

## Fog Tube - FT50



# Instructions for use and routine maintenance



---

## Index

1 - Introduction .....	5
2 - Purpose - Use .....	5
3 - Safety provisions .....	6
3.1 - General safety rules .....	7
4 - Transport .....	8
5 Installation of the equipment .....	10
5.1 - Main parts of the Fog Tube .....	10
5.2 - Technical parameters .....	11
5.3 - Assembly of the Fog Tube .....	11
5.3.1 - Anchoring the base .....	11
5.3.2 - Attaching the tube to the base .....	12
5.3.3 - Inspection of moving parts and fan before start-up .....	13
5.3.4 - Electrical installation .....	13
5.3.5 - Connecting to water .....	14
6 - Controlling the machine .....	15
7 - Procedure for putting the Fog Tube in operation .....	16
7.3 - Controlling the device with the remote control .....	18
8 - Procedure for terminating the operation of the Fog Tube .....	19
8.1 - Normal operation .....	19
8.2 - Long-term termination of operation .....	19
9 - Most common possible faults .....	20
9.1 - Switchboard .....	20
9.2 - Fan .....	20
9.3 - Water supply .....	21
10 - Maintenance .....	21
11 - Storage and disposal method .....	21
12 - Warranty terms and conditions .....	22
12.1 - Validity .....	22

---

12.2 - Warranty Conditions .....	22
----------------------------------	----



## Warning



Read this instruction manual before operating the machine.

**Original instructions**

## 1 - Introduction

This manual contains basic information about the equipment described in this document. The purpose of this documentation is to provide operators with information on how to handle the equipment before, during and after operation.

Always read the “**Safety instructions**” chapter before operating the device or carrying out any repairs to ensure maximum safety for the operator and persons present within the working range of the device.

## 2 - Purpose - Use

The fog tube (hereinafter referred to as the “fog tube”) is a device that serves to effectively suppress the emerging dust and reduce the release of airborne dust from landfills of bulk materials, overflows of belt conveyors, and the like.

The fog tube creates an air stream with fine water nebula, which must be aimed at the source of the emerging dust. The area that the nebula will hit depends on the strength and direction of the wind. The fog tube is designed for use at temperatures above 0 °C.

It is necessary to place the fog tube in a suitable place that has been prepared in advance with regard to the safety of the staff, the public and the facility. Extreme environmental conditions in which the equipment will be operated must be taken into account.

## 3 - Safety provisions

Safety should always come first when operating, maintaining or relocating any part of the equipment.

Read this Manual carefully prior to the commissioning



All safety conditions must be met before putting the device into operation. The operator is obliged to comply with the applicable regulations and standards that apply to the delivered equipment during operation and maintenance of the equipment.



Electrical devices are operating devices with high-current industrial connection. The operator must be instructed (warning signs, labels) about the power supply to the device and about the possibility of switching off the entire device if faults occur that endanger safety.

These faults include:

- failure of safety devices (emergency stop relay)
- damage to important parts of the device
- damage to electrical connections and insulation leakage in water line.
- the device should be protected by the user with a 25/30mA circuit breaker.



Work on the device must only be performed when it is switched off.

During operation, no objects may be thrown into the device and foreign objects must not be sucked in.

## *3.1 - General safety rules*

Only staff with appropriate training and good knowledge of the device may operate the device.

Operating staff must have a thorough understanding of the safety and operating procedures. They must also be familiar with handling problems that may occur.

Never open the electrical cabinet during operation.

Always open and close hydrants or valves very slowly.

Always make sure that the cables and hoses are undamaged.

Never operate the machine without protective clothing/equipment. Care must be taken not to use loose clothing or equipment that could become entangled in the fan or other rotating parts.

Always be especially careful when operating the equipment in conditions specific for the given area, environmental and weather conditions.

