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# **Spoonshine**

## **CUTLERY POLISHERS**

### **RISK ASSESSMENT**

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This Risk Analysis has been performed in conformity with the directive CEE 89/392, based on the form of Attachment 1 of such directive:

### 1.1.2 Implementation of safety principles:

All avoidable risks have been overcome thanks to careful planning and to the ten-year long experience in the manufacturing sector. All moving parts have been covered with a metal casing fixed with bolts, or have been bolted and fitted with a limit switch.

The Risk Analysis on the machine has been carried out bearing in mind that there are two potentially dangerous situations:

1. the first potentially dangerous situation is connected with the **normal use** of the machine for production in automatic mode, where the risk involves the average operator whose training is limited to having read the instruction manual and an expertise that covers the catering field more than technical subjects;
2. the second potentially dangerous situation is linked to the **installation, maintenance and demolition** of the machine. In this case, the potential risk involves the **qualified technician** taking care of these procedures.



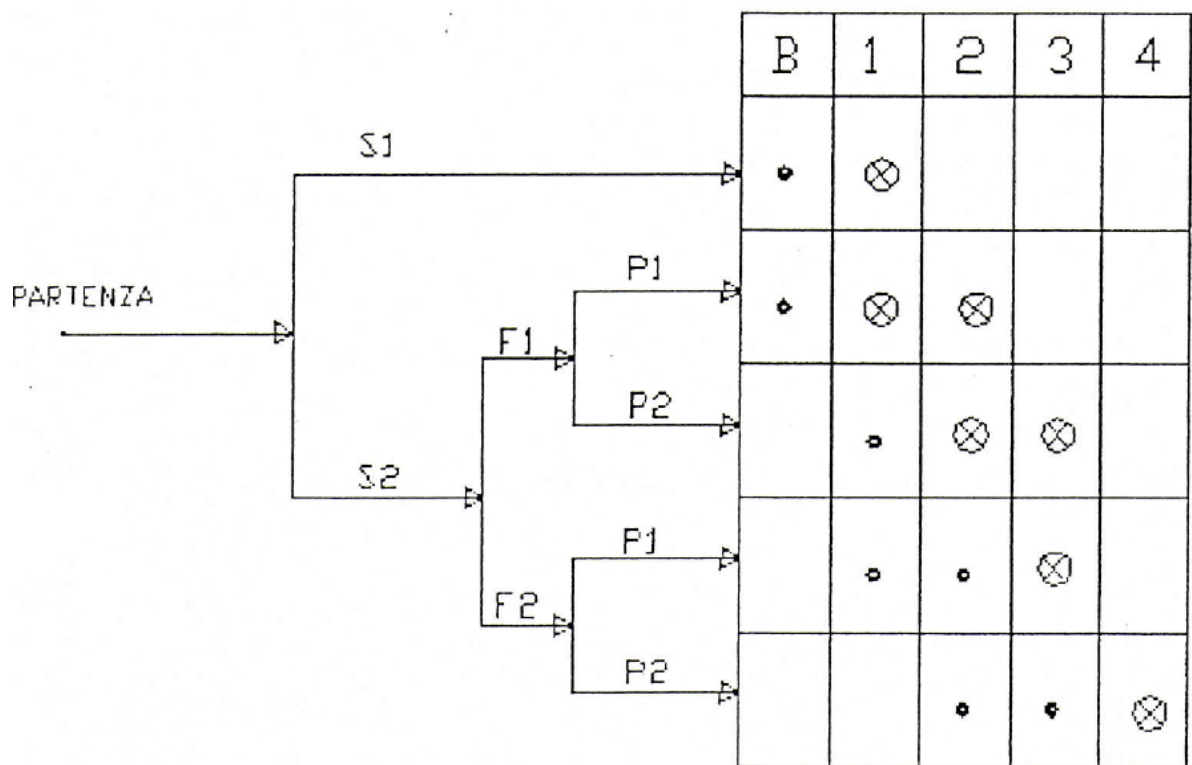
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In the first case, the person standing close to the cutlery polisher loading the cutlery will not be exposed to any real risk. An improper but foreseeable behaviour has also been taken into consideration, where the person might load the cutlery when the machine is on and the lid is open. If this happens, due to habit and to a repetitive action, the fingers could slip through the gap between the vibrating tank and the frame, causing a slight compression.

