

F - T / F



www.etatronics.com

 **ETATRON D.S.**

UK OPERATING INSTRUCTIONS AND MAINTENANCE




YaliTech[®]
INSTRUMENTS
FOOD & WATER



ETATRON D.S.

(IT) DIRETTIVA "RAEE" 2002/96/CE E SUCCESSIVA MODIFICA 2003/108/CE SUI RIFIUTI DI APPARECCHIATURE ELETTRICHE ED ELETTRONICHE

Il simbolo sotto riportato indica che il prodotto non può essere smaltito come normale rifiuto urbano.

Le Apparecchiature Elettriche ed Elettroniche (AEE) possono contenere materiali nocivi per l'ambiente e la salute e pertanto devono essere oggetto di raccolta differenziata: smaltite quindi presso apposite discariche o riconsegnate al distributore a fronte dell'acquisto di una nuova, di tipo equivalente o facente le stesse funzioni. La normativa sopracitata, alla quale rimandiamo per ulteriori particolari e approfondimenti, prevede sanzioni per lo smaltimento abusivo di detti rifiuti.

(UK) WASTE OF ELECTRICAL AND ELECTRONIC EQUIPMENT DIRECTIVE (WEEE, RAEE in Italy) 2002/96/EC AND SUBSEQUENT AMENDMENT 2003/108/EC

The marking shown below indicates that the product cannot be disposed of as part of normal household waste.

Electrical and Electronic Equipment (EEE) can contain materials harmful to health and the environment, and therefore is subject to separate waste collection: it must be disposed of at appropriate waste collection points or returned to the distributor against purchase of new equipment of similar type or having the same functions. The directive mentioned above, to which make reference for further details, provides for punitive actions in case of illegal disposal of such waste.



CONTENTS

1	GENERAL REGULATIONS	7
1.1	WARNINGS.....	7
1.2	SHIPPING AND HANDLING.....	7
1.3	PROPER USE OF THE PUMP.....	7
1.4	RISKS.....	7
1.5	DANGEROUS AND/OR TOXIC LIQUID DOSAGE.....	7
1.6	ASSEMBLING AND DISMANTLING THE PUMP.....	7
1.6.1	ASSEMBLY.....	7
1.6.2	DISMANTLEMENT.....	7
2	TYPE “F-T” AND “F” SERIES PERISTALTIC DOSING PUMPS	8
2.1	OPERATING PRINCIPLES.....	8
2.2	PUMP DESCRIPTION.....	8
2.3	DELIVERY VERIFICATION.....	9
2.4	TECHNICAL CHARACTERISTICS.....	9
3	INSTALLATION	10
3.1	GENERAL OPERATION.....	10
3.2	TYPICAL INSTALLATION INSIDE THE DISHWASHER MACHINES.....	10
3.3	ELECTRICAL CONNECTION.....	11
3.4	PANEL MOUNTING.....	11
4	MAINTENANCE	12
5	TROUBLESHOOTING FOR COMMON FAULTS ON THE TYPE “F” SERIES PERISTALTIC PUMPS	13
5.1	MECHANICAL FAULTS.....	13
5.2	ELECTRICAL FAULTS.....	13
6	SPARE PARTS	13
7	EXPLODED VIEWS	14

SYMBOLS



WARNING

Before a very important notes regarding health protection for the exposed personnel or regarding the machine itself.



FORBIDDEN

Before safety information, it highlights an operation not to be performed.



INFORMATION

Before information regarding equipment use

1 GENERAL REGULATIONS

1.1 WARNINGS



Carefully read the warnings listed below as they contain important information regarding safety during installation, use and maintenance.

Keep this manual in a safe place for further consultation.

This equipment complies with the 89/336/EEC directive regarding "electromagnetic compatibility", with the 73/23/EEC "low voltage directive" and with the subsequent modification Nr. 93/68/EEC.

