



**OPERATING AND
MAINTENANCE MANUAL**

XYBEX™

PROMIX 300

**Proportional Volumetric
Dosing Pump**



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
PM.300	10 l/h - 3.0 m3/h	0,003 - 300 l/h (3 cc - 300 l/h)	0,044 - 13,209 GPM	0,101 oz/h - 1,321 GPM

- | | |
|---|---|
| <ul style="list-style-type: none">• OPERATING PRESSURE: 0.3 - 6 Bar• MAXIMUM STATIC PRESSURE: 10 Bar• MAXIMUM TEMPERATURE: 40°C• MINIMUM TEMPERATURE: 5°C• INLET / OUTLET CONNECTIONS:• DOSING RANGES:
(e.g.: 3% is intended as 3 volumes of additive mixed into 100 volumes of water) | <ul style="list-style-type: none">[4.3 - 87 PSI][145 PSI][104 °F][41 °F]3/4 "BSPT |
|---|---|

0.03 - 0.3% [1:3000 - 1:350]

0.2 - 2% [1:500 - 1:50]

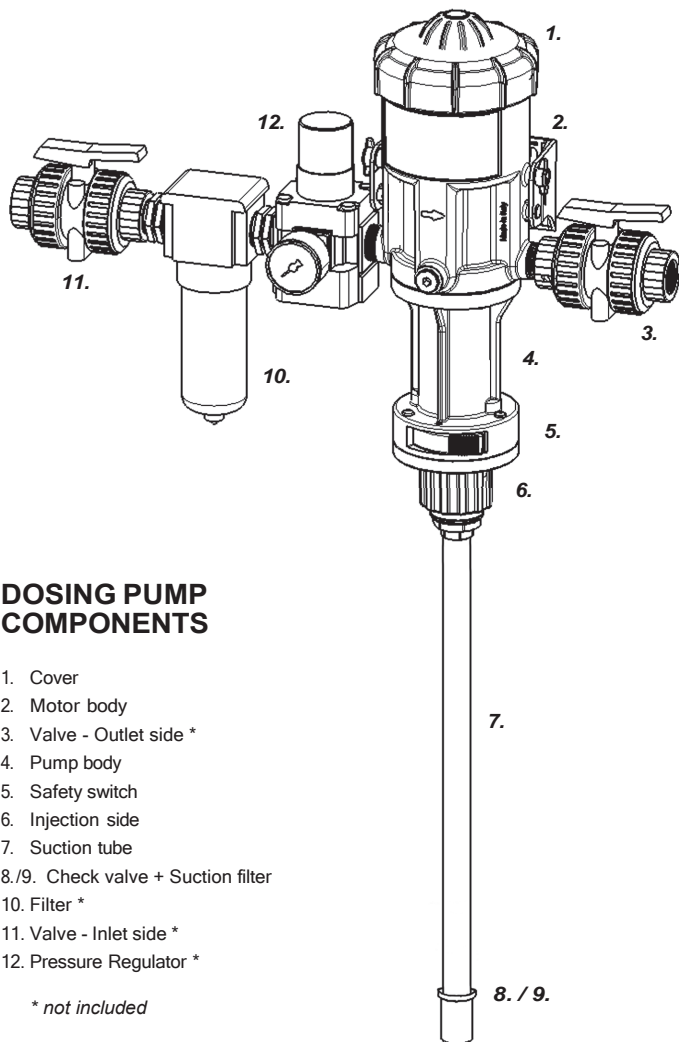
0.5 - 4% [1:200 - 1:25]

1 - 5% [1:100 - 1:20]

1 - 10% [1:100 - 1:10]

4 - 13% [1:25 - 1:7,5]

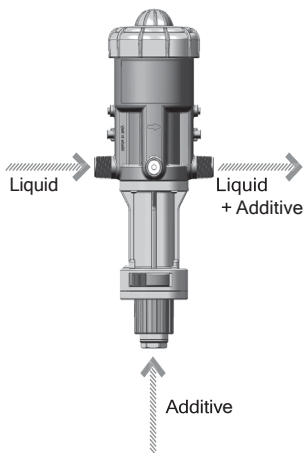
Average dosing accuracy: +/- 5% - Average repeatability: +/-3% (depending on models and operating conditions and on appropriate maintenance of the product, in particular suction seal to be replaced at least yearly or more often when conditions or nature of the additive require).



