INSTRUCTION
MANUAL
FOR

ELECTRONIC DROP MACHINE

TOWER DROP

F.B.M. - PROGETTAZIONE E COSTRUZIONE MACCHINE PER CIOCCOLATO E BISCOTTI
SEDE LEGALE E STABILIMENTO :
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TOWER DROP

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• PRESENTATION

This instruction manual has been designed to provide a quick and easy reference.
In addition to INTRODUCTION and GENERAL INFORMATION,
There is an INDEX, reported in the previous page.
Several figures are placed near the text of each subject To make them easily readable and understandable.

. GENERAL INFORMATION

This instruction manual is addressed to the owner/ user of the
Machine, to the managers with appointed responsibility, to people in charge of handling installing, operating maintaining and dismantling the machine.
This instruction manual has to be considered as part of the machine for professional use as it is a ELECTRONIC DROP MACHINE MODEL **TOWER DROP.**
However, it cannot replace the proper training and experience of the user who, anyway, should read this manual before start using the machine. It has to be kept for future references until dismantling .We suggest to keep this document in a safe, dry and dust-free place, possibly near the machine.
In case of loss and damage, a new copy can be required providing the serial number and year of the machine at the following address:

F.B.M. srl - via Machiavelli n°15/17 - 20025 Legnano - Milano – Italy.

This manual contains all information, directions and technical instruction in order to use the machine from the first installation to the final dismantling of the machine, with accuracy on correct and safe use. Maintenance and cleaning routine.
Wide space has been given to protection and safety measures installed on the machine, after a careful and detailed analysis of dangers which may occur .
This manual reflects the design and technical standards existing at manufacturing time and cannot be inadequate just because of updating made afterwards due to new experience.
FBM deserves the right to modify and improve both the ELECTRONIC DROP MACHINE MODEL **TOWER DROP** and the instruction book without giving any prior notice.
FBM will be glad to receive comments and suggestions to improve this manual and kindly ask to its Customers to advise about the new address of the owner should the machine be transferred.
FBM reminds to its Customers the obligations to respect local laws concerning safety and Hygiene on the workplace.

1) WARRANTY TERMS

The machine has 12 months warranty starting from the purchase date, providing the instruction contained in this manual are followed.

The warranty does not apply in the following cases

1. Incorrect use of the machine.
2. Use of the machine by non- professional or Unqualified personnel.
3. Use of this machine by untrained personnel.
4. Incorrect installation.
5. Electrical supply defects.
6. Serious lack of required maintenance.
7. Unauthorized modifications or adjustments.
8. Use of non-original or non-specific spare parts.
9. Partial or total inobservance of the instructions.
10. Extraordinary events.

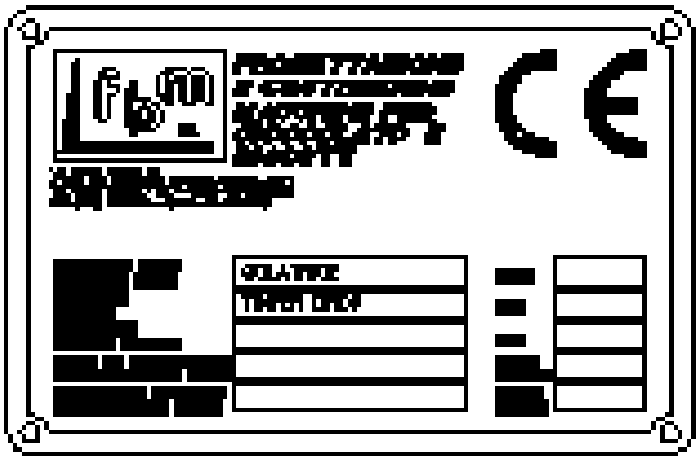
The warranty does not apply to the electrical and electronic parts,
Motor or any other item which may be damaged due to wear.

Costs for shipment of spares, working hand, travelling expenses, board and lodging expenses for technicians are always charged to the buyer.

1. IDENTIFICATION OF THE MACHINE

Figure 1 shows the identification plate placed on the machine in the position showed by the arrow n.2. See picture in following page

fig.1



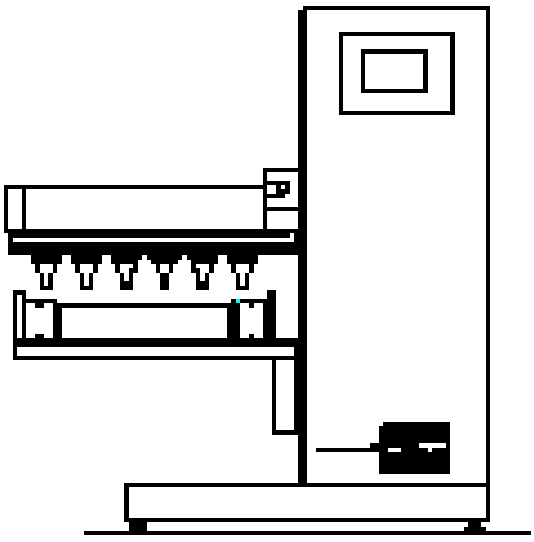


fig.2

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USEFUL ADDRESS

MANUFACTURER:

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TECHNICAL ASSISTANCE

The Company F.B.M. offers to the Customers its own technical service in order to solve any problem concerning the use of the machine and the service of the machine.
It is highly recommended to read this book to better understand the use, the features and the capacity of the machine.
NOTE: the Manufacturer deserves the right to change the machine for whatever technical or commercial reason without giving any prior notice or update in the very same time this book.

SUITABLE USE

This electronic, roller dropping machine model ***EVOLUZIONE 400*** is designed to drop dense, medium dense and whipped type dough, macaroons, petit fours, lady fingers, almond pastries, cream puffs and other dough traditionally dropped using squeeze sac
Fixed moulds of various types and shapes can be fitted to the machine, according to customer requirements.
The machine has mechanical operation commanded by a microprocessor. Adjustments can even be made with the machine running (± weight, ± turning time, ± dropping time, ± rotary mould speed (ON REQUEST), ± steps speed, ± table height). At the end of work, the machine automatically returns to the initial program.
ON REQUEST it is possible to install speed regulator for rotary mould.
ON REQUEST it is possible to install pump head useful for liquid and semi liquid dough.

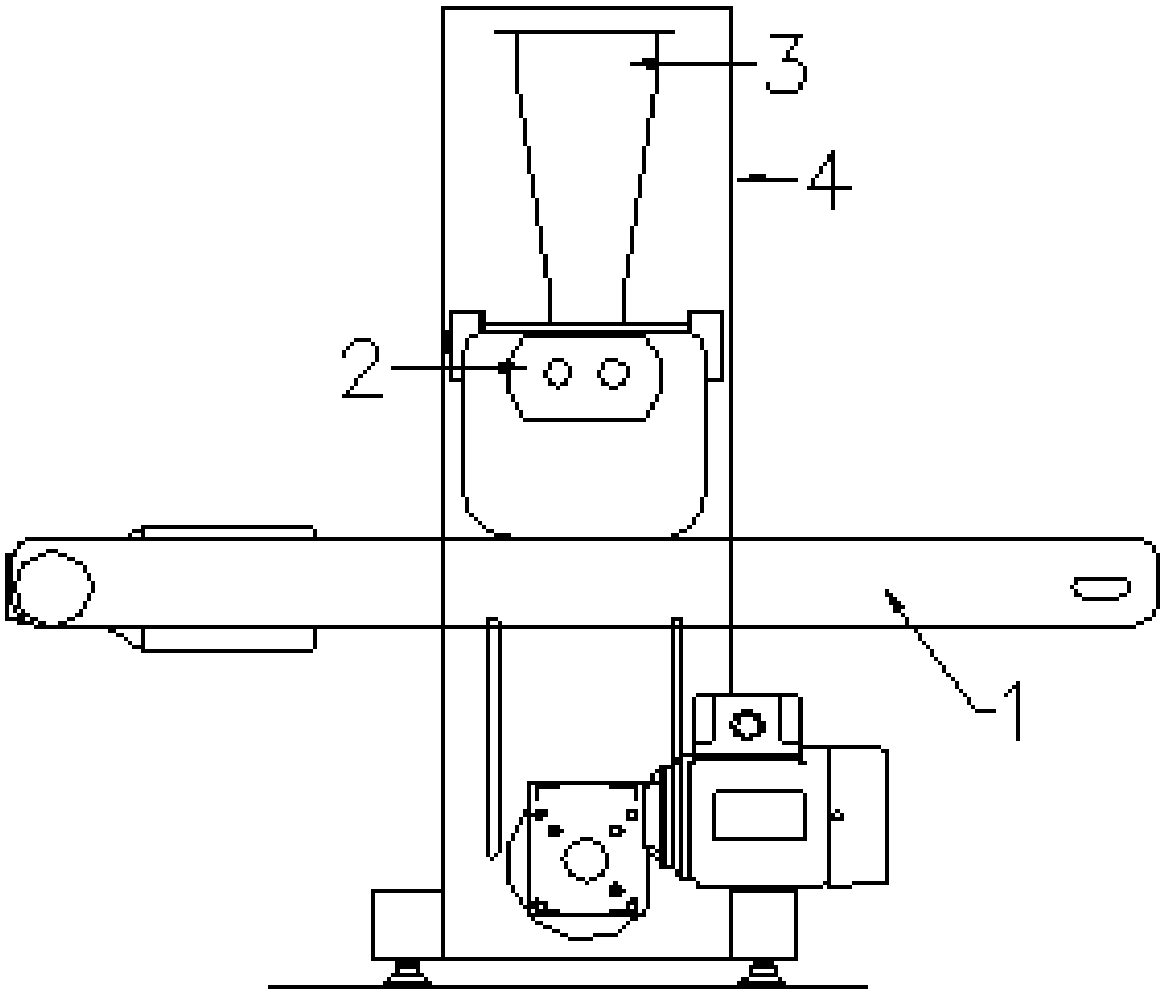
DESCRIPTION OF THE A MACHINE

Dropping machine (see picture in following page) Is composed by::

1. An oscillating table with adjustable height and pan movement belts.

2. Removable feed head on removable grooved rollers for dropping various products (macaroons petit fours, lady fingers, almond pastries, cream puffs) and on request equipped with pump for liquid dough).
3. Dough hopper.
4. Control panel with electronic board.

