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Production code: ROTOR WIND 5E-F



Diamond
catering equipment

Convection electrical oven for bread and pastry

Installation, use and maintenance manual

GENERAL INDEX

CHAP 1.0	GENERAL INFORMATION	
1.1	DECLARATION OF CONFORMITY	PAGE 4
1.2	GENERAL WARNINGS	PAGE 5
1.3	IDENTIFYING DATA	PAGE 6
1.4	SHIPMENT	PAGE 7
1.5	STORAGE AND HANDLING	PAGE 9
1.6	OUT OF SERVICE	PAGE 10
CHAP 2.0	TECHNICAL FEATURES	
2.1	DESCRIPTION	PAGE 12
2.2	REQUISITES OF SITE	PAGE 12
2.3	DIMENSIONS AND CONNECTION OF ELECTRIC OVEN	PAGE 13
2.4	CHARACTERISTICS OF ELECTRIC OVEN	PAGE 14
2.5	SUPPLY CONNECTIONS	PAGE 15
CHAP 3.0	INSTALLATION	
3.1	INSTALLATION	PAGE 19
3.2	ELECTRICAL TESTS	PAGE 23
3.3	CALIBRATING SAFETY THERMOSTAT	PAGE 25
3.4	ADJUSTING AIR FLOW	PAGE 26
3.5	FUNCTIONAL TESTS	PAGE 28
CHAP 4.0	INSTRUCTIONS FOR USE AND MAINTENANCE	
4.1	PRODUCTION CYCLE	PAGE 34
4.2	USEFUL INFORMATION	PAGE 35
4.3	DESCRIPTION OF MAINTENANCE OPERATIONS	PAGE 36
4.4	MAINTENANCE	PAGE 38
CHAP 5.0	TROUBLESHOOTING	
5.1	MALFUNCTIONS AND PROBABLE CAUSES	PAGE 40
5.2	REQUEST FOR SERVICE CALLS	PAGE 41
CHAP 6.0	SAFETY PRECAUTIONS	
6.1	PROHIBITIONS AND OBLIGATIONS	PAGE 44
CHAP 7.0	SPARE PARTS	
7.1	PRECAUTIONS	PAGE 46
7.2	TECHNICAL DESCRIPTION	PAGE 47
CHAP 8.0	ACCESSORIES	
8.1	CART	PAGE 54
8.2	TRAYS	PAGE 55
CHAP 9.0	ELECTRICAL PARTS	
9.1	DESCRIPTION	PAGE 58
	ENCLOSURES	
A	USE OF THE CONTROL PANEL	
B	WIRING DIAGRAM	
C	TOPOGRAPHIC DIAGRAM	
D	FUNCTIONAL DIAGRAM	
E	LIST OF PARTS	

CHAPTER 1.0

General Information

- 1.1** Declaration of Conformity
- 1.2** General Warnings
- 1.3** Identifying Data
- 1.4** Shipment
- 1.5** Storage and Handling
- 1.6** Out of Service

DECLARATION OF CONFORMITY

We: Dr. ZANOLLI s.r.l. via Casa Quindici, 22
37066 Caselle di Sommacampagna VR
declare under our sole responsibility that the equipment:

Manufactured by Dr. ZANOLLI s.r.l.

Model

Serial number

Year of construction

is in conformity with the following European Directives:

- Machines Directive 2006/42/CE
- Electromagnetic Compatibility Directive 2004/108/CE
- Low Tension Directive 2006/95/CE

and with the compulsory regulations of the Directives.

Caselle di Sommacampagna

Dr. Zanolli s.r.l.
Tester

Dr. ZANOLLI s.r.l.
Via Casa Quindici, 22
37066 Caselle di Sommacampagna (Verona) Italy
Tel. + 39 045 8581500 (r.a.)
Fax + 39 045 8581455
web: www.zanolli.it • e-mail: zanolli@zanolli.it

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Azienda con sistema di qualità certificato
UNI EN ISO 9001:2000

1.2 General Warnings

The instruction manual is an integral part of the oven and must be kept in a safe, dry place near the machine for consultation and/or reference.

The instruction manual must be kept for the entire life of the oven.

A new instruction manual can be ordered from the manufacturer or retailer at the same terms of sale of any other replacement part.

The rotary convection oven is designed for use in industrial and small bakeries for the production of "bread, pastry and pasta, for baking dough containing wheat and/or other grain flour, water and other ingredients for human consumption". **The doughs used for baking must not cause or release explosive and/or inflammable emissions.**

The oven may not be used in any other way than that for which it was designed. Any other use must be approved by explicit written authorization of the constructor.

The constructor is not responsible for any damage caused by lack of skill or negligence, such as:

- improper use of the machine by untrained workers;
- modifications or unauthorized intervention;
- use of spare parts that are not original or not specific for the model;
- failure to comply with instructions, wholly or in part.

The constructor reserves the right to improve the product and the manuals, but is not obliged to update the previous production and manuals, except in particular cases.

1.2.1 Conventions

In writing this manual, we have used the following conventional symbols:



- **NOTES** contain important information about the use of the oven



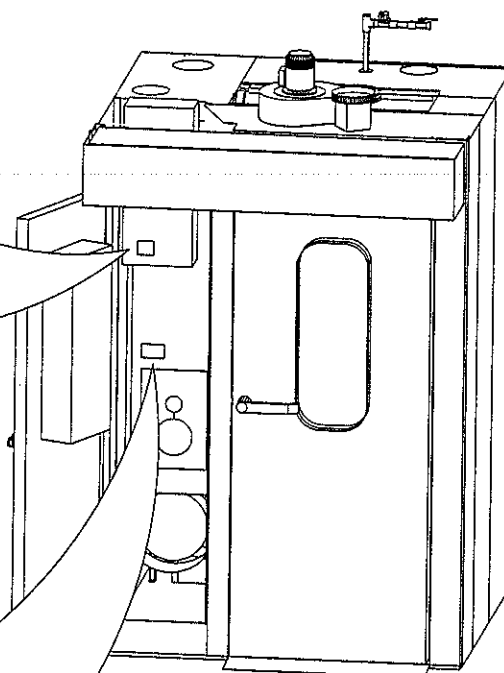
- **WARNINGS** refer to procedures that must be observed. Failure to observe them may result in damage to the machinery



- **CAUTION** messages indicate particular procedures that must be observed. Failure to do so may be hazardous for the operator.

1.3 Identification Data

MODELLO		
		SE/
N. MATRICOLA	ANNO FABB.	INDICE
VOLT	AMP.	HZ
TENSIONE NOMINALE	CORRENTE PIENO CARICO	FREQUENZA
KW	AMP.	
POTENZA INGERITA	N. FASI	CORRENTE CARICO MAGGIORE



MODELLO MODEL	
N. MAT. CODE N.	ANNO FABB. MANUF. YEAR
GENERATORE DI ARIA CALDA	
ALIMENTAZIONE	CATEGORIA
KW	Kcal/h
POTENZIALITA' TERMICA SPESA NOMINALE-Qsn	

CE

1.3.1 Other Information

HEATING

- 1 - COMBUSTION
- 2 - ELECTRIC

ROTATION UNIT

- 1 - HOOK
- 2 - AUTOMATIC LIFT

CONTROL PANEL

- 1 - ELECTROMECHANICAL
- 2 - PROGRAMMABLE ELECTRONIC

1.4 Shipment

In order to improve handling and expedite operations of storage, control, shipment and installation, the oven is supplied with:

1.4.1 Ordinary Shipment (OVEN DISASSEMBLED, OPEN CONTAINER OR OTHER TRANSPORTATION)

POS.	Qty.	DESCRIPTION	FIG	MASSA
1-0	n° 1	preassembled oven complete with steamer, fan mot. with rotor, mirror, right column, lock unit door to electric panel. *the following parts are stowed inside:		
1-1	n° 3	shell supporting chassis		
1-2	n° 1	fume exhaust hood		
1-3	n° 1	steam condenser box		
1-4	n° 1	cart glide rail		
1-5	n° 1	water input and outlet unit		
1-6	n° 1	insulation pipe		
1-7	n° 1	electrical switchboard		
1-8	n° 1	oven entrance chute		
1-9	n° 1	set of oven covering pieces (n°10 pieces)		
1-10	n° 1	door bottom gasket		
1-11	n° 1	overflow hose Ø 70		
1-12	n° 1	box of screws for assembly		
1-13	n°23	bag of insulating material		
1-14	n° 1	pair of gloves		
2-0	n° 1	instruction booklet		
3-0	n° 1	burner insulation panel		
4-0	n° 1	burner insulation side panel		
5-0	n° 1	set of shell panels (n°13 pieces)		
6-0	-----	tray cart		
7-0	-----	trays		

Items 6.0,7.0 are supplied only on request at time of order

1.4.2 Extraordinary Shipment

(OVEN DISASSEMBLED, CLOSED CONTAINER)

POS.	Qty.	DESCRIPTION	FIG.	MASSA
1-0	n° 1	preassembled oven complete with steamer, fan mot. *the following parts are stowed inside:		
1-1	n° 3	shell supporting chassis		
1-2	n° 1	fume exhaust hood		
1-3	n° 1	steam condenser box		
1-4	n° 1	cart glide rail		
1-5	n° 1	water input and outlet unit		
1-6	n° 1	insulation pipe		
1-7	n° 1	electrical switchboard		
1-8	n° 1	oven entrance chute		
1-9	n° 1	set of oven covering pieces (n°13 pieces)		
1-10	n° 1	door bottom gasket		
1-11	n° 1	overflow hose Ø 70		
1-12	n° 1	box of screws for assembly		
1-13	n°20	bag of insulating material		
1-14	n° 1	pair of gloves		
1-15	n° 1	mirror		
1-16	n° 1	lock unit		
1-17	n° 1	door to electrical panel		
2-0	n° 1	instruction booklet		
3-0	n° 1	right column		
4-0	n° 1	burner insulation panel		
5-0	n° 1	burner insulation side panel		
6-0	n° 1	set of shell panels (n°11 pieces)		
7-0	-----	tray cart		
8-0	-----	trays		

Items 7.0,8.0 are supplied only on request at time of order

1.5 Handling

Moving, loading and unloading the oven from the transporting vehicle may be done with a forklift (**fig. 1**) or using a hoist with cables or chains suitable for the weight of the oven shown in **Chap. 1.4**

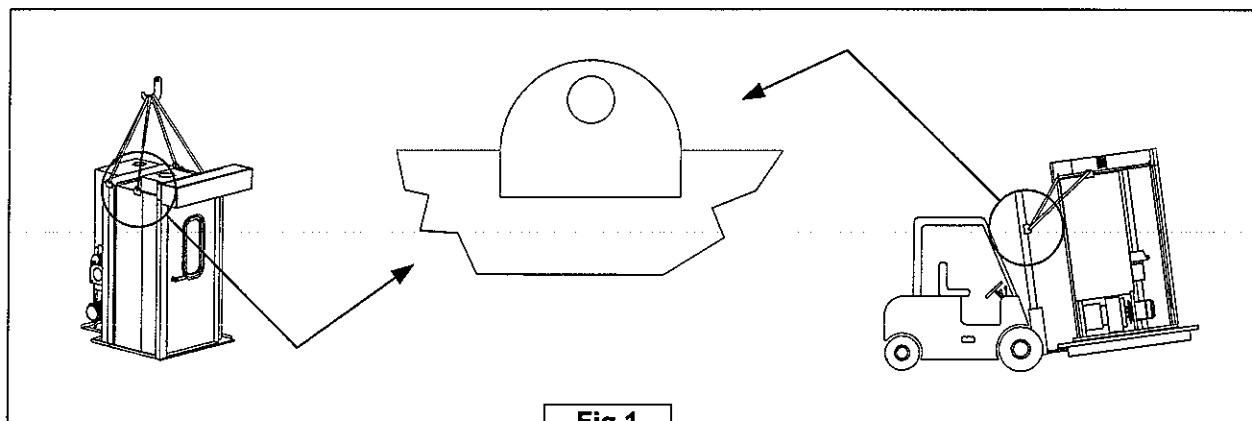


Fig.1

When handling the machine with a forklift, it should be firmly fastened to the vehicle using sturdy cables inserted in the brackets provided.



Use every precaution to avoid damage to the machine when moving it.

1.5.1 Storage



The machine, as it is supplied, cannot be stacked on other ovens or on other goods without providing adequate support and/or suitable covering to prevent deformation of any kind



The temperature in the place of storage should be between -10°C and +70°C.



Climatic conditions as regards humidity must never be such as to cause any condensation



The machine and its parts should not be exposed to the weather.



In general, the oven has a degree of protection equivalent to IP44.

1.6 Out of Service

1.6.1 Extended Periods

When the machine is not in use for an extended period as in the case of summer holidays, extraordinary maintenance, etc., proceed as follows:

- Disconnect the power and water supplies.
- Open the oven door slightly to allow some air to circulate inside and avoid the formation of mould inside the oven.
- In providing the opening as described above, it may be advisable to install a screen to keep mice out, with openings no larger than 5 mm.
- Provide as well as possible for aeration of the premises.



Every 2-3 days let the motors run for about 30 min. This is extremely important for their duration and proper operation.

1.6.2 Dismantling

When the machine is stopped for demolition, proceed as follows:



The power and water supply must be completely disconnected by qualified personnel

To dismantle the oven, the procedure can basically follow the instructions for assembly, working backwards.

Demolition of the oven must be performed by a company that is authorized for the disposal of waste materials. The company will carry out the procedure of dismantling it, separating the materials according to type and provide for their delivery to their final destination.

The insulating material contained in the wall space inside the machine and in the access door must be collected in sturdy plastic bags and stored in special waste disposal facilities.

To remove the door from its housing (**fig. 3**), unscrew the bolt **pos. 1** and remove the plate **pos. 2**.

Unscrew the inside handle by turning it in a counter-clockwise direction; remove the lower gasket; detach the frames and remove the gasket and glass from the door.

Detach the inside panel of the door and remove the insulating material as shown in **fig. 4**.

