MANUAL
OPERATING AND MAINTENANCE

miXtron

PROPORTIONAL VOLUMETRIC DOSING PUMP

OPERATING AND MAINTENANCE MANUAL

MX.500 - MX.700 – MX.900

ENGLISH

Ref. : _____

Serial no. _____

Date of registration _____

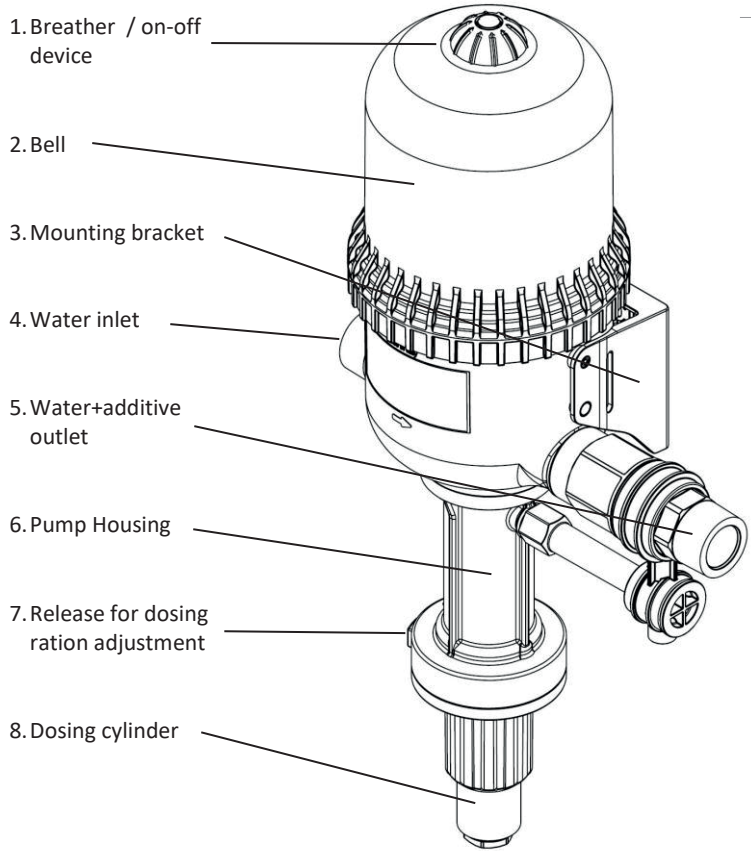
Date of purchase: _____

Specifications for each model

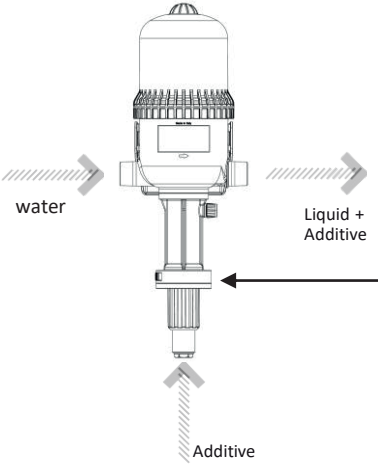
Model	Water flow range metric units	Additive flow range metric units	Water flow range U.S. units	Additive flow rate range U.S. units
MX.500	0.3 - 5 m^3/h	0.6 ℓ/h - 250 ℓ/h	1.32 - 22 GPM	20.3 oz/h – 1.1 GPM
MX.700	0.5 - 7 m^3/h	1 ℓ/h - 350 ℓ/h	2.2 – 30.8 GPM	34.8 oz/h – 1.54 GPM
MX.900	0.5 - 9 m^3/h	1 ℓ/h - 450 ℓ/h	2.2 – 39.6 GPM	34.8 oz/h – 1.98 GPM

- OPERATING PRESSURE: 0,3 - 8 bar [4.35 – 116 PSI]
- MAXIMUM STATIC PRESSURE: 10 bar [145 PSI]
- MAXIMUM TEMPERATURE: 40°C [104°F]
- MINIMUM TEMPERATURE: 5°C [41 °F]
- CONNECTIONS: 1 ½" BSPT
- DOSING RATIO: 0,2 - 2 % [1:500 - 1:50]
  DOSING RATIO: 1 - 5 % [1:100 - 1:20]

DOSING UNIT COMPONENTS



You are now the owner of a Mixtron Volumetric Dosing Pump.
Congratulations on your choice! This model is the outcome of our continuous technical-experimental research activities. Our engineers designed Mixtron dosing pumps to reflect the best technical developments in the field. Our dosing pumps are manufactured with materials painstakingly selected for resistance against most of the chemicals used in the fields of application of our products. Your Mixtron will become your most faithful ally.
It will run for years to come with very little, but regular, care.
Connected to a system or public water supply network, the dosing pump uses the pressure and flow of the water as its only power source. When properly installed, the dosing pump will draw the concentrate, meter it in the desired percentage and inject it into the main liquid in the mixing chamber, producing a uniform solution. The solution is then conveyed out of the dosing pump. The dose of additive is always proportional to the amount of main liquid flowing into the dosing pump, regardless of flow or pressure variations.