## 4 - Transport

After the delivery, check the device for possible transport damage (including the supporting structure). Scratches, dents or cracks must be reported to the seller immediately, as they may cause internal damage resulting in insufficient operation or unsafe working conditions.

The machine is transported only in disassembled state - the tube and stand with el. switchboard separately. The lower base of the stand is attached with two 8x40 screws profiles and a metal pad to the pallet (figure below), on which the fog tube is transported. The tube is placed on a pallet with at least 4 screws with a plastic and metal washer, which prevents the destruction of the device paint.



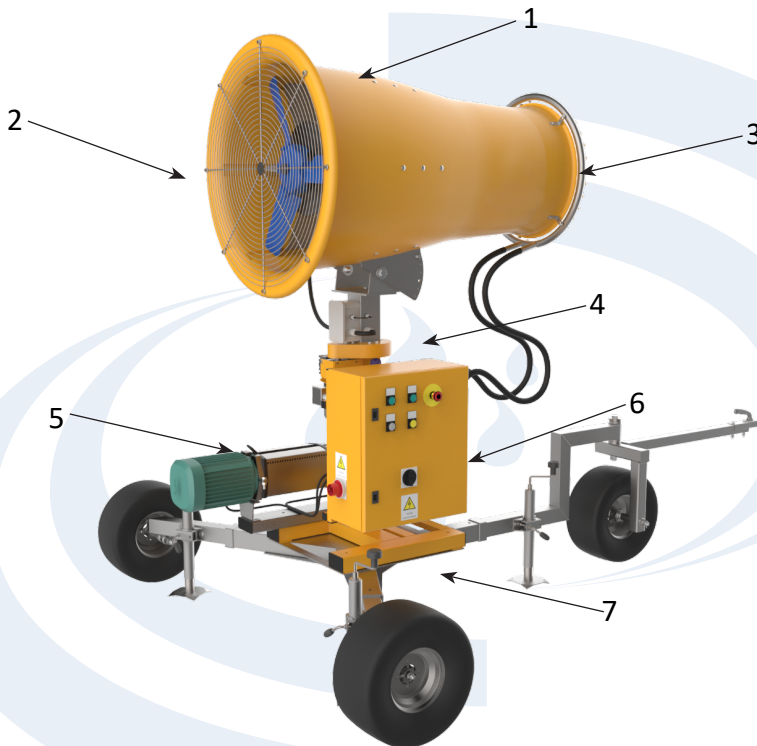


Hoses and wiring must be protected against abrasion, pinching, or other damage. Small components that are included in the delivery are located inside the cabinet.



## 5 Installation of the equipment

### 5.1 - Main parts of the Fog Tube



1. Tube, including axial fan and electric motor
2. Protective grille
3. Fog ring with nozzles
4. Gearbox and rotating device
5. Pump
6. Switchboard
7. Chassis (optional accessories)

## 5.2 - Technical parameters

Machine type:	Fog Tube FT50
Electric motor:	7,5 kW, 400 V
Pump:	5,5 kW, 400 V
Gearbox for rotation:	0,09 kW, 400 V
Fogging range:	40-50 m (without wind)
Fogging range:	±175°
Water consumption:	1.600 l/h
Dimension:	990 x 1675 x 2046mm
Weight:	310 kg
Noise level:	120 dB, 3 m from the machine