You are now the owner of a ProMix Volumetric Dosing Pump. Congratulations on your choice! This model is the outcome of our continuous technical-experimental research activities. Our engineers designed ProMix 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 ProMix 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.



**PLEASE READ THIS
MANUAL CAREFULLY BEFORE
STARTING THE DEVICE**

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

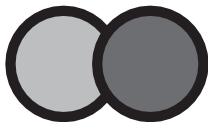
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INSTALLATION

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 ProMix 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 43°Celsius (109°F) is reached.

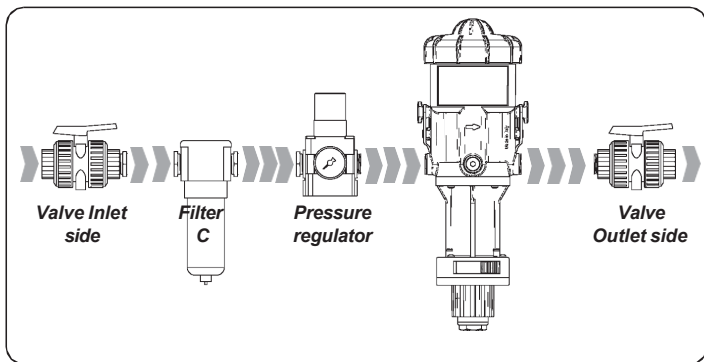


- If you use your ProMix unit with a supply pump, we recommend you do not connect it to the supply pump's suction line (to prevent siphoning).
- Setting up the dosage rate is the user's responsibility. The user is required to follow the recommendations of the chemical product's manufacturer. Master Fluid Solutions 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 ProMix dosing pump. Master Fluid Solutions 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 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

- Systems subject to water hammer require the installation of an anti-water hammer device (pressure surge control system). In automated systems, we recommend the use of solenoid valves with slow opening and closing. If a single dosing pump is serving several sites, the solenoid valves should not operate simultaneously.

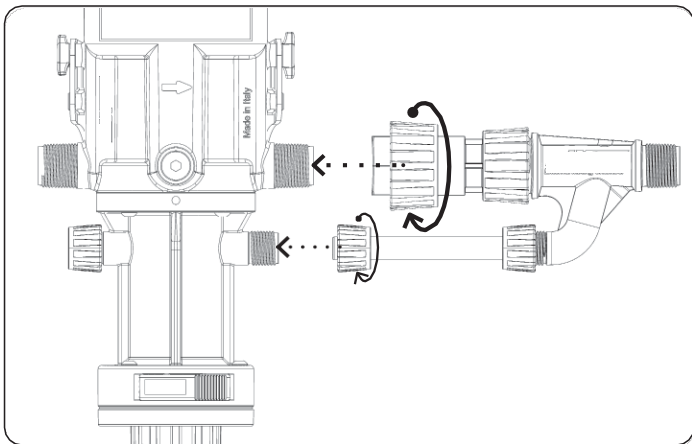
WHERE TO LOCATE THE DOSING PUMP

- 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

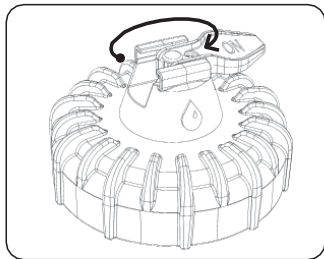
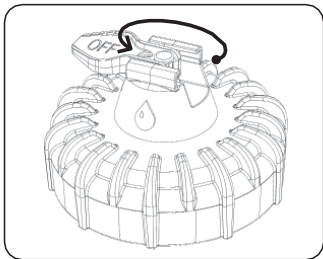
The ProMix dosing pump equipped with By-Pass (external mixer) makes it possible to use aggressive liquids without causing damage to the motor piston's plastic parts. The By-Pass system is an option and supplied on request.



