ferrous residuals, leaved in decantation on humid surfaces, brought in circulation by the water or the meals or the products and the cleaning procedures (p.e. with scrapers, steel wool….), by suction points above the equipments, as dust or micro flakes on recipients and external surfaces, will generates corrosion galvanic pile, bringing the steel to a rapid deterioration.

Limestone

The limestone, often located in parts of recipients and machines not well reachable for the cleaning, prevents the normal thermal exchange between the external body (p.e. resistor or flame) warming the recipients metal, and the food contained in it, contributing to the stress of the steel where the limestone is cumulated.
Besides, for waters full of sulphates, the limestone enters in the metabolism of sulphates-reducers bacterium, causing the formation of sulphydric acid. This one, in addition to very nasty smells (as like rotten egg), generates steel corrosion by direct acid attack.

The aluminum is rapidly corroded by the soda, and by all products containing soda. In presence of aluminum parts, the cleaning process must be executed with detergents containing specific inhibitors against the corrosion.

The copper, the brass and the bronze are rapidly corroded by the nitric acid. In presence of these materials it is strictly forbidden to use nitric acid or products containing it. On the contrary, it is allowed the use of products with phosphoric acid and detergents with low alkalinity.

The plastic material resists to corrosion or may be corroded according not only with the type of polymer it is constituted, but also with the type of material co-formulated (charge or doping). Consequently, for the resistor evaluation it is not sufficient to refer to the polymer.
It will be more useful to do some very quick and simple tests in laboratory to evaluate the compatibility with the specific cleaning and disinfecting products used by the customer.

The biofilm

The fresh-cut and the vegetables in general are subject to a rapid rise of micro organisms.

In optimal conditions, the microbes doubles each 20 min and generates a mucilage glyco-proteinic-alginic (biofilm), a substance able to protect the microbes from disinfectants and a not very careful cleaning action. This means that the only cleaning action is not sufficient to remove the bacterium. You have to combine to the cleaning action also the washing action, that is the removal of the biofilm produced by microbes, still during the process of vegetables.

The chlorine is good for disinfecting and rinsing, but has a lot of negative factors that will reduce, or in the worst cases eliminate, its utilisation in the future.

We summarise the mains negative factors :

- Formation of chloramines with nitrogen organic tissue (smell like chlorine in the air and suspect carcinogenic action)
- Formation of alo-compound (AOX, NPOX, THM) responsible of ambient pollution by chlorinated derivative (in particular, the ones responsible of the hole in the ozone layer are volatiles)
- Formation of medicinal aftertaste in the food, because of the reaction with the polifenoli (vegetable tannins)

The bicarbonate has no cleaning or sanitation effect.

The peracetic has an optimal disinfecting action, but no rinsing action. You have to pay attention to the concentration (with up to 500 mg/l, there is the risk of loss of tonicity for wide leaf tissue)

The organic acids in hydrogen peroxide (p.e. citric acid) represent the better treatment, in option to the peracetic and chlorine.

Detergents on lactic acid bases : they represent the ecologic and effective option to the chlorine for the vegetables washing. After the washing with lactic acid bases, the disinfection, without use of chlorine, may be done with citric acid in hydrogen peroxide. The application of these products represent the complete treatment (detergent and disinfecting), alternative to the chlorine for quality production.

7.6 HOW TO OPERATE CLEANING

Before cleaning be sure that the following actions are taken:

All foodstuffs, raw materials and packaging materials are removed from the production room.

When necessary, disassemble equipment partially or completely

General Instructions

Remove coarse particles of dirt,

Pre-rinse at prescribed pressure and temperature,

Apply a cleaning agent in the prescribed concentration,

Allowing the cleaning agent to soak in for the prescribed time and at the prescribed temperature; in the case of CIP, the flow is also important,

Post-rinse at prescribed pressure and temperature,

If necessary, disinfect with a cleaning agent in the right concentration, observing the prescribed contact time and temperature,

Post-rinse (compulsory if disinfecting has been carried out).

According to what stated at the beginning of the chapter, the washing of the parts that are in contact with the product shall have to follow immediately the processing phase, in order to avoid the not desirable conditions described at the beginning of the chapter.

During the washing and cleaning phases do not by-pass, disassemble or de-activate the protections and the safety devices. After each washing with water solution an accurate and deep rinsing with clean water shall have to be made.

After the washing operations make sure that all the parts that were removed are again at their place and that do not remain any residual part of chemical products or water and that all the scraps that are results of the processing were removed.

Caution:

With acid cleaning, care must be taken when dealing with bronze bearing bushes.

Wash off all residual acid agents.

Otherwise dissolved copper might migrate in the product during production

Caution:

Stainless steel components should never be allowed to come into contact with iron. Cleaning with a steel brush and/or steel wool causes irreversible corrosion

If corrosion does occur, clean the contaminated surface as quickly as possible.

The most effective way to do that is to use a nitric acid-based pickling paste

With acid cleaning, care must be taken when dealing with bronze bearing bushes.

