

Multiflow MA



 **ETATRON**

UK OPERATING INSTRUCTIONS & MAINTENANCE



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Symbols used in the manual

		
FORBIDDEN Precedes safety-related information. Indicates a forbidden operation.	CAUTION Precedes very important text to protect the health of exposed persons or the machine itself.	NOTICE Precedes information concerning use of the equipment.

Warnings and Risks

Read the warnings below carefully. They provide important information regarding safe installation, use and maintenance. Store this manual with the utmost care for future reference.

After removing the packaging, check the integrity of the pump. If in doubt, do not use the pump and contact qualified personnel. The packing materials (such as plastic bags, polystyrene, etc.) must not be left within the reach of children since they are potentially dangerous.

Before connecting the pump, make sure that the rating corresponds to that of the mains. The rating is displayed on the adhesive label on the pump.

N.B.:



- The equipment is built to a professional standard. Its durability, electrical and mechanical reliability, will be greater if it is used properly and maintenance is carried out on a regular basis.
- The equipment is supplied with earthing on the power cable. It is always recommended to connect it to an earthing system in compliance with the law, equipped with a circuit breaker.

The execution of the electrical system must comply with the standards that define professional workmanship in the country where the system is made. The use of any electrical appliance requires compliance with some basic rules. In particular:

- do not touch the equipment with wet or damp hands or feet;
- do not operate the pump with bare feet (typical situation: devices used in swimming pools)
- do not leave the equipment exposed to weathering (rain, sun, etc.);
- do not allow the pump to be used, serviced or cleaned by children or people without adequate training, without supervision.

CAUTION:



- Any work or repairs inside the equipment must be carried out by qualified and authorised personnel. We assume no liability due to failure to comply with this rule.
- This equipment must NOT be used by: children, people with physical problems, reduced sensory or mental abilities, non-expert personnel, unless supervised or instructed on the proper use of the equipment by a person responsible for their safety.
- In case of failure and/or malfunctioning of the pump, switch it off and do not tamper with it. For any repairs, please contact our service centres and request the use of original spare parts. Failure to comply with the above can jeopardise the safety of the pump.
- If you decide to no longer use an installed pump, it is recommended to render it inoperable by unplugging it from the mains and emptying the pump body.
- In case of any leaks in the hydraulic system of the pump (breakage of the sealing OR, valves, pipes), you must stop the pump, depressurise the supply pipe and proceed with maintenance operations using appropriate safety measures (gloves, goggles, overalls, etc.).

- In case of failure and/or malfunctioning of the pump, switch it off and do not attempt to repair it. For any repairs, please contact our after sales service centres and request the use of original spare parts. Failure to comply with these conditions may compromise the correct operation of the pump.
- In the event of damage to the power cable of the pump, request a replacement from our service centres or qualified personnel to avoid risks to the people who use it.

RISK OF EXPLOSION:

- This equipment is not explosion proof. DO NOT install and DO NOT use in an explosive or potentially explosive environment.



Dispensing harmful and/or toxic liquids

The following rules, along with the instructions in this booklet, must be kept in mind to avoid personal harm or property damage due to contact with harmful liquids or the intake of toxic fumes:

Always wear protective clothing, including gloves and safety goggles, operating as recommended by the manufacturer of the liquid (additive) to be used (risk of potential explosions, burns, fire, injury or personal damage).

Check that the hydraulic part of the pump is not damaged or broken and use the pump only in perfect condition.

Use tubes suited to the liquid and the operating conditions of the plant, inserting them, if necessary, into protective PVC pipes.

Before disabling the metering pump, the system must be depressurised and the hydraulic part must be neutralised via the appropriate reagent.

When connecting a metering pump to the public water mains or to your own water source, it is required to comply with the regulations in force regarding protection or specifically dictated by the mains manager. In both cases, always prepare safety devices that prevent flows from returning to the source, such as check valves, etc.

CAUTION: Protect the pump and chemicals from weathering (frost, rain, sun, etc.).

It is recommended to install the pump in areas where liquid product (additive) leaks cannot cause personal injury or material damage.

Intended use of the pump



The pump must only be used for the purpose for which it was specifically built, i.e. for dispensing liquids. Any other use must be considered dangerous. Use of the pump for applications not foreseen in the design stage is prohibited. For further explanations, the customer may contact our offices for information on the type of pump in their possession and its correct use. The manufacturer cannot be held liable for any damage caused by improper, incorrect or irrational use.

Shipping to the factory for repairs and/or maintenance

The material to be shipped to the factory for maintenance must be disassembled and packaged carefully; all parts in contact with the chemical product must be emptied and rinsed to ensure the safety of operators during transport and handling of the material in the laboratory. In case of failure to comply with the instructions provided, we reserve the right not to collect the material and to return it at your expense; any damage caused to the material by the chemical shall be included in the repair estimate.

Assembly and Disassembly

All metering pumps manufactured by Etatron D.S. are normally supplied fully assembled. For further explanations, please consult the attachment at the end of this manual where exploded drawings of the pumps and all parts with relative nomenclature are displayed in order to have a complete picture of the pump. These drawings are anyhow required to recognise the malfunctioning or defective parts. Other drawings regarding the hydraulic parts (pump head and valves) are reported for the same purposes, also in the attachment.

To disassemble the pump or before carrying out any operations on it, you must:

- Make sure it is switched off electrically (both polarities), disconnecting the conductors from contact points of the mains by opening of an omnipolar switch with minimum 3 mm distance between the contacts (Fig.6).
- Appropriately eliminate any pressure in the pump body and in the delivery tube, paying the utmost attention.
- Eliminate all liquid present from the pump body, proceed by disassembling and reassembling the pump body, unscrewing and tightening the four fixing screws (tightening torque 180-200 N*cm).

Particular attention is required for this last point, therefore it is advisable to consult the drawings in Annex 1 and the “Warnings and Risks” paragraph before starting any operation.

Principle of operation

The metering pump operates by means of a PTFE (teflon®) diaphragm mounted on the piston of an electromagnet. When the piston of the electromagnet is attracted, it creates pressure on the pump body thus ejecting liquid from the supply valve. When the electric pulse is finished, a spring brings the piston back to its initial position flowing liquid through the suction valve. The pump needs no lubrication and little maintenance thanks to its easy use. The materials used to build the pump make it fit for dispensing chemically aggressive liquids. The dosing pumps in the Multiflow MA series are designed for the following flow rates:

- 2 to 8 l/h and pressures from 10 to 16 bar for Multiflow A MA;
- 30 to 50 l/h and pressures from 0 to 3 bar for Multiflow B MA;
- 8 to 20 l/h and pressures from 2 to 7 bar for Multiflow C MA;



Technical specifications

- Equipment manufactured according to EC standards.
- Outer casing in plastic material resistant to acids and temperature.
- Control panel protected with screen printed film.
- Multi voltage power supply 220 – 240 Volt 50-60 Hz.
- Degree of protection: IP65.
- Environmental conditions: closed environment, maximum altitude 2000 m, ambient temperature from 5°C to 40°C, maximum relative humidity 80% up to maximum 31° C (decreases linearly until reaching 50% at 40°C).
- Classification with regard to protection against direct contacts: CLASS I, the equipment is provided with a protective conductor.

Reference standards

The metering pump complies with that set forth in the following directives:

- 2014/35/EU: “Low voltage”
- 2014/30/EU: “Electromagnetic compatibility”

Operating functions

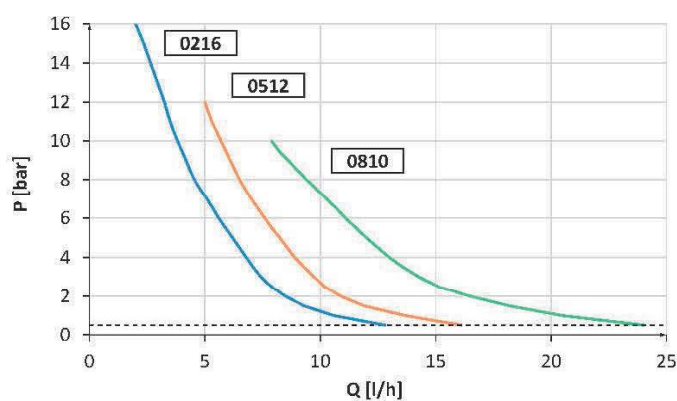
The user can choose, for each pump in the Multiflow MA series, between different operating modes as explained in more detail in the following chapters. Generally speaking, each pump offers the possibility of operating as shown in the respective table.

Multiflow A MA - hose kit 4x6	
Mode	Description
8 l/h – 10 bar	The pump dispenses 8 litres of product every hour, continuously, at 10 bar.
5 L/h – 12 bar	The pump dispenses 5 litres of product every hour, continuously, at 12 bar.
2 L/h – 16 bar	The pump dispenses 2 litres of product every hour, continuously, at 16 bar.

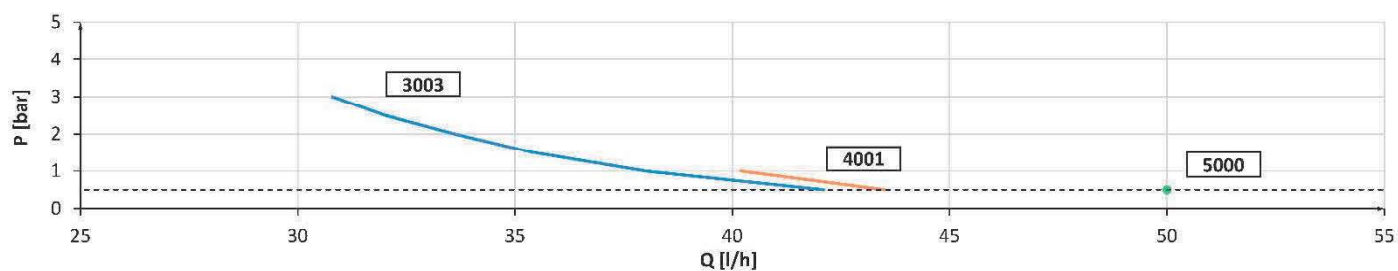
Multiflow B MA - hose Kit 6x8	
Mode	Description
50 L/h – 0 bar	The pump dispenses 50 litres of product every hour, continuously, at 0 bar.
40 L/h – 2 bar	The pump dispenses 40 litres of product every hour, continuously, at 2 bar.
30 L/h – 3 bar	The pump dispenses 30 litres of product every hour, continuously, at 3 bar.

Multiflow C MA - hose kit 4x6	
Mode	Description
20 L/h – 2 bar	The pump dispenses 20 litres of product every hour, continuously, at 2 bar.
10 L/h – 5 bar	The pump dispenses 10 litres of product every hour, continuously, at 5 bar.
8 L/h – 7 bar	The pump dispenses 8 litres of product every hour, continuously, at 7 bar.

