# VARIABLE FLOW PERISTALTIC PUMPS WITH TIMER

## Model D-25VT 153-3r

### Codes 1.9745.00, 1.9745.11 and 1.9745.50


## MANUAL

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Marked CE

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# INDEX

## 1- GENERAL INTRODUCTION

Peristaltic pumps pump all kinds of liquid substances without encountering mechanical elements as occurs in other pumps. They are easy to use and require minimal maintenance.

The pumped substance is impelled inside an elastic tube thanks to the vacuum generated by a set of rotors that successively press and release the surface of the tube. The liquid passes directly from its container to another without any contamination, avoiding backflow when stopping the pump as the tube remains pressed by the roller.

The nature of some corrosive substances or other characteristics that prevent the use of conventional pumps make peristaltic pumps especially useful for transferring or dispensing such substances.

Flow rates are obtained from 0.02 ml/minute up to 6000 ml/minute.

A large number of different size tubes or hoses made of materials resistant to various substances are available.

## 2- PACKING LIST

| | Code | Quantity |
|---|---|---|
| D-25VT pump | 1.9745.00 / 1.9745.11/ 1.9745.50 | 1 |
| Set tubes | | 1 |
| Power cord | | 1 |
| Footswitch connector | | 1 |
| Instruction Manual | | 1 |

## 3- RECEPTION

To ensure correct reception, use of the device, and user safety, we recommend reading this manual in detail before proceeding to unpack the device and subsequent use, and especially the following points:

### 3.1- THE MANUAL

This manual must be permanently kept within the equipment user's reach.

### 3.2- UNPACKING

Carefully unpack the appliance, checking that the contents match the packing list.
Immediately notify any eventuality.

### 3.3- EXPLOSIVE MIXTURES

Avoid using the device when there is the possibility of generating explosive and flammable gas mixtures.
The ATEX Directive is not covered.

### 3.4- RESPONSIBILITY

In accordance with the European regulations for use 89/655/CEE, the lack of adequate maintenance and the alteration or change of any component exempts the manufacturer from any responsibility for the damages that may occur.

### 3.5- REPAIRS

Devices to be sent to *DINKO technical services must* be **clean and disinfected.**
Otherwise, they will be rejected and returned with postage paid by the owner.

### 3.6- SIGNS AND SYMBOLS

Always pay attention to the danger warning signs and symbols that will appear in this manual or on labels attached to the body of the Pump such as those shown below.

| SIGNS/ SYMBOLS | INTERPRETATION-MEANING |
|---|---|
|  | Avoid finger contact with moving parts |
|  | Danger-Risk-Caution |
| **Before opening DISCONNECT the network cable Before remove cover PULL OUT plug**  | Before accessing the interior of the Pump, disconnect the power cable from the main. |
|  | Possible overheating - Do not touch |
| 100-230V AC 50/60Hz | AC power supply voltage |
| 110V AC 60Hz | AC power supply voltage |
| 12V DC | DC power supply voltage |
|  | Disposal of waste electrical and electronic equipment by users within the European Union.<br><br>It is not disposable as household waste.<br><br>Deliver to the agency for recycling of electronic equipment.<br><br>Contact your local office, the store where you purchased the equipment, or your household waste disposal service.<br><br>Recycling helps conserve natural resources.<br>Make sure it is recycled protecting human health and the environment. |

## 4- DESCRIPTION

The D-25Vplus peristaltic pumps in this manual mount the 153-3r head that allows easy access to the tube for removal when it must be replaced.

On the 153-3r easy-load head, simply pull up and to the left of the lever (1) located on the top of the head to raise the top and open the head for tube replacement.

When removing the tube, slide the buttons (3) up to move the tube retainers.

The head admits various tube sizes which, combined with the speed regulation, gives a great variety of flows, as can be seen in the flow chart .

