

**VARIABLE FLOW PERISTALTIC PUMP WITH TIMER**

**Model D-25VT CF-4r**

**Codes 1.9737.40**



**INSTRUCTION MANUAL**

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Marked



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## 1- GENERAL INTRODUCTION

Peristaltic pumps pump all types of liquids without coming into contact with mechanical components, as is the case with other pumps. They are easy to operate and require minimal maintenance.

The pumped substance is propelled inside a flexible tube by the vacuum generated by a set of rotors that successively squeeze and release the tube's surface. The liquid flows directly from its container to another without any contamination, avoiding backflow when the pump is stopped, as the tube is compressed by the roller.

The corrosive nature of some 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 2 ml/minute to 1400 ml/minute.

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

2- PACKING LIST	Code	Quantity
D-25VT Pump	1.9737.40	1
Tube set*		1
Power cable		1
Pedal connector		1
Instruction Manual		1

\*Platinum Cure Silicone Peristaltic Tubing Set, Food/Clinical Grade. 1.6mm Wall Thickness

0.5 m Silicone inner Ø 1.6 mm. Code 1.8760.16, (1 m) and 2 stainless steel tube. Code 8.0056.06, (25 units)

0.5 m Silicone inner Ø 3.2 mm. Code 1.8760.32, (1 m) and 2 stainless steel tube. Code 8.0056.08, (25 units)

0.5 m Silicone inner Ø 4.8 mm. Code 1.8760.48, (1 m) and 2 stainless steel tube. Code 8.0056.10, (25 units)

0.5 m Silicone inner Ø 6.4 mm. Code 1.8760.64, (1 m) and 2 stainless steel tube. Code 8.0056.12, (25 units)

1 Pedal connector. Code 1.0005.37

## 3- RECEPTION

To ensure proper reception and use of the device, and user safety, we recommend reading this manual carefully before unpacking the device and subsequent use, especially the following points:

### 3.1- THE MANUAL

This manual must be kept at all times within reach of the user of the equipment.

### 3.2- UNPACKING

Carefully unpack the appliance, checking that the contents match the packing list.

Report any eventuality immediately.

### 3.3- EXPLOSIVE MIXTURES

Avoid using the appliance when there is a possibility of generating explosive and flammable gas mixtures.

The ATEX Directive is not contemplated.

### 3.4- RESPONSIBILITY

In accordance with European regulations 89/655/EEC, the lack of proper maintenance and the alteration or replacement of any component exempts the manufacturer from any liability for any damage that may occur.






### 3.5- REPAIRS

The devices to be sent to DINKO technical services *must* be **clean and disinfected**.

Otherwise, they will be rejected and returned with postage at the owner's expense.

### 3.6- SIGNS AND SYMBOLS

Always heed the hazard warning signs and symbols that appear in this manual or on labels attached to the pump body, such as those shown below.

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

## 4- DESCRIPTION

The D-25VT peristaltic pumps in this manual are provided with an easy-load CF-4r head that allows access to the tubing for removal when it needs to be replaced due to wear or for sterilization.

Simply pull up on the top of the head to load the tubes.

They accept various tube sizes which, combined with speed regulation, provide a wide variety of flows, as can be seen in the flow rate table.

With the FULL key, No.3 in the front panel description, the maximum engine speed is obtained, in loading and purging operations.

Keys 1 and 2 allow you to select the direction of rotation of the motor for flow reversal.

On the back there is the connection for the mains cable with integrated fuse holder, connection for pedal and input for pedal.

Consult the dosage table and install the appropriate tube.

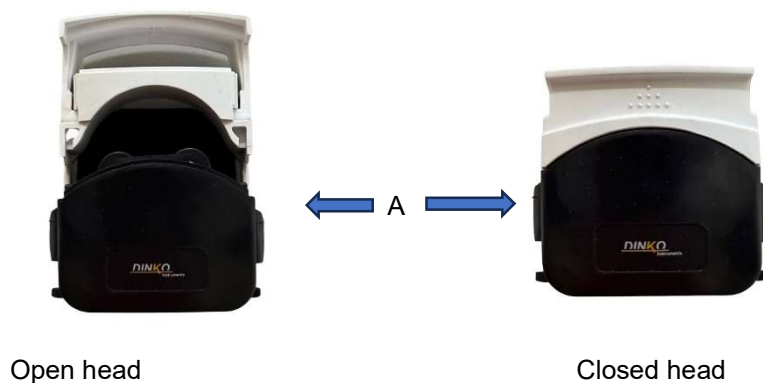
### 4.1 CF HEADS .