IMPORTANT The serial number of your Mixtron dosing pump is found onth e pump body. Please write it in the relevant space on the back cover of the manual, and make reference to it every time you contact your retailer for information or service.

PLEASE READ THIS MANUAL CAREFULLY BEFORE STARTING THE DEVICE

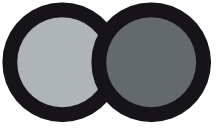
This document is not a contract and is provided for guidance only. Company Mixtron reserves the right to modify its products at any time.

SUMMARY

INSTALLATION

PRECAUTIONS

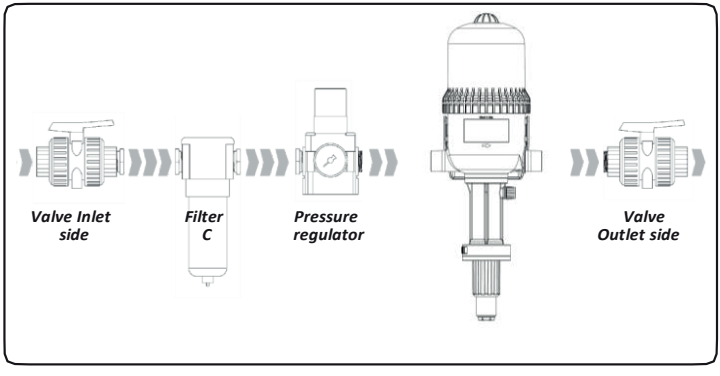
- When connecting any instrument to the water supply network or booster system, make sure you observe the protection and disconnect requirements set out in current safety regulations. (see page 11)
- When you connect the dosing pump to the water supply line, make sure the water flows into the dosing pump in the direction of the arrows marked on the motor.
- Never install the dosing pump on top of tanks containing acids or that can potentially release corrosive or aggressive gases; in any case, always protect it from any such emissions.
- Keep the dosing pump away from sources of direct heat. For increased protection, the Mixtron dosing pump, the only one on the market, is supplied standard with a thermometer that lets the operator know, through a simple visual check, whether the pump is operating under optimal conditions or adjustments are needed to avoid overheating. Indicator is reversible and changes colour from green to red when a temperature of 40° C (104° F) is reached.



- If you use your Mixtron unit with a supply pump, we recommend you do not connect it to the supply pump's suction line (to prevent siphoning).
- Setting up the dosage rate is the user's responsibility. The user is required to follow the recommendations of the chemical product's manufacturer. Mixtron accepts no liability for mistakes in the selection of the dosage rate.
- Make sure the system's water pressure and flow comply with the minimum and maximum specification requirements for proper operation of your Mixtron dosing pump. Mixtron accepts no liability if the dosing pump does not work due to non-observance of the minimum and maximum flow and pressure specifications. (see page 2)
- Adjust the dosage when the device is not under pressure. Check the product regularly to ensure the dosing pump is drawing the additive correctly.
- Change the dosing pump's suction tube as soon as it shows signs of wear or damage from contact with the additive or its exposure to the weather elements.
- Rinse the dosing pump every time the additive is changed and shut off the delivery line after the last use to avoid leaving the system pressurized.
- Assemble and tighten plumbing fittings by hand only, without the use of tools.

WATER HIGH IN PARTICLE CONTENT

To ensure the dosing pump's proper operation and maximum life where the water has a high particle load, **install the filter C with a micron rating of 60 µm or better** upstream of the dosing pump, sizing it based on the water conditions.



WATER HAMMER

- In order to protect the dosing pump from water hammers, the Mixtron conditions of warranty require an anti-water hammer device or, in other words, a device to control spikes in backpressure. In automated systems, the use of solenoid valves with slow opening and closing is recommended. If a single dosing pumpis serving several sites, the solenoid valves must not be actuated simultaneously during the closing stage.

LIMITING PRESSURE SPIKES

- Given its wide section, the dosing unit is exposed to significant stress from the pressure of the fluid. For this reason, circuit PRESSURE LIMITING DEVICES ARE REQUIRED whenever the operating conditions of the dosing unit can cause the pressure to exceed the operating limit of 8 bar and the static limit of 10 bar (for example: during transients). This dosing unit does not come with a pressure limiting device.