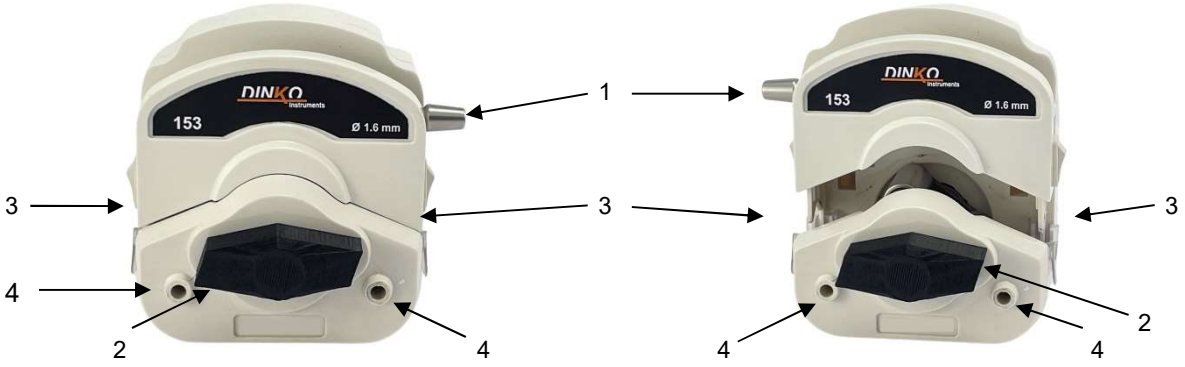
In the description on the front panel, the FULL button, nº 5, obtains the maximum speed of the motor, in the loading, purging and cleaning operations and the control 2 allows to choose the direction of rotation of the motor for the inversion of the flow and the unemployment. The cyclical timer nr. 1 has section 7 of this manual with the instructions for its programming and the speed regulator nr. 3 provides control of the flow with a repeatability of 100%.

In the description on the back there is the connection for the network cable with integrated fuse holder, connection for the pedal and the timing mode selector no. 12.

Consult the indicative table of dosages and install the appropriate tube.

NEVER CARRY OUT THIS OPERATION WITH THE EQUIPMENT RUNNING.

### 4.1- HEAD 153-3r :




Closed head Open head

1 - Lever to open the head

2 - Tractor axle output guard

3 - Sliding buttons for fixing the peristaltic tube

4 - Complementary head fixing screw holes

The 153-3r head admits another equal head on its same axis of rotation. Remove the protector 2 to face the complementary head with the axis and insert the two assembly screws in the holes 4.

With 2 heads it is possible to cancel the typical cadence of the peristaltic flow. To do this, when locating the complementary head, the rotor rollers must be oriented in opposition to the main head rollers.

When the heads are used as independent channels, each one will provide the flow corresponding to the tube installed in the heads.

If it is intended to double the flow, the two suction and discharge tubes can be installed directly in the feeding and receiving containers.

The option to use a Y-connection to join the tubes of both heads will allow the cancellation of the peristaltic pulse. It must be remembered that the final discharge tubes and especially the suction ones must be of a larger diameter than the head tube. If this is not possible, the total flow will be somewhat less than the theoretical expected.

## 4-2 FRONT PANEL

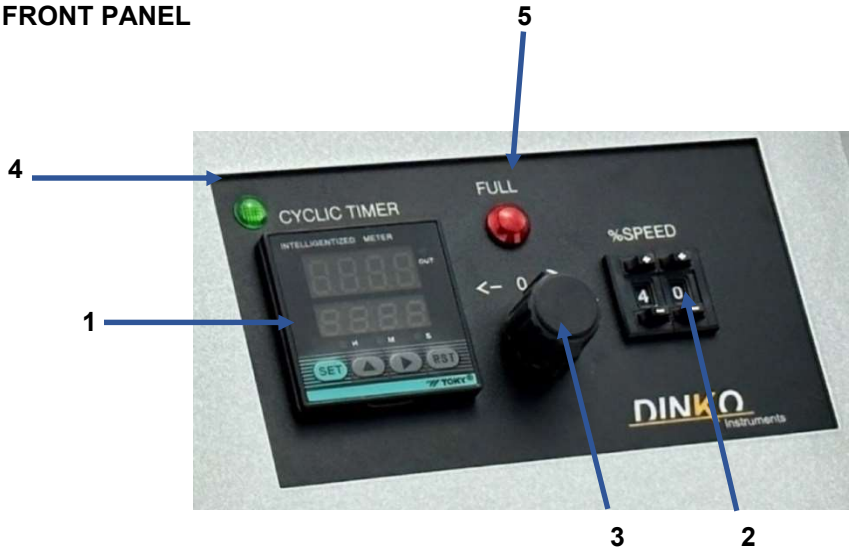



Figure a

1- Cyclic timer
2- Numerical speed control
3- Engine crank and stop selector
4- Pilot lamp
5- FULL peak flow push button

## 4-3 REAR PANEL

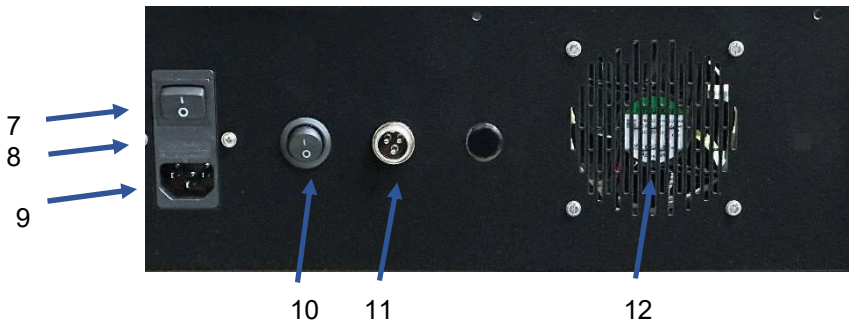



Figure b

7- ON/OFF main power switch
8- Fuse box
9- Power socket
10- Timing mode selector
11- Input for voltage-free pedal
12- Fan.

