

VARIABLE FLOW PERISTALTIC PUMPS WITH TIMER

Model D-25VT 153-3r

Codes 1.9745.00



INSTRUCTION MANUAL

April 2025

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 9 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	1.9745.00		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>Before opening DISCONNECT the network cable </p> <p>Before removing cover PULL-OUT plug</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 fitted with the 153-3r head which allows easy access to the tube for removal when it needs to be replaced.

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

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

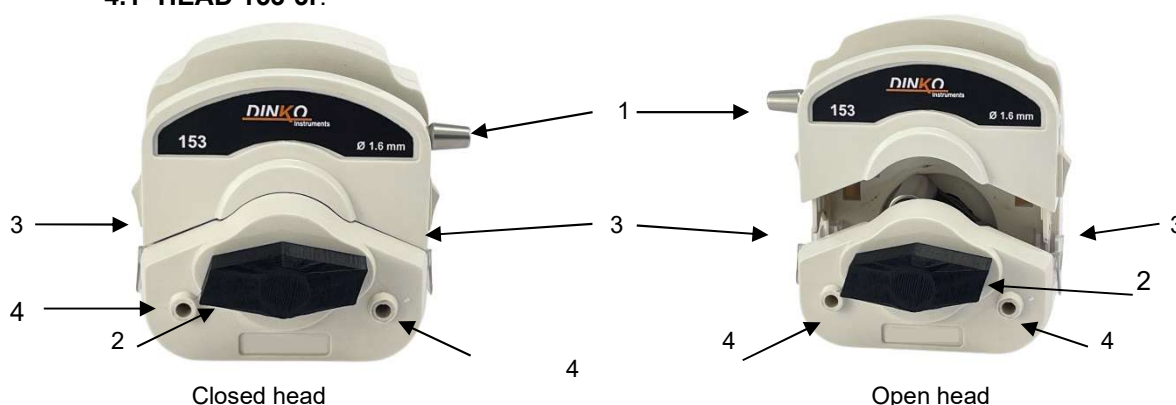
The head supports various tube sizes which, combined with speed regulation, gives a wide variety of flows, as can be seen in the flow rate guide table.

On the front panel, push button FULL (5) provides maximum motor speed for loading, purging, and cleaning operations, and control knob 2 selects the motor's direction of rotation for flow reversal and stop. Cyclic timer 1 has programming instructions in Section 7 of this manual, and speed regulator 3 provides flow control with 100% repeatability.

The description on the back shows the connection for the mains cable with integrated fuse holder, foot switch connection and the timer mode selector No. 12.

Consult the dosage guide table and install the appropriate tube.

4.1- HEAD 153-3r:



1 - Lever to open the head 2 - Protector for the output of the tractor shaft 3 - Sliding buttons for fixing the Peristaltic tube. 4 - Holes for fixing screws of the complementary head

Lever 1 opens the head, moving it to the left, allowing for easy installation of the peristaltic tube. Buttons 3 secure the tube. Moving the lever to the right closes the head.

Lightly coating the peristaltic tube with high-density silicone grease will help it last longer.

NEVER PERFORM THIS OPERATION WITH THE EQUIPMENT IN OPERATION.

The 153-3r head can be mounted on another identical head on the same axis of rotation. Remove guard 2 to align the complementary head with the axis and insert the two assembly screws into the holes 4.

With two heads, the typical peristaltic flow rate can be eliminated. To achieve this, when positioning the secondary head, the rotor rollers must be oriented opposite the rollers of the main head.

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

If the flow rate is to be doubled, the two suction and discharge pipes can be installed directly in the feed and receiving vessels.

Using a Y-connection to join the tubing of both heads will eliminate the peristaltic pulse. It's important to remember that the final discharge and, especially, suction tubing must be larger in diameter than the tubing of the heads. If this isn't possible, the total flow rate will be slightly lower than the theoretical expected flow rate.

