

CO 1600/V

**ARROTONDATRICE CONICA A CANALI REGOLABILI
ADJUSTABLE CHANNELS CONICAL ROUNDER
KONISCHE RUNDWIRKER MIT REGULIERBAREN KANALE
BOULEUSE CONIQUE AVEC CANAUX REGLABLES
BOLEADORA CONICA CON CANALES REGULABLES**



- MANUALE D'USO E MANUTENZIONE
- USE AND MAINTENANCE HANDBOOK
- BESTRIEBSANLEITUNG
- MANUEL D'USAGE ET D'ENTRETIEN
- MANUAL PARA USO Y MANUTENCION

REV. 03

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1. TRADE-MARK OF THE MACHINE

On the machine, an identification plate is placed to indicate CE marking showing the following data:

- Model
- Serial number
- Voltage
- Frequency
- Absorbed power
- Mass
- Year of manufacture

IMPORTANT: DO NOT REMOVE OR TAMPER WITH THE PLATE

2. GENERAL INFORMATION

THE USE AND MAINTENANCE HANDBOOK IS AN INTEGRAL PART OF THE WHOLE MACHINE AND THE USER MUST PRESERVE IT FOR ALL THE LIFE OF THE MACHINE

2.1

Before using the machine read carefully this handbook , particularly the safety chapter (chapter) .

2.2

The handbook must be preserved in its case , where everybody can read it and where it is not damaged by water , sunshine, dust , dough , etc.

2.3

The constructor can update the production and the handbooks without the oblige of updating old production and handbooks .

2.4

The constructor cannot be considered responsible for the following events :

- improper , wrong or irrational employment of the machine .
- use not in conformity with national laws .
- wrong installation of the machine .
- problems with electric power .
- insufficient maintenance .
- not authorized changing or interventions .
- use of unoriginal spares and products for the model .
- inobservance of the instructions of this handbook .

2.5

After unpacking the machine when it arrives , please make you sure the machine is unbroken . In case of doubt , please contact qualified personnel only .

3. PROVIDED USE OF THE MACHINE

3.1 GENERAL DESCRIPTION

The machine has to be destined only to the use of personnel qualified for the production and the making of flours and dough , in particular to the bakers .

The CO 1600/V is a conical rounder machine : it rolls dough of any kind . The rolling effect is achieved by means of a cone that , while rotating , rolls the dough along a concave spiral-shaped way , and enables production of spherical loaves .

This machine has the possibility to regulate the distance of the channels from the cone : it allows to obtain two effects :

- the same precision from 30 gr. to 1600 gr.
- to calibrate the rounding force

This machine can have also a hot and cold ventilation . To control if your machine has the ventilation system see if there is the switch which starts the ventilator (n. 6 of picture 7.1).

3.2 POTENTIALITY OF THE MACHINE

The CO 1600/V has the following potentiality :

MODEL	SIZES (GRAMS)
CO 1600/ V	30-1600

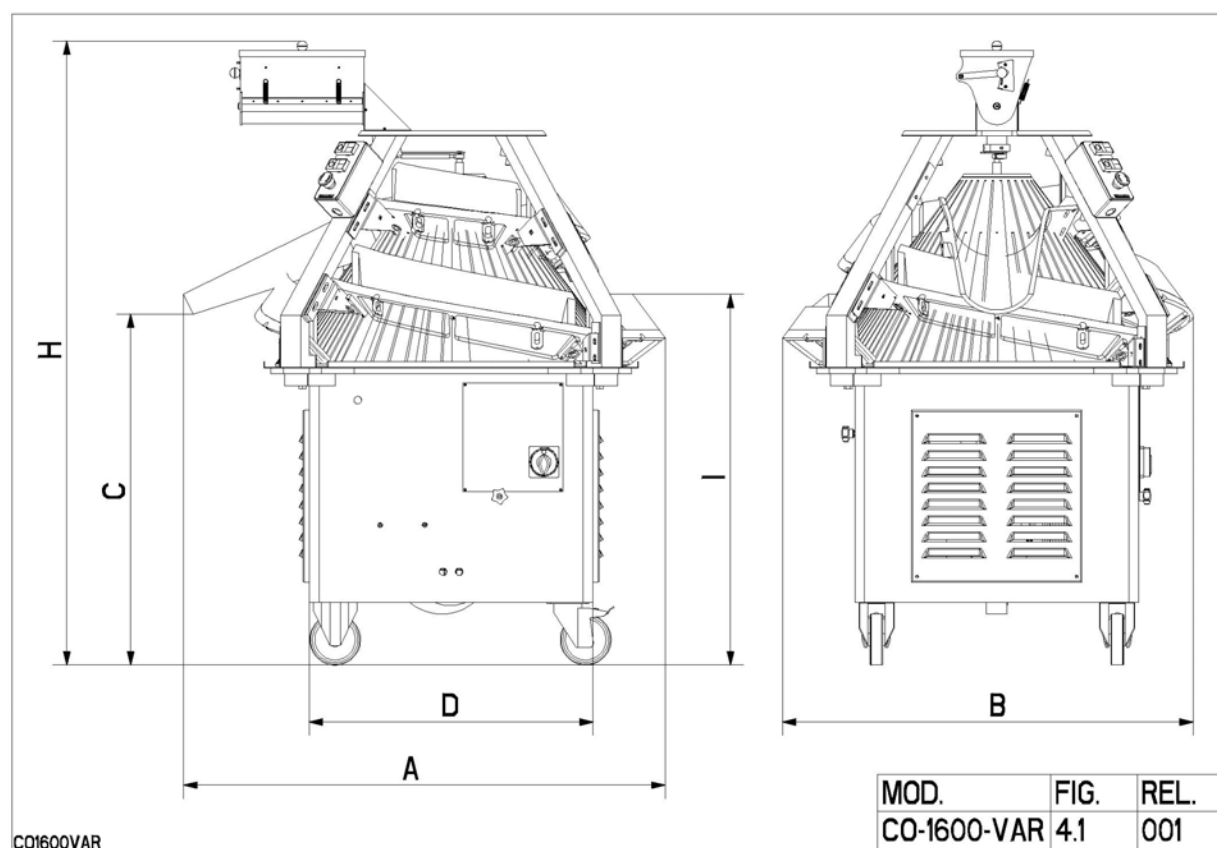
3.3 WRONG USE OF THE MACHINE

ANY OTHER USE DIFFERENT FROM THE ONE MENTIONED IN PARAGRAPH 3.1 IS INAPPROPRIATE AND THEREFORE IS FORBIDDEN

4. TECHNICAL DATA

4.1 OVERALL DIMENSIONS

The picture n. 4.1 shows the dimensions of the machine :



A	B	C	D	H	I
119	105	92	70	160	91

4.2 TECHNICAL FEATURES

- Steel frame
- Cone-shaped bell of anticorodal aluminum
- Teflon-coated channels
- Belt drive
- Mechanic brush-type flour-sprinkler with adjustable flowrate
- Hot and cold air ventilator
- The machine is mounted on castors with a locking device

4.3 ELECTROMOTOR

Asynchronous motor with 3 phases

Rating plate :

Power 0.75 KW
Speed 915 g/min
Frequency 50 HZ
Current 2.2 A (with 380 Volts)
Protection IP 44

4.4 ELECTRIC INSTALLATION

The constructor made the electric installation in conformity with the standards in force and particularly with the European EN 60204-1 : “ Safety of machinery - Electrical equipment of machines - Part 1 : general requirements “ .

