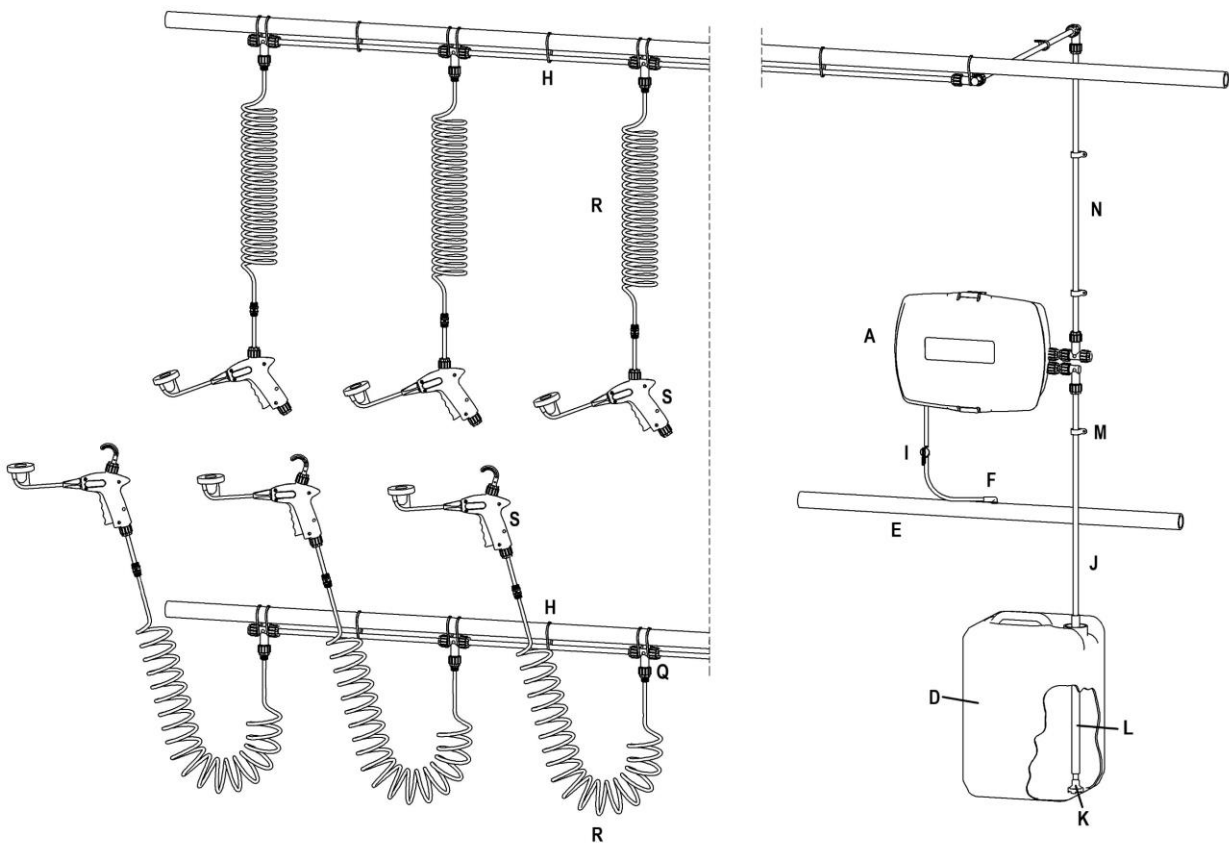


# AMBIC®

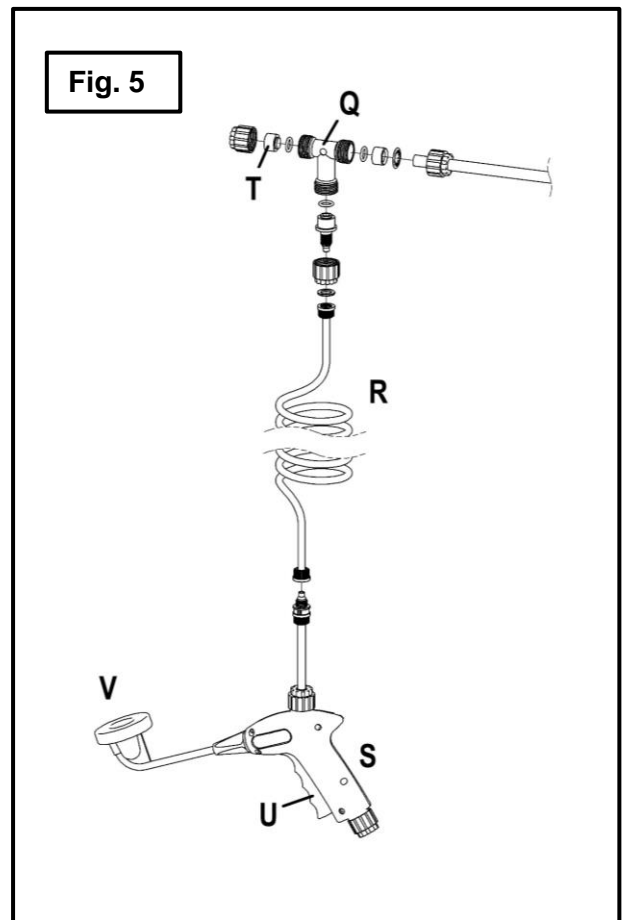
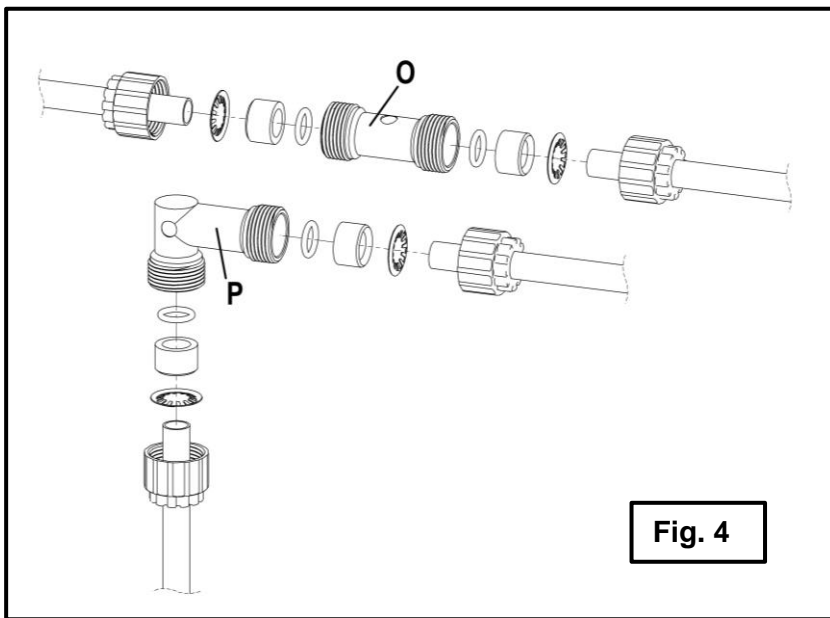
