



## INSTRUCTION MANUAL

# AIRMIX ® PUMP and LOW-PRESSURE PUMP air motor with reversing block

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## ORIGINAL MANUAL

***IMPORTANT : before assembly and start-up, please read and clearly understand all documents relating to this equipment (professional use only).***

*PICTURES AND DRAWINGS ARE NON CONTRACTUAL. WE RESERVE THE RIGHT TO MAKE CHANGES WITHOUT PRIOR NOTICE.*

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**INSTRUCTION MANUAL**

**AIRMIX<sup>®</sup> PUMP and LOW-PRESSURE PUMP**  
**air motor with reversing block**

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The specifications of the pump - features and maintenance- are available in adocumentation enclosed to the manual.

Dear Customer,

We thank you very much for purchasing our KREMLIN pump. You are the owner of one of the most reliable pumping system available on the market.

To make sure your investment will provide full satisfaction, special care has been taken by KREMLIN during all designing and manufacturing processes.

To obtain the best result, safe and efficient operation of your equipment, we advice you to read and make yourself familiar with this instruction and service manual. Indeed, the non-compliance with instructions and precautions stated in this manual could reduce the equipment working life, result in operating trouble and create unsafe conditions.

## 1. WARRANTY

We reserve the right to make changes; these changes may be carried out after the receipt of our order. No claim will be accepted as a consequence of any change carried out in the instruction manuals or in the selection guides.

Our equipment is checked and tested prior to shipment. In the case of a problem arising with the equipment, this must be in writing, within ten days from the delivery date.

KREMLIN REXSON warrants all equipment manufactured bearing its name, to be free from defect in material or workmanship for a period of 12 months (one shift per day or 1800 hours - 1 term reached) from the date of delivery. Work life is based on single shift working - 8 hours per day. Warranty claims for defective items will only be accepted in writing and will be verified and confirmed by us.

The warranty does not cover fair wear tear, damage or wear caused by misuse, improper maintenance or non-observance of our recommendations.

KREMLIN REXSON will repair or replace parts (carriage paid to our plant and accepted as defective by us). We shall not be liable for any losses, resulting from a production breakdown. Upon request, we can carry out service work at your premises; all expenses (travelling and accommodation) for KREMLIN REXSON technicians will be chargeable.

In the event that it is found that equipment has been tampered with, this will invalidate the warranty. Equipment that is bought in will be subject to the supplier's warranty.

## 2. SAFETY INSTRUCTIONS

### GENERAL SAFETY INSTRUCTIONS



**CAUTION** : The equipment can be dangerous if you do not follow our instructions concerning installation and servicing described in this manual and in accordance with applicable European standards and local national safety regulations.

Please carefully read all the instruction literature before operating your equipment.

**Only trained operators can use the equipment** (To acquire an essential training, please contact the "KREMLIN REXSON University" training center - Stains).

The foreman must ensure that the operator has understood the safety instructions for this equipment as well as the instructions in the manuals for the different parts and accessories.

Read carefully all instruction manuals, label markings before operating the equipment.



















Incorrect use may result in injury. This equipment is for professional use only. It must be used only for what it has been designed for. Never modify the equipment. The parts and accessories supplied must be regularly inspected. Defective or worn parts must be replaced.

**Guards (motor cover, coupling shields, connectors,...) have been designed for a safe use of the equipment.**  
**The manufacturer will not be held responsible for bodily injury or failure and / or property damage due to destruction, the overshadowing or the partial or total removal of the guards.**

**Never exceed the equipment components' maximum working pressure.**

Comply with regulations concerning safety, fire risks, electrical regulations in force in the country of final destination of the material. Use only products or solvent compatible with the parts in contact with the material (refer to data sheet of the material manufacturer).

### PICTOGRAMS

					
NIP HAZARD	WARNING MOVING ELEVATOR	WARNING MOVING PARTS	WARNING MOVING SHOVEL	DO NOT EXCEED THIS PRESSURE	HIGH PRESSURE HAZARD
					
RELIEF OR DRAIN VALVE	WARNING HOSE UNDER PRESSURE	WEAR GLASSES OBLIGATORY	WEAR OF GLOVES IS OBLIGATORY	PRODUCT VAPOR HAZARDS	WARNING HOT PARTS OR AREAS
					