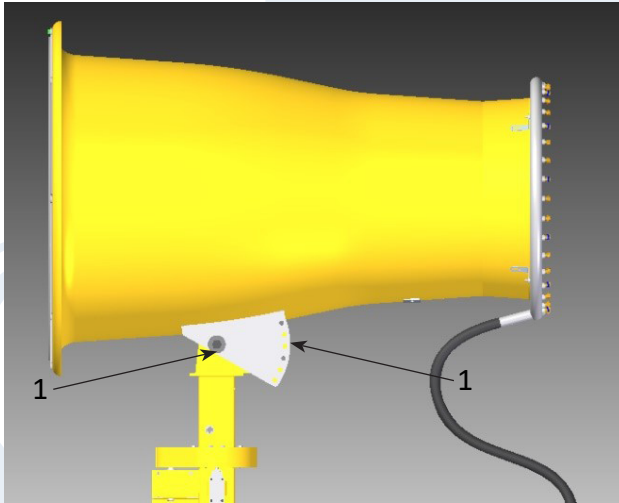
## 5.3 - Assembly of the Fog Tube

### 5.3.1 - Anchoring the base

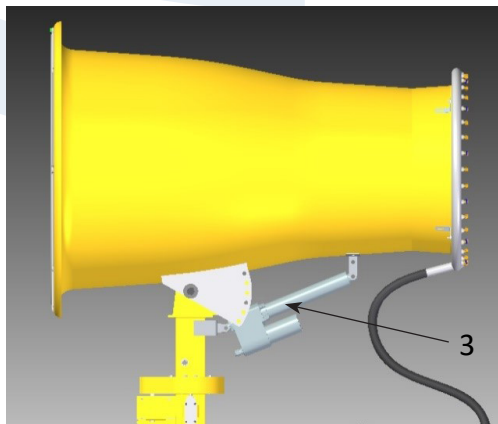
On the pallet - the main part of the Fog Tube is placed on a pallet on which the manufacturer tested the assembled machine. Thus, this position can be used again as a working one after assembling the Fog Tube - it is stable on a flat surface.

## 5.3.2 - Attaching the tube to the base

The tube is moved after loosening the anchor bolts from the pallet by means of a harness, suspended on a lifting device (on a crane or fork-lift rail). It is secured with 2 M20x40 screws (position no. 1) against the movement in vertical plane. The tilt of the tube can be adjusted by moving 2 M10x30 screws (position no. 2).



As an **optional accessory**, the fog Tube can be equipped with automatic tilting. The tilting of the Fog Tube is then ensured by an **actuator**, see the picture below (position no. 3).



## 5.3.3 - Inspection of moving parts and fan before start-up

Before the installation, the fan itself must be visually inspected for damage to any part during storage or transport. The impeller must rotate freely after turning by hand.

Before switching on the fan for the first time, make sure that:

- the protective grille is fastened correctly (if it has been removed before),
- the hoses including seals are connected correctly,
- the electrical installation has been checked,
- packaging residues or cables cannot come into contact with the impeller during operation,
- the correctness of the direction of rotation of the fan impeller is checked (the fan draws in air through the wider end of the diffuser with a grille).

When starting for the first time, check the functions of the fan - smooth run, vibrations, power supply, balance and controllability.

## 5.3.4 - Electrical installation

It is necessary to connect the motor cable in the terminal box according to the diagram enclosed in the switchboard.

The electrical installation may only be carried out by a worker authorized in accordance with the applicable regulation.



Connect the cable marked 1 to the terminal block XT2:1

Connect the cable marked 2 to the terminal block XT2:2

Connect the cable marked 3 to the terminal block XT2:3

Connect the yellow-green cable to the terminal block XT2:PE.

It is also necessary to connect the switchboard to the protected distribution with at least 400 V/32 A (Fog Tube 50)

---

## 5.3.5 - Connecting to water

Before putting the Fog Tube in operation, it is necessary:

- Connect the water inlet to the distribution of chemically non-aggressive water; uncontaminated with biologically and coarse mechanical impurities; the connection is DN 25 (1"), ideal supply pressure 3-6 bar. The cleaning capacity of the filter screen is 350 microns.

**CAUTION: If the fog tube is switched off after a short time after putting in operation, the following must be checked:**

- **sufficient amount of water**
- **sufficient water pressure**
- **cleanliness of the water filter.**

If the temperature drops below 0°C, the fog tube must be stopped, and water drained from the hoses, pump and filter. The procedure is described in chapter 8.2 - "Procedure for terminating the operation of the fog tube".