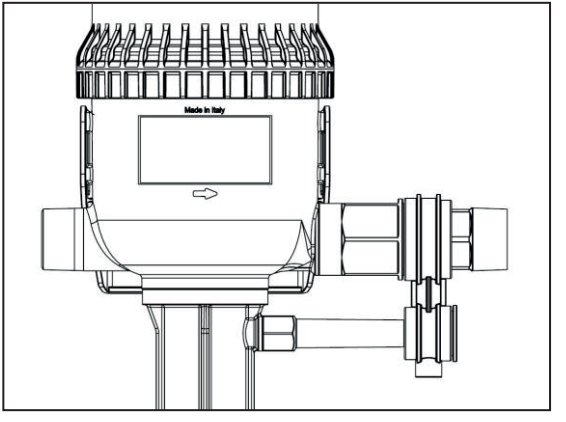
WHERE TO LOCATE THE DOSING PUMP

- Install the dosing pump and keep the additive in an easily accessible place. Make sure the chosen position presents no risk of contamination from external substances. All lines and tubes conveying the finished product (e.g. water+additive) should be labelled with the following: "CAUTION! Non-Potable Liquid".

BY-PASS MODEL

EXTERNAL INJECTION INSTALLATION

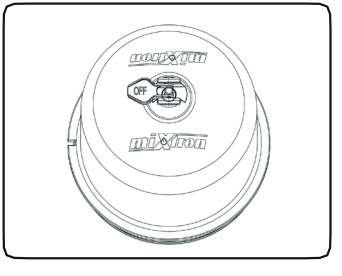
Mixtron dosing unit is also available with a built-in by-pass. This device makes it possible to work with aggressive liquids without causing damage to the plastic materials on the motor piston.

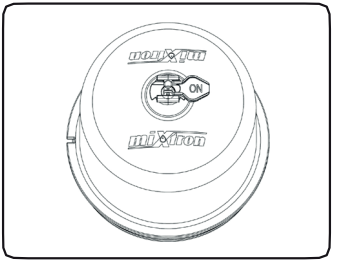


ON-OFF VALVE MODEL

The Mixtron dosing pump can be supplied with ON-OFF valve on the cover (ON- OFF system is an option supplied on request).

- ON-OFF valve in the ON position: the additive is drawn and mixed in the Mix- tron dosing pump.
- ON-OFF valve in the OFF position: the Mixtron dosing pump's motor piston is at rest; there is no drawing or mixing of the additive, only the main liquid flows in and out.





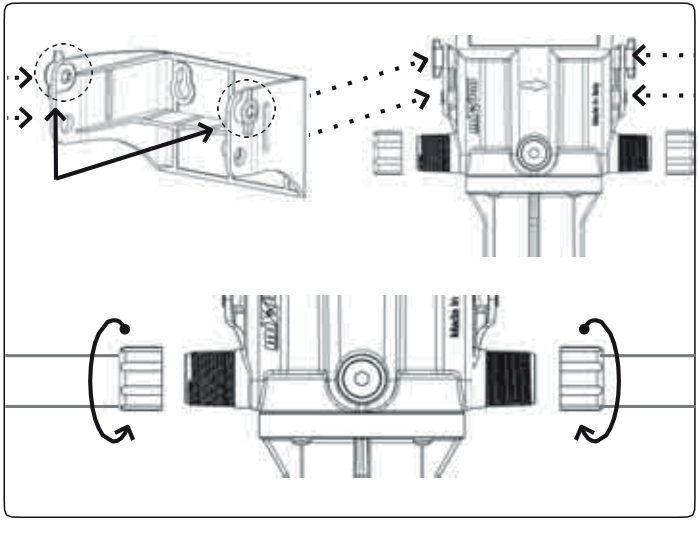
INSTALLING THE MIXTRON DOSING PUMP

NOTE: Plastic threaded ends shall be tightened to the counterparts, preferably by hand, to avoid that the use of hand tools may bring to over-tightening torque: this may result in srious damage to those parts of the dosing pump.

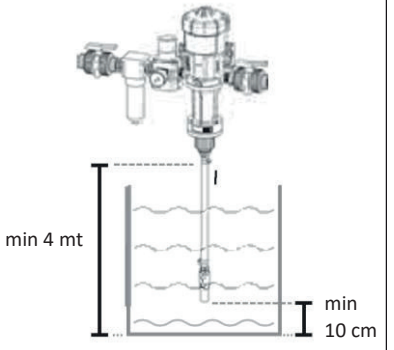
(Installation to be preferably done without use of hand tools)

- The mounting bracket is required to hang the dosing pump to the wall.
- To properly install the unit, insert the main housing within the assembly bracket tabs and apply a gentle pressure over them, to make the junction easier.
- After the unit has successfully jointed within the two wings of the mounting bracket, secure it by tightening the two wing nuts which are given as accessories.
- Proceed then with removing the protection plugs which are applied at both the inlet and outlet ports, as well as at the suction port (in the bottom of the unit)
- Now it is possible to connect the dosing pump to the water line. This can be preferably done by means of flexible tubes (solid tubes are also acceptable, once they accurately reach the dosing pump ports). Use 1 ½" BSPT connection fittings.
- Before the additive suction tube is connected to the pump (in the extreme bottom end of it), it is possible to add one or few layers of PTFE film to the connection threads of the tube: this will improve even further the suction capacity.