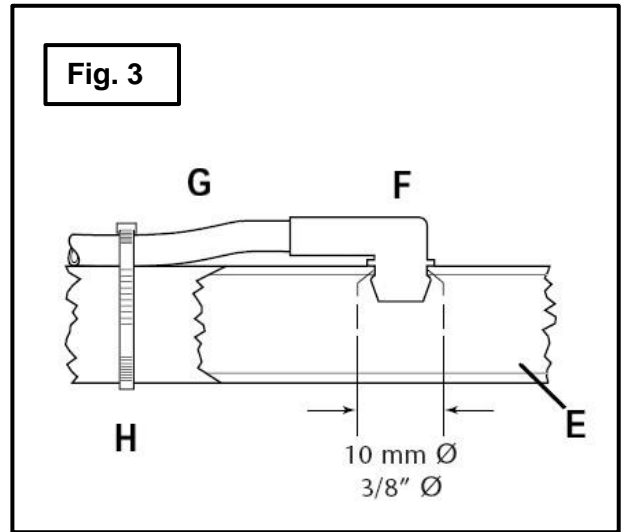
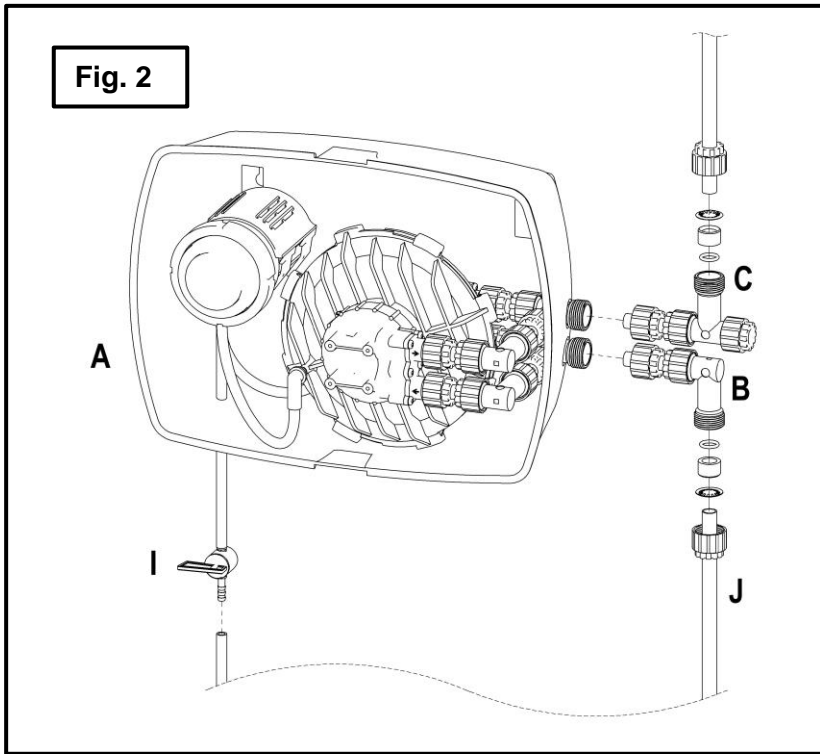
## OptiFlow™