TOWER DROP



- ***CONTROLS***

All the machine functions are commanded from the keyboard shown below.

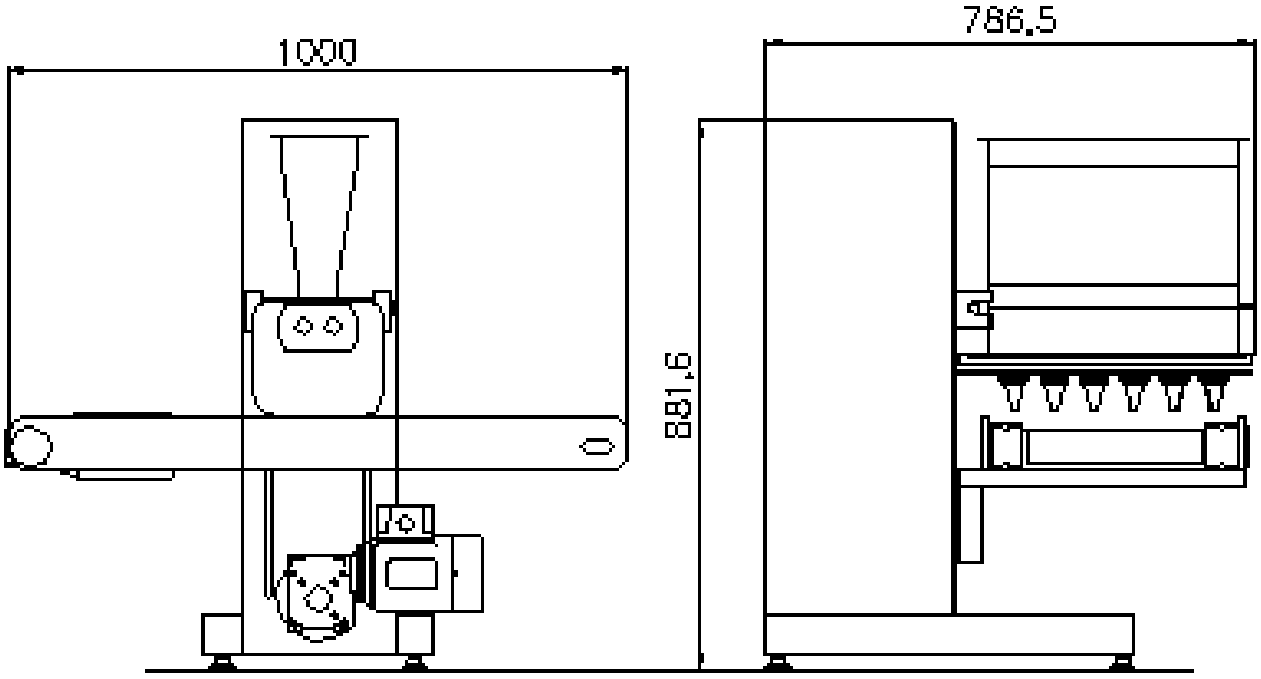
TOWER DROP

▼ **GR** ▲	=	Quantity	**A**	=	Enabled	**B**	=	Enabled
▼ **TG** ▲	=	Spout turn time	**C.D.**	=	Change display	**PROG**	=	Programming
▼ **TC** ▲	=	Dropping time	▼	=	Decrease	▲	=	Increase
▼ **VG** ▲	=	Rotation speed	↻	=	Manual Rotation of cylinders	↵	=	Parameter shift
▼ **VP** ▲	=	Tray speed				**B**	=	Pump Head
▼ **AT** ▲	=	Table height	**START**	=	Start program	**STOP**	=	Stop program

- ## *TECHNICAL FEATURES*

TECHNICAL DATA :

VOLTAGE: 220/380/50 3 phase + neutral +earth
MAXIMUM POWER CONSUMPTION: 0.85 kw
SPEED : 25 strokes per minute
PRODUCTION: by dropping (tea biscuits 4gr) 36 kg/hour
STRIP DROP DEVICE OVER THE ENTIRE PAN
PAN: width 400mm length from 400mm to 1000mm
For overall dimensions of dropping machine TOWER DROP vedere l'illustrazione di seguito.



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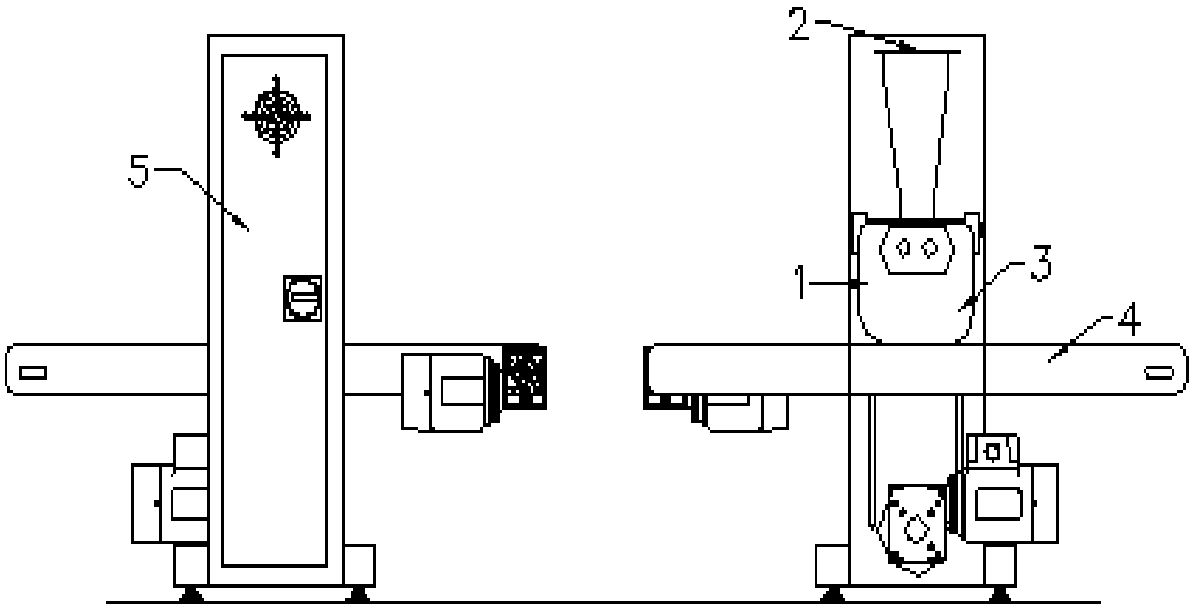
• SAFETY PROTECTION MEASURES AGAINST MECHANICAL RISKS

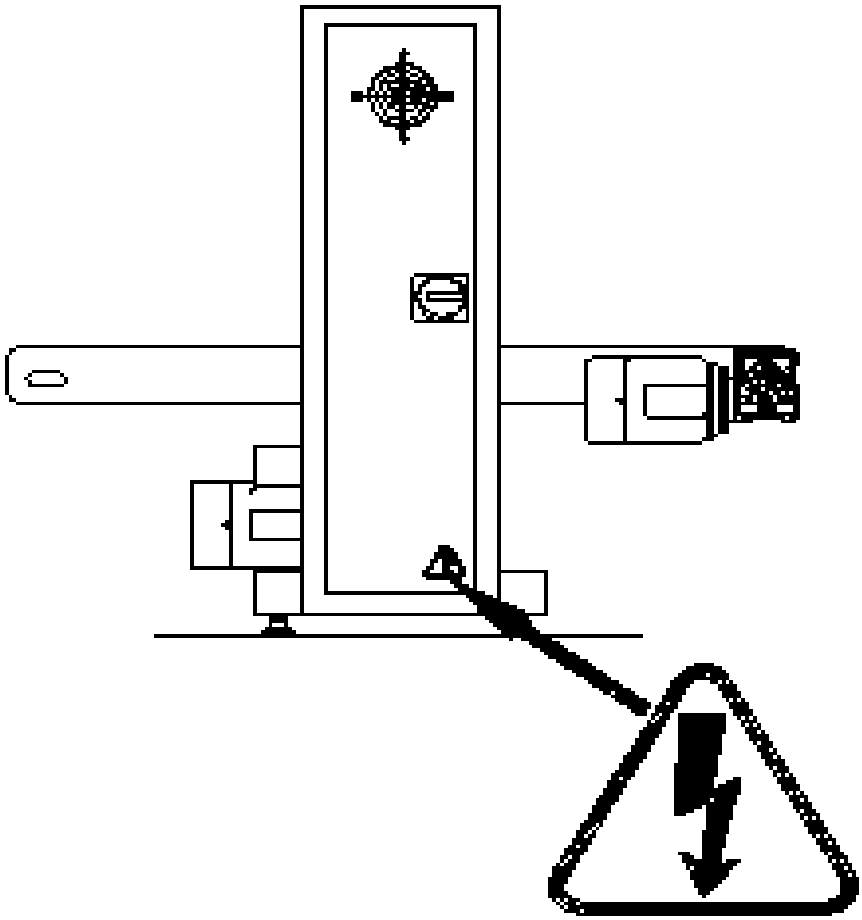
The figure shows the mechanical risks areas for which the following safety measures have been adopted :



SAFETY MEASURES ZONE 1:	frontal and posterior barriers of anti-intrusion photocells .
SAFETY MEASURES ZONE 2:	upper anti-intrusion device with a micro-switch to block the cylinders, in event of opening.
SAFETY MEASURES ZONE 3:	front anti- intrusion Plexiglas guard
SAFETY MEASURES ZONE 4:	belt side anti-intrusion guards.
SAFETY MEASURES ZONE 5:	hatch with anti-intrusion switch.

