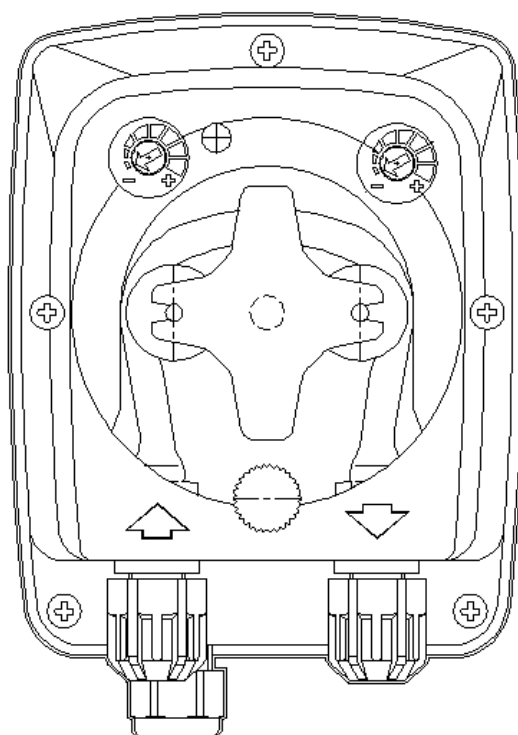




INSTRUCTION MANUAL PERISTALTIC PUMP

TEC 1TT - 1TV – 1VV











DECLARATION OF CONFORMITY

Company:	AQUA S.p.A.
Address:	Via T. Crotti, 1 - 42018 - San Martino in Rio (RE)

Hereby declares that the products named:

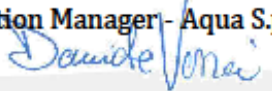
• TEC

Responds to the principal features of the following European Directives:

- **2014/30/CE of 26/02/2014 - Harmonization of the laws of the Member States relating to electromagnetic compatibility – EMC Directive**
- **2014/35/CE of 26/02/2014 - Harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits – Low Voltage Directive**
- **2011/65/UE of 08/06/2011 with subsequent update 2015/863 of 31/03/2015 – ROHS III Directives**
- **2012/19/UE of 04/07/2012 - WEEE Directives for electrical and electronic waste**

This declaration is issued under the responsibility of Aqua S.p.A.

San Martino in Rio (RE) - 08 settembre 2020

Davide Vezzani
Certification Manager - Aqua S.p.A.


AQUA S.p.A.
 Società soggetta al diritto di controllo di Fininvest Capital Management S.p.A. - Cap. Soc. € 10.000.000.000 - Sede Sociale e Direzione Generale: S. Martino in Rio - 42018 - Reggio Emilia - Italia - Sede Legale: Via Crotti, 1 - Sede operativa: Via Biondi, 3 - 42018 - PAV. 02229240150 - Pagine Gialle di RE 0222941000
 P.I. 02229240150 - P.02229240150 - www.aqua.it - email: aqua@aqua.it



ENGLISH MANUAL

TECHNICAL FEATURES

Power supply: read the label on the pump

Absorbed power (max): 4 W.

Suction height (max): 1.5 m

Flow rate and backpressure: read the label on the pump.

TEC-R – SPEED ADJUSTABLE PUMP

TEC-1TD – TIME ADJUSTABLE PUMP

TEC-1T – TIME ADJUSTABLE SPARKLING AID PUMP FOR DISHWASHERS WITH ONE OR TWO SOLENOID VALVES.

TEC-1TT – TIME ADJUSTABLE DETERGENT PUMP (FIRST LOAD AND RINSING) FOR DISHWASHERS WITH ONE SOLENOID VALVE.

TEC-1TV – TIME ADJUSTABLE (FIRST LOAD) AND SPEED ADJUSTABLE (RINSING) DETERGENT PUMP FOR DISHWASHERS WITH ONE SOLENOID VALVE.

TEC-1VV – SPEED ADJUSTABLE DETERGENT PUMP (FIRST LOAD AND RINSING) FOR DISHWASHERS WITH ONE SOLENOID VALVE.

TEC-1ST - SIMULTANEOUS ADJUSTABLE PUMP IN TIME AND SPEED FOR DISHWASHER MACHINES WITH A SOLENOID VALVE.

The 1TT/1TV/1VV pumps perform the rinsing cycle for the first 30 seconds they are powered and then automatically pass to the first load cycle.



Before starting the assembly, read these instructions carefully and follow them when installing.

