VARIABLE FLOW PERISTALTIC PUMPS

Model D-25Vplus

Codes 1.9747.00, 1.9747.11 and 1.9747.50

MANUAL

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1- GENERAL INTRODUCTION

Peristaltic pumps pump all kinds of liquid substances without coming into contact with mechanical elements as in other pumps.

They are easy to use with minimal maintenance.

The pumped substance is impelled into an elastic tube by the vacuum generated by rotors that successively press and release the surface of the tube.

The liquid passes directly from its container to another without any contamination and without going back when the pump stops, since the tube remains pressed by the roller.

Some aggressive substances prevent the use of conventional pumps and make peristaltic pumps very useful for the transfer or dispensing of such substances.

Flow rates are obtained from 0,02ml/minute up to 6000ml/minute.

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

The following instructions are intended to ensure correct reception and use of the device, and the safety of the user.

To this end, we recommend reading this manual in detail before proceeding to unpack the device and subsequent use.

For proper conservation of the device, it is necessary to avoid its installation in areas with corrosive atmospheres or exposed to liquid splashes.

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

2- PACKING LIST

Description	Code	Quantity
Peristaltic Pump D-25Vplus	1. 9747.00, 1.9747.11 and 1.9747.50	1
Set of connections		1
Power cord		1
Instruction Manual		1
Warranty		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

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

3.3- EXPLOSIVE MIXTURES

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

3.4- RESPONSIBILITY

According to European regulation 89/655/CEE, the lack of adequate maintenance and the alteration of component, exempts the manufacturer from any responsibility for any damage 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.

SIGN/ SYMBOL	INTERPRETATION-MEANING
	Avoid finger contact with moving parts
	Danger-Risk-Caution
Before opening DISCONNECT the network cable Before remove cover PULL OUT plug 	Before accessing the interior of the Pump, disconnect the power cable from the network
	Possible overheating - Do not touch
110-230V AC 50/60Hz	AC power supply voltage
110V AC 60Hz	AC power supply voltage
12V DC or 24V DC	DC power supply voltage
	**Disposal of waste electrical and electronic equipment by users within the European Union.** It is not disposable as household waste. Deliver to the agency for recycling of electronic equipment. Contact your local office, the store where you purchased the equipment, or your household waste disposal service. Recycling helps conserve natural resources. Make sure it is recycled protecting human health and the environment.

4- DESCRIPTION

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

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

When removing the tube, slide the buttons (3) up to move the tube retainers.
Install the new tube ensuring that it is well centered and proceed to move the lever to the right.

Lightly smearing the peristaltic tube with high-density silicone grease improves it life.

NEVER CARRY OUT THIS OPERATION WITH THE EQUIPMENT RUNNING.

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

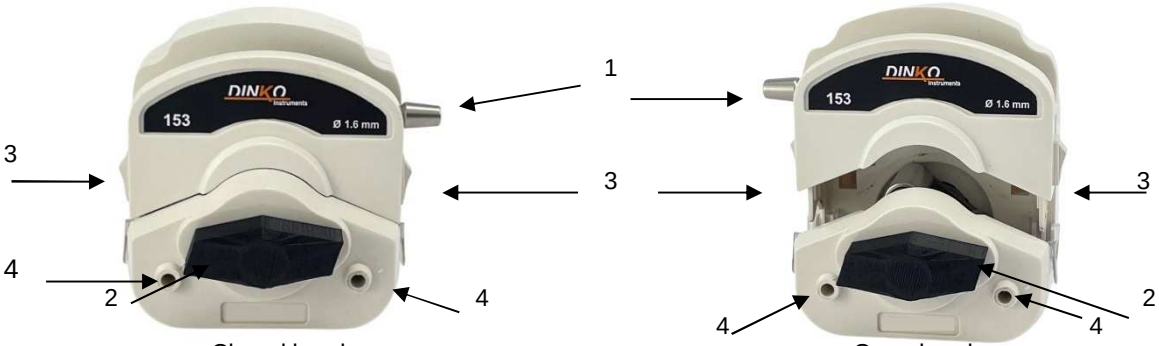
With the FULL key, no. 3 in the description on the front panel, the maximum speed of the motor is obtained, in the loading, purging and cleaning operations.

Keys 1 and 2 allow choosing the direction of rotation of the motor for flow inversion.

On the back is the connection for the network cable with integrated fuse holder, connection for pedal and input for analog signal 0-10 V and 4-20mA.