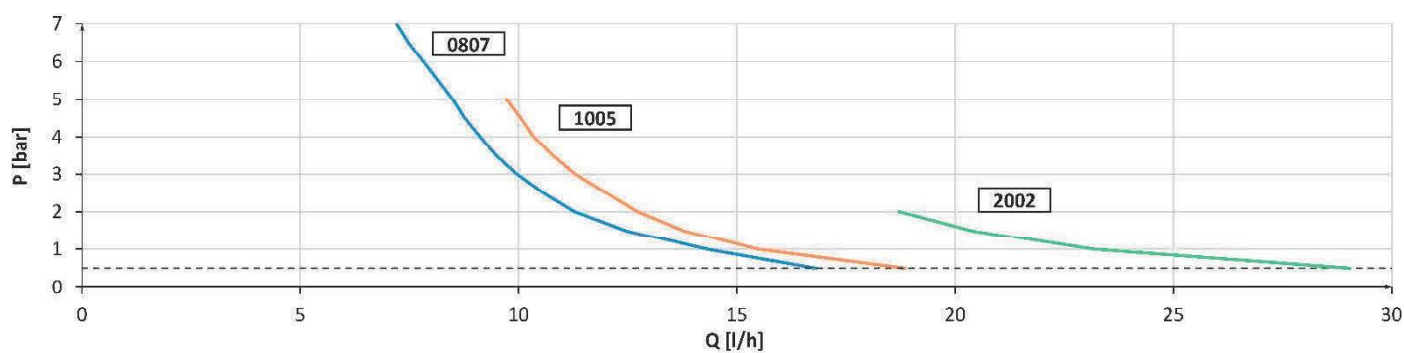
The flow rate curves are provided below:



Multiflow A MA



Multiflow B MA



Multiflow C MA

The values indicated are intended with a tolerance of $\pm 10\%$ and refer to a series of tests carried out on similar equipment with water, at a temperature of 20°C.

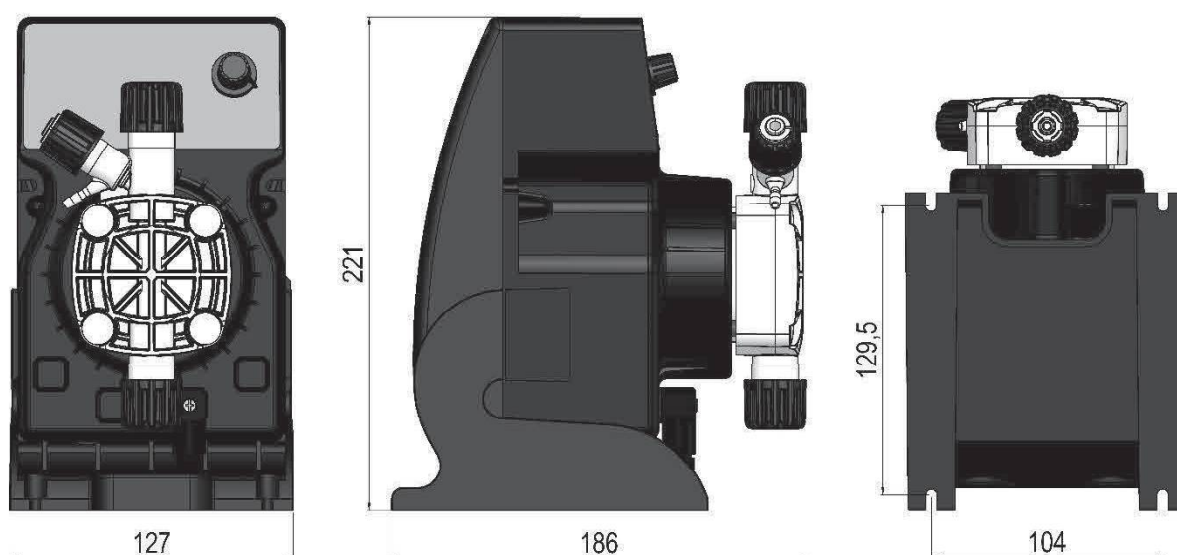


Fig. 1a – PBM pump, base-mounted (dimensions indicated in mm.).

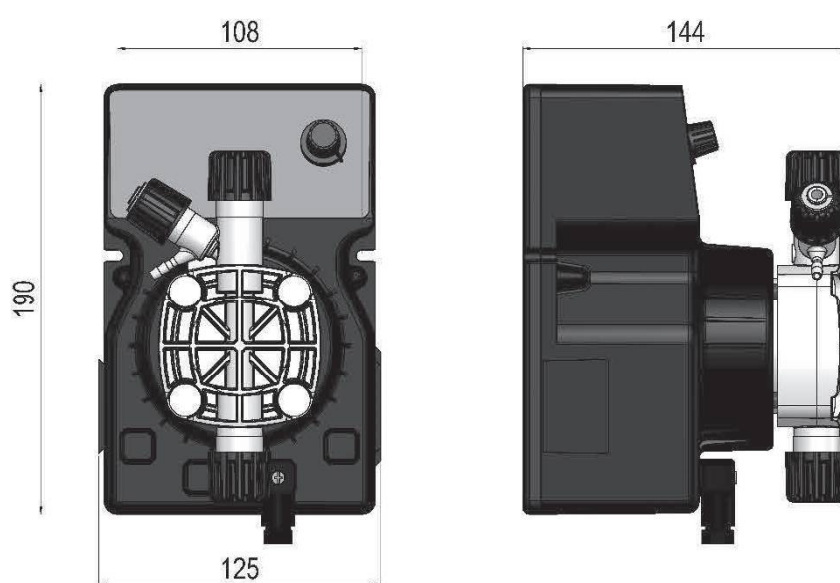


Fig. 1b – PMF pump, wall fixing (dimensions indicated in mm.).



Materials in contact with the additive

In the standard configuration, MultiFlow series pumps are supplied with the following materials:

Pump body	Diaphragm	Seals	Valves	Fittings	Pipes	Chassis
PVDF/PP	PTFE	FPM/EPDM	CERAMIC	PVDF/PP	PE / PVC	PP



Premise

This section describes the operations to be performed to install the pump, pipes and for the wiring. Read these instructions carefully before starting any operations.

Follow the instructions below during pump installation:

- Make sure the pump is turned off and that all the relative equipment is also turned off before starting work.
- Stop immediately if anomalous events or warning signs arise. Only start work again when you are absolutely certain that you have eliminated the cause of the problem.
- Do not install the pump in dangerous places or in environments at risk of fire or explosion.
- Avoid electrical hazards and liquid leaks. Never use a damaged or faulty pump.

Assembling the pump

Install the pump away from heat sources and in a dry place, at a maximum room temperature of 40°C. The minimum temperature, in any case not lower than 0°C, depends on the type of product to be dispensed which must always remain in the liquid state. Use the anchors supplied to secure the pump, or those most suitable for the type of support chosen.

The pump can be installed both above and below the level of the liquid contained in the tank. In the most frequent case of mounting the pump above the tank, limit the height of the suction to within 1.5 meters of the liquid level. (see Fig. 2a). For liquids which let out aggressive fumes, do not install the pump in direct contact with the fumes and take the necessary precautions to prevent premature deterioration of the equipment.

In case of under head installation, i.e. with the pump placed below the liquid level of the tank, (Fig. 2b), siphoning may occur. **Periodically check the functionality of the injection valve as its excessive wear may lead to the additive entering into the system by gravity even with the pump switched off.** Should the problem persist, insert a suitably calibrated back pressure valve **C** between the metering pump and the injection point as shown in Fig. 2b.



Fig. 2a



Fig. 2b

Electrical connection

Comply with standards in force in the different countries regarding electrical installation. If the power cord does not have a plug, the equipment must be connected to the mains by means of an omnipolar disconnecting switch with at least 3 mm distance between the contacts. **All the supply circuits must be interrupted before accessing the connection devices (Fig. 3).**



100 - 250 VAC 50/60 HZ

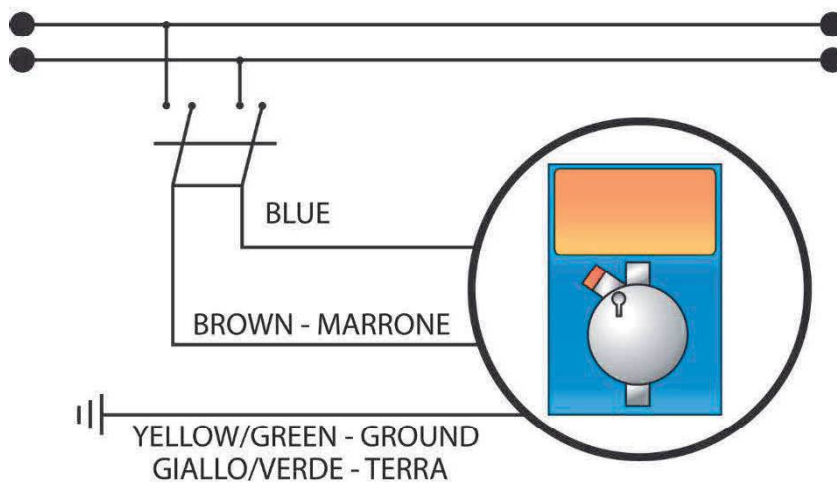


Fig.3 – Electrical connection



Hydraulic connection

The delivery fitting will always remain in the upper part of the pump from which the tube that goes to the system to be treated will start. Therefore, the suction fitting will always be in the lower part of the pump, where the tube with the filter that goes to the container of the liquid to be dispensed will be mounted.

1. Remove the seal on the ring nut (2)
2. Insert the tube (1) through the ring nut (2) and the bushing (3)
3. Push the end of the tube (1) onto the tapered spout of the nozzle (4) **making sure that the tube reaches the end of the tapered part of the nozzle**
4. Move the nozzle (4) close to the fitting (5)
5. Tighten the ring nut (2) on the fitting (5)

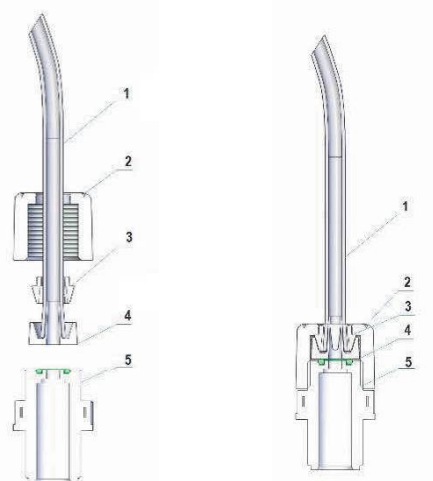


Fig.4 – Hydraulic connection

Similarly, remove the pre-cut cap on the delivery (suction) side from the pump body, by previously removing the ring nut (2), the bushing (3) and the nozzle (4). Then proceed by following the aforementioned steps 2 and 3. Lastly, move the nozzle on the delivery (suction) side of the pump body and tighten the ring nut (2).