#### Head opening and adjustment.

For proper operation of the head and to prevent unnecessary noise, it is very important to properly adjust the two internal tube diameter settings on both sides of the head.

Next, we will detail how they have to be adjusted:

Here we show the front view of the head:

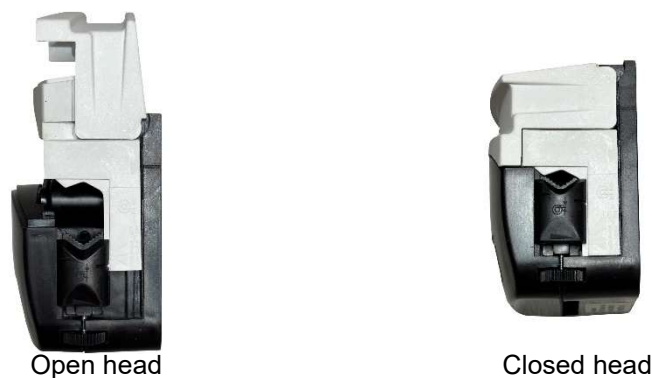


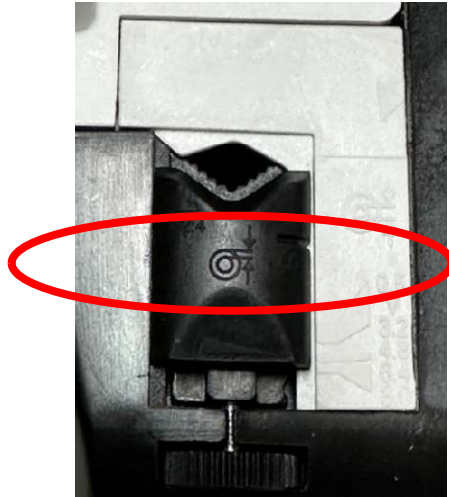
In the figure we have marked the adjustment wheels with the letter A.

Let's take an example for a tube with an internal diameter of 4.8 mm and a wall of 1.6 mm.

With the head closed, turn the wheel until the mark on the bottom of the moving part is at the height of the 4.8 mm mark, as shown in the following images:

Side view:



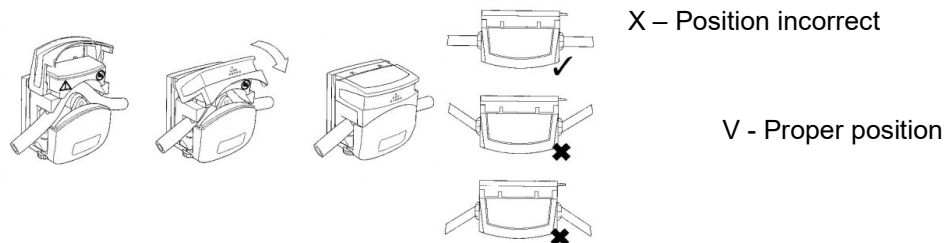


In red we can see the correct position of how the mark on the moving part should look with the head closed. Check, by applying a little pressure, that the moving part is in the lowest possible position.

This operation must be performed on both wheels, both on the right side and the left side.

Once checked, we can now place the tube inside the head.

