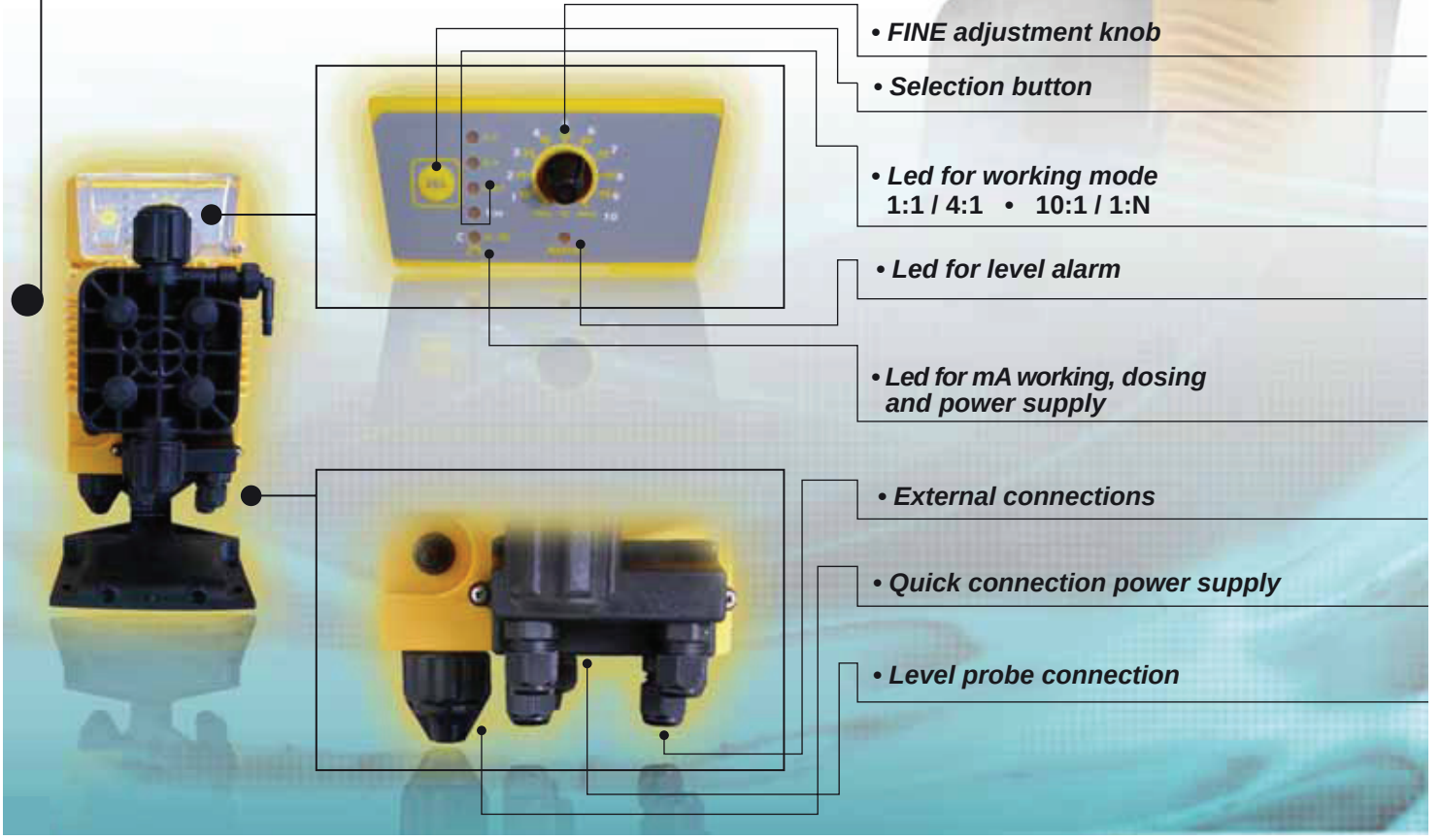
GENERAL FEATURES

PROPORTIONAL FLOW DOSING PUMP

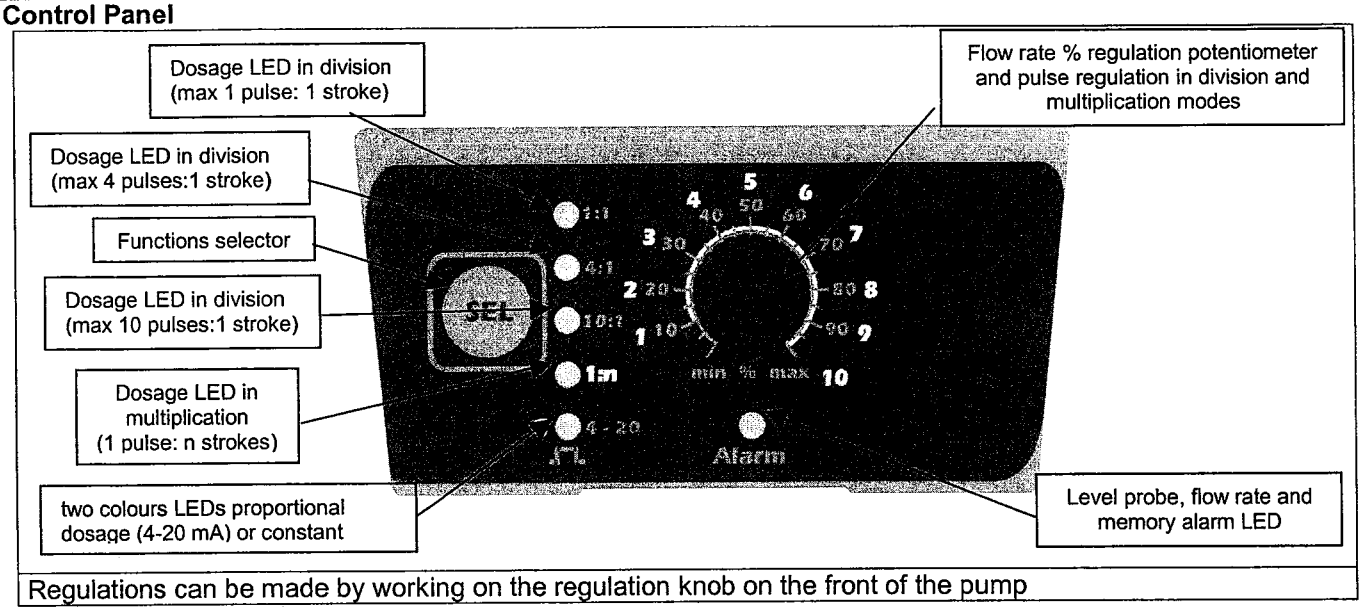
- To a digital signal (water meter) with the possibility to multiply or divide the received impulses.
- To an analogic signal (4-20 mA) with the possibility to regulate in percentage the maximum flow.
- The "SEL" button allows the selection of the working mode.
- 90-260 Vac Power supply with quick connection.
- Level probe predisposition.
- Quick connection for all the external signals.
- Standard priming valve

Control panel and external connections



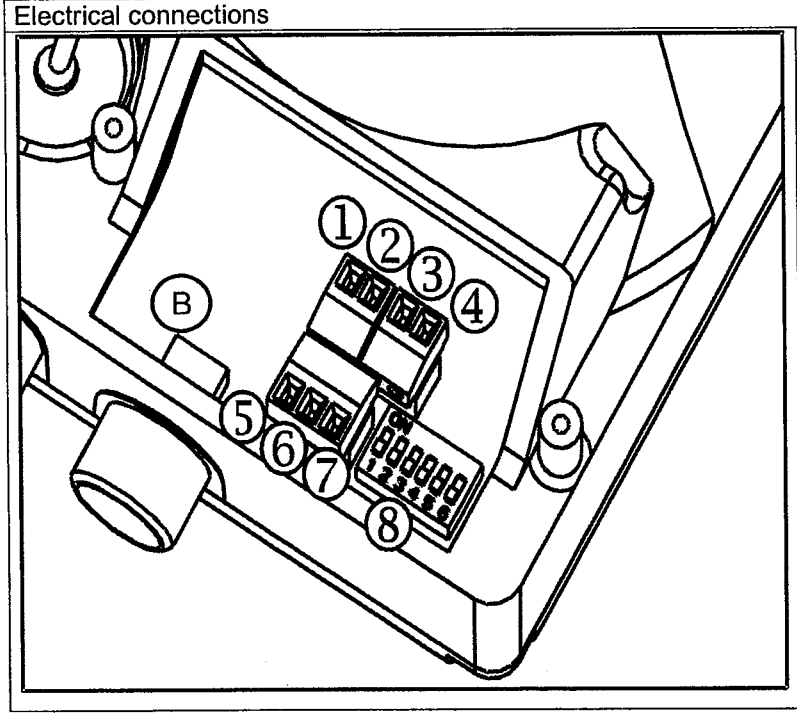
AT. AM

Control Panel



Regulations can be made by working on the regulation knob on the front of the pump

Electrical connections



1	Alarm relay		
2			
3	Pole -	4-20 mA Input signal	
4	Pole +		
5		Input frequency signal	12 Vcc input
6	Input frequency signal, free contact (water-meter pulse-sender)		Pole +
7			Pole -
8	Dip-switch		
B	Input level control		

Alarms

Display	Cause	Interruption
Fixed alarm LED	End of level alarm	Restore the liquid level
Fixed alarm LED	With the flow alarm active, the pump has not received any flow signals for at least six consecutive pump strikes.	Press the SEL button
Flashing alarm LED	Memory alarm: the pump receives one or more impulses during dosage	Press the SEL button
Fixed alarm LED. Function mode off LED.	System FAILURE alarm (hardware problem)	Check circuit.