NB: The pump is manufactured to high working standards. Its working life will be longer and its mechanical/electrical reliability will be more efficient if used correctly and if subject to regular maintenance.

WARNING: Any internal repairs or operations to the equipment must be carried out by qualified and authorized personnel. The manufacturer declines all responsibility whatsoever due to non observance of these regulations.

GUARANTEE: 2 years (normal wear on parts is excluded, i.e.: valves, fittings, piping ring-nuts, piping, filter and injection valve). Improper equipment use invalidates the guarantee. The guarantee is intended ex works or at an authorized distributor.

1.2 SHIPPING AND HANDLING



Shipping must be performed in the same orientation as indicated on the packaging. Shipping using any means, even if delivered free to the customer, is considered at the purchaser's risk. Reclaims for missing material must be made within 10 days from goods receipt. Reclaims for defective material must be made within 30 days from goods receipt. Restitution of pumps must be agreed beforehand with authorized personnel or with the authorized distributor.

1.3 PROPER USE OF THE PUMP



The pump must only be used for the purpose which it was expressly manufactured, i.e. to dose liquids. Any other use is considered improper and therefore dangerous. The pump is not foreseen for use in any applications not taken into consideration during the design stage. For further clarifications the customer must contact our offices where he will receive information about the type of pump in his possession and its correct use. The manufacturer cannot be considered responsible for any damage derived from improper, erroneous and unreasonable use.

1.4 RISKS



After removing the packaging, check the pump for any damage. If in doubt do not use the pump and contact qualified personnel. All packaging elements (such as plastic bags, polystyrene, etc.) must be kept out of the reach of children as the material is potentially dangerous.

Before connecting the pump, check that the data on the nameplate corresponds to the local voltage ratings. The data is available on the adhesive nameplate on the pump

The electrical plant must comply with any local regulations in the country where the pump is installed.

Observe some fundamental rules when using any type of electrical equipment, in particular:

Do not touch the equipment with wet or damp hands or feet;

Do not operate the pump without shoes (e.g. swimming pools)

Do not leave the pump exposed to atmospheric agents (rain, sun, etc.)

Do not allow the pump to be used by children or unskilled individuals without supervision.

In case of faults and/or bad pump operation, turn off the pump and do not tamper. For any necessary repairs contact our specialized technical assistance centres and insist on the use of original spare parts. Any lack of respect to the above may compromise pump safety.

If the user decides to make no further use of an installed pump, it is recommended to render the pump inoperative and disconnect it from the power supply.

Before performing any **maintenance or cleaning operations** on the peristaltic dosing pump, proceed as follows:

Make sure the pump is electrically deactivated (both poles) by disconnecting the conductors from the power supply using the omnipolar switch which must have a minimum distance of 3 mm between its contacts (Fig. 3).

Relieve all the pressure in the pump body and the outlet piping in the most adequate way possible (be very careful during this operation).

Drain the liquid present in the piping.

If any liquid losses are present in the pump hydraulic system (due to piping breakages), stop the pump by releasing pressure in the outlet piping and then proceed with maintenance operations using adequate safety measures (gloves, goggles, overalls, etc.).

1.5 DANGEROUS AND/OR TOXIC LIQUID DOSAGE



To avoid damage to persons and property due to contact with dangerous liquids or by the inhalation of toxic vapours, always adhere to the instructions contained in this booklet and keep in mind the following regulations:

Perform operations according to the instructions of the liquid manufacturer.

Check the hydraulic parts of the pump for damage and breakages and only use the pump if it is in perfect working order.

If necessary use small piping inserted inside PVC protection conduit.

Before deactivating the peristaltic dosing pump, neutralize the hydraulic part using an appropriate reagent.