Should the instructions indicated in this manual not be observed or followed correctly, it could cause personal harm or damage the device and/or systems.

STANDARDS OF REFERENCE

Our pumps are manufactured according to General Standards in force and in compliance with the following European Directives:

n° 2014/30/CE “ E.M.C.

n° 2014/35/CE “DBT Low Voltage Directive”

n° 2011/65/UE , 2012/19/UE “direttive RoHs e WEEE”

PRELIMINARY ACTIVITY

BEFORE STARTING

It is recommended to read carefully the label located on the pump and verify the following sections:

- The peristaltic tube must be compatible with the liquid to be dosed.
- Power voltage must be compatible with that indicated.
- Pressure in correspondence to the injection section must be lower or equal to the nominal one of the pump.

Use the provided adhesive label to fix the pump to the wall.

- Apply the label on the wall, where the pump must be placed, and drill holes in the two sections of the adhesive sheet.
- Fix the bracket to the wall using the provided plugs and screws.
- Place the pump on the bracket.
- Ensure the fixing is stable.



It is also recommended to install the pump in a dry environment, away from heat sources and exhaust vapour.

ELECTRIC INSTALLATION



Before performing any intervention on the pump, disconnect the power supply voltage of the machine.

Connect the cable of the pump at a voltage compatible with the label one, so that there can be an omnipolar disconnection device with a contact opening distance of at least 3 mm.

CAUTION !!!!!



Verify that the earth system is perfectly functional and complies with the applicable regulations. Make sure that the highly sensitive differential switch is present (0.03 A). Verify that the rated values of the pump are compatible with those of the mains. Never install the pump directly in parallel with inductive loads (e.g. motors/solenoid valves) if necessary, use an isolating relay. There are 2 protection devices inside the pump: a varistor and a fuse.

HYDRAULIC INSTALLATION

- The suction tube must be located inside the product container and then connected to the pump suction fitting (with ▲ mark on the cover) and tightened with the appropriate ring-nut.
- The delivery tube must be inserted on the pump delivery fitting (with ▼ mark on the cover) and tightened with the appropriate ring-nut; then connect it to the tank inlet fitting or to the injection valve.

TANK INLET ASSEMBLY (see fig. 1)

Drill a 10 mm hole and insert the inlet fitting in the tank.

INJECTION VALVE ASSEMBLY (see fig. 1)

Connect the injection valve between the solenoid valve and the boiler of the dishwasher. The provided tube holder fitting can also be used to connect the valve directly to the hydraulic doser tube.

PUMP OPERATIONS

TEC-R PUMP OPERATION

The potentiometer (B) allows to adjust the pump speed:

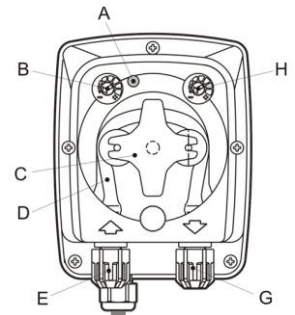
- to the minimum (turned all the way anti-clockwise): 10%
- to the maximum (turned all the way clockwise): 100%

Moreover, speed is displayed by modulating the green LED period on the basis of 10 seconds, proportionally to the set speed. In fact:

10% => 5 seconds on and 5 seconds off – in 10 seconds it 1 flashes once (slow)

50% => 1 second on and 1 second off – in 10 seconds it 5 flashes 5 times

100% => 0.5 seconds on and 0.5 seconds off – in 10 seconds it flashes 10 times (fast)



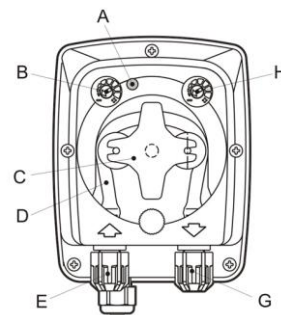
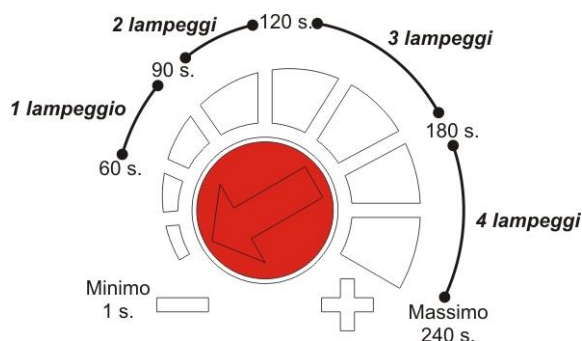
TEC-1TD PUMP OPERATION

The pump always runs at maximum speed at the time set by the potentiometer (B).