ON-OFF VALVE MODEL

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

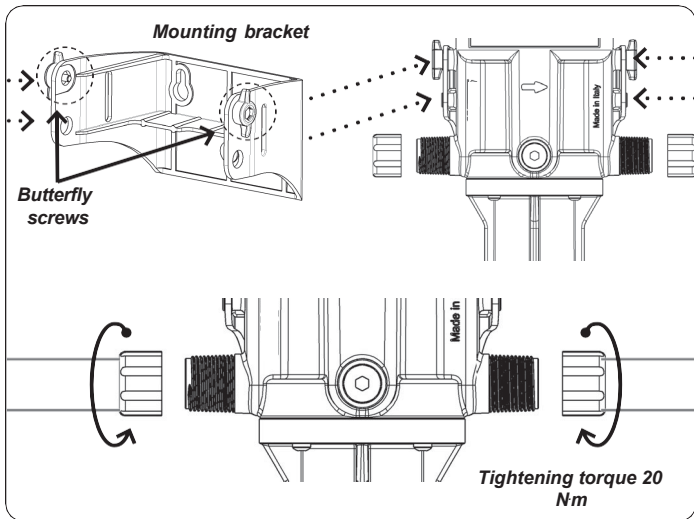
- ON-OFF valve in the ON position: the additive is drawn and mixed in the ProMix dosing pump.
- ON-OFF valve in the OFF position: the ProMix dosing pump's motor piston is at rest; there is no drawing or mixing of the additive, only the main liquid flows in and out.



INSTALLING YOUR PROMIX DOSING PUMP

(Install by hand. Do not use tools.)

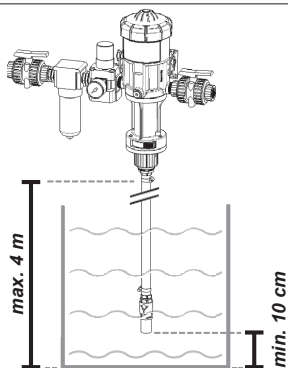
- The bracket is used to wall-mount the dosing pump.
- For proper installation, introduce the ProMix dosing pump in the support and fit it into place by slightly bending the tabs on the bracket.
- When the dosing pump is properly fitted between the tabs on the bracket, fasten it using two butterfly screws.
- Once fastened, remove the protection caps on the inlet and outlet ports and the plug blocking the additive suction.
- You can now connect the dosing pump to the supply line. To connect the unit to the supply line, use hoses with an internal diameter of 16 mm, fastened with clamps and swivel fittings Ø 20 x 27 mm [3/4"BSPT].
- Before connecting the additive suction tube (supplied standard) to the dosing pump, make sure you place the necessary amount of teflon (supplied standard) on the threaded side of the hosetail. This will ensure a perfect seal.



The ProMix dosing pump comes complete with: • A mounting bracket • A 1.5 m tube • A suction filter and check valve.

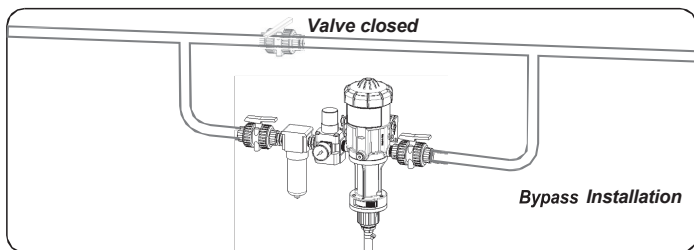
IMPORTANT • For proper operation, make sure the suction filter has been positioned about 10 cm above the bottom of the additive tank; this will prevent suction of insoluble particles, which could damage the dosing pump.

- To avoid contamination, do not place the suction 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 supply 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 (theoretical calculation) example applies to model MX.250

If the dosing pump clicks more than 40 times, it is performing more than 20 cycles every 15 seconds which means it is operating with an EXCESSIVE FLOW. If your requirements call for the use of parameters that cause an excessive flow, install a dosing pump with a higher flow capacity.

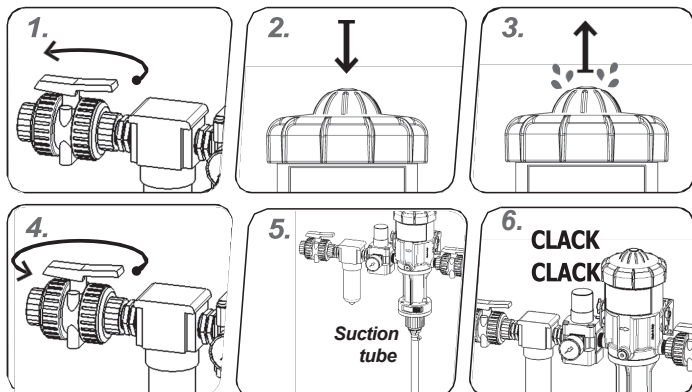
START-UP

FIRST START-UP

1. Open the inlet valve slightly (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 solution and stops spitting air, let go of the button.
4. Open the inlet valve slowly, increasing the flow until the dosing pump starts automatically.
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 is running 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 you perform a product calibration test using a refractometer.