Number of phases : 3

All exposed conductive parts of the electrical equipment and the machine are connected to the protective bonding circuit .

Device for overcurrent protection : circuit - breakers with breaking capacity $I_{cu} > 100$ kA (referring to IEC 947-2) .

4.5 DESCRIPTION OF GUARDS AND SAFETY DEVICES

The machine has no any guard for the conical rotating bell , because the design of the bell and of the channels makes these gears essentially safe .

In fact the space between the cone and the spiral-shaped way is less then 0.5 mm. and the longitudinal drills (when there are) have a deepness of 2 mm. In this way there is only a little danger of nipping the fingers .

The flour sprinkler have no guards , too . It's alternate motion in fact can't trap the fingers and the bristles are not hard . It's driving gear , then , does not create particular hazards

It is forbidden to take away , modify or damage any guard of the machine .

5. TRANSPORT , POSITIONING AND ELECTRIC CONNECTION

5.1 TRANSPORT

- The weight of the machine is 360 KG . You can read this date also in the trade-mark .
- The machine has one eyebolt of the tool supply (which is often already mounted) which let you to transport the machine to your laboratory .
- Wires , chains or any other lifting-gear must be adapt to the weight of the machine .

5.2 POSITIONING

A WRONG INSTALLATION OF THE MACHINE CAN CAUSE DAMAGES TO PERSONS , ANIMALS OR THINGS AND THE CONSTRUCTOR IS NOT RESPONSIBLE FOR THIS .

After unpacking make you sure of the entirety of the machine . In case of doubt don't use it and contact the supplier .

The machine has wheels which let you to transport and position it easily .

After deciding the place of installation put the black foot of the tool supply under the blockage . Screw the handwheel till the head of the blockage is joint into the foot .

This will allow to fix the machine on the floor and will avoid useless and dangerous vibrations .

5.3 ELECTRIC CONNECTION

BE SURE YOUR SUPPLY IS THE SAME AS THE VOLTAGE AND THE POWER GIVEN ON THE RATING PLATE (see also chapter 1) .

Connect the plug of the electric cable to a magnetothermal differential switch or to a switch provided of protection with fuses of characteristics suitable to the data of the rating-plate of the machine .

The electric plug must be near the machine and give an easy admittance .

If other machines are connected to the same plug , make sure that the amperage capacity is not too low .

5.3.1 CONNECT OF THE MAIN ELECTRIC CABLE WITH THE PLUG

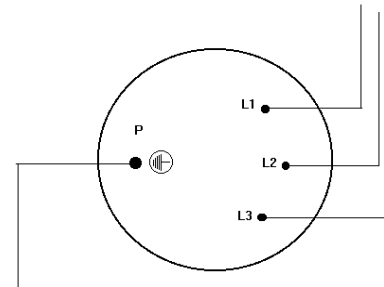
Generally the main electric cable (power cable) is not connected with the electric plug . Do the following steps for the connection :

- 1) Disassemble the plug so to have access to the base where connect the wires .
- 2) The pictures of this paragraph show the scheme of the base of the plug .
- 3) Connect the yellow-green wire (grounding wire) to the terminal P (see the picture 5.1) . This terminal has its own characteristic symbol . It has the bigger pin .

- 4) Connect the other 3 phases to the terminals L1 , L2 , L3 .

- 5) Start the machine for a few time so to control if it rotates in the right way (READ THE CHAPTER OF THE WORKING OF THE MACHINE) .

- 6) If the rotation is wrong , stop immediately the machine, take away the plug and exchange the wire connected with the terminal L1 with the wire connected with the terminal L2 , like the picture 5.2 .



Picture 5.1

5.3.2 GROUNDING

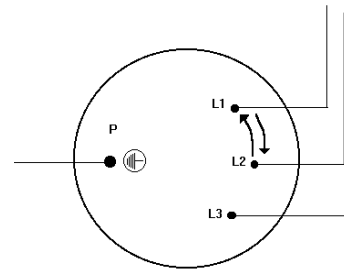
Control the good working of the grounding of your electric plant and connect the grounding cable of the machine and the plug following the local electrical standards.

Never connect the grounding cable to the gas or water tube , or to the telephone cable .

5.3.3 PRECAUTIONS

WARNING ! WHEN USING ELECTRIC TOOLS , TAKE ALWAYS THE BASIC SAFETY PRECAUTIONS TO REDUCE THE RISK OF FIRE , ELECTRIC SHOCK AND PERSONAL INJURY . ANYWAY ONLY QUALIFIED PERSONNEL CAN APPROACH TO PARTS OF THE MACHINE USUALLY UNDER ELECTRIC POWER AND HE MUST USE ALWAYS THE FOLLOWING RULES :

1. STOP THE MACHINE .
2. DISCONNECT THE ELECTRIC CURRENT BY THE MAIN SWITCH (SEE THE CHAPTER ABOUT THE USE OF THE MACHINE) .
3. TAKE AWAY THE PLUG FROM THE CURRENT-TAP .
4. DO THE NECESSARY OPERATIONS .
5. CONNECT THE PLUG TO THE CURRENT-TAP .