Dosing time can be adjusted in two ways:

1. Standard mode

The potentiometer can adjust operating time from 1 second (turned all the way anti-clockwise) to 240 seconds (turned all the way clockwise). Moreover, during time adjustment, the pump displays four positions by means of the flashing LED:



When the potentiometer is in the position between 60 and 90 seconds, the red LED flashes once; when it is in the position between 90 and 120 seconds, the red LED flashes twice; when it is in the position between 120 and 180 seconds, the red LED flashes three times; when it is in the position between 180 and 240 seconds, the red LED flashes four times.

2. Manual mode

The dosing time can be programmed manually to set a more accurate time.

After having activated manual mode with the following procedure, the pump will start to work at maximum speed. When you wish to stop it and to memorise the desired time, place the switch at ON; at this point the pump stops and associates the time set at the 50% position of the potentiometer which will then have the following limits:

- Potentiometer at minimum: time set -10 seconds (*)
- Potentiometer at maximum: time set +10 seconds

In this mode you can set a time up to 230 s.

(*) If the time set is less than 11 seconds, the pump assigns the potentiometer at minimum the time of 1 second and the potentiometer at maximum double the set time.

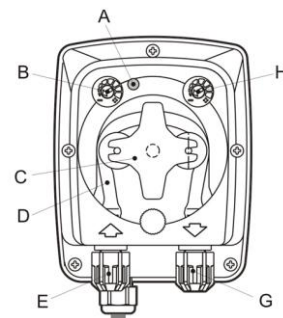
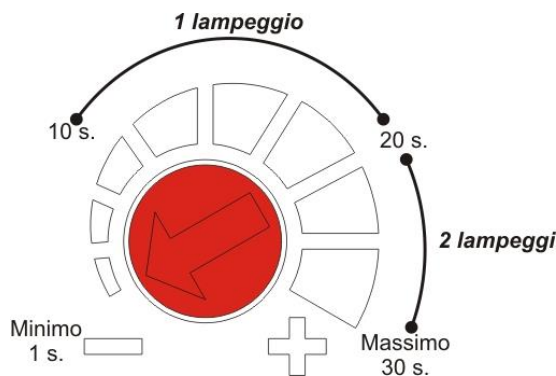
TEC-1T PUMP OPERATION

The pump always runs at maximum speed at the time set by the potentiometer (B).

Dosing time can be adjusted in two ways:

1. Standard mode

The potentiometer can adjust operating time from 1 second (turned all the way anti-clockwise) to 30 seconds (turned all the way clockwise). Moreover, during time adjustment, the pump displays two positions by means of the flashing red LED:



When the potentiometer is in the position between 10 and 20 seconds, the red LED flashes once and when it is in the position between 20 and 30 seconds the red LED flashes twice.

2. Manual mode

The dosing time can be programmed manually to set a more accurate time and without being limited to 30 seconds. After having activated manual mode with the following procedure, the pump will start to work at maximum speed. When you wish to stop it and to memorise the desired time, place the switch at ON; at this point the pump stops and associates the time set at the 50% position of the potentiometer which will then have the following limits:

- Potentiometer at minimum: time set -10 seconds (*)
- Potentiometer at maximum: time set +10 seconds

In this mode you can set a time up to 230 s.

(*) If the time set is less than 11 seconds, the pump assigns the potentiometer at minimum the time of 1 second and the potentiometer at maximum double the set time.

❗ **In the 1TT pump, rinsing time (potentiometer B) can be programmed manually to a maximum of 20 s.**

Time and/or speed adjustable peristaltic pump

ENGLISH

TEC-1TT PUMP OPERATION

The pump runs at maximum speed for the time set by the rinsing potentiometer (B). Then if it is supplied longer than 30 seconds, it still runs at maximum speed for the time set by the first load potentiometer (H).

The rinsing dosing time is the same as that of the TEC-1T pump operation, while that of the first load is the same as the TEC-1TD pump.

TEC-1TV PUMP OPERATION

For the first 30 seconds, the pump runs at the speed set by the rinsing potentiometer (B). Then if it is supplied longer than 30 seconds, it runs at maximum speed for the time set by the first load potentiometer (H).

The first load dosing time is the same as that of the 1TT pump operation, while the speed is the same as the TEC-R pump.