## 5- SPECIFICATIONS

### 5.1 DIMENSIONS

Pump: 340x280x180. Weight 7Kg
Operation: between 100 and 240V. 50/60 Hz. Amp. 0.5 /1

### 5.2 FLOW TABLE - Interval guide for each tube.

| Code | rpm | Head | 0.5 mm | 0.8 mm | 1.6 mm | 3.2 mm | 4.8 mm | 6.4 mm | 8.0 mm | ◄Tube Ø |
|---|---|---|---|---|---|---|---|---|---|---|
| **1.9745.11** | 110 | 153-3r | 0.17-2.8 | 0.5-6.7 | 2.7-28 | 6.7-100 | 19-230 | 27-367 | 58-500 | Flow ml/min |
| **1.9745.00** | 330 | | 0.5-8.5 | 1.5-20 | 8.0-85 | 20-330 | 56-700 | 80-1050 | 175-1300 | |
| **1.9745.50** | 500 | | 0.7-12 | 2-29 | 12-120 | 29-470 | 80-1000 | 115-1500 | 250-2000 | |

The indicated flows are approximate and refer to liquids with a viscosity like water at normal temperature and without discharge back pressure.

## 6- START UP

**INITIAL CONSIDERATION:**

**For a correct dosing with a Peristaltic Pump with a timer, first of all you have to select the appropriate tube, both in composition and measurements to carry out the dosing of the desired volume.**

**Tests must always be carried out to determine how much volume is dosed per unit of time.**

**To do this, a series of dosages must be made, and the volume dosed must be checked. If it is necessary to increase the dosed volume, the dosing time will have to be increased and if it is necessary to decrease it, it will have to be reduced.**

**Once this time has been found, we can start working in the mode that best suits us.**

**6.1-** In facilities for processes or assemblies that include a *DINKO Pump,* there is no must be put into service before checking that the safety regulations of the European Machinery Directive 2006/42/EC.

**6.2-** Place the motor rotation direction selector in position “0” (figure a (3)).
Check the position of the **IO selector** (figure b (10)).
Choose the speed using the percentage numeric indicator buttons. With a 100% reproducibility speed range available from 0 to 99% speed maximum with an accuracy of 1% (figure a (2)).

**6.3-** Install the selected tube

During the first few minutes of operation, some of the recently installed tubes suffer an elongation that alters the distances between the tube and its fixings with the rollers. Readjust the tube in the head to prevent the rollers from unexpectedly tearing the tube.
Marking the tube with a marker makes it easier to detect a faulty fixing of the tube to its head that will cause the tube to break by the rollers.

Locate the tubes for loading and unloading the fluid to be pumped.

See instructions in sections **4- Description and 9- Tube Change**

**6.4**- Set the main switch to the OFF position (figure b (7)).

**6.5-** Connect the power cable to the rear connector and to the main power. (100-240V 50/60Hz) (figure b (10)).

**6.6-** Press the main switch to the ON position (figure b (7)).

Proceed to programming the timer. See description, section 7

## 7- TIMER

When the equipment is connected, the timer starts and waits. To start it, press the ▲ key (6)


1- OUT Open/closed contact indicator-red pilot
2 - Measured time (red)
3 - Scheduled time (green)
4 -Time units (hour-minute-second) H/M/S-pilot green

5 6 7 8

5- **SET** button.
6- Increment button.
7- Scroll button.
8- **Reset** or restart button.

The timer allows different working methods, depending on the selected menus.

### 7.1 Menu selection

By pressing **SET** for more than 3 seconds, you enter the Menu function. After selecting or modifying the parameter, press **SET** and go to the next one. If you spend more than 10 seconds without touching anything, it jumps to the original screen.