In consideration of this possibility, the machine has been given a risk grading according to law EN-954-1, distinguishing the following parameters:

- a) frequency of risk exposure = **rare (F1)**, as in any case the risk is due to an abnormal behaviour;
- b) seriousness of injury = **minor (S1)**, injuries can happen;
- c) risk prevention = **rarely possible (P2)**, the wrong movement could happen instinctively while the subject is paying no attention.

On the basis of such parameters, and in conformity with law EN954-1, the safety circuit required in this case must be of CAT1:



Where ⊗ indicates the preferred category that should be chosen.

The machine is fitted with an internal safety button (see drawing n. 1809) that is kept pressed by a knob located under the lid. When the lid is lifted open the knob releases the button and the machine is turned off, without the possibility to be switched on again.



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Even when the lid is open, the possibility that somebody might press the safety button with a finger to start the machine has also been taken into consideration, even though this is improper behaviour. Nevertheless, the following must be pointed out:

1. such behaviour is highly improbable as the operator would be forced to keep one hand busy pressing the button, with consequential time waste. At the same time, this action would make injuring the same hand impossible.
2. In spite of the above, the button has been encased and the hole to access it is only 10 mm in diameter, so that fingers cannot press it.

Further instruction notices and danger warnings concerning unavoidable risks have

been applied to the casing that covers the electrical parts.

Also, the instruction manual reports detailed information concerning the machine use

and maintenance, specifying which jobs must be carried out by expert technicians.

### **1.1.3 Materials and products:**

The machine has been constructed without the employment of harmful materials that would constitute a health hazard to the people exposed to it. No lubricating oils are used either.



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#### **1.1.4 Lighting**

The machine is not equipped with its own lighting as it is made to be used in restaurants and catering kitchens. Nevertheless, faint lighting would not constitute a danger when using the machines.

#### **1.1.5 Transporting the machine**

The machine is raised from floor level thanks to some legs or castors that enable a transpallet to be inserted under it to be lifted. Further information is available in the paragraph “Machine handling and transport” of the instruction manual.

#### **1.2.1 Safety and reliability of the control system**

The components employed in the construction of this machine have been highly tested and the operator is given full explanation about the controls in the paragraph “Control systems” of the instruction manual.

#### **1.2.2 Control devices**

All control devices are clearly visible, easy to locate and to use, marked with explicatory signs and with a layout that guarantees a safe and univocal operation. They are located in accessible position and outside dangerous areas.

#### **1.2.3 Starting the machine**

Starting machine is possible only with an intentional action and the information given to the operator is outlined in “How to start the machine”.



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#### **1.2.4 Stopping devices**

The machine is equipped with a normal stopping device, as described in the paragraph "Control devices". The same device is also used as emergency stop.

#### **1.2.5 Selecting the working mode**

Not available - the machine has only one working mode.

#### **1.2.6 Damages to the power supply circuit**

When the power supply is interrupted, the machine immediately shuts down. To re-start it, the procedure is usually identical to that described in the paragraph "How to start the machine".

#### **1.2.7 Damages to the control circuit**

Damages to the control circuit do not cause dangerous situations such as an ill-timed starting of the machine, the impossibility to stop the machine when the start order has already been given, etc.

#### **1.2.8 Software**

N/A.

#### **1.3.1 Stability**

Given that the machine has a large base, the risk of overturning it is non-existent and its displacement is very rare when it is rested on legs; if castors are chosen, then the machine must be placed on an even surface, otherwise it can move, even though there is no danger for the operator.



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### **1.3.2 Risk of breakage during machine operation**

The machine has been designed with such high safety margins that the risk is almost non-existent.