1.6 ASSEMBLING AND DISMANTLING THE PUMP

1.6.1 ASSEMBLY

All the pumps we produce are normally supplied fully assembled. For better clarification, consult the appendix at the end of this manual where exploded assembly drawings and views of the pumps are available together with all components and their nomenclature, for the user to have complete details of the pump components. These drawings are indispensable when searching for malfunctioning or defective parts. Other drawings refer to hydraulic parts (pump header and valves) and are shown for the same reasons in the appendix at the end of the booklet.

1.6.2 DISMANTLEMENT

To dismantle the pump or before performing pump maintenance, proceed as follows:

Make sure the pump is electrically deactivated (both poles) by disconnecting the conductors from the power supply using the omnipolar switch which must have a minimum distance of 3 mm between its contacts (Fig. 4).

Relieve the pressure in the peristaltic pump in the most adequate way possible (be very careful during this operation).

Drain the liquid present in the peristaltic pump by disassembling and reassembling the piping.

Please pay particular attention to this last point and we recommend the user to consult the enclosed drawings and chapter 1.4 "RISKS" before starting any operations.

2 TYPE "F-T" AND "F" SERIES PERISTALTIC DOSING PUMPS

2.1 OPERATING PRINCIPLES

Peristalsis is a wave of automatic contractions propelling contents along a channel or a tube; this is where the term "peristaltic action" comes from. By mechanical simulation of biological peristalsis rollers crush tube walls together to form a seal during their movement. Then the previously compressed tube regains its original form and sucks fluid into the vacuum formed. The fluid will follow the roller until the tube is not compressed any more. At this point a second roller is already compressing the tube to avoid back-flow, pushing the initial liquid dosage out of the pump and repeating the suction action. The rollers assembled on special rotors enable continuous pump operation, thanks to their suction and delivery actions.

2.2 PUMP DESCRIPTION

The "F" type fixed delivery peristaltic pump is available in versions starting from 1,1 l/h, 2,2 l/h, 3,3 l/h, 4,4 l/h up to 6l/h with a Santoprene® tube. The tube is fixed to external fittings using stainless steel clips. The cover, on which the roller-holder is hinged, is fixed to the body by three screws. The hydraulic parts are independent from the type of motor used and can be supplied separately. The F-T version is equipped with a control circuit board that allows to modify the flow rate. The peristaltic works on an interval of time of 7sec., set as default value by the factory. You can change the percentage of time operation by means of a regulation knob. When the knob is rotated entirely toward right (100%) the peristaltic works in continuously, more you rotate the knob toward left