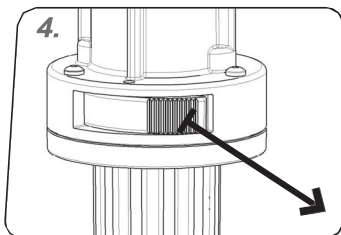
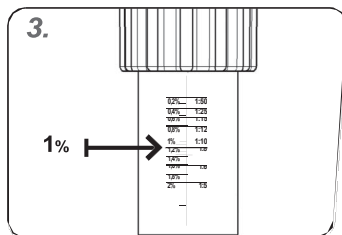
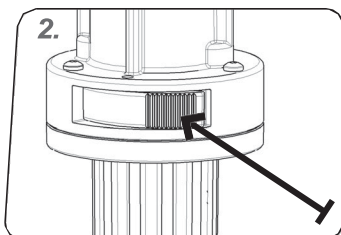
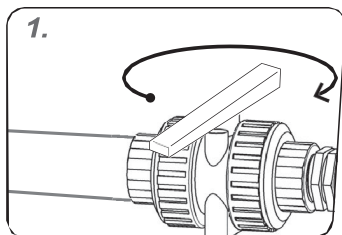


! IMPORTANT Do not go beyond minimum and maximum dosage values. Strictly follow the graduated scale. This operation may, in fact, impair proper operation of the dosing pump.

ADJUSTING THE DOSAGE RATE

! IMPORTANT Do not use tools to adjust the dosage percentage. Adjust the dosage percentage when the dosing pump IS NOT under pressure.

1. Close the inlet valve completely.
2. Keep the safety 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 safety button to lock the injection rate adjustment sleeve into place.

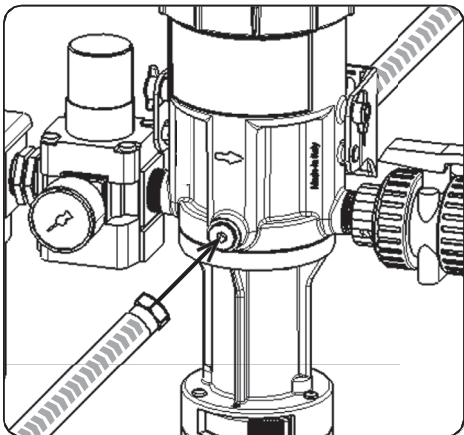


! IMPORTANT Do not go beyond minimum and maximum dosage values. Strictly follow the graduated scale. This operation may, in fact, impair proper operation of the dosing pump.

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 ProMix 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 Master Fluid Solutions 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



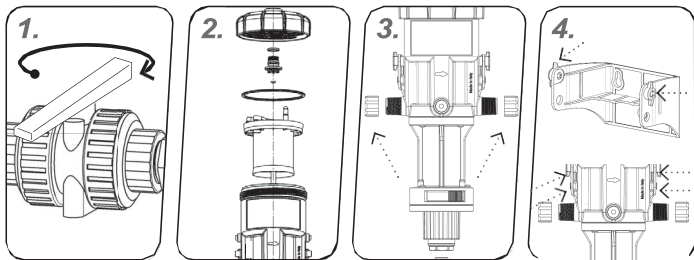
Cleaning cycle

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 15) and allow it to soak in tepid water (< 40°C) for a few 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 delivery line-valve (e.g. water, if water network).
2. Remove the dosing cylinder (see REPLACING THE MOTOR PISTON on page 15). Remove the motor cover and motor PISTON.
3. Unscrew the inlet and outlet fittings that connect the dosing pump to the supply network until the dosing pump is completely free.
4. Empty the main body after removing it from the wall support. Reassemble only after rinsing it and cleaning the O-ring on the top cover.