• SAFETY MEASURES AGAINST ELECTRICAL RISKS

The machine is equipped with a multipolar cable with flexible conductors protected by a polyvinyl chloride sheath type N 1W-K with low gas emission (3 phase + neutral + ground).
The wall-socket must be located at a height of about 130 cm from the floor and positioned so that it is not exposed to impact or damage.
At start-up the correct phases connection sequence MUST be verified to ensure the correct direction of the motor rotation.
The equipments and all other electric components have been installed within closed compartments to prevent any type of DIRECT contact with live components. The protection panels carry the electrical current danger signal (see figure



To prevent INDIRECT contact, all metallic structures are connected with a yellow-green conductor to the earth terminal in the main power compartment connected to the yellow-green wire of the multi-polar main power cable.

This conductor SHALL ASSURE, by the connection plug/socket, the electrical continuity with the main earth system: the user is entirely responsible for the suitability and efficiency of the general electrical equipment and of the complementary devices to cut-off the mains supply in case of faults.
To avoid dangers caused by anomalous working of the control circuits, an end of the secondary winding of the 24 V transformer is connected to earth and two fuses are installed on the primary winding and another fuse on the secondary.

A magnetic/thermal switch act when the power supply is cut off and prevents unintended start-up of the machine when the main supply returns.

Controls and signals have been installed on a panel showing appropriate symbols to specify their functions.
The protection class IP 54 is totally guaranteed by the performance of single electrical components and by the seal between the compartment and the control panel.

The machine has a protection class of IP 23.

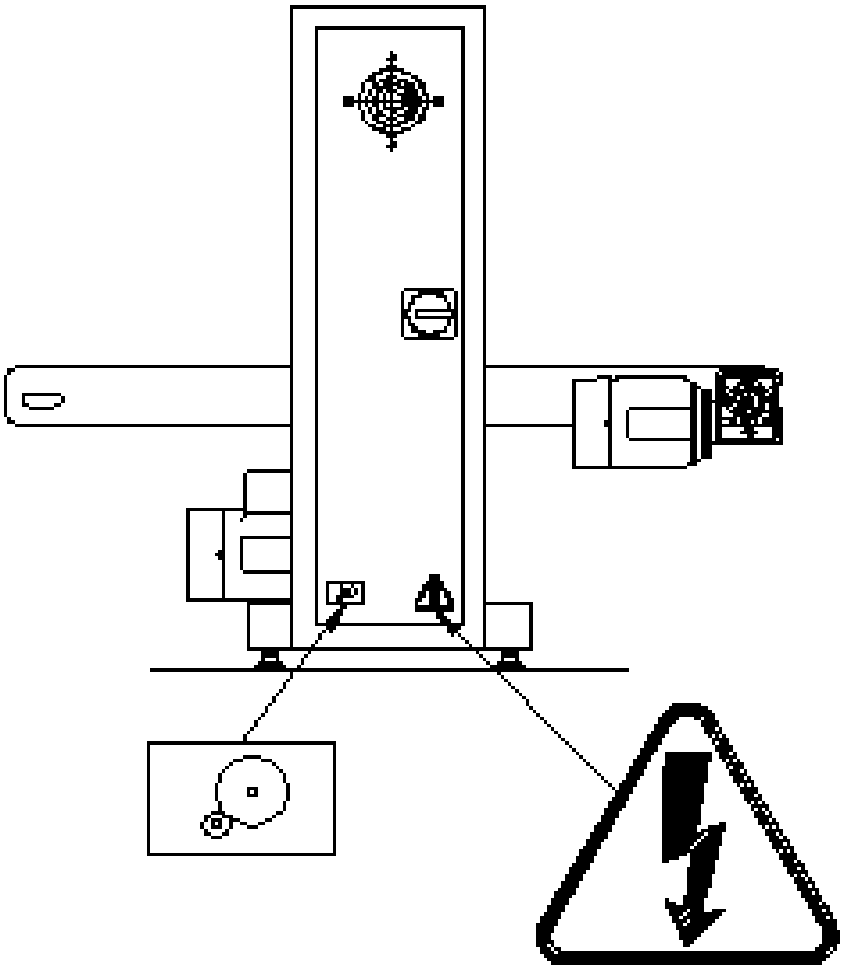
Replacement components MUST have the same electrical features of the original component.
The power supply cable MUST be replaced as soon as a damage to the external insulation is found.

Once a year and every time repairs are made, the user MUST perform electrical tests to check the condition of electrical insulation as well as continuity tests on the protection circuit, carried out by a specialized person.

- ## *SAFETY SIGNALS AND SYMBOLS*

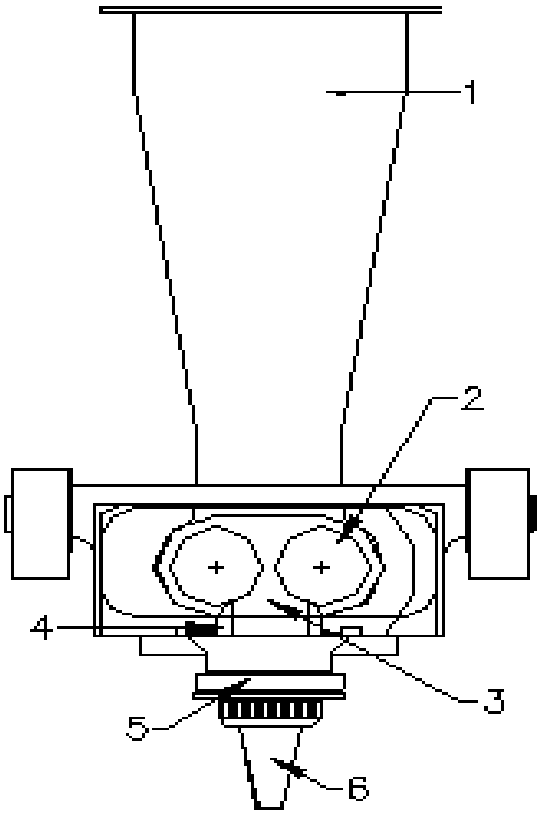
Safety signal showed in the figure indicates that removing the lateral panel on the right side (operation strictly reserved to qualified technicians), You may access to a compartment where are electric components and where dangerous contacts may occur.

The safety signal showed in the figure indicates that removing the lateral panel on the left side (strictly reserved to qualified technicians), You may access to a compartment where are mechanical moving parts and where dangerous contacts may occur



TOWER DROP

- ***ALIMENTARY HYGIENE***



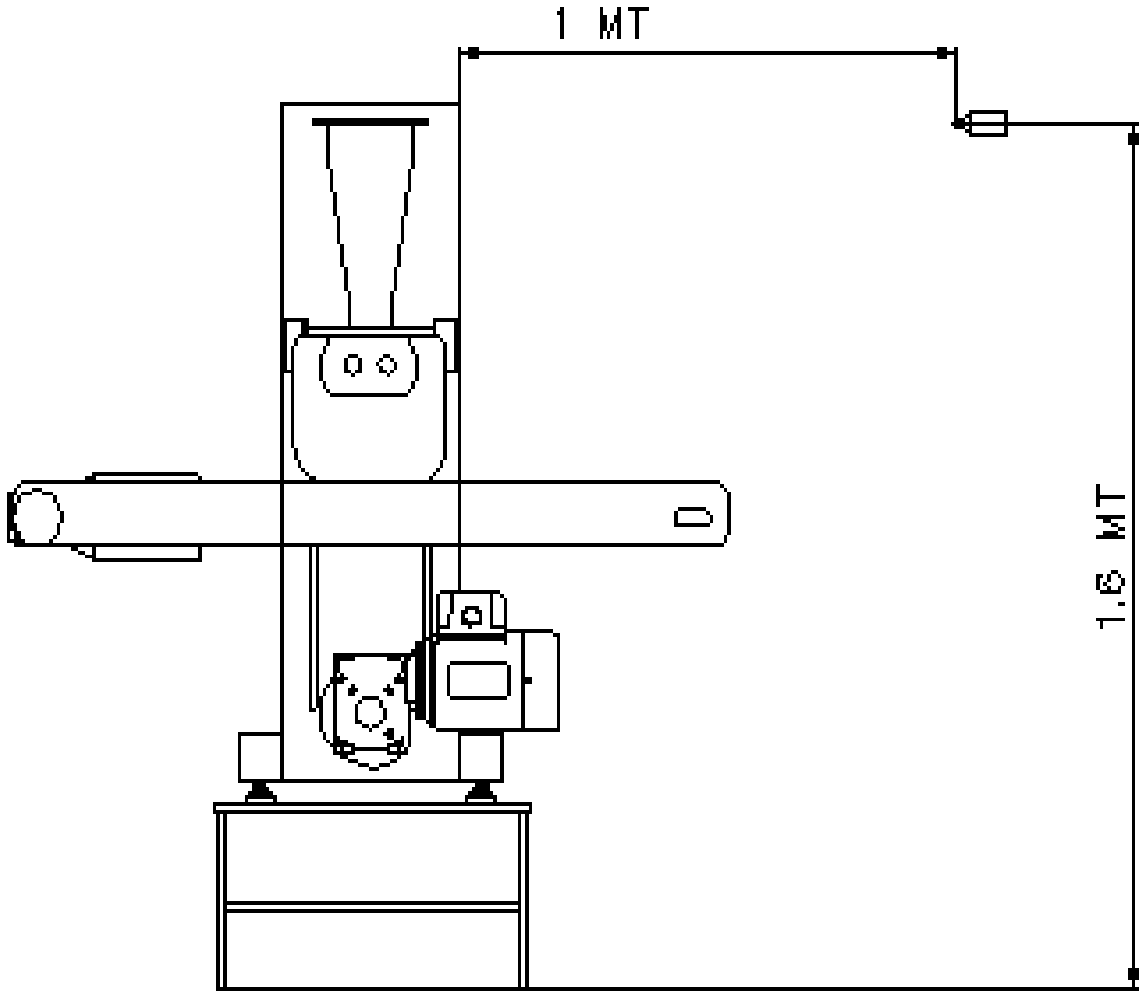
During dropping phase, dough is in contact with raw materials of dropping head machine.
They are materials dedicated to alimentary use and for this reason absolutely not toxic.
Find below list of raw materials used for each of dropping head component