Fig. 1



## OPERATING INSTRUCTIONS

*leading best practice in livestock health management*



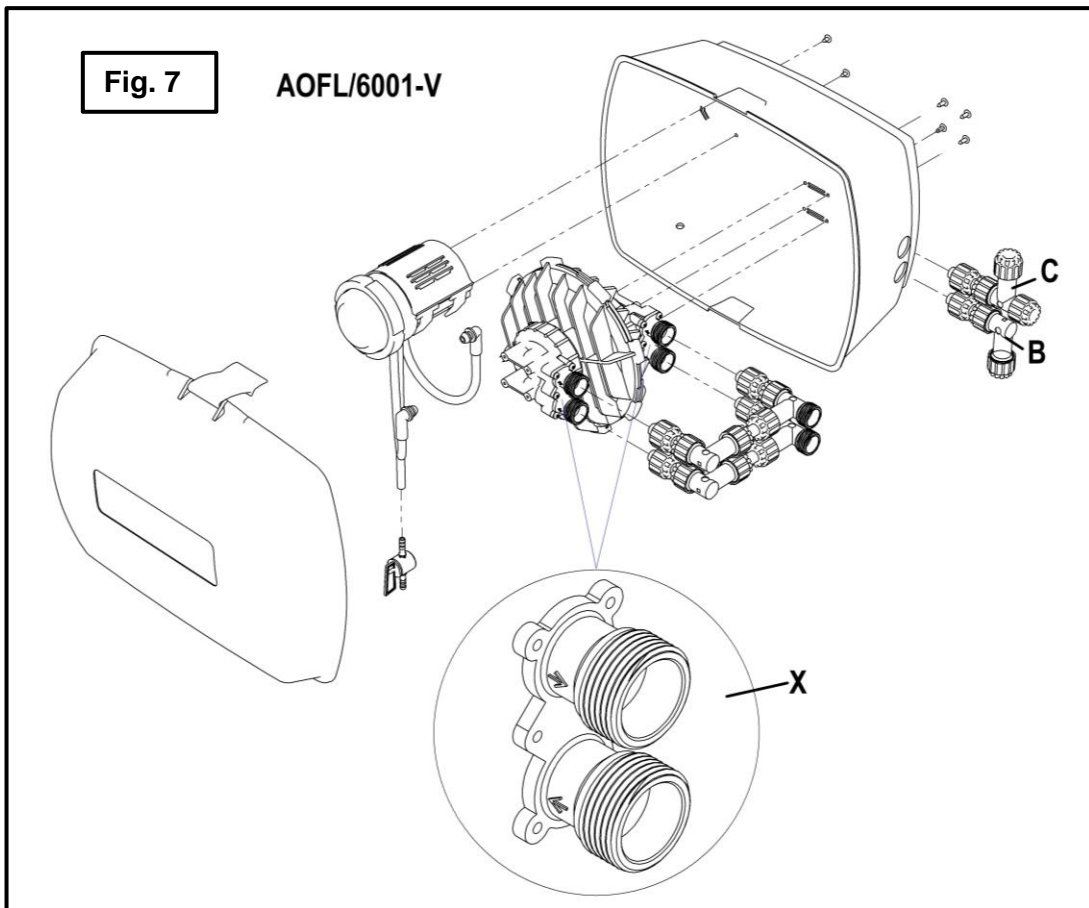
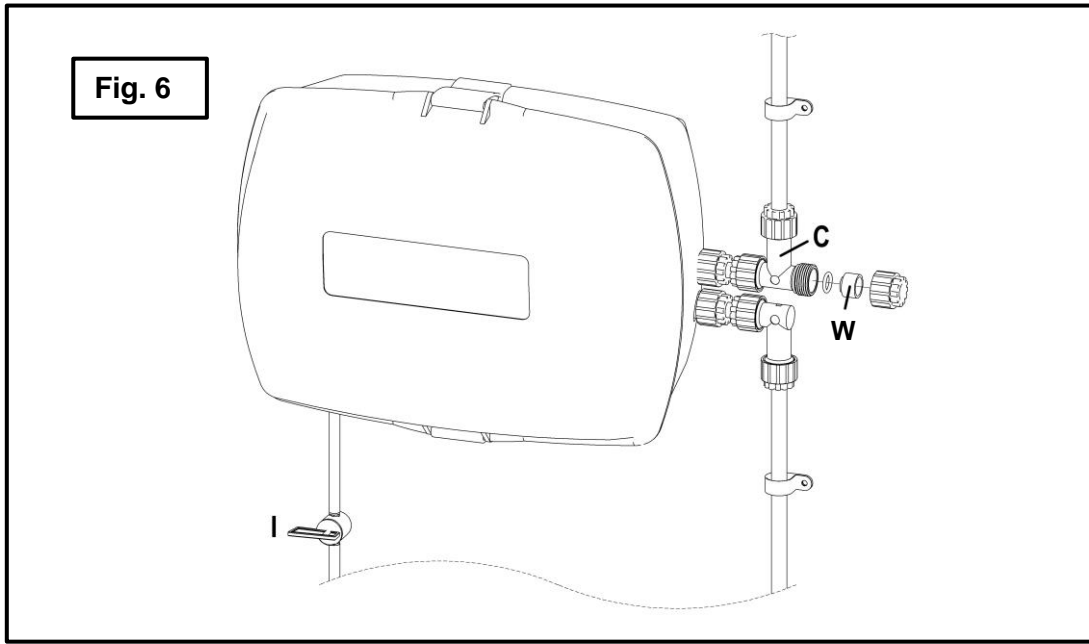