REPLACING THE MOTOR PISTON AND SEALS

Pump 1-10%
P110

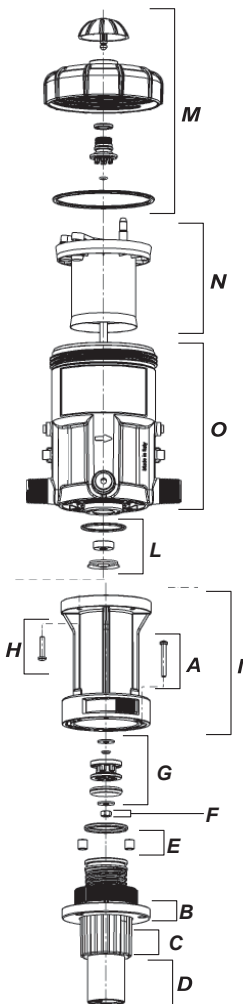
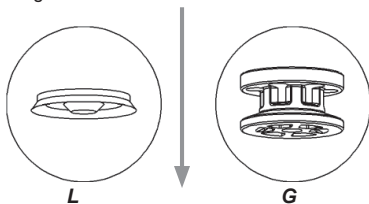
Perform the procedure with pressure off

1. Close the delivery line-valve (e.g. water, if water network)
2. Remove the suction kit (see components 7, 8, 9 page 3)
3. Remove the 3 screws (A)
4. Slide the ring out (B)
5. Unscrew the locking ring (C)
6. Slide the pump cylinder out (D)
7. Extract the two metal rollers (E)
8. Unscrew the nut (F) with an Allen key while holding the piston stem securely in place
9. Slide all of the piston components out (G)
10. Remove the four screws (H)
11. Remove the pump body (I)
12. Extract all the components of block (L) positioned on the stem of the piston
13. Unscrew the motor cover (M)
14. Push the stem vertically and allow the motor piston (N) to come out of its body (O)
15. Change the motor piston (N)
16. Reassemble the unit in reverse order



IMPORTANT

- Handle blocks (G) and (L) carefully.
- During assembly, observe the orientation of components as illustrated in the figure.



TROUBLESHOOTING

FAULT	CAUSES	SOLUTIONS
The ProMix dosing pump does not start or stops.	Seized motor piston.	Shut off the delivery line and reopen it 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 above the 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.

XYBEX WARRANTY CARD

Product name: ProMix300

Model: PM.300

Serial No.: _____

Quantity: _____

Warranty period: _____ year _____ month _____ day

XYBEX guarantees:

For units purchased from the official dealers of XYBEX that are naturally found with defects or with replacement requirements, will be able to apply for the free parts delivery and are requested for approval from either the dealers or the head branch of XYBEX.

Warranty period:

06 months warranty starting from the date of receipt.

Warranty coverage:

For newly purchased units that are within the warranty period will be provided with services of maintenance or replacement once approved and confirmed to be naturally defected or damaged.

USER INFO

Company name: _____

Applicant: _____

Phone: _____

Fax: _____

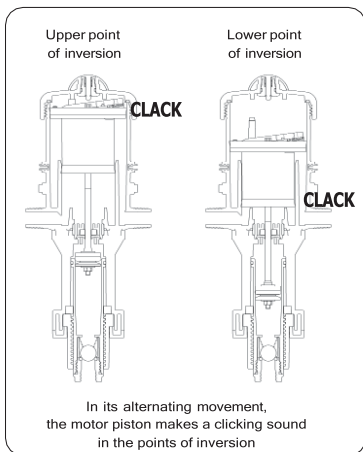
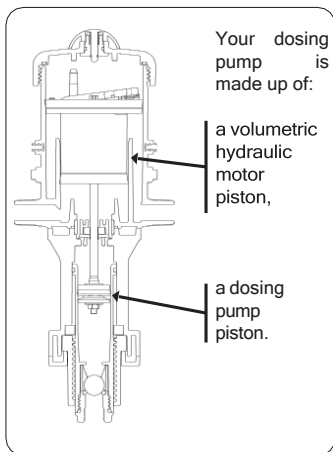
Address: _____

Machine Serial No.: _____

Date: _____

CALCULATION OF FLOW

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



$$2 \text{ clack} = 1 \text{ motor cycle}$$

$$1 \text{ motor cycle} = \text{stroke volume}$$

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

- Calculation of flow in litres/hour =

Number of clack in 15 seconds
2

x 4

x 60

x 0.45

Calculation for 1

minute

Calculation for 1 hour Displacement in litres

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

Number of clack in 15 seconds
2

x 4

0.45
3.8

Displacement in
gallons