POSITION	NAME	MATERIAL
1	Hopper	Stainless steel aisi 304
2	Cylinders	Aluminium galsi 4.5
3	Side walls	Aluminium galsi 4.5
4	Mould carrier	Aluminium galsi 4.5
5	Spout bushing	Stainless steel aisi 304
6	Spouts	Stainless steel 18/10

For machine cleaning see DAILY CLEANING ROUTINE

- ***NOISE LEVEL***

The machine reaches continuous weighted equivalent acoustic pressure A of less than 70 dB.
Measurements of noise level have been carried out during dropping (program 1) cycle without product.
The measuring instruments have been positioned at 1 meter from the machine surface and at a height of 1.6 m from the floor (see figure)



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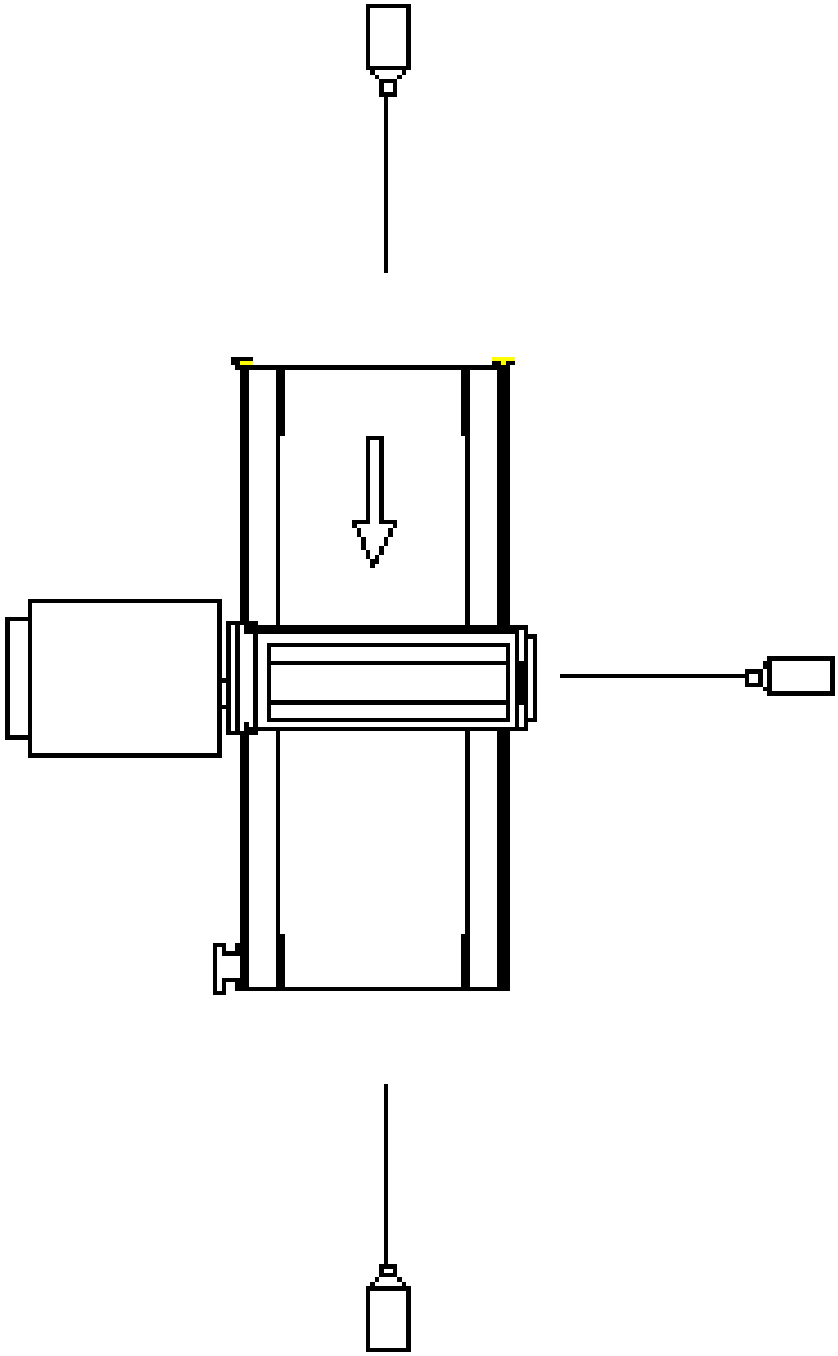

- ## *TRANSPORT AND HANDLING*

The machine will need to be transported on a loading plane of at least 1 mt. x 1,5 mt with a capacity load of at least 300kg .

The machine will come packed in a wooden cage, or with different packaging and it will be placed on pallet.

Remove the packaging and the pallet carefully following all the instructions listed in the chapter UNLOADING THE MACHINE on page. 18

For handling only use fork-lifts or trans-pallets with a load capacity of at least 300kg. Only use the lower pallet to lift the machine

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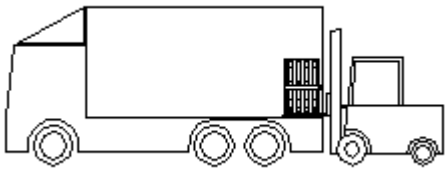
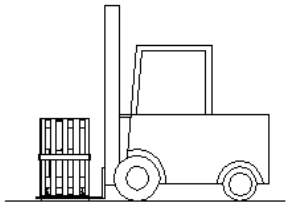
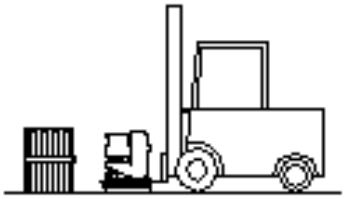
- ***UNLOADING THE MACHINE***



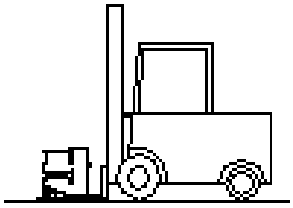
Phase 1: unload the packed machine from the truck. Use a fork lift with 300Kg load capacity at least .



Phase 2: place the machine on the floor.



Phase 3 : take off the wooden cage and lift the machine with the fork lift until the lower pallet can be removed.



Phase 4: place the machine on the floor on a flat surface, and as near as possible to the place where it will be placed.

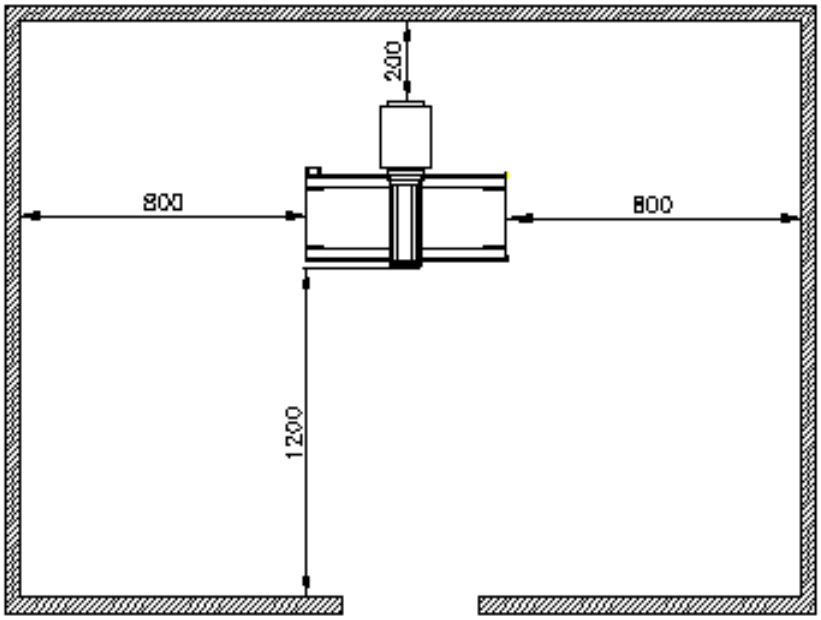
- ***INSTALLATION ENVIRONMENT***

The machine must be installed indoors in the following environmental characteristics:

Minimum Temperature	: +18° c
Maximum Temperature	: +23° c
Maximum relative humidity	: 30%
Dust level	: minimal and not near by the machine
Voltage	: 220/380V 50 Hz 3 phase + Neutral + ground

No other machine which could produce an electromagnetic field may be installed nearby.
The machine must not be used in areas at risk of explosion.
The machine must be placed on an horizontal and plane table, not taller that 900mm and which can stand at least 200 Kg.
Refer to the figure below for the minimum distance required between the machine and the surrounding walls, whenever the machine is working, being cleaned or maintenance work is being carried out (measures expressed in mm).