ELECTRICAL HAZARD	WARNING FIRE HAZARDS	EXPLOSION HAZARDS	GROUNDING	WARNING (USER)	WARNING SERIOUS INJURIES

## FIRE - EXPLOSION - SPARKS - STATIC ELECTRICITY HAZARDS

A poor earth connection, inadequate ventilation, sparks or static electricity can cause an explosion or fire. to avoid these risks when using or servicing KREMLIN REXSON equipment, the following safety procedures must be followed :



- ensure a good earth connection and ground the parts to be handled i.e. solvents, materials, components and equipment,
- ensure adequate ventilation,
- keep working area clean and free from waste solvents, chemicals, or solid waste i.e. rags, paper and empty chemicals drums,
- never use electrical switches / power if in an atmosphere of volatile solvent vapour,
- stop working immediately in case of electrical arcs,
- never store chemicals and solvents in the working area.
- use paint whose flash point is the highest possible to prevent from any formation of gas and inflammable vapours (refer to materials' safety instructions),
- install a cover on the drums to reduce the diffusion of gas and vapours in the spraybooth.

## TOXIC PRODUCT HAZARDS

Toxic products or vapours can cause severe injury not only through contact with the body, but also if the products are ingested or inhaled. It is imperative :



- to know the material products and their risks,
- notified or hazardous materials must be stored in accordance with the regulations,
- the material must be stored in an appropriate container, never place materials in a container where there is a risk of spillage or leakage,
- a procedure must be applied for the safe disposal of waste material. It must comply with all prevailing regulations and legislations of the country where the equipment is to be used,
- protective clothing should always be worn in compliance with the material manufacturers' recommendations,
- depending on the application and chemical safety instructions, safety glasses, hearing protective earplug, gloves, foot wear, protective masks and possible breathing equipment should be worn to comply with the regulations (Refer to chapter "Safety equipment of KREMLIN selection guide).



### **CAUTION!**



It is forbidden to use material containing high concentrations of halogenated hydrocarbon solvents with **aluminium or zinc fillers** .Non-compliance with the instructions may cause explosion risk causing serious or fatal injury.

## EQUIPMENT REQUIREMENTS

**Guards (motor cover, coupling shields, connectors,...) have been designed for a safe use of the equipment.  
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### **PUMP**



Before carrying out any work, it is imperative to read and clearly understand the disassembly and reassembly instructions before servicing. The operator must understand the equipment and the safety instructions. These instructions are available in the equipment manuals.



The air motor is designed to be mounted with a pump. Never modify any components or couplings. When operating, please keep hands away from moving parts. Before starting up the equipment, please read the PRESSURE RELIEF instructions. Please ensure that any relief or drain valves fitted are in good working order.

### **HOSES**

- Keep hoses out of circulation areas, moving parts or hot surfaces,
- Never expose product hoses to temperature higher than + 60°C / 140° F or lower than 0°C / 32° F,
- Never pull or use the hoses to move the equipment,
- Tighten all fittings as well as the hoses before operating the equipment,
- Check the hoses regularly; change them if they are damaged,
- Never exceed the working pressure (WP) indicated on the hose.

## USED PRODUCTS

Considering the wide variety of products that are available and can be used in our equipment it is impossible to check and make recommendations for all chemical data, regarding the risks of possible chemical attack and their long term chemical reaction

KREMLIN REXSON can not be held liable for :

- Compatibility of wetted parts,
- Risks to staff and the surroundings,
- for worn or defective parts, for faulty equipment or units, or the quality of final product.

It is the responsibility of the user to know and prevent any possible risks such as toxic vapours, fires or explosions. He shall determine the risks of immediate reactions or pursuant to repeated exposures of the staff,

KREMLIN REXSON shall not be liable for physical injuries, direct or indirect material damages caused by the use of chemicals.

### 3. OPERATING PRINCIPLE

The pump (A) consists of :

- an alternating air motor (B),
- an hydraulic section (C) mechanically coupled to the air motor (B).

The air motor is supplied with compressed air by means of the regulator (D) (Red knob). The pressure is read on the gauge (E).

During its alternating movement, the air motor drives the piston of the hydraulic section (C). The fluid is drawn in (L) and forced under pressure in (N). Due to its design, the pressure is always the one read on the gauge x pump ratio.

The spray air pressure of the gun is adjusted by means of the regulator (grey knob) (F).

⇒ To adjust the fluid flow rate, turn the red knob (D) - (Gauge E).

⇒ To adjust the spray air, turn the grey knob (F) - (Gauge G).

