

MANUALE D'USO OPERATING INSTRUCTION

STILOR 100

Macchina per deposizioni a penna completa di vasca per sgrassatura
Pen plating machine complete with electro-cleaner tank



TRANSLATION OF THE ORIGINAL INSTRUCTIONS

Manuale Uso STILOR 100 EN

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1. WARNINGS



ATTENTION: You must read this manual carefully before carrying out any installation, operation, adjustment and maintenance on the machine. Keep these instructions in a place accessible to every user.

ATTENTION: The equipment is not intended for installation in a potentially explosive atmosphere and, therefore, does not meet the requirements of Directive 94/9/EC "Equipment and protection systems intended for use in potentially explosive atmospheres".

ATTENTION: All and only the operations described in this manual are correct: the manufacturer cannot be held in any way liable for any operations carried out which do not comply with the specifications and operations not planned in this manual.

ATTENTION: In the event of a fault or malfunction of the machine, you need to contact a qualified technical support centre or the manufacturer.

ATTENTION: The manufacturer cannot be held in any way liable for any accidents or harm to people or damage to property due to non-compliance with the specifications on safety or determined by improper use or tampering with the machine. The safety standards described in this manual integrate and do not replace local standards in force, which must however be complied with by the user.

2. GENERAL DATA

2.1 Manufacturer's date

Company:	BERKEM S.r.l.
Address:	Via della Provvidenza, 63
Locality	35030 Rubano (PD)
Country:	Italy

2.2 Machine data

Type:	STILOR 100
Serial number of machine and year of manufacture	See the label applied on the last page of this manual

2.3 Technical Data Sheet

External dimensions	mm	170 x 160 x 130 mm larghezza, profondità, altezza
Weight	Kg	0,7 kg
Operating Voltage	V	115~230 V- /50-60 Hz [Volt/Hertz]
Output Voltage	V	2.0-13,0V [Volts]
Maximum power input	W	65VA [Volt x Ampère]

Maximum output current	A	3.0 [A]
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2.4 Equipment characteristics

STILOR is a line of pen plating machinery and accessories. The line comprises:

- ➔ the special high power machine STILOR 100 which can also perform degreasing of the pieces, the pen with platinum or graphite tip and all the accessories necessary for correct pen plating.
- ➔ the exclusive satellite STILOR 100S¹ which can be connected to the STILOR 100 unit, converting the unit into a small bath plating system complete with 4 tanks ideal for shops and small repair workshops.

The device is intended for professional use only, for the stylus electro-deposition of rhodium and gold. Any use, other than that specified, is considered improper.

¹ Item sold separately.