The customer would have to prepare, exclusively for this machine, a wall-mounted switchboard with socket thermoplastic made type CEE 16°e 500V pentapolar (3 phases + neutral + ground) with switch protected with fuses dimensioned to the power of the machine



- ## *STARTING UP AND ADJUSTMENTS*

To start up the machine, turn the main magnetothermic switch on the rear panel, disengage red mushroom shaped safety button (EMERGENCY) and press green round shaped button (RUN).
The machine will reset up and the display will show the data of the first program Select the kind of tray exit, which can be continuous (trays are loaded one next to the other with a minimum distance of 40mm between the two ones) or with tray return (after the last drop, the tray comes back from the inlet point) . With the keys INCR. or DECR. select the exit way. Press **SAVE** to save.
By means of keys select desired program.
Key PROG.+ selects next program, while the key PROG.- select previous program.
Example: Progr. 1.6 drops on tray; Progr. 2.7 drops on tray
Choose the kind of program which fits better to the dimensions of the biscuit and the length of the tray.
Put the first tray on the belts and press **START** : the machine will start by taking the tray up to the sensor of "0" . At this point dropping phase will began.
To stop dropping press the key **STOP**.
When exit is continuous, put no more trays on the belts in order to stop the work cycle.
The machine has already around 35 programs (see program table sent with the machine) which can be used as a starting point
During working phase it is possible, by using keys, to:

- **INCR.** decrease or increase the quantity (cylinders speed).
- **DECR.** decrease or increase mould rotation time
- **INCR.** decrease or increase the dropping time
- **DECR.** decrease or increase the mould rotation speed (on request).
- **INCR.** decrease or increase the tray speed
- **DECR.** decrease or increase the table height

When the machine is switched off (by using the mushroom-head button) or when there is the shift from a program to the next or previous on, the program will reset to its original memory.
In order to keep the adjustments, stop the machine by pressing key **STOP** and press **SAVE** . In order to memorize or change an already existing program, follow these instructions :
Stop the machine by pressing **STOP** key and press **SAVE** .
In such a manner it is possible to visualize and to modify all parameters of program..
Choose the parameter You want to display or adjust by scrolling the different parameters pressing keys
It is possible to adjust the value by pressing he arrows of program change. To memorize al adjustment made, press the key **SAVE** . If the function is left without memorizing the adjustments, the controller will show the following message:

To confirm « exit »without memorizing, press the key **STOP**..
To memorize press the key **SAVE PROG** and then, when You have memorized the values , press **STOP** to quit.. Select the right program for the product to be dropped in the program table, according to the dimensions, the quantity of dough and the size of the tray.N.B. the biscuit space must not be less than 30
Here is an example for setting the biscuit space :

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Size of tray 600 mm. N. 10 biscuits for each tray. Space : 600 : 10 = 60, that is length of the tray (600) divided into the number of biscuits to be deposited (10) gives the biscuit space (60). In this example, the value for parameter " biscuit space" is 60.
Here is another example for calculating strip-drop :
Size of tray 600 mm. N. 6 biscuits for each tray. Biscuit space (40) . Strip drop : 60 - (40x6) = 360 : 6 = 60, in other words length of the tray length (600) minus the biscuits space (40) multiplied by number of biscuits to drop (6) equals the strip (360).
Total strip (360) divided for the number of biscuits to deposit (6) equals the strip drop
In this example, the value to be given to the "strip length "parameter is 60.
N.B. if the machine skips a biscuit, by dropping 5 instead of 6, reduce the strip by 1 mm, that is from 60 to 59 (pan skip : 0). By pressing **SAVE** , the program is memorized.
By pressing START, the machine starts dropping according to the program you have just memorized
Please note that : The control panel allows to adjust up to 4 biscuit spaces. The last biscuit space value which differs from 0 is regarded by control panel as the room between one completed biscuit and the following one.
Example :
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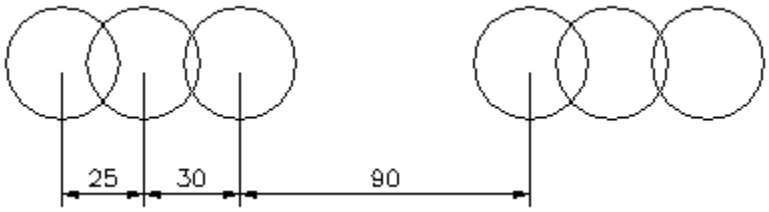
1st Biscuit space = 25
2nd Biscuit space = 30
3rd Biscuit space = 90
4th Biscuit space = 0



The last biscuit space different from 0 is regarded as by control panel as the room between one completed biscuit and the following one.

For each further clarification not included in the previous chapters, we suggest You to turn to the manufactures.

• USE AND SETTINGS

The control panel of drop machine allows to control the right work of the machine by the values assigned to a group of parameters. The range of set values is called “program”. Here is a list of the programmable parameters:

N°	Shortened description	Limits/values	Description:
1	Table height pour	0/100 mm	Maximum height reached by the table during dropping process.
2	Biscuit h	0/100 mm	Biscuit height .This is the value of the getting down of the table in slow motion during dropping process. After this the table stays still in that position for the time set in descent delay (parameter 9); then it returns in the lowest position.
3	Table speed	0/100 mm	Table movement speed. This is the speed according to which the table makes its movement during dropping process, except for the getting down slow motion (see parameter 2).
4	Pour desc. speed	0/100 %	Pour descent speed. This is the speed according to which the table makes slow descent during dropping phase till table reaches height of the biscuit (see parameter 2).
5	Pour start h	0/100 mm	Start drop height. This is the height to which the machine can start dropping, anticipating the dropping before the table has reached its maximum height.
6	Cylinders speed	0/100 %	Cylinders speed while dropping. It stands for the dropping speed of the cylinders while dosing out (drop).
7	Dropping time	0/20-0 sec.	Expressed in tenth of a second. It is the lasting of the cylinders rotation.
8	Return of dropping	0/20-0 sec.	Expressed in hundredths of a seconds. It is the lasting of the backward cylinders rotation, to create a suck-back in order to detach biscuit.
9	Time delay down	0/20-0 sec.	Descent delay. This is the time of delay before the table gets down after the biscuit height is fully reached (see parameter 2)
10	Time delay down 2	0/20.0 s	Descent delay 2. Waiting time of table calculated accordino to lenght and return of stip/dropped line.
11	Turn delay.	0/20-0 sec.	Turn delay . Once cylinder started dropping plase ,after this delay, spouts can start turning .
12	Turn time.	0/20-0 sec.	Turning time. It is the lasting of spout rotation.
13	Turn speed. (optional)	0/100%	It is the speed of turning movement of spouts.
14	H reset giro	0/100 mm OPTIONAL	Height reset spout rotation. It’s value of table height (compared to max H, parameter 1), where is possibile to start rotation reset (return to position “0” of spouts/nozzles) without damaging dough already dropped down.

15	Pan length	mm	Tray length. It is real length of the used tray.
16	Pitch speed	0/100%	Pitch speed. It is the speed at which the tray advance on the table.
17	Tray edge	0/200mm	Tray edge. It is the room between the edge of the tray and the first biscuit..
18	1st biscuit space	0/200mm	1st biscuit space . It is the space between the first and the second row of biscuits. This room (actually half of it) is taken as a reference for the minimum room between the edge of the tray and the first row of biscuits (or the last one).
19	2nd biscuit space	0/200mm	2nd biscuit space. It is the space between the second and the third row of biscuits. If this parameter = 0, then the controller will set each deposit according to the first biscuit space.
20	3rd biscuit space	0/200mm	3rd biscuit space. It is the space between the third and the fourth row of biscuits. If this parameter = 0, then the controller will set each deposit according to the first biscuit space.
21	4th biscuit space	0/200mm	4th biscuit space. It is the space between the fourth and the fifth row of biscuits. If this parameter = 0, then the controller will set each deposit according to the first biscuit space.
22	Strip delay	0/4,00 sec.	Strip drop delay. After this delay , strip drop movement can begin.
23	Biscuit strip	0/999 mm	Strip length. It is the length of the strip movement. With the parameter set to 0, the strip movement is not made.
24	Strip return	0/999 mm	Length of backward strip. This movement is possible only if you are using the strip movement (parameter N ÷ 0).
25	Strip delay	0/4,00 sec.	Strip drop delay. After this delay , strip drop movement can begin.
26	Pump drop (not enabled)	0/1	Drop with pump head or cylinder head
27	High Traya	0/1	Table doesn't go down among each biscuit. Once wire cutting is activated table deos't go down anymore
28	Wire cutting		Ii is possibile value YES or NO and it indicates if wire cutting device is installed or not. In case it is installed ,during working phase CPU keeps adjustment due to anticipation of wire cutting .

KEYBOARD

On the left side of the keyboard, You can find the keys for the temporary adjustment of the parameters while the machine is working. This adjustments are temporary because they are not put into memory definitely. So when the machine is switched off, or when you shift to another program, the adjustments will be cancelled.
If You want to memorize the adjustments, stop the machine by pressing the key STOP and press PROG. The display will show the list of parameters; press PROG again and wait until the leds stop blinking.
.

Key at left with symbol DECRE. decrease the value of temporary adjustments, while the key at right side with symbol INCR. increases it..

INCR. DECR. Variation of poured quantity of dough (cylinders speed).Value is expressed in percentage.
INCR. DECR. Variation in the turn time of the rotary mould, Value is expressed in tenths of a second.
INCR. DECR. Variation in dropping time, expressed in tenths of a second. Drop time is time of rotation of cylinders inside the feeding head.
INCR. DECR. Variation in the speed of rotation of the spouts. Value is expressed in percentage.
INCR. DECR. Variation in the speed of the belts (pitches). Value is expressed in percentage.
INCR. DECR. Variation in the position of the table during the dropping cycle, lifting up nearer or farther to the moulds. Its value is expressed in millimetres. Moreover, it is possible also to increase or decrease the value of the parameters also in programming procedure.

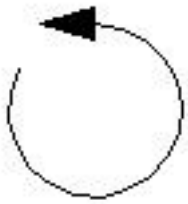
Each key is equipped with self-repetition if it is pressed for more than 0,5 seconds.