The dosing unit is now ready to be connected on the destination circuit.

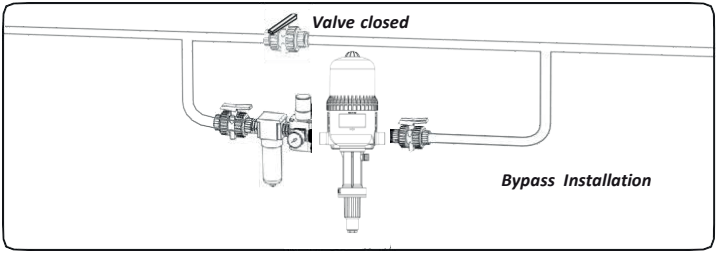


IMPORTANT • For proper operation, make sure thesuction filter has been positioned about 10 cm above thebottom of the additive tank; thiswill prevent suction of insolubleparticles, which could damage the dosing pump. • To avoidcontamination, do not place thesuction filter on the ground. The surface of the additive must be below the dosing pump's water inlet (to prevent siphoning). • The maximum suction height (vertical distance between dosing pump and additive tank) is 4 metres.



INSTALLATION TIPS

The dosing pump can be installed to the public water supply network or main water sup-ply line either directly or with a bypass line (recommended). Before use, make sure flow and pressure parameters do not exceed the operating capabilities of the dosing pump. If this is the case, to avoid damaging the unit, refer to the section "EXCESSIVE FLOW".



To ensure the dosing pump's proper operation and maximum life, it is advisable to install a filter (we recommend 60-130 microns) on the delivery line and upstream of the dosing pump. Observe the standards and regulations in force in your country when connecting to the public water supply network.

EXCESSIVE FLOW (computing):

if in 15 seconds the dosing unit clacks more than…
- 22 times → referred to the model MX.500
- 30 times → referred to the model MX.700
- 39 times → referred to the model MX.900

it means that it is working OVER THE FLOW CAPACITY.
If your required parameters cause excessive flow, you must select a dosing unit designed to support a higher flow capacity at the outlet line.

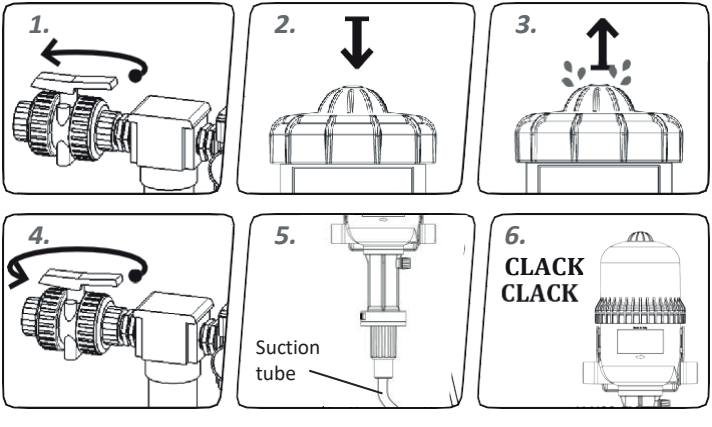
START-UP

FIRST START-UP

1. Slightly open the inlet valve (water, if this is the main liquid)
2. Push the bleed valve button on top of the motor cover; be sure to wear PPE (personal protective equipment) as required by local regulations (gloves UNI EN374/1/2/3, goggles).
3. When the bleed valve starts leaking and stops spitting air, release the button.
4. Open the inlet valve slowly, increasing the flow until the dosing pump starts "clacking".
5. Allow it to operate until the product to inject is drawn and has reached the dosing pump body. This is visible through the clear suction tube.
6. The dosing pump will start making a clicking noise, which is a sign that it isrunning at capacity.

To accelerate suction, set injection rate to the highest percentage. After this initial suction phase, bring back the dosage percentage to the desired value.

IMPORTANT To ensure an optimum injection rate, we recommend youperform a product calibration test using a refractometer.