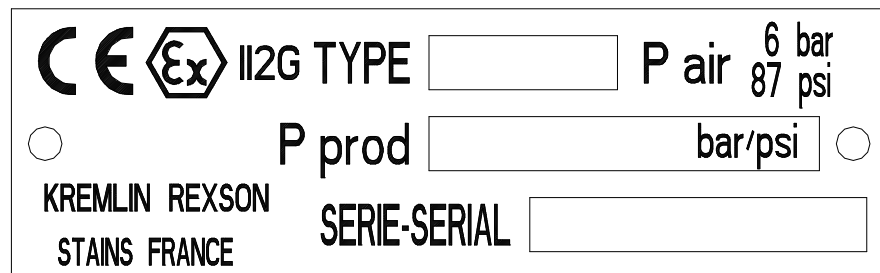
The pumps are standard ones (with piston) or Flowmax ® ones (with bellows).


### 4. INSTALLATION

The pumps are designed to be installed in a spray booth.

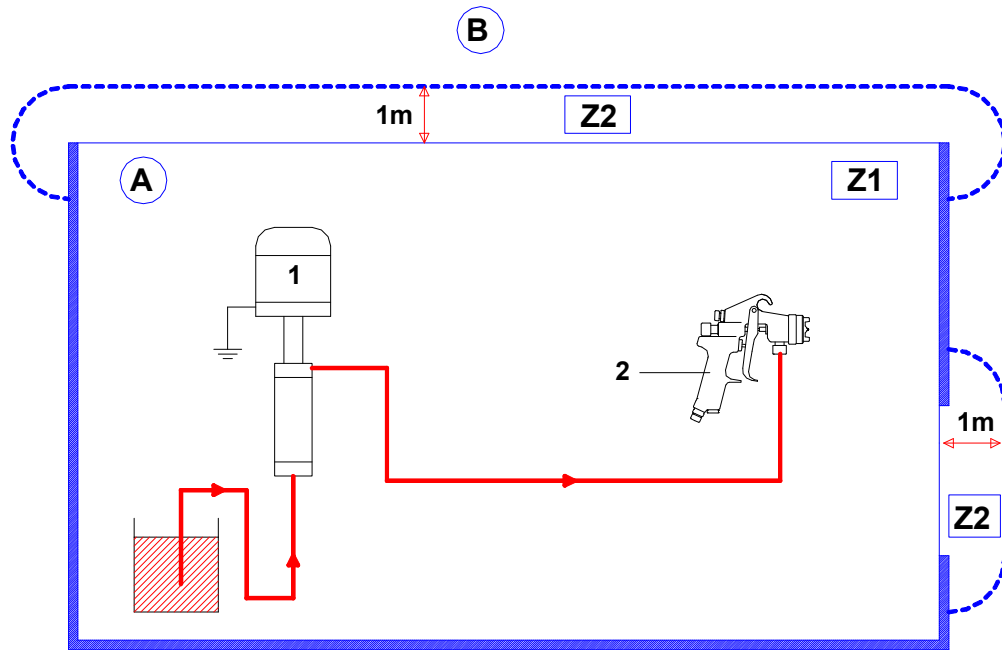
#### ■ DESCRIPTION OF THE LABEL MARKING

Marking in accordance with the ATEX Directive



<b>KREMLIN REXSON STAINS FRANCE</b>	Name and address of the manufacturer
<b>TYPE xx</b>	Pump model
 <b>II 2 G</b>	<b>II</b> : group II <b>2</b> : class 2 Surface equipment meant to area where explosive atmospheres due to gas, vapours, mists are liable to appear from time to time in usual operating. <b>G</b> : gas
<b>P prod : xx bar / xx psi</b>	Maximum fluid pressure at the pump outlet.
<b>P air : 6 bar / 87 psi</b>	Air supply maximum pressure of the pump motor.
<b>Serie / Serial</b>	Number given by KREMLIN REXSON