7.7 CLEANING OPERATION CONDITIONS

We underline the fact that the equipments can not be correctly disinfected if not adequately cleaned.
After the cleaning and the disinfection, it is essential the equipments are accurately and completely rinsed.
All operative procedures and safety instructions, supplied by the cleaning product suppliers, must be strictly observed.
The cleaning operation need some preparatory steps and some operative principles :

- All foods, raw and packaging materials, must be removed from the zone ready to be cleaned
- If necessary, some equipments must be partially dismantled
- Remember yourselves to open the washer manholes, the dryer basket frame and the discharge valves
- Ask to the detergents supplier about the recommended products concentration, the contact times, the temperature and the pressures
- The steel frame of the machines may results very damaged from the cleaning with brushes or steel wool
- You have not to elude, dismantle or turn off the protections and the safety devices during the washing process
- To complete the washing phase, it is opportune to turn on the power on the panel, involving only the motors moving parts not washable (p.e. belts)
- The washing of parts in contact with the food must be done immediately after the production, avoiding to increase the difficulty of the cleaning and disinfection.
- The treatment with acid must be done paying attention it does not come in contact with bronze bearings. All acid residuals, also the pickling agent, must be rinsed. If not so, the dissolution of the copper may contaminate the product during the next production

After the washing processes, ensure yourselves all dismantled parts are newly installed, that there are no chemical products stagnation, no production residuals or rinsing waters residuals.
Before starting the machine, restore the lubrication grease removed during the washing phase.

7.8 WASHING OPERATION RECOMMENDATION

PAY ATTENTION FOR THE WEIGHING BELT DURING WASHING CYCLE.

We recommend to the washing personnel to pay particular attention for the weight belt. Washing has to be performed with line in automatic, and to proceed with extreme prudence, without climb or trample on the belt and the cells.

7.9 FREQUENCY OF THE CLEANING

- *At least once a day* for all components being in contact with the product
- *At least once a month* for the cleaning of the whole machine or line

7.10 CHARACTERISTICS OF THE LINE RELATED TO THE CLEANING

The line has been built in compliance with the CE rules in force :

- 89/109 CEE “Materiali destinati a venire in contatto con prodotti alimentari”
- 98/37/CE “Direttiva Macchine” and following modification.

The type of steel utilised for the manufacture of equipment are of different quality (p.e. AISI 304 and AISI 316) and are used in compliance with the rules in force.

The designing of parts in contact with the product had considered the facility of the cleaning and washing so as to avoid dead zone and stagnation.

The line is then designed and manufactured so that the materials in contact with the product can be properly cleaned after the production process.

7.11 PRODUCTS FOR CLEANING

You may make use of different products for an effective cleaning, available on the market and approved for the utilisation in the food industry.

The choice may be oriented towards product suitable and compatible with the cleaning exigencies, to safeguard the constructive particulars of the machine.

The manufacturing materials, subject to the contact with foods, are able to withstand to alkaline and acid solutions.

- **It is forbidden the utilisation of products not guaranteed by companies expert in the field of cleansing, in order to avoid damages to the materials utilised for the machine manufacturing. You must carefully follow the safety instructions provided by the supplier. No warranty will be agreed if there is no respect of these conditions.**

Example of products and practices suggested for different cleanings :

CLEANING OF VEGETABLE DURING THE PROCESS			
Vegclean	2-5g/l	Room T°C	Bacterium-static detergent , on lactic acid base, alternative to the chlorine
Divosan C	500-1500 mg/l	Room T°C	Sanitation product, on citric acid base, in hydrogen peroxide alternative to the chlorine and to the peracetic
Divosan Hypochlorite	60-90 mg/l	Room T°C	Disinfecting product, on chlorine base
Divosan Plus	500 mg/l	Room T°C	Disinfectant, on peracetic acid alternative to the chlorine

CLEANING WITH FOAM/GEL FOR EXTERNAL SURFACE			
Enduro super	4%	Room T°C	Alkaline detergent
Enduro Chlor	4%	Room T°C	Detergent and disinfectant with chlorine
Hypofoam	4%	Room T°C	Detergent and disinfectant with high chlorine concentration
Higyfoam	4%	Room T°C	Detergent and disinfectant free from chlorine
Enduro CID	4%	Room T°C	Acid detergent for periodic maintenance, free from nitric acid

CLEANING IN CIP (in recycle)			
Diverspray	2%	T°C Cold or warm	Alkaline detergent free from surface-active, for not foam-dirty
Tolerant	2%	T°C Cold or warm	Alkaline detergent free from surface-active, for not foam-dirty. It does not freeze in the winter

Distar 44	2%	T°C > 50	Alkaline detergent with anti-foam, for not foam-dirty
Britestar	2%	T°C > 50	Alkaline detergent with anti-foam, for not foam-dirty. It does not freeze in the winter
Divoflow NTC	2-5%	T°C > 50	Alkaline detergent for overtime periodical cleanings
DIVO MR	0.5-5%		Additive to strengthen the removal of strong residuals (p.e. oxalate)
Divosan 181	0.5-1%		Additive to strengthen the removal of organic and inorganic dirty

DRY CLEANING AND DISINFECTIONS (alcoholic)			
Alcosan	Ready to use 20% alcohol	Room T°C	Disinfecting detergent with isopropyl alcohol PMC registered at Ministry of Safety
Sactiv Spray	Pronto all'uso 40% alcol	Room T°C	Disinfecting detergent with ethylic alcohol, PMC registered at Ministry of Safety
Tegospray	pronto all'uso 70% alcol	Room T°C	Disinfecting detergent highly alcoholic with very rapid drying, PMC registered at Ministry of Safety