2.5 Machine architecture

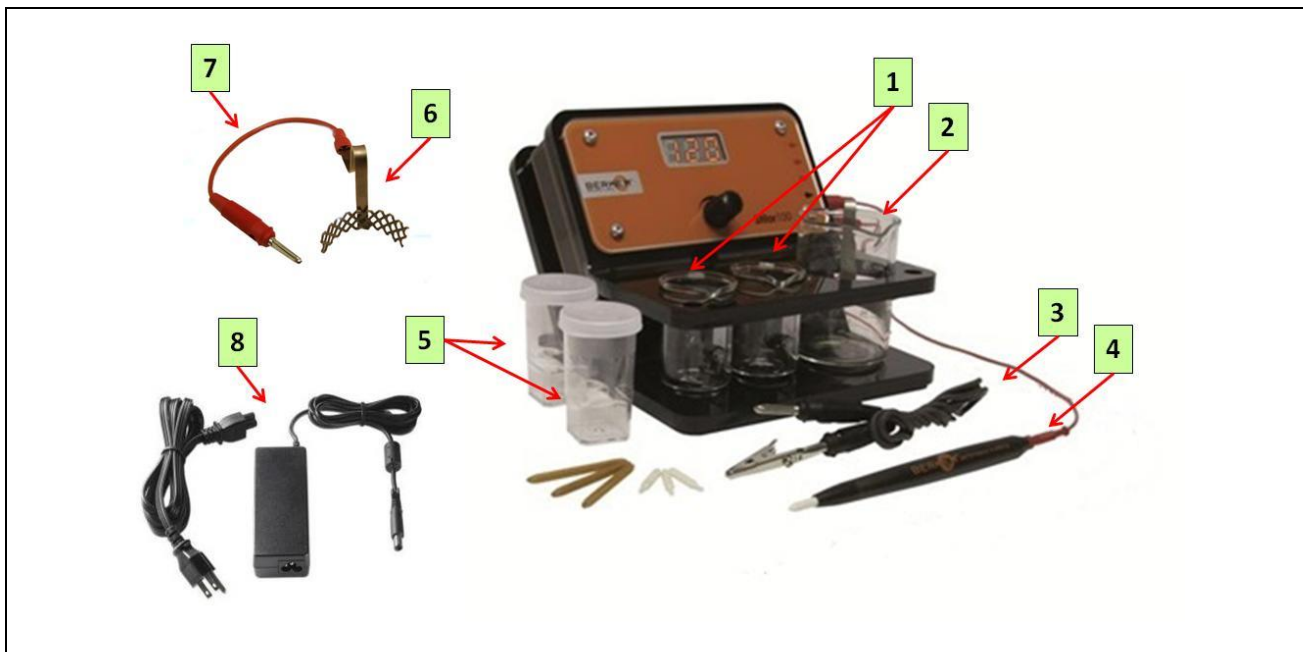


Fig. 1

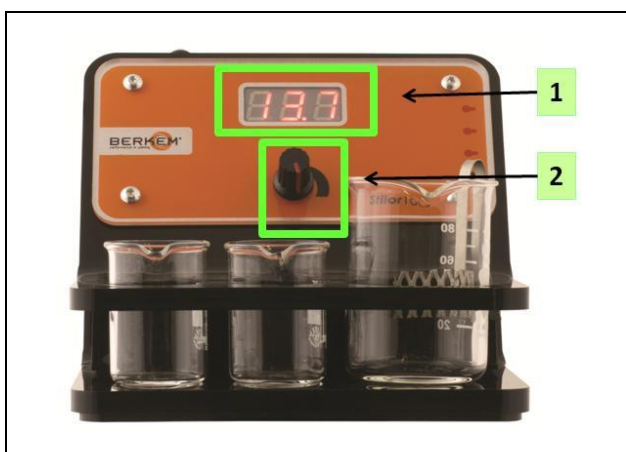


Fig. 2



Fig. 3

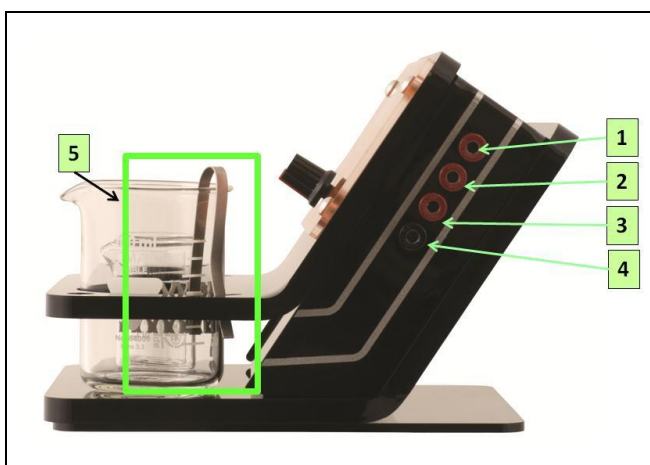


Fig. 4

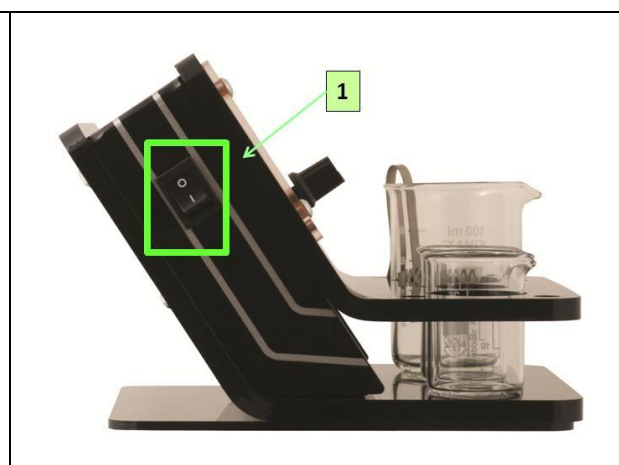


Fig. 5



Fig. 6

2.6 Standard equipment

On purchase, the device is provided complete with:

- ☐ 2 glasses PIREX 25 ml (Fig. 1-1)
- ☐ 1 glass PIREX 100 ml (Fig. 1-2)
- ☐ 1 black lead 4mm x 1m complete with crocodile clip (Fig. 1-3)
- ☐ 1 Pen for pen-plating STILOR 101 with platinum collar (Fig. 1-4)
- ☐ 2 PET Beaker 25ml, mm 30x56 (Fig. 1-5)
- ☐ 1 Anode ANTIPT5x1.5 (Fig. 1-6)
- ☐ 1 red wire for anode connection (Fig. 1-7)
- ☐ 1 Power Pack 19V 3,4 A 65W (Fig. 1-8)
- ☐ 1 User Manual

Power cable The machine is equipped with the power cable with the plugs for connection to the socket on the back side of the machine casing and for connection to the voltage socket which must be present in the installation place.

3. WORK AND COMMAND STATIONS

The device is used for an individual workstation. All the commands to start and adjust the machine are placed on the front, in the command position for the operator.

The machine must be placed on a flat horizontal surface to avoid any risk of overturning. Installation must be carried out in a dry, well-aired and correctly illuminated environment. Furthermore, the device must be plugged in for power, according to the connection instructions given in the following paragraphs.

4. SAFETY DEVICES AND CAUTION FOR OPERATOR AND MAINTENANCE STAFF SAFETY

The machine does not have rotating parts which can come in contact with the operator.

It must take appropriate measures to prevent the risks associated with the use of electrical equipment and therefore protective measures against electrical shock, risk of injury and fire.

It is therefore recommended to read and observe the following guidelines:

→ Maintain order in the area of work: clutter in the workplace creates danger of triggering incidents.

- Use in an appropriate environment: Do not use the device in damp or wet conditions and provide good lighting.
- Keep away children: do not let the children play with the device, the accessories or the power cable, keep them away from the work area.
- Be sure the machine is not damaged before using it: in the event of damages immediately repair or replace it.
- Make sure all parts are assembled properly.
- Before using the device check carefully that the safety devices are working perfectly, are in good condition and comply with regulations.
- Do not use the power cable for purposes other than those intended; do not carry the device by the power cord; do not pull the power cable to pull the plug; protect the power cable against heat, grease and sharp edges.
- Meticulously take care of the set: for the correct and reliable operation, the unit must be kept clean.
- Only use accessories or additional equipment recommended in the instructions for use.



ATTENTION: it is forbidden to tamper with the machine and/or open the cabinet

ATTENTION: it is forbidden to remove the guard devices and safety labels.

ATTENTION: it is forbidden to perform maintenance work on live equipment

ATTENTION: it is forbidden to install and use the POWER rectifier in environments where explosive atmospheres may occur

ATTENTION: it is forbidden to extinguish with water

5. DECLARATION OF CONFORMITY

The declaration of conformity of the equipment is attached to this manual.

6. USE, MAINTENANCE AND REPAIR; CHECK CORRECT FUNCTIONING

6.1 Intended use of the machine.

The device was built exclusively for professional use, for the stylus electro-deposition of rhodium and gold.

6.2 Correct use of the machine

The device is operated by acting on the control and regulation panel (**Fig.2**).



ATTENTION: Read carefully and follow the instructions in the TDS Technical Data Sheets and in the SDS Safety Data Sheets referred to the products used to get more details about their characteristics and the correct use of them.

ATTENTION: An appropriate disposal system for the galvanic solutions must be used to drain the solutions used during the operations, in compliance with the instructions and with the SDS Safety Data Sheets supplied with the liquids..



ATTENTION: The machines, by operating, develop vapours due to electrolytic plating, therefore they should be placed in a working place equipped with an adequate suction hood.

ATTENTION: The operator must wear protective clothing, goggles and gloves and anything specific in the SDS Safety Data Sheet for the parts used for galvanic baths.

ATTENTION: To clean the surfaces dirtied by galvanic liquids, the operator must use suitable IPD (gloves, apron, goggles, mask to protect the airways).



