

MANUAL DISPENSADORES DE BOTELLA DIGIPETTE ACCUDOSE
MANUAL BOTTLE DISPENSERS DIGIPETTE ACCUDOSE
MANUEL DISPENSATEUR DE BOUTEILLES DIGIPETTE ACCUDOSE

REF. - CODE - RÉF.

Digipette AccuDose **Basic** MDD068-MDD073

Digipette AccuDose **Prime** MDD074-MDD079

Digipette AccuDose **HF** MDD080-MDD084

DIGIPETTE



Digipette AccuDose **Basic**



Digipette AccuDose **Prime**



Digipette AccuDose **HF**

Este manual es parte inseparable del aparato por lo que debe estar disponible a todos los usuarios del equipo. Le recomendamos leer atentamente el presente manual y seguir rigurosamente los procedimientos de uso para obtener las máximas prestaciones y una mayor duración del mismo.

This manual should be available for all users of these equipments. To get the best results and a higher duration of this equipment it is advisable to read carefully this manual and follow the processes of use.

Ce manuel est une partie indissociable de l'appareil et doit être mis à la disposition de tous les utilisateurs de l'équipement. Nous vous recommandons de lire attentivement ce manuel et de suivre scrupuleusement les procédures d'utilisation afin d'obtenir des performances maximales et une plus longue durée de vie de l'appareil.

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1. INTRODUCTION

The Digipette AccuDose bottle dispenser range comprises a variety of models designed to meet different liquid dispensing needs. Models include:

- AccuDose Basic (MDD068-MDD073)
- AccuDose Prime (MDD074-MDD079)
- AccuDose HF (MDD080-MDD084)
- AccuDose Dual (MDD085-MDD089)

This manual focuses on the following models:

- AccuDose Basic (MDD068-MDD073)
- AccuDose Prime (MDD074-MDD079)
- AccuDose HF (MDD080-MDD084)

2. SAFETY INSTRUCTIONS

- Read and understand this operating manual completely before using the instrument. Follow the general and safety instructions to prevent hazards.
- Follow the specifications provided by the reagent manufacturers.
- When dispensing flammable liquids, avoid static charge build-up.
- Make sure not to dispense into plastic containers or wipe the instrument with a dry cloth.
- Use the instrument only for dispensing liquids, respecting the defined limitations of use and operating restrictions.
- Observe the operating exclusions. In case of doubt, contact the manufacturer or supplier.
- Always use the instrument in such a way that neither the user nor other persons are endangered. While dispensing, make sure that the discharge tube always points outwards, away from you or other persons. Dispense only into suitable containers and avoid splashing.
- Do not press the piston when the discharge tube lock is in place.
- Do not remove the discharge tube while the dispensing cylinder is filling. Reagents may accumulate on the discharge tube cap, so clean it regularly.
- Do not transport the instrument mounted by the cylinder sleeve or the valve block. Breakage or loosening of the cylinder may cause injury.
- Do not use the instrument with force. Use smooth and controlled movements when operating the piston. Use only original accessories and spare parts.
- Do not attempt to make technical alterations. Do not disassemble the instrument beyond what is indicated in this manual.
- Always visually check the instrument for damage before use.
- If you observe any signs of malfunction, stop the dispensing process immediately. Refer to the 'Troubleshooting' section of this manual and, if necessary, contact your supplier.

3. PHYSICAL LIMITS

- Ensure that the instrument and reagent temperature is between +15° C and +40° C (59° F to 104° F).
- Maintain the reagent vapour pressure up to a maximum of 600 mbar. Aspirate slowly above 300 mbar to avoid boiling of the liquid.
- Kinematic viscosity up to 500 mm²/s. (Dynamic viscosity [mPas] = kinematic viscosity [mm²/s] × density [g/cm³]).
- Use fluids with a density up to 2.2/cm³ (AccuDose Basic and AccuDose Prime) and up to 3.8 g/cm³ (AccuDose HF).