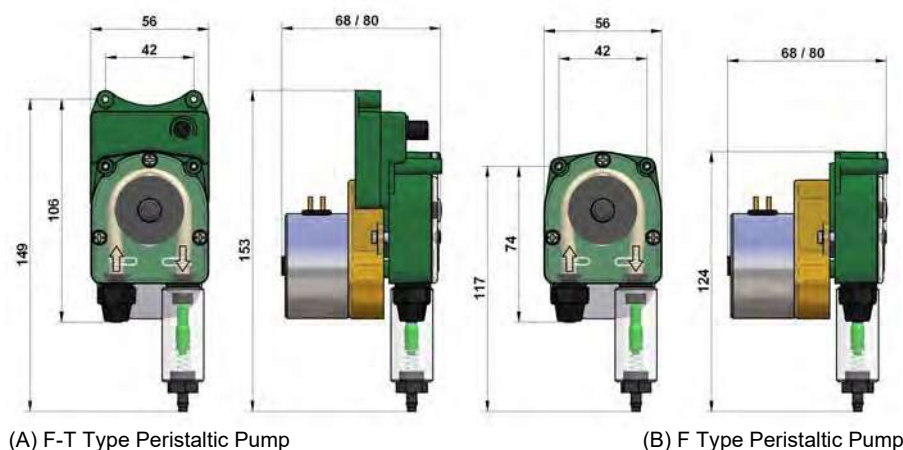


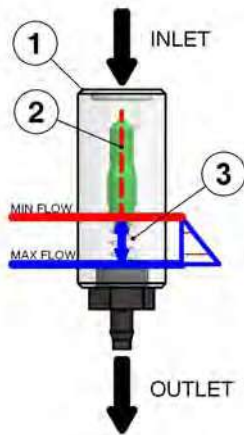
Fig. 1 - VIEW AND OVERALL DIMENSIONS

2.3 DELIVERY VERIFICATION

The peristaltic pump is equipped with a device to verify the real chemical product dosage. It is composed by a transparent cylinder mounted at the end of the discharge nipple. Inside the cylinder runs an indicator, its movement shows the fluid passage. In normal operation the indicator moves from MIN FLOW position to MAX FLOW position (Fig. 2). During the pump functioning, fluctuations of the indicator could be observed. In case of liquid lack the indicator will slowly return to standby position (depending on whether the fluid is more or less viscous), showing a dosing interruption. The flux indicator must be maintained in vertical position as shown in Fig.2



This control system must be an integral part of the dosing system and absolutely must not be omitted.



- 1 – TRASPARENT BODY
- 2 – MOBILE SIGN
- 3 - SPRING

Fig. 2

2.4 TECHNICAL CHARACTERISTICS

Type F and F-T	Power Supply [Volt –Hz]						Delivery [l/h]	Max Pressure [BAR]	Power (W)			Rotation Speed [RPM]					
	230 – 50/60	240 – 50/60	110 - 60	24 – 50/60	12 DC	24 DC			1	3.5	5	20	22	42	50	60	80
1.1	A	B	C	D	E	F	1.1	1.0	E F	A B C D		A B C D	E F				
2.2	A	B	C	D	E	F	2.2	1.0	E F	D	A B C		A B D	C E F			
3.3	A						3.3	1.0			A				A		
4.4					E	F	4.4	1.0			E F					E F	
6.0					E	F	6.0	1.0			E F						E F



The above data is relative to water treatment at ambient temperature.

MATERIAL IN CONTACT WITH THE ADDITIVE: Pump tube: Santoprene®; Fitting: Polypropylene

3 INSTALLATION

3.1 GENERAL OPERATION

Install the pump away from heat sources, in a dry place and at a maximum ambient temperature of 40°C. The minimum operating temperature of the pump depends on the liquid to be dosed, as the liquid must remain in a fluid state. If the pump has been stored at an ambient temperature of less than 0°C, make sure that any water present in the tube is in a liquid state before starting up the pump. The peristaltic pump must be installed in an easily accessible location; it is important that air circulates around the motor and the hydraulic plant is easy to access to perform maintenance interventions, such as substituting the tube.

Pay attention to the following points:

Leave enough space around the peristaltic pump for easy air circulation;

Place the pump in a position to avoid dust build-up and to enable easy cleaning;

Place the pump in a position to absolutely avoid liquid sprays of any type;

Place the pump in a position to enable easy maintenance and part substitution in case of damage

Carefully observe the regulations in force for the electrical plant in the country where the pump is installed.

The outlet fitting will always be on the right side of the pump to which the piping to the plant to be treated will be connected. Consequently, the suction fitting will always be on the left side of the pump, where the piping and filter to the dosing liquid container will be connected.

Avoid unnecessary curves on suction and outlet piping.

The indicator has to be always visible, in case of installation inside a machine provide a window to make visible the transparent cylinder.

3.2 TYPICAL INSTALLATION INSIDE THE DISHWASHER MACHINES



The pump must be installed inside the dishwasher (Fig. 3 and Fig. 4) for detergent dosage. The pump must be positioned in a easily accessible area, away from splash or excessive heat source. In the following figures are represented some typical installation. To make the fixing bracket please refer to chapter 2.9. Provide some windows (Fig. 3) on the front panel of the dishwasher to make visible the indicator.