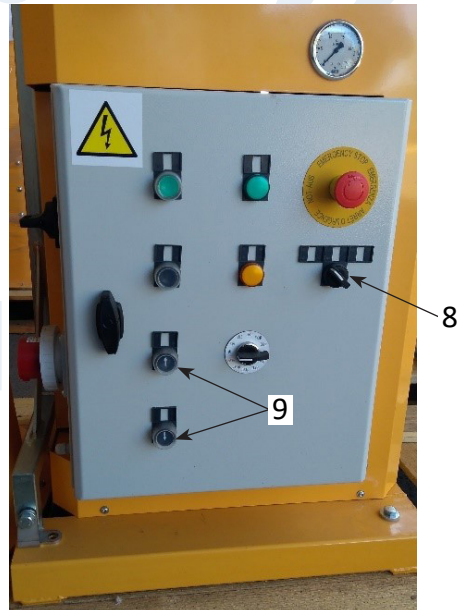
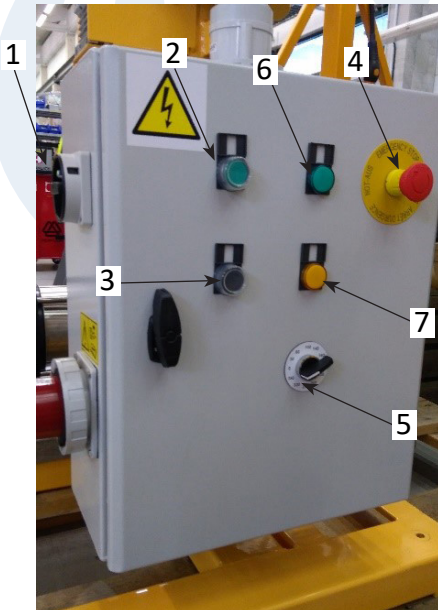
## 6 - Controlling the machine

There is a switchboard, located on a stand, that is intended for controlling the machine. It is fully equipped (to control the fan, pump and rotation) with the following controls on the front panel (picture on the left):

- main switch (position 1)
- ON button (position 2)
- OFF button (position 3)
- EMERGENCY STOP button (position 4)
- 12-position angle switch ROTATION (position 5)
- READY indicator light (position 6)
- WATER PRESSURE indicator light (position 7)

With optional accessories (picture on the right):

- LOCAL / REMOTE control switch (pos. 8)
- automatic tilting ACTUATOR (pos. 9)



---

## 7 - Procedure for putting the Fog Tube in operation

- Turn on the main switch, indicator **READY** illuminates ( if all is OK: QF1-4, F1-F4.(Protective components)) + F5 – Remote control – ELCA
- Open water supply.
- Push **GUN ON** (START), green light illuminates under this knob and water valve will be opened. If inlet pressure of water is more than 2 bars and it is constant, orange light **PRESSURE SENSOR** illuminates. In remote control mode, press and hold the **GUN ON** button for a second time (the remote control must already be switched on).

Horizontal fog tube oscillation:

- On the control box – start oscillation by **LEFT/RIGHT, UP/DOWN** buttons
- By using the remote control - the switch placed on control box must be set in the **REMOTE CONTROL** position. The remote control is switched on by a long press of the start button, the green light on the remote control starts flashing.

If the rotary switch is in the zero position, the Fog Tube will remain in the set position.

If you set the desired angle on the rotary switch, the tube will start rotating at the desired angle. In this setting, you cannot change the angle manually (with the left / right buttons).

During first rotation, it is necessary to expect that the tube starts rotation first to the left side and only to half angle which was set.

- When the desired position is reached, it stops and starts turning to the right to the whole set angle (e.g.: the rotary switch is set to 60°, when Fog Tube starts rotation for the first time, tube turns to the left only by 30°. When 30° is reached, the tube starts rotation to the other side for whole 60°. After reaching this position, the tube starts rotation to the left side for whole 60° again.
- Attention! If the tube moves to the limit switches (protection against



exceeding the maximum total angle of 180°) it starts rotating in the opposite direction for the entire angle which is set on rotary knob. Rotation (GUN ON mode) can be stopped by turning the rotary knob to 0°.