To prime the pump, connect the delivery pipe and follow the sequence shown in Fig. 5:

- connect the purge fitting on the pump body to a pipe which returns to the suction tank then unscrew the purge knob, **operating the pump in PRIMING mode (priming, see Chapter "OPERATING INSTRUCTIONS")**;
- keep the purge valve B open until all the air contained in the tube and in the pump body has come out;
- close the purge valve.

In the event of difficulties in priming the pump, use a syringe to extract the additive from the purge fitting, decreasing the number of pulses delivered by the device and respecting the safety requirements relating to the product to be dispensed.

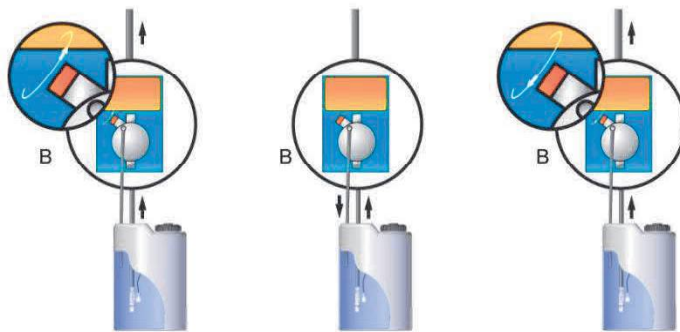


Fig.5 – Purge activation for priming

Typical system diagram

- A Injection fitting
- B Injection valve
- C Back pressure valve
- D Pressure gauge
- E Relief valve
- F Power socket
- G Additive tank
- H Foot filter
- I Level probe



Fig. 6 – Typical system



Avoid excessive bends on the delivery pipe and on the suction pipe in order to prevent bottlenecks on the pipe. Apply a 3/8" or 1/2" gas female fitting on the piping of the system to be treated, at the most suitable point to inject the product to be dosed. This fitting is not included in the supply. Screw the injection valve in the "gasket fitting" by using PTFE tape, see Fig. 7. Connect the tube (5) to the tapered coupling of the injection valve (3) and block it with the specific ring nut (4). The injection valve (3) is also a check valve.

1. system to be treated
2. tapered coupling 3/8" – 1/2"
3. injection valve
4. pipe coupling ring nut
5. pump delivery tube
6. PTFE tape

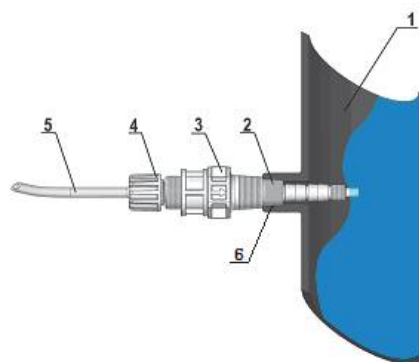


Fig. 7 - Fitting Assembly



Supply

Each pump is supplied with:

- 4 m of flexible transparent PVC suction tube 4x6*

- 2 m of delivery tube in opaque semi-rigid polyethylene 4x6**
- 1 injection valve 3/8" - 1/2" BSP for 4x6** hose
- 1 bottom filter for 4x6 hose**
- 1 set of instructions

* For the Multiflow B MA version there is 2m of 4x6 flexible transparent PVC suction hose and 2m of 6x8 flexible transparent PVC suction hose.

** 6x8 for Multiflow B MA version.

SPECIAL WARNINGS FOR THE DISPENSING OF SULPHURIC ACID (MAX. 50%)

In this case it is crucial to pay attention to the following:



- replace the flexible transparent PVC suction tube with a semi-rigid polyethylene delivery tube.
- remove all the water present from the pump body beforehand, in fact should it mix with sulphuric acid it generates a strong concentration of gas resulting in the overheating of the affected area causing damage to the valves and pump body.

To carry out this operation, should the equipment not be fixed to the system, pumping can be activated for a few seconds (15-30) by keeping it upside down and without pipes connected to the fittings. Should this be impossible then disassemble and reassemble the pump body (Annex 1), acting on the four fixing screws.

OPERATING INSTRUCTIONS

Manual pump

Manually adjustable flow rate by means of a potentiometer which acts on the frequency of the injections.

Control panel

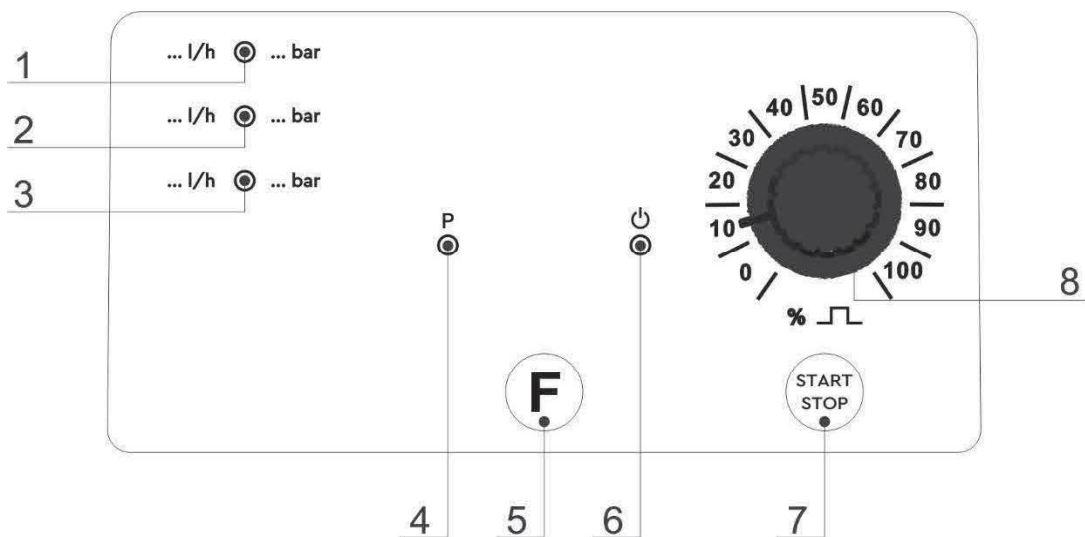


Fig. 8 - Control and warning panel

1	GREEN LED signalling operation mode 1
2	GREEN LED signalling operation mode 2
3	GREEN LED signalling operation mode 3
4	GREEN LED signalling PRIMING operation
5	Function selection button: PRIMING / mode 3 / mode 2 / mode 1

6	Pump fed/stand by TWO-COLOUR LED
7	STOP and START button
8	Frequency adjustment knob (%) of the number of injections

	mode 1	mode 2	mode 3
Multiflow A	8 l/h - 10 bar	5 l/h - 12 bar	2 l/h - 16 bar
Multiflow B	50 l/h - 0 bar	40 l/h - 1 bar	30 l/h - 3 bar
Multiflow C	20 l/h - 2 bar	10 l/h - 5 bar	8 l/h - 7 bar

Controls and warnings description



- g) START/STOP SWITCH (9), it controls the pump start and stop. In stand-by conditions (STOP) the LED (8) flashes green at long intervals: in this condition, pressing the function selection button (7) enables to select the desired operating mode.
- h) LED (8), indicates the injections of the metering pump, it flashes red when the pump is running.
- i) FLOW RATE ADJUSTMENT, KNOB (10), adjusts the number of injections/minute of the pump up to 100% of the maximum flow rate.
- j) FULL SCALE CHANGE, with the pump in standby, press the BUTTON (7) to select the operating mode.
- k) LEVEL CONTROL: the metering pump is designed for level control (see paragraph "Level alarm"); in level alarm the pump stops dispensing and the LED (8) goes to steady RED.
- l) PRIMING FUNCTION: to facilitate priming, the pump is equipped with a **PRIMING** function. It is recommended to open the purge bypass on the pump body (for hydraulic versions equipped with one) during priming operations. The air purge fitting **must always be connected** to the relative tube with return to the suction tank.

Activation of this function is performed as follows:

- to select the PRIMING function, press the button (7) until the green LED (6) lights up;
- press the **START/STOP** button;
- the pump starts delivering injections at the PRIMING frequency (80 pulses/minute) until the operator presses the **START/STOP** button again.

Level alarm

The metering pump contains a male connector for the input connection of a level switch (supplied on request). To connect this accessory, use a flat or Phillips-type screwdriver on the screw (1) then remove the cap (2) or the connector (3), depending on the version, pulling it in the direction of the red line, uncoupling it from the male connector located on the metering pump (Fig. 9). The connector insert (3) must be removed from its container and turned so that its key (4) is positioned as indicated (Fig. 10) for correct coupling with the corresponding male connector mounted on the chassis. To remove the connector insert (3) remove the screw (1) and using a flathead screwdriver act on the two tabs on the seat where the screw (1) was located and remove the part. Connect the 2 wires of the level probe one to PIN 3 and the other to PIN 4, indistinctly, then reassemble the connector (3). Insert the connector (3) on the corresponding male connector on the chassis and tighten the screw (1).

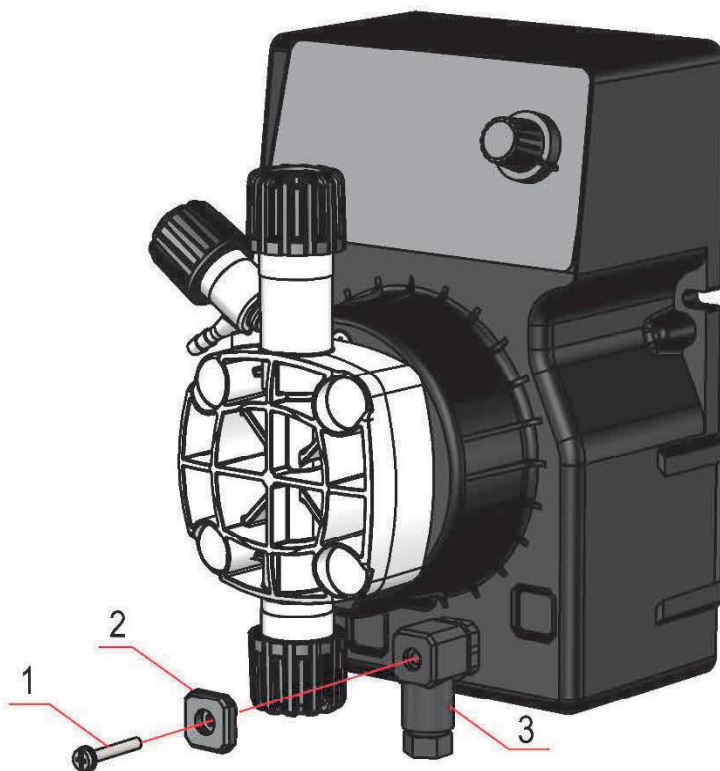


Fig. 9 - Level probe connection

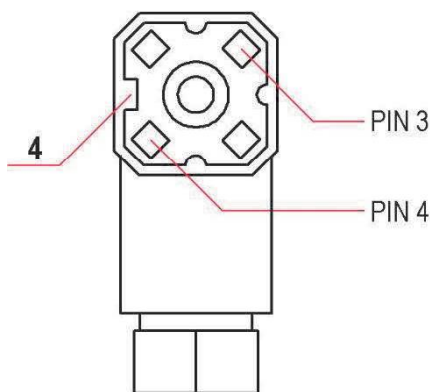


Fig. 10 – Correct positioning of the level probe connector.