CLEANING IN IMMERSION OF PIECES OR DISMANTLED PARTS			
Delladet	0.5-2%	Room T°C	Disinfecting neutral detergent for manual cleaning and immersion. PMC registered at Ministry of Safety
Suredis	1-3%	Room T°C	Plugged disinfecting detergent for manual cleaning and immersion. PMC registered at Ministry of Safety
Tego 51	0.5-1%	Room T°C	Disinfectant for the conservation of pieces in immersion and dismantled parts. PMC registered at Ministry of Safety
Shureclean Plus	1-3%	Room T°C	Universal manual detergent

NB: All products here listed as example are commercialised by the company ***JohnsonDiversey***

7.12 EXAMPLES OF CLEANING PROCESS CONTROL (HACCP)

CLEANING STAGE	PROBLEM	PRECAUTIONARY MEASURES	CRITICAL POINTS	CRITICAL LIMITS	CONTROL	CORRECTION
Removal of residuals, packaging and raw materials	Not done or not well done	Proper working instructions	no	Absence of material	visual	Repeat the operation, train the personal
Disassembly of the machine	Not well done or partially done	Dismantling instructions	Yes	According to the instruction	visual	Repeat the operation, improve the instructions, train the personal
Preliminary rinsing	Combination pressure-time insufficient. Inadequate temperature	To create and observe proper working instructions	Yes	+/- 5%	visual	Repeat the operation, improve the instructions, train the personal
Prepare the washing solution	Concentration of product too weak	Pass to automatic dosing. Keep under control the automatic system	Yes	+/- 10%	Chemical Titratation of the solution	Bring at right dosage. Calibrate the dosing pumps
Washing execution	Times, pressures, temperatures not respected	Create and observe proper working instructions	Yes	+/- 10%	Inspection and control audit	Repeat the operation, improve the instructions and train the personal
Final rinsing	Combination pressure-time insufficient. Temperature inadequate. Inactivation of the disinfectant because of a too short rinsing	Create and observe proper working instructions	Yes	+/- 5%	Rinsing verify by means of chemical kits. Inspection and control audit	Repeat the operation, improve the instructions, train the personal
Disinfecting operation	Too low concentration	Pass to automatic dosage. Keep under control the automatic system	Yes	+/-5%	Chemical titration of the disinfecting solution concentration	Bring to the right dosage. Calibrate the dosing pumps
Management of the disinfectant by the warehouse	Inadequate conservation ambient. Expired product	Right warehousing. Reduce the purchased quantity. Do not use expired disinfectants	Yes	Expiration date	Expiration date	Do not use expired disinfectants. Create suitable storage conditions
Verify of the complete cleaning process	Presence of not destroyed microbes		Yes	Limits fixed for the specific process	Bioluminometer Microbiological analysis	Repeat the cleaning and disinfection operations

7.13 DISCHARGES TREATMENT

Product residuals and other liquids in the discharge waters (p.e. washing solutions, lubricants, wastes) are regulated by the law of the Nation the productive process is carried out. Consequently, as regards the waste water, you may follow the regulation in force in the installation Country of the production equipments.

CHAPTER 8
SPARE PARTS

This chapter contains the list of the spare parts.

It is recommended to utilize always original spare parts supplied by TURATTI.

It is underline that the utilization of not original spare parts might compromise the regular working of the machine and that cause the expiring of the guarantee.

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It is underline that the utilization of not original spare parts might compromise the regular working of the machine and that cause the expiring of the guarantee.

When ordering parts be sure to order to the spare parts and after-sale dpt. all the following information (check the plate located on the machine):

Machine / Model

Serial Number

Manufacturing year

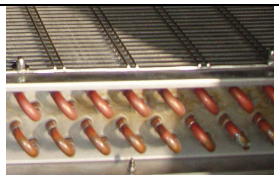
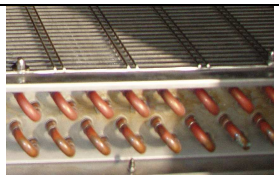
Spare part code number (See handbook – Paragraph)

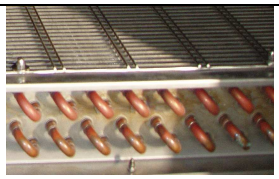
Requested quantity

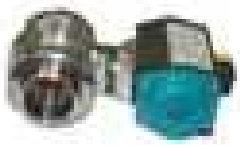
Orders are accepted by mail, phone, fax and e-mail.

A spare parts order page is included in this handbook.

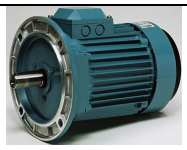
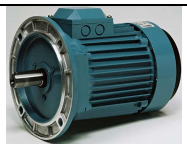
8.1 SPARE PARTS LIST

PHOTO	DESCRIPTION	Q.TY
	100KG WHEIGHT CELL 7MH4103-3AC01 + BEARING 7MH4133-3DE11 + OVERLOAD PLATE 7MH4133-3DG11	4
	AIR FILTER FRC-3/8-D-MINI	2
	BATTERY FOR HEAT EXCHANGE CU/CU INOX 2000x1360x250 POS.1-DX	1
	BATTERY FOR HEAT EXCHANGE CU/CU INOX 3600x800x220 POS.1-DX	1
	BATTERY FOR HEAT EXCHANGE CU/CU INOX 4000x780x200 POS.2-SX	1