TEC-1VV PUMP OPERATION

For the first 30 seconds, the pump runs at the speed set by the rinsing potentiometer (B). Then it runs at the speed set by the first load potentiometer (H) as long as it is supplied.

The rinsing and first load set speed is the same as that of the TEC-R pump.

PUMP TEC-1ST FUNCTIONING

The pump operates at the speed set via potentiometer B for the time set using the potentiometer H.

The pump speed is regulated by potentiometer B: Minimum speed (completely turned counterclockwise): 10%
Maximum speed (completely turned clockwise): 100%

In addition, the speed is displayed by modulating the period of the flashing of the green LED on the basis of 10 seconds, proportional to the speed set. Infact:

10% => 5 seconds ON and 5 seconds OFF – in 10 seconds it performs 1 flashing (slow)

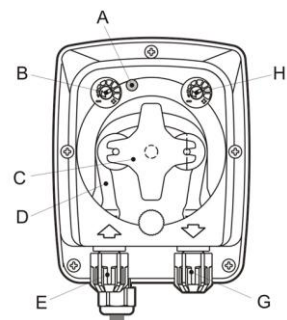
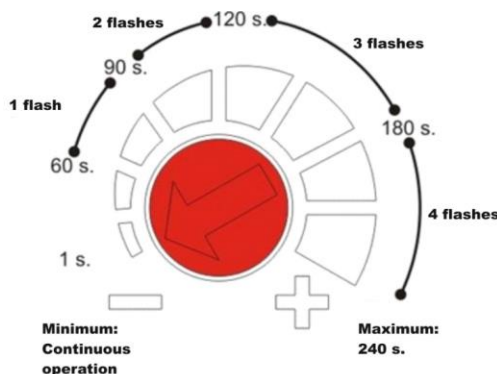
50% => 1 second ON and 1 second OFF – in 10 seconds it performs 5 flashings

100% => 0,5 seconds ON and 0,5 seconds OFF – in 10 seconds it performs 10 flashings (fast)

The dosing set time can be done in two different ways:

1. Standard Mode

With the potentiometer it is possible to adjust the operating time: it is possible to set a continuous operation (completely turned anticlockwise) or to modulate it from 1 to 240 seconds according to what is shown in the figure below. During the time adjustment, the pump displays four positions by flashing the red LED:



When the potentiometer is in the position between 60 and 90 seconds the pump flashes red, when it is in the position between 90 and 120 seconds it makes two red flashes, when it is in the position between 120 and 180 seconds it makes three red flashes, when it is in the position between 180 and 240 seconds it makes four red flashes

2.Manual Mode

It is possible to program the dosing time manually to set a more precise time.

After activating the manual mode with the procedure below, the pump will start to run at maximum speed. When you want to stop it and memorize the desired time, set the switch to ON; at this point the pump stops and associates the set time to the position of 50% of the potentiometer which then will have the following limits:

- Potentiometer at minimum: time set -10 seconds(*)
- Potentiometer at maximum: time set +10 seconds

In this mode it is possible to set a time up to 230 seconds.

(*) If the set time is less than 11 seconds, the pump assigns to the potentiometer at minimum, the time of 1 second and to the potentiometer at maximum, twice the set time.

PROGRAMMING MANUAL MODE<>STANDARD MODE - AND VICE VERSA

Place the switch at OFF and move the potentiometer to minimum (turned all the way anti-clockwise) and then quickly to 50%. This position is indicated by a flashing orange LED and a beep of the buzzer (if supplied on the pump).

RESETTING PROGRAMMED TIMES

To reset times programmed with manual mode, perform the Manual mode<>Standard mode programming procedure twice.

OPERATION OF THE TWO-COLOURED LED

The two-coloured LED indicates the various pump operation phases:

- If it is fixed orange, the pump is performing the priming phase.
- If it is flashing orange (1 second ON – 1 second OFF), displays the programmed time.
- If it is fixed green, the pump is on but is not dosing.
- If it is flashing green, the pump operates regularly; moreover, the flashing frequency is directly proportional to the rotation speed.
- Fixed red indicates that the pump is in standby, switch at OFF.
- Flashing red (1 second ON – 1 second OFF) means the motor is blocked or, in the level probe version, it indicates that the chemical product to be dosed is finished.
- Flashing red (2 seconds ON – 2 seconds OFF), a pump OFF alarm has been triggered.

Moreover the LED indicates that the “programmed” status of the potentiometer will be signalled by means of an orange flashing LED, both with the switch ON and OFF, every 10 seconds.