#### Loading of pipes.



#### 4-2 FRONT PANEL

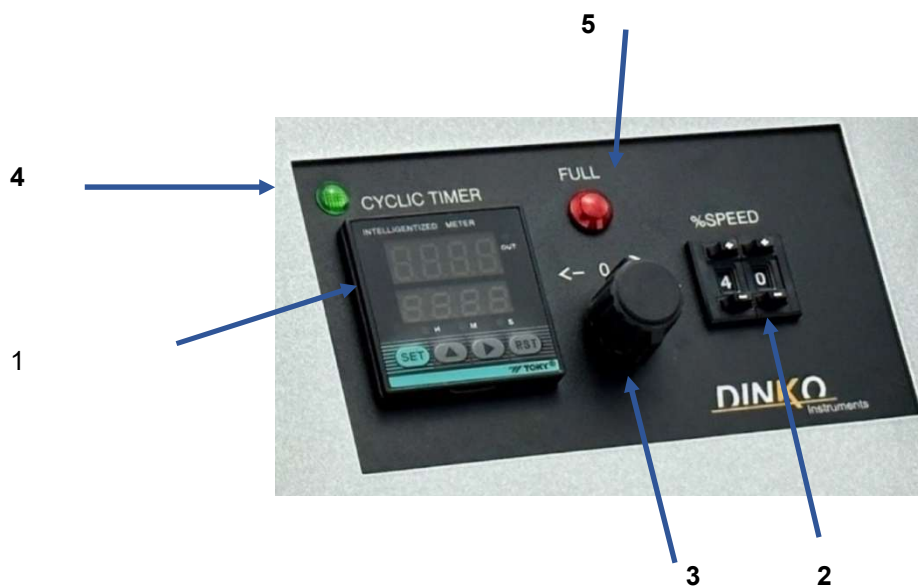


Figure a

- 1- Cyclic timer
- 2- Numerical speed control
- 3- Motor speed and stop selector
- 4- Pilot lamp
- 5- FULL maximum flow button

## 4-3 REAR PANEL

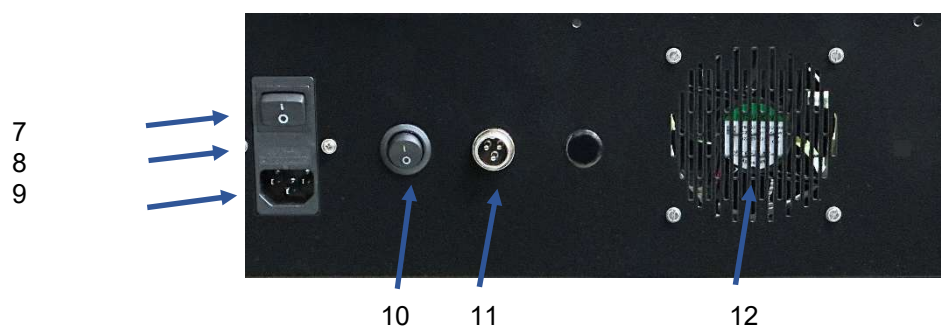


Figure b

- 7- Main ON/OFF switch
- 8- Fuse box
- 9- Take food
- 10- Timing mode selector
- 11- Voltage-free pedal input
- 12- Fan.

## 5-SPECIFICATIONS

### 5.1 DIMENSIONS

Pump: 270 x 260 x140. Weight 6 Kg  
 Operation: between 100 and 240V. 50/60 Hz. Amp. 0.5 /1

### 5.2 FLOW TABLE - Indicative regulation intervals for each tube - D25VT

Code ▼	rpm	Head	0.8	1.6	2.4	3.2	4.8	6.4	◀Tube Ø inside mm
No. ►			13#	14 #	19 #	16 #	25 #	17 #	Flow rate ◀ml/min
1.9737.40	350	CF-4r	2.0-20	9.0-90	15-150	30-300	60-650	100-1000	

The flow rates indicated are approximate and refer to liquids of similar density to water at normal temperature and without discharge back pressure.

Various factors can alter the expected flow rates, such as tolerances in the peristaltic tube sizes, the material of said tubes, the viscosity of the pumped liquids, and any alterations in the path from loading to discharge.

## 6- START-UP

### INITIAL CONSIDERATION:

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

**Tests must always be carried out to determine the volume delivered per unit of time.**

**To do this, you need to perform a series of dosages and check the dosed volume. If the dosed volume needs to be increased, the dosing time will need to be increased; if it needs to be decreased, it will need to be reduced.**

**Once we have determined this time, we can start working in the mode that best suits us.**

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

**6.2-** Set the engine rotation direction selector to the "0" position (Figure a (3)). Check the position of the **IO selector** (Figure b (10)).

Select the speed using the percentage numeric indicator buttons. With a 100% reproducibility, a speed range of 0 to 99% of the speed is available, maximum with an accuracy of 1% (Figure a (2)).

**6.3** Install the selected tube

During the first few minutes of operation, some newly installed pipes stretch, altering the distance between the pipe and its attachments to the rollers. Readjust the pipe in the head to prevent the rollers from unexpectedly tearing it.

Marking the tube with a marker makes it easier to detect a faulty tube attachment to its head, which will cause the tube to break due to the rollers.