Level probe connection: connect the probe cables to PIN 3 and 4 of the connector (3) and follow the previous instructions in this paragraph. When the height inside the tank of the product to be dispensed drops below the minimum preset level, the contact closes and after approximately 3 seconds the metering pump stops dispensing, signalling the alarm via the LED (8) which remains red. The delay in stopping the metering pump serves to prevent any disturbances in the liquid level in the suction tank from triggering false alarms. As soon as the contact reopens, the pump resumes operation in the mode that was active before it was stopped.

ROUTINE MAINTENANCE



Routine and thorough maintenance, together with a scheduled inspection, guarantee system conservation and proper operation over time.

We therefore advise you to follow our routine maintenance tips and to stipulate a scheduled service and assistance contract with a trusted Technical Assistance Centre.

Check pump operation at least every 6 months. In case of intensive use of the metering pump, it is recommended to increase the frequency of the checks.

Check that no deposits have formed in the heads, in which case they can be removed by disassembling the piece and washing it thoroughly with water. For deposits that are difficult to remove, it is recommended to immerse the head in an aqueous solution of hydrochloric acid, then rinse the piece thoroughly with water.

Regularly check the seals of the check valves, the diaphragm and all the seals, as they may deteriorate over time as parts of normal wear.

To replace the diaphragm, unscrew the 4 screws, unscrew the diaphragm, replace it together with the O-Ring, reassemble everything taking care to tighten the screws evenly (alternatively screw in crisscross fashion respecting the tightening torque requirement (see Annex 1)

Regularly check the correct tightness of the injection valve, replacing it if required, as it may be subject to deterioration due to wear and performing a check may cause the dispensed product to return to the pump.

Caution: When removing the metering pump from the system, carefully remove the tube from the delivery fitting, as any residual additive inside the tube may escape. Also in this case, the chassis must be clean should it come into contact with the additive.

Caution: when the power supply is disconnected, the pump may emit one or more pulses, therefore make sure the pump is fully switched off before disconnecting the tubes.

The maintenance times listed below are to be considered for theoretical purposes only, their variability will depend on various factors: type of system, type of product dispensed, environment where the pump is installed, etc.

Before carrying out any maintenance or cleaning operations on the metering pump, it is required to:

- 1) Check that it is disconnected from the electrical mains (both polarities) by extracting the conductors from the contact points of the mains and spacing the contacts by at least 3 mm.
- 2) Discharge the pressure present in the pump head and in the delivery pipe in the most suitable way (paying the utmost attention).

In the event of leaks from the hydraulic system of the pump (breakage of a valve or pipe), its operation must be stopped, the delivery pipe must be depressurised by adopting the appropriate precautions (gloves, goggles, protective clothing).



ROUTINE MAINTENANCE TABLE

	Time interval						
	2 weeks	1 month	2 months	3 months	4 months	6 months	12 months
Pump operation				✓			
Cleaning the pump body and valves		✓					
Injection Valve cleaning		✓					
Foot Filter Cleaning		✓					
Checking suction and delivery pipes to identify blockage and/or holes			✓				

TROUBLESHOOTING



Given the sturdiness of the product, actual mechanical failures do not occur. However liquid may at times leak from a loose fitting or ring nut, or simply if the delivery pipe bursts. Rarely, any leaks may be caused by the breakage of the diaphragm or by the wear of the diaphragm sealing gasket. In this case, these components must be replaced by disassembling the four screws of the pump body. When reassembling these screws they must be tightened evenly with the correct tightening torque. Once the leak has been repaired, clean the metering pump of any additive residues which by stagnating may chemically attack the pump chassis.



Any work or repairs inside the equipment must be carried out by qualified and authorised personnel.

In the event of maintenance and/or technical intervention, always make sure the pump is disconnected from the electrical mains and that protective clothing and equipment (gloves and safety goggles) are worn.

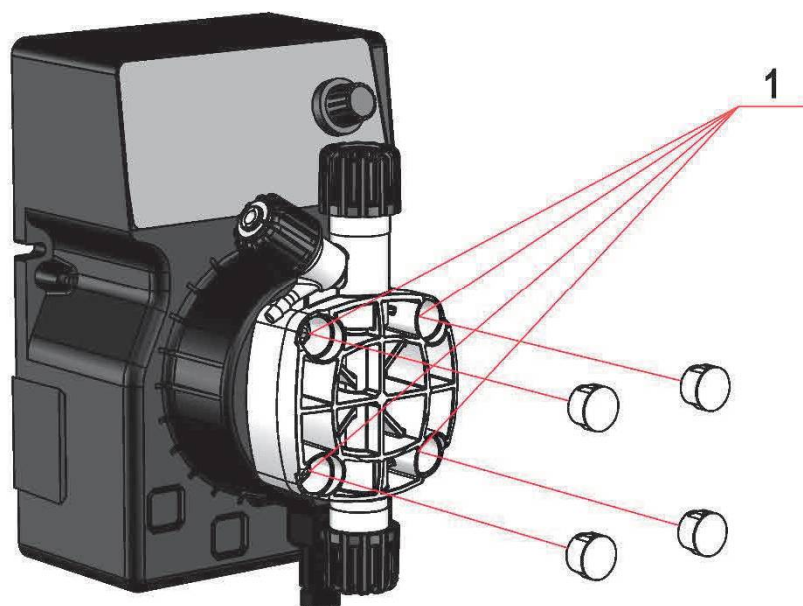
FAULT	SOLUTION
The pump does not dispense	- Check valve mounted incorrectly or worn: mount it correctly or replace it by following the routine maintenance recommendations; - Diaphragm worn: replace it; - Burnt fuse on magnet: replace it (check the resistance of the magnet); - Electromagnet burnt: replace it.
The electronic part does not transmit pulses to the magnet	Circuit board burnt due to overvoltage, lack of earthing, etc.: replace the board.
No LED on	Check that the pump is correctly powered (socket and plug): if the pump remains inactive, contact our Service Centres.
LED on, no strokes in the pump.	Press the START/STOP button; should the problem persist, check that the external stop is not activated or that the pump is in stand-by due to operation of the level probe.
Irregular strokes in the pump	Check that the power supply voltage value is within the indicated limits.
Infiltration detected	c) Using the head gasket Unscrew the four screws of the head and make sure the O-Ring of the pump body is in good condition and the diaphragm is correctly screwed, otherwise replace them. Also make sure the infiltration has not damaged the board or the magnet. d) Using the control panel Observe the board and check the condition of the electrical components and the printed circuit tracks. Check the electrical resistance of the electromagnet. Should one of the two components be damaged, proceed with its replacement. Make sure all components that tighten the delivery pipe are mounted correctly or are not damaged. Also replace the screen printing that allowed the infiltration.
The pump runs but does not draw liquid	Disassemble the suction and delivery valves, clean them and reassemble them in the same position. Check the status of filter clogging and of the injection valve.

WARRANTY



2 years (excluding parts subject to normal wear, namely: valves, fittings, pipe collars, tubes, seals, filter and injection valve). Improper use of the equipment will void this warranty. The warranty is understood as ex-works or authorised distributors.

DISEGNI
DRAWING
DESSINS
DIBUJOS
DESENHO
ZEICHNUNGEN



1. viti corpo pompa / pump head screws
/ vis du corps de pompe / tornillos
del cuerpo de la bomba /
parafusos do corpo da bomba /
Schrauben Pumpenkörper

IT - Serrare con coppia di serraggio pari a 180 – 200 N*cm con una chiave esagonale da 2,5 mm

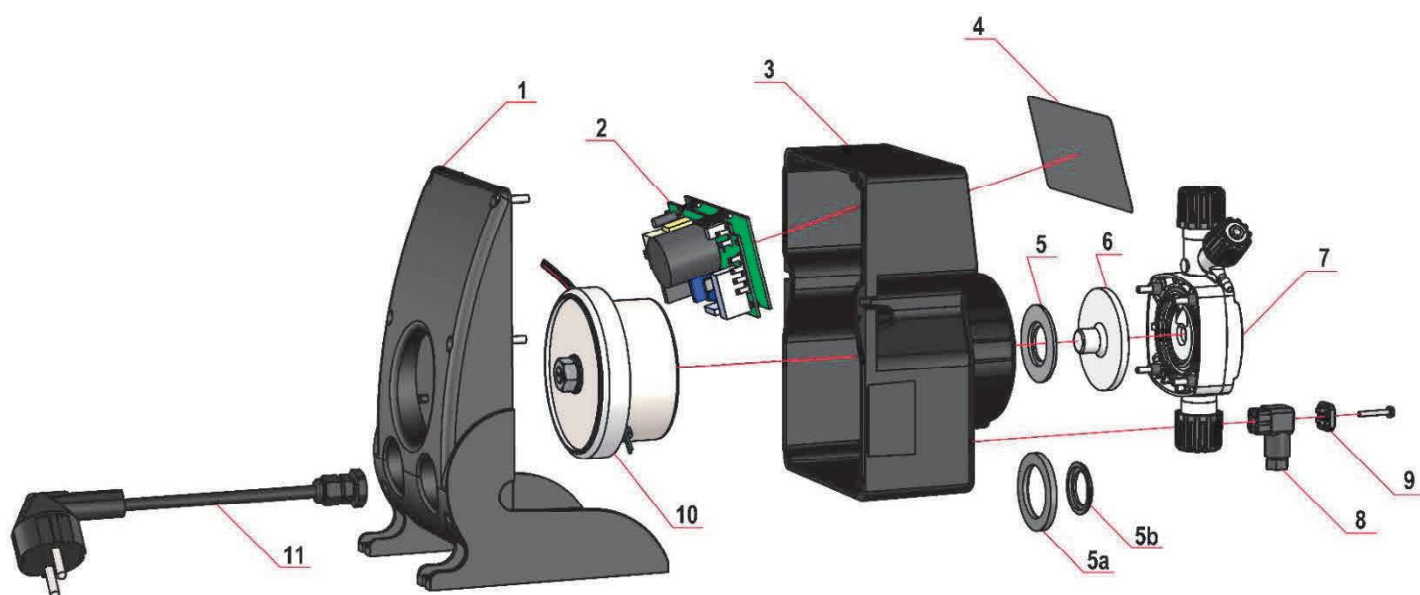
EN - To tighten the four screws use a dynamometer screwdriver set to a tightening torque of 180÷200 Nxcm using a hexagonal insert of 2,5 mm

