



Miele Group
Member

User Manual

ENDOSCOPES DRYING CABINET

ED 150/1

ED 150/2

ED 150/3

Serial N°:





Via Balegante, 27
31039 Riese Pio X (TV)
ITALY

Manufacturer:

STEELCO S.p.A.
Via Balegante, 27
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Thank you for purchasing this appliance.

The installation, maintenance and operating instructions given in the following pages have been prepared to ensure the long life and good performance of the appliance.

Following the instructions carefully.

The appliance was designed and constructed using the latest technological innovations available.
Please take good care of it.

Your satisfaction is our best reward.

WARNING:

NON OBSERVANCE, EVEN IN PART, OF THE RULES INDICATED IN THIS MANUAL WILL CAUSE THE PRODUCT GUARANTEE TO BECOME INVALID AND RELIEVES THE MANUFACTURER OF ANY RESPONSIBILITY.

1. GENERAL RULES

1.1 Limits of manufacturer's liability

The manufacturer shall not be held liable for failures or problems which arise due to tampering and/or incorrect applications and/or improper use of the machine.

The purchaser must comply with all instructions set forth in the user's manual, and he must in particular:

- Always work within the allowable limits for the use of the machine;
- Always carry out constant and diligent maintenance;
- Allow use of the machine by persons with proper skills and abilities for their role and purpose who have been properly trained and instructed;
- Use only manufacturer original spare parts.

Any modifications, adaptation or the like which may be made to machines which are subsequently placed on the market do not oblige the manufacturer to intervene on previously supplied machines, nor to consider the machine and the related user's manual lacking and inadequate.

The installation, maintenance and operating instructions given in the following pages have been prepared to ensure the long life and outstanding performance of the appliance.

For some especially demanding programming or maintenance operations, this manual serves as a memorandum of the main operations to be carried out.

Education on these topics can be obtained by attending training course held by the manufacturer.

The instructions in this manual do not replace but rather are in addition to employer requirements to adhere to current legislation on standards of prevention and safety.

[In case of serious accident that has occurred in relation to the device, it must be reported by the user and/or patient to the manufacturer and the competent authority of the Member State, in which the user and/or patient is established.](#)

1.2 Manual validity, contents and conservation

This manual reflects the state of the art at the moment of manufacture and delivery of the appliance and is valid for its entire life cycle.

The manufacturer is at clients' disposal for further information or to receive suggestions for making the manual more compliant with the needs for which it was prepared.

The translation of the contents into the client's language has been carefully prepared.

In order to prevent possible accidents to persons or property due to incorrect translation of the instructions, the client must:

- Not perform operations or manoeuvres with the machine if there are any doubts or uncertainties about the operation to be performed.
- Ask technical service for clarification of the instruction.
- If lost, ask for a new copy from the manufacturer.

It is important to keep this instruction manual with the machine for future reference.

If the machine is sold or transferred, the manual must be handed over to the new owners or user in order for them to become acquainted with its functioning and the relative warnings.

Read the warnings carefully before installing and using the machine.

This is a translation of the Italian text, which prevails in case of doubts.

1.3 Regulations

The purpose of the warnings is to safeguard the user in compliance with following Regulations and “Technical Product Standards”:

EUROPE:

- [Regulation \(EU\) 2017/745 \(Medical Devices\)](#);
- 2014/35/EU (Low Voltage Directive);
- 2014/30/EU (EMC - Electromagnetic compatibility Directive);
- EN 61010-1 (Safety);
- EN 61010-2-010 (Safety);
- 2011/65/EC (RoHS II);
- 2012/19/EC (WEEE);
- 2006/42/EC (Machine Directive).

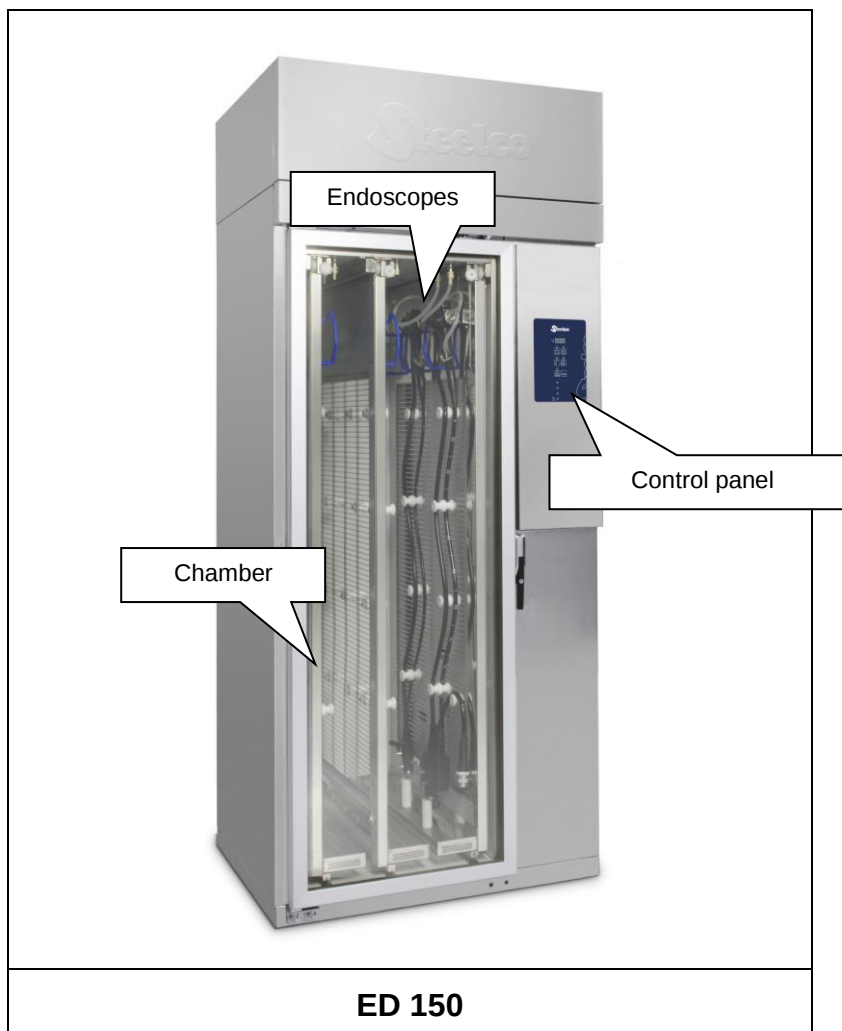
and recognized international standards:

- IEC 61000 (Electromagnetic compatibility);
- IEC 61326-1 (Electromagnetic compatibility);
- IEC 60529 (IP Grade);
- ISO 14971 (Medical devices risk analysis);
- The device is compliant to the EN ISO 16442, controlled environment storage cabinet for disinfected thermolabile endoscopes. Aseptic storage time is **certified up to 720 hours** by an independent laboratory.

2. SAFETY INFORMATION

Compliance with safety standards allow the operator to work productively and calmly, without the danger of harming himself or others.

Before starting work, the worker must be completely familiar with the functions and proper operation of the machine and he must know the precise function of all command and control devices of the machine.



2.1 Intended purpose, improper use

INTENDED PURPOSE:

The use of the machine is intended for the drying and the storage of the endoscopes.

Improper use of this unit may be hazardous to the operator and may seriously damage the machine itself.

WARNING:

If the appliance is used in a manner not specified by the manufacturer, protection of the appliance may be compromised.

IMPROPER USE:

Any use other than that for which the machine was intended is forbidden.

The machine is indeed for indoor use only.

2.2 Important warnings and suggestions

For proper use of the machine, and in order to safeguard employed staff, carefully comply with the following general and specific standards.