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

4.1- HEAD 153-3r:



Closed head Open head

1 - Lever to open the head
2 - Tractor axle output guard
3 - Sliding buttons for fixing the peristaltic tube
4 - Complementary head fixing screw holes

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

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

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

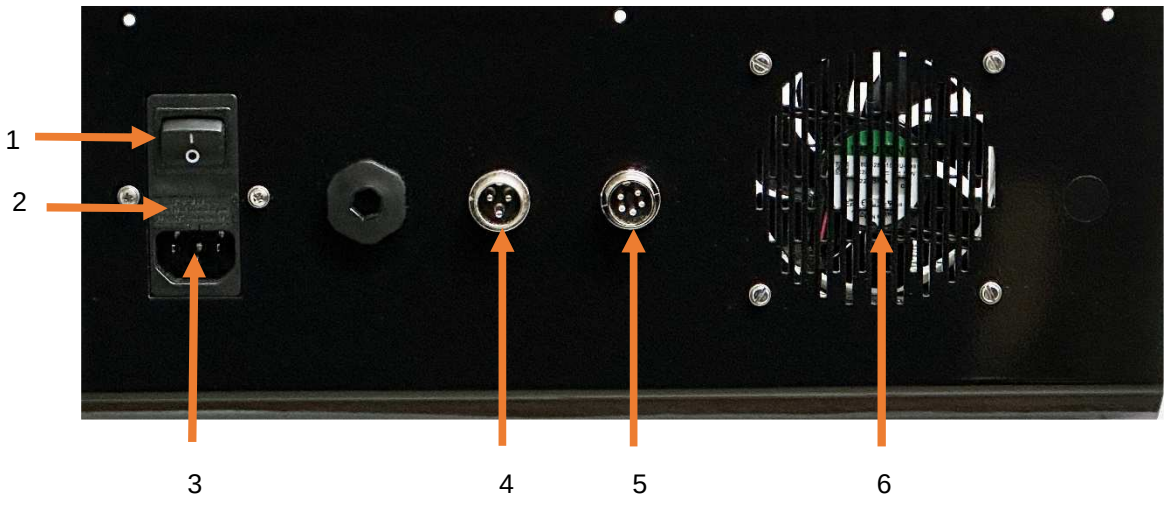
If it is intended to double the flow, the two suction and discharge tubes can be installed directly in the feeding and receiving containers.

The option of using a Y connection to join the tubes of both heads (1) will allow the cancellation of the peristaltic pulse. It must be remembered that the final discharge tubes and especially the suction ones must be of a larger diameter than the head tube. If this is not possible, the total flow will be somewhat less than the theoretical expected.

4.2- DESCRIPTION OF THE FRONT PANEL (photo a).

A- Digital reader
1- Counterclockwise rotation key
2- Clockwise direction key
3- Full key
4- Start /Stop key
5- Decrease key
6- Increase key
7- Switch for programming

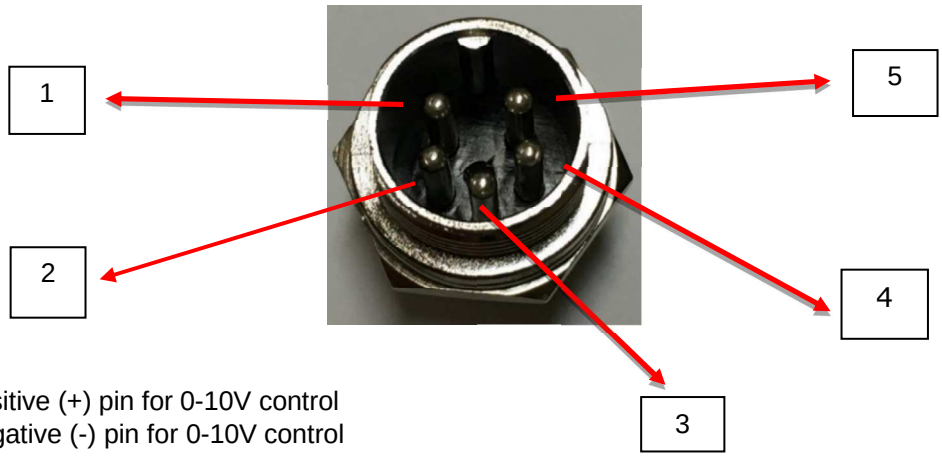
4.3- DESCRIPTION OF THE REAR PANEL (photo b).



