This manual provides all the information you need for use and maintenance of your machine. Good operation and durability are dependant on proper maintenance and careful use.

Before leaving the factory where it was produced, this model has been subjected to strict functional tests to guarantee the utmost dependability. But you will have to inspect the machine upon arrival to make sure that it has not suffered structural damage during transportation which could compromise its functioning and safety.

This manual must be considered an integral part of the machine, and must accompany it throughout its lifespan until demolition. If lost, please request a replacement copy from the builder.

THE INFORMATION CONTAINED IN THIS MANUAL IS THE PROPERTY OF THE MANUFACTURER AND MUST BE CONSIDERED CONFIDENTIAL.

Some of the details appearing in illustrations in this manual may be different from your machine; some components may have been removed to provide clear images and illustrations.

Keep this manual in a place accessible to all personnel involved in the operation and maintenance of the machine.

This manual must accompany the machine if it is resold.
MACHINE AND MANUFACTURER DETAILS

MANUFACTURER

FIRBIMATIC S.p.A.
Via Turati, 16
40010 SALA BOLOGNESE (BO) - ITALY
Tel. +39 051 6814189 - Fax. +39 051 6814604

MACHINE

MODEL ____________________________

SERIAL NO. ____________________________

YEAR OF MANUFACTURE ____________________________

TECHNICAL ASSISTANCE

Our technicians are at your disposal for any problems or questions you may have.
Note:

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0.1 THE IMPORTANCE OF THE INSTRUCTION MANUAL

This USE AND INSTRUCTION MANUAL, in line with the MACHINES DIRECTIVE, is intended to give the operating and maintenance personnel an instrument which is easy to consult in order to be guided through every phase of the machine's life, from INSTALLATION to the OPERATION, to MAINTENANCE, right up to OUT OF SERVICE procedures.

This manual is designed to highlight the problem of “RISK” in an overall sense, giving adequate information so that any such risks may be easily identified and avoided.

In this way, THE BUILDER wishes to guarantee the operator its commitment to design and manufacture its machines so that these work safely, safeguarding the operator and the environment.

**THE INSTRUCTION MANUAL is an integral part of the machine.**

The manual must be preserved during the whole life of the machine.

The manual reflects the state of the machine’s technical set-up at the moment when it is put into service; it may not be considered inadequate when it has been up-dated on the basis of new experiences.

The Manufacturer reserves the right to update the production of machines and manuals, without the obligation to update previous production and manuals.

The Manufacturer shall update this manual on the basis of modifications or warnings which may prove necessary on the machine in your possession only. Any such modifications will be given to the client or distributor.

Make sure that any amendments you receive are placed in the manual, replacing any previous one.

Hand over the manual to any other user or new owner of the machine. The address of any eventual new owner should always be given, so that the same may easily receive new information to be integrated into the manual.

The instructions, drawings and documentation contained in this manual are of a technical nature and strict ownership of The Manufacturer and may not in any way be reproduced either wholly or partially.

0.2 KEEPING THE MANUAL

Always use the manual in so as not to cause damage to any part of its contents.

Do not remove, tear out or re-write any part of the manual.

The manual should be kept in a cool and dry place.
0.3 CONSULTING THE MANUAL

This manual is made up of:

- COVER PAGE WITH MACHINE IDENTIFICATION
- INDEX
- INSTRUCTIONS AND / OR NOTES ON THE PRODUCT
- ENCLOSURES

By consulting the **COVER PAGE** it is possible to identify the machine model which is described in the manual.

By consulting the **INDEX** it will be possible to find the CHAPTER and PARAGRAPH which contain all the notes relative to a certain subject.

All the **INSTRUCTIONS AND/OR NOTES ON THE PRODUCT** are designed to describe the safety warnings, correct procedures and operating qualifications necessary for the correct functioning of the machine.

The **ENCLOSURES** at the end of the manual give STATEMENTS, WARRANTY and INDICATIONS for the machine, and are an integral part of the manual.

Each page of the manual gives the following information:
0.4 SYMBOLS IN USE

The following SYMBOLS are used throughout the manual in order to bring the operator’s attention to how to behave in each operating situation.

They are divided into the following categories:

**a) Personnel qualification**
The following symbols indicate the minimum level of qualification required for the person operating or maintaining the machine

- **MACHINE OPERATOR**
  personnel without any particular skill, able to carry out only the simplest jobs, i.e. use of the machines through use of buttons placed on the control panel and operations of filling and discharging materials used during the dry cleaning process.