ATTENTION: Do not insert objects and/or liquids in excess in the glasses and beakers, as they could cause corrosive and toxic liquid to leak. If this should occur, carefully follow the instructions outlined in the SDS Safety Data Sheets supplied with the products used. Carefully and immediately clean the relevant surfaces.

Getting started

Before you start working, prepare the equipment for use:

1. Connect the power supply cables (**Fig. 1-8**)
2. Insert the power connector into the socket (**Fig. 3-1**)
3. Connect the power supply to the mains by inserting the plug into the socket arranged in the workplace.
4. turn on the machine bringing the main switch in the “I” position (**Fig. 5-1**).
5. The display in **Fig. 2-1** will light brightening.
6. mount the electrode on the pen for stylus-galvanic chosen (anode – **Fig. 1-4**) and connect the red cable to the connector (**Fig. 4-1, 4-2**)
7. connect the anode (**Fig. 1-6**) to its connection cable red (**Fig. 1-7**) and secure it by the glass chosen (**Fig. 4-5**); insert the red cable connector into the red socket connection (**Fig. 4-3**)
8. insert the black cable connector (**Fig. 1-3**) into the black socket connection (**Fig. 4-4**)
9. place the device appropriately in front of the operator
10. pour the electrolyte solution chosen into the glass that you want to use; then start the work and select the appropriate voltage on the potentiometer, suitable for the task to be performed.
11. Check that you have sufficiently soaked the electrode fibre before starting work

It is possible also to work simultaneously with more than one stylus-electrode.

As the device is ready (**Fig.6**) you can start the work through the steps described below.

Washing the objects

The object to be treated must always be well cleaned.

Then follow these steps:

1. degreasing in ultrasounds
2. rinsing in running water
3. electrolytic degreasing
4. rinsing in running water
5. rinsing in purified water
6. drying, taking care to remove every stain
7. galvanic treatment
8. rinsing in running water
9. rinsing in purified water
10. drying

Galvanic Treatment

1. during the electroplating, link the object to be treated to the crocodile clip (**Fig. 1-3**).
2. set the voltage regulator to the desired value.
3. dip the fibre tip of the stylus-electrode into the electrolyte jar to soak up a correct quantity of electrolyte.

4. Electroplating is achieved by moving the electrode pen over the surface of the work piece, whereby there should always be a thin film of electrolyte between the surface of the work piece and the tip of the electrode pen
5. as soon as it is completed the electroplating, immediately rinse the piece into water to prevent the formation of stains and a possible chemical attack. Then rinse and dry again.
6. leave the fibre tip in the stylus and, before starting a new operation, make sure it is sufficiently imbued with the same electrolyte.
7. replace the fibre tip when dirty or when starting a job with a different electrolyte.

Voltage setting

The correct voltage setting changes according to the different electrolyte solution in use. Please always refer to instructions provided by the supplier of the product in use to determine the proper voltage setting.



ATTENTION: upon completion of the cleaning operation, the object does not have to be touched directly with bare hands to avoid to deposit more dirt on the surface: handle using gloves.

ATTENTION: Electrolytes should never be mixed together. Different electrolytes need to use different styles: a contamination would make the electrolytes unusable..

Possible sources of error

The workpiece is water-resistant:

- Thoroughly degrease the workpiece

The workpiece is stained or oxidised:

- The fiber electrode must be thoroughly soaked in electrolyte

The fiber tip is dirty:

- Change fiber tip

No precious metal deposition takes place:

- There is no connection between the rectifier and the workpiece
- Check contact between the rectifier unit and the workpiece (black socket - cathode cable -workpiece clip or contact plate -workpiece).
- The workpiece has an oxidation resistant coating
- The mains lead is not plugged in or the unit is not switched on.
- Check if the mains lead is plugged into the socket.
- Ensure that the unit is switched on and that the display is illuminated.
- Have the unit checked and repaired by an engineer approved by BERKEM

Precious metal deposition is incomplete:

- The electrolyte is contaminated and must be replaced
- Change the electrolyte, but first rinse out the electrolyte jar thoroughly with distilled water.
- The rectifier unit has been set incorrectly: set the voltage in accordance with the data given for the electrolytical solution in use.
- The same part of the workpiece has been electroplated for too long without taking up new electrolyte.
- Dip the fibre tip into fresh electrolyte from time to time and apply evenly to the surface of the workpiece

in an emergency situation you can stop the machine at any time using the main switch (**Fig. 5-1**) in position "O".