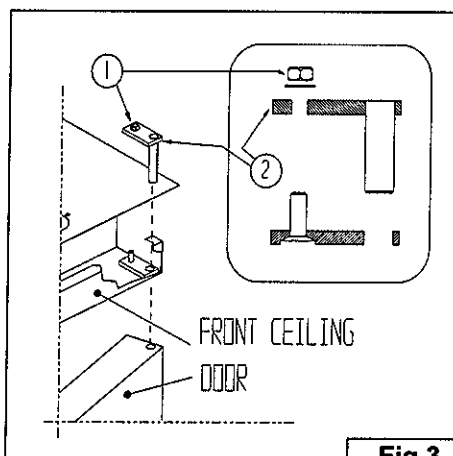


Fig.3

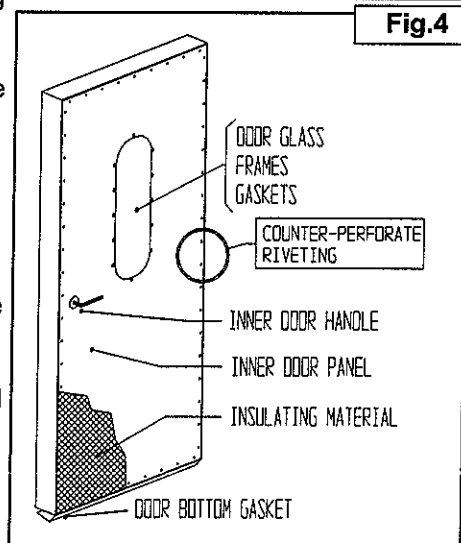


Fig.4



The insulating material in the wall spaces of the machine may irritate the skin and respiratory tract on contact. We recommend wearing protective clothing including a mask and gloves.

CHAPTER 2.0

Technical Features

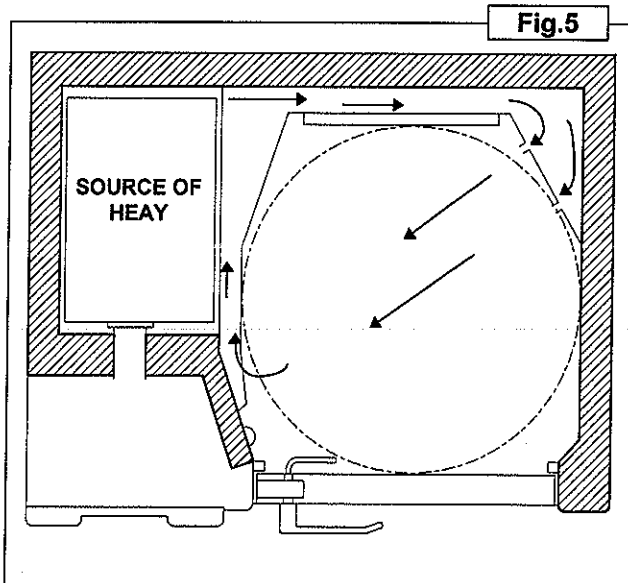
- 2.1** Description
- 2.2** Requisites of Site
- 2.3** Dimensions and Connection of Electric Oven
- 2.4** Characteristics of Electric Oven
- 2.5** Supply Connections

2.1 Description

The operating principle consists of transmitting heat to the food to be baked or thawed by means of preheated air forced to circulate in the oven. The correct temperatures and the correct air speed together with the uniform distribution of the heat are the elements for optimal utilization of the rotary convection oven. A heat source is installed on the rear wall (fig. 5). This may be a combustion or electrical source equipped with a fan that distributes the hot air uniformly by means of special devices to the food. The exhaust air is evacuated through the openings provided and returns inside the combustion chamber to be reheated and recycled into the oven.

The oven is provided with a humidifier that is designed where necessary for proper baking, to produce and transfer steam at atmospheric pressure to the food.

The oven is equipped in the "standard" version with a mechanical pulling and hooking unit. Alternatively the oven can be equipped with a combined mechanical hooking and raising unit. This latter is recommended when heavy loads have to be handled.



2.2 Requisites of the Site

In supplying the indications for proper installation, the constructor does not give any warranty as to the suitability of the premises for installation of the oven and/or the adjacent areas. In this connection, it is advisable to consult a professional expert also as regards the observance of any local laws and/or regulations.

The premises in general must have sufficient openings to allow for the passage of the larger parts of the machine (see Characteristics and Technical Data).

The premises in general must be permanently aerated so as to ensure an adequate supply of comburent air and ventilation in respect of the applicable safety standards for heating systems.

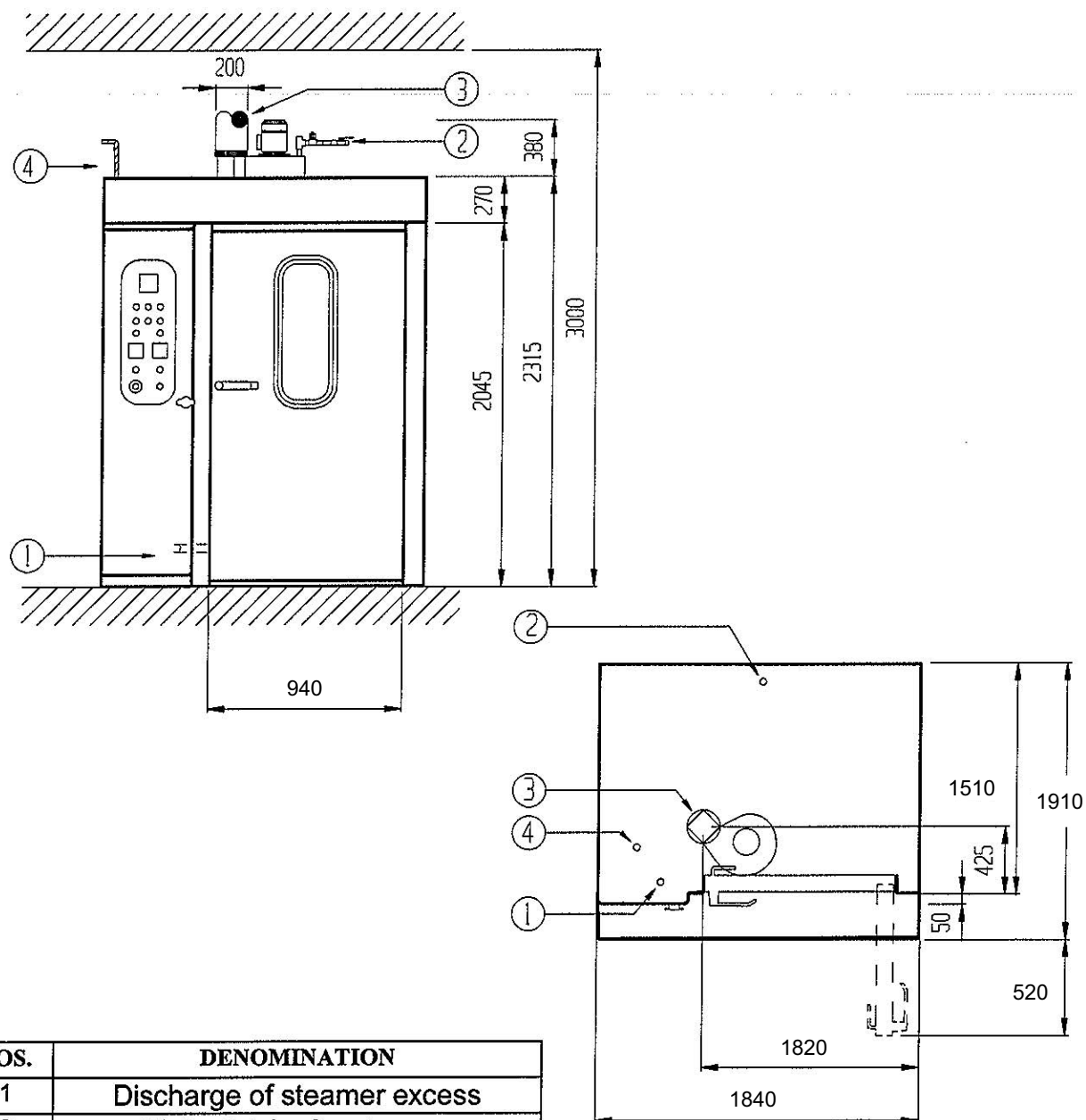
The base on which the oven stands (FLOOR) in its final location must be smooth, flat (using a bubble level) and at the same level as the surrounding area; furthermore it must be able, with an adequate safety margin, to bear the weight of the machine.

Before installing the machine, the site must be prepared with all the supply connections indicated in the diagrams.

There must be a space of at least 60 cm all around the oven and in any case there must be enough room to perform any necessary work on the burner and install the panelling.

At least twice as much room (120-150 cm) should be available in front of the oven to allow ample working space (LOADING/ UNLOADING).

2.3 Dimensions and Connection for Electric Oven



POS.	DENOMINATION
1	Discharge of steamer excess
2	Water intake for steamer
3	Steam exhaust pipe
4	Power supply connection

2.4 Characteristics of Electric Oven

Description	U.M	No.	Remarks
Weight	Kg	1100	
Size oven (base AxB)	mm	1840x1510	
Max. width cart	mm	660	
Max.diagonal cart	mm	1000	
Tray	cm	60x80	
Max. load cart	Kg	90	Hook/platform
Max. load cart	Kg	250	Automatic hoist
Baking surface	m ²	8,6	Cart 18 trays 60x80
Baking surface	m ²	7,2	Cart 15 trays 60x80
Hourly production	Kg	120	
Max. working temp.	°C	300	
Temp. increase rate	°C/min	12	Empty
Temp. increase rate	°C/min	6	With full load
Moistening interval	min	20	Oven temp. 250°C
Steam exhaust fan	dm ³ /s	360	
Power installed	Kw	47	
C.M.G. Energie Electric	Kw	22	

2.5 Oven Connections



The electrical and hydraulic connections must be made in respect of the applicable regulations. They must be made by professionally qualified personnel with authority to issue certificates of conformity as required by law.

2.5.1 Electrical Connection

The electrical power supply must reach the oven through a magnetothermic differential switch which must be:

- grounded
- installed at an appropriate distance from the oven
- readily visible and accessible

The wiring must be suitable for the maximum power absorbed by the oven, with particular attention to the size of the cables which must be suitable for the maximum power absorbed by the machine as indicated on the rating plate and in **Chap. 2.3-2.5**



It is of primary importance to ascertain the condition of the grounding system as a fundamental safety requisite.



It is forbidden to alter and/or tamper with the safety mechanisms and the electrical circuitry installed by the constructor.

2.5.2 Humidifier Supply

The hydraulic connection of the machine includes: intake of clean water at a pressure of 1.5-2 bar, using a 1/2" Ø GAS pipe.

This connection provides for production of steam at atmospheric pressure through the humidifier in the baking chamber.



The installation of a water softener on the supply line reduces the formation of dangerous calcium deposits.

2.5.3 Humidifier Drain

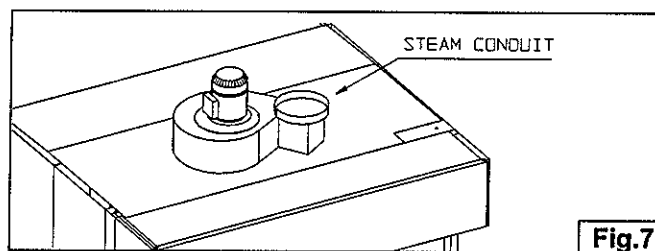
Excess water from the humidifying process is drained out through a 1/2" Ø GAS pipe located in the rear of the oven.



Complete the drain into the sewer or cesspool with a trap.

2.5.7 Steam Vent

The steam that is released from the baking chamber is vented into the atmosphere through a special steam conduit with a diameter of 200. The steam conduit should be installed on the pressure opening of the suction device (fig. 7).



At the base of each ascending tract of the chimney a collection chamber with a condensation drain pipe must be constructed. There must also be an adequate opening for inspection and cleaning.



The use of inoxidizable materials and pipes is to be preferred.