Fig. 8

ATS/425

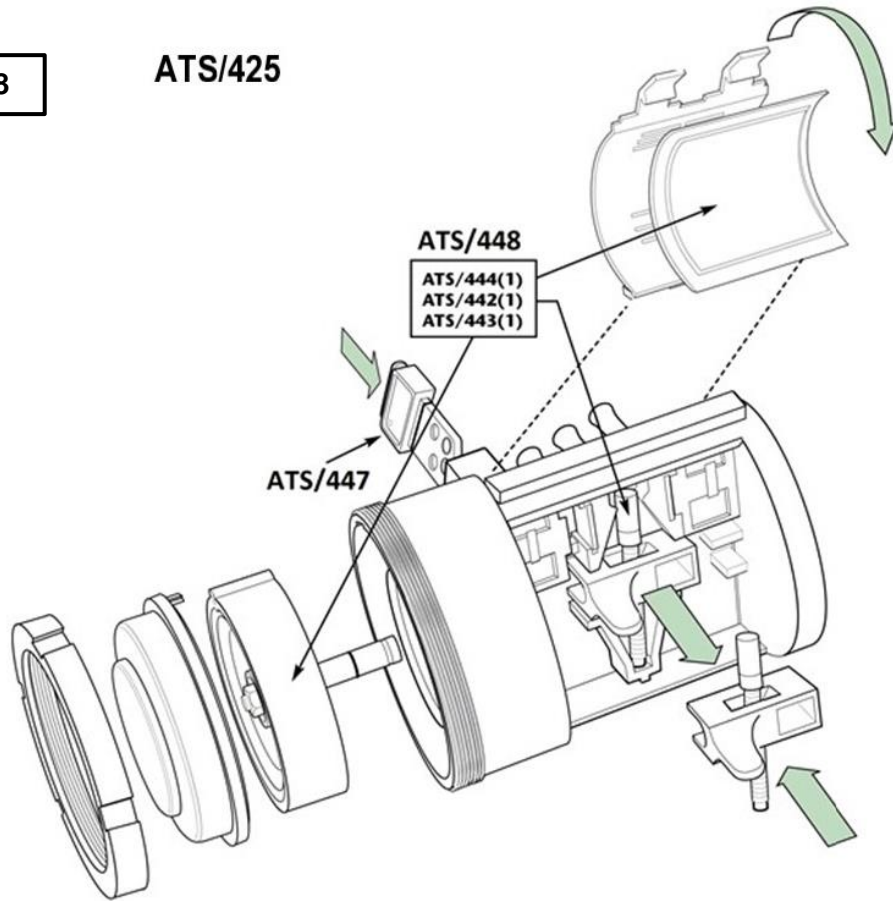
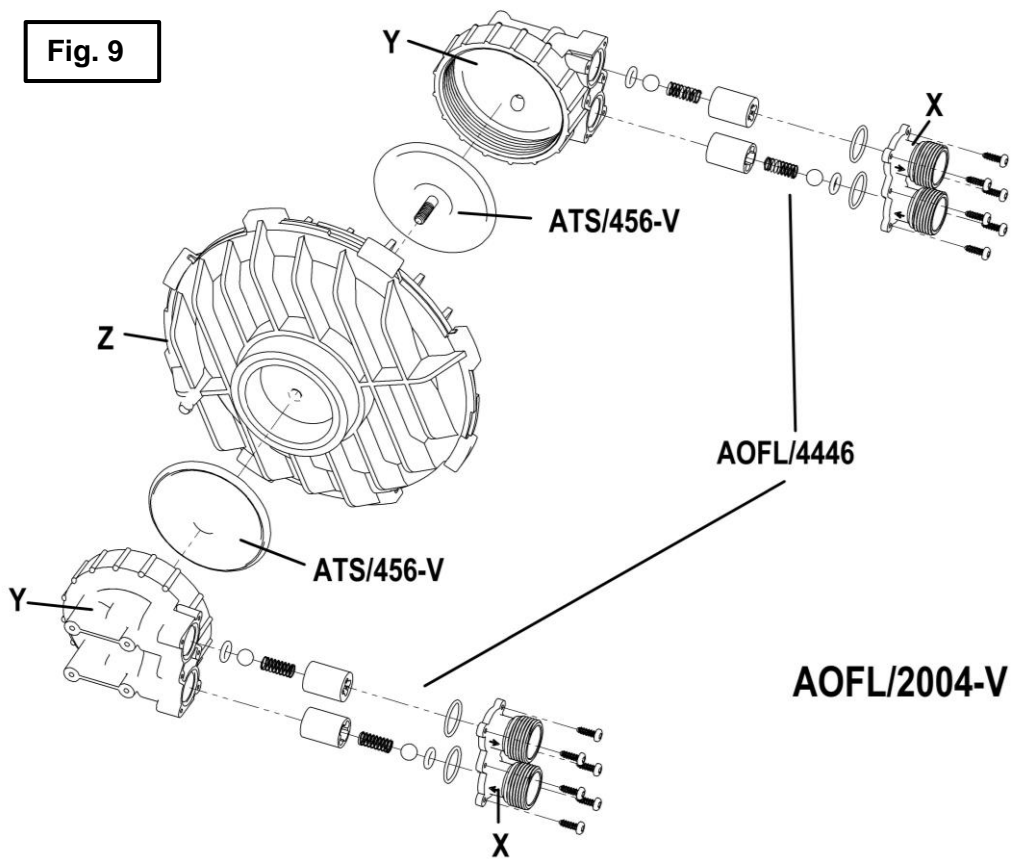