6.3 Unplanned use of the machine.

There is no reasonably conceivable use of the machine other than for galvanic treatments.

6.4 Improper use of the machine.

Improper use is any use other than that specified in point 6.2 above.

7. MACHINE MOVEMENT AND TRANSPORT

The device has dimensions and weight such that it can be moved in a simple way without the need for mechanical aids.

- ➔ Transport the machine by placing it in its original packaging or in other suitable packaging
- ➔ Take care to transport the upper part of the machine positioned upwards.
- ➔ Before transport, check that all the parts of the machine are well fastened and cannot move during transport.

8. INSTALLATION

8.1 Installation

The machine works in safe conditions and with the best results if it is correctly installed in the working place.

Before installation, the device must be released from the package with which it is shipped.

So it should be positioned on the work surface at a comfortable height for the operator. It must be placed on a perfectly flat surface and horizontal, on a floor dry and clean. It is advisable to leave adequate space around the unit to perform all the operations of use and cleaning so convenient. Furthermore, you are advised to have an open space on the front of the machine as wide as possible, to facilitate the operator's work.

Before starting work, make sure that the vents of forced air circulation are free of obstruction.

Protect from moisture and direct sunlight.

8.2 Electrical connection

All cables used for electrical connections are flame retardant and comply with the rules in force.



ATTENTION: before operating, ensure that the mains power supply is grounded as required by current safety regulations and that the power outlet is in good working order.

ATTENTION: ensure that upstream of the electrical circuit must be installed a circuit breaker protection, necessary to safeguard all conductors from short circuits and overloads.

ATTENTION: the section of the grounding cable should be appropriate to the legal and technical regulations in force.

ATTENTION: before connecting, check that the line voltage corresponds to that for which the equipment has been prepared. In the case of different mains voltages, must be installed upstream of the device a suitable transformer, not supplied by Berkem.

ATTENTION: any work on the electrical equipment must be performed by authorized and specialized: it is forbidden to alter, modify or exclude any of the circuits or devices originally installed by the manufacturer

8.3 Initial assembly

The machine is supplied ready to work.

The only operations to carry out are those outlined in point 6.2.

9. PREPARING THE MACHINE TO WORK

9.1 Checking any damage on the machine

When you remove the packaging from the machine, carefully check each part and ensure that there was no damage during transport. If damage is found, firstly contact the carrier company, then the retailer or the manufacturer. Also ensure you have received the device with all its parts.

9.2 Removal of the blocks

The machine is delivered without blocked parts, therefore no block removal is required.

9.3 Cleaning the machine

Clean the machine carefully before operating it, removing the dust and any foreign or dirty substances. To clean the machine, the operator must wear gloves, goggles and an apron. The machine should be cleaned using a soft cloth to avoid scratching any part.

Before performing any maintenance or cleaning, turn off the power to the unit and remove the plug from the mains.

9.4 Connecting the machine to the electrical mains

Ensure that the data relating to the power line correspond both to those indicated on the identification plate on the machine and the electric box and to those outlined in the Technical Data in this manual. Before connecting, ensure that the electrical parts to work on are not powered. Insert the plug of the power cable in the socket on the side of the machine and in the socket provided in the workplace.

9.5 Machine adjustment

The machine does not require any preliminary adjustment for operation.

10. OPERATING AND USING THE MACHINE

10.1 Operation

To operate the machine, correctly installed and prepared for use, you need to heed the following warnings:

- ➔ Position the differential switch upstream of the machine in the closed position “O”.
- ➔ The operator must wear individual protection devices planned for the work carried out. Then you must stand in such a way to have perfect and comfortable visibility of all the signs and commands.

10.2 Using the machine

To correctly use the machine, refer to paragraph 6.2.

11. MAINTENANCE AND REPAIR



ATTENTION: Before performing any maintenance or cleaning, turn off the power to the unit and remove the plug from the mains

11.1 Maintenance

The machine does not require any particular maintenance operations.

Pulizia dello stilo e sostituzione delle punte

From time to time the electrode pens should be cleaned and the fiber tips (or the felt pads) changed.