CHAPTER 3.0

Installation

- 3.1** Installation
- 3.2** Electrical Tests
- 3.3** Calibration of Safety Thermostat
- 3.4** Regulating Air Flow
- 3.5** Functional Tests

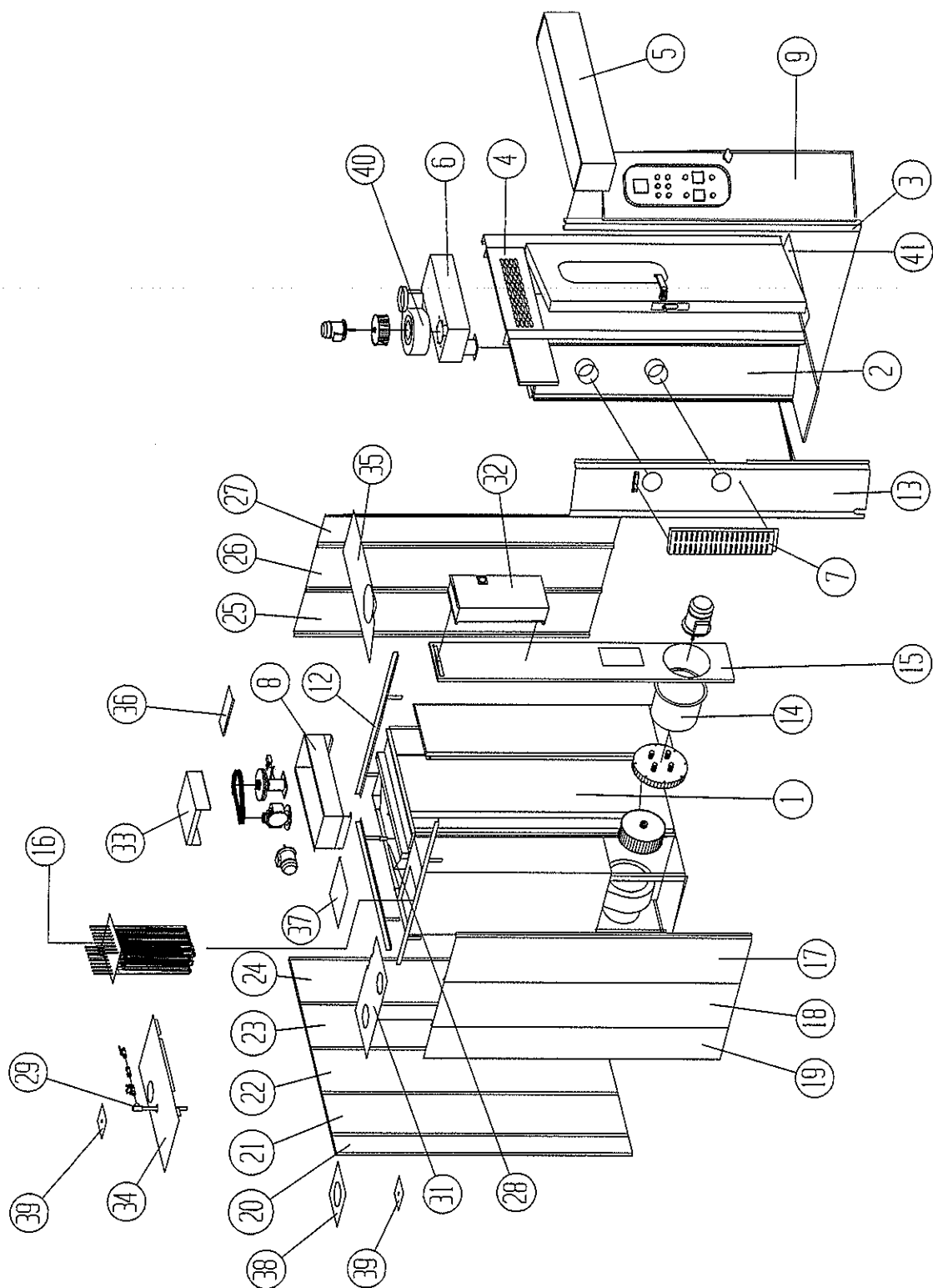


Fig.8

3.1 Installation

3.1.1 Preliminaries

After unpacking, check that all the parts are in good condition.

In case of doubt, contact the supplier.

The packing materials (wooden crate, cardboard box, nails, staples, plastic bags, etc.) must not be abandoned. They are potential sources of pollution and must be properly disposed of.



Remove all the material stowed inside the oven and make sure all the elements are in good condition.

Divide the oven into two parts (rear **pos. 1** and front **pos. 2**) removing the screws used to attach them.

3.1.2 Assembly (fig. 8)

When handling the elements to be assembled, wear protective gloves.

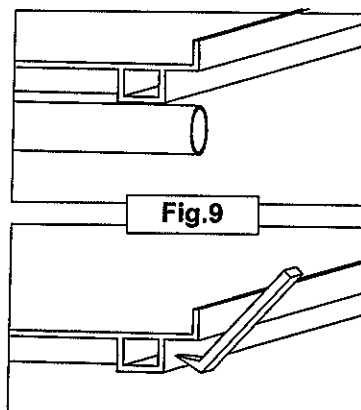
Position the rear section of the oven (**pos. 1**) in its final location, and lay a bead of sealing compound around the perimeter of the junction. (**Part.a**) Fasten the fibreglass insulating plait.

Bring the junction perimeter of the front section into juxtaposition with the corresponding rear section. (**Pos. 2**). Perforate the fibreglass plait and fasten the parts using VTE M8 L.20. Fasten the two base moldings together with VTSEI M8 L.10 inox. Tighten and make the bolts fast.

Check that the oven is level.



Caution: Check the stability of the door. In any position the door must be stable.



As needed, the oven can be moved slightly to position it. Use the tools shown in **Fig. 9**.

Inside the baking chamber, apply sealer around the junction perimeter.

Next, fasten the following elements, if applicable, in the order shown:

Right column (**Pos. 3**); mirror (**Pos. 4**); exhaust hood (**Pos. 5**); locking unit (**Pos. 10**).

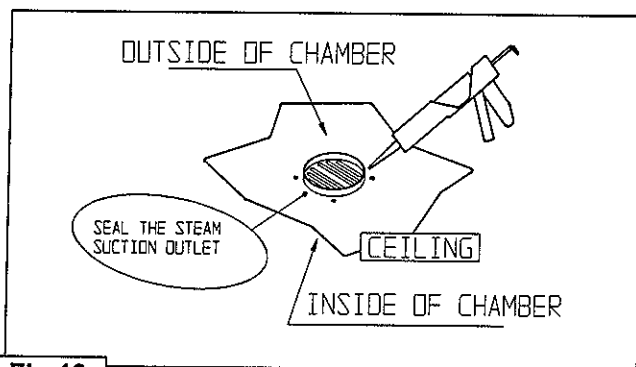


Fig.10

Lay a bead of sealing compound around the steam outlet on the outside of the baking chamber (**Fig. 10**). Set the steam suction box (**Pos. 6**) in place taking care to fasten it to the ceiling with VTE M8 L.16 inox. Complete the operation by joining, with self-threading screws $\varnothing$ 6.3 L.19: the hood (**Pos. 5**); mirror (**Pos. 4**); steam suction box (**Pos. 6**).

Connect the $\varnothing 70$ overflow pipe protruding from the ceiling and the $\varnothing 70$ intake pipe on the steam suction box with stainless steel $\varnothing 80$ flexible piping.

Seal every possible steam outlet (Fig. 11)

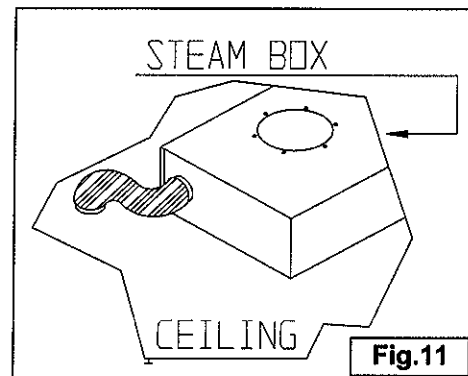


Fig.11

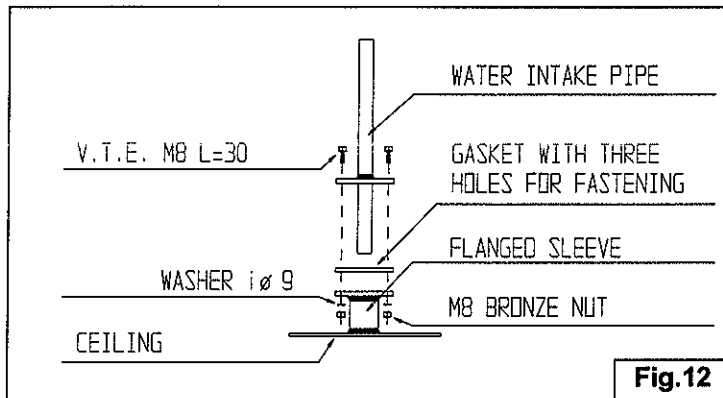


Fig.12

Install the water intake unit (Pos.29) on the flanged sleeve (Pos.28) as shown in Fig. 12.

Fix the convex glass in the appropriate housings inside the set of elements chamber (Fig. 13).

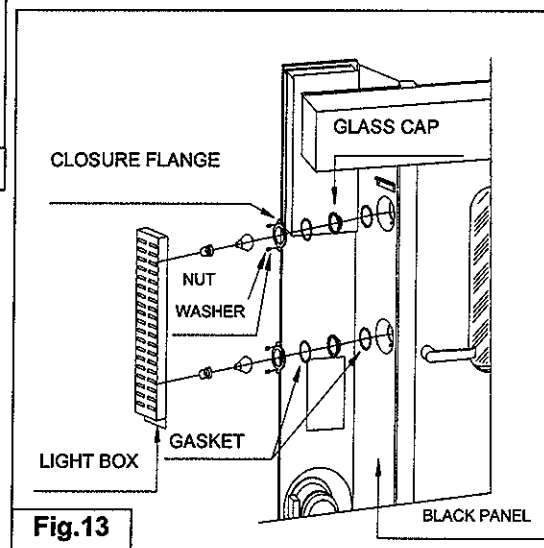


Fig.13

Position the unit designed for movement of the cart (Pos. 8) on the tubular rods welded onto the outside of the ceiling. Proceed with assembly installing the part that moves the cart of the required type: Hook (Fig. 14) ; Automatic Hoist (Fig. 15).

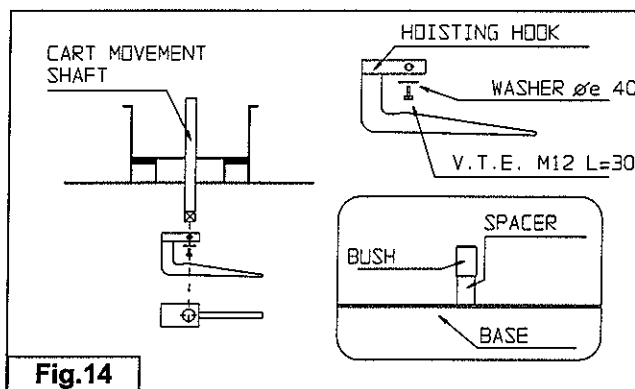


Fig.14

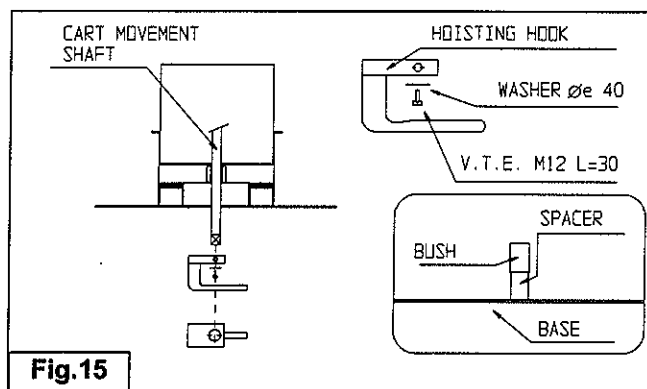


Fig.15

Fasten the two shell support frames (Pos. 12) as shown in Fig. 16.

- Fill the wall space in the oven structure with the insulating material contained in the bags, starting from the lower section of the heat exchanger, taking care to press it, to make it uniformly compact.

This operation is extremely important to ensure the best possible insulation.

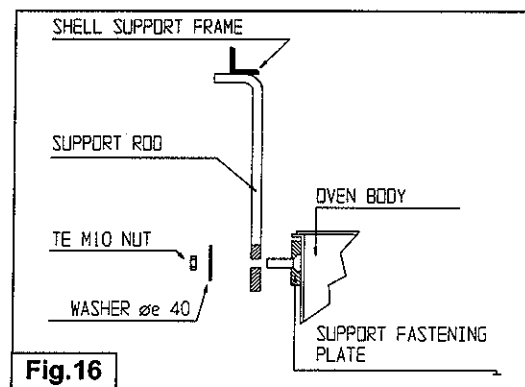
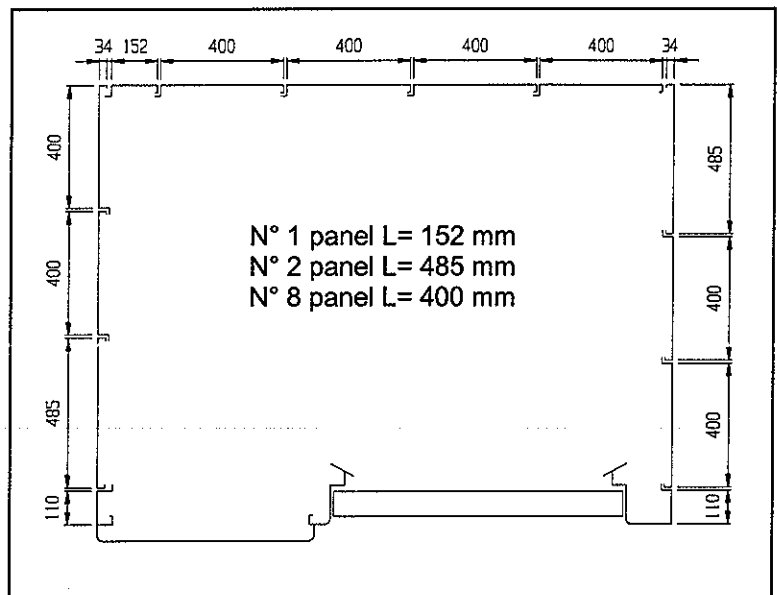


Fig.16

- Install the outer panel (**Pos. 17**) inserting and pressing the insulating material. Continue alternating panel/insulation and proceed to install the remaining panels (**Pos. 18, 19, 20, 21, 22, 23, 24, 25, 26, 27**).

Fit the resistance set (**Pos. 16**), fix it in its flange with the provided brass bolts. Make sure the connecting bolts on the resistor terminals are well tightened, to avoid electric arc. Make, in this case too, a good sealing on the flanging.

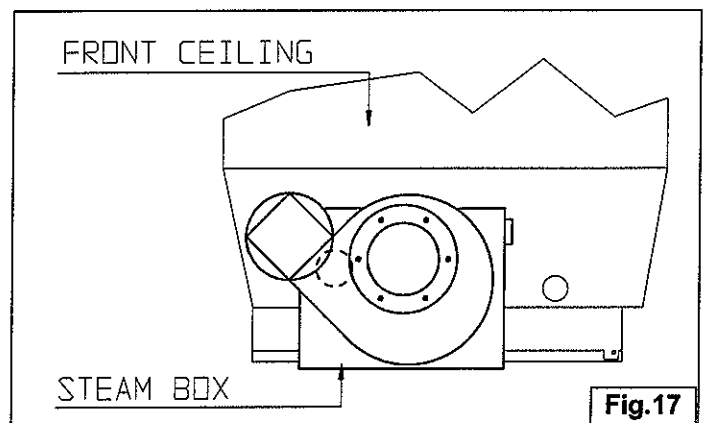


- Install the casing parts in the following order: combustion chamber (**Pos. 31**) - rear cover (**Pos. 34**) - front cover (**Pos. 35**) - right compensator (**Pos. 36**) - left compensator (**Pos. 37**) - and chimney closure (**Pos. 38**). Use self-perforating screws $\varnothing$ 5.5 L. 19 to fasten the parts and self-threading screws $\varnothing$ 6.3 L. 19 where provided for.