Fig. 9



## SAFETY

The OptiFlow™ Teat Dipping System is designed exclusively for use in milking installations. Any application outside the use described in this operating manual will be taken to be not in accordance with the intended purpose. The manufacturer/supplier will not be held responsible for any losses arising as a result of such use.

The user will take full responsibility for use. USE IN ACCORDANCE WITH THE INTENDED PURPOSE ALSO INCLUDES COMPLYING WITH THE OPERATING MANUAL AND THE CONDITIONS FOR INSPECTION AND MAINTENANCE.

OptiFlow™ is suitable for use with most dipping chemicals, EXCEPT those containing Hypochlorite. When diluting concentrated chemical, ensure that the chemical manufacturer's instructions are followed precisely.

**ATTENTION!** Whilst in operation the installation is under an operating pressure of up to 5 bar! Do NOT direct chemical into your eyes! If chemical enters eyes, rinse with copious amounts of water and seek medical attention!

### 1. INSTALLATION

#### PUMP PORTS ASSEMBLY



(Fig. 2)

Remove the nuts, blanking plugs and O-rings from the pump ports, located on the right side of the Power Unit (A). Connect the Inlet Elbow (B) and the Outlet Tee (C) as shown. Tighten the nut firmly with fingers or an AmbiSpanner™ – do not use pliers or other tools. This method should be used when connecting all such fittings on OptiFlow™.


#### PUMP MOUNTING (Fig. 1)

For general parlour layout refer to Figure 1. Mount the Power Unit (A) on a stable, vertical wall not more than 3 metres (10ft) above the base of the Chemical Container (D) and close to a regulated Vacuum Line (E). Ideally it should be mounted in a dust free environment. Do not install above or near to electrical sockets. The unit will slot onto existing wall brackets where applicable. If this is a new system, fix using 2 x screws and rawplugs. Using the drilling template on page 12. Fit one screw first, then carefully mark and drill the other. Accuracy between centres is most important.