The keys on the right side of the keyboard are relative to following functions:

INCREM. In the normal running, it increases the number of selected working program; while programming, it increases the value of selected parameter.
DECREM. In the normal running, it decreases the number of selected working program; while programming, it decreases the value of selected parameter.

RESET PROCEDURE

When the machine is switched on, the display shows the writing



Reset

Press START

The reset procedure causes some movements in the machine ; therefore, we suggest the personnel to start reset only when the machine table is free from any kind of object. By pressing **START**, the reset procedure starts. During this procedure, the table goes down he inferior dead point.
If the reset procedure is carried out properly, the display shows the following messages:

Prg. 1 VP: 100%
GRA: 60% TG: 0.5

In this example, we have considered the program n. 1 with a pitch speed of 100%, pouring quantity 60% and spout turning time of 0.5 seconds. Now machine is ready for working

- ***DAYLY CLENING***

***WARNING : daily cleaning must be performed at the end of each production cycle*.**

Proceeds as follows :

- Press key **STOP**.
- Turn off the main switch (fig. 1).
- Cut off main power supply at wall-switch.
- Lift protection grill of hopper and unscrew all the head knobs (fig. 2).
- Remove the Plexiglas guard of the mould (fig. 2).
- Slide out the mould (fig. 3).
- Dismount cylinders cover casing (fig. 4).
- Remove hopper locking nuts, the hopper and also the cylinders securing blocks (fig. 5).
- Remove cylinders (fig. 6).
- Remove dropping head (fig. 7).
- Remove the dough remaining on the rollers and inside the mould support block with special tool and plastic spatula (fig. 8).
- Wash with hot water the complete head at all points it comes into direct contact with the dough.
- Dry with a cloth or compressed air.
- Submerge the mould in hot water for around one hour and then wash well and rinse. Dry everything with a cloth or compressed air.
- Clean the pan table with a damp cloth and also the complete machine. Dry with a cloth.

The machine is now ready for starting a new work cycle.

.

TOWER DROP

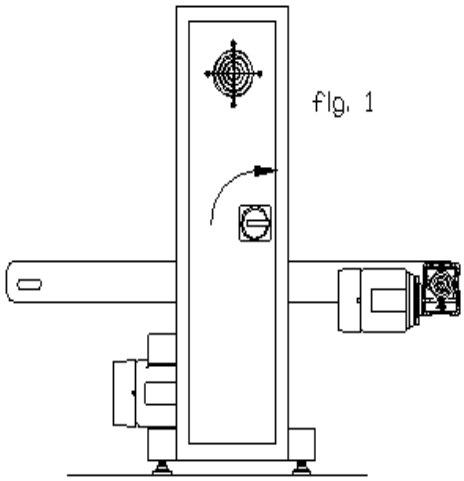


fig. 1

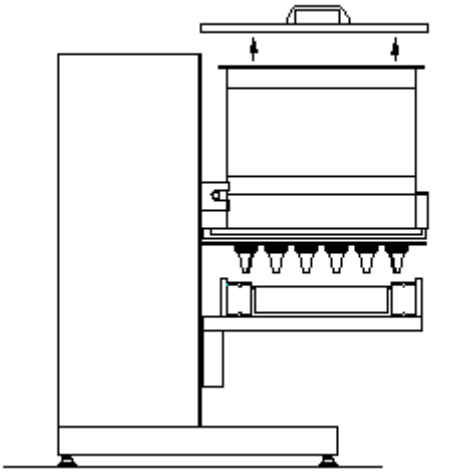


fig. 2

fig.3

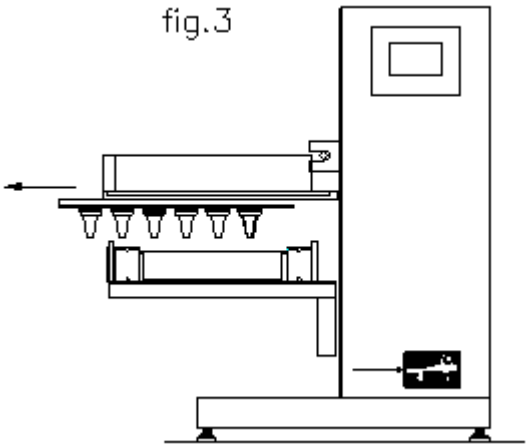


fig.4

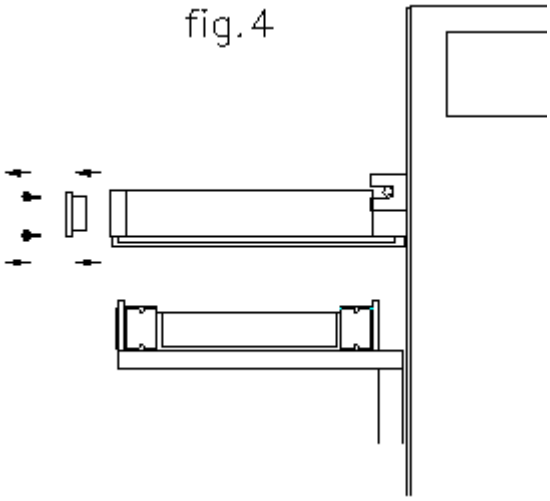


fig.5

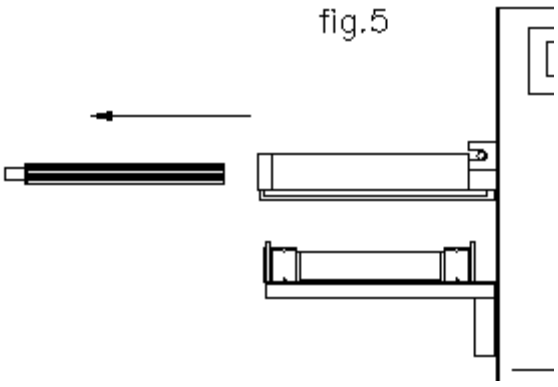


fig.6

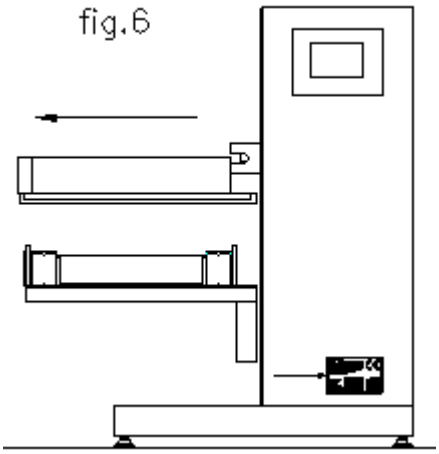


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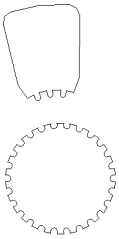
Fig. 7



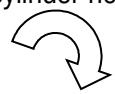
- ## *DAILY CHECKINGS*

At each start up, it is suggested to make these controls, as indicated below:

1. Switch on the main magnetothermic switch (fig. 1).

2. Press the RUN switch (after releasing the mushroom-head safety button).

3. Press the key **START** on the electronic board and wait until the pull chain is in position « **O** ».

4. Check working order of the grid protecting the cylinder hopper (see zone 2 page 11)), in the following way : lift the grid and press the key  on the electronic board. The drop cylinders must not turn (fig. 2).

5. Check function of the protection device sensitive to the pan entry and exit (see zone 1 page 11) in the following way: interrupt the beam of the photoelectric device with a foreign object. The machine must switch itself off (fig. 3) .

6. Press "RUN" button.

7. Press **START** button on electronic card and wait until the pull pan chain is in position « **O** ».

8. Check function of the Plexiglas area protecting zone 3 (see page 10) in the following way: lift the protection. The machine must switch itself off (fig. 5).

9. Press "RUN" button.

Press **START** button on electronic card and wait until the pull pan chain is in position « **O** ».

The machine can now be programmed to drop.

TOWER DROP

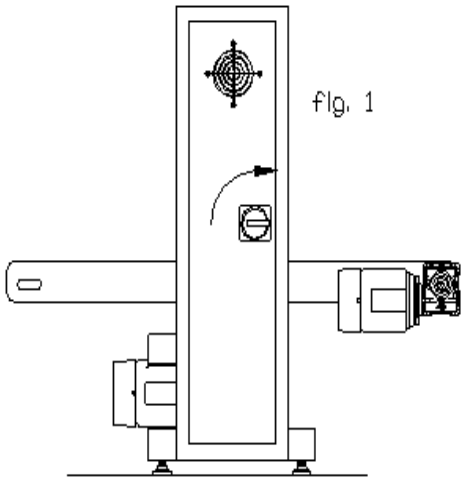


fig. 1

fig. 2

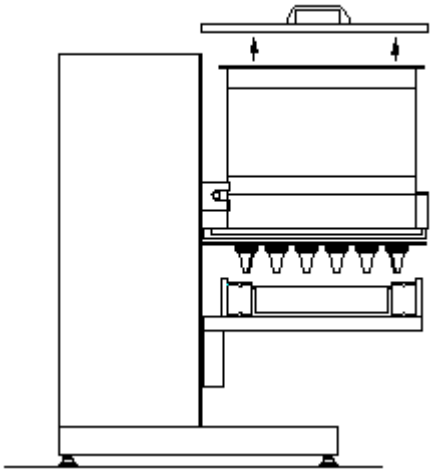
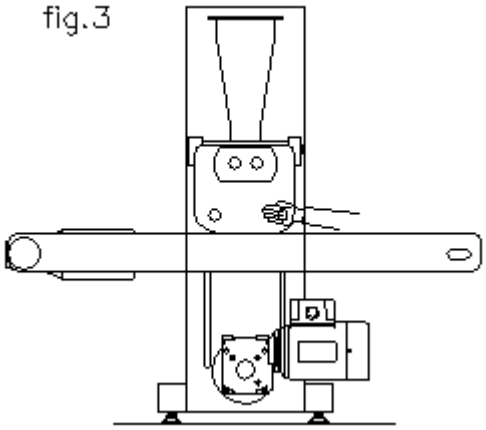
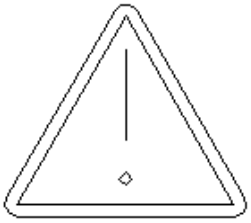


fig.3



- ***SPECIALISED MAINTENANCE CALENDAR***



Before performing any maintenance operation stop the machine and isolate it from power supply .