THE OPERATOR MUST:

- **Carefully adhere to the provisions and instructions** provided by the employer, managers and supervisors for individual and group safety.
- **Use safety devices appropriately and with care**, as well as group and individual safety gear provided by the employer.
- **Immediately inform the employer**, the manager and the supervisor of deficiencies in the aforementioned devices and means, as well as any hazardous conditions which he may become aware of, taking action directly in urgent cases within their scope of responsibilities and abilities to eliminate or reduce the deficiencies or hazards.

THE OPERATOR MUST NEVER:

- **Remove or modify, without authorization, the safety devices**, nor those for signalling and measuring, nor the individual and group safety gear.
- **Undertake on his own initiative operations or manoeuvres which are not his responsibility** which may compromise safety.
- **Insert foreign objects into the electrical parts.**
Do not insert foreign bodies into the covers of the electrical motors or into the moving parts of the machine.
- **Provide power to the machine by tampering with the main switch and the safety devices.**

2.3 Safety recommendations

- If the new machine appears to be damaged, contact the retailer before starting it.
- Any modification of electrical and venting systems necessary to install the machine must be carried out by qualified, authorised persons only.
- This machine must be operated by trained persons only.
- **The machine must be used for drying and for maintaining warm the endoscopes.**
- Any use other than that for which the machine was intended is forbidden.
- The user is forbidden to carry out any work or repairs on the machine.
- Technical Assistance for this Laboratory dryer should be carried out by qualified and authorised operators only.
- The equipment should be installed by authorised persons only.
- The electrical safety of this Instrument dryer is only guaranteed if it is connected to an efficient earth system.
- Do not install the equipment in rooms where there is the risk of explosion (ATEX).
- Do not expose the equipment to intense cold.
- Do not wash the machine using high-pressure jets of water.
- Do not lean on the door and do not use it as a step.
- Disconnect the machine from the electrical supply before carrying out maintenance work.

	ATTENTION
	The ED 150/3 model has got a double mains supply. For that reason, make sure to have unsticked the correct side before proceeding with the maintenance.

- The acoustic pressure of the machine is below 50 dB (A).



2.4 Recommendations to ensure high quality performance

- The user must oversee the machine during the cycle.
- When the machine is running do not interrupt the cycle since this jeopardises the holding time on temperature programmed.
- While handling objects, it is required the use of the suitable PPEs in order to avoid contaminating devices to be stored/preserved.
- During cleaning of the machine do not use products that may damage steel and cause the rapid deterioration of certain machine parts; contact should be avoided.
- Repairs and servicing of this machine must be carried out by authorised persons only.
- Use original accessories only.
- Under no circumstances should the user attempt to carry out repairs.
- The machine is to be used only with the accessories included by the manufacturer.
- Accessories which are not approved by the manufacturer may compromise the results achieved as well as user safety.
- Wet location.
- Mains supply voltage fluctuations: +/- 10%.
- Overvoltage category: II.
- Pollution degree: 2.
- IP: 00.



ATTENTION

The manufacturer declines all responsibility for personal injury or material damage resulting from the non-observance of the above rules.

The non-observance of these rules produces the total and prompt cancellation of the guarantee.

2.5 Residual risks

The appliance includes a series of fixed guards to prevent access to hazardous internal parts or zones.

It is however considered that the machine includes some residual risks.

Hereunder for each phase or significant work intervention are useful measures to be taken:

PHASE	MAINTENANCE OF INTERNAL EQUIPMENT
RISK	Burns of body parts by hot parts of the appliance.
MEASURE	Allow maintenance to be performed only by trained personnel, equipped with appropriate clothing and individual protection gear. Wear suitable clothing and protective gloves.

2.6 Safety signals used

To inform personnel operating on the machines of obligations of behaviour and residual risks, adequate safety signals (as set forth by 92/58 EEC) are applied to the machine and near the workplace.

GENERIC SAFETY SIGNALS:

In particular, labels with signals of obligation, prohibition and danger contained in this manual and pertinent to this machine and most commonly used are:



Electrical risk



Warning!
See annex documentation



Caution hot surface



**Control panel with double
mains supply**

INDIVIDUAL SAFETY WEAR:

The evaluation of risks for the health and safety of workers carried out in the workplace and on any equipment used, as well as the evaluation of residual risks as indicated, allow the employer to evaluate the need to adopt the individual protection gear which is most suitable and appropriate to be provided to workers.

Considering the type of machine, it is felt that the individual protection gear should be provided to staff.

2.7 Training

Instructions for use of the machine will be provided by the **STEELCO INSTALLATION TECHNICIAN** during the start-up phase to **MACHINE OPERATORS** and **MAINTENANCE TECHNICIANS** for their areas of responsibility, which will be thus instructed and trained.

It will be the duty of the **EMPLOYER** to check that the degree of staff training is suitable for assigned duties.

2.7.1 Staff qualification

Depending on the difficulty of certain installation operations, and of the operation and maintenance of the system, professional profiles are identified as follows:

IS **INSTALLATION and REPAIR TECHNICIAN:**

Specialized installation and maintenance staff capable of carrying out all machine positioning and installation operations, connection of various systems and machine start-up at the client's place of business, as well as all routine and special maintenance operations.

This operator is responsible for training staff for machine operation and for testing the machine.

AS **RESPONSIBLE AUTHORITY FOR THE MACHINE IN THE WORKPLACE:**

Specialized staff assigned to the verification of safety devices and procedures for proper use of the machine in complete absence or hazards.

The *responsible authority* is personally responsible for training courses for staff assigned to machine operation and maintenance.

He must ensure that staff assigned to operation has acquired all information required for use and routine maintenance of the machine, registering attendance and documenting comprehension tests.

The *responsible authority must* have a perfect understanding of all command, control and safety devices of the machine.

He must inform all personnel assigned to machine operation and maintenance of the instructions concerning *safety standards*, the *actions to be avoided* and the *first aid interventions* connected with use of the machine.

The *responsible authority must* be aware of all correct procedures for carrying out in absolute absence of danger all operation and maintenance of the machine, as well as all procedures for disposal of any residual pollutants and manufacturing wastes.

He must always be present during extraordinary or routine maintenance and give his *approval to proceed* to staff assigned to operation or to personnel assigned to routine or special maintenance.

The *responsible authority* will be responsible for operation of all command, control and safety devices in the machines of the system.

He shall carry out scheduled verification of those devices in order to ensure their continued operation over time.

AC **MACHINE OPERATOR:**

Skilled personnel assigned to machine operation.

The *machine operator must* be perfectly aware of all of the machine's command and control devices.

Only after approval by the *safety supervisor*, the *machine operator must* be capable of using the assigned commands to do the following:

- Commissioning and start-up of the machine;
- Loading and unloading of material to be dried;
- Operation of the machine in the various possible working modes, such as the start of various programmed cycles.
- Programming and setting data from the operator panel, adjustment of single control devices during working phases, starting or resetting of work functions.
- In addition, the *machine operator must*, by making use of all required individual protection gear and following adequate safety measures, be capable of performing some routine maintenance such as cleaning inside the machine, cleaning clogged filters, and disposing of pollutant waste materials produced during working.

2.8 Indication of sound level

The value shown refers to the measurement obtained on a machine of the same type as that covered herein and measured with an instrument at a height of 1.5 m at a distance of 1 m from the machine.

AVERAGE SOUND PRESSURE LEVEL: < 50 dB (A)

2.9 Transport and storage

Environment conditions:

- Temperature range +5 ... +50 °C;
- Relative Humidity range 20...90% without condensation;
- Ventilation: Air exchange not required (required only if chemical tanks are installed).

2.10 Table of symbols

Symbols installed on the machine:

	Electrical risk
	Warning - hot surface
	Manufacturer
	Manufacturing date
	Attention! See the enclosed documentation for important warnings, such as warnings and precautions.
	See instruction for use
	Protective conductor terminal
	EC Mark
	WEEE waste disposal
	Medical device indication*
	It indicates the catalogue number of manufacturer.

*According to the regulations in force in Canada, the products covered by this documentation do not qualify as medical devices.