- When push GUN OFF switch, rotation is stopped and GUN ON mode disappears (fan, pump, rotation) . If GUN ON switch is switched on and rotary knob is set, then pump, fan and rotation is started again.



12-position “ROTATE” angle switch

**CAUTION! The rotation of the fog tube is not mechanically limited.** To prevent mechanical damage to the rotating device, a limit switch is provided, which limits the rotation by more than  $\pm 175^\circ$ . If the Fog Tube moves to a position exceeding  $175^\circ$ , the rotation stops. The **ON** light starts blinking. The operator must manually bring the tube to the 0° starting point as described above.

As additional protection against rotation exceeding  $\pm 175^\circ$ , the control system includes a programmable timer (so-called WATCH DOG), which limits rotation in one direction to a maximum of 75 seconds. When this time has elapsed, the **ON** and **WATER PRESSURE** indicator lights will flash simultaneously. The operator must determine the cause of the fault, remove it, and then manually bring the tube to the 0° starting point as described above.

If the water pressure is lost during operation for more than 10 seconds, the **WATER PRESSURE** light goes out and the pump switches off automat-

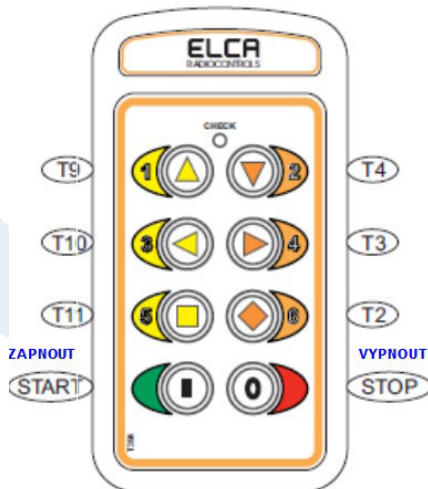
ically. The fan will run for another 5 seconds to blow out residual water from the diffuser. The Fog Tube automatically returns to the 0° starting point and stops.

**CAUTION!** All drives are connected in such a way that the correct direction of rotation of the electric motors is observed. When putting the Fog Tube in operation for the first time, it is sufficient to check the direction of rotation of the fan (the air flow must be in the direction from the protective grille at the fan to the nozzles).

### 7.3 - Controlling the device with the remote control

Elca remote control:

To control the device with the wireless remote control, switch the **LOCAL / REMOTE** switch to **REMOTE** and press the **ON** button on the remote control. To stop the Fog Tube, press the **OFF** button on the remote control



START button - ON  
STOP button - OFF  
T9 button (1) – UP  
T4 button (2) - DOWN

## 8 - Procedure for terminating the operation of the Fog Tube

### 8.1 - Normal operation

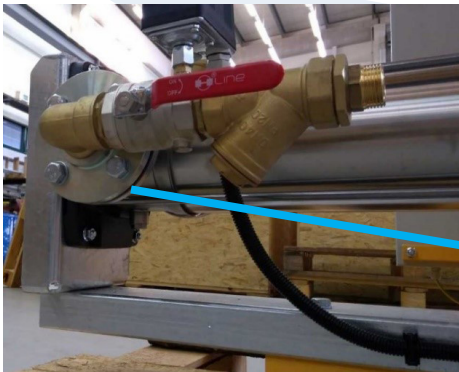
To end the operation, it is necessary to press the **OFF** button. The pump and then the fan switch off and the **ON** light goes out. The fog tube automatically returns to the 0° starting point and stops. Then it is necessary to turn off the main switch.