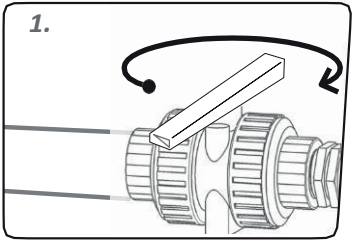


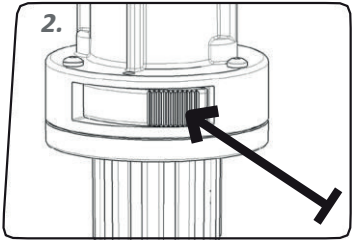
IMPORTANT Do not go beyond minimum and maximum dosage values. Strictly follow the graduated scale. This operation may, in fact, impair proper operation of the dosing pump.

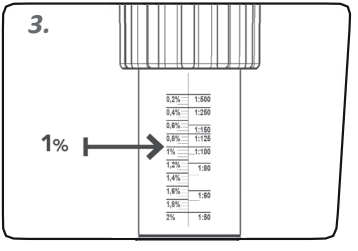
ADJUSTING THE DOSAGE RATE

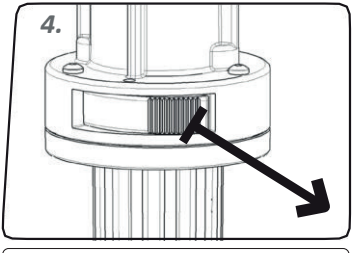
IMPORTANT Do not use tools to adjust the dosing ratio. The dosing ratio must be adjusted with the dosing unit off duty, UNPRESSURISED.

1. Close the inlet valve completely.
2. Keep the release button pressed down before making the adjustment.
3. Align the lower edge of the adjustment sleeve to the desired percentage on the graduated scale.
4. Release the release button to lock the injection rate adjustment sleeve into place.









IMPORTANT Do not go beyond minimum and maximum dosage values. Strictly follow the graduated scale. This operation may, in fact, impair proper operation of the dosing pump.

MAINTENANCE

- To maintain the dosing pump in top condition, it is advisable to run a cleaning cycle with clean water after each use. (See figure below)
- Regular yearly maintenance will help extend the lifespan of your Mixtron dosing pump. In addition, all seals need to be replaced every year.
- This dosing pump was tested before packaging. Do not hesitate to call your authorized Mixtron dealer to request service or after-sales assistance.

ACTION	FREQUENCY/PERIODICITY
Cleaning cycle	After each use
General check	Yearly
Replace seals	Yearly
Replace other components	As needed

RECOMMENDATIONS

- It is advisable to carry out the maintenance of the pump body whenever soluble products are used. To carry out the maintenance, remove the pump body and wash it thoroughly with plenty of clean water. When finished and before reassembly onto the motor body, lubricate the seal with silicone.
- After a long period of inactivity, remove the motor piston (see REPLACING THE MOTOR PISTON on page 14-15) and allow it to soak in tepid water (< 40°C) for afew hours prior to starting the dosing pump (e.g. at the start of the season). This operation will remove dry deposits on the motor piston and make the start-up easier and more fluid, preventing damage.

PRECAUTIONS AGAINST FROST

1. Close the supply and discharge lines (e.g. water, in the case of a water supply network). Unscrew the inlet and outlet fittings that connect the dosing unit to the network until you completely release the dosing unit
2. Disconnect the suction tube from the bottom of the pump and allow the liquid to flow out. Wash the inside of the tube with water.
3. Tier the pump housing apart from the motor housing, by removing the four connection Screws; then remove all fluids from the pump housing and wash the internal surfaces.
4. Remove the “bell” at the top of the unit.
5. Remove the motor piston from the motor housing and wash gently, but carefully the piston itself, as well as the steel rod attached to it, and the bushing and small suction piston which are attached underneath.
6. Wash the internal surfaces of the motor housing (those surfaces which are guiding the motor piston along its movement up/down.

REPLACING THE MOTOR PISTON

Disassembly procedure:

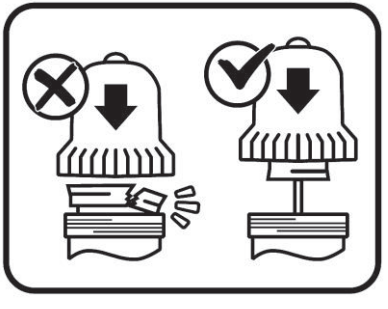
1. Make sure you will operate with a NON pressurised device: to have this granted, release the system pressure by closing the water supply at the water inlet end; then you can press the “breather” button (A) to release the remaining pressure.
2. Remove the pump housing (B) by unscrewing the four screws (C) which hold it to the above motor housing. Remove it by gently pulling it to the bottom.
3. Proceed now at tier down of the suction piston (D): remove the oring which is located at the bottom groove of such piston (D). Then pull apart the dowell pin (E) by pushing it aside; be careful not to damage the suction piston. Once the dowell pin is removed, the suction piston (D) can be released, as well as the connecting bushing (F) by pulling those parts downward.
4. Prior to unscrew the top “bell”, apply some marker (e.g.: by means of some coloured pen) to both the bell (G) and the motor housing (H) to indicate the angular position of the two parts: this is required as a guidance at the time of reassembly of the dosing pump: it will give a target at the time of screwing the bell to the housing.
5. Now unscrew the bell (G) and remove it from the housing (H).
6. Finally you can gently pull the motor piston (J) out of the motor housing (H) cavity.