	BATTERY FOR HEAT EXCHANGE CU/CU INOX 4000x780x250 POS.2-SX	1
	BATTERY FOR HEAT EXCHANGE SXS-S7-ST1642TKTL70	1
	BEARING 10x30x9 6200 2RS	4
	BETA ROLLER A2 60/10-B2 X= 850 Z=862 M6x15	10
	BETA ROLLER A2 30/8 X=1000 Y=1005 Z=1021	2
	BETA ROLLER A2 60/10-B2 X=1021 Z=1033 M6x15	1
	BETA ROLLER A2 60/10-B2 X=1200 Z=1213 M6x15	1
	BRAKED WHEEL ADYNIL D.125 C.19133	4
	BUTTERFLY VALVE DESPONIA DN100 WITH PNEUM. ACTUATOR	2
	BUTTERFLY VALVE GALATEA A2 DN 25 WITH PNEUM. ACTUATOR	3

	BUTTERFLY VALVE GALATEA A2 DN 40 WITH PNEUM. ACTUATOR	1
	BUTTERFLY VALVE GALATEA A2 DN 50 WITH PNEUM. ACTUATOR	2
	BUTTERFLY VALVE GALATEA A2 DN 65 WITH PNEUM. ACTUATOR	1
	BUTTERFLY VALVE GALATEA A2 DN 80 WITH PNEUM. ACTUATOR.	2
	BUTTERFLY VALVE GALATEA A2 DN 80 WITH LEVER	1
	CLOSE TYPE BEARING UCF 206C C.63112	3
	CLOSED TYPE BEARING UCFL 206C C.68399	59
	CLOSED TYPE BEARING UCP 205C C.651462	2
	CLOSED TYPE BEARING UCP 206C C.646531	14
	CONTROL VALVE GXM 16 DN 25	1

	CONTROL VALVE GXM 16 DN 32	2
	CONTROL VALVE GXM 16 DN 40	3
	CONTROL VALVE GXM 16 DN 50	2
	CONTROL VALVE GXM 16 DN 65	3
----	COOLER MOD.W-R-173	1
	DROPS SEPARATOR AISI-304 2000x1360xSp180	1
	EL .MOTOR B5 KW=0,37 6P 1LA7 080-6	2
	EL. MOTOR B3/B5 KW=3 4P 1LA7 107-4	1
	EL. MOTOR B5 KW=0,18 4P 1LA2 063-4	5
	EL. MOTOR B5 KW=0,25 6P 1LA7 073-6	2

	EL. MOTOR B5 KW=0,37 4P 1LA7 073-4	10
	EL. MOTOR B5 KW=0,75 4P 1LA7 083-4	8
---	EXPANSION TANK ALPHA 20/1 TW 1/4 AISI 304 20Lt. MAX PRES. 8 BAR	1
	FAN A2 APE401-A LG0 50Hz	3
	EL. MOTOR B5 KW=0,75 2P M2AA080A2 WITH OIL GASKET	4
	IMPELLER A2 APE401-A LG0 50Hz	4
	FAN A2 APE501-A LG0 50Hz	7
	EL. MOTOR B5 KW=1.5 2P M2AA090S2 WITH OIL GASKET	7
	IMPELLER A2 APE501-A LG0 50Hz	7

	FAN A2 EI-500/4 KW=0,55 4P 50Hz	9
	FAN A2 EI-630/4 KW=2,2 4P 50Hz	1
---	FAN A2 GR450/2 LG270 KW=5,5 2P 50Hz	2
	FAN WITH MOTOR 2P 50HZ 3KW	1
	FLOW METERS PROMAG-50 P80-EH0A1AA0KBAH DN 80	1
	FLOW REGULATOR URG 8/5	2
	FLUORESCENT LAMP "SIRIO" 24VAC 24W	2
	GASKET DN 40	2
	GASKET DN 50	6
	GASKET DN 65	10
	GASKET DN 80	2

	GATE VALVE Bz 1/2"	4
---	HANDLE 027703160 INOX	20
	HINGE 304 USM 325-A	60
	HINGE INOX TURATTI	20
	JOINT UNIGRAPH 500 SP.2 PN10 DN 25 (WATER-STEAM)	2
	JOINT UNIGRAPH 500 SP.2 PN10 DN 32 (WATER-STEAM)	9
	MAGNETIC SENSOR XCS-DMP7005 WITH MAGNET	1
	MANHOLE 304 440x332 ART.165	1
	SEAL FOR MANHOLE 304 440x332 ART.165	1
	KNOB FOR MANHOLE	1
	MANHOLE 304 440x332 ART.165	1

	SEAL FOR MANHOLE 304 440x332 ART.165	1
	KNOB FOR MANHOLE	1
	MANHOLE 304 DIAM.200 ART.235	2
	SEAL FOR MANHOLE 304 DIAM.200 ART.235	2
	KNOB FOR MANHOLE	6
	MANHOLE 304 DIAM.404 ART.N/240	1
	SEAL FOR MANHOLE 304 DIAM.404 ART.N/240	1
	KNOB FOR MANHOLE	
	MANUAL BALL VALVE 316 BW-1670 DN 25	3
	MANUAL BALL VALVE 316 BW-1670 DN 40	2