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

### **Tube Installation sections and CHANGING TUBE**

**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 mains. (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 device is connected, the timer turns on and remains on standby. To start it, press the ▲ (6) key.



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

5 6 7 8




- 5- **SET** button
- 6- Increment button
- 7- Scroll button
- 8- **Reset** button

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

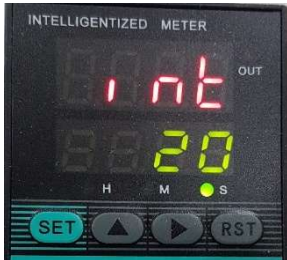




### 7.1 Menu Selection

Pressing **SET** for more than 3 seconds enters the Menu function. After selecting or modifying a parameter, press **SET** to move on to the next one. If you hold down SET for more than 10 seconds without touching anything, you'll return to the original screen.

#### Menu sequence – Factory programming

 <p>Press <b>SET</b></p>	<p><b>rAn1</b></p> <p>Select the units of <b>HM/S</b> time and time maximum for <b>t. Off</b> .</p>	<p>Pressing ▲ selects the decimals and whether they are <b>H/M/S</b> or <b>H/M</b> or <b>M/S</b></p> <p><b>H</b> from 99.99 to 9999</p> <p><b>M</b> from 99.99 to 9999</p> <p><b>S</b> from 99.99 to 9999</p> <p><b>H/M</b> 99.59</p> <p><b>M/S</b> 99.59</p>
 <p>Press <b>SET</b></p>	<p><b>rAn2</b></p> <p>Same for <b>t. on</b></p>	<p>Idem</p>
 <p>Press <b>SET</b></p>	<p><b>U-d</b></p> <p>Select the way to counting time</p>	<p>Pressing ▲ selects</p> <p>↕ <b>U</b>- Crescent mode</p> <p>↕ <b>d</b> – Decreasing mode</p>

## Menu sequence – Factory programming

 <p>Press <b>SET</b></p>	<p><b>int</b> Select time of answer.</p>	<p>Pressing ▲ selects</p> <p>1 mS</p> <p>↕</p> <p>20ms</p>
 <p>Press <b>SET</b></p>	<p><b>out</b></p> <p>Select the menu you want use Description of the different modes in the <b>Modes of use section</b></p>	<p>Pressing ▲ selects</p> <p>n (N Mode) → F (F Mode)</p> <p>↑      ↓</p> <p>C (C Mode) r R Mode</p>
 <p>Press <b>SET</b></p>	<p><b>stA</b></p> <p>Select the start-up: manual or automatic .</p>	<p>Pressing ▲ select</p> <p><b>YES</b> - (When the team must press ▲ to that the start is put into operation first time (manual))</p> <p>↕</p> <p><b>No</b>- When connected it puts into motion automatically .</p>
 <p>Press <b>SET</b></p>	<p><b>HoLd</b></p> <p>Select that if the cut is made current, when restarted, follow the menu where it was cut or started again.</p>	<p>Pressing ▲ selects</p> <p><b>Yes</b> – Continue</p> <p>↕</p> <p><b>no</b> - Start over</p>
 <p>Press <b>SET</b></p>	<p><b>LoCy</b></p> <p>Pressing ▲ selects ways to lock the menu</p>	<p>▶</p> <p><b>LO</b> - Nothing</p> <p>↓</p> <p><b>L-1</b> Lock Reset</p> <p>↓</p> <p><b>L - 2</b> Lock function time and menu</p> <p>↓</p> <p><b>L-3</b> - Block all</p>

## 7-2 Selection of running and stopping time.

The timer has 2 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 start.

**N, F** modes we can only program the **t.oFF**, whereas in **R mode**, we must configure the **t.oFF** and he **t.on**.

To enter the time selection menu, press ►. The first digit from the left will flash. ▲ will change the value. ► will move to the next position, continuing until all four digits are reached.

When all four digits have been selected, press **SET** to confirm the selection.

### Menu sequence

 <p>Press <b>SET</b></p>	<p><b>t.oFF</b></p> <p>Indicates that the contacts are closed and allow the equipment operation</p>	<p>Time parameters of 0.015 – 9999 H were selected in the <u><b>rAn1 function</b></u> of the menu.</p>
 <p>Press <b>SET</b></p>	<p><b>t.on</b></p> <p>Indicates that the contacts are open and do not allow the operation of the equipment. It is indicated by a red light. <b>R</b> and <b>C</b> menu only.</p>	<p>The time parameters of 0.01S – 9999H They were selected in the <u><b>rAn2 function</b></u> of the menu.</p>

### 7.3 Modes of use

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

In position **O** , when the timer is started (by pressing the **▲** key on the timer, it will start counting the programmed times), the head will run for the time programmed as **t.oFF** .