- **MAINTENANCE ENGINEER**
  Qualified technician, able to carry out the operator’s work as well as necessary intervention on any mechanical parts to carry out adjustments, or any other maintenance or repair work. This person is not able to intervene on the electrical wiring when current is on.

- **ELECTRICIAN**
  Qualified technician able to carry out the operator’s work as well as being able to do any kind of electrical work involving adjustments, maintenance and repair. This person is able to operate wherever electrical current is present inside electrical boxes and cabinets.

- **FACTORY ENGINEER or DISTRIBUTOR ENGINEER**
  Qualified technician made available by the machine manufacturer in order to carry out any complex work in special situations, or in any case, in agreement with the user.

**b) Safety measures**
The following SAFETY symbols bring the operator’s attention to any dangers relating to his or her safety.
NOTE / WARNING
GENERAL OPERATIONAL INDICATION

COMPULSORY USE OF THE PROTECTIVE ITEM SHOWN IN ORDER TO CARRY OUT THE DESCRIBED OPERATION FOR PERSONAL SAFETY

GENERAL DANGER
A description will indicate the nature of the danger.

ELECTRICAL DANGER

HEAT DANGER
Any contact can cause burning or scalding

NO SMOKING OR USE OF NAKED FLAMES

c) Machine status
‘STATUS’ meaning the machine’s operational mode.

OFF Machine at a standstill with all supplies cut off.

NOT RUNNING Machine at a standstill but with supplies on.

The Manufacturer shall not be held responsible if the above conditions are not satisfied.
0.5 UPDATING THE MANUAL AFTER MODIFICATIONS TO THE MACHINE

If the installed machine is modified in any way, as agreed with the MANUFACTURER, and if this should mean that one or more paragraphs are in any way varied, then MANUFACTURER will supply the owner of the INSTRUCTION MANUAL with the necessary modified information.

As a consequence of the above, the MANUFACTURER will supply:

- the paragraphs affected by the modification with the new issue date.
- the page with the updated REVISION TABLE
- the new manual index (if necessary)

The modified paragraph will feature the new issue date, e.g. from 07/1997 to 09/1997.

It is the user’s responsibility to incorporate and/or replace the new and/or updated paragraphs according to the instructions given, in every copy of the manual, and eliminate the cancelled paragraphs making reference to the REVISION TABLE.

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1.1 INFORMATION ON TECHNICAL ASSISTANCE AND MACHINE MAINTENANCE

You are reminded that our technical back-up is at your complete disposal for resolving any problems which may arise, or to give any information which may prove necessary.

You are advised to follow each instruction scrupulously and to use **ONLY** spare parts which are given with a warranty.

*Original spare parts are also a guarantee of maintaining your machine’s top performance.*

In the event of any maintenance not being performed according to the given instructions, or if non-original parts without warranty are used, the **MANUFACTURER** will be deemed irresponsible for the safety of the operator and for the faulty working of the machine.

**THE OPERATING AND MAINTENANCE PERSONNEL ARE THEREFORE OBLIGED TO FOLLOW THE INDICATIONS GIVEN IN THE MANUAL, AND AS SHOWN ON THE MACHINE ITSELF, REGARDING “RISK” AREAS.**

THE **MANUFACTURER** SHALL BE NOT BE CONSIDERED RESPONSIBLE FOR ANY DAMAGE CAUSED TO THE OPERATOR DUE TO:

- MACHINE BEING INSTALLED BY PERSONS WHO ARE NOT PART OF THE **MANUFACTURER ORGANISATION**
- AN INCORRECT USE OF THE MACHINE, OR UNDER CONDITIONS NOT PERMITTED BY THE MANUFACTURER
- MAINTENANCE NOT BEING PERFORMED BY THE **MANUFACTURER SERVICE PERSONNEL**
- THE USE OF NON ORIGINAL SPARE PARTS
- EXCEPTIONAL EVENTS
1.2 GENERAL SAFETY WARNINGS

The following indications are to be considered as guidelines for avoiding risks during machine operation, or from solvent, in the safeguard of the operator and environment.