Reassembly:

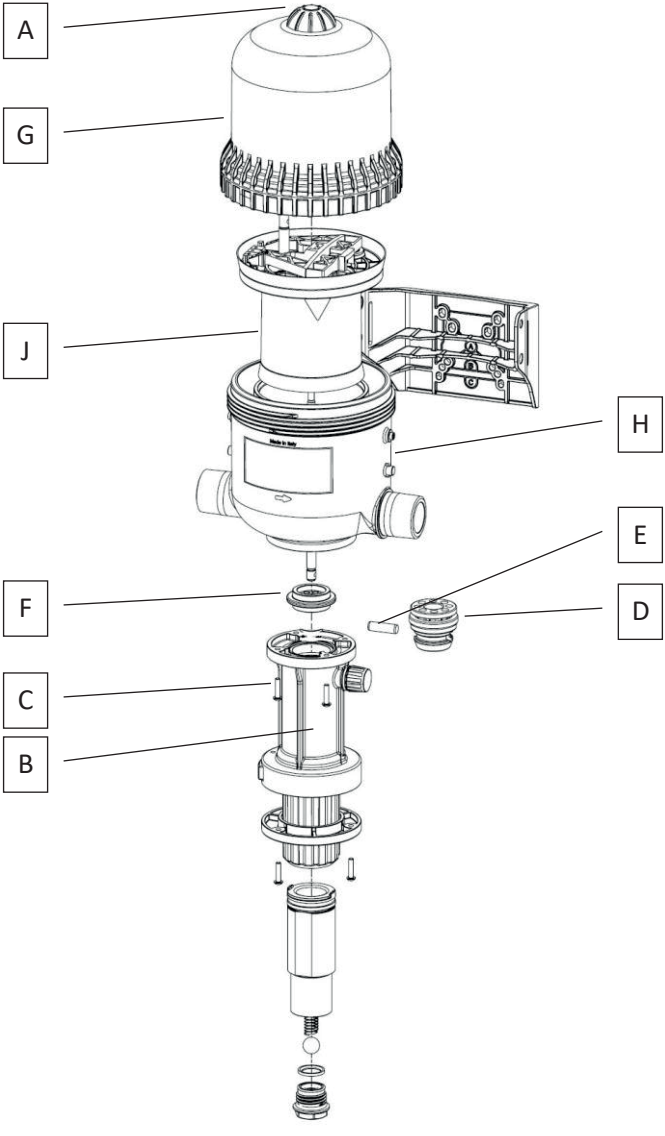
- After replacing the motor piston, reassemble in reverse order of disassembly.

- WARNING: pay specific attention to the position of the top bell (G) at the time of reassembly onto the motor piston (J): the piston shall NOT be located at the bottom of its stroke, but it shall be raised out of the motor housing (H) just like what is depicted in the decal applied on the bell itself and here represented:

  Take specific care when the piston is entered into the bell: the top portion (lip) shall not be damaged against the bottom opening of the bell.



- When re-assembling the top bell (G) you can use a strap wrench to help applying the necessary torque. Make sure the bell will return to the initial angular position w.r.to the motor housing (H) by re-aligning the two markers which have been applied to those two parts at time of disassembly (see step 4 of the above procedure).


A
G
J
H
E
F
D
C
B

TROUBLESHOOTING

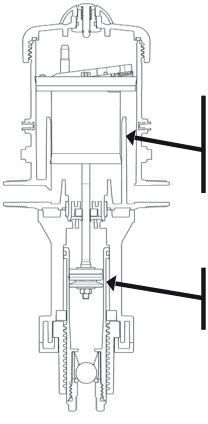
FAULT	CAUSES	SOLUTIONS
The MIXTRON dosing pump does not start or stops.	Seized motor piston.	Shut off the delivery line and reopenit slowly.
	Flow capacity has been exceeded.	Reduce the flow and restart the pump.
	Motor piston is broken.	Send the dosing pump to the nearest dealer.
Additive flowing back into tank.	Suction valve is dirty or damaged.	1. Check direction of the valve. 2. Clean or change.
Suction tube filling up too slowly at first start-up.	Dosage rate setting is wrong.	For the first start-up, always set the dosing pump to the maximum percentage.
It is not drawing product.	The motor piston is not moving.	See Motor Piston.
	Air in the suction tube.	Check the tube for integrity.
	Suction tube is blocked or suction filter is dirty.	Clean or change.
injection	Suction of air.	1. Check the tightness of screws in the injection side (tightening torque 5 Nm) 2. Check state of suction tube.
	Excessive flow.	Reduce the flow.
Wrong dosage rate.	Adjustment sleeve is in wrong position.	Make sure the sleeve is exactly abovethe mark of the desired rate and not beyond the maximum rate.
Water leaking between the motor cover and body.	Motor cover and body do not form a perfect seal.	Make sure the O-Ring on the cover is properly fitted in its housing.
Exploding cover.	Water hammer – return pressure is greater than 10-14 bar.	Install an anti-water hammer device.