1- Main ON/OFF switch
2- Fuse box
3- Take power
4- Voltage-free pedal input
5- 0-10V and 4-20 mA signal input
6- Fan

5 PIN CONNECTOR (0-10V / 4-20 mA).

0-10V and 4-20 mA CONNECTION

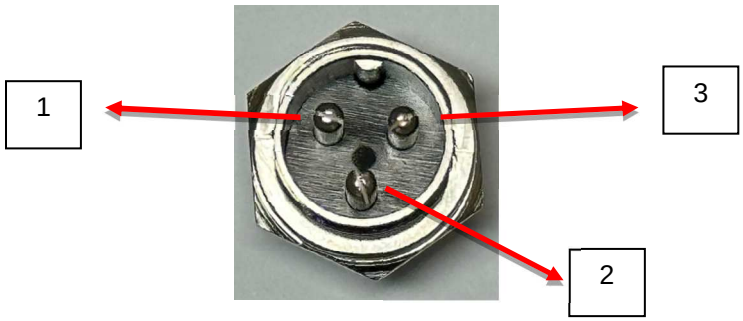


1- Positive (+) pin for 0-10V control
2- Negative (-) pin for 0-10V control
3- not connect
4- Positive (+) pin for 4-20 mA control
5- Negative (-) pin for 4-20 mA control

WARNING : Do not use simultaneously the two inputs (0-10 V and 4-20 mA). It may cause malfunction or breakdown .

3 PIN CONNECTOR (Voltage-free open contact).

ON/OFF CONNECTION



1- Pin for connection of voltage-free output (NO). Pump off.
2- Not connected, DO NOT USE.
3- Pin for connection of voltage-free output (NO). Pump off.
If we physically join pins 1 and 3, the pump will start working.

5- START UP

Make sure that the mains voltage is between 110 and 230 V.
Connect the power cable to the rear plug and to the main.
Consult the indicative flow table and install the appropriate tube.
See tips in the Tube Change and Head Description section.
Select the desired function.

OPERATING MODES.

Available modes:

A- Pumping mode.

B- Ramp mode.
Programming.
Access to the use of the Ramp.

C- Cyclic dosing mode.
Programming cycles
Access to the use of Cyclic Dosing

D- Pedal dosing mode.
Programming.
Access to the use of Dosage with pedal.

· Pumping mode.

This mode is used to work with the pump continuously, to transfer liquids.
If the pedal is connected, while it is pressed, the head will work, if it is released, the head will stop.

1- Activate rear switch nº1 (photo a) O/1.
2- Activate the front switch nº7 (photo a), it will light up in blue and the display will turn on .
3- Select the motor speed in % by pressing the decrease or increase keys nº5 or nº6(photo a).
4- If it is necessary to change the direction of rotation, press keys no. 1 or no. 2 (photo a).
5- Press the No. 4 (photo a) Start / Stop key to start pumping. To stop pumping, use the same key no. 4 (photo a).
If we have the pedal connected, we can start pumping by pressing key no. 4 (figure a) or by keeping the pedal pressed. Working with the pedal, the pump will stop when we stop pressing the pedal.
6- The equipment can be programmed so that if there is a power outage, when it is restored, it continues to work at the speed that has been programmed. To program this function and at the speed at which it should resume operation, press key no. 4 (photo a) for 5 seconds. Its pilot light will flash and with keys no. 5 or no. 6 (photo a) we will enter the speed at which we want it to work if there is a power cut and it is restored, it will be memorized by simply pressing key no. 4 (photo a) Start / Stop.

To make loading, purging or cleaning tasks easier, press key no. 3 (photo a) Full. The speed will progressively increase to the maximum and we will see how it increases on the display up to 99. Pressing the Full key again will recover the programmed speed, lowering the display to that speed.

· Ramp mode.

This working mode consists of achieving an increase or decrease in the speed of the spindle, from an initial value to a final value during a set time.
If the first value is less than the final value, there will be an increase; otherwise, if the programmed initial speed is greater than the final one, there will be a decrease.
The time that we can program for the ramp is from 1 minute to 99 minutes.

Programming:

1- Activate rear switch nº1 (photo a) O/1.
2- Keep keys nº2 and nº3 (photo a) pressed while operating the front switch nº7 (photo a). It will remain illuminated in blue and the yellow led of key no. 2 (photo a) will light intermittently. The displayed value indicates the programmed time for the ramp in minutes. Range: 1 to 99 minutes
3- If you want to change, press keys no. 5 or no. 6 (photo a) to set the new time.