FR - serrer avec un couple de serrage de 180 – 200 N*cm avec une clé six pans de 2,5 mm

ES - apriete con un par de apriete de 180 – 200 N*cm con una llave hexagonal de 2,5 mm

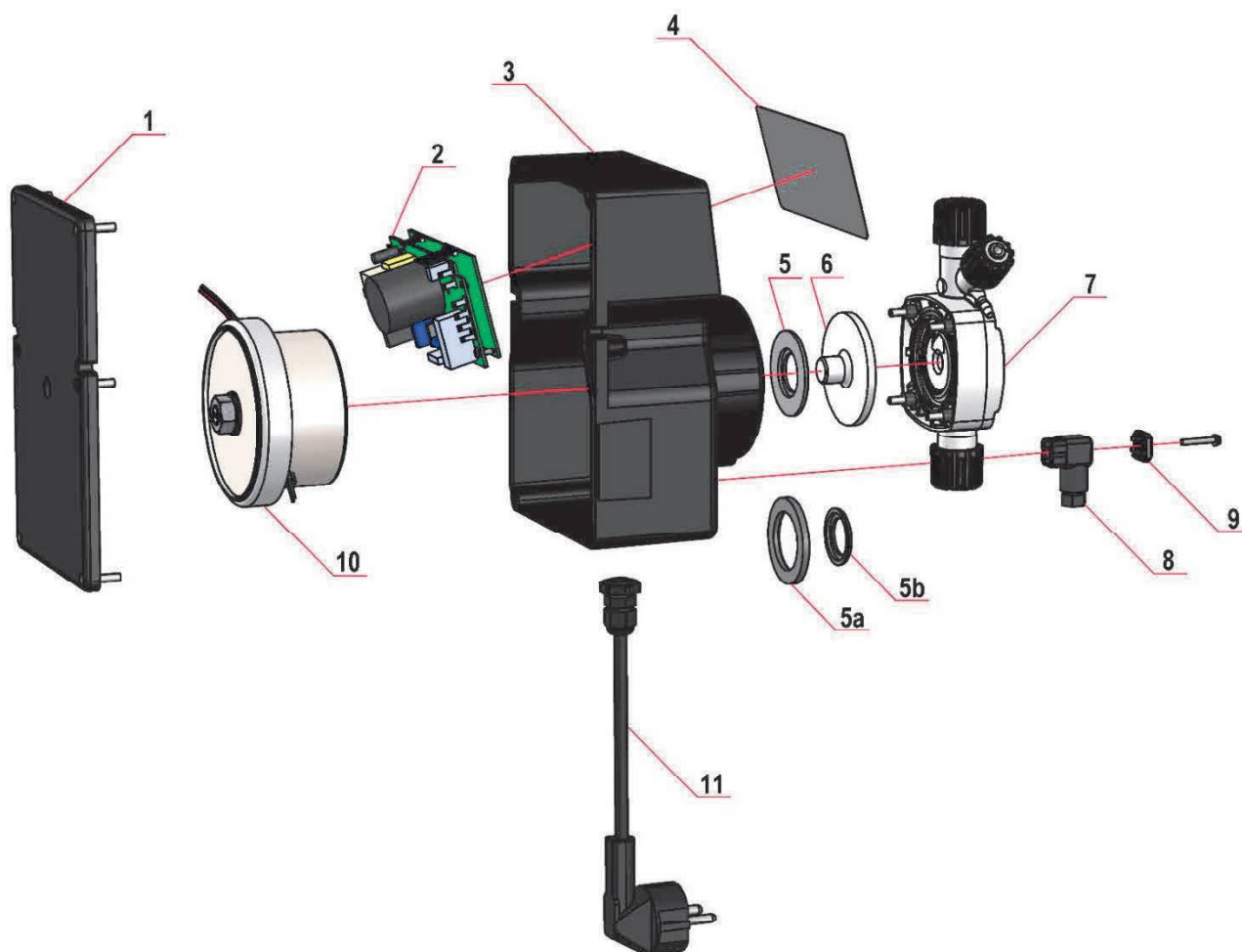
PT - apertar com torque de aperto de 180 – 200 N*cm com uma chave hexagonal de 2,5mm

DE – Spannen mit Anzugsmoment 180 – 200 N*cm mit Sechskantschlüssel Größe 2,5mm



1. Coperchio in plastica / Plasting cover / Couvercle en plastique / Tapa de plástico / Tampa de plástico / Kunststoffdeckel
2. Scheda comandi / PC board / Carte des commandes / Tarjeta de mandos / Placa de comandos / Steuerkarte
3. Cassa in plastica / Plasting casing / Caisse en plastique / Caja de plástico / Caixa de plástico / Kunststoffgehäuse
4. Serigrafia / Serigraphy / Sérigraphie / Serigrafía / Serigrafia / Siebdruck
5. Flangia* / Seal knob* / Joint poignée* / Guarnición perilla* / Guarnição do manípulo* / Dichtung Knopf*
6. Diaframma / Adjustment knob / Poignée de réglage / Perilla de regulación / Manípulo de regulagem / Knopf zum Einstellen
7. Corpo pompa / Pump head / Corps de pompe / Cuerpo de la bomba / Corpo da bomba / Pumpenkörper
8. Connettore femmina sensore livello / Level sensor female connector / Connecteur femelle du capteur de niveau / Conector hembra del sensor de nivel / Conector fêmea do sensor de nível / Buchse des Niveausensors
9. Tappo / cap / bouchon / tapa / tampa / Schutzstopfen
10. Elettromagnete / Magnet / Électroaimant / Electroimán / Eletroímã / Elektromagnet
11. Cavo di alimentazione / Power cord / Câble d'alimentation / Cable de alimentación / Cabo de alimentação / Versorgungskabel

* Flange 5a e 5b presenti solo per la versione Multiflow A MA al posto della flangia 5 / * Flanges 5a and 5b only available for Multiflow A MA version instead of flange 5 / * Les brides 5a et 5b ne sont disponibles que pour la version Multiflow A MA à la place de la bride 5 / * Las bridas 5a y 5b sólo están disponibles para la versión Multiflow A MA en lugar de la brida 5 / * As flanges 5a e 5b só estão disponíveis para a versão Multiflow A MA em vez da flange 5 / * Dichtung Knopf 5a und 5b nur für Multiflow A MA Version anstelle von Dichtung Knopf 5 erhältlich

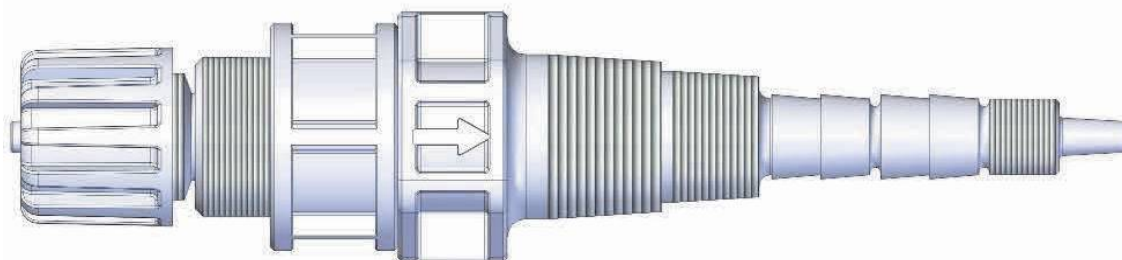


1. Coperchio in plastica / Plasting cover / Couvercle en plastiqu / Tapa de plástico / Tampa de plástico / Kunststoffdeckel
2. Scheda comandi / PC board / Carte des commandes / Tarjeta de mandos / Placa de comandos / Steuerkarte
3. Cassa in plastica / Plasting casing / Caisse en plastique / Caja de plástico / Caixa de plástico / Kunststoffgehäuse
4. Serigrafia / Serigraphy / Sérigraphie / Serigrafía / Serigrafia / Siebdruck
5. Flangia* / Seal knob* / Joint poignée* / Guarnición perilla* / Guarnição do manípulo* / Dichtung Knopf*
6. Diaframma / Adjustment knob / Poignée de réglage / Perilla de regulación / Manípulo de regulagem / Knopf zum Einstellen
7. Corpo pompa / Pump head / Corps de pompe / Cuerpo de la bomba / Corpo da bomba / Pumpenkörper
8. Connettore femmina sensore livello / Level sensor female connector / Connecteur femelle du capteur de niveau / Conector hembra del sensor de nivel / Conector fêmea do sensor de nível / Buchse des Niveausensors
9. Tappo / cap / bouchon / tapa / tampa / Schutzstopfen
10. Elettromagnete / Magnet / Électroaimant / Electroimán / Eletroímã / Elektromagnet
11. Cavo di alimentazione / Power cord / Câble d'alimentation / Cable de alimentación / Cabo de alimentação / Versorgungskabel

* Flange 5a e 5b presenti solo per la versione Multiflow A MA al posto della flangia 5 / * Flanges 5a and 5b only available for Multiflow A MA version instead of flange 5 / * Les brides 5a et 5b ne sont disponibles que pour la version Multiflow A MA à la place de la bride 5 / * Las bridas 5a y 5b sólo están disponibles para la versión Multiflow A MA en lugar de la brida 5 / * As flanges 5a e 5b só estão disponíveis para a versão Multiflow A MA em vez da flange 5 / * Dichtung Knopf 5a und 5b nur für Multiflow A MA Version anstelle von Dichtung Knopf 5 erhältlich

(IT) VALVOLA INIEZIONE 3/8" – 1/2" / 3/8" (EN) 3/8" – 1/2" INJECTION VALVE
(FR) VANNE D'INJECTION 3 /8" – 1/2" (ES) VÁLVULA DE INYECCIÓN 3/8" –
1/2" (PT) VÁLVULA DE INJEÇÃO 3/8" – 1/2" (DE) 3/8" – 1/2" EINSPRITZVENTIL

Vista complessiva / Comprehensive view and features / Vue d'ensemble / Vista
global / Vista total / Übersichten und Merkmale

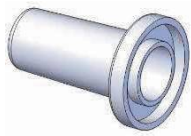
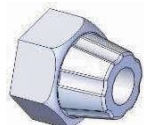


CONFIGURAZIONE STANDARD / STANDARD CONFIGURATION / CONFIGURATION STANDARD /
CONFIGURACIÓN ESTÁNDAR

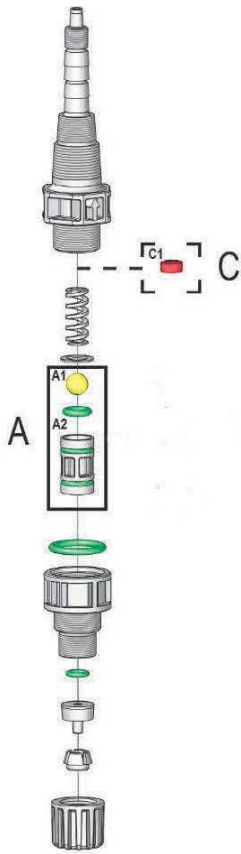
Dimensioni e caratteristiche / Overall dimensions and characteristics / Dimensions et caractéristiques / Dimensiones y características / Dimensões e características / Abmessungen und Eigenschaften