La Tekna AT. AM è una pompa proporzionale ad interfaccia analogica.
Con il tasto SEL si selezionano le varie modalità di funzionamento, la selezione dei dip-switch all'interno della pompa permette un'ulteriore specializzazione delle funzioni.

1:1 Mode (division)

Press the SEL button until the corresponding LED comes on.
After receiving an external pulse (water-meter pulse sender) and, with the potentiometer regulated to 100%, the pump makes a stroke. By the potentiometer it's possible to reduce the maximum dosage percentage.

4:1 Mode (division)

Press the SEL button until the corresponding LED comes on.
After receiving 4 external pulses (water-meter pulse sender) and, with the potentiometer regulated to 100%, the pump makes a stroke. By the potentiometer it's possible to reduce the maximum dosage percentage.

10:1 Mode (division)

Press the SEL button until the corresponding LED comes on.
After receiving 10 external pulses (water-meter pulse sender) and, with the potentiometer regulated to 100%, the pump makes a stroke. By the potentiometer it's possible to reduce the maximum dosage percentage.

1:n Mode (multiplication)

Press the SEL button until the corresponding LED comes on.
For every external pulse received (water-meter pulse sender), the pump makes "n" strokes, as red regulation scale of the potentiometer (1-10). At the first signal received, the pump makes "n" strokes at maximum speed, and then automatically distributes the "n" strokes, measuring the time between two successive pulses, for a maximum of 60 seconds, after which period the pump once again doses at maximum speed, resetting the time count. The pump also has a memory alarm, which is triggered if it receives other external signals (water-meter pulse sender) during the dosage of the "n" strokes

4-20 Mode (4-20 mA signal)

Press the SEL button until the corresponding LED comes on.
The pump proportionally doses at a signal comprised between 4 and 20 mA. At a signal of 4 mA, the pump comes to a stop, at 20mA the pump doses at the percentage selected with the potentiometer.

C mode (Constant)

Press the SEL button until the corresponding LED comes on.
The pump doses manually at the percentage selected with the potentiometer.

Dip Switch

Dip-switch 1) enables/disables key lock: in the ON position it enables the key lock; in this mode, pressing the SEL button does not make it possible to change the pump operating mode. Pushing the SEL button will pause the pump, while releasing it will enable the pump to begin dosing again. In the OFF position (default), the SEL button operates normally.
Dip-switch 2) enables/disables pump lock for alarm: in the ON position, the fixed red LED comes on but the pump continues to dose in the event of a level or flow rate alarm; in the OFF position (default), the fixed red LED comes on and the pump stops in the event of a level or flow rate alarm.
Dip-switch 3) alarm relay mode: in the ON position, the alarm relay is normally closed and opens when the alarm signal is triggered; in the OFF position (default), the alarm relay is normally open and closes when the alarm signal is triggered.
Dip-switch 4) enables/disables the pacing mode: in the ON position it enables the pacing function, meaning that the pump makes a strike with every external signal (thrust impulse counter), excluding potentiometer regulation; in the OFF position, the pump doses as programmed, on the basis of the potentiometer regulation. This can only be activated in modes 1:1, 4:1, 10:1 and 1xn. LEDs 1:1 and 1xN light up when the pacing mode is active
Dip-switch 5) enables/disables the flow sensor: in the ON position, the pump is enabled to receive flow rate sensor signals. After 6 strikes of the pump without receiving signals from the sensor, the pump goes into alarm mode. In the OFF position (default), the connection to the flow rate sensor is deactivated.

When making the plumbing connections, make sure that you follow the instructions below:

- The FOOT FILTER must be installed so that it is always positioned 5-10 cm from the foot, in order to prevent any deposits from blocking it and damaging the hydraulic part of the pump;
- A flooded suction mounting is always best and is recommended for pumps with a very small capacity inasmuch as it resolves all the priming problems.
- For external applications in which the DELIVERY PIPE may be exposed to the sun's rays, we recommend using a black pipe able to withstand ultraviolet rays;
- It is advisable to position the INJECTION POINT higher than the pump or tank;
- The INJECTION VALVE, supplied with the pump, must always be installed at the end of the dosage flow delivery line.