	1°year				2° year				3° year				4° year				5° year			
Start up Date	1 trimester	2 trimester	3 trimester	4 trimester	1 trimester	2 trimester	3 trimester	4 trimester	1 trimester	2 trimester	3 trimester	4 trimester	1 trimester	2 trimester	3 trimester	4 trimester	1 trimester	2 trimester	3 trimester	4 trimester
Manutenzione																				
Check the operation of safety guards	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
Check the operation of safety cells	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
Check the tension of pan conveyor belt	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
Oil the table support slide bushing	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
To oil the roller bushes	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
Grease gears for table vertical movement		o		o		o		o		o		o		o		o		o		o
Measure isolation of electrical circuits				o				o				o				o				o

These operation must only be performed by:

personnel sent by manufacturer.
Installer authorised by the concessionaire

If the user employs any other specialist personnel, he must contact the constructor Company beforehand for instruction and the procedures necessary for the intervention.

PLEASE NOTE THAT: above mentioned operation must be carried out till dismantling of the machine

- ***TROUBLE SHOOTING AND NORMAL REPAIRS***

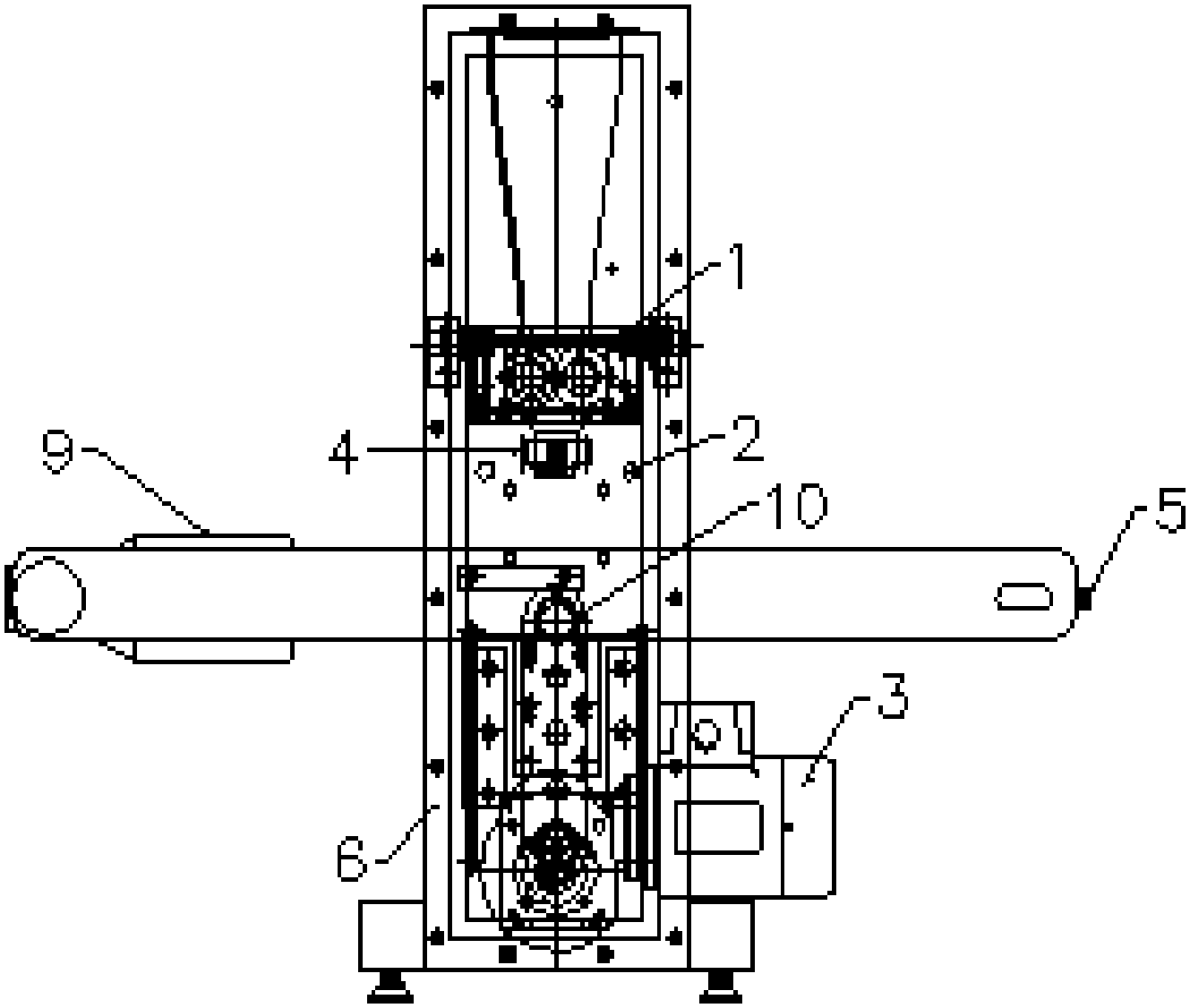
FAILURE	POSSIBLE CAUSES	CURE
Machine fails to switch on	1. Lack of tension	Check plug and wall-mounted switch. If the machine still fails to start-up, call authorized installer or consult the Manufacturer (see page 6 useful address and technical assistance)
The machine cuts out	Lack of tension	Reset magnetothermic switch on the machine.
	Interruption of photoelectric barrier in front of the mould	Remove foreign object in front of photoelectric cells and press run. Clean photoelectric cells and press run button.
Reset error	Malfunction of position transducer (encoder). 2. Malfunction of pan-start detectors.	Call authorized installer or consult the Manufacturer (see page 6 useful address and technical assistance) Call authorized installer or consult the Manufacturer (see page 6 useful address and technical assistance)

IN THE EVENT OF OTHER FAULTS, ALWAYS REFER TO AUTHORIZED INSTALLER OR TO THE MANUFACTURER

TOWER DROP

- ***SPARE PARTS LIST***

- ***POSTERIOR SECTION***



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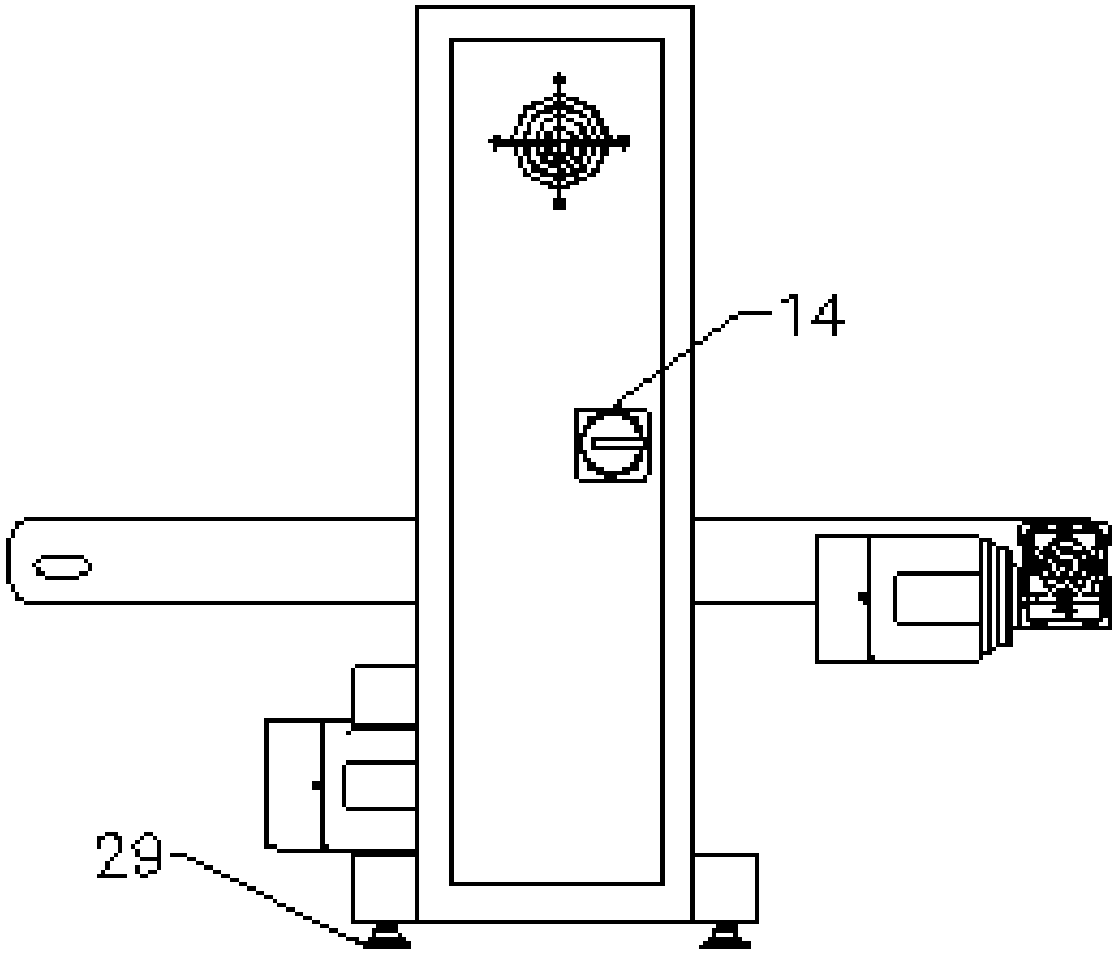
- ***POSTERIOR SECTION***