4. OPERATING EXCLUSIONS

AccuDose Basic and AccuDose Prime not for use with:

- Liquids that attack FEP, PFA and PTFE (e.g. dissolved sodium azide*).
- Liquids that attack borosilicate glass (e.g. hydrofluoric acid).
- Hydrochloric acid > 40% | Tetrahydrofurans | Trifluoroacetic acid.
- Explosive liquids (e.g. carbon disulphide) and uric acid
- Suspensions (e.g. carbon) as solid particles may clog or damage the instrument.
- Liquids that attack polypropylene (PP) (cap).

*The permitted concentration of dissolved sodium azide must not exceed 0.1%.

AccuDose HF do not use with:

- Liquids that attack FEP, PFA and PTFE (e.g. dissolved sodium azide*).
- Caustic potash, potassium solutions (cyanide, carbonate, hypochlorite) and tricresyl phosphate affecting ceramics.
- Zinc chloride and zinc sulphate
- Explosive liquids (e.g. carbon disulphide) and uric acid
- Suspensions (e.g. carbon), as solid particles can clog or damage the instrument
- Liquids attacking polypropylene (cap)

*The permitted concentration of dissolved sodium azide must not exceed 0.1%.

5. STORAGE CONDITIONS

Store the instrument and accessories in a clean, cool, dry place.
Storage temperature may vary from -20°C to +50°C (-4°F to 122°F).

6. TECHNICAL SPECIFICATIONS

The error limits (Accuracy and Coefficient of Variation) mentioned below are in accordance with the nominal capacity (or maximum volume) indicated on the instrument. These are obtained by using the instrument with distilled water at equilibrium, at an ambient temperature of 20 °C or 68°F, while operating the device in a smooth and steady manner.

The error limits are well below the limits stated in DIN EN ISO 8655-5.

AccuDose Basic

Code	Volume (ml)	Increments (mL)	Inaccuracy		Imprecision	
			± %	± µL	± %	± µL
MDD068	0.25-2.5	0.05	0.5	0.015	0.2	0.005
MDD069	0.5-5	0.1	0.5	0.030	0.2	0.010
MDD070	1-10	0.2	0.5	0.060	0.1	0.01
MDD071	2.5-30	0.5	0.5	0.180	0.1	0.03
MDD072	5-60	1.0	0.5	0.360	0.1	0.06
MDD073	10-100	2.0	0.5	0.600	0.1	0.1

AccuDose Prime

Code	Volume (ml)	Increments (mL)	Inaccuracy		Imprecision	
			± %	± µL	± %	± µL
MDD074	0.25-2.5	0.05	0.5	0.0125	0.2	0.005
MDD075	0.5-5	0.1	0.5	0.025	0.2	0.001
MDD076	1-10	0.2	0.5	0.05	0.1	0.001
MDD077	2.5-30	0.5	0.5	0.15	0.1	0.03
MDD078	5-60	1.0	0.5	0.3	0.1	0.06
MDD079	10-100	2.0	0.5	0.5	0.1	0.1

AccuDose HF

Code	Volume (ml)	Increments (mL)	Inaccuracy		Imprecision	
			± %	± µL	± %	± µL
MDD080	0.25-2.5	0.05	0.5	0.0125	0.2	0.005
MDD081	0.5-5	0.1	0.5	0.025	0.2	0.001
MDD082	1-10	0.2	0.5	0.05	0.1	0.001
MDD083	2.5-30	0.5	0.5	0.15	0.1	0.03
MDD084	5-60	1.0	0.5	0.3	0.1	0.06

7. CONFIGURATION

■ Wear protective clothing and protective equipment for eyes and hands. Follow all safety instructions and observe limitations of use and operating restrictions.

■ Telescopic tube adjustment

Adjust the length of the telescopic tube to suit your specific tank. If you need a longer tube, it is provided on request.

■ Attach the telescopic tube. The ends of the tube have different diameters. Select the correct side for your instrument.

■ Selecting the right adapter

The threaded base holder has a 30 mm thread. Five adapters are included to fit 28, 32, 38, 40, 45 mm and 30 mm threaded bottles.