3. USING THE MACHINE (FOR THE USER)

3.1 Checks

Check the machine status on the display and check that there are not any alarm messages.

3.2 Opening and closing the door/s

3.2.1 Stand by condition, one door model

In condition of stand-by it is possible open and close the door manually in every moment. The machine is equipped with key that allows to lock the door.

3.2.2 Machine in cycle, one door model

In condition of machine in cycle it is possible open and close the door manually in every moment. The machine is equipped with key that allows to lock the door.

If the door is opened during the cycle, remember that:

- The items inside the machine may be very hot.
- If the door is not re-closed within the time set by the relative parameter **P30**, the machine will show the warning message **"OPn"** on the display, accompanied by a beep. The message will be cleared once that the door is closed and the cycle will restart automatically from the point at which the door was opened.
- Otherwise, if the operator does not close the door in the time set by the parameter **P48**, the machine will show the alarm message **"Er4"** on the display and the cycle will be interrupted definitively.

	ATTENTION
	In this case the instruments inside the chamber are considered as contaminated and must be washed, disinfected and dried again.

3.2.3 Stand by condition, two doors model

In condition of stand-by it is possible open and close the door manually in every moment.
The doors can not be opened simultaneously.

3.2.4 Machine in cycle, two doors model

The machine is equipped with a lock doors system. To open the doors during the cycle is necessary press the button 'STOP' on the control panel.
The doors can not be opened simultaneously.

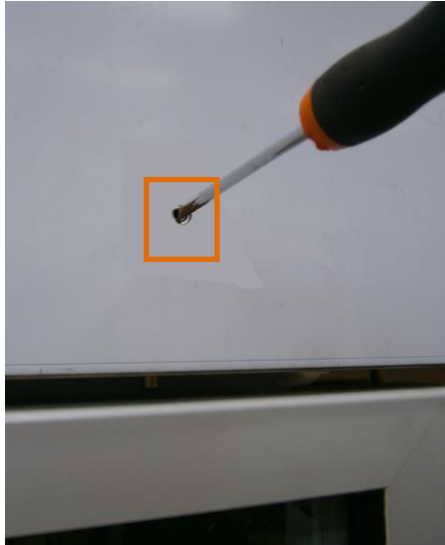
If the door is opened during the cycle, remember that:

- The items inside the machine may be very hot.
- If the door is not re-closed within the time set by the relative parameter **P30**, the machine will show the warning message **"OPn"** on the display, accompanied by a beep. The message will be cleared once that the door is closed and the cycle will restart automatically from the point at which the door was opened.
- Otherwise, if the operator does not close the door in the time set by the parameter **P48**, the machine will show the alarm message **"Er4"** on the display and the cycle will be interrupted definitively.

	ATTENTION
	In this case the instruments inside the chamber are considered as contaminated and must be washed, disinfected and dried again.

In case of emergency and/or the door has locked due to a power cut, it is possible to open the door manually as described below:

- Insert the screwdriver into the hole on the closing panel of the cabinet.



- Turn the screwdriver clockwise to unlock the door.



- Open the door.

3.3 Anti-contamination (if present)

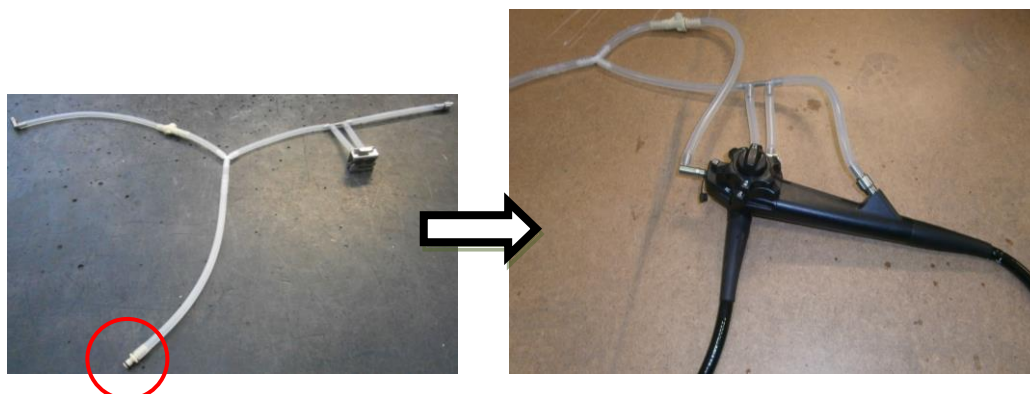
Upon opening the door, the second fan speed is automatically enabled. This stage makes it possible to increase the chamber pressure, with the aim of preventing contaminations due to contact with the external environment.

ATTENTION: The second fan speed is enabled only if parameter P31 is set to 3.

3.4 Preparation

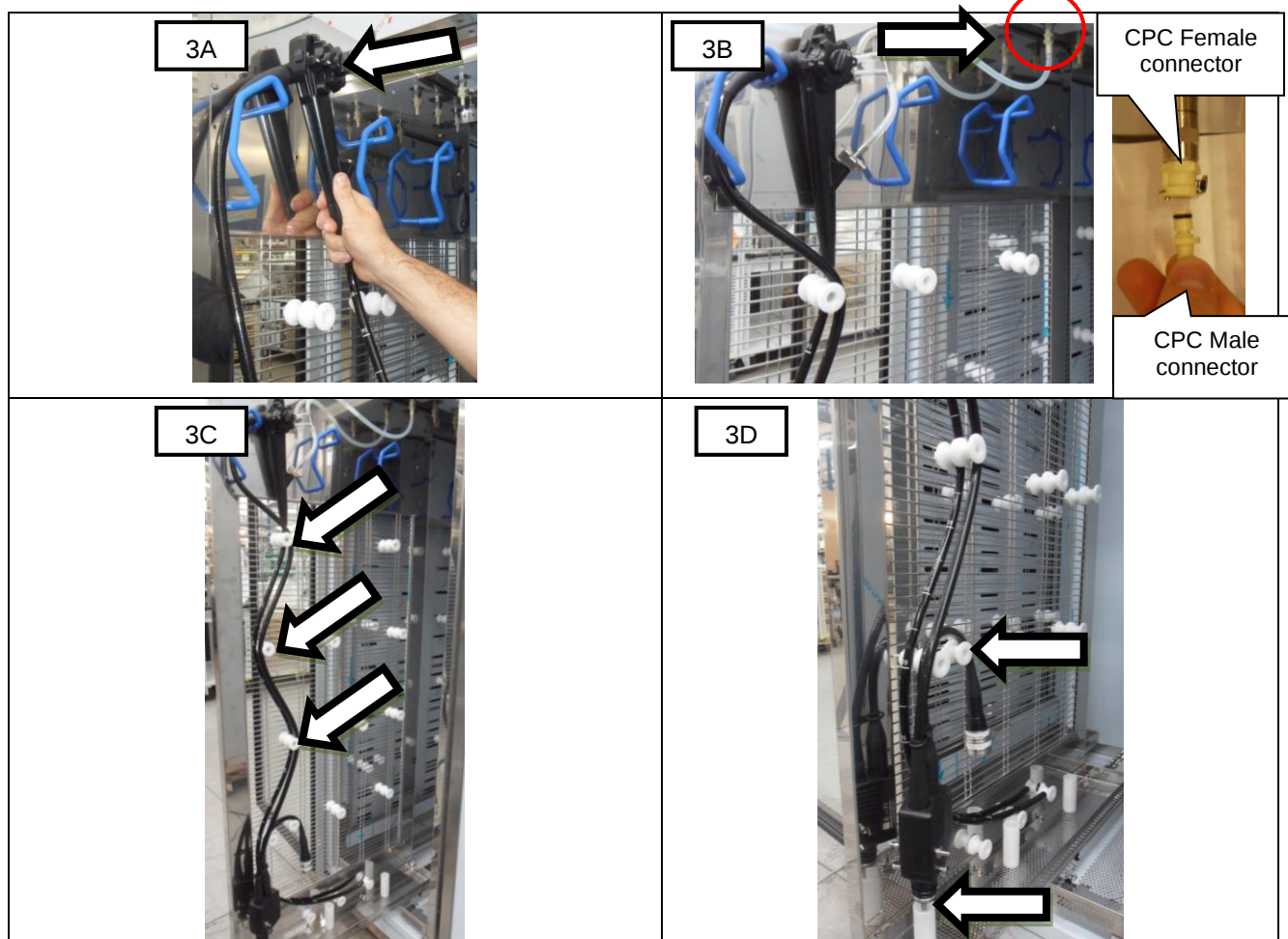
	ATTENTION
	BE SURE THAT THE DRYING CABINET HAS REACHED THE TEMPERATURE BEFORE INTRODUCE THE ENDOSCOPES.
	THE ROLLERS MUST BE POSITIONED ACCORDING TO THE TYPE INSTRUMENT TO BE INSERT INSIDE THE CABINET.

