

**VARIABLE FLOW PERISTALTIC PUMPS WITH TIMER**

**Model D-25VT - MC**  
Codes 1.9745.08 and 1.9745.10



**MANUAL**

July 2023

Marked



**DINTER** sa

c/ Encarnació, 123 -125. Tel. +34 93 284 69 62. Fax +34 93 210 43 07

e-mail: [dinter@dinko.es](mailto:dinter@dinko.es) [www.dinko.es](http://www.dinko.es) 08024 - Barcelona

# INDEX

	Page
1- GENERAL INTRODUCTION .....	3
2- PACKING LIST .....	3
3- RECEPTION .....	3
4- DESCRIPTION .....	5
5- SPECIFICATIONS .....	9
6- START UP .....	9
7- DIGITAL TIMER .....	10
8- COMPLEMENTS .....	16
9- CHANGING THE TUBES .....	18
10- ORDERING INFORMATION .....	19
11- CHANGING THE FUSES .....	20
12- TROUBLESHOOTING .....	20
13- MAINTENANCE - SPARE PARTS .....	21
14- WARRANTY .....	22
15- EC DECLARATION .....	23
16- OTHER <i>DINKO</i> APPLIANCES .....	24

## 1- GENERAL INTRODUCTION

Peristaltic pumps pump all kinds of liquid substances without coming into contact with 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.

Many different size tubes or hoses made of materials resistant to various substances are available.

2- PACKING LIST	Code	Quantity
D-25VT pump with MC head	1.9745.08 or 1.9745.10	1
Silicone tube 3mm Ø, with 2 connectors, pack 10	1.8760.301	1
Power cord		1
Foot switch connector		1
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 appliance 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

Pay attention at all times 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
<p>Before opening <b>DISCONNECT</b> the main cable Before remove cover <b>PULL OUT plug</b></p> 	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
	<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 of electronic equipment.</p> <p>Contact your local office, the store where you purchased the equipment, or your household waste disposal service.</p> <p>Recycling helps conserve natural resources. Make sure it is recycled protecting human health and the environment.</p>

#### 4- DESCRIPTION

The D-25VT peristaltic pumps in this manual mount the 2 or 4-channel MC head that allows the tube holder cartridge to be easily removed for removal when it must be replaced due to breakage or wear.

Simply press the release lever to release the cartridge from the head.

Each cartridge constitutes 1 dosing channel.

When installing a cartridge, face the cartridge into position, push down, and depress the release lever to lock the cartridge.

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

2 or 4 channel Pumps can be expanded with 2 or 4 cartridge heads up to a maximum of 12 cartridges.

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

##### 4.1 MC HEAD:



4 Channel head MC

- 1 – Complementary head assembly screw holes.
- 2 – Peristaltic tubes.
- 3 – Tube holder cartridges.
- 4 – Tube tensioning levers.
- 5 – Cartridge release lever

The MC head supports another 2 or 4 channel head on its same axis of rotation. Face the complementary head with the axis and insert the two assembly screws in the holes 1.

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 increase the flow, 2 or more suction and discharge tubes can be installed directly in the feeding and receiving containers.

The option of using a Y connection to join the tubes of two channels will double the pumped flow.

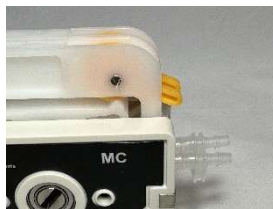
The tube tensioning levers (4) should be tightened just enough for the liquid to begin to flow. Excessive tension can drastically decrease the life of peristaltic tubing.

#### 4.1.1 How to place and remove the tubes from the head.

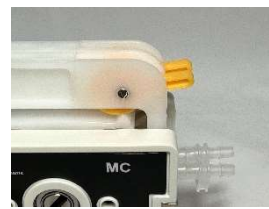
The head is delivered with the tubes in place and with the tensioner loosened.



The first thing to do is adjust the tensioner so that the fluid can flow and that it is not too tight to damage the tube. To do this, with the tensioner loosened, we run the pump, we raise the tensioner little by little until we see that the liquid begins to circulate.



Initial position.