- 1 orange flash: potentiometer (B) programmed (model 1T, 1TD, 1TT);
- 2 orange flashes: potentiometer (H) programmed (model 1TV, 1TT);
- 3 orange flashes: both potentiometers programmed (only model 1TT);

OPERATION OF THE SWITCH

Placed on the lower part of the pump, the switch has 3 positions:



I: the pump is active (ON)

The pump runs normally.

O: the pump is in stand-by (OFF)

LED is fixed red.

II: the pump is in priming mode (MOM)

LED is fixed orange, the pump works for 60 seconds at the maximum speed. If the button is pressed again before the 60 seconds have elapsed, the pump goes in stand-by or in normal operation, depending on the position of the switch.

ALARM

LEVEL ALARM (only for the model with level probe)

A level probe can be connected to the pump to signal the end of the product, which is indicated by the pump in the following way:

- Acoustic signal through the buzzer (if installed on the pump), with a frequency of 1 sec. on and 1 sec. off;
- Red LED flashing with the same frequency as the buzzer.

The inlet has a recognition filter both upwards and downwards of 3 seconds for distinguishing false contacts and unwanted level alarm signals.

The pump keeps on running during the level alarm.

To exit from this condition, the chemical product to be dosed must be restored.

In priming mode, the level alarm is not indicated.

MOTOR ALARM

In case of excessive absorption of the motor due to malfunctioning, the pump attempts to start up the motor three times. The three attempts before the alarm status is triggered occur 2 seconds from the first stop, 3 seconds from the second stop and 5 seconds from third stop.

After which it goes into alarm mode which is indicated by the pump as follows:

- Acoustic signal through the buzzer (if installed on the pump), with a frequency of 1 second on and 1 second off;
- Red LED flashing with the same frequency as the buzzer.

During the motor alarm, the pump stops.

To exit from this condition, switch the pump off and on by using its switch or by acting on the power supply.

❗ ***The motor alarm is not indicated if the pump has been powered for less than 10 seconds!!!***

SWITCH ALARM

If the switch is left at the OFF position, after 10 minutes the switch alarm is activated and signalled by the pump in the following way:

- Acoustic signal through the buzzer (if installed on the pump), with a frequency of 2 seconds on and 2 seconds off;
- Red LED flashing with the same frequency as the buzzer.

During the motor alarm, the pump stops.

To exit from this condition, place the switch at ON.

MAINTENANCE (see fig. 3)

- Periodically verify the level of the tank containing the chemical product to be dosed, in order to avoid the pump running empty.
- Verify the foot strainer and clean it periodically from any residuals of crystallised product or accumulated dirt.
- Ensure there are no impurities in the suction and delivery tubes, because they may damage the peristaltic tube and, at the same time, cause anomalies in the flow rate.
- Periodically verify the operation of the pump and the status of the peristaltic tube, especially for very aggressive chemical products.

PROVIDED KIT OF ACCESSORIES

Pumps for sparking aid (TEC-R/1T/1ST)

- PVC suction tube (2 m.)
- PE delivery tube (4 m.)
- Foot strainer
- Steel check valve with viton® o-ring
- Tube holder for the check valve

Pumps for detergent (TEC-R/1TD/1TT/1TV/1VV/1ST)