- Position the light box in line with the convex glass (**Pos. 7**); check and if necessary mount the lamps supplied.

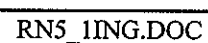
- The probe cover (**Pos. 39**) should be fastened to the casing after threading their wires through the hole provided and fitting them in their housings.

- Put the steam suction unit (**Pos. 40**) in place and secure it as shown in **Fig. 17**.



- Perform the necessary connections: electrical, hydraulic supply as described.
- Secure the sheathing of the electrical system to the shell of the oven using the rods supplied.
- Close the base contact perimeter with a bead of sealing compound.
- Install the chute for the cart (**Pos. 41**)

-
- Diagram illustrating the safe handling of a cryogenic storage container. The container is shown with its lid open, revealing internal components. Two callouts are present: one on the left showing a hand wearing a protective glove, and one on the right showing a hand holding a container with a warning symbol (a circle with a diagonal line and wavy lines) and the text "USCITA FLUIDO CALDO" (Hot fluid exit).



3.2 Electrical Tests

The tests discussed in this chapter are for:

- **Continuity of the protection circuit**
- **Resistance of insulation**
- **Voltage test**

The electrical tests listed must be performed when installation is complete but before operating the machine.

They must be performed by qualified professional experts using specific instruments in perfect working order.

The observations and outcome of the tests performed must be registered on the test form provided which must be filled out completely and sent to the constructor.

3.2.1 Test Equipment

The high voltage transformer must be equipped with a voltage sensitive device (overvoltage device) that, when activated, indicates "unacceptable".

When charged up to the tripping voltage, the transformer must supply the prescribed voltage nonetheless.

3.2.2 Continuity of the equipotential circuit

The equipotential protection circuit must be visually inspected to ascertain that it corresponds to the regulations. The connections of the protection leads should also be checked to ensure that they are securely fastened.

In addition, the continuity of the protection circuit must be ascertained by applying a voltage of at least 10A at 50 Hz derived for a **PELV** source for at least 10 sec.

The tests must be performed between the **PE** terminal clamp and the various points that make up the equipotential protection circuit.

The voltage measured between the **PE** terminal clamp and the test points must not exceed the values shown in the table below.

Minimum effective section of equipotential protection wire of the part tested (mm)	Maximum line drop measured (V)
1,0	3,3
1,5	2,6
2,5	1,9
4,0	1,4
6,0	1,0

3.2.3 Insulation Resistance Test

The insulation resistance measured at 500 V DC between the wires of the power circuit and the equipotential protection circuit must not be lower than 1MΩ.

3.2.4 Voltage Tests

The electrical system must support a test voltage applied for a period of at least 1 sec on the wires of all the circuits except those that have to function at the **PELV** voltages or lower, and the equipotential protection circuit.

The test voltage must be:

- twice the nominal input voltage of the equipment, or 1000 V, whichever is higher.
- at a frequency of 50 Hz.
- supplied by a transformer with a minimum nominal power of 500 VA.



The elements that do not have the dimensions to withstand this test must be disconnected during the test.

3.2.5 Repeating Tests

Whenever a part of the machine and any apparatus connected with it are replaced or modified, the part must be tested again as described above.

3.3 Calibration of Safety Thermostat



Before performing any work on the power supply panel, insulate the machine electrically.

- At the time of installation and testing, the maximum operating temperature is specifically set and calibrated.

The main purpose of this operation is to safeguard the operators from any possible overheating of the machine.

- After setting the operating temperature (Max. 300°C) on the control panel with the heat adjustment setting (Fig. 23), calibrate the safety thermostat on the power supply panel at a value that is 50°C higher than the maximum operating temperature setting.

Example: Dough type A baking temperature 220°

Dough type B baking temperature 260°

Dough type C baking temperature 250°

Pick the highest baking temperature (260°C) and add 50°C. Calibrate the thermostat at a maximum of 310°C (260°+50°).



The use of the oven at temperatures higher than 300°C (three hundred degrees centigrade) must be permitted with explicit written authorization from the constructor.

All temperatures indicated are expressed in centigrade degrees.

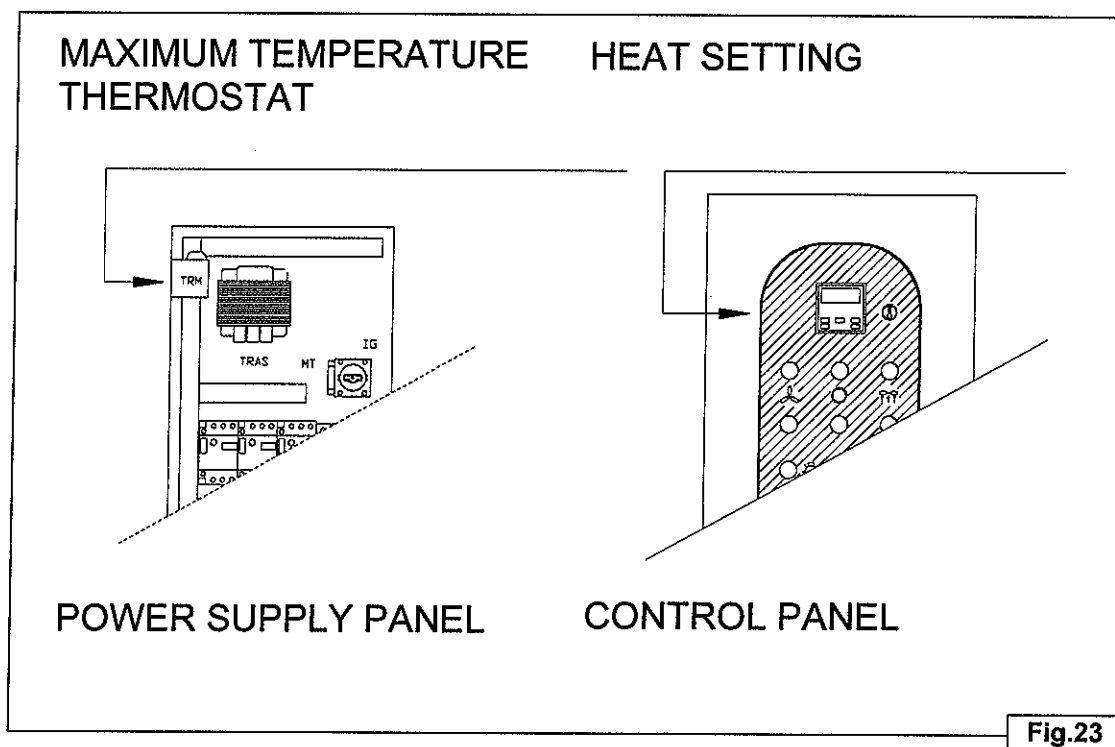


Fig.23

3.4 Air Flow Adjustment

Ascertain that all the air locks have the air flow fins turned towards the inside of the baking chamber and are positioned at the center of the slit (Fig. 21)

As the air locks are slanted (Fig. 20) the measurement of the standard adjustment shown in Fig. 22 must be taken in the narrowest part (REAL SECTION).

The air locks (Pos. a Fig. 20) affect the baking of the dough in the center area of the trays; those in Pos. b affect baking at the sides..

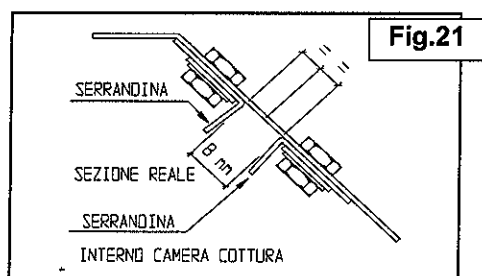


Fig.21

The Fig.22, seen from the inside of the baking chamber, shows the standard adjustment figures for the air locks.

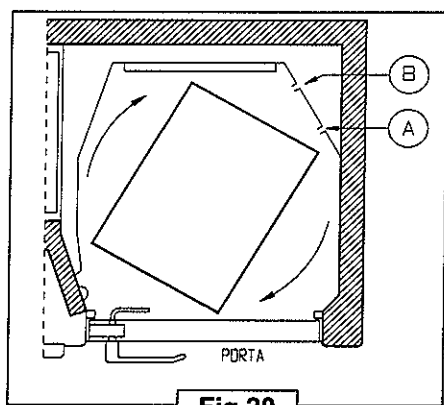
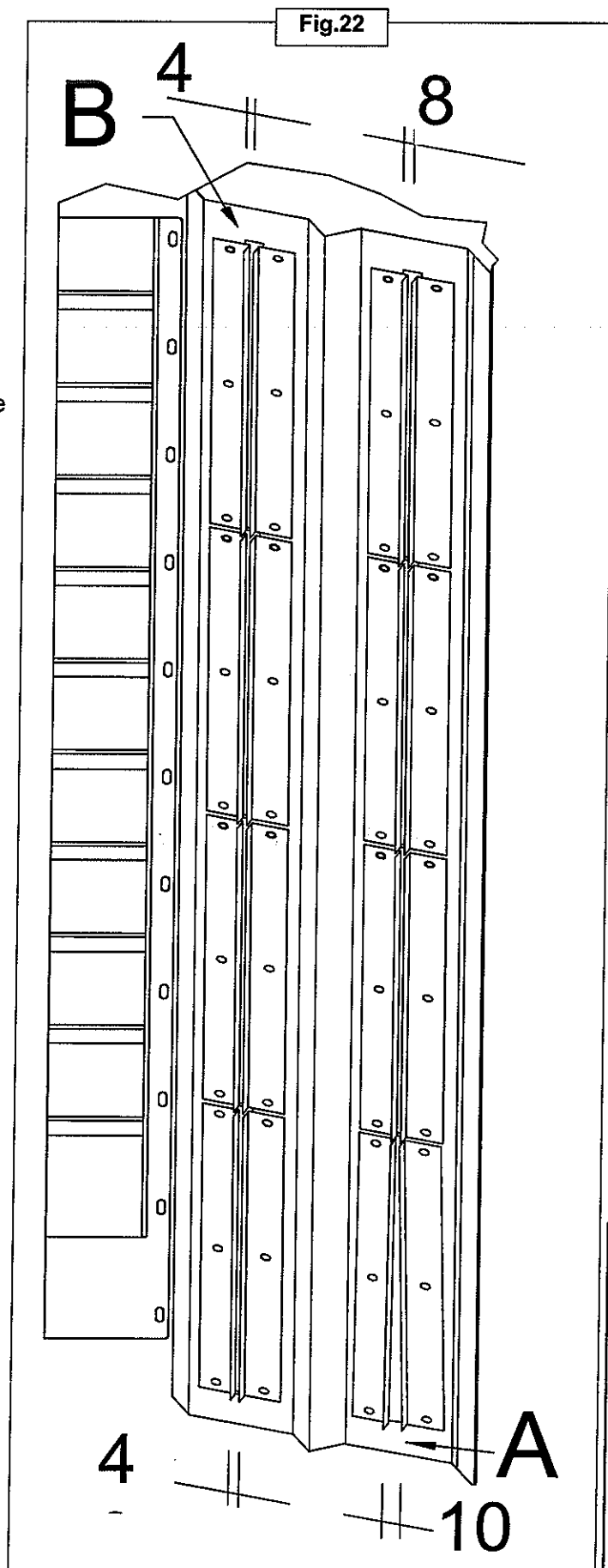


Fig.20



The maximum aperture of the air flow should not be greater than 10 mm at the real section



3.4.1 Examples of Adjustment:

With standard adjustment, the baked dough is:

White at the center on all trays

ADJUSTMENT: increase the aperture of all air locks **Pos.a Fig. 22.22**

White at the sides on all trays

ADJUSTMENT: Increase the aperture of all air locks **Pos.b Fig. 22**

- White at the center on some trays

ADJUSTMENT: Move the air locks **Pos.a Fig.22** corresponding to the trays that do not bake, 1mm to the left

ATT. This movement must be carried out on both the air locks, thus maintaining the same aperture.

- Too much cooked on center on some trays:

ADJUSTMENT: Move the air locks **Pos.a Fig.22** corresponding to the trays that do not bake, 1mm to the right

Usually the air locks **Pos.a Fig.22** to the right of the oven bake the center of the tray less, if they are moved to the left, the oven bakes the center of the tray more.

The change in the air lock opening should **not be more than 1 mm** for each adjustment

3.5 Functional Testing

3.5.1 Oven electrically insulated:



Ascertain that the electrical tests illustrated in the specific paragraph have been properly performed and that the technician has filled out and signed the special form supplied.



The warranty on the machine does not go into effect unless the electrical test certificate is fully completed and sent to the constructor.

- Check the calibration of the overload cutout. (IT MUST NOT BE HIGHER THAN THE VALUE SHOWN ON THE RATING PLATE.)
- If the oven is a model with electromechanical pushbutton board, set the timer for the fan pause time after steaming at 30 seconds.
- Calibrate the safety thermostat at 200°C (ONLY FOR THE TEST).
- Check the correct installation of the air locks.

3.5.2 Apply Electricity

Turn the thermoregulator ⌚ to zero, close the door, operate the switches in the following order:

Fan ⚙

Cart rotation ○

Suction 🌀

and ascertain the correct direction of rotation as shown in Fig. 24.

- If rotation occurs in the opposite direction, switch off the power immediately and correct.
- Ascertain that all the luminous indicators are functioning properly.
- Check the operation of the light inside the oven using the light switch ☀.