	MANUAL BALL VALVE 316 BW-1670 DN 50	5
	MANUAL BALL VALVE 316 BW-1670 DN 80	1
	MOISTURE PROBE QMF66-3160 24V	2
	MONOFILO BLUE BELT 1x1 WIDTH AND RING 680x 4500 PLASTIC LACING - SIDE RENF.30mm - LAT.GUIDES 13x8	1
	MONOFILO BLUE BELT 2x2 WIDTH AND RING 1180x 9850 WITH PLASTIC LACING SIDE RENF. 30mm LAT.TRAPEZ.GUIDES 13x8	1
	MONOFILO BLUE BELT 2x2 WIDTH AND RING 1260x 6470 WITH PLASTIC LACING SIDE RENF. 30mm LAT.TRAPEZ.GUIDES 13x8	2
	MONOFILO BLUE BELT 2x2 WIDTH AND RING 1360x 13830 PLASTIC LACING - SIDE RENF.30mm - LAT.GUIDES 13x8	1
	MONOFILO BLUE BELT 2x2 WIDTH AND RING 1360x 9610 PLASTIC LACING - SIDE RENF.30mm - LAT.GUIDES 13x8	1
	MONOFILO BLUE BELT 2x2 WIDTH AND RING 560x 5180 WITH PLASTIC LACING SIDE RENF. 30mm LAT.TRAPEZ.GUIDES 13x8	2
	MONOFILO BLUE BELT 2x2 WIDTH AND RING 560x 5180 WITH PLASTIC LACING SIDE RENF. 30mm LAT.TRAPEZ.GUIDES 13x8	1
	MONOFILO BLUE BELT 2x2 WIDTH AND RING 560x 7480 WITH PLASTIC LACING SIDE RENF. 30mm LAT.TRAPEZ.GUIDES 13x8	1
	MONOFILO BLUE BELT 2x2 WIDTH AND RING 840x 22190 PLASTIC LACING - SIDE RENF.30mm - LAT.GUIDES 13x8	2

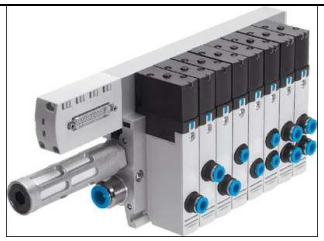
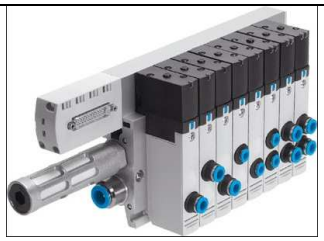
	MONOFILO BLUE BELT 2x2 WIDTH AND RING 840x 3630 PLASTIC LACING - SIDE RENF.30mm - LAT.GUIDES 13x8	1
	MONOFILO BLUE BELT 2x2 WIDTH AND RING 1060x 3630 WITH PLASTIC LACING SIDE RENF.30 LAT.GUIDES 13x8	1
	MONOFILO BLUE BELT 2x2 WIDTH AND RING 1060x 6630 PLASTIC LACING - SIDE RENF.30mm - LAT.GUIDES 13x8	1
	MONOFILO BLUE BELT 2x2 WIDTH AND RING 1180x 7300 PLASTIC LACING - SIDE RENF.30mm - LAT.GUIDES 13x8	1
	BLUE BELT WIDTH AND RING 1000x 7360 WITH CENTRAL GUIDE 13x8 WITH PLASTIC LACING	1
	NICKEL PLATED BALL VALVE 17,2 3/8"	3
	NOZZLE B9360-3/8LAP PP20-05	9
	O.RING 219 D.INT.146,1 D.SEZ.5,34	15
	O.RING 221 D.INT.149,2 D.SEZ.5,34	2
	OPEN TYPE BEARING UCF 206C C.63172	1
	OPEN TYPE BEARING UCFL 206C C.68409	27
	OPEN TYPE BEARING UCP 206C C.646541	6

	PHOTOELECTRIC CELL WT24-2B410 AC/DC USC.RELAY NC+NO	3
	PNEUMATIC VALVE 3 WAYS MIXER MOD.QLM33 DN32	1
	PNEUMATIC VALVE 3 WAYS MIXER MOD.QLM33 DN40	1
	PNEUMATIC VALVE 3 WAYS MIXER MOD.QLM33 DN50	1
	PNEUMATIC VALVE 3 WAYS MIXER MOD.QLM33 DN65	1
	PRESSURE SENSOR PL2658 12,5-250 MBAR	2
	PROBE PT100 TR TP/100 D.6x100 HEAD DIN FILET.1/2"	3
	PROBE PT100 TST-434-K2B3GO	4
	PUMP CS80-175-4-3/BT31 316 WITH EL. MOTOR B3/B5 2,2kW 4P	1
	PUMP CS80-210-4-4/BT31 316	1
	PUMP ETALINE 32-160/054 Kw=0,55	1

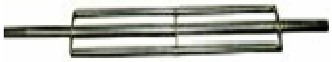
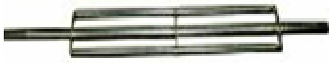
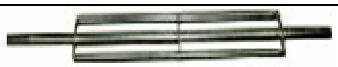
	PUMP ETALINE 65-250/304	1
	PUMP ETALINE 65-250/752	1
	SEGER 304 E.DIN 471 10	2
	SEGER 304 I.DIN 472 30	2
	SOLENOID VALVE A2 EVSI-15 032U6320 + COIL 24V DC 018Z6857	1
---	SPEED REDUCER KIT VF-W 44/75	1
	SPEED REDUCER VF 49P R=1/100 PAM 63	1
	SPEED REDUCER MRVF 49P R=1/240 PAM 63	1
	SPEED REDUCER MVF 44P R=1/ 10 PAM 63	2
	SPEED REDUCER MVF 44P R=1/ 46 PAM 63	1