- PVC suction tube (4 m.)
- Foot strainer
- Tank inlet fitting

Figure 1

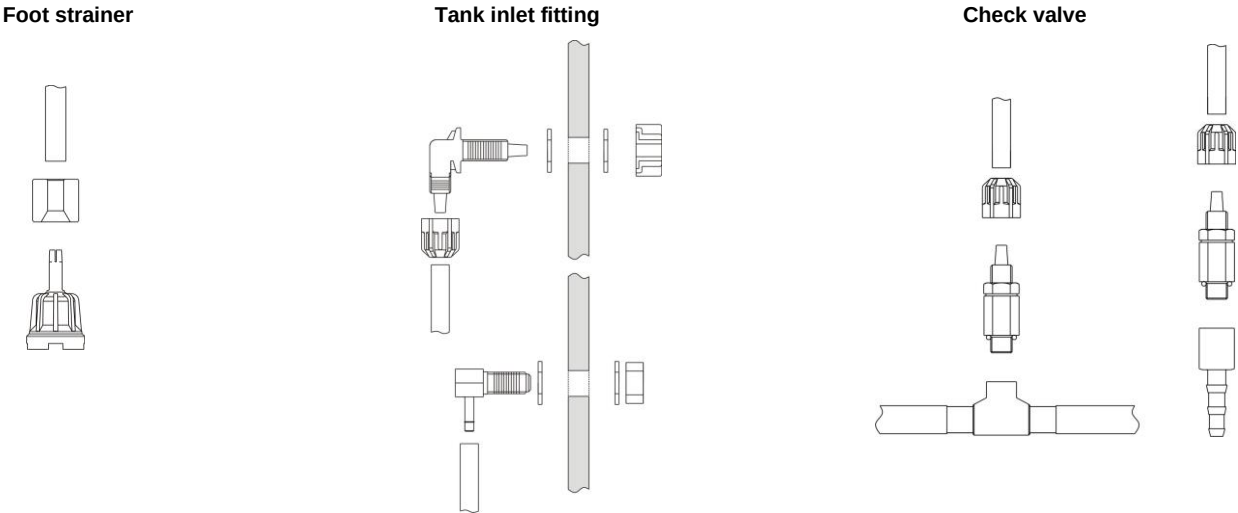


Figure 2

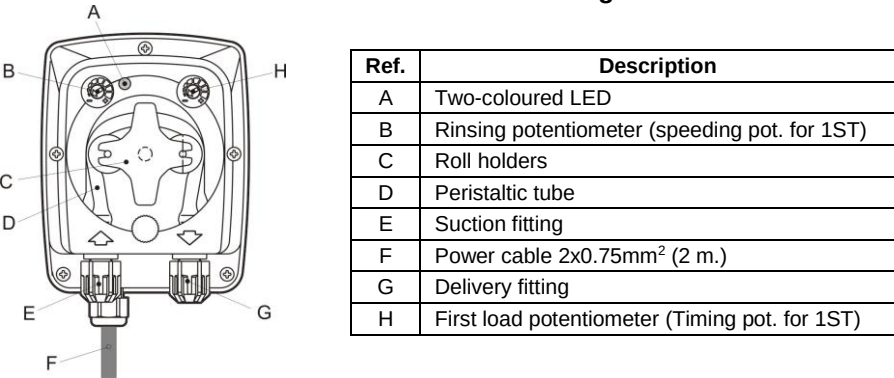
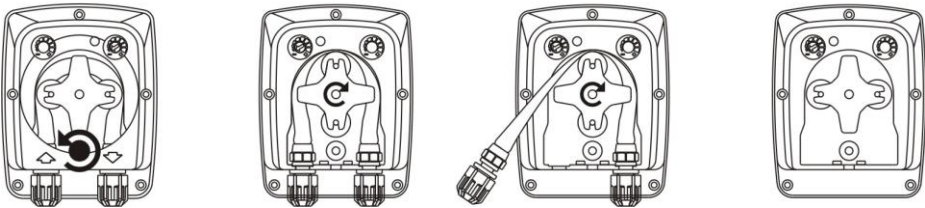
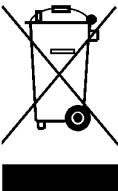
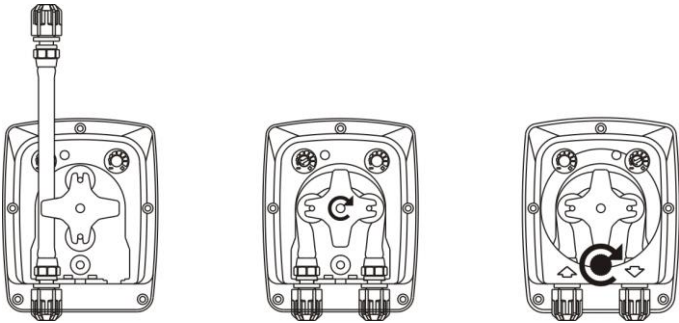


Figure 3

Removal of the peristaltic tube



Repositioning the peristaltic tube



Pursuant to art. 13 of LD n. 151 dated 25/07/2005 (implementation of Directives 2011/65/UE , 2002/96/EC, 2003/108/EC) it is notified that:
The electric and electronic devices must not be considered as household waste.
The consumers must, by law, return the electric and electronic devices at the end of their useful life, to adequate differential collection centres. The crossed-out rubbish bin symbol on the product, on the instructions manual or on the packaging, indicates that the product is subject to the disposal rules envisioned by the Standard. Illegal disposal of the product leads to the enforcement of administrative penalties envisioned by LD n. 151 dated 25/07/2005. By recycling, reusing the material or other forms of utilising old devices, you are making an important contribution to prote



TEC 1TT - 1TV – 1VV