**Menu sequence -** Factory programming.

| | | |
|---|---|---|
|  Pres **SET** | **rAn1**<br>Select the units of **HM/S** time and the Maximum time for **t.Off**. | By pressing ▲ select the decimals and if they are **M/M/S** or either **M/M** or **M/S**<br>**H** from 99.99 to 9999<br>**M** from 99.99 to 9999<br>**S** from 99.99 to 9999<br>**H/M** 99.59<br>**M/S** 99.59 |
|  Press **SET** | **rAn2**<br>Idem for **t.on** | Idem |
|  Press **SET** | **U-d**<br>Select the way to count the time | Pressing ▲ selects<br>**U-** Increasing mode<br>**d** - Decreasing mode |

**Menu sequence -** Factory programming

| | | |
|---|---|---|
|  <br>Press **SET** | **i nt**<br>Select response time | Pressing ▲ selects<br>1 mS<br>20ms |
|  <br>Press **SET** | **oUt**<br>Select the menu you want use. Description of the different modes in the section **7.3 Modes of use** | Pressing ▲ selects<br>**n** (N Mode ) → **F** (F Mode)<br>**C** (C Mode) **r** (R Mode) |
|  <br>Press **SET** | **stA**<br>Select start-up:<br>manual or automatic time (manual) | Pressing ▲ selects<br>**YES** - (When the equipment is connected, press ▲ to start it the first<br>**No-**When connected, it stsrts up automatically |
|  <br>Press SET | **HoLd**<br>Select that if te current shutdown when rebooting, follow the menu where shutdown cut or start again. | Pressing ▲ selects<br>**Yes** – Continue<br>**no –** start over |
|  <br>Press SET | **LoCy**<br>By pressing ▲ they are selected ways to lock the menu | ▶ **LO** – Nothing<br>**L-1** Lock Reset<br>**L – 2 –** Locks time and menu function.<br>**L-3 -** Lock everything |

## 7-2 Selection of operation and stop time.

The timer has two programming times **t.oFF** and **t.on** indicating the status of the timer contacts.
**t.oFF** will always be the first to count and then **t.on** will count .
**N, F** modes we can only program the **t.oFF ,** instead in the **R mode** , we must configure the **t.oFF** and he **t.on .**
To enter the time selection menu, press ►. The first digit starting from the left will start to flash, with ▲ we can modify the value, we will go to the next position with ►, like this until completing the four digits.
When the four digits have been selected, press **SET** to confirm the selection.

**Menu sequence**

| | | |
|---|---|---|
|  Press **SET** | **t.oFF**<br><br>Indicates that the contacts are closed and allow the operation of the equipment. | The time parameters of 0.015 – 9999 H were selected in the function **rAn1** from the menu |
|  Press **SET** | **t.on.**<br><br>Indicates that the contacts are open and don´t allow the operation of the equipment It is indicated by a red light. **R** and **C** menus only. | The time parameters of 0.01S – 9999 H were selected in the function **rAn2** from the menu. |

### 7.3 Modes of use

The pump has a timing mode selector on the back with two positions, **O** and **I.** (Figure b (10)).

In position **O** , when the timer starts (by pressing the ▲ key of the timer, it will start counting the programmed times), the head will work for the time programmed as **t.oFF .**

In position **I** , when the timer starts (by pressing the ▲ key of the timer, it will start counting the programmed times), the head will remain off for the time programmed as **t.oFF.**

### 7.3.a - N Mode

This working mode is used for:

- When you want to program a single dosage; When the timer is activated, the equipment will work for the programmed time and stop.

  Programming:

  **Timing mode selector in position O (Figure b (10)).**
  **Motor rotation direction selector in position “0” (◄ or ►) (Figure a (3)).**

Turn off the equipment and turn it on again. With the equipment turned on, press ▲ and check the programmed **t.oFF time** ( lower green display ), if it needs to be modified, see 7-2 Selection of operation and stop time (page 10).

Position the direction of rotation selector in the desired position so that the head rotates clockwise or anticlockwise.

To start the head, press the **RST key,** and in the case of having the pedal connected, press the pedal. The head starts up for the time programmed as **t.oFF** .
In green we will see the programmed time as **t.oFF** and in red we will see how the time increases from 0 to **t.oFF .**
Once the time **t.oFF has finished ,** we will see the same time on the two displays , red and green, it will stop counting and the head will stop.

To carry out another dosage, press the **RST key,** and in the case of having the pedal connected, press the pedal. If the foot pedal is connected, dosing can be started both with the RST key and with the foot pedal.


**RST** key

**It is the factory programming.**

- When you want to program a single dosage with a delay; that is, when the timer is activated, it will count the programmed time with the head stopped and at the end of said time the head will start up, it will work until the equipment stops.

  Programming:

  **Timing mode selector in position I (figure b (10)).**
  **Motor rotation direction selector in position "0" (◄ or ►) (Figure a (3)).**

  Turn off the equipment and turn it on again. With the equipment on, press ▲ and check the programmed **t.oFF** delay time ( lower green display ), if it needs to be modified, see 7-2 Selection of operation and stop time (page 10).