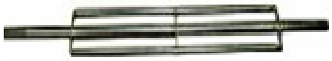
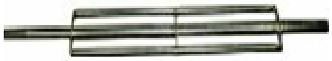
	SPEED REDUCER MVF 49P R=1/ 7 PAM 71	1
	SPEED REDUCER W 63/U R=1/ 7 PAM 80	2
	SPEED REDUCER W 63/U R=1/ 45 PAM 71	4
	SPEED REDUCER W 63/U R=1/100 PAM 71	2
	SPEED REDUCER W 75/U-D30 R=1/ 20 PAM 90	1
	SPEED REDUCER W 75/U-D30 R=1/ 80 PAM 80	3
	SPEED REDUCER W 75/U-D30 R=1/100 PAM 80	3

	SPEED REDUCER WR63/U R=1/135 PAM 71	1
	SPEED REDUCER WR63/U R=1/240 PAM 71	2
	SPEED REDUCER WR75/U-D30 R=1/180 PAM 71	1
	SPEED REDUCER WR75/U-D30 R=1/300 PAM 71	2
---	STRETCHER TE-4	2
	SUPPORT PAD PART.133 COD.633252	52
	SUPPORT PAD PART.171R COD.628102	4
	SUPPORT PAD PART.173 COD.54821	8
	THERMOMETER HORIZONTAL STH374 -20 +40	4
	THERMOMETER PT100 TMR31-A1AAAAC1AAA L=100	1

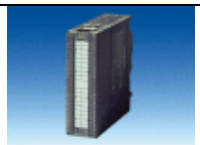
	TIMING BELT 480 L100	1
	TIMING PULLEY Z=22 L100	2
	TIMING TRAPEZ.BELT B-102	2
	TIMING TRAPEZ.BELT B-106	2
	VALVE BOX VTUB-MSD-S1D-G12-D-P6T-B-6MLL-H-M2	1
	VALVE BOX VTUB-MSD-S1D-G12-D-P6T-B-7MLL-H-M2	1
---	VALVE WAFER ZO-11K1 DN40	1
	VERTICAL THERMOMETER -30°C +70°C	2
	VERTICAL THERMOMETER STH375 0-120	2

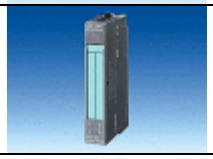
SPARE PARTS MANUFACTURED BY TURATTI		
PHOTO	**DESCRIPTION**	**Q.TY**
	POS.01 ANTIROTATION SHAFT COD.PRVF-STD-32-W75-00	1
	POS.01 MOTORISED DRUM Ø114 L=1000 PIN Ø30 COD.2577-114-1000-30-00	1
	POS.01 TAIL DRUM Ø114 L=1000 COD.2577-114-1000-00	1
	POS.02 ANTIROTATION SHAFT W75 COD.PRVF-STD-32-W75-00	1
	POS.02 MOTORISED DRUM Ø200 L=1060 PIN Ø30 (W75) COD.2576-200-1060-30-00	1
	POS.02 SHAKER DRUM COD.BAT-165-1060-C	1
	POS.02 TAIL DRUM Ø200 L=1060 COD.2576-200-1060-00	1
	POS.03 ANTIROTATION SHAFT W63 COD. PRVF-STD-25-W63-00	1
	POS.03 MOTORISED DRUM Ø200 L=1060 PIN Ø25 (W63) COD.2576-200-1060-25-00	1
	POS.03 TAIL DRUM Ø200 L=1060 COD.2576-200-1060-00	1
	POS.04 ANTIROTATION SHAFT W75 COD.PRVF-STD-32-W75-00	1
	POS.04 MOTORISED DRUM Ø200 L=840 PIN Ø30 (W75) COD.2576-200-0840-30-00	1
	POS.04 TAIL DRUM Ø200 L=840 COD.2576-200-0840-00	1
	POS.06 ANTIROTATION SHAFT W75 COD.PRVF-STD-32-W75-00	1
	POS.06 MOTORISED DRUM Ø200 L=1180 PIN Ø30 (W75) COD. 2575-200-1180-30	1
	POS.06 TAIL DRUM Ø150 L=1180 WITH BEARINGS COD. 2575-150-1180-CU	1
	POS.07 ANTIROTATION SHAFT PER MVF 49/P COD.BRVF-049	1

	POS.07 ANTIROTATION SHAFT W63 COD.PRVF-STD-25-W63-00	1
	POS.07 DRUM D=150 COD.1653-009-112	1
	POS.07 IDLE SHAKER COD.1649-011-005-00	1
	POS.07 MOTORISED DRUM D=200 COD.1653-009-110	1
	POS.07 MOTORISED DRUM Ø200 L=840 PIN Ø25 (W63) COD.2576-200-0840-25-00	1
	POS.07 MOTORISED SHAKER COD.1649-012-003-00	1
	POS.07 TAIL DRUM D=200 COD.1653-009-111	1
	POS.07 TAIL DRUM Ø200 L=840 COD.2576-200-0840-00	1
	POS.09.1 ANTIROTATION SHAFT W63 COD. PRVF-STD-25-W63-00	1
	POS.09.1 ANTIROTATION SHAFT W75 COD. PRVF-STD-32-W75-00	1
	POS.09.1 MOTORISED DRUM Ø200 L=1260 PIN Ø30 (W75) COD. 1580-072-109-00	1
	POS.09.1 PULLEY 1B ø250 COD. 1580-059-302-00	2
	POS.09.1 PULLEY 2B ø250 COD. 1580-059-303-00	1
	POS.09.1 PULLEY SHAFT COD. 1580-072-108-00	2
	POS.09.1 SHAKER COD. 1580-072-105-00	1
	POS.09.1 SHAKER COD. 1580-072-106-00	1
	POS.09.1 SHAKER COD. 1580-072-107-00	1
	POS.09.1 TAIL DRUM Ø200 L=1260 COD. 1580-072-110-00	1