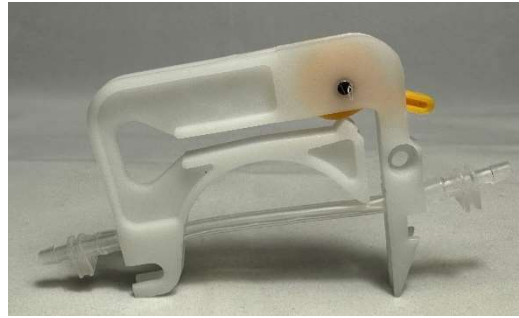


End position

To be able to extract the cartridge where the tube is located, the tensioner must be loosened, that is, in the lowest possible position. Once loosened, the release lever must be pressed, the cartridges will rise from the right side and will be free.



Now we can extract the cartridges and thus we can change the tube.



We will remove the tube through the open part of the cartridge.

Once outside we will put the new tube.



To replace the cartridges, we will insert them into the head, first placing the left part in the guide, when we have it in the guide, we will insert the right part until it is anchored, like this with all the cartridges.

Before starting work, redo the tensioner adjustment as described above.



Initial position.

Final position

Raise the tensioner only enough to allow the fluid to flow. Excessive tension will wear the tube excessively.

#### 4-2 FRONT PANEL 5



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

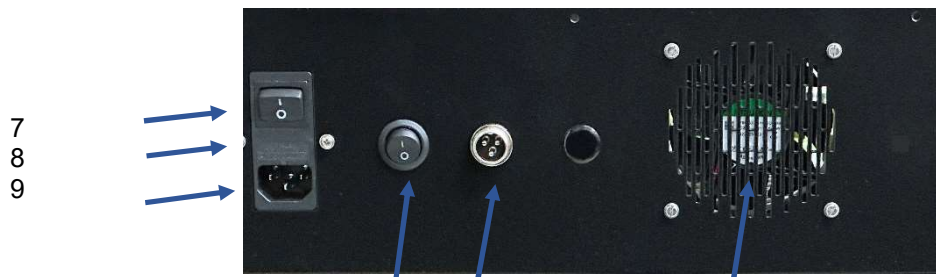


Figure b

10 11 12

- 7- ON/OFF main 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 - Orientative flows for each tube- D25VT

Tube inner diameter mm	1.0	2.0	3.0	4.0
Minimum flow: ml/min	0.8	2.5	4.0	5.0
Maximum continuous flow ml/min	8.0	25	40	50

Flows calculated with water under normal conditions without outlet back pressure.

Moving the tube clamp lever to its vertical position increases the pressure of the rollers on the tube, which will require two to three times more Torque and shorten the life of the tubes. Raise the lever only until the fluid starts to flow.

## 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 ascertained, 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 indications in the sections **Installation of tubes and CHANGE OF TUBES**

**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 network. (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.

<p>Pres <b>SET</b> ↓</p>	<p><b>rAn1</b></p> <p>Select the units of <b>HM/S</b> time and the Maximum time for <b>t.Off</b>.</p>	<p>By pressing ▲ select the decimals and if they are <b>M/M/S</b> or either <b>M/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>Idem 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 count the time</p>	<p>Pressing ▲ selects</p> <p>▲ <b>U</b> - Increasing mode</p> <p>↕</p> <p>▼ <b>d</b> - Decreasing mode</p>

**Menu sequence - Factory programming**

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



## 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

 <p>INTELLIGENTIZED METER OUT t.off 5.00 H M S SET ▲ ▶ RST</p> <p>Press SET ↓</p>	<p><b>t.off</b></p> <p>Indicates that the contacts are closed and allow the operation of the equipment.</p>	<p>The time parameters of 0.015 – 9999 H were selected in the function <b>rAn1</b> from the menu</p>
 <p>INTELLIGENTIZED METER OUT t.on 10.00 H M S SET ▲ ▶ RST</p> <p>Press SET ↓</p>	<p><b>t.on.</b></p> <p>Indicates that the contacts are open and don't allow the operation of the equipment. It is indicated by a red light. <b>R</b> and <b>C</b> menus only.</p>	<p>The time parameters of 0.01S – 9999 H were selected in the function <b>rAn2</b> from the menu.</p>

## 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 the **O position** , when the timer starts (by pressing the **▲** key of the timer, it will start counting the programmed times), the spindle will work 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 - Mode N

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 counterclockwise.

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

The spindle starts up for the time programmed as **t.OFF** .

In green we will see the time programmed 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 spindle 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.



**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 equipment 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 spindle will remain stopped for the time programmed as **t.oFF** .

In green we will see the time programmed 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 the two displays, red and green, it will stop counting and the spindle 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.



**7.3.b - Mode F**

Same as **N Mode**, but:

Once the **t.oFF time is over**, the green display will see **t.oFF** time and the red display will continue to count 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:

**oU**t r (R mode)   →  
**not** this           →  
**Hold** no           →

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

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

The first time will be running and the second stop

Start..... Stop..... Start ..... Stop..... Start .....