### 8.2 - Long-term termination of operation

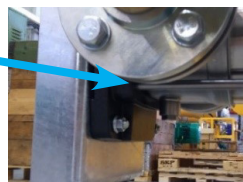
After ending the operation of the Fog Tube for a long time (e.g. wintering) or for a time when it is possible to expect a drop in temperature below 0 °C, it is necessary to drain the water from the hoses, pump and filter. The operator of the Fog Tube must take the following steps:

1. Close the water in the water line.
2. Disconnect the power by turning off the main switch.
3. Disconnect the inlet hose.
4. Loosen the filter nut with a wrench so that water starts to flow out (see the picture below).
5. Clean the filter insert.
6. Loosen the nut at the bottom of the pump so that water starts to flow out (see the picture below). It is necessary to leave the nuts loose throughout the shutdown of the Fog Tube.

Before using the Fog Tube again, tighten the filter nut (point 4) with your fingers, tighten the nut on the pump (point 6) with a force of 10 Nm.



Loosening the filter nut



Loosening the pump nut

---

## 9 - Most common possible faults

### 9.1 - Switchboard

The device cannot be started. **The “READY” light is off.**

- Check the power cable - make sure that electricity is supplied to the device and the main switch S1 is switched on.
- Check that the STOP safety button (red) is not depressed - turn it to unlock.
- Check tubular fuses.
- Check that the protective elements in the switchboard are active (motor starters “QF1-QF4” according to the type of fog tube, and a circuit breaker if integrated in the device).
- Check that the relay K1 (READY) is lit.

The device does not start. **The “READY” light is on.**

- Insufficient water pressure.
  - Check water pressure (at least 1.5 bar).
- Clogged water filter.
  - Clean the solids water filter.
- Check the diameter of the supply hose (min. DN25). Check that the hose is not tangled.

### 9.2 - Fan

The device does not start. The fan does not rotate.

- Check the connection in the U2 junction box of terminal XT2.

The device can be started. The fan rotates in reverse.

- The cable in the U2 junction box must have the wires (which are marked) connected in the order 1, 2, 3, PE.
- If necessary, check the phase sequence on the supply cable to the switchboard. The device is connected by the manufacturer and set to the right.

---

## 9.3 - Water supply

The device keeps switching off

- Insufficient water pressure.
  - Check water pressure (at least 1.5 bar).
- Clogged water filter.
  - Clean the solids water filter.

Insufficient water flow

- Clean the solids water filter.
- Clean the nozzles.

## 10 - Maintenance

For trouble-free operation of the device, it is necessary to perform regular visual inspections of the device before the start of each shift. It is necessary to check the following components:

- cleanliness of the nozzles
- the operation of the fan (vibrations, etc.)
- integrity of the protective grille at the fan inlet
- integrity of the supply cable and water distribution
- cleanliness of the filter
- water must not leak at joints
- water must not be inside the cabinet

## 11 - Storage and disposal method

The following storage conditions need to be observed when storing the device:

- Storage temperatures within the limits of normal outdoor temperature, unless otherwise stated.
- Do not store in an atmosphere containing oil or other aggressive substances.
- Do not expose to any climatic effects, such as rain, snow, etc.

The device consists of metal, fiberglass, plastic, brass parts. The gearboxes contain an oil fill. Disposal must comply with applicable regulations.