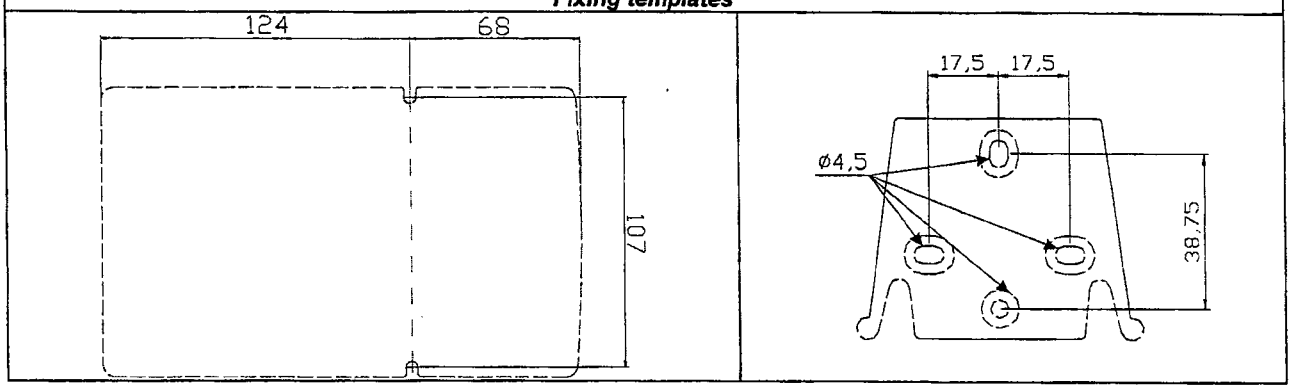
START-UP

Once all the aforementioned operations have been completed, the pump is ready to be started.

Priming

- Start the pump
- Open the priming connector by turning the knob in an anticlockwise direction and wait for liquid to come out of the pipe connected to it.
- Once you are sure that the pump is completely full of liquid, you can close the connector and the pump will begin to dose.

Fixing templates



Trouble Shooting

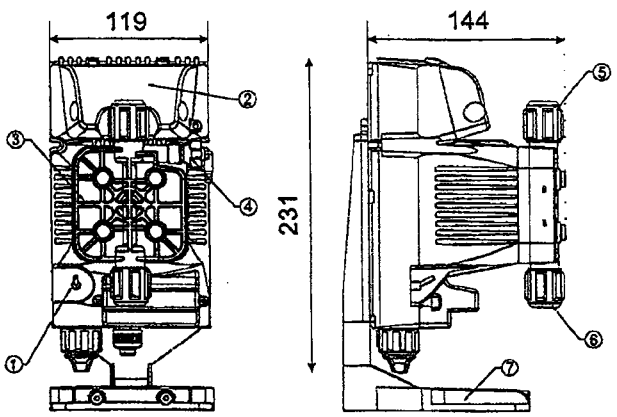
Problem	Possible Cause	Solution
The pump is working properly but the dosage is interrupted	Valve blockage	Clean the valves or replace them if it is not possible to remove the build-ups
	Excessive suction height	Position the pump or tank so as to reduce the suction height (pump under water head)
	Excessively viscous liquid	Reduce the suction height or use a pump with a bigger flow capacity
Insufficient flow capacity	Valve leakage	Check that the ring nuts are properly tightened
	Excessively viscous liquid	Use a pump with a bigger flow capacity or reduce the suction height (pump under water head)
	Partial valve blockage	Clean the valves or replace them if it is not possible to remove the build-ups
Excessive or irregular pump flow capacity	Siphon effect on delivery	Check the injection valve installation. Insert a back-pressure valve if insufficient.
	Transparent PVC pipe on delivery	Use an opaque PE pipe on delivery
	Pump not calibrated correctly	Check the pump flow capacity relative to the system pressure.
Broken diaphragm	Excessive back-pressure	Check the system pressure. Check whether the injection valve is blocked. Check whether there are any blockages between the delivery valves and the injection point.
	Operation without liquid	Check the presence of the foot filter (valve). Use a level probe that stops the pump when the chemical product in the tank has run out.
	Membrane not secured correctly	If the membrane has been replaced, make sure that the same is correctly tightened.
The pump does not come on	Insufficient power supply	Check whether the pump plate data corresponds to that of the electricity network.