4-2 FRONT PANEL

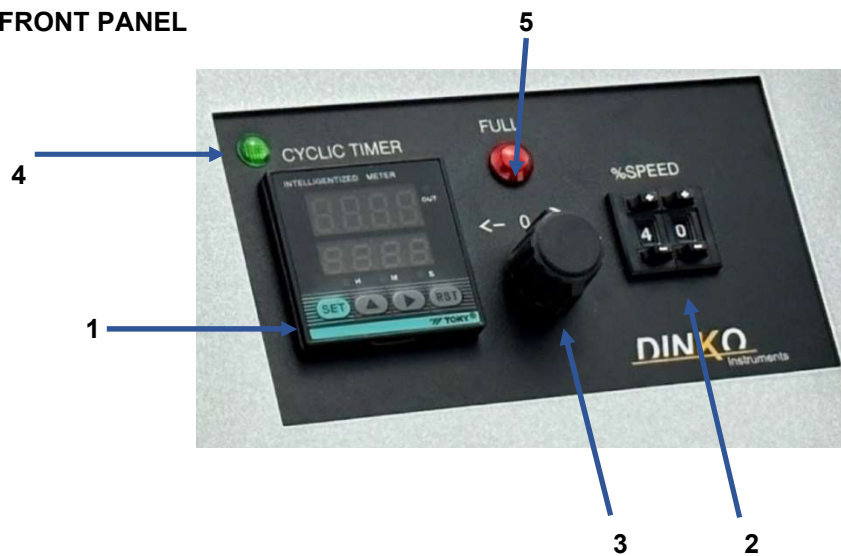


Figure a

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

4-3 REAR PANEL

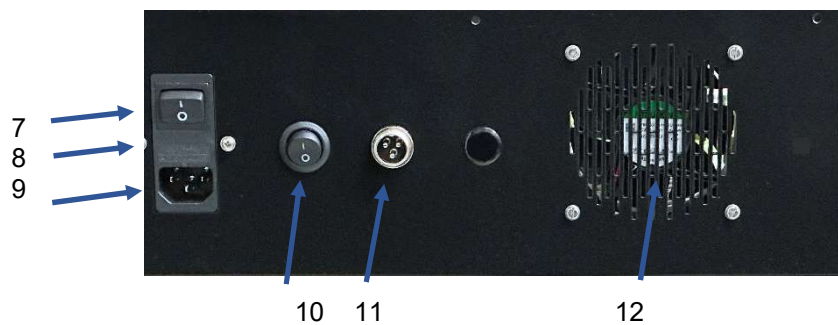


Figure b

- 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: 340x280x180. Weight 7Kg

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	8.0	◀ Tube Ø int. mm
No. ►			13#	14 #	19 #	16 #	25 #	17 #	18 #	Flow rate ◀ ml/min
1.9745.00	350	153-3r	2.0-20	9.0-90	15-150	30-300	60-650	100-1000	140-1400	

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

Menu sequence – Factory programming

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

7-2 Selection of running and stopping time.

The timer has 2 programming times **t.oFF** and **t.on** that indicate 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**, however in **R mode**, we must configure the **t.oFF** and the **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 SET</p>	<p>t.oFF</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 rAn1 function of the menu.</p>
 <p>Press SET</p>	<p>t.on.</p> <p>Indicates that the contacts are open and do not allow the operation of the equipment. It is indicated by a red light. R and C menu only.</p>	<p>The time parameters of 0.01S – 9999H They were selected in the rAn2 function 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 (pressing the ▲ key on the timer 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** (green lower display). If it needs to be changed, see 7-2 Selecting the operating and stopping time (page 10).

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**, both the red and green displays will show the same time, the counting will stop 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 back on. With the unit on, press ▲ and check the programmed delay time **t.oFF** (green lower display). **If it needs to be changed, see 7-2 Selecting the on and off 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 elapsed**, both the red and green displays will show the same time, the counting will stop 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.



7.3.b - Mode F

Same as **Mode N** , but:

Once the **t.oFF time has elapsed**, the green display will show **t.oFF time** 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:

out r (R-Mode)
Sta → no
Hold → 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.