#### VACUUM SUPPLY (Fig. 1, 2, 3)

Drill a 10mmØ (3/8"Ø) hole in the top of the regulated main vacuum line (Fig. 3). Remove burrs, lubricate pipe adaptor (F) and twist into hole. Secure the PVC Tube (G) with Cable Ties (H). Do not over-tighten and avoid sharp bends. Cut tube to correct length and push firmly onto the Vacuum Tap (I).

#### CHEMICAL INTAKE (Fig. 1, 2)

Cut the 1/2" OD tube (J) to the correct length ensuring that the Intake Filter  (K) rests on the bottom of the Chemical Container (D). Note that two lengths of Stiffener (L) are supplied, depending on the size of the container, to ensure the filter stays at the bottom. Ensure that the tubing can be removed from the container without damaging the tube. The minimum bend radius for the 1/2" OD tubing is 63.5mm (2.5").

The intake line must enter the Inlet Elbow (B) vertically as shown. Use a clip (M) to secure the tubing against the wall.

## Ambic Equipment Ltd - OptiFlow™ Operating Instructions

**PRESSURE LINE**  (Fig. 1, 2, 4)

The Pressure Line (**N**) must exit the Outlet Tee (**C**) vertically as shown. Use clips (**M**) to secure the tubing against the wall. Route the tubing into the parlour. Cold conditions will slow the flow of chemical so select a route which is protected from frost. Take care not to exceed the minimum bend radius. A Straight Connector (**O**), and Elbow Connectors (**P**) are supplied if required.

### APPLICATORS (Fig. 1, 5)

Figure 1 shows the two versions of applicator that are available - 'Top Load' or 'Bottom Load'. Note the version you have and install accordingly. The system comes with three applicators; extension kits are available if more are required.

The maximum length to which the coiled tube will stretch is 1.8 metres, so Tee pieces should be positioned along the parlour to enable all cows to be dipped easily without over-stretching the coils. Determine the position of Tees (**Q**) and strap loosely to a suitable support using Cable Ties (**H**). Cut suitable lengths of the ½" OD tubing to connect the Tees (**Q**), again, loosely strapping with Cable Ties (**H**) as you go.

Attach coils (**R**) and applicators (**S**) as shown in Figure 5. Seal open end of last Tee with a Blanking Plug, O-ring and Nut (**T**). Finally, once positions are correct, fully tighten Cable Ties (**H**). Do not over-tighten on the tubing and avoid sharp bends.

## 2. INITIAL START UP (Fig. 1, 2, 5)

**PPE, including eye and skin protection should be used during this process. If at any point a leak is found, release the system pressure by first closing the pump Vacuum Tap (I), and then depressing an Applicator Trigger (U) until flow slows to a minimum - the issue can then be addressed.**

Turn on the vacuum pump and open the Vacuum Tap (**I**). The power unit will automatically start, and you should hear a regular 'clicking' from the Directional Valve (**DV**). Chemical will be drawn from the Chemical Container (**D**), flowing with each click of the pump. The chemical will enter the pump through the Inlet Elbow (**B**) and then exit through the Outlet Tee (**C**). As the chemical flows into the parlour depress the trigger on the first applicator until the chemical flows into the cup. Repeat this process for each applicator until all the air is removed from the system.

If the pump does not prime, briefly attach vacuum to the outlet or place some chemical in a small container and raise it above the level of the Inlet Elbow (**B**).

**Important:** To prevent air from entering the system, replenish chemical supply before it runs out.

## 3. OPERATION

**DIPPING with OptiDipper™** is carried out by depressing and holding the Applicator Trigger (**U**) (Fig. 5) until chemical flows into the Applicator Cup (**V**). To avoid wastage DO NOT FILL THE CUP RIGHT TO THE BRIM, as this will result in chemical overflowing the cup when applied to the teat. Use the applicator to dip each teat carefully into the cup, ensuring all teats are evenly coated with chemical. Depress the trigger briefly between teats to re-fill the cup with chemical. The flow rate can be controlled by selecting one of the supplied restrictors. Unscrew the lance(s) and insert the restrictor(s) as shown on the instructions. No restrictors are not required for very thick dips.

**END OF MILKING** When the main vacuum supply is turned off the system will remain pressurised unless an applicator is held open. It may be necessary to regularly wash each applicator with warm water to avoid the cup becoming blocked with congealed chemical.

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### 4. MAINTENANCE (Fig. 6)

Before carrying out any maintenance on the system ensure:

- You are wearing appropriate PPE, including eye and skin protection.
- The Vacuum Tap (I) is closed.
- System pressure is released by depressing an Applicator Trigger (Fig. 5 U) until flow slows to a minimum.
- The Outlet Plug (W) on the Outlet Tee (C) is removed (catch any chemical which flows from the port in a suitable container).