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

#### 7.3.a - Mode N

This working mode is used for:

- When you want to program a single dosage, the unit will run for the programmed time and then stop when the timer is activated.

Programming:

**Timing mode selector in position O (figure b (10)).**

**Engine rotation direction selector in position "0" (◀ or ▶) (figure a (3)).**

Turn the unit off and then on again. With the unit on, press **▲** and check the programmed **t.oFF time** ( lower green display ). If it needs to be changed, see 7-2 Selecting the operating and stopping time.

Position the rotation direction selector to the desired position so that the head rotates clockwise or counterclockwise.

To start the head, press the **RST key** , and if the pedal is 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 **t.oFF time has elapsed, we will see the same time** on both displays, red and green, it will stop counting and the head will stop.

To perform another dosage, press the **RST key**, or if the pedal is connected, press the pedal. If the pedal is connected, dosage can be started using either the RST key or the pedal.



← **RST key**

**It is the factory programming.**

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

Programming:

**Timing mode selector in position I (figure b (10)).**

**Engine rotation direction selector in position “0” (◀ or ▶) (figure a (3)).**

Turn the unit off and then on again. With the unit on, press ▲ and check the programmed delay time **t.oFF** (**lower green** display). If it needs to be changed, see 7-2 Selecting the operating and stopping time (page 10).

To start the equipment, press the **RST key**, and if the pedal is connected, press the pedal.

Position the rotation direction selector in the desired position so that the head rotates clockwise or counterclockwise 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 **t.oFF time has finished**, we will see the **same time** on both displays, red and green, it will stop counting and the head will start.

To perform another delayed dosage, press the **RST key**, or if the pedal is connected, press the pedal. If the pedal is connected, the cycle can be started using either the RST key or the pedal.



RST key

### 7.3.b - Mode F

Same as **Mode N**, but:

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

### 7.3.c- R Mode

Asymmetric cyclic mode, in which an operating time and a stopping time are programmed to be repeated indefinitely.

This working mode is used for:

- When we want to perform repetitive dosing of a specific volume, with a pause between each dosing to transfer the rubber to another container for another dosing. (Filling containers with the same volume)

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

In the timer programming we will select:

<b>oUt</b>	→	r (R Mode)
<b>Sta</b>	→	no
<b>Hold</b>	→	no

**Timing mode selector in position O (figure b (10)).**

**Engine rotation direction selector in position "0" (◀ or ▶) (figure a (3)).**

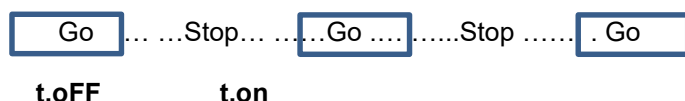
The first half will be a march and the second a stoppage.



**Timing mode selector in position I (figure b (10)).**

**Motor rotation direction selector in position "0" (◀ or ▶) (figure a (3)).**

The first half will be a stoppage and the second half will be a march.



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

When the pump is started, the cycle we have selected will begin.

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

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

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

- Pressing SET for more than 3 seconds enters the Menu function. After selecting or modifying a parameter, press SET to move on to the next one. If you hold down SET for more than 10 seconds without touching anything, you'll return to the original screen.
- In the timer menu, set the Sta section to YES. →
- Timing mode selector in position O (figure b (10)).
- Engine rotation direction selector in position "0" (◀ or ▶) (figure a (3)).
- Turn off the equipment and turn it on.
- Set the direction of rotation selector to 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 Scales for flow and dosage calibration

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

If the liquid to be pumped has a density of "1," there will be no difference between grams and millilitres. Otherwise, calculate the density by weighing a quantity of the liquid with a measuring cylinder, for example, 25 ml, and then tare it on the scale.