	1 attacco pompa 3/8" 3/8" pump connection raccord pompe 3/8" conexión de la bomba 3/8" conexão bomba 3/8" Pumpenanschluss 3/8"
	2 attacco pompa 1/2" 1/2" pump connection raccord pompe 1/2" conexión de la bomba 1/2" conexão bomba 1/2" Pumpenanschluss 1/2"
	3 attacco su impianto 1/2" gc 1/2" pipeline connection raccord sur installation 1/2" gc conexión en instalación 1/2" gc conexão no sistema 1/2" gc Anschluss an der Anlage 1/2" gc
	4 attacco su impianto 3/8" gc 3/8" pipeline connection raccord sur installation 3/8" gc conexión en instalación 3/8" gc conexão no sistema 3/8" gc Anschluss an der Anlage 3/8" gc
	5 prolunga ad intagli pre-cut extension rallonge à fentes extensión con hendiduras extensão com entalhes Verlängerung mit Voreinschnitten
	6 attacco M10x1 M10x1 threaded connection raccord M10x1 conexión M10x1 conexão M10x1 Anschluss M10x1

Componenti / Kit contents / Composants / Componentes / Componentes / Inhalt des Bausatzes

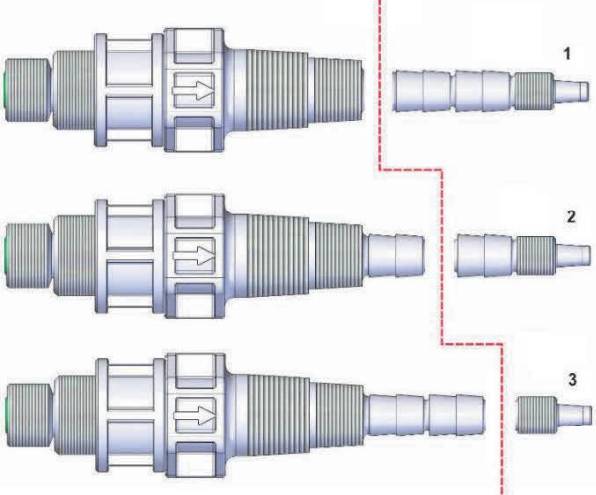
Componenti / Kit contents / Composants / Componentes / Componentes / Inhalt des Bausatzes		
FIG. / REF.	DESCRIZIONE / DESCRIPTION / DESCRIPTION / DESCRIPCIÓN / DESCRIÇÃO / BESCHREIBUNG	Q.TA' / Q.TY / Q.TÉ / CANT. / QUANT. / MENGE
	VALVOLA DI INIEZIONE INJECTION VALVE VANNE D'INJECTION VÁLVULA DE INYECCIÓN VÁLVULA DE INJEÇÃO EINSPRITZVENTIL	1
	BOCCOLA PER TUBI 6x8 TUBE BUSH 6x8 DOUILLE POUR TUYAUX 6x8 CASQUILLO PARA TUBOS 6x8 BUCHA PARA TUBOS 6x8 BÜCHSE FÜR SCHLÄUCHE 6x8	1
	UGELLO PER TUBI 6x8 TUBE NOZZLE 6x8 BUSE POUR TUYAUX 6x8 TOBERA PARA TUBOS 6x8 BICO PARA TUBOS 6x8 DÜSE FÜR SCHLÄUCHE 6x8	1
	GHIERA 1/2" NIPPLE 1/2" BAGUE 1/2" VIROLA 1/2" VIROLA 1/2" GEWINDERING 1/2"	1
	BOCCOLA PER TUBI 10x14 TUBE BUSH 10x14 DOUILLE POUR TUYAUX 10x14 CASQUILLO PARA TUBOS 10x14 BUCHA PARA TUBOS 10x14 BÜCHSE FÜR SCHLÄUCHE 10x14	1
	UGELLO PER TUBI 10x14 TUBE NOZZLE 10x14 BUSE POUR TUYAUX 10x14 TOBERA PARA TUBOS 10x14 BICO PARA TUBOS 10x14 DÜSE FÜR SCHLÄUCHE 10x14	1
	O-RING PER UGELLO 10X14 NOZZLE O-RING 10x14 JOINT TORIQUE POUR BUSE 10X14 JUNTA TÓRICA PARA TOBERA 10X14 O-RING PARA BICO 10X14 O-RING FÜR DÜSE 10X14	1
	DISTANZIALE PER MOLLA SPACER SPRING ENTRETOISE POUR RESSORT DISTANCIADOR PARA RESORTE ESPAÇADOR PARA MOLA ABSTANDHALTER FÜR FEDER	1
	GHIERA M10x1 M10x1 TUBE NUT BAGUE M10x1 VIROLA M10x1 VIROLA M10x1 GEWINDERING M10x1	1
	TUBO FLESSIBILE 4X6 FLEXIBLE HOSE 4X6 TUYAU FLEXIBLE 4X6 TUBO FLEXIBLE 4X6 TUBO FLEXÍVEL 4X6 SCHLAUCH 4X6	NON FORNITO NOT SUPPLIED NON FOURNI NO SUMINISTRADO NÃO FORNECIDO NICHT MITGELIEFERT

Sce lta livello di contropressione con foro di uscita diametro 7mm / 7 mm Output diameter injector lenght option / Choix du niveau de contrepression avec orifice de sortie diamètre 7mm / Elección del nivel de contrapresión con orificio de salida de diámetro 7mm / Escolha do nível de contrapressão com furo de saída de 7mm de diâmetro / Option 7 mm Auslassöffnung variable Injektorlänge

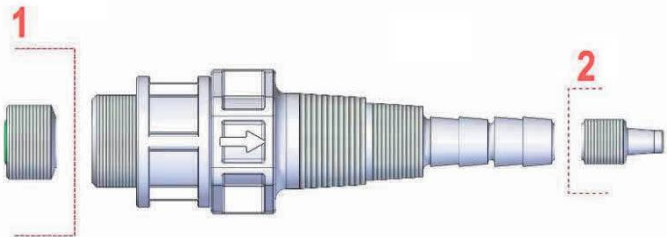
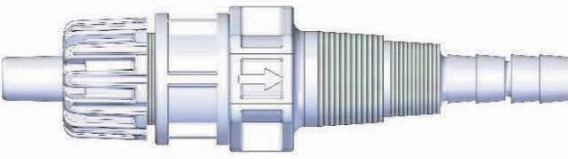
	CONFIGURAZIONE / CONFIGURATION / CONFIGURATION / CONFIGURACIÓN / CONFIGURAÇÃO / KONFIGURATION			
	A (STANDARD)	A + C	A (STANDARD)	A + C
	Molla / spring / ressort /muelle / mola / Frühling (PVDF)	Molla / spring / ressort /muelle / mola / Frühling (PVDF)	Molla / spring / ressort /muelle / mola / Frühling (HASTELLOY)	Molla / spring / ressort /muelle / mola / Frühling (HASTELLOY)
	Sfera/ball/bille/e sfera/kugel D9,5	Sfera/ball/bille/esf era/kugel D9,5 + Distanziale/space r/entretoise/ distanciador/ espaçador/ Abstandhalter	Sfera/ball/bille/e sfera/kugel D9,5	Sfera/ball/bille/e sfera/kugel D9,5 + Distanziale/spa cer/entretoise/ distanciador/ espaçador/ Abstandhalter
	CONTROPRESSIONE / COUNTERPRESSURE / CONTREPRESSION / CONTRAPRESIÓN / CONTRAPRESSÃO / GEGENDRUCK			
	0,4 bar	1,0 bar	1,5 bar	1,7 bar

Vista esplosa / Exploded view / Vue éclatée
/ Vista despiezada / Vista explosida /
Explosionszeichnung

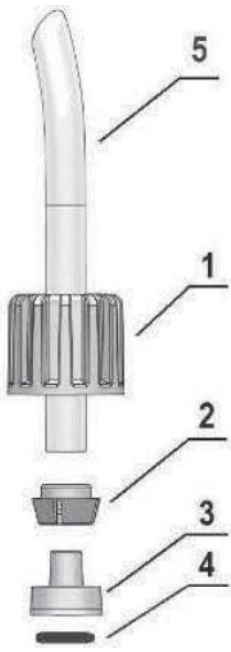
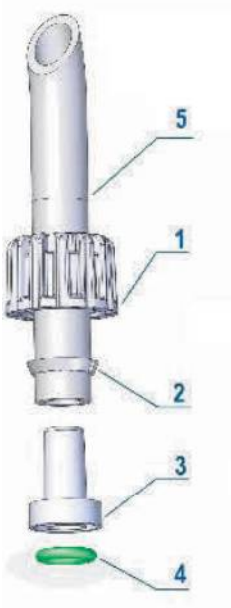
Sce lta lunghezza iniettore / Counterpressure level option / Choix longueur injecteur / Elección de la longitud del inyector / Escolha do comprimento do injetor

	CORTO / SHORT / COURT / CORTO / KURZ Lunghezza minima / Minimal length / Longueur minimale / Longitud mínima / Comprimento mínimo / Mindestlänge
	MEDIO / MEDIUM / MOYEN / MEDIO / MÉDIO / MITTELANG
	LUNGO / LONG / LONG / LARGO / LONGO / LANG
Iniettore con lunghezze prestabilite / Preset lengths injector / Injecteur avec longueurs préétablies / Inyector con longitudes preestablecidas / Injetor com comprimentos preestabelecidos / Einspritzvorrichtung mit vorbestimmten Längen	
Da tagliare in base alle necessità / Cut according to requirements / À couper selon les besoins / Para cortar según la necesidad / A serem cortados com base nas necessidades / Kann je nach den Anforderungen abgeschnitten werden	