WARRANTY

- Mixtron will replace any faulty component that is found to be defective from the factory for a period of twelve months from the date the dosing pump was first purchased.
- To obtain the replacement under the warranty, the customer must submit the proof of purchase along with the warranty claim form, filled out in its entirety, to the manufacturer or authorised dealer, which will give instructions regarding the shipment of the product or faulty components.
- The material may be acknowledged as defective only by the manufacturer or its authorized dealer after inspection by their technicians.
- The dosing pump must be rinsed thoroughly to remove any product residue and shipped freight collect to the manufacturer or dealer.
- Repairs made under the warranty will be shipped back to the local authorized dealer at no charge.
- The warranty applies only to workmanship defects or defects caused by the manufacturer's negligence.
- The warranty does not cover defects resulting from installation errors or faults or from incorrect installation, selection and sizing of the dosing pump. Moreover, the warranty does not cover damages and defects arising from negligent shipping/handling, storage and use. The warranty does not cover any damages caused by the substances and materials used with the dosing unit. The warranty does not cover damages from corrosion or following contact with foreign bodies and substances. Therefore, the customer must contact the manufacturer or the authorised dealer before installing and operating the unit, to make sure that no chemical and use incompatibilities exist.
- Before injecting aggressive products, please check with your authorized retailer and use the guidelines available at authorized Mixtron dealers for the correct choice of dosing pump.
- Seals and other wearable parts are not covered under the warranty; likewise, the warranty does not cover damages caused by suction of unauthorized substances or by impurities such as sand. With potentially contaminated liquids, the warranty will be valid only if the dosing pump is properly protected with a filter with a micron rating of 60 µm or better, installed upstream of the dosing pump.
- Mixtron disclaims any and all liability if the unit is not installed and used in compliance with the instructions in this manual and our technical documentation.
- There are no warranties, express or implied, extending to any other product or accessory used with Mixtron dosing pumps.

CALCULATION OF FLOW

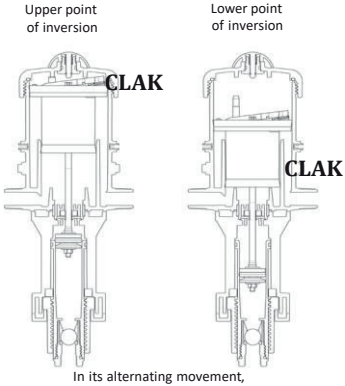
A simple method to know your system's flow is to detect the number of clicks (pu-rely theoretical value).



Your dosing pump is made up of:

a volumetric hydraulic motor piston,

a dosing pump piston.



In its alternating movement, the motor piston makes a clicking soundin the points of inversion

2 clack = 1 motor cycle

1 motor cycle = stroke volume

The flow of liquid passing through the dosing pump is proportional to the speed of the motor.

- Calculation of flow in litres/hour =

$$\frac{\text{Number of clacks in 15 seconds}}{2} \times 4 \times 60 \times 1{,}95$$

x 4: Duty cycles in 1 minute

x 60: Duty cycles in 1 hour

x 1,95: Displacement in litres

- Calculation of the liquid flow (e.g. water) in GPM (Gallons per Minute):

$$\frac{\text{Number of clacks in 15 seconds}}{2} \times 4 \times \frac{3{,}10}{3{,}8}$$

Displacement in gallons

Mixtron S.r.l. declares that there are no restricted substances (according to REACH annex XVII) contained in the articles supplied or, respectively, that when using these substances, their conditions of restriction according to annex XVII are complied with.

Mixtron S.r.l. guarantees that the products supplied contain none of the currently valid substances of very high concern (SVHC) in a concentration above 0,1% weight by weight (w/w).

Furthermore, we can assure you that we will monitor any further amendments to the SVHC substances list and will inform you immediately, as soon as we have identified chemicals on the candidate list for SVHC substances, which are contained in our products.