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

$$D = M / V.$$

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

8.9812.02

Reproducibility 0.1 g. Capacity 600 g. Code 8.9812.02

Reproducibility 0.01 g. Capacity 500 g. Code 1.9812.04



8.9812.02

### CHARACTERISTICS

- ◆ Single digital readout plate, with high visibility backlit LCD screen.
- ◆ Easy to use and highly robust with ABS housing and membrane keyboard airtight, moisture-proof.
  - ◆ Stainless steel plate, 157x128 mm (8.9812.02); Stainless steel plate 133x182 mm (Code 1.9812.04).
  - ◆ External self-calibration.
  - ◆ Units of measurement: grams, pounds, and ounces
- ◆ Continuous tare up to 600 g (Code 8.9812.02), 500 g (Code 1.9812.04)
- ◆ Power supply 230V 50/60Hz
- ◆ Non-slip rubber feet
- ◆ Working temperature: +5°C to +40°C. Maximum operating humidity: 80% RH



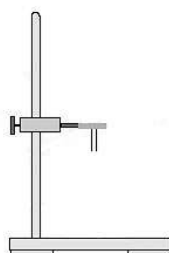
1.9812.04

### 8-2 Graduated cylinder, 25 ml. Code 1.9808.20

### 8-3 Silicone Grease, 50 g. Lubrication of peristaltic tubes. Code 8.0030.03

### 8.4 Foot support. Code 1.8003.08

Useful as a dosing tube/tip holder. Base: 150 x 70 cm. Pole, height 70 cm. Sliding dosing tip holder.



### CONNECTORS FOR PERISTALTIC TUBES



## 8.5 Straight connectors for splicing / equal ends, polypropylene



Straight connector for 1.6 mm inner diameter tubes. Code 1.0080.15  
Straight connector for 3.2 mm inner diameter tubes. Code 1.0080.18  
Straight connector for 4.8 mm inner diameter tubes. Code 1.0080.05  
Straight connector for 6.4/8 mm inner diameter tubes. Code 1.0080.14  
Straight connector for 9/12 mm inner diameter tubes. Code 1.0080.20

## 8.6: Y-shaped connectors, polypropylene



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

## 8.7 Stainless steel tube connectors - Splicing and dosing

### Straight splice 40mm length



Stainless steel tube for 0.5 and 0.8 mm Ø tubes, 25 units. Code 8.0056.14  
Stainless steel tube for 1.6mm Ø tubes, 25 units. Code 8.0056.06  
Stainless steel tube for 3.2mm Ø tubes, 25 units. Code 8.0056.08  
Stainless steel tube for 4.8mm Ø tubes, 25 units. Code 8.0056.10  
Stainless steel tube for 6.4mm Ø tubes, 25 units. Code 8.0056.12

### Dosage 130mm length with a bevel

Dosing tube for tubes 0.5 and 0.8 mm Ø, 10 units. Code 8.0056.15  
Dosing tube for 1.6mm Ø tubes, 10 units. Code 8.0056.07  
Dosing tube for 3.2mm Ø tubes, 10 units. Code 8.0056.09  
Dosing tube for 4.8mm Ø tubes, 10 units. Code 8.0056.11  
Dosing tube for 6.4mm Ø tubes, 10 units. Code 8.0056.13

### Length 38mm

Micro-tube 0.8mm outer diameter, 10 pcs. Code 1.0077.23  
Micro-tube 0.9mm outer diameter, 10 pcs. Code 1.0077.26

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

## 8.8: 304 stainless steel anti-floaters for suction pipes



For peristaltic tubes with 1.6 and 3.2mm inner diameter. Code 1.0303.10  
For peristaltic tubes with an inner diameter of 4.8mm. Code 1.0303.11  
For peristaltic tubes with an inner diameter of 6.4mm. Code 1.0303.12  
For peristaltic tubes with an inner diameter of 8.0mm. Code 1.0303.13  
For peristaltic tubes with an inner diameter of 9.6mm. Code 1.0303.14  
For peristaltic tubes with an inner diameter of 12.7mm. Code 1.0303.15

## 8.9: Stainless steel dosing tubes with non-return valve



For 3.2 and 4.8mm Ø tubes int . Stainless steel tip . 4mm external Ø wall 1mm. Code 1.0302.10  
For 4.8 and 6.4mm Ø tubes int . Stainless steel tip . 6mm external Ø wall 1mm. Code 1.0302.11  
For 6.4 and 8mm Ø tubes int . Stainless steel tip . 8mm external Ø wall 1mm. Code 1.0302.12  
For 8 and 9.6mm Ø tubes int . Stainless steel tip . 10mm external Ø wall 1mm. Code 1.0302.13

## 8.10: Peristaltic pump pulse damper - Code 1.0078.80

## 8.11: Adapter hose and connector for pulse dampener.



For 24# tube. Code 1.0078.81  
For 35# pipe. Code 1.0078.82  
For 36# pipe. Code 1.0078.83



## 9- CHANGING TUBE

Each pump is supplied with a set of medical/food grade silicone peristaltic tubing that meets FDA and USP standards, autoclavable at 120°C, with a peristaltic usage range of up to 80°C and medium life.