March ... Stop March ... Stop March

t.oFF t.on

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

Engine 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.

..... Stop March Stop March

t.oFF t.on

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 millilitre's. 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 milliliters 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 cm (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



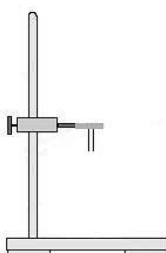
1.9812.04

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 1.6 mm Ø tubes, 25 units. Code 8.0056.06
Stainless steel tube for 3.2 mm 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 6.4 mm 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

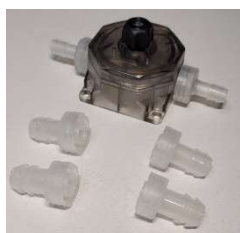
8.9: Stainless steel dosing tubes with non-return valve



For 3.2 and 4.8mm inner diameter tubes. Stainless steel tip, 4mm outer diameter, 1mm wall thickness. Code 1.0302.10
For 4.8 and 6.4mm inner diameter tubes. Stainless steel tip 6mm outer diameter, 1mm wall thickness. Code 1.0302.11
For 6.4 and 8mm inner diameter tubes. Stainless steel tip, 8mm outer diameter, 1mm wall thickness. Code 1.0302.12
For 8 and 9.6mm inner diameter tubes 10mm stainless steel tip, 1mm outer diameter wall. 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 Bombs 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, 1 meter calibrated tube codes

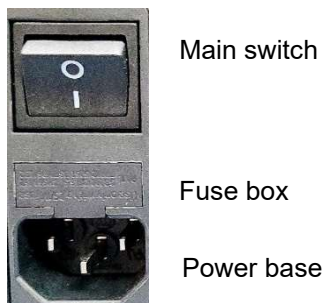
Ø Internal ► Identifier►	0.5 mm	0.8 mm 13#	1.6 mm 14#	2.4 mm 19#	3.2 mm 16#	4.0 mm	4.8 mm 25#	6.4 mm 17#	8.0 mm 18 #
Pharma	-	1.8801.08	1.8801.16		1.8801.32		1.8801.48	1.8801.64	1.8801.82
Silicone	1.8760.05	1.8760.08	1.8760.16		1.8760.32	1.8760.40	1.8760.48	1.8760.64	1.8760.80
Tygon A60G ®	-	-	1.8750.16		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 153V-3r. For 1.6 mm wall tubing. Model D-25VT.
Code: 1.9745.00

11- CHANGING FUSES

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



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

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

Complementary head. **Code 1.078.63** (maximum 1 per pump)

Main control circuit. **Code 1.0060.06**

100-24V power supply. **Code 1.8093.21**

24V DC gearmotor, 350 rpm. **Code 1.0080.01**

Cyclic timer. **Code 1.0045.13**

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 February 26, 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

Position:

Technical Director,

Quality Manager

Signature



Model: Peristaltic Pumps D-25VT.

OTHER *DINKO* APPLIANCES

- Magnetic Stirrers / *Magnetic Stirrers*.
- Orbital *Shakers*
- Rotary Stirrers / *Rotary Stirrers*
- Rod *Stirrers*
- Sand Baths / *Sand Baths*
- Dosing Pumps / *Proportioner Pumps*
- Vacuum Pumps
- Peristaltic *Pumps*
- Metallic Block *Heaters*
- Colorimeters
- Conductimeters / *Conductimeters*
- Temperature *Controllers*
- Extractor for mince *analysis*
- Infrared *Ovens*
- *Spectrophotometers*
- *Photometers*
- *Turntables*
- for water analysis
- *Microscopes*
- Nephelometers / *Nephelometers*
- Oximeters / *Oxygen Meters*
- pH *meters*
- Heater *Plates*
- *Respirometers*
- *Timers*
- Trichinoscopes / *Trichinoscopes*
- Grinders-Homogenizers / *Blenders-Homogenizers*
- Turbidimeters / *Turbidimeters*



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