The machine has been built as conforming to the most recent safety requirements. It is however always good practice to bear in mind that any moving organ may be a cause of danger. You are therefore advised never to tamper with any moving parts and always make sure that no-one is near the machine before starting up.

\[ \text{ALL AREAS REGARDED AS DANGEROUS ARE EQUIPPED WITH SAFETY DEVICES. IT IS STRICTLY FORBIDDEN TO TAMPER WITH THESE DEVICES. BEFORE GAINING ACCESS TO THESE AREAS OR TO ANY ELECTRICAL COMPONENTS YOU MUST CUT OFF THE MAINS CURRENT.} \]

All operation regarding transport, installation, regular and exceptional maintenance procedures must be performed by qualified technicians as described in the relative section.

The machine must be used by qualified personnel only and by the number of operators indicated in the appropriate section.

The operator’s working areas must always be kept clear and clean, taking care to remove any oily residues.

All operational and maintenance personnel must wear CLOTHING suitable to the working environment and situation; avoid the use of particularly loose clothing, chains, bracelets, rings and any other objects which may get caught in moving parts.

Before performing any cleaning or maintenance operation, on the machine always put on individual protection (gloves, mask, goggles).

Before starting work, personnel must be perfectly aware of the position and functioning of all controls and of the machine’s characteristics.

It is strictly forbidden to perform any kind of maintenance, adjustment or setting on moving parts; before carrying out any one of these operations always read the specific instructions in each section first.

During maintenance, adjustment or setting operations you are advised to affix a sign on the control panel or on the mains electrical current switch (depending on the situation) with the following warning: \textit{WARNING! DO NOT TOUCH - SERVICE PERSONNEL AT WORK.} \n
Do not for any reason modify machine parts (such as attachments, holes, finishings...) in order to affix any other devices; the \textbf{MANUFACTURER} will not be responsible for any malfunctioning of the machine due to this rule not being respected.
GENERAL INFORMATION

Make sure that the environment can always be ventilated, both in summer and winter, by means of appropriate ventilating devices.

Consider that the ventilator capacity (cubic metres/hour) must be approx. 60 times the machine capacity in KGs. (or Lb.). (N.I. ISO 8232-1988).

EXAMPLE:
according to the formula \( t = (58 \pm 8) \times Cn \)

\( t \) = ventilator power in m³/h (cuft/h)
\( Cn \) = machine capacity in Kg (Lbs)

the use of a 13 Kg (29 Lbs) machine therefore requires a ventilator of \( t = 58 \times 13 = 754 \) m³/h (\( t = 58 \times 29 = 1682 \) cuft/h).

When using steam generated by a boiler with flame, the boiler and the machine must be placed in different rooms.

\[ \text{It is forbidden to use NAKED FLAMES or stoves inside the room.} \]

In the event of solvent spillage, fresh air must be circulated around the room, and the floor must be cleaned immediately.

Always keep this manual and any other handbooks in good condition and in a place accessible and known to all operators.
PRELIMINARY INFORMATION ON THE MACHINE

12-2006

02
2.1 GENERAL DESCRIPTION

The machine is an assembly of mechanical, electrical and pneumatic components which determine its regular functioning.

Mechanical components:
- **BASE TANK** (contains working solvent)
- **DRUM** (contains basket)
- **BASKET** (where garments are placed)
- **SPOKES / SHAFT / BEARINGS** (supporting the basket)
- **BUTTON TRAP** (filters solid impurities)
- **AIR TUNNEL** (component of the drying system)
- **STILL** (purifies soiled solvent)
- **CONDENSER** (condenses solvent vapours)
- **SEPARATOR** (divides solvent from water)
- **CONTACT WATER COLLECTOR** (retain the water expelled from the drying separator)
- **NYLON FILTER** (removes impurities from the solvent)
- **DECO FILTER** (lightens solvent colour)
- **SAFETY TANK** (can contain any solvent leaks, thereby safeguarding surrounding environment)

*These components are built with suitable materials able to withstand contact with solvent over many years. They are tested under pressure and designed to resist machine vibrations under every working cycle.*

Accessory components:
- **CENTRAL MOTOR** (controls the basket in various phases)
- **SOLVENT PUMP** (for transferring solvent)
- **VACUUM PUMP** (create the vacuum)
- **FILTER MOTOR** (removes dirt from the filter discs)
- **VENTILATOR** (circulates air for drying)
- **REFRIGERATOR GROUP** (condenses the air for drying)

*these components are chosen on the basis of the machine model requirements.*
The following components:

- PNEUMATIC
- ELECTRICAL
- SAFETY

are chosen according to warranty and duration requirements.
2.2 INTENDED USE OF THE MACHINE

DRY-CLEANING MACHINE SUITABLE FOR CLEANING ALL TYPES OF TEXTILE PRODUCTS.