■ INSTALLATION INSTRUCTIONS



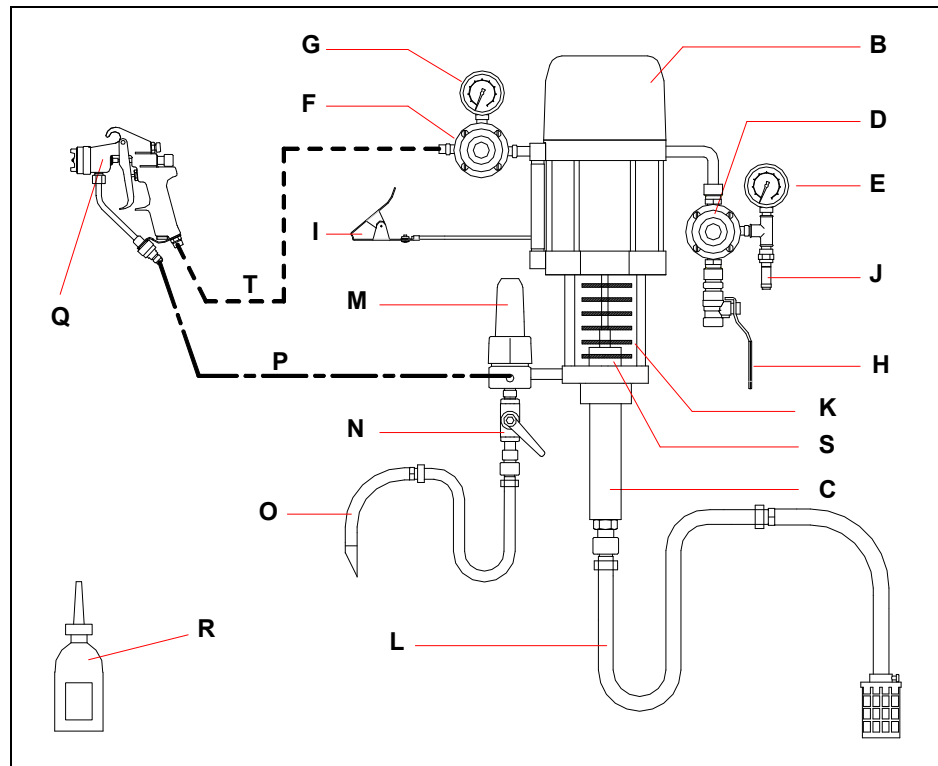
Ind.	Description
A	Explosive area area 1 (Z1) or area 2 (Z2) : spray booth
B	Non explosive area