■ Attach the adapter.

■ Mounting the instrument

Mount the instrument. Screw it to the flask by applying a gentle hand torque on the threaded base only. In case of disassembly, apply the same technique to the base, in the opposite direction.

■ The instrument is fully assembled and ready for use.

Do not operate the piston until the entire unit is completely and securely mounted on the reservoir bottle.

When mounted on a reagent bottle, transport the instrument carefully.

Do not press the piston when the cap is in place. Avoid splashing the reagent. Reagent may drip from the discharge tube and cap.

8. INITIAL PREPARATION

AccuDose Basic MDD068-73

Place a receiving vessel under the discharge tube



Remove the discharge tube cover



Purge the unit with a few gentle up and down movements, bringing the piston to its lowest stop position and then lifting it up



Repeat the process until a constant, bubble-free flow is observed in the cylinder

AccuDose Prime MDD074-79 AccuDose HF MDD080-84

Place a receiving vessel under the discharge tube



Remove the discharge tube cover
Adjust the recirculation valve



Purge the unit with a few gentle up and down movements, bringing the piston to its lowest stop position and then lifting it up



Repeat the process until a constant, bubble-free flow is observed in the cylinder

To avoid splashing during purging, hold the discharge tube against the inner wall of the appropriate receiving vessel.



Dispense liquid to flush the discharge tube until it is free of bubbles. Wipe any remaining drops from the discharge tube.

Before using the instrument for the first time, ensure that it has been thoroughly rinsed and discard the first samples dispensed. Avoid splashing.

9. VOLUME ADJUSTMENT

- Unlock the button by turning it anticlockwise.
- The slider will now be loose and can be moved up and down.
- Adjust the desired volume by aligning the pointer with the scale.
- To lock the volume setting, turn the knob clockwise.
- Please note that excessive turning of the knob may cause damage.

10. DISPENSING

AccuDose Basic MDD068-73	AccuDose Prime MDD074-79 AccuDose HF MDD080-84
<p>Remove the discharge tube cover.</p> 	<p>Remove the discharge tube cover.</p> 
<p>Hold the opening of the discharge tube against the inner wall of the appropriate receiving container.</p> 	<p>Before using the instrument, turn the valve to recirculate.</p> 
<p>Gently lift the piston up to the upper end. Push the piston down slowly and steadily with minimal force to the lower end.</p> 	<p>Hold the hole of the discharge tube against the inner wall of the appropriate receiving container.</p> <p>Gently lift the piston up to the upper end. Push the piston down slowly and steadily with minimal force to the lower end.</p> 
<p>Clean the discharge tube against the inner wall of the receiving vessel. Replace the cap on the discharge tube.</p> 	<p>Clean the discharge tube against the inner wall of the receiving vessel. Replace the cap on the discharge tube.</p> 

11. USER CALIBRATION PROCEDURE

These dispensers are laboratory calibrated to their nominal volume. However, due to changes in environmental conditions and the viscosity of the media/fluids being dispensed, we recommend gravimetric volume tests every 3-12 months.

The gravimetric volume tests, according to DIN EN ISO 8655-6, are performed as follows:

- Set the instrument to the nominal volume or any other volume that is most used by you. Follow the common standards for calibration used in statistical quality control (ISO 8655-5).
- Adjust the volume and dispense five full volumes of distilled water at 20°C on an electronic balance to establish the actual average volume of liquid dispensed.
- If the gravitational average result varies from the displayed volume, the instrument must be recalibrated.
- To recalibrate, pull the cover off to expose the calibration nut. Using the calibration tool, turn the calibration nut clockwise to decrease the volume and counterclockwise to increase the volume.
- Repeat this procedure until the desired volume is achieved on the electronic balance.

12. MAINTENANCE AND CLEANING

The appliance must be cleaned if:

- Immediately when the piston becomes difficult to move.
- Before changing the reagent.
- Before long-term storage.
- Before disassembling the instrument.
- Before autoclaving.
- Before changing the valve.
- Regularly when using deposit-forming liquids (e.g. liquids that crystallise).
- Regularly, when liquids accumulate in the lid.