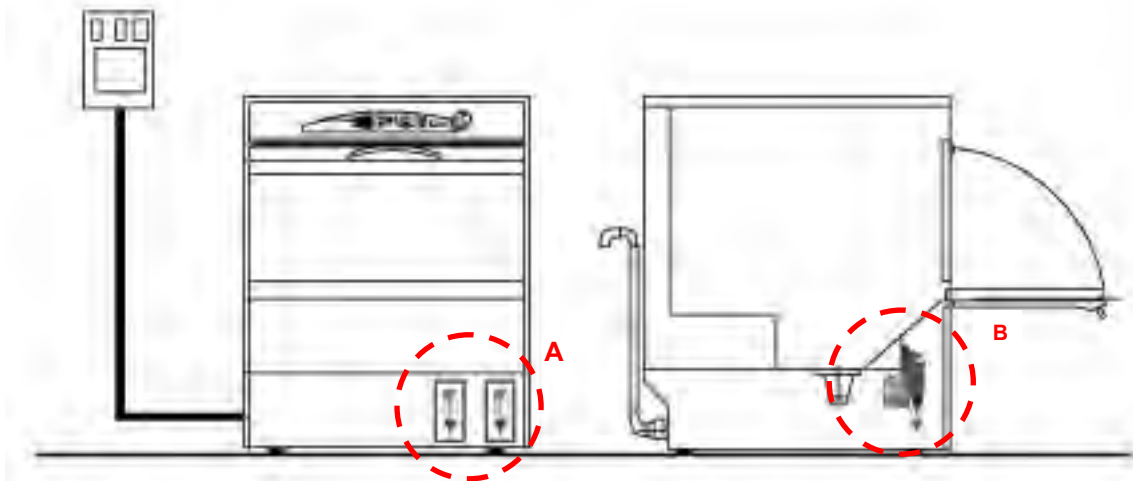


Fig. 3

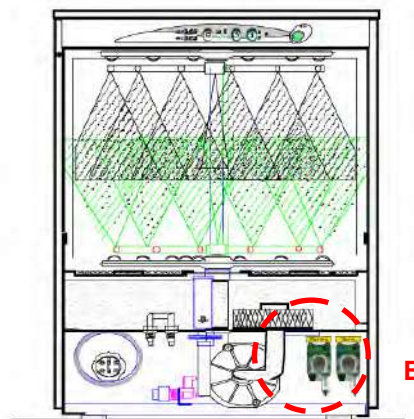


Fig. 4

3.3 ELECTRICAL CONNECTION



If the power cable has no plug, the equipment must be connected to the power supply using an omnipolar switch with a minimum distance of 3mm between the contacts. Before accessing the power connection devices, all power circuits must be interrupted. The wiring colours may be different to those indicated in based on the type of motor. Pay attention to the Yellow/Green protection conductor, if it is present, which must be connected to the power supply earth protection conductor. To activate the pump please refer to the dishwasher wiring and installation diagram where the pump will be mounted on

3.4 PANEL MOUNTING



The pump can be mounted on a panel after removing the gear box from the hydraulic assembly as shown in fig.4. If the panel thickness is less than 2.5 mm only drill the 3.5 mm diameter holes and the 46 mm hole must be 8.5 mm