---

## 12 - Warranty terms and conditions

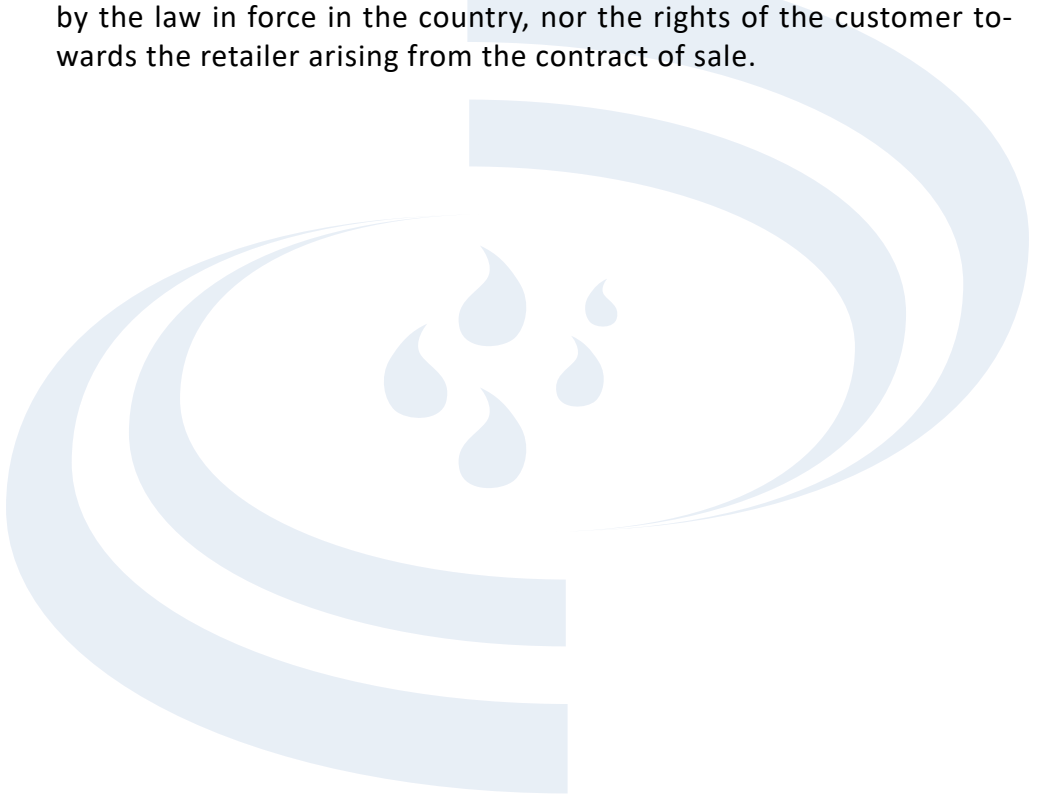
### 12.1 - Validity

This product is covered by a twenty-four (24) months warranty, starting from the purchase and/or test date. This warranty protects the user against manufacturing or material defects. In case the machine is used for professional applications, this warranty covers a period of twelve (12) months (ex C.L. no°422 art.1 par. B).

### 12.2 - Warranty Conditions

1. The in-warranty repair is accepted only if the product is accompanied by the purchase receipt and the test report issued by the supplier.
2. Manufacturing company duty is limited to the repair and, at its own discretion, the replacement of the whole product or of single faulty components.
3. The suppliers and the technicians allowed to carry out in-warranty repairs are only those expressly authorized by the manufacturer
4. This product or its materials are not considered as faulty in case the customer needs to adapt the machine to technical or national safety regulations other than those in force in the country originally foreseen for the product. No refund shall be granted for damages arising from the above-mentioned modifications, or other changes not connected to the original design of the product, carried out by the customer/user or by unauthorized people.
5. The warranty does not apply to:
  - a. Periodical checks, maintenance operations, replacement of components subject to wear;
  - b. Transport, transfer or installation of the product;
  - c. Damages caused by fire, water, natural events, war and riots, incorrect power supply, insufficient ventilation of the installation place, and any other cause not connected the manufacturer;
  - d. Incorrect use, operating errors and wrong or unwary installation;
  - e. Damages to the product due to non original manufacturer spare parts use;

- f. Damages to the product or insufficient performance due to incorrect installation after purchase;
  - g. Every damage to the product due to negligence.
6. This Warranty is valid for every person formally having the propriety of the product during the above-mentioned period.
7. This Warranty does not affect the rights of the customer as prescribed by the law in force in the country, nor the rights of the customer towards the retailer arising from the contract of sale.



---

Note