1-Connect the endoscope to the respective universal slide, leaving don't connected the other end.

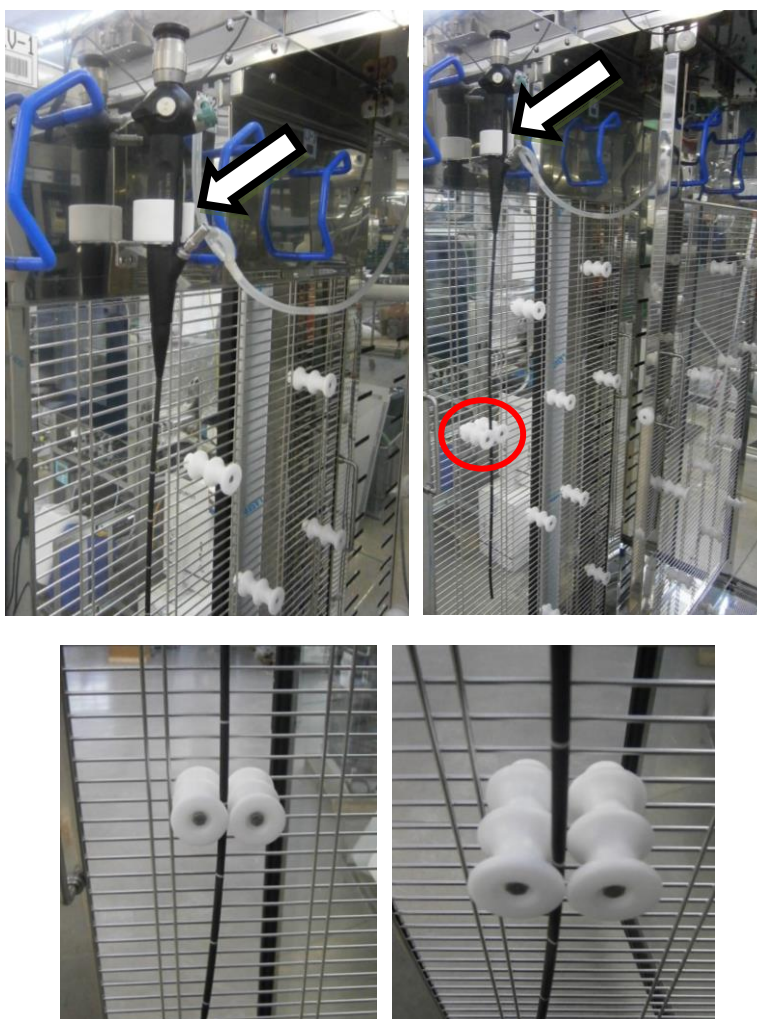


2-Extract carts from the cabinet.

3-Place the endoscopes on the supports of the carts and insert the CPC male connector of the universal slide into the corresponding CPC female connector (see pictures 3A – 3B – 3C -3D).



Regarding the small dimension instrumentations (bronchoscope, cystoscopy, etc.), use the supplied support as shown on the picture:



	ATTENTION Make sure that nothing is blocking the holes and the air exit from the chamber.
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3.5 Programs

		PROGRAM PHASES
PROGRAM NUMBER	PROGRAM NAME	DRYING
PROGRAM 01	RAPID	DRYING
	Duration (min)	120
	Temperature (°C)	40
	Holding Time (min)	120
PROGRAM 02	STANDARD	DRYING
	Duration (min)	240
	Temperature (°C)	40
	Holding Time (min)	240
PROGRAM 03	INTENSIVE	DRYING
	Duration (min)	Infinity
	Temperature (°C)	40
	Holding Time (min)	n.d.

PLEASE NOTE: If the machine is equipped with a humidity sensor, the length of the cycle is no longer determined by the parameters P1 – P4 – P7, but by the parameter P53 and the subsequent humidity threshold check set at P52.

3.6 Statement

By testing the endoscopes drying cabinet ED150, for 720 hours of storage in compliance with current regulations, all requirements were fulfilled.

3.7 Switching on

- Activate the dedicated safety device.



- The control panel starts automatically.
- Check that there is no alarm message. In negative case remove it.

4. CONTROL PANEL AND SYMBOLS USED

4.1 Control panel/s

The cabinet is equipped with one or two control panels depending on the model (single door or double door). The control panel makes the machine easy to use and it indicates the programs, the actual chamber temperature and fault messages.

If the machine is equipped with through passage doors, the control panel on load side allows to start cycles and to enter inside the menu, while the control panel on unload side only allows to interrupt the cycle and reset alarms.

DISPLAY LED

- Displays the various programmes, temperatures and any machine faults.
- During **STAND-BY** status, the type of programme selected is displayed.
- After pressing **START**, the display indicates the temperature of the air inside the chamber and when pressing the **PRG** button the temperature in the heater.
- In the event of a **SHUTDOWN**, the display indicated the shutdown status and the type of fault.

LEDS

There are 9 Leds:

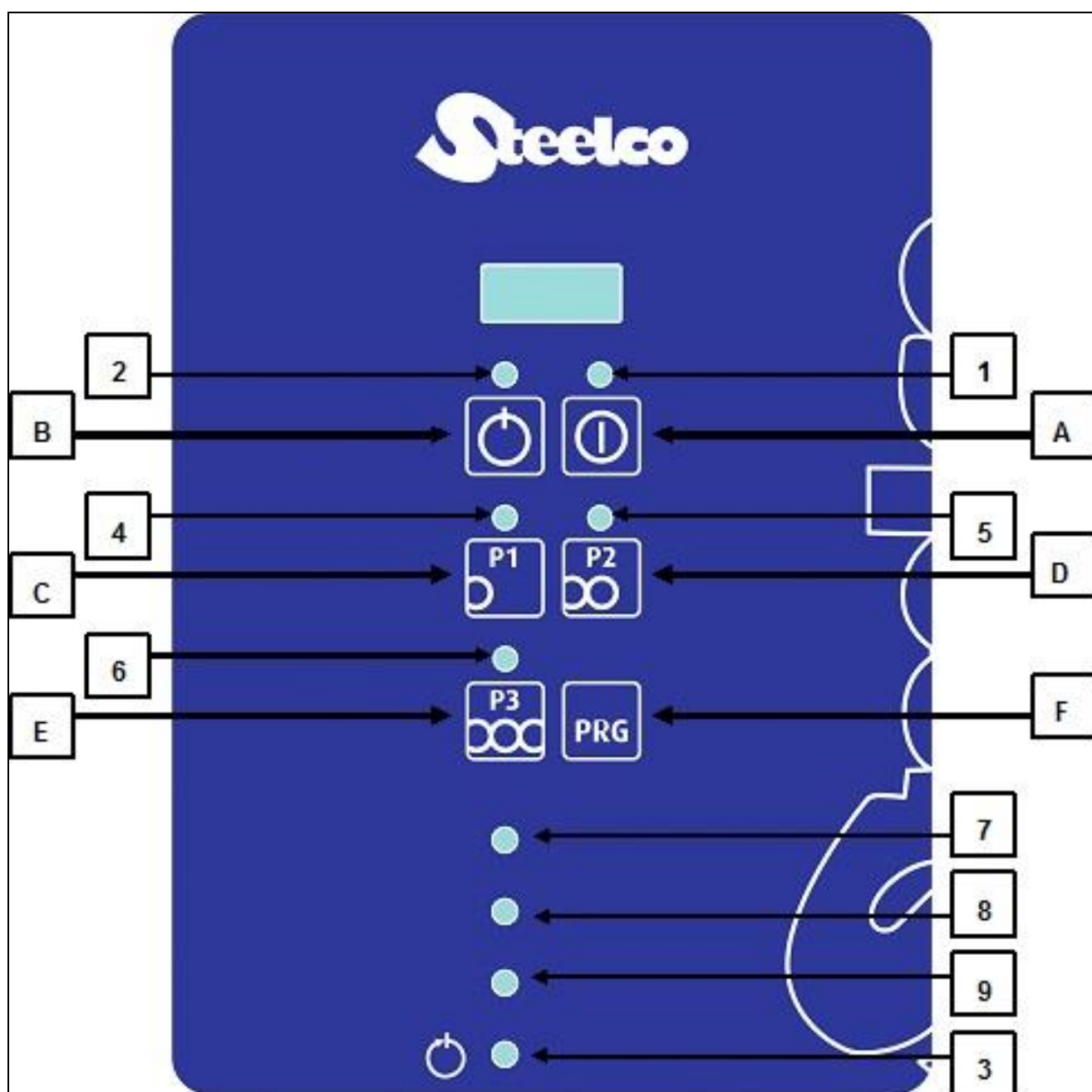
- one yellow Start led (1).
- one flashing red led to indicate that alarm happen (2).
- one green led to indicate a complete cycle (3).
- three yellow leds for indication of the various programme (4), (5), (6).
- three flashing yellow leds (7), (8), (9) to indicate that the cycle is on process.

BUZZER

- The buzzer sounds each time a key is pressed and intermittently in the case of a machine Shutdown.

4.2 Switches

BUTTON	REF.	DESCRIPTION
P1	C	Press the button to select the program " Pr1 ". STAND-BY CONDITION: the button is used in the menu to increase the numerical values, scroll through the list of operator parameters and the list of Inputs/Outputs.
P2	D	Press the button to select the program " Pr2 ". STAND-BY CONDITION: the button is used in the menu to reduce the numerical values, scroll through the list of operator parameters and the list of Inputs/Outputs.
P3	E	Press the button to select the program " Pr3 ".
PRG	F	STAND-BY CONDITION: Press the button to scroll through the programs Pr1 , Pr2 , Pr3 . Keep the button pressed for 5 seconds to visualize the menu. Press the PRG button to scroll through the list of menu sectors. CYCLE IN PROGRESS: Press the PRG button to visualize the temperature measured by the heaters. After a few seconds, the temperature of the air inside the cabinet it reappears.
START	A	STAND-BY CONDITION: Press the button to confirm the enter to the controls inside the menu. CYCLE IN PROGRESS: Press the button to begin the selected phase.
STOP	B	STAND-BY CONDITION: Press the button inside the menu to return at the previous or initial display state.
		CYCLE IN PROGRESS, ONE DOOR MODEL: press the button to stop definitively the cycle in progress.
		CYCLE IN PROGRESS, TWO DOOR MODEL: Press the button to stop the cycle in progress. In this condition pressing START the cycle will be started again from the point at which it was interrupted, while pressing STOP the cycle will be stopped definitively.



5. MACHINE STATUS

5.1 Preparation

Carry out the phase of preparation as described in Par 3.3.

5.2 Wait

The machine is ready to start a cycle.

The diagnostics are active.

If necessary, the display indicates that the door is open or gives warning messages.

5.3 Cycle

Cycle mode is entered by pressing the **START** key, this command is only accepted if the machine is in wait mode and the door is closed.

The diagnostics and regulators are active.

The user interface gives information concerning the cycle in progress and temperature chamber.

5.4 Shutdown

LOCK IN STAND BY:

In case of lock with machine in stand-by, reactivate the cause of the alarm occurred and perform the unlocking procedure.

Once reset the alarm, the machine will return at the previous state.

LOCK DURING THE CYCLE:

In case of lock during the cycle, reactivate the cause of the alarm occurred and perform the unlocking procedure.

Once reset the alarm, the interrupted cycle starts from the beginning.

6. PROCEDURE OF RESET

In case of LOCK, reactivate the cause of the alarm occurred and perform a procedure on the keyboard which consists of the sequence below, to reset the alarm:

1. Press the **STOP** and **START** switch together and keep pressed for 5".
2. Press the programme switch **P2** followed by the program switch **P1**.

7. SPECIAL FEATURES

7.1 Power failure

In case of dropout in stand-by condition, the board will recur in the previous stand-by condition, at the voltage reactivation.

In case of dropout during the performance of a cycle, at the voltage reactivation, the interrupted cycle will be managed according to the parameter setting P28.

8. WORK PROCEDURES

8.1 Introduction

The machine was built only and exclusively for drying endoscopes that have already been handled/sterilized. For this reason, it is necessary to provide some useful instructions for the operators who will be using it.

8.2 Instructions to personnel

The machine operator, in normal operating conditions, is not subject to risks if he works safely using suitable means of protection.

In order to work safely the operator must:

- Carefully comply with the instructions set forth in this manual.
- Use safety devices appropriately and with care, as well as group and individual safety gear provided in the workplace.
- Personally take action, or inform appropriate persons in the event of deficiencies in the aforementioned devices and means, as well as any hazardous conditions which he may become aware of, taking action directly in urgent cases within their scope of responsibilities and abilities to eliminate or reduce the deficiencies or hazards.

The maintenance technicians, in normal operating conditions, are not subject to risks if they works safely using suitable means of protection.

In order to work safely the maintenance technician must:

- Carefully comply with the instructions set forth in this manual.
- Use safety devices appropriately and with care, as well as group and individual safety gear provided in the workplace.
- Use special care in making repairs or replacing mechanical parts (e.g. drain pump, etc.) on malfunctioning machines which have not completed the cycle.

8.3 Decontamination procedures

When making repairs or replacing mechanical parts on malfunctioning machines that have not completed the cycle, before undertaking any sort of maintenance on the internal parts of the machine, the disinfection procedure must be carried out in order to eliminate any pathogenic residues and protect operators who come into contact with the machine from the risk of infection.

The decontamination procedure must be performed by the system operator, who must be equipped with all provided individual protection gear.

Carry out disinfection with a surface disinfectant or a disinfectant spray. The products used must be controller and approved according to European regulations. Watch contact time closely.

MACHINE STATUS:

The machine must not be powered electrically and the dedicated safety device must be in the OFF position.

The person performing the task must ensure that there is no-one around the machine during this operation.

SAFETY SYSTEMS TO BE ADOPTED:

The operation must be carried out in compliance with standards governing the use of disinfectant substances used (see technical information for the product being used, provided by the manufacturer), in compliance with standards concerning contact with parts of the machine which may be contaminated by pathogenic materials and with use of individual protection gear.

MODE OF INTERVENTION:

It is advisable to proceed with the disinfection of the machine as described in the chapter relating to maintenance.

When performing maintenance on parts of the machine which have not been reached by the disinfectant, take appropriate precautions and use suitable safety gear.

9. MENU

9.1 Accessing the menu

To enter the menu, keep pressed the **PRG** key for five seconds.

- Press **PRG** button to scroll through the menu.
- Press **START** to confirm selection, press **STOP** to return at the previous or initial display state.

WARNING:

Only authorized technicians with password are allowed to enter the programming menu.

The password must be required to the manufacturer.