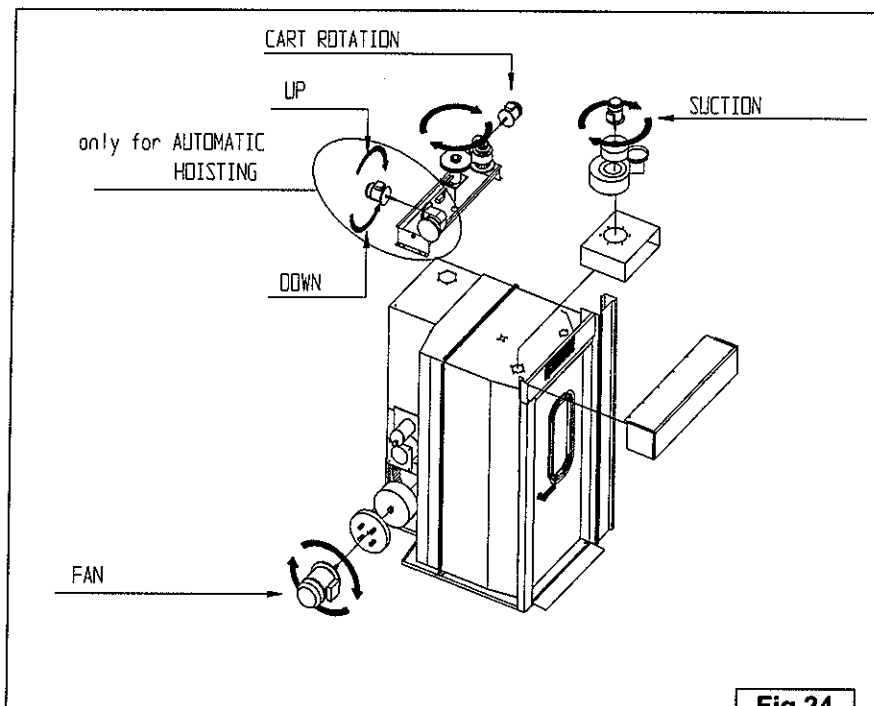
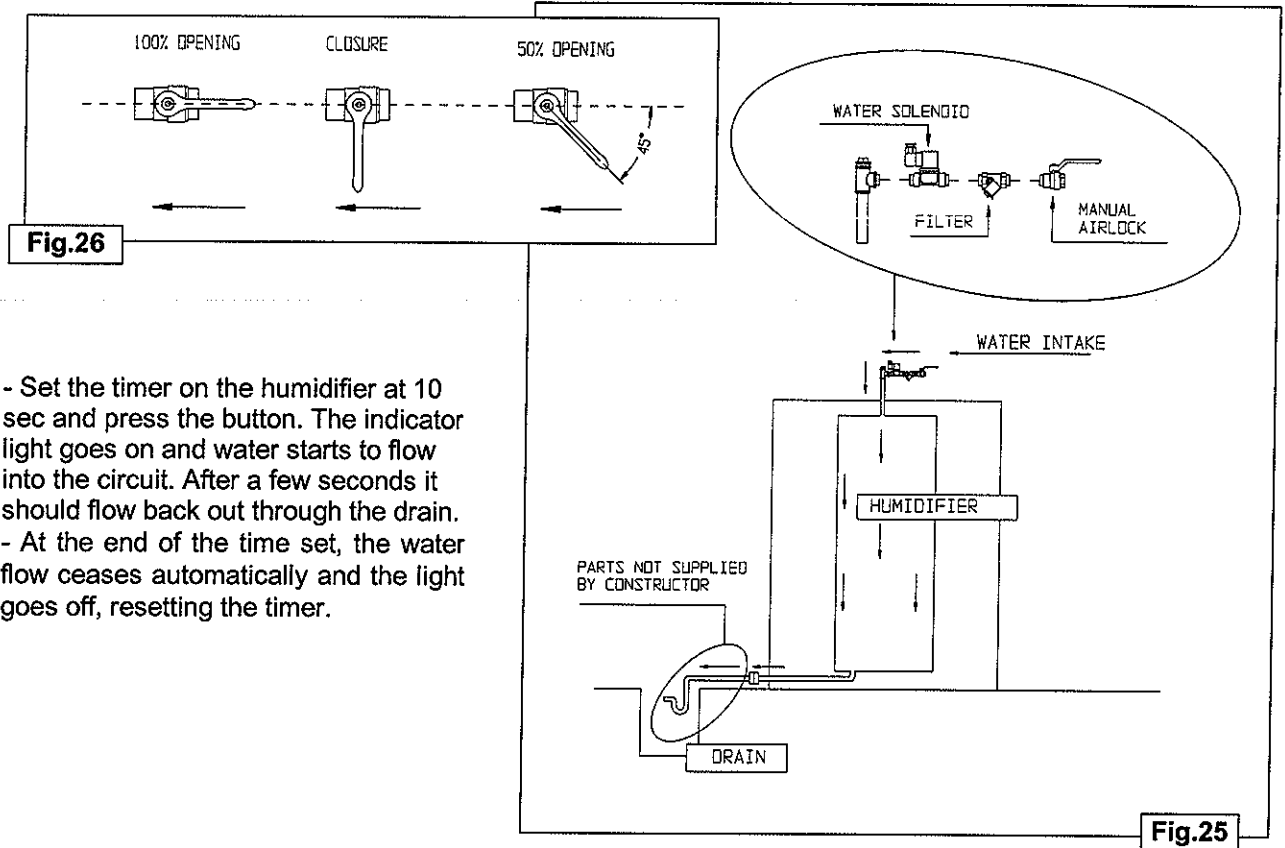


Fig.24

- Check the operation of the acoustic signalling device at end of cycle by setting a baking time of 5 min. Switch on ⌚ and after 5 minutes the acoustic signal should function. Silence it with the silencer switch ⌚.

- Check the water circuit (**Fig 25**) with the humidifier cold. Adjust the opening on the manual airlock at 50% as shown in **Fig. 26**.

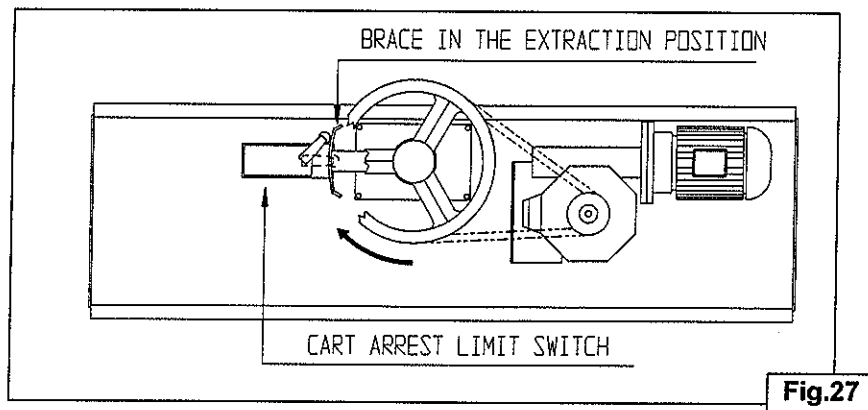


- Set the timer on the humidifier at 10 sec and press the button. The indicator light goes on and water starts to flow into the circuit. After a few seconds it should flow back out through the drain.
- At the end of the time set, the water flow ceases automatically and the light goes off, resetting the timer.



Before removing the casing from the cart movement system, disconnect the power.

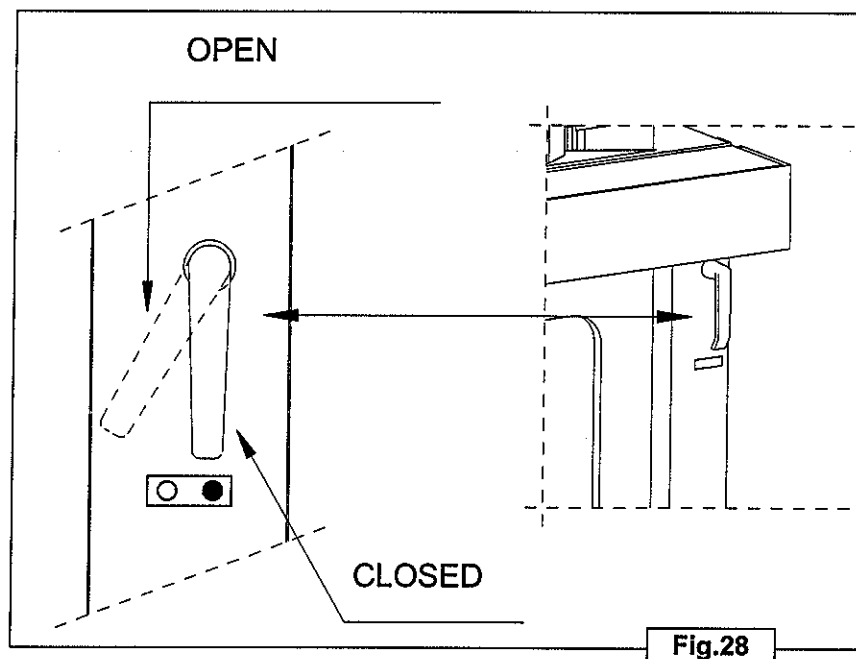
- Check the cart arrest in the unhooking and unloading position and correct it if necessary using the brace secured to the movement system (**Fig. 27**) (ONLY FOR OVENS WITH AUTOMATIC HOISTING)



Before switching the power back on return the fixed protective casing to the cart movement system.

3.5.3 Heating the Oven

-Open the manual lock on the steam box (**Fig.28**), close and lock the door, switch on the steam suction ☸☸ switch and the air recycle switch ☸.



- Set the heating temperature Ⓐ and press the START button ⬠ to light the oven for the first time.

- Heat the oven gradually, in 60° steps, holding for 15 minutes at each step, up to a temperature of 240°C. Hold this temperature for 30 minutes. This will eliminate any smell and smoke produced in drying the insulation and any residual grease on the metal parts.

3.5.4 Testing the Thermoregulator



Close and lock the door; close the manual lock on the steam box (**Fig. 29**); set a temperature of 60°C and switch on the fan ☸; press the START button ⬠. The set of elements starts to operate and after a few minutes, when it reaches the temperature set, it should go off.

Now set a temperature of 120°. If the set of elements goes on again, the heat setting mechanism Ⓐ is operating properly.

3.5.5 Testing the Safety Thermostat Operation

-Set the safety thermostat of 200°C.

- Close and lock the door; close the manual lock on the steam box.

Set a temperature of 250°C on the thermoregulator ①, switch on the fan  and press the START button . The set of elements will go on.

The thermoregulator ① registers the temperature increase.

Wait a few minutes and ascertain that the set of elements goes off before the thermoregulator ① reaches the temperature set.

In this case the safety thermostat is functioning properly.

- Wait until the temperature goes below the safety thermostat setting.



Caution: Cut off the power supply to the machine and reset the safety thermostat using the green button.

After check the operation of the safety thermostat, calibrate it as detailed in **Chap. 3.4**

3.5.6 Testing the door safety functions

Start the oven empty (NO DOUGH BAKING) as for a normal production cycle. **Unlock and open the door with care!**

This operation should cause the immediate arrest of the cart rotation, the set of elements and the air recycle fan.

Opening the door should also block the function of the water intake solenoid on the humidifier and start the steam suction device, even with the switch on 0 (zero).

Close and lock the door. Closing and locking the door should only restore the functions interrupted by opening it, **but should not command it to start.**

The production cycle can only be started with the door closed and locked, by pressing the START  button.

3.5.7 Testing Cart Removal



Caution: Cart rotation with the door open must be performed with direct observation of the operator and control by holding the START button pressed .

HOOK-PLATFORM

- The cart is manually arrested in the extraction position by de-energizing the START button  after visually ascertaining the correct position of the cart.

AUTOMATIC HOISTING

- The cart is automatically arrested so that it can descend to the extraction position and, when this happens, the START button  is automatically de-energized.

3.5.8 Baking Test

Prepare a few carts of dough and bake them.

- Follow the instructions for the production cycle in **Chap. 4.1**.
- At the end of the cycle, ascertain that the dough is baked evenly.
- If necessary, modify the air flow by adjusting the air locks as detailed in the section "**Air Flow Adjustment**".
- Perform subsequent tests and adjustments until uniform baking is achieved.



Complete the test form in every part and return it to the constructor.



Instruct the user on the correct use of the oven.

Ascertain that he has read the instruction manual

CHAPTER 4.0

Instructions for Use and Maintenance

- 4.1** Production Cycle
- 4.2** Useful Information
- 4.3** Description of the maintenance operations
- 4.4** Maintenance

4.1 Production Cycle

For the specifications referred to in the description below, see the instructions in **Enclosure A** provided with this manual.

4.1.1 Starting the Machine

- Switch on the power supply, fuel and water
- Ascertain that the door is closed and locked
- Ascertain that the correct temperature is set on the thermoregulator ①
- Switch on the air recycle fan ㄥ
- Press the START button (start heating) ㄡ
- Wait 30 minutes to allow the oven and humidifier to reach the desired temperature.

4.1.2 Cart Insertion

- Open the manual steam vent as shown in **Fig. 29**
- Set the timer on the humidifier, if necessary.
- Open the door completely
- Ascertain that the steam suction fan goes on
- Push the cart so that it enters firmly in its lodging
- Close and lock the door handle
- Switch on the oven rotation mechanism ○ if not already on
- Switch on the humidifier ㄥ if necessary.
- Press the START button ㄡ (THE CART ROTATES, HEATING IS ENABLED AND THE BAKING CYCLE STARTS).
- Set oven timer ㄡ.

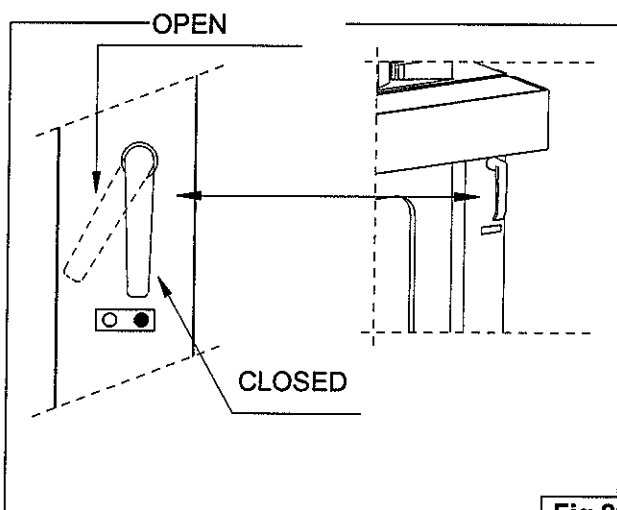


Fig.29

4.1.3 Removal of the Cart

An acoustic signal goes off at the end of the baking time.