	POS.09.2 ANTIROTATION SHAFT W63 COD. PRVF-STD-25-W63-00	1
	POS.09.2 ANTIROTATION SHAFT W75 COD. PRVF-STD-32-W75-00	1
	POS.09.2 MOTORISED DRUM Ø200 L=1260 PIN Ø30 (W75) COD. 1580-072-109-00	1
	POS.09.2 PULLEY 1B ø250 COD. 1580-059-302-00	2
	POS.09.2 PULLEY 2B ø250 COD. 1580-059-303-00	1
	POS.09.2 PULLEY SHAFT COD. 1580-072-108-00	2
	POS.09.2 SHAKER COD. 1580-072-105-00	1
	POS.09.2 SHAKER COD. 1580-072-106-00	1
	POS.09.2 SHAKER COD. 1580-072-107-00	1
	POS.09.2 TAIL DRUM Ø200 L=1260 COD. 1580-072-110-00	1
	POS.10 ANTIROTATION SHAFT W75 COD. PRVF-STD-32-W75-00	2
	POS.10 MOTORISED DRUM Ø200 L=1360 PIN Ø30 (W75) COD. 2575-200-1360-30	2
	POS.10 TAIL DRUM D=200 L=1360 COD. 2575-200-1360-00	2
	POS.11 ANTIROTATION SHAFT W63 COD. PRVF-STD-25-W63-00	1
	POS.11 MOTORISED DRUM Ø150 L=560 PIN Ø25 COD. 2576-150-0560-25-00	1
	POS.11 TAIL DRUM Ø150 L=560 COD. 2576-150-0560-00	1
	POS.12 ANTIROTATION SHAFT W63 COD.PRVF-STD-25-W63-00	1
	POS.12 MOTORISED DRUM Ø150 L=560 PIN Ø25 (W63) COD. 2576-150-0560-25-00	1

	POS.12 TAIL DRUM Ø150 L=560 COD. 2576-150-0560-00	1
	POS.13.1 ANTIROTATION SHAFT W63 COD. PRVF-STD-25-W63-00	1
	POS.13.1 MOTORISED DRUM Ø150 L=560 PIN Ø25 COD.2576-150-0560-25-00	1
	POS.13.1 TAIL DRUM Ø150 L=560 COD.2576-150-0560-00	1
	POS.13.2 ANTIROTATION SHAFT W63 COD. PRVF-STD-25-W63-00	1
	POS.13.2 MOTORISED DRUM Ø150 L=560 PIN Ø25 COD. 2576-150-0560-25-00	1
	POS.13.2 TAIL DRUM Ø150 L=560 COD. 2576-150-0560-00	1
	POS.14.1 ANTIROTATION SHAFT W75 COD.PRVF-STD-32-W75-00	1
	POS.14.1 MOTORISED DRUM Ø250 L=840 PIN Ø30 (W75) COD.2576-250-0840-30-00	1
	POS.14.1 TAIL DRUM Ø250 L=840 COD.2576-250-0840-00	1
	POS.14.2 ANTIROTATION SHAFT W75	1
	POS.14.2 MOTORISED DRUM Ø250 L=840 PIN Ø30 (W75) COD.2576-250-0840-30-00	1
	POS.14.2 TAIL DRUM Ø250 L=840 COD.2576-250-0840-00	1

ELECTRIC SPARE PARTS		
PHOTO	**DESCRIPTION**	**Q.TY**
	6ES7315-2EH140AB0 CPU315-2 con 2 porte Ethernet	1
	FEEDER 6ES7307-1EA000AA0 PS-5A	1
	MEMORY 2M 6ES7953-8LL200AA0	1
	SIWAREX CARD FTC 7MH4900-3AA01	1
	DIGITAL INPUTS 6ES7321-1BL000AA0 32	3
	DIGITAL OUTPUT 6ES7322-1BL000AA0 32	3
	TOUCH PANEL 6AV6643-0CD011AXA0 MP 277 10"	3
	MEMORY-CARD 6AV6671-1CB00-0AX1	2
	INVERTER 6SE6420-2UD155AA1 KW=0,55	6
	INVERTER 6SE6420-2UD211AA1 KW=1,1	3

	INVERTER 6SE6420-2AD222BA1 KW=2,2	6
	INVERTER 6SE6420-2AD230BA1 KW=3	1
	INVERTER 6SE6420-2UD240BA1 KW=4	1
	INVERTER 6SE6420-2UD275CA1 KW=7,5	2
	KEYBOARD 6SE6400-0BP000AA0 BOP MM420	2
	POWER MODULE ET200 6ES7138-4CA010AA0	3
	DIGITAL INPUTS HF DC24V ET200s 6ES7131-4BD010AB0 4	10
	DIGITAL INPUTS ST DC24V/2A ET200s 6ES7132-4BD320AA0 4	11
	ANALOG INPUT MODULE HF 2AI-I ET200s 6ES7134-4MB02-0AB0	5
	ANALOG INPUT MODULE HF 2AI-U ET200s 6ES7134-4FB520AB0	3
	ANALOG INPUT MODULE HF 2AI-U ET200s ST 2 AI-I-RTD ET200s 6ES7134-4JB510AB0	9
	DISCONNECT SWITCH 3P 25A ART.P1-25/I2	39

8.2 SPARE PARTS ORDERING FORM

FAX SPARE PARTS ORDER PAGE

To : TURATTI
Spare parts department and After-Sale service
Ph. : +39 0426 310731
Fax: +39 0426 310500
e-mail: acquisti@turatti.com
info@turatti.com

Customer Ref. : …….. Date : ……..