Ind.	Description
1	Pump
2	Spray gun

5. START UP

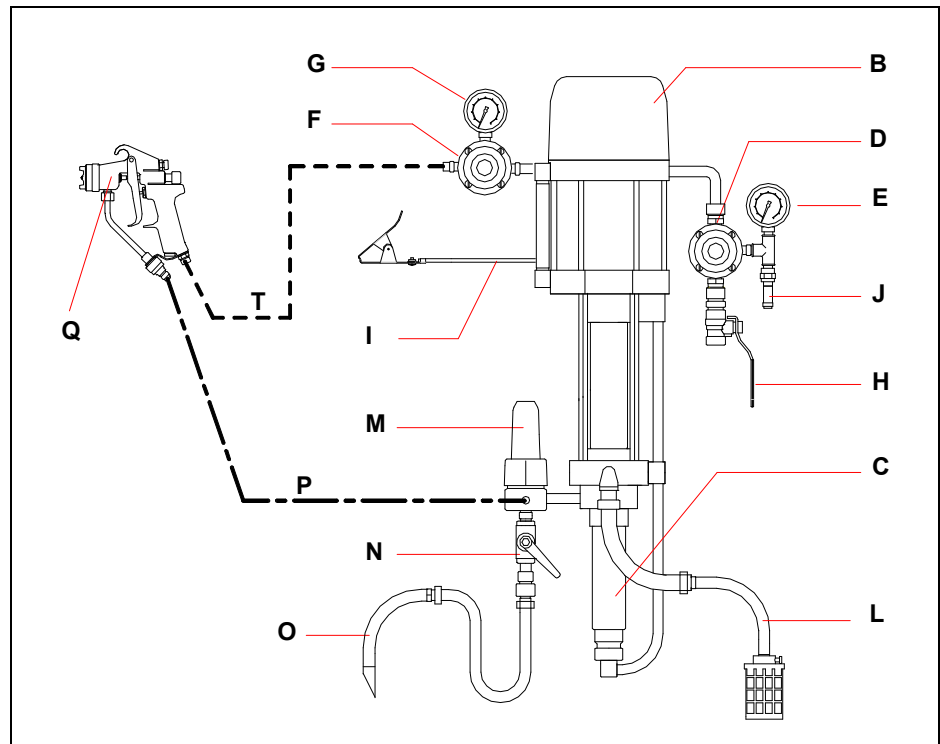
6-1 FILLING

STANDARD PUMP





## FLOWMAX ® PUMP



### Captions :

A	Standard or FLOWMAX ® pump (B + C)	L	Suction rod (depending on version)
B	Air motor	M	Accumulator filter (depending on version)
C	Fluid section	N	Drain valve (depending on version)
D	Air regulator "MOTOR AIR"	O	Drain rod (depending on version)
E	Gauge	P	HP Fluid hose
F	Air regulator "GUN AIR" (depending on version)	Q	Spray gun
G	Gauge (depending on version)	R	"T" lubricant (1/4 l / 0.07 US gal) (only for standard pump)
H	Air inlet valve	S	Wetting-cup (only for standard pump)
I	Ground	T	Air hose (static conductor)
J	Discharge valve		
K	Protection spring (only fo standard pump)		

(For specific installation, please contact your KREMLIN REXSON representative).

**Nota :** If the pump is equipped with an accumulator filter (M), the filter is supplied with a stainless steel screen n° 6 (filtration size : 168 microns or 85 mesh). The screen is recommended for the use of an AIRMIX gun fitted with a nozzle model n° 6. If the fluid spraying is carried out by means of an other nozzle, choose an other screen (refer to the filter instruction manual). Adjust the screen to the application.

### Start up procedure :

- 1 - Ground the pump.
- 2 - **If the pump is a standard one, fill up the wetting-cup (S) with "T" lubricant (R) or with an appropriate solvent.**
- 3 - Unscrew the air regulators (D and F).
- 4 - Interconnect the air equipment with the air pressure network (clean air - Pressure < 6 bar / 87 psi). Install a water drop, model 3/4" (or model 3/8" if the pump is equipped with an air motor, model 500/4), if it is necessary.
- 5 - Connect all the hoses, air hose and fluid hose (P), as well as the spray gun (Q).  
**Nota :** Comply with the diameters of hoses recommended in the specifications of the pump.
- 6 - Remove the nozzle from the spray gun.

## ■ FLUSHING WITH SOLVENT

- 7 - Immerse suction rod (L) and the drain rod (O) into the material container.
- 8 - Open the air shut off valve (N).
- 9 - Open the valve (H) of the pump air equipment to supply the air motor.

**Nota** : If the pump air motor is a 5000 version, it needs pilot air to operate. The pump air equipment supplies pilot air to the air motor. The air supply pressure is adjusted previously in the factory to 4 bars / 58 psi maximum.

- 10 - Increase **progressively** the air regulator (D) so that the pump runs slowly (Pressure between 0,5 to 1 bar / 7.25 to 14.503 psi).
- 11 - Observe the drain (O); air bubbles come out from it. When bubbles no longer come out from it, shut off the drain valve (N).

## ■ PRIMING WITH MATERIAL

- 12 - Remove the suction rod (L) and the drain rod (O) from the material container and immerse them in a solvent filled container.
- 13 - Open the drain valve (N), wait until the material flows out regularly, then shut off the drain valve (N).
- 14 - Point the spray gun towards the material container and trigger the spray gun until the material flows out regularly.

## ■ WORK

- 15 - Reinstall the ring and the aircap on the spray gun.
- 16 - Adjust air regulator (D) to obtain the appropriate material pressure and flow rate.
- 17 - **Gradually** open the air regulator (F) to adjust the spraying air to obtain the required spray pattern.

**Nota** : Some of these pumps are not equipped in the standard version with the air regulator (F).

A spraying air kit can be mounted on the pump air equipment in order to supply compressed air to the spray gun if it is necessary.

## 6-2 PUMP SUPPLIED IN FILLING (CIRCULATING)

Interconnect the pump fluid inlet with the circulating supply hose and start up the pump as it is specified previously.

**If the pump is a FLOWMAX ® one :**

**WARNING:**

- Fluid section filling pressure : **2 bar / 29 psi maximum**
- **WARNING : Do not create overpressure**
- **NEVER use** the pump when an **isolating gate on the supply circuit** (upstream from the FLOWMAX ® fluid section) is shut : **it would damage the bellows.**
- **Do not install** a material regulator on the supply circuit or any arrangement that could perform as a non-return valve.