4- Press key nº4 (photo a) Start / Stop to memorize the chosen value.
5- The initial speed of the ramp will then be displayed on the screen.
6- If you want to modify it, press keys no. 5 or no. 6 (photo a) to set the new value of the initial speed in %
7- Press key nº4 (photo a) to memorize the chosen value.
8- The final speed of the ramp will then be displayed on the screen.
9- If you want to modify, press the keys nº5 or nº6 (photo a) to set the new value of the final speed in %
10- Press key nº4 (photo a) to memorize the chosen value.
11- To save all the ramp parameters, press the front switch no. 7 (photo a), the blue light and the equipment display will turn off.

Access to use the Ramp:

From the previous position in which switch no. 7 (photo a) has the blue light off, to access ramp mode and be able to work with the programmed ramp, key no. 2 (photo a) must be held down while the front switch is actuated nº7(photo a). The blue light will turn on and the display will show us the initial speed of the ramp in % and the ramp will start. On the display we will see how the speed increases until reaching the programmed final speed in the time that we have programmed.
All keys will remain inactive during the process.
At the end of the ramp, the spindle will stop. If we want to make another ramp, press any key.
To exit the ramp function, activate the front switch nº7 (photo a). The blue light and the display will go off, and the pump will remain in standby waiting to work in the mode we choose.· **Cyclic dosing mode.**

This work mode is used to be able to work with the pump running for a running time and stopping for a stop time, thus cyclically until we stop the equipment.
Normally it is used for filling a fixed volume of several containers, having a stop time to be able to pass the end of the tube from one container to another.
The time that we can program, both on and off, is from 1 second to 99 seconds.
Before starting the programming, a series of tests must be carried out to verify what volume we want to dose, to know how long the pump must work and at what speed to achieve said volume.

Programming:

1- Activate rear switch nº1 (photo a) O/1.
2- Keep keys nº1 and nº3 (photo a) pressed while operating the front switch nº7 (photo a). It will remain illuminated in blue and the yellow led of key no. 1 (photo a) will light intermittently. The displayed value indicates the running time in seconds.
Range: 1 to 99 seconds
3- If you want to change, press keys no. 5 or no. 6 (photo a) to set the new running time in seconds.
4- Press key nº4 (photo a) Start / Stop to memorize the chosen value.
5- Then the stopping time will be displayed on the screen.
6- If you want to modify it, press keys no. 5 or no. 6 (photo a) to set the new stop time value in seconds.
7- Press key nº4 (photo a) to memorize the chosen value.
8- Then the motor speed in % will be displayed on the screen.
9- If you want to modify it, press keys no. 5 or no. 6 (photo a) to set the new speed value in %
10- Press key nº4 (photo a) to memorize the chosen value.
11- To store all the parameters of the cyclic dosage, press the front switch no. 7 (photo a), the blue light and the equipment display will turn off.

Access to the cyclic dosage:

From the previous position in which switch no. 7 (photo a) has the blue light off, to access the cyclic dosage mode and be able to work with the programmed cyclic dosage, key no. 1 (photo a) must be held down while it is activated the front switch nº7 (photo a). The blue light will turn on, the yellow led of key no. 2 (photo a) will light up and the display will show the programmed dosing time and the cycle will start. On the display we will see how the time decreases until it reaches zero, then the stop time will appear, and it will go down to zero, like this cyclically until we stop the equipment.
All keys will remain inactive during the process.
To exit the cyclic dosing function, activate the front switch no. 7 (photo a). The blue light and the display will go off, and the pump will remain in standby waiting to work in the mode we choose.

· Pedal dosing mode.

This work mode is used to be able to work with the pump running for a running time when we activate the pedal and stopping when the time reaches zero.
Normally it is used for filling a fixed volume of several containers, having control by means of the pedal of when the head starts up.
The time that we can program is from 1 second to 99 seconds.
Before starting the programming, a series of tests must be carried out to check what volume we want to dose, to know how long the pump must work and at what speed to achieve said volume.