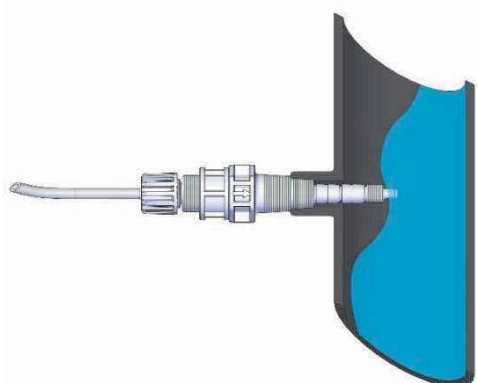
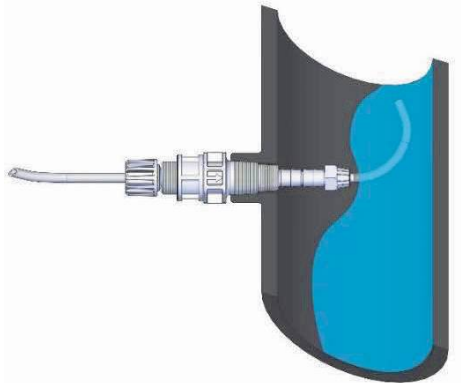
Scelta attacco tubi 10x 14 / Connection for 10x 14 hose option / Choix raccord tuyaux 10x14 / Elección de la conexión de tubos 10x14 / Escolha da conexão tubos 10x14 / Option Anschluss für 10 x 14 Schlauch

	
Taglio attacco 3/8" (1) e taglio beccuccio D3 (2) 3/8" connection cutting (1) and D3 nozzle cutting (2) Découpe raccord 3/8" (1) et découpe bec D3 (2) Corte conexión 3/8" (1) y corte boquilla D3 (2) Corte da conexão 3/8" (1) e corte da entrada D3 (2) Schnitt Anschluss 3/8" (1) und Schnitt Tülle D3 (2)	Completivo valvola per tubi 10x14 Valve overall view for tube 10x14 Ensemble vanne pour tuyaux 10x14 Global válvula para tubos 10x14 Total da válvula para tubos 10x14 Gesamtansicht Ventil für Schläuche 10x14

Kit fissaggio tubi 6x8 e 10x14 / Fixation kit for tube 6x8 and 10x 14 / Kit de fixation des tuyaux 6x8 et 10x 14 / Kit de fijación de tubos 6x8 y 10x14 / Kit fixação tubos 6x8 e 10x14 / Fixation kit for tube 6x8 and 10x14 / Befestigungsbausatz für 6 x 8 und 10 x 14 Schlauch

		1.Ghiera / Nut / Bague / Virola / Virola / Gewinding 2.Boccola / Bush / Douille / Casquillo / Bucha / Büchse 3.Ugello / Nozzle / Buse / Tobera / Bico / Ugello 4.O-ring / Joint torique / Junta tórica / O-Ring 5.Tubo / Hose / Tuyau / Tubo / Schlauch
Kit fissaggio tubi 6 x 8 6 x 8 hose fixing kit Kit de fixation des tuyaux 6 x 8 Kit de fijación de tubos 6 x 8 Kit fixação tubos 6 x 8 Befestigungsbausatz Schläuche 6 x 8	Kit fissaggio tubi 10 x 14 10 x 14 hose fixing kit Kit de fixation des tuyaux 10 x 14 Kit de fijación de tubos 10 x 14 Kit fixação tubos 10 x 14 Befestigungsbausatz Schläuche 10 x 14	

Esempi di installazione / Fixation kit for tube 6x8 and 10x14 / Exemples d'installation / Ejemplos de instalación / Exemplos de instalação / Montagebeispiele

	
INSTALLAZIONE SU ATTACCO 3/8" INSTALLATION SU ATTACCO 3/8" INSTALLATION SUR RACCORD 3/8" INSTALACIÓN EN CONEXIÓN 3/8" INSTALAÇÃO NA CONEXÃO 3/8" INSTALLATION AN ANSCHLUSS 3/8"	INSTALLAZIONE SU ATTACCO 1/2" CON PROLUNGA FLESSIBILE 4x6 ANTI INCROSTAZIONI INSTALLATION ON 1/2" CONNECTION WITH ANTIFOAM 4x6 FLEXIBLE EXTENSION INSTALLATION SUR RACCORD 1/2" AVEC RALLONGE FLEXIBLE 4x6 ANTI-INCRUSTATIONS INSTALACIÓN EN CONEXIÓN 1/2" CON EXTENSIÓN FLEXIBLE 4x6 ANTI-INCRUSTACIONES INSTALAÇÃO NA CONEXÃO 1/2" COM EXTENSÃO FLEXÍVEL 4x6 ANTI-INCRUSTAÇÕES INSTALLATION AN ANSCHLUSS 1/2" MIT SCHLAUCHVERLÄNGERUNG 4x6, VERKRUSTUNGSABWEISEND

(IT) FILTRO VALVOLA DI FONDO 3/8" – 1/2" (EN) 3/8" – 1/2" FOOT VALVE FILTER
(FR) FILTRE VANNE DE FOND 3/8" – 1/2" (ES) FILTRO VÁLVULA DE FONDO 3/8" – 1/2" (PT)
FILTRO VÁLVULA DE FUNDO 3/8" – 1/2" (DE) 3/8" – 1/2" FUSSVENTILFILTER

Vista complessiva / Comprehensive view and features / Vue d'ensemble / Vista global / Vista total / Übersichten und Merkmale

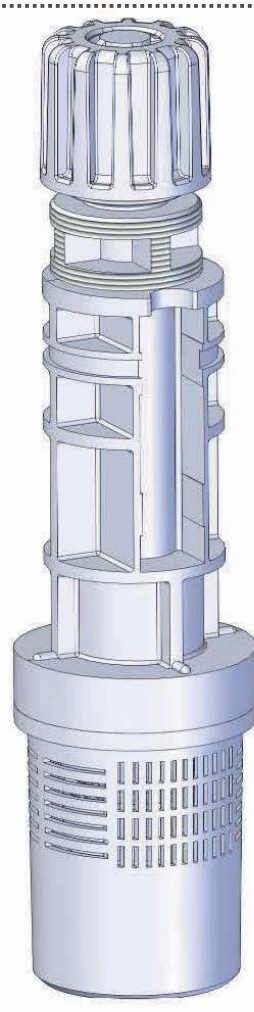
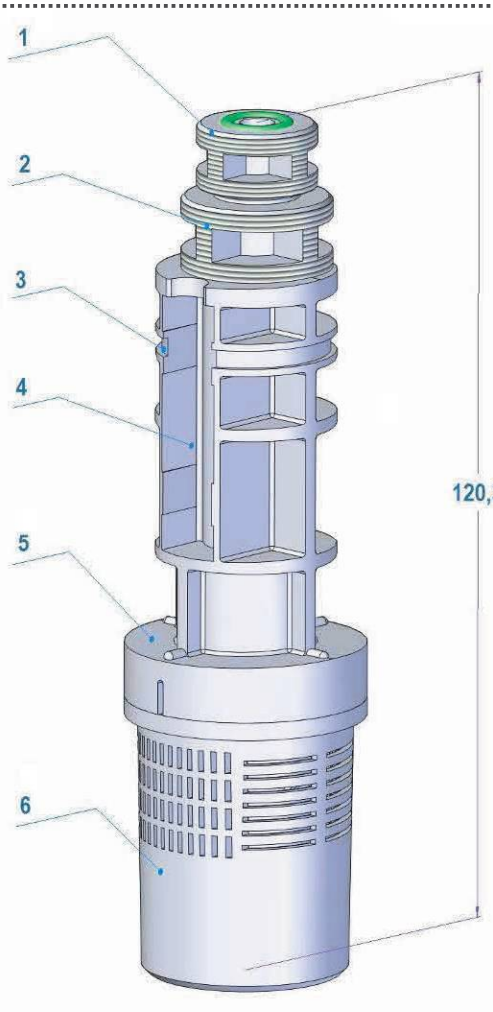
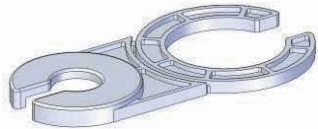
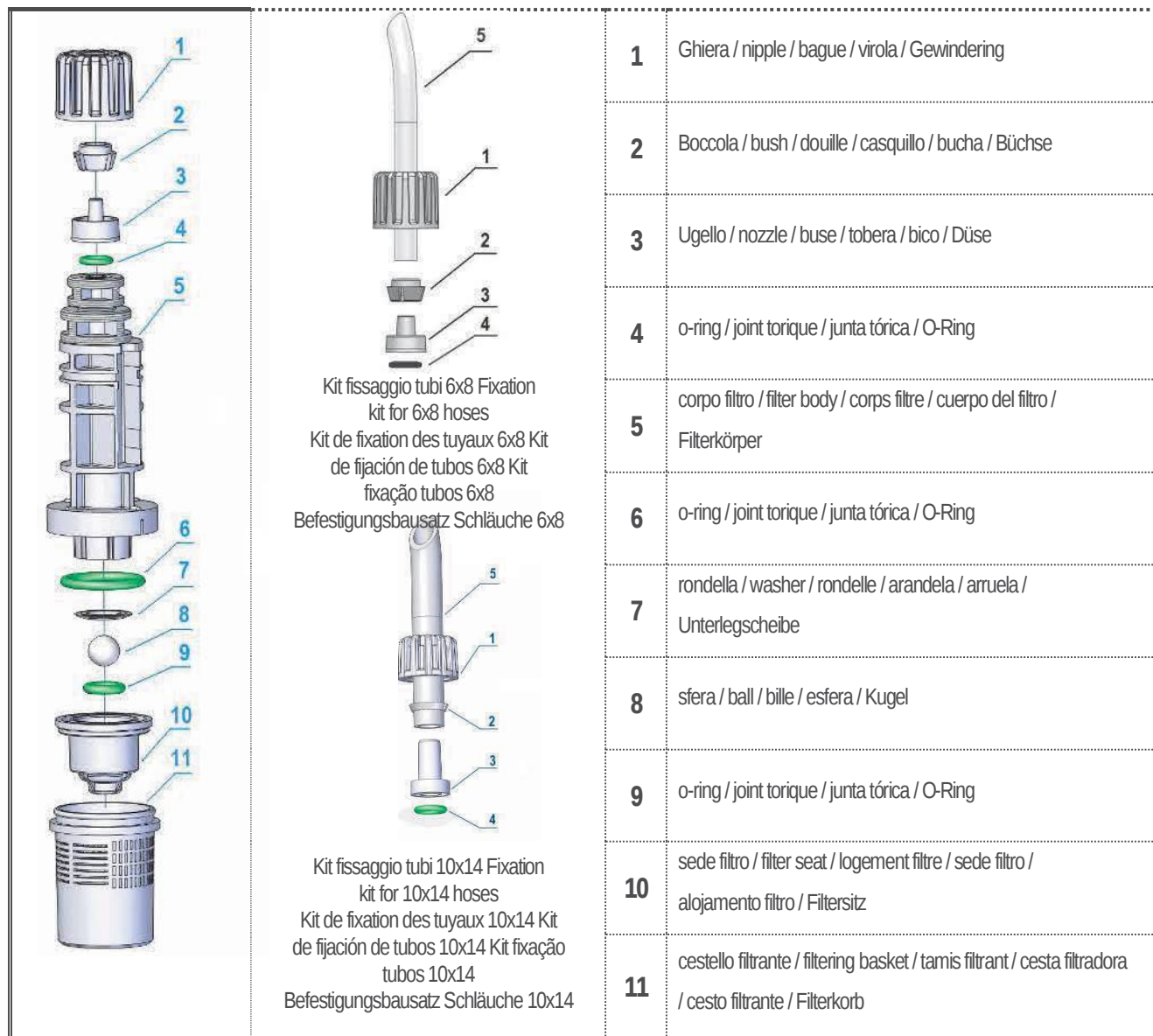
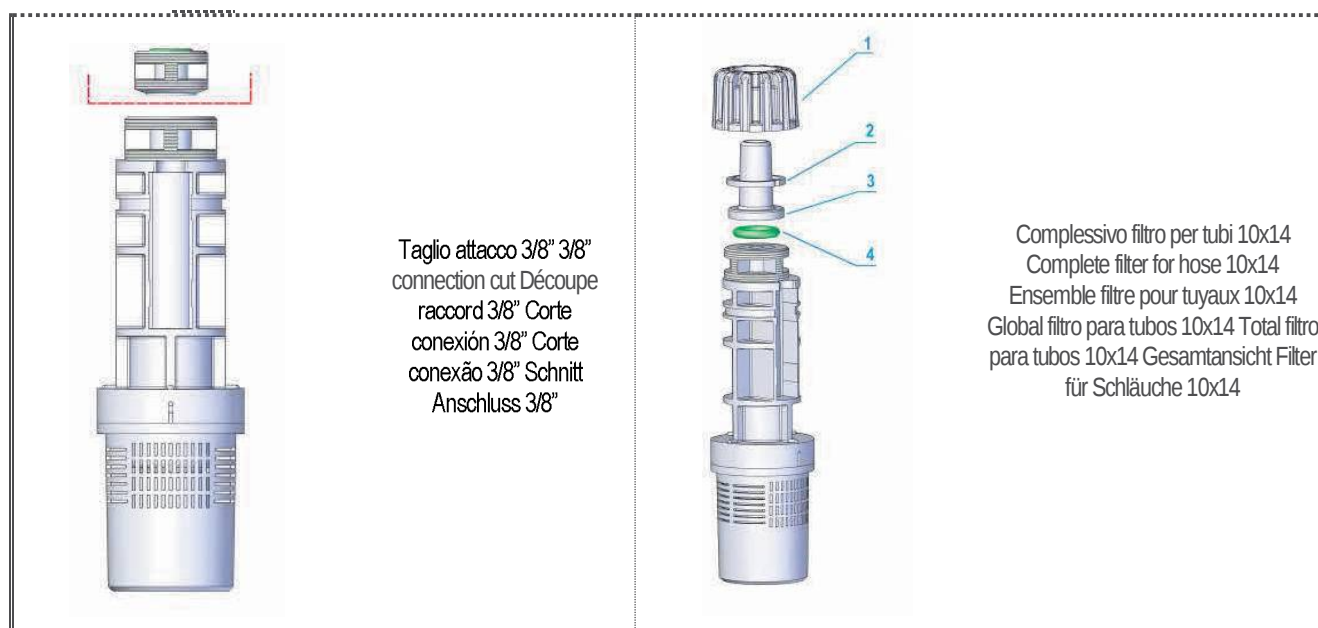
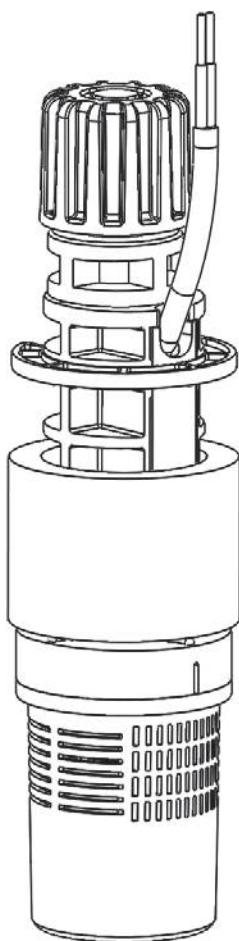
		1 attacco pompa 3/8" 3/8" pump connection raccord pompe 3/8" conexión de la bomba 3/8" conexão bomba 3/8" Pumpenanschluss 3/8"
		2 attacco pompa 1/2" 1/2" pump connection raccord pompe 1/2" conexión de la bomba 1/2" conexão bomba 1/2" Pumpenanschluss 1/2"
		3 sede staffa sonda di livello level probe support seat logement étrier sonde de niveau alojamiento abrazadera sonda de nivel alojamento armação sonda de nível Sitz Bügel Niveausonde
		4 sede sensore livello (opz.) level probe seat (opt.) logement capteur de niveau (opt.) alojamiento sensor de nivel (opc.) alojamento sensor de nível (opc.) Sitz Niveausensor (optional)
		5 corpo filtro filter body corps filtre cuerpo del filtro corpo filtro Filterkörper
		6 cestello filtrante filtering basket tamis filtrant cesta filtradora cesto filtrante Filterkorb