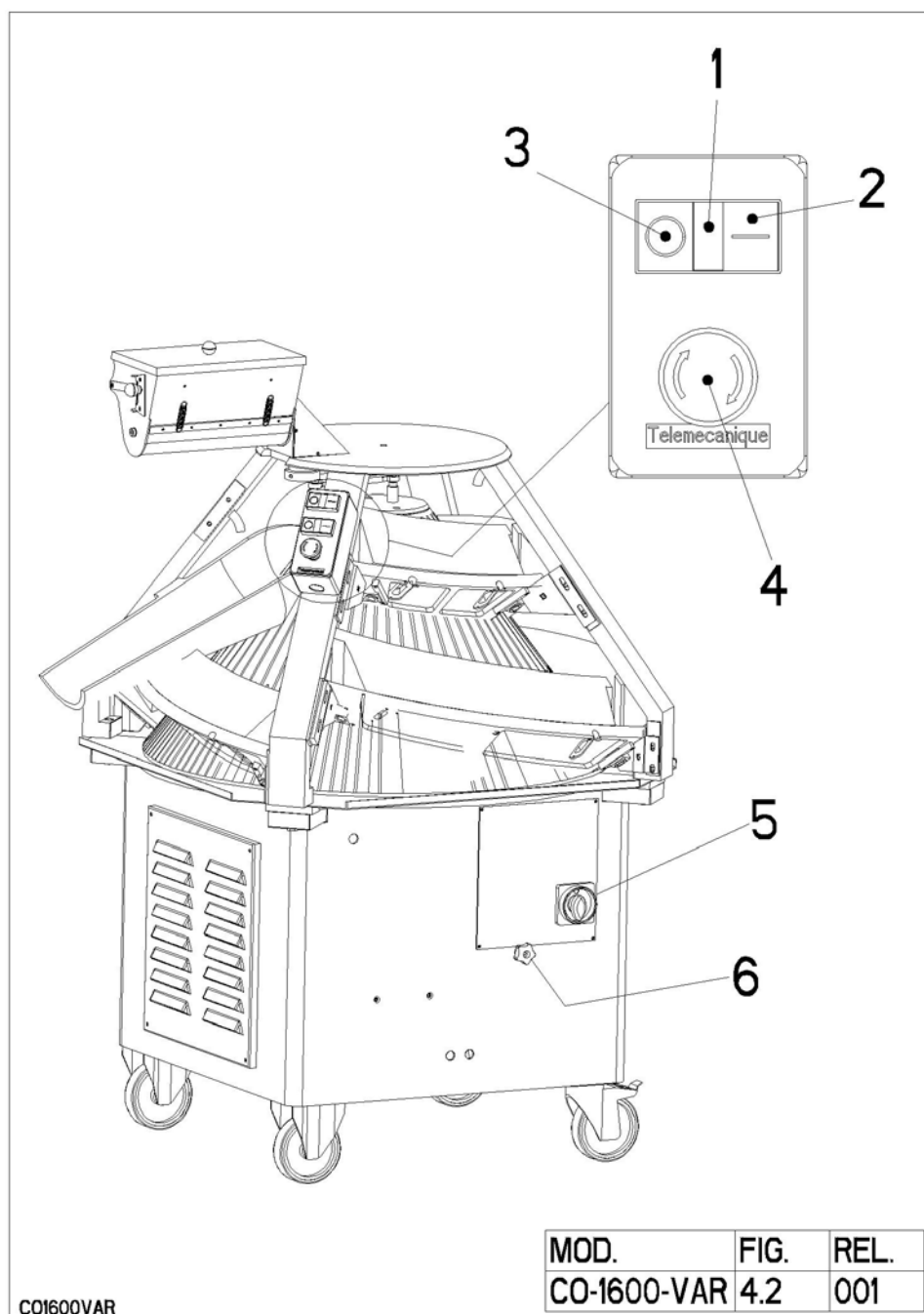


Picture 5.2

6. START AND WORKING OF THE CONICAL ROUNDER

6.1 CONTROL DEVICES

The picture n. 4.2 shows into the circle the control board of the machine



with the following meaning :

indicator light n. 1 : when it switches on , the machine is on line and ready to start .

push-button n. 2 : start button . Pushing this button the machine starts . Usually it is green but it can be also black .

push-button n. 3 : stop button . Pushing this button the machine stops . It is red .

push-button n. 4 : Emergency stop . It is a red mushroom-type push button . Pushing it the whole machine stops immediately .

The number 5 of picture 4.2 shows the main switch of the machine .This device is also a protective device for short-circuit .

The number 6 of picture 4.2 is the switch which controls the ventilation device (optional) .

6.2 EMERGENCY STOP

The machine has an emergency stop which is a red mushroom-type push button . It let the user to stop the machine everytimes , by interrupting the current flow .

The emergency stop conforms to 89/392/CEE and to European standards EN 418 and EN 60204-1 .

When the user pushes the emergency stop, the machine stops and the button is locked in the pushed position .

Resetting the control device shall not by itself cause a restart command : the user have to push the start button to start again the machine .

Emergency stop device reset :

The reset of the emergency stop depend on the kind of button assembled on the machine :

- if the button has two arrows on its surface , it is necessary to rotate it with a clockwise rotation (follow the arrows) : the button resets by itself .
- if the button has not arrows on its surface , it is necessary to draw out the button with a little strain .

6.3 SOUND PRESSURE

The use of particular manufacturing technics , like the use of belts , keeps the noise emission under 70 dB .

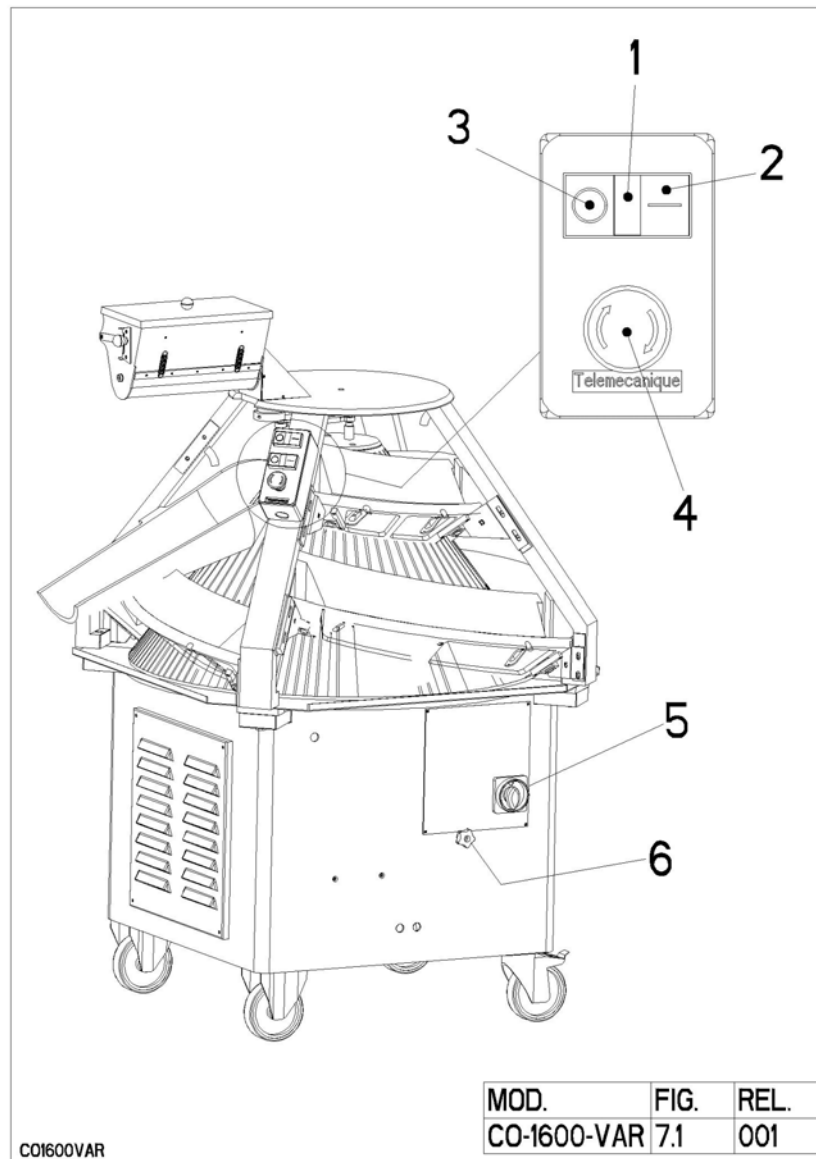
6.4 ELECTROMAGNETIC COMPATIBILITY

The machine conforms to the European standards of 89/336/CEE law .

6.5 GENERAL INFORMATION

- Control that electric cabling follows how described in paragraph n. 5.3 .

6.6 START AND WORKING



1) A main switch gives the electric power to the whole machine (5 of the picture 7.1) . Put it in the vertical position (position I) and control that the light (1 of the picture 7.1) near the black start button switches on .

2) The machine starts when you push the black start button (number 2 of picture 7.1) .

3) CONTROL THAT THE ROTATION OF THE BELL IS THE RIGHT ONE :
THE RED ARROW ON THE FLOUR DUSTER INDICATES IT (IT IS A CLOCKWISE ROTATION)

If it is not so , stop immediately the machine , open the principal plug and follow the instructions of paragraph 5.3.1 .

4) Now the machine is ready to have the pieces of dough into the first canal . The picture n. 7.2 shows where it is possible to load the pieces of dough for the different models of the machine . If you have a divider machine you can position it so that its conveyor belt unloads the dough upon the point indicated by the black income arrows .

5) At the end of the work stop the machine with the red stop button (3 of picture 7.1) .