**The peristaltic quality of the tubes** or rubbers consists of their ability to quickly recover their roundness once the rollers of the peristaltic head of the pump have compressed them 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 pumpss use tubing** with a wall thickness calibrated to 1.6 mm. Greater thickness will severely damage the motor shaft, and lesser thickness will prevent peristaltic function, and the pump will not pump any liquid.

**Thick liquids** are best pumped with large pipe diameters at low speeds. For external connections, it's best to use pipes with a larger diameter than the one used in the pump head. The height difference between the inlet and outlet always influences pump performance, especially with thick liquids.

**pump feed and discharge pipes can have any wall thickness with an inside diameter as close as possible to that used in the header 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.

**Pump calibration must** be updated whenever the pump's operating conditions change, such as when changing pipe, diameter or rubber type, distances, new connections, etc.

**The standard tubing** supplied with the pump is made of medical/food grade silicone according to FDA and USP standards, autoclavable at 120°C, with a peristaltic range of use up to 80°C and medium duration.

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

Press the OF switch. Remove the tube as described in the "Description" section. When installing the new tube, it must be centered over the rollers to prevent the rotor from pinching it.

Be careful not to pinch your fingers. Close the head.

During the first few minutes of operation, some newly installed pipes elongate, which alters the distance between the pipe and its attachments to the rollers. Readjust the pipe in the head to prevent the rollers from unexpectedly tearing it.

Marking the tube with a marker makes it easier to detect a defective fixation of the tube to its head, which will cause the tube to break due to 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 damage it if it remains in this situation for a long time.

## 9.1 AVAILABLE TUBES

**PHARMA**

Autoclavable multiple times.  
 Sterilizable by ETO and Gamma.  
 Medical-food grade, class VI USP, 21CFR 177.2600 and FDA.  
 Non-hemolytic.  
 Excellent resistance to chemicals.  
 ISO 10993. Low permeability and good abrasion resistance.  
 Long duration.  
 Use temperature, -51°C to 132°C .  
 Beige color.

**SILICONE**

Autoclavable.  
 The most versatile tube. Platinum Cure quality silicone.  
 Average duration.  
 Medical/food grade. Excellent biocompatibility.  
 Maximum temperature: 140°C.  
 Translucent.

**TYGON A-60-G ®**

Autoclavable  
 Compatible with Ozone, UV light and disinfectants.  
 High resistance to fatigue and abrasion.  
 Resistant to acids, alkalis and alcohols.  
 Use temperature -59°C to 135°C.  
 Black color.

**VITON ®**

Autoclavable  
 Suitable for acids and non -acetone solvents.  
 Maximum temperature 300°C.  
 Black color.

## 9.2 1.6 mm wall thickness tubes, 1 meter calibrated tube codes

Ø Inside► Identifier►	0.5 mm	0.8 mm 13#	1.6 mm 14#	2.4 mm 19#	3.2 mm 16#	4.0 mm	4.8 mm 25#	6.4 mm 17#	8.0 mm 18 #
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	1.8760.24	1.8760.32	1.8760.40	1.8760.48	1.8760.64	1.8760.80
Tygon A60G ®	-	-	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 CF-4r. For 1.6 mm wall tubing. Model D-25VT.  
Code: 1.9737.40

## 11- CHANGING FUSES

The fuse box is part of the power supply base located on the rear of the pump. See figure.



Main switch

Fuse box

Power base

Pry the fuse box between the center of the fuse box and the top of the power supply base with a screwdriver to remove it.

The box remains in place without being completely removed. There are two fuses.

Press the box inwards to restore its original position.

Remember to replace any used fuses.

## 12- TROUBLESHOOTING

The following table of faults, their causes and possible solutions does not purport to cover all possibilities.

However, user inconveniences that actually have easily avoidable causes can be avoided.