**DIRECTIONAL VALVE / DV (ATS/425 – Fig. 8)** is located at the top left of the power unit (Fig. 2, 7).

**REMOVAL/INSTALLATION (Fig. 7):** Most maintenance can be carried out with the valve in place. If complete removal is required, grasp the 3-port rubber valve manifold, and gently pull away from the valve. Remove the two screws on the back of the power unit. To refit, reverse the operation.

**VALVE FILTER (ATS/444):** Replace every 1000 hours or sooner if heavily contaminated. Manually release the valve filter cover clips by levering with fingers (Fig. 8). Carefully remove valve filter taking care not to drop dust into the working parts. Fit new valve filter by reversing the process.

**BLEED VALVE INSERT (ATS/447):** Clean every 1000 hours, or sooner if heavily contaminated. Pull insert out of main body taking care not to dislodge the 4 'O' rings in the two small holes near the end (Fig. 8). Inspect the holes to make sure that they are clear and use the strand of wire attached to the bleed insert to remove any debris.

**DIAPHRAGM ASSEMBLY (ATS/443):** Replace every 3000 hours. First remove the valve filter (see above). Remove the spring (ATS/442) and pull the drive box in the direction of the arrow (Fig. 8) using pliers on the lug. Unscrew the large black ring nut and gently prise off the black cap, using a screwdriver in the slot provided. Pull out the rubber diaphragm by grasping the outer rim. Re-fit the diaphragm assembly (ATS/443), taking care not to remove the lubricant on the shaft. If the spring (ATS/442) shows any signs of corrosion, replace it. Fit a new diaphragm assembly by reversing the operation, ensuring that the semi-circular extrusion engages in the recess of the main body. When replacing the drive box, push hard until a click is heard, indicating proper engagement. Prior to fitting the filter and cover, push the drive box from one end of the directional valve to the other and back. An audible click should be heard, indicating that the drive box has been fitted correctly and that it is functioning properly.

**DIAPHRAGM PUMP (AOFL/2004-V – Fig. 9)** is located on the right of the power unit (Fig. 2, 7).

**REMOVAL/INSTALLATION (Fig. 7):** Unscrew the Inlet Elbow (B) and the Outlet Tee (C). Remove the four screws on the back of the power unit. Disconnect the fittings from both Manifolds (X). To refit, reverse the process ensuring the directional arrows on the Manifolds (X) are in the position as shown.

**NON-RETURN VALVES (AOFL/4446 – Fig. 9):** Regular inspection of the Intake Filter (K – Fig. 1), and ensuring that both your chemical and the container are kept free of debris, should ensure the valves remain operational without maintenance. If debris does block the valve(s), the flow rate will be reduced or stop completely. As a first port of call, remove the Outlet Plug (W – Fig. 6) and try to pump some warm, mild detergent through the pump. The pump should dispense an equal amount of liquid per click from the DV.

If necessary, the valves can be disassembled as shown in Figure 9. Pay attention to the orientation of the valves and the Manifold (X) directional arrows. Any debris can then be removed and/or the valves replaced using the valve kit AOFL/4446.

**PUMP HEAD DIAPHRAGM (ATS/456-V – Fig. 9):** Ensuring that you follow the manufacturer's instructions for the chemical being used carefully (especially those that require dilution), the pump head diaphragms remain maintenance free. In the rare event of failure, they can be replaced as shown in Figure 9; there is no need to remove the manifold/non-return valves. Note the position of the Pump Heads (Y) relative to the Pump Housing (Z) then carefully unscrew them anti-clockwise. To remove the diaphragm(s) hold the rubber tightly by hand and unscrew anti-clockwise. To refit, reverse the process. If one diaphragm fails, then we recommend changing both diaphragms at the same time as part of the general service.

## Ambic Equipment Ltd - OptiFlow™ Operating Instructions

### 5. TECHNICAL DATA

Power Source:	Vacuum: 40-50kPa (12-15 in Hg)
Air Consumption:	50 l/min (1.8cfm Atmospheric Air @ 50kPa)
Output Pressure:	Max: 3.4bar (50psi) @ 46kPa (13.5 in Hg)
Pressure Line Length:	Max: 25m (80ft)
Operating Temperature:	Min: 5°C (41°F); Max: 40°C (104°F)
Seals and Diaphragms:	Viton®




