6) EVERY TIME IS POSSIBLE TO STOP THE MACHINE WITH THE BIG RED EMERGENCY STOP BUTTON (4 of 7.1) .

7) At the end of the whole working cycle , cut out the power with the main switch and control that the light switches off.

6.7 USE OF THE ADJUSTABLE CHANNELS

This machine has the possibility to regulate the distance of the channels from the cone : it allows to obtain two effects :

- the same precision from 30 gr. to 1600 gr.
- to calibrate the rounding force

Each channel has two little handwheel which regulate its distance from the cone . The distance of the channel from the cone increases by unscrewing the two handwheels .

6.7.1 Regulation of the channels in function of the size of the pieces of dough

The general rule is that for the big sizes it's necessary to have a great gap between the channels and the cone .

6.7.2 Regulation of the channels with the same size of the piece of dough

For each size of the piece of dough it's possible to obtain more or less tight piece according to the distance setting of the channels from the cone .

6.8 **WARNING**

There are some important but simply rules to follow when anybody regulates the channels .

1) For the same channel screw or unscrew its two handwheel always at the same time . For example you can use the following method :

- Put in your hands the two handwheels .
- Rotate at the same time the two handwheels for the same number of degrees .

2) When you have regulated all the channels , control that each channel has the next channel which starts in the same point , without make a step (there must be the same gap for all the channels) .

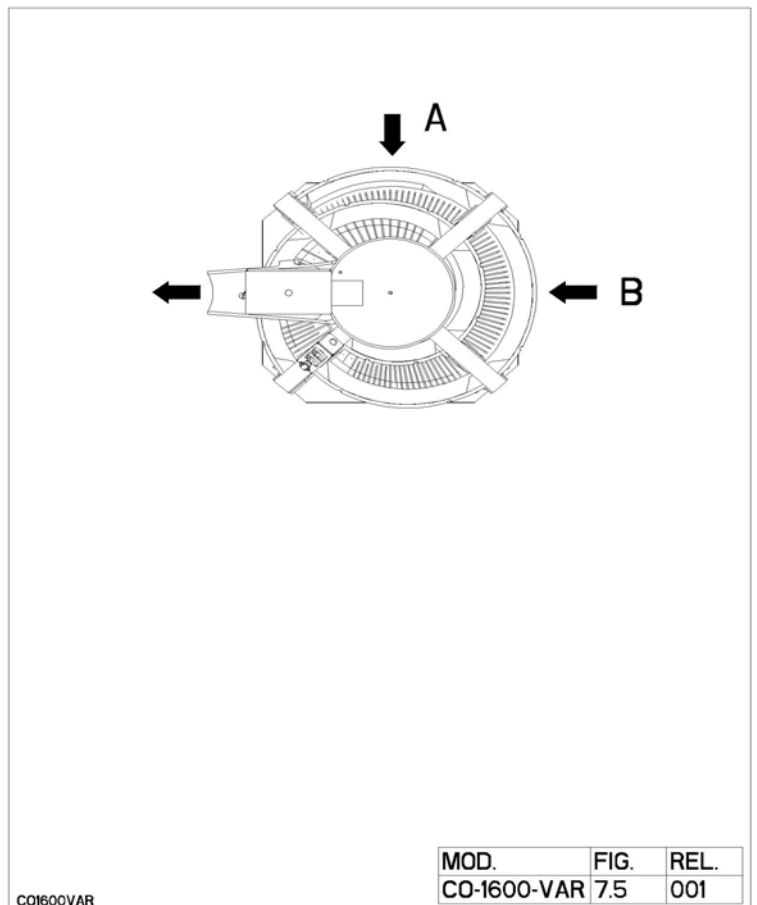
6.8.1 Production of too much dregs of dough

If there is a great production of dough dregs , probably the distance between the channels and the cone is too much little . In this case the dough is pressed in a strong way against the cone and this causes the production of more dregs .

So unscrew the handwheels with the method just described until to found the right position.

6.9 Entry Channel

Usually the entry channel is already mounted in the position A of the picture of this page . For every kind of necessity it is possible to put it in the position B , simply exchanging the two channels of the positions A and B .



6.10 AIR VENTILATION DEVICE

If your machine has the optional air ventilation device , there is a switch (number 6 of the picture 7.1) which controls it .

This switch has 3 positions :

position n. 1 : hot air blows from the pipes of the machine .

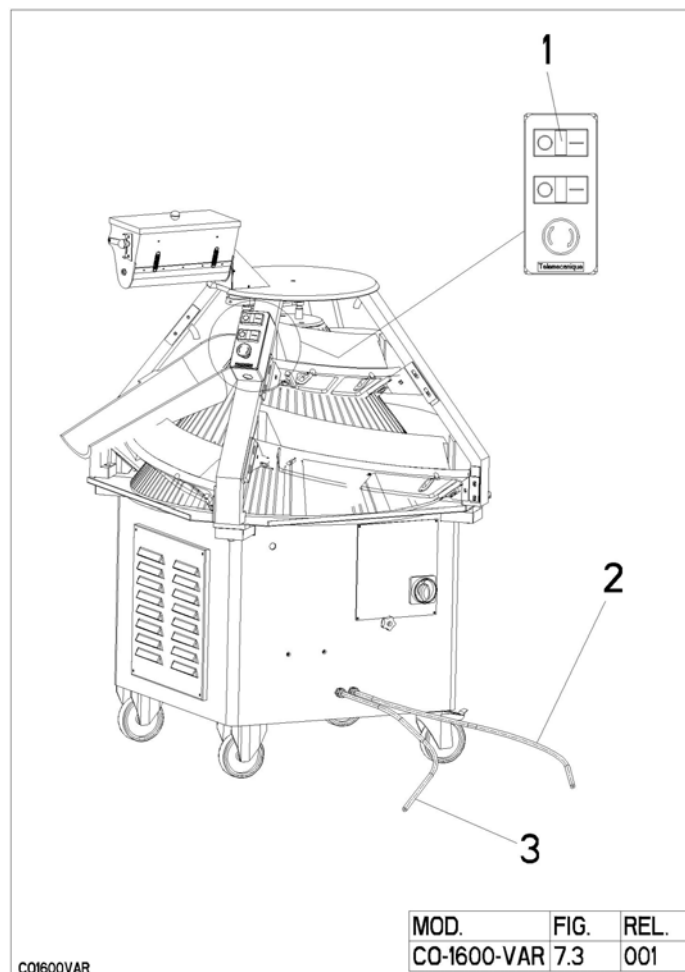
position n. 0 : no air blows .

position n. 2 : cold air blows from the pipes of the machine .

Choose one of the three position in relation with your requirements .

6.11 DEVICE FOR VOLUMETRIC DIVIDER

If your machine has the optional device to control the volumetric divider from the conical rounder refer to the picture number 7.3 :



This configuration has two electric cables : n. 2 and 3 of the picture . The electric cable with the bigger diameter is the cable to connect with electric power , while the cable with the smaller diameter is the cable to connect with the divider .

The instructions for the connection are on the divider machine .

The control board has another switch , the number 1 of the picture 7.3 . This switch has the start (green) and the stop (red) buttons for the divider .

When the roller machine and the divider machine are on line (by using the main switch) , you can start and stop the divider pushing the green and the red button n. 1 of the picture 7.3 .

7. MAINTENANCE

WARNING : BEFORE EVERY CLEANING OR MAINTENANCE OPERATION , CUT OFF THE POWER BY THE MAIN SWITCH AND DISCONNECT THE ELECTRIC PLUG FROM THE CURRENT TAP .