## 6. SHUTDOWN AT THE END OF THE WORK

**Guards (motor cover, coupling shields, connectors,...) have been designed for a safe use of the equipment.**  
**The manufacturer will not be held responsible for bodily injury or failure and / or property damage due to destruction, the overshadowing or the partial or total removal of the guards.**

### ■ SHORT DURATION SHUTDOWN

- 1 - Decrease the material pressure of air regulator (D) until reading **0 bar / 0 psi** on the gauge (E).
- 2 - Trigger the spray gun to depressurize the system.
- 3 - Unscrew the spray gun air regulator (F) or disconnect the spray gun air inlet.
- 4 - Remove the aircap from the spray gun, (aircap and nozzle for Airmix ® spray gun) and soak it into solvent.

### ■ LONG DURATION SHUTDOWN

- 1 - Decrease the air regulator (D) until reading **1 bar / 14.503 psi** on gauge (E).
- 2 - Unscrew the spray gun air regulator (F) or disconnect the spray gun air inlet.
- 3 - Remove the spray gun aircap, (aircap and nozzle for AIRMIX ® spray gun) and soak it into solvent.
- 4 - Open the drain valve. The pump must operate slowly. If the speed is too high, decrease the air regulator (D) pressure.
- 5 - Remove the suction rod and the drain rod from the material container and immerse them in a solvent-filled container. Take all the appropriate precautions in the presence of flammable solvents.
- 6 - When the solvent flows out regularly, close the drain valve.
- 7 - Point the spray gun towards the material container and press the gun trigger. When the solvent flows out, point the spray gun towards the recovery container.
- 8 - When the solvent flows out, release the spray gun trigger.  
**Nota :** If the pump is a standard one, release the spray gun trigger when the pump is in a low position. To prevent from damaging the seals when starting the pump, the piston must be immersed into solvent.
- 9 - Fully unscrew the air regulator (D) and shut off the main compressed air valve (valve H).
- 10 - Press the spray gun trigger to decompress the hoses. Therefore, the pump and the hose remain filled with solvent at the atmospheric pressure.

## 7. MAINTENANCE

### ■ PUMP

Make sure that the pump is clean and in good condition to increase equipment working life.

If the pump is a standard one :

- Regularly clean the wetting-cup with "T" lubricant (this "T" lubricant will normally be coloured by the paint).
- Regularly clean the wetting-cup with solvent after having drained the lubricant (unscrew the plug on the upper flange).

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Make sure that the suction strainer is clean and in good condition. Regularly clean it and change it if necessary.

Flush the pump as often as necessary, specially when spraying pigment-filled material.

**Whatever the case, when stopping the pump, always leave it filled with material.  
For a short duration shutdown, if the flushing has not been carried out, leave the pump filled with material.  
For a short duration shutdown, after flushing the pump, leave it filled with solvent.**

■ **SPRAY GUN**

Comply with the usual instructions of spray gun servicing (refer to spray gun instruction manual).

■ **FILTER**

If the pump is mounted with a filter at the fluid outlet, comply with the usual instructions of filter servicing (refer to filter instruction manual).

## **8. SAFETY DEVICE**

**Guards (motor cover, coupling shields, connectors,...) have been designed for a safe use of the equipment.  
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A relief-valve (setting : 6,5 bar / 94 psi) is fitted on the pump air motor - thus protecting this one from an overpressure which could damage it.

## 9. TROUBLESHOOTING CHART

CAUSE	SOLUTION
The pump does not start.	Check the pump air supply.
Priming trouble :  → Air is always coming out from the spray gun.  → When priming, air (or material) does not come out from the spray gun.	Be sure that the spray gun is fully opened and air evacuated through this one.  Air intake at the fitting or at the suction rod.  Check the pump valves. If a valve is stucked by dry paint, it can be unsticked without disassembling it. Blow air pressure directly by suction fitting.
The pump does not stop at once when shutting off the spray gun :  → The pump stops only on down stroke. → The pump stops only on up stroke.	Check exhaust valve or valve seal.  Check suction valve or upper cartridge.
The pump does not reverse.	Check spring of the air motor reversing block. Lubricate reversing-block with HP 150 oil.  Check is there is pilot air (depending on air motor model).
On standard pump, the lubricant into the cup is fastly coloured.	Check the upper packing (tighten the cup or change seals if it is necessary).
On FLOWMAX ® pump, leakage of fluid at the bottom of the air motor.	Check bellow.
Spraying trouble.	Refer to spray gun instruction manual.
Decrease of material flow.	Refer to filter instruction manual.