To clean the electrode pen, remove the tip, wash out the front part of the pen thoroughly with tap water and rinse with distilled water. Then insert the tip for a new job or insert a new tip, when it is necessary.

In order to prevent staining and oxidation, degreased workpieces should never be stored for prolonged periods without being treated.

Electrical connection maintenance.

The electrical power cable must be periodically checked and it must be replaced if not in good working condition.

If the machine does not work, contact the retailer or manufacturer.

11.2 Repairs

The operator must not carry out any repairs: in case of a fault, you must contact qualified staff, your retailer or the manufacturer.

12.DISPOSAL AND DEGREE OF POLLUTION

The appliance must be disposed separately from household waste. In different countries they are provided separate collection systems for the disposal of electrical and electronic equipment. For more information please contact your local authorities. Failure to comply with the regulations provides for penalties, ranging according to the State of affiliation.

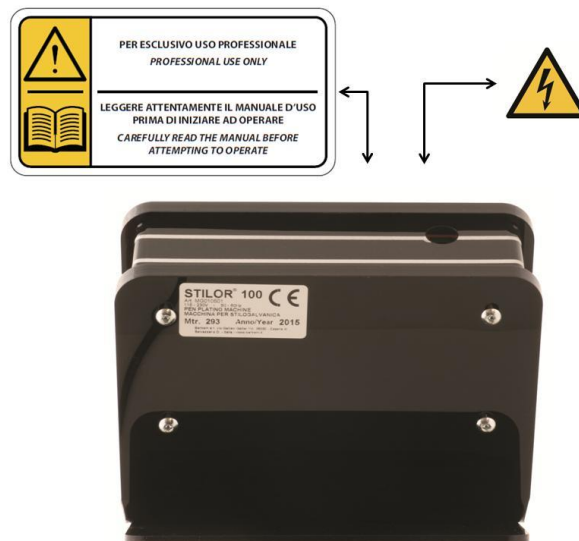
The device generates pollution dry and non-conductive. It is possible experience a temporary and occasional conductivity due to condensation; this occurs only when the product is not used.

13.SPARE PARTS

The complete updated list of spare parts is available in the Products area, link to:

<http://www.berkem.it/catalogo.aspx>

14. SAFETY SYMBOLS



SYMBOL	DESCRIPTION
	ATTENTION DANGER
	READ THE USER MANUAL CAREFULLY BEFORE STARTING TO WORK
	DANGER VOLTAGE

15.SAFETY RISKS

The only safety device on the machine is the main switch which can be used as an emergency stop. Its intervention creates a category 0 emergency: power is instantaneously cut to all the devices on the machine.

The machine has no mobile parts accessible to the operator requiring use of the interlocking fixed or mobile guards.

The machine presents residual risks due to reasonably predictable improper behaviour by the operator: even if adequately signalled on the instructions manual and using pictograms, the dangers can be ignored by the operator.

16.INFORMATION ON AERIAL NOISE ON THE MACHINE

During operation it is generated a weighted average aerial noise level less than 70 dB.

17. INFORMATION ON ANY EMISSION OF NON-IONISING RADIATION

The machine does not emit non-ionising radiation.

18. DOCUMENTATION ATTACHED

This publication has the following listed documents attached, forming an integral part of it:

Annex 1	Conformity Declaration
Annex 2	Electrical circuit diagram
Annex 3	Information to users

ANNEX 1 – CONFORMITY DECLARATION



Conformity declaration

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DECLARES THAT

The **STILOR 100**

has been manufactured in conformity with the directives:

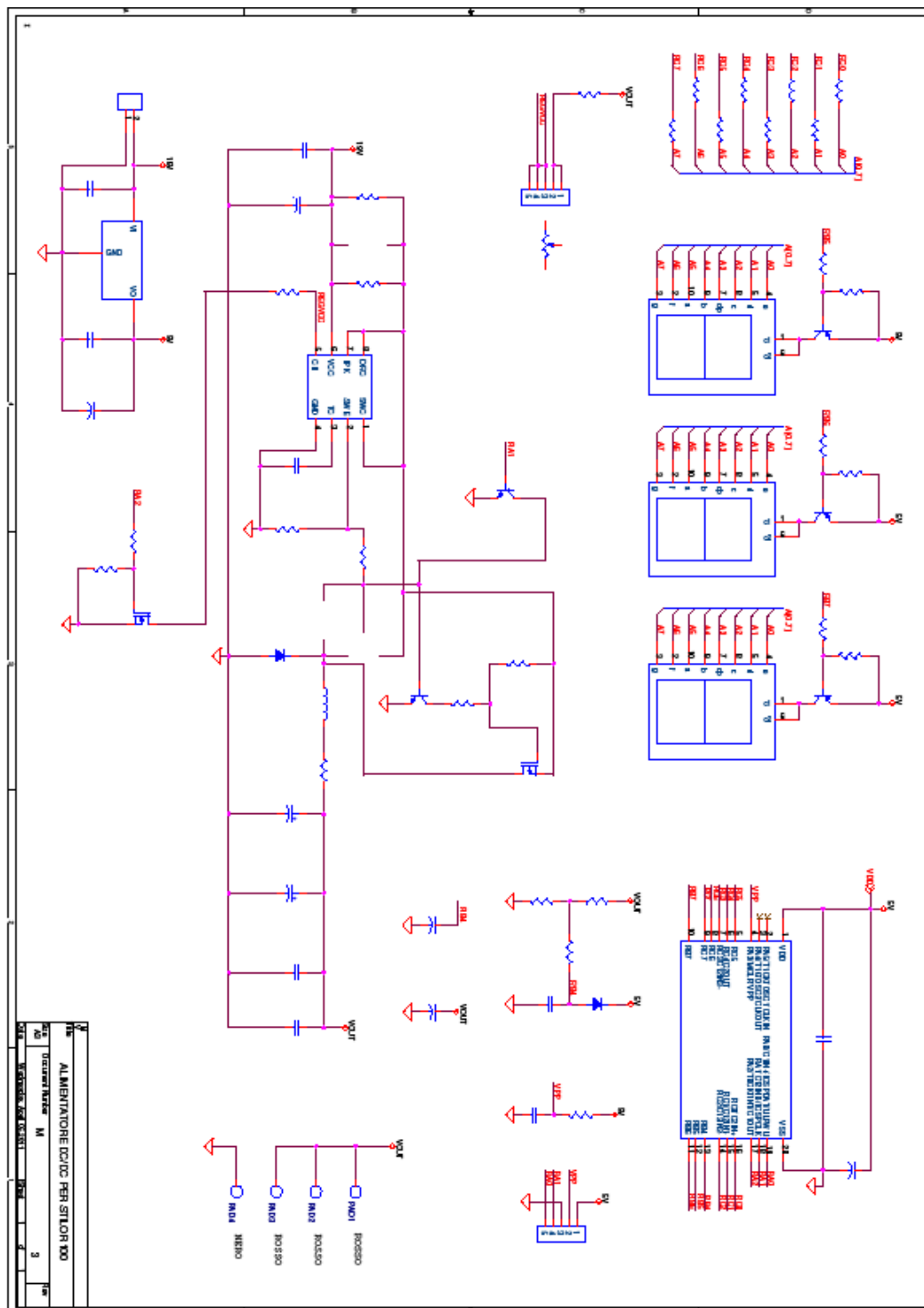
Directive low tension 2006/95/EC

Electromagnetic compatibility 2004/108/EC

BERKEM srl

Paolo Bersaglio

ANNEX 2 – ELECTRICAL CIRCUIT DIAGRAM



ANNEX 3 – INFORMATION TO USERS



Under art. 14 of the 2012/19/EU DIRECTIVE OF THE EUROPEAN PARLIAMENT AND COUNCIL of 4 July 2012 on waste electrical and electronic equipment (WEEE).

The crossed bin symbol on the equipment, or its packaging, indicates that the product must be collected separately from other waste at the end of its useful life and not with mixed urban waste.

The waste sorting of this equipment at the end of its life is organised and managed by the producer. The user who wants to dispose of this equipment can contact the producer and follow the adopted system to allow the waste sorting of equipment at the end of life or select an independently authorised supply chain to manage the waste.

Appropriate waste sorting for the subsequent recycling, treatment and disposal in an environmentally sound way of the disused equipment avoids negative effects on the environment or human health and favours the re-use or recycling of the equipment's materials.