INSTALLATION and Start-Up MANUAL FOR ATHENA SERIES DOSING PUMP

Model	Flow Rate	Pressure	cc/stroke	Connections (mm)	Strokes/min
	L/hr	bar		Int/Ext	
PUMP0218	2	18	0.28	4/6	120
PUMP0510	5	10	0.52	4/6	160
PUMP1010	10	10	0.52	8/12	320
PUMP2005	20	5	1.47	8/12	340

INTRODUCTION

The dosing pump is comprised of a control unit that houses the electronics and the magnet, and a hydraulic part in contact with the liquid to be dosed.



1 Power switch
2 Regulation area
3 Dosing head
4 Priming valve
5 Delivery connector
6 Suction connector
7 Base support (optional)

The parts in contact with the liquid have been chosen in order to guarantee perfect compatibility with most chemical products normally in use. Given the range of chemical products available on the market, we recommend checking the chemical compatibility of the dosed product and contact materials.

MATERIALS USED IN THE PUMP HEAD (STANDARD)

BODY: PP
CONNECTORS: PP
DIAPHRAGM: PTFE
BALL VALVES: PYREX

The pumps are supplied complete with the indispensable accessories for their correct installation. You will find the following in the packaging:
Foot filter, injection valve, transparent suction tube, transparent tube for bleed valve, opaque delivery tube, Pump fixing inserts, bracket for wall mounting, level sensor connector and instruction manuals.

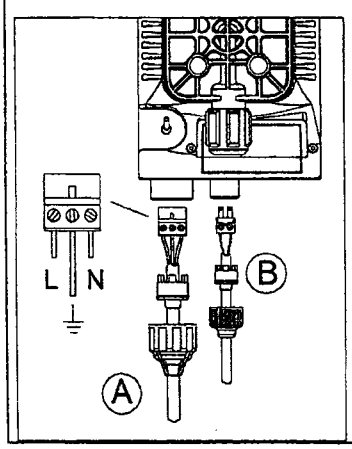
PRECAUTIONS

READ THE FOLLOWING PRECAUTIONS CAREFULLY BEFORE PROCEEDING WITH PUMP INSTALLATION OR MAINTENANCE

CAUTION! Always disconnect the power supply before installing or carrying out maintenance on the product
CAUTION! Follow the safety procedures relative to the dosed product
Problem free installation can be achieved by taking due care when handling, installing and commissioning the pump.

- **H_2SO_4 SULPHURIC ACID** All the pumps are tested with water. When dosing chemical products that may react with water, dry all the internal parts of the plumbing thoroughly. To do this, you will need to power the pump and run it at maximum speed with the delivery valve turned downwards. After running for a few minutes, check to see whether water is still coming out.
- Install the pump in a zone where the environment temperature does not exceed 40°C and the relative humidity is below 90%. The pump has an IP65 protection level.
- Install the pump so that any inspection and maintenance operations are easy to carry out, then secure the pump firmly in order to prevent excessive vibrations.
- Check that the power supply available in the network is compatible with that indicated on the pump label.
- If you are injecting in pressurised pipes, always make sure that the system pressure does not exceed the maximum working pressure indicated on the dosing pump label before starting up the pump.

WIRING



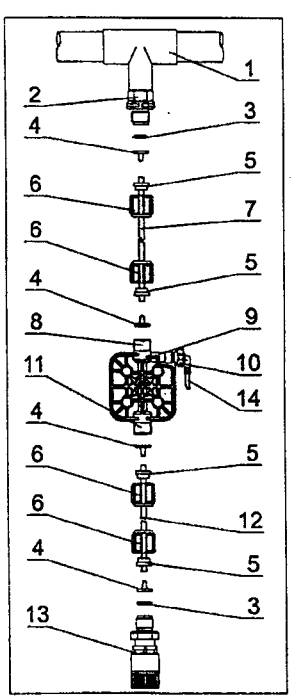
Input A = power supply

Input B = Level

The pumps have been designed to absorb small over voltage. Therefore, in order to prevent the pump from being damaged, it is always preferable to ensure that the pump does not have a power source shared with electrical appliances that generate high voltages.

Connection with the three-phase 380V line should only be made between phase and neutral. Connections must not be made between phase and earth.

PLUMBING



1 – injection point
2 – injection connector
3 – seal
4 – pipe holder
5 – pipe clamp
6 – ring nut
7 – delivery tube
8 – delivery valve
9 – pump head
10 – bleed valve
11 – suction valve
12 – suction tube
13 – foot filter
14 – bleed valve connector

After around 800 hours of work, tighten the bolts in the pump body, applying a tightening torque of 4 Nm.

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