FIG. / REF.	DESCRIZIONE / DESCRIPTION / DESCRIPTION / DESCRIPCIÓN / DESCRIÇÃO / BESCHREIBUNG	Q.TA' / Q.TY / Q.TÉ / CANT. / QUANT. / MENGE
	FILTRO FILTER FILTRE FILTER	1
	BOCCOLA PER TUBI 6x8 TUBE BUSH 6x8 DOUILLE POUR TUYAUX 6x8 CASQUILLO PARA TUBOS 6x8 BUCHA PARA TUBOS 6x8 BÜCHSE FÜR SCHLÄUCHE 6x8	1
	UGELLO PER TUBI 6x8 TUBE NOZZLE 6x8 BUSE POUR TUYAUX 6x8 TOBERA PARA TUBOS 6x8 BICO PARA TUBOS 6x8 DÜSE FÜR SCHLÄUCHE 6x8	1
	GHIERA ½" NIPPLE 1/2" BAGUE ½" VIROLA ½" GEWINDERING ½"	1
	BOCCOLA PER TUBI 10x14 TUBE BUSH 10x14 DOUILLE POUR TUYAUX 10x14 CASQUILLO PARA TUBOS 10x14 BUCHA PARA TUBOS 10x14 BÜCHSE FÜR SCHLÄUCHE 10x14	1
	UGELLO PER TUBI 10x14 TUBE NOZZLE 10x14 BUSE POUR TUYAUX 10x14 TOBERA PARA TUBOS 10x14 BICO PARA TUBOS 10x14 DÜSE FÜR SCHLÄUCHE 10x14	1
	O-RING PER UGELLO 10x14 NOZZLE O-RING 10x14 JOINT TORIQUE POUR BUSE 10x14 JUNTA TÓRICA PARA TOBERA 10x14 O-RING PARA BICO 10x14 O-RING FÜR DÜSE 10x14	1
	STAFFA SONDA DI LIVELLO LEVEL PROBE SUPPORT ÉTRIER SONDE DE NIVEAU ABRAZADERA SONDA DE NIVEL ARMAÇÃO SONDA DE NÍVEL BÜGEL NIVEAUSONDE	1

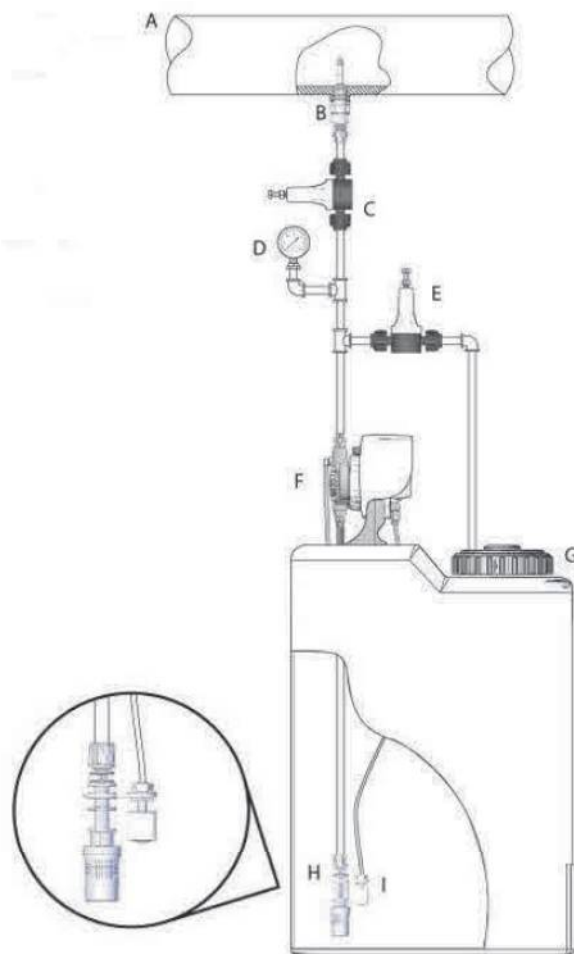


Scelta attacco tubi 10x 14 / Connection for 10x 14 hose option / Choix raccord tuyaux 10x14 / Elección de la conexión de tubos 10x 14 / Escolha da conexão tubos 10x 14 / Option Anschluss für 10 x 14 Schlauch





FILTRO CON SONDA DI LIVELLO
FOOT FILTER WITH LEVEL PROBE
FILTRE AVEC SONDE DE NIVEAU
FILTRO CON SONDA DE NIVEL
FILTRO COM SONDA DE NÍVEL
FILTER MIT NIVEAUSONDE



SCHEMA IMPIANTO
INSTALLATION LAYOUT
SCHÉMA INSTALLATION
ESQUEMA DE LA INSTALACIÓN
ESQUEMA DO SISTEMA
SCHEMA DER ANLAGE

	IT	EN	FR	ES	PT	DE
A	Conduittura	Pipeline	Conduite	Tubería	Tubulação	Leitung
B	Valvola di Iniezione	Injection valve	Vanne d'Injection	Válvula de inyección	Válvula de injeção	Einspritzventil
C	Valvola di Contropressione	Counterpressure valve	Vanne de Contrepression	Válvula de contrapresión	Válvula de Contra Pressão	Gegendruckventil
D	Manometro	Gauge	Manomètre	Manómetro	Manômetro	Manometer
E	Valvola di Sfiro	Relief valve	Vanne de Désaération	Válvula de evacuación	Válvula de evacuação	Überlaufventil
F	Pompa Dosatrice	Dosing pump	Pompe Doseuse	Bomba dosificadora	Bomba Doseadora	Dosierpumpe
G	Serbatoio	Tank	Réservoir	Depósito	Reservatório	Behälter
H	Filtro di Fondo	Foot valve	Filtre de Fond	Filtro de fondo	Filtro de Fundo	Bodenfilter
I	Sonda di Livello	Level probe	Sonde de Niveau	Sonda de nivel	Sonda de Nível	Niveausonde