  To start the head press the **RST key,** and in the case of having the pedal connected, press the pedal.

  Position the direction of rotation selector in the desired position so that the head rotates clockwise or anticlockwise, when the **t.oFF** ends .
  The head will remain stopped for the time programmed as **t.oFF** .
  In green we will see the programmed time as **t.oFF** and in red we will see how the time increases from 0 to **t.oFF .**
  Once the time **t.oFF** has finished , we will see the same time on the two displays , red and green, it will stop counting and the head will start up.

  To carry out another dosage with a delay, press the **RST key** , and in the case of having the pedal connected, press the pedal. If the foot pedal is connected, the cycle can be started, both with the RST key and with the foot pedal.

**RST** key

**7.3.b - F Mode**

Same as **N Mode,** but:

Once the time **t.oFF** has finished **,** the green display will see time **t.oFF** and the red display will continue counting the time.

### 7.3.c- R mode

Asymmetric cyclical mode, in which an operating time and a stop time are programmed to repeat indefinitely.

This working mode is used for:

- When we want to carry out a repetitive dosing of a specific volume, having a stop time between dosing and dosing, to be able to place the rubber in another container to do another dosing. (Filling containers with the same volume)

**t.oFF** will be the first beat and **t.on** will be the second beat.

In the timer programming we will select:

**oUt** → r (R mode)
**Sta** → this
**Hold** → no

**Selector in position O**

The first time will be running and the second stop

Start……Stop……Start …. …Stop……..Stop .. ……

**t.oFF** **t.on**

**Selector in position I**

The first time will be unemployment and the second march

…… . .Stop……. Start …. …...Stop…..……. Start

**t.oFF** **t.on**

Once the work mode has been selected, turn off the pump and remove the external connector.

When starting the pump, the cycle that we have selected will start.

**Note: To use the pump without the timer:**

To be able to use the peristaltic pump without taking the timer into account, that is, the head starts when we turn on the pump and stops when we turn off the pump.

For the equipment to work like this, it is necessary to program the timer as follows:

- By pressing SET for more than 3 seconds, you enter the Menu function. After selecting or modifying the parameter, press SET and go to the next one. If you spend more than 10 seconds without touching anything, it jumps to the original screen.
- In the timer menu put in the Sta section → YES
- Timing mode selector in position O (figure b (10)).
- Motor rotation direction selector in position “0” (◄ or ►) (Figure a (3)).
- Turn off the equipment and start it up.
- Place the direction of rotation selector in the desired position (◄ or ►) (Figure a (3)).
- The motor will run and the timer will remain on without starting to count.
- To set the timer to count, you would have to press ▲

IT IS THE FACTORY PROGRAMMING

## 8- ACCESSORIES

**8.1 Balance for flow and dosage calibration**.

Reproducibility 0,1 g. 600g capacity. Code 1.9812.02

To measure the quantity dosed in the Calibration process of peristaltic pumps, it is very effective to use a precision balance with digital reading.

If the liquid to be pumped has density "1" there will be no difference between grams and milliliters. Otherwise, calculate the density by weighing a quantity of the liquid with the help of a 25ml test tube, for example, previously taring the test tube on the scale.

Divide the weight indicated on the digital readout of the scale in grams by the milliliters contained in the test tube to obtain the density according to the relationship,

D= M / V.

There is always the option to Calibrate the pump directly based on weight instead of volume.

Characteristics:

♦ Single digital reading platter, with highly visible backlit LCD screen.

♦ Simple use of great robustness with ABS casing and hermetic anti-humidity membrane keyboard

♦ Stainless steel pan, 157x128mm ♦ External auto calibration ♦ Units of measure: grams, pounds and ounces

♦ Continuous tare up to 600 g ♦ Power supply 230V 50/60Hz ♦ Non-slip rubber feet

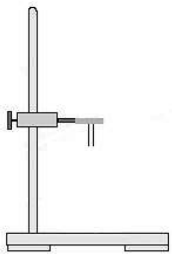
♦ Working temperature: from +5ºC to +40ºC. Maximum use humidity, 85% RH

**8.2 Graduated cylinder, 25 ml. Code 1.9808.20**

**8.3 Silicone grease, 50g. Lubrication of peristaltic tubes. Code 8.0030.03**

**8.4 Standing support. Code 1.8003.08**

Useful as a support for the tube/dispensing tip. Foot: 150 x 70cm. Bar, height 70cm. Sliding support for dosing tip.