Enter MENU to display the following fields:

FIELD	DESCRIPTION
PAr → Machine Parameters	Machine parameters setting.
CLo → Clock	Date/time setting. Activated if PLUG IN (printer board) is enabled. The date/time value is displayed if the historical cycles file is printed.
Prn → Print	Print the historical cycles. <u>Activated if printer is enabled.</u>
ErA → Erase	Delete the historical machine data. <u>Activated if PLUG IN is enabled.</u>
SER → Service	Maintenance setting. Access to the service hours of the machine.
I_O → I/O PLC	Display inputs/outputs PLC and Enabling/Disabling outputs PLC.

Following is described the keys sequence to enter into menu fields.

KEYS SEQUENCE TO ENTER INTO "PARAMETER MENU" – PAr –:

ACTION	DESCRIPTION	DISPLAY
USER - INSTALLER MENU		
Keep pressed PRG for 5 seconds	Access to the menu fields	PAr
Press - START -	Confirm operation	PAS
Press - P1/P2 -	Set password	XXX
Press - START -	Confirm operation	"P _ "
Press - P1/P2 -	Scroll through parameters and select the desired parameter.	"P _ "
Press - START -	Confirm operation to enter into the desired parameter. Display and/or modify the parameter.	Parameter value: -Pressing START button the modified parameter is saved and the display return to the previous status -Pressing STOP button the display return to the previous status, and the modified parameter is not saved

KEYS SEQUENCE TO ENTER INTO "CLOCK MENU" – CLo –:

ACTION	DESCRIPTION	DISPLAY
USER – INSTALLER - MAINTENANCE TECHNICIAN MENU		
Keep pressed PRG for 5 seconds	Access to the menu fields	PAr
Press - PRG -	Scroll through menu fields	CLo
Press - START -	Confirm operation	1
Press - P1/P2 -	Scroll through days number and select the desired value	1 ... 31
Press - START -	Confirm the desired value	1
Press - P1/P2 -	Scroll through months number and select the desired value	1 ... 12
Press - START -	Confirm the desired value	0
Press - P1/P2 -	Scroll through years number and select the desired value	0 ... 99
Press - START -	Confirm the desired value	0
Press - P1/P2 -	Scroll through hours number and select the desired value	0 ... 23
Press - START -	Confirm the desired value	0
Press - P1/P2 -	Scroll through minutes number and select the desired value	0 ... 59
Press - START -	Confirm the desired value	Set values are stored and the display returns to the standby display status

KEYS SEQUENCE TO ENTER INTO "PRINT MENU" – PAr –:

ACTION	DESCRIPTION	DISPLAY
USER – INSTALLER - MAINTENANCE TECHNICIAN MENU		
Keep pressed PRG for 5 seconds	Access to the menu fields	PAr
Press - PRG -	Scroll through menu fields	PAr
Press - START -	Confirm operation	Print the historical cycles

If the message "FAIL 2" appears during printing, it means that the cycle has been interrupted manually.

KEYS SEQUENCE TO ENTER INTO "ERASE MENU" – ErA –:

ACTION	DESCRIPTION	DISPLAY
USER MENU		
Keep pressed PRG for 5 seconds	Access to the menu fields	PAr
Press - PRG -	Scroll through menu fields	ErA
Press - START -	Confirm operation	PAS
Press - P1/P2 -	Set password	XXX
Press - START -	Confirm operation	The display shows the " ErA " text, in which the historical cycles file is deleted. At the end of procedure the display returns to the standby display status.

9.2 Details of the electronic card

The electronic card was designed following the indications given in the standards below:

EN 60335	Low voltage
EN 61000-6-3	Emission
EN 61000-6-1	Immunity

9.3 Features of master card

Serial interface

Com1:

Low voltage bus bar for two-way communication with the keyboard card.

Com2:

Asynchronous serial interface type RS232 foreseen for connection to PC or printer(optional).

10. CLOCK

- The card has a real-time clock.
- Time readings are also used when recording historical data.

11. PC INTERFACE

The card has a communication channel RS232 with Modbus protocol.

The channel can be used to access the historical data records file by setting the printer as follows:

- **Baud rate:** 2400 Baud, X ON X OFF,
- **data bits:** 8bits,
- **parity:** none.

12. ALARMS AND EVENTS LIST

12.1 Logical description of alarm interventions

During machine operation, the operator is aided by **ALARMS** or **WARNING** which make use of visual signals on the operator display panel to advise him of possible anomalies in progress and machine alarms which have intervened.

Intervention of an **ALARM** during operation of the system is signalled to the operator by a message on the operator panel.

The alarm which appears on the panel remains active until the cause of intervention is removed.
The intervention of an alarm stops the cycle currently in progress.

12.2 List of alarm messages

Possible alarms which may intervene during a work cycle are shown on the control panel display.
The message includes the number of the alarm that has intervened.
A complete list of possible alarm messages follows.

ALARM		DESCRIPTION
Er0	POWER FAILURE	This occurs when there is an electrical power failure during a work cycle.
Er1	FREE	-
Er2	FREE	-
Er3	UV LAMP FAULT	UV lamp fault for more than the time set by parameter P24 .
Er4	DOOR OPEN	Door being open for more than the time set by parameter P48 .
Er5	LIMIT °C CABINET PROBE (Probe n°1)	This occurs when the during the cycle the temperature inside the cabinet is over the value set by parameter P16 .
Er6	PROBLEMS ON CABINET PROBE (Probe n°1)	This condition happens when, with heaters ON, the temperature in the cabinet, does not increase of 1°C within the time settled by the parameter P19 . This control is carried out only if the temperature is lower than the one set by parameter P18 . Likely reasons of such a block could be either a problem on heating elements or a too low set time by the parameter.
Er7	FAULTY CABINET PROBE (Probe n°1)	This occurs when the temperature probe 1 (in the cabinet) is damaged.
Er8	FREE	-
Er9	FAULTY HEATER PROBE (Probe n°2)	This occurs when the temperature probe 2 (heater) is damaged.
E10	PROBLEMS ON HEATER PROBE (Probe nr.2)	This condition happens when, with heaters ON, the temperature in the heater, does not increase of 1°C within the time settled by the parameter P23 . This control is carried out only if the temperature is lower than the one set by parameter P22 . Likely reasons of such a block could be either a problem on heating elements or a too low set time by the parameter.
E11	FREE	-
E12	LIMIT °C HEATER PROBE (Probe n°2)	This occurs when during the cycle, the temperature inside the heater is over the value set by parameter P20 .
E13	PROBLEMS BLOWER (COMPRESSOR) 1	Pressure switch fault SP3 , fan failure.
E14	PROBLEM BLOWER 2 (MAIN BLOWER)	Pressure switch fault SP3 , fan failure or clogged filter HEPA.
E15	FREE	-

E16	REDUNDANCY CHAMBER PROBE(OPTIONAL)	-
E17	CAN SERIAL CONNECTION (Double door cabinet)	Lack of CAN communication between the two boards.
E18	FAULTY DOOR 1 LOCKING SYSTEM	Failure in the locking system of the loading door. This happens when time set by parameter P39 for the opening and the closing of the locking system of the door is over, or the locking door system is open during the active phases of the drying cycle.
E19	FAULTY MOTOR DOOR 1(OPTIONAL)	-
E20	DOOR 1 OPEN DURING THE ACTIVE PHASES OF THE CYCLE	The door has remained open over the time set by parameter P30 .
E21	FAULTY DOOR 1 END SWITCH (Double door cabinet)	Contradiction in the status of the limit switch of the loading door.
E22	FAULTY DOOR 2 LOCKING SYSTEM	Failure in the locking system of the unloading door. This happens when time set by parameter P39 for the opening and the closing of the locking system of the door is over, or the locking door system is open during the active phases of the drying cycle.
E23	FAULTY MOTOR DOOR 2(OPTIONAL)	-
E24	DOOR 2 OPEN DURING THE ACTIVE PHASES OF THE CYCLE	The door has remained open over the time set by parameter P30 .
E25	FAULTY DOOR 2 END SWITCH (Double door cabinet)	Contradiction in the status of the limit switch of the unloading door.
E26	DOORS STATUS CONTRADICTORY (Double door cabinet)	Contradiction in the status of the doors.
E27	HYGROMETER	Hygrometer problems.