Note: All maintenance/cleaning procedures must be carried out wearing appropriate eye protection and protective clothing. If in doubt, consult your safety officer.

- Make sure that the instrument is completely empty.
- Place the instrument in an empty sink together with its tank.
- Unscrew the base of the threaded platform from the reservoir and carefully lift the suction tube of the instrument out of the reservoir, tapping it gently against the opening of the reservoir to allow the droplets to fall out of the suction tube.
- Hold the dispensing nozzle over the tank opening and apply gentle piston movements to return the contents to the tank.
- Empty the instrument completely and rinse it thoroughly with distilled water.

13. DISASSEMBLY AND ASSEMBLY FOR CLEANING AND MAINTENANCE

DISASSEMBLY OF THE PISTON

- Pull the cover off to expose the calibration nut.
- Unscrew the calibration nut using the calibration tool to remove the piston and piston rod from the main body.
- Once unscrewed, remove the stem.

- Rinse the piston and rod with deionised water.
- Clean the cylinder with a bottle brush. If necessary, carefully remove deposits on the rim of the glass cylinder.
- Rinse all parts of the instrument with deionised water.
- Fully insert the piston into the cylinder and reassemble the instrument using the calibration tool, screwing the piston back in.
- Replace the snap-on cover to complete the assembly.

DISASSEMBLY OF THE DISCHARGE TUBE

- Straighten the dispensing nozzle.
- Unscrew the retaining nut.
- Remove the tubing from the instrument body so that the dispensing line is completely disassembled. Do not remove the dispensing tube from the dispensing tube cover.
- Clean the tube with deionised water.

14. AUTOCLAVE STERILISATION

Bottle dispensers are fully autoclavable at 121 °C (or 250) and 1 bar absolute (15 psi) with a holding time of at least 15 minutes.

NOTE: Only the plunger needs to be removed to autoclave the instrument. The plunger is also autoclavable.

DISASSEMBLY FOR AUTOCLAVE STERILISATION

Pull the cover off to expose the calibration nut.



Unscrew the calibration nut using the calibration tool to remove the piston and piston rod from the main body.



Once unscrewed, remove the stem.



Autoclave the two sub-assemblies at 121° C and 15 psi pressure for 10-15 minutes.



The volume adjustment knob must always be kept in the “unlocked” position during the autoclaving process.

Cooling: After autoclaving, allow the dispenser to cool at room temperature for at least 2 hours before use. Recalibration is necessary after autoclaving.

15. TROUBLESHOOTING

Problem	Possible cause	Solution
The plunger is difficult to move	Formation of crystals or deposit of dirt	Stop dispensing immediately. Loosen the plunger in a circular motion, but do not disassemble. Follow the cleaning instructions.
Air bubbles appear in the instrument	The reagent with high vapour pressure has been sucked in too fast.	Aspirate the reagent slowly.
	The instrument has not been primed.	Priming the instrument.
	The filler tube is loose or damaged.	If necessary, cut about 1 cm off the tube at the upper end and reconnect or replace it.
	Liquid tank is empty.	Refill the tank and prime the unit.
	The filling action is too fast.	Fill and dispense slowly.
	The plunger is leaking.	Clean the plunger. If the problem persists, replace it.
	Discharge valve is leaking.	Clean by rinsing thoroughly with distilled water.
It is not possible to dispense	The dispensing nozzle is blocked.	Remove the dispensing nozzle and rinse thoroughly with distilled water.
	The discharge valve is clogged.	Clean the unit by immersing the valve assembly in distilled water.
Incorrect dispensing volume	The instrument is not calibrated.	Follow user calibration steps
Cylinder does not fill with liquid	Inlet tube is not positioned correctly.	Correctly connect the inlet tube.
It is not possible to fill	Adjust the volume to the minimum setting.	Adjust to the required volume.