## CONNECTORS FOR PERISTALTIC TUBES

### 8.5 Reducing Splice Connectors / Same Ends, Polypropylene

For tubes 1,6/3,2mm. ID. **Code1.0080.15**
For tubes 3,2/4,8mm. ID. **Code 1.0080.18**
For tubes 4,8/6,4mm ID. **Code 1.0080.05**
For tubes 6,4/8mm ID. **Code 1.0080.14**
For tubes 8/12,7mm ID. **Code 1.0080.20**

### 8.6 Straight connector for fitting/reducer, polypropylene

Straight connector / reducer Ø 4-5-8 to 7-10-12mm. **Code 1.0120.31**

### 8.7 Form Y connectors, polypropylene

Y shape connector, 6mm. either. **Code 1.0120.26**
Y shape connector, 8mm. either. **Code 1.0120.48**
Y shape connector, 10mm. either. **Code 1.0120.32**
Y-shaped connector, 12mm. either. **Code 1.0120.33**

### 8.8 Connectors-stainless steel 316 tubes- Connection and dosage

**Straight connection 40 mm length**
Tube for 0,5 and 0,8mm ID tubes, 25 Units. **Code 8.0056.14**
Tube for 1,6mm ID tubes, 25 Units. **Code 8.0056.06**
Tube for 3,2mm ID tubes, 25 Units. **Code 8.0056.08**
Tube for 4,8mm ID tubes, 25 Units. **Code 8.0056.10**
Tube for 6,4mm ID tubes, 25 Units. **Code 8.0056.12**

**Dosage 130 mm length with a bevel**
Dosage tube for 0,5 and 0,8mm ID tubes, 10 Units. **Code 8.0056.15**
Dosage tube for 1,6mm ID tubes, 10 Units. **Code 8.0056.07**
Dosage tube for 3,2mm ID tubes, 10 Units. **Code 8.0056.09**
Dosage tube for 4,8mm ID tubes, 10 Units. **Code 8.0056.11**
Dosage tube for 6,4mm ID tubes, 10 Units. **Code 8.0056.13**

**Length 38mm**
Micro-tube 0,8mm bore, 10 Units **Code 1.0077.23**
Micro-tube 0,9mm bore, 10 Units **Code 1.0077.26**

Clamping flange P. **Code 1.0120.01**
Clamping flange G. **Code 1.0120.12**

### 8.9 Anti-floating sunk Head

For peristaltic tubes of 1,6 and 3,2mm ID. **Code 1.0303.10**
For peristaltic tubes of 4,8mm ID. **Code 1.0303.11**
For peristaltic tubes of 6,4mm ID. **Code 1.0303.12**
For peristaltic tubes of 8,0mm ID. **Code 1.0303.13**
For peristaltic tubes of 9,6mm ID. **Code 1.0303.14**
For peristaltic tubes of 12,7mm ID. **Code 1.0303.15**

### 8.10 Stainless steel tubes for dosing with backflow valve

For tubes of 3,2/4,8mm ID. St.st. tip 4mm bore, WT 1mm**. Code 1.0302.10**
For tubes of 4,8/6,4mm ID. St.st. tip 6mm bore, WT1mm**. Code 1.0302.11**
For tubes of 6,4/8mm ID. St.st. tip 8mm bore, WT 1mm**. Code 1.0302.12**
For tubes of 8/9,6mm ID. St.st. tip 10mm bore, WT 1mm**. Code 1.0302.13**

## 9- CHANGE OF TUBES

Each pump is supplied with a set of medical/food grade silicone peristaltic tubes according to FDA and USP standards, autoclavable at 120ºC, with peristaltic use range up to 80ºC and medium duration.

**The peristaltic quality of the tubes** or rubber consists of their ability to quickly recover their roundness once the rollers of the peristaltic head of the pump have compressed it to generate the circulation of liquids inside.

**In addition, it must offer a minimum mechanical quality** to overcome the wear caused by continuous compression of the rollers without losing its peristaltic capacity.

**The pumps use tubes** with a calibrated wall thickness of 1.6mm. More thickness will severely damage the motor shaft and less thickness will prevent peristaltic function and the pump will not pump any liquid.

**Thick liquids** are best pumped with large tube diameters at low rpm. In the case of external connections, it is better to use tubes with a larger diameter than the one used in the head. The difference in height between supply and discharge always influences the performance of the pump and notably in thick liquids.

**The pump feed and discharge tubes** can be of any wall thickness with an inside diameter as close as possible to that used in the head or larger, especially on the suction side.

**The set of external tubes or connections** must be as direct and straight as possible.

**There is a range of rubbers** that offer different chemical compatibilities with the products to be pumped.

**The pump calibration must** be updated every time the working conditions of the pump are altered, such as a change of tube, diameter or type of rubber, distances, new connections, etc.

**The standard endowment tubes** supplied with the pump are made of medical / food grade silicone according to FDA and USP standards, sterilizable by autoclave at 120ºC, with a peristaltic range of use up to 80ºC and medium duration.