PROBLEM	CAUSE	SOLUTION
It doesn't start and it doesn't the pilot lights are on	Lack of nutrition Blown fuse Unknown	Check cable and plugs Change fuse Request Technical Service
The head rotor does not rotate, but the pilots shine	Broken tube that prevents it Faulty engine Faulty programming	Change the tube Request Technical Service Review programming
The rotor is spinning, the tube is not broken, but it doesn't pump	Exhausted, worn out tube Insufficient tube wall Empty feed tank Chemical incompatibility of the tube	Change tube Install suitable pipe Load the tank Choosing the right tube
Flow rate below theoretical	High viscosity Over-pumping circuit Internal obstruction in the tube Insufficient tube wall High discharge back pressure Chemical incompatibility of the tube	Use a larger tube Ø Short circuit Clean Install suitable pipe Lower back pressure Choosing the right tube
The head tube moves	Small tube diameter Faulty tube installation	Choosing a suitable tube Check the fixings

## 13- MAINTENANCE – SPARE PARTS

### 13-1 LUBRICATED

Before any examination or repair of the appliance, it is necessary to disconnect the power supply. Every initiative must be carried out by qualified personnel to avoid major problems.

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



The engine and its block do not require lubrication so they do not 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, along with 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 and systematically to avoid the inconvenience of it breaking while the pump is in operation.

### 13-2 TUBES

The head tube must be replaced periodically and systematically to avoid the inconvenience of it breaking while the pump is in operation.

### 13-3 WASHING

After finishing using the pump, it is advisable to purge the contents of the tubes to avoid possible solidification that could clog their interior, especially in small-diameter tubes. Preferably, pump some inert, compatible liquid to complete the flush. Take care to avoid possible splashing.

### 13-4 SPARE PARTS

CF-4r main head. Code 1.0078.01

Main control circuit. Code 1.0060.06

Rotary switch. Code 1.0015.05

100-24V power supply. Code 1.8093.21

24V DC gearmotor, 350 rpm. Code 1.0080.01

Numerical potentiometer. Code 1.0062.01

Red push button. Code 1.0015.07

Cyclic timer. Code 1.0045.13

Fan. Code 1.0042.01

## **14- WARRANTY**

### **DURATION:**

The warranty is valid for a period of one year from the date the appliance is put into operation, provided the warranty card is returned to us within eight days of its commissioning. Without this condition, the warranty will not be valid.

### **SCOPE OF WARRANTY:**

The warranty covers manufacturing and material defects for an average work week of 40 hours. The warranty is reduced proportionally with increased work hours.

Repairs will be carried out at our factory. Otherwise, the warranty will only include the replacement of defective components.

*DINKO* will not be responsible for transportation costs or for any consequences resulting from the immobilization of the device.

Parts replaced free of charge remain our property, and we reserve the right to request their return, postage-free to our address.

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

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

## 15-DECLARATION OF CONFORMITY "CE"

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

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

- Low Voltage Directive D2014/35/EEC of 26 February 2014 and applicable since 2016 in accordance with the recommendations of the LVD Directive.
- Essential requirements of Annex I of the Machinery Directive 2006/42/EEC of 17 May 2006
- Electromagnetic Compatibility Directive 2014/30/EEC in accordance with EMC recommendations.
- Safety for electrical measuring, control and laboratory equipment. Requirements relating to EMC. EN 61326
- Safety rules for electrical measuring, control, and laboratory devices. Part I. General requirements EN 61010-1

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

Name

Joan A. Bravo

Josep X. Sensada

Post:

Technical Director

Responsible for Quality

Signature



Model: Peristaltic Pumps D-25VT.

## OTHER *DINKO* APPLIANCES

- Colorimeters
  - Conductimeters
  - Dosing Pumps
  - Extractor for meat analysis
  - Grinders-Homogenizers
    - Heating Plates
  - Kits for water analysis
    - Magnetic Stirrers
  - Metal block heaters
    - Microscopes
    - Nephelometers
    - Orbital Shakers
    - Oximeters
  - Peristaltic Pumps
    - pH meters
    - Photometers
    - Respirometers
    - Rod Stirrers
    - Rotary Stirrers
    - Sand Baths
  - Spectrophotometers
- Temperature Controllers
- Timers
- Trichinoscope TriquiVisor
  - Turbidimeters
  - Turndiscs

Vacuum Pumps



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