THE MACHINE USES HYDROCARBON SOLVENT CLASS III A WITH 60°C (140°F) FLASH POINTS. OTHER TYPES OF SOLVENT MUST NOT BE USED.

ANY OTHER USE OF THE MACHINE SHALL ALLEVIATE THE MANUFACTURER FROM ANY RISKS INVOLVED.

THE USE OF PRODUCTS AND SOLVENTS OTHER THAN THOSE AGREED ON AT THE TIME OF PURCHASING THE MACHINE SHALL EXCLUDE THE MANUFACTURER FROM ANY RESPONSIBILITY FOR ANY DAMAGE TO THE MACHINE, TO OBJECTS OR PERSONS.

THE MACHINE AND ALL ITS COMPONENTS ARE NOT DESIGNED FOR USE IN A POTENTIALLY EXPLOSIVE ATMOSPHERE.
3.1 PACKAGING AND UNPACKAGING

The machine is usually packaged from the factory in either a cardboard box or wooden crate in order to avoid any damage during transit.

The packaging will feature all the information and symbols necessary for safe transit of the machine.

Always check the packaging for any damage which may have occurred during transit. If any damage should have occurred to the packaging or the machine during transit, always make a written claim to your insurance company, together with photographs of the damaged parts, and send a copy both to the manufacturer and the transport company.

If in doubt, and you are unable to make an immediate check, always accept the goods under reservation.

Carefully check that the contents correspond to the packing list.

Bring the machine as close as possible to the position where you intend installing the machine. Remove the packaging carefully in order not to cause any damage to the machine.

You are advised to keep the packaging materials. If you decide to dispose of the materials, always adhere to regulations concerning refuse disposal.
3.2 TRANSPORTING AND MOVING PACKAGED MACHINE

PERSONNEL QUALIFICATION

SAFETY MEASURES

MACHINE STATUS

The packaged machine must only be transported and moved by qualified personnel using a fork lift truck.

Always make sure that the lifting equipment is of a suitable capacity, able to lift the load (see weights marked on the packaging).

Take special care in unloading the machine from the means of transport. Position the forks in the points as shown on the machine packaging. Always lift slowly, avoiding any sudden movements.

Do not for any reason stand in the operating areas or climb onto the packing or crate during movement.

THE MANUFACTURER WILL NOT BE HELD RESPONSIBLE FOR ANY DAMAGE TO THE MACHINE OR TO PERSONS DUE TO INCORRECT MANOEUVRING.

3.3 STORING A PACKAGED OR UNPACKED MACHINE

For any period during which the machine is kept inside its packaging and is not in use, it should be kept in a dry environment at a temperature of between +5°C (+41°F) and +50°C (+122°F) and in a place where it may not come into contact with atmospheric elements.

If the machine should be left unpackaged and out of operation for any period of time, either waiting to be installed or for breaks in production, it should always be protected with suitable coverings thus avoiding dust settling on the moving parts.
4.0 GENERAL WARNINGS

Before connecting the machine to energy sources always make sure that you have suitable means, according to local and national environmental protection regulations, available for:

- DISPOSAL OF DISTILLATION RESIDUES
- DISPOSAL OF SEPARATOR WATER

4.1 ENVIRONMENTAL CONDITIONS

Unless previously decided otherwise, the machine must function regularly in the environmental conditions as described below:

POSITIONING THE MACHINE
Position your machine as already established when ordering. If this is not the case then any inconvenience caused by a change in position cannot be answered for.

The machine must be placed on a solid floor which is level in both directions, and of a sufficient consistency to be able to support the weight of the machine, of any existing machinery and the means of transport.

TEMPERATURE
The machine can work at an atmospheric temperature of between +5°C (+41°F) and +50°C (+122°F).

LIGHTING
The machine has been designed in such a way as to reduce to a minimum any non-illuminated areas in order to ease the operator’s work.

The machine is not equipped with its own lighting system since normal working area lighting is deemed to be sufficient, as long as it conforms to regulations.