13. MAINTENANCE

13.1 General recommendations on maintenance

The machine was built only and exclusively for drying endoscopes that have already been handled/sterilized.

For this reason it is necessary to provide some useful instructions for the operators who will be performing maintenance on it.

The maintenance technicians, in normal operating conditions, are not subject to risks if they work safely using suitable means of protection.

In order to work safely the maintenance technician must:

- Carefully comply with the instructions set forth in this manual.
- Use safety devices appropriately and with care, as well as group and individual safety gear provided in the workplace.
- Be particularly careful and aware in case of maintenance for the replacement of potentially contaminated bacteriological filters.

Maintenance operations for the machine described in this manual can be divided into "**Routine Maintenance**" and "**Special Maintenance**".

GENERAL GUIDELINES:

MACHINE STATUS

The machine must not be powered electrically and the dedicated safety device must be in the OFF position.

The person performing the task must ensure that there is no-one around the machine during this operation.

SAFETY SYSTEMS TO BE ADOPTED

The operation must be carried out in compliance with behavioral rules, in compliance with standards regarding contact with parts of the machine which may be contaminated by pathogenic materials and with use of suitable PPEs.

The maintenance machine operations described in this manual are divided into "**Routine maintenance works**" and "**Extraordinary maintenance works**".

The **routine maintenance** works concern all the operations aimed to keep all the different parts of the machine cleaned and functional and they have to be executed in a periodical frequency or when it is considered necessary, as it is reported an uncorrect washing cycle execution.

The manufacturer and the dealer make available the preventive maintenance kits, called **PM KITS**, which provide for interventions effected in a fixed frequency (1 year). The kits include the necessary components, in order to keep the optimal device performances.

Here below you could find the summarising table of the different maintenance works, the maintenance frequency and the staff in charge of each operation (**Ac**= Preposed to the machine use; **Is**= Installation and reparation Technician).

Each single intervention is described more precisely in the following sheets.

All the **extraordinary maintenance** works must be executed only and exclusively by qualified and expert staff.

If your machine presents a functional damage, for which you have to ask for an extraordinary maintenance work, you are kindly invited to contact the distributor/dealer.

	ATTENTION
The ED 150/3 model has got a double mains supply. For that reason, make sure to have unsticked the correct side before proceeding with the maintenance.	

TABLE OF ROUTINE MAINTENANCE TASKS

CLEANING AND CHECKING OPERATIONS		
FREQUENCY	ACTIVITY	WORKER
EVERY WEEK	-Blower: Check for free rotation. -Cleaning and disinfection of the internal chamber walls and accessories.	Ac
EVERY 6 MONTHS	-Instrument and machine connectors: Check the state and if necessary replace. -Door gasket: Check the state of the seal -Compressor: Check for air leaks from the gasket. -Compressor air filter unit (0,2 µm cod. ED100085): Check the state of the compressor air filter unit. Replace it whenever necessary and at least once a year.	Is
EVERY YEAR	-Temperature probes: During periodic validation, check the sensor status. -Safety thermostat: Verify the sensor.	Is

PREVENTATIVE MAINTENANCE OPERATIONS*		
FREQUENCY	ACTIVITY	WORKER
EVERY YEAR	-Replace door gasket -Replace UV-C light -Replace drying F5 filter -Replace HEPA filter	Is

* The operational instructions are included in the machine documentation and in the PM Kit.

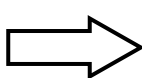
* The operative instructions are included in the machine documentation and in the PM KIT.

N.B.:

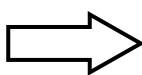
The time frames for execution of the maintenance programme may vary by +/- 15 days from the period indicated in the table.

N.B.:

Routine maintenance tasks must be performed at the intervals set forth in the table.
It is however advisable to carry out single cleaning tasks anytime you feel they may be necessary.



It is advisable to carry out a general check-up and to clean the appliance regularly.



Particular attention should be paid to heating element and the probe of thermostats.

WARNING

- Do not clean the machine outside with high pressure water.
- Please contact the retailer that supplies your cleaning products for details of recommended methods and products for sanitizing the machine regularly.
- The machine has a safety thermostat that shuts down the power supply to the heating elements in the event of overheating.

To re-start the appliance the fault that caused overheating must be corrected.

WARNING: IT IS NECESSARY TO MAKE A MAINTENANCE AT REGULAR INTERVALS AS DESCRIBED ON THE TABLE BELOW, IN ORDER TO GUARANTEE THE PERFECT FUNCTIONING.

DISINFECTION AND CLEANING OF THE CHAMBER		
	Worker: Ac	Frequency of Intervention: Recommended monthly
METHOD OF INTERVENTION:		
It is advisable to proceed with the disinfection of the machine as described below: - Open the access door to the chamber and check that no equipment or instruments have been left inside. - Remove baskets or boxes and clean them. - Inside the chamber, evenly spray a disinfectant that is both compatible to be used on steel surfaces. - All internal parts must be treated by this operation. The approved STEELCO product for cleaning and disinfection of the chamber is called "STEELCO Surface Cleaner Disinfectant". –Annex A- N.B.: "Steelco SCD" must be sprayed directly onto a low particle generation cloth that will then be used on all internal surfaces and accessories. Contact time must be 10 minutes. Should this product be sprayed directly onto the surfaces, following a 10-minute contact time, remove the product using the cloth.		
	ATTENTION	
	As regards the contact time and the methods of use of the disinfectant used, please comply with the instructions given on the technical data sheet of the product itself.	
	Always check the compatibility of the chemical product with the materials it will be used on; this information can be found on the technical data sheet of the chemical product used.	
	The application of the disinfectant inside the chamber must be carried out when the surfaces are cold in order to avoid harmful fumes coming from the product being inhaled.	

CLEANING THE EXTERNAL BODY OF THE MACHINE		
	Worker: Ac	Frequency of Intervention: daily/weekly
METHOD OF CLEANING OUTER BODY		
Use a damp cloth to clean the outer body of the machine. Use only neutral detergents. Do not use abrasive detergents or solvents and/or thinners of any kind. It is recommended to use chemical ("STEELCO SCD") compatible with external surface of the cabinet.		
METHOD OF CLEANING MARKING LABEL		
Use a damp cloth to clean the marking label surface. Use only water or isopropyl alcohol. Do not use abrasive detergents or solvents and/or thinners of any kind.		
METHOD OF CLEANING CONTROL PANEL		
Clean the control panel using only a soft cloth dampened with a product for the cleaning of plastic materials.		

CLEANING OF SAFETY SIGNALS SURFACESWorker: **Is**Frequency of Intervention: **1 year****METHOD OF INTERVENTION:**

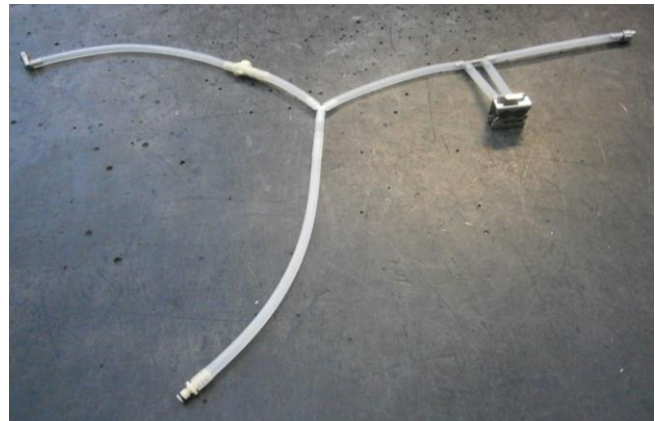
Clean the safety signals surfaces with water or isopropyl alcohol, using a cloth.