EVERYTIME THERE IS A POTENTIALLY DANGEROUS OPERATION LIKE ADJUSTMENTS , MAINTENANCE, DISASSEMBLY , ELECTRIC OR MECHANICAL SUBSTITUTIONS , THE OPERATOR MUST BE ALWAYS SURE OF THE REAL DISCONNECTION OF THE PLUG FROM THE CURRENT TAP .

DURING AND AFTER EVERY OPERATION WHICH REQUIRES THE DISASSEMBLY OF ONE OR MORE FIXED OR MOVING PROTECTIONS, IT IS FORBIDDEN TO START THE MACHINE UNTIL ALL THE PROTECTIONS ARE CORRECTLY ASSEMBLED AGAIN

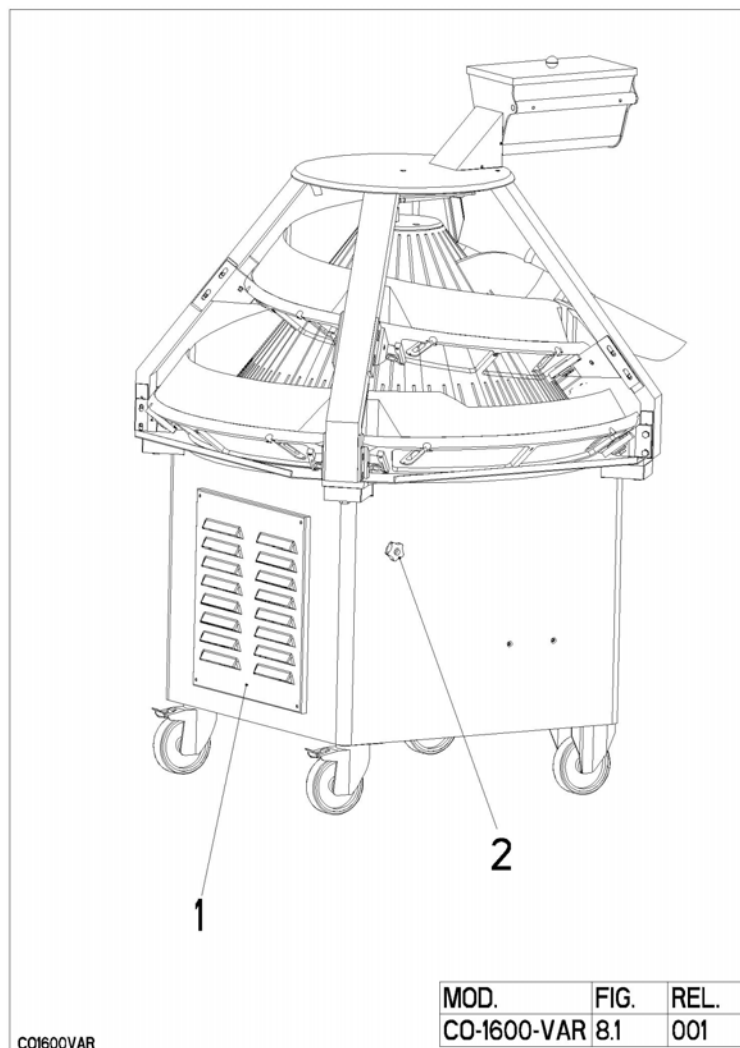
7.1 WHEN THE MACHINE IS NEW

- When the machine is new it is useful to try its functioning with some kilos of dough before starting the production . In this way you will remove the grease remnants of the manufacture .
- After the first month of working it is necessary to control the tension of the belts following the next process :

A) Take away the carter n. 1 of the picture n. 8.1 . The back zone of the machine is now accessible and you can see easily the electromotor and the driving belts .

B) Push with your finger the center of the belts : if the clearance is more then 1 cm you must tighten the belts .

C) You can adjust the tension of the belts by unscrewing the little handwheel n. 2 of the picture n. 8.1 and n. 7 of the picture n. 7.1 . **WARNING : NOT TIGHTEN TOO MUCH THE BELT .**



7.2 EVERY DAY

7.2.1 Cleaning of the machine

The machine must be cleaned every day , especially in all that parts which get in touch with the dough .

For the cleaning not use knives, sharpened, hard or metal objects, brushes too much hard or every other thing which can damage the surfaces. You can use for example, plastic spatulas, soft cloths, etc., and for the carpets of the conveyors, a not hard brush .

NOT USE toxic products, solvents, irritants, abrasives, and every kind of product which an damage the surfaces, or defile the dough .

Before starting the machine control if nothing has been forgotten in the machine .

7.3 EVERY SIX MONTHS

Control of the tension of the driving belt .

Every six months control the tension of the driving belt and if is necessary to adjust it follow the process described in the paragraph 8.1 .

8. SAFETY INSTRUCTIONS

8.1 SAFETY INSTRUCTIONS

- This machine has to be destined only for the use for which it has been expressly conceived . The constructor cannot be considered responsible for possible damages to persons , animals , or things caused by improper , wrong or irrational employment .
- After unpacking , make sure of the entirety of the machine . the packing elements must be kept away from children and are potentially dangerous .
- BEFORE EVERY CLEANING OR MAINTENANCE OPERATION , DEACTIVATE THE MAIN SWITCH AND CUT OFF THE POWER BY DISCONNECTING THE ELECTRIC PLUG FROM THE CURRENT TAP .
- DO NOT DISASSEMBLE ANY PART OF THE SAFETY UNITS OF THE MACHINE .
- NEVER activate the machine if the safety units are not rightly fixed .
- The work of the machine can always be stopped acting on the red stop switch .
- Control board is low-voltage made (24 Volt) .
- In case of damage and/or bad working of the machine , deactivate it and absolutely do not try to repair it . Please apply to qualified personnel only . The repair of the products has to be made only by an assistance center , authorized by the constructor and using original spare only . The not observance of this direction could prejudice the safety of the machine .
- Do the electric connection following the process described in the installation chapter .
- This handbook must always be together the machine in every transfer of the machine .

8.2 HAZARDS

8.2.1 Working gears

8.2.1.1 Cone :

The space between the cone and the spiral-shaped way is less than 0.5 mm. and the longitudinal drills (when there are) have a deepness of 2 mm. In this way there is only a little danger of nipping the fingers .

8.2.1.2 Flour duster

The flour duster is not a dangerous gear : the brush inside has an alternate motion and it is made with no hard materials . It's driving machine has been conceived to avoid hazards , too .

8.2.2 Driving gears :

All the driving gears , which are all potentially dangerous , are protected by fixed guards and for the admittance to these gears it is compulsory to follow the precautions described in this handbook.

8.2.3 Electric hazards

The electric installation follows the safety European standards .
Anyway , when using electric tools , take always the basic safety precautions to reduce the risk of fire , electric shock and personal injury . Only qualified personnel can approach to parts of the machine usually under electric power and he must use always the following rules :

1. STOP THE MACHINE .
2. DISCONNECT THE ELECTRIC CURRENT BY THE MAIN SWITCH (SEE THE CHAPTER ABOUT THE USE OF THE MACHINE) .
3. TAKE AWAY THE PLUG FROM THE CURRENT-TAP .
4. DO THE NECESSARY OPERATIONS .
CONNECT THE PLUG TO THE CURRENT-TAP .