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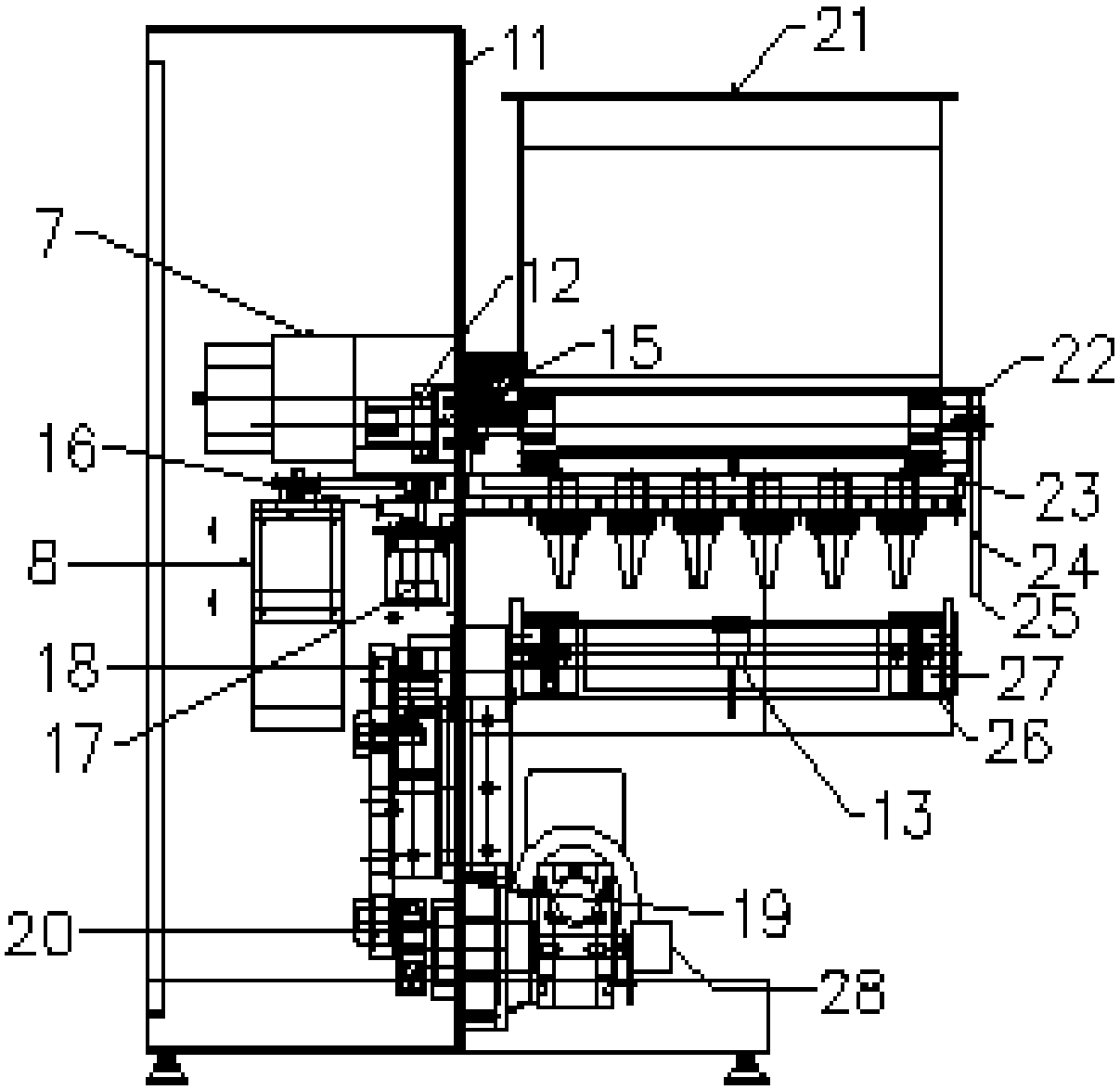
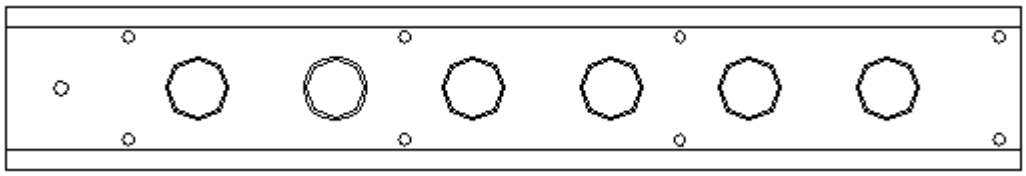
- ***LATERAL SECTION***

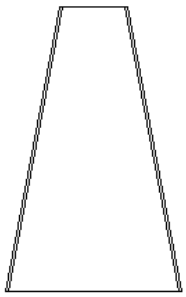


- ***ACCESSORIES ON REQUEST***

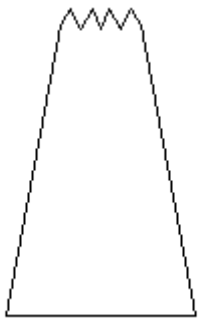
Complete rotary mould with joint



Straight plane spout



Straight star spout



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TOWER DROP

Fixed die (with holes on demand)

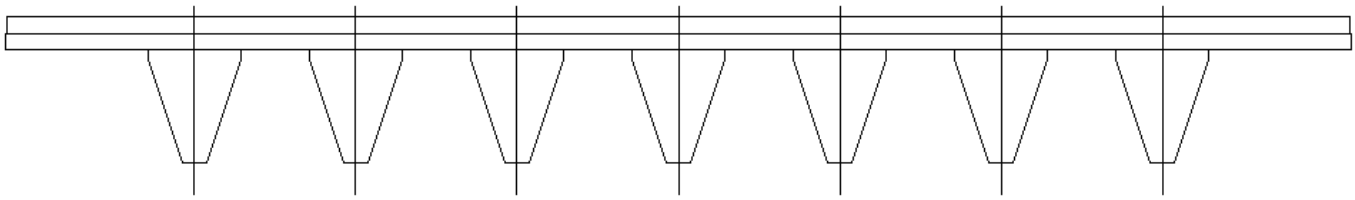
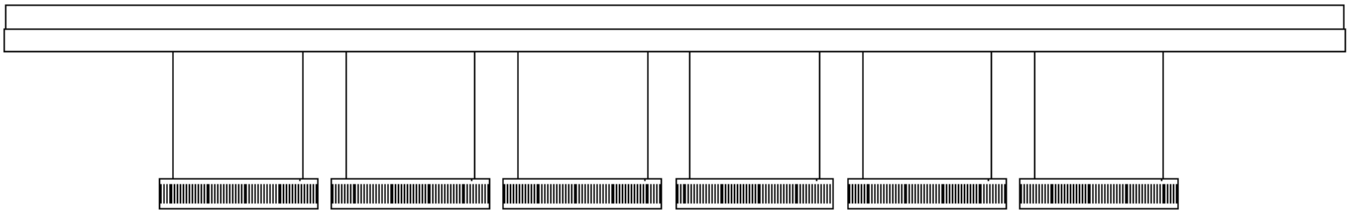
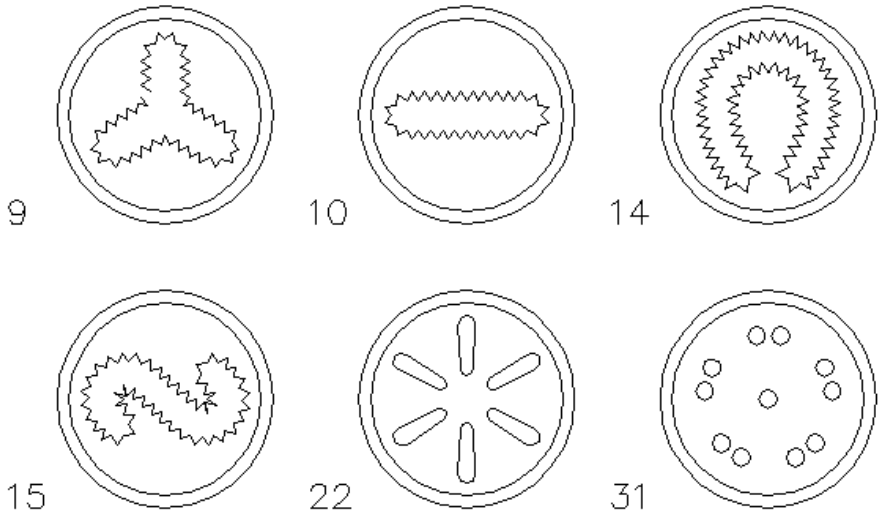


Plate bearing die



Figurate plates



- ***DE-COMMISSIND AND DISMANTLING***

DE-COMMISSING

To shut the machine down, it is necessary to disconnect the main power supply, remove the fuses from the low tension circuit and put in a visible place of the machine an "OUT OF ORDER" signal.

DISMANTLING

The machine is made by many different kind of materials such as for example plastic, oil, electrical and electronic parts.
To dismantle the machine and throw away each ingle material, local and national rules must be followed.

- ***ELECTRIC DIAGRAMS***

With the manual you can find at your disposal following electrical diagrams:
Tavola n° TOWER – SE – 01
Tavola n° TOWER – SE -- 02
Tavola n° TOWER – SE - 03

- ***COMPLIANCE DECLARATION AND TEST DATA***

PAY ATTENTION:

Inside this envelope contains important documents.
Please, take care of them and after use always put them in this envelope
.

CONTENTS:
Compliance declaration
Testing paper
Electric circuit insulation measurement during the test
Electric circuit insulation following measurements
Electric circuit insulation following measurements

F.B.M. S.r.l.

Commercial dept.
Accounting dept.

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