**t.oFF t.on**

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

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

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 the Sta YES section. →
- 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 millilitres. 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 millilitres 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:

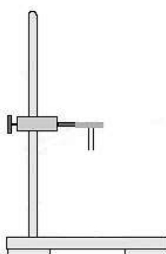
- ◆ Single digital reading platter, with highly visible backlit LCD screen.
- ◆ Simple use of great robustness with ABS casing and hermetic anti-humidity membrane keyboard
- ◆ Stainless steel pan, 157x128mm ◆ External self-calibration ◆ Units of measure: grams, pounds and ounces
- ◆ Continuous tare up to 600 g ◆ Power supply 230V 50/60Hz ◆ Non-slip rubber feet
- ◆ Working temperature: from +5°C to +40°C. 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 Connectors-Splice/Same Ends, Polypropylene



For 1.6/3.2 mm internal Ø tubes. Code 1.0080.15  
For 3.2/4.8 mm internal Ø tubes. Code 1.0080.18  
For 4.8/6.4 mm internal Ø tubes. Code 1.0080.05  
For 6.4/8 mm internal Ø tubes. Code 1.0080.14  
For 8/12.7mm internal Ø tubes. Code 1.0080.20

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



Straight connector / reducer Ø 4-5-8 to 7-10-12mm. Light 1.6/4.6mm. 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-316 stainless steel tube - Connection and dosage

#### Straight connection 40 mm length



Tube for peristaltic tubes 0.5 and 0.8 mm Ø, 25 Units Code 8.0056.14  
Tube for peristaltic tubes 1.6 mm Ø, 25 Units Code 8.0056.06  
Tube for peristaltic tubes 3.2 mm Ø, 25 Units Code 8.0056.08  
Tube for peristaltic tubes 4.8 mm Ø, 25 Units Code 8.0056.10  
Tube for peristaltic tubes 6.4 mm Ø, 25 Units Code 8.0056.12

#### Dosage 130 mm length with a bevel

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



#### Length 38mm

Micro-tube 0.8 mm external Ø, 10 Units. Code 1.0077.23  
Micro-tube 0.9 mm outer Ø, 10 Units. Code 1.0077.26



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

### 8.9 304 stainless steel anti-floaters for suction tubes



For peristaltic tubes with 1.6 and 3.2 mm ID. Code 1.0303.10  
For 4.8mm ID peristaltic tubing. Code 1.0303.11  
For 6.4mm ID peristaltic tubing. Code 1.0303.12  
For 8.0mm ID peristaltic tubing. Code 1.0303.13  
For 9.6mm ID peristaltic tubing. Code 1.0303.14  
For 12.7mm ID peristaltic tubing. Code 1.0303.15

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

For tubes of 3.2 and 4.8 mm of Ø int. stainless tip 4mm OD, wall 1mm. Code 1.0302.10  
For tubes of 4.8 and 6.4 mm of Ø int. stainless tip 6mm OD, wall 1mm. Code 1.0302.11  
For tubes of 6.4 and 8 mm of Ø int. stainless tip 8mm OD, wall 1mm. Code 1.0302.12  
For tubes of 8 and 9.6 mm of Ø int. stainless tip 10 mm OD, wall 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 120°C, with peristaltic use range up to 80°C 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 Bombs use tubes** with a calibrated wall thickness of 1mm. 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 120°C, with a peristaltic range of use up to 80°C 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 .**

Due to the fact that 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

### SILICONE

Autoclavable.  
The most versatile tube. Platinum Cure quality silicone.  
Average duration.  
Medical/Food Grade. Excellent biocompatibility.  
Maximum temperature. 120°C.  
Translucent.

### FARMED

Autoclavable.  
Long lasting, medical/food grade. Free of plasticizers. non-toxic or hemolytic.  
Suitable for high pressures. Compatible with chemicals, alcohols and solvents.  
Maximum temperature 135°C.  
Beige

## 10- ORDERING INFORMATION

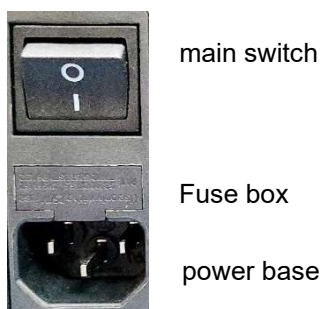
Peristaltic pump head MC-10r. For 1mm wall tubes. Model D-25VT.  
Codes: 1.9745.08 and 1.9745.10