8.2.4 Hygienic hazards

The materials which get in touch with the dough are not toxic as by the law enacted number 108 of 25/01/92 . (25 of January) .

9.SPARE PARTS CATALOGUE

9.1 PICTURES AND IDENTIFICATION CODE

The catalogue needs to help the user in ordering the spare parts . Detail are shown with a design which makes the choice of the single piece easier and help the user for the perfect assembly of each part of the machine . In each design the spare parts are indicated with a position number that enables to easily find it.

Each part has to be identified through an identification code that has to be composed of four parts as per the following example:

FIRST	SECOND	THIRD	FOURTH
MOD.	FIG.	REL.	POS.
CO	020	001	008

FIRST: MODEL: INDICATES THE MODEL OF THE MACHINE

SECOND: FIG:INDICATES THE NUMBER OF THE FIGURE WHERE IS SHOW THE PART.

THIRD: REL: INDICATES THE RELEASE OF THE DRAWING TO RECOGNISE UP GRADES INTERVENTIONS ON THE MACHINE

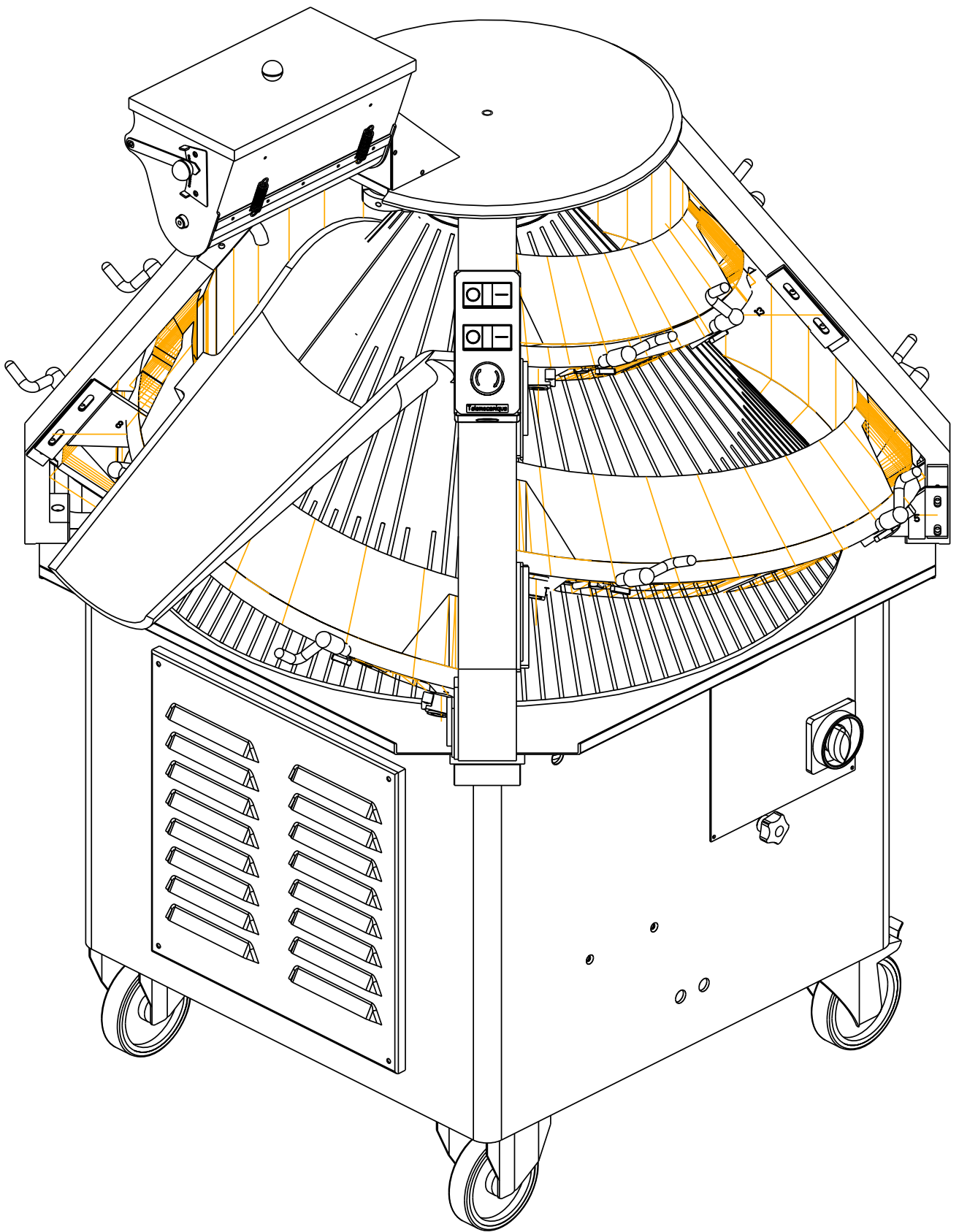
FOURTH: POS: INDICATES POSITION OF THE REQUEST PART INTO THE ABOVE MENTIONED DRAWING

9.2 SPARE ORDERS

For spare parts orders it is necessary to indicate :

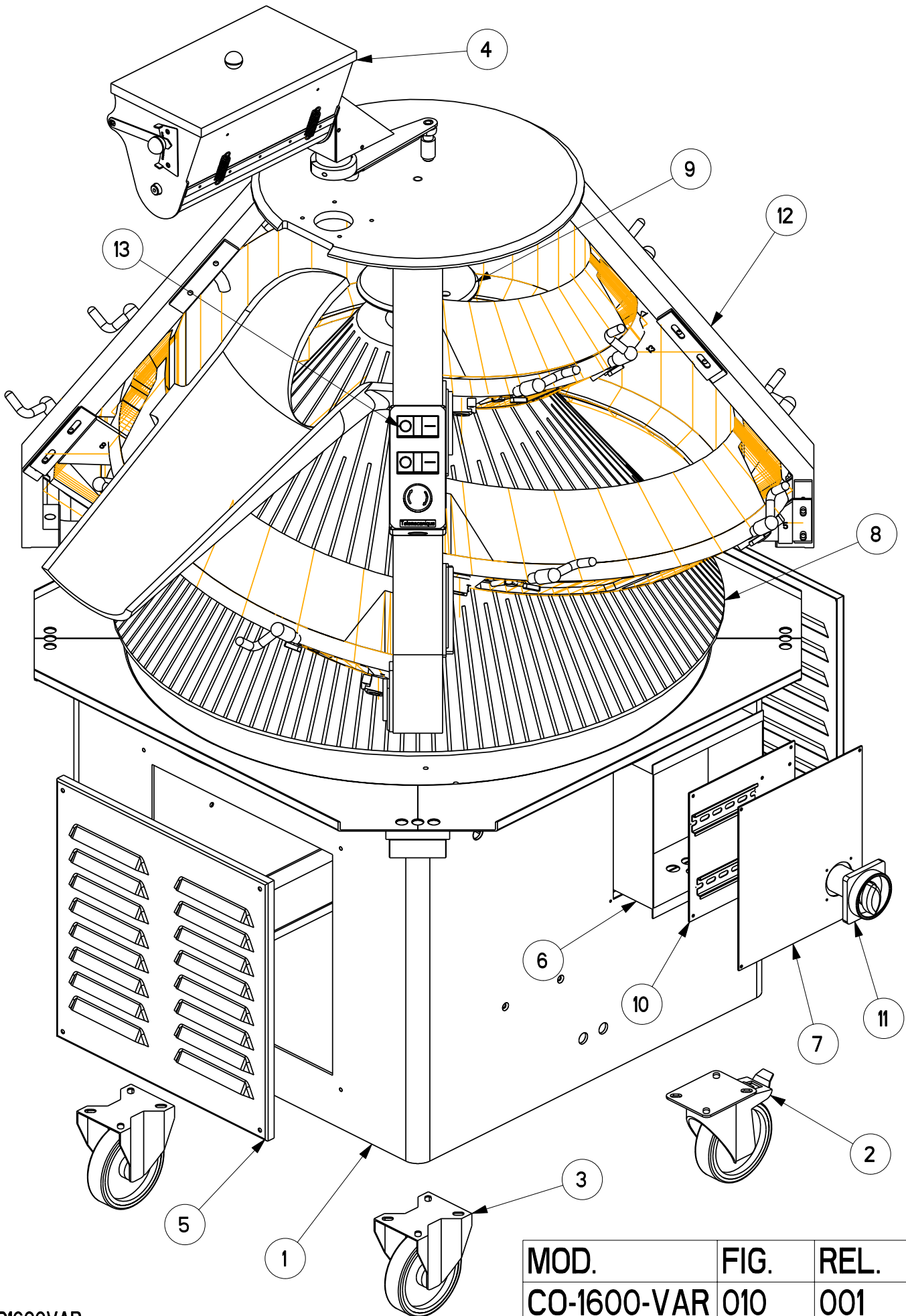
- 1) MODEL OF THE MACHINE
- 2) REGISTER (MATRICULATE) NUMBER (SEE THE MACHINE PLATE)
- 3) DRAWING CODE.
- 4) QUANTITY