Programming:

1- Activate rear switch nº1 (photo a) O/1.
2- Keep keys nº1 and nº3 (photo a) pressed while operating the front switch nº7 (photo a). It will remain illuminated in blue and the yellow led of key no. 1 (photo a) will light intermittently. The displayed value indicates the running time in seconds.
   Range: 1 to 99 seconds
3- If you want to change, press keys no. 5 or no. 6 (photo a) to set the new running time in seconds.
4- Press key nº4 (photo a) Start / Stop to memorize the chosen value.
5- Then the stopping time will be displayed on the screen.
6- If you want to work with the pedal, press keys no. 5 or no. 6 (photo a) to set the stopping time value to 0 seconds.
7- Press key nº4 (photo a) to memorize the chosen value.
8- Then the motor speed in % will be displayed on the screen.
9- If you want to modify it, press keys no. 5 or no. 6 (photo a) to set the new speed value in %
10- Press key nº4 (photo a) to memorize the chosen value.
11- To store all the parameters of the cyclic dosage, press the front switch no. 7 (photo a), the blue light and the equipment display will turn off.

Access to dosage with pedal.

Connect the pedal to the rear three-pin connector no. 4 (photo b).
From the previous position in which switch no. 7 (photo a) has the blue light off, to access the dosing mode with the pedal and to be able to work with the programmed dosage, key no. 1 (photo a) must be held down while it is activated the front switch nº7 (photo a). The blue light will turn on and the display will show the programmed dosing time.
When we press the pedal, the time will begin to decrease until it reaches zero and the programmed dosage will be carried out. When it reaches zero, the spindle will stop until we press the pedal again.

You must press the pedal, not hold it down.

All keys will remain inactive during the process.
To exit the dosing function with the pedal, activate the front switch no. 7 (photo a). The blue light and the display will go off, and the pump will remain in standby waiting to work in the mode we choose.

NOTE:

While using the rear 0-10V and 4-20mA analog input, the ramp and cyclic dosage modes are not accessible.

The footswitch connection is active during use of the footswitch pump and cycle function.

When using the 0-10V / 4-20mA adjustment, the adjustment keys 5 and 6 are inactive.

6- CHANGE OF TUBES

Press the OFF switch. Extract the tube according to the indications described in the “Description” and “Head” section.

When the new tube is installed, it should be centered over the rollers to prevent the rotor from pinching it.

Check that the pump is OFF.

On the sides of the head where the peristaltic tube enters and exits, a sliding button acts on the tube fixers. Slide the button to release or clamp the tube. When the button is released, it recovers the position by itself.

In general, new tubes can stretch during the first 30 minutes of operation. If this happens, they must be tightened again to avoid unexpected breakage. To detect the elongation of the tube to the head it is useful to conveniently mark the tube with a marker.

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 greater the diameter of the tube.

It is not advisable to use a lower speed, even if the motor starts, since at any moment it can stop and cause the regulation circuit to overheat, which could be damaged if it remains in this situation for a long time.
It is desirable to use a speed somewhat higher than the minimum observed speed.

When using two heads at the same time, it may be necessary to limit the diameter of the tubes to be used, especially with tubes of high hardness.

The pump supply and discharge tubes can have any wall thickness, but not the tube that is installed in the head, whose wall must be 1,6 mm.

The silicone tubes supplied with each pump are medical / food grade according to FDA and USP standards, autoclavable at 120º C, with a peristaltic range of use up to 80º C and medium duration.

Other materials available are:

The most mechanically resistant tubes are PHARMA, TYGON L ®, TYGON A-60-C ®, TYGON A-60-G ® and medium-duration SILICONE and VITON®

However, the durability also depends to a large extent on the chemical nature of the pumped liquid, the pressure, the existing temperature and naturally the engine revolutions.

Proper choice of tubing ID prevents higher RPM demand from the peristaltic pump motor with small diameter tubing and decreased tubing life.

AVAILABLE MATERIALS:

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

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

TYGON A-60-C ®
Autoclavable multiple times.
Food grade
Long duration.
Resistant to acids, alkalis, oxidizing agents.
Use temperature: -59ºC to 135ºC.
Beige.

TYGON A-60-G ®
Autoclavable
Compatible with Ozone, UV light and disinfectants.
Long duration
Great resistance to fatigue and abrasion.
Resistant to acids, alkalis, and alcohols.
Use temperature -59ºC to 135ºC.
Black color.

VITON ®
Autoclavable
Suitable for acids and non-acetone solvents.
Maximum temperature 300ºC.
Medium duration
Black color.