……..
Machine Model: ……

Serial Number : ……

Year : ……

SPARE PARTS PURCHASE ORDER

QTY.	POS.	COD.	DESCRIPTION

WAY OF DELIVERY :
……

ADDRESS : …….

STREET N° ZIP CODE TOWN Prv.

COUNTRY: ……...

Signature:

8.3 DEMOLITION AND FINAL DISPOSAL

In case of demolition of the machine it is mandatory to follow the procedure for the final disposal according to the law in force in the country where the machine was installed. In order to facilitate the final disposal of the various materials used during the manufacture of the machine, here following are listed the main materials and products utilized

Lubrication products of the mechanical parts as oil and food-grade greases and/or oil by-products.

Electric components as motors, switches, electric cables, etc.

Metallic material in considerable quantities :

- AISI 304 stainless steel (frames, protections and main mechanical components).
- Carbon steel

Plastic materials :

- PVC : Product conveyor belts
- (st. st.) : Belt elevators
- PVC-R2 : electrical wires insulation
- Polyethylene, “Delerin”, Polyurethane, Polystyrene, Silicone, Neoprene, Nylon for the
- Components, covering, seals in reduced quantity.

Other materials in reduced qty :

- Copper, Cast iron, Aluminum, Carbon Steel , Brass and Bronze.

Caution: The removal of the above materials shall be done in accordance to the existing laws in force in the country where the machine has to be eliminated.

CHAPTER 9 TECHNICAL DOCUMENTATION

To complete the information about your equipment the present chapters includes drawing, pictures, electrical schemes,…

9.1 DRAWINGS

Here-following is included a several drawings related to the unit.

The overview drawing of the machine point out the main parts of the machine itself.

The drawings of the various parts of the machine shows the main electro mechanic components - interesting for the spare parts - with brand and position resuming the situation in the relevant list indicating the installed quantity.

DWG. NUMBER:	**DESCRIPTION:**
6118-016-000-03L	***PROCESSING LINE FOR LEAFY PRODUCTS***
1523-25-000-00L	***FEEDING BUNKER FOR BABY LEAF POS.1 EXTRACTION BELT POS.2***
1523-25-006-00L	***FEEDING BUNKER FOR BABY LEAF POS.1***
1523-25-005-00L	***EXTRACTION BELT POS.2***
1610-014-050-00L	***CONTINUOUS WEIGHING SYSTEM POS.3***
6118-016-050-01L	***CONTROL BELT SYSTEM POS.4***
1400-116-000L	***BLOWING WASHER MOD.VENEZIA - 1200 POS.5***
6118-016-010-00L	***EXTRACTION BELT / FEEDING ELEVATOR POS.6***
1653-024-000-00L	***CONTINUOUS FLOW PATENTED WASHING AND TREATMENT SYSTEM MOD.CAMEL POS.7***
1653-024-005-00L	***CONNECTION SYSTEM***
1653-024-006-00L	***#6 TRANSPORT MODULE***
1653-024-007-00L	***INSPECTION MODULE***
1653-024-008-00L	***OUTLET MODULE***

1653-024-012-00L	*FILTER WITH BELT*
1653-024-015-00L	*BELT WITH SHAKERS*
1653-024-020-00L	*INSECT REMOVAL FLUME POS.8*
1580-072-200-00L	*DEWATERING SYSTEM POS.9.1*
1580-072-100-00L	*DEWATERING SYSTEM POS.9.2*
1402-107-000-03L	*AIR DRYING SYSTEM FOR VEGETABLES POS. 10*
1402-107-001-01L	*DRYING SECTION*
1402-107-100-00L	*WATER CIRCUIT GLYCOL*
1402-107-101-00L	*CONDENSER WATER CIRCUIT*
1402-107-102-01L	*CIRCUIT FOR HOT WATER BOILER*
1402-107-103-00L	*PROBE SCHEME*
1402-107-110-00L	*COOLING CIRCUIT ON REFRIGERATOR*
6118-016-020-00L	*BY-PASS BELT POS.11*
6118-016-030-00L	*MOVABLE TRANSPORT BELT POS.12*
6118-016-040-00L	*MIXING BELT POS.13.1*
6118-016-045-00L	*MIXING BELT POS.13.2*
1299-288-200-00L	*ELEVATOR TO FEED THE WEIGHING / PACKING UNIT POS.14.1*
1299-288-200-00L	*ELEVATOR TO FEED THE WEIGHING / PACKING UNIT POS.14.2*
6118-016-070-00L	*PNEUMATIC CIRCUIT*
6118-016-071-00L	*PNEUMATIC CIRCUIT CAMEL*
6118-016-080-02L	*WATER FILLING*

9.2 MAIN ELECTRIC INSTALLATION