Treatment of endoscope connections

PIC.1

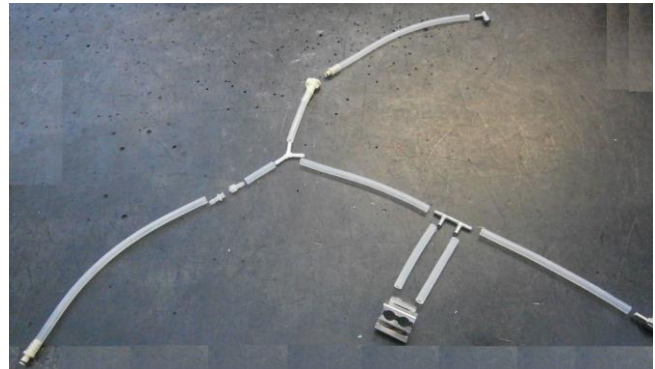
In order to avoid contamination, it is advisable to periodically carry out a cycle in which endoscope connections are disinfected.

- Maximum resistance temperature 70°C;
- Disinfectable by means of cycles thermostatically controlled material (e.g. plasma gas – thermolabile materials in washer disinfectors).



PIC.2

It is advisable to replace pipes every year and to reprocess them on a weekly basis.



14. PROBLEMS – CAUSES – SOLUTIONS

14.1 Introduction

This chapter includes possible problems which may occur during machine operation, along with their cause and solution. All components, if not identified by specific figures, are referred to by the attached assembly drawings. If after following all instructions in this chapter the problems persist or re-occur frequently, please contact our technical service.

14.2 Problems - Causes - Solutions

I. MACHINE WILL NOT START:

- C. Circuit breaker de-activated.
- R. Place it in the "ON" working position.
- C. Machine start switch de-activated.
- R. Press the start button.

I. UPON GIVING START-UP COMMAND, CYCLE DOES NOT START:

- C. The door is not correctly closed or locked.
- R. Check door closure. Check that the door micro-switch is properly activated.
- C. Micro-switch failure.
- R. Check operation and replace as necessary.

I. MACHINE DOES NOT REACH SET TEMPERATURE FOR THE SELECTED WARMING:

- C. The heaters do not work correctly.
- C. The temperature probe do not work correctly.
- R. Check and replace as necessary.

I. MACHINE DOES NOT PERFORM WARMING PHASE:

- C. Air filter is dirty or clogged.
- R. Clean the filter by carrying out the routine maintenance set forth in chapter 13.5 (Form M2) of this manual.
- C. The fan of the warming system does not work.
- R. Check the electrical connections of the warming system.
- R. Contact our technical service and ask for the assistance of an **authorized workshop technician** for the repair or replacement of the motor.

15. DECOMMISSIONING

15.1 Instructions for disassembly and demolition of the machine

Please note that the machine may contain contamination from blood and other bodily fluids, pathogens, facultative pathogens, genetically modified material, toxic or carcinogenic substances, heavy metals, etc., and must be decontaminated before disposal.

For environmental and safety reasons, dispose of all process chemical residues in accordance with safety regulations. Wear gloves and protective goggles.

Remove or disable the door lock prior to disposal of the machine, so that children cannot become trapped inside. Then make appropriate arrangements for safe disposal of the machine.

For demolition and subsequent disposal of your machine, proceed as follows:

- Disconnect the machine from the electrical power and water supply, and from the drain. With the machine disconnected, check that the water circuit is not pressurized.
- Contact the organization responsible for reporting and certifying machine demolition, in accordance with the laws in the country where the machine is installed.
- Carry out draining, storage and subsequent disposal of substances such as oils and grease which may be in the lubrication tanks in accordance with the law.
- When disassembling the machine, make sure to divide the materials it is made of according to their chemical makeup (iron, aluminium, bronze, plastic, etc.).
- Ensure that the floor where the machine or any parts of it are placed is made of washable materials, non-absorbent, and provided with adequate drainage to protect against accidental oil leaks or rust. These drains must carry any leakage to watertight collection containers.
- Cover the machine or parts of it with insulating covers to prevent rain or humidity from damaging the structure through oxidation or rust.

Following the legal requirements where the machine is installed and used, dispose of all materials and substances resulting from its disassembly.

15.2 Machine disposal



- For the dispose of the equipment get through to the manufacturer or distributor.
- Do not dispose of this equipment as miscellaneous solid municipal waste but arrange to have it collected separately.
- The re-use or correct recycling of the electronic and electrical equipment (EEE) is important, in order to protect the environment and the well-being of humans.
- In accordance with European Directive WEEE 2012/19/EC, special collection points are available to which to deliver waste electrical and electronic equipment and the equipment can also be handed over to a distributor at the moment of purchasing a new equivalent type.
- The public administration and producers of electrical and electronic equipment are involved in facilitating the processes of the re-use and recovery of waste electrical and electronic equipment through the organisation of collection activities and the use of appropriate planning arrangements.
- Unauthorized disposal of waste electrical and electronic equipments is punishable by law with the appropriate penalties.

ANNEX A



Certificate N° 648

Training Certificate

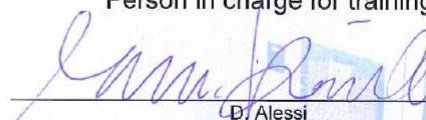
Mr. **XXXXXXXXXX** of the company **XXXXXXXXXX** has attended the training course
for:

ED 150

The license is valid for: **1 year**

Riese Pio X, 18/09/2014

Person in charge for training


D. Alessi

Steelco S.p.A.

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Website: www.steelcospa.com



"For the Environmentally conscious"

MD 18#10 Rev.00

16. STORAGE AND DRYING CABINETS: SANIFICATION PROCEDURE OF THE INTERNAL SURFACES AND ACCESSORIES

The rule EN 16442, at point 5.3, predicts that the internal cabinet surfaces and its accessories– storage cases and DM transport– could be submitted and resist to the cleaning processes and routine disinfection without being subject to degenerations.

For this aim the manufacturer must provide a procedure of validated cleaning and disinfection.

The tested and validated disinfectant by Steelco S.p.A. for the sanification phase of the cabinet walls and the storage boxes is Steelco SCD code 9992105.

Steelco SCD is ready to be used with a spectrum of biocid action for bacteria, fungus and virus. The product must be left in contact to the surface for 10 minutes and consequently removed with a proper cloth. No rinse is requested.

Sanification procedure

Steelco S.p.A. recommends to carry out the sanification procedure of the cabinet as described below at least once a month or to refer to the internal protocol of the structure.

It is recommended to clean the accessories of the cabinets after each procedure with a routine cadence or by following what indicated in the internal protocol of the structure. If the cabinet cases are used for the transport of the dirty endoscopes to the reconditioning area, the same must be sanitized after each procedure.

1. Disconnect the cabinet electrical power supply
2. Remove the endoscopes in stock from the internal part of the cabinet
3. Spray **Steelco SCD** on the cabinet walls and on the accessories (eventual baskets in the mesh, cases etc...)
4. Allow the product action for 10 minutes
5. Remove the product with a proper cloth al low particulate release



It is possible to use alternatively the following methods in order to sanitize the accessories.

Alternatives methods for accessories sanification

- Standard chemical disinfection cycle (35°C) in the endoscope washer Steelco model EW 2
- Standard chemical disinfection cycle in washer disinfectant with a temperature not higher than 45°C

Sanification of endoscopes connectors

The endoscopes connectors must be periodically disinfected or sterilized as well.

Here below some methods:

- Cycles for thermolabile material inside the endoscope washers or thermo-disinfectors;
- Terminale sterilization at low temperature (Plasma, hydrogen peroxide or Ethylene oxide);
- Use of disinfectants that can be re-used and proper to thermolabile products.