### **1.3.3. Risk of falling and projected objects**

None.

### **1.3.4 Risk involving surfaces, corners, edges**

The accessible elements of the machine present no sharp corners, rough surfaces or protrusions.

### **1.3.5 Risk involving combined machines**

None

### **1.3.6 Risk involving a variation of rotating tooling speed**

None

### **1.3.7 Prevention of risks involving mobile parts**

The only mobile part is the tank, that vibrates with a minimal movement. To avoid the risk of compression, the vibrating element has been moved inside, and is protected by, the outer casing. This makes it impossible for the operator to reach the vibrating tank with the hands, unless this is a conscious and intentional movement.

### **1.3.8 Choosing a protection against the risk involving mobile parts**

This has already been mentioned in the previous point.



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## **Protection requirements**

### **1.4.1 General requirements**

Protections must be solid, must not represent a further source of risk, must not be avoidable or made ineffective. They must be far enough from the dangerous area and not hinder the working cycle.

#### **1.4.2.1 Fixed protections**

They must be securely fixed to the structure with screws that require a tool to be removed.

#### **1.4.2.2 Mobile protections**

The top lid is hinged and fitted with an electric limit switch that interrupts the power supply to the machine when the lid is lifted (as already described at the beginning of this analysis). To avoid the lid left open to be knocked over and fall close while somebody's hands are resting on the machine border, two metal bars have been placed on either side, so that the lid cannot close unless at least one of the bars is pulled with a hand.

### **1.5.1 Risks due to electricity**

The electric panel is well protected, as required by law CEI EN 60204-1. Besides, the main terminals are separated and highlighted, and the operator is warned with a notice applied to the machine.



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### **1.5.2 Risks due to statical electricity**

The machine is connected to the earth bar of the electric panel with a suitable cable that is then connected to the grounded system of the building through a plug, when the machine is installed.

### **1.5.3 Risks due to power sources other than electricity**

None

### **1.5.4 Risks due to assembly mistakes**

The machine is entirely assembled by the manufacturer and is easy to install following the instructions contained in the paragraph "Installation instructions"

### **1.5. Risks due to extreme temperatures**

There are no risks of extreme temperature during the usual working cycle, as the maximum temperature reached by the machine is similar to room temperature. When maintenance must be carried out and the machine has just been turned off, the temperature at the bottom of the tank, reached by lifting the lid, could reach 150°C. The operator is warned against this possibility in the instruction manual and with an adhesive label applied on the lid.

### **1.5.6 Risk of fire**

The machine has been built in such a way that the risk of fire or overheating is nil.

### **1.5.7 Risk of explosion**

None.



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#### **1.5.8 Risks due to noise**

The noise level of the machine is very low, as indicated in the instruction manual. No precautions are required.

#### **1.5.9 Risks due to vibrations**

None.

#### **1.5.10 Risk of radiations**

None.

#### **1.5.11 Risks due to external radiations**

None.

#### **1.5.12 Risks due to exposition to laser devices**

None.

#### **1.5.13 Risks due to emission of dust and gas**

None.

#### **1.5.14 Risk of entanglement with the machine**

None.

#### **1.5.15 Risk of falling**

None.



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## 1.6 Maintenance

Maintenance of the machine has been divided as follows:

- ordinary maintenance: basic operations that can be carried out by the operator:
- extraordinary maintenance: must be carried out only by a qualified technician.

In both cases the operations have been fully described in the “Maintenance” paragraph of the instruction manual.

## 1.7 Signals

### 1.7.0 Informative signals

A few pilot lights are available on the control panel, as described in the “Control” paragraph, to supply the necessary information to the operator.

### 1.7.1 Warning signals

Not available as not necessary.

### 1.7.2 Warning – residual risks

In spite of the adopted measures, some residual risks remain due to the physical presence of the machine. For this reason, written signs have been placed on the machine itself, where necessary, and recommendations have been made in the instruction manual concerning transport, maintenance and demolition.