Code ▼	Motor rpm	Pump Head	Article
1.9745.08	110	MC4	D25VT Complete 4 Channel Peristaltic Pump with 10 Rollers
1.9745.10	110	MC2	D25VT Complete 2 Channel Peristaltic Pump with 10 rollers
1.0078.41		MC2-10r	Complementary MC pump head 2 channels with 10 rollers*
1.0078.42		MC4-10r	Complementary MC pump head 4 channels with 10 rollers*
1.8901.00			Silicone tube 1.0mm internal Ø double position for MC, 6 units
1.8903.00			Silicone tube 3.0mm internal Ø double position for MC, 6 units
1.8760.101			Silicone tube 1.0mm internal Ø with 2 end connectors for MC, 10 units
1.8760.201			Silicone tube 2.0mm internal Ø with 2 end connectors for MC, 10 units
1.8760.301			Silicone tube 3.0mm internal Ø with 2 end connectors for MC, 10 units
1.8760.401			Silicone tube 4.0mm internal Ø with 2 end connectors for MC, 10 units
1.8760.100			Silicone tube 1.0mm internal Ø, external use MC, 1 meter
1.8760.200			Silicone tube 2.0mm internal Ø, external use MC, 1 meter
1.8760.300			Silicone tube 3.0mm internal Ø, external use MC, 1 meter
1.8760.400			Silicone tube 4.0mm internal Ø, external use MC, 1 meter
1.8710.101			Farmed tube 1.0mm internal Ø with 2 end connectors for MC, 10 units
1.8710.201			Farmed tube 2.0mm internal Ø with 2 end connectors for MC, 10 units
1.8710.301			Farmed tube 3.0mm internal Ø with 2 end connectors for MC, 10 units
1.8710.100			Farmed tube 1.0mm internal Ø, external use MC, 1 meter
1.8710.200			Farmed tube 2.0mm internal Ø, external use MC, 1 meter
1.8710.300			Farmed tube 3.0mm internal Ø, external use MC, 1 meter
1.9740.02			Foot switch (pedal).

\*Maximum number of channels, 12

## 11- CHANGE FUSES

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



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 actually have easily avoidable causes.

PROBLEM	CAUSE	SOLUTION
It doesn't start and it doesn't pilot lights come on.	Lack of food Blown fuse Unknown	Check cable and plugs Change fuse Request Technical Service
The spindle rotor does not turn, but the pilots shine.	Broken tube that prevents it faulty engine faulty programming	Change tube Request Technical Service Check programming
The rotor turns, the tube is not broken, but it does not pump	Exhausted, worn tube Insufficient tube wall Empty feed tank Tube Chemical Incompatibility	Change tube Install suitable tube Charge the deposit Choose suitable tube
Flow below theoretical.	High viscosity Excessive pump circuit Internal obstruction in the tube Insufficient tube wall High discharge back pressure Tube Chemical Incompatibility	Use a larger tube Ø Short circuit Clean Install suitable tube Lower back pressure Choose suitable 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 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 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 next to the rollers or the head opening lever and its guides, especially if they have been washed.

See Figure

### 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

24V DC geared motor, 110rpm. Code 1.0080.13

Black command. Code 1.0025.01

CM Cartridge Code 1.0078.58

Cyclic timer. Code 1.0045.13

Fan. Code 1.0042.01

Green pilot. Code 1.0020.13

Main control circuit. Code 1.0060.06

MC2-10r head. Code 1.0078.41

MC4-10r head. Code 1.0078.42

Numeric potentiometer. Code 1.0062.01

Power cord. Code 1.0001.02

Power supply 100-24. Code 1.8093.21

Red push button Code 1.0015.07

Rotary switch Code 1.0015.05

## **14- WARRANTY**

### **DURATION:**

The warranty 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 warranty 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 guarantee.

**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 Directive D2006/95/CEE of December 12, 2006

- Essential requirements of Annex I of the Directive for machinery 2006/42/CEE of 17 May 2006

Electromagnetic Compatibility Directive  
2004/108/CEE 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 instruction's catalogues.

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

Signature



Model: Peristaltic Pumps D-25VT- CM

## **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



DINTER, S.A c/ Encarnació, 123-125. Tel. +34 93 284 69 62. 08024-Barcelona

[dinter@dinko.es](mailto:dinter@dinko.es) [www.dinko.es](http://www.dinko.es)

---