The machine working area must not feature any dark areas, dazzling lights or stroboscopic effects due to lighting.

ATMOSPHERE WITH RISK OF EXPLOSION AND / OR FIRE
The machine in its standard configuration has not been designed or built to work in an environment which may have explosive atmosphere or which may present risk of fire.
4.2 POSITIONING THE MACHINE

The diagram illustrates the minimum distances which must be respected in order to guarantee a correct functioning of the machine and correct maintenance procedures.

For more informations check chapter referring to TECHNICAL INFORMATIONS.
4.3 SECURING THE MACHINE TO THE GROUND

It is necessary to secure the machine to the ground using the 7 fixing points as indicated in the figure below and using the anchors supplied with the machine.

The floor must be perfectly level and able to take the dynamic load as shown in the TECHNICAL DATA table.

<table>
<thead>
<tr>
<th></th>
<th>17 - 18 Kg</th>
<th>20 Kg</th>
<th>25 Kg</th>
<th>32 Kg</th>
<th>40 Kg</th>
</tr>
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<tbody>
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<td></td>
<td>mm</td>
<td>inch</td>
<td>mm</td>
<td>inch</td>
<td>mm</td>
</tr>
<tr>
<td>A</td>
<td>2050</td>
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<td>2190</td>
<td>86.2</td>
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<tr>
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<td>1500</td>
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</tr>
<tr>
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<td>1860</td>
<td>73.2</td>
<td>2000</td>
<td>78.8</td>
<td>2000</td>
</tr>
<tr>
<td>D</td>
<td>930</td>
<td>36.6</td>
<td>1000</td>
<td>39.4</td>
<td>1000</td>
</tr>
<tr>
<td>E</td>
<td>930</td>
<td>36.6</td>
<td>1000</td>
<td>39.4</td>
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</tr>
<tr>
<td>F</td>
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<tr>
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<tr>
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</tr>
<tr>
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<td>2000</td>
<td>78.7</td>
<td>2240</td>
<td>88.2</td>
<td>2240</td>
</tr>
</tbody>
</table>
4.4 CONNECTIONS TO ENERGY SOURCES

It wise to close all the valves involved in the connections at the end of the day and indispensable to close them before any repair or maintenance operation, as indicated on the labels placed near such connections.

**ATTENTION: PLEASE REMOVE THE METAL RED DISK THAT IS SITUETED UNDER FRIDGE COMPRESSOR BEFORE START RUNNING THE MACHINE.**
4.5 MAINS WATER ATTACHMENT

The cooling water does not undergo any kind of contamination and is used solely as a cooling liquid.

You should check that the values of the temperature, pressure and water capacity, correspond to those shown in TECHNICAL DATA in order to have a good functioning of the machine.

After use the water is expelled in a pure state at a temperature of 40°C (104°F).

NOTE
Connections must be made using rigid pipes either in iron or copper. Always fit a cut-off valve on the inlet.
4.6 STEAM ATTACHMENT (steam version)

For electric versions the steam generator is built in the machine, therefore it is not necessary to carry out any connection.

PERSONNEL QUALIFICATION  SAFETY MEASURES  MACHINE STATUS

Connect the steam supply to connection points D.

Fit a cut-off valve for the steam and a pressure reducer wherever necessary.

You should check that the values of steam supply and pressure, correspond to those shown in chapter 19 in order to have a good functioning of the machine.

Connect condensation outlet E to the return to the boiler.

Use only hard piping in iron or in copper.

NOTE
For electric versions the steam generator is built in the machine, therefore it is not necessary to carry out any connection.
Connect the mains to point A using piping RILSAN Ø6 mm (Ø0.23 ins).

The machine will work correctly at an air pressure of 7 bar (100 Psi).

For more information see section 6.6.

1 PRESSURE REDUCER
2 MANOMETER
3 STEAM TRAP

NOTE
The machine will not require any external connection if it is already fitted with its own compressor.
Once the electrical connection has been made press button no. 28 in order to check that the pump moves in a clockwise direction. If not, invert the R and S phases.

NOTE

A MAINS SWITCH with fuses will also need to be fitted.

PERSONNEL QUALIFICATION SAFETY MEASURES MACHINE STATUS

The machine identification plate gives all the information necessary to carry out the electrical connections correctly.
Connect the nitrogen feeding pipe at point N as indicated in the figure.