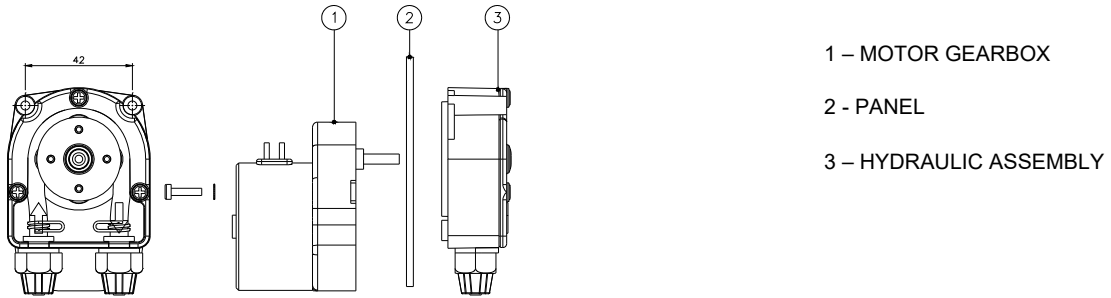


Fig. 5

Panel drilling – thickness panel: from 2,5mm to 4mm

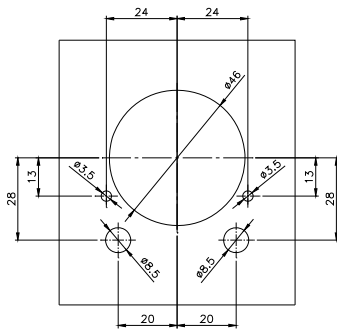


Fig. 6

Panel drilling – thickness panel: lower than 2,5mm

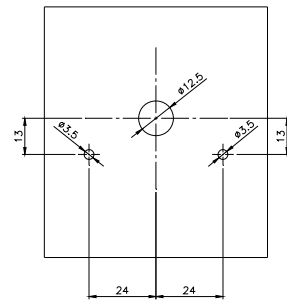


Fig. 7

To connect exactly the suction tube and the outlet piping please pay attention to the two arrow on the transparent cover of the pump. The suction tube (#2 on fig.8) must be connected to the left input of the pump where there is an up arrow symbol while the outlet piping (#4 on fig.8) must be connected to the right side of the pump where there is a down arrow symbol. The two tubes must be fixed by using a tube nut (#1 on fig.8) and a metallic girdle (#3 on fig.8).

The pump can be fixed also by means of two screws on the bracket. Use the two holes (42mm distance) on the pump type F or F-T as shown in Fig. 5



Fig.8

4 MAINTENANCE

Periodically check the liquid level in the tank to make sure that the pump does not run dry; even though no damage will occur to the equipment itself, this is recommended to avoid any damages due to the lack of additive in the plant.
Check pump operation every 6 months and for very aggressive liquids make more frequent checks.
The manufacturer recommends periodical cleaning of the hydraulic parts (valves and filters). It is not possible to establish a cleaning frequency as this depends on the type of application; the reagent to be used depends on the additive employed.
Periodically check the state of wear on the tube

As stated above, we can suggest how to intervene for the cleaning:

Make sure the pump is electrically deactivated (both poles) by disconnecting the conductors from the power supply using the omnipolar switch which must have a minimum distance of 3 mm between its contacts.

Disconnect the plant outlet tube

Remove the suction tube (with filter) from the tank and place it in clean water

Start the dosing pump and leave it operating with water for about 5-10 minutes

With the pump disconnected, place the filter into a cleaning solution and wait until the solution terminates its cleaning effect

Start the pump again making it operate with the cleaning solution for 5 minutes in a closed circuit situation, with the suction and outlet immersed in the same container

Repeat the operation using water

Reconnect the dosing pump to the plant.

To substitute the tube, follow the indications below:



1. Unscrew the three cover screws using a Phillips screwdriver;



2. Extract the suction fixing and slide out the tube from the rotor in a clockwise sense;



3. Replace with a new tube, after having lubricated the tube with silicon oil, and position the suction fitting into its slot;



4. Hold the outlet fitting with one hand and with the other hand guide the tube into its position, reassemble the front cover with the screws provided.

Fig.9

5 TROUBLESHOOTING FOR COMMON FAULTS ON THE TYPE "F" SERIES PERISTALTIC PUMPS

5.1 MECHANICAL FAULTS

As the system is quite robust, normally there are no mechanical problems. Occasionally there might be a loss of liquid from the nipple because the tube nut has become loose, or more simply the outlet piping has broken.