Important: Head tubes should be lightly coated with silicone grease to extend life and ease starting at low rpm. Silicone grease, 50g. Code 8.0030.03

Press OF switch. Extract the tube according to the indications described in the “Description” section.
When the new tube is installed, it should be centered over the rollers to prevent the rotor from pinching it.

Be careful and avoid pinching your fingers. close head

During the first few minutes of operation, some tubes that have just been installed suffer an elongation that alters the distances between the tube and its fixings with the rollers. Readjust the tube in the head to prevent the rollers from unexpectedly tearing the tube.
Marking the tube with a marker makes it easier to detect a faulty fixing of the tube to its head that will cause the tube to break by the rollers.

Because the friction of the tubes with the rollers increases with the diameter of the tubes, the minimum adjustable speed increases the larger the tube.

It is advisable to use a speed slightly higher than the minimum adjustable speed observed, since the motor may stop at any moment and cause the regulation circuit to overheat, which could be damaged if it remains in this situation for a long time.

## 9.1 AVAILABLE TUBES

**PHARMA**

Autoclavable multiple times.
ETO and Gamma sterilizable.
Medical-food grade, class VI USP, 21CFR 177.2600 and FDA.
Not hemolytic.
Excellent resistance to chemicals.
ISO 10993. Low permeability and good resistance to abrasion.
Long duration.
Use temperature, -51ºC to 132ºC .
Beige.

**SILICONE**

Autoclavable.
The most versatile tube. Platinum Cure quality silicone.
Average duration.
Medical/Food Grade. Excellent biocompatibility.
Maximum temperature. 140ºC.
Translucent.

**TYGON A-60-G ®**

Autoclavable
Compatible with Ozone, UV light and disinfectants.
Great resistance to fatigue and abrasion.
Resistant to acids, alkalis, and alcohols.
Use temperature -59ºC to 135ºC.
Black colour.

**VITON ®**

Autoclavable
Suitable for acids and non- acetone solvents.
Maximum temperature 300ºC.
Black colour.

## 9.2 Codes for 1.6mm wall calibrated tube, 1 meter

| ▼Tube ID mm ► | 0.5 | 0.8 | 1.6 | 3.2 | 4.0 | 4.8 | 6.4 | 8.0 |
|---|---|---|---|---|---|---|---|---|
| **PHARMA** | - | 1.8801.08 | 1.8801.16 | 1.8801.32 | | 1.8801.48 | 1.8801.64 | 1.8801.82 |
| **SILICONE** | 1.8760.05 | 1.8760.08 | 1.8760.16 | 1.8760.32 | 1.8760.40 | 1.8760.48 | 1.8760.64 | 1.8760.80 |
| **TYGON A-60-G ®** | - | - | 1.8750.16 | 1.8750.32 | - | 1.8750.48 | 1.8750.64 | 1.8750.80 |
| **VITON ®** | | 1.8790.08 | 1.8790.16 | 1.8790.32 | | 1.8790.48 | 1.8790.64 | 1.8790.80 |

## 10- ORDERING INFORMATION

Peristaltic pump head 153V-3r. For 1.6mm wall tubes. Model D-25VT.
Code: 1.9745.00 and 1.9745.11

## 11- CHANGE FUSES

The fuse box is part of the power base located at the rear of the pump. See Figure.

main switch

Fuse box

power base

Pry with a screwdriver between the central part of the fuse holder box and the upper part of the power supply base to remove the fuse holder box.

The box remains attached without being fully extracted. There are two fuses.

Press the box in to restore its original position.

Remember to replace used fuses.

## 12- TROUBLESHOOTING

The following table of faults, their causes, and possible solutions, is not intended to cover all possibilities. However, inconveniences to the user can be avoided which have easily avoidable causes.

| PROBLEM | CAUSE | SOLUTION |
|---|---|---|
| It doesn't start and it doesn't pilot lights come on | Lack of food<br>Blown fuse<br>Unknown | Check cable and plugs<br>Change fuse<br>Request Technical Service |
| The head rotor does not turn, but the pilots shine | Broken tube that prevents it<br>Faulty engine<br>Faulty programming | Change tube<br>Request Technical Service<br>Check programming |
| The rotor turns, the tube is not broken, but it does not pump | Exhausted, worn tube<br>Insufficient tube wall<br>Empty feed tank<br>Tube Chemical Incompatibility | Change tube<br>Install suitable pipe<br>Charge the deposit!<br>Choose suitable tube |
| Flow below theoretical | High viscosity<br>Excessive pump circuit<br>Internal obstruction in the tube<br>Insufficient tube wall<br>High discharge back pressure<br>Tube Chemical Incompatibility | Use a larger tube Ø<br>Chort circuit<br>Clean<br>Install suitable tube<br>Lower back pressure<br>Choose suitable tube |
| The head tube moves | Small tube diameter<br>Faulty tube installation | Choosing a suitable tube<br>Check the fixings |

## 13- MAINTENANCE – SPARE PARTS

### 13.1 LUBRICATION

Before any examination or repair of the appliance, it is necessary to disconnect the mains plug.
Any initiative must be carried out by qualified personnel to avoid greater evils.