TECHNICAL PICTURES
DISEGNI TECNICI
DESSIN TECHNIQUE
TECHNISCHE ZEICHNUNGEN
DISENO TECNICO



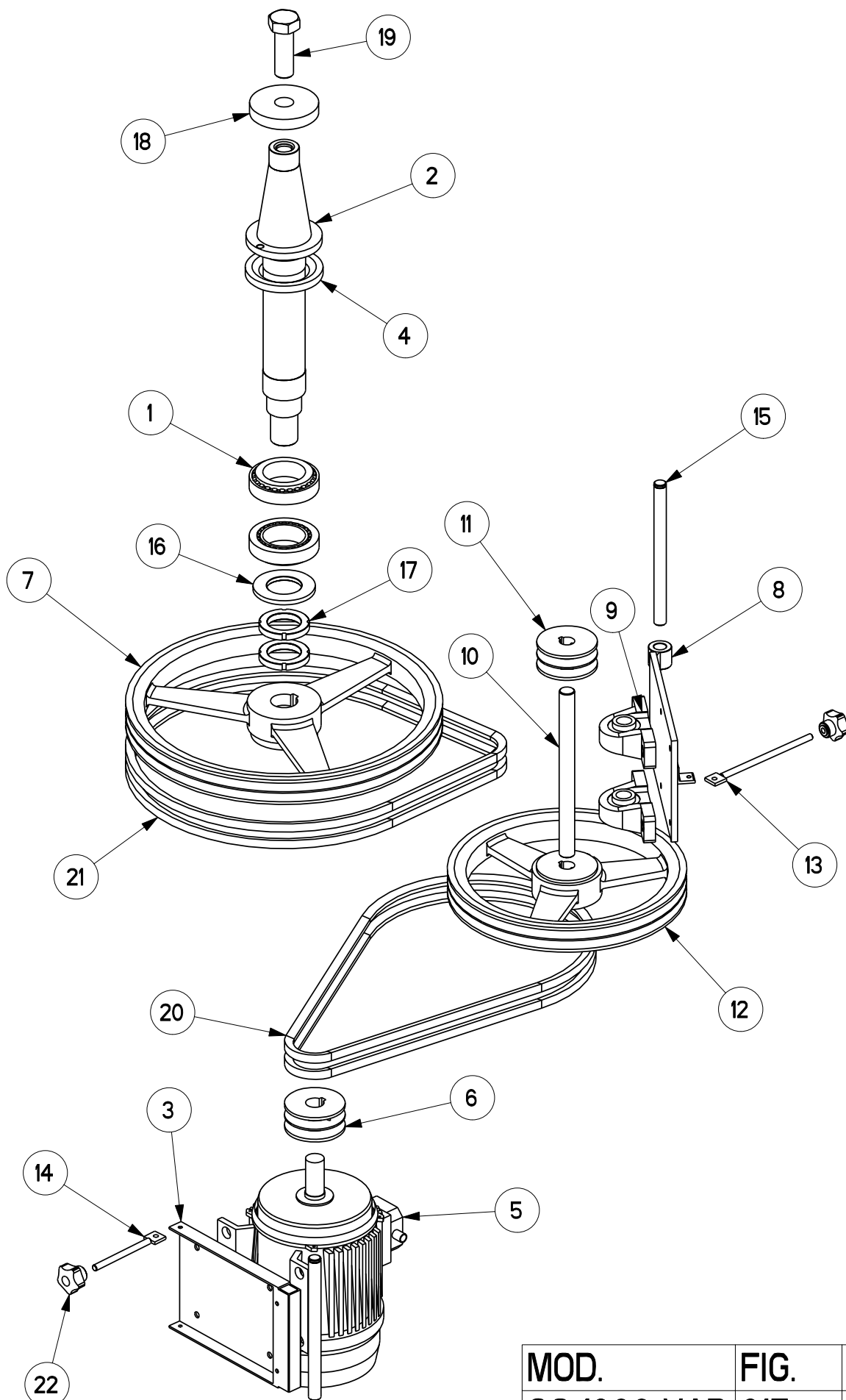
CO1600VAR

MOD.	FIG.	REL.
CO-1600-VAR	005	001

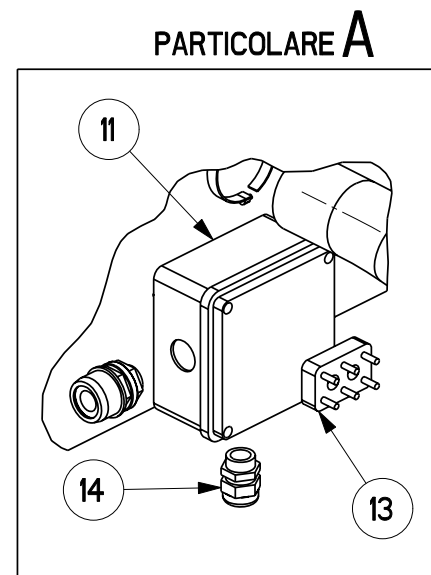
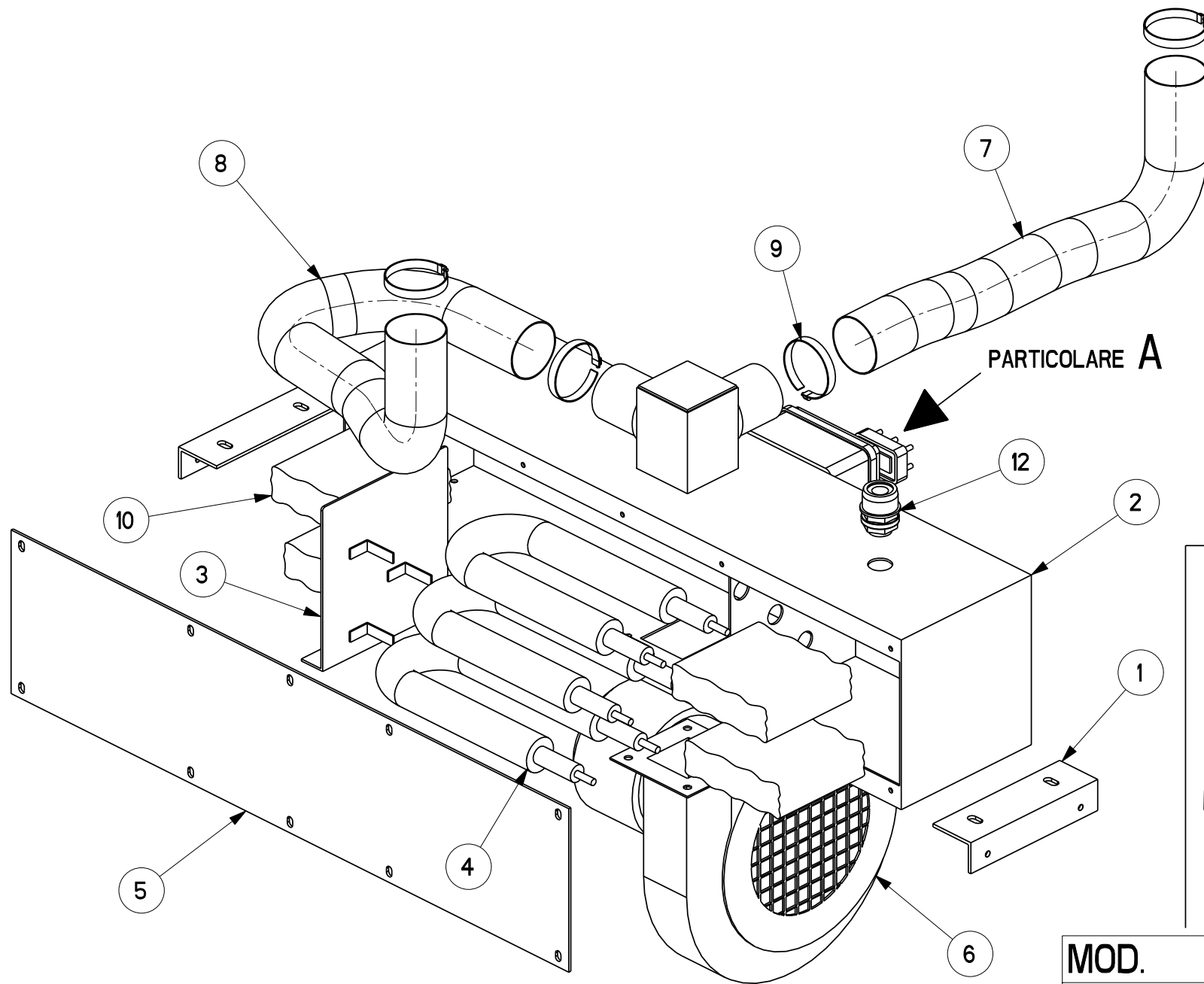


CO1600VAR

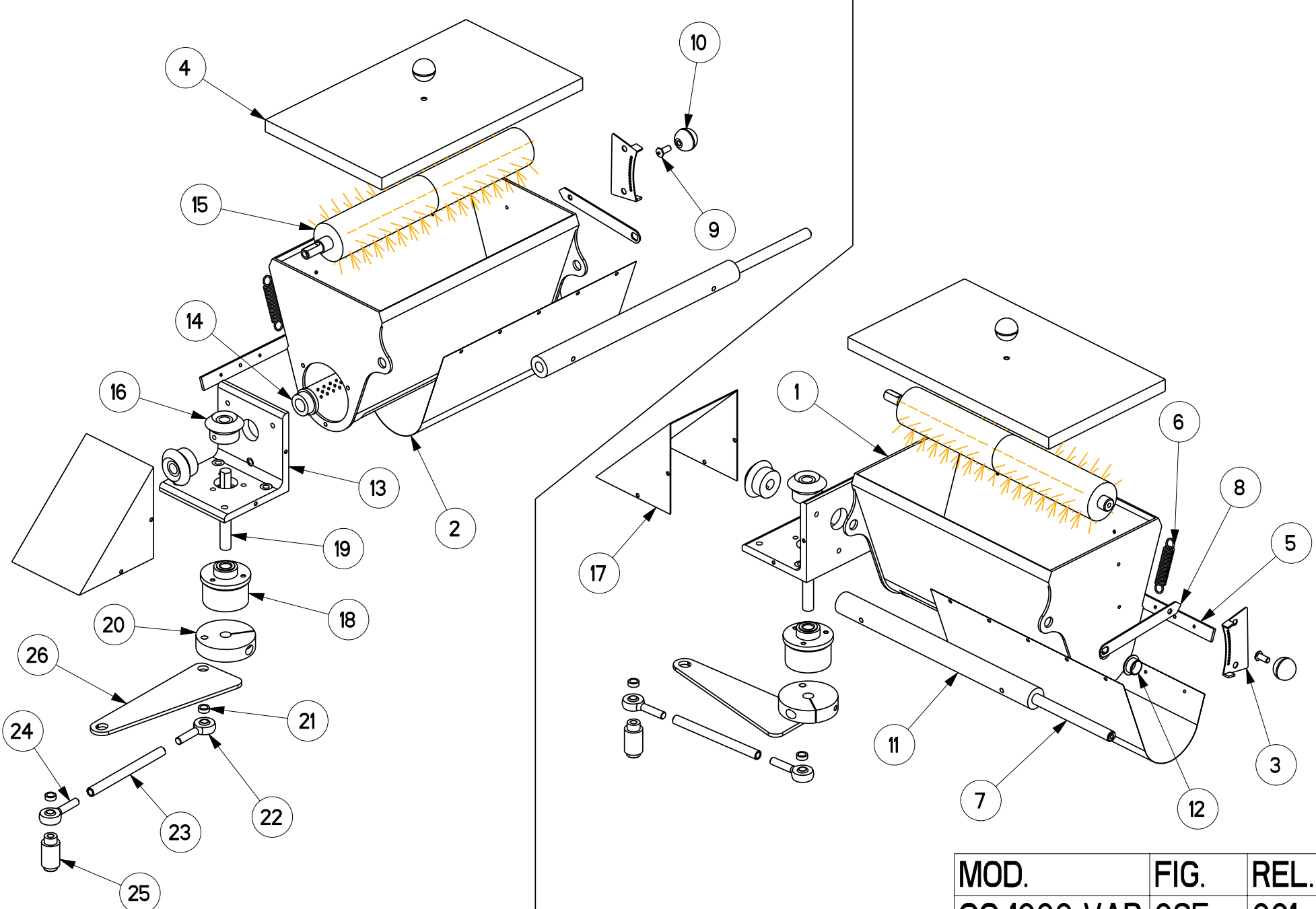
MOD.	FIG.	REL.
CO-1600-VAR	010	001



MOD.	FIG.	REL.
CO-1600-VAR	015	001



MOD.	FIG.	REL.
CO-1600-VAR	020	001



MOD.	FIG.	REL.
CO-1600-VAR	025	001

**IMPIANTO ELETTRICO
WIRING
ELEKTRISCHANLAGE
INSTALLATION ELECTRIQUE
ELECTRICO INSTALACION**

**SEE WIRING DIAGRAM
ON BOARD MACHINE**