- Ascertain that the bread is ready for removal (IF NOT FULLY BAKED, RESET THE TIMER TO COMPLETE BAKING)
- Start the removal procedure performing the following operations in the order listed:
- Open the manual steam vent
- Unlock and open the door partially to allow any residual steam to be eliminated by the suction unit (THE CART STOPS ROTATING)
- Holding the START button ㄡ down, rotate the cart to the extraction position
- Open the door completely and, wearing heat resistant gloves, extract the cart
- Close and lock the door
- Prepare the oven for the next cycle, if necessary, and press START ㄡ.

4.1.4 Switching the Oven Off

- Set the thermoregulator ① on zero and switch off, in order, the oven timer ㄡ, rotation mechanism ○, steam suction ㄥ, oven light ☀ and, after 20/25 minutes, the air recycle fan ㄥ.
- Cut off power, fuel and water supplies.

4.2 Useful Information

- Baking time may vary, depending on the type of dough, its uniformity and volume.

It is advisable to supervise the first bakings carefully and make a note of the results, because you will get the same results with every batch mixed and baked in the same way.

The heat required to bake the dough depends on its composition: quantity of ingredients and liquids.

If different products have the same baking temperature, they can be baked at the same time.

Even small quantities can be baked with excellent results, occupying the tiers independent of their position.

If the bread is not steamed while baking, and at the end of the cycle appears the crust dull and rough, ascertain whether the dough gets wet during steaming. If so, the dough has to be modified. Bear in mind that, before it goes into the oven, the dough must not be wet. For this reason, it is important to allow the dough to dry in the air for 1-2 minutes after removing it from the raising cells and before placing it in the oven.

Avoid opening the oven door as much as possible, and open it only for loading and unloading.

Opening the oven door for any length of time will considerably reduce the temperature in the baking chamber and cause excessive consumption of fuel or energy.

After loading and unloading, the temperature displayed on the thermoregulator drops by about 30°. The difference should be overcome in 8/10 minute. This is a short enough time considering that the initial heat exchange (dough/hot air) significantly lowers the temperature of the air in circulation.

4.3 Description of Maintenance Operations

4.3.1 Weekly Maintenance

Weekly maintenance can be performed by the user, who must always comply with the safety standards set forth in this instruction book.

Cut off power to the oven

Use a vacuum cleaner with a stiff brush attachment to remove any dust on: motors, organs of transmission, control panel. Use a small brush with stiff bristles on the difficult points. Use the rigid attachment on the rest of the oven.

The front of the oven should be cleaned with suitable, not abrasive products, available on the market (detergents for cleaning stainless steel kitchenware)

The same procedure should be used to clean the inside of the baking chamber.

Persistent stains can be removed with a small amount of hot vinegar.

The painted and chrome-plated parts should be cleaned with a damp cloth and mild liquid detergent.

After cleaning, the parts should be rinsed well and dried with a soft, clean cloth.

Do not use cleaning products containing chlorine.

Do not clean the glass parts when hot.

4.3.2 Six Months Maintenance

For optimal operation of the machine under safe conditions, it is indispensable to perform the operations of maintenance and cleaning described in this section.

Every six months the following operations and controls must be performed by qualified oven installation personnel:

- Clean filter and control seal on water intake solenoid
- Clean humidifier intake and drain
- Clean humidifier
- Control hydraulic circuit operation (machine cold)
- Control tension of belts on drive organs
- Lubricate drive organs (1)
- Control function of thermoregulator
- Control all oven functions
- Check condition of safety devices
- Clean coil and rotor on steam suction unit (2)

- Clean door gaskets (3)

The gearmotor on the drive organs do not require any maintenance.

- (1) Lubricate the bearings on the transmission shaft support

Lubricate the guide bush worm (automatic hoist only)

Lubricate the worm supports (automatic hoist only)



- (2) Caution : Cut off power supply to oven.

The suction unit coil remains attached to the oven.

- Remove the fastening screws (Fig. 30) and without detaching the sheath containing the electrical wire to the motor, operate in the direction indicated by the arrow.
- Remove the rotor-flange unit and clean the rotor fins with a vacuum device. Use a stiff brush on the difficult parts.
- Clean the spiral with an ordinary detergent for stainless steel kitchenware.
- After cleaning reassemble the parts in the reverse order.

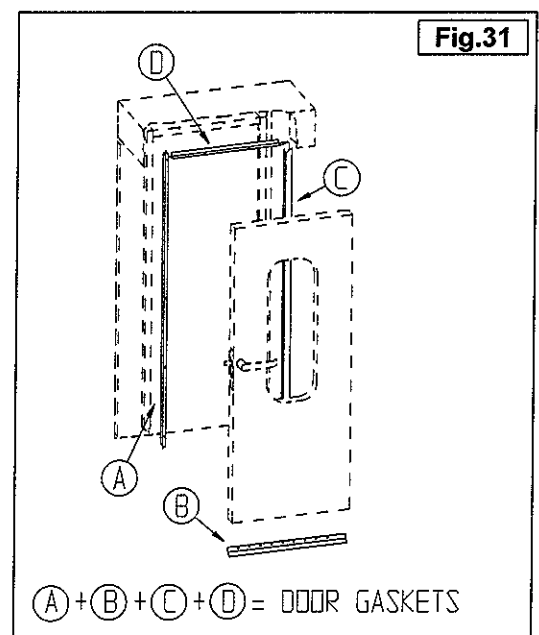
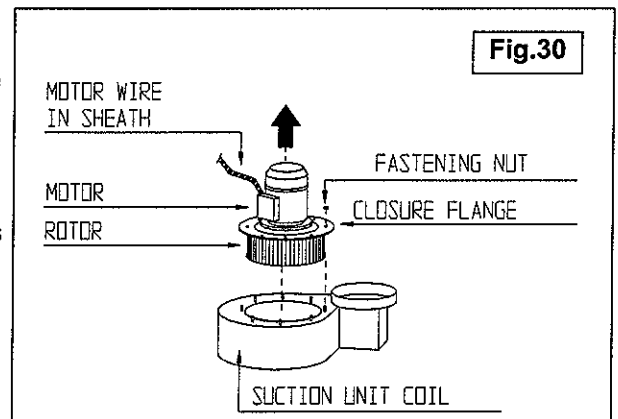
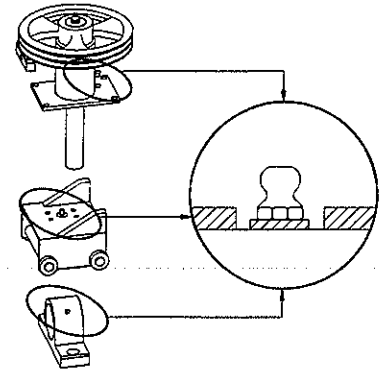
- (3) - Disassemble the gaskets fixed with self-threading screws to the door rabbet and to the door itself (Fig. 31)

- Clean the gaskets and remove any dirt on the rabbet and door using ordinary dish-washing detergent

- Reassemble



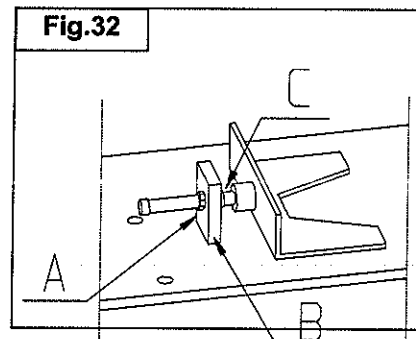
Any operations, even minor, involving the electrical system require the intervention of professionally qualified personnel.



4.4 Maintenance Operations

4.4.1 Replacing the transmission belt

- Loosen the screws that fasten the gearmotor
- Loosen nut "A" on block "B" (**Fig. 32**)
- Rotate the tightener "C" counterclockwise to reduce the distance between the pulleys
- Replace the worn belt
- Rotate the tightener "C" clockwise to increase the distance between the pulleys
- Tighten nut "A" on block "B"
- Tighten the screws that fasten the gearmotor



Warning: Do not tighten the belts excessively so as not to apply excessive stress on the bearings

Caution: Have the tension on the belts checked by service personnel



Note: The tightener unit (**Fig. 32**) varies in position and number of parts depending on the oven type, but the tightening sequence is the same.

Note: The tightener unit (**Fig. 32**) varies in position and number of parts depending on the oven type, but the tightening sequence is the same.

4.4.3 Replacing the Oven Light



Note: Cut off power to the oven

After removing the access cover to the lamp on the outside of the oven, extract the holder and lightbulb and replace the lightbulb with another of the same type. (**Fig. 33**)

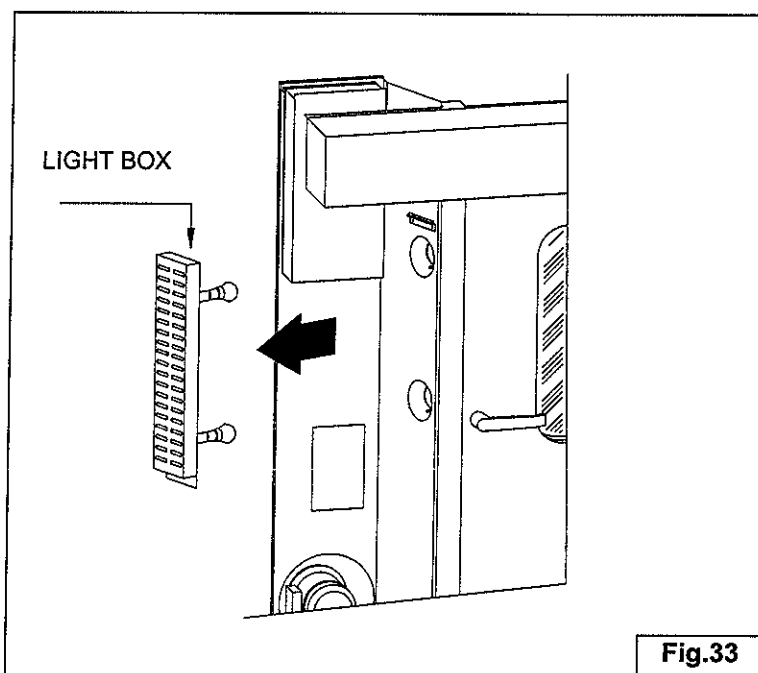


Fig. 33

CHAPTER 5.0

Troubleshooting

5.1 Malfunctions and Probable Causes

5.2 Requesting Service

5.1 Malfunctions and Probable Causes

Any operations on the electrical and electronic components of the machine must be performed by qualified personnel only, with excellent knowledge of the operation of the electrical parts and of the precautions to be taken in handling them so as to avoid injury to himself or others

- MALFUNCTIONS AND PROBABLE CAUSES -

5.1.1 The cart does not stop in the extraction position:

The extraction position bracket (Fig. 27) is loose (AUTOMATIC HOISTING ONLY)

5.1.2 The cart does not rotate or does not rise:

The overload cutout on the control panel has been tripped.
The limit switch on the door handle is broken or out of place.
The transmission belts are loose.

5.1.3 The air recycle fan does not start:

The overload cutout on the control panel has been tripped.
The limit switch on the door handle is broken or out of place.

5.1.4 The Resistance not go on:

The air recycle fan is out of order (see 5.1.3 above)
The thermoregulator is out of order (THERMOREGULATOR DISPLAYS ---)
Reset the safety thermostat
The thermoregulator probe is out of order (THERMOREGULATOR DISPLAYS **EEE**)

5.1.5 The steam suction unit is out of order:

The overload cutout on the control panel has been tripped.

5.1.6 The steam suction unit is not working properly

The suction unit is revolving counterclockwise (THE OPPOSITE OF Fig. 24).
The suction grid is clogged.
The drain pipe is clogged.

5.1.7 Insufficient moistening:

Not enough water in the humidifier, due to low water supply pressure or obstruction in the humidifier hydraulic circuit (Fig. 25).
The temperature in the baking chamber is too low (FOR PROPER OPERATION OF HUMIDIFIER THE THERMOREGULATOR HAS TO HAVE REACHED A TEMPERATURE OF AT LEAST 220°C).
Too frequent demands for moistening (WAIT AT LEAST 20 MIN BETWEEN MOISTENINGS)

5.1.8 Excessive emission of hot fluid with door closed:

Worn sealing gaskets.

5.1.9 Water leak near humidifier:

Foreign bodies in the water intake solenoid.

5.1.10 Uneven baking:

The suction unit is revolving counterclockwise (THE OPPOSITE OF **Fig. 24**).
The air locks regulating air flow are not correctly oriented (SEE **Chap. 3.3**)

5.1.11 Bread is dull and rough after baking

Not enough moisture (SEE **5.1.7 above**).
The bread is not being moistened, the dough must be modified.

Note: If you experience anomalous situations not contemplated by these examples, contact the service department.

5.2 Requesting Service

5.2.1 Oven Service

If the cause of the malfunction is attributable to the oven, contact the authorized retailer you purchased it from. Our authorized retailers are able to supply information about most of the products they handle and should be able to provide consultation service on any problem you may have with the oven. Any service calls should be arranged on the basis of the seriousness of the problem. In cases of ordinary maintenance the service call will be scheduled on a mid-term basis.

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CHAPTER 6.0

Safety Recommendations

6.1 Prohibitions and Obligations

6.1 Prohibitions and obligations for accident prevention

Read the warnings contained in this chapter carefully as they supply important safety recommendations.