Entrust your device to a technical service authorized by *DINKO Instruments.*

The engine and its block do not require greasing, so they don't have maintenance.
The rotor bearings are self-lubricating, but it is advisable to lightly lubricate them with silicone grease ref. 8.0030.03 or similar from time to time next to the rollers or the head opening lever and its guides, especially if they have been washed.
See Figure

The head tube must be replaced periodically in a systematic way to avoid the inconvenience of its breaking during full operation of the pump.

### 13.2 TUBES

The head tube must be replaced periodically in a systematic way to avoid the inconvenience of its breaking during full operation of the pump.

### 13.3 WASHING

At the end of the use of the pump, it is advisable to purge the contents of the tubes to avoid possible solidifications that could obstruct their interior, especially in tubes with a small internal diameter, and preferably pump some inert and compatible liquid to complete the washing. Pay attention to avoid possible splashes

### 13.4 SPARE PARTS

Cyclic timer. **Code 1.0045.13**

Foot switch - pedal. **Code 1.9740.02**

Main control circuit. **Code 1.0060.06**

Pump head 153-3r. **Code 1.0078.43**

Power supply 100-24. **Code 1.8093.21**

24 DC motor, 500rpm, brushless. **Code 1.0077.37**

Control driver for 500rpm motor. **Code 1.0077.38**

24V DC motor, 330rpm. **Code 1.0080.01**

24V DC motor, 110rpm. **Code 1.0080.13**

## 14- WARRANTY

**DURATION:**

The guarantee is established for a period of 1 year from the date of commissioning of the device, provided that the warranty card is returned to us within 8 days of said commissioning. Without this condition the guarantee will not be valid.

**SCOPE OF WARRANTY:**

The guarantee is given against manufacturing and material defects for an average work week of 40 hours. The guarantee is reduced proportionally to the increase in working hours.

Repairs will be made in our factory. Otherwise, the guarantee will only include the replacement of the defective elements.

*DINKO* will not be responsible for the transport costs, nor will it assume responsibility for the consequences caused by the immobilization of the device.

The parts replaced free of charge remain our property, reserving the right to request their return, free of postage to our address.

Repairs or replacement of parts during the warranty period do not extend the initial warranty.

Our responsibility is limited to the attached guarantee and not to possible accidents to persons or other things. Any alteration of the device by the user voids the warranty.

## 15-EC DECLARATION OF CONFORMITY

**DINTER SA / *DINKO Instruments* c/ Encarnació, 123-125 / 08024 - Barcelona**

Declares that the items mentioned in the attached list, to which this declaration refers, comply with the essential safety requirements of the applicable European Directive:

- Low Voltage Directive D2006/95/CEE of December 12, 2006

- Essential requirements of Annex I of the Machinery Directive 2006/42/CEE of May 17, 2006

Electromagnetic Compatibility Directive
2004/108/ EEC of December 15, 2004

-Safety for electrical measurement, control and laboratory devices. requirements relating to the CEM. IN 61326

- Safety rules for electrical measurement, control and laboratory devices. Part I. General prescriptions EN 61010-1

However, the user must observe the assembly and connection instructions indicated in the technical catalogues.

| | | |
|---|---|---|
| Name | Joan A. Bravo | Josep X. Sensada |
| Position: | Technical Director | Quality Manager |
| Signature |  |  |

Model: Peristaltic Pumps D-25VT

***OTHER DINKO APPARATUS***

- Blenders-Homogenizers
- Colorimeters
- Conductivity Meters
- Dosing Pumps
- Extractor for meat analysis
- Heating Plates
- Infrared Stoves
- Kits for water analysis
- Magnetic Stirrers
- Metallic block heaters
- Microscopes
- Nephelometers
- Orbital Shakers
- Oximeters
- Peristaltic Pumps
- pH-meters
- Photometers
-Respirometers
- Rod Stirrers
- Rotary Stirrers
- Sand Baths
- Spectrophotometers
- Temperature Controllers
- Timers / *Timers*
-Trichinoscope - TriquiVisor
- Turbidity Meters
- Turn dishes
- Vacuum Pumps