EAC

ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ
ДЕКЛАРАЦИЯ О СООТВЕТСТВИИ

Заявитель ОБЩЕСТВО С ОГРАНИЧЕННОЙ ОТВЕТСТВЕННОСТЬЮ "ГИДРОКИНЕТИКС"
Место нахождения: 115477, Россия, город Москва, улица Кантемировская, дом 58, этаж 3, пом.XVIII, комн. 46.
ОГРН 1157746453798
Телефон: +7 495 7304306 Адрес электронной почты: info@hidrokinetics.com
в лице Генерального директора Кутузова Андрея Владимировича

заявляет, что Дозаторы объемные, пропорциональные, серии: MX.
Изготовитель "MIXTRON S.R.L."
Место нахождения: Италия, Via Curiel 7, 42025 Cavriago (RE), Italy
Код (коды) ТН ВЭД ЕАЭС: 8413504000
Серийный выпуск

соответствует требованиям
Технического регламента Таможенного союза ТР ТС 010/2011 "О безопасности машин и оборудования"

Декларация о соответствии принята на основании
Протокола испытаний № 0857-ДМП/19 от 06.11.2019 года, выданного Испытательной лабораторией Общества с ограниченной ответственностью «Экспертиза Качества» (регистрационный номер аттестата аккредитации РОСС RU.32001.04ИБФ1.ИЛ47)
Схема декларирования соответствия: 1д

Дополнительная информация
раздел 2 ГОСТ 12.2.003-91 "Система стандартов безопасности труда. Оборудование производственное. Условия хранения продукции в соответствии с ГОСТ 15150-69 "Машины, приборы и другие технические изделия. Исполнения для различных климатических районов. Категории, условия эксплуатации, хранения и транспортирования в части воздействия климатических факторов внешней среды". Условия хранения конкретного изделия, срок хранения (службы) указываются в прилагаемой к продукции товаросопроводительной и/или эксплуатационной документации.

Декларация о соответствии действительна с даты регистрации по 06.11.2024 включительно.

М.П.

Кутузов Андрей Владимирович
(Ф.И.О. заявителя)

Регистрационный номер декларации о соответствии: ЕАЭС N RU Д-IT.АН03.В.15854/19

Дата регистрации декларации о соответствии: 07.11.2019

DICHIARAZIONE DI CONFORMITÀ

CE

DECLARATION OF CONFORMITY

(ai sensi della Direttiva Macchine 2006/42/CE All. II parte 1.A – *According to Machinery Directive 2006/42/EC Annex II part 1.A*)

Produttore – *Manufacturer*	**MIXTRON SRL**
Indirizzo – *Address*	**I – 42025 Cavriago (RE), - Via Curiel 7**
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E-mail – *E-mail*	**info@mixtron.it**

DICHIARA CHE / *DECLARES THAT*

Tipo di apparecchiatura – *Type of equipment*	Pompa dosatrice volumetrica proporzionale per liquidi / *Volumetric proportional dosing pump for liquids*
Marchio commerciale – *Trademark*	mixtron
Modello: *Model:*	Tutti i modelli in produzione (vedi codice nella marcatura sul prodotto) *All model in production (see p/n in product marking area)*
Numero di serie *Serial number*	Tutti (vedi marcatura sul prodotto) All (see *product marking)*
Anno di fabbricazione *Year fo construction*	Tutti (vedi marcatura sul prodotto) All (see *product marking)*

È conforme alla seguente direttiva / *Complies with to the following directive:*

☑ **Direttiva Macchine 2006/42/CE / *Machinery Directive 2006/42/CE***

E inoltre dichiara che sono state rispettate le parti applicabili delle seguenti norme / *Furthermore confirms that the relevant parts of the following standards have been applied*

☑ **EN ISO 12100:2010** (Sicurezza del macchinario - Principi generali di progettazione - Valutazione del rischio e riduzione del rischio) / ***EN ISO 12100:2010*** *(Safety of machinery - General principles for design - Risk assessment and risk reduction)*

☑ **EN 12162:2001+A1:2009** (Pompe per liquido - Requisiti di sicurezza - Procedura per prove idrostatiche) / **EN 12162:2001+A1:2009** *(Liquid pumps - Safety requirements - Procedure for hydrostatic testing)*

☑ **EN 13951:2012** (Pompe per liquidi - Requisiti di sicurezza - Applicazioni agro-alimentari - Regole di progettazione per assicurare l'igiene durante l'utilizzo) / **EN 13951:2012** *(Liquid pumps - Safety requirements - Agrifoodstuffs equipment; Design rules to ensure hygiene in use)*

La persona autorizzata a costituire il fascicolo tecnico è/ *The person authorised to compile the technical file is*: Sig. Stefano Brevini c/o Mixtron Srl, via Curiel n. 7, 42025, Cavriago (RE)

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NOVEMBER 2023

SMALL DROPS FOR A BETTER WORLD

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