- Ascertain the good condition of the grounding system.
- Wear protective gloves when handling the hot carts and trays.
- Do not alter and/or tamper with the safety mechanisms and electrical circuitry.
- Keep the safety mechanisms in good working order.
- Do not walk on the oven roof.
- Do not use the top of the oven to store or stack anything.
- Do not put inflammable materials in the oven or use it to dry paints or solvents.
- Do not put anything in the oven that could release explosive and/or inflammable emissions.
- Do not install any accessories that do not comply with safety standards.
- Do not use the machine for any other use than that for which it was designed (SEE GENERAL WARNINGS)



In case of dangerous situations, stop the oven with the emergency switch  (red bulb on yellow background) and cut off power using the circuit breaker.

In case of fire, do not use liquid extinguishers. Use powder extinguishers only.

Maximum working temperature must not exceed 300°C.

Maximum weight of the cart with full load must not exceed:

- 100 kg for oven with hook-platform rotation
- 300 kg for oven with automatic hoisting rotation

The cart complete with trays should have a rotation radius (diagonal) of no more than 1000 mm and a width at entrance to the baking chamber of no more than 720 mm.

6.1.1 Other Risks

When going inside the baking chamber (FOR CLEANING AND MAINTENANCE) **be careful of the hook that holds the cart**, hanging from the ceiling.

Although it is equipped with a system that considerably reduces emissions of hot fluids from the access door, **we recommend caution in opening the door** of the oven to extract the cart after baking.

In handling hot carts and trays, **wear protective gloves**.

CHAPTER 7.0

Spare Parts

7.1 Warnings

7.2 Technical Description

7.1 Warnings

In replacing any components always use original replacements.

To order spare parts, identify the model and mention the serial number on the EC rating plate of the oven (SEE **Chap. 1.3**)

Cites the paragraph, position, reference and description of the part to be replaced as shown in this instruction book.

Example of request for two humidifiers:

<i>MODEL</i>	<i>SERIAL no</i>	<i>PARA.</i>	<i>POS.</i>	<i>CODE</i>	<i>DENOMINATION</i>	<i>QTY</i>
ROTOR	95122	8.2.1	1	PRR 95	HUMIDIFIERS	2

For electrical components, refer also to the descriptions contained in the "**electrical information**" section of this manual.

Inform the authorized retailer or our service office of the description and quantity desired.

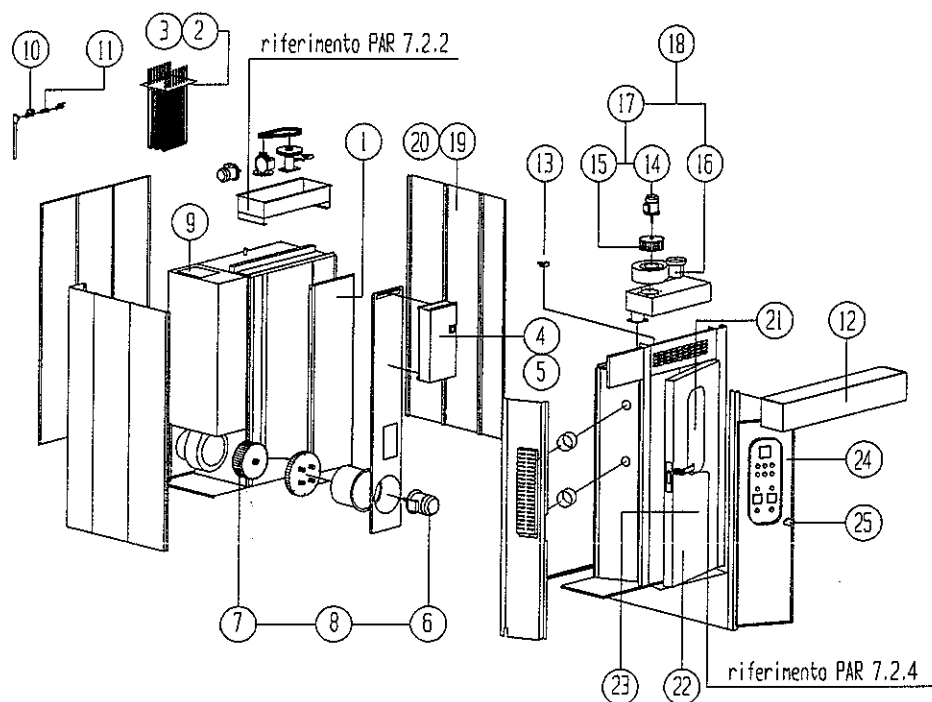
Upon receipt of your communication we will supply you with all the information relative to your request and ask your authorization to ship.

In case of parts not contemplated in the spare parts section, contact our service office.

7.2 Technical Description

7.2.1 Spare Parts

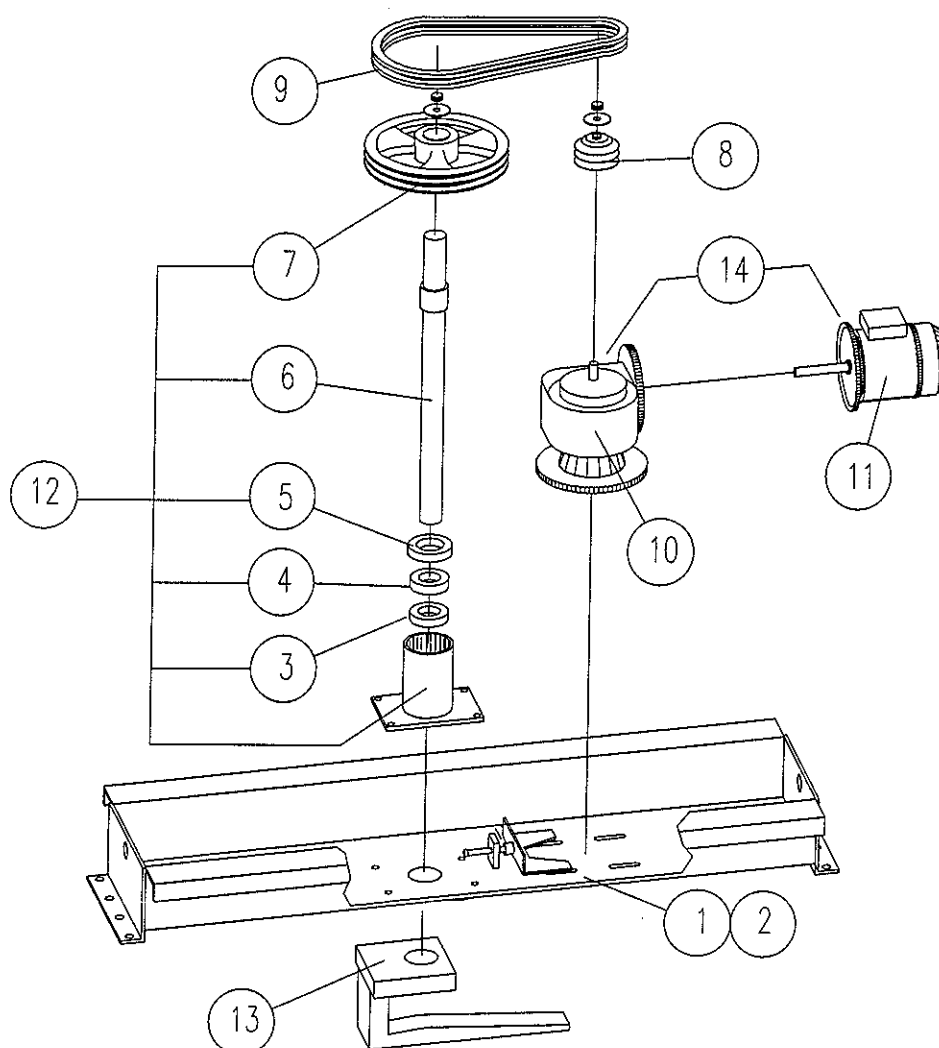
1	PRR 95	Humidifier	13	PRR 25	Door limitswitch
2	PRR 8	Resistance element	14	PRR 41	Motor for steam suction unit
3	PRR 8/1	Source of heat	15	PRR 30/3	Steam suction unit rotor
4	PRR 53	Electromechanical control panel	16	PRR 10/1	Steam suction coil
5	PRR 54	Electronic control panel	17	PRR 42	Steam suction unit motor + rotor
6	PRR 38	Fan motor	18	PRR 1	Complete steam suction unit
7	PRR 30/2	Fan rotor	19	PRR 52/1	Stainless steel side panel
8	PRR 37	Fan motor + rotor	20	PRR 52/2	Varnished side panel
9	PRR 14	Combustion chamber	21	PRR 12	Glass porthole
10	PRR 22	Water solenoid	22	PRR 51	Oven door
11	PRR 26	Water solenoid filter	23	PRR 66	Door gaskets
12	PRR 20	Oven exhaust hood	24	PRR 52	Door to electrical panel
			25	PRR 68	Lock for door to control panel



7.2.2 Spare Parts for Cart Hooking Unit

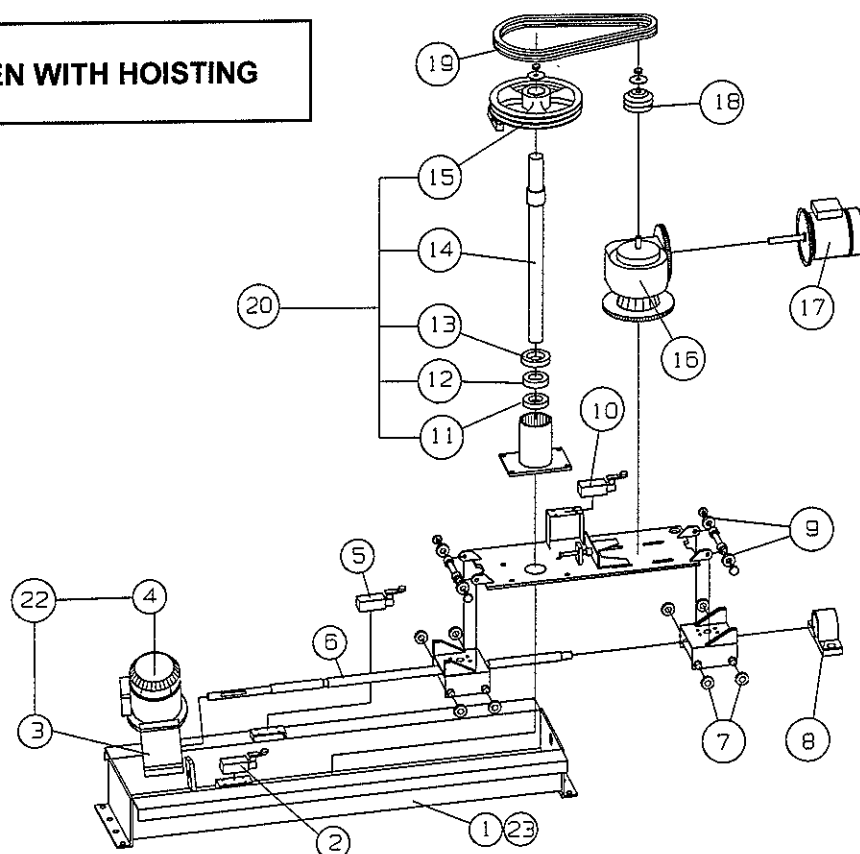
1	PRR 30	Complete crosspiece	8	PRR 46	Drive pulley
2	PRR 84	Complete crosspiece without gearmotor	9	PRR 15	Transmission belts
3	PRR 20/4	Bearing	10	PRR 62	Rotation reducer
4	PRR 20/5	Bearing	11	PRR 40	Rotation motor
5	PRR 20/3	Bearing	12	PRR 30/4	Rotation by hooking unit
6	PRR 2/4	Rotation shaft	13	PRR 2/1	Drag hook
7	PRR 47	Conduit pulley	14	PRR 39	Gearmotor

FOR OVEN WITH HOOK



1	PRR 83	Complete crosspiece	13	PRR 20/3	Bearing 6010-Z
2	PRR 25	Cart descent limit switch	14	PRR 2/3	Cart hoisting shaft
3	PRR 62	Hoisting motor reducer	15	PRR 47	Cart rotation conduit pulley
4	PRR 40	Cart hoisting motor	16	PRR 62	Cart rotation motor reducer
5	PRR 25	Cart ascent limit switch	17	PRR 40	Cart rotation motor
6	PRR 2/2	Hoisting transmission shaft	18	PRR 46	Cart rotation drive pulley
7	PRR 77/3	Bearing 6003-2-Z	19	PRR 15	Rotation transmission belts
8	PRR 77/2	Hoisting screw support	20	PRR 29/7	Rotation unit
9	PRR 77/3	Bearing 6003-2-Z	21	PRR 39	Cart rotation gearmotor
10	PRR 25	Cart limit switch	22	PRR 39	Hoisting gearmotor
11	PRR 20/4	Bearing 6008-Z	23	PRR 91/6	Complete crosspiece without gearmotor
12	PRR 20/5	Bearing 51208			

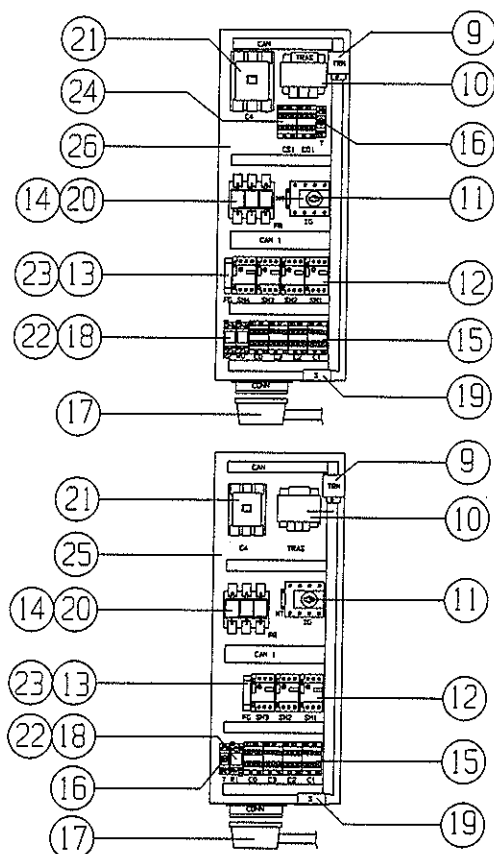
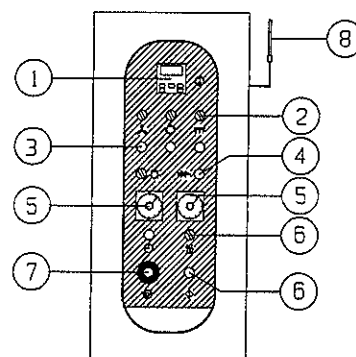
FOR OVEN WITH HOISTING