In this case, the components must be substituted by removing the three screws on the pump cover. Once the liquid loss is repaired, clean the dosing pump of any additive residues which could attack the pump body.

THE DOSING PUMP ROTOR TURNS BUT DOES NOT SEND ADDITIVE TO THE PLANT: Check the seal of the tube and for a clogged filter.



Warning: When removing the peristaltic pump from the plant take care when sliding out the piping from the outlet fitting to avoid spilling any residual additive contained in the piping. Clean the pump body if any additive comes into contact with the body

5.2 ELECTRICAL FAULTS

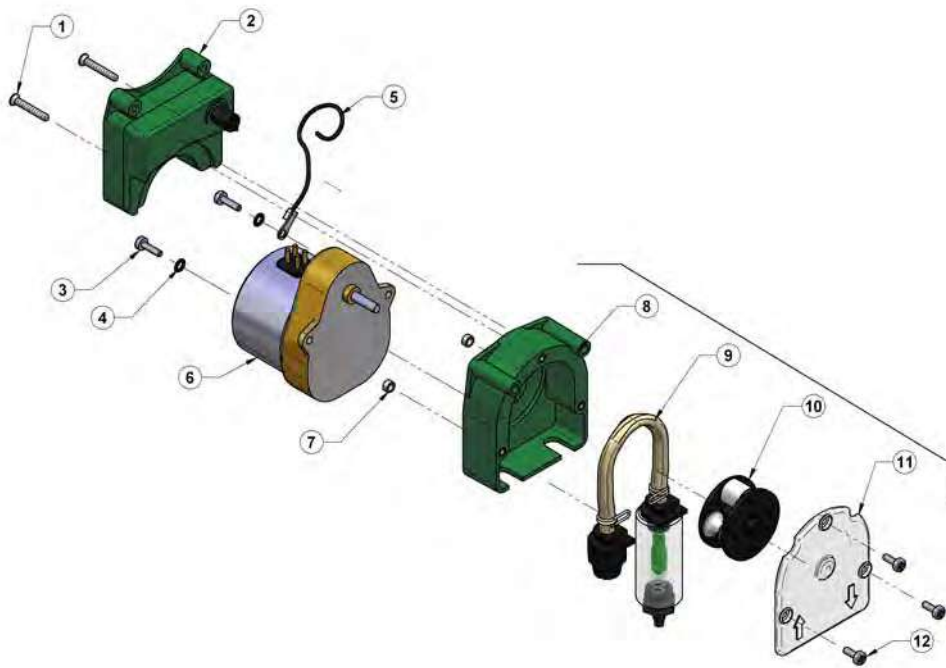
THE PERISTALTIC PUMP DOES NOT OPERATE: Check that the power supply is present (current plug and socket). If the pump remains inactive contact our technical assistance centre.

6 SPARE PARTS

The gear box (several types depending on the power supply and delivery rate), timer, complete tube and hydraulic plant are available as spare parts. (REF. EXPLODED VIEW)

<i>Description</i>	<i>Ref. Position</i>	<i>Note</i>
Motor Gearbox	6	Several tipe depending on the power supply and delivery rate
Timer Board	2	Only for F-T type. Several tipe depending on the power supply
Complete Tube with flow indicator	9	
Complete Idraulic Head	8, 9, 10, 11 and 12	

7 EXPLODED VIEWS



1 – M3X25 SCREW

2 - TIMER BOARD

3 – M3X12 SCREW

4 – WASHER

5 – CABLE

6 –MOTOR GEARBOX

7 –SPACER

8 – PERISTALTIC HOUSING

9 -4X7 COMPLETE TUBE

10 –ROLLERS HOLDER

11 –FRONT COVER

12 –M3X8 SCREW

Fig.10



Yalitech Instruments

Santiago de Chile, Río Refugio 9648, Parque de Negocios ENEA, Pudahuel.

www.yalitech.cl · ventas@yalitech.cl · (+56 2) 28988221