7- ORDERING INFORMATION

Code ▼	motor-rpm	Head	Article
1.9747.11	110	153-3r	Complete Peristaltic pump
1.9747.00	330	153-3r	Complete Peristaltic pump
1.9747.50●	500	153-3r	Complete Peristaltic pump
1.0078.43		153-3r	Complementary head
1.9740.01			Foot switch

● Motor brushless

8- MAINTENANCE-SPARE PARTS

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

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

code-	Description
1.0077.38	Control driver for 500 rpm motor
1.9740.01	Foot switch.
1.0063.30	Main control circuit.
1.0077.37	Motor for head 153-3r, 500 rpm
1.0080.01	Motor for head 153-3r, 330 rpm.
1.0080.13	Motor for head 153-3r, 110 rpm.
1.8093.21	Power supply 100-24

1.6mm wall calibrated tube codes, 1 meter

Tube/ID	0.5mm	0,8mm	1,6mm	3,2mm	4,0mm	4,8mm	6,4mm	8,0mm
Pharma		1.8801.08	1.8801.16	1.8801.32		1.8801.48	1.8801.64	1.8801.80
Tygon A60C®			1.8740.16	1.8740.32				
Tygon A60G®			1.8750.16			1.8750.48	1.8750.64	1.8750.80
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 L ®			1.8770.16	1.8770.32		1.8770.48	1.8770.64	1.8770.80
Viton®		1.8790.08	1.8790.16	1.8790.32		1.8790.48	1.8790.64	1.8790.80

Figure 2 shows the connectors used for the connections corresponding to tubes with an internal diameter of 0.5 and 0.8 mm in the head 153-3r.

Figure 2

Stainless steel capillary tube connector for 0.5mm tube. Code 1.0077.23*
Stainless steel capillary tube connector for 0.8mm tube. Code 1.0077.26*

*Bag of 10 units

Important:
Head tubes should be lightly coated with silicone grease to extend life and ease starting at low rpm.

Silicone grease, 50g for lubricating peristaltic tubes. Code 8.0030.03

9- ACCESSORIES

9.1 Balance for flow and dosage calibration.

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

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

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

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

D= M / V.

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

Characteristics:

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

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

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

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

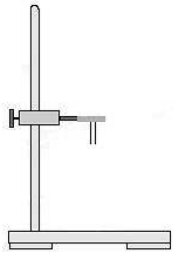
♦ Working temperature: from +5ºC to +40ºC. Maximum use humidity, 85% RH

9.2 Graduated cylinder, 25 ml. Code 1.9808.20

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

9.4 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

9.5 Reducing Splice Connectors / Same Ends, Polypropylene

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

9.6 Straight connector for fitting/reducer, polypropylene

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

9.7 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**

9.8 Connectors-stainless steel 316 tubes- Connection and dosage

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

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

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

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

9.9 Anti-floating sunk Head

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

9.10 Stainless steel tubes for dosing with backflow valve

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

10- CHANGE OF FUSES

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

main switch

Fuse box

power base

Pry with a screwdriver between the central part of the fuse holder box and the upper part of the power supply base to remove the fuse holder box. The box remains attached without being fully extracted. There are two fuses.
Press the box in to restore its original position.
Remember that you have already used the spare fuse.

11- FLOW TABLES

Indicative adjustment intervals for each tube diameter

Code ▼	rpm	0,5	0,8	1,6	3,2	4,8	6,4	8,0	◄Tube Ø mm
1.9747.50	500	0,7-12	2-29	12-120	29-470	80-1000	115-1500	250-2000	ml/min
1.9747.00	330	0,5-8,5	1,5-20	8-85	20-330	56-700	80-1050	175-1300	
1.9747.11	110	0,17-2,8	0,5-6,7	2,7-28	6,7-100	19-230	27-367	58-500	

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

12- WARRANTY

12.1 DURATION:

The guarantee is established for a period of 1 year from the date of commissioning of the device, provided that the guarantee card is returned to us within 8 days of said commissioning.

Without this condition the guarantee will not be valid.

12.2 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 transportation 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.

13- “CE” 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 Machinery Directive 2006/42/CEE of May 17 from 2006

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

- Safety for electrical measurement, control and laboratory devices. Requirements relating to the EMF. 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 instructions catalogues.

Name	Joan A. Bravo	Josep X. Sensada
Position:	Technical Director	Responsible for Quality
Signature		

Model: Peristaltic Pumps D-25Vplus. Codes 1. 9747.XX

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

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