6. TROUBLE SHOOTING

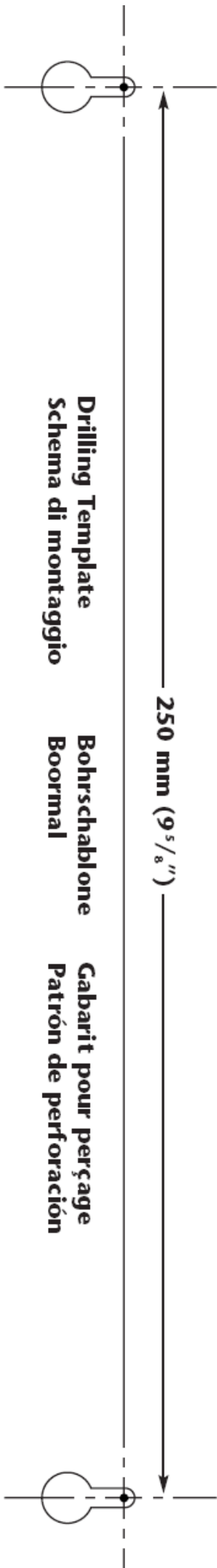
FAULT	CAUSE	REMEDY
<p><b>1. Chemical does NOT fill dip cup when trigger pressed (or fills very slowly)</b></p>	<p>a) Vacuum pump not switched on.                      b) Vacuum line not airtight.</p> <p>c) Constricted Vacuum Supply Pipe (<b>G</b>).                      d) Chemical Container (<b>D</b>) is empty.                      e) Intake Filter (<b>K</b>) is blocked.                      f) Pressure Line (<b>N</b>) is blocked.</p> <p>g) Inlet to cup assembly (<b>V</b>) is restricted or block.</p> <p>h) Pump AOFL/2004-V is faulty.                      i) Directional Valve ATS/425 is faulty.                      j) Air in Pressure Line (<b>N</b>).</p>	<p>a) Switch on vacuum pump.</p> <p>b) Check that vacuum is reaching the power unit by pulling supply pipe out and testing with finger.                      Check vacuum pipe adaptor is correctly installed.</p> <p>c) Check for kinks and overtightened cable ties.</p> <p>d) Fill container.</p> <p>e) Clean filter.</p> <p>f) Clear blockage, check for constriction or kinks in the tubing, or for tight cable ties.</p> <p>g) Check inlet underneath the top rim and clean using warm water if chemical residues are apparent (see <b>Fig. 5</b>)</p> <p>h) Check pump and repair or replace.</p> <p>i) Check valve and repair or replace.</p> <p>j) Vent as described under “2. Initial start-up”.</p>
<p><b>2. Applicator cup continues to fill after trigger released.</b></p>	<p>Debris in applicator valve, or part is damaged.</p>	<p>Ensure that an Intake Filter (<b>K</b>) is fitted, and that the chemical &amp; container are free of debris.</p>
<p><b>3. Chemical running out of Power Unit.</b></p>	<p>a) Loose Connector Nut.                      b) Pump Head Manifold.                      c) Faulty pump.</p>	<p>a) Locate leak and tighten the nut.                      b) Check the screws are tight.                      c) Check the pump and repair or replace.</p>
<p><b>4. Chemical leaks into Vacuum Line.</b></p>	<p>Pump faulty.</p>	<p>Immediately turn off the vacuum at the tap. Repair or replace the faulty parts.</p>

7. SPARE PARTS

		
<p><b>AOFL/6001-V</b></p>	<p><b>AOFL/2004-V</b></p>	<p><b>AOFL/4446</b></p>
		
<p><b>ATS/456-V</b></p>	<p><b>ATS/425</b></p>	<p><b>ATS/447</b></p>
		
<p><b>ATS/448</b></p>	<p><b>ATS/443</b></p>	<p><b>ATS/442</b></p>
		
<p><b>ATS/444 (x3)</b></p>	<p><b>AJS/2026</b></p>	<p><b>ATS/412-NR</b></p>
		
<p><b>ATS/413</b></p>	<p><b>ALB/410 (6m)</b></p>	<p><b>ALB/428 (30m)</b></p>
		
<p><b>ALB/407</b></p>	<p><b>ALB/408 (x2)</b></p>	<p><b>ALB/409 (x6)</b></p>

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<p>ALB/423 (x2)</p>	<p>ALB/434 (x2)</p>	<p>ALB/429 (x2)</p>
		
<p>ALB/437 (x4)</p>	<p>ATS/411 (x10)</p>	<p>AOFL/14-BL</p>
		
<p>AOFL/014E-BL</p>	<p>AOD/4004-BL</p>	<p>AOD/4004E-BL</p>
		
<p>AOFL/014-TL</p>	<p>AOFL/014E-TL</p>	<p>AOD/4004-TL</p>
		
<p>AOD/4004E-TL</p>	<p>AOD/4006</p>	<p>AOD/4006E</p>
		
<p>AOD/506-0.6 (x3)</p>	<p>AOD/506-0.8 (x3)</p>	



Drilling Template  
Schema di montaggio

Bohrschablone  
Boornal

Gabarit pour perçage  
Patrón de perforación

250 mm (9 5/8")



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