7.2.3 Spare Parts for Electromechanical Control Devices

1	PRR 79	Thermoregulator
2	PRR 69	Two-position switch
3	PRR 74	Green indicator light
4	PRR 74	Red indicator light
5	PRR 82	Min/sec timer
6	PRR 48	Pushbutton
7	PRR 44/4	Emergency cutoff
8	PRR 72	Thermoregulator probe

9	PRR 78	Maximum temperature thermostat
10	PRR 86	Transformer
11	PRR 31/1	Mains switch for electric oven
12	PRR 32	Automatic circuit breaker
13	PRR 27	Fuse
14	PRR 52/4	Tripolar fuse holder
15	PRR 88	Remote Control
16	PRR 90	Delay timer
17	PRR 18	Connector
18	PRR 61	Relay
19	PRR 75	Acoustic signalling device
20	PRR 29	Fuse for electric oven
21	PRR 87	Remote control for resistance
22	PRR 98	Socket for relay
23	PRR 49	Monopolar fuse holder
24	PRR 77/9	Remote control for automatic hoist

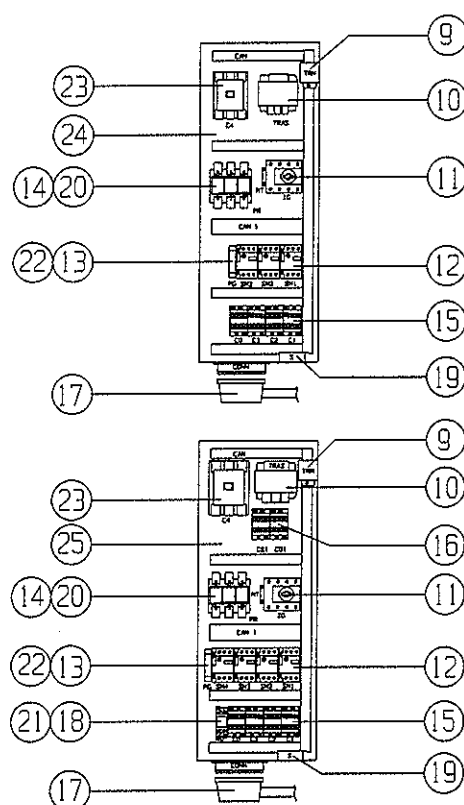
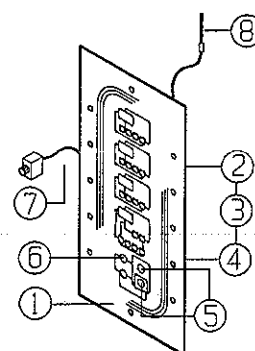


24	PRR 53	Q.E. Electric oven for hook
25		Q.E. Electric oven for hoisting

7.2.4 Spare Parts Electronic Control Devices

1	PRR	Fanton Electronic Control Panel
2	PRR	Electronic Circuit - power section -
3	PRR	Complete Electronic Circuit
4	PRR	Electronic Circuit - display section -
5	PRR 48	Pushbutton
6	PRR 69	Two-Position Switch
7	PRR 78	Thermostat for Manual Operation
8	PRR 72	Probe for Electronic Circuit

9	PRR 78	Maximum Temperature Thermostat
10	PRR 86	Transformer
11	PRR 31/1	Mains Switch for electric oven
12	PRR 32	Automatic Circuit Breaker
13	PRR 27	Fuse
14	PRR 52/4	Tripolar fuse holder
15	PRR 88	Remote Control
16	PRR 77/9	Remote Control for Automatic Hoist
17	PRR 18	Connector
18	PRR 61	Relay
19	PRR 75	Acoustic signalling device
20	PRR 29	Fuse for electric oven
21	PRR 98	Socket for relay
22	PRR 49	Monopolar fuse holder
23	PRR 87	Remote control for resistance



24	PRR 53	Q.E. Electric oven for hook
25		Q.E. Electric oven for hoisting

7.2.5 General Spare Parts

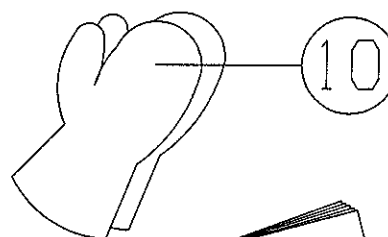
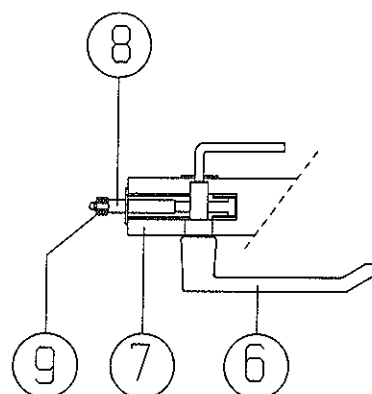
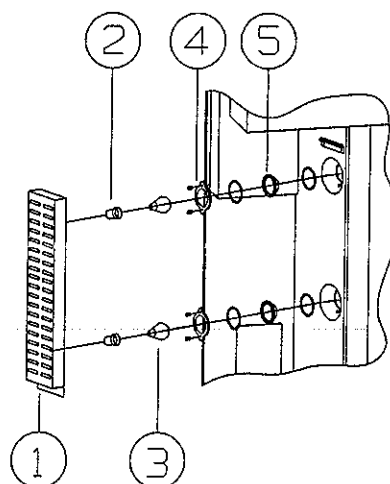
1		Light Cover
2	PRR 50	Lightbulb Socket
3	PRR 34	Lightbulb
4	PRR 24/2	Flange for Light Glass
5	PRR 11	Glass Cap*

* Sealed with silicone.

6	PRR 43	Door Handleor Lock
7	PRR 67	Complete Door Lock
8	PRR 45	Hinge for Door Handle
9	PRR 17	Bearing for Door Lock

* complete with pos. 8 - 9

10	PRR 30/1	Oven Gloves
11	PRR 44	Instruction Book



CHAPTER 8.0

Accessories

8.1 Cart

8.2 Trays

8.1 Cart

In the convection oven the dough is placed on trays and loaded on the cart which goes directly into the baking chamber.

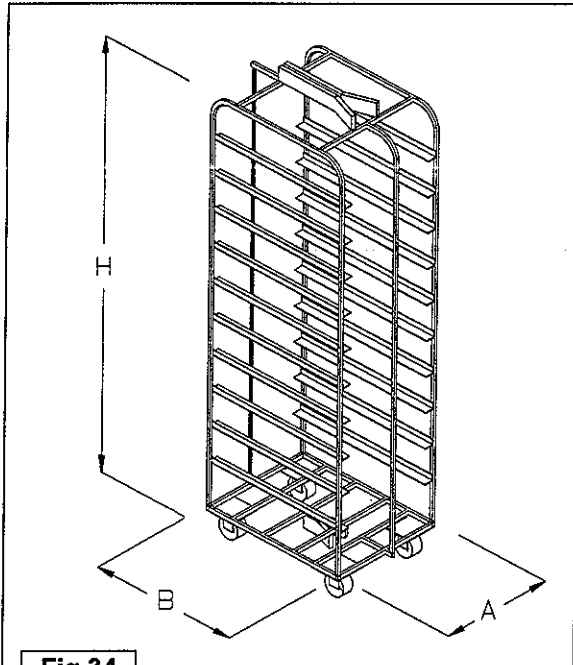


Fig.34

The cart is supplied complete with a wheelbase for movement that is complementary to the system installed in the oven **Fig. 34** for the hooking hoist system.

Type of Tray	A	B	H (With Hook)
60 x 80	650	840	1940
58 x 78	630	820	1940

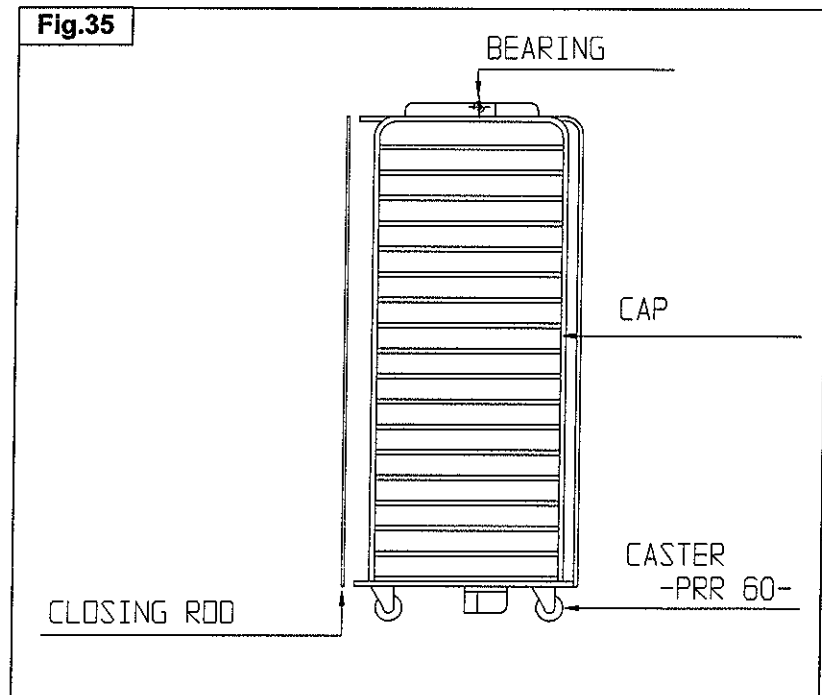
The cart shown in Fig. 35 indicates the replacement parts and refers to the standard cart (with hook/hoist). The cart can be supplied with 18 tiers (standard type) or 15 tiers (special type).



Warning/Caution: Fasten the trays to the cart with the closing rod to prevent them from falling off during loading and unloading. (Fig. 35)

Clean the cart using boiling water and dishwashing detergent.

Fig.35



8.2 Trays

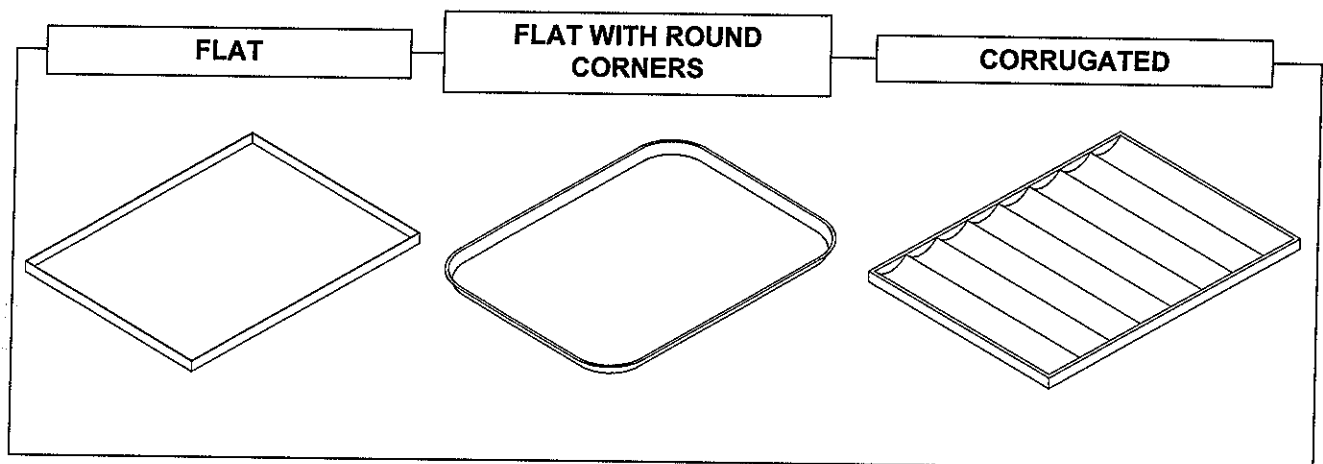
Designed to hold the dough to be baked, the trays come in different models, materials and coatings.

It is not advisable to mix trays of different models and/or materials on the cart as baking will not be uniform.

We recommend that trays be coated with a non-stick material on the part that come into contact with the dough whenever possible as it eliminates tedious maintenance and is an efficient hygienic safeguard.

Trays should be cleaned with hot water and a cloth. Avoid using steel wool or rough sponges on the non-stick coating.

The corrugated tray model shown in the illustration is supplied only in perforated sheet metal. The number of channels will depend on the volume of the dough and the size of the tray.



The trays shown in the illustration can be supplied with or without non-stick coating.

The Flat or Flat with round corners models can be supplied on request in perforated sheet metal.



Note: If you notice that the trays with non-stick coating are showing some natural wear, do not recoat them yourself. Have it done by a company specialized in recoating or contact your authorized retailer.

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CHAPTER 9.0

Electrical Parts

9.1 Description

9.1 Description

The electrical equipment consists of:

9.1.1 Cabinet

Cabinet in prevarnished sheet metal with a circuit breaker with manual control handle, built to contain the commands and control devices for the oven. The cabinet is designed for **three-phase input** and is built to IP 54 standards. It must be attached to the oven using the special support supplied.

9.1.2 Cables

The cables are protected by a steel sheath with self-extinguishing coating ready for attachment to the machine outlets.

9.1.3 Control Panel

Control panel protected by a prevarnished sheet metal cabinet built to IP 54 standards. The panel can be supplied in two versions:

Electromechanical (STANDARD)

Programmable Electronic

9.1.4 Safety Mechanisms

- Safety thermostat with manual reset designed to prevent overheating (REFER TO **paragraph 3.5.5**)
- Block mechanism designed to arrest all the dangerous functions when the door is opened (REFER TO **paragraph 3.5.6**)